CCC Chemical Distribution Inc.

6605 Hurontario St.
Suite# 400, Mississauga,
Ontario, Canada
L5T 0A3

General Inquiry Number: (905) 454-6900

Safety Data Sheet Attached
1. Identification

1.1. Product identifier

Product Identity: Ferric Nitrate Solution (All Concentrations)
Alternate Names: Inorganic Nitrate Solution, Aqueous

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

Intended use: Industrial - See Technical Data Sheet.
Application Method: See Technical Data Sheet.

1.3. Details of the supplier of the safety data sheet

Company Name: Blue Grass Chemical Specialties, LLC
895 Industrial Boulevard
New Albany, Indiana 47150

Emergency
24 hour Emergency Telephone No.: INFOTRAC - 1-800-535-5053 (US/DOM)
1-352-323-3500 (Intl)
Customer Service: Blue Grass Chemical Specialties, LLC
1-812-948-1115
1-800-638-7197
Fax: 1-812-948-1561

2. Hazard(s) identification

2.1. Classification of the substance or mixture

Oxidizing Liquid: H272 May intensify fire; oxidizer.
Corrosive Liquid: H290 May be corrosive to metals.
Skin Corrosive: H314 Causes severe skin burns and eye damage.
Eye Damage: H318 Causes serious eye damage.

2.2. Label elements

Using the Toxicity Data listed in section 11 and 12 the product is labeled as follows.

Danger

H272 May intensify fire; oxidizer.
H290 May be corrosive to metals.
H314 Causes severe skin burns and eye damage.
H318 Causes serious eye damage.
H335 May cause respiratory irritation.

[Prevention]:
P210 Keep away from heat / sparks / open flames / hot surfaces - No smoking.
P220 Keep / Store away from clothing combustible materials.
P221 Take any precaution to avoid mixing with combustibles.
P234 Keep only in original container.
P260 Do not breathe mist / vapors / spray.
P264 Wash thoroughly after handling.
P280 Wear protective gloves / eye protection / face protection.

[Response]:
P301+330+331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303+361+353 IF ON SKIN (or hair): Remove / Take off immediately all contaminated clothing. Rinse skin with water / shower.
P304+340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305+351+338 IF IN EYES: Rinse continuously with water for several minutes. Remove contact lenses if present and easy to do - continue rinsing.
P310 Immediately call a POISON CENTER or doctor / physician.
P363 Wash contaminated clothing before reuse.
P370+378 In case of fire: Use extinguishing media listed in section 5 of SDS for extinction.
P390 Absorb spillage to prevent material damage.

[Storage]:
P405 Store locked up.
P406 Store in corrosive resistant container (plastic/poly; stainless steel)

[Disposal]:
P501 Dispose of contents / container in accordance with local / national regulations.

### 3. Composition/Information on ingredients

This product contains the following substances that present a hazard within the meaning of the relevant State and Federal Hazardous Substances regulations.

<table>
<thead>
<tr>
<th>Ingredient/Chemical Designations</th>
<th>Weight %</th>
<th>GHS Classification</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron(III) Nitrate, nonahydrate</td>
<td>25 - 55</td>
<td>Skin Irritant 2; H315 Eye Irritant 2; H319 Oxidizing Liquid 3; H272 Corrosive Liquid 1; H290 STOT SE 3; H335</td>
<td>[1]</td>
</tr>
<tr>
<td>C.A.S. Number: 7782-61-8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nitric acid</td>
<td>0 - 5</td>
<td>Oxidizing Liquid. 1; H272 Skin Corrosive 1A; H314</td>
<td>[1][2]</td>
</tr>
<tr>
<td>C.A.S. Number: 7697-37-2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td>Balance</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C.A.S. Number: 7732-18-5</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

[1] Substance classified with a health or environmental hazard.
4. First aid measures

4.1. Description of first aid measures

General
In all cases of doubt, or when symptoms persist, seek medical attention. Never give anything by mouth to an unconscious person.

