


SAFETY DATA SHEET	In accordance with Regulation 1907/2006 (REACH), amended by Regulation 453/2010	
	CHROMIUM TRIOXIDE	

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

1.1. Product identifier

Name: Chromium(VI) trioxide
Synonyms : Chromic acid
CLP Annex I, index nr. 024-001-00-0
EC/EINECS No. : 215-607-8
CAS No. 1333-82-0
Registration nr : 01-2119458868-17-0020


1.2. Relevant identified uses of the substance or mixture and uses advised against

1.2.1 Intended use :

Use of the substance is limited to that evaluated in the CSR


Identifiers	Use descriptors
#1: Intermediate in manufacture of other chromium substances	<p>Process category (PROC):</p> <p>PROC 1: Use in closed process, no likelihood of exposure PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>Market sector by type of chemical product:</p> <p>PC 19: Intermediate</p> <p>Environmental release category (ERC):</p> <p>ERC 6a: Industrial use resulting in manufacture of another substance (use of intermediates)</p> <p>Sector of end use (SU):</p> <p>SU 8: Manufacture of bulk, large scale chemicals (including petroleum products) SU 9: Manufacture of fine chemicals</p> <p>Subsequent service life relevant for that use?: no</p>

Identifiers	Use descriptors
#2: Formulation of preparations used e.g. in metal finishing or as catalysts	<p>Process category (PROC):</p> <p>PROC 1: Use in closed process, no likelihood of exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 5: Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small</p>

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Identifiers	Use descriptors
	<p>containers (dedicated filling line, including weighing) PROC 14: Production of preparations or articles by tableting, compression, extrusion, pelletisation</p> <p>Market sector by type of chemical product: PC 14: Metal surface treatment products, including galvanic and electroplating products PC 15: Non-metal-surface treatment products PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents</p> <p>Environmental release category (ERC): ERC 2: Formulation of preparations</p> <p>Sector of end use (SU): SU 10: Formulation [mixing] of preparations and/or re-packaging (excluding alloys)</p>

Identifiers	Use descriptors
#3: Surface treatment, including e.g. functional & decorative electroplating, passivation, anodising, plastic plating	<p>Process category (PROC): PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 10: Roller application or brushing PROC 13: Treatment of articles by dipping and pouring PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>Market sector by type of chemical product: PC 14: Metal surface treatment products, including galvanic and electroplating products PC 15: Non-metal-surface treatment products</p> <p>Environmental release category (ERC): ERC 5: Industrial use resulting in inclusion into or onto a matrix</p> <p>Sector of end use (SU): SU 12: Manufacture of plastics products, including compounding and conversion SU 15: Manufacture of fabricated metal products, except machinery and equipment</p> <p>Subsequent service life relevant for that use?: no</p>

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Identifiers	Use descriptors
#4: Use of catalysts containing chromium trioxide	<p>Process category (PROC):</p> <p>PROC 1: Use in closed process, no likelihood of exposure PROC 2: Use in closed, continuous process with occasional controlled exposure PROC 3: Use in closed batch process (synthesis or formulation) PROC 4: Use in batch and other process (synthesis) where opportunity for exposure arises PROC 8b: Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities PROC 9: Transfer of substance or preparation into small containers (dedicated filling line, including weighing)</p> <p>Market sector by type of chemical product:</p> <p>PC 20: Products such as ph-regulators, flocculants, precipitants, neutralisation agents</p> <p>Environmental release category (ERC):</p> <p>ERC 6b: Industrial use of reactive processing aids</p> <p>Subsequent service life relevant for that use?: no</p>

Identifiers	Use descriptors
#5: Small scale laboratory use of chromium trioxide	<p>Process category (PROC):</p> <p>PROC 15: Use as laboratory reagent</p> <p>Market sector by type of chemical product:</p> <p>PC 21: Laboratory chemicals</p> <p>Environmental release category (ERC):</p> <p>ERC 8b: Wide dispersive indoor use of reactive substances in open systems</p> <p>Subsequent service life relevant for that use?: no</p>


1.2.2 Uses advised against

According to REACH Annex XVII, any use is advised against that brings the consumer into contact with chromium trioxide as a substance or with preparations that contain more than 0.1% of chromium trioxide (any combination with SU 21). Professional use should be restricted to education such as universities that can guarantee the adequate protection of workers (students and teachers) and the environment by suitable laboratory installations and processes. (SU 22 in any combination **except** PROC 15)

1.3 Details of the supplier of the safety datasheet

Supplier :

