Nickel Sulfate Hexahydrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Revision date: 04/24/2015

SECTION 1: Identification of the substance/mixture

1.1. Product identifier

Product form	:	Substance
Substance name	:	Nickel Sulfate Hexahydrate
Formula	:	$NiSO_4.6H_2O$
Molecular weight	:	262.85 g/mol
CAS No.	:	10101-97-0
Product code	:	LW-NISO4
Synonyms	:	Nickel(II) Sulfate, Nickelous Sulfate

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

Use of the substance/mixture	:	Laboratory chemicals, Synthesis of substances

1.3. Emergency telephone number

Emergency number	:	1.800.424.9300 (USA) +1.703.527.3887 (INT)

SECTION 2: Hazards Identification

2.1. Classification of the substance or mixture

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Acute toxicity, Oral (Category 4), H302

Acute toxicity, Inhalation (Category 4), H332

Skin irritation (Category 2), H315

Respiratory sensitization (Category 1), H334

Skin sensitization (Category 1), H317

Germ cell mutagenicity (Category 2), H341

Carcinogenicity (Category 1A), H350

Reproductive toxicity (Category 1B), H360

Specific target organ toxicity - repeated exposure, Inhalation (Category 1), H372

Acute aquatic toxicity (Category 1), H400

Chronic aquatic toxicity (Category 1), H410

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2. GHS Label elements, including precautionary statements

Pictogram :

Signal word	:	Danger
Hazard statement(s)		
H302 + H332		Harmful if swallowed or if inhaled
H315		Causes skin irritation.
H317		May cause an allergic skin reaction.
H334		May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H341		Suspected of causing genetic defects.
H350		May cause cancer.
H360		May damage fertility or the unborn child.
H372		Causes damage to organs through prolonged or repeated exposure if inhaled.
H410		Very toxic to aquatic life with long lasting effects.
Precautionary statement(s)		
P201		Obtain special instructions before use.
P202		Do not handle until all safety precautions have been read and understood.
P260		Do not breathe dust / fume / gas / mist / vapors / spray.
P264		Wash skin thoroughly after handling.
P270		Do not eat, drink or smoke when using this product.
P271		Use only outdoors or in a well-ventilated area.
P272		Contaminated work clothing should not be allowed out of the workplace.
P273		Avoid release to the environment.
P280		Wear protective gloves/ protective clothing/ eye protection/ face protection.
P285		In case of inadequate ventilation wear respiratory protection.
P301 + P312 + P330		IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P302 + P352		IF ON SKIN: Wash with plenty of soap and water.
P304 + P340 + P312		IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
P308 + P313		IF exposed or concerned: Get medical advice/ attention.
P333 + P313		If skin irritation or rash occurs: Get medical advice/ attention.

P362	Take off contaminated clothing and wash before reuse.
P391	Collect spillage.
P405	Store locked up.
P501	Dispose of contents/ container to an approved waste disposal plant.

2.3. Hazards not otherwise classified (HNOC) or not covered by GHS

none

SECTION 3: Composition/information on ingredients

3.1. Substances

Synonyms	:	$NiSO_4.6H_2O$
Formula	:	Nickel(II) Sulfate, Nickelous Sulfate
Molecular Weight	:	262.85 g/mol
CAS-No.	:	10101-97-0

Hazardous components

Component	Classification	Concentration
Nickel Sulfate Hexahydrate	Acute Tox. 4; Skin Irrit. 2; Resp. Sens. 1; Skin Sens. 1; Muta. 2; Carc. 1A; Repr. 1B; STOT RE 1; Aquatic Acute 1; Aquatic Chronic 1; H302 + H332, H315, H317, H334, H341, H350, H360, H372, H410	<= 100 %

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: Description of first aid measures

4.1. Description of first aid measures

General advice	:	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
First-aid measures after inhalation	:	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
First-aid measures after skin contact	:	Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
First-aid measures after eye contact	:	Flush eyes with water as a precaution.

First-aid measures after ingestion : Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

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

No data available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Use water spray, alcohol-resistant foam, dry chemical or carbon dioxide.

5.2. Special hazards arising from the substance or mixture

Sulphur oxides, Nickel/nickel oxides

5.3. Advice for firefighters

Wear self-contained breathing apparatus for firefighting if necessary.

5.4. More Information

No data available.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.

For personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

6.3. Methods and material for containment and cleaning up

Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

6.4. Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs.

Provide appropriate exhaust ventilation at places where dust is formed.

For precautions see section 2.2.

7.2. Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Storage class (TRGS 510): Non-combustible, acute toxic Cat.3 / toxic hazardous materials or hazardous materials causing chronic effects

7.3. Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Components with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
Nickel Sulfate Hexahydrate	10101-97-0	TWA	1.000000 mg/m3	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.100000 mg/m3	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Lung damage Nasal cancer Not classifiable as a human carcinogen varies		
		TWA	0.015000 mg/m3	USA. NIOSH Recommended Exposure Limits
		Potential Occupational Carcinogen See Appendix A		

8.2. Exposure controls

Appropriate engineering controls : Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

8.3. Personal protective equipment

Eye protection	:	Face shield and safety glasses Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Skin Protection	:	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. Full contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) Splash contact Material: Nitrile rubber Minimum layer thickness: 0.11 mm Break through time: 480 min Material tested: Dermatril® (KCL 740 / Aldrich Z677272, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374 If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.
Body protection	:	Complete suit protecting against chemicals, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Respiratory protection	:	Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. If the respirator is the sole means of protection, use a full-face supplied air respirator. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

Environmental exposure controls	:	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	:	Form: crystalline Color: blue
Odor	:	No data available
Odor Threshold	:	No data available
pH	:	No data available
Melting point/freezing point	:	No data available
Initial boiling point and boiling range	:	No data available
Flash point	:	No data available
Evaporation rate	:	No data available
Flammability (solid, gas)	:	No data available
Upper/lower flammability or explosive limits	:	No data available
Vapor pressure	:	No data available
Vapor density	:	No data available
Relative density	:	2.07 g/cm3
Water solubility	:	No data available
Partition coefficient: n-octanol/water	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other safety information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

No data available

10.2. Chemical stability

Stable under recommended storage conditions.

