

SECTION I – IDENTIFICATION

PRODUCT IDENTIFIER	TRADE NAME	OTHER SYNONYMS
Portland Cement	Portland Cement	Hydraulic Cement (Type I, II, I/II, III, IL, ILA, V, Low Alkali, Plastic, Block, Rapid, Oil Well, White, Class A, Class C, Class G, Class H), Cement Slurry

RECOMMENDED USE AND RESTRICTION ON USE

Used for construction purposes

This product is not intended or designed for and should not be used as an abrasive blasting medium or for foundry applications.

MANUFACTURER/SUPPLIER INFORMATION

Martin Marietta Materials
4123 Parklake Ave
Raleigh, North Carolina 27612
Phone: 919-781-4550

For additional health, safety or regulatory information and other emergency situations, call 919-781-4550

SECTION II – HAZARD(S) IDENTIFICATION
HAZARD CLASSIFICATION:

Category 1A Carcinogen

Category 1 Specific Target Organ Toxicity (STOT) following repeated exposures

Category 1 Eye Damage

Category 2 Skin Irritant



SIGNAL WORD: DANGER

HAZARD STATEMENTS:

May cause cancer by inhalation.

Causes damage to lungs, kidneys and autoimmune system through prolonged or repeated exposure by inhalation.

Causes skin irritation and serious eye damage.

PRECAUTIONARY STATEMENTS

Do not handle until the safety information presented in this SDS has been read and understood.

Do not breathe dusts or mists. Do not eat, drink or smoke while manually handling this product. Wash skin thoroughly after manually handling.

If on skin: Rinse skin after manually handling and wash contaminated clothing if there is potential for direct skin contact before reuse.

If swallowed: Rinse mouth and do not induce vomiting.

If inhaled excessively: 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, and continue rinsing.

If exposed, concerned, unwell or irritation of the eyes, skin, mouth or throat/nasal passage persist: Get medical attention.

Wear eye protection and respiratory protection following this SDS, NIOSH guidelines and other applicable regulations. Use protective gloves if manually handling the product.

Avoid creating dust when handling, using or storing. Use with adequate ventilation to keep exposure below recommended exposure limits.

Dispose of product in accordance with local, regional, national or international regulations.

Please refer to Section XI for details of specific health effects of the components.

SECTION III – COMPOSITION/INFORMATION ON INGREDIENTS

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO	% by weight (approx)
Portland Cement or Hydraulic Cement	65997-15-1	90-96
Gypsum ⁽¹⁾	13397-24-5	2-5
Crystalline Silica, Quartz	14808-60-7	0-0.05
Limestone	1317-65-3	0-15

(1): The composition of gypsum may be up to 100% calcium sulfate (CaSO₄)
May contain trace amounts of heavy metals.

SECTION IV – FIRST-AID MEASURES

INHALATION: If excessive inhalation occurs, remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or develops later.

EYES: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Remove contact lenses, if present and easy to do, and continue rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or develops later.

SKIN: Rinse skin with soap and water after manually handling and wash contaminated clothing if there is potential for direct skin contact. Contact a physician if irritation persists or develops later.

INGESTION: If swallowed, rinse mouth and do not induce vomiting. If gastrointestinal discomfort occurs, persists or develops later, get medical attention.

SIGNS AND SYMPTOMS OF EXPOSURE: There are generally no signs or symptoms of exposure to respirable crystalline silica. Often, chronic silicosis has no symptoms. The symptoms of chronic silicosis, if present, are shortness of breath, wheezing, cough and sputum production. The symptoms of acute silicosis which can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as 6 months, are the same as those associated with chronic silicosis; additionally, weight loss and fever may also occur. The symptoms of scleroderma, an autoimmune disease, include thickening and stiffness of the skin, particularly in the fingers, shortness of breath, difficulty swallowing and joint problems.

Direct skin and eye contact with dust generated may cause irritation by mechanical abrasion. Some components of the product are also known to cause corrosive effects to skin, eyes and mucous membranes. If product gets wet and contacts the eye, it can cause irritation and burning sensation, and may induce corneal edema (the victim may see colored rings or halos around lights). Liquid product can irritate the skin and may cause alkali burns. Repeated or prolonged contact may cause dermatitis. Individuals may develop an allergic dermatitis following contact with this product. Ingestion of large amounts may cause gastrointestinal irritation and blockage. Inhalation of dust may irritate nose, throat, mucous membranes and respiratory tract by mechanical abrasion or corrosive/irritant action. Coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may occur following exposures in excess of appropriate exposure limits. Repeated excessive exposure may cause pneumoconiosis, such as silicosis and other respiratory effects.

SECTION V – FIRE-FIGHTING MEASURES**EXTINGUISHING AGENT**

Not flammable; use extinguishing media compatible with surrounding fire.

UNUSUAL FIRE AND EXPLOSION HAZARD

Contact with powerful oxidizing agents may cause fire and/or explosions (see Section X of this SDS). While individual components are known to react vigorously with water to produce heat, this is not expected from this product. Contact of one of the ingredients with diazomethane vapor may cause an exotherm which may lead to detonation.

SPECIAL FIRE FIGHTING PROCEDURES

None known

HAZARDOUS COMBUSTION PRODUCTS

None known

SECTION VI – ACCIDENTAL RELEASE MEASURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Persons involved in cleaning should first follow the precautions defined in Section VII of the SDS. Contain liquid spilled material and do not allow to flow in to public sewers or water systems where it can harden and clog flow. Allow material to harden and transfer into containers appropriate for proper disposal. Liquid product should be removed from roads or other surfaces where it may interfere with traffic.

Dry spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust and other components that may pose inhalation hazards. Do not dry sweep spilled material. Collect the material using a method that does not produce dust such as a High-Efficiency Particulate Air (HEPA) vacuum or thoroughly wetting down the dust before cleaning up. Wear appropriate personal protective equipment as specified in Section VIII including appropriate respirators during and following clean up or whenever airborne dust is present to ensure worker exposures remain below occupational exposure limits (OELs - Refer to Section VIII).

Place the cleaned-up dust in a covered container appropriate for disposal. Do not wash down drains, this material may plug drains. Dispose of the dust or liquid product according to federal, state and local regulations.

This product is not subject to the reporting requirements of SARA Title III Section 313, and 40 CFR 372.

SECTION VII – HANDLING AND STORAGE

This product is not intended or designed for and should not be used as an abrasive blasting medium or for foundry applications.

Store in a cool, dry, ventilated storage area in closed containers. Avoid freezing temperatures during storage. Store away from incompatible materials listed in Section X. The dihydrate form of calcium sulfate typically does not set with water however dew point conditions or other conditions causing presence of moisture may harden gypsum during storage.

Follow protective controls set forth in Section VIII of this SDS when handling this product. Dust containing respirable crystalline silica and other components that may be corrosive/irritant may be generated during processing, handling and storage. Use good housekeeping procedures to prevent the accumulation of dust in the workplace.

Do not breathe dust. Avoid contact with skin and eyes. Do not store near food or beverages or smoking materials. Do not stand on piles of materials; it may be unstable.

Use adequate ventilation and dust collection equipment and ensure that the dust collection system is adequate to reduce airborne dust levels to below the appropriate OELs. If the airborne dust levels are above the appropriate OELs, use respiratory protection during the establishment of engineering controls. Refer to Section VIII - Exposure Controls/Personal Protection for further information.

In accordance with OSHA's Hazard Communication Standard (29 CFR 1910.1200, 1915.99, 1917.28, 1918.90, 1926.59, 1928.21), state, and/or local right-to-know laws and regulations, familiarize your employees with this SDS and the information contained herein. Warn your employees, your customers and other third parties (in case of resale or distribution to others) of the potential health risks associated with the use of this product and train them in the appropriate use of personal protective equipment and engineering controls, which will reduce their risks of exposure.

See also ASTM International standard practice E 1132-06, "Standard Practice for Health Requirements Relating to Occupational Exposure to Respirable Crystalline Silica."

For safe handling and use of this product for Hydraulic Fracturing, please see the OSHA/NIOSH Hazard Alert Worker Exposure to Silica during Hydraulic Fracturing DHHS (NIOSH) Publication No. 2012-166 (2012).

http://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.pdf

SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION**Airborne OELs for Components of Portland Cement:**

COMPONENT(S) CHEMICAL NAME	MSHA/OSHA PEL	ACGIH TLV-TWA	NIOSH REL
Portland Cement	(T) 15 mg/m ³ , (R) 5 mg/m ³	(R) 1 mg/m ³	(T) 10 mg/m ³ , (R) 5 mg/m ³
Gypsum	⁽¹⁾ (T) 15 mg/m ³ , (R) 5 mg/m ³	(I) 10 mg/m ³	(T) 10 mg/m ³ , (R) 5 mg/m ³
Crystalline Silica, Quartz [§]	(R) 0.05 mg/m ³ (R) 0.025 mg/m ³ (AL)	(R) 0.025 mg/m ³ [#]	(R) 0.05 mg/m ³ [#]
Limestone	(T) 15 mg/m ³ , (R) 5 mg/m ³	-	(T) 10 mg/m ³ , (R) 5 mg/m ³

[§] The OSHA OELs for respirable crystalline silica are listed in the table. As of June 28, 2018, the MSHA standard for respirable crystalline silica has not been changed but may be revised in the future. The MSHA PEL for dust containing crystalline silica (quartz) is based on the silica content of the respirable dust sample and is calculated as: 10 mg/m³/(% SiO₂ + 2). The MSHA PEL for crystalline silica as tridymite and cristobalite is one-half the PEL for crystalline silica (quartz).

[#] The ACGIH and NIOSH limits are for crystalline silica (quartz), independent of the dust concentration. The ACGIH TLV for crystalline silica as cristobalite is equal to the TLV for crystalline silica as quartz. In 2005, ACGIH withdrew the TLV for crystalline silica as tridymite. The NIOSH REL for crystalline silica as cristobalite and tridymite is the same as for quartz. Refer to Section X for thermal stability information for crystalline silica (quartz).

AL: Action Level

(1): MSHA/OSHA PEL based on Calcium Sulfate, CAS No. 7778-18-9.

(R): Respirable Fraction.

(T): Total Dust.

(I): Inhalable Fraction.

Airborne OELs for Inert/Nuisance Dust:

Standard	Respirable Dust	Total Dust
MSHA/OSHA PEL (as Inert or Nuisance Dust)	5 mg/m ³	15 mg/m ³
ACGIH TLV (as Particles Not Otherwise Specified)	3 mg/m ³	*10 mg/m ³
NIOSH REL (Particulates Not Otherwise Regulated)	-	-

Note: The limits for Inert Dust are provided as guidelines. Nuisance dust is limited to particulates not known to cause systemic injury or illness.

* The TLV provided is for inhalable particles not otherwise specified.

ENGINEERING CONTROLS

Ventilation: Use local exhaust, general ventilation or natural ventilation adequate to maintain exposures below appropriate exposure limits.

Other control measures: Respirable dust and crystalline silica levels should be monitored regularly. Dust and crystalline silica levels in excess of appropriate exposure limits should be reduced by implementing feasible engineering controls, including (but not limited to) dust suppression (wetting), ventilation, process enclosure and enclosed employee work stations.

EYE/FACE PROTECTION

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated. If irritation persists, get medical attention immediately. There is potential for severe eye irritation if exposed to excessive concentrations of dust for those using contact lenses.

SKIN PROTECTION

Chemical resistant apron. Loose clothing, with the neck closed and sleeves rolled down. Safety shoes should be laced so that no openings are left through which concrete may reach the skin. Use appropriate chemical resistant protective gloves if manually handling the product.

SECTION VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION, CONTD.**RESPIRATORY PROTECTION****Respirator Recommendations:**

For respirable crystalline silica levels that exceed or are likely to exceed appropriate exposure limits, a NIOSH-approved particulate filter respirator must be worn. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. For additional information contact NIOSH at 1-800-356-4674 or visit website: <http://www.cdc.gov/niosh/npg> (search for crystalline silica). See also ANSI standard Z88.2 (latest revision) "American National Standard for Respiratory Protection," 29 CFR 1910.134 and 1926.103, and 42 CFR 84.

NIOSH recommendations for respiratory protection include:

Up to 0.5 mg/m³:

(APF = 10) Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100, P100.

Up to 1.25 mg/m³:

(APF = 25) Any powered, air-purifying respirator with a high-efficiency particulate (100-series) filter.

(APF = 25) Any supplied-air respirator operated in a continuous-flow mode

Up to 2.5 mg/m³:

(APF = 50) Any air-purifying, full-facepiece respirator with an N100, R100, or P100 filter.

(APF = 50) Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter

Up to 25 mg/m³:

(APF = 1000) Any supplied-air respirator operated in a pressure-demand or other positive-pressure mode

Emergency or planned entry into unknown concentrations or IDLH conditions (50 mg/m³ for crystalline silica-quartz): A self-contained breathing apparatus (SCBA) that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode or any supplied-air respirator that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape from unknown or IDLH conditions: An air-purifying, full-face piece respirator with a high-efficiency particulate (100-series) filter or any appropriate escape-type, self-contained breathing apparatus.

If the workplace airborne crystalline silica concentration is unknown for a given task, conduct air monitoring to determine the appropriate level of respiratory protection to be worn. Consult with a certified industrial hygienist, your insurance risk manager or the OSHA Consultative Services group for detailed information. Ensure appropriate respirators are worn, as needed, during and following the task, including clean up or whenever airborne dust is present, to ensure worker exposures remain below OELs.

GENERAL HYGIENE CONSIDERATIONS

There are no known hazards associated with this material when used as recommended. Following the guidelines in this SDS are recognized as good industrial hygiene practices. Avoid breathing dust. Avoid skin and eye contact. Wash dust-exposed skin with soap and water before eating, drinking, smoking and using toilet facilities. Wash work clothes after each use.

