



COCO GLY DOC

Toiletries & Washes

Innovative

Sugar and Olive oil based

4 in 1 ingredient

Viscosity builder and adjuster

Foam booster

Emollient

Mild surfactant



Kalichem
Italia s.r.l.

COCO GLY DOC

TOILETRIES AND WASHES

>> VERSATILE VISCOSITY BUILDER

One of the main challenges in today's cosmetic developments is represented by the pursue of raw materials able to show multifaceted applications and activities. Coco Gly Doc is an ingredient developed to simplify the life of formulators, allowing to achieve several technical actions through its simple addition to wash systems.

The combination of Methyl Glucose derivate, a lipoaminoacid based on Olive Oil fatty acids and PCA (Pyrrolidon Carboxylic Acid) and a mild surfactant like Sodium Cocoyl Glycinate, allows to obtain a versatile cosmetic specialty able to:

- ◆ organize and gives a structure to washes in terms of viscosity , either in Sulphate-based formulations or in mild surfactant-based rinse-off products
- ◆ upgrade the quality and the quantity of the foam
- ◆ soothe the skin with the restorative action provided by Olive Oil fatty acids and the moisture of PCA
- ◆ support the cleansing power of the whole finished product, thanks to the additional mild degreasing action provided by the delicate surfactant Sodium Cocoyl Glycinate.

A safe and mild ingredient based on a *combination of vegetal lipo-aminoacids* from **Olive Oil**, **Coconut Oil** and actives like **PCA** and **Glycine** and a safe and well tolerated thickening agent.

It represents more than an extraordinary viscosity increasing agent in cold processing, because it also:

- ◆ quickly increases viscosity at low dosage at room temperature
- ◆ comes in a liquid form even at low temperatures
- ◆ contains highly active amino acids (PCA and glycine)
- ◆ contains olive oil lipids responsible for forming a pleasant, protective and emollient layer on the skin
- ◆ significantly reduces the anionic surfactant agents aggressiveness
- ◆ stabilizes and strengthens the foam making it soft and creamy
- ◆ doesn't contain short chain PEG responsible for foam flattening
- ◆ doesn't contain nitrosamine derivatives
- ◆ protects the skin and the product from oxidation because of the amino acids presence
- ◆ is compatible with perfumes, essential oils, lipids, etc...
- ◆ increases viscosity in a regular way even in presence of glycols and/or solubility increasers.



CHEMICAL BACKGROUND

COMPONENTS

The Coco Gly Doc is a specialty containing highly functional and performing technical and active ingredients.



SODIUM COCOYL GLYCINATE <<

Mild vegetal surfactant based on Coconut Oil fatty acids combined with the mild Glycine: an amino acid found abundantly in human skin (both on the hydrolipidic film on the epidermis and in dermis structure like Collagen fibers). Surfactant with mild degreasing action and foaming features linked to the Coconut Oil fatty acids found in its chemical structure.



POTASSIUM OLIVOYL PCA <<

Kalichem Italia patented specialty, providing simultaneously the moisturizing effect linked to the PCA (one of the main components of the Natural Moisturizing Factor) and the numerous benefits related to Olive Oil fatty acids: 80% of them is composed of Oleic Acid and Linoleic Acid, mono-unsaturated compounds with a proven biological and physical affinity with skin membrane cells, which mirror the emollient, moisturizing and elasticizing benefits as well as its foam boosting action.

Myristic acid $CH_3(CH_2)_{12}COOH$		COOH	1%
Palmitic acid $CH_3(CH_2)_{14}COOH$		COOH	15%
Palmitoleic acid $CH_3(CH_2)_5CH=CH(CH_2)_7COOH$		COOH	1%
Heptadecanoic acid $CH_3(CH_2)_{15}COOH$		COOH	0,5%
Stearic acid $CH_3(CH_2)_{16}COOH$		COOH	4%

Oleic acid $CH_3(CH_2)_7CH=CH(CH_2)_7COOH$		COOH	68%
Linoleic acid $CH_3(CH_2)_4CH=CH-CH_2CH=CH(CH_2)_7COOH$		COOH	9%
Linolenic acid $CH_3CH_2CH=CH-CH_2CH=CH-CH_2CH=CH(CH_2)_7COOH$		COOH	0,5%
Others			1%

PEG-120 METHYL GLUCOSE DIOLEATE <<

Vegetal-derived viscosity builder combining fatty acids from Olive Oil and Glucose sugar. The product does not cause eye irritation (characteristic that makes it suitable for shampoos), lowers the aggressiveness of primary surfactants, without affecting their foaming features (that are boosted and increased by the other ingredients of Coco Gly Doc), and is compatible with all anionic and amphoteric surfactants.

