HCS CONCRETE

SDS Manual

June 2023

HCS CONCRETE

SDS Manual

SECTION 1

OSHA®
www.osha.gov

Preventing Skin Problems from Working with Portland Cement

U.S. Department of Labor

Occupational Safety and Health Administration

OSHA 3351-07
2008

Employers are responsible for providing a safe and healthy workplace for their employees. OSHA's role is to promote the safety and health of America's working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual improvement in workplace safety and health.

This informational booklet provides a general overview of a particular topic related to OSHA standards. It does not alter or determine compliance responsibilities in OSHA standards or the *Occupational Safety and Health Act of 1970*. Because interpretations and enforcement policy may change over time, you should consult current OSHA administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts for additional guidance on OSHA compliance requirements.

This information is available to sensory impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.

Edwin G. Foulke, Jr.
Assistant Secretary of Labor for
Occupational Safety and Health

Contents

Introduction

Portland cement is a generic term used to describe a variety of building materials valued for their strong adhesive properties when mixed with water. Employees who work with portland cement are at risk of developing skin problems, ranging from mild and brief to severe and chronic.

Wet portland cement can damage the skin because it is caustic, abrasive, and absorbs moisture. Portland cement also contains trace amounts of hexavalent chromium [Cr(VI)], a toxin harmful to the skin. Dry portland cement is less hazardous to the skin because it is not as caustic as wet cement.

The purpose of this document is to make employers and employees aware of the skin problems associated with exposure to portland cement; to note the OSHA standards that apply to work with portland cement; and to provide guidance on how to prevent cement-related skin problems. Measures to protect employees from inhalation and eye hazards associated with exposure to portland cement are also noted.

Who is at Risk

Any employee who has skin contact with wet portland cement has the potential to develop cement-related skin problems. Portland cement is an ingredient in the following materials:

- concrete
- mortar
- plaster
- grout
- stucco
- terrazzo

There are many different tasks that involve the use of portland cement. Examples of employees who may be exposed to the dangers of wet portland cement products include bricklayers, carpenters, cement masons, concrete finishers, hod carriers,[1] laborers, plasterers, tile setters, terrazzo

OSHA
www.osha.gov

workers, ready-mixed concrete truck drivers, bucket and buggy operators, and those involved in pouring and finishing work.

Skin Problems Caused by Exposure to Portland Cement

Wet portland cement can cause caustic burns, sometimes referred to as cement burns. Cement burns may result in blisters, dead or hardened skin, or black or green skin. In severe cases, these burns may extend to the bone and cause disfiguring scars or disability.

Employees cannot rely on pain or discomfort to alert them to cement burns because cement burns may not cause immediate pain or discomfort. By the time an employee becomes aware of a cement burn, much damage has already been done. Cement burns can get worse even after skin contact with cement has ended. Any employee experiencing a cement burn is advised to see a health care professional immediately.

Skin contact with wet portland cement can also cause inflammation of the skin, referred to as dermatitis. Signs and symptoms of dermatitis can include itching, redness, swelling, blisters, scaling, and other changes in the normal condition of the skin.

Contact with wet portland cement can cause a non-allergic form of dermatitis (called irritant contact dermatitis) which is related to the caustic, abrasive, and drying properties of portland cement.

In addition, Cr(VI) can cause an allergic form of dermatitis (allergic contact dermatitis, or ACD) in sensitized employees who work with wet portland cement. When an employee is sensitized, that person's immune system overreacts to small amounts of Cr(VI), which can lead to severe inflammatory reactions upon subsequent exposures. Sensitization may result from a single Cr(VI) exposure, from repeated exposures over the course of months or years, or it may not occur at all. After an employee becomes sensitized, brief skin contact with very small amounts of Cr(VI) can trigger ACD.

ACD is long-lasting and employees can remain sensitized to Cr(VI) years after their exposure to portland cement has ended. Medical tests (e.g., skin patch tests) are available that can confirm whether an employee has become dermally sensitized to Cr(VI).

Employees who work with wet portland cement and experience skin problems, including seemingly minor ones, are advised to see a health care professional for evaluation and treatment. In cement-related dermatitis, early diagnosis and treatment can help prevent chronic skin problems.

SEE A HEALTH CARE PROFESSIONAL IF YOU WORK WITH WET PORTLAND CEMENT AND HAVE SKIN PROBLEMS!!

OSHA Standards Applicable to Working with Portland Cement

Several OSHA standards require employers to take steps to protect employees from hazards associated with exposure to portland cement. These standards include requirements for:

Personal Protective Equipment (29 CFR 1926 Subpart E for construction; 29 CFR 1910 Subpart for general industry; 29 CFR 1915 Subpart I for shipyards)

OSHA's personal protective equipment (PPE) standards require that PPE be provided, used, and maintained in a sanitary and reliable condition whenever it is necessary to protect employees from injury or impairment. The employer must provide PPE such as boots and gloves as necessary and appropriate for jobs involving exposure to portland cement and ensure these items are maintained in a sanitary and reliable condition

OSHA
www.osha.gov

when not in use. Employees must be able to clean or exchange PPE if it becomes ineffective or contaminated on the inside with portland cement while in use. In addition, employers are required to provide PPE at no cost to their employees with limited exceptions (1910.132(h)).

Sanitation (29 CFR 1926.51 for construction; 29 CFR 1910.141 for general industry; 29 CFR 1915.97 for shipyards)

Construction employers must make washing facilities available for employees exposed to portland cement. Washing facilities must provide clean water, non-alkaline soap, and clean towels. Such facilities must be readily accessible to exposed employees and adequate for the number of employees exposed. The sanitation requirements for general industry and shipyards are similar to those for construction.

Hazard Communication (29 CFR 1926.59 for construction; 29 CFR 1910.1200 for general industry; 29 CFR 1915.1200 for shipyards) and Safety Training (29 CFR 1926.21 for construction)

The Hazard Communication standard requires that manufacturers and importers provide information on material safety data sheets (MSDSs) and labels about the hazards of portland cement. Employers must make these MSDSs and labels available to employees. The Hazard Communication and Safety Training standards also require employers to provide training to communicate the hazards of exposure to portland cement to their employees. This training must address:

- the hazards associated with exposure to portland cement, including hazards associated with the cement's Cr(VI) content;
- preventive measures, including proper use and care of PPE and the importance of proper hygiene practices; and
- employee access to hygiene facilities, PPE, and information (including MSDSs).

Recordkeeping (29 CFR 1904)

Employers subject to OSHA recordkeeping requirements must inform employees of how to report work-related injuries and illnesses and record all new cases of work-related injury and illness (including cement burns and cases of dermatitis) that result in days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or are otherwise determined to be a significant injury or illness by a physician or other licensed health care professional.

Permissible Exposure Limit (PEL) (29 CFR 1926.55 for construction; 29 CFR 1910.1000 for general industry; 29 CFR 1915.1000 for shipyards)

OSHA has established a permissible exposure limit to address the inhalation hazards of working with dry portland cement. Employers must limit airborne exposure to portland cement to 15 milligrams per cubic meter (mg/m^3) of air for total dust and 5 mg/m^3 for respirable dust. Because the Cr(VI) content in portland cement is so low, it is anticipated that by meeting the permissible exposure limit (PEL) of 15 mg/m^3 for portland cement employers will also meet the Cr(VI) PEL and the action level of 5 and 2.5 micrograms per cubic meter ($\mu g/m^3$), respectively (see 1926.1126).

Preventing Cement-Related Skin Problems

The best way to prevent cement-related skin problems is to minimize skin contact with wet portland cement. Compliance with OSHA's requirements for provision of PPE, washing facilities, hazard communication and safety training, along with the good skin hygiene and work practices listed below will protect against hazardous contact with wet cement.

OSHA
www.osha.gov

Good Practices for Glove Selection and Use

- Provide the proper gloves for employees who may come into contact with wet portland cement. Consult the glove supplier or the cement manufacturer's MSDS for help in choosing the proper gloves. Butyl or nitrile gloves (rather than cotton or leather gloves) are frequently recommended for caustic materials such as portland cement.
- Use only well-fitting gloves. Loose-fitting gloves let cement in. Often the use of gloves and clothing makes exposure worse when cement gets inside or soaks through the garment. Use glove liners for added comfort.
- Wash hands before putting on gloves. Wash hands every time gloves are removed.
- Dry hands with a clean cloth or paper towel before putting on gloves.
- Protect arms and hands by wearing a long-sleeved shirt with the sleeves duct-taped to gloves to prevent wet cement from getting inside the gloves.
- Follow proper procedures for removing gloves, whether reusing or disposing them. See Table 1 at page 9 for proper procedures for removing gloves.
- Clean reusable gloves after use. Before removing gloves, clean the outside by rinsing or wiping off any wet cement. Follow the manufacturer's instructions for glove cleaning. Place clean and dry gloves in a plastic storage bag and store them in a cool, dry place away from tools.
- Throw out grossly contaminated or worn-out gloves.
- Keep the inside of gloves clean and dry.
- Do not use barrier creams or "invisible gloves." These products are not effective in protecting the skin from portland cement hazards.

Table 1. Steps for safe glove removal:

1. Wash off the outside of your gloves while you are still wearing them.
2. Loosen gloves on both hands, holding your arms down to prevent water from dripping onto the skin.
3. Holding your arms downward, pull the first glove down to remove only the glove fingers. The cuff should still be covering the palm of your hand.
4. Remove the second glove by grabbing it with the first glove.
5. Slip off the first glove.
6. Handle used gloves by the inside only.

Source: "Save Your Skin," CPWR, 2000b.

Good Practices for Use of Boots and Other Protective Clothing and Equipment

- Wear waterproof boots when necessary to prevent wet cement from coming into contact with skin. It is as important to protect legs, ankles, and feet from skin contact with wet cement as it is to protect hands.
- Boots need to be high enough to prevent wet cement from getting inside. Tuck pants inside and wrap duct tape around the top of the boots to prevent wet cement from entering.
- Select boots that are sturdy, strong enough to resist punctures and tears, and slip-resistant.
- Change protective boots if they become ineffective or contaminated on the inside with wet cement while in use.
- Change out of any work clothes that become contaminated with wet cement and keep contaminated work clothes separate from street clothes.

OSHA
www.osha.gov

- When kneeling on wet cement use waterproof kneepads or dry kneeboards to prevent the knees from coming into contact with the cement.
- Wear proper eye protection when working with portland cement.

Good Practices for Skin Care

- Wash areas of the skin that come into contact with wet cement in clean, cool water. Use a pH-neutral or slightly acidic soap. Check with the soap supplier or manufacturer for information on the acidity and alkalinity of the soap.[2]
- Consider using a mildly acidic solution such as diluted vinegar or a buffering solution to neutralize caustic residues of cement on the skin.[3]
- Do not wash with abrasives or waterless hand cleaners, such as alcohol-based gels or citrus cleaners.
- Avoid wearing watches and rings at work since wet cement can collect under such items.
- Do not use lanolin, petroleum jelly, or other skin softening products. These substances can seal cement residue to the skin, increase the skin's ability to absorb contaminants, and irritate the skin. Skin softening products also should not be used to treat cement burns.

Making Portland Cement Products Less Hazardous

In recent decades there have been efforts to reduce the risk of developing cement-related skin problems by lowering the Cr(VI) content of portland cement. Cr(VI) is not intentionally added to portland cement and it does not serve any function purpose. There are a variety of ways to minimize the amount of Cr(VI) in portland cement, including:

- Using slag, which is free of Cr(VI), in place of or blended with clinker, the primary source of Cr(VI) in portland cement. Slag is a by-product of the iron ore extraction process and has been used in concrete projects in the United States for over a century.
- Adding ferrous sulfate to portland cement may lower the Cr(VI) content of the cement. Use of ferrous sulfate has reportedly led to a decline in cases of allergic contact dermatitis in several countries (Goh et al., 1996; Avnstorp, 1989; Roto et al., 1996).[4]

Lowering the Cr(VI) content of portland cement can lessen, but not entirely eliminate, the risk of acquiring allergic contact dermatitis. It will not eliminate the other skin hazards posed by wet portland cement. Employers and employees need to take all necessary precautions to prevent skin contact with wet portland cement whether or not the cement contains measurable amounts of Cr(VI). Wearing proper gloves and other protective equipment, and following good skin care and work practices, provide the best protection against the skin hazards posed by wet portland cement.

OSHA
www.osha.gov

Bibliography

In Agency for Toxic Substances and Disease Registry (ATSDR); "Toxicological profile for chromium"; *ATSDR Toxicological Profile,* 88/10, 2000; U.S. Public Health Service, Atlanta, GA.

Avnstorp, C.; "Prevalence of cement eczema in Denmark before and since addition of ferrous sulfate to Danish cement"; *Acta Demato-Venereologica,* 69(2), pp. 151-155, 1989; Stockholm.

Center to Protect Workers' Rights (CPWR) Consortium on Preventing Contact Dermatitis; *A Safety and Health Practitioner's Guide to Skin Protection,* 2000a; Researched, developed, and produced by FOF Communications; Available online at:
http://www.cdc.gov/elcosh/docs/d0400/d000458/d000458.html. Also includes an employee safety pamphlet online at:
http://www.cdc.gov/elcosh/docs/d0400/d000458/brochure.PDF, and
http://www.cdc.gov/elcosh/docs/d0400/d000458/brochure2.PDF

CPWR; *Save Your Skin*; 2000b; Produced by FOF Communications; Available online at:
http://www.cdc.gov/elcosh/docs/d0200/d000280/d000280.html

CPWR; *An Employer's Guide to Skin Protection,* 2000c; Researched, developed, and produced by FOF Communications; Available online at:
http://www.cdc.gov/elcosh/docs/d0400/d000457/d000457.html

CPWR; *Save Your Skin: A 15-Minute Tool Box Session,* 2000d; Produced by FOF Communications; Available online at:
http://www.cdc.gov/elcosh/docs/d0300/d000303/d000303.html

"Comments of Building and Construction Trades Department, AFL-CIO, in Response to OSHA's Request for Comments on Exposure to Hexavalent Chromium"; Docket H-054a, Exhibit 31-6-1, pp. 7-8, November 19, 2002. (Re: OSHA's, "Occupational Exposure to Hexavalent Chromiun (Cr(VI)), Request for Information"; *Federal Register,* 67 FR 54389-54394, August 22, 2002, (Exhibit 30).

CPWR; "Nonfatal Skin Diseases and Disorders in Construction"; *The Construction Chart Book, 3rd Edition,* Chapter 46, September 2002; CPWR is located in Silver Spring, MD.

Scientific Committee on Toxicity, Ecotoxicity and the Environment (CSTEE); *Opinion on Risks to Health from Chromium VI in Cement,* June 27, 2002; European Commission, Brussels.

De Raeve, H., Vandecasteele, C., Demedts, M., Nemery, B.; "Dermal and respiratory sensitization to chromate in a cement floorer"; *American Journal of Industrial Medicine,* 34(2), pp. 169-76, 1998.

Goh, C.L., Gan, S.L.; "Change in cement manufacturing process, a cause for decline in chromate allergy?"; *Contact Dermatitis,* 34(1), pp. 51-54, 1996; Munksgaard, Denmark.

Halbert, A.R., Gebauer, K.A., and Wall, L.M.; "Prognosis of occupational chromate dermatitis" *Contact Dermatitis,* 27, pp. 214-219, 1992.

Helmuth, R.A., Miller, F.M., Greening, N.R., Hognestad, E., Kosmatka, S.H., Lang, D.; "Cement"; *Kirk-Othmer Encyclopedia of Chemica*

Technology., Volume 5, 4th edition, 1993; John Wiley & Sons, New York.

Irvine, C., Pugh, C.E., Hansen, E.J., and Rycroft, R.J.; "Cement dermatitis in underground workers during construction of the Channel Tunnel"; *Occupational Medicine,* 44(1), pp. 17-23, February 1994; London.

National Slag Association (NSA); *National Slag Association News, Publications, and Slag Industry Publications Archives;* West Lawn, PA; Available online at: http://www.nationalslag.org/

Occupational Safety and Health Administration; "Occupational Exposure to Hexavalent Chromium, Final Rule"; *Federal Register,* 71 FR 10100, February 28, 2006.

R...sson, V., Gunnarsdottir, H., Kiilunen, M.; "Risk of lung cancer among masons in Iceland"; *Occupational and Environmental Medicine,* 54(3), pp. 184-188, 1997.

Roto, P., Sainio, H., Reunala, T., Laippala, P.; "Addition of ferrous sulfate to cement and risk of chromium dermatitis among construction workers"; *Contact Dermatitis,* 34(1), pp. 43-50, 1996.

Sahai, D.; "Cement Hazards and Controls: Health Risks and Precautions in Using Portland Cement"; *Construction Safety Magazine,* 12(2), Summer 2001; Available at: http://www.cdc.gov/elcosh/docs/d0500/d000513/d000513.html

Shaw Environmental, Inc.; *Industry Profile, Exposure Profile, Technological Feasibility Evaluation, and Environmental Impact for Industries Affected by a Revised OSHA Standard for Hexavalent Chromium;* February 21, 2006; Shaw Environmental, Inc., 5050 Section Avenue, Cincinnati, Ohio, 45212.

Shepherd, L.; "Health in construction"; *The Safety & Health Practitioner,* 17(6), pp. 46-49, June 1999.

Slag Cement Association (SCA); "What is Slag Cement?" *Slag Cement;* Slag Cement Association Sugar Land, Texas; Available online at: http://www.slagcement.org

Spoo, J. and P. Elsner; "Cement burns: a review 1960-2000"; *Contact Dermatitis,* 45(2), pp. 68-71, August 2001.

Stern, A.H., Bagdon, R.E., Hazen, R.E., Marzulli, F.N., 1993; "Risk assessment of the allergic dermatitis potential of environmental exposure to hexavalent chromium"; *Journal of Toxicology and Environmental Health,* 40(4), pp. 613-641, 1993.

Vickers, H.R., and Edwards, D.H.; "Cement burns" *Contact Dermatitis,* 2, pp. 73-78, 1976.

Zachariae, C.O.C., Agner, T., and Menne, T.; "Chromium allergy in consecutive patients in a country where ferrous sulfate has been added to cement since 1981"; *Contact Dermatitis,* 35, pp. 83-85, 1996; Munksgaard, Denmark.

OSHA
www.osha.gov

OSHA®
www.osha.gov

Technical Notes

[1] Hod carriers transport mortar, bricks, and concrete in a vee shaped trough (called a hod) to other employees.

[2] "An Employer's Guide to Skin Protection" (see CPWR, 2000c in the bibliography) contains a partial list of pH-neutral or moderately acidic liquid and bar soaps.

[3] "An Employer's Guide to Skin Protection" (see CPWR, 2000c in the bibliography) contains some information on neutralizing and buffering products.

[4] After Denmark required the addition of ferrous sulfate to reduce the Cr(VI) content of cement to less than 2 parts per million, studies showed a reduction in the prevalence of Cr(VI) allergy (Irvine et al., 1994). However, some U.S. cement manufacturers who have experimented with the use of ferrous sulfate have not been able to achieve significant Cr(VI) reduction. The reasons for this inability may be due to variations in the Cr(VI) content of cement and the amount of time that passes between cement manufacture and use. Time delays are an important consideration because ferrous sulfate may lose its effectiveness over time, depending on how cement is packaged and on humidity and temperature conditions during storage.

OSHA Assistance

OSHA can provide extensive help through a variety of programs, including technical assistance about effective safety and health programs, state plans, workplace consultations, voluntary protection programs, strategic partnerships, training and education, and more. An overall commitment to workplace safety and health can add value to your business, to your workplace, and to your life.

Safety and Health Program Management Guidelines

Effective management of employee safety and health protection is a decisive factor in reducing the extent and severity of work-related injuries and illnesses and their related costs. In fact, an effective safety and health program forms the basis of good employee protection, can save time and money, increase productivity and reduce employee injuries, illnesses, and related workers' compensation costs.

To assist employers and employees in developing effective safety and health programs, OSHA published recommended Safety and Health Program Management Guidelines (54 *Federal Register* (16): 3904-3916, January 26, 1989). These voluntary guidelines can be applied to all places of employment covered by OSHA.

The guidelines identify four general elements critical to the development of a successful safety and health management system:

- Management leadership and employee involvement,
- Worksite analysis,
- Hazard prevention and control, and
- Safety and health training.

The guidelines recommend specific actions, under each of these general elements, to achieve an effective safety and health program. The *Federal Register* notice is available online at www.osha.gov.

OSHA®
www.osha.gov

State Programs

The Occupational Safety and Health Act of 1970 (OSH Act) encourages states to develop and operate their own job safety and health plans. OSHA approves and monitors these plans. Twenty-four states, Puerto Rico, and the Virgin Islands currently operate approved state plans: 22 cover both private and public (state and local government) employment; Connecticut, New Jersey, New York, and the Virgin Islands cover the public sector only. States and territories with their own OSHA-approved occupational safety and health plans must adopt standards identical to, or at least as effective as, the Federal OSHA standards.

Consultation Services

Consultation assistance is available on request to employers who want help in establishing and maintaining a safe and healthful workplace. Largely funded by OSHA, the service is provided at no cost to the employer. Primarily developed for smaller employers with more hazardous operations, the consultation service is delivered by state governments employing professional safety and health consultants. Comprehensive assistance includes an appraisal of all mechanical systems, work practices, and occupational safety and health hazards of the workplace and all aspects of the employer's present job safety and health program. In addition, the service offers assistance to employers in developing and implementing an effective safety and health program. No penalties are proposed or citations issued for hazards identified by the consultant. OSHA provides consultation assistance to the employer with the assurance that his or her name and firm and any information about the workplace will not be routinely reported to OSHA enforcement staff.

Under the consultation program, certain exemplary employers may request participation in OSHA's Safety and Health Achievement Recognition Program (SHARP). Eligibility for participation in SHARP includes receiving a comprehensive consultation visit, demonstrating exemplary achievements in workplace safety and health by abating all identified hazards, and developing an excellent safety and health program.

Employers accepted into SHARP may receive an exemption from programmed inspections (not complaint or accident investigation inspections) for a period of 1 year. For more information concerning consultation assistance, see OSHA's website at www.osha.gov.

Voluntary Protection Programs (VPP)

Voluntary Protection Programs and on-site consultation services, when coupled with an effective enforcement program, expand employee protection to help meet the goals of the OSH Act. The VPPs motivate others to achieve excellent safety and health results in the same outstanding way as they establish a cooperative relationship between employers, employees, and OSHA.

For additional information on VPP and how to apply, contact the OSHA regional offices listed at the end of this publication.

Strategic Partnership Program

OSHA's Strategic Partnership Program, the newest member of OSHA's cooperative programs, helps encourage, assist, and recognize the efforts of partners to eliminate serious workplace hazards and achieve a high level of employee safety and health. Whereas OSHA's Consultation Program and VPP entail one-on-one relationships between OSHA and individual worksites, most strategic partnerships seek to have a broader impact by building cooperative relationships with groups of employers and employees. These partnerships are voluntary, cooperative relationships between OSHA, employers, employee representatives, and others (e.g., trade unions, trade and professional associations, universities, and other government agencies).

OSHA®
www.osha.gov

For more information on this and other cooperative programs, contact your nearest OSHA office, or visit OSHA's website at www.osha.gov.

Alliance Program

Through the Alliance Program, OSHA works with groups committed to safety and health, including businesses, trade or professional organizations, unions and educational institutions, to leverage resources and expertise to develop compliance assistance tools and resources and share information with employers and employees to help prevent injuries, illnesses and fatalities in the workplace.

Alliance program agreements have been established with a wide variety of industries including meat, apparel, poultry, steel, plastics, maritime, printing, chemical, construction, paper and telecommunications. These agreements are addressing many safety and health hazards and at-risk audiences, including silica, fall protection, amputations, immigrant workers, youth and small businesses. By meeting the goals of the Alliance Program agreements (training and education, outreach and communication, and promoting the national dialogue on workplace safety and health), OSHA and the Alliance Program participants are developing and disseminating compliance assistance information and resources for employers and employees such as electronic assistance tools, fact sheets, toolbox talks, and training programs.

OSHA Training and Education

OSHA area offices offer a variety of information services, such as compliance assistance, technical advice, publications, audiovisual aids, and speakers for special engagements. OSHA's Training Institute in Arlington Heights, IL, provides basic and advanced courses in safety and health for Federal and state compliance officers, state consultants, Federal agency personnel, and private sector employers, employees, and their representatives.

The OSHA Training Institute also has established OSHA Training Institute Education Centers to address the increased demand for its courses from the private sector and from other federal agencies. These centers include colleges, universities, and nonprofit training organizations that have been selected after a competition for participation in the program.

OSHA also provides funds to nonprofit organizations, through grants, to conduct workplace training and education in subjects where OSHA believes there is a lack of workplace training. Grants are awarded annually. Grant recipients are expected to contribute 20 percent of the total grant cost.

For more information on training and education, contact the OSHA Training Institute, Directorate of Training and Education, 2020 South Arlington Heights Road, Arlington Heights, IL, 60005, (847) 297-4810, or see Training on OSHA's website at www.osha.gov. For further information on any OSHA program, contact your nearest OSHA regional office listed at the end of this publication.

Information Available Electronically

OSHA has a variety of materials and tools available on its website at www.osha.gov. These include electronic compliance assistance tools, such as *Safety and Health Topics Pages, eTools, Expert Advisors;* regulations, directives, publications and videos; and other information for employers and employees. OSHA's software programs and compliance assistance tools walk you through challenging safety and health issues and common problems to find the best solutions for your workplace.

A wide variety of OSHA materials, including standards, interpretations, directives, and more can be purchased on CD-ROM from the U.S. Government Printing Office, Superintendent of Documents, toll-free phone (866) 512-1800.

OSHA®
www.osha.gov

OSHA Publications

OSHA has an extensive publications program. For a listing of free items, visit OSHA's website at www.osha.gov or contact the OSHA Publications Office, U.S. Department of Labor, 200 Constitution Avenue, NW, N-3101, Washington, DC 20210; telephone (202) 693-1888 or fax to (202) 693-2498.

Contacting OSHA

To report an emergency, file a complaint, or seek OSHA advice, assistance, or products, call (800) 321-OSHA or contact your nearest OSHA Regional office listed at the end of this publication. The teletypewriter (TTY) number is (877) 889-5627.

Written correspondence can be mailed to the nearest OSHA Regional or Area Office listed at the end of this publication or to OSHA's national office at: U.S. Department of Labor, Occupational Safety a Health Administration, 200 Constitution Avenue, N.W., Washington, DC 20210.

By visiting OSHA's website at www.osha.gov, you can also:

- File a complaint online,
- Submit general inquiries about workplace safety and health electronically, and
- Find more information about OSHA and occupational safety and health.

OSHA
www.osha.gov

OSHA Regional Offices

Region I
(CT,* ME, MA, NH, RI, VT*)
JFK Federal Building, Room E340
Boston, MA 02203
(617) 565-9860

Region II
(NJ,* NY,* PR,* VI*)
201 Varick Street, Room 670
New York, NY 10014
(212) 337-2378

Region III
(DE, DC, MD,* PA, VA,* WV)
The Curtis Center
170 S. Independence Mall West
Suite 740 West
Philadelphia, PA 19106-3309
(215) 861-4900

Region IV
(AL, FL, GA, KY,* MS, NC,* SC,* TN*)
61 Forsyth Street, SW, Room 6T50
Atlanta, GA 30303
(404) 562-2300

Region V
(IL, IN,* MI,* MN,* OH, WI)
230 South Dearborn Street
Room 3244
Chicago, IL 60604
(312) 353-2220

Region VI
(AR, LA, NM,* OK, TX)
525 Griffin Street, Room 602
Dallas, TX 75202
(972) 850-4145

Region VII
(IA,* KS, MO, NE)
Two Pershing Square
2300 Main Street, Suite 1010
Kansas City, MO 64108-2416
(816) 283-8745

OSHA®
www.osha.gov

Region VIII
(CO, MT, NO, SO, UT,* WY*)
1999 Broadway, Suite 1690
PO Box 46550
Denver, CO 80202-5716
(720) 264-6550

Region IX
(AZ,* CA,* HI,* NV,* and American Samoa,
Guam and the Northern Mariana Islands)
90 7th Street, Suite 18-100
San Francisco, CA 94103
(415) 625-2547

Region X
(AK,* ID, OR,* WA*)
1111 Third Avenue, Suite 715
Seattle, WA 98101-3212
(206) 553-5930

* These states and territories operate their own OSHA-approved job safety and health programs and cover state and local government employees as well as private sector employees. The Connecticut, New Jersey, New York and Virgin Islands plans cover public employees only. States with approved programs must have standards that are identical to, or at least as effective as, the Federal standards.

Note: To get contact information for OSHA Area Offices, OSHA-approved State Plans and OSHA Consultation Projects, please visit us online at www.osha.gov or call us at 1-800-321-0SHA.

HCS CONCRETE

SDS Manual

SECTION 2

Acrylic Bondcrete

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.

Date of issue: 03/08/2006 Revision date: 02/10/2016 Version: G02-PSP

SECTION 1: Identification

1.1. Product identifier

Product name : Acrylic Bondcrete

Product code : Not available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Acrylic bonding aid and additives

1.3. Details of the supplier of the safety data sheet

Penetron Specialty Products Inc.
45 Research Way, Suite 203
East Setauket, New York 11733 - USA
T +1 (631) 941-9700
info@penetronsp.com - penetronsp.com

1.4. Emergency telephone number

Emergency number : (Chemtrec): US and Canada: 1-800-424-9300; International +1 703-527-3887

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Not classified.

2.2. Label elements

GHS-US labeling

No labeling applicable.

2.3. Other hazards

No additional information available.

2.4. Unknown acute toxicity (GHS US)

Not applicable.

SECTION 3: Composition/Information on ingredients

3.1. Substance

Not applicable.

3.2. Mixture

Name	Product identifier	%
None by OSHA HazCom 2012 criteria		

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

First-aid measures after skin contact : If irritation occurs, flush skin with plenty of water. Get medical attention if irritation persists.

First-aid measures after eye contact : In case of contact, immediately flush eyes with plenty of water. Remove contact lenses, if worn. If irritation persists, get medical attention.

First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention if you feel unwell.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory tract irritation.

Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.

Symptoms/injuries after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Carbon dioxide. Foam. Water. Extinguishing media.

Unsuitable extinguishing media : None known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Products of combustion may include, and are not limited to: oxides of carbon, hydrocarbons and nitrogen oxides.

5.3. Advice for firefighters

Protection during firefighting : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Keep unnecessary personnel away from the release.

6.2. Methods and material for containment and cleaning up

For containment : Contain and/or absorb spill with inert material (e.g. sand, vermiculite), then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Scoop up material and place in a disposal container.

6.3. Reference to other sections

See section 8 for further information on protective clothing and equipment and section 13 for advice on waste disposal.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid breathing dust/fume/gas/mist/vapors/spray. Do not swallow. Handle and open container with care. When using do not eat, drink or smoke.

Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Keep container tightly closed. Keep only in original container. Store in a dry, cool and well-ventilated place. Store at temperatures between 10-40 °C (50-104 °F). Keep away from food and drink.

7.3. Specific end use(s)

Not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available.

8.2. Exposure controls

Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Hand protection : Protective gloves made of rubber or PVC.

Eye protection : Safety glasses or goggles are recommended when using product.

Skin and body protection : Wear suitable protective clothing.

Respiratory protection : In case of insufficient ventilation, wear suitable respiratory equipment. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Environmental exposure controls : Maintain levels below Community environmental protection thresholds.

Other information : Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking. Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid
Appearance	: Milky-white liquid
Color	: White
Odor	: Mild Sweet Acrylic
Odor threshold	: No data available
pH	: 7.5 - 9.5
Melting point	: No data available
Freezing point	: No data available
Boiling point	: No data available
Flash point	: > 392 °F
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not flammable
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: 23 mbar
Relative density	: 1.06 kg/l
Relative vapor density at 20 °C	: No data available
Solubility	: Miscible
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available

9.2. Other information

No additional information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stable under normal storage conditions.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Heat. Incompatible materials. Moisture.

10.5. Incompatible materials

Metallic salts.

10.6. Hazardous decomposition products

May include, and are not limited to: oxides of carbon, hydrocarbons and nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified

Acrylic Bondcrete	
LD50 oral rat	> 2000 mg/kg
LD50 dermal rabbit	> 2000 mg/kg
LC50 inhalation rat	> 20 mg/l/4h

Skin corrosion/irritation : Based on available data, the classification criteria are not met.
Serious eye damage/irritation : Based on available data, the classification criteria are not met.
Respiratory or skin sensitization : Based on available data, the classification criteria are not met.
Germ cell mutagenicity : Based on available data, the classification criteria are not met.
Carcinogenicity : Based on available data, the classification criteria are not met.
Reproductive toxicity : Based on available data, the classification criteria are not met.
Specific target organ toxicity (single exposure) : Based on available data, the classification criteria are not met.
Specific target organ toxicity (repeated exposure) : Based on available data, the classification criteria are not met.
Aspiration hazard : Based on available data, the classification criteria are not met.

Symptoms/injuries after inhalation : May cause respiratory tract irritation.
Symptoms/injuries after skin contact : May cause skin irritation. Symptoms may include redness, drying, defatting and cracking of the skin.
Symptoms/injuries after eye contact : May cause eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.
Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : May cause long-term adverse effects in the aquatic environment.

12.2. Persistence and degradability

Acrylic Bondcrete	
Persistence and degradability	Not established.

12.3. Bioaccumulative potential

Acrylic Bondcrete	
Bioaccumulative potential	Not established.

12.4. Mobility in soil

No additional information available.

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations. The generation of waste should be avoided or minimized wherever possible.

SECTION 14: Transport information

14.1. Department of Transportation (DOT)

In accordance with DOT

Not regulated for transport

14.2. Additional information

Other information : No supplementary information available.

Special transport precautions : Do not handle until all safety precautions have been read and understood.

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory except for:

Mixture, 3(2H)-isothiazolone, 5-chloro-2-methyl- with 2-methyl-3(2H)-isothiazolone	CAS No 55965-84-9

15.2. US State regulations

Acrylic Bondcrete	
State or local regulations	This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

SECTION 16: Other information

Date of issue : 03/08/2006

Revision date : 02/10/2016

Other information : None

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

SET-XP® *High Strength Anchoring Adhesive for Cracked and Uncracked Concrete*

SAFETY DATA SHEET

1. Identification

Product Identification

Product Identifier:	**SET-XP** (SET-XP10, SET-XP22, SET-XP56, SET-XP650, SET-XP)
Recommended Use:	High Strength Anchoring Adhesive for Cracked and Uncracked Concrete
Use Restrictions:	None Known.

Company Identification

Company:	Simpson Strong-Tie Company Inc.
Address:	5956 W. Las Positas Blvd. Pleasanton, CA 94588
Phone:	1-800-999-5099
Website:	www.strongtie.com
Emergency:	1-800-535-5053 (US/Canada) / 1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

SET-XP Anchoring Adhesive is a two part system. The two parts of this product have been assessed according to GHS and are classified below. The final hardened material is considered nonhazardous. Some hazards apply upon grinding or cutting through hardened product.

Resin (white side) GHS Classification

Physical Hazards:	Not Classified.	
Health Hazards:	Skin Corrosion/Irritation	Category 2
	Serious Eye Damage/Irritation	Category 2A
	Sensitization, Skin	Category 1
	Germ Cell Mutagenicity	Category 2
Environmental Hazards:	Chronic Aquatic Environmental Hazard	Category 2

Signal Word: **WARNING!**

Hazard Statements: Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. Suspected of causing genetic defects. Toxic to aquatic life with long lasting effects.

Precautionary Statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Contaminated work clothing should not be allowed out of the workplace. Avoid breathing mist or vapor. Wash thoroughly after handling. Avoid release to the environment.

Response: If exposed or concerned: Call a poison center/doctor. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash before re-use. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. Collect Spillage.

Storage: Store locked up. Store in a well-ventilated place. Store between 45-90°F (7-32°C).

Disposal: Dispose of contents/container in accordance with local/regional/national regulations.

Hardener (green side) GHS Classification

Physical Hazards:	Not Classified.	
Health Hazards:	Skin Corrosion/Irritation	Category 1
	Serious Eye Damage/Irritation	Category 1
	Sensitization, Skin	Category 1

	Germ Cell Mutagenicity	Category 2
Environmental Hazards:	Acute Aquatic Environmental Hazard	Category 3
	Chronic Aquatic Environmental Hazard	Category 3

Signal Word: **DANGER!**

Hazard Statements: Causes severe skin burns and eye damage. May cause an allergic skin reaction. Suspected of causing genetic defects. Harmful to the aquatic environment with long lasting effects.

Precautionary Statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection. Avoid release to the environment.

Response: If exposed or concerned: Get medical advice/attention. If swallowed: Rinse mouth. Do not induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse. If skin irritation or rash occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.

Storage: Store in a well-ventilated place. Keep container tightly closed. Store between 45-90°F (7-32°C).

Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazards Not Otherwise Classified (HNOC)

The above hazards are for the uncured Resin component of SET-XP. Upon combination with the Hardener component of SET-XP an innocuous solid is formed which does not present any immediate hazards. Upon grinding or cutting the cured product the following hazards may apply.

Health Hazards:	Carcinogenicity	Category 1A
	STOT, Repeated Exposure	Category 2 (Lung)

Hazard Statements: May cause cancer. May cause damage to organs (Lung) through prolonged or repeated exposure.

Precautionary Statements: Do not breathe dust.

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for each component are listed below. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

Resin (white side)

Chemical Name	CAS Number	Weight %
Bisphenol A/Epichlorohydrin	25068-38-6	40-60
Phenol, polymer with formaldehyde, glycidyl ether	28064-14-4	40-60
Butyl Glycidyl Ether	2426-08-6	1-10
Titanium Dioxide	13463-67-7	1-10

Hardener (black side)

Chemical Name	CAS Number	Weight %
Silica, crystalline quartz	14808-60-7	20-30
Polyamido Amine	68953-36-6	10-20
2,4,6-Tris(dimethylaminomethyl)phenol	90-72-2	1-10
Dimethyl silicone polymer with silica	67762-90-7	1-10
Phenol	108-95-2	1-10
Benzene-1,3-Dimethaneamine	1477-55-0	1-10
3,6,9-triazaundecamethylenediamine	112-57-2	1-5

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If redness, burning, blurred vision, or swelling persists, **consult a physician.**

Skin Contact: Remove contaminated clothing and product, immediately wash affected area with soap and water. Do not apply greases or ointments. Chemical burns must be treated by a **physician.**

Ingestion: Rinse mouth immediately. Give large amounts of milk or water, if person is conscious. Only induce vomiting at the instruction of medical personnel. **Consult a physician.**

Inhalation: Remove patient to fresh air. Oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Irritant effects. Symptoms include itching, burning, redness and tearing. Burning pain and severe corrosive skin damage. Causes severe eye damage. May cause temporary blindness and severe eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause allergic skin reaction. Prolonged exposure may cause chronic effects.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.

Additional Information: None known.

Hazards during Fire-Fighting: Hazardous decomposition products may occur when materials polymerize at temperatures above500°F (260°C). Irritating and toxic gases/fumes may be released during a fire. Water run-off can cause environmental damage.

Fire-Fighting Procedures: Use standard fire-fighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures

Personal Precautions

Keep unnecessary personnel away. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors or mists. Local authorities should be advised if significant spillages cannot be contained.

Clean-Up Methods

Small spills: Wipe up with absorbent material (e.g. cloth, fleece).). Place in leak-proof containers. Seal tightly for proper disposal. Clean surface thoroughly to remove residual contamination.

Large spills: Stop the flow of material, if this is without risk. Dike far ahead of spill for later disposal. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Prevent entry into waterways, sewer, basements or confined areas.

Environmental Precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment.

7. Handling and Storage

Handling

Mechanical ventilation or local exhaust ventilation is recommended. Keep away from open flames, hot surfaces and sources of ignition. Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Avoid contact with eyes, skin, and clothing. Pregnant women should not work with this product if there is risk of exposure. Observe good industrial hygiene practices.

Storage

Store in a closed container away from incompatible materials. Keep in original container. Store in a dry place out of direct sunlight. Keep out of the reach of children. Store between 45-90°F (7-32°C). Keep away from heat and sources of ignition.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

Protective Measure:	Wear appropriate personal protective equipment.
Eye Protection:	Wear chemical splash goggles or safety glasses with side shield.
Hand Protection:	Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection:	Wear long sleeve shirt/long pants and other clothing as required to minimize contact.
Respirator Protection:	The use of a respirator is not required during normal use of this product. If grinding or cutting cured product the use of an approved respirator is recommended.
General Hygiene:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Engineering Controls

When using indoors good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. Ready access to running water is required. Provide eyewash station.

Exposure Limits

Component *Skin Designation	OSHA (PEL)	ACGIH (TLV)	NIOSH Pocket Guide
Quartz (14808-60-7)	0.3 mg/m³(total dust) 0.1 mg/m³ (respirable)	0.025 mg/m³ (respirable)	0.05 mg/m³ (respirable)
Phenol* (CAS 108-95-2)	19 mg/m³ 5 ppm	5 ppm	60 mg/m³ (Ceiling) 15.6 ppm (Ceiling)
m-Phenylenebis(methylamine)* (CAS 1477-55-0)	N/E	0.1 mg/m³ (Ceiling)	0.1 mg/m³ (Ceiling)
N-Butyl Glycidyl Ether (2426-08-6)	270 mg/m³ 50 ppm	3 ppm	30 mg/m³ (Ceiling) 5.6 ppm (Ceiling)
Titanium Dioxide (13463-67-7)	5 mg/m³(respirable) 15 mg/m³(total dust)	10 mg/m³	N/E

Additional Information

After Cure: Product forms an innocuous solid. Processing after cure (grinding or cutting) may produce dust containing compounds that present an inhalation hazard.

9. Physical and Chemical Properties

Property	Resin	Hardener
Physical State:	Liquid, Paste	Liquid, Paste
Color:	White	Dark Green
Odor:	Sweet	Ammonia
pH:	6.9	10.3
Flammability limit – lower %:	No data	No data
Flammability limit – upper %:	No data	No data
Vapor Pressure:	Non-volatile	No data
Vapor Density:	No data	No data
Solubility:	Insoluble in water	Slightly soluble in water
Freezing/Melting Point:	No data	No data
Boiling Point:	> 500 °F (>260 °C)	No data
Flash Point:	250 °F (121 °C) Open Cup	262 °F (128 °C) Closed Cup
Evaporation Rate:	No data	No data
Decomposition Temperature:	No data	No data
Specific Gravity:	1.21 at 72°F (22°C)	1.59 at 72°F (22°C)
VOC (after cure):	3 g/L	3 g/L
Kow:	No data	No data
Viscosity:	No data	No data

10. Stability and Reactivity

Resin (white side)

Reactivity: This product is stable and non-reactive under normal conditions.
Chemical Stability: Stable under normal storage conditions.
Condition to Avoid: High heat and open flame.
Substances to Avoid: Oxidizing agents, acids, organic bases, and amines
Hazardous Reactions: Hazardous polymerization does not occur.
Decomposition Products: Carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.

Hardener (green side)

Reactivity: This product is stable and non-reactive under normal conditions.
Chemical Stability: Stable under normal storage conditions.
Condition to Avoid: High heat and open flame.
Substances to Avoid: Strong oxidizing agents. Peroxides. Phenols. Acids.
Hazardous Reactions: Hazardous polymerization does not occur.
Decomposition Products: Carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.

11. Toxicological Information

Likely Routes of Exposure

Ingestion: May be harmful if swallowed. Ingestion may cause irritation to the gastrointestinal tract.
Inhalation: May cause respiratory irritation
Skin contact: Causes skin irritation. Causes severe skin burns May cause an allergic skin reaction.
Eye contact: Causes serious eye irritation. Causes severe eye damage.

Information on Toxicological Effects

Acute toxicity: Occupational exposure to the substance or mixture may cause adverse effects.

Product		Species	Test Result
SET-XP Resin (CAS mixture)			
	Acute, *Dermal,* LC50	Rabbit	>2000 mg/kg
	Acute, *Oral,* LD50	Rat	>5000 mg/kg
SET-XP Hardener (CAS mixture)			
	Acute, *Dermal,* LD50	Rabbit	>2000 mg/kg
	Acute, *Oral,* LD50	Rat	>5000 mg/kg

Skin corrosion/irritation: Causes severe skin burns.
Eye damage/eye irritation: Causes severe eye damage.
Respiratory sensitization: No data available.
Skin sensitization: May cause an allergic skin reaction.
Germ cell mutagenicity: Contains a component that is suspected of causing genetic defects.
Carcinogenicity: May cause cancer. Quartz and Titanium Dioxide are considered carcinogens only in their inhalable form. Exposure to respirable Quartz and Titanium Dioxide is likely only when grinding or cutting cured product, ensure good work practice and use of personal protective equipment as needed to control exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Quartz (14808-60-7)	1 Carcinogenic to humans.
Titanium Dioxide (13463-67-7)	2B Possibly Carcinogenic to humans.
Phenol (108-95-2)	3 Not classifiable as to carcinogenicity in humans.

NTP Report on Carcinogens

Quartz (14808-60-7)	Known to be Human Carcinogen

Reproductive toxicity: The available data does not indicate that any ingredients of this product are reproductive toxins.
Aspiration hazard: Not expected to be an aspiration hazard.
Specific target organ toxicity:
Single exposure No data available.
Repeated exposure May cause damage to organs (lung) through prolonged or repeated exposure.

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material.

12. Ecological Information

General Information

Information given is based on data on the components and the ecotoxicology of similar products. Resin is classified as toxic to aquatic life with long lasting effects. Hardener is classified as harmful to aquatic life with long lasting effects. Avoid release to the environment.

Supporting Data

Component	Species	Test Result
SET-XP Resin (CAS mixture)		
Aquatic Acute, Algae, EC50	Algae	>1000 mg/l, 72 hours
Aquatic Acute, Crustacea, EC50	Daphnia Magna	324.87 mg/l, 48 hours
Aquatic Acute, Fish, LC50	Fish	707.11 mg/l, 96 hours
Phenol (108-95-2)		
Aquatic, Crustacea, EC50	Daphnia	4.7-6.4 mg/l, 48 hours
Aquatic, Fish, LC50	Rainbow trout	7.5-14 mg/l, 96 hours

Persistence and degradability: This product is not expected to be readily biodegradable.

Bioaccumulative potential: No data available for this product.

Partition coefficient n-octanol / water (log Kow)

Butyl glycidyl ether (2426-08-6)	0.63
Phenol (108-95-2)	1.46

Mobility in soil: This product is non-volatile.

Further Information

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this product.

13. Disposal Consideration

Waste Disposal of Substance: Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national/international regulations.

Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Disposal of Cured Product: Grind or chip off surface. Solid material does not require special disposal.

14. Transportation Information

Resin (white side)

UN number: UN3082

UN proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol-A-Epichlorohydrin), 9, III, Marine Pollutant

Precautions: Marine Pollutant

Required Labels: 9

ERG Code (IATA): 9L

EmS (IMDG): F-A, S-F

Hardener (black side)

UN number: UN2735

UN proper shipping name: AMINES, LIQUID, CORROSIVE, N.O.S. (Benzene-1,3-Dimethaneamine), 8, II

Precautions: Corrosive

Required Labels: 8

ERG Code (IATA): 8L

EmS (IMDG): F-A, S-B

Additional Information

Check limited quantity regulations prior to shipping, SET-XP cartridges may qualify for LQ shipping exemptions.

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:
This substance/mixture is not intended to be transported in bulk

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or national regulations.

15. Regulatory Information

United States

Federal Regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D) Not regulated.
US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) Not listed.
CERCLA Hazardous Substance List (40 CFR 302.4) :
Phenol (108-95-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard Categories:	Immediate	Delayed	Fire	Pressure	Reactivity
Resin	Yes	Yes	No	No	No
Hardener	Yes	Yes	No	No	No

SARA 302 Extremely hazardous substance: No
SARA 311/312 Hazardous chemical: Yes
SARA 313 (TRI reporting):

Chemical Name	CAS Number	% by weight
Phenol	108-95-2	1-10

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Phenol (108-95-2)

US State Right-To-Know Lists

Chemical	Massachusetts RTK	New Jersey Work and Community RTK Act	Pennsylvania Worker and Community RTK Law	Rhode Island RTK
Butyl glycidyl ether (CAS 2426-08-6)	Listed		Listed	
Titanium dioxide (CAS 1317-80-2)	Listed		Listed	
m-Phenylenebis(methylamine) (CAS 1477-55-0)	Listed		Listed	
Phenol (CAS 108-95-2)	Listed	Listed	Listed	Listed
Quartz (CAS14808-60-7)	Listed		Listed	

US. California Proposition 65: WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects, or reproductive harm.

Component	Regulation	% In Blend (approx.)	Remark
Titanium dioxide (CAS 13463-67-7)	ACGIH	1-10	Carcinogenic
Quartz (14808-60-7)	ACGIH	20-30	Carcinogenic
Carbon Black (1333-86-4)	ACGIH	< 0.1	Carcinogenic

Canada

This product has been classified according to the hazard criteria of the CPR and the SDS contains all of the information required by the CPR.

WHMIS Classification

	
Class E: Corrosive	**Class D-2A:** Material Causing other toxic effects

International

International Inventories

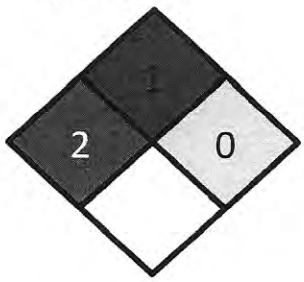
Country or Region	Inventory	On Inventory? (Yes/No)
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL) / Non-Domestic Substances List (NDSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

16. Other Information

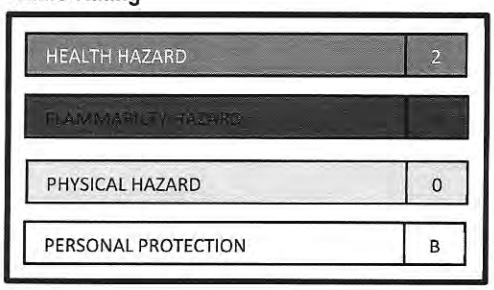
Date Prepared or Revised: December 2014
Supersedes: September 2014
Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com

Additional Resin (white side) Classifications

NFPA Ratings

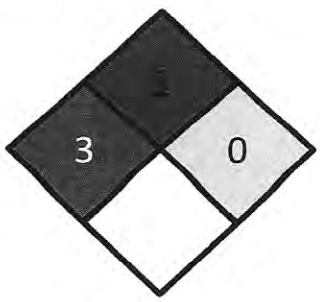


HMIS Rating

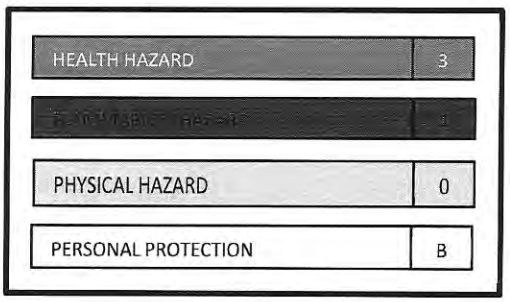


Additional Hardener (green side) Classifications

NFPA Ratings



HMIS Rating



Abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists
CAS No.: Chemical Abstract Service Registry Number
CERCLA: Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)

CPR:	Controlled Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
LPP:	Limité Permisible Ponderado (Chile)
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
SDS:	Safety Data Sheet
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
U.S.:	United States
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Disclaimer

This Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

Internal

FOR INTERNAL USE ONLY

SET-XP Resin:
XCOM3B – 50% Cartridge

SET-XP Hardener:
XCOM3B – 50% Cartridge
XCORR – 50% Cartridge

ET-HP® *Anchoring Adhesive*
SAFETY DATA SHEET

SIMPSON Strong-Tie®

1. Identification

Product Identification

Product Identifier: **ET-HP® in cartridges**

Recommended Use: ET-HP® is a two-component, high-solids, epoxy-based system for use as a high-strength, non-shrink anchor-grouting material.

Use Restrictions: To ensure proper installation use according to package directions, complete application instructions can be found in Simpson Strong-Tie catalogs or online at strongtie.com.

Company Identification

Company: Simpson Strong-Tie Company Inc.
Address: 5956 W. Las Positas Blvd.
Pleasanton, CA 94588
Phone: 1-800-999-5099
Website: www.strongtie.com
Emergency: 1-800-535-5053 (US/Canada)
1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

ET-HP® Epoxy Adhesive is a high-solids, epoxy-based anchor-grout for anchoring threaded rod and rebar into concrete (cracked/uncracked) and masonry. It is a two component (1:1) system packaged as a single unit in a dual cartridge. The two parts of this product have been individually assessed according to the Globally Harmonized System (GHS). Exposure to the individual components will only occur with improper use. The resin and hardener are dispensed and mixed simultaneously through the mixing nozzle. The mixed product can be assumed to carry the hazards of each component until the product has fully hardened. The final cured product will be gray and can be considered nonhazardous. Some hazards may apply upon grinding or cutting through hardened product. This Safety Data Sheet covers the hazards and responses for the safe use of this product.

Resin (White Side) GHS Classification

Classification according to HazCom2012 (GHS)

Physical Hazards:	Not Classified.		
Health Hazards:	Skin Corrosion/Irritation	Category 2	H315: Causes skin irritation
	Serious Eye Damage/Irritation	Category 2	H319: Causes serious eye irritation
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
	Germ Cell Mutagenicity	Category 2	H341: Suspected of causing genetic defects
	Carcinogenicity	Category 2	H351: Suspected of causing cancer
Environmental Hazards:	Chronic Aquatic Hazard	Category 2	H411: Toxic to aquatic life with long lasting effects

Main Symptoms: Irritation of eyes and skin. Symptoms include redness, itching, burning, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin. Long term exposure may cause chronic effects.

GHS Label Elements

Exclamation Point **Chronic Health** **Environmental Hazard**

Contains: Epoxy Resins, Ground Limestone, Titanium Dioxide
Signal Word: **WARNING!**
Hazard Statements:

H315:	Cases skin irritation.
H319:	Causes serious eye irritation.
H317:	May cause an allergic skin reaction.
H341:	Suspected of causing genetic defects.
H351:	Suspected of causing cancer.
H411:	Toxic to aquatic life with long-lasting effects.

Precautionary Statements:

Prevention:	P102:	Keep out of reach of children.
	P103:	Read label before use.
	P202:	Do not handle until all safety precautions have been read and understood.
	P233:	Keep container tightly closed.
	P261:	Avoid breathing mist or vapor.
	P264:	Wash thoroughly after handling.
	P271:	Use only outdoors or in a well-ventilated area.
	P272:	Contaminated clothing should not be allowed out of the workplace.
	P273:	Avoid release to the environment.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P302+P352:	IF ON SKIN: Wash with plenty of water.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P362+P364:	Take off contaminated clothing and wash before reuse.
	P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P308+P313:	If exposed or concerned: Get medical advice/attention.
	P391:	Collect spillage.
Storage:	P403+P233:	Store in a well-ventilated place. Keep container tightly closed.
	P405:	Store locked up.
Disposal:	P501:	Dispose of contents/container in accordance with local/regional regulations.

Supplemental Label Information: None known.

Hardener (Black Side) GHS Classification

Classification according to HazCom2012 (GHS)

Physical Hazards:	Not Classified.		
Health Hazards:	Acute Toxicity, Oral	Category 4	H302: Harmful if swallowed
	Acute Toxicity, Dermal	Category 5	H313: May be harmful in contact with skin
	Skin Corrosion/Irritation	Category 1	H314: Causes severe skin burns and eye damage
	Serious Eye Damage/Irritation	Category 1	H318: Causes serious eye damage
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
	Germ Cell Mutagenicity	Category 2	H341: Suspected of causing genetic defects
	Reproductive Toxicity	Category 2	H361: Suspected of damaging fertility or the unborn child
	STOT, Repeated Exposure	Category 2	H373: May cause damage to organs through prolonged and repeated exposure
Environmental Hazards:	Acute Aquatic Hazard	Category 1	H400: Very toxic to aquatic life
	Chronic Aquatic Hazard	Category 1	H410: Very toxic to aquatic life with long lasting effects

Main Symptoms: Damage to the eyes and skin. Symptoms include burns, redness, itching, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin. May cause severe irritation or burns to the gastrointestinal tract and respiratory system. Long term exposure may cause chronic effects.

GHS Label Elements

Corrosive | Chronic Health | Environmental Hazard

Contains: Amines, Phenols
Signal Word: **DANGER!**
Hazard Statements: H302: Harmful if swallowed.

	H313:	May be harmful in contact with skin.
	H314:	Causes severe skin burns and eye damage.
	H318:	Causes serious eye damage.
	H317:	May cause an allergic skin reaction.
	H341:	Suspected of causing genetic defects.
	H361:	Suspected of damaging fertility or the unborn child.
	H373:	May cause damage to organs through prolonged and repeated exposure.
	H400:	Very toxic to aquatic life.
	H410:	Very toxic to aquatic life with long-lasting effects.
Precautionary Statements:		
Prevention:	P102:	Keep out of reach of children.
	P103:	Read label before use.
	P202:	Do not handle until all safety precautions have been read and understood.
	P260:	Do not breathe dust, mist, or vapor.
	P264:	Wash thoroughly after handling.
	P270:	Do not eat, drink, or smoke when using this product.
	P272:	Contaminated clothing should not be allowed out of the workplace.
	P273:	Avoid release to the environment.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P301+P330+P331:	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P310:	Immediately call a POISON CENTER/doctor.
	P303+P361+P353:	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P363:	Wash contaminated clothing before reuse.
	P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P308+P313:	If exposed or concerned: Get medical advice/attention.
	P391:	Collect spillage.
Storage:	P405:	Store locked up.
Disposal:	P501:	Dispose of contents/container in accordance with local/regional regulations.

Supplemental Label Information: None.

Hazards Not Otherwise Classified (HNOC)

The above hazards are for the uncured components of ET- HP. Upon combination of the two components, an innocuous solid which does not present any immediate hazards is formed. Upon grinding or cutting through the cured product, the following hazards may apply. Ensure good work practice and use of personal protective equipment as needed to control exposure to processing dust.

Chronic Health

Health Hazard:	Carcinogenicity	Category 1A
	STOT, Repeated Exposure	Category 1
OSHA Hazard:	Combustible Dust	
Hazard Statement:	May cause cancer. Causes damage to organs through prolonged and repeated exposure. Can form explosive air-dust mixtures, avoid creating dust.	
Precautionary Statement:	Do not breathe dust. Do not allow dust to build up on surfaces.	

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for each component are listed below.
May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

List of abbreviations and symbols:
Classification: Globally Harmonized System Classifications
The full text for H- phrases is displayed in section 16. All concentrations are in percent by weight unless otherwise noted.

Resin (White Side)

Chemical Name	Weight %	CAS Number	EC Number
Phenolic Novolac Resin **Classifications:** Skin Irrit. 2: H315, Eye Irrit. 2: H319, Skin Sens. 1: H317, STOT SE 3: H335	20-50	28064-14-4	608-164-0
Bisphenol-A Based Epoxy Resin **Classifications:** Skin Irrit. 2: H315, Skin Sens. 1: H317, Eye Irrit. 2: H319, Aquatic Chronic 2: H411	40-60	25068-38-6	500-033-5
Ground Limestone **Classifications:** Skin Irrit. 2: H315	1-10	1317-65-3	215-279-6
Titanium Dioxide **Classifications:** Carc. 2: H351	1-5	13463-67-7	236-675-5
Butyl Glycidyl Ether **Classifications:** Flam. Liq. 3: H226, Acute Tox. 4: H302+H332, Skin Irrit. 2: H315, Eye Irrit. 2: H319, Skin Sens. 1: H317, GCM 2: H341, Carc. 2: H351, STOT SE 3: H335, Aquatic 3: H402+H412	1-5	2426-08-6	219-376-4

Hardener (Black Side)

Chemical Name	Weight %	CAS Number	EC Number
2-Piperazin-1-ylethylamine **Classifications:** Acute Tox. 4: H302+H312, Skin Corr. 1B: H314, Skin Sens. 1: H317, Aquatic 3: H402+H412	5-15	140-31-8	205-411-0
Bisphenol-A **Classifications:** Skin Corr. 1: H314, Eye Corr. 1: H318, Repr. 2: H361, STOT SE 3: H335	1-10	80-05-7	201-245-8
Phenol **Classifications:** Acute Tox. 3: H301+311+331, Skin Corr. 1B: H314, GCM 2: H341, STOT RE 2: H373	1-5	108-95-2	203-632-7
Nonyl Phenol **Classifications:** Acute Tox. 4: H302, Skin Corr.1B: H314, Repr. 2: H361, Aquatic 1: H400+H410	1-5	84852-15-3	284-325-5
2,4,6-tris-(dimethylaminomethyl)phenol **Classifications:** Acute Tox. 4: H302, Skin Irrit. 2: H315, Eye Irrit. 2: H319	1-5	90-72-2	202-013-9
Benzene-1,3-Dimethaneamine **Classifications:** Acute Tox. 4: H302+H312+H332, Skin Corr. 1A: H314, Aquatic 3: H402+H412	1-5	1477-55-0	216-032-5
Crystalline Silica, Quartz **Classifications:** Carc. 1A: H350, STOT RE 1: H372	1-5	14808-60-7	238-878-4
Benzldimethylamine **Classifications:** Flam. Liq. 3: H226, Acute Tox. 4: H302+H312+H332, Skin Corr. 1: H314, Aquatic 3: H402+H412	1-5	103-83-3	203-149-1
p-tert-butylphenol **Classifications:** Skin Irrit. 2: H315, Eye Corr. 1: H314, Repr. 2: H361, STOT SE 3: H335, Aquatic Chronic 2: H412	< 1	98-54-4	202-679-0

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If redness, burning, blurred vision, or swelling persists, **consult a physician immediately.**

Skin Contact: Remove contaminated clothing and product, immediately wash affected area with soap and water. Do not apply greases or ointments. If rash or irritation persists, **consult a physician.**

Ingestion: Rinse mouth immediately. Do not induce vomiting unless told to do so by a poison control center or doctor. If vomiting occurs keep head low so that stomach contents don't get into the lungs. Never give anything by mouth to an unconscious person. **Consult a physician.**

Inhalation: If breathing is difficult remove patient to fresh air and keep at rest in a position comfortable for breathing. Give oxygen or artificial respiration if needed. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Damage to the eyes and skin. Symptoms include burns, redness, itching, tearing, swelling, and blurred vision. Rash/dermatitis. May cause severe irritation or burns to the gastrointestinal tract and respiratory system.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.

Additional Information: Do not use water jet as an extinguisher as this will spread the fire.

Hazards during Fire-Fighting: Hazardous decomposition products may occur when materials polymerize at temperatures above 500° F (260°C). Irritating and toxic gases/fumes may be released during a fire. Do not allow run-off from fire-fighting to enter drains or water courses.

Fire-Fighting Procedures: Use standard firefighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures

Personal Precautions

Non-emergency personnel: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid inhalation of vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Emergency personnel: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protection.

