

SECTION 1: Product and Company Identification

1.1. Product identifier

Trade name : VERDUR
Substance name : Ferric Ammonium Citrate
Chemical name : Ammonium iron (III) Citrate
CAS No : 1185-57-5

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

1.2.1. Relevant identified uses

Use of the substance/preparation : Micronutrient fertilizer

1.2.2. Uses advised against

No data available

1.3. Details of the supplier of the safety data sheet

Rainbow Treecare Scientific Advancements
11571 K-Tel Drive
Minnetonka, MN 55343
Phone: 1-(877) 272-6747 (toll free)
www.treecarescience.com

1.4. Emergency telephone number

Emergency number : (800)-424-9300 (CHEMTREC)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification

Hazard Class	Category	Hazard Statement
Skin Irritation	2	H315
Eye Irritation	2A	H320
STOT SE	3	H335

Full text of H-phrases: see section 16

2.2. Label elements

GHS Labeling Elements

Hazard pictograms (GHS-US) :



GHS07

Signal word (GHS-US) :

WARNING

Hazard statements (GHS-US) :

H315 – Causes skin irritation
H320 – Causes eye irritation
H335 – May cause respiratory irritation

GHS Labeling Elements

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
- P332+P313 – If skin irritation occurs: Get medical advice/attention
- P337+P313 – If eye irritation persists: Get medical advice/attention
- P362 – Take off contaminated clothing and wash before reuse
- P403+P233 – Store in a well-ventilated place. Keep container tightly closed

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	%/wt.
Ferric Ammonium Citrate	(CAS No.) 1185-57-5	100

3.2. Mixture

Not applicable

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : Consult a physician. Seek medical attention if you feel unwell. Show this Safety Data Sheet to the doctor in attendance.

First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Remove the victim to 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. Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get medical advice/attention.

First-aid measures after eye contact : Flush eyes with water. Do not apply neutralizing agents. Remove contact lenses, if present and easy to do. Rinse cautiously with water for several minutes. See an ophthalmologist if irritation develops or persists.

First-aid measures after ingestion : Rinse mouth with water. Call a Poison Control Center for advice. Consult a doctor/medical service if you feel unwell. Ingestion of large quantities: seek

emergency medical treatment.

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

- Symptoms/injuries after inhalation : May cause respiratory irritation.
- Symptoms/injuries after skin contact : Slight irritation. Irritation.
- Symptoms/injuries after eye contact : Slight irritation. Irritation.
- Symptoms/injuries after ingestion : Ingestion of large quantities: Vomiting. Nausea. Diarrhea. Enlargement/affection of the liver. Urine discoloration.

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. Dry powder. Fog.
- Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

- Fire hazard : Slightly flammable to flammable in presence of open flames, sparks, heat.
- Explosion hazard : No data available.
- Reactivity : On burning or heating: release of toxic and corrosive gases/vapors (ammonia, nitrous vapors, carbon monoxide - carbon dioxide). Decomposes on exposure to light.

5.3. Advice for firefighters

- Precautionary measures fire : Keep upwind. Consider evacuation. For large quantities: 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 : 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/mist/vapors. Avoid contact with skin and eyes.

6.1.2. For emergency responders

- Protective equipment : 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 waterways.

6.3. Methods and material for containment and cleaning up

- For containment: Contain released substance, pump into suitable containers (see Section 7). Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.
- Methods for cleaning up: Recover the product mechanically. Stop dust cloud by covering with sand/earth. Scoop solid spill into closing containers. See Section 7 for suitable container materials. Clean contaminated surfaces with water (collect wash 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 8 "Exposure controls/personal protection"

SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling: Ensure good work station ventilation where dust is formed. Avoid raising dust. Avoid breathing dust. Wear personal protective equipment. Clean contaminated clothing. Do not discharge wastes into drains, sewers, or waterways. Keep away from naked flames/heat. Keep container tightly closed. Observe strict hygiene. Avoid contact with skin and eyes.
- Hygiene measures: Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash contaminated clothing before reuse.

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: Keep container tightly closed. Store in a cool, dry place. Protect from sunlight.
- Conditions to avoid: Heat sources, ignition sources, oxidizing agents, water/moisture
- Storage area: Store at room temperature. Store in a dark, dry area. Keep container in a well-ventilated place.
- Special rules on packaging: Use a closing, watertight, dry, opaque, correctly labeled packaging material. Secure fragile packagings in solid containers.
- Packaging materials: Cardboard, synthetic materials

7.3. Specific end use(s)

No additional information available

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
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	: Ensure good ventilation of the work station. Extraction to remove dust at its source. Eye fountain.
Personal protective equipment	: Gloves, safety glasses, long sleeve shirt and pants, shoes with socks. In case of dust production: dust mask with filter type P2 and goggles.
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 or P2 for higher level of protection.
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 powder
Color	: Brownish. Yellowish.
Odor	: Mild odor, Ammonia odor
Odor threshold	: No data available
pH (1%)	: 6 – 8
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
Log Kow	: No data available
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Viscosity	: No data available
Viscosity, kinematic	: Not applicable
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

On burning: release of toxic and corrosive gases/vapours (ammonia, nitrous vapours, carbon monoxide – carbon dioxide). 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

Likely routes of exposure	: Skin and eye contact.
Acute toxicity	: Not classified (lack of data).
Skin corrosion/irritation	: Not classified based on available data. Suspected of causing irritation.
Serious eye damage/irritation	: Not classified based on available data. Suspected of causing irritation.
Respiratory or skin sensitization	: Not classified (lack of data).
Germ cell mutagenicity	: Not classified (lack of data).
Carcinogenicity	: Not classified (lack of data).
Reproductive toxicity	: Not classified based on available data.
Specific target organ toxicity (single exposure)	: May cause respiratory irritation (lack of data).
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. Irritation to eyes.
Symptoms/injuries after ingestion	: Ingestions of large quantities: Vomiting. Nausea. Diarrhea. Enlargement/affection of the liver. Urine discoloration.

SECTION 12: Ecological information

12.1. Toxicity

- Ecology – general : The product is not considered to be harmful to aquatic organisms nor to cause long-term adverse effects in the environment.
- Ecology – water : Mild water pollutant (surface water). May cause eutrophication. May be harmful to aquatic organisms.

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 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. Remove waste in accordance with local and/or national regulations. Offer surplus and non-recyclable solutions to a licensed disposal company.

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT

Not regulated for transport

Additional Information

- Other information : No supplementary information available.

Transport by sea

No additional information available

Air transport

No additional information available

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

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

SECTION 16: Other information

Full Text of H-phrases:

Eye Irritation 2A	Causes eye irritation - Category 2A
Skin Irritation 2	Skin corrosion/irritation - Category 2
STOT SE 3	Specific target organ toxicity (single exposure) - Category 3
H315	Causes skin irritation
H320	Causes eye irritation
H335	May cause respiratory irritation

National Fire Protection Rating (NFPA)

HEALTH	1
FLAMMABILITY	1
INSTABILITY	0
4 = Severe 3 = Serious 2 = Moderate 1 = Slight 0 = Minimal	

HMIS III Ratings

HEALTH	1
FLAMMABILITY	1
PHYSICAL HAZARD	0
4 = Severe 3 = Serious 2 = Moderate 1 = Slight 0 = Minimal	

MSDS US

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