



# Our Speakers

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# Natural Emulsifiers

A Key to Post  
COVID-19 Product  
Development

23 July, 2020





# Agenda

## Overview

- Marketing Trends
- Emulsifier Functionality
- Plant Based Emulsifiers
- Formulations
- Case Studies
- Q&A



# Trends Post COVID-19

## Work From Home is the New Normal

Beauty habits are changing as we adapt to the WFH lifestyle. Consumers are experimenting with more skincare and hair treatments while using less makeup.

## Clean Beauty Shifts to Conscious Beauty

Consumers are seeking transparency in action and people over profit while keeping ethical sourcing and sustainability in mind.

## Wellness Redefined

COVID has pushed health to the forefront as wellness and beauty collide. Immunity boosters and hemp products surge in this category.

## Centered on Self-Care

Self care has become even more of a necessity as consumers look to recreate a spa-like atmosphere at home during COVID.

## Back to Basics with High-Efficacy & Multifunctionals

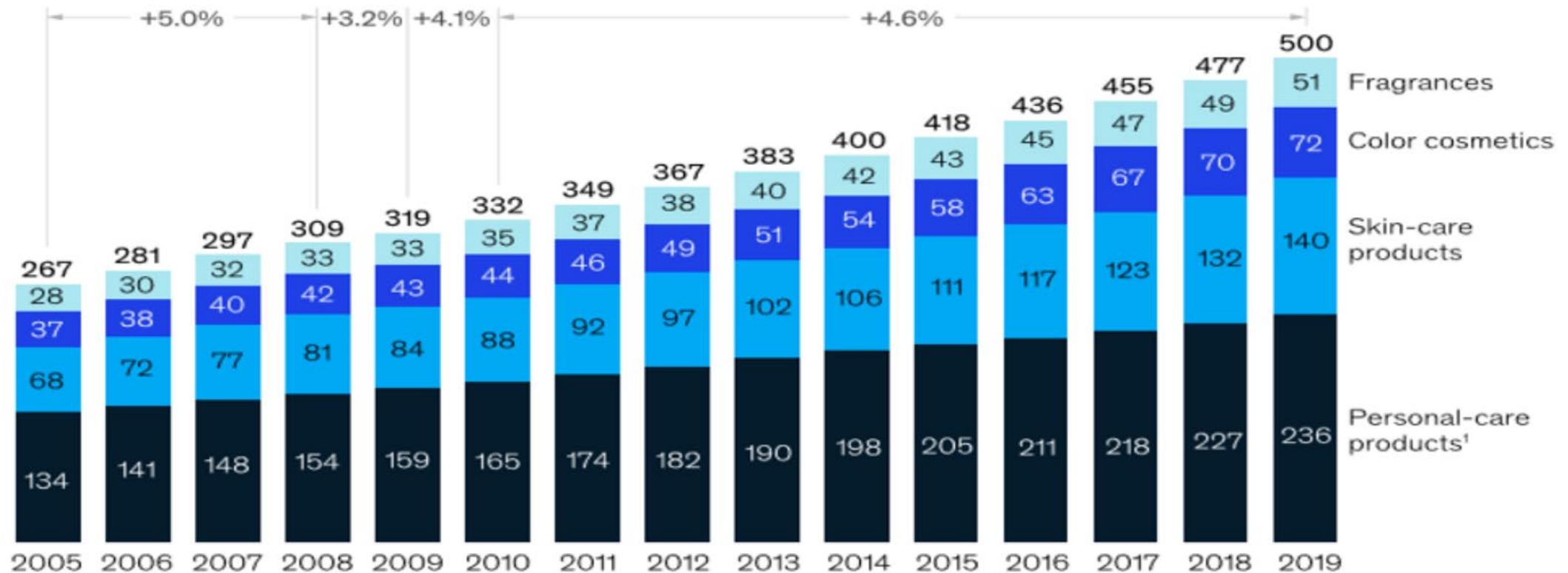
There has been a surge in demand for highly effective skincare products as consumers look to streamline routines as they face new budget constraints.

# Industry Outlook Pre-COVID-19



The global beauty market has been consistently resilient

Global beauty-industry retail sales, \$ billion

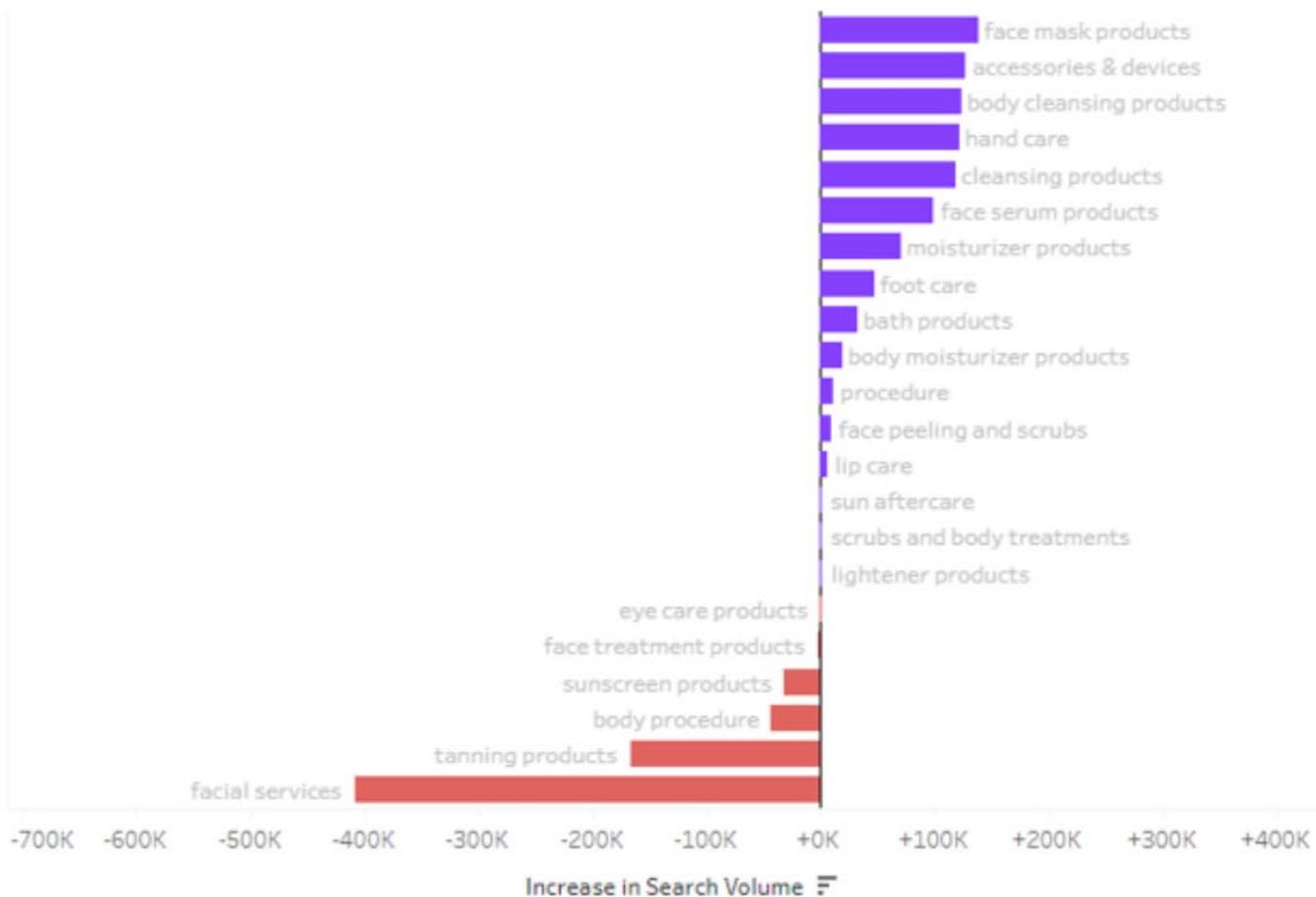


Note: Figures may not sum to listed totals, because of rounding.

