## 1 Identification

**Product identifier**

**Product name: Nickel(II) sulfate hydrate**

**Stock number:** 10820
**CAS Number:**
15244-37-8
**EC number:**
232-104-9
**Index number:**
028-009-00-5
**Relevant identified uses of the substance or mixture and uses advised against.**
**Identified use:** SU24 Scientific research and development

**Details of the supplier of the safety data sheet**
**Manufacturer/Supplier:**
Alfa Aesar
Thermo Fisher Scientific Chemicals, Inc.
30 Bond Street
Ward Hill, MA 01835-8099
Tel: 800-343-0660
Fax: 800-322-4757
Email: tech@alfa.com
www.alfa.com
**Information Department:** Health, Safety and Environmental Department
**Emergency telephone number:**
During normal business hours (Monday-Friday, 8am-7pm EST), call (800) 343-0660. After normal business hours, call Carechem 24 at (866) 928-0789.

## 2 Hazard(s) identification

**Classification of the substance or mixture in accordance with 29 CFR 1910 (OSHA HCS)**

GHS08 Health hazard

| | | |
|---|---|---|
| Resp. Sens. 1 | H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| Muta. 2 | H341 | Suspected of causing genetic defects. |
| Carc. 1A | H350 | May cause cancer. |
| Repr. 1B | H360 | May damage fertility or the unborn child. |
| STOT RE 1 | H372 | Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalative. |

GHS07

| | | |
|---|---|---|
| Acute Tox. 4 | H302 | Harmful if swallowed. |
| Acute Tox. 4 | H332 | Harmful if inhaled. |
| Skin Irrit. 2 | H315 | Causes skin irritation. |
| Skin Sens. 1 | H317 | May cause an allergic skin reaction. |

**Hazards not otherwise classified** No information known.

**Label elements**
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
**Hazard pictograms**

GHS07 GHS08

**Signal word** Danger
**Hazard statements**

| | |
|---|---|
| H302+H332 | Harmful if swallowed or if inhaled. |
| H315 | Causes skin irritation. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H317 | May cause an allergic skin reaction. |
| H341 | Suspected of causing genetic defects. |
| H350 | May cause cancer. |
| H360 | May damage fertility or the unborn child. |
| H372 | Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalative. |

**Precautionary statements**

| | |
|---|---|
| P273 | Avoid release to the environment. |
| P201 | Obtain special instructions before use. |
| P309+P311 | IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician. |
| P501 | Dispose of contents/container in accordance with local/regional/national/international regulations. |

**WHMIS classification**
D1B - Toxic material causing immediate and serious toxic effects
D2A - Very toxic material causing other toxic effects

**Classification system**
**HMIS ratings (scale 0-4)**
**(Hazardous Materials Identification System)**


Health (acute effects) = 2
Flammability = 0
Physical Hazard = 1

**Other hazards**
**Results of PBT and vPvB assessment**
**PBT:** Not applicable.

(Contd. on page 2)

**Product name: Nickel(II) sulfate hydrate**

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**vPvB:** Not applicable.

## 3 Composition/information on ingredients

**Chemical characterization: Substances**
**CAS# Description:**
15244-37-8 Nickel(II) sulfate hydrate
**Identification number(s):**
**EC number:** 232-104-9
**Index number:** 028-009-00-5

## 4 First-aid measures

**Description of first aid measures**
**After inhalation**
Supply fresh air. If required, provide artificial respiration. Keep patient warm.
Seek immediate medical advice.
**After skin contact**
Immediately wash with water and soap and rinse thoroughly.
Seek immediate medical advice.
**After eye contact** Rinse opened eye for several minutes under running water. Then consult a doctor.
**After swallowing** Seek medical treatment.
**Information for doctor**
**Most important symptoms and effects, both acute and delayed**
Gastric or intestinal disorders.
Nausea
Cramp
**Indication of any immediate medical attention and special treatment needed** No further relevant information available.

## 5 Fire-fighting measures

**Extinguishing media**
**Suitable extinguishing agents** Product is not flammable. Use fire-fighting measures that suit the surrounding fire.
**Special hazards arising from the substance or mixture**
If this product is involved in a fire, the following can be released:
Sulfur oxides (SOx)
Toxic metal oxide fume
**Advice for firefighters**
**Protective equipment:**
Wear self-contained respirator.
Wear fully protective impervious suit.

