

# Iron(III) nitrate nonahydrate

sc-211661



The Power is Question

Material Safety Data Sheet

Hazard Alert Code Key: **EXTREME** **HIGH** **MODERATE** **LOW**

## Section 1 - CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

### PRODUCT NAME

Iron(III) nitrate nonahydrate

### STATEMENT OF HAZARDOUS NATURE

CONSIDERED A HAZARDOUS SUBSTANCE ACCORDING TO OSHA 29 CFR 1910.1200.

### NFPA



### SUPPLIER

Santa Cruz Biotechnology, Inc.  
2145 Delaware Avenue  
Santa Cruz, California 95060  
800.457.3801 or 831.457.3800

### EMERGENCY:

ChemWatch

Within the US & Canada: 877-715-9305

Outside the US & Canada: +800 2436 2255

(1-800-CHEMCALL) or call +613 9573 3112

### SYNONYMS

Fe(NO<sub>3</sub>)<sub>3</sub>·9H<sub>2</sub>O, Fe-N3-O18-H18, "nitric acid, iron (3+) salt", "iron nitrate", "iron (III) nitrate", "iron trinitrate"

## Section 2 - HAZARDS IDENTIFICATION

### CHEMWATCH HAZARD RATINGS

	Min	Max
Flammability:	0	
Toxicity:	2	
Body Contact:	2	
Reactivity:	2	
Chronic:	2	

Min/Nil=0  
Low=1  
Moderate=2  
High=3  
Extreme=4



### CANADIAN WHMIS SYMBOLS



## EMERGENCY OVERVIEW

### RISK

Contact with combustible material may cause fire.  
Irritating to eyes, respiratory system and skin.  
Harmful to aquatic organisms.

### POTENTIAL HEALTH EFFECTS

#### ACUTE HEALTH EFFECTS

#### SWALLOWED

- Accidental ingestion of the material may be damaging to the health of the individual.
  - The substance and/or its metabolites may bind to hemoglobin inhibiting normal uptake of oxygen. This condition, known as "methemoglobinemia", is a form of oxygen starvation (anoxia).
  - Iron poisoning results in pain in the upper abdomen and vomiting, and is followed hours later by shock, in severe cases coma and death.
- Iron toxicity increases in proportion to their solubility in the gastrointestinal tract.

#### EYE

- This material can cause eye irritation and damage in some persons.

#### SKIN

- This material can cause inflammation of the skin on contact in some persons.
- The material may accentuate any pre-existing dermatitis condition.
- Skin contact is not thought to have harmful health effects, however the material may still produce health damage following entry through wounds, lesions or abrasions.
- Open cuts, abraded or irritated skin should not be exposed to this material.
- Entry into the blood-stream, through, for example, cuts, abrasions or lesions, may produce systemic injury with harmful effects. Examine the skin prior to the use of the material and ensure that any external damage is suitably protected.

#### INHALED

- The material can cause respiratory irritation in some persons.
- The body's response to such irritation can cause further lung damage.
- Persons with impaired respiratory function, airway diseases and conditions such as emphysema or chronic bronchitis, may incur further disability if excessive concentrations of particulate are inhaled.

#### CHRONIC HEALTH EFFECTS

- Long-term exposure to respiratory irritants may result in disease of the airways involving difficult breathing and related systemic problems.

Limited evidence suggests that repeated or long-term occupational exposure may produce cumulative health effects involving organs or biochemical systems.

Overexposure to respirable dust may cause coughing, wheezing, difficulty in breathing and impaired lung function. Chronic symptoms may include decreased vital lung capacity, chest infections

Repeated exposures, in an occupational setting, to high levels of fine- divided dusts may produce a condition known as pneumoconiosis which is the lodgement of any inhaled dusts in the lung irrespective of the effect. This is particularly true when a significant number of particles less than 0.5 microns (1/50,000 inch), are present. Lung shadows are seen in the X-ray. Symptoms of pneumoconiosis may include a progressive dry cough, shortness of breath on exertion (exertional dyspnea), increased chest expansion, weakness and weight loss. As the disease progresses the cough produces a stringy mucous, vital capacity decreases further and shortness of breath becomes more severe. Other signs or symptoms include altered breath sounds, diminished lung capacity, diminished oxygen uptake during exercise, emphysema and pneumothorax (air in lung cavity) as a rare complication.

