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## Material Safety Data Sheet Nickel (II) Sulfate Hexahydrate

ACC# 16410

Section 1 - Chemical Product and Company Identification

**MSDS Name:** Nickel (II) Sulfate Hexahydrate  
**Catalog Numbers:** S76472, S76475, N72 3, N72-3, N723, N73 100, N73 500, N73-100, N73-500, N73100, N73500  
**Synonyms:** Nickeous Sulfate Crystal; Single Nickel Salt; Sulfuric Acid Nickel (II) Salt.  
**Company Identification:**  
 Fisher Scientific  
 1 Reagent Lane  
 Fairlawn, NJ 07410  
**For information, call:** 201-796-7100  
**Emergency Number:** 201-796-7100  
**For CHEMTREC assistance, call:** 800-424-9300  
**For International CHEMTREC assistance, call:** 703-527-3887

Section 2 - Composition, Information on Ingredients

CAS#	Chemical Name	Percent	EINECS/ELINCS
10101-97-0	NICKEL(II) SULFATE HEXAHYDRATE	>98%	unlisted

**Hazard Symbols:** XN  
**Risk Phrases:** 22 40 43

Section 3 - Hazards Identification

## EMERGENCY OVERVIEW

Appearance: blue-green. **Warning!** May cause allergic skin reaction. Harmful if swallowed. May cause eye and skin irritation. May cause respiratory and digestive tract irritation. May cause cancer based on animal studies.

**Target Organs:** Respiratory system.

### Potential Health Effects

**Eye:** May cause eye irritation.

**Skin:** Causes skin irritation. May cause severe irritation and possible burns. May cause dermatitis.

**Ingestion:** May cause gastrointestinal irritation with nausea, vomiting and diarrhea.

**Inhalation:** Dust is irritating to the respiratory tract. Inhalation of vapor may cause respiratory tract irritation.

**Chronic:** Prolonged or repeated skin contact may cause sensitization dermatitis and possible destruction and/or ulceration. May cause respiratory tract cancer.

### Section 4 - First Aid Measures

**Eyes:** Flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed.

**Skin:** Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. Get medical aid if irritation develops or persists. Wash clothing before reuse.

**Ingestion:** Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.

**Inhalation:** Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid. DO NOT use mouth-to-mouth respiration.

**Notes to Physician:** Treat symptomatically and supportively.

### Section 5 - Firefighting Measures

**General Information:** As in any fire, wear a self-contained breathing apparatus in pressure-demand, MSHA/NIOSH (approved or equivalent), and full protective gear. Water runoff can cause environmental damage. Dike and collect water used to fight fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas.

**Extinguishing Media:** Substance is noncombustible; use agent most appropriate to extinguish surrounding fire.

**Autoignition Temperature:** Noncombustible

**Flash Point:** Noncombustible (estimated) Health: 2; Flammability: 0;

Reactivity: 0 Explosion Limits, Lower: Not available. Upper: Not available.

### Section 6 - Accidental Release Measures

**General Information:** Use proper personal protective equipment as indicated in Section 8.

**Spills/Leaks:** Wash area with soap and water. Wear a self contained breathing apparatus and appropriate Personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Carefully scoop up and place into appropriate disposal container. Provide ventilation.

### Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use with adequate ventilation. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation.

**Storage:** Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from strong acids.

### Section 8 - Exposure Controls, Personal Protection

**Engineering Controls:** Use adequate ventilation to keep airborne concentrations low.

#### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
NICKEL(II) SULFATE HEXAHYDRATE	none listed	none listed	none listed

