

## Ferroniobium

Version number: GHS 2.0  
Replaces version of: 2015-02-20 (GHS 1)

Date of compilation: 2015-02-19  
date of issue: 2021-10-12

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

#### 1.1 Product identifier

Trade name

**Ferroniobium (Granules)**

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

Relevant identified uses

alloying element  
manufacture of basic metals, including alloys  
manufacture of fabricated metal products, except machinery and equipment  
Cored wire  
reference to other sections: 16.7

Uses advised against

none

#### 1.3 Details of the supplier of the safety data sheet

Niobec Inc.  
3400, route du Columbium  
St-Honore-de-Chicoutimi Quebec G0V 1L0  
Canada

##### supplier (only representative)

Niobec GmbH  
Rheinallee 102  
40545 - Düsseldorf  
Germany

##### Competent person responsible for the safety data sheet:

Dipl.-Ing. Ewald Langenohl  
SDS@reach-advice.com  
Telephone: +49 2441 7717602

# Safety Data Sheet

according to UK REACH

(REACH etc. (Amendment etc.) (EU Exit) Regulations 2019)

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### 1.4 Emergency telephone number

Universitätsmedizin Mainz  
Giftinfo Mainz – Klinische Toxikologie  
Langenbeckstr. 1  
55131 Mainz  
Germany  
Emergency telephone number:  
+49 (0) 6131 – 19240  
[www.giftinfo.uni-mainz.de](http://www.giftinfo.uni-mainz.de)  
Language: German / English

National Poison  
Information Service Centre  
National: 0844 892 0111  
<http://www.npis.org>

This number is only for medical emergencies

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### SECTION 2: Hazards identification

#### 2.1 Classification of the substance or mixture

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

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.  
Reference to other sections: 16.4.

#### 2.2 Label elements

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

not required

#### 2.3 Other hazards

##### Physical / chemical hazards

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion. Accumulation of fine dust may entail the risk of a dust explosion in the presence of air and an ignition source. Do not use water on molten metal.

##### Health hazards

No significant hazards.

##### Environmental hazards

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

### SECTION 3: Composition/information on ingredients

#### 3.1 Substances

not relevant (mixture)

#### 3.2 Mixtures

##### Description of the mixture

Name of substance	CAS No	EC No	Index No	Wt%
Niobium	7440-03-1	231-113-5		60 - 70
Iron	7439-89-6	231-096-4		30 - 40

Name of substance	Classification acc. to 1272/2008/EC	Hazard statement	Pictograms	Notes
Niobium				
Iron				

##### Remarks

Impurities:  
Impurities do not contribute to the classification.  
For full text of abbreviations: see SECTION 16.

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### SECTION 4: First aid measures

#### 4.1 Description of first aid measures

##### General notes

Self-protection of the first aider. Personal protective equipment. Remove victim out of the danger area. Do not leave affected person unattended. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In all cases of doubt, or when symptoms persist, seek medical advice. In case of unconsciousness place person in the recovery position. Never give anything by mouth. Avoid breathing dust.

##### Following inhalation

Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus. In case of respiratory tract irritation, consult a physician. If intensive inhalation of dust seek medical treatment immediately. Rinse nose and mouth with water thoroughly.

##### Following skin contact

Brush off loose particles from skin. Rinse skin with water/shower. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.

##### Following eye contact

Remove contact lenses, if present and easy to do. Continue rinsing. Irrigate copiously with clean, fresh water for at least 10 minutes, holding the eyelids apart. If eye irritation persists: Get medical advice/attention.

##### Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. IF SWALLOWED: Call a POISON CENTER/doctor/.../if you feel unwell. In case of accident or if you feel unwell, seek medical advice immediately (show the label or safety data sheet where possible).

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

Pulmonary irritation. Gastrointestinal complaints. Cough. Vomiting. Inhalation of dust may cause respiratory irritation.

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

Subsequent observance for pneumonia and pulmonary oedema. Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.

### SECTION 5: Firefighting measures

#### 5.1 Extinguishing media

##### Suitable extinguishing media

D-powder, dry sand, in case of fire: Use metal fire powder to extinguish - never use water (hydrogen formation)

##### Unsuitable extinguishing media

water, BC-powder, ABC-powder, carbon dioxide (CO<sub>2</sub>)

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

Deposited combustible dust has considerable explosion potential. Hazardous combustion products: Smoke. Fire class: D.

##### Incomplete combustion products, smoke, mist, vapor

Metal oxide smoke, toxic

#### 5.3 Advice for firefighters

In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance. In case of fire: Evacuate area. Keep people away and stay on the upwind side.

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### Special protective equipment for firefighters

Self-contained protective suits against fire. Self-contained breathing apparatus (SCBA).

## SECTION 6: Accidental release measures

### 6.1 Personal precautions, protective equipment and emergency procedures

#### For non-emergency personnel

Remove persons to safety. Control of dust.

#### For emergency responders

Wear breathing apparatus if exposed to vapours/dust/spray/gases.

#### Suitable fabric for personal protective clothing

Flame retardant antistatic protective clothing. Protective clothing for use against solid particulates. Personal protective equipment: see section 8.

### 6.2 Environmental precautions

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. Measures to prevent aerosol and dust generation. Approved industrial vacuum cleaner. Only vacuum cleaners containing no ignition sources may be used for combustible dusts.

#### Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

### 6.4 Reference to other sections

Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.

## SECTION 7: Handling and storage

### 7.1 Precautions for safe handling

Do not breathe dust.

#### Recommendations

##### • Measures to prevent fire as well as aerosol and dust generation

Measures to prevent aerosol and dust generation. Dust deposits may accumulate on all deposition surfaces in a technical room. Use local and general ventilation. Avoidance of ignition sources. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Removal of dust deposits. Only vacuum cleaners containing no ignition sources may be used for combustible dusts. Store in a dry place. Read label before use. Employ good industrial hygiene practice.

##### • Warning

Layers, deposits and heaps of combustible dust must be considered, like any other source which can form a hazardous explosive atmosphere. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion. Dust deposits may accumulate on all deposition surfaces in a technical room. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts.

Do not use water on molten metal.

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- **Handling of incompatible substances or mixtures**

Do not mix with acids. Do not mix with alkali.

- **Keep away from**

acids - caustic solutions - oxidisers - other chemicals

**Advice on general occupational hygiene**

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feed-stuffs.

### 7.2 Conditions for safe storage, including any incompatibilities

**Managing of associated risks**

- **Explosive atmospheres**

Removal of dust deposits. Only vacuum cleaners containing no ignition sources may be used for combustible dusts. Use explosion-proof equipment if high dust/air concentrations are possible.

**Incompatible substances or mixtures**

Observe hints for combined storage.

- **Do not mix with**

acids - caustic solutions - oxidisers - other chemicals

- **Control of effects**

Protect from moisture.

- **Protect against external exposure, such as**

Humidity.

