

# Chelates

## **Ferrazone® (Ferric Sodium EDTA)**

Iron deficiency is frequently commonplace in developing countries. A high percentage of adults in industrial nations also have an iron intake below the recommended daily allowance, however. At particular risk of iron deficiency are women, vegetarians/vegans, athletes, children and the elderly. The following illnesses and conditions can arise as a result of iron deficiency:

- Anaemia
- Joint pain
- Skin problems
- Susceptibility to infections
- Fatigue
- Increased risk of maternal mortality during pregnancy
- Iron deficiency during childhood is linked to the potential loss of cognitive abilities

The most efficient method for preventing and treating iron deficiency is enriching food with a form of iron that can be easily absorbed by the body. AkzoNobel/Nouryon's Ferrazone® is a food-approved product whose efficacy has been demonstrated through various studies.

Ferrazone® from AkzoNobel/Nouryon is an iron complex consisting of iron, sodium and EDTA. This special complex is very similar to the haem iron we get from food and therefore facilitates the very good absorption of iron by the body.

Ferrazone® is approved for use in foodstuffs by the JECFA, the FDA and the EFSA and is recommended by the World Health Organisation (WHO). Ferrazone® is produced in

AkzoNobel/Nouryon's factory in Kerkenbrosch (NL). This production site is in line with the HACCP and FSSC22000 quality assurance systems.

Ferrazone® is certified for use in kosher and halal food.

Product benefits:

- Completely water-soluble
- High bio-availability
- Low risk of iron overload
- Does not stain teeth
- No metallic taste
- No gastrointestinal pain

### **Solvitar (Calcium Disodium EDTA)**

Solvitar is AkzoNobel/Nouryon's high-purity, food-grade chelate that can be used to stabilize different types of food and beverages. Trace heavy metals can react with ingredients present in processed food resulting in several negative effects on freshness and appearance. Trace metal ions will be present in all processed food products from raw materials, process water and process equipment. Typical trace metals found in food are copper, iron, manganese and zinc. These trace metals can interact with other compounds in food and cause several food spoilage reactions.

The reaction of trace metal ions with both organic and inorganic components can be retarded or prevented by the addition of Solvitar which will promote colour retention, texture retention, product clarity and act as an anti-gushing agent. It will prevent flavor loss, discoloration and texture changes.

Furthermore Solvitar can control oxidation catalyzed by trace heavy metal ions and act as a preservative. Oxidation is a radical chain reaction where free radicals are formed by exposure to air or light. The reaction is catalyzed by free metal ions in the food, which speed up the formation of radicals and thus reduce the shelf-life of the food

product dramatically. In fat based products dangerous aldehydes are formed by the chain reaction leading to rancidity.

To prevent oxidation of food and beverages, all trace metals need to be captured by Solvitar. Once the metal ions are sequestered, only limited amounts of anti-oxidant need to be added to prevent oxidation completely.

Otherwise known as Calcium Disodium EDTA, Solvitar has been proven to be more effective than other type of chelating agents in stabilizing food and beverages:

#### Example: Sauces and margarine

Many processed food products can suffer from spoilage reactions caused by trace metal ions. In fat-based products, like emulsified sauces and margarine, trace metal ions act as catalysts in the oxidation reaction of the fats and lead to rancidity. Especially poly-unsaturated fatty acids, like Omega-3, are highly sensitive for oxidation reactions and can be stabilized by the addition of Solvitar.

#### Example: Vegetables

Enzymatic browning of vegetables like mushrooms and artichokes is catalyzed by trace metal ions. In canned legumes and corn, discoloration is caused by the reaction of trace metal ions with organic components in the vegetables. Iron ions present in processed potatoes, both canned and frozen, can lead to darkening or graying of the potato surface. These unwanted effects can all be stopped with the addition of Solvitar.

#### Example: Fish and shellfish

Fish and shellfish products naturally contain high concentrations of metals. In combination with organic components in the seafood itself, this can cause off-flavors, bad odors, rancidity and discoloration.

#### Example: Soft drinks

In soft drinks, the addition of Solvitar can support vitamin C stabilization and minimize colour fading and flavour loss. In beer, Solvitar reduces gushing and promotes clarity.

Solvitar is a food-grade calcium EDTA complex that is produced according to the most stringent regulations at AkzoNobel/Nouryon's factory in Herkenbosch, the Netherlands.

To use Calcium disodium EDTA in food, the product should be of pure quality and meet certain specification criteria. Solvitar meets the specifications set out by the following organizations:

- European Pharmacopoeia (EP), 7th edition
- United States Pharmacopoeia (USP), 31, NF26
- Food Chemical Codex (FFC), 7th edition
- European Directive 231/2012/EC
- JECFA, 2006

The free-flowing white microgranules are tasteless, odourless and stable when exposed to heat and light. The production facility is certified according to HACCP and FSSC 22000 (Food Safety Certification Scheme for food manufacturing in compliance with ISO 22000 and PAS 220). Solvitar is Kosher/Parve and Halal certified.

## Contact Innotaste

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