

MATERIAL SAFETY DATA SHEET

SECTION I – PRODUCT AND COMPANY IDENTIFICATION

MANUFACTURER'S NAME & ADDRESS: Capitol Cement,
A Division of Capitol Aggregates, Inc.
11551 Nacogdoches Rd.
San Antonio, Texas 78217

PRODUCT NAMES:	Portland Cement Clinker
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EMERGENCY TELEPHONE NUMBER: (210) 871-7260
MSDS INFORMATION OR ASSISTANCE: (210) 871-7000
COMPANY PHONE NUMBER: (210) 871 7000
CHEMICAL NAME: Portland cement clinker
CAS NUMBER: 65997-15-1
TRADE NAMES or SYNONYMS: Portland cement clinker, cement clinker
PRODUCTS USE: The production of various portland cements

SECTION 2 – HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW:

Appearance/Odor: Gray to black granular substance. No odor.

CONTACT WITH WET OR DRY PORTLAND CEMENT CLINKER IS DANGEROUS AND MAY CAUSE SEVERE SKIN IRRITATION, CHEMICAL BURNS, AS WELL AS DAMAGE TO HUMAN TISSUE, INCLUDING EYES AND OTHER ORGANS. IN ADDITION, BREATHING PORTLAND CEMENT CLINKER DUST OVER A PERIOD OF TIME MAY IN SOME CASES RESULT IN CANCER AND OTHER DISEASES.

Portland cement clinker is not listed by the National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), or OSHA as carcinogens. However, portland cement clinker may contain <0.1% sand or crystalline silica. The IARC classifies respirable crystalline silica as a Group I- Known Human Carcinogen. The NTP also lists respirable crystalline silica as a known carcinogen. Portland cement clinker may also contain trace amounts of hexavalent chromium, which is classified by IARC as a Group-I Known Human Carcinogen and by NTP as a Known Carcinogen.

OSHA REGULATORY STATUS:

Portland cement clinker is considered HAZARDOUS by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

POTENTIAL HEALTH EFFECTS:

LIKELY ROUTES OF EXPOSURE: Portland cement clinker dusts: Inhalation, Eye or Skin contact, or Ingestion
Wet cement clinker: Skin and Eye contact

TARGET ORGAN(S): Lungs, Skin, Eyes, Stomach/Intestines, other internal organs.

EYES:

- Avoid eye contact. Exposure to cement clinker dust may be irritating to the eyes and may impair visibility. Exposure may also result in conjunctivitis and inflammation of the mucous membrane covering the inner eyelid and front of the eyeball.
- Particulates from portland cement clinker dust may cause eye irritation resulting in pain, swelling and inflammation of the eyes.
- Contact with wet portland cement clinker may cause caustic burns to the eyes.
- Calcium oxide compounds create severe burns as the compounds tend to react with the moisture and protein of the eyes, forming clumps of moist compounds that act as reservoirs for continued release of calcium hydroxide.

WHEN WORKING WITH PORTLAND CEMENTS OR PORTLAND CEMENT CLINKER (WET OR DRY) ALWAYS WEAR PROTECTIVE EYEWEAR MEETING APPLICABLE OSHA STANDARDS.

SKIN:

- Avoid skin contact. Exposure to portland cement clinker dusts may be irritating to the skin by chemical or mechanical means. This condition may be aggravated by perspiration or moisture.
- Contact with wet portland cement clinker may cause severe skin irritation or chemical burns, which may not be apparent or painful for 12 to 48 hours after exposures of 1 to 6 hours. This condition may be aggravated by perspiration or moisture.
- Contact with wet portland cement clinker may also result in contact dermatitis, which is characterized by dryness, chapping, and reddening and, in some cases, may result in allergic contact dermatitis, which may in turn cause more frequent episodes and longer duration of skin conditions.
- Skin sensitivity may occur if hexavalent chromium is present in these products.
- Skin contact with more hydrated forms of calcium sulfate may cause thermal burns during the hardening process.

WHEN WORKING WITH PORTLAND CEMENT CLINKER (WET OR DRY) ALWAYS WEAR PROTECTIVE IMPERVIOUS CLOTHING, WATERPROOF GLOVES AND, IF APPROPRIATE, WATERPROOF KNEEPADS AND BOOTS, MEETING APPLICABLE OSHA STANDARDS.

