

ALFAAA15540

Nickel(II) nitrate hexahydrate

SECTION 1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

产品说明:
 Product Description: 硝酸镍(II)六水合物, 98%
 Nickel(II) nitrate hexahydrate

Cat No. : A15540
 Synonyms Nickelous nitrate hexahydrate
 CAS No 13478-00-7
 Molecular Formula N2 Ni O6 . 6 H2 O

Supplier Avocado Research Chemicals Ltd.
 (Part of Thermo Fisher Scientific)
 Shore Road, Heysham
 Lancashire, LA3 2XY,
 United Kingdom
 Office Tel: +44 (0) 1524 850506
 Office Fax: +44 (0) 1524 850608

Emergency Telephone Number For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11
 Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99
CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

E-mail address begel.sdsdesk@thermofisher.com

Recommended Use Laboratory chemicals.
 Uses advised against No Information available

SECTION 2. HAZARD IDENTIFICATION

Physical State
 Solid

Appearance
 Blue green

Odor
 Odorless

Emergency Overview

May intensify fire; oxidizer. Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Causes serious eye damage. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer by inhalation. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure. Very toxic to aquatic life with long lasting effects.

Classification of the substance or mixture

| | |
|--|-------------|
| Oxidizing solids | Category 2 |
| Acute Oral Toxicity | Category 4 |
| Acute Inhalation Toxicity - Dusts and Mists | Category 4 |
| Skin Corrosion/Irritation | Category 2 |
| Serious Eye Damage/Eye Irritation | Category 1 |
| Respiratory Sensitization | Category 1 |
| Skin Sensitization | Category 1 |
| Germ Cell Mutagenicity | Category 2 |
| Carcinogenicity | Category 1A |
| Reproductive Toxicity | Category 1B |
| Specific target organ toxicity - (repeated exposure) | Category 1 |
| Acute aquatic toxicity | Category 1 |

Nickel(II) nitrate hexahydrate

| | |
|--------------------------|------------|
| Chronic aquatic toxicity | Category 1 |
|--------------------------|------------|

Label Elements**Signal Word****Danger****Hazard Statements**

H272 - May intensify fire; oxidizer
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
H372 - Causes damage to organs through prolonged or repeated exposure
H410 - Very toxic to aquatic life with long lasting effects
H302 + H332 - Harmful if swallowed or if inhaled
H360 - May damage fertility or the unborn child

Precautionary Statements**Prevention**

P201 - Obtain special instructions before use
P202 - Do not handle until all safety precautions have been read and understood
P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P220 - Keep away from clothing and other combustible materials
P221 - Take any precaution to avoid mixing with combustibles
P260 - Do not breathe dust/fume/gas/mist/vapors/spray
P264 - Wash face, hands and any exposed 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
P280 - Wear protective gloves
P284 - In case of inadequate ventilation wear respiratory protection

Response

P302 + P352 - IF ON SKIN: Wash with plenty of soap and water
P304 + P340 - IF INHALED: Remove person to fresh air and keep 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
P330 - Rinse mouth
P310 - Immediately call a POISON CENTER or doctor
P370 + P378 - In case of fire: Use dry sand, dry chemical or alcohol-resistant foam to extinguish
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor
P362 + P364 - Take off contaminated clothing and wash it before reuse

Storage

P403 + P233 - Store in a well-ventilated place. Keep container tightly closed

Disposal

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

Physical and Chemical Hazards

Oxidizing. Contact with combustible material may cause fire.

Health Hazards

Harmful if swallowed. Causes skin irritation. May cause an allergic skin reaction. Corrosive. Causes eye burns. Harmful if inhaled. May cause allergy or asthma symptoms or breathing difficulties if inhaled. Suspected of causing genetic defects. May cause cancer by inhalation. May damage fertility or the unborn child. Causes damage to organs through prolonged or repeated exposure.

Environmental hazards

Nickel(II) nitrate hexahydrate

Very toxic to aquatic life with long lasting effects. Will likely be mobile in the environment due to its water solubility. The product is water soluble, and may spread in water systems.

