



**GENERAL ENGINEERING  
CONTRACTORS**

HAZARD COMMUNICATION PROGRAM (SDS)

**SAFETY**

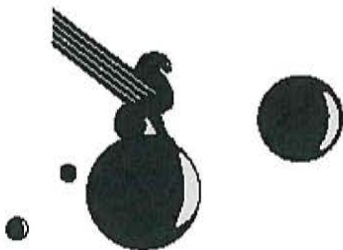
**DATA**

**SHEETS**

Updated 07/08/2016  
J.B.

ICRO ENTERPRISES, INC.  
Inventory of Chemicals  
Last Updated: [REDACTED]

Name Filed Under	Detailed Description	Manufacturer	Eff/Rev Date of MSDS
AC	Asphaltic Concrete	Vulcan Materials Co.	5/1/2000
Aggregate	Crushed stone (aggregate, manufactured sand)	Vulcan Materials Co.	5/5/2000
Anti-freeze	Anti-freeze #101	Carquest	10/1989
ARCS-256 NON VOC	NON-DOT REGULATED MATERIAL	ARROW MAGNOLIA INT.	10/22/09
ARHM	Asphalt Rubberized Hot Mix	Vulcan	7/1/2006
Asphalt Emulsion	Asphalt Emulsion SS-1h	Vulcan Materials Co.	8/27/2001
Asphalt Expansion	Asphalt expansion joint filler	W.R. Meadows	7/1/2004
Bonding Agent	Bonding agent - Intralok	W.R. Meadows	7/1/2004
Bravo EP 90	Gear oil (ep 90) #990-01 (lub)	Bravo CarQuest	n/a
Ck	Citrus King (The King Of Clean)	Suncoast Research Labs, Inc.	4/21/2005
Clear	1100 Clear	W.R. Meadows	7/1/2004
Crushed Concrete	Crushed Concrete	Vulcan Materials Co.	4/1/2006
Diesel	Diesel fuel	Silvas	1/18/2001
Easy Arc 7018AC	Covered Electrode	The Lincoln Electric Co.	12/2/2006
Echo 2-cycle oil	Echo 2-stroke engine oil	Echo, Inc.	10/10/2002
Economy Release	Economy Release	Symons	10/4/2001
Electronic cleaner	Electronic cleaner #2206	Berryman Products	10/29/1999
Fan belt spray	Fan belt spray #50603	McKay Airosol Co., Inc.	10/14/1999
Fiber Expansion Control Joint Filter	Conflex	Edoco	n/a
Foam Plastics	Foam Plastics	Nomaco, Inc.	6/24/2008
Form oil	Form oil	W.R. Meadows	7/1/2004
Galvanizing compound	Zinc-Rich cold galvanizing compound S00740	Sprayon	12/11/2004
Gear oil	GL-5 Heavy Duty Gear Oil	Sta-Lube	3/27/2002
Granite	Aggregate, Manufactured Sand	Vulcan Materials Co.	4/1/2006
Guardtop	Guardtop	CalMat Co., d.b.a. Vulcan Mat.	7/1/2006
Guardtop Crackfiller	Guardtop Crackfiller	CalMat Co., d.b.a. Vulcan Mat.	7/1/2006
Guardtop Oilseal	Guardtop Crackfiller	CalMat Co., d.b.a. Vulcan Mat.	7/1/2006
Hi-Glo	Hi-Glo synthetic enamel system #WC6590	Western Automotive Finishes	3/9/2001
High Performance Cold Mix	High Performance Cold Mix	CalMat Co., d.b.a. Vulcan Mat.	7/1/2006
Hydraulic oil	Hydraulic oil	MacValley Oil Co.	3/26/2002
Industrial purple	Degreaser industrial purple	Zep Commercial	2/22/2002
KreteOff	Krete off	Lesco Manufacturing Inc.	8/15/1998
Liquid release	Liquid Release	Rafco Products	7/21/2004
Lithoseal Trafficalk-3G Part B (Base)	Mixture	L.M. Scofield Co.	2003
Three-Component Sealants Part A-Activator	Mixture	L.M. Scofield Co.	5/2/2005
Three-Component Sealants Part C-Color	Mixture	L.M. Scofield Co.	11/24/2003
Marking paint	Marking paint	Aervoe	10/17/2003
Mastergold oil	Mastergold HSP SAE 15W-40 (86641084)	New Holland	12/23/1998
MBT EA-Sealer	M-BT EAC-S	Master Builders Technologies	10/5/2001
Motor oil	Motor oil 10W-30	Exxon Mobil	2002
NITRO PHOS	NON-DOT REGULATED MATERIAL	ARROW MAGNOLIA INT.	10/22/2009
Nutra-Sol	BUI/Tanknutrasol	Becker Underwood, Inc.	3/1/2007
Oust	Sulfometuron Methyl	Dupont	1/19/2010
Painters touch	Multi-purpose paint/painter's touch	Rust-Oleum	11/2/2004
Patchcrete #1003	Patchcrete Acrylic Polymer #1003	Lyons Manufacturing	11/3/2000
Patchcrete #1005	Patchcrete #1005 (repair, topping & underlayment powder)	Lyons Manufacturing	11/3/2000
PCC	PCC (freshly mixed unhardened concrete)	Vulcan Materials Co.	5/5/2000
Polyurethane sealant	Polyurethane Sealant Sonolastic SL 1	Sonneborn	9/8/2003
Portland cement	Portland cement (unmixed)	Paragon	8/1/2002
Portland Cement Concrete	Portland Cement Concrete	Vulcan Construction Co.	4/1/2006
Resinoid Bonded Abrasives	Grinding and Cutting Wheels, Resinoid	United Abrasives, Inc.	11/1/2003
Resin Bonded Abrasives	Resin Bonded Abrasives	Walter Surface Technologies	4/15/2008
Road & Roofing Asphalt Sealant	Crafco Roadsaver, Ployflex, Parking Lot Rubber	Crafco Inc.	4/14/2010
Round Up ProMax	Round-up weed killer concentrate	Mansanto	10/9/2001
Rugasol S	Rugasol - S	Sika	3/9/2004
SSPWC Cection 200-2.4	Crushed Miscellaneous Base	Newman & Sons Plant	6/12/2006
Sand & gravel	Sand and gravel (construction aggregate)	Vulcan Materials Co.	5/5/2000
Sealer	Gloss sealer	Okon	4/1/2000
Silicone	General Electric Silicone II	General Electric	3/10/2004
Sonolastic	Sonolastic SL2	ChemRex Inc.	5/1/2001
Spray paint T-12	Spray paint super enamel	Plasti-Kote	11/2/2004
Spray paint T-24	Spray paint super enamel	Plasti-Kote	11/2/2004
Spray paint T-43	Spray paint super enamel	Plasti-Kote	11/2/2004
Starting fluid	Starting Fluid #91016	Carquest	2/8/2001
Thinner	Thinner #214	Carboline	1/29/2004
Top Cast	AP Chem Concrete Finish Retarder Guide	ApChem	98/02/16
Two-cycle oil	2 Cycle Oil #SL2261	Sta-Lube	1/15/2003
Vocomp 25	Vocomp 25-1315	W.R. Meadows	7/1/2004
WD-40 aerosol	WD-40	WD-40 Company	11/2003
WD-40 bulk	WD-40	WD-40 Company	11/2003



*Initial Preparation Date:* 3/30/09  
*Last Revision Date:* 4/2/09  
*Effective Date:* 12/11/09

## MATERIAL SAFETY DATA SHEET

### PRODUCT IDENTITY: BlueDEF™ DIESEL EXHAUST FLUID

#### 1. CHEMICAL PRODUCT & COMPANY INFORMATION

OLD WORLD INDUSTRIES, INC.  
4065 COMMERCIAL AVENUE  
NORTHBROOK, ILLINOIS 60062  
PHONE: 847-559-2000  
EMERGENCY PHONE: 1-800-424-9300 (CHEMTREC)

#### 2. COMPOSITION / INFORMATION ON INGREDIENTS

No hazardous components identified per 29 CFR 1910.1200.

<u>Material</u>	<u>CAS#</u>	<u>% by Wt.</u>	<u>STEL</u>	<u>TLV (ACGIH)</u>	<u>TWA</u>
Urea	57-13-6	32 – 33	Not established		10 mg/m <sup>3</sup> (AIHA WEEL)

NOTE: State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

### 3. HAZARDS IDENTIFICATION

#### EMERGENCY OVERVIEW

Avoid contact with eyes, skin and clothing. Wash thoroughly after handling.

Lowest Known LD50 (Oral):	Not known
Lowest Known LD50 (Skin):	Not known
Carcinogeny:	Not identified as a carcinogen
National Toxicology Program:	Not identified as a carcinogen
International Agency for Research on Cancer:	Not identified as a carcinogen
OSHA:	Not identified as a carcinogen

#### HAZARD RATING SYSTEM

NPFA: HEALTH: 1	FLAMMABILITY: 0	REACTIVITY: 0			
HMIS: HEALTH: 1	FLAMMABILITY: 0	REACTIVITY: 0	PERSONAL PROTECTION:		
KEY:	0 - Minimal	1 - Slight	2 - Moderate	3 - Serious	4 - Severe

#### POTENTIAL HEALTH EFFECTS

**Eye:** Contact may cause mild eye irritation, including stinging, watering and redness.

**Skin:** Contact may cause mild skin irritation, including redness and burning. No harmful effects from skin absorption have been reported.

**Inhalation (Breathing):** No information available. Studies by other exposure routes suggest a low degree of toxicity by inhalation.

**Ingestion (Swallowing):** No harmful effects reported from ingestion.

**Cancer:** Inadequate evidence available to evaluate the cancer hazard of this material.

**Target Organs:** No data available.

**Developmental:** Inadequate evidence available for this material.

**Pre-Existing Medical Conditions:** None known.

#### **4. FIRST AID MEASURES**

***Ensure physician has access to this MSDS.***

**Routes of Entry:** Inhalation, Skin, Ingestion

**Signs and Symptoms of Exposure:** Effects of overexposure may include irritation of the nose, throat and digestive tract, headaches, coughing, nausea, vomiting and transient disorientation.

#### ***TREATMENT***

**Eyes:** If irritation or redness develops, move victim away from exposure and into fresh air. Flush eyes with clean water. If symptoms persist, seek medical attention.

**Skin:** Remove contaminated shoes and clothing and cleanse affected area(s) thoroughly by washing with mild soap and water. If irritation or redness develops and persists, seek medical attention.

**Inhalation:** If respiratory difficulties develop, move victim away from source of exposure and into fresh air. If symptoms persist, seek medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion:** Do NOT induce vomiting. First aid is not normally required; however, if swallowed and symptoms develop, seek medical attention.

**Notes to Physician:** None.

#### **5. FIRE FIGHTING MEASURES**

##### ***FIRE & EXPLOSION HAZARD DATA***

##### **Flammable Properties**

Flash Point: None to boiling  
Method Used:

**Flammability Limits** - % of vapor concentration at which product can ignite in presence of spark.

LEL: No data  
UEL: No data

**Hazardous Combustion Products:** Closed containers exposed to extreme heat can rupture due to pressure building. Carbon oxides, nitrogen oxides, ammonia, biuret, cyanuric acid and other irritating fumes and smoke.

**Extinguishing Media:** Use extinguishing agent suitable for type of surrounding fire.

**Fire Fighting Instructions:** Isolate immediate hazard area and keep unauthorized personnel out. Stop spill / release if it can be done with minimal risk. Move undamaged containers from immediate hazard area if it can be done with minimal risk. Water spray may be useful in minimizing or dispersing vapors. Cool equipment exposed to fire with water, if it can be done with minimal risk.

**Protective Equipment For Fire Fighters:** For fires beyond the incipient stage, emergency responders in the immediate hazard area should wear bunker gear. When the potential chemical hazard is unknown, in enclosed or

confined spaces, or when explicitly required by DOT, a self-contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant. (See Section 8.)

## ***6. ACCIDENTAL RELEASE MEASURES***

**Protect People:** Wear appropriate protective equipment, including respiratory protection, as conditions warrant. (See Section 8.)

**Protect the Environment:** To prevent spilled material from entering sewers, storm drains or natural watercourses, contain material with a dike or with appropriate absorbent materials such as sand, clay, soil or commercially available absorbent. Place reclaimed liquid and absorbent into recovery or salvage drums for disposal. Refer to Section 13 for appropriate disposal.

**Cleanup:** Stop the source of the release if it can be done without risk. Immediately isolate the hazard area and restrict access to authorized personnel only.

## ***7. HANDLING AND STORAGE***

**Handling:** Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. The use of appropriate respiratory protection is advised when concentrations exceed any established exposure limits. (See Sections 2 and 8.) Wash thoroughly after handling. Do not wear contaminated clothing or shoes. Use good personal hygiene practice.

**Storage:** Keep container(s) tightly closed. Do not heat or contact with strong oxidizers. Use and store this material in cool, dry, well-ventilated areas. Do not store at temperatures below 40° F. Store only in approved containers. Keep away from any incompatible material. (See Section 10.) Protect container(s) against physical damage.

## ***8. EXPOSURE CONTROLS / PERSONAL PROTECTION***

**Respiratory Protection:** Respiratory protection is not usually required. If significant spray or mist occurs, wear a NIOSH approved or equivalent dust respirator.

**Skin Protection:** The use of gloves impermeable to the specific material handled is advised to prevent skin contact, possible irritation and absorption. (See glove manufacturer for information on permeability.)

**Eye Protection:** Approved eye protection to safeguard against potential eye contact, irritation or injury is recommended. Depending on conditions of use, a face shield may be necessary.

**Engineering Controls:** If current ventilation practices are not adequate to minimize exposure, additional ventilation or exhaust systems may be required.

**Other Protective Equipment:** A source of clean water should be available in the work area for flushing eyes and skin. Impervious clothing should be worn as needed.

## ***9. PHYSICAL AND CHEMICAL PROPERTIES***

<b>Boiling Point:</b>	>212° F
<b>Crystallization Point:</b>	12° F
<b>Pounds/Gallon:</b>	9.09
<b>Specific Gravity (Water =1):</b>	1.09
<b>Vapor Pressure (mm of Hg):</b>	Not applicable
<b>Vapor Density (Air=1):</b>	0.6 H2O, >1
<b>Water Solubility:</b>	100%
<b>Appearance:</b>	Colorless, clear liquid
<b>Odor:</b>	None to slight ammonia
<b>Evaporation Rate:</b>	<1

### 10. STABILITY & REACTIVITY DATA

**Stability:** Stable under normal conditions of storage and handling.

**Conditions to Avoid:** None known.

**Incompatibility (Materials to Avoid):** Avoid contact with strong oxidizing agents such as chlorine (bleach), peroxides, chromates, nitric acid, perchlorates, concentrated oxygen or permanganates. Contact can generate heat, fires, explosions and release toxic fumes.

**Hazardous Decomposition Products:** If involved in a fire, oxides of carbon and nitrogen may be generated; exposure to heat may generate ammonia fumes.

**Hazardous Polymerization:** Will not occur.

### 11. TOXICOLOGICAL INFORMATION

No definitive information available on carcinogenicity, mutagenicity, target organs or developmental toxicity.

**Toxicological data:** There is no available data for the product itself, only for the ingredients. See below for individual ingredient acute toxicity data.

Ingredients	LC <sub>50</sub> (4 hr) Inh, rat	LD <sub>50</sub>	
		Oral	Dermal
Urea	N/Av	8471 mg/kg (rat)	8200 mg/kg (rabbit)

### 12. ECOLOGICAL INFORMATION

No data available.

### 13. DISPOSAL CONSIDERATIONS

This material, if discarded as produced, is not a RCRA "listed" or "characteristic" hazardous waste. Use resulting in chemical or physical change or contamination may subject it to regulation as a hazardous waste. Along with properly characterizing all waste materials, consult state and local regulations regarding the proper disposal of this material.

If this product becomes a waste, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D. As a non-hazardous liquid waste, it should be solidified with stabilizing agents such as sand, fly ash, or clay absorbent, so that no free liquid remains before disposal to an industrial waste landfill.

**RCRA #** Not listed

#### ***14. TRANSPORT INFORMATION***

**U.S. DEPARTMENT OF TRANSPORTATION (DOT): NOT CONTROLLED UNDER DOT.**

Proper Shipping Name:	Labels Required:
Hazard Class:	Placard:
UN Identification:	Exemption:
Packing Group:	Reportable Quantity:

**ICAO/IATA: NOT CONTROLLED UNDER ICAO/IATA.**

Proper Shipping Name:	Labels Required:
Hazard Class:	Placard:
UN Identification:	Exemption:
Packing Group:	Reportable Quantity:

**IMDG: NOT CONTROLLED UNER IMDG.**

Proper Shipping Name:	Labels Required:
Hazard Class:	Placard:
UN Identification:	Exemption:
Packing Group:	Reportable Quantity:

#### ***15. REGULATORY INFORMATION***

**Sara Title III:** This material contains the following chemicals subject to the reporting requirements of SARA 313 and 40 CFR 372: **None**

**California Proposition 65:** This material contains the following chemicals which are known to the State of California to cause cancer, birth defects or other reproductive harm, and are subject to the requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5): **None known**

**EPA (CERCLA) Reportable Quantity:** **None**

**Canadian Regulations:**

**WHMIS Information:** This product is not a WHMIS controlled product in Canada. Refer elsewhere in the MSDS for specific warnings and safe handling information. Refer to the employer's workplace education program. All ingredients appear on the Domestic Substances List (DSL).

***16. OTHER INFORMATION***

**Contact:** Thomas Cholke

**Phone:** (847) 559-2225

**Old World Industries, Inc. makes no warranty, representation or guarantee as to the accuracy, sufficiency or completeness of the material set forth herein. It is the user's responsibility to determine the safety, toxicity and suitability of his own use, handling and disposal of this product. Since actual use by others is beyond our control, no warranty, expressed or implied, is made by Old World Industries, Inc. as to the effects of such use, the results to be obtained or the safety and toxicity of this product, nor does Old World Industries, Inc. assume liability arising out of the use by others of this product referred to herein. The data in this MSDS relates only to the specific material designated herein and does not relate to use in combination with any other material or in any process.**

# Safety Data Sheet

According to OSHA HCS 2012 (29 CFR 1910.1200)



## Section 1: Identification

Product Identifier:

**No. 2 Diesel Fuel**

Other means of identification:

#2DSL ULS (All Grades); #2DSL HS (All Grades); #2DSL LS (All Grades); CARB DSL (All Grades); DIST CARB-Diesel (All Grades); Distillate,Diesel (All Grades); Gas Oil (All Grades); Hydrodewaxer Diesel (All Grades); Diesel Fuel (All Grades); EPA Diesel Fuel (All Grades); No. 2 Diesel (All Grades); No. 2 Diesel Fuel Oil (All Grades); No. 2 Distillate; No. 2 Diesel with Renewable Diesel (All Grades); Super Diesel Fuel (All Grades); Distillate Blend Stock; Fuels, Diesel; Virgin Diesel Fuel

SDS Number:

**001847**

MARPOL Annex I Category:

Gas Oils, Including Ship's Bunkers

Intended Use:

Fuel

Uses Advised Against:

All others

Emergency Health and Safety Number:

Chemtrec: 800-424-9300 (24 Hours)

Manufacturer:

Phillips 66 Company  
P.O. Box 4428  
Houston, Texas 77210

SDS Information:

Phone: 800-762-0942  
Email: SDS@P66.com  
URL: www.Phillips66.com

Customer Service:

800-527-5476 Technical Information: 800-527-5476

## Section 2: Hazards Identification

Classified Hazards

H226 -- Flammable liquids -- Category 3  
H315 -- Skin corrosion/irritation -- Category 2  
H304 -- Aspiration Hazard -- Category 1  
H332 -- Acute toxicity, Inhalation -- Category 4  
H373 -- Specific target organ toxicity (repeated exposure) -- Category 2  
H351 -- Carcinogenicity -- Category 2  
H410 -- Hazardous to the aquatic environment, chronic toxicity -- Category 1

Other Hazards

Electrostatic charge may be generated during pumping and other operations

### Label Elements



#### DANGER

Flammable liquid and vapor  
Causes skin irritation  
May be fatal if swallowed and enters airways  
Harmful if inhaled  
May cause damage to organs through prolonged or repeated exposure  
Suspected of causing cancer  
Very toxic to aquatic life with long lasting effects



Obtain special instructions before use; Do not handle until all safety precautions have been read and understood; Keep away from heat/sparks/open flames/hot surfaces. - No smoking; Keep away from any possible contact with water, because of violent reaction and possible flash fire; Ground/bond container and receiving equipment; Use explosion-proof electrical/ventilating/lighting equipment; Use only non-sparking tools; Take precautionary measures against static discharge; Do not breathe dust/fume/gas/mist/vapours/spray; Wash thoroughly after handling; Use only outdoors or in a well-ventilated area; Avoid release to the environment; Wear protective gloves / protective clothing / eye protection / face protection; Call a POISON CENTER or doctor/physician if you feel unwell; IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician; Do NOT induce vomiting; IF ON SKIN: Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower; IF ON SKIN:; Wash with plenty of soap and water; If skin irritation occurs; Get medical advice/attention; IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing; Take off contaminated clothing and wash before reuse; In case of fire: Use dry chemical, carbon dioxide, or foam for extinction; Store in a well-ventilated place. Keep cool; Dispose of contents/container to approved disposal facility



77 pages

### Section 3: Composition / Information on Ingredients

Chemical Name	CASRN	Concentration <sup>1</sup>
Fuels, diesel, no. 2	68476-34-6	95-100
Naphthalene	91-20-3	<1

Total Sulfur: < 0.1 wt%

<sup>1</sup> All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

### Section 4: First Aid Measures

**Eye Contact:** If irritation or redness develops from exposure, flush eyes with clean water. If symptoms persist, seek medical attention.

**Skin Contact:** Remove contaminated shoes and clothing, and flush affected area(s) with large amounts of water. If skin surface is damaged, apply a clean dressing and seek medical attention. If skin surface is not damaged, cleanse affected area(s) thoroughly by washing with mild soap and water or a waterless hand cleaner. If irritation or redness develops, seek medical attention. Wash contaminated clothing before reuse. If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician. (see Note to Physician)

**Inhalation (Breathing):** If respiratory symptoms or other symptoms of exposure develop, move victim away from source of exposure and into fresh air in a position comfortable for breathing. If symptoms persist, seek immediate medical attention. If victim is not breathing, clear airway and immediately begin artificial respiration. If breathing difficulties develop, oxygen should be administered by qualified personnel. Seek immediate medical attention.

**Ingestion (Swallowing):** Aspiration hazard: Do not induce vomiting or give anything by mouth because this material can enter the lungs and cause severe lung damage. If victim is drowsy or unconscious and vomiting, place on the left side with the head down. If possible, do not leave victim unattended and observe closely for adequacy of breathing. Seek medical attention.

**Most important symptoms and effects, both acute and delayed:** While significant vapor concentrations are not likely, high concentrations can cause minor respiratory irritation, headache, drowsiness, dizziness, loss of coordination, disorientation and fatigue. Ingestion can cause irritation of the digestive tract, nausea, diarrhea, and vomiting. Dry skin and possible irritation with repeated or prolonged exposure.

**Notes to Physician:** When using high-pressure equipment, injection of product under the skin can occur. In this case, the casualty should be sent immediately to the hospital. Do not wait for symptoms to develop. High-pressure hydrocarbon injection injuries may produce substantial necrosis of underlying tissue despite an innocuous appearing external wound. These injuries often require extensive emergency surgical debridement and all injuries should be evaluated by a specialist in order to assess the extent of injury. Early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury.

### Section 5: Fire-Fighting Measures

#### NFPA 704 Hazard Class

Health: 1 Flammability: 2 Instability: 0



0 (Minimal)  
1 (Slight)  
2 (Moderate)  
3 (Serious)  
4 (Severe)

**Extinguishing Media:** Dry chemical, carbon dioxide, or foam is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide in confined spaces. Simultaneous use of foam and water on the same surface is to be avoided as water destroys the foam. Water may be ineffective for extinguishment, unless used under favorable conditions by experienced fire fighters.

**Specific hazards arising from the chemical**

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**Unusual Fire & Explosion Hazards:** Flammable This material can be ignited by heat, sparks, flames, or other sources of ignition (e.g., static electricity, pilot lights, mechanical/electrical equipment, and electronic devices such as cell phones, computers, calculators, and pagers which have not been certified as intrinsically safe). Vapors may travel considerable distances to a source of ignition where they can ignite, flash back, or explode. May create vapor/air explosion hazard indoors, in confined spaces, outdoors, or in sewers. This product will float and can be reignited on surface water. Vapors are heavier than air and can accumulate in low areas. If container is not properly cooled, it can rupture in the heat of a fire.

**Hazardous Combustion Products:** Combustion may yield smoke, carbon monoxide, and other products of incomplete combustion. Oxides of nitrogen and sulfur may also be formed.

**Special protective actions for firefighters:** For fires beyond the initial stage, emergency responders in the immediate hazard area should wear protective clothing. When the potential chemical hazard is unknown, in enclosed or confined spaces, a self contained breathing apparatus should be worn. In addition, wear other appropriate protective equipment as conditions warrant (see Section 8).

Isolate immediate hazard area and keep unauthorized personnel out. Stop spill/release if it can be done safely. Move undamaged containers from immediate hazard area if it can be done safely. Water spray may be useful in minimizing or dispersing vapors and to protect personnel. Cool equipment exposed to fire with water, if it can be done safely. Avoid spreading burning liquid with water used for cooling purposes.

See Section 9 for Flammable Properties including Flash Point and Flammable (Explosive) Limits

## Section 6: Accidental Release Measures

**Personal precautions, protective equipment and emergency procedures:** Flammable Spillages of liquid product will create a fire hazard and may form an explosive atmosphere. Keep all sources of ignition and hot metal surfaces away from spill/release if safe to do so. The use of explosion-proof electrical equipment is recommended. Stay upwind and away from spill/release. Avoid direct contact with material. For large spillages, notify persons down wind of the spill/release, isolate immediate hazard area and keep unauthorized personnel out. Wear appropriate protective equipment, including respiratory protection, as conditions warrant (see Section 8). See Sections 2 and 7 for additional information on hazards and precautionary measures.

**Environmental Precautions:** Stop spill/release if it can be done safely. Prevent spilled material from entering sewers, storm drains, other unauthorized drainage systems, and natural waterways. Use foam on spills to minimize vapors. Use water sparingly to minimize environmental contamination and reduce disposal requirements. If spill occurs on water notify appropriate authorities and advise shipping of any hazard. Spills into or upon navigable waters, the contiguous zone, or adjoining shorelines that cause a sheen or discoloration on the surface of the water, may require notification of the National Response Center (phone number 800-424-8802).

**Methods and material for containment and cleaning up:** Notify relevant authorities in accordance with all applicable regulations. Immediate cleanup of any spill is recommended. Dike far ahead of spill for later recovery or disposal. Absorb spill with inert material such as sand or vermiculite, and place in suitable container for disposal. If spilled on water remove with appropriate methods (e.g. skimming, booms or absorbents). In case of soil contamination, remove contaminated soil for remediation or disposal, in accordance with local regulations.

Recommended measures are based on the most likely spillage scenarios for this material; however local conditions and regulations may influence or limit the choice of appropriate actions to be taken.

## Section 7: Handling and Storage

**Precautions for safe handling:** Keep away from ignition sources such as heat/sparks/open flame – No smoking. Take precautionary measures against static discharge. Nonsparking tools should be used. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe vapors or mists. Use only outdoors or in well-ventilated area. Wear protective gloves/clothing and eye/face protection. Wash thoroughly after handling. Use good personal hygiene practices and wear appropriate personal protective equipment (see section 8). Flammable May vaporize easily at ambient temperatures. The vapor is heavier than air and may create an explosive mixture of vapor and air. Beware of accumulation in confined spaces and low lying areas. Open container slowly to relieve any pressure. The use of explosion-proof electrical equipment is recommended and may be required (see appropriate fire codes). Refer to NFPA-70 and/or API RP 2003 for specific bonding/grounding requirements. Do not enter confined spaces such as tanks or pits without following proper entry procedures such as ASTM D-4276 and 29CFR 1910.146. Do not wear contaminated clothing or shoes. Keep contaminated clothing away from sources of ignition such as sparks or open flames.

High pressure injection of hydrocarbon fuels, hydraulic oils or greases under the skin may have serious consequences even though no symptoms or injury may be apparent. This can happen accidentally when using high pressure equipment such as high pressure grease guns, fuel injection apparatus or from pinhole leaks in tubing of high pressure hydraulic oil equipment.

For use as a motor fuel only. Do not use as a solvent due to its flammable and potentially toxic properties. Siphoning by mouth can result in lung aspiration which can be harmful or fatal.

The use of hydrocarbon fuel in an area without adequate ventilation may result in hazardous levels of incomplete combustion products (e.g. carbon monoxide, oxides of sulfur and nitrogen, benzene and other hydrocarbons) and/or dangerously low oxygen levels.

Diesel engine exhaust contains hazardous combustion products and has been identified as a cancer hazard. Exposure should be minimized to reduce potential risk.

**Static Accumulation Hazard:** Electrostatic charge may accumulate and create a hazardous condition when handling this material. To minimize this hazard, bonding and grounding of tanks, transfer piping, and storage tank level floats are necessary but may not, by themselves, be sufficient. Review all operations which have the potential of generating and accumulating an electrostatic charge and/or a flammable atmosphere (including tank and container filling, splash filling, tank cleaning, sampling, gauging, switch loading, filtering, mixing, agitation, and vacuum truck operations) and use appropriate mitigating procedures. Special care should be given to ensure that special slow load procedures for "switch loading" are followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil or diesel) is loaded into tanks previously containing low flash point products (such as gasoline or naphtha). For more information, refer to OSHA Standard 29 CFR 1910.106, 'Flammable and Combustible Liquids', National Fire Protection Association (NFPA 77, 'Recommended Practice on Static Electricity', and/or the American Petroleum Institute (API) Recommended Practice 2003, 'Protection Against Ignitions Arising Out of Static, Lightning, and Stray Currents'.

**Conditions for safe storage:** Keep container(s) tightly closed and properly labeled. Use and store this material in cool, dry, well-ventilated areas away from heat, direct sunlight, hot metal surfaces, and all sources of ignition. Store only in approved containers. Post area "No Smoking or Open Flame." Keep away from any incompatible material (see Section 10). Protect container(s) against physical damage. Outdoor or detached storage is preferred. Indoor storage should meet OSHA standards and appropriate fire codes.

"Empty" containers retain residue and may be dangerous. Do not pressurize, cut, weld, braze, solder, drill, grind, or expose such containers to heat, flame, sparks, or other sources of ignition. They may explode and cause injury or death. "Empty" drums should be completely drained, properly bunged, and promptly shipped to the supplier or a drum reconditioner. All containers should be disposed of in an environmentally safe manner and in accordance with governmental regulations. Before working on or in tanks which contain or have contained this material, refer to OSHA regulations, ANSI Z49.1, and other references pertaining to cleaning, repairing, welding, or other contemplated operations.

**Section 8: Exposure Controls / Personal Protection**

Chemical Name	ACGIH	OSHA	Other
Fuels, diesel, no. 2	TWA: 100 mg/m <sup>3</sup> Skin	---	TWA: 100 mg/m <sup>3</sup> (Phillips 66 Guidelines)

Naphthalene	STEL: 15 ppm TWA: 10 ppm 10 ppm TWA; skin; A3 - confirmed animal carcinogen with unknown relevance to humans; TLV basis: upper respiratory tract irritation Skin	TWA: 10 ppm : 50 mg/m <sup>3</sup>	---
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**Note:** State, local or other agencies or advisory groups may have established more stringent limits. Consult an industrial hygienist or similar professional, or your local agencies, for further information.

**Engineering controls:** If current ventilation practices are not adequate to maintain airborne concentrations below the established exposure limits, additional engineering controls may be required.

**Eye/Face Protection:** The use of eye protection that meets or exceeds ANSI Z.87.1 is recommended to protect against potential eye contact, irritation, or injury. Depending on conditions of use, a face shield may be necessary.

**Skin/Hand Protection:** The use of gloves impervious to the specific material handled is advised to prevent skin contact. Users should check with manufacturers to confirm the breakthrough performance of their products. Depending on exposure and use conditions, additional protection may be necessary to prevent skin contact including use of items such as chemical resistant boots, aprons, arm covers, hoods, coveralls, or encapsulated suits. Suggested protective materials: Nitrile

**Respiratory Protection:** Where there is potential for airborne exposure above the exposure limit a NIOSH certified air purifying respirator equipped with organic vapor cartridges/canisters may be used.

A respiratory protection program that meets or is equivalent to OSHA 29 CFR 1910.134 and ANSI Z88.2 should be followed whenever workplace conditions warrant a respirator's use. Air purifying respirators provide limited protection and cannot be used in atmospheres that exceed the maximum use concentration (as directed by regulation or the manufacturer's instructions), in oxygen deficient (less than 19.5 percent oxygen) situations, or under conditions that are immediately dangerous to life and health (IDLH).

**Other Protective Equipment:** Eye wash and quick-drench shower facilities should be available in the work area. Thoroughly clean shoes and wash contaminated clothing before reuse.

**Suggestions provided in this section for exposure control and specific types of protective equipment are based on readily available information. Users should consult with the specific manufacturer to confirm the performance of their protective equipment. Specific situations may require consultation with industrial hygiene, safety, or engineering professionals.**

## Section 9: Physical and Chemical Properties

**Note:** Unless otherwise stated, values are determined at 20°C (68°F) and 760 mm Hg (1 atm). Data represent typical values and are not intended to be specifications.

