

TCC Materials
2025 Centre Point Boulevard, Suite 300
Mendota Heights, MN 55120-1221

Emergency Telephone Number:
651-688-9116
Information Telephone Number
651-905-8137

Revision Date
Oct. 2015

Section 1: Product Identification

Product Type: Cement

TCC Product Name:
Portland Cement (Type I – II – III)

Section 2: Hazard Identification

Used as a binder in combination with water and aggregates to form concrete. Also used as a component of masonry and other building and construction materials.

Classification

Skin Corrosion 1B

Eye Danger 1

Skin Sensitizer 1B

Specific Target Organ Toxicity: Single exposure (Lungs) 3

GHS LABEL ELEMENTS

Symbol(s)



Signal Word

DANGER

Hazard Statement(s)

Causes severe skin burns and eye damage

May cause an allergic reaction

May cause respiratory irritation

Precautionary Statement(s)

Prevention

Do not breathe dust. Wash thoroughly after handling. Wear protective gloves/clothing and eye/face protection. Do not handle until all safety precautions have been read and understood.

Response

IF INHALED: Remove person to fresh air and keep comfortable for breathing.

Immediately call a poison center/doctor.

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a doctor.

IF ON SKIN: Take off immediately all contaminated clothing. Rinse skin with water.

Wash contaminated clothing before reuse.

IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Immediately call a poison center/doctor.

Storage

Store locked up.

Disposal

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

Other Hazards

Exposure may aggravate those with pre-existing eye, skin, or respiratory conditions or illness.

Section 3: Hazardous Ingredients/Composition

Component	Percent %	CAS
Portland Cement	100	65997-15-1
Tricalcium silicate	20-70	12168-85-3
Dicalcium silicate	10-60	10034-77-2
Tetracalcium aluminoferrite	5-15	12068-35-8
Gypsum (Calcium Sulfate)	2-10	13397-24-5
Tri-calcium Aluminate	1-15	12042-78-3
Limestone (Calcium Carbonate)	0-20	1317-65-3
Magnesium oxide	<1-4	1309-48-4
Nuisance Dusts	<1-5	None
Crystalline Silica (Quartz)	< 0-1	14808-60-7

Other Components

Cement is made from materials mined from the earth and processed using energy provided by fuels. Additional materials, such as fly ash, kiln dust and slag may also be introduced into the cement manufacturing process. A chemical analysis of cement may reveal trace amounts of naturally occurring but potentially harmful chemical compounds such as free crystalline silica, organic compounds, potassium and sodium components,

heavy metals including cadmium, chromium (including hexavalent chromium), nickel and lead. Other trace constituents may include calcium oxide (also known as free lime or quick lime) and organic compounds from grinding aids such as amine acetate salts, glycols and 1,2-ethanediol.

Section 4: First Aid Measures

Description of First Aid Measures

Inhalation:

Remove person to fresh air and keep comfortable for breathing. If coughing persists, obtain medical attention.

Eye contact:

Rinse eyes under lids cautiously with clean water for at least 15 minutes. Remove contact lenses, if present and easy to do so. Continue rinsing. Get immediate medical advice/attention.

Skin Contact:

Remove contaminated clothing. Remove dry material from skin, but avoid creating dust. Wash with plenty of water. If skin irritation occurs, get immediate medical advice/attention.

Ingestion:

Do not induce vomiting. If subject is conscious, rinse the mouth with water to remove any material and drink plenty of water to dilute any swallowed material. DO not give drink or attempt to force water to an unconscious person. Get medical advice/attention.

Most Important Symptoms/Effects (Acute and Delayed)

Inhalation:

May irritate nose and throat if dust is inhaled. Prolonged or repeated inhalation of respirable dust may lead to respiratory track or lung damage.

Eye contact:

Causes serious eye irritation and may scratch eye surface due to particle abrasion. May cause chemical burns resulting in corneal damage.

Skin Contact:

Causes skin irritation if exposed to moisture on skin relating in redness, dryness and itching. Extended exposure to wet materials will result in chemical burns to skin, possibly severe.

Ingestion:

May cause irritation and burns to mouth, throat, stomach and digestive tract if swallowed.

Recommendations for Immediate Medical Care or Special Treatment

Seek immediate medical attention for inhalation of large quantities of dust or exposure of wet material over large areas of skin.

Seek immediate medical attention if material comes into contact with eyes and cannot be immediately removed.

