
# ALCHEMY INGREDIENTS SUMMARY PRESENTATION

# ABOUT ALCHEMY INGREDIENTS

We have been developing innovative & natural cosmetic ingredient blends since 2017.

## REPLACEMENT OF SYNTHETIC MATERIALS

- Development of functional ingredients that can fully or partially replace synthetic materials in cosmetics.
- Natural, vegan raw materials, approved by COSMOS and other certifying bodies.
- All products and formulations developed at our in-house labs and made in the UK.

## SUSTAINABLY AND RESPONSIBLY SOURCED

- Ingredients are checked for safety and quality with a trusted supply chain.
- We combine reliability with ingenuity; we dare to be different without compromising on safety.

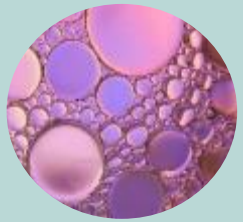
# OUR TECHNOLOGIES

ALCHEMY

## OIL GELLING

**Sucragel® XL**
Gel-to-Milk

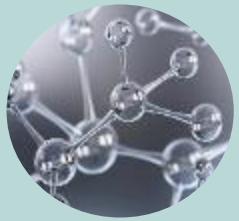
**Sapogel® Q**
Rich Balms



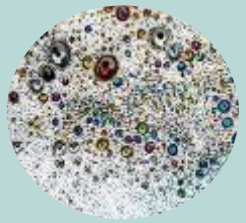
**HIPEgel® Oleo C**
Gel-to-Oil

**Micromulse® LB**
Oil-to-Milk

## FOAMING

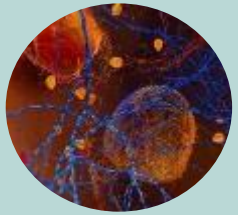


**Sophocoll®**
Foam boosting

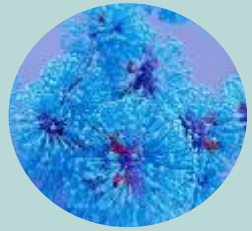


**Micromulse® Foam**
Oil Foaming

## EMULSIONS

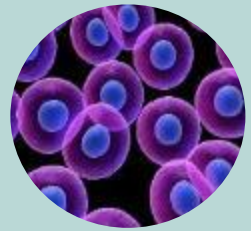


**Instathix®**
Instant Gel-creams

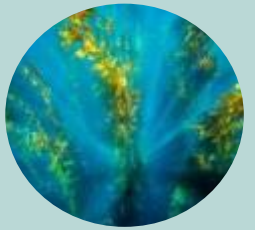


**Luxamul®**
Luxury Cold Process

## WATER GELLING



**Sclerothix®**
Transparent suspending gels



**Clearthix® S**
Transparent flowable gels

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# SUCRAGEL®XL

## Transforming Gel Textures

# SUCRAGEL®XL: KEY FACTS

INCI: Glycerine, Caprylic/Capric Triglyceride, Aqua, Sucrose Laurate, Sucrose Stearate

Sucragel® XL allows the formulator to make transparent 'Gel-to-Milk' formulations easily at room temperature.

- Easy to use liquid blend
- Cold process
- COSMOS Natural approved
- 100% Natural (ISO 16128)
- Globally approved
- 100% Vegetable derived
- Gels a wide range of oils and butters
- 15 – 20% Use level
- Market leader in its field

# MAKING AN OIL BASED GEL WITH SUCRAGEL® XL

ALCHEMY

## STEP 1

Weigh out Sucragel® and the oil phase separately into suitable beakers. If butters or waxes are used, melt them in the oil phase.

## STEP 2

Transfer onto an overhead mixer fitted with propeller blade and set to high speed (1000 rpm).

## STEP 3

Start stirring and add oil very slowly dropwise for first 10% of the oil.

## STEP 4

Continue adding oil in portions, allowing gel to re-form between additions.

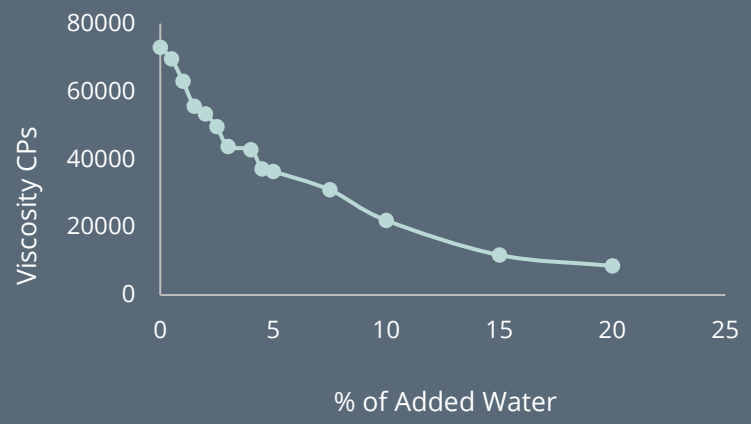
## STEP 5

A transparent and shiny gel is formed which may look aerated for the first 24 hours. Check transparency by smearing on a glass surface.

