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Technical Data Sheet

Ferric Ammonium Citrate

Ferric Ammonium Citrate is a concentrated form of Iron, chelated with organic acids for use to correct soil deficiencies of this key micronutrient.

Ferric Ammonium Citrate contains 6.5% iron (W/V) chelated with organic acids, plus 7.8% nitrogen and 6.5% sulphur.

Ferric Ammonium Citrate a dark-orange coloured liquid with a mild ammonium odour (also available as a spray-dried powder if required for powder blending).

Why choose **Ferric Ammonium Citrate**?

While iron sulphate and synthetic aminopolycarboxylate chelates (e.g. EDTA) are widely used to correct iron deficiencies, **Ferric Ammonium Citrate** provides a number of benefits over conventional formulations:

- Aminopolycarboxylates have questionable biodegradability and thus the synthetic molecule can build up in soil if used over successive growing cycles. However **Ferric Ammonium Citrate** is more in balance with natural processes.
- *Systemic action:* **Ferric Ammonium Citrate** utilises the organic acids that plants naturally use to absorb and transport iron. Therefore, **Ferric Ammonium Citrate** is more in balance with natural processes. For this reason, it is also faster acting than iron sulphate.
- Iron-EDTA contains sodium ions carried over from the manufacturing process which are toxic to plants.
- Iron-EDTA is comparatively expensive compared to **Ferric Ammonium Citrate**.
- **Ferric Ammonium Citrate** is not classified as hazardous to human health. For this reason it can be used as a safe alternative to ferrous sulphate. **Ferric Ammonium Citrate** does not require hazard labelling.
- **Ferric Ammonium Citrate** contains significant amounts of useful nitrogen (7.8%) and sulphur (6.5%) which boosts growth and provides additional 'green up' effects.
- **Ferric Ammonium Citrate** does not stain concrete and stone as badly as iron sulphate.
- **Ferric Ammonium Citrate** is not damaging to the soil microbial community (see pictures below). The active ingredients are routinely used by microbiologists to boost the growth of beneficial microbes and, unlike other sulphinated forms of iron, there have been no reports of toxic effects on beneficial soil microbes. For this reason, if used on turf grass it will not predispose the turf to thatch build up, which occurs when dead leaves and moss cannot be broken down by saprotrophic microbes.



The growth of a consortium of beneficial soil microbes on standard agar plates. Left = control, middle = supplemented with iron sulphate, right = supplemented with ferric ammonium citrate.

Iron deficiencies explained

Iron atoms are essential components of the pigment chlorophyll so, without iron, plants are simply not green! While iron is abundant in most soils, a deficiency in iron availability is one of the most common nutrient deficiencies in plants. It is the low solubility of iron compounds in soil that prevents iron uptake by the plant and causes the development of iron deficiency symptoms. This is particularly apparent in alkaline soils, where unchelated iron is quickly converted to non-available iron carbonate, iron sulphide and/or iron phosphate. Therefore adding more and more iron to the soil may not result in correcting iron deficiency. However, by applying chelated iron as a foliar feed in a formulation that allows absorption before it gets to the soil you have a recipe for rapid correction and greening up of your plants.

Application protocol

Ferric Ammonium Citrate is particularly useful at fortifying turf and grass crops and promoting greening. It is applied in early spring to boost chlorophyll production as new growth starts, and during the autumn months to help protect grass over the winter period. **Ferric Ammonium Citrate** can also be applied to other crops suffering from, or susceptible to, iron deficiencies, especially ericaceous crops growing in neutral or alkaline soils. Iron availability decreases 1000-fold for every soil pH unit increase from pH 4 to 9.

Ferric Ammonium Citrate liquid should be diluted at a rate of 50ml in 10 litres of water.

Turf conditioning: apply 15 L per hectare as a foliar spray every three weeks during early spring and again every three weeks during the late summer and autumn months.

Broadleaf crops: apply as a foliar spray as soon as symptoms are apparent (interveinal chlorosis of young leaves). Repeat after 10 days if symptoms remain.

Tank mix compatible with most acidic/neutral co-products (pesticides, biostimulants and other fertilizers). Always conduct a bucket test to confirm with new mixes.

Ferric Ammonium Citrate can stain concrete and stone. Avoid eye and skin contact. For guidance on safe transport, storage, use and disposal of **Ferric Ammonium Citrate** refer to the relevant Plater-Bio Safety Data Sheet (SDS).