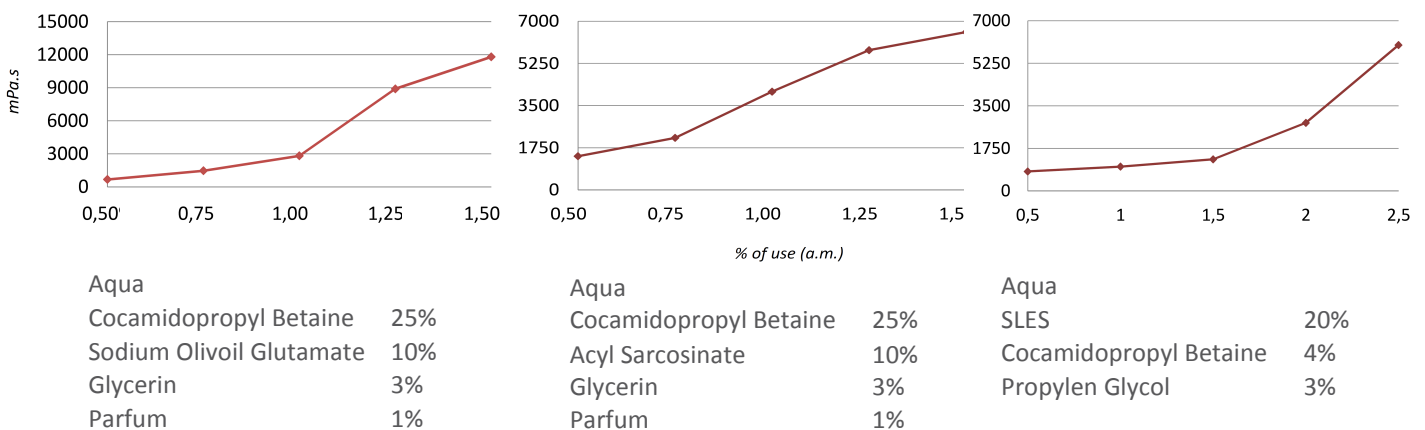
A 4 IN 1 INGREDIENT

TOILETRIES AND WASHES

>> THICKENING ACTION

Coco Gly Doc is able to thicken both Sulphate-Free and Sulphate based rinse-off products. The following graphics show respectively the thickening action of the raw material in two mild surfactant systems (the first containing Betaine as primary surfactant and the mild anionic lipoaminoacid Sodium Olivoil Glutamate as secondary surfactant, the second containing Betaine as primary surfactant, and a delicate Acyl Sarcosinate as secondary surfactant) and a SLES based surfactant.

The results suggest that even low concentration of product (1,25 %) can provide a fast increase of the viscosity of the system. Coco Gly Doc can be used both as viscosity builder and viscosity adjuster at the end of the production phase.



>> TECHNICAL BENEFITS

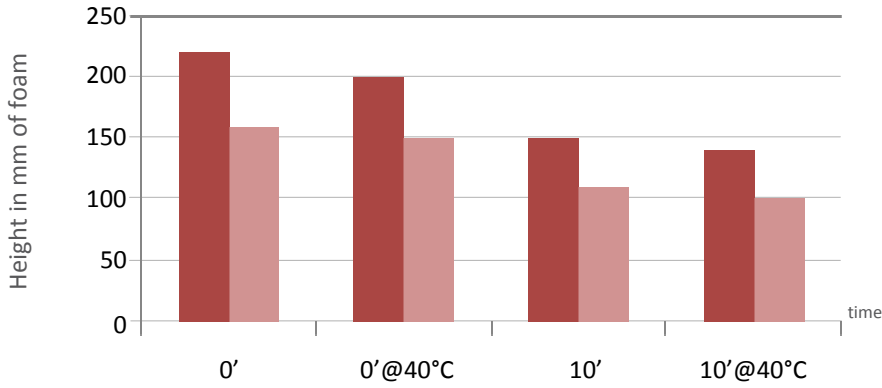
The main benefits derived from the use of Coco Gly Doc as thickener are :

- ◆ it is easy to handle, measure out and add to the formulation, because it is in liquid form.
- ◆ It is very easy to be solubilized cold, thanks to the technological combination of molecules like Potassium Olivoyl PCA and Sodium Cocoyl Glycinate, that boosts the melting process of Coco Gly Doc in cleansing systems. Possible high temperatures are well tolerated.

