P. O. Box A, Route 329, Bath, PA 18014 – 610-837-1881
KEYSTONE CEMENT COMPANY

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product Identifier:	Keystone Portland Cements
Other Means of identification:	Portland Cement (Types I/II & III). Masonry Cement (including pigmented, types N, S). This SDS covers many cement products, Individual constituents will vary.
Recommended use and restrictions on use:	Used in the production of concrete. For restrictions see Section 10 for Incompatibility information.
Manufacturer or distributer name:	Keystone Cement Company
Address:	P. O. Box A, Route 329 Bath, PA 18014
Phone Number:	610-837-1881
Emergency Phone Number:	610-837-2240

SECTION 2: HAZARD IDENTIFICATION

GHS Classification: Respiratory or Skin Irritation
GHS LABEL ELEMENTS:
Symbol Descriptions: Corrosive, Exclamation Mark
Signal Word: WARNING
Hazard Statements: May cause eye, skin, or inhalation irritation.
Precautionary Statements: Use Proper engineering controls, work practices and personal protective equipment to prevent exposure to product.

SECTION 3: COMPOSITION / INFORMATION ON INGEDIENTS

Components[1] (%)[2]	**CAS No.**	**% by Weight**
Portland and Masonry Cement	**65997-15-1**	**100**
Tricalciam Silicate 3 CaO – SiO_2	12168-85-3	45-60
Dicalcium Silicate 2 CaO – SiO_2	10034-77-2	10-30
Tricalcium Aluminate 3 CaO – Al_2O_3	12042-78-3	4-13

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS (Continued)

Tetra-calcium aluminoferrite4 CaO - Al_2O_3 Fe_2O_3	12068-35-8	8 - 16
Gypsum $CaSO_4$ - 2 H_2O	7778-18-9	4 - 7
Trace constituents: Portland Cement has a variable composition depending upon the cementitious products produced in the cement kiln. Small amounts of naturally occurring, but potentially harmful, chemical compounds might be detected during chemical analysis. These trace compounds might include free crystalline silica, potassium and sodium compounds; heavy metals including cadmium, chromium, magnesium nickel and lead; and organic compounds. Other trace constituents may include calcium oxide (also known as free lime or quick lime).		
[1] Portland Cement is classified as silicates or particulate matter (less than 1% crystalline silica) by OSHA (29 CFR 1910.1000, Table Z-3), MSHA (30 CFR 56.5001, ACGIH TLV s Guide to Occupational Exposure Values, 2011. Portland Cement is not listed by NTP, IARC, or OSHA as containing carcinogens.		
[2] Small amounts of chloride, crystalline silica, potassium and sodium compounds, cadmium, chromium, nickel, lead and organic compounds may also be present.		
Formula: This product largely consists of finely ground Portland Cement clinker mixed with a small amount of calcium sulfate (gypsum). In addition, cement may contain minor amounts of various additives, e.g. grinding aids and air entrainers.	*Chemical Family:* Chemical compounds. Calcium silicate components and other calcium compounds containing iron and aluminum make up the majority of this product.	

SECTION 4: FIRST AID MEASURES

Eyes:	Irrigate eyes with water for at least 15 minutes, including under the lid, to remove all particles. Contact physician immediately.
Skin:	Flush the exposed skin with cool water and a pH neutral soap or mild detergent for at least 15 minutes depending on the amount and duration of exposure. Immediately remove all contaminated clothing, including footwear. If irritation persists, consult physician.
Inhalation:	Remove to fresh air. Seek medical attention for discomfort or if coughing or other symptoms persist.
Ingestion:	Do not induce vomiting. Seek medical attention or contact poison control center immediately.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable (and unsuitable) extinguishing media:	The presence of this material in a fire does not hinder the use of any standard extinguishing medium. Use extinguishing medium for surrounding fire.
Specific Hazards:	Flash Point (Method Used): Not applicable Flammable Limits: LEL and UEL - Not applicable
Special protective equipment and precautions:	Although Portland Cement poses no fire-related hazards, a self-contained breathing apparatus is recommended to limit exposure to combustion products when fighting any fire.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment, and emergency procedures:	Handle with care and use appropriate control measures. Wear appropriate PPE as described in Section 8.
Methods and materials for containment and clean up:	Use dry clean-up methods that do not disperse the dust into the air. Avoid breathing the dust. Product can be disposed of as non-hazardous waste in accordance with local, state and federal regulations.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:	Prevent dust from being emitted. Wear respiratory protection as needed. Stack bagged material in a secure manner to prevent falling. Bagged Portland Cement is heavy and poses risks such as sprains and strains to the back, arms, shoulders, and legs during lifting and mixing. Handle with care and use appropriate control measures. Wear hard hats and steel-toes shoes to reduce potential injury because bags could be dropped during handling. Properly ground all pneumatic conveyance systems. The potential exists for static build-up and static discharge when moving powders through a plastic, non-conductive, or non-grounded pneumatic conveyance system. The static discharge may result in damage to equipment and injury to workers. Avoid actions that cause the Portland Cement to become airborne during clean-up such as dry sweeping or using compressed air. Use PPE as described in Section 8. Promptly remove and launder clothing that is dusty or wet with Portland Cement. Thoroughly wash skin after exposure to dust or wet kiln dust. *Engulfment hazard*: To prevent burial or suffocation, do not enter a confined space, such as a silo, bin, bulk truck or other storage container or vessel that stores or contains Portland Cement. Portland Cement can build-up or adhere to the walls of a confined space. The Portland Cement can release, collapse, or fall unexpectedly.