**Appearance:** Straw colored to dyed red

**Physical Form:** Liquid

**Odor:** Diesel fuel

**Odor Threshold:** No data

**pH:** Not applicable

**Vapor Density (air=1):** > 3

**Upper Explosive Limits (vol % in air):** 10.0

**Lower Explosive Limits (vol % in air):** 0.3

**Evaporation Rate (nBuAc=1):** <1

**Particle Size:** N/A

**Percent Volatile:** Negligible @ ambient conditions

**Flammability (solid, gas):** N/A

**Flash Point:** 125 - 180 °F / 52 - 82 °C

**Test Method:** Pensky-Martens Closed Cup (PMCC), ASTM D93, EPA 1010

**Initial Boiling Point/Range:** 300 - 690 °F / 149 - 366 °C

**Vapor Pressure:** 0.40 mm Hg

**Partition Coefficient (n-octanol/water) (Kow):** No data

**Melting/Freezing Point:** No data

**Auto-ignition Temperature:** 500 °F / 260 °C

**Decomposition Temperature:** No data

**Specific Gravity (water=1):** 0.81-0.88 @ 60°F (15.6°C)

**Bulk Density:** 7.08 lbs/gal

**Viscosity:** N/D

**Solubility in Water:** Negligible

## Section 10: Stability and Reactivity

**Reactivity:** Not chemically reactive.

**Chemical stability:** Stable under normal ambient and anticipated conditions of use.

**Possibility of hazardous reactions:** Hazardous reactions not anticipated.

**Conditions to avoid:** Avoid high temperatures and all sources of ignition. Prevent vapor accumulation.

**Incompatible materials:** Avoid contact with strong oxidizing agents and strong reducing agents.

**Hazardous decomposition products:** Not anticipated under normal conditions of use.

## Section 11: Toxicological Information

### Information on Toxicological Effects of Substance/Mixture

<u>Acute Toxicity</u>	<u>Hazard</u>	<u>Additional Information</u>	<u>LC50/LD50 Data</u>
Inhalation	Harmful if inhaled		4.65 mg/L (mist)
Dermal	Unlikely to be harmful		> 4.1 g/kg
Oral	Unlikely to be harmful		> 5 g/kg

**Aspiration Hazard:** May be fatal if swallowed and enters airways.

**Skin Corrosion/Irritation:** Causes skin irritation. Repeated exposure may cause skin dryness or cracking.

**Serious Eye Damage/Irritation:** Causes mild eye irritation.

**Skin Sensitization:** Not expected to be a skin sensitizer.

**Respiratory Sensitization:** Not expected to be a respiratory sensitizer.

**Specific Target Organ Toxicity (Single Exposure):** Not expected to cause organ effects from single exposure.

**Specific Target Organ Toxicity (Repeated Exposure):** May cause damage to organs through prolonged or repeated exposure. Repeated dermal application of petroleum gas oils for 90 days resulted in decreased liver, thymus, and spleen weights, and altered bone marrow function. Microscopic alterations included liver hypertrophy and necrosis, decreased hematopoiesis and lymphocyte depletion.

**Carcinogenicity:** Suspected of causing cancer. Petroleum middle distillates have been shown to cause skin tumors in mice following repeated and prolonged skin contact. Follow-up studies have shown that these tumors are produced through a non-genotoxic mechanism associated with frequent cell damage and repair, and that they are not likely to cause tumors in the absence of prolonged skin irritation.

**Germ Cell Mutagenicity:** Not expected to cause heritable genetic effects.

**Reproductive Toxicity:** Not expected to cause reproductive toxicity.

**Other Comments:** Diesel engine exhaust has been classified by the International Agency for Research on Cancer (IARC) and National Toxicology Program (NTP) as a carcinogen.

### Information on Toxicological Effects of Components

#### Naphthalene

**Carcinogenicity:** Naphthalene has been evaluated in two year inhalation studies in both rats and mice. The US National Toxicology Program (NTP) concluded that there is clear evidence of carcinogenicity in male and female rats based on increased incidences of respiratory epithelial adenomas and olfactory epithelial neuroblastomas of the nose. NTP found some evidence of carcinogenicity in female mice (alveolar adenomas) and no evidence of carcinogenicity in male mice. Naphthalene has been identified as a carcinogen by IARC and NTP.

## Section 12: Ecological Information



**GHS Classification:**  
**H410 -- Hazardous to the aquatic environment, chronic toxicity -- Category 1**  
Very toxic to aquatic life with long lasting effects.

**Toxicity:** Experimental studies of gas oils show that acute aquatic toxicity values are typically in the range 2-20 mg/L. These values are consistent with the predicted aquatic toxicity of these substances based on their hydrocarbon compositions. They should be regarded as toxic to aquatic organisms, with the potential to cause long term adverse effects in the aquatic environment.

**Persistence and Degradability:** Gas oils are complex combinations of individual hydrocarbon species. Based on the known or expected properties of individual constituents, category members are not predicted to be readily biodegradable. Some hydrocarbon constituents of gas oils are predicted to meet the criteria for persistence; on the other hand, some components can be easily degraded by microorganisms under aerobic conditions.

**Persistence per IOPC Fund definition:** Non-Persistent

**Bioaccumulative Potential:** Gas oil components have measured or calculated Log Kow values in the range of 3.9 to 6 which indicates a high potential to bioaccumulate. Lower molecular weight compounds are readily metabolized and the actual bioaccumulation potential of higher molecular weight compounds is limited by the low water solubility and large molecular size.

**Mobility in Soil:** Releases to water will result in a hydrocarbon film floating and spreading on the surface. For the lighter components, volatilization is an important loss process and reduces the hazard to aquatic organisms. In air, the hydrocarbon vapors react readily with hydroxyl radicals with half-lives of less than one day. Photoxidation on the water surface is also a significant loss process particularly for polycyclic aromatic compounds. In water, the majority of components will be adsorbed on sediment. Adsorption is the most predominant physical process on release to soil. Adsorbed hydrocarbons will slowly degrade in both water and soil.

**Other adverse effects:** None anticipated.

### Section 13: Disposal Considerations

The generator of a waste is always responsible for making proper hazardous waste determinations and needs to consider state and local requirements in addition to federal regulations.

This material, if discarded as produced, would not be a federally regulated RCRA "listed" hazardous waste. However, it would likely be identified as a federally regulated RCRA hazardous waste for the following characteristic(s) shown below. See Sections 7 and 8 for information on handling, storage and personal protection and Section 9 for physical/chemical properties. It is possible that the material as produced contains constituents which are not required to be listed in the MSDS but could affect the hazardous waste determination. Additionally, use which results in chemical or physical change of this material could subject it to regulation as a hazardous waste.

Container contents should be completely used and containers should be emptied prior to discard. Container residues and rinseates could be considered to be hazardous wastes.

**EPA Waste Number(s)**

- D001 - Ignitability characteristic

### Section 14: Transport Information

U.S. Department of Transportation (DOT)

**Shipping Description:** *Aquatic toxicity studies indicate this material may be classified as a Marine Pollutant under IMDG Code. It is not currently regulated as a marine pollutant by the USDOT. If there is not a Shipping Description or other DOT marking, labeling, placarding and packaging references shown in this section, it is not regulated as a hazardous material by the USDOT.*

**Non-Bulk Package Marking:** UN1202, Diesel fuel, Combustible liquid III  
 Not Regulated [49 CFR 173.150(f)(2)]  
**Non-Bulk Package Labeling:** Not Regulated [49 CFR 173.150(f)(2)]  
**Bulk Package/Placard Marking:** Combustible / 1993  
**Packaging - References:** None; None; 49 CFR 173.241  
*(Exceptions; Non-bulk; Bulk)*  
**Emergency Response Guide:** 128  
**Note:** \*\*NA1993 may be used instead of UN1202 for domestic land transportation.  
*Bulk Package/Placard Marking would also be changed to: 1202 Container(s) greater than 5 liters (liquids) or 5 kilograms (solids), shipped by water mode and ALL bulk shipments may require the shipping description to contain the "Marine Pollutant" notation [49 CFR 172.203(l)] and the container(s) to display the [Marine Pollutant Mark] [49 CFR 172.322].*

**International Maritime Dangerous Goods (IMDG)**

**Shipping Description:** *If flashpoint is >60° C closed-cup and the material meets the IMDG definition of a Marine Pollutant, an alternate shipping name such as "Environmentally hazardous substance, n.o.s." with hazard class 9 and PG III must be used.*  
 UN1202, Diesel fuel, 3, III, ( FP° C cc), [where FP is the material's flash point in degrees Celsius closed cup]  
**Non-Bulk Package Marking:** Diesel fuel, UN1202  
**Labels:** Flammable liquid  
**Placards/Marking (Bulk):** Flammable / 1202  
**Packaging - Non-Bulk:** P001, LP01  
**EMS:** F-E, S-E  
**Note:** *Proper Shipping name can be: Gas Oil or Diesel fuel or Heating Oil, light If transported in bulk by marine vessel in international waters, product is being carried under the scope of MARPOL Annex I. If container(s) is greater than 5 liters (liquids) or 5 kilograms (solids), shipment may require the shipping description to contain the "Marine Pollutant" description [IMDG 5.4.1.4.3.5] and the container(s) to display the Marine Pollutant mark [IMDG 5.2.1.6].*

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

**International Civil Aviation Org. / International Air Transport Assoc. (ICAO/IATA)**

**UN/ID #:** *Not regulated if flashpoint is >60° C closed-cup*  
 UN1202  
**Proper Shipping Name:** Diesel fuel  
**Hazard Class/Division:** 3  
**Packing Group:** III  
**Non-Bulk Package Marking:** Diesel fuel, UN1202  
**Labels:** Flammable liquid  
**ERG Code:** 3L  
**Note:** *If container(s) is greater than 5 liters (liquids) or 5 kilograms (solids), shipment may require the container to display the "Environmentally hazardous substance" mark [IATA 7.1.6.3].*

	LTD. QTY	Passenger Aircraft	Cargo Aircraft Only
Packaging Instruction #:	Y344	355	366
Max. Net Qty. Per Package:	10 L	60 L	220 L

**Section 15: Regulatory Information**

**CERCLA/SARA - Section 302 Extremely Hazardous Substances and TPQs (in pounds):**

This material does not contain any chemicals subject to the reporting requirements of SARA 302 and 40 CFR 372.

**CERCLA/SARA - Section 311/312 (Title III Hazard Categories)**

Acute Health Hazard: yes  
Chronic Health Hazard: Yes  
Fire Hazard: Yes  
Pressure Hazard: No  
Reactive Hazard: No

**CERCLA/SARA - Section 313 and 40 CFR 372:**

This material contains the following chemicals subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR 372:

Chemical Name	Concentration <sup>1</sup>	de minimis
Naphthalene	<1	0.1%

**EPA (CERCLA) Reportable Quantity (in pounds):**

EPA's Petroleum Exclusion applies to this material - (CERCLA 101(14)).

**California Proposition 65:**

Warning: This material may contain detectable quantities of the following chemicals, known to the State of California to cause cancer, birth defects or other reproductive harm, and which may be subject to the warning requirements of California Proposition 65 (CA Health & Safety Code Section 25249.5):

Chemical Name	Type of Toxicity
Naphthalene	Cancer

**International Hazard Classification**

**Canada:**

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

**WHMIS Hazard Class:**

- B3 - Combustible liquid
- D1B - Toxic materials
- D2A - Very toxic materials
- D2B - Toxic materials

**National Chemical Inventories**

All components are either listed on the US TSCA Inventory, or are not regulated under TSCA  
All components are either on the DSL, or are exempt from DSL listing requirements.

U.S. Export Control Classification Number: EAR99

**Section 16: Other Information**

Date of Issue:	Previous Issue Date:	SDS Number:	Status:
18-Jul-2013	06-Mar-2013	001847	FINAL

**Revised Sections or Basis for Revision:**

Physical Properties (Section 9); Shipping information (Section 14)

**Guide to Abbreviations:**

ACGIH = American Conference of Governmental Industrial Hygienists; CASRN = Chemical Abstracts Service Registry Number; CEILING = Ceiling Limit (15 minutes); CERCLA = The Comprehensive Environmental Response, Compensation, and Liability Act; EPA = Environmental Protection Agency; GHS = Globally Harmonized System; IARC = International Agency for Research on Cancer; INSHT = National Institute for Health and Safety at Work; IOPC = International Oil Pollution Compensation; LEL = Lower Explosive Limit; NE = Not Established; NFPA = National Fire Protection Association; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; PEL = Permissible Exposure Limit (OSHA); SARA = Superfund Amendments and Reauthorization Act; STEL = Short Term Exposure Limit (15 minutes); TLV = Threshold Limit Value (ACGIH); TWA = Time Weighted Average (8 hours); UEL = Upper Explosive Limit; WHMIS = Worker Hazardous Materials Information System (Canada)

**Disclaimer of Expressed and implied Warranties:**

The information presented in this Safety Data Sheet is based on data believed to be accurate as of the date this Safety Data Sheet was prepared. HOWEVER, NO WARRANTY OF MERCHANTABILITY, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY OTHER WARRANTY IS EXPRESSED OR IS TO BE IMPLIED REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION PROVIDED ABOVE, THE RESULTS TO BE OBTAINED FROM THE USE OF THIS INFORMATION OR THE PRODUCT, THE SAFETY OF THIS PRODUCT, OR THE HAZARDS RELATED TO ITS USE. No responsibility is assumed for any damage or injury resulting from abnormal use or from any failure to adhere to recommended practices. The information provided above, and the product, are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk of their use. In addition, no authorization is given nor implied to practice any patented invention without a license.



# SAFETY DATA SHEET

## 1. Identification

<b>Product identifier</b>	<b>DIESEL FUELS</b>
<b>Other means of identification</b>	
<b>SDS number</b>	102-GHS
<b>Synonyms</b>	Diesel Fuels All Grades, Diesel Fuel No.2, Fuel Oil No.2, High Sulfur Diesel Fuel, Low Sulfur Diesel Fuel, Ultra Low Sulfur Diesel Fuel, CARB (California Air Resource Board) Diesel Fuel, Off-Road Diesel Fuel, Dyed Diesel Fuel, X Grade Diesel Fuel, X-1 Diesel Fuel, R5 ULSD, B5 ULS D See section 16 for complete information.
<b>Recommended use</b>	Motor Fuel Refinery feedstock.
<b>Recommended restrictions</b>	None known.
<b>Manufacturer/Importer/Supplier/Distributor information</b>	
<b>Manufacturer/Supplier</b>	Valero Marketing & Supply Company and Affiliates One Valero Way San Antonio, TX 78269-6000 210-345-4593
<b>General Assistance</b>	210-345-4593
<b>E-Mail</b>	CorpHSE@valero.com
<b>Contact Person</b>	Industrial Hygienist
<b>Emergency Telephone</b>	24 Hour Emergency 866-565-5220 1-800-424-9300 (CHEMTREC USA)

## 2. Hazard(s) identification

<b>Physical hazards</b>	Flammable liquids	Category 3
<b>Health hazards</b>	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 2
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 2
	Specific target organ toxicity, repeated exposure	Category 2
	Aspiration hazard	Category 1
<b>Environmental hazards</b>	Hazardous to the aquatic environment, long-term hazard	Category 2
<b>OSHA defined hazards</b>	Not classified.	
<b>Label elements</b>		



<b>Signal word</b>	Danger
<b>Hazard statement</b>	Flammable liquid and vapor. Harmful if inhaled. Causes skin irritation. Suspected of causing cancer. Suspected of damaging fertility or the unborn child. May cause damage to organs (blood, thymus, liver) through prolonged or repeated exposure. May be fatal if swallowed and enters airways.
<b>Precautionary statement</b>	
<b>Prevention</b>	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharges. Do not breathe mist/vapors/spray. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection. Use only outdoors or in a well-ventilated area.

<b>Response</b>	If skin irritation occurs: Get medical advice/attention. If inhaled: Remove person to fresh air and keep comfortable for breathing. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If exposed or concerned: Get medical advice/attention. If swallowed: Immediately call a poison center/doctor. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
<b>Storage</b>	Store locked up. Store in a well-ventilated place. Keep cool.
<b>Disposal</b>	Dispose of contents/container in accordance with local/regional/national/international regulations.
<b>Hazard(s) not otherwise classified (HNOC)</b>	None known.

### 3. Composition/information on ingredients

#### Mixtures

Chemical name	CAS number	%
Fuels, diesel, no. 2	68476-34-6	85 - 100
Biodiesel - Fatty acid methyl esters	67762-38-3	0 - 10
Fuels, diesel, C9-18-alkane branched and linear	1159170-26-9	0 - 5
n-Nonane	111-84-2	1 - 3
Octane (All isomers)	111-65-9	1 - 2
Hexane (Other isomers)	96-14-0	0 - 1
Naphthalene	91-20-3	0 - 1
n-Heptane	142-82-5	0 - 1
n-Hexane	110-54-3	0 - 1

### 4. First-aid measures

<b>Inhalation</b>	Move to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Get medical attention.
<b>Skin contact</b>	Remove contaminated clothing and shoes. Wash off immediately with soap and plenty of water. Get medical attention if irritation develops or persists. Wash clothing separately before reuse. Destroy or thoroughly clean contaminated shoes. If high pressure injection under the skin occurs, always seek medical attention.
<b>Eye contact</b>	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.
<b>Ingestion</b>	Rinse mouth thoroughly. Do not induce vomiting without advice from poison control center. Do not give mouth-to-mouth resuscitation. If vomiting occurs, keep head low so that stomach content does not get into the lungs. Never give anything by mouth to a victim who is unconscious or is having convulsions. Get medical attention immediately.
<b>Most important symptoms/effects, acute and delayed</b>	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere.
<b>Indication of immediate medical attention and special treatment needed</b>	In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed. The toxicological properties of this material have not been fully investigated.
<b>General information</b>	If exposed or concerned: get medical attention/advice. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before re-use.

### 5. Fire-fighting measures

**Suitable extinguishing media** Water spray. Water fog. Foam. Dry chemical powder. Carbon dioxide (CO<sub>2</sub>).

**Unsuitable extinguishing media**

Do not use a solid water stream as it may scatter and spread fire.

**Specific hazards arising from the chemical**

The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Thermal decomposition or combustion may liberate toxic gases or fumes.

**Special protective equipment and precautions for firefighters**

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

**Fire-fighting equipment/instructions**

Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask. Withdraw immediately in case of rising sound from venting safety devices or any discoloration of tanks due to fire. Fight fire from maximum distance or use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do it without risk. In the event of fire, cool tanks with water spray. Cool containers exposed to flames with water until well after the fire is out. For massive fire, use unmanned hose holders or monitor nozzles; if this is impossible, withdraw from area and let fire burn. Water runoff can cause environmental damage. Use compatible foam to minimize vapor generation as needed.

## 6. Accidental release measures

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

Keep unnecessary personnel away. Local authorities should be advised if significant spills cannot be contained. Keep upwind. Keep out of low areas. Ventilate closed spaces before entering. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. See Section 8 of the SDS for Personal Protective Equipment.

**Methods and materials for containment and cleaning up**

Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Local authorities should be advised if significant spillages cannot be contained. Stop leak if you can do so without risk. This material is a water pollutant and should be prevented from contaminating soil or from entering sewage and drainage systems and bodies of water. Dike the spilled material, where this is possible. Prevent entry into waterways, sewers, basements or confined areas.

Use non-sparking tools and explosion-proof equipment.

Small Spills: Absorb spill with vermiculite or other inert material, then place in a container for chemical waste. Clean surface thoroughly to remove residual contamination. This material and its container must be disposed of as hazardous waste.

Large Spills: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Prevent product from entering drains. Do not allow material to contaminate ground water system. Should not be released into the environment.

Clean up in accordance with all applicable regulations.

**Environmental precautions**

If facility or operation has an "oil or hazardous substance contingency plan", activate its procedures. Stay upwind and away from spill. Wear appropriate protective equipment including respiratory protection as conditions warrant. Do not enter or stay in area unless monitoring indicates that it is safe to do so. Isolate hazard area and restrict entry to emergency crew. Flammable. Review Firefighting Measures, Section 5, before proceeding with clean up. Keep all sources of ignition (flames, smoking, flares, etc.) and hot surfaces away from release. Contain spill in smallest possible area. Recover as much product as possible (e.g. by vacuuming). Stop leak if it can be done without risk. Use water spray to disperse vapors. Use compatible foam to minimize vapor generation as needed. Spilled material may be absorbed by an appropriate absorbent, and then handled in accordance with environmental regulations. Prevent spilled material from entering sewers, storm drains, other unauthorized treatment or drainage systems and natural waterways. Contact fire authorities and appropriate federal, state and local agencies. If spill of any amount is made into or upon navigable waters, the contiguous zone, or adjoining shorelines, contact the National Response Center at 1-800-424-8802. For highway or railways spills, contact Chemtrec at 1-800-424-9300.

## 7. Handling and storage

**Precautions for safe handling**

Eliminate sources of ignition. Avoid spark promoters. Ground/bond container and equipment. These alone may be insufficient to remove static electricity. Wear personal protective equipment. Avoid breathing mist/vapors/spray. Avoid contact with eyes, skin, and clothing. Do not taste or swallow. Avoid prolonged exposure. Use only with adequate ventilation. Wash thoroughly after handling. The product is combustible, and heating may generate vapors which may form explosive vapor/air mixtures. DO NOT handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. When using, do not eat, drink or smoke. Avoid release to the environment.

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

Flammable liquid storage. Do not handle or store near an open flame, heat or other sources of ignition. This material can accumulate static charge which may cause spark and become an ignition source. The pressure in sealed containers can increase under the influence of heat. Keep container tightly closed in a cool, well-ventilated place. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

**8. Exposure controls/personal protection**

**Occupational exposure limits**

**US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)**

Components	Type	Value
Naphthalene (CAS 91-20-3)	PEL	50 mg/m3
		10 ppm
n-Heptane (CAS 142-82-5)	PEL	2000 mg/m3
		500 ppm
n-Hexane (CAS 110-54-3)	PEL	1800 mg/m3
		500 ppm
Octane (All isomers) (CAS 111-65-9)	PEL	2350 mg/m3
		500 ppm

**US. ACGIH Threshold Limit Values**

Components	Type	Value	Form
Fuels, diesel, no. 2 (CAS 68476-34-6)	TWA	100 mg/m3	Inhalable fraction and vapor.
Hexane (Other isomers) (CAS 96-14-0)	STEL	1000 ppm	
Naphthalene (CAS 91-20-3)	TWA	500 ppm	
	STEL	15 ppm	
n-Heptane (CAS 142-82-5)	TWA	10 ppm	
	STEL	500 ppm	
n-Hexane (CAS 110-54-3)	TWA	400 ppm	
	TWA	50 ppm	
n-Nonane (CAS 111-84-2)	TWA	200 ppm	
Octane (All isomers) (CAS 111-65-9)	TWA	300 ppm	

**US. NIOSH: Pocket Guide to Chemical Hazards**

Components	Type	Value
Hexane (Other isomers) (CAS 96-14-0)	Ceiling	1800 mg/m3
		510 ppm
Naphthalene (CAS 91-20-3)	TWA	350 mg/m3
		100 ppm
	STEL	75 mg/m3
		15 ppm
n-Heptane (CAS 142-82-5)	TWA	50 mg/m3
		10 ppm
	Ceiling	1800 mg/m3
		440 ppm
n-Hexane (CAS 110-54-3)	TWA	350 mg/m3
		85 ppm
	TWA	180 mg/m3
		50 ppm
n-Nonane (CAS 111-84-2)	TWA	1050 mg/m3
		200 ppm
	Ceiling	1800 mg/m3
		385 ppm
Octane (All isomers) (CAS 111-65-9)	TWA	350 mg/m3
		75 ppm

## Biological limit values

### ACGIH Biological Exposure Indices

Components	Value	Determinant	Specimen	Sampling Time
n-Hexane (CAS 110-54-3)	0.4 mg/l	2,5-Hexanedion, without hydrolysis	Urine	*
	0.4 mg/l	2,5-Hexanedion, without hydrolysis		*

\* - For sampling details, please see the source document.

## Exposure guidelines

### US - California OELs: Skin designation

n-Hexane (CAS 110-54-3)

Can be absorbed through the skin.

### US ACGIH Threshold Limit Values: Skin designation

Fuels, diesel, no. 2 (CAS 68476-34-6)

Can be absorbed through the skin.

Naphthalene (CAS 91-20-3)

Can be absorbed through the skin.

n-Hexane (CAS 110-54-3)

Can be absorbed through the skin.

## Appropriate engineering controls

Provide adequate general and local exhaust ventilation. Use process enclosures, local exhaust ventilation, or other engineering controls to control airborne levels below recommended exposure limits. Use explosion-proof equipment.

## Individual protection measures, such as personal protective equipment

### Eye/face protection

Wear safety glasses. If splash potential exists, wear full face shield or chemical goggles.

### Skin protection

#### Hand protection

Wear chemical-resistant, impervious gloves. Suitable gloves can be recommended by the glove supplier. Be aware that the liquid may penetrate the gloves. Frequent change is advisable.

#### Other

Full body suit and boots are recommended when handling large volumes or in emergency situations. Flame retardant protective clothing is recommended.

### Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator. If workplace exposure limits for product or components are exceeded, NIOSH approved equipment should be worn. Proper respirator selection should be determined by adequately trained personnel, based on the contaminants, the degree of potential exposure and published respiratory protection factors. This equipment should be available for nonroutine and emergency use.

### Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

## General hygiene considerations

Consult supervisor for special handling instructions. Avoid contact with eyes. Avoid contact with skin. Keep away from food and drink. Wash hands before breaks and immediately after handling the product. Provide eyewash station and safety shower. Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

Appearance	Liquid (may be dyed red).
Physical state	Liquid.
Form	Liquid.
Color	Clear. Straw.
Odor	Kerosene (strong).
Odor threshold	Not available.
pH	Not available.
Melting point/freezing point	-60.07 °F (-51.15 °C) Estimated
Initial boiling point and boiling range	325 - 700 °F (162.78 - 371.11 °C)
Flash point	> 100.0 °F (> 37.8 °C) Closed Cup
Evaporation rate	0.02
Flammability (solid, gas)	Not available.

## Upper/lower flammability or explosive limits

Flammability limit - lower (%)	0.4 %
Flammability limit - upper (%)	8 %
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg (20°C)
Vapor density	3 (Air = 1)
Relative density	0.82 - 0.87
Relative density temperature	60 °F (15.56 °C)
Solubility(ies)	
Solubility (water)	Not available.
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	494.96 °F (257.2 °C)
Decomposition temperature	Not available.
Viscosity	2 - 4.5 mm <sup>2</sup> /s

## 10. Stability and reactivity

Reactivity	Stable at normal conditions.
Chemical stability	Stable under normal temperature conditions and recommended use.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Heat, flames and sparks. Ignition sources. Contact with incompatible materials. Do not pressurize, cut, weld, braze, solder, drill, grind or expose empty containers to heat, flame, sparks, static electricity, or other sources of ignition; they may explode and cause injury or death.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

## 11. Toxicological information

### Information on likely routes of exposure

Ingestion	May be fatal if swallowed and enters airways.
Inhalation	Harmful if inhaled. In high concentrations, vapors and spray mists are narcotic and may cause headache, fatigue, dizziness and nausea.
Skin contact	Causes skin irritation.
Eye contact	May cause eye irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of nose and throat. Irritation of eyes and mucous membranes. Skin irritation. Unconsciousness. Corneal damage. Narcosis. Decrease in motor functions. Behavioral changes. Edema. Liver enlargement. Jaundice. Conjunctivitis. Proteinuria. Defatting of the skin. Rash. The toxicological properties of this product have not been thoroughly investigated. Use appropriate precautions.

### Information on toxicological effects

Acute toxicity	Harmful if inhaled. Harmful: may cause lung damage if swallowed. The toxicological properties of this material have not been fully investigated.
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Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
Acute Inhalation LC50	Rat	4.1 mg/l, 4 hours

Components	Species	Test Results
Naphthalene (CAS 91-20-3)		
<b>Acute</b>		
<i>Dermal</i>		
LD50	Rabbit	> 2 g/kg
<i>Oral</i>		
LD50	Rat	490 mg/kg
n-Heptane (CAS 142-82-5)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	103 mg/l, 4 Hours
n-Hexane (CAS 110-54-3)		
<b>Acute</b>		
<i>Oral</i>		
LD50	Rat	28710 mg/kg
n-Nonane (CAS 111-84-2)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	3200 mg/l, 4 Hours
Octane (All isomers) (CAS 111-65-9)		
<b>Acute</b>		
<i>Inhalation</i>		
LC50	Rat	118 mg/l, 4 Hours
<b>Skin corrosion/irritation</b>	Causes skin irritation.	
<b>Serious eye damage/eye irritation</b>	Based on available data, the classification criteria are not met.	
<b>Respiratory or skin sensitization</b>		
<b>Respiratory sensitization</b>	Based on available data, the classification criteria are not met.	
<b>Skin sensitization</b>	Based on available data, the classification criteria are not met.	
<b>Germ cell mutagenicity</b>	Based on available data, the classification criteria are not met.	
<b>Carcinogenicity</b>	Suspected of causing cancer. International Agency for Research on Cancer (IARC): Whole diesel engine exhaust – IARC Group 1. Exposure may cause lung cancer and also noted a positive association with an increased risk of bladder cancer. Diesel exhaust has been reported to be an occupational hazard due to NIOSH-reported potential carcinogenic properties.	
<b>IARC Monographs. Overall Evaluation of Carcinogenicity</b>		
Fuels, diesel, no. 2 (CAS 68476-34-6)	3 Not classifiable as to carcinogenicity to humans.	
Naphthalene (CAS 91-20-3)	2B Possibly carcinogenic to humans.	
<b>NTP Report on Carcinogens</b>		
Naphthalene (CAS 91-20-3)	Reasonably Anticipated to be a Human Carcinogen.	
<b>Reproductive toxicity</b>	Suspected of damaging fertility or the unborn child. Naphthalene interferes with embryo development in experimental animals at dose levels that cause maternal toxicity. In humans, excessive exposure to this agent may cause hemolytic anemia in the mother and fetus.	
<b>Specific target organ toxicity - single exposure</b>	Based on available data, the classification criteria are not met.	
<b>Specific target organ toxicity - repeated exposure</b>	May cause damage to the following organs through prolonged or repeated exposure: Blood. Liver. Thymus.	
<b>Aspiration hazard</b>	May be fatal if swallowed and enters airways.	
<b>Chronic effects</b>	Contains organic solvents which in case of overexposure may depress the central nervous system causing dizziness and intoxication. Repeated exposure to naphthalene may cause cataracts, allergic skin rashes, destruction of red blood cells, and anemia, jaundice, kidney and liver damage. Danger of serious damage to health by prolonged exposure. Prolonged or repeated overexposure may cause central nervous system, kidney, liver, and lung damage.	

## Further information

Symptoms may be delayed. Hydrogen sulfide, a highly toxic gas, may be present. Signs and symptoms of overexposure to hydrogen sulfide include respiratory and eye irritation, dizziness, nausea, coughing, a sensation of dryness and pain in the nose, and loss of consciousness. Odor does not provide a reliable indicator of the presence of hazardous levels in the atmosphere. Toxicological properties of this material have not been fully investigated.

## 12. Ecological information

**Ecotoxicity** Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Components	Species	Test Results
Fuels, diesel, no. 2 (CAS 68476-34-6)		
<b>Aquatic</b>		
<i>Acute</i>		
Crustacea	EL50	Daphnia magna 68 mg/l, 48 hours
Fish	LL50	Oncorhynchus mykiss 65 mg/l, 96 hours
Naphthalene (CAS 91-20-3)		
<b>Aquatic</b>		
Crustacea	EC50	Water flea (Daphnia magna) 1.09 - 3.4 mg/l, 48 hours
Fish	LC50	Pink salmon (Oncorhynchus gorbuscha) 0.95 - 1.62 mg/l, 96 hours
n-Heptane (CAS 142-82-5)		
<b>Aquatic</b>		
Fish	LC50	Western mosquitofish (Gambusia affinis) 4924 mg/l, 96 hours
n-Hexane (CAS 110-54-3)		
<b>Aquatic</b>		
Fish	LC50	Fathead minnow (Pimephales promelas) 2.101 - 2.981 mg/l, 96 hours

**Persistence and degradability** Not available.

**Bioaccumulative potential** Not available.

### Partition coefficient n-octanol / water (log Kow)

Hexane (Other isomers) (CAS 96-14-0)	3.6
Octane (All isomers) (CAS 111-65-9)	5.18
n-Heptane (CAS 142-82-5)	4.66
n-Hexane (CAS 110-54-3)	3.9
n-Nonane (CAS 111-84-2)	5.46

**Mobility in soil** Not available.

**Other adverse effects** Not available.

## 13. Disposal considerations

**Disposal instructions** Dispose in accordance with all applicable regulations. This material and its container must be disposed of as hazardous waste. Dispose of this material and its container to hazardous or special waste collection point. Incinerate the material under controlled conditions in an approved incinerator. Do not allow this material to drain into sewers/water supplies. Do not contaminate ponds, waterways or ditches with chemical or used container.

**Hazardous waste code** D001: Waste Flammable material with a flash point <140 °F

### US RCRA Hazardous Waste U List: Reference

Naphthalene (CAS 91-20-3) U165

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

**Contaminated packaging** Offer rinsed packaging material to local recycling facilities.

## 14. Transport information

### DOT

<b>UN number</b>	UN1202
<b>UN proper shipping name</b>	Diesel fuel
<b>Transport hazard class(es)</b>	
<b>Class</b>	Combustible Liquid
<b>Subsidiary risk</b>	-
<b>Packing group</b>	III

**Environmental hazards**

**Marine pollutant** Yes  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.  
**Special provisions** 144, B1, IB3, T2, TP1  
**Packaging exceptions** 150  
**Packaging non bulk** 203  
**Packaging bulk** 242

**IATA**

**UN number** UN1202  
**UN proper shipping name** Diesel fuel  
**Transport hazard class(es)**  
**Class** 3  
**Subsidiary risk** -  
**Label(s)** 3  
**Packing group** III  
**Environmental hazards** Yes  
**ERG Code** 3L  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.

**IMDG**

**UN number** UN1202  
**UN proper shipping name** DIESEL FUEL  
**Transport hazard class(es)**  
**Class** 3  
**Subsidiary risk** -  
**Label(s)** 3  
**Packing group** III  
**Environmental hazards**  
**Marine pollutant** Yes  
**EmS** F-E, S-E  
**Special precautions for user** Read safety instructions, SDS and emergency procedures before handling.  
**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code** Not applicable. However, this product is a liquid and if transported in bulk covered under MARPOL 73/78, Annex I.

**15. Regulatory information****US federal regulations****TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)**

n-Nonane (CAS 111-84-2) 1.0 % One-Time Export Notification only.

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

Not listed.

**CERCLA Hazardous Substance List (40 CFR 302.4)**

Hexane (Other isomers) (CAS 96-14-0)	LISTED
Naphthalene (CAS 91-20-3)	LISTED
n-Heptane (CAS 142-82-5)	LISTED
n-Hexane (CAS 110-54-3)	LISTED
n-Nonane (CAS 111-84-2)	LISTED
Octane (All isomers) (CAS 111-65-9)	LISTED

**Superfund Amendments and Reauthorization Act of 1986 (SARA)**

**Hazard categories** Immediate Hazard - No  
 Delayed Hazard - No  
 Fire Hazard - No  
 Pressure Hazard - No  
 Reactivity Hazard - No

**SARA 302 Extremely hazardous substance**

Not listed.

**SARA 311/312 Hazardous chemical** Yes

**SARA 313 (TRI reporting)**

Chemical name	CAS number	% by wt.
Naphthalene	91-20-3	0 - 1

**Other federal regulations****Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List**

Naphthalene (CAS 91-20-3)  
n-Hexane (CAS 110-54-3)

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

Not regulated.

