

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: Ferric Ammonium Citrate
Chemical name	: Ammonium iron (III) Citrate
CAS No	: 1185-57-5
Product code	: 2390, 2391, 2392 & 2399
Formula	: $C_6H_8O_7 \cdot xFe \cdot xNH_4$
Synonyms	: 1,2,3-propanetricarboxylic acid, 2-hydroxy-, ammonium iron(3+) salt / 2-hydroxy-1,2,3-propanetricarboxylic acid, ammonium iron(3+) salt / ammonium ferric citrate / ammonium ferric citrate, brown / ammonium ferric citrate, green / ammonium iron(III) citrate, green / ammonium iron(III) citrate, red-brown / citric acid ammonium iron(III) salt / citric acid, ammonium iron(3+) salt / FAC / ferric ammonium citrate / ferric ammonium citrate, brown / ferric ammonium citrate, green / iron ammonium citrate / iron(III) ammonium citrate
BIG no	: 14814

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

Use of the substance/mixture	: Photographic and reprographic articles
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1.3. Details of the supplier of the safety data sheet

Jost Chemical Co.
8150 Lackland Rd.
Saint Louis, Missouri 63114
T 314-428-4300 - F 314-428-4366
justin.kuehnel@jostchemical.com - www.jostchemical.com

1.4. Emergency telephone number

Emergency number	: CHEMTREC 800-424-9300
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

Skin Irrit. 2	H315 - Causes skin irritation
Eye Irrit. 2A	H319 - Causes serious eye irritation
STOT SE 3	H335 - May cause respiratory irritation

Full text of H-phrases: see section 16

2.2. Label elements

GHS-US labeling

Hazard pictograms (GHS-US)



GHS07

Signal word (GHS-US)	: Warning
Hazard statements (GHS-US)	: H315 - Causes skin irritation H319 - Causes serious eye irritation H335 - May cause respiratory irritation
Precautionary statements (GHS-US)	: P261 - Avoid breathing dust P264 - Wash hands, forearms and face thoroughly after handling P271 - Use only outdoors or in a well-ventilated area P280 - Wear protective gloves, eye protection P302+P352 - If on skin: Wash with plenty of water P304+P340 - If inhaled: Remove person to fresh air and keep comfortable for breathing P305+P351+P338 - If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing P312 - Call a doctor if you feel unwell P321 - Specific treatment (see First aid measures on this label) P332+P313 - If skin irritation occurs: Get medical advice/attention

Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

P337+P313 - If eye irritation persists: Get medical advice/attention
P362 - Take off contaminated clothing and wash it before reuse
P403+P233 - Store in a well-ventilated place. Keep container tightly closed
P405 - Store locked up
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

Other hazards not contributing to the classification : None under normal conditions.

2.4. Unknown acute toxicity (GHS US)

Not applicable

SECTION 3: Composition/Information on ingredients

3.1. Substance

Substance type : Mono-constituent

Name	Product identifier	%	GHS-US classification
Ferric Ammonium Citrate	(CAS No) 1185-57-5	100	Skin Irrit. 2, H315 Eye Irrit. 2A, H319 STOT SE 3, H335

Full text of H-phrases: see section 16

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Check the vital functions. Unconscious: maintain adequate airway and respiration. Respiratory arrest: artificial respiration or oxygen. Cardiac arrest: perform resuscitation. Victim conscious with laboured breathing: half-seated. Victim in shock: on his back with legs slightly raised. Vomiting: prevent asphyxia/aspiration pneumonia. Prevent cooling by covering the victim (no warming up). Keep watching the victim. Give psychological aid. Keep the victim calm, avoid physical strain. Depending on the victim's condition: doctor/hospital. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service. Call a poison center/doctor/physician if you feel unwell.

First-aid measures after skin contact : Rinse with water. Soap may be used. Do not apply (chemical) neutralizing agents. Take victim to a doctor if irritation persists. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Rinse with water. Do not apply neutralizing agents. Take victim to an ophthalmologist if irritation persists. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

First-aid measures after ingestion : Rinse mouth with water. Call Poison Information Centre (www.big.be/antigif.htm). Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: immediately to hospital. Call a poison center/doctor/physician if you feel unwell.

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

Symptoms/injuries after inhalation : Slight irritation. May cause respiratory irritation.

