

Safety Data Sheet

Material Name: FUSED MAGNESITE CHROME

SDS ID: 00244165

*** Section 1 - PRODUCT AND COMPANY IDENTIFICATION ***

Material Name: FUSED MAGNESITE CHROME

Manufacturer Information

CMC Cometals

2050 Center Avenue, Suite 250

Fort Lee, NJ 07024

Mfg Contact: (201) 302-0888

Emergency # CHEMTREC®: (800) 424-9300

Synonyms

HTS No. 2519.90.1000

Product Use

industrial

Usage Restrictions

None known.

*** Section 2 - HAZARDS IDENTIFICATION ***

EMERGENCY OVERVIEW

Color: brown

Physical Form: lumps

Health Hazards: No significant target effects reported.

Physical Hazards: May form combustible dust concentrations in air (during handling or processing).

POTENTIAL HEALTH EFFECTS

Inhalation

Short Term: irritation, allergic reactions, cough, difficulty breathing

Long Term: irritation, allergic reactions, chest pain, difficulty breathing, lung damage

Skin

Short Term: irritation, allergic reactions

Long Term: irritation, allergic reactions, skin disorders

Eye

Short Term: irritation, tearing

Long Term: irritation

Ingestion

Short Term: irritation, nausea, vomiting, diarrhea, stomach pain

Long Term: irritation

*** Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS ***

CAS	Component	Percent	Symbol(s)	Risk Phrase(s)
1309-48-4	MAGNESIUM OXIDE 215-171-9	>60	---	---
1308-38-9	Chromium (III) oxide 215-160-9	>18	Xn	R:22
1309-37-1	FERRIC OXIDE RED 215-168-2	<11	---	---

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1344-28-1	ALUMINUM OXIDE 215-691-6	<7	---	---
1305-78-8	CALCIUM OXIDE 215-138-9	<1.5	C	R:34
7631-86-9	SILICON DIOXIDE 231-545-4	<1	---	---

Component Related Regulatory Information

This product may be regulated, have exposure limits or other information identified as the following: magnesium inorganic compounds, Chromium compounds, Chromium, inorganic compounds, Chromium (III) Compounds, Chromium (III) inorganic compounds, Chromium (III) insoluble inorganic compounds, Iron oxides, Iron compounds, Aluminium compounds, Aluminum insoluble compounds, Aluminium oxides, Aluminum Oxide (135152-65-7).

* * * Section 4 - FIRST AID MEASURES * * *

Inhalation

If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. Get immediate medical attention.

Skin

Wash skin with soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical attention, if needed. Thoroughly clean and dry contaminated clothing and shoes before reuse.

Eyes

Flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.

Ingestion

If a large amount is swallowed, get medical attention.

* * * Section 5 - FIRE FIGHTING MEASURES * * *

See Section 9 for Flammability Properties

NFPA Ratings: Health: 1 Fire: 0 Reactivity: 0

Hazard Scale: 0 = Minimal 1 = Slight 2 = Moderate 3 = Serious 4 = Severe

Flammable Properties

Dust/air mixtures may ignite or explode.

Extinguishing Media

carbon dioxide, regular dry chemical, regular foam, water

Fire Fighting Measures

Avoid inhalation of material or combustion by-products. Avoid generating dust; fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard. Stay upwind and keep out of low areas.

* * * Section 6 - ACCIDENTAL RELEASE MEASURES * * *

Occupational spill/release

Collect spilled material in appropriate container for disposal. Keep out of water supplies and sewers.

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*** Section 7 - HANDLING AND STORAGE ***

Handling Procedures

Use methods to minimize dust. Avoid significant deposits of material, especially on horizontal surfaces, which may become airborne and form combustible dust clouds and may contribute to secondary explosions.

Storage Procedures

Store and handle in accordance with all current regulations and standards. Avoid generating dust. Store in a cool, dry place. Keep container in a well-ventilated place. Keep separated from incompatible substances.

*** Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION ***

Component Exposure Limits

MAGNESIUM OXIDE (1309-48-4)

ACGIH: 10 mg/m3 TWA (inhalable fraction)

OSHA (US): 15 mg/m3 TWA (fume, total particulate)
10 mg/m3 TWA (total particulate)

Mexico: 10 mg/m3 TWA (as Mg, fume)

Chromium (III) oxide (1308-38-9)

ACGIH: 0.5 mg/m3 TWA (as Cr)

NIOSH: 0.5 mg/m3 TWA (as Cr)

Europe: 2 mg/m3 TWA (insoluble)

OSHA (US): 0.5 mg/m3 TWA (as Cr)
0.5 mg/m3 TWA (as Cr)

Mexico: 0.5 mg/m3 TWA

FERRIC OXIDE RED (1309-37-1)

ACGIH: 5 mg/m3 TWA (respirable fraction)

NIOSH: 5 mg/m3 TWA (as Fe, dust and fume)

OSHA (US): 10 mg/m3 TWA (fume)
10 mg/m3 TWA (fume)

Mexico: 5 mg/m3 TWA
10 mg/m3 STEL (as Fe)

ALUMINUM OXIDE (1344-28-1)

ACGIH: 1 mg/m3 TWA (respirable fraction)

OSHA (US): 15 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)
10 mg/m3 TWA (total dust); 5 mg/m3 TWA (respirable fraction)

Mexico: 10 mg/m3 TWA

CALCIUM OXIDE (1305-78-8)

ACGIH: 2 mg/m3 TWA

NIOSH: 2 mg/m3 TWA

OSHA (US): 5 mg/m3 TWA
5 mg/m3 TWA (not in effect as a result of reconsideration)

Mexico: 2 mg/m3 TWA

SILICON DIOXIDE (7631-86-9)

NIOSH: 6 mg/m3 TWA

OSHA (US): 20 mppcf TWA; ((80)/(% SiO₂)) mg/m3 TWA)

Ventilation

Ventilation equipment should be explosion-resistant if explosive concentrations of material are present. Provide local exhaust ventilation system. Ensure compliance with applicable exposure limits.

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Engineering Controls

It is recommended that all dust control equipment such as local exhaust ventilation and material transport systems involved in handling of these product contain explosion relief vents or an explosion suppression system or an oxygen-deficient environment.

PERSONAL PROTECTIVE EQUIPMENT

Eyes/Face

Wear chemical safety goggles. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.

Protective Clothing

Wear appropriate chemical resistant clothing.

Glove Recommendations

Wear appropriate chemical resistant gloves.

Respiratory Protection

Under conditions of frequent use or heavy exposure, respiratory protection may be needed.

Respiratory protection is ranked in order from minimum to maximum.

Consider warning properties before use.

Any particulate respirator equipped with an N95, R95, or P95 filter (including N95, R95, and P95 filtering facepieces) except quarter-mask respirators. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

Any air-purifying full-facepiece respirator equipped with an N95, R95, or P95 filter. The following filters may also be used: N99, R99, P99, N100, R100 or P100.

Any powered, air-purifying respirator with a tight-fitting facepiece and a high-efficiency particulate filter.

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode.

For Unknown Concentrations or Immediately Dangerous to Life or Health -

Any supplied-air respirator with a full facepiece that is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure-demand or other positive-pressure mode.

Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode.

*** Section 9 - PHYSICAL AND CHEMICAL PROPERTIES ***

Physical State:	Solid	Appearance:	Brown solid lumps
Color:	brown	Physical Form:	lumps
Odor:	Not Available	Odor Threshold:	Not available
Texture:	mesh size varies	Melting Point:	2300 °C
Boiling Point:	Not applicable	Vapor Pressure:	Not applicable
Vapor Density (air = 1):	Not applicable	Bulk Density:	3.5 gm/cm ³ (min.)
Density:	Not available	Specific Gravity (water = 1):	Not available
Water Solubility:	Not available	Coeff. Water/Oil Dist:	Not available

*** Section 10 - STABILITY AND REACTIVITY ***

Chemical Stability

Stable at normal temperatures and pressure.

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Conditions to Avoid

Avoid heat, flames, sparks and other sources of ignition. Avoid contact with incompatible materials.

Materials to Avoid

MAGNESIUM OXIDE:

ACIDS (STRONG): Violent reaction.

ALKALIS (STRONG): May attack.

ALUMINUM POWDER: May ignite or explode when heated.

