1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

<table>
<thead>
<tr>
<th>NFPA</th>
<th>HMIS</th>
<th>Personal Protective Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td><img src="image" alt="Eye Protection" /> <img src="image" alt="Gloves" /> <img src="image" alt="Respiratory Protection" /> <img src="image" alt="Chemical Protective Clothing" /></td>
</tr>
</tbody>
</table>

Product code: F1001

Product Name: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC

Chemical Name: No information available

Synonyms: Ammonium Ferric Citrate; Ammonium iron (III) citrate; Iron (III) ammonium citrate; 1,2,3-Propanetricarboxylic acid, 2-hydroxy, ammonium iron (3+) salt; Citric Acid, ammonium iron (3+) salt

Recommended use: Pigment. In photography. For blueprints.

CAS #: 1185-57-5

RTECS #: GE7540000

Formula: This compound is a complex salt of undetermined structure, composed of Iron, Ammonia, and Citric Acid

CI#: Not available

Supplier: Spectrum Chemicals and Laboratory Products, Inc.
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: Ibad Tirmiz (East Coast)

Contact Person: Martin LaBenz (West Coast)

2. HAZARDS IDENTIFICATION
2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW
Irritating to eyes
May cause skin irritation
May cause irritation of respiratory tract

<table>
<thead>
<tr>
<th>Odor:</th>
<th>Physical state:</th>
<th>Appearance:</th>
<th>Color:</th>
</tr>
</thead>
</table>

OSHA Regulatory Status
This material is not considered hazardous by the OSHA Hazard Communication Standard (29 1910.1200)

POTENTIAL HEALTH EFFECTS

Principal Routes of Exposure:
Ingestion. Inhalation.

Acute Potential Health Effects:

Skin Contact:
Mild skin irritation.

Eye Contact:
Causes eye irritation.

Inhalation:
May cause irritation of respiratory tract.

Ingestion:
Causes digestive (gastrointestinal) tract irritation. Irritating to mouth, throat and stomach. May cause hypermotility, diarrhea. May cause vomiting.

Chronic Potential Health Effects:

<table>
<thead>
<tr>
<th>Component</th>
<th>Carcinogen Status:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green 1185-57-5 (100)</td>
<td>No information available</td>
</tr>
</tbody>
</table>

Target Organs:

Mutagenic Effects:
No information available

Teratogenic Effects:
No information available

Aggravated Medical Conditions:
No information available

See Section 11 for additional Toxicological Information

POTENTIAL ENVIRONMENTAL EFFECTS
No information available

3. COMPOSITION/INFORMATION ON INGREDIENTS

<table>
<thead>
<tr>
<th>Components</th>
<th>CAS-No.</th>
<th>Weight %</th>
</tr>
</thead>
</table>

Product code: F1001

Product name: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
3. COMPOSITION/INFORMATION ON INGREDIENTS

| Ferric Ammonium Citrate, green | 1185-57-5 | 100 |

4. FIRST AID MEASURES

**General Advice:** Poison information centres 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 irritation develops. Consult a physician if necessary.

**Eye Contact:** Flush eye with water for 15 minutes. Get medical attention.

**Inhalation:** Move to fresh air. If not breathing, give artificial respiration. 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. Consult a physician if necessary.

**Notes to Physician:** Treat symptomatically

5. FIRE-FIGHTING MEASURES

**Flammable Properties**

<table>
<thead>
<tr>
<th>Flashpoint (°C/°F):</th>
<th>No information available</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Flash Point Tested according to:</strong></td>
<td><strong>Not available</strong></td>
</tr>
<tr>
<td><strong>Lower Explosion Limit (%):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Upper Explosion Limit (%):</strong></td>
<td>No information available</td>
</tr>
<tr>
<td><strong>Autoignition Temperature (°C/°F):</strong></td>
<td>No information available</td>
</tr>
</tbody>
</table>

**Suitable Extinguishing Media:** Carbon dioxide (CO2). Dry chemical. Water spray mist or foam.

**Unsuitable Extinguishing Media:** No information available.

**Hazardous Combustion Products:** Carbon monoxide; Carbon dioxide; iron oxides; ammonia; nitrogen oxides

**Specific hazards:** May be combustible at high temperatures. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

**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

**Specific Methods:** No information available.

**Product code:** F1001  **Product name:** FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
6. ACCIDENTAL RELEASE MEASURES

Personal Precautions:
Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Remove all sources of ignition.

Environmental Precautions:
Prevent further leakage or spillage if safe to do so. Do not let product enter drains.

Methods for Cleaning Up:
Sweep up and shovel into suitable containers for disposal. Clean contaminated surface thoroughly.