Symptoms/injuries after skin contact : Slight irritation. Irritation.

Symptoms/injuries after eye contact : Slight irritation. Eye irritation.

Symptoms/injuries after ingestion : Vomiting. Nausea. Diarrhoea. Enlargement/affection of the liver. Urine discolouration.

4.3. Indication of any immediate medical attention and special treatment needed

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Water spray. Alcohol-resistant foam. Polymer foam. ABC powder. Carbon dioxide. Water spray. Dry powder. Foam.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : No data available.

Explosion hazard : No available data.

Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

5.3. Advice for firefighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.
- Firefighting instructions : Cool tanks/drums with water spray/remove them into safety. Dilute toxic gases with water spray.
- Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus. Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

- Protective equipment : Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus.
- Emergency procedures : Ventilate spillage area. Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows. Dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosionproof appliances/lighting equipment.

6.1.2. For emergency responders

- Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection".
- Emergency procedures : Avoid contact with skin and eyes.

6.2. Environmental precautions

Avoid release to the environment. Prevent entry to sewers and public waters.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up : Recover mechanically the product. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Clean contaminated surfaces with an excess of water. Wash clothing and equipment after handling.
- Other information : Dispose of materials or solid residues at an authorized site.

6.4. Reference to other sections

For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Powdered form: no compressed air for pumping over. Keep away from naked flames/heat. Finely divided: spark- and explosionproof appliances. Finely divided: keep away from ignition sources/sparks. Observe normal hygiene standards. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Use only outdoors or in a well-ventilated area. Avoid breathing dust/fume/gas/mist/vapors/spray. Avoid contact with skin and eyes. Wear personal protective equipment.
- Hygiene measures : Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

- Technical measures : Take all necessary measures to avoid accidental discharge of products into drains and waterways due to the rupture of containers or transfer systems.
- Storage conditions : Protect from sunlight. Store in a dry place. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Heat-ignition : heat sources. ignition sources.
- Prohibitions on mixed storage : oxidizing agents. water/moisture.
- Storage area : Store at room temperature. Store in a dry area. Store in a dark area. Keep container in a well-ventilated place. Meet the legal requirements.
- Packaging materials : cardboard. synthetic material.

Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Ferric Ammonium Citrate (1185-57-5)		
ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ (Iron salts, soluble, as Fe; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)
OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ Total Dust 5 mg/m ³ Respirable Dust

8.2. Exposure controls

Appropriate engineering controls : Extraction to remove dust at its source. Eye fountain. Ensure good ventilation of the work station.

Personal protective equipment : Dust production: dust mask with filter type P1. Gloves. Safety glasses.



Materials for protective clothing : Wear suitable protective clothing, gloves and eye/face protection.

Hand protection : Gloves.

Eye protection : Safety glasses. In case of dust production: protective goggles. Safety glasses.

Skin and body protection : Protective clothing.

Respiratory protection : Dust production: dust mask with filter type P1.

Environmental exposure controls : Avoid release to the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Solid in various shapes. Powder. Grains. Scales.
Color	: Green to red-brown
Odor	: Mild odour Ammonia odour
Odor threshold	: No data available
pH	: No data available
pH solution	: 10 g/l (Aqueous Solution)
Melting point	: No data available
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: No data available
Vapor pressure	: No data available
Relative density	: Not applicable
Relative vapor density at 20 °C	: No data available
Specific gravity / density	: 1800 kg/m ³
Solubility	: Soluble in water. Water: 120 g/100ml
Log Pow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: Not applicable

Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Viscosity, dynamic : No data available

9.2. Other information

VOC content : 0 %

Other properties : Translucent. Hygroscopic. Physical properties depending on the composition.

SECTION 10: Stability and reactivity

10.1. Reactivity

No additional information available

10.2. Chemical stability

Unstable on exposure to light. Hygroscopic.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

None under recommended storage and handling conditions (see section 7).

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

Thermal decomposition generates : Carbon dioxide. Carbon monoxide. Ammonia. Nitrogen oxides.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Likely routes of exposure : Skin and eye contact

Acute toxicity : Not classified
(Lack of data)

Skin corrosion/irritation : Causes skin irritation.

Serious eye damage/irritation : Causes serious eye irritation.

