Safety Data Sheet CHROMIUM TRIOXIDE

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SECTION 1: Identification

GHS Product identifier

Product name	CHROMIUM TRIOXIDE
Product number	CL097

Recommended use of the chemical and restrictions on use
Chemicals (chromates, oxidising agents, catalysts), chromium-plating intermediate, medicine (caustic), process engraving, anodising, ceramic glazes, coloured glass, metal cleaning, inks, tanning, paints, textile mordant, etchant for plastics and laboratory reagent.

Supplier's details

Name	ChemSupply Australia Pty Ltd
Address	38-50 Bedford Street 5013 Gillman South Australia Australia
Telephone	08 8440 2000
email	www.chemsupply.com.au

Emergency phone number

CHEMCALL 1800 127 406 (Australia) / +64-4-917-9888 (International)

SECTION 2: Hazard identification

General hazard statement
Dangerous goods of Class 5.1 (Oxidizing Agent) are incompatible in a placard load with any of the following:
Class 1, Class 2.1, Class 2.3, Class 3, Class 4, Class 5.2, Class 7, Class 8, Fire risk substances and Combustible liquids.
The sub-risk of Class 8 (Corrosive) are incompatible in a placard load with any of the following:
Class 1, Class 4.3, Class 5, Class 6, if the Class 6 dangerous goods are cyanides and the Class 8 dangerous goods are acids, Class 7; and are incompatible with food and food packaging in any quantity.

Classified as dangerous goods according to the Australian Dangerous Goods Code (ADG).

Classified as Hazardous according to the Globally Harmonised System of classification and labelling of Chemicals (GHS) including Work, Health and Safety regulations, Australia.

Classification of the substance or mixture

GHS classification in accordance with: UN GHS revision 7

- Acute toxicity, inhalation, Cat. 2
- Acute toxicity, dermal, Cat. 3
- Acute toxicity, oral, Cat. 3
- Hazardous to the aquatic environment, short-term (acute), Cat. 1
- Hazardous to the aquatic environment, long-term (chronic), Cat. 1
- Carcinogenicity, Cat. 1A

- Germ cell mutagenicity, Cat. 1B
- Oxidizing solids, Cat. 1
- Toxic to reproduction, Cat. 2
- Respiratory sensitizer, Cat. 1
- Skin corrosion/irritation, Cat. 1A
- Skin sensitizer, Cat. 1
- Specific target organ toxicity following repeated exposure, Cat. 1

GHS label elements, including precautionary statements

Pictograms

Signal word	**Danger**
Hazard statement(s)	
H271	May cause fire or explosion; strong oxidizer
H301	Toxic if swallowed
H311	Toxic in contact with skin
H314	Causes severe skin burns and eye damage
H317	May cause an allergic skin reaction
H330	Fatal if inhaled
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled
H340	May cause genetic defects
H350	May cause cancer
H361	Suspected of damaging fertility or the unborn child
H372	Causes damage to organs through prolonged or repeated exposure
H410	Very toxic to aquatic life with long lasting effects
Precautionary statement(s)	
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P283	Wear fire resistant or flame retardant clothing.
P284	[In case of inadequate ventilation] wear respiratory protection.
P301+P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor/physcian
P301+P330+P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water [or shower].
P304+P340	IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor/physcian
P333+P313	If skin irritation or rash occurs: Get medical advice/attention.
P342+P311	If experiencing respiratory symptoms: Call a POISON CENTER/doctor/physcian
P361+P364	Take off immediately all contaminated clothing and wash it before reuse.
P370+P378	In case of fire: Use agents recommended in Section 5 of SDS for extinction
P371+P380+P375	In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P403+P233	Store in a well-ventilated place. Keep container tightly closed.
P501	Dispose of contents/container to an approved waste disposal facility

SECTION 3: Composition/information on ingredients

Mixtures

Molecular weight	99.99

Component	Identification	Weight %	Classifications
Chromium trioxide	CAS no.: 1333-82-0 EC no.: 215-607-8 Index no.: 024-001-00-0	<= 100 %	CLASSIFICATIONS: Oxidizing solids, Cat. 1; Carcinogenicity, Cat. 1; Germ cell mutagenicity, Cat. 1B; Reproductive toxicity, Cat. 2; Acute toxicity, inhalation, Cat. 2; Acute toxicity, dermal, Cat. 3; Acute toxicity, oral, Cat. 3; Specific target organ toxicity, repeated exposure, Cat. 1; Skin corrosion/irritation, Cat. 1A; Sensitization - respiratory, Cat. 1; Sensitization - skin, Cat. 1; Hazardous to the aquatic environment, short-term (acute), Cat. 1; Hazardous to the aquatic environment, long-term (chronic), Cat. 1. HAZARDS: H271 - May cause fire or explosion; strong oxidizer; H301 - Toxic if swallowed; H311 - Toxic in contact with skin; H314 - Causes severe skin burns and eye damage; H317 - May cause an allergic skin reaction; H330 - Fatal if inhaled; H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled; H340 - May cause genetic defects [route]; H350 - May cause cancer [route]; H361f - ; H372 - Causes damage to organs [organs] through prolonged or repeated exposure [route]; H400 - Very toxic to aquatic life; H410 - Very toxic to aquatic life with long lasting effects. [SCLs/M-factors/ATEs]: STOT SE 3; H335: C ≥ 1 %

