

Crushed Concrete

SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: Crushed Concrete		Formula: Mixture
Synonyms/Common Names: Recycled Hardened Concrete, Recycled Crushed Concrete		
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, 24 hours/day, 7 days/week)

SECTION 2. COMPOSITION INFORMATION ON INGREDIENTS

Hazardous Components	CAS No.	% by Weight
Aggregate (limestone, granite, sand and gravel, etc.)* *Composition varies naturally-typically contains quartz (crystalline silica)	Mixture 14808-60-7	60-95 >1
Fly Ash	68131-74-8	0 - 11
Hydrated Portland Cement	65997-15-1	3-40

SECTION 3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING

Dust irritates the eyes, skin and respiratory tract. Wet material may be slightly caustic and cause irritation or injury. Avoid breathing excessive dust. Breathing silica-containing dust for prolonged periods in the workplace can cause lung damage and a lung disease called silicosis. Several scientific organizations have classified crystalline silica as causing lung cancer in humans. Silicosis or lung cancer can result in permanent injury or death.

POTENTIAL HEALTH EFFECTS

Primary Routes of Exposure:

Eyes, skin, inhalation

Eye Contact:

Dust particles can scratch the eye causing tearing, redness, a stinging or burning feeling, or swelling of the eyes with blurred vision. Wet material may be slightly caustic and cause irritation or injury. Effects may become more serious with repeated or prolonged contact.

Skin Contact:

Dust particles can scratch and irritate the skin with redness, an itching or burning feeling, swelling of the skin, and/or rash. Wet material may be slightly caustic and cause irritation, and may cause contact dermatitis, with symptoms that may include (but are not limited to) reddening, irritation and rash. Effects may become more serious with repeated or prolonged contact.

Skin Absorption:

Not expected to be a significant exposure route following short-term exposure.

Inhalation:

Dusts from hardened product may irritate the mouth, nose, throat and lungs. Coughing sneezing and shortness of breath may occur.

Ingestion:

Wet material is slightly caustic and causes tissue irritation. Ingestion of large amounts may cause gastrointestinal irritation including nausea, vomiting and diarrhea and blockage.

Effects Following Prolonged or Repeated Exposure:

If product is subjected to mechanical forces (such as demolition work) which generates dust particles, exposure to respirable crystalline silica-containing dust is possible. Exposure to high levels of respirable crystalline silica is associated with silicosis, lung cancer, and autoimmune disorders. For additional information, see Section 11.

POTENTIAL HEALTH EFFECTS

Carcinogenicity:

Crystalline silica has been listed as a carcinogen by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP), and/or the Occupational Safety and Health Administration (OSHA). For additional information, see Section 11.

Signs and Symptoms of Exposure:

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.

Medical Conditions Aggravated by Exposure:

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.

SECTION 4. FIRST AID MEASURES

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 the eye(s). Get immediate medical attention.

Skin:

Wash affected areas thoroughly with mild soap and fresh water. Remove and wash contaminated clothing. Contact a physician if irritation persists or later develops. Burns should be treated as caustic burns.

Inhalation:

For dried product dust inhalation, remove person to fresh air. Dust in throat and nasal passages should clear spontaneous. Contact a physician if irritation persists or later develops.

Ingestion:

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

Notes to Physician:

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).

SECTION 5. FIREFIGHTING MEASURES

Flash Point (Method Used):

Not applicable

Flammable Limits:

LEL: Not applicable

UEL: Not applicable

Autoignition Temperature:

Not applicable

Extinguishing Media:

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

Special Firefighting Procedures:

None

Unusual Fire and Explosion Hazards:

Contact (dust) with powerful oxidizing agents may cause fire and/or explosions (see Section 10 of MSDS).

SECTION 6. ACCIDENTAL RELEASE MEASURES

Precautions if Material is Spilled or Released:

Persons involved in cleanup processes should first observe precautions (as appropriate) identified in Section 8 of this MSDS. 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. Prevent spilled materials from entering streams, drains, or sewers.

For emergencies, contact 3E Company at 1-866-401-5424 (24 hours/day, 7 days/week).

Waste Disposal Methods:

Crushed concrete can be disposed of as common waste. Dispose of waste materials in accordance with applicable federal, state and local laws and regulations.

Environmental Precautions:

Not applicable

SECTION 7. HANDLING AND STORAGE

Storage:

Do not store near food and beverages or smoking materials.

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.