Section 5: Fire Fighting Measures

General File Hazards	None. Material is not considered flammable or combustible.
Extinguishing Media	Use water or water spray to extinguish any fires involving this material.
Extinguishing Media to Avoid	None
Hazards of Combustion	None
Fire Fighting Recommendations	Firefighters should always wear full protective gear to fight any fire.

Refer to Section 9 for flammability information.

Section 6: Accidental Release Measures

Personal Precautions, Protective Equipment and Emergency Procedures

Avoid creating dust. Prevent material from entering sewers, drains, ditches or waterways. Wear respiratory protection and protective eyewear clothing to avoid eye or skin contact. Ventilate area and avoid creating dust. Remove unnecessary persons from the area.

Methods and Materials for Containment and Cleaning Up

Scoop or vacuum up spilled material while avoiding dust creation. Scoop up wet material and place in approved container. Allow wet materials to harden before disposal.

Section 7: Handling and Storage

Precautions for Safe Handling

Avoid contact with skin or eyes. Avoid breathing dust. Use only in well-ventilated areas. Wear appropriate personal protective equipment to prevent skin or eye contact and use respiratory protection equipment if dusty or in poor ventilated areas.

Conditions for Safe Storage, including any Incompatibilities

Store in well-ventilated areas away from moisture and incompatible materials. If stored in containers, keep containers closed when not in use.

Incompatible Materials

Water/moisture exposure will cause material to generate heat. Keep away from fluoride compounds, strong acids, alkalines, and oxidizers. Cement dissolves in hydrofluoric

acid, producing corrosive silicone tetrafluoride gas.

Section 8: Exposure Controls/Personal Protection

Occupational Exposure Limits for Individual Components:

(T=Total Respirable [PNOC/PNOR], R=Respirable fraction, I=Inhalable-aerosol)

COMPONENT	OSHA PEL	ACGIH TWA	NIOSH REL
Portland cement	15 mg/m ³ (T) 5 mg/m ³ (R)	1 mg/m ³ (R)	10 mg/m ³ (T) 5 mg/m ³ (R)
Tricalcium silicate	15 mg/m ³ (T) 5 mg/m ³ (R)	Not listed	10 mg/m ³ (T) 5 mg/m ³ (R)
Dicalcium silicate	15 mg/m ³ (T) 5 mg/m ³ (R)	Not listed	10 mg/m ³ (T) 5 mg/m ³ (R)
Tetracalcium aluminoferrite	15 mg/m ³ (T) 5 mg/m ³ (R)	Not listed	10 mg/m ³ (T) 5 mg/m ³ (R)
Gypsum (Calcium Sulfate)	15 mg/m ³ (T) 5 mg/m ³ (R)	10 mg/m ³	10 mg/m ³ (T) 5 mg/m ³ (R)
Tri-calcium Aluminate	15 mg/m ³ (T) 5 mg/m ³ (R)	Not listed	10 mg/m ³ (T) 5 mg/m ³ (R)
Limestone (Calcium Carbonate)	15 mg/m ³ (T) 5 mg/m ³ (R)	10 mg/m ³	10 mg/m ³ (T) 5 mg/m ³ (R)
Magnesium oxide	15 mg/m ³	10 mg/m ³	Not established
Nuisance Dusts (PNOR)	15 mg/m ³ (T) 5 mg/m ³ (R)	10 mg/m ³	Not established
Crystalline Silica (Quartz)	10 mg/m ³ (T) /(%SiO ₂ + 2) 30 mg/m ³ (R) /(%SiO ₂ + 2)	0.025 mg/m ³ (R)	0.05 mg/m ³ (R)

Appropriate Engineering Controls:

Use outdoor in well-ventilated areas; otherwise employ natural or mechanical ventilation to maintain exposure within applicable limits.

Personal protective equipment

Face and eyes: safety glasses with side shields or protective goggles should be worn while using this product. For extremely dusty conditions, non-vented goggles or goggles with indirect venting are recommended. Avoid contact lens wear when using this product.

Body: Long sleeved shirts and trousers should be worn while using this material. Wear water-proof boots. If working in dusty conditions, impervious over garments are recommended.

Respiratory: If exposure levels cannot be maintained below an acceptable limits, suitable particulate-filtering facemasks or respirators approved by MSHA/NIOSH should be worn in accordance with the user's respiratory protection program and OSHA/MSHA guidelines.

Hands: Protective gloves with wrist/arm cutoffs should be worn to avoid direct contact with skin.