<sup>1</sup>Includes bath, hair-care, men's shaving, oral-care, shower, and adults' sun-care products; deodorants; and depilatories.

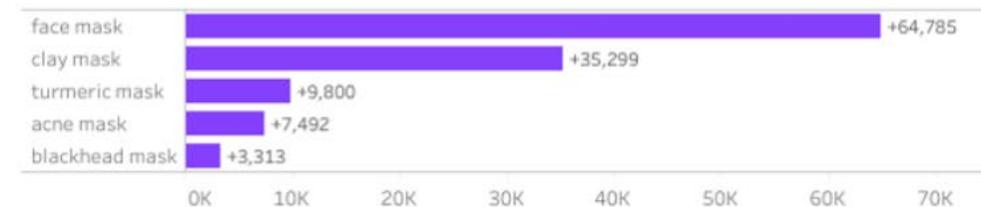
Source: Euromonitor

## TOP SKINCARE TRENDS COMPARED TO 2019



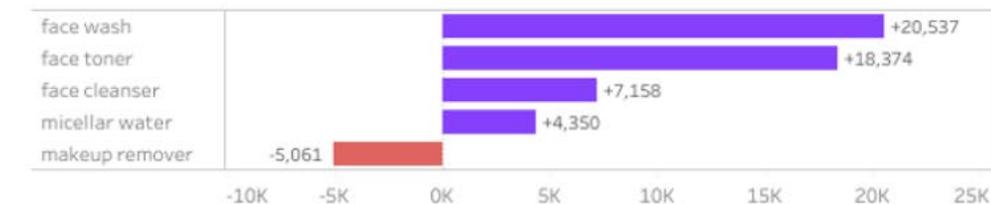
## FACE MASK PRODUCTS

+138K Increase in Search Volume



## CLEANSING PRODUCTS

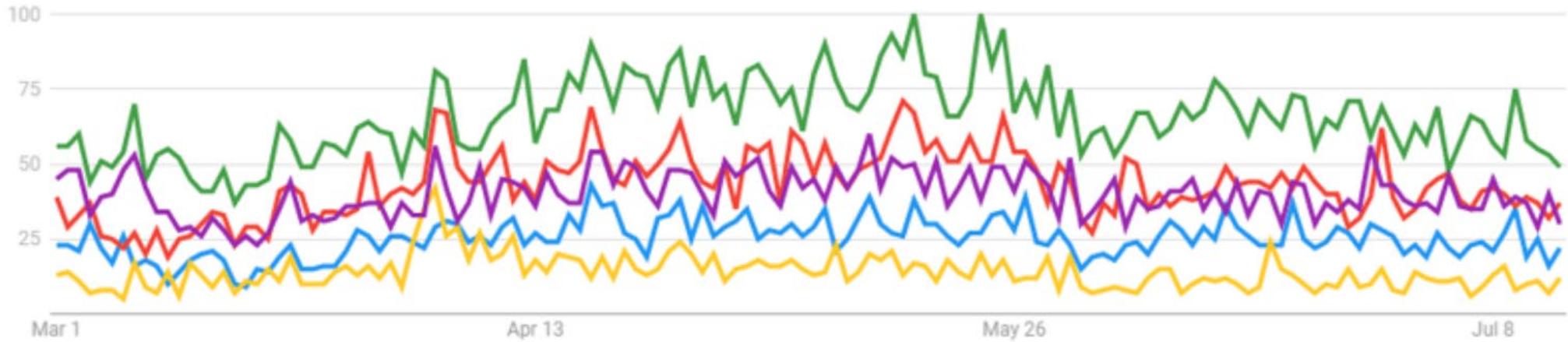
+118K Increase in Search Volume



# It's in the Data

Source: Spate Beauty

*Changing Search Behavior in the US  
During COVID-19*

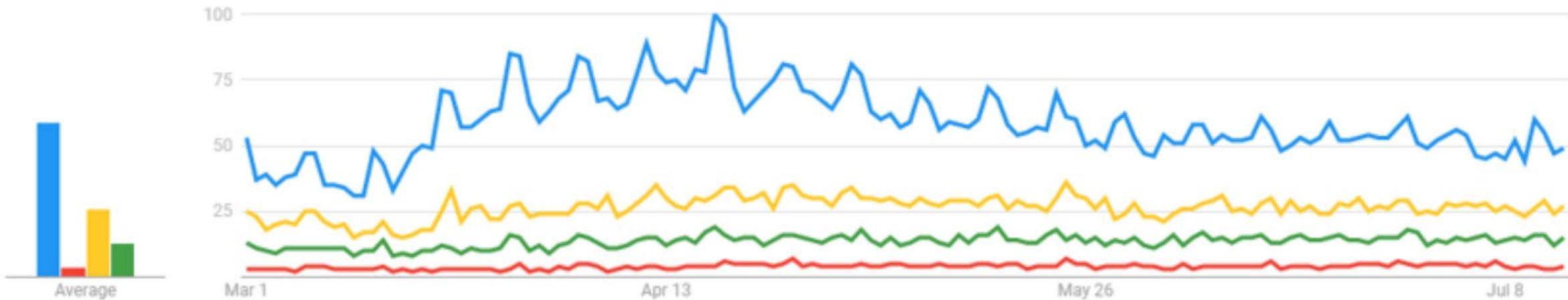


# It's in the Data

Source: Google Trends - Skin Care

Search Data 3/1/2020 - 7/17/2020

- FACE SERUM
- CLAY MASK
- SHEET MASK
- FACE OIL
- FACE MOISTURIZER



- HAIR COLORING
- HAIR SERUM
- HAIR GROWTH
- HAIR CONDITIONER



# It's in the Data

Source: Google Trends - Hair Care

Search Data 3/1/2020 - 7/17/2020

# Where We Are Headed



## Self Care From Home

The pandemic accelerated the push towards self-care that was already on the rise. More opportunities for face care, hand care, and bath & body as consumers continue to treat themselves to "mini spa days" at home.



## Wellness Redefined

Wellness and beauty will continue to merge as consumers look for a comprehensive approach to health during COVID. Hemp and CBD products continue to grow in popularity.



## Shift From Sustainability to Purpose

People over profits, racial and social justice initiatives, ethical sourcing, and sustainable packaging will continue to take hold with consumers. Clean ingredients that fit these trends will gain momentum.