Removing workers from possibility of further exposure to dust generally leads to halting the progress of the lung abnormalities. Where worker-exposure potential is high, periodic examinations with emphasis on lung dysfunctions should be undertaken

Dust inhalation over an extended number of years may produce pneumoconiosis.. Pneumoconiosis is the accumulation of dusts in the lungs and the tissue reaction in its presence. It is further classified as being of noncollagenous or collagenous types. Noncollagenous pneumoconiosis, the benign form, is identified by minimal stromal reaction, consists mainly of reticulin fibres, an intact alveolar architecture and is potentially reversible.

Chronic excessive intake of iron have been associated with damage to the liver and pancreas. People with a genetic disposition to poor control over iron are at an increased risk.

## Section 3 - COMPOSITION / INFORMATION ON INGREDIENTS

NAME	CAS RN	%
ferric nitrate	7782-61-8	> 98

(as nonahydrate)

## Section 4 - FIRST AID MEASURES

### SWALLOWED

· If swallowed do NOT induce vomiting. · If vomiting occurs, lean patient forward or place on left side (head-down position, if possible) to maintain open airway and prevent aspiration.

### EYE

■ If this product comes in contact with the eyes: · Wash out immediately with fresh running water. · Ensure complete irrigation of the eye by keeping eyelids apart and away from eye and moving the eyelids by occasionally lifting the upper and lower lids.

### SKIN

■ If skin contact occurs: · Immediately remove all contaminated clothing, including footwear · Flush skin and hair with running water (and soap if available).

### INHALED

· If fumes or combustion products are inhaled remove from contaminated area. · Lay patient down. Keep warm and rested.

### NOTES TO PHYSICIAN

■ For acute or short term repeated exposures to iron and its derivatives:  
· Always treat symptoms rather than history.  
· In general, however, toxic doses exceed 20mg/kg of ingested material (as elemental iron) with lethal doses exceeding 180 mg/kg. The toxicity of nitrates and nitrites result from their vasodilating properties and their propensity to form methemoglobin.  
· Most produce a peak effect within 30 minutes.  
· Clinical signs of cyanosis appear before other symptoms because of the dark pigmentation of methemoglobin.

## Section 5 - FIRE FIGHTING MEASURES

Vapour Pressure (mmHG):	Not applicable
Upper Explosive Limit (%):	Not applicable
Specific Gravity (water=1):	1.68
Lower Explosive Limit (%):	Not applicable

### EXTINGUISHING MEDIA

■ FOR SMALL FIRE:  
· USE FLOODING QUANTITIES OF WATER.  
· DO NOT use dry chemicals, CO2 or foam.

### FIRE FIGHTING

· Alert Emergency Responders and tell them location and nature of hazard.  
· Wear breathing apparatus plus protective gloves for fire only.  
When any large container (including road and rail tankers) is involved in a fire, consider evacuation by 800 metres in all directions.

### GENERAL FIRE HAZARDS/HAZARDOUS COMBUSTIBLE PRODUCTS

· Will not burn but increases intensity of fire.  
· Heating may cause expansion or decomposition leading to violent rupture of containers.  
Decomposition may produce toxic fumes of: nitrogen oxides (NOx), metal oxides.

### FIRE INCOMPATIBILITY

■ Avoid storage with reducing agents.  
· Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

### PERSONAL PROTECTION

Glasses:  
Full face- shield.  
Gloves:  
Respirator:  
Particulate

## Section 6 - ACCIDENTAL RELEASE MEASURES

### MINOR SPILLS

· Clean up all spills immediately.  
· No smoking, naked lights, ignition sources.

### MAJOR SPILLS

· Clear area of personnel and move upwind.  
· Alert Emergency Responders and tell them location and nature of hazard.

## Section 7 - HANDLING AND STORAGE

### PROCEDURE FOR HANDLING

- Avoid personal contact and inhalation of dust, mist or vapors.
- Provide adequate ventilation.

### RECOMMENDED STORAGE METHODS

- Glass container.
  - DO NOT repack. Use containers supplied by manufacturer only.
- For low viscosity materials
- Drums and jerricans must be of the non-removable head type.
  - Where a can is to be used as an inner package, the can must have a screwed enclosure.

### STORAGE REQUIREMENTS

- In addition, Goods of Class 5.1, packing group III should be stored in packages and be separated from buildings, tanks, and compounds containing other dangerous goods in tanks, and from property boundaries by a distance of at least 5 metres.

