

Material Safety Data Sheet

Version 3.5

Revision Date 07/03/2013

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1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Chromium(VI) oxide

Product Number : 27081

Brand : Sigma-Aldrich

Supplier : Sigma-Aldrich
3050 Spruce Street
SAINT LOUIS MO 63103
USA

Telephone : +1 800-325-5832

Fax : +1 800-325-5052

Emergency Phone # (For both supplier and manufacturer) : (314) 776-6555

Preparation Information : Sigma-Aldrich Corporation
Product Safety - Americas Region
1-800-521-8956

2. HAZARDS IDENTIFICATION

Emergency Overview

OSHA Hazards

Oxidizer, Carcinogen, Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Corrosive, Teratogen, Reproductive hazard, Mutagen

Target Organs

Kidney, Lungs, Liver, Nerves., Blood, Eyes, Skin, Respiratory system

GHS Classification

Oxidizing solids (Category 1)
Acute toxicity, Oral (Category 3)
Acute toxicity, Inhalation (Category 2)
Acute toxicity, Dermal (Category 3)
Skin corrosion (Category 1A)
Serious eye damage (Category 1)
Respiratory sensitisation (Category 1)
Skin sensitisation (Category 1)
Germ cell mutagenicity (Category 1B)
Carcinogenicity (Category 1A)
Reproductive toxicity (Category 2)
Specific target organ toxicity - repeated exposure, Inhalation (Category 1)
Acute aquatic toxicity (Category 1)
Chronic aquatic toxicity (Category 1)

GHS Label elements, including precautionary statements

Pictogram



Signal word

Danger

Hazard statement(s)

H271

H301 + H311

May cause fire or explosion; strong oxidiser.
Toxic if swallowed or 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 if inhaled.
H410	Very toxic to aquatic life with long lasting effects.

Precautionary statement(s)

P201	Obtain special instructions before use.
P220	Keep/Store away from clothing/ combustible materials.
P260	Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.
P273	Avoid release to the environment.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P284	Wear respiratory protection.
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 or doctor/ physician.
P501	Dispose of contents/ container to an approved waste disposal plant.

HMIS Classification

Health hazard:	4
Chronic Health Hazard:	*
Flammability:	0
Physical hazards:	2

NFPA Rating

Health hazard:	4
Fire:	0
Reactivity Hazard:	2
Special hazard.:	OX

Potential Health Effects

Inhalation	May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Skin	Toxic if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns. Causes severe eye burns.
Ingestion	Toxic if swallowed.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Synonyms	: Chromic anhydride
Formula	: CrO ₃
Molecular Weight	: 99.99 g/mol

Component	Concentration
Chromium trioxide Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)	
CAS-No.	1333-82-0
EC-No.	215-607-8
Index-No.	024-001-00-0
	90 100 %

4. FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Take off contaminated clothing and shoes immediately. Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.

In case of eye contact

Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician. Continue rinsing eyes during transport to hospital.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

5. FIREFIGHTING MEASURES**Conditions of flammability**

Not flammable or combustible.

Suitable extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

Special protective equipment for firefighters

Wear self contained breathing apparatus for fire fighting if necessary.

Hazardous combustion products

Hazardous decomposition products formed under fire conditions. - Chromium oxides

Further information

Use water spray to cool unopened containers.

6. ACCIDENTAL RELEASE MEASURES**Personal precautions**

Wear respiratory protection. Avoid dust formation. Avoid breathing vapours, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up

Sweep up and shovel. Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE**Precautions for safe handling**

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. Keep away from sources of ignition - No smoking.

Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

hygroscopic Heat sensitive.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION**Components with workplace control parameters**

Components	CAS-No.	Value	Control parameters	Basis
Chromium trioxide	1333-82-0	TWA	0.001 mg/m ³	USA. NIOSH Recommended Exposure Limits
Remarks	Potential Occupational Carcinogen See Appendix C See Appendix A			
	See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in §			

	1910.1026 is stayed or is otherwise not in effect Substance listed; for more information see OSHA document 1910.1026
	See 1910.1026. See Table Z-2 for the exposure limit for any operations or sectors where the exposure limit in 1910.1026 is stayed or are otherwise not in effect.

Personal protective equipment

Respiratory protection

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Hand protection

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested:Dermatril® (KCL 740 / Aldrich Z677272, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

Eye protection

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

Skin and body protection

Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

Hygiene measures

Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Form crystalline

Colour violet

Safety data

pH no data available

Melting point/freezing point Melting point/range: 196 °C (385 °F) - dec.

