

# Safety Data Sheet Limestone

## Section 1. Identification

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

## Section 2. Hazards Identification

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

**Hazard pictograms:**



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

**Precautionary statements:**

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

## Section 3. Composition/information on ingredients

### CAS number/other identifiers

**Substance/mixture:** Limestone, Calcium Carbonate, Quartz

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

Any concentration shown as a range is to protect confidentiality or is due to process variation. There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section. These materials are mined from the earth. Trace amounts of naturally occurring elements might be detected during chemical analysis of these materials.

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

## Section 4. First aid measures

### Description of necessary first aid measures

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

### Most important symptoms/effects, acute and delayed

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

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

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

See toxicological information (Section 11)

## Section 5. Fire-fighting measures

### Extinguishing media

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

## Section 6. Accidental release measures

### Personal precautions, protective equipment and emergency procedures

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

### Methods and materials for containment, cleaning up and Environmental precautions

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

## Section 7. Handling and storage

### Precautions for safe handling

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

## Section 8. Exposure controls/personal protection

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

- **New Brunswick**  
0.025 mg/m<sup>3</sup> 8 hour TWA
- **Newfoundland**  
0.025 mg/m<sup>3</sup> 8 hour TWA
- **Nova Scotia**  
0.025 mg/m<sup>3</sup> 8 hour TWA
- **Ontario (O. Reg 490/09; and O. Reg. 833)**  
0.1 mg/m<sup>3</sup> 8 hour TWA
- **Prince Edward Island**  
0.025 mg/m<sup>3</sup> 8 hour TWA
- **Quebec (Regulation Respecting OHS, Chapter S-2.1, r. 13)**  
0.1 mg/m<sup>3</sup> 8 hour TWA
- **Saskatchewan (OHS Regulations)**  
0.05 mg/m<sup>3</sup> 8 hour TWA

<b>Appropriate engineering controls:</b>	Good general ventilation (typically 10 air changes per hour indoors) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
<b>Exposure guidelines:</b>	OSHA PELs, MSHA PELs, and ACGIH TLVs are 8-hr TWA values. Occupational exposure to nuisance dust (total and respirable) and respirable crystalline silica should be monitored and controlled. Terms including "Particulates Not Otherwise Classified," "Particulates Not Otherwise Regulated," "Particulates Not Otherwise Specified," and "Inert or Nuisance Due" are often used interchangeably; however, the user should review each agency's terminology for differences in meanings.
<b>Biological limit values:</b>	No biological exposure limits noted for the ingredient(s)

## Individual protection measures

<b>Hygiene measures:</b>	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.
<b>Eye/face protection:</b>	Wear safety glasses with side shields (or goggles).
<b>Hand protection:</b>	Use personal protective equipment as required.
<b>Body protection:</b>	Use personal protective equipment as required.
<b>Other skin protection:</b>	Use personal protective equipment as required.
<b>Respiratory protection:</b>	When handling or performing work that produces dust or respirable crystalline silica in excess of applicable exposure limits, wear a NIOSH-approved respirator that is properly fitted and is in good condition. Respirators must be used in accordance with all applicable workplace regulations.
<b>Thermal hazards:</b>	Not anticipated. Wear appropriate thermal protective clothing if necessary.

## Section 9. Physical and chemical properties

### Appearance

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

## Section 10. Stability and reactivity

<b>Reactivity:</b>	The product is stable and non-reactive under normal conditions of use, storage and transport.
<b>Chemical Stability:</b>	Material is stable under normal conditions.
<b>Possibility of hazardous reactions:</b>	No dangerous reaction known under conditions of normal use.
<b>Conditions to avoid:</b>	Avoid contact with strong oxidizing agents.
<b>Incompatible materials:</b>	Crystalline silica may react violently with strong oxidizing agents, causing fire and explosions.
<b>Hazardous decomposition products:</b>	Silica dissolves in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

