

## MSDS: Invar® (FeNi36)

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### 1 Identification

#### 1.1 Product identifier

Trade Name: Invar®

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

Alloy in form of semi-finished products according to the trade names, high strength alloys (depending on the trade name concerned) supplied as solid, compact and non-inhalable metal in the form of slabs or hot or cold rolled strips.

Industrial uses: Uses of substances as such or in preparations at industrial sites. Manufacture of basic metals, including alloys. Manufacture of fabricated metal products, except machinery and equipment. Manufacture of computer, electronic and optical products, electrical equipment. General manufacturing, e.g. machinery, equipment, vehicles, other transport equipment. Electricity, steam, gas water supply and sewage treatment.

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

Lamineries Matthey, branch of Notz Metall AG  
Rue Montagu 38,  
CH-2520 La Neuveville,  
Switzerland  
e-mail: sales@matthey.ch  
Website: www.matthey.ch

#### 1.4 Emergency telephone number

Tox Info Suisse  
From Switzerland: call 145  
From abroad: call +41 44 251 51 51

Remarks for information sheet:

Semi-finished products from iron and iron-alloys are articles according to Regulation (EC) No. 1907/2006 (REACH Regulation). For articles there is no legal obligation to issue a safety data sheet. However, to be able to provide information typically included in a safety data sheet also for articles, the present information sheet for articles has been worked out.

We expressly point out that the information sheet for articles is a voluntarily issued information sheet which is not subject to the formal requirements of the REACH Regulation.

### 2 Hazards identification

#### 2.1 Classification of the substance

Classification according to Regulation (EC) No 1272/2008 (CLP-Regulation):  
Semi-finished products are not classified within the scope of the CLP-regulation.

#### 2.2 Label according to Regulation (EC) N°. 1272/2008

<b>Hazard Pictograms:</b>	Not applicable
<b>Signal Word:</b>	Not applicable
<b>Hazard Statements:</b>	Not applicable
<b>Precautionary statements:</b>	Not applicable
<b>Supplemental label information:</b>	Not applicable

#### 2.3 Other hazards

##### Results of PBT and vPvB assessment

PBT: Not applicable  
vPvB: Not applicable

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### 3 Composition/information on ingredients

#### 3.1 General information

Description:	Metal in compact form.
Material code (EN)	FeNi36
Material number (DIN):	1.3912
UNS number:	K93600

#### Information:

The classifications listed below reflect the classification of the relevant alloying constituents and are only for information. Mentioned percentages are references values.

Chemical Element	% Weight	CAS-Nº	EINECS-Nº	Classification according to Regulation EC Nº 1278/2008
Nickel	35.00 - 37.00	7440-02-0	231-111-4	⚠ Carc. 2 H351; STOT RE 1H372; ⚠ Skin Sens. 1 H317
Iron	Balance	7439-89-6	231-130-8	-
Manganese	0.00 - 0.60	7439-96-5	231-105-1	⚠ Water-react.1, H260
Cobalt	0.00 - 0.50	7440-48-4	231-158-0	⚠ Resp. Sens. 1, H334; Muta. 2, H341; Carc. 1B, H350; Repr. 1B, H360F; ⚠ Skin Sens. 1, H317; Aquatic Chronic 4, H413
Silicon	0.00 - 0.40	7440-21-3	231-096-4	⚠ Flam. Sol. 2 H228
Chromium	0.00 - 0.25	7440-47-3	231-157-5	⚠ Flam. Sol. 2 H228, ⚠ Carac. 2 H351, ⚠ Aquatic Chronic 1 H410
Carbon	0.00 - 0.15	7440-44-0	231-153-3	-
Phosphorous	0.00 - 0.025	7723-14-0	231-768-7	⚠ Flam. Sol. 1, H228; ⚠ Repr. 2, H361
Sulfur	0.00 - 0.025	7704-34-9	231-722-6	⚠ Skin Irrit. 2, H315

### 4 First-aid measures

#### 4.1 General information

There is no immediate medical risk associated with these alloys in massive form. If exposed or concerned: get medical attention/advice. Wash contaminated clothing before reuse. First aid measures provided are related to particulate containing beryllium.

#### 4.2 Inhalation

Breathing difficulties caused by inhalation of particulate requires immediate removal to fresh air. If breathing has stopped, perform artificial respiration and obtain medical help.

