



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

- 1.1 Product identifier**
- 1.1.1 Commercial Product Name**
NICKEL SULPHATE
- REACH Registration Number**
01-2119439361-44-0002
- 1.2 Relevant identified uses of the substance or mixture and uses advised against**
- 1.2.1 Recommended use**
Plating agent; Battery manufacturing; Production of nickel salts from nickel sulphate
- Uses advised against
do-it-yourself nickel electroplating hobby kits
- 1.3 Details of the supplier of the safety data sheet**
- 1.3.1 Supplier**
Norilsk Nickel Harjavalta Oy
- Street address**
Teollisuuskatu 1
- Postcode and post office**
FIN 29200 Harjavalta
- Telephone**
+358 (0)2 53711
- Telefax**
+358 (0)2 5371 2250
- Email**
product.safety@nornik.fi
- 1.4 Emergency telephone number**
- 1.4.1 Telephone number, name and address**
Norilsk Nickel Harjavalta Oy +358 (0)2 537 11

SECTION 2. HAZARDS IDENTIFICATION

- 2.1 Classification of the substance or mixture**
1272/2008 (CLP)
Skin Irrit. 2, H315
Skin Sens. 1, H317
Muta. 2, H341
Acute Tox. 4, H302
Acute Tox. 4, H332
STOT RE 1, H372
Repr. 1B, H360D
Carc. 1A, H350I
Resp. Sens. 1, H334
Aquatic Acute 1, H400
Aquatic Chronic 1, H410
67/548/EEC - 1999/45/EC
Xn, N; R49-61-20/22-38-42/43-48/23-68-50/53
- 2.2 Label elements**
1272/2008 (CLP)
GHS09 - GHS07 - GHS08
Signal word **Danger**
- Hazard Statements**
- H315 Causes skin irritation.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
H302 Harmful if swallowed.





- H332 Harmful if inhaled.
- H372 lungs; inhaled
- H360D May damage the unborn child.
- H350I May cause cancer by inhalation.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H400 Very toxic to aquatic life.
- H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

- P261 Avoid breathing dust/fume/gas/mist/vapours/spray.
- P270 Do not eat, drink or smoke when using this product.
- P362 Take off contaminated clothing and wash before reuse.
- P273 Avoid release to the environment.
- P281 Use personal protective equipment as required.
- P308+P313 IF exposed or concerned: Get medical advice/attention.

2.3 Other hazards

The PBT and vPvB criteria of Annex XIII to the regulation does not apply to inorganic substances.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components		Chemical name of the substance	Concentration	Classification
CAS/EC and Reg.number	EINECS			
10101-97-0	232-104-9	Nickel sulphate hexahydrate	100	Carc. Cat. 3; R40; Xn; R22; R42/43; N; R50/53

3.3 Other information

Substance, inorganic salt (NiSO4 · 6H2O)

SECTION 4. FIRST AID MEASURES

4.1 Description of first aid measures

If symptoms persist, call a physician.

4.1.2 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.

4.1.3 Skin contact

Wash off with soap and plenty of water. Remove soiled or soaked clothing immediately. Wash contaminated clothing before re-use.

4.1.4 Eye contact

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. If eye irritation persists, consult a specialist.

4.1.5 Ingestion

Rinse mouth. Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

Treat symptomatically.

4.3 Indication of immediate medical attention and special treatment needed

No hazards which require special first aid measures.

SECTION 5. FIREFIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Extinguishing media

The product itself does not burn. Use extinguishing measures that are appropriate to local circumstances and the surrounding environment e.g.: Dry powder; Carbon dioxide (CO2); Water spray jet;

NICKEL SULPHATE

Date 17.11.2010

Previous date: 28.1.2010

5.1.2 Extinguishing media which must not be used for safety reasons

Strong water jet;

5.2 Special hazards arising from the substance or mixtureIn the event of fire the following can be released: Metal dust; Metallic oxides; Sulphur oxides (SO_x);**5.3 Advice for firefighters**

Wear self-contained breathing apparatus and protective suit.

5.4 Specific methods

Collect contaminated fire extinguishing water separately. Neutralise with e.g. sodium hydroxide. Do not discharge into the drains/surface waters/groundwater.

SECTION 6. ACCIDENTAL RELEASE MEASURES**6.1 Personal precautions, protective equipment and emergency procedures**

Refer to protective measures listed in sections 7 and 8. Avoid contact with skin, eyes and clothing. Avoid dust formation. Ensure adequate ventilation.