SECTION IX— PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE Portland Cement is a fine, gray powder	ODOR AND ODOR THRESHOLD Odorless and not applicable
pH AND VISCOSITY Not available and not applicable	MELTING POINT/FREEZING POINT Not applicable
BOILING POINT AND RANGE Not applicable	FLASH POINT AND FLAMMABILITY Not applicable
FLAMMABILITY/EXPLOSIVE LIMITS AND AUTOIGNITION TEMPERATURE Not applicable	EVAPORATION RATE AND DECOMPOSITION TEMPERATURE Not applicable
VAPOR PRESSURE AND VAPOR DENSITY IN AIR Not applicable	SPECIFIC GRAVITY. 3.05-3.20
SOLUBILITY IN WATER Slightly soluble (0.1 to 1.0%)	PARTITION COEFFICIENT: N-OCTANOL/WATER Not applicable

SECTION X – STABILITY AND REACTIVITY

STABILITY Stable	CONDITIONS TO AVOID Contact with incompatible materials (see below).
THERMAL STABILITY If crystalline silica (quartz) is heated to more than 870°C (1598°F), it can change to a form of crystalline silica known as tridymite, and if crystalline silica (quartz) is heated to more than 1470°C (2678°F), it can change to a form of crystalline silica known as cristobalite.	
INCOMPATIBILITY (Materials to avoid) Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosions. Some components of product may react vigorously with water. Product may react with strong acids to produce a violent, exothermic reaction and may evolve toxic gases or vapors, depending on the acid involved. Contact of some components with diazomethane vapor may cause an exotherm which may lead to detonation. Calcium sulfate is reduced violently or explosively on heating an intimate mixture with aluminum powder to a suitably high temperature to initiate the reaction.	
HAZARDOUS DECOMPOSITION PRODUCTS Silica dissolves in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride.	
HAZARDOUS POLYMERIZATION Not known to polymerize	

SECTION XI – TOXICOLOGICAL INFORMATION

Health Effects: The information below represents an overview of health effects caused by overexposure to one or more components in portland cement.

Primary routes(s) of exposure: ☒ Inhalation ☐ Skin ☒ Ingestion

EYE CONTACT: Direct contact with dust may cause irritation by mechanical abrasion or corrosive action. Conjunctivitis may occur.

SKIN CONTACT: Direct contact may cause irritation by mechanical abrasion. Some components of material are also known to cause corrosive effects to skin and mucous membranes.

SKIN ABSORPTION: Not expected to be a significant route of exposure.

INGESTION: Small amounts (a tablespoonful) swallowed during normal handling operations are not likely to cause injury. Ingestion of large amounts may cause gastrointestinal irritation and blockage.

INHALATION: Dust may irritate nose, throat, mucous membranes and respiratory tract by mechanical abrasion. Coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may occur following exposures in excess of appropriate exposure limits.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) and/or dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions. Smoking and obstructive/restrictive lung diseases may also exacerbate the effects of excessive exposure to this product.

This product is a mixture of components. The composition percentages are listed in Section III. Toxicological information for each component is listed below:

Chronic exposure to liquid cement has caused chronic dermatitis, the symptoms of which may include erythema (reddening), skin irritation, and eczematous rashes. Drying, thickening, and cracking of the skin and nails may also occur. Irritated or broken skin is more likely to develop further complications such as ulcers and infection, and may increase the chance of absorbing toxic materials into the body through the skin.

Individuals who become allergically sensitized to hexavalent chromates may experience an allergic reaction upon subsequent contact with those compounds (delayed Type IV hypersensitivity reaction).

The chronic toxicity effects described above have been associated with exposure to the product, if it gets wet. These effects are extremely unlikely to occur with dry product.

Portland Cement:

Exposure Routes: inhalation, ingestion, skin and/or eye contact

Target Organs: Eyes, skin, respiratory system.

Acute Effect: Exposure to dry portland cement may cause drying of the skin and mild irritation, or more significant effects from the aggravation of other conditions. Liquid portland cement is caustic (pH > 12) and dermal exposure may cause more severe skin effects, including thickening, cracking or fissuring of the skin. Eye exposures to portland cement may cause immediate or delayed irritation or inflammation of the cornea. Eye contact with larger amounts of dry powder or splashes of liquid portland cement may cause effects ranging from moderate eye irritation to chemical burns and blindness. Inhalation of dry portland cement may cause irritation to the moist mucous membranes of the nose, throat and upper respiratory system, or may cause or aggravate certain lung diseases or conditions.

Chronic Effect: Prolonged exposure can cause severe skin damage in the form of chemical (caustic) burns. Portland Cement is not listed as carcinogen on the NTP, IARC or OSHA list of carcinogens, however Portland Cement contains trace amounts of hexavalent chromium [Cr(VI)] and certain chromium compounds which are listed on the NTP and IARC lists of carcinogens. The total amounts of chromium and chromium compounds in Portland Cement are typically less than 0.003% and hexavalent chromium less than 0.001%.

SECTION XI – TOXICOLOGICAL INFORMATION, CONTD.

Note: Some individuals who are exposed to portland cement may exhibit an allergic response, which can result in symptoms ranging from mild rashes to severe skin ulcers. Cement dermatitis may be irritant contact dermatitis induced by the alkaline, abrasive, and hygroscopic (water-absorbing) properties of portland cement, or it may be allergic contact dermatitis elicited by an immunological reaction to Cr(VI), or it may be a combination of the two.

Silicon Dioxide: It is comprised of amorphous and crystalline forms of silica. In some batches, crystalline silica may represent up to 100% of silicon dioxide.

Exposure route: Eyes, respiratory system.

Target organs: Eyes, skin, respiratory system.

ACGIH, MSHA, and OSHA have determined that adverse effects are not likely to occur in the workplace provided exposure levels do not exceed the appropriate exposure limits. Lower exposure limits may be appropriate for some individuals including persons with pre-existing medical conditions as described under medical conditions aggravated by exposure.

A. SILICOSIS

The major concern is silicosis (lung disease), caused by the inhalation and retention of respirable crystalline silica dust. Silicosis leads to conditions such as lung fibrosis and reduced pulmonary function. The form and severity in which silicosis manifests itself, depends in part on the type and extent of exposure to silica dusts: chronic, accelerated and acute forms are recognized. In later stages the critical condition may become disabling and potentially fatal. Restrictive and/or obstructive changes in lung function may occur due to exposure. A risk associated with silicosis is development of pulmonary tuberculosis (silico-tuberculosis). Respiratory insufficiencies due to massive fibrosis and reduced pulmonary function, possibly with accompanying heart failure, are other potential causes of death due to silicosis.

Chronic or Ordinary Silicosis is the most common form of silicosis and can occur after many years of exposure to levels above the occupational exposure limits for airborne respirable crystalline silica dust. Not all individuals with silicosis will exhibit symptoms (signs) of the disease. Symptoms of silicosis may include (but are not limited to): Shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; heart enlargement and/or failure. 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. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. 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 (cor pulmonale) secondary to the lung disease.

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

Acute Silicosis can occur with exposures to very high concentrations of respirable crystalline silica over a very short time period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is a rapidly progressive, incurable lung disease and is typically fatal.

SECTION XI – TOXICOLOGICAL INFORMATION, CONTD.**B. CANCER**

IARC - The International Agency for Research on Cancer ("IARC") concluded that there is "*sufficient evidence* in humans for the carcinogenicity of crystalline silica in the form of quartz or cristobalite", there is "*sufficient evidence* in experimental animals for the carcinogenicity of quartz dust" and that there is "*limited evidence* in experimental animals for the carcinogenicity of tridymite dust and cristobalite dust." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite dust is *carcinogenic to humans (Group 1)*." The IARC evaluation noted that not all industrial circumstances studied evidenced carcinogenicity. The monograph also stated that "Carcinogenicity may be dependent on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 100C, "Silica Dust, Crystalline, in the Form of Quartz or Cristobalite" (2012).

NTP - In its Eleventh Annual Report on Carcinogens, concluded that respirable crystalline silica is known to be a human carcinogen, based on sufficient evidence of carcinogenicity from studies in humans indicating a causal relationship between exposure to respirable crystalline silica and increased lung cancer rates in workers exposed to crystalline silica dust.

OSHA - Crystalline silica is not on the OSHA carcinogen list.

CALIFORNIA PROPOSITION 65 - Crystalline silica in October 1996 was listed on the Safe Drinking Water and Toxic Enforcement ACT of 1986 as a chemical known to the state to cause cancer or reproductive toxicity.

There have been many articles published on the carcinogenicity of crystalline silica, which the reader should consult for additional information; the following are examples of recently published articles: (1) "Dose-Response Meta-Analysis of Silica and Lung Cancer", *Cancer Causes Control*, (20):925-33 (2009); (2) "Occupational Silica Exposure and Lung Cancer Risk: A Review of Epidemiological Studies 1996-2005", *Ann Oncol*, (17) 1039-50 (2006); (3) "Lung Cancer Among Industrial Sand Workers Exposed to Crystalline Silica", *Am J Epidemiol*, (153) 695-703 (2001); (4) "Crystalline Silica and The Risk of Lung Cancer in The Potteries", *Occup Environ Med*, (55) 779-785 (1998); (5) "Is Silicosis Required for Silica-Associated Lung Cancer?", *American Journal of Industrial Medicine*, (37) 252- 259 (2000); (6) "Silica, Silicosis, and Lung Cancer: A Risk Assessment", *American Journal of Industrial Medicine*, (38) 8-18 (2000); (7) "Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report", *Journal of Occupational and Environmental Medicine*, (42) 704-720 (2000).

C. AUTOIMMUNE DISEASES

There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders, -- scleroderma, systemic lupus erythematosus, rheumatoid arthritis and diseases affecting the kidneys. For a review of the subject, the following may be consulted: (1) "Antinuclear Antibody and Rheumatoid Factor in Silica-Exposed Workers", *Arh Hig Rada Toksikol*, (60) 185-90 (2009); (2) "Occupational Exposure to Crystalline Silica and Autoimmune Disease", *Environmental Health Perspectives*, (107) Supplement 5, 793-802 (1999); (3) "Occupational Scleroderma", *Current Opinion in Rheumatology*, (11) 490-494 (1999); (4) "Connective Tissue Disease and Silicosis", *Am J Ind Med*, (35), 375-381 (1999).

D. TUBERCULOSIS

Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information: (1) "Tuberculosis and Silicosis: Epidemiology, Diagnosis and Chemoprophylaxis", *J Bras Pneumol*, (34) 959-66 (2008); (2) *Occupational Lung Disorders*, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994); (3) "Risk of Pulmonary Tuberculosis Relative to Silicosis and Exposure to Silica Dust in South African Gold Miners", *Occup Environ Med*, (55) 496-502 (1998); (4) "Occupational Risk Factors for Developing Tuberculosis", *Am J Ind Med*, (30) 148-154 (1996).

E. KIDNEY DISEASE

There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease. For additional information on the subject, the following may be consulted: (1) "Mortality from Lung and Kidney Disease in a Cohort of North American Industrial Sand Workers: An Update", *Ann Occup Hyg*, (49) 367-73 (2005); (2) "Kidney Disease and Silicosis", *Nephron*, (85) 14-19 (2000); (3) "End Stage Renal Disease Among Ceramic Workers Exposed to Silica", *Occup Environ Med*, (56) 559-561 (1999); (4) "Kidney Disease and Arthritis in a Cohort Study of Workers Exposed to Silica", *Epidemiology*, (12) 405-412 (2001).

F. NON-MALIGNANT RESPIRATORY DISEASES

NIOSH has cited the results of studies that report an association between dusts found in various mining operations and non-malignant respiratory disease, particularly among smokers, including bronchitis, emphysema, and small airways disease.

SECTION XI – TOXICOLOGICAL INFORMATION, CONTD.

NIOSH Hazard Review – *Health Effects of Occupational Exposure to Respirable Crystalline Silica*, published in April 2002, available from NIOSH, 4676 Columbia Parkway, Cincinnati, OH 45226, or at <https://www.cdc.gov/niosh/docs/2002-129/default.html>.

Respirable dust containing newly broken particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken pieces of silica.

Gypsum (Calcium Sulfate):

Exposure route: Inhalation, skin and/or eye contact

Target Organs: Eyes, skin, respiratory system

Acute Effect: Calcium sulfate dust has an irritant action on mucous membranes of the respiratory tract and eyes. There have been reports of conjunctivitis, chronic rhinitis, laryngitis, pharyngitis, impaired sense of smell and taste, bleeding from the nose and reactions of tracheal and bronchial membranes in exposed workers.

Chronic Effect: N/A

Limestone:

Exposure Route: Eyes, skin, inhalation, ingestion.

Target Organs: Eyes, skin, respiratory system, gastrointestinal system

Acute Effect: Direct eye and skin contact with dust may cause irritation by mechanical abrasion or burning sensations, pain or blisters from corrosive/irritant effects. Dusts may irritate the nose, throat, gastrointestinal region and respiratory tract by mechanical abrasion or corrosive/irritant action. Coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may occur following exposures in excess of appropriate exposure limits. Small amounts (a tablespoonful) swallowed during normal handling operations are not likely to cause injury. Ingestion of large amounts may cause gastrointestinal irritation and blockage. Other conditions related to acute exposure to some of the metal oxides in limestone include stupor, shock, acidosis, abdominal pain, hematemesis, bloody diarrhea, coma, vomiting, diarrhea, mild lethargy, benign pneumoconiosis, sore throat, burning sensation, inflammation of the respiratory passages, ulceration, perforation of the nasal septum, pneumonia and conjunctivitis.