Clean-Up Methods

Small spills (uncured): Wipe up with absorbent material (e.g. cloth, fleece). Place in leak-proof containers. Seal tightly for proper disposal. Clean surface thoroughly to remove residual contamination. If desired, approved solvents, such as ketones (MEK, acetone, etc.), lacquer thinner, or adhesive remover can be used. Do NOT use solvents to clean adhesives from skin. Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied.

Large spills (uncured): Stop the flow of material, if this is without risk. Dike far ahead of spill to contain material. Use a non-combustible material like vermiculite, sand or earth to soak up the product. Place in leak-proof containers. Seal tightly for proper disposal. Following product recovery, flush area with water.

Cured Material: Chip or grind off surface. The product contains components that are carcinogenic in respirable form. If you are grinding or cutting cured product, ensure good work practice and use of personal protective equipment as needed to control exposure to respirable dust.

Environmental Precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so.

7. Handling and Storage

Handling

Keep away from open flame, hot surfaces, and sources of ignition. Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Avoid breathing vapor or mist. When using, do not eat, drink, or smoke. Use only in well-ventilated places. Wash thoroughly after handling. Wash contaminated clothing before reuse. Pregnant women should not use if there is a chance of exposure. Observe good industrial hygiene practices. To obtain optimal performance from Simpson Strong-Tie products and to achieve maximum allowable design load, the products must be properly installed and used in accordance with the installation instructions and design limits provided by Simpson Strong-Tie.

Storage

Full Unused Cartridges: Store away from incompatible materials (See Section 10 of the SDS). Keep in original container. Keep container tightly closed. Store in a dry, well-ventilated place out of direct sunlight, between 14-80°F (-10-27°C). Keep away from heat and sources of ignition. Protect container from physical damage. Keep out of reach of children.

Partially Used Cartridges: To store partially used cartridge temporarily replace cap or leave hardened nozzle in place. To re-use, attach new nozzle. Do not try to dispense after adhesive hardens in nozzle. CAUTION: Adhesive will start to gel in the nozzle. Adhesive will gel faster at higher temperatures. Material under pressure can blowout the back of the cartridge if the adhesive in the nozzle hardens. Use only an appropriate Simpson Strong-Tie® mixing nozzle in accordance with Simpson Strong-Tie instructions. Modification or improper use of mixing nozzle may impair adhesive performance. Keep out of reach of children.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

Eye Protection: Chemical splash goggles or safety glasses with side shield are recommended.

Hand Protection: Wear chemical-resistant gloves such as: Nitrile, neoprene, or butyl rubber.

Skin and Body Protection: Wear long sleeve shirt/long pants and other clothing as required to minimize skin contact.

Respirator Protection: If engineering controls do not maintain airborne concentrations below recommended exposure limits, or if discomfort is experienced, an approved respirator should be worn. Proper installation of ET-HP® requires drilling into concrete or masonry. Concrete and masonry dust can be hazardous to human health and precautions should be taken to avoid inhalation.

General Hygiene: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Engineering Controls

Mechanical ventilation or local exhaust ventilation is recommended, ventilation rates should be matched to conditions to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station and emergency shower.

Exposure Limits

Component	OSHA (PEL)	ACGIH (TLV)	NIOSH Pocket Guide
Butyl Glycidyl Ether (CAS 2426-08-6)	270 mg/m³ 50 ppm	3 ppm	30 mg/m³ (ceiling) 5.6 ppm (ceiling)
Titanium Dioxide (CAS 13463-67-7)	5 mg/m³ (respirable) 15 mg/m³ (total dust)	10 mg/m³	N/E
Phenol* (CAS 108-95-2)	19 mg/m³ 5 ppm	5 ppm	60 mg/m³ (ceiling) 15.6 ppm (ceiling)
Quartz (CAS 14808-60-7)	$\frac{10}{\%SiO_2 + 2}$ mg/m^3	0.025 mg/m³ (respirable)	0.05 mg/m³ (respirable)
Benzene-1,3-Dimethaneamine* (CAS 1477-55-0)	0.1 mg/m³ (ceiling)	0.1 mg/m³ (ceiling)	0.1 mg/m³ (ceiling)

***Skin Designation**: Material can be absorbed through the skin.

9. Physical and Chemical Properties

Property	Resin	Hardener
Physical State:	Liquid, Paste	Liquid, Paste
Color:	White	Black
Odor:	Sweet	Ammonia
pH:	6.9	10.2
Flammability limit – lower %:	No data	No data
Flammability limit – upper %:	No data	No data
Vapor Pressure:	Non-volatile	No data
Vapor Density:	No data	No data
Solubility:	Insoluble in water	Slightly soluble in water
Freezing/Melting Point:	No data	No data
Boiling Point:	> 500 °F (>260 °C)	No data
Flash Point:	250 °F (121 °C) Open Cup	225 °F (107 °C) Open Cup
Evaporation Rate:	No data	No data
Decomposition Temperature:	No data	No data
Specific Gravity:	1.19 at 72°F (22°C)	1.36 at 72°F (22°C)
VOC (after cure):	3 g/L	3 g/L
Kow:	No data	No data
Viscosity:	No data	No data

10. Stability and Reactivity

Resin (White Side)

Reactivity: This product is stable and non-reactive under normal conditions.

Chemical Stability:	Stable under normal storage conditions.
Condition to Avoid:	High heat and open flame.
Substances to Avoid:	Oxidizing agents, acids, organic bases, and amines.
Hazardous Reactions:	Hazardous polymerization does not occur.
Decomposition Products:	Fire or high temperature can create carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.

Hardener (Black Side)

Reactivity:	This product is stable and non-reactive under normal conditions.
Chemical Stability:	Stable under normal storage conditions.
Condition to Avoid:	High heat and open flame.
Substances to Avoid:	Strong oxidizing agents, peroxides, phenols, and acids.
Hazardous Reactions:	The product is stable if stored and handled as prescribed/indicated.
Decomposition Products:	Fire or high temperature can create carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.

11. Toxicological Information

Likely Routes of Exposure

Ingestion:	Harmful if swallowed. Corrosive material; causes severe irritation or burns to the gastrointestinal tract and respiratory tract.
Inhalation:	If this material is heated or misted, coughing and mild, irritation may occur. Do not inhale dust from cutting/grinding cured product.
Skin contact:	May be harmful in contact with skin. Causes severe skin burns. May cause an allergic skin reaction.
Eye contact:	Causes serious eye damage.
Symptoms:	Burns, redness, itching, tearing, swelling, and blurred vision. Rash/dermatitis. Severe irritation or burns to the gastrointestinal tract and respiratory system. Shortness of breath, discomfort in chest, or coughing.

Information on Toxicological Effects

Acute Effects

Toxicity: Harmful if swallowed. May be harmful in contact with skin.

Chemical	Estimate
ET-HP Resin Toxicity Estimate	
Acute, *Oral,* LD50	> 8000
Acute, *Dermal,* LD50	> 2000
ET-HP Hardener Toxicity Estimate	
Acute, *Oral,* LD50	1295

Product	Species	Test Result
Butyl Glycidyl Ether (CAS 2426-08-6)		
Acute, *Oral,* LD50	Rat	1660 mg/kg
Acute, *Dermal,* LD50	Rat	> 2150 mg/kg
Acute, *Inhalation,* LC50	Rat	> 18.64 mg/l, 4 hours
Titanium Dioxide (CAS 13463-67-7)		
Acute, *Oral,* LD50	Rat	> 10000 mg/kg
Acute, *Inhalation,* LC50	Rat	> 6.82 mg/l, 4 hours
Bisphenol-A Based Epoxy Resin (CAS 25068-38-6)		
Acute, *Oral,* LD50	Rat	11400 mg/kg
Acute, *Dermal,* LD50	Rabbit	2000 mg/kg
Phenol (CAS 108-95-2)		
Acute, *Oral,* LD50	Rat	317 mg/kg
Acute, *Dermal,* LD50	Rabbit	660 mg/kg
Benzene-1,3-Dimethaneamine (CAS 1477-55-0)		
Acute, *Oral,* LD50	Rat	980 mg/kg
Acute, *Dermal,* LD50	Rabbit	2000 mg/kg
Acute, *Inhalation,* LC50	Rat	700 ppm, 1 hour

Product	Species	Test Result
2-Piperazin-1-ylethylamine (CAS 140-31-8)		
Acute, *Oral,* LD50	Rat	2180 mg/kg
Acute, *Dermal,* LD50	Rabbit	880 mg/kg
Bisphenol-A (CAS 80-05-7)		
Acute, *Oral,* LD50	Rat	3300 mg/kg
Acute, *Dermal,* LD50	Rabbit	3600 mg/kg
Nonyl Phenol (CAS 84852-15-3)		
Acute, *Oral,* LD50	Rat	1300 mg/kg
Acute, *Dermal,* LD50	Rabbit	2033 mg/kg
2,4,6-tris-(dimethylaminomethyl)phenol (CAS 90-72-2)		
Acute, *Oral,* LD50	Rat	1200 mg/kg
Acute, *Dermal,* LD50	Rat	1280 mg/kg

Skin corrosion/irritation: Causes serious skin irritation and burns.
Eye damage/eye irritation: Causes serious eye irritation and damage.
Respiratory sensitization: No data available.
Skin sensitization: May cause an allergic skin reaction.
Aspiration hazard: Due to the physical form of this product it is not an aspiration hazard.
Specific target organ toxicity
Single exposure: May cause respiratory irritation.

Chronic Effects
Germ cell mutagenicity: This product contains components that are suspected of causing genetic defects.
Carcinogenicity: ET Resin contains a component that is suspected of being a carcinogen. The product also contains components which are considered carcinogens only in their respirable form. Due to the nature of this product, exposure to respirable particles is likely only when grinding or cutting cured product. Ensure good work practice and use of personal protective equipment as needed to control exposure.
Reproductive toxicity: Suspected of damaging fertility.
Specific target organ toxicity:
Repeated exposure May cause damage to organs (kidney, liver, lung, nervous system, skin) through prolonged or repeated exposure.

Carcinogen / Reproductive Toxin / Mutagen Information

Component	% In Blend (approx.)	IARC Monographs	NTP	ACGIH	Other
Quartz (CAS 14808-60-7)	1-5	1	KNOWN	A2	CA65
Titanium Dioxide (CAS 13463-67-7)	1-5	2B	---	---	CA65
Bisphenol-A (CAS 80-05-7)	1-10	---	---	---	CA65
Phenol (CAS 108-95-2)	1-5	3	---	A4	in vitro tests show limited mutagenic properties in human cells
Nonyl Phenol (CAS 84852-15-3)	1-5	---	---	---	Limited evidence of reproductive toxicity (NOAEL >2000 ppm)

IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic
NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen
ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected
CA65 – California Prop 65

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material.

12. Ecological Information

General Information

Information given is based on the components and the ecotoxicity of similar products. Resin is classified as toxic to aquatic life with long lasting effects. Hardener is classified as very toxic to aquatic life, with long lasting effects. Avoid release to the environment.

Supporting Data

Component	Species	Test Result
Butyl Glycidyl Ether (CAS 2426-08-6)		
Aquatic, Crustacea, EC50	Daphnia magna	3.9 mg/l, 48 hours
Nonyl Phenol (CAS 84852-15-3)		
Aquatic, Fish, LC50	Winter Flounder	0.017 mg/l, 96 hours
Aquatic, Crustacea, EC50	Clam	0.0379 mg/l, 48 hours
Bisphenol-A Based Epoxy Resin (CAS 25068-38-6)		
Aquatic, Fish, LC50	Salmo Gairdneri	1.3 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	2.1 mg/l, 48 hours
Aquatic, Algae, EC50	Algae	> 11 mg/l, 72 hours
Phenol (CAS 108-95-2)		
Aquatic, Fish, LC50	Asiatic knifefish	8-8.25 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	4.2 mg/l, 48 hours
Aquatic, Algae, EC50	Macroalgae	36 mg/l, 72 hours
2-Piperazin-1-ylethylamine (CAS 140-31-8)		
Aquatic, Fish, LC50	Fathead minnow	1950-2460 mg/l, 96 hours
Aquatic, Crustacea, EC50	Invertabrates	58 mg/l, 48 hours
Aquatic, Algae, EC50	Algae	> 1000 mg/l, 72 hours
p-tert-butylphenol (CAS 98-54-4)		
Aquatic, Fish, LC50	Fathead minnow	5.14 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	4.8 mg/l, 48 hours
Bisphenol-A (CAS 80-05-7)		
Aquatic, Fish, LC50	Fathead Minnow	3.6-5.4 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	9.2-11.4 mg/l, 48 hours

Persistence and degradability: No data available.
Bioaccumulative potential: No data available for this product.

Chemical	Log Kow	BCF	Bioaccumulation Potential
Butyl Glycidyl Ether (CAS 2426-08-6)	0.63	---	low
BPA Based Epoxy Resin (CAS 25068-38-6)	2.64-3.78	3-31	low
Phenol (CAS 108-95-2)	29.5	648	high
2-Piperazin-1-ylethylamine (CAS 140-31-8)	-1.48	---	---
p-tert-butylphenol (CAS 98-54-4)	---	20.43	---
Bisphenol-A (CAS 80-05-7)	3.32	5.1-73.4	low
Nonyl Phenol (CAS 84852-15-3)	5.71	---	medium

Mobility in soil: No data available.

Further Information

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this product.

13. Disposal Consideration

Waste Disposal of Substance: Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national regulations.

Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Disposal of Cured Product: Chip or grind off surface. Solid material does not need special disposal consideration.

14. Transportation Information

DOT: ET-HP in cartridges are not regulated for transport.

IMDG / IATA: ET-HP in cartridges are less than 5L, and are **exempt** from EHS classification when shipping by **AIR** (IATA A197) or **WATER** (IMDG Code 2.10.2.7). Please contact Simpson Strong-Tie if you are trying to ship ET-HP in quantities larger than 5L.

Additional Information

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not intended to be transported in bulk.

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or national regulations.

15. Regulatory Information

United States

Federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D):

Nonyl Phenol (CAS 84852-15-3) LISTED

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4):

1-Butanol (CAS 71-36-3) LISTED
Phenol (CAS 108-95-2) LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA):

Hazard Categories:	Immediate	Delayed	Fire	Pressure	Reactivity
Resin	Yes	Yes	No	No	No
Hardener	Yes	Yes	No	No	No

SARA 302 Extremely hazardous substance:

Component	CAS	Reportable Quant.	Threshold Planning Quant. Lower Value	Threshold Planning Quant. Upper Value
Phenol	108-95-2	1000	500 lbs	10000 lbs

SARA 311/312 Hazardous chemical: Yes

SARA 313 (TRI reporting):

Chemical	CAS Number	% In Blend (approx.)
1-Butanol	71-36-3	< 0.1
Phenol	108-95-2	1-5
Nonyl Phenol	84852-15-3	1-5
Bisphenol-A	80-05-7	1-10

US. California Proposition 65 WARNING: This product contains a chemical known to the State of California to cause cancer, birth defects, or reproductive harm.

Carcinogen / Reproductive Toxin / Mutagen Information					
Component	**% In Blend (approx.)**	**IARC Monographs**	**NTP**	**ACGIH**	**Other**
Quartz (CAS 14808-60-7)	< 5	1	KNOWN	A2	CA65 (Carcinogenic)
Titanium Dioxide (CAS 13463-67-7)	1-5	2B	---	---	CA65 (Carcinogenic)
Bisphenol-A (CAS 80-05-7)	1-10	---	---	---	CA65 (Reproductive)
Carbon Black (CAS 1333-86-4)	< 0.1	2B	---	---	CA65 (Carcinogenic)
IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected CA65 – California Prop 65					

US State Right-To-Know Lists

Chemical	Massachusetts RTK	New Jersey Work and Community RTK Act	Pennsylvania Worker and Community RTK Law	Rhode Island RTK	Maine CHC
Butyl Glycidyl Ether (CAS 2426-08-6)	Listed	Listed	Listed	Listed	
Quartz (CAS 14808-60-7)	Listed	Listed	Listed		Listed
Titanium dioxide (CAS 13463-67-7)	Listed	Listed	Listed		
Ground Limestone (CAS 1317-65-3)	Listed	Listed	Listed		
Phenol (CAS 108-95-2)	Listed	Listed	Listed	Listed	
Benzene-1,3-Dimethaneamine (CAS 1477-55-0)	Listed	Listed	Listed		
2-Piperazin-1-ylethylamine (CAS 140-31-8)	Listed	Listed	Listed		
Benzyldimethylamine (CAS 103-83-3)		Listed			
Nonyl Phenol (CAS 84852-15-3)					Listed
Bisphenol-A (CAS 80-05-7)	Listed	Listed	Listed		

Canada

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

International

The product is classified in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

REACH Registered Substances			
Chemical	**CAS Number**	**EC Number**	**Index Number**
Bisphenol-A Based Epoxy Resin	25068-38-6	500-033-5	603-074-00-8
Butyl Glycidyl Ether	2426-08-6	219-376-4	603-039-00-7
Phenol	108-95-2	203-632-7	604-001-00-2
2-Piperazin-1-ylethylamine	140-31-8	205-411-0	612-105-00-4
Benzyldimethylamine	103-83-3	203-149-1	612-074-00-7

Chemical	CAS Number	EC Number	Index Number
Nonyl Phenol	84852-15-3	284-325-5	601-053-00-8
p-tert-butylphenol	98-54-4	202-679-0	604-090-00-8
Bisphenol-A	80-05-7	201-245-8	604-030-00-0
2,4,6-tris-(dimethylaminomethyl)phenol	90-72-2	202-013-9	603-069-00-0

This product is not subject to or not applicable for any of the following International Regulations; **Stockholm Convention, Rotterdam Convention, Kyoto Protocol, Montreal Protocol, Basel Convention.**

International Inventories

Australia	All components of this product are listed on the Australian Inventory of Chemical Substances (AICS).
Canada	All components of this product are included on the Domestic Substances List (DSL).
China	All components of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).
Europe	All components of this product are listed on the European Inventory of Existing Commercial Chemical Substances (EINECS) or are exempt from listing.
Japan	All components of this product are listed on the Inventory of Existing and New Chemical Substances (ENCS).
Korea	All components of this product are included on the Existing Chemicals List (ECL).
New Zealand	All components of this product are listed on the New Zealand Inventory.
Philippines	All components in this product are listed in the Philippine Inventory of Chemicals and Chemical Substances (PICCS).
United States	All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory or are not required to be listed.

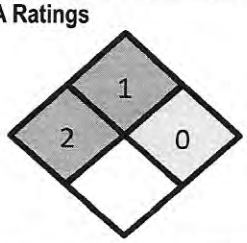
16. Other Information

Date Prepared or Revised: August 2016
Supersedes: March 2016

Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com

Additional Resin (White Side) Classifications

NFPA Ratings

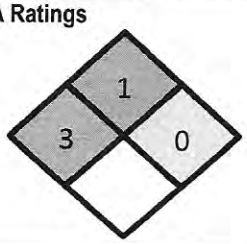


HMIS Rating

HEALTH	2	PHYSICAL	0
FLAMMABILITY	1	PPE	B

Additional Hardener (Black Side) Classifications

NFPA Ratings



HMIS Rating

HEALTH	3	PHYSICAL	0
FLAMMABILITY	1	PPE	B

Abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists

CAS No.:	Chemical Abstract Service Registry Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
HPR:	Hazardous Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
SDS:	Safety Data Sheet
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
U.S.:	United States
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Full Text of H – Phrases Under Section 3

H226:	Flammable liquid and vapor.
H301:	Toxic if swallowed.
H302:	Harmful if swallowed.
H311:	Toxic in contact with skin.
H314:	Causes severe skin burns and eye damage.
H315:	Causes skin irritation.
H317:	May cause an allergic skin reaction.
H318:	Causes serious eye damage.
H319:	Causes serious eye irritation.
H331:	Toxic if inhaled.
H332:	Harmful if inhaled.
H335:	May cause respiratory irritation.
H341:	Suspected of causing genetic defects.
H350:	May cause cancer.
H351:	Suspected of causing cancer.
H361:	Suspected of damaging fertility or the unborn child.
H372:	Causes damage to organs through prolonged and repeated exposure.
H373:	May cause damage to organs through prolonged and repeated exposure.
H400:	Very toxic to aquatic life.
H402:	Harmful to aquatic life.
H410:	Very toxic to aquatic life with long lasting effects.
H411:	Toxic to aquatic life with long lasting effects.
H412:	Harmful to aquatic life with long lasting effects.

Disclaimer

This Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

Internal

FOR INTERNAL USE ONLY

ET-HP Resin:	ET-HP Hardener:
XCOM3B – 50% Cartridge	XCOM3B- 50% Cartridge

Safety Data Sheet

SPECCHEM
Solution to Service

Strong Bond

Version 1

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

1.1 Trade Name (as labeled):	Strong Bond
Synonyms:	N/A
1.2 Product Use:	Coatings, textiles, binders and adhesives.
1.3 Company Name:	**SpecChem**
Company Address:	1511 Baltimore Ave; Suite 600
Company Address Cont:	Kansas City, MO 64108
Business Phone:	(816) 968-5600
Website:	www.specchemllc.com
1.4 Emergency Telephone Number:	**Chemtrec: (800) 424-9300**
Date of Current Revision:	April 16, 2015

SECTION 2 – HAZARDS IDENTIFICATION

Hazard Classification: This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Other hazards:
No data available.

SECTION 3 – COMPOSITION / INFORMATION ON INGREDIENTS

Component	CASRN	Concentration
Acrylic polymer(s)	Not hazardous	46.0-48.0%
Residual monomers	Not available	< 0.05%
Water	7732-18-5	52.0 -54.0%

SECTION 4 – FIRST AID MEASURES

Description of first aid measures
Inhalation: Move to fresh air.

Skin contact: Wash with water and soap as a precaution. If skin irritation persists, call a physician.
Eye contact: Rinse with plenty of water. If eye irritation persists, consult a specialist.
Ingestion: Drink 1 or 2 glasses of water. Consult a physician if necessary. Never give anything by mouth to an unconscious person.
Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.
Indication of any immediate medical attention and special treatment needed
Notes to physician: Treatment of exposure should be directed at the control of symptoms and the clinical condition of the patient.

SECTION 5 – FIRE FIGHTING MEASURES

Suitable extinguishing media: Use extinguishing media appropriate for surrounding fire.
Unsuitable extinguishing media: no data available
Special hazards arising from the substance or mixture Hazardous combustion products: no data available
Unusual Fire and Explosion Hazards: Material can splatter above 100C/212F. Dried product can burn.
Advice for firefighters
Fire Fighting Procedures: no data available
Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit.

SECTION 6 – ACCIDENTAL RELEASE MEASURES (STEPS FOR SPILLS)

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep people away from and upwind of spill/leak. Material can create slippery conditions.
Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.
Methods and materials for containment and cleaning up: Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

SECTION 7 - HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.
Conditions for safe storage: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.
Storage stability
Storage temperature: 1 - 49 °C (34 - 120 °F)
Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required.

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters
Exposure limits are listed below, if they exist.

Exposure controls
Engineering controls: Use local exhaust ventilation with a minimum capture velocity of 100 ft/min. (0.5 m/sec.) at the point of vapor evolution. Refer to the current edition of Industrial Ventilation: A

Manual of Recommended Practice published by the American Conference of Governmental Industrial Hygienists for information on the design, installation, use, and maintenance of exhaust systems.

Protective measures: Facilities storing or utilizing this material should be equipped with an eyewash facility.

Individual protection measures

Eye/face protection: Safety glasses with side-shields Eye protection worn must be compatible with respiratory protection system employed.

Skin protection

Hand protection: The glove(s) listed below may provide protection against permeation. (Gloves of other chemically resistant materials may not provide adequate protection): Neoprene gloves

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required under normal operating conditions. Where vapors and/or mists may occur, wear a properly fitted NIOSH approved (or equivalent) half-mask, airpurifying respirator. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) organic vapor cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance
Physical state: liquid
Color: Milky white
Odor: acrylic-like
Odor Threshold: no data available
pH: 9.3 - 10.2
Melting point/range: 0 °C (32 °F) Water
Freezing point: no data available
Boiling point: (760 mmHg) 100 °C (212 °F) Water
Flash point: Noncombustible
Evaporation Rate (Butyl Acetate = 1): <1 Water
Flammability (solid, gas): Not Applicable
Lower explosion limit: Not applicable
Upper explosion limit: Not applicable
Vapor Pressure: 17 mmHg at 20 °C (68 °F) Water
Relative Vapor Density (air = 1): <1 Water
Relative Density (water = 1): 1.0 - 1.2
Water solubility: Dilutable
Partition coefficient n-octanol/water: no data available
Auto-ignition temperature: Not applicable
Decomposition temperature: no data available
Dynamic Viscosity: 10 - 60 mPa.s
Kinematic Viscosity: no data available
Explosive properties: no data available
Oxidizing properties: no data available

Molecular weight: no data available
Percent volatility: 52 - 54 % Water

NOTE: The physical data presented above are typical values and should not be construed as a specification.

SECTION 10 – STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Stable

Possibility of hazardous reactions: None known.
Product will not undergo polymerization.

Conditions to avoid: no data available

Incompatible materials: There are no known materials which are incompatible with this product.
Hazardous decomposition products: Thermal decomposition may yield acrylic monomers.

SECTION 11 – TOXICOLOGY INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity
Acute oral toxicity
LD50, Rat, > 5,000 mg/kg
Acute dermal toxicity
LD50, Rabbit, > 5,000 mg/kg
Acute inhalation toxicity
Product test data not available.
Skin corrosion/irritation
May cause transient irritation.
Serious eye damage/eye irritation
No eye irritation
Sensitization
Product test data not available.
Specific Target Organ Systemic Toxicity (Single Exposure)
Product test data not available.
Specific Target Organ Systemic Toxicity (Repeated Exposure)
Product test data not available.
Carcinogenicity
Product test data not available.
Teratogenicity
Product test data not available.
Reproductive toxicity

Product test data not available.
Mutagenicity
Product test data not available.
Aspiration Hazard
Product test data not available.
Additional information
No data are available for this material. The information shown is based on profiles of compositionally similar materials.

COMPONENTS INFLUENCING TOXICOLOGY:
Acrylic polymer(s)
Acute inhalation toxicity
The LC50 has not been determined.
Residual monomers
Acute inhalation toxicity
The LC50 has not been determined.

SECTION 12 – ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

General Information
There is no data available for this product.

Toxicity
Acrylic polymer(s)
Acute toxicity to fish
No relevant data found.
Residual monomers
Acute toxicity to fish
No relevant data found.

Persistence and degradability
Acrylic polymer(s)
Biodegradability: No relevant data found.
Residual monomers
Biodegradability: No relevant data found.

Bioaccumulative potential
Acrylic polymer(s)
Bioaccumulation: No relevant data found.
Residual monomers
Bioaccumulation: No relevant data found.

Mobility in soil
Residual monomers
No relevant data found.

SECTION 13 – DISPOSAL CONSIDERATIONS

Disposal methods: Coagulate the emulsion by the stepwise addition of ferric chloride and lime. Remove the clear supernatant and flush to a chemical sewer. For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

SECTION 14 - TRANSPORTATION INFORMATION

DOT
Not regulated for transport

Classification for SEA transport (IMO-IMDG):
Not regulated for transport
Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code:
Consult IMO regulations before transporting ocean bulk
Classification for AIR transport (IATA/ICAO):
Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

SECTION 15 – REGULATORY INFORMATION

OSHA Hazard Communication Standard
This product is considered non-hazardous under the OSHA Hazard Communication Standard (29CFR1910.1200).
Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
This product is not a hazardous chemical under 29CFR 1910.1200, and therefore is not covered by Title III of SARA.

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This product does not contain a chemical which is listed in Section 313 at or above de minimis concentrations.
Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103
Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to

state and local emergency planning committees under the Superfund Amendments and Reauthorization Act (SARA) Title III Section 304.

Pennsylvania

Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

SECTION 16 – OTHER INFORMATION

Hazard Rating System
HMIS
Health - 1
Flammability - 0
Physical Hazard – 0

Revision
Identification Number: 101152722 / 1001 / Issue Date: 04/16/2015 / Version: 2.0
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

The information contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users are advised to confirm in advance of the need that information is current, applicable and suited to the circumstances of use. This safety sheet cannot cover all possible situations which the user may experience during processing. Each aspect of your operation should be examined to determine if, or where, additional precautions may be necessary. All health and safety information contained in this bulletin should be provided to your employees or customers. SpecChem assumes no responsibility for injury to vendee or third party person proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, SpecChem assumes no responsibility for injury caused by abnormal use of this material even if reasonable safety procedures are followed. Compliance with all applicable federal, state, and local laws and local regulations remains the responsibility of the user.

END OF SDS SHEET

HCS CONCRETE

SDS Manual

SECTION 3

SAFETY DATA SHEET

Georgia-Pacific

1. Identification

Product identifier **WOOD PRODUCTS (UF BONDED)**

Product list Medium Desity Fiberboard (MDF) Paneling: - Mount Vernon®, StyleLine™, UltraStock MDF produced with UF resin Shelving

---

Engineered Boards: - Jubilee® RTP Beadboard Paneling, Clutter Cutter® Panels, InfiniCor® Industrial Panels

---

® is a Registered Trademark owned by or licensed to Georgia-Pacific Wood Products LLC
™ is a Trademark owned by or licensed to Georgia-Pacific Wood Products LLC

Other means of identification

SDS number GP-30

Recommended use Building Materials - Decorative

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Company name	Georgia-Pacific Wood Products LLC	
Address	133 Peachtree Street, NE Atlanta, GA 30303	
Telephone	Technical Information	800.284.5347
	MSDS Request	404.652.5119
E-mail	Not available.	
Emergency phone number	Chemtrec - Emergency	800.424.9300

2. Hazard(s) identification

Emergency overview This product is not hazardous in the form in which it is shipped by the manufacturer but may become hazardous by downstream activities (e.g., grinding, sanding, cutting, pulverizing) that reduce its particle size. Those hazards are described below.

Physical hazards Not classified.

Health hazards

Eye irritation	Category 2B
Sensitization, respiratory	Category 1
Sensitization, skin	Category 1
Germ cell mutagenicity	Category 2
Carcinogenicity	Category 1A
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

Environmental hazards Not classified.

OSHA defined hazards Combustible dust

Label elements

Signal word Danger

Hazard statement May cause an allergic skin reaction. Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause cancer. Suspected of causing genetic defects. If small particles of wood dust are generated during further processing, handling or by other means, may form combustible dust concentrations in air.

Precautionary statement

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Use only outdoors or in a well-ventilated area. Prevent dust accumulation and airborne dispersion of dust to minimize flash fire and explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Response	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor. If exposed or concerned: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
WOOD/WOOD DUST		Not Assigned	65 - 85
FORMALDEHYDE		50-00-0	0 - < 0.1
UREA, POYLMER WITH FORMALDEHYDE		9011-05-6	1 - 5
Other components below reportable levels			10 - 30

The specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Some lumber products may be sprayed with sap stain control coatings.

4. First-aid measures

Inhalation	Remove from area of exposure. If the affected person is not breathing, apply artificial respiration. If persistent irritation, severe coughing or breathing difficulty occurs, seek medical attention.
Skin contact	If irritation develops, wash with soap and water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Do not rub eyes. Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.
Ingestion	If wood or wood dust is swallowed, get immediate medical attention or advice -- Do not induce vomiting.
Most important symptoms/effects, acute and delayed	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause an allergic skin reaction. Dermatitis. Rash. May cause respiratory irritation. Difficulty in breathing.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2). Apply extinguishing media carefully to avoid creating airborne dust. Avoid high pressure media which could cause the formation of a potentially explosible dust-air mixture.
Unsuitable extinguishing media	Heavy water (or jet) stream may cause dust to become airborne and create a flash fire hazard or an explosive atmosphere.
Specific hazards arising from the chemical	Explosion hazard: Avoid generating dust; fine dust dispersed in air in sufficient concentrations and in the presence of an ignition source is a potential dust explosion hazard. During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk.
Specific methods	To avoid dust clouds, responders should use the extinguisher from as far away as possible and apply the extinguishing agent as gently as possible. The main considerations with hose stream operation are to avoid creating combustible dust clouds or introducing more air. In particular, the use of solid streams and direct dust pile hits can disperse dust into the air creating a potential flash fire hazard. The best way to apply water is in a medium to wide-pattern, as gently as possible. Responders should use a low nozzle pressure and loft the stream onto the burning material from as far away as the stream will reach.
General fire hazards	May form combustible dust concentrations in air.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Use only non-sparking tools. Dust deposits should not be allowed to accumulate on surfaces, as these may form an explosive mixture if they are released into the atmosphere in sufficient concentration. Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Take precautionary measures against static discharge. Use only non-sparking tools. Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Vacuum dust with dust ignition proof vacuum or wet sweep small wood pieces and dust; place in appropriate container for disposal. Gather larger pieces by an appropriate method. Reduce airborne dust by use of wet methods (e.g. water mist) and prevent scattering by moistening with water. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Dust can form an explosive mixture in air. Provide appropriate exhaust ventilation at machinery and at places where dust can be generated. Minimize dust generation and accumulation. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions. Routine housekeeping should be instituted to ensure that dusts do not accumulate on surfaces. If flash fire or explosion hazard is present, wear flame resistant clothing and face/head protection. Dry powders can build static electricity charges when subjected to the friction of transfer and mixing operations. Provide adequate precautions, such as electrical grounding and bonding, or inert atmospheres. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Wear appropriate personal protective equipment. Use personal protective equipment as required. Ensure dust collection systems used for conveying combustible wood dusts are protected with and equipped with fire and explosion prevention and protection equipment. See NFPA 664 and NFPA 69 for further requirements, information and guidance.
Conditions for safe storage, including any incompatibilities	Store flat, supported and protected from direct contact with the ground. Store away from incompatible materials (see Section 10 of the SDS). Store in a cool dry place.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
FORMALDEHYDE (CAS 50-00-0)	STEL	2 ppm
	TWA	0.75 ppm

US. OSHA Table Z-3 (29 CFR 1910.1000)

Components	Type	Value	Form
WOOD/WOOD DUST	TWA	5 mg/m3	Respirable fraction.
		15 mg/m3	Total dust.

ACGIH

Components	Type	Value	Form
WOOD/WOOD DUST	TWA	1 mg/m3	Inhalable fraction.

US. ACGIH Threshold Limit Values

Components	Type	Value
FORMALDEHYDE (CAS 50-00-0)	STEL	0.3 ppm
	TWA	0.1 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
FORMALDEHYDE (CAS 50-00-0)	Ceiling	0.1 ppm	
	TWA	0.016 ppm	
WOOD/WOOD DUST	TWA	1 mg/m3	Dust.

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines Georgia-Pacific Wood Products LLC voluntarily elects to adhere to exposure limits contained in OSHA's 1989 Air Contaminants Standard although certain limits were vacated in 1992. The present OSHA exposure limits governing wood dust is 15 mg/m3 (Total Dust) and 5 mg/m3 (Respirable Fraction).

Appropriate engineering controls Due to the fire and explosive potential of dust when suspended in air, precautions should be taken when material is used in any operation which may generate dust. Local exhaust, general dilution ventilation in enclosed areas, and explosion proof equipment is recommended. Use wet methods, if appropriate, to reduce airborne dust concentrations.

Individual protection measures, such as personal protective equipment

Eye/face protection Safety glasses or goggles are recommended when using this product. Ensure compliance with OSHA's PPE standard (29 CFR 1910.132 and .133) for eye and face protection.

Skin protection

Hand protection Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.

Other Impervious protective clothing and gloves recommended to prevent drying or irritation of skin. Ensure compliance with OSHA's PPE standards (29 CFR 1910.132 (general) and 138 (hand protection)). Safety shower/eye wash fountain is recommended in the workplace area (29 CFR 1910.151 (c)).

Respiratory protection A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance Rigid boards or panels

Physical state Solid.

Form Solid wood

Color Various

Odor Not available.

Odor threshold Not available.

pH Not applicable

Melting point/freezing point Not applicable

Initial boiling point and boiling range Not available.

Flash point Not applicable

Evaporation rate Not applicable

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	40 g/cm3 for wood dust (Note: The LEL is quivalent to the Minimum Explosive Concentration (MEC) for the combustible dust. The MEC will vary with particle size of the wood dust. Recommend MEC testing for specific wood dust particle sizes generated or handled.)
Flammability limit - upper (%)	Not available
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not applicable
Vapor density	Not applicable
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Insoluble
Partition coefficient (n-octanol/water)	Not applicable
Auto-ignition temperature	399.92 - 500 °F (204.4 - 260 °C) for wood
Decomposition temperature	Not available
Viscosity	Not available.
Other information	
Bulk density	Not applicable
Flash point class	Combustible
Specific gravity	Variable

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Dust accumulation, dispersion of dust in air, high temperatures, open flame, sparks, or other sources of ignition.
Incompatible materials	Strong acids, alkalies, oxidizing agents and drying oils.
Hazardous decomposition products	Thermal decomposition may emit irritating fumes or gases of carbon monoxide, carbon dioxide, aldehydes, or organic acids.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Prolonged inhalation may be harmful.
Skin contact	May cause an allergic skin reaction.
Eye contact	Causes eye irritation.
Ingestion	Not applicable under normal conditions of use. May result in obstruction or temporary irritation of the digestive tract.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. Dusts may irritate the respiratory tract, skin and eyes. Difficulty in breathing. May cause an allergic skin reaction. Dermatitis. Rash.

Information on toxicological effects

Acute toxicity

Components	Species	Test Results
FORMALDEHYDE (CAS 50-00-0)		
Acute		
Dermal		
LD50	Rabbit	270 mg/kg

Components	Species	Test Results
Inhalation		
Gas		
LC50	Rat	480 ppm, 4 Hours
Oral		
LD50	Rat	640 - 800 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes eye irritation.

Respiratory or skin sensitization

ACGIH sensitization

FORMALDEHYDE (CAS 50-00-0)	Dermal sensitization Respiratory sensitization

Respiratory sensitization May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity Suspected of causing genetic defects.

Carcinogenicity Wood dust generated from sawing, sanding or machining this product may cause nasal dryness, irritation, coughing and sinusitis. The International Agency for Research on Cancer (IARC), and National Toxicology Program (NTP) classifies wood dust as a carcinogen. This classification is based on the increased occurrence of adenocarcinomas of the nasal cavities and paranasal sinuses associated with exposure to wood dust. The evaluation noted insufficient evidence to associate cancers of the oropharynx, hypopharynx, lung, lymphatic and hematopoietic systems, stomach, colon, or rectum with exposure to wood dust.

The weight of the scientific evidence surrounding the potential association between formaldehyde and cancer risk for both upper respiratory cancer as well as leukemia is conflicting even when significant and prolonged exposure to inhaled formaldehyde are involved.

IARC and NTP classify formaldehyde as a carcinogen due to cancers of the upper respiratory system and leukemia. OSHA regulates formaldehyde as a potential carcinogen for exposures at or exceeding 0.5 ppm.

IARC Monographs. Overall Evaluation of Carcinogenicity

FORMALDEHYDE (CAS 50-00-0)	1 Carcinogenic to humans.
WOOD/WOOD DUST (CAS Not Assigned)	1 Carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

FORMALDEHYDE (CAS 50-00-0)	Cancer

US. National Toxicology Program (NTP) Report on Carcinogens

FORMALDEHYDE (CAS 50-00-0)	Known To Be Human Carcinogen.
WOOD/WOOD DUST (CAS Not Assigned)	Known To Be Human Carcinogen.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not an aspiration hazard.

Chronic effects Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
WOOD PRODUCTS (UF BONDED)			
Aquatic			
Crustacea	EC50	Daphnia	2000 mg/L, 48 Hours
Fish	LC50	Fish	24100 mg/L, 96 Hours

Components		Species	Test Results
FORMALDEHYDE (CAS 50-00-0)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia pulex)	5.8 mg/l, 48 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)
FORMALDEHYDE 0.35

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Under RCRA, it is the responsibility of the user of the product to determine, at the time of disposal, whether the product meets RCRA criteria for hazardous waste.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty packaging/container can be disposed in accordance with all applicable regulations.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

15. Regulatory information

US federal regulations

Wood and wood products are considered manufactured articles and are exempt under OSHA's Hazard Communication Standard 29 CFR 1910.1200. Wood dust, a by-product generated from sawing, sanding or machining wood and wood products, is considered hazardous and is regulated under the Hazard Communication Standard 29 CFR 1910.1200.

HUD. The Department of Housing and Urban Development (HUD) regulation 24 CFR 3280 provides for third-party certification of particleboard and hardwood plywood manufactured with urea-formaldehyde resin for formaldehyde emissions. In all cases, certification is made in accordance with ASTM E1333-96, Large Scale Test Method for Determining Formaldehyde Emissions from Wood Products. Georgia Pacific Wood Products, LLC does not manufacturer particleboard or hardwood plywood bonded with urea formaldehyde. Urea formaldehyde bonded thin MDF paneling manufactured by Georgia Pacific Wood Products, LLC is not covered in the HUD regulation 24 CFR 3280. It meets the formaldehyde emission requirements of ANSI A208.2-2002, Medium Density Fiberboard (MDF) for Interior Applications, with a voluntary certification level of 0.2 ppm at a loading rate of 0.08 square foot/cubic foot and is voluntarily certified to meet the HUD particleboard emission limit of 0.3 ppm at a loading rate of 0.13 square feet/cubic foot.

California Air Resources Board (CARB). The CARB Air Toxic Control Measures regulation CCR 93120.2(a) provides for third-party certification and compliance with requirements to reduce allowable formaldehyde emissions from composite wood products. Phase 2 regulations require an emission standard of 0.11 ppm for Medium Density Fiberboard (MDF) and 0.13 ppm for thin MDF. Georgia-Pacific medium density fiberboard products are certified to, and comply with, CARB Phase 2 formaldehyde emission levels.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

FORMALDEHYDE (CAS 50-00-0) Listed.

SARA 304 Emergency release notification

FORMALDEHYDE (CAS 50-00-0) 100 LBS

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

FORMALDEHYDE (CAS 50-00-0)

Cancer
Skin sensitization
Respiratory sensitization
Eye irritation
Skin irritation
respiratory tract irritation
Acute toxicity
Flammability

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
FORMALDEHYDE	50-00-0	100	500		

SARA 311/312 Hazardous chemical Yes

Classified hazard categories

Combustible dust
Serious eye damage or eye irritation
Respiratory or skin sensitization
Germ cell mutagenicity
Carcinogenicity
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

FORMALDEHYDE (CAS 50-00-0)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

FORMALDEHYDE (CAS 50-00-0)

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations

California Proposition 65

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust, or use a dust mask or other safeguards for personal protection. For more information go to: www.P65Warnings.ca.gov/wood

California Proposition 65 - CRT: Listed date/Carcinogenic substance

FORMALDEHYDE (CAS 50-00-0) Listed: January 1, 1988
WOOD/WOOD DUST (CAS Not Assigned) Listed: December 18, 2009

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

FORMALDEHYDE (CAS 50-00-0)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	May-21-2015
Revision date	May-31-2018
Version #	05
Further information	Refer to NFPA 654, Standard for the Prevention of Fire and Dust Explosions from the Manufacturing, Processing, and Handling of Combustible Particulate Solids, for safe handling.
HMIS® ratings	Health: 2* Flammability: 1 Physical hazard: 0
NFPA ratings	Health: 2 Flammability: 1 Instability: 0
Disclaimer	This SDS is intended to quickly provide useful information to the user(s) of this material or product. It is not intended to serve as a comprehensive discussion of all possible risks or hazards, and it assumes a reasonable use of the product. The information contained in this SDS is believed to be accurate as of the date of preparation of this SDS and has been compiled from sources believed to be reliable. It is offered for your consideration, investigation and verification. The user or handler (or their employer) should consider the specific conditions in which this material will be used, handled, or stored and determine what specific safety or other precautions are required. Employers should ensure that their employees, agents, contractors, and customers who will use the product receive adequate warnings and safe handling procedures, including a current SDS. Product users or handlers (or their employer) who are unsure of what specific precautions are required should consult their employer, product supplier, or safety or health professionals before handling or working with this product. Please notify us immediately if you believe this SDS or other safety and health information about this product is inaccurate or incomplete.
Revision information	Regulatory information: California Proposition 65 Regulatory information: US federal regulations

WOOD PRODUCTS (UF BONDED)

Hazard statement

May cause an allergic skin reaction. Causes eye irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause respiratory irritation. May cause cancer. Suspected of causing genetic defects. If small particles of wood dust are generated during further processing, handling or by other means, may form combustible dust concentrations in air.

Precautionary statement

Prevention

Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Wear respiratory protection. Avoid breathing dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Use only outdoors or in a well-ventilated area. Prevent dust accumulation and airborne dispersion of dust to minimize flash fire and explosion hazard. Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Response

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If on skin: Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. If experiencing respiratory symptoms: Call a poison center/doctor. If exposed or concerned: Get medical advice/attention. In case of fire: Use appropriate media to extinguish.

Storage

Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

Disposal

Dispose of contents/container in accordance with local/regional/national/international regulations.

Danger

Wood and wood products are considered manufactured articles and are exempt under OSHA's Hazard Communication Standard 29 CFR 1910.1200. Wood dust, a by-product generated from sawing, sanding or machining wood and wood products, is considered hazardous and is regulated under the Hazard Communication Standard 29 CFR 1910.1200.

HUD. The Department of Housing and Urban Development (HUD) regulation 24 CFR 3280 provides for third-party certification of particleboard and hardwood plywood manufactured with urea-formaldehyde resin for formaldehyde emissions. In all cases, certification is made in accordance with ASTM E1333-96, Large Scale Test Method for Determining Formaldehyde Emissions from Wood Products. Georgia Pacific Wood Products, LLC does not manufacturer particleboard or hardwood plywood bonded with urea formaldehyde. Urea formaldehyde bonded thin MDF paneling manufactured by Georgia Pacific Wood Products, LLC is not covered in the HUD regulation 24 CFR 3280. It meets the formaldehyde emission requirements of ANSI A208.2-2002, Medium Density Fiberboard (MDF) for Interior Applications, with a voluntary certification level of 0.2 ppm at a loading rate of 0.08 square foot/cubic foot and is voluntarily certified to meet the HUD particleboard emission limit of 0.3 ppm at a loading rate of 0.13 square feet/cubic foot.

California Air Resources Board (CARB). The CARB Air Toxic Control Measures regulation CCR 93120.2(a) provides for third-party certification and compliance with requirements to reduce allowable formaldehyde emissions from composite wood products. Phase 2 regulations require an emission standard of 0.11 ppm for Medium Density Fiberboard (MDF) and 0.13 ppm for thin MDF. Georgia-Pacific medium density fiberboard products are certified to, and comply with, CARB Phase 2 formaldehyde emission levels.

California Proposition 65

WARNING: Drilling, sawing, sanding or machining wood products can expose you to wood dust, a substance known to the State of California to cause cancer. Avoid inhaling wood dust, or use a dust mask or other safeguards for personal protection. For more information go to: www.P65Warnings.ca.gov/wood

Georgia-Pacific

Georgia-Pacific Wood Products LLC
133 Peachtree Street, NE
Atlanta, GA 30303
Chemtrec - Emergency :
800.424.9300

Product list:

Medium Desity Fiberboard (MDF) Paneling: - Mount Vernon®, StyleLine™, UltraStock MDF produced with UF resin Shelving

Engineered Boards: - Jubilee® RTP Beadboard Paneling, Clutter Cutter® Panels, InfiniCor® Industrial Panels

MUTUAL MATERIALS
Trusted Since 1900

SAFETY DATA SHEET (SDS)

CONCRETE MASONRY UNITS

Section 1: IDENTIFICATION

1.1 PRODUCT IDENTIFIER

Product Name: Concrete Architectural Slabs
Concrete Block
Concrete Pavers
Concrete Paving Slabs
Concrete Segmental Retaining Wall Units

1.2 RECOMMENDED USE OF CHEMICAL AND RESTRICTIONS ON USE

Use: Construction material used in building and hardscape applications.

1.3 DETAILS OF THE SUPPLIER OF THE SAFETY DATA SHEET

Name/Address: Mutual Materials Co, 605 - 119th Avenue NE, Bellevue, Washington 98005
www.mutualmaterials.com

Telephone Number: (425)452-2300 / (800) 477-3008

1.4 EMERGENCY TELEPHONE NUMBER

Emergency Telephone Number: (425)452-2300 / (800) 477-3008

Date of Preparation: 6/1/2015 **Version #:** 1.0

Section 2: HAZARD(S) IDENTIFICATION

2.1 CLASSIFICATION OF THE CHEMICAL ACCORDING TO OSHA HAZCOM 2012

Hazard class

Skin irritation 2
Eye irritation 2A
Skin sensitization 1
Carcinogenicity 1A
Specific target organ toxicity - Single exposure 3
Specific target organ toxicity - Repeated exposure 1

2.2 LABEL ELEMENTS ACCORDING TO OSHA HAZCOM 2012

Hazard Pictogram:

Signal Word: Danger

Hazard Statement: Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction. Respirable dust may contain crystalline silica, known to cause cancer. May cause respiratory irritation. Causes damage to lungs through prolonged or repeated exposure.

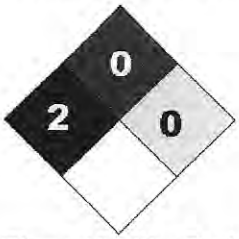
Prevention:	Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing must not be allowed out of the workplace. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Do not breathe dust.
Response:	If exposed or concerned: Get medical advice/attention. If on skin: Wash with plenty of water. Take off contaminated clothing and wash it before reuse. If skin irritation or rash occurs: Get medical advice/attention. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.
Storage:	Not applicable.
Disposal:	Dispose of unused or unwanted concrete products in accordance with all local, regional, national and international regulations.

2.3 ADDITIONAL INFORMATION

Hazards not otherwise classified: Not applicable.

47 % of the mixture consists of ingredient(s) of unknown acute toxicity.

Mexico Classification:



Blue = Health Red = Flammability Yellow = Reactivity White = Special

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

WHMIS Classification(s):

Class D2A - Carcinogenicity
Class D2A - Chronic Toxic Effects
Class D2B - Skin/Eye Irritant

WHMIS Hazard Symbols:

WHMIS Signal Word: WARNING

Section 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1 MIXTURES

Ingredient	UN #	H / F/ R / *	CAS No	Wt. %
Coarse aggregate	Not available.	Not available.	Not available.	15 - 60
Portland cement	Not available.	1/0/0	65997-15-1	10 - 30
Ashes (residues)	Not available.	Not available.	68131-74-8	0.1 - 30
Slags, ferrous metal, blast furnace	Not available.	Not available.	65996-69-2	0.1 - 30
Water	Not available.	Not available.	7732-18-5	10 - 30
Silica, crystalline, quartz	Not available.	Not available.	14808-60-7	3 - 7
Ferric oxide	UN1376	1/0/0	1309-37-1	1 - 5
Calcium carbonate	Not available.	1/0/0	1317-65-3	1 - 5
Calcium hydroxide	Not available.	3/0/0	1305-62-0	1 - 5
Silica, amorphous, fumed	Not available.	Not available.	7631-86-9	1 - 5
Admixtures (organic and inorganic)	Not available.	Not available.	Not available.	0.1 - 1

The exact percentage (concentration) of composition has been withheld as a trade secret in accordance with paragraph (i) of §1910.1200.

* Per NOM-018-STPS-2000

Section 4: FIRST- AID MEASURES

4.1 DESCRIPTION OF THE FIRST AID MEASURE

Eye: In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. If easy to do, remove contact lenses, if worn. If eye irritation persists: Get medical advice/attention.

Skin: If irritation occurs, flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Call a physician if irritation develops and persists.

Inhalation: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical advice/attention if you feel unwell.

Ingestion: Not a normal route of exposure. If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical advice/attention.

4.2 MOST IMPORTANT SYMPTOMS AND EFFECTS, BOTH ACUTE AND DELAYED

Eye: Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Skin: Causes skin irritation. Wear gloves when handling product to avoid drying and mechanical abrasion of the skin. May cause sensitization by skin contact.

Inhalation: Dust may cause respiratory tract irritation.

Ingestion: Not a normal route of exposure. May result in obstruction and temporary irritation of the digestive tract.

4.3 INDICATION OF ANY IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENTS NEEDED

Note to Physicians: Symptoms may not appear immediately.

Specific Treatments: In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

Section 5: FIRE-FIGHTING MEASURES

5.1 FLAMMABILITY

Flammability: Not flammable by WHMIS/OSHA/NOM-018-STPS-2000 criteria.

5.2 EXTINGUISHING MEDIA

Suitable Extinguishing Media: Treat for surrounding material.

Unsuitable Extinguishing Media: Not available.

5.3 SPECIAL HAZARDS ARISING FROM THE CHEMICAL

Products of Combustion: May include, and are not limited to: oxides of carbon.

Explosion Data:

Sensitivity to Mechanical Impact: Not available.

Sensitivity to Static Discharge: Not available.

5.4 SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS

Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

Section 6: ACCIDENTAL RELEASE MEASURES

6.1 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES

Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

6.2 METHODS AND MATERIALS FOR CONTAINMENT AND CLEANING - UP

Methods for Containment: Pick up large pieces, then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for Cleaning-Up: Vacuum or sweep material and place in a disposal container. Use wet methods, if appropriate, to reduce the generation of dust. Provide ventilation if dust is generated.

Section 7: HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING

Handling: Avoid contact with skin and eyes. Good housekeeping is important to prevent accumulation of dust. Avoid generating and breathing dust. Use wet methods, if appropriate, to reduce the generation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Handle with care. When using do not eat or drink. (See section 8)

General Hygiene Advice: Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES

Storage: Avoid any dust buildup by frequent cleaning and suitable construction of the storage area. (See section 10) Always stack and store clay masonry units in a stable manner to avoid falling hazards.

Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 CONTROL PARAMETERS

Exposure Guidelines

Occupational Exposure Limits		
Ingredient	**OSHA-PEL**	**ACGIH-TLV**
Coarse aggregate	Not available.	Not available.
Portland cement	15 mg/m³ (total); 5 mg/m³ (resp)	1 mg/m³ (no asbestos and <1% crystalline silica, respirable fraction)
Ashes (residues)	Not available.	Not available.
Slags, ferrous metal, blast furnace	Not available.	Not available.
Water	Not available.	Not available.
Silica, crystalline, quartz	((10 mg/m³)/(%SiO_2+2) (resp)) ((30 mg/m³)/(%SiO_2+2) (total)) ((250)/(%SiO_2+5) mppcf (resp))	0.025 mg/m³
Ferric oxide	10 mg/m³	5 mg/m³ (iron oxide fume; dust as Fe)
Calcium carbonate	15 mg/m³ (total); 5 mg/m³ (resp)	10 mg/m³
Calcium hydroxide	15 mg/m³ (total); 5 mg/m³ (resp)	5 mg/m³
Silica, amorphous, fumed	80 mg/m³/%SiO_2	10 mg/m³
Admixtures (organic and inorganic)	Not available.	Not available.

8.2 EXPOSURE CONTROLS

Engineering Controls: When using product, provide local and general exhaust ventilation to keep airborne dust concentrations below exposure limits. Use wet methods, if appropriate, to reduce the generation of dust.

8.3 INDIVIDUAL PROTECTIVE MEASURES

Personal Protective Equipment:

Eye/Face Protection:	Safety glasses or goggles are recommended when using product.
Skin Protection:	
Hand Protection:	Wear suitable gloves.
Body Protection:	Wear suitable protective clothing.
Respiratory Protection:	A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).
General Health and Safety Measures:	Handle according to established industrial hygiene and safety practices. Do not eat, smoke or drink where material is handled, processed or stored. Wash hands carefully before eating or smoking.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1 INFORMATION ON BASIC PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Fully cured and hydrated concrete.
Color:	Not available.
Odor:	Odorless.
Odor Threshold:	Not available.
Physical State:	Solid.
pH:	Not available.
Melting Point/Freezing Point:	Not available.
Initial Boiling Point and Boiling Range:	Not available.
Flash Point:	Not available.
Evaporation Rate:	Not available.
Flammability:	Not flammable.
Lower Flammability/Explosive Limit:	Not available.
Upper Flammability/Explosive Limit:	Not available.
Vapor Pressure:	Not available.
Vapor Density:	Not available.
Relative Density/Specific Gravity:	Not available.
Solubility:	Insoluble.

Partition coefficient: n-octanol/water:	Not available.
Auto-ignition Temperature:	Not available.
Decomposition Temperature:	Not available.
Viscosity:	Not available.
Oxidizing Properties:	Not available.
Explosive Properties:	Not available.

Section 10: STABILITY AND REACTIVITY

10.1 REACTIVITY

No dangerous reaction known under conditions of normal use.

10.2 CHEMICAL STABILITY

Stable under normal conditions of use.

10.3 POSSIBILITY OF HAZARDOUS REACTIONS

No dangerous reaction known under conditions of normal use.

10.4 CONDITIONS TO AVOID

None known.

10.5 INCOMPATIBLE MATERIALS

None known.

10.6 HAZARDOUS DECOMPOSITION PRODUCTS

None known.

Section 11: TOXICOLOGICAL INFORMATION

11.1 INFORMATION ON TOXICOLOGICAL EFFECTS

Likely Routes of Exposure: Skin contact, eye contact, and inhalation.

Symptoms related to physical/chemical/toxicological characteristics:

Eye: Causes serious eye irritation. Symptoms may include discomfort or pain, excess blinking and tear production, with possible redness and swelling.

Skin: Causes skin irritation. Wear gloves when handling product to avoid drying and mechanical abrasion of the skin. May cause sensitization by skin contact.

Ingestion: Not a normal route of exposure. May result in obstruction and temporary irritation of the digestive tract.

Inhalation: Dust may cause respiratory tract irritation.

Acute Toxicity:

Ingredient	IDLH	LC50	LD50
Coarse aggregate	Not available.	Not available.	Not available.
Portland cement	5000 mg/m^3	Not available.	Not available.
Ashes (residues)	Not available.	Not available.	Oral > 2000 mg/kg, rat
Slags, ferrous metal, blast furnace	Not available.	Not available.	Not available.
Water	Not available.	Inhalation 90000 mg/m^3/4h, rat	Oral >90000 mg/kg, rat Dermal >90000 mg/kg, rabbit
Silica, crystalline, quartz	Ca [25 mg/m^3 (cristobalite, tridymite); 50 mg/m^3 (quartz, tripoli)]	Not available.	Oral 500 mg/kg, rat
Ferric oxide	2500 mg Fe /m^3	Not available.	Oral >10000 mg/kg, rat
Calcium carbonate	Not available.	Not available.	Oral 6450 mg/kg, rat
Calcium hydroxide	Not available.	Not available.	Oral 7340 mg/kg, rat
Silica, amorphous, fumed	Not available.	Inhalation ≥58.8 mg/l/1h, rat	Oral >5000 mg/kg, rat Dermal >2000 mg/kg, rabbit
Admixtures (organic and inorganic)	Not available.	Not available.	Not available.

Calculated overall Chemical Acute Toxicity Values		
LC50 (inhalation)	**LD50 (oral)**	**LD50 (dermal)**
> 5 mg/l/4h, rat	> 2000 mg/kg, rat	> 2000 mg/kg, rabbit

Ingredient	Chemical Listed as Carcinogen or Potential Carcinogen (NTP, IARC, OSHA, ACGIH, CP65)*
Coarse aggregate	Not listed.
Portland cement	G-A4
Ashes (residues)	Not listed.
Slags, ferrous metal, blast furnace	Not listed.
Water	Not listed.
Silica, crystalline, quartz	G-A2, I-1, N-1, O, CP65
Ferric oxide	G-A4, I-3
Calcium carbonate	Not listed.
Calcium hydroxide	Not listed.
Silica, amorphous, fumed	I-3
Admixtures (organic and inorganic)	Not listed.

* See Section 15 for more information.

11.2 DELAYED, IMMEDIATE, AND CHRONIC EFFECTS OF SHORT- AND LONG-TERM EXPOSURE

Skin Corrosion/Irritation: Causes skin irritation.

Serious Eye Damage/Irritation: Causes serious eye irritation.

Respiratory Sensitization: Not available.

Skin Sensitization: May cause an allergic skin reaction.

STOT-Single Exposure: Dust may cause respiratory tract irritation.

Chronic Health Effects:	Not available.
Carcinogenicity:	Respirable dust may contain crystalline silica, known to cause cancer.
Germ Cell Mutagenicity:	Not available.
Reproductive Toxicity:	Not available.
Developmental:	Not available.
Teratogenicity:	Not available.
Embryotoxicity:	Not available.
Fertility:	Not available.
STOT-Repeated Exposure:	Causes damage to lungs through prolonged or repeated exposure. Respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by the International Agency for Research on Cancer (IARC) and National Toxicology Program (NTP) as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of dust exposure and the length of time (usually years) of exposure.
Aspiration Hazard:	Based on available data, the classification criteria are not met.
Toxicologically Synergistic Materials:	Not available.
Other Information:	Not available.

Section 12: ECOLOGICAL INFORMATION

12.1 ECOTOXICITY

Acute/Chronic Toxicity: No ecological consideration when used according to directions.

12.2 PERSISTENCE AND DEGRADABILITY

Not available.

12.3 BIOACCUMULATIVE POTENTIAL

Bioaccumulation: Not available.

12.4 MOBILITY IN SOIL

Not available.

12.5 OTHER ADVERSE EFFECTS

Not available.

Section 13: DISPOSAL CONSIDERATIONS

13.1 WASTE TREATMENT METHODS

Disposal Method:	This material must be disposed of in accordance with all local, state, provincial, and federal regulations.
Other disposal recommendations:	Not available.

Section 14: TRANSPORT INFORMATION

14.1 UN NUMBER

DOT	TDG	NOM-004-SCT2-1994
Not regulated.	Not regulated.	Not regulated.

14.2 UN PROPER SHIPPING NAME

DOT	TDG	NOM-004-SCT2-1994
Not applicable.	Not applicable.	Not applicable.

14.3 TRANSPORT HAZARD CLASS (ES)

DOT	TDG	NOM-004-SCT2-1994
Not applicable.	Not applicable.	Not applicable.

14.4 PACKING GROUP

DOT	TDG	NOM-004-SCT2-1994
Not applicable.	Not applicable.	Not applicable.

14.5 ENVIRONMENTAL HAZARDS

Not available.

14.6 TRANSPORT IN BULK ACCORDING TO ANNEX II OF MARPOL 73/78 AND THE IBC CODE

Not available.

14.7 SPECIAL PRECAUTIONS FOR USER

Do not handle until all safety precautions have been read and understood.

Section 15: REGULATORY INFORMATION

15.1 SAFETY, HEALTH AND ENVIRONMENTAL REGULATIONS/ LEGISLATIONS SPECIFIC FOR THE CHEMICAL

Canada: This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the SDS contains all the information required by the Controlled Products Regulations.

US: SDS prepared pursuant to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012

Mexico: SDS prepared pursuant to NOM-018-STPS-2000.

SARA Title III				
Ingredient	**Section 302 (EHS) TPQ (lbs.)**	**Section 304 EHS RQ (lbs.)**	**CERCLA RQ (lbs.)**	**Section 313**
Coarse aggregate	Not listed.	Not listed.	Not listed.	Not listed.

