MATERIAL SAFETY DATA SHEET

Effective Date: 10-10-11

1 - IDENTIFICATION

CHEMICAL NAME	CHEMICAL FORMULA	MOLECULAR WEIGHT
Crushed concrete	Not applicable	Not applicable

TRADE NAME
Crushed concrete

SYNONYMS
Crushed concrete, Recycled concrete, Crushed concrete base course, Recycled concrete pavement, Recycled concrete base course, Reclaimed concrete material

DOT IDENTIFICATION NO.
NONE

2 - PRODUCTION AND COMPONENT DATA

COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO.	% (Approx.)	EXPOSURE LIMITS
Aggregate (granite, limestone, sand and gravel, etc.)* *Composition varies naturally-typically contains quartz (crystalline silica)	Mixture 14808-60-7	60-95%	See Section 6
Fly Ash	68131-74-8	0-11	
Hydrated Portland Cement	65997-15-1	3-40	
Calcium Hydroxide	1305-62-0	15-25	
Particulates Not Otherwise Regulated	NA	-	

3 - PHYSICAL DATA

APPEARANCE AND ODOR Generally grey, solid mixture. Faint odor.	SPECIFIC GRAVITY 1.7 – 3.0
BOILING POINT (At 1 Atm): Not applicable	VAPOR DENSITY IN AIR (Air = 1) Not applicable
VAPOR PRESSURE (mm Hg @ 20°C) Not Applicable	% VOLATILE, BY VOLUME Not Applicable
EVAPORATION RATE (at 1 Atm, and 25°C; n-butyl acetate = 1): Not Applicable	SOLUBILITY IN WATER Negligible

4 - REACTIVITY DATA

STABILITY Stable under normal temperatures and pressures	CONDITIONS TO AVOID Avoid contact with incompatible materials (see below).

INCOMPATIBILITY (Materials to avoid)
Strong acids. Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosions. Silica dissolves in hydrofluoric acid producing a corrosive gas - silicon tetrafluoride.

HAZARDOUS DECOMPOSITION PRODUCTS None known.

HAZARDOUS POLYMERIZATION
Not known to polymerize

5 - FIRE AND EXPLOSION HAZARD DATA

FLASHPOINT (Method used) Not flammable	FLAMMABLE LIMITS IN AIR Not flammable

EXTINGUISHING AGENTS
None required

UNUSUAL FIRE AND EXPLOSION HAZARDS
Contact with powerful oxidizing agents may cause fire and/or explosions (see Section 4 of this MSDS).

6 - TOXICITY AND FIRST AID

EXPOSURE LIMITS (When exposure to this product and other chemicals is concurrent, the exposure limit must be defined in the workplace). Unless specified otherwise, limits are expressed as eight-hour-time-weighted averages (TWA).
ABBREVIATIONS: TLV = threshold limit value of the American Conference of Governmental Industrial Hygienists (ACGIH); MSHA PEL = permissible exposure limit of the Mine Safety and Health Administration (MSHA); OSHA PEL = permissible exposure limit of the Occupational Safety and Health Administration (OSHA); mg/m^3 = milligrams of substance per cubic meter of air.

Respirable Dust: MSHA and OSHA PEL = $(10\ mg/m^3) \div (\%SiO_2 + 2)$
Total Dust: MSHA PEL = $(30\ mg/m^3) \div (\%SiO_2 + 3)$; OSHA PEL = $(30\ mg/m^3) \div (\%SiO_2 + 2)$)
Particulates Not Otherwise Regulated: TLV = 10 mg/m^3 (inhalable/total particulate), TLV = 3 mg/m^3 (respirable particulate)
Respirable Crystalline Silica (quartz): TLV = 0.025 mg/m^3
Portland Cement: TLV = 10 mg/m^3
Calcium Hydroxide: TLV = 5 mg/m^3

ACGIH, MSHA, and OSHA have determined that adverse effects are not likely to occur in the workplace provided exposure levels do not exceed the appropriate TLVs/PELs. However, because of the wide variation in individual susceptibility, lower exposure limits may be appropriate for some individuals including persons with pre-existing medical conditions such as those descried below

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) and/or dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions.

