

Citric AcidC₆H₈O₇

Mol wt 192.12

DESCRIPTION

Citric acid is anhydrous or contains one molecule of water of hydration. It occurs as colorless, translucent crystals or as a white, granular to fine crystalline powder. It is odorless and has a strongly acid taste, and the hydrous form is efflorescent in dry air. One g is soluble in about 0.5 ml of water, in about 2 ml of alcohol, and in about 30 ml of ether.

REQUIREMENTS**Identification**

A 1 in 10 solution gives positive tests for *Citrate*, page 516.

Assay Not less than 99.5% of C₆H₈O₇, calculated on the anhydrous basis.

Arsenic (as As) Not more than 3 ppm.

Heavy Metals (as Pb) Not more than 10 ppm.

Oxalate Passes test.

Readily Carbonizable Substances Passes test.

Residue on Ignition Not more than 0.05%.

Tridodecylamine Not more than 0.1 ppm.

Ultraviolet Absorbance (polynuclear hydrocarbons) 280–289 nm, not more than 0.25; 290–299 nm, not more than 0.20; 300–359 nm, not more than 0.13; 360–400 nm, not more than 0.03.

Water *Anhydrous form*: not more than 0.5%; *hydrous form*: not more than 8.8%.

TESTS

Assay Dissolve about 3 g, accurately weighed, in 40 ml of water, add phenolphthalein TS, and titrate with 1 N sodium hydroxide. Each ml of 1 N sodium hydroxide is equivalent to 64.04 mg of C₆H₈O₇.

Arsenic A *Sample Solution* prepared as directed for organic compounds meets the requirements of the *Arsenic Test*, page 464.

Heavy Metals A solution of 2 g in 25 ml of water meets the requirements of the *Heavy Metals Tests*, page 512, using 20 μg of lead ion (Pb) in the control (*Solution A*).

Oxalate Neutralize 10 ml of a 1 in 10 solution with ammonia TS, add 5 drops of diluted hydrochloric acid TS, cool, and add 2 ml of calcium chloride TS. No turbidity is produced.

Readily Carbonizable Substances, page 532 Transfer 1.0 g, finely powdered, to a 22- × 175-mm test tube, previously rinsed with 10 ml of sulfuric acid TS and allowed to drain for 10 min. Add 10 ml of sulfuric acid TS, agitate the tube until solution is complete, and immerse the tube in a water bath at 90° ± 1° for 60 ± 0.5 min, keeping the level of the acid below the level of the water during the heating period. Cool the tube in a stream of water, and transfer the acid solution to a color-comparison tube. The color of the acid solution is not darker than that of the same volume of *Matching Fluid K* in a similar matching tube, viewing the tubes vertically against a white background.

Residue on Ignition, page 533 Ignite 4 g as directed in the general method.