

# Material Safety Data Sheet

## Sodium nitroprusside dihydrate

ACC# 30681

### Section 1 - Chemical Product and Company Identification

**MSDS Name:** Sodium nitroprusside dihydrate**Catalog Numbers:** AC211640000, AC211640250, AC211641000, AC211645000, AC424360000, AC424360250, AC424361000, AC424365000, S350-100**Synonyms:** Nipride dihydrate; Disodium nitroprusside dihydrate; Sodium nitroferricyanide dihydrate; Sodium nitrosylpentacyanoferrate(III) dihydrate; Sodium nitroprusside dihydrate; Disodium pentacyanonitrosylferrate dihydrate; SNP.**Company Identification:**Fisher Scientific  
1 Reagent Lane  
Fair Lawn, 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
13755-38-9	Sodium nitroferricyanide dihydrate	>99.8	unlisted

### Section 3 - Hazards Identification

#### EMERGENCY OVERVIEW

Appearance: bright red crystals.

**Warning!** Toxic if swallowed, inhaled or absorbed through the skin. Contact with acids liberates hydrogen cyanide, a very toxic, flammable gas or liquid. May cause eye and skin irritation. May cause respiratory tract irritation. Hygroscopic (absorbs moisture from the air).**Target Organs:** Blood, central nervous system, cardiovascular system.**Potential Health Effects****Eye:** May cause eye irritation.**Skin:** May cause skin irritation. Absorption into the body may cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Toxic in contact with skin. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration.**Ingestion:** May cause irritation of the digestive tract. Metabolism may release cyanide, which may result in headache, dizziness, weakness, collapse, unconsciousness and possible death. May cause cyanosis (bluish discoloration of skin due to deficient oxygenation of the blood). Ingestion may result in symptoms similar to cyanide poisoning which is characterized by asphyxiation. Large doses of cyanide may result in sudden loss of consciousness and prompt death; small doses will prolong the above symptoms 1 to 2 hours. Toxic if swallowed.**Inhalation:** May cause respiratory tract irritation. Toxic if inhaled. May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing cellular respiration. Sodium nitroprusside dihydrate releases NO (nitric oxide) in vivo, induces vasodilation, and inhibits platelet aggregation.**Chronic:** May be metabolized to cyanide which in turn acts by inhibiting cytochrome oxidase impairing

cellular respiration. Chronic exposure to cyanide solutions may lead to the development of a "cyanide" rash, characterized by itching, and by macular, papular, and vesicular eruptions, and may be accompanied by secondary infections. Exposure to small amounts of cyanide compounds over long periods of time is reported to cause loss of appetite, headache, weakness, nausea, dizziness, and symptoms of irritation of the upper respiratory tract and eyes.

## Section 4 - First Aid Measures

**Eyes:** In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical aid.

**Skin:** In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Get medical aid. Wash clothing before reuse.

**Ingestion:** If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical aid.

**Inhalation:** If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

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

## 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. Combustion by-products include oxides of nitrogen and hydrogen cyanide.

**Extinguishing Media:** Use water spray, dry chemical, carbon dioxide, or appropriate foam.

**Flash Point:** Not applicable.

**Autoignition Temperature:** Not applicable.

**Explosion Limits, Lower:** Not available.

**Upper:** Not available.

**NFPA Rating:** (estimated) Health: 3; Flammability: 1; Instability: 1

## Section 6 - Accidental Release Measures

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

**Spills/Leaks:** 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). Sweep up, then place into a suitable container for disposal. Avoid generating dusty conditions. Provide ventilation. Do not let this chemical enter the environment.

## Section 7 - Handling and Storage

**Handling:** Wash thoroughly after handling. Minimize dust generation and accumulation. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Use only in a chemical fume hood. Do not breathe dust.

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

## 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. Use only under a chemical fume hood.

#### Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sodium nitroferricyanide dihydrate	1 mg/m <sup>3</sup> TWA (as Fe) (listed under Iron salts (soluble)).	1 mg/m <sup>3</sup> TWA (as Fe) (listed under Iron salts (soluble)).	none listed
Sodium nitroferricyanide, anhydrous	none listed	none listed	none listed

**OSHA Vacated PELs:** Sodium nitroferricyanide dihydrate: No OSHA Vacated PELs are listed for this chemical.  
Sodium nitroferricyanide, anhydrous: 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:** A respiratory protection program that meets OSHA's 29 CFR 1910.134 and ANSI Z88.2 requirements or European Standard EN 149 must be followed whenever workplace conditions warrant respirator use.