Inhalation
Remove to fresh air, keep patient warm and at rest. If breathing is irregular or stopped, give artificial respiration. If unconscious place in the recovery position and obtain immediate medical attention. Give nothing by mouth.

Eyes
Irrigate copiously with clean fresh water for at least 15 minutes, holding the eyelids apart and seek medical attention.

Skin
Immediately flush the area with large amounts of water for at least 15 minutes, while removing contaminated clothing. Launder clothing before re-use. Call a physician.

Ingestion
Do NOT induce vomiting. Rinse mouth and slowly drink several glasses of water. Call a physician. Do NOT give anything by mouth to an unconscious or convulsing person.

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

Overview
EFFECTS OF OVEREXPOSURE:
SKIN: Direct contact may result in irritation, reddening, swelling, and, if untreated, severe skin damage.
EYES: Contact may cause severe irritation and corneal damage, if untreated.
INGESTION: May cause harmful to fatal chemical burns to the mouth, esophagus, and stomach.
INHALATION: Aerosols and mists may severely damage contacted tissue and produce scarring. Exposure to high concentrations may cause pulmonary edema and chemical pneumonia.
CONDITIONS AGGRAVATED BY EXPOSURE: Lung disease.
See section 2 for further details.

Eyes
Causes serious eye damage.

Skin
Causes severe skin burns and eye damage.

5. Fire-fighting measures

5.1. Extinguishing media
Recommended extinguishing media; alcohol resistant foam, CO₂, powder, water spray.
Do not use; water jet.

5.2. Special hazards arising from the substance or mixture
Hazardous decomposition: Oxides of carbon and nitrogen.
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. 
Do not breathe mist / vapors / spray.

5.3. Advice for fire-fighters
Fireman Should wear self-contained breathing apparatus when fighting fires involving this material. Excessive heat may yield toxic nitrogen oxides.

NFPA Ratings: Health: 2; Fire: 0; Reactivity: 0
Hazard Scale: 0 = Minimal; 1 = Slight; 2 = Moderate; 3 = Serious; 4 = Severe
ERG Guide No. 140

6. Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures
Put on appropriate personal protective equipment (see section 8).

6.2. Environmental precautions
Do not allow spills to enter drains or waterways.
Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse.

6.3. Methods and material for containment and cleaning up
Ventilate the area and avoid breathing vapors. Take the personal protective measures listed in section 8.

Contain and absorb spillage with Inert materials e.g. sand, earth, vermiculite. Place in appropriate containers outside buildings and dispose of according to the Waste Regulations. (See section 13).

Neutralize residual product in the spill area using Sodium Carbonate or Sodium Bicarbonate.

Clean, preferably with a detergent. Do not use solvents.

Do not allow spills to enter drains or watercourses.

If drains, sewers, streams or lakes are contaminated, inform the local water company immediately. In the case of contamination of rivers, streams or lakes the Environmental Protection Agency should also be informed.

Construct a dike to prevent spreading. Open enclosed spaces to outside atmosphere. Never return spills in original containers to re-use. If possible, stop flow of product. Contact Emergency Response Center for advice.

7. Handling and storage

7.1. Precautions for safe handling
Do not freeze.

Adhere to work practice rules established by government regulations. Contact with combustible material may cause fire. Prevent contamination by any source during handling or stage. This product should be kept in its original
container until time of use to avoid any contamination. Never return unused product to its original storage container. All equipment that may contact this product should be cleaned thoroughly to avoid potential reactions with organic contaminates. Empty containers may contain residual liquid or vapors; therefore, empty containers should be handled with care. Dispose of in accordance with local regulations.

Do not get this material in your eyes, on your skin, or on your clothing. Avoid breathing vapors or mists of this product. Wash thoroughly after handling. Do not eat, drink or use tobacco products when handling this material. Use this product with adequate ventilation. Launder work clothes frequently. See Section 8 for appropriate protective clothing, equipment and air monitoring procedures.

