

## SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

### 1.1. Product identifier

<b>Product Description:</b>	<b>Sodium nitroferricyanide dihydrate</b>
<b>Cat No. :</b>	<b>424360000; 424360025; 424360250; 424361000; 424365000</b>
<b>Synonyms</b>	Sodium nitroprusside dihydrate
<b>CAS No</b>	13755-38-9
<b>Molecular Formula</b>	C5 Fe N6 Na2 O . 2 H2 O

### 1.2. Relevant identified uses of the substance or mixture and uses advised against

<b>Recommended Use</b>	Laboratory chemicals.
<b>Uses advised against</b>	No Information available

### 1.3. Details of the supplier of the safety data sheet

#### Company

**UK entity/business name**  
Fisher Scientific UK  
Bishop Meadow Road,  
Loughborough, Leicestershire LE11 5RG, United Kingdom

**EU entity/business name**  
Thermo Fisher Scientific  
Janssen Pharmaceuticaaan 3a, 2440 Geel, Belgium

**E-mail address** begel.sdsdesk@thermofisher.com

### 1.4. Emergency telephone number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11  
Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99  
**CHEMTREC** Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

## SECTION 2: HAZARDS IDENTIFICATION

### 2.1. Classification of the substance or mixture

#### CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567

##### **Physical hazards**

Based on available data, the classification criteria are not met

##### **Health hazards**

Acute oral toxicity

Category 3 (H301)

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## **Environmental hazards**

Based on available data, the classification criteria are not met

Full text of Hazard Statements: see section 16

## **2.2. Label elements**



Signal Word

Danger

## **Hazard Statements**

H301 - Toxic if swallowed

## **Precautionary Statements**

P280 - Wear protective gloves/protective clothing/eye protection/face protection

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician

## **2.3. Other hazards**

Toxic to terrestrial vertebrates

This product does not contain any known or suspected endocrine disruptors

## **SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS**

### **3.1. Substances**

Component	CAS No	EC No	Weight %	CLP Classification - According to GB-CLP Regulations UK SI 2019/720 and UK SI 2020/1567
Sodium nitroferrocyanide	14402-89-2	EEC No. 238-373-9	-	Acute Tox. 3 (H301)
Sodium nitroferrocyanide dihydrate	13755-38-9		>95	Acute Tox. 3 (H301)

Full text of Hazard Statements: see section 16

## **SECTION 4: FIRST AID MEASURES**

### **4.1. Description of first aid measures**

#### **General Advice**

Immediate medical attention is required. Show this safety data sheet to the doctor in attendance.

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<b>Eye Contact</b>	In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
<b>Skin Contact</b>	Wash off immediately with plenty of water for at least 15 minutes. Immediate medical attention is required.
<b>Ingestion</b>	Do NOT induce vomiting. Call a physician or poison control center immediately.
<b>Inhalation</b>	Remove to fresh air. If breathing is difficult, give oxygen. Do not use mouth-to-mouth method if victim ingested or inhaled the substance; give artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Immediate medical attention is required.
<b>Self-Protection of the First Aider</b>	Use personal protective equipment as required. Avoid contact with skin, eyes or clothing.

#### 4.2. Most important symptoms and effects, both acute and delayed

No information available.

#### 4.3. Indication of any immediate medical attention and special treatment needed

**Notes to Physician** Treat symptomatically.

## SECTION 5: FIREFIGHTING MEASURES

#### 5.1. Extinguishing media

##### **Suitable Extinguishing Media**

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. Water spray, carbon dioxide (CO<sub>2</sub>), dry chemical, alcohol-resistant foam.

##### **Extinguishing media which must not be used for safety reasons**

No information available.

#### 5.2. Special hazards arising from the substance or mixture

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

##### **Hazardous Combustion Products**

Hydrogen cyanide (hydrocyanic acid), Nitrogen oxides (NO<sub>x</sub>), Heavy metal oxides, Sodium oxides.