Other Hazards

Toxic to terrestrial vertebrates. This product does not contain any known or suspected endocrine disruptors.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Component | CAS No | Weight % |
|---|------------|----------|
| Nickel(II) nitrate, hexahydrate (1:2:6) | 13478-00-7 | >95 |
| Nickel nitrate (2+ salt) | 13138-45-9 | - |

SECTION 4. FIRST AID MEASURES**Eye Contact**

Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required.

Skin Contact

Wash off immediately with plenty of water for at least 15 minutes. Get medical attention.

Inhalation

Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.

Ingestion

Do NOT induce vomiting. Call a physician or poison control center immediately.

Most important symptoms and effects

Causes eye burns. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. . Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

Self-Protection of the First Aider

Ensure that medical personnel are aware of the material(s) involved, take precautions to protect themselves and prevent spread of contamination.

Notes to Physician

Treat symptomatically.

SECTION 5. FIRE-FIGHTING MEASURES**Suitable Extinguishing Media**

Use extinguishing agent suitable for type of surrounding fire.

Extinguishing media which must not be used for safety reasons

No information available.

Specific Hazards Arising from the Chemical

Oxidizer: Contact with combustible/organic material may cause fire. Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition. May ignite combustibles (wood paper, oil, clothing, etc.). Do not allow run-off from fire-fighting to enter drains or water courses.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

Nickel(II) nitrate hexahydrate

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions

Use personal protective equipment as required. Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Avoid contact with skin, eyes or clothing.

Environmental Precautions

Do not flush into surface water or sanitary sewer system. Do not allow material to contaminate ground water system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained. See Section 12 for additional Ecological Information. Avoid release to the environment. Collect spillage.

Methods for Containment and Clean Up

Keep combustibles (wood, paper, oil, etc) away from spilled material. Sweep up and shovel into suitable containers for disposal. Avoid dust formation. Soak up with inert absorbent material. Keep in suitable, closed containers for disposal. Sweep up and shovel into suitable containers for disposal.

Refer to protective measures listed in Sections 8 and 13.

SECTION 7. HANDLING AND STORAGE

Handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Keep away from clothing and other combustible materials. Avoid dust formation. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

Storage

Keep containers tightly closed in a dry, cool and well-ventilated place. Do not store near combustible materials.

Specific Use(s)

Use in laboratories

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control Parameters

| Component | China | Taiwan | Thailand | Hong Kong |
|---|-------|----------------------------|--------------------------|-----------|
| Nickel(II) nitrate, hexahydrate (1:2:6) | - | TWA: 0.1 mg/m ³ | TWA: 1 mg/m ³ | - |
| Nickel nitrate (2+ salt) | - | TWA: 0.1 mg/m ³ | TWA: 1 mg/m ³ | - |

| Component | ACGIH TLV | OSHA PEL | NIOSH | The United Kingdom | European Union |
|---|----------------------------|--------------------------------------|--|--|----------------|
| Nickel(II) nitrate, hexahydrate (1:2:6) | TWA: 0.1 mg/m ³ | (Vacated) TWA: 0.1 mg/m ³ | IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³ | STEL: 0.3 mg/m ³ 15 min TWA: 0.1 mg/m ³ 8 hr Skin | |
| Nickel nitrate (2+ salt) | TWA: 0.1 mg/m ³ | (Vacated) TWA: 0.1 mg/m ³ | IDLH: 10 mg/m ³ TWA: 0.015 mg/m ³ | STEL: 0.3 mg/m ³ 15 min TWA: 0.1 mg/m ³ 8 hr Skin | |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH: NIOSH - National Institute for Occupational Safety and Health

Monitoring methods

BS EN 14042:2003 Title Identifier: Workplace atmospheres. Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents. MDHS14/3 General methods for sampling and gravimetric analysis of respirable and inhalable dust

Nickel(II) nitrate hexahydrate

Exposure Controls

Engineering Measures

Use only under a chemical fume hood. Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source.

