LAMINERIES MATTHEY
NOTZ group advanced metal solutions

MATERIAL SAFETY DATA SHEET

MSDS: Alloy 360 (NiBe2)

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

1.1 Product identifier

Trade Name: **Alloy 360 (Nickel Beryllium Alloy)**

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 conductivity and 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 Information in case of emergency

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

Remarks for information sheet:
Semi-finished products from nickel and nickel 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) Nº. 1272/2008

Hazard Pictograms:

Signal Word: Danger

Hazard Statements: May cause an allergic skin reaction. May cause respiratory irritation. May cause cancer by inhalation. Causes damage to organs (respiratory system) through prolonged or repeated exposure

Precautionary statements:

Prevention: Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Minimize dust generation and accumulation. Do not breathe dust/fume. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection. In case of inadequate ventilation wear respiratory protection

Response:	If on skin: Wash with plenty of water. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/physician. If skin irritation or rash occurs: Get medical advice/attention. If experiencing respiratory symptoms: Call a poison center/doctor. Wash contaminated clothing before reuse.
Storage:	Store locked up.
Disposal:	Dispose of contents/container in accordance with local/regional/national/international regulations.
Supplemental label information:	when melting, casting, dross handling, pickling, chemical cleaning, heat treating, abrasive cutting, welding, grinding, sanding, polishing, milling, crushing, or otherwise heating or abrading the surface of this material in a manner which generates particulate.

2.3 Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable
vPvB: Not applicable

2.4 Other hazards

None known.

3 Composition/information on ingredients

Description:	Metal in compact form.
Material code (DIN)	NiBe2
Material number (DIN)	-
UNS-number:	N03360

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

3.1 General information

Chemical Element	% Weight	CAS-Nº	EINECS-Nº	Classification according to Regulation EC Nº 1278/2008
Nickel	Balance	7440-02-0	231-100-4	Skin Sens. 1;H317, STOT SE 3;H335, Carc. 2; H351, STOT RE 2;H373
Beryllium	1.85 - 2.05	7440-41-7	231-150-7	Skin Sens. 1;H317; STOT SE 3; H335; Carc. 1B;H350i; STOT RE 1;H372.
Titanium	0.40 - 0.60	7440-32-6	231-142-3	Pyr.Sol.1, H250
Copper	0.00 - 0.25	7440-50-8	231-159-6	Aquatic Chronic 2, H411
Iron	0.00 - 0.20	7439-89-6	231-130-8	-
Silicon	0.00 - 0.20	7440-21-3	231-096-4	Flam. Sol. 2, H228

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

Take off contaminated clothing and wash before reuse. Thoroughly wash skin cuts or wounds to remove all particulate debris from the wound. Seek medical attention for wounds that cannot be thoroughly cleansed. Treat skin cuts and wounds with standard first aid practices such as cleansing, disinfecting and covering to prevent wound infection and contamination before continuing work. Obtain medical help for persistent irritation. Material accidentally implanted or lodged under the skin must be removed.

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. Immediately flush eyes with plenty of water for at least 15 minutes, lifting lower and upper eyelids occasionally.

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.

4.6 Indication of immediate medical and special treatment

Treatment of Chronic Beryllium Disease: There is no known treatment which will cure chronic beryllium disease. Prednisone or other corticosteroids are the most specific treatment currently available. They are directed at suppressing the immunological reaction and can be effective in diminishing signs and symptoms of chronic beryllium disease. In cases where steroid therapy has had only partial or minimal effectiveness, other immunosuppressive agents, such as cyclophosphamide, cyclosporine, or methotrexate, have been used. In view of the potential side effects of all the immunosuppressive medications, including steroids such as prednisone, they should be used only under the direct care of a physician. Other treatment, such as oxygen, inhaled steroids or bronchodilators, may be prescribed by some physicians and can be effective in selected cases. In general, treatment is reserved for cases with significant symptoms and/or significant loss of lung function. The decision about when and with what medication to treat is a judgment situation for individual physicians.

