Portland Limestone Cement (PLC) Type 1L

Safety Data Sheet

According To Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules And Regulations
Date of Issue: 08/01/2023 Version: 1.0

SECTION 1: IDENTIFICATION

1.1. Product Identifier

Product Form: Mixture

Product Name: Portland Limestone Cement (PLC) Type 1L

Synonyms: Portland cement, cement, hydraulic cement, cement powder, PLC.

1.2. Intended Use of the Product

Use of the Substance/Mixture: Portland Limestone Cement is used in combination with water and aggregates to form concrete. It is also a component of masonry mortar, grouts, exterior and interior plaster and other construction applications.

1.3. Name, Address, and Telephone of the Responsible Party

Company

Hawaiian Cement
99-1300 Halawa Valley St.
Aiea, HI 96701
T: Cement Division General Manager 808-441-7513

1.4. Emergency Telephone Number

Emergency Number : CHEMTEL 24 HR, 7 DAYS, 365 DAYS A YEAR. 800-255-3924

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the Substance or Mixture

GHS-US Classification

Skin Irrit. 1	H315
Eye Dam. 1	H318
Skin Sens. 1	H317
Carc. 1A	H350
STOT SE 3	H335

Full text of hazard classes and H-statements : see section 16

2.2. Label Elements

GHS-US Labeling

Hazard Pictograms (GHS-US) :

GHS05 GHS07 GHS08

Signal Word (GHS-US) : Danger

Hazard Statements (GHS-US) :
H315 - Causes skin irrtation or in some cases skin burns when activated.
H317 - May cause an allergic skin reaction.
H318 - Causes serious eye damage.
H335 - May cause respiratory irritation.
H350 - May cause cancer (inhalation).

Precautionary Statements (GHS-US) :
P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P261 - Avoid breathing vapors, mist, or spray.
P264 - Wash hands, forearms, and other exposed areas thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P272 - Contaminated work clothing must not be allowed out of the workplace.
P280 - Wear protective gloves, protective clothing, and eye protection.
P302+P352 - If on skin: Wash with plenty of water.
P304+P340 - If inhaled: Remove person to fresh air and keep at rest in a position comfortable for breathing.
P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P313 - If exposed or concerned: Get medical advice/attention.
P310 - Immediately call a poison center or doctor.
P321 - Specific treatment (see section 4 on this SDS).
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.

P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
P405 - Store locked up.
P501 - Dispose of contents/container in accordance with local, regional, national, and international regulations.

2.3. Other Hazards

Exposure may aggravate pre-existing eye, skin, or respiratory conditions. May be corrosive to respiratory tract and/or cause chemical caustic burns, including third degree burns when activated with water or moist skin. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss.

2.4. Unknown Acute Toxicity (GHS-US)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substance: Portland cement is an odorless light gray powder insoluble in water. The product consists of finely ground portland cement clinker mixed with a small amount of gypsum (calcium sulfate dihydrate). The portland cement clinker is made by heating a mixture of limestone, sand, clay and shale. Portland cement is basically hydraulic calcium silicates contained in a crystalline mass, not separable into individual components.

3.2. Substance Mixture: Calcium compounds, calcium silicate compounds, and other calcium compounds containing iron and aluminum make up the majority of this product.

Major Compounds are:

Name	Product Identifier	%	GHS-US classification
Cement, portland, chemicals	(CAS No) 65997-15-1	78 - 95	Skin Irrit. 2, H315 Eye Dam. 1, H318 Skin Sens. 1, H317 STOT SE 3, H335
Gypsum (Ca(SO4).2H2O)	(CAS No) 7778-19-9	2.7 – 6.3	Not classified
Limestone	(CAS No) 1317-65-3	3 - 15	Not classified
Magnesium oxide (MgO)	(CAS No) 1309-48-4	.05 - 7	Not classified
Calcium oxide	(CAS No) 1305-78-8	<3.5	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335 Aquatic Acute 3, H402
Quartz	(CAS No) 14808-60-7	< 0.1	Carc. 1A, H350 STOT SE 3, H335 STOT RE 1, H372

Full text of H-phrases: see section 16

Disclaimer: Any concentration shown as a range is to protect confidentiality or is due to process variation. *Hexavalent chromium is included due to dermal sensitivity associated with the component. There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

SECTION 4: FIRST AID MEASURES

4.1. Description of First-aid Measures

First-aid Measures General: Never give anything by mouth to an unconscious person. If you feel unwell, seek medical advice (show the label where possible).