## Section 11. Toxicological information

### Information on toxicological effects

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

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

#### Specific target organ toxicity (acute exposure)

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

#### Specific target organ toxicity (chronic exposure)

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

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

## Section 12. Ecological Information

### Ecotoxicity

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

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

## Section 13. Disposal considerations

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

## Section 14. Transportation information

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

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

## Section 15. Regulatory Information

<b>U.S. Federal regulations:</b>	
<b>OSHA Hazard Communication Standard, 29 CFR 1910.1200</b>	This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200
<b>TSCA Section 12(b) Export Notification (40 CFR 707, Subpart. D):</b>	Not regulated
<b>OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050):</b>	Listed
<b>CERCLA Hazardous Substance List (40 CFR 302.4):</b>	Not listed
<b>Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs):</b>	Not regulated
<b>Clean Air Act Section 112 (r) Accidental Release Prevention (40 CFR 68.130):</b>	Not regulated
<b>Safe Drinking Water Act (SDWA):</b>	Not regulated
<b>Canada Federal regulations:</b>	
<b>NSNR Status:</b>	Listed on DSL or exempt

## SARA 311/312

**Classification:** Delayed (chronic) health hazard

### Composition/information on ingredients

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

## SARA 313 (TRI)

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

## State regulations

<b>Massachusetts RTK:</b>	The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)
<b>New Jersey RTK:</b>	The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS mixture)
<b>Pennsylvania RTK:</b>	The following components are listed: Crystalline Silica (Quartz) (CAS 14808-60-7), Respirable Tridymite and Cristobalite (other forms of crystalline silica) (CAS Mixture)
<b>Rhode Island RTK:</b>	Not regulated.

## California Prop. 65

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

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

## International regulations

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

**WHMIS Classification:** D2A "Materials Causing Other Toxic Effects"



## Section 16. Other Information

**Date of issue:** 12/01/2022

**Replaces:** 07/01/2018

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

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## Notice to reader

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

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## Abbreviations

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



# SAFETY DATA SHEET



Date Issued : 12/17/2010  
 MSDS No : 207  
 Date Revised : 3/5/2013  
 Revision No : 2

## Cationic Emulsion

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Cationic Emulsion

**PRODUCT CODE:** Cationic Emulsion

**ALTERNATE TRADE NAME(S):** CSS-1H, CRS-2, CQS-1H, CSS-1, CSS-1 Dilute, CSS-1H Dilute, CQS-1hL, CQS-1hP, CSS-1hP, CMS-2P, CRS-2P, CRS-2R, CRS-1L, CRS-2L, CRS-2vhL, CRS-2P Dilute, CRS-1P, CPEM-1, CSS-1hpM, UTFCEM, CSS-1HM, CSEA, CRS-2M, CQS-1H, CRS-1, SAM-CE, PolyFil Emulsion, CMS-2, CMS-2H, CMS-2S, CMS-2W, FastTack Emulsion, E-3, E-3M, BlackMat Emulsion, MicRoad Emulsion, SuperBond-C, E-8CPM, PPSS Emulsion, FiberMat-C Emulsion, NovaChip Emulsion, Nova-P, EcoPrime-C, TuffBond, TuffBond HP, UltraWear EM

**MANUFACTURER**

Terry Asphalt Materials, Inc.  
 8600 Berk Boulevard  
 Hamilton, OH 45015  
**Customer Service:** (513) 874-6192

**24 HR. EMERGENCY TELEPHONE NUMBER**

3E Company: (800) 451-8346

### 2. HAZARDS IDENTIFICATION

**POTENTIAL HEALTH EFFECTS**

**EYES:** Exposure to mists, vapors or fumes may cause irritation. Effects may become more serious with prolonged or repeated exposure. Direct contact may cause eye irritation with tearing, redness and/or a stinging/burning feeling. Direct contact with hot material will cause thermal burns and possible blindness.

**SKIN:** May cause skin irritation with reddening, itching, burning and/or swelling. Contains components that may cause allergic skin reactions in some individuals. Hot asphalt fumes may cause dermatitis and acne-like lesions on prolonged and repeated exposure. Hot material may cause thermal burns.

**INGESTION:** Not a likely route of exposure. Ingestion of hot material will cause thermal burns. Ingestion may cause gastrointestinal disturbances, irritation, nausea, vomiting, blockage and diarrhea.

**INHALATION:** Vapors and gases from heated asphalt are obnoxious and toxic containing some hydrogen sulfide. Inhalation of hot asphalt fumes can produce eye and respiratory tract irritation, headache, nausea and nervousness due to the formation of hydrogen sulfide gas.

