



The Science Company®

MSDS

Material Safety Data Sheet

1. PRODUCT AND COMPANY IDENTIFICATION

Product: Ferric Nitrate, Nonahydrate
Product Code(s): NC-11220, NC-11272, NC-10244, F1021
CAS#: 7782-61-8
Synonyms: Nitric acid, iron (3+) salt nonahydrate; iron nitrate nonahydrate; iron trinitrate
Distributor: The Science Company.
95 Lincoln St, Denver, CO 80203
Ph: (303) 777-3777 Fax: (303) 777-3331
Emergency Number: (800) 255-3924 (CHEM-TEL)
Customer Service: (303) 777-3777

2. HAZARDS IDENTIFICATION

Emergency Overview: DANGER! STRONG OXIDIZER! CONTACT WITH COMBUSTIBLE MATERIAL MAY CAUSE FIRE. HARMFUL OR MAY BE FATAL IF SWALLOWED OR INHALED. MAY CAUSE IRRITATION TO ANY AREA OF CONTACT.

Safety Ratings: Health: 2, Moderate Reactivity: 3, Severe
Flammability: 0, None Contact: 2, Moderate

OSHA Regulatory Status: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Potential Acute Health Effects:

Routes of Exposure: Inhalation, ingestion, skin contact, eye contact

Inhalation: Causes irritation to mucus membranes and respiratory tract. May be harmful if inhaled. Symptoms may include coughing, shortness of breath, headache, nausea and vomiting.

Ingestion: Harmful if swallowed. Causes irritation to the gastrointestinal tract. Repeated large doses can cause excess iron buildup in the body. Symptoms include gastrointestinal irritation, with abdominal cramps, vomiting, diarrhea, black stool and liver damage.

Skin Contact: Causes irritation. May cause redness, itching, and pain.

Eye Contact: May be harmful in contact with eyes. Causes irritation, redness, and pain.

Target Organs: Skin, Eyes, Respiratory Tract, Digestive Tract, Blood, Liver

Chronic Health Effects: Under some circumstances methemoglobinemia occurs in individuals when the nitrate is converted by bacteria in the stomach to nitrite. Chronic exposure may cause liver effects.

**Aggravation of:
Medical Conditions:** Persons with pre-existing skin disorders or eye problems, or impaired liver, kidney or respiratory function may be more susceptible to the effects of the substance.

Potential Environmental Effects:

Ecological injuries are not known or expected under normal use.

3. COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Components</u>	<u>CAS#</u>	<u>Chemical Formula</u>	<u>Formula Weight</u>	<u>Hazardous</u>	<u>% by Weight</u>
Ferric Nitrate, Nonahydrate	7782-61-8	Fe(NO ₃) ₃ ·9H ₂ O	404.00	Yes	>98

4. FIRST AID MEASURES

First Aid Procedures:

- Inhalation:** Remove to fresh air. If breathing is difficult, administer oxygen. If the victim is not breathing, give artificial respiration. Get medical attention if symptoms occur.
- Ingestion:** Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. GET MEDICAL ATTENTION OR CALL POISON CONTROL CENTER IMMEDIATELY.
- Skin Contact:** In case of contact, wash skin with plenty of water for at least 15 minutes. Remove contaminated clothing and shoes. Wash clothing before reuse. Get medical attention if symptoms persist.
- Eye Contact:** Check for and remove contact lenses. Immediately flush eyes with gentle but large stream of water for at least 15 minutes, lifting lower and upper eyelids occasionally. Get medical attention.

General Advice: In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

Notes to Physician: Treat symptomatically.

5. FIRE FIGHTING MEASURES

NFPA Ratings: Health: 2 Flammability: 0 Reactivity: 1 Special: Oxidizer

Flammable Properties: Strong oxidizer. Contact with combustible materials, reducing agents, or organic materials may cause fire. These substances will accelerate burning when involved in a fire. Some will react explosively with hydrocarbons (fuels). Some may decompose explosively when heated or involved in a fire.

Flash Point: Not applicable **Auto-**

ignition Temp: Not applicable

Flammable Limits in Air (% by volume): Not applicable

Suitable Extinguishing Media: Dry chemical, foam, carbon dioxide, water spray.

