OLIVOIL
SURFACTANT

Delicate and protective for the skin

Silky After Feel

Hair shaft volumizing and protection

Versatile: Hair, Face & Body Care

Vegatl and sustainable

Sulfate & PEG Free

ECO CERT
COSMOS NATURAL

Kalichem Italia s.r.l.

OLIVOIL PRODUCTS

"PEG-FREE" SURFACTANTS OF VEGETAL ORIGIN INTERNATIONALLY PATENTED

>> MARKET BACKGROUND

In the modern concepts of wellness, now consisting in the responsible respect of both body and skin equilibrium and environment, the wide success of ingredients of natural origin is due to two key aspects. **Firstly, the need for developing formulas compatible as much as possible with the physiology of skin and its annexes, without any adverse effect or allergic potential. Secondly, the growing confidence of the consumers in the beneficial properties provided by complex mixtures of natural ingredients.**
The quest for PEG-free surfactants and emulsifiers led Kalichem to the creation of new classes of base ingredients for skin-friendly and environmental-friendly cleansing cosmetic products, the OLIVOIL Series. These ingredients of vegetal origin are ethylene oxide free and highly performing in cosmetic formulations. Moreover, they provide the skin with the pleasant accompanying effects of vegetal structures.

>> THE ORIGINS

Extra-virgin Olive oil is obtained by cold pressing the pulp of the fruits of Olea europaea (Olive), a species of small trees of the family Oleaceae, native to the coastal areas of the eastern Mediterranean region from Lebanon, Syria, the maritime parts of Asia Minor to the south end of the Caspian Sea and successively cultivated in all the Mediterranean area. Its stone fruit, the olive, is of major agricultural importance in the Mediterranean region as the source of olive oil.

Olive oil shows the following complete composition:

Myristic acid $CH_3 [CH_2]_{12} COOH$ — **1%**

Palmitic acid $CH_3 [CH_2]_{14} COOH$ — **15%**

Palmitoleic acid $CH_3 [CH_2]_5 CH=CH [CH_2]_7 COOH$ — **1%**

Heptadecanoic acid $CH_3 [CH_2]_{15} COOH$ — **0,5%**

Stearic acid $CH_3 [CH_2]_{16} COOH$ — **4%**

Oleic acid $CH_3 [CH_2]_7 CH=CH [CH_2]_7 COOH$ — **68%**

Linoleic acid $CH_3 [CH_2]_4 CH=CH - CH_2 CH=CH [CH_2]_7 COOH$ — **9%**

Linolenic acid $CH_3 CH_2 CH=CH - CH_2 CH=CH - CH_2 CH =CH [CH_2]_7 COOH$ — **0,5%**

Others **1%**

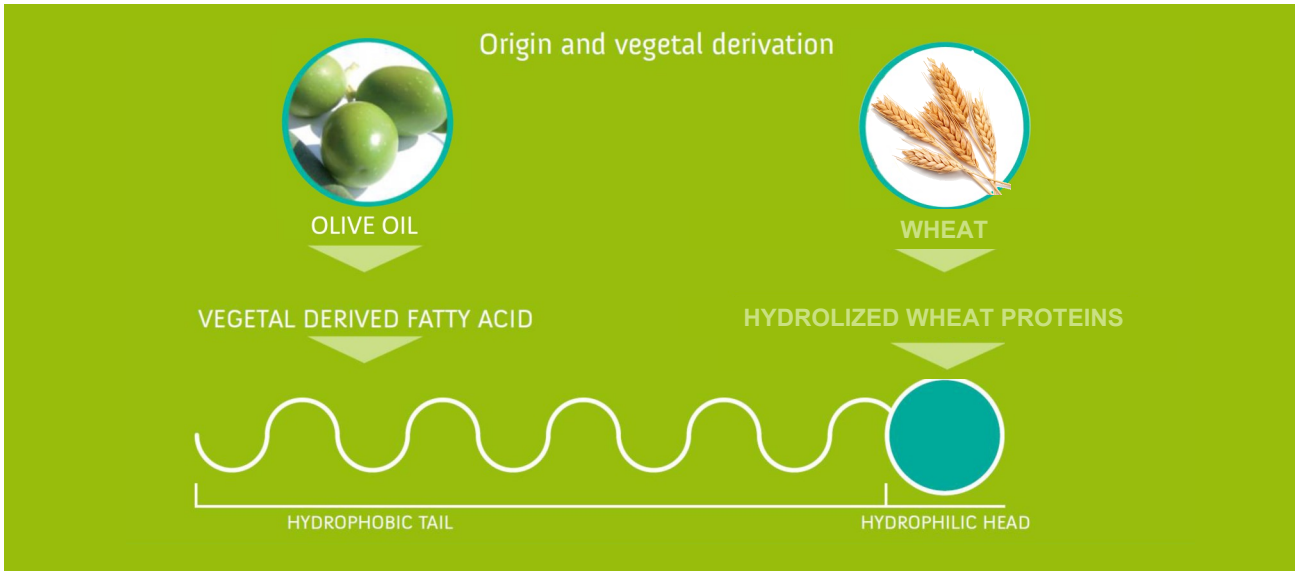
Widely preferred to other vegetal oils for its high amount of mono-unsaturated fatty acids, it exhibits well-known properties of integration with the body physiology. Olive oil has the undoubted advantage of its lipidic fraction, provided by a millenary history of contact with vital human cells, which thus allows to boast high safety standards. When the complex of its lipidic chains is chemically combined with hydrophilic molecules of known performances, functional ingredients suitable for innumerable cosmetic formulations can be created. Another interesting aspect of olive oil properties concerns its unsaponifiable fraction (0.6-1.5%). This fraction is kept unchanged in the finished material. Its antioxidant power, as well as the emollient effects of the lipidic moiety, contributes to skin normalization and protection.

