

SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 04/16/2015

Version 2.3

SECTION 1. Identification**Product identifier**

Product number	106727
Product name	Nickel(II) sulfate hexahydrate for analysis EMSURE® ACS
CAS-No.	10101-97-0

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

Identified uses	Reagent for analysis
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Details of the supplier of the safety data sheet

Company	EMD Millipore Corporation 290 Concord Road, Billerica, MA 01821, United States of America General Inquiries: +1-978-715-4321 Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)
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Emergency telephone	800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week
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SECTION 2. Hazards identification**GHS Classification**

Acute toxicity, Category 4, Oral, H302
Acute toxicity, Category 4, Inhalation, 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, Inhalation, H350i
Reproductive toxicity, Category 1B, H360
Specific target organ systemic toxicity - repeated exposure, Category 1, H372
For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS-Labeling*Hazard pictograms**Signal Word*

Danger

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Hazard Statements

H350i May cause cancer by inhalation.

H360 May damage fertility or the unborn child.

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.

H372 Causes damage to organs through prolonged or repeated exposure.

Precautionary Statements

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 must not be allowed out of the workplace.

P280 Wear protective gloves.

P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P321 Specific treatment (see supplemental first aid instructions on this label).

P330 Rinse mouth.

P333 + P313 If skin irritation or rash occurs: Get medical advice/ attention.

P362 Take off contaminated clothing and wash before reuse.

P405 Store locked up.

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. Composition/information on ingredients

Formula

$\text{NiSO}_4 \cdot 6 \text{H}_2\text{O}$

$\text{NiO}_4\text{S} \cdot 6 \text{H}_2\text{O}$ (Hill)

Molar mass

262.86 g/mol

Hazardous ingredients

Chemical Name (Concentration)

CAS-No.

nickel sulphate hexahydrate (>= 90 % - <= 100 %)

10101-97-0

Exact percentages are being withheld as a trade secret.

SECTION 4. First aid measures

Description of first-aid measures

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General advice

First aider needs to protect himself.

Inhalation

After inhalation: fresh air. Call in physician.

Skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/shower. Consult a physician.

Eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist.

Ingestion

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed

The following applies to soluble nickel compounds in general: inorganic nickel has an adstringent effect on mucous membranes. Sensitization with allergic manifestations is possible in predisposed persons. In some cases nickel dermatitis may manifest itself. Depending on the water-solubility, nickel and its compounds display a more or less distinct carcinogenicity, with the readily soluble nickel compounds obviously entailing the lesser risk.
irritant effects, Allergic reactions

Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

Special hazards arising from the substance or mixture

Not combustible.

Ambient fire may liberate hazardous vapors.

Fire may cause evolution of:

Sulfur oxides

Advice for firefighters

Special protective equipment for fire-fighters

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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SECTION 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders:

Protective equipment see section 8.

Environmental precautions

Do not let product enter drains.

Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

SECTION 7. Handling and storage

Precautions for safe handling

Work under hood. Do not inhale substance/mixture.

Observe label precautions.

Conditions for safe storage, including any incompatibilities

Tightly closed. Dry. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

Store at +15°C to +25°C (+59°F to +77°F).

SECTION 8. Exposure controls/personal protection

Exposure limit(s)

Ingredients

Basis	Value	Threshold limits	Remarks
<i>nickel sulphate hexahydrate 10101-97-0</i>			
ACGIH	Time Weighted Average (TWA):	0.1 mg/m ³	Form of exposure: Inhalable fraction. Expressed as: as Ni
NIOSH/GUIDE	Recommended exposure limit (REL):	0.015 mg/m ³	Expressed as: as Ni
OSHA_TRANS	PEL:	1 mg/m ³	Expressed as: as Ni
	PEL:	1 mg/m ³	Expressed as: as Ni
Z1A	Time Weighted Average (TWA):	0.1 mg/m ³	Expressed as: as Ni
	Time Weighted Average (TWA):	1 mg/m ³	Expressed as: as Ni

Engineering measures

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Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

Eye/face protection

Safety glasses

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Other protective equipment:

protective clothing

Respiratory protection

required when dusts are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

SECTION 9. Physical and chemical properties

Physical state	crystals
Color	green
Odor	odorless
Odor Threshold	Not applicable
pH	4.3 - 4.7 at 100 g/l 68 °F (20 °C)
Melting point	No information available.
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	The product is not flammable.
Lower explosion limit	Not applicable

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Upper explosion limit	Not applicable
Vapor pressure	Not applicable
Relative vapor density	No information available.
Density	2.07 g/cm ³ at 68 °F (20 °C)
Relative density	No information available.
Water solubility	650 g/l at 68 °F (20 °C) 3,407 g/l at 212 °F (100 °C)
Partition coefficient: n-octanol/water	Not applicable
Autoignition temperature	No information available.
Decomposition temperature	ca.217 °F (103 °C) Elimination of water of crystallization
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	Not applicable
Bulk density	ca.1,000 kg/m ³

SECTION 10. Stability and reactivity

Reactivity

See below

Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

Possibility of hazardous reactions

increased reactivity with:

Strong acids

Conditions to avoid

Strong heating.