6.2 Environmental precautions

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

6.3 Methods and materials for containment and cleaning up

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

6.4 Reference to other sections

See also section 8, 13

SECTION 7. HANDLING AND STORAGE**7.1 Precautions for safe 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.

Safe handling advice

Avoid dust formation. Avoid contact with skin and eyes. If workplace exposure limits are exceeded, respiratory protection approved for this particular job must be worn.

Technical measures/Precautions

Provide good ventilation of working area (local exhaust ventilation if necessary).

7.2 Conditions for safe storage, including any incompatibilities

Council Directive 96/82/EC on the control of major-accident hazards involving dangerous substances (SEVESO II directive)

Technical measures/Storage conditions

Always keep in containers of same material as the original one. Keep containers tightly closed in a dry, cool and well-ventilated place.

Incompatible products

Acids;

7.3 Specific end use(s)

Exposure scenario is attached.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**8.1 Control parameters****8.1.1 Threshold limits**

10101-97-0	Nickel sulphate hexahydrate	0,1 mg/m ³ (15 min) Ni
------------	--------------------------------	--------------------------------------

8.1.4 DNELs



RISK VALUES: Human Health WORKERS

Exposure pattern

Route / Descriptors [corrected] /DNEL/DMEL/not quantifiable

Acute-systemic effects

Dermal (mg Ni/kg bw/day)/ Not relevant / Not relevant

Inhalation (mg Ni/m³) / NOAEC = 120 / DNEL = 16 (MMAD =3 mm)

Oral (mg Ni/kg bw/day) / Not relevant / Not relevant

Acute-local effects

Dermal (mg Ni/cm²) / Not relevant / Not relevantInhalation (mg Ni/m³) /LOAEC =0.7 (from 16 d study) / DNEL= 0.7 (MMAD <4 mm)

Long term-systemic effects

Dermal (mg Ni/kg bw/day)/ Not relevant / Not relevant

Inhalation (mg Ni/m³) / SCOEL proposed nickel OEL = 0.01 "inhalable" / OEL = 0.05 (inhalable fraction)

Oral (mg Ni/kg bw/day) / Not relevant / Not relevant

Long term -local effects

Dermal (mg Ni/cm²) /NOAEL= 0.00044 / DNEL = 0.00044Inhalation (mg Ni/m³) / SCOEL proposed nickel OEL = 0.01 "inhalable" / OEL = 0.05 (inhalable fraction)

RISK VALUES: Human Health consumer - MvE

Exposure pattern

Route / Descriptors [corrected] /DNEL/DMEL/not quantifiable

Acute-systemic effects

Dermal (mg Ni/kg bw/day)/ Not relevant / Not relevant

Inhalation (mg Ni/m³) / relevant- compliance with more conservative acute-local effects DNEL is also protective against acute systemic effects

Oral (mg Ni/kg bw/day) / LOAEL = 0.012 DNEL= 0.012

Acute-local effects

Dermal (mg Ni/cm²) / Not relevant / Not relevantInhalation (mg Ni/m³) / LOAEC =0.7 (from 16 d study) / DNEL = 0.4

Long term-systemic effects

Dermal (mg Ni/kg bw/day)/ Not relevant / Not relevant

Inhalation (mg Ni/m³) / Other: CSTE (ambient air guidelines for Ni) = 0.00002 / DNEL = 0.00002

Oral (mg Ni/kg bw/day) / NOAEL =1.1 / DNEL = 0.02

Long term -local effects

Dermal (mg Ni/cm²) /Not relevant / Not relevantInhalation (mg Ni/m³) /Other: CSTE (ambient air guidelines for Ni) = 0.00002 / DNEL = 0.00002

8.1.5

PNECs



RISK VALUES: Environment

Compartment

Category/ Threshold Value/ Relative Absorption Factor (RAF)/ Assessment Factor (AF)/ PNEC Value/ Comment

Aquatic

Freshwater /7.2 ug Ni/L (HC5) /Not relevant/ 2/ 3.6 ug Ni/L/ Bioavailability correction available

Marine /17.2 ug Ni/L (HC5) /Not relevant/2/ 8.6 ug Ni/L /No bioavailability correction available

Sediment

Freshwater /Pending outcome of testing program /Not relevant/ Pending outcome of testing program / Pending outcome of testing program

Marine/Pending outcome of testing program/ Not relevant /Pending outcome of testing program/ Pending outcome of testing program