Respiratory or skin sensitization : Not classified
(Lack of data)

Germ cell mutagenicity : Not classified
(Lack of data)

Carcinogenicity : Not classified

Reproductive toxicity : Not classified
(Lack of data)

Specific target organ toxicity (single exposure) : May cause respiratory irritation.

Specific target organ toxicity (repeated exposure) : Not classified
(Lack of data)

Aspiration hazard : Not classified
(Not applicable)

Symptoms/injuries after inhalation : Slight irritation. May cause respiratory irritation.

Symptoms/injuries after skin contact : Slight irritation. Irritation.

Symptoms/injuries after eye contact : Slight irritation. Eye irritation.

Symptoms/injuries after ingestion : Vomiting. Nausea. Diarrhoea. Enlargement/affection of the liver. Urine discolouration.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).

Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Ecology - water : Mild water pollutant (surface water). Maximum concentration in drinking water: 0.50 mg/l (ammonium) (Directive 98/83/EC); 0.200 mg/l (iron) (Directive 98/83/EC). May cause eutrophication. Harmful to aquatic organisms.

12.2. Persistence and degradability

Ferric Ammonium Citrate (1185-57-5)

Persistence and degradability	No data available.
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12.3. Bioaccumulative potential

Ferric Ammonium Citrate (1185-57-5)

Bioaccumulative potential	Not bioaccumulative.
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Effect on the global warming : No known ecological damage caused by this product.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Dispose in a safe manner in accordance with local/national regulations.
Waste disposal recommendations : Recycle/reuse.
Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT
Not regulated for transport

TDG

TDG Proper Shipping Name : Not regulated for transport

Transport by sea

Proper Shipping Name (IMDG) : Not regulated for transport

Air transport

Proper Shipping Name (IATA) : Not regulated for transport

SECTION 15: Regulatory information

15.1. US Federal regulations

Ferric Ammonium Citrate (1185-57-5)

Listed on the United States TSCA (Toxic Substances Control Act) inventory

RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
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All components of this product are listed, or excluded from listing, on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

This product or mixture does not contain a toxic chemical or chemicals in excess of the applicable de minimis concentration as specified in 40 CFR §372.38(a) subject to the reporting requirements of section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 and 40 CFR Part 372.

Ferric Ammonium Citrate (1185-57-5)

RQ (Reportable quantity, section 304 of EPA's List of Lists)	1000 lb
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15.2. International regulations

CANADA

Ferric Ammonium Citrate (1185-57-5)

Listed on the Canadian DSL (Domestic Substances List)

Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

Ferric Ammonium Citrate (1185-57-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations

Ferric Ammonium Citrate (1185-57-5)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the Japanese ENCS (Existing & New Chemical Substances) inventory
Listed on the Korean ECL (Existing Chemicals List)
Listed on INSQ (Mexican national Inventory of Chemical Substances)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)

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15.3. US State regulations

Ferric Ammonium Citrate (1185-57-5)

State or local regulations	U.S. - Massachusetts - Right To Know List U.S. - New Jersey - Right to Know Hazardous Substance List U.S. - Pennsylvania - RTK (Right to Know) List
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California Proposition 65 - This product does not contain any substances known to the state of California to cause cancer, developmental and/or reproductive harm

Ferric Ammonium Citrate (1185-57-5)

U.S. - Massachusetts - Right To Know List
U.S. - New Jersey - Right to Know Hazardous Substance List
U.S. - Pennsylvania - RTK (Right to Know) List

SECTION 16: Other information

Indication of changes : This sheet has been revised completely (changes were not marked).

Revision date : 10/04/2015

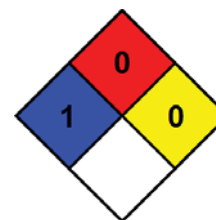
Full text of H-phrases:

Eye Irrit. 2A	Serious eye damage/eye irritation Category 2A
Skin Irrit. 2	Skin corrosion/irritation Category 2
STOT SE 3	Specific target organ toxicity (single exposure) Category 3
H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

NFPA health hazard : 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.

NFPA fire hazard : 0 - Materials that will not burn.

NFPA reactivity : 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.



Ferric Ammonium Citrate

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations

HMIS III Rating

Health	: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability	: 0 Minimal Hazard - Materials that will not burn
Physical	: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product