

## 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name	<b>Nickel Metal Foil</b>
Chemical Formula	Ni
Molecular Weight	58.69 g/mol
CAS No.	7440-02-0
Supplier Address*	ISOFLEX USA PO Box 472615 San Francisco CA 94147 United States
Telephone	+1 415-440-4433
Fax	+1 415-563-4433
Emergency Phone Number (both supplier and manufacturer)	Infotrac/ +1 800-535-5053  *May include subsidiaries or affiliate companies/divisions
Email	<a href="mailto:iusa@isoflex.com">iusa@isoflex.com</a>
Website	<a href="http://www.isoflex.com">www.isoflex.com</a>
Preparation Information	ISOFLEX USA Product Safety +1 415-440-4433

## 2. HAZARDS IDENTIFICATION

### Classification of the substance or mixture

#### GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Skin sensitization (Category 1), **H317**

Carcinogenicity (Category 2), **H351**

Specific target organ toxicity - repeated exposure, Inhalation (Category 1),  
**H372**

Acute aquatic toxicity (Category 3), **H402**

Chronic aquatic toxicity (Category 3), **H412**

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

#### GHS label elements (including precautionary statements)

Pictogram



Signal word

Danger

Hazard statements

**H317** May cause an allergic skin reaction.

**H351** Suspected of causing cancer.

**H372** Causes damage to organs through prolonged or repeated exposure if inhaled.

**H412** Harmful to aquatic life, with long-lasting effects.

Precautionary statements

- P201** Obtain special instructions before use.
- P202** Do not handle until all safety precautions have been read and understood.
- P260** Do not breathe dust/fume/gas/mist/vapors/spray.
- P264** Wash skin thoroughly after handling.
- P270** Do not eat, drink or smoke when using this product.
- P272** Contaminated work clothing should not be allowed out of the workplace.
- P273** Avoid release to the environment.
- P280** Wear protective gloves/protective clothing/eye protection/face protection.
- P302 + P352** If on skin: Wash with plenty of soap and water.
- P308 + P313** If exposed or concerned: Get medical advice/attention.
- P333 + P313** If skin irritation or rash occurs: Get medical advice/attention.
- P363** Wash contaminated clothing before reuse.
- P405** Store locked up.
- P501** Dispose of contents/container to an approved waste disposal plant.

Hazards not otherwise classified (HNOC) or not covered by GHS: *None*

**NFPA Ratings:** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

**Health Hazard = 2      Flammability = 0      Reactivity = 0**



**HMS Ratings:** (0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe)

**Health Hazard = 2      Flammability = 0      Physical Hazard = 0**

<b>HEALTH HAZARD</b>	<b>2</b>
<b>FLAMMABILITY</b>	<b>0</b>
<b>PHYSICAL HAZARD</b>	<b>0</b>
<b>PERSONAL PROTECTION</b>	

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### 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name: Nickel  
CAS No.: 7440-02-0  
Chemical Formula: Ni  
Molecular Weight: 58.69 g/mol

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#### 4. FIRST AID MEASURES

<i>General Advice</i>	Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.
<i>Inhalation</i>	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
<i>Skin Contact</i>	Wash off with soap and plenty of water. Take victim immediately to hospital. Consult a physician.
<i>Eye Contact</i>	Flush eyes with water as a precaution.
<i>Ingestion</i>	Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
<i>Symptoms/Effects</i>	The most important known symptoms and effects (both acute and delayed) are described in the labelling (see section 2) and/or in section 11

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#### 5. FIREFIGHTING MEASURES

<i>Suitable Extinguishing Media</i>	Water spray, alcohol-resistant foam, dry chemical or carbon dioxide
<i>Special Hazards</i>	Nickel/nickel oxides
<i>Advice for Firefighters</i>	Wear self-contained breathing apparatus for firefighting if necessary.

