SAFETY DATA SHEET

Preparation Date: 8/27/2015 **Revision Date:** 8/27/2015 **Revision Number:** G1

1. IDENTIFICATION

Product identifier

Product code: F1030
Product Name: FERRIC NITRATE NONAHYDRATE, CRYSTAL, REAGENT, ACS

Other means of identification

Synonyms: Iron (III) nitrate, nonahydrate
NItric acid, iron (3+) salt, nonahydrate
CAS #: 7782-61-8
RTECS # NO7175000
CI#: Not available

Recommended use of the chemical and restrictions on use

Recommended use: Reagent. Analytic Chemistry. Corrosion inhibitor. Mordant in textile and leather industries.
Uses advised against No information available

Supplier:
Spectrum Chemical Mfg. Corp
14422 South San Pedro St.
Gardena, CA 90248
(310) 516-8000
Order Online At: https://www.spectrumchemical.com

Emergency telephone number Chemtrec 1-800-424-9300
Contact Person: Martin LaBenz (West Coast)
Contact Person: Ibad Tirmiz (East Coast)

2. HAZARDS IDENTIFICATION

Classification

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Skin corrosion/irritation	Category 2
Serious eye damage/eye irritation	Category 2A
Specific target organ toxicity (single exposure)	Category 3
Oxidizing solids	Category 3

Label elements

Warning

Hazard statements
Causes skin irritation
Causes serious eye irritation
May cause respiratory irritation
May intensify fire; oxidizer

Hazards not otherwise classified (HNOC)
Not Applicable

Other hazards
May be harmful if swallowed

Precautionary Statements - Prevention
Wash face, hands and any exposed skin thoroughly after handling
Avoid breathing dust/fume/gas/mist/vapors/spray
Use only outdoors or in a well-ventilated area
Keep away from heat/sparks/open flames/hot surfaces. — No smoking
Keep/Store away from clothing/ .? /combustible materials
Take any precaution to avoid mixing with combustibles .?
Wear protective gloves
Wear eye/face protection

Precautionary Statements - Response
Specific treatment (see .? on this label)
IN CASE OF FIRE: Use water to extinguish. Do not use dry chemicals or foams. CO_2or Halon may provide limited control.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
IF ON SKIN: Wash with plenty of soap and water
If skin irritation occurs: Get medical advice/attention
Take off contaminated clothing and wash before reuse
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Precautionary Statements - Storage
Store in a well-ventilated place. Keep container tightly closed
Store locked up

Precautionary Statements - Disposal
Dispose of contents/container to an approved waste disposal plant

3. COMPOSITION/INFORMATION ON INGREDIENTS

3. COMPOSITION/INFORMATION ON INGREDIENTS

Components	CAS-No.	Weight %	Trade Secret
Ferric Nitrate, Nonahydrate 7782-61-8	7782-61-8	100	*

4. FIRST AID MEASURES

First aid measures

General Advice: Poison information centers in each State capital city can provide additional assistance for scheduled poisons (13 1126)

Skin Contact: Wash off immediately with soap and plenty of water removing all contaminated clothes and shoes. Get medical attention. If skin irritation persists, call a physician.

Eye Contact: Flush eyes with water for 15 minutes. Get medical attention. If symptoms persist, call a physician.

Inhalation: Move to fresh air. If breathing is difficult, give oxygen. Get medical attention.

Ingestion: Do not induce vomiting without medical advice. Never give anything by mouth to an unconscious person. Obtain medical attention.

Most important symptoms and effects, both acute and delayed

Symptoms Causes serious eye irritation. May be harmful if swallowed. Causes skin irritation. Exposure to nitrites/nitrates can cause gastroenteritis, abdominal pain, nausea, vomiting, diarrhea, metabolic acidosis, purging, methemoglobinemia/cyanosis, muscle weakness, dizziness, lightheadedness, loss of coordination, fatigue, headache, seizures, convulsions, dyspnea, dysrhythmias, coma, and death. Can affect the liver, metabolism(weight loss), blood (methemoglobinemia), cardiovascular system (bradycardia/tachydardia, hypotension, vasodilation, irregular heartbeat), kidneys.

Indication of any immediate medical attention and special treatment needed

Notes to Physician: Treat symptomatically

Protection of first-aiders

First-Aid Providers: Avoid exposure to blood or body fluids. Wear gloves and other necessary protective clothing. Dispose of contaminated clothing and equipment as bio-hazardous waste

5. FIRE-FIGHTING MEASURES

Extinguishing Media

Suitable Extinguishing Media: Water. CO2 may be of no value in extinguishing fires involving oxidizers and may only provide limited control.

