NEW ZEALAND DATA SHEET

1. FERRUM H solution for injection 100 mg/2mL ampoule

FERRUM H solution for injection 100 mg/2mL ampoule.

2. QUALITATIVE AND QUANTITATIVE COMPOSITION

Iron polymaltose equivalent to iron 100 mg/2 mL.

For full list of excipients, see section 6.1.

3. PHARMACEUTICAL FORM

A slightly viscous, dark reddish brown liquid. Odour faintly malt-like. Each ampoule of FERRUM H contains the equivalent of 100 mg of iron.

The aqueous colloidal solution is sterile, pyrogen-free and approximates the pH and tonicity of the tissues.

4. CLINICAL PARTICULARS

4.1 THERAPEUTIC INDICATIONS

For the prevention and treatment of iron deficiency anaemia in the following circumstances:

- When oral therapy is contraindicated
- When enteric absorption of iron is defective
- When patient non-compliance or persistent gastrointestinal intolerance makes oral therapy impractical
- Treating iron deficiency anaemia of prematurity and that occurring in geriatric patients
- Treating iron deficiency states discovered in the third trimester of pregnancy
- Anaemia resulting from excessive blood loss
- Where contact between the doctor and patient occurs at irregular intervals

4.2 DOSE AND METHOD OF ADMINISTRATION

Intramuscular Use

Technique of Injection

The technique of injection is of crucial importance. FERRUM H should never be injected into the arm or other exposed areas. The wrong injection technique may result in pain and persistent discolouration of the skin.

The following method of ventro-gluteal injection according to HOCHSTETTER is recommended instead of the normal method of injection in the top outer quadrant of the gluteus maximus muscle:

1. The length of the needle should be at least 5-6 cm. The lumen of the needle should not be too wide.
2. The site of injection is determined as follows (see Fig. 1): First point A is found, corresponding to the ventral iliac spine. If the patient lies on the right side, for instance, the middle finger of the left hand is placed on point A. The index finger is extended away from the middle finger, so that it comes to lie below the iliac crest, at point B. The triangle lying between the proximal phalanges of the middle and index fingers represents the site of injection. This is disinfected in the usual way (Fig. 2).

3. Before the needle is inserted, the skin over the site of injection is pulled down, about 2 cm (Fig. 3), to give an S-shaped puncture channel. This prevents the injected solution from running back into the subcutaneous tissues and discolouring the skin.
4. The needle is introduced more or less vertically to the skin surface, angled to point towards the iliac crest rather than the hip joint (Fig. 4).
5. After the injection, the needle is slowly withdrawn and pressure from a finger applied beside the puncture site. This pressure is maintained for about one minute.
6. The patient should move about after the injection.

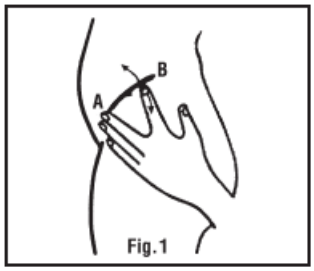


Fig. 1

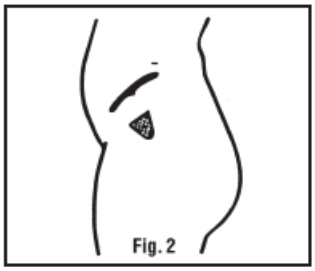


Fig. 2

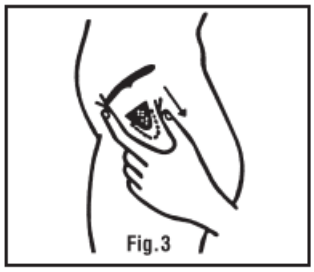


Fig. 3

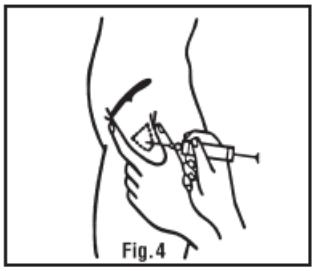


Fig. 4

Calculation of Required Dose

The figures in the accompanying dosage table have been calculated using the following formula taken from GANZONI (Schweiz. Med. Wschr. 100, 301-303, 1970):

Iron dose (mg) = Hb-iron deficiency + iron depot

Hb-iron deficiency = body weight (kg) x (target Hb – actual Hb in g/L) x 0.24*

* factor 0.24 = 0.0034 x 0.07 x 1000

(for the purposes of this calculation, iron content of the haemoglobin = 0.34%, blood volume = 7% of the body weight, 1000 is the conversion from grams to milligrams).

Note: The above formula can also be used to calculate the total iron deficit.

Up to 34 kg body weight: target Hb = 130 g/L, iron depot = 15 mg/kg body weight (for a patient weighing 34 kg the iron depot is 34 x 15 = 500 mg).

Over 34 kg body weight: target Hb = 150 g/L, iron depot = 500 mg.