OLIVOIL TECHNOLOGY

ITALIAN INNOVATION FROM THE OLIVE FRUIT

THE TECHNOLOGY <<

Combining the best of both vegetal oils and protein sources allowed Kalichem to achieve new molecoles having relevant interfacial properties. These new surfactants can be used to formulate “totally natural” finished products that are very suitable for sensitive skin, baby-care, hair-care and personal-hygiene. Furthermore, besides being extremely performing as vehicle ingredients (as surfactants and emulsifiers), thanks to their special composition they may act as functional substances with protecting, soothing and restoring ability. As for their environmental impact, they are characterized by high biodegradability (according to the CEE regulation N.82/242 OECD Method).



OLIVE OIL AND SOFTNESS <<
OF OLIVE OIL PRODUCTS IN COSMETICS

One significant characteristic of the Olivoil products is given by the presence of long chain fatty acids, including oleic acid (68%), linoleic (9%) and linolenic (0,5%) and others like myristic acid, ...
Their presence explains the results of the tests carried out on the surfactants concerning their highly smoothing performance. In fact a number of sceintific tests show that the molecules with short chain fatty acids, like for instance the lauric acid (12 carbon atoms), have a greater irritant power than the long chain fatty acids whereby the irritant power of a surfactant is influenced by the number of carbon atoms in the fatty acids. These fatty acids of olive oil bound to proteins have more similarities to both cutaneous secretion (sebum) and cutaneous structures themselves making the Olivoil products very tolerable at the cutaneous level and thus giving the finished products containing them a very nice psychoreologic effect. The Olivoil products have an effective functional action, very soft and moisturizing, according to a correct cutaneous physiology. They leave a good feel of hydration, moisturization, smoothness, softness and cleansing on the skin: after using a wash containing an Olivoil product, one has a feel of cleanliness, satisfaction and well-being.

