

MSDS Number: **F0930** \* \* \* \* \* *Effective Date: 08/10/04* \* \* \* \* \* *Supersedes: 11/02/01*

**MSDS****Material Safety Data Sheet**

From: Mallinckrodt Baker, Inc.  
222 Red School Lane  
Phillipsburg, NJ 08865



24 Hour Emergency Telephone: 908-859-2151  
CHEMTREC: 1-800-424-9300

National Response in Canada  
CANUTEC: 613-996-6666

Outside U.S. and Canada  
Chemtrec: 703-527-3887

NOTE: CHEMTREC, CANUTEC and National Response Center emergency numbers to be used only in the event of chemical emergencies involving a spill, leak, fire, exposure or accident involving chemicals.

All non-emergency questions should be directed to Customer Service (1-800-682-2537) for assistance.

# FERRIC AMMONIUM CITRATE

## 1. Product Identification

**Synonyms:** Citric acid, ammonium iron (3+) salt; ammonium ferric citrate; 1,2,3-propanetricarboxylic acid,2-hydroxy-, ammonium iron (3+) salt; Ferric ammonium citrate, Brown; Ferric ammonium citrate, Green

**CAS No.:** 1185-57-5

**Molecular Weight:** Not applicable to mixtures.

**Chemical Formula:** C<sub>6</sub>H<sub>8</sub>O<sub>7</sub>.xFe.xNH<sub>3</sub>

**Product Codes:**

J.T. Baker: 1977, 1980

Mallinckrodt: 0658

## 2. Composition/Information on Ingredients

Ingredient	CAS No	Percent	Hazardous
Ferric Ammonium Citrate	1185-57-5	90 - 100%	Yes

## 3. Hazards Identification

**Emergency Overview**  
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**CAUTION! MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.**

**J.T. Baker SAF-T-DATA<sup>(tm)</sup> Ratings** (Provided here for your convenience)  
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Health Rating: 1 - Slight

Flammability Rating: 0 - None

Reactivity Rating: 1 - Slight

Contact Rating: 0 - None

Lab Protective Equip: GOGGLES; LAB COAT

Storage Color Code: Orange (General Storage)  
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**Potential Health Effects**  
-----**Inhalation:**

Inhalation of dust may cause irritation to the upper respiratory tract.

**Ingestion:**

Low toxicity in small quantities but larger dosages may cause nausea, vomiting, diarrhea, and black stool. Pink urine discoloration is a strong indicator of iron poisoning. Liver damage, coma, and death from iron poisoning has been recorded.

**Skin Contact:**

Mild irritant to skin due to acidic nature of ferric salts.

**Eye Contact:**

Mild irritant due to acidic nature of ferric salts.

**Chronic Exposure:**

No information found.

**Aggravation of Pre-existing 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.

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## 4. First Aid Measures

**Inhalation:**

Remove to fresh air. Get medical attention for any breathing difficulty.

**Ingestion:**

Induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person.

**Skin Contact:**

Wash exposed area with soap and water. Get medical advice if irritation develops.

**Eye Contact:**

Wash thoroughly with running water. Get medical advice if irritation develops.

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## 5. Fire Fighting Measures

**Fire:**

As with most organic solids, fire is possible at elevated temperatures or by contact with an ignition source.

**Explosion:**

Not considered to be an explosion hazard.

**Fire Extinguishing Media:**

Use any means suitable for extinguishing surrounding fire.

**Special Information:**

In the event of a fire, wear full protective clothing and NIOSH-approved self-contained breathing apparatus with full facepiece operated in the pressure demand or other positive pressure mode.

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## 6. Accidental Release Measures

Remove all sources of ignition. Ventilate area of leak or spill. Wear appropriate personal protective equipment as specified in Section 8. Spills: Clean up spills in a manner that does not disperse dust into the air. Use non-sparking tools and equipment. Reduce airborne dust and prevent scattering by moistening with water. Pick up spill for recovery or disposal and place in a closed container.

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## 7. Handling and Storage

Keep in a tightly closed container, stored in a cool, dry, ventilated area. Protect against physical damage. Protect from light. Containers of this material may be hazardous when empty since they retain product residues (dust, solids); observe all warnings and precautions listed for the product.

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## 8. Exposure Controls/Personal Protection

**Airborne Exposure Limits:**

-ACGIH Threshold Limit Value (TLV):

1 mg/m<sup>3</sup> (TWA) soluble iron salt as Fe

**Ventilation System:**

A system of local and/or general exhaust is recommended to keep employee exposures below the Airborne Exposure Limits. Local exhaust ventilation is generally preferred because it can control the emissions of the contaminant at its source, preventing dispersion of it into the general work area. Please refer to the ACGIH document, *Industrial Ventilation, A Manual of Recommended Practices*, most recent edition, for details.

**Personal Respirators (NIOSH Approved):**

If the exposure limit is exceeded and engineering controls are not feasible, a half facepiece

particulate respirator (NIOSH type N95 or better filters) may be worn for up to ten times the exposure limit or the maximum use concentration specified by the appropriate regulatory agency or respirator supplier, whichever is lowest.. A full-face piece particulate respirator (NIOSH type N100 filters) may be worn up to 50 times the exposure limit, or the maximum use concentration specified by the appropriate regulatory agency, or respirator supplier, whichever is lowest. If oil particles (e.g. lubricants, cutting fluids, glycerine, etc.) are present, use a NIOSH type R or P filter. For emergencies or instances where the exposure levels are not known, use a full-facepiece positive-pressure, air-supplied respirator. **WARNING:** Air-purifying respirators do not protect workers in oxygen-deficient atmospheres.

