

## SAFETY DATA SHEET

### 1. PRODUCT AND COMPANY IDENTIFICATION

|                  |                                                                                                         |                      |
|------------------|---------------------------------------------------------------------------------------------------------|----------------------|
| Product name     | Nickel sulfate                                                                                          |                      |
| Chemical formula | NiSO <sub>4</sub> ·6H <sub>2</sub> O                                                                    |                      |
| Manufacturer     | SUMITOMO METAL MINING CO., LTD.<br>NON-FERROUS METALS DIV./ADMINISTRATION<br>DEPT.                      |                      |
| Product use      | This material is used for Nickel plating, Coloring for aluminum surface, Catalysts, and Electric cells. |                      |
| Distributed by   | Chemerizer Co.,Ltd.                                                                                     | Tel. (662) 8135572-4 |

### 2. HAZARDS IDENTIFICATION

#### GHS classification

##### Physical hazards:

|                                                                            |                             |
|----------------------------------------------------------------------------|-----------------------------|
| Explosives                                                                 | Not applicable              |
| Flammable gases(including chemically unstable gases)                       | Not applicable              |
| Aerosols                                                                   | Not applicable              |
| Oxidizing gases                                                            | Not applicable              |
| Gases under pressure                                                       | Not applicable              |
| Flammable liquids                                                          | Not applicable              |
| Flammable solids                                                           | Not classified              |
| Self-reactive substances and mixtures                                      | Not applicable              |
| Pyrophoric liquids                                                         | Not applicable              |
| Pyrophoric solids                                                          | Not classified              |
| Self-heating substances and mixtures                                       | Not classified              |
| Substances and mixtures which, in contact with water, emit flammable gases | Not classified              |
| Oxidizing liquids                                                          | Not applicable              |
| Oxidizing solids                                                           | Classification not possible |
| Organic peroxides                                                          | Not applicable              |
| Corrosive to metals                                                        | Classification not possible |

##### Health hazards:

|                                                  |                             |
|--------------------------------------------------|-----------------------------|
| Acute toxicity – oral                            | Category 3                  |
| Acute toxicity – dermal                          | Classification not possible |
| Acute toxicity – inhalation (gases)              | Not applicable              |
| Acute toxicity – inhalation (vapors)             | Not applicable              |
| 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 1A                 |
| Reproductive toxicity                            | Classification not possible |
| Specific target organ toxicity (single exposure) | Classification not possible |

Specific target organ toxicity (repeated exposure)

Category1

(respiratory organ)

Category 2(liver, testis)

Classification not possible

Aspiration hazard

**Environmental hazards:**

Hazardous to the aquatic environment

- acute toxicity

Classification not possible

Hazardous to the aquatic environment

- chronic toxicity

Classification not possible

Hazardous to the ozone layer

Classification not possible

**HAZARDS EXCLUDED FROM THE GHS CLASSIFICATION CATEGORIES**

**HEALTH HAZARDS**

- Seriously irritate the eyes, membrane of respiratory tract or skin.

**PICTOGRAM**



**SIGNAL WORD** DANGER

**HAZARD STATEMENT**

- H301 Toxic if swallowed.
- H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
- H317 May cause an allergic skin reaction.
- H350 May cause cancer.
- H372 Causes damage to organs <respiratory organs> through prolonged or repeated exposure.
- H373 May cause damage to organs <liver, testis> through prolonged or repeated exposure.

**PRECAUTIONARY STATEMENTS**

[Prevention]

- P201 Obtain special instruction before use.
- P202 Do not handle until all safety precautions have been read and understood.
- P260 Do not breathe dust/fume/gas/mist/vapours/spray.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P284 [In case of inadequate ventilation,] wear respiratory protection.
- P264 Wash hands and face thoroughly after handling.
- P270 Do not eat, drink, or smoke during work.
- P272 Contaminated work clothing should not be allowed out of the workplace.

[Response]

- P330 Rinse mouth.
- P302+P352 IF ON SKIN : Wash with plenty of water and soap.
- P333+P313 If skin irritation or rash occurs, Get medical attention.
- P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.
- P342+P311 If experiencing respiratory symptoms, Call a POISON CENTER.

