FERROUS LACTATE

Prepared at the 35th JECFA (1989), published in FNP 49 (1990) and in FNP 52 (1992). Metals and arsenic specifications revised at the 61st JECFA (2003). A PMTDI of 0.8 mg/kg bw for iron was established at the 35th JECFA (1989)

SYNONYMS INS No. 585

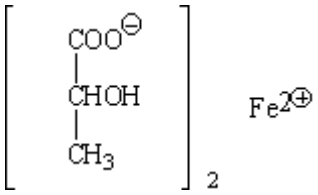
DEFINITION

Chemical names: Ferrous lactate, iron (II) lactate, iron (II) 2-hydroxypropanoate

C.A.S. number: 5905-52-2

Chemical formula: $C_6H_{10}FeO_6 \cdot xH_2O$, (x = 2 or 3)

Structural formula:



Formula weight: Dihydrate: 270.02
Trihydrate: 288.03

Assay: Not less than 96% on the dried basis

DESCRIPTION Greenish white crystals or light green powder having a weak, characteristic smell

FUNCTIONAL USES Colouring adjunct, nutrient

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4): Soluble in water; practically insoluble in ethanol

pH (Vol. 4): 5.0 - 6.0 (1 in 50 soln)

Test for lactate (Vol. 4): Passes test

Test for ferrous salts (Vol. 4): Passes test

PURITY

Loss on drying (Vol. 4): Not more than 18% (100° using vacuum, approx. 700 mm Hg)

Sulfates (Vol. 4): Not more than 0.1%

Test 0.5 g of the sample as directed in the Limited Test using 1 ml of 0.01 N sulphuric acid in the control

Chlorides (Vol. 4)

Not more than 0.1%
Test 0.5 g of the sample as directed in the Limit Test using 1.4 ml of 0.01 N hydrochloric acid in the control.

Iron (III)

Not more than 0.6%
Dissolve about 5 g of the sample, accurately weighed, in a mixture of 100 ml of water and 10 ml of hydrochloric acid in a 250-ml glass stoppered flask. Add 3 g of potassium iodide, shake well, and allow to stand in the dark for 5 min. Titrate liberated iodine with 0.1 N sodium thiosulfate, using starch TS as the indicator. Each ml of 0.1 N sodium thiosulfate is equivalent to 5.585 mg of iron (III).

Lead (Vol. 4)

Not more than 1 mg/kg
Determine using an atomic absorption technique appropriate to the specified level. The selection of sample size and method of sample preparation may be based on the principles of the method described in Volume 4, “Instrumental Methods.”

METHOD OF ASSAY

Transfer about 2 g of the dried sample, accurately weighed, to a 100-ml volumetric flask, dilute to the mark with water and mix. Pipet 20 ml of the sample solution into a 100-ml conical flask. Add 5 ml of formic acid (85% v/v). Titrate the solution with 0.1 N potassium permanganate until it turns pink. Each ml of 0.1 N potassium permanganate is equivalent to 23.40 mg of $C_6H_{10}FeO_6$.