

Complete Mineral Complex



Chelated Mineral Formula

By David M. Brady, ND, DACBN, IFMCP, FACN and Kendra Whitmire, MS, CNS

This information is provided as a medical and scientific educational resource for the use of physicians and other licensed health-care practitioners ("Practitioners"). This information is intended for Practitioners to use as a basis for determining whether to recommend these products to their patients. All recommendations regarding protocols, dosing, prescribing, and/or usage instructions should be tailored to the individual needs of the patient considering their medical history and concomitant therapies. This information is not intended for use by consumers.

Complete Mineral Complex is an iron-free formula containing mineral forms ideal for optimal absorption and utilization. This product acts as a daily maintenance supplement to help support proper mineral status.* It can also be used as a targeted mineral replenishment in cases of known deficiencies or after medical treatments that may deplete mineral status.*

Minerals act as enzyme cofactors in biochemical reactions and physiological processes throughout the body. There is virtually no body system that functions optimally without an adequate supply of essential minerals.¹ Mineral insufficiency or depletion may result from a poor diet, certain medications such as diuretics, heavy metal chelation therapy, and malabsorption.

Ingredient Highlights

- Chelated minerals for enhanced absorption and bioavailability and to reduce gastrointestinal complaints
- 1:1 Calcium-to-magnesium ratio for flexibility to fit personalized protocols based on need
- Iron-free to support individual requirements

Calcium (as DimaCal® Di-Calcium Malate) plays a key role in cellular processes as a ubiquitous signaling second messenger. Changes in the concentration of intracellular calcium (Ca²⁺) are involved in numerous functions including muscle contraction, hormone secretion, neuron transmission, insulin signaling, gene transcription, energy metabolism, and cell proliferation and death.²⁻⁵ Serum calcium levels are tightly regulated, with most calcium stored in bones to provide strength and to be a source for maintaining calcium homeostasis. Calcium homeostasis is highly regulated, with normocalcemia prioritized over bone health.⁶ Adequate intake of calcium is associated with a reduced risk of hypertension,⁷ metabolic syndrome,^{2,3} ovarian cancer,⁸ and all-cause mortality.⁹

Magnesium (as Di-Magnesium Malate) is a cofactor for more than 300 enzymatic reactions involved in diverse cellular processes and functions such as energy metabolism, DNA and RNA synthesis, protein synthesis, muscle constriction, blood pressure regulation, signal transduction, insulin metabolism, vasomotor tone, cardiac excitability, nerve transmission, and neuromuscular contraction. Magnesium also plays a role in the structure of bones, proteins, mitochondria, and nucleic acids.¹⁰⁻¹² Magnesium interacts with calcium requiring a balance, with an optimal calcium-to-magnesium ratio of 2:1.¹³ Low magnesium levels are associated with an impaired response to stress¹² and an increased risk of Alzheimer's disease,¹⁰ diabetes,¹⁴ stroke,¹⁴ heart failure,¹⁴ hypertension,¹⁵ cardiovascular disease,¹⁶ chronic pain,^{17,18} migraine headaches,^{10,17} depression,^{17,19,20} and attention-deficit hyperactivity disorder (ADHD).^{10,21}

Zinc (as Zinc Bisglycinate Chelate) is involved in important enzymes and transcriptional factors that affect all organs and cell types. It is required by more than 300 enzymes and binds to more than 2,500 proteins, which is approximately 10% of the human proteome. Zinc also acts as a signaling molecule as a second messenger and alters ligand binding to receptors. Zinc plays important roles in cellular proliferation and differentiation, RNA and DNA synthesis, redox regulation, stabilization of cell structures and membranes, growth, development, and innate and adaptive immune function.²²⁻²⁴ Zinc deficiency impairs immune function and wound healing.^{23,25} Lower intake of zinc is correlated with an increased risk of cardiovascular disease,²⁴ depression,^{26,27} diabetes,²⁸ autoimmune disease,²⁹ male infertility,³⁰ and neurodegenerative disorders.³¹

Copper (as TRAACS® Copper Bisglycinate Chelate) plays an important role in the body, but excess amounts may generate toxic reactive oxygen species, making copper homeostasis important. It acts as a cofactor in many key enzymes, including those involved in redox reactions, energy metabolism, antioxidant defense, and iron metabolism. Copper acts as a structural component in cells.³² Copper deficiency may contribute to an increased risk of anemia, neuropathies, cardiovascular disease, and impaired immune function.³²⁻³⁴

Benefits*

- Supports overall mineral status in the body
- May help support repletion of essential minerals
- Promotes normal enzyme function

Supplement Facts

Serving Size 3 capsules
Servings Per Container 30

Amount Per Serving		% Daily Value
Calcium (as DimaCal® Di-Calcium Malate)	200 mg	15%
Iodine (as Potassium Iodide)	150 mcg	100%
Magnesium (as Di-Magnesium Malate)	200 mg	48%
Zinc (as Zinc Bisglycinate Chelate)	20 mg	182%
Selenium (as Selenium Glycinate Complex)	150 mcg	273%
Copper (TRAACS® Copper Bisglycinate Chelate)	2 mg	222%
Manganese (TRAACS® Manganese Bisglycinate Chelate)	2 mg	87%
Chromium (TRAACS® Chromium Nicotinate Glycinate Chelate)	200 mcg	571%
Molybdenum (TRAACS® Molybdenum Glycinate Chelate)	150 mcg	333%
Potassium (as Potassium Glycinate Complex)	150 mg	3%
Boron (as Boronorganic Glycine)	2 mg	*
Vanadium (TRAACS® Vanadium Nicotinate Glycinate Chelate)	100 mcg	*

*Daily Value not established.