GENTROCHEMA BV
 Esdoornlaan 19a, NL-4254 AT Sleeuwijk, Nederland
 Tel. : +31.183.304422 Fax : +31.183.304069
 E-mail : w@gentrochema.nl Website : www.gentrochema.nl

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1.4 Emergency telephone nr :

during office hours (08:30 - 17:00) : +31.183.304422
 After office hours (*only for health professionals*) : +44.870.600.6266

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance


2.1.1. Classification according to Regulation 1272/2008 EC

Endpoint	Hazard category	Hazard statement
Oxidising solids	Oxid. Solid 1	H271: May cause fire or explosion; strong oxidiser
Acute toxicity - oral:	Acute Tox. 3	H301: Toxic if swallowed.
Acute toxicity - dermal:	Acute Tox. 2	H310: Fatal in contact with skin.
Acute toxicity - inhalation:	Acute Tox. 2	H330: Fatal if inhaled.
Skin corrosion / irritation:	Skin Corr. 1A	H314: Causes severe skin burns and eye damage.
Respiration sensitization:	Resp. Sens. 1	H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
Skin sensitization:	Skin Sens. 1	H317: May cause an allergic skin reaction.
Reproductive Toxicity:	Repr. 2	H361: Suspected of damaging fertility or the unborn child
Germ cell mutagenicity:	Muta. 1B	H340: May cause genetic defects
Carcinogenicity:	Carc. 1A	H350: May cause cancer
Specific target organ toxicity - repeated:	STOT Rep. Exp. 1	H372: Causes damage to organs through prolonged or repeated exposure Affected organs: cardiovascular/hematological: hematopoiesis Route of exposure: inhalation

Specific concentration limits:

Concentration (%)	Classification
>= 1.0	STOT SE3a

Endpoint	Hazard category	Hazard statement
Hazards to the aquatic	Aquatic Acute 1	H400: Very toxic to aquatic life.

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environment (acute/short-term):		
Hazards to the aquatic environment (long-term):	Aquatic Chronic 1	H410: Very toxic to aquatic life with long lasting effects.

2.1.2. Classification according to Regulation 67/548/EC


Endpoint	Classification
Oxidising properties:	O; R9 Explosive when mixed with combustible material
Acute toxicity:	T+; R26 Very toxic by inhalation. T;R24/ R25 Toxic in contact with skin and if swallowed.
Repeated dose toxicity:	T; R48/23 Toxic: danger of serious damage to health by prolonged exposure through inhalation.
Irritation / Corrosion:	C; R35 Causes severe burns.
Sensitisation:	R42/43 May cause sensitisation by inhalation and skin contact.
Carcinogenicity:	Carc. Cat. 1; R45 May cause cancer.
Mutagenicity - Genetic Toxicity:	Muta. Cat. 2; R46 May cause heritable genetic damage.
Toxicity to reproduction - fertility:	Repr. Cat. 3; R62 Possible risk of impaired fertility.
Environment:	N; R50/53 Dangerous for the environment; Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Specific concentration limits:

Concentration (%)	Classification
>= 25.0	T; R24/25 Toxic; Toxic in contact with skin and if swallowed. T+; R26 Very toxic; Very toxic by inhalation. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. T; R48/23 Toxic; Toxic: danger of serious damage to health by prolonged exposure through inhalation. Repr. Cat. 3; R62 Possible risk of impaired fertility
>= 10.0 — < 25.0	Xn; R21/22 Harmful; Harmful in contact with skin and if swallowed. T+; R26 Very toxic; Very toxic by inhalation. C; R35 Corrosive; Causes severe burns. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 2; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. T; R48/23 Toxic; Toxic: danger of serious damage to health by

