

## Chemical Safety Data Sheet MSDS / SDS

## Chromium(VI) oxide

Revision Date:2025-01-25 Revision Number:1

## SECTION 1: Identification of the substance/mixture and of the company/undertaking

## Product identifier

Product name : Chromium(VI) oxide  
CBnumber : CB5304358  
CAS : 1333-82-0  
EINECS Number : 215-607-8  
Synonyms : CrO3,chromium(VI) oxide

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

Relevant identified uses : For R&D use only. Not for medicinal, household or other use.  
Uses advised against : none

## Company Identification

Company : Chemicalbook  
Address : Building 1, Huihuang International, Shangdi 10th Street, Haidian District, Beijing  
Telephone : 400-158-6606

## SECTION 2: Hazards identification

## GHS Label elements, including precautionary statements

Symbol(GHS)



Signal word

Danger

## Precautionary statements

P405 Store locked up.

P403+P233 Store in a well-ventilated place. Keep container tightly closed.

P371+P380+P375 in case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

P320 Specific treatment is urgent (see ... on this label).

P308+P313 IF exposed or concerned: Get medical advice/attention.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.

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P304+P340 IF INHALED: Remove victim to fresh air and Keep at rest in a position comfortable for breathing.

P303+P361+P353 IF ON SKIN (or hair): Remove/Take off Immediately all contaminated clothing. Rinse SKIN with water/shower.

P284 Wear respiratory protection.

P283 Wear fire/ flame resistant/ retardant clothing.  
P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.  
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.  
P221 Take any precaution to avoid mixing with combustibles/ ...  
P210 Keep away from heat/ sparks/ open flames/ hot surfaces. — No smoking.  
P201 Obtain special instructions before use.

#### **Hazard statements**

H410 Very toxic to aquatic life with long lasting effects  
H400 Very toxic to aquatic life  
H372 Causes damage to organs through prolonged or repeated exposure  
H361 Suspected of damaging fertility or the unborn child  
H350 May cause cancer  
H340 May cause genetic defects  
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled  
H330 Fatal if inhaled  
H318 Causes serious eye damage  
H317 May cause an allergic skin reaction  
H314 Causes severe skin burns and eye damage  
H310 Fatal in contact with skin  
H301 Toxic if swallowed  
H271 May cause fire or explosion; strong oxidiser

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## SECTION 3: Composition/information on ingredients

### **Substance**

Product name	: Chromium(VI) oxide
Synonyms	: CrO <sub>3</sub> , chromium(VI) oxide
CAS	: 1333-82-0
EC number	: 215-607-8
MF	: CrO <sub>3</sub>
MW	: 99.99

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## SECTION 4: First aid measures

### **Description of first aid measures**

#### **General advice**

First aiders need to protect themselves. Show this material safety data sheet to the doctor

#### **If inhaled**

After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary also oxygen.

#### **In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.

#### **In case of eye contact**

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

#### If swallowed

If swallowed: give water to drink (two glasses at most). Seek medical advice immediately. In exceptional cases only, if medical care is not available within one hour, induce vomiting (only in persons who are wide awake and fully conscious), administer activated charcoal (20 - 40 g in a 10% slurry) and consult a doctor as quickly as possible. Do not attempt to neutralise.

#### Most important symptoms and effects, both 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 any immediate medical attention and special treatment needed

No data available

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## SECTION 5: Firefighting measures

### Extinguishing media

#### Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

#### Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

### Special hazards arising from the substance or mixture

Chromium oxides Not combustible.

Has a fire-promoting effect due to release of oxygen. Ambient fire may liberate hazardous vapours.

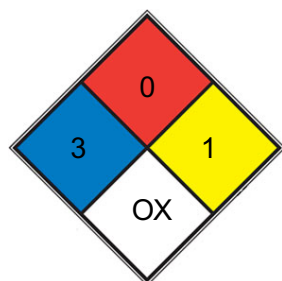
### Advice for firefighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

### Further information

Prevent fire extinguishing water from contaminating surface water or the ground water system.

### NFPA 704



■ HEALTH 3

Short exposure could cause serious temporary or moderate residual injury (e.g. [liquid hydrogen](#), [sulfuric acid](#), [calcium hypochlorite](#), hexafluorosilicic acid)

■ FIRE 0

Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand. Materials that will not burn in air when exposed to a temperature of 820 °C (1,500 °F) for a period of 5 minutes.(e.g. Carbon tetrachloride)

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REACT 1 Normally stable, but can become unstable at elevated temperatures and pressures (e.g. [propene](#))

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SPEC. OX  
 HAZ.

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## SECTION 6: Accidental release measures

### Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

### Environmental precautions

Do not let product enter drains.

### Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

### Reference to other sections

For disposal see section 13.

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## SECTION 7: Handling and storage

### Precautions for safe handling

#### Advice on safe handling

Work under hood. Do not inhale substance/mixture.

