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\*\*\*\* MATERIAL SAFETY DATA SHEET \*\*\*\*

Nickel (II) Nitrate Hexahydrate  
16370

\*\*\*\* SECTION 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION \*\*\*\*

MSDS Name: Nickel (II) Nitrate Hexahydrate  
Catalog Numbers:  
S80105, S80105-1, N62 500, N62-500, N62500, S801051  
Synonyms:  
Nickelous Nitrate Hexahydrate; Nitric Acid Nickel (II) Salt  
Hexahydrate.  
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	%	EINECS#
13478-00-7	NICKEL(II) NITRATE, HEXAHYDRATE	100	unlisted

Hazard Symbols: XN O  
Risk Phrases: 20/22 8

\*\*\*\* SECTION 3 - HAZARDS IDENTIFICATION \*\*\*\*

EMERGENCY OVERVIEW

Appearance: emerald green.  
Warning! May cause allergic skin reaction. Oxidizer. May be harmful if swallowed. May cause lung damage. May cause liver and kidney damage. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May cause cancer in humans.  
Target Organs: Kidneys, liver, respiratory system.

Potential Health Effects

Eye: May cause eye irritation. May cause conjunctivitis.  
Skin: Causes skin irritation. May cause severe irritation and possible burns. May cause dermatitis.  
Ingestion: May cause gastrointestinal irritation with nausea, vomiting and diarrhea. May cause liver and kidney damage.  
Inhalation: Dust is irritating to the respiratory tract. Inhalation of vapor may cause respiratory tract irritation. May cause methemoglobinemia, cyanosis, convulsions, tachycardia, dyspnea, and death.  
Chronic: Prolonged inhalation may cause respiratory tract inflammation and lung damage. 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 eyelids. Get medical aid.  
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.  
Ingestion: 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.  
Notes to Physician: Treat symptomatically and

\*\*\*\* SECTION 5 - FIRE FIGHTING 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. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Use water spray to keep fire-exposed containers cool. Substance is nonflammable. Oxidizer. Greatly increases the burning rate of

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combustible materials. Vapors may be heavier than air. They can spread along the ground and collect in low or confined areas. Containers may explode if exposed to fire.  
Extinguishing Media:  
Use water spray to cool fire-exposed containers. Substance is noncombustible; use agent most appropriate to extinguish surrounding fire. For large fires flood fire with water from a distance. DO NOT use dry chemicals, CO2, Halon or foams.

\*\*\*\* SECTION 6 - ACCIDENTAL RELEASE MEASURES \*\*\*\*

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

Spills/Leaks:

Avoid runoff into storm sewers and ditches which lead to waterways. Clean up spills immediately, observing precautions in the Protective Equipment section. Wear a self contained breathing apparatus and appropriate personal protection. (See Exposure Controls, Personal Protection section). Avoid generating dusty conditions. Remove all sources of ignition. 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 only in a well ventilated area. Minimize dust generation and accumulation. Avoid contact with skin and eyes. Avoid ingestion and inhalation. Wash clothing before reuse.

Storage:

Do not store near combustible materials. Store in a tightly closed container. Store in a cool, dry, well-ventilated area away from incompatible substances. Keep away from reducing agents.

\*\*\*\* 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) NITRATE, HEXAHYDRATE	metal, inhalable fraction: 1.5 mg/m <sup>3</sup> TWA (listed under ** no name **).	as Ni: 0.015 mg/m <sup>3</sup> TWA; NIOSH Potential Occupational Carcinogen - see Appendix A (listed under ** no name **). Potential NIOSH carcinogen. (listed under ** no name **).	metal and insoluble compounds, as Ni: 1 mg/m <sup>3</sup> TWA; soluble compounds, as Ni: 1 mg/m <sup>3</sup> TWA (listed under ** no name **).

OSHA Vacated PELs:

NICKEL(II) NITRATE, HEXAHYDRATE:  
1 mg/m<sup>3</sup> TWA (listed under \*\* no name \*\*) as Ni: 0.1 mg/m<sup>3</sup> TWA (listed under \*\* no name \*\*)

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: emerald green  
Odor: odorless  
pH: 4.0 (aqueous sol.)  
Vapor Pressure: Negligible

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Vapor Density: 10.0  
Evaporation Rate: Not available.  
Viscosity: Not available.  
Boiling Point: 137 deg C  
Freezing/Melting Point: 57 deg C  
Autoignition Temperature: Not applicable.  
Flash Point: Not applicable.  
NFPA Rating: (est.) Health: 2; Flammability: 0; Reactivity: 1  
Explosion Limits, Lower: Not available.  
Upper: Not available.  
Decomposition Temperature: 200 C  
Solubility: 238.5g/100cc water @ 20C.  
Specific Gravity/Density: 2.05  
Molecular Formula: Ni(NO3)2·6H2O  
Molecular Weight: 290.8

\*\*\*\* SECTION 10 - STABILITY AND REACTIVITY \*\*\*\*

Chemical Stability: Stable under normal temperatures and pressures.  
Conditions to Avoid: Incompatible materials, combustible materials, flammable materials.  
Incompatibilities with Other Materials: Alkyl esters, aluminum, hydroxylamine, phosphinates, phosphorus, strong reducing agents, strong acids, sulfur, tin (II) chloride.  
Hazardous Decomposition Products: Nitrogen oxides, irritating and toxic fumes and gases, nitrogen, nickel oxide.  
Hazardous Polymerization: Has not been reported.