**SIGNS AND SYMPTOMS OF OVEREXPOSURE**

**CHRONIC EFFECTS:** Chronic exposure to asphalt fumes may result in renal disease.

**CARCINOGENICITY:** The International Agency for Research on Cancer (IARC) has determined that exposures to bitumens and their emissions are possibly carcinogenic to humans (Group 2B).

**Cationic Emulsion****3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Name	Wt. %	CAS	EINECS
Asphalt Cement	10 - 75	8052-42-4	
Water	25 - 90	7732-18-5	231-791-2
Proprietary Additive	0 - 10		
Proprietary Polymer	0 - 8		
Proprietary Surfactant	0 - 5		
Acid	0 - 5		
Proprietary Diluent	0 - 30		

**COMMENTS:** The composition and percentages listed will vary based on the product type.

**4. FIRST AID MEASURES**

**EYES:** Irrigate exposed eyes with copious amounts of room temperature water for at least 15 minutes. If irritation, pain, swelling, lacrimation or photophobia persist, seek medical attention.

**SKIN:** For hot product, immediately immerse in or flush the affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention. No attempt should be made to remove material from skin or to remove contaminated clothing as the flesh can be easily torn.

**INGESTION:** Do not induce vomiting. Seek medical attention.

**INHALATION:** Move to fresh air. Monitor for respiratory distress. If cough or difficulty breathing develops, evaluate for respiratory tract irritation, bronchitis or pneumonitis and seek medical attention. Administer oxygen and assist ventilation as required.

**5. FIRE FIGHTING MEASURES**

**FLASH POINT AND METHOD:** No Flash-Emulsion

**AUTOIGNITION TEMPERATURE:** Not Determined

**EXTINGUISHING MEDIA:** Dry chemical, carbon dioxide or water fog

**HAZARDOUS COMBUSTION PRODUCTS:** Carbon Monoxide, Carbon Dioxide, Sulfur Dioxide, Hydrogen Sulfide and other decomposition products of hydrocarbons.

**FIRE FIGHTING EQUIPMENT:** NIOSH approved positive-pressure breathing apparatus with full face mask and full protective equipment.

**6. ACCIDENTAL RELEASE MEASURES**

**SMALL SPILL:** Absorb or cover with earth, sand or other inert non-combustible absorbent material. Scrape up and place in containers for proper disposal.

**LARGE SPILL:** For spills on land contain with dikes of earth or sand. Do not allow to enter waterways or sewer. Recover as much material as possible for re-use/reclamation. Scrape up residual material and ensure proper disposal. For spills on water, contain as much as possible with booms and begin recovery as soon as possible.

**7. HANDLING AND STORAGE**

**GENERAL PROCEDURES:** Handle in accordance with good industrial hygiene and safety practices. Ensure adequate ventilation.

## Cationic Emulsion

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

OSHA HAZARDOUS COMPONENTS (29 CFR1910.1200)				
			EXPOSURE LIMITS	
			ACGIH TLV	
Chemical Name			ppm	mg/m <sup>3</sup>
Asphalt Cement	TWA	[1]		0.5 [1]
<b>Footnotes:</b>				
1. Inhalable fraction				

**ENGINEERING CONTROLS:** Use engineering controls to reduce air contamination to permissible exposure limits and/or threshold values.

**PERSONAL PROTECTIVE EQUIPMENT**

**EYES AND FACE:** Safety glasses or goggles

**SKIN:** Use gloves that protect against thermal burns when handling hot material. At a minimum wear long sleeved cotton shirt buttoned at the collar and full length cotton pants. Synthetic fibers can melt and adhere to the skin when heated. Do not fold back or roll up cuffs.

**RESPIRATORY:** With adequate ventilation, a respirator is usually not required. In those cases where exposure exceeds the occupational control limits a NIOSH approved respirator is recommended.

**WORK HYGIENIC PRACTICES:** Hands and/or face should be washed before and after breaks and at the end of each shift. Avoid contact with skin and eyes.

**COMMENTS:** NIOSH recommends the following exposure limit for Asphalt (bitumen) fumes:

15 Minute Ceiling Value: 5 mg/m<sup>3</sup>

Additionally, vapors of hydrogen sulfide may be given off from this product. The Exposure Limits for hydrogen sulfide are listed below.