Portland cement	Not listed.	Not listed.	Not listed.	Not listed.
Ashes (residues)	Not listed.	Not listed.	Not listed.	Not listed.
Slags, ferrous metal, blast furnace	Not listed.	Not listed.	Not listed.	Not listed.
Water	Not listed.	Not listed.	Not listed.	Not listed.
Silica, crystalline, quartz	Not listed.	Not listed.	Not listed.	Not listed.
Ferric oxide	Not listed.	Not listed.	Not listed.	Not listed.
Calcium carbonate	Not listed.	Not listed.	Not listed.	Not listed.
Calcium hydroxide	Not listed.	Not listed.	Not listed.	Not listed.
Silica, amorphous, fumed	Not listed.	Not listed.	Not listed.	Not listed.
Admixtures (organic and inorganic)	Not listed.	Not listed.	Not listed.	Not listed.

State Regulations

California Proposition 65:

This product contains Crystalline Silica, Quartz and may also contain trace amounts of other chemicals known to the State of California to cause cancer, birth defects or other reproductive harm which may be released upon sanding/cutting/grinding/drilling.

Global Inventories:

Ingredient	Canada DSL/NDSL	USA TSCA
Coarse aggregate	Not available.	Not available.
Portland cement	DSL	Yes.
Ashes (residues)	DSL	Yes.
Slags, ferrous metal, blast furnace	DSL	Yes.
Water	DSL	Yes.
Silica, crystalline, quartz	DSL	Yes.
Ferric oxide	DSL	Yes.
Calcium carbonate	NDSL	Yes.
Calcium hydroxide	DSL	Yes.
Silica, amorphous, fumed	DSL	Yes.
Admixtures (organic and inorganic)	Not available.	Not available.

NFPA-National Fire Protection Association:	
Health:	2
Fire:	0
Reactivity:	0

HMIS-Hazardous Materials Identification System:	
Health:	2*
Fire:	0
Physical Hazard:	0

Hazard Rating: 0 = minimal, 1 = slight, 2 = moderate, 3 = severe, 4 = extreme

SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

CP65 **California Proposition 65**

OSHA (O) **Occupational Safety and Health Administration.**

ACGIH (G) **American Conference of Governmental Industrial Hygienists.**
A1 - Confirmed human carcinogen.
A2 - Suspected human carcinogen.
A3 - Animal carcinogen.

A4 - Not classifiable as a human carcinogen.
A5 - Not suspected as a human carcinogen.

IARC (I) **International Agency for Research on Cancer.**
1 - The agent (mixture) is carcinogenic to humans.
2A - The agent (mixture) is probably carcinogenic to humans; there is limited evidence of carcinogenicity in humans and sufficient evidence of carcinogenicity in experimental animals.
2B - The agent (mixture) is possibly carcinogenic to humans; there is limited evidence of carcinogenicity in humans in the absence of sufficient evidence of carcinogenicity in experimental animals.
3 - The agent (mixture, exposure circumstance) is not classifiable as to its carcinogenicity to humans.
4 - The agent (mixture, exposure circumstance) is probably not carcinogenic to humans.

NTP (N) **National Toxicology Program.**
1 - Known to be carcinogens.
2 - Reasonably anticipated to be carcinogens.

Section 16: OTHER INFORMATION

Date of Preparation: 6/1/2015

Version: 1.0

Revision Date: 6/1/2015

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for the user's own particular use.

End of Safety Data Sheet

U.S. SILICA COMPANY
SAFETY DATA SHEET

Section 1: Chemical Product and Company Information

1.1 Product Identifier

Product Name: Silica Sand, Ground Silica and Fine Ground Silica Sand and Ground Silica Sand (sold under various names): ASTM TESTING SANDS • GLASS SAND • FILPRO® · FLINT SILICA • DM-SERIES • F-SERIES • FOUNDRY SANDS • FJ-SERIES H-SERIES • L-SERIES • N-SERIES • NJ SERIES • OK-SERIES • P-SERIES • T-SERIES • hydraulic fracturing sand, all sizes • frac sand, all sizes • MIN-U-SIL® Fine Ground Silica • MYSTIC WHITE® • #1 DRY • #1 SPECIAL • PENN SAND® • PRO WHITE® · SILURIAN® · Q-ROK® • SIL-CO-SIL® Ground Silica • MICROSIL® • SUPERSIL® • MASON SAND • GS SERIES • PERSPEC • proppant, all sizes • SHALE FRAC® - SERIES • KOSSE WHITE® • OTTAWA WHITE® • OPTIJUMP® • LIGHTHOUSE ™.

Chemical Name or Synonym: Crystalline Silica (Quartz), Sand, Silica Sand, Flint, Ground Silica, Fine Ground Silica, Silica Flour.

CAS No.: 14808-60-7

EINECS No.: 238-878-4

REACH Registration No.: Not applicable

1.2 Relevant Identified Uses of the Substance or Mixture and Uses Advised Against

Product Use: (non-exhaustive list): brick, ceramics, foundry castings, glass, grout, hydraulic, fracturing sand, frac sand, proppant, mortar, paint and coatings, silicate chemistry, silicone, rubber, thermoset plastics.

DO NOT USE U.S. SILICA COMPANY SAND OR GROUND SILICA FOR SAND BLASTING

1.3 Details of the Supplier of the Safety Data Sheet

Manufacturer: U.S. Silica Company
8490 Progress Drive, Suite 300
Fredrick, MD 21701 USA
Information Phone: 800-243-7500

1.4 Emergency Telephone Number

800-424-9300 (Chemtrec) +1-703-527-3887 for International Calls

SDS Date of Preparation/Revision: 1 May 2017

Section 2: Hazards Identification

2.1 Classification of the Substance or Mixture

EU Classification (1272/2008): Specific Target Organ Toxicity Repeated Exposure Category 1

2.2 Label Elements:

DANGER

H372 Causes damage to lungs through prolonged or repeated exposure by inhalation.
P260 Do not breathe dust.
P285 In case of inadequate ventilation wear respiratory protection.
P501 Dispose of contents/containers in accordance with local regulations.

2.3 Other Hazards: None identified

Section 3: Composition/Information on Ingredients

3.1 Substance

Component	CAS Number/ EINECS Number	Amount	EU/CLP Classification (1272/2008)
Crystalline Silica (quartz)	14808-60-7 / 238-878-4	95-99.9%	STOT RE 1 (H372)

Refer to Section 16 for Full Text of EU/CLP Classes and H Statements

Section 4: First Aid Measures

4.1 Description of First Aid Measures

First Aid

Eyes: Wash immediately with plenty of water. Do not rub eyes. If irritation persists, seek medical attention.

Skin: First aid is not required.

Ingestion: If large amounts are swallowed, get immediate medical attention.

Inhalation: First aid is not generally required. If irritation develops from breathing dust, move the person from the overexposure and seek medical attention if needed.

See Section 11 for more detailed information on health effects.

4.2 Most Important symptoms and effects, both acute and delayed: Particulates may cause abrasive eye injury. Inhalation of dust may cause respiratory tract irritation. Symptoms of exposure may include cough, sore throat, nasal congestion, sneezing, wheezing and shortness of breath. Prolonged inhalation of respirable crystalline silica above certain concentrations may cause lung diseases, including silicosis and lung cancer.

4.3 Indication of any immediate medical attention and special treatment needed: Immediate medical attention is not required.

Section 5: Fire Fighting Measures

5.1 Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

5.2 Special Hazards Arising from the Substance or Mixture: Product is not flammable, combustible or explosive.

5.3 Advice for Fire-Fighters: None required.

Section 6: Accidental Release Measures

6.1 Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing and respiratory protection. Avoid generating airborne dust during clean-up.

6.2 Environmental Precautions: No specific precautions. Report releases to regulatory authorities as required by local, state and federal regulations.

6.3 Methods and Material for Containment and Cleaning Up: Avoid dry sweeping. Do not use compressed air to clean spilled sand or ground silica. Use water spraying/flushing or ventilated or HEPA filtered vacuum cleaning system, or wet before sweeping. Dispose of in closed containers.

6.4 Reference to Other Sections:
Refer to Section 13 for disposal information and Section 8 for protective equipment.

Section 7: Handling and Storage

7.1 Precautions for Safe Handling: Do not generate dust. Do not breathe dust. Do not rely on your sight to determine if dust is in the air. Respirable crystalline silica dust may be in the air without a visible dust cloud. Use adequate exhaust ventilation and dust collection. Maintain and test ventilation and dust collection to reduce respirable crystalline silica dust levels to below the occupational exposure limit. Use all available work practices to control dust exposures, such as water sprays. Practice good housekeeping. Do not permit dust to collect on walls, floors, sills, ledges, machinery, or equipment. Keep airborne dust concentrations below permissible exposure limits.

Where necessary to reduce exposures below the applicable exposure limit, wear a respirator approved for silica containing dust when using, handling, storing or disposing of this product or bag. See Section 8, for further information on respirators. Do not alter the respirator. Do not wear a tight-fitting respirator with facial hair such as a beard or mustache that prevents a good face to face piece seal between the respirator and face. Maintain, clean, and fit test respirators in accordance with applicable standards. Wash or vacuum clothing that has become dusty.

Participate in training, exposure monitoring, and health surveillance programs to monitor any potential adverse health effects that may be caused by breathing respirable crystalline silica. All applicable national and local worker or community "right-to-know" laws and regulations should be strictly followed.

7.2 Conditions for Safe Storage, Including any Incompatibilities: Use dust collection to trap dust produced during loading and unloading. Keep containers closed and store bags to avoid accidental tearing, breaking, or bursting.

7.3 Specific end use(s):
Industrial uses: Various commercial and industrial applications.
Professional uses: Various commercial and industrial applications.

Section 8: Exposure Controls / Personal Protection

8.1 Control Parameters:

Chemical Name	ACGIH TLV	EU IOEL	UK OEL	DFG MK	France
Crystalline Silica (quartz)	0.025 mg/m3 TWA (respirable dust)	None Established	0.1 mg/m3 TWA (respirable	None Established	0.1 mg/m3 TWA (respirable)

			fraction)		

Where not listed above, refer to local regulations for applicable exposure limits

DNEL: None established
PNEC: None established

If crystalline silica (quartz) is heated to more than 870°C, quartz can change to a form of crystalline silica known as tridymite; if crystalline silica (quartz) is heated to more than 1470°C, quartz can change to a form of crystalline silica known as cristobalite. In some countries, the exposure limits for crystalline silica as tridymite or cristobalite is different than the exposure limit for crystalline silica (quartz).

8.2 Exposure Controls:
Recommended Monitoring Procedures: Collection on filters and analysis by x-ray diffraction. Size selective sampling is recommended.

Appropriate engineering controls: Use adequate general or local exhaust ventilation to maintain concentrations in the workplace below the applicable exposure limits listed above.

Personal Protective Measurers

Respiratory Protection: If it is not possible to reduce airborne exposure levels to below the applicable limit with ventilation, follow local regulations to assist you in selecting respirators that will reduce personal exposures to below the limits. Refer to EN 529 or member state-specific guidance on use and selection of respiratory protection.

Eye Protection: Safety glasses with side shields or goggles recommended if eye contact is anticipated (EN 166)

Skin Protection: Maintain good industrial hygiene. Protection recommended for workers suffering from dermatitis or sensitive skin.

Other Protection: None known.

Section 9: Physical and Chemical Properties

9.1 Information on basic Physical and Chemical Properties

Appearance and Odor: White or tan sand: granular, crushed or ground to a powder.

Solubility in Water:	Insoluble	**Boiling Point:**	4046°F/2230°C
Odor Threshold:	Not determined	**Partition Coefficient:**	Not applicable
pH:	6-8	**Melting Point:**	3110°F/1710°C
Specific Gravity:	2.65	**Vapor Density:**	Not applicable
Evaporation Rate:	Not applicable	**Vapor Pressure:**	Not applicable
Flammability(solid/gas):	Not applicable	**Flash Point:**	Not applicable
Explosive Limits:	Not applicable	**Autoignition Temperature:**	Not determined
Decomposition	Not determined	**Viscosity:**	Not applicable

Temperature:			
Explosive Properties:	Not applicable	**Oxidizing Properties:**	Not applicable

9.2 Other Information: None

Section 10: Stability and Reactivity

10.1 Reactivity: Not reactive under normal conditions of use.

10.2 Chemical Stability: Stable.

10.3 Possibility of Hazardous Reactions: Contact with powerful oxidizing agents, such as fluorine, chlorine trifluoride and oxygen difluoride, may cause fires.

10.4 Conditions to Avoid: Avoid generation of dust in handling and use.

10.5 Incompatible Materials: Powerful oxidizers such as fluorine, chlorine trifluoride, and oxygen difluoride and hydrofluoric acid.

10.6 Hazardous Decomposition Products: Silica will dissolve in hydrofluoric acid and produce a corrosive gas, silicon tetrafluoride.

Section 11: Toxicological Information

11.1 Information on Toxicological Effects:

Acute effects of exposure:
Inhalation: Inhalation of dust may cause respiratory tract irritation. Symptoms of exposure may include cough, sore throat, nasal congestion, sneezing, wheezing and shortness of breath.
Ingestion: Ingestion in an unlikely route of exposure. If dust is swallowed, it may irritate the mouth and throat.
Skin contact: No adverse effects are expected.
Eye contact: Particulates may cause abrasive injury.

Chronic effects: Prolonged inhalation of respirable crystalline silica may cause lung disease, silicosis, lung cancer and other effects as indicated below.
The method of exposure that can lead to the adverse health effects described below is inhalation.

A. SILICOSIS
The major concern is silicosis, caused by the inhalation of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated, or acute.

Chronic or Ordinary Silicosis is the most common form of silicosis, and can occur after many years (10 to 20 or more) of prolonged repeated inhalation of relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Simple silicosis is characterized by lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter, primarily in the upper lung zones. Often, simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown as

radiographic opacities) greater than 1 centimeter in diameter. Complicated silicosis or PMF symptoms, if present, are shortness of breath and cough. Complicated silicosis or PMF may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pumonale).

Accelerated Silicosis can occur with prolonged repeated inhalation of high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of initial exposure. Progression can be rapid. Accelerated silicosis is similar to chronic or ordinary silicosis, except that lung lesions appear earlier and progression is more rapid.

Acute Silicosis can occur after the repeated inhalation of very high concentrations of respirable crystalline silica over a short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough, weakness and weight loss. Acute silicosis is fatal.

B. CANCER

IARC - The International Agency for Research on Cancer ("IARC") concluded that "crystalline silica in the form of quartz or cristobalite dust is *carcinogenic to humans (Group 1)"*. For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 100C,"A Review of Human Carcinogens: Arsenic, Metals, Fibres and Dusts " (2011).

C. AUTOIMMUNE DISEASES

Several studies have reported excess cases of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis -- among silica-exposed workers.

D. TUBERCULOSIS

Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to tuberculosis bacteria. Individuals with chronic silicosis have a three-fold higher risk of contracting tuberculosis than similar individuals without silicosis.

E. KIDNEY DISEASE

Several studies have reported excess cases of kidney diseases, including end stage renal disease, among silica-exposed workers. For additional information on the subject, the following may be consulted: "Kidney Disease and Silicosis", Nephron, Volume 85, pp. 14-19 (2000).

F. NON-MALIGNANT RESPIRATORY DISEASES

The reader is referred to Section 3.5 of the NIOSH Special Hazard Review cited below for information concerning the association between exposure to crystalline silica and chronic bronchitis, emphysema and small airways disease. There are studies that disclose an association between dusts found in various mining occupations and non-malignant respiratory diseases, particularly among smokers. It is unclear whether the observed associations exist only with underlying silicosis, only among smokers, or result from exposure to mineral dusts generally (independent of the presence or absence of crystalline silica, or the level of crystalline silica in the dust).

Sources of information:

The ***NIOSH Hazard Review - Occupational Effects of Occupational Exposure to Respirable Crystalline Silica*** published in April 2002 summarizes and discusses the medical and epidemiological literature on the health risks and diseases associated with occupational exposures to respirable crystalline silica. The *NIOSH Hazard Review* is available from NIOSH - Publications Dissemination, 4676 Columbia

Parkway, Cincinnati, OH 45226, or through the NIOSH web site, www.cdc.gov/niosh/topics/silica, then click on the link "NIOSH Hazard Review: Health Effects of Occupational Exposure to Respirable Crystalline Silica".

For a more recent review of the health effects of respirable crystalline silica, the reader may consult *Fishman's Pulmonary Diseases and Disorders*, Fourth Edition, Chapter 57. "Coal Workers' Lung Diseases and Silicosis".

Acute Toxicity Values:
Crystalline Silica (quartz): LD50 oral rat >22,500 mg/kg

Skin corrosion/irritation: Does not meet the criteria for classification.

Eye damage/ irritation: Does not meet the criteria for classification.

Respiratory Irritation: Does not meet the criteria for classification.

Skin Sensitization: Does not meet the criteria for classification.

Respiratory Sensitization: Does not meet the criteria for classification.

Germ Cell Mutagenicity: Does not meet the criteria for classification.

Carcinogenicity: See above under CANCER.

Developmental / Reproductive Toxicity: No specific data is available, however, there is no evidence that silica exposure has any effect on reproduction.

Specific Target Organ Toxicity (Single Exposure): Does not meet the criteria for classification.

Specific Target Organ Toxicity (Repeated Exposure): See above.

Aspiration Toxicity: Not an aspiration hazard.

Section 12: Ecological Information

12.1 Toxicity: Crystalline silica (quartz) is not known to be ecotoxic.

12.2 Persistence and degradability: Silica is not degradable.

12.3 Bioaccumulative Potential: Silica is not bioaccumulative.

12.4 Mobility in Soil: Silica is not mobile in soil.

12.5 Results of PBT and vPvB Assessment: None required.

12.6 Other Adverse Effects: No data available.

Section 13: Disposal Considerations

13.1 Waste Treatment Methods:
Dispose in accordance with all applicable local, state/provincial and national/ federal regulations in light of the contamination present. Local regulations may be more stringent than regional and national requirements. It is the responsibility of the waste generator to determine the toxicity and physical characteristics of the material to determine the proper waste identification and disposal in compliance with applicable regulations.

Section 14: Transport Information

	14.1 UN Number	14.2 UN Proper Shipping Name	14.3 Hazard Class(s)	14.4 Packing Group	14.5 Environmental Hazards
US DOT	None	Not Regulated	None	None	
CANADIAN TDG	None	Not Regulated	None	None	
EU ADR/RID	None	Not Regulated	None	None	
IMDG	None	Not Regulated	None	None	
IATA/ICAO	None	Not Regulated	None	None	

14.6 Special Precautions for User: None identified

14.7 Transport in Bulk According to Annex III MARPOL 73/78 and the IBC Code: Not applicable. Transported in packaged form only.

Section 15: Regulatory Information

15.1 Safety, Health and Environmental Regulations/Legislation Specific for the Substance or Mixture

INTERNATIONAL INVENTORIES

US EPA TSCA Inventory: All of the components of this product are listed on the EPA TSCA inventory.

Canadian Domestic Substances List: U. S. Silica Company products, as naturally occurring substances, are on the Canadian DSL.

Australian Inventory of Chemical Substances (AICS): All of the components of this product are listed on the AICS inventory or exempt from notification requirements.

China: Silica is listed on the IECSC inventory or exempt from notification requirements.

Korea Existing Chemicals Inventory (KECI) (set up under the Toxic Chemical Control Law): Listed on the ECL with registry number 9212-5667.

Japan Ministry of International Trade and Industry (MITI): All of the components of this product are existing chemical substances as defined in the Chemical Substance Control Law Registry

Number 1-548.

New Zealand: Silica is listed on the HSNO inventory or exempt from notification requirements.

Philippines Inventory of Chemicals and Chemical Substances (PICCS): Listed for PICCS.

Taiwan: Silica is listed on the CSNN inventory or exempt from notification requirements.

Section 16: Other Information

GHS Classes and Hazard Statements for Reference (See Sections 3):
STOT-RE Cat 1 - Specific Target Organ Toxicity (Repeated Exposure) Category 1
H372 Causes damage to lungs through prolonged or repeated exposure by inhalation

Effective Date: 1 May 2017
Supersedes Date: 23 July 2014

U. S. Silica Company Disclaimer

The information and recommendations contained herein are based upon data believed to be up to-date and correct. However, no guarantee or warranty of any kind, express or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects that may be caused by purchase, resale, use or exposure to our silica. Customers and users of silica must comply with all applicable health and safety laws, regulations, and orders. In particular, they are under an obligation to carry out a risk assessment for the particular work places and to take adequate risk management measures in accordance with the national implementation legislation of EU Directives 89/391 and 98/24.

Portland Cement

Safety Data Sheet

according to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.

Date of issue: 12/27/2013 Revision date: 04/13/2014 Version: 1.1

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name(s) : Portland Cement, Hydraulic Cement, Class A Oil Well Cement, White Cement, Type I, IA, II, I/II, III, V

Product code : Not available

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture : Concrete mixes for construction use.

1.3. Details of the supplier of the safety data sheet

Ash Grove Cement Company
11011 Cody
Overland Park, KS 66210
T 913-451-8900

1.4. Emergency telephone number

Emergency number : CHEMTREC (800) 424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin corrosion 1A
Serious Eye Damage 1
Skin Sensitization 1
Carcinogenicity 1A
Specific Target Organ Toxicity After Single Exposure 3

2.2. Label elements

GHS-US labelling

Hazard pictograms (GHS-US) :

GHS05 GHS07 GHS08

Signal word (GHS-US) : Danger

Hazard statements (GHS-US) : Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause cancer. May cause respiratory irritation.

Prevention statements (GHS-US) : Keep out of reach of children. Do not handle until all safety precautions have been read and understood. Do not breathe dusts. Wash hands thoroughly after handling. Wear protective gloves and clothing as well as eye and face protection. Use only outdoors or in a well-ventilated area. Do not eat, drink or smoke when using this product.

Response statements (GHS-US) : If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Immediately call a doctor if ingested or skin / eye irritation persists or worsens. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If exposed or concerned: Get medical attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a doctor if you feel unwell.

Storage statements (GHS-US) : Store to keep product dry until use.

Disposal statements (GHS-US) : Dispose of contents and container in accordance with all local, state, and federal regulations.

Supplemental Information

Read and Follow all precautions listed in the Safety Data Sheet available on request or at Ashgrove.com. Additional information on the selection and use of respirators can be found in the *NIOSH Respirator Selection Logic* (DHHS [NIOSH] Publication No. 2005-100) and the *NIOSH Guide to Industrial Respiratory Protection* (DHHS [NIOSH] Publication No. 87-116) available at http://www.cdc.gov/niosh/docs/87-116/.

This product contains greater than 0.1% crystalline silica. Crystalline silica has been linked to cancer, silicosis, and other lung problems in conditions of prolonged airborne over-exposure.

Keep product dry until use. Avoid contact with bleed water from wet product. Clothing saturated with wet product can result in delayed, serious alkali skin burns.

2.3. Other hazards

Other hazards not contributing to the classification : Not applicable.

2.4. Unknown acute toxicity (GHS-US)

82 % of the mixture consists of ingredient(s) of unknown acute toxicity.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Name	Product identifier	%	GHS-US classification
Cement, portland, chemicals	(CAS No) 65997-15-1	90 - 95	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335
Gypsum (Ca(SO4).2H2O)	(CAS No) 13397-24-5	4 - 8	Not classified
Magnesium oxide	(CAS No) 1309-48-4	0.5 - 7	Not classified
Limestone	(CAS No) 1317-65-3	≤ 5	Not classified
Calcium oxide	(CAS No) 1305-78-8	≤ 5	Acute Tox. 4 (Oral), H302 Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335
Flue dust, portland cement	(CAS No) 68475-76-3	≤ 3	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335
Quartz	(CAS No) 14808-60-7	≤ 0.3	Acute Tox. 4 (Oral), H302 Carc. 1A, H350 STOT RE 1, H372

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation : If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Get immediate medical advice/attention.

First-aid measures after skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing. Wash contaminated clothing before reuse. Get immediate medical advice/attention.

First-aid measures after eye contact : If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor.

First-aid measures after ingestion : If swallowed, do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get immediate medical advice/attention.

4.2. Most important symptoms and effects, both acute and delayed

Symptoms/injuries after inhalation : May cause respiratory tract irritation.

Symptoms/injuries after skin contact : Causes severe skin burns. Symptoms may include redness, pain, blisters. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. May cause sensitisation by skin contact, due to trace amounts of hexavalent chromium that may be present.

Symptoms/injuries after eye contact : Causes serious eye damage. May cause burns. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.

Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

4.3. Indication of any immediate medical attention and special treatment needed

Symptoms may not appear immediately. In case of accident or if you feel unwell, seek medical advice immediately (show the label or SDS where possible).

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Treat for surrounding material.

5.2. Special hazards arising from the substance or mixture

Fire hazard : Product does not burn; however its packaging may. Products of combustion may include, and are not limited to: oxides of carbon.

5.3. Advice for firefighters

Firefighting instructions : Keep upwind of fire. Wear full fire fighting turn-out gear (full Bunker gear) and respiratory protection (SCBA).

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures : Use personal protection recommended in Section 8. Isolate the hazard area and deny entry to unnecessary and unprotected personnel. Avoid contact with skin and eyes.

6.2. Methods and material for containment and cleaning up

For containment : Contain spill, then place in a suitable container. Do not flush to sewer or allow to enter waterways. Use appropriate Personal Protective Equipment (PPE).

Methods for cleaning up : Vacuum or sweep material and place in a disposal container. Provide ventilation.

6.3. Reference to other sections

No additional information available.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Avoid contact with skin and eyes. Avoid generating and breathing dust. Do not swallow. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Handle and open container with care. When using do not eat, drink or smoke.

Engulfment hazard. To prevent burial or suffocation, do not enter a confined space, such as a silo, dome, bin, bulk truck or other storage container or vessel that stores or contains cement. Cement can buildup or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly.

Hygiene measures : Launder contaminated clothing before reuse. Wash hands before eating, drinking, or smoking.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep out of the reach of children. Avoid any dust buildup by frequent cleaning and suitable construction of the storage area. Do not store in an area equipped with emergency water sprinklers.Clean up spilled material promptly.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Quartz (14808-60-7)		
USA ACGIH	ACGIH TWA (mg/m³)	0.025 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m3)	(30)/(%SiO2 + 2) mg/m3 TWA, total dust (250)/(%SiO2 + 5) mppcf TWA, respirable fraction (10)/(%SiO2 + 2) mg/m3 TWA, respirable fraction

Calcium oxide (1305-78-8)		
USA ACGIH	ACGIH TWA (mg/m³)	2 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³

Limestone (1317-65-3)		
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ TWA (total dust) 5 mg/m³ TWA (respirable fraction)

Cement, portland, chemicals (65997-15-1)		
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (respirable fraction)
USA OSHA	OSHA PEL (TWA) (mg/m³)	5 mg/m³ (respirable fraction)

Gypsum (Ca(SO4).2H2O) (13397-24-5)		
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m3 TWA (total dust) 5 mg/m3 TWA (respirable fraction)

Magnesium oxide (1309-48-4)		
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ TWA

8.2. Exposure controls

Appropriate engineering controls : Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits.

Hand protection : Wear suitable gloves.

Eye protection : Wear approved eye protection (properly fitted dust- or splash-proof chemical safety goggles) and face protection (face shield).

Skin and body protection	:	Wear suitable protective clothing.
Respiratory protection	:	A NIOSH approved dust mask or filtering facepiece is recommended in poorly ventilated areas or when permissible exposure limits may be exceeded. Respirators should be selected by and used under the direction of a trained health and safety professional following requirements found in OSHA's respirator standard (29 CFR 1910.134) and ANSI's standard for respiratory protection (Z88.2).
Environmental exposure controls	:	Maintain levels below Community environmental protection thresholds.
Other information	:	Handle according to established industrial hygiene and safety practices.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Powder.
Colour	:	Grey.
Odour	:	Odourless.
Odour threshold	:	No data available.
pH	:	12 - 13 (Highly alkaline when wet.)
Relative evaporation rate (butylacetate=1)	:	No data available.
Melting point	:	No data available.
Freezing point	:	No data available.
Boiling point	:	No data available.
Flash point	:	No data available.
Self ignition temperature	:	No data available.
Decomposition temperature	:	No data available.
Flammability (solid, gas)	:	Not flammable.
Vapour pressure	:	No data available.
Relative vapour density at 20 °C	:	No data available.
Relative density	:	2.9 - 3.1 (Water = 1)
Solubility	:	Slight. (Water: 0.1 - 1 %)
Log Pow	:	No data available.
Log Kow	:	No data available.
Viscosity, kinematic	:	No data available.
Viscosity, dynamic	:	No data available.
Explosive properties	:	No data available.
Oxidising properties	:	No data available.
Explosive limits	:	No data available.

9.2. Other information

VOC content : No data available.

SECTION 10: Stability and reactivity

10.1. Reactivity

No dangerous reaction known under conditions of normal use. An alkali reaction from components of portland cement will corrode aluminum.

10.2. Chemical stability

Stable under normal storage conditions. Keep dry in storage.

10.3. Possibility of hazardous reactions

No dangerous reaction known under conditions of normal use. Do not mix with other chemcals.

10.4. Conditions to avoid

Moisture – product must be kept dry until ready to use.

10.5. Incompatible materials

None known.

10.6. Hazardous decomposition products

None known.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified.

Quartz (14808-60-7)	
LD50 oral rat	500 mg/kg

Magnesium oxide (1309-48-4)	
LD50 oral rat	>5000 mg/kg

Limestone (1317-65-3)	
LD50 oral rat	6450 mg/kg

Calcium oxide (1305-78-8)	
LD50 oral rat	> 2000 mg/kg

Flue dust, portland cement (68475-76-3)	
LD50 oral rat	>1848 mg/kg
LD50 dermal rabbit	≥ 2000 mg/kg
LC50 inhalation rat	>6.04 mg/l/4h

Portland Cement	
ATE (oral)	> 2000 mg/kg, rat
ATE (dermal)	> 2000 mg/kg, rabbit
ATE (inhalation)	> 5 mg/l/4h, rat

Skin corrosion/irritation : Causes severe skin burns.

Serious eye damage/irritation : Causes serious eye damage.

Respiratory or skin sensitisation : May cause an allergic skin reaction.

Germ cell mutagenicity : Based on available data, the classification criteria are not met.

Carcinogenicity : May cause cancer.

Quartz (14808-60-7)	
IARC group	1
National Toxicology Program (NTP) Status	2

Reproductive toxicity : Based on available data, the classification criteria are not met.

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Based on available data, the classification criteria are not met.

Aspiration hazard : Based on available data, the classification criteria are not met.

Symptoms/injuries after inhalation : May cause respiratory tract irritation.

Symptoms/injuries after skin contact : Causes severe skin burns. Symptoms may include redness, pain, blisters. Do not allow product to harden around any body part or allow continuous, prolonged contact with skin. May cause sensitisation by skin contact.

Symptoms/injuries after eye contact : Causes serious eye damage. May cause burns. Symptoms may include discomfort or pain, excess blinking and tear production, with marked redness and swelling of the conjunctiva.

Symptoms/injuries after ingestion : May be harmful if swallowed. May cause stomach distress, nausea or vomiting.

Other information : Likely routes of exposure: ingestion, inhalation, skin and eye.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : No ecological consideration when used according to directions. Do not flush to sewer or allow to enter waterways.

12.2. Persistence and degradability

Portland Cement	
Persistence and degradability	No data available.

12.3. Bioaccumulative potential

Portland Cement	
Bioaccumulative potential	No data available.

12.4. Mobility in soil

Portland Cement	
Ecology - soil	No data available.

12.5. Other adverse effects

Other adverse effects : No data available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste disposal recommendations : This material must be disposed of in accordance with all local, state, provincial, and federal regulations.

SECTION 14: Transport information

In accordance with DOT

14.1. UN number

Not applicable

14.2. UN proper shipping name

Not applicable

14.3. Additional information

Other information : No supplementary information available.

SECTION 15: Regulatory information

15.1. US Federal regulations

Quartz (14808-60-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Calcium oxide (1305-78-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Limestone (1317-65-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Cement, portland, chemicals (65997-15-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Magnesium oxide (1309-48-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Flue dust, portland cement (68475-76-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State regulations

Portland Cement()	
State or local regulations	This product contains Crystalline Silica, Quartz and may also contain trace amounts of other chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

Quartz (14808-60-7)				
U.S. - California - Proposition 65 - Carcinogens List	U.S. - California - Proposition 65 - Developmental Toxicity	U.S. - California - Proposition 65 - Reproductive Toxicity - Female	U.S. - California - Proposition 65 - Reproductive Toxicity - Male	No significance risk level (NSRL)
Yes	No	No	No	No

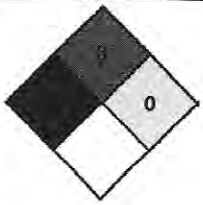
SOURCE AGENCY CARCINOGEN CLASSIFICATIONS:

IARC (I)	**International Agency for Research on Cancer.**
	1 - Carcinogenic to humans; 2A - Probably carcinogenic to humans; 2B - Possibly carcinogenic to humans; 3 - Not classifiable; 4 - Probably not carcinogenic to humans.
NTP (N)	**National Toxicology Program.**
	1 - Evidence of Carcinogenicity; 2 - Known Human Carcinogens; 3 - Reasonably anticipated to be Human Carcinogen; 4 - Substances delisted from report on Carcinogens; 5 - Twelfth Report - Items under consideration.

SECTION 16: Other information

Data sources : SDS prepared pursuant to the Hazard Communication Standard (CFR29 1910.1200) HazCom 2012.

NFPA health hazard	:	3 - Short exposure could cause serious temporary or residual injury even though prompt medical attention was given.
NFPA fire hazard	:	0 - Materials that will not burn.
NFPA reactivity	:	0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product

HCS CONCRETE

SDS Manual

SECTION 4

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

1 Identification

· **Product identifier**

· **Trade name: Cure & Seal 25% J22UV**

· **Article number:** 83-69444
· **Application of the substance / the mixture**

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Dayton® Superior
4226 Kansas Avenue
Kansas City, KS 66106
Tel.: (866) 329-8724

Emergency Telephone Number: Use only in the event of an emergency involving a spill, leak, fire, exposure, or accident involving chemicals. Within the U.S., Canada, or the U.S. Virgin Islands, call ChemTrec at (800) 424-9300, 24 hours a day. Or, outside these areas, call international number, +1 703 741-5970. Collect calls are accepted.

· **Information department:** Environmental, Health, and Safety department.

2 Hazard(s) identification

· **Classification of the substance or mixture**

Flam. Liq. 3	H226 Flammable liquid and vapor.
Acute Tox. 4	H332 Harmful if inhaled.
Skin Irrit. 2	H315 Causes skin irritation.
Eye Irrit. 2A	H319 Causes serious eye irritation.
Carc. 1B	H350 May cause cancer.
STOT RE 1	H372 Causes damage to the central nervous system through prolonged or repeated exposure.
Aquatic Chronic 3	H412 Harmful to aquatic life with long lasting effects.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
1,2,4-trimethylbenzene
Solvent naphtha (petroleum), light arom.
Solvent naphtha (petroleum), medium aliph.
xylene
· **Hazard statements**
Flammable liquid and vapor.
Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
Causes damage to the central nervous system through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.
· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Cure & Seal 25% J22UV

(Contd. of page 1)

Use explosion-proof electrical/ventilating/lighting/equipment.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 2
Fire = 2
Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

HEALTH	*2
FIRE	2
PHYSICAL HAZARD	0

*Health = *2*
Fire = 2
Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** *Not applicable.*
· **vPvB:** *Not applicable.*

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** *Mixture of the substances listed below with nonhazardous additions.*

· **Dangerous components:**		
64742-95-6	Solvent naphtha (petroleum), light arom.	≥10-<25%
64742-88-7	Solvent naphtha (petroleum), medium aliph.	≥10-<25%
95-63-6	1,2,4-trimethylbenzene	≥10-<16%
8052-41-3	Stoddard solvent	≥0.1-<2.75%
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy	≥0.1-<2.75%
1330-20-7	xylene	≥0.1-<2.2%
98-82-8	cumene	≥0.25-<1.5%
100-41-4	ethylbenzene	≥0.1-<0.2%

· **Additional information:** *For the wording of the listed hazard phrases refer to section 16.*

4 First aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In the event of persistent symptoms recieve medical treatment.
· **After inhalation:**
In case of unconsciousness place patient stably in side position for transportation.
Immediately move exposed person to fresh air. If breathing difficulty persists or develops get prompt medical attention.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:** *Rinse opened eye for several minutes under running water. Then consult a doctor.*

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 2)

· **After swallowing:** Seek medical treatment.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, sand, extinguishing powder. Do not use water.
Foam
· **For safety reasons unsuitable extinguishing agents:** Water
· **Special hazards arising from the substance or mixture** Formation of toxic gases is possible during heating or in case of fire.
· **Advice for firefighters**
· **Protective equipment:**
Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:**
Do not allow product to reach sewage system or any water course.
Inform respective authorities in case of seepage into water course or sewage system.
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
95-63-6	1,2,4-trimethylbenzene	140 ppm
8052-41-3	Stoddard solvent	300 mg/m³
1330-20-7	xylene	130 ppm
98-82-8	cumene	50 ppm
108-67-8	mesitylene	140 ppm
526-73-8	1,2,3-trimethylbenzene	140 ppm
100-41-4	ethylbenzene	33 ppm
103-65-1	propylbenzene	3.7 ppm
91-20-3	naphthalene	15 ppm

· **PAC-2:**		
95-63-6	1,2,4-trimethylbenzene	360 ppm
8052-41-3	Stoddard solvent	1,800 mg/m³

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

Trade name: Cure & Seal 25% J22UV

(Contd. of page 3)

1330-20-7	xylene	920* ppm
98-82-8	cumene	300 ppm
108-67-8	mesitylene	360 ppm
526-73-8	1,2,3-trimethylbenzene	360 ppm
100-41-4	ethylbenzene	1100* ppm
103-65-1	propylbenzene	41 ppm
91-20-3	naphthalene	83 ppm

· **PAC-3:**		
95-63-6	1,2,4-trimethylbenzene	480 ppm
8052-41-3	Stoddard solvent	29500** mg/m³
1330-20-7	xylene	2500* ppm
98-82-8	cumene	730 ppm
108-67-8	mesitylene	480 ppm
526-73-8	1,2,3-trimethylbenzene	480 ppm
100-41-4	ethylbenzene	1800* ppm
103-65-1	propylbenzene	240 ppm
91-20-3	naphthalene	500 ppm

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.
· **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Keep respiratory protective device available.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:** cool and dry
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Store away from foodstuffs.
· **Further information about storage conditions:** Keep receptacle tightly sealed.
· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

95-63-6 1,2,4-trimethylbenzene	
REL	Long-term value: 125 mg/m³, 25 ppm

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

Trade name: Cure & Seal 25% J22UV

(Contd. of page 4)

TLV	Long-term value: 123 mg/m³, 25 ppm
8052-41-3 Stoddard solvent	
PEL	Long-term value: 2900 mg/m³, 500 ppm
REL	Long-term value: 350 mg/m³ Ceiling limit value: 1800* mg/m³ *15-min
TLV	Long-term value: 525 mg/m³, 100 ppm
1330-20-7 xylene	
PEL	Long-term value: 435 mg/m³, 100 ppm
REL	Short-term value: 655 mg/m³, 150 ppm Long-term value: 435 mg/m³, 100 ppm
TLV	Short-term value: 651 mg/m³, 150 ppm Long-term value: 434 mg/m³, 100 ppm BEI
98-82-8 cumene	
PEL	Long-term value: 245 mg/m³, 50 ppm Skin
REL	Long-term value: 245 mg/m³, 50 ppm Skin
TLV	Long-term value: (246) NIC-0.5 mg/m³, (50) NIC-0.1 ppm NIC-A3
100-41-4 ethylbenzene	
PEL	Long-term value: 435 mg/m³, 100 ppm
REL	Short-term value: 545 mg/m³, 125 ppm Long-term value: 435 mg/m³, 100 ppm
TLV	Long-term value: 87 mg/m³, 20 ppm BEI

· **Ingredients with biological limit values:**

1330-20-7 xylene	
BEI	1.5 g/g creatinine Medium: urine Time: end of shift Parameter: Methylhippuric acids
100-41-4 ethylbenzene	
BEI	0.7 g/g creatinine Medium: urine Time: end of shift at end of workweek Parameter: Sum of mandelic acid and phenylglyoxylic acid (nonspecific, semi-quantitative) - Medium: end-exhaled air Time: not critical Parameter: Ethyl benzene (semi-quantitative)

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

Trade name: Cure & Seal 25% J22UV

(Contd. of page 5)

Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
· **Breathing equipment:** *Suitable respiratory protective device recommended.*
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break trough time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** *Wear appropriate eye protection to prevent eye contact.*

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Color:	*According to product specification*
· **Odor:**	*Characteristic*
· **Odor threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/Melting range:	*Undetermined.*
Boiling point/Boiling range:	*138 °C (280.4 °F)*
· **Flash point:**	*41 °C (105.8 °F)*
· **Flammability (solid, gaseous):**	*Not applicable.*
· **Ignition temperature:**	*265 °C (509 °F)*
· **Decomposition temperature:**	*Not determined.*
· **Auto igniting:**	*Product is not selfigniting.*
· **Danger of explosion:**	*Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*
· **Explosion limits:**	
Lower:	*0.6 Vol %*
Upper:	*7.5 Vol %*
· **Vapor pressure at 20 °C (68 °F):**	*6.6 hPa (5 mm Hg)*
· **Density at 20 °C (68 °F):**	*0.88773 g/cm³ (7.40811 lbs/gal)*
· **Relative density**	*Not determined.*
· **Vapor density**	*Not determined.*

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 6)

· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with Water:**	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	67.7 %
Solids content:	25.0 %
· **Other information**	No further relevant information available.
· **Volatile Organic Compounds:**	Contains less than 700 g/L.

10 Stability and reactivity

· **Reactivity** No decomposition if stored and applied as directed.
· **Chemical stability** No decomposition if stored and applied as directed
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** Keep away from heat and sources of ignition.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
64742-95-6 Solvent naphtha (petroleum), light arom.		
Oral	LD50	>6,800 mg/kg (rat)
Dermal	LD50	>3,400 mg/kg (rab)
Inhalative	LC50/4 h	>10.2 mg/l (rat)
64742-88-7 Solvent naphtha (petroleum), medium aliph.		
Oral	LD50	>6,500 mg/kg (rat)
Dermal	LD50	>3,000 mg/kg (rab)
Inhalative	LC50/4 h	>14 mg/l (rat)
95-63-6 1,2,4-trimethylbenzene		
Oral	LD50	5,000 mg/kg (rat)
98-82-8 cumene		
Oral	LD50	1,400 mg/kg (rat)
Dermal	LD50	12,300 mg/kg (rabbit)
Inhalative	LC50/4 h	24.7 mg/l (mouse)

· **Primary irritant effect:**
· **on the skin:** May cause skin irritation.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

(Contd. of page 7)

· **on the eye:**
Strong irritant with the danger of severe eye injury.
Irritating effect.
· **Sensitization:** No sensitizing effects known.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant
Carcinogenic.

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
1330-20-7	xylene	3
98-82-8	cumene	2B
100-41-4	ethylbenzene	2B
91-20-3	naphthalene	2B

· **NTP (National Toxicology Program)**		
98-82-8	cumene	R
91-20-3	naphthalene	R

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Ecotoxical effects:**
· **Remark:** Toxic for fish
· **Additional ecological information:**
· **General notes:**
Water hazard class 3 (Self-assessment): extremely hazardous for water
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Water hazard class 1 (Self-assessment): slightly hazardous for water
Also poisonous for fish and plankton in water bodies.
Toxic for aquatic organisms
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
Must not be disposed of as normal garbage. Do not allow product to reach sewage system.
It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

Trade name: Cure & Seal 25% J22UV

(Contd. of page 8)

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

14 Transport information

· **UN-Number**	
· **DOT, ADR, IMDG, IATA**	UN1268
· **UN proper shipping name**	
· **DOT**	Petroleum distillates, n.o.s.
· **ADR**	1268 Petroleum distillates, n.o.s.
· **IMDG, IATA**	PETROLEUM DISTILLATES, N.O.S.
· **Transport hazard class(es)**	
· **DOT**	
· **Class**	3 Flammable liquids
· **Label**	3
· **ADR, IMDG, IATA**	
· **Class**	3 Flammable liquids
· **Label**	3
· **Packing group**	
· **DOT, ADR, IMDG, IATA**	III
· **Environmental hazards:**	
· **Marine pollutant:**	No
· **Special precautions for user**	Warning: Flammable liquids
· **Danger code (Kemler):**	30
· **EMS Number:**	F-E,S-E
· **Stowage Category**	A
· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **U.S. Domestic Ground Shipments:**	Combustible liquids, n.o.s. (Petroleum Distillates), NA1993, PG III
· **U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments:**	DOT: Not regulated (Reclassified as per 49CFR 173.150).

(Contd. on page 10)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Cure & Seal 25% J22UV

(Contd. of page 9)

· **Emergency Response Guide (ERG) Number:**	Not determine
· **IMDG**	
· **Limited quantities (LQ)**	5L
· **Excepted quantities (EQ)**	Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml
· **UN "Model Regulation":**	UN 1268 PETROLEUM DISTILLATES, N.O.S., 3, III

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**
This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

95-63-6	1,2,4-trimethylbenzene	≥10-<16%
1330-20-7	xylene	≥0.1-<2.2%
98-82-8	cumene	≥0.25-<1.5%
100-41-4	ethylbenzene	≥0.1-<0.2%
91-20-3	naphthalene	<0.025%

· **TSCA (Toxic Substances Control Act):**	
64742-95-6	Solvent naphtha (petroleum), light arom.
64742-88-7	Solvent naphtha (petroleum), medium aliph.
95-63-6	1,2,4-trimethylbenzene
8052-41-3	Stoddard solvent
64742-82-1	Naphtha (petroleum), hydrodesulfurized heavy
1330-20-7	xylene
98-82-8	cumene
6422-86-2	1,4-benzenedicarboxylic acid, bis(2-ethylhexyl) ester
25551-13-7	Trimethylbenzene
108-67-8	mesitylene
526-73-8	1,2,3-trimethylbenzene
100-41-4	ethylbenzene
41556-26-7	Decanedioic acid, bis(1,2,2,6,6-pentamethyl-4-piperidinyl) ester
104810-48-2	poly(oxy-1,2-ethanediyl), α-[3-[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropyl]-ω-hydroxy-
103-65-1	propylbenzene
104810-47-1	poly(oxy-1,2-ethanediyl), α-[3-[3-(2H-benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropyl]-ω-[3-[3-(2H- benzotriazol-2-yl)-5-(1,1-dimethylethyl)-4-hydroxyphenyl]-1-oxopropoxy]-
82919-37-7	Decanedioic acid, methyl 1,2,2,6,6-pentamethyl-4-piperidinyl ester
91-20-3	naphthalene

(Contd. on page 11)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/05/2019 Reviewed on 03/05/2019

Trade name: Cure & Seal 25% J22UV

(Contd. of page 10)

· **Proposition 65**

· **Chemicals known to the State of California (Prop. 65) to cause cancer:**	
64742-95-6	Solvent naphtha (petroleum), light arom.
98-82-8	cumene
100-41-4	ethylbenzene
91-20-3	naphthalene

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Cancerogenity categories**

· **EPA (Environmental Protection Agency)**		
95-63-6	1,2,4-trimethylbenzene	II
1330-20-7	xylene	I
98-82-8	cumene	D, CBD
108-67-8	mesitylene	II
526-73-8	1,2,3-trimethylbenzene	II
100-41-4	ethylbenzene	D
91-20-3	naphthalene	C, CBD

· **TLV (Threshold Limit Value established by ACGIH)**		
1330-20-7	xylene	A4
100-41-4	ethylbenzene	A3
91-20-3	naphthalene	A4

· **MAK (German Maximum Workplace Concentration)**		
100-41-4	ethylbenzene	3A
91-20-3	naphthalene	2

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS02 GHS07 GHS08

· **Signal word** Danger

· **Hazard-determining components of labeling:**
1,2,4-trimethylbenzene
Solvent naphtha (petroleum), light arom.
Solvent naphtha (petroleum), medium aliph.
xylene
· **Hazard statements**
Flammable liquid and vapor.

(Contd. on page 12)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Cure & Seal 25% J22UV

(Contd. of page 11)

Harmful if inhaled.
Causes skin irritation.
Causes serious eye irritation.
May cause cancer.
Causes damage to the central nervous system through prolonged or repeated exposure.
Harmful to aquatic life with long lasting effects.

· **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Use explosion-proof electrical/ventilating/lighting/equipment.
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Information about limitation of use:**
Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.

· **Water hazard class:** *Water hazard class 3 (Self-assessment): extremely hazardous for water.*
· **Chemical safety assessment:** *A Chemical Safety Assessment has not been carried out.*

16 Other information

The provided information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.
This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** *Environmental, Health & Safety Department*
· **Contact:** *Environmental, Health & Safety Manager*
· **Date of preparation / last revision** *03/05/2019 / 426*
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
BEI: Biological Exposure Limit
Flam. Liq. 3: Flammable liquids – Category 3
Acute Tox. 4: Acute toxicity – Category 4
Skin Irrit. 2: Skin corrosion/irritation – Category 2
Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
Carc. 1B: Carcinogenicity – Category 1B
STOT RE 1: Specific target organ toxicity (repeated exposure) – Category 1
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

SAFETY DATA SHEET
THE DOW CHEMICAL COMPANY*

Product name: RHOPLEX™ TR-38HS Acrylic Emulsion

Issue Date: 08/29/2018
Print Date: 11/15/2018

THE DOW CHEMICAL COMPANY* encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: RHOPLEX™ TR-38HS Acrylic Emulsion

Recommended use of the chemical and restrictions on use
Identified uses: This product is used in coatings, textiles, binders and adhesives.

COMPANY IDENTIFICATION
THE DOW CHEMICAL COMPANY*
Agent for Rohm and Haas Chemicals LLC
400 ARCOLA ROAD
COLLEGEVILLE PA 19426-2914
UNITED STATES

Customer Information Number: 215-592-3000
SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER
24-Hour Emergency Contact: 1 800 424 9300
Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification
GHS classification in accordance with 29 CFR 1910.1200
Not a hazardous substance or mixture.

Other hazards
No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Acrylic emulsion
This product is a mixture.

Component	CASRN	Concentration

Acrylic polymer(s)	Not hazardous	>= 50.0 - <= 51.0 %
Residual monomers	Not required	< 0.09 %
Aqua ammonia	1336-21-6	<= 0.1 %
Water	7732-18-5	>= 49.0 - <= 50.0 %
Diphenyl Ketone	119-61-9	>= 0.1 - <= 0.3 %

4. FIRST AID MEASURES

Description of first aid measures
Most important symptoms and effects, both acute and delayed:
Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed
Notes to physician: Treatment should be directed at preventing absorption, administering to symptoms (if they occur), and providing supportive therapy.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: To extinguish combustible residues of this product use water fog, carbon dioxide, dry chemical or foam.

Unsuitable extinguishing media: None known.

Special hazards arising from the substance or mixture
Hazardous combustion products: Under fire conditions some components of this product may decompose. The smoke may contain unidentified toxic and/or irritating compounds. Combustion products may include and are not limited to: Carbon dioxide. Carbon monoxide.

Unusual Fire and Explosion Hazards: Material can splatter above 100C/212F. This material will not burn until the water has evaporated. Residue can burn.

Advice for firefighters
Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry. Contain fire water run-off if possible.

Special protective equipment for firefighters: Wear self-contained breathing apparatus and protective suit. If protective equipment is not available or not used, fight fire from a protected location or safe distance.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Use personal protective equipment. Keep people away from and upwind of spill/leak. Material can create slippery conditions.

Environmental precautions: CAUTION: Keep spills and cleaning runoff out of municipal sewers and open bodies of water.

Methods and materials for containment and cleaning up: Contain spills immediately with inert materials (e.g., sand, earth). Transfer liquids and solid diking material to separate suitable containers for recovery or disposal.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid contact with eyes, skin and clothing. Wash thoroughly after handling. Keep container tightly closed. Do not breathe vapors, mist or gas.

Conditions for safe storage: Keep from freezing - product stability may be affected. STIR WELL BEFORE USE.

Storage stability
Storage temperature: 1 - 49 °C (34 - 120 °F)
Other data: Monomer vapors can be evolved when material is heated during processing operations. See SECTION 8, for types of ventilation required. Due to the crosslinking nature of this material,this product will generate additional formaldehyde upon cure. Lack of adequate ventilation may result in airborne levels of formaldehyde above established exposure limits in the workplace. Monitoring the workplace to determine actual formaldehyde levels is recommended. NOTE: Formaldehyde will be generated under acidic conditions. Maintain adequate ventilation under these conditions to prevent exposure to formaldehyde above the Rohm and Haas Co. recommended ceiling of 0.3 ppm.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters
If exposure limits exist, they are listed below. If no exposure limits are displayed, then no values are applicable.

Component	Regulation	Type of listing	Value/Notation
Residual monomers	Dow IHG	TWA	4 ppm
	Dow IHG	TWA	SKIN
	Dow IHG	STEL	10 ppm
	Dow IHG	STEL	SKIN
	ACGIH	TWA	20 ppm
Aqua ammonia	Dow IHG	TWA	10 ppm
	Dow IHG	STEL	30 ppm
	OSHA Z-1	TWA	35 mg/m3 50 ppm
	ACGIH	TWA	25 ppm, Ammonia
	ACGIH	STEL	35 ppm, Ammonia
Diphenyl Ketone	US WEEL	TWA	0.5 mg/m3

Exposure controls
Engineering controls:

Individual protection measures

Respiratory protection: A respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant a respirator's use. None required if airborne concentrations are maintained below the exposure limit listed in Exposure Limit Information. For airborne concentrations up to 10 times the exposure limit, wear a properly fitted NIOSH approved (or equivalent) half-mask, air-purifying respirator. Air-purifying respirators should be equipped with NIOSH approved (or equivalent) ammonia/methylamine cartridges and N95 filters. If oil mist is present, use R95 or P95 filters.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	
Physical state	liquid Milky
Color	white
Odor	Ammonia odor
Odor Threshold	No data available
pH	7.0 - 8.0
Melting point/range	0 °C (32 °F) Water
Freezing point	No data available
Boiling point (760 mmHg)	100.00 °C (212.00 °F) Water
Flash point	Noncombustible
Evaporation Rate (Butyl Acetate = 1)	<1.00 Water
Flammability (solid, gas)	Not Applicable
Lower explosion limit	Not Applicable
Upper explosion limit	Not Applicable
Vapor Pressure	17 mmHg at 20.00 °C (68.00 °F) Water
Relative Vapor Density (air = 1)	<1.0000 Water
Relative Density (water = 1)	1.0000 - 1.2000
Water solubility	Dilutable
Partition coefficient: n-octanol/water	No data available
Auto-ignition temperature	Not Applicable
Decomposition temperature	No data available
Dynamic Viscosity	50 - 750 mPa.s
Kinematic Viscosity	No data available
Explosive properties	No data available
Oxidizing properties	No data available
Molecular weight	No data available
Percent volatility	49.000 - 50.000 % Water

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: No dangerous reaction known under conditions of normal use.

Chemical stability: Stable

Possibility of hazardous reactions: Product will not undergo polymerization.

Conditions to avoid: No data available

Incompatible materials: There are no known materials which are incompatible with this product.

Hazardous decomposition products: Thermal decomposition may yield acrylic monomers.

11. TOXICOLOGICAL INFORMATION

Toxicological information appears in this section when such data is available.

Acute toxicity

Acute oral toxicity
Product test data not available. Refer to component data.

Acute dermal toxicity
Product test data not available. Refer to component data.

Acute inhalation toxicity
Product test data not available. Refer to component data.

Skin corrosion/irritation
May cause transient irritation.

Serious eye damage/eye irritation
No eye irritation

Sensitization
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Single Exposure)
Product test data not available. Refer to component data.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Product test data not available. Refer to component data.

Carcinogenicity
Product test data not available. Refer to component data.

Teratogenicity
Product test data not available. Refer to component data.

Reproductive toxicity
Product test data not available. Refer to component data.

Mutagenicity
Product test data not available. Refer to component data.

Aspiration Hazard
Product test data not available. Refer to component data.

COMPONENTS INFLUENCING TOXICOLOGY:

Acrylic polymer(s)

Acute oral toxicity
Single dose oral LD50 has not been determined.

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity
The LC50 has not been determined.

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
No relevant data found.

Carcinogenicity
No relevant data found.

Teratogenicity
No relevant data found.

Reproductive toxicity
No relevant data found.

Mutagenicity
No relevant data found.

Aspiration Hazard
No aspiration toxicity classification

Residual monomers

Acute oral toxicity
Single dose oral LD50 has not been determined.

LD50, Rat, male, 1,320 mg/kg OECD Test Guideline 401

Acute dermal toxicity
The dermal LD50 has not been determined.

LD50, Rabbit, 500 - 1,000 mg/kg

Acute inhalation toxicity
The LC50 has not been determined.

LC50, Rat, 4 Hour, dust/mist, > 1 mg/l OECD Test Guideline 403

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.
Did not cause allergic skin reactions when tested in humans.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Repeated excessive exposures may cause
Respiratory effects.

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity
Did not cause birth defects or other effects in the fetus even at doses which caused toxic effects in the mother.

Reproductive toxicity
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity
In vitro genetic toxicity studies were negative in some cases and positive in other cases.
Animal genetic toxicity studies were negative.

Aspiration Hazard
Aspiration into the lungs may occur during ingestion or vomiting, causing tissue damage or lung injury.

Aqua ammonia

Acute oral toxicity
Single dose oral LD50 has not been determined.

Acute dermal toxicity
The dermal LD50 has not been determined.

Acute inhalation toxicity

LC50, Rat, male, 1 Hour, dust/mist, 9.850 mg/l

Sensitization
For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
Based on available data, repeated exposures are not anticipated to cause additional significant adverse effects.

Carcinogenicity
Did not cause cancer in laboratory animals.

Teratogenicity
Available data are inadequate for evaluation of potential to cause fetotoxicity.

Reproductive toxicity
Available data are inadequate to determine effects on reproduction.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Diphenyl Ketone

Acute oral toxicity
LD50, Mouse, 2,895 mg/kg

Acute dermal toxicity
LD50, Rabbit, 3,535 mg/kg

Acute inhalation toxicity
The LC50 has not been determined.

Sensitization
Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)
Evaluation of available data suggests that this material is not an STOT-SE toxicant.

Specific Target Organ Systemic Toxicity (Repeated Exposure)
In animals, effects have been reported on the following organs:
Blood.
Kidney.
Liver.
Bone marrow.

Carcinogenicity
Has caused cancer in laboratory animals. However, the relevance of this to humans is unknown.

Teratogenicity
Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Reproductive toxicity
In animal studies, did not interfere with reproduction. In animal studies, did not interfere with fertility.

Mutagenicity
In vitro genetic toxicity studies were negative. Animal genetic toxicity studies were negative.

Aspiration Hazard
Based on physical properties, not likely to be an aspiration hazard.

Carcinogenicity

Component	List	Classification
Diphenyl Ketone	IARC	Group 2B: Possibly carcinogenic to humans

12. ECOLOGICAL INFORMATION

Ecotoxicological information appears in this section when such data is available.

General Information
There is no data available for this product.

Toxicity

Acrylic polymer(s)

Acute toxicity to fish
No relevant data found.

Residual monomers

Acute toxicity to fish
No relevant data found.
Material is slightly toxic to aquatic organisms on an acute basis (LC50/EC50 between 10 and 100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), flow-through test, 96 Hour, 85 mg/l, OECD Test Guideline 203 or Equivalent

Acute toxicity to aquatic invertebrates
EC50, Daphnia magna (Water flea), flow-through test, 48 Hour, > 130 mg/l

Acute toxicity to algae/aquatic plants
ErC50, Scenedesmus capricornutum (fresh water algae), static test, 72 Hour, Growth rate, 45 mg/l, OECD Test Guideline 201 or Equivalent

Toxicity to bacteria

EC50, Pseudomonas putida, static test, 17 Hour, Respiration rates., 100 mg/l

Chronic toxicity to fish
NOEC, Danio rerio (zebra fish), flow-through test, 35 d, number of offspring, 10 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia magna (Water flea), flow-through test, 21 d, number of offspring, 53 mg/l

Aqua ammonia

Acute toxicity to fish
Material is highly toxic to aquatic organisms on an acute basis (LC50/EC50 between 0.1 and 1 mg/L in the most sensitive species tested).
LC50, Fish, 96 Hour, 0.89 mg/l

Acute toxicity to aquatic invertebrates
LC50, Daphnia magna (Water flea), static test, 48 Hour, 101 mg/l

Acute toxicity to algae/aquatic plants
Based on data from similar materials
EC50, Chlorella vulgaris (Fresh water algae), 18 d, 2,700 mg/l

Chronic toxicity to fish
Based on data from similar materials
LOEC, Oncorhynchus mykiss (rainbow trout), 33 d, <= 0.05 mg/l

Chronic toxicity to aquatic invertebrates
Based on data from similar materials
NOEC, Daphnia magna (Water flea), 21 d, 0.42 mg/l

Diphenyl Ketone

Acute toxicity to fish
Material is moderately toxic to aquatic organisms on an acute basis (LC50/EC50 between 1 and 10 mg/L in the most sensitive species tested).
LC50, Fathead minnow (Pimephales promelas), 96 Hour, 14.7 mg/l, Method Not Specified.

Acute toxicity to aquatic invertebrates
EC50, ceriodaphnia dubia (water flea), 48 Hour, 7.6 mg/l, Method Not Specified.
EC50, Daphnia magna (Water flea), 48 Hour, 6.784 mg/l, OECD Test Guideline 202

Acute toxicity to algae/aquatic plants
EC50, Pseudokirchneriella subcapitata (green algae), 72 Hour, Growth rate, 3.5 mg/l, OECD Test Guideline 201
NOEC, Pseudokirchneriella subcapitata (green algae), 72 Hour, 1 mg/l, OECD Test Guideline 201

Toxicity to bacteria
NOEC, 3 Hour, 31.6 mg/l, OECD Test Guideline 209

Chronic toxicity to fish
NOEC, Pimephales promelas (fathead minnow), 7 d, 5.86 mg/l

Chronic toxicity to aquatic invertebrates
NOEC, Daphnia (water flea), 21 d, 0.20 mg/l

Persistence and degradability

Acrylic polymer(s)

Biodegradability: No relevant data found.

Residual monomers

Biodegradability: No relevant data found.
Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 86 %
Exposure time: 28 d
Method: OECD Test Guideline 301D or Equivalent

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 6.884 Hour
Method: Estimated.
Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: Ozone.
Atmospheric half-life: 1.007 d
Method: Estimated.

Aqua ammonia

Biodegradability: Material is expected to be readily biodegradable. Biodegradation may occur under aerobic conditions (in the presence of oxygen).

Theoretical Oxygen Demand: 3.76 mg/mg Estimated.