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#### 6. ACCIDENTAL RELEASE MEASURES

<i>Personal Precautions</i>	Use personal protective equipment. Avoid dust formation. Avoid breathing vapors, mist or gas. Ensure adequate ventilation. Evacuate personnel to safe areas. Avoid breathing dust.
<i>Environmental Precautions</i>	Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.
<i>Cleanup Methods</i>	Pick up and arrange disposal without creating dust. Sweep up and shovel. Keep in suitable, closed containers for disposal.

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#### 7. HANDLING AND STORAGE

<i>Handling</i>	Further processing of solid materials may result in the formation of combustible dusts. The potential for combustible dust formation should be taken into consideration before additional processing occurs. Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed.
<i>Storage</i>	Keep container tightly closed in a dry and well-ventilated place.
<i>Storage Class (TRGS 510)</i>	Non-combustible, acute toxic Cat. 3 / toxic hazardous materials or hazardous materials causing chronic effects

## 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

### Control parameters / Components with workplace control parameters

Component	CAS No.	Value	Control Parameters	Basis
Nickel	7440-02-0	TWA	1.5 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Dermatitis Pneumoconiosis Not suspected as a human carcinogen		
		TWA	1.500000 mg/m <sup>3</sup>	USA. ACGIH Threshold Limit Values (TLV)
		Dermatitis Pneumoconiosis Not suspected as a human carcinogen		
		TWA	1.000000 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.015000 mg/m <sup>3</sup>	USA. NIOSH-Recommended Exposure Limits
		Potential Occupational Carcinogen		
		TWA	1.000000 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.015000 mg/m <sup>3</sup>	USA. NIOSH-Recommended Exposure Limits
		Potential Occupational Carcinogen		
		TWA	1 mg/m <sup>3</sup>	USA. Occupational Exposure Limits (OSHA) - Table Z-1 Limits for Air Contaminants
		TWA	0.015 mg/m <sup>3</sup>	USA. NIOSH-Recommended Exposure Limits
		Potential Occupational Carcinogen		

#### Exposure Controls

*Appropriate engineering controls*

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

#### Personal Protective Equipment

*Eye/face protection*

Face shield and safety glasses. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).

*Skin protection*

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer

surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

*Full contact*

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Breakthrough time: 480 min

*Splash contact*

Material: Nitrile rubber  
Minimum layer thickness: 0.11 mm  
Breakthrough time: 480 min

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the CE-approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific-use scenario.

*Body protection*

Complete suit protecting against chemicals. The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.

*Respiratory protection*

Where risk assessment shows air-purifying respirators are appropriate use a full-face particle respirator type N100 (US) or type P3 (EN 143) respirator cartridges as a backup to engineering controls. Use respirators and components tested and approved under appropriate government standards such as NIOSH (US) or CEN (EU).

*Control of environmental exposure*

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

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## 9. PHYSICAL AND CHEMICAL PROPERTIES

<i>Form:</i>	Foil	<i>Vapor Pressure:</i>	1 hPa (1 mmHg) @ 1810 °C
<i>Color:</i>	White, silver, metallic	<i>Vapor Density:</i>	No data available
<i>Odor:</i>	No data available	<i>Relative Density:</i>	8.9 g/ml @ 25 °C (77 °F)
<i>Odor Threshold:</i>	No data available	<i>Water Solubility:</i>	Insoluble
<i>pH:</i>	No data available	<i>Partition Coefficient:</i>	No data available
<i>Melting/Freezing Point:</i>	1453 °C (2647 °F)	<i>Autoignition Temp.:</i>	No data available
<i>Boiling Point:</i>	2732 °C (4950 °F)	<i>Decomposition Temp.:</i>	No data available
<i>Flash Point:</i>	Not applicable	<i>Viscosity:</i>	No data available
<i>Evaporation Rate:</i>	No data available	<i>Explosive Properties:</i>	No data available
<i>Flammability:</i>	No data available	<i>Oxidizing Properties:</i>	No data available
<i>Explosive Limits:</i>	No data available		

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## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	No data available
<b>Chemical stability</b>	Stable under recommended storage conditions
<b>Possibility of hazardous reactions</b>	No data available
<b>Conditions to avoid</b>	No data available

<b>Incompatible materials</b>	Acids, oxidizing agents, sulfur compounds, hydrogen gas, oxygen, methanol, organic solvents, aluminum, fluorine, ammonia
<b>Hazardous decomposition products</b>	No data available. In the event of fire, see section 5.

