

## SAFETY DATA SHEET

Revision Date 18-Feb-2020

Revision Number 2

### 1. Identification

**Product Name** Nickel(II) perchlorate hexahydrate

**Cat No. :** 11631

**CAS-No** 13520-61-1

**Synonyms** No information available

**Recommended Use** Laboratory chemicals.

**Uses advised against** Food, drug, pesticide or biocidal product use.

**Details of the supplier of the safety data sheet**

**Company**

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

**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**

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

|                                                      |              |
|------------------------------------------------------|--------------|
| Oxidizing solids                                     | Category 2   |
| Skin Corrosion/Irritation                            | Category 1 B |
| 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 1A  |
| Specific target organ toxicity (single exposure)     | Category 3   |
| Target Organs - Respiratory system.                  |              |
| Specific target organ toxicity - (repeated exposure) | Category 1   |
| Target Organs - Lungs.                               |              |

**Label Elements**

**Signal Word**

Danger

**Hazard Statements**

May intensify fire; oxidizer  
Causes severe skin burns and eye damage  
May cause respiratory irritation  
May cause an allergic skin reaction  
May cause allergy or asthma symptoms or breathing difficulties if inhaled  
Suspected of causing genetic defects  
May cause cancer  
May damage fertility or the unborn child  
Causes damage to organs through prolonged or repeated exposure

**Precautionary Statements****Prevention**

Obtain special instructions before use  
Do not handle until all safety precautions have been read and understood  
Use personal protective equipment as required  
Do not breathe dust/fume/gas/mist/vapors/spray  
Wash face, hands and any exposed skin thoroughly after handling  
In case of inadequate ventilation wear respiratory protection  
Contaminated work clothing should not be allowed out of the workplace  
Wear protective gloves  
Do not eat, drink or smoke when using this product  
Use only outdoors or in a well-ventilated area  
Keep away from heat/sparks/open flames/hot surfaces. - No smoking  
Keep/Store away from clothing/ other combustible materials  
Take any precaution to avoid mixing with combustibles

**Response**

Immediately call a POISON CENTER or doctor/physician

**Inhalation**

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

**Skin**

IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower  
Wash contaminated clothing before reuse  
If skin irritation or rash occurs: Get medical advice/attention

**Eyes**

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

**Ingestion**

IF SWALLOWED: Rinse mouth. DO NOT induce vomiting

**Fire**

In case of fire: Use CO<sub>2</sub>, dry chemical, or foam for extinction

**Storage**

Store locked up  
Store in a well-ventilated place. Keep container tightly closed

**Disposal**

Dispose of contents/container to an approved waste disposal plant

**Hazards not otherwise classified (HNOC)**

Very toxic to aquatic life with long lasting effects  
WARNING. Cancer - <https://www.p65warnings.ca.gov/>.

### 3. Composition/Information on Ingredients

| Component                                     | CAS-No     | Weight % |
|-----------------------------------------------|------------|----------|
| Perchloric acid, nickel(2+) salt, hexahydrate | 13520-61-1 | <=100    |

### 4. First-aid measures

|                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>General Advice</b>                      | Show this safety data sheet to the doctor in attendance. Immediate medical attention is required.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| <b>Eye Contact</b>                         | Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Immediate medical attention is required. Keep eye wide open while rinsing.                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Skin Contact</b>                        | Wash off immediately with soap and plenty of water while removing all contaminated clothes and shoes. Call a physician immediately.                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>Inhalation</b>                          | Remove to fresh air. If not breathing, give artificial respiration. Call a physician or poison control center immediately. 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.                                                                                                                                                                                                                                                        |
| <b>Ingestion</b>                           | Immediate medical attention is required. Do NOT induce vomiting. Drink plenty of water. Never give anything by mouth to an unconscious person.                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>Most important symptoms and effects</b> | Causes burns by all exposure routes. May cause allergy or asthma symptoms or breathing difficulties if inhaled. May cause allergic skin reaction. Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: 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 |
| <b>Notes to Physician</b>                  | Treat symptomatically                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