Diphenyl Ketone

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.
10-day Window: Pass
Biodegradation: 66 - 84 %
Exposure time: 28 d
Method: OECD Test Guideline 301F
10-day Window: Not applicable
Biodegradation: 0 %
Exposure time: 14 d
Method: OECD Test Guideline 301C or Equivalent

Theoretical Oxygen Demand: 2.63 mg/mg

Photodegradation
Test Type: Half-life (indirect photolysis)
Sensitization: OH radicals
Atmospheric half-life: 3.009 d
Method: Estimated.

Bioaccumulative potential

Acrylic polymer(s)

Bioaccumulation: No relevant data found.

Residual monomers

Bioaccumulation: No relevant data found. No bioconcentration is expected because of the relatively high water solubility.
Partition coefficient: n-octanol/water(log Pow): 0.93 Measured
Bioconcentration factor (BCF): 3.16 Fish Estimated.

Aqua ammonia

Bioaccumulation: Partitioning from water to n-octanol is not applicable.

Diphenyl Ketone

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): 3.18 Measured
Bioconcentration factor (BCF): 3.4 - 9.2 Cyprinus carpio (Carp) 42 d Measured**Bioconcentration factor (BCF):** 3.4 - 12 Oryzias latipes (Orange-red killifish) 42 d Measured

Mobility in soil

Acrylic polymer(s)

No relevant data found.

Residual monomers

No relevant data found.
Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient (Koc): 15

Aqua ammonia

No specific, relevant data available for assessment.

Diphenyl Ketone

Potential for mobility in soil is medium (Koc between 150 and 500).
Partition coefficient (Koc): 430 Measured

13. DISPOSAL CONSIDERATIONS

Disposal methods: Coagulate the emulsion by the stepwise addition of ferric chloride and lime. Remove the clear supernatant and flush to a chemical sewer. For disposal, incinerate or landfill at a permitted facility in accordance with local, state, and federal regulations.

Contaminated packaging: Empty containers retain product residues. Follow label warnings even after container is emptied. Improper disposal or reuse of this container may be dangerous and illegal. Refer to applicable federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT

Not regulated for transport

Classification for SEA transport (IMO-IMDG):

Not regulated for transport

Transport in bulk according to Annex I or II of MARPOL 73/78 and the IBC or IGC Code: Consult IMO regulations before transporting ocean bulk

Classification for AIR transport (IATA/ICAO):

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312
No SARA Hazards

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313
This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) Section 103
Calculated RQ exceeds reasonably attainable upper limit.

Components	CASRN	RQ (RCRA Code)
Aqua ammonia	1336-21-6	100 lbs RQ

Pennsylvania
Any material listed as "Not Hazardous" in the CAS REG NO. column of SECTION 2, Composition/Information On Ingredients, of this MSDS is a trade secret under the provisions of the Pennsylvania Worker and Community Right-to-Know Act.

California Prop. 65
WARNING: This product can expose you to chemicals including Diphenyl Ketone, Acrylonitrile, which is/are known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

United States TSCA Inventory (TSCA)
All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

16. OTHER INFORMATION

Hazard Rating System
HMIS

Health	Flammability	Physical Hazard
1	0	0

Revision
Identification Number: 10340974 / 1001 / Issue Date: 08/29/2018 / Version: 5.1
Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

ACGIH	USA. ACGIH Threshold Limit Values (TLV)
Dow IHG	Dow Industrial Hygiene Guideline
OSHA Z-1	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
SKIN	Absorbed via skin
STEL	Short term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Full text of other abbreviations
AICS - Australian Inventory of Chemical Substances; ASTM - American Society for the Testing of Materials; bw - Body weight; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DOT - Department of Transportation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; EHS - Extremely Hazardous Substance; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; HMIS - Hazardous Materials Identification System; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; MSHA - Mine Safety and Health Administration; n.o.s. - Not Otherwise Specified; NFPA - National Fire Protection Association; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; RCRA - Resource Conservation and Recovery Act; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of

Chemicals; RQ - Reportable Quantity; SADT - Self-Accelerating Decomposition Temperature; SARA - Superfund Amendments and Reauthorization Act; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

Information Source and References
This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

THE DOW CHEMICAL COMPANY* urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.
US

BURKE RELEASE #1 V.O.C.

EDOCO® BURKE™ CONSTRUCTION CHEMICALS

Description

A chemically reactive form release agent especially formulated to meet the demanding requirements of architectural forming in any climatic environment. Complies with local, state and federal V.O.C. and air quality control regulations.

Use

Provides maximum performance on the widest range of forming materials including fiberglass, steel, aluminum, plastic, coated paper and all types of wood forms.

Benefits

- It has a controlled reaction with the free lime in concrete to provide a clean release without the use of pry-bars or tools
- Produces smooth natural architectural surfaces - concrete surface voids are eliminated or reduced - oil stains are eliminated
- It has a controlled reaction with the concrete and will not retard, etch, or soften concrete surfaces, even if overapplied
- It is a heavy viscosity material that forms a tough, clinging film even on dense materials such as plastic or fiberglass forms
- Run-down is reduced and reinforcing steel stays cleaner
- May be used on concrete structures that will store potable water
- Has a positive release that keeps forms clean - little, if any, cleaning is necessary between pours
- Repeated use makes wood forms water-repellent and extends their useful life
- Formulated with a rust inhibitor - a light coat immediately upon stripping steel forms will prevent rust for weeks
- Will not stain even white concrete
- Has no deleterious effect upon the natural bonding characteristics of secondary toppings or coatings, caulks or sealantsHas a positive release that keeps forms clean - little, if any, cleaning is necessary between pours
- Repeated use makes wood forms water-repellent and extends their useful life
- Formulated with a rust inhibitor - a light coat immediately upon stripping steel forms will prevent rust for weeks
- Will not stain even white concrete
- Has no deleterious effect upon the natural bonding characteristics of secondary toppings or coatings, caulks or sealants

Applicable Standards

Corps of Engineers specification CE 204, section 3-03-K.

Architectural Specifications

Form Release Agent: All cleaned concrete form faces should be coated with a chemically reactive release agent that is non-staining and that will not inhibit the natural bonding characteristics of secondary toppings or coatings, caulks or sealants. Approved product: Burke Release #1 V.O.C. or approved equivalent.

Application

Burke Release #1 V.O.C. should be applied in a thin uniform film with a sprayer, brush, or roller. No special application equipment is necessary, but a spray application is the most practical. Ponding or puddling is to be avoided. Specific application rates are as follows:

2500 ft² per U.S. gal. (61.4 m²/L) on:
- Fiberglass
- Plastic
- Steel
- Aluminum
- High density, overlaid plywood
- Elastomeric form liners

2000 ft² per U.S. gal.(49 m²/L) on:
- Medium density
- Overlaid plywood
- Urethane coated plywood
- Coated paper forms

1500 ft² per U.S. gal.(36.8 m²/L) on:
- BB grade plyform

1200 ft² per U.S. gal.(29.4 m²/L) on:
- Dimensional lumber
- Rough sawn lumber
- Striated plywood
- Composition

Composition

Burke Release #1 V.O.C. is a solution of highly refined fatty acids in a carrying system of low vapor pressure hydrocarbons. Burke Release #1 V.O.C. is free of waxes, common lubricating oils and kerosene.

Packaging

55 gallon drums (208.2 L)
5 gallon pails (18.9 L)
1 gallon cans (4 to a case)(3.8 L)

Limitations/Precautions

Do not use on styrofoam or latex molds. Do not use on plaster molds unless coated with a suitable sealer. Colder temperatures will increase the viscosity of Burke Release #1 V.O.C. Combustible...Contains petroleum

Test Data		
Viscosity	ASTM D-88	45 SUS at 100°F (37.8°C)
Pour Point	ASTM D-97	-5°F(-21°C)

BURKE RELEASE #1 V.O.C.

EDOCO® BURKE™ CONSTRUCTION CHEMICALS

distillates. Keep out of reach of children. Do not take internally. Do not breathe vapors. Avoid prolonged contact with skin. If swallowed, do not induce vomiting - call physician. If splashed in eyes, wash repeatedly with clean water and call physician. Keep away from heat, sparks and open flame.

Recommended Safety Equipment:
Rubber gloves, goggles and if applied in areas of poor or inadequate ventilation, use mine safety appliances, mask and canister:
Organic Vapor Mask
(No. 457081)
Organic Vapor Canister
(No. 77705GAM)

Threshold Limit Value: 100 PPM.
Ventilation system should be capable of exchanging total air volume in application area in 30 minutes or less. Avoid hazards by following all precautions found in the Material Safety Data Sheet (MSDS), product labels and technical literature. Please read this information prior to using the product.

Guarantee

If for any reason you are dissatisfied with the performance of Burke Release #1 V.O.C., return the unused portion of the drum to your distributor and the cost of the full drum will be credited to your account.

V.O.C. Content

Less than 450 g/l. Complies with Federal V.O.C. standards for Form Release Agents. Do not thin or dilute.

Warranty

Edoco warrants, for 12 months from the date of manufacture or for the duration of the published product shelf life, whichever is less, that at the time of shipment by Edoco, the product is free of manufacturing defects and conforms to Edoco's published specifications in force on the date of acceptance by Edoco of the order. Edoco shall only be liable under this warranty if the material has been applied, used, and stored in accordance with Edoco's instructions in this technical data sheet. The purchaser must examine the product when received and promptly notify Edoco in writing of any non-conformity before the product is used, or no later than 30 days after such nonconformity is first discovered. If Edoco, in its sole discretion, determines that the product breached the above warranty, it will, in its sole discretion, replace the nonconforming product, refund the purchase price or issue a credit in the amount of the purchase price. This is the sole and exclusive remedy for breach of this warranty. Only an Edoco officer is authorized to modify this warranty. The sales information on the Edoco website and received by the customer during the sales process does not supersede this warranty and the specifications of the product in force on the date of sale. THE FOREGOING WARRANTY SHALL BE EXCLUSIVE AND IN LIEU OF ANY OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER WARRANTIES OTHERWISE ARISING BY OPERATION OF LAW, COURSE OF DEALING, CUSTOM, TRADE OR OTHERWISE.

Limitation of Liability
Edoco shall not be liable in contract or in tort (including, without limitation, negligence, strict liability or otherwise) for loss of sales, revenues or profits; cost of capital or funds; business interruption or cost of downtime, loss of use, damage to or loss of use of other property (real or personal); failure to realize expected savings; frustration of economic or business expectations; claims by third parties (other than for bodily injury), or economic losses of any kind; or for any special, incidental, indirect, consequential, punitive or exemplary damages arising in any way out of the performance of, or failure to perform, this Agreement, even if Edoco could foresee or has been advised of the possibility of such damages. The Parties expressly agree that these limitations on damages are allocations of risk constituting, in part, the consideration for this agreement, and also that such limitations shall survive the determination of any court of competent jurisdiction that any remedy provided in these terms or available at law fails of its essential purpose.

Storage

Burke Release #1 V.O.C. should be stored in tightly sealed original factory containers. Store in a horizontal position to prevent moisture accumulation on the drum head.

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

1 Identification

· **Product identifier**

· **Trade name: Magic Kote®**

· **Article number:** 83-243000
· **Application of the substance / the mixture**

· **Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Dayton® Superior
4226 Kansas Avenue
Kansas City, KS 66106

Tel.: (866) 329-8724

Emergency Telephone Number: Use only in the event of an emergency involving a spill, leak, fire, exposure, or accident involving chemicals. Within the U.S., Canada, or the U.S. Virgin Islands, call ChemTrec at (800) 424-9300, 24 hours a day. Or, outside these areas, call international number, +1 703 741-5970. Collect calls are accepted.

· **Information department:** Environmental, Health, and Safety department.

2 Hazard(s) identification

· **Classification of the substance or mixture**
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

· **Label elements**
· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**
Distillates (petroleum), hydrotreated light naphthenic
· **Hazard statements**
May cause an allergic skin reaction.
May cause respiratory irritation.
· **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a poison center/doctor if you feel unwell.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.
· **Classification system:**
· **NFPA ratings (scale 0 - 4)**

Health = 1
Fire = 1
Reactivity = 0

(Contd. on page 2)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

Trade name: Magic Kote®

(Contd. of page 1)

· **HMIS-ratings (scale 0 - 4)**

HEALTH 1	Health = 1
FIRE 1	Fire = 1
PHYSICAL HAZARD 0	Reactivity = 0

· **Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**
· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
64742-53-6	Distillates (petroleum), hydrotreated light naphthenic	≥10-<60%
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic	≥10-<12%
64742-62-7	Residual oils (petroleum), solvent-dewaxed	≥0.1-<10%
64742-57-0	Residual oils (petroleum), hydrotreated	≥0.1-<10%
112-90-3	(Z)-octadec-9-enylamine	≥0.25-<0.4%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

· **Description of first aid measures**
· **General information:**
Immediately remove any clothing soiled by the product.
In the event of persistent symptoms recieve medical treatment.
· **After inhalation:**
Supply fresh air and to be sure call for a doctor.
In case of unconsciousness place patient stably in side position for transportation.
Immediately move exposed person to fresh air. If breathing difficulty persists or develops get prompt medical attention.
· **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
If skin irritation continues, consult a doctor.
· **After eye contact:**
Rinse opened eye for several minutes under running water. Then consult a doctor.
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** Seek medical treatment.
· **Information for doctor:**
· **Most important symptoms and effects, both acute and delayed** No further relevant information available.
· **Indication of any immediate medical attention and special treatment needed** No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
· **Special hazards arising from the substance or mixture** No further relevant information available.

(Contd. on page 3)

Safety Data Sheet
acc. to OSHA HCS

Trade name: Magic Kote®

(Contd. of page 2)

· **Advice for firefighters**
· **Protective equipment:**
Because fire may produce thermal decomposition products, wear a self-contained breathing apparatus (SCBA) with a full face piece operated in pressure-demand or positive-pressure mode.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **Environmental precautions:** *Do not allow product to reach sewage system or any water course.*
· **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
· **Protective Action Criteria for Chemicals**

· **PAC-1:**		
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic	140 mg/m³
112-80-1	oleic acid, pure	220 mg/m³
111-42-2	2,2'-iminodiethanol	3 mg/m³

· **PAC-2:**		
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic	1,500 mg/m³
112-80-1	oleic acid, pure	2,400 mg/m³
111-42-2	2,2'-iminodiethanol	28 mg/m³

· **PAC-3:**		
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic	8,900 mg/m³
112-80-1	oleic acid, pure	15,000 mg/m³
111-42-2	2,2'-iminodiethanol	130 mg/m³

7 Handling and storage

· **Handling:**
· **Precautions for safe handling**
Wear appropriate personal protective clothing to prevent eye and skin contact. Avoid breathing vapors or mists of this product. Use with adequate ventilation. Do not take internally.
· **Information about protection against explosions and fires:** *No special measures required.*

· **Conditions for safe storage, including any incompatibilities**
· **Storage:** *cool and dry*
· **Requirements to be met by storerooms and receptacles:** *No special requirements.*
· **Information about storage in one common storage facility:** *Not required.*
· **Further information about storage conditions:** *None.*
· **Specific end use(s)** *No further relevant information available.*

(Contd. on page 4)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

Trade name: Magic Kote®

(Contd. of page 3)

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**
· **Components with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.
Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.
· **Breathing equipment:**
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
· **Protection of hands:**

Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
· **Eye protection:** Wear appropriate eye protection to prevent eye contact.

9 Physical and chemical properties

· **Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Liquid
Color:	According to product specification
· **Odor:**	Characteristic
· **Odor threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	>218 °C (>424.4 °F)
· **Flash point:**	140 °C (284 °F)
· **Flammability (solid, gaseous):**	Not applicable.
· **Ignition temperature:**	307 °C (584.6 °F)
· **Decomposition temperature:**	Not determined.
· **Auto igniting:**	Product is not selfigniting.
· **Danger of explosion:**	Product does not present an explosion hazard.

(Contd. on page 5)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

Trade name: Magic Kote®

(Contd. of page 4)

· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapor pressure:**	Not determined.
· **Density at 20 °C (68 °F):**	0.89 g/cm³ (7.42705 lbs/gal)
· **Relative density**	Not determined.
· **Vapor density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with**	
Water:	Not miscible or difficult to mix.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	0.0 %
Solids content:	65.5 %
· **Other information**	No further relevant information available.
· **Volatile Organic Compounds:**	Contains less than 250 g/L.

10 Stability and reactivity

· **Reactivity** No decomposition if stored and applied as directed.
· **Chemical stability** No decomposition if stored and applied as directed
· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
· **Possibility of hazardous reactions** No dangerous reactions known.
· **Conditions to avoid** Keep away from heat and sources of ignition.
· **Incompatible materials:** No further relevant information available.
· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**
· **Primary irritant effect:**
· **on the skin:** May cause skin irritation.
· **on the eye:** No irritating effect known.
· **Sensitization:** Sensitization possible through skin contact.
· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· **IARC (International Agency for Research on Cancer)**		
111-42-2	2,2'-iminodiethanol	2B

(Contd. on page 6)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

Trade name: Magic Kote®

(Contd. of page 5)

· **NTP (National Toxicology Program)**
None of the ingredients is listed.

· **OSHA-Ca (Occupational Safety & Health Administration)**
None of the ingredients is listed.

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **Persistence and degradability** No further relevant information available.
· **Behavior in environmental systems:**
· **Bioaccumulative potential** No further relevant information available.
· **Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **Other adverse effects** No further relevant information available.

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:**
It is the generator's responsibility to determine if the waste meets applicable definitions of hazardous waste. State and local regulations may differ from federal disposal regulations. Dispose of waste material according to local, state, federal, and provincial environmental regulations.

· **Uncleaned packagings:**
· **Recommendation:** Disposal must be made according to Federal, State, and Local regulations.

14 Transport information

· **UN-Number** · **DOT, ADR, ADN, IMDG, IATA**	Not Regulated
· **UN proper shipping name** · **DOT, ADR, ADN, IMDG, IATA**	Not Regulated
· **Transport hazard class(es)** · **DOT, ADR, ADN, IMDG, IATA** · **Class**	Not Regulated
· **Packing group** · **DOT, ADR, IMDG, IATA**	Not Regulated
· **Environmental hazards:**	Product contains environmentally hazardous substances: (Z)-octadec-9-enylamine
· **Marine pollutant:**	Yes

(Contd. on page 7)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

Trade name: Magic Kote®

(Contd. of page 6)

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **DOT**	
· **Remarks:**	Add "Marine Pollutant" to end of proper shipping name if shipping in a bulk container (>119 gallons).
· **ADR**	
· **U.S. Domestic Ground Shipments:**	Not Regulated by D.O.T.
· **U.S. Domestic Ground Non-Bulk (119 gal or less per container) Shipments:**	Same as listed for Standard Shipments above.
· **Emergency Response Guide (ERG) Number:**	Not determine
· **UN "Model Regulation":**	Not Regulated

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredient is listed.

· **Section 313 (Specific toxic chemical listings):**
This product may contain 1 or more toxic chemicals subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR part 372. If so, the chemicals are listed below.

111-42-2	2,2'-iminodiethanol	<0.1%

· **TSCA (Toxic Substances Control Act):**

64742-53-6	Distillates (petroleum), hydrotreated light naphthenic
64742-65-0	Distillates (petroleum), solvent-dewaxed heavy paraffinic
64742-62-7	Residual oils (petroleum), solvent-dewaxed
64742-57-0	Residual oils (petroleum), hydrotreated
72623-83-7	Lubricating oils, petroleum
112-80-1	oleic acid, pure
112-90-3	(Z)-octadec-9-enylamine
8051-30-7	Coconut oil, reaction products with diethanolamine
111-42-2	2,2'-iminodiethanol

· **Proposition 65**

· **Chemicals known to the State of California (Prop. 65) to cause cancer:**

111-42-2	2,2'-iminodiethanol

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

(Contd. on page 8)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 Reviewed on 03/04/2019

Trade name: Magic Kote®

(Contd. of page 7)

· **Cancerogenity categories**

· EPA (Environmental Protection Agency)
None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)		
111-42-2	2,2'-iminodiethanol	A3

· MAK (German Maximum Workplace Concentration)		
112-80-1	oleic acid, pure	3A
111-42-2	2,2'-iminodiethanol	3B

· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

· **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).
· **Hazard pictograms**

GHS07

· **Signal word** Warning

· **Hazard-determining components of labeling:**
Distillates (petroleum), hydrotreated light naphthenic
· **Hazard statements**
May cause an allergic skin reaction.
May cause respiratory irritation.
· **Precautionary statements**
Avoid breathing dust/fume/gas/mist/vapors/spray
Wear protective gloves.
IF INHALED: Remove person to fresh air and keep comfortable for breathing.
Call a poison center/doctor if you feel unwell.
Store locked up.
Dispose of contents/container in accordance with local/regional/national/international regulations.

· **National regulations:**

· **Water hazard class:** Water hazard class 3 (Self-assessment): extremely hazardous for water.
· **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Environmental, Health & Safety Department
· **Contact:** Environmental, Health & Safety Manager
· **Date of preparation / last revision** 03/04/2019 / 44
· **Abbreviations and acronyms:**
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances

(Contd. on page 9)

Safety Data Sheet
acc. to OSHA HCS

Printing date 03/04/2019 *Reviewed on 03/04/2019*

Trade name: Magic Kote®

(Contd. of page 8)

ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
NFPA: National Fire Protection Association (USA)
HMIS: Hazardous Materials Identification System (USA)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
OSHA: Occupational Safety & Health
TLV: Threshold Limit Value
PEL: Permissible Exposure Limit
REL: Recommended Exposure Limit
Skin Sens. 1: Skin sensitisation – Category 1
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

HCS CONCRETE

SDS Manual

SECTION 5

SAFETY DATA SHEET
Nomaco, Inc.

Section 1: Identification

Product Identifier:

Product Name..... : NOMAFLEX®, Expansion Joint
Chemical Family..... : Thermoplastic polymer; Polypropylene Plastic
Recommended Use.....: NOMAFLEX® Expansion Joint can be used in a wide variety of applications including outdoor construction, concrete, asphalt roadways, sealing, gasketing and void fill.

Restrictions of Use .....: None Known

Manufacturer:

Nomaco Inc.
501 Innovative Way
Zebulon, NC 27597
919-269-6500 / 800-345-7279

Section 2: Hazard Identification

OSHA HAZARD COMMUNICATION STANDARD

This product is considered an article according to 29 CFR 1910.1200. This "Non Hazardous Chemical" is exempt as defined by the OSHA Hazard Communication Standard.

While this product is classified as a "Non Hazardous Chemical" as defined by OSHA Hazard Communication, this Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product.

A flammable hydrocarbon gas is used as a blowing agent in Polypropylene Foam. Trace amounts of this gas may remain in the product at the time of shipment.

POTENTIAL HEALTH EFFECTS:

Eye: Dust may cause irritation or eye injury due to mechanical action.

Skin: Non-irritating to skin. Skin absorption is unlikely.

Inhalation: Dust may cause irritation to the nose, throat and lungs. Concentrations of the isobutane agent incidental to proper handling of the product are expected to be well below the ACGIH recommended exposure limit of 800 ppm.

Ingestion: None determined.

Systemic Effects (Other target organs): None determined. OSHA: Medical Conditions: Not regulated. Aggravated by Exposure: None determined.

Section 3: Composition / Information on Ingredients

INGREDIENT NAME	CAS NUMBER	PERCENT CONCENTRATION
Polypropylene	9003-07-0	85-100%
Other Proprietary Additives	N/A	0 – 15%

The specific chemical identity and exact percentage concentration of the composition has been withheld as a trade secret.

Section 4: First-Aid Measures

Eye: Flush eyes with clean, lukewarm water (low pressure) occasionally lifting eyelids.

Ingestion: If swallowed, consult physician.

Skin: Wash with soap and water.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. Oxygen may be given by qualified personnel if breathing is difficult. Seek medical attention.

Section 5: Fire-Fighting Measures

Extinguishing Media: Water fog or fine spray. Dry chemical fire extinguishers, Carbon dioxide fire extinguishers. Foam.

Fire Fighting Procedures: Isolate fire and deny unnecessary entry. Soak thoroughly with water to cool and prevent re-ignition. If material is molten, do not apply direct water stream. Use fine water spray or foam. Cool surroundings with water to localize fire zone. Hand held dry chemical or carbon dioxide extinguishers may be used for small fires.

Special Firefighting Procedures: Full emergency equipment with pressure demand self-contained breathing apparatus and full protective clothing should be worn by firefighters. During a fire, irritating and heavy toxic gases may be generated by thermal decomposition or combustion.

Unusual Fire and Explosion Hazards: Mechanical cutting, grinding, or sawing can cause formation of dusts. To reduce the potential for dust explosion, do not permit dust to accumulate. Dense smoke is emitted when burned without sufficient oxygen.

Hazardous Combustion Products: During a fire, smoke may contain the original material in addition to combustion products of varying composition which may be toxic and/or irritating. In smoldering or flaming conditions, carbon monoxide, carbon dioxide and carbon are generated.

Section 6: Accidental Release Measures

Spill or Leak Procedures: No special precautions are necessary. This product is a non-hazardous waste when spilled or disposed of, as defined in Resource Conservation and Recovery Act (RCRA) regulations (40 CFR 261).

Section 7: Handling and Storage

Precautions for Safe Handling:

This product is combustible and should not be exposed to sparks or open flames. Large quantities of this product can burn rapidly and release toxic gases, including carbon monoxide.

Fabrication methods involving cutting of large quantities of this product may release isobutane remaining in the foam cell structure. Provide adequate ventilation to ensure that isobutane concentrations remain below the ACGIH threshold limit value (TLV) of 800 ppm and the Lower Flammable Limit of 1.8% in air by volume to protect workers and eliminate the possibility of

developing flammable or hazardous concentrations.

Conditions for Safe Storage:

Store in a cool, dry location. Keep away from high temperatures and hot pipes. Store away from direct sunlight. This material is combustible and should not be exposed to flame or other ignition sources.

Flammable vapors of isobutane may be generated during unventilated storage of large amounts of this product (for example, in storage trailers). To prevent the build-up of flammable vapors, do not store large quantities of this product in unventilated spaces including trailers. Ventilated trailers are recommended for transportation of bulk shipments of this product.

To prevent potential fire or explosion, do not weld or apply intense heat to closed containers which contain this product. Open closed containers in a well-ventilated area away from sparks or open flames.

Incompatibilities:

This product is incompatible with strong oxidizing agents (for example: Hydrogen Peroxide, Chlorine, Potassium Nitrate, Nitric and Sulfuric Acids).

Section 8: Exposure Controls / Personal Protection

Some of the additives in this product may have exposure guidelines; however these additives are captured in the product and no exposure would be expected under normal handling conditions.

Exposure Limits: Not established for products as a whole.

Engineering Controls: Provide general and/or local exhaust ventilation to control airborne isobutane levels below ACGIH Threshold Limit Value (TLV) of 800PPM. OSHA does not have a PEL for isobutane, which is affirmed as "generally recognized as safe" as a direct human food ingredient according to 21 CFR 184.1165. No toxic effects reported below 18,000 ppm.

INGREDIENT NAME	CAS NUMBER	EXPOSURE LIMITS Wt. %
Isobutane	75-28-5	800 ppm TWA (ACGIH)

Eye Protection Requirements: Wear tight fitting safety goggles if there is a potential for exposure to flying particles.

Skin Protection Requirements: No special precautions.

Respiratory Protection Requirements: No protection is required if isobutane levels are maintained below the ACGIH TLV of 800 ppm. For exposures above the TLV, take into consideration the type of application, environmental concentrations and materials being used concurrently when selecting a respirator. Observe OSHA regulations for respirator use (29 CFR 1910.134).

Section 9: Physical and Chemical Properties

Physical Form: Flexible solid.

Color: Residual isobutane is colorless.

Odor: No Odor. Residual isobutane has a gasoline-like or natural gas odor. Butane is reported to be detectable by odor at a range of 1262-5048 ppm (AIHA, 1989).

Odor Threshold: Not applicable.

Flash Point: Not applicable.

Method Used: Not applicable.

Flammability Limits: Upper: Not applicable.
Lower: Not applicable

Vapor Pressure: Not applicable.

Vapor Density: Not applicable.

Boiling Point: Not applicable.

Solubility in water: Insoluble.

Density: 57-69 kg/m3

Section 10: Stability and Reactivity

Reactivity: Non-Reactive

Stability: This is a stable material.

Conditions to Avoid: Avoid sparks, open flame or excessive heat. Avoid contact with oxidizers. Avoid unvented spaces.

Hazardous Polymerization: Will not occur.

Incompatibilities: Strong oxidizing agents.

Hazardous Decomposition Products: Carbon monoxide and other toxic gases are generated under combustion conditions.

Section 11: Toxicological Information

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Carcinogenicity: NTP: Not listed.
IARC: Not listed.

Section 12: Ecological Information

This product is inert to the environment and is not expected to exhibit any significant biodegradation.

Section 13: Disposal Considerations

Waste may be reused, recycled or buried in an approved landfill. Follow all regulatory requirements for disposal.

Section 14: Transport Information

DOT Shipping Requirements: Not regulated
IATA Shipping Requirements: Not regulated

Additional transportation information may be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

Section 15: Regulatory Information

OSHA STATUS: This product is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29 CFR 1910.1200.

CERCLA RQ: None

SARA Title III:
Section 302

Extremely Hazardous Substances: None.

Section 311/312 Hazard Categories: Non-hazardous.

Sections 313 Hazard Categories: None.

RCRA Status: If discarded in its purchased form, this product would not be a hazardous waste either by listing or by characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, whether the product should be classified as a hazardous waste (40 CFR 261.20-24).

National Fire Protection Association (NFPA) Ratings: Health 0
Flammability 1
Reactivity 0
Special Hazards None

Canadian Regulations: This product is not a "Controlled Product" under WHMIS.

California Proposition 65: This product may contain small percentages of chemical(s) known to the state of California to cause cancer and/or birth defects. All potential hazardous chemicals with concentrations in the final product greater than 0.1% by weight are listed in Section 3.

Section 16: Other Information

January 29, 2015 (supersedes version dated June 31, 2014)

This product is considered an article according to 29 CFR 1910.1200. This "Non Hazardous Chemical" is exempt as defined by the OSHA Hazard Communication Standard.

While this product is classified as a "Non Hazardous Chemical" as defined by OSHA Hazard Communication, this Safety Data Sheet contains valuable information critical to the safe handling and proper use of the product.

HCS CONCRETE

SDS Manual

SECTION 6

Fastenal
USA: Winona, MN 55987 **Canada: 900 Wabanaki Drive, Kitchener, ON, NC2COB7**

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

TE+1 Component A

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant uses

Adhesive mortar for fastening to concrete elements A-Component (Resin)

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

Fastenal
2001 Theurer Blvd.
Winona, MN 55987 / USA
Phone 507-454-5374
www.fastenal.com

1.4 Emergency telephone number

Advisory body

Chemtrec: 1-800-424-9300 (Within Continental USA);
Chemtrec: 703-527-3887 (Outside USA).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Skin Irrit. 2: H315 Causes skin irritation.
Eye Irrit. 2: H319 Causes serious eye irritation.
Skin Sens. 1: H317 May cause an allergic skin reaction.
Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects.

2.2 Label elements

The product is required to be labelled in accordance with GHS-Directives.

Hazard pictograms

Signal word

DANGER

Contains:

Reaction product: bisphenol-F-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700)

Reaction product: bisphenol-A-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700)

Trimethylolpropane triglycidyl ether

Hazard statements

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H317 May cause an allergic skin reaction.
H411 Toxic to aquatic life with long lasting effects.

Precautionary statements

P273 Avoid release to the environment.
P280 Wear protective gloves/eye protection/face protection.
P302+P352 IF ON SKIN: Wash with plenty of water/soap.
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
P501 Dispose of contents/container to in accordance with local/regional/national/international regulation.

2.3 Other hazards

Human health dangers	People who are allergic to epoxide should avoid the use of the product.
Environmental hazards	Does not contain any PBT or vPvB substances.
Other hazards	Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

Product-type:

The product is a mixture.

Range [%]	Substance
25 - <50	Reaction product: bisphenol-F-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700)
	CAS: 9003-36-5
	GHS: Skin Irrit. 2: H315 - Skin Sens. 1: H317 - Aquatic Chronic 2: H411
10 - <30	Reaction product: bisphenol-A-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700)
	CAS: 25068-38-6
	GHS: Skin Irrit. 2: H315 - Eye Irrit. 2: H319 - Skin Sens. 1: H317 - Aquatic Chronic 2: H411
<20	Epoxy resin (number average molecular weight ≤ 700)
	CAS: 28064-14-4
	GHS: Aquatic Chronic 4: H413
1 - <20	Trimethylolpropane triglycidyl ether
	CAS: 30499-70-8
	GHS: Skin Irrit. 2: H315 - Eye Irrit. 2: H319 - Skin Sens. 1: H317 - Aquatic Chronic 3: H412

Comment on component parts Substances of Very High Concern - SVHC: substances are not contained or are below 0,1%.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information	Take off contaminated clothing and wash before reuse.
Inhalation	Ensure supply of fresh air. In the event of symptoms seek medical treatment.
Skin contact	In case of contact with skin wash off immediately with soap and water. Consult a doctor if skin irritation persists.
Eye contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
Ingestion	Supply with medical care. Rinse out mouth and give plenty of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Irritant effects
Allergic reactions

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.
Forward this sheet to the doctor.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media	foam, dry powder, water spray jet, carbon dioxide
Extinguishing media that must not be used	Full water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire the following can be released:
Carbon monoxide (CO)
Chlorine compounds.

5.3 Advice for firefighters

Do not inhale explosion and/or combustion gases.
Use self-contained breathing apparatus.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.
Collect contaminated firefighting water separately, must not be discharged into the drains.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.
Use personal protective equipment.
High risk of slipping due to leakage/spillage of product.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.
In case the product spills into drains/surface waters/groundwater, immediately inform the authorities.

6.3 Methods and material for containment and cleaning up

Take up mechanically.
Take up residues with absorbent material (e.g. sand, sawdust, general purpose binder, diatomaceous earth).
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only in well-ventilated areas.

Wash hands before breaks and after work.
Use barrier skin cream.
Take off contaminated clothing and wash before reuse.
Do not eat, drink or smoke when using this product.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.
Prevent penetration into the ground.

Do not store together with food and animal food/diet.

Keep container in a well-ventilated place.
Keep container tightly closed.
Keep in a cool place. Store in a dry place.
Protect from atmospheric moisture and water.
Recommended storage temperature: 5 - 25 °C

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (US)

not applicable

DNEL

Range [%]	Substance
10 - <30	Reaction product: bisphenol-A-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 25068-38-6
	Industrial, dermal, Long-term - systemic effects: 8,33 mg/kg bw/d.
	Industrial, inhalative, Long-term - systemic effects: 12,25 mg/m³.
	Industrial, inhalative, Acute - systemic effects: 12,25 mg/m³.
	Industrial, dermal, Acute - systemic effects: 8,33 mg/kg bw/d.
	general population, oral, Acute - systemic effects: 0,75 mg/kg bw/d.
	general population, oral, Long-term - systemic effects: 0,75 mg/kg bw/d.
	general population, dermal, Long-term - systemic effects: 3,571 mg/kg bw/d.
	general population, dermal, Acute - systemic effects: 3,571 mg/kg bw/d.
25 - <50	Reaction product: bisphenol-F-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 9003-36-5
	Industrial, dermal, Long-term - systemic effects: 104,15 mg/kg.
	Industrial, inhalative, Long-term - systemic effects: 29,39 mg/m³.
	general population, oral, Long-term - systemic effects: 6,25 mg/kg.
	general population, dermal, Long-term - systemic effects: 62,5 mg/kg.
	general population, inhalative, Long-term - systemic effects: 8,7 mg/m³.

PNEC

Range [%]	Substance
10 - <30	Reaction product: bisphenol-A-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 25068-38-6
	soil, 0,196 mg/l.
	sediment (seaater), 0,0996 mg/l.
	sediment (freshwater), 0,996 mg/l.
	sewage treatment plants (STP), 10 mg/l.
	seawater, 0,0006 mg/l.
	freshwater, 0,006 mg/l.
25 - <50	Reaction product: bisphenol-F-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 9003-36-5
	soil, 0,237 mg/kg.
	sediment (seaater), 0,0294 mg/kg.
	seawater, 0,0003 mg/l.
	sediment (freshwater), 0,294 mg/kg.
	freshwater, 0,003 mg/l.
	sewage treatment plants (STP), 10 mg/l.

8.2 Exposure controls

Additional advice on system design	Ensure adequate ventilation on workstation.
Eye protection	safety glasses
Hand protection	The details concerned are recommendations. Please contact the glove supplier for further information. Nitrile rubber, >480 min (EN 374).
Skin protection	Protective clothing. Avoid contact with eyes and skin. Do not inhale gases/vapours/aerosols. Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier.
Respiratory protection	If ventilation is insufficient, wear respiratory protection. Short term: filter apparatus, combination filter A-P2.
Thermal hazards	not applicable
Delimitation and monitoring of the environmental exposition	Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	pasty
Color	light beige
Odor	characteristic
Odour threshold	not determined
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	not determined
Flash point [°C]	not applicable
Flammability [°C]	not determined
Lower explosion limit	not determined
Upper explosion limit	not determined
Oxidizing properties	not determined
Vapour pressure/gas pressure [kPa]	not determined
Density [g/ml]	1,33 (23°C / 73,4°F)
Bulk density [kg/m³]	not applicable
Solubility in water	insoluble
Partition coefficient [n-octanol/water]	not determined
Viscosity	not determined
Relative vapour density determined in air	not determined
Evaporation speed	not determined
Melting point [°C]	not determined
Autoignition temperature [°C]	not determined
Decomposition temperature [°C]	not determined

9.2 Other information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

Reactions with oxidizing agents.
Reactions with alkalies, amines and strong acids.
Reactions with alcohols.

10.4 Conditions to avoid

See SECTION 7.2.

10.5 Incompatible materials

See SECTION 10.3.

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

Range [%]	Substance
10 - <30	Reaction product: bisphenol-A-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 25068-38-6
	LD50, dermal, Rabbit: 23000 mg/kg.
	LD50, oral, Rat: > 15000 mg/kg.
1 - <20	Trimethylolpropane triglycidyl ether, CAS: 30499-70-8
	LD50, oral, Rat: > 2000 mg/kg bw.
25 - <50	Reaction product: bisphenol-F-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 9003-36-5
	LD50, dermal, Rat: > 2000 mg/kg.
	LD50, oral, Rat: > 10000 mg/kg.
	NOAEL, oral, 250 mg/kg/day.

Serious eye damage/irritation	not determined
Skin corrosion/irritation	not determined
Respiratory or skin sensitisation	not determined
Specific target organ toxicity — single exposure	not determined
Specific target organ toxicity — repeated exposure	not determined
Mutagenicity	not determined
Reproduction toxicity	not determined
Carcinogenicity	not determined
General remarks	

Toxicological data of complete product are not available.
The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists. The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 12: Ecological information

12.1 Toxicity

Range [%]	Substance
10 - <30	Reaction product: bisphenol-A-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 25068-38-6
	LC50, (96h), Oncorhynchus mykiss: 2 mg/l.
	EC50, (48h), Daphnia magna: 1,8 mg/l.
	IC50, Bacteria: > 42,6 mg/l (18 h).
	ErC50, (72h), Selenastrum capricornutum: 11 mg/l.
25 - <50	Reaction product: bisphenol-F-(epichlorhydrin) Epoxy resin (number average molecular weight ≤ 700), CAS: 9003-36-5
	LC50, (72h), Algae: 1,8 mg/l.
	LC50, (48h), Daphnia magna: 2,55 mg/l.
	EC50, (96h), Leuciscus idus: 2,54 mg/l.

12.2 Persistence and degradability

Behaviour in environment compartments	not determined
Behaviour in sewage plant	not determined
Biological degradability	not determined

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Other adverse effects

Ecological data of complete product are not available.
The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.
Do not discharge product unmonitored into the environment.
The product contains organically bound halogen in accordance with the formulation.

SECTION 13: Disposal considerations

Product	Coordinate disposal with the disposal contractor/authorities if necessary.
Contaminated packaging	Uncontaminated packaging may be taken for recycling. Dispose full / partially emptied cartridges as hazardous waste in accordance with official regulations.
RCRA Hazard Class (40CFR 261)	Waste must be disposed of in accordance with federal, state and local environmental control regulations. Consult your local or regional authorities.

SECTION 14: Transport

14.1 UN number

See SECTION 14.2 in accordance with UN shipping name

14.2 UN proper shipping name

Transport by land according to ADR/RID	UN 3077 Environmentally hazardous substance, solid, n.o.s. (Bisphenol A/F Epoxy resin) 9 III
- Classification Code	M7
- Label	
- ADR LQ	5 kg
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 3 (E)
Inland navigation (ADN)	UN 3077 Environmentally hazardous substance, solid, n.o.s. (Bisphenol A/F Epoxy resin) 9 III
- Classification Code	M7
- Label	
Marine transport in accordance with IMDG	UN 3077 Environmentally hazardous substance, solid, n.o.s. (Bisphenol A/F Epoxy resin) 9 III MARINE POLLUTANT
- EMS	F-A, S-F
- Label	
- IMDG LQ	5 kg
Air transport in accordance with IATA	UN 3077 Environmentally hazardous substance, solid, n.o.s. (Bisphenol A/F Epoxy resin) 9 III
- Label	
DOT Road Shipment Information (49 CFR)	UN/NA 3077 Environmentally hazardous substance, solid, n.o.s. (Bisphenol A/F Epoxy resin) 9 III
- Label	

14.3 Transport hazard class(es)

See SECTION 14.2 in accordance with UN shipping name

14.4 Packing group

See SECTION 14.2 in accordance with UN shipping name

14.5 Environmental hazards

See SECTION 14.2 in accordance with UN shipping name

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

not applicable

SECTION 15: Regulatory information

US Regulations

National regulations	29 CFR 1910.1200, HCS 2012, ANSI Z400.1-2010, OSHA-PEL, ACGIH-TLV, NTP, IARC, SARA Title III, NFPA, TSCA, California - Prop. 65
- SARA, 302	not determined
- SARA, 311	This product is classified as hazardous under SARA 311.
- SARA, 313	Not determinated.
- CA Proposition 65	This product contains a substance known to the State of California to cause cancer. Silica, Quartz - CAS# 14808-60-7.
- TSCA	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory.
- FDA	not applicable
American Conference of Governmental Industrial Hygienists - ACGIH	ACGIH: yes - contains crystalline silica
International Agency for Research on Cancer IARC	IARC: yes - contains crystalline silica.
National Toxicology Program - NTP	This product is named NTP - National Toxicology Program (contains crystalline silica). This product is named NTP - National Toxicology Program (contains glycerol).
HAP-VOC	
Transport-regulations	DOT-Classification, ADR (2013); IMDG-Code (2013, 36. Amdt.); IATA-DGR (2013).

SECTION 16: Other information

16.1 Hazard statements (SECTION 3)

H412 Harmful to aquatic life with long lasting effects.
H413 May cause long lasting harmful effects to aquatic life.
H319 Causes serious eye irritation.
H411 Toxic to aquatic life with long lasting effects.
H317 May cause an allergic skin reaction.
H315 Causes skin irritation.

16.2 Abbreviations and acronyms:

ACGIH = American Conference of Governmental Industrial Hygienists;
ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route;
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses;
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure;
CAS = Chemical Abstracts Service;
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act;
CFR = Code of Federal Regulations;
CPR = Controlled Products Regulations;
DNEL = Derived No Effect Level;
DOT = Department of Transportation;
EC50 = Median effective concentration;
EPA = Environmental Protection Agency;
GHS = Globally Harmonized System of Classification and Labelling of Chemicals;
IATA = International Air Transport Association;
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;
IC50 = Inhibition concentration, 50%;
IMDG = International Maritime Code for Dangerous Goods;
IARC = International Agency of Research on Cancer;
IATA = International Air Transport Association;
TSCA = Toxic Substance Control Act;
HMIS = Hazardous Materials Identification System;
NFPA = National Fire Protection Association;
NIOSH = National Institute for Occupational Safety and Health;
OSHA = Occupational Safety and Health Administration;
LC50 = Lethal concentration, 50%;
LD50 = Median lethal dose, 50%;
MARPOL = International Convention for the Prevention of Marine Pollution from Ships;
PBT = Persistent, Bioaccumulative and Toxic substance;
PNEC = Predicted No-Effect Concentration;
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals;

SARA = Superfund Amendments and Reauthorization Act;
TLV®/TWA = Threshold limit value – time-weighted average;
TLV®STEL = Threshold limit value – short-time exposure limit;
VOC = Volatile Organic Compounds;
vPvB = very Persistent and very Bioaccumulative;

16.3 Ratings

HMIS Ratings

HEALTH	2	2 - Moderate Hazard
FLAMMABILITY	1	1 - Slight Hazard
REACTIVITY	1	1 - Slight Hazard
PERSONAL PROTECTION	X	X - Personal protection rating to be supplied by user depending on use conditions

NFPA Ratings

TOP, FLAMMABILITY: 1 - Slight Hazard
LEFT, HEALTH: 2 - Moderate Hazard RIGHT, REACTIVITY: 1 - Slight Hazard
BOTTOM, SPECIAL NOTICE: -

16.4 Other information

Classification procedure

Skin Irrit. 2: H315 Causes skin irritation. (Calculation method)
Eye Irrit. 2: H319 Causes serious eye irritation. (Calculation method)
Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)
Aquatic Chronic 2: H411 Toxic to aquatic life with long lasting effects. (Calculation method)

Modified position

SECTION 3 been added: Epoxy resin (number average molecular weight ≤ 700)

SECTION 2 been added: P302+P352 IF ON SKIN: Wash with plenty of water/soap.

SECTION 2 deleted: P391 Collect spillage.

SECTION 2 been added: The product is required to be labelled in accordance with GHS/CLP-Directives.

SECTION 2 been added: Does not contain any PBT or vPvB substances.

SECTION 4 deleted: Change soaked clothing immediately.

SECTION 4 been added: Take off contaminated clothing and wash before reuse.

SECTION 5 deleted: Risk of formation of toxic pyrolysis products.

SECTION 5 been added: In the event of fire the following can be released:

SECTION 7 deleted: Keep away from all sources of ignition - Refrain from smoking.

SECTION 7 deleted: Take precautionary measures against static discharges.

SECTION 8 been added: Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 8 deleted: Tightly fitting goggles.

SECTION 8 deleted: See SECTION 6+7.

SECTION 8 been added: safety glasses

SECTION 11 deleted: Irritant

SECTION 11 deleted: Irritant

SECTION 11 deleted: Sensitizing.

SECTION 12 deleted: The product was classified on the basis of the calculation procedure of the preparation directive.

SECTION 15 deleted: Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16 been added: Observe employment restrictions for young people.

SECTION 16 been added: Calculation method

Fastenal
USA: Winona, MN 55987
Canada: 900 Wabanaki Drive, Kitchener, ON, NC2COB7

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

TE+1 Component B

1.2 Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Relevant uses

Adhesive mortar for fastening to concrete elements B-Component (Hardener)

1.2.2 Uses advised against

None known.

1.3 Details of the supplier of the safety data sheet

Company

Fastenal
2001 Theurer Blvd.
Winona, MN 55987 / USA
Phone 507-454-5374
www.fastenal.com

1.4 Emergency telephone number

Advisory body

Chemtrec: 1-800-424-9300 (Within Continental USA);
Chemtrec: 703-527-3887 (Outside USA).

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Skin Corr. 1B: H314 Causes severe skin burns and eye damage.
Skin Sens. 1: H317 May cause an allergic skin reaction.
Muta. 2: H341 Suspected of causing genetic defects.
Eye Dam. 1: H318 Causes serious eye damage.

2.2 Label elements

The product is required to be labelled in accordance with GHS-Directives.

Hazard pictograms



Signal word DANGER

Contains: Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)

m-Phenylenebis(methylamine)

Phenol

Hazard statements
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects.

Precautionary statements
P201 Obtain special instructions before use.
P260 Do not breathe vapours.
P280 Wear protective gloves/protective clothing/eye protection/face protection.
P301+P330+P331 IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 Immediately call a POISON CENTER/doctor.
P363 Wash contaminated clothing before reuse.
P501 Dispose of contents/container to in accordance with local/regional/national/international regulation.
P405 Store locked up.

2.3 Other hazards

Human health dangers People who are allergic to amines should avoid the use of the product.

Other hazards Further hazards were not determined with the current level of knowledge.

SECTION 3: Composition / Information on ingredients

Product-type:

The product is a mixture.

Range [%]	Substance
20 - 30	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine)
	CAS: 57214-10-5
	GHS/ Skin Corr. 1B: H314 - Skin Sens. 1: H317
5 - <15	m-Phenylenebis(methylamine)
	CAS: 1477-55-0
	GHS: Acute Tox. 4: H302 - Acute Tox. 4: H332 - Skin Corr. 1B: H314 - Eye Dam. 1: H318 - Skin Sens. 1: H317 - Aquatic Chronic 3: H412
3 - <10	Phenol
	CAS: 108-95-2
	GHS: Muta. 2: H341 - Acute Tox. 3: H301 - Acute Tox. 3: H311 - Acute Tox. 3: H331 - STOT RE 2: H373 - Skin Corr. 1B: H314 - Eye Dam. 1: H318
1 - <5	2,4,6-Tris(dimethylaminomethyl)phenol
	CAS: 90-72-2
	GHS: Acute Tox. 4: H302 - Skin Irrit. 2: H315 - Eye Irrit. 2: H319
1 - <5	Benzyl alcohol
	CAS: 100-51-6
	GHS: Acute Tox. 4: H302 H332
1 - <3	Quartz (< 10µm)
	CAS: 14808-60-7
	GHS: STOT RE 1: H372

Comment on component parts The quartz in this preparation is not available on foreseeable use.
Substances of Very High Concern - SVHC: substances are not contained or are below 0,1%.
For full text of H-statements: see SECTION 16.

SECTION 4: First aid measures

4.1 Description of first aid measures

General information Remove contaminated soaked clothing immediately and dispose of safely.

Inhalation Remove the victim into fresh air and keep him calm.
Seek medical advice immediately.

Skin contact In case of contact with skin wash off immediately with soap and water.
Immediate medical treatment necessary, as untreated burns can result in slow-healing wounds.

Eye contact Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Shield unaffected eye.
Seek medical advice immediately.

Ingestion Do not induce vomiting.
Seek medical advice immediately.
Rinse out mouth and give plenty of water to drink.

4.2 Most important symptoms and effects, both acute and delayed

Product is caustic.
Allergic reactions
Risk of serious damage to eyes.

4.3 Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media: foam, dry powder, water spray jet, carbon dioxide

Extinguishing media that must not be used: Full water jet

5.2 Special hazards arising from the substance or mixture

In the event of fire the following can be released:
Carbon monoxide (CO)
Nitrogen oxides (NOx).

5.3 Advice for firefighters

Do not inhale explosion and/or combustion gases.
Use self-contained breathing apparatus.
Wear full protective suit.

Fire residues and contaminated firefighting water must be disposed of in accordance within the local regulations.
Collect contaminated firefighting water separately, must not be discharged into the drains.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Ensure adequate ventilation.
Use personal protective equipment.
High risk of slipping due to leakage/spillage of product.

6.2 Environmental precautions

Do not discharge into the drains/surface waters/groundwater.
In case the product spills into drains/surface waters/groundwater, immediately inform the authorities.

6.3 Methods and material for containment and cleaning up

Take up mechanically.
Take up residues with absorbent material (e.g. sand, sawdust, general purpose binder, diatomaceous earth).
Dispose of absorbed material in accordance within the regulations.

6.4 Reference to other sections

See SECTION 8+13

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Use only in well-ventilated areas.

Remove contaminated soaked clothing immediately and dispose of safely.
Do not eat, drink, smoke or take drugs at work.
Wash hands before breaks and after work.
Use barrier skin cream.
Showers and eye wash stations should be provided.

7.2 Conditions for safe storage, including any incompatibilities

Keep only in original container.
Prevent penetration into the ground.

Do not store together with food and animal food/diet.

Keep container in a well-ventilated place.
Keep container tightly closed.
Keep in a cool place. Store in a dry place.
Protect from atmospheric moisture and water.
Recommended storage temperature: 5-25 °C (41-77 °F).

7.3 Specific end use(s)

See product use, SECTION 1.2

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with occupational exposure limits to be monitored (US)

Range [%]	Substance
5 - <15	m-Phenylenebis(methylamine)
	CAS: 1477-55-0, EINECS/ELINCS: 216-032-5, ECB-Nr.: 01-2119480150-50-XXXX
	Long-term exposure: NIOSH
	Short-term exposure (15-minute): 0,1 mg/m³
3 - <10	Phenol
	CAS: 108-95-2, EINECS/ELINCS: 203-632-7, EU-INDEX: 604-001-00-2
	Long-term exposure: 5 ppm, 19 mg/m³, NIOSH, OSHA
	Short-term exposure (15-minute): 15.6 ppm, 60 mg/m³

8.2 Exposure controls

Additional advice on system design
Ensure adequate ventilation on workstation.

Eye protection
Tightly fitting goggles.

Hand protection
The details concerned are recommendations. Please contact the glove supplier for further information.
0,7 mm Nitrile rubber, >480 min (EN 374).

Skin protection
Protective clothing.

Avoid contact with eyes and skin.
Do not inhale gases/vapours/aerosols.
Personal protective equipment should be selected specifically for the working place, depending on concentration and quantity handled. The resistance of this equipment to chemicals should be ascertained with the respective supplier.

Respiratory protection
If ventilation is insufficient, wear respiratory protection.
Short term: filter apparatus, combination filter A-P2.

Thermal hazards
not applicable

Delimitation and monitoring of the environmental exposition
Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	pasty
Color	red
Odor	amine-like
Odour threshold	not determined
pH-value	not applicable
pH-value [1%]	not applicable
Boiling point [°C]	not determined
Flash point [°C]	not applicable
Flammability [°C]	not determined
Lower explosion limit	not determined
Upper explosion limit	not determined
Oxidizing properties	not determined
Vapour pressure/gas pressure [kPa]	not determined
Density [g/ml]	~1,84
Bulk density [kg/m³]	not applicable
Solubility in water	partially miscible
Partition coefficient [n-octanol/water]	not determined
Viscosity	not determined
Relative vapour density determined in air	not determined
Evaporation speed	not determined
Melting point [°C]	not determined
Autoignition temperature [°C]	not determined
Decomposition temperature [°C]	not determined

9.2 Other information

No information available.

SECTION 10: Stability and reactivity

10.1 Reactivity

No dangerous reactions known if used as directed.

10.2 Chemical stability

Stable under normal ambient conditions (ambient temperature).

10.3 Possibility of hazardous reactions

Reactions with oxidizing agents.
Reactions with strong acids.
Reactions with epoxides

10.4 Conditions to avoid

See SECTION 7.2.

10.5 Incompatible materials

See SECTION 10.3.
Copper and copper-bearing alloys

10.6 Hazardous decomposition products

No hazardous decomposition products known.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity

	Product
	ATE-mix, inhalativ (mist), > 5 mg/l (4 h).
	ATE-mix, dermal, Rat: > 2000 mg/kg.
	ATE-mix, oral, Rat: > 2000 mg/kg.
Range [%]	Substance
1 - <5	Benzyl alcohol, CAS: 100-51-6
	LD50, dermal, Rabbit: 2000 mg/kg bw (RTECS).
	LD50, oral, Rat: 1230 mg/kg bw (IUCLID).
	LC50, inhalative, Rat: 4,178 mg/l/4h (OECD TG 403).
	LC50, inhalative, Rat: 8,8 mg/l (4h) (IUCLID).
1 - <5	2,4,6-Tris(dimethylaminomethyl)phenol, CAS: 90-72-2
	LD50, dermal, Rat: 1280 mg/kg.
	LD50, oral, Rat: 1200 mg/kg.
3 - <10	Phenol, CAS: 108-95-2
	LD50, dermal, Rat: 660 mg/kg (OECD 402).
	LD50, oral, Rat: 317 mg/kg (RTECS).
	LC50, inhalative, Rat: 0,316 mg/l (RTECS).
20 - 30	Formaldehyde, oligomeric reaction products with phenol and m-phenylenebis(methylamine), CAS: 57214-10-5
	LD50, oral, Rat: > 5000 mg/kg.
5 - <15	m-Phenylenebis(methylamine), CAS: 1477-55-0
	LD50, dermal, Rabbit: 2000 mg/kg.
	LD50, oral, Rat: 930 mg/kg.
	LC50, inhalative, Rat (female): 0,8 mg/l/4h.
	LC50, inhalative, Rat: 2,4 mg/l/4h.
	LC50, inhalative, Rat: 3,89 mg/l/1h.

Serious eye damage/irritation
Toxicological data of complete product are not available.
Risk of serious damage to eyes.
Calculation method

Skin corrosion/irritation
Toxicological data of complete product are not available.
Product is caustic.
Calculation method

Respiratory or skin sensitisation
Toxicological data of complete product are not available.
May cause an allergic skin reaction.
Calculation method

Specific target organ toxicity — single exposure
Does not contain any relevant substances fulfilling the classification criteria.

Specific target organ toxicity — repeated exposure
Toxicological data of complete product are not available.
Based on the information available, the classification criteria have not been fulfilled.

Mutagenicity
Toxicological data of complete product are not available.
Suspected of causing genetic defects.
Calculation method

Reproduction toxicity
Does not contain any relevant substances fulfilling the classification criteria.

Carcinogenicity
Does not contain any relevant substances fulfilling the classification criteria.

Aspiration hazard
Does not contain any relevant substances fulfilling the classification criteria.

General remarks
The toxicity data listed pertaining to the ingredients are intended for those working in the medicinal professions, experts for occupational health and safety and toxicologists. The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.

SECTION 12: Ecological information

12.1 Toxicity

Range [%]	Substance
1 - <5	Benzyl alcohol, CAS: 100-51-6
	LC50, (96h), Lepomis macrochirus: 10 mg/l (IUCLID).
	EC50, Bacteria: 71,4 mg/l (0,5 h) (IUCLID).
	EC50, (24h), Daphnia magna: 400 mg/l (IUCLID).
3 - <10	Phenol, CAS: 108-95-2
	LC50, (96h), Oncorhynchus mykiss: 5 mg/l (Lit.).
	EC50, (48h), Daphnia magna: 4,2 mg/l (Lit.).
	IC50, (96h), Algae: 150 mg/l (Lit.).

12.2 Persistence and degradability

Behaviour in environment compartments	not determined
Behaviour in sewage plant	not determined
Biological degradability	not determined

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

Based on all available information not to be classified as PBT or vPvB respectively.

12.6 Other adverse effects

Ecological data of complete product are not available.
The toxicity data pertaining to the ingredients were supplied by the manufacturers of raw materials.
Do not discharge product unmonitored into the environment.

SECTION 13: Disposal considerations

Product	Coordinate disposal with the disposal contractor/authorities if necessary.
Contaminated packaging	Uncontaminated packaging may be taken for recycling. Dispose full / partially emptied cartridges as hazardous waste in accordance with official regulations.
RCRA Hazard Class (40CFR 261)	Waste must be disposed of in accordance with federal, state and local environmental control regulations. Consult your local or regional authorities.

SECTION 14: Transport

14.1 UN number

See SECTION 14.2 in accordance with UN shipping name

14.2 UN proper shipping name

Transport by land according to ADR/RID	UN 3259 Amines, solid, corrosive, n.o.s. (Phenol, m-Phenylenebis(methylamine)) 8 II
- Classification Code	C8
- Label	
- ADR LQ	1 kg
- ADR 1.1.3.6 (8.6)	Transport category (tunnel restriction code) 2 (E)
Inland navigation (ADN)	UN 3259 Amines, solid, corrosive, n.o.s. (Phenol, m-Phenylenebis(methylamine)) 8 II
- Classification Code	C8
- Label	
Marine transport in accordance with IMDG	UN 3259 Amines, solid, corrosive, n.o.s. (Phenol, m-Phenylenebis(methylamine)) 8 II
- EMS	F-A, S-B
- Label	
- IMDG LQ	1 kg
Air transport in accordance with IATA	UN 3259 Amines, solid, corrosive, n.o.s. (Phenol, m-Phenylenebis(methylamine)) 8 II
- Label	
DOT Road Shipment Information (49 CFR)	UN/NA 3259 Amines, solid, corrosive, n.o.s. (Phenol, m-Phenylenebis(methylamine)) 8 II
- Label	

14.3 Transport hazard class(es)

See SECTION 14.2 in accordance with UN shipping name

14.4 Packing group

See SECTION 14.2 in accordance with UN shipping name

14.5 Environmental hazards

See SECTION 14.2 in accordance with UN shipping name

14.6 Special precautions for user

Relevant information under SECTION 6 to 8.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

not applicable

SECTION 15: Regulatory information

US Regulations

National regulations	29 CFR 1910.1200, ANSI Z400.1-2010, OSHA-PEL, ACGIH-TLV, NTP, IARC, SARA Title III, NFPA, TSCA, California - Prop. 65
- SARA, 302	This product is classified as hazardous under SARA 302.
- SARA, 311	This product is classified as hazardous under SARA 311.
- SARA, 313	One or some ingredient(s) are listed under this regulation.
- CA Proposition 65	This product contains crystalline silica known to the State of California to cause cancer.
- TSCA	All chemical substances in this material are included on or exempted from listing on the TSCA Inventory.
- FDA	not applicable
American Conference of Governmental Industrial Hygienists - ACGIH	not determined
International Agency for Research on Cancer IARC	IARC: Contains one substance Group 3: Not classifiable as to carcinogenicity to humans.
National Toxicology Program - NTP	This product is named NTP - National Toxicology Program (contains crystalline silica). This product is named NTP - National Toxicology Program (contains Phenol). This product is named NTP - National Toxicology Program (contains Benzyl alcohol).
HAP-VOC	not applicable
Transport-regulations	DOT-Classification, ADR (2013); IMDG-Code (2013, 36. Amdt.); IATA-DGR (2013).
Other Right to Know Laws	

SECTION 16: Other information

16.1 Hazard statements (SECTION 3)

H372 Causes damage to organs through prolonged or repeated exposure.
H302+H332 Harmful if swallowed or if inhaled.
H319 Causes serious eye irritation.
H315 Causes skin irritation.
H373 May cause damage to organs through prolonged or repeated exposure.
H331 Toxic if inhaled.
H311 Toxic in contact with skin.
H301 Toxic if swallowed.
H341 Suspected of causing genetic defects.
H412 Harmful to aquatic life with long lasting effects.
H318 Causes serious eye damage.
H332 Harmful if inhaled.
H302 Harmful if swallowed.
H317 May cause an allergic skin reaction.
H314 Causes severe skin burns and eye damage.