**Consideration of other advice**

- **Ventilation requirements**

Use local and general ventilation.

### 7.3 Specific end use(s)

See section 16 for a general overview.

## SECTION 8: Exposure controls/personal protection

### 8.1 Control parameters

**National limit values**

**Occupational exposure limit values (Workplace Exposure Limits)**

Country	Name of agent	CAS No	Notation	Identifier	TWA [ppm]	TWA [mg/m <sup>3</sup> ]	STEL [ppm]	STEL [mg/m <sup>3</sup> ]	Source
GB	dust		i	WEL		10			EH40/2005
GB	dust		r	WEL		4			EH40/2005

**Notation**

i Inhalable fraction

r Respirable fraction

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)

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)

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### Relevant DNELs/DMELs/PNECs and other threshold levels

#### • relevant DNELs of components of the mixture

Name of substance	CAS No	End-point	Threshold level	Protection goal, route of exposure	Used in	Exposure time	AF	Source
Niobium	7440-03-1	DNEL	3.3 mg/kg	human, dermal	worker (industry)	chronic - systemic effects	300	
Niobium	7440-03-1	DNEL	23.5 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - systemic effects	75	
Niobium	7440-03-1	DNEL	1.67 mg/kg	human, oral	consumer (private households)	chronic - systemic effects	600	
Niobium	7440-03-1	DNEL	1.67 mg/kg	human, dermal	consumer (private households)	chronic - systemic effects	600	
Niobium	7440-03-1	DNEL	5.8 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	chronic - systemic effects	150	
Iron	7439-89-6	DNEL	3 mg/m <sup>3</sup>	human, inhalatory	worker (industry)	chronic - local effects	1	
Iron	7439-89-6	DNEL	0.71 mg/kg	human, oral	consumer (private households)	chronic - systemic effects	1	
Iron	7439-89-6	DNEL	1.5 mg/m <sup>3</sup>	human, inhalatory	consumer (private households)	chronic - local effects	2	

#### Source (DNEL, PNEC):

Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA).

## 8.2 Exposure controls

### Appropriate engineering controls

Control of dust. Provision of sufficient ventilation. Use explosion-proof equipment if high dust/air concentrations are possible.

### Individual protection measures (personal protective equipment)

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Flame retardant antistatic protective clothing.

#### Eye/face protection

Wear eye/face protection.

#### Skin protection

##### • general notes

Wear suitable gloves.

##### • type of material

Leather (EN 388/II);

For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.

##### • material thickness

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- **breakthrough times of the glove material**

-, The breakthrough time must be greater than the end use time of the product

- **other protection measures**

Take recovery periods for skin regeneration. Wash hands thoroughly after handling. Preventive skin protection (barrier creams/ointments) is recommended.

### Respiratory protection

Avoid breathing dust P2 (filters at least 94 % of airborne particles, colour code: White).

### Thermal hazards

Wear protective clothing for protection against heat and flame.

### Environmental exposure controls

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

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

<b>Physical state</b>	Solid (Granulate)
<b>Colour</b>	silver grey
<b>Odour</b>	odourless
<b>Melting point/freezing point</b>	1,530 – 1,580 °C at 101 hPa
<b>Boiling point / Initial boiling point and boiling range</b>	The study does not need to be conducted (REACH, annex VII)
<b>Flammability</b>	non-combustible
<b>Explosive limits</b>	not relevant (solid matter)
Explosion limits of dust clouds	the product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion
<b>Flash point</b>	The study does not need to be conducted (REACH, Annex VII)
<b>Auto-ignition temperature</b>	Not determined
<b>Decomposition temperature</b>	Not relevant
<b>pH (value)</b>	Not applicable
<b>Viscosity</b>	not relevant (solid matter)
<b>kinematic viscosity</b>	not relevant (solid matter)
<b>Solubility(ies)</b>	
Water solubility	1 µg/l at 20 °C



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### Partition coefficient

<b>Partition coefficient n-octanol/water (log value)</b>	The study does not need to be conducted (REACH, Annex VII)
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<b>Vapour pressure</b>	The study does not need to be conducted (REACH, Annex VII)
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### Density and/or relative density

<b>Density</b>	8.2 g/cm <sup>3</sup> at 20 °C
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Granulate

### Particle characteristics

<b>Particle size</b>	0 – 15 mm
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### 9.2 Other information

There is no additional information

Accumulation of fine dust may entail the risk of a dust explosion in the presence of air and an ignition source.

#### General hazards based on physical properties

#### Information with regard to physical hazard classes

#### Hazard classes acc. to GHS:

- 2.1 Explosive: Shall not be classified as explosive: Metal.
- 2.2 Flammable gases: Non-gaseous.
- 2.3 Aerosols: No aerosol.
- 2.4 Oxidising gases: Non-gaseous.
- 2.5 Gases under pressure: Non-gaseous.
- 2.6 Flammable liquid: Non-liquid.
- 2.7 Flammable solid: Non-flammable.
- 2.8 Self-reactive substances and mixtures: Shall not be classified as self-reactive: Metal.
- 2.9 Pyrophoric liquids: Non-liquid.
- 2.10 Pyrophoric solids: Non-pyrophoric.
- 2.11 Self-heating substances and mixtures: Non-self-heating.
- 2.12 Substances and mixtures, which emit flammable gases in contact with water: Shall not be classified as water-reactive.
- 2.13 Oxidising liquids: Non-liquid.
- 2.14 Oxidising solids: Not oxidising.
- 2.15 Organic peroxide: Shall not be classified as an organic peroxide.
- 2.16 Corrosive to metals: Non-corrosive to metals.

#### Other safety characteristics

There is no additional information.

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### SECTION 10: Stability and reactivity

#### 10.1 Reactivity

Concerning incompatibility: see below "Conditions to avoid" and "Incompatible materials".

#### 10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

#### 10.3 Possibility of hazardous reactions

Reacts violently with: Oxidisers, Acid,

#### 10.4 Conditions to avoid

Keep away from alkalis. - Keep away from acids. - Keep away from: water

#### Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

#### 10.5 Incompatible materials

acids - bases - oxidisers - (see section 7.2 of the safety data sheet)

#### 10.6 Hazardous decomposition products

Hazardous combustion products: see section 5. Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.

### SECTION 11: Toxicological information

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

Test data are not available for the complete mixture.

#### Classification according to GHS (1272/2008/EC, CLP)

General information on classifications:

This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.

#### Acute toxicity

Shall not be classified as acutely toxic.

#### Acute toxicity estimate (ATE) of components of the mixture

Name of substance	CAS No	Exposure route	Endpoint	Value	Species	Method	Source	Notes
Niobium	7440-03-1	oral	LD50	>2,000 mg/kg	rat	OECD Guideline 423	ECH A	
Niobium	7440-03-1	inhalation: dust/mist	LC50	>5.45 mg/l/4h	rat	OECD Guideline 403	ECH A	
Niobium	7440-03-1	dermal	LD50	>2,000 mg/kg	rat	OECD Guideline 402	ECH A	
Iron	7439-89-6	oral	LD50	71,900 - 125,300 mg/kg	rat	OECD Guideline 401	ECH A	Iron

#### Skin corrosion/irritation

Shall not be classified as corrosive/irritant to skin.