## Section 8 - EXPOSURE CONTROLS / PERSONAL PROTECTION

### EXPOSURE CONTROLS

Source	Material	TWA ppm	TWA mg/m <sup>3</sup>	STEL ppm	STEL mg/m <sup>3</sup>	Peak ppm	Peak mg/m <sup>3</sup>	TWA F/CC	Notes
Canada - British Columbia Occupational Exposure Limits	ferric nitrate (Selenium and compounds, as Se)		0.1						
US - Minnesota Permissible Exposure Limits (PELs)	ferric nitrate (Selenium compounds (as Se))		0.2						
US OSHA Permissible Exposure Levels (PELs) - Table Z1	ferric nitrate (Selenium compounds (as Se))		0.2						
Canada - Alberta Occupational Exposure Limits	ferric nitrate (Selenium and compounds, as Se)		0.2						
US - Vermont Permissible Exposure Limits Table Z-1-A Transitional Limits for Air Contaminants	ferric nitrate (Selenium compounds (as Se))		0.2						
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	ferric nitrate (Selenium compounds (as Se))		0.2						
US - Idaho - Limits for Air Contaminants	ferric nitrate (Selenium compounds (as Se))		0.2						
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	ferric nitrate (Selenium compounds (as Se))		0.2						

Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	ferric nitrate (Selenium and compounds (as Se))	0.2		
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	ferric nitrate (Selenium and compounds, (as Se))	0.2		0.6
US - Hawaii Air Contaminant Limits	ferric nitrate (Selenium compounds (as Se))	0.2		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	ferric nitrate (Selenium compounds (as Se))	0.2	-	0.2
US - Washington Permissible exposure limits of air contaminants	ferric nitrate (Selenium compounds (as Se))	0.2		0.6
Canada - Northwest Territories Occupational Exposure Limits (English)	ferric nitrate (Selenium compounds (as Se))	0.2		0.6
Canada - Nova Scotia Occupational Exposure Limits	ferric nitrate (Selenium - Compounds (as Se))	0.2		TLV Basis: eye & upper respiratory tract irritation
US - Alaska Limits for Air Contaminants	ferric nitrate (Selenium compounds (as Se))	0.2		
US - Michigan Exposure Limits for Air Contaminants	ferric nitrate (Selenium compounds (as Se))	0.2		
Canada - Alberta Occupational Exposure Limits	ferric nitrate (Iron salts, soluble, as Fe)	1		
Canada - British Columbia Occupational Exposure Limits	ferric nitrate (Iron salts - soluble, as Fe)	1		2
US NIOSH Recommended Exposure Limits (RELs)	ferric nitrate (Iron salts (soluble, as Fe))	1		
Canada - Quebec Permissible Exposure Values for Airborne Contaminants (English)	ferric nitrate (Iron salts, soluble (as Fe))	1		

US ACGIH Threshold Limit Values (TLV)	ferric nitrate (Iron salts - soluble (as Fe))	1			TLV Basis: upper respiratory tract & skin irritation
US - Vermont Permissible Exposure Limits Table Z-1-A Final Rule Limits for Air Contaminants	ferric nitrate (Iron salts (soluble) (as Fe))	1			
US - Tennessee Occupational Exposure Limits - Limits For Air Contaminants	ferric nitrate (Iron salts (soluble) (as Fe))	1			
US - Minnesota Permissible Exposure Limits (PELs)	ferric nitrate (Iron salts (soluble)(as Fe))	1			
US - California Permissible Exposure Limits for Chemical Contaminants	ferric nitrate (Iron salts, soluble, as Fe)	1			
US - Hawaii Air Contaminant Limits	ferric nitrate (Iron salts (soluble) (as Fe))	1	2		(CAS (Varies with compound))
US - Alaska Limits for Air Contaminants	ferric nitrate (Iron salts (soluble) (as Fe))	1			
Canada - Saskatchewan Occupational Health and Safety Regulations - Contamination Limits	ferric nitrate (Iron salts, soluble, (as Fe))	1	3		
Canada - Yukon Permissible Concentrations for Airborne Contaminant Substances	ferric nitrate (Iron salts, soluble (as Fe))	1	2		
US - Washington Permissible exposure limits of air contaminants	ferric nitrate (Iron salts, soluble (as Fe))	1	3		
Canada - Nova Scotia Occupational Exposure Limits	ferric nitrate (Iron salts - soluble (as Fe))	1			TLV Basis: upper respiratory tract & skin irritation
Canada - Prince Edward Island Occupational Exposure Limits	ferric nitrate (Iron salts - soluble (as Fe))	1			TLV Basis: upper respiratory tract & skin irritation
Canada - Northwest Territories Occupational	ferric nitrate (Iron salts, soluble (as Fe))	1	2		

