HALBLEITER MATERIAL

Material Safety Data Sheet

Chromium Oxide Sputtering Target

Report No.: VIH240829007-1
Version: 2.1
Preparation Date: 08/29/2024
Revision Date: 08/29/2024

1. Identification of the substance/mixture and of the company/undertaking

1.1 Product identifier

Product Name	Chromium Oxide
Product No.	240800ST
Formula	Cr_2O_3
CAS No.	1308-38-9
Synonyms	Chromium(III) Oxide

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

Identified uses	Laboratory chemicals, Scientific research
Uses advised against	Consulting manufacturers

1.3 Details of the supplier of the safety data sheet

Company Name	VI HALBLEITERMATERIAL GmbH
Street	Bergener Straße 14.,
City	Hannover
State	Niedersachsen
Zip Code	30625
Country	Germany
Tel	0049 1626484175
Email	info@vimaterial.de
Website	https://vimaterial.de/

1.4 Emergency telephone number

Emergency Phone #	0049 1626484175

2. Hazards Identification

2.1 Classification of the substance or mixture

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

The substance is not classified as hazardous

2.2 Label elements

Labelling according to Regulation (EC) No 1272/2008 (CLP).
Not subject to labelling requirements.

2.3 Other hazards

According to the results of its assessment, this substance is not a PBT or a vPvB.
This product does not contain any known or suspected endocrine disruptors.

3. Composition/information on ingredients

3.1 Substances

Chemical Family	Ceramic

Component	CAS No.	EC No.	Concentration
Chromium Oxide (Cr_2O_3)	1308-38-9	215-160-9	<=100%

4. First aid measures

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4.1 Description of first aid measures

General Treatment	If symptoms persist, call a physician.
Inhalation	Remove victim to fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions.
Skin	Take off immediately all contaminated clothing. Rinse skin with water/ shower. Seek medical attention.
Eyes	Rinse with pure water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention.
Ingestion	Rinse mouth with water. Do not induce vomiting. Seek medical attention if you feel unwell.

4.2 Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed, are included on labelling (Section 2.2) and in Section 11.

4.3 Indication of any immediate medical attention and special treatment needed

1	Based on the symptoms that appear, provide targeted treatment.
2	Be aware that symptoms may be delayed.

5. Firefighting Measures

5.1 Extinguishing Media

Suitable extinguishing media	Use fire-extinguishing media suitable for the surrounding fire.
Unsuitable extinguishing media	N/A

5.2 Special hazards arising from the substance or mixture

1	Chromium oxides
2	Non-flammable
3	Ambient fires may release harmful vapors.

5.3 Advice for firefighters

1	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.
2	Fight fire from a safe distance and with adequate protection.
3	Do not allow firefighting water to enter drains or water courses.
4	Collect contaminated firefighting water separately.

6. Accidental Release Measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	Remove persons to safety. Use personal protective equipment as required. Avoid dust formation. Ensure adequate ventilation.
For emergency responders	Wear breathing apparatus if exposed to vapours/dust/spray/gases.

6.2 Environmental Precautions

1	Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill	Covering of drains, Take up mechanically.
Advice on how to clean up a spill	Take up mechanically. Take care not to raise dust.

Other information relating to spills and releases	Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

7. Handling and Storage

7.1 Precautions for safe handling

Recommendations	Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid ingestion and inhalation. Avoid formation of dust. Do not get in eyes, on skin, or on clothing.
Hygiene Measures	Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

7.2 Conditions for safe storage, including any incompatibilities

Ventilation requirements	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from acids.
Flammability hazards	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
Incompatible materials	See section 10.5.

7.3 Specific end use(s)

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

8. Exposure Controls/Personal Protection

8.1 Control parameters

Substance	CAS No.	Source	TWA (8 h)/ mg/m³	Remarks
Chromium oxide (Cr_2O_3)	1308-38-9	TRGS 900 (DE)	0.5 (inhalable fraction, as Cr)	AGW; DFG classification: not classifiable
Chromium oxide (Cr_2O_3)	1308-38-9	EU SCOEL (Indicative OEL)	0.5 (as Cr)	Inhalable fraction
Chromium oxide (Cr_2O_3)	1308-38-9	ACGIH TLV (USA)	0.5 (respirable, as Cr(III))	TLV-TWA; Not classifiable as human

				carcinogen
Chromium oxide (Cr_2O_3)	1308-38-9	NIOSH REL (USA)	0.5 (TWA, as Cr compound)	Recommended exposure limit
Chromium oxide (Cr_2O_3)	1308-38-9	OSHA PEL (USA)	0.5 (TWA, as Cr compound)	PEL; Total dust

