Material Safety Data Sheet

Chromium(VI) oxide
MSDS# 95984

Section 1 - Chemical Product and Company Identification

MSDS Name: Chromium(VI) oxide
Catalog Numbers:
19661-0000, 19661-0010, 19661-0250, 19661-2500, 21410-0000, 21410-0010,
21410-0050, 21410-1000, 40523-0000, 40523-0025, 40523-5000, C/5840/53,
C/5840/62, C/5880/50, C/5880/53, C/5880/65, C/5920/50, C/5920/53,
C/5920NC
Synonyms: Chromic acid; Chromic anhydride; Chromium(VI) oxide; Chromium trioxide.
Company Identification: Fisher Scientific UK
Bishop Meadow Road, Loughborough
Leics. LE11 5RG
For information in Europe, call:(01509) 231166
Emergency Number, Europe:01509 231166

Section 2 - Composition, Information on Ingredients

CAS#: 1333-82-0
Chemical Name: Chromium trioxide
%: >98
EINECS#: 215-607-8

Hazard Symbols: T+ O N
Risk Phrases: 45 46 22 24/25 26 35 42/43 48/23 50/53 62 9

Section 3 - Hazards Identification
EMERGENCY OVERVIEW

Harmful if swallowed. Very toxic by inhalation. Causes severe burns. May cause sensitization by inhalation and skin contact. May cause cancer. May cause heritable genetic damage. Explosive when mixed with combustible material. Toxic in contact with skin and if swallowed. Toxic: danger of serious damage to health by prolonged exposure through inhalation. Possible risk of impaired fertility. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
Potential Health Effects
Eye: Causes severe eye burns. May cause irreversible eye injury. Causes redness and pain. May cause permanent corneal opacification.
Skin: Harmful if absorbed through the skin. Causes skin burns. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material. May cause deep, penetrating ulcers of the skin. Causes redness and pain. Chronic exposure to water insoluble hexavalent chromium compounds has been shown to be associated with lung cancer and gastrointestinal tract tumors. Substance is readily absorbed through the skin.
Ingestion: Harmful if swallowed. May cause severe and permanent damage to the
digestive tract. Causes gastrointestinal tract burns. May cause liver
and kidney damage. Exposure may cause anemia and other blood
abnormalities. May cause cyanosis (bluish discoloration of skin due
to deficient oxygenation of the blood). May cause systemic effects.

Inhalation:
May cause irritation of the respiratory tract with burning pain in
the nose and throat, coughing, wheezing, shortness of breath and
pulmonary edema. May cause asthmatic attacks due to allergic
sensitization of the respiratory tract. Causes chemical burns to
the
respiratory tract. Inhalation may be fatal as a result of spasm,
inflammation, edema of the larynx and bronchi, chemical pneumonitis
and pulmonary edema. Prolonged exposure to dusts, vapors, or mists
may result in the perforation of the nasal septum. May cause
systemic effects.

Chronic:
Prolonged or repeated inhalation may cause nosebleeds, nasal
congestion, erosion of the teeth, perforation of the nasal septum,
chest pain and bronchitis. Prolonged or repeated eye contact may
cause conjunctivitis. Prolonged or repeated skin contact may cause
sensitization dermatitis and possible destruction and/or
ulceration.

Chronic ingestion may cause effects similar to those of acute
ingestion. May cause liver and kidney damage. Chronic exposure to
water insoluble hexavalent chromium compounds has been shown to be
associated with lung cancer and gastrointestinal tract tumors.
Adverse reproductive effects have been reported in animals.

Possible
risk of harm to the unborn child. Confirmed Human Carcinogen. May
impair fertility.

Section 4 - First Aid Measures

Eyes:
Get medical aid immediately. Do NOT allow victim to rub eyes or
keep eyes closed. Extensive irrigation with water is required (at least
30 minutes).

Skin:
Get medical aid immediately. Immediately flush skin with plenty of
water for at least 15 minutes while removing contaminated clothing
and shoes. Wash clothing before reuse.

Ingestion:
Do not induce vomiting. If victim is conscious and alert, give 2-4
cupfuls of milk or water. Never give anything by mouth to an
unconscious person. Get medical aid immediately.

Inhalation:
Get medical aid immediately. Remove from exposure and move to fresh
air immediately. If breathing is difficult, give oxygen. Do NOT use
mouth-to-mouth resuscitation. If breathing has ceased apply
artificial respiration using oxygen and a suitable mechanical
device such as a bag and a mask.

Notes to Physician:  

Section 5 - Fire Fighting Measures

General Information:
As in any fire, wear a self-contained breathing apparatus in
pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Strong oxidizer. Contact with other material may cause fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Containers may explode in the heat of a fire. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Extinguishing Media: Use extinguishing media most appropriate for the surrounding fire. Contact professional fire-fighters immediately. Cool containers with flooding quantities of water until well after fire is out. May require flooding with water in order to eliminate hazardous reactions since the materials generate their own oxygen.

General Information:
Use proper personal protective equipment as indicated in Section 8. Spills/Leaks: Clean up spills immediately, observing precautions in the Protective Equipment section. Sweep up or absorb material, then place into a suitable clean, dry, closed container for disposal. Avoid generating dusty conditions. Provide ventilation. Do not use combustible materials such as paper towels to clean up spill.

Handling: Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well-ventilated area. Do not breathe dust, mist, or vapor. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials. Do not ingest or inhale. Use with adequate ventilation. Discard contaminated shoes.

Storage: Do not store near combustible materials. Keep container closed when not in use. Store in a cool, dry, well-ventilated location.

Separate from combustible materials, halogens, sulfides, metals. See also NFPA 430, Code for the Storage of Liquid and Solid Oxidizers.