16.2 Ratings

HMIS Ratings

HEALTH	3	3 - Severe Hazard
FLAMMABILITY	1	1 - Slight Hazard
REACTIVITY	1	1 - Slight Hazard
PERSONAL PROTECTION	X	X - Personal protection rating to be supplied by user depending on use conditions

NFPA Ratings

TOP, FLAMMABILITY: 1 - Slight Hazard
LEFT, HEALTH: 3 - Severe Hazard RIGHT, REACTIVITY: 1 - Slight Hazard
BOTTOM, SPECIAL NOTICE: -

16.3 Abbreviations and acronyms:

ACGIH = American Conference of Governmental Industrial Hygienists;
ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route;
RID = Règlement concernant le transport international ferroviaire de marchandises dangereuses;
ADN = Accord européen relatif au transport international des marchandises dangereuses par voie de navigation intérieure;
CAS = Chemical Abstracts Service;
CERCLA = Comprehensive Environmental Response, Compensation and Liability Act;
CFR = Code of Federal Regulations;
CPR = Controlled Products Regulations;
DMEL = Derived Minimum Effect Level;
DNEL = Derived No Effect Level;
DOT = Department of Transportation;
EC50 = Median effective concentration;
EPA = Environmental Protection Agency;
GHS = Globally Harmonized System of Classification and Labelling of Chemicals;
IATA = International Air Transport Association;
IBC-Code = International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk;
IC50 = Inhibition concentration, 50%;
IMDG = International Maritime Code for Dangerous Goods;
IARC = International Agency of Research on Cancer;
IATA = International Air Transport Association;
TSCA = Toxic Substance Control Act;
HMIS = Hazardous Materials Identification System;
NFPA = National Fire Protection Association;
NIOSH = National Institute for Occupational Safety and Health;
OSHA = Occupational Safety and Health Administration;
LC50 = Lethal concentration, 50%;
LD50 = Median lethal dose, 50%;
MARPOL = International Convention for the Prevention of Marine Pollution from Ships;
PBT = Persistent, Bioaccumulative and Toxic substance;
PNEC = Predicted No-Effect Concentration;
REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals;
SARA = Superfund Amendments and Reauthorization Act;
TLV®/TWA = Threshold limit value – time-weighted average;
TLV®STEL = Threshold limit value – short-time exposure limit;
VOC = Volatile Organic Compounds;
vPvB = very Persistent and very Bioaccumulative;

16.4 Other information

Classification procedure

Skin Corr. 1B: H314 Causes severe skin burns and eye damage. (Calculation method)
Skin Sens. 1: H317 May cause an allergic skin reaction. (Calculation method)
Muta. 2: H341 Suspected of causing genetic defects. (Calculation method)
Eye Dam. 1: H318 Causes serious eye damage. (Calculation method)

Modified position

none

HCS CONCRETE

SDS Manual

SECTION 7

SAFETY DATA SHEET

Section 1. Identification

CHS Inc.
P.O. Box 64089
Mail station 525
St. Paul, MN 55164-0089

Transportation Emergency (CHEMTREC) : **1-800-424-9300**
Technical Information : **1-651-355-8443**
SDS Information : **1-651-355-8445**

Product name : CONCRETE FORM OIL
Common name : Form release oil.
Chemical name : Lubricating oil.
Chemical family : Hydrocarbon.

SDS no. : 0132-043799
Revision date : 05/07/2015
Chemical formula : Mixture

Relevant identified uses of the substance or mixture and uses advised against

Not available.

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910. 1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

General : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified (HNOC) : None known.

Hazardous Material Information System (U.S.A.) **Health :** 1 * **Flammability :** 1 **Physical hazards :** 0

National Fire Protection Association (U.S.A.) **Health :** 1 **Flammability :** 1 **Instability :** 0

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Chemical name : Lubricating oil.

Other means of identification : Form release oil.

Ingredient name	%	CAS number
Distillates (petroleum), hydrotreated light	60 - 100	64742-47-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : If material comes in contact with the eyes, immediately wash the eyes with large amounts of water for 15 minutes, occasionally lifting the lower and upper lids. Get medical attention.

Inhalation : If person breathes in large amounts of material, move the exposed person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the person warm and at rest. Get medical attention as soon as possible.

Skin contact : If the material comes in contact with the skin, wash the contaminated skin with soap and water promptly. If the material penetrates through clothing, remove the clothing and wash the skin with soap and water promptly. If irritation persists after washing, get medical attention immediately.

Ingestion : If material has been swallowed, do not induce vomiting. Get medical attention immediately.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following: pain or irritation, watering, redness.

Inhalation : Adverse symptoms may include the following: respiratory tract irritation, coughing.

Skin contact : Adverse symptoms may include the following: irritation, redness.

Ingestion : No known significant effects or critical hazards.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use water spray to cool fire exposed surfaces and to protect personnel. Foam, dry chemical or water spray (fog) to extinguish fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Toxic fumes gases or vapors may evolve on burning.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : When fighting fires wear full turnout gear and self contained breathing apparatus. Water may cause splattering. Material floats on water.

Special protective equipment for fire-fighters : Not applicable.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Keep unnecessary and unprotected personnel from entering. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Methods and materials for containment and cleaning up

Spill : Contain with dikes or absorbent to prevent migration to sewers/streams. Take up small spill with dry chemical absorbent; large spills may require pump or vacuum prior to absorbent. May require excavation of severely contaminated soil.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking.

Conditions for safe storage, including any incompatibilities : Handling temperatures should not exceed 175°F (80°C). Odorous and toxic fumes may form from the decomposition of this product if stored at excessive temperatures for extended periods of time. Store in accordance with local regulations. Do not store at temperatures exceeding 113°F (45°C). Store in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10).

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Distillates (petroleum), hydrotreated light	**OSHA PEL (United States).** TWA: 213 ppm TWA: 1200 mg/m³ **ACGIH TLV (United States, 6/2013). Absorbed through skin.** TWA: 200 mg/m³, (as total hydrocarbon vapor) 8 hours.

Appropriate engineering controls : Use only with adequate ventilation.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Recommended: Splash goggles and a face shield, where splash hazard exists.

Skin protection

Hand protection : 4 - 8 hours (breakthrough time): Nitrile gloves.

Body protection : Recommended: Long sleeved coveralls.

Other skin protection : Recommended: Impervious boots.

Respiratory protection : If ventilation is inadequate, use a NIOSH-certified respirator with an organic vapor cartridge and P95 particulate filter.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid.

Color : Amber.

Odor : Mild.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : Not available.

Flash point : Closed cup: >144°C (>291.2°F)

Flammability : Not available.

Lower and upper explosive (flammable) limits : Not available.

Relative density : 0.885 to 0.895

Evaporation rate : <1 (Ether. = 1)

Solubility : Insoluble in the following materials: cold water and hot water.

Solubility in water : Insoluble

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : >260°C (>500°F)

Decomposition temperature : Not available.

SADT : Not available.

Viscosity : Not available.

Vapor pressure : <0.13 kPa (<1 mm Hg) (68°F)

Vapor density : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : Reactive or incompatible with the following materials: oxidizing materials.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

There is no data available.

Irritation/Corrosion

Skin : There is no data available.

Eyes : There is no data available.

Respiratory : There is no data available.

Sensitization

Skin : There is no data available.

Respiratory : There is no data available.

Mutagenicity

There is no data available.

Carcinogenicity

There is no data available.

Reproductive toxicity

There is no data available.

Teratogenicity

There is no data available.

Specific target organ toxicity (single exposure)

There is no data available.

Specific target organ toxicity (repeated exposure)

There is no data available.

Aspiration hazard

Name	Result
Distillates (petroleum), hydrotreated light	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Dermal contact. Eye contact. Inhalation. Ingestion.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
Distillates (petroleum), hydrotreated light	Acute LC50 2200 µg/L Fresh water	Fish - Lepomis macrochirus	4 days

Persistence and degradability

There is no data available.

Bioaccumulative potential

There is no data available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : There is no data available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : Disposal of this product, solutions and any by-products should comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements.

Section 14. Transport information

DOT IDENTIFICATION NUMBER Not applicable. **DOT proper shipping name** Not applicable.

DOT Hazard Class(es) Not applicable. **PG** Not applicable. **DOT EMER. RESPONSE GUIDE NO.** Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
United States inventory (TSCA 8b): All components are listed or exempted.

Clean Air Act Section 602 Class I Substances : Not listed
Clean Air Act Section 602 Class II Substances : Not listed
Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs) : Not listed
DEA List I Chemicals (Precursor Chemicals) : Not listed
DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Hazard classifications : Not applicable.

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Distillates (petroleum), hydrotreated light	60 - 100	Yes.	No.	No.	No.	No.

SARA 313 : This product (does/not) contain toxic chemicals subject to the reporting requirements of SARA Section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

Product name	CAS number	%
Not applicable.		

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: Distillates (petroleum), hydrotreated light naphthenic
New York : None of the components are listed.
New Jersey : The following components are listed: Distillates (petroleum), hydrotreated light naphthenic
Pennsylvania : None of the components are listed.
California Prop. 65 : No products were found.

Section 16. Other information

Revision date	: 05/07/2015	**Supersedes**	: 06/23/2014
Revised Section(s)	: 1, 2, 16.	**Prepared by**	: KMK Regulatory Services Inc.

Notice to reader

THE INFORMATION CONTAINED IN THIS SDS RELATES ONLY TO THE SPECIFIC MATERIAL IDENTIFIED. IT DOES NOT COVER USE OF THAT MATERIAL IN COMBINATION WITH ANY OTHER MATERIAL OR IN ANY PARTICULAR PROCESS. IN COMPLIANCE WITH 29 C.F.R. 1910.1200(g), CHS HAS PREPARED THIS SDS IN SEGMENTS, WITH THE INTENT THAT THOSE SEGMENTS BE READ TOGETHER AS A WHOLE WITHOUT TEXTUAL OMISSIONS OR ALTERATIONS. CHS BELIEVES THE INFORMATION CONTAINED HEREIN TO BE ACCURATE, BUT MAKES NO REPRESENTATION, GUARANTEE, OR WARRANTY, EXPRESS OR IMPLIED, ABOUT THE ACCURACY, RELIABILITY, OR COMPLETENESS OF THE INFORMATION OR ABOUT THE FITNESS OF CONTENTS HEREIN FOR EITHER GENERAL OR PARTICULAR PURPOSES. PERSONS REVIEWING THIS SDS SHOULD MAKE THEIR OWN DETERMINATION AS TO THE MATERIAL'S SUITABILITY AND COMPLETENESS FOR USE IN THEIR PARTICULAR APPLICATIONS.

CENEX

OUR ENERGY COMES THROUGH

A BRAND OF CHS

Safety Data Sheet
Spartan Chemical Company, Inc.

Revision Date: 07-Aug-2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier

Product Name: **CONCRETE SEAL**
Product Number: 2977
Recommended Use: Concrete seal
Uses Advised Against: For Industrial and Institutional Use Only

Manufacturer/Supplier:
Spartan Chemical Company, Inc.
1110 Spartan Drive
Maumee, Ohio 43537 USA
800-537-8990 (Business hours)
www.spartanchemical.com

24 Hour Emergency Phone Numbers:
Medical Emergency/Information: 888-314-6171
Transportation/Spill/Leak: CHEMTREC 800-424-9300

2. HAZARDS IDENTIFICATION

GHS Classification

Acute Toxicity - Oral:	Category 4
Skin Corrosion/Irritation:	Category 2
Serious Eye Damage/Eye Irritation:	Category 2A
Carcinogenicity:	Category 1B
Reproductive Toxicity:	Category 2
Specific Target Organ Toxicity (Single Exposure):	Category 3
Aspiration Toxicity:	Category 1
Flammable Liquids	Category 3

GHS Label Elements

Signal Word: **Danger**

Symbols:

Hazard Statements:
Harmful if swallowed.
Causes skin irritation.
Causes serious eye irritation
May cause cancer
Suspected of damaging fertility or the unborn child
May cause respiratory irritation. May cause drowsiness or dizziness
May be fatal if swallowed and enters airways
Flammable liquid and vapor.

Precautionary Statements:

Prevention:	Obtain special instructions before use Do not handle until all safety precautions have been read and understood Use personal protective equipment as required Wear eye / face protection Wear protective gloves Wash hands and any exposed skin thoroughly after handling. Do not eat, drink or smoke when using this product Avoid breathing dust/fume/gas/mist/vapors/spray Use only outdoors or in a well-ventilated area. Keep away from heat/sparks/open flames/hot surfaces. — No smoking Keep container tightly closed Ground container and receiving equipment. Use explosion-proof electrical equipment. Use only non-sparking tools Take precautionary measures against static discharge
Response:	**If exposed or concerned: Get medical attention.**
-Eyes	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
-Skin	IF ON SKIN (or hair): Wash with plenty of soap and water. If skin irritation occurs: Get medical attention. Take off contaminated clothing and wash before reuse.
-Inhalation:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell
-Ingestion:	IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician Do NOT induce vomiting.
-Specific Treatment:	See Safety Data Sheet Section 4: "FIRST AID MEASURES" for additional information.
Fire:	In case of fire: Use CO2, dry chemical, or foam for extinction
Storage:	Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal:	Dispose of contents and container in accordance with local, state and federal regulations.
Hazards Not Otherwise Classified:	Not Applicable
Other Information:	• Contains petroleum distillates. Possible aspiration hazard. • Keep out of reach of children.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
aromatic hydrocarbon	64742-95-6	30-60
trimethylbenzenes	25551-13-7	10-30
acrylic polymer	PROPRIETARY	10-30
ethylmethylbenzenes	25550-14-5	5-10
propylbenzene	103-65-1	1-5
xylene	1330-20-7	1-5
cumene	98-82-8	1-5
ethylbenzene	100-41-4	0.1-1
toluene	108-88-3	0.1-1
naphthalene	91-20-3	0.1-1

Specific chemical identity and/or exact percentage of composition has been withheld as a trade secret.

4. FIRST AID MEASURES

-Eye Contact:	Rinse cautiously with water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
-Skin Contact:	Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. If skin irritation occurs: Get medical attention.
-Inhalation:	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison control center or physician if you feel unwell.

-Ingestion: IMMEDIATELY CALL A POISON CENTER OR PHYSICIAN. Do NOT induce vomiting.
Note to Physicians: Contains petroleum distillates. Possible aspiration hazard.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Carbon dioxide, Dry chemical, Alcohol resistant foam
Specific Hazards Arising from the Chemical: flammable. Vapors may travel to source of ignition and flash back.
Hazardous Combustion Products: May include Carbon monoxide Carbon dioxide and other toxic gases or vapors.

Protective Equipment and Precautions for Firefighters: Wear MSHA/NIOSH approved self-contained breathing apparatus (SCBA) and full protective gear. Cool fire-exposed containers with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions: Remove all sources of ignition. Avoid contact with skin, eyes or clothing. Use personal protective equipment as required.

Environmental Precautions: Do not rinse spill onto the ground, into storm sewers or bodies of water.

Methods for Clean-Up: Prevent further leakage or spillage if safe to do so. Contain and collect spillage with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see Section 13).

7. HANDLING AND STORAGE

Advice on Safe Handling: Handle in accordance with good industrial hygiene and safety practice. Keep away from heat/sparks/open flames/hot surfaces. — No smoking. All equipment used when handling the product must be grounded. Use spark-proof tools and explosion-proof equipment. Take necessary action to avoid static electricity discharge (which might cause ignition of organic vapors). Do not eat, drink or smoke when using this product. Wash thoroughly after handling. Never pierce, drill, grind, cut, saw or weld any empty container.

Storage Conditions: Keep containers tightly closed in a cool, well-ventilated place. Keep away from heat/sparks/open flames/hot surfaces. — No smoking. Keep out of the reach of children.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits:

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH
trimethylbenzenes 25551-13-7	TWA: 25 ppm	(vacated) TWA: 25 ppm (vacated) TWA: 125 mg/m³	-
xylene 1330-20-7	STEL: 150 ppm TWA: 100 ppm	TWA: 100 ppm TWA: 435 mg/m³ (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m³ (vacated) STEL: 150 ppm (vacated) STEL: 655 mg/m³	-
cumene 98-82-8	TWA: 50 ppm	TWA: 50 ppm TWA: 245 mg/m³ (vacated) TWA: 50 ppm (vacated) TWA: 245 mg/m³ (vacated) S* S*	IDLH: 900 ppm TWA: 50 ppm TWA: 245 mg/m³
ethylbenzene 100-41-4	TWA: 20 ppm	TWA: 100 ppm TWA: 435 mg/m³ (vacated) TWA: 100 ppm (vacated) TWA: 435 mg/m³ (vacated) STEL: 125 ppm (vacated) STEL: 545 mg/m³	IDLH: 800 ppm TWA: 100 ppm TWA: 435 mg/m³ STEL: 125 ppm STEL: 545 mg/m³

toluene 108-88-3	TWA: 20 ppm	TWA: 200 ppm (vacated) TWA: 100 ppm (vacated) TWA: 375 mg/m³ (vacated) STEL: 150 ppm (vacated) STEL: 560 mg/m³ Ceiling: 300 ppm	IDLH: 500 ppm TWA: 100 ppm TWA: 375 mg/m³ STEL: 150 ppm STEL: 560 mg/m³
naphthalene 91-20-3	STEL: 15 ppm TWA: 10 ppm S*	TWA: 10 ppm TWA: 50 mg/m³ (vacated) TWA: 10 ppm (vacated) TWA: 50 mg/m³ (vacated) STEL: 15 ppm (vacated) STEL: 75 mg/m³	IDLH: 250 ppm TWA: 10 ppm TWA: 50 mg/m³ STEL: 15 ppm STEL: 75 mg/m³

Engineering Controls: Provide good general ventilation.
If work practices generate dust, fumes, gas, vapors or mists which expose workers to chemicals above the occupational exposure limits, local exhaust ventilation or other engineering controls should be considered.

Personal Protective Equipment

Eye/Face Protection: Wear splash goggles.

Skin and Body Protection: Wear solvent-resistant gloves. The use of other protective equipment such as solvent-resistant boots should be considered in order to prevent or minimize contact with this product.

Respiratory Protection: Ensure adequate ventilation, especially in confined areas
If occupational exposure limits are exceeded or respiratory irritation occurs, use of a NIOSH/MSHA approved respirator suitable for the use-conditions and chemicals in Section 3 should be considered.
Respirator selection must be made by a technically qualified person who is familiar with the specific work conditions.

General Hygiene Considerations: Wash hands and any exposed skin thoroughly after handling.
See 29 CFR 1910.132-138 for further guidance.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance/Physical State:	Liquid
Color:	Clear
Odor:	aromatic solvent
pH:	Not Applicable
Melting Point / Freezing Point:	No information available.
Boiling Point / Boiling Range:	155 °C / 311 °F
Flash Point:	42 °C / 108 °F ASTM D56
Evaporation Rate:	< 1 (Butyl acetate = 1)
Flammability (solid, gas)	No information available.
Upper Flammability Limit:	No information available.
Lower Flammability Limit:	No information available.
Vapor Pressure:	No information available.
Vapor Density:	No information available.
Specific Gravity:	0.90
Solubility(ies):	Insoluble in water
Partition Coefficient:	No information available.
Autoignition Temperature:	No information available.
Decomposition Temperature:	No information available.
Viscosity:	No information available.

10. STABILITY AND REACTIVITY

Reactivity: This material is considered to be non-reactive under normal conditions of use.
Chemical Stability: Stable under normal conditions.
Possibility of Hazardous Reactions: Not expected to occur with normal handling and storage.
Conditions to Avoid: Heat, flames and sparks.
Incompatible Materials: Strong oxidizing agents. Strong acids.

Hazardous Decomposition Products: May include carbon monoxide, carbon dioxide (CO2) and other toxic gases or vapors.

11. TOXICOLOGICAL INFORMATION

Likely Routes of Exposure: Eyes, Skin, Ingestion, Inhalation.

Symptoms of Exposure:

-Eye Contact: Pain, redness, swelling of the conjunctiva and blurred vision.

-Skin Contact: Pain, redness and cracking of the skin. May be absorbed through the skin in harmful amounts

-Inhalation: May cause irritation of respiratory tract. May cause central nervous system depression with nausea, headache, dizziness, vomiting, and incoordination. Nasal discomfort and coughing.

-Ingestion: Pain, nausea, vomiting and diarrhea. Potential for aspiration if swallowed. Aspiration may cause pulmonary edema and pneumonitis.

Immediate, Delayed, Chronic Effects

Product Information: Data not available or insufficient for classification.

Target Organ Effects: Central nervous system. -Eyes. Respiratory System. -Skin.

Numerical Measures of Toxicity

The following acute toxicity estimates (ATE) are calculated based on the GHS document.

.

ATEmix (oral): 1910 mg/kg
ATEmix (dermal): 2220 mg/kg
ATEmix (inhalation-dust/mist): 59 mg/l

Component Acute Toxicity Information

Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
aromatic hydrocarbon 64742-95-6	Not Available	> 2000 mg/kg (Rabbit)	= 3400 ppm (Rat) 4 h
trimethylbenzenes 25551-13-7	= 8970 mg/kg (Rat)	Not Available	Not Available
propylbenzene 103-65-1	= 6040 mg/kg (Rat)	Not Available	Not Available
xylene 1330-20-7	= 4300 mg/kg (Rat)	> 1700 mg/kg (Rabbit)	= 5000 ppm (Rat) 4 h = 47635 mg/L (Rat) 4 h
cumene 98-82-8	= 1400 mg/kg (Rat)	> 3160 mg/kg (Rabbit)	= 39000 mg/m³ (Rat) 4 h
ethylbenzene 100-41-4	= 3500 mg/kg (Rat)	= 15354 mg/kg (Rabbit)	= 17.2 mg/L (Rat) 4 h
toluene 108-88-3	= 636 mg/kg (Rat)	= 8390 mg/kg (Rabbit) = 12124 mg/kg (Rat)	= 12.5 mg/L (Rat) 4 h > 26700 ppm (Rat) 1 h
naphthalene 91-20-3	= 490 mg/kg (Rat)	> 2500 mg/kg (Rat) > 20 g/kg (Rabbit)	> 340 mg/m³ (Rat) 1 h

Carcinogenicity: The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	ACGIH	IARC	NTP	OSHA
cumene 98-82-8	Not Listed	Group 2B	Not Listed	Listed
ethylbenzene 100-41-4	Not Listed	Group 2B	Not Listed	Not Listed
naphthalene 91-20-3	Not Listed	Group 2B	Reasonably Anticipated	Listed

IARC (International Agency for Research on Cancer): Group 2B - Possibly Carcinogenic to Humans
NTP (National Toxicology Program): Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen

12. ECOLOGICAL INFORMATION

Ecotoxicity

Chemical Name	Algae/Aquatic Plants	Fish	Toxicity to Microorganisms	Crustacea
aromatic hydrocarbon 64742-95-6	Not Available	9.22: 96 h Oncorhynchus mykiss mg/L LC50	Not Available	6.14: 48 h Daphnia magna mg/L EC50

trimethylbenzenes 25551-13-7	Not Available	7.72: 96 h Pimephales promelas mg/L LC50 flow-through	Not Available	Not Available
xylene 1330-20-7	Not Available	13.4: 96 h Pimephales promelas mg/L LC50 flow-through 2.661 - 4.093: 96 h Oncorhynchus mykiss mg/L LC50 static 13.5 - 17.3: 96 h Oncorhynchus mykiss mg/L LC50 13.1 - 16.5: 96 h Lepomis macrochirus mg/L LC50 flow-through 19: 96 h Lepomis macrochirus mg/L LC50 7.711 - 9.591: 96 h Lepomis macrochirus mg/L LC50 static 23.53 - 29.97: 96 h Pimephales promelas mg/L LC50 static 780: 96 h Cyprinus carpio mg/L LC50 semi-static 780: 96 h Cyprinus carpio mg/L LC50 30.26 - 40.75: 96 h Poecilia reticulata mg/L LC50 static	Not Available	3.82: 48 h water flea mg/L EC50 0.6: 48 h Gammarus lacustris mg/L LC50
cumene 98-82-8	2.6: 72 h Pseudokirchneriella subcapitata mg/L EC50	6.04 - 6.61: 96 h Pimephales promelas mg/L LC50 flow-through 4.8: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 2.7: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 5.1: 96 h Poecilia reticulata mg/L LC50 semi-static	Not Available	0.6: 48 h Daphnia magna mg/L EC50 7.9 - 14.1: 48 h Daphnia magna mg/L EC50 Static
ethylbenzene 100-41-4	4.6: 72 h Pseudokirchneriella subcapitata mg/L EC50 438: 96 h Pseudokirchneriella subcapitata mg/L EC50 2.6 - 11.3: 72 h Pseudokirchneriella subcapitata mg/L EC50 static 1.7 - 7.6: 96 h Pseudokirchneriella subcapitata mg/L EC50 static	11.0 - 18.0: 96 h Oncorhynchus mykiss mg/L LC50 static 4.2: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 7.55 - 11: 96 h Pimephales promelas mg/L LC50 flow-through 32: 96 h Lepomis macrochirus mg/L LC50 static 9.1 - 15.6: 96 h Pimephales promelas mg/L LC50 static 9.6: 96 h Poecilia reticulata mg/L LC50 static	Not Available	1.8 - 2.4: 48 h Daphnia magna mg/L EC50
toluene 108-88-3	433: 96 h Pseudokirchneriella subcapitata mg/L EC50 12.5: 72 h Pseudokirchneriella subcapitata mg/L EC50 static	15.22 - 19.05: 96 h Pimephales promelas mg/L LC50 flow-through 12.6: 96 h Pimephales promelas mg/L LC50 static 5.89 - 7.81: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 14.1 - 17.16: 96 h Oncorhynchus mykiss mg/L LC50 static 5.8: 96 h Oncorhynchus mykiss mg/L LC50 semi-static 11.0 - 15.0: 96 h Lepomis macrochirus mg/L LC50 static 54: 96 h Oryzias latipes mg/L LC50 static 28.2: 96 h Poecilia reticulata mg/L LC50 semi-static 50.87 - 70.34: 96 h Poecilia reticulata mg/L LC50 static	Not Available	5.46 - 9.83: 48 h Daphnia magna mg/L EC50 Static 11.5: 48 h Daphnia magna mg/L EC50

naphthalene 91-20-3	0.4: 72 h Skeletonema costatum mg/L EC50	5.74 - 6.44: 96 h Pimephales promelas mg/L LC50 flow-through 1.6: 96 h Oncorhynchus mykiss mg/L LC50 flow-through 0.91 - 2.82: 96 h Oncorhynchus mykiss mg/L LC50 static 1.99: 96 h Pimephales promelas mg/L LC50 static 31.0265: 96 h Lepomis macrochirus mg/L LC50 static	Not Available	2.16: 48 h Daphnia magna mg/L LC50 1.96: 48 h Daphnia magna mg/L EC50 Flow through 1.09 - 3.4: 48 h Daphnia magna mg/L EC50 Static

Persistence and Degradability: No information available.
Bioaccumulation: No information available.

Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Disposal of Wastes: Dispose of in accordance with federal, state and local regulations.
Contaminated Packaging: Dispose of in accordance with federal, state and local regulations.
US EPA Waste Number: D001, U019 U055 U165 U220 U239

Chemical Name	RCRA	RCRA - Basis for Listing	RCRA - D Series Wastes	RCRA - U Series Wastes
xylene 1330-20-7		Included in waste stream: F039		U239
cumene 98-82-8				U055
ethylbenzene 100-41-4		Included in waste stream: F039		
toluene 108-88-3	U220	Included in waste streams: F005, F024, F025, F039, K015, K036, K037, K149, K151		U220
naphthalene 91-20-3	U165	Included in waste streams: F024, F025, F034, F039, K001, K035, K060, K087, K145		U165

Chemical Name	RCRA - Halogenated Organic Compounds	RCRA - P Series Wastes	RCRA - F Series Wastes	RCRA - K Series Wastes
toluene 108-88-3			Toxic waste waste number F025 Waste description: Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	

naphthalene 91-20-3			Toxic waste waste number F025 Waste description: Condensed light ends, spent filters and filter aids, and spent desiccant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.	

14. TRANSPORT INFORMATION

DOT:

UN/ID No:	Regulated UN1993
Proper Shipping Name:	Flammable liquids, n.o.s., (contains petroleum distillates)
Hazard Class:	3
Packing Group:	III
Special Provisions:	Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Check with a trained hazardous materials transportation expert for information specific to your situation.

IMDG:

UN/ID No:	UN1993
Proper Shipping Name:	Flammable liquids, n.o.s., (contains petroleum distillates)
Hazard Class:	3
Packing Group:	III

15. REGULATORY INFORMATION

TSCA Status: (Toxic Substance Control Act Section 8(b) Inventory)
All chemical substances in this product are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

SARA 313
This product contains the following listed substances:
xylene
CAS No 1330-20-7
cumene
CAS No 98-82-8
ethylbenzene
CAS No 100-41-4
naphthalene
CAS No 91-20-3

SARA 311/312 Hazard Categories

Acute Health Hazard:	Yes
Chronic Health Hazard:	Yes
Fire Hazard:	Yes
Sudden release of pressure hazard:	No
Reactive Hazard:	No

California Proposition 65
This product is not subject to warning requirements under California Proposition 65.

16. OTHER INFORMATION

NFPA	**Health Hazards:** 2	**Flammability:** 2	**Instability:** 0	**Special:** N/A
HMIS	**Health Hazards:** 2*	**Flammability:** 2	**Physical Hazards:** 0	

Revision Date: 07-Aug-2015
Reasons for Revision: Section 14 and 15

Disclaimer:
The information provided in this Material Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

End of Safety Data Sheet

Safety Data Sheet

Printing date 01/18/2018 Version Number 1.0 Reviewed on 01/18/2018

*

1 Identification

Product identifier

Trade name: ***Ultra***

SDS ID Number: 4159

Relevant identified uses of the substance or mixture, and uses advised against:
Specialty construction product. Not intended for other uses.

Details of the supplier of the safety data sheet

Manufacturer/Supplier:
GCP Applied Technologies
62 Whittemore Avenue
Cambridge, MA 02140 USA

GCP Canada, Inc.
294 Clements Road W.
Ajax, Ontario L1S 3C6 Canada

Information department:

CAN: +1-905-683-8561 (24 hours)

Environmental Health & Safety
USA: +1-617-876-1400 (24 hours)
+1-800-354-5414 (8AM - 5PM) Not functional within Massachusetts
CAN: 1-905-683-8561 (24 hours)
Email address: msds.gcp@gcpat.com

Transport Emergency: Chemtrec +1-800-424-9300 (24 hours)

2 Hazard(s) identification

Classification of the substance or mixture

The product is not classified according to the Globally Harmonized System (GHS).

Label elements:

Hazard pictograms Not applicable.

Not applicable.

Hazard statements Not applicable.
NFPA ratings (scale 0 - 4)

Health = 1
Fire = 0
Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 1
Flammability = 0
Reactivity = 0

Other hazards Contact with residue from adhesive may cause eye and skin irritation.

Results of PBT and vPvB assessment

PBT: Not applicable.

(Cont. on page 2)

Safety Data Sheet

Printing date 01/18/2018 Version Number 1.0 Reviewed on 01/18/2018

Trade name: *Ultra*

(Cont. from page 1)

vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Mixture

Hazardous components: Not applicable.

Additional information: Non-hazardous ingredients may be listed in Section 15; Right-To-Know disclosure.

*

4 First-aid measures

Description of first aid measures

General information: Get medical advice/attention if you feel unwell.

After inhalation:
If symptoms develop, supply fresh air. If required, provide artificial respiration and seek immediate medical treatment.

After skin contact:
Immediately wash contaminated skin with soap or mild detergent and water. If this chemical soaks clothing, immediately remove clothing and wash skin.

If residue remains, clean with waterless handcream or abrasive soap. Never use solvents.

After eye contact:

If contact with residue causes eye irritation, flush eyes with water for at least 15 minutes while holding eyelids open.

Rinse cautiously with water for several minutes.

After swallowing: Due to physical nature of this product, ingestion is not likely.

Information for doctor:

Most important symptoms and effects, both acute and delayed No further relevant information available.

Indication of any immediate medical attention and special treatment needed No further relevant information available.

5 Fire-fighting measures

Special hazards arising from the substance or mixture No further relevant information available.

Additional information Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

Environmental precautions: No special measures required.

Methods and material for containment and cleaning up: No special measures required.

Reference to other sections

See Section 7 for information on safe handling.

See Section 8 for information on personal protection equipment.

See Section 13 for disposal information.

(Cont. on page 3)

(Cont. from page 2)

7 Handling and storage

Handling:

Precautions for safe handling

Avoid eye and skin contact with residue from adhesive.

Release liners are slippery. Remove from work area immediately after membrane application.

To avoid skin contact, use gloves. Clean hands after contact with adhesive residue.

Membrane is slippery when wet or covered with frost.

Release liners may cause slip and trip hazards.

No special precautions are necessary if used correctly.

For professional use only. Keep out of children's reach.

Information about protection against explosions and fires:

Removal of release liner may generate a static electrical discharge (spark).

Conditions for safe storage, including any incompatibilities

Storage:

Information about storage in one common storage facility: Store in original containers.

Further information about storage conditions: Keep receptacle tightly sealed.

Specific end use(s) No further relevant information available.

8 Exposure controls/personal protection

Additional information about design of technical systems: No further data; see item 7.

Control parameters

Components with limit values that require monitoring at the workplace:
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.

Additional information: The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment:

General protective and hygienic measures: The usual precautionary measures for handling chemicals should be followed.

Breathing equipment:

Control exposure to ingredients with workplace control parameters if mentioned above. If no ingredients are listed, respiratory protection is generally not required.

If exposure limits are listed and may be exceeded, use approved respiratory protective equipment and filter type appropriate for the listed ingredients. (NIOSH, CEN, etc.).

Protection of hands:
Protective gloves
Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Material of gloves Rubber or other impervious gloves should be worn to prevent skin contact.

Eye protection: Safety glasses

Body protection:

Use personal protective equipment as required.

(Cont. on page 4)

(Cont. from page 3)

Take off contaminated clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information	
Appearance:	
Form:	Solid
Color:	According to product specification
Odor:	Characteristic
Odor threshold:	Not determined.
pH-value (~):	Not applicable.
Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not determined.
Ignition temperature:	Undetermined.
Decomposition temperature:	Not determined.
Auto igniting:	Not determined.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not applicable.
Upper:	Not applicable.
VOC Content (max):	Not applicable.
Vapor pressure:	Not applicable.
Density: (~)	Not determined.
Relative density	Not determined.
Vapor density	Not determined.
Solubility in / Miscibility with	
Water:	Not miscible or difficult to mix.
Partition coefficient (n-octanol/water):	Not determined.
Viscosity:	
Dynamic:	Not applicable.
Kinematic:	Not applicable.
Molecular weight	Not applicable.
Other information	No further relevant information available.

10 Stability and reactivity

Reactivity Stable under normal conditions.

Chemical stability

Thermal decomposition: No decomposition if used and stored according to specifications.

Possibility of hazardous reactions No dangerous reactions known.

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

(Cont. on page 5)

Safety Data Sheet

Trade name: *Ultra*

(Cont. from page 4)

Hazardous decomposition products: Carbon monoxide and carbon dioxide

11 Toxicological information

Information on toxicological effects

Acute toxicity:

Primary irritant effect:

on the skin: No irritating effect expected

on the eye: No irritating effect expected

inhalation: No irritating effect expected

Additional toxicological information:

Carcinogenic categories

IARC (International Agency for Research on Cancer) Human Carcinogenicity: **Group 1- Positive, Group 2A- Probable, Group 2B- Possible, Group 3- Not Classifiable**
None of the ingredients is listed.

NTP (National Toxicology Program) **K–Known to be carcinogenic, R–May reasonably be anticipated to be carcinogenic**
None of the ingredients is listed.

OSHA-Ca (Occupational Safety & Health Administration)
None of the ingredients is listed.

12 Ecological information

Toxicity

Aquatic toxicity: No further relevant information available.

Persistence and degradability No further relevant information available.

Behavior in environmental systems:

Bioaccumulative potential No further relevant information available.

Mobility in soil No further relevant information available.

Additional ecological information:

General notes: Not known to be hazardous to water.

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

Other adverse effects No further relevant information available.

*

13 Disposal considerations

Disposal methods:

Consult all regulations (federal, state, provincial, local) or a qualified waste disposal firm when characterizing product for disposal. Dispose of waste in accordance with all applicable regulations.

(Cont. on page 6)

Trade name: *Ultra*

(Cont. from page 5)

Recommendation:

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:

Recommendation: Dispose of contents/container in accordance with local/regional/national/international regulations.

*

14 Transport information

UN-Number **DOT, IMDG, IATA**	Not applicable.
UN proper shipping name **DOT, IMDG, IATA**	Not applicable.
Transport hazard class(es)	
DOT, IMDG, IATA **Class**	Not applicable.
Packing group **DOT, IMDG, IATA**	Not applicable.
Environmental hazards:	Not applicable.
Special precautions for user	Not applicable.
Transport/Additional information:	
DOT **Remarks:**	Not Regulated.
UN "Model Regulation":	Not applicable.

15 Regulatory information

SARA (Superfund Amendments and Reauthorization Act)

Section 302/304 (extremely hazardous substances):

None of the ingredients is listed.

Section 313 Reportable Ingredients (Chemicals present below reporting threshold are exempt):

None of the ingredients is listed.

SARA Section 312/Tier I & II Hazard Categories: None

North America Chemical Inventory Status

TSCA (Toxic Substances Control Act - United States):

None of the ingredients is listed.

CEPA (Canadian DSL):

None of the ingredients is listed.

Right to Know Ingredient Disclosure:

Article - NON Regulated/Hazardous Components

California Proposition 65: (Substances <0.1% unless noted in Section 3)

Chemicals known to cause cancer:

None of the ingredients is listed.

(Cont. on page 7)

Safety Data Sheet

Trade name: *Ultra*

(Cont. from page 6)

Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.

Chemicals known to cause developmental toxicity:
None of the ingredients is listed.

Carcinogenicity Categories

TLV-ACGIH (THE American Conference of Governmental Industrial Hygienists)
Human Carcinogen - A1 Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable
None of the ingredients is listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

Volatile Organic Compounds (VOC) reported per the Emission Standards.
If no g/L value is provided this product is not subject to above standard.

*

16 Other information

The data included herein are presented in accordance with various environment, health and safety regulations. It is the responsibility of a recipient of the data to remain currently informed on chemical hazard information, to design and update its own program and to comply with all national, federal, state and local laws and regulations applicable to safety, occupational health, right-to-know and environmental protection.

Department issuing SDS:

GCP Applied Technologies
62 Whittemore Avenue
Cambridge, MA 02140 USA
USA: +1-617-876-1400 (24 hours)
+1-800-354-5414

Date of preparation / last revision 01/18/2018 / -

The first date of preparation 03/22/2017

Number of revision times and the latest revision date 1.0 / 01/18/2018

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Chevron Ultra-Duty Grease EP NLGI 0, 1, 2

Product Use: Grease
Product Number(s): 238011, 238012, 238013
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency Information Center: Located in the USA. International collect calls accepted. (800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

Environmental Hazards: Harmful to aquatic life with long lasting effects.

PRECAUTIONARY STATEMENTS:

Prevention: Avoid release to the environment.
Disposal: Dispose of contents/container in accordance with applicable local/regional/national/international regulations.

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight
Distillates, hydrotreated middle	64742-46-7	0 - 40 %weight
Zinc dialkyldithiophosphate	68649-42-3	1 - < 5 %weight
Phosphoric acid ester, amine salt	Mixture	0 - < 1 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, apply a waterless hand cleaner, mineral oil, or petroleum jelly. Then wash with soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.
Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.
Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper

handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion. Combustion may form oxides of: Nitrogen, Phosphorus, Sulfur, Zinc.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Clean up spills immediately, observing precautions in Exposure Controls/Personal Protection section. Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: Keep out of the reach of children.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the

workplace. Suggested materials for protective gloves include: Neoprene, Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	TWA	STEL	Ceiling	Notation
Highly refined mineral oil (C15 - C50)	ACGIH	5 mg/m3	10 mg/m3	--	--
Highly refined mineral oil (C15 - C50)	OSHA Z-1	5 mg/m3	--	--	--
Distillates, hydrotreated middle	Not Applicable	--	--	--	--
Zinc dialkyldithiophosphate	Not Applicable	--	--	--	--
Phosphoric acid ester, amine salt	Not Applicable	--	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Red
Physical State: Semi-solid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: <0.01 mmHg (Estimated) @ 100 °C (212 °F)
Vapor Density (Air = 1): >1 (Estimated)
Initial Boiling Point: 260°C (500°F) (Minimum)
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: No data available
Melting Point: 165°C (329°F) (Min)
Density: No data available
Viscosity: 22 mm2/s (Minimum)
Evaporation Rate: No data available
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): No Data Available

Flashpoint: (Cleveland Open Cup) 204 °C (399 °F) (Minimum)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: Alkyl Mercaptans (Elevated temperatures), Hydrogen Sulfide (Elevated

temperatures)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).

These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is expected to be harmful to aquatic organisms and may cause long-term adverse effects in the aquatic environment.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY

This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: Not applicable

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

The following components of this material are found on the regulatory lists indicated.
Zinc dialkyldithiophosphate 06, 07

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada),

IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TSCA (United States).

One or more components does not comply with the following chemical inventory requirements: ENCS (Japan).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Grease)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: SECTION 03 - Composition information was modified.
SECTION 04 - Immediate Health Effects - Skin information was modified.
SECTION 05 - Fire Fighters Protection Measures information was modified.
SECTION 05 - Special hazards arising from the substance or mixture information was added.
SECTION 08 - Occupational Exposure Limit Table information was modified.
SECTION 09 - Physical/Chemical Properties information was added.
SECTION 09 - Physical/Chemical Properties information was deleted.
SECTION 09 - Physical/Chemical Properties information was modified.
SECTION 10 - Hazardous Decomposition Products information was modified.
SECTION 14 - DOT Classification information was added.
SECTION 14 - DOT Classification information was deleted.
SECTION 14 - ICAO Classification information was added.
SECTION 14 - ICAO Classification information was deleted.
SECTION 14 - IMO Classification information was added.
SECTION 14 - IMO Classification information was deleted.
SECTION 15 - Chemical Inventories information was modified.
SECTION 15 - Regulatory Information information was modified.
SECTION 15 - SARA 311 EPCRA Score information was added.
SECTION 15 - SARA 311 Score information was deleted.

Revision Date: January 31, 2019

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

HCS CONCRETE

SDS Manual

SECTION 8

Safety Data Sheet

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

Clarity Hydraulic Oil AW 32, 46, 68, 100

Product Use: Hydraulic Oil
Product Number(s): 219612, 230340, 230341, 230342, 255702, 278022, 278023, 278024
Synonyms: Clarity Hydraulic Oil AW 32 ISOCLEAN Certified; Clarity Hydraulic Oil AW 46 ISOCLEAN Certified; Clarity Hydraulic Oil AW 68 ISOCLEAN Certified
Company Identification
Chevron Products Company
a division of Chevron U.S.A. Inc.
6001 Bollinger Canyon Rd.
San Ramon, CA 94583
United States of America
www.chevronlubricants.com

Transportation Emergency Response
CHEMTREC: (800) 424-9300 or (703) 527-3887
Health Emergency
Chevron Emergency & Information Center: Located in the USA. International collect calls accepted.
(800) 231-0623 or (510) 231-0623
Product Information
email : lubemsds@chevron.com
Product Information: 1 (800) 582-3835, LUBETEK@chevron.com

SECTION 2 HAZARDS IDENTIFICATION

CLASSIFICATION: Not classified as hazardous according to 29 CFR 1910.1200 (2012).

HAZARDS NOT OTHERWISE CLASSIFIED: Not Applicable

SECTION 3 COMPOSITION/ INFORMATION ON INGREDIENTS

COMPONENTS	CAS NUMBER	AMOUNT
Highly refined mineral oil (C15 - C50)	Mixture	70 - 99 %weight

SECTION 4 FIRST AID MEASURES

Description of first aid measures
Eye: No specific first aid measures are required. As a precaution, remove contact lenses, if worn, and flush eyes with water.
Skin: No specific first aid measures are required. As a precaution, remove clothing and shoes if contaminated. To remove the material from skin, use soap and water. Discard contaminated clothing and shoes or thoroughly clean before reuse.

Ingestion: No specific first aid measures are required. Do not induce vomiting. As a precaution, get medical advice.
Inhalation: No specific first aid measures are required. If exposed to excessive levels of material in the air, move the exposed person to fresh air. Get medical attention if coughing or respiratory discomfort occurs.

Most important symptoms and effects, both acute and delayed
IMMEDIATE HEALTH EFFECTS
Eye: Not expected to cause prolonged or significant eye irritation.
Skin: High-Pressure Equipment Information: Accidental high-velocity injection under the skin of materials of this type may result in serious injury. Seek medical attention at once should an accident like this occur. The initial wound at the injection site may not appear to be serious at first; but, if left untreated, could result in disfigurement or amputation of the affected part.
Contact with the skin is not expected to cause prolonged or significant irritation. Contact with the skin is not expected to cause an allergic skin response. Not expected to be harmful to internal organs if absorbed through the skin.
Ingestion: Not expected to be harmful if swallowed.
Inhalation: Not expected to be harmful if inhaled. Contains a petroleum-based mineral oil. May cause respiratory irritation or other pulmonary effects following prolonged or repeated inhalation of oil mist at airborne levels above the recommended mineral oil mist exposure limit. Symptoms of respiratory irritation may include coughing and difficulty breathing.

DELAYED OR OTHER HEALTH EFFECTS: Not classified

Indication of any immediate medical attention and special treatment needed
Note to Physicians: In an accident involving high-pressure equipment, this product may be injected under the skin. Such an accident may result in a small, sometimes bloodless, puncture wound. However, because of its driving force, material injected into a fingertip can be deposited into the palm of the hand. Within 24 hours, there is usually a great deal of swelling, discoloration, and intense throbbing pain. Immediate treatment at a surgical emergency center is recommended.

SECTION 5 FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Use water fog, foam, dry chemical or carbon dioxide (CO2) to extinguish flames.
Unusual Fire Hazards: Leaks/ruptures in high pressure system using materials of this type can create a fire hazard when in the vicinity of ignition sources (eg. open flame, pilot lights, sparks, or electric arcs).

PROTECTION OF FIRE FIGHTERS:
Fire Fighting Instructions: This material will burn although it is not easily ignited. See Section 7 for proper handling and storage. For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.
Combustion Products: Highly dependent on combustion conditions. A complex mixture of airborne solids, liquids, and gases including carbon monoxide, carbon dioxide, and unidentified organic compounds will be evolved when this material undergoes combustion.

SECTION 6 ACCIDENTAL RELEASE MEASURES

Protective Measures: Eliminate all sources of ignition in vicinity of spilled material.
Spill Management: Stop the source of the release if you can do it without risk. Contain release to prevent further contamination of soil, surface water or groundwater. Clean up spill as soon as possible, observing precautions in Exposure Controls/Personal Protection. Use appropriate techniques such as applying non-combustible absorbent materials or pumping. Where feasible and appropriate, remove contaminated soil. Place contaminated materials in disposable containers and dispose of in a manner

consistent with applicable regulations.
Reporting: Report spills to local authorities and/or the U.S. Coast Guard's National Response Center at (800) 424-8802 as appropriate or required.

SECTION 7 HANDLING AND STORAGE

General Handling Information: Avoid contaminating soil or releasing this material into sewage and drainage systems and bodies of water.
Precautionary Measures: DO NOT USE IN HIGH PRESSURE SYSTEMS in the vicinity of flames, sparks and hot surfaces. Use only in well ventilated areas. Keep container closed.
Static Hazard: Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding may be necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures.
Container Warnings: Container is not designed to contain pressure. Do not use pressure to empty container or it may rupture with explosive force. Empty containers retain product residue (solid, liquid, and/or vapor) and can be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition. They may explode and cause injury or death. Empty containers should be completely drained, properly closed, and promptly returned to a drum reconditioner or disposed of properly.

SECTION 8 EXPOSURE CONTROLS/PERSONAL PROTECTION

GENERAL CONSIDERATIONS:
Consider the potential hazards of this material (see Section 2), applicable exposure limits, job activities, and other substances in the work place when designing engineering controls and selecting personal protective equipment. If engineering controls or work practices are not adequate to prevent exposure to harmful levels of this material, the personal protective equipment listed below is recommended. The user should read and understand all instructions and limitations supplied with the equipment since protection is usually provided for a limited time or under certain circumstances.

ENGINEERING CONTROLS:
Use in a well-ventilated area.

PERSONAL PROTECTIVE EQUIPMENT
Eye/Face Protection: No special eye protection is normally required. Where splashing is possible, wear safety glasses with side shields as a good safety practice.
Skin Protection: No special protective clothing is normally required. Where splashing is possible, select protective clothing depending on operations conducted, physical requirements and other substances in the workplace. Suggested materials for protective gloves include: 4H (PE/EVAL), Nitrile Rubber, Silver Shield, Viton.
Respiratory Protection: No respiratory protection is normally required.
If user operations generate an oil mist, determine if airborne concentrations are below the occupational exposure limit for mineral oil mist. If not, wear an approved respirator that provides adequate protection from the measured concentrations of this material. For air-purifying respirators use a particulate cartridge.
Use a positive pressure air-supplying respirator in circumstances where air-purifying respirators may not provide adequate protection.

Occupational Exposure Limits:

Component	Agency	Form	TWA	STEL	Ceiling	Notation
Highly refined mineral oil	ACGIH	--	5 mg/m3	10 mg/m3	--	--

(C15 - C50)						
Highly refined mineral oil (C15 - C50)	OSHA Z-1	--	5 mg/m3	--	--	--

Consult local authorities for appropriate values.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Attention: the data below are typical values and do not constitute a specification.

Color: Colorless to yellow
Physical State: Liquid
Odor: Petroleum odor
Odor Threshold: No data available
pH: Not Applicable
Vapor Pressure: No data available
Vapor Density (Air = 1): No data available
Initial Boiling Point: No data available
Solubility: Soluble in hydrocarbons; insoluble in water
Freezing Point: Not Applicable
Melting Point: No data available
Density: 0.8618 kg/l - 0.8694 kg/l @ 15°C (59°F) (Typical)
Viscosity: 32 mm2/s - 110 mm2/s @ 40°C (104°F) (Minimum)
Evaporation Rate: No data available
Decomposition temperature: No data available
Octanol/Water Partition Coefficient: No data available

FLAMMABLE PROPERTIES:
Flammability (solid, gas): Not Applicable

Flashpoint: (Cleveland Open Cup) 190 °C (374 °F) (Minimum)
Autoignition: No data available
Flammability (Explosive) Limits (% by volume in air): Lower: Not Applicable Upper: Not Applicable

SECTION 10 STABILITY AND REACTIVITY

Reactivity: May react with strong acids or strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.
Chemical Stability: This material is considered stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.
Incompatibility With Other Materials: Not applicable
Hazardous Decomposition Products: None known (None expected)
Hazardous Polymerization: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

Information on toxicological effects
Serious Eye Damage/Irritation: The eye irritation hazard is based on evaluation of data for product components.

Skin Corrosion/Irritation: The skin irritation hazard is based on evaluation of data for product components.

Skin Sensitization: The skin sensitization hazard is based on evaluation of data for product

components.

Acute Dermal Toxicity: The acute dermal toxicity hazard is based on evaluation of data for product components.

Acute Oral Toxicity: The acute oral toxicity hazard is based on evaluation of data for product components.

Acute Inhalation Toxicity: The acute inhalation toxicity hazard is based on evaluation of data for product components.
Acute Toxicity Estimate: Not Determined

Germ Cell Mutagenicity: The hazard evaluation is based on data for components or a similar material.

Carcinogenicity: The hazard evaluation is based on data for components or a similar material.

Reproductive Toxicity: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Single Exposure: The hazard evaluation is based on data for components or a similar material.

Specific Target Organ Toxicity - Repeated Exposure: The hazard evaluation is based on data for components or a similar material.

ADDITIONAL TOXICOLOGY INFORMATION:
This product contains petroleum base oils which may be refined by various processes including severe solvent extraction, severe hydrocracking, or severe hydrotreating. None of the oils requires a cancer warning under the OSHA Hazard Communication Standard (29 CFR 1910.1200). These oils have not been listed in the National Toxicology Program (NTP) Annual Report nor have they been classified by the International Agency for Research on Cancer (IARC) as; carcinogenic to humans (Group 1), probably carcinogenic to humans (Group 2A), or possibly carcinogenic to humans (Group 2B).
These oils have not been classified by the American Conference of Governmental Industrial Hygienists (ACGIH) as: confirmed human carcinogen (A1), suspected human carcinogen (A2), or confirmed animal carcinogen with unknown relevance to humans (A3).

SECTION 12 ECOLOGICAL INFORMATION

ECOTOXICITY
This material is not expected to be harmful to aquatic organisms.
The product has not been tested. The statement has been derived from the properties of the individual components.

MOBILITY
No data available.

PERSISTENCE AND DEGRADABILITY
This material is not expected to be readily biodegradable. The biodegradability of this material is based on an evaluation of data for the components or a similar material.
The product has not been tested. The statement has been derived from the properties of the individual components.

POTENTIAL TO BIOACCUMULATE
Bioconcentration Factor: No data available.
Octanol/Water Partition Coefficient: No data available

SECTION 13 DISPOSAL CONSIDERATIONS

Use material for its intended purpose or recycle if possible. Oil collection services are available for used oil recycling or disposal. Place contaminated materials in containers and dispose of in a manner consistent with applicable regulations. Contact your sales representative or local environmental or health authorities for approved disposal or recycling methods.

SECTION 14 TRANSPORT INFORMATION

The description shown may not apply to all shipping situations. Consult 49CFR, or appropriate Dangerous Goods Regulations, for additional description requirements (e.g., technical name) and mode-specific or quantity-specific shipping requirements.

DOT Shipping Description: NOT REGULATED AS HAZARDOUS MATERIAL UNDER 49 CFR

IMO/IMDG Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER THE IMDG CODE

ICAO/IATA Shipping Description: NOT REGULATED AS DANGEROUS GOODS FOR TRANSPORT UNDER ICAO

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code:
Not applicable

SECTION 15 REGULATORY INFORMATION

EPCRA 311/312 CATEGORIES: Not applicable

REGULATORY LISTS SEARCHED:

01-1=IARC Group 1	03=EPCRA 313
01-2A=IARC Group 2A	04=CA Proposition 65
01-2B=IARC Group 2B	05=MA RTK
02=NTP Carcinogen	06=NJ RTK
	07=PA RTK

No components of this material were found on the regulatory lists above.

CHEMICAL INVENTORIES:
All components comply with the following chemical inventory requirements: AICS (Australia), DSL (Canada), EINECS (European Union), ENCS (Japan), IECSC (China), KECI (Korea), NZIoC (New Zealand), PICCS (Philippines), TCSI (Taiwan), TSCA (United States).

NEW JERSEY RTK CLASSIFICATION:
Under the New Jersey Right-to-Know Act L. 1983 Chapter 315 N.J.S.A. 34:5A-1 et. seq., the product is to be identified as follows: PETROLEUM OIL (Hydraulic oil)

SECTION 16 OTHER INFORMATION

NFPA RATINGS: Health: 0 Flammability: 1 Reactivity: 0

HMIS RATINGS: Health: 0 Flammability: 1 Reactivity: 0
(0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme, PPE:- Personal Protection Equipment Index

recommendation, *- Chronic Effect Indicator). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association (NFPA) or the National Paint and Coating Association (for HMIS ratings).

REVISION STATEMENT: SECTION 01 - Product Code(s) information was modified.
SECTION 08 - Occupational Exposure Limit Table information was modified.
SECTION 09 - Physical/Chemical Properties information was modified.
SECTION 15 - Chemical Inventories information was deleted.
SECTION 15 - Chemical Inventories information was modified.
SECTION 15 - SARA 311 EPCRA Score information was added.
SECTION 15 - SARA 311 Score information was deleted.

Revision Date: July 13, 2020

ABBREVIATIONS THAT MAY HAVE BEEN USED IN THIS DOCUMENT:

TLV - Threshold Limit Value	TWA - Time Weighted Average
STEL - Short-term Exposure Limit	PEL - Permissible Exposure Limit
GHS - Globally Harmonized System	CAS - Chemical Abstract Service Number
ACGIH - American Conference of Governmental Industrial Hygienists	IMO/IMDG - International Maritime Dangerous Goods Code
API - American Petroleum Institute	SDS - Safety Data Sheet
HMIS - Hazardous Materials Information System	NFPA - National Fire Protection Association (USA)
DOT - Department of Transportation (USA)	NTP - National Toxicology Program (USA)
IARC - International Agency for Research on Cancer	OSHA - Occupational Safety and Health Administration
NCEL - New Chemical Exposure Limit	EPA - Environmental Protection Agency
SCBA - Self-Contained Breathing Apparatus	

Prepared according to the 29 CFR 1910.1200 (2012) by Chevron Energy Technology Company, 6001 Bollinger Canyon Road, San Ramon, CA 94583.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modifications of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination of the suitability of the material for his particular purpose.

SAFETY DATA SHEET

1. Identification

Product identifier	**UNLEADED GASOLINE**
Other means of identification	
SDS number	002-GHS
Synonyms	Regular/Premium/Midgrade - Unleaded Gasoline, RFG - Reformulated Unleaded Gasoline, Conventional Unleaded Gasoline, Oxygenated Unleaded Gasoline, Non-Oxygenated Unleaded Gasoline, CARB (California Air Resource Board) Unleaded Gasoline, RBOB - Reformulated Blendstock for Oxygenate Blending, CBOB - Conventional Blendstock for Oxygenate Blending, Petrol, Motor Fuel. See section 16 for complete information.
Recommended use	Motor Fuel Motor fuels.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000
General Assistance	210-345-4593
E-Mail	CorpHSE@valero.com
Contact Person	Industrial Hygienist
Emergency Telephone	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 1
Health hazards	Skin corrosion/irritation	Category 2
	Germ cell mutagenicity	Category 1B
	Carcinogenicity	Category 1B
	Reproductive toxicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word	Danger
Hazard statement	Extremely flammable liquid and vapor. Causes skin irritation. May cause genetic defects. May cause cancer. Suspected of damaging fertility or the unborn child. May cause drowsiness or dizziness. May cause damage to organs (blood, liver, kidney) through prolonged or repeated exposure. May be fatal if swallowed and enters airways. Toxic to aquatic life with long lasting effects.

Precautionary statement

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting// equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe gas/mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area. Avoid release to the environment.
Response	If exposed or concerned: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. In case of fire: Use alcohol-resistant foam, carbon dioxide, dry powder or water fog for extinction. Collect spillage.
Storage	Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Gasoline	86290-81-5	80-100
Toluene	108-88-3	0-30
Hexane (Other Isomers)	96-14-0	5-25
Xylene (o, m, p isomers)	1330-20-7	0-25
Octane (All isomers)	111-65-9	0-18.5
Ethanol	64-17-5	0-10
1,2,4, Trimethylbenzene	95-63-6	0-6
n-Heptane	142-82-5	1-5
Pentane	109-66-0	1-5
Cumene	98-82-8	0-5
Ethylbenzene	100-41-4	0-5
Benzene	71-43-2	0-4.9
n-Hexane	110-54-3	0-3
Cyclohexane	110-82-7	0-3

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Cyanosis (blue tissue condition, nails, lips, and/or skin). Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash.

Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	Vapor may cause flash fire. Vapors can flow along surfaces to distant ignition source and flash back. Sensitive to static discharge.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Vapors may form explosive air mixtures even at room temperature. Prevent buildup of vapors or gases to explosive concentrations. Some of these materials, if spilled, may evaporate leaving a flammable residue. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.
Specific methods	Use water spray to cool unopened containers.
General fire hazards	Extremely flammable liquid and vapor. Containers may explode when heated.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use non-sparking tools and explosion-proof equipment. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.
Environmental precautions	Gasoline may contain oxygenated blend products (Ethanol, etc.) that are soluble in water and therefore precautions should be taken to protect surface and groundwater sources from contamination. If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Extremely flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802.

7. Handling and storage

Precautions for safe handling

Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity.
Wear personal protective equipment. Do not breathe dust/fume/gas/mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is extremely flammable, and explosive vapor/air mixtures may be formed even at normal room temperatures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Benzene (CAS 71-43-2)	STEL	5 ppm
	TWA	1 ppm

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Cumene (CAS 98-82-8)	PEL	245 mg/m3 50 ppm
Cyclohexane (CAS 110-82-7)	PEL	1050 mg/m3 300 ppm
Ethanol (CAS 64-17-5)	PEL	1900 mg/m3 1000 ppm
Ethylbenzene (CAS 100-41-4)	PEL	435 mg/m3 100 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3 500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3 500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3 500 ppm
Pentane (CAS 109-66-0)	PEL	2950 mg/m3 1000 ppm
Xylene (o, m, p isomers) (CAS 1330-20-7)	PEL	435 mg/m3 100 ppm

US. OSHA Table Z-2 (29 CFR 1910.1000)

Components	Type	Value
Benzene (CAS 71-43-2)	Ceiling	25 ppm
	TWA	10 ppm
Toluene (CAS 108-88-3)	Ceiling	300 ppm
	TWA	200 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
1,2,4, Trimethylbenzene (CAS 95-63-6)	TWA	25 ppm
Benzene (CAS 71-43-2)	STEL	2.5 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
	TWA	0.5 ppm
Cumene (CAS 98-82-8)	TWA	50 ppm
Cyclohexane (CAS 110-82-7)	TWA	100 ppm
Ethanol (CAS 64-17-5)	STEL	1000 ppm
Ethylbenzene (CAS 100-41-4)	TWA	20 ppm
Gasoline (CAS 86290-81-5)	STEL	500 ppm
	TWA	300 ppm
Hexane (Other Isomers) (CAS 96-14-0)	STEL	1000 ppm
	TWA	500 ppm
n-Heptane (CAS 142-82-5)	STEL	500 ppm
	TWA	400 ppm
n-Hexane (CAS 110-54-3)	TWA	50 ppm
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm
Pentane (CAS 109-66-0)	TWA	600 ppm
Toluene (CAS 108-88-3)	TWA	20 ppm
Xylene (o, m, p isomers) (CAS 1330-20-7)	STEL	150 ppm
	TWA	100 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
1,2,4, Trimethylbenzene (CAS 95-63-6)	TWA	125 mg/m3
Benzene (CAS 71-43-2)	STEL	25 ppm 1 ppm
	TWA	0.1 ppm
Cumene (CAS 98-82-8)	TWA	245 mg/m3 50 ppm
Cyclohexane (CAS 110-82-7)	TWA	1050 mg/m3
Ethanol (CAS 64-17-5)	TWA	300 ppm 1900 mg/m3
Ethylbenzene (CAS 100-41-4)	STEL	1000 ppm 545 mg/m3
	TWA	125 ppm 435 mg/m3
Hexane (Other Isomers) (CAS 96-14-0)	Ceiling	100 ppm 1800 mg/m3
	TWA	510 ppm 350 mg/m3
n-Heptane (CAS 142-82-5)	Ceiling	100 ppm 1800 mg/m3
	TWA	440 ppm 350 mg/m3
n-Hexane (CAS 110-54-3)	TWA	85 ppm 180 mg/m3
Octane (All isomers) (CAS 111-65-9)	Ceiling	50 ppm 1800 mg/m3
	TWA	385 ppm 350 mg/m3
Pentane (CAS 109-66-0)	Ceiling	75 ppm 1800 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Toluene (CAS 108-88-3)		610 ppm
	TWA	350 mg/m3
		120 ppm
	STEL	560 mg/m3
		150 ppm
	TWA	375 mg/m3
		100 ppm
Xylene (o, m, p isomers) (CAS 1330-20-7)	STEL	655 mg/m3
		150 ppm
	TWA	435 mg/m3
		100 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
Benzene (CAS 71-43-2)	25 µg/g	S-Phenylmercapturic acid	Creatinine in urine	*
Ethylbenzene (CAS 100-41-4)	0.7 g/g	Sum of mandelic acid and phenylglyoxylic acid	Creatinine in urine	*
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedi - on, without hydrolysis		*
	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
Toluene (CAS 108-88-3)	0.3 mg/g	o-Cresol, with hydrolysis	Creatinine in urine	*
	0.03 mg/l	Toluene	Urine	*
	0.02 mg/l	Toluene	Blood	*
Xylene (o, m, p isomers) (CAS 1330-20-7)	1.5 g/g	Methylhippuric acids	Creatinine in urine	*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

Benzene (CAS 71-43-2)	Can be absorbed through the skin.
Cumene (CAS 98-82-8)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.
Toluene (CAS 108-88-3)	Can be absorbed through the skin.

