

## Safety Data Sheet

Product Name: Nickel Sulfate Solution	SDS number: E-UI-NSCSR-1
Version Date: October 17, 2022	Previous Version: April 27, 2022
Validity period: Before the next change	

### Section 1 Identification

<b>Product Name:</b> Nickel Sulfate Solution
<b>Manufacturer Name:</b> Univertical International (Suzhou) Co., Ltd.
<b>Address:</b> No.567 Jinfeng Road, Suzhou New District, Jiangsu Province, P.R. China
<b>Fax/ Telephone:</b> +86-512-66613128 / +86-512-66610088
<b>Emergency response number:</b> +86-25-85477110
<b>Internet:</b> www.univertical.cn
<b>Recommended use and restrictions on use:</b> Component in electroplating solutions.

### Section 2 Hazard identification

#### Hazard Statements:

Green liquid; Harmful if swallowed. Harmful if inhaled. Causes skin irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled; May cause an allergic skin reaction; Suspected of causing genetic defects; May cause cancer; May damage fertility or the unborn child; Causes damage to organs through prolonged or repeated exposure; Very toxic to aquatic life with long lasting effects.

#### GHS Classification:

Acute toxicity-oral Category 4  
 Acute toxicity-inhalation Category 4  
 Skin corrosion/irritation Category 2  
 Sensitization-respiratory Category 1  
 Sensitization-skin Category 1  
 Germ cell mutagenicity Category 2  
 Carcinogenicity Category 1  
 Reproductive toxicity Category 1  
 Specific target organ toxicity (repeated exposure) Category 1

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Hazardous to the aquatic environment – Short-term(acute) hazard Category 1

Hazardous to the aquatic environment – Long-term(chronic) hazard Category 1

### Label Content:

Pictograms:



Signal Word: Danger

### Precautionary Statements:

Precaution:

- If medical advice is needed, have product container or label at hand.
- Keep out of reach of children.
- Obtain, read and follow all safety instructions before use.
- Avoid breathing dust/fume/gas/mist/vapours/spray.
- Use only outdoors or in a well-ventilated area.
- Wash skin thoroughly after handling.
- Do not eat, drink or smoke when using this product.
- Contaminated work clothing should not be allowed out of the workplace.
- Wear protective gloves/respiratory protection /protective clothing/eye protection/face protection/hearing protection.
- Avoid release to the environment.

Incident response:

- If swallowed: Get medical help. Rinse mouth.
- If inhaled: Remove person to fresh air and keep comfortable for breathing. Get medical help.
- If on skin: Wash with plenty of water.
- If skin irritation or rash occurs: Get medical help. Take off contaminated clothing and wash it before reuse.
- If experiencing respiratory symptoms: Get emergency medical help immediately.

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<ul style="list-style-type: none"> <li>● If exposed or concerned: get medical advice.</li> <li>● Get medical help if you feel unwell.</li> <li>● Collect spillage.</li> </ul> <p>Storage:</p> <ul style="list-style-type: none"> <li>● Store in a well-ventilated place. Keep container tightly closed.</li> <li>● Store locked up.</li> </ul> <p>Disposal:</p> <ul style="list-style-type: none"> <li>● Dispose of contents/container in accordance with local/regional/national/international regulations.</li> </ul>
<p><b>Physical and chemical hazards:</b></p> <p>None.</p>
<p><b>Health hazards:</b></p> <p>Harmful if swallowed. Harmful if inhaled. Causes skin irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled; May cause an allergic skin reaction; Suspected of causing genetic defects; May cause cancer; May damage fertility or the unborn child; Causes damage to organs through prolonged or repeated exposure;</p>
<p><b>Environmental hazard:</b></p> <p>Very toxic to aquatic life with long lasting effects.</p>

### Section 3 Composition/information on ingredients

Substance/mixture: mixture

Component	CAS No.	% Content
Nickel Sulfate Hexahydrate	10101-97-0	34-45
Water	7732-18-5	55-66

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### Section 4 First aid measures

#### First aid:

- If in eyes: Flush immediately with large amounts of water for at least 15 minutes, and seek medical attention.
- If on skin: If you accidentally touch the skin, rinse with plenty of water, especially under the nails and around the epidermis. Take off clothing and shoes that you touch. Before using again, wash contaminated clothing. Before reuse, please clean the shoes thoroughly.
- If inhaled: Remove to fresh air. If breathing is difficult, administer oxygen.
- If swallowed: Please induce vomiting immediately, or drink soapy water or salty water until the vomiting is clear, and see a doctor. (Do not induce vomiting or drink anything when the person has convulsions or is unconscious.)

#### The most important symptoms and harmful effects:

No data available

#### Protection of emergency personnel:

No data available

#### Special tips for doctors:

No data available. In all cases be prepared to treat for shock.