Terrestrial /Soil /59.8 mg Ni/kg (HC5) /Not relevant/ 2/ 29.9 mg Ni/kg/ Based on 10th percentile of abiotic soil parameters in EU. Bioavailability correction available

Sewage Treatment Plant (STP)/Microbial activity/ 33 mg Ni/L (Lowest NOEC)/ Not relevant/ 100/ 0.33 mg Ni/L

Secondary Poisoning: Terrestrial/

Oystercatcher (aquatic bird) /123 mg Ni/kg/ 1/ 10/ 12.3 mg Ni/kg

European otter (freshwater mammalian)/ 23 mg Ni/kg/ 0,025/ 10/ 2.3 mg Ni/kg

Harbor seal (marine mammalian) 46 mg Ni/kg/ 0,025/ 10/ 4.6 mg Ni/kg

Secondary Poisoning: Aquatic

Earthworm eating bird /85 mg Ni/kg/ 1/ 10/ 8.5 mg Ni/kg

Shrew (terrestrial mammalian)/ 1.2 mg Ni/kg/ 0.036 (100% worms) 0.025 (30% worms, 70% isopods) /10/ 0.12 mg Ni/kg

8.2 Exposure controls

8.2.1 Occupational exposure controls

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 contact with skin and eyes. Do not breathe dust. Avoid repeated exposure. Skin protection Ensure that eyewash stations and safety showers are close to the workstation location. Remove soiled or soaked clothing immediately. Clean skin thoroughly after work. At work do not eat, drink, smoke or take drugs. Keep away from food, drink and animal feedingstuffs. Keep working clothes separately.

8.2.2.1 Respiratory protection

Use a respirator with filter model P3 (DIN 3181).

8.2.2.2 Hand protection

Protective gloves:Rubber; Butyl-rubber; Neoprene; PVC;

8.2.2.3 Eye/face protection

Goggles; Face-shield;

8.2.2.4 Skin protection

Clothing as usual in the chemical industry.

8.2.3 Environmental exposure controls

The employer shall fulfill requirements of IPPC Directive.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important Health Safety and Environmental Information

9.1.1 Appearance

Appearance: Crystalline

Colour: Light green

9.1.2 Odour

odourless

9.1.3 Odour threshold

Not applicable.

NICKEL SULPHATE

Date 17.11.2010

Previous date: 28.1.2010


NORILSK NICKEL Version: R1.0

9.1.5	Melting point/freezing point	Nickel sulphate hexahydrate changes its crystal form at 53 °C and loses all crystal water at 280 °C. At 848 °C it decomposes to nickel oxide and sulphuric trioxide.
9.1.6	Initial boiling point and boiling range	Not applicable.
9.1.7	Flash point	Not applicable. inorganic
9.1.9	Flammability (solid, gas)	does not ignite
9.1.10	Explosive properties	
9.1.10.1	Lower explosion limit	Not explosive
9.1.10.2	Upper explosion limit	Not explosive
9.1.11	Vapour pressure	Not applicable.
9.1.12	Vapour density	Not applicable.
9.1.13	Relative density	3,68 g/cm ³
9.1.14	Solubility(ies)	
9.1.14.1	Water solubility	625 g/l 0°C; 3407 g/l 100°C
9.1.15	Partition coefficient: n-octanol/water	Not applicable.
9.1.16	Auto-ignition temperature	does not ignite
9.1.17	Decomposition temperature	Nickel sulphate hexahydrate changes its crystal form at 53 °C and loses all crystal water at 280 °C. At 848 °C it decomposes to nickel oxide and sulphuric trioxide.
9.1.18	Viscosity	Not applicable. Solid
9.1.19	Explosive properties	Not explosive
9.1.20	Oxidising properties	no oxidizing
9.2	Other information	Melting Point / range: Nickel sulphate hexahydrate changes its crystal form at 53 °C and loses all crystal water at 280 °C. At 848 °C it decomposes to nickel oxide and sulphuric trioxide.

SECTION 10. STABILITY AND REACTIVITY

10.1	Reactivity	No dangerous reaction known under conditions of normal use.
10.2	Chemical stability	Stable under recommended storage conditions.
10.3	Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
10.4	Conditions to avoid	Avoid dust formation.
10.5	Incompatible materials	Acids;
10.6	Hazardous decomposition products	Metallic oxides; Sulphur oxides (SO _x);

SECTION 11. TOXICOLOGICAL INFORMATION
--

11.1	Information on toxicological effects
11.1.1	Acute toxicity
	LD ₅₀ /oral/rat = 361.9 mg/kg
	LC ₅₀ /inhalation/4h/rat = 2,48 mg/l
	LD ₅₀ /dermal/rat = No studies have been found.