#### Advice on protection against fire and explosion

Keep away from open flames, hot surfaces and sources of ignition.

#### Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### Conditions for safe storage, including any incompatibilities

#### Storage conditions

Tightly closed. Keep locked up or in an area accessible only to qualified or authorized persons. Separately or together with other oxidising substances only and away from sources of ignition and heat. Because of their oxidation potential these products can raise the burning rate of combustible substances substantially or ignite combustible substances on contact with them.

hygroscopic Heat sensitive.

## Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## SECTION 8: Exposure controls/personal protection

### control parameter

#### Hazard composition and occupational exposure limits

Does not contain substances with occupational exposure limits.

### Exposure controls

#### Personal protective equipment

##### Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Tightly fitting safety goggles

##### Skin protection

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: [www.kcl.de](http://www.kcl.de)).

Splash contact Material: Nitrile rubber

Minimum layer thickness: 0,11 mm Break through time: 480 min

Material tested:KCL 741 Dermatril? L

##### Body Protection

Acid-resistant protective clothing

##### Respiratory protection

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type P3

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

##### Control of environmental exposure

Do not let product enter drains.

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## SECTION 9: Physical and chemical properties

## Information on basic physicochemical properties

Appearance	dark red powder, flakes
Odour	odorless
Odour Threshold	Not applicable
pH	< 1 at 100 g/l at 20 °C
Melting point/freezing point	Melting point/range: 196 °C - dec.
Initial boiling point and boiling range	330 °C
Flash point	Not applicable
Evaporation rate	No data available
Flammability (solid, gas)	The product is not flammable. - Test N.1: Test method for readily combustible solids
Upper/lower flammability or explosive limits	No data available
Vapour pressure	Not applicable
Vapour density	Not applicable
Relative density	2,7 g/cm <sup>3</sup> at 20 °C ca.2,7 - OECD Test Guideline 109
Water solubility	ca.1.667 g/l - Regulation (EC) No. 440/2008, Annex, A.6- soluble
Partition coefficient: n-octanol/water	Not applicable for inorganic substances
Autoignition temperature	not auto-flammable
Decomposition temperature	above melting point
Viscosity	Viscosity, kinematic: No data available Viscosity, dynamic: No data available
Explosive properties	No data available
Oxidizing properties	The substance or mixture is classified as oxidizing with the category 1. May cause fire or explosion; strong oxidizer.

## Other safety information

Relative vapor density

Not applicable

## SECTION 10: Stability and reactivity

### Reactivity

No data available

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Risk of explosion with:

organic combustible substances Alkali metals

Ammonia nonmetals

halogen-halogen compounds hydrazine and derivatives nitrates

Reducing agents Nitric acid

### **Conditions to avoid**

no information available

### **Incompatible materials**

No data available

### **Hazardous decomposition products**

In the event of fire: see section 5

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## **SECTION 11: Toxicological information**

### **Information on toxicological effects**

#### **Acute toxicity**

LD50 Oral - Rat - male and female - 52 mg/kg (OECD Test Guideline 401)

Acute toxicity estimate Inhalation - 0,051 mg/l (Expert judgment)

Acute toxicity estimate Dermal - 300,1 mg/kg (Expert judgment)

#### **Skin corrosion/irritation**

Skin - Rabbit

Result: Corrosive - 0,5 h Remarks: (ECHA)

#### **Serious eye damage/eye irritation**

Eyes - Rabbit

Result: Causes burns.

Remarks: (ECHA)

Causes serious eye damage.

#### **Respiratory or skin sensitization**

May cause allergy or asthma symptoms or breathing difficulties if inhaled. Patch test: - Human

Result: positive Remarks: (IUCLID)

May cause an allergic skin reaction.

#### **Germ cell mutagenicity**

Remarks: (IUCLID)

#### **Carcinogenicity**

No data available

#### **Reproductive toxicity**

Suspected of damaging fertility.

#### **Specific target organ toxicity - single exposure**

May cause respiratory irritation. - Respiratory system

#### **Specific target organ toxicity - repeated exposure**

Inhalation - Causes damage to organs through prolonged or repeated exposure.

No data available

#### **Toxicity**

LD50 oral (rat) 80 mg/kg

PEL (OSHA) 0.1 mg (CrO<sub>3</sub>)/m<sup>3</sup> (ceiling)

TLV-TWA (ACGIH) 0.05 mg (Cr)/m<sup>3</sup>

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## SECTION 12: Ecological information

### Toxicity

#### Toxicity to fish

LC50 - Pimephales promelas (fathead minnow) - 33,2 mg/l - 96 h Remarks: (in analogy to similar products)  
(ECHA)

#### Toxicity to daphnia and other aquatic invertebrates

EC50 - Daphnia magna (Water flea) - 0,035 mg/l - 48 h Remarks: (ECHA)

### Persistence and degradability

The methods for determining the biological degradability are not applicable to inorganic substances.

