

Safety Data Sheet

according to Regulation (EC) No. 1907/2006 (REACH) with its amendment Regulation (EU) 2020/878 Issue date: 16/04/2015 Revision date: 01/03/2024 Supersedes version of: 06/04/2021 Version: 12.0

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

1.1. Product identifier

Product form : Substance Substance name : CHROMIUM Chemical name : Chromium EC-No. : 231-157-5 : 7440-47-3 CAS-No. Product code : B1450, B1451 Product group : End product Other means of identification : Chromium

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

1.2.1. Relevant identified uses

Main use category : Professional use
Use of the substance/mixture : Laboratory chemicals
Function or use category : Laboratory chemicals

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

Elemental Microanalysis Ltd

1 Hameldown Road

Okehampton - Devon EX20 1UB

GB United Kingdom

T +44 1837 54446

enquiries@microanalysis.co.uk - https://www.elementalmicroanalysis.com/

1.4. Emergency telephone number

Emergency number : +44 (0) 7990 767375

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Specific target organ toxicity – Repeated exposure, Category 1 H372 Hazardous to the aquatic environment – Chronic Hazard, Category 2 H411

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

Causes damage to organs through prolonged or repeated exposure. Toxic to aquatic life with long lasting effects.

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP) :





GHS08

GHS09

Signal word (CLP) : Danger

Hazard statements (CLP) : H372 - Causes damage to organs through prolonged or repeated exposure.

H411 - Toxic to aquatic life with long lasting effects.

Precautionary statements (CLP) : P314 - Get medical advice/attention if you feel unwell.

P391 - Collect spillage.

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2.3. Other hazards

Contains no PBT and/or vPvB substances ≥ 0.1% assessed in accordance with REACH Annex XIII

SECTION 3: Composition/information on ingredients

3.1. Substances

 Substance type
 : Mono-constituent

 Name
 : CHROMIUM

 CAS-No.
 : 7440-47-3

 EC-No.
 : 231-157-5

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
CHROMIUM	CAS-No.: 7440-47-3 EC-No.: 231-157-5		STOT RE 1, H372 Aquatic Chronic 2, H411

Full text of H- and EUH-statements: see section 16

3.2. Mixtures

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Get medical advice/attention if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.

First-aid measures after skin contact : Wash skin with plenty of water.
First-aid measures after eye contact : Rinse eyes with water as a precaution.

First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell.

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

No additional information available

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Dry powder. Foam.

5.2. Special hazards arising from the substance or mixture

Hazardous decomposition products in case of fire : Toxic fumes may be released.

5.3. Advice for firefighters

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained

breathing apparatus. Complete protective clothing.

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SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures : Ventilate spillage area. Do not breathe dust/fume/gas/mist/vapours/spray.

6.1.2. For emergency responders

Protective equipment : Do not attempt to take action without suitable protective equipment. For further information

refer to section 8: "Exposure controls/personal protection".

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Collect spillage.

Methods for cleaning up : Mechanically recover the product.

Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Do not

breathe dust/fume/gas/mist/vapours/spray.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the

product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Store in a well-ventilated place. Keep cool.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

CHROMIUM (7440-47-3)		
EU - Indicative Occupational Exposure Limit (IOEL)		
Local name	Chromium metal	
IOEL TWA	2 mg/m³	
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC	
United Kingdom - Occupational Exposure Limits		
Local name	Chromium	
WEL TWA (OEL TWA) [1]	0.5 mg/m³ 0.5 mg/m³ Chromium (II) compounds (as Cr) 0.5 mg/m³ Chromium (III) compounds (as Cr)	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE	

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CHROMIUM (7440-47-3)		
United Kingdom - Biological limit values		
Local name	Chromium VI	
BMGV	10 μmol/mol creatinine Parameter: chromium - Medium: urine - Sampling time: Post shift	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE	
CHROMIUM (7440-47-3)		
EU - Indicative Occupational Exposure Limit (IOEL)		
Local name	Chromium metal	
IOEL TWA	2 mg/m³	
Regulatory reference	COMMISSION DIRECTIVE 2006/15/EC	
United Kingdom - Occupational Exposure Limits		
Local name	Chromium	
WEL TWA (OEL TWA) [1]	0.5 mg/m³ 0.5 mg/m³ Chromium (II) compounds (as Cr) 0.5 mg/m³ Chromium (III) compounds (as Cr)	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE	
United Kingdom - Biological limit values		
Local name	Chromium VI	
BMGV	10 μmol/mol creatinine Parameter: chromium - Medium: urine - Sampling time: Post shift	
Regulatory reference	EH40/2005 (Fourth edition, 2020). HSE	

