

Tungsten CarbideReport No.: VIH241108010-1
Version: 2.1
Preparation Date: 08/11/2024
Revision Date: 08/11/2024**1. Identification of the substance/mixture and of the company/undertaking****1.1 Product identifier**

Product Name	Tungsten Carbide
Product No.	740600
Formula	WC
CAS No.	12070-12-1
Synonyms	Tungsten(IV) carbide

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
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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

This product does not contain any substances classified as PBT or 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
Tungsten Carbide (WC)	12070-12-1	235-123-0	<=100%

4. First aid measures

4.1 Description of first aid measures

General Treatment	If symptoms persist, call a physician. Show this Safety Data Sheet to the medical personnel.
Inhalation	Remove victim to fresh air. Supply oxygen if breathing is difficult.
Skin	Take off immediately all contaminated clothing. Rinse skin with water/ shower.
Eyes	Rinse with pure water for at least 15 minutes. Remove contact lenses, if present and easy to do. Seek medical attention.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Seek medical attention if symptoms occur.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labeling (see section 2.2) and/or 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 CO ₂ , water spray, extinguishing powder for extinction.
Unsuitable extinguishing media	N/A

5.2 Special hazards arising from the substance or mixture

1	Carbon oxides
2	Tungsten oxide
3	Its dust may be explosive under certain conditions.
4	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	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. Remove all sources of ignition.
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.
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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	Sweep up and shovel. Take care not to raise dust.
Other information relating	Place in appropriate containers for disposal. Ventilate affected

to spills and releases	area.
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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 dust formation. 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.
Storage class	Class 13
Incompatible materials	See section 10.5.

7.3 Specific end use(s)

Use in laboratories.

8. Exposure Controls/Personal Protection

8.1 Control parameters

Substance	CAS No.	Source	Exposure Limit (TWA/STEL)	Remarks
Tungsten carbide (as W, insoluble compounds)	12070-12-1	TRGS 900 (DE)	TWA: 5 mg/m ³ (A)	A = Inhalable fraction
Tungsten carbide (as W, insoluble compounds)	12070-12-1	ACGIH TLV (USA)	TWA: 5 mg/m ³ (8 h) STEL: 10 mg/m ³ (15 min)	Applies to insoluble tungsten compounds
Tungsten carbide (as W, insoluble compounds)	12070-12-1	OSHA PEL (USA)	TWA: 5 mg/m ³ (8 h)	Regulated as insoluble tungsten compounds
Tungsten carbide (as W, insoluble compounds)	12070-12-1	NIOSH REL (USA)	TWA: 5 mg/m ³ (10 h) STEL: 10 mg/m ³ (15 min)	Applies to insoluble tungsten compounds

Notes:

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)

Biological Limit Values

No biological limit values established.

Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

Exposure scenario	Route of exposure	Population	DNEL / DMEL value
chronic - systemic effects	inhalatory	worker (industry)	DNEL=6,2 mg/m ³
chronic - systemic effects	dermal	worker (industry)	DNEL=1,8 mg/kg bw/day

Predicted No-Effect Concentration (PNEC)

Exposure scenario	Organism	Environmental compartment	PNEC value
short-term (single instance)	aquatic organisms	freshwater	PNEC=0,338 mg/l
short-term (single instance)	aquatic organisms	marine water	PNEC=0,0338 mg/l
short-term (single instance)	aquatic organisms	sewage treatment plant (STP)	PNEC=9,39 mg/l
short-term (single instance)	aquatic organisms	Fresh water sediment	PNEC=960 mg/kg
short-term (single instance)	terrestrial organisms	soil	PNEC=2,17 mg/kg

8.2 Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment

Eye/face protection

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

Skin protection

-Hand Protection

No special protective equipment required.

-Other protection measures

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

Respiratory Protection

No protective equipment is needed under normal use conditions.

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

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. Powder
Colour	Grey black
Odor	No data available
Melting Point/Range	2.785 °C
Boiling Point/Range	6.000 °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	15,63 g/cm ³
Vapor Density	Not applicable
Particle characteristics	No data available

9.2 Other information

Molecular formula	WC
Molecular weight	195,85 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 normal conditions

10.3 Possibility of hazardous reactions

Hazardous Polymerization: No information available

Hazardous Reactions: No information available

10.4 Conditions to avoid

No information available.

10.5 Incompatible materials

Strong oxidizing agents.

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 - rat (male/female) - > 2.000 mg/kg bw.
	Dermal:	LD50 - rat (male/female) - > 2.000 mg/kg bw.
	Inhalation:	LC50 - rat (male/female) - > 5,3 mg/L air.
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

Ecotoxicity effects	No data available.
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12.2 Persistence and degradability

Persistence	No data available.
Degradability	No data available.

12.3 Bioaccumulative potential

Bioaccumulative potential	No data available.
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12.4 Mobility in soil

Mobility in soil	No data available.
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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.
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12.6 Endocrine disrupting properties

Endocrine Disruptor Information	This product does not contain any known or suspected endocrine disruptors.
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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 Regulated
14.2. UN Proper shipping name	Not classified as hazardous for transport.
14.3. Transport hazard class(es)	Not Regulated
14.4. Packaging group	Not Regulated

ADR/RID/ADN

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

ICAO-IATA/DGR

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

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:	Not applicable
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

15.2 Chemical Safety Assessment

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

16. Other information

Revision information

Preparation date	08/11/2024
Revision date	08/11/2024
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.