

Ethyl Ascorbic Acid

Description

Ethyl Ascorbic Acid is an etherified derivative of ascorbic acid, one of the most stable derivatives of ascorbic acid known. It is also showing a very good stability in all kinds of cosmetic formulations. Ethyl Ascorbic Acid penetrates into skin where it is metabolized to ascorbic acid. Due to this process its efficacy is more pronounced than the one of pure ascorbic acid.



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Appearance

white to off-white crystal powder

INCI

3-O-Ethyl Ascorbic Acid

Registration

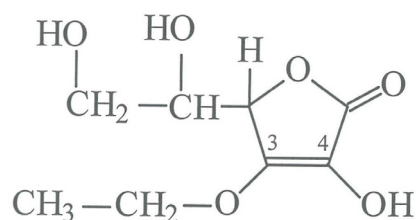
CAS-No.....86404-04-8

EINECS-No.....-/-

Efficacy

antioxidant
skin whitening
anti inflammation
collagen synthesis

Chemical Structure



Molecular formula: C₈H₁₂O₆

Characteristics

assay.....≥ 98.5 %
pH (3 % water solution).....3.5 - 5.0
melting point.....111.0 - 115.0°C

Application

Ethyl Ascorbic Acid is an excellent skin whitening agent, it inhibits the activity of Tyrosinase by acting on Cu²⁺ and it prevents the synthesis of melanin.

Table1 Inhibition of Tyrosinase activity

	0.1 %	0.5 %	1.0 %
Ascorbic Acid	96.7 %	96.7 %	97.6 %
Ethyl Ascorbic Acid	40.5 %	89.4 %	95.7 %
Magnesium Ascorbyl Phosphate	0 %	4.9 %	6.1 %

Ethyl Ascorbic Acid

Ethyl Ascorbic Acid has a twofold action on collagen. Firstly it is repairing the collagen structure and secondly it is clearly increasing the synthesis of collagen. Both effects are resulting in a firming effect for the skin. The other important efficacy is the improvement of the complexion of the skin, giving an even tone. This activity is similar to ascorbic acid phosphate derivatives.

In addition it is a very strong antioxidant, eliminating free radicals to protect the skin from environmental and intrinsic stress factors.

Table 2 Inhibition of Oleic Acid oxidation

Ingredient	Concentration (nmol)	Absorbency change		Inhibition (%)
Blank		0,029	0.02	-
Ethyl Ascorbic Acid	0.05	< 0.002		> 93
	0.01	0.022	0.003	24
Tocopherol	0.05	< 0.002		> 93
	0.01	< 0.002		> 93
	0.001	0.011	0.003	62
Sulfide	10 g/ml	< 0.002		> 93
Catalase	10 g/ml	0.017	0.005	41

Ethyl ascorbic acid also avoids inflammation and inhibits the formation of edema.

Application concentration

Skin care formulations.....0.1 - 3.0 %
 Skin whitening products.....0.5 - 3.0 %



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Nature needs no cosmetics,
 but cosmetics need nature.

Incorporation

Ethyl Ascorbic Acid can easily be incorporated in cosmetic emulsion and other formulations. It is water soluble. The recommended pH range is 5.5 - 7.0, best at 6.5.

For better stability and to avoid pH-drift to acidic pH-values the use of 1 % citrate buffer is recommended.

Ethyl Ascorbic Acid is stable for more than 90 days under different conditions (45°C, -15°C, room temperature and under day light).

Toxicology

non hazardous in normal use concentration
 pure raw material causes eye irritation

Storage & Shelf life

Ethyl Ascorbic Acid should be stored in a dry and light protected place at temperatures between 10°C - 25°C.

In closed containers the shelf life is 2 years.

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