Chronic Effect: Repeated exposure to respirable dust in excess of appropriate exposure limits has caused silicosis, a progressive pneumoconiosis (lung disease) and lung cancer. Restrictive and/or obstructive lung function changes may result from chronic exposure. Chronic tobacco smoking may further increase the risk of developing chronic lung problems. On occasion workers chronically exposed to the metal oxides in limestone have developed severe pulmonary reactions, effects on the central nervous system, irritability, nausea or vomiting, normocytic anemia, fibrosis of the pancreas, diabetes mellitus, liver cirrhosis, and “mixed dust pneumoconiosis.”

Acute Toxicity Estimates for Portland Cement – Not Available

SECTION XII – ECOLOGICAL INFORMATION

No data available for this product.

SECTION XIII – DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Collect and reuse clean materials. Landfill waste materials at approved sites. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

The above information applies to Martin Marietta Materials product only as sold. The product may be contaminated during use and it is the responsibility of the user to assess the appropriate disposal method in that situation.

SECTION XIV – TRANSPORT INFORMATION**DOT HAZARD CLASSIFICATION**

None

PLACARD REQUIRED

None

LABEL REQUIRED

Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200(f)}, and applicable state and local regulations.

SECTION XV – REGULATORY INFORMATION

OSHA: Crystalline Silica is not listed as a carcinogen.

Product may contain trace amounts of hexavalent chromium [Cr(VI)] and certain chromium compounds which are listed in the NTP and IARC lists of carcinogens

SARA Title III: Section 311 and 312: Immediate health hazard and delayed health hazard.

TSCA: Crystalline silica (quartz) and Portland Cement appear on the EPA TSCA inventory under the CAS No. 14808-60-7, and 65997-15-1, respectively.

RCRA: This product is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR §261 et seq.

CERCLA: This product is not classified as a hazardous substance under regulations of the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), 40 CFR §302.4

EPCRA (Emergency Planning and Community Right to Know Act): Crystalline silica (quartz) is not an extremely hazardous substance under regulations of the **Emergency Planning and Community Right to Know Act, 40 CFR Part 355, Appendices A and B** and the product is not a toxic chemical subject to the requirements of Section 313.

Clean Air Act: Crystalline silica (quartz) mined and processed by Martin Marietta Materials was not processed with or does not contain any Class I or Class II ozone depleting substances.

FDA: Silica is included in the list of substances that may be included in coatings used in food contact surfaces, 21 CFR §175.300(b)(3). (The FDA standard primarily applies to products containing silica used in the coatings of food contact surfaces).

California Proposition 65: Respirable crystalline silica is classified as a substance known to the state of California to be a carcinogen. Cr(VI) is classified as a substance known to the state of California to be a carcinogen and cause reproductive toxicity.

Massachusetts Toxic Use Reduction Act: Respirable crystalline silica is considered toxic per the **Massachusetts Toxic Use Reduction Act when used in abrasive blasting and molding.**

Pennsylvania Worker and Community Right to Know Act: Quartz is considered hazardous for purposes of the Act, but it is not a special hazardous substance or an environmental hazardous substance.

SECTION XVI – OTHER INFORMATION**DEFINITIONS OF ACRONYMS/ABBREVIATIONS**

ACGIH: American Conference of Governmental Industrial Hygienists

AL: Action Level

ANSI: American National Standards Institute

APF: Assigned Protection Factor

California REL: California Inhalation Reference Exposure Limit

CAS: Chemical Abstracts Service

CERCLA: Comprehensive Environmental Response, Compensation and Liability Act

CFR: US Code of Federal Regulations

DHHS: Department of Health and Human Services

EPA: Environmental Protection Agency

EPCRA: Emergency Planning and Community Right to Know Act

FDA: Food and Drug Administration

GHS: Globally Harmonized System

HEPA: High-Efficiency Particulate Air

IARC: International Agency for Research on Cancer

IDLH: Immediately Dangerous to Life and Health

SECTION XVI – OTHER INFORMATION, CONTD.**DEFINITIONS OF ACRONYMS/ABBREVIATIONS, CONTD.**

MSHA: Mine Safety and Health Administration

NIOSH: National Institute for Occupational Safety and Health, US Department of Health and Human Services

NIOSH REL: NIOSH Recommended Exposure Limit

NTP: National Toxicology Program

OEL: Occupational Exposure Limit

OSHA: Occupational Safety and Health Administration, US Department of Labor

PEL: Permissible Exposure Limit

PMF: Progressive Massive Fibrosis

RCRA: Resource Conservation and Recovery Act

SARA Title III: Title III of the Superfund Amendments and Reauthorization Act, 1986

SDS: Safety Data Sheet

STOT: Specific Target Organ Toxicity

TLV: Threshold Limit Value

TSCA: Toxic Substance Control Act

TWA: Time-Weighted Average

User's Responsibility: The OSHA Hazard Communication Standard 29 CFR 1910.1200 requires that this SDS be made available to your employees who handle or may be exposed to this product. Educate and train your employees regarding applicable precautions. Instruct your employees to handle this product properly.

Disclaimer: The information contained in this document applies to this specific material as supplied and Martin Marietta Materials believes that the information contained in this SDS is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all use circumstances can be anticipated. It may not be valid for this material if it is used in combination with other materials. It is the user's responsibility to satisfy oneself as to the suitability and completeness of this information for one's own particular use. Since the actual use of the product described herein is beyond our control, Martin Marietta Materials, assumes no liability arising out of the use of the product by others. Appropriate warnings and safe handling procedures should be provided to handlers and users. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement. However, product must not be used in a manner which could result in harm.

An electronic version of this SDS is available at www.martinmarietta.com. More information on the effects of crystalline silica exposure may be obtained from OSHA (phone number: 1-800-321-OSHA; website: <http://www.osha.gov>) or from NIOSH (phone number: 1-800-35-NIOSH; website: <http://www.cdc.gov/niosh>).

DATE OF PREPARATION 6/2018

REPLACES 5/2015

NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE IS MADE

Safety Data Sheet Sand and Gravel

Section 1. Identification

GHS product identifier:	Sand and Gravel
Other means of identification:	Aggregate, Manufactured Sand, Natural Stone, Crushed Stone
Relevant identified uses of the substance or mixture and uses advised against:	Sand and Gravel aggregate may be used in the manufacture of bricks, mortar, cement, concrete, plasters, paving materials, and other construction materials. Sand and Gravel aggregate may be distributed in bags, totes, and bulk shipments. No known recommended restrictions.
Supplier's details:	Crockett Sand & Gravel 9812 TX-7, Crockett, TX 75835 (936) 544-7200
Emergency telephone number (24 hours):	

Section 2. Hazards Identification

GHS Classification:	CARCINOGENICITY – Category 1A; H350 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) – Category 2; H335 SKIN CORROSION/IRRITATION – Category 1C; H314 SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1; H318
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GHS label elements

Hazard pictograms:



Signal word:	Danger
Hazard statements:	May cause cancer May cause damage to organs (lung) through prolonged or repeated exposure Causes skin irritation Causes serious eye irritation

Precautionary statements:

Prevention:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash any exposed body parts. Wear protective gloves/protective clothing/eye protection/face protection.
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 in eyes: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do.
Storage:	Restrict or control access to stockpile areas (store locked up). Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bulk truck or other storage container or vessel that stores or contains aggregates without an effective procedure for assuring safety.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazards not otherwise classified (HNOC):	None known
Supplemental Information:	Respirable Crystalline Silica (RCS) may cause cancer. Sand and Gravel is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). In its natural bulk state, sand and gravel is not a known health hazard. Sand and Gravel may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC and NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

Section 3. Composition/information on ingredients

CAS number/other identifiers

Substance/mixture: Sand and Gravel

Ingredient name	%	CAS number
Sand and Gravel	> 99	None
Crystalline Silica (Quartz)	> 1	14808-60-7

Any concentration shown as a range is to protect confidentiality or is due to process 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. These materials are mined from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye Contact:	Dust: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contacts if present and easy to do. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Get medical attention if irritation develops or persists.
Inhalation:	Dust: Move to fresh air. Call a physician if symptoms develop or persist.
Skin Contact:	Dust: Wash off with soap and water. Get medical attention if irritation develops and persists.
Ingestion:	Dust: Rinse mouth and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Most important symptoms/effects, acute and delayed

Inhaling dust may cause discomfort in the chest, shortness of breath, and coughing. Prolonged inhalation may cause chronic health effects. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica liberated from this product can cause silicosis, and may cause cancer.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
Specific treatments:	Not Applicable
Protection of first-aiders:	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
General information:	Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:	Not flammable. Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	None known.
Specific hazards arising from the chemical:	No unusual fire or explosion hazards noted. Not a combustible dust.
Hazardous thermal decomposition Products:	None known
Special protective equipment for fire-fighters:	Use protective equipment appropriate for surrounding materials. No specific precautions.
General fire hazards:	Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS). No unusual fire or explosion hazards.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate protective equipment and clothing during clean-up of materials that contain or may liberate dust.

Methods and materials for containment, cleaning up and Environmental precautions

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Avoid discharge of fine particulate matter into drains or water courses.

Section 7. Handling and storage

Precautions for safe handling

Protective measures:

Do not handle until all safety precautions have been read and understood. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment.

Advice on general occupational hygiene:

Observe good industrial hygiene practices. Promptly remove dusty clothing and launder before reuse.

Conditions for safe storage, including any incompatibilities:

Avoid dust formation or accumulation.

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Particulates not otherwise classified (CAS SEQ250)	ACGIH TLV (United States, Canada) TWA: 3 mg/m ³ . Form: Respirable particles TWA: 10 mg/m ³ . Form: Inhalable particles OSHA PEL (United States) PEL: 5 mg/m ³ . Form: Respirable fraction PEL: 15 mg/m ³ . Form: Total dust MSHA PEL (United States) PEL: 5 mg/m ³ . Form: Respirable fraction PEL: 10 mg/m ³ . Form: Total dust
Crystalline Silica (Quartz) (CAS 14808-60-7)	ACGIH TLV (United States) TWA: 0.025 mg/m ³ . Form: Respirable fraction OSHA PEL (United States) TWA: 0.05 mg/m ³ . Form: Respirable MSHA PEL (United States) TWA: 10/(%SiO ₂ + 2) in mg/m ³ Provincial Exposure Limits (Canada, various) <ul style="list-style-type: none">▪ Alberta (OHS Code) 0.025 mg/m³ 8 hour TWA▪ British Columbia (WorkSafeBC OHS Regulation) 0.025 mg/m³ 8 hour TWA▪ British Columbia (Health, Safety & Reclamation Code, Mines Act) 0.1 mg/m³ 8 hour TWA▪ Manitoba (Workplace Safety and Health Regulation) 0.025 mg/m³ 8 hour TWA▪ New Brunswick 0.025 mg/m³ 8 hour TWA▪ Newfoundland

	0.025 mg/m ³ 8 hour TWA ▪ Nova Scotia 0.025 mg/m ³ 8 hour TWA ▪ Ontario (O. Reg 490/09; and O. Reg. 833) 0.1 mg/m ³ 8 hour TWA ▪ Prince Edward Island 0.025 mg/m ³ 8 hour TWA ▪ Quebec (Regulation Respecting OHS, Chapter S-2.1, r. 13) 0.1 mg/m ³ 8 hour TWA ▪ Saskatchewan (OHS Regulations) 0.05 mg/m ³ 8 hour TWA
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Appropriate engineering controls:	Good general ventilation (typically 10 air changes per hour indoors) 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.
Exposure guidelines:	OSHA PELs, MSHA PELs, and ACGIH TLVs are 8-hr TWA values. Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Terms including "Particulates Not Otherwise Classified," "Particulates Not Otherwise Regulated," "Particulates Not Otherwise Specified," and "Inert or Nuisance Due" are often used interchangeably; however, the user should review each agency's terminology for differences in meanings.
Biological limit values:	No biological exposure limits noted for the ingredient(s)

Individual protection measures

Hygiene measures:	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.
Eye/face protection:	Wear safety glasses with side shields (or goggles).
Hand protection:	Use personal protective equipment as required.
Body protection:	Use personal protective equipment as required.
Other skin protection:	Use personal protective equipment as required.
Respiratory protection:	When handling or performing work that produces dust or respirable crystalline silica in excess of applicable exposure limits, wear a NIOSH-approved respirator that is properly fitted and is in good condition. Respirators must be used in accordance with all applicable workplace regulations.
Thermal hazards:	Not anticipated. Wear appropriate thermal protective clothing if necessary.

Section 9. Physical and chemical properties

Appearance

Physical State:	Solid, particles of granular mixture	Lower and Upper explosive flammable limits	Not applicable
Color:	Various colors	Vapor pressure:	Not applicable
Odor:	Not applicable	Vapor density:	Not applicable
Odor threshold:	Not applicable	Relative density:	Not available
pH:	Not available	Solubility:	Not available
Melting point:	Not applicable	Solubility in water:	Insoluble
Boiling point:	Not applicable	Partition coefficient: n-octanol/water:	Not applicable
Flash point:	Non-combustible	Auto-ignition temperature:	Not applicable
Burning time:	Not applicable	Decomposition temperature:	Not applicable
Burning rate:	Not applicable	SADT:	Not available
Evaporation Rate:	Not applicable	Viscosity:	Not applicable
Flammability (solid, gas):	Not applicable		

Section 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:	Avoid contact with strong oxidizing agents.
Incompatible materials:	Crystalline silica may react violently with strong oxidizing agents, causing fire and explosions.
Hazardous decomposition products:	Silica dissolves in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity:	Not expected to be acutely toxic.
Irritation/Corrosion:	Skin: Dust: May cause irritation through mechanical abrasion. This product is not expected to be a skin hazard. Eyes: Direct contact with eyes may cause temporary irritation through mechanical abrasion. Inhalation: Repeated inhalation of respirable crystalline silica (quartz) may cause silicosis, a fibrosis (scarring) of the lungs. Silicosis is irreversible and may be fatal. Silicosis increases the risk of contracting pulmonary tuberculosis. Some studies suggest that repeated inhalation of respirable crystalline silica may cause other adverse health effects including lung and kidney cancer.
Sensitization:	Ingestion: Not likely due to product form. However accidental ingestion may cause discomfort. Respiratory sensitization: No respiratory sensitizing effects known.
Mutagenicity:	Skin sensitization: Not known to be a dermal irritant or sensitizer. No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Aspiration Hazard:	Not expected to be an aspiration hazard.
Reproductive toxicity:	Not expected to be a reproductive hazard.
Symptoms related to physical, chemical and toxicological characteristics:	Dust: discomfort in the chest. Shortness of breath. Coughing.
Carcinogenicity:	Respirable crystalline silica has been classified by IARC and NTP as a known human carcinogen, and classified by ACGIH as a suspected human carcinogen.

