Material Safety Data Sheet

Section 1: PRODUCT AND COMPANY INFORMATION

Product Name(s): Hydroclinker Mineral Cement

Product Identification: Portland Cement, Hydraulic Cement, Mineral Cement, Portland Cement type GU

Manufacturer:

Enviro-Cement Technology Inc.
30 Fordhouse Blvd
Toronto Ontario M8Z 1M6

Information Telephone Number:
416-875-9409

Product Use: Hydroclinker Mineral Cement is used as a binder and property modifier for concrete and mortar mixes. Distributed in bags, totes and bulk shipment.

Note: This MSDS covers Hydroclinker mineral cement as additive to varies Portland cement types. Individual composition of constituents will vary so please refer to Portland cement MSDS sheet depending on type used.

Section 2: COMPOSITION/INFORMATION ON INGREDIENTS

Component	Percent (By Weight)	CAS Number	OSHA PEL-TWA (mg/m^3)	ACGIH TLV-TWA (mg/m^3)	LD 50 (mouse, intraperitoneal)	LC_{50}
Portland Cement*	100	65997-15-1	15 (T); 5 (R)	1 (R)	NA	NA
Calcium Sulfate*	2-10	13397-24-5	15 (T); 5 (R)	10 (T)	NA	NA
Calcium Carbonate*	0-15	1317-65-3	15 (T); 5 (R)	3 (R), 10 (T)	NA	NA
Calcium Oxide	0-5	1305-78-8	5 (T)	2 (T)	3059 mg/kg	NA
Magnesium Oxide	0-4	1309-48-4	15 (T)	10 (T)	NA	NA
Crystalline Silica	0-0.2	14808-60-7	[(10)/(%SiO_2+2)](R);[(30)/(%SiO_2+2)] (T)	0.025 (R)	NA	NA
Various passive minerals	> 0.2	NA	NA	NA	NA	NA

Section 3: HAZARD IDENTIFICATION

WARNING

Corrosive - Causes severe burns.
Toxic - Harmful by inhalation.
(Contains crystalline silica)

Use proper engineering controls, work practices, and personal protective equipment to prevent exposure to wet or dry product.

Read MSDS for details.

Emergency Overview: Cement is a solid, grey, off white, or white odourless powder. It is not combustible or explosive. A single, short-term exposure to the dry powder presents little or no hazard. Exposure of sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious, potentially irreversible tissue (skin, eye, respiratory tract) damage due to chemical (caustic) burns, including third degree burns.

Potential Health Effects:

Eye Contact: Airborne dust may cause immediate or delayed irritation or inflammation. Eye contact with large amounts of dry powder or with wet cement can cause moderate eye irritation, chemical burns and blindness. Eye exposure require immediate first aid and medical attention to prevent significant damage to the eye.

Skin Contact: Cement may cause dry skin, discomfort, irritation, severe burns, and dermatitis.

Burns: Exposure of sufficient duration to wet cement, or to dry cement on moist areas of the body, can cause serious, potentially irreversible damage to skin, eye, respiratory and digestive tracts due to chemical (caustic) burns, including third degree burns. A skin exposure may be hazardous even if there is no pain or discomfort.

Dermatitis: Cement is capable of causing dermatitis by irritation and allergy. Skin affected by dermatitis may include symptoms such as, redness, itching, rash, scaling, and cracking.

Irritant dermatitis is caused by the physical properties of cement including alkalinity and abrasion.

Allergic contact dermatitis is caused by sensitization to hexavalent chromium (chromate) present in cement. The reaction can range from a mild rash to sever skin ulcers. Persons already sensitized may react to the first contact with cement.

Inhalation(acute): Breathing dust may cause nose, throat or lung irritation, including choking, depending on the degree of exposure. Inhalation of high levels of dust can cause chemical burns to the nose, throat and lungs.

Inhalation(chronic): Risk of injury depends on duration and level of exposure.

Silicosis: 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. See Note to Physicians in Section 4 for further information.

Carcinogenicity: Cement in not listed as carcinogen by IARC or NTP; however, cement contains trace amounts of crystalline silica and hexavalent chromim which are classified by IARC and NTP as known human carcinogens.

Autoimmune Disease: Some studies show that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis may be associated with the increased incidence of several autoimmune disorders such as scleroderma (thickening of the skin), systemic lupus erythematosus, rheaumatoid arthritis and diseased affecting the kidneys.