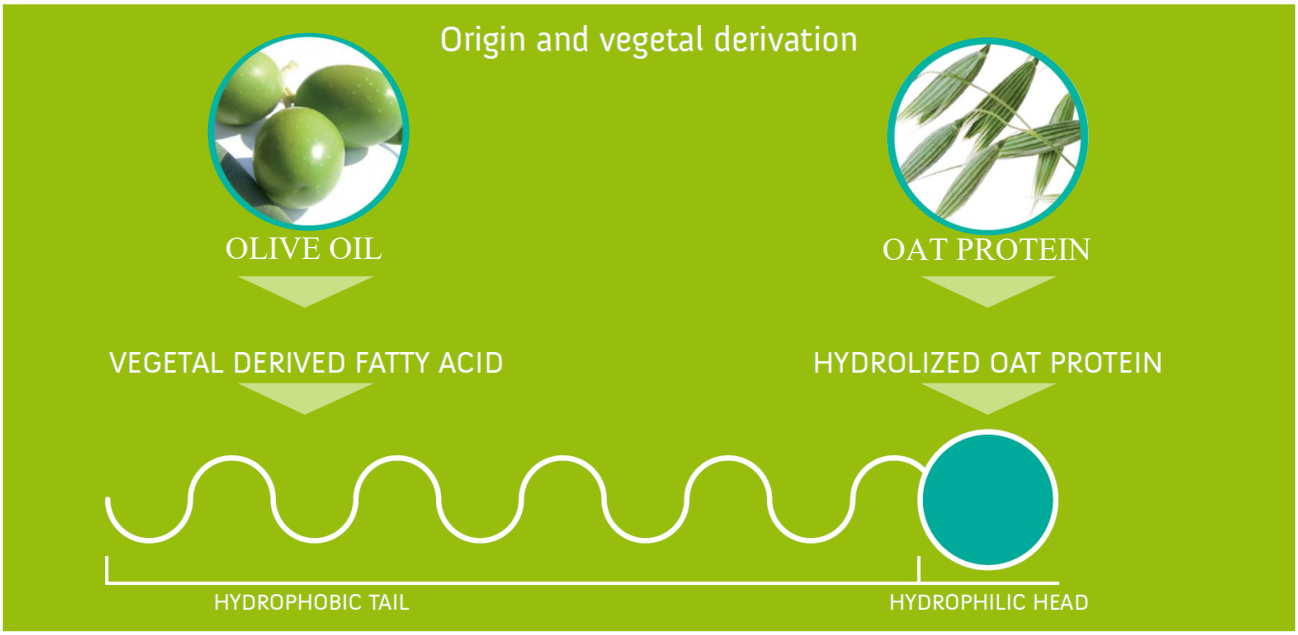
Olivoil products are used in association with aggressive traditional surfactants (like SLES, reducing its irritant effect) in percentages ranging from 2% to 15% depending on the desired effect. To merely reduce the irritant effect of traditional surfactants, low percentages of Olivoil products (2 - 5%) may be employed. Higher percentages of Olivoil products are suggested (5 - 15%) where an immediate feel of moisturization, smoothness and softness wants to be additionally achieved. Moreover, the higher the percentage of Olivoil used, the higher the sensory eudermic effect obtained.

PRODUCT BACKGROUND

FROM THE ENVIRONMENT THE BASE OF NEW COSMETIC RAW MATERIALS

>> OLIVOIL SURFACTANT

Olivoil Surfactant is a non ethoxylated and non sulphated vegetal-derived surfactant. It is obtained through condensation between the carboxyl group of fatty acids derived from olive oil and the amino group of polypeptides derived from the hydrolyzed wheat proteins. The result is an amphiphilic structure with a fatty amide bond, having the lipophilic side represented by olive oil fatty chains and the hydrophilic side made by wheat polypeptides



Olivoil Surfactant is a new generation surfactant, with a mild cleansing ability due to a characteristic mechanism of dirt removal. The lipophilic portion has strong affinity for the lipidic fraction of the dirt, while the grafted peptides, with high water affinity, lead to the aqueous dispersion of the foreign materials. Olivoil Surfactant is compatible with all traditional surfactants and most standard cosmetic ingredients

>> KEY CHARACTERISTICS

In Olivoil Surfactant, the incidence of amino-acids in the structure is greater than in Olivoil Glutamate, where the ratio between fatty acids and amino acids is 1:1. Indeed, this means that both are highly skin compatible, while the skin protection performance for Olivoil Surfactant can be foreseen as higher. The product is compatible with anionic, non ionic and amphoteric substances. The compatibility with cationic structures must be individually verified. Supplied as potassium salt, when used in systems sensitive to electrolytes, it may influence the viscosity. Olivoil Surfactant is supplied as aqueous solution (min 26% a.m.) ready to be added in a cosmetic formulation; it does not require any pre-treatment. The addition at temperatures below 40°C is suggested.

>> COSMETIC APPLICATIONS

Olivoil Surfactant, due to its lipo-protein structure, can be used in cleansing cosmetic products for skin and hair. Its main characteristics are mildness during the cleansing phase combined with pH and skin moisture balance respect after drying. This unique performance is rarely found in standard and traditional surfactants. The suggested pH range is around 6.0-7.0 when employed as main or secondary surfactant.

