

# E-Form

## Electronic Grade Nickel Sulfamate Concentrate

### SAFETY DATA SHEET (SDS) E-Form (TM)

#### 1: PRODUCT AND COMPANY IDENTIFICATION:

DisChem, Inc.  
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**EMERGENCY TELEPHONE NUMBER (CHEMTREK):** + (800) 424 - 9300 (United States Only)  
CALL TOLL FREE / COLLECT 24 HRS FOR CHEMICAL EMERGENCIES (CCN6727) ++ (703) 527 - 3887 (Outside the United States)

#### 2: HAZARD(S) IDENTIFICATION:

##### Emergency Overview

##### GHS CLASSIFICATION:

Acute Toxicity, Oral (Category 4)  
Eye Irritation (Category 2)  
Respiratory Sensitization (Category 1)  
Skin Sensitization (Category 1)  
Carcinogenicity (Category 2)

##### GHS label elements, including precautionary statements

Pictogram:



Signal Word

##### Environmental Overview

Aquatic Toxicity - Chronic (Category 3)

##### Hazard Statements

H302 Harmful if swallowed  
H312 Harmful in contact with skin/dermal  
H317 May cause allergic skin reaction

- H319 Cause serious eye irritation  
 H322 Harmful by inhalation  
 H334 May cause allergic asthmatic symptoms or breathing difficulties if inhaled  
 H351 Suspected of causing cancer  
 H412 Harmful to aquatic life with long lasting effects

### Precautionary Statements

- P261 Avoid breathing dust/fume/gas/mist/vapors/spray  
 P264 Wash thoroughly after handling  
 P270 Do not eat or drink or smoke when using this product  
 P271 Use only outdoors or in a well ventilated area  
 P272 Contaminated work clothing should not be allowed out of the workplace.  
 P273 Avoid release to the environment  
 P280 Wear respiratory protection, protective gloves, and eye/face protection.  
 P281 Use personal protective equipment as required.  
 P285 In case of inadequate ventilation wear respiratory protection  
 P301+P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell  
 P330 Rinse mouth  
 P304+P341 IF INHALED: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing  
 P342+P311 If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician.  
 P305+P351 IF IN EYES: Rinse cautiously with water for several minutes. Remove +P338 contact lenses, if present and easy to do. Continue rinsing  
 P337+P313 If eye irritation persists: Get medical advice/attention.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P333+P313 If skin irritation or rash occurs: Get medical advice/attention  
 P363 Wash contaminated clothing before reuse.  
 P308+P313 If exposed or concerned. Get medical advice/attention  
 P405 Store locked up.  
 P501 Dispose of contents/container to a facility as required by law.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS:

#### Component

Nickel Sulfamate	Concentration: 48-52% vol/vol
	<b>Chemical Name:</b> Nickel sulfamate <b>Chemical Formula:</b> Ni (SO <sub>3</sub> NH <sub>2</sub> ) <sub>2</sub> xH <sub>2</sub> O <b>CAS Number:</b> 13770-89-3 <b>EC Number (EINECS):</b> 237-396-1 <b>Synonyms:</b> nickelous sulfamate, nickel ammonium sulfamate tetrahydrate <b>Appearance:</b> blue-green liquid <b>Stability:</b> Stable. Incompatible with oxidizing agents.
Water	Concentration: 48-52% vol/vol

#### 4. FIRST AID MEASURES:

**General Advice:** Consult a physician. Show this material safety data sheet to the doctor in attendance. Move out of dangerous area. In all cases be prepared to treat for shock

**Eye:** Eye irritation. Flush immediately with large amounts of water for at least 15 minutes. Eyelids should be held away from the eyeball to ensure thorough rinsing.

**Skin:** Wash affected area with soap and water for at least 15 minutes, especially under fingernails and around cuticles. Remove clothing and shoes that came in contact. Wash contaminated clothing before reuse. Thoroughly clean shoes before reuse.

**Inhalation:** If affected, remove individual to fresh air. If breathing is difficult, administer oxygen. Avoid mouth-to-mouth resuscitation.

**Ingestion:** If conscious, induce vomiting and clear mouth and nose. Get medical attention.

#### 5. FIRE FIGHTING MEASURES:

**Suitable Extinguishing Media:** In all cases this material does not support combustion. Water, water fog, and/or CO<sub>2</sub> may be used to cool fire-exposed storage containers, structures and to protect personnel.

**Fire Fighting Procedures:** Do not flush down sewers or other drainage systems. Material is harmful to aquatic life.

**Unusual Fire and Explosion Hazards:** None. Material is denser than water and will mix completely into excess water when allowed to do so.

