

## MATERIAL SAFETY DATA SHEET

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Hazardous according to criteria of Worksafe

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### 1. IDENTIFICATION

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#### General

Product Name : CHROMIUM TRIOXIDE, ANHYDROUS

Other Names : CHROMIC ACID FLAKE ; CHROMIUM TRIOXIDE CHROMIC ANHYDRIDE ; CHROME (VI) OXIDE

UN No. : 1463

Dangerous Goods Class : 5.1

Subsidiary Risk : 8

Hazchem Code : 2W

Pack Group : II

EPG : 31

Poisons Schedule : 6

Uses :

Chrome-plating of metals (functional and decorative chrome-plating) and recently also of plastics. Used as an oxidising agent, in the manufacture of chromium dioxide, alkali-free chrome compounds, catalysts and gas scrubbing compounds, as a pickling and bleaching agent, in etching, surface treatment, the synthesis of organic compounds and for wood preservation.

#### 1.1 Physical Description / Properties

Appearance : Dark red flakes or powder, no odour.

Formula : CrO<sub>3</sub>

Boiling Point : N/A deg C

Melting Point : 197 deg C

Vapour Pressure : N/A

Specific Gravity : 2.7 (water = 1)

Flash Point : N/A

pH : 0.2 - 2.0 ( )

Solubility in water : Solu g/l (25 deg C)

Flammability Limits (as percentage volume in air)

Lower Explosion Limit : N/A

Upper Explosion Limit : N/A

### 1.2 Other Properties

Solubility in water = appreciable - 63% at 20 deg C Soluble in mineral acids and alcohol.

### 1.3 Ingredients

Chemical Entity	CAS No.	Proportions (%)
CHROMIUM TRIOXIDE, ANHYDROUS	[ 1333-82-0]	> 99

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## 2. HEALTH HAZARD INFORMATION

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### 2.1 Health Effects - Acute

#### Swallowed

Toxic if swallowed. May cause severe gastrointestinal tract irritation with nausea, vomiting and possible burns. May cause liver and kidney damage and death.

#### Eye

May cause irreversible eye injury. Contact with eyes may cause severe irritation, and possible eye burns. May cause blindness.

#### Skin

May cause skin sensitisation, an allergic reaction, which becomes evident upon re-exposure to this material. May cause irritation with burning pain, itching and redness. May cause deep, penetrating ulcers of the skin. May be absorbed through damaged or abraded skin.

### **Inhaled**

Inhalation causes irritation of the mucous membranes and can result in ulceration or perforation of the nasal septum. May cause irritation of the respiratory tract with burning pain in the nose and throat, coughing, wheezing, shortness of breath and pulmonary oedema. May cause asthmatic attacks due to allergic sensitisation of the respiratory tract.

## **2.2 Health Effects - Chronic**

Can be absorbed through the skin and may cause kidney damage. 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 sensitisation dermatitis and possible destruction and/or ulceration. Chronic ingestion may cause effects similar to those of acute ingestion. Chronic exposure to water insoluble hexavalent chromium compounds has been shown to be associated with lung cancer. Excess ratios for gastrointestinal tract tumours have also been reported. There is an increased incidence of lung cancer in industrial workers exposed to chromium (VI) compounds. Developmental abnormalities of the foetus have been reported in animals by the subcutaneous and intravenous routes.

## **2.3 First Aid**

### **Swallowed**

DO NOT induce vomiting. If conscious, give large amounts of water. Get immediate medical attention.

### **Eye**

Contamination of the eyes must be treated by thorough irrigation with water, with the eyelids held open for at least 15 minutes. Seek medical attention immediately.

### **Skin**

After contact with skin, wash with lots of soap and water. Remove contaminated clothing and shoes, wash before reuse. Get medical attention.

### **Inhaled**

Remove to fresh air. Irrigate mouth and nasal passages with water. Seek medical attention immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen.

### **First Aid Facilities**

Ensure an eye bath and safety shower are available and ready for use.

## **2.5 Advice to Doctor**

Target organs are kidneys, liver, respiratory and gastrointestinal systems. Treat symptomatically based on judgement of doctor and individual reactions of patient.

