



MATERIAL SAFETY DATA SHEET

Portland Cement

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Name: **Portland Cement** (ASTM Type I/II, ASTM Type III, ASTM Type V, Block, Plastic, Fast Set, Low Heat of Hydration)

Synonyms: Portland Cement; also known as Cement or Hydraulic Cement, Mortar, Class G.

Chemical Family: Calcium compounds, Silica compounds.

Company Identification: CALPORTLAND COMPANY
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Approved By:

Approval Date:

2. COMPOSITION / INFORMATION ON INGREDIENTS

CONTAINING: HAZARDOUS AND/OR REGULATED COMPONENTS

<u>Chemical Name</u>	<u>Amount</u>	<u>CAS Number</u>	<u>OSHA PEL (ppm) Total Dust</u>	<u>OSHA PEL (ppm) Respirable Dust</u>	<u>ACGIH TLV (ppm) Total Dust</u>
Portland Cement	78-95%	65997-15-1	15 mg/m ³	5 mg/m ³	10 mg/m ³
Gypsum	5-7%	13397-24-5	15 mg/m ³	5 mg/m ³	10 mg/m ³
Limestone	0-15%	1317-65-3	15 mg/m ³	5 mg/m ³	10 mg/m ³
Crystalline Silica	0-0.3%	14808-60-7	10 mg/m ³	0.05 mg/m ³	0.05 mg/m ³

COMPOSITION COMMENT:

Trace Elements: Portland cement is made from materials mined from the earth and is processed using energy provided by fuels. Trace amounts of naturally occurring, potentially harmful chemical might be detected during chemical analysis. For example, Portland cement may contain up to 1.50 % insoluble residue, some of which may be free crystalline silica. Other trace constituents may include calcium oxide, free magnesium oxide, potassium and sodium sulfate compounds, and trace metal compounds.

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

WARNING! Short term exposure to the dry powder is not likely to cause serious harm. Prolonged exposure to wet Portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns. The same type of tissue destruction can occur if wet or moist areas of the body are exposed for sufficient duration to dry Portland cement.

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Routes of Exposure:

Eye Contact: Exposure to airborne dust during the handling or mixing of the dry ingredients in Portland cement may cause immediate or delayed irritation or inflammation. Eye contact by splashes of wet concrete may cause effects ranging from moderate eye irritation to chemical burns and blindness. Such exposures require immediate first aid (see Section 4) and medical attention to prevent significant damage to the eye.

Skin Contact: Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure. Consequently, the only effective means of avoiding skin injury or illness involves minimizing skin contact, particularly contact with wet cement. Exposed persons may not feel discomfort until hours after the exposure has ended and significant injury has occurred. Exposure during the handling or mixing of the dry ingredients in Portland cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Exposure to wet concrete may cause more severe skin effects including thickening, cracking or fissuring of the skin. Prolonged exposure can cause severe skin damage in the form of (caustic) chemical burns. Some individuals may exhibit an allergic response upon exposure to wet concrete. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to their first contact with the product. Other persons may first experience this effect after years of contact with Portland cement products.

Ingestion: Although inadvertent ingestion of small quantities of wet concrete or its dry ingredients are not known to be harmful, accidental ingestion of larger quantities can be harmful and requires immediate medical attention.

Inhalation: Exposure to Portland cement in excess of the applicable TVL or PEL (see section 2) may cause or aggravate other lung conditions. The ingredients in Portland cement may contain trace amounts of crystalline silica. Exposure to these ingredients in excess of the applicable TLV or PEL (see Section 2) may cause or aggravate other lung conditions. Exposure to Portland cement may cause irritation to the moist mucous membranes of the nose, throat, and upper respiratory system. It may also leave unpleasant deposits in the nose.

Medical Conditions which May be Aggravated by Inhalation or Dermal Exposure: Pre-existing upper respiratory and lung diseases by exposure to the dry ingredients. Persons with unusual (hyper) sensitivity to chemicals, dusts, and metallic compounds may experience adverse reactions to Portland cement.

Carcinogenic Potential: Portland cement is not listed as a carcinogen by NTP, OSHA, or IARC. It may, however, contain trace amounts of substances listed as carcinogens by these organizations including but not limited to: crystalline silica, hexavalent chromium, lead compounds, mercury compounds, nickel compounds, and possibly other chemicals which may result in exposures which require the following warning pursuant to California Proposition 65:

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

4. FIRST AID MEASURES

Eyes: Immediately flush eyes thoroughly with water. Continue flushing eye for at least 15 minutes, including under lids, to remove all particles. Call physician immediately.

Skin: Wash skin with cool water and pH-neutral soap or a mild detergent intended for use on skin. Seek medical treatment in all cases of prolonged exposure to wet cement, cement mixtures, liquids from fresh cement products, or prolonged wet skin exposure to the dry cement.