**OSHA Vacated PELs:** NICKEL(II) SULFATE HEXAHYDRATE: No OSHA Vacated PELs are listed for this chemical.

#### Personal Protective Equipment

**Eyes:** Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

**Skin:** Wear appropriate protective gloves to prevent skin exposure.

**Clothing:** Wear appropriate protective clothing to prevent skin exposure.

**Respirators:** Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

### Section 9 - Physical and Chemical Properties

**Physical State:** Solid  
**Appearance:** blue-green  
**Odor:** None reported  
**pH:** 4.5 in solution.  
**Vapor Pressure:** Negligible  
**Vapor Density:** 9.1  
**Evaporation Rate:**  
**Viscosity:** Not available.  
**Boiling Point:** 103 deg C  
**Freezing/Melting Point:** 53 deg C  
**Decomposition Temperature:** 280 deg C  
**Solubility:** 625g/L @20C in water.  
**Specific Gravity/Density:** 2.07 (water=1)  
**Molecular Formula:** NiSO<sub>4</sub>.6H<sub>2</sub>O  
**Molecular Weight:**

### Section 10 - Stability and Reactivity

**Chemical Stability:** Stable at room temperature in closed containers under normal storage and handling conditions.  
**Conditions to Avoid:** Ignition sources, excess heat, strong acids.  
**Incompatibilities with Other Materials:** Strong acids, strong oxidizing agents.  
**Hazardous Decomposition Products:** Oxides of sulfur, irritating and toxic fumes and gases, nickel oxide.  
**Hazardous Polymerization:** Has not been reported.

### Section 11 - Toxicological Information

**RTECS#:**  
**CAS#** 10101-97-0: QR9600000  
**LD50/LC50:**  
**CAS#** 10101-97-0:  
Oral, rat: LD50 = 264 mg/kg;  
**Carcinogenicity:**  
**CAS#** 10101-97-0:  
**California:** carcinogen - initial date 10/1/89 (listed as NICKEL SOLUBLE COMPOUNDS).  
**NIOSH:** occupational carcinogen (listed as NICKEL)  
**NTP:** Suspect carcinogen (listed as NICKEL).  
**OSHA:** Possible select carcinogen (listed as NICKEL).  
**IARC:** Group 2B carcinogen (listed as NICKEL).  
**Epidemiology:** No information available.  
**Teratogenicity:** No information available.  
**Reproductive Effects:** Paternal Effects: intraperitoneal-rat TDLo=403mg/kg.  
**Neurotoxicity:** No information available.  
**Mutagenicity:** Please refer to RTECS QR9600000 for mutation data and references.  
**Other Studies:** None.

## Section 12 - Ecological Information

**Ecotoxicity:** Prawn (salt water) LC50=13.9ppm/48H Rainbow trout (fresh water) TLm=160ppm/48H

**Environmental Fate:** Nickel is very mobile in aquatic environment and shows potential for bioaccumulation.

**Physical/Chemical:** No information available.

**Other:** None.

## Section 13 - Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

**RCRA D-Series Maximum Concentration of Contaminants:** None listed.

**RCRA D-Series Chronic Toxicity Reference Levels:** None listed.

**RCRA F-Series:** None listed.

**RCRA P-Series:** None listed.

**RCRA U-Series:** None listed.

## Section 14 - Transport Information

	US DOT	IATA	RID/ADR	IMO	Canada TDG
<b>Shipping Name:</b>	No information available.	No information available.	No information available.	No information available. NICKEL SULFATE	
<b>Hazard Class:</b>				9.2	
<b>UN Number:</b>				UN9141	
<b>Packing Group:</b>				III	
<b>Additional Info:</b>				REGULATED LIMIT 230KG	

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 10101-97-0 is not on the TSCA Inventory. It is a hydrate and exempt from TSCA Inventory requirements (40CFR720.3(u)(2)).

#### Health & Safety Reporting List

None of the chemicals are on the Health & Safety Reporting List.

#### Chemical Test Rules

None of the chemicals in this product are under a Chemical Test Rule.

#### Section 12b

None of the chemicals are listed under TSCA Section 12b.

**TSCA Significant New Use Rule**

None of the chemicals in this material have a SNUR under TSCA.

**SARA****Section 302 (RQ)**

None of the chemicals in this material have an RQ.

**Section 302 (TPQ)**

None of the chemicals in this product have a TPQ.

**SARA Codes**

CAS # 10101-97-0: acute, chronic.