#### 5.3. Advice for firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear. Thermal decomposition can lead to release of irritating gases and vapors.

## SECTION 6: ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal precautions, protective equipment and emergency procedures

Evacuate personnel to safe areas. Ensure adequate ventilation. Avoid dust formation. Use personal protective equipment as required. Keep people away from and upwind of spill/leak.

#### 6.2. Environmental precautions

Should not be released into the environment. See Section 12 for additional Ecological Information.

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## 6.3. Methods and material for containment and cleaning up

Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

## 6.4. Reference to other sections

Refer to protective measures listed in Sections 8 and 13.

## SECTION 7: HANDLING AND STORAGE

### 7.1. Precautions for safe handling

Use only under a chemical fume hood. Wear personal protective equipment/face protection. Do not get in eyes, on skin, or on clothing. Avoid dust formation. Do not breathe (dust, vapor, mist, gas). Do not ingest. If swallowed then seek immediate medical assistance.

### **Hygiene Measures**

Handle in accordance with good industrial hygiene and safety practice.

### 7.2. Conditions for safe storage, including any incompatibilities

Keep containers tightly closed in a dry, cool and well-ventilated place. Protect from moisture.

**Technical Rules for Hazardous Substances (TRGS) 510**      Class 6.1D  
**Storage Class (LGK) (Germany)**

### 7.3. Specific end use(s)

Use in laboratories

## SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

### 8.1. Control parameters

#### **Exposure limits**

List source(s): **UK** - EH40/2005 Work Exposure Limits, Fourth edition. Published 2020. **IRE** - 2021 Code of Practice for the Chemical Agents Regulations, Schedule 1. Published by the Health and Safety Authority

Component	The United Kingdom	European Union	Ireland
Sodium nitroferricyanide	STEL: 15 mg/m <sup>3</sup> 15 min TWA: 5 mg/m <sup>3</sup> 8 hr Skin STEL: 2 mg/m <sup>3</sup> 15 min TWA: 1 mg/m <sup>3</sup> 8 hr		
Sodium nitroferricyanide dihydrate	STEL: 15 mg/m <sup>3</sup> 15 min TWA: 5 mg/m <sup>3</sup> 8 hr Skin STEL: 2 mg/m <sup>3</sup> 15 min TWA: 1 mg/m <sup>3</sup> 8 hr		

#### **Biological limit values**

This product, as supplied, does not contain any hazardous materials with biological limits established by the region specific regulatory bodies

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## Derived No Effect Level (DNEL) / Derived Minimum Effect Level (DMEL)

No information available

## Predicted No Effect Concentration (PNEC)

No information available.

## 8.2. Exposure controls

### Engineering Measures

Use only under a chemical fume hood. Ensure that eyewash stations and safety showers are close to the workstation location. Wherever possible, engineering control measures such as the isolation or enclosure of the process, the introduction of process or equipment changes to minimise release or contact, and the use of properly designed ventilation systems, should be adopted to control hazardous materials at source

### Personal protective equipment

**Eye Protection** Wear safety glasses with side shields (or goggles) (European standard - EN 166)

**Hand Protection** Protective gloves

Glove material	Breakthrough time	Glove thickness	EU standard	Glove comments
Natural rubber	See manufacturers	-	EN 374	(minimum requirement)
Nitrile rubber	recommendations			
Neoprene				
PVC				

**Skin and body protection** Long sleeved clothing.

Inspect gloves before use.

Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information)

Ensure gloves are suitable for the task: Chemical compatibility, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion.

Remove gloves with care avoiding skin contamination.

