MATERIAL SAFETY DATA SHEET

Product Name: Nickel-Magnesium – Silicon-Iron

Contact Information:

Miller and Company LLC
9700 West Higgins Road
Suite 1000
Rosemont, IL 60018

Phone #: 847-696-2400

Emergency Phone: Chemtrec: 800-262-8200

Prepared by: H. Fred Linebarger

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1. Product identifier

Product Name : Nickel-Magnesium-Silicon-Iron

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

Specific use(s) : Production of alloys

Recommended use
S4A (stainless, special steels and special alloy custers); Integrated steel and iron; EAF carbon steel; Powder metallurgy; Metal surface treatment (Nickel electroplating and nickel electroforming technologies); Manufacturing of batteries using positive nickel electrodes; Ni catalyst production from NiO-containing catalyst precursor; Use pre-reduced nickel containing catalyst; Production of magnets; Production of nickel containing products (e.g. Electronics); Production of brazing alloys; Production of contact materials; Sputter deposition; Thin film deposition by evaporation techniques

Uses advised against
1. Nickel in articles intended for direct and prolonged skin contact
2. Nickel-containing food contact materials for which migration into foodstuff would exceed more than mg/kg of nickel in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials (2002)
3. Nickel-containing HIGH SULPHUR stainless steel for surgical implants
4. Immersion-type kettles which would release more than 0.05 mg/l of nickel into the water in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials (2002)

2. HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

2.1.1. Classification according to EU Directives 67/548/EEC or 1999/45/EC

Classification : The product is dangerous in accordance with Directive 1999/45/EC
T; R40-43-48/23

2.2. Label elements

2.2.1. Labeling according to Directives 67/548/EEC – 1999/45/EC

Not applicable (see section 15)

2.3. Other hazards

2.3.1 Results of PBT and vPvB assessment

PBT: Not applicable; vPvB: Not applicable

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Mixtures

EC Classification No. 67/548/EEC

Hazardous ingredient(s)	%W/W	Cas No.	EC No.	REACH Registration No.	EC Classification and Risk Phrases
Nickel	60	7440-02-0	231-111-4	01-2119438727-29	T; R40-43-48/23
Magnesium	16	7439-95-4	231-104-6	Registration 2013	Not classified
Silicon	5,5	7440-21-3	231-130-8	01-2119480401-47	Not classified
Iron	remainder	7439-89-6	231-096-4	scrap (exempted)	Not classified

Full text of R-phrases : see section 16.

SVHC: This mixture does not contain substance classified as a SVHC

Identification of the mixture: alloy

4. FIRST AID MEASURES

4.1. Description of first aid measures

Inhalation	:	Move to fresh air. In case of shortness of breath, give oxygen. Consult a physician.
Skin Contact	:	Wash off with plenty of water. Wash contaminated clothing before reuse. If skin irritation persists, call a physician.
Eye contact	:	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician immediately.
Ingestion	:	Never give anything by mouth to an unconscious person. Do not induce vomiting without medical advice. Drink plenty of water. Call a physician immediately.

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

Inhalation	:	Inhalation of fumes may cause metal fume fever with the following symptoms: shivers, fever, metal taste in mouth, headache and irritation of the respiratory system (irritation of mucous membranes).
Skin contact	:	Smoke may be irritating.
Eye contact	:	Smoke may be irritating.
Ingestion	:	Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

4.3. Indication of immediate medical attention and special treatment needed

Treatment	:	When symptoms persist or in all cases of doubt seek medical advice.

5. FIRE-FIGHTING MEASURES

5.1. Extinguishing media

Suitable extinguishing media	:	class-D fire-extinguishing material (dry chemical powder)
Extinguishing media which shall not be used	:	water

5.2. Special hazards arising from the substance or mixture

Specific hazards	:	Avoid direct viewing of fire as an eye injury may result.

5.3. Advice for fire-fighters

Special protective equipment for fire-fighters : In the event of fire, wear self contained breathing apparatus. Wear personal protective equipment (face-shield, gloves).

6. ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions : Wear personal protective equipment. See also section 8.

6.2. Environmental precautions

Environmental precautions : Sweep or shovel spills. See also section 13.

6.3. Methods and materials for containment and cleaning up

Methods for cleaning up : Remove all sources of ignition. Sweep up and shovel into suitable containers for disposal (avoid dust formation). Keep in properly labeled containers. See also section 7, 8.

7. HANDLING AND STORAGE

7.1. Precautions for safe handling

Handling : Keep dry prior to charging into a furnace. Provide appropriate exhaust ventilation at machinery. Avoid dust formation.
As offered this product has no known adverse effect on human health.
Avoid formation of respirable particles. During handling operations: do not breath dust. Wear personal protective equipment. see also section 8.
Avoid contact with skin and eyes. Protect against water.

7.2. Conditions for safe storage, including any incompatibilities

Storage : Keep in properly labeled containers. Keep tightly closed in a dry, cool, and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition. Protect against water.

Hygiene measures : When using, do not eat, drink or smoke. Wash hands and face before breaks and immediately after handling the product. Handle in accordance with good industrial hygiene and safety practice.