Incompatible materials

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no information available

Hazardous decomposition products

in the event of fire: See section 5.

SECTION 11. Toxicological information

Information on toxicological effects

Likely route of exposure

Eye contact, Skin contact, Ingestion

Acute oral toxicity

LD50 Rat: 361 mg/kg

OECD Test Guideline 425

absorption

Symptoms: Stomach/intestinal disorders, Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Acute inhalation toxicity

LC50 Rat: 2.48 mg/l; aerosol

OECD Test Guideline 403

Symptoms: Irritation symptoms in the respiratory tract.

absorption

Skin irritation

Causes skin irritation.

Eye irritation

Possible damages: slight irritation

Sensitization

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

May cause an allergic skin reaction.

Genotoxicity in vitro

Mutagenicity (mammal cell test):

Result: positive

(National Toxicology Program)

Ames test

Salmonella typhimurium

Result: negative

(National Toxicology Program)

CMR effects

Carcinogenicity:

May cause cancer by inhalation. Positive evidence from human epidemiological studies.

Mutagenicity:

Suspected of causing genetic defects.

Teratogenicity:

May damage the unborn child.

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Reproductive toxicity:
May damage fertility.

Specific target organ systemic toxicity - single exposure

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific target organ systemic toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

Regarding the available data the classification criteria are not fulfilled.

Carcinogenicity

IARC

Group 1: Carcinogenic to humans

nickel sulphate hexahydrate 10101-97-0

OSHA

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH

A1: Confirmed human carcinogen

nickel sulphate hexahydrate 10101-97-0

Further information

The following applies to soluble nickel compounds in general: inorganic nickel has an adstringent effect on mucous membranes. Sensitization with allergic manifestations is possible in predisposed persons. In some cases nickel dermatitis may manifest itself. Depending on the water-solubility, nickel and its compounds display a more or less distinct carcinogenicity, with the readily soluble nickel compounds obviously entailing the lesser risk.

This substance should be handled with particular care.

SECTION 12. Ecological information

Ecotoxicity

Toxicity to fish

LC50 Oncorhynchus mykiss (rainbow trout): 1.28 mg/l; 96 h (anhydrous substance) (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 1 mg/l; 48 h
OECD Test Guideline 202 (anhydrous substance)

Toxicity to algae

IC50 Pseudokirchneriella subcapitata (green algae): 0.75 mg/l; 72 h
OECD Test Guideline 201 (anhydrous substance)

Persistence and degradability

No information available.

Bioaccumulative potential

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Partition coefficient: n-octanol/water

Not applicable

Mobility in soil

No information available.

Additional ecological information

Discharge into the environment must be avoided.

SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

SECTION 14. Transport information

Land transport (DOT)

UN number

UN 3077

Proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. (NICKEL(II) SULFATE HEXAHYDRATE)

Class

9

Packing group

III

Environmentally hazardous

--

Air transport (IATA)

UN number

UN 3077

Proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. (NICKEL(II) SULFATE HEXAHYDRATE)

Class

9

Packing group

III

Environmentally hazardous

--

Special precautions for user

no

Sea transport (IMDG)

UN number

UN 3077

Proper shipping name

ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID,
N.O.S. (NICKEL(II) SULFATE HEXAHYDRATE)

Class

9

Packing group

III

Environmentally hazardous

--

Special precautions for user

yes

EmS

F-A S-F

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SECTION 15. Regulatory information

United States of America

SARA 313

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

Ingredients

nickel sulphate hexahydrate	10101-97-0	100 %
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SARA 302

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

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

Ingredients

nickel sulphate hexahydrate

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

Ingredients

nickel sulphate hexahydrate

DEA List I

Not listed

DEA List II

Not listed

US State Regulations

Massachusetts Right To Know

Ingredients

nickel sulphate hexahydrate

Pennsylvania Right To Know

Ingredients

nickel sulphate hexahydrate

New Jersey Right To Know

Ingredients

nickel sulphate hexahydrate

California Prop 65 Components

WARNING: this product contains a chemical known in the State of California to cause cancer.

Ingredients

nickel sulphate hexahydrate

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Notification status

TSCA: All components of the product are listed in the TSCA-inventory.

DSL: All components of this product are on the Canadian DSL.

SECTION 16. Other information

Training advice

Provide adequate information, instruction and training for operators.

Labeling

Hazard pictograms



Signal Word

Danger

Hazard Statements

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.

H350i May cause cancer by inhalation.

H360 May damage fertility or the unborn child.

H372 Causes damage to organs through prolonged or repeated exposure.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary Statements

Prevention

P201 Obtain special instructions before use.

P273 Avoid release to the environment.

P280 Wear protective gloves.

Response

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P314 Get medical advice/ attention if you feel unwell.

P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/ physician.

Restricted to professional users.

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

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.
H360	May damage fertility or the unborn child.
H372	Causes damage to organs through prolonged or repeated exposure.

Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at www.wikipedia.org.

Revision Date 04/16/2015

The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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