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Crystalline Silica (Quartz) CAS 14808-60-7)	Not listed	1 Carcinogenic to humans	A2	Known to be human Carcinogen

Specific target organ toxicity (acute exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)	-	Inhalation	Not reported to have effects

Specific target organ toxicity (chronic exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)		Inhalation	May cause damage to organs (lung through prolonged or repeated exposure.

Potential chronic health effects: General: Prolonged inhalation of respirable crystalline silica may be harmful. May cause damage to organs (lungs) through prolonged or repeated exposure. There are reports in the literature suggesting that excessive crystalline silica exposure may be

associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and the thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Section 12. Ecological Information

Ecotoxicity

Not expected to be harmful to aquatic organisms. Discharging sand and gravel dust and fines into waters may increase total suspended particulate (TSP) levels that can be harmful to certain aquatic organisms.

Persistence and degradability:	Not applicable.
Bioaccumulative potential:	Not applicable.
Mobility in soil:	Not applicable.
Other adverse effects:	No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, global warming potential) are expected from this component.

Section 13. Disposal considerations

Disposal methods:	Do not allow fine particulate matter to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with fine particulates. Dispose of contents in accordance with local/regional/national/international regulations.
Hazardous waste code:	Not regulated.
Waste from residues/unused products:	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging:	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty packaging materials should be recycled or disposed of in accordance with applicable regulations and practices.

Section 14. Transportation information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	-	-	-
Canada TDG	-	-	-
Additional information	-	-	-

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Cod

Section 15. Regulatory Information

U.S. Federal regulations:	
OSHA Hazard Communication Standard, 29 CFR 1910.1200	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, Subpart. D):	Not regulated
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):	Listed
CERCLA Hazardous Substance List (40 CFR 302.4):	Not listed
Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs):	Not regulated
Clean Air Act Section 112 (r) Accidental Release Prevention (40 CFR 68.130):	Not regulated
Safe Drinking Water Act (SDWA):	Not regulated
Canada Federal Regulations:	NSNR Status – Listed on DSL or exempt

SARA 311/312

Classification: Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Crystalline Silica (Quartz) CAS 14808-60-7	>1	No	No	No	No	Yes

SARA 313 (TRI)

	Product name	CAS number	%
Form R-Report requirements	Crystalline Silica (Quartz)	14808-60-7	Not regulated

State regulations

Massachusetts RTK:

The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

New Jersey RTK:

The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS mixture)

Pennsylvania RTK:

The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

Rhode Island RTK:

Not regulated.

California Prop. 65

WARNING: This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Crystalline Silica (Quartz) CAS 14808-60-7	Yes	No	No	No

International regulations

Ingredient name	CAS #	TSCA	Canada	WHMIS	EEC
Crystalline Silica (Quartz)	14808-60-7	Yes	DSL	D2A	EINECS

WHMIS Classification:

D2A "Materials Causing Other Toxic Effects"



Section 16. Other Information

Date of issue: 01/01/2022

Replaces: 07/01/2018

Revised Section(s): Section 8, 11, 14, 15

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of sand and gravel as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with sand and gravel to produce sand and gravel products. Users should review other relevant material safety data sheets before working with this sand and gravel or working on sand and gravel products.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY Lehigh Hanson, except that the product shall conform to contracted specifications. The information provided herein was believed by the Lehigh Hanson to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
CAS — Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations
DOT — Department of Transportation
GHS — Globally Harmonized System
HEPA — High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit
RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

Safety Data Sheet Limestone

Section 1. Identification

GHS product identifier:	Limestone
Other means of identification:	Crushed Stone, Calcium Carbonate, Aggregate
Relevant identified uses of the substance or mixture and uses advised against:	Limestone may be used in the manufacture of bricks, mortar, cement, concrete, plasters, paving materials, and other construction materials. Limestone aggregate may be distributed in bags, totes, and bulk shipments. No known recommended restrictions.
Supplier's details:	300 E. John Carpenter Freeway, Suite 1645 Irving, TX 75062 (972) 653-5500
Emergency telephone number (24 hours):	CHEMTREC: (800) 424-9300

Section 2. Hazards Identification

GHS Classification:	CARCINOGENICITY – Category 1A; H350 SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) – Category 2; H335 SKIN CORROSION/IRRITATION – Category 1C; H314 SERIOUS EYE DAMAGE/EYE IRRITATION – Category 1; H318
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GHS label elements

Hazard pictograms:



Signal word:	Danger
Hazard statements:	May cause cancer May cause damage to organs (lung) through prolonged or repeated exposure Causes skin irritation Causes serious eye irritation

Precautionary statements:

Prevention:	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wash any exposed body parts. Wear protective gloves/protective clothing/eye protection/face protection.
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 in eyes: Rinse continuously with water for several minutes. Remove contact lenses, if present and easy to do.
Storage:	Restrict or control access to stockpile areas (store locked up). Engulfment hazard: To prevent burial or suffocation, do not enter a confined space, such as a silo, bulk truck or other storage container or vessel that stores or contains aggregates without an effective procedure for assuring safety.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazards not otherwise classified (HNOC):	None known
Supplemental Information:	Respirable Crystalline Silica (RCS) may cause cancer. Limestone is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). In its natural bulk state, limestone is not a known health hazard. Limestone may be subjected to various natural or mechanical forces that produce small particles (dust) which may contain respirable crystalline silica (particles less than 10 micrometers in aerodynamic diameter). Repeated inhalation of respirable crystalline silica (quartz) may cause lung cancer according to IARC and NTP; ACGIH states that it is a suspected cause of cancer. Other forms of RCS (e.g., tridymite and cristobalite) may also be present or formed under certain industrial processes.

Section 3. Composition/information on ingredients

CAS number/other identifiers

Substance/mixture: Limestone, Calcium Carbonate, Quartz

Ingredient name	%	CAS number
Limestone	> 50	1317-65-3
Crystalline Silica (Quartz)	> 1	14808-60-7

Any concentration shown as a range is to protect confidentiality or is due to process 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. These materials are mined from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye Contact:	Dust: Immediately flush with plenty of water for at least 15 minutes. Hold eyelids apart. Remove contacts is present and easy to do. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Get medical attention if irritation develops or persists.
Inhalation:	Dust: Move to fresh air. Call a physician if symptoms develop or persist.
Skin Contact:	Dust: Wash off with soap and water. Get medical attention if irritation develops and persists.
Ingestion:	Dust: Rinse mouth and drink plenty of water. Never give anything by mouth to an unconscious person. Get medical attention.

Most important symptoms/effects, acute and delayed

Inhaling dust may cause discomfort in the chest, shortness of breath, and coughing. Prolonged inhalation may cause chronic health effects. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica liberated from this product can cause silicosis, and may cause cancer.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician:	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
Specific treatments:	Not Applicable
Protection of first-aiders:	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.
General information:	Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). If addicted to tobacco, smoking will impair the ability of the lungs to clear themselves of dust.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media:	Not flammable. Use fire-extinguishing media appropriate for surrounding materials.
Unsuitable extinguishing media:	None known.
Specific hazards arising from the chemical:	No unusual fire or explosion hazards noted. Not a combustible dust.
Hazardous thermal decomposition Products:	None known
Special protective equipment for fire-fighters:	Use protective equipment appropriate for surrounding materials. No specific precautions.
General fire hazards:	Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS). No unusual fire or explosion hazards.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Wear appropriate protective equipment and clothing during clean-up of materials that contain or may liberate dust.

Methods and materials for containment, cleaning up and Environmental precautions

Spilled material, where dust is generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Do not dry sweep or use compressed air for clean-up. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Avoid discharge of fine particulate matter into drains or water courses.

Section 7. Handling and storage

Precautions for safe handling

Protective measures:	Do not handle until all safety precautions have been read and understood. Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Do not breathe dust. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment.
Advice on general occupational hygiene:	Observe good industrial hygiene practices. Promptly remove dusty clothing and launder before reuse.
Conditions for safe storage, including any incompatibilities:	Avoid dust formation or accumulation.

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
Particulates not otherwise classified (CAS SEQ250)	ACGIH TLV (United States, Canada) TWA: 3 mg/m ³ . Form: Respirable particles TWA: 10 mg/m ³ . Form: Inhalable particles OSHA PEL (United States) PEL: 5 mg/m ³ . Form: Respirable fraction PEL: 15 mg/m ³ . Form: Total dust MSHA PEL (United States) PEL: 5 mg/m ³ . Form: Respirable fraction PEL: 10 mg/m ³ . Form: Total dust
Limestone (Calcium Carbonate) (CAS 1317-65-3)	ACGIH TLV (United States, Canada) TWA: 3 mg/m ³ . Form: Respirable particles TWA: 10 mg/m ³ . Form: Inhalable particles OSHA PEL (United States) PEL: 5 mg/m ³ . Form: Respirable fraction PEL: 15 mg/m ³ . Form: Total dust MSHA PEL (United States) PEL: 5 mg/m ³ . Form: Respirable fraction PEL: 10 mg/m ³ . Form: Total dust
Crystalline Silica (Quartz) (CAS 14808-60-7)	ACGIH TLV (United States) TWA: 0.025 mg/m ³ . Form: Respirable fraction OSHA PEL (United States) TWA: 0.05 mg/m ³ . Form: Respirable MSHA PEL (United States) TWA: 10/(%SiO ₂ + 2) in mg/m ³ Provincial Exposure Limits (Canada, various) <ul style="list-style-type: none"> Alberta (OHS Code) 0.025 mg/m³ 8 hour TWA British Columbia (WorkSafeBC OHS Regulation) 0.025 mg/m³ 8 hour TWA British Columbia (Health, Safety & Reclamation Code, Mines Act) 0.1 mg/m³ 8 hour TWA Manitoba (Workplace Safety and Health Regulation) 0.025 mg/m³ 8 hour TWA

- **New Brunswick**
0.025 mg/m³ 8 hour TWA
- **Newfoundland**
0.025 mg/m³ 8 hour TWA
- **Nova Scotia**
0.025 mg/m³ 8 hour TWA
- **Ontario (O. Reg 490/09; and O. Reg. 833)**
0.1 mg/m³ 8 hour TWA
- **Prince Edward Island**
0.025 mg/m³ 8 hour TWA
- **Quebec (Regulation Respecting OHS, Chapter S-2.1, r. 13)**
0.1 mg/m³ 8 hour TWA
- **Saskatchewan (OHS Regulations)**
0.05 mg/m³ 8 hour TWA

Appropriate engineering controls:	Good general ventilation (typically 10 air changes per hour indoors) 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.
Exposure guidelines:	OSHA PELs, MSHA PELs, and ACGIH TLVs are 8-hr TWA values. Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Terms including "Particulates Not Otherwise Classified," "Particulates Not Otherwise Regulated," "Particulates Not Otherwise Specified," and "Inert or Nuisance Due" are often used interchangeably; however, the user should review each agency's terminology for differences in meanings.
Biological limit values:	No biological exposure limits noted for the ingredient(s)

Individual protection measures

Hygiene measures:	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.
Eye/face protection:	Wear safety glasses with side shields (or goggles).
Hand protection:	Use personal protective equipment as required.
Body protection:	Use personal protective equipment as required.
Other skin protection:	Use personal protective equipment as required.
Respiratory protection:	When handling or performing work that produces dust or respirable crystalline silica in excess of applicable exposure limits, wear a NIOSH-approved respirator that is properly fitted and is in good condition. Respirators must be used in accordance with all applicable workplace regulations.
Thermal hazards:	Not anticipated. Wear appropriate thermal protective clothing if necessary.

Section 9. Physical and chemical properties

Appearance

Physical State:	Solid, particles of granular and angular mixture	Lower and Upper explosive flammable limits	Not applicable
Color:	Various colors	Vapor pressure:	Not applicable
Odor:	Not applicable	Vapor density:	Not applicable
Odor threshold:	Not applicable	Relative density:	Not available
pH:	Not available	Solubility:	Not available
Melting point:	Not applicable	Solubility in water:	Insoluble
Boiling point:	Not applicable	Partition coefficient: n-octanol/water:	Not applicable
Flash point:	Non-combustible	Auto-ignition temperature:	Not applicable
Burning time:	Not applicable	Decomposition temperature:	Not applicable
Burning rate:	Not applicable	SADT:	Not available
Evaporation Rate:	Not applicable	Viscosity:	Not applicable
Flammability (solid, gas):	Not applicable		

Section 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:	Avoid contact with strong oxidizing agents.
Incompatible materials:	Crystalline silica may react violently with strong oxidizing agents, causing fire and explosions.
Hazardous decomposition products:	Silica dissolves in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity:	Not expected to be acutely toxic.
Irritation/Corrosion:	Skin: Dust: May cause irritation through mechanical abrasion. This product is not expected to be a skin hazard. Eyes: Direct contact with eyes may cause temporary irritation through mechanical abrasion. Inhalation: Repeated inhalation of respirable crystalline silica (quartz) may cause silicosis, a fibrosis (scarring) of the lungs. Silicosis is irreversible and may be fatal. Silicosis increases the risk of contracting pulmonary tuberculosis. Some studies suggest that repeated inhalation of respirable crystalline silica may cause other adverse health effects including lung and kidney cancer.
Sensitization:	Ingestion: Not likely due to product form. However accidental ingestion may cause discomfort. Respiratory sensitization: No respiratory sensitizing effects known.
Mutagenicity:	Skin sensitization: Not known to be a dermal irritant or sensitizer. No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Aspiration Hazard:	Not expected to be an aspiration hazard.
Reproductive toxicity:	Not expected to be a reproductive hazard.
Symptoms related to physical, chemical and toxicological characteristics:	Dust: discomfort in the chest. Shortness of breath. Coughing.
Carcinogenicity:	Respirable crystalline silica has been classified by IARC and NTP as a known human carcinogen, and classified by ACGIH as a suspected human carcinogen.