## 11. TOXICOLOGICAL INFORMATION

<b>Acute toxicity</b>	No data available
Inhalation	No data available
Dermal	No data available
Skin corrosion/irritation	No data available
Serious eye damage/irritation	No data available
Respiratory/skin sensitization	May cause sensitization by skin contact
<i>Germ cell mutagenicity</i>	No data available
<i>Carcinogenicity</i>	Limited evidence of carcinogenicity in animal studies IARC: 2B - Group 2B: Possibly carcinogenic to humans (Nickel) NTP: Reasonably anticipated to be a human carcinogen (Nickel) OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
<b>Reproductive toxicity</b>	No data available
<i>Specific target organ toxicity – single exposure</i>	No data available
<i>Specific target organ toxicity – repeated exposure</i>	No data available
<i>Inhalation</i>	Causes damage to organs through prolonged or repeated exposure
<i>Aspiration hazard</i>	No data available
<b>Additional information</b>	RTECS: QR5950000 Stomach - Irregularities - Based on Human Evidence

## 12. ECOLOGICAL INFORMATION

<b>Toxicity</b>	
Toxicity to fish	LC50: <i>Cyprinus carpio</i> (Carp) / 1.3 mg/l / 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50: <i>Daphnia magna</i> (Water flea) / 1 mg/l / 48 h
<b>Persistence and degradability</b>	Not applicable
<b>Bioaccumulative potential</b>	No data available
<b>Mobility in soil</b>	No data available
<b>Results of PBT and vPvB assessment</b>	PBT/vPvB assessment not available, as chemical safety assessment not required/not conducted

**Other adverse effects**

An environmental hazard cannot be excluded in the event of unprofessional handling or disposal. Harmful to aquatic life, with long-lasting effects.



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### 13. DISPOSAL CONSIDERATIONS

Waste disposal methods	Offer surplus and non-recyclable solutions to a licensed disposal company. Contact a licensed professional waste disposal service to dispose of this material. Dissolve or mix the material with a combustible solvent and burn in a chemical incinerator equipped with an afterburner and scrubber.
Contaminated packaging	Dispose of as unused product.

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### 14. TRANSPORT INFORMATION

DOT (US)	Not dangerous goods
IMDG	Not dangerous goods
IATA	Not dangerous goods

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### 15. REGULATORY INFORMATION

<b>SARA 302 Components</b>	No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.
<b>SARA 313 Components</b>	The following components are subject to reporting levels established by SARA Title III, Section 313: Nickel / CAS No. / 7440-02-0 / Revision Date 2007-07-01
<b>SARA 311/312 Hazards</b>	Acute Health Hazard, Chronic Health Hazard
<b>Massachusetts Right to Know Components</b>	Nickel / CAS No. / 7440-02-0 / Revision Date 2007-07-01
<b>Pennsylvania Right to Know Components</b>	Nickel / CAS No. / 7440-02-0 / Revision Date 2007-07-01
<b>New Jersey Right to Know Components</b>	Nickel / CAS No. / 7440-02-0 / Revision Date 2007-07-01
<b>California Prop. 65 Components</b>	WARNING! This product contains a chemical known to the State of California to cause cancer.