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Acute toxicity: dermal irritation/corrosion								
Effective dose	Species	Method	Source	Name of substance	CAS No	Result	Additional statements	Notes
	rabbit	OECD Guideline 404	ECHA	Niobium	7440-03-1	negative		
	rabbit	OECD Guideline 404	ECHA	triiron tetraoxide	1317-61-9	negative	read-across approach	

### Serious eye damage/eye irritation

Shall not be classified as seriously damaging to the eye or eye irritant.

Acute toxicity: eye irritation/corrosion								
Effective dose	Species	Method	Source	Name of substance	CAS No	Result	Additional statements	Notes
	rabbit	OECD Guideline 405	ECHA	Niobium	7440-03-1	negative		
	rabbit	OECD Guideline 405	ECHA	triiron tetraoxide	1317-61-9	negative	read-across approach	

### Respiratory or skin sensitisation

Shall not be classified as a respiratory or skin sensitiser.

Skin sensitisation								
Effective dose	Species	Method	Source	Name of substance	CAS No	Result	Additional statements	Notes
	mouse	OECD Guideline 429	ECHA	Niobium	7440-03-1	negative		
	guinea pig		ECHA	triiron tetraoxide	1317-61-9	negative	read-across approach	

### Summary of evaluation of the CMR properties

Shall not be classified as germ cell mutagenic, carcinogenic nor as a reproductive toxicant.

Mutagenicity								
Effective dose	Species	Method	Source	Name of substance	CAS No	Result	Additional statements	Notes
	S. typhimurium	OECD Guideline 471	ECHA	Niobium	7440-03-1	negative		
	Chinese hamster lung fibroblasts (V79)	OECD Guideline 473	ECHA	Niobium	7440-03-1	negative		
	Mouse lymphoma	OECD Guideline 476	ECHA	Niobium	7440-03-1	negative		

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Mutagenicity								
Effective dose	Species	Method	Source	Name of substance	CAS No	Result	Additional statements	Notes
	S. typhimurium	OECD Guideline 471	ECHA	Iron	7439-89-6	negative		

Reproductive toxicity									
End-point	Dose rate	Species	Method	Source	Name of substance	CAS No	Result	Additional statements	Notes
NOAEL	1000 mg/kg bw/d	rat	OECD Guideline 422	ECHA	Diniobium pentaoxide	1313-96-8	negative	read-across approach	
NOAEL	1000 mg/kg bw/d	rat	OECD Guideline 422	ECHA	Ferroniobium	Ferroniobium	negative		

### Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

### Symptoms related to the physical, chemical and toxicological characteristics

- Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic toxicity							
Exposure route	Endpoint	Value	Exposure time	Species	Method	Source	Notes
oral	NOAEL	1,000 mg/kg bw/day	29 d	rat	OECD Guideline 422	ECHA	Diniobium pentaoxide
inhalation: dust/mist	NOAEC	5 mg/m <sup>3</sup>	28 d	rat		ECHA	Iron

### Other information

Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA).

### 11.2 Information on other hazards

#### Endocrine disrupting properties

Information on this property is not available.

## SECTION 12: Ecological information

### 12.1 Toxicity

acc. to 1272/2008/EC: Test data are not available for the complete mixture. Shall not be classified as hazardous to the aquatic environment.

### 12.2 Persistence and degradability

Inorganic product which is not eliminable from water through biological cleaning processes.

#### Degradability of organic substances

The study does not need to be conducted because the substance is inorganic.

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### Biodegradation

The study does not need to be conducted because the substance is inorganic.

### 12.3 Bioaccumulative potential

Data are not available.

### 12.4 Mobility in soil

Data are not available.

### 12.5 Results of PBT and vPvB assessment

The study does not need to be conducted because the substance is inorganic. According to the results of its assessment, this substance is not a PBT or a vPvB.

### 12.6 Endocrine disrupting properties

None of the ingredients are listed.

### 12.7 Other adverse effects

Data are not available.

### Other information

Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA).

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

#### Product/packaging disposal

#### Waste code

Proposed waste code(s) for the used product (2018/C 124/01): Off-specification batches and unused products (16 03). Inorganic wastes other than those mentioned in 16 03 03 (16 03 04).

Notation: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s).

#### Waste treatment-relevant information (COMMISSION REGULATION (EU) No 1357/2014)

Recycling/reclamation of metals and metal compounds (R4).

Exchange of waste for submission to any of the operations numbered r 1 to r 11 (R12).

Storage of waste pending any of the operations numbered r 1 to r 12 (excluding temporary storage, pending collection, on the site where the waste is produced) (R13).

#### Sewage disposal-relevant information

Do not empty into drains. Avoid release to the environment. Refer to special instructions/safety data sheets.

#### Waste treatment of containers/packagings

Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

### 13.2 Other disposal recommendations

Data are not available.

### 13.3 Properties of waste which render it hazardous (COMMISSION REGULATION (EU) No 1357/2014):

Non-hazardous waste.

### 13.4 Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities.

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### SECTION 14: Transport information

- |   |   |
|---|---|
| <b>14.1 UN number</b>   | Not subject to transport regulations  |
| <b>ADR/RID/ADN</b>  | Not subject to ADR, RID and ADN   |
| <b>IMDG-Code</b>  | Not subject to IMDG   |
| <b>ICAO-TI</b>  | Not subject to ICAO-IATA  |
| <b>14.2 UN proper shipping name</b>   | Not assigned  |
| <b>14.3 Transport hazard class(es)</b>  | None  |
| <b>14.4 Packing group</b>   | Not assigned  |
| <b>14.5 Environmental hazards</b>   | Non-environmentally hazardous acc. to the dangerous goods regulations   |
| <b>14.6 Special precautions for user</b>  | There is no additional information.   |
| <b>14.7 MARPOL (Maritime transport in bulk according to IMO instruments)</b>                              | (International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")). Shall not be classified as a marine pollutant. |
| <b>14.8 Information for each of the UN Model Regulations</b>  |   |
| <b>Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)Additional information</b> | not assigned  |
| <b>International Maritime Dangerous Goods Code (IMDG)Additional information</b>                           | Not subject to IMDG.  |
| <b>International Civil Aviation Organization (ICAO-IATA/DGR)Additional information</b>                    | Not subject to ICAO-IATA.   |

### SECTION 15: Regulatory information

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
- Relevant provisions of the European Union (EU)**
- Restrictions according to REACH, Annex XVII**  
None of the ingredients are listed.
- List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list**  
None of the ingredients are listed.
- Seveso Directive**  
not listed
- Deco-Paint Directive**
- |             |     |
|-------------|-----|
| VOC content | 0 % |
|-------------|-----|
- Directive on industrial emissions (VOCs, 2010/75/EU)**
- |             |     |
|-------------|-----|
| VOC content | 0 % |
|-------------|-----|
- Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR)**  
none of the ingredients are listed

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**Water Framework Directive (WFD)  
Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)**

Name of substance	CAS No	Listed in	Remarks
Iron		A)	
Niobium		A)	

**Legend**

A) Indicative list of the main pollutants

**REGULATION (EU) 2019/1021 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on persistent organic pollutants**

None of the ingredients are listed.

