

**MATERIAL SAFETY DATA SHEET****1. PRODUCT AND COMPANY IDENTIFICATION**

Product name	<b>Electrolytic Nickel (L)</b>
Chemical formula	Ni
Manufacturer	<b>SUMITOMO METAL MINING CO., LTD.</b> NON-FERROUS METALS DIV./ADMINISTRATION DEPT. 3-5-3, NISHIBARA-CHO, NIIHAMA, EHIME, 792-8555 JAPAN TEL +81- 897-37-4817 FAX +81- 897-37-4910
Product use	Nickel is a fundamental material broadly using in the fields of Electric devices, Chemical industries. Food processing, Energy supplying, and Aerospace industries.

**2. HAZARDS IDENTIFICATION**

## GHS classification

**Physical hazards:**

Explosives	Outside scope of the classification
Flammable gases	Outside scope of the classification
Flammable aerosols	Outside scope of the classification
Oxidizing gases	Outside scope of the classification
Gases under pressure	Outside scope of the classification
Flammable liquids	Outside scope of the classification
Flammable solids	Classification not possible
Self-reactive substances and mixtures	Outside scope of the classification
Pyrophoric liquids	Outside scope of the classification
Pyrophoric solids	Not classified
Self-heating substances and mixtures	Classification not possible
Substances and mixtures which, in contact with water, emit flammable gases	Not classified
Oxidizing liquids	Outside scope of the classification
Oxidizing solids	Outside scope of the classification
Organic peroxides	Outside scope of the classification
Corrosive to metals	Classification not possible

**Health hazards:**

Acute toxicity – oral	Not classified
Acute toxicity – dermal	Classification not possible
Acute toxicity – inhalation (gas)	Outside scope of the classification
Acute toxicity – inhalation (vapor)	Classification not possible
Acute toxicity – inhalation (dust, mist)	Classification not possible
Skin corrosion/irritation	Classification not possible
Serious eye damage/eye irritation	Classification not possible
Respiratory sensitization	Category 1
Skin sensitization	Category 1
Germ cell mutagenicity	Classification not possible
Carcinogenicity	Category 2

Reproductive toxicity	Classification not possible
Specific target organ toxicity (single exposure)	Category 1 (Respiratory organs, kidney)
Specific target organ toxicity (repeated exposure)	Category 1 (Respiratory organs)
Aspiration hazard	Classification not possible
<b>Environmental hazards:</b>	
Hazardous to the aquatic environment	Classification not possible
- acute toxicity	
Hazardous to the aquatic environment	Category 4
- chronic toxicity	

## HAZARDS EXCLUDED FROM THE GHS CLASSIFICATION CATEGORIES

### PHYSICAL HAZARDS:

- Nickel powder is flammable. In case of fire, may generate hazardous fume. The particle may diffuse in air and form explosive mixture.

### HEALTH HAZARDS

- If inhaled fume, may cause pneumonia.
- If in eyes, may cause erythema.
- If on skin: may cause contact dermatitis.
- If inhaled; may cause coughi..

### PICTOGRAM



**SIGNAL WORD** DANGER

### HAZARD STATEMENT

- May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- May cause an allergic skin reaction.
- Suspected of causing cancer.
- Causes damage to respiratory organs and kidney.
- Causes damage to respiratory organs through prolonged or repeated exposure.
- May cause long lasting harmful effects to aquatic life.

### PRECAUTIONARY STATEMENTS

#### [Prevention]

- Do not handle until all safety precautions have been read and understood.
- Use personal protective equipment as required for its usage form, and avoid to exposure.
- In case of inadequate ventilation wear respiratory protection as specified by the manufacturer, supplier or the competent authority.
- Do not breathe dust or fume.
- Do not eat, drink or smoke when using this product.
- Wash hands thoroughly after handling.
- Avoid release to the environment.



## [Response]

- If inhaled: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER, doctor or physician if you feel unwell.
- Get medical attention and advice if you feel unwell.
- If on skin: Wash with plenty of water and soap.
- If skin irritation or rash occurs, seek medical attention.
- If exposed or concerned: Get medical attention.

## [Storage]

- Store in a cool, well-ventilated place.
- Store container tightly closed in well-ventilated place.

## [Disposal]

- Please consult us about the possibility of recycling.
- Disposal should be in accordance with applicable regional, national and local laws and regulations.

3. COMPOSITION / INFORMATION ON INGREDIENTS

COMPONENT	CAS No.	TSCA	EINECS	%w/w
Nickel	7440-02-0	Listed	231-111-4	99.98<

4. FIRST AID MEASURES

Eye contact	Rinse cautiously with water for several minutes. Get medical attention.
Skin contact	Wash with plenty of water and soap. Wash contaminated clothing before reuse.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately get medical attention. Get medical attention if you feel unwell.
Ingestion	Rinse mouth. Get medical attention.

