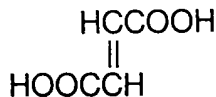


Fumaric Acid



C₄H₄O₄

Mol. Wt. 116.07

(*E*)-2-butenedioic acid

[110-17-8]

Content Fumaric Acid contains not less than 99.0% of fumaric acid (C₄H₄O₄).

Description Fumaric Acid occurs as a white crystalline powder. It is odorless and has a characteristic acid taste.

Identification (1) Heat Fumaric Acid. It sublimates.

(2) Dry Fumaric Acid at 105 °C for 3 hours. The melting point is 287 - 302 °C (in sealed tube, decomposition).

(3) To 0.5 g of Fumaric Acid, add 10 ml of water, dissolve by boiling, and add 2 - 3 drops of bromine TS while hot. The color of the solution disappears.

(4) Place 50 mg of Fumaric Acid into a test tube, add 2 - 3 mg of resorcinol and 1 ml of sulfuric acid, and shake. Heat at 120 - 130 °C for 5 minutes, cool, and add water to make 5 ml. While cooling this solution, add dropwise sodium hydroxide solution (3 : 10) to make it alkaline, and add water to make 10 ml. A green-blue fluorescence appears under ultraviolet light.

Purity (1) Clarity and color of solution Colorless, clear (0.50 g, sodium hydroxide solution (1 : 25) 10 ml).

(2) Sulfate Not more than 0.010% as SO₄.

Sample Solution Weigh 1.0 g of Fumaric Acid, add 30 ml of water, shake, add 1 drop of phenolphthalein TS, and add dropwise ammonia TS until the color of the solution changes to a slightly pink color.

Control Solution 0.20ml of 0.005 mol/l sulfuric acid.

(3) Heavy metals Not more than 10 µg/g as Pb.

Test Solution Weigh 2.0 g of Fumaric Acid, add 30 ml of water, shake, and add 1 drop of phenolphthalein TS. Then add dropwise ammonia TS until the color of the solution changes to a slightly pink color. Add 2 ml of diluted acetic acid (1 : 20) and water to make 50 ml.

Control Solution Measure exactly 2 ml of Lead Standard Solution, add 2 ml of diluted acetic acid (1 : 20) and water to make 50 ml.

(4) Arsenic Not more than 4.0 µg/g as As₂O₃.

Test Solution Weigh 0.50 g of Fumaric Acid, add 10 ml of water, dissolve by heating, and cool.

Apparatus Apparatus B.

Procedure Perform the test, using 10 ml of acidic stannous chloride TS and 3 g of arsenic-free zinc.

Residue on Ignition Not more than 0.05% (5 g).

Assay Weigh accurately about 1 g of Fumaric Acid, and dissolve in water to make exactly 250 ml. Measure exactly 25 ml of this solution, and titrate with 0.1 mol/l sodium hydroxide (indicator: 2 drops of phenolphthalein TS).

1 ml of 0.1 mol/l sodium hydroxide = 5.804 mg of $C_4H_4O_4$