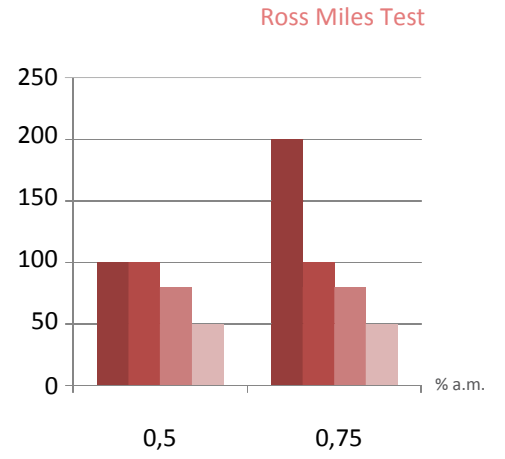
>> FOAMING POWER

Coco Gly Doc contains vegetal derivates able to boost the foam produced by other surfactants. When included in a rinse-off system, the simultaneous action of the Sodium Cocoyl Glycinate (mild surfactant with good foaming properties) and Potassium Olivoyl PCA , contributes to increase both the quality and the quantity of the foam.

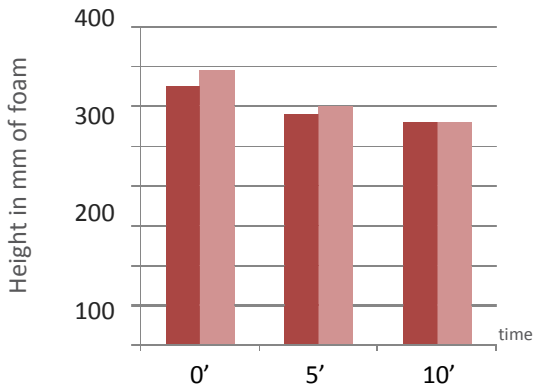
Particularly interesting is the result in the foaming tests carried out, showing in the first case the foam obtained by a Sulphate-based system with and without the Coco Gly Doc; the latter shows the height of the compact foam formed in a Sulphate free wash formulation (containing CocamidoPropyl Betaine 25%, and Sodium Olivoyl Glutamate 10%) through the use of different concentrations of Coco Gly Doc. The result shows that the use of 0,75% a.m. of Coco Gly Doc provides the best results in terms of compact foam produced.



Wash		Wash + Coco Gly Doc	
Aqua		Aqua	
SLES	30%	SLES	30%
Coco Betaine	6%	Coco Betaine	6%
Sodium Olivoil Glutamate	4%	Sodium Olivoil Glutamate	4%
		Coco Gly Doc	1,25% a.m.



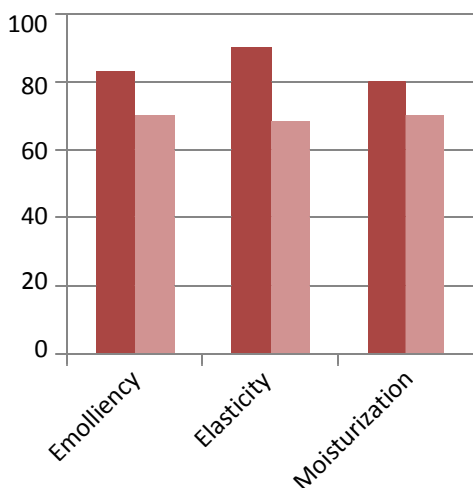
Compact foam t0	
Compact foam t15'	
Ctrl C. foam t0	
Ctrl C. foam t15'	



Potassium Olivoyl PCA support on foaming features

Potassium Olivoyl PCA, added to a system containing Sodium Laureth Sulphate, showed a significant boosting of the foam very similar to the one produced by Cocamide DEA (a well known foam booster, with a bad toxicological profile), acting both as a moisturizing and emollient active ingredient and a efficient technical one.