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

CHROMIUM (7440-47-3)		
DNEL/DMEL (Workers)		
Long-term - local effects, inhalation	0.5 mg/m³	
DNEL/DMEL (General population)		
Long-term - local effects, inhalation	0.027 mg/m³	
PNEC (Water)		
PNEC aqua (freshwater)	6.5 µg/l	
PNEC (Sediment)		
PNEC sediment (freshwater)	205.7 mg/kg dwt	
PNEC (Soil)		
PNEC soil	21.1 mg/kg dwt	

8.1.5. Control banding

No additional information available

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8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Ensure good ventilation of the work station.

8.2.2. Personal protection equipment

Personal protective equipment symbol(s):







8.2.2.1. Eye and face protection

Eye protection:

Safety glasses

8.2.2.2. Skin protection

Skin and body protection:

Wear suitable protective clothing

Hand protection:

Protective gloves

8.2.2.3. Respiratory protection

Respiratory protection:

In case of insufficient ventilation, wear suitable respiratory equipment

8.2.2.4. Thermal hazards

No additional information available

8.2.3. Environmental exposure controls

Environmental exposure controls:

Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Colour : Grey.

Molecular mass : 51.9961 g/mol Source: HSDB

Odour : odourless.
Odour threshold : Not available

Melting point : 1863 °C 1 atm Source: ECHA

Freezing point : Not applicable

Boiling point : 2672 °C 1 atm Source: ECHA

Flammability : Non flammable. **Explosive limits** : Not applicable Lower explosion limit : Not applicable Upper explosion limit : Not applicable Flash point : Not applicable Auto-ignition temperature : No data available. Decomposition temperature : Not available : No data available. pH solution : Not available Viscosity, kinematic : Not applicable Solubility : Not available

Partition coefficient n-octanol/water (Log Kow) : Not available
Partition coefficient n-octanol/water (Log Pow) : 0.23 Source: SRC

Vapour pressure : 1 atm at 2482°C Source: ECHA

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Vapour pressure at 50°C : Not available

Density : Not available

Relative density : 7.14 Source: HSDB

Relative vapour density at 20°C : No data available.

Particle size : Not available

9.2. Other information

9.2.1. Information with regard to physical hazard classes

No additional information available

9.2.2. Other safety characteristics

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity (oral) : Not classified Acute toxicity (dermal) : Not classified Acute toxicity (inhalation) : Not classified

> 5000 mg/kg Source: ECHA
> 5.41 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
> 5.41 mg/l Source: ECHA
> 5000 mg/kg Source: ECHA
> 5.41 mg/l air Animal: rat, Guideline: OECD Guideline 403 (Acute Inhalation Toxicity)
> 5.41 mg/l Source: ECHA

Skin corrosion/irritation : Not classified

pH: No data available.

Serious eye damage/irritation : Not classified

pH: No data available.

Respiratory or skin sensitisation : Not classified

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Germ cell mutagenicity : Not classified Carcinogenicity : Not classified

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IARC group 3 - Not classifiable

CHROMIUM (7440-47-3)

IARC group 3 - Not classifiable

Reproductive toxicity : Not classified STOT-single exposure : Not classified

STOT-repeated exposure : Causes damage to organs through prolonged or repeated exposure.

CHROMIUM (7440-47-3)

LOAEC (inhalation, rat, dust/mist/fume, 90 days) ≥ 0.0044 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation

Toxicity: 90-Day Study)

CHROMIUM (7440-47-3)

LOAEC (inhalation, rat, dust/mist/fume, 90 days) ≥ 0.0044 mg/l air Animal: rat, Guideline: OECD Guideline 413 (Subchronic Inhalation Toxicity: 90-Day Study)

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

Aspiration hazard : Not classified

CHROMIUM (7440-47-3)

Viscosity, kinematic Not applicable

11.2. Information on other hazards

No additional information available

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Toxic to aquatic life with long lasting effects.

