

LIPOFER®

TASTELESS AND NON PROOXIDATIVE SOURCE OF IRON



REDUCED METALLIC TASTE

CONTROLLED INTERACTIONS WITH OTHER COMPONENTS

HIGHLY BIOAVAILABLE IRON

NO DIGESTIVE TRACT IRRITATION

DESCRIPTION

LIPOFER® is a water dispersible micronized source of iron that has been microencapsulated to enhance iron absorption and to reduce undesirable organoleptic attributes, thus enabling the enrichment of various types of foods and dietary supplements with this essential nutrient.

COMPOSITION

Identity Preserved Corn Starch, Iron Pyrophosphate, Sunflower Lecithin.

A NUTRITIONAL VIEW

Iron is an essential constituent of the body, being necessary for haemoglobin formation and for the oxidative processes of living tissues. Iron found in the body is either actively in use or in storage. The amount of iron in storage varies with individual conditions and dietary intake.

According to the World Health Organization (WHO), iron deficiency is recognized as the most common and widespread nutritional

disorder in the world. It affects a large number of children and women in developing countries and is the only nutrient deficiency still prevalent in industrialized countries.

Iron fortification is generally considered the best approach for preventing or eradicating iron deficiency; however the chemical reactivity of iron species and their affinity to various components of food systems often result in the generation of discoloration or objectionable flavors as well as in reduced bioavailability of the mineral.

Microencapsulation is currently considered the leading solution for overcoming these limitations via protecting sensitive nutrients and actives throughout processing of fortified foods as well as their shelf life.

LIPOFER® is a microencapsulated source of iron, which is designed to reduce iron's reactivity while improving its bioavailability.

APPLICATIONS

Milk and dairy products, dietary supplements, bakery products, confections, candies, cereal bars, beverages, etc.

Lipofoods

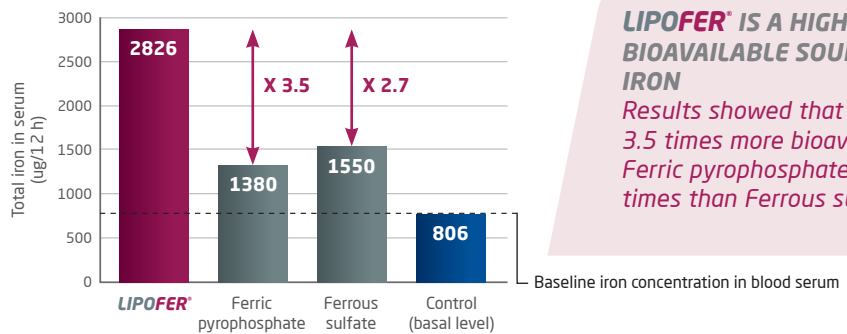


IN VIVO EFFICACY

1. LIPOFER® ABSORPTION VS FERRIC PYROPHOSPHATE AND FERROUS SULFATE IN RATS

In order to study the efficiency of **LIPOFER®** on iron absorption vs non-encapsulated ferric pyrophosphate and ferrous sulfate, laboratory trials were carried out on four groups of rats.

3 sources of iron (Ferric pyrophosphate, **LIPOFER®** and Ferrous sulfate) at a dose of 10 mg iron/kg were administered orally to and concentration of iron was quantified through Atomic Absorption after 12h.

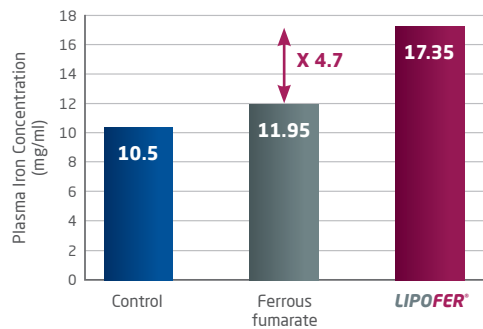


LIPOFER® IS A HIGHLY BIOAVAILABLE SOURCE OF IRON

Results showed that **LIPOFER®** is 3.5 times more bioavailable than Ferric pyrophosphate and 2.7 times more bioavailable than Ferrous sulfate.

2. LIPOFER® ABSORPTION VS IRON FUMARATE IN RATS

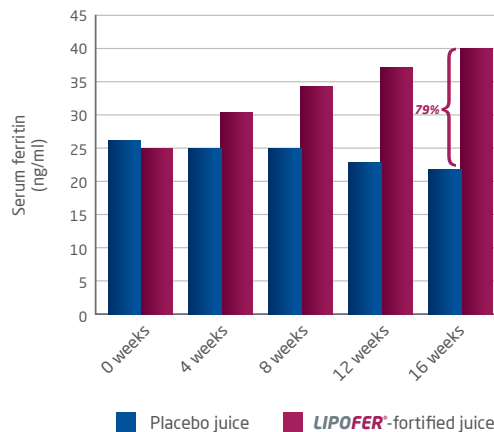
A study on 3 groups of mice was performed to monitor the comparative absorption of iron from iron fumarate, and from **LIPOFER®**. Two hours after administration, the blood was collected and its iron content was further analyzed. The iron content of the salts administered was equivalent in all cases (10 mg/kg of animal weight).



WITH LIPOFER® A HIGHER INCREASE IN THE IRON ABSORPTION IS OBSERVED
Iron absorption via **LIPOFER®** is 5 times higher than with traditional iron salts.

3. IRON STATUS IMPROVEMENT IN LIPOFER®-FORTIFIED JUICE VS PLACEBO IN WOMEN

The influence of **LIPOFER®** on iron status was determined in a 16 weeks double-blind study in 130 menstruating women with low iron stores, aged 18 to 35 years. One group consumed, as a supplement to their usual diet, 500 ml/d of the **LIPOFER®**-fortified fruit juice (F group, n 64), whereas the other consumed 500 ml/d of the placebo fruit juice (P group, n 66). At baseline and monthly, serum ferritin was determined.



LIPOFER® FORTIFIED FRUIT JUICE CONSUMPTION SIGNIFICANTLY IMPROVED THE IRON STATUS
Ferritin was higher in the fortified group after 4 weeks and became about 80% higher after 16 weeks.