

Chromium Trioxide CrO_3

CAS: 1333-82-0 · EC: 215-607-8 · UN 1463 · Class 5.1 (6.1, 8) · PG II

DANGER

Oxidizing solid · Toxic if swallowed · Fatal on skin contact or if inhaled · Causes severe burns · May cause cancer · Very toxic to aquatic life with long lasting effects



GHS03 · OXIDIZING



GHS05 · CORROSION



GHS06 · ACUTE TOXICITY



GHS08 · HEALTH HAZARD



GHS09 · ENVIRONMENT

1. IDENTIFICATION

Product Name: Chromium Trioxide, Anhydrous**Synonyms:** Chromic Anhydride, Chromium(VI) Oxide, Chromic Acid (solid)**Formula:** CrO_3 · **CAS:** 1333-82-0 · **EC:** 215-607-8**Recommended Use:** Industrial use; metal surface treatment; electroplating; fine chemical intermediate. FOR PROFESSIONAL USE ONLY.**Supplier:** AluShield / Hanzhong Delike New Materials Co., Ltd., Hanzhong, Shaanxi, China**Contact:** sales@chromiumtrioxide.com · chromiumtrioxide.com

2. HAZARD IDENTIFICATION

GHS Classification (Rev.8): Ox. Sol. 1 · Acute Tox. 3 (Oral) · Acute Tox. 2 (Dermal) · Acute Tox. 2 (Inhal.) · Skin Corr. 1A · Eye Dam. 1 · Resp. Sens. 1 · Skin Sens. 1 · Muta. 1B · Carc. 1A · Repr. 2 · STOT RE 1 · Aquatic Acute 1 · Aquatic Chronic 1

Hazard Statements:**H271** May cause fire or explosion; strong oxidizer**H310** Fatal in contact with skin**H314** Causes severe skin burns and eye damage**H334** May cause allergy/asthma symptoms if inhaled**H340** May cause genetic defects (Cat. 1B)**H361f** Suspected of damaging fertility**H400** Very toxic to aquatic life**H301** Toxic if swallowed**H330** Fatal if inhaled**H318** Causes serious eye damage**H317** May cause allergic skin reaction**H350** May cause cancer by inhalation - IARC Group 1**H372** Causes lung damage via prolonged/repeated inhalation**H410** Very toxic to aquatic life with long lasting effects

Precautionary Statements — Prevention:**P210** Keep away from heat, sparks, open flames. No smoking.**P283** Wear fire/flammable resistant/retardant clothing.**P270** Do not eat, drink or smoke when using this product.**P260** Do not breathe dust/fume/gas/mist/vapours/spray.**P221** Avoid mixing with combustibles/organic material.**P220** Keep away from clothing/combustible materials.**P284** Wear respiratory protection.**P273** Avoid release to the environment.**P280** Wear protective gloves/clothing/eye/face protection.**P264** Wash hands and exposed skin thoroughly after handling.**P271** Use only outdoors or in a well-ventilated area.**P201+P202** Obtain instructions. Do not handle until safety precautions read.**Precautionary Statements — Response:****P301+P310** IF SWALLOWED: Immediately call POISON CENTER/doctor.**P305+P351+P338** IF IN EYES: Rinse ≥15 min. Remove lenses. Continue rinsing.**P303+P361+P353** IF ON SKIN: Remove clothing. Rinse with water.**P370+P378** Fire: Use dry chemical, alcohol foam or dry sand.**P304+P340** IF INHALED: Remove to fresh air. Keep comfortable.**P371+P380+P375** Major fire: Evacuate. Fight fire remotely.**P405** Store locked up. **P403+P233** Store well-ventilated. Keep container closed. **P501** Dispose per local/regional/national/international regulations.**3. COMPOSITION / INFORMATION ON INGREDIENTS**

CHEMICAL NAME	CAS NO.	EC NO.	FORMULA	CONCENTRATION
Chromium Trioxide	1333-82-0	215-607-8	CrO ₃	≥99.7% w/w

No other hazardous ingredients above classification cut-off limits are present.