Unsuitable Extinguishing Media: Dry chemical. Foam. Halons.

Specific hazards arising from the chemical

Hazardous Combustion Products: Iron oxides, Nitrogen oxides

Specific hazards: Oxidizer. Keep away from combustible materials (wood, paper, oil, clothing, etc.)
The product is not flammable, but it may cause fire when in contact with other material
Contact with combustible or organic materials may cause fire
Will accelerate burning when involved in a fire
Container explosion may occur under fire conditions or when heated

Special Protective Actions for Firefighters

Specific Methods: For large fires, flood fire area with water from a distance. Cool affected containers with flooding quantities of water. Do not get water inside containers. DO NOT use combustible materials such as sawdust.

Special Protective Equipment for Firefighters: As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal Precautions: Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Avoid dust formation. Remove all sources of ignition. Keep combustibles (wood, paper, oil, clothing, etc.) away from spilled material.

Environmental precautions Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Prevent entry into waterways, sewers.

Methods and material for containment and cleaning up

Methods for containment Stop leak if you can do it without risk. Cover with plastic sheet to prevent spreading.

Methods for cleaning up Sweep up and shovel into suitable containers for disposal. Do not use combustible materials such as paper towels, sawdust, clothing, etc. to clean up spill.

7. HANDLING AND STORAGE

Precautions for safe handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. Keep away from incompatible materials.

Safe Handling Advice
Avoid contact with skin, eyes and clothing. Wear personal protective equipment. Use only in well-ventilated areas. Do not breathe vapours/dust. Do not ingest. When using do not smoke. Keep away from combustible material. Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Technical Measures/Storage Conditions:
Deliquescent. Protect from moisture. Keep container tightly closed in a dry and well-ventilated place. Store at room temperature in the original container. Store in a segrated and approved area. Do not store near combustible materials. Store away from incompatible materials.

Incompatible Materials:
Reducing agents. Organic materials. Combustible materials. Powdered metals. Strong acids.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

National occupational exposure limits

United States

Components	OSHA	NIOSH	ACGIH	AIHA WHEEL
Ferric Nitrate, Nonahydrate 7782-61-8	None	1 mg/m^3 TWA (as Fe)	1 mg/m^3 TWA (as Fe)	None

Canada

Components	Alberta	British Columbia	Ontario	Quebec
Ferric Nitrate, Nonahydrate 7782-61-8	1 mg/m^3 TWA (as Fe)	1 mg/m^3 TWA (as Fe)	1 mg/m^3 TWA (as Fe)	1.0 mg/m^3 TWAEV (as Fe)

Australia and Mexico

Components	Australia	Mexico
Ferric Nitrate, Nonahydrate 7782-61-8	1 mg/m^3 TWA (as Fe)	2 mg/m^3 STEL (as Fe) 1 mg/m^3 TWA (as Fe)

Appropriate engineering controls

Engineering measures to reduce exposure: Ensure adequate ventilation, especially in confined areas. Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

Individual protection measures, such as personal protective equipment

Personal Protective Equipment

Eye protection: Goggles.

Skin and body protection: Chemical resistant apron. Gloves. Long sleeved clothing.

Respiratory protection: Effective dust mask. Use a dust respirator under conditions where exposure to the substance is apparent (e.g. generation of high concentration of dust (dust clouds) , inadequate ventilation, development of respiratory tract irritation), and engineering controls are not feasible. Be sure to use an approved/certified respirator or equivalent. .

Hygiene measures: Avoid contact with skin, eyes and clothing. When using, do not eat, drink or smoke. Wash hands before breaks and immediately after handling the product.

9. PHYSICAL AND CHEMICAL PROPERTIES

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Physical state:
Solid.

Appearance:
Crystals.

Color:
Light Purple. Grayish White.

Odor:
Slight nitric. Acid.

Taste
No information available

Formula:
F(NO3)3.9H2O

Molecular/Formula weight:
404.00 g/mol

Flammability:
No information available

Flash point (°C):
No data available

Flashpoint (°C/°F):
No information available.

