



## PRODUCT NAME: PORTLAND CEMENT

### 1. CHEMICAL PRODUCT & COMPANY IDENTIFICATION

**Supplier:**

Name: Hawaiian Cement.  
Address: 91-055 Kaomi Loop  
Kapolei, HI 96707-1709  
Telephone: 808-673-4200

**Product Identifier:**

Portland Cement, Hydraulic Cement, White Cement, Type I, II, I / II

Note: This MSDS covers many products. Individual composition of hazardous constituents will vary.

### 2. CHEMICAL DATA

Component Name	%	CAS No.
Tri-Calcium Silicate	20 – 70	12168-85-3
Di-Calcium Silicate	10 – 60	10034-77-2
Tetra-Calcium- Alumino-Ferrite	5 – 15	12068-35-8
Calcium Sulfate	2 – 10	Various
Tri-Calcium Aluminate	1 – 15	12042-78-3
Calcium Carbonate	0 – 5	1317-65-3
Magnesium Oxide	0 – 4	1309-48-4
Calcium Oxide	0 - 2	1305-78-8
Crystalline Silica	0 - 0.2	14808-60-7
Chromates	0 - 0.005	Various

Component Name	EXPOSURE LIMITS	
	OSHA PEL TWA	ACGIH TLV TWA
Portland Cement (CAS 65997-15-1)*		
(Respirable Dust)	5 mg/m <sup>3</sup>	
(Total Dust)	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Calcium Sulfate		
(Respirable Dust)	5 mg/m <sup>3</sup>	
(Total Dust)	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Calcium Carbonate		
(Respirable dust)	5 mg/m <sup>3</sup>	
(Total Dust)	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Magnesium Oxide	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>
Calcium Oxide	5 mg/m <sup>3</sup>	2 mg/m <sup>3</sup>
Crystalline Silica Quartz		0.05 mg/m <sup>3</sup>
Quartz (Respirable)	10 mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2)	
Quartz (Total Dust)	30 mg/m <sup>3</sup> / (%SiO <sub>2</sub> +2)	
Chromates	0.1 mg(CrO <sub>3</sub> ) / m <sup>3</sup>	0.05 mg(Cr)/m <sup>3</sup>
Nuisance Dust		
(Respirable)	5 mg/m <sup>3</sup>	3 mg/m <sup>3</sup>
(Total / Inhalable)	15 mg/m <sup>3</sup>	10 mg/m <sup>3</sup>

\*This value is for particulate matter containing no asbestos and < 1% crystalline silica.

### 3. HAZARD IDENTIFICATION

**Emergency Overview:** Portland cement is a solid, light gray powder, odorless, that poses little immediate hazard. A single short-term exposure to the dry powder is not likely to cause serious harm. However, exposure of sufficient duration to wet portland cement can cause serious, potentially irreversible tissue (skin or eye) destruction in the form of chemical (caustic) burns, including third degree 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.

**Potential Health Effects:**

**EYE CONTACT** (acute/chronic): Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Eye contact by larger amounts of dry powder or splashes of wet portland cement 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.

**INHALATION** (acute): Breathing dust may cause nose, throat or lung irritation and choking. The described effect depends on the degree of exposure.

**INHALATION** (chronic): Prolonged or repeated exposure may cause lung injury including silicosis. This product may contain crystalline silica. Crystalline silica has been classified by IARC as a known human carcinogen. Some human studies indicate potential for lung cancer from crystalline silica exposure. Risk of injury depends on duration and level of exposure. Long term exposures, which results in silicosis may result in additional health effects.

**SKIN CONTACT** (acute/chronic): 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 to dry portland cement may cause drying of the skin with consequent mild irritation or more significant effects attributable to aggravation of other conditions. Dry portland cement contacting wet skin or exposure to moist or wet portland cement 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.

**INGESTION** (acute/chronic): Ingestion of large amounts may cause intestinal distress.

### 4. FIRST AID MEASURES

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

**INHALATION:** 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.)

**SKIN CONTACT:** 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 dry cement.

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

### 5. FIREFIGHTING MEASURES

**Flashpoint and Method:** Portland cement is noncombustible and not explosive.

**Flammable Limits:** Not combustible.

**Autoignition Temperature:** Not applicable.

**General Hazard:** Avoid breathing dust.

**Firefighting Instructions:** Treat adjacent material.

**Firefighting Equipment:** This product is not a fire hazard. Self contained breathing apparatus is recommended to limit exposures to smoke from any combustion source.

**Hazardous Combustion Products:** Not applicable.

### 6. ACCIDENTAL RELEASE MEASURES

**General:** Remove spilled material to limit potential harm. Collect dry material using a scoop. Avoid actions that cause dust to become airborne. Avoid inhalation of dust and contact with skin. Wear appropriate personal protection equipment as described in Section 8.