Exposure Limits  
(English)

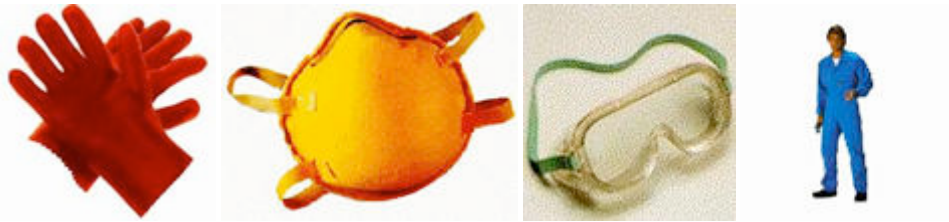
US - Michigan Exposure Limits for Air Contaminants	ferric nitrate (Iron salts (soluble) (as Fe))	-	1
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US - Oregon Permissible Exposure Limits (Z-1)	ferric nitrate (Iron salts, soluble, as Fe)	-	1
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Bold print identifies substances for which the Oregon Permissible Exposure Limits (PELs) are different than the federal Limits.

ENDOELTABLE

**PERSONAL PROTECTION**



**RESPIRATOR**

·Particulate. (AS/NZS 1716 & 1715, EN 143:2000 & 149:2001, ANSI Z88 or national equivalent)

**EYE**

- Chemical goggles.
- Full face shield.

**HANDS/FEET**

■ Wear chemical protective gloves, eg. PVC.

Suitability and durability of glove type is dependent on usage. Important factors in the selection of gloves include: such as:

- frequency and duration of contact,
- chemical resistance of glove material,
- glove thickness and
- dexterity

Select gloves tested to a relevant standard (e.g. Europe EN 374, US F739, AS/NZS 2161.1 or national equivalent).

- When prolonged or frequently repeated contact may occur, a glove with a protection class of 5 or higher (breakthrough time greater than 240 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.
- When only brief contact is expected, a glove with a protection class of 3 or higher (breakthrough time greater than 60 minutes according to EN 374, AS/NZS 2161.10.1 or national equivalent) is recommended.

· Contaminated gloves should be replaced.

Gloves must only be worn on clean hands. After using gloves, hands should be washed and dried thoroughly. Application of a non-perfumed moisturiser is recommended.

- DO NOT wear cotton or cotton-backed gloves.
- DO NOT wear leather gloves.
- Promptly hose all spills off leather shoes or boots or ensure that such footwear is protected with PVC over-shoes.

**OTHER**

- Overalls.
- PVC Apron.
- Some plastic personal protective equipment (PPE) (e.g. gloves, aprons, overshoes) are not recommended as they may produce static electricity.
- For large scale or continuous use wear tight-weave non-static clothing (no metallic fasteners, cuffs or pockets), non sparking safety footwear.

**ENGINEERING CONTROLS**

■ Local exhaust ventilation usually required. If risk of overexposure exists, wear an approved respirator.

**Section 9 - PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL PROPERTIES**

Solid.

Mixes with water.

State	Divided solid	Molecular Weight	404.06
Melting Range (°F)	117	Viscosity	Not Applicable
Boiling Range (°F)	>212 loses H <sub>2</sub> O	Solubility in water (g/L)	Miscible
Flash Point (°F)	Not applicable	pH (1% solution)	2 (0.1 molar)
Decomposition Temp (°F)	Not Available	pH (as supplied)	Not applicable
Autoignition Temp (°F)	Not applicable	Vapour Pressure (mmHG)	Not applicable
Upper Explosive Limit (%)	Not applicable	Specific Gravity (water=1)	1.68
Lower Explosive Limit (%)	Not applicable	Relative Vapor Density (air=1)	Not applicable
Volatile Component (%vol)	Not applicable	Evaporation Rate	Not applicable

## APPEARANCE

Pale violet to greyish white slightly deliquescent, odourless crystals as the nonahydrate. Soluble in water and alcohol. The material is a strong oxidiser. A saturated aqueous solution is Class 5.1 Packing Group III Dangerous Goods. ref. UN Code 34.4.2.5

## Section 10 - CHEMICAL STABILITY

### CONDITIONS CONTRIBUTING TO INSTABILITY

- Presence of incompatible materials.
- Product is considered stable under normal handling conditions.

