

SAFETY DATA SHEET

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

1.1. Product identifier

Trade name

Nickel sulphate, Rönnskär

Product no.

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REACH registration number

01-2119439361-44-0010

Other means of identification

EC# 232-104-9, CAS# 7786-81-4

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

Relevant identified uses of the substance or mixture

For use only as intermediate.

Uses advised against

-

1.3. Details of the supplier of the safety data sheet

Company and addressBoliden Mineral AB
Se-93281 Skelleftehamn
Sweden

Tel +46 91073000

Contact person**E-mail**

info.market@boliden.com

SDS date

01-06-2015

SDS Version

1.0

1.4. Emergency telephone number

999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service). See section 16.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

STOT RE 1; H372
Repr. 1B; H360D
Muta. 2; H341
Carc. 1A; H350i
Resp. Sens. 1; H334
Skin Sens. 1; H317
Acute. Tox. 4; H302 + H332
Skin Irrit. 2; H315
Aquatic Chronic 1; H410

See full text of H-phrases in section 2.2.

2.2. Label elements

Hazard pictogram(s)

According to EC-Regulation 1907/2006 (REACH)



Signal word

Danger!

Hazard statement(s)

Causes damage to lungs through prolonged or repeated exposure via inhalation. (H372)

May damage the unborn child. (H360D)

Suspected of causing genetic defects. (H341)

May cause cancer via inhalation. (H350i)

May cause allergy or asthma symptoms or breathing difficulties if inhaled. (H334)

May cause an allergic skin reaction. (H317)

Harmful if swallowed or if inhaled. (H302 + H332)

Causes skin irritation. (H315)

Very toxic to aquatic life with long lasting effects. (H410)

Safety statement(s)	General	-
	Prevention	Do not breathe dust/fume/gas/mist/vapours/spray. (P260). Wear protective gloves/protective clothing/eye protection/face protection. (P280).
	Response	Call a POISON CENTER or doctor/physician if you feel unwell. (P312). IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. (P301+P312). IF ON SKIN: Wash with plenty of soap and water. (P302+P352). IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. (P304+P340).
	Storage	-
	Disposal	-

Identity of the substances primarily responsible for the major health hazards

Nickel Sulphate

2.3. Other hazards

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Additional labelling

-

Additional warnings

-

VOC

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SECTION 3: Composition/information on ingredients

3.1. Substances

NAME:	Nickel Sulphate
IDENTIFICATION NOS.:	CAS-no: 7786-81-4 EC-no: 232-104-9 REACH-no: 01-2119439361-44-0010
CONTENT:	64-75%
CLP CLASSIFICATION:	Acute Tox. 4, STOT RE 1, Skin Irrit. 2, Resp. Sens. 1, Skin Sens. 1, Muta. 2, Carc. 1A, Repr. 1B, Aquatic Chronic 1
	H302, H315, H317, H332, H334, H341, H350i, H360D, H372, H410

3.2. Mixtures

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(*) See full text of H-phrases in section 16. Occupational exposure limits are listed in section 8, if these are available.

Other informations

This product is a substance which also contains Sulfuric acid (5-15%).

NiSO₄ probably exists as a mixture of hexahydrate and monohydrate.

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Instantly remove any clothing soiled by the product.

Remove breathing apparatus only after soiled clothing has been completely removed.

In the case of accident: Contact a doctor or casualty department – take the label or this safety data sheet.

Contact a doctor, if in doubt about the injured person's condition or if the symptoms continue. Never give an unconscious person water or similar.

Inhalation

Get the injured person into fresh air. Make sure there is always someone with the injured person. Prevent shock by keeping the injured person warm and calm. If the person stops breathing, give mouth-to-mouth resuscitation. If unconscious, roll the injured person onto side with the top leg bent at both knee and hip. Call an ambulance.

Skin contact

Remove contaminated clothing and shoes at once. Skin that has come in contact with the material must be washed thoroughly with water and soap. If skin irritation continues, consult a doctor.