Example of Calculation

Assuming patient weighing 60 kg, target Hb 150g/L, actual Hb 60g/L then:

Iron dose (mg) = 60 x (150-60) x 0.24 + 500mg= 1296 mg + 500 mg = 1800 mg iron

Therefore patient requires 1800 mg iron or 18 ampoules.

Dosage Table

Dosage table for the determination of the total millilitres of FERRUM H injection required.

Body weight	Hb 60 g/L		Hb 75 g/L		Hb 90 g/L		Hb 105 g/L	
kg	mL	amp.	mL	amp.	mL	amp.	mL	amp.
5	3	1.5	3	1.5	3	1.5	2	1
10	6	3	6	3	5	2.5	4	2
15	10	5	9	4.5	7	3.5	6	3
20	13	6.5	11	5.5	10	5	8	4
25	16	8	14	7	12	6	11	5.5
30	19	9.5	17	8.5	15	7.5	13	6.5
35	25	12.5	23	11.5	20	10	18	9
40	27	13.5	24	12	22	11	19	9.5
45	30	15	26	13	23	11.5	20	10
50	32	16	28	14	24	12	21	10.5
55	34	17	30	15	26	13	22	11
60	36	18	32	16	27	13.5	23	11.5
65	38	19	33	16.5	29	14.5	24	12
70	40	20	35	17.5	30	15	25	12.5
75	42	21	37	18.5	32	16	26	13
80	45	22.5	39	19.5	33	16.5	27	13.5
85	47	23.5	41	20.5	34	17	28	14
90	49	24.5	43	21.5	36	18	29	14.5

Administer 2 mL by intramuscular injection every second day until the total dose is attained or administer 4 mL at longer intervals. Regular determination of Hb level is recommended.

Maximum Single Daily Dose by Intramuscular Injection

Infants up to 5 kg body weight: 0.5 mL
Children of 5-10 kg body weight: 1 mL
Patients weighing > 10 kg to 45 kg: 2 mL
Adults: 4 mL

4.3 CONTRAINDICATIONS

FERRUM H should not be given to patients presenting with any of the following conditions:

- Hypersensitivity to iron(III) hydroxide polymaltose complex
- Anaemia not caused by simple iron deficiency (e.g. haemolytic anaemia, megablastic anaemia caused by Vitamin B12 deficiency, disturbances in erythropoesis, hypoplasia of the marrow)
- Iron overload (e.g. haemochromatosis, haemosiderosis)
- Ostler-Rendu-Weber syndrome
- Chronic polyarthritis
- Bronchial asthma
- Infectious renal complaints in acute phase
- Uncontrolled hyperparathyroidism
- Decompensated hepatic cirrhosis
- Infectious hepatitis
- During the first trimester of pregnancy

As elemental iron tends to accumulate in inflamed tissues, parenteral iron should not be given to patients with severe inflammation or infection of the kidney or liver.

4.4 SPECIAL WARNINGS AND PRECAUTIONS FOR USE

Since parenteral use of complexes of iron and carbohydrates has resulted in fatal anaphylactoid reactions, iron polymaltose should be used only in patients in whom a clearly established indication for parenteral iron therapy exists, confirmed by appropriate laboratory tests. In the case of a mild allergic reaction, antihistamines should be administered immediately.

Anaphylactoid reactions occur most frequently within the first several minutes of administration and are generally characterised by sudden onset of respiratory difficulties, tachycardia and hypotension. Ferrum H should only be administered when personnel trained to evaluate and manage anaphylactic reactions, and resuscitative interventions, are immediately available. Each patient should be monitored for signs and symptoms of hypersensitivity during and after **each** administration of intravenous iron for at least 30 minutes. If hypersensitivity reactions or signs of intolerance occur during administration, the treatment must be stopped immediately.

Patients with bronchial asthma, with low iron binding capacity and/or folic acid deficiency are particularly at risk of an allergic or anaphylactoid reaction. Caution is also recommended in patients with allergies, hepatic and renal insufficiency or cardiovascular disease.

Patients with rheumatoid arthritis and possibly other inflammatory diseases (e.g. ankylosing spondylitis, lupus erythematosus) may be at particular risk of delayed reactions, including fever and exacerbation or reactivation of joint pain.

Iron may increase the pathogenicity of certain micro-organisms. The use of intramuscular iron in neonates has been associated with an increased incidence of Gram negative sepsis, principally infections caused by *E. coli*.

4.5 INTERACTION WITH OTHER MEDICINES AND OTHER FORMS OF INTERACTION

As with all parenteral iron preparations, FERRUM H should not be administered concomitantly with oral iron preparations as the absorption of oral iron is reduced. Oral iron therapy should not commence until at least one week after the last iron injection.

Concomitant administration of ACE inhibitors can increase the incidence of adverse effects associated with parenteral iron preparations.

