



Bio-Based Chelated Micronutrients

OVERVIEW

Plant nutrients are commonly classified as either macronutrients or micronutrients, depending on the amounts required by plants. Macronutrients such as Nitrogen (N), Phosphorus (P), Potassium (K) are well understood by the agricultural community. However, micronutrients such as Iron (Fe), Zinc (Zn), and Copper (Cu) have largely been ignored until recently.

Micronutrients enable the following vital functions in crops and plants:

- + Photosynthesis
- + Development of carbohydrates and proteins
- + Cell division and growth
- + Reproduction
- + Defense against environmental stressors including diseases
- + Efficient utilization of primary and secondary macronutrients

Researchers and growers are now realizing the power of delivering essential metals to plants, even at relatively small dosages. This industry shift comes at a time when farmers and growers are being asked to do more with less.

That is where we come in. Solugen's line of chelated micronutrients, powered by Biochelate™, delivers the elements your plants and crops need in soil, foliar, and hydroponic applications to help grow your land and your bottom line.

info@solugentech.com
SOLUGENTECH.COM



CUSTOMER CHALLENGES AND PAIN POINTS

Listed below are just a few of the symptoms plants and crops exhibit when experiencing micronutrient deficiencies:

- + Yellowing or discolored leaves
- + Deformation and size reduction of leaves and stems
- + Inadequate flowering
- + Flower abortion
- + Susceptibility to diseases and other environmental stressors
- + Unsatisfactory fruit and grain set

All these symptoms hinder crop yield, growth, and quality, resulting in a severe financial burden for growers.



SOLUGEN SOLUTION

Here at Solugen, we take a holistic approach towards understanding and solving crop nutrition. We aim to provide flexible solutions that are both sustainable and economically viable for customers. This approach is best demonstrated in our flagship chelation product, Biochelate™.

BIOCHELATE™

Biochelate™ is a non-toxic, plant-based product, that can be complexed with essential micronutrients such as Iron, Copper, Zinc, Calcium, Manganese, and Magnesium. Unlike traditional chelants such as EDTA and Citric Acid, our solutions perform well across a multitude of pH levels, are readily biodegradable, locally manufactured, and enhance the bioavailability of key metals for crops.

Backed by lab testing, greenhouse testing, and replicated field trials, Biochelate™ is proof that sustainable products can be effective on both a performance and cost basis. **Table 1** compares the metal stability coefficients of Biochelate™, Citric Acid, and EDTA.

Table 1 – Metal Stability Coefficients, Log(10) Values

CATION	BIOCHELATE™	CITRIC ACID	EDTA
Copper	40	7	20
Iron	37	11	27

Based on the Log(10) values in Table 1, it can clearly be seen that Biochelate™ has a significantly higher affinity for Iron and Copper than both Citric Acid and EDTA.

CHELATED MICRONUTRIENTS

In addition to the raw Biochelate™, Solugen can also provide the following finished micronutrient products based on customer needs:

- + Iron Biochelate, 5% Iron
- + Copper Biochelate, 5% Copper
- + Zinc Biochelate, 6.5% Zinc
- + Calcium Biochelate, 3% Calcium
- + Manganese Biochelate, 6% Manganese
- + Magnesium Biochelate, 3% Magnesium

Table 2 – Biochelate™ vs EDTA

Table 2 explains why Biochelate™ is a superior choice over EDTA.

Features	Biochelate™	EDTA
Biodegradable	✓	✗
Stable in Alkaine Soils, pH > 7	✓	✗
Cost Effective	✓	✓
Carbon Negative Manufacturing Process	✓	✗
Made in USA	✓	✗

