

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND OF THE COMPANY / UNDERTAKING

Product Identifier:

Product Name: CHROMIC ACID
Trade Names, Synonyms: Chromium Trioxide
CAS Number: 1333-82-0
EINECS Number: 215-607-8
EC Index Number: 024-001-00-0
Tariff Number: 28290000
REACH Registration Number: 01-2119458868-17-XXXX
REACH Registration notes: This is a substance of very high concern (SVHC) and is on the REACH Regulation (EC 1907/2006) Candidate list. This substance is listed on Annex XIV of the REACH Regulation (EC 1907/2006): Subject to Authorisation.

Relevant identified uses of the substance or mixture and uses advised against:

Identified use(s): Intermediate in the manufacture of other chromium substances. Formulation of preparations used e.g. metal finishing or as catalysts. Surface treatment including functional & decorative electroplating, passivation, anodising, plastic plating.
Use of catalysts containing chromium trioxide. Small scale laboratory use of chromium trioxide.

Uses advised against: Any consumer uses. Any professional uses (except use as a laboratory chemical).

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2. HAZARDS IDENTIFICATION

Classification of the substance or mixture:

Regulation 1272/2008 (CLP):

Physical and Chemical Hazards: Ox. Sol. 1 - H271

Human health: Acute Tox. 3 - H301; Acute Tox. 2 - H310; Acute Tox. 2 - H330; Skin Corr. 1A - H314;
Eye Dam. 1 - H318. Resp. Sens. 1 - H334; Skin Sens. 1 - H317; Muta. 1B - H340;
Carc. 1A - H350; Repr. 2 - H361f; STOT RE. 1 - H372.

Environment: Aquatic Acute 1 - H400; Aquatic Chronic 1 - H410

SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 2

Label elements:

According to Regulation (EC) No. 1272/2008 (CLP):

Trade name:

Hazard Pictogram:



Signal word(s)

Danger.

Hazard statement(s):

H271 May cause fire or explosion; strong oxidiser.
H301 Toxic if swallowed.
H310+H330 Fatal in contact with skin or if inhaled.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H340 May cause genetic defects.
H350 May cause cancer.
H36 1f Suspected of damaging fertility.
H372 Causes damage to organs through prolonged or repeated exposure.
H410 Very toxic to aquatic life with long lasting effects.

Precautionary statement(s):

P201 Obtain special instructions before use.
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
P302+P352 IF ON SKIN: Wash with plenty of water.
P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P308+P311 IF exposed or concerned: Call a POISON CENTER or doctor.
P405 Store locked up.

Supplemental label information: RCH002a Restricted to professional users.

Supplemental precautionary statements: P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P220 Keep away from combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P260 Do not breathe dust.
P261 Avoid breathing dust.
P262 Do not get in eyes, on skin, or on clothing.
P264 Wash contaminated skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
P271 Use only outdoors or in a well-ventilated area.
P272 Contaminated work clothing should not be allowed out of the workplace.
P273 Avoid release to the environment.
P283 Wear fire/ flame resistant/ retardant clothing.

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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 3

P284 [In case of inadequate ventilation] wear respiratory protection.
P301+P310 IF SWALLOWED: Immediately call a POISON CENTER/ doctor.
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/ shower.
P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306+P360 IF ON CLOTHING: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes.
P308+P313 IF exposed or concerned: Get medical advice/ attention.
P314 Get medical advice/ attention if you feel unwell.
P320 Specific treatment is urgent (see medical advice on this label).
P321 Specific treatment (see medical advice on this label).
P333+P313 If skin irritation or rash occurs: Get medical advice/ attention.
P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER/ doctor.
P361+P364 Take off immediately all contaminated clothing and wash it before reuse.
P362+P364 Take off contaminated clothing and wash it before reuse.
P363 Wash contaminated clothing before reuse.
P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.
P371+P380+P375 In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.
P391 Collect spillage.
P403+P233 Store in a well-ventilated place. Keep container tightly closed.
P501 Dispose of contents/ container in accordance with national regulations.