SENSORY PROFILE

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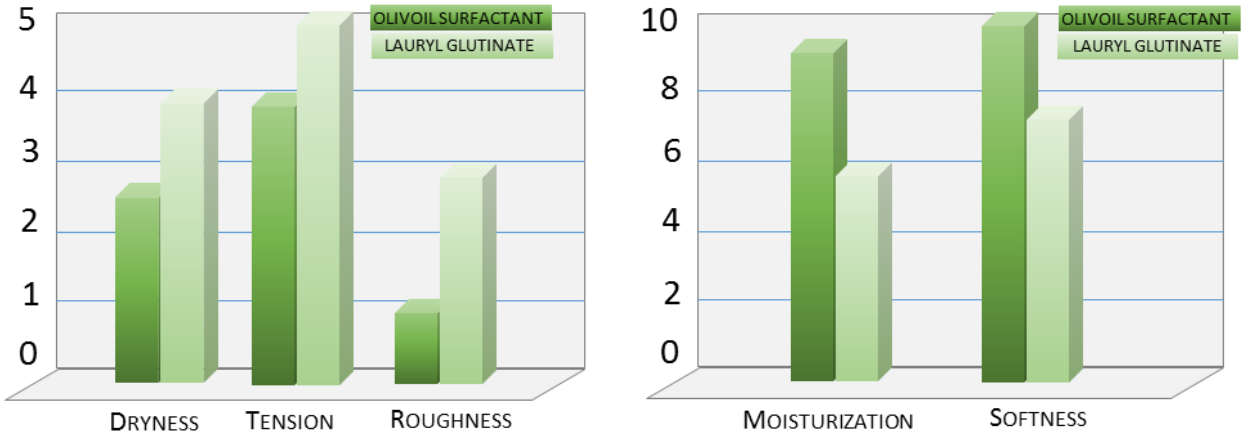
FUNCTIONAL TESTS

EVALUATION OF THE COSMETIC FUNCTIONALTY AND TOLERABILITY

The products under examination are applied by the same subjects in the same time period and on the same cutaneous zone (the face), who give a response and an unbiased evaluation.

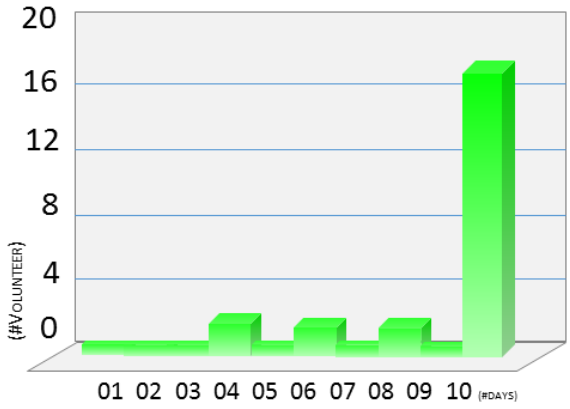
>> EVALUATION OF SKIN PARAMETERS



The evaluation of skin parameters was carried out following an half-face test protocol by a panel of 20 subjects after using a wash containing Olivoil Surfactant at 10%. The test sample was used as daily face wash on one side of the face, in comparison with a formula where the Olivoil Surfactantwas replaced by Lauryl Glutinate (Lauryl Hydrolyzed wheat protein), on the other side of the face, for 5 consecutive days. Test results are given through the answers of the panelists to a set of questions regarding sensorial skin parameters. Results are herewith graphically reported, considering two groups of parameters:

- negative skin parameters (dryness, tension, roughness)
- positive skin parameters (moisture, softness)