BROMINE PENTAFLUORIDE: Violent reaction.

CHLORINE TRIFLUORIDE: May ignite.

INTERHALOGENS: Incompatible.

MAGNESIUM POWDER: May ignite or explode when heated.

PHOSPHORUS PENTACHLORIDE: Incandescens brilliantly on heating.

SULFUR (SUBLIMED): May ignite or explode when heated.

CHROMIUM(III) OXIDE:

CHLORINE TRIFLUORIDE: Violent reaction with possible ignition.

COPPER CHROMITE: Possible ignition reaction.

GLYCEROL: Possible explosion reaction.

LITHIUM: Violent exothermic reaction at 180 C.

NITROALKANES: Possible explosion reaction.

OXIDIZERS (STRONG): Incompatible.

OXYGEN DIFLUORIDE: Vigorous reaction.

RUBIDIUM ACETYLIDE: Exothermic reaction.

FERRIC OXIDE RED:

ALUMINUM: Intense, exothermic reaction on ignition; may explode in the presence of water.

ALUMINUM-MAGNESIUM ALLOY (MOLTEN) + WATER: Violent reaction.

ALUMINUM-MAGNESIUM-ZINC ALLOY: May produce sparks on impact.

CALCIUM ACETYLIDE: Burns violently when ignited.

CALCIUM HYPOCHLORITE: May explode.

CARBON MONOXIDE: Possible explosion.

CESIUM ACETYLIDE (CESIUM CARBIDE): Incandescent on warming.

ETHYLENE OXIDE: Violently polymerizes, liberating heat.

GUANIDINIUM PERCHLORATE: Reduces the thermal stability of the salt.

HYDRAZINE: Incompatible.

HYDROGEN PEROXIDE: Decomposes.

MAGNESIUM: Violent reaction.

PERFORMIC ACID: Incompatible.

RUBIDIUM ACETYLIDE: Reacts exothermically.

ALUMINUM OXIDE (ALUMINA):

CHLORINATED RUBBER (HOT): Incompatible.

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CHLORINE TRIFLUORIDE: Violent reaction and possible ignition.
ETHYLENE OXIDE: May initiate explosive polymerization.
HALOCARBONS: Exothermic reaction above 200 C.
HALOCARBONS + METALS: Exothermic reaction at ambient temperatures.
OXYGEN DIFLUORIDE: Exothermic reaction.
SODIUM NITRATE: May form explosive mixture.
VINYL ACETATE: Possible vigorous reaction.

CALCIUM OXIDE:

ACIDS: May cause exothermic reaction.
BORIC ACID + CALCIUM CHLORIDE (FUSED): May cause incandescent reaction.
BROMINE PENTAFLUORIDE: May cause violent reaction, ignition often occurring.
CHLORINE TRIFLUORIDE: May cause violent reaction, ignition often occurring.
ETHANOL: May cause possible ignition and explosion if exposed to moisture or heat.
FLUORINE: May cause incandescent exothermic reaction.
HYDROGEN FLUORIDE: May cause violent, incandescent reaction.
INTERHALOGEN COMPOUNDS: Ignition.
ORGANIC MATERIALS: Fire and explosion hazard.
PHOSPHORUS PENTOXIDE: May cause violent reaction if warmed or moistened.

SILICON DIOXIDE:

CHLORINE TRIFLUORIDE: Fire hazard.
FLUORINE: Fire hazard.
HYDROCHLORIC ACID + WATER: Explosion hazard with gel form.
HYDROFLUORIC ACID: Dissolves, releasing silicon tetrafluoride.
HYDROGEN FLUORIDE: Incompatible.
HYDROGENATED VEGETABLE OILS: Incompatible.
MAGNESIUM (POWDERED): Explosion hazard on heating in the presence of moisture.
MANGANESE TRIFLUORIDE: May react violently on heating, releasing silicon tetrafluoride.
OXIDIZERS (STRONG): Fire and explosion hazard.
OXYGEN DIFLUORIDE: Explosion hazard under certain conditions and in the presence of moisture.
OZONE: Potential explosion hazard at low temperatures if organic material is present.
PHOSPHORIC ACID (CONCENTRATED): Attacks on heating.
SODIUM (BURNING): Reacts with finely divided silica.
VINYL ACETATE (VAPOR): May react vigorously with gel form.
XENON HEXAFLUORIDE: May react explosively by forming xenon trioxide.

