



OLIVEM®800

INCI: CETEARETH-6 OLIVATE
O/W emulifier for fluid systems

According to the strong market request for natural derived ingredients, B&T has been involved in the research and development of vegetable derivatives from olive oil since many years.

In the area of the O/W emulsifiers we have been recently launched a new derivative OLIVEM 800, still a mild ingredient for cosmetic derived from olive oil.

OLIVE OIL, in fact, among all the natural lipids, is the one showing the highest compatibility with our skin: the innovative idea is combining all the precious virtues of olive oil with interesting cosmetic functions, such the emulsifying ability. The importance of the right emulsifier into an emulsified system is generally recognised : the texture, the stability, the safety profile of the final product greatly depend on the chosen emulsifier. Today also the sensoriality of the cream is becoming one of the main characteristic to be considered and carefully balanced in accordance with specific targets or claims.

From an interesting and actual vegetal oil such as OLIVE OIL, by esterification of the fatty acids groups with pre-ethoxylated Cetearyl Alcohol, we obtained **a new emulsifier, OLIVEM 800.**

This emulsifier is particularly suitable for very light, fast absorbed cream and **very low viscosity emulsions.** It's also able to provide a good emolliency and a smoothing after-feel without any occlusive effect.

It maintains the sensoriality characteristic of all B&T waxes derived from Olive oil: very light skin-feel, good spreading, without any whitening effect, fast absorbed.

The after-use feel is very appreciable, non-sticky despite the fact of being an ethoxylated ingredient, and with an interesting emollient effect due to the Olive Oil fatty acids content.

APPLICATIONS IN SKIN-CARE,SUN-CARE and MAKE -UP

OLIVEM 800 can be mainly recommended for the application in fluid and hyperfluid emulsions, such as :

- ANTI-AGE SERUM (Eye-contour and face fluids)
- BODY LOTIONS
- SUN-CARE HYPERFLUIDS AND LOTIONS
- FLUID O/W FOUNDATIONS

In this systems it works as the only emulsifier for O/W very-fluid or fluid systems.

It does not require any co-emulsifier for the final stability

It can be used in more consistent creams in combination with secondary emulsifiers or with consistency waxes, when an higher viscosity is required.

It is compatible with the most commonly used additives, as well as active ingredients .The product is very easily employed as a primary emulsifier:

- **melt lipidic phase to 60°C (or higher if it contains high melting waxes)**

- prepare the watery phase and heat it up to the same temperature
- under homogeneization, slowly add the lipidic phase to water for direct process or water to lipids to observe inversion of emulsion
- homogenize for a couple of minutes
- cool down quickly while stirring; final viscosity is reached 24 hours after the formulation

HYPERFLUID SYSTEMS

Considering the good stability of this emulsifier when used at low percentages in fluid systems, we performed a systematic study in order to evaluate the best option for an hyperfluid system. These kind of formulations are the ideal choice for sun-care, after-sun care, deodorant, wipes, cleansing lotion.

From the first results we could conclude that some low viscosity stabilising polymer was required. The best results in terms of final stability and texturing have been obtained by a synergic combination of Microcrystalline cellulose, Carboxymethyl cellulose (AVICEL PC 611 : 1 - 2 %) and Xanthan gum (Rhodicare D : 0,1-0,30%)

- The starting percentage of the emulsifier was:

Olivem 800 **4,5%**

- The recommended rate of the two polymers following our experience, in order to reach a good compromise between low viscosity and stability, is 10:1 :

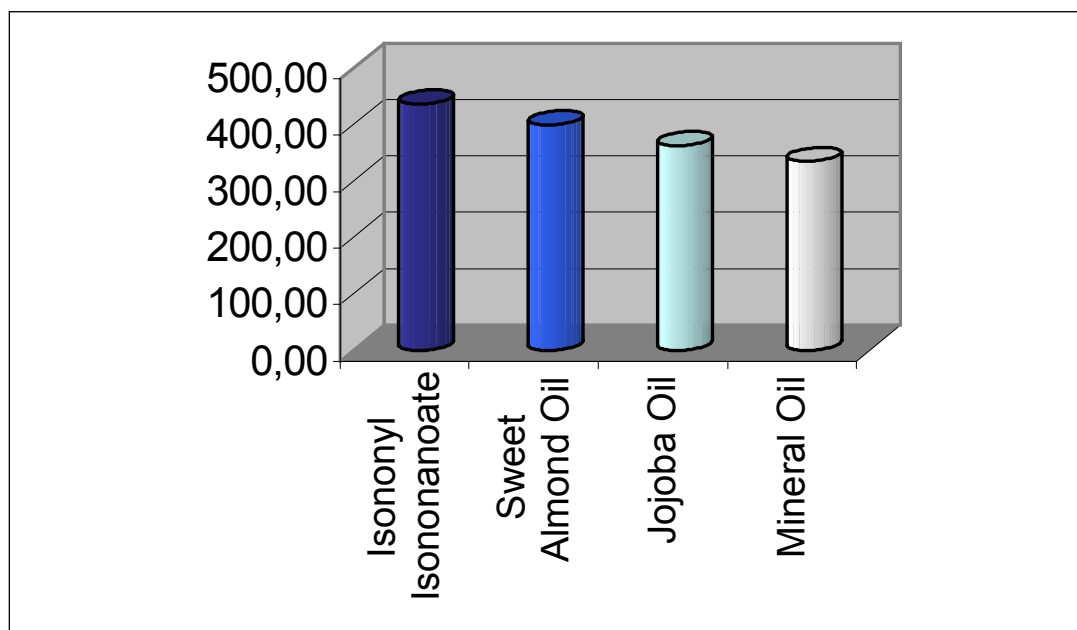
Microcrystalline cellulose, Carboxymethyl cellulose	1,5%
Xanthan Gum	0,15%