Eye contact

Remove contact lenses. Flush eyes immediately with plenty of water (20-30 °C) for at least 15 minutes and continue until irritation stops. Make sure you flush under the upper and lower eyelids. If irritation continues, contact a doctor.

Ingestion

In the case of ingestion, contact a doctor immediately and take this safety data sheet or the label from the material with you. If the person is conscious, give them water. DO NOT try to induce vomiting. Hold head facing down so that no vomit runs back into the mouth and throat. Prevent shock by keeping the injured person warm and calm. Give mouth-to-mouth resuscitation if breathing stops. If unconscious, roll the injured person onto side with the top leg bent at both knee and hip. Call an ambulance.

Burns

Rinse with water until the pain stops and continue for 30 minutes.

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

Sensitivity effects:

This product contains substances which can give an allergic reaction on contact with skin. The allergic reaction will typically set in 12-72 hours after exposure as the substance penetrates the skin and reacts with proteins in the outer skin. The body's immune system sees the chemically changed protein as a foreign body and will try to destroy it. The most common effect of nickel compounds is "nickel itch", and nickel is the most common cause of allergic contact dermatitis.

Inhalation:

May cause allergy or asthma symptoms or breathing difficulties if inhaled. This product contains substances which can give an allergic reaction when inhaled. The allergic reaction allergy will typically set in an hour after exposure and give an inflammatory reaction in the lungs.

Skin contact:

This product contains substances which cause skin irritation. Contact with locally irritative substances can cause the area of contact to be more prone to absorb damaging substances such as allergens.

Reproductive toxicity:

Can cause long-term damage to human offspring.

Carcinogenicity:

May cause cancer. Occupational exposure through inhalation of soluble nickel salts (ca 0.1 mg/m³) is linked to an increased risk of lung and nasal cancer.

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

Call a doctor if you feel unwell.

Information to medics

Bring this safety data sheet.

SECTION 5: Firefighting measures

According to EC-Regulation 1907/2006 (REACH)

5.1. Extinguishing media

Recommended: alcohol-resistant foam, carbonic acid, powder, water mist. Water jets should not be used, since they can spread the fire.

Use fire fighting measures that suit the environment. Material mixture is not combustible.

5.2. Special hazards arising from the substance or mixture

Sulphur oxide (SO_x) may be formed in case of fire.

5.3. Advice for firefighters

Wear self-contained breathing apparatus and protective clothing to prevent contact.

Collect contaminated fire fighting water separately. It must not enter drains.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Avoid inhalation of vapours from waste material. Avoid direct contact with spilled substances.

Avoid generating dust. Use personal protection equipment. Use breathing protection against the effects of fumes/dust/aerosol.

6.2. Environmental precautions

Avoid discharge to lakes, streams, sewers, etc. In the event of a leakage to the surroundings, contact the local environmental authorities. Consider putting up waste collecting trays/basins to prevent leakage to the surroundings.

6.3. Methods and material for containment and cleaning up

Collect mechanically.

6.4. Reference to other sections

See section 13 with regard to the handling of waste. See section 8 for protective measures.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Ensure good ventilation/exhaustion at the workplace. Prevent formation of dust. Ensure that suitable extractors are available on processing machines. Carry out filling operations only at sites with extractors available. Any deposit of dust which cannot be avoided must be removed regularly. Open and handle container with care.

7.2. Conditions for safe storage, including any incompatibilities

Prevent any penetration into the ground. Store away from foodstuffs. Store away from flammable substances. Keep container tightly sealed. Store in a locked cabinet or with access restricted to technical experts or their assistants. Ensure sufficient capacity available for collecting up extinguishing agent again. Storage class: 6.1 B

Storage temperature

No data available.