#### 4.3 Skin contact

Cuts should be treated by normal first aid. Embedded foreign bodies must be removed. Copper beryllium that becomes lodged under the skin has the potential to induce sensitization to beryllium. If rashes or other skin effects develop, obtain medical help.

#### 4.4 Eye contact

There is no special hazard to the eyes. Avoid transferring particulate material to the eyes from the hands. Any particulate which does enter the eyes could cause damage to the eye and surrounding tissues and should be removed by copious flushing with clean water, obtain medical help.

#### 4.5 Ingestion

The alloys are not toxic, but ingestion should be avoided including ingestion via hand-to-mouth activity such as eating, drinking, smoking. In case of accidental swallowing of dust or powder induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. If unconscious, obtain medical help.

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### 5 Firefighting measures

#### 5.1 General information

The alloys are non-flammable.

#### 5.2 Extinguishing media

**Suitable:** Do not use water in fire-fighting metal melting operations.

**Unsuitable:** To avoid risk of explosion, dry sand or other fire-fighting powders should be used.

#### 5.3 Advice for firefighters

Firefighters shall use full protective equipment. No especial measures are required.

### 6 Accidental release measures

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

In solid form this material poses no special clean-up problems.

#### 6.2 Environmental precautions

Not required.

#### 6.3 Methods and material for containment and cleaning up

Clean up and dispose the material according to local regulations.

#### 6.4 Reference to other sections

For information on safe handling, see Section 7.

For personal protection, see Section 8.

For waste disposal, see Section 13.

### 7 Handling and storage

#### 7.1 Handling

No special precautions are required for handling alloys in massive forms. Use gloves when handling sharp edged alloy products, to prevent metal cuts.

#### 7.2 Storage

No special precautions required. No prohibitions for mixed-goods-storage.

Storage in dry conditions.

#### 7.3 Specific end uses

No further relevant information available.

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### 8 Exposure controls and personal protection

#### 8.1 Control parameters

The relevant national limit specifications should be observed at workplace. **Limits of airborne substances in the place of work: Short-term Exposure Limit and Time weighted Average in accordance with SUVA (Switzerland).**

Substance	CAS-Nº.	Type	Value
Nickel	7440-02-0	VME	0.50 mg/m <sup>3</sup>
Cobalt	7440-48-4	VME	0.05 mg/m <sup>3</sup>
Chromium	7440-47-3	VME	0.50 mg/m <sup>3</sup>
Silicon	7440-21-3	VME	3.00 mg/m <sup>3</sup>
Phosphorous	7723-14-0	VME	0.02 mg/m <sup>3</sup>
		VLE	0.02 mg/m <sup>3</sup>

**Biological Limit Values in Workplace (BAT-Wert) in accordance with SUVA.**

Substance	CAS-Nº.	Type	Value	Analysis
Nickel	7440-02-0	VBT	45 µg/l	Urine
Cobalt	7440-48-4	VBT	30 µg/l	Urine

Additional Occupational Exposure Limit Values for possible hazards during processing:

General dust limit (A - alveolar fraction, E - respirable fraction)	
SUVA (Switzerland)	(A) 3 mg/m <sup>3</sup> , (E) 10 mg/m <sup>3</sup>
TRGS 900 (Germany)	

#### 8.2 Exposure controls

##### Personal protective equipment:

- **Respiratory protection:**  
Use a suitable industrial gas mask when work-place-limits are exceeded.
- **Eye protection:**  
For processing the alloys the use of safety glasses is recommended as required by the various operations, so for example safety glasses with side protection, closed safety glasses/goggles or face shields.
- **Hand protection:**  
Follow the standard workplace hygiene recommendations. Gloves against particulate/cuts. If necessary use disposable gloves, protection against particulate, under work gloves, protection against cuts, for example leather gloves, against mechanical risks.
- **Body protection:**  
Wear suitable protective clothing, depending upon how the product are further processed.

### 9 Physical and chemical properties

#### 9.1 Information on basic physical and chemical properties

<b>Physical State:</b>	Solid matter.
<b>Form:</b>	Various shapes.
<b>Colour:</b>	Silver-gray metallic
<b>Odour:</b>	Odorless.
<b>Odour threshold:</b>	Not applicable.
<b>Melting point / melting range:</b>	1450 °C
<b>Boiling point / boiling range:</b>	Not applicable.
<b>Flash point:</b>	Not applicable.
<b>Explosive properties:</b>	Not explosive.
<b>Density at 20°C:</b>	8.13 g/cm <sup>3</sup> .
<b>Solubility in / miscibility with water:</b>	Insoluble.
<b>Vapour pressure:</b>	Not applicable.
<b>Vapour density:</b>	Not applicable.
<b>Viscosity:</b>	Not applicable.

