

# Emulpharma<sup>®</sup> Eco10

PEG-free O/W emulsifier,  
ideal for sustainable and mild products

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# Emulpharma® Eco10

## At a glance

**Emulpharma® Eco10** is a PEG-free, non-ionic O/W emulsifier, esterified by lauric acid and polyglycerin-10.

- ✓ PEG-free.
- ✓ 100% vegetal origin (from renewable resources).
- ✓ ECOCERT certified (Cosmos).
- ✓ Palm oil free.
- ✓ Cold process, non-ionic emulsifier.
- ✓ HLB 18.
- ✓ Pleasant skin feel.
- ✓ Excellent mildness (skin and eye).
- ✓ Ideal for low viscosity emulsions, including sprayable formulations.
- ✓ Regulatory Status: registered in 28 EU Countries, USA, China, Japan, ASEAN, South Africa, India

**INCI:** Polyglyceryl-10 Laurate (HLB 18)

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# Emulpharma® Eco10

## Introduction

- **Emulpharma® Eco10** is a PEG-free, non-ionic O/W emulsifier, derived from the esterification of lauric acid and natural sourced polyglycerols
- It is cold-processable.
- **Emulpharma® Eco10** is ideal for low viscosity emulsions.
- **Emulpharma® Eco10** can be used as a co-emulsifier to increase the HLB value in fluid emulsions.
- It can be used also as a solubiliser to obtain clear formulations and as foam-booster in cleansing products.

# Emulpharma® Eco10

## The ideal emulsifier: market trends

*"I need an emulsifier that satisfies market request of being 'Green'. It has to have different features..."*

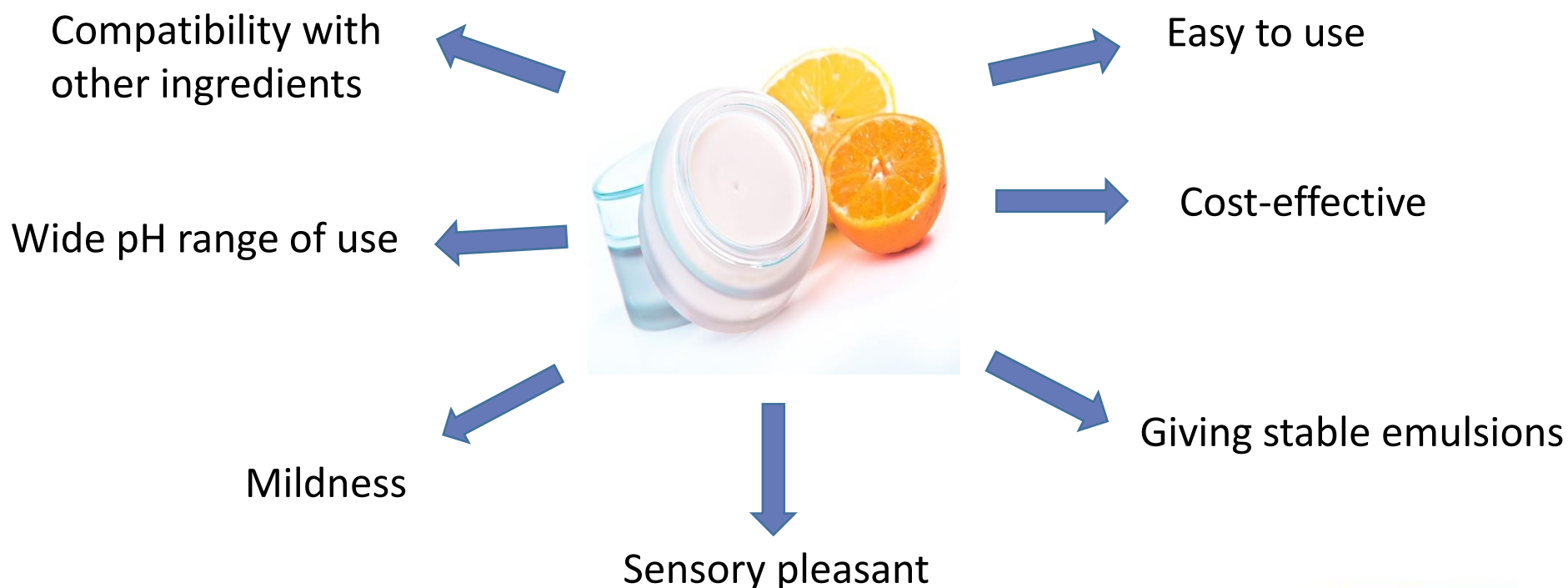


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## The ideal emulsifier: technical features