**Section 313**

This material contains NICKEL(II) SULFATE HEXAHYDRATE (listed as NICKEL), 98%, (CAS# 10101-97-0) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 373.

**Clean Air Act:**

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.

**Clean Water Act:**

None of the chemicals in this product are listed as Hazardous Substances under the CWA. None of the chemicals in this product are listed as Priority Pollutants under the CWA. None of the chemicals in this product are listed as Toxic Pollutants under the CWA.

**OSHA:**

None of the chemicals in this product are considered highly hazardous by OSHA.

**STATE**

CAS# 10101-97-0 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

California No Significant Risk Level: None of the chemicals in this product are listed. **European/International Regulations**

**European Labeling in Accordance with EC Directives****Hazard Symbols:**

XN

**Risk Phrases:**

R 22 Harmful if swallowed. R 40 Possible risks of irreversible effects. R 43 May cause sensitization by skin contact.

**Safety Phrases:**

S 36/37 Wear suitable protective clothing and gloves.

**WGK (Water Danger/Protection)**

CAS# 10101-97-0: 2

**Canada**

None of the chemicals in this product are listed on the DSL/NDSL list. This product has a WHMIS classification of D1B, D2A.

CAS# 10101-97-0 is not listed on Canada's Ingredient Disclosure List.

**Exposure Limits**

CAS# 10101-97-0: OEL-ARAB Republic of Egypt:TWA 0.1 mg(Ni)/m<sup>3</sup>  
OEL-A

AUSTRALIA:TWA 1 mg(Ni)/m<sup>3</sup> OEL-BELGIUM:TWA 1 mg(Ni)/m<sup>3</sup> (insoluble  
compounds) OEL-BELGIUM:TWA 1 mg(Ni)/m<sup>3</sup> OEL-CZECHOSLOVAKIA:TWA 0.05  
mg(Ni)

/m<sup>3</sup>;STEL 0.25 mg(Ni)/m<sup>3</sup> OEL-DENMARK:TWA 0.05  
mg(Ni)/m<sup>3</sup>;Carcinogen OE

L-DENMARK:TWA 1 mg(Ni)/m<sup>3</sup> (insoluble compounds) OEL-FINLAND:TWA  
0.1 m

g(Ni)/m<sup>3</sup>;Carcinogen OEL-FINLAND:TWA 0.1 mg(Ni)/m<sup>3</sup>;Skin;CAR


(insoluble compounds) OEL-FRANCE:TWA 1 mg(Ni)/m3 OEL-GERMANY;Carcinogen OEL-HUNGARY:STEL 0.005 mg(Ni)/m3;CAR (insoluble compounds) OEL-HUNGARY:STEL 0.005 mg(Ni)/m3;Carcinogen OEL-JAPAN:TWA 1 mg(Ni)/m3;Carcinogen OEL-THE NETHERLANDS:TWA 0.1 mg(Ni)/m3 OEL-THE NETHERLANDS:TWA 1 mg(Ni)/m3 (insoluble compounds) OEL-THE PHILIPPINES:TWA 1 mg(Ni)/m3 OEL-RUS SIA:STEL 0.05 mg(Ni)/m3 OEL-SWEDEN:TWA 0.5 mg(Ni)/m3 OEL-SWITZERLAND :TWA 0.5 mg(Ni)/m3 (insoluble compounds) OEL-SWITZERLAND:TWA 0.5 mg(Ni)/m3;Carcinogen JAN9 OEL-THAILAND:TWA 1 mg(Ni)/m3 OEL-UNITED KINGDOM:TWA 0.5 mg(Ni)/m3 (insoluble compounds) OEL-UNITED KINGDOM:TWA 1 mg(Ni)/m3 OEL IN BULGARIA, COLOMBIA, JORDAN, KOREA check ACGIH TLV OEL IN NEW ZEALAND, SINGAPORE, VIETNAM check ACGI TLV

### Section 16 - Additional Information

**MSDS Creation Date:** 3/02/1995

**Revision #9 Date:** 8/07/1998

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