BIRLA CORPORATION LIMITED
MATERIAL SAFETY DATA SHEET
FOR
PORTLAND CEMENT
REVISED DATE: JULY, 2016

1. PRODUCT/COMPANY IDENTIFICATION

Supplier:	Chemical Family: Calcium Compounds
Birla Corporation Limited	
Durgapur Cement Works	Chemical Name and Synonyms:
Near DSP Slag Bank, Durgapur-03 Phone (0343) 6454008	Portland Cement (CAS # 65997-15-1) .
Contact Number: (USE SALES OFFICE PHONE NUMBER)	Trade Name and Synonyms: Cement, Portland cement, Portland Pozzolana Cement, Portland Slag Cement, Portland Composite Cement.

2. EMERGENCY AND FIRST AID

EMERGENCY INFORMATION:	Portland cement is a light gray or white powder. A single short-term exposure to the dry powder is not likely to cause serious harm. 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.
ACCIDENTIAL RELEASE MEASURES	Clean up spilled material without causing it to become airborne or mixed with water to limit potential harm. Wear appropriate personal protective equipment. Dispose of waste material according to local, state or federal regulations.

3. COMPOSITION INFORMATION

DESCRIPTION:	This product consists of finely ground portland cement clinker mixed with a small amount of gypsum (calcium sulfate dihydrate) and Fly ash or Blast Furnace Slag. 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:	
$3CaO•SiO_2$	Tricalcium Silicate	CAS #12168-85-3
$2CaO•SiO_2$	Dicalcium Silicate	CAS #10034-77-2
$3CaO•Al_2O_3$	Tricalcium Aluminate	CAS #12042-78-3
$4CaO•Al_2O_3•Fe_2O_3$	Tetracalcium aluminoferrite	CAS #12068-35-8
$CaSO_4•2H_2O$	Calcium Sulfate dihydrate (Gypsum)	CAS #7778-18-9 (CAS #13397-24-5)

4. HAZARDOUS INGREDIENTS

COMPONENT	OSHA PEL (8-Hour TWA)	OSHA PEL (8-Hour TWA)	ACGIH TLV-TWA (1995-1996)
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Portland Cement (CAS #65997-15-1) 50 to 95% by weight		5 mg respirable dust/m^3 15 mg total dust/m^3	10 mg total dust/m^3
Calcium sulfate (CAS #7778-18-9) [Gypsum (CAS #13397-24-5)] 0 to 10% by weight		5 mg respirable dust/m^3 15 mg total dust/m^3	10 mg total dust/m^3
Iron oxide (CAS #1309-37-1) 0 to 15% by weight		10 mg/m^3	5 mg/m^3
Calcium carbonate (CAS #1317-65-3) 0 to 5% by weight		5 mg respirable dust/m^3 15 mg total dust/m^3	10 mg total dust/m^3
Magnesium oxide (CAS #1309-48-4) 0 to 5% by weight		15 mg total dust/m^3	10 mg total dust/m^3
Calcium oxide (CAS #1305-78-8) 0 to 5%[1] by weight		5 mg/m^3	2 mg/m^3
Crystalline silica (CAS #14808-60-7) 0 to 5% by weight	$\frac{10 \text{ mg of respirable dust/m}^3}{\% SiO_2 + 2}$ $\frac{30 \text{ mg of total dust/m}^3}{\% SiO_2 + 2}$ $\frac{250 \text{ million particles/ft}^3}{\% SiO_2 + 5}$	0.05 mg respirable quartz/m^3	0.05 mg respirable quartz dust/m^3

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. In PPC IR percentage varies 15% to 32%. Other trace constituents may include potassium and sodium sulfate compounds.

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."

6. PHYSICAL/CHEMICAL DATA

APPEARANCE/ODOR:	Gray, powder, odorless	PHYSICAL STATE:	Solid (Powder)
BOILING POINT:	> 1000°C	MELTING POINT:	Not applicable
VAPOR PRESSURE:	Not applicable	VAPOR DENSITY:	Not applicable
pH (IN WATER)	12 to 13	SOLUBILITY IN WATER:	Slightly soluble (0.1% to 1.0%)
SPECIFIC GRAVITY (H_2O = 1.0):	2.9	EVAPORATION RATE:	Not applicable

7. FIRE AND EXPLOSION

FLASH POINT:	None	LOWER EXPLOSIVE LIMIT:	None
AUTO IGNITION TEMPERATURE:	Not combustible	UPPER EXPLOSIVE LIMIT:	None
FLAMMABLE LIMITS	Not applicable	SPECIAL FIRE FIGHTING PROCEDURES:	None
EXTINGUISHING MEDIA:	Not combustible	UNUSUAL FIRE AND EXPLOSION HAZARDS:	None
HAZARDOUS COMBUSTION PRODUCTS:		None	

8. STABILITY AND REACTIVITY DATA

STABILITY:	Product is stable. Keep dry until used.
CONDITIONS TO AVOID:	Unintentional contact with water. Contact with water will result in hydration and produces (caustic) calcium hydroxide.
INCOMPATIBILITY:	Wet portland cement is alkaline. As such, it is incompatible with acids, ammonium salts and aluminum metal.
HAZARDOUS DECOMPOSITION:	Will not occur.
HAZARDOUS POLYMERIZATION:	Will not occur.

9. PRECAUTIONS FOR HANDLING, STORAGE AND DISPOSAL

HANDLING AND STORAGE	Keep dry until used. Handle and store in a manner so that airborne dust does not exceed applicable exposure limits. Use adequate ventilation and dust collection. Use exposure control and personal protection methods as described in Section 10.
SPILL:	Use dry clean-up methods that do not disperse dust into the air or entry into surface water. Material can be used if not contaminated. Place in an appropriate container for disposal or use. Avoid inhalation of dust and contact with skin and eyes. Use exposure control and personal protection methods as described in Section 10.

DISPOSAL:	Comply with all applicable local, state and federal regulations for disposal of unusable or contaminated materials. Dispose of packaging/containers according to local, state and federal regulations.

10. EXPOSURE CONTROLS/PERSONAL PROTECTION

RESPIRATORY PROTECTION:	Use local exhaust or general dilution ventilation to control dust levels below applicable exposure limits. Minimize dispersal of dust into the air.
If local or general ventilation is not adequate to control dust levels below applicable exposure limits or when dust causes irritation or discomfort, use MSHA/NIOSH approved respirators.	
EYE PROTECTION:	Wear safety glasses with side shields or goggles to avoid contact with the eyes. In extremely dusty environments and unpredictable environments, wear tight-fitting unvented or indirectly vented goggles to avoid eye irritation or injury. Contact lenses should not be worn when handling cement or cement containing products.
SKIN PROTECTION:	Wear impervious abrasion- and alkali-resistant gloves, boots, long-sleeved shirt, long pants or other protective clothing to prevent skin contact. Promptly remove clothing dusty with dry portland cement or clothing dampened with moisture mixed with portland cement, and launder before re-use. If contact occurs, wash areas contacted by material with pH neutral soap and water.

11. TRANSPORTATION DATA

Portland cement is not hazardous.

12. TOXICOLOGICAL AND ECOLOGICAL INFORMATION

For a description of available, more detailed toxicological and ecological information, contact, Durgapur Cement Works.