### STORAGE INCOMPATIBILITY

■ for metal nitrates:

- Segregate from heavy metals, phosphides, sodium acetate, lead nitrate, tartrates, trichloroethylene,
- Avoid shock and heat.
- Mixtures of metal nitrates with alkyl esters may explode due to the formation of unstable alkyl nitrates.
- Mixtures of a nitrate with phosphorous, tin(II) chloride and other reducing agents may react explosively.
- Mixtures containing nitrates and organic materials are potentially dangerous, especially if acidic materials or heavy metals are present.
- Fibrous organic material, jute, wood and similar cellulosic material can become highly combustible by nitrate impregnation
- Metal nitrates are incompatible with cyanides, thiocyanates, isothiocyanates and hypophosphites. Avoid reaction with the following which can cause an explosion: barium thiocyanate, boron phosphide, cyanides, sodium hypophosphite, sulfur and charcoal, powdered aluminium or aluminium oxide, sodium thiosulfate.
- Mixtures of metal nitrates and phosphinates may explode on heating
- A mixture of aluminium powder, water and metal nitrate may explode due to a self accelerating reaction.
- Mixtures containing nitrates, nitrites and organic materials are potentially dangerous, especially in the presence of acidic materials and heavy metals.
- Inorganic oxidising agents can react with reducing agents to generate heat and products that may be gaseous (causing pressurization of closed containers). The products may themselves be capable of further reactions (such as combustion in the air).
- Organic compounds in general have some reducing power and can in principle react with compounds in this class. Actual reactivity varies greatly with the identity of the organic compound.
- Inorganic oxidising agents can react violently with active metals, cyanides, esters, and thiocyanates.
- Inorganic reducing agents react with oxidizing agents to generate heat and products that may be flammable, combustible, or otherwise reactive. Their reactions with oxidizing agents may be violent.
- Incidents involving interaction of active oxidants and reducing agents, either by design or accident, are usually very energetic and examples of so-called redox reactions.
- WARNING: Avoid or control reaction with peroxides. All transition metal peroxides should be considered as potentially explosive. For example transition metal complexes of alkyl hydroperoxides may decompose explosively.
- The pi-complexes formed between chromium(0), vanadium(0) and other transition metals (haloarene-metal complexes) and mono-or poly-fluorobenzene show extreme sensitivity to heat and are explosive.
- Avoid reaction with borohydrides or cyanoborohydrides.
- Metals and their oxides or salts may react violently with chlorine trifluoride and bromine trifluoride.
- These trifluorides are hypergolic oxidisers. They ignites on contact (without external source of heat or ignition) with recognised fuels - contact with these materials, following an ambient or slightly elevated temperature, is often violent and may produce ignition.
- The state of subdivision may affect the results.
- Avoid any contamination of this material as it is very reactive and any contamination is potentially hazardous.

Avoid storage with reducing agents.

Avoid storage with aluminium, cyanides, phosphorus, acetylene gas, dimethyl sulfoxide, reducing (such as sodium hypophosphite, stannous chloride, thiocyanates, potassium ferrocyanide, tin and magnesium); and combustible organics such as esters, paper and acetic anhydride substances and combustible organics.

May react explosively with dimethyl sulfoxide.

For incompatible materials - refer to Section 7 - Handling and Storage.



## Section 11 - TOXICOLOGICAL INFORMATION

ferric nitrate

### TOXICITY AND IRRITATION

FERRIC NITRATE:

■ unless otherwise specified data extracted from RTECS - Register of Toxic Effects of Chemical Substances.

TOXICITY	IRRITATION
Oral (rat) LD50: 3250 mg/kg	Nil Reported

■ Asthma-like symptoms may continue for months or even years after exposure to the material ceases. This may be due to a non-allergenic condition known as reactive airways dysfunction syndrome (RADS) which can occur following exposure to high levels of highly irritating compound. Key criteria for the diagnosis of RADS include the absence of preceding respiratory disease, in a non-atopic individual, with abrupt onset of persistent asthma-like symptoms within minutes to hours of a documented exposure to the irritant. A reversible airflow pattern, on spirometry, with the presence of moderate to severe bronchial hyperreactivity on methacholine challenge testing and the lack of minimal lymphocytic inflammation, without eosinophilia, have also been included in the criteria for diagnosis of RADS. RADS (or asthma) following an irritating inhalation is an infrequent disorder with rates related to the concentration of and duration of exposure to the irritating substance. Industrial bronchitis, on the other hand, is a disorder that occurs as result of exposure due to high concentrations of irritating substance (often particulate in nature) and is completely reversible after exposure ceases. The disorder is characterised by dyspnea, cough and mucus production.