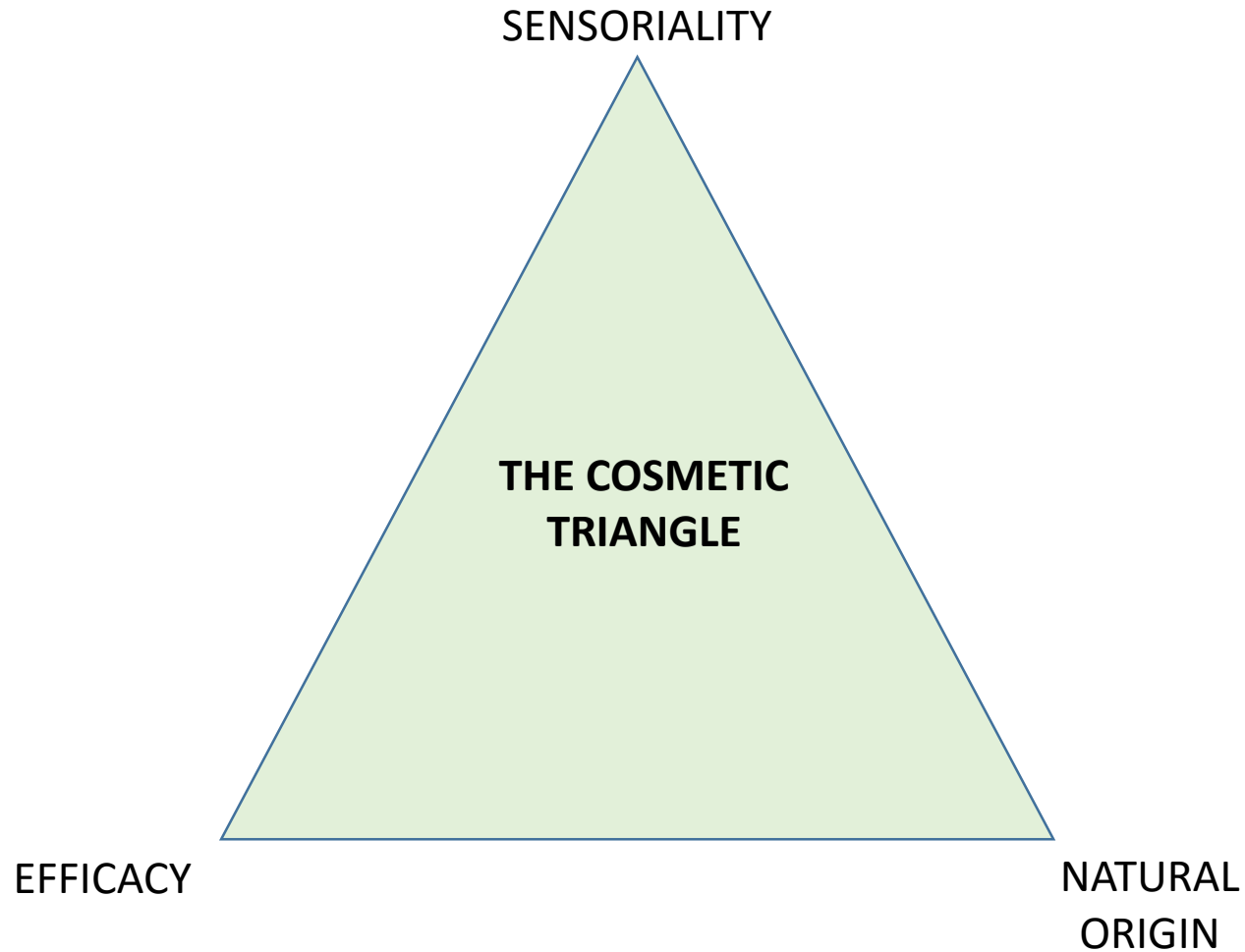
*"I need an emulsifier that satisfies technical aspects to create different products types: lotions, BB-creams, Baby / delicate skin products. It has to have different features..."*



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## Cosmetic Challenge



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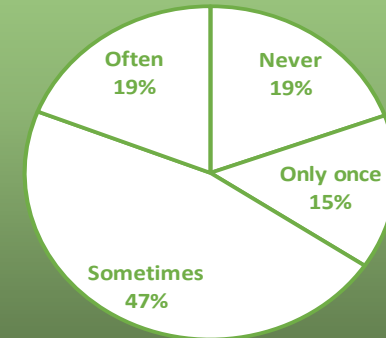
# Emulpharma® Eco10

