

Sintomin portfolio		
Product name	Type of product	Mineral content
Sintomin Zn 150	Zinc chelated	15%
Sintomin Mn 150	Manganese chelated	15%
Sintomin Cu 150	Copper chelated	15%
Sintomin Fe 150	Iron chelated	15%
Sintomin I 70	Iodine chelated	7%
Sintomin Biosel	Selenium yeast	2000 ppm

Sintomin trace minerals chelated can be used for partial or total replacement of inorganic trace elements to improve availability and utilization of trace elements while increasing resistance to stress, enhancing performance, boosting immune system and reducing risks of environmental pollution.



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The Trojan horse



Sintomin Line

Like the Trojan Horse, which protected the soldiers for crossing the walls of the city of Troy undisturbed, the organic escort of our Sintomins - strong chelated trace minerals - has the ability to hold onto and protect the mineral from undesirable reactions, maintaining the trace elements in its original form during digestion.

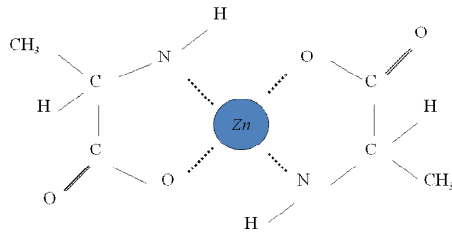
Sintomins reach the site of absorption and enter in the body reducing the negative effects of stressful conditions.



✓ Chelates, are organic molecules, normally consisting of 2 organic parts with an essential trace mineral occupying a central position and held in place by covalent bonding.

✓ Proteinate, are a particular type of chelate, in which the mineral is chelated with short-chain peptides and amino acids derived from hydrolysed soy proteins. In proteinates, minerals are bound to various amino acids with different levels of stability

✓ Amino-acid complex, such as glycines or methionates, are other particular types of chelate, in which the mineral is chelated with an amino acid. Based on one single type of amino-acid, the product is pure (there is only one type of bond or chelation between minerals and the ligand) and it is therefore easier to work on stability and ensure a full chelation. Moreover, depending on the size of amino acid, it is also possible to increase the metal content.



Role of chelated trace minerals in animal production

Trace minerals – zinc, copper, manganese, selenium, cobalt, iron, iodine etc. – are essential nutrients for all animals. They have a wide range of activities and functions within the body, being involved individually or collectively in general metabolism, reproduction, the immune system, growth, development and repair of various tissues and so on.

But, as the name suggests, trace minerals are required in very small amounts in the diet and their uptake from the digestive tract can be impaired by other dietary components or the presence of 'antagonists'. For example, the availability of copper for absorption is heavily influenced by molybdenum, sulphur and iron. Natural feedstuffs such as corn, wheat, soybean meal, etc. contain essential trace elements, which are required by animals. However, these trace elements are often in a form which renders them unavailable to the animal. Also, even if the elements were totally available, in many cases, they would not be in adequate concentrations to meet the animal's requirement.

Therefore, when deficiencies of one or more of the trace mineral elements exist in a diet, they are usually provided to the animal in an inorganic or organic supplemental form. It is advantageous for nutritionists to know the bioavailability of any element in the natural feed ingredient or mineral source used as a dietary supplement. With this knowledge the proper amount of the trace element can be supplied to the animal.

Action

Solubility is critical for trace mineral absorption. To maximize uptake, chelates and other complexes should be stable in the rumen and digestive tract of animals. Chelates are stable, electrically neutral complexes, which protect trace minerals from chemical reactions during digestion that would render the mineral unavailable to the animal.

When inorganic mineral compounds, typically in oxide or sulfide form, are released and ionized in the stomach's low pH, the electrically charged forms of the minerals are able to react with other products of digestion. Complexes with naturally occurring organic ligands must form if absorption is to occur. However, the formation of insoluble, unavailable substances may also result, especially in the small intestine, when pancreatic bicarbonate restores a higher, more neutral pH. Added minerals pre-complexed with organic ligands thus are used to increase bioavailability and uptake. The chelated mineral reaches the plasma intact and separates at the site of action.



- ✓ Immune functions
- ✓ Udder Health (reduced SCC)
- ✓ More fertility
- ✓ Less lameness more food pad integrity



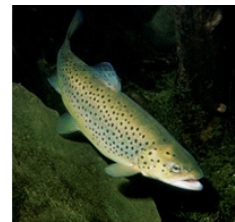
- ✓ Protect hair coat
- ✓ Improve hoof integrity
- ✓ Immune functions
- ✓ Improve fertility



- ✓ Egg shell quality
- ✓ Hatchability
- ✓ Increase heat stress resistance
- ✓ Immune functions (vaccine response)



- ✓ Piglets viability
- ✓ Better sow and boar fertility
- ✓ Improve performance
- ✓ Boost immune system



- ✓ Skin Pigmentation
- ✓ Disease resistance
- ✓ Better performance
- ✓ Mucus integrity



- ✓ Increase stamina
- ✓ Shiny hair coat
- ✓ Improve fertility
- ✓ Stimulate immune functions