Section 9: Physical and Chemical Properties

Physical State:	Solid, powder
Appearance & Color:	Grey/off-white powder
Odor:	No characteristic odor
pH:	> 12 (in water)
Boiling Point:	Not Determined
Water Solubility:	Slight (<5%)
Evaporation Rate:	Not Applicable
Melting Point:	Not Determined
Vapor Density (air = 1):	Not Applicable
Vapor Pressure:	Not Applicable
Specific Gravity (water = 1):	3.1-3.2
Flash Point /Method:	None, Non-Flammable
Auto Ignition Temperature:	Not Determined
Lower Flammability Limit:	Not Applicable
Upper Flammability Limit:	Not Applicable
Octanol/H₂O Coefficient:	Not Determined
Viscosity:	Not Available
Freezing Point:	Solid at Room Temperature
Explosion Risk: Static:	Not Considered a Hazard
Explosion Risk: Shock:	Not Considered a Hazard

Section 10: Stability and Reactivity

Reactivity:	Reacts with water forming heat and calcium hydroxide.
Chemical Stability:	Stable at normal temperatures and pressure.
Possibility of Hazardous Reactions:	None. Hazardous polymerization will not occur.
Conditions to Avoid:	Moisture or wetting will cause exothermic heating as product cures.
Incompatible Materials:	Avoid contact with strong acids, oxidizers, aluminum and aluminum salts.
Hazardous Decomposition:	Reacts with water to form calcium hydroxide which can

irritate/damage skin. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas.

Section 11: Toxicological Information

Acute and Chronic Toxicity	Not classified.
LD50/LC50	Not classified.
Skin Corrosion/Irritation	Causes irritation or chemical burns if exposed to moisture on skin.
Critical Eye Damage/Irritation	Causes serious eye injury due to chemical burns or mechanical irritation.
Respiratory or Skin Sensitization	Not reported /no data available.
Germ cell Mutagenicity	Not reported /no data available.
Teratogenicity	Not reported /no data available.
Carcinogenicity	Material contains trace amounts of crystalline silica, which may cause lung cancer through repeated or prolonged exposure to dust.
Specific Organ Toxicity (Single Exposure)	Not reported /no data available.
Specific Organ Toxicity (Repeated Exposure)	May cause damage/disease to lungs through repeated or prolonged exposure.
Reproductive Toxicity	Not reported /no data available.
Aspiration Respiratory Hazard	Not reported /no data available.
Symptoms: Inhalation	Coughing, sneezing, mucous discharge and dyspnea. Extended contact may lead to chemical burns.
Symptoms: Skin Contact	Redness and itching. Extended contact may lead to chemical burns.
Symptoms: Eye Contact	Redness and itching. Extended contact may lead to corneal abrasion/ulceration.
Symptoms: Ingestion	Irritation and chemical burns of mouth and throat.
Other Toxicological Information	No additional data available.

Components	Toxicity	Carc: IARC	Carc: NTP	Carc: OSHA
Portland cement (refer to section 16 for more information)	No data	Not listed	Not listed	Not listed
Tricalcium silicate	No data	Not listed	Not listed	Not listed
Dicalcium silicate	No data	Not listed	Not listed	Not listed
Tetracalcium aluminoferrite	No data	Not listed	Not listed	Not listed
Gypsum (Calcium Sulfate)	Oral LD50 Rat >2000 mg/kg	Not listed	Not listed	Not listed
Tri-calcium Aluminate	No data	Not listed	Not listed	Not listed
Limestone (Calcium Carbonate)	Oral LD50 Rat 6450 mg/kg	Not listed	Not listed	Not listed
Magnesium oxide	Oral LD50 Rat 810 mg/kg	Not listed	Not listed	Not listed
Nuisance Dusts	No data	Not listed	Not listed	Not listed
Crystalline Silica (Quartz) (refer to section 16 for more information)	Oral LD50 Rat >22,500 mg/kg LC50 Carp >10,000 mg/L (72 hr)	Group 1	Known	Not listed

Section 12: Ecological Information

General Ecotoxicity	Not classified.
Persistence and Degradability	Not reported/ no data available.
Bioaccumulative Potential	Not reported/ no data available.
Mobility in Soil to Groundwater	Not reported/ no data available.
Environmental Fate	Not reported/ no data available.
Other Environmental Precautions or Information	Avoid release into the environment. Prevent material from entering sewers, drains, ditches or waterways.

Section 13: Disposal Considerations

Disposal Methods

Dispose in an inert, non-metallic mineral in accordance with applicable federal, state, and local regulations.

Special Considerations

Avoid creating or breathing dust during disposal. Avoid contact with eyes. Refer to Section 8 for personal protection measures.

Other Disposal Considerations

Prevent material from entering sewers, drains, ditches or waterways.

