ZENITH Chemical Corporation

# SAFETY DATA SHEET

## Nickel Nitrate Solution

Reviced Date：Apr.06,2021

### 1. Identification of the substance/mixture and the company/undertaking

**1.1 Identification of the product**

Product name **Nickel(II) Nitrate Solution**

REACH No. A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

**1.2 Relevant identified uses of the substance or mixture and uses advised against**

Laboratory chemicals, Manufacture of substances.

Application：Electroplating,intermediate in the manufacture of nickel oxide,catalyst,…,etc.

**1.3 Manufacturer / Supplier Identification**

**Company:** **Zenith Chemical Corporation**

**Contact for information**

**Address:** 9F,No.10,Heng Yang Rd.,Taipei 100,Taiwan,R.O.C.

**Contact Person:** Nelly Cheng (e-mail : nelly@foreasia.com.tw)

**1.4 Emergency telephone number**

Tel.：+886-2-23830515 / +886-4-26811521 ; FAX：+886-2-23830287

### 2. Hazards identification

**2.1 Classification of the substance or mixture**

**Classification (REGULATION (EC) No 1272/2008)**

according to Regulation (EC) No. 1907/2006

| | | |
|---|---|---|
| Muta.2 | H341 | Suspected of causing genetic defects. |
| Carc.1A | H350 i | May cause cancer by inhalation. |
| Repr.1A | H360D | May damage the unborn child. |
| STOT RE 1 | H372 | Causes damage to organs through prolonged or repeated exposure. |

Skin Corr. 1B H314 Causes severe skin burns and eyes damage.

Aquatic Acute 1 H400 Very toxic to aquatic life.

Aquatic Chronic 1 H410 Very toxic to aquatic life with long lasting effects.

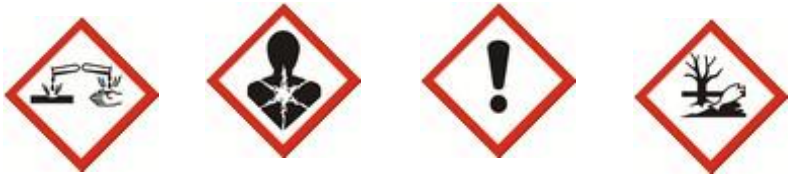
Acute Tox. 4 H302 Harmful if swallowed.
Acute Tox.4 H332 Harmful if inhaled.

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

**2.2 Label elements**

**Labelling (REGULATION (EC) No 1272/2008)**

Hazard pictograms



| **Signal word** | **Danger** |
|---|---|
| **Hazard statement(s)** | |
| Restricted to professional users.<br>H350i May cause cancer by inhalation.<br>H360D May damage the unborn child.<br>H302 + H332 Harmful if swallowed or if inhaled.<br>H314 Causes severe skin burns and eyes damage.<br>H341 Suspected of causing genetic defects.<br>H372 Causes damage to organs through prolonged or repeated exposure.<br>H410 Very toxic to aquatic life with long lasting effects. | |
| **Precautionary statement(s)** | |
| **Prevention** | |
| P201 Obtain special instructions before use.<br>P260 Do not breathe dust/fume/gas/mist/vapoure/spray.<br>P273 Avoid release to the environment.<br>P280 Wear protective gloves.<br>P280 Wear eye protection.<br>P405 Store locked up.<br>P501 Dispose of centents/container in accordance with local /regional/national/international regulations. | |
| **Response** | |
| P302 + P361+P353 IF ON SKIN(or hair): Take off immediately all contaminated clothing.Rinse skin with water/shower.Wash with plenty of soap and water.<br>P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.<br>P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. | |

| |
|---|
| P310 Immediately call a POISON center/doctor.<br>P314 Get medical advice/ attention if you feel unwell.<br>P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor. |
| Restricted to professional users. |
| Contains: Nickel(II) Nitrate Hexahydrate |
| Index-No. 028-012-00-1 |

**2.3 Other hazards**

None known.