**National regulations (United Kingdom)**

Please consider the relevant national or regional provisions.

**15.2 Chemical Safety Assessment**

No Chemical Safety Assessment has been carried out for this mixture by the supplier.

**15.4 National inventories**

Country	Inventory	Status
AU	AICS	all ingredients are listed
CA	DSL	all ingredients are listed
CN	IECSC	all ingredients are listed
EU	ECSI	all ingredients are listed
EU	REACH Reg.	all ingredients are listed
KR	KECI	all ingredients are listed
MX	INSQ	not all ingredients are listed
NZ	NZIoC	all ingredients are listed
PH	PICCS	not all ingredients are listed
TR	CICR	not all ingredients are listed
TW	TCSI	all ingredients are listed
US	TSCA	all ingredients are listed

**Legend**

AICS Australian Inventory of Chemical Substances  
CICR Chemical Inventory and Control Regulation  
DSL Domestic Substances List (DSL)  
ECSI EC Substance Inventory (EINECS, ELINCS, NLP)  
IECSC Inventory of Existing Chemical Substances Produced or Imported in China  
INSQ National Inventory of Chemical Substances  
KECI Korea Existing Chemicals Inventory  
NZIoC New Zealand Inventory of Chemicals  
PICCS Philippine Inventory of Chemicals and Chemical Substances (PICCS)  
REACH Reg. REACH registered substances  
TCSI Taiwan Chemical Substance Inventory  
TSCA Toxic Substance Control Act

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### SECTION 16: Other information

#### 16.1 Indication of changes (revised safety data sheet)

Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
1.1	Trade name: Ferroniobium	Trade name: Ferroniobium (Granules)	yes
1.1.3	Registration number (REACH)		yes
1.1.3		Registration number (REACH): change in the listing (table)	yes
1.2	Relevant identified uses: manufacture of basic metals, including alloys manufacture of fabricated metal products, except machinery and equipment other Cored wire	Relevant identified uses: alloying element manufacture of basic metals, including alloys manufacture of fabricated metal products, except machinery and equipment Cored wire reference to other sections: 16.7	yes
1.2	Uses advised against	Uses advised against: none	yes
1.2		Uses advised against: change in the listing (table)	yes
1.3	Details of the supplier of the safety data sheet: Niobec Inc. 3400, route du Columbium St-Honore-de-Chicoutimi Quebec G0V 1L0 Canada  Telephone: Telefax: e-mail:	Details of the supplier of the safety data sheet: Niobec Inc. 3400, route du Columbium St-Honore-de-Chicoutimi Quebec G0V 1L0 Canada supplier (only representative) Niobec GmbH Rheinallee 102 40545 - Düsseldorf Germany	yes
1.3	Competent person responsible for the safety data sheet: Dipl.-Ing. Ewald Langenohl	Competent person responsible for the safety data sheet: Dipl.-Ing. Ewald Langenohl SDS@reach-advice.com Telephone: +49 2441 7717602	yes
1.3	e-mail (competent person): SDS@reach-advice.com +49 (0) 2441 7717602		yes
1.4	Emergency telephone number	Emergency telephone number: Universitätsmedizin Mainz Giftinfo Mainz – Klinische Toxikologie Langenbeckstr. 1 55131 Mainz Germany Emergency telephone number: +49 (0) 6131 – 19240 www.giftinfo.uni-mainz.de Language: German / English  National Poison Information Service Centre National: 0844 892 0111 http://www.npis.org  This number is only for medical emergencies	yes



# Safety Data Sheet

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1.4	<p>Emergency information service: Universitätsklinik Mainz Giftinfo Mainz – Klinische Toxikologie Langenbeckstr. 1 55131 Mainz Germany Emergency telephone number: +49 (0) 6131 – 19240 www.giftinfo.uni-mainz.de Language: German / English</p> <p>National Poison Information Service Centre National: 0844 892 0111 http://www.npis.org</p>		yes
2.1	<p>Classification according to Regulation (EC) No 1272/2008 (CLP): This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC. This mixture does not meet the criteria for classification in accord- ance with Directive 1999/45/EC.</p>	<p>Classification according to Regulation (EC) No 1272/2008 (CLP): This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC. Reference to other sections: 16.4.</p>	yes
2.3	<p>Other hazards: There is no additional information.</p>	Other hazards	yes
2.3		<p>Physical / chemical hazards: The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust ex- plosion. Accumulation of fine dust may entail the risk of a dust explosion in the presence of air and an ignition source. Do not use water on molten metal.</p>	yes
2.3		<p>Health hazards: No significant hazards.</p>	yes
2.3		<p>Environmental hazards: This mixture does not contain any sub- stances that are assessed to be a PBT or a vPvB.</p>	yes
3.1	<p>Substances: not relevant (mixture) Ferroniobium</p>	<p>Substances: not relevant (mixture)</p>	yes
3.2		<p>Description of the mixture: change in the listing (table)</p>	yes
3.2		<p>Description of the mixture: change in the listing (table)</p>	yes
3.2		<p>Remarks: Impurities: Impurities do not contribute to the classifica- tion. For full text of abbreviations: see SECTION 16.</p>	yes

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4.1	Following inhalation: Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus. In case of respiratory tract irritation, consult a physician.	Following inhalation: Provide fresh air. If breathing is irregular or stopped, immediately seek medical assistance and start first aid actions. Mouth to mouth resuscitation should be avoided. Use alternative methods, preferably with oxygen or compressed air driven apparatus. In case of respiratory tract irritation, consult a physician. If intensive inhalation of dust seek medical treatment immediately. Rinse nose and mouth with water thoroughly.	yes
4.1	Following skin contact: Brush off loose particles from skin. - Rinse skin with water/shower. If skin irritation or rash occurs: Get medical advice/attention.	Following skin contact: Brush off loose particles from skin. Rinse skin with water/shower. Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.	yes
4.2	Most important symptoms and effects, both acute and delayed: Inhalation of dust may cause respiratory irritation.	Most important symptoms and effects, both acute and delayed: Pulmonary irritation. Gastrointestinal complaints. Cough. Vomiting. Inhalation of dust may cause respiratory irritation.	yes
4.3	Indication of any immediate medical attention and special treatment needed: Subsequent observance for pneumonia and pulmonary oedema.	Indication of any immediate medical attention and special treatment needed: Subsequent observance for pneumonia and pulmonary oedema. Symptoms may develop several hours following exposure; medical observation therefore necessary for at least 48 hours.	yes
5.1	Suitable extinguishing media: D-powder, in case of fire: Use metal fire powder to extinguish - never use water	Suitable extinguishing media: D-powder, dry sand, in case of fire: Use metal fire powder to extinguish - never use water (hydrogen formation)	yes
5.2	Special hazards arising from the substance or mixture	Special hazards arising from the substance or mixture: Deposited combustible dust has considerable explosion potential. Hazardous combustion products: Smoke. Fire class: D.	yes
5.2		Incomplete combustion products, smoke, mist, vapor: Metal oxide smoke, toxic	yes
5.3	Advice for firefighters: In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance. In case of fire: Evacuate area. Co-ordinate firefighting measures to the fire surroundings.	Advice for firefighters: In case of fire and/or explosion do not breathe fumes. Co-ordinate firefighting measures to the fire surroundings. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance. In case of fire: Evacuate area. Keep people away and stay on the upwind side.	yes
6.1		Suitable fabric for personal protective clothing: Flame retardant antistatic protective clothing. Protective clothing for use against solid particulates. Personal protective equipment: see section 8.	yes