### 5. Fire-fighting measures

|                                         |                                                                   |
|-----------------------------------------|-------------------------------------------------------------------|
| <b>Suitable Extinguishing Media</b>     | CO <sub>2</sub> , dry chemical, dry sand, alcohol-resistant foam. |
| <b>Unsuitable Extinguishing Media</b>   | No information available                                          |
| <b>Flash Point</b>                      | No information available                                          |
| <b>Method -</b>                         | No information available                                          |
| <b>Autoignition Temperature</b>         | No information available                                          |
| <b>Explosion Limits</b>                 |                                                                   |
| <b>Upper</b>                            | No data available                                                 |
| <b>Lower</b>                            | No data available                                                 |
| <b>Oxidizing Properties</b>             | Oxidizer                                                          |
| <b>Sensitivity to Mechanical Impact</b> | No information available                                          |
| <b>Sensitivity to Static Discharge</b>  | No information available                                          |

#### Specific Hazards Arising from the Chemical

The product causes burns of eyes, skin and mucous membranes. May ignite combustibles (wood, paper, oil, clothing, etc.). Oxidizer: Contact with combustible/organic material may cause fire. Do not allow run-off from fire-fighting to enter drains or water courses.

#### Hazardous Combustion Products

None known.

**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.

**NFPA**

**Health**  
3

**Flammability**  
0

**Instability**  
0

**Physical hazards**  
- OX

## 6. Accidental release measures

**Personal Precautions**

Use personal protective equipment as required. Evacuate personnel to safe areas. 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.

**Methods for Containment and Clean Up**

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.

## 7. Handling and storage

**Handling**

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

**Storage**

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

## 8. Exposure controls / personal protection

**Exposure Guidelines**

| Component                                     | ACGIH TLV                  | OSHA PEL                             | NIOSH IDLH                                                 | Mexico OEL (TWA)           |
|-----------------------------------------------|----------------------------|--------------------------------------|------------------------------------------------------------|----------------------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | TWA: 0.1 mg/m <sup>3</sup> | (Vacated) TWA: 0.1 mg/m <sup>3</sup> | IDLH: 10 mg/m <sup>3</sup><br>TWA: 0.015 mg/m <sup>3</sup> | TWA: 0.1 mg/m <sup>3</sup> |

Legend

ACGIH - American Conference of Governmental Industrial Hygienists

OSHA - Occupational Safety and Health Administration

NIOSH IDLH: NIOSH - National Institute for Occupational Safety and Health

**Engineering Measures**

None under normal use conditions. Ensure that eyewash stations and safety showers are close to the workstation location. Ensure adequate ventilation, especially in confined areas.

**Personal Protective Equipment****Eye/face Protection**

Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin and body protection**

Wear appropriate protective gloves and clothing to prevent skin exposure.

**Respiratory Protection**

No protective equipment is needed under normal use conditions.

**Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

## 9. Physical and chemical properties

|                                        |                          |
|----------------------------------------|--------------------------|
| Physical State                         | Solid Crystalline        |
| Appearance                             | Green                    |
| Odor                                   | Odorless                 |
| Odor Threshold                         | No information available |
| pH                                     | No information available |
| Melting Point/Range                    | 140 °C / 284 °F          |
| Boiling Point/Range                    | No information available |
| Flash Point                            | No information available |
| Evaporation Rate                       | Not applicable           |
| Flammability (solid,gas)               | No information available |
| Flammability or explosive limits       |                          |
| Upper                                  | No data available        |
| Lower                                  | No data available        |
| Vapor Pressure                         | No information available |
| Vapor Density                          | Not applicable           |
| Specific Gravity                       | No information available |
| Solubility                             | No information available |
| Partition coefficient; n-octanol/water | No data available        |
| Autoignition Temperature               | No information available |
| Decomposition Temperature              | No information available |
| Viscosity                              | Not applicable           |
| Molecular Formula                      | Ni(Cl O4)2.6H2 O         |
| Molecular Weight                       | 365.70 (257.59anhy)      |