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### 16. OTHER INFORMATION

Full text of H-Statements referred to under section 2:

<b>Aquatic Acute</b>	Acute aquatic toxicity
<b>Aquatic Chronic</b>	Chronic aquatic toxicity
<b>Carc.</b>	Carcinogenicity
<b>H317</b>	May cause an allergic skin reaction
<b>H351</b>	Suspected of causing cancer
<b>H372</b>	Causes damage to organs through prolonged or repeated exposure if inhaled
<b>H402</b>	Harmful to aquatic life
<b>H412</b>	Harmful to aquatic life, with long-lasting effects



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### ISOFLEX USA's Commonly Used Abbreviations and Acronyms\*

ACGIH	American Conference of Governmental Industrial Hygienists
ADR	European Agreement Concerning the International Carriage of Dangerous Goods by Road
AICS	Australian Inventory of Chemical Substances
ALARA	As Low As Is Reasonably Achievable
AMU	Atomic Mass Unit
ANSI	American National Standards Institute
BLS	Basic Life Support
BOD5	Biochemical Oxygen Demand
CAM	Continuous Air Monitor
CAS	Chemical Abstracts Service (division of the American Chemical Society)
CEN	European Committee for Standardization
CERCLA	Comprehensive Environmental Response Compensation and Liability Act
CLP	Classification, Labelling and Packaging (European Union)
COD	Chemical Oxygen Demand
CPR	Controlled Products Regulations (Canada)
CWA	Clean Water Act (USA)
DAC	Derived Air Concentration (USA)
DOE	United States Department of Energy (USA)
DOT	United States Department of Transportation (USA)
DSL	Domestic Substances List (Canada)
EC50	Half Maximal Effective Concentration
ECL	Korean Existing Chemicals List
EINECS	European Inventory of Existing Commercial Chemical Substances
EHS	Environmentally Hazardous Substance
ELINCS	European List of Notified Chemical Substances
EMS	Emergency Response Procedures for Ships Carrying Dangerous Goods
EPA	Environmental Protection Agency (USA)
EPCRA	Emergency Planning and Community Right-To-Know Act (EPCRA) of 1986
GHS	Globally Harmonized System
HMIS	Hazardous Materials Identification System (USA)
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IBC	Intermediate Bulk Containers
ICAO	International Civil Aviation Organization
IDLH	Immediately Dangerous to Life or Health
IECSC	Inventory of Existing Chemical Substances Produced or Imported in China
IMDG	International Maritime Code for Dangerous Goods
LC50	Lethal concentration, 50 percent
LD50	Lethal dose, 50 percent
LDLO	Lethal Dose Low
LOEC	Lowest-Observed-Effective Concentration
MARPOL	International Convention for the Prevention of Pollution from Ships
MSHA	Mine Safety and Health Administration (USA)
NCRP	National Council on Radiation Protection & Measurements (USA)

NDSL	Non-Domestic Substances List (Canada)
NFPA	National Fire Protection Association (USA)
NIOSH	National Institute for Occupational Safety and Health (USA)
NOEC	No Observed Effect Concentration
N.O.S.	Not Otherwise Specified
NRC	Nuclear Regulatory Commission (USA)
NTP	National Toxicology Program (USA)
OSHA	Occupational Safety and Health Administration (USA)
PBT	Persistent Bioaccumulative and Toxic Chemical
PEL	Permissible Exposure Limit
PICCS	Philippines Inventory of Chemicals and Chemical Substances
PIH	Poisonous by Inhalation Hazard
RCRA	Resource Conservation and Recovery Act (USA)
RCT	Radiation Control Technician
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals (Europe)
RID	Regulations Concerning the International Transport of Dangerous Goods by Rail
RQ	Reportable Quantity
RTECS	Registry of Toxic Effects of Chemical Substances
SARA	Superfund Amendments and Reauthorization Act (USA)
SNUR	Significant New Use Rule (TSCA)
TDG	Transportation of Dangerous Goods (Canada)
TIH	Toxic by Inhalation Hazard
TLV	Threshold Limit Value
TPQ	Threshold Planning Quantity
TSCA	Toxic Substances Control Act
TWA	Time Weighted Average
UN	United Nations (Number)
VOC	Volatile Organic Compound
vPvB	Very Persistent Very Bioaccumulative Chemical
WGK	Wassergefährdungsklassen (Germany: Water Hazard Classes)
WHMIS	Workplace Hazardous Materials Information System

\*One or more of the above-listed items may not appear in this document.

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