US - Minnesota Haz Subs: Skin designation applies

Cumene (CAS 98-82-8)	Skin designation applies.
Toluene (CAS 108-88-3)	Skin designation applies.

US - Tennesse OELs: Skin designation

Cumene (CAS 98-82-8)	Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Benzene (CAS 71-43-2)	Can be absorbed through the skin.
n-Hexane (CAS 110-54-3)	Can be absorbed through the skin.

US. NIOSH: Pocket Guide to Chemical Hazards

Cumene (CAS 98-82-8)	Can be absorbed through the skin.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Cumene (CAS 98-82-8)	Can be absorbed through the skin.

Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.
Skin protection	
Hand protection	Avoid exposure - obtain special instructions before use. Wear protective gloves. Be aware that the liquid may penetrate the gloves. Frequent change is advisable. Suitable gloves can be recommended by the glove supplier.
Other	Wear chemical-resistant, impervious gloves. Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.
Respiratory protection	Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance	Light straw to red clear liquid with characteristic strong odor of gasoline.
Physical state	Liquid.
Form	Liquid.
Color	Light straw to red clear.
Odor	Characteristic Gasoline Odor (Strong).
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	44.01 °F (6.67 °C) May start to solidify at this temperature. This is based on data for the following ingredient: Cyclohexane. Weighted average: -91.9 deg C (-133.4 deg F)
Initial boiling point and boiling range	80.06 - 440.06 °F (26.7 - 226.7 °C)
Flash point	-40.0 °F (-40.0 °C) (closed cup)
Evaporation rate	10 - 11 BuAc
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	1.3 %
Flammability limit - upper (%)	7.1 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	60.8 - 101.3 kPa (20°C)
Vapor density	3 - 4 (Air=1)
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Very slightly soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	> 500 °F (> 260 °C)
Decomposition temperature	Not available.
Viscosity	Not available.

Other information

Flash point class	Flammable IA
VOC (Weight %)	100 %

10. Stability and reactivity

Reactivity	None known.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Swallowing or vomiting of the liquid may result in aspiration into the lungs.
Inhalation	In high concentrations, mists/vapors may irritate throat and respiratory system and cause coughing. May cause drowsiness or dizziness.
Skin contact	Causes skin irritation. Prolonged contact may cause dryness of the skin.
Eye contact	May cause eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Cyanosis (blue tissue condition, nails, lips, and/or skin). Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash.

Information on toxicological effects

Acute toxicity Based on available data, the classification criteria are not met.

Components	Species	Test Results
1,2,4, Trimethylbenzene (CAS 95-63-6)		
Acute		
Dermal		
LD50	Rabbit	> 3160 mg/kg
Inhalation		
LC50	Rat	> 2000 mg/l, 48 Hours
Oral		
LD50	Rat	6 g/kg
Benzene (CAS 71-43-2)		
Acute		
Oral		
LD50	Rat	3306 mg/kg
Cumene (CAS 98-82-8)		
Acute		
Inhalation		
LC50	Mouse	2000 mg/l, 7 Hours
	Rat	8000 mg/l, 4 Hours
Oral		
LD50	Rat	1400 mg/kg
Cyclohexane (CAS 110-82-7)		
Acute		
Oral		
LD50	Rat	12705 mg/kg

Components	Species	Test Results
Ethanol (CAS 64-17-5)		
Acute		
Inhalation		
LC50	Rat	30000 mg/m3
Ethylbenzene (CAS 100-41-4)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Oral		
LD50	Rat	5.46 g/kg
n-Heptane (CAS 142-82-5)		
Acute		
Inhalation		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
Oral		
LD50	Rat	28710 mg/kg
Octane (All isomers) (CAS 111-65-9)		
Acute		
Inhalation		
LC50	Rat	118 mg/l, 4 Hours
Pentane (CAS 109-66-0)		
Acute		
Inhalation		
LC50	Rat	364 mg/l, 4 Hours
Toluene (CAS 108-88-3)		
Acute		
Dermal		
LD50	Rabbit	14.1 ml/kg
Inhalation		
LC50	Rat	8000 mg/l, 4 Hours
Oral		
LD50	Rat	2.6 g/kg
Xylene (o, m, p isomers) (CAS 1330-20-7)		
Acute		
Oral		
LD50	Rat	4300 mg/kg

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.
This substance may have a potential for sensitization which may provoke an allergic reaction among sensitive individuals.

Germ cell mutagenicity May cause genetic defects.
In in-vitro experiments, neither benzene, toluene nor xylene changed the number of sister-chromatid exchanges (SCEs) or the number of chromosomal aberrations in human lymphocytes. However, toluene and xylene caused a significant cell growth inhibition which was not observed with benzene in the same concentrations. In in-vivo experiments, toluene changed the number of sister-chromatid exchanges (SCEs) in human lymphocytes. Toluene may cause heritable genetic damage.

Carcinogenicity May cause cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Benzene (CAS 71-43-2)	1 Carcinogenic to humans.
Cumene (CAS 98-82-8)	2B Possibly carcinogenic to humans.
Ethylbenzene (CAS 100-41-4)	2B Possibly carcinogenic to humans.
Gasoline (CAS 86290-81-5)	2B Possibly carcinogenic to humans.
Toluene (CAS 108-88-3)	3 Not classifiable as to carcinogenicity to humans.
Xylene (o, m, p isomers) (CAS 1330-20-7)	3 Not classifiable as to carcinogenicity to humans.

NTP Report on Carcinogens

Benzene (CAS 71-43-2)	Known To Be Human Carcinogen.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Benzene (CAS 71-43-2)	Cancer

Reproductive toxicity Suspected of damaging fertility or the unborn child.
Benzene, xylene and toluene have demonstrated animal effects of reproductive toxicity. Animal studies of benzene have shown testicular effects, alterations in reproductive cycles, chromosomal aberrations and embryo/fetotoxicity. Ethanol has demonstrated human effects of reproductive toxicity. Can cause adverse reproductive effects - such as birth defects, miscarriages, or infertility. Avoid exposure to women during early pregnancy. Avoid contact during pregnancy/while nursing.

Specific target organ toxicity - single exposure May cause drowsiness or dizziness.

Specific target organ toxicity - repeated exposure May cause damage to the following organs through prolonged or repeated exposure: Blood. Kidneys. Liver.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Repeated exposure of laboratory animals to high concentrations of gasoline vapors has caused kidney damage and cancer in rats and cancer in mice. Gasoline was evaluated for genetic activity in assays using microbial cells, cultured mammalian cells and rat bone marrow cells. The results were all negative so gasoline was considered nonmutagenic under these conditions. Overexposure to this product or its components has been suggested as a cause of liver abnormalities in laboratory animals and humans. Lifetime studies by the American Petroleum Institute have shown that kidney damage and kidney cancer can occur in male rats after prolonged inhalation exposures at elevated concentrations of total gasoline. Kidneys of mice and female rats were unaffected. The U.S. EPA Risk Assessment Forum has concluded that the male rat kidney tumor results are not relevant for humans. Total gasoline exposure also produced liver tumors in female mice only. The implication of these data for humans has not been determined.

Further information Symptoms may be delayed.

12. Ecological information

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components		Species	Test Results
1,2,4, Trimethylbenzene (CAS 95-63-6)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	7.19 - 8.28 mg/l, 96 hours
Benzene (CAS 71-43-2)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	8.76 - 15.6 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	7.2 - 11.7 mg/l, 96 hours
Cumene (CAS 98-82-8)			
Aquatic			
Crustacea	EC50	Brine shrimp (Artemia sp.)	3.55 - 11.29 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	2.7 mg/l, 96 hours
Cyclohexane (CAS 110-82-7)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	3.961 - 5.181 mg/l, 96 hours
		Striped bass (Morone saxatilis)	8.3 mg/l, 96 hours

Components		Species	Test Results
Ethanol (CAS 64-17-5)			
Aquatic			
Algae	EC50	Freshwater algae	275 mg/l, 72 Hours
		Marine water algae	1970 mg/l
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
		Freshwater fish	11200 mg/l, 96 Hours
Invertebrate	EC50	Freshwater invertebrate	5012 mg/l, 48 Hours
		Marine water invertebrate	857 mg/l, 48 Hours
Ethylbenzene (CAS 100-41-4)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1 - 4 mg/l, 48 hours
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	4 mg/l, 96 hours
n-Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours
Toluene (CAS 108-88-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	5.46 - 9.83 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	6.86 - 8.48 mg/l, 96 hours
Xylene (o, m, p isomers) (CAS 1330-20-7)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	8 mg/l, 96 Hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Benzene (CAS 71-43-2)	2.13
Cumene (CAS 98-82-8)	3.66
Cyclohexane (CAS 110-82-7)	3.44
Ethanol (CAS 64-17-5)	-0.31
Ethylbenzene (CAS 100-41-4)	3.15
Hexane (Other Isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
Pentane (CAS 109-66-0)	3.39
Toluene (CAS 108-88-3)	2.73
Xylene (o, m, p isomers) (CAS 1330-20-7)	3.2
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F
D018: Waste Benzene

US RCRA Hazardous Waste U List: Reference

Benzene (CAS 71-43-2)	U019
Cumene (CAS 98-82-8)	U055
Cyclohexane (CAS 110-82-7)	U056
Toluene (CAS 108-88-3)	U220
Xylene (o, m, p isomers) (CAS 1330-20-7)	U239

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number	UN1203
UN proper shipping name	Gasoline
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	139, B33, B101, T8
Packaging exceptions	150
Packaging non bulk	202
Packaging bulk	242

IATA

UN number	UN1203
UN proper shipping name	Gasoline
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	Yes
ERG Code	3H
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1203
UN proper shipping name	Gasoline
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Benzene (CAS 71-43-2)	Cancer

Central nervous system
Blood
Aspiration
Skin
Eye
Respiratory tract irritation
Flammability

CERCLA Hazardous Substance List (40 CFR 302.4)

Benzene (CAS 71-43-2)	LISTED
Cumene (CAS 98-82-8)	LISTED
Cyclohexane (CAS 110-82-7)	LISTED
Ethanol (CAS 64-17-5)	LISTED
Ethylbenzene (CAS 100-41-4)	LISTED
Gasoline (CAS 86290-81-5)	LISTED
Hexane (Other Isomers) (CAS 96-14-0)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED
Pentane (CAS 109-66-0)	LISTED
Toluene (CAS 108-88-3)	LISTED
Xylene (o, m, p isomers) (CAS 1330-20-7)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - No
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Toluene	108-88-3	0-30
Xylene (o, m, p isomers)	1330-20-7	0-25
1,2,4, Trimethylbenzene	95-63-6	0-6
Cumene	98-82-8	0-5
Ethylbenzene	100-41-4	0-5
Benzene	71-43-2	0-4.9
n-Hexane	110-54-3	0-3
Cyclohexane	110-82-7	0-3

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Ethylbenzene (CAS 100-41-4)
n-Hexane (CAS 110-54-3)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Pentane (CAS 109-66-0)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

Toluene (CAS 108-88-3) 6594

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

Toluene (CAS 108-88-3) 35 % weight/volumn

DEA Exempt Chemical Mixtures Code Number

Toluene (CAS 108-88-3) 594

US state regulations

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

1,2,4, Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
Ethylbenzene (CAS 100-41-4)
Hexane (Other Isomers) (CAS 96-14-0)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. New Jersey Worker and Community Right-to-Know Act

1,2,4, Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
Ethylbenzene (CAS 100-41-4)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. Pennsylvania Worker and Community Right-to-Know Law

1,2,4, Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethanol (CAS 64-17-5)
Ethylbenzene (CAS 100-41-4)
Gasoline (CAS 86290-81-5)
Hexane (Other Isomers) (CAS 96-14-0)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
Octane (All isomers) (CAS 111-65-9)
Pentane (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. Rhode Island RTK

1,2,4, Trimethylbenzene (CAS 95-63-6)
Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Cyclohexane (CAS 110-82-7)
Ethylbenzene (CAS 100-41-4)
n-Hexane (CAS 110-54-3)
Pentane (CAS 109-66-0)
Toluene (CAS 108-88-3)
Xylene (o, m, p isomers) (CAS 1330-20-7)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)
Cumene (CAS 98-82-8)
Ethylbenzene (CAS 100-41-4)
Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 13-May-2013

Revision date 23-May-2014

Version # 03

Further information HMIS® is a registered trade and service mark of the NPCA.

NFPA Ratings

References

ACGIH
EPA: AQUIRE database
NLM: Hazardous Substances Data Base
US. IARC Monographs on Occupational Exposures to Chemical Agents
HSDB® - Hazardous Substances Data Bank
IARC Monographs. Overall Evaluation of Carcinogenicity
National Toxicology Program (NTP) Report on Carcinogens
ACGIH Documentation of the Threshold Limit Values and Biological Exposure Indices

Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

SAFETY DATA SHEET

1. Identification

Product identifier	**DIESEL FUELS**
Other means of identification	
SDS number	102-GHS
Synonyms	Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.
Recommended use	Motor Fuel Refinery feedstock.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer/Supplier	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000
General Assistance	210-345-4593
E-Mail	CorpHSE@valero.com
Contact Person	Industrial Hygienist
Emergency Telephone	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, long-term hazard	Category 2

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure. May be fatal if swallowed and enters airways.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not breathe mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

Response	If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
Storage	Store locked up. Store in a well-ventilated place. Keep cool.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

4. First-aid measures

Inhalation	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
Skin contact	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
Ingestion	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
Most important symptoms/effects, acute and delayed	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
Indication of immediate medical attention and special treatment needed	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.
General information	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

5. Fire-fighting measures

Suitable extinguishing media	Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media	Do not use a solid water stream as it may scatter and spread fire.
Specific hazards arising from the chemical	The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Thermal decomposition or combustion may liberate toxic gases or fumes.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire-fighting equipment/instructions	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas. Use non-sparking tools and explosion-proof equipment. Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste. Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment. Clean up in accordance with all applicable regulations.
Environmental precautions	If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

7. Handling and storage

Precautions for safe handling	Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

Conditions for safe storage, including any incompatibilities

Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3 10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3 500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3 500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3 500 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
	TWA	500 ppm	
Naphthalene (CAS 91-20-3)	STEL	15 ppm	
	TWA	10 ppm	
n-Heptane (CAS 142-82-5)	STEL	500 ppm	
	TWA	400 ppm	
n-Hexane (CAS 110-54-3)	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	Ceiling	1800 mg/m3 510 ppm
	TWA	350 mg/m3 100 ppm
Naphthalene (CAS 91-20-3)	STEL	75 mg/m3 15 ppm
	TWA	50 mg/m3 10 ppm
n-Heptane (CAS 142-82-5)	Ceiling	1800 mg/m3 440 ppm
	TWA	350 mg/m3 85 ppm
n-Hexane (CAS 110-54-3)	TWA	180 mg/m3 50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3 200 ppm
Octane (All isomers) (CAS 111-65-9)	Ceiling	1800 mg/m3 385 ppm
	TWA	350 mg/m3 75 ppm

Biological limit values

ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
	0.4 mg/l	2,5-Hexanedi - on, without hydrolysis		*

* - For sampling details, please see the source document.

Exposure guidelines

US - California OELs: Skin designation

n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6) Can be absorbed through the skin.
Naphthalene (CAS 91-20-3) Can be absorbed through the skin.
n-Hexane (CAS 110-54-3) Can be absorbed through the skin.

Appropriate engineering controls Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

Skin protection

Hand protection Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

Other Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

Respiratory protection Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties

Appearance Liquid (may be dyed red).

Physical state Liquid.

Form Liquid.

Color Clear. Straw.

Odor Kerosene (strong).

Odor threshold Not available.

pH Not available.

Melting point/freezing point -60.07 °F (-51.15 °C) Estimated

Initial boiling point and boiling range 325 - 700 °F (162.78 - 371.11 °C)

Flash point > 100.0 °F (> 37.8 °C) Closed Cup

Evaporation rate 0.02

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	0.4 %
Flammability limit - upper (%)	8 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Relative density	0.82 - 0.87
Relative density temperature	60 °F (15.56 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	494.96 °F (257.2 °C)
Decomposition temperature	Not available.
Viscosity	2 - 4.5 mm^2/s

10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Ingestion	May be fatal if swallowed and enters airways.
Inhalation	Harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.
Skin contact	Causes skin irritation.
Eye contact	May cause eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful: may cause lung damage if swallowed. The toxicological properties of this material have not been fully investigated.

Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute		
Inhalation		
LC50	Rat	4.1 mg/l, 4 hours

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
Acute		
Dermal		
LD50	Rabbit	> 2 g/kg
Oral		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
Acute		
Inhalation		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
Acute		
Oral		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
Acute		
Inhalation		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
Acute		
Inhalation		
LC50	Rat	118 mg/l, 4 Hours

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Based on available data, the classification criteria are not met.

Respiratory or skin sensitization

Respiratory sensitization Based on available data, the classification criteria are not met.

Skin sensitization Based on available data, the classification criteria are not met.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Carcinogenicity Suspected of causing cancer.
International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer.
Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.

IARC Monographs. Overall Evaluation of Carcinogenicity

Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.

Reproductive toxicity Suspected of damaging fertility or the unborn child.
Napthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.

Specific target organ toxicity - single exposure Based on available data, the classification criteria are not met.

Specific target organ toxicity - repeated exposure May cause damage to the following organs through prolonged or repeated exposure: Blood. Liver. Thymus.

Aspiration hazard May be fatal if swallowed and enters airways.

Chronic effects Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.

Further information Symptoms may be delayed. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxicological properties of this material have not been fully investigated.

12. Ecological information

Ecotoxicity Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components		Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)			
Aquatic			
Acute			
Crustacea	EL50	Daphnia magna	68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss	65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)			
Aquatic			
Crustacea	EC50	Water flea (Daphnia magna)	1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha)	0.95 - 1.62 mg/l, 96 hours
n-Heptane (CAS 142-82-5)			
Aquatic			
Fish	LC50	Western mosquitofish (Gambusia affinis)	4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2.101 - 2.981 mg/l, 96 hours

Persistence and degradability Not available.

Bioaccumulative potential Not available.

Partition coefficient n-octanol / water (log Kow)

Hexane (Other isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9
n-Nonane (CAS 111-84-2)	5.46

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

Hazardous waste code D001: Waste Flammable material with a flash point <140 °F

US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3) U165

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Offer rinsed packaging material to local recycling facilities.

14. Transport information

DOT

UN number UN1202

UN proper shipping name Diesel fuel

Transport hazard class(es)

Class Combustible Liquid

Subsidiary risk -

Packing group III

Environmental hazards	
Marine pollutant	Yes
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Special provisions	144, B1, IB3, T2, TP1
Packaging exceptions	150
Packaging non bulk	203
Packaging bulk	242

IATA

UN number	UN1202
UN proper shipping name	Diesel fuel
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	Yes
ERG Code	3L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN1202
UN proper shipping name	DIESEL FUEL
Transport hazard class(es)	
Class	3
Subsidiary risk	-
Label(s)	3
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-E, S-E
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

15. Regulatory information

US federal regulations

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

n-Nonane (CAS 111-84-2)	1.0 % One-Time Export Notification only.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4)

Hexane (Other isomers) (CAS 96-14-0)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
n-Nonane (CAS 111-84-2)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 1

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List

Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. New Jersey Worker and Community Right-to-Know Act

Fuels, diesel, no. 2 (CAS 68476-34-6)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Pennsylvania Worker and Community Right-to-Know Law

Fuels, diesel, no. 2 (CAS 68476-34-6)
Hexane (Other isomers) (CAS 96-14-0)
Naphthalene (CAS 91-20-3)
n-Heptane (CAS 142-82-5)
n-Hexane (CAS 110-54-3)
n-Nonane (CAS 111-84-2)
Octane (All isomers) (CAS 111-65-9)

US. Rhode Island RTK

Naphthalene (CAS 91-20-3)
n-Hexane (CAS 110-54-3)

US. California Proposition 65

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Benzene (CAS 71-43-2)
Toluene (CAS 108-88-3)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

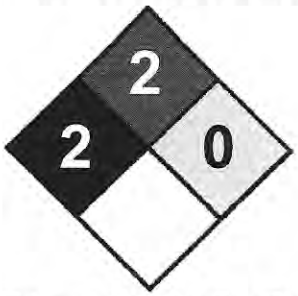
Issue date 13-May-2013

Revision date 23-May-2014

Version # 04

Further information HMIS® is a registered trade and service mark of the NPCA.

NFPA Ratings



Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use , the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.

Section 1 - PRODUCT AND COMPANY IDENTIFICATION

Material Name
CRAYOLA® PORTFOLIO SERIES ACRYLIC PAINT, AND ACRYLIC PAINT

Synonyms
CRAYOLA PORTFOLIO SERIES ACRYLIC PAINT, AND ACRYLIC PAINT ; CRAYOLA PREMIER & ARTISTA II TEMPERA PAINTS; CRAYOLA PREMIER TEMPERA/POSTER PAINT; STANDARD & FLUORESCENT PRODUCT; PRODUCT CODE(S): PREMIER TEMPERA; 44-1997-X-XXX; 54-1116-X-XXX; 54-1216-X-XXX; 54-1232-X-XXX; 54-1997; 007 BROWN; 033-PEACH; 034-YELLOW; 036 ORANGE; 038-RED; 40-VIOLET(PURPLE); 042-BLUE; 044-GLOWING GREEN; 048-TURQUOISE; 051-BLACK; 053-WHITE; 069-MAGENTA; 083-GOLD; 084-SILVER; 093-FL ELECTRIC BLUE; 094-FL RED; 095-FL ORANGE YELLOW; 096-FL CHARTRUESE; 097- FL SHOCKING PINK; ARTISTA WASHABLE TEMPERA; 54-3115-X-XXX; 54-3132-X-XXX; 306-BLUE; 333-PEACH; 334-YELLOW; 336-ORANGE; 338-RED; 340-VIOLET; 344-GREEN; 348-TURQUOISE; 351-BLACK; 353-WHITE; 357-BROWN; 369-MAGENTA; 009-FL YELLOW; 020-ORANGE; 030-ORANGE RED; 040-RED; 060-MAGENTA; 070-BLUE; 080-GREEN; 090-PINK; 20-1997; 04-0414; 04-0614; 04-0615; 04-0616; 04-0617; 04-0666; 04-0697; 04-0698; 04-0699; 20-0004; 20-1000; 20-1996; 20-1997; 20-1998; 20-1999; 20-2002; 20-2003; 20-2004; 20-2005; 20-2006; 20-2007; 20-2008; 20-2010; 20-2011; 20-2012; 20-4016; 20-7416; 21-7417; 21-7419; 20-7420; 54-1106; 54-1206; 54-1208; 54-1208G; 54-1208S; 54-1216G; 54-1216S; 54-1264; 54-2009; 54-2010; 54-3108; 54-3181; 54-3182; 54-3183; 54-3115F; 54-3128; 54-3164 54-3601; 54-4411; VARNISH /GLAZE23-2436; 23-3301; 23-3302; 23-4087; 54-1801; 57-4003

Product Description
Finished product.

Product Use
Arts and Crafts for children

Restrictions on Use
None known.

Details of the supplier of the safety data sheet
CRAYOLA LLC
1100 Church Lane
Easton, PA 18044
Phone: 1-800-272-9652
Emergency Phone #: 1-800-535-5053 or call local POISON CONTROL
E-mail: support@crayola.com

Section 2 - HAZARDS IDENTIFICATION

Classification in accordance with paragraph (d) of 29 CFR 1910.1200.
None needed according to classification criteria.

GHS Label Elements

Symbol(s)
None needed according to classification criteria.

Signal Word
None needed according to classification criteria

Hazard Statement(s)
None needed according to classification criteria.

Precautionary Statement(s)

Prevention
None needed according to classification criteria.

Response

None needed according to classification criteria.

Storage

None needed according to classification criteria.

Disposal

Dispose in accordance with all applicable federal, state/regional and local laws and regulations.

Other Hazards

None known.

Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

CAS	Component Name	Percent
Not available	Product has been certified as nontoxic by the Art & Creative Materials Institute, Inc. and conforms to ASM D 4236 standard practice for labeling art materials for acute and chronic adverse health hazards.	100

Section 4 - FIRST AID MEASURES

Inhalation

It is unlikely that emergency treatment will be required. Remove from exposure. Get medical attention, if needed.

Skin

It is unlikely that emergency treatment will be required. If adverse effects occur, wash with soap or mild detergent and large amounts of water. Get medical attention, if needed.

Eyes

It is unlikely that emergency treatment will be required. Flush eyes with plenty of water for at least 15 minutes. If eye irritation persists: Get medical advice/attention.

Ingestion

Call a poison control center or doctor immediately for treatment advice.

Most Important Symptoms/Effects

Acute

No information on significant adverse effects.

Delayed

No information on significant adverse effects.

Indication of any immediate medical attention and special treatment needed

Treat symptomatically and supportively.

Section 5 - FIRE FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media

Carbon dioxide, regular dry chemical, regular foam, water.

Unsuitable Extinguishing Media

None known.

Hazardous Combustion Products

Oxides of carbon.

Advice for firefighters

Slight fire hazard.

Fire Fighting Measures

Move container from fire area if it can be done without risk. Use extinguishing agents appropriate for surrounding fire. Stay upwind and keep out of low areas. Avoid inhalation of material or combustion by-products.

Special Protective Equipment and Precautions for Firefighters

Wear protective clothing and equipment suitable for the surrounding fire.

Section 6 - ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear personal protective clothing and equipment, see Section 8.

Methods and Materials for Containment and Cleaning Up

Stop leak if possible without personal risk. Absorb with sand or other non-combustible material. Collect spilled material in appropriate container for reuse or disposal.

Section 7 - HANDLING AND STORAGE

Precautions for Safe Handling

Wash thoroughly after handling.

Conditions for Safe Storage, Including any Incompatibilities

None needed according to classification criteria.

Store and handle in accordance with all current regulations and standards. See original container for storage recommendations. Keep separated from incompatible substances.

Incompatible Materials

Oxidizing agents.

Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

Component Exposure Limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

ACGIH - Threshold Limit Values - Biological Exposure Indices (BEI)

There are no biological limit values for any of this product's components.

Engineering Controls

Based on available information, additional ventilation is not required.

Individual Protection Measures, such as Personal Protective Equipment

Eye/face protection

Eye protection not required under normal conditions.

Skin Protection

Protective clothing is not required under normal conditions.

Respiratory Protection

No respirator is required under normal conditions of use. Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Glove Recommendations

Protective gloves are not required under normal conditions.

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance	various colors	**Physical State**	liquid

	liquid		
Odor	slight odor.	**Color**	Not available
Odor Threshold	Not available	**pH**	8.5 - 9
Melting Point	Not available	**Boiling Point**	>100 °C
Boiling Point Range	Not available	**Freezing point**	Not available
Evaporation Rate	Not available	**Flammability (solid, gas)**	Not available
Autoignition Temperature	Not available	**Flash Point**	Not available
Lower Explosive Limit	Not available	**Decomposition temperature**	Not available
Upper Explosive Limit	Not available	**Vapor Pressure**	Not available
Vapor Density (air=1)	Not available	**Specific Gravity (water=1)**	Not available
Water Solubility	(Soluble)	**Partition coefficient: n-octanol/water**	Not available
Viscosity	44.5 - 45.5	**Kinematic viscosity**	Not available
Solubility (Other)	Not available	**Density**	9.62 - 11.72
Physical Form	Liquid.	**Molecular Weight**	Not available

Section 10 - STABILITY AND REACTIVITY

Reactivity
No reactivity hazard is expected.

Chemical Stability
Stable at normal temperatures and pressure.

Possibility of Hazardous Reactions
Will not polymerize.

Conditions to Avoid
None reported.

Incompatible Materials
Oxidizing agents.

Hazardous decomposition products
None known.

Thermal decomposition products
Oxides of carbon.

Section 11 - TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure

Inhalation
No information on significant adverse effects.

Skin Contact
No information on significant adverse effects.

Eye Contact
No information on significant adverse effects.

Ingestion
No information on significant adverse effects.

Acute and Chronic Toxicity

Component Analysis - LD50/LC50
The components of this material have been reviewed in various sources and no selected endpoints have been identified.

Product Toxicity Data

Acute Toxicity Estimate
No data available.

Immediate Effects
None.

Delayed Effects
None.

Irritation/Corrosivity Data
None.

Respiratory Sensitization
No information available for the product.

Dermal Sensitization
No information available for the product.

Component Carcinogenicity
None of this product's components are listed by ACGIH, IARC, NTP, DFG or OSHA.
No information available for the product.

Germ Cell Mutagenicity
No information available for the product.

Tumorigenic Data
No information available for the product.

Reproductive Toxicity
No information available for the product.

Specific Target Organ Toxicity - Single Exposure
No target organs identified.

Specific Target Organ Toxicity - Repeated Exposure
No target organs identified.

Aspiration hazard
Not expected to be an aspiration hazard.

Medical Conditions Aggravated by Exposure
No data available.

Section 12 - ECOLOGICAL INFORMATION

Component Analysis - Aquatic Toxicity
No LOLI ecotoxicity data are available for this product's components.

Persistence and Degradability
No information available for the product.

Bioaccumulative Potential
No information available for the product.

Mobility
No information available for the product.

Section 13 - DISPOSAL CONSIDERATIONS

Disposal Methods
Dispose of in accordance with all applicable federal, state and local regulations. Recycle if possible.

Component Waste Numbers
The U.S. EPA has not published waste numbers for this product's components.

Section 14 - TRANSPORT INFORMATION

US DOT Information:
UN/NA #: Not regulated

IATA Information:
UN#: Not regulated

ICAO Information:
UN#: Not regulated

IMDG Information:
UN#: Not regulated

TDG Information:
UN#: Not regulated

International Bulk Chemical Code
This material does not contain any chemicals required by the IBC Code to be identified as dangerous chemicals in bulk.

Section 15 - REGULATORY INFORMATION

U.S. Federal Regulations
None of this product's components are listed under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), or require an OSHA process safety plan.

SARA Section 311/312 (40 CFR 370 Subparts B and C) reporting categories
No hazard categories applicable.

U.S. State Regulations
None of this product's components are listed on the state lists from CA, MA, MN, NJ or PA.

California Safe Drinking Water and Toxic Enforcement Act (Proposition 65)
Not listed under California Proposition 65.

Component Analysis - Inventory

Product has been certified as nontoxic by the Art & Creative Materials Institute, Inc. and conforms to ASM D 4236 standard practice for labeling art materials for acute and chronic adverse health hazards. (Not available)

US	CA	AU	CN	EU	JP - ENCS	JP - ISHL	KR KECI - Annex 1	KR KECI - Annex 2
No	No	No	No	No	No	No	No	No

KR - REACH CCA	MX	NZ	PH	TH-TECI	TW	VN (Draft)
No	No	No	No	No	No	No

Section 16 - OTHER INFORMATION

NFPA Ratings

Health: 1 Fire: 1 Instability: 0
Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Summary of Changes

09/13/2018 - Update to Section(s) 1.

Preparation Date

2/19/2016

Revision date

09/13/2018

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CA/MA/MN/NJ/PA - California/Massachusetts/Minnesota/New Jersey/Pennsylvania*; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CFR - Code of Federal Regulations (US); CLP - Classification, Labelling, and Packaging; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSD - Dangerous Substance Directive; DSL - Domestic Substances List; EC – European Commission; EEC - European Economic Community; EIN - European Inventory of (Existing Commercial Chemical Substances); EINECS - European Inventory of Existing Commercial Chemical Substances; ENCS - Japan Existing and New Chemical Substance Inventory; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; F - Background (for Venezuela Biological Exposure Indices); IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; ISHL - Japan Industrial Safety and Health Law; IUCLID - International Uniform Chemical Information Database; JP - Japan; Kow - Octanol/water partition coefficient; KR KECI Annex 1 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL); KR KECI Annex 2 - Korea Existing Chemicals Inventory (KECI) / Korea Existing Chemicals List (KECL) , KR - Korea; LD50/LC50 - Lethal Dose/ Lethal Concentration; KR REACH CCA - Korea Registration and Evaluation of Chemical Substances Chemical Control Act; LEL - Lower Explosive Limit; LLV - Level Limit Value; LOLI - List Of LIsts™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; MX – Mexico; Ne- Non-specific; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; Nq - Non-quantitative; NSL – Non-Domestic Substance List (Canada); NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PEL- Permissible Exposure Limit; PH - Philippines; RCRA - Resource Conservation and Recovery Act; REACH- Registration, Evaluation, Authorisation, and restriction of

Chemicals; RID - European Rail Transport; SARA - Superfund Amendments and Reauthorization Act; Sc - Semi-quantitative; STEL - Short-term Exposure Limit; TCCA – Korea Toxic Chemicals Control Act; TDG - Transportation of Dangerous Goods; TH-TECI - Thailand - FDA Existing Chemicals Inventory (TECI); TLV - Threshold Limit Value; TSCA - Toxic Substances Control Act; TW – Taiwan; TWA - Time Weighted Average; UEL - Upper Explosive Limit; UN/NA - United Nations /North American; US - United States; VLE - Exposure Limit Value (Mexico); VN (Draft) - Vietnam (Draft); WHMIS - Workplace Hazardous Materials Information System (Canada).

Other Information

Disclaimer:

Supplier gives no warranty whatsoever, including the warranties of merchantability or of fitness for a particular purpose. Any product purchased is sold on the assumption the purchaser shall determine the quality and suitability of the product. Supplier expressly disclaims any and all liability for incidental, consequential or any other damages arising out of the use or misuse of this product. No information provided shall be deemed to be a recommendation to use any product in conflict with any existing patent rights.

Safety Data Sheet
California CARB Compliant

1 - Identification

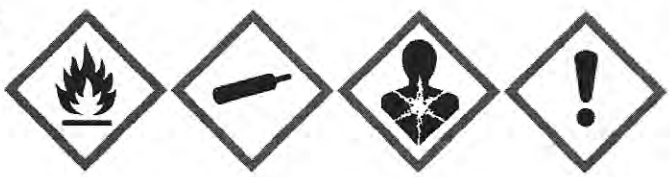
Product Name: WD-40 Multi-Use Product Aerosol **Product Use: Lubricant, Penetrant, Drives Out Moisture, Removes and Protects Surfaces From Corrosion** **Restrictions on Use: None identified** **SDS Date Of Preparation: March 5, 2019**	**Manufacturer: WD-40 Company** **Address: 9715 Businesspark Avenue San Diego, California, USA 92131** **Telephone:** **Emergency: 1-888-324-7596** **Information: 1-888-324-7596** **Chemical Spills: 1-800-424-9300 (Chemtrec)** **1-703-527-3887 (International Calls)**

2 – Hazards Identification

Hazcom 2012/GHS Classification:
Flammable Aerosol Category 1
Gas Under Pressure: Compressed Gas
Aspiration Toxicity Category 1
Specific Target Organ Toxicity Single Exposure Category 3 (nervous system effects)

Note: This product is a consumer product and is labeled in accordance with the US Consumer Product Safety Commission regulations which take precedence over OSHA Hazard Communication labeling. The actual container label will not include the label elements below. The labeling below applies to industrial/professional products.

Label Elements:



DANGER!
Extremely Flammable Aerosol.
Contains gas under pressure; may explode if heated.
May be fatal if swallowed and enters airways.
May cause drowsiness or dizziness.

Prevention
Keep away from heat, sparks, open flames, hot surfaces. – No smoking.
Do not spray on an open flame or other ignition source.
Pressurized container: Do not pierce or burn, even after use.
Avoid breathing vapors or mists.
Use only outdoors or in a well-ventilated area.

Response
IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell.

Storage
Store locked up.
Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Store in a well-ventilated place.

Disposal
Dispose of contents and container in accordance with local and national regulations.

3 - Composition/Information on Ingredients

Ingredient	CAS #	Weight Percent	US Hazcom 2012/ GHS Classification
LVP Aliphatic Hydrocarbon	64742-47-8	45-50%	Aspiration Toxicity Category 1
Petroleum Base Oil	64742-56-9 64742-65-0 64742-53-6 64742-54-7 64742-71-8	<35%	Not Hazardous
Aliphatic Hydrocarbon	64742-47-8	<25%	Flammable Liquid Category 3 Aspiration Toxicity Category 1 Specific Target Organ Toxicity Single Exposure Category 3 (nervous system effects)
Carbon Dioxide	124-38-9	2-3%	Simple Asphyxiant Gas Under Pressure, Compressed Gas

Note: The specific chemical identity and exact percentages are a trade secret.

4 – First Aid Measures

Ingestion (Swallowed): Aspiration Hazard. DO NOT induce vomiting. Call physician, poison control center or the WD-40 Safety Hotline at 1-888-324-7596 immediately.
Eye Contact: Flush thoroughly with water. Remove contact lenses if present after the first 5 minutes and continue flushing for several more minutes. Get medical attention if irritation persists.
Skin Contact: Wash with soap and water. If irritation develops and persists, get medical attention.
Inhalation (Breathing): If irritation is experienced, move to fresh air. Get medical attention if irritation or other symptoms develop and persist.
Signs and Symptoms of Exposure: Harmful or fatal if swallowed. Aspiration of liquid into the lungs during swallowing or vomiting may cause lung damage. May cause eye and respiratory irritation. Inhalation of mists or vapors may cause drowsiness, dizziness and other nervous system effects. Skin contact may cause drying of the skin.
Indication of Immediate Medical Attention/Special Treatment Needed: Immediate medical attention is needed for ingestion.

5 – Fire Fighting Measures

Suitable (and unsuitable) Extinguishing Media: Use water fog, dry chemical, carbon dioxide or foam. Do not use water jet or flooding amounts of water. Burning product will float on the surface and spread fire.
Specific Hazards Arising from the Chemical: Extremely flammable aerosol. Contents under pressure. Keep away from ignition sources and open flames. Exposure of containers to extreme heat and flames can cause them to rupture often with violent force. Vapors are heavier than air and may travel along surfaces to remote ignition sources and flash back. Combustion will produce oxides of carbon and hydrocarbons.
Special Protective Equipment and Precautions for Fire-Fighters: Firefighters should always wear positive pressure self-contained breathing apparatus and full protective clothing. Cool fire-exposed containers with water. Use shielding to protect against bursting containers.

6 – Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures: Wear appropriate protective clothing (see Section 8). Eliminate all sources of ignition and ventilate area.
Methods and Materials for Containment/Cleanup: Leaking cans should be placed in a plastic bag or open pail until the pressure has dissipated. Contain and collect liquid with an inert absorbent and place in a container for disposal. Clean spill area thoroughly. Report spills to authorities as required.

7 – Handling and Storage

Precautions for Safe Handling: Avoid contact with eyes. Avoid prolonged contact with skin. Avoid breathing vapors or aerosols. Use only with adequate ventilation. Keep away from heat, sparks, pilot lights, hot surfaces and open flames. Unplug electrical tools, motors and appliances before spraying or bringing the can near any source of electricity. Electricity can burn a hole in the can and cause contents to burst into flames. To avoid serious burn injury, do not let the can touch battery terminals, electrical connections on motors or appliances or any other source of electricity. Wash thoroughly with soap and water after handling. Keep containers closed when not in use. Keep out of the reach of children. Do not puncture, crush or incinerate containers, even when empty.

Conditions for Safe Storage: Store in a cool, well-ventilated area, away from incompatible materials. Do not store above 120°F or in direct sunlight. U.F.C (NFPA 30B) Level 3 Aerosol. Store away from oxidizers.

8 – Exposure Controls/Personal Protection

Chemical	Occupational Exposure Limits
LVP Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Petroleum Base Oil	5 mg/m3 TWA (Inhalable) ACGIH TLV (as Mineral oil) 5 mg/m3 TWA OSHA PEL (as Oil mist, mineral)
Aliphatic Hydrocarbon	1200 mg/m3 TWA (manufacturer recommended)
Carbon Dioxide	5000 ppm TWA, 30,000 ppm STEL ACGIH TLV 5000 ppm TWA OSHA PEL

The Following Controls are Recommended for Normal Consumer Use of this Product

Appropriate Engineering Controls: Use in a well-ventilated area.

Personal Protection:

Eye Protection: Avoid eye contact. Always spray away from your face.

Skin Protection: Avoid prolonged skin contact. Chemical resistant gloves recommended for operations where skin contact is likely.

Respiratory Protection: None needed for normal use with adequate ventilation.

For Bulk Processing or Workplace Use the Following Controls are Recommended

Appropriate Engineering Controls: Use adequate general and local exhaust ventilation to maintain exposure levels below that occupational exposure limits.

Personal Protection:

Eye Protection: Safety goggles recommended where eye contact is possible.

Skin Protection: Wear chemical resistant gloves.

Respiratory Protection: None required if ventilation is adequate. If the occupational exposure limits are exceeded, wear a NIOSH approved respirator. Respirator selection and use should be based on contaminant type, form and concentration. Follow OSHA 1910.134, ANSI Z88.2 and good Industrial Hygiene practice.

Work/Hygiene Practices: Wash with soap and water after handling.

9 – Physical and Chemical Properties

Appearance:	Light amber liquid	Flammable Limits: (Solvent Portion)	LEL: 0.6% UEL: 8%
Odor:	Mild petroleum odor	Vapor Pressure:	95-115 PSI @ 70°F
Odor Threshold:	Not established	Vapor Density:	Greater than 1 (air=1)
pH:	Not Applicable	Relative Density:	0.8 – 0.82 @ 60°F
Melting/Freezing Point:	Not established	Solubilities:	Insoluble in water
Boiling Point/Range:	361 - 369°F (183 - 187°C)	Partition Coefficient; n-octanol/water:	Not established
Flash Point:	138°F (59°C) Tag Closed Cup (liquid)	Autoignition Temperature:	Not established

Evaporation Rate:	Not established	Decomposition Temperature:	Not established
Flammability (solid, gas):	Flammable Aerosol	Viscosity:	2.79-2.96 cSt @ 100°F
VOC:	24.1% MIR=0.43gO3/gVOC	Pour Point:	-63°C (-81.4°F) ASTM D-97

10 – Stability and Reactivity

Reactivity: Not reactive under normal conditions
Chemical Stability: Stable
Possibility of Hazardous Reactions: May react with strong oxidizers generating heat.
Conditions to Avoid: Avoid heat, sparks, flames and other sources of ignition. Do not puncture or incinerate containers.
Incompatible Materials: Strong oxidizing agents.
Hazardous Decomposition Products: Carbon monoxide and carbon dioxide.

11 – Toxicological Information

Symptoms of Overexposure:
Inhalation: High concentrations may cause nasal and respiratory irritation and central nervous system effects such as headache, dizziness and nausea. Intentional abuse may be harmful or fatal.
Skin Contact: Prolonged and/or repeated contact may produce mild irritation and defatting with possible dermatitis.
Eye Contact: Contact may be irritating to eyes. May cause redness and tearing.
Ingestion: This product has low oral toxicity. Swallowing may cause gastrointestinal irritation, nausea, vomiting and diarrhea. This product is an aspiration hazard. If swallowed, can enter the lungs and may cause chemical pneumonitis, severe lung damage and death.
Chronic Effects: None expected.
Carcinogen Status: None of the components are listed as a carcinogen or suspect carcinogen by IARC, NTP, ACGIH or OSHA.
Reproductive Toxicity: None of the components is considered a reproductive hazard.
Numerical Measures of Toxicity:
Acute Toxicity Estimates: Oral > 5,000 mg/kg; Dermal >2,000 mg/kg based on an assessment of the ingredients. This product is not classified as toxic by established criteria. It is an aspiration hazard.

12 – Ecological Information

Ecotoxicity: No specific aquatic toxicity data is currently available; however components of this product are not expected to be harmful to aquatic organisms
Persistence and Degradability: Components are readily biodegradable.
Bioaccumulative Potential: Bioaccumulation is not expected based on an assessment of the ingredients.
Mobility in Soil: No data available
Other Adverse Effects: None known

13 - Disposal Considerations

If this product becomes a waste, it would be expected to meet the criteria of a RCRA ignitable hazardous waste (D001). However, it is the responsibility of the generator to determine at the time of disposal the proper classification and method of disposal. Do not puncture or incinerate containers, even empty. Dispose in accordance with federal, state, and local regulations.

14 – Transportation Information

DOT Surface Shipping Description: UN1950, Aerosols, 2.1 Ltd. Qty
(Note: Shipping Papers are not required for Limited Quantities unless transported by air or vessel – each package must be marked with the Limited Quantity Mark)
IMDG Shipping Description: UN1950, Aerosols, 2.1, LTD QTY
ICAO Shipping Description: UN1950, Aerosols, flammable, 2.1

NOTE: WD-40 Company does not test aerosol cans to assure that they meet the pressure and other requirements for transport by air. We do not recommend that our aerosol products be transported by air.

15 – Regulatory Information

U.S. Federal Regulations:
CERCLA 103 Reportable Quantity: This product is not subject to CERCLA reporting requirements, however, oil spills are reportable to the National Response Center under the Clean Water Act and many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.
SARA TITLE III:
Hazard Category For Section 311/312: Acute Health, Fire Hazard, Sudden Release of Pressure
Section 313 Toxic Chemicals: This product contains the following chemicals subject to SARA Title III Section 313 Reporting requirements: None
Section 302 Extremely Hazardous Substances (TPQ): None
EPA Toxic Substances Control Act (TSCA) Status: All of the components of this product are listed on the TSCA inventory.
California Safe Drinking Water and Toxic Enforcement Act (Proposition 65): This product does not require a California Proposition 65 warning.
VOC Regulations: This product complies with the consumer product VOC limits of CARB, the US EPA and states adopting the OTC VOC rules.
Canadian Environmental Protection Act: All of the ingredients are listed on the Canadian Domestic Substances List or exempt from notification

16 – Other Information

HMIS Hazard Rating:
Health – 1 (slight hazard), Fire Hazard – 4 (severe hazard), Physical Hazard – 0 (minimal hazard)

Revision Date: March 5, 2019 Supersedes: July 19, 2018

Revision Summary: Section 9 update VOC data

Prepared by: Industrial Health & Safety Consultants, Inc. Shelton, CT, USA

Reviewed by: I. Kowalski Regulatory Affairs Dept.

1012200/No.0084704

Safety Data Sheet (SDS)

Revised on 17-April-2017(R1-1)
Prepared on 27-March-2013(R0)

1 Chemical product and company identification

Chemical name Stainless steel, Heat-resisting steel, Nickel and Nickel alloy
Product name Plate, sheet, strip, bar, wire rod

Company name Nippon Steel & Sumikin Stainless Steel Corporation
Address 1-8-2 Marunouchi, Chiyoda-ku, Tokyo 100-0005, Japan
Division in charge Products Development Division
Telephone number +81-3-6841-4890
Facsimile number +81-3-6841-6382
Emergency address and telephone number Same as above

2 Hazards identification

GHS classification

Health hazard

Hazard class	Category	hazard statements
Serious eye damage/eye irritation	Category 2B	H320 Causes eye irritation
Respiratory sensitization	Category 1	H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled
Skin sensitization	Category 1	H317 May cause an allergic skin reaction
Germ cell mutagenicity	Category 2	H341 May cause genetic defects (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
Carcinogenicity	Category 2	H351 Suspected of causing cancer (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
Reproductive toxicity	Category 1B	H360 May damage fertility or the unborn child (state specific effect if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
Specific target organ toxicity <Single exposure>	Category1	H370 Causes damage to organs (or state all organs affected, if known) (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
	Category2	H371 May cause damage to organs (or state all organs affected, if known)(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)"
	Category 3	H335 May cause respiratory irritation (respiratory tract irritation)
Specific target organ toxicity <Repeated exposure>	Category 1	H372 Causes damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)
	Category 2	H373 May cause damage to organs (state all organs affected, if known) through prolonged or repeated exposure (state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard)

Environmental hazard

Hazard class	Category	hazard statements
Hazardous to the aquatic environment	Category 4	H413 May cause long lasting harmful effects to aquatic life

GHS label elements

Pictograms


Signal Word

Danger

Precautionary Statements

Prevention

Do not handle until all safety precautions have been read and understood. (P202)
Do not breathe dust/fume/gas/mist/vapours/spray. (P260)
Wash ...thoroughly after handling. (P264)
Do not eat, drink or smoke when using this product. (P270)
Use only outdoors or in a well-ventilated area. (P271)
Contaminated work clothing should not be allowed out of the workplace. (P272)
Avoid release to the environment. (P273)
Wear protective gloves. (P280)
[In case of inadequate ventilation] wear respirational protection.(P284)

Response

IF ON SKIN: Wash with plenty of soap and water. (P302+P352)
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. (P304+P340)
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. (P305+P351+P338)
IF exposed or concerned: Get medical advice/attention. (P308+P313)
Call a POISON CENTER or doctor/physician if you feel unwell. (P312)
If skin irritation or rash occurs: Get medical advice/attention. (P333+P313)
If eye irritation persists: Get medical advice/attention. (P337+P313)
If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician. (P342+P311)
Take off contaminated clothing and wash it before reuse.(P362+P364)

Disposal

Dispose of contents/container to ... in accordance with local/regional/national/international regulations (to be specified). (P501)

3 Composition/Information on ingredients

Substance or Mixture Mixtures Alloy

Main ingredients

Chemical Name		Weight %	CAS-No
Silicon	[Si]	0 5	7440-21-3
Manganese	[Mn]	0 10	7439-96-5
Nickel	[Ni]	0 100	7440-02-0
Chromium	[Cr]	0 30	7440-47-3
Molybdenum	[Mo]	0 10	7439-98-7
Copper	[Cu]	0 35	7440-50-8
Niobium	[Nb]	0 1	7440-03-1
Titanium	[Ti]	0 1	7440-32-6
Aluminum	[Al]	0 6	7429-90-5
Tungsten	[W]	0 3	7440-33-7
Cobalt	[Co]	0 1	7440-48-4
Tin	[Sn]	0 1	7440-31-5
Iron	[Fe]	balance	7439-89-6

4 First-aid measures

In case of inhalation of, ingestion of, or skin contact with the dust or fumes generated during processing of steel materials, immediately give first aid described below, and then seek medical attention or treatment if necessary.

Inhalation	Move victim to fresh air and keep at rest in position comfortable for breathing.
Skin contact	Wash skin immediately with plenty of water and soap.
Eye contact	Rinse carefully with water for several minutes. In case of using contact lenses, remove them if easy to do so. Continue rinsing.
Ingestion	Rinse mouth out thoroughly with water.
Others	In case of skin wound such as a cut from edge or chips of steel material, keep wound clean. If skin becomes burned by arcs, etc., cool with water.

5 Fire-fighting measures

Steel materials are nonflammable (solid), ordinary fire extinguishers and/or water can be used to put out any fire. Note that fine powder may lead to combustion or explosion.

Fire extinguishing agents	Use fire extinguishing agent appropriate for fire situation.
Unsuitable extinguishing media	None.

6 Accidental Leakage Measures

As product is solid, it is not leaked under general conditions. However, take measures below to prevent hazards by dust or fumes generated during steel material processing:

Personal precautions — Wear appropriate protective equipment to prevent inhalation of or eye contact with dust or fumes.

Protective equipment and emergency procedure

Refer to section 8 (exposure controls/personal protection).

Environmental precautions — Collect promptly any dust, etc. generated during cutting, grinding, etc.

Methods for containment and cleaning up

Collect generated dust in appropriate manner during steel materials processing, and then prevent dispersion.

7 Handling and Storage

Handling

Technical measures

Wear appropriate protective equipment in case of generating dust or fumes during welding, weld cutting, or grinding. Moreover, be sure to provide local or general ventilation system.

Precautions for safe handling

Heavy weights call for great precautions in handling, against toppling, rolling, and package-collapsing. Cut-ends and cutting chips with burr may be injurious.
Fumes from welding and fine particles from cutting may cause irritation of the mucous membranes of respiratory and other organs, and eyes. Arcing may cause burns.
When cutting bundling and packaging hoops (bands), be careful about bouncing hoops and hoop-tips. Particularly with coils, be very careful about their leading ends which, when unbundled, might spring upward.

Storage

Safety storage conditions

Avoid contact with water leakage, acid, alkali, or substances containing them.
Avoid environment with high temperature and high humidity. Use sheets or covers to prevent products from rain water infiltration, or pack products, if needed.

8 Exposure Controls/Personal Protection

No limits to exposure prevention and protective measures for steel materials in ordinary circumstances due to solid. However processing such as welding, weld cutting, grinding, and cutting can generate fumes or fine particles, thus take preventive and protective measures below.

Exposure guideline:

Chemical Name	CAS No	ACGIH*1 TLVs-TWA [mg/m^3]
Manganese [Mn]	7439-96-5	0.2
Nickel [Ni]	7440-02-0	1.5
Chromium [Cr]	7440-47-3	0.5
Molybdenum [Mo]	7439-98-7	10(I)/3(R)*2
Copper [Cu]	7440-50-8	1 *3/0.2 *4
Aluminum [Al]	7429-90-5	1(R)*2
Tungsten [W]	7440-33-7	5
Cobalt [Co]	7440-48-4	0.02
Tin [Sn]	7440-31-5	2

*1 American Conference of Governmental Industrial Hygienists
*2 (I);Inhalable fraction (R);Respirable fraction
*3 Dust and mists, as Cu
*4 Fume

Preventive measures: Provide appropriate ventilation to secure safe work environment in case of generating dust or fumes.

Protective measures: Wear appropriate respiratory protective equipment, protective gloves, protective glasses, protective clothing, and protective shoes,etc. in case of generating dust or fumes.

9 Physical and Chemical Properties

Physical state Appearance	A silver-white solid under general conditions
Odor	Metal smell
Melting point	1290 °C and over
Relative Density	7 9 g/cm^3
Solubility(water)	Insoluble

10 Stability and Reactivity

Chemical stability: Stable under ordinary circumstances.

Possibility of hazardous reactions: May cause oxygen deficiency or harmful gases in contact with certain chemical substances such as water and acid.

Conditions to avoid: Avoid high humidity and contacting with incompatible materials.

Incompatible materials: Oxidizing substances, etc.

Hazardous decomposition products: Fumes generated during welding and weld cutting may contain metal compounds.

11 Toxicological Information

Hazard class	[Mn]	[Ni]	[Cr]	[Mo]	[Cu]	[Al]	[W]	[Co]	[Sn]
Acute toxicity									
Skin corrosion/Irritation									
Serious eye damage/ Eye irritation	Category 2B		Category 2B				Category 2B		
Respiratory/ Skin sensitization		Category 1	Category 1					Category 1	
Germ cell mutagenicity			Category 2						
Carcinogenicity		Category 2						Category 2	
Reproductive toxicity	Category 1B							Category 2	
Specific target organ toxicity(single exposure)	Category 1	Category 1	Category 2,3	Category 3	Category 3			Category 3	
Specific target organ toxicity(repeated exposure)	Category 1	Category 1			Category 1	Category 1		Category 1	Category 1
Aspiration hazard									

Note The hyphen (-) in the table indicates that the element in question is out of classification or cannot be classified.

12 Ecological Information

Hazard class	[Mn]	[Ni]	[Cr]	[Mo]	[Cu]	[Al]	[W]	[Co]	[Sn]
Hazardous to the aquatic environment(acute)									
Hazardous to the aquatic environment(long-term)	Category 4	Category 4			Category 4	Category 4		Category 4	

Note The hyphen (-) in the table indicates that the element in question is out of classification or cannot be classified.

13 Disposal Attention

Waste disposal method	Dispose in appropriate environmentally friendly manner in compliance with industrial waste disposal law and related ordinances and regulations established by prefectural government or municipality.
Container and package disposal	In case of container or package with adherent contamination, dispose them in the same way described above.

14 Transport Information

Not classified as internationally controlled substances regarding transport.

15 Regulatory Information

No specific information.

16 Other Information

References

ISO 11014-1 "Safety Data Sheet for Chemical Products",
Part 1 "Content and Order of Sections"
Globally Harmonized System of Classification and Labeling of Chemicals (GHS) (Rev.4)

This data sheet has been drawn up in accordance with ISO 11014-1 "Safety Data Sheet for Chemical Products", Part 1 "Content and Order of Sections" (hereinafter referred to as "ISO"). The definitions of terms conform to ISO.

In this data sheet, the information which is available at Nippon Steel & Sumikin Stainless Steel Corp. at the time of sheet preparation is furnished to the users as the "reference information" for securing safe handling of the product. Referring to this data sheet, the users should take appropriate safety measures on their own responsibility depending on the actual state of handling.

This data sheet is not intended for assuring the safety of the product. There is a possibility of hazards which are not described in this data sheet and for which our company does not have any specific information.

End of Safety Data Sheet

MSDS: 101 REVISION: 005
REVISION DATE: 01/07/92

HILTI, INC.
5400 S. 122ND EAST AVE.
TULSA, OK 74146

TELEPHONE: (918) 252 6000
(800) 727 3427

MATERIAL SAFETY DATA SHEET

4 E CONST CO
342 N 4300 EAST
RIGBY ID 83442

4 E CONST CO
NORTH STATE CHURCH
IDAHO FALLS ID 83401

DATE: 05/12/92
INVOICE NUMBER: 62634101
PURCHASE ORDER NUMBER: JERRY SCOTT

PRODUCT NAME: SAFETY BOOSTERS

DESCRIPTION: ALSO CALLED SHOTS, LOADS, POWERLOADS, SAFETY CARTRIDGES, AND BLANKS (22 CALIBRE LONG, 25 CALIBRE SHORT, 27 CALIBRE SHORT, 27 CALIBRE LONG).

INGREDIENTS AND EXPOSURE LIMITS

INGREDIENTS:	%	CAS NUMBER:	TLV:	PEL:
LEAD STYPHNATE	1	15245-44-0	0.150 MG/M3	0.050 MG/M3
TETRACENE	0.1	00109-27-3	NE	NE
BARIUM NITRATE	1	10022-31-8	0.5 MG/M3	0.5 MG/M3
NITROGLYCERIN	5-11	00055-63-0	0.46 MG/M3 (SKIN)	STEL: 0.1 MG/M3 (SKIN)
NITROCELLULOSE	7-17	09004-70-0	NE	NE
BRASS	65-85	NE	NE	NE

PEL = OSHA PERMISSIBLE EXPOSURE LIMIT. TLV = ACGIH THRESHOLD LIMIT VALUE. THESE ARE 8 HOUR TIME-WEIGHTED AVERAGES UNLESS OTHERWISE INDICATED BY "C" (CEILING) OR "STEL" (SHORT TERM EXPOSURE LIMIT). A "SKIN" NOTATION INDICATES EXPOSURE SHOULD BE CONTROLLED FOR THE CUTANEOUS ROUTES INCLUDING THE MUCOUS MEMBRANES, EYES, AND SKIN. AIRBORNE EXPOSURES AS WELL AS DIRECT CONTACT MUST BE CONSIDERED. NE = NONE ESTABLISHED.

PHYSICAL DATA

APPEARANCE AND ODOR: BRASS CASING COLOR CODED ON STAR CRIMP.

BOILING POINT: NOT APPLICABLE
MELTING POINT: NOT APPLICABLE
VAPOR PRESSURE: NOT APPLICABLE
VAPOR DENSITY: NOT APPLICABLE
EVAPORATION RATE: NOT APPLICABLE
SOLUBILITY IN WATER: NOT APPLICABLE
SPECIFIC GRAVITY: NOT APPLICABLE
PH: NOT APPLICABLE

FIRE AND EXPLOSION HAZARD DATA

FLASH POINT: NOT APPLICABLE
FLAMMABLE LIMITS: NOT APPLICABLE
EXTINGUISHING MEDIA: WATER
SPECIAL FIRE FIGHTING PROCEDURES: FLOOD AREA WITH WATER OR KEEP CARTRIDGES COOL WITH WATER SPRAY.
UNUSUAL FIRE AND EXPLOSION HAZARDS: CARTRIDGES CAN EXPLODE IF EXPOSED TO TEMPERATURES > 200 C.

REACTIVITY DATA

STABILITY: STABLE.
INCOMPATIBILITY: STRONG ACIDS AND OXIDIZING MATERIALS.
HAZARDOUS DECOMPOSITION PRODUCTS: OXIDES OF NITROGEN, ACRID FUMES, AND LEAD.
HAZARDOUS POLYMERIZATION: WILL NOT OCCUR.
CONDITIONS TO AVOID: ACIDS, EXCESS HEAT, CRUSHING, AND ELECTRICAL CURRENTS.

HEALTH HAZARD DATA

KNOWN HAZARDS: NONE EXPECTED. POSSIBLE IRRITATION FROM FUMES AND GASES UNDER CERTAIN CONDITIONS SUCH AS EXCESSIVE FIRING WITH LITTLE AIR MOVEMENT.

CARCINOGENICITY: INORGANIC LEAD COMPOUNDS ARE CLASSIFIED BY IARC AS GROUP 2B (ANIMAL) CARCINOGENS. THE NATURE AND USE OF THIS PRODUCT, HOWEVER, SHOULD NOT POSE AN INCREASED RISK OF CANCER TO HUMANS.

PRIMARY ROUTES OF EXPOSURE: DERMAL, INHALATION.

SIGNS AND SYMPTOMS OF EXPOSURE: EXCESSIVE EXPOSURE MIGHT CAUSE IRRITATION TO THE EYES, SKIN, AND RESPIRATORY SYSTEM. ADVERSE HEALTH EFFECTS ARE NOT EXPECTED FROM LONG TERM EXPOSURE TO FUMES AND GASES; HOWEVER, GOOD PERSONAL HYGIENE PRACTICES ARE ESSENTIAL TO KEEP EXPOSURE TO A MINIMUM.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE: NONE ANTICIPATED.

EMERGENCY AND FIRST AID PROCEDURES

SAFETY DATA SHEET

02Z - Zinc Wire

PRAXAIR SURFACE TECHNOLOGIES

Section 1. Identification

GHS product identifier : 02Z - Zinc Wire

Other means of identification : Not available.

Product type : Solid.

Relevant identified uses of the substance or mixture and uses advised against

Not applicable.

Supplier's details : TAFA Inc. A Praxair Surface Technologies Company
146 Pembroke Rd.
Concord, NH 03301

Emergency telephone number (with hours of operation) : Emergency telephone number (with hours of operation)

Section 2. Hazards identification

OSHA/HCS status : While this material is not considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200), this SDS contains valuable information critical to the safe handling and proper use of the product. This SDS should be retained and available for employees and other users of this product.