### Section 5 Fire-fighting measures

#### Suitable Extinguishing Media:

In all cases this material does not support combustion. Water, water fog, foam, and/or carbon dioxide (CO<sub>2</sub>) may be used to cool fire-exposed storage containers, structures and to protect personnel.

#### Especially dangerous:

None. The density of the material is higher than that of water, and if allowed, it will be completely mixed into the excess water.

#### Combustion Products:

No data available

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### Precautions and protective measures for fire-fighting:

Must wear full-body acid and alkali-resistant protective clothing, and self-priming filter dust masks when necessary.

During emergency rescue or evacuation, air respirators should be worn.

Put out the fire at the upwind position and protect the people downwind to avoid inhaling smoke.

Move the container from the fire area to an open place.

Choose the suitable extinguishing media to extinguish the fire according to the cause of the fire.

Do not flush down sewers or other drainage systems. Material is harmful to aquatic life.

## Section 6 Accidental release measures

### Protective measures, protective equipment and emergency procedures for workers:

Keep unnecessary and/or untrained people away, until the spill area is completely cleaned.

Make sure that the cleanup is done by trained personnel.

Wear proper personal protective equipment.

### Environmental protection measures:

Prevent release of product into sewer and waterways.

Thoroughly remove pollutants in the area.

Collect the dumped residue in an appropriate container and seal it, and dispose of this waste in accordance with appropriate regulations.

### The containment and removal methods of the leaked chemicals and the disposal materials used:

Small leakage: Cover the contaminated area with lime and soda, it will form a thick alkaline slurry. In addition, please put the spilled liquid in steel or polyethylene containers and dispose of them safely in accordance with the relevant regulations for the treatment of heavy metal residues.

Large spills: pump into the storage container. Do not flush the spilled liquid into the sewer.

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### Section 7 Handling and storage

#### Handling:

Do not contact with eyes, skin and clothes, and do not breathe mist.

The container is sealed when not in use.

Dangerous residues may remain in empty containers.

There must be good ventilation when using.

Operators must undergo special training and strictly abide by operating procedures.

It is recommended that operators wear masks and chemical safety glasses. Wear general protective clothing and rubber safety gloves.

Wash hands before eating and drinking after handling. Before entering the restaurant, remove contaminated clothing and protective equipment

Contaminated clothes can be used again after washing.

#### Storage:

Store in closed containers in a cool, dry, well-ventilated area

Keep away from fire and heat sources and keep the container tightly closed.

It should be stored separately from oxidants and edible chemicals.

The storage area should be equipped with leakage emergency treatment equipment and suitable storage materials.

Keep the container tightly closed.

### Section 8 Exposure controls/personal protection

#### Exposure Limits:

Component name	Standard source	Type Standard	Value	Remarks
Nickel Sulfate	GB Z 2.1	PC-TWA	0.5mg/m <sup>3</sup>	
-Soluble nickel compounds	NIOSH	TWA	0.1mg/m <sup>3</sup>	

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### Personal Protective Equipment (PPE)

#### Eye Protection:

Wear chemical safety goggles or face shield. Have eye-wash stations available where eye contact can occur.

#### Skin and body protection:

Wear general work protective clothing. The type of protective equipment must be selected according to the concentration and quantity of hazardous substances in the specific workplace.

#### Hand protection:

Avoid skin contact. Wear rubber or neoprene gloves that are impervious to conditions of use.

#### Respiratory protection:

There is no need to wear respiratory protection under fog-free conditions. If the TWA exceeds the limit, respiratory protection must be provided in accordance with OSHA 29 CFR 1910.134. If the concentration exceeds 100 times the TWA, the haze respirator approved by NIOSH is usually acceptable.

## Section 9 Physical and chemical properties

<b>Appearance:</b> Green Liquid	<b>Odor:</b> None
<b>pH:</b> 3.0-4.0	<b>Melting Point:</b> Crystallizes at 10 °C
<b>Boiling Point:</b> N/A	<b>Flashpoint:</b> N/A
<b>Upper/lower Flammability Limits:</b> N/A	<b>Vapor Pressure:</b> N/A
<b>Vapor Density:</b> N/A	<b>Specific Gravity:</b> 1.24-1.34g/ml
<b>Solubility:</b> All proportions	<b>Partition coefficient of n-octanol/water:</b> N/A
<b>Autoignition Temperature:</b> No data available	<b>Decomposition temperature:</b> N/A
<b>Molecular Formula:</b> NiSO <sub>4</sub> • 6H <sub>2</sub> O	<b>Molecular Weight:</b> 262.86

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### Section 10 Stability and reactivity

<b>Stability:</b> Under typical storage conditions this material is stable.
<b>Dangerous reaction:</b> When heated or exposed to air, the raw materials will lose dissolved water, concentrate and crystallize. If nickel sulfate is evaporated above 103 °C, the residue will lose crystal water. If the heating is complete, the solution will become anhydrous nickel sulfate.
<b>Conditions to avoid:</b> High temperature
<b>Incompatible materials:</b> No data available
<b>Hazardous decomposition products:</b> Heating anhydrous nickel sulfate to high temperatures can produce nickel oxide and sulfur dioxide.