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Concentration (%)	Classification
	prolonged exposure through inhalation. Repr. Cat. 3; R62 Possible risk of impaired fertility
>= 7.0 — < 10.0	Xn; R21/22 Harmful; Harmful in contact with skin and if swallowed. T+; R26 Very toxic; Very toxic by inhalation. C; R34 Corrosive; Causes burns. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. Xn; R48/20 Harmful; Harmful: danger of serious damage to health by prolonged exposure through inhalation. Repr. Cat. 3; R62 Possible risk of impaired fertility
>= 5.0 — < 7.0	Xn; R21/22 Harmful; Harmful in contact with skin and if swallowed. T; R23 Toxic; Toxic by inhalation. C; R34 Corrosive; Causes burns. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. Xn; R48/20 Harmful; Harmful: danger of serious damage to health by prolonged exposure through inhalation. Repr. Cat. 3; R62 Possible risk of impaired fertility
>= 3.0 — < 5.0	Xn; R21/22 Harmful; Harmful in contact with skin and if swallowed. T; R23 Toxic; Toxic by inhalation. Xi; R36/37/38 Irritant; Irritating to eyes, respiratory system and skin. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. Xn; R48/20 Harmful; Harmful: danger of serious damage to health by prolonged exposure through inhalation.
>= 2.5 — < 3.0	T; R23 Toxic; Toxic by inhalation. Xi; R36/37/38 Irritant; Irritating to eyes, respiratory system and skin. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. Xn; R48/20 Harmful; Harmful: danger of serious damage to health by prolonged exposure through inhalation.
>= 1.0 — < 2.5	T; R23 Toxic; Toxic by inhalation. Xi; R36/37/38 Irritant; Irritating to eyes, respiratory system and skin. R42/43 May cause sensitisation by inhalation and skin contact. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage. Xn; R48/20 Harmful; Harmful: danger of serious damage to health by prolonged exposure through inhalation.
>= 0.25 — < 1.0	Xn; R20 Harmful; Harmful by inhalation. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage.

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>= 0.1 – < 0.25	Xn; R20 Harmful; Harmful by inhalation. Carc. Cat. 1; R45 May cause cancer. Muta. Cat. 2; R46 May cause heritable genetic damage.
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2.2 Label elements

2.2.1. Labelling according to Regulation 1272/2008

Product identifier : Chromium (VI) trioxide

Index Nr : 024-001-00-0

Hazard Pictogram(s):



Signal word : Danger

Hazard Statement(s):


- 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.
- 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: Suspect 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)

- P202: Do not handle until all safety precautions have been read and understood
- P280: Wear protective gloves/protective clothing/eye protection/face protection.
- P308+P313: IF exposed or concerned: Get medical advice/attention
- P501: Dispose of contents/container to.....
- P302+P352 IF ON SKIN: Wash with plenty of soap and water.
- P301+P330+P331: IF SWALLOWED: rinse mouth. Do NOT induce vomiting.
- P304+P340: IF INHALED: Remove victim to fresh air and keep at rest in a position 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

2.3. Other hazards

PBT/vPvB criteria: Not relevant (inorganic substance)

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3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances

Chemical characterization: Chromium(VI)Trioxide, min. 99,7 % (w/w) CrO₃, with non hazardous additions

Composition/information on ingredients :

EINECS nr : 215-607-8
CAS nr : 1333-82-0
Index No. 024-001-00-0
Substance of Very High Concern : yes

4. FIRST AID MEASURES

4.1 Description of first aid measures


- **General information :** In case of contact, immediately flush eyes or skin with copious amounts of water for at least 15 minutes while removing contaminated clothing and shoes.
- **After inhalation :** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately. Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation as the inhaled material is toxic and corrosive. Seek immediate medical attention.
- **After skin contact :** In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Get medical attention immediately.
- **After eye contact :** Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
- **After swallowing :** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

4.2. Most important symptoms and effects, both acute and delayed

Breathing difficulty. Asthma attacks. Allergic reactions.
Danger of hyperglycaemia. Danger of impaired breathing

4.3 Indication of any immediate medical attention and special treatment needed

If swallowed, gastric irrigation. Medical supervision for at least 48 hours

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5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

Suitable extinguishing media : Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide
 Non-suitable extinguishing media : Not known

5.2 Special hazards arising from the substance

In certain fire conditions, toxic gases may occur.

5.3 Advice for fire-fighters

May cause fire or explosion; strong oxidiser.
 Wear self contained breathing apparatus and fully protective suit.
 Avoid release of the extinguishing media to the environment.

5.4 Further information

The substance is non-flammable but may ignite combustible material on contact.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Avoid causing dust. Wear protective equipment.

Small Spill: Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

Large Spill: Oxidizing material. Poisonous solid. Stop leak if without risk. Do not get water inside container. Avoid contact with a combustible material (wood, paper, oil, clothing). Keep substance damp using water spray. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate.

6.2 Environmental precautions

This material and its container must be disposed of as hazardous waste.
 Avoid release to the environment.

Effluents are treated before they are discharged to STP with any remaining chromium (VI) remaining reduced to insoluble chromium (III) salts by the addition of sodium bisulphite, ferrous sulphate and chloride. The salts are precipitated and disposed of in landfill or recycled.


