

TECHNICAL DATA SHEET

Product Name: Caprylhydroxamic Acid

INCI Name: Caprylhydroxamic Acid

CAS: 7377-03-9

Synonyms: N-hydroxyoctanamide, N-hydroxy-octanohydroxamic acid

Chemical Class: Amide

Functional Category: Preservative (natural bactericidal and bacteriostatic agent)

Origin of Material: China

Description: Caprylhydroxamic Acid (CHA) is an organic compound belonging to the group of hydroxamic acids. It consists of an eight-carbon chain (octyl group) and a hydroxamic functional group. The hydroxamic group, designated as $-N(OH)C=O$, includes nitrogen, oxygen, and a carbonyl group linked to hydrogen. This specific structure allows CHA to act as an efficient chelating agent and preservative, as it has the ability to bind metal ions. Although hydroxamic acids can be found in nature, caprylhydroxamic acid is a synthetic substance. It is typically produced under laboratory or industrial conditions. The reason for this is the need for a high degree of purity and specific properties necessary for its use in the cosmetics industry. Synthetic production allows for quality control and consistency necessary for commercial use, especially in formulations requiring precise preservative characteristics. As a preservative, it is approved by the US Whole Foods Market and marked as Premier Ingredients. It possesses excellent antimicrobial and fungistatic activity even at neutral pH where many other antimicrobial substances fail. It appears as a white crystalline powder with a characteristic odor. The powder is soluble in water, alcohol, and glycols.

IUPAC Name: N-hydroxyoctanamide

Mechanism of Action: Caprylhydroxamic Acid inhibits the growth of bacteria, fungi, and mold in cosmetic formulations. The mechanism of action is based on its ability to act as a chelating agent. Metals such as iron and copper are essential for the growth and reproduction of microorganisms. CHA effectively binds these metals, making them unavailable to microorganisms and thus inhibiting their growth and reproduction. As a preservative,

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vative, it helps extend the shelf life of cosmetic products by preventing contamination and microbial growth within the product. This is especially important in products containing water, as water can serve as fertile ground for the development of bacteria and fungi. It is often used in combination with other preservatives to enhance its antimicrobial action. For example, CHA can effectively function at low concentrations when used together with phenoxyethanol, allowing formulators to use less aggressive preservatives and reduce potential skin irritation. Generally, it is considered safe and mild for the skin. Caprylhydroxamic acid is valued in the cosmetics industry, especially in products requiring effective protection from microbes without causing significant side effects. Caprylhydroxamic acid is compatible with most cosmetic ingredients. It can be used in emulsions and anhydrous systems. However, it can react with residual iron found in some types of clay (e.g., bentonite, silicates).

Usage: Added to the water phase at the end of the formulation. Typically used at concentrations of 0.05% - 0.15%. It can be used at normal and elevated temperatures, but exposure to high temperatures (>90°C/194°F) for more than 2 hours should be avoided. Store in a dry and cool place. For external use only.

Application: All types of skin and hair care products (including emulsions, anhydrous and surfactant systems), colored cosmetics.

Raw Materials from Which It Is Derived: Caprylhydroxamic acid is produced from hydroxamic acid obtained from coconut oil.

Manufacturing Process: Information on the production process is not available

Animal Testing: The substance has not been tested on animals

GMO: Not GMO

Vegan: Does not contain animal-derived components.