ASCORBIC ACID

Prepared at the 17th JECFA (1973), published in FNP 4 (1978) and in FNP 52 (1992). Metals and arsenic specifications revised at the 61st JECFA (2003). A group ADI 'not specified' was established for ascorbic acid and its Ca, K and Na salts at the 25th JECFA (1981).

SYNONYMS Vitamin C; INS No. 300

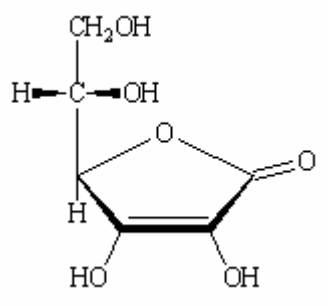
DEFINITION

Chemical names L-Ascorbic acid, ascorbic acid, 2,3-didehydro-L-threo-hexono-1,4-lactone, 3-keto-L-gulofuranolactone

C.A.S. number 50-81-7

Chemical formula $C_6H_8O_6$

Structural formula



Formula weight 176.13

Assay Not less than 99% on the dried basis

DESCRIPTION White to slightly yellow, odourless crystalline powder; melting point about 190° with decomposition

FUNCTIONAL USES Antioxidant

CHARACTERISTICS

IDENTIFICATION

Solubility (Vol. 4) Freely soluble in water; sparingly soluble in ethanol; insoluble in ether

Colour reaction To 2 ml of a 2.0% solution in water, add 2 ml of water, 0.1 g of sodium hydrogen carbonate and about 0.02 g of ferrous sulfate. Shake and allow to stand. A deep violet colour is produced which disappears on addition of 5 ml of dilute sulfuric acid TS.

Reducing reaction A solution of the sample in water immediately reduces potassium permanganate TS without heating, producing a brown precipitate

A solution of the sample in ethanol will decolourize a solution of 2,6-dichlorophenol-indophenol TS.

PURITY

Loss on drying (Vol. 4)	Not more than 0.4% (over sulfuric acid in a vacuum, 24 h)
Specific rotation (Vol. 4)	[alpha] 25, D: Between +20.5 and +21.5^{o}
pH (Vol. 4)	2.4 - 2.8 (1 in 50 soln)
Sulfated ash (Vol. 4)	Not more than 0.1%
Lead (Vol. 4)	Not more than 2mg/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

Dissolve about 0.400 g of the sample, previously dried in a vacuum desiccator over sulfuric acid for 24 hours, in a mixture of 100 ml of carbon dioxide-free water and 25 ml of dilute sulfuric acid TS. Titrate the solution at once with 0.1 N iodine, adding a few drops of starch TS as indicator as the end point is approached. Each ml of 0.1 N iodine is equivalent to 0.008806 g of $C_6H_8O_6$