

1. Identification

Product identifier	Sodium Nitroprusside	
Other means of identification		
Catalog number	1614501	
Chemical name	Ferrate(2-), pentakis(cyano-C)nitrosyl-, disodium, dihydrate, (OC-6-22)-	
Synonym(s)	Sodium nitroferricyanide dihydrate * Disodium pentacyanonitrosylferrate(2-) dihydrate	
Recommended use	Specified quality tests and assay use only.	
Recommended restrictions	Not for use as a drug. Not for administration to humans or animals.	
Manufacturer/Importer/Supplier/Distributor information		
Manufacturer		
Company name	U. S. Pharmacopeia	
Address	12601 Twinbrook Parkway Rockville MD 20852-1790 United States	
Telephone	RS Technical Services	301-816-8129
Website	www.usp.org	
E-mail	RSTECH@usp.org	
Emergency phone number	CHEMTREC within US & Canada	1-800-424-9300
	CHEMTREC outside US & Canada	+1 703-527-3887

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 3
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements



Signal word	Danger	
Hazard statement	Toxic if swallowed.	
Precautionary statement		
Prevention	Wash thoroughly after handling.	
Response	If swallowed: Immediately call a poison center/doctor. Rinse mouth.	
Storage	Store locked up.	
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.	
Hazard(s) not otherwise classified (HNOC)	Not classified.	
Other hazards which do not result in classification	None known.	

3. Composition/information on ingredients

Substance

Chemical name	Common name and synonyms	CAS number	%
Sodium Nitroprusside	Sodium nitroferricyanide dihydrate Disodium pentacyanonitrosylferrate(2-) dihydrate	13755-38-9	100

4. First-aid measures

Inhalation	If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a physician if symptoms develop or persist.
Skin contact	Rinse skin with water/shower. Get medical attention if irritation develops and persists.
Eye contact	Rinse with water. Get medical attention if irritation develops and persists.
Ingestion	Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.
Most important symptoms/effects, acute and delayed	Hypotension. Cyanide toxicity.
Indication of immediate medical attention and special treatment needed	Keep victim under observation. Treatment of overdose should be symptomatic and supportive. For hypotension, infuse 10- 20 mL/kg isotonic fluid. Administer dopamine or norepinephrine if hypotension persists. For seizures, administer a benzodiazepine intravenously, followed by phenobarbital or propofol if the seizures recur. Monitor for hypotension, dysrhythmias, respiratory depression, and need for endotracheal intubation. Evaluate for hypoglycemia, electrolyte disturbances, hypoxia. Administer a cyanide antidote kit containing hydroxocobalamin or amyl nitrate, sodium nitrite, and sodium thiosulfate. Do NOT use sodium nitrate since it may aggravate hypotension. Do not use methylene blue if excessive methemoglobinemia occurs with cyanide toxicity. Monitor blood pressure. Monitor cardiac function. Monitor mental status. Monitor fluid and electrolyte status. (Poisindex)
General information	Remove from exposure. Remove contaminated clothing. For treatment advice, seek guidance from an occupational health physician or other licensed health-care provider familiar with workplace chemical exposures. In the United States, the national poison control center phone number is 1-800-222-1222. If person is not breathing, give artificial respiration. If breathing is difficult, give oxygen if available. Persons developing serious hypersensitivity (anaphylactic) reactions must receive immediate medical attention.

5. Fire-fighting measures

Suitable extinguishing media	Water spray, dry chemical, carbon dioxide, or foam as appropriate for surrounding fire and materials.
Unsuitable extinguishing media	Not available.
Specific hazards arising from the chemical	No unusual fire or explosion hazards noted.
Special protective equipment and precautions for firefighters	Not available.
Fire-fighting equipment/instructions	As with all fires, evacuate personnel to a safe area. Firefighters should use self-contained breathing equipment and protective clothing.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Avoid inhalation of dust from the spilled material. Wear appropriate personal protective equipment.
Methods and materials for containment and cleaning up	Sweep up or vacuum up spillage and collect in suitable container for disposal. Avoid the generation of dusts during clean-up. Do not allow material to contaminate ground water system. For waste disposal, see section 13 of the SDS. Wash spill site.