Decomposition Products

miscellaneous decomposition products

Possibility of Hazardous Reactions

Will not polymerize.

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*** Section 11 - TOXICOLOGICAL INFORMATION ***

Component Analysis - LD50/LC50

The components of this material have been reviewed in various sources and the following selected endpoints are published:

FERRIC OXIDE RED (1309-37-1)

Oral LD50 Rat >10000 mg/kg

ALUMINUM OXIDE (1344-28-1)

Oral LD50 Rat >5000 mg/kg

CALCIUM OXIDE (1305-78-8)

Oral LD50 Rat 500 mg/kg

SILICON DIOXIDE (7631-86-9)

Oral LD50 Rat >5000 mg/kg; Inhalation LC50 Rat >2.2 mg/L 1 h; Dermal LD50 Rabbit >2000 mg/kg

RTECS Acute Toxicity (selected)

The components of this material have been reviewed and RTECS publishes no data as of the date on this document.

Acute Toxicity Level

Chromium (III) oxide (1308-38-9)

Moderately Toxic: ingestion.

Component Carcinogenicity

MAGNESIUM OXIDE (1309-48-4)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

Chromium (III) oxide (1308-38-9)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Monograph 49 [1990]; Supplement 7 [1987]; Monograph 23 [1980]; Monograph 2 [1973] (Group 3 (not classifiable))

FERRIC OXIDE RED (1309-37-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

IARC: Supplement 7 [1987]; Monograph 1 [1972] (Group 3 (not classifiable))

ALUMINUM OXIDE (1344-28-1)

ACGIH: A4 - Not Classifiable as a Human Carcinogen

DFG: Category 2 (considered to be carcinogenic for man, fibre dust)

SILICON DIOXIDE (7631-86-9)

IARC: Monograph 68 [1997]; Supplement 7 [1987] (Group 3 (not classifiable))

RTECS Irritation

The components of this material have been reviewed, and RTECS publishes the following endpoints:

SILICON DIOXIDE (7631-86-9)

25 mg/24 hour Eyes Rabbit mild

Local Effects

CALCIUM OXIDE (1305-78-8)

Corrosive: inhalation, skin, eye, ingestion.

Medical Conditions Aggravated by Exposure

respiratory disorders, skin disorders and allergies, eye disorders

RTECS Tumorigenic

The components of this material have been reviewed, and RTECS publishes the following endpoints:

MAGNESIUM OXIDE (1309-48-4)

480 mg/kg Intratracheal Hamster TDLo (30 week)

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Chromium (III) oxide (1308-38-9)

90 mg/kg Intraperitoneal Rat TDLo; 45 mg/kg Intrapleural Rat TDLo; 90 mg/kg Intratracheal Rat TDLo

FERRIC OXIDE RED (1309-37-1)

135 mg/kg Subcutaneous Rat TDLo

ALUMINUM OXIDE (1344-28-1)

200 mg/kg Implant Rat TD; 200 mg/kg Implant Rat TDLo; 90 mg/kg Intrapleural Rat TDLo

RTECS Mutagenic

The components of this material have been reviewed, and RTECS publishes the following endpoints:

Chromium (III) oxide (1308-38-9)

10 mmol/L Bacillus subtilis; 100 mg/L hamster; 34 mg/L hamster; 50 mg/L hamster; 10 ug/plate Salmonella typhimurium (+S9)

Additional Data

Interactions with drugs may occur.

HEALTH EFFECTS

Inhalation - Acute Exposure

MAGNESIUM OXIDE: The dust may cause respiratory tract irritation. Metal fume fever, an influenza-like illness, may occur if freshly formed magnesium oxide fumes composed of particles sized between 0.02-0.05 microns are inhaled in sufficient amounts. Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea, prostration and leukocytosis may also occur. Tolerance to fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours.

TRIVALENT CHROMIUM COMPOUNDS: Animal studies indicate absorption from the lungs is slow following intratracheal administration. Allergic reactions may occur in previously exposed persons.

