

GIOVIBIO Fe601

Ferrous gluconate

IRON BIOLOGICAL INTEREST

Iron is essential to the normal activity of all cells and the basic metabolic processes such as transport of oxygen (hemoglobin), synthesis of nucleic acids, mitochondrial cell respiration (ADP and ATP), redox reactions of liver detoxification (type I catalyzed by cytochrome) and many other P450 enzymes, but also potentially toxic initiator peroxidation reactions and powerful substrate pathogenic bacteria.

BIOAVAILABILITY

COMPOUND	SOLUBILITY (g/L at 20°C)	IRON CONTENT % (w/w)	SOLUBILIZED IRON (g)	TASTE
Ferrous gluconate	100	12.5	12.5	Slightly metallic
Ferrous citrate	0.5	20	0.1	Strongly metallic
Ferrous lactate	20	19	38	Strongly metallic
Ferrous sulfate	20	20	4	Bitter taste and aftertaste

The iron content of GIOVIBIO Fe601 (ferrous gluconate) may be lower compared to other iron salts, but the solubilized iron is much higher. Also, taste plays an important role in liquid formulation: GIOVIBIO Fe601 is the best choice as it tastes less metallic than other ferrous salts, especially when compared to ferrous sulfate.

One study on the effectiveness and tolerability of oral liquid ferrous gluconate in iron-deficiency anemia in pregnancy and in the immediate post-partum period, has been shown that **ferrous gluconate in liquid form is more effective and better tolerated than any over other liquid or solid form containing elemental iron.** [1]

Isaltis' salt is different from other salts in the market because it does not precipitate over time as the content of ferric ion in Isaltis' product is low.

Isaltis provides technical support, different grades for pharmaceuticals and food, and also CEP (European DMF) for product registration.

FORMULATION

Iron fortification may cause:

- Metallic aftertaste
- Unacceptable flavor
- Undesirable color changes
- Degradation of vitamins



Color changes of ferrous salts is due to the oxidation of ferrous to ferric iron. Vitamin C is degraded in presence of oxygen and ferrous iron. It is important to exclude oxygen during processing and storage of beverages (air resistant packages, degassing, elimination of head space air, use of nitrogen). Gray color development can be prevented by buffering at a pH between 3.0 and 6.5 with citric or malic acid.

EU AUTHORIZED HEALTH CLAIMS FOR IRON

- ✓ Iron contributes to the normal **function of the immune system**
- ✓ Iron contributes to the **reduction of tiredness and fatigue**
- ✓ Iron contributes to normal **formation of red blood cells and hemoglobin**
- ✓ Iron contributes to normal **oxygen transport in the body**
- ✓ Iron has a role in the **process of cell division**
- ✓ Iron contributes to normal **cognitive development of children**
- ✓ Iron contributes to normal **cognitive function**
- ✓ Iron contributes to normal **energy-yielding metabolism**

[1] Casparis et al (1996) Efficacia e tollerabilità del gluconato ferroso orale liquido nell'anemia da carenza da ferro in gravidanza e nell'immediato post-partum : confronto con altre formulazioni liquide o solide contenenti ferro bivalente o trivalente Università degli Studi di Firenze Clinica Ginecologica Osterica Unità Operativa di Ematologia Azienda Careggi (Firenze) Direzione Medica Laboraton Guidotti S.p.A., Pisa

[2] Salvador et al (2006) Fortifying milk with ferrous gluconate and zinc oxide in a public nutrition program reduced the prevalence of anemia in toddlers. J. Nutr. 136: 2633-2637



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