## 6 Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
**Environmental precautions:** Do not allow material to be released to the environment without proper governmental permits.
**Methods and material for containment and cleaning up:**
Dispose of contaminated material as waste according to section 13.
Ensure adequate ventilation.
**Prevention of secondary hazards:** No special measures required.
**Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

## 7 Handling and storage

**Handling**
**Precautions for safe handling**
Keep container tightly sealed.
Store in cool, dry place in tightly closed containers.
Ensure good ventilation at the workplace.
Open and handle container with care.
**Information about protection against explosions and fires:** The product is not flammable

**Conditions for safe storage, including any incompatibilities**
**Storage**
**Requirements to be met by storerooms and receptacles:** No special requirements.
**Information about storage in one common storage facility:**
Store away from oxidizing agents.
Store away from strong bases.
**Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed containers.
**Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

**Additional information about design of technical systems:**
Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

**Control parameters**
**Components with limit values that require monitoring at the workplace:**

Nickel and inorganic compounds, as Ni
mg/m3
ACGIH TLV 1.5, A5-inhalable particulate (metal)
0.2, A1-inhalable particulate (insoluble compounds)
0.1, A4-inhalable particulate (soluble compounds)
Austria Carcinogen
Denmark TWA 0.5
Finland TWA 0.1 (skin) Carcinogen
France VME 1; C3-Carcinogen
Germany Carcinogen
Hungary 0.005-STEL; Carcinogen (insoluble compounds)

(Contd. on page 3)

**Product name: Nickel(II) sulfate hydrate**

(Contd. of page 2)

Japan 1; 2B-Carcinogen
Korea TLV 1.5
Netherlands MAC-TGG 1; Carcinogen
1 (insoluble compounds)
Norway TWA 0.05
Poland TWA 0.25
Russia 0.05-STEL
Sweden NGV 0.5 (dust)
Switzerland MAK-W 0.5; Carcinogen
United Kingdom TWA 0.1
USA PEL 1
**Additional information:** No data

**Exposure controls**
**Personal protective equipment**
**General protective and hygienic measures**
The usual precautionary measures for handling chemicals should be followed.
Keep away from foodstuffs, beverages and feed.
Remove all soiled and contaminated clothing immediately.
Wash hands before breaks and at the end of work.
Store protective clothing separately.
Avoid contact with the eyes and skin.
Maintain an ergonomically appropriate working environment.
**Breathing equipment:** Use suitable respirator when high concentrations are present.
**Protection of hands:**
Impervious gloves
Check protective gloves prior to each use for their proper condition.
The selection of suitable gloves not only depends on the material, but also on quality. Quality will vary from manufacturer to manufacturer.
**Penetration time of glove material (in minutes)** Not determined
**Eye protection:** Safety glasses
**Body protection:** Protective work clothing.

## 9 Physical and chemical properties

**Information on basic physical and chemical properties**
**General Information**

| | |
|---|---|
| **Appearance:** | |
| **Form:** | Crystalline powder |
| **Color:** | Green |
| **Odor:** | Odorless |
| **Odor threshold:** | Not determined. |
| **pH-value (100 g/l) at 20 °C (68 °F):** | 4.3-4.7 |
| **Change in condition** | |
| **Melting point/Melting range:** | Not determined |
| **Boiling point/Boiling range:** | Not determined |
| **Sublimation temperature / start:** | Not determined |
| **Flash point:** | Not applicable |
| **Flammability (solid, gaseous)** | Product is not flammable. |
| **Ignition temperature:** | Not determined |
| **Decomposition temperature:** | Not determined |
| **Auto igniting:** | Not determined. |
| **Danger of explosion:** | Product does not present an explosion hazard. |
| **Explosion limits:** | |
| **Lower:** | Not determined |
| **Upper:** | Not determined |
| **Vapor pressure:** | Not applicable. |
| **Density at 20 °C (68 °F):** | 2.07 g/cm³ (17.274 lbs/gal) |
| **Relative density** | Not determined. |
| **Vapor density** | Not applicable. |
| **Evaporation rate** | Not applicable. |
| **Solubility in / Miscibility with** | |
| **Water at 20 °C (68 °F):** | 650 g/l |
| **Partition coefficient (n-octanol/water):** | Not determined. |
| **Viscosity:** | |
| **dynamic:** | Not applicable. |
| **kinematic:** | Not applicable. |
| **Other information** | No further relevant information available. |