7.3. Specific end use(s)

This product should only be used for applications described in Section 1.2

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

OEL

Sulphuric acid

Long-term exposure limit (8-hour TWA reference period): - ppm | 0,05 mg/m³ thoracic fraction

DNEL / PNEC

DNEL (Nickel Sulphate): 0,05 mg Ni/m³ (as inhalable fraction) - Exposure: Inhalation - Duration: Long term - Workers

8.2. Exposure controls

Compliance with the stated exposure limits values should be checked on a regular basis.

General recommendations

Keep away from foodstuffs, beverages and food. Instantly remove any soiled and impregnated garments.

Do not eat, drink or smoke while working. Wash hands during breaks and at the end of the work. Do not

According to EC-Regulation 1907/2006 (REACH)

inhale gases/fumes/aerosols. Avoid contact with the eyes and skin. Use protective clothes.

Exposure scenarios

If there is an appendix to this safety data sheet, the indicated exposure scenarios must be complied.

Exposure limits

Trade users are covered by the rules of the working environment legislation on maximum concentrations for exposure. See work hygiene threshold values.

Appropriate technical measures

Airborne gas and dust concentrations must be kept as low as possible and below the current threshold values.

Avoid inhalation of gas or dust.

Hygiene measures

Whenever you take a break in using this product and when you have finished using it, all exposed areas of the body must be washed. Always wash hands, forearms and face.

Measures to avoid environmental exposure

Keep damming materials near the workplace. If possible collect spillage during work.

Do not release in soil, waterways or drains.

Individual protection measures, such as personal protective equipment



Generally

Only CE-marked personal protection equipment should be used.

Respiratory Equipment

In case of brief exposure or low pollution use breathing filter apparatus. In case of intensive or longer exposure use breathing apparatus that is independent of circulating air. Recommended filter device for short term use: Filter P3.

Skin protection

Special work clothing should be used. When working with this product for a long period of time, use a protective suit.

Hand protection

Only use chemical protective gloves with CE-labelling of category III. Check protective gloves prior to each use for their proper condition. Material of gloves: The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. Nitrile rubber, NBR PVC gloves. Penetration time of glove material: The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

Eye protection

Tightly sealed safety glasses.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Form	Colour	Odour	pH	Viscosity	Density (g/cm ³)
Solid, crystalline	-	No data	-	Not applicable	2,07

Phase changes

Melting point (°C)	Boiling point (°C)	Vapour pressure (mm Hg)
53 (loss of water of crystallisation on heating)	Not applicable	Not applicable

Data on fire and explosion hazards

Flashpoint (°C)	Ignition (°C)	Self ignition (°C)
Not applicable	-	Not applicable (Nickel sulphate is a non-flammable substance, as reported in the 2008/2009 EU Risk Assessment for nickel sulphate.)

Explosion limits (Vol %)	Oxidizing properties
Non-explosive (Nickel sulphate is not an explosive substance, as reported in the 2008/2009	Non-oxidizing (Nickel sulphate is not an oxidizing substance, as reported in the 2008/2009 EU Risk

According to EC-Regulation 1907/2006 (REACH)

EU Risk Assessment for nickel sulphate.) Assessment for nickel sulphate.)

Solubility

Solubility in water

Water solubility 625 g/l at 0°C, 655 g/l at 0°C, 3407 g/l at 100°C (Please note that the two different values at 0°C for hexahydrate are from different sources (as reported in the 2008/2009 EU Risk Assessment for nickel sulphate).)

n-octanol/water coefficient

Not applicable

9.2. Other information

Solubility in fat

-

Additional information

Flammability (solid, gas): Non-flammable (Nickel sulphate is a non flammable substance, as reported in the 2008/2009 EU Risk Assessment for nickel sulphate. In addition, flammability testing was conducted by Harlan Laboratories using the method A10 Flammability (solids). Testing concluded that nickel sulphate is not highly flammable.)
Decomposition temperature: > 840°C
Granulometry: d80 = ~1200 µm, d50 = ~500 µm, d20 = ~150 µm

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

The product is stable under the conditions noted in section 7.