- If a more flowable, honey texture is required: add more glycerine to the formulation. Adding water reduces viscosity but clarity is lost.
- Most oils and butters are compatible with Sucragel® XL. Glycols, ethanol and extremes of pH are incompatible.
- Sucragel® gels provide a perfect base for scrub particles, clays and pigments where they will remain suspended.

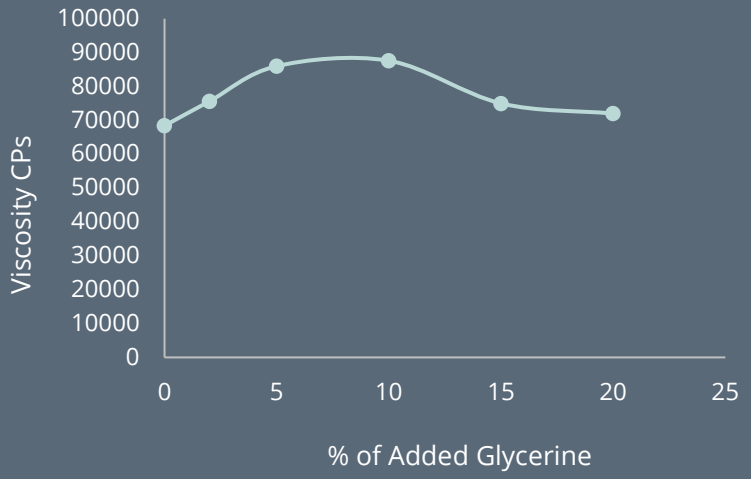
# PHYSICAL DATA

## VISCOSITY WITH ADDED WATER




There is a gradual decrease in viscosity when water is added to a 20% Sucragel® XL / 80% CCT gel and it will become cloudy.

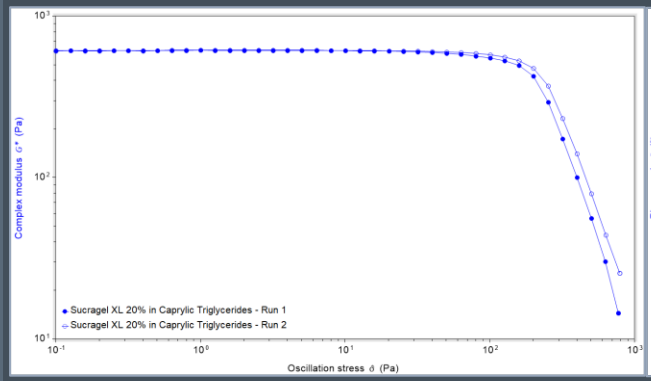
## VISCOSITY WITH ADDED GLYCERINE

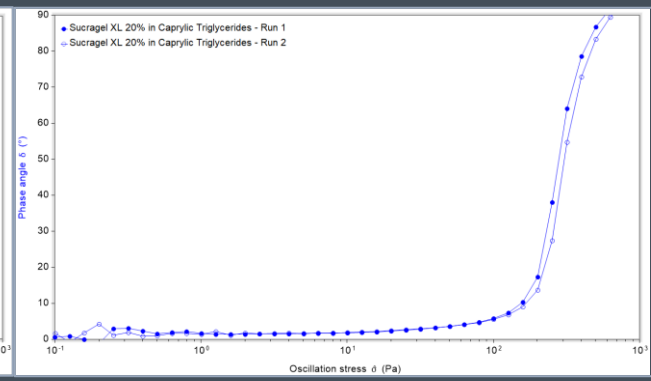



Viscosity does not change much with added glycerine, but the rheology changes from pseudoplastic to Newtonian.

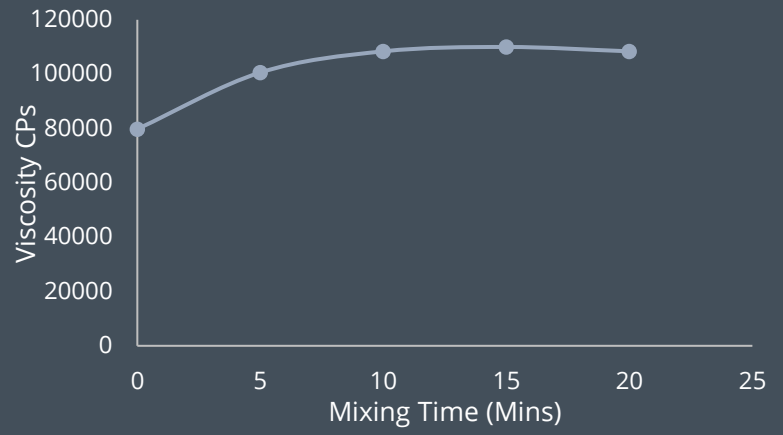
## RHEOLOGY

Sucragel® XL gels are firm and elastic and will thin under shear stress.




## MIXING TIME




Viscosity increases with mixing time, up to a maximum value. It is important to reach the maximum value during manufacture (lab and factory).