### CARCINOGEN

Selenium and selenium compounds	International Agency for Research on Cancer (IARC) - Agents Reviewed by the IARC Monographs	Group	3
Selenium and Compounds	US EPA Carcinogens Listing	Carcinogenicity	D
Selenium and Compounds	US ACGIH Threshold Limit Values (TLV) - Carcinogens	Carcinogen Category	D
ferric nitrate	US - Rhode Island Hazardous Substance List	IARC	
SELENIUM COMPOUNDS	US Environmental Defense Scorecard Suspected Carcinogens	Reference(s)	EPA-HEN
Polychlorinated biphenyls (PCBs) (high risk)(P)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	2A
Polychlorinated biphenyls (PCBs) (low risk)(P)	US Air Toxics Hot Spots TSD for Describing Available Cancer Potency Factors	IARC Class	
ferric nitrate	US - Maine Chemicals of High Concern List	Carcinogen	D
VPVB_(VERY~	US - Maine Chemicals of High Concern List	Carcinogen	IARC

## Section 12 - ECOLOGICAL INFORMATION

Harmful to aquatic organisms.

This material and its container must be disposed of as hazardous waste.

### Ecotoxicity

Ingredient	Persistence: Water/Soil	Persistence: Air	Bioaccumulation	Mobility
ferric nitrate	No Data Available	No Data Available	LOW	

### GESAMP/EHS COMPOSITE LIST - GESAMP Hazard Profiles

Name / EHS TRN A1a A1b A1 A2 B1 B2 C1 C2 C3 D1 D2 D3 E1 E2 E3 Cas No / RTECS No \_\_\_\_\_  
 \_\_\_\_\_ Ferric 337 350 Ino 5 Ino 2 0 0 (0) (3) 3 3 D 3 nitrate/n rg rg itric acid solution / CAS:10421 - 48- 4 /

Legend: EHS=EHS Number (EHS=GESAMP Working Group on the Evaluation of the Hazards of Harmful Substances Carried by Ships)  
 NRT=Net Register Tonnage, A1a=Bioaccumulation log Pow, A1b=Bioaccumulation BCF, A1=Bioaccumulation, A2=Biodegradation,  
 B1=Acuteaquatic toxicity LC/ECIC50 (mg/l), B2=Chronic aquatic toxicity NOEC (mg/l), C1=Acute mammalian oral toxicity LD50 (mg/kg),  
 C2=Acutemammalian dermal toxicity LD50 (mg/kg), C3=Acute mammalian inhalation toxicity LC50 (mg/kg), D1=Skin irritation &

corrosion, D2=Eye irritation& corrosion, D3=Long-term health effects, E1=Tainting, E2=Physical effects on wildlife & benthic habitats, E3=Interference with coastal amenities, For column A2: R=Readily biodegradable, NR=Not readily biodegradable. For column D3: C=Carcinogen, M=Mutagenic, R=Reprotoxic, S=Sensitising, A=Aspiration hazard, T=Target organ systemic toxicity, L=Lung injury, N=Neurotoxic, I=Immunotoxic. For column E1: NT=Not tainting (tested), T=Tainting test positive. For column E2: Fp=Persistent floater, F=Floater, S=Sinking substances. The numerical scales start from 0 (no hazard), while higher numbers reflect increasing hazard. (GESAMP/EHS Composite List of Hazard Profiles - Hazard evaluation of substances transported by ships)

## Section 13 - DISPOSAL CONSIDERATIONS

### US EPA Waste Number & Descriptions

A. General Product Information

Ignitability characteristic: use EPA hazardous waste number D001 (waste code I)

### Disposal Instructions

All waste must be handled in accordance with local, state and federal regulations.

‡ Legislation addressing waste disposal requirements may differ by country, state and/ or territory. Each user must refer to laws operating in their area. In some areas, certain wastes must be tracked.