SECTION 4: First-aid measures

Description of necessary first-aid measures

General advice

For advice, contact a Poisons Information Centre (e.g. phone Australia 13 11 26; New Zealand 0800 764 766) or a doctor (at once).

First Aid Facilities: Maintain eyewash fountain in work area.

If inhaled

If inhaled, remove from contaminated area to fresh air immediately, avoid becoming a casualty. Make patient comfortable, keep warm and at rest until fully recovered. If breathing is difficult (or develops a bluish skin discolouration), supply oxygen by a qualified person. Apply artificial respiration with a respiratory medical device if not breathing. Do not use mouth to mouth resuscitation. Immediately medical attention is required.

In case of skin contact

Wash affected area thoroughly with soap and water. Remove contaminated clothing and wash before reuse or discard. If symptoms develop seek medical attention.

In case of eye contact

Immediately irrigate with copious quantity of water for at least 15 minutes. Eyelids to be held open. Seek immediate medical assistance.

If swallowed	Rinse mouth thoroughly with water immediately, repeat until all traces of product have been removed. DO NOT INDUCE VOMITING. Seek immediate medical advice.

Most important symptoms/effects, acute and delayed
The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

Indication of immediate medical attention and special treatment needed, if necessary
For advice in an emergency, contact a Poisons Information Centre (Phone Australia 131 126) or a doctor at once.

SECTION 5: Fire-fighting measures

Suitable extinguishing media
Small fire: USE FLOODING QUANTITIES OF WATER. Do not use dry chemicals, CO2 or foam. If safe to do so, move undamaged containers from fire area. Do not move cargo if cargo has been exposed to heat.
Large fire: Flood fire area with water from a protected position. Cool containers with flooding quantities of water until well after fire is out - If impossible, withdraw from area and let fire burn. Avoid getting water inside containers: a violent reaction may occur. Dam fire control water for later disposal.

Specific hazards arising from the chemical
Hazards from Combustion Products: May literate toxic, irritant smoke and fumes in fire.

Non combustible but will accelerate burning when involved in a fire due to the release of oxygen. May explode from heating, shock, friction or contamination. Can react explosively with hydrocarbons (fuels). May ignite combustibles (wood, paper, clothing, etc) spontaneously and may even explode. Fire may produce irritating, poisonous, and/or corrosive gases. Containers may explode when heated. Runoff may create fire or explosion hazard.

Special protective actions for fire-fighters
Wear SCBA and chemical splash suit. Structural firefighter's uniform will provide limited protection.

SECTION 6: Accidental release measures

Personal precautions, protective equipment and emergency procedures
Evacuate the area of all non-essential personnel. Avoid substance contact.
Avoid generation of dusts: do not inhale dusts. Ensure supply of fresh air in enclosed rooms.

Wear protective clothing specified for normal operations (see Section 8)

Methods and materials for containment and cleaning up
Do not contaminate. Keep combustibles (wood, paper, clothing, oil, etc.) away from spilled material. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Use water spray to knock down vapours or divert vapour clouds. Prevent entry into waterways, drains or confined areas. Prevent exposure to heat.

Dry Spill: Use clean non-sparking tools to transfer material to a clean, dry plastic container and cover loosely. Move container from spill area.
Small Liquid Spill: Use a non-combustible material like vermiculite, sand or earth to soak up the product and place in a loosely-covered container for later disposal.
Large Liquid Spill: SEEK EXPERT ADVICE ON HANDLING AND DISPOSAL.

SECTION 7: Handling and storage

Precautions for safe handling
Avoid substance contact and generation and inhalation of dust. Under no circumstances eat, drink or smoke while handling this material. Contaminated clothing should be removed and washed before reuse. Wash hands and face thoroughly after working with material. Only use in well-ventilated areas.