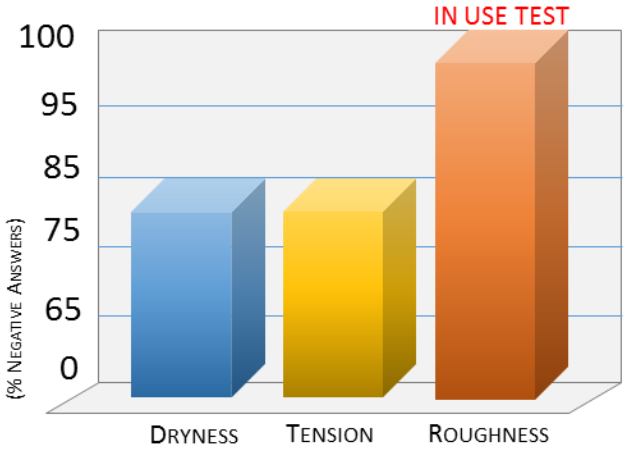
>> EVALUATION OF COSMETC AGREEABILITY

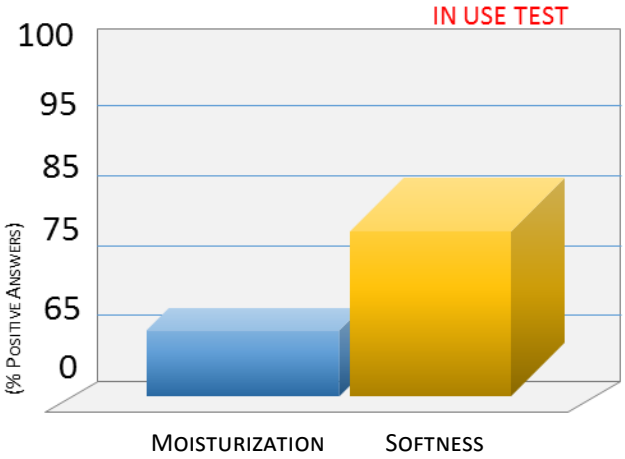


The evaluation of the cosmetic pleasantness of a personal hygiene wash containing 10% Olivoil Surfactant was carried out following two test protocols with a panel of 20 subjects: - FLEX WASH TEST, in order to obtain in a short period indications about the irritating power of the formulation (20 subjects, internal part of the forearm, three applications daily, 10 consecutive days) - IN-USE TEST, with the aim to underline the mildness of Olivoil Surfactant cleansing (20 subjects, personal hygiene use, one application daily, 5 consecutive days). The FLEX WASH test results are given by the number of subjects that left the protocol following the first appearance of irritation signs:

The IN-USE test results are given through the answers of the panelist to a set of questions regarding the sensorial skin parameters. The results are herewith graphically reported, considering two groups of parameters:

- dryness, tension and roughness perception parameters: a high percentage of answers indicates a positive assessment;
- positive parameters (moisture and softness perception).



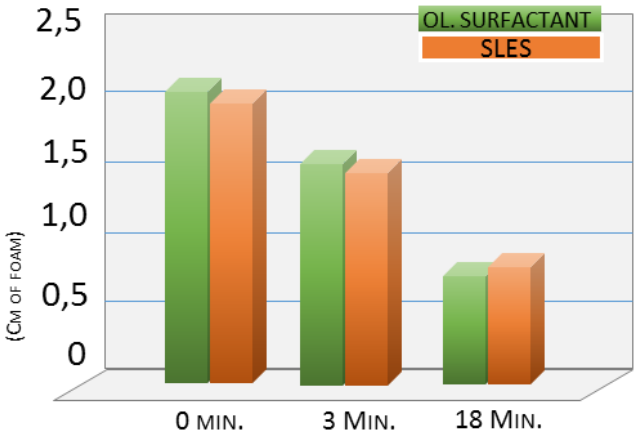


IN VITRO EVALUATION OF THE EYE IRRITANCY <<

According to this *in vitro* evaluation of eye irritation, the product called OLIVOIL SURFACTANT proved to be not irritating.

FOAM ABILITY <<

Two solutions were prepared: one containing SLES, the other containing Olivoil Surfactant. The Ross-Miles method was applied at 20°C, using water @ 15°F hardness and at 1%.surfactant concentration (as active substance).



APPLICATIONS <<

Between 2 and 20% in skin cleansing products (foam bath, shampoos, baby care and personal hygiene cosmetics).

OLIVOIL AVENATE EMULSIFIER

OLIVOIL AVENATE SURFACTANT

OLIVOIL EMULSIFIER

OLIVOIL FRUTTOSIDE SURFACTANT

OLIVOIL GLUTAMMATE EMULSIFIER

OLIVOIL GLUTAMMATE SURFACTANT

OLIVOIL PCA

OLIVOIL SURFACTANT

POTASSIUM OLIVATE

OLIVOIL
SURFACTANT

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