METAL FUME FEVER: Metal fume fever, an influenza-like illness, may occur due to the inhalation of freshly formed metal oxide particles sized below 1.5 microns and usually between 0.02-0.05 microns. Symptoms may be delayed 4-12 hours and begin with a sudden onset of thirst, and a sweet, metallic or foul taste in the mouth. Other symptoms may include upper respiratory tract irritation accompanied by coughing and a dryness of the mucous membranes, lassitude and a generalized feeling of malaise. Fever, chills, muscular pain, mild to severe headache, nausea, occasional vomiting, exaggerated mental activity, profuse sweating, excessive urination, diarrhea and prostration may also occur. Tolerance to fumes develops rapidly, but is quickly lost. All symptoms usually subside within 24-36 hours.

CALCIUM OXIDE: May cause severe irritation of the mucous membranes with sore throat, coughing, and dyspnea. Bronchitis and pneumonitis have also been reported. Delayed pulmonary edema may occur in severe cases.

SILICON DIOXIDE: Dusts may cause irritation of the respiratory tract and coughing.

Inhalation - Chronic Exposure

MAGNESIUM OXIDE: May cause respiratory tract irritation, nasal catarrh, and coughing up of discolored sputum. Dusts may cause chronic bronchitis, emphysema, and bronchial asthma.

TRIVALENT CHROMIUM COMPOUNDS: Repeated exposure may lead to sensitization. Pneumoconiosis has been reported. Irritation of the bronchus and lung parenchyma, dystrophic changes of the liver and kidneys, and pulmonary adenomas have been reported to occur in animals. Adverse effects on macrophages were reported in rabbits exposed for 4-6 weeks.

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METAL FUME FEVER: There is no form of chronic metal fume fever, however, repeated bouts with symptoms as described above are quite common. Resistance to the condition develops after a few days of exposure, but is quickly lost in 1 or 2 days.

CALCIUM OXIDE: Depending on the concentration and duration of exposure, repeated or prolonged exposure may cause inflammation and ulceration of the nasal and buccal mucosa, perforation of the nasal septum, and possibly bronchial and gastrointestinal disturbances.

SILICON DIOXIDE: Exposure to dusts of amorphous silica for 6 months to 30 years may result in silicosis with symptoms of cough, chest pain, dyspnea, tachypnea, marked weakness, and weight loss. This pulmonary insufficiency may be characterized by diffuse nodular fibrosis, distortion of bronchi, diminished chest expansion, decreased vital capacity, and compensatory and bullous emphysema. Although pulmonary fibrosis has been reported from workers exposed to amorphous silica, the crystalline form is the established cause of fibrotic response in the lung. However, the amorphous form has been reported as fibrogenic to a lesser extent. As the disease progresses, cor pulmonale, cardiorespiratory failure, and death may occur.

Inhalation - Other Toxicity Information

CHROMIUM(III) OXIDE: May cause irritation, coughing and chest discomfort. Intratracheal administration induced an increased incidence of sarcomas, tumors, and reticulum cell sarcomas of the lung in rats. See information on trivalent chromium compounds.

FERRIC OXIDE RED: Chronic exposure may cause dyspnea and chronic bronchitis. Repeated exposure, usually from 6-10 years, to iron oxide dust or fume may cause a benign pneumoconiosis (siderosis) which may cause X-ray shadows that can be indistinguishable from fibrotic pneumoconiosis. See information on metal fume fever.

ALUMINUM OXIDE (ALUMINA): Inhalation of high concentrations may cause coughing, shortness of breath, respiratory tract irritation due to mechanical action, unpleasant deposits in the nasal passages, and exacerbation of symptoms in persons with impaired pulmonary function. Humans exposed chronically to aluminum oxide, particle size approximately 1.2 microns, did not experience either systemic or respiratory adverse effects. Hydrated aluminum oxide, injected intratracheally, produced dense and numerous nodules of advanced fibrosis in rats, a reticulin network with occasional collagen fibers in mice and guinea pigs, and only a slight reticulin network in rabbits. A production process in which aluminum oxide (bauxite), iron, coke, and silica are fused at 2000 C poses a threat of Shaver's disease, a rapidly progressive and often fatal interstitial fibrosis of the lungs. See information on metal fume fever.