4.6 FERTILITY, PREGNANCY AND LACTATION

FERRUM H should not be administered in the first trimester of pregnancy. FERRUM H should only be administered in the second and third trimester of pregnancy if the benefits of treatment outweigh the potential risk to the foetus. No controlled studies are available on animal or on pregnant women.

4.7 EFFECTS ON ABILITY TO DRIVE AND USE MACHINES

The effects of FERRUM H on a person's ability to drive and use machines were not assessed as part of its registration.

4.8 UNDESIRABLE EFFECTS

Adverse reactions to parenteral FERRUM H have only been reported infrequently. However, the following reactions are known to have occurred after parenteral iron therapy:

General

- Flushing, sweating, chills and fever
- Chest and back pain

Injection site reactions

- Pain at injection site
- Local inflammation with inguinal lymphadenopathy
- Lower quadrant abdominal pain

Hypersensitivity

- Anaphylaxis

Gastrointestinal

- Nausea and vomiting

Central nervous System

- Headache
- Dizziness

Musculoskeletal

- Joint and muscle pain
- Arthralgia
- Sensation of stiffening of the arms, legs or face

Cardiovascular

- Fainting
- Syncope
- Tachycardia
- Hypotension
- Circulatory collapse

Respiratory

- Bronchospasm with dyspnoea

Haematological

- Generalised lymphadenopathy

Dermatological

- Rash
- Urticaria
- Angioneurotic oedema

Adverse reactions may be delayed by 1–2 days after treatment with Ferrum H injection.

4.9 OVERDOSE

Overdosage of iron causes haemosiderosis and consequent cirrhosis of the liver, diabetes and heart failure. Periodic monitoring of serum ferritin may be useful in recognising a deleterious, progressive accumulation of iron.

5 PHARMACOLOGICAL PROPERTIES

5.1 Pharmacodynamic properties

FERRUM H contains a macromolecular spherocolloidal complex of iron(III) hydroxide and the carbohydrate ligand polymaltose. The complex has a molecular weight of about 462,000.

FERRUM H is complexed in an aqueous, approximately isotonic solution for intramuscular injection. The complex is stable over a wide pH range (1-14) and each ampoule contains the equivalent of 50 mg iron per mL. Pharmacological tests have shown that the complex has a LD50 (intravenous) of >2500 mg iron per kg in white mice.

5.2 Pharmacokinetic properties

After an infusion of 100 mg iron as FERRUM H in 48 mL 0.9% sodium chloride, at a rate of 1.7 mL/min, a Cmax (in serum) of 25.1 mcg/mL iron was observed. The terminal half-life was 22.4 hours. The MRT 20.2 hours and the VD (distribution volume) 2.93 litres. Renal elimination is less than 1% of the total dosage.

Iron polymaltose shows a high structural homogeneity and thus steady delivery of the complexed iron to endogenous iron binding proteins.

Taken up from plasma by the reticuloendothelial system (RES), the iron is split off, binds to transferrin and partially re-enters the plasma from where it reaches the bone marrow for haemoglobin synthesis.

6 PHARMACEUTICAL PARTICULARS

6.1 List of excipients

Water-purified, sodium hydroxide (for pH adjustment).

6.2 Incompatibilities

Not applicable.

6.3 Shelf life

36 months

6.4 Special precautions for storage

The ampoules should be stored below 25°C. Do not freeze. Protect from light.

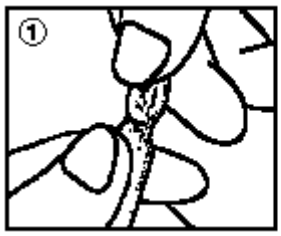
6.5 Nature and contents of container

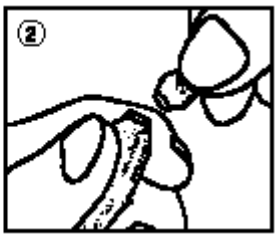
Cartons of 5 x 2 mL ampoules, each ampoule containing 100 mg iron as iron polymaltose.

6.6 Special precautions for disposal and other handling

Opening one point cut ampoules

The following diagrams show the method of opening one point cut ampoules.





7. MEDICINE SCHEDULE

Prescription Medicine

8. SPONSOR

Exclusive New Zealand distributor:
Pharmacy Retailing (NZ) Limited
Trading as Healthcare Logistics
58 Richard Pearse Drive
Airport Oaks
Auckland, New Zealand

9. DATE OF FIRST APPROVAL

Date of publication in the New Zealand Gazette of consent to distribute the medicine:

31 December 1969

10. DATE OF REVISON OF THE TEXT

18 April 2019

Summary table of changes

Section changed	Summary of new information
All	Reformatting in line with new Datasheet template.
1; 2; 6.5	Editorial changes made
2	The quantity of the medicine added
4.7; 6.2	Standard text added
6.3	Shelf life added
9	Date of first approval added