Product/ingredient name	OSHA	IARC	ACGIH	NTP
Crystalline Silica (Quartz) CAS 14808-60-7)	Listed	1 Carcinogenic to humans	A2	Known to be human Carcinogen

Specific target organ toxicity (acute exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)	-	Inhalation	Not reported to have effects

Specific target organ toxicity (chronic exposure)

Name	Category	Route of Exposure	Target Organs
Crystalline Silica (Quartz) CAS 14808-60-7)		Inhalation	May cause damage to organs (lung through prolonged or repeated exposure.

Potential chronic health effects: General: Prolonged inhalation of respirable crystalline silica may be harmful. May cause damage to organs (lungs) through prolonged or repeated exposure. There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with autoimmune disorders and other adverse health effects involving the kidney. In particular, the incidence of scleroderma (thickening of the skin caused by swelling and the thickening of fibrous tissue) appears to be higher in silicotic individuals. To date, the evidence does not conclusively determine a causal relationship between silica exposure and these adverse health effects.

Section 12. Ecological Information

Ecotoxicity

Not expected to be harmful to aquatic organisms. Discharging sand and gravel dust and fines into waters may increase total suspended particulate (TSP) levels that can be harmful to certain aquatic organisms.

Persistence and degradability:	Not applicable.
Bioaccumulative potential:	Not applicable.
Mobility in soil:	Not applicable.
Other adverse effects:	No other adverse environmental effects (e.g., ozone depletion, photochemical ozone creation potential, global warming potential) are expected from this component.

Section 13. Disposal considerations

Disposal methods:	Do not allow fine particulate matter to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with fine particulates. Dispose of contents in accordance with local/regional/national/international regulations.
Hazardous waste code:	Not regulated.
Waste from residues/unused products:	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging:	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty packaging materials should be recycled or disposed of in accordance with applicable regulations and practices.

Section 14. Transportation information

	DOT Classification	IMDG	IATA
UN number	Not regulated.	Not regulated.	Not regulated.
UN proper shipping name	-	-	-
Transport hazard class(es)	-	-	-
Packing group	-	-	-
Environmental hazards	-	-	-
Canada TDG	-	-	-
Additional information	-	-	-

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Section 15. Regulatory Information

U.S. Federal regulations:	
OSHA Hazard Communication Standard, 29 CFR 1910.1200	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, Subpart. D):	Not regulated
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):	Listed
CERCLA Hazardous Substance List (40 CFR 302.4):	Not listed
Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs):	Not regulated
Clean Air Act Section 112 (r) Accidental Release Prevention (40 CFR 68.130):	Not regulated
Safe Drinking Water Act (SDWA):	Not regulated
Canada Federal regulations:	
NSNR Status:	Listed on DSL or exempt

SARA 311/312

Classification: Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire Hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Crystalline Silica (Quartz) CAS 14808-60-7	>1	No	No	No	No	Yes

SARA 313 (TRI)

	Product name	CAS number	%
Form R-Report requirements	Crystalline Silica (Quartz)	14808-60-7	Not regulated

State regulations

Massachusetts RTK:

The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

New Jersey RTK:

The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS mixture)

Pennsylvania RTK:

The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)

Rhode Island RTK:

Not regulated.

California Prop. 65

WARNING: This product contains crystalline silica and chemicals (trace metals) known to the State of California to cause cancer.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Crystalline Silica (Quartz) CAS 14808-60-7	Yes	No	No	No

International regulations

Ingredient name	CAS #	TSCA	Canada	WHMIS	EEC
Crystalline Silica (Quartz)	14808-60-7	Yes	DSL	D2A	EINECS
Limestone	1317-65-3	Yes	NDSL	N/Ap	EINECS

WHMIS Classification:

D2A "Materials Causing Other Toxic Effects"



Section 16. Other Information

Date of issue: 12/01/2022

Replaces: 07/01/2018

Revised Section(s): Section 8, 11, 14, 15

Notice to reader

While the information provided in this safety data sheet is believed to provide a useful summary of the hazards of limestone as it is commonly used, the sheet cannot anticipate and provide all of the information that might be needed in every situation. Inexperienced product users should obtain proper training before using this product. In particular, the data furnished in this sheet do not address hazards that may be posed by other materials mixed with limestone to produce limestone products. Users should review other relevant material safety data sheets before working with this limestone or working on limestone products.

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY Lehigh Hanson, except that the product shall conform to contracted specifications. The information provided herein was believed by the Lehigh Hanson to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

Abbreviations

ACGIH — American Conference of Governmental Industrial Hygienists
CAS — Chemical Abstract Service
CERCLA — Comprehensive Emergency Response and Comprehensive Liability Act
CFR — Code of Federal Regulations
DOT — Department of Transportation
GHS — Globally Harmonized System
HEPA — High Efficiency Particulate Air
IATA — International Air Transport Association
IARC — International Agency for Research on Cancer
IMDG — International Maritime Dangerous Goods
NIOSH — National Institute of Occupational Safety and Health
NOEC — No Observed Effect Concentration
NTP — National Toxicology Program
OSHA — Occupational Safety and Health Administration
PEL — Permissible Exposure Limit
REL — Recommended Exposure Limit
RQ — Reportable Quantity
SARA — Superfund Amendments and Reauthorization Act
SDS — Safety Data Sheet
TLV — Threshold Limit Value
TPQ — Threshold Planning Quantity
TSCA — Toxic Substances Control Act
TWA — Time-Weighted Average
UN — United Nations

1. IDENTIFICATION OF THE MATERIAL AND SUPPLIER

1.1 Product identifier

Product name FLY ASH

Synonym(s) BLUE CIRCLE FLYASH • CCP (COAL COMBUSTION BY-PRODUCTS) • FLY ASH • FLYASH

1.2 Uses and uses advised against

Use(s) ASPHALT ADDITIVE • CEMENT ADDITIVE • CONCRETE ADDITIVE • CONSTRUCTION • FILLER • INDUSTRIAL APPLICATIONS • RAW MATERIAL • SOIL STABILISATION

1.3 Details of the supplier of the product

Supplier name BORAL CONSTRUCTION MATERIALS LTD.

Address Level 3, 40 Mount Street, Nth Sydney, NSW, 2060, AUSTRALIA

Telephone (02) 9220 6300

Email sds@rmt.com.au

Website <http://www.boral.com.au>

1.4 Emergency telephone number(s)

Emergency 1800 555 477 (8am – 5pm WST)

Emergency (A/H) 13 11 26 (Poisons Information Centre)

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFIED AS HAZARDOUS ACCORDING TO AUSTRALIAN WHS REGULATIONS

GHS classification(s) Specific Target Organ Systemic Toxicity (Repeated Exposure): Category 2
Skin Corrosion/Irritation: Category 2
Serious Eye Damage / Eye Irritation: Category 2A
Specific Target Organ Systemic Toxicity (Single Exposure): Category 3

2.2 Label elements

Signal word WARNING

Pictogram(s)



Hazard statement(s)

H315 Causes skin irritation.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H373 May cause damage to organs through prolonged or repeated exposure.

Prevention statement(s)

P260 Do not breathe dust/fume/gas/mist/vapours/spray.
P264 Wash thoroughly after handling.
P271 Use only outdoors or in a well-ventilated area.
P280 Wear protective gloves/protective clothing/eye protection/face protection.

PRODUCT NAME FLY ASH**Response statement(s)**

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 IF INHALED: Remove to fresh air and keep at rest in a position 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.
P314 Get medical advice/attention if you feel unwell.
P321 Specific treatment is advised - see first aid instructions.
P332 + P337 + P313 If skin or eye irritation occurs: Get medical advice/ attention.
P362 Take off contaminated clothing and wash before re-use.

Storage statement(s)

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.
P405 Store locked up.

Disposal statement(s)

P501 Dispose of contents/container in accordance with relevant regulations.

2.3 Other hazards

No information provided.

3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances / Mixtures

Ingredient	CAS Number	EC Number	Content
QUARTZ (CRYSTALLINE SILICA)	14808-60-7	238-878-4	<5%
FLY ASH	68131-74-8	268-627-4	<100%

Ingredient Notes

Crystalline silica is present in fly ash as an impurity. The crystalline silica content in the respirable dust proportion depends on the crystalline silica content of the source coal.

4. FIRST AID MEASURES

4.1 Description of first aid measures

Eye If in eyes, hold eyelids apart and flush continuously with running water. Continue flushing until advised to stop by a Poisons Information Centre, a doctor, or for at least 15 minutes.

Inhalation If inhaled, remove from contaminated area. Apply artificial respiration if not breathing.

Skin If skin or hair contact occurs, remove contaminated clothing and flush skin and hair with running water. Continue flushing with water until advised to stop by a Poisons Information Centre or a doctor.

Ingestion For advice, contact a Poison Information Centre on 13 11 26 (Australia Wide) or a doctor (at once).

First aid facilities Eye wash facilities and safety shower should be available.

4.2 Most important symptoms and effects, both acute and delayed

Chronic exposure to crystalline silica may result in lung fibrosis (silicosis). Principal symptoms of silicosis are coughing and breathlessness. Crystalline silica is classified as carcinogenic to humans (IARC Group 1).

4.3 Immediate medical attention and special treatment needed

Treat symptomatically.

5. FIRE FIGHTING MEASURES

5.1 Extinguishing media

Use an extinguishing agent suitable for the surrounding fire.

5.2 Special hazards arising from the substance or mixture

Non flammable. May evolve toxic gases if strongly heated.

5.3 Advice for firefighters

No fire or explosion hazard exists.

5.4 Hazchem code

None allocated.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear Personal Protective Equipment (PPE) as detailed in section 8 of the SDS. Clear area of all unprotected personnel. Contact emergency services where appropriate.

6.2 Environmental precautions

Prevent product from entering drains and waterways.

6.3 Methods of cleaning up

Contain spillage, then collect and place in suitable containers for reuse or disposal. Avoid generating dust.

6.4 Reference to other sections

See Sections 8 and 13 for exposure controls and disposal.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

Before use carefully read the product label. Use of safe work practices are recommended to avoid eye or skin contact and inhalation. Observe good personal hygiene, including washing hands before eating. Prohibit eating, drinking and smoking in contaminated areas.

7.2 Conditions for safe storage, including any incompatibilities

Store tightly sealed in a cool, dry, well ventilated area, removed from incompatible substances, heat or ignition sources and foodstuffs. Ensure containers are adequately labelled, protected from physical damage and sealed when not in use. Check regularly for leaks or spills.

7.3 Specific end use(s)

No information provided.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

8.1 Control parameters

Exposure standards

Ingredient	Reference	TWA		STEL	
		ppm	mg/m ³	ppm	mg/m ³
Quartz (respirable dust)	SWA (AUS)	--	0.1	--	--

Biological limits

No biological limit values have been entered for this product.

8.2 Exposure controls

Engineering controls Avoid inhalation. Use in well ventilated areas. Where an inhalation risk exists, mechanical extraction ventilation is recommended. Wet where possible. Maintain dust levels below the recommended exposure standard.

PPE

Eye / Face	Wear dust-proof goggles.
Hands	Wear PVC or rubber gloves.
Body	Wear coveralls.
Respiratory	Where an inhalation risk exists, wear a Class P2 (Particulate) respirator.



9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Appearance FINE GREY POWDER

9.1 Information on basic physical and chemical properties

Odour	ODOURLESS
Flammability	NON FLAMMABLE
Flash point	NOT RELEVANT
Boiling point	NOT AVAILABLE
Melting point	> 1560°C
Evaporation rate	NOT AVAILABLE
pH	6 - 9
Vapour density	NOT AVAILABLE
Specific gravity	1.8 - 2.4
Solubility (water)	< 10 g/L
Vapour pressure	NOT AVAILABLE
Upper explosion limit	NOT RELEVANT
Lower explosion limit	NOT RELEVANT
Partition coefficient	NOT AVAILABLE
Autoignition temperature	NOT AVAILABLE
Decomposition temperature	NOT AVAILABLE
Viscosity	NOT AVAILABLE
Explosive properties	NOT AVAILABLE
Oxidising properties	NOT AVAILABLE
Odour threshold	NOT AVAILABLE

9.2 Other information

Density	800 - 1000 kg/m ³ (bulk)
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10. STABILITY AND REACTIVITY

10.1 Reactivity

Carefully review all information provided in sections 10.2 to 10.6.

10.2 Chemical stability

Stable under recommended conditions of storage.

10.3 Possibility of hazardous reactions

Polymerization is not expected to occur.

10.4 Conditions to avoid

Avoid heat, sparks, open flames and other ignition sources.

10.5 Incompatible materials

Incompatible with acids (e.g. nitric acid) and alkalis (e.g. sodium hydroxide).

10.6 Hazardous decomposition products

Crystalline silica may form after the product is exposed to extended periods of high temperatures (> 900°C).