5. FIRE FIGHTING MEASURES

Flammable properties	
Flash point	No data available.
Extinguishing media	
Suitable extinguishing media	Metallic form is nonflammable. Use adequate extinguishing agents for surrounding fire.
Unsuitable extinguishing media	In case of metal; no specific controls are needed.
Protection of firefighters	Wear adequate respiratory protection and

Specific hazards arising from the chemical	chemical-resistant clothing. (heat resistance) In case of fire, irritating, corrosive or toxic gases may be generated. <e.g.: nickel carbonyl and so on>
Protective equipment and precautions for firefighters	Move container to safe area, if possible with low risk. In case of metal fire, better to use sealing or suffocating extinguish method.

## 6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Immediately, isolate the spilled area with adequate distance for all directions. Wear adequate protector refer to Section 8 and avoid contact with eyes and skin or inhaling. Keep unnecessary and unprotected personnel from entering.
Environmental precautions	Do not let this substance enter the environment. Avoid entering the river or affecting to the environment.
Method for clean-up	Sweep diffused spillage and place in empty container. Residual substances are collected completely with care and moved to a safe place. Sweep up spillage and place in a sealable empty container for later disposal. In case of metal; no specific controls are needed. In case of powder; remove all ignition sources. (No-smoking, avoid spark or open flame) In case of metal; no specific controls are needed. In case of powder; keep away from every ignition sources and combustible materials. (sparks or flame) No-smoking. Keep out of drains, sewers, basement or closed place.

## 7. HANDLING AND STORAGE

Handling	Wear protective equipment and set the engineering controls refer to Section 8. Local exhaust or general ventilation may be necessary. (Refer to Section 8) Wear protective gloves when handling. Prevent to fall or collapse of cargo piles because of heavy No open flame, spark or high temperature in surroundings. Use only outdoors or in a well-ventilated area. Avoid breathing dust or fume. Wash hands thoroughly after handling. Incompatible materials; Strong oxidizers, strong acids or oxygen. (refer to Section 10)
Storage	In case of metal; no specific controls are needed. In case of powder; provide adequate engineering control



for treating hazardous material as lighting or ventilation.  
Keep away from acids and store in a cool, well-ventilated place.  
Keep container tightly closed and store in a cool, well-ventilated place.  
Store keeping away from incompatible materials such as, Strong oxidizers, strong acids or oxygen. (refer to Section 10)

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure guidelines	ACGIH or JSOH has established the following exposure limits. <ACGIH> 1.5mg/m <sup>3</sup> (TWA)(as Ni, Elemental) <JSOH> 1mg/m <sup>3</sup> (TWA)(as Ni)
Engineering controls	Store keeping away from acids. Handle only in fully enclosed systems with local exhaust or other equipment to keep airborne concentrations below exposure limits. In case of dust; provide local exhaust. Use ventilators if dust or fume may foam during the process with high temperature.
Personal protective equipments	
Respiratory protection	Wear respiratory protection.
Skin protection	Wear protective gloves.
Eye / face protection	Wear eye protection (e.g. A pair of goggles). Wear protective clothing or face protection if necessary.
General hygiene considerations	Do not eat, drink or smoke during work. Wash hands thoroughly after handling.

## 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	Metal
Color	White silver
Odor	Odorless
Melting point	1453 °C
Boiling point	2730 °C
Flash point	No data available.
Explosive range	No data available.
Vapor pressure	No data available.
Vapor density	No data available
Specific gravity	8.9(20°C)
Solubility in water	Insoluble.
Partition Coefficient:	No data available.
n-octanol/water	
Auto-ignition point	No data available.

Decomposition temperature	No data available.
Odor threshold	No data available.
Evaporation rate	No data available.
Combustiblness	Powder is flammable. Particulate is more hazardous and easily fire or explode.

## 10. STABILITY AND REACTIVITY

Chemical stability	Stable under normal condition.
Conditions to avoid	Contact with incompatible materials. Dust or particle mixed with air may be explosive.
Incompatible materials	Strong oxidizers, strong acids, oxygen.
Hazardous decomposition products	On combustion, form nickel carbonyl etc.
Possibility of hazardous reactions	Violently react with oxidizer such as titanium powder, potassium perchlorate and potassium nitrate and may cause fire or explosion. Violently react with oxygen and may cause fire or explosion. Violently react with acid and form hydrogen.