Skin Contact - Acute Exposure

MAGNESIUM OXIDE: Particulates may cause slight irritation.

TRIVALENT CHROMIUM COMPOUNDS: May cause contact dermatitis. Allergic reactions may occur in previously exposed persons.

FERRIC OXIDE RED: No data available.

ALUMINUM OXIDE (ALUMINA): Contact may cause an irritant dermatitis accompanied by pruritis.

CALCIUM OXIDE: Contact, especially with moist skin, may cause severe irritation with pain, redness, burns, and ulceration. Burns severe enough to be fatal have resulted from massive exposure.

SILICON DIOXIDE: Prolonged skin contact with dry particulate may cause drying of the skin.

Skin Contact - Chronic Exposure

MAGNESIUM OXIDE: May cause eczema, edema, or hives.

TRIVALENT CHROMIUM COMPOUNDS: Repeated contact may cause dermatitis and sensitization.

FERRIC OXIDE RED: No data available.

ALUMINUM OXIDE (ALUMINA): No data available.

CALCIUM OXIDE: Effects depend on the concentration and duration of exposure. Repeated or prolonged contact may cause dermatitis, with desquamation and vesicular rash, fissuring and brittleness of the nails, or effects similar to acute exposure.

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SILICON DIOXIDE: No data available.

Skin Contact - Other Toxicity Information

CHROMIUM(III) OXIDE: See information on trivalent chromium compounds.

Eye Contact - Acute Exposure

MAGNESIUM OXIDE: May cause slight irritation, redness, and pain. Abrasive action of dust can damage eyes.

CHROMIUM(III) OXIDE: May cause irritation.

FERRIC OXIDE RED: Particles of iron or iron compounds which become imbedded in the eye may cause siderosis with varied effects. Discoloring of the iris to yellowish green or brown is the earliest and most common sign of siderosis.

ALUMINUM OXIDE (ALUMINA): Dust may cause mechanical irritation with redness and possibly swelling of the conjunctiva.

CALCIUM OXIDE: Upon contact, dust may react with moisture and protein in the eye and form clumps of moist compound, which are often lodged deep in the conjunctiva. The degree of injury depends on the concentration and duration of contact. There may be severe irritation, edema, hyperemia, pain, lacrimation, blurred vision, spasmodic blinking, corneal opacities, ulceration and perforation, sometimes with loss of vision.

SILICON DIOXIDE: Dusts may cause irritation with redness and pain.

Eye Contact - Chronic Exposure

MAGNESIUM OXIDE: Repeated or prolonged exposure may cause conjunctivitis.

CHROMIUM(III) OXIDE: No data available.

FERRIC OXIDE RED: No data available.

ALUMINUM OXIDE (ALUMINA): No data available.

CALCIUM OXIDE: Effects depend on the concentration and duration of exposure. Repeated or prolonged contact may result in conjunctivitis or effects as in acute exposure.

SILICON DIOXIDE: No data available.

Ingestion - Acute Exposure

MAGNESIUM OXIDE: Magnesium salts are generally so slowly absorbed that oral administration causes nothing more than purging. If evacuation fails, mucosal irritation and absorption may occur. If ingested in sufficient quantities, may cause gastrointestinal disturbances. Symptoms may include irritation, nausea, vomiting, abdominal pain, and diarrhea. Systemically, magnesium may produce central nervous system depression, abolition of reflexes, and death from respiratory paralysis.

TRIVALENT CHROMIUM COMPOUNDS: May not be readily absorbed from the gastrointestinal tract.

FERRIC OXIDE RED: No data available.

ALUMINUM OXIDE (ALUMINA): No data available.

ALKALINE CORROSIVES: May cause immediate pain, circumoral burns and corrosion of the mucous membranes which at first turn white and soapy and then become brown, edematous and ulcerated. There may be profuse salivation and difficulty or inability to swallow or speak. Even when there is no evidence of oral burns, the esophagus and stomach may be involved with burning pain, vomiting and diarrhea. The vomitus may be thick and slimy with mucous, and later contain blood and shreds of mucosa. Epiglottal edema may result in respiratory distress and possibly asphyxia. Shock with marked hypotension, weak and rapid pulse, shallow respiration, and clammy skin may occur. Circulatory collapse may ensue, and if uncorrected, lead to renal failure. In severe cases, esophageal or gastric perforation are possible and may be accompanied by mediastinitis, substernal pain, peritonitis, abdominal rigidity, and fever. Esophageal, and possibly gastric or pyloric stricture, may occur within a few weeks, but may be delayed for months or even years. Death may result within a short time from asphyxia, circulatory collapse, or aspiration of even minute amounts. If death is delayed it may be due to the complications of perforation, pneumonia, or the effects of stricture formation.