11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Acute toxicity	Information available for the product: No known toxicity data is available for this product. Based on available data, the classification criteria are not met.
Skin	Contact may result in irritation, redness, pain and rash.
Eye	Contact may result in irritation, lacrimation, pain and redness.
Sensitization	Not classified as causing skin or respiratory sensitisation.
Mutagenicity	Insufficient data available to classify as a mutagen.
Carcinogenicity	Not classified as a carcinogen. Crystalline silica is classified as carcinogenic to humans (IARC Group 1). However, there is a body of evidence supporting the fact that increased cancer risk would be limited to people already suffering from silicosis.
Reproductive	Insufficient data available to classify as a reproductive toxin.
STOT – single exposure	Over exposure may result in irritation of the nose and throat, with coughing.
STOT – repeated	Repeated exposure to respirable silica may result in pulmonary fibrosis (silicosis). Silicosis is a fibronodular

PRODUCT NAME FLY ASH

exposure lung disease caused deposition in the lungs of fine respirable particles of crystalline silica. Principal symptoms of silicosis are coughing and breathlessness.

Aspiration Not classified as causing aspiration.

12. ECOLOGICAL INFORMATION

12.1 Toxicity

The main component/s of this product are not anticipated to cause any adverse effects to the environment.

12.2 Persistence and degradability

Product is persistent and non-degradable.

12.3 Bioaccumulative potential

This product is not expected to bioaccumulate.

12.4 Mobility in soil

A low mobility would be expected in a landfill situation.

12.5 Other adverse effects

Avoid contamination of drains and waterways.

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Waste disposal Ensure product is covered with moist soil to prevent dust generation and dispose of to approved Council landfill. Contact the manufacturer/supplier for additional information (if required).

Legislation Dispose of in accordance with relevant local legislation.

14. TRANSPORT INFORMATION

NOT CLASSIFIED AS A DANGEROUS GOOD BY THE CRITERIA OF THE ADG CODE, IMDG OR IATA

	LAND TRANSPORT (ADG)	SEA TRANSPORT (IMDG / IMO)	AIR TRANSPORT (IATA / ICAO)
14.1 UN Number	None Allocated	None Allocated	None Allocated
14.2 Proper Shipping Name	None Allocated	None Allocated	None Allocated
14.3 Transport hazard class	None Allocated	None Allocated	None Allocated
14.4 Packing Group	None Allocated	None Allocated	None Allocated

14.5 Environmental hazards No information provided

14.6 Special precautions for user

Hazchem code None Allocated

15. REGULATORY INFORMATION

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

Poison schedule A poison schedule number has not been allocated to this product using the criteria in the Standard for the Uniform Scheduling of Medicines and Poisons (SUSMP).

Classifications Safework Australia criteria is based on the Globally Harmonised System (GHS) of Classification and Labelling of Chemicals.

The classifications and phrases listed below are based on the Approved Criteria for Classifying Hazardous Substances [NOHSC: 1008(2004)].

Hazard codes Xi Irritant
Xn Harmful

Risk phrases R36/37/38 Irritating to eyes, respiratory system and skin.
R48/20 Harmful: danger of serious damage to health by prolonged exposure through inhalation.

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Safety phrases	S22	Do not breathe dust.
	S24/25	Avoid contact with skin and eyes.
	S36/37	Wear suitable protective clothing and gloves.
Inventory listing(s)	AUSTRALIA: AICS (Australian Inventory of Chemical Substances) All components are listed on AICS, or are exempt.	

16. OTHER INFORMATION

Additional information	PERSONAL PROTECTIVE EQUIPMENT GUIDELINES: The recommendation for protective equipment contained within this report is provided as a guide only. Factors such as method of application, working environment, quantity used, product concentration and the availability of engineering controls should be considered before final selection of personal protective equipment is made.	
	HEALTH EFFECTS FROM EXPOSURE: It should be noted that the effects from exposure to this product will depend on several factors including: frequency and duration of use; quantity used; effectiveness of control measures; protective equipment used and method of application. Given that it is impractical to prepare a ChemAlert report which would encompass all possible scenarios, it is anticipated that users will assess the risks and apply control methods where appropriate.	
Abbreviations	ACGIH	American Conference of Governmental Industrial Hygienists
	CAS #	Chemical Abstract Service number - used to uniquely identify chemical compounds
	CNS	Central Nervous System
	EC No.	EC No - European Community Number
	EMS	Emergency Schedules (Emergency Procedures for Ships Carrying Dangerous Goods)
	GHS	Globally Harmonized System
	GTEPG	Group Text Emergency Procedure Guide
	IARC	International Agency for Research on Cancer
	LC50	Lethal Concentration, 50% / Median Lethal Concentration
	LD50	Lethal Dose, 50% / Median Lethal Dose
	mg/m ³	Milligrams per Cubic Metre
	OEL	Occupational Exposure Limit
	pH	relates to hydrogen ion concentration using a scale of 0 (high acidic) to 14 (highly alkaline).
	ppm	Parts Per Million
	STEL	Short-Term Exposure Limit
	STOT-RE	Specific target organ toxicity (repeated exposure)
	STOT-SE	Specific target organ toxicity (single exposure)
	SUSMP	Standard for the Uniform Scheduling of Medicines and Poisons
	SWA	Safe Work Australia
	TLV	Threshold Limit Value
	TWA	Time Weighted Average
Report status	This document has been compiled by RMT on behalf of the manufacturer, importer or supplier of the product and serves as their Safety Data Sheet ('SDS').	
	It is based on information concerning the product which has been provided to RMT by the manufacturer, importer or supplier or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer, importer or supplier.	
	While RMT has taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, RMT accepts no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS.	
Prepared by	Risk Management Technologies 5 Ventnor Ave, West Perth Western Australia 6005 Phone: +61 8 9322 1711 Fax: +61 8 9322 1794 Email: info@rmt.com.au Web: www.rmt.com.au.	

[End of SDS]

1 Identification

Product identifier

Trade name: DARA VAIR 1000

SDS ID Number: 60050

Relevant identified uses of the substance or mixture, and uses advised against:
Specialty construction product. Not intended for other uses.

Product category Concrete Admixture

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:

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 = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 1
Flammability = 1
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

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Printing date 09/10/2019

Version Number 1.2

Reviewed on 09/10/2019

Trade name: *DARA VAIR 1000*

(Cont. from page 1)

vPvB: Not applicable.**3 Composition/information on ingredients****Chemical characterization: Mixture****Description:**

The exact percentage (concentration) of composition of the hazardous component(s) has been withheld as a Trade Secret.

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 experiencing respiratory symptoms: Call a POISON CENTER/doctor.

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

After eye contact: Rinse cautiously with water for several minutes.**After swallowing:**

Rinse mouth.

Do NOT induce vomiting.

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, extinguishing powder or water spray. Fight larger fires with water spray.

Special hazards arising from the substance or mixture

Combustion products may include toxic gases such as carbon monoxide and smoke.

Advice for firefighters

Protective equipment: Wear personal protective equipment.

Additional information Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

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Reviewed on 09/10/2019

Trade name: **DARA VAIR 1000**

(Cont. from page 2)

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.

7 Handling and storage**Handling:****Precautions for safe handling**

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Information about protection against explosions and fires: No special measures required.**Conditions for safe storage, including any incompatibilities****Storage:****Information about storage in one common storage facility:** No special measures required.**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: 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.

(Cont. on page 4)

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Reviewed on 09/10/2019

Trade name: **DARA VAIR 1000**

(Cont. from page 3)

Eye protection:

Safety glasses with side shield protection.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection: Use personal protective equipment as required.* **9 Physical and chemical properties****Information on basic physical and chemical properties****General Information****Appearance:**

Form:	Liquid
Color:	Brown
Odor:	Mild woody odor
Odor threshold:	Not applicable.

pH-value (~) at 20 °C (68 °F): 10**Change in condition**

Melting point/Melting range:	0°C (32°F)
Boiling point/Boiling range:	100°C (212°F)
Flash point:	A flash point determination is unnecessary due to high water content.

Flammability (solid, gaseous): Not applicable.**Ignition temperature:** Undetermined.**Decomposition temperature:** Not applicable under normal storage conditions.**Auto igniting:** Product is not self-igniting.**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:	<18 mm Hg
Density: (~)	Not applicable.
Relative density	1.024 - 1.028
Vapor density	Not applicable.
Evaporation rate	Not applicable.

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.
Molecular weight	Not applicable.

Other information No further relevant information available.

USGHS

(Cont. on page 5)

Safety Data Sheet

Printing date 09/10/2019

Version Number 1.2

Reviewed on 09/10/2019

Trade name: **DARA VAIR 1000**

(Cont. from page 4)

10 Stability and reactivity**Reactivity**

Stable under normal conditions.

No further relevant information available.

Chemical stability Stable under normal conditions.**Thermal decomposition:** No decomposition if used according to specifications.**Possibility of hazardous reactions**

No dangerous reactions known.

No further relevant information available.

Conditions to avoid No further relevant information available.**Incompatible materials:** No further relevant information available.**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 are listed.

NTP (National Toxicology Program)**K-Known to be carcinogenic, R-May reasonably be anticipated to be carcinogenic**

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are 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.

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Safety Data Sheet

Printing date 09/10/2019

Version Number 1.2

Reviewed on 09/10/2019

Trade name: **DARA VAIR 1000**

(Cont. from page 5)

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.

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:**Marine pollutant:**

No

Special precautions for user

Not applicable.

Transport/Additional information: Not classified as a dangerous good for transport by road, rail or air.

DOT

Remarks:

Not Regulated.

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):**

All ingredients are listed or exempt from listing unless otherwise noted below.

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Safety Data Sheet

Printing date 09/10/2019

Version Number 1.2

Reviewed on 09/10/2019

Trade name: **DARA VAIR 1000**

(Cont. from page 6)

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

Right to Know Ingredient Disclosure:

The exact percentage (concentration) of composition of the non-hazardous component(s) has been withheld as a Trade Secret.

7732-18-5 | Water

85409-27-4 | Rosin, maleated, potassium salt

California Proposition 65: (Substances <0.1% unless noted in Section 3)**Chemicals known to cause cancer:**

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are 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 are listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients are 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

The first date of preparation 08/05/2011**Number of revision times and the latest revision date** 1.2 / 09/10/2019

USGHS

1 Identification

Product identifier

Trade name: **DARACCEL**

SDS ID Number: 60031

Relevant identified uses of the substance or mixture, and uses advised against:
Specialty construction product. Not intended for other uses.

Product category Concrete Admixture

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:

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

Causes serious eye irritation.

Label elements: The product is classified and labeled according to the Globally Harmonized System (GHS)

Hazard pictograms



Warning

Hazard statements

Causes serious eye irritation.

Precautionary statements

Wash thoroughly after handling.

Wear eye protection / face protection.

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.

NFPA ratings (scale 0 - 4)



Health = 2
Fire = 1
Reactivity = 0

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Version Number 1.4

Reviewed on 09/13/2019

Trade name: **DARACCEL**

(Cont. from page 1)

HMIS-ratings (scale 0 - 4)

HEALTH	2
FIRE	1
REACTIVITY	0

Health = 2

Flammability = 1

Reactivity = 0

Other hazards**Results of PBT and vPvB assessment****PBT:** Not applicable.**vPvB:** Not applicable.**3 Composition/information on ingredients****Chemical characterization: Mixture****Description:**

Mixture of the hazardous substance(s) listed below with additional nonhazardous ingredients.

The exact percentage (concentration) of composition of the hazardous component(s) has been withheld as a Trade Secret.

Hazardous components:

10043-52-4	Calcium chloride	30-<40%
102-71-6	Triethanolamine	1-<3%

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 INHALED: Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

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.

After eye contact: Rinse cautiously with water for several minutes.**After swallowing:**

Rinse mouth.

Do NOT induce vomiting.

Information for doctor:**Most important symptoms and effects, both acute and delayed** Irritating to eyes.**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, extinguishing powder or water spray. Fight larger fires with water spray.**Special hazards arising from the substance or mixture**

Combustion products may include toxic gases such as carbon monoxide and smoke.

(Cont. on page 3)

USGHS

Safety Data Sheet

Printing date 09/13/2019

Version Number 1.4

Reviewed on 09/13/2019

Trade name: **DARACCEL**

(Cont. from page 2)

Advice for firefighters**Protective equipment:** Wear personal protective equipment.**Additional information** Collect contaminated fire fighting water separately. It must not enter the sewage system.**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Dispose contaminated material as waste according to section 13 of the SDS.

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.

7 Handling and storage**Handling:****Precautions for safe handling**

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Information about protection against explosions and fires: No special measures required.**Conditions for safe storage, including any incompatibilities****Storage:****Information about storage in one common storage facility:** No special measures required.**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:****102-71-6 Triethanolamine**TLV (USA) | Long-term value: 5 mg/m³**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.

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Safety Data Sheet

Printing date 09/13/2019

Version Number 1.4

Reviewed on 09/13/2019

Trade name: **DARACCEL**

(Cont. from page 3)

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: 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 with side shield protection.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection:

Use personal protective equipment as required.

Take off contaminated clothing.

*

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 applicable.

pH-value (~) at 20 °C (68 °F): 9

Change in condition

Melting point/Melting range:	0°C (32°F)
Boiling point/Boiling range:	100°C (212°F)
Flash point:	A flash point determination is unnecessary due to high water content.

Flammability (solid, gaseous): Not applicable.

Ignition temperature: Undetermined.

Decomposition temperature: Not applicable under normal storage conditions.

Auto igniting: Product is not self-igniting.

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:	<18 mm Hg
Density: (~)	Not applicable.
Relative density at 20 °C (68 °F)	1.3 g/cm ³ (10.8 lbs/gal)
Vapor density	Not applicable.
Evaporation rate	Not applicable.