## 3. Composition/information on ingredients

**3.1 Substances**

| | |
|---|---|
| Formula | $Ni(NO3)_2.6\ H_2O$ |
| CAS-No. | 13138-45-9 |
| EC-No. | 236-068-5 |
| Index-No. | 028-012-00-1 |

(REGULATION (EC) No 1272/2008)

Chemical name (Concentration) : Nickel(II) 14~15 % or Nickel(II) Nitrate Hexahydrate 65~75%

Water 25~35%

CAS-No.: 13138-45-9

Registration Number Classification:

Oxidizing solution, Category 2, H272

Acute toxicity, Category 4, H302

Acute toxicity, Category 4, H332

Skin irritation, Category 2, H315

Serious eye damage, Category 1, H318

Respiratory sensitisation, Category 1, H334

Skin sensitisation, Category 1, H317

Germ cell mutagenicity, Category 2, H341

Carcinogenicity, Category 1A, H350i

Reproductive toxicity, Category 1B, H360D

Specific target organ toxicity - repeated exposure, Category 1,H372

Acute aquatic toxicity, Category 1, H400

Chronic aquatic toxicity, Category 1, H410

M-Factor: 1

*) A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

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

**3.2 Mixture**

Not applicable

## 4. First aid measures

**4.1 Description of first aid measures**

**General advice**

First aider needs to protect himself.

After inhalation: fresh air. Call in physician.

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

**4.2 Most important symptoms and effects, both acute and delayed**

Cough, Nausea, Vomiting

The following applies to soluble nickel compounds in general: inorganic nickel has an adstringent effect on mucous membranes. Sensitisation with allergic manifestations is possible in predisposed persons. In some cases nickel dermatitis may manifest itself. Depending on the water-solubility, nickel and its compounds display a more or less distinct carcinogenicity, with the readily soluble nickel compounds obviously entailing the lesser risk.

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

Irritation and corrosion, Allergic reactions

Risk of serious damage to eyes.

**4.3 Indication of any immediate medical attention and special treatment needed**

No information available.

## 5. Firefighting measures

**5.1 Extinguishing media**

**Suitable extinguishing media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Not combustible.

Has a fire-promoting effect due to release of oxygen.

Ambient fire may liberate hazardous vapours.

Fire may cause evolution of：nitrous gases, nitrogen oxides.

**5.3 Advice for firefighters**

**Special protective equipment for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**Further information**

Suppress (knock down) gases/vapours/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

**5.4 Further information**

No data available

## 6. Accidental release measures

**6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Avoid generation and inhalation of dusts in all circumstances. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

Advice for emergency responders：Protective equipment see section 8.

**6.2 Environmental precautions**

Do not let product enter drains.

**6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully. Dispose of properly. Clean up affected area. Avoid generation of dusts.

**6.4 Reference to other sections**

Indications about waste treatment see section 13.

## 7. Handling and storage

**7.1 Precautions for safe handling**

**Advice on safe handling**

Observe label precautions.

Work under hood. Do not inhale substance/mixture.

**Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

**7.2 Conditions for safe storage, including any incompatibilities**

Storage conditions Dry.

Tightly closed. Do not store near combustible materials. Keep locked up or in an area accessible only to qualified or authorised persons.

Recommended storage temperature see product label.

**7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

## 8. Exposure controls/personal protection

**8.1 Control parameters**

**8.2 Exposure controls**

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment. See section 7.1.

**Individual protection measures**

Protective clothing needs to be selected specifically for the workplace, depending on concentrations and quantities of the hazardous substances handled. The chemical resistance of the protective equipment should be enquired at the respective supplier.

**Eye/face protection**

Tightly fitting safety goggles

**Hand protection**

| full contact | |
|---|---|
| Glove material：<br>Glove thickness：<br>Break through time： | Nitrile rubber<br>0,11 mm<br>> 480 min |
| splash contact | |
| Glove material：<br>Glove thickness：<br>Break through time： | Nitrile rubber<br>0,11 mm<br>> 480 min |

The protective gloves to be used must comply with the specifications of EC Directive 89/686/EEC and the related standard EN374, for example KCL 741 Dermatril® L (full contact), KCL 741 Dermatril® L (splash contact).

The breakthrough times stated above were determined by KCL in laboratory tests acc. to EN374 with samples of the recommended glove types.

This recommendation applies only to the product stated in the safety data sheet<(>,<)> supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

**Other protective equipment**

protective clothing

**Respiratory protection**

required when dusts are generated.

Recommended Filter type: Filter P 3 (acc. to DIN 3181) for solid and liquid particles of toxic and very toxic substances

The entrepeneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

**Environmental exposure controls**

Do not let product enter drains.

