

## Material Safety Data Sheet

# Nickel-Iron Alloy Powder

Report No.: VIH241002022-1  
Version: 2.1  
Preparation Date: 02/10/2024  
Revision Date: 02/10/2024

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

### 1.1 Product identifier

Product Name	Nickel-Iron Alloy
Product No.	282600PD
Formula	NiFe
CAS No.	/
Synonyms	None

### 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	<a href="https://vimaterial.de/">https://vimaterial.de/</a>

### 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

Flammable solids	Category 2 (H228)
Self-heating substances and mixtures	Category 2 (H252)

## Health hazards

Skin Sensitization	Category 1 (H317)
Carcinogenicity	Category 2 (H351)
STOT - repeated exposure	Category 1 (H372)

## Environmental hazards

Acute aquatic toxicity	Category 3 (H402)
Chronic aquatic toxicity	Category 3 (H412)

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

H228	Flammable solid.
H252	Self-heating in large quantities; may catch fire.
H317	May cause an allergic skin reaction
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure
H412	Harmful to aquatic life with long lasting effects.

## Precautionary Statements

<b>Prevention</b>	
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood
P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.

P235 + P410	Keep cool. Protect from sunlight.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P260	Do not breathe dust/fume/gas/mist/vapors/spray
P264	Wash contaminated skin thoroughly after handling.
P270	Do not eat, drink or smoke when using this product
P272	Contaminated work clothing should not be allowed out of the workplace
P273	Avoid release to the environment
P280	Wear protective gloves/protective clothing.
<b>Response</b>	
P302 + P352	IF ON SKIN: Wash with plenty of soap and water
P308 + P313	IF exposed or concerned: Get medical advice/attention
P333+P313	If skin irritation or a rash occurs: Get medical advice/attention
P363	Wash contaminated clothing before reuse
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
<b>Storage</b>	
P405	Store locked up
<b>Disposal</b>	
P501	Dispose of contents/container in accordance with local/regional/national/international regulations

### 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	Metal Alloy		
Component	CAS No.	EC No.	Concentration
Nickel (Ni)	7440-02-0	231-111-4	50-99%
Iron (Fe)	7439-89-6	231-096-4	1-50%

## 4. First aid measures

### 4.1 Description of first aid measures

General Treatment	Show this safety data sheet to the doctor in attendance. Move out of dangerous area
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. Never induce vomiting or give anything by mouth to an unconscious person.

#### 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 CO <sub>2</sub> , dry chemical, or foam for extinction.
Unsuitable extinguishing media	Water

### 5.2 Special hazards arising from the substance or mixture

1	Nickel/nickel oxides
2	Iron/iron oxides
3	Flammable
4	Dust can form an explosive mixture in air.

### 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. Avoid breathing dust or fume.
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 or scoop up. 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. Normal measures for preventive fire protection.
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

Storage conditions	Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from heat and sources of ignition and flammables area.
Storage class	Class 4.2
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.	Country / Regulation	Occupational Exposure Limit (OEL)	STEL (Short-Term Exposure Limit)
Nickel (Ni)	7440-02-0	TRGS 900 (DE)	AGW (TWA): 1 mg/m <sup>3</sup> (i)	6 mg/m <sup>3</sup> (15 min average)
Nickel (Ni)	7440-02-0	USA (ACGIH TLV)	TWA: 1 mg/m <sup>3</sup> (i, as Ni metal)	STEL: 3 mg/m <sup>3</sup> (i)
Nickel (Ni)	7440-02-0	UK (EH40/2005)	WEL-TWA: 1 mg/m <sup>3</sup> (i), 0.1 mg/m <sup>3</sup> (r)	WEL-STEL: 3 mg/m <sup>3</sup> (i), 0.3 mg/m <sup>3</sup> (r)
Iron (Fe)	7439-89-6	TRGS 900 (DE)	AGW (TWA): 1.25 mg/m <sup>3</sup> (r) / 10 mg/m <sup>3</sup> (i)	-
Iron (Fe)	7439-89-6	USA (ACGIH TLV)	TWA: 5 mg/m <sup>3</sup> (as Fe, dust or fume)	STEL: 10 mg/m <sup>3</sup> (as Fe, fume)
Iron (Fe)	7439-89-6	UK (EH40/2005)	WEL-TWA: 5 mg/m <sup>3</sup> (as Fe, fume)	WEL-STEL: 10 mg/m <sup>3</sup> (as Fe, fume)

Notes:

i: Inhalable fraction

r: Respirable fraction

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)

STEL: Short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15- minute period (unless otherwise specified)

### Biological limit values:

No biological limit values established.

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

No information available.

### **Predicted No-Effect Concentration (PNEC)**

No information available.

## **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

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

<b>Large scale/emergency use</b>	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
<b>Small scale/Laboratory use</b>	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**

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## 9.1 Information on basic physical and chemical properties

Physical State	Powder
Colour	Grey
Odor	No data available
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	NiFe
Molecular weight	N/A
Evaporation Rate	Not applicable - Solid

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## 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 heat, flames, sparks and other sources of ignition. Minimize contact with material. Avoid inhalation of material or combustion by-products. Keep out of water supplies and sewers. Do not store at elevated temperatures.

#### 10.5 Incompatible materials

Strong acids, strong bases, strong oxidizers, nitrates

#### 10.6 Hazardous decomposition products

Metal oxide fume

In the event of fire: see section 5

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### 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	No data available.
Germ cell mutagenicity	No data available.	
Carcinogenicity	No data available.	
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.

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### 12. Ecological Information

#### 12.1 Toxicity

Toxicity to fish	No data available.
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#### 12.2 Persistence and degradability

Persistence	No data available.
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Degradability	No data available.
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### 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	UN 3089
14.2. UN Proper shipping name	METAL POWDERS, FLAMMABLE, N.O.S.
14.3. Transport hazard class(es)	4.1

<b>14.4. Packaging group</b>	II
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#### ADR/RID/ADN

<b>14.1. UN number</b>	UN 3089
<b>14.2. UN Proper shipping name</b>	METAL POWDERS, FLAMMABLE, N.O.S.
<b>14.3. Transport hazard class(es)</b>	4.1
<b>14.4. Packaging group</b>	II

#### ICAO-IATA/DGR

<b>14.1. UN number</b>	UN 3089
<b>14.2. UN Proper shipping name</b>	METAL POWDERS, FLAMMABLE, N.O.S.
<b>14.3. Transport hazard class(es)</b>	4.1
<b>14.4. Packaging group</b>	II

<b>14.5. Environmental hazards</b>	No hazards identified
<b>14.6. Special precautions for user</b>	No special precautions required
<b>14.7. Maritime transport in bulk according to IMO instruments</b>	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.

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## 16. Other information

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### Revision information

Preparation date	02/10/2024
Revision date	02/10/2024
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](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)**

H228	Flammable solid.
H252	Self-heating in large quantities; may catch fire.
H317	May cause an allergic skin reaction
H351	Suspected of causing 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](mailto:info@vimaterial.de).