

**EC - Safety Data Sheet acc. to Guideline 93/112/C
91/155/EEC, 93/112/EC, 2001/58/EC and TRGS 220**

Trade names : NiCr20, NiCr15Fe (Inconel), CuNi44Mn1, CuNi12Zn24,
CuNi18Zn20, CuNi9Sn2, CuNi30Mn1Fe, CuNi44Mn1, NiCu30Fe (Monel) ,
NiMo16Cr15W, NiMo28, Durnico, Durinox



Supplier : Lamineries Matthey SA
Edition 1 issued : 07.05.2007

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1. Identification of preparation and company

Preparation: nickel-containing alloys in form of semi-finished products according to the trade names, corrosion resistant or heat-resistant metal 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.

Application : as materials with exceptional characteristics with regard to corrosion resistance, physical or mechanical properties as mentioned in the relevant material data sheet. Supplied in semi-finished form for further processing for products in (e. g.) the consumer-goods sector, automotive, medical sector, watch industry and chemical processing equipment.

Manufacturer/Supplier:

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2. Composition/Ingredients

Pure nickel, binary alloys Ni-Cu, Ni-Cr or Ni-Mo, ternary alloys Ni-Cr-Fe or Ni-Cr-Mo with possibly additional elements such as cobalt, molybdenum, manganese, zinc, silicon, aluminum or carbon.

CAS-N°	% by mass	Name	EINECS- /EC-N°	INDEX- N°	EU - Classification
7440-02-0	> 10	Nickel	231-111-4	028-002-00-7	R 40, R 43
7440-47-3	0-40	Chromium	231-157-5		
7440-48-4	0 - 40	Cobalt	231-158-0	027-001-00-9	R 42/ R 43, R 53
7439-98-7	0 - 30	Molybdenum	231-107-2		
7440-50-8	0 - 70	Copper	231-159-6		

The amount of nickel and cobalt in the alloy as much as the other alloy components are indicated in the material data sheets. Alloys are preparations according to the directives 67/548/EEC and 1999/45/EC.

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3. Hazard identification

Nickel containing alloys:

Hazard Designation: Xn Harmful, Classification: R 40, R 43

Cobalt containing alloys:

Hazard Designation: Xn Harmful, Classification: R 42 / R 43, R 53

- Causes concern owing to possible carcinogenic effects but in respect of which the available information is not adequate for making satisfactory assessment (R40 or category 3 carcinogens).
- May cause sensitization by skin contact (R43).

Machining, welding and thermal cutting may cause dust or fumes which may be harmful to human health when being inhaled. According to the EU classification of carcinogenic substances in category 3 nickel in breathable condition is causing concern for man owing to possible carcinogenic effects, and there is sufficient evidence in humans for the carcinogenicity of combinations of nickel sulphides and oxides encountered in the nickel refining industry. However, the specific carcinogenic substances could not be identified. The cancer hazards seemed to be associated with previously used methods of nickel refining. Short-term exposure may cause irritation of the upper respiratory tract. However several reliable studies of workers in the nickel manufacturing industries exposed to various forms of nickel and nickel-containing materials have not shown any increased risk of cancer.

Prolonged direct skin contact may cause dermatitis in nickel-sensitized persons.

Information Pertaining to Particular Dangers: Handling of the products may cause injury by cutting.

Additional hazard warnings involving man and environment: In the form in which they are placed into circulation the alloys as in Sect. 1 have to date not been found to have any harmful effect on human health or the environment. Thermal and mechanical processing can produce fumes and dust which can, in the event of excessive exposure, lead to acute irritation of the eyes and respiratory organs and to long-term harm, especially to the lungs (cf. Sect. 8, 11).

4. First-aid measures

The measures described below concern emissions of dusts and/or fumes.

After inhalation: supply of fresh air, call a doctor if need be,
After skin contact: not applicable,
After eye contact: rinse with fresh water having the eyelid opened, call a doctor if need be
After swallowing: not applicable

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5. Fire fighting measures

Suitable extinguishing agents: use fire-fighting measures that suit the environment.
Protective equipment: no special measures required.

6. Accidental release measures

Person-related safety precautions: avoid causing dust.
Measures for environmental protection: no special measures required.
Measures for cleaning / collecting: dispose of contaminated material as waste according to item 13

7. Handling und storage

7.1 Handling:

Information for safe handling: Don't breathe in grinding dust, polishing dust, fumes generated by cutting and welding or any aerosols. Ensure good ventilation 1 exhaustion at the workplace. Information about protection against explosions and fires: keep breathing equipment ready.

7.2 Storage:

Requirements to be met by storerooms and containers: no special requirements.
Information about storage in one common storage facility: not applicable.
Further information about storage conditions: not applicable,
Storage class, - class according to regulation on
inflammable liquids: not applicable.

7.3 Specific uses:

The material complies with the requirements of Directive 2002/95/EC on the restriction of the use of certain hazardous substances in electrical and electronic equipment and of the Directive 2000/53/EC on end-of life vehicles: it is free from any additions of the hazardous substances mentioned in both directives.

8. Exposure controls and personal protection

8.1 Exposure limit values :

There are no occupational exposure limits for the alloys as in Sect. 1, although some do apply to certain elements contained in these preparations, such as Fe, Co, Ni, Cr, Mn and Mo and/or some of their compounds. The relevant national limit specifications

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should be observed.