Classification of the substance or mixture : Not classified.

GHS label elements

Signal word : No signal word.

Hazard statements : No known significant effects or critical hazards.

Precautionary statements

Prevention : Not applicable.

Response : Not applicable.

Storage : Not applicable.

Disposal : Not applicable.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Other means of identification : Not available.

CAS number/other identifiers

S number : Not available.

Product code : 02Z - Zinc Wire

Ingredient name	%	CAS number
zinc	100	7440-66-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

Section 3. Composition/information on ingredients

...ere are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if symptoms occur.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.

Ingestion : Wash out mouth with water. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Do not induce vomiting unless directed to do so by medical personnel. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Skin contact : No known significant effects or critical hazards.

Ingestion : No known significant effects or critical hazards.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing ...dia : None known.

Specific hazards arising from the chemical : No specific fire or explosion hazard.

Hazardous thermal decomposition products : Decomposition products may include the following materials: metal oxide/oxides

Section 5. Fire-fighting measures

ecial protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Move containers from spill area. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor.

ge spill : Move containers from spill area. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8).

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

upational exposure limits

one.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some

Section 8. Exposure controls/personal protection

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, particulate filter respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Solid. [Wire]

Color : Gray.

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Melting point : 420°C (788°F)

Boiling point : 907.22°C (1665°F)

Flash point : Not available.

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : Not available.

Solubility : Not available.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

VOC content : 0 lbs/gal (0 g/l)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Zinc	Skin - Mild irritant	Human	-	72 hours 300 Micrograms Intermittent	-

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : No known significant effects or critical hazards.

Inhalation : No known significant effects or critical hazards.

Section 11. Toxicological information

Ingestion : No known significant effects or critical hazards.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
zinc	Acute EC50 106 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Acute EC50 10000 µg/l Fresh water	Aquatic plants - Lemna minor	4 days
	Acute IC50 65 µg/l Marine water	Algae - Nitzschia closterium - Exponential growth phase	4 days
	Acute LC50 65 µg/l Fresh water	Crustaceans - Ceriodaphnia dubia - Neonate	48 hours
	Acute LC50 68 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 12.21 µg/l Marine water	Fish - Periophthalmus waltoni - Adult	96 hours
	Chronic EC10 27.3 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata - Exponential growth phase	72 hours
	Chronic EC10 59.2 µg/l Fresh water	Daphnia - Daphnia magna	21 days
	Chronic NOEC 9 mg/l Fresh water	Aquatic plants - Ceratophyllum	

Section 12. Ecological information

	Chronic NOEC 178 µg/l Marine water Chronic NOEC 2.6 µg/l Fresh water	Crustaceans - Palaemon elegans Fish - Cyprinus carpio	21 days 4 weeks

Persistence and degradability

Not available.

Bioaccumulative potential

Not available.

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification	ADR/RID	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-	-	-	-
Transport hazard class(es)	-	-	-	-	-	-
Packing group	-	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.	No.
Additional information	**Reportable quantity** 1000 lbs / 454 kg Package sizes shipped in quantities less than the product reportable	-	-	-	-	-

Section 14. Transport information

	not subject to the RQ (reportable quantity) transportation requirements.					

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
All components are listed or exempted.
Clean Water Act (CWA) 307: zinc

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Not applicable.

Composition/information on ingredients

No products were found.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	zinc	7440-66-6	100
Supplier notification	zinc	7440-66-6	100

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: ZINC

New York : The following components are listed: Zinc

Section 15. Regulatory information

ennsylvania : The following components are listed: ZINC

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Inform Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

International lists

National inventory

Australia	: All components are listed or exempted.
Canada	: All components are listed or exempted.
China	: All components are listed or exempted.
Europe	: All components are listed or exempted.
Japan	: Not determined.
laysia	: All components are listed or exempted.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: Not determined.

Section 16. Other information

History

Date of printing	: 5/26/2015.
Date of issue/Date of revision	: 5/26/2015.

Key to abbreviations : ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

1. Identification

Product identifier **Jump Start® Starting Fluid**

Other means of identification

Product Code No. 05671 (Item# 1003843)

Recommended use Starting fluid

Recommended restrictions None known.

Manufacturer/Importer/Supplier/Distributor information

Manufactured or sold by:

Company name CRC Industries, Inc.

Address 885 Louis Dr.
Warminster, PA 18974 US

Telephone

General Information 215-674-4300

Technical Assistance 800-521-3168

Customer Service 800-272-4620

24-Hour Emergency 800-424-9300 (US)

(CHEMTREC) 703-527-3887 (International)

Website www.crcindustries.com

2. Hazard(s) identification

Physical hazards	Flammable aerosols	Category 1
	Gases under pressure	Compressed gas
Health hazards	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Specific target organ toxicity, single exposure	Category 3 narcotic effects
	Aspiration hazard	Category 1
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 2
	Hazardous to the aquatic environment, long-term hazard	Category 3

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Extremely flammable aerosol. Contains gas under pressure; may explode if heated. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. Suspected of causing cancer. Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Do not spray on an open flame or other ignition source. Pressurized container: Do not pierce or burn, even after use. Do not apply while equipment is energized. Extinguish all flames, pilot lights and heaters. Vapors will accumulate readily and may ignite. Use only with adequate ventilation; maintain ventilation during use and until all vapors are gone. Open doors and windows or use other means to ensure a fresh air supply during use and while product is drying. If you experience any symptoms listed on this label, increase ventilation or leave the area. Avoid breathing mist or vapor. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Avoid release to the environment.
Response	If swallowed: Immediately call a poison center/doctor. Do NOT induce vomiting. If on skin: Wash with plenty of water. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. If exposed or concerned: Get medical advice/attention.
Storage	Store in a well-ventilated place. Store locked up. Protect from sunlight. Do not expose to temperatures exceeding 50°C/122°F. Exposure to high temperature may cause can to burst.
Disposal	Dispose of contents/container in accordance with local/regional/national regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
heptane, branched, cyclic and linear		426260-76-6	70 - 80
diethyl ether		60-29-7	10 - 20
carbon dioxide		124-38-9	5 - 10
ethanol		64-17-5	< 1.5
chloroethane		75-00-3	< 1
distillates (petroleum), hydrotreated light		64742-47-8	< 1

Specific chemical identity and/or percentage of composition has been withheld as a trade secret.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Remove contaminated clothing. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Skin irritation. May cause redness and pain.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Contents under pressure. Pressurized container may rupture when exposed to heat or flame. During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

Fire-fighting equipment/instructions	In case of fire: Stop leak if safe to do so. Move containers from fire area if you can do so without risk. Containers should be cooled with water to prevent vapor pressure build up.
General fire hazards	Extremely flammable aerosol. Contents under pressure. Pressurized container may rupture when exposed to heat or flame.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Many gases are heavier than air and will spread along ground and collect in low or confined areas (sewers, basements, tanks). Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Emergency personnel need self-contained breathing equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. This product is miscible in water. Prevent product from entering drains. Stop the flow of material, if this is without risk. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Put material in suitable, covered, labeled containers. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid release to the environment. Inform appropriate managerial or supervisory personnel of all environmental releases. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Pressurized container: Do not pierce or burn, even after use. Do not use if spray button is missing or defective. Do not spray on a naked flame or any other incandescent material. Do not smoke while using or until sprayed surface is thoroughly dry. Do not cut, weld, solder, drill, grind, or expose containers to heat, flame, sparks, or other sources of ignition. Use caution around energized equipment. The metal container will conduct electricity if it contacts a live source. This may result in injury to the user from electrical shock and/or flash fire. Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged exposure. Should be handled in closed systems, if possible. Use only in well-ventilated areas. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Avoid release to the environment. Observe good industrial hygiene practices. For product usage instructions, see the product label.
Conditions for safe storage, including any incompatibilities	Level 3 Aerosol. Pressurized container. Protect from sunlight and do not expose to temperatures exceeding 50°C/122 °F. Do not puncture, incinerate or crush. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit. At this time, the other constituents have no known exposure limits.

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
carbon dioxide (CAS 124-38-9)	PEL	9000 mg/m3
chloroethane (CAS 75-00-3)	PEL	5000 ppm 2600 mg/m3
diethyl ether (CAS 60-29-7)	PEL	1000 ppm 1200 mg/m3
distillates (petroleum), hydrotreated light (CAS 64742-47-8)	PEL	400 ppm 400 mg/m3
ethanol (CAS 64-17-5)	PEL	100 ppm 1900 mg/m3 1000 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
carbon dioxide (CAS 124-38-9)	STEL	30000 ppm
	TWA	5000 ppm
chloroethane (CAS 75-00-3)	TWA	100 ppm
diethyl ether (CAS 60-29-7)	STEL	500 ppm
	TWA	400 ppm
ethanol (CAS 64-17-5)	STEL	1000 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
carbon dioxide (CAS 124-38-9)	STEL	54000 mg/m3
		30000 ppm
	TWA	9000 mg/m3
		5000 ppm
distillates (petroleum), hydrotreated light (CAS 64742-47-8)	TWA	100 mg/m3
ethanol (CAS 64-17-5)	TWA	1900 mg/m3
		1000 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

chloroethane (CAS 75-00-3) Can be absorbed through the skin.

US ACGIH Threshold Limit Values: Skin designation

chloroethane (CAS 75-00-3) Can be absorbed through the skin.

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash fountain and emergency showers are recommended.

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Skin protection

Hand protection Wear protective gloves such as: Nitrile. Butyl rubber.

Other Wear appropriate chemical resistant clothing.

Respiratory protection If engineering controls are not feasible or if exposure exceeds the applicable exposure limits, use a NIOSH-approved cartridge respirator with an organic vapor cartridge. Use a self-contained breathing apparatus in confined spaces and for emergencies. Air monitoring is needed to determine actual employee exposure levels.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Observe any medical surveillance requirements. When using do not smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state Liquid.

Form Aerosol.

Color Colorless.

Odor Hydrocarbon-like.

Odor threshold Not available.

pH Not available.

Melting point/freezing point -189.9 °F (-123.3 °C) estimated

Initial boiling point and boiling range	94.3 °F (34.6 °C) estimated
Flash point	< 20 °F (< -6.7 °C) Tag Closed Cup
Evaporation rate	Fast.
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	0.5 % estimated
Flammability limit - upper (%)	36.5 % estimated
Vapor pressure	5024.7 hPa estimated
Vapor density	> 1 (air = 1)
Relative density	0.7
Solubility (water)	Slightly soluble.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	320 °F (160 °C) estimated
Decomposition temperature	Not available.
Viscosity (kinematic)	< 20 cSt (104 °F (40 °C))
Percent volatile	100 %

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Aluminum.
Hazardous decomposition products	Carbon oxides. Acrid smoke.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause drowsiness and dizziness. Headache. Nausea, vomiting. Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Droplets of the product aspirated into the lungs through ingestion or vomiting may cause a serious chemical pneumonia.
Symptoms related to the physical, chemical and toxicological characteristics	Aspiration may cause pulmonary edema and pneumonitis. May cause drowsiness and dizziness. Headache. Nausea, vomiting. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity May be fatal if swallowed and enters airways.

Components	Species	Test Results
diethyl ether (CAS 60-29-7)		
Acute		
Inhalation		
LC50	Rat	32000 ppm, 4 Hours
Oral		
LD50	Rat	3230 - 3920 mg/kg

Components	Species	Test Results
distillates (petroleum), hydrotreated light (CAS 64742-47-8)		
Acute		
Dermal		
LD50	Rat	> 2000 mg/kg
ethanol (CAS 64-17-5)		
Acute		
Dermal		
LD50	Rabbit	20 g/kg
Inhalation		
LC50	Rat	8000 mg/l, 4 hours
Oral		
LD50	Rat	6.2 g/kg
heptane, branched, cyclic and linear (CAS 426260-76-6)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 60 mg/l, 4 hours
Oral		
LD50	Rat	> 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin irritation.

Serious eye damage/eye irritation Direct contact with eyes may cause temporary irritation.

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

chloroethane (CAS 75-00-3) 3 Not classifiable as to carcinogenicity to humans.
diethyl ether (CAS 60-29-7) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause drowsiness and dizziness.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard May be fatal if swallowed and enters airways. If aspirated into lungs during swallowing or vomiting, may cause chemical pneumonia, pulmonary injury or death.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity Toxic to aquatic life. Harmful to aquatic life with long lasting effects.

Components		Species	Test Results
diethyl ether (CAS 60-29-7)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	2560 mg/l, 96 hours

Components		Species	Test Results
distillates (petroleum), hydrotreated light (CAS 64742-47-8)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	1.1 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	3 mg/l, 96 hours
ethanol (CAS 64-17-5)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	7.7 - 11.2 mg/l, 48 hours
Fish	LC50	Fathead minnow (Pimephales promelas)	> 100 mg/l, 96 hours
heptane, branched, cyclic and linear (CAS 426260-76-6)			
Aquatic			
Acute			
Crustacea	EC50	Water flea (Daphnia magna)	1.5 mg/l, 48 hours

* Estimates for product may be based on additional component data not shown.

Persistence and degradability

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

chloroethane	1.43
diethyl ether	0.89
ethanol	-0.31

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal of waste from residues / unused products If discarded, this product is considered a RCRA ignitable waste, D001. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Contents under pressure. Do not puncture, incinerate or crush. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose in accordance with all applicable regulations.

Hazardous waste code D001: Waste Flammable material with a flash point <140 F

Contaminated packaging Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number UN1950
UN proper shipping name Aerosols, flammable, Limited Quantity
Transport hazard class(es)
Class 2.1
Subsidiary risk -
Label(s) 2.1
Packing group Not applicable.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
Special provisions N82
Packaging exceptions 306
Packaging non bulk None
Packaging bulk None

IATA

UN number UN1950
UN proper shipping name Aerosols, flammable, Limited Quantity
Transport hazard class(es)
Class 2.1
Subsidiary risk -

Packing group	Not applicable.
ERG Code	10L
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
Other information	
Passenger and cargo aircraft	Allowed with restrictions.
Cargo aircraft only	Allowed with restrictions.

IMDG

UN number	UN1950
UN proper shipping name	AEROSOLS, Limited Quantity
Transport hazard class(es)	
Class	2.1
Subsidiary risk	-
Packing group	Not applicable.
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

chloroethane (CAS 75-00-3)

CERCLA Hazardous Substance List (40 CFR 302.4)

chloroethane (CAS 75-00-3)	Listed.
diethyl ether (CAS 60-29-7)	Listed.

CERCLA Hazardous Substances: Reportable quantity

chloroethane (CAS 75-00-3)	100 LBS
diethyl ether (CAS 60-29-7)	100 LBS

Spills or releases resulting in the loss of any ingredient at or above its RQ require immediate notification to the National Response Center (800-424-8802) and to your Local Emergency Planning Committee.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

chloroethane (CAS 75-00-3)
diethyl ether (CAS 60-29-7)

Safe Drinking Water Act (SDWA) Not regulated.

Drug Enforcement Administration (DEA). List 2, Essential Chemicals (21 CFR 1310.02(b) and 1310.04(f)(2) and Chemical Code Number

diethyl ether (CAS 60-29-7)	6584

Drug Enforcement Administration (DEA). List 1 & 2 Exempt Chemical Mixtures (21 CFR 1310.12(c))

diethyl ether (CAS 60-29-7)	35 %WV

DEA Exempt Chemical Mixtures Code Number

diethyl ether (CAS 60-29-7)	6584

FEMA Priority Substances Respiratory Health and Safety in the Flavor Manufacturing Workplace

ethanol (CAS 64-17-5)	Low priority

Food and Drug Administration (FDA) Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Section 311/312 Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - Yes Pressure Hazard - Yes Reactivity Hazard - No
SARA 302 Extremely hazardous substance	No

US state regulations

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

chloroethane (CAS 75-00-3)

US. New Jersey Worker and Community Right-to-Know Act

carbon dioxide (CAS 124-38-9)
chloroethane (CAS 75-00-3)
diethyl ether (CAS 60-29-7)
ethanol (CAS 64-17-5)

US. Massachusetts RTK - Substance List

carbon dioxide (CAS 124-38-9)
chloroethane (CAS 75-00-3)
diethyl ether (CAS 60-29-7)
ethanol (CAS 64-17-5)

US. Pennsylvania Worker and Community Right-to-Know Law

carbon dioxide (CAS 124-38-9)
chloroethane (CAS 75-00-3)
diethyl ether (CAS 60-29-7)
distillates (petroleum), hydrotreated light (CAS 64742-47-8)
ethanol (CAS 64-17-5)

US. Rhode Island RTK

carbon dioxide (CAS 124-38-9)
chloroethane (CAS 75-00-3)
diethyl ether (CAS 60-29-7)
ethanol (CAS 64-17-5)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

chloroethane (CAS 75-00-3) Listed: July 1, 1990

US - California Proposition 65 - CRT: Listed date/Developmental toxin

toluene (CAS 108-88-3) Listed: January 1, 1991

Volatile organic compounds (VOC) regulations

EPA

VOC content (40 CFR 51.100(s))	94.5 %
Consumer products (40 CFR 59, Subpt. C)	Not regulated

State

Consumer products	Not regulated
VOC content (CA)	94.5 %
VOC content (OTC)	94.5 %

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 08-29-2017

Prepared by Allison Yoon

Version # 01

Further information Not available.

HMIS® ratings Health: 1*
Flammability: 4
Physical hazard: 0
Personal protection: B

NFPA ratings Health: 1
Flammability: 4
Instability: 0

NFPA ratings

Disclaimer The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. This information is accurate to the best of CRC's knowledge or obtained from sources believed by CRC to be accurate. Before using any product, read all warnings and directions on the label. For further clarification of any information contained on this (M)SDS consult your supervisor, a health & safety professional, or CRC Industries, Inc..

Revision Information This document has undergone significant changes and should be reviewed in its entirety.

HCS CONCRETE

SDS Manual

SECTION 9

SAFETY DATA SHEET

Oxygen

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier	:	Oxygen
Chemical name	:	oxygen
Other means of identification	:	Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
Product type	:	Gas.
Product use	:	Synthetic/Analytical chemistry.
Synonym	:	Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)
SDS #	:	001043
Supplier's details	:	Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253
24-hour telephone	:	1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status	:	This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
Classification of the substance or mixture	:	OXIDIZING GASES - Category 1 GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word	:	Danger
Hazard statements	:	May cause or intensify fire; oxidizer. Contains gas under pressure; may explode if heated.

Precautionary statements

General	:	Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Open valve slowly. Use only with equipment cleaned for Oxygen service.
Prevention	:	Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves, valves and fittings free from oil and grease.
Response	:	In case of fire: Stop leak if safe to do so.
orage	:	Protect from sunlight. Store in a well-ventilated place.
Disposal	:	Not applicable.
Hazards not otherwise classified	:	None known.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : oxygen

Other means of identification : Molecular oxygen; Oxygen molecule; Pure oxygen; O2; UN 1072; Dioxygen; Oxygen USP, Aviator's Breathing Oxygen (ABO)

Product code : 001043

CAS number/other identifiers

CAS number : 7782-44-7

Ingredient name	%	CAS number
oxygen	100	7782-44-7

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Section 4. First aid measures

. rotection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Oxidizing material. This material increases the risk of fire and may aid combustion. Contact with combustible material may cause fire. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

Hazardous thermal decomposition products : No specific data.

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk.

cial protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Section 7. Handling and storage

. rotective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Keep away from clothing, incompatible materials and combustible materials. Keep reduction valves free from grease and oil.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Separate from reducing agents and combustible materials. Store away from grease and oil. Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

cupational exposure limits

Ingredient name	Exposure limits
oxygen	None.

Appropriate engineering controls : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

ınd protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Section 8. Exposure controls/personal protection

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless. Blue.

Odor : Odorless.

Odor threshold : Not available.

pH : Not available.

Melting point : -218.4°C (-361.1°F)

Boiling point : -183°C (-297.4°F)

Critical temperature : -118.15°C (-180.7°F)

Flash point : [Product does not sustain combustion.]

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: reducing materials, combustible materials and organic materials.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : 1.1 (Air = 1)

Specific Volume (ft^3/lb) : 12.0482

Gas Density (lb/ft^3) : 0.083

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : Not available.

Partition coefficient: n-octanol/water : 0.65

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 32 g/mole

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Hazardous reactions or instability may occur under certain conditions of storage or use. Conditions may include the following:
contact with combustible materials

Section 10. Stability and reactivity

Conditions to avoid : No specific data.

Incompatible materials : Highly reactive or incompatible with the following materials:
combustible materials
reducing materials
grease
oil

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

nsitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely r es of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Section 11. Toxicological information

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
oxygen	0.65	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1072	UN1072	UN1072	UN1072	UN1072
UN proper shipping name	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED
Transport hazard class(es)	2.2 (5.1) 	2.2 	2.2 (5.1) 	2.2 (5.1) 	2.2 (5.1) 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.
Special provisions A52

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2), 2.23-2.25 (Class 5).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Ship Index 50
Passenger Carrying Road or Rail Index 75
Special provisions 42

IATA : **Quantity limitation** Passenger and Cargo Aircraft: 75 kg. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Europe : This material is listed or exempted.

Japan : **Japan inventory (ENCS)**: Not determined.
Japan inventory (ISHL): Not determined.

Malaysia : Not determined.

New Zealand : This material is listed or exempted.

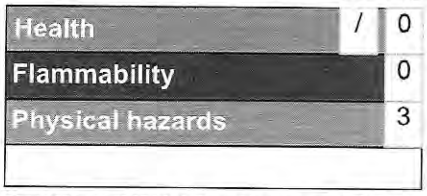
Philippines : This material is listed or exempted.

Section 15. Regulatory information

Taiwan	: This material is listed or exempted.
Thailand	: Not determined.
Turkey	: Not determined.
United States	: This material is listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
OXIDIZING GASES - Category 1 GASES UNDER PRESSURE - Compressed gas	Expert judgment According to package

History

Date of printing	: 2/3/2018
Date of issue/Date of revision	: 2/3/2018
Date of previous issue	: 1/27/2017
Version	: 0.03
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

Propane

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier : Propane

Chemical name : propane

Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

Product type : Liquefied gas

Product use : Synthetic/Analytical chemistry.

Synonym : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

SDS # : 001045

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Liquefied gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May cause frostbite.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Always keep container in upright position. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Section 2. Hazards identification

Disposal : Not applicable.

Hazards not otherwise classified : Liquid can cause burns similar to frostbite.

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : propane

Other means of identification : Propyl hydride; n-Propane; Dimethyl methane; Bottled gas; propane in gaseous state; propane liquefied, n-Propane; Dimethylmethane; Freon 290; Liquefied petroleum gas; Lpg; Propyl hydride; R 290; C3H8; UN 1075; UN 1978; A-108; Hydrocarbon propellant.

Product code : 001045

CAS number/other identifiers

CAS number : 74-98-6

Ingredient name	%	CAS number
Propane	100	74-98-6

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash contaminated skin with soap and water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. In case of contact with liquid, warm frozen tissues slowly with lukewarm water and get medical attention. Do not rub affected area. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if adverse health effects persist or are severe. Ingestion of liquid can cause burns similar to frostbite. If frostbite occurs, get medical attention. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. As this product rapidly becomes a gas when released, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Section 4. First aid measures

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. The vapor/gas is heavier than air and will spread along the ground. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. For incidents involving large quantities, thermally insulated undergarments and thick textile or leather gloves should be worn.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

Section 6. Accidental release measures

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Do not get in eyes or on skin or clothing. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
Use only non-sparking tools. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Propane	**NIOSH REL (United States, 10/2016).** TWA: 1800 mg/m³ 10 hours. TWA: 1000 ppm 10 hours. **OSHA PEL (United States, 6/2016).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours. **OSHA PEL 1989 (United States, 3/1989).** TWA: 1800 mg/m³ 8 hours. TWA: 1000 ppm 8 hours.

Section 8. Exposure controls/personal protection

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. If contact with the liquid is possible, insulated gloves suitable for low temperatures should be worn. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use.

Thermal hazards : If there is a risk of contact with the liquid, all protective equipment worn should be suitable for use with extremely low temperature materials.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas. [Compressed gas.]

Color : Colorless.

Odor : Odorless.BUT MAY HAVE SKUNK ODOR ADDED.

Odor threshold : Not available.

pH : Not available.

Melting point : -187.6°C (-305.7°F)

Section 9. Physical and chemical properties

Critical temperature	: 96.55°C (205.8°F)
Flash point	: Closed cup: -104°C (-155.2°F) Open cup: -104°C (-155.2°F)
Evaporation rate	: Not available.
Flammability (solid, gas)	: Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.
Lower and upper explosive (flammable) limits	: Lower: 1.8% Upper: 8.4%
Vapor pressure	: 109 (psig)
Vapor density	: 1.6 (Air = 1)
Specific Volume (ft^3/lb)	: 8.6206
Gas Density (lb/ft^3)	: 0.116 (25°C / 77 to °F)
Relative density	: Not applicable.
Solubility	: Not available.
Solubility in water	: 0.02 g/l
Partition coefficient: n-octanol/water	: 1.09
Auto-ignition temperature	: 287°C (548.6°F)
Decomposition temperature	: Not available.
Viscosity	: Not applicable.
Flow time (ISO 2431)	: Not available.
Molecular weight	: 44.11 g/mole
Aerosol product	
Heat of combustion	: -46012932 J/kg

Section 10. Stability and reactivity

Reactivity	: No specific test data related to reactivity available for this product or its ingredients.
Chemical stability	: The product is stable.
Possibility of hazardous reactions	: Under normal conditions of storage and use, hazardous reactions will not occur.
Conditions to avoid	: Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition. Do not allow gas to accumulate in low or confined areas.
Incompatible materials	: Oxidizers
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
Hazardous polymerization	: Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Liquid can cause burns similar to frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Dermal contact with rapidly evaporating liquid could result in freezing of the tissues or frostbite.

Ingestion : Ingestion of liquid can cause burns similar to frostbite.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:, frostbite

Inhalation : No specific data.

Skin contact : Adverse symptoms may include the following:, frostbite

Ingestion : Adverse symptoms may include the following:, frostbite

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

Potential chronic health effects

Not available.

General	: No known significant effects or critical hazards.
Carcinogenicity	: No known significant effects or critical hazards.
Mutagenicity	: No known significant effects or critical hazards.
Teratogenicity	: No known significant effects or critical hazards.
Developmental effects	: No known significant effects or critical hazards.
Fertility effects	: No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

available.

Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
Propane	1.09	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1978	UN1978	UN1978	UN1978	UN1978
UN proper shipping name	PROPANE	PROPANE	PROPANE	PROPANE	PROPANE
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity**
Yes.

Packaging instruction
Passenger aircraft
Quantity limitation: Forbidden.

Cargo aircraft
Quantity limitation: 150 kg

Special provisions
19, T50

For domestic transportation only, UN1075 may be substituted for the UN number shown as long as the substitution is consistent on package markings, shipping papers, and emergency response information. See 49 CFR 172.102 Special Provision 19.
Containers of NON-ODORIZED liquefied petroleum gas must be marked either NON-ODORIZED or NOT ODORIZED as of September 30, 2006. [49 CFR 172.301(f), 326(d), 330(c) and 338(e)]

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
ERAP Index 3000
Passenger Carrying Ship Index 65
Passenger Carrying Road or Rail Index Forbidden
Special provisions 29, 42

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 150 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Air Act (CAA) 112 regulated flammable substances: propane

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.
New York : This material is not listed.
New Jersey : This material is listed.
Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

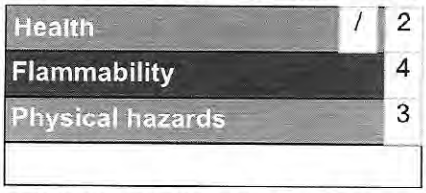
Australia : This material is listed or exempted.
Canada : This material is listed or exempted.
China : This material is listed or exempted.
Europe : This material is listed or exempted.
Japan : **Japan inventory (ENCS)**: This material is listed or exempted.
Japan inventory (ISHL): This material is listed or exempted.
Malaysia : This material is listed or exempted.
New Zealand : This material is listed or exempted.
Philippines : This material is listed or exempted.

Section 15. Regulatory information

Taiwan	: This material is listed or exempted.
Thailand	: Not determined.
Turkey	: This material is listed or exempted.
United States	: This material is listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1 GASES UNDER PRESSURE - Liquefied gas	Expert judgment Expert judgment

History

Date of printing	: 5/6/2018
Date of issue/Date of revision	: 5/6/2018
Date of previous issue	: 6/28/2017
sion	: 1
Key to abbreviations	: ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient

Section 16. Other information

as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

References : Not available.

Other special considerations : The information below is given to call attention to the issue of "Naturally occurring radioactive materials". Although Radon-222 levels in the product represented by this MSDS do not present any direct Radon exposure hazard, customers should be aware of the potential for Radon daughter build up within their processing systems, whatever the source of their product streams. Radon-222 is a naturally occurring radioactive gas which can be a contaminant in natural gas. During subsequent processing , Radon tends to be concentrated in Liquefied Petroleum Gas streams and in product streams having a similar boiling point range. Industry experience has shown that this product may contain small amounts of Radon-222 and its radioactive decay products, called Radon "daughters". The actual concentration of Radon-222 and radioactive daughters in the delivered product is dependent on the geographical source of the natural gas and storage time prior to delivery. Process equipment (i.e. lines, filters, pumps and reaction units) may accumulate significant levels of radioactive daughters and show a gamma radiation reading during operation. A potential external radiation hazard exists at or near any pipe valve or vessel containing a Radon enriched stream, or containing internal deposits of radioactive material due to the transmission of gamma radiation through its wall. Field studies reported in the literature have not shown any conditions that subject workers to cumulative exposures in excess of general population limits. Equipment emitting gamma radiation should be presumed to be internally contaminated with alpha emitting decay products which may be a hazard if inhaled or ingested. Protective equipment such as coveralls, gloves, and respirator (NIOSH/MHSA approved for high efficiency particulates and radionuclides, or supplied air) should be worn by personnel entering a vessel or working on contaminated process equipment to prevent skin contamination, ingestion, or inhalation of any residues containing alpha radiation. Airborne contamination may be minimized by handling scale and/or contaminated materials in a wet state.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

HCS CONCRETE

SDS Manual

SECTION 10

SAFETY DATA SHEET

SECTION 1 – PRODUCT AND COMPANY IDENTIFICATION

Manufacturer's name and address:

ARDEX Engineered Cements
400 Ardex Park Dr.
Aliquippa, PA 15001 USA

Supplier's name and address:

Refer to Manufacturer

Information Telephone No.	:	(888) 512-7339 or (724) 203-5000
Website Address	:	http://www.ardexamericas.com
24 Hr Emergency Telephone #	:	**CHEM-TEL: 1-800-255-3924 OR 1-813-248-0585 (call collect)**
Product Identifier	:	**ARDEX CD™**
Product ID No.	:	70011231
Trade Name/Synonyms	:	CD
Material Use	:	Concrete Dressing
Uses Advised Against	:	No information available

SECTION 2 – HAZARDS IDENTIFICATION

GHS Classification per 29 CFR 1910.1200 (OSHA HCS 2012) and HPR (WHMIS 2015)

Skin corrosion/irritation, Category 1A
Serious eye damage/eye irritation, Category 1
Carcinogenicity, Category 1A
Specific target organ toxicity, single exposure; Respiratory tract irritation, Category 3
Specific target organ toxicity, repeated exposure, Category 1.

GHS Pictograms

Signal Word

Danger

Hazard Statements

Causes severe skin burns and eye damage.
May cause cancer by inhalation.
May cause respiratory irritation.
Causes damage to lungs through prolonged or repeated inhalation.

Precautionary Statements

Obtain special instructions before use. (See Section 7.) Do not handle until all safety precautions have been read and understood. Do not breathe dust. Use only outdoors or in a well-ventilated area. Wash hands and exposed skin thoroughly after handling. Wear protective gloves/protective clothing/eye protection. Wash contaminated clothing before reuse. Store in a well-ventilated place. Keep container tightly closed. Protect from sunlight. Store locked up. Dispose of contents / container in accordance with federal, state, and local laws. Do not allow product to enter drains.

Hazards Not Otherwise Classified

None

% With Unknown Acute Toxicity : Up to 89% by weight of this product consists of ingredients with unknown acute toxicity.

SECTION 3 – COMPOSITION/INFORMATION ON INGREDIENTS

Ingredients	CAS #	% (by weight)
Crystalline silica, quartz	14808-60-7	30 – 60
Calcium aluminate cement	65997-16-2	30 – 60
Portland cement	65997-15-1	1 – 5
Limestone	1317-65-3	1 – 5
Vinyl acetate copolymer	24937-78-8	1 - 5
Amorphous fumed silica	69012-64-2	1 – 5

The exact percentages of the ingredients have been withheld by the manufacturer as trade secrets.

SECTION 4 – FIRST AID MEASURES

General : Call a Poison Center or doctor if you feel unwell.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: call a doctor/physician.

Skin contact : Remove/Take off immediately all contaminated clothing. Flush affected skin with gently flowing lukewarm water for at least 20 minutes. Seek immediate medical attention/advice.

Eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical advice/attention.

Ingestion : Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.

Notes for Physician : Treat symptomatically.

Signs and symptoms of short-term (acute) exposure

Inhalation : Symptoms may include coughing and shortness of breath.

Skin : Symptoms may include redness and itching. Contact with wet material, or moist areas of skin, causes skin burns. Skin thickening, cracking, or fissuring may occur.

Eyes : Direct contact may strongly irritate or burn the eyes. Could cause blindness.

Ingestion : Symptoms such as gastric pain, nausea, vomiting, and diarrhea may occur.

Effects of long-term (chronic) exposure

: Prolonged inhalation may cause adverse lung effects with symptoms including coughing and shortness of breath. Repeated or prolonged inhalation of fine dusts may cause severe scarring of the lungs, a disease called silicosis, and alveolar proteinosis (lower lung disease).

Indication of need for immediate medical attention or special treatment

: Difficulty breathing persists after removing the person to fresh air.
Any burn to the skin.
Any exposure to the eye which causes irritation.
Ingestion.

SECTION 5 – FIRE FIGHTING MEASURES

Suitable extinguishing media : Carbon dioxide, dry chemical powder, foam.

Unsuitable extinguishing media : Water. Contact with water may cause hydration and formation of caustic alkaline material.

Hazardous combustion products : Calcium oxide, calcium oxalate, vinyl acetate, acetic acid, formic acid, formaldehydes, carbon monoxide, and carbon dioxide.

Special fire-fighting procedures/equipment

: Firefighters should wear proper protective equipment and self-contained breathing apparatus with full face piece operated in positive pressure mode. Move containers from fire area if safe to do so. Water spray may be useful in cooling equipment exposed to heat and flame. After fires have been extinguished, carefully clean all equipment and surfaces exposed to fumes.

Environmental precautions : Do not allow material to enter drains or contaminate ground water system.

Fire hazards/conditions of flammability

: Not flammable under normal conditions of use.

Flammability classification (OSHA 29 CFR 1910.1200, WHMIS 2015)

: Not flammable

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Personal precautions : Restrict access to area until completion of clean-up. All persons dealing with clean-up should wear the appropriate chemically protective equipment.

Protective equipment : Refer to Section 8 on this Safety Data Sheet, EXPOSURE CONTROLS / PERSONAL PROTECTION, for additional information on acceptable personal protective equipment.

Emergency Procedures : If a spill/release in excess of the EPA reportable quantity is made into the environment, immediately notify the national response center in the United States (phone: 1-800-424-8002). Outside of the U.S. call the emergency number listed in Section 1.

US CERCLA Reportable quantity (RQ): None reported.

Methods and materials for containment and cleaning up

: Ventilate area of release. Eliminate all ignition sources. Stop spill or leak at source if safely possible. Contain material, preventing it from entering sewer lines or waterways. Using HEPA vacuum, or other dustless methods, gather up spilled material and place in suitable container for later disposal (see Section 13). Avoid adding water, material becomes alkaline when wet. Notify the appropriate authorities as required.

Prohibited materials : Avoid adding water, material becomes alkaline when wet.

Environmental precautions : Do not allow product to enter drains or waterways. Do not allow material to contaminate ground water system.

Reference to other sections : See Section 13 for disposal information.

SECTION 7 – HANDLING AND STORAGE

Special instructions : Mixing the product according to the directions in the Technical Data Sheet will produce airborne dusts, including crystalline silica. Wear a dust mast (N-95 or higher) while mixing. Use ventilation to control levels of dust in the work area.

Safe handling procedures : Corrosive! Wear chemically resistant protective equipment during handling. Use in a well-ventilated area. Training the workers on the potential health hazards associated with product dust is important. Secondary inhalation exposures could occur when cleaning equipment, or when removing or laundering the clothing. Do not breathe dust. Avoid contact with skin, eyes and clothing. Avoid wet or humid conditions. Keep away from acids and incompatibles. Avoid and control operations which create dust. Keep containers tightly closed when not in use. Wash thoroughly after handling.

Storage requirements : Store in a cool, dry, well-ventilated area. Store away from heat and open flame. Avoid storing in direct sunlight. Store in original container. Keep tightly closed when not in use. Do not reuse empty container without commercial cleaning or reconditioning.

Incompatible materials : See Section 10.

Special packaging materials : Always keep in containers made of the same materials as the supply container.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible Exposure Limits : No exposure limits have been established for the product itself. Below are exposure limits for the components in the product.

Threshold Limit Values for the Ingredients	CAS #	ACGIH TLV		OSHA PEL	
		TWA	STEL	PEL	STEL
Limestone	1317-65-3	TLV Withdrawn In 2007	N/Av	15 mg/m^3 (Total dust); 5 mg/m^3 (respirable)	N/Av
Calcium aluminate cement	65997-16-2	1 mg/m^3 (as Aluminum metal and insoluble compounds)	N/Av	N/Av	N/Av
Portland cement	65997-15-1	1 mg/m^3 (respirable, no asbestos and < 1% crystalline silica)	N/Av	15 mg/m^3 (Total dust); 5 mg/m^3 (respirable)	N/Av
Vinyl acetate copolymer	24937-78-8	10 mg/m^3 (Total dust); 3 mg/m^3 (respirable)	N/Av	15 mg/m^3 (Total dust); 5 mg/m^3 (respirable)	N/Av
Crystalline silica, quartz	14808-60-7	0.025 mg/m^3 (respirable fraction)	N/Av	0.05 mg/m^3 (respirable) (final rule limit)	N/Av
Amorphous fumed silica	69012-64-2	2 mg/m^3 (respirable)	N/Av	N/Av	N/Av

Engineering Controls : Use general or local exhaust ventilation to maintain air concentrations below recommended exposure limits. Ventilation should effectively remove and prevent buildup of any dust generated from the handling of this product.

Personal Protection Equipment

Eye / face protection : Safety glasses or chemical goggles must be worn when using this product. Additionally, a face shield is recommended if splashing is possible.

Skin protection : Wear chemical resistant protective clothing and impervious gloves. Glove materials such as nitrile rubber or Viton (fluorocarbon rubber) are recommended.

Body protection : Where extensive exposure to product is possible, use resistant coveralls, apron and boots to prevent contact.

Respiratory protection : If work process generates excessive quantities of dust, or exposures in excess of any PEL, wear an appropriate particulate respirator (dust mask). Mask should be rated at N-95 or higher.

Site safety equipment : An eyewash station and safety shower should be made available in the immediate working area.

General hygiene considerations : Avoid contact with eyes, skin and clothing. Do not breathe dust. Do not eat, drink or smoke when using this product. Clean all equipment and clothing at end of each work shift.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Physical state : solid
Odor : No odor
pH : 10 – 12
Boiling point : N/Ap
Melting/Freezing point : N/Av
Vapor pressure (mm Hg @ 20°C / 68°F) : N/Av
Vapor density (Air = 1) : N/Av
Volatile organic compounds (VOCs) : 0 g/L

Appearance : gray powder
Odor threshold : N/Av
Specific gravity : 2.7 – 3.1
Coefficient of water/oil distribution : N/Av
Solubility in water : < 55 g/L
Evaporation rate (*n*-Butyl acetate = 1) : N/Ap
Volatiles (% by weight) : N/Av

Particle size	: N/Av	**Flammability classification**	: Not flammable
Flash point	: N/Av	**Lower flammable limit (% by vol)**	: Not available
Flash point method	: N/Av	**Upper flammable limit (% by vol)**	: Not available
Auto-ignition temperature	: N/Av	**Decomposition temperature**	: Not available
Viscosity	: Not available	**Oxidizing properties**	: Not available

Explosion data: Sensitivity to mechanical impact / static discharge

: Not expected to be sensitive to mechanical impact or static discharge.

SECTION 10 – REACTIVITY AND STABILITY INFORMATION

Reactivity : Contact with water may cause hydration and formation of caustic calcium hydroxide.

Stability : Stable under the recommended storage and handling conditions prescribed.

Hazardous reactions : Hazardous polymerization does not occur.

Conditions to avoid : High temperatures.

Materials to avoid and incompatability

: Oxidizing agents.

Hazardous decomposition products

: None known, refer to hazardous combustion products in Section 5.

SECTION 11 – TOXICOLOGICAL INFORMATION

Routes of exposure : *Inhalation:* YES *Skin Absorption:* NO *Skin and Eyes:* Yes *Ingestion:* YES

Symptoms of exposure : See Section 4.

Calculated Acute Toxicity Estimates for the Product

Inhalation : Not Available

Oral : Not Available

Dermal : Not Available

Toxicological data : There are insufficient data for estimating the product's acute toxicity. Several components become caustic in the presence of water, and therefore should not be inhaled, ingested, or allowed to contact skin. See below for individual ingredient acute toxicity data.

Acute Toxicity Parameters for the Ingredients	CAS #	LC50, Inhalation mg/L, Rat, 4 hr	LD50, Oral mg/kg, rat	LD50, Dermal mg/kg, rabbit
Limestone	1317-65-3	N/Av	6,450	N/Av
Calcium aluminate cement	65997-16-2	N/Av	N/Av	N/Av
Portland cement	65997-15-1	N/Av	N/Av	N/Av
Vinyl acetate copolymer	24937-78-8	N/Av	> 1,000	N/Av
Crystalline silica, quartz	14808-60-7	N/Av	N/Av	N/Av
Amorphous fumed silica	69012-64-2	N/Av	>22,500	N/Av

Skin corrosion or irritation : Causes skin corrosion when wet.

Serious eye damage / eye irritation : Causes eye burns. May cause blindness.

Respiratory or skin sensitization : Portland cement may cause an allergic skin reaction, in hypersensitive individuals possibly due to trace amounts of chromium.

Germ cell mutagenicity : None known.

Carcinogenic status : This product contains Crystalline silica. Crystalline silica (respirable size) is classified as carcinogenic by inhalation by IARC (Group 1), ACGIH (Group A2), NTP (Group 1) and OSHA (OSHA Select carcinogen). No other components are listed as carcinogens by ACGIH, IARC, OSHA or NTP.

Reproductive toxicity : None known.

Specific Target Organ Toxicity, Single Exposure

: May cause respiratory irritation.

Specific Target Organ Toxicity, Repeated Exposure

: May cause lung damage upon repeated or prolonged exposure.

Aspiration hazard : None known.

Additional information : N/Av

SECTION 12 – ECOLOGICAL INFORMATION

Environmental effects : The product should not be allowed to enter drains or water courses, or be deposited where it can affect ground or surface waters.

Ecotoxicological : No data is available on the product itself.

Ecotoxicity : No data available.

Biodegradability : No data available.

Bioaccumulative potential : No data available.

Mobility in soil : No data available.

PBT and vPvB assessment : No data available.

Other adverse effects : No data available.

SECTION 13 – DISPOSAL CONSIDERATION

Handling for disposal : Handle waste according to recommendations in Section 7.

Methods of disposal : You must test your waste using methods described in 40 CFR Part 261 to determine if it meets applicable definitions of hazardous wastes. Dispose in accordance with all applicable federal, state, provincial and local regulations. Contact your local, state, provincial or federal environmental agency for specific rules.

Packaging : Handle contaminated packaging in the same manner as the product.

RCRA : If this product, as supplied, becomes a waste in the United States, it may meet the criteria of a hazardous waste as defined under RCRA, Title 40 CFR 261. It is the responsibility of the waste generator to determine the proper waste identification and disposal method. For disposal of unused or waste material, check with local, state and federal environmental agencies.

SECTION 14 – TRANSPORTATION INFORMATION

Regulatory Information	UN Number	Shipping Name	Class	Packing Group	Label
TDG	None	This product is not regulated according to Canadian TDG regulations.	None	None	None
TDG Additional Information	None				
49 CFR/DOT	None	This product is not regulated according to US DOT regulations.	None	None	None
49 CFR/DOT Additional Information	None				

SECTION 15 – REGULATORY INFORMATION

Canadian Information:

This product has been classified according to the hazard criteria of the Hazardous Products Regulations (HPR). This SDS contains all of the information required by the HPR.

Canadian Environmental Protection Act (CEPA) information: All ingredients listed appear on either the Domestic Substances List (DSL) or the Non- Domestic Substances List (NDSL).

US Federal Information:

TSCA: All listed ingredients appear on the Toxic Substances Control Act (TSCA) inventory.

CERCLA Reportable Quantity (RQ) (40 CFR 117.302): None reported.

SARA TITLE III: Sec. 311 and 312, SDS Requirements, 40 CFR 370 Hazard Classes:
Immediate (Acute) Health Hazard
Chronic Health Hazard.
Under SARA Sections 311 and 312, the EPA has established threshold quantities for the reporting of hazardous chemicals. The current thresholds are 500 pounds or the threshold planning quantity (TPQ), whichever is lower, for extremely hazardous substances and 10,000 pounds for all other hazardous chemicals.

SARA TITLE III: Sec. 313, Toxic Chemicals Notification, 40 CFR 372: This material is not subject to SARA notification requirements, since it does not contain any Toxic Chemical constituents above *de minimus* concentrations.

U.S. State Right To Know Laws
California Proposition 65: Warning! This product contains a chemical known to the State of California to cause cancer. It contains Crystalline silica, quartz.

Other State Right to Know Laws:

Ingredient on State RTK Law?	CAS #	CA	MA	MN	NJ	PA	RI
Limestone	1317-65-3	No	YES	No	YES	YES	YES
Portland cement	65997-15-1	No	YES	No	YES	YES	YES
Crystalline silica, quartz	14808-60-7	No	YES	YES	YES	YES	YES
Amorphous fumed silica	69012-64-2	No	YES	No	YES	No	No

SECTION 16 – OTHER INFORMATION

HMIS Rating : * - Chronic Hazard 0 - Minimal 1 – Slight 2 – Moderate 3 – Serious 4 – Severe
Health: *3 *Flammability* 0 *Physical Hazard* 1 PPE: G
Gloves, safety glasses, and dust respirator

Legend :
ACGIH: American Conference of Governmental Industrial Hygienists
CAS: Chemical Abstract Services
CERCLA: Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR: Code of Federal Regulations
DOT: Department of Transportation
DSL: Domestic Substances List
EPA: Environmental Protection Agency
GHS: Globally Harmonized System
HPR: Hazardous Products Regulations
IARC: International Agency for Research on Cancer
Inh: Inhalation
N/Av: Not Available
N/Ap: Not Applicable
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible exposure limit
RCRA: Resource Conservation and Recovery Act
SARA: Superfund Amendments and Reauthorization Act
STEL: Short Term Exposure Limit
TDG: Canadian Transportation of Dangerous Goods Act & Regulations
TLV: Threshold Limit Values
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average

WHMIS: Workplace Hazardous Materials Identification System

Disclaimer of Liability

The Information presented herein is supplied as a guide to those who handle or use this product and has been prepared in good faith by technically knowledgeable personnel. It is not intended to be all-inclusive. The manner and conditions of use and handling may involve other and additional considerations. Safe work practices must be employed when working with any materials. It is important that the end user makes a determination regarding the adequacy of the safety procedures employed during the use of this product.
No warranty of any kind is given or implied. ARDEX Engineered Cements will not be liable for any damages, losses, injuries or consequential damages which may result from the use or reliance on any information contained herein.

Prepared By:
ARDEX Engineered Cements
400 Ardex Park Drive
Aliquippa, PA, U.S.A.
15001

(724) 203-5000
Visit our Website: http://www.ardexamericas.com

Revision date: : 24-Aug-2016

End of Document

HCS CONCRETE

SDS Manual

SECTION 11

dryvit

Safety Data Sheet

Section 1 - CHEMICAL PRODUCT/COMPANY IDENTIFICATION

Material Identification

CAS Number	9003-53-6
CAS Name	POLYSTYRENE
Product Use	**EPS Insulation Board SDS Number 015 Issue: 03-01-2017**

Company Identification

Dryvit Systems, Inc.
One Energy Way
West Warwick, RI. 02893

PHONE NUMBER

(401) 822-4100

CHEMTREC 800-424-9300

Section 2 - HAZARDS IDENTIFICATION

Hazard Classification	None.
Label Elements	None.
Signal Word	None
Hazard Statement(s)	None.
Other Hazards	Low toxicity under normal conditions of handling and use.

Section 3 - COMPOSITION/INFORMATION ON INGREDIENTS

Components

Material	CAS Number	Percent
Polystyrene	9003-53-6	95-100
Pentane*	109-66-0	<2.0
(n-pentane, isopentane, cyclopentane)	78-78-4/287-92-3	

Ingredients not precisely identified are proprietary or nonhazardous.

*Flammable blowing agent that off-gases from product. Most of the pentane off-gases prior to shipment.

Section 4 - FIRST AID MEASURES

First Aid

Inhalation: Remove patient from exposure. Obtain medical attention if ill effects occur.

Skin Contact: Wash skin with soap and water.

Eye Contact: Remove particles by irrigating with eye wash solution or clean water, holding the eyelids apart. Obtain medical attention.

Ingestion: Ingestion of small quantities of this material under normal circumstances would not cause harmful effects.

Further Medical Treatment: Symptomatic treatment and supportive therapy as indicated.

Section 5 - FIRE FIGHTING MEASURES

Flash point: Not applicable
Auto ignition temperature: 850 deg F
Flash point: 610 deg F (ASTM D 1929)

Extinguishing media: Water fog, foam, carbon dioxide, dry chemical.

Special firefighting protective equipment: Self-contained breathing apparatus with full face piece and protective clothing.

Unusual fire and explosion hazards: Burning product may emit dense black smoke. Dust generated by fabrication, e.g. sanding, may present a fire hazard and should be handled accordingly.

Section 6 - ACCIDENTAL RELEASE MEASURES

Steps to be taken in case material is released or spilled: Sweep up and recover or shovel into a chemical waste container.

Section 7 - HANDLING AND STORAGE

STORAGE

Keep containers in a clean, cool and dry area away from heat sources.
Natural ventilation is adequate.
Storage Temperature: Ambient.

HANDLING

Process Hazards
All polymers degrade to some extent at their processing temperature, an effect which increases with increasing temperature. It is therefore

impossible to be precise about which substances may be evolved. However, it is only the minor components which vary substantially. The major components are given in the "STABILITY AND REACTIVITY" section.

Section 8 - EXPOSURE CONTROLS/PERSONAL PROTECTION

Engineering Controls

Ventilation:
Use ventilation adequate to maintain safe levels if overheating or dust occurs during processing.

Respiratory protection: Use MSHA-NIOSH approved respirator for organic vapors, dusts and mists.

Protective clothing: Impervious gloves and apron.

Eye protection: Safety glasses with side shields.

Other protective equipment: Eyewash station in work area.

Special precautions or .other comments: Follow procedures specified in the National Fire Protection Association Codes and Standards for handling combustible dusts. Maintain good housekeeping to avoid dust buildup

Exposure Guidelines

Exposure Limits

PEL(OSHA) : Particulates (Not Otherwise Classified) 15 mg/m3, 8 Hr. TWA, total dust 5 mg/m3, 8 Hr. TWA, respirable dust
TLV ACGIH): None Established

Other Applicable Exposure Limits

STYRENE
PEL (OSHA): 100 ppm, 8 Hr. TWA 200 ppm, Ceiling 600 ppm - 5 Min. Max
TLV(ACGIH): 50 ppm, 213 mg/m3, 8 Hr. TWA, Skin STEL 100 ppm, 426 mg/m3

PENTANE
PEL (OSHA): 1,000 ppm
TLV (ACGIH): 600 ppm

Section 9 - PHYSICAL AND CHEMICAL PROPERTIES

Appearance and color: White, rigid cellular foam blocks, boards and shapes.
Melting point: Softens at 175 to 220 deg. F.
Solubility in water: Insoluble
Odor: Very slight hydrocarbon.
Density: 0.6 to 3.0 pounds per cubic foot

Section 10 - STABILITY AND REACTIVITY

Stability: Stable under normal conditions.

Decomposition occurs at temperatures above 500 deg F (260 deg C).

Incompatibility: Oxidizing agents, organic solvents.

Hazardous decomposition products:
Combustion products: Carbon dioxide, carbon monoxide, styrene and other organic vapors.

Hazardous polymerization: Will not occur.

Section 11 - TOXICOLOGICAL INFORMATION

General: No toxicity information is available on this specific preparation; this health hazard assessment is based on information that is available on the properties of its components.

Ingestion: The acute oral LD50 in rat is probably above 15,000 mg/kg. Relative to other materials, this material is classified as "relatively harmless" by ingestion.

Eye contact: Irritation may develop following contact with human eyes. Dusts may cause mechanical irritation.

Skin contact: No irritation is likely to develop following contact with human skin.

Skin absorption: This product will probably not be absorbed through human skin.

Inhalation: No toxic effects are known to be associated with inhalation of dust from this material. Mechanical irritation may result from inhalation of dust from this material.

Other effects of overexposure: No other adverse clinical effects have been associated with exposures to this material;

Carcinogenicity Information

The following degradation component is listed by IARC, NTP, OSHA or ACGIH as a carcinogen.

Material	IARC	NTP	OSHA	ACGIH
STYRENE	X			

Section 12 - ECOLOGICAL INFORMATION

Solid with low volatility. The product is essentially insoluble in water. The product has low potential for bioaccumulation. The product is predicted to have low mobility in soil.

Persistence and Degradation: The product is non-biodegradable in soil. There is no evidence of degradation in soil and water.

Toxicity: The product is predicted to have low toxicity to aquatic organisms.

Effect on Effluent Treatment: The product is anticipated to be poorly removed in effluent treatment.

Section 13 - DISPOSAL CONSIDERATIONS

Waste Disposal

Treatment, storage, transportation, and disposal must be in accordance with applicable Federal, State/Provincial, and Local regulations. Incinerate material in accordance with Federal, State/Provincial and Local requirements. Do not incinerate in closed containers.

Discarded product is not a RCRA hazardous waste.

Section 14 - TRANSPORTATION INFORMATION

DOT: Not regulated

Section 15 - REGULATORY INFORMATION

Not classified as hazardous to users or for transport. U.S. Federal Regulations

TSCA Inventory Status: Article but chemicals are all Reported/Included.

SECTION 313 SUPPLIER NOTIFICATION
This product contains no known toxic chemicals subject to the reporting requirements of section 313 of the Emergency Planning and Community Right-To-Know Act of 1986 and of 40 CFR 372.

Canadian Regulations:
DSL regulatory status: Included.

European Regulations:
EINECS: Included.

Section 16 - OTHER INFORMATION

HMIS Rating

Health	0
Flammability	2
Reactivity	0

Personal Protection rating to be supplied by user depending on use conditions.

STATE RIGHT-TO-KNOW LAWS

No substances on the state hazardous substances list, for the states indicated below, are used in the manufacture of products on this Safety Data Sheet, with the exceptions indicated. While we do not specifically analyze these products, or the raw materials used in their manufacture, for substances on various state hazardous substances lists, to the best of our knowledge the products on this Safety Data Sheet contain no such substances except for those specifically listed below:

California Prop. 65: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF

CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

The information herein is given in good faith but no warranty, expressed or implied, is made. The manufacturer assumes no responsibility for personal injury or property damage that may arise from use of this material. Vendees or users assume all risks associated with the use of this material.

HCS CONCRETE

SDS Manual

SECTION 12

MASTER BUILDERS, INC.
IMPROVING CONCRETE WORLDWIDE

6

November 24, 1987

Amcor, Inc.
P. O. Box 9489
Ogden, UT 84409

Re: LUBRILITH 30, POZZOLITH POLYHEED, POZZOLITH 322-N, POZZOLITH 400-N, POZZUTEC 20

Dear Sir:

The OSHA Hazard Communication Standard requires that Master Builders provide Material Safety Data Sheets (MSDS) for those products which have potentially hazardous properties.

For the MSDS to serve its purpose as an effective means of hazard communication, the information contained therein must be passed along to all those who handle or use the product and/or are involved with the design, implementation or control of operations using the product. We strongly urge you to forward the MSDS to all parties who have a need for the information contained therein.

Many of the products marketed by Master Builders do not fall into the classification of hazardous materials. MSDS sheets for these products will be furnished only upon request. For any additional information regarding our MSDS sheets please call Philip A. Rosskopf at (216) 831-5500 extension 2335.

Sincerely,

Geneva Jordan

Geneva Jordan
Environmental Affairs

1406/7j

Enclosures: 5

cc: Judy Haskill

23700 CHAGRIN BOULEVARD
CLEVELAND, OHIO 44122
PHONE 216/831-5500

BASF
The Chemical Company

Safety Data Sheet
MasterPozzolith 322 also POZZOLITH 322 N

1. Product and Company Identification

Company
BASF Canada Inc.
100 Milverton Drive
Mississauga, ON L5R 4H1, CANADA

24 Hour Emergency Response Information
CANUTEC (reverse charges): (613) 996-6666
BASF HOTLINE: (800) 454-COPE (2673)

2. Hazards Identification

State of matter: liquid
Odour: musty

Potential health effects

Acute toxicity:
Virtually nontoxic after a single ingestion.

Irritation / corrosion:
Irritating to eyes. May cause slight irritation to the skin.

Chronic toxicity:

Carcinogenicity: Not expected to be carcinogenic (based on composition).

Repeated dose toxicity: No reliable data was available concerning repeated dose toxicity.

Reproductive toxicity: The chemical structure does not suggest a specific alert for such an effect.

Teratogenicity: The chemical structure does not suggest a specific alert for such an effect.

Genotoxicity: Contains a suspect mutagen.

Signs and symptoms of overexposure:
No significant symptoms are expected due to the non-classification of the product.

Potential environmental effects

Aquatic toxicity:
There is a high probability that the product is not acutely harmful to aquatic organisms. At the present state of knowledge, no negative ecological effects are expected.

3. Composition / Information on Ingredients

CAS Number	Content (W/W)	Hazardous ingredients
102-71-6	1.0 - 5.0 %	2,2',2"-nitrilotriethanol
111-42-2	0.1 - 1.0 %	2,2'-iminodiethanol
90-43-7	0.1 - 1.0 %	[1,1'-Biphenyl]-2-ol

4. First-Aid Measures

General advice:
First aid personnel should pay attention to their own safety. Remove contaminated clothing.

If inhaled:
If difficulties occur after vapour/aerosol has been inhaled, remove to fresh air and seek medical attention.

If on skin:
After contact with skin, wash immediately with plenty of water and soap. If irritation develops, seek medical attention.

If in eyes:
Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Rinse mouth and then drink plenty of water. Seek medical attention.

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Flash point: A flash point determination is unnecessary due to the high water content.

Flammability: not flammable

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Protective equipment for fire-fighting:
Firefighters should be equipped with self-contained breathing apparatus and turn-out gear.

6. Accidental release measures

Personal precautions:
Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Sources of ignition should be kept well clear. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions:
Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Cleanup:
For small amounts: Pick up with inert absorbent material (e.g. clay or diatomaceous earth). Place absorbed material in the same container as the spilled substance/product for disposal.

7. Handling and Storage

Handling

General advice:
Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Protection against fire and explosion:
No special precautions necessary.

Storage

General advice:
Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame. Store protected against freezing. Protect from direct sunlight.

Temperature tolerance
Protect from temperatures below: 0 °C
The packed product must be protected from temperatures below the indicated one.

8. Exposure Controls and Personal Protection

Components with occupational exposure limits

2,2'-iminodiethanol

ACGIH	TWA value 1 mg/m3 Inhalable fraction and vapor ; Skin Designation Inhalable fraction and vapor ; The substance can be absorbed through the skin.

Personal protective equipment

Respiratory protection:
Wear respiratory protection if ventilation is inadequate. Wear a NIOSH-certified (or equivalent) respirator as necessary.

Hand protection:
Chemical resistant protective gloves

Eye protection:
Safety glasses with side-shields.

Body protection:
Body protection must be chosen based on level of activity and exposure.

General safety and hygiene measures:
In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid

Odour:	musty		
Odour threshold:	No data available.		
pH value:	approx. 7.5		
Information on: Water			
Melting point:	0 °C		
Information on: Water			
Boiling point:	100 °C		
Information on: Water			
Vapour pressure:	23.4 hPa	(20 °C)	Literature data.
Density:	approx. 1.2 g/cm3	(20 °C)	
Solubility in water:		(20 °C)	completely soluble
Miscibility with water:		(20 °C)	miscible
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.		

10. Stability and Reactivity

Conditions to avoid:
See MSDS section 7 - Handling and storage.

Substances to avoid:
strong acids, strong bases, strong oxidizing agents

Hazardous reactions:
The product is stable if stored and handled as prescribed/indicated.

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

Corrosion to metals:
No corrosive effect on metal.

Oxidizing properties:
not fire-propagating

11. Toxicological information

Acute toxicity

Information on: 2,2'-iminodiethanol
Assessment of acute toxicity:
Of moderate toxicity after single ingestion. Virtually nontoxic after a single skin contact. The substance can be absorbed through the skin. Inhalation-risk test (IRT): The inhalation of a highly saturated vapor-air-mixture represents no acute hazard (mortality after an hour or later).

Irritation / corrosion

Information on: 2,2'-iminodiethanol
Assessment of irritating effects:
Skin contact causes irritation. May cause severe damage to the eyes.

Information on: [1,1'-Biphenyl]-2-ol

Assessment of irritating effects:
Severely irritating to the skin. Moderately irritating to the eyes.

Sensitization:

No sensitizing effect.

Repeated dose toxicity

Information on: 2,2',2"-nitrilotriethanol
Assessment of repeated dose toxicity:
May affect the liver and kidneys as indicated in animal studies.

Information on: 2,2'-iminodiethanol
Assessment of repeated dose toxicity:
Repeated oral exposure may affect certain organs.
The substance may cause damage to the upper respiratory tract even after repeated inhalation, as shown in animal studies.

Genetic toxicity

Information on: [1,1'-Biphenyl]-2-ol
In a bacterial test system the substance showed a weak mutagenic effect. The substance was mutagenic in a mammalian cell culture test system. The substance was not mutagenic in a test with mammals.

Other Information:

Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

12. Ecological Information

Degradability / Persistence
Biological / Abiological Degradation

Evaluation: Not readily biodegradable (by OECD criteria).

Bioaccumulation

Based on its structural properties, the polymer is not biologically available. Accumulation in organisms is not to be expected.