Ingestion: Do not induce vomiting. If conscious, have the victim drink plenty of water and call a physician immediately.

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Inhalation of Airborne Dust: Remove to fresh air. Seek medical help if coughing and other symptoms do not subside. (Inhalation of gross amounts of Portland cement requires immediate medical attention.)

5. FIRE FIGHTING MEASURES

Flash Point – None

Lower Explosive Limit – None

Upper Explosive Limit – None

Auto Ignition Temperature – Not Combustible

Extinguishing Media – Not Combustible

Special fire fighting Procedures – None

Hazardous Combustion Products – None

Unusual Fire & Explosion Hazards - None

6. ACCIDENTAL RELEASE MEASURES

Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin.

Scrape up wet material and place in an appropriate container. Allow the material to "dry" before disposal. Do not attempt to wash Portland cement down sewers or storm drains.

Wear appropriate personal protective equipment as described in Section 8.

Dispose of waste material according to local, state and federal regulations.

7. HANDLING AND STORAGE

Keep Portland cement dry until used. Normal temperatures and pressures do not affect the material.

Promptly remove dusty clothing or clothing which is wet with cement fluids and launder before reuse.

Wash thoroughly after exposure to dust or wet cement mixtures.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Eye Protection: When engaged in activities where wet concrete or its dry ingredients could contact the eye, wear safety glasses with side shields or goggles. In extremely dusty environments and unpredictable environments, wear unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when working with Portland cement or fresh cement products.

Skin Protection: Prevention is essential to avoiding potentially severe skin injury. Avoid contact with unhardened (wet) portland cement products. If contact occurs, promptly wash affected area with soap and water. Where prolonged exposure to unhardened concrete products might occur, wear impervious clothing and gloves to eliminate skin contact. Where required, wear boots that are impervious to water to eliminate foot and ankle exposure. Do not rely on barrier creams; barrier creams should not be used in place of gloves. Periodically wash areas contacted by wet cement or its dry ingredients with a pH neutral soap and water. Wash again at the end of the work. If irritation occurs, immediately wash the affected area and seek treatment. If clothing becomes saturated with wet concrete, it should be removed and replaced with clean dry clothing.

Respiratory Protection: Avoid actions that cause dust exposure to occur. Use local or general ventilation to control exposures below applicable exposure limits. NIOSH or MSHA approved particulate filter respirators should be used in the context of respiratory protection program meeting the requirements of the OSHA

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respiratory protection standard [29 CFR 1910.134] to control exposures when ventilation or other controls are inadequate or discomfort or irritation is experienced. Respirator and/or filter cartridge selection should be based on American National Standards Institute (ANSI) Standards Z88.2 Practices for Respiratory Protection.

Ventilation: Use local exhaust or general dilution ventilation to control exposure within applicable limits.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance – Gray Powder

Odor – No Distinct Odor

Physical State – Liquid

Specific Gravity (H₂O=1) – 3.15

pH (in water) (ASTM D 1293-95) – 12 – 13

Solubility in Water – Slightly Soluble

Vapor Pressure – Not Applicable

Vapor Density – Not Applicable

Boiling Point – Not Applicable

Melting Point – Not Applicable

Evaporation Rate – Not Applicable

10. STABILITY AND REACTIVITY

Stability: Stable.

Conditions to avoid: Unintentional contact with water

Hazardous Polymerization: Hazardous polymerization will not occur.

Incompatibility with other materials: Wet Portland cement is alkaline. As such it is incompatible with acids, ammonium salts and aluminum metal.

Hazardous Decomposition: Will not spontaneously occur. Adding water results in hydration and produces (caustic) calcium hydroxide.

11. TOXICOLOGICAL INFORMATION

NIOSH conducted a study, "The Mortality of U.S. Portland Cement and Quarry Workers" (March 1985) which found: "There is no excess mortality from all causes of death, lung cancer, non-malignant respiratory disease, or ischemic heart disease" among workers studied.

12. ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals.

13. DISPOSAL CONSIDERATIONS

Waste Disposal: Dispose of waste material according to local, state and federal regulations. (Since Portland cement is stable, uncontaminated unused dry material may be saved for future use.)

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14. TRANSPORTATION INFORMATION

Hazardous Materials Description/Proper Shipping Name: Portland cement is not hazardous under U.S. Department of Transportation (DOT) regulations.

Hazard Class: Not Applicable

Identification Number: Not Applicable

Required Label Text: Not Applicable

Hazardous Substances/Reportable Quantities: Not Applicable

15. REGULATORY INFORMATION

FEDERAL REGULATORY STATUS:

Status under OSHA Hazard Communication Standard, 29 CFR 1910.1200: Unhardened Ready-Mix concrete is considered a "hazardous chemical" under this regulation, and should be included in the employer's hazard communication program.