## Consumer Insights

- **'Green'** is an ever-growing trend in personal care.
- In Cosmetics, 'green', 'biologic' and 'natural' will continue to be keywords in the coming years.
- **Emulpharma® Eco10** offers a natural alternative to PEG-based emulsifiers and compared to these has a better performance in:
  - > detergency
  - > reducing surface tension
  - > foam's formation and stability
- **Emulpharma® Eco10** is a green, ECOCERT and Cosmos certified emulsifier, meeting many growing consumer expectations.

### The Future Of Beauty Is Always Greener!

IN THE LAST YEAR, HAVE YOU PURCHASED AT LEAST ONE PERSONAL CARE PRODUCT THAT DEFINE "GREEN"?



**81% of panelists have purchased a 'green' product at least once**

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## Products in the market



### Ingredients:

Aqua, **Polyglyceryl-10 Laurate**, Isoamyl Laurate, Aloe Barbadensis Leaf Extract, PCA Glyceryl Oleate, Benzyl Alcohol, Sodium Benzoate, Citric Acid, parfum, L-limonene, Linalool, Citronellol\* ingredients from organic farming

**Location:** France

**Brand:** Laboratoire Cattier

**Date:** Feb 2016

**Category:** Detangling Spray

**Price:** €6.89

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Aqua, Aloe Barbadensis Leaf Juice, Glycerin, Panthenol, Hydrolyzed Soy Protein, **Polyglyceryl-10 Laurate**, Sodium Benzoate, Potassium Sorbate, Guar Hydroxypropyltrimonium Chloride, Cananga Odorata Flower Oil, Pogostemon Cablin Oil, Citrus Grandis Peel Oil, Juniperus Mexicana Oil, Chamomilla Recutita Extract, Calendula Officinalis Flower Extract, Camellia Sinensis Leaf Extract, Rosmarinus Officinalis Leaf Oil, Urtica Dioica Root Extract, Citrus Medica Limonum Peel Oil, Pelargonium pelatum graveolen...

**Location:** Germany

**Brand:** John Masters Organics

**Date:** Aug 2014

**Category:** Leave in Conditioner

**Price:** €24.75

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Aqua, Glycerin, Cetearyl Alcohol, **Polyglyceryl-10 Laurate**, Phenoxyethanol, Cetearyl Glucoside, Caprylyl Glycol, Carbomer, Sodium Hydroxide, Ethylhexylglycerin

**Location:** Canada

**Brand:** Johnson & Johnson

**Date:** Jan 2016

**Category:** Skin Care

**Price:** CAD11.99

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Caprylic/Capric Triglyceride, Glycerin, Dicaprylyl Carbonate, Aqua, Rosa Damascena Flower Water, Lecithin, **Polyglyceryl-10 Laurate**, Alcohol Denat., Arginine, Citric Acid, P-anisic Acid, parfum (fragrance), Linalool, Cistus Ladaniferus Oil, Benzyl Alcohol, Mel, Benzyl Benzoate, L-limonene, Benzyl Salicylate, Coumarin, Eugenol, Farnesol, Tocopherol, F.I.L C167079/1\*ingredients from organic farming\*\*made using organic ingredients

**Location:** France

**Brand:** Laboratoire Sanoflore

**Date:** Feb 2016

**Category:** Skin Care

**Price:** €39.00

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

active ingredient: CI 77947inactive ingredients: Aqua, Caprylic/Capric Triglyceride, Cetearyl Glucoside, Cetearyl Alcohol, Glycerin, **Polyglyceryl-10 Laurate**, Cocos Nucifera Oil, Pyrus Malus Fruit Extract, Prunus Armeniaca Fruit, Vanilla Planifolia Fruit, tonka bean, Ananas Sativus Fruit, Rubus Idaeus Fruit, Lonicera Caprifolium Extract, Lonicera Japonica Flower Extract, Rosmarinus Officinalis Leaf Oil, Arnica Montana Flower, Cucumis Sativus Fruit, Calendula Officinalis Flower, Vaccinium Macrocar...