## 10. Stability and reactivity

|                                  |                                                                     |
|----------------------------------|---------------------------------------------------------------------|
| Reactive Hazard                  | Yes                                                                 |
| Stability                        | Oxidizer: Contact with combustible/organic material may cause fire. |
| Conditions to Avoid              | Incompatible products. Excess heat. Combustible material.           |
| Incompatible Materials           | Strong reducing agents, Combustible material                        |
| Hazardous Decomposition Products | None under normal use conditions                                    |
| Hazardous Polymerization         | Hazardous polymerization does not occur.                            |
| Hazardous Reactions              | None under normal processing.                                       |

## 11. Toxicological information

### Acute Toxicity

### Product Information

### Component Information

|                                      |                          |
|--------------------------------------|--------------------------|
| Toxicologically Synergistic Products | No information available |
|--------------------------------------|--------------------------|

### Delayed and immediate effects as well as chronic effects from short and long-term exposure

|                 |                                                                                          |
|-----------------|------------------------------------------------------------------------------------------|
| Irritation      | No information available                                                                 |
| Sensitization   | May cause sensitization by skin contact                                                  |
| Carcinogenicity | The table below indicates whether each agency has listed any ingredient as a carcinogen. |

| Component                                     | CAS-No     | IARC       | NTP   | ACGIH      | OSHA       | Mexico     |
|-----------------------------------------------|------------|------------|-------|------------|------------|------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | 13520-61-1 | Not listed | Known | Not listed | Not listed | Not listed |

NTP: (National Toxicity Program)

NTP: (National Toxicity Program)

*Known - Known Carcinogen**Reasonably Anticipated - Reasonably Anticipated to be a Human Carcinogen*

|                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|---------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Mutagenic Effects</b>                          | No information available                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Reproductive Effects</b>                       | No information available.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Developmental Effects</b>                      | No information available.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>Teratogenicity</b>                             | No information available.                                                                                                                                                                                                                                                                                                                                                                                                                         |
| <b>STOT - single exposure</b>                     | Respiratory system                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>STOT - repeated exposure</b>                   | Lungs                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>Aspiration hazard</b>                          | No information available                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Symptoms / effects, both acute and delayed</b> | Product is a corrosive material. Use of gastric lavage or emesis is contraindicated. Possible perforation of stomach or esophagus should be investigated: Ingestion causes severe swelling, severe damage to the delicate tissue and danger of perforation: 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 |
| <b>Endocrine Disruptor Information</b>            | No information available                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Other Adverse Effects</b>                      | The toxicological properties have not been fully investigated.                                                                                                                                                                                                                                                                                                                                                                                    |

## 12. Ecological information

### Ecotoxicity

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.

|                                      |                                                                          |
|--------------------------------------|--------------------------------------------------------------------------|
| <b>Persistence and Degradability</b> | Soluble in water Persistence is unlikely based on information available. |
| <b>Bioaccumulation/ Accumulation</b> | No information available.                                                |
| <b>Mobility</b>                      | Will likely be mobile in the environment due to its water solubility.    |

## 13. Disposal considerations

|                               |                                                                                                                                                                                                                                                                 |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Waste Disposal Methods</b> | Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification. |
|-------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## 14. Transport information

### DOT

|                             |                                 |
|-----------------------------|---------------------------------|
| <b>UN-No</b>                | UN1481                          |
| <b>Proper Shipping Name</b> | PERCHLORATES, INORGANIC, N.O.S. |
| <b>Technical Name</b>       | (Nickel perchlorate)            |
| <b>Hazard Class</b>         | 5.1                             |
| <b>Packing Group</b>        | II                              |

### TDG

|                             |                                 |
|-----------------------------|---------------------------------|
| <b>UN-No</b>                | UN1481                          |
| <b>Proper Shipping Name</b> | PERCHLORATES, INORGANIC, N.O.S. |
| <b>Hazard Class</b>         | 5.1                             |
| <b>Packing Group</b>        | II                              |