Conditions for safe storage, including any incompatibilities
Store away from combustible materials. Store away from organic materials. Store away from halogenated materials, acids, metals and reducing agents. Keep container tightly closed and dry, away from direct sunlight. Store at room temperature (15 - 25 °C).

SECTION 8: Exposure controls/personal protection

Control parameters

CAS: (not specified)
Chromium (VI) compounds (as cr), water soluble
AU/SWA (Australia): 0.05 mg/m3 TWA inhalation

Appropriate engineering controls
Use ventilation adequate to keep exposures (airborne levels of dust, fume, vapor, gas, etc.) below recommended exposure limits.

Individual protection measures, such as personal protective equipment (PPE)

Eye/face protection
The use of a face shield, chemical goggles or safety glasses with side shield protection as appropriate. Must comply with Australian Standards AS 1337 and be selected and used in accordance with AS 1336.

Skin protection
Clean impervious clothing should be worn. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Body protection
Footwear: Safety boots in industrial situations is advisory, foot protection should comply with AS 2210, Occupational protective footwear - Guide to selection, care and use.

Body Protection: Clean clothing or protective clothing should be worn, preferably with and apron. Clothing for protection against chemicals should comply with AS 3765 Clothing for Protection Against Hazardous Chemicals.

Respiratory protection
If engineering controls are not effective in controlling airborne exposure then an approved respirator with a replaceable vapor/ mist filter should be used. Refer to relevant regulations for further information concerning respiratory protective requirements. Reference should be made to Australian Standards AS/ NZS 1715, Selection, Use and Maintenance of Respiratory Protective Devices; and AS/ NZS 1716, Respiratory Protective Devices, in order to make any necessary changes for individual circumstances.

SECTION 9: Physical and chemical properties

Basic physical and chemical properties

Physical state	Solid
Appearance	Dark purplish-red crystals.
Color	No data available.
Odor	Odourless.
Odor threshold	No data available.
Melting point/freezing point	197 °C

Boiling point or initial boiling point and boiling range	No data available.
Flammability	Fire-promoting. Keep away from combustible materials.
Lower and upper explosion limit/ flammability limit	No data available.
Flash point	No data available.
Explosive properties	Explosive in contact with combustible material.
Auto-ignition temperature	No data available.
Decomposition temperature	250 °C (boiling point)
Oxidizing properties	Strongly oxidizing agent as a solid and in solution. Contact with organic materials, oils, greases or other readily oxidizable material should be avoided.
pH	<1 (50 g/l H2O)
Kinematic viscosity	No data available.
Solubility	Solubility in Water: Very soluble. Solubility in Organic Solvents: Soluble in alcohol and mineral acids.
Partition coefficient n-octanol/ water (log value)	No data available.
Vapor pressure	No data available.
Evaporation rate	No data available.
Density and/or relative density	Specific Gravity: 2.7
Relative vapor density	No data available.
Particle characteristics	No data available.

Supplemental information regarding physical hazard classes
No data available.

Further safety characteristics (supplemental)
No data available.

SECTION 10: Stability and reactivity

Reactivity
Stable under normal conditions of storage and handling.

Reacts with incompatible materials

Chemical stability
Stable under recommended storage conditions.

Hygroscopic.

Possibility of hazardous reactions
Contact with combustible material may cause fire.

Conditions to avoid
Strong heating.

Avoid storing in direct sunlight and avoid extremes of temperature.

Incompatible materials
Oxidising agents, organic combustible substances (eg alcohols, amines, ethers, ketones, carboxylic acids), alkali metals, ammonia, nonmetals, hydrazine and derivatives, nitrates, reducing agents, combustible substances, acids and halogenated materials.

Hazardous decomposition products
Smoke and irritant fumes.

SECTION 11: Toxicological information

Information on toxicological effects

Acute toxicity
Acute Toxicity - Oral: LD50 Oral - Rat - male and female - 52 mg/kg

Ingestion: Toxic if swallowed. Corrosive. Symptoms include sore throat, vomiting, diarrhoea, dizziness, intense thirst, muscle cramps, shock, coma, abnormal bleeding, and fever. May cause irritation and burns of the digestive tract, liver and kidney damage. Ingestion of the substance leads to severe pain in the gastrointestinal tract.

Inhalation: May cause cancer by inhalation. Inhalation of dust or mist can cause irritation of the nasal septum and respiratory tract, sore throat, coughing, shortness of breath and labored breathing. Extremely destructive to tissues of the mucous membranes and upper respiratory tract. Prolonged or repeated exposure, or if inhaled in excessive quantities may cause ulceration and perforation of the nasal septum. The substance rapidly leads to sensitization and to allergic reactions of the respiratory tract (risk of pneumonia!) and to damage of the nasal mucous membranes (under given circumstances perforation of the septum) in predisposed persons.