# FEATURES / TESTS WITH SUCRAGEL® XL

## GEL TO MILK EFFECT

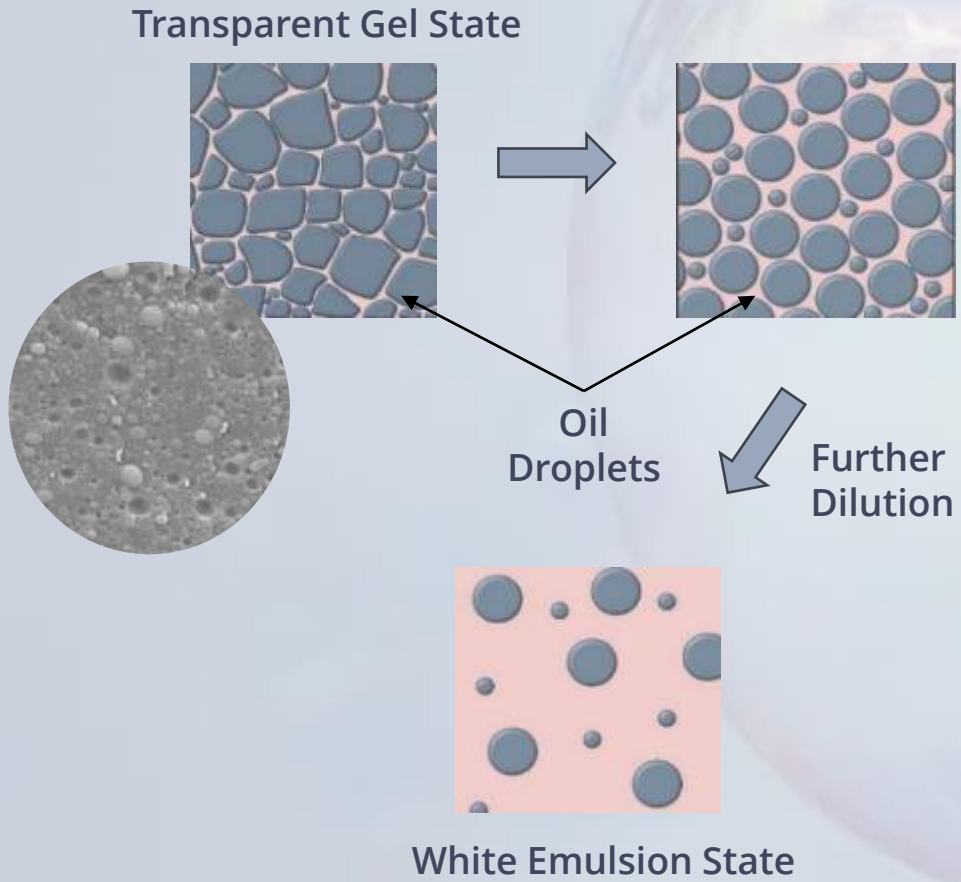
A key feature of Sucragel® is the ability to make transparent gels that turn to milk when water is added.

## MAKEUP REMOVAL

The surfactants in the product help remove waterproof makeup but are gentle to skin. The gels rinse easily so there is no greasy residue.

## TRANSFORMATION EFFECT

Sucragel® XL forms concentrated oil-in-water emulsions with packed distorted droplets. When water is added the external phase is diluted, resulting in an opaque suspension.



# USING SUCRAGEL® AS AN EMULSIFIER

## HOW TO USE

- Any of the Sucragel® grades could be used.
- Use 1 part of Sucragel® to 4 parts of oil.
- The formulation does not need to be heated if using only liquid oils and can be made by combining all ingredients together and homogenising.

## THICKENERS / STABILISERS

- Sucragel® does not give a high viscosity so a thickener and stabiliser is required in the water phase.
- It is recommended to use a thickener with a high yield point (suspending) such as Sucrathix VX or Sclerothix®. Glyceryl Stearate can also be used.

## OTHER INGREDIENTS

- Any type of oil soluble or water soluble active or colour can be added.
- Preservatives should be added but avoid pHs below 4.5.

# SUCRAGEL® XL: APPLICATIONS

## Formulations available at alchemy-ingredients.com


Green Hemp Clay Cleanser


Mojito Lip scrub


Multi Miracle Butter Gel


Multi-Functional Glow Balm


Pink Himalayan Salt Scrub


Multi gel to Milk XL


Rhassoul Scalp Scrub


Glow Serum


SPF 30 Mango Glow Spray

## Application examples:

### GEL TO MILK CLEANSERS

### SCRUBS

### MASSAGE GELS

### MASKS

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# SAPOGEL® Q

## Palm Free Balm Textures

# SAPOGEL® Q: KEY FACTS

**INCI:** Glycerine, Aqua, *Quillaja saponaria* Wood Extract, *Saponaria officinalis* Leaf/ Root Extract

Sapogel® Q is a liquid blend that allows the formulator to make stable, transparent to translucent rich balms.