SECTION 7: HANDLING AND STORAGE (Continued)

Conditions for safe storage, including any incompatibilities:	Keep bulk and bagged Portland Cement dry until used. Store in cool, dry, well ventilated area away from sources of heat, moisture and incompatible materials.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Respiratory Protection *(Specify Type):*
In dusty environment, use a NIOSH approved particulate filter respirators in the context of a respiratory protection program meeting the requirements of the OSHA 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 ANSI Standard Z88.2 Practices for Respiratory Protection .

Component	OSHA/MSHA PEL	ACGIH TLV
Portland Cement	15 mg/m^3 (Total) / 5 mg/m^3 (Resp) 50 mppcf	1 mg/m^3 (Resp) See Table Z-3
Tricalcium Silicate	Nuisance Dust - See Section 3	1 mg/m^3 (Resp)
Dicalcium Silicate	Nuisance Dust - See Section 3	See Section 3
Tricalcium Aluminate	Nuisance Dust - See Section 3	See Section 3
Tetra-calcium aluminoferrite	Nuisance Dust - See Section 3	See Section 3
Gypsum	Nuisance Dust - See Section 3	See Section 3
Nuisance Dusts	Nuisance Dust - See Section 3	15 mg/m^3 (Total) 5 mg/m^3 (Resp)
Appropriate Engineering Controls/Personal Protective Equipment:	*Local Exhaust:* Use to control exposure within applicable limits *Protective Gloves*: Impervious gloves *Eye Protection*: Tight fitting vented or unvented goggles. Contact lenses should not be worn when working with Portland Cement *Other Protective Clothing and Equipment:* Wear impervious gloves, boots and clothing. Do not rely on barrier creams. *Work/Hygienic Practices:* Shower with water and a pH neutral soap immediately after working with cement.	

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point: Not Applicable	Vapor Pressure (mm Hg): Not Applicable	Vapor Density (AIR = 1): Not Applicable
Solubility in Water: Slight (0.0 - 1.0%)	Specific Gravity (H_2O = 1): 2.8 - 3.15	Melting Point: Not Applicable
Evaporation Rate (Butyl Acetate = 1): Not Applicable	pH as a solid: Not Applicable	pH in water: 12 - 13
Appearance and Odor: Gray Power - Odorless		

SECTION 10: STABILITY AND REACTIVITY

Chemical Stability:	*Stability:* Keep dry. Avoid contact with incompatible materials. Portland Cement reacts with water, resulting in a slight release of heat, depending on the amount of lime (calcium oxide) present. Portland Cement should be kept dry until utilized.
Possibility of Hazardous Reactions:	*Incompatibility:* Wet Portland Cement is alkaline (pH 12 -13). As such it is incompatible with acids, ammonium salts, and aluminum metal. Portland Cement dissolves in hydrofluoric acid, producing corrosive silicon tetra fluoride gas. Silicates react with powerful oxidizers such as fluorine, boron trifluoride, chlorine, trifluoride, magnesium trifluoride and oxygen difluoride. *Hazardous Decomposition or Byproducts:* None *Hazardous Polymerization:* Not known to occur *Conditions to Avoid:* Unintentional contact with water.