Flash Point Tested according to:
Not available

Autoignition Temperature (°C/°F):
No information available

Lower Explosion Limit (%):
No information available

Upper Explosion Limit (%):
No information available

pH:
No information available

Melting point/range(°C/°F):
47°C/117°F

Boiling point/range(°C/°F):
125°C/257°F (dec)

Decomposition temperature(°C/°F):
No information available

Bulk density:
No information available

Density (g/cm3):
1.684

Specific gravity:
No information available

Vapor pressure @ 20°C (kPa):
No information available

Evaporation rate:
No information available

Vapor density:
No information available

VOC content (g/L):
No information available

Odor threshold (ppm):
No information available

Partition coefficient (n-octanol/water):
No information available

Viscosity:
No information available

Miscibility:
No information available

Solubility:
Easily soluble in water
Easily soluble in acetone
Freely soluble in alcohol
Slightly soluble in Nitric Acid

10. STABILITY AND REACTIVITY

Reactivity
Oxidizer. Reacts with reducing agents, organic material, combustible materials, and powdered metals
Reacts violently with reducing materials

Chemical stability
Stability: Stable under recommended storage conditions

Possibility of Hazardous Reactions: Hazardous polymerization does not occur

Conditions to avoid: Avoid dust formation. Contact with combustible materials (wood, paper, oil, clothing, etc.). Exposure to moisture. Exposure to moist air. Incompatible materials.

Incompatible Materials: Reducing agents. Organic materials. Combustible materials. Powdered metals. Strong acids.

Hazardous decomposition products: Iron oxides. Nitrogen oxides (NOx).

Other Information
Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Toxicity

Component Information

Ferric Nitrate, Nonahydrate - 7782-61-8

LD50/oral/rat = = 3250 mg/kg Oral LD50 Rat
LD50/oral/mouse = No information available
LD50/dermal/rat = No information available
LD50/dermal/rabbit = No information available
LC50/inhalation/rat = No information available
LC50/inhalation/mouse = No infomation available
Other LD50 or LC50information = No information available

Product Information

LD50/oral/rat =
VALUE- Acute Tox Oral = 3250mg/kg

LD50/oral/mouse =
Value - Acute Tox Oral = No information available

LD50/dermal/rabbit
VALUE-Acute Tox Dermal = No information available

LD50/dermal/rat
VALUE -Acute Tox Dermal = No information available

LC50/inhalation/rat
VALUE-Vapor = No information available
VALUE-Gas = No information available
VALUE-Dust/Mist = No information available

LC50/Inhalation/mouse
VALUE-Vapor = No information available
VALUE - Gas = No information available
VALUE - Dust/Mist = No information available

Symptoms

Skin Contact: Causes skin irritation.

Eye Contact: Causes serious eye irritation.

Inhalation

Causes respiratory tract irritation.. Causes nose and throat irritation with coughing and wheezing.. May cause methemoglobinemia (the formation of methemoglobin in the blood which causes deficient oxygenation of the blood due to decreased available hemoglobin). Methemoglobinemia can lead to cyanosis (bluish skin and lips due to deficient oxygenation of the blood). May affect behavior/central nervous system. It may affect behavior/central nervous system (convulsions). It may affect the cardiovascular system (bradycardia, hypotension). May cause increased heart rate (tachycardia). May cause dyspnea (difficulty breathing or shortness of breath).

Ingestion

May be harmful if swallowed. Ingestion of large doses can cause gastroenteritis, nausea, abdominal pain, vomiting, diarrhea. The toxicity of nitrates is due to the in vivo conversion to nitrites. The primary toxic effects of nitrites include orthostatic hypotension(due to perpheral vasodilation) and methemoglobinemia. Furthermore, methemoglobinemia due to inadequate oxygenation of the blood can lead to progessive cyanosis, and coma, and possible death. Cyanosis is first visible as a bluish discoloration of the mucous membranes and unpigmented areas of the body. Small does of nitrates may cause weakness, general depression, mental imapirment. Severe poisonings include, unconsciousness, dizziness, postural lightheadedness, fatigue, ataxia, shortness of breath/laborers breathing, sedation, flushing, sweating, syncope, tachychardia, hypotension.Other symptoms may include chocolate-brown colored blood, muscular weakness, throbbing headache, mental impairment, incoordination, seizure convulsions, bradycardia and tachydardia, dysrhythmias, dyspnea (shortness of breath), peripheral vasodilation, cardiovascular collapse, seizures, coma. .