Open containers slowly, on a stable surface. Containers of this product must be properly labeled. Empty containers may contain residual liquid or vapors. Empty containers should be handled with care.

7.2. Conditions for safe storage, including any incompatibilities
Handle containers carefully to prevent damage and spillage.
Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials (see SECTION 10: Stability and Reactivity). Material should be stored in secondary containers, or in a diked area, as appropriate. Keep container tightly closed when not in use. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

Keep away from organic materials. Keep away from combustible material. Keep in well-ventilated place. Store in 41-100F (5-38C).
Incompatible materials: This product will liberate flammable hydrogen gas when in contact with most metals. Avoid contact with cyanides, sulfides, sulfites, chlorine or chlorine bleaches, which would release toxic gases. Avoid contact with strong alkalis and mild steel. Flammable and combustible materials, strong reducing agents, finely powdered metals, strong acids.
See section 2 for further details. - [Storage]:

7.3. Specific end use(s)
No data available.

8. Exposure controls and personal protection

8.1. Control parameters

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Ingredient</th>
<th>Source</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>Nitric acid</td>
<td>OSHA</td>
<td>TWA: 2 ppm (5 mg/m3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>TWA: 2 ppm Ceiling: 4 ppm</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH</td>
<td>TWA: 2 ppm (5 mg/m3); ST 4 ppm (10 mg/m3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supplier</td>
<td>TWA: 2 ppm (5mg/m3)</td>
</tr>
<tr>
<td>7782-61-8</td>
<td>Iron(III) Nitrate, nonahydrate</td>
<td>OSHA</td>
<td>No Established Limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>ACGIH</td>
<td>1 mg/m3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NIOSH</td>
<td>No Established Limit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Supplier</td>
<td>No Established Limit</td>
</tr>
</tbody>
</table>
Carcinogen Data

<table>
<thead>
<tr>
<th>CAS No.</th>
<th>Ingredient</th>
<th>Source</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>7697-37-2</td>
<td>Nitric acid</td>
<td>OSHA</td>
<td>Select Carcinogen: No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NTP</td>
<td>Known: No; Suspected: No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IARC</td>
<td>Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;</td>
</tr>
<tr>
<td>7782-61-8</td>
<td>Iron(III) Nitrate, nonahydrate</td>
<td>OSHA</td>
<td>Select Carcinogen: No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NTP</td>
<td>Known: No; Suspected: No</td>
</tr>
<tr>
<td></td>
<td></td>
<td>IARC</td>
<td>Group 1: No; Group 2a: No; Group 2b: No; Group 3: No; Group 4: No;</td>
</tr>
</tbody>
</table>

8.2. Exposure controls

Respiratory: Respiratory protection; not normally required for ambient air concentrations not exceeding the Occupational Exposure Limit. When respiratory protection is required, wear a NIOSH/MSHA approved self-contained breathing apparatus with full-face piece operated in a positive-pressure mode.

Eyes: Chemical safety glasses/chemical goggles/face shield if mixing/pouring this material or if splashing is possible.

Skin: Use of impervious apron/overalls recommended but not required to keep skin contact to a minimum. The breakthrough time of the selected glove(s) must be greater than the intended use period. Skin should not be exposed. Parts of the body coming in contact with this product should be washed thoroughly after contact. Use Nitrile or rubber acid resistant gloves.

Engineering Controls: Provide adequate ventilation. Where reasonably practicable this should be achieved by the use of local exhaust ventilation and good general extraction. If these are not sufficient to maintain concentrations of particulates and any vapor below occupational exposure limits suitable respiratory protection must be worn.

Other Work Practices: An eyewash fountain should be located in areas where the product is used. Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet. Promptly remove soiled clothing and wash thoroughly before reuse. Normal safe work practices for metal salts and acids are required.

