HOSPIMAX
Maximising Life

Fesomalt™ 500 100

Iron(III) Isomaltoside Injection, 100 mg/ml in 5 ml Vial
& 100 mg/ml in 1 ml Vial

For Faster, Greater & Higher Hb Rise

Product Description:
Fesomalt 500: Each ml contains Iron (III) isomaltoside 100 mg in 5 ml Vial
Fesomalt 100: Each ml contains Iron (III) isomaltoside 100 mg in 1 ml Vial

Description
Iron Isomaltoside 1000 solution for injection/infusion is a colloid with strongly bound iron in spheroidal iron-carbohydrate particles. Iron Isomaltoside 1000 is a dark brown non transparent solution. The iron is available in a non-ionic water soluble form in an aqueous solution with pH between 5.0 to 7.0.

Pharmacokinetics
The Iron Isomaltoside 1000 solution for injection/infusion formulation contains Iron in a strongly bound complex that enables a controlled and slow release of bioavailable iron to iron-binding proteins with little risk of free iron. Iron isomaltoside 1000 is rapidly taken up by the cells in the reticuloendothelial system (RES), particularly in the liver and spleen from where iron is slowly released following intravenous administration.

The plasma half life is 5 hours for circulating iron and 20 hours for total iron (bound and circulating). Circulating iron is removed from the plasma by cells of the reticuloendothelial system which split the complex into its components of iron and isomaltoside 1000. The iron is immediately bound to the available protein moieties to form hemosiderin or ferritin, the physiological storage forms of iron, or to a lesser extent, to the transport molecule transferrin. This iron, which is subject to physiological control, replenishes haemoglobin and depleted iron stores. Iron is not easily eliminated from the body and accumulation can be toxic. Due to the size of the complex, Iron Isomaltoside 1000 solution for injection/infusion is not eliminated via the kidneys. Small quantities of iron are eliminated in urine and faeces. Isomaltoside 1000 is either metabolized or excreted.

Indications
Iron Isomaltoside 1000 solution for injection/infusion is indicated for the treatment of iron deficiency when oral iron preparations are ineffective or cannot be used and where there is a clinical need to deliver iron rapidly.

Dosage:
The diagnosis of iron deficiency must be based on laboratory tests.
Calculation of the cumulative iron need:

Iron replacement in patients with iron deficiency:
The dose of Iron Isomaltoside 1000 solution for injection/infusion is expressed in mg of elemental iron. The iron need and the administration schedule for Iron Isomaltoside 1000

solution for injection/infusion must be individually established for each patient. The optimal haemoglobin target level and iron stores may vary in different patient groups and between patients. Iron deficiency anameia will not appear until essentially all iron stores have been depleted. Iron therapy should therefore replensih both haemoglobin iron and iron stores.
After the current iron deficit has been corrected, patients may require continued therapy with Iron Isomaltoside to maintain target levels of haemoglobin and acceptable limits other parameters.
The cumulative iron need can be determined using either the Ganzoni formula (1) or the table below (2). It is recommended to use the Ganzoni formula in patients who are likely to require individually adjusted dosing such as patients with anorexia nervosa, cachexia, obesity, pregnancy or anameia due to bleeding.

1. *Ganzoni formula:*
   Iron need = Body weight$^{(A)}$ x (Target Hb$^{(E)}$ – Actual Hb)$^{(B)}$ x 2.4$^{(C)}$ + Iron for stores$^{(D)}$
   [mg iron] [kg] [g/dl] [mg iron]

A. It is recommended to use the patient's ideal body weight for obese patients or pre-pregnancy weight for pregnant women. Ideal body weight may 2 be calculated in a number of ways e.g by calculating weight at BMI 25 i.e., ideal body weight = 25 * (height in m)^2
B. To convert Hb [mM] to Hb [g/dl] you should multiply Hb [nM] by factor 1.61145
C. Factor 2.4 = 0.0034 x 0.07 x 10,000
   0.0034: Iron content of haemoglobin is 0.34%
   0.07: Blood volume 70 ml/kg of body weight~ 7% of body weight
   10,000: The conversion factor 1 g/dl = 10,000 mg/l
D. For a person with a body weight above 35 kg, the iron stores are 500 mg or above. Iron stores of 500 mg are at the lower limit normal for small women. Some guidelines suggest using 10-15 mg iron/kg body weight.
E. Default Hb target is 15 g/dl in the Ganzoni formula. In special cases such as pregnancy consider using lower haemoglobin target

2. *Simplifies Table Iron need:*

Hb [g/dl]	Patients with body weight 50 kg to < 70 kg	Patients with body weight ≥70 kg
≥10	1000 mg	1500 mg
<10	1500 mg	2000 mg

Iron replacement for blood loss:
Iron therapy in patients with blood loss should supply an amount of iron equivalent to the amount of iron representes in the blood loss.
If the Hb level is reduced:Use the Ganzoni formula considering that the depot iron does not need to be restored:

Ganzoni formula:
Iron need = Body weight x (Target Hb – Actual Hb) x 2.4
[mg iron] [kg] [g/dl]

If the volume of blood lost is known: The administration of 200 mg Iron Isomaltoside 1000 solution for injection/infusion results in an increase of haemoglobin which is equivalent to 1 unit blood:
Iron to be replaced = Number of units blood lost x 200
[mg iron]

Administration
Monitor carefully patients for signs and symptoms of hypersensitivity reactions during and following each administration of Iron Isomaltoside 1000 solution for injection/infusion.
Iron Isomaltoside 1000 solution for injection/infusion should only be administered when staff trained to evaluate and manage anaphylatic reactions is immediately available, in an environment where full resusciation facilities can be assured. The patient should be observed for adverse effects for at least 30 min following each injection of Iron Isomaltoside 1000 solution for injection/infusion. Each IV iron administration is associated with a risk of a hypersensititvity reaction. Thus, to minimise risk the number of single IV iron administration should be kept to a minimum.