**Safe Drinking Water Act (SDWA)** Not regulated.

**US state regulations**

WARNING: This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm.

**US. Massachusetts RTK - Substance List**

Hexane (Other isomers) (CAS 96-14-0)  
Naphthalene (CAS 91-20-3)  
n-Heptane (CAS 142-82-5)  
n-Hexane (CAS 110-54-3)  
n-Nonane (CAS 111-84-2)  
Octane (All isomers) (CAS 111-65-9)

**US. New Jersey Worker and Community Right-to-Know Act**

Fuels, diesel, no. 2 (CAS 68476-34-6)  
Naphthalene (CAS 91-20-3)  
n-Heptane (CAS 142-82-5)  
n-Hexane (CAS 110-54-3)  
n-Nonane (CAS 111-84-2)  
Octane (All isomers) (CAS 111-65-9)

**US. Pennsylvania Worker and Community Right-to-Know Law**

Fuels, diesel, no. 2 (CAS 68476-34-6)  
Hexane (Other isomers) (CAS 96-14-0)  
Naphthalene (CAS 91-20-3)  
n-Heptane (CAS 142-82-5)  
n-Hexane (CAS 110-54-3)  
n-Nonane (CAS 111-84-2)  
Octane (All isomers) (CAS 111-65-9)

**US. Rhode Island RTK**

Naphthalene (CAS 91-20-3)  
n-Hexane (CAS 110-54-3)

**US. California Proposition 65****US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance**

Benzene (CAS 71-43-2)  
Toluene (CAS 108-88-3)

**International Inventories**

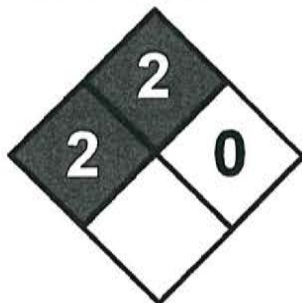
Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	No
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	No
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	No
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	No

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

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

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

Issue date	13-May-2013
Revision date	23-May-2014
Version #	04
Further information	HMIS® is a registered trade and service mark of the NPCA.
NFPA Ratings	



### Disclaimer

This material Safety Data Sheet (SDS) was prepared in accordance with 29 CFR 1910.1200 by Valero Marketing & Supply Co., ("VALERO"). VALERO does not assume any liability arising out of product use by others. The information, recommendations, and suggestions presented in this SDS are based upon test results and data believed to be reliable. The end user of the product has the responsibility for evaluating the adequacy of the data under the conditions of use, determining the safety, toxicity and suitability of the product under these conditions, and obtaining additional or clarifying information where uncertainty exists. No guarantee expressed or implied is made as to the effects of such use, the results to be obtained, or the safety and toxicity of the product in any specific application. Furthermore, the information herein is not represented as absolutely complete, since it is not practicable to provide all the scientific and study information in the format of this document, plus additional information may be necessary under exceptional conditions of use, or because of applicable laws or government regulations.



MATERIAL SAFETY DATA SHEET

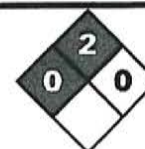
Dyed Diesel Fuel

MSDS No. 9908

EMERGENCY OVERVIEW

CAUTION!

OSHA/NFPA COMBUSTIBLE LIQUID - SLIGHT TO MODERATE IRRITANT -  
EFFECTS CENTRAL NERVOUS SYSTEM  
HARMFUL OR FATAL IF SWALLOWED



NFPA 704 (Section 16)

Moderate fire hazard. Avoid breathing vapors or mists. May cause dizziness and drowsiness. May cause moderate eye irritation and skin irritation (rash). Long-term, repeated exposure may cause skin cancer.

If ingested, do NOT induce vomiting, as this may cause chemical pneumonia (fluid in the lungs).

1. CHEMICAL PRODUCT and COMPANY INFORMATION

Hess Corporation  
1 Hess Plaza  
Woodbridge, NJ 07095-0961

EMERGENCY TELEPHONE NUMBER (24 hrs):  
COMPANY CONTACT (business hours):  
MSDS Internet Website:

CHEMTREC (800) 424-9300  
Corporate EHS (732) 750-6000  
[www.hess.com](http://www.hess.com)

**SYNONYMS:** Tax-exempt Diesel Fuel; Dyed Premium Diesel Fuel; Non Road, Locomotive and Marine Diesel Fuel

See Section 16 for abbreviations and acronyms.

2. COMPOSITION and INFORMATION ON INGREDIENTS

INGREDIENT NAME (CAS No.)	CONCENTRATION PERCENT BY WEIGHT
Diesel Fuel (68476-34-6)	100
Naphthalene (91-20-3)	Typically < 0.01

A complex mixture of hydrocarbons with carbon numbers in the range C9 and higher, and red dye. Premium Diesel Fuel contains a multifunctional additive.

3. HAZARDS IDENTIFICATION

**EYES**

Contact with liquid or vapor may cause mild irritation.

**SKIN**

May cause skin irritation with prolonged or repeated contact. Practically non-toxic if absorbed following acute (single) exposure. Liquid may be absorbed through the skin in toxic amounts if large areas of skin are repeatedly exposed.



## MATERIAL SAFETY DATA SHEET

Dyed Diesel Fuel

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### **INGESTION**

The major health threat of ingestion occurs from the danger of aspiration (breathing) of liquid drops into the lungs, particularly from vomiting. Aspiration may result in chemical pneumonia (fluid in the lungs), severe lung damage, respiratory failure and even death.

Ingestion may cause gastrointestinal disturbances, including irritation, nausea, vomiting and diarrhea, and central nervous system (brain) effects similar to alcohol intoxication. In severe cases, tremors, convulsions, loss of consciousness, coma, respiratory arrest, and death may occur.

### **INHALATION**

Excessive exposure may cause irritations to the nose, throat, lungs and respiratory tract. Central nervous system (brain) effects may include headache, dizziness, loss of balance and coordination, unconsciousness, coma, respiratory failure, and death.

**WARNING:** the burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause unconsciousness, suffocation, and death.

### **CHRONIC EFFECTS and CARCINOGENICITY**

Similar products produced skin cancer and systemic toxicity in laboratory animals following repeated applications. The significance of these results to human exposures has not been determined - see Section 11 Toxicological Information.

IARC classifies whole diesel fuel exhaust particulates as probably carcinogenic to humans (Group 2A). NIOSH regards whole diesel fuel exhaust particulates as a potential cause of occupational lung cancer based on animal studies and limited evidence in humans.

### **MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE**

Irritation from skin exposure may aggravate existing open wounds, skin disorders, and dermatitis (rash).

## **4. FIRST AID MEASURES**

### **EYES**

In case of contact with eyes, immediately flush with clean, low-pressure water for at least 15 min. Hold eyelids open to ensure adequate flushing. Seek medical attention.

### **SKIN**

Remove contaminated clothing. Wash contaminated areas thoroughly with soap and water or waterless hand cleanser. Obtain medical attention if irritation or redness develops.

### **INGESTION**

DO NOT INDUCE VOMITING. Do not give liquids. Obtain immediate medical attention. If spontaneous vomiting occurs, lean victim forward to reduce the risk of aspiration. Monitor for breathing difficulties. Small amounts of material which enter the mouth should be rinsed out until the taste is dissipated.

### **INHALATION**

Remove person to fresh air. If person is not breathing provide artificial respiration. If necessary, provide additional oxygen once breathing is restored if trained to do so. Seek medical attention immediately.

## **5. FIRE FIGHTING MEASURES**

### **FLAMMABLE PROPERTIES:**

FLASH POINT:	> 125 °F (> 52 °C) minimum PMCC
AUTOIGNITION POINT:	494 °F (257 °C)
OSHA/NFPA FLAMMABILITY CLASS:	2 (COMBUSTIBLE) (see Section 14 for transportation classification).
LOWER EXPLOSIVE LIMIT (%):	0.6
UPPER EXPLOSIVE LIMIT (%):	7.5



## MATERIAL SAFETY DATA SHEET

**Dyed Diesel Fuel**

**MSDS No. 9908**

### **FIRE AND EXPLOSION HAZARDS**

Vapors may be ignited rapidly when exposed to heat, spark, open flame or other source of ignition. When mixed with air and exposed to an ignition source, flammable vapors can burn in the open or explode in confined spaces. Being heavier than air, vapors may travel long distances to an ignition source and flash back. Runoff to sewer may cause fire or explosion hazard.

### **EXTINGUISHING MEDIA**

**SMALL FIRES:** Any extinguisher suitable for Class B fires, dry chemical, CO<sub>2</sub>, water spray, fire fighting foam, or Halon.

**LARGE FIRES:** Water spray, fog or fire fighting foam. Water may be ineffective for fighting the fire, but may be used to cool fire-exposed containers.

### **FIRE FIGHTING INSTRUCTIONS**

Small fires in the incipient (beginning) stage may typically be extinguished using handheld portable fire extinguishers and other fire fighting equipment.

Firefighting activities that may result in potential exposure to high heat, smoke or toxic by-products of combustion should require NIOSH/MSHA- approved pressure-demand self-contained breathing apparatus with full facepiece and full protective clothing.

Isolate area around container involved in fire. Cool tanks, shells, and containers exposed to fire and excessive heat with water. For massive fires the use of unmanned hose holders or monitor nozzles may be advantageous to further minimize personnel exposure. Major fires may require withdrawal, allowing the tank to burn. Large storage tank fires typically require specially trained personnel and equipment to extinguish the fire, often including the need for properly applied fire fighting foam.

See Section 16 for the NFPA 704 Hazard Rating.

## **6. ACCIDENTAL RELEASE MEASURES**

ACTIVATE FACILITY'S SPILL CONTINGENCY OR EMERGENCY RESPONSE PLAN.

Evacuate nonessential personnel and remove or secure all ignition sources. Consider wind direction; stay upwind and uphill, if possible. Evaluate the direction of product travel, diking, sewers, etc. to confirm spill areas. Spills may infiltrate subsurface soil and groundwater; professional assistance may be necessary to determine the extent of subsurface impact.

Carefully contain and stop the source of the spill, if safe to do so. Protect bodies of water by diking, absorbents, or absorbent boom, if possible. Do not flush down sewer or drainage systems, unless system is designed and permitted to handle such material. The use of fire fighting foam may be useful in certain situations to reduce vapors. The proper use of water spray may effectively disperse product vapors or the liquid itself, preventing contact with ignition sources or areas/equipment that require protection.

Take up with sand or other oil absorbing materials. Carefully shovel, scoop or sweep up into a waste container for reclamation or disposal - caution, flammable vapors may accumulate in closed containers. Response and clean-up crews must be properly trained and must utilize proper protective equipment (see Section 8).

## **7. HANDLING and STORAGE**

### **HANDLING PRECAUTIONS**

Handle as a combustible liquid. Keep away from heat, sparks, and open flame! Electrical equipment should be approved for classified area. Bond and ground containers during product transfer to reduce the possibility of static-initiated fire or explosion.



## MATERIAL SAFETY DATA SHEET

**Dyed Diesel Fuel**

**MSDS No. 9908**

Special slow load procedures for "switch loading" must be followed to avoid the static ignition hazard that can exist when higher flash point material (such as fuel oil) is loaded into tanks previously containing low flash point products (such as this product) - see API Publication 2003, "Protection Against Ignitions Arising Out Of Static, Lightning and Stray Currents".

### **STORAGE PRECAUTIONS**

Keep away from flame, sparks, excessive temperatures and open flame. Use approved vented containers. Keep containers closed and clearly labeled. Empty product containers or vessels may contain explosive vapors. Do not pressurize, cut, heat, weld or expose such containers to sources of ignition.

Store in a well-ventilated area. This storage area should comply with NFPA 30 "Flammable and Combustible Liquid Code". Avoid storage near incompatible materials. The cleaning of tanks previously containing this product should follow API Recommended Practice (RP) 2013 "Cleaning Mobile Tanks In Flammable and Combustible Liquid Service" and API RP 2015 "Cleaning Petroleum Storage Tanks".

### **WORK/HYGIENIC PRACTICES**

Emergency eye wash capability should be available in the near proximity to operations presenting a potential splash exposure. Use good personal hygiene practices. Avoid repeated and/or prolonged skin exposure. Wash hands before eating, drinking, smoking, or using toilet facilities. Do not use as a cleaning solvent on the skin. Do not use solvents or harsh abrasive skin cleaners for washing this product from exposed skin areas. Waterless hand cleaners are effective. Promptly remove contaminated clothing and launder before reuse. Use care when laundering to prevent the formation of flammable vapors which could ignite via washer or dryer. Consider the need to discard contaminated leather shoes and gloves.

## **8. EXPOSURE CONTROLS and PERSONAL PROTECTION**

### **EXPOSURE LIMITS**

Components (CAS No.)	Source	Exposure Limits	
		TWA/STEL	Note
Diesel Fuel (68476-34-6)	OSHA	5 mg/m <sup>3</sup> (as mineral oil mist) TWA	
	ACGIH	100 mg/m <sup>3</sup> (as totally hydrocarbon vapor) TWA	A3, skin
Naphthalene (91-20-3)	OSHA	10 ppm TWA	
	ACGIH	10 ppm TWA / 15 ppm STEL	A4, Skin

### **ENGINEERING CONTROLS**

Use adequate ventilation to keep vapor concentrations of this product below occupational exposure and flammability limits, particularly in confined spaces.

### **EYE/FACE PROTECTION**

Safety glasses or goggles are recommended where there is a possibility of splashing or spraying.

### **SKIN PROTECTION**

Gloves constructed of nitrile, neoprene, or PVC are recommended. Chemical protective clothing such as of E.I. DuPont TyChem®, Saranex® or equivalent recommended based on degree of exposure. Note: The resistance of specific material may vary from product to product as well as with degree of exposure. Consult manufacturer specifications for further information.

### **RESPIRATORY PROTECTION**

A NIOSH/MSHA-approved air-purifying respirator with organic vapor cartridges or canister may be permissible under certain circumstances where airborne concentrations are or may be expected to exceed exposure limits or for odor or irritation. Protection provided by air-purifying respirators is limited.



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**Dyed Diesel Fuel**

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Refer to OSHA 29 CFR 1910.134, NIOSH Respirator Decision Logic, and the manufacturer for additional guidance on respiratory protection selection.

Use a positive pressure, air-supplied respirator if there is a potential for uncontrolled release, exposure levels are not known, in oxygen-deficient atmospheres, or any other circumstance where an air-purifying respirator may not provide adequate protection.

### 9. PHYSICAL and CHEMICAL PROPERTIES

#### APPEARANCE

Red or reddish-colored (dyed) liquid

#### ODOR

Mild, petroleum distillate odor

#### BASIC PHYSICAL PROPERTIES

BOILING RANGE:	320 to 690 °F (160 to 366 °C)
VAPOR PRESSURE:	0.009 psia @ 70 °F (21 °C)
VAPOR DENSITY (air = 1):	> 1.0
SPECIFIC GRAVITY (H <sub>2</sub> O = 1):	0.83 to 0.86 @ 60 °F (16 °C)
PERCENT VOLATILES:	100 %
EVAPORATION RATE:	Slow; varies with conditions
SOLUBILITY (H <sub>2</sub> O):	Negligible

### 10. STABILITY and REACTIVITY

**STABILITY:** Stable. Hazardous polymerization will not occur.

#### CONDITIONS TO AVOID and INCOMPATIBLE MATERIALS

Avoid high temperatures, open flames, sparks, welding, smoking and other ignition sources. Keep away from strong oxidizers; Viton ® ; Fluorel ®

#### HAZARDOUS DECOMPOSITION PRODUCTS

Carbon monoxide, carbon dioxide and non-combusted hydrocarbons (smoke).

### 11. TOXICOLOGICAL PROPERTIES

#### ACUTE TOXICITY

Acute dermal LD50 (rabbits): > 5 ml/kg	Acute oral LD50 (rats): 9 ml/kg
Primary dermal irritation: extremely irritating (rabbits)	Draize eye irritation: non-irritating (rabbits)
Guinea pig sensitization: negative	

#### CHRONIC EFFECTS AND CARCINOGENICITY

Carcinogenic: OSHA: NO IARC: NO NTP: NO ACGIH: A3

Studies have shown that similar products produce skin tumors in laboratory animals following repeated applications without washing or removal. The significance of this finding to human exposure has not been determined. Other studies with active skin carcinogens have shown that washing the animal's skin with soap and water between applications reduced tumor formation.

#### MUTAGENICITY (genetic effects)

This material has been positive in a mutagenicity study.

### 12. ECOLOGICAL INFORMATION

Keep out of sewers, drainage areas, and waterways. Report spills and releases, as applicable, under Federal and State regulations.

### 13. DISPOSAL CONSIDERATIONS



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Consult federal, state and local waste regulations to determine appropriate disposal options.

14. TRANSPORTATION INFORMATION

PROPER SHIPPING NAME: Diesel Fuel
HAZARD CLASS and PACKING GROUP: 3, PG III
DOT IDENTIFICATION NUMBER: NA 1993 (Domestic) UN 1202 (International)
DOT SHIPPING LABEL: None



Placard (International only):
Use Combustible Placard if shipping in bulk domestically.

15. REGULATORY INFORMATION

U.S. FEDERAL, STATE, and LOCAL REGULATORY INFORMATION

This product and its constituents listed herein are on the EPA TSCA Inventory. Any spill or uncontrolled release of this product, including any substantial threat of release, may be subject to federal, state and/or local reporting requirements.

CLEAN WATER ACT (OIL SPILLS)

Any spill or release of this product to "navigable waters" (essentially any surface water, including certain wetlands) or adjoining shorelines sufficient to cause a visible sheen or deposit of a sludge or emulsion must be reported immediately to the National Response Center (1-800-424-8802) as required by U.S. Federal Law.

CERCLA SECTION 103 and SARA SECTION 304 (RELEASE TO THE ENVIRONMENT)

The CERCLA definition of hazardous substances contains a "petroleum exclusion" clause which exempts crude oil, refined, and unrefined petroleum products and any indigenous components of such. However, other federal reporting requirements (e.g., SARA Section 304 as well as the Clean Water Act if the spill occurs on navigable waters) may still apply.

SARA SECTION 311/312 - HAZARD CLASSES

Table with 5 columns: ACUTE HEALTH, CHRONIC HEALTH, FIRE, SUDDEN RELEASE OF PRESSURE, REACTIVE. Values: X, X, X, --, --

SARA SECTION 313 - SUPPLIER NOTIFICATION

This product may contain listed chemicals below the de minimis levels which therefore are not subject to the supplier notification requirements of Section 313 of the Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986 and of 40 CFR 372.

CALIFORNIA PROPOSITON 65 LIST OF CHEMICALS

This product contains the following chemicals that are included on the Proposition 65 "List of Chemicals" required by the California Safe Drinking Water and Toxic Enforcement Act of 1986:

Table with 2 columns: INGREDIENT NAME (CAS NUMBER), Date Listed. Row: Diesel Engine Exhaust (no CAS Number listed), 10/01/1990

CANADIAN REGULATORY INFORMATION (WHMIS)

Class B, Division 3 (Combustible Liquid) and Class D, Division 2, Subdivision B (Toxic by other means)



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16. OTHER INFORMATION

NFPA® HAZARD RATING HEALTH: 0
FIRE: 2
REACTIVITY: 0

Refer to NFPA 704 "Identification of the Fire Hazards of Materials" for further information

HMIS® HAZARD RATING HEALTH: 1 \* Slight
FIRE: 2 Moderate
PHYSICAL: 0 Negligible
\* CHRONIC

SUPERSEDES MSDS DATED: 03/04/00

ABBREVIATIONS:

AP = Approximately < = Less than > = Greater than
N/A = Not Applicable N/D = Not Determined ppm = parts per million

ACRONYMS:

- ACGIH American Conference of Governmental Industrial Hygienists
AIHA American Industrial Hygiene Association
ANSI American National Standards Institute
API American Petroleum Institute
CERCLA Comprehensive Emergency Response, Compensation, and Liability Act
DOT U.S. Department of Transportation
EPA U.S. Environmental Protection Agency
HMIS Hazardous Materials Information System
IARC International Agency For Research On Cancer
MSHA Mine Safety and Health Administration
NFPA National Fire Protection Association
NIOSH National Institute of Occupational Safety and Health
NOIC Notice of Intended Change (proposed change to ACGIH TLV)
NTP National Toxicology Program
OPA Oil Pollution Act of 1990
OSHA U.S. Occupational Safety & Health Administration
PEL Permissible Exposure Limit (OSHA)
RCRA Resource Conservation and Recovery Act
REL Recommended Exposure Limit (NIOSH)
SARA Superfund Amendments and Reauthorization Act of 1986 Title III
SCBA Self-Contained Breathing Apparatus
SPCC Spill Prevention, Control, and Countermeasures
STEL Short-Term Exposure Limit (generally 15 minutes)
TLV Threshold Limit Value (ACGIH)
TSCA Toxic Substances Control Act
TWA Time Weighted Average (8 hr.)
WEEL Workplace Environmental Exposure Level (AIHA)
WHMIS Canadian Workplace Hazardous Materials Information System

DISCLAIMER OF EXPRESSED AND IMPLIED WARRANTIES

Information presented herein has been compiled from sources considered to be dependable, and is accurate and reliable to the best of our knowledge and belief, but is not guaranteed to be so. Since conditions of use are beyond our control, we make no warranties, expressed or implied, except those that may be contained in our written contract of sale or acknowledgment.

# AMERADA HESS CORPORATION

## MATERIAL SAFETY DATA SHEET

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Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Additionally, vendor assumes no responsibility for injury to vendee or third persons proximately caused by abnormal use of the material, even if reasonable safety procedures are followed. Furthermore, vendee assumes the risk in their use of the material.



SDS501  
**PRESTONE® ANTIFREEZE/COOLANT**  
 Date Prepared: 04/16/2014

### SAFETY DATA SHEET

#### 1. Product And Company Identification

SDS ID: SDS 501  
 PRODUCT NAME: Prestone® Antifreeze/Coolant  
 PRODUCT NUMBER: AF2000X, AF2000L, AF2050, AF2055, 72025, 71605, 71621, PRES04C, AF2000UK, AF2000PL, AF2000-1KL, AF2000LRU, AF2000RU, 65069, AF2000/GF, AF2000/GFC, AF2055/GF, AF2000-1KL/GF, AF2000/GXF, AF2000/GXF-HT, 71621/GF, 71621/GFC, 71621/GFC3  
 FORMULA NUMBER: YA956BY, YA956BY-B, YA956BY-ED, YA956BY-ED-B, YA-956BY-GLY, YA-992

MANUFACTURER: Prestone Products Corporation  
 Danbury, CT 06810-5109

CANADIAN OFFICE:  
 FRAM Group (Canada), Inc.  
 Mississauga, Ontario L5L 3S6

#### MEDICAL EMERGENCIES AND ALL OTHER INFORMATION PHONE NUMBER:

(800)890-2075 (in the US)  
 (800)668-9349 (in Canada)

#### TRANSPORTATION EMERGENCY PHONE NUMBER (Chemical Spills and Transport Accidents only):

CHEMTREC 1-800-424-9300 (in the US)  
 CANUTEC (613)996-6666 (in Canada)

SDS DATE OF PREPARATION/REVISION: 04/16/14

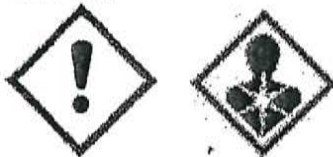
PRODUCT USE: Automobile Antifreeze – consumer product  
 RESTRICTIONS ON USE: None identified

#### 2. Hazards Identification

##### GHS/HAZCOM 2012 Classification:

Health	Physical
Acute Toxicity Category 4 Specific Target Organ Toxicity – repeated exposure Category 2 Reproductive Toxicity Category 2	Not Hazardous

##### Label Elements



##### WARNING!

H302 Harmful if swallowed.  
 H361d Suspected of damaging the unborn child.  
 H373 May cause damage to kidneys through prolonged or repeated exposure.

##### Prevention:

P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe mist or vapors.  
 P264 Wash exposed skin thoroughly after handling.



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P270 Do not eat, drink, or smoke when using this product.  
 P281 Use personal protective equipment as required.  
**Response:**  
 P301 + P312 IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.  
 P330 Rinse mouth.  
 P308 + P313 IF exposed or concerned: Get medical advice.  
**Disposal:**  
 P405 Store locked up.  
 P501 Dispose of contents and container in accordance with local and national regulations.

### 3. Composition/Information On Ingredients

Component	CAS No.	Amount
Ethylene Glycol	107-21-1	75-95%
2-Ethyl Hexanoic Acid, Sodium Salt	19766-89-3	1-5%
Neodecanoic Acid, Sodium Salt	31548-27-3	1-5%
Diethylene Glycol	111-46-6	0-5%

The exact concentrations are a trade secret.

### 4. First Aid Measures

**INHALATION:** Remove the victim to fresh air. If breathing has stopped administer artificial respiration. If breathing is difficult, have medical personnel administer oxygen. Get medical attention.

**SKIN CONTACT:** Remove contaminated clothing. Immediately wash contacted area thoroughly with soap and water. If irritation persists, get medical attention.

**EYE CONTACT:** Immediately flush eyes with large amounts of water for 15 minutes. Get medical attention if irritation persists.

**INGESTION:** Seek immediate medical attention. Immediately call local poison control center or go to an emergency department. Never give anything by mouth to or induce vomiting in an unconscious or drowsy person.

**MOST IMPORTANT SYMPTOMS:** May cause eye irritation. Inhalation of mists may cause nose and throat irritation and nervous system effects. Ingestion may cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects.

**INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT, IF NEEDED:** Seek immediate medical attention for large ingestions.

**NOTES TO PHYSICIAN:** The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. The combination of metabolic acidosis, an osmol gap and oxalate crystals in the urine is evidence of ethylene glycol poisoning. Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. Respiratory support with mechanical ventilation may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth, and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphagia.

Ethanol is antidotal and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. The objective is to rapidly achieve and maintain a blood ethanol level of approximately 100 mg/dl by giving a loading dose of ethanol followed by a maintenance dose. Intravenous administration of ethanol is the preferred route. Ethanol blood levels should be checked frequently. Hemodialysis may be required. 4-Methyl pyrazole (Fomepizole®), a potent inhibitor of



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alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning. Fomepizole® is easier to use clinically than ethanol, does not cause CNS depression or hypoglycemia and requires less monitoring than ethanol. Additional therapeutic modalities which may decrease the adverse consequences of ethylene glycol metabolism are the administration of both thiamine and pyridoxine. As there are complicated and serious overdoses, we recommend you consult with the toxicologists at your poison control center.

#### 5. Firefighting Measures

**SUITABLE EXTINGUISHING MEDIA:** For large fires, use alcohol type or all-purpose foams. For small fires, use water spray, carbon dioxide or dry chemical.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:** A solid stream of water or foam directed into hot, burning liquid can cause frothing. Burning may produce carbon monoxide and carbon dioxide.

**SPECIAL FIRE FIGHTING PROCEDURES:** Do not spray pool fires directly. Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

#### 6: Accidental Release Measures

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:** Wear appropriate protective clothing and equipment (See Section 8).

**METHODS AND MATERIALS FOR CONTAINMENT/CLEANUP:** Collect with absorbent material and place in appropriate, labeled container for disposal or, if permitted flush spill area with water.

#### 7. Handling and Storage

**PRECAUTIONS FOR SAFE HANDLING:**

Harmful or Fatal if Swallowed. Do not drink antifreeze or solution. Avoid eye and prolonged or repeated skin contact. Avoid breathing vapors or mists. Wash exposed skin thoroughly with soap and water after use. Do not store in opened or unlabeled containers. Keep container away from open flames and excessive heat. Do not reuse empty containers unless properly cleaned. Empty containers retain product residue and may be dangerous. Do not cut, weld, drill, etc. containers, even empty.

Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without any obvious ignition sources. Published "autoignition" or "ignition" temperatures cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Use of this product in elevated temperature applications should be thoroughly evaluated to assure safe operating conditions.

**CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:** Store away from excessive heat and oxidizers.

**NFPA CLASSIFICATION:** III B

#### 8. Exposure Controls / Personal Protection

**EXPOSURE GUIDELINES**



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CHEMICAL	EXPOSURE LIMIT
Ethylene Glycol (as aerosol)	100 mg/m <sup>3</sup> Ceiling ACGIH TLV
2-Ethyl Hexanoic Acid, Sodium Salt	None Established
Neodecanoic Acid, Sodium Salt	None Established
Diethylene Glycol	10 mg/m <sup>3</sup> TWA AIHA WEEL

**VENTILATION:** Use general ventilation or local exhaust as required to maintain exposures below the occupational exposure limits.

**RESPIRATORY PROTECTION:** For operations where the TLV is exceeded a NIOSH approved respirator with organic vapor cartridges and dust/mist prefilters or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration. Select and use in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

**GLOVES:** Chemical resistant gloves such as neoprene or PVC where contact is possible.

**EYE PROTECTION:** Splash-proof goggles.

**OTHER PROTECTIVE EQUIPMENT/CLOTHING:** Appropriate protective clothing as needed to minimize skin contact.

### 9. Physical and Chemical Properties

APPEARANCE:	Yellow liquid	ODOR:	Characteristic odor
ODOR THRESHOLD:	None	pH:	8.7-9.2
MELTING/FREEZING POINT:	-34°F (-36.6°C) – -36°F (-37.7°C)	BOILING POINT/RANGE:	327°F (164°C) – 340°F (171.1°C)
FLASH POINT:	254 °F (123 °C) TOC >230 °F (>110 °C) Setaflash	EVAPORATION RATE:	Not determined
FLAMMABILITY (SOLID, GAS)	Not Applicable	FLAMMABILITY LIMITS:	LEL: Not determined UEL: Not determined
VAPOR PRESSURE:	<0.06 mm Hg @20°C	VAPOR DENSITY:	2.1
RELATIVE DENSITY:	1.07-1.14	SOLUBILITIES	Water: Complete
PARTITION COEFFICIENT (n-octanol/water)	Not determined	AUTOIGNITION TEMPERATURE:	Not determined
DECOMPOSITION TEMPERATURE:	Not determined	VISCOSITY:	Not determined

### 10. Stability and Reactivity

**REACTIVITY:** Normally unreactive

**CHEMICAL STABILITY:** Stable

**POSSIBILITY OF HAZARDOUS REACTIONS:** Reaction with strong oxidizers will generate heat.

**CONDITIONS TO AVOID:** None known

**INCOMPATIBLE MATERIALS:** Avoid strong bases at high temperatures, strong acids, strong oxidizing agents, and materials reactive with hydroxyl compounds.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide.



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## 11. Toxicological Information

### POTENTIAL HEALTH EFFECTS:

#### ACUTE HAZARDS:

**INHALATION:** May cause irritation of the nose and throat with headache, particularly from mists. High vapor concentrations caused, for example, by heating the material in an enclosed and poorly ventilated workplace, may produce nausea, vomiting, headache, dizziness and irregular eye movements.

**SKIN CONTACT:** No evidence of adverse effects from available information.

**EYE CONTACT:** Liquid, vapors or mist may cause discomfort in the eye with persistent conjunctivitis, seen as slight excess redness or conjunctiva. Serious corneal injury is not anticipated.

**INGESTION:** May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure and pulmonary edema may develop. Severe kidney damage which may be fatal may follow the swallowing of ethylene glycol. A few reports have been published describing the development of weakness of the facial muscles, diminishing hearing, and difficulty with swallowing, during the late stages of severe poisoning.

**CHRONIC EFFECTS:** Prolonged or repeated inhalation exposure may produce signs of central nervous system involvement, particularly dizziness and jerking eye movements. Prolonged or repeated skin contact may cause skin sensitization and an associated dermatitis in some individuals. Ethylene glycol has been found to cause birth defects in laboratory animals. The significance of this finding to humans has not been determined. 2-Ethyl Hexanoic Acid, Sodium Salt is suspected of causing developmental effects based on animal data.

**CARCINOGENICITY LISTING:** None of the components of these products is listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH or OSHA.

#### ACUTE TOXICITY VALUES:

Ethylene Glycol: LD50 Oral Rat: 4700 mg/kg  
LD50 Skin Rabbit: 9530 mg/kg

Diethylene Glycol: LD50 Oral Rat: 12,565 mg/kg  
LD50 Skin Rabbit: 11,890 mg/kg

**SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH:** Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1,000 and 2,500 mg/m<sup>3</sup> for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentrations, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1,000 and 2,500 mg/m<sup>3</sup>) and developmental toxicity in with minimal evidence of teratogenicity (2,500 mg/m<sup>3</sup>). The no-effects concentration (based on maternal toxicity) was 500 mg/m<sup>3</sup>. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol concentration is only minimally



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effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of carcinogenic potential for ethylene glycol has been supported by numerous invitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects. This product contains less than 0.3% tolytriazole which has demonstrates mutagenic activity in a bacterial test system. A correlation has been established between mutagenic activity and carcinogenic activity for many chemicals. Tolytriazole has not been identified as a carcinogen or probable carcinogen by NTP, IARC or OSHA.

In a study of Wistar rats, adverse developmental results were reported at a dose of 100 mg / kg of body weight for 2-Ethyl Hexanoic Acid, Sodium Salt.

## 12. Ecological Information

### ECOTOXICITY:

Ethylene Glycol: LC50 Fathead Minnow <10,000 mg/L/96 hr.  
 EC50 Daphnia Magna 100,000 mg/L/48 hr.  
 Bacterial (*Pseudomonas putida*): 10,000 mg/l  
 Protozoa (*Entosiphon sulcatum* and *Uronema parduczi*; Chatton-Lwoff): >10,000 mg/l  
 Algae (*Microcystis aeruginosa*): 2,000 mg/l  
 Green algae (*Scenedesmus quadricauda*): >10,000 mg/l  
 Diethylene Glycol: LC50 western mosquitofish >32,000 mg/L/96 hr.

### PERSISTENCE AND DEGRADABILITY:

Ethylene Glycol is readily biodegradable (97-100% in 2-12 days). Diethylene glycol is readily biodegradable (>70% in 19days).

### BIOACCUMULATIVE POTENTIAL:

Ethylene glycol: A BCF of 10, reported for ethylene glycol in fish, Golden ide (*Leuciscus idus melanotus*), after 3 days of exposure suggests the potential for bio concentration in aquatic organisms is low.  
 Diethylene glycol: An estimated BCF of 3 suggests the potential for bio concentration in aquatic organisms is low.

MOBILITY IN SOIL: Ethylene glycol and diethylene glycol are highly mobile in soil.

OTHER ADVERSE EFFECTS: None known

## 13. Disposal Considerations

Dispose of product in accordance with all local, state/provincial and federal regulations.