Wash w/OPCA	Wash w/C.DEA
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EMOLLIENCY <<

Coco Gly Doc is a raw material aimed mainly to build viscosity in surfactant based systems. Nonetheless its original composition, including a mild surfactant and a eudermic lipo-aminoacid, is able to guarantee an important support to the biological quality of the cleanser. The presence of an emollient and moisturizing molecule like the Potassium Olivoyl PCA (combining the benefits from Olive Oil fatty acids and the moisture provided by the PCA, one of the main components of the NMF), reduces the impact of primary surfactant degreasing action, lowering the excessive stress on the hydrolipidic film of the skin. The mild action of the specialty is supported by the mild surfactant included in Coco Gly Doc, the Sodium Cocoyl Glycinate, that influences the dimension and the structure of micelles formed by primary surfactants. The graphic shows the influence of Potassium Olivoyl PCA included in a gel in comparison with a control gel: its olive oil fatty acids chains, combined with PCA are able to increase physiological parameters such as skin emolliency, moisturization and elasticity, more than a control formulation without the active does, on a 0÷100 subjective score basis.

gel OPCA	gel CONTROL
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>> CONCLUSION - APPLICATIONS

Coco Gly Doc may be used as viscosity builder, foam booster and stabilizer, mild surfactant and restoring active. Examples of application could be Sulphate Free or Sulphate based formulations like:

- Body Washes
- Baby Shampoos
- Intimate Washes
- Facial cleansers
- Liquid hand soaps
- Shower gels
- Make-up removers
- Conditioners

>> EXAMPLES OF FORMULATION

FRUITY NATURAL SHAMPOO

Phase	INCI NAME	% p/p
1	DISODIUM COCOAMPHODIACETATE	15
2	SODIUM COCOYL AMINOACIDS, POTASSIUM OLIVOYL/LAUROYL WHEAT AMINO ACIDS, FRUCTOSE (OLIVOIL FRUTTOSIDE - Kalichem Italia)	15
3	COCAMIDOPROPYL BETAINE, AQUA	15
4	AQUA	52
5	PEG 120 METHYL GLUCOSE DIOLEATE, SODIUM COCOYL GLYCINATE, POTASSIUM OLIVOYL PCA, AQUA (COCO GLY DOC - Kalichem Italia)	2
6	SODIUM CHLORIDE	AS NEEDED
		100.00

MILD BODY WASH

Phase	INCI NAME	% p/p
1	SODIUM LAURETH SULPHATE, AQUA	25
2	SODIUM COCOYL AMINOACIDS, POTASSIUM OLIVOYL/LAUROYL WHEAT AMINO ACIDS, FRUCTOSE (OLIVOIL FRUTTOSIDE - Kalichem Italia)	4
3	COCAMIDOPROPYL BETAINE	5
4	POTASSIUM OLIVOYL HYDROLIZED OAT PROTEIN, AQUA (OLIVOIL AVENATE - Kalichem Italia)	2
5	AQUA	62
6	PEG 120 METHYL GLUCOSE DIOLEATE, SODIUM COCOYL GLYCINATE, POTASSIUM OLIVOYL PCA, AQUA (COCO GLY DOC - Kalichem Italia)	2
7	SODIUM CHLORIDE	AS NEEDED
		100.00

>> WAY OF USE

	RANGE
pH of use	5,5 ÷ 8,0
Concentration of use	0,5 ÷ 5,0

>> PRODUCT SPECIFICATION

INCI NAME and COMPOSITION	RANGE %
PEG-120 METHYL GLUCOSE DIOLEATE	25% ≤ [%] < 50%
SODIUM COCOYL GLYCINATE	5% ≤ [%] < 10%
POTASSIUM OLIVOYL PCA	5% ≤ [%] < 10%
AQUA	25% ≤ [%] < 50%

PHYSICO - CHEMICAL ANALYSIS	METHOD	LIMITS
APPEARANCE	Internal	FROM TRANSPARENT TO SLIGHT VEILED LIQUID
COLOUR	Internal	YELLOW / STRAW COLOURED
ODOUR	Internal	SLIGHT
pH DIRECT	Potentiometric	6,5 ÷ 7,5
DRY RESIDUE	2 hours 105 °C	35 ÷ 55
TOTAL MICROBE COUNT	by inclusion Ph. Eur. 7.0	0 ÷ 100

SHELF LIFE : 12 months

STORAGE CONDITIONS: Keep in original containers well closed in a cool dry, well ventilated, dark and clean site.





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