- Easy to use liquid blend
- Derived from saponins: Quillaja tree and Soapwort plant
- Palm free
- Use Level 15 – 20%
- Safe and mild
- COSMOS approved, 100% natural (ISO 16128)
- Globally compliant
- Cold process

# MAKING A BALM WITH SAPOGEL® Q

## STEP 1

Weigh the Sapogel® Q and oil phases separately. If butters are used melt in the oil.

## STEP 2

It is recommended to use an overhead mixer such as that pictured.

## STEP 3

Immerse the mixer head in the Sapogel® Q and start the mixer on medium speed.

## STEP 4

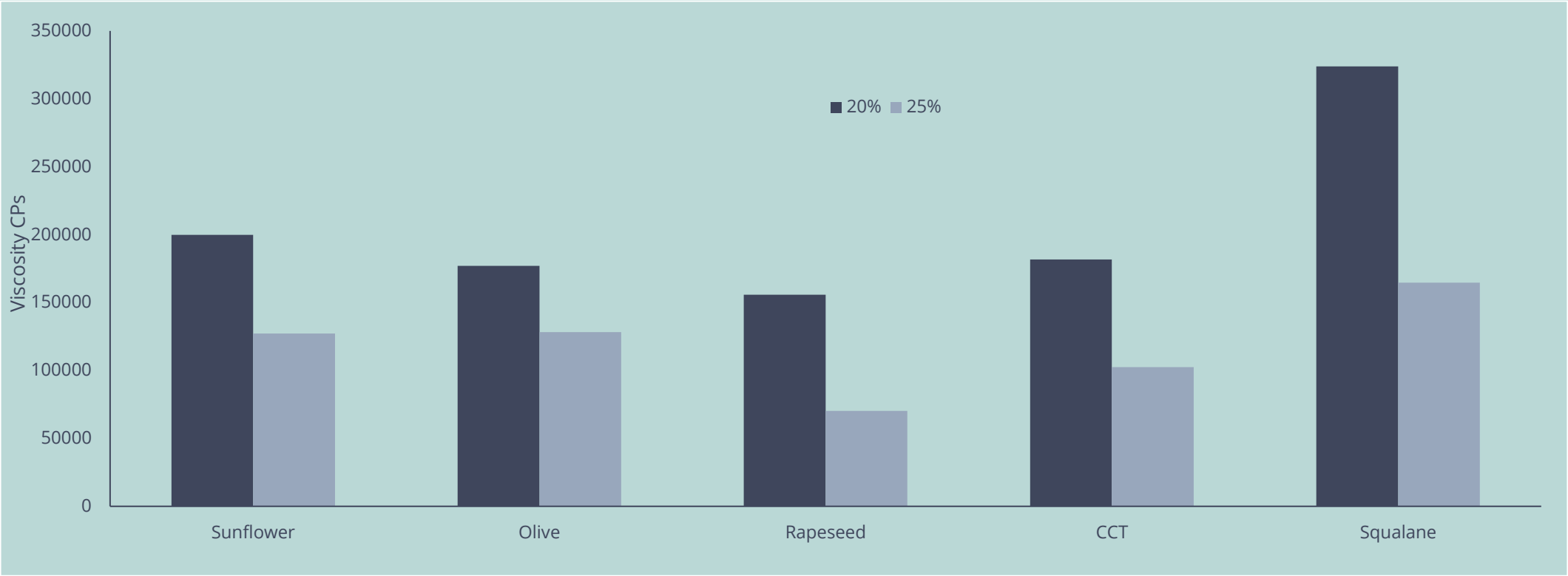
Start incorporating the oil slowly, dropwise at first, the mixture should turn pale.

## STEP 5

Carry on adding oil fairly slowly until it is all added (approx. 5 mins for 200g)

- Glycerine can be added to give a more honey like texture.  Water can be added up to 4%.
- Particles such as exfoliators, clays and pigments can be added to Sapogel® Q balms and are kept suspended.
- Water and oil soluble actives can be incorporated.

## Viscosity and transparency of Sapogel® Q Balms with various oils

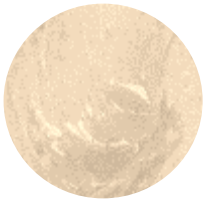


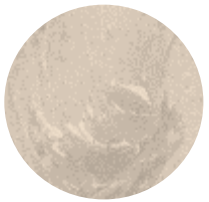


Opaque / Translucent


Opaque


Opaque

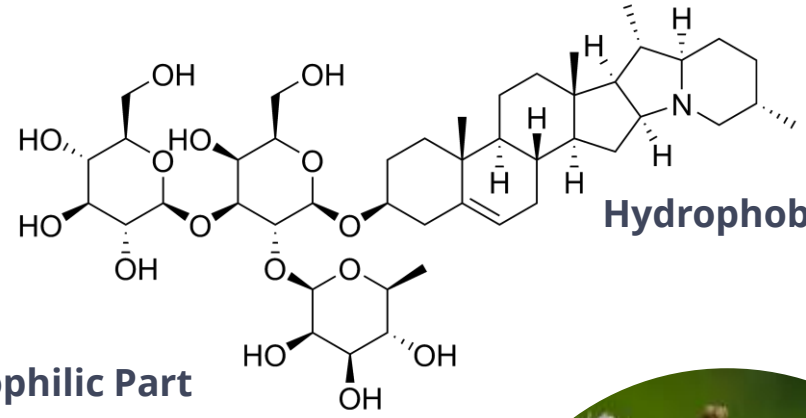

Almost transparent


Transparent

# FEATURES / TESTS WITH SAPOGEL®Q

## SAPONIN TECHNOLOGY

Unique emulsifying molecules taken directly from nature:



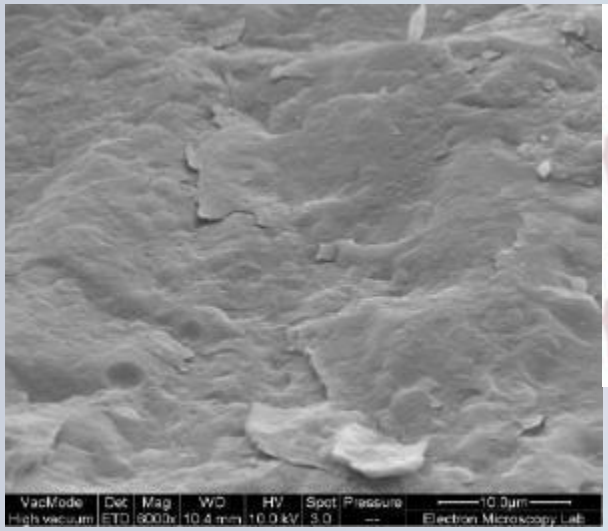

**Hydrophobic Part**

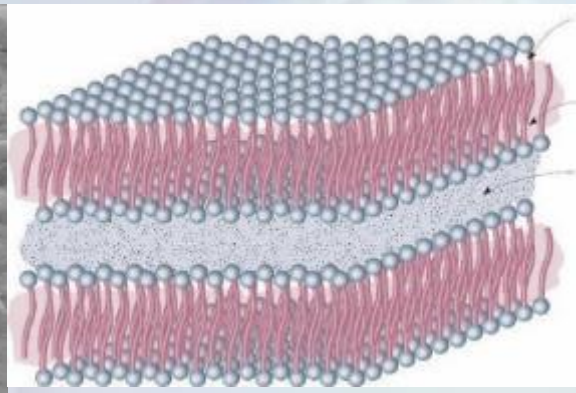
**Hydrophilic Part**

**Saponins from Quillaja Tree and Soapwort plant**

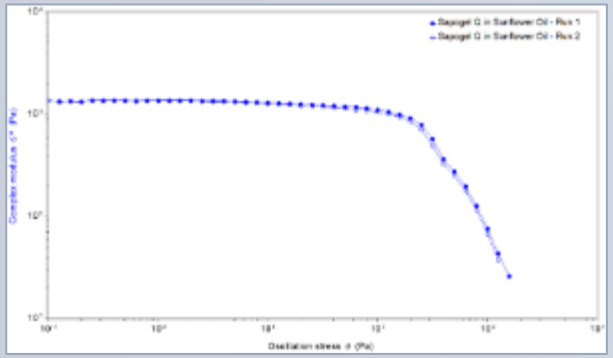
## INTERNAL STRUCTURE AND RHEOLOGY

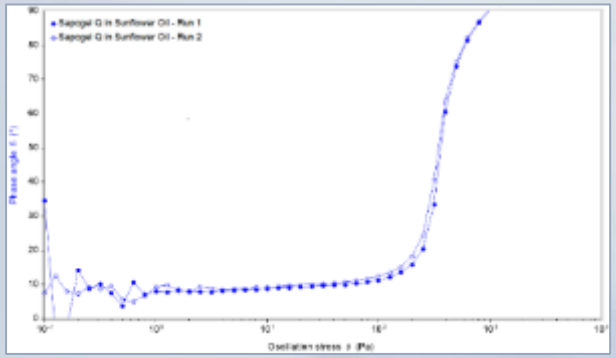
Sapogel® Q balms have been shown to have a lamellar structure, giving a rich skin feel and shear thinning properties.



**SEM showing layered structure and hypothesised drawing.**





# APPLICATIONS OF SAPOGEL® Q

Formulations available at alchemy-ingredients.com

- Rose Lip Mask
- Vanilla Body Balm
- Brown Sugar Lip Scrub
- Solid Cleanser
- SPF 30 Shimmer Balm
- Cranberry Scrub
- Cleansing Balm
- Winter Spice Hand and Nail Balm

Application examples:

BALM CLEANSER

LIP BALM / MASK

MUSCLE BALM

SOLID COSMETICS

CLAY MASK

SCRUB

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# HIPEGEL® OLEO C

Quick-break
Gel-to-Oil textures

# HIPEGEL® OLEO C: KEY FACTS

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**HIPEgel® Oleo C**

**INCI:** Glycerine, Coco Caprylate /Caprate, Aqua, Sucrose Stearate, Sucrose Laurate

An ingredient to make High Internal Phase Emulsions (HIPEs) with approximately 90% oil, easily and quickly.