Other hazards: This substance is not classified as PBT or vPvB according to current EU criteria.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Product name:	CHROMIC ACID
REACH Registration number:	01-2119458868-17-XXXX
REACH Registration notes:	This is a substance of very high concern (SVHC) and is on the REACH Regulation (EC 1907/2006) Candidate List. This substance is listed on Annex XIV of the REACH Regulation (EC 1907/2006): Subject to Authorisation.
CAS-No:	1333-82-0
EU Index No:	024-001-00-0
EC No:	215-607-8
Composition Comments:	Purity > 99%

4. FIRST AID MEASURES

Description of first aid measures:

General Advice: Get medical attention.

Inhalation: Move affected person to fresh air at once. Get medical attention. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration.

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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 4

Skin contact: Remove contaminated clothing immediately and wash skin with soap and water. Get medical attention immediately.

Eye contact: Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention immediately. Continue to rinse.

Ingestion: Rinse mouth thoroughly with water. Give plenty of water to drink. DO NOT induce vomiting. Get medical attention immediately.

Most important symptoms and effects, both acute and delayed:

Inhalation: Toxic by inhalation. Coughing, chest tightness, feeling of chest pressure. Irritating to respiratory system. Sore throat. Burning sensation in mouth.

Ingestion: Toxic if swallowed. Central and/or peripheral nervous system damage. Nausea, vomiting. Stomach pain. Diarrhoea. Shock.

Skin contact: Toxic in contact with skin. Redness. Pain. Causes burns.

Eye contact: Redness. Pain. May cause blurred vision and serious eye damage.

Indication of any immediate medical attention and special treatment needed:

Ingestion: Give 5-10g non effervescent ascorbic acid dissolved in water. Dose repeated daily if needed.

5. FIRE-FIGHTING MEASURES

Extinguishing Media:

Suitable extinguishing media: Use fire-extinguishing media appropriate for surrounding materials.

Special hazards arising from the substance or mixture:

Specific hazards: In case of fire, toxic and corrosive gases may be formed. Keep away from combustible material. Decomposes at 196°C liberating oxygen. May ignite other combustible materials. Oxidising.

Hazardous combustion products: Oxygen.

Advice for fire-fighters: Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

6. ACCIDENTAL RELEASE MEASURES

Avoid generation and spreading of dust. Provide adequate ventilation. No smoking, sparks, flames or other sources of ignition near spillage. Wear protective clothing as described in Section 8 of this safety data sheet.

For non-emergency personnel: Evacuate area

Environmental precautions: Avoid the spillage or runoff entering drains, sewers or watercourses. Spillages or uncontrolled discharges into watercourses must be reported immediately to the Environmental Agency or other appropriate regulatory body.

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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 5

Methods and material for containment and cleaning up: Collect and place in suitable waste disposal containers and seal securely. Avoid generation and spreading of dust. Small areas of contamination that can't be removed may be treated with ferrous sulphate solution or sodium metabisulphite solution to reduce the hexavalent chromium to the trivalent form and the pH adjusted to 8.5 with sodium carbonate or sodium hydroxide solution to precipitate chromium hydroxide. Take any precaution to avoid mixing with combustibles.

Reference to other sections: Wear protective clothing as described in Section 8 of this safety data sheet. See section 11 for additional information on health hazards. See also Section 13 for disposal information.

7. HANDLING AND STORAGE

Precautions for safe handling: Avoid spilling. Avoid contact with skin and eyes. Avoid handling which leads to dust formation. Provide adequate ventilation. Use explosion-proof general and local exhaust ventilation. Wear chemical protective suit. Avoid exposure - obtain special instructions before use. For further information, see attached Exposure Scenario.

Advice on general occupational hygiene: Do not eat, drink or smoke when using this product. Provide eyewash station and safety shower. Take off contaminated clothing and wash it before reuse.

Conditions for safe storage, including any incompatibilities:

Storage precautions: Store in tightly-closed, original container in a dry and cool place. Protect from light. Keep away from food, drink and animal feeding stuffs. Store away from incompatible materials (see Section 10). Protect from moisture. The substance is hygroscopic and will absorb water by contact with the moisture in the air.