Aspiration hazard

No information available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Chronic Toxicity

Prolonged or repeated ingestion may lead to too much Iron build-up in the body, particularly in the liver. Symptoms are similar to that of acute toxicity
Repeated exposure via ingestion may increase iron levels in the liver, and spleen. Damage may occur to spleen and liver. It may also affect the brain, and blood (changes in serum composition).
Ingestion: May affect liver/spleen (increased iron levels and damage), urinary system (kidney, ureter, bladder), blood (changes in white blood cell count), central nervous system, and cardiovascular system.
Prolonged eye contact may cause a brownish discoloration of the eyes
This product is also a nitrate, therefore nitrate poisoning can occur. Prolonged or repeated nitrate ingestion may affect the urinary system (kidneys) and may affect the blood, resulting in methemoglobin with attendant cyanosis, anoxia, hyperpnea and later dyspnea. The primary toxic effects of nitrates include orthostatic hypotension and methemoglobinemia, Other symptoms include muscular weakness, dizziness, lightheadedness, fatigue, throbbing headache, mental impairment, incoordination, seizures,and convulsions, bradycardia or tachydardia, dysrhythmias, dyspnea.
Prolonged or repeated ingestion of large amounts of nitrates may affect the liver and can cause nausea, vomiting, anorexia/ weight loss, and possible coma and death.

Sensitization:

No information available

Mutagenic Effects:

No information available

Carcinogenic effects:

IARC group 2A - Listed under Nitrate or Nitrite (ingested) under conditions that result in endogenous nitrosation.

Components	IARC	ACGIH - Carcinogens	NTP	OSHA HCS - Carcinogens	Australia - Notifiable Carcinogenic Substances	Australia - Prohibited Carcinogenic Substances
Ferric Nitrate, Nonahydrate	Group 2A - Probably Carcinogenic to Humans (listed under Nitrate compounds) - Monograph 94 [2010] (covers ingested ntrates under conditions that result in edogenous nitrosation)	Not listed	Not listed	Present	Not listed	Not listed

IARC (International Agency for Research on Cancer)

Reproductive toxicity No data is available

Reproductive Effects: No information available
Developmental Effects: No information available
Teratogenic Effects: No information available

Specific Target Organ Toxicity

STOT - single exposure No information available
STOT - repeated exposure No information available
Target Organs: No information available

12. ECOLOGICAL INFORMATION

Ecotoxicity

Ecotoxicity effects: No data available.

Persistence and degradability: No information available

Bioaccumulative potential: No information available

Mobility: No information available

13. DISPOSAL CONSIDERATIONS

Disposal Methods

Waste from residues / unused products:
Waste must be disposed of in accordance with Federal, State and Local regulation.

Contaminated packaging:
Empty containers should be taken for local recycling, recovery or waste disposal Do not re-use empty containers Dispose of as unused product.

Components	RCRA - F Series Wastes	RCRA - K Series Wastes	RCRA - P Series Wastes	RCRA - U Series Wastes
Ferric Nitrate, Nonahydrate	None	None	None	None

14. TRANSPORT INFORMATION

DOT

UN-No:	UN1466
Proper Shipping Name:	Ferric nitrate
Hazard Class:	5.1
Subsidiary Risk:	No information available
Packing Group:	III
ERG No:	140
Marine Pollutant	No data available
DOT RQ (lbs):	No information available
Symbol(s):	R4

TDG (Canada)

UN-No:	UN1466
Proper Shipping Name:	Ferric nitrate
Hazard Class:	5.1
Subsidiary Risk:	No information available
Packing Group:	III
Description:	No information available

ADR

UN-No:	UN1466
Proper Shipping Name:	Ferric nitrate
Hazard Class:	5.1
Packing Group:	III
Subsidiary Risk:	No information available
Classification Code:	No information available
Description:	No information available
CEFIC Tremcard No:	No information available

IMO / IMDG

UN-No:	UN1466
Proper Shipping Name:	Ferric nitrate
Hazard Class:	5.1
Subsidiary Risk:	No information available
Packing Group:	III
Description:	No information available
IMDG Page:	No information available
Marine Pollutant	No information available
EMS:	F-A
MFAG:	No information available
Maximum Quantity:	No information available

RID

UN-No:	UN1466
Proper Shipping Name:	Ferric nitrate
Hazard Class:	5.1
Subsidiary Risk:	No information available
Packing Group:	III
Classification Code:	No information available
Description:	No information available

ICAO

14. TRANSPORT INFORMATION

UN-No: UN1466
Proper Shipping Name: Ferric nitrate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: III
Description: No information available