4. FIRST AID MEASURES

If toxicity signs present, administer 5–10 g Ascorbic acid (non-effervescent) in water. Repeat 5–10 g/day while toxicity persists.

Inhalation: Remove to fresh air. Loosen clothing. Administer oxygen if needed. If not breathing, use pocket mask (NOT mouth-to-mouth). Call Poison Centre immediately.**Eyes:** Flush with running water ≥15 min, holding eyelids open. Remove contact lenses. Continue until medical advice.**Skin:** Remove contaminated clothing and shoes. Flush with running water ≥15 min. Call Poison Centre. Destroy contaminated leather items.**Ingestion:** Rinse mouth. Do NOT induce vomiting. Never give anything to unconscious person. Call Poison Centre. Gastric lavage contraindicated — risk of perforation.

5. FIRE FIGHTING MEASURES

Extinguishing Media: Dry chemical, alcohol-resistant foam, dry sand. **DO NOT USE WATER.**

Specific Hazards: OXIDISING SUBSTANCE — accelerates combustion. May explode from heat/contamination. Decomposition produces toxic metal oxide fumes.

Special PPE: Positive-pressure SCBA + full chemical protective clothing. **Hazchem Code:** 1W.

6. ACCIDENTAL RELEASE MEASURES

Personal: Wear encapsulating PPE. Eliminate ignition sources. Keep unauthorised personnel away. Stay upwind. Ventilate closed spaces.

Environmental: Prevent entry into waterways, drains, sewers. Notify authorities if product enters public waters.

Cleanup: Mechanically recover with non-sparking tools into clean containers. Soak up residues with inert absorbent. Treat residual Cr(VI) with ferrous sulphate or sodium metabisulphite to reduce to Cr(III); adjust pH to 8.5 to precipitate. Dispose at authorised site (see §13).

7. HANDLING AND STORAGE

Handling: Use outdoors or well-ventilated area. Do not handle until safety precautions read. Avoid contact with skin, eyes and clothing. Do not breathe dust. Safety showers and eyewash must be within work area.

Storage: Store locked up in cool, dry, well-ventilated place. Keep container tightly closed. Away from combustibles, reducing agents, organics, ignition sources. Do not contaminate.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

OEL (as Cr(VI)): Safe Work Australia TWA 0.05 mg/m³ (Carc. 1A, Sen). NZ WES TWA 0.00002 mg/m³, STEL 0.0005 mg/m³.

Biological Limit: Total Cr in urine — 25 µg/L (end work week); increase of 10 µg/L during 8h exposure.

Engineering: Local exhaust ventilation. Establish monitoring program.

Respiratory: P3 dust mask or SCBA (AS/NZS 1715/1716).

Eye/Face: Safety goggles.

Hand: Butyl rubber, FKM, CR, or PVC gloves.

Body: Overalls + fire/flame resistant clothing.

Hygiene: Do not eat, drink or smoke. Wash hands after handling. Contaminated work clothing must not leave workplace.

9. PHYSICAL AND CHEMICAL PROPERTIES

PROPERTY	VALUE	PROPERTY	VALUE
Appearance	Reddish-violet flakes/crystals	Colour	Dark red / Purple-red
Odour	Odourless	pH (10 g/L, 20°C)	~1 (strongly acidic)
Melting Point	196 °C	Decomposition Temp.	250 °C
Relative Density	2.7	Bulk Density	~1,400 kg/m ³
Solubility in Water	167 g/100 mL @ 70°C	Solubility (other)	Soluble in acetic acid, acetone
Molecular Weight	99.99 g/mol	Vapour Pressure	Negligible at 20°C
Flash Point	Not applicable (solid oxidizer)	Explosive Properties	May explode from heat/contamination
Oxidising Properties	Strong oxidiser	Auto-ignition Temp.	Not applicable

10. STABILITY AND REACTIVITY

Stability: Stable under normal conditions. **Reactivity:** Strong oxidiser — may cause fire/explosion. **Avoid:** Heat, sparks, open flames, organic/combustible contamination. **Incompatible:** Combustibles, reducing agents, organic compounds, powdered metals, alcohols, acetic anhydride. **Decomposition:** Toxic/corrosive metal oxide fumes under fire. **Polymerisation:** Does not occur.

