

# Safety Data Sheet

## Portland Cement Kiln Dust

### Section 1: Identification

**MANUFACTURER'S NAME & ADDRESS:** Capitol Aggregates Inc.  
11551 Nacogdoches Rd.  
San Antonio, Texas 78217

|                      |                           |
|----------------------|---------------------------|
| <b>PRODUCT NAME:</b> | Portland Cement Kiln Dust |
|----------------------|---------------------------|

**EMERGENCY TELEPHONE NUMBER:** (210) 871 6111  
**MSDS INFORMATION OR ASSISTANCE:** (210) 871-7247  
**COMPANY PHONE NUMBER:** (210) 871 7260  
**CHEMICAL NAME:** Portland Cement Kiln Dust  
**CAS NUMBER:** 68475-76-3  
**TRADE NAME or SYNONYMS:** (Portland Cement Kiln Dust, CKD, By-pass Dust)  
**PRODUCT USE:** Various Construction applications, waste treatment, soil stabilization

### Section 2: Hazards Identification

WARNING! CONTACT WITH WET OR DRY PORTLAND CEMENT KILN DUST 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 CEMENT KILN DUST OVER A PERIOD OF TIME MAY IN SOME CASES RESULT IN CANCER AND OTHER DISEASES.

**Classification of the substance or mixture:** SKIN CORROSION/IRRITATION — Category 1  
SERIOUS EYE DAMAGE/ EYE IRRITATION — Category 1  
SKIN SENSITIZATION — Category 1  
CARCINOGENICITY/INHALATION — Category 1A  
SPECIFIC TARGET ORGAN TOXICITY  
(SINGLE EXPOSURE) [Respiratory tract irritation] — Category 3  
(EXTENDED EXPOSURE) ) [Respiratory tract irritation] — Category 1

**GHS label elements****Hazard pictograms:****Signal word:****Danger****Hazard statements:****Causes severe skin burns and eye damage.****May cause an allergic skin reaction.****May cause respiratory irritation (Inhalation).****May cause cancer (inhalation).****EMERGENCY OVERVIEW:**

Appearance/Odor: Gray or white powder. No odor.

Carcinogen, Acute &amp; Chronic Toxin WARNING:

- Portland Cement Kiln Dust is **NOT** listed by the National Toxicology Program (NTP), International Agency for Research on Cancer (IARC), or OSHA as carcinogens. However, Portland Cement Kiln Dust 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 Kiln Dust may also contain trace amounts of hexavalent chromium, which is classified by IARC as a Group-1 Known Human Carcinogen and by NTP as a Known Carcinogen.

**OSHA REGULATORY STATUS:**

This product is considered HAZARDOUS by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

**POTENTIAL HEALTH EFFECTS:**

LIKELY ROUTES OF EXPOSURE: Cement Kiln Dusts: Inhalation, Eye or Skin contact, or Ingestion. Wet cement: Skin and Eye contact

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

**EYE**

- Avoid eye contact. Exposure to dust may be irritating to the eyes and may impair vision. Exposure may result in conjunctivitis and inflammation of the mucous membrane covering the inner eyelid and front of the eyeball.
- Particulates from Portland Cement Kiln Dust may cause eye irritation resulting in pain, swelling and inflammation of the eyes.
- Contact with wet Portland Cement Kiln Dust, e.g., unhardened cement, mortar or slurries, 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 CEMENT KILN DUST (WET OR DRY) ALWAYS WEAR PROTECTIVE EYEWEAR MEETING APPLICABLE OSHA STANDARDS.

#### SKIN

- Avoid skin contact. Exposure to Portland Cement Kiln 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 Kiln Dusts, e.g., unhardened cement, mortar or slurries, 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 Kiln Dusts may 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 the Portland Cement Kiln Dust.
- Skin contact with more hydrated forms of calcium sulfate may cause thermal burns during the hardening process.