MANUFACTURED SAND MADE FROM THIS PRODUCT MUST NOT BE USED AS AN ABRASIVE BLASTING AGENT.

SECTION 8. EXPOSURE CONTROLS AND 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
Limestone (Calcium Carbonate)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)	10 mg/m ³ (total dust as calcium carbonate)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)
Particulates not otherwise classified	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)	10 mg/m ³ (inhalable fraction) 3 mg/m ³ (respirable fraction)	NE
Respirable dust containing silica	10 mg/m ³ ÷ (% silica + 2)	Use Respirable Silica TLV	Use Respirable Silica REL
Total dust containing silica	OSHA: 30 mg/m ³ ÷ (% silica + 2) MSHA: 30 mg/m ³ ÷ (% silica + 3)	NE	NE
Respirable Crystalline Silica (quartz)	NE - Use respirable dust PEL	0.025 mg/m ³	0.05 mg/m ³
Respirable Tridymite and Cristobalite (other forms of crystalline silica)	1/2 of OSHA and MSHA respirable dust PEL	0.025 mg/m ³	0.05 mg/m ³
Portland Cement	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)	10 mg/m ³	10 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)

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/m³, 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/m³ 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.

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.

Other:

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.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not applicable	pH: Not applicable	Specific Gravity (H₂O = 1): 1.7 - 3.0
Evaporation Rate (Butyl Acetate = 1): Not applicable	Melting Point: Not applicable	Vapor Pressure (mm Hg.): Not applicable
Solubility in Water: Negligible	Vapor Density (Air = 1): Not applicable	% Volatile: 0%
Appearance and Odor: Gray, solid mixture. Faint odor.		

SECTION 10. STABILITY AND REACTIVITY

Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

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

Incompatibility (Materials to Avoid):

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 or Byproducts:

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 and are considered more fibrogenic to the lungs than quartz.

Hazardous Polymerization:

Not known to occur.

SECTION 11. TOXICOLOGICAL INFORMATION**Acute Effects:**

No specific data on product. Portland cement dust severely irritates the tissues contacted primarily because of its alkalinity.

Effects Following Prolonged or Repeated 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. 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:

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, 9th edition, lists respirable crystalline silica as a "known human carcinogen." In 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.

SECTION 12. ECOLOGICAL INFORMATION**Aquatic Ecotoxicological Data:**

No specific data on this product. Not expected to be toxic to aquatic organisms.

Environmental Fate Data:

No specific data on this product.

Other:

No specific data on this product.

SECTION 13. DISPOSAL CONSIDERATIONS

Place contaminated materials in appropriate containers and dispose of in a manner consistent with applicable federal, state, and local regulations. Do not dump on the ground unless allowed by local regulatory officials. 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.

SECTION 14. TRANSPORT INFORMATION [Note: Not intended to be all-inclusive.]	
DOT Proper Shipping Name: Not regulated.	DOT Hazard Classification: Not applicable.
UN/NA Number: Not applicable.	DOT Packing Group: Not applicable.
Labeling Requirements: Not applicable. Label as required by the OSHA Hazard Communication standard [29 CFR 1910.1200(f)] and applicable state and local regulations.	

SECTION 15. REGULATORY INFORMATION [Note: Not intended to be all-inclusive.]
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: <u>Section 302 extremely hazardous substances:</u> None <u>Section 311/312 hazard categories:</u> Acute Health Delayed Health <u>Section 313 reportable ingredients at or above de minimus concentrations:</u> None
California Proposition 65: This product contains or may contain a chemical (crystalline silica, chromium) 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.

SECTION 16. OTHER INFORMATION
<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.

Vulcan Materials Company and its subsidiaries and affiliates
1200 Urban Center Drive
Birmingham, AL 35242

MSDS 3239-042



Dear Customer/Contractor:

Please find attached a material safety data sheet (MSDS) for the product that you purchased from Vulcan Materials Company or one of its subsidiaries or affiliates ("Vulcan"). This is a revised MSDS and replaces any previous versions of the MSDS for this product. This MSDS 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 MSDS 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 MSDS, 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 MSDS or a Spanish language version, you can obtain them at www.vulcanmaterials.com or by calling 1-866-401-5424.

La MSDS puede obtenerse en www.vulcanmaterials.com o llamando al 1-866-401-5424.

Sincerely,

A handwritten signature in black ink, appearing to read "Chad E. McDougal".

Chad E. McDougal, CIH, CSP

Manager, Occupational Health