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SILICON DIOXIDE: The effects of ingestion are purely mechanical as the substance is inert chemically and biologically.

Ingestion - Chronic Exposure

MAGNESIUM OXIDE: No data available.

TRIVALENT CHROMIUM COMPOUNDS: Administration of 0.45-25 ppm/1 year in drinking water was non-toxic to rats.

FERRIC OXIDE RED: No data available.

ALUMINUM OXIDE (ALUMINA): Some aluminum compounds cause constipation.

ALKALINE CORROSIVES: Depending on the concentration, repeated ingestion may result in inflammatory and ulcerative effects on the oral mucous membranes and other effects as with acute ingestion.

SILICON DIOXIDE: No data available.

Ingestion - Other Toxicity Information

CALCIUM OXIDE: See information on alkaline corrosives.

CHROMIUM(III) OXIDE: May cause gastrointestinal irritation. An increased incidence of mammary fibroadenomas was reported in rats when administered in the diet. See information on trivalent chromium compounds.

* * * Section 12 - ECOLOGICAL INFORMATION * * *

Component Analysis - Aquatic Toxicity

CALCIUM OXIDE (1305-78-8)

Fish: 96 Hr LC50 Cyprinus carpio: 1070 mg/L [static]

SILICON DIOXIDE (7631-86-9)

Fish: 96 Hr LC50 Brachydanio rerio: 5000 mg/L [static]

Algae: 72 Hr EC50 Pseudokirchneriella subcapitata: 440 mg/L

Invertebrate: 48 Hr EC50 Ceriodaphnia dubia: 7600 mg/L

* * * Section 13 - DISPOSAL CONSIDERATIONS * * *

Disposal Methods

Dispose in accordance with all applicable regulations.

Component Waste Numbers

The U.S. EPA has not published waste numbers for this product's components.

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*** Section 14 - TRANSPORT INFORMATION ***

US DOT Information

No Classification assigned.

TDG Information

No Classification assigned.

ADR Information

No Classification assigned.

RID Information

No Classification assigned.

IATA Information

No Classification assigned.

ICAO Information

No Classification assigned.

IMDG Information

No Classification assigned.

*** Section 15 - REGULATORY INFORMATION ***

U.S. Federal Regulations

This material contains one or more of the following chemicals required to be identified under SARA Sections 302/304 (40 CFR 355 Appendix A), SARA Section 313 (40 CFR 372.65), CERCLA (40 CFR 302.4), TSCA 12(b), and/or require an OSHA process safety plan.

Chromium (III) oxide (1308-38-9)

SARA 313: 1.0 % de minimis concentration (except for chromite ore mined in the Transvaal Region of South Africa and the unreacted ore component of the chromite ore processing residue (COPR), Chemical Category N090)

ALUMINUM OXIDE (1344-28-1)

SARA 313: 1.0 % de minimis concentration (fibrous forms)

SARA Section 311/312 (40 CFR 370 Subparts B and C)

Acute Health: No **Chronic Health:** No **Fire:** No **Pressure:** No **Reactive:** No

U.S. State Regulations

The following components appear on one or more of the following state hazardous substances lists:

Component	CAS	CA	MA	MN	NJ	PA	RI
MAGNESIUM OXIDE	1309-48-4	Yes	Yes	Yes	Yes	Yes	Yes
Chromium (III) oxide (¹related to: Chromium compounds) (²related to: Chromium (III) Compounds)	1308-38-9	Yes¹	Yes	Yes²	Yes	Yes¹	Yes²
FERRIC OXIDE RED	1309-37-1	Yes	Yes	Yes	Yes	Yes	Yes
ALUMINUM OXIDE	1344-28-1	Yes	Yes	Yes	Yes	Yes	Yes
CALCIUM OXIDE	1305-78-8	Yes	Yes	Yes	Yes	Yes	Yes
SILICON DIOXIDE	7631-86-9	Yes	Yes	Yes	No	Yes	No