WHEN WORKING WITH PORTLAND CEMENT KILN DUST (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 Kiln Dusts. Acute and chronic exposure to dusts may be irritating to the respiratory tract and may provoke bronchoconstriction.
- Respirable dusts 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 dusts.
- Continued overexposure to Portland Cement Kiln Dusts 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 exposures 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 Kiln Dusts may cause upper respiratory tract irritation resulting in coughing, production of phlegm, or difficulty breathing.
- Excessive, long-term inhalation of Portland Cement Kiln 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 Kiln Dusts has resulted 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 Kiln Dusts, are classified as known carcinogens.

AVOID BREATHING PORTLAND CEMENT KILN 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 Kiln Dusts 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 nuisance 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 cement dusts.
- Portland Cement Kiln Dusts 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.

### Section 3: Composition / Information on Ingredients

| Component   | CAS No.    | Wt.%  | Hazardous? | GHS-US   |
|---|------------|-------|------------|--|
| <i>Portland Cement Kiln Dust, which essentially consists of the following:</i>                  |            |       |            |  |
| <i>Portland Cement Kiln Dust</i>  | 68475-76-3 | 0-100 |            | Skin Irrit. 2, H315<br>Eye Dam. 1, H318<br>Skin Sens. 1, H317<br>STOT SE 3, H335 |
| Tricalcium Silicate 3CaO·SiO <sub>2</sub>   | 12168-85-3 | <70   | NO         |  |
| Dicalcium Silicate 2CaO·SiO <sub>2</sub>  | 10034-77-2 | <20   | NO         |  |
| Tricalcium Aluminate 3CaO·Al <sub>2</sub> O <sub>3</sub>  | 12042-78-3 | <15   | NO         |  |
| Tetracalcium Aluminoferrite 4CaO·Al <sub>2</sub> O <sub>3</sub> ·Fe <sub>2</sub> O <sub>3</sub> | 12068-35-8 | <7    | NO         |  |
| Crystalline Silica (quartz)   | 14808-60-7 | <0.1% | Yes        | Acute Tox. 4 (Oral), H302<br>Carc. 1A, H350<br>STOT RE 1, H372                   |

**Crystalline Silica is reported as total silica and not just the respirable fraction.**

Any concentration shown as a range is to protect confidentiality of trade secret information or is due to process variation. Portland Cement Kiln Dust is created in the kiln during the production of Portland Cement clinker. The Dust is a particulate mixture of partially calcined and unreacted raw cement feed, clinker dust, ash and other substances. Portland Cement Clinker is a sintered material produced by heating to a high temperature (>1200 °C) a mixture of substances such as limestone and shale from the earth's crust. It is essentially hydraulic calcium silicates contained in a crystalline mass, not separable into the individual components.

In addition to the elements listed above, Portland Cement Kiln Dust may also contain small amounts of calcium oxide (CaO), magnesium oxide (MgO), potassium sulfate (K<sub>2</sub>SO<sub>4</sub>) and sodium sulfate (Na<sub>2</sub>SO<sub>4</sub>), 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).

### Section 4: First Aid Measures

#### EYE CONTACT

Get medical attention immediately. Call a poison center or physician. Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 20 minutes. Chemical burns must be treated promptly by a physician. **Get prompt medical attention.**

#### SKIN CONTACT

Get medical attention immediately. Heavy exposure to Portland Cement Kiln Dusts, wet concrete or associated water requires prompt attention. Quickly remove contaminated clothing, shoes, and leather goods such as watchbands and belts. Quickly and gently blot or brush away excess Portland Cement Kiln Dusts. Immediately wash thoroughly with lukewarm, gently flowing water and non-abrasive pH neutral soap. Seek medical attention for rashes, burns, irritation, dermatitis and prolonged unprotected exposures to wet cement, cement mixtures or liquids from wet cement. Burns should be treated as caustic burns. Portland Cement Kiln Dusts causes skin burns with little warning.

Discomfort or pain cannot be relied upon to alert a person to a serious injury. You may not feel pain or the severity of the burn until hours after the exposure. Chemical burns must be treated promptly by a physician. In the event of any complaints or symptoms, avoid further exposure. If redness or irritation occurs and persists, **seek medical attention**.