(Cont. on page 5)

USGHS

Safety Data Sheet

Printing date 09/13/2019

Version Number 1.4

Reviewed on 09/13/2019

Trade name: **DARACCEL**

(Cont. from page 4)

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.
Molecular weight	Not applicable.
Other information	No further relevant information available.

* **10 Stability and reactivity****Reactivity**

Stable under normal conditions.
No further relevant information available.

Chemical stability Stable under normal conditions.

Thermal decomposition: No decomposition if used according to specifications.

Possibility of hazardous reactions

No dangerous reactions known.
No further relevant information available.

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: Carbon monoxide and carbon dioxide

* **11 Toxicological information****Information on toxicological effects****Acute toxicity:****LD/LC50 values relevant for classification:****102-71-6 Triethanolamine**

Oral	LD50	5,300 mg/kg (guinea pig) 6,400 mg/kg (rat - male)
Dermal	LD50	>10,000 mg/kg (rabbit)
	LC50, 96h	11,800 mg/l (fish)

Primary irritant effect:

on the skin: No irritating effect expected

on the eye: Causes serious eye irritation.

inhalation: No irritating effect expected

Additional toxicological information:**102-71-6 Triethanolamine**

NOEC/NOEL 16 mg/l (crustaceans) (Chronic NOEC)

Carcinogenic categories**IARC (International Agency for Research on Cancer) Human Carcinogenicity:**

Group 1- Positive, Group 2A- Probable, Group 2B- Possible, Group 3- Not Classifiable

102-71-6 Triethanolamine

3

(Cont. on page 6)

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Printing date 09/13/2019

Version Number 1.4

Reviewed on 09/13/2019

Trade name: **DARACCEL**

(Cont. from page 5)

NTP (National Toxicology Program)**K–Known to be carcinogenic, R–May reasonably be anticipated to be carcinogenic**

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are listed.

* **12 Ecological information****Toxicity****Aquatic toxicity:****102-71-6 Triethanolamine**

EC50, 72h 512 mg/l (algae)

EC50, 48h 609.88 mg/l (daphnia magna)

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.

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.

(Cont. on page 7)

USGHS

Safety Data Sheet

Printing date 09/13/2019

Version Number 1.4

Reviewed on 09/13/2019

Trade name: **DARACCEL**

(Cont. from page 6)

Transport hazard class(es)

DOT, IMDG, IATA

Class Not applicable.

Packing group

DOT, IMDG, IATA

Not applicable.

Environmental hazards:

Marine pollutant:

No

Special precautions for user

Not applicable.

Transport/Additional information: Not classified as a dangerous good for transport by road, rail or air.

DOT

Remarks:

Not Regulated.

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: Health Hazard - Serious eye damage or eye irritation**North America Chemical Inventory Status****TSCA (Toxic Substances Control Act - United States):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

Right to Know Ingredient Disclosure:

The exact percentage (concentration) of composition of the non-hazardous component(s) has been withheld as a Trade Secret.

7732-18-5 Water

7447-40-7 Potassium chloride

California Proposition 65: (Substances <0.1% unless noted in Section 3)**Chemicals known to cause cancer:**

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Carcinogenicity Categories**TLV-ACGIH (THE American Conference of Governmental Industrial Hygienists)****Human Carcinogen - A1 Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable**

Triethanolamine

A3

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients are listed.

(Cont. on page 8)

USGHS

Safety Data Sheet

Printing date 09/13/2019

Version Number 1.4

Reviewed on 09/13/2019

Trade name: *DARACCEL*

(Cont. from page 7)

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

The first date of preparation 10/06/2011**Number of revision times and the latest revision date** 1.4 / 09/13/2019

USGHS

Safety Data Sheet

Printing date 02/17/2016

Version Number 1.1

Reviewed on 02/08/2016

1 Identification

Product identifier

Trade name: **DARASET 400**

SDS ID Number: 60044

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:

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)

Transport Emergency: Chemtrec +1-800-424-9300 (24 hours)

2 Hazard(s) identification

Classification of the substance or mixture

Harmful if swallowed.

Causes serious eye damage.

Label elements:

Hazard pictograms



GHS05 GHS07

Danger

Hazard statements

Harmful if swallowed.

Causes serious eye damage.

Precautionary statements

Wash thoroughly after handling.

Wear eye protection / face protection.

Do not eat, drink or smoke when using this product.

(Cont. on page 2)

USGHS

Safety Data Sheet

Printing date 02/17/2016

Version Number 1.1

Reviewed on 02/08/2016

Trade name: DARASET 400

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If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

Immediately call a POISON CENTER/doctor.

NFPA ratings (scale 0 - 4)



Health = 2

Fire = 1

Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 2

Flammability = 1

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 additional nonhazardous ingredients.

Hazardous components:

10124-37-5	Calcium nitrate	30-50%
13780-06-8	Calcium nitrite	2.0-5.0%
540-72-7	Sodium thiocyanate	2.0-5.0%

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: Get medical advice/attention if you feel unwell.

After inhalation: Take affected persons into fresh air and keep quiet.

After skin contact: If skin irritation continues, consult a doctor.

After eye contact:

Rinse opened eye for several minutes under running water.

Rinse cautiously with water for several minutes.

Seek immediate medical advice.

After swallowing:

Wash out mouth with water

Rinse mouth.

Never give anything by mouth to an unconscious person.

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Do not induce vomiting; immediately call for medical help.

Information for doctor:**Most important symptoms and effects, both acute and delayed** Harmful if swallowed.**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, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.

This material, if dried to a solid powder-like form, will become an oxidizer, which may provide oxygen to combustible materials.

Special hazards arising from the substance or mixture No further relevant information available.**Advice for firefighters****Protective equipment:** Wear self-contained respiratory protective device.**Additional information** Collect contaminated fire fighting water separately. It must not enter the sewage system.**6 Accidental release measures****Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Use respiratory protective device against the effects of fumes/dust/aerosol.

Avoid contact with eyes.

Environmental precautions:

Inform respective authorities in case of seepage into water course or sewage system.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Sweep up spilled product into receptacles.

Dispose contaminated material as waste according to section 13 of the SDS.

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.

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Trade name: **DARASET 400**

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7 Handling and storage**Handling:****Precautions for safe handling**

Risk of serious damage to eyes.

Open and handle receptacle with care.

Prevent formation of aerosols.

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Ensure good interior ventilation.

Do not mix directly with acidic materials. Do not mix directly with other admixtures. Hazardous gas may form.

Store in original containers.

Information about protection against explosions and fires: Protect from heat.

Conditions for safe storage, including any incompatibilities**Storage:**

Information about storage in one common storage facility: Protect from heat.

Further information about storage conditions:

Protect from heat and direct sunlight.

Keep receptacle tightly sealed.

Protect from frost.

Store in cool, dry conditions in well sealed original receptacles.

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:**

Avoid contact with the eyes and skin.

The usual precautionary measures for handling chemicals should be followed.

Do not add amines to this product. Cancer-causing nitrosamines may be formed. Direct contact with other admixtures, washwater and any other material causing the pH to fall below specification can result in the formation of NO_x gas creating a hazardous situation. Nitric oxide (NO) is a colorless, odorless gas. Nitrogen dioxide (NO₂) is a reddish-brown gas with a highly pungent, bleach-like odor. Exposure can cause irritation to eyes and respiratory

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Trade name: **DARASET 400**

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system and effect the central nervous and cardiovascular systems. Severe overexposure can be fatal. This hazard does not exist when mixed with other admixtures in concrete.

Breathing equipment:

Respiratory protection is not normally required. However, a chemical cartridge respirator with organic vapor cartridge and a prefilter for dusts/mists is required at or above the applicable exposure limits (consult exposure guidelines). If no limits exist, use an approved respirator whenever a vapor or mist is generated or if respiratory irritation occurs. Supplied air respirator (SCBA) is required at exposure levels above the capabilities of a chemical cartridge respirator.

Protection of hands:

Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Material of gloves

Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

Eye protection:

Safety glasses with side shield protection.

Safety glasses with side shields should be worn to prevent contact due to splashing. Under high vapor mist concentrations, tightly sealed goggles should be worn.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection:

Protective work clothing

Use personal protective equipment as required.

Take off contaminated clothing.

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 (~) at 20 °C (68 °F):

9

Change in condition**Melting point/Melting range:**

Undetermined.

Boiling point/Boiling range:

Undetermined.

Flash point:

100 °C (212 °F)

Flammability (solid, gaseous):

Not applicable.

Decomposition temperature:

Not determined.

Auto igniting:

Product is not selfigniting.

Danger of explosion:

Product does not present an explosion hazard.

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Trade name: **DARASET 400**

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Explosion limits:

Lower:	Not determined.
Upper:	Not determined.
VOC Content (max):	Not determined.

Vapor pressure:	Not determined.
Density: (~) at 20 °C (68 °F)	1.4 g/cm ³ (11.683 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.
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 according to specifications.**Possibility of hazardous reactions**

While not classified as oxidising, if allowed to dry out and come into contact with combustible material, this product may cause fire.

Contact with acids liberates very toxic gas.

Conditions to avoid No further relevant information available.**Incompatible materials:**Avoid direct contact with other admixtures and any other material which could cause the pH of this product to fall below 8.0. Those conditions can result in the formation of Nitrogen oxide (NO, NO₂) gas, creating a hazardous situation.**Hazardous decomposition products:**

Carbon monoxide and carbon dioxide

Nitrogen oxides

Additional information: See section 7 for information on handling, storage and conditions to be avoided.

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Printing date 02/17/2016

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Reviewed on 02/08/2016

Trade name: **DARASET 400**

(Cont. from page 6)

11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values relevant for classification:****10124-37-5 Calcium nitrate**

Oral LD50 302 mg/kg (rat)

13780-06-8 Calcium nitrite

Oral LD50 283 mg/kg (rat)

Primary irritant effect:**on the skin:** No irritating effect expected**on the eye:** Causes serious eye damage.**inhalation:** No irritating effect expected**Ingestion:**

May be fatal if swallowed and enters airways.

Harmful if swallowed.

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**

102-71-6 Triethanolamine

3

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.

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Printing date 02/17/2016

Version Number 1.1

Reviewed on 02/08/2016

Trade name: **DARASET 400**

(Cont. from page 7)

13 Disposal considerations**Waste treatment methods** Comply with Federal, State and local regulations.**Recommendation:**

Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**14 Transport information****UN-Number**

DOT, ADR, ADN, IMDG, IATA Not applicable.

UN proper shipping name

DOT, ADR, ADN, IMDG, IATA Not applicable.

Transport hazard class(es)DOT, ADR, ADN, IMDG, IATA
Class Not applicable.**Packing group**

DOT, ADR, IMDG, IATA Not applicable.

Environmental hazards:

Marine pollutant: No

Special precautions for user

Not applicable.

Transport/Additional information: Not classified as a dangerous good for transport by road, rail or air.**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):

10124-37-5 Calcium nitrate

40.6%

SARA Section 312/Tier I & II Hazard Categories:

Health Delayed (chronic) Yes

Health Immediate (acute) Yes

Flammable No

Reactive No

Pressure No

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Printing date 02/17/2016

Version Number 1.1

Reviewed on 02/08/2016

Trade name: DARASET 400

(Cont. from page 8)

North America Chemical Inventory Status**TSCA (Toxic Substances Control Act - United States):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

Right to Know Ingredient Disclosure

7732-18-5 | Water

California Proposition 65**Chemicals known to cause cancer:**

None of the ingredients is listed.

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**EPA (Environmental Protection Agency)**

None of the ingredients is listed.

**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 02/17/2016 / 1.0**The first date of preparation** 12/13/2011**Number of revision times and the latest revision date** 1.1 / 02/08/2016

USGHS

1 Identification

Product identifier

Trade name: **RECOVER**

SDS ID Number: 60169

Relevant identified uses of the substance or mixture, and uses advised against:
Specialty construction product. Not intended for other uses.

Product category Concrete Admixture

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:

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

May cause an allergic skin reaction.

Label elements: The product is classified and labeled according to the Globally Harmonized System (GHS)

Hazard pictograms



Warning

Hazard statements

May cause an allergic skin reaction.

Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.
If on skin: Wash with plenty of water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

Safety Data Sheet

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Version Number 1.1

Reviewed on 08/05/2019

Trade name: **RECOVER**

(Cont. from page 1)

NFPA ratings (scale 0 - 4)



Health = 1
Fire = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = *1
Flammability = 1
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

* 3 Composition/information on ingredients

Chemical characterization: Mixture

Description:

Mixture of the hazardous substance(s) listed below with additional nonhazardous ingredients.

The exact percentage (concentration) of composition of the hazardous component(s) has been withheld as a Trade Secret.

Hazardous components:

26172-55-4	5-chloro-2-methyl-2H-isothiazol-3-one	0-<0.1%
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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 INHALED: Remove person to fresh air and keep comfortable for breathing.

If experiencing respiratory symptoms: Call a POISON CENTER/doctor.

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.

After eye contact: Rinse cautiously with water for several minutes.

After swallowing:

Rinse mouth.

Do NOT induce vomiting.

Information for doctor:

Most important symptoms and effects, both acute and delayed Allergic reactions

Indication of any immediate medical attention and special treatment needed No further relevant information available.

USGHS

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Safety Data Sheet

Printing date 08/05/2019

Version Number 1.1

Reviewed on 08/05/2019

Trade name: **RECOVER**

(Cont. from page 2)

5 Fire-fighting measures**Extinguishing media**

Suitable extinguishing agents: CO₂, extinguishing powder or water spray. Fight larger fires with water spray.

Special hazards arising from the substance or mixture

Combustion products may include toxic gases such as carbon monoxide and smoke.

Advice for firefighters

Protective equipment: Wear personal protective equipment.

Additional information Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Dispose contaminated material as waste according to section 13 of the SDS.

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.