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6.4	Reference to other sections: Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.	Reference to other sections: Hazardous combustion products: see section 5. Personal protective equipment: see section 8. Incompatible materials: see section 10. Disposal considerations: see section 13.	yes
7.1	Precautions for safe handling	Precautions for safe handling: Do not breathe dust.	yes
7.1	<ul style="list-style-type: none"> <li>Measures to prevent fire as well as aerosol and dust generation: Measures to prevent aerosol and dust generation. Use local and general ventilation. Avoidance of ignition sources. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Removal of dust deposits. Only vacuum cleaners containing no ignition sources may be used for combustible dusts. Use explosion-proof electrical/ventilating/lighting equipment. Ground/bond container and receiving equipment. Store in a dry place. Keep in a cool place. Read label before use. Employ good industrial hygiene practice.</li> </ul>	<ul style="list-style-type: none"> <li>Measures to prevent fire as well as aerosol and dust generation: Measures to prevent aerosol and dust generation. Dust deposits may accumulate on all deposition surfaces in a technical room. Use local and general ventilation. Avoidance of ignition sources. Keep away from sources of ignition - No smoking. Take precautionary measures against static discharge. Use only in well-ventilated areas. Removal of dust deposits. Only vacuum cleaners containing no ignition sources may be used for combustible dusts. Store in a dry place. Read label before use. Employ good industrial hygiene practice.</li> </ul>	yes
7.1	<ul style="list-style-type: none"> <li>Warning: Dust deposits may accumulate on all deposition surfaces in a technical room. Danger of dust explosion.</li> </ul>	<ul style="list-style-type: none"> <li>Warning: Layers, deposits and heaps of combustible dust must be considered, like any other source which can form a hazardous explosive atmosphere. The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion. Dust deposits may accumulate on all deposition surfaces in a technical room. Welding, burning, sawing, brazing, grinding or machining operations may generate fumes and dusts. Do not use water on molten metal.</li> </ul>	yes
7.1		<ul style="list-style-type: none"> <li>Keep away from: acids - caustic solutions - oxidisers - other chemicals</li> </ul>	yes
7.2	<ul style="list-style-type: none"> <li>Explosive atmospheres: Removal of dust deposits. Only vacuum cleaners containing no ignition sources may be used for combustible dusts.</li> </ul>	<ul style="list-style-type: none"> <li>Explosive atmospheres: Removal of dust deposits. Only vacuum cleaners containing no ignition sources may be used for combustible dusts. Use explosion-proof equipment if high dust/air concentrations are possible.</li> </ul>	yes
7.2	<ul style="list-style-type: none"> <li>Do not mix with: acids - caustic solutions - oxidisers - water</li> </ul>	<ul style="list-style-type: none"> <li>Do not mix with: acids - caustic solutions - oxidisers - other chemicals</li> </ul>	yes
7.2	<ul style="list-style-type: none"> <li>Control of effects</li> </ul>	<ul style="list-style-type: none"> <li>Control of effects: Protect from moisture.</li> </ul>	yes
7.3		Specific end use(s): See section 16 for a general overview.	yes
8.1		<ul style="list-style-type: none"> <li>relevant DNELs of components of the mixture: change in the listing (table)</li> </ul>	yes

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8.1		Source (DNEL, PNEC): Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA).	yes
8.2	Appropriate engineering controls: General ventilation.	Appropriate engineering controls: Control of dust. Provision of sufficient ventilation. Use explosion-proof equipment if high dust/air concentrations are possible.	yes
8.2	Individual protection measures (personal protective equipment)	Individual protection measures (personal protective equipment): Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. Flame retardant antistatic protective clothing.	yes
8.2	• hand protection: Wear protective gloves.	• general notes: Wear suitable gloves.	yes
8.2		• type of material: Leather (EN 388/II); For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves.	yes
8.2		• material thickness: -	yes
8.2		• breakthrough times of the glove material: -, The breakthrough time must be greater than the end use time of the product	yes
8.2	• other protection measures: Take recovery periods for skin regeneration. Preventive skin protection (barrier creams/ointments) is recommended. Wash hands thoroughly after handling.	• other protection measures: Take recovery periods for skin regeneration. Wash hands thoroughly after handling. Preventive skin protection (barrier creams/ointments) is recommended.	yes
8.2	Respiratory protection: Adequate particulate filter (EN 143). Control parameters Diiron trioxide (CAS# 1309-37-1), Iron oxide (CAS# 1345-25-1)	Respiratory protection: Avoid breathing dust P2 (filters at least 94 % of airborne particles, colour code: White).	yes
8.2		Thermal hazards: Wear protective clothing for protection against heat and flame.	yes
9.1		Melting point/freezing point: 1,530 – 1,580 °C at 101 hPa	yes
9.1		Boiling point / Initial boiling point and boiling range: The study does not need to be conducted (REACH, annex VII)	yes
9.1		Flammability: non-combustible	yes
9.1		Explosive limits: not relevant (solid matter)	yes

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9.1		Explosion limits of dust clouds: the product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion	yes
9.1		Flash point: The study does not need to be conducted (REACH, Annex VII)	yes
9.1		Auto-ignition temperature: Not determined	yes
9.1		Decomposition temperature: Not relevant	yes
9.1		pH (value): Not applicable	yes
9.1		Viscosity: not relevant (solid matter)	yes
9.1		kinematic viscosity: not relevant (solid matter)	yes
9.1		Solubility(ies)	yes
9.1		Water solubility: 1 µg/l at 20 °C	yes
9.1		Partition coefficient	yes
9.1		Partition coefficient n-octanol/water (log value): The study does not need to be conducted (REACH, Annex VII)	yes
9.1		Vapour pressure: The study does not need to be conducted (REACH, Annex VII)	yes
9.1		Density and/or relative density	yes
9.1		Density: 8.2 <sup>9</sup> /cm <sup>3</sup> at 20 °C	yes
9.1		Particle characteristics: Granulate	yes
9.1		Particle size: 0 – 15 mm	yes
9.2	Other physical and chemical parameters	Other information: There is no additional information  Accumulation of fine dust may entail the risk of a dust explosion in the presence of air and an ignition source.	yes
9.2	pH (value): not applicable	General hazards based on physical properties	yes
9.1	Melting point/freezing point: 1530 - 1580 °C at 101 hPa		yes
9.1	Initial boiling point and boiling range: not determined		yes