**Combustion Products:** Extremely high temperatures may remove water by evaporation, then dehydration, and lead to thermal decomposition releasing nickel oxide, sulfur dioxide (SO<sub>2</sub>), and ammonia (NH<sub>3</sub>).

#### 6. ACCIDENTAL RELEASE MEASURES:

Keep unnecessary and/or untrained people away. Isolate spill area and avoid tracking through liquid. Dike and prevent runoff to drains or sewers. For small spills, cover with lime and then scoop into polyethylene drums for later disposal. Large spill may be pumped directly into a storage container for later disposal. Do not wash residue to drain or sewer. Refer to Section 15 for spill/release reporting information.

#### 7. HANDLING AND STORAGE

**Handling** Do not get in eyes, on skin, or on clothing. Do not breathe mists. Keep containers closed when not being used. Use only with adequate ventilation. Use good personal hygiene practices. After handling wash hands before eating, drinking, or smoking. Remove contaminated clothing and protective equipment before entering eating areas. Remove contaminated clothing and clean before reuse.

**Storage** Store in tightly closed containers in a well-ventilated area. Protect from physical damage. Empty containers may contain hazardous residue.

**8. EXPOSURE CONTROLS / PERSONAL PROTECTIONS:**

Component	CAS-No.	Value	Control Parameters	Basis
Nickel Sulfamate	13770-89-3	TWA	1 mg/m <sup>3</sup>	USA. OSHA - Table Z-1 Limits for air contaminants
		TWA	0.1 mg/m <sup>3</sup>	USA. OSHA- Table Z-1 Limits for air contaminants 1910.1000
		TWA	0.015 /m <sup>3</sup>	USA. NIOSHA Recommended Exposure Limits
Remarks	Potential Occupational Carcinogen			

**Engineering Controls:** Local exhaust ventilation may be necessary to control air contaminants to their exposure limits. The use of local ventilation is recommended to control emissions near the source. Provide mechanical ventilation for confined spaces.

**Personal Protective Equipment (PPE)**

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

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

**Respiratory Protection:** Under mist free conditions no respiratory protection should be worn. Should TWA limits be exceeded a NIOSH approved respirator for mist is generally acceptable for concentrations up to 100 times the PEL. Respiratory protection must be provided in accordance with OSHA 29 CFR 1910.134

**9. PHYSICAL AND CHEMICAL PROPERTIES:**

**Room Temperature Appearance:** Clear green liquid

**Odor:** None

**pH:** 4.0-4.7

**Flashpoint:** Not Applicable

**Autoignition Temperature:** Not Applicable

**Upper/lower Flammability Limits:** Not Applicable

**Danger of explosion:** None

**Boiling Point:** As water

**Melting Point:** Crystallizes at 34°F (1°C)

**Vapor Pressure:** As water

**Evaporation rate:** As water

**Vapor Density:** As water

**Specific Gravity:** 1.4 - 1.6

**Molecular Formula:** Ni(SO<sub>3</sub>NH<sub>2</sub>)<sub>2</sub> • 4H<sub>2</sub>O

**Molecular Weight:** 322.94

**10. STABILITY AND REACTIVITY:**

**Stability/Incompatibility:** Strong acids will decompose sulfamate into ammonium sulfate.

**Hazardous Reactions/Decomposition Products:** Extremely high temperatures may lead to thermal decomposition releasing nickel oxide, sulfur dioxide (SO<sub>2</sub>), and ammonia (NH<sub>3</sub>). High temperatures will produce nickel ammonium sulfate.

**11. TOXICOLOGICAL INFORMATION:**

**Signs and Symptoms of Overexposure:** Eye and nasal irritation, dermatitis with itching

**Eye Contact:** Cause irritation

**Skin Contact:** Not absorbed through skin. May cause dermatitis or allergic skin reactions.

**Inhalation:** Inhalation of mist can cause upper respiratory tract irritation.

**Ingestion:** Can cause gastrointestinal disorders.

**Carcinogenicity:** According to OSHA CFR 1910-1200 (Hazard Communication) Nickel and certain Nickel compounds are deemed to be possible cancer hazards. This is based on assessment by the U.S. NTP<sup>c</sup> (National Toxicology Program) that they may reasonably be anticipated to be carcinogens and an assessment of IARC (International Agency of Research on Cancer) which concluded that there was limited evidence of carcinogenicity to humans. There has been no evidence that workers exposed to soluble Nickel Salts in their use have demonstrated any increased risk of respiratory cancer. Nickel compounds are listed by IARC<sup>d</sup> as Group 1: carcinogenic to humans.