## 14. Transport Information

U.S. DOT HAZARD CLASSIFICATION: Not Regulated (unless package contains a reportable quantity)

Note: IF A SHIPMENT OF A REPORTABLE QUANTITY (5,260 LBS/553 GAL.) IN A SINGLE PACKAGE IS INVOLVED, THE FOLLOWING INFORMATION APPLIES:

PROPER SHIPPING NAME: RQ, Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol)  
 UN NUMBER: UN3082  
 PACKING GROUP: III  
 LABELS REQUIRED: Class 9

DOT MARINE POLLUTANTS: This product does not contain Marine Pollutants as defined in 49 CFR 171.8.



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IMDG CODE SHIPPING CLASSIFICATION: Not Regulated

CANADIAN TDG CLASSIFICATION: Not Regulated

### 15. Regulatory Information

EPA SARA 311/312 HAZARD CLASSIFICATION: Acute health, chronic health

EPA SARA 313: This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Ethylene Glycol 107-21-1 75-95%

PROTECTION OF STRATOSPHERIC OZONE: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, Appendix A to Subpart A.

CERCLA SECTION 103: Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for this product, based on the RQ for Ethylene Glycol (95% maximum) of 5,000 lbs, is 5,260 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

CALIFORNIA PROPOSITION 65: The normal consumer use of this product does not result in exposures to chemicals known to the State of California to cause Cancer and/or Reproductive Harm above the significant risk level for carcinogens or the maximum allowable dose levels for reproductive toxins. Therefore, no warnings are required for consumer packages. Industrial or other occupational use of this product at higher frequency and using larger quantities of this product may result in exposures exceeding these levels and are labeled accordingly.

EPA TSCA INVENTORY: All of the components of this material are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT: All of the ingredients are listed on the Canadian Domestic Substances List.

CANADIAN WHMIS CLASSIFICATION: Class D - Division 2 - Subdivision A - (A very toxic material causing other toxic effects)



CANADIAN WHMIS HAZARD SYMBOLS:

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS): All of the ingredients are listed on the EINECS inventory.

JAPAN: All of the ingredients of this product are listed on the Japanese Existing and New Chemical Substances (MITI) List.

AUSTRALIA: All of the ingredients of this product are listed on the Australian Inventory of Chemical Substances.

KOREA: All of the ingredients of this product are listed on the Korean Existing Chemical List (KECL).

PHILIPPINES: All of the ingredients of this product are listed on the Philippine Inventory of Chemical and Chemical Substance (PICCS)

CHINA: All of the ingredients of this product are listed on the Inventory of Existing Chemical Substance in China (IECSC).



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<b>16. Other Information</b>
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NFPA RATING (NFPA 704) - FIRE: 1      HEALTH: 2      INSTABILITY: 0

REVISION SUMMARY: All Sections – Section 1: Addition of formula and product numbers. Section 9: Changes to physical data ranges.

SDS Date of Preparation/Revision: April 16, 2016

This SDS is directed to professional users and bulk handlers of the product. Consumer products are labeled in accordance with Federal Hazardous Substances Act regulations.

While Prestone Products Corporation believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Prestone Products Corporation assumes legal responsibility. They are offered solely for your consideration, investigation and verification. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

If more information is needed, please contact:

Prestone Products Corporation  
69 Eagle Road  
Danbury CT 06810  
(800) 890-2075



SDS 502  
 PRESTONE® 50/50 QUICK FILL  
 ANTIFREEZE/COOLANT  
 Date Prepared: 09/10/2013

## SAFETY DATA SHEET

### 1. Product And Company Identification

SDS ID: SDS 502  
 PRODUCT NAME: Prestone® 50/50 Quick Fill Antifreeze/Coolant  
 PRODUCT NUMBER: AF2750, AF2725  
 FORMULA NUMBER: YA-956BY-P50, YA-956BY-P50-B

MANUFACTURER:  
 Prestone Products Corporation  
 Danbury, CT 06810-5109

CANADIAN OFFICE:  
 FRAM Group (Canada), Inc.  
 Mississauga, Ontario L5L 3S6

#### MEDICAL EMERGENCIES AND ALL OTHER INFORMATION PHONE NUMBER:

(800)890-2075 (in the US)

(800)668-9349 (in Canada)

#### TRANSPORTATION EMERGENCY PHONE NUMBER (Chemical Spills and Transport Accidents only):

CHEMTREC 1-800-424-9300 (in the US)

CANUTEC (613)996-6666 (in Canada)

SDS DATE OF PREPARATION/REVISION: 09/10/13

PRODUCT USE: Automobile Antifreeze – consumer product

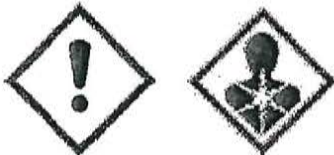
RESTRICTIONS ON USE: None identified

### 2. Hazards Identification

#### GHS/HAZCOM 2012 Classification:

Health	Physical
Acute Toxicity Category 4 Specific Target Organ Toxicity – repeated exposure Category 2 Reproductive Toxicity Category 2	Not Hazardous

#### Label Elements



#### WARNING!

H302 Harmful if swallowed.

H361d Suspected of damaging the unborn child.

H373 May cause damage to kidneys through prolonged or repeated exposure.

#### Prevention:

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P260 Do not breathe mist or vapors.

P264 Wash exposed skin thoroughly after handling.

P270 Do not eat, drink, or smoke when using this product.

P281 Use personal protective equipment as required.



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**Response:**

P301 + P312 IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell.

P330 Rinse mouth.

P308 + P313 IF exposed or concerned: Get medical advice.

**Disposal:**

P405 Store locked up.

P501 Dispose of contents and container in accordance with local and national regulations.

### 3. Composition/Information On Ingredients

Component	CAS No.	Amount
Water	7732-18-5	40-60
Ethylene Glycol	107-21-1	40-60
Diethylene Glycol	111-46-6	0-5
2-Ethyl Hexanoic Acid, Sodium Salt	19766-89-3	0-5

The exact concentrations are a trade secret.

### 4. First Aid Measures

**INHALATION:** Remove the victim to fresh air. If breathing has stopped administer artificial respiration. If breathing is difficult, have medical personnel administer oxygen. Get medical attention.

**SKIN CONTACT:** Remove contaminated clothing. Immediately wash contacted area thoroughly with soap and water. If irritation persists, get medical attention.

**EYE CONTACT:** Immediately flush eyes with large amounts of water for 15 minutes. Get medical attention if irritation persists.

**INGESTION:** Seek immediate medical attention. Immediately call local poison control center or go to an emergency department. Never give anything by mouth to or induce vomiting in an unconscious or drowsy person.

**MOST IMPORTANT SYMPTOMS:** May cause eye irritation. Inhalation of mists may cause nose and throat irritation and nervous system effects. Ingestion may cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects.

**INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT, IF NEEDED:** Seek immediate medical attention for large ingestions.

**NOTES TO PHYSICIAN:** The principal toxic effects of ethylene glycol, when swallowed, are kidney damage and metabolic acidosis. The combination of metabolic acidosis, an osmol gap and oxalate crystals in the urine is evidence of ethylene glycol poisoning. Pulmonary edema with hypoxemia has been described in a number of patients following poisoning with ethylene glycol. Respiratory support with mechanical ventilation may be required. There may be cranial nerve involvement in the late stages of toxicity from swallowed ethylene glycol. In particular, effects have been reported involving the seventh, eighth, and ninth cranial nerves, presenting with bilateral facial paralysis, diminished hearing and dysphagia.

Ethanol is antidotal and its early administration may block the formation of nephrotoxic metabolites of ethylene glycol in the liver. The objective is to rapidly achieve and maintain a blood ethanol level of approximately 100 mg/dl by giving a loading dose of ethanol followed by a maintenance dose. Intravenous administration of ethanol is the preferred route. Ethanol blood levels should be checked frequently. Hemodialysis may be required.



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4-Methyl pyrazole (Fomepizole®), a potent inhibitor of alcohol dehydrogenase, has been used therapeutically to decrease the metabolic consequences of ethylene glycol poisoning. Fomepizole is easier to use clinically than ethanol, does not cause CNS depression or hypoglycemia and requires less monitoring than ethanol. Additional therapeutic modalities which may decrease the adverse consequences of ethylene glycol metabolism are the administration of both thiamine and pyridoxine. As there are complicated and serious overdoses, we recommend you consult with the toxicologists at your poison control center.

#### 5. Firefighting Measures

**SUITABLE EXTINGUISHING MEDIA:** For large fires, use alcohol type or all-purpose foams. For small fires, use water spray, carbon dioxide or dry chemical.

**SPECIFIC HAZARDS ARISING FROM THE CHEMICAL:** A solid stream of water or foam directed into hot, burning liquid can cause frothing. Burning may produce carbon monoxide and carbon dioxide.

**SPECIAL PROTECTIVE EQUIPMENT AND PRECAUTIONS FOR FIRE FIGHTERS:** Do not spray pool fires directly. Firefighters should wear positive pressure self-contained breathing apparatus and full protective clothing for fires in areas where chemicals are used or stored.

#### 6: Accidental Release Measures

**PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT AND EMERGENCY PROCEDURES:** Wear appropriate protective clothing and equipment (See Section 8).

**METHODS AND MATERIALS FOR CONTAINMENT/CLEANUP:** Collect with absorbent material and place in appropriate, labeled container for disposal or, if permitted flush spill area with water.

#### 7. Handling and Storage

##### PRECAUTIONS FOR SAFE HANDLING:

Harmful or Fatal if Swallowed. Do not drink antifreeze or solution. Avoid eye and prolonged or repeated skin contact. Avoid breathing vapors or mists. Wash exposed skin thoroughly with soap and water after use. Do not store in opened or unlabeled containers. Keep container away from open flames and excessive heat. Do not reuse empty containers unless properly cleaned. Empty containers retain product residue and may be dangerous. Do not cut, weld, drill, etc. containers, even empty.

Sudden release of hot organic chemical vapors or mists from process equipment operating at elevated temperature and pressure, or sudden ingress of air into vacuum equipment, may result in ignitions without any obvious ignition sources. Published "autoignition" or "ignition" temperatures cannot be treated as safe operating temperatures in chemical processes without analysis of the actual process conditions. Use of this product in elevated temperature applications should be thoroughly evaluated to assure safe operating conditions.

NFPA CLASSIFICATION: Not Applicable

#### 8. Exposure Controls / Personal Protection

##### EXPOSURE GUIDELINES

CHEMICAL	EXPOSURE LIMIT
Ethylene Glycol (as aerosol)	100 mg/m <sup>3</sup> Ceiling ACGIH TLV
Diethylene Glycol	10 mg/m <sup>3</sup> TWA AIHA WEEL
2-Ethyl Hexanoic Acid	None Established



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**APPROPRIATE ENGINEERING CONTROLS:** Use general ventilation or local exhaust as required to maintain exposures below the occupational exposure limits.

**RESPIRATORY PROTECTION:** For operations where the TLV is exceeded a NIOSH approved respirator with organic vapor cartridges and dust/mist prefilters or supplied air respirator is recommended. Equipment selection depends on contaminant type and concentration. Select and use in accordance with 29 CFR 1910.134 and good industrial hygiene practice. For firefighting, use self-contained breathing apparatus.

**GLOVES:** Chemical resistant gloves such as neoprene or PVC where contact is possible.

**EYE PROTECTION:** Splash-proof goggles.

**OTHER PROTECTIVE EQUIPMENT/CLOTHING:** Appropriate protective clothing as needed to minimize skin contact.

### 9. Physical and Chemical Properties

APPEARANCE:	Yellow liquid	ODOR:	Characteristic odor
ODOR THRESHOLD:	None	pH:	9.0
MELTING/FREEZING POINT:	-34°F (-36°C)	BOILING POINT/RANGE:	229°F (109°C)
FLASH POINT:	>220°F (104°C) TOC	EVAPORATION RATE:	Not determined
FLAMMABILITY (SOLID, GAS)	Not Applicable	FLAMMABILITY LIMITS:	LEL: Not determined UEL: Not determined
VAPOR PRESSURE:	Less 0.1 mmHg @68°F	VAPOR DENSITY:	Not determined
RELATIVE DENSITY:	1.07	SOLUBILITIES	Water: 100%
PARTITION COEFFICIENT (n-octanol/water)	Not determined	AUTOIGNITION TEMPERATURE:	Not determined
DECOMPOSITION TEMPERATURE:	Not determined	VISCOSITY:	Not determined

### 10. Stability and Reactivity

**REACTIVITY:** Normally unreactive

**CHEMICAL STABILITY:** Stable

**POSSIBILITY OF HAZARDOUS REACTIONS:** Reaction with strong oxidizers will generate heat.

**CONDITIONS TO AVOID:** None known

**INCOMPATIBLE MATERIALS:** Avoid strong bases at high temperatures, strong acids, strong oxidizing agents, and materials reactive with hydroxyl compounds.

**HAZARDOUS DECOMPOSITION PRODUCTS:** Carbon monoxide, carbon dioxide.

### 11. Toxicological Information

**POTENTIAL HEALTH EFFECTS:**

**ACUTE HAZARDS:**

**INHALATION:** May cause irritation of the nose and throat with headache, particularly from mists. High vapor



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concentrations caused, for example, by heating the material in an enclosed and poorly ventilated workplace, may produce nausea, vomiting, headache, dizziness and irregular eye movements.

**SKIN CONTACT:** No evidence of adverse effects from available information.

**EYE CONTACT:** Liquid, vapors or mist may cause discomfort in the eye with persistent conjunctivitis, seen as slight excess redness or conjunctiva. Serious corneal injury is not anticipated.

**INGESTION:** May cause abdominal discomfort or pain, nausea, vomiting, dizziness, drowsiness, malaise, blurring of vision, irritability, back pain, decrease in urine output, kidney failure, and central nervous system effects, including irregular eye movements, convulsions and coma. Cardiac failure and pulmonary edema may develop. Severe kidney damage which may be fatal may follow the swallowing of ethylene glycol. A few reports have been published describing the development of weakness of the facial muscles, diminishing hearing, and difficulty with swallowing, during the late stages of severe poisoning.

**CHRONIC EFFECTS:** Prolonged or repeated inhalation exposure may produce signs of central nervous system involvement, particularly dizziness and jerking eye movements. Prolonged or repeated skin contact may cause skin sensitization and an associated dermatitis in some individuals. Ethylene glycol has been found to cause birth defects in laboratory animals. The significance of this finding to humans has not been determined. 2-Ethyl Hexanoic Acid, Sodium Salt is suspected of causing developmental effects based on animal data.

**CARCINOGENICITY LISTING:** None of the components of these products is listed as a carcinogen or suspected carcinogen by IARC, NTP, ACGIH, or OSHA.

**ACUTE TOXICITY VALUES:**

Ethylene Glycol: LD50 Oral Rat: 4700 mg/kg  
LD50 Skin Rabbit: 9530 mg/kg

Diethylene Glycol: LD50 Oral Rat: 12,565 mg/kg  
LD50 Skin Rabbit: 11,890 mg/kg

**SIGNIFICANT LABORATORY DATA WITH POSSIBLE RELEVANCE TO HUMAN HEALTH:**

Ethylene glycol has been shown to produce dose-related teratogenic effects in rats and mice when given by gavage or in drinking water at high concentrations or doses. Also, in a preliminary study to assess the effects of exposure of pregnant rats and mice to aerosols at concentrations 150, 1,000 and 2,500 mg/m<sup>3</sup> for 6 hours a day throughout the period of organogenesis, teratogenic effects were produced at the highest concentrations, but only in mice. The conditions of these latter experiments did not allow a conclusion as to whether the developmental toxicity was mediated by inhalation of aerosol, percutaneous absorption of ethylene glycol from contaminated skin, or swallowing of ethylene glycol as a result of grooming the wetted coat. In a further study, comparing effects from high aerosol concentration by whole-body or nose-only exposure, it was shown that nose-only exposure resulted in maternal toxicity (1,000 and 2,500 mg/m<sup>3</sup>) and developmental toxicity in with minimal evidence of teratogenicity (2,500 mg/m<sup>3</sup>). The no-effects concentration (based on maternal toxicity) was 500 mg/m<sup>3</sup>. In a further study in mice, no teratogenic effects could be produced when ethylene glycol was applied to the skin of pregnant mice over the period of organogenesis. The above observations suggest that ethylene glycol is to be regarded as an animal teratogen; there is currently no available information to suggest that ethylene glycol caused birth defects in humans. Cutaneous application of ethylene glycol is ineffective in producing developmental toxicity; exposure to high aerosol concentration is only minimally effective in producing developmental toxicity; the major route for producing developmental toxicity is perorally.

Two chronic feeding studies, using rats and mice, have not produced any evidence that ethylene glycol causes dose-related increases in tumor incidence or a different pattern of tumors compared with untreated controls. The absence of carcinogenic potential for ethylene glycol has been supported by numerous invitro genotoxicity studies showing that it does not produce mutagenic or clastogenic effects.

This product contains less than 0.07% tolytriazole which has demonstrated mutagenic activity in a bacterial test system. A



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correlation has been established between mutagenic activity and carcinogenic activity for many chemicals. Tolytriazole has not been identified as a carcinogen or probable carcinogen by NTP, IARC, ACGIH, or OSHA.

In a study of Wistar rats, adverse developmental results were reported at a dose of 100 mg / kg of body weight for 2-Ethyl Hexanoic Acid, Sodium Salt.

## 12. Ecological Information

### ECOTOXICITY:

Ethylene Glycol: LC50 Fathead Minnow <10,000 mg/L/96 hr.  
EC50 Daphnia Magna 100,000 mg/L/48 hr  
Bacterial (*Pseudomonas putida*): 10,000 mg/l  
Protozoa (*Entosiphon sulcatum* and *Uronema parduczi*; Chatton-Lvoff): >10,000 mg/l  
Algae (*Microcystis aeruginosa*): 2,000 mg/l  
Green algae (*Scenedesmus quadricauda*): >10,000 mg/l  
Diethylene Glycol: LC50 western mosquitofish >32,000 mg/L/96 hr

### PERSISTENCE AND DEGRADABILITY:

Ethylene Glycol is readily biodegradable (97-100% in 2-12 days).  
Diethylene glycol is readily biodegradable (>70% in 19 days).

### BIOACCUMULATIVE POTENTIAL:

Ethylene glycol: A BCF of 10, reported for ethylene glycol in fish, Golden ide (*Leuciscus idus melanotus*), after 3 days of exposure suggests the potential for bio concentration in aquatic organisms is low.  
Diethylene glycol: An estimated BCF of 3 suggests the potential for bio concentration in aquatic organisms is low.

MOBILITY IN SOIL: Ethylene glycol and diethylene glycol are highly mobile in soil.

OTHER ADVERSE EFFECTS: None known

## 13. Disposal Considerations

Dispose of product in accordance with all local, state/provincial and federal regulations.

## 14. Transport Information

U.S. DOT HAZARD CLASSIFICATION: Not Regulated (unless package contains a reportable quantity)

Note: IF A SHIPMENT OF A REPORTABLE QUANTITY (8,333 LBS/933 GAL.) IN A SINGLE PACKAGE IS INVOLVED, THE FOLLOWING INFORMATION APPLIES:

PROPER SHIPPING NAME: RQ, Environmentally hazardous substance, liquid, n.o.s. (Ethylene glycol)  
UN NUMBER: UN3082  
PACKING GROUP: III  
LABELS REQUIRED: Class 9

DOT MARINE POLLUTANTS: This product does not contain Marine Pollutants as defined in 49 CFR 171.8.

IMDG CODE SHIPPING CLASSIFICATION: Not Regulated

CANADIAN TDG CLASSIFICATION: Not Regulated

## 15. Regulatory Information



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EPA SARA 311/312 HAZARD CLASSIFICATION: Acute health, chronic health

EPA SARA 313: This Product Contains the Following Chemicals Subject to Annual Release Reporting Requirements Under SARA Title III, Section 313 (40 CFR 372):

Ethylene Glycol	107-21-1	40-60%
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PROTECTION OF STRATOSPHERIC OZONE: This product is not known to contain or to have been manufactured with ozone depleting substances as defined in 40 CFR Part 82, Appendix A to Subpart A.

CERCLA SECTION 103: Spills of this product over the RQ (reportable quantity) must be reported to the National Response Center. The RQ for this product, based on the RQ for Ethylene Glycol (60% maximum) of 5,000 lbs., is 8,333 lbs. Many states have more stringent release reporting requirements. Report spills required under federal, state and local regulations.

CALIFORNIA PROPOSITION 65: The normal consumer use of this product does not result in exposures to chemicals known to the State of California to cause Cancer and/or Reproductive Harm above the significant risk level for carcinogens or the maximum allowable dose levels for reproductive toxins. Therefore, no warnings are required for consumer packages. Industrial or other occupational use of this product at higher frequency and using larger quantities of this product may result in exposures exceeding these levels and are labeled accordingly.

EPA TSCA INVENTORY: All of the components of this material are listed on the Toxic Substances Control Act (TSCA) Chemical Substances Inventory.

CANADIAN ENVIRONMENTAL PROTECTION ACT: All of the ingredients are listed on the Canadian Domestic Substances List.

CANADIAN WHMIS CLASSIFICATION: Class D - Division 2 - Subdivision A - (A very toxic material causing other toxic effects)



CANADIAN WHMIS HAZARD SYMBOLS:

This SDS has been prepared according to the criteria of the Controlled Products Regulation (CPR) and the SDS contains all of the information required by the CPR.

EUROPEAN INVENTORY OF EXISTING COMMERCIAL CHEMICAL SUBSTANCES (EINECS): All of the ingredients are listed on the EINECS inventory.

AUSTRALIA: All of the ingredients of this product are listed on the Australian Inventory of Chemical Substances.

JAPAN: All of the ingredients of this product are listed on the Japanese Existing and New Chemical Substances (METI) List.

KOREA: All of the ingredients of this product are listed on the Korean Existing Chemicals List (KECL).

CHINA: All of the ingredients of this product are listed on the Inventory of Existing Chemical Substances in China (IECSC).

PHILIPPINES: All of the ingredients of this product are listed on the Philippines Inventory of Chemicals and Chemical Substances (PICCS).



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**16. Other Information**

NFPA RATING (NFPA 704) - FIRE: 1      HEALTH: 2      INSTABILITY: 0

REVISION SUMMARY: All Sections – conversion to Hazcom 2012 classification and labeling and format.

SDS Date of Preparation/Revision: September 10, 2013

This SDS is directed to professional users and bulk handlers of the product. Consumer products are labeled in accordance with Federal Hazardous Substances Act regulations.

While Prestone Products Corporation believes that the data contained herein are factual and the opinions expressed are those of qualified experts regarding the results of the tests conducted, the data are not to be taken as a warranty or representation for which Prestone Products Corporation assumes legal responsibility. They are offered solely for your consideration, investigation and verification. Any use of these data and information must be determined by the user to be in accordance with applicable federal, state and local laws and regulations.

If more information is needed, please contact:

Prestone Products Corporation  
69 Eagle Road  
Danbury CT 06810  
(800) 890-2075



## Guard Top Crack Filler Safety Data Sheet

### Section 1: Identification of the substance/mixture and of the company/undertaking

**Product form:** Liquid  
**Substance name:** Guard Top Crack Filler  
**Synonyms:** Anionic Asphalt Emulsion

#### Manufacturer

Guard Top L.L.C.  
Three Monarch Bay Plaza, Suite 210  
Dana Point, CA 92629  
(949) 248-8020

#### Emergency telephone number

CHEMTREC (800) 424-9300

### Section 2: Hazards identification

<b>Classification of the substance or mixture:</b>	Eye Irritant	Category 2A
	Skin Corrosion/Irritation	Category 2
	Respiratory/Skin Sensitizer	Category 1



**Signal Word:** WARNING

#### Hazard Statements

- May cause skin and eye irritation.
- Fumes from heated material may be irritating.
- Aspiration hazard if swallowed.
- Substance may be harmful if swallowed irritating mouth, throat and/or stomach.
- Prolonged or excessive inhalation may cause respiratory tract irritation.
- Vapors may have a strong offensive odor which may cause headaches, nausea and vomiting.
- Contact with heated material may cause eye burns and permanent tissue damage.
- Symptoms of overexposure include: fatigue, tearing of eyes, burning sensation in the throat, cough, chest discomfort and skin irritation.
- Hot material may cause thermal burns.

#### Precautionary Statements

- Obtain and read instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Exposure to hot material may cause thermal burns.



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**Section 3: Composition/information on ingredients**

Chemical Name	Amount	CAS Number
Asphalt	40-45%	8052-42-4
Water	30-35%	7732-18-5
Compounded Clay	10.0%	Mixture
Hydrogen Sulfide	0-0.5%	7783-06-4
Emulsifier	<3.5%	Trade Secret
Latex	1.0-15%	Trade Secret

**Section 4: First aid measures**

<i>First-aid measures general:</i>	Get prompt medical attention. Dilute with water. If solidified, treat as neat asphalt.
<i>First-aid measures after inhalation:</i>	At elevated temperatures, may cause irritation of the respiratory tract. Although this product is not known to cause respiratory problems, if breathing is difficult, safely remove victim to fresh air and provide oxygen. Get immediate medical attention.
<i>First-aid measures after skin contact:</i>	Wash skin with soap and water. Wear protective gloves to minimize skin contamination. For hot material exposure, DO NOT attempt to remove solidified material from the skin. DO NOT attempt to dissolve with solvents or thinners.
<i>First-aid measures after eye contact:</i>	Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists. Burns due to contact with heated material require immediate medical attention.
<i>First-aid measures after ingestion:</i>	Get immediate medical attention. Do not induce vomiting due to danger of aspirating liquid into lungs. Gastric lavage may be required.

**Most important symptoms and effects, both acute and delayed**

<i>Eyes:</i>	Irritation
<i>Skin:</i>	Irritation
<i>Inhalation:</i>	Irritation
<i>Chronic Effects:</i>	No known hazards in normal industrial use.

**Section 5: Firefighting measures**

<b>Extinguishing media</b>	
<i>Suitable extinguishing media:</i>	Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material.
<i>Unsuitable extinguishing media:</i>	Exercise care when using water as contact with hot asphalt product may produce steam and violent foaming.



## Guard Top Crack Filler Safety Data Sheet

### Special hazards arising from the substance or mixture

<b>Fire hazard:</b>	Product is an aqueous solution. Heated product may produce hazardous fumes, decomposition products or residues. Small quantities of hydrogen sulfide may be released upon heating.
<b>Explosion hazard:</b>	None
<b>Reactivity:</b>	Avoid contact with strong bases.

### Advice for firefighters

<b>Firefighting instructions:</b>	Decomposition may produce fumes, smoke, oxides of carbon, hydrocarbons and possible small quantities of hydrogen sulfide. Avoid breathing vapors from heated material. Combustion may produce CO, NOx, SOx and reactive hydrocarbons.
<b>Protection during firefighting:</b>	As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH approved and full protective gear.

## Section 6: Accidental release measures

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### Personal precautions, protective equipment and emergency procedures

<b>General measures:</b>	Clean up spills immediately using appropriate personal protective equipment.
<b>For non-emergency personnel</b>	
<b>Protective equipment:</b>	Gloves, safety glasses, boots.
<b>Emergency procedures:</b>	Absorb spills with absorbent material. Contain spilled liquid with sand or earth.
<b>For emergency responders</b>	
<b>Protective equipment:</b>	Gloves, safety glasses, boots.
<b>Emergency procedures:</b>	Stop the source of the leak or release. Clean up releases as soon as possible.

### Environmental precautions

Prevent contamination of soil, surface water or groundwater.

### Methods for containment/clean up

Absorb spills with absorbent materials. Contain spilled liquid with sand or earth. Contain liquid to prevent contamination of soil, surface water or groundwater. Large spillage should be dammed-off and pumped into containers.



## Guard Top Crack Filler Safety Data Sheet

### Section 7: Handling and storage

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#### Precautions for safe handling:

**Shelf Life:**

30 Days @ 77 degrees C (in original, sealed containers).

**Additional hazards when processed:**

When handling hot material, use protective clothing impervious to this material.

**Precautions for safe handling:**

Use good Hygiene measures: wash exposed areas with mild soap and water before eating, drinking or smoking and again when leaving work.

**Storage conditions:**

Do not store at temperatures above 82 degrees C.

### Section 8: Exposure controls/personal protection

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**Engineering Controls:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**Eye/Face Protection Requirements:**

Where contact with this material is likely, eye protection is recommended.

**Skin Protection Requirements:**

Selection of specific items such as gloves, boots, apron or full-body suit will depend on operation and potential exposure.

**Respiratory Protection Requirements:**

Where there is potential for airborne exposure in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

#### Exposure Guidelines

**Hydrogen Sulfide:**

NIOSH REL  
OSHA PEL

C 10 ppm, 15 mg/m<sup>3</sup> (10 min.)  
C 20 ppm, 50 ppm (10 min.)



## Guard Top Crack Filler Safety Data Sheet

### Section 9: Physical and chemical properties

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#### Information on basic physical and chemical properties

<b>Physical state:</b>	Liquid
<b>Appearance:</b>	Brown to Black
<b>Odor:</b>	Asphalt Odor
<b>pH:</b>	10-11.5
<b>Melting point:</b>	0 C
<b>Freezing point:</b>	0 C
<b>Specific Gravity:</b>	1.4-1.7 (Water=1)
<b>Boiling point:</b>	100 degrees C @ 760 mm Hg
<b>Flash point:</b>	None
<b>UEL:</b>	N/A
<b>LEL:</b>	N/A
<b>Vapor pressure:</b>	Same as water mm Hg @ 21 degrees C
<b>Solubility:</b>	Soluble in water
<b>%Volatiles:</b>	<35% @ 21 degrees C @ 760 mm Hg
<b>VOC:</b>	<1

### Section 10: Stability and reactivity

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<b>Reactivity:</b>	Low
<b>Chemical stability:</b>	This compound is stable at ambient conditions.
<b>Possibility of hazardous reactions:</b>	Low
<b>Conditions to avoid:</b>	Avoid extreme temperatures.
<b>Incompatible materials:</b>	Avoid contact with strong bases.
<b>Hazardous decomposition product:</b>	Decomposition will not occur if handled and stored properly.
<b>Polymerization:</b>	Hazardous polymerization will not occur.



## Guard Top Crack Filler Safety Data Sheet

### Section 11: Toxicological information

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<b>Skin corrosion:</b>	May cause irritation and a rash with prolonged or repeated contact with skin.
<b>Serious eye damage/irritation:</b>	Irritating, may injure eye tissue if not removed promptly.
<b>Respiratory or skin sensitization:</b>	Repeated contact may cause skin irritation, prolonged inhalation may cause respiratory tract irritation.
<b>Germ cell mutagenicity:</b>	None
<b>Carcinogenicity:</b>	IARC has determined Hydrochloric acid may be carcinogenic in humans.
<b>Reproductive toxicity:</b>	This product contains one or more chemicals known to cause reproductive harm.
<b>Specific target organ toxicity (single exposure):</b>	Skin and/or respiratory irritation, mild.
<b>Specific target organ toxicity (repeated exposure):</b>	Skin, respiratory, kidney and liver.
<b>Aspiration hazard:</b>	Respiratory distress as a result of aspiration.
<b>Symptoms/injuries after inhalation:</b>	Respiratory tract irritation, cough, chest discomfort.
<b>Symptoms/injuries after eye contact:</b>	Eye tearing, irritation. Burns if contact made with heated material.
<b>Symptoms/injuries after ingestion:</b>	Harmful if swallowed, irritating to mouth, throat and stomach.

### Section 12: Ecological information

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#### Environmental Hazards

This material should be prevented from uncontrolled applications to soil or earth. This material should be prevented from entering storm water, sewage drainage systems and bodies of water.

### Section 13: Disposal considerations

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<b>Waste Disposal:</b>	This product, as supplied, when discarded or disposed of, may be a hazardous waste according to Federal regulations (40 CFR 261). Under the Resource Recovery Act (RCRA), it is the responsibility of the user of the product to determine whether the material is a hazardous waste subject to RCRA. Treat or dispose of waste material in accordance with all local, state/provincial and national requirements. Avoid disposal into wastewater treatment facilities.
<b>Contaminated Materials:</b>	Treat as product waste.
<b>Container Disposal:</b>	Unclean empty containers should be disposed of in the same manner as the contents.



# Guard Top Crack Filler Safety Data Sheet

## Section 14: Transport information

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**Product Label:** Guard Top Crack Filler  
**UN Number:** Non-hazardous, no UN number  
**DOT Shipping Name:** Non Regulated, Water Based Asphalt Emulsion  
**DOT Hazard Class:** Non-Hazardous

## Section 15: Regulatory information

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**EEC Symbols and Indications of Danger:** Irritant (Xi)  
**R-Phrases:** R36/37/38 – Irritating to eyes, respiratory system and skin.  
**WHMIS Hazard Symbols:** Class D – Irritant  
**CERCLA Hazardous Substances:** HYDROGEN SULFIDE (CAS 7783-06-4) – RQ 100 lb.  
**California Proposition 65:** This product contains one or more chemicals known to the State of California to cause cancer and/or reproductive harm.  
**Clean Air Act – Section 112:**  
**Title V:** HYDROGEN SULFIDE (7783-06-4)  
**SC Toxic Air Pollutants List:** HYDROGEN SULFIDE (7783-06-4)  
**Sara Title II – Section 313:** There are no known ingredients subject to reporting.  
**TSCA Inventory Status:** All ingredients of this product are listed.

## Section 16: Other information

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**Indication of changes**

**NFPA health hazard:** 1  
**NFPA fire hazard:** 1  
**NFPA reactivity:** 0  
**Personal Protection Index:** 1

**HMIS III Rating**

**Health:** 1  
**Flammability:** 1  
**Reactivity:** 0  
**Special Hazard:** None

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



**MATERIAL SAFETY DATA SHEET**

**1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

Product Identification

Product Name: Guardtop Oil Seal

Synonyms: OilSeal  
CAS Number: Blend

Company Identification

Guardtop L.L.C  
Three Monarch Bay Plaza  
Suite 210  
Dana Point  
California, USA  
92629  
1-800-424-9300 CHEMTREC (For Emergencies)

**2. COMPOSITION/INFORMATION ON INGREDIENTS**

COMPONENT LISTING:

Chemical Name	Amount	CAS Number
Polymer plus proprietary Additives and Water	<85.0%	Mixture
Vinyl Acetate	<14.0%	108-05-4
Carbon Black	<1.0%	1333-86-4

COMPOSITION COMMENT:

Concentration values are typical and may vary. Although specific identities of some product components are being withheld as trade secrets, known pertinent hazards are addressed in this MSDS.

HAZARDS DISCLOSURE:

This product contains hazardous materials as defined by the OSHA Hazard Communication Standard 29 CFR 1910.1200. As defined under Sara 311 and 312, this product contains materials that are acute hazards.

