SAFETY DATA SHEET

Nickel powder

The safety data sheet is in accordance with Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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

Date issued	12.06.2017
Revision date	17.02.2020

1.1. Product identifier

Product name	Nickel powder
REACH Reg. No.	01-2119438727-29-0055
CAS No.	7440-02-0
EC No.	231-111-4
Article no.	UT1, UT2, UT3, UT3-PM, UT3-ICG, UT3-ICGL, UT4, L5, L6, L7, L8, S-10, S-20, S-27, S-30, K-9, K-10
Extended SDS with ES incorporated	Yes

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

Use of the substance / preparation	S4A (stainless, special steels and special alloy casters) ;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 All identified uses are listed in the attached GES.
Uses advised against	Nickel-containing food contact materials for which migration into foodstuff would exceed more than 0,1 mg/kg of nickel in accordance with the Council of Europe Guidelines on metals and alloys used as food contact materials (2002). Nickel-containing HIGH SULPHUR stainless steel for surgical implants. 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). Use of nickel and nickel compounds in tattoo inks or permanent makeup products.

1.3. Details of the supplier of the safety data sheet

Manufacturer

Company name	JSC «Kola GMK»
Postal address	KGMK Industrial Site, Monchegorsk
Postcode	184507
City	Murmansk Region
Country	Russian Federation
Telephone number	+7(81536) 7-72-01
Fax	+7(81536) 7-99-86
Email	product.safety@nornickel.fi

1.4. Emergency telephone number

Emergency telephone	Description: 3E EH&S Mission Control Center: +44 20 35147487 / Access Code: 334656

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP / GHS]	Skin Sens. 1; H317 STOT RE 1; H372 Carc. 2; H351 Aquatic Chronic 3; H412

2.2. Label elements

Hazard pictograms (CLP)

Signal word	Danger
Hazard statements	H317 May cause an allergic skin reaction. H372 Causes damage to organs through prolonged or repeated exposure H351 Suspected of causing cancer . H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P202 Do not handle until all safety precautions have been read and understood. P280 Wear protective gloves / protective clothing / eye protection / face protection. P261 Avoid breathing dust / fume / gas / mist / vapours / spray. P333+P313 If skin irritation or rash occurs: Get medical advice / attention. P273 Avoid release to the environment.

2.3. Other hazards

PBT / vPvB	The PBT and vPvB criteria of Annex XIII to the regulation does not apply to

inorganic substances.

SECTION 3: Composition / information on ingredients

3.1. Substances

Substance	Identification	Classification	Contents	Notes
Nickel powder (particle diameter <1mm)	CAS No.: 7440-02-0 EC No.: 231-111-4	Skin Sens. 1; H317 STOT RE 1; H372 Carc. 2; H351 Aquatic Chronic 3; H412	≥ 97,9 %	

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Remove affected person from the immediate area. Ensure supply of fresh air. If breathing is irregular or stopped, administer artificial respiration. Consult a physician.
Skin contact	Wash off with soap and plenty of water. Remove soiled or soaked clothing immediately. Wash contaminated clothing before re-use.
Eye contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.
Ingestion	Rinse mouth. Consult a physician. Never give anything by mouth to an unconscious person.

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

General symptoms and effects	Treat symptomatically.

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

Medical treatment	No hazards which require special first aid measures.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Dry powder; Water spray jet; Foam; Carbon dioxide (CO2);
Improper extinguishing media	Not applicable.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	In the event of fire the following can be released: Metal dust; Metallic oxides;

5.3. Advice for firefighters

Personal protective equipment	Wear self-contained breathing apparatus and protective suit.
Other information	Collect contaminated fire extinguishing water separately. Do not discharge into the drains/surface waters/groundwater. Nickel is non-flammable, but very fine nickel particles can burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	Refer to protective measures listed in sections 7 and 8. Avoid contact with skin, eyes and clothing. Avoid dust formation. Provide good ventilation of working area (local exhaust ventilation if necessary).

6.2. Environmental precautions

Environmental precautionary measures	Avoid dust formation. Do not discharge into the drains/surface waters/ groundwater.