INHALATION:

- Avoid prolonged and repeated inhalation of portland cement clinker dust. Acute and chronic exposure to dusts may be irritating to the respiratory tract and may provoke bronchoconstriction.
- Respirable portland cement clinker dust can cause bothersome deposits in the nasal passages. Nuisance dusts cause toxicity from physical overloading of the respiratory clearance mechanisms.
- Significant deterioration of pulmonary function, chronic bronchitis, and emphysema can develop with prolonged overexposure to high concentrations of cement clinker dusts.
- Continued overexposure to portland cement clinker dust containing silica can result in silicosis, a chronic, progressive and sometimes fatal lung disease that is characterized by the presence of typical nodulation of the lungs leading to fibrosis. Silicosis can develop in weeks with high exposure

- and after years of lower exposure. Symptoms and signs of silicosis include cough, shortness of breath, wheezing, decreased pulmonary function, and changes in chest X-rays.
- Some studies have shown that respirable silica may also be associated with increased risk of autoimmune disorders, chronic kidney disease and end stage renal disease.
- Particulates from portland cement clinker dust may cause upper respiratory tract irritation resulting in coughing, production of phlegm, or difficulty breathing.
- Excessive, long-term inhalation of portland cement clinker dusts may contribute to the development of occupational bronchitis and reduced breathing capacity, and may lead to the increased susceptibility to lung disease.
- Chronic overexposure to portland cement clinker dust may result in perforation of the nasal septum.
- Exposure to calcium sulfate dust causes upper respiratory tract irritation primarily as a nuisance dust.
- Respirable silica, and hexavalent chromium, which may be present in small or trace amounts in portland cement clinker, are classified as known carcinogens.

AVOID BREATHING PORTLAND CEMENT CLINKER DUST. IF POSSIBLE, USE THESE PRODUCTS FROM AN UPWIND LOCATION. IF DUSTY CONDITIONS CANNOT BE AVOIDED, WEAR A NIOSH/MSHA APPROVED RESPIRATOR.

INGESTION:

- Minute amounts accidentally ingested during industrial handling are not likely to cause injury.
- Ingestion of portland cement clinker may cause irritation of the mouth, throat, esophagus and stomach with nausea, vomiting and diarrhea.
- Ingestion may also cause mucosal burns of the mouth, esophagus, and stomach; and bezoar formations in the stomach and intestines. Most will pass spontaneously, but larger ones may cause obstruction and require surgical removal.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

- Chronic exposure to portland cement clinker dusts may enhance susceptibility to respiratory tract infections.
- Silica can cause silicosis a chronic, progressive and sometimes fatal lung disease which, in turn, increases the risk of pulmonary tuberculosis infection. Some studies have shown that silica may also be associated with increased risk of autoimmune disorders, chronic kidney disease and end stage renal disease.
- Smoking may increase the risk of developing lung disorders associated with silicosis. Smoking and lung disease may exacerbate the effects of exposure. Genetic factors may also exacerbate the effects of exposure.
- History of smoking is also a contributing factor in the chronic respiratory effects associated with portland cement clinker dusts.
- Portland cement clinker exposure can result in allergic contact dermatitis, which may in turn cause more frequent episodes and longer duration of skin conditions.
- There have been several epidemiological studies suggesting an association between chronic exposure to portland cements and cancers.
- Drying and chapping may make the skin more susceptible to other irritants, sensitizers and disease.

POTENTIAL ENVIRONMENTAL EFFECTS:

None known.

SECTION 3 – COMPOSITION INFORMATION ON INGREDIENTS

Clinker is produced in a kiln at high temperatures (> 1200° C) and consists of solid nodules that contain a controlled and inseparable mix of minerals. Portland cement clinker consists, chiefly, of the four minerals: tricalcium silicate, dicalcium silicate, tricalcium aluminate, and tetracalcium aluminoferrites. Clinker is finely ground with small amounts of other products to make finished cement.

Component	CAS No.	Wt.%	Hazardous?
Tricalcium silicate $3\text{CaO}\cdot\text{SiO}_2$	12168-85-3	<75	NO
Dicalcium silicate $2\text{CaO}\cdot\text{SiO}_2$	10034-77-2	<20	NO
Tricalcium aluminate $3\text{CaO}\cdot\text{Al}_2\text{O}_3$	12042-78-3	<15	NO
Tetracalcium aluminoferrite $4\text{CaO}\cdot\text{Al}_2\text{O}_3\cdot\text{Fe}_2\text{O}_3$	12068-35-8	<10	NO

In addition to the elements listed above, portland cement clinker may also contain small amounts of calcium oxide (CaO), magnesium oxide (MgO), potassium sulfate (K_2SO_4) and sodium sulfate (Na_2SO_4).