MISCELLANEOUS:

This material does not have established exposure limits.

**3. HAZARDS IDENTIFICATION**

HMIS Rating -

Health:	1
Flammability:	0
Reactivity:	0
Personal Protection Index:	1

NFPA Rating -

Health:	1
Flammability:	0
Reactivity:	0
Special Hazard:	Corrosive



**POTENTIAL HEALTH EFFECTS**

**EYE:**

Direct contact may cause slight eye irritation with tearing and redness. Fumes, vapors or mists may be irritating.

**SKIN:**

Avoid prolonged or repeated contact with skin. Prolonged or repeated contact may irritate the skin and cause a skin rash (dermatitis).

**INHALATION:**

Avoid breathing vapors or mists. Prolonged or excessive inhalation may cause respiratory tract irritation.

**INGESTION:**

Substance may be harmful if swallowed. Irritating to mouth, throat, and stomach.

**SIGNS AND SYMPTOMS OF EXPOSURE:**

Vapors may have a strong offensive odor which may cause headaches, nausea, and vomiting. Symptoms of overexposure include: fatigue, tearing of eyes, burning sensation in the throat, cough, chest discomfort and skin irritation.

**CHRONIC EFFECTS:**

No known hazards in normal industrial use.

**CARCINOGENICITY INFORMATION:**

Refer to Section 15.

**MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:**

Disorders of the kidney, liver, skin and respiratory system.

**4. FIRST AID MEASURES**

**EYE CONTACT FIRST AID:**

Hold eyelids apart and flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation develops or persists.

**SKIN CONTACT FIRST AID:**

Wash skin with soap and water. Wear protective gloves to minimize skin contamination.

**INHALATION FIRST AID:**

Although this product is not known to cause respiratory problems, if breathing is difficult, safely remove victim to fresh air and provide oxygen. Get immediate medical attention.

**INGESTION FIRST AID:**

Get immediate medical attention. Do not induce vomiting due to danger of aspirating liquid into lungs. Gastric lavage may be required.

**STATEMENT OF PRACTICAL TREATMENT:**

Get prompt medical attention. Dilute with water.

**5. FIRE FIGHTING MEASURES**

**FLAMMABLE PROPERTIES**

COC Flash Point: None

TCC Flash Point: None

Auto Ignition Temperature: N/A

**FLAMMABLE LIMITS IN AIR**

LEL: N/A

UEL: N/A

**FLAMMABLE PROPERTIES:**

Product is an aqueous solution. Heated product may produce hazardous fumes, decomposition products or residues. Small quantities of hydrogen sulfide may be released upon heating.

**EXTINGUISHING MEDIA:**

Use alcohol foam, carbon dioxide, or water spray when fighting fires involving this material. Exercise care when using water as contact with hot asphalt products may produce steam and violent foaming.

**FIRE FIGHTING INSTRUCTIONS:**

As in any fire, wear self-contained breathing apparatus pressure-demand MSHA/NIOSH (approved or equivalent) and full protective gear. Decomposition may produce fumes, smoke, oxides of carbon and hydrocarbons.

**COMBUSTION PRODUCTS:**

Avoid breathing vapors from heated material. Combustion may produce CO, NOx, SOx and reactive hydrocarbons.



**6. ACCIDENTAL RELEASE MEASURES**

**SAFEGUARDS (PERSONNEL):**

Clean up spills immediately, observing precautions in Protective Equipment section.

**INITIAL CONTAINMENT:**

Clean up spills immediately, observing precautions in Protective Equipment section. Contain spilled liquid with sand or earth.

**LARGE SPILLS PROCEDURE:**

Stop the source of the leak or release. Clean up releases as soon as possible, observing precautions in Exposure Controls/Personal Protection. Contain liquid to prevent further contamination of soil, surface water or groundwater. Large spillage should be dammed-off and pumped into containers.

**SMALL SPILLS PROCEDURE:**

Absorb spills with inert material.

**7. HANDLING AND STORAGE**

**SHELF LIFE:**

30 days @ 77 C (in original, sealed containers)

**HANDLING (PHYSICAL ASPECTS):**

Use protective clothing impervious to this material.

**STORAGE PRECAUTIONS:**

Do not store at temperatures above 82°C.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

**ENGINEERING CONTROLS:**

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower.

**EYE / FACE PROTECTION REQUIREMENTS:**

Where contact with this material is likely, eye protection is recommended.

**SKIN PROTECTION REQUIREMENTS:**

Selection of specific items such as gloves, boots, apron, or full-body suit will depend on operation and potential exposure.

**RESPIRATORY PROTECTION REQUIREMENTS:**

When there is potential for airborne exposures in excess of applicable limits, wear NIOSH/MSHA approved respiratory protection.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

FORM:	Liquid
COLOR:	Black
ODOR:	Sweet Odor
BOILING POINT:	100 C @ 760 mm Hg
VAPOR PRESSURE:	Same as water mm Hg @ 21 C
VAPOR DENSITY:	<1.0 (Air = 1)
SOLUBILITY IN WATER:	Dispersible
SPECIFIC GRAVITY:	1.0 – 1.2 (Water = 1)
MELTING/FREEZING POINT:	0 C
pH:	9.0 – 11.5
% VOLATILES:	<40 % @ 21 C @ 760 mm Hg
VOC:	<0.1

**10. STABILITY AND REACTIVITY**

**STABILITY:**

This compound is stable at ambient conditions.

**POLYMERIZATION:**

Hazardous polymerization will not occur.

**INCOMPATIBILITY WITH OTHER MATERIALS:**

Avoid contact with oxidizing agents.

**DECOMPOSITION:**

Decomposition will not occur if handled and stored properly.



CONDITIONS TO AVOID:  
Avoid extreme temperatures.

#### 11. TOXICOLOGICAL INFORMATION

EYE EFFECTS:  
Irritating, and may injure eye tissue if not removed promptly.

#### 12. ECOLOGICAL INFORMATION

ENVIRONMENTAL HAZARDS:  
This material should be prevented from uncontrolled applications to soil or earth. This material is a water pollutant and should be prevented from entering storm water, sewage drainage systems and bodies of water.

#### 13. DISPOSAL CONSIDERATIONS

WASTE DISPOSAL:  
Treat or dispose of waste material in accordance with all local, state/provincial, and national requirements. Avoid disposal into waste water treatment facilities.  
CONTAMINATED MATERIALS:  
Treat as product waste.  
CONTAINER DISPOSAL:  
Unclean empty containers should be disposed of in the same manner as the contents.

#### 14. TRANSPORTATION INFORMATION

PRODUCT LABEL: Guardtop OilSeal  
D.O.T. SHIPPING NAME: Non Regulated,  
D.O.T. HAZARD CLASS: Non-Hazardous

#### 15. REGULATORY INFORMATION

EEC Symbols and Indications of Danger:  
Irritant (Xi), Corrosive (C)

R-Phrases:  
R36/37/38 - Irritating to eyes, respiratory system, and skin.

WHMIS Hazard Symbols:  
Class E - Corrosive Material

CERCLA Hazardous Substances

California Proposition 65:  
This product contains one or more chemicals known to the State of California to cause cancer and/or reproductive harm.

Clean Air Act - Section 112



SARA Title II – Section 313

There are no known ingredients subject to reporting.

TSCA Inventory Status

All ingredients of this product are listed.

**16. OTHER INFORMATION**

Date of Issue: 24/07/2009

*This information is furnished without warranty, expressed or implied, except that it is accurate to the best knowledge of Guardtop L.L.C.. The data on this sheet are related only to the specific material designated herein. Guardtop L.L.C.. assumes no legal responsibility for use or reliance upon these data.*



## Safety Data Sheet

**Material Name:** Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)

**Synonyms:** Portland Cement; also known as Cement or Hydraulic Cement, Mortar, Class G

### \*\*\* Section 1 - Product and Company Identification \*\*\*

#### Manufacturer Information

CALPORTLAND COMPANY  
2025 E. Financial Way  
Glendora, CA 91741  
Phone: 626-852-6200  
[www.calportland.com](http://www.calportland.com)

### \*\*\* Section 2 - Hazards Identification \*\*\*

#### GHS Classification:

- Acute Toxicity Oral - Category 4
- Acute Toxicity Dermal - Category 4
- Acute Toxicity Inhalation - Category 3
- Skin Corrosion/Irritation - Category 1B
- Eye Damage - Category 1
- Respiratory Sensitization - Category 1
- Skin Sensitization - Category 1
- Carcinogenicity - Category 1A
- Specific Target Organ Toxicity Repeat Exposure - Category 1

#### GHS LABEL ELEMENTS

##### Symbol(s)



##### Signal Word

Danger

##### Hazard Statements

- Harmful if swallowed.
- Harmful in contact with skin.
- Toxic if inhaled.
- Causes severe skin burns and eye damage.
- Causes serious eye damage.
- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- May cause cancer.
- Causes damage to organs through prolonged or repeated exposure (lungs).

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## Precautionary Statements

### Prevention

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

### Response

If swallowed: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center/doctor.  
If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center or doctor/physician. Wash contaminated clothing before reuse.  
If inhaled: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms: Call a poison center or doctor/physician.  
If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor.

### Storage

Store in a well-ventilated place.  
Store in an appropriate container or containment structure.

### Disposal

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

## \* \* \* Section 3 - Composition / Information on Ingredients \* \* \*

CAS #	Component	Percent
65997-15-1	Cement, portland, chemicals	78-95
1317-65-3	Limestone	0-15
13397-24-5	Gypsum (Ca(SO <sub>4</sub> ).2H <sub>2</sub> O)	5-7
14808-60-7	Quartz	0-0.3

## Component Information/Information on Non-Hazardous Components

### General Product Information

Trace Elements: Portland cement is made from materials mined from the earth and is processed using energy provided by fuels. Trace amounts of naturally occurring, potentially harmful chemical might be detected during chemical analysis. For example, Portland cement may contain up to 1.50 % insoluble residue, some of which may be free crystalline silica. Other trace constituents may include calcium oxide, free magnesium oxide, potassium and sodium sulfate compounds, and trace metal compounds.

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## \*\*\* Section 4 - First Aid Measures \*\*\*

### First Aid: Eyes

Immediately flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

### First Aid: Skin

Wash skin with cool water and pH-neutral soap or a mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet cement, cement mixtures, liquids from fresh cement products, or prolonged wet skin exposure to the dry cement.

### First Aid: Ingestion

Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

### First Aid: Inhalation

Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. (Inhalation of gross amounts of Portland cement requires immediate medical attention.)

## \*\*\* Section 5 - Fire Fighting Measures \*\*\*

### General Fire Hazards

See Section 9 for Flammability Properties.  
Non-combustible.

### Hazardous Combustion Products

None

### Extinguishing Media

Use appropriate extinguishing media for surrounding fire.

### Unsuitable Extinguishing Media

None

### Fire Fighting Equipment/Instructions

Firefighters should wear full protective gear.

## \*\*\* Section 6 - Accidental Release Measures \*\*\*

### Recovery and Neutralization

Stop the flow of material, if this is without risk.

### Materials and Methods for Clean-Up

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Scrape up wet material and place in an appropriate container. Allow the material to dry before disposal.

### Emergency Measures

Isolate area. Keep unnecessary personnel away.

### Personal Precautions and Protective Equipment

Wear appropriate personal protective equipment as described in Section 8.

### Environmental Precautions

Do not attempt to wash Portland cement down sewers or storm drains.

### Prevention of Secondary Hazards

None

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## \*\*\* Section 7 - Handling and Storage \*\*\*

### Handling Procedures

Avoid prolonged or repeated breathing of dust. Avoid contact with eyes and skin. Promptly remove dusty clothing or clothing which is wet with cement fluids and launder before reuse. Wash thoroughly after exposure to dust or wet cement mixtures.

### Storage Procedures

Store product in a cool, dry, ventilated area. Protect against physical damage and moisture. Keep cement dry until used. Normal temperature and pressures do not affect the material.

### Incompatibilities

Wet Portland cement is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal.

## \*\*\* Section 8 - Exposure Controls / Personal Protection \*\*\*

### Component Exposure Limits

#### Cement, portland, chemicals (65997-15-1)

ACGIH:	1 mg/m3 TWA (particulate matter containing no asbestos and <1% crystalline silica, respirable fraction)
OSHA (Final):	15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
OSHA:	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
(Vacated):	
NIOSH:	10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)
Alberta:	10 mg/m3 TWA
British Columbia:	10 mg/m3 TWA (total particulate matter containing no Asbestos and <1% Crystalline silica, total particulate); 3 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable particulate)
Manitoba:	1 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable fraction)
New Brunswick:	10 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica)
NW Territories:	5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)
Nova Scotia:	1 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica, respirable fraction)
Nunavut:	5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)
Ontario:	10 mg/m3 TWA (containing no Asbestos and <1% Crystalline silica, total dust)
Quebec:	10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, total dust); 5 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, respirable dust)
Saskatchewan:	10 mg/m3 TWA 20 mg/m3 STEL
Yukon:	30 mppcf TWA; 10 mg/m3 TWA 20 mg/m3 STEL

## Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

### **Limestone (1317-65-3)**

OSHA (Final): 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)  
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)  
(Vacated):  
NIOSH: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)  
Alberta: 10 mg/m3 TWA  
British Columbia: 10 mg/m3 TWA (total dust); 3 mg/m3 TWA (respirable fraction)  
Columbia: 20 mg/m3 STEL  
New Brunswick: 10 mg/m3 TWA (particulate matter containing no Asbestos and <1% Crystalline silica)  
NW Territories: 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)  
Nunavut: 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)  
Quebec: 10 mg/m3 TWAEV (Limestone, containing no Asbestos and <1% Crystalline silica, total dust)  
Saskatchewan: 10 mg/m3 TWA  
20 mg/m3 STEL  
Yukon: 30 mppcf TWA; 10 mg/m3 TWA  
20 mg/m3 STEL

### **Gypsum (Ca(SO4).2H2O) (13397-24-5)**

ACGIH: 10 mg/m3 TWA (inhalable fraction, listed under Calcium sulfate)  
OSHA (Final): 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)  
OSHA 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)  
(Vacated):  
NIOSH: 10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable dust)  
Alberta: 10 mg/m3 TWA (listed under Calcium sulphate)  
British Columbia: 10 mg/m3 TWA (total dust); 3 mg/m3 TWA (respirable fraction)  
Columbia: 20 mg/m3 STEL  
Manitoba: 10 mg/m3 TWA (inhalable fraction, listed under Calcium sulfate)  
NW Territories: 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)  
Nova Scotia: 10 mg/m3 TWA (inhalable fraction, listed under Calcium sulfate)  
Nunavut: 5 mg/m3 TWA (respirable mass); 10 mg/m3 TWA (total mass)  
Ontario: 10 mg/m3 TWA (inhalable, listed under Calcium sulfate)  
Quebec: 10 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, total dust); 5 mg/m3 TWAEV (containing no Asbestos and <1% Crystalline silica, respirable dust)  
Saskatchewan: 10 mg/m3 TWA  
20 mg/m3 STEL  
Yukon: 30 mppcf TWA; 10 mg/m3 TWA  
20 mg/m3 STEL

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## Quartz (14808-60-7)

ACGIH:	0.025 mg/m <sup>3</sup> TWA (respirable fraction)
OSHA	0.1 mg/m <sup>3</sup> TWA (respirable dust)
(Vacated):	
NIOSH:	0.05 mg/m <sup>3</sup> TWA (respirable dust)
Alberta:	0.025 mg/m <sup>3</sup> TWA (respirable particulate)
British Columbia:	ACGIH Category A2 - Suspected Human Carcinogen; IARC Category 1 - Human Carcinogen
Manitoba:	0.025 mg/m <sup>3</sup> TWA (respirable fraction)
New Brunswick:	0.1 mg/m <sup>3</sup> TWA (respirable fraction)
NW Territories:	0.1 mg/m <sup>3</sup> TWA (respirable mass); 0.3 mg/m <sup>3</sup> TWA (total mass)
Nova Scotia:	0.025 mg/m <sup>3</sup> TWA (respirable fraction)
Nunavut:	0.1 mg/m <sup>3</sup> TWA (respirable mass); 0.3 mg/m <sup>3</sup> TWA (total mass)
Ontario:	0.10 mg/m <sup>3</sup> TWA (respirable fraction) 0.10 mg/m <sup>3</sup> TWA (designated substance regulation, respirable)
Quebec:	0.1 mg/m <sup>3</sup> TWAEV (respirable dust)
Saskatchewan:	0.05 mg/m <sup>3</sup> TWA (respirable fraction, listed under Silica - crystalline)
Yukon:	300 particle/mL TWA (listed under Silica)

## Engineering Measures

Avoid actions that cause dust to become airborne. Use local exhaust or general dilution ventilation to control exposure within applicable limits.

## Personal Protective Equipment: Respiratory

Use local or general ventilation to control exposures below applicable exposure limits. NIOSH or MSHA approved particulate filter respirators should be used in the context of respiratory protection program meeting the requirements of the OSHA respiratory protection standard [29 CFR 1910.134] to control exposures when ventilation or other controls are inadequate or discomfort or irritation is experienced. Respirator and/or filter cartridge selection should be based on American National Standards Institute (ANSI) Standards Z88.2 Practices for Respiratory Protection.

## Personal Protective Equipment: Hands

Where prolonged exposure to unhardened concrete products might occur, wear impervious gloves to eliminate skin contact. Do not rely on barrier creams; barrier creams should not be used in place of gloves. Periodically wash areas contacted by wet cement or its dry ingredients with a pH neutral soap and water. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment.

## Personal Protective Equipment: Eyes

When engaged in activities where wet concrete or its dry ingredients could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with Portland cement or fresh cement products.

## Personal Protective Equipment: Skin and Body

Where prolonged exposure to unhardened concrete products might occur, wear impervious clothing to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure. If clothing becomes saturated with wet concrete, it should be removed and replaced with clean dry clothing.

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## \*\*\* Section 9 - Physical & Chemical Properties \*\*\*

<b>Appearance:</b>	Gray powder.	<b>Odor:</b>	None
<b>Physical State:</b>	Solid	<b>pH:</b>	12-13 (in water)
<b>Vapor Pressure:</b>	Not Applicable	<b>Vapor Density:</b>	Not Applicable
<b>Boiling Point:</b>	Not Applicable	<b>Melting Point:</b>	Not Applicable
<b>Solubility (H2O):</b>	Slightly soluble	<b>Specific Gravity:</b>	3.15
<b>Evaporation Rate:</b>	Not Applicable	<b>VOC:</b>	Not Determined
<b>Octanol/H2O Coeff.:</b>	Not Determined	<b>Flash Point:</b>	None
<b>Flash Point Method:</b>	None	<b>Upper Flammability Limit (UFL):</b>	None
<b>Lower Flammability Limit (LFL):</b>	None	<b>Burning Rate:</b>	None
<b>Auto Ignition:</b>	Not Combustible		

## \*\*\* Section 10 - Chemical Stability & Reactivity Information \*\*\*

### Chemical Stability

This is a stable material.

### Hazardous Reaction Potential

Will not occur.

### Conditions to Avoid

Unintentional contact with water.

### Incompatible Products

Wet Portland cement is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal.

### Hazardous Decomposition Products

Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide.

## \*\*\* Section 11 - Toxicological Information \*\*\*

### Acute Toxicity

#### Component Analysis - LD50/LC50

Quartz (14808-60-7)

Oral LD50 Rat 500 mg/kg

#### Potential Health Effects: Skin Corrosion Property/Stimulativeness

Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet cement. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred. Exposure during the handling or mixing of the dry ingredients in Portland cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Exposure to wet concrete may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns.

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## Potential Health Effects: Eye Critical Damage/ Stimulativeness

Exposure to airborne dust during the handling or mixing of the dry ingredients in Portland cement may cause immediate or delayed irritation or inflammation. Eye contact by splashes of wet concrete may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see Section 4) and medical attention to prevent significant damage to the eye.

## Potential Health Effects: Ingestion

Although inadvertent ingestion of small quantities of wet concrete or its dry ingredients are not known to be harmful, accidental ingestion of larger quantities can be harmful and requires immediate medical attention.

## Potential Health Effects: Inhalation

Exposure to Portland cement in excess of the applicable TLV or PEL (see section 2) may cause or aggravate other lung conditions. The ingredients in Portland cement may contain trace amounts of crystalline silica. Exposure to these ingredients in excess of the applicable TLV or PEL (see Section 2) may cause or aggravate other lung conditions. Exposure to Portland cement may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

## Respiratory Organs Sensitization/Skin Sensitization

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Some individuals may exhibit an allergic response upon exposure to wet concrete. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may first experience this effect after years of contact with Portland cement products.

## Generative Cell Mutagenicity

This product is not reported to have any mutagenic effects.

## Carcinogenicity

### A: General Product Information

May cause cancer.

Prolonged and repeated exposure to airborne free respirable crystalline silica can result in lung disease and/or lung cancer. IARC states that crystalline silica in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).

### B: Component Carcinogenicity

#### Cement, portland, chemicals (65997-15-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

#### Quartz (14808-60-7)

ACGIH: A2 - Suspected Human Carcinogen

NIOSH: potential occupational carcinogen

NTP: Known Human Carcinogen (respirable size) (Select Carcinogen)

IARC: Monograph 100C [2012] (listed under Crystalline silica inhaled in the form of quartz or cristobalite from occupational sources); Monograph 68 [1997] (Group 1 (carcinogenic to humans))

## Reproductive Toxicity

This product is not reported to have any reproductive toxicity effects.

## Specified Target Organ General Toxicity: Single Exposure

This product is not reported to have any single exposure specific target organ toxicity effects.

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## **Specified Target Organ General Toxicity: Repeated Exposure**

Causes damage to organs through prolonged or repeated exposure (lungs).

## **Aspiration Respiratory Organs Hazard**

This product is not reported to have any aspiration hazards.

### **\*\*\* Section 12 - Ecological Information \*\*\***

#### **Ecotoxicity**

##### **A: General Product Information**

This product is not reported to have any ecotoxicity effects.

##### **B: Component Analysis - Ecotoxicity - Aquatic Toxicity**

No ecotoxicity data are available for this product's components.

#### **Persistence/Degradability**

No information available for the product.

#### **Bioaccumulation**

No information available for the product.

#### **Mobility in Soil**

No information available for the product.

### **\*\*\* Section 13 - Disposal Considerations \*\*\***

#### **Waste Disposal Instructions**

See Section 7 for Handling Procedures. See Section 8 for Personal Protective Equipment recommendations.

#### **Disposal of Contaminated Containers or Packaging**

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

### **\*\*\* Section 14 - Transportation Information \*\*\***

#### **DOT/TDG Information**

Shipping Name: Not Regulated.

### **\*\*\* Section 15 - Regulatory Information \*\*\***

#### **Regulatory Information**

##### **US Federal Regulations**

##### **Component Analysis**

None of this products components are listed under SARA Section 302 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), or CERCLA (40 CFR 302.4).

# Safety Data Sheet

**Material Name: Portland Cement (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)**

## State Regulations

### Component Analysis - State

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
Cement, portland, chemicals	65997-15-1	No	Yes	Yes	Yes	Yes	No
Limestone	1317-65-3	No	Yes	Yes	Yes	Yes	No
Gypsum (Ca(SO <sub>4</sub> ).2H <sub>2</sub> O)	13397-24-5	No	No	Yes	Yes	Yes	No
Quartz	14808-60-7	No	Yes	Yes	Yes	Yes	No

The following statement(s) are provided under the California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65):

WARNING! This product contains chemicals known to the state of California to cause cancer, birth defects, or other reproductive harm.

### Component Analysis - WHMIS IDL

No components are listed in the WHMIS IDL.

### Status under Workplace Hazardous Materials Information System (WHMIS), Canada

Unhardened Ready-Mix concrete is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class E - Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

### Status under Canadian Environmental Protection Act

Not Listed

## Additional Regulatory Information

### Component Analysis - Inventory

Component	CAS #	TSCA	CAN	EEC
Cement, portland, chemicals	65997-15-1	Yes	DSL	EINECS
Limestone	1317-65-3	Yes	NDSL	EINECS
Gypsum (Ca(SO <sub>4</sub> ).2H <sub>2</sub> O)	13397-24-5	No	DSL	No
Quartz	14808-60-7	Yes	DSL	EINECS

# Safety Data Sheet

Material Name: **Portland Cement** (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)

## \*\*\* Section 16 - Other Information \*\*\*

Hazardous Material Information System (HMIS):	<b>Health</b>	<b>1</b>
	<b>Flammability</b>	<b>0</b>
	<b>Physical Hazard</b>	<b>0</b>
	<b>Personal Protection</b>	<b>B</b>

NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme

Protective Equipment: Safety glasses, gloves

### Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration., NJTSR = New Jersey Trade Secret Registry.

### Literature References

None

### Other Information

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 CALPORTLAND, except that the product shall conform to contracted specifications. The information provided herein was believed by CalPortland Company 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 the 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 nondelivery 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.

End of Sheet





# Safety Data Sheet & Warranty CHROMIX® P1200 Admixtures for Color-Conditioned® Concrete, SCOFIELD® Integral Color SG 7200, SCOFIELD® Integral Color Utility Grade 7100, and SOLACHROME® Integral Coloring Treatment 1250

5/26/2015 SDS according to GHS OSHA 29 CFR 1910.1200 and 1272/2008/EC (CLP) amending 1907/2006/EC (REACH)

## 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY UNDERTAKING

### 1.1 GHS Product Identifier

**Commercial Product Name:** CHROMIX® Admixtures for Color-Conditioned® Concrete P1200 (all colors), SCOFIELD® Integral Color SG 7200, SCOFIELD® Integral Color Utility Grade 7100 and SOLACHROME® Integral Coloring Treatment 1250

**Chemical Name:** Mixtures of pigments (iron oxides and/or titanium dioxide and/or chromium III oxide and/or cobalt blues) and/or Complex Inorganic Color Pigments, with pozzolans and admixtures.

### 1.2 Relevant identified uses of product:

CHROMIX® Admixtures for Color-Conditioned® Concrete P1200, SCOFIELD® Integral Color SG 7200, SCOFIELD® Integral Color Utility Grade 7100 and SOLACHROME® Integral Coloring Treatment 1250. are pigments and admixtures that are designed to permanently color concrete and other cementitious materials. Scofield products are intended for use only by professionals. Keep out of the reach of children.

### 1.3 Details of the supplier of the safety data sheet:

**L. M. SCOFIELD Company** Scofield Phone #: (800) 800-9900 [www.scofield.com](http://www.scofield.com)  
6533 Bandini Blvd, Los Angeles, CA 90040 Information Phone Number (323) 720-3000 M-F 8AM-5PM  
4155 Scofield Road, Douglasville, GA 30134 Information Phone Number (770) 920-6000 M-F 8AM-5PM

### 1.4 Transportation Emergency Telephone Number: CHEMTREC (800) 424-9300

## 2. HAZARD IDENTIFICATION

### 2.1 Classification of substance or mixture:

GHS-US Hazard classification

Skin irritant, STOT, SE, H313, category 5

Eye irritant, STOT, SE, H320, category 2B

Respiratory irritant, STOT, RE, H335, category 3

Carcinogenicity, STOT, RE, H350, inhalation, category 1A, 1B

Carcinogenicity, STOT, RE, H351, inhalation, IARC category 2B

Central nervous system damage, STOT, RE, H373, category 2

Human Health: Product can damage eyes by mechanical irritation. Avoid getting product into eyes.

Environment: Product is not considered to be dangerous to the environment.

### 2.2 Label elements:

**GHS Hazard (H) Statements**

Acute toxicity



Signal Word: **WARNING**

GHS Category Key	
1	= Most Hazardous
5	= Least Hazardous

H313--May be harmful in contact with skin

H320--Causes eye irritation

#### Chronic Toxicity

H350--May cause cancer, STOT, lungs, RE, category 1A, contains respirable silica, repeated exposure may cause (silicosis).

H351--Suspected of causing cancer, IARC lists titanium dioxide as a category 2B possible carcinogen.

H373--May cause damage to central nervous system, STOT, RE, inhalation, category 2.

#### GHS Precaution (P) Statements:

##### Prevention precautionary statements

P280--Wear protective gloves/protective clothing/eye protection/face protection

P284--Wear respiratory protection, see sec. 8

##### Response precautionary statements

P264--Wash after handling.

P305+P351+P338--IF IN EYES: Rinse cautiously with water for several minutes, remove contacts if easy to do. Continue rinsing.

P337+P313--If eye irritation persists, get medical advice/attention.

##### Disposal precautionary statements

P501--Dispose of contents/container in accordance with applicable local/state/regional/federal regulations

**2.3 Other hazards:** No other hazards are known.

Refer to Section 16 for wording of terms.

### 3 COMPOSITION/INFORMATION ON INGREDIENTS

#### 3.1 Main Constituent:

various metal oxide pigments

#### 3.2 Mixture:

Components of Mixture, Formula	CAS #	EINECS #	Weight %
Iron Oxide Pigment Red, Fe <sub>2</sub> O <sub>3</sub>	1309-37-1	215-168-2	0-99%
Iron Oxide Pigment Yellow, FeO·OH	51274-00-1	257-098-5	0-99%
Iron Oxide Pigment Black, Fe <sub>3</sub> O <sub>4</sub>	1317-61-9	215-277-5	0-99%
Manganese(an impurity in black iron oxide)	7439-96-5	231-105-1	0-3%
Titanium Dioxide Pigment White, TiO <sub>2</sub>	13463-67-7	236-675-5	0-99%
Chromium III Oxide Green Pigment, Cr <sub>2</sub> O <sub>3</sub>	1308-38-9	215-160-9	0-99%
Cobalt Aluminate Blue Pigment, CoAl <sub>2</sub> O <sub>4</sub>	1345-16-0	215-610-5	0-99%
Cobalt Chromite Blue Pigment CoCr <sub>2</sub> O <sub>4</sub>	68187-11-1	260-072-0	0-99%
Complex Inorganic Color Pigment, black	68909-79-5	272-713-7	0-99%
Complex Inorganic Color Pigment, brown	68412-38-4	270-185-2	0-99%
Complex Inorganic Color Pigments, all colors	Proprietary	Proprietary	0-99%
Flyash, Coal Combustion Residuals	68131-74-8	931-322-8	0-50%
Crystalline Silica Quartz (from flyash)	14808-60-7	238-878-4	<1% respirable

The exact percentages in this composition and the components have been withheld as confidential business information.

### 4 FIRST AID MEASURES

#### 4.1 Description of first aid measures:

Eye Contact : Quickly flush with plenty of clean water for 15 minutes. Remove contact lenses if easy to do. Open eyelids widely during flushing. If irritation persists, take person to emergency room/hospital and bring these instructions for doctor. Provide easy access to eye wash station in work area.

Inhalation: Move person to fresh air, make comfortable for breathing. Get medical attention if condition worsens.

Skin Contact: May result in skin irritation. Remove contaminated clothing. Wash skin with soap and water.

Ingestion: May cause irritation of mouth, throat, esophagus and gastrointestinal tract. Do not induce vomiting. Give large amounts of water to drink. Call a POISON CONTROL CENTER (800) 222-1222 or 911 to obtain first aid information.

**4.2 Most important symptoms and effects both acute and delayed:**

Eye contact can cause irritation. If irritation persists after rinsing eyes, take person to emergency room for treatment and bring these instructions (SDS) for doctor. Repeated exposure to respirable silica over long periods can cause cancer (silicosis).

**4.3 Indication of any immediate medical attention and special treatment needed:**

Refer to SECTION 11 for more detailed information on health effects and symptoms.

Primary routes of entry include: Eye Contact, Skin Contact, Dust Inhalation

**5 FIRE-FIGHTING MEASURES**

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

**5.2 Special Hazards arising from the substance or mixture:**

Fire Hazard: Not flammable  
 Explosion Hazard: No explosion hazard  
 Reactivity: Hazardous reactions will not occur.  
 Other Hazards: Black iron oxide compositions can oxidize via exothermic reaction when exposed to fire.

**5.3 Advice for fire-fighting:** Use normal fire fighting equipment.

**6 ACCIDENTAL RELEASE MEASURES**

**6.1 Personal precautions :**

General measures: Use personal protective equipment. Refer to section 8 for additional information.

Protective equipment: Wear suitable respiratory protection, eye protection and rubber gloves.

**6.2 Environmental precautions:**

Avoid discharge into waterways, sewers and soil. If product enters water, contact local authorities.

**6.3 Methods and material containment and cleaning up:**

Avoid generating dust. Use a vacuum with a HEPA filtered exhaust or clean up carefully with a broom/shovel.

**7 HANDLING AND STORAGE**

**7.1 Precautions for safe handling:**

Always wash hands immediately after handling product. Do not eat or drink in area where product is being used.


**7.2 Conditions for safe storage including any incompatibilities:**

Store product in shade. Product may contain black iron oxide, which can start to oxidize above 176 °F (80 °C) liberating heat

**7.3 Specific end uses:**

This product is intended for use only by professionals to integrally color new architectural concrete.

**8 EXPOSURE CONTROL/PERSONAL PROTECTION**

8.1 Control Parameters	Exposure Limits in Air			Personal Protective Equipment  Respirator Selection: Particulate/Mist Filter
	ACGIH TLV 8hr	OSHA PEL 8hr	NIOSH REL TWA	
Components of Mixture, Formula				
Iron Oxide Pigment Red, Fe <sub>2</sub> O <sub>3</sub>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	No Data Available	
Iron Oxide Pigment Yellow, FeO·OH	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	No Data Available	
Iron Oxide Pigment Black, Fe <sub>3</sub> O <sub>4</sub>	5 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>	No Data Available	
Manganese (Impurity in Black Iron Oxide)	0.2 mg/m <sup>3</sup>	5 mg/m <sup>3</sup>	No Data Available	
Titanium Dioxide Pigment White, TiO <sub>2</sub>	10 mg/m <sup>3</sup>	15 mg/m <sup>3</sup>	No Data Available	
Chromium III Oxide Green Pigment, Cr <sub>2</sub> O <sub>3</sub> as Cr	0.5 mg/m <sup>3</sup> 8hr	0.5 mg/m <sup>3</sup> 8hr	No Data Available	

Cobalt Aluminate Blue Spinel, $\text{CoAl}_2\text{O}_4$	0.3 mg/kg (Co)	1 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>
Cobalt Chromite Blue Spinel, $\text{CoCr}_2\text{O}_4$	0.5 mg/kg	1 mg/m <sup>3</sup>	0.5 mg/m <sup>3</sup>
Complex Inorganic Color Pigment, black	NLE	NLE	NLE
Complex Inorganic Color Pigment, brown	NLE	NLE	NLE
Complex Inorganic Color Pigments, all colors	0.1 mg/m <sup>3</sup>	0.1 mg/m <sup>3</sup>	NLE
Flyash, Coal Combustion Residuals	Not Applicable	Not Applicable	No Data Available
Crystalline Silica (in flyash) Respirable	0.025 mg/kg	10/(%SiO <sub>2</sub> +2)	0.05 mg/m <sup>3</sup> 40 hr

NLE = No Limit Established

## 8.2 Exposure controls:

Engineering measures: Use only with adequate ventilation.

