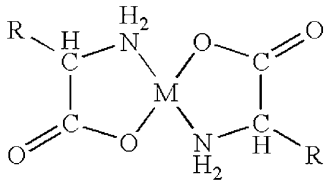
Mineral Chelates

What is a Chelate

The word chelate derives from the Greek word for a crab's claw, "chel", and refers to the pincer-like manner in which the mineral is bound. Chemically, a mineral chelate is a compound formed by complexing of metal cations with organic compounds resulting in a stable ring structure. Five or six member rings are typically the most stable. Amino acids can form this type of chemical structure. The structure of an amino acid chelate is shown below (with M representing the mineral).



Mineral Bioavailability

There are several factors that effect how well a mineral is absorbed and available for use in the body. Mineral bioavailability is influenced by the solubility of the mineral during digestion. Other factors that influence bioavailability include dietary absorption inhibitors and interactions with other minerals.

Solubility

Bioavailability correlates with solubility for most minerals. This correlation is very strong for some minerals such as iron. The higher the solubility of the mineral source in the digestive system generally results in higher bioavailability. Mineral forms with low solubility may pass through the body without being absorbed.

Mineral Absorption Inhibitors

Many common compounds found in the diet can inhibit mineral absorption. These include many otherwise healthy ingredients that may even be supplemented in the diet due to their health benefits. Polyphenols (found in green tea), phytates (found in soy), oxalates (found in spinach), fiber and phosphates are known mineral absorption inhibitors.

Mineral Interactions

Minerals can also compete for absorption sites during digestion and, as a result, can inhibit the absorption of other minerals. Iron absorption is inhibited by zinc, copper, calcium and manganese. Zinc absorption is antagonized by iron, calcium and copper.

The Role of Chelation

Mineral chelates can address the various factors that inhibit mineral absorption. A chelate made using an amino acid as the chelator typically shows good solubility. Mineral amino acid chelates have been shown to protect the mineral from dietary absorption inhibitors and have also been shown to reduce antagonist absorption interactions between minerals.

Nutrisol's Mineral Chelates

Nutrisol produces a line of mineral chelates led by a series of fully-reacted glycine chelates. These products are excellent choices for supplementation and fortification. In addition, Nutrisol has extensive experience in tailoring product characteristics to match specific applications.

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