7. HANDLING AND STORAGE

Handling

Technical Measures/Precautions:
Provide sufficient air exchange and/or exhaust in work rooms. Avoid dust formation. All equipment used when handling the product must be grounded. Keep away from incompatible materials.

Safe Handling Advice:
Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Keep away from heat and sources of ignition. Avoid dust formation. Do not ingest. Do not breathe vapours/dust. Handle in accordance with good industrial hygiene and safety practice.

Storage

Technical Measures/Storage Conditions:

Incompatible Materials:
Strong oxidizing agents. iodides. tannins. acacia preparations.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Engineering measures to reduce exposure:
Ensure adequate ventilation. 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.

Personal Protective Equipment

Eye protection: Goggles. Safety glasses with side-shields.
Skin and body protection: Long sleeved clothing. Chemical resistant apron. Gloves.
Respiratory protection: Effective dust mask. Wear respirator with dust filter..
Hygiene measures: Avoid contact with skin, eyes and clothing. Wash hands before breaks and immediately after handling the product. When using, do not eat, drink or smoke.

National occupational exposure limits

Product code: F1001  Product name: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
United States
U.S Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>OSHA</th>
<th>NIOSH</th>
<th>ACGIH</th>
<th>AIHA WHEEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>1185-57-5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Canada
Canada Occupational Exposure Limits: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Alberta</th>
<th>British Columbia</th>
<th>Ontario</th>
<th>Quebec</th>
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</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
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<tr>
<td>1185-57-5</td>
<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

Australia and Mexico
Occupational Exposure Limits for Australia and Mexico: Not determined

<table>
<thead>
<tr>
<th>Components</th>
<th>Australia</th>
<th>Mexico</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>None</td>
<td>None</td>
</tr>
<tr>
<td>1185-57-5</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state: Solid.  
Appearance: Powder.  
Color: Green.  
Molecular/Formula weight: No information available  
Flash point (°C): No data available  
Lower Explosion Limit (%): No information available  
Upper Explosion Limit (%): No information available  
Autoignition Temperature (°C/°F): No information available  
Melting point/range(°C/°F): No information available  
Boiling point/range(°C/°F): No information available  
pH: No information available  
Specific gravity: 1.8  
Density (g/cm3): No information available  
Decomposition temperature(°C/°F): No information available  
Bulk density: 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  
Miscibility: No information available  
Solubility: Easily soluble in water  
Practically insoluble in alcohol  
Solubility in water: 25 g/100 ml @ 20 deg. C.

10. STABILITY AND REACTIVITY

Stability: Stable at normal conditions

Product code: F1001  
Product name: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
Conditions to avoid: Heat. Exposure to light. Exposure to moist air. Exposure to moisture. Avoid dust formation. Dust may form explosive mixture in air. Fine dust dispersed in air in sufficient concentrations, and in the presence of an ignition source is a potential dust explosion hazard.

Incompatible Materials: Strong oxidizing agents. iodides. tannins. acacia preparations.


Possibility of Hazardous Reactions: No information available

Polymerization: Hazardous polymerisation does not occur

Corrosivity: No information available

Special Remarks on Corrosivity: No information available

11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Component Information

*Ferric Ammonium Citrate, green - 1185-57-5*

- **LD50/oral/rat** = LD (Lethal Dose): >2000 mg/kg
- **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 information available
- **Other LD50 or LC50 information** = No information available

Product Information

- **LC50/inhalation/rat** = No information available
- **LC50/Inhalation/mouse** = No information available
- **LD50/dermal/rabbit** = No information available
- **LD50/dermal/rat** = No information available
- **LD50/oral/mouse** = No information available
- **LD50/oral/rat** = No information available

Local Effects

- **Skin irritation:** Mild skin irritation.
- **Eye irritation:** Causes eye irritation.
- **Inhalation:** May cause irritation of respiratory tract. Symptoms may include coughing and wheezing, and shortness of breath.
- **Ingestion:** Irritating to mouth, throat and stomach. May cause vomiting. May cause hypermotility, diarrhea.
- **Sensitization:** No information available

Chronic Toxicity

Product code: F1001
Product name: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
Chronic Toxicity

Prolonged eye contact may cause a brownish discoloration of the eyes.

Carcinogenic effects:

Not considered carcinogenic

<table>
<thead>
<tr>
<th>Components</th>
<th>NTP</th>
<th>IARC</th>
<th>OSHA HCS - Carcinogens</th>
<th>ACGIH - Carcinogens</th>
<th>Australia - Prohibited Carcinogenic Substances</th>
<th>Australia - Notifiable Carcinogenic Substances</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
<td>Not listed</td>
</tr>
</tbody>
</table>

Mutagenic Effects:

No information available

Reproductive Effects:

No information available

Teratogenic Effects:

No information available

Target Organs:


12. ECOLOGICAL INFORMATION

ECOTOXICITY

Toxicity to terrestrial and aquatic plants and animals:
No information available

Ecotoxicity effects:
No data available.