## Hand Sanitizers

New hand sanitizing and cleansing practices likely here to stay. Another surge in demand is also possible. Multi-functional sanitizers gain popularity as consumers want more than just anti-microbial. Emollients gain attention in this category.



# Emulsifiers & Emulsification





**WATER-LOVING HEAD**

**OIL-LOVING TAIL**

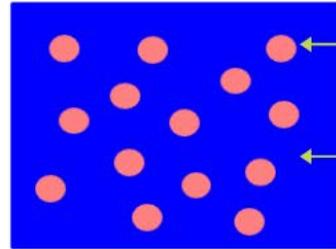
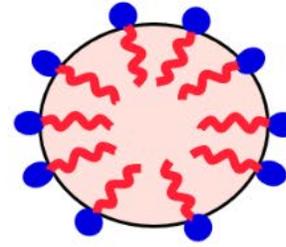
'Hydrophilic'

'Lipophilic'

'Lipophobic'

'Hydrophobic'

## OIL - IN - WATER EMULSION



Dispersed Oil Phase

Continuous Water Phase

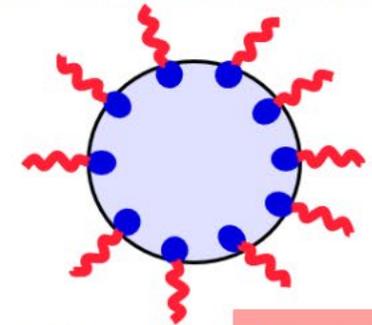
An **EMULSIFIER** is comprised of a hydrophilic head and a lipophilic tail and is used to combine the water and oil phases of formulations.



# Emulsifier Overview

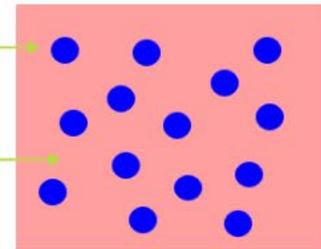
An **EMULSION** is a dispersion of one or more immiscible liquid phases in another, the distribution being in the form of tiny droplets.

## WATER - IN - OIL EMULSION

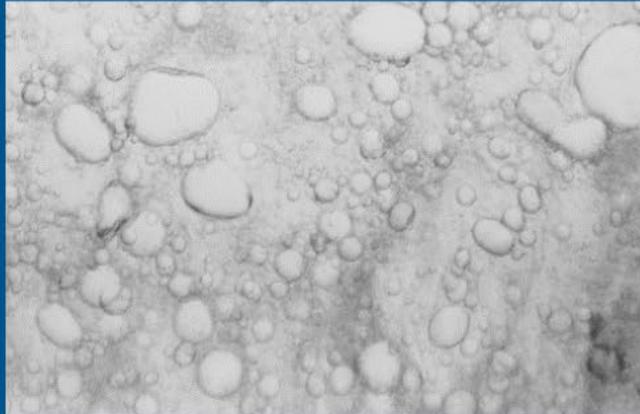


Dispersed Water Phase

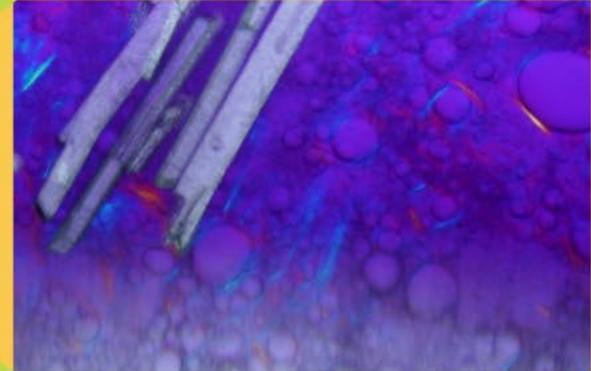
Continuous Oil Phase



# A Closer Look



## What You Don't Want to See





## Role of an emulsifier is to reduce the surface tension between oil and water

Certain ingredients can help lower the surface tension to facilitate emulsion development; however extreme changes can lead to separation and instability. Other ingredients in the formula that could alter the surface tension include:

- Preservatives
- Solvents
- Polyols



## Emulsifier Categories

- Anionic - negatively charged backbone
- Cationic - positively charged backbone
- Non-ionic - neutral charge

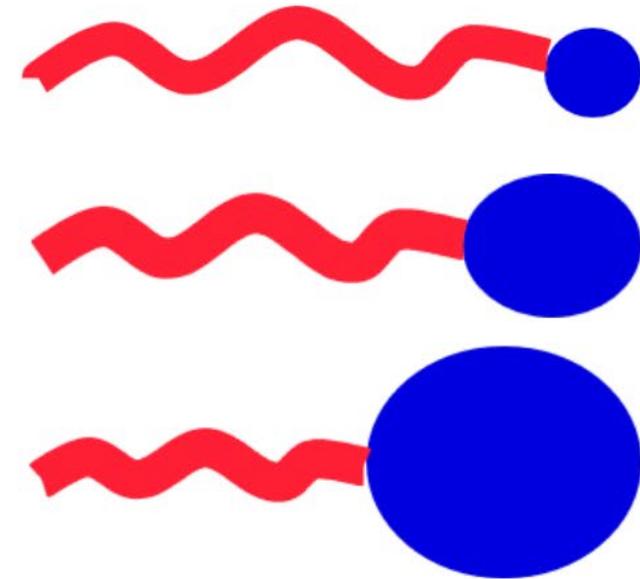
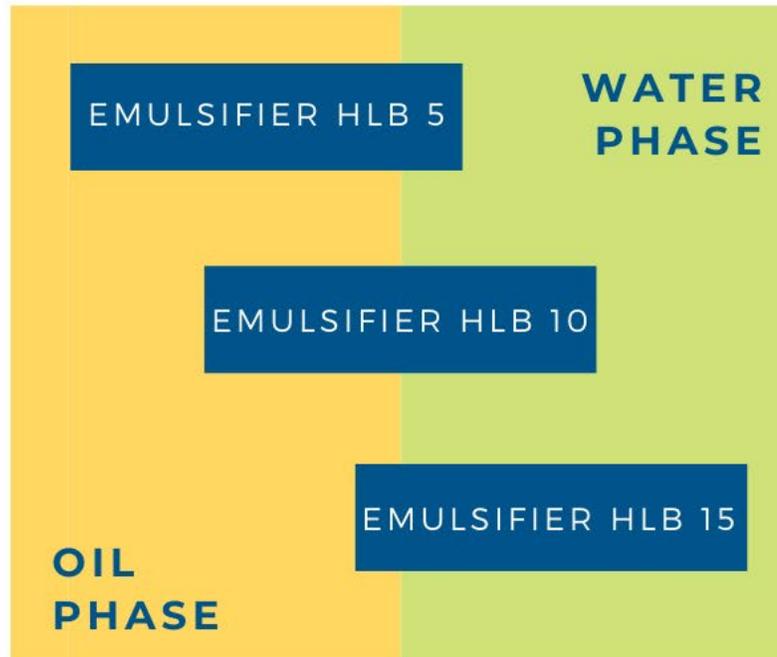
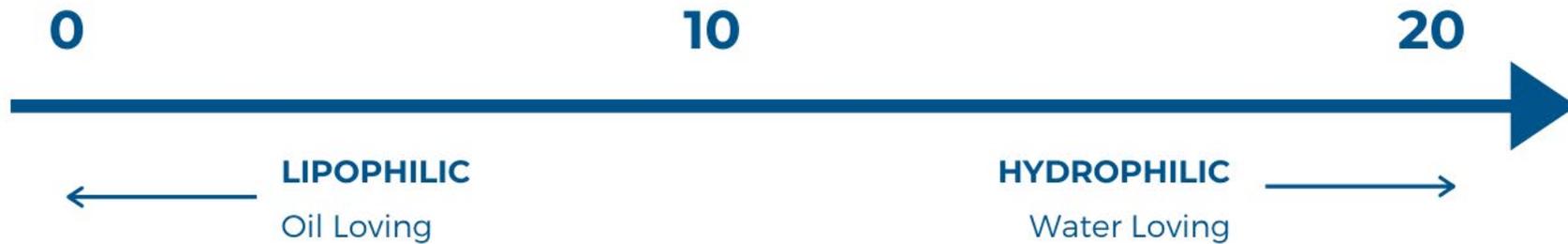