7. Handling and storage

Precautions for safe handling	As a general rule, when handling USP Reference Standards, avoid all contact and inhalation of dust, mists, and/or vapors associated with the material. Clean equipment and work surfaces with suitable detergent or solvent after use. After removing gloves, wash hands and other exposed skin thoroughly. Use of a designated area is recommended for handling of potent materials.
Conditions for safe storage, including any incompatibilities	Store in tight container as defined in the USP-NF. This material should be handled and stored per label instructions to ensure product integrity.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Material	Type	Value
Sodium Nitroprusside (CAS 13755-38-9)	PEL	5 mg/m3

ACGIH**Material****Type****Value**Sodium Nitroprusside (CAS
13755-38-9)

STEL

100 micrograms/m3

TWA

50 micrograms/m3

Exposure limit values**Industrial Use****Material****Type****Value**Sodium Nitroprusside (CAS
13755-38-9)

STEL

100 micrograms/m3

TWA

50 micrograms/m3

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Airborne exposure should be controlled primarily by engineering controls such as general dilution ventilation, local exhaust ventilation, or process enclosure. Local exhaust ventilation is generally preferred to general exhaust because it can control the contaminant at its source, preventing dispersion into the work area. An industrial hygiene survey involving air monitoring may be used to determine the effectiveness of engineering controls. Effectiveness of engineering controls intended for use with highly potent materials should be assessed by use of nontoxic surrogate materials. Local exhaust ventilation such as a laboratory fume hood or other vented enclosure is recommended, particularly for grinding, crushing, weighing, or other dust-generating procedures.

Individual protection measures, such as personal protective equipment**Eye/face protection**

Safety glasses with sideshields are recommended. Face shields or goggles may be required if splash potential exists or if corrosive materials are present. Approved eye protection (e.g., bearing the ANSI Z87 or CSA stamp) is preferred. Maintain eyewash facilities in the work area.

Skin protection**Hand protection**

Chemically compatible gloves. For handling solutions, ensure that the glove material is protective against the solvent being used. Use handling practices that minimize direct hand contact. Employees who are sensitive to natural rubber (latex) should use nitrile or other synthetic nonlatex gloves. Use of powdered latex gloves should be avoided due to the risk of latex allergy.

Other

For handling of laboratory scale quantities, a cloth lab coat is recommended. Where significant quantities are handled, work clothing may be necessary to prevent take-home contamination.

Respiratory protection

Where respirators are deemed necessary to reduce or control occupational exposures, use NIOSH-approved respiratory protection and have an effective respirator program in place (applicable U.S. regulation OSHA 29 CFR 1910.134).

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. Physical and chemical properties**Appearance**

Reddish-brown crystalline powder.

Physical state

Solid.

Form

Crystalline powder.

Odor

Practically odorless.

Odor threshold

Not available.

pH

Not available.

Melting point/freezing point

Not available.

Initial boiling point and boiling range

Not available.

Flash point

Not available.

Evaporation rate

Not available.

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits**Flammability limit - lower (%)**

Not available.

Flammability limit - upper (%)

Not available.

Explosive limit - lower (%)

Not available.

Explosive limit - upper (%)

Not available.

Vapor pressure

98.92 kPa at 25 °C

Vapor density

Not available.

Relative density

Not available.

Solubility in water

Freely soluble.

Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Chemical family	Inorganic salt.
Molecular formula	C5FeN6O.2H2O.2Na
Molecular weight	297.95
Solubility (other)	Slightly soluble in ethanol; very slightly soluble in chloroform; insoluble in benzene.
Specific gravity	1.72

10. Stability and reactivity

Reactivity	Not available.
Chemical stability	Stable at normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	None known.
Incompatible materials	Strong oxidizing agents. Acids.
Hazardous decomposition products	Irritating and/or toxic fumes or gases. Emits toxic fumes under fire conditions. NOx. Na2O. Hydrogen cyanide.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Toxic if swallowed.
Inhalation	Due to lack of data the classification is not possible.
Skin contact	Due to lack of data the classification is not possible.
Eye contact	Due to lack of data the classification is not possible.

Symptoms related to the physical, chemical, and toxicological characteristics Fainting. Skin rash. Flushing. Slow heartbeat. Weak pulse. Loss of reflexes. Dizziness. Nausea. Vomiting. Fatigue. Shallow breathing. Dilated pupils.

Delayed and immediate effects of exposure Low blood pressure. Lactic acidosis (Fast, shallow breathing; muscle pain; tiredness; weakness; nausea; vomiting; diarrhea; abdominal pain). Seizures. Coma.

