

MATERIAL SAFETY DATA SHEET

for
Ready-Mix Concrete



Effective Date: August 2001
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1. PRODUCT/COMPANY IDENTIFICATION

Manufacturer's Name & Address:

Titan Virginia Ready-Mix LLC
6071 Catawba Road
Troutville, VA 24175

Trade Name:

Ready-Mix Concrete

Department of Transportation Identification No.:

None

Telephone Number for Information:

1.800.468.7622

Emergency Telephone:

1.800.965.9896

2. COMPOSITION INFORMATION

MAJOR COMPOUNDS

<u>Chemical Name</u>	<u>CAS Registry Number</u>	<u>% in this cement product</u>
Aggregate*	Mixture	60-100
*Composition varies naturally, typically contains:		
Limestone (Calcium Carbonate)	1317-65-3	0-100
Crystalline Silica	14808-60-7	> 1
Portland Cement	65997-15-1	3-40

3. PHYSICAL/CHEMICAL CHARACTERISTICS

Boiling Point	N/A
Specific Gravity (H ₂ O = 1)	2.6-2.75
Vapor Pressure (mm Hg)	N/A
Melting Point	N/A
Vapor Density (AIR-1)	N/A
Evaporation Rate	N/A
Solubility in Water	Not soluble

Appearance & Odor: Crystalline silica is angular grey, white and tan particles ranging in size from powder to boulders; no odor. Concrete is a hard grey mass; no odor (plastic as delivered.)

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4. FIRE AND EXPLOSION HAZARD DATA

Flash Point	N/A
Extinguishing Media	N/A
Special Fire Fighting Procedures	None
Unusual Fire & Explosion Hazards:	Contact with powerful oxidizing agents may cause fire and/or explosions (see Section V of this MSDS).
Flammable Limits	N/A
LEL	N/A
UEL	N/A

5. REACTIVITY DATA

Stability:	Stable. Avoid contact with incompatible materials
Incompatibility:	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 or Byproducts:	Respirable dust particles may be generated when ready-mix concrete is sawed or ground.
Hazardous Polymerization:	Will not occur. No conditions to avoid..

6. HEALTH HAZARD DATA AND FIRST AID

EXPOSURE LIMITS:

Unless specified otherwise, limits are expressed as a time-weighted average (TWA) concentration for an 8-hour work shift of a 40-hour workweek. Limits for cristobalite and tridymite (other forms of crystalline silica) are equal to one-half the limits for quartz.

ABBREVIATIONS:

ACGIH TLV: Threshold limit value of the American Conference of Governmental Industrial Hygienists (ACGIH), expressed as a time weighted average (TWA) concentration for an 8-hour work-day and a 40-hour workweek.

mg/m³: Milligrams of substance per cubic meter of air.

NIOSH REL: Recommended exposure limit of the National Institute for Occupational Safety and Health (NIOSH), expressed as a TWA concentration for up to a 10-hour work-day during a 40-hour workweek.

OSHA PEL: Permissible exposure limit of the federal Occupational Safety and Health Administration (OSHA), expressed as a time weighted average (TWA) concentration for an 8-hour work-day and a 40-hour workweek.

Calcium Carbonate: OSHA PELs (respirable fraction) 5 mg/m³, (total dust) 15 mg/m³; ACGIH TLV 10 mg/m³; NIOSH REL (respirable) 5 mg/m³, (total) 10 mg/m³.

Crystalline Silica SiO₂: OSHA PELs (respirable fraction) $[10 \text{ mg/m}^3 \div (\% \text{ SiO}_2 + 2)]$, (total dust) $[30 \text{ mg/m}^3 \div (\% \text{ SiO}_2 + 2)]$; ACGIH TLV (respirable fraction) 0.05 mg/m³; NIOSH REL (respirable fraction) 0.05 mg/m³.

Portland Cement: OSHA PEL (respirable) 5 mg/m³, (total dust) 15 mg/m³; ACGIH TLV 10 mg/m³; NIOSH REL (respirable) 5 mg/m³, (total) 10 mg/m³.