7 Handling and storage**Handling:****Precautions for safe handling**

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities**Storage:**

Information about storage in one common storage facility: No special measures required.

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.

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Version Number 1.1

Reviewed on 08/05/2019

Trade name: **RECOVER**

(Cont. from page 3)

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: 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 with side shield protection.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection:

Use personal protective equipment as required.

Take off contaminated clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information

Appearance:

Form:	Liquid
Color:	Blue/green
Odor:	Odorless
Odor threshold:	Not applicable.

pH-value (~) at 20 °C (68 °F): 6.5

Change in condition

Melting point/Melting range:	0 °C (32 °F)
Boiling point/Boiling range:	100 °C (212 °F)
Flash point:	A flash point determination is unnecessary due to high water content.

Flammability (solid, gaseous): Not applicable.

Ignition temperature: Not applicable.

Decomposition temperature: Not applicable under normal storage conditions.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower:	Not applicable.
Upper:	Not applicable.
VOC Content (max):	Not applicable.

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Printing date 08/05/2019

Version Number 1.1

Reviewed on 08/05/2019

Trade name: **RECOVER**

(Cont. from page 4)

Vapor pressure:	<18 mm Hg
Density: (~)	Not determined.
Relative density	1,101 -1.125
Vapor density	Not applicable.
Evaporation rate	Not applicable.

Solubility in / Miscibility with Water:	Miscible
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Partition coefficient (n-octanol/water):	Not determined.
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Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
Molecular weight	Not applicable.

Other information	No further relevant information available.
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10 Stability and reactivity

Reactivity

Stable under normal conditions.
No further relevant information available.

Chemical stability Stable under normal conditions.

Thermal decomposition: No decomposition if used according to specifications.

Possibility of hazardous reactions

No dangerous reactions known.
No further relevant information available.

Conditions to avoid No further relevant information available.

Incompatible materials: No further relevant information available.

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

Sensitization: May cause an allergic skin reaction.

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 are listed.

NTP (National Toxicology Program)

K-Known to be carcinogenic, R-May reasonably be anticipated to be carcinogenic

None of the ingredients are listed.

(Cont. on page 6)

USGHS

Safety Data Sheet

Printing date 08/05/2019

Version Number 1.1

Reviewed on 08/05/2019

Trade name: **RECOVER**

(Cont. from page 5)

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are 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:****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:**Marine pollutant:**

No

Special precautions for user

Not applicable.

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Safety Data Sheet

Printing date 08/05/2019

Version Number 1.1

Reviewed on 08/05/2019

Trade name: **RECOVER**

(Cont. from page 6)

Transport/Additional information: Not classified as a dangerous good for transport by road, rail or air.**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: Health Hazard - Respiratory or Skin Sensitization**North America Chemical Inventory Status****TSCA (Toxic Substances Control Act - United States):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

Right to Know Ingredient Disclosure:

The exact percentage (concentration) of composition of the non-hazardous component(s) has been withheld as a Trade Secret.

527-07-1 Sodium gluconate

57-50-1 Sucrose

7732-18-5 Water

California Proposition 65: (Substances <0.1% unless noted in Section 3)**Chemicals known to cause cancer:**

None of the ingredients is listed.

Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Carcinogenicity Categories**TLV-ACGIH (THE American Conference of Governmental Industrial Hygienists)****Human Carcinogen - A1 Confirmed, A2 Suspected, A3 Unknown Relevance, A4 Not Classifiable**

Sucrose

A4

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients are 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

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USGHS

Safety Data Sheet

Printing date 08/05/2019

Version Number 1.1

Reviewed on 08/05/2019

Trade name: *RECOVER*

(Cont. from page 7)

Cambridge, MA 02140 USA
USA: +1-617-876-1400 (24 hours)
+1-800-354-5414

The first date of preparation 03/29/2012**Number of revision times and the latest revision date** 1.1 / 08/05/2019

USGHS

*

1 Identification

Product identifier

Trade name: **ZYLA 610**

SDS ID Number: 60196

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:

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 = 1
Reactivity = 0

HMIS-ratings (scale 0 - 4)



Health = 1
Flammability = 1
Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

Safety Data Sheet

Printing date 07/26/2018

Version Number 1.0

Reviewed on 07/26/2018

Trade name: **ZYLA 610**

(Cont. from page 1)

3 Composition/information on ingredients**Chemical characterization: Mixture****Hazardous components:**

102-71-6 Triethanolamine

3-<5%

4 First-aid measures**Description of first aid measures****General information:** Get medical advice/attention if you feel unwell.**After inhalation:**

Supply fresh air. If required, provide artificial respiration. Keep patient warm. Consult doctor if symptoms persist.

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.

After eye contact: Rinse cautiously with water for several minutes.**After swallowing:**

Do NOT induce vomiting.

Never give anything by mouth to an unconscious person.

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****Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

Sweep up spilled product into receptacles.

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.

7 Handling and storage**Handling:****Precautions for safe handling** Open and handle receptacle with care.

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Information about protection against explosions and fires: No special measures required.**Conditions for safe storage, including any incompatibilities****Storage:****Information about storage in one common storage facility:** No special measures required.**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:****102-71-6 Triethanolamine**TLV (USA) Long-term value: 5 mg/m³**Additional information:** The lists that were valid during the creation were used as basis.**Exposure controls****Personal protective equipment:****General protective and hygienic measures:**

Avoid contact with the eyes and skin.

The usual precautionary measures for handling chemicals should be followed.

Protection of hands: Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.**Material of gloves** Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.**Eye protection:**

Safety glasses with side shield protection.

Safety glasses with side shields should be worn to prevent contact due to splashing. Under high vapor mist concentrations, tightly sealed goggles should be worn.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection:

Protective work clothing

Use personal protective equipment as required.

Take off contaminated clothing.

9 Physical and chemical properties**Information on basic physical and chemical properties****General Information****Appearance:****Form:**

Liquid

Color:

According to product specification

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Odor:	Characteristic
Odor threshold:	Not determined.
pH-value (~) at 20 °C (68 °F):	10
Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
Flash point:	Not applicable.
Flammability (solid, gaseous):	Not applicable.
Ignition temperature:	Undetermined.
Decomposition temperature:	Not determined.
Auto igniting:	Product is not self-igniting.
Danger of explosion:	Product does not present an explosion hazard.
Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
VOC Content (max):	Not determined.
Vapor pressure:	Not determined.
Density: (~) at 20 °C (68 °F)	1.1 g/cm ³ (9.2 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.
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 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.**Hazardous decomposition products:** Carbon monoxide and carbon dioxide**Additional information:** See section 7 for information on handling, storage and conditions to be avoided.

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11 Toxicological information**Information on toxicological effects****Acute toxicity:****LD/LC50 values relevant for classification:****102-71-6 Triethanolamine**

Oral	LD50	5300 mg/kg (guinea pig) 6400 mg/kg (rat - male)
Dermal	LD50	>10000 mg/kg (rabbit)
	LC50, 96h	11800 mg/l (fish)

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:****102-71-6 Triethanolamine**

NOEC/NOEL 16 mg/l (crustaceans) (Chronic NOEC)

Carcinogenic categories**IARC (International Agency for Research on Cancer) Human Carcinogenicity:**
Group 1- Positive, Group 2A- Probable, Group 2B- Possible, Group 3- Not Classifiable

102-71-6 Triethanolamine

3

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:****102-71-6 Triethanolamine**

EC50, 48h	609.88 mg/l (daphnia magna)
EC50, 72h	512 mg/l (algae)

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.

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Trade name: ZYLA 610

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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.

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:

Marine pollutant:

No

Special precautions for user

Not applicable.

Transport/Additional information: Not classified as a dangerous good for transport by road, rail or air.

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):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

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Trade name: ZYLA 610

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Right to Know Ingredient Disclosure:

527-07-1	Sodium gluconate
	Other Solids (residual, unfermented sugars)
8029-43-4	Corn syrup
7732-18-5	Water

California Proposition 65: (Substances <0.1% unless noted in Section 3)**Chemicals known to cause cancer:**

None of the ingredients is listed.

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**

Triethanolamine	A3
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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 07/26/2018 / -**The first date of preparation** 03/29/2012**Number of revision times and the latest revision date** 1.0 / 07/26/2018

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1 Identification

Product identifier

Trade name: ADVA 190

SDS ID Number: 60005

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:

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

May cause an allergic skin reaction.

Label elements: The product is classified and labeled according to the Globally Harmonized System (GHS)

Hazard pictograms



Warning

Hazard statements

May cause an allergic skin reaction.

Precautionary statements

Avoid breathing dust/fume/gas/mist/vapors/spray
Contaminated work clothing should not be allowed out of the workplace.
Wear protective gloves.
If on skin: Wash with plenty of water.
If skin irritation or rash occurs: Get medical advice/attention.
Wash contaminated clothing before reuse.
Dispose of contents/container in accordance with local/regional/national/international regulations.

NFPA ratings (scale 0 - 4)



Health = 1
Fire = 1
Reactivity = 0

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HMIS-ratings (scale 0 - 4)

HEALTH	1	Health = *1
FIRE	1	Flammability = 1
REACTIVITY	0	Reactivity = 0

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.

vPvB: Not applicable.

* 3 Composition/information on ingredients

Chemical characterization: Mixture

Description: Mixture of the hazardous substance(s) listed below with additional nonhazardous ingredients.

Hazardous components:

26172-55-4	5-chloro-2-methyl-4-isothiazolin-3-one	0-<0.1%
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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 INHALED: Remove person to fresh air and keep comfortable for breathing.

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.

After eye contact: Rinse cautiously with water for several minutes.

After swallowing:

Rinse mouth.

Do NOT induce vomiting.

Information for doctor:

Most important symptoms and effects, both acute and delayed Allergic reactions

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, extinguishing powder or water spray. Fight larger fires with water spray.

Special hazards arising from the substance or mixture

Combustion products may include toxic gases such as carbon monoxide and smoke.

Advice for firefighters

Protective equipment: Wear personal protective equipment.

Additional information Collect contaminated fire fighting water separately. It must not enter the sewage system.

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6 Accidental release measures**Personal precautions, protective equipment and emergency procedures**

Wear protective equipment. Keep unprotected persons away.

Methods and material for containment and cleaning up:

Contain and/or absorb spill with inert material (i.e. sand, vermiculite) then place in a suitable container.

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.

7 Handling and storage**Handling:****Precautions for safe handling**

Prevent formation of aerosols.

Avoid contact with eyes, skin and clothing.

Do not take internally.

Practice good personal hygiene to avoid ingestion.

Use only with adequate ventilation.

Wash clothing before reuse.

FOR PROFESSIONAL USE ONLY. KEEP OUT OF CHILDREN'S REACH.

Information about protection against explosions and fires: No special measures required.

Conditions for safe storage, including any incompatibilities**Storage:**

Information about storage in one common storage facility: No special measures required.

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: Gloves should be worn to prevent skin contact and should be impermeable and resistant to the product.

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Material of gloves Rubber or other impervious gloves should be worn to prevent skin contact.

Eye protection:

Safety glasses with side shield protection.



A face shield should also be worn if there is potential exposure to splash or spray.

Body protection:

Use personal protective equipment as required.

Take off contaminated clothing.

9 Physical and chemical properties

Information on basic physical and chemical properties

General Information**Appearance:**

Form:	Liquid
Color:	Yellow
Odor:	Mild paint-like odor
Odor threshold:	Not applicable.

pH-value (~) at 20 °C (68 °F): 4.8

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)
Flash point:	101 °C (213.8 °F)

Flammability (solid, gaseous): Not applicable.

Ignition temperature: Undetermined.

Decomposition temperature: Not applicable under normal storage conditions.

Auto igniting: Product is not self-igniting.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower:	Not applicable.
Upper:	Not applicable.

Vapor pressure:	Not determined.
Density: (~) at 20 °C (68 °F)	1.1 g/cm ³ (9.2 lbs/gal)
Vapor density	Not determined.
Evaporation rate	Not applicable.

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.
Molecular weight	Not applicable.

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Other information

No further relevant information available.

10 Stability and reactivity**Reactivity**

Stable under normal conditions.

No further relevant information available.

Chemical stability**Thermal decomposition:** No decomposition if used according to specifications.**Possibility of hazardous reactions**

No dangerous reactions known.

No further relevant information available.

Conditions to avoid No further relevant information available.**Incompatible materials:** No further relevant information available.**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**Sensitization:** May cause an allergic skin reaction.**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 are listed.

NTP (National Toxicology Program)**K–Known to be carcinogenic, R–May reasonably be anticipated to be carcinogenic**

None of the ingredients are listed.

OSHA-Ca (Occupational Safety & Health Administration)

None of the ingredients are 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.

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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.

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.

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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: Health Hazard - Respiratory or Skin Sensitization**North America Chemical Inventory Status****TSCA (Toxic Substances Control Act - United States):**

All ingredients are listed or exempt from listing unless otherwise noted below.

CEPA (Canadian DSL):

All ingredients are listed or exempt from listing unless otherwise noted below.

Right to Know Ingredient Disclosure:

7732-18-5 | Water

Proprietary Polycarboxylate - NJTSN801416500. Representative CASRN 577705-43-2

527-07-1 | Sodium gluconate

California Proposition 65: (Substances <0.1% unless noted in Section 3)**Chemicals known to cause cancer:**

Ethylene oxide

propylene oxide

Chemicals known to cause reproductive toxicity for females:

75-21-8 | Ethylene oxide

Chemicals known to cause reproductive toxicity for males:

75-21-8 | Ethylene oxide

Chemicals known to cause developmental toxicity:

75-21-8 | Ethylene oxide

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 are listed.

NIOSH-Cancer (National Institute for Occupational Safety and Health)

None of the ingredients are 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

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Cambridge, MA 02140 USA

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+1-800-354-5414

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