Reportable Quantities Under the Clean Water Act, CERCLA, and EPCRA, 40 CFR 117, 302 and 355: Portland cement is not listed.

Hazard Category and Applicability of EPCRA Hazardous Substance Inventory Reporting, 40 CFR 370: Portland cement qualifies as a "hazardous substance" with delayed health effects.

Applicability of EPCRA Toxic Chemical Release Inventory (TRI) Reporting, 40 CFR 372: Portland cement is not subject to TRI reporting and all potentially covered constituents are present in de minimus concentrations.

Status Under the Toxic Substances Control Act, 40 CFR 710: Portland and the chemicals present in Portland cement are on the TSCA inventory list.

Status under the Federal Hazardous Substances Act and Its Regulations: Portland cement is a "hazardous substance" subject to the following labeling requirements for consumer use:

WARNING: INJURIOUS TO EYES. CAUSES SKIN IRRITATION. READ THIS WARNING BEFORE USING. Contains Portland Cement

Contact with wet (unhardened concrete, mortar, wet cement, or cement mixtures) can cause skin irritation, severe chemical burns, or serious eye damage. Avoid contact with eyes and skin. Wear waterproof gloves, a fully buttoned long-sleeved shirt, full-length trousers, and tight fitting eye protection when working with these materials. If you have to stand in wet concrete, use waterproof boots that are tight at tops and high enough to keep concrete from flowing into them. If you are finishing concrete wear knee pads to protect knees. Wash wet concrete, mortar, wet cement, or cement mixtures from your skin with fresh, clean water immediately after contact. Indirect contact through clothing can be as serious as direct contact, so promptly rinse out wet concrete, mortar, wet cement, or cement mixtures from clothing. Seek immediate medical attention if you have persistent or severe discomfort. In case of eye contact, flush with plenty of water for at least 15 minutes. Consult a physician immediately.

KEEP OUT OF REACH OF CHILDREN.

USER AGREES TO CONVEY THIS WARNING TO ALL PERSONS WHO MAY PURCHASE, USE OR COME IN CONTACT WITH WET (UNHARDENED) CONCRETE, MORTAR, WET CEMENT OR CEMENT MIXTURES.

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Status under Workplace Hazardous Materials Information System (WHMIS), Canada: Unhardened Ready-Mix concrete is considered to be a hazardous material under the Hazardous Products Act as defined by the Controlled Products Regulations (Class E - Corrosive Material) and is therefore subject to the labeling and MSDS requirements of the Workplace Hazardous Materials Information System (WHMIS).

Status under Canadian Environmental Protection Act: Not Listed.

16. OTHER INFORMATION

Label Requirements:

WARNING! INJURIOUS TO EYES. CAUSES SKIN IRRITATION. READ THIS WARNING BEFORE USING.

Other Important Information: portland cement should only be used by knowledgeable persons. A key to using the product safely requires the user to recognize that portland cement chemically reacts with water, and that some of the intermediate products of this reaction (that is, those present while a Portland cement product is "setting") pose a far more severe hazard than does portland cement itself. While the information provided in this material safety data sheet is believed to provide a useful summary of the hazards of portland cement 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 does not address hazards that may be posed by materials other than natural sands and gravels mixed with portland cement to produce portland cement products. Users should review other relevant material safety data sheets before working with this portland cement concrete.

Hazardous Material Information System (HMIS):	Health	1
	Flammability	0
	Physical Hazard	0
	Personal Protection	B

NFPA/HMIS Definitions: 0-Least, 1-Slight, 2-Moderate, 3-High, 4-Extreme
 Protective Equipment: Safety glasses, gloves

ADDITIONAL INFORMATION:

SELLER MAKES NO WARRANTY, EXPRESS OR IMPLIED, CONCERNING THE PRODUCT OR THE MERCHANTABILITY OR FITNESS THEREOF FOR ANY PURPOSE OR CONCERNING THE ACCURACY OF ANY INFORMATION PROVIDED BY CALPORTLAND, except that the product shall conform to contracted specifications. The information provided herein was believed by CalPortland Company to be accurate at the time of preparation or prepared from sources believed to be reliable, but it is the responsibility of the user to investigate and understand other pertinent sources of information to comply with all laws and procedures applicable to the safe handling and use of the product and to determine the suitability of the product for its intended use. Buyer's exclusive remedy shall be for damages and no claim of any kind, whether as to product delivered or for non-delivery of product, and whether based on contract, breach of warranty, negligence, or otherwise shall be greater in amount than the purchase price of the quantity of product in respect of which damages are claimed. In no event shall Seller be liable for incidental or consequential damages, whether Buyer's claim is based on contract, breach of warranty, negligence or otherwise.

END OF MSDS