

Ectoine

Description

Ectoine is a cyclic amino acid discovered in 1985 within the purple bacterium *Halorhodospira halochloris*, which thrives in extreme environments such as salt lakes, geysers and polar ice. Classified as an extremolyte, Ectoine helps organisms survive harsh conditions like high salinity, temperature fluctuations and UV radiation by stabilizing biological structures.

Ectoine protects cells by regulating osmotic stress, stabilizing proteins, enzymes, nucleic acids and cell membranes. It forms a stable water layer around biological molecules, enhancing hydration and providing a protective barrier against environmental stressors like UV radiation, heat, cold or pollutants. This water structure, known as the "Ectoine Hydro Complex", helps retain moisture, protect against oxidative damage and prevent the breakdown of cellular components under stress. Ectoine has been shown to increase skin hydration and to enhance long-term moisture retention and prevent transepidermal water loss. It also reduces fine lines, strengthens the skin barrier, soothes irritated skin and protects against UV-induced skin damage and environmental aging.

Efficacy

- reduce wrinkles and fine lines
- strengthen the skin barrier
- anti-inflammatory
- protect against UV-induced skin damage
- enhance long-term moisture
- helps to repair skin barrier
- promote collagen production
- brightening

Appearance

white or almost white crystal or powder

INCI

Ectoin

Registration

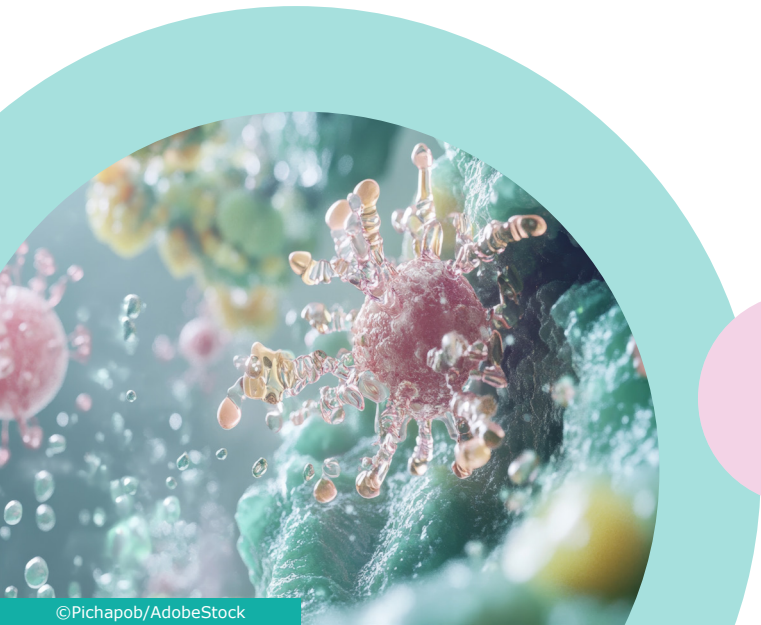
CAS-No.....96702-03-3

EC-No.....431-910-1

Raw material approved by ECOCERT GREENLIFE,
conform to the COSMOS Standard.

Preservatives / Stabilizers

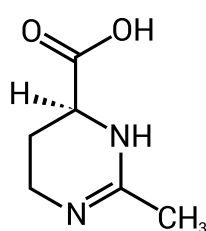
none



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Characteristics

melting point.....	280 °C
loss on drying.....	<= 1 %
ash.....	<= 1 %
transparency.....	>= 98 %
pH-value (2 % water solution).....	5 - 8
assay (HPLC).....	>= 98 %



Ectoine
 $C_6H_{10}N_2O_2$

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molecular weight.....	142.2 g/mol
molecular formula.....	$C_6H_{10}N_2O_2$
synonym:	
(S)-2-Methyl-3,4,5,6-tetrahydropyrimidin-4-carbonsäure	

Application

daily cosmetic products
creams and lotions
gels and ampoules
body care
hair care
cleansing products
sun care

Application concentration

0.1 - 7 %

Incorporation

Ectoine is soluble in water, glycerin and other polyols, adding into the water phase of the formula and then stir evenly. It is heat resistant and can be used in normal heat preparation process. The pH should be around pH 1 - 9. It has slight ionic properties and is recommended to properly strengthen thickening systems in ion-sensitive formulations.

Toxicology

non hazardous in normal use concentration

Storage & Shelf life

Ectoine should be stored in original sealed containers in a dry, well-ventilated and light protected place at temperatures between 10 - 25 °C.

In closed original containers the shelf life is 36 months.