11. TOXICOLOGICAL INFORMATION

Acute Toxicity:

LD₅₀ Oral (Rat): 52 mg/kg · LD₅₀ Dermal (Rabbit): 57 mg/kg · LC₅₀ Inhal. (Rat): 0.217 mg/L/4h

Skin Corrosion (Cat. 1A): Severe burns. Chromium ulcers at cuts/abrasions.

Eye Damage (Cat. 1): Severe burns from dust/mist.

Carcinogenicity (Cat. 1A): May cause cancer by inhalation. IARC

Group 1. Long-term Cr(VI) dust/mist exposure linked to respiratory tract cancer.

Mutagenicity (Cat. 1B): May cause genetic defects.

STOT RE (Cat. 1): Lung damage from prolonged/repeated inhalation. Nasal septum ulceration/perforation.

12. ECOLOGICAL INFORMATION

LC₅₀ Fish: 33.2 mg/L/96h · EC₅₀ Daphnia: 0.112 mg/L/48h · EC₅₀ Algae: 0.217 mg/L/96h · NOEC Fish: 3.95 mg/L

Very toxic to aquatic life (H400, H410). Cr(VI) → Cr(III) in water. Deposits in sediment. No biomagnification. Highly mobile in soils. Avoid release to environment.

13. DISPOSAL CONSIDERATIONS

Dispose per local/regional/national/international regulations. Large quantities: contact supplier. Small quantities: licensed waste contractor. Wash packaging free of chromic acid before disposal. Treat washings before discharge. Do not dispose into the environment. Empty containers retain hazardous residues.

14. TRANSPORT INFORMATION

REGULATION	UN	PROPER SHIPPING NAME	CLASS	SUB.	PG
ADR/RID (EU)	1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	6.1,8	II
ADG (AU)	1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	6.1,8	II
IMDG (Sea)	1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	6.1,8	II
IATA DGR (Air)	1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	6.1,8	II
US DOT	1463	CHROMIUM TRIOXIDE, ANHYDROUS	5.1	6.1,8	II

Hazchem: 1W · IMDG EmS: F-A, S-Q · ERG: 141 · Marine Pollutant: Yes (IMDG)

15. REGULATORY INFORMATION

INVENTORY	STATUS	INVENTORY	STATUS
Australia AICS	Listed	New Zealand NZIoC	Listed — HSR001321
China IECSC	Listed	USA TSCA	Listed
Japan ENCS/METI	Listed	Korea KECI	Listed
Philippines PICCS	Listed	Canada DSL	Listed
Taiwan TCSI	Listed	EU EINECS	215-607-8

Australia Poisons Schedule 6 · EU CLP (EC) 1272/2008: Harmonised classification applies

16. OTHER INFORMATION

Prepared: Jul 10, 2026 · **Revision:** 1

References: GHS Rev.8 · UN Model Regulations · Safe Work Australia Model WHS Regulations · EU CLP (EC) 1272/2008 · IARC Monographs Vol.100C

Abbreviations: TWA — Time Weighted Average · STEL — Short Term Exposure Limit · LD₅₀/LC₅₀ — Lethal Dose/Concentration 50% · EC₅₀ — Effect Concentration 50% · NOEC — No Observed Effect Concentration · SCBA — Self-Contained Breathing Apparatus · PG — Packing Group · IARC — International Agency for Research on Cancer

Disclaimer: The information provided herein is based on the present state of our knowledge and is intended to describe the product solely for health, safety and environmental requirements. It should not be construed as guaranteeing any specific property or suitability for any particular application. The user is responsible for determining suitability for their own use. AluShield / Hanzhong Delike New Materials Co., Ltd. makes no warranty and assumes no liability for damages resulting from use of or reliance upon this information.