### Section 11 Toxicological information

<b>Acute toxicity-oral:</b> Harmful if swallowed
<b>Acute toxicity-dermal:</b> No data available
<b>Acute toxicity-inhalation:</b> Harmful if inhaled
<b>Skin corrosion/irritation:</b> Causes skin irritation
<b>Eye damage/irritation:</b> No data available
<b>Sensitization-respiratory:</b> May cause allergy or asthma symptoms or breathing difficulties if inhaled
<b>Sensitization-skin:</b> May cause an allergic skin reaction
<b>Germ cell mutagenicity:</b> Suspected of causing genetic defects
<b>Carcinogenicity:</b> May cause cancer
<b>Reproductive toxicity:</b> May damage fertility or the unborn child
<b>Specific target organ toxicity (single exposure):</b> No data available
<b>Specific target organ toxicity (repeated exposure):</b> Causes damage to organs through prolonged or repeated exposure
<b>Aspiration hazard:</b> No data available



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### Section 12 Ecological Information

<b>Hazardous to the aquatic environment – Short-term(acute) hazard:</b> Very toxic to aquatic life
<b>Hazardous to the aquatic environment – Long-term(chronic) hazard:</b> Very toxic to aquatic life with long lasting effects.
<b>Persistence and degradability:</b> It is impossible to be biodegraded and can seep into groundwater.
<b>Bioaccumulative potential:</b> The bioconcentration of organisms in the water is expected to be extremely low.
<b>Mobility in soil:</b> It is expected to be highly mobile in the soil.
<b>Other harmful effects on the environment:</b> No data available

### Section 13 Disposal considerations

<p><b>Waste chemicals:</b></p> <p>If there is only a small amount of product spilled, insoluble solids can be formed by covering with lime or soda (sodium carbonate). Use polyethylene containers for recycling.</p> <p>Do not flush residue into drains and sewers.</p> <p>Must not be discharged into the sewer.</p> <p>The residue after lime or soda treatment is clearly marked.</p>
<p><b>Contaminated packaging:</b></p> <p>The product residue in the empty storage container can be rinsed with clean water, and then the solution can be treated with lime or soda ash to recover the solid nickel residue. Store the residue in polyethylene buckets.</p>
<p><b>Disposal notes:</b></p> <p>Refer to relevant national and local regulations before disposal.</p> <p>See section 8 for safety precautions for disposal personnel.</p>

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### Section 14 Transport information

<b>UN Number:</b> 3082
<b>UN Shipping Name:</b> ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S
<b>UN risk classification:</b> 9
<b>Packing Group:</b> III
<b>Marine pollutants (yes/no):</b> Yes
<b>Note for transportation:</b> No data available

### Section 15 Regulatory information

The following laws, regulations, rules and signs have made corresponding provisions on the management of this chemical:

Occupational Disease Prevention and Control Law of the People's Republic of China: Classification catalog of occupational hazards: Nickel and its compounds
Regulations on the safety management of hazardous chemicals: List of hazardous chemicals: Yes

### Section 16 Other information

<b>References:</b> SDS, Univertical LLC NIOSH Pocket Guide to Chemical Hazards <a href="http://www.cdc.gov/niosh/npg/">http://www.cdc.gov/niosh/npg/</a> European Union ECHA <a href="https://echa.europa.eu">https://echa.europa.eu</a> Dangerous Characteristics Classification Identification Report Certification for Safe Transport of Chemical Goods Sigma Aldrich Chemical Safety Database <a href="https://www.sigmaaldrich.com">https://www.sigmaaldrich.com</a>
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### Hazardous Chemical Classification Information Sheet

GHS global harmonized classification and labeling system for chemicals, Ninth Revised Edition

GB/Z 2.1-2019 Occupational Exposure Limits for Hazardous Factors in the Workplace Part 2 Chemical

#### Hazardous Factors

[http://www.unece.org/trans/danger/publi/ghs/ghs\\_rev03/03files\\_e.html](http://www.unece.org/trans/danger/publi/ghs/ghs_rev03/03files_e.html)

Recommendations on the Transport of Dangerous Goods, Model Regulations, 22nd Revised Edition

GB 30000

GB/T 17519-2013 Guidelines for the preparation of chemical safety technical specifications

GB/T 16483-2008 Chemical safety technical specification content and item sequence.

**Preparation department:** Univertical International (Suzhou) CO.,LTD QA

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