Hazardous to the aquatic environment, short-term : Not classified

(acute)

Hazardous to the aquatic environment, long-term : Toxic to aquatic life with long lasting effects.

(chronic)

Not rapidly degradable

CHROMIUM (7440-47-3)		
LC50 - Fish [1]	13.9 – 210 mg/l Source: GESTIS	
EC50 - Crustacea [1]	13.1 – 14.7 mg/l Test organisms (species): Daphnia magna	
EC50 72h - Algae [1]	0.1 – 17.8 mg/l Source: GESTIS	
CHROMIUM (7440-47-3)		
LC50 - Fish [1]	13.9 – 210 mg/l Source: GESTIS	
EC50 - Crustacea [1]	13.1 – 14.7 mg/l Test organisms (species): Daphnia magna	
EC50 72h - Algae [1]	0.1 – 17.8 mg/l Source: GESTIS	

12.2. Persistence and degradability

No additional information available

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12.3. Bioaccumulative potential

CHROMIUM (7440-47-3)	
Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC
CHROMIUM (7440-47-3)	
Partition coefficient n-octanol/water (Log Pow)	0.23 Source: SRC

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Endocrine disrupting properties

No additional information available

12.7. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods HP Code

- : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- : HP5 "Specific Target Organ Toxicity (STOT)/Aspiration Toxicity:" waste which can cause specific target organ toxicity either from a single or repeated exposure, or which cause acute toxic effects following aspiration.

HP14 - "Ecotoxic:" waste which presents or may present immediate or delayed risks for one or more sectors of the environment

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID	
14.1. UN number or ID n	14.1. UN number or ID number				
UN 3077	UN 3077	UN 3077	UN 3077	UN 3077	
14.2. UN proper shippin	g name				
ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM)	Environmentally hazardous substance, solid, n.o.s. (CHROMIUM)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM)	
Transport document descr	iption				
UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM), 9, III, (-)	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM), 9, III, MARINE POLLUTANT	UN 3077 Environmentally hazardous substance, solid, n.o.s. (CHROMIUM), 9, III	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM), 9, III	UN 3077 ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (CHROMIUM), 9, III	
14.3. Transport hazard class(es)					
9	9	9	9	9	

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ADR	IMDG	IATA	ADN	RID
**************************************	**************************************	***************************************		
14.4. Packing group				
III	III	III	III	III
14.5. Environmental hazards				
Dangerous for the environment: Yes	Dangerous for the environment: Yes Marine pollutant: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes	Dangerous for the environment: Yes
No supplementary information	on available		1	1

14.6. Special precautions for user

Overland transport

Classification code (ADR) : M7

Special provisions (ADR) : 274, 335, 375, 601

Limited quantities (ADR) : 5kg
Excepted quantities (ADR) : E1

Packing instructions (ADR) : P002, IBC08, LP02, R001

Special packing provisions (ADR) : PP12, B3
Mixed packing provisions (ADR) : MP10

Portable tank and bulk container instructions (ADR) : T1, BK1, BK2, BK3

Portable tank and bulk container special provisions : TP33

(ADR)

Tank code (ADR) : SGAV, LGBV

Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Packages (ADR) : V13
Special provisions for carriage - Bulk (ADR) : VC1, VC2
Special provisions for carriage - Loading, unloading : CV13

and handling (ADR)

Hazard identification number (Kemler No.) : 90

Orange plates :

90 3077

Tunnel restriction code (ADR) : -EAC code : 2Z

Transport by sea

Special provisions (IMDG) : 274, 335, 966, 967, 969

Limited quantities (IMDG): 5 kgExcepted quantities (IMDG): E1Packing instructions (IMDG): LP02, P002Special packing provisions (IMDG): PP12IBC packing instructions (IMDG): IBC08IBC special provisions (IMDG): B3

Tank instructions (IMDG) : BK1, BK2, BK3, T1

Tank special provisions (IMDG) : TP33
EmS-No. (Fire) : F-A
EmS-No. (Spillage) : S-F
Stowage category (IMDG) : A
Stowage and handling (IMDG) : SW23

Air transport

PCA Excepted quantities (IATA) : E1

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PCA Limited quantities (IATA) : Y956
PCA limited quantity max net quantity (IATA) : 30kgG
PCA packing instructions (IATA) : 956
PCA max net quantity (IATA) : 400kg
CAO packing instructions (IATA) : 956
CAO max net quantity (IATA) : 400kg