**Skin Protection:**

Wear protective gloves and clean body-covering clothing.

**Eye Protection:**

Safety glasses. Maintain eye wash fountain and quick-drench facilities in work area.

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## 9. Physical and Chemical Properties

Ferric Ammonium Citrate Brown - 16.5-18.5% iron Ferric Ammonium Citrate Green - 14.5-16.0% iron

**Appearance:**

Green or reddish-brown powder.

**Odor:**

Odorless to slight ammonia odor.

**Solubility:**

Very soluble in water.

**Density:**

No information found.

**pH:**

No information found.

**% Volatiles by volume @ 21C (70F):**

0

**Boiling Point:**

No information found.

**Melting Point:**

No information found.

**Vapor Density (Air=1):**

No information found.

**Vapor Pressure (mm Hg):**

No information found.

**Evaporation Rate (BuAc=1):**

No information found.

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## 10. Stability and Reactivity

**Stability:**

Stable under ordinary conditions of use and storage. Reduced to ferrous salt by exposure to

light.

Very deliquescent; forms a solution on prolonged exposure to air.

**Hazardous Decomposition Products:**

Burning may produce carbon monoxide, carbon dioxide, nitrogen oxides.

**Hazardous Polymerization:**

Will not occur.

**Incompatibilities:**

Iodides, acacia preparations, and tannins.

**Conditions to Avoid:**

Heat, light, moisture.

## 11. Toxicological Information

No LD50/LC50 information found relating to normal routes of occupational exposure.

-----\Cancer Lists\-----			
Ingredient	---NTP Carcinogen---		IARC Category
	Known	Anticipated	
Ferric Ammonium Citrate (1185-57-5)	No	No	None

## 12. Ecological Information

**Environmental Fate:**

No information found.

**Environmental Toxicity:**

This material is expected to be slightly toxic to aquatic life.

## 13. Disposal Considerations

Whatever cannot be saved for recovery or recycling should be managed in an appropriate and approved waste disposal facility. Processing, use or contamination of this product may change the waste management options. State and local disposal regulations may differ from federal disposal regulations. Dispose of container and unused contents in accordance with federal, state and local requirements.

## 14. Transport Information

**Domestic (Land, D.O.T.)**

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**Proper Shipping Name:** RQ, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FERRIC AMMONIUM CITRATE)

**Hazard Class:** 9

**UN/NA:** UN3077

**Packing Group:** III

**Information reported for product/size:** 25KG

**International (Water, I.M.O.)**

**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FERRIC AMMONIUM CITRATE)

**Hazard Class:** 9

**UN/NA:** UN3077

**Packing Group:** III

**Information reported for product/size:** 25KG

**International (Air, I.C.A.O.)**

**Proper Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (FERRIC AMMONIUM CITRATE)

**Hazard Class:** 9

**UN/NA:** UN3077

**Packing Group:** III

**Information reported for product/size:** 25KG

## 15. Regulatory Information

-----\Chemical Inventory Status - Part 1\-----				
Ingredient	TSCA	EC	Japan	Australia
Ferric Ammonium Citrate (1185-57-5)	Yes	Yes	Yes	Yes

-----\Chemical Inventory Status - Part 2\-----				
Ingredient	Korea	DSL	Phil.	Canada
Ferric Ammonium Citrate (1185-57-5)	Yes	Yes	No	Yes

-----\Federal, State & International Regulations - Part 1\-----				
Ingredient	-SARA 302-	TPQ	List	SARA 313
Ferric Ammonium Citrate (1185-57-5)	RQ	No	No	Chemical Catg.
	No	No	No	No

-----\Federal, State & International Regulations - Part 2\-----			
Ingredient	CERCLA	-RCRA-	-TSCA-
Ferric Ammonium Citrate (1185-57-5)	1000	261.33	8 (d)
	No	No	No

Chemical Weapons Convention: No      TSCA 12(b): No      CDTA: No

SARA 311/312: Acute: Yes      Chronic: No      Fire: No      Pressure: No  
 Reactivity: No      (Pure / Solid)

**Australian Hazchem Code:** None allocated.

**Poison Schedule:** None allocated.

**WHMIS:**

This MSDS has been prepared according to the hazard criteria of the Controlled Products Regulations (CPR) and the MSDS contains all of the information required by the CPR.

## 16. Other Information

**NFPA Ratings:** Health: 0 Flammability: 1 Reactivity: 0

**Label Hazard Warning:**

CAUTION! MAY BE HARMFUL IF SWALLOWED. MAY CAUSE IRRITATION TO SKIN, EYES, AND RESPIRATORY TRACT.

**Label Precautions:**

Wash thoroughly after handling.

Avoid breathing dust.

Avoid contact with skin and eyes.

**Label First Aid:**

If swallowed, induce vomiting immediately as directed by medical personnel. Never give anything by mouth to an unconscious person. In case of contact, immediately flush eyes or skin with plenty of water for at least 15 minutes. If inhaled, remove to fresh air. Get medical attention for any breathing difficulty. In all cases call a physician.

**Product Use:**

Laboratory Reagent.

**Revision Information:**

No Changes.

**Disclaimer:**

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