7.3. Specific end use (s)

Specific use (s) : Production of alloys

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Exposure limit(s) TLV-ACGIH : Ni: 1 mg/m^3
MgO: 10 mg/m^3
Si: 10 mg/m^3
Fe_2O_3: 5 mg/m^3

8.2. Exposure controls

Respiratory protection	:	In case of insufficient ventilation wear suitable respiratory equipment (EN146 – EN 149).
Hand protection	:	Wear protective gloves (EN 388 – EN 407).
Eye protection	:	Wear safety goggles (EN 166 – EN 169).
Skin and body protection	:	Wear suitable protective clothing (EN 531 – EN 533).
Engineering measures	:	Ensure adequate ventilation. Protect against water.
Environmental exposure controls	:	Provide sufficient mechanical ventilation to maintain the concentration of dust below the admissible limit values.

9. PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Appearance	:	Lumps 4-10, 50-100 mm			
Colour	:	Silvery-white	Oxidizing limits	:	Not applicable
Odour	:	Garlic-like	Evaporation rate	:	No data available
pH	:	Not applicable	Vapour pressure	:	No data available
Boiling point	:	No data available	Vapour density	:	No data available
Melting point	:	1150 ℃	Water solubility	:	In soluble
Flash point	:	Not applicable	Viscosity	:	Not applicable
Flammability	:	See also section 10	Density	:	± 6,5
Explosion limits	:	Not applicable	Partition coefficient	:	Not applicable

9.2. Other information

No data available

10. STABILITY AND REACTIVITY

10.1. Reactivity

Reactivity	:	Stable under normal conditions. See also section 10.5.

10.2. Chemical stability

Stability	:	Stable under normal conditions.

10.3. Possibility of hazardous reactions

Hazardous reactions	:	None under normal processing.

10.4. Conditions to avoid

Conditions to avoid	:	Finely divided powder may be flammable at high temperature. Moisture and air sensitive.

10.5. Incompatible materials

Incompatible materials	:	strong acids, oxidizing agents and halogens; reacts with acids to form flammable/explosive hydrogen gases

10.6. Hazardous decomposition products

Hazardous decomposition products : harmful fumes

11.TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Acute toxicity

No data available

Inhalation : Inhalation of fumes may cause metal fume fever with the following symptoms: shivers, fever, metal taste in mouth, headache and irritation of the respiratory system (irritation of mucous membranes).

Skin contact : Smoke may be irritating.

Eye contact : Smoke may be irritating.

Ingestion : Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic toxicity

Chronic toxicity : Prolonged and repeated exposure may aggravate existing chronic respiratory problems such as asthma, emphysema or bronchitis. Nickel is carcinogen to humans in inhalable form.

11.2. Further information

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12. ECOLOGICAL INFORMATION

12.1. Toxicity

No data available

12.2. Persistence and degradability

Persistence and degradability : Not applicable

12.3. Bioaccumulative potential

Bioaccumulation : No data available
Partition coefficient: n-octanol/water : Not applicable

12.4. Mobility in soil

Mobility : Not applicable

12.5. Results of PBT and vPvB assessment

PBT/vPvB : This mixture contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This mixture contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

No data available.

13. DISPOSAL CONSIDERATIONS

13.1. Waste treatment/methods

Waste from residues / unused products : Where possible recycling is preferred to disposal or incineration. Dispose of in accordance with local regulations.

13.2. Additional information

No additional information available.

14. TRANSPORT INFORMATION

Not classified as dangerous in the meaning of transport regulations.

UN number	: Not applicable
Proper Shipping Name	: Not applicable
Transport hazard class(es)	: Not applicable
Packing Group	: Not applicable
Environmental hazards	: Not applicable
Special precautions for user	: Not applicable
Transport in bulk	: Not applicable

15.REGULATORY INFORMATION

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

15.1.1. EU-regulations

15.1.1.1.: Regarding labeling, point 1.3.4 of Annex I to CLP provides that metals in the massive form, as well as alloys, do not require a label if they do not present a hazard to human health by inhalation, ingestion or contact with skin or to the aquatic environment in the form in which they are placed on the market, although classified as hazardous in accordance with the classification criteria of CLP.

15.1.1.2.: Referring to Directive 2001/59/EG, concerning the classification, packaging and labeling of dangerous preparations – Annex VI article 9.3, master alloys are exempt from labeling.

15.1.2. National regulations

See section 15.1.1.

15.1.3. Substances of very high concern (SVHC) according to Reach, Article 57

The alloy does not contain substances of very high concern

15.2. Chemical Safety assessment

No data available

16. OTHER INFORMATION

16.1. Text of R-phrases mentioned in section 3

R40 : Limited evidence of a carcinogenic effect.
R43 : May cause sensitization by skin contact.
R48/23 : Toxic: danger of serious damage to health by prolonged exposure through inhalation.

16.2. Sources of key data used to compile the datasheet

European Chemicals Bureau, website: ecb.jrc.ec.europa.eu
The Sigma Aldrich Library of Chemical Safety Data
Echa: echa.europa.eu

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

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