See section 2 for further details. - [Prevention]:

9. Physical and chemical properties

- **Appearance**: Reddish/Brown Liquid
- **Odor**: Acid/Acid Odor
- **Odor threshold**: Not Measured
- **pH**: < 2
- **Melting point / freezing point**: Dependent upon concentration
- **Initial boiling point and boiling range**: ~212°F (100°C)
- **Flash Point**: Non-Flammable
- **Evaporation rate (Ether = 1)**: Not Measured
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Flammability (solid, gas) Not Applicable
Upper/lower flammability or explosive limits
Lower Explosive Limit: Not Measured
Upper Explosive Limit: Not Measured
Vapor pressure (Pa) Not Measured
Vapor Density Not Measured
Specific Gravity 1.10 - 1.60 g/ml @ 60F/15C (H2O=1)
Solubility in Water Complete
Partition coefficient n-octanol/water (Log Kow) Not Measured
Auto-ignition temperature Non-flammable
Decomposition temperature Not Measured
Viscosity (cSt) Not Measured

9.2. Other information
No other relevant information.

10. Stability and reactivity

10.1. Reactivity
Hazardous Polymerization will not occur.

10.2. Chemical stability
Stable under normal circumstances.

10.3. Possibility of hazardous reactions
No data available.

10.4. Conditions to avoid
Avoid exposure to extreme temperatures; flames; contact with incompatible materials; combustible materials. Avoid evaporation of liquid to crystals and organic materials (i.e. oil, grease)

10.5. Incompatible materials
This product will liberate flammable hydrogen gas when in contact with most metals. Avoid contact with cyanides, sulfides, sulfites, chlorine or chlorine bleaches, which would release toxic gases. Avoid contact with strong alkalis and mild steel. Avoid strong reducing agents, finely powdered metals, strong alkalis.

10.6. Hazardous decomposition products
Decomposition (on heating) of this product may produce acrid vapors, toxic and corrosive fumes including those of carbon monoxide, oxides of nitrogen, nitric acid and metal oxides. Reacts with metals producing flammable/explosive hydrogen gas.

11. Toxicological information

Acute toxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>Oral LD50, mg/kg</th>
<th>Skin LD50, mg/kg</th>
<th>Inhalation Vapor LD50, mg/L/4hr</th>
<th>Inhalation Dust/Mist LD50, mg/L/4hr</th>
<th>Inhalation Gas LD50, ppm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron(III) Nitrate, nonahydrate - (7782-61-8)</td>
<td>3,250.00, Rat -</td>
<td>&gt; 5,000.00, Rat</td>
<td>No data</td>
<td>No data</td>
<td>No data</td>
</tr>
</tbody>
</table>
11. Hazard identification

Note: When no route specific LD50 data is available for an acute toxin, the converted acute toxicity point estimate was used in the calculation of the product's ATE (Acute Toxicity Estimate).

<table>
<thead>
<tr>
<th>Classification</th>
<th>Category</th>
<th>Hazard Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute toxicity (oral)</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Acute toxicity (dermal)</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Acute toxicity (inhalation)</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Skin corrosion/irritation</td>
<td>1B</td>
<td>Causes severe skin burns and eye damage.</td>
</tr>
<tr>
<td>Serious eye damage/irritation</td>
<td>1</td>
<td>Causes serious eye damage.</td>
</tr>
<tr>
<td>Respiratory sensitization</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Skin sensitization</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Germ cell mutagenicity</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Carcinogenicity</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Reproductive toxicity</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>STOT-single exposure</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>STOT-repeated exposure</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
<tr>
<td>Aspiration hazard</td>
<td>---</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

12. Ecological information

12.1. Toxicity
No additional information provided for this product. See Section 3 for chemical specific data.

Aquatic Ecotoxicity

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>96 hr LC50 fish, mg/l</th>
<th>48 hr EC50 crustacea, mg/l</th>
<th>ErC50 algae, mg/l</th>
</tr>
</thead>
<tbody>
<tr>
<td>Iron(III) Nitrate, nonahydrate - (7782-61-8)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Not Available</td>
</tr>
<tr>
<td>Nitric acid - (7697-37-2)</td>
<td>100.00, Asterias rubens</td>
<td>180.00, Carcinus maenas</td>
<td>Not Available</td>
</tr>
</tbody>
</table>

