1 Identification

Product identifier

Product name: Nickel foil

Stock number: 44822

CAS Number: 7440-02-0

EC number: 231-111-4

Index number: 028-002-00-7

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

Carc. 2 H351 Suspected of causing cancer.

STOT RE 1, H372 Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalative.

GHS07

Skin Sens. 1 H317 May cause an allergic skin reaction.

Hazard 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

H317 May cause an allergic skin reaction.

H351 Suspected of causing cancer.

H372 Causes damage to the lung, the kidneys and the liver through prolonged or repeated exposure. Route of exposure: Inhalative.

Precautionary statements

P260 Do not breathe dust/fume/gas/mist/vapours/spray.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P363 Wash contaminated clothing before reuse.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

WHMIS classification

D2A - Very toxic material causing other toxic effects

Classification system

HMIS ratings (scale 0-4)

(Hazardous Materials Identification System)

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

Other hazards

Results of PBT and vPvB assessment

PBT: Not applicable.
vPvB: Not applicable.

3 Composition/information on ingredients

Chemical characterization: Substances

CAS# Description:
7440-02-0 Nickel

Identification number(s):
EC number: 231-111-4
Index number: 028-002-00-7

USA
4 First-aid measures
Description of first aid measures
General information: No special measures required.
After inhalation
Supply fresh air and to be sure call for a doctor.
Seek medical treatment in case of complaints.
After skin contact
Generally the product does not irritate the skin.
After eye contact
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
After swallowing
If symptoms persist consult doctor.
Information for doctor
Most important symptoms and effects, both acute and delayed: No further relevant information available.
Indication of any immediate medical attention and special treatment needed: No further relevant information available.

5 Fire-fighting measures
Extinguishing media
Suitable extinguishing agents: Special powder for metal fires. Do not use water.
For safety reasons unsuitable extinguishing agents: Water
Special hazards arising from the substance or mixture:
If the product is involved in a fire, the following can be released: Nickel oxides.
Advice for firefighters
Protective equipment: No special measures required.

6 Accidental release measures
Personal precautions, protective equipment and emergency procedures: Not required.
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.
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.
Information about protection against explosions and fires: No special measures required.
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: No information known.
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: No further data; see section 7.
Control parameters:
Components with limit values that require monitoring at the workplace:
7440-02-0 Nickel (100.0%)
<table>
<thead>
<tr>
<th>Parameter</th>
<th>Limit Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEL (USA)</td>
<td>1 mg/m³</td>
<td>Long-term value</td>
</tr>
<tr>
<td>REL (USA)</td>
<td>0.015 mg/m³</td>
<td>Long-term value</td>
</tr>
<tr>
<td>TLV (USA)</td>
<td>1.5 mg/m³</td>
<td>Long-term value, inhalable fraction</td>
</tr>
<tr>
<td>EL (Canada)</td>
<td>0.05 mg/m³</td>
<td>Long-term value, as Ni; ACIGH A1, IARC 1</td>
</tr>
<tr>
<td>EV (Canada)</td>
<td>0.2** 0.1*** mg/m³</td>
<td>Long-term value, inh.; metal; insol. compds.; soluble compds.</td>
</tr>
</tbody>
</table>

Additional information:
Exposure controls:
Personal protective equipment:
General protective and hygienic measures:
The usual precautionary measures for handling chemicals should be followed.
Maintain an ergonomically appropriate working environment.
Breathing equipment: Not required.
Protection of hands: Not required.
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: Solid in various forms
Color: Silver grey
Odor: Odorless
Odor threshold: Not determined.
pH-value: Not applicable.
### 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**
- No information known.

**Hazardous decomposition products**
- Nickel oxides

### 11 Toxicological information

**Information on toxicological effects**
- **Acute toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains acute toxicity data for this substance. LD/LO50 values that are relevant for classification: No data
- **Skin irritation or corrosion:** Powder: irritant effect
- **Eye irritation or corrosion:** Powder: irritant effect
- **Sensitization:** May cause an allergic skin reaction
- **Germ cell mutagenicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains mutation data for this substance.
- **Carcinogenicity:** Suspected of causing cancer. IARC-2B: Possibly carcinogenic to humans; limited evidence in humans in the absence of sufficient evidence in experimental animals.
- **Reproductive toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains reproductive data for this substance.
- **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.
- **Subacute to chronic toxicity:** The Registry of Toxic Effects of Chemical Substances (RTECS) contains multiple dose toxicity data for this substance.
- **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**
- No further relevant information available.

**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.

**Additional ecological information**
- General notes:
  - Do not allow product to reach groundwater, water course or sewage system.
  - Do not allow material to be released to the environment without proper governmental permits.
  - Danger to drinking water if even small quantities leak into the ground.
  - Avoid transfer into the environment.

**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**
- Consult state, local or national regulations to ensure proper disposal.

**Uncleaned packagings**
- Consult state, local or national regulations to ensure proper disposal.

**Recommendation:**
- Disposal must be made according to official regulations.

### 14 Transport information

**UN-Number**
- DOT, ADN, IMDG, IATA: Not applicable

**UN proper shipping name**
- DOT, ADN, IMDG, IATA: Not applicable

**Transport hazard class(es)**
- DOT, ADR, ADN, IMDG, IATA: Not applicable

**Class**
- Not applicable
Safety Data Sheet
per OSHA HazCom 2012

Product name: Nickel foil

(Contd. of page 3)

38.0.2

Packing group
DOT, IMDG, IATA
Not applicable

Environmental hazards:
Not applicable.

Special precautions for user
Not applicable.

Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code
Not applicable.

Transport/Additional information:
DOT
Marine Pollutant (DOT): No
UN "Model Regulation": -

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
H317 May cause an allergic skin reaction.
H351 Suspected of causing cancer.
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P363 Wash contaminated clothing before reuse.
P405 Store locked up.
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.
All components of this product are listed on the Canadian Domestic Substances List (DSL).

SARA Section 313 (specific toxic chemical listings)
7440-02-0 Nickel

California Proposition 65
Prop 65 - Chemicals known to cause cancer
7440-02-0 Nickel

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.

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 11/23/2015 /

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)
ICAO: International Civil Aviation Organization
ADE: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
DOT: US Department of Transportation
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)