Section 14: Transportation

Proper Shipping Name	N/A – not regulated.
Hazard Class	N/A – not regulated.
UN Shipping ID Number	N/A – not regulated.
Packing Group	N/A – not regulated.
Environmental/IMDG Codes	N/A – not regulated.

Section 15: Regulatory Information

Component Analysis

U.S. Federal Regulations

This product contains one or more of the following chemical components or ingredients that may require identification and/or reporting under SARA Section 302, SARA Sections 311/312/313, CERCLA, and/or TSCA. An examination of the components of this product should be conducted by a qualified environmental professional to determine if such identification or reporting is required by federal law.

Components: Portland cement, Silica (Crystalline)

U.S. State Regulations

This product contains one or more of the following chemical components or ingredients that are included on the hazardous materials list for one or more of the following states: California, Maine, Minnesota, New Jersey, Pennsylvania and Rhode Island. An examination of the components of this product should be conducted by a qualified environmental or safety and health professional to determine the specific requirements for those states.

Components: Portland cement, Limestone (calcium carbonate), Gypsum (calcium sulfate), Silica (Crystalline)

The state of California requires the following statement (Proposition 65) in regards to this material:

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

Section 16: Other Information

Additional information on the products is available at www.tccmaterials.com

Additional information regarding Portland cement:

Wet Portland cement can cause burned to unprotected skin, sometimes referred to as cement burns. Cement burns may result in blisters, dead or hardened skin, or black or green skin. In severe cases, these burns may extend to the bone and cause disfiguring scars or disability.

Employees cannot rely on pain or discomfort to alert them to cement burns because cement burns may not cause immediate pain or discomfort. By time an employee becomes aware of a cement burn, much damage has already been done. Accordingly, the safest method to use Portland cement is to avoid contact with exposed skin completely. Cement burns can get worse even after skin contact with cement has ended. Any employee experiencing a cement burn is advised to see a health professional immediately.

Skin contact with wet Portland cement can also cause inflammation of the skin, referred to as dermatitis. Signs and symptoms of dermatitis can include itching, redness, swelling, blisters, scaling, and other changes in the normal condition of the skin. Contact with wet Portland cement can cause a non-allergic form of dermatitis (called irritant contact dermatitis) which is related to the caustic, abrasive, and drying properties of Portland cement.

In addition, hexavalent chromium [Cr(VI)] which may be found in Portland cement in trace amounts, can cause an allergic form of dermatitis (allergic contact dermatitis, or ACD) in sensitized employees who work with wet Portland cement. When an employee is sensitized, that person's immune system overreacts to small amounts of Cr(VI), which can lead to severe inflammatory reactions upon subsequent exposures. Sensitization may result from a single Cr(VI) exposure, from repeated exposure over the course of months or years, or it may trigger ACD. ACD is long-lasting and employees can remain sensitized to Cr(VI) years after their exposure to Portland cement has ended. Medical tests (e.g. skin patch tests) are available that can confirm whether an employee has become dermally sensitized to Cr(VI)

Employees who work with wet Portland cement and experience skin problems, including seemingly minor ones, are advised to see a health care professional for evaluation and treatment. In cement-related dermatitis, early diagnosis and treatment can help prevent chronic skin problems.

Additional information regarding crystalline silica:

The major concern is silicosis, caused by the inhalation and retention of respirable (extremely small) crystalline silica dust particles. Silicosis can exist in several forms. Chronic or ordinary silicosis (often referred to as simple silicosis) is the most common form of silicosis, and can occur after many years of exposure to relatively low concentrations of airborne respirable crystalline silica dust. Complicated silicosis or

progressive massive fibrosis (PMF) may be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease. Acute silicosis can occur with exposures to very high concentrations or respirable crystalline silica over a very brief period, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis can be fatal.

IARC: The overall IARC evaluation was that “crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1).” The IARC evaluation noted that “carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependent on the inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs.”

NTP: The National Toxicology Program (NTP), in its thirteenth Annual Report on Carcinogens, classified “silica, crystalline (respirable)” as a known human carcinogen.

OSHA: crystalline silica (quartz) is not regulated as a human carcinogen by the occupational Safety and Health Administration.

Disclaimer: We believe the statements, technical information and recommendations contained herein are reliable, but they are given without warranty or guarantee of any kind. The information contained in this document applies to this specific material as supplied. It may not be valid for this material if it is used in combination with any other materials. It is the user’s responsibility to satisfy oneself as to the suitability and completeness of this information for the user’s own particular use.