Unsuitable Extinguishing Media: No information found.

Hazardous Combustion Products:	Nitrous oxides.
Specific Hazards:	Contact with combustible, organic, or oxidizable substances may cause extremely violent explosion. When heated to decomposition it emits toxic fumes. Runoff may create a fire or explosion hazard.
Special Protective Equipment For Firefighters:	As in any fire, wear MSHA/NIOSH approved (or equivalent) self-contained breathing apparatus with full face piece operated in the pressure-demand or other positive pressure mode and full protective gear.
Specific Methods:	Do not move cargo or vehicle if cargo has been exposed to heat. If tank, rail car, or tank truck is involved in a fire, isolate for 800 meters (1/2 mile) in all directions; also consider initial evacuation for 800 meters (1/2 mile) in all directions. ALWAYS stay away from tanks engulfed in flame. Fight fire from maximum distance of use unmanned hose holders or monitor nozzles. Move containers from fire area if you can do so without risk. For massive fire in cargo area, use unmanned hose holder of monitor nozzles, if possible. If not, withdraw and let fire burn out.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:	Ventilate area of leak or spill. Isolate hazard area and keep unnecessary and unprotected personnel away from the area of the leak or spill. Keep upwind. Keep out of low areas. Wear appropriate personal protective equipment as specified in the Exposure Control and Personal Protection Section 8. Avoid contact with eyes, skin, and clothing. Avoid inhalation of dusts. Wear a dust mask if dust is generated above exposure limits.
Environmental Precautions:	Prevent further leakage or spillage if safe to do so. Do not contaminate water. Avoid discharge into drains, water courses or onto the ground. In case of large spill, dike if needed. Runoff from fire control or dilution water may cause pollution.
Methods for Containment:	Stop leak if you can do so without risk. Keep combustibles (wood, paper, oil, etc.) away from spilled material. If sweeping of a contaminated area is necessary, use a dust suppressant agent which does not react with the product. Prevent entry into waterways, sewer, basements or confined areas. Dike the spilled material if necessary.
Methods for Cleaning Up:	Pick up and place in a suitable container for reclamation or disposal, using a method that does not generate dust. Clean contaminated surface thoroughly. Never return spills in original containers for re-use. Clean up in accordance with all applicable regulations.

7. HANDLING AND STORAGE

Handling:	Wear personal protective equipment (see section 8). Use only in well-ventilated areas. Provide sufficient air exchange and/or exhaust in work rooms. Wear appropriate respiratory equipment in case of insufficient ventilation. Avoid contact with skin, eyes and clothing. Do not breathe dust. Keep formation of airborne dusts to a minimum. Do not ingest. Do not handle near an open flame, heat, or other sources of ignition. Keep away from incompatible materials such as combustibles, reducing agents, organic materials, metals, acids, moisture. Handle in accordance with good industrial hygiene and safety practice. Wash thoroughly after handling. Containers of this material may be hazardous when empty since they retain product residues (vapors, liquids). Observe all warnings and precautions listed for the product
Storage:	Store in a cool, dry, ventilated area away from flame, sources of ignition, heat, and incompatible materials. Do not store near combustibles, organic materials, or other oxidizable materials. Keep containers tightly closed and upright. Protect from physical

damage. Keep away from food, drink and animal feedingstuffs. Keep out of the reach of children.