12.2. Persistence and degradability
There is no data available on the preparation itself.

12.3. Bioaccumulative potential
Not Measured
12.4. Mobility in soil
No data available.

12.5. Results of PBT and vPvB assessment
This product contains no PBT/vPvB chemicals.

12.6. Other adverse effects
No data available.

13. Disposal considerations

13.1. Waste treatment methods
Observe all federal, state and local regulations when disposing of this substance.

14. Transport information

<table>
<thead>
<tr>
<th>DOT (Domestic Surface Transportation)</th>
<th>IMO / IMDG (Ocean Transportation)</th>
<th>ICAO/IATA</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>14.1. UN number</strong></td>
<td><strong>UN3093</strong></td>
<td><strong>UN3093</strong></td>
</tr>
<tr>
<td><strong>14.2. UN proper shipping name</strong></td>
<td><strong>UN3093, Corrosive liquids, oxidizing, n.o.s., (Ferric Nitrate Solution), 8 (5.1), II</strong></td>
<td>Corrosive liquids, oxidizing, n.o.s., (Ferric Nitrate Solution), 8 (5.1), II</td>
</tr>
<tr>
<td><strong>14.3. Transport hazard class(es)</strong></td>
<td><strong>DOT Hazard Class: 8</strong></td>
<td>IMDG: 8</td>
</tr>
<tr>
<td></td>
<td><strong>DOT Label: 8 (5.1)</strong></td>
<td><strong>Sub Class: 5.1</strong></td>
</tr>
<tr>
<td><strong>14.4. Packing group</strong></td>
<td><strong>II</strong></td>
<td><strong>II</strong></td>
</tr>
<tr>
<td><strong>14.5. Environmental hazards</strong></td>
<td><strong>IMDG</strong></td>
<td><strong>Air Class: 8 (5.1)</strong></td>
</tr>
<tr>
<td>IMDG</td>
<td>Marine Pollutant: No</td>
<td></td>
</tr>
</tbody>
</table>

14.6. Special precautions for user
No further information

15. Regulatory information

Regulatory Overview: The regulatory data in Section 15 is not intended to be all-inclusive, only selected regulations are represented.

Toxic Substance Control Act (TSCA): All components of this material are either listed or exempt from listing on the TSCA Inventory.

WHMIS Classification: D2B E C

US EPA Tier II Hazards
- Fire: No
- Sudden Release of Pressure: No
- Reactive: Yes
- Immediate (Acute): Yes
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SDS Revision Date: 10/20/2015

Delayed (Chronic): No

EPCRA 311/312 Chemicals and RQs (lbs):
- Nitric acid (1,000.00)

EPCRA 302 Extremely Hazardous:
- Nitric acid

EPCRA 313 Toxic Chemicals:
- Iron(III) Nitrate, nonahydrate
- Nitric acid

Proposition 65 - Carcinogens (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Developmental Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Female Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

Proposition 65 - Male Repro Toxins (>0.0%):
To the best of our knowledge, there are no chemicals at levels which require reporting under this statute.

N.J. RTK Substances (>1%):
- Nitric acid

Penn RTK Substances (>1%):
-Nitric acid

16. Other information

The information and recommendations contained herein are based upon data believed to be correct. However, no guarantee or warranty of any kind, expressed or implied, is made with respect to the information contained herein. We accept no responsibility and disclaim all liability for any harmful effects which may be caused by exposure to our products. Customers/users of this product must comply with all applicable health and safety laws, regulations, and orders.

The full text of the phrases appearing in section 3 is:
- H272 May intensify fire; oxidizer.
- H290 May be corrosive to metals.
- H314 Causes severe skin burns and eye damage.
- H315 Causes skin irritation.
- H318 Causes serious eye damage.
- H335 May cause respiratory irritation.

This is the first version in the GHS SDS format. Listings of changes from previous versions in other formats are not applicable.

End of Document