Adults and the elderly:
Iron Isomaltoside 1000 solution for injection/infusion offers the flexibility of administration either as an intravenous bolus injection, as an intravenous drip infusion or as a direct injection into the venous limb of the dialyser.
Iron Isomaltoside 1000 solution for injection/infusion should not be administered concomitantly with oral iron preparations, since the absorption of oral iron might be decreased.

Intravenous bolus injection:
Iron Isomaltoside 1000 solution for injection/infusion may be administered as an intravenous bolus injection up to 500 mg up to three times a week at an administration rate of up to 250 mg iron/minute. It may be administered undiluted or diluted in maximum 20 ml sterile 0.9% sodium chloride.

Intravenous drip infusion:
The cumulative iron dose required may be administered in a single Iron Isomaltoside 1000 solution for injection/infusion up to 20 mg iron/kg body weight or as weekly infusions until the cumulative iron dose has been administered.
If the cumulative iron dose exceeds 20 mg iron/kg body weight, the dose must be split in two administrations with an interval of at least one week. It is recommended whenever possible to give 20 mg iron/kg body weight in the first administration. Dependent on clinical judgement the second administration could await follow-up laboratory tests.
Doses up to 1000 mg must be administered over more than 15 minutes.
Doses exceeding 1000 mg must be administered over 30 minutes or more.
Iron Isomaltoside 1000 solution for injection/infusion should be added to maximum 500 ml sterile 0.9% sodium chloride.

Injection into dialyzer:

Iron Isomaltoside 1000 solution for injection/infusion may be administered during a haemodialysis session directly into the venous limb of the dialyzer under the same procedures as outlined for intravenous bolus injection.

Contraindications:
Iron Isomaltoside 1000 solution for injection/infusion is contraindicated in following situations:

- Hypersensitivity to iron isomaltoside and or any ingredients of the formulation
- Non-iron deficiency anaemia (e.g. haemolytic anaemia)
- Iron overload or disturbances in utilisation of iron (e.g hemochromatosis, hemosiderosis)
- Decompensated liver cirrhosis and hepatitis

Warnings And Precautions
Parentally administered iron preparations can cause hypersentivitiy reactions including serious and potentilly fatal anaphylatic/ anaphylactoid reactions. Hypersenstivity reactions have also been reported after previously uneventful doses of parenteral iron complexes. The risk is enhanced for patients with known allergies including drug allergies, previous severe hypersensitivity to other parenteral iron products, and including patients with a history of severe asthma, eczema or other atopic allergy.

Drug Interactions:
As with all parenteral iron preparations the absorption of oral iron is reduced when administered concomitantly. Oral iron therapy should not be started earlier than 5 days after the last injection of Isomaltoside 1000 solution for injection/infusion.
Large doses of parenteral iron (5 ml or more) have been reported to give a brown colour to serum from a blood sample drawn four hours after administration.
Parenteral iron may cause falsely evaluated values of serum bilirubin and falsey decreased values of serum calcium.

Use In Special population
Pregnancy: There are no adequate and well-controlled trials of Iron Isomaltoside 1000 solution for injection/infusion in pregnant women. A careful risk/benefit evaluation is therefore required before use during pregnancy and Iron Isomaltoside 1000 solution for injection/infusion should not be used during pregnancy unless clearly necessary. Iron deficiency anaemia occurring in the first trimester of pregnancy can in many cases be treated with oral iron. Treatment with Iron Isomaltoside 1000 solution for injection/infusion should be confined to second and third trimester if the benefit is judged to outweigh the potential risk for both the mother and the foetus.
Lactation: There is no information available on the excretion of Iron Isomaltoside 1000 solution for injection/infusion the in human breast milk.
Paediatric use: Iron isomaltoside 1000 solution for injection/infusion is not recommended for use in children and adolescents < 18 years due to insufficient data safety and efficacy.
Geriatric use: No special recommendations.

Adverse Reactions

Due to limited clinical data Iron isomaltoside 1000 solution for injection/infusion the mentioned undesirable effects are primarily based on safety data for other parenteral iron solutions.
More than 1% of patients may be expected to experience adverse reactions. Acute, severe anaphylactoid reactions may occur with parenteral iron preparations, although they are uncommon. They usually occur within the first few minutes of administration and are generally characterised by the sudden onset of respiratory difficulty and/or cardivascular collapse; fatalities have been reported. Other less sever manifestations of immediate hypersensitivity are also uncommon and include utricaria, rashes, itching, nause and shivering. Administration must be stopped immedialtely if signs of an anaphylactoid reaction are observed.

Over Dosage:
The iron (III) isomaltoside 1000 solution for injection/infusion has a low toxicity. The preparation is well tolerated and has a minimal risk of accidental overdosing.
Overdose may lead to accumulation of iron in storage sites eventually leading to haemosiderosis. Monitoring of iron parameters such as serum ferritin may assit in recognising iron accumulation. Supportive measures such as chelating agents can be used.

Shelf Life: 2 Years from the date of Manufacture.

Storage
Store at below 30 C.

Presentation
USPtype 1 clear glass vial with Bromo butyl rubber stopper and aluminium cap. Pack sizes: 1 x 5 mL