10.3. Possibility of hazardous reactions

No special

10.4. Conditions to avoid

NiSO₄ decomposes at temperatures above 840°C

10.5. Incompatible materials

Strong acids, strong bases, strong oxidizing agents, and strong reductants agents.

10.6. Hazardous decomposition products

Sulphur oxides (SO_x)
NiO

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity

Substance

Nickel sulfate hexahydrate, CAS-nr 10101-97-0

Species

Rat

Test

LD50

Route of exposure

Oral

Result

264 mg/kg body weight

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/irritation

Not irritating.

Respiratory or skin sensitisation

May cause an allergic skin reaction. May cause allergy or asthma symptoms or breathing difficulties if inhaled. The most common effect of nickel compounds is "nickel itch", and nickel is the most common cause of allergic contact dermatitis.

Germ cell mutagenicity

Suspected of causing genetic defects.

Carcinogenicity

May cause cancer.

Occupational exposure through inhalation of soluble nickel salts (ca 0.1 mg/m³) is linked to an increased risk of lung and nasal cancer.

Reproductive toxicity

May damage the unborn child.

STOT-single exposure

No data available.

According to EC-Regulation 1907/2006 (REACH)

STOT-repeated exposure

Causes damage to lungs through prolonged or repeated exposure via inhalation.

Aspiration hazard

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Long term effects

Carcinogenic effects: May cause cancer. Occupational exposure through inhalation of soluble nickel salts (ca 0.1 mg/m³) is linked to an increased risk of lung and nasal cancer.

Reproductive toxicity: May damage the unborn child.

SECTION 12: Ecological information

12.1. Toxicity

Substance	Species	Test	Test duration	Result
Nickel Sulphate	Fish	LC50	96h	21,2 mg/l

12.2. Persistence and degradability

Inorganic metal compounds or metal ions are not biodegraded in the environment, but may with time be abiotically transformed into other compounds or states. The extent of the transformation depends on for example the size of the particles, oxygen supply, pH, the composition of organic and inorganic material in the ground, water and sediment.

Substance	Biodegradability	Test	Result
No data available.			

12.3. Bioaccumulative potential

Substance	Potential bioaccumulation	LogPow	BFC
	Nickel may bioaccumulate.		

12.4. Mobility in soil

Nickel sulphate is very water-soluble. The metals in the product may spread into the ground and water. The mobility is affected by for example oxygen supply, pH, and the composition of organic and inorganic compounds in the ground, water and sediment.

12.5. Results of PBT and vPvB assessment

The substance does not meet the criteria for a PBT or vPvB substance.

12.6. Other adverse effects

This product contains ecotoxic substances which can have damaging effects on water-organisms. This product contains substances which can cause undesirable long-term effects in the water environment, due to its poor biodegradability.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

The product is covered by the regulations on dangerous waste. Must not be disposed of together with household garbage. Do not allow product to reach sewage system. Contact manufacturer for recycling information.

Waste

EWC code
06 03 13

Specific labelling

-

Contaminated packing

Packaging which contains leftovers from the product must be disposed of in the same way as the product.

SECTION 14: Transport information

This product is covered by the conventions on dangerous goods.

14.1 – 14.4

ADR/RID

14.1. UN number	3077
14.2. UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (nickel sulphate)
14.3. Transport hazard class(es)	9 Miscellaneous dangerous substances and articles, Classification code M7
14.4. Packing group	III
Notes	-

According to EC-Regulation 1907/2006 (REACH)

Tunnel restriction code	E
IMDG	
UN-no.	3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
	9
Class	Inland waterway transport (AND(R)): Class 9 Miscellaneous dangerous substances and articles, Classification code M7
	Marine transport (IMDG): Class 9 Miscellaneous dangerous substances and articles
PG*	III
EmS	F-A, S-F
MP**	Yes
Hazardous constituent	-
IATA/ICAO	
UN-no.	3077
Proper Shipping Name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S.
	9
Class	Miscellaneous dangerous substances and articles
PG*	III

14.5. Environmental hazards

This product contains substances which can cause undesirable long-term effects in the water environment, due to its poor biodegradability.