## 8.3 Individual protective measures:

Eye protection: Wear tight fitting goggles or safety glasses with side shields to protect eyes.

Skin protection: Wear rubber gloves and clothing to protect skin.

Respiratory Protection: If dust level exceeds the OSHA PEL or other limit, wear a proper dust-filter respirator, N95 or P100.

Hygiene measures: Wash hands after exposure, Remove contaminated clothing, shower and wash with plenty of soap and water. Wash contaminated clothing prior to reuse.

Environmental exposure controls: Provide eye wash stations and emergency showers near work area.

## 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1 Information of basic physical and chemical properties

Property-Test	Value/Result
a) pH	not applicable
b) Color	various colors
c) Odor	no odor
d) Freezing/Melting Point	not applicable
e) Boiling Range	not applicable
f) Flash Point	not applicable
g) Auto ignition Temperature	not applicable
h) Upper Explosive Limits UEL	not applicable
i) Lower Explosive Limits LEL	not applicable
j) Flammability (solid)	not flammable
k) Vapor Pressure	not applicable
l) Vapor density vs air = 1.0	not applicable
m) Density	Bulk density varies with color very low (only admixture portion is soluble)
n) Solubility in water	soluble)
o) KOW Partition Coefficient	not applicable
p) Evaporation Rate	not applicable
q) Viscosity	not applicable
r) VOC	0.0 g/L ( 0.0 lb/gal)
s) Specific Gravity, water = 1.0	2.8 to 4.5

9.2 Other information: No other information is available

## 10 STABILITY AND REACTIVITY

### 10.1 Reactivity:

Not reactive

**10.2 Chemical stability:**

Product can react with strong acids.

**10.3 Possibility of hazardous reactions:**

Hazardous reactions do not normally occur.

**10.4 Conditions to avoid:**

Avoid contact with strong acids

**10.5 Incompatible materials:**

Strong acids

**10.6 Hazardous decomposition products:**

No hazardous decomposition products are known. Black iron oxide can start to decompose (via exothermic oxidation) if over 176 °F (80 °C).

**11 TOXICOLOGICAL INFORMATION**

## Toxicological results of testing

Chemical Name	LD <sub>50</sub> (Rat oral)	LC <sub>50</sub> Inhalation	LC <sub>50</sub> Other Exposure Route
Iron Oxide Pigment Red, Fe <sub>2</sub> O <sub>3</sub>	>5,000 mg/kg	>210 mg/m <sup>3</sup> (rat) 2 weeks	50 mg, 7 days, rabbit, edema of eyes
Iron Oxide Pigment Yellow, FeO·OH	>10,000 mg/kg	195 mg/m <sup>3</sup> , 2 weeks duration, rat	Dermal, skin, not sensitizing guinea pig
Iron Oxide Pigment Black, Fe <sub>3</sub> O <sub>4</sub>	>5,000 mg/kg	No Data Available	Slight or no skin irritation, rabbit
Manganese (impurity in black iron oxide)	>5,000 mg/kg	No Data Available	No Data Available
Titanium Dioxide Pigment White, TiO <sub>2</sub>	>5,000 mg/kg	6.82 mg/L, 4 hr, rat	No Data Available
Chromium III Oxide Green Pigment, Cr <sub>2</sub> O <sub>3</sub>	>5,000 mg/kg	5.41 mg/L (as dust)	LD <sub>50</sub> , Dermal, skin, no irritation, rabbit
Cobalt Aluminate Blue Spinel, CoAl <sub>2</sub> O <sub>4</sub>	>10,000 mg/kg	not tested	no other exposure routes were tested
Cobalt Chromite Blue Spinel, CoCr <sub>2</sub> O <sub>4</sub>	>10,000 mg/kg	not tested	no other exposure routes were tested
Complex Inorganic Color Pigment, black	NDA	No Data Available	No Data Available
Complex Inorganic Color Pigment, brown	NDA	No Data Available	No Data Available
Complex Inorganic Color Pigments, all colors	NDA	No Data Available	No Data Available
Flyash, Coal Combustion Residuals	>2,000 mg/kg	>2.2 mg/L, 1 hr, rat	No Data Available
Crystalline Silica (in flyash)	500 mg/kg	No Data Available	No Data Available

- a) acute toxicity, Not classified as an acutely toxic material.
- b) skin corrosion/irritation, Pigment mixtures can cause skin irritation.
- c) eye damage/irritation, Pigment mixtures can cause eye damage (as a mechanical irritant). Do not rub eyes.
- d) respiratory or skin sensitization, Not classified as a respiratory sensitizer or skin sensitizer.
- e) germ cell mutagenicity, Product does not cause germ cell mutagenicity.
- f) carcinogenicity by agency: National Toxicity Program (NTP) status: Crystalline silica (respirable) is a known human carcinogen. IARC lists Titanium Dioxide as a class 2B carcinogen. All other components of this product, present at 0.1% or more have not been identified by ACGIH or OSHA as probable, possible or confirmed carcinogens.
- g) reproductive toxicity, Product does not cause or contribute to reproductive toxicity
- h) STOT-single exposure, Product can cause eye damage due to abrasion.
- i) STOT-repeated exposure, Product dust can cause silicosis (lung injury) after repeated exposure over long periods
- J) aspiration hazard, Product is not an aspiration hazard.

**11.1 Inhalation:** Acute Product may irritate throat and respiratory system and cause coughing.

Chronic: Product contains &lt;1% respirable silica. Prolonged or repeated exposure may cause cancer (silicosis).

**11.2 Skin contact:** Product may have an irritating effect on skin.**11.3 Eye contact:** Pigment mixtures can cause serious eye damage. Immediate first aid is required.**11.4 Ingestion:** Ingestion may cause irritation of the mouth, esophagus and gastrointestinal tract.**11.5 Specific effects:** Frequent inhalation of dust over a long period of time increases the risk of developing lung disease.**12 ECOLOGICAL INFORMATION**

12.1 Toxicity:	Aquatic Toxicity Fish			Aquatic Toxicity Invertebrates		
	Components of Mixture	LC <sub>50</sub> or *LC <sub>0</sub>	Species	Duration	EC <sub>50</sub> or *EC <sub>0</sub>	Species

Iron Oxide Pigment Red	*50,000 mg/L	Danio rerio	96 hr	>100 mg/L	Daphnia magna	48 hr
Iron Oxide Pigment Yellow	*>10,000 mg/L	Danio rerio	96 hr	>100 mg/L	Daphnia magna	48 hr
Iron Oxide Pigment Black	*>10,000 mg/L	Danio rerio	96 hr	>10,000 mg/L	Daphnia magna	48 hr
Manganese (impurity in black iron oxide)	NDA	NDA	NDA	NDA	NDA	NDA
Titanium Dioxide Pigment White	>1,000 mg/L	Pimphales prom.	96 hr	>1,000 mg/L	Daphnia magna	48 hr
Chromium III Oxide Green Pigment	>10,000 mg/L	Danio rerio	96 hr	NDA	NDA	NDA
Cobalt Aluminate Blue Spinel, CoAl <sub>2</sub> O <sub>4</sub>	NDA	NDA	NDA	NDA	NDA	NDA
Cobalt Chromite Blue Spinel, CoCr <sub>2</sub> O <sub>4</sub>	14.3 mg/L	Cyprinus Carpio	48 hr	0.01-0.7 mg/L	Daphnia magna	48 hr
Complex Inorganic Color Pigment, black	NDA	NDA	NDA	NDA	NDA	NDA
Complex Inorganic Color Pigment, brown	NDA	NDA	NDA	NDA	NDA	NDA
Complex Inorganic Color Pigments, all colors	NDA	NDA	NDA	NDA	NDA	NDA
Flyash, Class C, Coal Combustion Residuals	*5,000 mg/L	Danio rerio	96 hr	2,000 mg/L	Daphnia magna	24 hr
Crystalline Silica (from flyash)	>10,000 mg/L	Cyprinus Carpio	72 hr	NDA	NDA	NDA

Ecotoxicity: This product is not expected to be hazardous to the environment. NDA = No Data Available

### 12.2 Persistence and degradability:

Degradability: Product is not degradable.

### 12.3 Bioaccumulative Potential:

Bioaccumulative Potential: No information is available on bioaccumulative potential.

### 12.4 Mobility in soil:

Mobility: No information is available on mobility in soil.

Results of PBT and vPvB assessment: Mixture is inorganic and is not relevant for PBT or vPvB assessment

Other adverse affects: No other adverse effects are known.

## 13 Disposal considerations

### 13.1 Waste treatment methods:

GHS P501-Dispose of contents/container according to local/state/regional/federal regulations.

## 14 Transport Information

This product is not covered by international regulation of the transport of dangerous goods.

DOT: Not regulated

14.1 UN Number: Not regulated

14.2 UN proper shipping name: Not classified as dangerous goods under DOT and UN regulations.

14.3 Transport hazard class(es): Not regulated

14.4 Packing group: Not regulated.

Packaging group: Not regulated

### 14.5 Environmental hazards

Marine pollutant: Not regulated.

Environmentally hazardous substance: Not applicable.

14.6 Special precautions for user: None are known.

14.7 Transport in bulk according to Annex II of MARPOL 73/78 and IBC Code: Not regulated.

## 15 REGULATORY INFORMATION

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

OSHA HazCom 2012, 29 CFR 1910.1200 and regulation (EC) No. 1272/2008 CLP of the European Parliament

15.2 Chemical Safety Assessment: Not required

For information on labeling refer to section 2.

SARA 302 extremely hazardous substances, not listed

SARA Title III 311/312/313 listed as a hazardous substances  
 here are several chemicals that are TSCA 12b listed  
 Right to Know, regulated chemicals, MA, NJ, PA and RI

**16: OTHER INFORMATION**


**Wording of terms:**

- ACGIH American Conference of Government Industrial Hygienists
- CAS No. Chemical Abstract Service, unique identification code for chemicals
- CLP Classification, Labeling and Packaging, EC 1272/2008
- EC<sub>0</sub> Highest effective concentration that has no mortality of population
- EC<sub>50</sub> Effective Concentration that causes 50% mortality of population
- EINECS European Inventory of Existing Commercial Chemical Substances
- GHS Global Harmonization System, worldwide chemical safety program
- IARC International Agency for Research on Cancer
- HazCom Hazard Communication, US OSHA GHS 29 CFR 1910.1200
- LC<sub>0</sub> Highest Concentration with no mortality of population
- LC<sub>50</sub> Lethal Concentration that causes 50% mortality of population
- LD<sub>50</sub> Lethal Dose for a chemical that causes 50% mortality of population
- MARPOL International Convention for the Prevention of Pollution from Ships
- NFPA National Fire Protection Association
- NIOSH National Institute for Occupational Safety and Health
- NLE No Limit Established
- OSHA Occupational Safety and Health Administration
- PBT Persistent, Bioaccumulative and Toxic
- PEL Permissible Exposure Level
- RE Repeated Exposure
- REACH Registration, Evaluation, Authorization and Restrictions of Chemicals, EC/1907/2006
- REL Recommended Exposure Limit
- SDS Safety Data Sheet (GHS replacement for MSDS)
- SE Single Exposure
- STOT Specific Target Organ Toxicity
- TLV Threshold Limit Value
- TSCA Toxic Substances Control Act
- TWA Time Weighted Average
- US DOT United States Department of Transportation
- VOC Volatile Organic Compound
- vPvB Very Persistent and Very Bioaccumulative
- WHMIS Workplace Hazardous Materials Information System (Canada).

Hazardous Material Information	
Health Hazard	1
Flammability Hazard	0
Physical Hazard	0
Personal Protective Equipment	See sec. 8 PPE

0=minimal hazard. 4 = extreme hazard

WHMIS Signal Word: **WARNING**



WHMIS Classification: **D2A**

**California Prop 65 Warning: This product contains one or more chemicals known to the State of California to cause cancer, or birth defects or other reproductive harm.**

NFPA 704 Fire



Health 1 0 Reactivity 0

0=low hazard, 4=high hazard

The details in this document are based on our current knowledge and experience and are only for this product and only in regard to safety requirements.

SDS issue date: May 28, 2015

Before using, read the appropriate Scofield Tech-Data Bulletin: CHROMIX® P Admixtures for Color-Conditioned Concrete TD-1200, SCOFIELD Integral Color TD-7200, SCOFIELD Integral Color Utility Grade TD7100 or SOLACHROME Integral Coloring Treatment TD-1250, for all colors, the complete package label & this Safety Data Sheet (SDS) and Warranty.

**END OF SDS**

#### LIMITED WARRANTY

L. M. Scofield Company (Scofield) represents and warrants only that its products are of consistent quality and within manufacturing tolerances. NO OTHER ORAL OR WRITTEN REPRESENTATION OR STATEMENT OF ANY KIND, EXPRESS OR IMPLIED, NOW OR HEREAFTER MADE IS AUTHORIZED OR WARRANTED BY SCOFIELD, INCLUDING THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Liability for breach of contract, negligence, or on any other legal basis is limited to the lesser of refund or replacement of defective materials. SCOFIELD WILL NOT BE LIABLE FOR SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING FOR DELAYS OR LOST PROFITS. Communication of this warranty and its limitations to end users is not the responsibility of Scofield, but should be communicated by those in direct contract with the end user. Any claim regarding product defect must be received in writing within one year from the date of manufacture. No claim will be considered without such written notice or after the specified time interval. The end user shall determine the suitability of the products for the intended use and assumes all risks and liability in connection therewith.

### Ready Mix Concrete

#### 1. Identification

<b>Product name:</b> Ready Mix Concrete	
<b>Other means of identification/Synonyms/Common Names:</b> Freshly Mixed Unhardened Concrete	
<b>Recommended use:</b> Ready Mix Concrete is used as a construction material.	
<b>Recommended restrictions:</b> None Known	
<b>Manufacturer/Contact info:</b> Vulcan Materials Company and its subsidiaries and affiliates 1200 Urban Center Drive Birmingham, AL 35242	<b>General Phone Number:</b> 1.866.401.5424  <b>Emergency Phone Number:</b> 1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)  <b>Website:</b> www.vulcanmaterials.com

#### 2. Hazard(s) Identification

<b>Physical hazards:</b> Not Classified	<b>Health hazards:</b> Skin corrosion/irritation-Category 1B Serious eye damage/eye irritation-Category 1 Carcinogenicity-Category 1A Specific target organ toxicity, single exposure- Category 3 Specific target organ toxicity, repeated exposure- Category 2	
<b>Signal word:</b> <b>Danger</b>		

**Hazard Statement:**  
 Causes severe skin burns and eye damage  
 Causes serious eye damage  
 May cause cancer (Inhalation)  
 May cause respiratory irritation  
 May cause damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation)

**Precautionary statement:**  
**Prevention**

- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.
- Wash hands thoroughly after handling
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.

**Response**

- If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention
- Specific treatment (see the following information on this label)
- IF SWALLOWED: Rinse mouth Do NOT induce vomiting.
- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.
- IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Wash contaminated clothing before reuse.

**Disposal**

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

**Supplemental information:**

Ready mix concrete contains a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Hardened ready mix concrete 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, NTP; ACGIH states that it is a suspected cause of cancer.

**3. Composition/information on ingredients**

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel, expanded shale)	Mixture	60-95
Quartz (crystalline silica)	14808-60-7	>1
Hydraulic Cement(s)	Mixture	3-20
Portland and/or Slag Cement	65997-15-1	
Pozzolan	Mixture	
Artificial Fly Ash	38131-74-8	0-11
Natural Metakaolin and/or	1332-58-7	
Silica Fume	69012-64-2	
Water	7732-18-5	6-13

**4. First-aid measures**

**Inhalation:**

Dusts from hardened product may irritate the mouth, nose, throat and lungs. Remove person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

**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. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

**Skin:**

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists.

**Ingestion:**

If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

**Most important symptoms/effects, acute and delayed:**

Contact with wet product may result in chemical (caustic) burns and eye injury which may be progressive and could cause blindness. Wet product may result in chemical burns to the skin.

Dust may irritate the skin and respiratory tract. Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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; right heart enlargement and/or failure.

**Indication of immediate medical attention and special treatment needed:**

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).

#### 5. Fire-fighting measures

**Suitable extinguishing media:**

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:**

None known.

**Specific hazards arising from the chemical:**

Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

**Special protective equipment and precautions for firefighters:**

Use protective equipment appropriate for surrounding materials.

**Fire-fighting equipment/instructions:**

No unusual fire or explosion hazards noted. Not a combustible dust.

**Specific methods:**

The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

#### 6. Accidental release measures

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

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).

**Environmental precautions:**

Prevent from entering into sewers or drainage systems where it can harden and clog flow.

**Methods and materials for containment and cleaning up:**

Wet product should be removed from roads or other surfaces where it may interfere with traffic. If hardened material is spilled and dust is generated, cleanup personnel may be exposed to respirable crystalline silica. 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.

#### 7. Handling and storage

**Precautions for safe handling:**

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this MSDS as appropriate.

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

Do not store near food, beverages, or smoking materials.

## 8. Exposure controls/personal protection

**Legend:**

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Portland Cement	15 $\square$ $\square$ $\square$ $\square$ (total dust) 5 $\square$ $\square$ $\square$ $\square$ (respirable fraction)	10 $\square$ $\square$ $\square$ $\square$ (respirable fraction)	10 $\square$ $\square$ $\square$ $\square$ (total dust) 5 $\square$ $\square$ $\square$ $\square$ (respirable fraction)
Respirable dust containing silica	10 $\square$ $\square$ $\square$ $\square$ + (%silica + 2)	Use Respirable Silica TLV	Use Respirable Silica TLV
Total dust containing silica	OSHA: 30 $\square$ $\square$ $\square$ $\square$ + (% silica + 2) MSHA: 30 $\square$ $\square$ $\square$ $\square$ + (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust PEL	0.025 $\square$ $\square$ $\square$ $\square$	0.05 $\square$ $\square$ $\square$ $\square$
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust PEL	0.025 $\square$ $\square$ $\square$ $\square$	0.05 $\square$ $\square$ $\square$ $\square$
Amorphous Silica	20 mppcf (80 mg/m3/percent silica)	NE	6 $\square$ $\square$ $\square$ $\square$
Iron Oxide	10 $\square$ $\square$ $\square$ $\square$	5 $\square$ $\square$ $\square$ $\square$ (respirable fraction)	5 $\square$ $\square$ $\square$ $\square$ (respirable fraction)
Magnesium Oxide	15 $\square$ $\square$ $\square$ $\square$ (total dust)	10 $\square$ $\square$ $\square$ $\square$ (inhalable fraction)	NE
Aluminum Oxide	15 $\square$ $\square$ $\square$ $\square$ (total dust) 5 $\square$ $\square$ $\square$ $\square$ (Respirable)	10 $\square$ $\square$ $\square$ $\square$ (total dust)	15 $\square$ $\square$ $\square$ $\square$ (total dust) 5 $\square$ $\square$ $\square$ $\square$ (Respirable)
Manganese Oxide	5 $\square$ $\square$ $\square$ $\square$ (as Mn)	0.2 $\square$ $\square$ $\square$ $\square$ (as Mn)	1 $\square$ $\square$ $\square$ $\square$
Particulates Not Otherwise Classified	15 $\square$ $\square$ $\square$ $\square$ (total dust) 5 $\square$ $\square$ $\square$ $\square$ (respirable fraction)	10 $\square$ $\square$ $\square$ $\square$ (inhalable fraction) 3 $\square$ $\square$ $\square$ $\square$ (respirable fraction)	NE

**Exposure Guidelines:**

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

**Engineering Controls:**

Ordinarily not required when working with wet product. Activities that generate dust from hardened product require the use of general ventilation, local exhaust, and/or wet suppression methods adequate to maintain exposures below appropriate exposure limits.

**Eye Protection:**

Safety glasses with side shields should be worn as minimum protection. Goggles or face shield should be worn where splashing is possible. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated due to working with hardened product.

**Skin Protection (Protective Gloves/Clothing):**

Waterproof gloves, rubber boots, and clothing sufficient to protect skin from contact with wet product should be worn. Clothing saturated from contact with wet product should be removed promptly to prevent continued contact with skin. As a precaution, wash hands thoroughly before eating, smoking, and using toilet facilities. After working with product, workers should clean their skin with soap and water. Clean clothing should be worn after showering.

**Respiratory Protection:**

Ordinarily not required when working with wet product. Activities that generate dust from hardened dry product require the use of a NIOSH approved dust respirator for the exposure circumstances involved (See NIOSH Respirator

Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8 hr Time Weighted Average (TWA) of 0.5 mg/m<sup>3</sup>, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8 hr TWA of 5.0 mg/m<sup>3</sup> a positive pressure, full face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

### 9. Physical and chemical properties

**Appearance:**

Gray, plastic, flowable, granular mixture.

<b>Odor:</b> Faint, characteristic cement odor.	<b>PH:</b> Approximately 12	<b>Decomposition temperature:</b> Not applicable
<b>Melting point/freezing point:</b> Not applicable	<b>Initial boiling point and boiling range:</b> Not applicable	<b>Flash point:</b> Non-combustible
<b>Evaporation rate:</b> Not applicable	<b>Flammability:</b> Not applicable	<b>Upper/lower flammability or explosive limits:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Relative density:</b> Not applicable	<b>Solubility:</b> 0.1 - 1%
<b>Partition coefficient: n-octanol/water.</b> Not applicable	<b>Autoignition temperature:</b> Not applicable	<b>Specific Gravity (H2O = 1):</b> 1.7 - 3.0

### 10. Stability and reactivity

**Reactivity:**

Not reactive under normal use.

**Chemical stability:**

Stable under normal temperatures and pressures.

**Possibility of hazardous reactions:**

None under normal use.

**Conditions to avoid (e.g., static discharge, shock or vibration):**

Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

**Incompatible materials:**

Fresh concrete is caustic (pH approximately 12) and could react with strong acids. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride..

**Hazardous decomposition products:**

Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

### 11. Toxicological information

**Primary Routes of Exposure:**

Inhalation and contact with the eyes and skin.

**Symptoms related to the physical, chemical, toxicological characteristics**

**Inhalation:**

Not expected to be a significant exposure route. Dusts from hardened product may irritate the mouth, nose, throat and lungs. Coughing, sneezing and shortness of breath may occur.

Symptoms of silicosis caused by chronic exposure to dust 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; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary

tuberculosis infection.

**Eye Contact:**

Contact may result in chemical (caustic) burns and eye injury which may be progressive and could cause blindness. Symptoms may include tearing, redness, pain, swelling with blurred vision. Dusts from hardened product may be irritating.

**Skin Contact:**

May cause severe skin irritation with redness, pain, an itching or burning feeling, and swelling of the skin. More severe effects, including chemical (alkali) burns and skin ulcers may occur. Dusts from hardened product may be irritating and cause dermatitis after prolonged or repeated exposure.

**Ingestion:**

Direct contact with exposed tissues may result in severe irritation with pain, nausea, vomiting, and/or diarrhea and possibly chemical (alkali) burns.

**Medical Conditions Aggravated by Exposure:**

Irritated or broken skin increases chance of contact dermatitis. Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

**Delayed and immediate effects and also chronic effects from short- and long-term exposure:**

Hydraulic (Portland) cement may contain trace amounts of hexavalent chromium. Hexavalent chromium has been associated in some individuals with causing allergic reactions which may be manifested as contact dermatitis and skin ulcerations. Individuals who develop allergies to skin sensitizers such as hexavalent chromium, may experience a reaction upon repeated contact with those compounds. Irritated or broken skin is more likely to develop further complications such as ulcers and infection. Dermatitis and allergic reactions have been observed in workers with chronic exposure to fly ash. This was attributed to trace amounts of chromium, cobalt, nickel and other metals in the fly ash.

The following information pertains to creating dust from hardened dry material:

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death.

Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.

Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.

Respirable dust containing newly broken silica 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 particles of silica.

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 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.

**Carcinogenicity:**

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

**Additional information on toxicological-effects:**

**Acute toxicity:** Not classified

**Skin corrosion/irritation:** Causes severe skin burns and eye damage

**Serious eye damage/eye irritation:** Causes serious eye damage.

**Respiratory sensitization:** Not classified.

**Skin sensitization:** Not classified.

**Germ cell Mutagenicity:** Not classified

**Carcinogenicity:** May cause cancer (Inhalation).

**Reproductive toxicity:** Not classified

**Specific target organ toxicity - single exposure:** May cause respiratory irritation

**Specific target organ- toxicity – repeated exposure:** May causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

**Aspiration toxicity:** Not classified (not applicable- solid material)

**12. Ecological information**

**Ecotoxicity (aquatic and terrestrial, where available):**

Not determined

**Persistence and degradability:**

Not determined

**Bioaccumulative potential.**

Not determined

**Mobility in soil.**

Not determined

**Other adverse effects.**

Not determined

**13. Disposal considerations**

**Safe handling and disposal of waste:**

Material can be retained until it hardens, and then disposed of as solid waste. Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

<b>14. Transport information</b>
UN Number: Not regulated.
UN Proper shipping name: Not regulated.
Transport Hazard class: Not applicable.
Packing group, if applicable: Not applicable.
Marine pollutant (Yes/No): Not applicable.

<b>15. Regulatory information</b>
<b>Toxic Substances Control Act (TSCA):</b> The components in this product are listed on the TSCA Inventory or are exempt.
<b>Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):</b> Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.
<b>Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:</b> Section 302 extremely hazardous substances: None Section 311/312 hazard categories: Delayed Health Section 313 reportable ingredients at or above de minimus concentrations: None
<b>California Proposition 65:</b> This product contains a chemical (crystalline silica, chromium, cobalt, nickel) known to the State of California to cause cancer.
<b>State Regulatory Lists:</b> Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

<b>16. Other information</b>
<u>Disclaimer</u>
<b>NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.</b>
Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.
Issue date: 06/01/2015
Revision date: 06/01/2015

**Vulcan Materials Company and its subsidiaries and affiliates  
1200 Urban Center Drive  
Birmingham, AL 35242**



Dear Customer/Contractor:

Please find attached a safety data sheet (SDS) for the product that you purchased from Vulcan Materials Company or one of its subsidiaries or affiliates ("Vulcan"). This is a revised SDS and replaces any previous versions of the material safety data sheet (MSDS) for this product. This SDS is provided to you as required by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Mine Safety and Health Administration's (MSHA) Hazard Communication Standard (30 CFR Part 47), and/or any applicable state Right-to-Know laws.

It is the responsibility of your company to communicate this information to your employees, customers, and contractors who may use or come in contact with this product. Further, if you distribute this product, Vulcan requests, and applicable laws may require, that you forward this SDS to your customers.

Please direct this information to the person responsible for safety and health compliance at your company. If you have questions about the SDS, please contact Vulcan at 1200 Urban Center Drive, Birmingham, AL 35242 or 1-866-401-5424.

If you need additional copies of this or any other Vulcan SDS or a Spanish language version, you can obtain them at [www.vulcanmaterials.com](http://www.vulcanmaterials.com) or by calling 1-866-401-5424.

La MSDS puede obtenerse en [www.vulcanmaterials.com](http://www.vulcanmaterials.com) o llamando al 1-866-401-5424.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia Kirby". The signature is written in a cursive style with a large, looping "y" at the end.


Cynthia Kirby  
Director, Safety & Health

**Cold Mix Asphalt Concrete**

**1. Identification**

<b>Product name:</b> Cold-Mix Asphalt Concrete	
<b>Other means of identification/Synonyms/Common Names:</b> Temporary Asphalt Concrete	
<b>Recommended use:</b> Cold-Mix Asphalt Concrete is used as a construction material.	
<b>Recommended restrictions:</b> None Known	
<b>Manufacturer/Contact info:</b> Vulcan Materials Company and its subsidiaries and affiliates 1200 Urban Center Drive Birmingham, AL 35242	<b>General Phone Number:</b> 1.866.401.5424  <b>Emergency Phone Number:</b> 1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)  <b>Website:</b> www.vulcanmaterials.com

**2. Hazard(s) Identification**

<b>Physical hazards:</b> Not Classified	<b>Health hazards:</b> Carcinogenicity-Category 1A Reproductive Toxicity- Category 2 Specific target organ toxicity, repeated exposure- Category 2
	<b>Signal word:</b> <b>Danger</b>
	<b>Hazard statement</b> May cause cancer (Inhalation) Suspected of damaging the unborn child Causes damage to organs (lung/respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure

**Precautionary statement:**

**Prevention**

- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.
- Product may contain or release hydrogen sulfide, which is highly toxic and is a flammable gas. Assessment of storage tanks, transport vessels and other confined spaces should be made to determine potential exposures and appropriate controls

**Response**

- If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention
- Specific treatment (see the following information on this label).
- IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
- IF ON SKIN: Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.
- IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

- Wash contaminated clothing before reuse.

**Storage**

- Store in a well ventilated place.

**Disposal**

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

**Supplemental information:**

Heated material can cause thermal burns. Fumes from heated asphalt may be irritating to the eye, nose and throat. Cold-Mix Asphalt Concrete contains aggregate, a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Hardened product 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, NTP; ACGIH states that it is a suspected cause of cancer.

**3. Composition/information on ingredients**

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel)	Mixture	>93
Quartz (crystalline silica)	14808-60-7	>1
Asphalt	8052-42-4	0.7-7
May contain:		
Vacuum tower bottoms	64741-56-6	>0.1
Heavy naph. Petroleum distillates	64741-53-3	>0.1
Aromatic extract oil	64742-11-6	>0.1
Hydrogen sulfide	7783-06-4	<0.1
Petroleum Distillates	64741-44-2	>1
Diesel Oil	68476-34-6	0.7-1.4

**4. First-aid measures**

**Inhalation:**

Remove person to fresh air. If lung irritation persists or later develops, contact a physician. If not breathing, initiate rescue breathing, give oxygen by trained personnel and get immediate medical attention. Do not attempt to rescue victim from confined spaces without adequate protective equipment.

**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. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops. Thermal burns require immediate medical attention.

**Skin:**

Hot Material: Remove contaminated clothing, if possible, and immediately flush skin in cool water for at least 15 minutes. Iced water or cold packs may be applied to burned area. Do not attempt to remove material from a burn. Get immediate medical attention. Cold Material: Clean exposed skin with soap or mild detergent and large amounts of water until all material is removed from the skin. Do not use solvents or thinners to remove material from skin.

**Ingestion:**

If swallowed, do not induce vomiting. Drink a large volume of water and get immediate medical attention. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration.

**Most important symptoms/effects, acute and delayed:**

Emissions from the heated material may have an unpleasant odor and may cause moderate to severe irritation of the mucous membranes and upper respiratory tract, headaches, nausea and dizziness. Toxic hydrogen sulfide gas may be released. Do not depend upon sense of smell for warning of overexposure, since the gas causes rapid olfactory fatigue which deadens the sense of smell at levels as low as 50 ppm. Unconsciousness and asphyxiation may occur in poorly ventilated or confined spaces. See Section 11 for additional information.

Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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; right heart

enlargement and/or failure.

**Indication of immediate medical attention and special treatment needed:**

In general, emesis induction is unnecessary in high viscosity, low volatility products. Inhalation exposure of hydrogen sulfide may result in pulmonary congestion. Patients may be predisposed to pneumonia during convalescence, and should be kept under observation. Contact a Poison Center for additional treatment information.

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

**For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).**

### 5. Fire-fighting measures

**Suitable extinguishing media:**

Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, and steam) and water fog.

**Unsuitable extinguishing media:**

Avoid use of straight-stream water. Adding water to hot asphalt presents an explosion hazard.

**Specific hazards arising from the chemical:**

Do not heat above flash point.

Fumes/vapors can explode when concentrated in an enclosed environment and supplied with an ignition source. Never weld or use a cutting torch or open flame on a full, partially full or empty bin, hopper, or other container that holds or has held asphaltic material unless precautions are taken to prevent explosion. **WARNING:** Hydrogen sulfide (H<sub>2</sub>S) and other hazardous gases/vapors may evolve and collect in the headspace of storage tanks or other enclosed vessels, and can create an explosive, toxic, or oxygen deficient atmosphere. H<sub>2</sub>S gas is extremely flammable and can explode if an ignition source is provided. See Section 11 for health effects of H<sub>2</sub>S gas.

**Special protective equipment and precautions for firefighters:**

Avoid breathing irritating and potentially toxic fumes, including hydrogen sulfide gas. Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

**Fire-fighting equipment/instructions:**

Adding water to hot asphalt presents an explosion hazard.

**Specific methods:**

Use water spray to keep fire-exposed containers cool.

### 6. Accidental release measures

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

Ventilate area and avoid emission inhalation or skin contact by using appropriate precautions outlined in this SDS (see Section 8). Keep all sources of ignition at least 50 feet away. Prevent materials from entering streams, drainages, or sewers. Spills entering surface waters or sewers entering/leading to surface waters must be reported to the National Response Center 1-800-424-8802. Based on volume and use, components of this product may be subject to reporting requirements of Title III of SARA, 1986, and 40 CFR 372.

**For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).**

**Environmental precautions:**

Stop leak and contain spilled material with sand, aggregate fines, or other inert adsorbent. Collect adsorbed product and clean up materials in appropriate container for proper disposal. Notify proper authorities.

**Methods and materials for containment and cleaning up:**

Contact the asphalt plant to determine feasibility of recycling material. Dispose of waste materials in accordance with applicable federal, state and local laws and regulations.

### 7. Handling and storage

**Precautions for safe handling:**

Follow personal protection and protective controls set forth in Section 8 of this SDS when handling this product. If personnel must enter a tank or other confined space that contained this material, follow the OSHA Confined Space Entry

Program as specified in 29 CFR 1910.146. Do not store near food, beverages or smoking materials. Avoid personal contact with heated material. Respirable crystalline silica-containing dust may be generated when hardened asphalt mix is subjected to mechanical forces, such as demolition work, surface treatment (sanding, grooving, chiseling, etc.), and/or recycling of pavement.

Do not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition as they may explode and cause injury or death. Tripping accidents have occurred because of asphalt buildup on bottoms of shoes and boots; buildup should be removed regularly to prevent such accidents. Do not use solvents or thinners to clean footwear.

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

Store away from all ignition sources and open flames in accordance with applicable laws and regulations. Vapors containing hydrogen sulfide may accumulate during storage or transport of asphaltic materials. When petroleum asphalt products are heated, potentially irritating emissions (fumes, mists, vapors) may be released.