## Ionic strength of the water phase aides in stable and tighter emulsion

Increase in intramolecular bonding which in turn strengthens and increases the longevity of an emulsion. May want to be cautious if the chassis contains - divalent, strong acid/base, oxidizer, high fragrance load, etc.

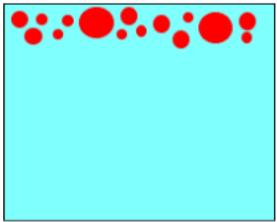


# HLB Systems

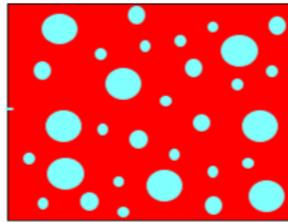




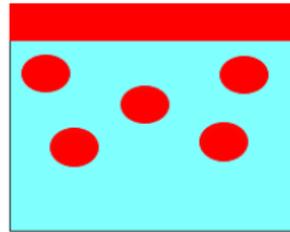
# Types of Emulsion Instability



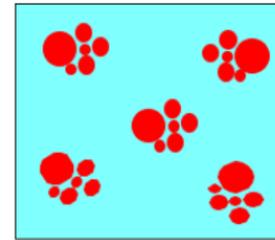
Creaming



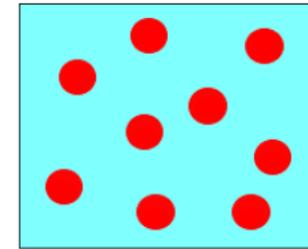
Phase  
Inversion



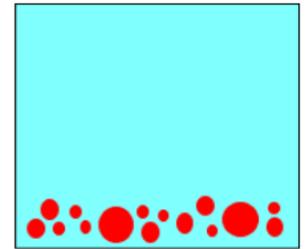
Coalescence



Flocculation



Ostwald  
Ripening



Sedimentation

Emulsions are thermodynamically unstable. Phase separation is observed in the following scenarios:

- Incorrect emulsifier choice
- HLB
- Interaction or complexation
- Ration of emulsifier to oil phase incorrect
- Process



# Plant Based Emulsifiers





# Who We Are

Headquartered in Italy, Gale & Cosm develops and manufactures a range of cutting-edge cosmetic ingredients. We specialize in natural-derived emulsifiers, water soluble and dispersible oils from Bio Italian Olive Oil, Argan Oil, Avocado Oil, Mango Butter, Hemp Oil able to enrich your personal care formulations.

All our ingredients are characterized by emolliency and eudermic properties, and are very easy to formulate. Many of our cutting-edge cosmetic ingredients are registered with the Vegan Society, and COSMOS approved.

Gale & Cosm is famous in Italy for offering Snail Secretion Filtrate, an ancient remedy, known for its content of antioxidant, regenerating and anti ageing active ingredients, ideal for skincare applications.



# Natural Sources

The Gale & Cosm emulsifiers and water soluble and water dispersible oils/butter ranges are based on natural sources:



## Olive Oil

The best known and most commonly used vegetal lipid in the food industry due to its extraordinary nutritional and salutary properties. Its composition is similar to the natural human sebum.



## Hemp Seed Oil

Has unexpected benefits for the skin thanks to the Essential Fatty Acids content (75%), especially omega-6 and omega-3 and Vitamins.



## Argan Oil

The so called "liquid gold", is extremely rich in beneficial nutrients including fatty acids and vitamin E. Its properties make it particularly beneficial for the hair and skin.



## Avocado Oil

Rich in omega-3 fatty acids, Vitamin A, D and E. It has nourishing, moisturizing, anti-inflammatory properties on the skin accelerating wound healing.



## Mango Butter

Rich natural fat derived from the seeds contained inside the pits of the Mango fruit. It gives long-lasting emollience, nourishes skin and boosts its elasticity as well as its suppleness, making skin look smoother and firmer.



# Emulsifiers



PRODUCT NAME	INCI NAME	FUNCTION	 COSMOS	 VEGAN
<b>GALOLIVE@BIO TEN</b>	Polyglyceryl-3 Cetearyl Ether Olivatate	OW Emulsifier	COSMOS	VEGAN
<b>GALOLIVE@ TEN</b>	Polyglyceryl-3 Cetyl Ether Olivatate/Succinate	OW Emulsifier		VEGAN
<b>GALOLIVE@ OW</b>	Polyglyceryl-4 Oleyl Ether Olivatate	OW Emulsifier	COSMOS	VEGAN
<b>GALEHEMP@OW</b>	Polyglyceryl-4 Hemp Seedate (and) Caprylyl/Capryl Glucoside (and) Water	OW Emulsifier	COSMOS	VEGAN
<b>GALOLIVE@ WO</b>	Polyglyceryl-3 Triolivate	WO Emulsifier	COSMOS	VEGAN
<b>GALEGLOSS@</b>	Polyglyceryl-3 Triolivate and Sorbitan Isostearate	WO Emulsifier	COSMOS	VEGAN
<b>GALEGLOW@</b>	Polyglyceryl-3 Triolivate and Sorbitan Isostearate, Octyldodecyl Oleate	WO Emulsifier		VEGAN
<b>GALEHEMP@ WO</b>	Polyglyceryl-4 Polycastorate/Hemp Seedate	WO Emulsifier	COSMOS	VEGAN



'PEG-free functionalized emulsifying systems' capable of forming particularly **fresh and light O/W emulsions** that are pleasantly velvety to the touch and enriched with the eudermic functional properties of olive oil.