The total lipid phase amount has to be kept between 4 to 6% in order to maintain the viscosity at the lowest values:

pH	Olio 5%	Centrifuge	Viscosity t=24 h
5,4	Isononyl Isononanoate	stable	436,7 cPs V=60 S=2
5,44	Sweet Almond Oil	stable	399,3 cPs V=60 S=2
5,47	Jjoba Oil	stable	362 cPs V=60 S=2
5,49	Mineral Oil	stable	334,3 cPs V=60 S=2

TAB I

-Graphic I. Behaviour of viscosity in respect to oil polarity in hyperfluid systems with Olivem 800-



- When using high polarity lipid phase the amount of the emulsifier can be lower till 2% without compromising the stability of the system.
An interesting hyper-fluid system, with a very light skin-feel, fast absorption and with no sticky effect can be obtained, as follows:

Ingredients	Percentages
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OLIVEM 800	2%
Sweet Amond oil	5%
Demineralized Water	up to 100
Glycerin	5%
Panthenol	0.5%
Microcrystalline cellulose,	
Carboxymethyl cellulose	1.5%
Xanthan gum	0.15%



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This system can be a simple base to be used as a "milky-shape" carrier for actives.
The recommended percentages of use for hyperfluid to fluid systems is 2 to 4 percentage of the emulsifier depending on the polarity and percentage of the lipid phase (from 4 to 10%).

TOTAL SAFETY AND NO TOXICITY

OLIVEM 800, such as all B&T products, **has not been tested on animals**. It has been tested on human skin (for primary potential irritation: **PATCH TEST**).

Results show that the product can be classified as NON IRRITANT on the mucous membrane and the skin. From the results of the tests performed on OLIVEM 800, it can be concluded that the use of this ingredient in cosmetic formulations is absolutely safe.

• **PATCH TEST**

The primary irritation test has been made using OLIVEM 800 applied diluted at 10% in distilled water. The test requires the application of an occlusive patch on the skin of the back on 20 adult healthy volunteers, and it is left on the skin for 48 hours. At the end of this period, the patch is removed and the conditions of the skin are evaluated after 15 minutes and after 24 hours from patch removal. The obtained results allow us to define the **product as NON IRRITANT**.

• **RED BLOOD CELL TEST (ocular irritation alternative test)**

The Red Blood Cell Test can quantify the effects of the surfactants on the cytoplasmic membranes (hemolysis) in combination with the damage of liberated cellular protein (denaturation). Various concentrations of test sample are incubated with a defined quantity of RBC suspension for 10 minutes. At the end of the incubation period, the resulting supernatant is monitored to evaluate the ability of test samples to induce hemolysis or denaturation. The relation between hemolysis and protein denaturation, known as Lysis/Denaturation ratio, is then calculated and may be compared with acute eye irritancy data.

LEGENDA

In Vivo eye irritation	in vitro L/D	In Vivo eye irritation	in vitro L/D
Not irritant	>100	Irritant	> 0.1
Slightly irritant	>10	Very irritant	< 0.1
Moderately irritant	>1		



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RESULTS The irritation Index, calculated according to the criteria described by this procedure (Lysis/Denaturation ratio), shows that product is non irritant.

CONCLUSIONS: In the adopted test conditions, the product can be considered: non irritant

CONCLUSIONS

OLIVEM 800 (Ceteareth-6 Olivat) is a natural derived emulsifier, that allows to employ different amount of natural and polar lipids, but also light esters and silicones. This emulsifier is particularly recommended, within the Olivem range, for applications in fluid and hyperfluid lotion. The texture has a good spreading, no tackiness .The after-feel is particularly agreeable and smooth.