- P301+P310 IF SWALLOWED: Immediately call a POISON CENTER.
- P308+P313 IF exposed or concerned: Get medical advice/attention.
- P314 Get medical attention if you feel unwell.
- P362+P364 Take off contaminated clothing and wash it before reuse.

## [Storage]

- P405 Store locked up.

## [Disposal]

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

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical substance/Mixture : Substance

| Component      | Cas No.    | TSCA   | EINECS    | CSCL No. | ISHL No. | %w/w                                                    |
|----------------|------------|--------|-----------|----------|----------|---------------------------------------------------------|
| Nickel sulfate | 10101-97-0 | Listed | 231-104-9 | 1-813    | 1-813    | NiSO <sub>4</sub> ·6H <sub>2</sub> O: 98.5<<br>Ni:22.0< |

Impurities and stabilizing additives which contribute to the classification of the substance. : Not applicable :

### 4. FIRST AID MEASURES

|              |                                                                                                                                                                                                                                                      |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Eye contact  | Rinse cautiously with plenty of water for several minutes as soon as possible. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.                                                                            |
| Skin contact | Remove/Take off immediately contaminated clothing and shoes. Wash with plenty of water and soap. If skin irritation or rash occurs: Get medical advice/attention. Get medical attention if you feel unwell. Wash contaminated clothing before reuse. |
| Inhalation   | Remove victim to fresh air and keep at rest in a position comfortable for breathing. Blow nose, rinse mouth and gargle. Immediately get medical attention.                                                                                           |
| Ingestion    | Rinse mouth. Get medical attention. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.                                                                                                                            |

|                                          |                                                                                                                                                                                                                                                                         |
|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Supposed effects, both acute and delayed | Acute symptoms: discomfort, nausea, dizziness, fatigue, headache, vomiting, diarrhea, coughing, rapid breathing, transient half blind, breathless, asthmatic symptom<br>Delayed symptoms: dermal-skin sensitization, inhalation-coughing, breathless, asthmatic symptom |
| Most important symptoms                  | Inhalation-coughing, breathless, asthmatic symptom                                                                                                                                                                                                                      |
| Protection of first-aiders               | During rescue operations, wear protective equipment (see "8. Exposure control/personal protection").                                                                                                                                                                    |

## 5. FIRE FIGHTING MEASURES

|                                                       |                                                                                         |
|-------------------------------------------------------|-----------------------------------------------------------------------------------------|
| Extinguishing media                                   |                                                                                         |
| Suitable extinguishing media                          | This substance is nonflammable. Use adequate extinguishing agents for surrounding fire. |
| Unsuitable extinguishing media                        | Use adequate extinguishing agents for surrounding fire.                                 |
| Specific hazards arising from the chemical            | In case of fire, irritating or toxic fumes or gases may be generated.                   |
| Protective equipment and precautions for firefighters | Move container to safe area, if possible with low risk.                                 |
| Protection of firefighters                            | Wear adequate respiratory protection and chemical-resistant clothing. (heat resistance) |

## 6. ACCIDENTAL RELEASE MEASURES

|                                                                     |                                                                                                                                                                                                                                                                                                                                                                            |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions, protective equipment and emergency procedures | Immediately isolate the spilled area with adequate distance for all directions.<br><br>Keep unnecessary and unprotected personnel from entering.<br>Wear adequate protector refer to Section 8 and avoid contact with eyes and skin or inhaling.                                                                                                                           |
| Environmental precautions                                           | Avoid entering the river or affecting to the environment.<br>Do not let this substance enter the environment.                                                                                                                                                                                                                                                              |
| Method for clean-up                                                 | Sweep diffused spillage and place in an empty container.<br>Residual substances are collected completely with care and moved to a safe place.<br>Sweep up spillage and place in a sealable empty container for later disposal.<br>Treat with solution of calcium hydrate or sodium carbonate, and then wash plenty of water.<br>Prevent the spillage release to the river. |