SECTION 4 – FIRST AID MEASURES

EYE CONTACT:

Immediately irrigate eyes with large amounts of water and continue flushing for at least 15 minutes and **get prompt medical attention**.

SKIN CONTACT:

Wash any affected areas thoroughly with water and soap if available. Apply sterile dressings to abraded skin areas to prevent further irritation. If redness or irritation occurs and persists, **seek medical attention**.

INHALATION:

If inhaled, **seek medical attention immediately**. Drink water to assist in diluting the caustic particulates that may have reached the respiratory or gastrointestinal tracts.

INGESTION:

If ingested, **seek medical attention immediately**. Drink water to assist in diluting the caustic particulates that may have reached the respiratory or gastrointestinal tracts. Do not induce vomiting.

NOTES TO PHYSICIAN:

See all of the above and the POTENTIAL HEALTH EFFECTS in Section 2 above. In particular, note that (i) calcium oxide compounds create severe chemical burns as the compounds tend to react with the moisture and protein of the eyes, forming clumps of moist compounds that act as reservoirs for continued release of calcium hydroxide, and (ii) prolonged inhalation of crystalline silica can result in silicosis, a disabling and potentially fatal lung disease, tuberculosis and other diseases, as well as the aggravation of other conditions.

SECTION 5 – FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES:

Noncombustible and not explosive.

EXTINGUISHING MEDIA:

N/A

PROTECTION OF FIREFIGHTERS:

See POTENTIAL HEALTH EFFECTS in Section 2, and Personal Protective Equipment (PPE) listed under Sections 2 and 8. Firefighters and other emergency service providers should avoid breathing portland cement clinker dust.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS:

Use PPE specified in Section 8 (Exposure Controls/Personal Protection). Also see Section 2 (Hazards Identification), Section 7 (Handling & Storage), and Section 10 (Stability & Reactivity).

ENVIRONMENTAL PRECAUTIONS:

Do not allow spilled material to enter sewers or waterways.

METHODS OF CONTAINMENT:

Use dry cleanup methods that do not disperse dust into the air.

METHODS FOR CLEAN-UP:

Emergency procedures are not usually necessary. Large spills may be picked up using vacuum pumps, shovels, buckets, or other means and placed in drums or other suitable containers.

OTHER INFORMATION:

Notify appropriate local authorities of spills into sewers or waterways.

SECTION 7 – HANDLING AND STORAGE

HANDLING:

Minimize dust generation and avoid prolonged and repeated exposure to dusts.

STORAGE:

Keep dry until used. No other special storage procedures are necessary for the protection of portland cement clinker. Keep workers off large piles of these products to minimize dust levels and always follow the safety guidelines in the next following paragraph.

Do not enter a silo or other enclosure containing bulk quantities of these products without using all appropriate safety precautions as engulfment or suffocation may occur. Portland cement clinker may form a surface crust which appears solid but may not support the weight of humans. Accordingly, do not stand on portland cement

clinker without using all appropriate safety precautions, including, without limitation, properly employed harnesses, lifelines and all other necessary safety equipment.

OTHER:

Cutting or grinding hardened products containing portland cement clinker may release respirable crystalline silica. Use appropriate measures to control dust and wear PPE.

KEEP THESE PRODUCTS OUT OF THE REACH OF CHILDREN.

Also see Section 8 (Exposure Controls/Personal Protection).

SECTION 8 – EXPOSURE CONTROLS / PERSONAL PROTECTION

EXPOSURE GUIDELINES:

Component (%)	CAS No.	OSHA PEL (8hour TWA)	ACGIH TLV TWA
Portland cement clinker	65997-15-1	5 mg/m ³ (respirable dust) 15 mg/m ³ (total dust)	3 mg/m ³ (respirable dust) 10mg/m ³ (total dust)
Tricalcium silicate (20-70)	12168-85-3	see Nuisance Dusts PEL	see Nuisance Dusts TLV
Dicalcium silicate (10-60)	10034-77-2	see Nuisance Dusts PEL	see Nuisance Dusts TLV
Tetracalcium aluminoferrite (5-15)	12068-35-8	see Nuisance Dusts PEL	see Nuisance Dusts TLV
Calcium sulfate (2-10)	13397-24-5	see Nuisance Dusts PEL	see Nuisance Dusts TLV
Tricalcium aluminate (1-15)	12042-78-3	see Nuisance Dusts PEL	see Nuisance Dusts TLV
Magnesium oxide (0-4)	1309-48-4	15 mg/m ³ (total dust)	10 mg/m ³ (total dust)
Nuisance dusts	---	5 mg/m ³ (respirable dust) 15 mg/m ³ (total dust)	5 mg/m ³ (respirable dust) 10 mg/m ³ (total dust)

