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

Cobalt (II) Nitrate Hexahydrate
05290

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

MSDS Name: Cobalt (II) Nitrate Hexahydrate
Catalog Numbers:
S79973, S79973-1, C378 500, C378-500, C378500, S799731
Synonyms:
Nitric Acid Cobalt 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#
10026-22-9	COBALT (II) NITRATE HEXAHYDRATE	100	unlisted

Hazard Symbols: T O
Risk Phrases: 22 42/43 8 49

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

EMERGENCY OVERVIEW

Appearance: red.
Danger! Strong oxidizer. Contact with other material may cause a fire. May cause allergic respiratory reaction. May cause allergic skin reaction. May be harmful if swallowed. May cause cardiac disturbances. Causes eye and skin irritation. Causes digestive and respiratory tract irritation. May cause blood abnormalities.
Target Organs: Heart, respiratory system, red blood cells.

Potential Health Effects

Eye: Causes eye irritation.
Skin: Prolonged and/or repeated contact may cause irritation and/or dermatitis. May cause skin sensitization, an allergic reaction, which becomes evident upon re-exposure to this material.
Ingestion: Causes gastrointestinal irritation with nausea, vomiting and diarrhea. May be harmful if swallowed. Excessive ingestion may increase red blood cells and decrease blood pressure. May cause sensation of heat and enlargement of the
Inhalation: Dust is irritating to the respiratory tract. May cause methemoglobinemia, cyanosis, convulsions, tachycardia, dyspnea, and death. May cause asthmatic attacks due to allergic sensitization of the respiratory tract.
Chronic: Repeated exposure may cause allergic respiratory reaction (asthma).

**** 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. Wash clothing before reuse.
Ingestion: Never give anything by mouth to an unconscious person. Get medical aid. Do NOT induce vomiting. If conscious and alert, rinse mouth and drink 2-4 cupfuls of milk or water.
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: Administration of Calcium Disodium EDTA may be useful in acute poisoning with its use at the discretion of qualified medical personnel.

**** 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. Strong oxidizer. Contact with combustible materials may cause a fire. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion.
Extinguishing Media:
Use agent most appropriate to extinguish fire. In case of fire use water spray, dry chemical, carbon dioxide, or appropriate foam.

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

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

Spills/Leaks:
Vacuum or sweep up material and place into a suitable disposal container. Clean up spills immediately, observing precautions in the Protective Equipment section. Avoid generating dusty conditions. Provide ventilation.

**** SECTION 7 - HANDLING and STORAGE ****

Handling:
Wash hands before eating. Use with adequate ventilation. Avoid contact with eyes, skin, and clothing. Keep container tightly closed. Avoid contact with clothing and other combustible materials.

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.

**** 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
COBALT (II) NITRATE HEXAHYDRATE	elemental, as Co: 0.02 mg/m3 TWA (listed under ** no name **).	as Co: 0.05 mg/m3 TWA (listed under ** no name) as Co: 20 mg/m3 IDLH (listed under ** no name **).	0.1 mg/m3 TWA (listed under ** no name **).

OSHA Vacated PELs:
COBALT (II) NITRATE HEXAHYDRATE:
as Co: 0.05 mg/m3 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 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: red
Odor: odorless
pH: Not available.
Vapor Pressure: Negligible.
Vapor Density: Not available.
Evaporation Rate: Negligible.
Viscosity: Not applicable.
Boiling Point: Not available.
Freezing/Melting Point: 55-56C
Autoignition Temperature: Not applicable.
Flash Point: Noncombustible.
NFPA Rating: (est.) Health: 2; Flammability: 0; Reactivity: 1
Explosion Limits, Lower: Not available.
Upper: Not available.
Decomposition Temperature: 74 deg C

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Solubility: Soluble.
Specific Gravity/Density: 2.49
Molecular Formula: Co(NO3)2.6H2O
Molecular Weight: 291.0234

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

Chemical Stability: Stable. However, may decompose if heated.
Conditions to Avoid: Incompatible materials, excess heat, combustible materials, reducing agents, temperatures above 100°C.
Incompatibilities with Other Materials: Reacts violently if mixed with reducing agents, organic matter, and other flammable and combustible materials including wood, paper, sulfur, aluminum, phosphorus, hydroxylamine, phosphinates, alkyl esters, ammonium hexacyanoferrate (4-), carbon, tin (II) chloride, and flammable liquids.
Hazardous Decomposition Products: Nitrogen oxides, irritating and toxic fumes and gases.
Hazardous Polymerization: Has not been reported.

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

RTECS#: CAS# 10026-22-9: QU7355500
LD50/LC50: CAS# 10026-22-9: Oral, rat: LD50 = 691 mg/kg.
Carcinogenicity: COBALT (II) NITRATE HEXAHYDRATE -
ACGIH: elemental, as Co; A3 - animal carcinogen (listed as ** und
California: carcinogen; initial date 7/1/92 (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: No data available.

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

**** 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: NITRATES, INORGANIC, N.O.S.
Hazard Class: 5.1
UN Number: UN1477
Packing Group: II
Canadian TDG
Shipping Name: NITRATES INORGANIC NOS (COBALTOUS NITRATE)
Hazard Class: 5.1
UN Number: UN1477

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

US FEDERAL
TSCA
CAS# 10026-22-9 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

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CAS # 10026-22-9: acute, chronic, flammable.
Section 313

This material contains COBALT (II) NITRATE HEXAHYDRATE (listed as ** undefined **), 100%, (CAS# 10026-22-9) which is subject to the reporting requirements of Section 313 of SARA Title III and 40 CFR Part 372.

Clean Air Act:
CAS# 10026-22-9 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.
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

COBALT (II) NITRATE HEXAHYDRATE can be found on the following state right to know lists: 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 **), 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 COBALT (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: T O
Risk Phrases:

R 22 Harmful if swallowed.
R 42/43 May cause sensitization by inhalation and skin contact.
R 8 Contact with combustible material may cause fire.
R 49 May cause cancer by inhalation.

Safety Phrases:

S 53 Avoid exposure - obtain special instructions before use.
S 22 Do not breathe dust.
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# 10026-22-9: 2

United Kingdom Occupational Exposure Limits

Canada

None of the chemicals in this product are listed on the DSL/NDSL list. This product has a WHMIS classification of C, D2B.
CAS# 10026-22-9 is not listed on Canada's Ingredient Disclosure List.

Exposure Limits

CAS# 10026-22-9 (listed as ** undefined **): OEL-ARAB Republic of Egypt: TWA 0.1 mg/m3
OEL-AUSTRALIA: TWA 0.05 mg/m3
OEL-BELGIUM: TWA 0.05 mg/m3
OEL-CZECHOSLOVAKIA: TWA 0.05 mg/m3; STEL 0.1 mg/m3
OEL-DENMARK: TWA 0.05 mg/m3
OEL-FINLAND: TWA 0.05 mg/m3; Skin
OEL-GERMANY: Carcinogen
OEL-HUNGARY: TWA 0.1 mg/m3; STEL 0.2 mg/m3
OEL-THE NETHERLANDS: TWA 0.1 mg/m3
OEL-THE PHILIPPINES: TWA 0.1 mg/m3
OEL-POLAND: TWA 0.05 mg/m3
OEL-RUSSIA: STEL 0.5 mg/m3
OEL-SWEDEN: TWA 0.05 mg/m3
OEL-SWITZERLAND: TWA 0.1 mg/m3; Carcinogen
OEL-UNITED KINGDOM: TWA 0.1 mg/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: 4/07/1998 Revision #2 Date: 4/04/2000

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

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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.