Special provisions (IATA) : A97, A158, A179, A197, A215

ERG code (IATA) : 91

Inland waterway transport

Classification code (ADN) : M7

Special provisions (ADN) : 274, 335, 375, 601

Limited quantities (ADN) : 5 kg

Excepted quantities (ADN) : E1

Carriage permitted (ADN) : T* B**

Equipment required (ADN) : PP, A***

Number of blue cones/lights (ADN) : 0

Additional requirements/Remarks (ADN) : * Only in the molten state. ** For carriage in bulk see also 7.1.4.1. *** Only in the case of

transport in bulk.

Rail transport

Classification code (RID) : M7

Special provisions (RID) : 274, 335, 375, 601

Limited quantities (RID) : 5kg
Excepted quantities (RID) : E1

Packing instructions (RID) : P002, IBC08, LP02, R001

Special packing provisions (RID) : PP12, B3
Mixed packing provisions (RID) : MP10

Portable tank and bulk container instructions (RID) : T1, BK1, BK2, BK3

Portable tank and bulk container special provisions : TP33

(RID)

Tank codes for RID tanks (RID) : SGAV, LGBV

Transport category (RID) : 3
Special provisions for carriage – Packages (RID) : W13
Special provisions for carriage – Bulk (RID) : VC1, VC2
Special provisions for carriage - Loading, unloading : CW13, CW31

and handling (RID)

Colis express (express parcels) (RID) : CE11 Hazard identification number (RID) : 90

14.7. Maritime transport in bulk according to IMO instruments

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

REACH Annex XVII (Restriction List)

Not listed on REACH Annex XVII

REACH Annex XIV (Authorisation List)

Not listed on REACH Annex XIV (Authorisation List)

REACH Candidate List (SVHC)

Not listed on the REACH Candidate List

PIC Regulation (Prior Informed Consent)

Not listed on the PIC list (Regulation EU 649/2012)

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POP Regulation (Persistent Organic Pollutants)

Not listed on the POP list (Regulation EU 2019/1021)

Ozone Regulation (1005/2009)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No chemical safety assessment has been carried out

SECTION 16: Other information

Abbreviations and acronyms:		
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways	
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road	
ATE	Acute Toxicity Estimate	
BCF	Bioconcentration factor	
BLV	Biological limit value	
BOD	Biochemical oxygen demand (BOD)	
COD	Chemical oxygen demand (COD)	
DMEL	Derived Minimal Effect level	
DNEL	Derived-No Effect Level	
EC-No.	European Community number	
EC50	Median effective concentration	
EN	European Standard	
IARC	International Agency for Research on Cancer	
IATA	International Air Transport Association	
IMDG	International Maritime Dangerous Goods	
LC50	Median lethal concentration	
LD50	Median lethal dose	
LOAEL	Lowest Observed Adverse Effect Level	
NOAEC	No-Observed Adverse Effect Concentration	
NOAEL	No-Observed Adverse Effect Level	
NOEC	No-Observed Effect Concentration	
OECD	Organisation for Economic Co-operation and Development	
OEL	Occupational Exposure Limit	
PBT	Persistent Bioaccumulative Toxic	
PNEC	Predicted No-Effect Concentration	

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Abbreviations and acronyms:		
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail	
SDS	Safety Data Sheet	
STP	Sewage treatment plant	
ThOD	Theoretical oxygen demand (ThOD)	
TLM	Median Tolerance Limit	
VOC	Volatile Organic Compounds	
CAS-No.	Chemical Abstract Service number	
N.O.S.	Not Otherwise Specified	
vPvB	Very Persistent and Very Bioaccumulative	
ED	Endocrine disrupting properties	

Full text of H- and EUH-statements:	
Aquatic Chronic 2	Hazardous to the aquatic environment – Chronic Hazard, Category 2
H372	Causes damage to organs through prolonged or repeated exposure.
H411	Toxic to aquatic life with long lasting effects.
STOT RE 1	Specific target organ toxicity – Repeated exposure, Category 1

The classification complies with : ATP 12

Safety Data Sheet (SDS)_EMAL, EU

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.