PRODUCT NAME	INCI NAME	TYPE		
GALOLIVE® BIO TEN	Polyglyceryl-3 Cetearyl Ether Olivatate	OW	COSMOS	VEGAN
GALOLIVE® TEN	Polyglyceryl-3 Cetyl Ether Olivatate/Succinate	OW		VEGAN

# GALOLIVE® Ten & Bio Ten

- O/W emulsifier fit for hot process
- Flake appearance
- Non-ionic, suitable for formulations with a broad range of pH (3.5-9)
- Percentage of use 4%-6% in the oil phase
- The lipophilic phase can range from 10 to 30%
- Heat up to 65-70° C
- Easy to manage, excellent texture and stability
- Usable with viscosity controllers and emulsion stabilizers
- PEG-Free, it is cut out for green formulations

# GALOLIVE® Ten & Bio Ten

- An innovative combination of a special polyglyceryl/cetyl ether with fatty acids from Italian olive oil and succinic acid from biological source.
- Particular linkage between hydrophilic part and the lipophilic fatty chain gives the molecule perfect stability and excellent resistance to hydrolysis.
- Synthesis does not involve ethylene oxide and performs without using either a chemical reagent or even an organic solvent.
- Forms liquid crystal lamellar structures regardless of the chemical structure and polarity of the substances present in the internal phase of the emulsion.
- Creates systems that are organized in liquid crystal multilamellar phases without the help of other co-emulsifiers.
- In this special 'network', the quantity of inter-lamellar water can be extremely high and become immediately available when the cream is applied to the skin.



# GALOLIVE® Ten & Bio Ten

Emulsions created with GALOLIVE TEN / BIO TEN have a shiny surface, a fresh and original feel and they leave a light and pleasant sensation on the skin. They have the following properties:

- Notable stability at high and low temperatures
- Quality sensorial characteristics: long lasting emollient/ moisturizing effect
- Particularly shiny appearance, easy and pleasant to apply



## Formulation Tips

- This emulsifier can be used both in oil and in water phase
- Add GALOLIVE TEN / BIO TEN to the oily phase/water phase, heat at 70°C and stir until a homogeneous blend is formed
- Heat the aqueous phase/oily phase at 70°C with moderate stirring
- Mix together and homogenize the mixture intensively for some minutes
- Cool down whilst stirring moderately, in this way the formation of the liquid crystals is favored
- Add heat-sensitive ingredients whilst stirring moderately and homogenize the mixture



## Technical Advantages

- A wide range of cosmetic oils, including mineral, vegetable and silicone oils, can be used without affecting the stability of the emulsion
- Creams and milks can be produced by simply adjusting the GALOLIVE TEN / BIO TEN concentration
- Many different textures can be developed with the addition of rheological modifiers
- Possibility to formulate stable creams with a 100% vegetable origin
- The products are very mild



# GALOLIVE® OW

- O/W emulsifier fit for cold process
- Appearance: viscous liquid
- Non ionic, most suitable for fluid formulations and gel-creams
- Percentage of use 4-6% in emulsion oil phase
- The lipophilic phase can range from 6-20%
- Easy to manage, excellent texture and stability
- Usable with viscosity controllers and emulsion stabilizers highly variable
- PEG-free, it is cut out for green formulations



PRODUCT NAME	INCI NAME	FUNCTION		
GALOLIVE® OW	Polyglyceryl-4 Oleyl Ether Olivatate	OW Emulsifier	COSMOS	VEGAN



## Technical Advantages

- Self-emulsifying, self-bodying oil-in-water emulsifier
- Wide range of cosmetics oils, including mineral, vegetable and silicone oils, can be used without affecting the stability of the emulsion
- Creams and milks can be produced by simply adjusting the emulsifier concentration
- Synergies with other rheology modifiers (carbomers, xanthan gum)
- Flexible 'single' oil-in-water emulsifier that permits the production of both creams and milks without needing an additional hydrophilic ethoxylated co-emulsifier



# GALOLIVE® OW

## Formulation Tips

- Cold process
- Can be used both in oil phase and water phase
- Add the GALOLIVE OW to the oily/water phase and continue stirring until a homogeneous blend is formed
- Add the aqueous/oily phase under stirring until the formation of the emulsion
- Homogenize the mixture intensively
- Add the other components of the formulation



It is possible to obtain stable emulsions that offer moisturizing and emollient properties and a pleasant light and silky sensation even when they contain large quantities of oily substances.

GALOLIVE OW responds to the current market trends by offering a natural, pure, non-animal-tested product with outstanding properties, whilst retaining its skin-feel benefits of smoothness and lightness with excellent spreadability.



# GALOLIVE® WO

- W/O emulsifier fit for cold and hot process
- Non ionic, ideal for water in oil emulsions
- Appearance: viscous liquid
- Used in the lipophilic phase of the emulsion in percentages of 5-10%.
- The oil phase is very consistent, even 40%
- Easy to manage, excellent texture and stability
- Usable with viscosity controllers and emulsion stabilizers highly variable
- PEG-free, it is cut out for green formulations

PRODUCT NAME	INCI NAME	FUNCTION		
GALOLIVE® WO	Polyglyceryl-3 Triolivate	WO Emulsifier	COSMOS	VEGAN

# GALOLIVE® WO

- GALOLIVE WO is a green product that consents the employment of any type of lipids, apolar or polar, without particular final differences and it reveals such properties to can be used in those cosmetic preparations which require:
  - formation of a structure stable at cold or warm temperatures
  - formulating versatility
  - quickness of production
- GALOLIVE WO has the capability to give a structural network to lipids has been evaluated at high and low percentages.
- With different oil, it shows gelling properties, independently of the polarity of them.



# GALOLIVE® WO

Products formulated with GALOLIVE WO are easily absorbed, and although they are rich in natural oily substances they are not greasy, sticky or heavy.

If GALOLIVE WO is used at percentages lower than 5% and lipids with high polarity are involved, the emulsion is not stable. This type of formulation can be made stable, even increasing the emulsifier or adding stabilizing agents such as rheological modifiers. On the contrary, the presence of high polarity lipids is much less of a problem in reticular systems.



## Technical Advantages

- Makes rich, nutritive W/O creams and lotions for sensitive skin
- Disperses homogeneously physical filters in sun products, assuring the most effective skin protection from UV
- Keeps skin protected from sun even in water (water resistance)
- Improves brilliance in make up products
- Able to emulsify at low temperatures

## Formulation Tips

- To prepare finely dispersed W/O creams which will maintain stability, powerful, high-shear emulsification equipment must be used
- The amount of emulsifier necessary to obtain W/O emulsions is always higher than for O/W emulsions. Usually 5-10%
- About 0.5 to 0.8 w/w of hydrated magnesium sulfate is necessary to achieve a practical shelf life
- 2-5 % of polyol is often used as providing a moisturizing effect and improving stability in the cold



# GALEHEMP®

Gale & Cosm developed a line of innovative liquid emulsifiers derived from Hemp Seed oil. Hemp Oil is obtained by pressing the hemp seeds.



## CBD OIL

CBD comes from extraction of the Cannabis (Hemp) plant flowers, stalks and leaves.



## HEMP OIL

Comes from the pressing of the Cannabis (Hemp) Seeds. Contains 70% polyunsaturated fatty acids, roughly 55% of which is Omega-6 Linoleic Acid.

# Hemp Seed Oil



Hempseed oil or “hemp oil” is obtained by hemp seeds and has unexpected benefits for the skin thanks to the Essential Fatty Acids content (75%), especially omega-6 and omega-3 and Vitamins.