**Respiratory Protection** When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. To protect the wearer, respiratory protective equipment must be the correct fit and be used and maintained properly

**Large scale/emergency use** Use a NIOSH/MSHA or European Standard EN 136 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced  
**Recommended Filter type:** Particulates filter conforming to EN 143

**Small scale/Laboratory use** Use a NIOSH/MSHA or European Standard EN 149:2001 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.  
**Recommended half mask:-** Particle filtering: EN149:2001  
When RPE is used a face piece Fit Test should be conducted

**Environmental exposure controls** No information available.

## SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

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<b>Physical State</b>	Crystalline Solid	
<b>Appearance</b>	Dark red	
<b>Odor</b>	Odorless	
<b>Odor Threshold</b>	No data available	
<b>Melting Point/Range</b>	No data available	
<b>Softening Point</b>	No data available	
<b>Boiling Point/Range</b>	No information available	
<b>Flammability (liquid)</b>	Not applicable	Solid
<b>Flammability (solid,gas)</b>	No information available	
<b>Explosion Limits</b>	No data available	
<b>Flash Point</b>	No information available	<b>Method -</b> No information available
<b>Autoignition Temperature</b>	No data available	
<b>Decomposition Temperature</b>	No data available	
<b>pH</b>	5	5% aq. solution
<b>Viscosity</b>	Not applicable	Solid
<b>Water Solubility</b>	400 g/l (20°C)	
<b>Solubility in other solvents</b>	No information available	
<b>Partition Coefficient (n-octanol/water)</b>		
<b>Vapor Pressure</b>	No data available	
<b>Density / Specific Gravity</b>	1.720	
<b>Bulk Density</b>	No data available	
<b>Vapor Density</b>	Not applicable	Solid
<b>Particle characteristics</b>	No data available	

## 9.2. Other information

<b>Molecular Formula</b>	C5 Fe N6 Na2 O . 2 H2 O
<b>Molecular Weight</b>	297.94
<b>Evaporation Rate</b>	Not applicable - Solid

## SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity  
None known, based on information available

10.2. Chemical stability  
Hygroscopic.

### 10.3. Possibility of hazardous reactions

**Hazardous Polymerization** Hazardous polymerization does not occur.  
**Hazardous Reactions** None under normal processing.

### 10.4. Conditions to avoid

Incompatible products. Excess heat. Exposure to moist air or water.

### 10.5. Incompatible materials

Strong oxidizing agents. Acids.

### 10.6. Hazardous decomposition products

Hydrogen cyanide (hydrocyanic acid). Nitrogen oxides (NOx). Heavy metal oxides. Sodium oxides.

## SECTION 11: TOXICOLOGICAL INFORMATION

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## 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

### Product Information

- (a) acute toxicity;
- |            |                   |
|------------|-------------------|
| Oral       | Category 3        |
| Dermal     | No data available |
| Inhalation | No data available |

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium nitroferricyanide	LD50 = 99 mg/kg (Rat)	-	-

- (b) skin corrosion/irritation; No data available
- (c) serious eye damage/irritation; No data available
- (d) respiratory or skin sensitization;
- |             |                   |
|-------------|-------------------|
| Respiratory | No data available |
| Skin        | No data available |
- (e) germ cell mutagenicity; No data available
- (f) carcinogenicity; No data available  
No information available
- (g) reproductive toxicity; No data available
- (h) STOT-single exposure; No data available
- (i) STOT-repeated exposure; No data available
- |               |                           |
|---------------|---------------------------|
| Target Organs | No information available. |
|---------------|---------------------------|
- (j) aspiration hazard; Not applicable  
Solid
- Other Adverse Effects The toxicological properties have not been fully investigated.
- Symptoms / effects, both acute and delayed No information available.

## 11.2. Information on other hazards

- Endocrine Disrupting Properties** Assess endocrine disrupting properties for human health. This product does not contain any known or suspected endocrine disruptors.

## SECTION 12: ECOLOGICAL INFORMATION

### 12.1. Toxicity

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**Ecotoxicity effects** May cause long-term adverse effects in the environment. Do not allow material to contaminate ground water system.

**12.2. Persistence and degradability** Product contains heavy metals. Discharge into the environment must be avoided. Special pre-treatment is necessary  
**Persistence** May persist, based on information available.  
**Degradability** Not relevant for inorganic substances.