Tuberculosis: Silicosis increases the risk of tuberculosis.

Renal Disease: Some studies show an increased incidence of chronic kidney disease and end-stage renal disease in workers exposed to respirable crystalline silica.

Ingestion: Do not ingest cement. Although ingestion of small quantities of cement is not known to be harmful, large quantities can cause chemical burns in the mouth, throat, stomach, and digestive tract.

Medical Conditions Aggravated by Exposure:

Individual with lung disease (e.g. bronchitis, emphysema, COPD, pulmonary, disease) or sensitivity to hexavalent chromium can be aggravated by exposure.

Section 4: FIRST AID MEASURES

Eye Contact: Rinse eyes thoroughly with water for at least 15 minutes, including under lids, to remove all particles. Seek medical attention for abrasions and burns.

Skin Contact: Wash with cool water and pH neutral soap or a mild skin detergent. Seek medical attention for rash, irritation, dermatitis, and prolonged unprotected exposures to wet cement mixtures or liquids from wet cement.

Inhalation: Move person to fresh air. Seek medical attention for discomfort or if coughing or other symptoms do not subside.

Ingestion: Do not induce vomiting. If conscious, have person drink plenty of water. Seek medical attention or contact poison control centre immediately.

Note to Physician: The three types of silicosis include:

- Simple chronic silicosis – which result from long-term exposure (more than 20 years) to low amounts of respirable crystalline silica. Nodules of chronic inflammation and scarring proved by the respirable crystalline silica from in the lungs and chest lymph nodes. This disease may feature breathlessness and may resemble chronic obstructive pulmonary disease (COPD).
- Accelerated silica over a short period of time (5-15 years). Inflammation, scarring, and symptoms progress faster in accelerated silicosis than in simple silicosis.
- Acute silicosis – result from short-term exposure to very large amounts of respirable crystalline silica. The lungs become very inflamed and my fill with fluid, causing sever shortness of breath and low blood oxygen levels.

Progressive massive fibrosis may occur in simple or accelerated silicosis, but is more common in the accelerated form. Progressive massive fibrosis result from severe scarring and leads to the destruction of normal lung structures.

Section 5: FIREFIGHTING MEASURES

Flashpoint & Method: Non-combustible

General Hazard: Avoid breathing dust. Wet cement is caustic.

Extinguishing Media: Use extinguishing media appropriate for surrounding fire.

Firefighting Equipment: Cement posed no-fire related hazard. A SCBA is recommended to limit exposures to combustion product when fighting any fire.

Combustion Product: None.

Section 6: ACCIDENTAL RELEASE MESURES

General: Place spilled material into container. Avoid action that causes the cement to Become airborne. Avoid inhalation of cement and contact with skin. Wear appropriate protective equipment as described in Section 8. Scrape wet cement and place container. Allow material to dry or solidify before disposal. Do not wash cement down sewage and drainage systems or into bodies of water (e.g. streams).

Waste Disposal Method:

Dispose of cement according to Federal, State, Provincial and Local regulations.

Section 7: HANDLING AND STORAGE

General: Keep bulk and bagged cement dry until used. Stack bagged material in a secure manner to prevent falling. Bagged cement is heavy and poses risks such as sprains to the back, arms, shoulders and legs during lifting and mixing. Handle with care and use appropriate control measures.

Engulfment hazard. To prevent burial or suffocation, do not enter a confined space, such as a silo, bulk truck, or other storage container or vessel that stores or contains cement. Cement can build-up or adhere to the walls of a confined space. The cement can release, collapse or fall unexpectedly.

Properly ground all pneumatic conveyance systems. The potential exists for static build-up discharge when moving cement powders through a plastic, non-conductive, on non-grounded pneumatic conveyance system. The static discharge may result in damage to equipment and injury to workers.

Usage: Cutting, crushing or grinding hardened cement, concrete or other crystalline silica-bearing materials will release respirable crystalline silica. Use all appropriate measures of dust control or suppression, and Personal Protective Equipment (PPE) described in Section 8 below.

Housekeeping: Avoid actions that cause the cement to become airborne during clean up such as dry sweeping or using compressed air. Use HEPA vacuum or thoroughly we with water to clean-up dust. Use PPE described in Section 8 below.

Storage Temperature: Unlimited.

Storage Pressure: Unlimited.

Clothing: Promptly remove and launder clothing that is dusty or wet with cement. Thoroughly wash skin after exposure to dust or wet cement.

