OTCO GUIDANCE ON USE OF MICRONUTRIENTS

Introduction
The NOP allows the following micronutrients: iron, manganese, zinc, copper, boron, molybdenum, cobalt, chloride, and selenium.

Documentation of Deficiency
The NOP allows synthetic micronutrients, but states that, "soil deficiency must be documented by testing" [205.601(j)(6)]. "Deficiency" is often related to factors other than soil content, including: pH, water availability, oxidation state, organic matter, myccorhizae, and plant variety1.

Given that deficiency is often plant-related and crop specific, soil or tissue (stem or leaf) tests can be acceptable forms of documentation. Other tests which demonstrate deficiency may also be accepted at the reviewer's discretion.

Documentation of deficiency must be:

+ Specific to the micronutrient to be applied (i.e. boron must be shown to be deficient if boron is to be applied)
+ Within a reasonable time frame (recent)
+ Repeated over time, if micronutrient application continues

Growers are also held to the standard that they may not contaminate soil and water [205.203(d)], so if large applications of micronutrients continue over time, OTCO may request growers verify by testing that contamination is not occurring.

Chelates

+ All nonsynthetic chelates are allowed for use in agriculture, including citric acid, amino acids, and other natural organic compounds.
+ Boron is allowed in any form except nitrates or chlorides [205.601(j)(6)(i)].
+ Zinc, copper, iron, manganese, selenium, and cobalt are only allowed in the following forms: sulfate, carbonate, oxide, or silicate [205.601(j)(6)(ii)]. As synthetic chelates are not one of these allowed forms, all synthetic chelates are prohibited, except for lignon sulfonate, which is explicitly allowed in the standards [205.602(j)(6)].

Exceptions
Magnesium sulfate – although magnesium is not a micronutrient, synthetic magnesium sulfate is allowed with a documentation of deficiency [205.601(j)(5].

Chloride – Although technically a micronutrient, synthetic chloride is prohibited [205.602)(j)(6)]. However, calcium chloride from a brine process is allowed if a calcium uptake physiological disorder is documented [205.602(c)].