Limits of airborne substances in the place of work in accordance with TRGS 900

Substance	CAS-No.	Type ⁺	Value [*] [mg/m ³]
Aluminum	7429-90-5		ASG
Aluminum oxide	1344-28-1		ASG
Chromium (VI) compounds, other than those insoluble in water - manual arc-welding with covered rod electrodes - other		TRK TRK	0.1E 0.05 E
Iron (II) oxide	1345-25-1		ASG
Iron (III) oxide	1309-37-1		ASG
Copper	7440-50-8	7440-50-8	MAK
Fumes containing copper	7440-50-8	7440-50-8	MAK
Manganese	7439-96-5	7439-96-5	MAK
Molybdenum (and other insoluble molybdenum compounds)		7439-98-7	ASG
Nickel in metallic form	7440-02-0	7440-02-0	MAK
Nickel compounds in the form of inhalable droplets		TRK	0,05 E
Nickel oxide	1313-99-1	1313-99-1	TRK
Niobium (and other insoluble niobium compounds)	7440-03-1	7440-03-1	MAK
Titanium dioxide	13463-67-7		ASG

⁺ MAK: Maximum allowable concentration

TRG: Technical reference concentration

* E: Inhalable fraction

A: Alveolar fraction

ASG: General limit value for dust

8.2 Exposure controls:

During thermal and mechanical processing (e. g. welding, cutting, grinding) fumes and dust can be produced with constituents underlying certain limit values. Suitable exhausters should be fitted for this reason.

Respiratory protection: 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.

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Eye protection: Suitable goggles should be worn to protect against airborne dust, flying sparks etc.

Hand / body protection: May become necessary depending on the activity being performed.

Skin protection: Wear protective clothes to avoid direct contact with the material to be handled and to keep off any dust which may develop.

9. Physical and chemical properties

9.1 General Information:

Physical State: solid matter.

Colour: silver grey up to yellow or red (Cupronickel). In special cases the materials may be delivered to the customer with an oxidized surface of bluish-black color.

Smell: odorless.

9.2 Important health, safety and environmental information:

Melting point / melting range: 900°C to 1500°C (alloy specific).

Boiling point / boiling range: unknown.

Flash point: not applicable.

Danger of explosion: product is not explosive.

Density at 20°C: 7.0 to 9.5 g/cm³.

Solubility in / miscibility with water: insoluble.

9.3 Other information: not applicable

10. Stability and reactivity

Stable under normal conditions for the storage and transport of solid substances.

10.1 Conditions to avoid: not applicable.

10.2 Materials to avoid: contact with acids may result in the release of toxic nitrogen oxide and of hydrogen which can result in explosive gases mixtures when mixed with air. It is, therefore, recommended to ask for expert advice before bringing the materials in contact with acids.

10.3 Hazardous decomposition products: no hazardous decomposition products known.

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11. Toxicological information

The preparations as in Sect. 1 are compact solids and normally cannot be breathed in or swallowed. Regardless of this, there would be no acute toxic affect if these would be breathed in or swallowed

11.1 Inhalation:

According to the EU classification of carcinogenic substances in category 3 nickel in breathable condition is causing concern for man owing to possible carcinogenic effects, and there is sufficient evidence in humans for the carcinogenicity of combinations of nickel sulphides and oxides encountered in the nickel refining industry. However, the specific carcinogenic substances could not be identified. The cancer hazards seemed to be associated with previously used methods of nickel refining. Short-term exposure may cause irritation of the upper respiratory tract. However several reliable studies of workers in the nickel manufacturing industries exposed to various forms of nickel and nickel-containing materials have not shown any increased risk of cancer.

11.2 Skin:

Prolonged direct skin contact may cause dermatitis in nickel-sensitized persons. Directive 67/548/EEC classifies nickel as a skin sensitizer, i.e. prolonged direct contact with the skin (e. g. when wearing articles of jewellery) can lead to sensitization of susceptible individuals. According to Directive 1999/45/EC all preparations containing min. 1 % nickel by mass are in principle likewise to be classified as sensitizers (cf. Sect. 3)

12. Ecological information

Non-hazardous to water as far as being solid.

13. Disposal considerations

Metal scrap is a valuable raw material and easy to recycle for reuse. Disposal in waste dumps is not harmful to the environment, but it is a waste of valuable natural resources and should therefore be avoided

The preparations as in Sect. 1 do not cause contamination of the packaging materials employed.

14. Transport information

Non-dangerous good according to transport regulations.

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15. Regulatory information

Labeling according to EU Directive 67/548/EEC: not required.
Code letter and hazard designation of product: Xn Harmful.

Risk phrases:

- 40 Limited evidence of carcinogenic effect,
- 42 May cause sensitization by inhalation (cobalt, related to the production and manufacturing of powders being not considered with this safety data sheet),
- 43 May cause sensitization by skin contact,
- 53 May cause long-term adverse effects in the aquatic environment (cobalt, related to the production and manufacturing of powders being not considered with this safety data sheet).

Safety phrases:

- 22 Do not breathe dust,
- 24 Avoid contact with skin (cobalt, related to the production and manufacturing of powders being not considered with this safety data sheet),
- 36 Wear suitable protective clothing,
- 37 Wear suitable gloves (cobalt, related to the production and manufacturing of powders being not considered with this safety data sheet),
- 61 Avoid release to the environment. Refer to special instructions/safety data sheet (cobalt, related to the production and manufacturing of powders being not considered with this safety data sheet).

National regulations: According to national law.

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16. Other information

List of relevant R-phrases :

- 40 Limited evidence of carcinogenic effect,
- 42 May cause sensitization by inhalation (cobalt)
- 43 May cause sensitization by skin contact,
- 53 May cause long-term adverse effects in the aquatic environment (cobalt)

Literature:

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The details are based on our current stand of knowledge, however, they neither depict assurance of product properties nor establish any contractually legal relationship.

This material safety data sheet describes products of Lamineries Matthey SA with respect to their safety requirements. The details given are based on the information and experience available, but they do not provide or imply guarantees regarding product characteristics, nor do they suppose a legal or contractual obligation of any kind.