OSHA PEL: 10 ppm

OSHA STEL: 15 ppm

OSHA Ceiling: 20 ppm

ACGIH TLV-TWA: 10 ppm

ACGIH TLV-STEL: 15 ppm

**Cationic Emulsion****9. PHYSICAL AND CHEMICAL PROPERTIES****PHYSICAL STATE:** Liquid**ODOR:** Asphalt, heavy petroleum residua**APPEARANCE:** Black-brown liquid**COLOR:** Black-brown**pH:** 1 to 6**Notes:** typically**VAPOR PRESSURE:** Negligible @ 77F**VAPOR DENSITY:** No data available**BOILING POINT:** > (212°F)**MELTING POINT:** Not Determined**FLASH POINT AND METHOD:** No Flash-Emulsion**SOLUBILITY IN WATER:** Negligible**EVAPORATION RATE:** No data available**DENSITY:** 7.5-8.7**SPECIFIC GRAVITY:** Not Determined**(VOC):** No data available**10. STABILITY AND REACTIVITY****STABLE:** Yes**STABILITY:** Hydrogen sulfide and other toxic vapors may be given off when heated excessively.**POLYMERIZATION:** Will not occur**CONDITIONS TO AVOID:** Extreme heat and open flame.**INCOMPATIBLE MATERIALS:** None identified**11. TOXICOLOGICAL INFORMATION****EYE EFFECTS:** Exposure to hot asphalt fumes may cause severe irritation of the eyes.**SKIN EFFECTS:** Exposure to hot asphalt fumes may cause skin irritation.**CARCINOGENICITY**

Chemical Name	NTP Status	IARC Status
Asphalt Cement	Not Listed	2B

**REPRODUCTIVE EFFECTS:** No reproductive studies were found for humans or experimental animals.**12. ECOLOGICAL INFORMATION****ENVIRONMENTAL DATA:** No specific data is available relating to transport and distribution among media, environmental transformation and degradation, interaction with physical, chemical, or biological factors and bioconcentration. This product is expected to have a very low rate of biodegradation. Bioaccumulation of components is unlikely due to very low water solubility.**13. DISPOSAL CONSIDERATIONS****DISPOSAL METHOD:** Dispose of in accordance with federal, state and/or local regulations.

## Cationic Emulsion

**14. TRANSPORT INFORMATION**

DOT (DEPARTMENT OF TRANSPORTATION)

OTHER SHIPPING INFORMATION: Not Regulated

**15. REGULATORY INFORMATION**

UNITED STATES

SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)

ACUTE: Yes CHRONIC: Yes

**313 REPORTABLE INGREDIENTS:** May contain hydrochloric acid (CAS 7647-01-0 at 0-5%) which is reportable in the following forms: acid aerosols including mists, vapors, gas, fog, and other airborne forms of any particle size. This product may contain listed Section 313 chemicals below the supplier notification requirements. It is up to each facility to determine compliance with Form R Reporting regulations.

**302/304 EMERGENCY PLANNING**

**EMERGENCY PLAN:** This product does not contain any listed 302 chemicals above reportable thresholds.

**CALIFORNIA PROPOSITION 65:**

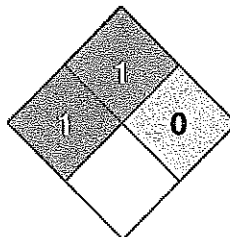
THIS PRODUCT CONTAINS A CHEMICAL(S) KNOWN TO THE STATE OF CALIFORNIA TO CAUSE CANCER AND BIRTH DEFECTS OR OTHER REPRODUCTIVE HARM.

**16. OTHER INFORMATION**

**REVISION SUMMARY:** This MSDS replaces the 1/18/2013 MSDS. Revised: **Section 1:** 24 HR. EMERGENCY TELEPHONE NUMBER.

**HMIS RATING**

HEALTH	<input type="checkbox"/>	1
FLAMMABILITY	<input type="checkbox"/>	1
PHYSICAL HAZARD	<input type="checkbox"/>	0
PERSONAL PROTECTION	<input type="checkbox"/>	

**NFPA CODES****MANUFACTURER DISCLAIMER:**

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