6.3. Methods and material for containment and cleaning up

Other information	Pick up mechanically. Send in suitable containers for recovery or disposal. (Section 13)

6.4. Reference to other sections

Other instructions	See also section 8,13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Avoid inhalation of dust and contact with skin and eyes. Use mechanical ventilation in case of handling which causes formation of dust. Avoid generating excess dust.

Protective safety measures

Advice on general occupational hygiene	Private clothes and working clothes should be kept separately.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store in tightly closed original container in a dry and cool place. Incompatible products Oxidiser storage. Acids

7.3. Specific end use(s)

Specific use(s)	Exposure scenario is attached. Generic exposure scenario available from: http://www.nickelconsortia.org/ exposure-scenario-library.html

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Substance	Identification	Exposure limits	TWA Year
Nickel*		Limit value (8 h) : 0,01 mg/	TWA Year: 2013

m3
Exposure limit letter
Letter description: Ni, alveol fraction
Source: HTP Finland

DNEL / PNEC

Substance	Nickel powder (particle diameter <1mm)
DNEL	**Group:** Professional **Route of exposure:** Acute inhalation (local) **Value:** 11.9 mg/m³ **Group:** Professional **Route of exposure:** Long-term inhalation (systemic) **Value:** 0.05 mg/m³ **Group:** Professional **Route of exposure:** Long-term dermal (local) **Value:** 0.035 **Reference:** mg Ni/cm2 **Group:** Professional **Route of exposure:** Long-term inhalation (local) **Value:** 0.05 mg/m³
PNEC	**Route of exposure:** Freshwater **Value:** 7,1 µg/l **Route of exposure:** Saltwater **Value:** 8,6 µg/l **Route of exposure:** Freshwater sediments **Value:** 109 mg/kg **Route of exposure:** Saltwater sediments **Value:** 109 mg/kg **Route of exposure:** Soil **Value:** 29,9 mg/kg **Route of exposure:** Sewage treatment plant STP **Value:** 0,33 mg/l

8.2. Exposure controls

Precautionary measures to prevent exposure

Appropriate engineering controls	Provide a good standard of general ventilation (not less than 3 to 5 air changes per hour).
Product related measures to prevent exposure	Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work. Do not breathe dust. Wear suitable protective equipment. Ensure that eyewash stations and safety showers are close to the workstation location. Remove soiled or soaked clothing immediately. Keep away from food, drink and animal feedingstuffs. Keep working clothes separately.

Eye / face protection

Suitable eye protection	Use eye protection. Wear full-face visor or shield.

Hand protection

Suitable gloves type	Wear protective gloves. Avoid prolonged skin contact.
Suitable materials	Leather. Nitrile.

Skin protection

Suitable protective clothing	Wear appropriate clothing to prevent reasonably probable skin contact. Wear special protective clothing.

Respiratory protection

Recommended type of equipment	Use respiratory equipment with particle filter, type P3.

Appropriate environmental exposure control

Environmental exposure controls	The employer shall fulfill requirements of IPPC Directive.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Powder
Colour	Silver-grey
Odour	odourless
Odour limit	Comments: Not relevant.
pH	Status: In delivery state Comments: Technically not feasible.
Melting point / melting range	Comments: 1455°C
Boiling point / boiling range	Comments: 2730°C
Flash point	Comments: Not applicable. inorganic
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit with unit of measurement	Comments: Not explosive
Upper explosion limit with units of measurement	Comments: Not explosive
Vapour pressure	Comments: 1 mmHg 1810°C
Relative density	Comments: 4-5 g/cm3
Partition coefficient: n-octanol/ water	Comments: Not applicable. inorganic
Spontaneous combustability	Comments: The product is not flammable.
Viscosity	Comments: Not applicable. Solid
Explosive properties	Not explosive

Oxidising properties	Not oxidizing.

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	No dangerous reaction known under conditions of normal use.

10.2. Chemical stability

Stability	Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.

10.4. Conditions to avoid

Conditions to avoid	Avoid dust formation.

10.5. Incompatible materials

Materials to avoid	Oxidizing agents; Reacts with acids to form flammable/explosive hydrogen gases.