- Inflammation and irritation calming properties, while enhancing new cell generation
- Softens, soothes, relieves sensitive or irritated skin
- Not excessively oily, balances skin, regulates the skin’s oil production
- Limits the loss of water in the skin, prevents dehydration and drying
- Moisturizing properties without clogging pores
- Filters part of the UV rays

Fatty acids		Distribution %
Palmitic	C16:0	6.0 - 15.0
Stearic	C18:0	3.0 - 6.0
Oleic	C18:1	40.0 - 50.0
Linoleic	C18:2	30.0 - 55.0
Linolenic	C18:3 α-linolenic acid	14.0 - 28.0
	C18:3 δ-linolenic acid	max. 0.5
	C18:3 γ-linolenic acid	max. 8
Arachidic	C20:0	max. 0.5
Behenic	C22:0	max. 0.5

# GALEHEMP® OW

- Excellent texture and stability
- Stable emulsions with moisturizing and emollient properties
- Creates pleasant light and silky sensation even when formulations contain a large quantity of oily substances
- Imparts refreshing sensation on application
- Hydration test available
- COSMOS certified



PRODUCT NAME	INCI NAME	FUNCTION	 COSMOS	 VEGAN
GALEHEMP® OW	Polyglyceryl-4 Hemp Seedate (and) Caprylyl/Capryl Glucoside (and) Water	OW Emulsifier		



## Formulation Tips

- Most suitable for fluid formulations and gel-creams
- Alternative to polyethoxylated emulsifiers in terms of performance
- Ideal for O/W emulsions, used in cold process as a percentage 4-6 %
- Very easy to manage, introduced into the lipophilic phase of the emulsion which can vary 6-20%
- In the aqueous phase is usually introduced a thickener



# GALEHEMP® OW

## Technical Advantages

- Emulsifier
- Non ionic
- PEG-Free
- Viscous Liquid
- Suitable for cold process



Phase A	<p>POLYGLYCERIN-4 + CANNABIS SATIVA SEED OIL</p> <p>[trans-esterification process]</p> <p>↓</p> <p>CANNABIS SATIVA SEED OIL POLYGLYCERYL- 4 ESTERS</p>
Phase B	<p>Phase A + Caprylyl/Capryl Glucoside, AQUA</p> <p>↓</p> <p>POLYGLYCERYL-4 HEMP SEEDATE (AND) CAPRYLYL/CAPRYL GLUCOSIDE (AND) WATER)</p>



# GALEHEMP® WO

- Makes rich and nourishing w/o creams and lotions
- Water-resistant
- Improve brilliance in make-up products
- Shiny appearance, creates emulsions with reduced greasiness and pleasant skin feel
- PEG-free, it is suitable for green formulations
- COSMOS certified

PRODUCT NAME	INCI NAME	FUNCTION		
GALEHEMP® WO	Polyglyceryl-4 Polycastorate/Hemp Seedate	WO Emulsifier	COSMOS	VEGAN

# GALEHEMP® WO



## Formulation Tips

- Ideal for water in oil emulsions
- It is used in emulsion oil phase, in hot and cold process, in percentage 5-10%
- The oil phase is very consistent, even 40%
- Excellent texture in which liposoluble active ingredients, sunscreens, powders and pigments are easily dispersed

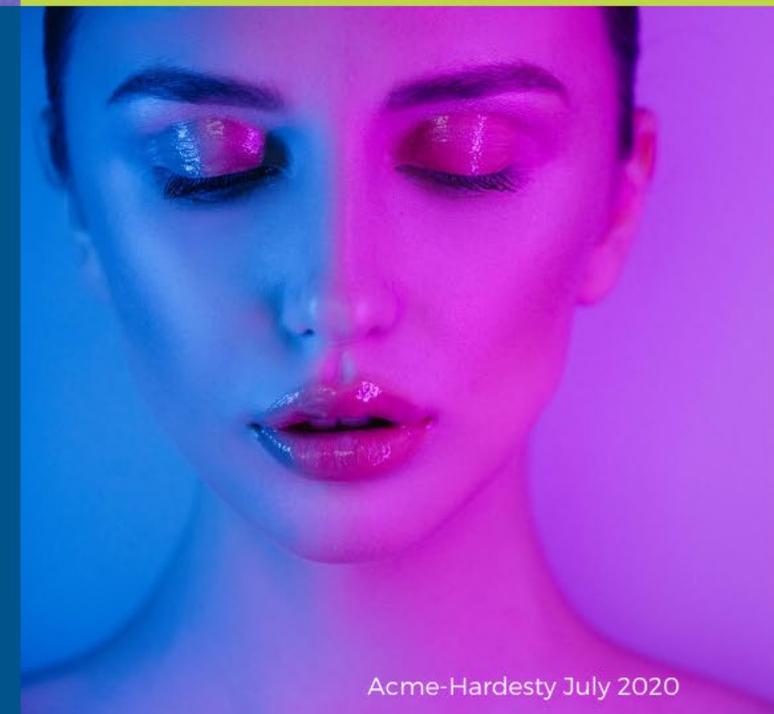
POLYGLYCERIN-4 + (CASTOR OIL + HEMP SEED OIL  
FATTY ACIDS)  
[esterification process]



POLYGLYCERYL-4 POLYCASTORATE/HEMP SEEDATE

## Technical Advantages

- Emulsifier
- Non ionic
- PEG-Free
- Viscous liquid
- Suitable for cold process



# GALEHEMP®

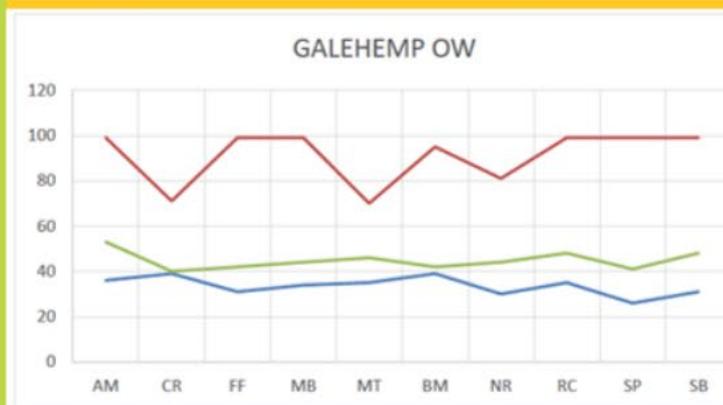
## In Vivo Testing

PURPOSE OF THE TEST	Verifying the capability of the products GALEHEMP® OW, GALEHEMP® OW under consideration to increase <b>skin hydration</b> in the short term.
METHOD	<p>For the realization of the test is used the machinery Multiskin Center MC750 with the program CSI-Complete Skin Investigation.</p> <p>After the selection of at least 10 volunteers, their personal data are entered in the program (in the final report appear as initials, age and gender).</p> <p>According to requirements, the most suitable part of the body over which carry out the test is selected.</p> <p>Firstly, the skin is cleansed in a monitored temperature room at least 2/3 hours before the test starts, then the first detection is executed and consequently the product is applied with a light rub.</p> <p>The second detection is registered after 1-2 minutes and the third after 1 hour and 30 minutes.</p> <p>The measurement is based on the International capacitive method called Corneometer, which implies an external probe plugged into the machinery.</p>
EVALUATION CRITERIA	In order to detect skin hydration, results are based on values as arbitrary units in a 0-99 range. Results are generated on the basis of direct experience and published surveys

# GALEHEMP®

## CONCLUSIONS

On the basis of the final results we state that the products are considered “HYDRATING”, since at the end of the experiment 100% of the volunteers have registered an increase of the dermal hydration compared with the initial level.