First-aid Measures After Inhalation: When symptoms occur: go into open air and ventilate suspected area. Obtain medical attention if breathing difficulty persists.

First-aid Measures After Skin Contact: Wash with cool water and pH neutral soap or a mild skin detergent for 15 mins as a precaution. If the cement becomes wet and there is prolonged unprotected exposure, it will become corrosive and cause burning of the skin. If irritation persists, or turns into a rash or dermatitis call a physician.

First-aid Measures After Eye Contact: Rinse cautiously with water for at least 60 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.

First-aid Measures After Ingestion: Rinse mouth. Do NOT induce vomiting. Obtain medical attention.

4.2. Most Important Symptoms and Effects Both Acute and Delayed

Symptoms/Injuries: May cause respiratory irritation. Causes severe skin burns and eye damage when hydrated. Causes serious eye damage. Skin sensitization. May cause cancer. Causes skin irritation.

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. May be corrosive to the respiratory tract. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease.

Symptoms/Injuries After Skin Contact: Causes severe irritation which will progress to chemical burns when hydrated. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: May cause cancer. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss.

4.3. Indication of Any Immediate Medical Attention and Special Treatment Needed

If exposed or concerned, get medical advice and attention. If medical advice is needed, have product container or label at hand.

SECTION 5: FIRE-FIGHTING MEASURES

5.1. Extinguishing Media

Suitable Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Unsuitable Extinguishing Media: None known.

5.2. Special Hazards Arising From the Substance or Mixture

Fire Hazard: Not flammable.

Explosion Hazard: Product is not explosive.

Reactivity: Wet portland cement is alkaline. As such it is incompatible with acids, ammonium salts and phosphorus.

5.3. Advice for Firefighters

Precautionary Measures Fire: Exercise caution when fighting any chemical fire.

Firefighting Instructions: Use water spray or fog for cooling exposed containers.

Protection During Firefighting: Do not enter fire area without proper protective equipment, including respiratory protection.

Hazardous Combustion Products: Carbon oxides (CO, CO_2). Metal oxides. Sulfur oxides. Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870°C, it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is heated to more than 1470°C, it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as trydimite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal Precautions, Protective Equipment and Emergency Procedures

General Measures: Do not get in eyes, on skin, or on clothing. Do not breathe dust. Do not handle until all safety precautions have been read and understood. Do not walk touch or walk through spilled material without properly protected. Provide adequate ventilation and wear appropriate respirator when ventilation is inadequate.

6.1.1. For Non-Emergency Personnel

Protective Equipment: Use appropriate personal protective equipment (PPE).

Emergency Procedures: Evacuate unnecessary personnel.

6.1.2. For Emergency Personnel

Protective Equipment: Equip cleanup crew with proper protection.

Emergency Procedures: Upon arrival at the scene, a first responder is expected to recognize the presence of dangerous goods, protect oneself and the public, secure the area, and call for the assistance of trained personnel as soon as conditions permit. Ventilate area.

6.2. Environmental Precautions

Prevent entry to sewers and public waters.

6.3. Methods and Materials for Containment and Cleaning Up

For Containment: Contain solid spills with appropriate barriers and prevent migration and entry into sewers or streams. As an immediate precautionary measure, isolate spill or leak area in all directions.

Methods for Cleaning Up: Clean up spills immediately and dispose of waste safely. Recover the product by vacuuming using a HEPA filter. Minimize shoveling or sweeping so as to not create airborne dust. Transfer spilled material to a suitable container for disposal. Contact competent authorities after a spill. Cautiously neutralize spilled solid.

6.4. Reference to Other Sections

See Section 8 for exposure controls and personal protection and Section 13 for disposal considerations.