10.6. Hazardous decomposition products

Hazardous decomposition products	Metallic oxides;

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance	Nickel powder (particle diameter <1mm)
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** > 9000 mg/kg **Type of toxicity:** Acute **Effect tested:** LC50 **Route of exposure:** Inhalation. **Value:** > 10,2 mg/l **Type of toxicity:** Acute **Effect tested:** NOAEL **Value:** 0,012 mg/kg bw /d **Comments:** Ni ion released from metallic nickel in water and food contact material

Other information regarding health hazards

Assessment of skin corrosion / irritation, classification	Non Corrosive to skin. Not Irritating.
General respiratory or skin sensitisation	Skin sens. 1 H317 May cause an allergic skin reaction. Not classified as Respiratory sensitizer.
Carcinogenicity, other information	Carc. 2 H351 Suspected of causing cancer via inhalation.
Assessment of specific target organ toxicity - repeated exposure, classification	STOT RE 1 H372 Causes damage to organs through prolonged or repeated exposure . Target Organs Lungs If inhaled LOAEC = 0.1 mg Ni/m³
Aspiration hazard, comments	Not Applicable - Inorganic chemical.

SECTION 12: Ecological information

12.1. Toxicity

Substance	Nickel powder (particle diameter <1mm)
Aquatic toxicity, fish	**Toxicity type:** Acute **Value:** 0,4 - 320 mg/l **Effect dose concentration :** LC50 **Exposure time:** 96 hour(s) **Test reference:** Pimephales promelas; Hoang et al., 2004 Brachydanio rerio; Janssen Pharmaceutica, 1993d **Toxicity type:** Chronic **Value:** 10 - 15420 µg/l **Effect dose concentration :** EC10 **Test reference:** Brachydanio rerio(Dave & Xiu, 1991) Brachydanio rerio (Kienle et al., 2009)
Ecotoxicity	Ecotoxicity Reference Value (ERV) Nickel compounds -acute 120 µg Ni/L (pH 6), 68 µg Ni/L (pH 8) -chronic = 2.4 µg Ni/L

12.2. Persistence and degradability

Persistence and degradability description/evaluation	Not Applicable - Inorganic chemical.

12.3. Bioaccumulative potential

Bioconcentration factor (BCF)	Value: 270
Bioaccumulation, evaluation	Bioconcentration Terrestrial Compartment BSAF 0.013-1.86

12.4. Mobility in soil

Mobility	Kp-Soil: log Kpsoil 2.86

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment	Not Classified as PBT/vPvB by current EU criteria.

12.6. Other adverse effects

Additional ecological information	Not known.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Appropriate methods of disposal for the chemical	Recover and reclaim or recycle, if practical. If recycling is not practicable, dispose of in compliance with local regulations.
Appropriate methods of disposal for the contaminated packaging	Contaminated packaging should be emptied as far as possible. Dispose of as hazardous waste in compliance with local and national regulations.

SECTION 14: Transport information

14.1. UN number

Comments	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.2. UN proper shipping name

Comments	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.3. Transport hazard class(es)

Comments	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.4. Packing group

Comments	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.5. Environmental hazards

Comments	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.6. Special precautions for user

Special safety precautions for user	The product is not covered by international regulation on the transport of dangerous goods (IMDG, IATA, ADR/RID).

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Transport in bulk (yes/no)	No

SECTION 15: Regulatory information

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

Substance	Nickel powder (particle diameter <1mm)
Restriction of chemicals according to Annex XVII (REACH)	27 Nickel CAS No 7440-02-0 EC No 231-111-4 and its compounds

15.2. Chemical safety assessment

Substance	Nickel powder (particle diameter <1mm)
Chemical safety assessment performed	Yes

SECTION 16: Other information

List of relevant H-phrases (Section 2 and 3)	H317 May cause an allergic skin reaction. H351 Suspected of causing cancer H351 Suspected of causing cancer . H372 Causes damage to organs through prolonged or repeated exposure H412 Harmful to aquatic life with long lasting effects.
Additional information	Disclaimer The information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any particular purpose, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from the use of this information or the product, the safety of this product, or the hazards related to its use. This information and product are furnished on the condition that the person receiving them shall make his own determination as to the suitability of the product for his particular purpose and on the condition that he assume the risk of his use thereof.
Key literature references and sources for data	Nickel metal CSR
Information added, deleted or revised	Change to Sections: Exposure scenario
Version	3
Exposure scenario	ENGLISH_20190627_SDS_ES_NICKEL METAL_DU.pdf