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9.1	Flash point: not applicable		yes
9.1	Evaporation rate: not determined		yes
9.1	Flammability (solid, gas): Product is combustible non-flammable		yes
9.1	Explosion limits of dust clouds: not determined		yes
9.1	Vapour pressure: not determined		yes
9.1	Density: 8.2 g/cm <sup>3</sup> at 20 °C		yes
9.1	Solubility(ies)		yes
9.1	Water solubility: 1 mg/l at 20 °C		yes
9.1	Partition coefficient		yes
9.1	n-octanol/water (log KOW): this information is not available		yes
9.1	Auto-ignition temperature: not determined		yes
9.1	Viscosity: not relevant (solid matter)		yes
9.1	Explosive properties: none		yes
9.1	Oxidising properties: none		yes
9.2	Dust explosion class: Particle size:		yes
11.1	Classification procedure: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).		yes

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9.2		Information with regard to physical hazard classes: Hazard classes acc. to GHS:  2.1 Explosive: Shall not be classified as explosive: Metal. 2.2 Flammable gases: Non-gaseous. 2.3 Aerosols: No aerosol. 2.4 Oxidising gases: Non-gaseous. 2.5 Gases under pressure: Non-gaseous. 2.6 Flammable liquid: Non-liquid. 2.7 Flammable solid: Non-flammable. 2.8 Self-reactive substances and mixtures: Shall not be classified as self-reactive: Metal. 2.9 Pyrophoric liquids: Non-liquid. 2.10 Pyrophoric solids: Non-pyrophoric. 2.11 Self-heating substances and mixtures: Non-self-heating. 2.12 Substances and mixtures, which emit flammable gases in contact with water: Shall not be classified as water-reactive. 2.13 Oxidising liquids: Non-liquid. 2.14 Oxidising solids: Not oxidising. 2.15 Organic peroxide: Shall not be classified as an organic peroxide. 2.16 Corrosive to metals: Non-corrosive to metals.	yes
9.2		Other safety characteristics: There is no additional information.	yes
10.2	Chemical stability: See below "Conditions to avoid".	Chemical stability: The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.	yes
10.3	Possibility of hazardous reactions: Danger of dust explosion.	Possibility of hazardous reactions: Reacts violently with: Oxidisers, Acid,	yes
10.4	Conditions to avoid: There are no specific conditions known which have to be avoided.	Conditions to avoid: Keep away from alkalis. - Keep away from acids. - Keep away from: water	yes
10.4		Hints to prevent fire or explosion: The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.	yes
10.5	Incompatible materials: acids - bases - oxidisers	Incompatible materials: acids - bases - oxidisers - (see section 7.2 of the safety data sheet)	yes
10.6	Hazardous decomposition products: Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.	Hazardous decomposition products: Hazardous combustion products: see section 5. Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known.	yes
11.1	Classification according to GHS (1272/2008/EC, CLP): This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.	Classification according to GHS (1272/2008/EC, CLP): General information on classifications: This mixture does not meet the criteria for classification in accordance with Regulation No 1272/2008/EC.	yes

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11.1		Acute toxicity estimate (ATE) of components of the mixture: change in the listing (table)	yes
11.1		Acute toxicity: dermal irritation/corrosion: change in the listing (table)	yes
11.1		Acute toxicity: eye irritation/corrosion: change in the listing (table)	yes
11.1		Skin sensitisation: change in the listing (table)	yes
11.1	Specific target organ toxicity (STOT): Shall not be classified as a specific target organ toxicant.		yes
11.1		Mutagenicity: change in the listing (table)	yes
11.1		Reproductive toxicity: change in the listing (table)	yes
11.1		Symptoms related to the physical, chemical and toxicological characteristics	yes
11.1		• Delayed and immediate effects as well as chronic effects from short and long-term exposure	yes
11.1		Chronic toxicity: change in the listing (table)	yes
11.1	Other information: Other clearly identified properties.	Other information: Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA).	yes
11.2		Information on other hazards	yes
11.2		Endocrine disrupting properties: Information on this property is not available.	yes
12.1	Toxicity: Shall not be classified as hazardous to the aquatic environment.	Toxicity: acc. to 1272/2008/EC: Test data are not available for the complete mixture. Shall not be classified as hazardous to the aquatic environment.	yes
12.1	Biodegradation: The relevant substances of the mixture are readily biodegradable.		yes
12.2	Persistence and degradability: Data are not available.	Persistence and degradability: Inorganic product which is not eliminable from water through biological cleaning processes.	yes
12.2		Degradability of organic substances: The study does not need to be conducted because the substance is inorganic.	yes
12.2		Biodegradation: The study does not need to be conducted because the substance is inorganic.	yes



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12.5	Results of PBT and vPvB assessment: Data are not available.	Results of PBT and vPvB assessment: The study does not need to be conducted because the substance is inorganic. According to the results of its assessment, this substance is not a PBT or a vPvB.	yes
12.6	Other adverse effects: Data are not available.	Endocrine disrupting properties: None of the ingredients are listed.	yes
12.7		Other information: Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA).	yes
13.1		Product/packaging disposal	yes
13.1		Waste code: Proposed waste code(s) for the used product (2018/C 124/01): Off-specification batches and unused products (16 03). Inorganic wastes other than those mentioned in 16 03 03 (16 03 04). Notation: These codes are assigned based upon the most common uses for this material and may not reflect contaminants resulting from actual use. Waste producers need to assess the actual process used when generating the waste and its contaminants in order to assign the proper waste disposal code(s). MFSU	yes
13.1	Waste treatment-relevant information: Recycling/reclamation of metals and metal compounds. Recycling/reclamation of other inorganic materials.	Waste treatment-relevant information (COMMISSION REGULATION (EU) No 1357/2014): Recycling/reclamation of metals and metal compounds (R4). Exchange of waste for submission to any of the operations numbered r 1 to r 11 (R12). Storage of waste pending any of the operations numbered r 1 to r 12 (excluding temporary storage, pending collection, on the site where the waste is produced) (R13).	yes
13.1	Waste treatment of containers/packagings: Completely emptied packages can be recycled.	Waste treatment of containers/packagings: Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.	yes
13.2		Other disposal recommendations: Data are not available.	yes
13.3		Properties of waste which render it hazardous (COMMISSION REGULATION (EU) No 1357/2014): Non-hazardous waste.	yes
14.1		ADR/RID/ADN: Not subject to ADR, RID and ADN	yes
14.1		IMDG-Code: Not subject to IMDG	yes
14.1		ICAO-TI: Not subject to ICAO-IATA	yes
14.2	UN proper shipping name: not relevant	UN proper shipping name: Not assigned	yes