### IATA

|                             |                                 |
|-----------------------------|---------------------------------|
| <b>UN-No</b>                | UN1481                          |
| <b>Proper Shipping Name</b> | PERCHLORATES, INORGANIC, N.O.S. |
| <b>Hazard Class</b>         | 5.1                             |
| <b>Packing Group</b>        | II                              |

**IMDG/IMO**

|                      |                                 |
|----------------------|---------------------------------|
| UN-No                | UN1481                          |
| Proper Shipping Name | PERCHLORATES, INORGANIC, N.O.S. |
| Hazard Class         | 5.1                             |
| Packing Group        | II                              |

**15. Regulatory information****United States of America Inventory**

| Component                                     | CAS-No     | TSCA | TSCA Inventory notification - Active/Inactive | TSCA - EPA Regulatory Flags |
|-----------------------------------------------|------------|------|-----------------------------------------------|-----------------------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | 13520-61-1 | -    | -                                             | -                           |

**Legend:****TSCA** - Toxic Substances Control Act, (40 CFR Part 710)

X - Listed

- - - Not Listed

**TSCA 12(b)** - Notices of Export Not applicable**International Inventories**

Canada (DSL/NDL), Europe (EINECS/ELINCS/NLP), Philippines (PICCS), Japan (ENCS), Australia (AICS), China (IECSC), Korea (ECL).

| Component                                     | CAS-No     | DSL | NDL | EINECS | PICCS | ENCS | AICS | IECSC | KECL |
|-----------------------------------------------|------------|-----|-----|--------|-------|------|------|-------|------|
| Perchloric acid, nickel(2+) salt, hexahydrate | 13520-61-1 | -   | -   | -      | -     | -    | X    | -     | -    |

**U.S. Federal Regulations****SARA 313**

| Component                                     | CAS-No     | Weight % | SARA 313 - Threshold Values % |
|-----------------------------------------------|------------|----------|-------------------------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | 13520-61-1 | <=100    | 0.1                           |

**SARA 311/312 Hazard Categories** See section 2 for more information**CWA (Clean Water Act)**

| Component                                     | CWA - Hazardous Substances | CWA - Reportable Quantities | CWA - Toxic Pollutants | CWA - Priority Pollutants |
|-----------------------------------------------|----------------------------|-----------------------------|------------------------|---------------------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | -                          | -                           | X                      | -                         |

**Clean Air Act**

| Component                                     | HAPS Data | Class 1 Ozone Depletors | Class 2 Ozone Depletors |
|-----------------------------------------------|-----------|-------------------------|-------------------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | X         |                         | -                       |

**OSHA** - Occupational Safety and Health Administration Not applicable**CERCLA** Not applicable**California Proposition 65** This product contains the following Proposition 65 chemicals.

| Component                                     | CAS-No     | California Prop. 65                              | Prop 65 NSRL | Category                    |
|-----------------------------------------------|------------|--------------------------------------------------|--------------|-----------------------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | 13520-61-1 | Carcinogen<br>Developmental<br>Male Reproductive | -            | Developmental<br>Carcinogen |

**U.S. State Right-to-Know Regulations**

| Component                                     | Massachusetts | New Jersey | Pennsylvania | Illinois | Rhode Island |
|-----------------------------------------------|---------------|------------|--------------|----------|--------------|
| Perchloric acid, nickel(2+) salt, hexahydrate | -             | X          | X            | X        | X            |

**U.S. Department of Transportation**

Reportable Quantity (RQ): N  
DOT Marine Pollutant N  
DOT Severe Marine Pollutant N

**U.S. Department of Homeland Security**

This product does not contain any DHS chemicals.

**Other International Regulations**

**Mexico - Grade** No information available

**16. Other information**

**Prepared By** Health, Safety and Environmental Department  
Email: tech@alfa.com  
www.alfa.com

**Revision Date** 18-Feb-2020  
**Print Date** 18-Feb-2020  
**Revision Summary** SDS authoring systems update, replaces ChemGes SDS No. 13520-61-1/2.

**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 SDS**