6.3 Methods and materials for containment and cleaning up

Pick up spilled product, keep in a closed container and hold for waste.

6.4 Reference to other sections

For safe use : refer to section 7
 For personal protection : refer to section 8.
 For disposal : refer to section 13

7. HANDLING AND STORAGE

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7.1 Precautions for safe handling

Do not ingest. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, it is advised to use respiratory protection of APF = 4 or greater such as a filtering/valve half mask (see Annex/ e-SDS). If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes

7.2 Conditions for safe storage, including any incompatibilities

Keep locked up. Keep container dry. Keep away from heat. Keep away from sources of ignition. Keep away from: combustible material, incompatibles such as combustible materials, organic materials. Keep container tightly closed. Keep container in a cool, well-ventilated area. Separate from acids, alkalis, reducing agents and combustibles.

7.3 Specific end uses

No additional information

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 Control parameters

Occupational exposure limits (OELs) for EU Member States, from human health RRS (HSE, 2007)

Country	Compound	Limit (mg/m ³ as Cr)	Type of Limit	Notations
UK	Cr VI compounds	0.05	8-hr TWA (WEL)	Sen, BMGV
Germany	Production of soluble Cr VI compounds	0.1	8-hr TWA (TRK)	Sh, EKA
	Other Cr VI compounds	0.05		
Netherlands	Soluble Cr VI compounds	0.025	8-hr TWA STEL	
		0.05		
Sweden	Chromates and Chromic acid	0.02	8-hr TWA STEL	
		0.06		
Finland	Cr VI compounds	0.05	TWA	
France	Cr VI compounds	0.05	8-hr TWA STEL	
		0.1		

WEL Workplace exposure limit

STEL Short term exposure limit

TRK Technical exposure limit

TWA Time weighted average

Sen Indication that the substance can cause occupational asthma


BMGV Biological monitoring guidance value is available

Sh Notation to indicate a skin sensitiser

EKA Exposure equivalent values for biological monitoring

Derivation of DNEL(s)/DMEL(s)

Route	Type of effect	Hazard conclusion	Most sensitive endpoint
Inhalation	Local effects - Long-term	DMEL (Derived Minimum Effect Level): 0.01 mg/m ³ (Cr VI)	carcinogenicity

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Route	Type of effect	Hazard conclusion	Most sensitive endpoint
Inhalation	Local effects - Acute	DMEL (Derived Minimum Effect Level): 0.01 mg/m ³ (Cr VI)	carcinogenicity


PNEC

Compartment	Hazard conclusion
Freshwater	The PNEC value for Cr (VI) is 3.4 µg/L The PNEC value for Cr (III) is 4.7 µg/L
Marine water	The PNEC value for Cr (III) is 0.47 µg/L
Intermittent releases to water	-
Sediments (freshwater)	PNEC sediment (freshwater): 31 mg/kg sediment ww as Cr (III) 1.5 mg/kg ww as Cr(VI)
Sediments (marine water)	PNEC sediment (marine water): 3.1 mg/kg sediment ww as Cr (III)
Sewage treatment plant	PNEC STP: 10 mg/L as Cr (III) 0.21 mg/L as Cr (VI)
Soil	PNEC soil: 3.3 mg/kg ww as Cr (III) 0.031 mg/kg ww as Cr(VI)
Air	Not relevant
Secondary poisoning	PNEC oral: 17 mg/kg food (Cr (VI))

8.2 Exposure controls

Do not breathe dust.
Avoid contact with skin, eyes or clothes.
Wash thoroughly after handling.
Only use in a well-ventilated place.
Safety shower and eye bath should be present.

Loss of the substance as aerosols is controlled by process containment, mist suppressants and waste air scrubber systems. During formulation, oxidising and surface treatment the following PPE is worn: washable/disposable overalls, safety boots/wellingtons, face shield and suitable gloves. Respiratory protection of APF = 4 or greater such as a filtering/valve half mask is required (see Annex/E-SDS). Impermeable protective gloves – chemical resistant and

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compliant with Standard EN 374-1. Acid-resistant (PVC) long protective gloves, which go over the sleeves. Protective gloves must be selected according to the function of the industrial installation – the other chemicals being handled, whether physical protection is required, and the degree of dexterity required.

Personal protection :

- Hand protection : Use chemical resistant neoprene gloves. See standard : EN-374-3:2003.
- Eye/face protection : Use tight fitting goggles. See standard: EN 166:2001.
- Skin/body protection : Wear appropriate protective clothing.
- Respiratory protection : Wear appropriate respirator, Filter P3 (white).

