



Function: Functional ester with moisturizing function

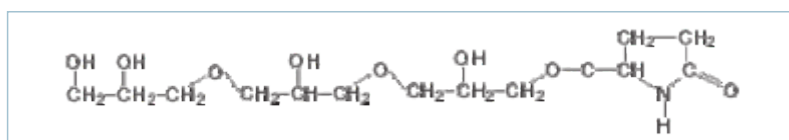
INCI name: Polyglyceryl-3PCA

CAS number: 1165848-66-7

REACH status: Polymer*

PCActive is a modern water based form of pyrrolidonecarboxylic acid, a product capable of keeping moisture in the skin and increasing the skin's flexibility, which brings together the capacity to tie water with a visible moisturizing effect creating an evident feeling of freshness and wellbeing.

The synthesis of the Polyglyceryl-3 PCA is conducted with MWP (MicrowavesProgressus) technology which delivers the pyrrolidonecarboxylic acid intact and not in saline form like in other products present in the cosmetics industry.



THE ROLE OF PYRROLIDONECARBOXYLIC ACID (PCA)

Pyrrolidonecarboxylic acid (PCA) represents the main constituent of the NMF (Natural Moisturizing factor) capable of deeply moisturizing the skin by binding itself to the water molecules and impeding excessive loss (TEWL). It makes up about 12% of the NMF and works as a water reserve keeping the skin at correct moisture levels.

Its presence is of fundamental importance in that it prevents excessive dehydration of the keratin lamellae and helps to keep the epidermis undamaged, elastic and flexible.

Amino Acids	40
Mineral salts (Na, Mg, K, Ca, Cl, PO4)	15
PCA	12
Lactic Acid/ lactates	12
Other (nitrates, citrates, organic acids etc..)	11
Urea	7
Urocanic Acid	3

SKIN MOISTURIZATION

Represents the best indicator of our skin's wellbeing and it is directly correlated with the epidermis's barrier function. Numerous studies have shown that skin dryness is linked to the type of lipid lamellae present between corneocyte and corneocyte the (intracellular lipids) and by the presence of the so-called natural moisturizing factor in the stratum corneum. A whole that is formed by a mix of water and active hydro soluble principles such as amino acids, urea, lactates, PCA and inorganic ions present in high percentages within the cells (they represent up to 10% of the weight of the stratum corneum).

THE STRATUM CORNEUM

Is a dynamic tissue in continuous evolution and such evolution develops through reactions that take place in watery environments. It is for this reason that, if the barrier is altered, there is a loss not only of water but also of intercellular lipids and so the normal desquamative process slows down altering the appearance of the skin. All of this happens because the water content of the epidermis's most outer layers is extremely reduced compared to the deeper layers and moreover, the water is more "free" than it is in, for example, in the dermis, (very stable links with molecules, glycosaminoglycans capable of trapping it).

PROTECTION AGAINST DAMAGING ENVIRONMENTAL AGENTS

Is the most important of the many functions performed by the epidermis. In order to activate this barrier function, the skin must be kept in good condition and above all, it must be properly moisturized in the outermost parts of the stratum corneum. Studying the biochemical processes which take place in the outermost parts of the stratum corneum, it is evident that water plays a crucial role and that balanced hydration is fundamental to achieve a correct physiological condition.



PRINCIPAL CHARACTERISTICS OF PCAActive

- Remarkable long-lasting moisturization.
- Completely soluble in water and hydro-alcoholic systems.
- Solvent and vehicular ability of active liposoluble substances.
- Efficient balancing effect of the emulsions.
- High cleansing activity and disperses dust and pigments.
- Great hygroscopic surface action due to the synergistic action of the Pyrrolidonecarboxylic acid and the polyglyceric chain.
- Suitable in moistening solutions for “wet wipes” where, even in small quantities, it gives a moisturizing effect and gives the product long-lasting effectiveness by delaying drying up of the wipes.
- Stable in ample PH environments.

PROPERTIES OF EMULSIONS WITH PCAActive

- Highly moisturizing effect.
- Easy application.
- Pleasant feeling of freshness.
- Not sticky or greasy.
- Cool and light texture.

IN-VITRO SAFETY STUDIES

In vitro skin irritation Tests (SkinEthic) not irritating

Eye irritation test (EpiOcular™) not irritating

APPLICATION AND DOSAGE OF PCAActive

Suitable for the formulation of creams and cosmetic lotions, shower gels, shampoos, soaps and detergents in general. The percentage applied can vary between 0.5 and 3%. The product is completely water-soluble and compatible with substances normally used in the cosmetics sector. It does not modify the rheology of emulsions or the lather of foaming products.

It can be added hot or cold in the water phase of the emulsion.

EXAMPLE FORMULAS

Moisturizing face cream O/W	
Isononyl Isononanoate	5,00
Hydrogenated Polyisobutene	4,00
PROLIX RB(Polyglyceryl-3 Rice Branate)	4,00
Caprylic/Capric Triglyceride	3,00
Ethylhexyl Palmitate	2,00
Prunus Amygdalus Dulcis Oil	1,50
Cetearyl Alcohol	1,50
Glyceryl Stearate	1,50
Aqua	q.b. a 100
PCAActive	3,00
Cimicifuga Racemosa Root Extract	0,35
Preservatives	q.b.
Parfum	q.b.

Baby cream O/W	
PROLIX RB (Polyglyceryl-3 Rice Branate)	4,00
Octyldodecyl Stearoyl Stearate	2,00
C10-18 Triglycerides	5,00
Hydrogenated Poly-1 Decene	3,00
Rice Bran Oil	2,00
Glyceryl Stearate	2,50
Cetearyl Alcohol	2,00
Cetyl Palmitate	1,50
Bisabolol	0,50
Aqua	q.b. a 100
Zinc Oxide	11,00
PCAActive	2,00
Malva Sylvestris (Mallow) Extract	0,30
Allantoin	0,20
Parfum	q.b.
Preservatives	q.b.