

# MATERIAL SAFETY DATA SHEET

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

|   |
|---|
| Identification of the product<br>Product name: Nickel Sulfamate   |
| Manufacturer/supplier identification<br>Company: Zenith Chemical Corporation<br>Contact for information: Tel 886-4-26811521; FAX 886-4-26816523 |
| Emergency telephone No.: Tel. 886-4-26811521  |

## 2. Hazards identification

Inhalation of nickel sulfamate mist can cause irritation of the upper respiratory tract. Skin contact may be irritating and can cause allergic dermatitis (“nickel itch”) characterized by itching, erythematic, and skin eruption. Eye contact with dust pr solutions may cause irritation. Ingestion of nickel salts can cause nausea, vomiting, and giddiness. The NTP and IARC list “nickel and certain nickel compounds” as suspected carcinogens. This is based in part on epidemiological evidence of excess incidences of nasal and lung cancer in populations of workers exposed to nickel or nickel compounds. The specific nickel compounds responsible have not been identified.

\*\*\*\*\*N.F.P.A.\*\*\*\*\*

|                  |                         |
|------------------|-------------------------|
| Degree of hazard | Emergency hazard rating |
| 4=extreme        | Health < 2 >            |
| 3=High           | Fire < 0 >              |
| 2=Moderate       | Reactivity < 0 >        |
| 1=Slight         | Specific hazard < >     |
| 0=insignificant  |                         |

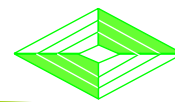
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Hazard Label



## 3. Composition/information on ingredients

|  |                     |     |
|--|---------------------|-----|
| Molecular formula: $\text{Ni}(\text{NH}_2\text{SO}_3)_2 \cdot \text{XH}_2\text{O}$ | CAS No.: 13770-89-3 | 60% |
| Molecular formula: Water   | CAS No. 7732-18-5   | 40% |
| Synonyms: Nickel Sulfamate Solution; Liquid Nickel Sulfamate                       |                     |     |



#### 4. First aid measures

**Skin Contact:**

Immediately wash contaminated skin with plenty of water. Remove contaminated clothing and footwear. Wash clothing before reuse. Discard footwear if it cannot be decontaminated. If irritation continues, seek medical attention.

**Eye Contact:**

Flush eyes with plenty of water, holding lids apart to ensure flushing of entire surface to prevent or relieve irritation. If irritation persists, seek medical attention.

**Ingestion:**

Never give anything by mouth to an unconscious person, obtain immediate medical attention. If vomiting occurs spontaneously, keep airway clear. If swallowed DO NOT INDUCE VOMITING, give large amounts of water. Seek immediate medical attention.

**Inhalation:**

Remove person from contaminated area. If breathing has stopped, resuscitate and administer oxygen if available. Seek immediate medical attention.

#### 5. Fire-fighting measures

Flash Point Not Applicable

**Special Fire-Fighting Procedures:**

Wear self-contained breathing apparatus (SCBA) and complete personal protective equipment when potential for exposure to vapors or products of combustion exists.

**Unusual Fire-Fighting Hazards:**

Thermal decomposition may yield toxic sulfur and metal oxides.

**Extinguishing Media:**

This product is not combustible. As appropriate for surrounding fire.

#### 6. Accidental release measures

Avoid contact with skin, eyes, and clothing. Wear protective equipment (see Section 8). Do not breathe mist or vapors. Contain spill and soak up in suitable absorbent. Shovel up into plastic-lined steel containers and cover. Dispose of in accordance with Local, State and Federal regulations.

#### 7. Handling and storage

Store in a cool dry place. Loosen cover cautiously when opening.

Additional Information: Store above freezing temperature.

Work/Hygienic Practices: Do not consume, handle or store food, beverages or tobacco in areas where this product is present. Emergency eye wash and safety shower should be available. Wash thoroughly after handling.

#### 8. Exposure controls/personal protection

Occupational Exposure Limits: ACGIH TLV ACGIH TLV-C ACGIH STEL OSHA STEL OSHA PEL

NICKEL SULFAMATE: 0.10 mg/M3 NA NA NA 1.00 mg/M3

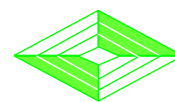
Exposure limits for soluble nickel compounds are as Ni, inhalable fraction.

**Respirator:**

Use NIOSH approved respirator when air concentration is greater than the TLV or PEL.

Use cartridge filter for acid mist.

**Eye Protection:** Safety glasses recommended.



Protective Clothing or Equipment: Wear full protective work clothing. Neoprene gloves. Butyl rubber gloves  
Ventilation: Local exhaust recommended.

## 9. Physical and chemical properties

**Form:** Liquid

**Colour:** Clear, bluish-green liquid

**Odour:** Odorless

**PH value:** 4.4-4.7

**Melting temperature:** NA

**Boiling temperature:** NA

**Ignition temperature:** NA

**flash point :** NA

**Explosion limits :** NA

**Relative vapour density:** NA

**Density:** 1.54

**Solubility in water** 100%

## 10. Stability and reactivity

Conditions to be avoided: No information available. Do not evaporate to dryness.

Substances to be avoided: Strong acids.

Hazardous decomposition products: In a fire: toxic sulfur oxides, metal fumes.

Hazardous polymerization: Cannot occur

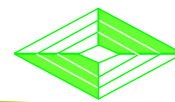
Stability: stable

## 11. Toxicological information

Actual toxicity: LD50 (oral, mouse): 250mg/kg

Further toxicological information:

The following applies to soluble nickel compounds in general: inorganic nickel has an astringent effect on mucous membranes. Sensitization 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.



## 12. Ecological information

Ecotoxic effects:

the following applies to nickel salts in general: Biological effects: dissolved Ni toxic for aquatic organisms. Fish: L. idus L50: 570mg/l; lethal concentration for fish 1mg/l in soft water; in hard water P. promelas LD50 27mg/l; bacteria: Ps. Putida toxic from 0.0025 mg/l up; algae: Sc. quadricauda toxic from 1.3mg/l up; M. aeruginosa toxic from 0.005mg/l up; E. sulcatum toxic from 0.14mg/l up; U. pardcezi toxic from 0.042 mg/l up; arthropods: D. magna LC50: 11mg/l (all values referring to dissolved Ni)

Further ecologic data: Do not allow to enter waters, waste water, or soil.

## 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

Transport over land ADR/RID and GGVS/GGVE (Germany)

River transport

Sea transport

Air transport

UN / ID NO. : UN3082

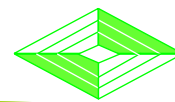
## 15. Regulatory information

Labeling according to directives

symbol: T Toxic

R-phrases: 25-43 Toxic if swallowed. May cause sensitization by skin contact.

S-phrases: 24-37-45 Avoid contact with skin. Wear suitable gloves. On case of accident or if you feel unwell, seek medical advice immediately. (show the label where possible)



**16. Other information**

Produced by: Zenith Chemical Corporation  
Address :No.9, Youe-6 Rd., Youth Industrial District, Tachia City, Taichang Hsien, 437,  
Taiwan, R.O.C.

**The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to the appropriate safety precautions. It does not represent a guarantee of the properties of the product. Recipients are advised to confirm in advance of need that the information is current, applicability suitable to their current circumstances.**