Engineering Controls: Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits
CAS# 1333-82-0:
United Kingdom, WEL - TWA: (chromium (vi) compounds): 0.05 mg/m³ TWA (as Cr)
United Kingdom, WEL - STEL: (chromium (vi) compounds): 0.15 mg/m³ STEL (as Cr)
United States OSHA: 5 µg/m³ TWA (Chromium (VI) compounds). 2.5 µg/m³ Action Level (as Cr); 5 µg/m³ TWA (as Cr. Cancer hazard - See 29 CFR 1910.1026) (Chromium (VI) compounds).
Belgium - TWA: (chromium (vi) compounds- water soluble): 0.05 mg/m³ TWA (as Cr)
France - VME: 0.05 mg/m³ VME (as Cr)
France - VLE: 0.1 mg/m³ VLCT (as Cr)
Germany: (chromium (vi) compounds): 0.05 mg/m³ VME (as Cr)
Japan: (chromium (vi) compounds): 0.05 mg/m³ OEL (as Cr); 0.01 mg/m³ OEL (certain compounds, as Cr)
Malaysia: (chromium (vi) compounds- water soluble): 0.05 mg/m³ TWA (as Cr)
Netherlands: (chromium (vi) compounds- water soluble): 0.05 mg/m³ STEL
Netherlands: (chromium (vi) compounds- water soluble): 0.025 mg/m³ MAC
Russia: 0.01 mg/m³ TWA (aerosol)
Russia: 0.03 mg/m³ STEL (aerosol)
Spain: 0.05 mg/m³ VLA-ED

Personal Protective Equipment

Eyes:
Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Skin:
Wear a chemical apron. Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear a chemical apron. Wear appropriate protective gloves to prevent skin exposure.

Respirators:
Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Section 9 - Physical and Chemical Properties

Physical State: Solid
Color: dark red to purple
Odor: odorless
pH:
Vapor Pressure: Not available
Viscosity: No information
Boiling Point: 482 deg F (250.00 C)
Freezing/Melting Point: 385 deg F (196.11 C)
Autoignition Temperature: None available.
Flash Point: 250 deg C (482.00 deg F)
Explosion Limits: Lower: Not available
Explosion Limits: Upper: Not available
Decomposition Temperature: Not available
Solubility in water: Soluble
Specific Gravity/Density: 2.7 (Water=1)
Molecular Formula: CrO₃
Molecular Weight: 99.99

Section 10 - Stability and Reactivity

Chemical Stability:
Stable under normal temperatures and pressures. Hygroscopic: absorbs moisture or water from the air.

Conditions to Avoid:
Incompatible materials, dust generation, moisture, excess heat.

Incompatibilities with Other Materials
Metals, reducing agents, bases, acetic acid, acetic anhydride, alcohols, alkali metals, ammonia, chlorine trifluoride, finely powdered metals, halogens, phosphorus, diethyl ether, dimethyl formamide, acetone, diethyl formamide, methanol, glycerol, organics, ethanol, camphor, pyridine, hydrocarbons, ketones, turpentine, combustible materials, attacks metals in the presence of moisture, Aqueous solution is strongly acidic., Can ignite organic matter on contact., sulfides.

Hazardous Decomposition Products
Chromium fumes, possible trivalent chromium formation with liberated oxygen.

Hazardous Polymerization
Has not been reported.

Section 11 - Toxicological Information

RTECS#:
CAS# 1333-82-0: GB66500000
LD₅₀/LC₅₀:
RTECS: CAS# 1333-82-0: Oral, mouse: LD₅₀ = 127 mg/kg;
Oral, rat: LD₅₀ = 80 mg/kg;
Other: TDLO/TCLO-LOWEST PUBLISHED TOXIC DOSE/CONC. Human TCLo:
ROUTE: Inhalation: DOSE: 110ug/m3.
Carcinogenicity:
Chromium trioxide -
California: carcinogen, initial date 2/27/87 (Chromium (VI) compounds).
NTP: Known carcinogen
IARC: Group 1 carcinogen
Other:
See actual entry in RTECS for complete information.

Section 12 - Ecological Information

Ecotoxicity:
Fish: Pseudomonas putida:

Section 13 - Disposal Considerations
Dispose of in a manner consistent with federal, state, and local regulations.

Section 14 - Transport Information

IATA
Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS
Hazard Class: 5.1 (8)
UN Number: 1463
Packing Group: II

IMO
Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS
Hazard Class: 5.1 (8)
UN Number: 1463
Packing Group: II
Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS
Hazard Class: 5.1
UN Number: 1463
Packing Group: II

Section 15 - Regulatory Information

European/International Regulations
European Labeling in Accordance with EC Directives

Hazard Symbols: T+ O N

Risk Phrases:
R 45 May cause cancer.
R 46 May cause heritable genetic damage.
R 22 Harmful if swallowed.
R 24/25 Toxic in contact with skin and if swallowed.
R 26 Very toxic by inhalation.
R 35 Causes severe burns.
R 42/43 May cause sensitization by inhalation and skin contact.
R 48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
R 50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
R 62 Possible risk of impaired fertility.
R 9 Explosive when mixed with combustible material.

Safety Phrases:
S 53 Avoid exposure - obtain special instructions before use.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).
S 60 This material and its container must be disposed of as hazardous waste.

WGK (Water Danger/Protection)
CAS# 1333-82-0: 3

Canada
CAS# 1333-82-0 is listed on Canada's DSL List

US Federal
TSCA
CAS# 1333-82-0 is listed on the TSCA Inventory.

Section 16 - Other Information

MSDS Creation Date: 6/02/1998
Revision #9 Date 5/16/2007
Revisions were made in Sections: 2, 3, 15

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