

## TECHNICAL DATA SHEET

**Raw Material Name:** Sodium PCA (50% solution)

**INCI Name:** Sodium PCA, Aqua

**CAS:** 28874-51-3, 7732-18-5

**Chemical Name:** Sodium L-pyrroglutamate

**Synonyms:** Monosodium 5-oxoproline, Sodium pyrrolidone carboxylate, Nalidone, PCA soda, Proline, 5-oxo-, sodium salt (1:1)

**Chemical Classification:** Organic salt; carboxylate; heterocyclic lactam compound

**Functional Category:** Humectant; conditioning ingredient for skin and hair care

**IUPAC Name:** Sodium (2S)-5-oxopyrrolidine-2-carboxylate

**Description:** Sodium PCA, the sodium salt of pyrrolidone carboxylic acid, is a natural derivative of glutamic acid used in cosmetics for its exceptional ability to bind and retain moisture. It belongs to the group of humectants, ingredients that attract water from the environment and from the deeper layers of the skin, thereby providing long-lasting hydration to the surface layer of the skin. It is naturally present in the human stratum corneum, where it forms part of the natural moisturising factor (NMF), together with lactic acid, urea and other compounds. In cosmetic formulations, Sodium PCA is used to help maintain and support physiological hydration, particularly in dry, dehydrated and mature skin, where the ability to retain moisture is reduced due to age-related changes. It is rapidly absorbed, does not leave a greasy residue and contributes to improved skin texture and elasticity. In addition to its use in skin care products, Sodium PCA is also used in hair care products, where it helps maintain moisture within the hair fibre, reduces static electricity and improves softness and shine. It is stable over a wide pH range and compatible with various formulation types, including emulsions, gels and aqueous solutions. It is suitable for formulations intended for sensitive areas, such as the area around the eyes, as well as for baby care and anti-age cosmetic products. It does not clog pores and is generally well tolerated, making it suitable for dermatologically sensitive formulations. Sodium PCA is particularly effective when used in combination with other moisturising ingredients, such as hyaluronic acid, glycerin or urea.

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It is a colourless to pale yellow clear liquid, soluble in water, with a pH value of 6.8–7.4.

**Properties:** Sodium PCA strongly absorbs water, which makes it an excellent humectant. It is a stronger moisturising agent than traditional compounds such as glycerin, propylene glycol and sorbitol. Its moisturising capacity is approximately 1.5 times higher than glycerin, 2 times higher than propylene glycol and 6 times higher than sorbitol. It is also known as a skin penetration enhancer. In hair care, it helps reduce static electricity.

**Use:** Sodium PCA is incorporated into the water phase of the formulation. In emulsions, it is usually used at concentrations from 0.5% to 10%. For external use only.

**Application:** Sodium PCA is used in all types of skin care products, including creams, gels, lotions, hair care products and decorative cosmetics.

**Raw Material Origin:** The original amino acid, proline, is mainly obtained from fruit and coconut oil.

**Production Method:** PCA is obtained through a fermentation process using sugars and starches derived from proline.

**Animal Testing:** The substance has not been tested on animals.

**GMO:** Non-GMO.

**Vegan:** Does not contain components of animal origin.

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