## **2.6 Toxicity Data**

Oral LD50 = 52 mg/kg (Rat) Dermal LD50 = 57 mg/kg (Rabbit) Inhalation LC50 = 0.217 mg/L (Rat)  
Carcinogenicity : ACGIH - certain water-insoluble, as Cr : A1 confirmed human carcinogen NTP - known carcinogen OSHA - select carcinogen IARC - Group 3 carcinogen (listed as chromium)

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## **3. PRECAUTIONS FOR USE**

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### **3.1 Exposure Standards**

Chromium (VI) compounds (as Cr), water soluble : TWA 0.05 mg/m<sup>3</sup> - Sensitiser

### **3.2 Engineering Controls**

Use with adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits. Mechanical exhaust ventilation is recommended.

### **3.3 Personal Protection**

Avoid prolonged or repeated exposure to this material. Respiratory - filter device with type P3 filter if product forms dust or aerosol Eye protection - wear face shield/goggles or chemical goggles. Hands - heavy duty rubber gloves, industrial grade or plastic. Other - wear adequate protective clothing to minimise skin exposure. Wash hands and face thoroughly after handling and before work breaks, eating, drinking, smoking and using toilet facilities.

### **3.4 Flammability**

The material is not flammable but assists burning. Contact with combustible material may cause fire.

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## **SAFE HANDLING INFORMATION**

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### **4.1 Storage / Transport**

Store away from foodstuffs and strongly oxidising agents. Keep containers tightly closed when not in use. The product is hygroscopic, keep in a dry and cool place away from heat and direct sunlight. Avoid contact with organic materials. Do not store in close proximity to combustible materials. Do not reuse containers. Product residue may remain in containers. All label precautions must be observed.

#### **4.2 Packaging / Labelling**

UN No. 1463

Class 5.1

Sub Risk 8

Hazchem Code 2W

Pack Group II

EPG No. 31

Shipping Name CHROMIUM TRIOXIDE, ANHYDROUS

Hazard OXIDIZING TOXIC

#### **Risk Phrases**

R49 May cause cancer by inhalation.

R8 Contact with combustible material may cause fire.

R25 Toxic if swallowed.

R35 Causes severe burns.

R43 May cause sensitisation by skin contact.

R50/53 Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

#### **Safety Phrases**

S28:CHACID After contact with skin, wash immediately with plenty of water.

S53 Avoid exposure - obtain special instructions before use.

S45 In case of accident or if you feel unwell, seek medical advice immediately (show the label whenever possible).

S60 This material and its container must be disposed of as hazardous waste.

S61 Avoid release to the environment. Refer to special instructions/safety data sheets.

### **4.3 Spills and Disposal**

#### **Spills**

Clean-up personnel should wear full protective clothing including self-contained breathing apparatus. Do not allow product to enter waterways.

In all cases notify applicable Government Authority if spill is significant. Stop leak. Remove as much of the spill as possible (vacuum truck). Treat the spill area with a reducing agent and neutralise with a weak base. Soak up with inert absorbent material (such as sand) and place into a closed, labelled container. Store in a safe place. Use neutralising agents such as Sodium Bicarbonate, Soda Ash or Lime.

#### **Disposal**

Dispose of via an approved chemical waste landfill. Dispose of in accordance with federal, provincial and local health pollution requirements. Shipment should be manifested.

### **4.4 FIRE AND EXPLOSION HAZARD**

#### **Fire / Explosion**

The product is a powerful oxidiser and can strongly react with a variety of organic and inorganic chemicals. Decomposes to Cr<sub>2</sub>O<sub>3</sub> at 196 deg C liberating oxygen. Stable under normal conditions of use. Conditions to avoid include excess heat. Incompatible with acetic acid, acetic anhydride, acetone, alcohols, alkali metals, ammonia, arsenic, anthracene, benzene, bromine, pentafluorine, butyric acid, camphor, chlorine trifluoride, chromous sulphide, diethyl ether, dimethyl formamide, glycerol, hydrogen sulphide, methyl alcohol, naphthalene, peroxyformic acid, phosphorous, potassium hexacyanoferrate, pyridine, selenium, sodium, sulphur, turpentine, ethyl alcohol and many hydrocarbons.

#### **Extinguishing Media**

Fire-fighters should wear full protective equipment including self-contained breathing apparatus. Use water, fog, dry chemical or carbon dioxide to extinguish.