## 10 Stability and reactivity

**Reactivity** No information known.
**Chemical stability** Stable under recommended storage conditions.
**Thermal decomposition / conditions to be avoided:** Decomposition will not occur if used and stored according to specifications.
**Possibility of hazardous reactions** No dangerous reactions known
**Conditions to avoid** No further relevant information available.
**Incompatible materials:**
Oxidizing agents
Bases
**Hazardous decomposition products:**
Sulfur dioxide
Toxic metal oxide fume
Sulfur oxides (SOx)

## 11 Toxicological information

**Information on toxicological effects**
**Acute toxicity:**
Harmful if inhaled.
Harmful if swallowed.
**LD/LC50 values that are relevant for classification:** No data
**Skin irritation or corrosion:** Causes skin irritation.
**Eye irritation or corrosion:** Irritating effect.

(Contd. on page 4)

**Product name: Nickel(II) sulfate hydrate**

(Contd. of page 3)

**Sensitization:**
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
**Germ cell mutagenicity:** Suspected of causing genetic defects.
**Carcinogenicity:**
May cause cancer.
IARC-1: Carcinogenic to humans: sufficient evidence of carcinogenicity.
ACGIH A1: Confirmed human carcinogen: Agent is carcinogenic to humans based on epidemiologic studies of, or convincing clinical evidence in, exposed humans.
NTP-K: Known to be carcinogenic: sufficient evidence from human studies.
**Reproductive toxicity:** May damage fertility or the unborn child.
**Specific target organ system toxicity - repeated exposure:**
Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalative.
**Specific target organ system toxicity - single exposure:** No effects known.
**Aspiration hazard:** No effects known.
**Other information (about experimental toxicology):**
Mutagenic effects have been observed on tests with laboratory animals.
Reproductive effects have been observed on tests with laboratory animals.
**Subacute to chronic toxicity:**
Nickel and nickel compounds may cause a form of dermatitis known as nickel itch. They may also cause intestinal disorders, convulsions and asphyxia. Airborne nickel contaminated dusts are regarded as carcinogenic to the respiratory tract.
**Subacute to chronic toxicity:** No effects known.
**Additional toxicological information:** To the best of our knowledge the acute and chronic toxicity of this substance is not fully known.

## 12 Ecological information

**Toxicity**
**Aquatic toxicity:** No further relevant information available.
**Persistence and degradability** No further relevant information available.
**Bioaccumulative potential** No further relevant information available.
**Mobility in soil** No further relevant information available.
**Ecotoxical effects:**
**Remark:** Very toxic for aquatic organisms
**Additional ecological information:**
**General notes:**
Do not allow material to be released to the environment without proper governmental permits.
Do not allow product to reach ground water, water course or sewage system, even in small quantities.
Danger to drinking water if even extremely small quantities leak into the ground.
Also poisonous for fish and plankton in water bodies.
May cause long lasting harmful effects to aquatic life.
Avoid transfer into the environment.
Very toxic for aquatic organisms
**Results of PBT and vPvB assessment**
**PBT:** Not applicable.
**vPvB:** Not applicable.
**Other adverse effects** No further relevant information available.

## 13 Disposal considerations

**Waste treatment methods**
**Recommendation** Consult state, local or national regulations to ensure proper disposal.
**Uncleaned packagings:**
**Recommendation:** Disposal must be made according to official regulations.