**Location:** Mexico

**Brand:** Original Sprout

**Date:** Dec 2015

**Category:** Sun Care

**Price:** \$15.64

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Prunus Armeniaca Kernel Oil, Olea Europaea Fruit Oil, Carthamus Tinctorius Seed Oil, Isoamyl Laurate, Simmondsia Chinensis Seed Oil, Oenothera Biennis Oil, Argania Spinosa Kernel Oil, Polyglyceryl-10 Laurate, Aloe Barbadensis Flower Extract, parfum\*\*, Glycerin, Astragalus Membranaceus Root Extract, Atractyloides Macrocephala Root Extract, Bupleurum Falcatum Root Extract, Helianthus Annuus Seed Oil, Tocopherol, Alcohols, Citric Acid, L-limonene, Linalool, Citronellol, Geraniol, Citral, Benzyl Ben...

**Location:** UK

**Brand:** Santaverde

**Date:** Jan 2015

**Category:** Skin Care

**Price:** £38.00

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Alcohols, Aqua, Lauryl Lactate, Essential Oils and Waters, **Polyglyceryl-10 Laurate**, Lecithin, Aloe Barbadensis Leaf Juice Powder, Camellia Sinensis Leaf Extract, Calendula Officinalis Flower Extract, Hamamelis Virginiana Extract, Carthamus Tinctorius Seed Oil, Glycerin, Linalool, L-limonene, Geraniol, Coumarin, Citronellol, Citral, Farnesol, Benzyl Benzoate\*from controlled organic agriculture

**Location:** France

**Brand:** Sante Naturkosmetik

**Date:** Jan 2016

**Category:** Deodorant

**Price:** €11.45

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Aqua, Glycerin, Pentylene Glycol, Dicaprylyl Carbonate, Dicaprylyl Ether, Saccharide Isomerate, Sodium Hyaluronate, Hydrolyzed Hyaluronic Acid, Tocopheryl Acetate, Rosmarinyl Glucoside, Inositol, Propanediol, Xanthan Gum, Citrus Grandis Seed Extract, Acrylates/C10-30 Alkyl Acrylate Crosspolymer, **Polyglyceryl-10 Laurate**, Perilla Ocymoides Leaf Extract, Acorus Gramineus Root/stem Extract, parfum (fragrance), Disodium Phosphate, Sodium Phosphate, Sodium Citrate, Citric Acid, Glyceryl Caprylate, Sod...

**Location:** Germany

**Brand:** Dr. Med. Christine Schrammek Kosmetik

**Date:** Oct 2015

**Category:** Skin Care

**Price:** €45.00

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Aqua, Glycerin, Alcohols, Ethyl Ascorbic Acid, Propanediol, **Polyglyceryl-10 Laurate**, Imperata Cylindrica Root Extract, Sodium Acrylates Copolymer, Camellia Japonica Seed Oil, parfum (fragrance), Butylene Glycol, Tocopherol, Chlorphenesin, Propylene Glycol, Lecithin, Glycyrrhizic Acid, Sodium Hyaluronate, O-cymen-5-ol, Glycyrrhiza Glabra Root Extract, Tetrapeptide-30, Lycium Chinense Fruit Extract, Magnolia Officinalis Bark Extract, Caprylyl Glycol, Carbomer, Helianthus Annuus Seed Oil, Polydatin...

**Location:** France

**Brand:** Cinq Mondes

**Date:** Dec 2014

**Category:** Skin Care

**Price:** €95.00

Source: Mintel GNPD

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# Emulpharma® Eco10

## Products in the market



### Ingredients:

Aqua, Glycerin, Butylene Glycol, Alcohols, Sorbitol, Niacinamide, Pentylene Glycol, PPG-6-decyltetradeceth-30, Vanilla Planifolia Fruit Water, Vanilla Planifolia Fruit Oil, Phenoxyethanol, Methyl Gluceth-10, Caprylyl Glycol, Phytosteryl/octyldodecyl Lauroyl Glutamate, Sodium Citrate, Disodium EDTA, Citric Acid, parfum (fragrance), Hydrogenated Lecithin, Polianthes Tuberosa Polysaccharide, Sodium Hyaluronate, **Polyglyceryl-10 Laurate**, Polyquaternium-51, Sphingomonas Ferment Extract, Tocopherol, IL...