- Concentrated paste
- Low energy processing method
- Origin: Sugar Cane and Beet, Vegetable sources
- COSMOS Approved
- 100% Natural (ISO 16128)
- Globally approved
- Easy to use
- Use level typically 6%

# MAKING A GELLED OIL WITH HIPEGEL® OLEO C

## STEP 1

Weigh out HIPEgel® Oleo C, water and glycerine into a suitable beaker and the oil phase into another beaker. Heat the HIPEgel® Oleo C phase to 50 °C.

## STEP 2

Transfer HIPEgel® Oleo C phase onto an overhead mixer fitted with propeller blade and set to medium speed (700 rpm).

## STEP 3

Start stirring the HIPEgel® phase and add oil very slowly dropwise for first 10% of the oil.

## STEP 4

Continue adding oil in portions, allowing gel to reform between additions.

## STEP 5

Mixture will first become white and thicken rapidly, continue mixing until complete, stirring for an extra 5 minutes after oil has been added.

- The amount of water and glycerine that can be added is variable depending on oil used, texture desired and clarity required.
- HIPEgel® Oleo C formulations can suspend particles such as exfoliators, pigments and clays.
- Most oils and butters can be used, incompatibilities include glycols and strong acids and bases (keep pH between 4 and 8).

# HIPEGEL® OLEO C: TEXTURES

Typical textures made with HIPEgel® Oleo C are firm, elastic gels, and can be transparent, translucent or creamy.

| Code | % Glycerine | % Water | Initial Stability | Initial Viscosity (cps) | Viscosity 3 weeks storage at 50˚C (cps) | Clarity Ranked From 1-6<br>1 = transparent | Final Stability |
|---|---|---|---|---|---|---|---|
| 1 | 10.0 | 0.0 | Stable | 95800 | 56400 | 6 | Stable |
| 2 | 9.0 | 1.0 | Stable | 83800 | 41800 | 2 | Stable |
| 3 | 8.0 | 2.0 | Stable | 42800 | 26400 | 1 | Stable |
| 4 | 7.0 | 3.0 | Stable | 17200 | 11200 | 3 | Stable |
| 5 | 6.0 | 4.0 | Stable | 11400 | 7200 | 4 | Stable |
| 6 | 5.0 | 5.0 | Stable | 7800 | 5200 | 5 | Stable |

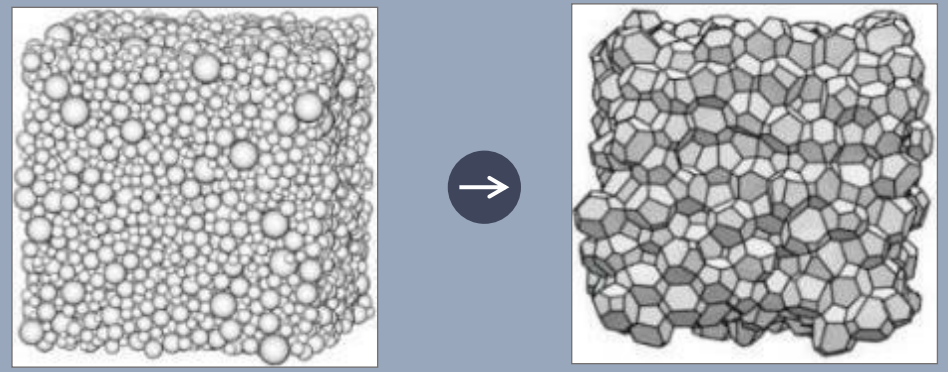

A B C D

| Phase | Ingredient | Formula A % | Formula B % | Formula C % | Formula D % |
|---|---|---|---|---|---|
| A | HIPEgel® Oleo C | 6.0 | 6.0 | 6.0 | 6.0 |
| A | Water | 5.0 | 4.0 | 3.0 | 1.5 |
| A | Glycerine | 0 | 0 | 0 | 0 |
| B | CCT | 89.0 | 90.0 | 91.0 | 92.5 |

If clarity is required, approximately 5% of glycerine and 2% of water is required in a formula. Glycerine does not need to be added and can result in cream/gel textures.