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for Safe Handling

Additional Hazards When Processed: May release corrosive vapors when hydrated.

Precautions for Safe Handling: Wash hands and other exposed areas with mild neutral pH soap or detergent and water before eating, drinking or smoking and when leaving work. Handle empty containers with care because they may still present a hazard. Do not get in eyes, on skin, or on clothing. Do not breathe dust. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood.

Hygiene Measures: Handle in accordance with good industrial hygiene and safety procedures.

7.2. Conditions for Safe Storage, Including Any Incompatibilities

Technical Measures: Comply with applicable regulations.

Storage Conditions: Keep container closed when not in use. Store in a dry, cool place. Store away from incompatible materials. Store in original container or corrosive resistant and/or lined container.

Incompatible Products: Strong acids, strong bases, strong oxidizers. Wet cement is alkaline and is incompatible with acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

7.3. Specific End Use(s)

Portland cement is used in combination with water and aggregates to form concrete. It is also a component of masonry mortar, grouts, exterior and interior plaster and other construction applications.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control Parameters

For substances listed in section 3 that are not listed here, there are no established exposure limits from the manufacturer, supplier, importer, or the appropriate advisory agency including: ACGIH (TLV), AIHA (WEEL), NIOSH (REL), or OSHA (PEL).

Cement, portland, chemicals (65997-15-1)		
USA ACGIH	ACGIH TWA (mg/m³)	1 mg/m³ (particulate matter containing no asbestos and <1% crystalline silica, respirable particulate matter) 8hrs.
USA ACGIH	ACGIH chemical category	Not Classifiable as a Human Carcinogen
USA NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 10hrs 5 mg/m³ (respirable dust) 10hrs
USA IDLH	US IDLH (mg/m³)	5000 mg/m³
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 8hrs 5 mg/m³ (respirable fraction) 8hrs

Limestone (1317-65-3)		
USA NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 10hrs 5 mg/m³ (respirable dust) 10hrs
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 8hrs 5 mg/m³ (respirable fraction) 8hrs

Gypsum (Ca(SO4).2H2O) (13397-24-5)		
USA ACGIH	ACGIH TWA (mg/m³)	10 mg/m³ (inhalable particulate matter) 8hrs
USA NIOSH	NIOSH REL (TWA) (mg/m³)	10 mg/m³ (total dust) 8hrs 5 mg/m³ (respirable dust) 8hrs
USA OSHA	OSHA PEL (TWA) (mg/m³)	15 mg/m³ (total dust) 8hrs 5 mg/m³ (respirable fraction) 8hrs

Quartz (14808-60-7)		
USA ACGIH	ACGIH TWA (mg/m³)	0.025 mg/m³ (respirable particulate matter) 8hrs
USA ACGIH	ACGIH chemical category	A2 - Suspected Human Carcinogen
USA NIOSH	NIOSH REL (TWA) (mg/m³)	0.05 mg/m³ (respirable dust) 8hrs
USA IDLH	US IDLH (mg/m³)	50 mg/m³ (respirable dust)
USA OSHA	OSHA PEL (TWA) (mg/m³)	10mg/m3 divided by %SiO2 + 2: Respirable 30mg/m3 divided by %SiO2 + 2: Total

8.2. Exposure Controls

Appropriate Engineering Controls : Emergency eye wash fountains and safety showers should be available in the immediate vicinity of any potential exposure. Ensure adequate ventilation, especially in confined areas. Ensure all national/local regulations are observed.

Personal Protective Equipment : Gloves. Protective clothing. Protective goggles. Face shield. Insufficient ventilation: wear NIOSH approved respiratory protection.

Materials for Protective Clothing : Wear clothing impervious to water to prevent skin contact.

Hand Protection : Wear gloves impervious to water to prevent skin contact. Do not rely on barrier creams, in place of impervious gloves.

Eye Protection : Chemical safety goggles and face shield. Chemical safety goggles. Wear ANSI approved glasses or safety googles when handling dust or wet Portland Cement to prevent contact with eyes. Wearing contact lens when handling Portland Cement under dusty conditions is not recommended.