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14.3	Transport hazard class(es)	Transport hazard class(es): None	yes
14.3	Class: -		yes
14.4	Packing group: not relevant	Packing group: Not assigned	yes
14.5	Environmental hazards: none (non-environmentally hazardous acc. to the dangerous goods regulations)	Environmental hazards: Non-environmentally hazardous acc. to the dangerous goods regulations	yes
14.7	Transport in bulk according to Annex II of MARPOL and the IBC Code: The cargo is not intended to be carried in bulk.	MARPOL (Maritime transport in bulk according to IMO instruments): (International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")). Shall not be classified as a marine pollutant.	yes
14.8		Information for each of the UN Model Regulations	yes
14.8		Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)Additional information: not assigned	yes
14.8		International Maritime Dangerous Goods Code (IMDG)Additional information: Not subject to IMDG.	yes
14.8		International Civil Aviation Organization (ICAO-IATA/DGR)Additional information: Not subject to ICAO-IATA.	yes
15.1		Restrictions according to REACH, Annex XVII: None of the ingredients are listed.	yes
15.1		List of substances subject to authorisation (REACH, Annex XIV) / SVHC - candidate list: None of the ingredients are listed.	yes
15.1		Seveso Directive: not listed	yes
15.1		Regulation 166/2006/EC concerning the establishment of a European Pollutant Release and Transfer Register (PRTR): none of the ingredients are listed	yes
15.1		Water Framework Directive (WFD) Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD)	yes
15.1		Water Framework Directive (WFD) Directive 2000/60/EC establishing a framework for Community action in the field of water policy (WFD): change in the listing (table)	yes

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
15.1		REGULATION (EU) 2019/1021 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 20 June 2019 on persistent organic pollutants: None of the ingredients are listed.	yes
15.1		National regulations (United Kingdom): Please consider the relevant national or regional provisions.	yes
15.2	Chemical Safety Assessment	Chemical Safety Assessment: No Chemical Safety Assessment has been carried out for this mixture by the supplier.	yes
15.4		National inventories	yes
15.4		National inventories: change in the listing (table)	yes
16.2		Abbreviations and acronyms: change in the listing (table)	yes
16	Key literature references and sources for data: - Regulation (EC) No. 1907/2006 (REACH), amended by 2015/830/EU - Regulation (EC) No. 1272/2008 (CLP, EU GHS) - Registered substances acc. to 1907/2006/EC, Article 6, 7 - Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA) - GESTIS-Stoffdatenbank <a href="http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Stoffdatenbank/index.jsp">http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Stoffdatenbank/index.jsp</a> - Bretherick's Handbook of Reactive Chemical Hazards. 7th Edition, Elsevier Academic Press, 2007 - GESTIS-STAU-EX <a href="http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-STAU-EX/index.jsp">http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-STAU-EX/index.jsp</a>		yes

# Safety Data Sheet

according to UK REACH

(REACH etc. (Amendment etc.) (EU Exit) Regulations 2019)

## Ferroniobium

Version number: GHS 2.0  
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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
16.3		<p>Key literature references and sources for data:</p> <ul style="list-style-type: none"> <li>- ECHA: <a href="https://echa.europa.eu/de/information-on-chemicals/registered-substances">https://echa.europa.eu/de/information-on-chemicals/registered-substances</a></li> <li>- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures</li> <li>- Regulation (EC) No. 1907/2006 (REACH)</li> <li>- Registered substances acc. to 1907/2006/EC, Article 6, 7</li> <li>- Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA)- Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)</li> <li>- International Maritime Dangerous Goods Code (IMDG)</li> <li>- Dangerous Goods Regulations (DGR) for the air transport (IATA)- GESTIS-Stoffdatenbank, <a href="https://www.dguv.de/ifa/gestis/stoffdatenbank/index.jsp">https://www.dguv.de/ifa/gestis/stoffdatenbank/index.jsp</a></li> <li>- GESTIS-Stoffdatenbank <a href="http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Stoffdatenbank/index.jsp">http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Stoffdatenbank/index.jsp</a></li> <li>- Bretherick's Handbook of Reactive Chemical Hazards. 7th Edition, Elsevier Academic Press, 2007</li> <li>- Georg Brauer: Handbuch der präparativen anorganischen Chemie. 3rd edition, 1981</li> <li>- Fire and Explosion Hazards Handbook of Industrial Chemicals, Nicholas P. Cheremisinoff &amp; Tatyana A. Davletshina, Noyes Publications, 1998</li> <li>- Sax's Dangerous Properties of Industrial Materials, Eleventh Edition, Richard J. Lewis Sr., John Wiley &amp; Sons, Inc., 2004</li> <li>- CRC Handbook of Chemistry and Physics, 87th Edition, 2007</li> <li>- Wiley Guide to Chemical Incompatibilities, 3rd Edition, 2009</li> <li>- EPA Data (US EPA (<a href="https://chemview.epa.gov">https://chemview.epa.gov</a>))</li> </ul>	yes
16.5	List of relevant phrases (code and full text as stated in chapter 2 and 3)	List of relevant phrases (code and full text as stated in section 2 and 3): not relevant.	yes
16.6		<p>Training advice: There is no additional information.</p>	yes
16.7	<p>Disclaimer: This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.</p>	<p>Relevant identified uses: Alloying element; Manufacture of basic metals, including alloys; Manufacture of fabricated metal products, except machinery and equipment; Cored wire</p>	yes
16.7		<p>Industrial uses</p> <p>List of use descriptors: Source: Chemical safety report (CSR), Registration dossier.</p>	yes

# Safety Data Sheet

according to UK REACH

(REACH etc. (Amendment etc.) (EU Exit) Regulations 2019)

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Section	Former entry (text/value)	Actual entry (text/value)	Safety-relevant
16.7		Product category/ies [PC]: Base metals and alloys (PC7); Metal surface treatment products, including galvanic and electroplating products (PC14); Non-metal-surface treatment products (PC15); Laboratory chemicals (PC21); Welding and soldering products (with flux coatings or flux cores), flux products (PC38)	yes
16.7		Process category [PROC]: Use in closed process, no likelihood of exposure (PROC1); Use in closed, continuous process with occasional controlled exposure (PROC2); Use in closed batch process (synthesis or formulation) (PROC3); Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4); Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC5); Industrial spraying (PROC7); Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities (PROC8a); Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC8b); Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9); Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14); Heat and pressure transfer fluids in dispersive, professional use but closed systems (PROC20); Low energy manipulation of substances bound in materials and/or articles (PROC21); Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting (PROC22); Open processing and transfer operations with minerals/metals at elevated temperature (PROC23); High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24); Other hot work operations with metals (PROC25); Handling of solid inorganic substances at ambient temperature (PROC26)	yes
16.7		Sector(s) of use [SU]: Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU13); Manufacture of basic metals, including alloys (SU14); Manufacture of fabricated metal products, except machinery and equipment (SU15); Manufacture of computer, electronic and optical products, electrical equipment (SU16); General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment (SU17); Building and construction work (SU19); Health services (SU20); Scientific research and development (SU24)	yes
16.7		Disclaimer: This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.	yes