## 7. HANDLING AND STORAGE

|                         |                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handling                | Wear protective equipment and set the engineering controls refer to Section 8.                                                                                                                                                                                                                                                                                                                                                       |
| Local/Total ventilation | Ventilate by a system of local and/or general exhaust.                                                                                                                                                                                                                                                                                                                                                                               |
| Technical measures      | Wear protective gloves when handling.<br>Use only outdoors or in a well-ventilated area.<br>Avoid breathing dust or fume.<br>Wash hands and face thoroughly after handling.                                                                                                                                                                                                                                                          |
| Avoidance of contact    | Avoid to contact with strong oxidizers. (refer to Section 10)                                                                                                                                                                                                                                                                                                                                                                        |
| Others                  | When the product to be processed less than 0.1 mm of particle size by grinding or crushing, please take care the following laws.<br><br>[ISHL]<br>Class II Specified Chemical Substances<br>Specified chemical substance special management material<br><br>The dangerous materials which should display names and toxic substance<br>Article 57(Labeling, etc.)<br><br>Occupational environmental evaluation standard<br>Article 65 |
| Storage                 | Keep away from high temperature, humidity and direct sun light. Keep container tightly closed and store in a cool, well-ventilated place.<br>Store keeping away from incompatible materials.                                                                                                                                                                                                                                         |

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

|                                                                   |                                                                                                                                                                                                                                                                                                                     |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Working Environment<br>Assessment Standard<br>Exposure guidelines | <Japan Industrial Safety & Health Association><br>Nickel compounds : 0.2mg/m <sup>3</sup> (as Ni, powder) (2014)<br><ACGIH> 0.1mg/m <sup>3</sup> (TWA)(as Ni, Soluble inorganic compounds (NOS))(2015)<br><<The Japan Society for Occupational Health>><br>Nickel compounds : 0.01mg/m <sup>3</sup> (water-soluble) |
|-------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                      |                                                 |
|----------------------|-------------------------------------------------|
| Engineering controls | In case of dust or fume may generate, use local |
|----------------------|-------------------------------------------------|

ventilation.

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)                                                                  |
| Skin / body protection        | Wear protective clothing or face protection if necessary.                                                      |
| General hygiene onsiderations | Do not breathe dust/hume.<br>Do not eat, drink, or smoke during work.<br>Wash hands thoroughly after handling. |

## 9. PHYSICAL AND CHEMICAL PROPERTIES

|                                           |                                                                             |
|-------------------------------------------|-----------------------------------------------------------------------------|
| Appearance                                | Crystal                                                                     |
| Color                                     | Pale blue green                                                             |
| Odor                                      | Odorless                                                                    |
| pH                                        | No data available                                                           |
| Melting point                             | No data available (Decomposed to nickel oxide and sulfur trioxide at 840°C) |
| Boiling point                             | No data available.                                                          |
| Flash point                               | No data available.                                                          |
| Explosive range                           | No data available.                                                          |
| Vapor pressure                            | No data available.                                                          |
| Vapor density(Air=1)                      | No data available.                                                          |
| Specific gravity                          | 2.07                                                                        |
| Solubility in water                       | Water 40.8g/100g (25°C Anhydrous salts)                                     |
| Partition Coefficient:<br>n-octanol/water | No data available.                                                          |
| Auto-ignition point                       | No data available.                                                          |
| Decomposition temperature                 | No data available.                                                          |
| Odor threshold                            | No data available.                                                          |
| Evaporation rate(Buthyle<br>acetate=1)    | No data available.                                                          |
| Flammability (solid, gas)                 | No data available.                                                          |
| Viscosity                                 | No data available.                                                          |

## 10. STABILITY AND REACTIVITY

|                                       |                                                                                                                                                                                |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Chemical stability                    | Stable under normal condition.                                                                                                                                                 |
| Possibility of hazardous<br>reactions | React with base and form hydroxides.<br><br>Upon heating, decompose at 848 °C and generate hazardous fumes of sulfur trioxide or Nickel oxide.<br>The solution is a weak acid. |

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|                                  |                                                                       |
|----------------------------------|-----------------------------------------------------------------------|
| Conditions to avoid              | Contact with incompatible materials.                                  |
| Incompatible materials           | Strong oxidizers.                                                     |
| Hazardous decomposition products | In case of fire, irritating or toxic fumes or gases may be generated. |