Environmental protection:

Effluents are treated before they are discharged to STP with any remaining chromium (VI) remaining reduced to insoluble chromium (III) salts by the addition of sodium bisulphite, ferrous sulphate and chloride. The salts are precipitated and disposed of in landfill or recycled. In addition, for release via air scrubbers/ventilation with an efficiency of 99% have to be used.

Other information :

After handling, take a shower. Working clothes should not be taken home.

9. PHYSICAL AND CHEMICAL PROPERTIES


9.1 information on basic physical and chemical properties

Appearance:	solid, dark red deliquescent crystals, flakes or powder
Odour:	odourless
Odour threshold:	Not determined
PH-value :	< 1 (1% solution)
Alkalinity or acidity :	Not determined
Boiling point :	Substance decomposes at 250 °C to produce Cr ₂ O ₃ and O ₂
Melting point :	196 °C
Flash point:	Not relevant. (inorganic solid substance)
Evaporation rate:	Not relevant. (inorganic solid substance)
Flammability :	Non flammable
Vapour pressure :	Not relevant (inorganic substance)
Vapour density :	Not relevant
Relative Density :	2.7
Solubility in water :	approx. 1667 g/l
Solubility in other solvents :	Not relevant.(inorganic substance)
Partition coefficient n-octanol/water:	Not relevant.(inorganic substance)
Auto ignition temperature:	Chromium Trioxide is classified as not undergoing spontaneous combustion when tested according to the EC Test Procedure A16.
Decomposition temperature :	Not relevant
Viscosity :	Not relevant. (inorganic solid substance)
Explosive properties	on the basis of theoretical evaluation of its structure, there are no chemical groups that are considered to be explosive
Oxidising properties :	strong oxidiser

9.2. other information

No additional information

10. STABILITY AND REACTIVITY

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10.1 Reactivity

Contact with combustible material may cause fire.
Reacts violently with reducing substances.

10.2 Chemical stability

Stable under circumstances as advised in section 7.

10.3 Possibility of hazardous reactions

Do not mix with reducing substances, acids and organic substances.

10.4 Conditions to avoid

Keep away from combustible materials, heat, sparks and open flames. Keep away from sources of ignition - No smoking.

10.5 Incompatible materials

Do not mix with reducing substances, acids and organic substances.

10.6. Hazardous decomposition products

Toxic metal oxide smoke


11. TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects

Endpoint	Route	Dose descriptor or qualitative effect characterisation; test type
Acute toxicity	oral	LDlo: 32 mg/kg bw
Acute toxicity	dermal	LD50: 57 mg/kg bw
Acute toxicity	inhalation	LC50: 217 mg/m ³
Irritation / Corrosivity	skin	Adverse effect observed corrosive
Irritation / Corrosivity	eye	Adverse effect observed corrosive
Irritation / Corrosivity	respiratory tract	Adverse effect observed corrosive
Sensitisation	skin	Adverse effect observed (sensitising)
Sensitisation	respiratory tract	Adverse effect observed (sensitising)
Repeated dose toxicity	oral	LOAEL = 1.7 mg/kg bw/d Target organs: cardiovascular / hematological: hematopoiesis
Repeated dose	dermal	Irritation/corrosivity likely

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The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. It is intended to describe the product in respect of safety requirements only. None of the information is to be taken to constitute a guarantee concerning the properties of this product.

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Endpoint	Route	Dose descriptor or qualitative effect characterisation; test type
toxicity	(systemic effects)	
Repeated dose toxicity	inhalation (systemic effects)	LOAEC = 1.81 mg/m ³ Target organs: respiratory: other
Mutagenicity	in vitro / in vivo	Adverse effect observed (positive)
Reproductive toxicity: effects on fertility	oral	NOAEL = 40 mg/kg bw/d, No relevant effects
Reproductive toxicity: developmental toxicity	oral	LOAEL = 20 mg/kg bw/d, Significant developmental effects


CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)