## 9. Physical and chemical properties

**9.1 Information on basic physical and chemical properties**

| | | |
|---|---|---|
| a) | Appearance | Form：Liquid<br>Colour：Dark Green |
| b) | Odour | Acid |
| c) | Odour Threshold | No information available. |
| d) | pH | 2.5~4.5 @ 25℃ |
| e) | Melting point | No information available |
| f) | Boiling point | >100℃ |
| g) | Flash point | Not applicable |
| h) | Evaporation rate | No information available. |
| i) | Flammability (solid, gas) | No information available. |
| j) | Lower explosion limit | Not applicable |
| k) | Upper explosion limit | Not applicable |
| l) | Vapour pressure | No information available. |
| m) | Relative vapour density | No information available. |
| n) | Density | 1.5~2.0 g/cm$^3$ @25 ℃ |
| o) | Relative density | No information available. |
| p) | Water solubility | ＞940 g/l @20 ℃ |
| q) | Partition coefficient: n-octanol/water | No information available. |
| r) | Decomposition temperature | No information available. |
| s) | Viscosity, dynamic | 5 cps @25℃ |
| t) | Oxidizing properties | The substance or mixture is classified as oxidizing with the category 2. |

**9.2 Other safety information**

| | | |
|---|---|---|
| a) | Ignition temperature | Not applicable |
| b) | Bulk density | Not applicable |

## 10. Stability and reactivity

**10.1 Reactivity**

Strong oxidising agent.

**10.2 Chemical stability**

Releases water of crystallisation when heated.

**10.3 Possibility of hazardous reactions**

Violent reactions possible with：Reducing agents, combustible substances, acids.

**10.4 Conditions to avoid**

No information available.

**10.5 Incompatible materials**

No information available.

**10.6 Hazardous decomposition products**

In the event of fire：See section 5.

## 11. Toxicological information

### 11.1 Information on toxicological effects

**Acute toxicity**

LD50 Rat：1.620 mg/kg (RTECS)

Symptoms: Nausea, Vomiting

**Acute inhalation toxicity**

Symptoms: Cough

Acute toxicity estimate: 1,6 mg/l; dust/mist

Expert judgement

**Acute dermal toxicity**

This information is not available.

**Skin irritation**

Causes skin irritation.

**Eye irritation**

Causes serious eye damage.

**Sensitisation**

May cause an allergic skin reaction.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Germ cell mutagenicity.

Genotoxicity in vitro.

Ames test.

Result：negative.

(anhydrous substance) (Lit.)

**Carcinogenicity**

This information is not available.

**Reproductive toxicity**

This information is not available.

**Teratogenicity**

This information is not available.

**CMR effects**

Carcinogenicity：May cause cancer by inhalation. Positive evidence from human epidemiological studies.

Mutagenicity：Suspected of causing genetic defects.

Teratogenicity：May damage the unborn child.

**Specific target organ toxicity - single exposure**

This information is not available.

**Specific target organ toxicity - repeated exposure**

Causes damage to organs through prolonged or repeated exposure.

**Aspiration hazard**

This information is not available.

**11.2 Further information**

The following applies to nitrites/nitrates in general: methaemoglobinaemia after the uptake of large quantities.

The following applies to soluble nickel compounds in general: inorganic nickel has an adstringent effect on mucous membranes. Sensitisation with allergic manifestations is possible in predisposed persons. In some cases nickel dermatitis may manifest itself. Depending on the water-solubility, nickel and its compounds display a more or less distinct carcinogenicity, with the readily soluble nickel compounds obviously entailing the lesser risk. Other dangerous properties can not be excluded.

This substance should be handled with particular care.

## 12. Ecological information

**12.1 Toxicity**

**Toxicity to fish**

LC50 Cyprinus carpio (Carp): 10,6 mg/l; 96 h (anhydrous substance) (ECOTOX Database)

**Toxicity to daphnia and other aquatic invertebrates**

EC50 Daphnia magna (Water flea): 0,9 mg/l; 48 h (anhydrous substance) (ECOTOX Database)

**12.2 Persistence and degradability**

No information available.

**12.3 Bioaccumulative potential**

No information available.

**12.4 Mobility in soil**

No information available.

**12.5 Results of PBT and vPvB assessment**

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

**12.6 Other adverse effects**

Additional ecological information

Discharge into the environment must be avoided.

## 13. Disposal considerations

**Product**

Chemical residues generally count as special waste. The disposal of the latter is regulated in the country through corresponding laws and regulations. We recommend that you contact either the authorities in charge or approved waste disposal companies which will advise you on how to dispose of special waste.

**Packaging**

Disposal in compliance with official regulations. Handle contaminated packaging in the same way as the substance itself. If not officially specified differently, non-contaminated packaging may be treated like household waste or recycled.