In addition to the elements listed above, portland cement clinker may also contain small amounts of calcium oxide (CaO), potassium sulfate (K₂SO₄), sodium sulfate (Na₂SO₄) and magnesium aluminate silicate (MgO·Al₂O₃·SiO₂), which are considered hazardous (and the case of crystalline silica, carcinogenic) and trace amounts (below 0.1%) of chromium salts or compounds (including hexavalent chromium which is also considered carcinogenic) or other metals (including nickel compounds).

Component (%)	CAS No.	OSHA PEL (8-hour TWA)	ACGIH TLV-TWA
Crystalline silica (0-.1)	14808-60-7	10 mg/m ³ /percent silica + 2 (respirable dust) 30 mg/m ³ /percent silica + 2 (total dust)	0.05 mg/m ³ (respirable dust)
Hexavalent chromium (measured as chromic acid and chromates)	18540-29-9	5 mg/m ³ (total dust)	

ENGINEERING CONTROLS:

If possible, use portland cement clinker from an upwind location to prevent eye and/or respiratory exposure. If portland cement clinker is used in enclosed or confined space, adequate ventilation must be provided to prevent buildup of dusts and exposure above exposure limits listed above. It is recommended that local exhaust be used to control airborne dust levels whenever feasible.

PERSONAL PROTECTIVE EQUIPMENT (PPE):**EYE/FACE PROTECTION:**

To prevent eye contact, wear appropriate protective eyewear meeting applicable OSHA standards, i.e. safety glasses with side shields, safety goggles or face shields when handling wet or dry portland cement clinker or portland cement clinker dust. Dust goggles should be worn in extremely dusty conditions. Wearing contact lenses when working with cement is not recommended.

SKIN PROTECTION:

Precautions must also be taken to protect skin. Avoid contact with skin, as cement burns the skin with little warning since the heat produced by cement burning is not easily sensed by human skin. Use barrier creams; impervious, abrasion- and alkali-resistant protective clothes, gloves; kneepads, and boots meeting applicable OSHA standards to protect skin from contact with wet cement in plastic (unhardened) concrete, mortar or slurries. Immediately after working with cement or cement containing materials, workers should remove clothing soiled with cement dust and shower with soap and water. Affected clothes should also be thoroughly cleaned.

RESPIRATORY PROTECTION:

Avoid breathing portland cement clinker dust. For dust concentrations above the exposure limits for nuisance dust or silica, a NIOSH/MSHA-approved particulate dust respiratory must be used in accordance with the requirements of 29 CFR 1910.134.

GENERAL HYGIENE CONSIDERATIONS:

Practice good housekeeping and hygiene practices to minimize generating and spreading airborne dust. Always wash areas of the body (hands, face, arms, etc.) that have come in contact with portland cement clinker immediately. Always wash hands and face with soap and water before eating, drinking, or smoking.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Gray to black or white powder.
Odor	No odor.
Physical State	Solid lumps or nodules
pH	N/A - Solid
Melting Point	N/A – Portland cement clinker is a solid.
Boiling Point	N/A
Flash Point	N/A – Noncombustible and not explosive.
Evaporation Rate (n-butyl acetate=1)	N/A – Portland cement clinker is a solid.
Flammable or Explosive Limits	N/A
Lower Explosive Limit (LEL)	N/A
Upper Explosive Limit (UEL)	N/A
Vapor Pressure (mm Hg@20°C)	N/A – Portland cement clinker is a solid.
Vapor Density (air=1)	N/A
Specific Gravity (H ₂ O=1)	3.15
Solubility in Water	Slight (0.1 – 1.0%)
Percent Volatile by Volume	N/A
Volatile Organic Content	N/A
Molecular Weight	No data

SECTION 10 – STABILITY AND REACTIVITY

CHEMICAL STABILITY:

Portland cement clinker is stable. Keep dry until used.

Portland cement clinker reacts slowly with water forming hardened hydrated compounds, releasing heat and producing a strong alkaline solution.