The emulsions containing OLIVEM 800 match all the important characteristics of stability and an appreciable skin-feel with the natural origin from olive oil: the oleic composition of the emulsifier is responsible for the extremely high compatibility and fast skin penetration of the product into the skin. As remarked, OLIVEM 800 may be employed in very fluid systems and also in oil free systems as the only source of fats, to get a very pleasant, skin friendly and economic base suitable for a broad range of applications .

OLIVEM 800 has shown very satisfactory results in formulating O/W emulsions that perform perfect tolerance, total safety, natural image and unique sensorial profile.

BIODEGRADABILITY

The determination of biodegradability has been made according to the CEE regulation N. 82/242. OLIVEM 800 is biodegradable over 90 % (OECD method)

FORMULATIONS

The following formulations indicated are here in order to give general directions for the employment of OLIVEM 800. Although they have been realised according to best information we know, this does not exonerate the user from verifying their validity

B&T Technical Assistance is at the user's disposal in order to contribute to the development of new formulations, and to give the needful information for correct use of our products.

Anti-ageing Day Serum		Vitaminic Body-Lotion	
Phase A.	%	Phase A	%
1. OLIVEM 800	3.0	1. OLIVEM 800	2.0
2. Cyclomethicone	1.0	2. Isononyl Isononanoate	4.0
3. Isopropyl Myristate	4.0	3. Wheat Germ Oil	2.0
4. Dimethicone	1.5	4. Vitamine E	0.5
5. Cyclomethicone	1.0	Phase B	
6. Shea Butter	1.0	1. Demineralized Water	<i>up to 100</i>
7. Mineral Oil	12	2. Structure XL	2.0
8. Ceramide III	0.5	3. Xantan gum	0.2
9. Tocopheryl Acetate	0.5	4. Panthenol (Pro-Vit B5)	1.0
Phase B.		Phase C	
1. Demineralized Water	up to 100	1. Preservatives	as needed
2. Carbomer	0.3	2. Perfume	as needed
3. Glycerin	3.0		
4. Preservatives	as needed		
5. NaOH (sol. 30%)	as needed		
Phase C.			
1. Soya Extract	2.0		
2. Eurol BT (OLIVE LEAF EXTR)	0.2		

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Silky Fluid Cream	
Phase A	%
1. OLIVEM 800	3.5
2. Demineralized Water	<i>up to 100</i>
3. Carbomer (EDT 2050)	0.3
4. Glycerin	3.0
5. Konjac powder	0.2
6. Cetearyl Sulphate	0.2
7. Panthenol	0.5
8. Preservatives	<i>as needed</i>
9. NaOH (sol.30%)	<i>as needed</i>
Phase B	
1. C12-C15 Alkyl Benzoate	5.0
2. Cyclomethicone	5.0
3. Sunflower oil	2.5
4. Unsaponifiables Olive	2.5
5. Jojoba oil	5.0
6. Dimethicone	2.0
7. Ceramide III	0.5
Phase C	
1. Eurol BT	0.2
2. Perfume	<i>as needed</i>

Sun care Hyper-fluid Lotion	
Phase A	
1. OLIVEM 800	4.0
2. Parsol MCX	5.0
3. C12-15 AlkylBenzoate	3.0
4. Cyclomethicone	2.0
5. Bensophenone-3	0.5
Phase B	
1. Demineralized Water	<i>up to 100</i>
2. Avicel CL-611	1.5
3. Glycerin	2.0
4. Xanthan Gum	0.2
5. Panthenol	1.0
Phase D	
1. Preservatives	0.2



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TECHNICAL DATA SHEET

01. PRODUCT AND COMPANY IDENTIFICATION

Trade Name	OLIVEM 800
Applications	non ionic emulsifying system derived from olive oil for creams and lotions
INCI Name	CETEARETH-6 OLIVATE
CAS Number	226708-41-4
EINECS	not applicable: polymer
Legislative Approval	world-wide
Company	B & T Srl - Via O. da Tresseno, 9 - 20127 MILAN - Italy Tel. 0039.02 26142044 - Fax 0039.02.26142060

02. SPECIFICATIONS

Form @ 20°C	flakes, waxy solid
Color	white
Odor	slight, characteristic
Active Substance%	99.0 min
Water Content%	< 1.0
Acid Value	30 max

03. SOLUBILITY

Soluble	in ethanol and vegetal oil
Dispersible	in water and propylen glycol

04. TYPICAL VALUES

Melting Point	45 - 55°C
Iodine Value	3.0 max
Saponification Value	120 - 140
HLB	12.0
Additives and preservatives	none

05. SHELF-LIFE

5 years stored unopened into original containers between 5 and 35°C following GMP guidel

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