**12.3. Bioaccumulative potential** May have some potential to bioaccumulate

**12.4. Mobility in soil** The product is water soluble, and may spread in water systems Highly mobile in soils

**12.5. Results of PBT and vPvB assessment** No data available for assessment.

**12.6. Endocrine disrupting properties**  
**Endocrine Disruptor Information** This product does not contain any known or suspected endocrine disruptors

**12.7. Other adverse effects**  
**Persistent Organic Pollutant** This product does not contain any known or suspected substance  
**Ozone Depletion Potential** This product does not contain any known or suspected substance

## SECTION 13: DISPOSAL CONSIDERATIONS

### 13.1. Waste treatment methods

**Waste from Residues/Unused Products** Waste is classified as hazardous. Dispose of in accordance with the European Directives on waste and hazardous waste. Dispose of in accordance with local regulations.

**Contaminated Packaging** Dispose of this container to hazardous or special waste collection point.

**European Waste Catalogue (EWC)** According to the European Waste Catalog, Waste Codes are not product specific, but application specific.

**Other Information** Waste codes should be assigned by the user based on the application for which the product was used. Do not empty into drains.

## SECTION 14: TRANSPORT INFORMATION

### IMDG/IMO

**14.1. UN number** UN1588  
**14.2. UN proper shipping name** Cyanides, inorganic, solid, n.o.s.  
**Technical Shipping Name** Sodium nitroferricyanide  
**14.3. Transport hazard class(es)** 6.1  
**14.4. Packing group** III



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## ADR

**14.1. UN number** UN1588  
**14.2. UN proper shipping name** Cyanides, inorganic, solid, n.o.s.  
**Technical Shipping Name** Sodium nitroferricyanide  
**14.3. Transport hazard class(es)** 6.1  
**14.4. Packing group** III

## IATA

**14.1. UN number** UN1588  
**14.2. UN proper shipping name** Cyanides, inorganic, solid, n.o.s.  
**Technical Shipping Name** Sodium nitroferricyanide  
**14.3. Transport hazard class(es)** 6.1  
**14.4. Packing group** III

**14.5. Environmental hazards** No hazards identified  
**14.6. Special precautions for user** No special precautions required.  
**14.7. Maritime transport in bulk according to IMO instruments** Not applicable, packaged goods

## SECTION 15: REGULATORY INFORMATION

### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### International Inventories

Europe (EINECS/ELINCS/NLP), China (IECSC), Taiwan (TCSI), Korea (KECL), Japan (ENCS), Japan (ISHL), Canada (DSL/NDSL), Australia (AICS), New Zealand (NZIoC), Philippines (PICCS). US EPA (TSCA) - Toxic Substances Control Act, (40 CFR Part 710)

Component	CAS No	EINECS	ELINCS	NLP	IECSC	TCSI	KECL	ENCS	ISHL
Sodium nitroferricyanide	14402-89-2	238-373-9	-	-	X	X	KE-12367	-	-
Sodium nitroferricyanide dihydrate	13755-38-9	-	-	-	X	X	-	-	-

Component	CAS No	TSCA	TSCA Inventory notification - Active-Inactive	DSL	NDSL	AICS	NZIoC	PICCS
Sodium nitroferricyanide	14402-89-2	X	ACTIVE	X	-	X	X	X
Sodium nitroferricyanide dihydrate	13755-38-9	-	-	-	-	X	X	X

**Legend:** X - Listed '-' - Not Listed **KECL** - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

#### Authorisation/Restrictions according to EU REACH

Component	CAS No	REACH (1907/2006) - Annex XIV - Substances Subject to Authorization	REACH (1907/2006) - Annex XVII - Restrictions on Certain Dangerous Substances	REACH Regulation (EC 1907/2006) article 59 - Candidate List of Substances of Very High Concern (SVHC)
Sodium nitroferricyanide	14402-89-2	-	Use restricted. See item 75. (see link for restriction details)	-
Sodium nitroferricyanide dihydrate	13755-38-9	-	Use restricted. See item 75. (see link for restriction details)	-