**Location:** France

**Brand:** France

**Date:** Jun 2015

**Category:** Skin Care

**Price:** €139.50

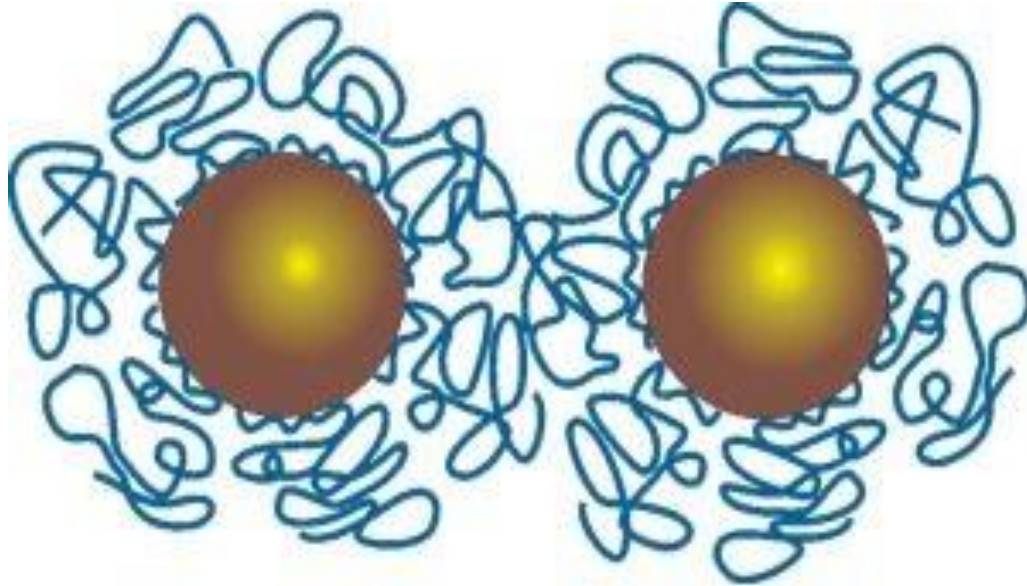
Source: Mintel GNPD

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## Steric stabilisation



Non-ionic emulsifiers provide steric stabilisation

### Stokes' Law

$$V = \frac{d^2(\rho_i - \rho_e)g}{18\eta}$$

The sedimentation rate is influenced by the diameter of particles, density of internal and external phases, viscosity and gravitational force.

# Emulpharma® Eco10

## Safety profile

**Emulpharma® Eco10** was subjected to different kinds of safety/mildness tests

- DERMAL TEST → In-vitro Dermal Irritection® Method: Not Irritant
- OCULAR TEST → Minimal/Mild Irritant
- OECD 439 → Not Irritant

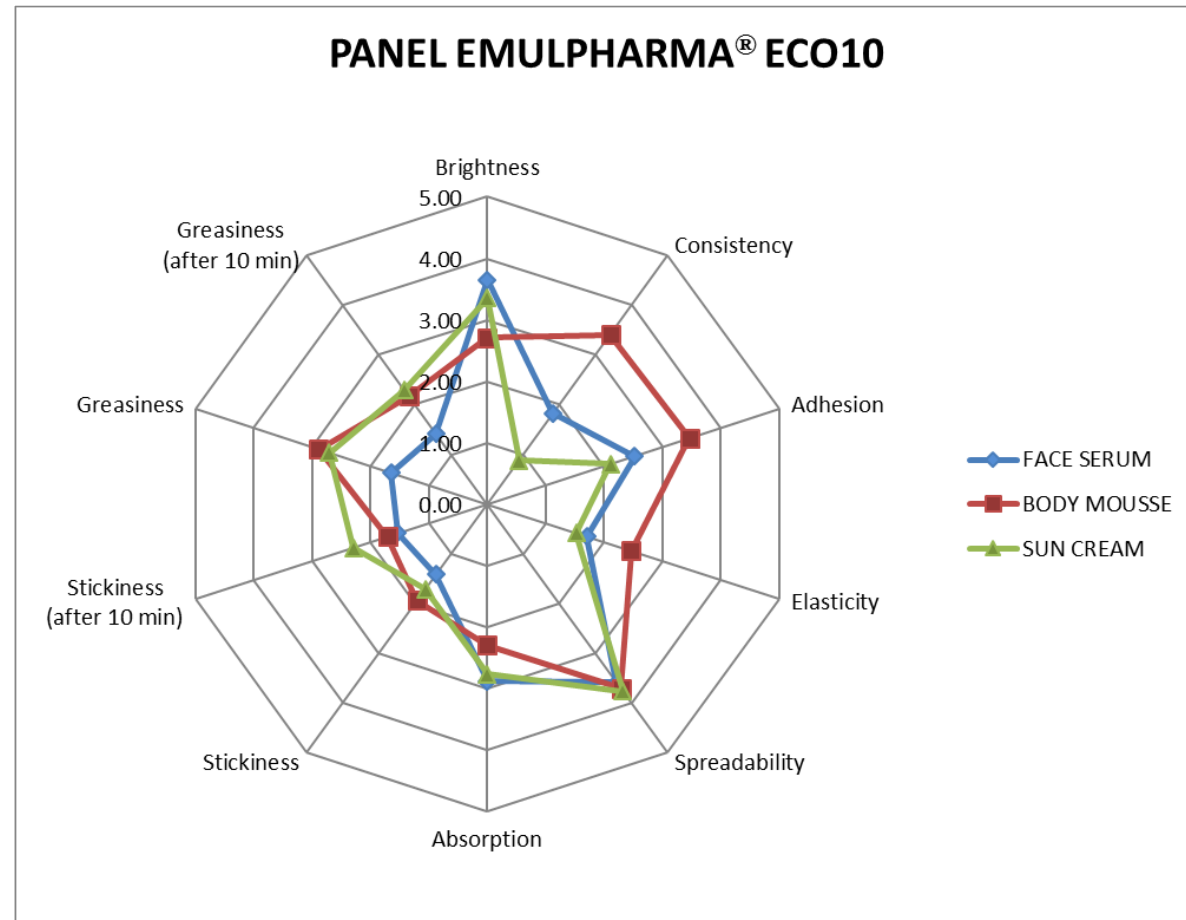
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## Sensory evaluation