Skin and Body Protection : Wear suitable protective clothing.

Respiratory Protection : If exposure limits are exceeded or irritation is experienced, NIOSH approved respiratory protection should be worn. In case of inadequate ventilation, oxygen deficient atmosphere, or where exposure levels are not known wear NIOSH approved respiratory protection.

Other Information : When using, do not eat, drink or smoke.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on Basic Physical and Chemical Properties

Physical State	: Solid
Appearance	: Gray, tan or white
Odor	: No distinct odor
Odor Threshold	: No data available
pH	: 12 – 13 (Highly akaline when wet)
Evaporation Rate	: No data available
Melting Point	: No data available
Freezing Point	: No data available
Boiling Point	: No data available
Flash Point	: No data available
Auto-ignition Temperature	: No data available
Decomposition Temperature	: No data available
Flammability (solid, gas)	: No data available
Vapor Pressure	: No data available
Relative Vapor Density at 20°C	: No data available
Relative Density	: 2.3 – 3.3
Solubility	: Water: 0.1 - 1 %
Partition Coefficient: N-Octanol/Water	: No data available
Viscosity	: No data available

9.2. Other Information No additional information available

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity: Wet portland cement is alkaline. As such it is incompatible with acids, ammonium salts and phosphorus.

10.2. Chemical Stability: Stable under recommended handling and storage conditions (see section 7).

10.3. Possibility of Hazardous Reactions: Hazardous polymerization will not occur.

10.4. Conditions to Avoid: Incompatible materials.

10.5. Incompatible Materials: Strong acids, strong bases, strong oxidizers. Wet cement and cement clinker is alkaline and is incompatible with acids, ammonium salts and aluminum metal. Cement dissolves in hydrofluoric acid, producing corrosive silicon

tetrafluoride gas. Cement reacts with water to form silicates and calcium hydroxide. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride.

10.6. Hazardous Decomposition Products: Thermal decomposition generates: Corrosive vapors – when activated with hydration.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on Toxicological Effects

Acute Toxicity: Oral – Harmful if swallowed.

Calcium oxide (1305-78-8)	
LD50 Oral Rat	> 2000 mg/kg
LD50 Dermal Rabbit	> 2500 mg/kg

Quartz (14808-60-7)	
LD50 Oral Rat	> 5000 mg/kg
LD50 Dermal Rat	> 5000 mg/kg

Skin Corrosion/Irritation: Causes skin irritation. Causes severe skin burns and eye damage when hydrated.

pH: 12 - 13

Serious Eye Damage/Irritation: Causes serious eye damage.

pH: 12 - 13

Respiratory or Skin Sensitization: May cause an allergic skin reaction.

Germ Cell Mutagenicity: Not classified

Carcinogenicity: May cause cancer (Inhalation).

Quartz (14808-60-7)	
IARC group	1
National Toxicology Program (NTP) Status	Known Human Carcinogens.
OSHA Hazard Communication Carcinogen List	In OSHA Hazard Communication Carcinogen list.

Reproductive Toxicity: Not classified

Specific Target Organ Toxicity (Single Exposure): May cause respiratory irritation.

Specific Target Organ Toxicity (Repeated Exposure): Not classified

Aspiration Hazard: Not classified

Symptoms/Injuries After Inhalation: Irritation of the respiratory tract and the other mucous membranes. May be corrosive to the respiratory tract. This product contains crystalline silica. Prolonged or repeated inhalation of respirable crystalline silica from this product can cause silicosis, a seriously disabling and fatal lung disease.

Symptoms/Injuries After Skin Contact: Causes severe irritation which will progress to chemical burns when hydrated. May cause an allergic skin reaction.

Symptoms/Injuries After Eye Contact: Causes permanent damage to the cornea, iris, or conjunctiva.

Symptoms/Injuries After Ingestion: May cause burns or irritation of the linings of the mouth, throat, and gastrointestinal tract.