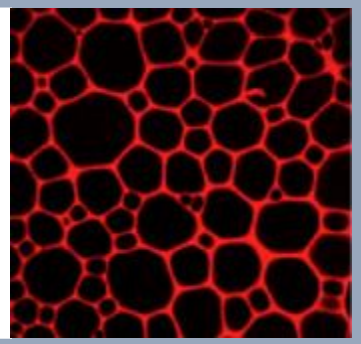
# OIL-IN-WATER HIPEs: INTERNAL STRUCTURE

## INTERNAL STRUCTURE

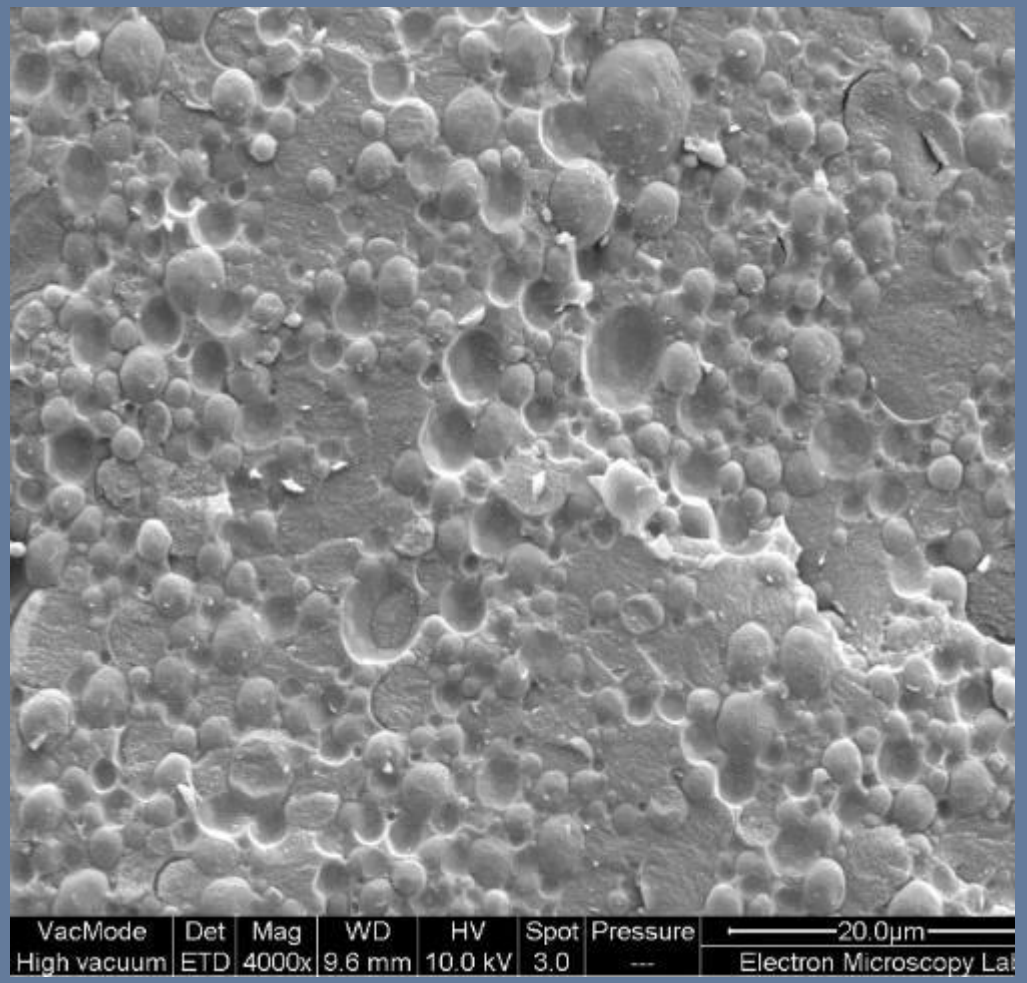


If more than 74% of an internal phase is present and the packing of droplets is polygonal, this is known as a HIPE (High Internal Phase Emulsion).

HIPEgel® Oleo is a system that enables the formulator to make these type of emulsions easily.



