

SECTION 1: Identification

1.1. Identification

Product form	: Substance
Substance name	: Ferric Ammonium Citrate
CAS-No.	: 1185-57-5
Formula	: $C_6H_8O_7 \cdot xFe \cdot xNH_4$

1.2. Recommended use and restrictions on use

Use of the substance/mixture	: Nutritional Supplement; Specialized Plant Nutrient Photographic and blueprint reproduction Specialty water treatment Pharmaceuticals
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1.3. Supplier

Manufacturer

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

1.4. Emergency telephone number

Emergency number	: For Hazardous Materials [or Dangerous Goods] Incident Spill, Leak, Fire, Exposure, or Accident Call CHEMTREC Day or Night United States and Canada: 1-800-424-9300 / +1 703-527-3887 Global: +1 703-741-5970
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SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS-US classification

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

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS-US labeling

Hazard pictograms (GHS-US)



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/fume/gas/mist/vapors/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P280 - Wear protective gloves/protective clothing/eye protection/face 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 poison center or doctor if you feel unwell
P321 - Specific treatment (see supplemental first aid instruction on this label)

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P332+P313 - If skin irritation occurs: Get medical advice/attention.
P337+P313 - If eye irritation persists: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P403+P233 - Store in a well-ventilated place. Keep container tightly closed.
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 which do not result in classification

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. Substances

Substance type : Mono-constituent

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

Full text of hazard classes and H-statements: see section 16

3.2. Mixtures

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 labored 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.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

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.

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

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.

4.2. Most important symptoms and effects (acute and delayed)

Potential Adverse human health effects and symptoms : Slightly irritant to skin. Slightly irritant to respiratory organs. Slightly irritant to eyes.

Symptoms/effects after inhalation : Slight irritation.

Symptoms/effects after skin contact : Slight irritation.

Symptoms/effects after eye contact : Slight irritation.

Symptoms/effects after ingestion : AFTER INGESTION OF HIGH QUANTITIES: Vomiting. Nausea. Diarrhoea. Enlargement/affection of the liver. Urine discolouration.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media : Quick-acting ABC powder extinguisher. Class A foam extinguisher. Water (quick-acting extinguisher, reel). Water. Class A foam.

Unsuitable extinguishing media : Quick-acting BC powder extinguisher. Quick-acting CO2 extinguisher.

5.2. Specific hazards arising from the chemical

Fire hazard : No data available on direct fire hazard. No data available on indirect fire hazard.

Explosion hazard : No data available on direct explosion hazard. No data available on indirect explosion hazard.

Reactivity : Decomposes on exposure to light.

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5.3. Special protective equipment and precautions for fire-fighters

- Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighborhood 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.

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 : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.
- Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighborhood close doors and windows. In case of dust production: stop engines and no smoking. In case of dust production: no naked flames or sparks. Dust: spark-/explosion proof 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.

6.3. Methods and material for containment and cleaning up

- For containment : Contain released product, pump into suitable containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up : Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. 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 : Avoid raising dust. Keep away from naked flames/heat. In finely divided state: use spark-/explosion proof appliances. Finely divided: keep away from ignition sources/sparks. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection. Comply with the legal requirements. Clean contaminated clothing. Thoroughly clean/dry the installation before use. Powdered form: no compressed air for pumping over.
- Hygiene measures : Observe normal hygiene standards. Keep container tightly closed.

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 : Store in a clean, dry warehouse in the original unopened containers. Store locked up. Store in a well-ventilated place. Keep container tightly closed. Keep cool.
- Heat-ignition : KEEP SUBSTANCE AWAY FROM: heat sources. ignition sources.
- Information on mixed storage : KEEP SUBSTANCE AWAY FROM: 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.
- Special rules on packaging : SPECIAL REQUIREMENTS: closing. watertight. dry. opaque. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.
- Packaging materials : SUITABLE MATERIAL: cardboard. synthetic material.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

No additional information available

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8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

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

Skin and body protection:

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P1

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state : Solid
Appearance : Brown, occurs as thin, transparent brown, red-brown or garnet red scales or granules, Green powder.
Color : Green to red-brown
Odor : Mild odor Ammonia odor
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) : Non flammable.
Vapor pressure : No data available
Relative vapor density at 20 °C : Not applicable
Relative density : 1.8
Specific gravity / density : 1800 kg/m³
Molecular mass : 261.98 g/mol
Solubility : Soluble in water.
Water: 120 g/100ml
Log Pow : No data available
Auto-ignition temperature : Not applicable

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Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: Not applicable
Explosive properties	: No data available
Oxidizing properties	: 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

Decomposes on exposure to light.

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

Acute toxicity (oral)	: Not classified (Lack of data)
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
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)
Viscosity, kinematic	: No data available
Likely routes of exposure	: Skin and eye contact.
Potential Adverse human health effects and symptoms	: Slightly irritant to skin. Slightly irritant to respiratory organs. Slightly irritant to eyes.
Symptoms/effects after inhalation	: Slight irritation.
Symptoms/effects after skin contact	: Slight irritation.
Symptoms/effects after eye contact	: Slight irritation.
Symptoms/effects after ingestion	: AFTER INGESTION OF HIGH QUANTITIES: Vomiting. Nausea. Diarrhoea. Enlargement/affection of the liver. Urine discolouration.

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SECTION 12: Ecological information

12.1. Toxicity

- Ecology - general : Not classified as dangerous for the environment according to the criteria of Regulation (EC) No 1272/2008.
- Ecology - air : Not classified as dangerous for the ozone layer (Regulation (EC) No 1005/2009).
- Ecology - water : Harmful to aquatic organisms. Mild water pollutant (surface water). May cause eutrophication.

12.2. Persistence and degradability

Ferric Ammonium Citrate (1185-57-5)

Persistence and degradability	Biodegradability in water: 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

No additional information available

SECTION 13: Disposal considerations

13.1. Disposal methods

- Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.
- Product/Packaging disposal recommendations : Recycle/reuse.
- Additional information : Can be considered as non hazardous waste according to Directive 2008/98/EC, as amended by Regulation (EU) No 1357/2014 and Regulation (EU) No 2017/997.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated

Transportation of Dangerous Goods

Proper Shipping Name (Transportation of Dangerous Goods) : 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

CERCLA RQ	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

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15.2. International regulations

CANADA

Ferric Ammonium Citrate (1185-57-5)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

Ferric Ammonium Citrate (1185-57-5)

Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)

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)

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

SECTION 16: Other information

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

Revision date : 06/11/2018

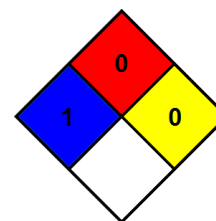
Full text of H-phrases:

H315	Causes skin irritation
H319	Causes serious eye irritation
H335	May cause respiratory irritation

NFPA health hazard : 1 - Materials that, under emergency conditions, can cause significant irritation.

NFPA fire hazard : 0 - Materials that will not burn under typical fire conditions, including intrinsically noncombustible materials such as concrete, stone, and sand.

NFPA reactivity : 0 - Material that in themselves are normally stable, even under fire conditions.



Hazard 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 (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