## 11. TOXICOLOGICAL INFORMATION

Acute toxicity – oral	LD <sub>50</sub> >5000 mg/kg (rat)
Acute toxicity – dermal	No data available.
Acute toxicity–inhalation	No data available.
Skin corrosion/irritation	No data available.
Serious eye damage/eye irritation	No data available.
Respiratory sensitization	If inhaled; May cause allergy, asthma or breathing difficulties if inhaled. Listed as Group 2 by the Japan Society of Occupational Health and listed as respiratory sensitization substances by the Japanese Society of Occupational Allergy and DFG.



Skin sensitization	May be skin sensitizer in humans. Listed as Group 1 by the Japan Society of Occupational Health and listed as skin sensitization substances by the Japanese Society of Occupational Allergy and DFG.
Germ cell mutagenicity	Insufficient data to classify.
Carcinogenicity	May cause cancer. As nickel metal : IARC : Group 2B (Possibly carcinogenic to humans) NTP : R (Reasonably anticipated to be carcinogens)
Reproductive toxicity	No data available
Specific target organ toxicity (single exposure)	The cell walls of the pulmonary alveoli are injured and cause pulmonary edema, and necrosis of renal tubule are reported. The target organ may be respiratory system and kidney. As nickel compound, may cause nausea, diarrhea, giddiness or headache in humans.
Specific target organ toxicity (repeated exposure)	Pleurisy, pneumonia, congestion or edema and increase of stratified thing unified on the alveolar membrane are observed in animal experiment. The target organ may be respiratory system. Repeated exposure to nickel or nickel compounds may damage the membrane of respiratory system at the established level. Prolonged exposure at high concentration may cause pulmonary fibrosis.
Aspiration hazard	No data available.

## 12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment - acute toxicity	No data available.
Hazardous to the aquatic environment - chronic toxicity	May cause long lasting harmful effects to aquatic life. This substance is metal. No data is available about the behavior in the water.

## 13. DISPOSAL CONSIDERATIONS

- Please consult us about the possibility of recycling.
- Disposal should be in accordance with applicable regional, national and local laws and regulations.
- When order to dispose the remainder to the private or public waste disposer, inform the physico-chemical and health hazards of this substance.
- Container should be cleaned up prior to recycling or dispose in accordance with applicable regional, national and local standard method.
- Empty container should be cleaned up prior to disposal.

#### 14. TRANSPORT INFORMATION (not meant to be all-inclusive)

Proper Shipping Name	-
UN Number	-
Class	-
Sub Risk	-
Packing Group	-

#### 15. REGULATORY INFORMATION (not meant to be all-inclusive)

TSCA Inventory	Listed
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This product is followed by the competent regulations in an applicable country or region.

#### 16. OTHER INFORMATION

##### Reference

- 1 IPCS ; ICSC Card No. 0062 (2001)
- 2 The Merck Index 13th Ed. (2001)
- 3 European Center of Ecotoxicology and Toxicology of Chemicals(ECETOC) ; Technical Report No. 33 (1989)
- 4 JSOH ; Recommendation of Occupational Exposure Limits(2007-2008). J. Occup. Health. 49, 328-344 (2007) <Japanese>
- 5 環境省リスク評価 第3巻(2005)
- 6 Environment Canada : Priority Substance Assessment Reports (1994)
- 7 NTP(2005)
- 8 USDHHS ; The Agency for Toxic Substances and Disease Registry (ATSDR) Toxicological Profiles. (2005)
- 9 USEPA(1998)
- 10 IARC ; IARC Monographs on the Evaluation of Carcinogenic Risk to Humans. Vol. XX (1991)
- 11 "Biodegradation and Bioaccumulation Data of Existing Chemicals based on the CSCL Japan." ed by Chemicals Inspection & Testing Institute Japan (1992)
- 12 化学物質の危険・有害性便覧 中央災害防止協会 1993
- 13 GHS Classification of Nickel (Chemical Management Center, National Institute of Technology and Evaluation ; <http://www.safe.nite.go.jp/english/dbi.html> , 2007)



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- 14 "2004 Emergency Response Guidebook. 2nd revised ed." Japanese ed. Japan Chemical Industries Association (2005)
  - 15 "Easy Chemical Regulations Check CD-ROM", Japan Chemical Database Ltd. (2005)
  - 16 "Easy Chemical Regulations Check CD-ROM", Japan Chemical Database Ltd. (2005)
  - 17 Amore, J. E. and Haulata, E.; Journal of Applied Toxicology. 3(6), 272 (1983)
  - 18 ACGIH ; Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. (2005)

This information only concerns the above-mentioned product and does not need to be valid if used with other(s) or in any process. The information is to our best present knowledge correct and complete and is given in good faith but without warranty. It remains the user's own responsibility to make sure that the information is appropriate and complete for his special use of this product.

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