Storage class: Oxidiser storage.

Specific end use(s): The identified uses for this product are detailed in Section 1.2. For further information, see attached Exposure Scenario.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters:

Occupational exposure limits: Long-term exposure limit (8-hour TWA): WEL 0.05 mg/m³
Short-term exposure limit (15-minute): WEL
Carc as Cr Sen

WEL = Workplace Exposure Limit

Carc = Capable of causing cancer and/or heritable genetic damage.

Sen = Capable of causing occupational asthma.

DNEL: Industry - Inhalation; Short term : 0.01 mg/m³
Industry - Inhalation; Long term local effects: 0.01 mg/m³

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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 6

- PNEC:**
- Fresh water; 0.0034 mg/l
 - Marine water; 0.0034 mg/l
 - STP; 0.21 mg/l
 - Sediment (Freshwater); 0.15 mg/l
 - Sediment (Marine water); 0.00015 mg/l
 - Soil; 0.031 mg/kg soil dw

Exposure controls:

Protective Equipment:



Engineering measures:

Observe any occupational exposure limits for the product or ingredients. The use of totally closed systems must be the method of controlling exposure. Where this cannot be achieved, for example through the partial enclosure of processes and handling systems, appropriate local exhaust ventilation systems and general ventilation should be employed. For further information, see attached Exposure Scenario.

Personal protection:

A monitoring program should be established and used where necessary in order to determine the extent of exposure of individuals in comparison with the Maximum Exposure Limit.

Eye protection:

Wear eye protection. Dust-resistant, chemical splash goggles. Personal protective equipment for eye and face protection should comply with European Standard EN166.

Hand protection:

Wear protective gloves. It is recommended that gloves are made of the following material: Polyvinyl chloride (PVC). The most suitable glove should be chosen in consultation with the glove supplier/manufacturer, who can provide information about the breakthrough time of the glove material.

Other skin and body protection:

Provide eyewash station. Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures:

Take off immediately all contaminated clothing and wash it before reuse. Wash at the end of each work shift and before eating, smoking and using the toilet.

Respiratory protection:

If ventilation is inadequate, suitable respiratory protection must be worn. Particulate filter, type P3. Particulate filters should comply with European Standard EN143.

Environmental exposure controls: The risk management measures that adequately control exposure of the environment are set out in the exposure scenarios in the annex to this Safety Data Sheet.

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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 7

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties:

Appearance	Flakes
Colour	Red. Violet
Odour	Odourless
pH	pH (diluted solution): 1.1 @ 1%
Melting point	196°C, EU A.1
Initial boiling point and range	The sample decomposes before boiling
Flash point	Not relevant. Substance is inorganic
Evaporation rate	No data
Flammability (solid, gas)	The product is not flammable. UN N.1
Vapour pressure	Scientifically unjustified. Substance is inorganic
Vapour density	Not available
Relative density	2.7 g/cm ³ @ 20°C
Bulk density	1400 kg/m ³
Solubility	1667 g/l water @ 20°C. Soluble in water. Soluble in the following Materials: Acetone, Acetic acid
Partition coefficient	Scientifically unjustified. Substance is inorganic
Auto-ignition temperature	Not classified. EU A.16
Decomposition temperature	250°C
Viscosity	Not relevant. Solid
Explosive properties	Not considered to be an explosive
Oxidising properties	May cause fire or explosion, strong oxidiser
Mol. weight	99.99

10. STABILITY AND REACTIVITY

Reactivity: The reactivity data for this product will be typical of those for the following class of materials:
Oxidising materials.

Chemical stability: Stable at normal ambient temperatures and when used as recommended.

Possibility of hazardous reactions: Keep away from combustible materials. Contact with combustible material may cause fire.
Reactions with the following materials may cause explosions: Reducing agents. Organic compounds. The following materials may react violently with the product: Alkali metals. Alkalis. Water.

Conditions to avoid: Avoid heat. Water, moisture.

Incompatible materials: Strong reducing agents. Strong acids. Amines. Powdered metal. Sulphur. Zinc. Ammonia.
Strong oxidising agents. Flammable/combustible materials.