Other adverse effects:

According to experience, the material has no harmful effect on the environment. Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:
Do not discharge into drains/surface waters/groundwater. Dispose of in a licensed facility.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
TDG

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical DSL, CA released / listed

WHMIS classification: D2A: Materials Causing Other Toxic Effects - Very toxic material

THIS PRODUCT HAS BEEN CLASSIFIED IN ACCORDANCE WITH THE HAZARD CRITERIA OF THE CPR AND THE MSDS CONTAINS ALL THE INFORMATION REQUIRED BY THE CPR.

16. Other Information

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

MSDS Prepared by:
BASF NA Product Regulations
msds@basf.com
BASF HOTLINE (800) 454 – COPE (2673)

MSDS Prepared on: 2013/01/07

END OF DATA SHEET

SAFETY DATA SHEET

MasterPozzolith 400

BASF
We create chemistry

Version	Revision Date:	SDS Number:	Date of last issue: 08.07.2020
1.1	08.07.2020	000000713425	Date of first issue: 08.07.2020

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : MasterPozzolith 400

Product code : 000000000050440794 000000000050440794

Manufacturer or supplier's details

Company : MB Solutions Australia Pty Ltd

Address : Stanton Road, Seven Hills
NSW NSW 2147

Telephone : +611300227300

Emergency telephone : ChemTel: +1-813-248-0585; Australia: 1-300-954-583

Recommended use of the chemical and restrictions on use

Recommended use : Product for construction chemicals

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Skin sensitization : 1

GHS label elements

Hazard pictograms :

Signal Word : Warning

Hazard Statements : H317 May cause an allergic skin reaction.

Precautionary Statements :

Prevention:

P280 Wear protective gloves.
P261 Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
P272 Contaminated work clothing should not be allowed out of the workplace.

Response:

P303 + P352 IF ON SKIN (or hair): Wash with plenty of soap and water.
P333 + P311 If skin irritation or rash occurs: Call a POISON CENTER or doctor/physician.
P362 + P364 Take off contaminated clothing and wash it before reuse.

Disposal:

P501 Dispose of contents/container to appropriate hazardous waste collection point.

Other hazards which do not result in classification

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature : polycarboxylate ether
in water

Components

Chemical name	CAS-No.	Concentration (% w/w)
mixture of: 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1)	55965-84-9	>= 0 -< 0,1

SECTION 4. FIRST AID MEASURES

General advice : First aid personnel should pay attention to their own safety.
Immediately remove contaminated clothing.

If inhaled : Keep patient calm, remove to fresh air.
If symptoms persist, seek medical advice.

In case of skin contact : After contact with skin, wash immediately with plenty of water and soap.
Under no circumstances should organic solvent be used.
If irritation develops, seek medical attention.

In case of eye contact : Wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed : Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.
Do not induce vomiting unless told to by a poison control center or doctor.

Most important symptoms and effects, both acute and delayed : Information, i.e. additional information on symptoms and effects may be included in the GHS labeling phrases available in Section 2 and in the Toxicological assessments available in Section 11.

Notes to physician : Treat according to symptoms (decontamination, vital functions), no known specific antidote.

SECTION 5. FIRE-FIGHTING MEASURES

Suitable extinguishing media : Foam
Water spray
Dry powder
Carbon dioxide (CO2)

Unsuitable extinguishing media : water jet

Hazardous combustion products : harmful vapours
nitrogen oxides
fumes/smoke
carbon black

Specific extinguishing methods : The degree of risk is governed by the burning substance and the fire conditions.

If exposed to fire, keep containers cool by spraying with water.
Collect contaminated extinguishing water separately, do not allow to reach sewage or effluent systems.
Contaminated extinguishing water must be disposed of in accordance with official regulations.

Special protective equipment for fire-fighters : Wear a self-contained breathing apparatus.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures : Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wear eye/face protection.
Use personal protective clothing.
Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions : Contain contaminated water/firefighting water.
Do not discharge into drains/surface waters/groundwater.

Methods and materials for containment and cleaning up : Pick up with suitable appliance and dispose of.
Dispose of absorbed material in accordance with regulations.

SECTION 7. HANDLING AND STORAGE

Advice on protection against fire and explosion : The product is neither self-ignitable, nor an explosion hazard, nor does it promote fires.

Advice on safe handling : Avoid inhalation of dusts/mists/vapours.
Avoid skin contact.
Ensure adequate ventilation.
No special measures necessary provided product is used correctly.

Hygiene measures : When using, do not eat, drink or smoke.
Hands and/or face should be washed before breaks and at the end of the shift.
At the end of the shift the skin should be cleaned and skin-care agents applied.
Gloves must be inspected regularly and prior to each use.
Replace if necessary (e.g. pinhole leaks).
When using do not eat or drink.

Further information on storage conditions : Keep only in the original container in a cool, dry, well-ventilated place away from ignition sources, heat or flame.
Protect from direct sunlight.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Ingredients with workplace control parameters

Components	CAS-No.	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
2,2',2"-nitrilotriethanol	102-71-6	TWA	5 mg/m3	AU OEL
	Further information: Sensitiser			

		TWA value	5 mg/m3	ACGIHTLV
		TWA value	5 mg/m3	AU NOEL
		TWA	5 mg/m3	ACGIH
2,2'-iminodiethanol	111-42-2	TWA	3 ppm 13 mg/m3	AU OEL
		TWA value (Inhalable fraction and vapor)	1 mg/m3	ACGIHTLV
		Skin Designation (Inhalable fraction and vapor)		ACGIHTLV
		TWA value	3 ppm 13 mg/m3	AU NOEL
		TWA (Inhalable fraction and vapor)	1 mg/m3	ACGIH

Personal protective equipment

Respiratory protection : Wear respiratory protection if ventilation is inadequate. Combination filter for gases/vapours of organic, inorganic, acid inorganic and alkaline compounds (e.g. EN 14387 Type ABEK).

Hand protection

Remarks : impermeable gloves Synthetic rubber gloves Manufacturer's directions for use should be observed because of great diversity of types.

Eye protection : Safety glasses with side-shields (frame goggles) (e.g. EN 166)

Skin and body protection : Body protection must be chosen based on level of activity and exposure.

Protective measures : Do not inhale dust/fumes/aerosols.
Avoid contact with the skin, eyes and clothing.
Avoid exposure - obtain special instructions before use.
Handle in accordance with good building materials hygiene and safety practice.
Wearing of closed work clothing is recommended.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : in water

Color : brownish

Odor : ether-like

Odor Threshold : No data available

pH : 8,0 (23 °C)

Boiling point : 100 °C

Flash point	:	100 °C
Flammability (solid, gas)	:	Will not burn
Self-ignition	:	not self-igniting
Density	:	1,073 g/cm3 (23 °C)
Solubility(ies)		
Water solubility	:	soluble
Partition coefficient: n-octanol/water	:	not applicable for mixtures
Autoignition temperature	:	not determined
Decomposition temperature	:	No decomposition if stored and handled as prescribed/indicated.
Explosive properties	:	Not explosive Not explosive
Oxidizing properties	:	not determined
Metal corrosion rate	:	No corrosive effect on metal.

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No hazardous reactions if stored and handled as prescribed/indicated.
Chemical stability	:	The product is stable if stored and handled as prescribed/indicated.
Possibility of hazardous reactions	:	The product is stable if stored and handled as prescribed/indicated.
Conditions to avoid	:	See SDS section 7 - Handling and storage.
Incompatible materials	:	No substances known that should be avoided.
Hazardous decomposition products	:	carbon oxides

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Not classified based on available information.

Skin corrosion/irritation

Not classified based on available information.

Serious eye damage/eye irritation

Not classified based on available information.

Respiratory or skin sensitization

Skin sensitization
May cause an allergic skin reaction.

Respiratory sensitization
Not classified based on available information.

Chronic toxicity

Germ cell mutagenicity
Not classified based on available information.

Carcinogenicity
Not classified based on available information.

Reproductive toxicity
Not classified based on available information.

STOT-single exposure
Not classified based on available information.

STOT-repeated exposure
Not classified based on available information.

Aspiration toxicity
Not classified based on available information.

Further information

Product:

Remarks : Health injuries are not known or expected under normal use. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Product:

Ecotoxicology Assessment

Acute aquatic toxicity : This product has no known ecotoxicological effects.

Chronic aquatic toxicity : This product has no known ecotoxicological effects.

Components:

mixture of: 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1):

M-Factor (Acute aquatic toxicity) : 100

M-Factor (Chronic aquatic toxicity) : 100

Persistence and degradability

Product:

Biodegradability : Remarks: Taking into consideration the properties of several ingredients, the product is estimated not to be readily biodegradable according to OECD classification.

Bioaccumulative potential

Components:

mixture of: 5-chloro-2-methyl-2H-isothiazol-3-one and 2-methyl-2H-isothiazol-3-one (3:1):

Partition coefficient: n-octanol/water : Pow: 2,519
log Pow: 0,401
Method: Partition coefficient (n-octanol/water), Shake-flask method
GLP: yes

Mobility in soil

No data available

Other adverse effects

Product:

Additional ecological information : Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Observe national and local legal requirements.
The waste code in accordance with the European waste catalog (EWC) must be specified in cooperation with disposal agency/manufacturer/authorities.
Residues should be disposed of in the same manner as the substance/product.

Contaminated packaging : Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.
Packs that cannot be cleaned should be disposed of in the same manner as the contents.

SECTION 14. TRANSPORT INFORMATION

International Regulations

UNRTDG
Not regulated as a dangerous good

IATA-DGR
Not regulated as a dangerous good

IMDG-Code
Not regulated as a dangerous good

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code
Not applicable for product as supplied.

Domestic regulation

SECTION 15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture
If other regulatory information applies that is not already provided elsewhere in this safety data sheet, then it is described in this subsection.
Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP): Schedule 5

The ingredients of this product are reported in the following inventories:

AICS	:	On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

Revision Date	:	08.07.2020
Date format	:	dd.mm.yyyy

Full text of other abbreviations

ACGIH	:	USA. ACGIH Threshold Limit Values (TLV)
ACGIHTLV	:	American Conference of Governmental Industrial Hygienists - threshold limit values (US)
AU NOEL	:	National Workplace OELs, Workplace Exposure Standards for Airborne Contaminants (Australia)
AU OEL	:	Australia. Workplace Exposure Standards for Airborne Contaminants.
ACGIH / TWA	:	8-hour, time-weighted average
ACGIHTLV / Skin Designation	:	Skin Designation:
ACGIHTLV / TWA value	:	Time Weighted Average (TWA):
AU NOEL / TWA value	:	Time Weighted Average (TWA):
AU OEL / TWA	:	Exposure standard - time weighted average

AICS - Australian Inventory of Chemical Substances; ANTT - National Agency for Transport by Land of Brazil; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; ERG - Emergency Response Guide; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemi-

cal Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; Nch - Chilean Norm; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NOM - Official Mexican Norm; NTP - National Toxicology Program; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative; WHMIS - Workplace Hazardous Materials Information System

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

AU / EN

BASF

We create chemistry

Safety Data Sheet
MasterSet FP 20 also POZZUTEC 20® PLUS

1. Identification

Product identifier used on the label

MasterSet FP 20 also POZZUTEC 20* PLUS

Recommended use of the chemical and restriction on use

Recommended use*: for industrial and professional users

* The "Recommended use" identified for this product is provided solely to comply with a Federal requirement and is not part of the seller's published specification. The terms of this Safety Data Sheet (SDS) do not create or infer any warranty, express or implied, including by incorporation into or reference in the seller's sales agreement.

Details of the supplier of the safety data sheet

Company:
BASF CORPORATION
100 Park Avenue
Florham Park, NJ 07932, USA

Telephone: +1 973 245-6000

Emergency telephone number

CHEMTREC: 1-800-424-9300
BASF HOTLINE: 1-800-832-HELP (4357)

Other means of identification

Chemical family: admixture

2. Hazards Identification

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

Classification of the product

Acute Tox.	4 (oral)	Acute toxicity
Eye Dam./Irrit.	1	Serious eye damage/eye irritation

Label elements

Pictogram:

Signal Word:
Danger

Hazard Statement:

H302	Harmful if swallowed.
H318	Causes serious eye damage.

Precautionary Statements (Prevention):

P280	Wear eye/face protection.
P270	Do not eat, drink or smoke when using this product.
P264	Wash with plenty of water and soap thoroughly after handling.

Precautionary Statements (Response):

P310	Immediately call a POISON CENTER or doctor/physician.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P301 + P330	IF SWALLOWED: rinse mouth.

Precautionary Statements (Disposal):

P501	Dispose of contents/container to hazardous or special waste collection point.

Hazards not otherwise classified

If applicable information is provided in this section on other hazards which do not result in classification but which may contribute to the overall hazards of the substance or mixture.

Labeling of special preparations (GHS):
The following percentage of the mixture consists of components(s) with unknown hazards regarding the acute toxicity: 1 - 3 % oral

3. Composition / Information on Ingredients

According to Regulation 2012 OSHA Hazard Communication Standard; 29 CFR Part 1910.1200

CAS Number	Content (W/W)	Chemical name
10124-37-5	>= 15.0 - < 50.0 %	calcium nitrate
540-72-7	>= 1.0 - < 3.0 %	sodium thiocyanate

4. First-Aid Measures

Description of first aid measures

General advice:
Remove contaminated clothing.

If inhaled:
Keep patient calm, remove to fresh air, seek medical attention. Immediately administer a corticosteroid from a controlled/metered dose inhaler.

If on skin:
Immediately wash thoroughly with plenty of water, apply sterile dressings, consult a skin specialist.

If in eyes:
Immediately wash affected eyes for at least 15 minutes under running water with eyelids held open, consult an eye specialist.

If swallowed:
Immediately rinse mouth and then drink 200-300 ml of water, seek medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms: The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.
Hazards: No applicable information available.

Indication of any immediate medical attention and special treatment needed

Note to physician
Treatment: Treat according to symptoms (decontamination, vital functions), no known specific antidote.

5. Fire-Fighting Measures

Extinguishing media

Suitable extinguishing media:
foam, water spray, dry powder, carbon dioxide

Unsuitable extinguishing media for safety reasons:
water jet

Special hazards arising from the substance or mixture

Hazards during fire-fighting:
carbon monoxide, carbon dioxide, harmful vapours, nitrogen oxides, fumes/smoke, carbon black

Advice for fire-fighters

Protective equipment for fire-fighting:
Wear a self-contained breathing apparatus.

Further information:

The degree of risk is governed by the burning substance and the fire conditions. Contaminated extinguishing water must be disposed of in accordance with official regulations.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Use personal protective clothing. Do not breathe vapour/aerosol/spray mists. Handle in accordance with good building materials hygiene and safety practice.

Environmental precautions

Contain contaminated water/firefighting water. Do not discharge into drains/surface waters/groundwater.

Methods and material for containment and cleaning up
For small amounts: Pick up with inert absorbent material (e.g. sand, earth etc.). Dispose of contaminated material as prescribed.
For large amounts: Pump off product.

7. Handling and Storage

Precautions for safe handling
Avoid aerosol formation. Avoid inhalation of mists/vapours. Avoid skin contact. No special measures necessary provided product is used correctly.

Protection against fire and explosion:
The product does not contribute to the spreading of flames, nor is it self combustible, not explosive.

Conditions for safe storage, including any incompatibilities
No applicable information available.

Suitable materials for containers: High density polyethylene (HDPE)

Further information on storage conditions: Keep only in the original container in a cool, well-ventilated place. Protect from direct sunlight. Store protected against freezing.
Protect from temperatures below: 0 °C
The packed product must be protected from temperatures below the indicated one.
Protect from temperatures below: 32 °F
The packed product must be protected from temperatures below the indicated one.

8. Exposure Controls/Personal Protection

Advice on system design:
No applicable information available.

Personal protective equipment

Respiratory protection:
When workers are facing concentrations above the occupational exposure limits they must use appropriate certified respirators.

Hand protection:
Wear chemical resistant protective gloves.

Eye protection:
Safety glasses with side-shields.

Body protection:
depending upon conditions of use., Cover as much of the exposed skin as possible to prevent all skin contact., light protective clothing

General safety and hygiene measures:
Avoid contact with the skin, eyes and clothing. In order to prevent contamination while handling, closed working clothes and working gloves should be used. Handle in accordance with good building materials hygiene and safety practice. When using, do not eat, drink or smoke. Hands and/or face

should be washed before breaks and at the end of the shift. At the end of the shift the skin should be cleaned and skin-care agents applied. Gloves must be inspected regularly and prior to each use. Replace if necessary (e.g. pinhole leaks).

9. Physical and Chemical Properties

Form:	liquid	
Odour:	slight odour	
Odour threshold:		No applicable information available.
Colour:	brown	
pH value:	approx. 3.5 - 6.5	
Melting point:		No applicable information available.
boiling temperature:	approx. 105 °C	
Sublimation point:		No applicable information available.
Flash point:		A flash point determination is unnecessary due to the high water content.
Flammability:	not flammable	
Lower explosion limit:		No applicable information available.
Upper explosion limit:		No applicable information available.
Autoignition:		not applicable
Vapour pressure:		No applicable information available.
Density:	approx. 1.35 g/cm3	(20 °C)
Relative density:		No applicable information available.
Vapour density:		Heavier than air.
Partitioning coefficient n-octanol/water (log Pow):		No data available.
Thermal decomposition:	No decomposition if stored and handled as prescribed/indicated.	
Viscosity, dynamic:		No applicable information available.
Viscosity, kinematic:		No applicable information available.
Solubility in water:		(20 °C) soluble
Miscibility with water:		(20 °C) miscible
Solubility (quantitative):		No applicable information available.
Solubility (qualitative):	No applicable information available.	
Evaporation rate:		No applicable information available.
Other Information:	If necessary, information on other physical and chemical parameters is indicated in this section.	

10. Stability and Reactivity

Reactivity
No hazardous reactions if stored and handled as prescribed/indicated.

Chemical stability
The product is stable if stored and handled as prescribed/indicated.

Possibility of hazardous reactions
The product is stable if stored and handled as prescribed/indicated.

Conditions to avoid
Avoid extreme temperatures.

Incompatible materials
strong acids, strong bases, strong oxidizing agents

Hazardous decomposition products

Decomposition products:
No hazardous decomposition products if stored and handled as prescribed/indicated.

Thermal decomposition:
No decomposition if stored and handled as prescribed/indicated.

11. Toxicological information

Primary routes of exposure

Routes of entry for solids and liquids are ingestion and inhalation, but may include eye or skin contact. Routes of entry for gases include inhalation and eye contact. Skin contact may be a route of entry for liquefied gases.

Acute Toxicity/Effects

Acute toxicity
Assessment of acute toxicity: Harmful if swallowed.

Oral
Type of value: ATE
Value: 1,730 mg/kg

Inhalation
No applicable information available.

Dermal
No applicable information available.

Assessment other acute effects
No applicable information available.

Irritation / corrosion
Assessment of irritating effects: Causes serious eye damage.

Sensitization
Assessment of sensitization: Based on available Data, the classification criteria are not met.

Chronic Toxicity/Effects

Repeated dose toxicity
Assessment of repeated dose toxicity: No reliable data was available concerning repeated dose toxicity. Based on available Data, the classification criteria are not met.

Genetic toxicity
Assessment of mutagenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Carcinogenicity
Assessment of carcinogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Reproductive toxicity

Assessment of reproduction toxicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Teratogenicity
Assessment of teratogenicity: The chemical structure does not suggest a specific alert for such an effect. Based on available Data, the classification criteria are not met.

Other Information
Based on our experience and the information available, no adverse health effects are expected if handled as recommended with suitable precautions for designated uses. The product has not been tested. The statements on toxicology have been derived from the properties of the individual components.

Symptoms of Exposure

The most important known symptoms and effects are described in the labelling (see section 2) and/or in section 11.

12. Ecological Information

Toxicity

Aquatic toxicity
Assessment of aquatic toxicity:
Based on available Data, the classification criteria are not met. There is a high probability that the product is not acutely harmful to aquatic organisms.

Persistence and degradability

Assessment biodegradation and elimination (H2O)
Inherently biodegradable. The insoluble fraction can be removed by mechanical means in suitable waste water treatment plants.

Bioaccumulative potential

Assessment bioaccumulation potential
Discharge into the environment must be avoided.

Mobility in soil

Assessment transport between environmental compartments
No data available.

Additional information

Other ecotoxicological advice:
Do not discharge product into the environment without control. The product has not been tested. The statements on ecotoxicology have been derived from the properties of the individual components.

13. Disposal considerations

Waste disposal of substance:
Recommendations: Use excess product in an alternate beneficial application. Dispose of in accordance with local authority regulations. Do not discharge into drains/surface waters/groundwater.

Container disposal:
Contaminated packaging should be emptied as far as possible; then it can be passed on for recycling after being thoroughly cleaned.

14. Transport Information

Land transport
USDOT

Not classified as a dangerous good under transport regulations

Sea transport
IMDG

Not classified as a dangerous good under transport regulations

Air transport
IATA/ICAO

Not classified as a dangerous good under transport regulations

15. Regulatory Information

Federal Regulations

Registration status:
Chemical TSCA, US released / listed

EPCRA 311/312 (Hazard categories): Chronic; Acute

CERCLA RQ	CAS Number	Chemical name
1000 LBS	1310-73-2	Sodium Hydroxide
100 LBS	50-00-0	Formaldehyde

State regulations

CA Prop. 65:
WARNING: THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

NFPA Hazard codes:
Health : 2 Fire: 0 Reactivity: 0 Special:

HMIS III rating
Health: 2 Flammability: 0 Physical hazard: 0

16. Other Information

SDS Prepared by:
BASF NA Product Regulations
SDS Prepared on: 2015/03/10

We support worldwide Responsible Care® initiatives. We value the health and safety of our employees, customers, suppliers and neighbors, and the protection of the environment. Our commitment to Responsible Care is integral to conducting our business and operating our facilities in a safe and environmentally responsible fashion, supporting our customers and suppliers in ensuring the safe and environmentally sound handling of our products, and minimizing the impact of our operations on society and the environment during production, storage, transport, use and disposal of our products.

SAFETY DATA SHEET

Acetylene

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier : Acetylene

Chemical name : acetylene

Other means of identification : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

Product type : Gas.

Product use : Synthetic/Analytical chemistry.

Synonym : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

SDS # : 001001

Supplier's details : Airgas USA, LLC and its affiliates
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

24-hour telephone : 1-866-734-3438

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : FLAMMABLE GASES - Category 1
GASES UNDER PRESSURE - Compressed gas

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Extremely flammable gas.
May form explosive mixtures with air.
Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General : Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Fusible plugs in top, bottom, or valve melt at 98°C to 107°C (208°F to 224°F). Do not discharge at pressures above 15psig (103kpa). Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction. Approach suspected leak area with caution.

Prevention : Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

Response : Leaking gas fire: Do not extinguish, unless leak can be stopped safely. Eliminate all ignition sources if safe to do so.

Storage : Protect from sunlight. Store in a well-ventilated place.

Disposal : Not applicable.

Hazards not otherwise : In addition to any other important health or physical hazards, this product may displace

Section 3. Composition/information on ingredients

Substance/mixture : Substance

Chemical name : acetylene

Other means of identification : Ethyne; Ethine; Narcylen; C2H2; Acetylen; UN 1001; Vinylene

Product code : 001001

CAS number/other identifiers

CAS number : 74-86-2

Ingredient name	%	CAS number
acetylene	100	74-86-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention if irritation occurs.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. To avoid the risk of static discharges and gas ignition, soak contaminated clothing thoroughly with water before removing it. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Ingestion : As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Section 4. First aid measures

. rotection of first-aiders : No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : Contains gas under pressure. Extremely flammable gas. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool. If involved in fire, shut off flow immediately if it can be done without risk. If this is impossible, withdraw from area and allow fire to burn. Fight fire from protected location or maximum possible distance. Eliminate all ignition sources if safe to do so.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : Accidental releases pose a serious fire or explosion hazard. No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing gas. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

Small spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment.

Large spill : Immediately contact emergency personnel. Stop leak if without risk. Use spark-proof tools and explosion-proof equipment. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Use only non-sparking tools. Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Eliminate all ignition sources. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
acetylene	**NIOSH REL (United States, 10/2016).** CEIL: 2662 mg/m³ CEIL: 2500 ppm **ACGIH TLV (United States, 3/2017). Oxygen Depletion [Asphyxiant].** **California PEL for Chemical Contaminants (*Table AC-1*) (United States). Oxygen Depletion [Asphyxiant].**

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Gas.

Color : Colorless.

Odor : Mild. Ethereal.

Odor threshold : Not available.

pH : Not available.

Melting point : -81°C (-113.8°F)

Boiling point : Not available.

Critical temperature : 35.25°C (95.5°F)

Flash point : Closed cup: -18.15°C (-0.67°F)

Evaporation rate : Not available.

Flammability (solid, gas) : Extremely flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and oxidizing materials.
Highly flammable in the presence of the following materials or conditions: heat.

Lower and upper explosive (flammable) limits : Lower: 2.5%
Upper: 100%

Vapor pressure : 635 (psig)

Vapor density : 0.907 (Air = 1)

Specific Volume (ft^3/lb) : 14.7058

Density (lb/ft^3) : 0.0691

Relative density : Not applicable.

Solubility : Not available.

Solubility in water : 1.2 g/l

Partition coefficient: n-octanol/water : 0.37

Section 9. Physical and chemical properties

Decomposition temperature : Not available.

Viscosity : Not applicable.

Flow time (ISO 2431) : Not available.

Molecular weight : 26.04 g/mole

Aerosol product

Heat of combustion : -48257522 J/kg

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Oxidizers

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available

Section 11. Toxicological information

.ıot available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : No known significant effects or critical hazards.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

.ıg term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

T ːity

Not available.

Persistence and degradability

Not available.

Section 12. Ecological information

Product/ingredient name	$LogP_{ow}$	BCF	Potential
acetylene	0.37	-	low

Mobility in soil

Soil/water partition coefficient (K_{OC}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Empty Airgas-owned pressure vessels should be returned to Airgas. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1001	UN1001	UN1001	UN1001	UN1001
UN proper shipping name	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED	ACETYLENE, DISSOLVED
Transport hazard class(es)	2.1 	2.1 	2.1 	2.1 	2.1 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

"Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product."

Additional information

DOT Classification : **Limited quantity** Yes.
Quantity limitation Passenger aircraft/rail: Forbidden. Cargo aircraft: 15 kg.

TDG Classification : Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).

Explosive Limit and Limited Quantity Index
0

Passenger Carrying Ship Index
75

Passenger Carrying Road or Rail Index

Section 14. Transport information

Special provisions
38

IATA : **Quantity limitation** Passenger and Cargo Aircraft: Forbidden. Cargo Aircraft Only: 15 kg.

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined
Clean Air Act (CAA) 112 regulated flammable substances: acetylene

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

DEA List II Chemicals (Essential Chemicals) : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol (Annexes A, B, C, E)

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

Section 15. Regulatory information

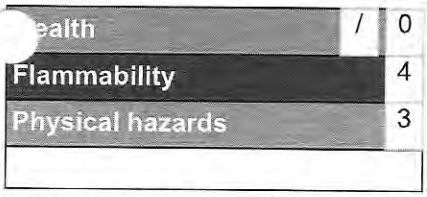
Not listed.

Inventory list

Australia	: This material is listed or exempted.
Canada	: This material is listed or exempted.
China	: This material is listed or exempted.
Europe	: This material is listed or exempted.
Japan	: **Japan inventory (ENCS)**: This material is listed or exempted. **Japan inventory (ISHL)**: Not determined.
Malaysia	: Not determined.
New Zealand	: This material is listed or exempted.
Philippines	: This material is listed or exempted.
Republic of Korea	: This material is listed or exempted.
Taiwan	: This material is listed or exempted.
Thailand	: Not determined.
Turkey	: This material is listed or exempted.
United States	: This material is listed or exempted.
Viet Nam	: Not determined.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings and the associated label are not required on SDSs or products leaving a facility under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

National Fire Protection Association (U.S.A.)

Note: The instability hazard rating for acetylene, dissolved (stabilized acetylene) is 2.

Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

Procedure used to derive the classification

Classification	Justification
FLAMMABLE GASES - Category 1	Expert judgment

Section 16. Other information

tory

Date of printing	:	1/18/2018
Date of issue/Date of revision	:	1/18/2018
Date of previous issue	:	10/10/2017
Version	:	1.01
Key to abbreviations	:	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations
References	:	Not available.

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

SAFETY DATA SHEET

1. Identification

Product identifier	**LATICRETE® 9235 Waterproofing Membrane**
Other means of identification	None.
Recommended use	Waterproofing Membrane.
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Company Name	LATICRETE International
Address	1 Laticrete Park, N Bethany, CT 06524
Telephone	(203)-393-0010
Contact person	Steve Fine
Website	www.laticrete.com
Emergency phone number	Call CHEMTREC day or night USA/Canada - 1.800.424.9300 Mexico - 1.800.681.9531 Outside USA/Canada 1.703.527.3887

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Specific target organ toxicity, repeated exposure	Category 2 (Kidney)
Environmental hazards	Hazardous to the aquatic environment, acute hazard	Category 3
	Hazardous to the aquatic environment, long-term hazard	Category 3
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	May cause damage to organs (Kidney) through prolonged or repeated exposure. Harmful to aquatic life with long lasting effects.

Precautionary statement

Prevention	Do not breathe mist or vapor. Avoid release to the environment.
Response	Get medical advice/attention if you feel unwell.
Storage	Store away from incompatible materials.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazard(s) not otherwise classified (HNOC)	Not classified.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	CAS number	%
Carbon black	1333-86-4	1 - 3
Ethylene glycol	107-21-1	1 - 2
Zinc oxide	1314-13-2	0.15 - 0.25

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Get medical attention if any discomfort continues.

Skin contact Wash skin with soap and water. Get medical attention if symptoms occur.

Eye contact Flush eyes thoroughly with water for at least 15 minutes. Get medical attention if symptoms persist.

Ingestion Rinse mouth. Do not induce vomiting. Get medical attention if any discomfort continues.

Most important symptoms/effects, acute and delayed Symptoms include redness, itching and pain.

Indication of immediate medical attention and special treatment needed Treat symptomatically.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Alcohol resistant foam. Water fog. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear appropriate protective equipment and clothing during clean-up. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills in original containers for re-use. For waste disposal, see Section 13 of the SDS.

Environmental precautions Environmental manager must be informed of all major releases.

7. Handling and storage

Precautions for safe handling Do not breathe mist or vapor. Do not get in eyes, on skin, on clothing. Use with adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities Keep container tightly closed. Store in a cool and well-ventilated place.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value	Form
Carbon black (CAS 1333-86-4)	PEL	3.5 mg/m3	
Zinc oxide (CAS 1314-13-2)	PEL	5 mg/m3	Respirable fraction.
		5 mg/m3	Fume.
		15 mg/m3	Total dust.

US. ACGIH Threshold Limit Values

Components	Type	Value	Form
Carbon black (CAS 1333-86-4)	TWA	3 mg/m3	Inhalable fraction.
Ethylene glycol (CAS 107-21-1)	Ceiling	100 mg/m3	Aerosol.
Zinc oxide (CAS 1314-13-2)	STEL	10 mg/m3	Respirable fraction.
	TWA	2 mg/m3	Respirable fraction.

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value	Form
Carbon black (CAS 1333-86-4)	TWA	3.5 mg/m3	
Zinc oxide (CAS 1314-13-2)	Ceiling	15 mg/m3	Dust.
	STEL	10 mg/m3	Fume.
	TWA	5 mg/m3	Dust.
		5 mg/m3	Fume.

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Provide adequate ventilation and minimize the risk of inhalation of vapors.

Individual protection measures, such as personal protective equipment

Eye/face protection Risk of contact: Wear protective gloves and goggles/face shield.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Skin protection

Other Wear appropriate chemical resistant clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance Dark blue liquid.

Physical state Liquid.

Form Liquid.

Color Dark blue.

Odor Styrene butadiene rubber.

Odor threshold Not available.

pH 8 - 9

Melting point/freezing point 32 °F (0 °C)

Initial boiling point and boiling range 212 °F (100 °C)

Flash point Not available.

Evaporation rate Not available.

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	1.18
Solubility(ies)	
Solubility (water)	Soluble in water.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Heat, flames and sparks.
Incompatible materials	Oxidizing agents.
Hazardous decomposition products	Carbon dioxide (CO2). Carbon monoxide.

11. Toxicological information

Information on likely routes of exposure

Inhalation	In high concentrations, vapors may be irritating to the respiratory system.
Skin contact	May cause skin irritation.
Eye contact	May cause eye irritation.
Ingestion	May cause discomfort if swallowed.
Symptoms related to the physical, chemical and toxicological characteristics	Symptoms include redness, itching and pain.

Information on toxicological effects

Acute toxicity May cause discomfort if swallowed.

Components	Species	Test Results
Carbon black (CAS 1333-86-4)		
Acute		
Dermal		
LD50	Rabbit	> 3000 mg/kg
Oral		
LD50	Rat	> 8000 mg/kg
Ethylene glycol (CAS 107-21-1)		
Acute		
Dermal		
LD50	Rabbit	9530 mg/kg
Oral		
LD50	Rat	4700 mg/kg

Skin corrosion/irritation	May cause skin irritation on prolonged or repeated contact.
Serious eye damage/eye irritation	May cause eye irritation on direct contact.

Respiratory or skin sensitization

Respiratory sensitization No data available.

Skin sensitization Not a skin sensitizer.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Inhalation of carbon black dust may cause cancer, however due to the physical form of the product, inhalation of dust is not likely.

IARC Monographs. Overall Evaluation of Carcinogenicity

Carbon black (CAS 1333-86-4) 2B Possibly carcinogenic to humans.

NTP Report on Carcinogens

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Reproductive toxicity No data available.

Specific target organ toxicity - single exposure No data available.

Specific target organ toxicity - repeated exposure May cause damage to organs (Kidney) through prolonged or repeated exposure by ingestion.

Aspiration hazard Not classified.

Chronic effects No data available.

12. Ecological information

Ecotoxicity Harmful to aquatic life with long lasting effects.

Components		Species	Test Results
Carbon black (CAS 1333-86-4)			
Aquatic			
Acute			
Fish	LC50	Leuciscus idus	>= 1000 mg/l, 96 Hours
Ethylene glycol (CAS 107-21-1)			
Aquatic			
Fish	LC50	Fathead minnow (Pimephales promelas)	8050 mg/l, 96 hours
Zinc oxide (CAS 1314-13-2)			
Aquatic			
Crustacea	LC50	Water flea (Daphnia magna)	0.098 mg/l, 48 Hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential No data available for this product.

Partition coefficient n-octanol / water (log Kow)

Ethylene glycol (CAS 107-21-1) -1.36

Mobility in soil The product is soluble in water.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations.

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code This substance/mixture is not intended to be transported in bulk.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Ethylene glycol (CAS 107-21-1)	LISTED
Zinc oxide (CAS 1314-13-2)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Ethylene glycol	107-21-1	1 - 2

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Ethylene glycol (CAS 107-21-1)

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Carbon black (CAS 1333-86-4)
Ethylene glycol (CAS 107-21-1)

US. Massachusetts RTK - Substance List

Carbon black (CAS 1333-86-4)
Ethylene glycol (CAS 107-21-1)
Zinc oxide (CAS 1314-13-2)

US. New Jersey Worker and Community Right-to-Know Act

Carbon black (CAS 1333-86-4)
Ethylene glycol (CAS 107-21-1)
Zinc oxide (CAS 1314-13-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Carbon black (CAS 1333-86-4)
Ethylene glycol (CAS 107-21-1)
Zinc oxide (CAS 1314-13-2)

US. Rhode Island RTK

Carbon black (CAS 1333-86-4)
Ethylene glycol (CAS 107-21-1)
Zinc oxide (CAS 1314-13-2)

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s).
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 20-June-2017

Revision date -

Version # 01

NFPA ratings

References HSDB® - Hazardous Substances Data Bank
Registry of Toxic Effects of Chemical Substances (RTECS)

Disclaimer The information in this (M)SDS was obtained from sources which we believe are reliable but cannot guarantee. Additionally, your use of this information is beyond our control and may be beyond our knowledge. Therefore, the information is provided without any representation or warranty express or implied.

CRACK-PAC® *Injection Epoxy*
SAFETY DATA SHEET

1. Identification

Product Identification

Product Identifier:	**CRACK-PAC®**
Recommended Use:	Crack-Pac® is a two component, low viscosity injection epoxy.
Use Restrictions:	To ensure proper installation use according to package directions, complete application instructions can be found in Simpson Strong-Tie catalogs or online at strongtie.com.

Company Identification

Company:	Simpson Strong-Tie Company Inc.
Address:	5956 W. Las Positas Blvd. Pleasanton, CA 94588, USA
Phone:	1-800-999-5099
Website:	www.strongtie.com
Emergency:	1-800-535-5053 (US/Canada) 1-352-323-3500 (International)

For most current SDS, please visit our website at **www.strongtie.com/sds**

2. Hazard Identification

General Information

CRACK-PAC® Injection Epoxy is an adhesive for use to repair concrete cracks of 1/64" to ¼" wide. Its viscosity and low surface tension allow it to repair fine to medium cracks in dry, damp, or wet conditions. Crack-Pac® is a two part (8A:1B) system, with the resin (Component A) contained in a cartridge and the hardener (Component B) in a nozzle. The two parts of this product have been individually assessed according to the Globally Harmonized System (GHS). The mixed product can be assumed to carry the hazards of each component until the product has fully hardened. The final cured product will be blue (which will fade to light amber over time) in color and can be considered nonhazardous. This Safety Data Sheet covers the hazards and responses for the safe use of this product.

Resin (Blue Side) GHS Classification

Classification according to HazCom2012 (GHS)

Physical Hazards:	Not Classified.		
Health Hazards:	Skin Corrosion/Irritation	Category 2	H315: Causes skin irritation
	Serious Eye Damage/Irritation	Category 2	H319: Causes serious eye irritation
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
Environmental Hazards:	Chronic Aquatic Hazard	Category 2	H411: Toxic to aquatic life with long lasting effects

Main Symptoms: Irritation of eyes and skin. Symptoms include redness, itching, burning, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin.

GHS Label Elements

Exclamation Point **Environmental Hazard**

Contains:	Bisphenol-A Based Epoxy Resin, Castor Oil Glycidyl Ether	
Signal Word:	**WARNING!**	
Hazard Statements:	H315:	Causes skin irritation.
	H319:	Causes serious eye irritation.
	H317:	May cause an allergic skin reaction.
	H411:	Toxic to aquatic life with long lasting effects.
Precautionary Statements:		
Prevention:	P102:	Keep out of reach of children.
	P103:	Read label before use.
	P202:	Do not handle until all safety precautions have been read and understood.
	P261:	Avoid breathing mist or vapor.
	P264:	Wash thoroughly after handling.
	P272:	Contaminated work clothing should not be allowed out of the workplace.

	P273:	Avoid release to the environment.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P302+P352:	IF ON SKIN: Wash with plenty of water.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P363:	Wash contaminated clothing before reuse.
	P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P391:	Collect Spillage.
Storage:	P403:	Store in a well-ventilated place.
	P405:	Store locked up.
	P411:	Store between 45-90°F (7-32°C).
Disposal:	P501:	Dispose of contents/container in accordance with local/regional regulations.

Supplemental Label Information: None known.

Hardener (Clear Side) GHS Classification

Classification according to HazCom2012 (GHS)

Physical Hazards:	Not Classified.		
Health Hazards:	Acute Toxicity, Oral	Category 4	H302: Harmful if swallowed
	Acute Toxicity, Dermal	Category 4	H312: Harmful in contact with skin
	Acute Toxicity, Inhalation	Category 4	H332: Harmful if inhaled
	Skin Corrosion/Irritation	Category 1	H314: Causes severe skin burns
	Serious Eye Damage/Irritation	Category 1	H318: Causes serious eye damage
	Sensitization, Skin	Category 1	H317: May cause an allergic skin reaction
	STOT, Single Exposure	Category 1	EU H071: Corrosive to the respiratory tract
Environmental Hazards:	Acute Aquatic Hazard	Category 3	H402: Harmful to aquatic life
	Chronic Aquatic Hazard	Category 3	H412: Harmful to aquatic life with long lasting effects

Main Symptoms: Damage to the eyes and skin. Symptoms include burns, redness, itching, tearing, swelling, and blurred vision. May cause rash/allergic reaction to the skin. May cause severe irritation or burns to the gastrointestinal tract and respiratory system. May cause shortness of breath, discomfort in chest, or coughing.

GHS Label Elements

Corrosive **Exclamation Point**

Contains:	Benzene-1,3-Dimethaneamine, Diethylenetriamine	
Signal Word:	**DANGER!**	
Hazard Statements:	H302:	Harmful if swallowed.
	H312:	Harmful in contact with skin.
	H332:	Harmful if inhaled.
	H314:	Causes severe skin burns and eye damage.
	H318:	Causes serious eye damage.
	H317:	May cause an allergic skin reaction.
	EU H071:	Corrosive to the respiratory tract.
	H402:	Harmful to aquatic life.
	H412:	Harmful to aquatic life with long lasting effects.
Precautionary Statements:		
Prevention:	P102:	Keep out of reach of children.
	P103:	Read label before use.
	P202:	Do not handle until all safety precautions have been read and understood.
	P260:	Do not breathe mist or vapor.

	P264:	Wash thoroughly after handling.
	P270:	Do not eat, drink or smoke when using this product.
	P271:	Use only outdoors or in a well-ventilated area.
	P272:	Contaminated work clothing must not be allowed out of the workplace.
	P273:	Avoid release to the environment.
	P280:	Wear protective gloves/protective clothing/eye protection/face protection.
Response:	P301+P330+P331:	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
	P310:	Immediately call a poison center/doctor.
	P303+P361+P353:	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
	P333+P313:	If skin irritation or rash occurs: Get medical advice/attention.
	P363:	Wash contaminated clothing before re-use.
	P304+P340:	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
	P305+P351+P338:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
	P337+P313:	If eye irritation persists: Get medical advice/attention.
	P391:	Collect Spillage.
Storage:	P403+P233:	Store in a well-ventilated place. Keep container tightly closed.
	P405:	Store locked up.
	P411:	Store between 45-90°F (7-32°C).
Disposal:	P501:	Dispose of contents/container in accordance with local/regional regulations.

Supplemental Label Information: None known.

Hazards Not Otherwise Classified (HNOC)

None known.

3. Composition Information

General Information

This product is a mixture. Hazardous ingredients for each component are listed below. May include other nonhazardous ingredients. May include other trace ingredients, see Section 15.

List of abbreviations and symbols:
Classification: Global Harmonized System Classifications
The full text for H-phrases is displayed in section 16. All concentrations are in percent by weight unless otherwise noted.

Resin (Blue Side)

Chemical Name	Weight %	CAS Number	EC Number
Bisphenol-A Based Epoxy Resin **Classifications:** Skin Irrit. 2: H315, Eye Irrit. 2: H319, Skin Sens. 1: H317, Aquatic Chronic 2: H411	50-80	25068-38-6	500-033-5
Castor Oil Glycidyl Ether **Classifications:** Skin Irrit. 2: H315, Skin Sens. 1: H317	10-20	74398-71-3	616-085-8
Oxirane, 2-[(4-nonylphenoxy)methyl]-, branched **Classifications:** Skin Irrit. 2: H315, Eye Irrit. 2: H319, Skin Sens. 1: H317, STOT SE 3: H335	10-20	147094-54-0	---
Naphtha (petroleum), aromatic-containing **Classifications:** Asp. Tox. 1: H304	1-5	68603-08-7	271-635-0

Hardener (Clear Side)

Chemical Name	Weight %	CAS Number	EC Number
Benzene-1,3-Dimethaneamine **Classifications:** Acute Tox. 4: H302+H332, Skin Corr. 1: H314, Eye Corr. 1: H318, Skin Sens. 1: H317, Aquatic 3: H402+H412	70-90	1477-55-0	216-032-5
Diethylenetriamine **Classifications:** Acute Tox. 4: H302+H312, Skin Corr. 1: H314, Skin Sens. 1: H317	10-30	111-40-0	203-865-4

4. First-Aid Measures

General Information

Provide general supportive measures and treat symptomatically. Symptoms may be delayed. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. If exposed or concerned: Get medical advice/attention. Wash contaminated clothing before reuse.

Routes of Exposure

Eye Contact: Immediately flush eyes with plenty of cool water for at least 15 minutes while holding the eyes open. Remove contact lenses if present and easy to do. If redness, burning, blurred vision, or swelling persists, **consult a physician immediately.**

Skin Contact: Remove contaminated clothing, immediately wash affected area with soap and water. Do not apply greases or ointments. If skin irritation persists, **consult a physician.**

Ingestion: Rinse mouth immediately. Give large amounts of milk or water, if person is conscious. Only induce vomiting at the instruction of medical personnel. **Consult a physician immediately.**

Inhalation: Remove patient to fresh air. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give oxygen or artificial respiration if needed. If breathing has stopped, assist ventilation with a mechanical device. If patient continues to experience difficulty breathing, **consult a physician.**

Most Important Symptoms

Damage to the eyes and skin. Symptoms include burns, redness, itching, tearing, swelling, and blurred vision. Permanent eye damage, including blindness, may result. May cause rash/allergic reaction to the skin. May cause severe irritation or burns to the gastrointestinal tract and respiratory system. May cause shortness of breath, discomfort in chest, or coughing. May cause damage to mucous membranes in nose, throat, lungs and bronchial system. Be aware that symptoms of lung edema (shortness of breath) may develop up to 24 hours after exposure.

5. Fire-Fighting Measures

Suitable Extinguishing Media: Extinguish with foam, carbon dioxide, dry powder, or water fog.

Additional Information: Do not use a solid water stream as it may scatter and spread fire.

Hazards during Fire-Fighting: Hazardous decomposition products may occur when materials polymerize at temperatures above 500 °F (260°C). Do not allow run-off from fire-fighting to enter drains or water courses.

Fire-Fighting Procedures: Use standard fire-fighting procedures and consider the hazards of other involved materials. In case of fire and/or explosion do not breathe fumes. Self-contained breathing apparatus and full protective clothing must be worn. Move containers from fire area if you can do so without risk. Cool containers with flooding quantities of water until well after fire is out. Prevent runoff from fire control or dilution from entering streams, sewers, or drinking water supply.

6. Accidental Release Measures

Personal Precautions

Non-emergency personnel: Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep unnecessary personnel away. Wear appropriate personal protective equipment. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Do not inhale vapors or mists. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained.

Emergency personnel: Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate personal protection.

Clean-Up Methods

Small spills (uncured): Wipe up with absorbent material (e.g. cloth, fleece). Place in leak-proof containers. Seal tightly for proper disposal. Clean surface thoroughly to remove residual contamination. If desired, approved solvents, such as ketones (MEK, acetone, etc.), lacquer thinner, or adhesive remover can be used. Do NOT use solvents to clean adhesives from skin. Take appropriate precautions when handling flammable solvents. Solvents may damage surfaces to which they are applied.

Large spills (uncured): Stop the flow of material, if this is without risk. Dike far ahead of spill to contain material. Use a non-combustible material like vermiculite, sand or earth to soak up the product. Place in leak-proof containers. Seal tightly for proper disposal. Following product recovery, flush area with water.

Cured Material: Chip or grind off surface. If you are grinding or cutting cured product, ensure good work practice and use of personal protective equipment as needed to control exposure to respirable dust.

Environmental Precautions

Avoid release to the environment. Contact local authorities in case of spillage to drain/aquatic environment. Prevent further leakage or spillage if safe to do so.

7. Handling and Storage

Handling

Mechanical ventilation or local exhaust ventilation is recommended. Keep away from open flames, hot surfaces and sources of ignition.

Wear appropriate personal protective equipment. When using, do not eat, drink or smoke. Do not breathe mist or vapor. Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.

Storage

Store in a closed container away from incompatible materials. Keep in original container. Keep container tightly closed. Store in a dry place out of direct sunlight. Store between 45-90°F (7-32°C). Keep away from heat and sources of ignition. Store in a well-ventilated place. Store locked up. Keep out of the reach of children.

8. Exposure Controls / Personal Protection

Personal Protective Equipment

General Protection:	Wear appropriate personal protective equipment.
Eye Protection:	Wear chemical splash goggles or safety glasses with side shield.
Hand Protection:	Wear chemical-resistant gloves such as: Nitrile, neoprene, butyl.
Skin and Body Protection:	Wear long sleeve shirt/long pants and other clothing as required to minimize contact.
Respirator Protection:	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.
General Hygiene:	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

Engineering Controls

When using indoors good general ventilation should be used. Ventilation rates should be matched to conditions. Ready access to running water is required. Provide eyewash station and emergency shower.

Limits

Component	OSHA (PEL)	ACGIH (TLV)	NIOSH Pocket Guide
Benzene-1,3-Dimethaneamine (CAS 1477-55-0)	N/E	0.1 mg/m³ (ceiling, skin)	0.1 mg/m³ (ceiling, skin)
Diethylenetriamine (CAS 111-40-0)	4 mg/m³	4 mg/m³ (TWA)	4 mg/m³ (TWA)

9. Physical and Chemical Properties

Property	Resin	Hardener
Physical State:	Liquid	Liquid
Color:	Blue	Clear
Odor:	Strong Acrid	Ammonia
pH:	No data	12
Flammability limit – lower %:	No data	No data
Flammability limit – upper %:	No data	No data
Vapor Pressure:	No data	No data
Vapor Density:	No data	No data
Solubility:	Insoluble in water	Slightly soluble in water
Freezing/Melting Point:	No data	No data
Boiling Point:	No data	No data
Flash Point:	>250 °F (121.1 °C) Open Cup	230 °F (110 °C) Closed Cup
Evaporation Rate:	No data	No data
Decomposition Temperature:	No data	No data
Specific Gravity:	No data	No data
VOC (after cure):	7 g/L	7 g/L
Kow:	No data	No data
Viscosity:	No data	No data
Corrosiveness:	Non-corrosive	Corrosive

10. Stability and Reactivity

Resin (Blue Side)

Reactivity: This product is stable and non-reactive under normal conditions.

Chemical Stability: Stable under normal storage conditions.
Condition to Avoid: High heat and open flame.
Substances to Avoid: Oxidizing agents, acids, organic bases, and amines.
Hazardous Reactions: Hazardous polymerization does not occur.
Decomposition Products: Carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.

Hardener (Clear Side)

Reactivity: This product is stable and non-reactive under normal conditions.
Chemical Stability: Stable under normal storage conditions.
Condition to Avoid: High heat and open flame.
Substances to Avoid: Strong oxidizing agents. Strong acids. Epoxy resins.
Hazardous Reactions: Hazardous polymerization does not occur.
Decomposition Products: Carbon dioxide, carbon monoxide, oxides of nitrogen, and other organic compounds.

11. Toxicological Information

Likely Routes of Exposure

Ingestion: Harmful if swallowed. Corrosive material; may cause severe irritation or burns to the gastrointestinal tract or respiratory tract.
Inhalation: Harmful if inhaled. Corrosive to the respiratory tract.
Skin contact: Harmful in contact with skin. Causes severe skin burns. May cause an allergic skin reaction.
Eye contact: Causes serious eye damage.
Symptoms: Burns, redness, itching, tearing, swelling, and blurred vision. Rash/dermatitis. May cause severe irritation or burns to the gastrointestinal tract and respiratory system. May cause shortness of breath, discomfort in chest, or coughing.

Information on Toxicological Effects

Acute Effects
Toxicity: Harmful if swallowed. Harmful in contact with skin. Harmful if inhaled.

Component	Estimate
CRACK-PAC® Resin Toxicity Estimate	
Acute, *Oral*, LD50	> 9000
Acute, *Dermal*, LD50	2000
CRACK-PAC® Hardener Toxicity Estimate	
Acute, *Oral*, LD50	995
Acute, *Dermal*, LD50	1756
Acute, *Inhalation*, LC50	3.90

Component	Species	Test Result
Bisphenol-A Based Epoxy Resin (CAS 25068-38-6)		
Acute, *Oral*, LD50	Rat	11400 mg/kg
Acute, *Dermal*, LD50	Rabbit	2000 mg/kg
Castor Oil Glycidyl Ether (CAS 74398-71-3)		
Acute, *Oral*, LD50	Rat	> 5000 mg/kg
Acute, *Dermal*, LD50	Rabbit	> 2000 mg/kg
Benzene-1,3-Dimethaneamine (CAS 1477-55-0)		
Acute, *Oral*, LD50	Rat	980 mg/kg
Acute, *Dermal*, LD50	Rabbit	2000 mg/kg
Acute, *Inhalation*, LC50	Rat	700 ppm, 1 hour
Diethylenetriamine (CAS 111-40-0)		
Acute, *Oral*, LD50	Rat	1080 mg/kg
Acute, *Dermal*, LD50	Rabbit	1090 mg/kg

Skin corrosion/irritation: Causes severe skin irritation and burns.
Eye damage/eye irritation: Causes serious eye irritation and damage.
Respiratory sensitization: No data available.
Skin sensitization: May cause an allergic skin reaction.
Aspiration hazard: No data available.

Specific target organ toxicity
Single exposure: Corrosive to the respiratory tract.

Chronic Effects
Germ cell mutagenicity: No data available.
Carcinogenicity: This product is not considered a carcinogen by IARC, NTP, ACGIH, or OSHA.
Reproductive toxicity: No data available.
Specific target organ toxicity
Repeated exposure: No data available.

Further Information

Toxicological, ecotoxicological, physical, and chemical properties may not have been fully investigated. Hazard data above is estimated based on best available information. Some workers with pre-existing medical conditions such as: asthma, allergies, or impaired pulmonary and/or liver functions, or who may be particularly susceptible to this material, may be affected by exposure to this material.

12. Ecological Information

General Information

Information given is based on data on the components and the ecotoxicology of similar products. CRACK-PAC Resin is classified as toxic to aquatic life with long lasting effects. CRACK-PAC Hardener is classified as harmful to aquatic life, with long lasting effects. Avoid release to the environment.

Supporting Data

Component	Species	Test Result
Bisphenol-A Based Epoxy Resin (CAS 25068-38-6)		
Aquatic, Fish, LC50	Salmo gairdneri	1.3 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	2.1 mg/l, 48 hours
Aquatic, Algae, EC50	Algae	> 11 mg/l, 72 hours
Benzene-1,3-Dimethaneamine (CAS 1477-55-0)		
Aquatic, Fish, LC50	Red killfish	87.6 mg/l, 96 hours
Aquatic, Crustacea, EC50	Daphnia magna	15.2 mg/l, 48 hours
Aquatic, Algae, EC50	Green algae	32.1 mg/l, 72 hours
Diethylenetriamine (CAS 111-40-0)		
Aquatic, Fish, LC50	Poecilia reticulate	1014 mg/l, 96 hours

Persistence and degradability: This product is not expected to be readily biodegradable.
Bioaccumulative potential: No data available for this product.

Chemical	Log Kow	BCF	Bioaccumulation Potential
Bisphenol-A Based Epoxy Resin (CAS 25068-38-6)	2.64-3.78	3-31	low

Mobility in soil: No data available.

Further Information

No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this product.

13. Disposal Consideration

Waste Disposal of Substance: Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container. Dispose of contents/container in accordance with local/regional/national regulations.

Container Disposal: Empty containers or liners may retain some product residues; follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

Disposal of Cured Product: Chip or grind off surface. Solid material does not need special disposal consideration.

14. Transportation Information

	Resin (Blue Side)	Hardener (Clear Side)
UN number:	UN3082	UN2735
UN proper shipping name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (Bisphenol-A-Epichlorohydrin), 9, III, Marine Pollutant	AMINES, LIQUID, CORROSIVE, N.O.S. (Benzene-1,3-dimethaneamine(MXDA)), 8, II
Precautions:	Marine Pollutant	Corrosive
Required Labels:	9	8
ERG Code (IATA):	9L	8L
EmS (IMDG):	F-A, S-F	F-A, S-B

Additional Information

Special precautions for user: Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code:

This substance/mixture is not intended to be transported in bulk.

This information does not cover all specific regulatory or operational requirements of this product. The classifications for transportation may vary by container volume or different regional or national regulations.

15. Regulatory Information

United States

Federal Regulations: This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D): Not regulated.

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not listed.

CERCLA Hazardous Substance List (40 CFR 302.4):

Acetic Acid (CAS 64-19-7)	LISTED
Alcohol Ethoxylate (CAS 78330-21-9)	LISTED
Phosphoric Acid (CAS 7664-38-2)	LISTED
Napthalene (CAS 91-20-3)	LISTED

Superfund Amendments and Reauthorization Act of 1986 (SARA):

Hazard Categories:	Immediate	Delayed	Fire	Pressure	Reactivity
Resin	Yes	Yes	No	No	No
Hardener	Yes	Yes	No	No	No

SARA 302 Extremely hazardous substance: No

SARA 311/312 Hazardous chemical: Yes

SARA 313 (TRI reporting):

Chemical	CAS Number	% In Blend (approx.)
Naphthalene	91-20-3	< 0.1

US. California Proposition 65: WARNING: This product contains a chemical listed by the State of California as known to cause cancer, birth defects, or reproductive harm.

Carcinogen / Reproductive Toxin / Mutagen Information

Component	% In Blend (approx.)	IARC Monographs	NTP	ACGIH	Other
Naphthalene (91-20-3)	< 0.1	2B	ANTICIPATED	---	CA65 (Carcinogenic)

IARC: 1- Carcinogenic 2- Possibly carcinogenic 3 – Not classifiable as to carcinogenicity 4 – Probably not carcinogenic
NTP: Known to be human carcinogen or Reasonably anticipated to be a human carcinogen
ACGIH – A1 – Confirmed carcinogen A2 – Suspected carcinogen A3 – Animal carcinogen A4 – Not classified A5 – Not suspected
CA65 – California Prop 65

US State Right-To-Know Lists

Chemical	Massachusetts RTK	New Jersey Work and Community RTK Act	Pennsylvania Worker and Community RTK Law	Rhode Island RTK
Benzene-1,3-Dimethaneamine (CAS 1477-55-0)	Listed	Listed	Listed	
Diethylenetriamine (CAS 111-40-0)	Listed	Listed	Listed	Listed

Canada

This product has been classified according to the hazard criteria of the HPR and the SDS contains all of the information required by the HPR.

International

The product is classified in accordance with EC directives or respective national laws. This Safety Data Sheet complies with the requirements of Regulation (EC) No 1907/2006.

REACH Registered Substances			
Chemical	**CAS Number**	**EC Number**	**Index Number**
BPA Based Epoxy Resin	25068-38-6	500-033-5	603-074-00-8
Diethylenetriamine	111-40-0	203-865-4	612-058-00-X

This product is not subject to or not applicable for any of the following International Regulations; **Stockholm Convention, Rotterdam Convention, Kyoto Protocol, Montreal Protocol, Basel Convention.**

International Inventories

Australia	One or more components of this product are not listed on the Australian Inventory of Chemical Substances (AICS).
Canada	All components of this product are included on the Domestic Substances List (DSL) or Non-Domestic Substances List (NDSL).
China	One or more components of this product are not listed on the Inventory of Existing Chemical Substances in China (IECSC)
Europe	One or more components of this product are not included on the European Inventory of Existing Commercial Chemical Substances (EINECS) or are not exempt from listing.
Japan	One or more components in this product are not listed on the Inventory of Existing and New Chemical Substances (ENCS).
Korea	One or more components of this product are not included on the Existing Chemicals List (ECL)
New Zealand	One or more components of this product are not included on the New Zealand Inventory.
Philippines	One or more components in this product are not listed in the Philippine Inventory of Chemicals and Chemical Substances (PICCS).
United States & Puerto Rico	All components of this product are listed on the Toxic Substances Control Act (TSCA) Inventory or are not required to be listed.

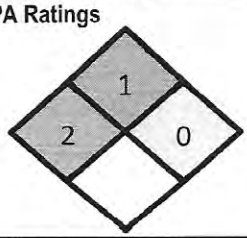
16. Other Information

Date Prepared or Revised: September 2016
Supersedes: September 2014

Contact Simpson Strong-Tie Environmental Health and Safety at EHS@strongtie.com

Additional Resin (Blue Side) Classifications

NFPA Ratings

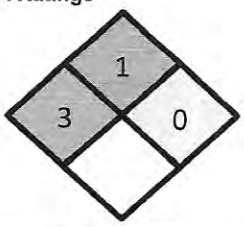


HMIS Rating

HEALTH	2	PHYSICAL	0
FLAMMABILITY	1	PPE	B

Additional Hardener (Clear Side) Classifications

NFPA Ratings



HMIS Rating

HEALTH	3	PHYSICAL	0
FLAMMABILITY	1	PPE	B

Abbreviations

ACGIH:	American Conference of Governmental Industrial Hygienists
CAS No.:	Chemical Abstract Service Registry Number
CERCLA:	Comprehensive Environmental Response, Compensation and Liability Act (U.S. EPA)
HPR:	Hazardous Product Regulations (Canada)
DOT:	Department of Transportation (U.S.)
EPA:	Environmental Protection Agency (U.S.)
GHS:	Globally Harmonized System of Classification and Labeling of Chemicals
HEPA:	High-Efficiency Particulate Air
HMIS:	Hazardous Materials Identification System
IARC:	International Agency for Research on Cancer
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods code
NIOSH:	National Institute of Occupational Safety and Health (U.S.)
NFPA:	National Fire Protection Association (US)
NTP:	National Toxicology Program (US)
OSHA:	Occupational Safety and Health Administration (U.S.)
PEL:	Permissible Exposure Limit
SARA:	Superfund Amendments and Reauthorization Act (U.S. EPA)
SDS:	Safety Data Sheet
STEL:	Short Term Exposure Limit (15 minute Time Weighted Average)
STOT:	Specific Target Organ Toxicity (GHS Classification)
TLV:	Threshold Limit Value
TSCA:	Toxic Substances Control Act (U.S.)
TWA:	Time Weighted Average (exposure for 8-hour workday)
VOC:	Volatile Organic Compounds
WHMIS:	Canadian Workplace Hazardous Materials Information System

Full Text of H – Phrases Under Section 3

H302:	Harmful if swallowed.
H304:	May be fatal if swallowed and enters airways.
H312:	Harmful in contact with skin.
H314:	Causes severe skin burns and eye damage.
H315:	Causes skin irritation.
H317:	May cause an allergic skin reaction.
H318:	Causes serious eye damage.
H319:	Causes serious eye irritation.
H332:	Harmful if inhaled.
H335:	May cause respiratory irritation.
H402:	Harmful to aquatic life.
H411:	Toxic to aquatic life with long lasting effects.
H412:	Harmful to aquatic life with long lasting effects.

Disclaimer

This Safety Data Sheet (SDS) is prepared by Simpson Strong-Tie Co. in compliance with the requirements of OSHA 29 CFR Part 1910.1200. The information it contains is offered in good faith as accurate as of the date of this SDS. This SDS is provided solely for the purpose of conveying health, safety, and environmental information. No warranty, expressed or implied, is given. Health and Safety precautions may not be adequate for all individuals and/or situations. It is the user's obligation to evaluate and use this product safely and to comply with all applicable laws and regulations.

Internal

FOR INTERNAL USE ONLY

CRACK-PAC Resin:	CRACK-PAC Hardener:
XCOM3B – 90% Cartridge	XCOM3B – 10% Cartridge
	XCORR – 10% Cartridge