

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Revision Date 20.11.2018

Version 10.2

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

1.1 Product identifier

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

REACH Registration Number A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

CAS-No. 13478-00-7

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

Identified uses Reagent for analysis
For additional information on uses please refer to the Merck Chemicals portal (www.merckgroup.com).

1.3 Details of the supplier of the safety data sheet

Company Merck KGaA * 64271 Darmstadt * Germany * Phone:+49 6151 72-0

Responsible Department LS-QHC * e-mail: prodsafe@merckgroup.com

1.4 Emergency telephone number Please contact the regional company representation in your country.

SECTION 2. Hazards identification

2.1 Classification of the substance or mixture

Classification (REGULATION (EC) No 1272/2008)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Oxidizing solid, Category 2, H272

Acute toxicity, Category 4, Oral, H302

Acute toxicity, Category 4, Inhalation, H332

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

Respiratory sensitisation, Category 1, H334

Skin sensitisation, Category 1, H317

Germ cell mutagenicity, Category 2, H341

Carcinogenicity, Category 1A, Inhalation, H350i

Reproductive toxicity, Category 1B, H360D

Specific target organ toxicity - repeated exposure, 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 Label elements

Labelling (REGULATION (EC) No 1272/2008)

Hazard pictograms



Signal word

Danger

Hazard statements

H350i May cause cancer by inhalation.

H360D May damage the unborn child.

H272 May intensify fire; oxidizer.

H302 + H332 Harmful if swallowed or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

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.

H410 Very toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention

P201 Obtain special instructions before use.

P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

P273 Avoid release to the environment.

P280 Wear protective gloves.

P280 Wear eye protection.

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.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

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

Restricted to professional users.

Reduced labelling (≤125 ml)

Hazard pictograms



Signal word

Danger

Hazard statements

H350i May cause cancer by inhalation.

H360D May damage the unborn child.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

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.

P280 Wear protective gloves/ eye protection/ face protection.

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

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

Contains: nickel(II) nitrate hexahydrate

Index-No. 028-012-00-1

2.3 Other hazards

None known.

SECTION 3. Composition/information on ingredients

3.1 Substance

Formula	Ni(NO ₃) ₂ * 6 H ₂ O	N ₂ NiO ₆ * 6 H ₂ O (Hill)
Index-No.	028-012-00-1	
EC-No.	236-068-5	
Molar mass	290,81 g/mol	

Hazardous components (REGULATION (EC) No 1272/2008)

Chemical name (Concentration)

CAS-No.	Registration number	Classification
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nickel(II) nitrate hexahydrate (<= 100 %)		
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13478-00-7	*)	
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Oxidizing solid, Category 2, H272

Acute toxicity, Category 4, H302

Acute toxicity, Category 4, H332

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Respiratory sensitisation, Category 1, H334

Skin sensitisation, Category 1, H317

Germ cell mutagenicity, Category 2, H341

Carcinogenicity, Category 1A, H350i

Reproductive toxicity, Category 1B, H360D

Specific target organ toxicity - repeated exposure, Category 1, H372

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

M-Factor: 1

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

3.2 Mixture

Not applicable

SECTION 4. First aid measures

4.1 Description of first aid measures

General advice

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

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

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

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

4.2 Most important symptoms and effects, both acute and delayed

Cough, Nausea, Vomiting

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

The following applies to soluble nickel compounds in general: inorganic nickel has an adstringent effect on mucous membranes. Sensitisation 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.

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

Irritation and corrosion, Allergic reactions

Risk of serious damage to eyes.

4.3 Indication of any immediate medical attention and special treatment needed

No information available.

SECTION 5. Firefighting measures

5.1 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.

5.2 Special hazards arising from the substance or mixture

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of:

nitrous gases, nitrogen oxides

5.3 Advice for firefighters

Special protective equipment for firefighters

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/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

SECTION 6. Accidental release measures

6.1 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.

6.2 Environmental precautions

Do not let product enter drains.

6.3 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.

6.4 Reference to other sections

Indications about waste treatment see section 13.

SECTION 7. Handling and storage

7.1 Precautions for safe handling

Advice on safe handling

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

Hygiene measures

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Dry.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Tightly closed. Do not store near combustible materials. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

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

8.2 Exposure controls

Engineering measures

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

See section 7.1.

Individual protection measures

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

Eye/face protection

Tightly fitting safety goggles

Hand protection

full contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

splash contact:

Glove material:	Nitrile rubber
Glove thickness:	0,11 mm
Break through time:	> 480 min

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Other protective equipment

protective clothing

Respiratory protection

required when dusts are generated.

Recommended Filter type: Filter P 3 (acc. to DIN 3181) for solid and liquid particles of toxic and very toxic substances

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

Environmental exposure controls

Do not let product enter drains.

SECTION 9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Form	solid
Colour	green
Odour	of nitric acid
Odour Threshold	No information available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	106721
Product name	Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

pH	ca. 5 at 50 g/l 20 °C
Melting point	56,7 °C
Boiling point	No information available.
Flash point	Not applicable
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	Not applicable
Upper explosion limit	Not applicable
Vapour pressure	No information available.
Relative vapour density	No information available.
Density	2,05 g/cm ³ at 20 °C
Relative density	No information available.
Water solubility	940 g/l at 20 °C
Partition coefficient: n-octanol/water	No information available.
Auto-ignition temperature	No information available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	106721
Product name	Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Decomposition temperature	137 °C
Viscosity, dynamic	No information available.
Explosive properties	Not classified as explosive.
Oxidizing properties	The substance or mixture is classified as oxidizing with the category 2.