### **INHALATION**

Seek medical help if coughing or other symptoms persist. Inhalation of large amounts of Portland Cement Kiln Dusts requires immediate medical attention. Call a poison center or physician. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If the individual is not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and **get medical attention immediately**. Maintain an open airway.

### **INGESTION**

Get medical attention immediately. Call a poison center or physician. Have victim rinse mouth thoroughly with water. **DO NOT INDUCE VOMITING** unless directed to do so by medical personnel. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Have victim drink 60 to 240 mL (2 to 8 oz.) of water. Stop giving water if the exposed person feels sick as vomiting may be dangerous. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Chemical burns must be treated promptly by a physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and **get medical attention immediately**. Maintain an open airway.

### **MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE and DELAYED POTENTIAL ACUTE HEALTH EFFECTS**

**Eye contact:** Causes serious eye damage.

**Inhalation:** May cause respiratory irritation.

**Skin contact:** Causes severe burns. May cause an allergic skin reaction.

**Ingestion:** May cause burns to mouth, throat and stomach.

### **OVER-EXPOSURE SIGNS/SYMPTOMS**

**Eye contact:** Adverse symptoms may include the following: pain, watering and redness

**Inhalation:** Adverse symptoms may include the following: respiratory tract irritation and coughing

**Skin contact:** Adverse symptoms may include the following: pain or irritation, redness and blistering may occur, skin burns, ulceration and necrosis may occur

**Ingestion:** Adverse symptoms may include the following: stomach pains

### **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 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:**

**Suitable extinguishing media:** Use an extinguishing agent suitable for the surrounding fire.

**Unsuitable extinguishing media:** Do not use water jet or water-based fire extinguishers.

### **SPECIFIC HAZARDS ARISING FROM THE CHEMICAL**

No specific fire or explosion hazard.

### **THERMAL DECOMPOSITION PRODUCTS**

Decomposition products may include the following materials: carbon dioxide, carbon monoxide, sulfur oxides and metal oxide/oxides.

### **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 cement dust. Keep up-wind of the fire. Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA).

## Section 6: Accidental Release Measures

### **PERSONAL PRECAUTIONS:**

Use personal protective equipment (PPE) specified in Section 8 (Exposure Controls/Personal Protection). Also see Section 3 (Hazards Identification), Section 7 (Handling & Storage), and Section 10 (Stability & Reactivity). Clean up quickly and avoid generating dust. Wear suitable respiratory protection if dusty conditions arise. Avoid contact with eyes.

### **METHODS AND MATERIALS FOR CONTAINMENT AND CLEAN-UP**

Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Vacuum or sweep material and place in a disposal container. Avoid creating dusty conditions and prevent wind dispersal. Spills to waterways may be hazardous due to alkalinity of the product. Dispose of waste material using a licensed waste disposal contractor.

### **REFERENCE TO OTHER SECTIONS**

Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

### **ENVIRONMENTAL PRECAUTIONS:**

Do not allow spilled material to enter sewers or waterways. Spills to waterways may be hazardous due to alkalinity of the product.

**OTHER INFORMATION:**

Notify appropriate local authorities of spills into sewers or waterways.

## Section 7: Handling and Storage

**PRECAUTIONS FOR SAFE HANDLING:**

Do not swallow. Avoid generating and breathing dust. Good housekeeping is important to prevent accumulation of dust. The use of compressed air for cleaning clothing, equipment, etc, is not recommended. Do not breathe dust. Do not ingest. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Minimize dust generation and avoid prolonged and repeated exposure to dusts.