Section 8: EXPOSURE COTROLS AND PERSONAL PROTECTOIN

Engineering Controls: Use local exhaust or general dilution ventilation or other suppression method to maintain dust levels below exposure limits.

Personal Protective Equipment (PPE)

Respiratory Protection: Under ordinary conditions no respiratory protection is requires. Wear a NIOSH approved respiratory that is properly fitted and is in good condition when exposed to dust above exposure limits.

Eye Protection: Wear ANSI approved glasses or safety goggles when handling dust or wet cement to prevent contact with eyes. Wearing contact lenses when using cement, under dusty conditions is not recommended.

Skin Protection: Wear gloves, boot covers and protective clothing impervious to water to prevent skin contact. Do not rely on barrier creams, in place of impervious gloves. Remove clothing and protective equipment that becomes saturated with wet cement and immediately wash exposed areas.

Section 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid (powder).	**Vapour Pressure:**	NA.
Evaporation Rate:	NA.	**Freezing Point:**	None, solid.
Appearance:	Gray, off white or white powder.	**Vapour Density:**	NA.
		Viscosity:	None, solid.
pH (in water):	12-13	**Specific Gravity:**	3.15
Odour:	None.	**Solubility in Water:**	Slightly (0.1-1.0%)
Boiling Point:	>1000®©		

Section 10: STABILTY AND REACTIVITY

Stability: Stable. Keep dry until use. Avoid contact with incompatible materials.

Incompatibility: 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 difloride.

Hazardous Polymerization: None.

Hazardous Decomposition: None.

Section 11 and 12: TOXICOLOGIAL AND ECOLOGICAL INFORAMTION

For questions regarding toxicological and ecological information refer to content information in Section 1.

Section 13: DISPOSAL CONSIDERATIONS

Dispose of waste and containers in compliance with applicable Federal, State, Provincial and Local regulations.

Section 14: TRANSPORT INFORMATION

This product is not classified as a Hazardous Material under U.S. DOT or Canadian TDG regulations.

Section 15: REGULATORY INFORMATION

OSHA/MSHA Hazard Communication:

This product is considered by OSHA/MSHA to be a hazardous chemical and should be included in the employer's hazard communication program.

CERCLA/SUPERFUND: This product is not listed as a CERCLA hazardous substance.

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

EPRCA SARA Section 313:

This product contains none of the substances subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

RCRA: If discarded in its purchased form, this product would not be hazardous waste either by listing or characteristic. However, under RCRA, it is the responsibility of the product user to determine at the time of disposal, weather a material containing the product or derived from the product should be classified as hazardous waste.

TSCA: Portland cement and crystalline silica are exempt from reporting under the inventory update rule.

California Proposition 65:

Crystalline silica (airborne particulates or respirable size) and Chromium (hexavalen compounds) are substances known by the State of California to cause cancer.

WHMIS/DSL: Product containing crystalline silica and calcium carbonate are classified as D2A, E and are subject to WHMIS requirements.

Section 16: OTHER INFORMATION

Abbreviation:

>	Greater Then	NA	Not Applicable
ACGIH	American Conference of Governmental Industrial Hygienists	**NIOSH**	National Institute for Occupational Safety and Health
CAS No	Chemical Abstract Service Number	**NTP**	National Toxicology Program
CERCLA	Comprehensive Environmental Response, Compensations and Liability Act	**OSHA**	Occupational Safety and Health Administration
CFR	Code for Federal Regulations	**PEL**	Permissible Exposure Limit
CL	Ceiling Limit	**Ph**	Negative log of hydrogen ion
DOT	U.S Department of Transportation	**PPE**	Personal Protective Equipment
EST	Eastern Standard Time	**R**	Respirable Particulate
HEPA	High-Efficiency Particulate Air	**RCRA**	Resource Conservation and Recovery Act
HMIS	Hazardous Material Identification System	**SARA**	Superfund Amendments and Reauthorization Act
IARC	International Agency for Research on Cancer	**T**	Total Particulate
LC 50	Lethal Concentration	**TDG**	Transportation of Dangerous Goods
LD 50	Lethal Dose	**TLVA**	Threshold Limit Value
mg/m3	Milligrams per cubic meter	**TWA**	Time Weight Average (8 hour)
MSHA	Mine Safety and Health Administration	**WHIMIS**	Workplace Hazardous Material Information System
NFPA	National Fire Protection Association		

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