Hazardous decomposition products: Heating may generate the following products: Toxic and corrosive gases or vapours.
Decomposition starts above melting point. Decomposes to Chromic Oxide evolving oxygen.

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11. TOXICOLOGICAL INFORMATION

Information on toxicological effects:

Acute Oral Toxicity:

Toxic Dose 1 - LD50: 52.0 mg/kg (oral rat)

Notes (oral LD₅₀): OECD 401. Toxic if swallowed.

ATE oral (mg/kg): 52.0

Acute Dermal Toxicity:

Toxic Dose 2 - LD50: 57.0 mg/kg (Dermal rabbit)

Notes (dermal LD₅₀): OECD 402. Fatal in contact with skin.

Acute inhalation Toxicity:

Toxic Conc. - LC50: 0.217 mg/l (inh-rat)

Notes (inhalation LC₅₀): EPA OTS 798.1150. Fatal if inhaled.

ATE inhalation (dusts/mists mg/l): 0.217

Skin corrosion/irritation: Animal data: Causes severe skin burns and eye damage.

Respiratory sensitisation: May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin sensitisation: May cause an allergic skin reaction.

Germ cell mutagenicity: Genotoxicity - in vivo: May cause genetic defects.

Carcinogenicity: May cause cancer.
IARC carcinogenicity: IARC Group 1 Carcinogenic to humans.

Reproductive toxicity: Fertility: Suspected of damaging fertility.

Specific Target Organ Toxicity (STOT):

STOT - single exposure: Based on available data the classification criteria are not met.

STOT - repeated exposure: May cause damage to organs through prolonged or repeated exposure. Studies in the chromate production, chromate pigment and chromium plating industries indicate that long term exposure to dust and mist containing hexavalent (Cr VI) compounds is associated with increased risk of respiratory tract cancer in humans. The specific soluble compounds of hexavalent chromium that 'may reasonably be anticipated to be carcinogenic by inhalation' have not to be identified other than chromium trioxide. Partially soluble and insoluble compounds such as zinc and zinc potassium chromate, chromium III chromates, strontium and calcium chromates already carry a carcinogenic category classification.

Target organs: Respiratory system, lungs, kidneys

Aspiration hazard: Not relevant.

12. ECOLOGICAL INFORMATION

Toxicity:

Very toxic to aquatic life with long lasting effects.

Acute aquatic toxicity

LE(C) $\square\square$: 0.1 < L(E)C50 \square 1

M factor (Acute): 1

Acute toxicity – fish: LC $\square\square$, 96 hours: 33.2 mg/l, Pimephales promelas (Fat-head Minnow)

Acute toxicity - aquatic invertebrates: EC $\square\square$, 48 hours: 0.112 mg/l, Daphnia magna

Acute toxicity - aquatic plants: EC $\square\square$, 96 hours: 0.217 mg/l, Selenastrum capricornutum

Chronic aquatic toxicity

NOEC: 0.01 < NOEC \square 0.1

Degradability: Non-rapidly degradable

M factor (Chronic): 1

Chronic toxicity - fish early life stage: NOEC, : 3.95 mg/l, Pimephales promelas (Fat-head Minnow)

Chronic toxicity - aquatic invertebrates: NOEC, 21 days: 18 mg/l, Daphnia magna

Persistence and degradability: Chromium (VI) in water will eventually be reduced to chromium (III) by organic matter in the water. Most chromium released into water will ultimately be deposited in the sediment. Chromium is not expected to biomagnify in the aquatic food chain.

Bioaccumulative potential: Bioaccumulation of this product is not expected to occur.

Partition coefficient: Scientifically unjustified. Substance is inorganic.

Mobility in soil: Chromium (VI). Mobile.

Results of PBT and vPvB assessment: This substance is not classified as PBT or vPvB according to current EU criteria.

Other adverse effects: None known.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods: Dispose of waste to licensed waste disposal site in accordance with the requirements of the local Waste Disposal Authority. Liquid: reduce to trivalent Cr (III) by methods described under accidental release measures (section 6.3). Residues and empty containers should be taken care of as hazardous waste according to local and national provisions.