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### 9.2 Other information:

Not applicable

## 10 Stability and reactivity

### 10.1 Reactivity

Not applicable

### 10.2 Chemical stability

The material under normal conditions is stable.

### 10.3 Possibility of hazardous reactions

No dangerous reactions known.

### 10.4 Conditions to avoid

Avoid dust/ small particles formation. Contact with acids. Contact with alkalis.

### 10.5 Incompatible materials

Strong acids, alkalis and oxidizing agents.

### 10.6 Hazardous decomposition products

No dangerous decomposition known.

## 11 Toxicological information

### 11.1 Information on likely routes of exposure

Occupational exposure to the substance or mixture may do not cause health hazard effects if handled properly.

<b>Inhalation:</b>	No irritant effects
<b>Skin Contact:</b>	No irritant effects
<b>Eye contact:</b>	No irritant effects
<b>Ingestion:</b>	No irritant effects

### 11.2 Information of toxicological effects

<b>Acute toxicity:</b>	No irritant effects
<b>Skin corrosion/irritation:</b>	No irritant effects
<b>Serious damage/eye irritation:</b>	No irritant effects
<b>Ingestion:</b>	No irritant effects
<b>Respiratory sensitisation:</b>	No irritant effects
<b>Skin sensitisation:</b>	No irritant effects
<b>Germ cell mutagenicity:</b>	No irritant effects
<b>Reproductive toxicity:</b>	No irritant effects
<b>Carcinogenicity:</b>	No irritant effects
<b>Other information:</b>	No irritant effects

## 12 Ecological information

### 12.1 Aquatic toxicity

No further relevant information available.

### 12.2 Persistence and degradability

No further relevant information available.

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### 12.3 Bioaccumulative potential

No further relevant information available.

### 12.4 Mobility in soil

No further relevant information available.

### 12.5 Results of PBT and vPvB assessment

No further relevant information available.

### 12.6 Other adverse effects

No further relevant information available.

## 13 Disposal considerations

### 13.1 Waste treatment methods

<b>Residual waste:</b>	For scrap consult Lamineries MATTHEY.
<b>Contaminated packaging:</b>	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Metal scrap is a valuable raw material and easy to recycle for reuse. Disposal recommendations are based on material as supplied.
<b>Disposal methods/information:</b>	Waste disposal key (for non-contaminated waster): 12 01 01: ferrous metal filings and turnings 16 01 17: ferrous metal

## 14 Transport information

### 14.1 UN-Number

ADR, AND, IMDG, IATA      Void

### 14.2 UN proper shipping name

ADR, AND, IMDG, IATA      Void

### 14.3 Transport hazard class(es)

ADR, AND, IMDG, IATA Class      Void

### 14.4 Packing group

ADR, IMDG, IATA      Void

### 14.5 Environmental hazards

ADR, IMDG, IATA      Void

### 14.6 Special precautions for user

ADR, ADN, IMDG, IATA, RID      Void

### 14.7 Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:

Not regulated as dangerous goods.

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### 15 Regulatory information

**Chemical safety assessment** : Void

Directive 2012/18/EU

Named dangerous substances - ANNEX I None of the ingredients is listed

Water hazard class: Generally not hazardous for water.

Other regulations, limitations an prohibitive regulations:

Substances of very high concern (SVHC) according to REACH, Article 57	
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### 16 Other information

The information on this Material Data Sheet (MSDS) is believed to be correct by the time of the date issued. All data used were from sources considered to be technically reliable and the information is believed to be correct. The user is responsible to evaluate all available information when using this product for any particular use and to comply with all Federal, State, Provincial and Local laws, statutes and regulations.

To avoid any misunderstandings or incorrect assumptions by the receiver of the safety information, it should be made clear that the supplied information is actually a voluntary Product information Sheet closely following the guidelines of the Guidance on the compilation of Safety data Sheets - Regulation (EU) 2020/878. of December 2020 (REACH/SDS).