INCOMPATIBLE MATERIALS:

Portland cement clinker is highly alkaline and will react with acids to produce a violent, heat-generating reaction. Toxic gases or vapors may be given off depending on the acid involved. Portland cement clinker reacts with aluminum metals and ammonium salts. .

Limestone ignites on contact with fluorine and is incompatible with acids, alum, ammonium salts, and magnesium. Silica reacts violently with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride yielding possible fire and/or explosions. Silicates dissolve readily in hydrofluoric acid producing a corrosive gas-silicon tetrafluoride.

HAZARDOUS DECOMPOSITION PRODUCTS:

Silica-containing respirable dust particles may be generated if dried portland cement is handled.

POSSIBILITY OF HAZARDOUS REACTIONS:

None expected.

SECTION 11 – TOXICOLOGICAL INFORMATION

ACUTE TOXICITY:

Portland cement LD50/LC50 = not available.

CARCINOGENICITY:

A; General product Information:

The Occupational Safety and Health Administration (OSHA), the National Toxicology Program (NTP) and the International Agency for Research on Cancer (IARC) have not listed portland cement clinker as a carcinogen.

B: Component Carcinogenicity

These products, however, do contain constituents which are listed by IARC and NTP as carcinogens.

CHRONIC TOXICITY:

Crystalline silica is considered hazardous by inhalation. IARC has classified such silica as a Group I substance, carcinogenic to humans. This classification is based on the findings of laboratory animal studies (inhalation and implantation) and epidemiology studies that were considered sufficient for carcinogenicity. NTP has also classified respirable crystalline silica as a known carcinogen. Excessive exposure to crystalline silica can cause silicosis, a chronic, progressive and sometimes fatal lung disease which, in turn, increases the risk of pulmonary tuberculosis infection.

Hexavalent chromium has also been classified by IARC as a Group I carcinogenic to humans and by NTP as a known carcinogen. Some of the adverse health effects from hexavalent chromium exposures, include nasal and sinus cancers, kidney and liver damage, nasal and skin irritation and ulceration, and eye irritation and damage.

SECTION 12 – ECOLOGICAL INFORMATION

ECOTOXICITY:

Portland cement clinker hardens with water or moisture and is not expected to present unusual ecotoxicity risks. See Section 9 & 10 for relevant physical and chemical properties.

SECTION 13 – DISPOSAL CONSIDERATIONS

DISPOSAL RECOMMENDATIONS:

Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

REGULATORY DISPOSAL INFORMATION:

If portland cement clinker becomes a waste material, it does not meet the criteria of a hazardous waste as defined under the Resource Conservation And Recovery Act (RCRA), 40 CFR 261. However, under the RCRA the product user may be required to determine at the time of disposal whether material containing these products or derived from these products should then be classified as a hazardous waste.

SECTION 14 – TRANSPORT INFORMATION

BASIC SHIPPING DESCRIPTION:

U.S. Department of Transportation (DOT) Highway/Rail (Bulk): Not classified.

U.S. Department of Transportation (DOT) Highway/Rail (Non-bulk): Not classified.

ADDITIONAL INFORMATION:

The DOT description is provided to assist in the proper shipping classification of these products and may not be suitable for all required shipping descriptions.

SECTION 15 – REGULATORY INFORMATION

OSHA:

Portland cement clinker is considered a hazardous chemical under 29 CFR 1910.1200 and should be included in employers' hazardous communication programs.

TSCA:

Some substances in portland cement clinker are considered are included on the TSCA inventory.

CERCLA:

Portland cement clinker is not listed as hazardous substance under CERCLA.

SARA TITLE III:

Section 302:

This product contains no "Extremely Hazardous Substances."

Section 311/312:

These products are considered a hazardous chemical and may have both immediate and delayed health effects.

Section 313:

These products do not contain any constituents listed under SARA (Title III) Section 313 in amounts requiring supplier notification under 40 CFR part 372 Subpart C.

FEDERAL HAZARDOUS SUBSTANCES ACT:

Portland cement is a "hazardous substance" subject to statutes promulgated under this Act.

INTERNATIONAL REGULATIONS:

Not applicable since not shipped internationally.

US STATE REGULATIONS: California Proposition 65:

Portland cement clinker may contain crystalline silica which is known to the State of California to cause cancer. It may also contain trace elements of heavy metals known to the State of California to cause cancer, birth defects, or other reproductive harm.:

<u>Name</u>	<u>CAS Number</u>
Crystalline Silica	14808-60-7
Chromium VI compounds	Various
Nickel Compounds	Various
Nickel	Various
Lead	Various

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.