SECTION 11: TOXICOLOGICAL INFORMATION

Health Effects:	*Health Hazards (Acute and Chronic):* Acute: Wet cement, especially as an ingredient in plastic (unhardened) concrete, can dry the skin and cause alkali burns. Cement dust will irritate the eyes and upper respiratory system and can cause alkali burns. *Chronic:* Hypersensitive people may develop allergic dermatitis. *Carcinogenicity:* N/A *Signs and Symptoms of Exposure:* Reddened eyes, drying of skin, irritation of upper respiratory tract and throat, alkali burns to skin. *Medical Conditions Generally Aggravated by Exposure:* Dermatitis, pre-existing upper respiratory and lung diseases. *Emergency and First Aid Procedures:* Irrigate eyes with water. Wash affected areas of the skin with pH neutral soap and water. *Effects of Over Exposure: Relevant Routes of Exposure:* Eye contact, skin contact, inhalation, and ingestion *Effects resulting from eye contact:* Exposure to airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with 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 emergency and first aid procedures) and medical attention to prevent significant damage to the eye. *Effects resulting from 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 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. Some individuals may exhibit an allergic response (e.g., allergic contact dermatitis) upon exposure to Portland Cement, possibly due to trace amounts of chromium. The response may appear in a variety of forms ranging from a mild rash to severe skin ulcers. Persons already sensitized may react to the first contact with the product. Other persons may experience this effect after years of contact with Portland Cement products. *Effects resulting from inhalation:* Portland cement contains small amounts of free crystalline silica. Prolonged exposure to respirable free crystalline silica can aggravate other lung conditions and cause silicosis, a disabling and potentially fatal lung disease and/or other diseases. Risk of injury or disease depends on duration and degree of exposure. (Also see Carcinogenic potential below.) 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. *Effects resulting from ingestion:* Although small quantities of dust are not known to be harmful, ill effects are possible if larger quantities are consumed. Portland cement should not be eaten. *Carcinogenic potential: NTP, OSHA, or IARC has not listed Portland cement as a carcinogen.* It may, however, contain trace amounts of substances listed as carcinogens by these organizations. Crystalline silica, which is present in Portland Cement in small amounts, has been listed by IARC and NTP as a known human carcinogen (Group I) through inhalation. Hexavalent chromium is listed by IARC, EPA, NTP and OSHA as Group I known carcinogen by inhalation. *Medical conditions which may be aggravated by inhalation or dermal exposure*: 1) Pre-existing upper respiratory and lung diseases 2) Unusual (hyper) sensitivity to hexavalent chromium (chromium+6) salts.

SECTION 12: ECOLOGICAL INFORMATION (Non-Mandatory)

Ecological	Prevent spilled materials from entering streams, drains, or sewers. A large release of pH material may result in toxicity to aquatic organisms and systems. There is no recognized or unusual toxicity to plants or animals.

SECTION 13: DISPOSAL CONSIDERATIONS (Non-Mandatory)

Safe handling and methods of disposal:	Dispose of waste material according to local, state and federal regulations. Since Portland Cement is stable, uncontaminated material may be saved for future use. Disposed of bags in a approved landfill or incinerator.

SECTION 14: TRANSPORT INFORMATION (Non-Mandatory)

UN Number:	Not applicable
UN Proper Shipping Name:	Not applicable
Packing group, If applicable:	Not applicable
Environmental hazards (e.g., Marine Pollutant:	Not applicable
Other - Labeling Requirements:	This product is not classified as a hazardous material under U.S. Department of Transportation (DOT) regulations.

SECTION 15: REGULATORY INFORMATION (Non-Mandatory)

Specific safety, health and environmental regulations:	*OSHA 29 CFR 1910.1200:* Portland Cement is considered a "hazardous chemical" under this regulation, and should be part of any hazard communication program. *CERCLA/Superfund:* Not listed *Hazard Category Under SARA (Title III) Section 313:* Not subject to reporting requirements under Section 313. *Status under TSCA:* Some substances in Portland Cement are on the TSCA inventory list. *Status under the Federal Hazardous Substance Act:* Portland Cement is a "hazardous substance: subject to statutes promulgated under the subject act. *Status under California Proposition 65: WARNING:* This product contains chemicals known to the State of California to cause cancer and birth defects or other reproductive harm. California law requires the manufacturer to give the above warning in the absence of definitive testing to prove that the defined risks do not exist. *Status under Canadian Environmental Protection Act:* Not listed *Workplace Hazardous Material Information System (Canada):* Portland Cement is considered to be a hazardous material under the Hazardous Product Act as defined by the

SECTION 15 continued

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).

HMIS: Health Hazard: 2 Fire Hazard: 0
Reactivity: 0 Personal Protection: E
NFPA: Health: 1 Flammability: 0
Reactivity: 0 Specific Hazard:

SECTION 16: OTHER INFORMATION (Non-Mandatory)

Date of Preparation: February 15, 2017

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