Medical conditions aggravated by exposure Hypotension. Impaired liver function. Impaired kidney function. Impaired pulmonary function. Leber's optic atrophy. Tobacco amblyopia. Cardiovascular or cerebrovascular disease. Raised intracranial pressure. Vitamin B12 deficiency. Hypothyroidism

Acute toxicity

Product	Species	Test Results
Sodium Nitroprusside (CAS 13755-38-9)		
Acute		
Oral		
LD50	Mouse	61 mg/kg (anhydrous)
	Rabbit	34 mg/kg (anhydrous)
	Rat	99 mg/kg (anhydrous)

Skin corrosion/irritation Due to lack of data the classification is not possible.

Serious eye damage/eye irritation Due to lack of data the classification is not possible.

Respiratory or skin sensitization

Respiratory sensitization	Due to lack of data the classification is not possible.
Skin sensitization	Due to lack of data the classification is not possible.

Germ cell mutagenicity Based on available data, the classification criteria are not met.

Mutagenicity
Ames Salmonella typhimurium test with and without activation
Result: Negative

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

Reproductive toxicity Based on available data, the classification criteria are not met.

Reproductivity

1 - 25 microgram/kg/min infusion Reproductivity studies
Result: Fetal cyanide levels were dose-related to maternal levels of nitroprusside; the high dose resulted in fetal death.
Species: Sheep
Test Duration: 60 minutes
7.4 mg/kg Reproductivity and development study,
Intravenous doses.
Result: No adverse fetal effects.
Species: Rat

Specific target organ toxicity - single exposure Due to lack of data the classification is not possible.

Specific target organ toxicity - repeated exposure Due to lack of data the classification is not possible.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity Very toxic to aquatic life with long lasting effects. Accumulation in aquatic organisms is expected.

Product	Species	Test Results
Sodium Nitroprusside (CAS 13755-38-9)		
Aquatic		
Fish	LC50	Bluegill (<i>Lepomis macrochirus</i>)
		0.12 mg/l, 96 hours

Persistence and degradability No data is available on the degradability of this product.

Bioaccumulative potential Not available.

Mobility in soil Not available.

Other adverse effects Not available.

13. Disposal considerations

Disposal instructions Dispose in accordance with all applicable regulations.

Local disposal regulations Not available.

Hazardous waste code Not regulated.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN1588
UN proper shipping name Cyanides, inorganic, solid, n.o.s. (Sodium Nitroprusside)
Transport hazard class(es)
Class 6.1
Subsidiary risk -
Packing group III

IATA

UN number UN1588
UN proper shipping name Cyanides, inorganic, solid, n.o.s. (Sodium Nitroprusside)
Transport hazard class(es)
Class 6.1
Subsidiary risk -
Packing group III

Other information

Passenger and cargo aircraft Allowed.

Cargo aircraft only Allowed.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not available.



15. Regulatory information

US federal regulations All components are on the U.S. EPA TSCA Inventory List.

CERCLA/SARA Hazardous Substances - Not applicable.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Sodium Nitroprusside	13755-38-9	100

Other federal regulations

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130) Priority pollutant
Toxic pollutant

Safe Drinking Water Act (SDWA) Not regulated.

Food and Drug Administration (FDA) Not regulated.

US state regulations

This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm. California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US. California Proposition 65

Not Listed.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	No
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	No
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)

A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date 04-04-2005

Revision date 09-08-2015

Version # 03

Further information Not available.

Disclaimer USP Reference Standards are sold for chemical test and assay purposes only, and NOT for human consumption. The information contained herein is applicable solely to the chemical substance when used as a USP Reference Standard and does not necessarily relate to any other use of the substance described, (i.e. at different concentrations, in drug dosage forms, or in bulk quantities). USP Reference Standards are intended for use by persons having technical skill and at their own discretion and risk. This information has been developed by USP staff from sources considered reliable but has not been independently verified by the USP. Therefore, the USP Convention cannot guarantee the accuracy of the information in these sources nor should the statements contained herein be considered an official expression. NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE is made with respect to the information contained herein.

Revision Information Hazard(s) identification: Hazard statement
Hazard(s) identification: Response
Hazard(s) identification: Disposal
Hazard(s) identification: Prevention
Hazard(s) identification: Response
First-aid measures: General information
Toxicological Information: Toxicological Data
Toxicological information: Symptoms related to the physical, chemical, and toxicological characteristics
Transport Information: Material Transportation Information
GHS: Classification