

Superoxide Dismutase

Description

Superoxide Dismutase (SOD) is an enzyme that catalyzes the dismutation of the superoxide radical into ordinary molecular oxygen (O₂) and hydrogen peroxide (H₂O₂), hence resulting in less harmful reactants. Superoxide is produced as a by-product of oxygen metabolism and, if not regulated, causes many types of cell damage, as does hydrogen peroxide, which is degraded by enzymes such as catalase. Thus, SOD is an important antioxidant defending living cells from harmful oxygen exposure.

In humans three forms of SOD exist: SOD1 (cytoplasm), SOD2 (mitochondria) and SOD3 (extracellular). In higher plants, SODs act as antioxidants and protect cellular components from oxidation due to reactive oxygen species (ROS). ROS formation can have several geneses, like chemicals, ozone, plant metabolic activity, nutrient deficiencies, photoinhibition, temperature, UV or gamma rays. SOD concentrations in plants notably increase with the degree of stress conditions enabling them to counteract stress very effectively. SOD prevents damaging reactions of superoxide, thus protecting the cell from its toxicity. Consequently, SOD serves a key antioxidant. SOD shows powerful anti-inflammatory activity due its ability to decrease ROS, hence inhibiting endothelial activation. In cosmetics, SOD reduces free radical damage to the skin, helping to maintain skin youth and skin health. Our SOD is obtained from Roxburgh Rose (*Rosa Roxburghii*, also known as a chestnut rose), a species of wild rose native to China. This unique flower is used as reliable source for several antioxidants and thus, to treat skin conditions such as acne or related to visible signs of aging.

Efficacy

- acts as an antioxidant
- helps to maintain skin youth
- protects the skin from environmental damages
- reduces inflammations
- fights acne
- prevents wrinkle formation and loss of elasticity

Appearance

light yellow powder

INCI

Superoxide Dismutase

Registration

CAS-No.....9054-89-1
EC-No.....232-943-0

Preservatives / Stabilizers

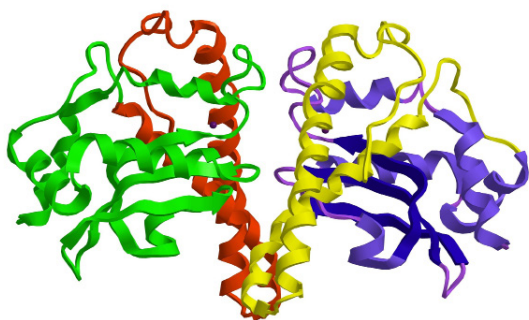
preservative.....none
stabilizer Maltodextrin.....5 - 15 %

Nature needs no cosmetics,
but cosmetics need nature

Superoxide Dismutase

Characteristics

particle size (< 180 µm).....>= 98 %
enzyme activity.....>= 8000 U/g
loss on drying.....<= 8 %
loss on ignition.....<= 8 %



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Application

daily cosmetic products
creams and lotions
face masks
gels and ampoules
body care

Application concentration

skin care formulations.....0.1 - 1 %

Incorporation

Superoxide Dismutase is soluble in water. It is insoluble in pentylen glycol, ethanol and glycerin. Heating up to max. 30 °C can support the process. Avoid higher temperatures as amino acids and their products are heat sensitive.

The product is more stable under alkaline conditions than under acidic conditions.

It is recommended to control the pH within the range of 5 - 7.

Toxicology

non hazardous in normal use concentration

Storage & Shelf life

Superoxide Dismutase should be stored in original sealed containers in a dry, well-ventilated, and light protected place at temperatures between 2 - 8 °C. Brief exposure up to 35 °C for max. 2 weeks is possible.

In closed original containers the shelf life is 12 months.