Chronic Symptoms: May cause cancer. Repeated or prolonged exposure to respirable (airborne) crystalline silica dust will cause lung damage in the form of silicosis. Symptoms will include progressively more difficult breathing, cough, fever, and weight loss.

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

Ecology - General : Not recognized unusual toxicity to plants or animals.

Calcium oxide (1305-78-8)	
LC50 Fish 1	50.6 mg/l

12.2. Persistence and Degradability

Portland Limestone Cement	
Persistence and Degradability	Not established.

12.3. Bioaccumulative Potential

Portland Limestone Cement	
Bioaccumulative Potential	Not established.

Calcium oxide (1305-78-8)	
BCF Fish 1	(no bioaccumulation)

12.4. Mobility in Soil No additional information available

12.5. Other Adverse Effects

Other Information : Avoid release to the environment.

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste Treatment Methods

Waste Disposal Recommendations: Dispose of contents/container in accordance with local, regional, national, and international regulations.

Additional Information: Container may remain hazardous when empty. Continue to observe all precautions.

Ecology - Waste Materials: Avoid release to the environment.

SECTION 14: TRANSPORT INFORMATION

The shipping description(s) stated herein were prepared in accordance with certain assumptions at the time the SDS was authored, and can vary based on a number of variables that may or may not have been known at the time the SDS was issued.

14.1. In Accordance with DOT Not regulated for transport

14.2. In Accordance with IMDG Not regulated for transport

14.3. In Accordance with IATA Not regulated for transport

SECTION 15: REGULATORY INFORMATION

15.1. US Federal Regulations

Portland Limestone Cement Status under US OSHA Hazard Communication Rule 29 CFR 1910.1200 - Portland cement is considered a hazardous chemical under this regulation and should be included in the employer's hazard communication program.	
SARA Section 311/312 Hazard Classes	Immediate (acute) health hazard Delayed (chronic) health hazard

Cement, portland, chemicals (65997-15-1)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Limestone (1317-65-3)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Magnesium oxide (MgO) (1309-48-4)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Calcium oxide (1305-78-8)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

Quartz (14808-60-7)
Listed on the United States TSCA (Toxic Substances Control Act) inventory

15.2. US State Regulations

Cement, portland, chemicals (65997-15-1)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Limestone (1317-65-3)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Gypsum (Ca(SO4).2H2O) (13397-24-5)
U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Magnesium oxide (MgO) (1309-48-4)
U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List

Calcium oxide (1305-78-8)
U.S. - Massachusetts - Right To Know List

U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

Quartz (14808-60-7)
U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: OTHER INFORMATION, INCLUDING DATE OF PREPARATION OR LAST REVISION

Revision Date : 12/01/2023

Other Information : This document has been prepared in accordance with the SDS requirements of the OSHA Hazard Communication Standard 29 CFR 1910.1200

GHS Full Text Phrases:

Aquatic Acute 3	Hazardous to the aquatic environment - Acute Hazard Category 3
Carc. 1A	Carcinogenicity Category 1A
Eye Dam. 1	Serious eye damage/eye irritation Category 1
Skin Irrit. 2	Skin corrosion/irritation Category 2
Skin Sens. 1	Skin sensitization, Category 1
STOT RE 1	Specific target organ toxicity (repeated exposure) Category 1
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H318	Causes serious eye damage
H335	May cause respiratory irritation
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure
H402	Harmful to aquatic life

The information provided herein is believed by Hawaiian Cement to be accurate at the time of preparation or prepared from sources believed to be reliable. The SDS is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

Health and safety precautions in this data sheet may not be adequate for all individuals or situations. Users have the responsibility to comply with all laws and procedures applicable to the safe handling and use of the product, to determine the suitability of the product for its intended use, and to understand possible hazards associated with mixing portland cement with other materials. In the case that the product is supplied to other persons, the responsibility of informing consumers about the information in this datasheet before handling, using or disposing of the products shall fall upon your party. Seller makes no warranty, express or implied, concerning the product or the merchantability or fitness there of for any purpose or concerning the accuracy of any information provided by Hawaiian Cement.

SDS US (GHS HazCom)