14.6. Special precautions for user

-

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

No data available

(*) Packing group

(**) Marine pollutant

SECTION 15: Regulatory information

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

Restrictions for application

People under the age of 18 must not be exposed to this product cf. Council Directive 94/33/EC. Only for industrial use. Pregnant and nursing women must not be exposed to the effects of this product. The risk, and possible technical precautions or design of the workplace to avoid such risk, must therefore be evaluated.

Demands for specific education

-

Additional information

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Sources

EC regulation 1907/2006 (REACH)

Directive 2000/532/EC

EC Regulation 1272/2008 (CLP)

EH40/2005

15.2. Chemical safety assessment

Yes

SECTION 16: Other information

Full text of H-phrases as mentioned in section 3

According to EC-Regulation 1907/2006 (REACH)

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.
H350i - May cause cancer by inhalation.
H360D - May damage the unborn child.
H372 - Causes damage to lungs through prolonged or repeated exposure via inhalation.
H410 - Very toxic to aquatic life with long lasting effects.

The full text of identified uses as mentioned in section 1

-

Other symbols mentioned in section 2

-

Other

It is recommended to hand over this safety data sheet to the actual user of the product. Information in this safety data sheet cannot be used as a product specification.
The information in this safety data sheet applies only to this specific product (mentioned in section 1) and is not necessarily correct for use with other chemicals/products.
A change (in proportion to the last essential change (first cipher in SDS version)) is marked with a blue triangle.

Emergency numbers

Austria: Poison Control Centre Emergency helpline +43 1 406 43 43, 112
Belgium: 070 - 245 245
Bulgaria: +359 2 9154 409
Czech Republic: Toxikologické informační středisko Telefon: +420 224 919 293, +420 224 915 402
Denmark: Kontakt Giftnet på tlf.nr.: 82 12 12 12 (åbent 24 timer i døgnet).
Estonia: 112, 16662, ((+372) 626 93 90)
Finland: 09-4711/Myrkytystietokeskus tai suora numero 09-471977 Myrkytystietokeskus/HUS, Tukholmankatu 17, 00029 HUS (Helsinki) 112
France: ORFILA (INRS) : + 33 (0)1 45 42 59 59. 24 heures sur 24 et 7 jours sur 7
Germany: Giftnotruf Berlin, Emergency telephone: +49 30 19240 (Tag und Nacht)
Greece: +30 10 779 3777
Hungary: Telefon: 06-80-20-11-99
Iceland: Neyðarlínan: Sími 112. Eitrunarmiðstöð Landsspítalans. Sími: 543 2222.
Ireland: +353 1 8379964
Italy: Centro antiveneni di Roma - Policlinico Umberto I tel. 06-49978000
Latvia: +371 704 2468
Lithuania: Visuomenės sveikatos centrams +370 5 236 20 52 arba +370 687 53378
Malta: 2425 0000
Netherlands: 30-2748888
Norway: Giftnormasjonssentralen på tlf.nr.: 22 59 13 00, 113
Poland: +48 58301 65 16 / +48 58 349 2831
Portugal: Em caso de intoxicacao, ligue 808 250 143
Romania: +40 21 3183606
Slovakia: +421 2 54 77 4166
Slovenia: + 386 41 650500
Spain: Servicio de Información Toxicológica Teléfono: + 34 91 562 04 20 (solo emergencias toxicológicas) Información en español (24h/365 días)
Sweden: 112, 08-331231 (vardagar kl 9-17)
United Kingdom: 999 (or 111 for non-emergency medical advice). Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergency department or the NHS enquiry service)

Date of last essential change (First cipher in SDS version)

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Date of last minor change (Last cipher in SDS version)

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