We conducted a panel study on 17 subjects to evaluate the sensory performance of 3 formulations based on **Emulpharma® Eco10**.

- 17 subjects.
- 10 attributes measured.
- Scoring explained on following slide.
- 3 x formulations tested.
- **Emulpharma® Eco10** levels were as follows:

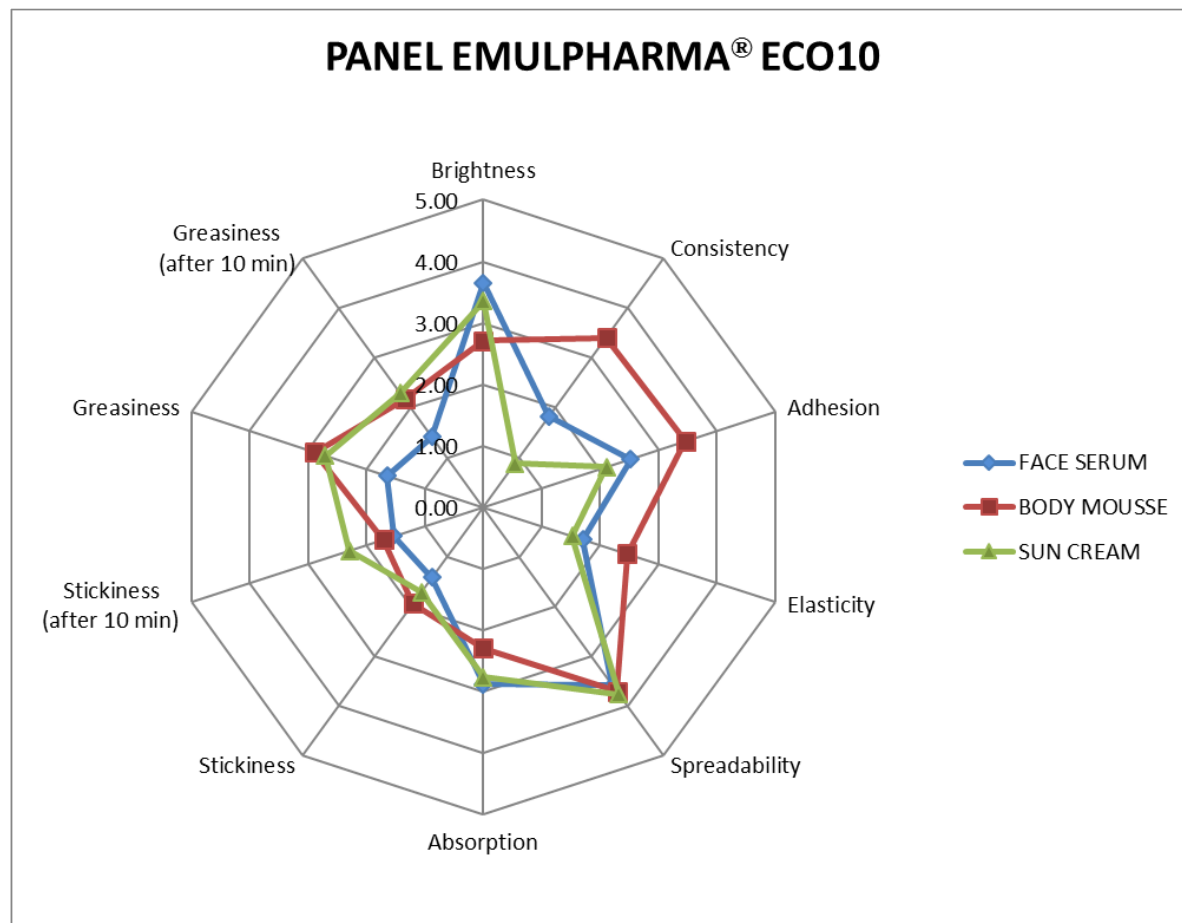
Face Serum:	1.5%
Body Mousse:	2.5%
Sun Cream:	1.5%