\*\*\*\* SECTION 11 - TOXICOLOGICAL INFORMATION \*\*\*\*

RTECS#: CAS# 13478-00-7: QR7300000  
LD50/LC50: CAS# 13478-00-7: Oral, rat: LD50 = 1620 mg/kg.  
Carcinogenicity: NICKEL(II) NITRATE, HEXAHYDRATE -  
ACGIH: A5 - Not Suspected as a Human Carcinogen (listed as \*\* undefined \*  
California: carcinogen; initial date 10/1/89 (listed as \*\* undefined \*  
NIOSH: occupational carcinogen (listed as \*\* undefined \*\*)  
NTP: Suspect carcinogen (listed as \*\* undefined \*\*).  
OSHA: Possible select carcinogen (listed as \*\* undefined \*\*).  
IARC: Group 2B carcinogen (listed as \*\* undefined \*\*).  
Epidemiology: No information available.  
Teratogenicity: No information available.  
Reproductive Effects: No information available.  
Neurotoxicity: No information available.  
Mutagenicity: No information available.  
Other Studies: None.

\*\*\*\* SECTION 12 - ECOLOGICAL INFORMATION \*\*\*\*

Other  
No information available.

\*\*\*\* SECTION 13 - DISPOSAL CONSIDERATIONS \*\*\*\*

Dispose of in a manner consistent with federal, state, and local regulations.  
RCRA P-Series: None listed.  
RCRA U-Series: None listed.

\*\*\*\* SECTION 14 - TRANSPORT INFORMATION \*\*\*\*

US DOT  
Shipping Name: NICKEL NITRATE  
Hazard Class: 5.1  
UN Number: UN2725  
Packing Group: III  
Canadian TDG  
Shipping Name: NICKEL NITRATE  
Hazard Class: 5.1(9.2)  
UN Number: UN2725

\*\*\*\* SECTION 15 - REGULATORY INFORMATION \*\*\*\*

US FEDERAL  
TSCA  
CAS# 13478-00-7 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

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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 # 13478-00-7: acute, chronic, flammable.  
Section 313  
This material contains NICKEL(II) NITRATE, HEXAHYDRATE (listed as \*\* undefined \*\*), 100%, (CAS# 13478-00-7) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.  
Clean Air Act:  
CAS# 13478-00-7 listed as \*\* no name \*\* is listed as a hazardous air pollutant (HAP).  
This material does not contain any Class 1 Ozone depletors.  
This material does not contain any Class 2 Ozone depletors.  
Clean Water Act:  
None of the chemicals in this product are listed as Hazardous Substances under the CWA.  
CAS# 13478-00-7 is listed as a Priority Pollutant under the Clean Water Act.  
CAS# 13478-00-7 is listed as a Toxic Pollutant under the Clean Water Act.

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

STATE  
NICKEL(II) NITRATE, HEXAHYDRATE can be found on the following state right to know lists: California, (listed as \*\* no name \*\*), California, (listed as \*\* no name \*\*), New Jersey, (listed as \*\* no name \*\*), Florida, (listed as \*\* no name \*\*), Pennsylvania, (listed as \*\* no name \*\*), Minnesota, (listed as \*\* no name \*\*), Minnesota, (listed as \*\* no name \*\*), Massachusetts, (listed as \*\* no name \*\*).  
The following statement(s) is(are) made in order to comply with the California Safe Drinking Water Act:  
WARNING: This product contains NICKEL(II) NITRATE, HEXAHYDRATE, listed as \*\* undefined \*\*, a chemical known to the state of California to cause cancer.  
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 O  
Risk Phrases:  
R 20/22 Harmful by inhalation and if swallowed.  
R 8 Contact with combustible material may cause fire.  
Safety Phrases:  
S 24/25 Avoid contact with skin and eyes.

WGK (Water Danger/Protection)  
CAS# 13478-00-7: No information available.  
United Kingdom Occupational Exposure Limits  
CAS# 13478-00-7: OES-United Kingdom, TWA (listed as \*\* undefined \*\*): organic compounds, as Ni: 1 mg/m3 TWA  
CAS# 13478-00-7: OES-United Kingdom, STEL (listed as \*\* undefined \*\*): organic compounds, as Ni: 3 mg/m3 STEL  
Canada  
None of the chemicals in this product are listed on the DSL/NDSL list.  
This product has a WHMIS classification of C, D2A.  
CAS# 13478-00-7 is not listed on Canada's Ingredient Disclosure List.  
Exposure Limits:  
CAS# 13478-00-7: OEL-ARAB Republic of Egypt:TWA 0.1 mg(Ni)/m3  
OEL-AUSTRALIA:TWA 1 mg(Ni)/m3  
OEL-BELGIUM:TWA 1 mg(Ni)/m3 (insoluble compounds)  
OEL-BELGIUM:TWA 1 mg(Ni)/m3  
OEL-CZECHOSLOVAKIA:TWA 0.05 mg(Ni)/m3;STEL 0.25 mg(Ni)/m3  
OEL-DENMARK:TWA 0.05 mg(Ni)/m3;Carcinogen  
OEL-DENMARK:TWA 1 mg(Ni)/m3 (insoluble compounds)  
OEL-FINLAND:TWA 0.1 mg(Ni)/m3;Carcinogen  
OEL-FINLAND:TWA 0.1 mg(Ni)/m3;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-RUSSIA: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

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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: 8/06/1998 Revision #0 Date: Original.

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall the company be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if the company has been advised of the possibility of such damages.

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