**ADVICE FOR GENERAL OCCUPATIONAL HYGIENE**

Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

**STORAGE:**

Keep dry until used. No other special storage procedures are necessary for the protection of Portland Cement Kiln Dusts. 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 this product without using all appropriate safety precautions as engulfment or suffocation may occur. Portland Cement Kiln Dusts may form a surface crust which appears solid but may not support the weight of humans. Accordingly, do not stand on Portland Cement Kiln Dusts 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 Kiln Dusts 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:**

| <b>Component (%)</b>   | <b>CAS No.</b> | <b>OSHA PEL (8-hour TWA)</b>  | <b>ACGIH TLV-TWA</b>   |
|--|----------------|---|--|
| Portland Cement Kiln dust                                    | 68475-76-3     | 5 mg/m <sup>3</sup> (respirable dust)<br>15 mg/m <sup>3</sup> (total dust)  | 1 mg/m <sup>3</sup> (respirable dust)<br>10mg/m <sup>3</sup> (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 Gypsum (2-10)                                | 13397-24-5     | see Nuisance Dusts PEL  | see Nuisance Dusts TLV   |
| Calcium oxide (0-5)  | 1305-78-8      | 5mg/m <sup>3</sup>  | 2mg/m <sup>3</sup>   |
| 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 <sup>3</sup> (total dust)   | 10 mg/m <sup>3</sup> (total dust)  |
| Nuisance dusts   | ---            | 5 mg/m <sup>3</sup> (respirable dust)<br>15 mg/m <sup>3</sup> (total dust)  | 5 mg/m <sup>3</sup> (respirable dust)<br>10 mg/m <sup>3</sup> (total dust) |
| Crystalline silica (0-.1)                                    | 14808-60-7     | 10 mg/m <sup>3</sup> /percent silica + 2<br>(respirable dust)<br>30 mg/m <sup>3</sup> /percent silica + 2<br>(total dust) | 0.025 mg/m <sup>3</sup><br>(respirable dust)                               |
| Hexavalent Chromium (measured as chromic acid and chromates) | 18540-29-9     | 5 mg/m <sup>3</sup> (total dust)  |  |

**APPROPRIATE ENGINEERING CONTROLS:**

Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, etc.) below recommended exposure limits. Use product upwind to prevent eye and/or respiratory exposure. 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 cement dust. Dust goggles should be worn in extremely dusty conditions. Wearing contact lenses when working with Portland Cement Kiln Dust is not recommended.

**SKIN PROTECTION**

Precautions must be taken to protect skin. Avoid contact with the skin, as Portland Cement Kiln Dust burns the skin with little warning since the heat produced by cement reaction 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

Portland Cement Kiln Dust and shower with soap and water. Affected clothes should also be thoroughly cleaned.

#### RESPIRATORY PROTECTION

Precautions must be taken. Avoid breathing Portland Cement Kiln 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 the product. Always wash hands and face with soap and water before eating, drinking, or smoking.

## Section 9: Physical and Chemical Properties

|  |   |
|--|---|
| Physical State: Solid. [Powder.]             | Lower and upper explosive (flammable) limits: Not applicable. |
| Color: Gray or white.                        | Vapor pressure: Not applicable.                               |
| Odor: Odorless.                              | Vapor density: Not applicable.                                |
| Odor threshold: Not available.               | Relative density: 2.3-3.1                                     |
| pH: >11.5 [Conc. (% w/w): 1%]                | Solubility: Slightly soluble in water.                        |
| Melting point: Not available.                | Solubility in water: 0.1 to 1%                                |
| Boiling point: >1000°C (>1832°F)             | Partition coefficient: n-octanol/water: Not applicable.       |
| Flash point: Not flammable. Not combustible. | Auto-ignition temperature: Not applicable.                    |
| Burning time: Not available.                 | Decomposition temperature: Not available.                     |
| Burning rate: Not available.                 | SADT: Not available.  |
| Evaporation rate: Not applicable.            | Viscosity: Not applicable.                                    |
| Flammability (solid, gas): Not applicable    |   |

OTHER INFORMATION - VOC CONTENT UNAVAILABLE

## Section 10: Stability and Reactivity

#### REACTIVITY

No dangerous reaction known under conditions of normal use. Reacts slowly with water forming hydrated compounds, releasing heat and producing a strong alkaline solution until reaction is near completion. An alkali reaction from components of Portland Cements will corrode aluminium.