## 11. TOXICOLOGICAL INFORMATION

|                                                  |                                                                                                                                                                                                                                                                                                                                                              |
|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Acute toxicity – oral                            | LD <sub>50</sub> 275 mg/kg (rat, female)                                                                                                                                                                                                                                                                                                                     |
| 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                        | <ul style="list-style-type: none"><li>• Respiratory sensitizer. As nickel compounds including this substance are listed as respiratory sensitization substances by DFG and listed as Group 2 by the Japan Society of Occupational Health.</li><li>• EU CLP classification: Res. Sens. 1</li></ul>                                                            |
| Skin sensitization                               | <ul style="list-style-type: none"><li>• Skin sensitizer. (guinea pig; maximization study)</li></ul> As nickel compounds including this substance are listed as skin sensitization substances by DFG and listed as Group 1 by the Japan Society of Occupational Health. <ul style="list-style-type: none"><li>• EU CLP classification: Skin Sens. 1</li></ul> |
| Germ cell mutagenicity                           | Germ cell in vivo mutagenicity study of Cytogenetic test and somatic cell in vivo mutagenicity study of Micronuclei test and Cytogenetic Test; Negative.                                                                                                                                                                                                     |
| Carcinogenicity                                  | As nickel compound :<br>IARC : Group 1 (Carcinogenic to humans)(1990)<br>EU CLP classification: Carc. 1A                                                                                                                                                                                                                                                     |
| Reproductive toxicity                            | No data available                                                                                                                                                                                                                                                                                                                                            |
| Specific target organ toxicity (single exposure) | No data available                                                                                                                                                                                                                                                                                                                                            |

Specific target organ toxicity  
(repeated exposure)

Rat, Mouse 90-day inhalation studies, 2-year inhalation studies: Inflammation of bronchi, atrophy of olfactory epithelium were observed in the dose level within category 1.  
Rat 30-day dermal study: Hepatocyte hypertrophy, hepatocyte focal necrosis, edema and degeneration of seminiferous tubules in testis were observed in the dose level within category 2.

Aspiration hazard

No data available.

## 12. ECOLOGICAL INFORMATION

Hazardous to the aquatic environment – No data available  
acute toxicity

Hazardous to the aquatic environment – No data available.  
chronic toxicity

Persistence/Degradation

No data available

Bioconcentration

No data available

Soil mobility

No data available

Hazardous to the ozone layer

Regulation: UNEP - Handbook for the Montreal Protocol on Substances that Deplete the Ozone Layer  
Remarks: not listed to the Montreal Protocol

## 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)

### **International Regulation**

**UNRTDG**

UN number

: UN 3288

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|                      |                                              |
|----------------------|----------------------------------------------|
| Proper shipping name | TOXIC SOLID INORGANIC. N.O.S (NICLE SULFATE) |
| Class                | : 6.1                                        |
| Sub Risk             | : None                                       |
| Packing group        | : III                                        |
| Marine Pollutant     | : applicable                                 |

**IATA-DGR**

|                      |                                                |
|----------------------|------------------------------------------------|
| UN/ID No.            | : UN 3288                                      |
| Proper shipping name | : TOXIC SOLID INORGANIC. N.O.S (NICLE SULFATE) |
| Class                | : 6.1                                          |
| Sub Risk             | : None                                         |
| Packing group        | : III                                          |

**IMDG-Code**

|                      |                                                |
|----------------------|------------------------------------------------|
| UN number            | : UN 3288                                      |
| Proper shipping name | : TOXIC SOLID INORGANIC. N.O.S (NICLE SULFATE) |
| Class                | 6.1                                            |
| Packing group        | III                                            |

**Special precautions for user**

|         |                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Remarks | : Make sure no damage, corrosion, leaks, and so on on the container(s) before transportation.<br>Load not to fall, drop, damage the product, and make sure to take measures to secure the loaded products.<br>No Load heavy goods.<br>Equip in automobile or ship for transportation with protective equipment (gloves, eyeglasses, mask, etc), and fire extinguisher, tools necessary for emergency. |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

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

The product is under controlled from Japanese laws.

## 16. OTHER INFORMATION

This SDS is the English translation of the Japanese SDS.

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.

(This is the last page of this SDS.)