# Emulpharma® Eco10

## Sensory evaluation

Brightness	Capacity of the cream to reflect light.	0 = Low 5 = High
Consistency	Liquid - semisolid - thick	0 = Liquid 5 = Thick
Adhesion	Amount of sample that remains on the finger after short contact (2 s) with cream.	0 = Low 5 = High
Elasticity	Degree to which product expands between thumb and forefinger while closing and opening the fingers.	0 = Low 5 = High
Spreadability	Impression of the difficulty to rub the cream on the skin.	0 = Low 5 = High
Absorption	Impression of the rate of absorption of the sample into the skin.	0 = Low 5 = High
Stickiness	Force required to separate finger from the skin.	0 = Low 5 = High
Stickiness (after 10 min)	Degree of the sensation of stickiness on the skin 10 min after application.	0 = Low 5 = High
Greasiness	Degree to which the cream leaves the skin feeling greasy.	0 = Low 5 = High
Greasiness (after 10 min)	Degree to which the cream leaves the skin feeling greasy 10 min after application.	0 = Low 5 = High



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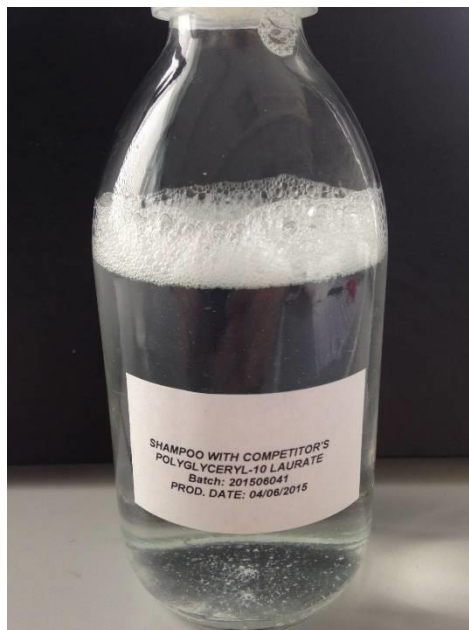
## Competitor comparison

- We compared a Shampoo containing Emulpharma® Eco10 to the same formulation containing a competitor Polyglyceryl-10 Laurate (same level):



**Shampoo with Emulpharma® Eco10**

> Stable, no precipitation.



**Shampoo with competitor Polyglyceryl-10 Laurate**

> Visible precipitation.

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# Emulpharma® Eco10

## Formulation guidelines

### Emulsions

For best results we recommend dispersing **Emulpharma® Eco10** in the oil phase, and then incorporating the oil phase into the aqueous phase with agitation.

### Solubilisation

We recommend dispersed the target oily ingredient(s) into **Emulpharma® Eco10** with stirring until a uniform dispersion is achieved. For best clarity results, we recommend a minimum 2:1 blend in favour of **Emulpharma® Eco10**, depending on the polarity and attributes of the target oily ingredient(s).

**Emulpharma® Eco10** can be formulated at a large range of temperatures and produces highly stable o/w emulsions.

Reccomended usage level: 0.5-5%

# Emulpharma® Eco10

## Applications

- O/W emulsions.
- Sprays, Lotions, low-viscosity Fluids.
- Wet Wipes.
- Cold process formulations.
- Green / ECOCERT / 100% natural formulations.
- Baby Care.
- Products for Sensitive skin.
- Anti-aging products.
- Mild cleansing products – toiletries.



