

Material Safety Data Sheet

Inconel 718 Powder

Report No.: VIH241211013-1
Version: 2.1
Preparation Date: 11/12/2024
Revision Date: 11/12/2024

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

1.1 Product identifier

Product Name	Inconel 718
Product No.	2824264142221300PD
Formula	NiCrFeNbMoTiAl
CAS No.	/
Synonyms	Nickel Alloy - IN718

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

Identified uses	Additive manufacturing/Laser cladding/Thermal spraying
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)

Physical hazards

Not Classified

Health hazards

Skin sensitisation	Category 1 (H317)
Carcinogenicity	Category 1B (H350)
STOT – Repeated exposure	Category 1 (H372)

Environmental hazards

Chronic aquatic toxicity	Category 3 (H412)
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Full text of Hazard Statements: see section 16

2.2 Label elements

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

Signal Word	Danger
Pictograms	

Hazard Statements

H317	May cause an allergic skin reaction
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

Precautionary Statements

Prevention	
P201	Obtain special instructions before use
P202	Do not handle until all safety precautions have been read and understood.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing.
Response	
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362+P364	Take off contaminated clothing and wash it before reuse.
P308+P313	IF exposed or concerned: Get medical advice/attention.
Storage	

P405	Store locked up.
Disposal	
P501	Dispose of contents/container in accordance with local regulation.

2.3 Other hazards

This product contains no PBT/vPvB substances $\geq 0.1\%$ assessed in accordance with REACH Annex XIII.

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

3. Composition/information on ingredients

3.1 Substances

Chemical Family	Mixture		
Component	Product Identifier	%	Classification (CLP)
Nickel	CAS No.: 7440-02-0 EC No.: 231-111-4	50.0 - 55.0	Skin Sens. 1; H317 Carc. 2; H351 STOT RE 1; H372 Aquatic Chronic 3; H412
Chromium	CAS No.: 7440-47-3 EC No.: 231-157-5	17.0 - 21.0	
Iron	CAS No.: 7439-89-6 EC No.: 231-096-4	Bal	
Niobium (plus Tantalum)	CAS No.: 7440-03-1 EC No.: 231-113-5	4.75 - 5.5	
Molybdenum	CAS No.: 7439-98-7 EC No.: 231-107-2	2.8 - 3.3	
Titanium	CAS No.: 7440-32-6 EC No.: 231-142-3	0.65 - 1.15	
Aluminum	CAS No.: 7429-90-5 EC No.: 231-072-3	0.20 - 0.80	
Cobalt	CAS No.: 7440-48-4 EC No.: 231-158-0	$\leq 1\%$	Skin Sens. 1; H317 Resp Sens. 1; H334 Muta. 2; H341 Carc. 1B; H350 Repr. 1B; H360F Aquatic Chronic 4; H413

- Classification of the mixture in Section 2 is based on the hazardous properties of nickel-containing components and potential inhalation exposure to metal dusts during industrial use.

- Chromium is present in metallic alloy form and does not include hexavalent chromium (Cr(VI)).

- Cobalt is present as an alloying element at low concentration.

4. First aid measures

4.1 Description of first aid measures

General Treatment	Seek medical attention if symptoms persist.
Inhalation	Move to fresh air. If not breathing, give artificial respiration. Seek medical attention
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	Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Seek medical attention.

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 appropriate for surrounding materials.
Unsuitable extinguishing media	Water

5.2 Special hazards arising from the substance or mixture

1	Decomposition of this product may yield metallic oxides.
2	High concentrations of dust may form explosive mixture with air.
3	Fine dust if dispersed in air in sufficient concentrations and if in presence of a ignition source is a potential dust explosion hazard.
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	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. 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 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 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.
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7.2 Conditions for safe storage, including any incompatibilities

Ventilation requirements	Keep containers tightly closed in a dry, cool and well-ventilated place.
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

Occupational exposure limits

Substance	CAS No.	LTTEL (8 hr TWA mg/m ³)	Note
Nickel	7440-02-0	0.5	WEL
Cobalt	7440-48-4	0.1	WEL, Carc
Aluminum	7429-90-5	10 (inhalable fraction) 4 (respirable fraction)	WEL
Manganese	7439-96-5	0.2 (inhalable fraction) 0.05 (respirable fraction)	WEL
Silicon	7440-21-3	10 (inhalable fraction) 4 (respirable fraction)	WEL
Copper	7440-50-8	0.2	WEL

Biological limit values:

No data available.

Predicted No-Effect Concentration (PNEC)

No data available.

8.2 Exposure controls

Appropriate engineering controls

Ensure adequate ventilation, especially in confined spaces.

Whenever possible, use engineering controls such as isolation or containment of process flows, process or equipment modifications to minimize releases and exposures, and properly designed ventilation systems to control hazardous materials at the 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 clothing to prevent repeated or prolonged skin contact. Wash hands thoroughly after handling.

Respiratory Protection

When exposed to substances in concentrations exceeding the exposure limits, workers must wear appropriate, certified respiratory protective equipment.

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

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	Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced. Recommended half mask:- Particle filtering: EN149:2001 When RPE is used a face piece Fit Test should be conducted

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	Powder
Colour	Gray
Odor	Odorless
Melting Point/Range	No data available
Boiling Point/Range	No data available
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	No data available
Vapor Density	Not applicable
Particle characteristics	No data available

9.2 Other information

Molecular formula	NiCrFeNbMoTiAl
Molecular weight	No data available
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: None under normal processing.

10.4 Conditions to avoid

Avoid dust/ small particles formation.

10.5 Incompatible materials

Strong acids, alkalis and 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:	No data available
	Dermal:	No data available
	Inhalation:	No data available
Skin corrosion/irritation	No data available.	
Serious eye damage/irritation	No data available.	
Respiratory or skin sensitization	Respiratory	No data available.
	Skin	May cause an allergic skin reaction
Germ cell mutagenicity	No data available.	
Carcinogenicity	May cause cancer.	
Reproductive toxicity	No data available.	
STOT - single exposure	No data available.	
STOT - repeated exposure	Causes damage to organs through prolonged or repeated exposure.	
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	Harmful to aquatic life with long lasting effects.
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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 applicable
14.3. Transport hazard class(es)	Not regulated
14.4. Packaging group	Not applicable

ADR/RID/ADN

14.1. UN number	Not regulated
14.2. UN Proper shipping name	Not applicable
14.3. Transport hazard class(es)	Not regulated
14.4. Packaging group	Not applicable

ICAO-IATA/DGR

14.1. UN number	Not regulated
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14.2. UN Proper shipping name	Not applicable
14.3. Transport hazard class(es)	Not regulated
14.4. Packaging group	Not applicable

14.5. Environmental hazards	No hazards identified
14.6. Special precautions for user	Avoid generation of dust during handling and transport. Use sealed containers. Protect from sources of ignition and electrostatic discharge.
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	11/12/2024
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Revision date	11/12/2024
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)

H317	May cause an allergic skin reaction
H350	May cause cancer
H372	Causes damage to organs through prolonged or repeated exposure.
H412	Harmful to aquatic life with long lasting effects.

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.