**CHEMICAL STABILITY:**

Product is stable. Keep dry until used.

Portland Cement Kiln Dust reacts slowly with water forming hardened hydrated compounds, releasing heat and producing a strong alkaline solution.

**POSSIBILITY OF HAZARDOUS REACTIONS**

Under normal conditions of storage and use, hazardous reactions will not occur.

**CONDITIONS TO AVOID:**

Moisture – product must be kept dry until ready to use. Avoid high generation of dusts. See “OTHER INFORMATION” in this section for additional conditions to avoid.

**INCOMPATIBLE MATERIALS:**

Portland Cement Kiln Dust 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 Kiln Dust also reacts with aluminum metals and ammonium salts. Aluminum powder and other alkali and alkaline earth elements will react in wet mortar or concrete, liberating hydrogen gas.

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 product is handled.

**OTHER INFORMATION**

See also additional precautions Section 5 (Fire Fighting Measures), Section 6 (Accidental Release Measures) and Section 7 (Handling & Storage).

## Section 11: Toxicological Information

**INFORMATION ON TOXICOLOGICAL EFFECTS**

**Acute toxicity:** Not classified. Portland Cement LD50/LC50 = Not available

**Irritation/Corrosion:**

**Skin:** May cause skin irritation. May cause serious burns in the presence of moisture.

**Eyes:** Causes serious eye damage. May cause burns in the presence of moisture.

**Respiratory:** May cause respiratory tract irritation.

**Sensitization:** May cause sensitization due to the potential presence of trace amounts of hexavalent chromium.

**Mutagenicity:** There are no data 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 Kiln Dust as a carcinogen.

B: Component Carcinogenicity

This product, however, does contain constituents which are listed by IARC and NTP as carcinogens. Respirable crystalline silica in the form of quartz or cristobalite from occupational sources is listed by the International Agency for Research on Cancer (IARC) and National Toxicology Program (NTP) as a lung carcinogen. Prolonged exposure to respirable crystalline silica has been known to cause silicosis, a lung disease, which may be disabling. While there may be a factor of individual susceptibility to a given exposure to respirable silica dust, the risk of contracting silicosis and the severity of the disease is clearly related to the amount of dust exposure and the length of time (usually years) of exposure.

**Chronic Toxicity**

Crystalline silica is considered hazardous by inhalation. IARC has classified silica as a Group 1 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 1 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.

**Reproductive toxicity:** There are no data available.

**Teratogenicity:** There are no data available.

**Specific target organ toxicity (single exposure)**

| Name                       | Category | Route of Exposure         | Target Organs                                 |
|----------------------------|----------|---------------------------|---|
| Calcium Oxide              | 3        | Inhalation & Skin Contact | Respiratory tract irritation, skin irritation |
| Cement, Portland Chemicals | 3        | Inhalation & Skin Contact | Respiratory tract irritation, skin irritation |

**Specific target organ toxicity (repeated exposure)**

| Name   | Category | Route of Exposure | Target Organs                 |
|--------|----------|-------------------|-------------------------------|
| Quartz | 1        | Inhalation        | Respiratory tract and kidneys |

**Aspiration Hazard:** There are no data available

**INFORMATION ON LIKELY ROUTES OF EXPOSURE**

**Dermal contact. Eye contact. Inhalation. Ingestion.**

**Potential acute health effects:**

**Eye contact:** Causes serious eye damage.

**Inhalation:** May cause respiratory irritation.

**Skin contact:** Causes severe burns. May cause an allergic skin reaction.

**Ingestion:** May cause burns to mouth, throat and stomach.

**Symptoms related to the physical, chemical and toxicological characteristics:**

**Eye contact:**

Adverse symptoms may include the following: pain, watering, redness

**Inhalation:** Adverse symptoms may include the following: respiratory tract irritation, coughing

**Skin contact:** Adverse symptoms may include the following: pain or irritation, redness, blistering may occur, skin burns, ulcerations and necrosis may occur

**Ingestion:** Adverse symptoms may include the following: stomach pains

**Delayed and immediate effects and also chronic effects from short and long term exposure**

**Short term exposure -** Potential immediate effects: No known significant effects or critical hazards. Potential delayed effects: No known significant effects or critical hazards.