# Emulpharma® Eco10

## Summary

**Emulpharma® Eco10** is a PEG-free, non-ionic O/W emulsifier, esterified by Lauric Acid and Polyglycerin-10.

- ✓ PEG-free, ECOCERT certified natural emulsifier.
- ✓ Ideal for low viscosity and hyperfluid emulsions.
- ✓ Easy-to-use, cold process with excellent compatibility profile.
- ✓ Imparts a pleasant skin-feel.

**INCI DECLARATION** Polyglyceryl-10 Laurate

**PHYSICAL FORM** Liquid

**RECOMMENDED USAGE LEVELS** 0.5 – 5%

**TOXICOLOGY** In-vitro Dermal Irritation® test: not irritant

# Eye Serum Sensitive Skin

## Formula Code:15PS18

	INCI name	%	Activity
<b>Phase A</b>			
	Aqua	to100	Solvent
<b>RESASSOL® DN</b>	Diglycerin	1.00	Moisturizer
	Pentylene Glycol	5.00	Humectant
	Butylene Glycol	5.00	Humectant
<b>PhaseB</b>			
<b>EMULPHARMA® ECOTECH</b>	Polyglyceryl-3 Cocoate Aqua	3.00	ECOCERT Functional Emulsifier PEG-Free, Palm Oil Free
<b>EMULPHARMA® Eco10</b>	Polyglyceryl-10 Laurate	0.70	PEG-Free, Palm Oil Free, Functional Surfactant (Steric Stabilization)
	Behenyl Alcohol	0.50	Consistency Factor
	Cetyl Alcohol	1.00	Consistency Factor
	Octyldodecanol	1.50	Emollient
	Isononyl Isononanoate	1.50	Emollient
	Helianthus Annuus Seed Oil	1.00	Emollient
	Dicaprylyl Ether	3.00	Emollient
<b>Phase C</b>			
	Xanthan Gum	0.10	Rheological Additive
<b>RESIL® SP</b>	Sodium Polyacrylate	1.00	Rheological Additive
<b>Phase D</b>			
<b>PROBIOPHYTE FRESH</b>	Aqua, Propanediol, Lactococcus Ferment Extract	1.00	Functional Ingredient
<b>AVENACARE™ OAT BETA GLUCAN</b>	Aqua, Maltodextrin, Beta- Glucan, Phenoxyethanol, Benzoic Acid, Dehydroacetic Acid,Ethylhexylglycerin	1.00	Functional Ingredient

### Manufacturing Procedure

1. Mix the ingredients of Phase A and heat to 75°C
2. Mix the ingredients of Phase B and heat to 75°C
3. Add Phase B to Phase A and homogenise for 20 min
4. Add Phase C and Phase D at 40°C and homogenise for 10 min
5. Adjust pH (6.00 – 7.00)
6. Remove air

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# Green Conditioning Shampoo

Formula Code:15PS36

	INCI name	%	Activity
<b>Phase A</b>			
<b>SUGANATE 160 NC</b>	Sodium Laurylglucosides Hydroxypropylsulfonate	15.00	Natural Anionic Surfactant
	Sodium Lauroyl Sarcosinate	15.00	Amphoteric Surfactant
<b>RESASSOL PG-6 COCONUT</b>	Polyglyceryl-6 Coconut Oil Esters	10.00	Green Non-Ionic Surfactant
<b>RESASSOL® CT</b>	Aqua, Disodium Coco-Glucoside Citrate, Sodium Coco-Glucoside Tartrate.	5.00	Anionic Surfactant
<b>RESASSOL DN</b>	Diglycerin	5.00	Humectant
<b>EMULPHARMA® Eco10</b>	Polyglyceryl-10 Laurate	4.00	
	Leuconostoc/Radish Root Ferment Filtrate	2.50	Preservative
<b>COLA MOIST 200</b>	Hydroxypropyl Bis-Hydroxyethylidimonium Chloride	1.50	Conditioning agent
<b>PANTROFINA OLV</b>	Olea eropeae (Olive) Oil Unsaponifiable	0.20	Emollient
	Parfum	q.b.	Fruit/Floral/Oriental edonistic ingredients
<b>Phase A1</b>			
	Acqua	to 100	
<b>PROBIOPHYTE FRESH</b>	Lactococcus Ferment Extract	1.00	Functional ingredient
<b>AVENACARE</b>	Oat beta glucan	1.00	Functional ingredient
	Sodium Chloride	q.b.	

## Manufacturing Procedure

1. Mix the ingredients of Phase A
2. Mix the ingredients of phase A1
3. Add Phase A1 to Phase A and homogenize for 15 min.
4. Adjust pH (5.00 – 6.00) with Lactic Acid

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