**Acute Toxicity Values:** No information is available for nickel sulfamate.

**12. ECOLOGICAL INFORMATION:**

When released into the soil, this material is not expected to biodegrade. When released into the soil, this material may leach into groundwater. When released into water, this material is not expected to biodegrade. When released into water, this material is not expected to evaporate significantly. This material does not significantly bioaccumulate. No information available is specific for nickel sulfamate.

**13. DISPOSAL INFORMATION:**

In case of a spill the nickel can be made insoluble by covering with lime or soda ash (sodium bicarbonate). The resulting solid material can be store for recovery or disposal in a polyethylene drum. Do not wash residue to a drain or sewer. Empty storage contains may be rinsed and the residue treated with sodium carbonate for collection and disposal.

**14. TRANSPORTATION INFORMATION:****U.S. Department of Transportation (DOT)**

UN Number: UN3082    Class 9            Packing Group: III  
Proper Shipping Name: Environmentally hazardous substances, Liquid N.O.S.  
(Nickel Sulfamate)  
Labels Required: 9

**IATA / ICAO**

UN Number: UN3082    Class 9            Packing Group: III  
Proper Shipping Name: Environmentally hazardous substances, Liquid N.O.S.  
(Nickel Sulfamate)  
Labels Required: 9

**International Maritime Organization (IMDG)**

UN Number: UN3082 Class 9 Packing Group: III  
Proper Shipping Name: Environmentally hazardous substances, Liquid N.O.S.  
(Nickel Sulfamate)  
Labels Required: 9, Marine Pollutant

**Import / Export Information:**

Harmonized Code (H.S): 2842.90.0000  
Description: Other inorganic salt. Nickel sulfamate

**15. REGULATORY INFORMATION:****United States Federal Regulation:****Toxic Substances Control Act (TSCA):**

Under normal operation conditions involving an aqueous solution or as the hexahydrate, Nickel Sulfamate is not listed on the TSCA Inventory List. Anhydrous Nickel Sulfamate (CAS #13770-89-3) is listed on the TSCA Inventory List

**Clean Water Act (CWA):**

No RQ assigned

**Clean Air Act (CAA):**

This material does not contain any hazardous air pollutants. This material does not contain any Class 1 Ozone depleters. This material does not contain any Class 2 Ozone depleters.

**Superfund Amendments and Reauthorization Act (SARA) Title III Information:**

This material is listed in Section 313 under the category of Nickel Compounds.

**State Regulations:****California:**

Nickel compounds, in general, are listed under Proposition 65 as cancer causing materials.

**International Regulations****Canadian Environmental Protection Act:**

CAS # 13770-89-3 and 124594-15-6 are grouped into the category "Nickel, water-soluble inorganic compounds, n.o.s." at a concentration of greater than 1% wt/wt.

**Canadian Workplace Hazardous Materials Information System (WHMIS):**

Not listed

**European Union Regulations:****European Inventory of Existing Chemicals (EINECS):**

Anhydrous Nickel Sulfamate is included in the ECICS as EC # 237-396-1. At this time it is not clear if the same number is being used for hydrated forms of Nickel Sulfamate.

**EU Classification, Risk (R) and Safety (S):**

This substance is not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 on the evaluation and control of the risks of existing substances. Several Risk and Safety

Phrases have been proposed, but not finalized, at the time of preparation of this SDS.

R22- Harmful if swallowed.

R40- Limited evidence of a carcinogenic effect

R41 - Risk of serious damage to the eyes

R43- May cause sensitization by skin contact  
R50— Very toxic to aquatic organisms  
R53— May cause long-term adverse effects in the aquatic environment  
S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice  
S36- Wear suitable protective clothing  
S37— Wear suitable gloves  
S39— Wear eye / face protection  
S60— This material and its container must be disposed of as hazardous waste

## 16. OTHER INFORMATION:

National Fire Protection Association (NFPA) Ratings: This information is intended solely for the use of individuals trained in the NFPA system.

Health: 2  
Flammability: 0  
Reactivity: 0

### Key/Legend

TSCA = Toxic Substance Control Act;  
ACGIH = American Conference of Governmental Industrial Hygienists;  
IARC = International Agency for Research on Cancer;  
NIOSH = National Institute for Occupational Safety and Health;  
NTP = National Toxicology Program;  
OSHA = Occupational Safety and Health Administration  
FDRL = Food and Drug Research Laboratories  
NFPA = National Fire Protection Association

SDS Prepared by: Andrew Thompson

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