### GALEHEMP® OW

- WITH NO PRODUCT
- WITH GALEHEMP OW
- WITH GALEHEMP OW AFTER 1.5 HOUR



### GALEHEMP® WO

- WITH NO PRODUCT
- WITH GALEHEMP WO
- WITH GALEHEMP WO AFTER 1.5 HOUR



# Formulations



# Rebalancing Moisture Cream



REBALANCING CREAM <i>Moisturizing cream</i> COSMOS			
PHASE	INCI NAME	TRADE NAME	%
A	Aqua		To 100
A	Glycerin		2.0
A	Microcrystalline Cellulose, Xanthan Gum, Cellulose Gum		1.0
B	Polyglyceryl-3 Cetearyl Ether Olivatate	GALOLIVE BIO TEN	4.0
B	Sodium Stearoyl Lactylate		1.0
B	Cetearyl Alcohol		2.0
B	Rhus Verniciflua Peel Cera		1.0
B	Butyrospermum Parkii (Shea) Butter, Curcuma Longa (Turmeric) Root Extract		3.0
B	Olive Glycerides		2.0
B	Octyldodecyl Oleate		5.0
B	Myristyl Lactate		1.0
C	Snail Secretion Filtrate	GALESLIME	3.0
D	Microcrystalline Cellulose		0.5
E	Tocopherol		0.3
F	Phenoxyethanol, Ethylhexylglycerin		1.0
G	Parfum		0.2

**Method:**  
Disperse ingredients of phase A at 80°C. Disperse ingredients of phase B at 75°C. Add phase B to A and mix with the homogenizer. At 40°C add phase C + D + E + F + G mixing.

## Hydrating Day Cream for All Skin Types

- **GALOLIVE BIO TEN** forms a light emulsion with a velvety skin feel
- **GALESLIME** is an active ingredient rich in allantoin, elastin, collagen, glycolic acid, vitamins and essential amino acids with moisturizing, exfoliant and healing properties



# Cold Process Body Cream-Gel



## Lightweight Gel-Cream Hybrid for All Over Hydration

- **GALOLIVE OW** provides a pleasant, silky skin feel and excellent texture and stability to the finished formulation



### COLD PROCESS – BODY CREAM GEL

PHASE	INCI NAME	TRADE NAME	%
A	Aqua		To 100
A	Glycerin		1.5
A	Carbomer		0.1
B	Acrylates/Vinyl Isodecanoate Crosspolymer		0.5
B	Polyglyceryl-4 Oleyl Ether Olivatate	GALOLIVE OW	4.0
B	Simmondsia Chinensis Oil		3.0
B	Helianthus annuus (Sunflower) seed oil		1.0
B	Octyldodecanol		2.0
B	Hydrogenated Poly (C6-14 Olefin)		3.0
B	Cetearyl Isononanoate		2.0
C	Sodium Carboxymethyl Starch		0.5
C	Aluminum Starch Octenylsuccinate		0.5
D	Sodium Hydroxide 10%		To pH 6.5
D	Preservative		a.n.
E	Parfum		0.3

#### Method:

Disperse the ingredients of phase A, disperse ingredients of phase B. Mix together with high shear forces. Add phase C and mix. Add D + E.

# Creamy Soap



CREAMY SOAP			
PHASE	INCI NAME	TRADE NAME	%
A	Aqua		To 100
A	Glycerin		2.0
A	Microcrystalline Cellulose, Xanthan Gum, Cellulose Gum		1.0
B	Polyglyceryl-4 Hemp Seedate, Caprylyl/Capryl Glucoside, Water	GALEHEMP OW	2.0
B	Myristyl Lactate		1.0
B	Prunus Amygdalus Dulcis Oil		2.0
C	Coco-Glucoside		8.0
C	Potassium Cocoyl Hydrolyzed Protein		5.0
D	Acrylates/Palmeth-25 Acrylate Copolymer		3.0
E	Aminomethyl Propanol		0.2
F	Phenoxyethanol, Ethylhexylglycerin		1.0
G	Parfum		0.1

**Method:**  
Disperse the ingredients of phase A and phase B separately at 45°C. Add phase B to phase A mixing. Add phase C and mix slowly. Add D + E under stirrer. Add F + G.

## Soft and Mild Cleanser for Hands and Face

- **GALEHEMP OW** provides a pleasant, silky skin feel and excellent texture and stability to the finished formulation



# Magic Moisture Cream



## A Highly-Potent Blend of All Natural Emollients to Help Keep Skin Radiant.

- **GALEHEMP OW** creates excellent texture and stability in formulation while imparting a refreshing sensation upon application



Magic Moisture Cream			
PHASE	INCI NAME	TRADE NAME	%
A	Aqua		To 100
A	Tetrasodium EDTA		0.05
A	Phenoxyethanol, Ethylhexyl Glycerin, Didecydimonium Chloride	Sharomix Amplify AM 20	1.0
A	Glycerine		5.0
A	Bentonite and Xanthan Gum	Optigel WX	2.0
B	Cannabis Sativa Seed Oil, Polyglyceryl-4 Esters, Caprylyl/Capryl Glucoside, Aqua	GaleHemp OW	5.0
B	Argan Oil Polyglyceryl-6 Esters	GaleArgan WS	0.5
B	Avocado Oil Polyglyceryl-6 Esters	GaleAvocado WS	0.5
B	Pentaerithryl Tetraisostearate	EnSense Luxe PTIS	2.0
B	Coco Caprylate/Caprate	EnSense Silk CCC	5.0
C	Calcium Sodium Borsilicate and Titanium Dioxide and Tin Oxide		0.2

**Method:**  
 Add Phase A ingredients to main beaker and mix until uniform. In separate beaker, mix Phase B ingredients and mix until homogeneous. Transfer Phase B to Phase A. Mix for 15 minutes under moderate agitation. Add Phase C to batch. Mix for 10 minutes under moderate agitation.