Personal protective equipment

Eye Protection Goggles (European standard - EN 166)

Hand Protection Protective gloves

| Glove material | Breakthrough time | Glove thickness | EU standard | Glove comments |
|----------------|-------------------|-----------------|-------------|-----------------------|
| Natural rubber | See manufacturers | - | EN 374 | (minimum requirement) |
| Nitrile rubber | recommendations | | | |
| Neoprene | | | | |
| PVC | | | | |

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

Skin and body protection Wear appropriate protective gloves and clothing to prevent skin exposure

Respiratory Protection When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

Large scale/emergency use Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced
Recommended Filter type: Particulates filter conforming to EN 143

Small scale/Laboratory use Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.
Recommended half mask:- Particle filtering: EN149:2001
When RPE is used a face piece Fit Test should be conducted

Hygiene Measures Handle in accordance with good industrial hygiene and safety practice.

Environmental exposure controls Prevent product from entering drains. Do not allow material to contaminate ground water system. Local authorities should be advised if significant spillages cannot be contained.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

| | | |
|----------------------------|--------------------------|--|
| Appearance | Blue green | |
| Physical State | Solid | |
| Odor | Odorless | |
| Odor Threshold | No data available | |
| pH | 5 | 50g/L (20°C) |
| Melting Point/Range | 56.7 °C / 134.1 °F | |
| Softening Point | No data available | |
| Boiling Point/Range | 137 °C / 278.6 °F | |
| Flash Point | No information available | Method - No information available |

SAFETY DATA SHEET**Nickel(II) nitrate hexahydrate**

| | | |
|--|--------------------------|-------|
| Evaporation Rate | Not applicable | Solid |
| Flammability (solid,gas) | No information available | |
| Explosion Limits | No data available | |
| Vapor Pressure | negligible | |
| Vapor Density | Not applicable | Solid |
| Specific Gravity / Density | No data available | |
| Bulk Density | No data available | |
| Water Solubility | 940 g/L (20°C) | |
| Solubility in other solvents | No information available | |
| Partition Coefficient (n-octanol/water) | | |
| Autoignition Temperature | No data available | |
| Decomposition Temperature | 137 °C | |
| Viscosity | Not applicable | Solid |
| Explosive Properties | No information available | |
| Oxidizing Properties | Oxidizer | |
| Molecular Formula | N2 Ni O6 . 6 H2 O | |
| Molecular Weight | 290.8 | |

SECTION 10. STABILITY AND REACTIVITY

| | |
|---|--|
| Stability | Oxidizer: Contact with combustible/organic material may cause fire. |
| Hazardous Reactions | None under normal processing. |
| Hazardous Polymerization | No information available. |
| Conditions to Avoid | Avoid dust formation. Incompatible products. Excess heat. Combustible material. |
| Materials to avoid | Strong oxidizing agents. Organic materials. Finely powdered metals. Acids. Strong reducing agents. Combustible material. |
| Hazardous Decomposition Products | nitric acid. |

SECTION 11. TOXICOLOGICAL INFORMATION**Product Information****(a) acute toxicity;**

| Component | LD50 Oral | LD50 Dermal | LC50 Inhalation |
|---|---------------------------|-------------|-----------------|
| Nickel(II) nitrate, hexahydrate (1:2:6) | LD50 = 1620 mg/kg (Rat) | | |

(b) skin corrosion/irritation; Category 2**(c) serious eye damage/irritation;** Category 1**(d) respiratory or skin sensitization;**

Respiratory Category 1
Skin Category 1

May cause sensitization by skin contact

(e) germ cell mutagenicity; Category 2

Possible risk of irreversible effects

(f) carcinogenicity; Category 1A

SAFETY DATA SHEET**Nickel(II) nitrate hexahydrate**

The table below indicates whether each agency has listed any ingredient as a carcinogen

| Component | EU | UK | Germany | IARC |
|---|--------------|----|---------|---------|
| Nickel(II) nitrate, hexahydrate (1:2:6) | | | | Group 1 |
| Nickel nitrate (2+ salt) | Carc Cat. 1A | | | |

**(g) reproductive toxicity;
Reproductive Effects**Category 1B
May cause harm to the unborn child.**(h) STOT-single exposure;**

Based on available data, the classification criteria are not met

(i) STOT-repeated exposure;

Category 1

Target Organs

Lungs.

(j) aspiration hazard;Not applicable
Solid**Other Adverse Effects**

See actual entry in RTECS for complete information

Symptoms / effects, both acute and delayed

Symptoms of allergic reaction may include rash, itching, swelling, trouble breathing, tingling of the hands and feet, dizziness, lightheadedness, chest pain, muscle pain or flushing

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity effects**

Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. The product contains following substances which are hazardous for the environment.