**Long term exposure -** Potential immediate effects: No known significant effects or critical hazards. Potential delayed effects: No known significant effects or critical hazards.

**Section 12: Ecological Information**

**TOXICITY:**

| Product/ingredient name | Result                            | Species  | Exposure |
|-------------------------|-----------------------------------|--|----------|
| Calcium Oxide           | Chronic NOEC 100 Mg/L Fresh Water | Fish- Oreochromis niloticus- Juvenile (Fledgling, Hatchling, Weanling) | 46 days  |

**PERSISTENCE AND DEGRADABILITY**

There are no data available

**BIOACCUMULATIVE POTENTIAL**

There are no data available

**MOBILITY IN SOIL**

Soil/water partition coefficient (Koc): Not available.

**OTHER ADVERSE EFFECTS**

No known significant effects or critical hazards.

**Section 13: Disposal Considerations****WASTE TREATMENT / DISPOSAL METHODS:**

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should comply with the applicable requirements of environmental protection and waste disposal legislation and any regional local authority applicable requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Untreated waste should not be released to the sewer unless fully compliant with the applicable requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe manner. Care should be taken when handling empty containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff, and contact with soil, waterways, drains and sewers. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

**Section 14: Transport Information****UN NUMBER**

Not Applicable

**UN PROPER SHIPPING NAME**

Not Applicable

**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 this product and may not be suitable for all required shipping descriptions.

**Section 15: Regulatory Information****OSHA:**

Portland Cement Kiln Dust are considered hazardous chemicals under 29 CFR 1910.1200 and should be included in employers' hazardous communication programs.

**TSCA (Toxic Substances Control Act):**

TSCA 6 final risk management: Chromium, ion (Cr6+)

United States inventory (TSCA 8b): Portland Cement Kiln Dust are considered to be statutory mixtures under TSCA. Portland cement Flue Dust, Chemicals [68475-76-3] is included on the TSCA inventory

**CERCLA:**

**This product is not listed as a CERCLA hazardous substance**

**CLEAN AIR ACT**

Clean Air Act Section 112 (b): Hazardous Air Pollutants (HAPs) — Not listed

Clean Air Act Section 602: Class I Substances — Not listed

Clean Air Act Section 602: Class II Substances — Not listed

**DEA**

DEA List I Chemicals: (Precursor Chemicals) — Not listed

DEA List II Chemicals: (Essential Chemicals) — Not listed

**SARA TITLE III:****Section 302:**

This product contains no “Extremely Hazardous Substances.”

**Section 311/312:**

This product is considered a hazardous chemical and may have both immediate (acute) and delayed (Chronic) health effects.

**Section 313:**

This product does 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 SUBSTANCE ACT**

Portland Cements are “hazardous substances” subject to statutes promulgated under this Act.

**INTERNATIONAL REGULATIONS**

Not applicable since not shipped internationally.

**US STATE REGULATIONS:****California Proposition 65:**

This Portland Cement Kiln Dust may contain the following chemicals known to the State of California to cause cancer:

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

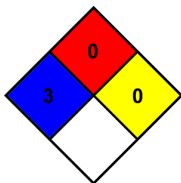
Nickel Compounds                      Various  
Nickel                                      Various  
Lead                                        Various

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: 3  
Flammability: 0  
Reactivity: 0