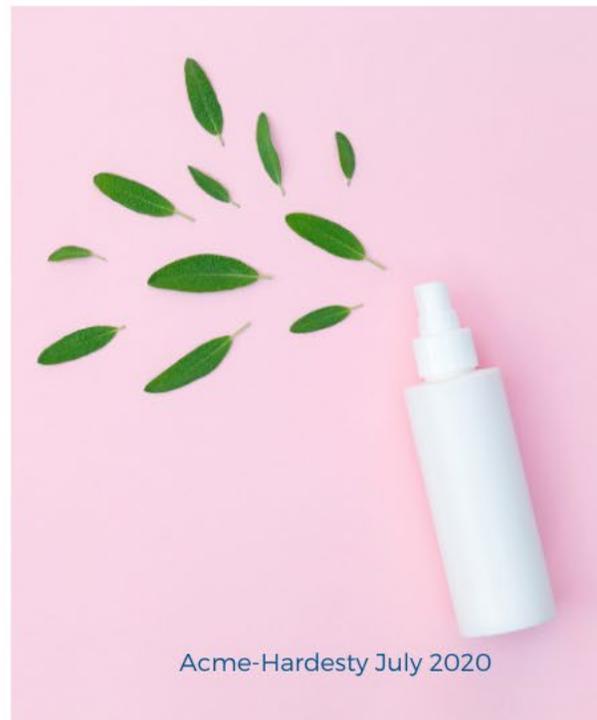
# Brightening Moisture Mist



Brightening Moisture Mist			
PHASE	INCI NAME	TRADE NAME	%
A	Aqua		To 100
A	Glycerine		7.0
A	Snail Secretion Filtrate	GaleSlime	5.0
A	Olive Oil PEG-7 Esters	GalOlive 30	4.0
A	Natural Benzyl Alcohol, Glycerine, Citrus Reticulata Fruit Extract, Citrus Aurantium Amara Fruit Extract, Citrus Sinensis Peel Extract, Tocopherol, Ascorbic Acid, Citric Acid, Lactic Acid, Aqua	Biomix Pure II	1.0
A	Fragrance		0.05
<p><b>Method:</b> Combine all ingredients in the order listed above. Mix all ingredients under low shear until homogeneous</p>			

A Rejuvenating Toner to Nourish Skin and Clear Leftover Impurities.

- **GALOLIVE 30** is easy to disperse in cold process solutions and provides all the eudermic properties of olive oil.

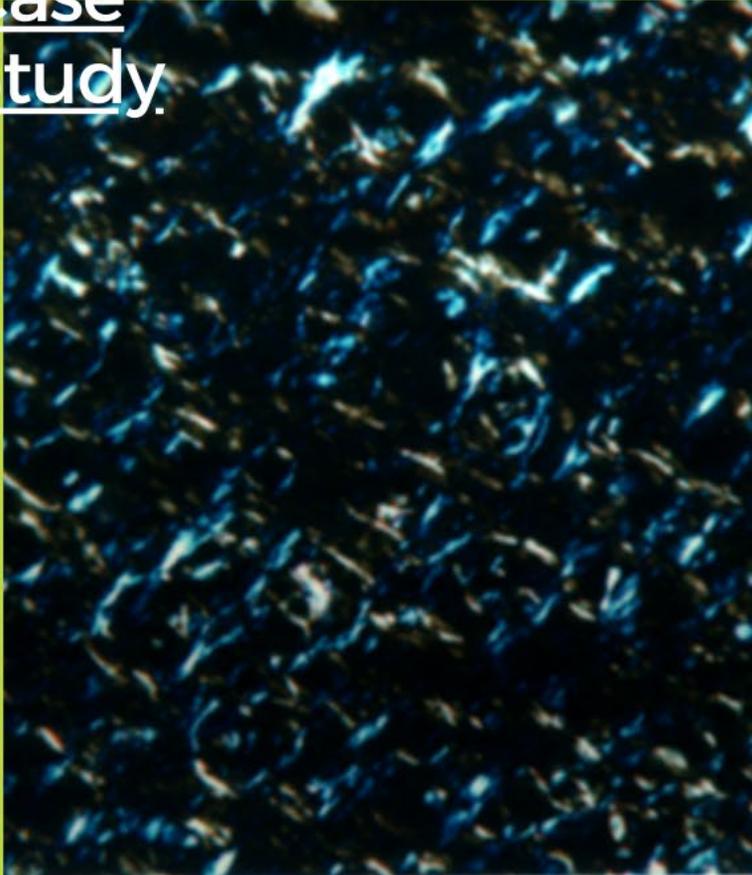




# Case Study- Liquid Crystals



## Case Study



# Liquid Crystals

- Liquid Crystals is a phenomena where the ordered arrangement of emulsifier (surfactant) and oil molecules formed at the oil - water interface, makes the emulsion of liquid crystal structure, demonstrating enhanced benefits in terms of stability, moisturization and controlled release
- Two formulas, different origin - demonstrates formation of liquid crystals for enhanced stability and spread ability on the skin surface
- **Formula A** - All natural, PEG-free, green. It is composed of GaleOlive Bio Ten, Optigel WX, Babacu Oil, Sharon Biomix Pure I, glycerin and fragrance
- **Formula B** - Traditional chassis is composed of a hybrid (low/high) HLB emulsifier system. Additionally, stearic acid, cetyl alcohol, EnSense Silk TEC, Optigel WX, glycerin and Sharomix EG 14 makes up the remainder of the formula.

# Liquid Crystals

Formulas  
demonstrate liquid  
crystal network



Tradename	INCI	%wt.
<i>Water Phase</i>		
DI Water	DI Water	79.70
Optigel WX	Bentonite + Xanthan Gum	1.00
Glycerin	Glycerin	3
<b>GalOlive BioTen</b>	<b>Polyglyceryl-3 Cetearyl Ether Olivat</b>	<b>5</b>
<i>Oil Phase</i>		
Babacu Oil	Orbignya Oleifera Seed Oil	10
<i>Emulsion: Transfer Oil Phase to Water Phase</i>		
Sharon Biomix Pure I	BioSecur, Benzyl Alcohol	0.8
Fragrance	Fragrance	0.5
Total		100

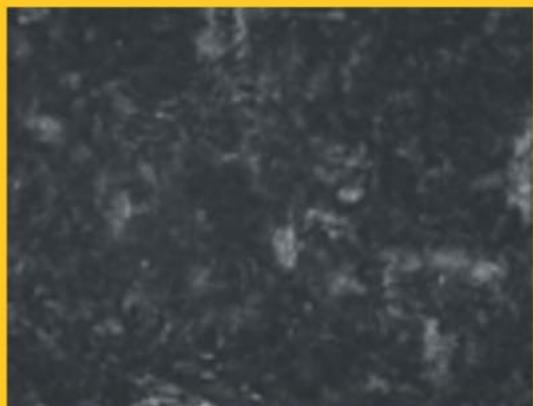
## FORMULA A

Natural, PEG-Free, Green Formulation

Tradename	INCI	%wt.
<i>Oil Phase</i>		
<b>EnMulse™ S2</b>	<b>Steareth 2</b>	<b>3</b>
Stearic Acid	Stearic Acid	1.5
EnSense Silk TEC	Triethyl Citrate	9
Cetyl Alcohol	Cetyl Alcohol	1
<i>Water Phase</i>		
<b>EnMulse™ S21</b>	<b>Steareth 21</b>	<b>2</b>
Glycerin	Glycerin	4
Optigel WX	Bentonite and Xanthan Gum	0.75
DI Water	DI Water	QS
<i>Emulsification: Transfer oil phase to water phase</i>		
Fragrance	Fragrance	0.5
Sharomix EG 14	Phenoxyethanol & Ethylhexyl Glycerin	1
Total		100

## FORMULA B

Traditional Chassis



FORMULA A

FORMULA B

# Liquid Crystals

Liquid Crystals are visible in the final finished formulas – high shear mix and gradual cooling

At the time of application. The LC structure transforms into lamellar structure; upon emulsion breakage

# Thank you for your attention!

For questions, copy of the presentation and anything else we can help you with, please email [dmulicka@acme-hardesty.com](mailto:dmulicka@acme-hardesty.com)



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