**8. Exposure controls/personal protection**

**Legend:**

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STEL = Short Term Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Asphalt Fumes	NE	0.5 mg/m <sup>3</sup> (as benzene-soluble aerosol)	Ceiling 5 ppm
Particulates not otherwise classified	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)	10 mg/m <sup>3</sup> (inhalable fraction) 3 mg/m <sup>3</sup> (respirable fraction)	NE
Respirable dust containing silica	10 mg/m <sup>3</sup> ÷ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica TLV
Total dust containing silica	OSHA: 30 mg/m <sup>3</sup> ÷ (% silica + 2) MSHA: 30 mg/m <sup>3</sup> ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust containing silica PEL	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	½ of OSHA and MSHA respirable dust containing silica PEL	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Ammonia (NH <sub>3</sub> )	50 ppm	25 ppm STEL 35 ppm	25 ppm Ceiling 35 ppm
Carbon Monoxide (CO)	50 ppm	25 ppm	35 ppm Ceiling 200 ppm
Hydrogen Sulfide (H <sub>2</sub> S)	Ceiling 20 ppm	10 ppm STEL 15 ppm	Ceiling 10 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	Ceiling 5 ppm	3 ppm STEL 5 ppm	STEL 1 ppm
Ozone (O <sub>3</sub> )	0.1 ppm	0.05 ppm	Ceiling 0.1 ppm
Sulfur Dioxide (SO <sub>2</sub> )	5 ppm	STEL 0.25 ppm	2 ppm STEL 5 ppm

**Exposure Guidelines:**

Workers should station themselves on the upwind side of asphalt emissions when possible. It is recommended that asphalt emissions be monitored regularly to determine exposure levels. Respirable dust and quartz levels should be

monitored regularly to determine worker exposure levels. Exposure levels in excess of appropriate exposure limits must be reduced by all feasible engineering controls, including (but not limited to), ventilation, process enclosure, and/or enclosed employee workstations.

**Engineering Controls:**

General dilution or local exhaust ventilation is required to maintain exposures below appropriate exposure limits. Use only in well-ventilated areas. Activities with dried/hardened product that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below appropriate exposure limits.

**Eye Protection:**

Use a full-face shield and chemical safety goggles if handling heated material. Safety glasses with side shields should be worn as minimum protection at ambient temperatures. Contact lens should not be worn when eye contact with product is possible.

**Skin Protection (Protective Gloves/Clothing):**

Avoid skin contact with material by wearing impervious gloves and protective clothing. With product at ambient temperatures, use disposable nitrile, neoprene or butyl rubber material. When handling hot material, use heat-resistant gloves. Use insulated, heat-resistant clothing as necessary.

**Respiratory Protection:**

Not expected to be necessary under normal use and working conditions. All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. For air-contaminant concentrations which exceed or are likely to exceed applicable exposure limits, use a NIOSH-approved, contaminant-specific, air purifying respirator. If such conditions are sufficiently high that the air-purifying respirator is inadequate, or if oxygen adequate to sustain life is not present, use a positive-pressure, self-contained breathing apparatus. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8-hour Time Weighted Average (TWA) of 0.5 mg/m<sup>3</sup>, a high-efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8-hour TWA of 5.0 mg/m<sup>3</sup> a positive-pressure, full-face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

**9. Physical and chemical properties**

**Appearance:**

Black, viscous, granular.

<b>Odor:</b> Petroleum odor	<b>PH:</b> Not applicable	<b>Decomposition temperature:</b> Not applicable
<b>Melting point/freezing point:</b> Not available	<b>Initial boiling point and boiling range:</b> Not available	<b>Flash point:</b> Product: Not available Asphalt Cement: >425°F (min). COC Asphalt Cutback: > 130°F; Petroleum Distillates: 260°F
<b>Evaporation rate:</b> Not applicable	<b>Flammability:</b> Not applicable	<b>Upper/lower flammability or explosive limits:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Vapor density:</b> >1	<b>Solubility:</b> Negligible
<b>Partition coefficient: n-octanol/water.</b> Not applicable	<b>Autoignition temperature:</b> Not applicable	<b>Specific Gravity (H<sub>2</sub>O = 1):</b> 2.0 - 2.5

**10. Stability and reactivity**

**Reactivity:**

Not reactive under normal use.

**Chemical stability:**

Stable under normal temperatures and pressures.

<p><b>Possibility of hazardous reactions:</b> None under normal use.</p>
<p><b>Conditions to avoid (e.g., static discharge, shock or vibration):</b> Keep away from direct flame/ignition sources. Contact with incompatible materials should be avoided (see below). See Sections 5, 6 and 7 for additional information.</p>
<p><b>Incompatible materials:</b> Strong oxidizers may react with hydrocarbons. Contact with fluorine may cause burning or explosion. Adding water to hot asphalt presents an explosion hazard.</p>
<p><b>Hazardous decomposition products:</b> Carbon monoxide and other compounds (such as amines, ammonia, nitrogen dioxide, sulfur dioxide, ozone, hydrogen sulfide, and various hydrocarbons) may be released by thermal decomposition. Hazardous vapors can collect in enclosed vessels or areas if not properly ventilated. If hydrogen sulfide is present, the flammable limits range from 4.3 to 45.5% by volume and its presence may promote the formation of pyrophoric (spontaneously igniting) iron compounds (See 29 CFR 1910.146). Silica-containing respirable dust particles can be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F).</p>

<p><b>11. Toxicological information</b></p>
<p><b>Primary Routes of Exposure:</b> Inhalation and contact with the eyes and skin.</p>
<p><b>Symptoms related to the physical, chemical, toxicological characteristics</b> <b>Inhalation:</b> Fumes, mists or vapors may cause respiratory irritation. Contains or may release hydrogen sulfide gas (H<sub>2</sub>S), which may accumulate in confined spaces. H<sub>2</sub>S fumes and vapors may be harmful or fatal if inhaled. Breathing silica containing dust for prolonged periods in the workplace can cause lung damage and lung disease called silicosis. Several scientific organizations have classified crystalline silica as causing lung cancer in humans. Silicosis and lung cancer can result in permanent injury or death.</p>
<p><b>Eye Contact:</b> Direct contact with hot material can cause severe thermal burns. Hardened material may scratch the eye causing tearing, redness and a stinging sensation. Fumes, vapors or mists may be irritating.</p>
<p><b>Skin Contact:</b> Direct contact with hot material can cause severe thermal burns. Hardened material may cause irritation due to abrasive effects.</p>
<p><b>Ingestion:</b> Direct contact with heated material can cause severe thermal burns. Asphalt has a low toxicity when ingested, however, chewing and swallowing asphalt may cause gastrointestinal effects. Gastric masses (Bezoars) and stomach (pyloric) obstructions have been reported in individuals who have chewed and swallowed asphalt.</p>
<p><b>Medical Conditions Aggravated by Exposure:</b> Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and/or lung (including asthma and/or other breathing disorders).</p>
<p><b>Delayed and immediate effects and also chronic effects from short- and long-term exposure:</b> Prolonged and repeated exposure to asphalt may cause skin disorders such as dermatitis, folliculitis, and acne-like lesions, or more rarely, pigmentation of the skin. Chronic inhalation of high concentrations of asphalt emissions may cause chronic bronchitis and pneumonitis (inflammation of the lungs). In mice, there was damage to the lungs, including bronchitis, pneumonitis, and abscess formation. Guinea pigs and rats showed pneumonitis, peribronchial adenomatosis, and some squamous cell metaplasia.</p> <p>This material contains heavy vacuum distillates/aromatic extract oils. Repeated dermal application of these oils to experimental animals has been reported to cause skin disorders, effects on the adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus as well as fetal death and birth defects.</p> <p>Repeated exposure to low levels of H<sub>2</sub>S may cause eye effects including conjunctivitis and corneal injury. There is no evidence that H<sub>2</sub>S will accumulate in the body tissue.</p>

The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:

Prolonged overexposure to respirable dusts in excess of appropriate exposure limits can cause inflammation of the lung leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to, the following: shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Repeated overexposures to very high levels of respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to, shortness of breath, cough, fever, weight loss, and chest pain. Respirable dust containing newly broken silica 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 particles of silica.

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 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.

**Carcinogenicity:**

Skin application of asphalt fume condensate fractions caused skin tumors in laboratory mice. When asphalt was dissolved or mixed with a solvent prior to exposing laboratory animals, the carcinogenicity results were weakly positive. The causal agent is thought to be 4 to 6 ring polycyclic aromatic compounds (PAH). Trace amounts of these materials may be present in asphalts and can be generated upon excessive heating. Some PAHs have been identified as causing carcinogenic and reproductive effects. Currently, epidemiological evidence does not support a link between asphalt exposure and human skin cancer.

Repeated breathing of asphalt emissions has not resulted in a carcinogenic response in laboratory animal testing. Although epidemiological studies on asphalt workers have suggested a possible link between asphalt fumes and certain types of cancer, confounding factors such as smoking and concomitant exposure to other agents in the workplace may have influenced the results of these studies. Asphalt is not listed as a carcinogen by the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA). IARC states that there is sufficient evidence that extracts (asphalts dissolved in hydrocarbon solvents) are carcinogenic to laboratory animals and recently the agency determined that occupational exposures to oxidized asphalt and their emissions during roofing applications are "probably carcinogenic to humans" (Group 2A). They also determined that occupation exposures to hard asphalts and their emissions during mastic asphalt work and occupational exposures to straight-run asphalts and their emissions during paving operations are "possibly carcinogenic to humans" (Group 2B).

This material contains heavy vacuum distillates/aromatic extract oils. IARC has determined that there is sufficient evidence in experimental animals for their carcinogenicity, and has classified these oils as Group 1, or human carcinogens.

The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and

negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). The NTP's Report on Carcinogens, 9<sup>th</sup> edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

**Additional information on toxicological-effects:**

**Acute toxicity:** Not classified

No specific data on product. Based on components, not expected to be classified for acute toxicity.

**Asphalt:**

Acute Oral, rat: LD50 >5000 mg/kg

Acute Dermal, rat: LD50 >2000 mg/kg

**Skin corrosion/irritation:** Not classified

**Serious eye damage/eye irritation:** Not classified

**Respiratory sensitization:** Not classified.

**Skin sensitization:** May cause photosensitization (contact), but not classified as a skin sensitizer.

**Germ cell Mutagenicity:** Not classified

**Carcinogenicity:** May cause cancer (Inhalation).

**Reproductive toxicity:** Suspected of damaging the unborn child.

**Specific target organ toxicity - single exposure:** Not classified

**Specific target organ- toxicity – repeated exposure:** Causes damage to organs (lungs, respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure (inhalation)

**Aspiration toxicity:** Not classified (not applicable- solid material)

**12. Ecological information**

**Ecotoxicity (aquatic and terrestrial, where available):**

No specific data on this product. Large spills may cause damage to aquatic organisms through fouling of the shoreline.

**Persistence and degradability:**

Expected to be resistant to biodegradation.

**Bioaccumulative potential.**

Significant migration into the environment and bioaccumulation are unlikely.

**Mobility in soil.**

Not determined

**Other adverse effects.**

Not determined

<b>13. Disposal considerations</b>
<b>Safe handling and disposal of waste:</b> Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

<b>14. Transport information</b>
<b>UN Number:</b> Not regulated.
<b>UN Proper shipping name:</b> Not regulated.
<b>Transport Hazard class:</b> Not applicable.
<b>Packing group, if applicable:</b> Not applicable.
<b>Marine pollutant (Yes/No):</b> Not applicable.

<b>15. Regulatory information</b>
<b>Toxic Substances Control Act (TSCA):</b> The components in this product are listed on the TSCA Inventory or are exempt.
<b>Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):</b> Releases of this material water may be reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.
<b>Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:</b> <b>Section 302 extremely hazardous substances:</b> None <b>Section 311/312 hazard categories:</b> Delayed Health <b>Section 313 reportable ingredients at or above de minimus concentrations:</b> None
<b>California Proposition 65:</b> This product contains a chemical (crystalline silica, bitumen, various aromatic hydrocarbons) known to the State of California to cause cancer and birth defects or other reproductive harm.
<b>State Regulatory Lists:</b> Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

**16. Other information**

Disclaimer

**NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.**

Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.

Issue date:

06/01/2015

Revision date: 01-June-2015

06/01/2015

**Vulcan Materials Company and its subsidiaries and affiliates  
1200 Urban Center Drive  
Birmingham, AL 35242**



Dear Customer/Contractor:

Please find attached a safety data sheet (SDS) for the product that you purchased from Vulcan Materials Company or one of its subsidiaries or affiliates ("Vulcan"). This is a revised SDS and replaces any previous versions of the material safety data sheet (MSDS) for this product. This SDS is provided to you as required by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Mine Safety and Health Administration's (MSHA) Hazard Communication Standard (30 CFR Part 47), and/or any applicable state Right-to-Know laws.

It is the responsibility of your company to communicate this information to your employees, customers, and contractors who may use or come in contact with this product. Further, if you distribute this product, Vulcan requests, and applicable laws may require, that you forward this SDS to your customers.

Please direct this information to the person responsible for safety and health compliance at your company. If you have questions about the SDS, please contact Vulcan at 1200 Urban Center Drive, Birmingham, AL 35242 or 1-866-401-5424.

If you need additional copies of this or any other Vulcan SDS or a Spanish language version, you can obtain them at [www.vulcanmaterials.com](http://www.vulcanmaterials.com) or by calling 1-866-401-5424.

La MSDS puede obtenerse en [www.vulcanmaterials.com](http://www.vulcanmaterials.com) o llamando al 1-866-401-5424.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia Kirby".

Cynthia Kirby  
Director, Safety & Health

### Recycled Crushed Concrete

#### 1. Identification

**Product name:**

Recycled Crushed Concrete

**Other means of identification/Synonyms/Common Names:**

Recycled Hardened Concrete, Recycled Crushed Concrete

**Recommended use:**

Recycled Crushed Concrete is used as a construction material.

**Recommended restrictions:**

None Known

**Manufacturer/Contact info:**

Vulcan Materials Company and its subsidiaries and affiliates  
1200 Urban Center Drive  
Birmingham, AL 35242

**General Phone Number:**

1.866.401.5424

**Emergency Phone Number:**

1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

**Website:**

www.vulcanmaterials.com

#### 2. Hazard(s) Identification

**Physical hazards:**

Not Classified

**Health hazards:**

Skin corrosion/irritation-Category 1B

**Signal word:**

**Danger**

Carcinogenicity-Category 1A

Specific target organ toxicity, single exposure- Category 3

Specific target organ toxicity, repeated exposure- Category 2



**Hazard Statement:**

Causes severe skin burns and eye damage

May cause cancer (Inhalation)

May cause respiratory irritation

May causes damage to organs (lung/respiratory system) through prolonged or repeated exposure (inhalation)

**Precautionary statement:**

**Prevention**

- Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.
- Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.
- Wash hands thoroughly after handling
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.

**Response**

- If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention
- Specific treatment (see the following information on this label)
- IF SWALLOWED: Rinse mouth Do NOT induce vomiting.

- IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.
- IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.
- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Wash contaminated clothing before reuse.

**Disposal**

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

**Supplemental information:**

Recycled crushed concrete contains a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Recycled crushed concrete 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, NTP; ACGIH states that it is a suspected cause of cancer.

**3. Composition/information on ingredients**

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel, expanded shale)	Mixture	60-95
Quartz (crystalline silica)	14808-60-7	>1
Fly Ash	68131-74-8	0-11
Hydrated Portland Cement	65997-15-1	3-40

**4. First-aid measures**

**Inhalation:**

Dusts from hardened product may irritate the mouth, nose, throat and lungs. Remove person to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

**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. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

**Skin:**

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists or later develops. Burns should be treated as caustic burns.

**Ingestion:**

If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

**Most important symptoms/effects, acute and delayed:**

Dust may irritate the eyes, skin, and respiratory tract. Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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; right heart enlargement and/or failure.

**Indication of immediate medical attention and special treatment needed:**

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

**For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).**

**5. Fire-fighting measures**

**Suitable extinguishing media:**

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:**

None known.

**Specific hazards arising from the chemical:**

Contact (dust) with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

**Special protective equipment and precautions for firefighters:**

Use protective equipment appropriate for surrounding materials.

**Fire-fighting equipment/instructions:**

No unusual fire or explosion hazards noted. Not a combustible dust.

**Specific methods:**

The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

**6. Accidental release measures**

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

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. **For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).**

**Environmental precautions:**

Prevent from entering into sewers or drainage systems where it can harden and clog flow.

**Methods and materials for containment and cleaning up:**

Product should be removed from roads or other surfaces where it may interfere with traffic. If hardened material is spilled and dust is generated, cleanup personnel may be exposed to respirable crystalline silica. 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.

**7. Handling and storage**

**Precautions for safe handling:**

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this MSDS as appropriate.

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

Do not store near food, beverages, or smoking materials.

**8. Exposure controls/personal protection**

**Legend:**

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)	10 mg/m <sup>3</sup> (inhalable fraction) 3 mg/m <sup>3</sup> (respirable fraction)	NE
Respirable dust containing silica	10 mg/m <sup>3</sup> ÷ (%silica + 2)	Use Respirable Silica TLV	Use Respirable Silica REL
Total dust containing silica	OSHA: 30 mg/m <sup>3</sup> ÷ (% silica + 2) MSHA: 30 mg/m <sup>3</sup> ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust PEL	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust PEL	0.025 mg/m <sup>3</sup>	0.05 mg/m <sup>3</sup>
Portland Cement	15 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)	10 mg/m <sup>3</sup>	10 mg/m <sup>3</sup> (total dust) 5 mg/m <sup>3</sup> (respirable fraction)

**Exposure Guidelines:**

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to)

wet suppression, ventilation, process enclosure, and enclosed employee workstations.

**Engineering Controls:**

Activities that generate dust from hardened product require the use of general ventilation, local exhaust, and/or wet suppression methods adequate to maintain exposures below appropriate exposure limits.

**Eye 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.

**Skin Protection (Protective Gloves/Clothing):**

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

**Respiratory Protection:**

All respirators must be NIOSH-approved for the levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8 hr Time Weighted Average (TWA) of 0.5 mg/m<sup>3</sup>, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8 hr TWA of 5.0 mg/m<sup>3</sup> a positive pressure, full face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134 ) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

**9. Physical and chemical properties**

**Appearance:**

Gray, solid mixture.

<b>Odor:</b> Faint odor.	<b>PH:</b> Not applicable	<b>Decomposition temperature:</b> Not applicable
<b>Melting point/freezing point:</b> Not applicable	<b>Initial boiling point and boiling range:</b> Not applicable	<b>Flash point:</b> Non-combustible
<b>Evaporation rate:</b> Not applicable	<b>Flammability:</b> Not applicable	<b>Upper/lower flammability or explosive limits:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Relative density:</b> Not applicable	<b>Solubility:</b> Negligible
<b>Partition coefficient: n-octanol/water.</b> Not applicable	<b>Autoignition temperature:</b> Not applicable	<b>Specific Gravity (H2O = 1):</b> 1.7 - 3.0

**10. Stability and reactivity**

**Reactivity:**

Not reactive under normal use.

**Chemical stability:**

Stable under normal temperatures and pressures.

**Possibility of hazardous reactions:**

None under normal use.

**Conditions to avoid (e.g., static discharge, shock or vibration):**

Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

**Incompatible materials:**


Strong acids. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride..

**Hazardous decomposition products:**

Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

**Asphalt Rubberized Hot Mix**

<b>1. Identification</b>	
Product name: Asphalt Rubberized Hot Mix	
Other means of identification/ Synonyms/ Common Names: Crumb Rubber Asphalt, Rubberized Asphalt, ARHM	
Recommended use: Asphalt Rubberized Hot Mix is used as a construction material.	
Recommended restrictions: None Known	
Manufacturer/ Contact info: Vulcan Materials Company and its subsidiaries and affiliates 1200 Urban Center Drive Birmingham, AL 35242	General Phone Number: 1.866.401.5424 Emergency Phone Number: 1.866.401.5424 (3E Company, 24hours/ day, 7 Days/week) Website: www.vulcanmaterials.com

<b>2. Hazard(s) Identification</b>	
Physical hazards: Not Classified	Health hazards: Carcinogenicity-Category 1A Reproductive Toxicity- Category 2 Specific target organ toxicity, repeated exposure- Category 2
	Signal word: <b>Danger</b>
	Hazard statement May cause cancer (Inhalation) Suspected of damaging the unborn child Causes damage to organs (lung/respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure

Precautionary statement: <b>Prevention</b>
<ul style="list-style-type: none"> <li>L Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.</li> <li>L Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.</li> <li>L Wash hands thoroughly after handling.</li> <li>L Do not eat, drink or smoke when using this product.</li> <li>L Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.</li> <li>L Product may contain or release hydrogen sulfide, which is highly toxic and is a flammable gas. Assessment of storage tanks, transport vessels and other confined spaces should be made to determine potential exposures and appropriate controls</li> </ul>
<b>Response</b>
<ul style="list-style-type: none"> <li>L If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention</li> <li>L Specific treatment (see the following information on this label).</li> <li>L IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</li> <li>L IF ON SKIN: Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.</li> <li>L IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.</li> <li>L IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.</li> <li>L Wash contaminated clothing before reuse.</li> </ul>

**Storage**

L Store in a well ventilated place.

**Disposal**

L Dispose of contents/container in accordance with all local, regional, national, and international regulations.

**Supplemental information:**

Asphalt Rubberized Hot Mix contains aggregate, a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Hardened Asphalt Rubberized Hot-Mix 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, NTP, ACGH states that it is a suspected cause of cancer.

**3. Composition/information on ingredients**

Chemical name	CASnumber	%
Aggregate (crushed stone, sand, gravel, slag)	Mixture	>90
Quartz (crystalline silica)	14808-60-7	>1
Asphalt	8052-42-4	>5
May contain:		
Vacuum tower bottoms	64741-56-6	>0.1
Heavy naph. Petroleum distillates	64741-53-3	>0.1
Aromatic extract oil	64742-11-6	>0.1
Hydrogen sulfide	7783-06-4	<0.2
Crumb Rubber	Mixture	>0.1
Proprietary Additives	Mixture	<1

**4. First-aid measures****Inhalation:**

Remove person to fresh air. If lung irritation persists or later develops, contact a physician. If not breathing, initiate rescue breathing, give oxygen by trained personnel and get immediate medical attention. Do not attempt to rescue victim from confined spaces without adequate protective equipment.

**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. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops. Thermal burns require immediate medical attention.

**Skin:**

Hot Material: Remove contaminated clothing, if possible, and immediately flush skin in cool water for at least 15 minutes. Iced water or cold packs may be applied to burned area. Do not attempt to remove material from a burn. Get immediate medical attention. Cold Material: Clean exposed skin with soap or mild detergent and large amounts of water until all material is removed from the skin. Do not use solvents or thinners to remove material from skin.

**Ingestion:**

If swallowed, do not induce vomiting. Drink a large volume of water and get immediate medical attention. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration.

**Most important symptoms/effects, acute and delayed:**

Emissions from the heated material may have an unpleasant odor and may cause moderate to severe irritation of the mucous membranes and upper respiratory tract, headaches, nausea and dizziness. Toxic hydrogen sulfide gas may be released. Do not depend upon sense of smell for warning of overexposure, since the gas causes rapid olfactory fatigue which deadens the sense of smell at levels as low as 50 ppm. Unconsciousness and asphyxiation may occur in poorly ventilated or confined spaces. See Section 11 for additional information.

Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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; right heart enlargement and/or failure.

Indication of immediate medical attention and special treatment needed:

In general, emesis induction is unnecessary in high viscosity, low volatility products. Inhalation exposure of hydrogen sulfide may result in pulmonary congestion. Patients may be predisposed to pneumonia during convalescence, and should be kept under observation. Contact a Poison Center for additional treatment information.

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

For emergencies contact 3E Company at 1.866.401.5424 (24 hours/ day, 7 days/ week).

#### 5. Fire-fighting measures

Suitable extinguishing media:

Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, and steam) and water fog.

Unsuitable extinguishing media:

Avoid use of straight-stream water. Adding water to hot asphalt presents an explosion hazard.

Specific hazards arising from the chemical:

Do not heat above flash point.

Fumes/vapors can explode when concentrated in an enclosed environment and supplied with an ignition source. Never weld or use a cutting torch or open flame on a full, partially full or empty bin, hopper, or other container that holds or has held asphaltic material unless precautions are taken to prevent explosion. **WARNING:** Hydrogen sulfide (  $H_2S$  ) and other hazardous gases/vapors may evolve and collect in the headspace of storage tanks or other enclosed vessels, and can create an explosive, toxic, or oxygen deficient atmosphere.  $H_2S$  gas is extremely flammable and can explode if an ignition source is provided. See Section 11 for health effects of  $H_2S$  gas.

Special protective equipment and precautions for firefighters:

Avoid breathing irritating and potentially toxic fumes, including hydrogen sulfide gas. Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

Fire-fighting equipment/instructions:

Adding water to hot asphalt presents an explosion hazard.

Specific methods:

Use water spray to keep fire-exposed containers cool.

#### 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures:

Ventilate area and avoid emission inhalation or skin contact by using appropriate precautions outlined in this SDS (see Section 8). Keep all sources of ignition at least 50 feet away. Prevent materials from entering streams, drainages, or sewers. Spills entering surface waters or sewers entering/leading to surface waters must be reported to the National Response Center 1-800-424-8802. Based on volume and use, components of this product may be subject to reporting requirements of Title III of SARA, 1986, and 40 CFR 372.

For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/ day, 7 days/ week).

Environmental precautions:

Stop leak and contain spilled material with sand, aggregate fines, or other inert adsorbent. Collect adsorbed product and clean up materials in appropriate container for proper disposal. Notify proper authorities.

Methods and materials for containment and cleaning up:

Contact the asphalt plant to determine feasibility of recycling material. Dispose of waste materials in accordance with applicable federal, state and local laws and regulations.

#### 7. Handling and storage

Precautions for safe handling:

Follow personal protection and protective controls set forth in Section 8 of this SDS when handling this product. If personnel must enter a tank or other confined space that contained this material, follow the OSHA Confined Space Entry Program as specified in 29 CFR 1910.146. Do not store near food, beverages or smoking materials. Avoid personal

contact with heated material. Respirable crystalline silica-containing dust may be generated when hardened asphalt rubber binder is subjected to mechanical forces, such as demolition work, surface treatment (sanding, grooving, chiseling, etc.), and/or recycling of pavement.

Do not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition as they may explode and cause injury or death. Tripping accidents have occurred because of asphalt buildup on bottoms of shoes and boots; buildup should be removed regularly to prevent such accidents. Do not use solvents or thinners to clean footwear.

Conditions for safe storage, including any incompatibilities:

Store away from all ignition sources and open flames in accordance with applicable laws and regulations.

Vapors containing hydrogen sulfide may accumulate during storage or transport of asphaltic materials. When petroleum asphalt products are heated, potentially irritating emissions (fumes, mists, vapors) may be released.

### 8. Exposure controls/ personal protection

Legend:

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STEL = Short Term Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Asphalt Fumes	NE	0.5 L.L.L.L. (as benzene-soluble aerosol)	Ceiling 5 ppm
Particulates not otherwise classified	15 L.L.L.L. (total dust) 5 L.L.L.L. (respirable fraction)	10 L.L.L.L. (inhalable fraction) 3 mg/m <sup>3</sup> (respirable fraction)	NE
Respirable dust containing silica	10 L.L.L.L.+ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica TLV
Total dust containing silica	OSHA: 30 L.L.L.L. + (% silica + 2) MSHA: 30 L.L.L.L. + (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE- Use respirable dust containing silica PEL.	0.025 L.L.L.L.	0.05 L.L.L.L.
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust containing silica PEL.	0.025 L.L.L.L.	0.05 L.L.L.L.
Ammonia (NH <sub>3</sub> )	50 ppm	25 ppm STEL 35 ppm	25 ppm REL-Ceiling 35 ppm
Carbon Monoxide (CO)	50 ppm	25 ppm	35 ppm Ceiling 200 ppm
Hydrogen Sulfide (H <sub>2</sub> S)	Ceiling 20 ppm	10 ppm STEL 15 ppm	Ceiling 10 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	Ceiling 5 ppm	3 ppm STEL 5 ppm	STEL 1 ppm
Ozone (O <sub>3</sub> )	0.1 ppm	0.05 ppm	Ceiling 0.1 ppm
Sulfur Dioxide (SO <sub>2</sub> )	5 ppm	STEL 0.25 ppm	2 ppm STEL 5 ppm

Exposure Guidelines:

Workers should station themselves on the upwind side of asphalt emissions when possible. It is recommended that asphalt emissions be monitored regularly to determine exposure levels. Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of appropriate exposure limits must be reduced by all feasible engineering controls, including (but not limited to), ventilation, process enclosure, and/or

enclosed employee workstations.
<p>Engineering Controls: General dilution or local exhaust ventilation is required to maintain exposures below appropriate exposure limits. Use only in well-ventilated areas. Activities with dried/hardened product that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below appropriate exposure limits.</p>
<p>Eye Protection: Use a full-face shield and chemical safety goggles if handling heated material. Safety glasses with side shields should be worn as minimum protection at ambient temperatures. Contact lens should not be worn when eye contact with product is possible.</p>
<p>Skin Protection (Protective Gloves/Clothing): Avoid skin contact with material by wearing impervious gloves and protective clothing. With product at ambient temperatures, use disposable nitrile, neoprene or butyl rubber material. When handling hot material, use heat-resistant gloves. Use insulated, heat-resistant clothing as necessary.</p>
<p>Respiratory Protection: Not expected to be necessary under normal use and working conditions. All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. For air-contaminant concentrations which exceed or are likely to exceed applicable exposure limits, use a NIOSH-approved, contaminant-specific, air purifying respirator. If such conditions are sufficiently high that the air-purifying respirator is inadequate, or if oxygen adequate to sustain life is not present, use a positive-pressure, self-contained breathing apparatus. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8-hour Time Weighted Average (TWA) of 0.5 mg/m<sup>3</sup>, a high-efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8-hour TWA of 5.0 mg/m<sup>3</sup> a positive-pressure, full-face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.</p>

9. Physical and chemical properties		
Appearance: Black, viscous, granular. Petroleum odor.		
Odor: Petroleum odor.	PH: Not applicable	Decomposition temperature: Not applicable
Melting point/ freezing point: 100-135°F	Initial boiling point and boiling range: 470°C	Flash point: >500°F (min). COC
Evaporation rate: Not applicable	Flammability: Not applicable	Upper/lower flammability or explosive limits: Not applicable
Vapor pressure: Not applicable	Vapor density: >1	Solubility: Negligible
Partition coefficient: n-octanol/ water. Not applicable	Autoignition temperature: Not applicable	Specific Gravity (H <sub>2</sub> O = 1): Product: NA; Asphalt Rubber: 0.96-10.3

10. Stability and reactivity		
Reactivity: Not reactive under normal use.		
Chemical stability: Stable under normal temperatures and pressures.		
Possibility of hazardous reactions: None under normal use.		
Conditions to avoid (e.g., static discharge, shock or vibration): Keep away from direct flame/ignition sources. Contact with incompatible materials should be avoided (see below). See Sections 5, 6 and 7 for additional information.		



between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to, the following: shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Repeated overexposures to very high levels of respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to, shortness of breath, cough, fever, weight loss, and chest pain. Respirable dust containing newly broken silica 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 particles of silica.

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 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.

Carcinogenicity:

Skin application of asphalt fume condensate fractions caused skin tumors in laboratory mice. When asphalt was dissolved or mixed with a solvent prior to exposing laboratory animals, the carcinogenicity results were weakly positive. The causal agent is thought to be 4 to 6 ring polycyclic aromatic compounds (PAH). Trace amounts of these materials may be present in asphalts and can be generated upon excessive heating. Some PAHs have been identified as causing carcinogenic and reproductive effects. Currently, epidemiological evidence does not support a link between asphalt exposure and human skin cancer.

Repeated breathing of asphalt emissions has not resulted in a carcinogenic response in laboratory animal testing. Although epidemiological studies on asphalt workers have suggested a possible link between asphalt fumes and certain types of cancer, confounding factors such as smoking and concomitant exposure to other agents in the workplace may have influenced the results of these studies. Asphalt is not listed as a carcinogen by the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA). IARC states that there is sufficient evidence that extracts (asphalts dissolved in hydrocarbon solvents) are carcinogenic to laboratory animals and recently the agency determined that occupational exposures to oxidized asphalt and their emissions during roofing applications are "probably carcinogenic to humans" (Group 2A). They also determined that occupation exposures to hard asphalts and their emissions during mastic asphalt work and occupational exposures to straight-run asphalts and their emissions during paving operations are "possibly carcinogenic to humans" (Group 2B).

This material contains heavy vacuum distillates/ aromatic extract oils. IARC has determined that there is sufficient evidence in experimental animals for their carcinogenicity, and has classified these oils as Group 1, or human carcinogens.

The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). The NTP's Report on Carcinogens, 9<sup>th</sup> edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a

suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

Additional information on toxicological-effects:

Acute toxicity: Not classified

No specific data on product. Based on components, not expected to be classified for acute toxicity.

Asphalt:

Acute Oral, rat: LD50 >5000 mg/kg

Acute Dermal, rat: LD50 >2000 mg/kg

Skin corrosion/irritation: Not classified

Serious eye damage/ eye irritation: Not classified

Respiratory sensitization: Not classified.

Skin sensitization: May cause photosensitization (contact), but not classified as a skin sensitizer.

Germ cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Reproductive toxicity: Suspected of damaging the unborn child.

Specific target organ toxicity - single exposure: Not classified

Specific target organ- toxicity – repeated exposure: Causes damage to organs (lungs, respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure (inhalation)

Aspiration toxicity: Not classified (not applicable- solid material)

#### 12. Ecological information

Ecotoxicity (aquatic and terrestrial, where available):

No specific data on this product. The asphalt component may cause damage to aquatic organisms.

Persistence and degradability:

Expected to be resistant to biodegradation.

Bioaccumulative potential.

Significant migration into the environment and bioaccumulation are unlikely.

Mobility in soil.

Not determined

Other adverse effects.

Not determined

#### 13. Disposal considerations

Safe handling and disposal of waste:

Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste.

Product uses, transformations, mixture and processes, may render the resulting material hazardous.

#### 14. Transport information

UN Number:

Not regulated.

UN Proper shipping name: Not regulated.
Transport Hazard class: Not applicable.
Packing group, if applicable: Not applicable.
Marine pollutant (Yes/ No): Not applicable.