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. Wear appropriate protective equipment and clothing during clean-up.

6.2 Environmental precautions

Avoid release to the environment. In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations. Prevent further leakage or spillage if safe to do so. Avoid discharge into drains, water courses or onto the ground.

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 personal protection, see Section 8 of this document.
For waste disposal, see Section 0 of this document.

7 Handling and storage

7.1 Handling

No special precautions are required for handling alloys in massive forms. Use local exhaust ventilation when particulate (dust, mist, fume) is present - ref. to 8.2. Use gloves when handling sharp edged alloy products, to prevent metal cuts and when particulate is present, to prevent sensitization. If necessary use disposable gloves (nitrile or vinyl) under work gloves to prevent against mechanical risks - ref. to 8.2.

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.

8 Exposure controls and personal protection

8.1 Control parameters

The relevant national limit specifications should be observed. **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	Form
Copper	7440-50-8	VLE	0.20 mg/m^3	Inhalable fraction
		VME	0.10 mg/m^3	Inhalable fraction
Beryllium	7440-41-7	VME	0.006 mg/m^3	Inhalable fraction
Nickel	7440-02-0	VME	0.50 mg/m^3	Inhalable fraction

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

Substance	CAS-Nº.	Type	Value	Analysis
Nickel	7440-02-0	BAT-Wert	45 µg/l	Urine

8.2 Exposure controls

Personal protective equipment:

- **Respiratory protection:**
  - Any process which could generate airborne particulate (dust, mist, fume) from the alloys must be provided with proper controls to ensure that airborne levels are kept as far below the Occupational Exposure Standards as is practically possible – ref. to item 8.1.
  - Control to the above standards is achieved by means of local exhaust ventilation fitted with appropriate filtration of category K1 – ref. to 8.1. Activities without full protection, such as repair and maintenance of machinery, processing equipment or ductwork, melting and casting operations, or filter change may require the use of personal respiratory protective equipment and protective over-garments. Clothing contaminated by such work must be handled in a controlled manner in order to prevent secondary exposure of workers or third parties.
  - The installation and use of local exhaust ventilation and the use of respiratory equipment requires specialist advice and approval in order to ensure full protection.
  - Operations which require controls include any form of abrasive machining or cutting, grinding, polishing, electro discharge machining, welding, melting and casting. Operations which may not require controls (but need risk analysis) include stamping and forming, milling, general handling and heat treatment in air below about 400 °C. Heat treatment

above this temperature in air could generate loose oxide scale which might become airborne. This can be minimized by heat treating above 400 °C in inert atmosphere.

If observance of the limits cannot be guaranteed by means of exhausters, personnel should be provided with face or breathing masks with breathing filter class P3.

Particle filter P2	Particle filter P3	in combination with: - ref. BIA [1]
10 times exposure limit	30 times exposure limit	Half-/ quarter mask or particle filtered half mask / FPP2 / FPP3)
15 times exposure limit	400 times exposure limit	Full mask / mouthpiece garniture

[1] Recommended by BIA (German Professional Associations' Institute for Occupational Safety).

- **Eye protection:**
  For processing the alloys the use of safety glasses is recommended as required by the various operations, so for example safety classes with side protection, closed safety classes/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

Physical State:	Solid matter.
Form:	Various shapes.
Colour:	Silver
Odour:	Odorless.
Odour threshold:	Not applicable.
Melting point / melting range:	1195 - 1325 ºC
Boiling point / boiling range:	Not applicable.
Flash point:	Not applicable.
Explosive properties:	Not explosive.
Density at 20°C:	8.25 g/cm^3.
Solubility in / miscibility with water:	Insoluble.
Vapour pressure:	Not applicable.
Vapour density:	Not applicable.
Viscosity	Not applicable.

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 cause adverse effects.