## 14 Transport information

| | |
|---|---|
| **UN-Number**<br>**DOT, IMDG, IATA** | UN3288 |
| **UN proper shipping name**<br>**DOT**<br>**IMDG**<br>**IATA** | Toxic solid, inorganic, n.o.s. (Nickel(II) sulfate hydrate)<br>TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) sulfate hydrate), MARINE POLLUTANT<br>TOXIC SOLID, INORGANIC, N.O.S. (Nickel(II) sulfate hydrate) |
| **Transport hazard class(es)** | |
| **DOT** | |
|  | |
| **Class**<br>**Label** | 6.1 Toxic substances.<br>6.1 |
| **Class**<br>**Label** | 6.1 (T5) Toxic substances<br>6.1 |
| **IMDG** | |
|  | |
| **Class**<br>**Label** | 6.1 Toxic substances.<br>6.1 |
| **IATA** | |
|  | |
| **Class**<br>**Label** | 6.1 Toxic substances.<br>6.1 |
| **Packing group**<br>**DOT, IMDG, IATA** | III |
| **Environmental hazards:**<br>**Marine pollutant (IMDG):** | Environmentally hazardous substance, solid; Marine Pollutant<br>Symbol (fish and tree) |

(Contd. on page 5)

**Product name: Nickel(II) sulfate hydrate**

(Contd. of page 4)

| | |
|---|---|
| **Special precautions for user** | Warning: Toxic substances |
| **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** | Not applicable. |
| **Transport/Additional information:** | |
| **DOT** | |
| **Hazardous substance:** | 100 lbs, 45.4 kg |
| **Marine Pollutant (DOT):** | No |
| **Remarks:** | Special marking with the symbol (fish and tree). |
| **UN "Model Regulation":** | UN3288, Toxic solid, inorganic, n.o.s. (Nickel(II) sulfate hydrate), 6.1, III |

## 15 Regulatory information

**Safety, health and environmental regulations/legislation specific for the substance or mixture**
**GHS label elements** The product is classified and labeled in accordance with 29 CFR 1910 (OSHA HCS)
**Hazard pictograms**

GHS07 GHS08

**Signal word** Danger
**Hazard statements**
H302+H332 Harmful if swallowed or if inhaled.
H315 Causes skin irritation.
H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H317 May cause an allergic skin reaction.
H341 Suspected of causing genetic defects.
H350 May cause cancer.
H360 May damage fertility or the unborn child.
H372 Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalative.
**Precautionary statements**
P273 Avoid release to the environment.
P201 Obtain special instructions before use.
P309+P311 IF exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
**National regulations**
All components of this product are listed in the U.S. Environmental Protection Agency Toxic Substances Control Act Chemical substance Inventory.

| **SARA Section 313 (specific toxic chemical listings)** | |
|---|---|
| 15244-37-8 | Nickel(II) sulfate hydrate |

**California Proposition 65**

| **Prop 65 - Chemicals known to cause cancer** | |
|---|---|
| 15244-37-8 | Nickel(II) sulfate hydrate |

**Prop 65 - Developmental toxicity** Substance is not listed.
**Prop 65 - Developmental toxicity, female** Substance is not listed.
**Prop 65 - Developmental toxicity, male** Substance is not listed.
**Information about limitation of use:**
For use only by technically qualified individuals.
This product contains nickel and is subject to the reporting requirements of section 313 of the Emergency Planning and Community Right to Know act of 1986 and 40CFR372.
**Other regulations, limitations and prohibitive regulations**
**Substance of Very High Concern (SVHC) according to the REACH Regulations (EC) No. 1907/2006.** Substance is not listed.
**The conditions of restrictions according to Article 67 and Annex XVII of the Regulation (EC) No 1907/2006 (REACH) for the manufacturing, placing on the market and use must be observed.**
Substance is not listed.
**Annex XIV of the REACH Regulations (requiring Authorisation for use)** Substance is not listed.
**Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

Employers should use this information only as a supplement to other information gathered by them, and should make independent judgement of suitability of this information to ensure proper use and protect the health and safety of employees. This information is furnished without warranty, and any use of the product not in conformance with this Material Safety Data Sheet, or in combination with any other product or process, is the responsibility of the user.

**Department issuing SDS:** Global Marketing Department
**Date of preparation / last revision** 11/24/2015 / -
**Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organization
ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
HMIS: Hazardous Materials Identification System (USA)
WHMIS: Workplace Hazardous Materials Information System (Canada)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
vPvB: very Persistent and very Bioaccumulative
ACGIH: American Conference of Governmental Industrial Hygienists (USA)
OSHA: Occupational Safety and Health Administration (USA)
NTP: National Toxicology Program (USA)
IARC: International Agency for Research on Cancer
EPA: Environmental Protection Agency (USA)