Ascorbic acid

Product Number A 7506
Store at Room Temperature

Product Description
Molecular Formula: C₆H₈O₆
Molecular Weight: 176.1
CAS Number: 50-81-7
pKₐ: 4.17 and 11.57¹
Melting Point: 190-192 ºC¹
Extinction Coefficient: E°M = 7.0 (265 nm, water),
7.5 (245 nm, acid)²
Rotation: +20.5º to +21.5º (100 mg/ml H₂O, 25 ºC)³
Synonym: Vitamin C

Ascorbic acid is a powerful water-soluble antioxidant
that is vital for the growth and maintenance of all body
 tissues. Vitamin C plays a vital role in the production of
collagen, an important cellular component of
 connective tissues, muscles, tendons, bones, teeth,
and skin. It catalyzes the hydroxylation of prolyl and
lysyl residues in the collagen polypeptide chains,
allowing interaction of the collagen subunits, adding
structural stability to the collagen fibers.⁸ In addition,
ascorbic acid has a detoxifying effect on liver.⁹

It is also required for the synthesis of the
neurotransmitters, norepinephrine and serotonin. It
catalyzes the conversion of dopamine to
norepinephrine and the conversion of tryptophan to
serotonin. Ascorbic acid is also necessary for the
synthesis of steroid hormones and carnitine, and for
the conversion of cholesterol to bile acids. It has been
shown to enhance iron bioavailability.

Ascorbic acid also promotes healthy cell development,
proper calcium absorption, and normal cell growth and
repair. It assists in the prevention of blood clotting and
bruising, and strengthens capillary walls.

A review of the properties of L-ascorbic acid has been
published.⁴,⁵,⁶ Test procedures used to determine
vitamin C in juices and foods have been described.⁷

Precautions and Disclaimer
For Laboratory Use Only. Not for drug, household or
other uses.

Preparation Instructions
This product is soluble in water (50 mg/ml), yielding a
clear solution.

Storage/Stability
Aqueous solutions are stable only in the absence of
oxygen. Aqueous solutions are most stable at pH 5-6,
and very unstable at alkaline pH.² Degradation is
markedly increased in the presence of transition metal
ions, especially Cu²⁺ and Fe³⁺. The first stage of
oxidation of L-ascorbic acid to dehydroascobic acid is
reversible and the biological activity is retained.
Further oxidation to 2,3-diketogulonic acid is not
reversible and the activity is lost.⁶

References
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6. Omura, H., and Yamafuji, K., in Methodicum
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