Not regulated under California Proposition 65

Safety Data Sheet

Material Name: FUSED MAGNESITE CHROME

SDS ID: 00244165

Canada

Canada WHMIS

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

MAGNESIUM OXIDE (1309-48-4)

1 %

Chromium (III) oxide (1308-38-9)

1 %

FERRIC OXIDE RED (1309-37-1)

1 %

ALUMINUM OXIDE (1344-28-1)

1 %

CALCIUM OXIDE (1305-78-8)

1 %

SILICON DIOXIDE (7631-86-9)

1 %

Germany Water Classification

MAGNESIUM OXIDE (1309-48-4)

Annex 3: Number 5208, hazard class 1 - low hazard to waters

Chromium (III) oxide (1308-38-9)

Annex 1: Number 806, not considered hazardous to water

FERRIC OXIDE RED (1309-37-1)

Annex 1: Number 800, not considered hazardous to water

ALUMINUM OXIDE (1344-28-1)

Annex 1: Number 1346, not considered hazardous to water

CALCIUM OXIDE (1305-78-8)

Annex 2: Number 322, hazard class 1 - low hazard to waters

SILICON DIOXIDE (7631-86-9)

Annex 1: Number 849, not considered hazardous to water

Annex 3: Number 849, not considered hazardous to water

EU Marking and Labelling

This material is not classified

Component Analysis - Inventory

Component	CAS	US	CA	EU	AU	PH	JP	KR	CN	NZ
MAGNESIUM OXIDE	1309-48-4	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes
Chromium (III) oxide	1308-38-9	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes
FERRIC OXIDE RED	1309-37-1	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes
ALUMINUM OXIDE	1344-28-1	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes
CALCIUM OXIDE	1305-78-8	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes
SILICON DIOXIDE	7631-86-9	Yes	DSL	EIN	Yes	Yes	Yes	Yes	Yes	Yes

Safety Data Sheet

Material Name: FUSED MAGNESITE CHROME

SDS ID: 00244165

*** Section 16 - OTHER INFORMATION ***

Key / Legend

ACGIH - American Conference of Governmental Industrial Hygienists; ADR - European Road Transport; AU - Australia; BOD - Biochemical Oxygen Demand; C - Celsius; CA - Canada; CAS - Chemical Abstracts Service; CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act; CN - China; CPR - Controlled Products Regulations; DFG - Deutsche Forschungsgemeinschaft; DOT - Department of Transportation; DSL - Domestic Substances List; EEC - European Economic Community; EINECS - European Inventory of Existing Commercial Chemical Substances; EPA - Environmental Protection Agency; EU - European Union; F - Fahrenheit; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; ICAO - International Civil Aviation Organization; IDL - Ingredient Disclosure List; IDLH - Immediately Dangerous to Life and Health; IMDG - International Maritime Dangerous Goods; JP - Japan; Kow - Octanol/water partition coefficient; KR - Korea; LEL - Lower Explosive Limit; LOLI - List Of Lists™ - ChemADVISOR's Regulatory Database; MAK - Maximum Concentration Value in the Workplace; MEL - Maximum Exposure Limits; NFPA - National Fire Protection Agency; NIOSH - National Institute for Occupational Safety and Health; NJTSR - New Jersey Trade Secret Registry; NTP - National Toxicology Program; NZ - New Zealand; OSHA - Occupational Safety and Health Administration; PH - Philippines; RCRA - Resource Conservation and Recovery Act; RID - European Rail Transport; RTECS - Registry of Toxic Effects of Chemical Substances®; SARA - Superfund Amendments and Reauthorization Act; STEL - Short-term Exposure Limit; TDG - Transportation of Dangerous Goods; TSCA - Toxic Substances Control Act; TWA - Time Weighted Average; UEL - Upper Explosive Limit; US - United States

Full text of R phrases in Section 3

R22 Harmful if swallowed.

R34 Causes burns.

Other Information

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End of Sheet 00244165