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## REACH links

<https://echa.europa.eu/substances-restricted-under-reach>

## Seveso III Directive (2012/18/EC)

Component	CAS No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements
Sodium nitroferricyanide	14402-89-2	Not applicable	Not applicable
Sodium nitroferricyanide dihydrate	13755-38-9	Not applicable	Not applicable

## Regulation (EC) No 649/2012 of the European Parliament and of the Council of 4 July 2012 concerning the export and import of dangerous chemicals

Not applicable

## Contains component(s) that meet a 'definition' of per & poly fluoroalkyl substance (PFAS)?

Not applicable

Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work .

## National Regulations

**UK** - Take note of Control of Substances Hazardous to Health Regulations (COSHH) 2002 and 2005 Amendment

**WGK Classification** Water endangering class = 3 (self classification)

## 15.2. Chemical safety assessment

A Chemical Safety Assessment/Report (CSA/CSR) has not been conducted

## SECTION 16: OTHER INFORMATION

### Full text of H-Statements referred to under sections 2 and 3

H301 - Toxic if swallowed

### Legend

**CAS** - Chemical Abstracts Service

**EINECS/ELINCS** - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

**PICCS** - Philippines Inventory of Chemicals and Chemical Substances

**IECSC** - Chinese Inventory of Existing Chemical Substances

**KECL** - Korean Existing and Evaluated Chemical Substances

**TSCA** - United States Toxic Substances Control Act Section 8(b) Inventory

**DSL/NDL** - Canadian Domestic Substances List/Non-Domestic Substances List

**ENCS** - Japanese Existing and New Chemical Substances

**AICS** - Australian Inventory of Chemical Substances

**NZIoC** - New Zealand Inventory of Chemicals

**WEL** - Workplace Exposure Limit

**ACGIH** - American Conference of Governmental Industrial Hygienists

**TWA** - Time Weighted Average

**IARC** - International Agency for Research on Cancer

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**DNEL** - Derived No Effect Level  
**RPE** - Respiratory Protective Equipment  
**LC50** - Lethal Concentration 50%  
**NOEC** - No Observed Effect Concentration  
**PBT** - Persistent, Bioaccumulative, Toxic

Predicted No Effect Concentration (PNEC)  
**LD50** - Lethal Dose 50%  
**EC50** - Effective Concentration 50%  
**POW** - Partition coefficient Octanol:Water  
**vPvB** - very Persistent, very Bioaccumulative

**ADR** - European Agreement Concerning the International Carriage of Dangerous Goods by Road  
**IMO/MDG** - International Maritime Organization/International Maritime Dangerous Goods Code  
**OECD** - Organisation for Economic Co-operation and Development  
**BCF** - Bioconcentration factor

**ICAO/IATA** - International Civil Aviation Organization/International Air Transport Association  
**MARPOL** - International Convention for the Prevention of Pollution from Ships  
**ATE** - Acute Toxicity Estimate  
**VOC** - (Volatile Organic Compound)

## Key literature references and sources for data

<https://echa.europa.eu/information-on-chemicals>  
Suppliers safety data sheet, Chemadvisor - LOLI, Merck index, RTECS

## Training Advice

Chemical hazard awareness training, incorporating labelling, Safety Data Sheets (SDS), Personal Protective Equipment (PPE) and hygiene.

Use of personal protective equipment, covering appropriate selection, compatibility, breakthrough thresholds, care, maintenance, fit and standards.

First aid for chemical exposure, including the use of eye wash and safety showers.

<b>Creation Date</b>	24-Sep-2009
<b>Revision Date</b>	11-Oct-2023
<b>Revision Summary</b>	Not applicable.

**This safety data sheet complies with Regulation UK SI 2019/758 and UK SI 2020/1577 as amended.**

## Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

**End of Safety Data Sheet**