<b>15. Regulatory information</b>
Toxic Substances Control Act (TSCA): The components in this product are listed on the TSCA Inventory or are exempt.
Comprehensive Environmental Response, Compensation and Liability Act (CERCLA): Releases of this material to water may be reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act. (See Section 6)
Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III: Section 302 extremely hazardous substances: None Section 311/312 hazard categories: Delayed Health Section 313 reportable ingredients at or above de minimus concentrations: None
California Proposition 65: This product contains a chemical (crystalline silica) known to the State of California to cause cancer.
State Regulatory Lists: Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

<b>16. Other information</b>
<u>Disclaimer</u>
NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE
Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.
Issue date: 06/01/2015
Revision date: 06/01/2015

**Vulcan Materials Company and its subsidiaries and affiliates**  
**1200 Urban Center Drive**  
**Birmingham, AL 35242**



Dear Customer/Contractor:

Please find attached a safety data sheet (SDS) for the product that you purchased from Vulcan Materials Company or one of its subsidiaries or affiliates ("Vulcan"). This is a revised SDS and replaces any previous versions of the material safety data sheet (MSDS) for this product. This SDS is provided to you as required by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Mine Safety and Health Administration's (MSHA) Hazard Communication Standard (30 CFR Part 47), and/or any applicable state Right-to-Know laws.

It is the responsibility of your company to communicate this information to your employees, customers, and contractors who may use or come in contact with this product. Further, if you distribute this product, Vulcan requests, and applicable laws may require, that you forward this SDS to your customers.

Please direct this information to the person responsible for safety and health compliance at your company. If you have questions about the SDS, please contact Vulcan at 1200 Urban Center Drive, Birmingham, AL 35242 or 1-866-401-5424.

If you need additional copies of this or any other Vulcan SDS or a Spanish language version, you can obtain them at [www.vulcanmaterials.com](http://www.vulcanmaterials.com) or by calling 1-866-401-5424.

La MSDS puede obtenerse en [www.vulcanmaterials.com](http://www.vulcanmaterials.com) o llamando al 1-866-401-5424.

Sincerely,

  
Cynthia Kirby  
Director, Safety & Health

## Hot-Mix Asphalt

<b>1. Identification</b>	
<b>Product name:</b> Hot-Mix Asphalt	
<b>Other means of identification/Synonyms/Common Names:</b> Black Base, Blacktop, CMHB (all types), Hot Mix (all types; may contain rap), Hot-Mix Paving Material, Petroleum-derived Asphalt Concrete	
<b>Recommended use:</b> Hot-Mix Asphalt is used as a construction material.	
<b>Recommended restrictions:</b> None Known	
<b>Manufacturer/Contact info:</b> Vulcan Materials Company and its subsidiaries and affiliates 1200 Urban Center Drive Birmingham, AL 35242	<b>General Phone Number:</b> 1.866.401.5424 <b>Emergency Phone Number:</b> 1.866.401.5424 (3E Company, 24hours/day, 7 Days/week) <b>Website:</b> www.vulcanmaterials.com

<b>2. Hazard(s) Identification</b>	
<b>Physical hazards:</b> Not Classified	<b>Health hazards:</b> Carcinogenicity-Category 1A Reproductive Toxicity- Category 2 Specific target organ toxicity, repeated exposure- Category 2
	<b>Signal word:</b>  <b>Danger</b>
	<b>Hazard statement</b> May cause cancer (Inhalation) Suspected of damaging the unborn child Causes damage to organs (lung/respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure
<b>Precautionary statement:</b>	
<b>Prevention</b>	
<ul style="list-style-type: none"> <li>• Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.</li> <li>• Do not breathe dust, fume, or vapors. Use only outdoors or in a well ventilated area.</li> <li>• Wash hands thoroughly after handling.</li> <li>• Do not eat, drink or smoke when using this product.</li> <li>• Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.</li> <li>• Product may contain or release hydrogen sulfide, which is highly toxic and is a flammable gas. Assessment of storage tanks, transport vessels and other confined spaces should be made to determine potential exposures and appropriate controls</li> </ul>	
<b>Response</b>	
<ul style="list-style-type: none"> <li>• If exposed or concerned: Immediately call a Poison Center or doctor/physician. Get medical advice/attention</li> <li>• Specific treatment (see the following information on this label).</li> <li>• IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.</li> <li>• IF ON SKIN: Remove/Take off immediately all contaminated clothing. Rinse cautiously with water for several minutes. Rinse skin with water/shower. If skin irritation occurs: Get medical advice/attention.</li> <li>• IF INHALED: Remove victim to fresh air and keep at rest position comfortable for breathing.</li> </ul>	

- IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- Wash contaminated clothing before reuse.

**Storage**

- Store in a well ventilated place.

**Disposal**

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

**Supplemental information:**

Heated material can cause thermal burns. Fumes from heated asphalt may be irritating to the eye, nose and throat. Hot-Mix Asphalt contains aggregate, a naturally occurring mineral complex with varying quantities of quartz (crystalline silica). Respirable Crystalline Silica (RCS) may cause cancer. Hardened product 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, NTP; ACGIH states that it is a suspected cause of cancer.

**3. Composition/information on ingredients**

Chemical name	CAS number	%
Aggregate (crushed stone, sand, gravel, slag)	Mixture	>90
Quartz (crystalline silica)	14808-60-7	>1
Asphalt	8052-42-4	<10
May contain:		
Vacuum tower bottoms	64741-56-6	>0.1
Heavy naph. Petroleum distillates	64741-53-3	>0.1
Aromatic extract oil	64742-11-6	>0.1
Heavy Para. distillate solvent extract	64742-04-7	>0.1
Hydrogen sulfide	7783-06-4	<0.2
Additives	Mixture	<1

**4. First-aid measures**

**Inhalation:**

Remove person to fresh air. If lung irritation persists or later develops, contact a physician. If not breathing, initiate rescue breathing, give oxygen by trained personnel and get immediate medical attention. Do not attempt to rescue victim from confined spaces without adequate protective equipment.

**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. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops. Thermal burns require immediate medical attention.

**Skin:**

Hot Material: Remove contaminated clothing, if possible, and immediately flush skin in cool water for at least 15 minutes. Iced water or cold packs may be applied to burned area. Do not attempt to remove material from a burn. Get immediate medical attention. Cold Material: Clean exposed skin with soap or mild detergent and large amounts of water until all material is removed from the skin. Do not use solvents or thinners to remove material from skin.

**Ingestion:**

If swallowed, do not induce vomiting. Drink a large volume of water and get immediate medical attention. Never give anything by mouth to an unconscious person. If vomiting occurs, keep head lower than hips to prevent aspiration.

**Most important symptoms/effects, acute and delayed:**

Emissions from the heated material may have an unpleasant odor and may cause moderate to severe irritation of the mucous membranes and upper respiratory tract, headaches, nausea and dizziness. Toxic hydrogen sulfide gas may be released. Do not depend upon sense of smell for warning of overexposure, since the gas causes rapid olfactory fatigue which deadens the sense of smell at levels as low as 50 ppm. Unconsciousness and asphyxiation may occur in poorly ventilated or confined spaces. See Section 11 for additional information.

Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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; right heart enlargement and/or failure.

**Indication of immediate medical attention and special treatment needed:**

In general, emesis induction is unnecessary in high viscosity, low volatility products. Inhalation exposure of hydrogen sulfide may result in pulmonary congestion. Patients may be predisposed to pneumonia during convalescence, and should be kept under observation. Contact a Poison Center for additional treatment information.

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

**For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).**

### 5. Fire-fighting measures

**Suitable extinguishing media:**

Agents approved for Class B hazards (e.g., dry chemical, carbon dioxide, halogenated agents, foam, and steam) and water fog.

**Unsuitable extinguishing media:**

Avoid use of straight-stream water. Adding water to hot asphalt presents an explosion hazard.

**Specific hazards arising from the chemical:**

Do not heat above flash point.

Fumes/vapors can explode when concentrated in an enclosed environment and supplied with an ignition source. Never weld or use a cutting torch or open flame on a full, partially full or empty bin, hopper, or other container that holds or has held asphaltic material unless precautions are taken to prevent explosion. **WARNING:** Hydrogen sulfide (  ) and other hazardous gases/vapors may evolve and collect in the headspace of storage tanks or other enclosed vessels, and can create an explosive, toxic, or oxygen deficient atmosphere.  gas is extremely flammable and can explode if an ignition source is provided. See Section 11 for health effects of  gas.

**Special protective equipment and precautions for firefighters:**

Avoid breathing irritating and potentially toxic fumes, including hydrogen sulfide gas. Firefighters should wear NIOSH/MSHA approved positive pressure breathing apparatus (SCBA) with full face mask and full protective equipment.

**Fire-fighting equipment/instructions:**

Adding water to hot asphalt presents an explosion hazard.

**Specific methods:**

Use water spray to keep fire-exposed containers cool.

### 6. Accidental release measures

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

Ventilate area and avoid emission inhalation or skin contact by using appropriate precautions outlined in this SDS (see Section 8). Keep all sources of ignition at least 50 feet away. Prevent materials from entering streams, drainages, or sewers. Spills entering surface waters or sewers entering/leading to surface waters must be reported to the National Response Center 1-800-424-8802. Based on volume and use, components of this product may be subject to reporting requirements of Title III of SARA, 1986, and 40 CFR 372.

**For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).**

**Environmental precautions:**

Stop leak and contain spilled material with sand, aggregate fines, or other inert adsorbent. Collect adsorbed product and clean up materials in appropriate container for proper disposal. Notify proper authorities.

**Methods and materials for containment and cleaning up:**

Contact the asphalt plant to determine feasibility of recycling material. Dispose of waste materials in accordance with applicable federal, state and local laws and regulations.

## 7. Handling and storage

### Precautions for safe handling:

Follow personal protection and protective controls set forth in Section 8 of this SDS when handling this product. If personnel must enter a tank or other confined space that contained this material, follow the OSHA Confined Space Entry Program as specified in 29 CFR 1910.146. Do not store near food, beverages or smoking materials. Avoid personal contact with heated material. Respirable crystalline silica-containing dust may be generated when hardened asphalt mix is subjected to mechanical forces, such as demolition work, surface treatment (sanding, grooving, chiseling, etc.), and/or recycling of pavement.

Do not attempt to clean empty containers since residue is difficult to remove. Do not pressurize, cut, weld, braze, solder, drill, grind or expose such containers to heat, flame, sparks, static electricity, or other sources of ignition as they may explode and cause injury or death. Tripping accidents have occurred because of asphalt buildup on bottoms of shoes and boots; buildup should be removed regularly to prevent such accidents. Do not use solvents or thinners to clean footwear.

### Conditions for safe storage, including any incompatibilities:

Store away from all ignition sources and open flames in accordance with applicable laws and regulations.

Vapors containing hydrogen sulfide may accumulate during storage or transport of asphaltic materials. When petroleum asphalt products are heated, potentially irritating emissions (fumes, mists, vapors) may be released.

## 8. Exposure controls/personal protection

### Legend:

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; STEL = Short Term Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Asphalt Fumes	NE	0.5 □ □ □ □ (as benzene-soluble aerosol)	Ceiling 5 ppm
Particulates not otherwise classified	15 □ □ □ □ (total dust) 5 □ □ □ □ (respirable fraction)	10 □ □ □ □ (inhalable fraction) 3 mg/m3 (respirable fraction)	NE
Respirable dust containing silica	10 □ □ □ □ ÷ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica TLV
Total dust containing silica	OSHA: 30 □ □ □ □ ÷ (% silica + 2) MSHA: 30 □ □ □ □ ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust containing silica PEL	0.025 □ □ □ □	0.05 □ □ □ □
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	½ of OSHA and MSHA respirable dust containing silica PEL	0.025 □ □ □ □	0.05 □ □ □ □
Ammonia (NH <sub>3</sub> )	50 ppm	25 ppm STEL 35 ppm	25 ppm Ceiling 35 ppm
Carbon Monoxide (CO)	50 ppm	25 ppm	35 ppm Ceiling 200 ppm
Hydrogen Sulfide ( □ □ )	Ceiling 20 ppm	10 ppm STEL 15 ppm	Ceiling 10 ppm
Nitrogen Dioxide (NO <sub>2</sub> )	Ceiling 5 ppm	3 ppm STEL 5 ppm	STEL 1 ppm
Ozone (O <sub>3</sub> )	0.1 ppm	0.05 ppm	Ceiling 0.1 ppm
Sulfur Dioxide (SO <sub>2</sub> )	5 ppm	STEL 0.25 ppm	2 ppm STEL 5 ppm

**Exposure Guidelines:**

Workers should station themselves on the upwind side of asphalt emissions when possible. It is recommended that asphalt emissions be monitored regularly to determine exposure levels. Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of appropriate exposure limits must be reduced by all feasible engineering controls, including (but not limited to), ventilation, process enclosure, and/or enclosed employee workstations.

**Engineering Controls:**

General dilution or local exhaust ventilation is required to maintain exposures below appropriate exposure limits. Use only in well-ventilated areas. Activities with dried/hardened product that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below appropriate exposure limits.

**Eye Protection:**

Use a full-face shield and chemical safety goggles if handling heated material. Safety glasses with side shields should be worn as minimum protection at ambient temperatures. Contact lens should not be worn when eye contact with product is possible.

**Skin Protection (Protective Gloves/Clothing):**

Avoid skin contact with material by wearing impervious gloves and protective clothing. With product at ambient temperatures, use disposable nitrile, neoprene or butyl rubber material. When handling hot material, use heat-resistant gloves. Use insulated, heat-resistant clothing as necessary.

**Respiratory Protection:**

Not expected to be necessary under normal use and working conditions. All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. For air-contaminant concentrations which exceed or are likely to exceed applicable exposure limits, use a NIOSH-approved, contaminant-specific, air purifying respirator. If such conditions are sufficiently high that the air-purifying respirator is inadequate, or if oxygen adequate to sustain life is not present, use a positive-pressure, self-contained breathing apparatus. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8-hour Time Weighted Average (TWA) of 0.5 mg/m<sup>3</sup>, a high-efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8-hour TWA of 5.0 mg/m<sup>3</sup> a positive-pressure, full-face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

## 9. Physical and chemical properties

**Appearance:**

Black, viscous, granular.

<b>Odor:</b> Petroleum odor.	<b>PH:</b> Not applicable	<b>Decomposition temperature:</b> Not applicable
<b>Melting point/freezing point:</b> 100-135°F	<b>Initial boiling point and boiling range:</b> 470°C	<b>Flash point:</b> >500°F (min). COC
<b>Evaporation rate:</b> Not applicable	<b>Flammability:</b> Not applicable	<b>Upper/lower flammability or explosive limits:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Vapor density:</b> >1	<b>Solubility:</b> Negligible
<b>Partition coefficient: n-octanol/water.</b> Not applicable	<b>Autoignition temperature:</b> Not applicable	<b>Specific Gravity (H<sub>2</sub>O = 1):</b> 2.0 -2.5

## 10. Stability and reactivity

**Reactivity:**

Not reactive under normal use.

**Chemical stability:**

Stable under normal temperatures and pressures.



The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:

Prolonged overexposure to respirable dusts in excess of appropriate exposure limits can cause inflammation of the lung leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased. Symptoms of silicosis may include, but are not limited to, the following: shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Repeated overexposures to very high levels of respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to, shortness of breath, cough, fever, weight loss, and chest pain. Respirable dust containing newly broken silica 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 particles of silica.

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 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.

**Carcinogenicity:**

Skin application of asphalt fume condensate fractions caused skin tumors in laboratory mice. When asphalt was dissolved or mixed with a solvent prior to exposing laboratory animals, the carcinogenicity results were weakly positive. The causal agent is thought to be 4 to 6 ring polycyclic aromatic compounds (PAH). Trace amounts of these materials may be present in asphalts and can be generated upon excessive heating. Some PAHs have been identified as causing carcinogenic and reproductive effects. Currently, epidemiological evidence does not support a link between asphalt exposure and human skin cancer.

Repeated breathing of asphalt emissions has not resulted in a carcinogenic response in laboratory animal testing. Although epidemiological studies on asphalt workers have suggested a possible link between asphalt fumes and certain types of cancer, confounding factors such as smoking and concomitant exposure to other agents in the workplace may have influenced the results of these studies. Asphalt is not listed as a carcinogen by the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA). IARC states that there is sufficient evidence that extracts (asphalts dissolved in hydrocarbon solvents) are carcinogenic to laboratory animals and recently the agency determined that occupational exposures to oxidized asphalt and their emissions during roofing applications are "probably carcinogenic to humans" (Group 2A). They also determined that occupation exposures to hard asphalts and their emissions during mastic asphalt work and occupational exposures to straight-run asphalts and their emissions during paving operations are "possibly carcinogenic to humans" (Group 2B)

This material contains heavy vacuum distillates/aromatic extract oils. IARC has determined that there is sufficient evidence in experimental animals for their carcinogenicity, and has classified these oils as Group 1, or human carcinogens.

The following information applies to the dried product if it is subjected to mechanical forces (such as demolition or asphalt recycling work), which may generate crystalline silica-containing dust particles:

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and

negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). The NTP's Report on Carcinogens, 9<sup>th</sup> edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

**Additional information on toxicological-effects:**

**Acute toxicity:** Not classified

No specific data on product. Based on components, not expected to be classified for acute toxicity.

**Asphalt:**

Acute Oral, rat: LD50 >5000 mg/kg

Acute Dermal, rat: LD50 >2000 mg/kg

**Skin corrosion/irritation:** Not classified

**Serious eye damage/eye irritation:** Not classified

**Respiratory sensitization:** Not classified.

**Skin sensitization:** May cause photosensitization (contact), but not classified as a skin sensitizer.

**Germ cell Mutagenicity:** Not classified

**Carcinogenicity:** May cause cancer (Inhalation).

**Reproductive toxicity:** Suspected of damaging the unborn child.

**Specific target organ toxicity - single exposure:** Not classified

**Specific target organ- toxicity – repeated exposure:** Causes damage to organs (lungs, respiratory system, adrenals, bone marrow, liver, lymph nodes, kidney, stomach and thymus) through prolonged or repeated exposure (inhalation)

**Aspiration toxicity:** Not classified (not applicable- solid material)

**12. Ecological information**

**Ecotoxicity (aquatic and terrestrial, where available):**

No specific data on this product. Large spills may cause damage to aquatic organisms through fouling of the shoreline.

**Persistence and degradability:**

Expected to be resistant to biodegradation.

**Bioaccumulative potential.**

Significant migration into the environment and bioaccumulation are unlikely.

**Mobility in soil.**

Not determined

**Other adverse effects.**

Not determined

**13. Disposal considerations****Safe handling and disposal of waste:**

Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.

**14. Transport information****UN Number:**

Not regulated.

**UN Proper shipping name:**

Not regulated.

**Transport Hazard class:**

Not applicable.

**Packing group, if applicable:**

Not applicable.

**Marine pollutant (Yes/No):**

Not applicable.

**15. Regulatory information****Toxic Substances Control Act (TSCA):**

The components in this product are listed on the TSCA Inventory or are exempt.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):**

Releases of this material to water may be reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act. (See Section 6)

**Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:**

Section 302 extremely hazardous substances: None

Section 311/312 hazard categories: Delayed Health

Section 313 reportable ingredients at or above de minimus concentrations: None

**California Proposition 65:**

This product contains a chemical (crystalline silica, bitumen, various aromatic hydrocarbons) known to the State of California to cause cancer and birth defects or other reproductive harm.

**State Regulatory Lists:**

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

**16. Other information**

Disclaimer

**NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.**

Vulcan Materials Company and its subsidiaries and affiliates ("Vulcan") believe the information contained herein is accurate; however, Vulcan makes no guarantees with respect to such accuracy and assumes no liability whatsoever in connection with the use of any information contained herein by any party. The provision of the information contained herein is not intended to be, and should not be construed as, legal advice or as ensuring compliance with any federal, state, or local laws, rules or regulations. Any party using any information contained herein should review all applicable laws, rules and regulations prior to use.

Issue date:

06/01/2015

Revision date:

06/01/2015

**Vulcan Materials Company and its subsidiaries and affiliates  
1200 Urban Center Drive  
Birmingham, AL 35242**



Dear Customer/Contractor:

Please find attached a safety data sheet (SDS) for the product that you purchased from Vulcan Materials Company or one of its subsidiaries or affiliates ("Vulcan"). This is a revised SDS and replaces any previous versions of the material safety data sheet (MSDS) for this product. This SDS is provided to you as required by the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (29 CFR 1910.1200), the Mine Safety and Health Administration's (MSHA) Hazard Communication Standard (30 CFR Part 47), and/or any applicable state Right-to-Know laws.

It is the responsibility of your company to communicate this information to your employees, customers, and contractors who may use or come in contact with this product. Further, if you distribute this product, Vulcan requests, and applicable laws may require, that you forward this SDS to your customers.

Please direct this information to the person responsible for safety and health compliance at your company. If you have questions about the SDS, please contact Vulcan at 1200 Urban Center Drive, Birmingham, AL 35242 or 1-866-401-5424.

If you need additional copies of this or any other Vulcan SDS or a Spanish language version, you can obtain them at [www.vulcanmaterials.com](http://www.vulcanmaterials.com) or by calling 1-866-401-5424.

La MSDS puede obtenerse en [www.vulcanmaterials.com](http://www.vulcanmaterials.com) o llamando al 1-866-401-5424.

Sincerely,

A handwritten signature in blue ink that reads "Cynthia Kirby".

Cynthia Kirby  
Director, Safety & Health

### Natural Sand and Gravel

#### 1. Identification

**Product name:**

Natural Sand and Gravel

**Other means of identification/Synonyms/Common Names:**

Construction Aggregate

**Recommended use:**

Natural sand and gravel is used as a construction material.

**NATURAL SAND AND GRAVEL MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.**

**Recommended restrictions:**

None Known

**Manufacturer/Contact info:**

Vulcan Materials Company and its subsidiaries and affiliates  
1200 Urban Center Drive  
Birmingham, AL 35242

**General Phone Number:**

1.866.401.5424

**Emergency Phone Number:**

1.866.401.5424 (3E Company, 24hours/day, 7 Days/week)

**Website:**

www.vulcanmaterials.com

#### 2. Hazard(s) Identification

**Physical hazards:**

Not Classified

**Health hazards:**

Carcinogenicity-Category 1A  
Specific target organ toxicity, repeated exposure- Category 2



**Signal word:**

**Danger**

**Hazard statement:** May Cause Cancer (Inhalation).

Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)

**Precautionary statement:**

**Prevention**

- Obtain special instructions before use.
- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required. Wear protective gloves, protective clothing, eye protection, and face protection.
- Wash hands thoroughly after handling.
- Do not eat, drink or smoke when using this product.

**Response**

- If exposed or concerned get medical advice/attention.

**Disposal**

- Dispose of contents/container in accordance with all local, regional, national, and international regulations.

**Supplemental information:**

Respirable Crystalline Silica (RCS) may cause cancer. Natural sand and gravel is a naturally occurring mineral complex that contains varying quantities of quartz (crystalline silica). Natural 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, 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.

### 3. Composition/information on ingredients

Chemical name	CAS number	%
Natural Sand and Gravel	None	100
Quartz (crystalline silica)	14808-60-7	>1

### 4. First-aid measures

**Inhalation:**

Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or if breathing is difficult.

**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. Beyond flushing, do not attempt to remove material from eye(s). Contact a physician if irritation persists or later develops.

**Skin:**

Wash affected areas thoroughly with mild soap and fresh water. Contact a physician if irritation persists.

**Ingestion:**

If person is conscious do not induce vomiting. Give large quantity of water and get medical attention. Never attempt to make an unconscious person drink.

**Most important symptoms/effects, acute and delayed:**

Dust may irritate the eyes, skin, and respiratory tract. Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. 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; right heart enlargement and/or failure.

**Indication of immediate medical attention and special treatment needed:**

Not all individuals with silicosis will exhibit symptoms of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposures have ceased. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

**For emergencies contact 3E Company at 1.866.401.5424 (24 hours/day, 7 days/week).**

### 5. Fire-fighting measures

**Suitable extinguishing media:**

This product is not flammable. Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:**

None known.

**Specific hazards arising from the chemical:**

Contact with powerful oxidizing agents may cause fire and/or explosions (see section 10 of SDS).

**Special protective equipment and precautions for firefighters:**

Use protective equipment appropriate for surrounding materials.

**Fire-fighting equipment/instructions:**

No unusual fire or explosion hazards noted. Not a combustible dust.

**Specific methods:**

The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.

## 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures:

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this SDS. **For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).**

### Environmental precautions:

Prevent from entering into sewers or drainage systems where it can harden and clog flow.

### Methods and materials for containment and cleaning up:

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.

## 7. Handling and storage

### Precautions for safe handling:

Respirable crystalline silica-containing dust may be generated during processing, handling, and storage. Use personal protection and controls identified in Section 8 of this SDS as appropriate.

**NATURAL SAND AND GRAVEL MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.**

### Conditions for safe storage, including any incompatibilities:

Do not store near food, beverages, or smoking materials.

## 8. Exposure controls/personal protection

### Legend:

NE = Not Established; PEL = Permissible Exposure Limit; TLV = Threshold Limit Value; REL = Recommended Exposure Limit; OSHA = Occupational Safety and Health Administration; MSHA = Mine Safety and Health Administration; NIOSH = National Institute for Occupational Safety and Health; ACGIH = American Conference of Governmental Industrial Hygienists

Component	OSHA/MSHA PEL	ACGIH TLV	NIOSH REL
Particulates not otherwise classified	15 $\square$ $\square$ $\square$ (total dust) 5 $\square$ $\square$ $\square$ (respirable fraction)	10 mg/m <sup>3</sup> (inhalable fraction) 3 mg/m <sup>3</sup> (respirable fraction)	NE
Respirable dust containing silica	10 $\square$ $\square$ $\square$ ÷ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica REL
Total dust containing silica	OSHA: 30 $\square$ $\square$ $\square$ ÷ (% silica + 2) MSHA: 30 $\square$ $\square$ $\square$ ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust PEL	0.025 $\square$ $\square$ $\square$	0.05 $\square$ $\square$ $\square$
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust PEL	0.025 $\square$ $\square$ $\square$	0.05 $\square$ $\square$ $\square$

### Exposure Guidelines:

Respirable dust and quartz levels should be monitored regularly to determine worker exposure levels. Exposure levels in excess of allowable exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

### Engineering Controls:

Activities that generate dust require the use of general ventilation, local exhaust and/or wet suppression methods to maintain exposures below allowable exposure limits.

### Eye 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.

### Skin Protection (Protective Gloves/Clothing):

Use gloves to provide hand protection from abrasion. In dusty conditions, use long sleeve shirts. Wash work clothes after each use.

**Respiratory Protection:**

All respirators must be NIOSH-approved for the exposure levels present. (See NIOSH Respirator Selection Guide). The need for respiratory protection should be evaluated by a qualified safety and health professional. Activities that generate dust require the use of an appropriate dust respirator where dust levels exceed or are likely to exceed allowable exposure limits. For respirable silica levels that exceed or are likely to exceed an 8 hr Time Weighted Average (TWA) of 0.5 mg/m<sup>3</sup>, a high efficiency particulate filter respirator must be worn at a minimum; however, if respirable silica levels exceed or are likely to exceed an 8 hr TWA of 5.0 mg/m<sup>3</sup> a positive pressure, full face respirator or equivalent is required. Respirator use must comply with applicable MSHA (42 CFR 84) or OSHA (29 CFR 1910.134) standards, which include provisions for a user training program, respirator inspection, repair and cleaning, respirator fit testing, medical surveillance and other requirements.

**9. Physical and chemical properties****Appearance:**

Angular or round multicolored particles.

<b>Odor:</b> No odor.	<b>PH:</b> Not applicable	<b>Decomposition temperature:</b> Not applicable
<b>Melting point/freezing point:</b> Not applicable	<b>Initial boiling point and boiling range:</b> Not applicable	<b>Flash point:</b> Non-combustible
<b>Evaporation rate:</b> Not applicable	<b>Flammability:</b> Not applicable	<b>Upper/lower flammability or explosive limits:</b> Not applicable
<b>Vapor pressure:</b> Not applicable	<b>Relative density:</b> Not applicable	<b>Solubility:</b> 0
<b>Partition coefficient: n-octanol/water.</b> Not applicable	<b>Autoignition temperature:</b> Not applicable	<b>Specific Gravity (H<sub>2</sub>O = 1):</b> 2.55 - 2.80

**10. Stability and reactivity****Reactivity:**

Not reactive under normal use.

**Chemical stability:**

Stable under normal temperatures and pressures.

**Possibility of hazardous reactions:**

None under normal use.

**Conditions to avoid (e.g., static discharge, shock or vibration):**

Contact with incompatible materials should be avoided (see below). See Sections 5 and 7 for additional information.

**Incompatible materials:**

Silica ignites on contact with fluorine and is incompatible with acids, aluminum, ammonium salts and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silica dissolves readily in hydrofluoric acid producing a corrosive gas – silicon tetrafluoride.

**Hazardous decomposition products:**

Silica-containing respirable dust particles may be generated. When heated, quartz is slowly transformed into tridymite (above 860°C/1580°F) and cristobalite (above 1470°C/2678°F). Both tridymite and cristobalite are other forms of crystalline silica.

**11. Toxicological information****Primary Routes of Exposure:**

Inhalation and contact with the eyes and skin.

**Symptoms related to the physical, chemical, toxicological characteristics****Inhalation:**

Dusts may irritate the nose, throat and respiratory tract by mechanical abrasion. Coughing sneezing and shortness of breath may occur.

Symptoms of silicosis caused by chronic exposure to dust 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; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

**Eye Contact:**

Dust particles can scratch the eye causing tearing, redness, a stinging or burning feeling, or swelling of the eyes with blurred vision.

**Skin Contact:**

Dust particles can scratch and irritate the skin with redness, an itching or burning feeling, swelling of the skin, and/or rash.

**Ingestion:**

Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation including nausea, vomiting, diarrhea, and blockage.

**Medical Conditions Aggravated by Exposure:**

Irritated or broken skin increases chance of contact dermatitis. Pre-existing medical conditions that may be aggravated by exposure include disorders of the eye, skin and lung (including asthma and other breathing disorders). Smoking tobacco will impair the ability of the lungs to clear themselves of dust.

**Delayed and immediate effects and also chronic effects from short- and long-term exposure:**

Prolonged overexposure to respirable dusts in excess of allowable exposure limits can cause inflammation of the lungs leading to possible fibrotic changes, a medical condition known as pneumoconiosis.

Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of allowable exposure limits may cause a chronic form of silicosis, an incurable lung disease that may result in permanent lung damage or death. Chronic silicosis generally occurs after 10 years or more of overexposure; a more accelerated type of silicosis may occur between 5 and 10 years of higher levels of exposure. In early stages of silicosis, not all individuals will exhibit symptoms (signs) of the disease. However, silicosis can be progressive, and symptoms can appear at any time, even years after exposure has ceased.

Repeated overexposures to very high levels of respirable crystalline silica for periods as short as six months may cause acute silicosis. Acute silicosis is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain.

Respirable dust containing newly broken silica 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 particles of silica.

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 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.

**Carcinogenicity:**

Epidemiology studies on the association between crystalline silica exposure and lung cancer have had both positive and negative results. There is some speculation that the source and type of crystalline silica may play a role. Studies of persons with silicosis indicate an increased risk of developing lung cancer, a risk that increases with the level and duration of exposure. It is not clear whether lung cancer develops in non-silicotic patients. Several studies of silicotics do not account for lung cancer confounders, especially smoking, which have been shown to increase the risk of developing lung disorders, including emphysema and lung cancer.

In October 1996, an IARC Working Group designated respirable crystalline silica as carcinogenic (Group 1). In 2012, an IARC Working Group re-affirmed that inhalation of crystalline silica was a known human carcinogen. The NTP's Report on Carcinogens, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In the year 2000, the American Conference of Governmental Industrial Hygienists (ACGIH) listed respirable crystalline silica (quartz) as a suspected human carcinogen (A-2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica.

<p><b>Additional information on toxicological-effects:</b>  <b>Acute toxicity:</b> Not classified</p> <p><b>Skin corrosion/irritation:</b> Not classified</p> <p><b>Serious eye damage/eye irritation:</b> Not classified</p> <p><b>Respiratory sensitization:</b> Not classified.</p> <p><b>Skin sensitization:</b> Not classified.</p> <p><b>Germ cell Mutagenicity:</b> Not classified</p> <p><b>Carcinogenicity:</b> May cause cancer (Inhalation).</p> <p><b>Reproductive toxicity:</b> Not classified</p> <p><b>Specific target organ toxicity - single exposure:</b> Not classified</p> <p><b>Specific target organ- toxicity – repeated exposure:</b> Causes damage to organs (lungs, respiratory system) through prolonged or repeated exposure (inhalation)</p> <p><b>Aspiration toxicity:</b> Not classified (not applicable- solid material)</p>
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<b>12. Ecological information</b>
<p><b>Ecotoxicity (aquatic and terrestrial, where available):</b>  Not determined</p> <p><b>Persistence and degradability:</b>  Not determined</p> <p><b>Bioaccumulative potential.</b>  Not determined</p> <p><b>Mobility in soil.</b>  Not determined</p> <p><b>Other adverse effects.</b>  Not determined</p>

<b>13. Disposal considerations</b>
<p><b>Safe handling and disposal of waste:</b>  Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Prevent from entering drainage, sewer systems, and unintended bodies of water. It is the responsibility of the user to determine, at the time of disposal, whether product meets criteria for hazardous waste. Product uses, transformations, mixture and processes, may render the resulting material hazardous.</p>

<b>14. Transport information</b>
<p><b>UN Number:</b>  Not regulated.</p> <p><b>UN Proper shipping name:</b>  Not regulated.</p> <p><b>Transport Hazard class:</b>  Not applicable.</p> <p><b>Packing group, if applicable:</b>  Not applicable.</p>

Marine pollutant (Yes/No):  
Not applicable.

### 15. Regulatory information

**Toxic Substances Control Act (TSCA):**

The components in this product are listed on the TSCA Inventory or are exempt.

**Comprehensive Environmental Response, Compensation and Liability Act (CERCLA):**

Releases of this material to air, land, or water are not reportable to the National Response Center under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) or to state and local emergency planning committees under the Superfund Amendments and Reauthorization Act.

**Superfund Amendments and Reauthorization Act of 1986 (SARA), Title III:**

Section 302 extremely hazardous substances: None

Section 311/312 hazard categories: Delayed Health

Section 313 reportable ingredients at or above de minimus concentrations: None

**California Proposition 65:**

This product contains a chemical (crystalline silica) known to the State of California to cause cancer.

**State Regulatory Lists:**

Each state may promulgate standards more stringent than the federal government. This section cannot encompass an inclusive list or all state regulations. Therefore, the user should review the components listed in Section 2 and consult state or local authorities for specific regulations that apply.

### 16. Other information

Disclaimer

**NO WARRANTY IS MADE, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE.**

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**Issue date:**

06/01/2015

**Revision date:**

06/01/2015

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