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

**Capitol Aggregates Inc.**  
**11551 Nacogdoches Rd.**  
**San Antonio, Texas 78217**  
**(210)-871-6111**

### WARNING

Portland Cement Kiln Dust is made from a number of different substances. Small amounts of crystalline silica (SiO<sub>2</sub>), calcium oxide (CaO), magnesium oxide (MgO), potassium sulfate (K<sub>2</sub>SO<sub>4</sub>) and sodium sulfate (Na<sub>2</sub>SO<sub>4</sub>) may 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 CEMENT KILN DUST 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 CEMENT KILN DUST OVER A PERIOD OF TIME MAY IN SOME CASES RESULT IN CANCER AND OTHER DISEASES. AS A RESULT, PROTECT YOURSELF FROM CONTACT WITH THIS PRODUCT. DO NOT BREATHE CEMENT KILN DUST. WHEN WORKING WITH CEMENT KILN DUST (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 SAFETY DATA SHEET FOR THIS PRODUCT FOUND AT [WWW.CAPITOLAGGREGATES.COM](http://WWW.CAPITOLAGGREGATES.COM).

**KEEP OUT OF THE REACH OF CHILDREN**

**Product Identifier:**  
**PORTLAND CEMENT KILN DUST**  
**CAS NO. 68475-76-3**

**DANGER****Hazard Statement:**

Can cause severe skin burns and eye damage. May cause an allergic skin reaction.  
May cause cancer (Inhalation). May cause respiratory irritation (inhalation).

**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 <sup>3</sup> | Cubic Foot  |
| IARC            | International Agency for Research on Cancer                           |
| m <sup>3</sup>  | 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   |

**NOTE:** This SDS attempts to describe as accurately as possible the potential exposures associated with normal use of these products. 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 this product safely and to comply with all applicable environmental, health, and safety laws and regulations.

**Revised September 23, 2015**

**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 the different types of Cement Kiln Dust designated above as commonly used, this SDS 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 Cement Kiln Dust and no one should use any Cement Kiln Dust 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 Cement Kiln Dust with other materials. This SDS does not cover such potential hazards.

The information provided in this SDS 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 Cement Kiln Dust. It is also the responsibility of the user to independently determine the suitability or fitness of any of the products covered by this SDS for their intended uses.

**CAPITOL AGGREGATES, INC. MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS OR IMPLIED, BY OR THROUGH THIS SDS CONCERNING THE PRODUCTS COVERED HEREBY OR THEIR FITNESS FOR ANY USE. LIKEWISE CAPITOL AGGREGATES, INC. MAKES NO REPRESENTATIONS OR WARRANTIES REGARDING THE ACCURACY OR COMPLETENESS OF THE INFORMATION SET FORTH HEREIN. THE PROVISION OF THE SUCH INFORMATION IS NOT INTENDED TO BE, AND SHOULD NOT BE CONSTRUED AS LEGAL OR OTHER ADVICE, OR AS ENSURING COMPLIANCE WITH ANY PARTICULAR LAWS AND REGULATIONS.**

Dear Customer

Whether you are a long term customer or a new contractor, we would like to thank you for purchasing Capitol Aggregates Products. We are a Texas owned Company and produce all of our products in the State of Texas. This Safety Data Sheet (SDS), provided for the product you purchased or intend to use is a revision and replaces any previous versions formerly known as Material Safety Data Sheets or (MSDS). We are providing you this SDS as required by the Mine Safety & Health Administration's (MSHA), or the Occupational Safety & Health Administration, OSHA, and any applicable State Right-To -Know laws. The requirements applicable to the OSHA and MSHA Hazard Communication Standards can be found at 29 CFR 1910.1200 for OSHA and 30 CFR 47 for MSHA.

It is an important responsibility for you as a customer or contractor to communicate this information to your employees, customers, and contractors who may use, contact, or be exposed to this product. It is also an important consideration and responsibility for you to follow any applicable laws that require you to forward a copy of this SDS to your customers or end users. Please direct this SDS to the person responsible for safety and health compliance at your company as they may be able to assist you with any of the necessary requirements. If you need additional copies or have questions about this SDS please contact 210-871-6111, or visit us at [www.capitolaggregates.com](http://www.capitolaggregates.com) .

Spanish language versions will be available in the near future at [www.capitolaggregates.com](http://www.capitolaggregates.com) .

Sincerely



Chuck Ross  
Director of Safety