## 14. Transport information

**Land transport (ADR/RID)**

| | |
|---|---|
| UN number | UN 3082 |
| Proper shipping name | ENVIROMENTALLY HAZARDOUS SUBSTANCE,LIQUID,N.O.S. **(Nickel(II) Nitrate)** |
| Class | 9 |
| Packing group | III |
| Environmentally hazardous | yes |
| Special precautions for user | yes |
| Tunnel restriction code | E |

**Air transport (IATA)**

| | |
|---|---|
| UN number | UN 3082 |
| Proper shipping name | ENVIROMENTALLY HAZARDOUS SUBSTANCE,LIQUID,N.O.S. **(Nickel(II) Nitrate)** |
| Class | 9 |
| Packing group | III |
| Environmentally hazardous | yes |
| Special precautions for user | no |

**Sea transport (IMDG)**

| | |
|---|---|
| UN number | UN 3082 |
| Proper shipping name | ENVIROMENTALLY HAZARDOUS SUBSTANCE,LIQUID,N.O.S. **(Nickel(II) Nitrate)** |
| Class | 9 |
| Packing group | III |
| Environmentally hazardous | yes |
| Special precautions for user | yes |
| EmS | F-A S-Q |

**Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code**

Not relevant

## 15. Regulatory information

**15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

| | |
|---|---|
| EU regulations Major Accident Hazard Legislation | SEVESO III<br>OXIDIZING LIQUIDS AND SOLIDS<br>P8<br>Quantity 1: 50 t<br>Quantity 2: 200 t<br>SEVESO III<br>ENVIRONMENTAL HAZARDS E1<br>Quantity 1: 100 t<br>Quantity 2: 200 t |
| Occupational restrictions | Take note of Dir 94/33/EC on the protection of young people at work. Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable. |

Regulation (EC) No 1005/2009 on substances that not regulated deplete the ozone layer

Regulation (EC) No 850/2004 of the European Parliament and of the Council of 29 April 2004 on persistent organic pollutants and amending Directive 79/117/EEC not regulated

| | |
|---|---|
| Substances of very high concern (SVHC)<br><br>*National legislation*<br>Storage class 5.1B | This product does not contain substances of very high concern according to Regulation (EC) No 1907/2006 (REACH), Article 57 above the respective regulatory concentration limit of ≥ 0.1 % (w/w). |

**15.2 Chemical safety assessment**

For this product a chemical safety assessment was not carried out.

## 16. Other information

**Full text of H-Statements referred to under sections 2 and 3.**

| | |
|---|---|
| H272 | May intensify fire; oxidizer. |
| H302 | Harmful if swallowed. |
| H315 | Causes skin irritation. |
| H317 | May cause an allergic skin reaction. |
| H318 | Causes serious eye damage. |
| H332 | Harmful if inhaled. |
| H334 | May cause allergy or asthma symptoms or breathing difficulties if inhaled. |

| | |
|---|---|
| H341 | Suspected of causing genetic defects. |
| H350i | May cause cancer by inhalation. |
| H360D | May damage the unborn child. |
| H372 | Causes damage to organs through prolonged or repeated exposure. |
| H400 | Very toxic to aquatic life. |
| H410 | Very toxic to aquatic life with long lasting effects. |

**Training advice**

Provide adequate information, instruction and training for operators.

**Labelling**

Hazard pictograms

**Signal word :** Danger

**Hazard statements**

| |
|---|
| H272 May intensify fire; oxidizer. |
| H302 + H332 Harmful if swallowed or if inhaled. |
| H315 Causes skin irritation. |
| H317 May cause an allergic skin reaction. |
| H318 Causes serious eye damage. |
| H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled. |
| H341 Suspected of causing genetic defects. |
| H350i May cause cancer by inhalation. |
| H360 May damage fertility or the unborn child. |
| H372 Causes damage to organs through prolonged or repeated exposure. |
| H410 Very toxic to aquatic life with long lasting effects. |

**Precautionary statements**

| |
|---|
| Prevention |
| P201 Obtain special instructions before use. |
| P221 Take any precaution to avoid mixing with combustibles, heavy-metal compounds, acids and alkalis. |
| P273 Avoid release to the environment. |
| P280 Wear eye protection. |
| Response |
| P302 + P352 IF ON SKIN：Wash with plenty of soap and water. |
| P304 + P340 IF INHALED：Remove victim to fresh air and keep at rest in a position comfortable for breathing. |

| |
|---|
| P305 + P351 + P338 IF IN EYES：Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |
| P314 Get medical advice/ attention if you feel unwell. |
| P342 + P311 If experiencing respiratory symptoms: Call a POISON CENTER/doctor. |

**Further information**



Produced by：Zenith Chemical Corporation

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SDS Prepared by：**H.C.Sheu**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Zenith Chemical Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See http://www.zenith.com.tw/PrdNiCl.html and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.