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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:

S801051, N62-500

Synonyms:

Nickelous nitrate hexahydrate; Nitric acid, nickel(II) salt

hexahydrate; Nickel dinitrate 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#
13138-45-9	Nickel nitrate (2+ salt), anhydrous	-	236-068-5
13478-00-7	Nickel dinitrate hexahydrate	100	unlisted

Hazard Symbols: XN O

Risk Phrases: 22 40 8

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

EMERGENCY OVERVIEW

Appearance: emerald green solid.
Danger! Strong oxidizer. Contact with other material may cause a fire. Causes respiratory tract irritation. Cancer suspect agent. May be harmful if swallowed. May cause lung damage. Causes eye and skin irritation.

Target Organs: Central nervous system, lungs, eyes, skin, mucous membranes.

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. May cause methemoglobinemia, cyanosis, convulsions, tachycardia, dyspnea (labored breathing), 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 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 and move 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

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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 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.

Autoignition Temperature: Not applicable.

Flash Point: Not applicable.

Explosion Limits, lower: Not available.

Explosion Limits, upper: Not available.

NEPA Rating: (estimated) Health: 2; Flammability: 0; Instability: 1; Special

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

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

Spills/Leaks:

Contain 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. Minimize dust generation and accumulation. Avoid contact with eyes, skin, and clothing. Wash clothing before reuse. Do not breathe dust or fumes. Use only with adequate ventilation.

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:

Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits			
Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Nickel nitrate (2+ salt), anhydrous	none listed	0.015 mg/m3 TWA (as Ni) (listed under ** no name **). 0.1 mg/m3 IDLH (as Ni) (listed under ** no name **).	1 mg/m3 TWA (as Ni) (listed under ** no name **).
Nickel dinitrate hexahydrate	none listed	0.015 mg/m3 TWA (as Ni) (listed under ** no name **). 0.1 mg/m3 IDLH (as Ni) (listed under ** no name **).	1 mg/m3 TWA (as Ni) (listed under ** no name **).

OSHA Vacated PELs:

Nickel nitrate (2+ salt), anhydrous:
0.1 mg/m3 TWA (as Ni) (listed under ** no name **)
Nickel dinitrate hexahydrate:
0.1 mg/m3 TWA (as Ni) (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:

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Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29 CFR 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
Color: emerald green
Odor: odorless
pH: 4.0 (aqueous sol.)
Vapor Pressure: Negligible
Vapor Density: 10.0
Evaporation Rate: Not available.
Viscosity: Not available.
Boiling Point: 137 deg C
Freezing/Melting Point: 56.7 deg C
Decomposition Temperature: 200 C
Solubility in water: Soluble.
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, nickel oxide.
Hazardous Polymerization: Has not been reported.

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

RTECS#: CAS# 13138-45-9: QR7200000
CAS# 13478-00-7: QR7300000
LD50/LCS0: Not available.
CAS# 13478-00-7: Oral, rat: LD50 = 1620 mg/kg.
Carcinogenicity: Nickel nitrate (2+ salt), anhydrous -
NIOSH: potential occupational carcinogen (listed as ** undefined)
NTP: Known carcinogen (listed as ** undefined **).
OSHA: Select carcinogen (listed as ** undefined **).
IARC: Group 1 carcinogen (listed as ** undefined **).
Nickel dinitrate hexahydrate -
NIOSH: potential occupational carcinogen (listed as ** undefined)
NTP: Known carcinogen (listed as ** undefined **).
OSHA: Select carcinogen (listed as ** undefined **).
IARC: Group 1 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 ****

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

Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste.
US EPA guidelines for the classification determination are listed in 40 CFR Parts 261.3. Additionally, waste generators must consult state and local hazardous waste regulations to ensure complete and accurate classification.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

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

US DOT

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Shipping Name: NICKEL NITRATE
Hazard Class: 5.1
UN Number: UN2725
Packing Group: III
Canadian TDG
No information available.

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

US FEDERAL
TSCA

CAS# 13138-45-9 is listed on the TSCA inventory.
CAS# 13478-00-7 is not on the TSCA inventory because it is a hydrate. It is considered to be listed if the CAS number for the anhydrous form is on the inventory (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

CERCLA Hazardous Substances and corresponding RQs
None of the chemicals in this material have an RQ.
SARA Section 302 Extremely Hazardous Substances
None of the chemicals in this product have a TPQ.
SARA Codes

CAS # 13478-00-7: acute, chronic, flammable.

Section 313

This chemical is not at a high enough concentration to be reportable under Section 313.
This material contains Nickel dinitrate 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# 13138-45-9 listed as ** no name ** is listed as a hazardous air pollutant (HAP).
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 depleters.
This material does not contain any Class 2 Ozone depleters.

Clean Water Act:

CAS# 13138-45-9 is listed as a Hazardous Substance under the CWA.
None of the chemicals in this product are listed as Priority Pollutants under the CWA.
CAS# 13138-45-9 is listed as a Toxic 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 nitrate (2+ salt), anhy can be found on the following state right to know lists: California, (listed as ** no name **), California, (listed as ** no name **), New Jersey, Pennsylvania, Minnesota, (listed as ** no name **), Massachusetts.
Nickel dinitrate hexahydrate can be found on the following state right to know lists: California, (listed as ** no name **), Minnesota, (listed as ** no name **).
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 22 Harmful if swallowed.
R 40 Limited evidence of a carcinogenic effect.
R 8 Contact with combustible material may cause fire.

Safety Phrases:

S 17 Keep away from combustible material.
S 36/37 Wear suitable protective clothing and gloves.
S 45 In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

WGK (Water Danger/Protection)

CAS# 13138-45-9: 2

CAS# 13478-00-7: No information available.

United Kingdom Occupational Exposure Limits

United Kingdom Maximum Exposure Limits

CAS# 13138-45-9: MEL-United Kingdom, TWA (listed as ** undefined **): 0.1 mg/m3 TWA (as Ni)

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Canada

CAS# 13138-45-9 is listed on Canada's DSL List.
This product has a WHMIS classification of C, D2A.
CAS# 13138-45-9 is listed on Canada's Ingredient Disclosure List.
CAS# 13478-00-7 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 13138-45-9: 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
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
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
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 #2 Date: 3/13/2002

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, however arising, even if the company has been advised of the possibility of such damages.