9.2 Other data

Ignition temperature	Not applicable
Bulk density	ca.800 kg/m ³

SECTION 10. Stability and reactivity

10.1 Reactivity

strong oxidising agent

10.2 Chemical stability

releases water of crystallisation when heated.

10.3 Possibility of hazardous reactions

Violent reactions possible with:

Reducing agents, combustible substances, acids

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

no information available

10.6 Hazardous decomposition products

in the event of fire: See section 5.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

SECTION 11. Toxicological information

11.1 Information on toxicological effects

Acute oral toxicity

LD50 Rat: 1.620 mg/kg

(RTECS)

Symptoms: Nausea, Vomiting

Acute inhalation toxicity

Symptoms: Cough

Acute toxicity estimate: 1,6 mg/l; dust/mist

Expert judgement

Acute dermal toxicity

This information is not available.

Skin irritation

Causes skin irritation.

Eye irritation

Causes serious eye damage.

Sensitisation

May cause an allergic skin reaction.

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

Germ cell mutagenicity

Genotoxicity in vitro

Ames test

Result: negative

(anhydrous substance) (Lit.)

Carcinogenicity

This information is not available.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Reproductive toxicity

This information is not available.

Teratogenicity

This information is not available.

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.

Specific target organ toxicity - single exposure

This information is not available.

Specific target organ toxicity - repeated exposure

Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard

This information is not available.

11.2 Further information

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

The following applies to soluble nickel compounds in general: inorganic nickel has an adstringent effect on mucous membranes. Sensitisation 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.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

SECTION 12. Ecological information

12.1 Toxicity

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Toxicity to fish

LC50 Cyprinus carpio (Carp): 10,6 mg/l; 96 h
(anhydrous substance) (ECOTOX Database)

Toxicity to daphnia and other aquatic invertebrates

EC50 Daphnia magna (Water flea): 0,9 mg/l; 48 h
(anhydrous substance) (ECOTOX Database)

12.2 Persistence and degradability

No information available.

12.3 Bioaccumulative potential

No information available.

12.4 Mobility in soil

No information available.

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

12.6 Other adverse effects

Additional ecological information

Discharge into the environment must be avoided.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

SECTION 13. Disposal considerations

Waste treatment methods

See www.retrologistik.com for processes regarding the return of chemicals and containers, or contact us there if you have further questions.

SECTION 14. Transport information

Land transport (ADR/RID)

14.1 UN number	UN 2725
14.2 Proper shipping name	NICKEL NITRATE
14.3 Class	5.1
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
Tunnel restriction code	E

Inland waterway transport (ADN)

Not relevant

Air transport (IATA)

14.1 UN number	UN 2725
14.2 Proper shipping name	NICKEL NITRATE
14.3 Class	5.1
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	no

Sea transport (IMDG)

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No.	106721
Product name	Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

14.1 UN number	UN 2725
14.2 Proper shipping name	NICKEL NITRATE
14.3 Class	5.1
14.4 Packing group	III
14.5 Environmentally hazardous	yes
14.6 Special precautions for user	yes
EmS	F-A S-Q

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

EU regulations

Major Accident Hazard	SEVESO III
Legislation	OXIDIZING LIQUIDS AND SOLIDS P8 Quantity 1: 50 t Quantity 2: 200 t SEVESO III ENVIRONMENTAL HAZARDS E1 Quantity 1: 100 t Quantity 2: 200 t

Occupational restrictions	Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.
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Regulation (EC) No 1005/2009 on substances that deplete the ozone layer not regulated

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

Regulation (EC) No 850/2004 of the European
Parliament and of the Council of 29 April 2004 on
persistent organic pollutants and amending
Directive 79/117/EEC

not regulated

Substances of very high concern (SVHC)

This product does not contain substances
of very high concern according to
Regulation (EC) No 1907/2006 (REACH),
Article 57 above the respective regulatory
concentration limit of $\geq 0.1\%$ (w/w).

National legislation

Storage class 5.1B

15.2 Chemical safety assessment

For this product a chemical safety assessment was not carried out.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

SECTION 16. Other information

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

H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H318	Causes serious eye damage.
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 organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.

Training advice

Provide adequate information, instruction and training for operators.

Labelling

Hazard pictograms



Signal word

Danger

Hazard statements

H272 May intensify fire; oxidizer.

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

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H302 + H332 Harmful if swallowed or if inhaled.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction.

H318 Causes serious eye damage.

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.

P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis.

P273 Avoid release to the environment.

P280 Wear eye protection.

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.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P314 Get medical advice/ attention if you feel unwell.

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

Further information

Restricted to professional users.

Contains: nickel(II) nitrate hexahydrate

SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Catalogue No. 106721

Product name Nickel(II) nitrate hexahydrate for analysis EMSURE® ACS

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.

Regional representation

This information is given on the authorised Safety Data Sheet for your country.

The information contained herein is based on the present state of our knowledge. It characterises the product with regard to the appropriate safety precautions. It does not represent a guarantee of any properties of the product.