A Hierarchy of Controls seems to be common - the user should investigate:

- Reduction
- Reuse
- Recycling
- Disposal (if all else fails)

This material may be recycled if unused, or if it has not been contaminated so as to make it unsuitable for its intended use. Shelf life considerations should also be applied in making decisions of this type. Note that properties of a material may change in use, and recycling or reuse may not always be appropriate.

DO NOT allow wash water from cleaning equipment to enter drains. Collect all wash water for treatment before disposal.

For small quantities of oxidizing agent:

- Cautiously acidify a 3% solution to pH 2 with sulfuric acid.
- Gradually add a 50% excess of sodium bisulfite solution with stirring.
- Recycle wherever possible or consult manufacturer for recycling options.
- Consult Waste Management Authority for disposal.

## Section 14 - TRANSPORTATION INFORMATION

DOT:

Symbols: None Hazard class or Division: 5.1

Identification Numbers: UN1466 PG: III

Label Codes: 5.1 Special provisions: A1, A29,

IB8, IP3,

T1, TP33

Packaging: Exceptions: 152 Packaging: Non- bulk: 213

Packaging: Exceptions: 152 Quantity limitations: 25 kg

Passenger aircraft/rail:

Quantity Limitations: Cargo 100 kg Vessel stowage: Location: A aircraft only:

Vessel stowage: Other: None

Hazardous materials descriptions and proper shipping names:

Ferric nitrate

### Air Transport IATA:

UN/ID Number: 1466 Packing Group: III

Special provisions: None

Cargo Only

Packing Instructions: 563 Maximum Qty/Pack: 100 kg

Passenger and Cargo Passenger and Cargo

Packing Instructions: Y546 Maximum Qty/Pack: 25 kg

Passenger and Cargo Limited Quantity Passenger and Cargo Limited Quantity

Packing Instructions: 559 Maximum Qty/Pack: 10 kg

Shipping Name: FERRIC NITRATE

### Maritime Transport IMDG:

IMDG Class: 5.1 IMDG Subrisk: None

UN Number: 1466 Packing Group: III

EMS Number: F-A,S-Q Special provisions: None

Limited Quantities: 5 kg

Shipping Name: FERRIC NITRATE

## Section 15 - REGULATORY INFORMATION

**ferric nitrate (CAS: 10421-48-4,7782-61-8) is found on the following regulatory lists;**

"Canada Domestic Substances List (DSL)", "Canada Toxicological Index Service - Workplace Hazardous Materials Information System - WHMIS (English)", "GESAMP/EHS Composite List - GESAMP Hazard Profiles", "US - California Occupational Safety and Health Regulations (CAL/OSHA) - Hazardous Substances List", "US - Massachusetts Oil & Hazardous Material List", "US - New Jersey Right to Know Hazardous Substances", "US - Pennsylvania - Hazardous Substance List", "US CWA (Clean Water Act) - List of Hazardous Substances", "US CWA (Clean Water Act) - Reportable Quantities of Designated Hazardous Substances", "US Department of Transportation (DOT) List of Hazardous Substances and Reportable Quantities - Hazardous Substances Other Than Radionuclides", "US DOE Temporary Emergency Exposure Limits (TEELs)", "US List of Lists - Consolidated List of Chemicals Subject to EPCRA, CERCLA and Section 112(r) of the Clean Air Act", "US Toxic Substances Control Act (TSCA) - Chemical Substance Inventory"

## Section 16 - OTHER INFORMATION

### LIMITED EVIDENCE

- Ingestion may produce health damage\*.
  - Cumulative effects may result following exposure\*.
- \* (limited evidence).

### Ingredients with multiple CAS Nos

Ingredient Name CAS ferric nitrate 10421-48-4, 7782-61-8

*Reasonable care has been taken in the preparation of this information, but the author makes no warranty of merchantability or any other warranty, expressed or implied, with respect to this information. The author makes no representations and assumes no liability for any direct, incidental or consequential damages resulting from its use. For additional technical information please call our toxicology department on +800 CHEMCALL.*

- Classification of the preparation and its individual components has drawn on official and authoritative sources as well as independent review by the Chemwatch Classification committee using available literature references.

A list of reference resources used to assist the committee may be found at:

[www.chemwatch.net/references](http://www.chemwatch.net/references).

- The (M)SDS is a Hazard Communication tool and should be used to assist in the Risk Assessment. Many factors determine whether the reported Hazards are Risks in the workplace or other settings. Risks may be determined by reference to Exposures Scenarios. Scale of use, frequency of use and current or available engineering controls must be considered.

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