Skin corrosion/irritation
Causes severe burns. Direct contact may cause skin irritation sensitisation or dermatitis. Contact with skin can cause external ulcers or “chrome sores”. These occur most commonly at breaks in the skin, nail roots, creases over knuckles, finger webs, backs of hands and forearms. Toxic quantities can be absorbed through the skin causing systemic poisoning and/or kidney/liver damage.

Skin corrosion/irritation: Skin Corrosion/Irritation: Category 1A
H314 Causes severe skin burns and eye damage.

Serious eye damage/irritation
Causes severe burns. Risk of serious damage to eyes. May cause corneal burns.

Serious eye damage/irritation: Rabbit: Draize test: burns.

Respiratory or skin sensitization
Respiratory sensitisation: Sensitization - Respiratory: Category 1
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin Sensitisation: Sensitization - Respiratory: Category 1
H317 May cause an allergic skin reaction.

Germ cell mutagenicity
May cause genetic defects.

Carcinogenicity
Chromium[VI] compounds is evaluated as a group in the IARC Monographs (Vol. 49; 1990) as Group 1: Carcinogenic to humans.
Carcinogenicity: Category 1. H350 May cause cancer.

Reproductive toxicity
Toxic to Reproduction: Category 1B

H360 May damage fertility or the unborn child.

Specific target organ toxicity (STOT) - single exposure
Not classified based on available information.

Specific target organ toxicity (STOT) - repeated exposure
Specific target organ toxicity - Repeated Exposure Category 1
H372 Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard
Not classified based on available information.

Additional information
Chronic Effects: Prolonged or repeated exposure to chromic acid dust/mist may cause chronic eye irritation, skin ulceration and ulceration and perforation of the nasal septum, chronic rhinitis, pharyngitis, inflammation of the larynx, kidney and liver damage, changes in the blood, increased risk of developing respiratory cancer. Classified as a cause of asthma using EU criteria.

SECTION 12: Ecological information

Toxicity
Environmental Protection:
Hazardous to the Aquatic Environment - Long-Term Hazard: Category 1

Bioaccumulative potential
Concentration in organisms possible.
BCF: 125 - 192.

SECTION 13: Disposal considerations

Disposal methods

Product disposal
Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers.

Sewage disposal
Concentration in organisms possible.
BCF: 125 - 192.

Other disposal recommendations
Do not discharge this material into waterways, drains and sewers.

SECTION 14: Transport information

ADG (Road and Rail)
UN Number: 1463
Class: 5.1, 6.1, 8
Packing Group: II
Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS

Hazchem emergency action code (EAC)
1W

IMDG
UN Number: 1463
Class: 5.1, 6.1, 8
Packing Group: II
EMS Number:

Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS

IATA
UN Number: 1463
Class: 5.1, 6.1, 8
Packing Group: II
Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS

SECTION 15: Regulatory information

Safety, health and environmental regulations specific for the product in question

Australia SUSMP
Poison Schedule: S6

SECTION 16: Other information

Further information/disclaimer
ChemSupply Australia Pty Ltd does not warrant that this product is suitable for any use or purpose. The user must ascertain the suitability of the product before use or application intended purpose. Preliminary testing of the product before use or application is recommended. Any reliance or purported reliance upon ChemSupply Australia Pty Ltd with respect to any skill or judgement or advice in relation to the suitability of this product of any purpose is disclaimed. Except to the extent prohibited at law, any condition implied by any statute as to the merchantable quality of this product or fitness for any purpose is hereby excluded. This product is not sold by description. Where the provisions of Part V, Division 2 of the Trade Practices Act apply, the liability of ChemSupply Australia Pty Ltd is limited to the replacement of supply of equivalent goods or payment of the cost of replacing the goods or acquiring equivalent goods.

Preparation information
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Standard for the Uniform Scheduling of Medicines and Poisons, Commonwealth of Australia
National Road Transport Commission, 'Australian Code for the Transport of Dangerous Goods by Road and Rail 7th. Ed.'
Safe Work Australia, 'National Code of Practice fot the Preparation of Safety Data Sheets for Hazardous Chemicals', July 2020.
Safe Work Australia, 'National Guide for Classifying Hazardous Chemicals', July 2020.
Safe Work Australia, Workplace Exposure Standards for Airbourne Contaminants, December 2019
Safe Work Australia, Hazardous Chemical Information System (HCIS), hcis.safeworkaustralia.gov.au
IATA, Dangerous Goods Regulations (DGR)
IMO, International Maritime Dangerous Goods Code (IMDG)