SECTION 16 – OTHER INFORMATION

NFPA Ratings:

Health: 1 Flammability: 0 Reactivity: 0

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

LABEL TEXT:**WARNING**

Portland cement clinker consists, chiefly, of the four minerals: tricalcium silicate, dicalcium silicate, tricalcium aluminate, and tetracalcium aluminoferrites. Small amounts of crystalline silica (SiO₂), calcium oxide (CaO), magnesium oxide (MgO), potassium sulfate (K₂SO₄) and sodium sulfate (Na₂SO₄) may also be present, as may trace amounts of hexavalent chromium (CrVI). These substances are considered to be hazardous. Crystalline silica and hexavalent chromium are substances which some health organizations believe are carcinogens.

CONTACT WITH WET OR DRY PORTLAND CEMENT CLINKER IS DANGEROUS AND MAY CAUSE SEVERE SKIN IRRITATION, CHEMICAL BURNS, AS WELL AS DAMAGE TO HUMAN TISSUE, INCLUDING EYES AND OTHER ORGANS. IN ADDITION, BREATHING PORTLAND CEMENT CLINKER DUST OVER A PERIOD OF TIME MAY IN SOME CASES RESULT IN CANCER AND OTHER DISEASES. AS A RESULT, PROTECT YOURSELF FROM CONTACT WITH THESE PRODUCTS. DO NOT BREATHE CEMENT DUST. WHEN WORKING WITH PORTLAND CEMENT CLINKER (WET OR DRY) ALWAYS WEAR PROTECTIVE IMPERVIOUS CLOTHING, EYEWEAR, WATERPROOF GLOVES AND, IF APPROPRIATE, WATERPROOF KNEEPADS AND BOOTS. IN DUSTY CONDITIONS, ALSO WEAR A NIOSH/MSHA APPROVED RESPIRATOR. If any contact with skin or eyes occurs, immediately flush the area thoroughly with clean water and rinse any affected clothing. If ingested, drink water; do not induce vomiting. In the event of eye contact, inhalation, ingestion, or if irritation or pain is severe or persists, seek medical attention immediately. BEFORE USING, ALSO READ THE MATERIAL SAFETY DATA SHEET FOR THIS PRODUCT FOUND AT WWW.CAPITOLAGGREGATES.COM.

KEEP OUT OF THE REACH OF CHILDREN

ABBREVIATIONS:

ACGIH	American Conference of Governmental Industrial Hygienists
ASTM	American Society for Testing and Materials
CAS	Chemical Abstract Service
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
DOT	Department of Transportation
ft ³	Cubic Foot
IARC	International Agency for Research on Cancer
m ³	Cubic meter
mg	Milligram
MSDS	Material Safety Data Sheet
MSHA	Mine Safety and Health Administration
N/A	Not applicable
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety and Health
NTP	National Toxicology Program
OSHA	Occupational Safety and Health Administration
PEL	Permissible Exposure Limit
PPE	Personal Protective Equipment
RQ	Reportable Quantity
TLV	Threshold Limit Value
TRI	Toxic Release Inventory
TSCA	Toxic Substance Control Act
TWA	Time Weighted Average

NOTE: This MSDS attempts to describe as accurately as possible the potential exposures associated with normal use of portland cement clinker. Health and safety precautions on this data sheet may not be adequate for all individuals and/or situations. Users have the responsibility to evaluate and use these products safely and to comply with all applicable environmental, health, and safety laws and regulations.

Prepared in June 2011

Supersedes any and all previous versions (extensive revisions were made)

Disclaimer of Warranty:

While the information provided herein is believed to provide a useful summary of the hazards of portland cement clinker as commonly used, this MSDS cannot anticipate and provide all of the information that might be needed by every individual in every situation. Inexperienced users should obtain proper training prior to using any portland cement or portland cement clinker and no one should use any portland cement clinker without following all applicable safety laws and regulations related to its storage, handling, use and disposal and without first understanding the potential hazards of mixing portland cement clinker with other materials. This MSDS does not cover such potential hazards.

The information provided in this MSDS is believed by Capitol Aggregates, Inc. to be accurate at the time it was prepared or it was prepared from sources then believed to be reliable. It is the responsibility of the user independently to investigate and understand other pertinent sources of information and to comply with all laws, regulations and procedures applicable to the safe storage, handling, use and disposal of portland cement. It is also the responsibility of the user to independently determine the suitability or fitness of any of the products covered by this MSDS for their intended uses.

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