10.3. Possibility of hazardous reactions

No data available

10.4. Conditions to avoid

Avoid moisture.

10.5. Incompatible materials

Strong oxidizing agents.

10.6. Hazardous decomposition products

Other decomposition products - No data available

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity	:	LD50 Oral - Rat - 361 mg/kg (OECD Test Guideline 401) LC50 Inhalation - Rat - 4 h - 2.48 mg/l (OECD Test Guideline 403) Dermal: No data available No data available
Skin corrosion/irritation	:	No data available
Serious eye damage/irritation	:	No data available
Respiratory or skin sensitization	:	Maximisation Test (GPMT) - Guinea pig May cause allergic skin reaction.
Germ cell mutagenicity	:	In vitro tests showed mutagenic effects Human lymphocyte Cytogenetic analysis Human lymphocyte Sister chromatid exchange Mouse lymphocyte Mutation in mammalian somatic cells. Hamster

Embryo

Morphological transformation.

Carcinogenicity

Human carcinogen. May cause cancer by inhalation.

IARC:	:	1 - Group 1: Carcinogenic to humans (Nickel sulfate hexahydrate)
NTP:	:	Known to be human carcinogen (Nickel sulfate hexahydrate)
OSHA:	:	No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
Reproductive toxicity	:	Presumed human reproductive toxicant May damage the unborn child.
Specific target organ toxicity (single exposure)	:	No data available
Specific target organ toxicity (repeated exposure)	:	Inhalation - Causes damage to organs through prolonged or repeated exposure.
Aspiration hazard	:	No data available
Additional Information	:	RTECS: QR9600000 To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

SECTION 12: Ecological information

12.1. Toxicity	:	No data available
12.2. Persistence and degradability	:	No data available
12.3. Bioaccumulative potential	:	No data available
12.3. Mobility in soil	:	No data available
12.4. Results of PBT and vPvB assessment	:	PBT/vPvB assessment not available as chemical safety assessment not required/not conducted
12.6. Other adverse effects	:	An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Very toxic to aquatic life with long lasting effects. Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product	:	Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated Packaging	:	Dispose of as unused product.

SECTION 14: Transport information

DOT (US)

UN number	:	3077
Class	:	9
Packing group	:	III
Proper shipping name	:	Environmentally hazardous substances, solid, n.o.s. (Nickel sulfate hexahydrate)
Reportable Quantity (RQ)	:	100 lbs
Poison Inhalation Hazard	:	No

IMDG

UN number	:	3077
Class	:	9
Packing group	:	III
EMS-No		F-A, S-F
Proper shipping name	:	Environmentally hazardous substances, solid, n.o.s. (Nickel sulfate hexahydrate)
Marine pollutant	:	yes

IATA

UN number	:	3077
Class	:	9
Packing group	:	III
Proper shipping name	:	Environmentally hazardous substances, solid, n.o.s. (Nickel sulfate hexahydrate)

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: Regulatory information

SARA 302 Components

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

The following components are subject to reporting levels established by SARA Title III, Section 313:

Nickel sulfate hexahydrate	CAS-No.	Revision Date
	10101-97-0	1993-04-24

SARA 311/312 Hazards

Acute Health Hazard, Chronic Health Hazard

Massachusetts Right To Know Components

Nickel sulfate hexahydrate	CAS-No.	Revision Date
	10101-97-0	1993-04-24

Pennsylvania Right To Know Components

Nickel sulfate hexahydrate	CAS-No.	Revision Date
	10101-97-0	1993-04-24

New Jersey Right To Know Components

Nickel sulfate hexahydrate	CAS-No.	Revision Date
	10101-97-0	1993-04-24

California Prop. 65 Components

WARNING! This product contains a chemical known to the State of California to cause cancer.	CAS-No.	Revision Date
	10101-97-0	1993-04-24
Nickel sulfate hexahydrate		

SECTION 16: Other information

Full text of H-Statements referred to under sections 2 and 3.

Acute Tox.	:	Acute toxicity
Aquatic Acute	:	Acute aquatic toxicity.
Aquatic Chronic	:	Chronic aquatic toxicity
Carc.	:	Carcinogenicity
H302	:	Harmful if swallowed.
H302 + H332	:	Harmful if swallowed or if inhaled
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.
H350	:	May cause cancer.
H360	:	May damage fertility or the unborn child.
H372	:	Causes damage to organs through prolonged or repeated exposure if inhaled.

HMIS Rating

Health Hazard	:	2
Chronic Health Hazard	:	*
Flammability	:	0
Physical Hazard	:	0

NFPA Rating

Health hazard	:	2
Fire Hazard	:	0
Reactivity Hazard	:	0

Further Information

Information in this SDS is from available published sources and is believed to be accurate. No warranty, express or implied, is made and Loudwolf Holdings Ltd. assumes no liability resulting from the use of this SDS. The user must determine suitability of this information for his/her application.