PRIMARY ROUTE(S) OF EXPOSURE: X Eyes X Skin Ingestion X Inhalation

ACUTE TOXICITY:
EYE CONTACT: Direct contact with dust may cause immediate or delayed irritation or inflammation due to alkalinity of material. Contact with large amounts of concrete dust may cause moderate eye irritation due to mechanical abrasion
SKIN CONTACT: Concrete dust may cause dry skin, discomfort, irritation and dermatitis. Skin affected by dermatitis may include symptoms such as redness, itching, rash, scaling, and cracking.
INGESTION: Expected to be practically non-toxic. Ingestion of large amounts may cause gastrointestinal irritation and blockage.
INHALATION: Dusts may irritate the nose, throat, and respiratory tract by mechanical abrasion or due to alkalinity of material. Coughing, sneezing, and shortness of breath may occur following exposures in excess of appropriate exposure limits.

Use of crushed concrete for construction purposes is not believed to cause additional acute toxic effects. However, repeated overexposures to very high levels of respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as six months have caused 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.

FIRST AID
EYES: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while hold the eyelid(s) open. Occasionally life the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or later develops.
SKIN: Wash with soap and water. Contact a physician if irritation persists or later develops.
INGESTION: If person is conscious, give large quantity of water and induce vomiting; however, never attempt to make an unconscious person drink or vomit. Get immediate medical attention.

FIRST AID (cont'd)

INHALATION: Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a

physician if irritation persists or later develops.

CHRONIC TOXICITY
Prolonged and repeated inhalation of respirable crystalline silica-containing dust in excess of appropriate limits has caused silicosis, a lung disease. Not all individuals with silicosis 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. Smoking may increase the risk of developing lung disorders, including emphysema and lung cancer. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

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 adverse health effects involving the kidney, scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations or those who have already developed silicosis; and therefore, this evidence does not conclusively prove a causal relationship between silica or silicosis and these adverse health effects. Several studies of persons with silicosis also indicate an increased risk of developing lung cancer, a risk that increases with the duration of exposure. Many of these studies of silicotics do not account for lung cancer confounders, especially smoking.

Crushed concrete is not listed as a carcinogen by the International Agency for Research on Cancer (IRAC), the National Toxicology Program (NTP), or the Occupational Safety and Health Administration (OSHA). In October 1996, an IARC Working Group re-assessing crystalline silica, a component of this product, designated crystalline silica as carcinogenic (Group 1). The NTP indicates that crystalline silica is reasonable anticipated to be a carcinogen (Group 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.

7 - PERSONAL PROTECTION AND CONTROLS

RESPIRATORY PROTECTION
The need for respiratory protection should be evaluated by a qualified safety and health professional. When exposures exceed applicable limits, respiratory protection is required. Respirators used must be NIOSH-approved for the exposure(s) present. Respirator use must comply with applicable OSHA or MSHA regulations.

VENTILATION
Local exhaust or general ventilation adequate to maintain exposures below appropriate exposure limits.

SKIN PROTECTION
See Hygiene section below.

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.

HYGIENE
Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

OTHER CONTROL MEASURES
When necessary, respirable dust and quartz levels should be monitored regularly. Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) wet suppression, ventilation, process enclosure, and enclosed employee workstations.

8- STORAGE AND HANDLING PRECAUTIONS

Follow the personal protection and controls set forth in Section 7 of this MSDS when handling this product. Respirable crystalline silica-containing dust may be generated during processing, handling and storage.

Do not store near food and beverages or smoking materials.

9 - SPILL, LEAK, AND DISPOSAL PRACTICES

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED
The personal protection and controls identified in Section 7 of this MSDS should be applied as appropriate.

Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable crystalline silica-containing dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled material.

This product is not subject to the reporting requirements of Title III of SARA, 1986 and 40 CFR 372.

WASTE DISPOSAL METHOD
Pickup and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

10 - TRANSPORTATION

DOT HAZARD CLASSIFICATION
None

PLACARD REQUIRED
None

LABEL REQUIRED
Label as required by the OSHA Hazard Communication standard [29 CFR 110.1200 (f)] and applicable state and local laws and regulations.

For Further Information

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<u>Notice:</u> Luck Stone Corporation believes that the information contained on this Material Safety Data Sheet is accurate. The suggested procedures are based on experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance. Also, the suggestions should not be confused with or followed in violation of applicable laws, regulation, rules, or insurance requirements.

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