## Section 9 - Physical and Chemical Properties

**Physical State:** Crystals

**Appearance:** bright red

**Odor:** practically odorless

**pH:** 5 (5% aq. solution)

**Vapor Pressure:** Not available.

**Vapor Density:** Not available.

**Evaporation Rate:** Not available.

**Viscosity:** Not available.

**Boiling Point:** Not available.

**Freezing/Melting Point:** Not available.

**Decomposition Temperature:** Not available.

**Solubility:** Soluble.

**Specific Gravity/Density:** 1.72 g/cm<sup>3</sup>

**Molecular Formula:** C<sub>5</sub>FeN<sub>6</sub>O<sub>2</sub>.Na<sub>2</sub>.2H<sub>2</sub>O

**Molecular Weight:** 215.8866

## Section 10 - Stability and Reactivity

**Chemical Stability:** Hygroscopic: absorbs moisture or water from the air.

**Conditions to Avoid:** Incompatible materials, dust generation, exposure to moist air or water, temperatures above 190°C.

**Incompatibilities with Other Materials:** Strong oxidizing agents, strong acids, acids.

**Hazardous Decomposition Products:** Hydrogen cyanide, nitrogen oxides, carbon monoxide, carbon dioxide, sodium oxide.

**Hazardous Polymerization:** Has not been reported

## Section 11 - Toxicological Information

**RTECS#:****CAS#** 13755-38-9: LJ8925000**CAS#** 14402-89-2: LJ8750000**LD50/LC50:**

Not available.

CAS# 14402-89-2:

Oral, mouse: LD50 = 61 mg/kg;

Oral, rabbit: LD50 = 34 mg/kg;

Oral, rat: LD50 = 99 mg/kg;

**Carcinogenicity:**

CAS# 13755-38-9: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

CAS# 14402-89-2: Not listed by ACGIH, IARC, NTP, or CA Prop 65.

**Epidemiology:** No information found**Teratogenicity:** Nitroprusside was not teratogenic when tested in rats. Use of nitroprusside during human pregnancy has been described, both for hypertensive emergencies and to induce hypotension, as in aneurysm surgery. No fetal problems have been attributed to drug therapy. Because nitroprusside can also be a source of cyanide, there has been concern that maternal therapy might produce cyanide toxicity in the offspring.**Reproductive Effects:** See actual entry in RTECS for complete information.**Mutagenicity:** See actual entry in RTECS for complete information.**Neurotoxicity:** No information found**Other Studies:****Section 12 - Ecological Information****Ecotoxicity:** No data available. No information available.**Environmental:** No information available.**Physical:** No information available.**Other:** Do not empty into drains.**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**

	<b>US DOT</b>	<b>Canada TDG</b>
<b>Shipping Name:</b>	CYANIDES, INORGANIC SOLID, N.O.S. (Sodium nitroferricyanide dihydrate)	CYANIDES, INORGANIC SOLID, N.O.S. (Sodium nitroferricyanide dihydrate)
<b>Hazard Class:</b>	6.1	6.1
<b>UN Number:</b>	UN1588	UN1588
<b>Packing Group:</b>	II	II

## Section 15 - Regulatory Information

### US FEDERAL

#### TSCA

CAS# 13755-38-9 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)).

CAS# 14402-89-2 is listed on the TSCA inventory.

#### 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.

#### 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 # 13755-38-9: immediate, delayed.

CAS # 14402-89-2: immediate, delayed.

#### Section 313

No chemicals are reportable under Section 313.

#### Clean Air Act:

This material does not contain any hazardous air pollutants.

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

CAS# 13755-38-9 can be found on the following state right to know lists: California, (listed as Iron salts (soluble)), Minnesota, (listed as Iron salts (soluble)).

CAS# 14402-89-2 is not present on state lists from CA, PA, MN, MA, FL, or NJ.

#### California Prop 65

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

#### Risk Phrases:

R 23/24/25 Toxic by inhalation, in contact with skin and if swallowed.

R 32 Contact with acids liberates very toxic gas.

#### Safety Phrases:

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).

S 50A Do not mix with acids.

#### WGK (Water Danger/Protection)

CAS# 13755-38-9: 2

CAS# 14402-89-2: No information available.

**Canada - DSL/NDSL**

CAS# 14402-89-2 is listed on Canada's DSL List.

**Canada - WHMIS**

This product has a WHMIS classification of D1B, D2B.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all of the information required by those regulations.

**Canadian Ingredient Disclosure List**

CAS# 13755-38-9 is not listed on the Canadian Ingredient Disclosure List.

<b>Section 16 - Additional Information</b>
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**MSDS Creation Date:** 12/16/1997

**Revision #10 Date:** 8/05/2008

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