Carc. Cat. 1, Muta. Cat. 2, Repr. Cat. 3

12. ECOLOGICAL INFORMATION

12.1 Toxicity

Species	Results
<i>Daphnia carinata</i> (invertebrate)	EC50 (24 h): 0.423 mg/L
<i>Macrobrachium lamarrei</i> (invertebrate)	LC50 (96 h): 0.65 mg/L
Range of species (fish)	LC50 (96 h): 13 – 100 mg/L (Range of LC50 values reported for freshwater species) LC50 (96 h): 21.4 – 84.8 mg/L (Range of LC50 values reported for saltwater species) Test material: Several Cr-compounds
(aquatic plants) <i>Lemna gibba</i>	NOEC (8 d): 0.1 mg Cr/L based on: growth rate
<i>Lemna minor</i>	NOEC (7 d): 0.11 mg Cr/L based on: growth rate
<i>Spirodela polyrhiza</i>	NOEC (8 d): 0.1 mg Cr/L based on: growth rate
<i>Spirodela punctata</i>	NOEC (8 d): 0.5 mg Cr/L based on: growth rate

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Species	Results
(bacteria)	
<i>Chilomonas paramecium</i>	NOEC 1.0 mg Cr/L
<i>Colpidium campylum</i>	IC50(24h) 2.8 mg Cr/L
<i>Microregma heterosoma</i>	NOEC 0.21 mg Cr/L
<i>Bacillus subtilis</i>	EC50 (10h) 0.11 mg Cr/L

Very toxic to aquatic life with long lasting effects.

12.2 Persistence and degradability

No additional information

12.3 Bio accumulative potential

No additional information

12.4 Mobility in soil

No additional information

12.5 Results of PBT and vPvB assessment

Not relevant (inorganic substance)

13. DISPOSAL CONSIDERATIONS

Product/packing :


Observe all federal, state and local environmental regulations.
See directives 75/442/EEC and 2006/12/EC.
This material and its container must be disposed of as hazardous waste.
Avoid release to the environment. Refer to special instructions/ Safety data sheets.

14. TRANSPORT INFORMATION

Landtransport (RID/ADR) :



ADR/GGVSEB class: 5.1 (OTC), oxidising substances
GEVI Nr.: 568
Label : 5.1 + 6.1 + 8
Packing group: II

SAFETY DATA SHEET	In accordance with Regulation 1907/2006 (REACH), amended by Regulation 453/2010	
	CHROMIUM TRIOXIDE	

UN nr. : 1463
Tunnel restriction code E
CHROMIUM TRIOXIDE (anhydrous)
ENVIRONMENTALLY HAZARDOUS

Sea transport (IMDG) :



IMDG class: 5.1 (6.1, 8)
UN nr. : 1463
Label : 5.1 + 6.1 + 8
Packing group : II
EMS: F-A, S-Q
Segregation group: 1, ACIDS
Marine Pollutant : yes
CHROMIUM TRIOXIDE (anhydrous)

Air transport (ICAO-IATA):



ICAO/IATA class: 5.1 (6.1, 8)
UN/ID Number: 1463
Label: 5.1 + 6.1 + 8
Packing group: II
CHROMIUM TRIOXIDE (anhydrous)

15. REGULATORY INFORMATION

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

State regulations

Observe all federal, state and local regulations.

Information about employment restrictions


Employment restrictions for young workers (94/33/EC)
Employment restrictions concerning pregnant and lactating women must be observed. (92/85/EC)
Employment restrictions concerning women of child-bearing age must be observed

Water hazard class :

4A (Netherlands)

additional regulations and restrictions

Listed as Substances of Very High Concern (SVHC) according to REACH, Article 57

SAFETY DATA SHEET	In accordance with Regulation 1907/2006 (REACH), amended by Regulation 453/2010	
	CHROMIUM TRIOXIDE	

15.2 Chemical Safety report

A Chemical Safety Assessment has been carried out

16. OTHER INFORMATION

relevant Hazard statements & R Phrases

Not applicable

Consulted literature:

European Union Risk Assessment Report (EUR 21508 EN).
Nr. 2.01 of 26.09.2014. (Replaces all preceding versions.)

Version :

Changes per section compared to last version :

- # 2.1.1. : H310 (instead of H311) / Acute Tox. 2 (instead of Acute Tox. 3)
- # 2.2.1. : P280 (instead of P281)
- # 2.2.1. : P302/352 (instead of P303/361/353)

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Used abbreviations

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association
ICAO: International Civil Aviation Organization
GHS: Globally Harmonized System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
PNEC: Predicted No-Effect Concentration (REACH)
DMEL: Derived Minimum Effect Level
LOAEC: lowest observed adverse effect concentration
NOEC: No Observed Effect Concentration
NOEL: No observed Effect Level
IC50: Inhibitory concentration, 50 percent
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
EC50: Effect concentration, 50 percent