Other Particulates: OSHA PEL (total particulate, not otherwise regulated) 15 mg/m³, (respirable particulate, not otherwise regulated) 5 mg/m³; ACGIH TLV (nuisance particulates) 10 mg/m³ (inhalable); 5 mg/m³(respirable).

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HEALTH HAZARDS:

Primary Route(s) of Entry:

Inhalation: Yes

Skin: Yes

Ingestion: No

Acute:

Eye Contact: Direct contact with dust may cause irritation by mechanical abrasion.

Skin Contact: Wet concrete in plastic state can dry the skin and cause alkali irritation. Direct contact in dry state may cause irritation by mechanical abrasion.

Skin Absorption: Not expected to be a significant exposure route.

Ingestion: Ingestion of large amounts may cause gastrointestinal irritation and blockage.

Inhalation: Dusts may irritate the nose, throat, and respiratory tract by mechanical abrasion. Coughing, sneezing, and shortness of breath may occur following exposures in excess of appropriate exposure limits.

Chronic:

Inhalation: Chronic exposure to respirable dust in excess of appropriate exposure limits may cause lung disease. Silicosis may result from excessive exposure to respirable silica dust for prolonged periods. Not all individuals with silicosis will exhibit symptoms. Silicosis is progressive and symptoms can appear at any time, even after exposure has ceased. Symptoms may include shortness of breath, coughing, or right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection. Tobacco smoking may increase the risk of developing lung disorders, including emphysema and lung cancer.

Carcinogenicity: ready-mix concrete is not listed as a carcinogen by the National Toxicology Program (NTP) or the International Agency for Research on Cancer (IARC). However, crystalline silica is classified by the IARC as a carcinogenic to humans (Group 1). The NTP has characterized respirable silica as "known to be a human carcinogen". Prolonged and repeated breathing of silica may cause lung cancer.

Signs & Symptoms

of Exposure: Red skin; dust irritation of eyes, skin and/or respiratory system.

Medical Conditions

**Generally
Aggravated**

by Exposure: Inhaling respirable dust may aggravate existing respiratory system disease(s) and/or dysfunctions such as emphysema or asthma. Exposure may aggravate existing skin and/or eye conditions.

EMERGENCY & FIRST AID PROCEDURES:

Eyes: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or later develops.

Skin: Wash skin 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.

Inhalation: Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or later develops.

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7. PERSONAL PROTECTION AND CONTROL MEASURES

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

Other: Respirable dust and silica levels should be monitored regularly. Dust and silica 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 work stations.

Respiratory

Protection: When dust or silica levels exceed or are likely to exceed appropriate exposure limits, follow MSHA or OSHA regulations, as appropriate, for use of NIOSH-approved respiratory protection equipment.

Skin Protection: Protective gloves, shoes and protective clothing should be worn to avoid contact with skin.

Eye Protection: Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessive (visible) dust conditions are present or anticipated. Contact lenses should not be worn when working with this product.

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

8. STORAGE AND HANDLING PRECAUTIONS

Respirable silica and dust may be generated during processing, handling, and storage. The personal protection and controls identified in Section VII of the MSDS should be applied as appropriate.

Do not store or handle near food and beverages or smoking materials.

9. SPILL, LEAK AND DISPOSAL PRACTICES

The personal protection and controls identified in Section VII of the MSDS should be applied as appropriate.

Steps to Be Taken if Material Is Released or Spilled: Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable silica and dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled material. Flush away with water or break up into manageable sized units.

Waste Disposal Method: Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

Precautions to Be Taken in Handling and Storing: Prolonged exposure of skin to wet concrete should be avoided.

Other Precautions: Ventilation and respiratory protection should be used when removing or modifying hardened concrete.

NOTICE: Based on research of available data, Titan Virginia Ready-Mix LLC believes that the information contained in this Material Safety Data Sheet is accurate. The suggested procedures are based on data and experience as of the date of preparation of the MSDS. The suggestions should not be confused with nor followed in violation of applicable laws, regulations, rules or insurance requirements. Titan Virginia Ready-Mix LLC's voluntary preparation of this MSDS should not be construed, in any way, as an agreement to be subject to MSHA/OSHA jurisdiction, as applicable.