Aquatic toxicity:
No information available

Mobility:
No information available

Persistence and degradability:
No information available

Bioaccumulative potential:
No information available

13. DISPOSAL CONSIDERATIONS

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

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<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

14. TRANSPORT INFORMATION

DOT

UN-No: Not Regulated
Proper Shipping Name: No information available
Hazard Class: No information available
Packing Group: None
Subsidiary Risk: Not applicable
Marine Pollutant: No data available
ERG No: No information available
DOT RQ (lbs): No information available

TDG (Canada)

Product code: F1001
Product name: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
| 15. REGULATORY INFORMATION |

International Inventories

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Product code:</strong></td>
<td>F1001</td>
</tr>
<tr>
<td><strong>Product name:</strong></td>
<td>FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC</td>
</tr>
</tbody>
</table>
Components | U.S. TSCA | Philippines (PICCS) | KOREA KECL | Japan ENCS | CHINA | Australia (AICS) | EINECS-No.  
--- | --- | --- | --- | --- | --- | --- | --- 
Ferric Ammonium Citrate, green | Present | Present | Present KE-01694 | Present (2)-895 (2)-1318 | Present [26079] | Present | Present 214-686-6 

### U.S. Regulations

**Ferric Ammonium Citrate, green**

- **Massachusetts RTK**: Present
- **New Jersey RTK Hazardous Substance List**: Present
- **New Jersey - Discharge Prevention - List of Hazardous Substances**: Present
- **Pennsylvania RTK - Environmental Hazard List**: Present
- **Pennsylvania RTK - Special Hazardous Substances**: Present
- **New York Release Reporting - List of Hazardous Substances**: Present


**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)

<table>
<thead>
<tr>
<th>Components</th>
<th>Carcinogen</th>
<th>Developmental Toxicity</th>
<th>Male Reproductive Toxicity</th>
<th>Female Reproductive Toxicity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
<td>Not Listed</td>
</tr>
</tbody>
</table>

### CERCLA/SARA

<table>
<thead>
<tr>
<th>Components</th>
<th>CERCLA - Hazardous Substances and their Reportable Quantities</th>
<th>Section 302 Extremely Hazardous Substances and TPQs</th>
<th>Section 302 Extremely Hazardous Substances and RQs</th>
<th>Section 313 - Chemical Category</th>
<th>Section 313 - Reporting de minimis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>= 1000 lb final RQ</td>
<td>None</td>
<td>None</td>
<td>None</td>
<td>None</td>
</tr>
</tbody>
</table>

### U.S. TSCA

<table>
<thead>
<tr>
<th>Components</th>
<th>TSCA Section 5(a)2 - Chemicals With Significant New Use Rules (SNURS)</th>
<th>TSCA 8(d) - Health and Safety Reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ferric Ammonium Citrate, green</td>
<td>Not Applicable</td>
<td>Not Applicable</td>
</tr>
</tbody>
</table>

### Canada

**WHMIS hazard class:**

Non-controlled

**Ferric Ammonium Citrate, green**

Uncontrolled product according to WHMIS classification criteria

**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.

### Inventory

**Product code**: F1001  **Product name**: FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC
Ferric Ammonium Citrate, green

Components | Canada (DSL) | Canada (NDSL)
--- | --- | ---
Ferric Ammonium Citrate, green | Present | Not Listed

Components | CEPA Schedule I - Toxic Substances | CEPA - 2010 Greenhouse Gases Subject to Manditory Reporting
--- | --- | ---
Ferric Ammonium Citrate, green | Not listed | Not listed

EU Classification

R-phrase(s)
not determined

S -phrase(s)
none

Components | Classification | Concentration Limits: | Safety Phrases
--- | --- | --- | ---
Ferric Ammonium Citrate, green |  | No information | 

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

Indication of danger:
Not dangerous

16. OTHER INFORMATION

The MSDS format complies with ANSI Z400.1/Z129.1-2010 standards.

Preparation Date: 12-Dec-2014

Reason for revision: Not applicable

Prepared by: Sonia Owen

Literature reference: No information available
All chemicals may pose unknown hazards and should be used with caution. This Material Safety Data Sheet (MSDS) 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 MSDS. The physical properties reported in this MSDS 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 MSDS is based on technical data judged to be reliable, Spectrum assumes no responsibility for the completeness or accuracy of the information contained herein.

**Product code:** F1001

**Product name:** FERRIC AMMONIUM CITRATE, GREEN, POWDER, FCC