Acute tox. 4 Harmful if swallowed. Harmful if inhaled.



- 11.1.2 Irritation and corrosion**
Skin irrit. 2 Causes skin irritation.
According to the classification criteria of the European Union, the product is not considered as being an eye irritant.
Not Rated as corrosive
- 11.1.3 Sensitisation**
Skin sens. 1 May cause an allergic skin reaction.
Resp. sens. 1 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- 11.1.4 Subacute, subchronic and prolonged toxicity**
Carc 1A May cause cancer by inhalation.
Repr. 1B May damage the unborn child.
Muta 2 Suspected of causing genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
- 11.1.6 STOT-repeated exposure**
STOT RE 1 Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>.
Target Organs: Lungs; If inhaled
- 11.1.7 Aspiration hazard**
Not applicable.
- 11.1.8 Other information on acute toxicity**
No studies have been found.

SECTION 12. ECOLOGICAL INFORMATION

- 12.1 Toxicity**
- 12.1.1 Aquatic toxicity**
EC50/48h/Salmo gairdneri: 0,26 mg/l
EC50/48h/Asellus aquaticus: 435 mg/l
- 12.2 Persistence and degradability**
- 12.2.1 Biodegradation**
Not applicable.
- 12.2.2 Chemical degradation**
Not applicable.
- 12.3 Bioaccumulative potential**
Bioconcentration factor (BCF) 270
- 12.4 Mobility in soil**
- 12.5 Results of PBT and vPvB assessment**
The PBT and vPvB criteria of Annex XIII to the regulation does not apply to inorganic substances.
- 12.6 Other adverse effects**
No studies have been found.

SECTION 13. DISPOSAL CONSIDERATIONS

- 13.1 Waste treatment methods**
Contaminated packaging should be emptied as far as possible. Packaging that cannot be cleaned should be disposed as special waste in compliance with local and national regulations.
- 13.2 Waste from residues / unused products**
Contact manufacturer. Dispose of as special waste in compliance with local and national regulations.

SECTION 14. TRANSPORT INFORMATION

- 14.1 UN number** UN3077

NICKEL SULPHATE

Date 17.11.2010

Previous date: 28.1.2010

NORILSK NICKEL Version: R1.0

14.2	UN proper shipping name	Environmentally hazardous substance, solid, n.o.s (nickel sulphate)
14.3	Transport hazard class(es)	9
14.4	Packing group	III
14.5	Environmental hazards	Environmentally hazardous substance
14.6	Special precautions for users	None.
	Further information	None.
14.7	Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not relevant

SECTION 15. REGULATORY INFORMATION

- 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**
94/27/EC ; 2007/96/EC ; Reach 1907/2006 Annex XVII
- 15.2 Chemical safety assessment**
A Chemical Safety Assessment has been carried out for this substance.

SECTION 16. OTHER INFORMATION

- 16.1 Additions, Deletions, Revisions**
SDS sections updated according to Regulation (EC) No. 1907/2006
- 16.3 Key literature references and sources for data**
Finnish Environment Institute: Environmental Properties of Chemicals Lewis, R. J. : Sax's Dangerous Properties of Industrial Materials
- 16.5 List of relevant R phrases, hazard statements, safety phrases and/or precautionary statements**
- | | |
|--------|---|
| R20/22 | Harmful by inhalation and if swallowed. |
| R22 | Harmful if swallowed. |
| R38 | Irritating to skin. |
| R40 | Limited evidence of a carcinogenic effect. |
| R42/43 | May cause sensitization by inhalation and skin contact. |
| R48/23 | Toxic: danger of serious damage to health by prolonged exposure through inhalation. |
| R49 | May cause cancer by inhalation. |
| R50/53 | Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. |
| R61 | May cause harm to the unborn child. |
| R68 | Possible risk of irreversible effects. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H341 | Suspected of causing genetic defects <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. |
| H350I | May cause cancer by inhalation. |
| H360D | May damage the unborn child. |
| H372 | Causes damage to organs <or state all organs affected, if known> through prolonged or repeated exposure <state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard>. |
| | lungs; inhaled |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |

NICKEL SULPHATE

Date 17.11.2010

Previous date: 28.1.2010

16.8 Additional information available from:

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.