

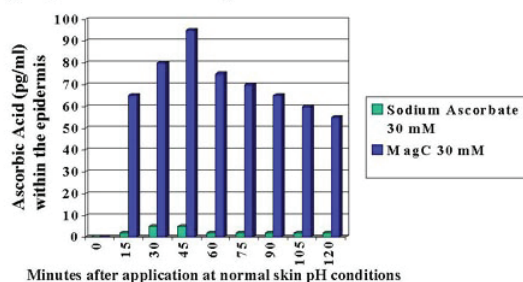
Magnesium Ascorbyl Phosphate

Description

Vitamin C (ascorbic acid) is one of the most widely used antioxidants for protecting the skin. Unfortunately, it is not stable in cosmetic formulations. Vitamin C is important to help protect the skin against UV-induced free radical damage that is related to skin aging. To provide the maximum benefit from Vitamin C, it is recommended that a stable form of Vitamin C is used in personal care preparations. One of these stable Vitamin C derivatives is Magnesium Ascorbyl Phosphate.

Magnesium Ascorbyl Phosphate is an esterified derivative of ascorbic acid, one of the most stable derivatives of ascorbic acid known. It is also very stable in cosmetic formulations. Magnesium Ascorbyl Phosphate penetrates into skin and there it is metabolized to ascorbic acid. Due to this process its efficacy is better than the one of pure ascorbic acid.

Epidermal Transportation of Magnesium Ascorbyl Phosphate (MagCTM) and conversion of MagCTM to Ascorbic Acid *in vitro*



Conclusions: MagCTM rapidly permeates the epidermis and is converted to ascorbic acid with long term duration. Sodium ascorbate however, does not permeate the epidermis under physiologic pH (i.e., neutral-7) conditions. Acidic conditions (i.e., below 3.5) are required for ascorbic acid penetration.

Data from Shiruko Kobayashi et al., *Photochemistry and Photobiology*, 1996, 64(1): 224-228
"Protective Effect of Magnesium-L-Ascorbyl-2-Phosphate Against Skin Damage Induced by UVB Irradiation"

Appearance

white to almost white powder

INCI

Magnesium Ascorbyl Phosphate

Registration

CAS-No.:
114040-31-2 (appr. 88 %), 113170-55-1 (appr. 12 %)



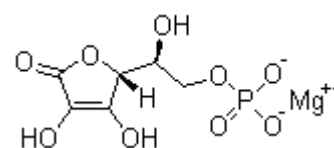
Preservatives / Stabilizers

none

Efficacy

antioxidant
skin whitening
anti inflammation
collagen synthesis

Chemical Structure



Empirical Formula.....C₆H₇O₉P Mg
.....C₆H₆O₉P 3/2 Mg

Molecular Weight
278.4 g/mol (appr. 88 %), 289.45 g/mol (appr. 12 %)

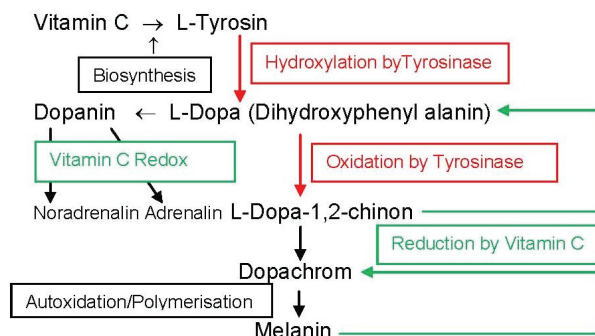
Characteristics

assay.....≥ 98,5 %
optical rotation alpha D 20°C..... ≥ +43° - +50°C
pH value (3 % solution).....7.0 - 8.5
loss on drying..... ≤ 20 %
colour (3 % solution)..... ≤ 70 APHA, clear
total microbial count.....≤ 100 CFU / g

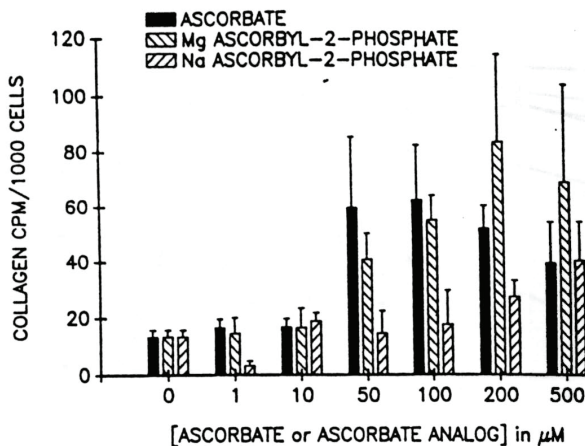
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Application

Magnesium Ascorbyl Phosphate is an excellent skin whitening agent, it is **inhibiting** Tyrosinase and at the same time it is a very effective **reducing agent**. Therefore it has two modes of action to influence melanogenesis.



Magnesium Ascorbyl Phosphate also improves effectively the synthesis of collagen and repairs the collagen structure. So collagen is filled up from within.



In addition it is a very strong antioxidant, eliminating free radicals and preventing lipid peroxidation. Magnesium Ascorbyl Phosphate also avoids inflammation and inhibits the formation of edema.

Application concentrations

Skin care formulations.....0.1 - 3.0 %
 Skin whitening products.....0.5 - 3.0 %
 Anti ageing formulations.....0.5 - 2.0 %

Incorporation

Magnesium Ascorbyl Phosphate can easily be incorporated in cosmetic emulsion and other formulations into the water phase. The recommended pH range is 7 to 8.5.

For better stability it is recommended to use a buffer and/or a chelating agent. Suitable agents are for example citric acid (0.1-1.0 %), sodium citrate (0.1-1 %) in combination with EDTA-2 or 4Na (0.1 %).

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

Toxicology

non irritating to skin and eyes

Storage & Shelf life

Magnesium Ascorbyl Phosphate should be stored in a dry and light protected place at 20°C.

In closed containers the shelf life is 2 years.

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Leaflet_6047_e
 08.03.2018