Notes:

✧ *Applies to trivalent chromium (Cr^{3+}) oxides and does not apply to hexavalent chromium (Cr^{6+}) compounds.*

TWA: Time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified)

8.2 Exposure controls

Appropriate engineering controls

1	Ensure that eyewash stations and safety showers are close to the workstation location.
2	Ensure adequate ventilation, especially in confined areas.
3	Use explosion-proof electrical/ventilating/lighting equipment.
4	Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) (European standard - EN166) and face protection.

Skin protection

-Hand Protection

Protective gloves (The selected protective gloves have to satisfy the specifications of EU Directive 89/686/EEC and the standard EN 374 derived from it.)

-Other protection measures

Wear appropriate protective gloves and clothing to prevent skin exposure. Wash hands thoroughly after handling.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly.

Large scale/emergency use	Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced Recommended Filter type: Particulates filter conforming to EN 143
Small scale/Laboratory use	Maintain adequate ventilation. Recommended half mask:- Valve filtering: EN405; or; Half mask: EN140; plusfilter, EN141

Environmental exposure controls

Use appropriate container to avoid environmental contamination. Keep away from drains, surface and ground water.

9. Physical and Chemical Characteristics

9.1 Information on basic physical and chemical properties

Physical State	Solid
Colour	Dark green
Odor	Odorless
Melting Point/Range	2435 °C
Boiling Point/Range	4000 °C
Flammability (liquid)	Not applicable
Flammability (solid, gas)	No data available
Explosion limits	No data available
Flash Point	No data available
Autoignition Temperature	No data available
Decomposition Temperature	No data available
pH	No data available
Viscosity	Not applicable
Water Solubility	Insoluble
Solubility in other solvents	No data available
Partition Coefficient (n-octanol/water)	No data available
Vapor Pressure	No data available
Density / Specific Gravity	5.21 g/cm^3
Vapor Density	Not applicable
Particle characteristics	No data available

9.2 Other information

Molecular formula	Cr_2O_3
Molecular weight	151.99 g/mol
Evaporation Rate	Not applicable - Solid

10. Stability and reactivity

10.1 Reactivity

None known, based on information available.

10.2 Chemical stability

Stable under recommended storage conditions.

10.3 Possibility of hazardous reactions

Hazardous Polymerization: No information available

Hazardous Reactions: No information available

10.4 Conditions to avoid

Avoid moisture. Avoid dust formation

10.5 Incompatible materials

Strong oxidizing agents. Metals

10.6 Hazardous decomposition products

In the event of fire: see section 5

11. Toxicological information

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

Acute toxicity	Oral:	LD50 > 5000 mg/kg (Rat)
	Dermal:	No data available.
	Inhalation:	LC50 > 5.41 mg/L (Rat) 4 h
Skin corrosion/irritation	No data available.	
Serious eye damage/irritation	No data available.	
Respiratory or skin sensitization	Respiratory	No data available.
	Skin	No data available.
Germ cell mutagenicity	No data available.	
Carcinogenicity	No data available. There are no known carcinogenic chemicals in this product.	
Reproductive toxicity	No data available.	
STOT - single exposure	No data available.	

STOT - repeated exposure	No data available.
Aspiration hazard	Not applicable. Solid

11.2 Information on other hazards

Endocrine Disrupting Properties: Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

12. Ecological Information

12.1 Toxicity

Toxicity to fish	static test LC50 - Danio rerio (zebra fish) - > 10,000 mg/l - 96 h

12.2 Persistence and degradability

Persistence	Insoluble in water
Degradability	No data available.

12.3 Bioaccumulative potential

Bioaccumulative potential	No data available.

12.4 Mobility in soil

Mobility in soil	No data available.

12.5 Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	In accordance with Annex XIII of the REACH Regulation, inorganic substances do not require assessment.

12.6 Endocrine disrupting properties

Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors.