Inhalation:	May cause damage to organs (respiratory system) through prolonged or repeated exposure.
Skin Contact:	The alloy is classified as potential sensitizer by skin contact (Xi; R43), based its beryllium content.
Eye contact:	No effects due to the product form.
Ingestion:	No effects due to the product form.

11.2 Information of toxicological effects

Acute toxicity:	May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction
Skin corrosion/irritation:	May cause allergic skin reaction.
Serious damage/eye irritation:	Harmful in contact with eyes
Ingestion:	No effects due to the product form.
Respiratory sensitisation:	May cause damage to organs (respiratory system) through prolonged or repeated exposure.
Skin sensitisation:	May cause allergic skin reaction.
Germ cell mutagenicity:	Not applicable
Reproductive toxicity:	Not applicable
Carcinogenicity	Cancer hazard.
Other information	Symptoms may be delayed.

12 Ecological information

12.1 Aquatic toxicity

Substance	CAS-Nº.	Aquatic		Species	Test Results
Alloy 360	7440-02-0	Acute	-		
		Fish	LC50	Rainbow trout, Donaldson trout (Oncorhynchus mykiss)	0.061 mg/l, 4 days
Components					
Copper	7440-50-8	Acute	-	-	-
		Crustacea	EC50	Blue crab (Callinectes sapidus)	0,0031 mg/l
		Fish	LC50	Fathead minnow (Pimephales promelas)	0,0219 - 0,0446 mg/l, 96 hours
Nickel	7440-02-0	Acute	-	-	-

		Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0,06 mg/l, 4 days

12.2 Persistence and degradability

No further relevant information available.

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

Residual waste:	For scrap consult Lamineries MATTHEY.
Contaminated packaging:	Since emptied containers may retain product residue, follow label warnings even after container is emptied.
Disposal methods/information:	Metal scrap is a valuable raw material and easy to recycle for reuse. Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

14 Transport information

14.1 UN-Number

ADR, AND, IMDG, IATA	Not regulated as dangerous goods.

14.2 UN proper shipping name

ADR, AND, IMDG, IATA	Not regulated as dangerous goods.

14.3 Transport hazard class(es)

ADR, AND, IMDG, IATA Class	Not regulated as dangerous goods.

14.4 Packing group

ADR, IMDG, IATA	Not regulated as dangerous goods.

14.5 Environmental hazards

ADR, IMDG, IATA	Not regulated as dangerous goods.

14.6 Special precautions for user

ADR, ADN, IMDG, IATA, RID	Not regulated as dangerous goods.

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

Not regulated as dangerous goods.

15 Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

EU regulations

Regulation (EC) No. 1005/2009 on substances that deplete the ozone layer, Annex I and II, as amended

Not listed.

Regulation (EU) 2019/1021 On persistent organic pollutants (recast), as amended

Not listed.

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended

Not listed

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended

Not listed

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended

Not listed

Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended

Not listed

Regulation (EC) No. 166/2006 Annex II Pollutant Release and Transfer Registry, as amended

Copper (CAS 7440-50-8)
Beryllium (CAS 7440-41-7)

Regulation (EC) No. 1907/2006, REACH Article 59(10) Candidate List as currently published by ECHA

Not listed

Restrictions on use

Regulation (EC) No. 1907/2006, REACH Annex XVII Substances subject to restriction on marketing and use as amended

Beryllium (CAS 7440-41-7)
Nickel (CAS7440-02-0)

Directive 2004/37/EC: on the protection of workers from the risks related to exposure to carcinogens and mutagens at work, as amended.

Beryllium (CAS 7440-41-7)

Other EU regulations

Directive 2012/18/EU on major accident hazards involving dangerous substances, as amended

Copper (CAS 7440-50-8)
Beryllium (CAS 7440-41-7)

Other regulations

Young people under 18 years old are not allowed to work with this product according to EU Directive 94/33/EC on the protection of young people at work. Pregnant women should not work with the product, if there is the least risk of exposure. The product is classified and labelled in accordance with Regulation (EC) 1272/2008 (CLP Regulation) as amended.

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).