### Bioaccumulative potential

No data available

### Mobility in soil

No data available

### Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### Other adverse effects

No data available

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## SECTION 13: Disposal considerations

### Waste treatment methods

#### Product

See [www.retrologistik.com](http://www.retrologistik.com) for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

#### Incompatibilities

Chromium trioxide is a strong oxidizer. The solution in water is a strong acid. Reacts violently with bases and is corrosive. Contact with reducing agents; fuels, organic chemicals, flammable and combustible materials, causing fire and explosion hazard. This chemical decomposes above 250C to chromic oxide and oxygen with increased fire hazard. Attacks metals in the presence of moisture.

#### Waste Disposal

Reduce to Cr(III). If material cannot be recovered and recycled, dispose of sludge in a chemical waste landfill.

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## SECTION 14: Transport information

### UN number

ADR/RID: 1463 IMDG: 1463 IATA: 1463

### UN proper shipping name

ADR/RID: CHROMIUM TRIOXIDE, ANHYDROUS IMDG: CHROMIUM TRIOXIDE,  
ANHYDROUS

IATA: Chromium trioxide,  
anhydrous

14.3	Transport hazard class(es) ADR/RID: 5.1 (6.1, 8) IMDG: 5.1 (6.1, 8)	IATA: 5.1 (6.1)(8)
14.4	Packaging group ADR/RID: II IMDG: II	IATA: II
14.5	Environmental hazards ADR/RID: yes IMDG Marine pollutant: yes	IATA: no
14.6	Special precautions for user No data available	

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## SECTION 15: Regulatory information

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

#### Regulations on the Safety Management of Hazardous Chemicals

China Catalog of Hazardous chemicals 2015:Listed. website: <https://www.mem.gov.cn/>

#### Measures for Environmental Management of New Chemical Substances

United States Toxic Substances Control Act (TSCA) Inventory:Listed. website: <https://www.epa.gov/>

Vietnam National Chemical Inventory:Listed. website: <https://chemicaldata.gov.vn/>

European Inventory of Existing Commercial Chemical Substances (EINECS):Listed. website: <https://echa.europa.eu/>

EC Inventory:Listed.

Chinese Chemical Inventory of Existing Chemical Substances (China IECSC):Listed. website: <https://www.mee.gov.cn/>

New Zealand Inventory of Chemicals (NZIoC):Listed. website: <https://www.epa.govt.nz/>

Philippines Inventory of Chemicals and Chemical Substances (PICCS):Listed. website: <https://emb.gov.ph/>

Korea Existing Chemicals List (KECL):Listed. website: <http://ncis.nier.go.kr>

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## SECTION 16: Other information

### Abbreviations and acronyms

CAS: Chemical Abstracts Service

ADR: European Agreement concerning the International Carriage of Dangerous Goods by Road

RID: Regulation concerning the International Carriage of Dangerous Goods by Rail

IMDG: International Maritime Dangerous Goods

IATA: International Air Transportation Association

TWA: Time Weighted Average

STEL: Short term exposure limit

LC50: Lethal Concentration 50%

LD50: Lethal Dose 50%

EC50: Effective Concentration 50%

## References

- 【1】 CAMEO Chemicals, website: <http://cameochemicals.noaa.gov/search/simple>
- 【2】 ChemIDplus, website: <http://chem.sis.nlm.nih.gov/chemidplus/chemidlite.jsp>
- 【3】 ECHA - European Chemicals Agency, website: <https://echa.europa.eu/>
- 【4】 eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website:  
[http://www.echemportal.org/echemportal/index?pageID=0&request\\_locale=en](http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en)
- 【5】 ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: <http://www.phmsa.dot.gov/hazmat/library/erg>
- 【6】 Germany GESTIS-database on hazard substance, website: <http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp>
- 【7】 HSDB - Hazardous Substances Data Bank, website: <https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm>
- 【8】 IARC - International Agency for Research on Cancer, website: <http://www.iarc.fr/>
- 【9】 IPCS - The International Chemical Safety Cards (ICSC), website: <http://www.ilo.org/dyn/icsc/showcard.home>
- 【10】 Sigma-Aldrich, website: <https://www.sigmaaldrich.com/>

## Other Information

Do NOT take working clothes home. Rinse contaminated clothing with plenty of water because of fire hazard. The symptoms of asthma often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Anyone who has shown symptoms of asthma due to this substance should avoid all further contact. Depending on the degree of exposure, periodic medical examination is suggested.

### Disclaimer:

The information in this MSDS is only applicable to the specified product, unless otherwise specified, it is not applicable to the mixture of this product and other substances. This MSDS only provides information on the safety of the product for those who have received the appropriate professional training for the user of the product. Users of this MSDS must make independent judgments on the applicability of this SDS. The authors of this MSDS will not be held responsible for any harm caused by the use of this MSDS.