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### 16.2 Abbreviations and acronyms

Abbr.	Descriptions of used abbreviations
ADN	Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures (European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways)
ADR	Accord relatif au transport international des marchandises dangereuses par route (Agreement concerning the International Carriage of Dangerous Goods by Road)
ADR/RID/ADN	Agreements concerning the International Carriage of Dangerous Goods by Road/Rail/Inland Waterways (ADR/RID/ADN)
AF	Assessment Factor
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
CLP	Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
CMR	Carcinogenic, Mutagenic or toxic for Reproduction
DGR	Dangerous Goods Regulations (see IATA/DGR)
DMEL	Derived Minimal Effect Level
DNEL	Derived No-Effect Level
ECHA	European Chemicals Agency, <a href="http://echa.europa.eu/">http://echa.europa.eu/</a>
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EH40/2005	EH40/2005 Workplace exposure limits ( <a href="http://www.nationalarchives.gov.uk/doc/open-government-licence/">http://www.nationalarchives.gov.uk/doc/open-government-licence/</a> )
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EPA Data	US EPA ( <a href="https://chemview.epa.gov">https://chemview.epa.gov</a> )
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
ICAO-TI	Technical instructions for the safe transport of dangerous goods by air
IMDG	International Maritime Dangerous Goods Code
IMDG-Code	International Maritime Dangerous Goods Code
index No	The Index number is the identification code given to the substance in Part 3 of Annex VI to Regulation (EC) No 1272/2008
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
MFSU	Manufacture, Formulation, Supply and Use
NLP	No-Longer Polymer
NOAEC	No Observed Adverse Effect Concentration
NOAEL	No Observed Adverse Effect Level
PBT	Persistent, Bioaccumulative and Toxic

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Abbr.	Descriptions of used abbreviations
PNEC	Predicted No-Effect Concentration
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Règlement concernant le transport International ferroviaire des marchandises Dangereuses (Regulations concerning the International carriage of Dangerous goods by Rail)
STEL	Short-term exposure limit
SVHC	Substance of Very High Concern
TWA	Time-weighted average
VOC	Volatile Organic Compounds
vPvB	Very Persistent and very Bioaccumulative
WEL	Workplace exposure limit

### 16.3 Key literature references and sources for data

- ECHA: <https://echa.europa.eu/de/information-on-chemicals/registered-substances>
- Regulation (EC) No 1272/2008 on classification, labelling and packaging of substances and mixtures
- Regulation (EC) No. 1907/2006 (REACH)
- Registered substances acc. to 1907/2006/EC, Article 6, 7
- Acc. to the REACH registration dossiers, submitted by industry to the European Chemical Agency (ECHA)
- Transport of dangerous goods by road, rail and inland waterway (ADR/RID/ADN)
- International Maritime Dangerous Goods Code (IMDG)
- Dangerous Goods Regulations (DGR) for the air transport (IATA)
- GESTIS-Stoffdatenbank, <https://www.dguv.de/ifa/gestis/gestis-stoffdatenbank/index.jsp>
- GESTIS-Stoffdatenbank  
<http://www.dguv.de/ifa/Gefahrstoffdatenbanken/GESTIS-Stoffdatenbank/index.jsp>
- Bretherick's Handbook of Reactive Chemical Hazards. 7th Edition, Elsevier Academic Press, 2007
- Georg Brauer: Handbuch der präparativen anorganischen Chemie. 3rd edition, 1981
- Fire and Explosion Hazards Handbook of Industrial Chemicals, Nicholas P. Cheremisinoff & Tatyana A. Davletshina, Noyes Publications, 1998
- Sax's Dangerous Properties of Industrial Materials, Eleventh Edition, Richard J. Lewis Sr., John Wiley & Sons, Inc., 2004
- CRC Handbook of Chemistry and Physics, 87th Edition, 2007
- Wiley Guide to Chemical Incompatibilities, 3rd Edition, 2009
- EPA Data (US EPA (<https://chemview.epa.gov>))

### 16.4 Classification procedure

Physical and chemical properties: The classification is based on tested mixture.  
Health hazards/environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

### 16.5 List of relevant phrases (code and full text as stated in section 2 and 3)

not relevant.

### 16.6 Training advice

There is no additional information.

### 16.7 Relevant identified uses

Alloying element; Manufacture of basic metals, including alloys; Manufacture of fabricated metal products, except machinery and equipment; Cored wire



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### Industrial uses

#### List of use descriptors:

**Source:** Chemical safety report (CSR), Registration dossier.

#### Product category/ies [PC]

Base metals and alloys (PC7); Metal surface treatment products, including galvanic and electroplating products (PC14); Non-metal-surface treatment products (PC15); Laboratory chemicals (PC21); Welding and soldering products (with flux coatings or flux cores), flux products (PC38)

#### Process category [PROC]

Use in closed process, no likelihood of exposure (PROC1); Use in closed, continuous process with occasional controlled exposure (PROC2); Use in closed batch process (synthesis or formulation) (PROC3); Use in batch and other process (synthesis) where opportunity for exposure arises (PROC4); Mixing or blending in batch processes for formulation of preparations and articles (multistage and/or significant contact) (PROC5); Industrial spraying (PROC7); Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at non dedicated facilities (PROC8a); Transfer of substance or preparation (charging/discharging) from/to vessels/large containers at dedicated facilities (PROC8b); Transfer of substance or preparation into small containers (dedicated filling line, including weighing) (PROC9); Production of preparations or articles by tableting, compression, extrusion, pelletisation (PROC14); Heat and pressure transfer fluids in dispersive, professional use but closed systems (PROC20); Low energy manipulation of substances bound in materials and/or articles (PROC21); Potentially closed processing operations with minerals/metals at elevated temperature; industrial setting (PROC22); Open processing and transfer operations with minerals/metals at elevated temperature (PROC23); High (mechanical) energy work-up of substances bound in materials and/or articles (PROC24); Other hot work operations with metals (PROC25); Handling of solid inorganic substances at ambient temperature (PROC26)

#### Sector(s) of use [SU]

Manufacture of other non-metallic mineral products, e.g. plasters, cement (SU13); Manufacture of basic metals, including alloys (SU14); Manufacture of fabricated metal products, except machinery and equipment (SU15); Manufacture of computer, electronic and optical products, electrical equipment (SU16); General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment (SU17); Building and construction work (SU19); Health services (SU20); Scientific research and development (SU24)

### Disclaimer

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