12.7 Other adverse effects

Persistent Organic Pollutant	This product does not contain any known or suspected substance
Ozone Depletion Potential	This product does not contain any known or suspected substance

13. Disposal Considerations

13.1 Waste treatment methods

Dispose of in accordance with all applicable local and national regulations. Use recovery/recycling where feasible, otherwise incineration is the recommended method of disposal. Empty containers may contain hazardous residues. Do not cut, puncture or weld on or near to the container. Labels should not be removed from containers until they have been cleaned. Contaminated containers must not be treated as household waste. Containers should be cleaned by appropriate methods and then re-used or disposed of by landfill or incineration as appropriate. Do not incinerate closed containers.

14. Transport information

IMDG

14.1. UN number	Not applicable
14.2. UN Proper shipping name	Not classified as hazardous for transport.
14.3. Transport hazard class(es)	Not applicable
14.4. Packaging group	Not applicable

ADR/RID/ADN

14.1. UN number	Not applicable
14.2. UN Proper shipping name	Not classified as hazardous for transport.
14.3. Transport hazard class(es)	Not applicable
14.4. Packaging group	Not applicable

ICAO-IATA/DGR

14.1. UN number	Not applicable
14.2. UN Proper shipping name	Not classified as hazardous for transport.
14.3. Transport hazard class(es)	Not applicable
14.4. Packaging group	Not applicable

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	No special precautions required
14.7. Maritime transport in bulk according to IMO instruments	Not applicable, packaged goods

15. Regulatory information

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

This Safety Data Sheet is prepared in accordance with Commission Regulation (EC) 1907/2006, amended by Commission Regulation (EU) 2020/878.

Authorisations/Restrictions

Regulation (EC) 1907/2006, REACH, Annex XIV list of substances subject to authorisation:	Not applicable
Regulation (EC) 1907/2006, REACH, Annex XVII restrictions on the manufacture, placing on the market and use of certain dangerous substances:	Use restricted. See item 75. (see link for restriction details)
Regulation (EC) 1005/2009 on substances that deplete the ozone layer:	Not applicable
Regulation (EC) 850/2004 on persistent organic pollutants, amended by (EU) No 2019/1021:	Not applicable

REACH links

https://echa.europa.eu/substances-restricted-under-reach

15.2 Chemical Safety Assessment

No Chemical Safety Assessment has been carried out for this substance.

16. Other information

Revision information

Preparation date	08/29/2024
Revision date	08/29/2024
Revision reason	Creation.

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
IATA	International Air Transportation Association
IMDG	International Maritime Dangerous Goods
LC50	Lethal Concentration 50%
LD50	Lethal Dose 50%
TWA	Time Weighted Average
STOT	Specific target organ toxicity

PBT	Persistent, Bioaccumulative, Toxic
vPvB	Very Persistent, very Bioaccumulative
WEL	Workplace exposure limit

References

[1] CAMEO Chemicals, website: http://cameochemicals.noaa.gov/search/simple

[2] ECHA - European Chemicals Agency, website: https://echa.europa.eu/

[3] eChemPortal - The Global Portal to Information on Chemical Substances by OECD, website: http://www.echemportal.org/echemportal/index?pageID=0&request_locale=en

[4] Germany GESTIS-database on hazard substance, website: http://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index-2.jsp

[5] HSDB - Hazardous Substances Data Bank, website: https://toxnet.nlm.nih.gov/newtoxnet/hsdb.htm

[6] IARC - International Agency for Research on Cancer, website: http://www.iarc.fr/

[7] IPCS - The International Chemical Safety Cards (ICSC), website: http://www.ilo.org/dyn/icsc/showcard.home

[8] ERG - Emergency Response Guidebook by U.S. Department of Transportation, website: http://www.phmsa.dot.gov/hazmat/library/erg

List of relevant phrases (code and full text as stated in chapter 2 and 3)

N/A

Disclaimer

The information of this safety data sheet is based on our knowledge of this product, at the time of publication. It is given in good faith. The attention of the user is drawn to the possible risks incurred by using the product for any other purpose other than that for which it was intended. This does not in any way excuse the user from knowing and applying all the regulations governing his activity. It is the sole responsibility of the user to take all precautions required in handling the product. The aim of the mandatory regulations mentioned is to help the user to fulfill his obligations regarding the use of hazardous products. For further information please contact info@vimaterial.de.