Boiling point no data available

Flash point not applicable

Ignition temperature no data available

Auto-ignition temperature	no data available
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapour pressure	no data available
Density	2.700 g/cm ³
Water solubility	1.667 g/l - soluble
Partition coefficient: n-octanol/water	no data available
Relative vapour density	no data available
Odour	no data available
Odour Threshold	no data available
Evaporation rate	no data available

10. STABILITY AND REACTIVITY

Chemical stability

Stable under recommended storage conditions.

Possibility of hazardous reactions

no data available

Conditions to avoid

Heat. Avoid moisture.

Materials to avoid

Organic materials, Phosphorus, Powdered metals

Hazardous decomposition products

Hazardous decomposition products formed under fire conditions. - Chromium oxides

Other decomposition products - no data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity

Oral LD50

LD50 Oral - rat - male and female - 52 mg/kg

Inhalation LC50

LC50 Inhalation - rat - male - 4 h - 217 mg/m³

Dermal LD50

LD50 Dermal - rabbit - male and female - 57 mg/kg

Other information on acute toxicity

no data available

Skin corrosion/irritation

Skin - rabbit - Corrosive - 24 h

Serious eye damage/eye irritation

Eyes - rabbit - Corrosive to eyes

Respiratory or skin sensitisation

no data available

Germ cell mutagenicity

May alter genetic material.

In vivo tests showed mutagenic effects

Carcinogenicity

This is or contains a component that has been reported to be carcinogenic based on its IARC, OSHA, ACGIH, NTP, or EPA classification.

Human carcinogen.

IARC: 1 - Group 1: Carcinogenic to humans (Chromium trioxide)

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: Known to be human carcinogen (Chromium trioxide)

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

May cause reproductive disorders.

Teratogenicity

Suspected human reproductive toxicant

Specific target organ toxicity - single exposure (Globally Harmonized System)

no data available

Specific target organ toxicity - repeated exposure (Globally Harmonized System)

no data available

Aspiration hazard

no data available

Potential health effects

Inhalation	May be fatal if inhaled. Material is extremely destructive to the tissue of the mucous membranes and upper respiratory tract.
Ingestion	Toxic if swallowed.
Skin	Toxic if absorbed through skin. Causes skin burns.
Eyes	Causes eye burns. Causes severe eye burns.

Signs and Symptoms of Exposure

Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract, eyes, and skin., Cough, Shortness of breath, Headache, Nausea

Synergistic effects

no data available

Additional Information

RTECS: GB6650000

12. ECOLOGICAL INFORMATION

Toxicity

Toxicity to fish	LC50 - Tilapia mossambica - 21.05 - 141.38 mg/l - 96.0 h
	LC0 - Leuciscus idus (Golden orfe) - 100 mg/l - 48.0 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 0.8 mg/l - 48 h

Persistence and degradability

no data available

Bioaccumulative potential

no data available

Mobility in soil

no data available

PBT and vPvB assessment

no data available

Other adverse effects

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal.

Very toxic to aquatic life with long lasting effects.

13. DISPOSAL CONSIDERATIONS**Product**

Burn in a chemical incinerator equipped with an afterburner and scrubber but exert extra care in igniting as this material is highly flammable. Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.

Contaminated packaging

Dispose of as unused product.

14. TRANSPORT INFORMATION**DOT (US)**

UN number: 1463 Class: 5.1 (6.1, 8) Packing group: II

Proper shipping name: Chromium trioxide, anhydrous

Reportable Quantity (RQ):

Marine pollutant: No

Poison Inhalation Hazard: No

IMDG

UN number: 1463 Class: 5.1 (6.1, 8) Packing group: II

EMS-No: F-A, S-Q

Proper shipping name: CHROMIUM TRIOXIDE, ANHYDROUS

Marine pollutant: No

IATA

UN number: 1463 Class: 5.1 (6.1, 8) Packing group: II

Proper shipping name: Chromium trioxide, anhydrous

15. REGULATORY INFORMATION**OSHA Hazards**

Oxidizer, Carcinogen, Target Organ Effect, Highly toxic by inhalation, Toxic by ingestion, Toxic by skin absorption, Corrosive, Teratogen, Reproductive hazard, Mutagen

SARA 302 Components

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

	CAS-No.	Revision Date
Chromium trioxide	1333-82-0	1993-04-24

SARA 311/312 Hazards

Reactivity Hazard, Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

	CAS-No.	Revision Date
Chromium trioxide	1333-82-0	1993-04-24

Pennsylvania Right To Know Components

	CAS-No.	Revision Date
Chromium trioxide	1333-82-0	1993-04-24

New Jersey Right To Know Components

	CAS-No.	Revision Date
Chromium trioxide	1333-82-0	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.
Chromium trioxide

CAS-No.
1333-82-0

Revision Date
2008-12-19

California Prop. 65 Components

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.
Chromium trioxide

CAS-No.
1333-82-0

Revision Date
2008-12-19

16. OTHER INFORMATION**Further information**

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