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 drains.

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

## 7. HANDLING AND STORAGE

**General:** 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 or fluids.

## 8. EXPOSURE CONTROL & PERSONAL PROTECTION

**General Controls** Use exhaust ventilation to maintain dust levels below exposure limits in workplaces with poor ventilation and dusty conditions.

**Personal Protection** **RESPIRATORY PROTECTION:** Under ordinary conditions no respiratory protection is required. Wear a NIOSH approved respirator when exposed to dust above exposure limits.

**EYE PROTECTION:** Wear glasses or safety goggles to prevent contact with eyes. Wearing contact lenses when using this product under dusty conditions is not recommended.

**SKIN PROTECTION:** Wear impervious gloves, shoes and protective clothing to prevent skin contact.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Gray, tan or white powder
Odor:	No distinct odor
Physical State:	Solid (powder)
Vapor Pressure:	Not measurable
Vapor Density:	Not measurable
Specific Gravity:	3.15
Solubility in Water:	Slight (0.1 - 1.0%)
Evaporation Rate:	Not measurable
pH (in water):	12 - 13
Boiling Point:	Not applicable
Freezing Point:	None, solid
Viscosity:	None, solid

## 10. STABILITY AND REACTIVITY

**General:** Product is stable but must be kept dry. Reacts with water forming polymerized silicates and calcium hydroxide.

**Conditions to Avoid:** Unintentional contact with water.

**Incompatibility:** Wet portland cement is alkaline. As such, it is incompatible with acids, ammonium salts and aluminum metal. Reaction with these substances liberates corrosive or explosive gas.

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

**Hazardous Decomposition:** Will not occur.

## 11. TOXICOLOGICAL INFORMATION

Portland cement is not a toxic material.

## 12. ECOLOGICAL INFORMATION

Ecotoxicity: No recognized unusual toxicity to plants or animals. For relevant physical and chemical properties, see Sections 9 and 10 above.

## 13. DISPOSAL CONSIDERATIONS

Dispose of waste materials in a landfill according to local, state and federal regulations. (Since portland cement is stable, uncontaminated material may be saved for future use.)

Dispose of bags in an approved landfill or incinerator.

## 14. TRANSPORT INFORMATION

Portland cement is not a hazardous material under U.S. Department of Transportation (DOT) regulations. Subsequently, requirements for hazard class, identification number and label text are not applicable.

## 15. REGULATORY INFORMATION

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**OSHA Hazard Communication Rule, 29 CFR 1910.1200:** Portland cement is considered by OSHA to be a "hazardous chemical" under this regulation and should be included in the employer's hazard communication program.

**CERCLA/SUPERFUND, 40 CFR 117 and 302:** Not listed.

**SARA (Title III), Sections 311 and 312 Hazard Category:** This product has been reviewed according to the EPA Hazard Categories promulgated under Sections 311 and 312 of the Superfund Amendment and Reauthorization Act of 1986 and is considered a hazardous chemical and a delayed health hazard.

**SARA (Title III), Section 313 Information:** This product contains NONE of the substances subject to the reporting requirements of Section 313.

**Toxic Substance Control Act (TSCA):** Some constituents identified in portland cement are listed on the TSCA Inventory.

**Federal Hazardous Substance Act:** Portland cement is a "hazardous substance" subject to statutes promulgated under the subject act.

**California Proposition 65:** Portland cement contains chemicals (trace metals and crystalline silica) known to the state of California to cause cancer, birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove the defined risks do not exist.

**Canadian Environmental Protection Act:** Not listed.

**WHMIS Information:** Portland cement is considered to be 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). WHMIS <http://www.hc-sc.gc.ca/whmis>

## 16. OTHER INFORMATION

Abbreviations:

CAS No.	Chemical Abstract Service number
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
ACGIH	American Conference of Governmental Industrial Hygienists
TLV	Threshold Limit Value
TWA	Time Weighted Average (8 hour)
CL	Ceiling Limit
mg/m <sup>3</sup>	milligrams per cubic meter
IARC	International Agency for Research on Cancer
NIOSH	National Institute for Occupational Safety and Health
pH	negative log of hydrogen ion
>	greater than
DOT	U.S. Department of Transportation
TDG	Transportation of Dangerous Goods
CFR	Code for Federal Regulations
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
SARA	Superfund Amendments and Reauthorization Act
WHMIS	Workplace Hazardous Materials Information System

Information in this MSDS is believed to be current and accurate at the time provided. It is the user's obligation to determine the conditions of safe use of this product.