LEHIGH

LEHIGH PORTLAND CEMENT COMPANY
MATERIAL SAFETY DATA SHEET
FOR
PORTLAND CEMENT

MSDS NUMBER: [York 180]

EFFECTIVE DATE: OCTOBER 1997

1. PRODUCT/COMPANY IDENTIFICATION

Manufacturer's [Supplier's] Name & Address:
Lehigh Portland Cement Company
200 Hokes Mill Road
York, PA. 17404

Telephone Number for Information:
Plant (717) 843-0811
Sales

Chemical Family:
Calcium Compounds

Chemical Name and Synonyms:
Portland Cement (CAS # 65997-15-1), Hydraulic Cement

Trade Name and Synonyms:
Lehigh White Cement Types I, III, Water Repellent I

2. EMERGENCY AND FIRST AID

EMERGENCY INFORMATION:

Portland cement is a light gray or white powder. When in contact with moisture in eyes or on skin, or when mixed with water, portland cement becomes highly caustic (pH > 12) and will damage or burn (as severely as third-degree) the eyes or skin. Inhalation may cause irritation to the moist mucous membranes of the nose, throat and upper respiratory system or may cause or may aggravate certain lung diseases or conditions. Use exposure controls or personal protection methods described in Section 10.

EYES:

Immediately flush eye 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. Seek medical treatment if irritation or inflammation develops or persists. Seek immediate medical treatment in the event of burns.

INHALATION:

Remove person to fresh air. If breathing is difficult, administer oxygen. If not breathing, give artificial respiration. Seek medical help if coughing and other symptoms do not subside. Inhalation of large amounts of portland cement require immediate medical attention.

INGESTION:

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

3. COMPOSITION INFORMATION

DESCRIPTION:

This 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 to a high temperature a mixture of substances such as limestone, sand, clay and shale. Portland cement is essentially hydraulic calcium silicates contained in a crystalline mass, not separable into individual components. Major compounds are:

$3CaO \cdot SiO_2$	Tricalcium Silicate	CAS #12168-85-3
$2CaO \cdot SiO_2$	Dicalcium Silicate	CAS #10034-77-2
$3CaO \cdot Al_2O_3$	Tricalcium Aluminate	CAS #12042-78-3
$4CaO \cdot Al_2O_3 \cdot Fe_2O_3$	Tetracalcium aluminoferrite	CAS #12068-35-8
$CaSO_4 \cdot 2H_2O$	Calcium Sulfate dihydrate (Gypsum)	CAS #7778-18-9 (CAS #13397-24-5)

4. HAZARDOUS INGREDIENTS

COMPONENT	OSHA PEL (8-Hour TWA)	ACGIH TLV-TWA (1995-1996)	NIOSH REL (8-Hour TWA)
Portland Cement (CAS #65997-15-1) 50 to 95% by weight	5 mg respirable dust/m³ 15 mg total dust/m³	10 mg total dust/m³	
Calcium sulfate (CAS #7778-18-9) [Gypsum (CAS #13397-24-5)] 0 to 10% by weight	5 mg respirable dust/m³ 15 mg total dust/m³	10 mg total dust/m³	
Iron oxide (CAS #1309-37-1) 0 to 15% by weight	10 mg/m³	5 mg/m³	
Calcium carbonate (CAS #1317-65-3) 0 to 5% by weight	5 mg respirable dust/m³ 15 mg total dust/m³	10 mg total dust/m³	
Magnesium oxide (CAS #1309-48-4) 0 to 5% by weight	15 mg total dust/m³	10 mg total dust/m³	
Calcium oxide (CAS #1306-78-8) '0 to 5%' by weight	5 mg/m³	2 mg/m³	
Crystalline silica (CAS #14808-60-7) 0 to 0.1%[2] by weight	10 mg of respirable dust/m³ / % SiO_2 + 2 30 mg of total dust/m³ / % SiO_2 + 2 250 million particles/ft³ / % SiO_2 + 5	0.10 mg respirable quartz/m³	0.05 mg respirable quartz dust/m³

TRACE INGREDIENTS:

Due to the use of substances mined from the earth's crust, trace amounts of naturally occurring, potentially harmful constituents may be detected during chemical analysis. Portland cement may contain up to 0.75% insoluble residue. A small amount of this residue includes free crystalline silica. Portland cement also may contain trace (<0.05%) amounts of chromium salts or compounds (including hexavalent chromium) or other metals (including nickel compounds) found to be hazardous or toxic in some chemical forms. These metals are present mostly as trace substitutions within the principal minerals. Other trace constituents may include potassium and sodium sulfate compounds.

[1] If Portland/Lime blended product use "0 to 25%" values.
[2] Values are applicable for sources 100, 180, 400, 440, 741, 907. Use "0 to 0.5%" values for source 100. Use 10 or

5. HAZARD IDENTIFICATION

POTENTIAL HEALTH EFFECTS:

NOTE: Potential health effects may vary depending upon the duration and degree of exposure. To reduce or eliminate health hazards associated with this product, use exposure controls or personal protection methods as described in Section 10.

EYE CONTACT:

(Acute/Chronic) Exposure to airborne dust may cause immediate or delayed irritation or inflammation of the cornea. 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.

SKIN CONTACT:

(Acute) 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. Discomfort or pain cannot be relied upon to alert a person to a hazardous skin exposure.

(Chronic) Dry portland cement coming in contact with wet skin or exposure to 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 chemical (caustic) burns.

(Acute/Chronic) Some individuals may exhibit an allergic response upon exposure to portland cement. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers.

INHALATION:

(Acute) Exposure to portland cement may cause irritation to the moist mucous membranes of the nose, throat and upper respiratory system. Pre-existing upper respiratory and lung diseases may be aggravated by inhalation of portland cement.

(Chronic) Inhalation exposure to free crystalline silica may cause delayed lung injury including silicosis, a disabling and potentially fatal lung disease, and/or cause or aggravate other lung diseases or conditions.

INGESTION:

(Acute/Chronic) Internal discomfort or ill effects are possible if large quantities are swallowed.

CARCINOGENIC POTENTIAL:

Portland cement is not recognized as a carcinogen by NTP, OSHA, or IARC. However, it may contain trace amounts of heavy metals recognized as carcinogens by these organizations. In addition, IARC classifies crystalline silica, a trace constituent, as a known human carcinogen (Group I). NTP has characterized respirable silica as "reasonably anticipated to be a carcinogen." (See also Section 13.)