Persistence and Degradability**Persistence
Degradability
Degradation in sewage
treatment plant**Soluble in water, Persistence is unlikely, based on information available.
Not relevant for inorganic substances.
Contains substances known to be hazardous to the environment or not degradable in waste water treatment plants.**Bioaccumulative Potential**

Bioaccumulation is unlikely

Mobility in soil

The product is water soluble, and may spread in water systems Will likely be mobile in the environment due to its water solubility Highly mobile in soils

**Endocrine Disruptor Information
Persistent Organic Pollutant
Ozone Depletion Potential**This product does not contain any known or suspected endocrine disruptors
This product does not contain any known or suspected substance
This product does not contain any known or suspected substance**SECTION 13. DISPOSAL CONSIDERATIONS****Waste from Residues/Unused Products**

Should not be released into the environment. Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

Contaminated Packaging

Dispose of this container to hazardous or special waste collection point.

SAFETY DATA SHEET

Nickel(II) nitrate hexahydrate

Other Information

Do not flush to sewer. Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains. Do not let this chemical enter the environment.

SECTION 14. TRANSPORT INFORMATION

Road and Rail Transport

UN-No UN2725
Proper Shipping Name NICKEL NITRATE
Hazard Class 5.1
Packing Group III

IMDG/IMO

UN-No UN2725
Proper Shipping Name NICKEL NITRATE
Hazard Class 5.1
Packing Group III

IATA

UN-No UN2725
Proper Shipping Name NICKEL NITRATE
Hazard Class 5.1
Packing Group III

Special Precautions for User No special precautions required

SECTION 15. REGULATORY INFORMATION

International Inventories

X = listed, China (IECSC), Europe (EINECS/ELINCS/NLP), U.S.A. (TSCA), Canada (DSL/NDSL), Philippines (PICCS), Japan (ENCS), Japan (ISHL), Australia (AICS), Korea (KECL).

| Component | The Inventory of Hazardous Chemicals (2015 Edition) | List of dangerous goods GB 12268 - 2012 | TCSI | IECSC | EINECS | TSCA | DSL | PICCS | ENCS | ISHL | AICS | KECL |
|---|---|---|------|-------|-----------|------|-----|-------|------|------|------|----------|
| Nickel(II) nitrate, hexahydrate (1:2:6) | - | - | X | X | - | - | - | X | - | | X | - |
| Nickel nitrate (2+ salt) | X | X | X | X | 236-068-5 | X | X | X | X | X | X | KE-25844 |

National Regulations

SECTION 16. OTHER INFORMATION

Prepared By Health, Safety and Environmental Department
Creation Date 23-Dec-2009
Revision Date 29-Apr-2024
Revision Summary New emergency telephone response service provider.

Nickel(II) nitrate hexahydrate

Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

Chemical incident response training.

Legend

CAS - Chemical Abstracts Service

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

NZIoC - New Zealand Inventory of Chemicals

WEL - Workplace Exposure Limit

ACGIH - American Conference of Governmental Industrial Hygienists

DNEL - Derived No Effect Level

RPE - Respiratory Protective Equipment

LC50 - Lethal Concentration 50%

NOEC - No Observed Effect Concentration

PBT - Persistent, Bioaccumulative, Toxic

TWA - Time Weighted Average

IARC - International Agency for Research on Cancer

PNEC - Predicted No Effect Concentration

LD50 - Lethal Dose 50%

EC50 - Effective Concentration 50%

POW - Partition coefficient Octanol:Water

vPvB - very Persistent, very Bioaccumulative

ICAO/IATA - International Civil Aviation Organization/International Air Transport Association

ADR - European Agreement Concerning the International Carriage of Dangerous Goods by Road

OECD - Organisation for Economic Co-operation and Development

BCF - Bioconcentration factor

IMO/IMDG - International Maritime Organization/International Maritime Dangerous Goods Code

MARPOL - International Convention for the Prevention of Pollution from Ships

ATE - Acute Toxicity Estimate

VOC - (Volatile Organic Compound)

Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>

Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of Safety Data Sheet