14. TRANSPORT INFORMATION

UN Number:

ADR/RID/AND 1463

IMDG 1463

ICAO 1463

UN Proper Shipping Name:

Proper Shipping Name: CHROMIUM TRIOXIDE, ANHYDROUS

SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 10

Transport hazard class:

ADR/RID/ Class	5.1
ADR/RID/Subsidiary Risk	6.1.8
ADR/RID Classification Code	OTC
ADR/RID Label	5.1
IMDG Class	5.1
IMDG Subsidiary Risk	6.1.8
ICAO Class/ Division	5.1
ICAO Subsidiary Risk	6.1.8
Transport Labels	5.1 6.1, 8



Packing group:

ADR/RID/ADN/IMDG/ICAO II

Environmental:

Environmentally hazardous Substance/Marine pollutant:



Special precautions for users:

EmS	F-A, S-Q
ADR Transport Category	2
Emergency Action Code	1W
Hazard Identification No. (ADR/RID)	58
Tunnel Restriction Code	(E)

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code: Not applicable.

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture:

National regulations: 76/464 EEC: Chromium and its compounds are List II substances

EU legislation:

Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) (as amended). Regulation (EC) No 1272/2008 of the European Parliament and of the Council of 16 December 2008 on classification, labelling and packaging of substances and mixtures (as amended).

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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 11

Guidance: Workplace Exposure Limits EH40.
HSE leaflet Chromium and You INDG346.
Joint SEA/HSE guidance sheet - Monitoring for exposure to Chromium (VI) arising from Electrolytic Hexavalent Chromium Processes. Joint SEA/HSE guidance sheet - Prevention and Control of Skin Exposure Risks from Chromic Acid in the Electroplating industry.
Joint SEA/HSE guidance sheet - Prevention of Exposure to Hexavalent Chromium and Control of Chromic Acid Mist.

Authorisations (Title VII Regulation 1907/2006): This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XIV - LIST OF SUBSTANCES SUBJECT TO AUTHORISATION. Sunset date - 21st September 2017.

Restrictions (Title VIII Regulation 1907/2006): This product is/contains a substance that is included in REGULATION (EC) No 1907/2006 (REACH) ANNEX XVII - RESTRICTIONS ON THE MANUFACTURE, PLACING ON THE MARKET AND USE OF CERTAIN DANGEROUS SUBSTANCES, MIXTURES AND ARTICLES. Entry number: 30. Restricted to professional users.

Chemical safety assessment A chemical safety assessment has been carried out.

Note: The regulatory information given above only indicates the principal regulations specifically applicable to the product described in the safety data sheet. The user's attention is drawn to the possible existence of additional provisions which complete these regulations. Refer to all applicable national, international and local regulations or provisions.

16. OTHER INFORMATION

Key literature references and sources for data: Supplier's information. European Chemicals Agency, <http://echa.europa.eu/> - REACH disseminated dossier. International Chemical Safety Card, www.inchem.org. Institute for Occupational Safety and Health of the German Social Accident Insurance (AFI), GESTIS Substance database; www.dguv.de/ifa/gestis-database.

Hazard Statements In Full: H271 May cause fire or explosion; strong oxidiser.
H301 Toxic if swallowed.
H310 Fatal in contact with skin.
H314 Causes severe skin burns and eye damage.
H317 May cause an allergic skin reaction.
H318 Causes serious eye damage.
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.
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SAFETY DATA SHEET
CHROMIC ACID ANHYDROUS

Issued: 31/03/2020

Page 12

Source of key data used to compile the data sheet: Supplier information

Legal disclaimer:

The information contained in this SDS does not constitute a risk assessment, and should not replace the user's own assessment of risks as required by other health and safety legislation. This advice is given by Nexchem Ltd who accept no legal liability for it except otherwise provided by law. The information contained herein is based on the present state of our knowledge and is intended to describe our products from the point of view of safety requirements. It should not therefore be construed as guaranteeing specific properties.