IATA

UN-No: UN1466
Proper Shipping Name: Ferric nitrate
Hazard Class: 5.1
Subsidiary Risk: No information available
Packing Group: III
ERG Code: 5L
Description: No information available

15. REGULATORY INFORMATION

International Inventories

Components	U.S. TSCA	KOREA KECL	Philippines (PICCS)	Japan ENCS	CHINA	Australia (AICS)	EINECS-No.
Ferric Nitrate, Nonahydrate	Not Listed	Not present	Present	Not present	Present	Present	Not present

U.S. Regulations

Ferric Nitrate, Nonahydrate

New Jersey RTK Hazardous Substance List: sn 3722 (listed under nitrate compounds)
New Jersey (EHS) List: sn 3722 500 lb TPQ (listed under nitrate compounds)
New Jersey - Discharge Prevention - List of Hazardous Substances: Present (listed under water dissociable nitrate compounds)
Pennsylvania RTK - Environmental Hazard List Present
Pennsylvania RTK - Special Hazardous Substances Environmental Hazard
Minnesota - Hazardous Substance List: Present (as iron soluble salts)
California Directors List of Hazardous Substances: Present

California Prop. 65: Safe Drinking Water and Toxic Enforcement Act of 1986.

Chemicals Known to the State of California to Cause Cancer:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Chemicals Known to the State of California to Cause Reproductive Toxicity:
This product does not contain a chemical requiring a warning under California Prop. 65. (See table below)

Components	Carcinogen	Developmental Toxicity	Male Reproductive Toxicity	Female Reproductive Toxicity:
Ferric Nitrate, Nonahydrate	Not Listed	Not Listed	Not Listed	Not Listed

CERCLA/SARA

Components	CERCLA - Hazardous Substances and their Reportable Quantities	Section 302 Extremely Hazardous Substances and TPQs	Section 302 Extremely Hazardous Substances and RQs	Section 313 - Chemical Category	Section 313 - Reporting *de minimis*
Ferric Nitrate, Nonahydrate	None	None	None	Water dissociable nitrate compounds	1.0% deminimis concentration

U.S. TSCA

Components	TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)	TSCA 8(d) -Health and Safety Reporting
Ferric Nitrate, Nonahydrate	Not Applicable	Not Applicable

Canada

WHMIS hazard class:
C Oxidizing materials

Ferric Nitrate, Nonahydrate
C

Canada Controlled Products Regulation:
This product has been classified according to the hazard criteria of the CPR (Controlled Products Regulation) and the MSDS contains all of the information required by the CPR.

Components	WHMIS Ingredient Disclosure List -
Ferric Nitrate, Nonahydrate	1%

Inventory

Components	Canada (DSL)	Canada (NDSL)
Ferric Nitrate, Nonahydrate	Not Listed	Not Listed

Components	CEPA Schedule I - Toxic Substances	CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting
Ferric Nitrate, Nonahydrate	Not listed	Not listed

EU Classification

R-phrase(s)
R 8 - Contact with combustible material may cause fire.
R36/37/38 - Irritating to eyes, respiratory system and skin.

S -phrase(s)
S17 - Keep away from combustible material.
S26 - In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37 - Wear suitable gloves.

Components	Classification	Concentration Limits:	Safety Phrases
Ferric Nitrate, Nonahydrate		No information	

The product is classified in accordance with Annex VI to Directive 67/548/EEC

Indication of danger:
O - Oxidising.
Xi - Irritant.

16. OTHER INFORMATION

Preparation Date: 8/27/2015
Revision Date: 8/27/2015
Prepared by: Sonia Owen

Disclaimer:

All chemicals may pose unknown hazards and should be used with caution. This Safety Data Sheet (SDS) applies only to the material as packaged. If this product is combined with other materials, deteriorates, or becomes contaminated, it may pose hazards not mentioned in this SDS. The physical properties reported in this SDS are obtained from the literature and do not constitute product specifications. Information contained herein does not constitute a warranty, whether expressed or implied, as to the safety, merchantability or fitness of the goods for a particular purpose. Spectrum Chemicals & Laboratory Products, Inc. assumes no responsibility for results obtained or for incidental or consequential damages, including lost profits, arising from the use of these data. No warranty against infringement of any patent, copyright or trademark is made or implied. It shall be the user's responsibility to develop proper methods of handling and personal protection based on the actual conditions of use. While this SDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

End of Safety Data Sheet