Other Ingredients: Cellulose (capsule), vegetable stearate, microcrystalline cellulose.

A balanced zinc-to-copper ratio in the body is required to support proper antioxidant defenses. Both zinc and copper are essential for the biosynthesis of antioxidant enzymes, but this may also play a role in pro-oxidant reactions.³⁵ When zinc levels are low, it may lead to a high copper-to-zinc ratio, which is associated with oxidative stress and inflammation.^{35,36} A high copper-to-zinc ratio has been found to be associated with an increased risk of Alzheimer's disease, metabolic syndrome, ADHD in children, and depression.³⁵⁻³⁸ Excessively high zinc levels may contribute to a copper deficiency, as metallothionein (MT) binds to both zinc and copper, with a preference for copper binding. Thus, copper may be lost when excess zinc intake leads to increased MT production.³⁹

Selenium (as Selenium Glycinate Complex) is an important part of selenoproteins, which participate in redox balance, inflammatory response, reproductive health, immune function, and thyroid function.⁴⁰⁻⁴² When selenium levels are low, certain selenoproteins, such as glutathione peroxidase are prioritized over others, which may impact health.⁴⁰ Low selenium status has been found to be associated with an increased risk of cognitive decline,⁴³⁻⁴⁵ higher risk of mortality,⁴⁶ poor immune function,⁴⁷ and thyroid dysfunction.⁴⁸ Beneficial selenium intake exists on a U-shaped curve, with low and excessively high intakes potentially contributing to diseased states.⁴⁰

Iodine (as Potassium Iodine) plays a key role in thyroid hormone synthesis, as it is incorporated into thyroxine (T4) and triiodothyronine (T3). As such, it is vital for promoting normal metabolism, healthy fetal neurodevelopment, cognitive development, and other downstream effects of thyroid function. It has a U-shaped curve of benefit, with low levels and excessively high levels potentially affecting thyroid function.^{49,50}

Potassium (as Potassium Glycinate Complex) homeostasis and balance with sodium are necessary for maintaining cellular function. The sodium-potassium (Na⁺-K⁺) ATPase exchanger moves K⁺ into the cell and Na⁺ out of the cell to aid in determining the membrane potential and activate a variety of cellular processes.^{51,52} Increased potassium intake and a decreased sodium-to-potassium ratio may support normal blood pressure⁵³ and a decreased risk of stroke.⁵⁴

Manganese (as TRAACS® Manganese Bislycinate Chelate) participates in development, reproduction, antioxidant defense, digestion, glucose metabolism, energy production, neuronal activities, and immune function as a cofactor for key enzymes.^{55,56}

Chromium (as TRAACS® Chromium Nicotinate Glycinate Chelate) plays a role in normal lipid and glucose metabolism. It is a cofactor to insulin and improves insulin sensitivity and the affinity of insulin to its receptors. It also improves glucose metabolism, stimulates insulin receptor kinase, and inhibits insulin receptor phosphatase.^{57,58} It may also support a healthy inflammatory response.⁵⁷

Boron (as Bororganic Glycine) plays a role in hydroxylation reactions, which are involved in various reactions of synthesis and metabolism that influence growth and development. These functions may support cell membrane maintenance, normal metabolism, steroid hormone metabolism, bone health, skin health, brain function, digestive health, and immune function.^{59,60}

Vanadium (as TRAACS® Nicotinate Glycinate Chelate) supports redox balance, immune function, and glucose metabolism.* Vanadium oxides may be used as catalysts in oxidative reactions. Vanadium forms also act as an antagonist of phosphate that may beneficially affect the sodium-potassium pump and phosphate-regulated enzymatic activity. Vanadium may support cellular glucose uptake in the presence of insulin due to inhibiting tyrosine phosphatase.^{61,62}

Molybdenum (as TRAACS® Molybdenum Glycinate Chelate) is essential for the proper functioning of four key enzymes. Sulfite oxidase is involved in the oxidation of sulfur amino acids. Xanthine oxidase is involved in the conversion of hypoxanthine into uric acid to prevent DNA mutations. Aldehyde oxidase plays a key role in detoxification. Mitochondrial amidoxime-reducing component plays a role in the reduction of N-hydroxylated substrates.^{63,64}

Recommended Use: Take 3 capsules per day or as directed by your health-care practitioner.

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---complete-mineral-complex-references>

DimaCal®, TRAACS® and the Albion Medallion design are registered trademarks of Albion Laboratories, Inc.
Malate covered by US Patent 6,706,904.

*These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

To contact Designs for Health, please call us at (860) 623-6314, or visit us on the web at www.designsforhealth.com.