8. EXPOSURE CONTROL AND PERSONAL PROTECTION

Exposure Limits:	ACGIH (TWA): 1 mg/m ³
Engineering Controls:	Ensure adequate ventilation. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits or to acceptable levels.
Personal Protective Equipment:	
Eye Protection:	Wear safety glasses with side shields or goggles.
Skin Protection:	Wear appropriate chemical resistant clothing (with long sleeves) and appropriate chemical resistant gloves.
Respiratory Protection:	A NIOSH- approved dust respirator may be necessary under certain circumstances where airborne concentrations are at unacceptable levels. Use a positive-pressure air-supplied respirator if there is any potential for an uncontrolled release, exposure levels are not known, or any other circumstances where air-purifying respirators may not provide adequate protection.
General Hygiene Considerations:	Avoid contact with skin, eyes and clothing. Do not breathe dust. When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Provide eyewash station and safety shower.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Solid
Appearance:	Crystals
Color:	Violet, white, and/or gray
Odor:	Slight nitric acid odor
Molecular Formula:	Fe(NO ₃) ₃ ·9H ₂ O
Molecular Weight:	404.00
pH:	No information found
Specific Gravity:	1.684
Freezing/Melting Point:	47.2°C (117°F)
Boiling Point:	125°C (257°F) (Decomposes)
Flash Point:	Not applicable
Auto Ignition Temperature:	Not applicable
Flammable Limits in Air (% by Volume):	Not applicable
Solubility:	Freely soluble in water
Vapor Pressure:	Not applicable
Vapor Density:	No information found
Percent Volatile:	No information found
Odor threshold (ppm):	No information found
Evaporation Rate:	No information found
Partition Coefficient (n-octanol/water):	No information found

10. STABILITY AND REACTIVITY

Stability:	Stable under normal conditions.
Conditions to Avoid:	Incompatibles, heat, shock, friction.
Incompatible Materials:	Combustible materials, reducing agents (oxidizable substances), organic materials.
Hazardous Decomposition Products:	Nitrous oxides.
Possibility of Hazardous Reactions:	May react violently with the incompatible materials listed above.
Hazardous Polymerization:	Will not occur.

11. TOXICOLOGICAL INFORMATION

Toxicological Data:	Oral Rat LD50: 3250 mg/kg
Acute Effects:	Causes irritation. Harmful if swallowed, inhaled, or absorbed through skin.
Local Effects:	Causes irritation to any area of contact. Inhalation of dusts may cause respiratory irritation.
Sensitization:	No information found.
Chronic Effects:	May cause damage to the blood and liver. Under some circumstances methemoglobinemia occurs in individuals when the nitrate is converted by bacteria in the stomach to nitrite.
Carcinogenic Effects:	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.
Skin Corrosion/Irritation:	May cause irritation to skin and eyes.
Epidemiology:	No epidemiological data is available for this product.
Mutagenicity:	May affect genetic material.
Neurological Effects:	No information found.
Reproductive Effects:	No information found.
Teratogenic Effects:	No information found.
Target Organs and Symptoms:	Skin, Eyes, Respiratory Tract, Digestive Tract, Blood, Liver.

12. ECOLOGICAL INFORMATION

Ecotoxicological Data:	No information found.
Ecotoxicity:	No information found.
Environmental Effects:	No information found.
Persistence and Degradability:	No information found.

Partition Coefficient (n-octanol/water): No information found

13. DISPOSAL INFORMATION

Disposal Instructions: Dispose of this material to hazardous or special waste collection point. If discarded, this material is considered an RCRA regulated waste. All wastes must be handled in accordance with local, state and federal regulations.

Contaminated Packaging: Since emptied containers retain product residue, follow label warnings even after container is emptied. Offer rinsed packaging material to local recycling facilities.

Waste Codes: No information found.

14. TRANSPORT INFORMATION

DOT:

UN Number: UN1466
Proper Shipping Name: Ferric Nitrate
Hazard Class: 5.1
Packaging Group: III

15. REGULATORY INFORMATION

U.S. Federal Regulations:

OSHA: This product is considered a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Inventory: Ferric Nitrate *Anhydrous* (CAS # 10421-48-4)

U.S. EPCRA (SARA Title III):

Sections 311/312:	Hazard Categories	List (Yes/No)
	Section 311 – Hazardous Chemical	Yes
	Immediate Hazard	Yes
	Delayed Hazard	Yes
	Fire Hazard	Yes
	Pressure Hazard	No
	Reactivity Hazard	Yes

CERCLA Reportable Quantities: Ferric Nitrate *Anhydrous*: 1000 lbs

International Inventories: (for <i>Anhydrous form</i>)	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)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	N/A
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes

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

16. OTHER INFORMATION

Product Use: For manufacturing, industrial and laboratory use only; not for household use.

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