

Microencapsulated Minerals

ZINCNOVA™ microcapsules Stable and tasteless source of zinc

Description

ZINCNOVA™ microcapsules is a non-reactive form of zinc oxide that has been microencapsulated in a food grade fat carrier to prevent moisture uptake and to delay undesirable interactions with other components of food formulations, thus preserving its bioavailability.

Composition

Mono- and Diglycerides of Fatty Acids (E471) and Zinc Oxide.

*Product contains 20% of Zinc

A nutritional view

Zinc is one of the most important trace minerals in human nutrition. It is a structural component of more than 100 enzymes and is involved in numerous aspects of cellular metabolism, wound healing as well as in growth maintenance during childhood and adolescence.

It also plays a unique function in boosting immunity and proper functioning of the smell and taste systems. It has also been shown to be effective in reducing the duration and severity of cold symptoms.

Zinc deficiency can be due to inadequate intake of the mineral or to problems with absorption especially in people with gastrointestinal disorders.

Various foods including oysters, red meats and poultry as well as some cereals and vegetables contain zinc naturally; however the presence of high levels of phytate in cereals can compromise the bioavailability of zinc from these sources. Vegetarians are often at a high risk of zinc deficiency, thus the need to include zinc fortified cereals in their diets.

ZINCNOVA™ microcapsules comprises a novel encapsulated zinc oxide for an easy fortification of a wide range of food applications with this nutrient.

Applications

Dietary supplements, dairy products, cereals, nutritional bars, confectionery and cold lozenges.

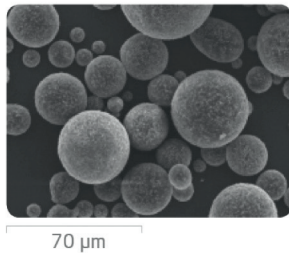
Competitive advantages

- Controlled interactions with other components
- No grainy texture
- Reduced metallic taste
- Effective release in the stomach

Characterization

Microcapsules structure determination

The morphology of fortifying agents may affect organoleptic properties of foods. The microcapsule structure of ZINCNOVA™ microcapsules was determined by Scanning Electron Microscopy.



Organoleptic stability (taste & color)

The color of the juice containing ZINCNOVA™ microcapsules was similar to that of the commercial juice.

Release profile

In order to study the availability of zinc after the digestion of a food fortified with ZINCNOVA™ microcapsules, a released assay was performed following the "Determination of the disintegration time of tablets official method of Health Canada".

A simulated GIT release test was conducted using 0.1 mg/ml with or without pepsin (digestive enzyme). The pH was adjusted to 1.2-1.5 to simulate the stomach conditions.

ZINCNOVA™ microcapsules **does not provide a grainy texture**

The small size and spherical geometry of ZINCNOVA™ microcapsules diminish the contact surface, minimizing the grainy texture in the mouth.

Effective release in the stomach with ZINCNOVA™ microcapsules

Results showed that 75% of zinc ZINCNOVA™ microcapsules was released from ZINCNOVA™ microcapsules in the absence of pepsin while almost 100% of the mineral was released after 2 hours in the presence of pepsin.

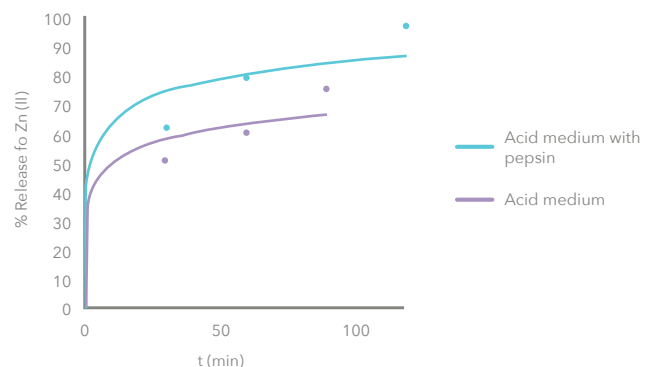
Assays

Taste stability

A panel of volunteers tasted a commercial milk fortified with 0.1 mg/ml ZINCNOVA™ microcapsules. The non-enriched milk was used as a control.

ZINCNOVA™ microcapsules **does not alter the taste**

The taste of the milk with ZINCNOVA™ microcapsules did not show any remarkable difference respect to the non-fortified one.



Color stability

An orange juice was fortified with a concentration of 0.1 mg/ml as ZINCNOVA™ microcapsules or non-encapsulated zinc oxide. The same commercial juice was used as a control. The samples were homogenized and pasteurized and the changes in color were controlled by a colorimeter.

For more information, visit www.lipofoods.com