## TYPICAL HIPE UNDER THE MICROSCOPE



# APPLICATIONS OF HIPEGEL® OLEO C

## Formulations available at alchemy-ingredients.com


Peachy Lip Gloss


Warming Oud Massage Gel


UV Hair Serum


Shimmering Body Oil


Hair Growth and Repair Serum


Simple HIPE Gel


Nourishing Facial Oil


Charcoal Mask


Pink Grapefruit Massage Jelly

## Application examples:

### DRY SKIN OILS

### MASSAGE GELS

### FACIAL OILS

### SCRUBS

### MASKS

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# MICROMULSE® LB

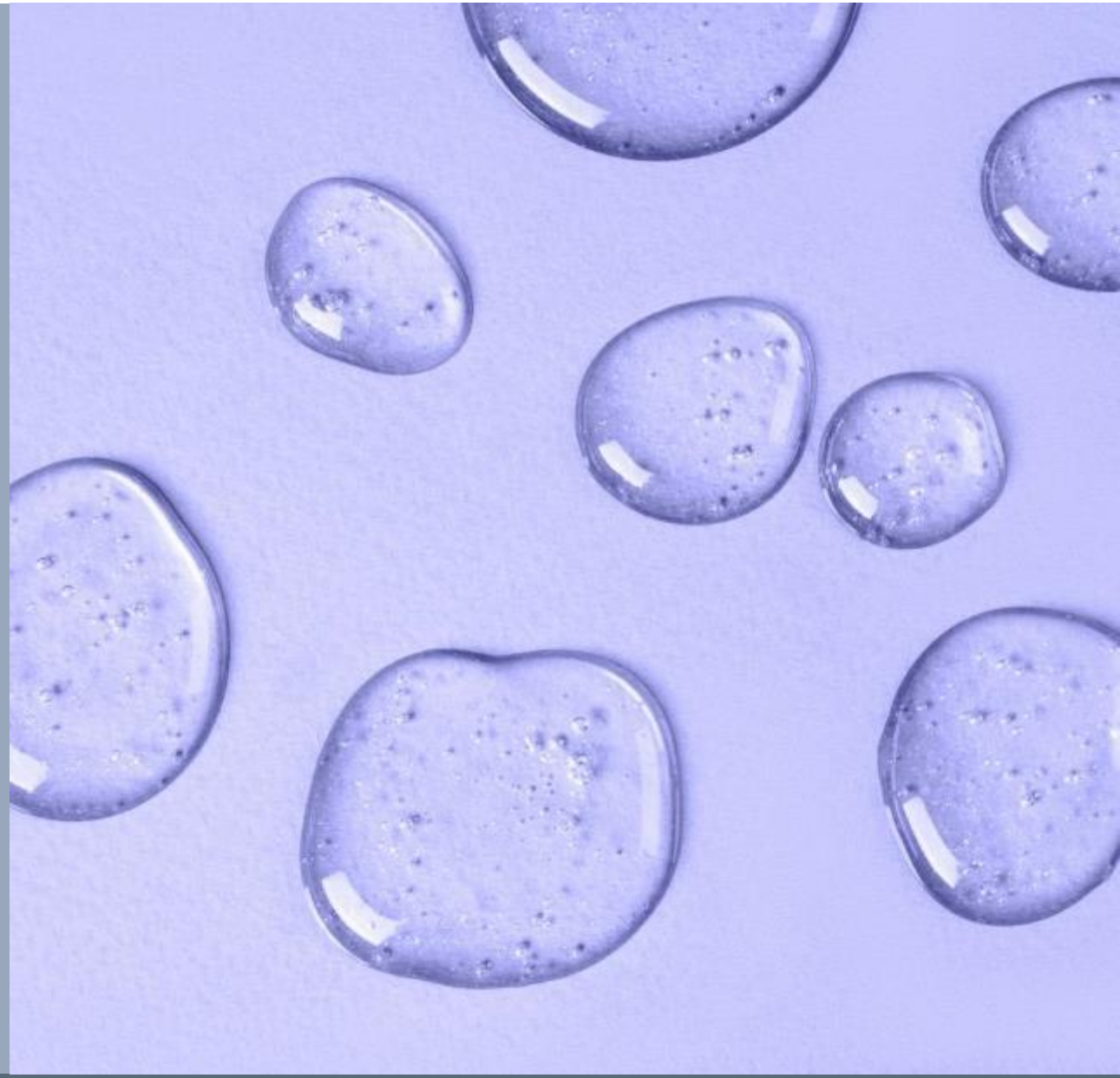
## Liquid Micellar Oils

# MCIROMULSE® LB: KEY FACTS

**INCI:** Glycerin, Polyglyceryl-10 Laurate, Aqua, Saponaria Officinalis Leaf/Root Extract

An ingredient to make transparent or translucent flowable oil-to-milk textures at room temperature.

- Easy to use liquid blend
- 100% Vegetable derived
- Safe product, low irritancy potential
- Cold process manufacturing method
- COSMOS Approved
- 100% Natural Origin (ISO 16128)
- Use Level 15 – 20%



# MAKING AN OIL-TO-MILK FORMULATION WITH MICROMULSE®LB

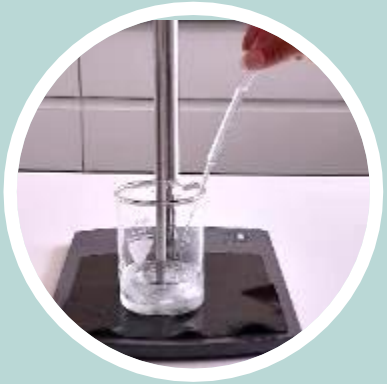
## STEP 1

Weigh out Micromulse® LB, glycerine and water into a beaker and the oil phase into a separate beaker. Melt any butters into the oil.

## STEP 2

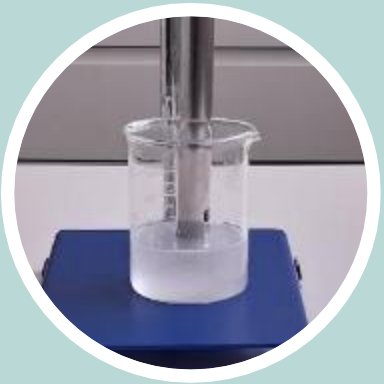
Transfer Micromulse® phase onto an overhead mixer fitted with propeller blade and set to high speed (1000 rpm).

## STEP 3



Start stirring and add oil slowly. Continue adding the oil in portions until all the oil has been added.

## STEP 4



A white aerated thick liquid should form. Homogenise if possible after all the oil has been added.

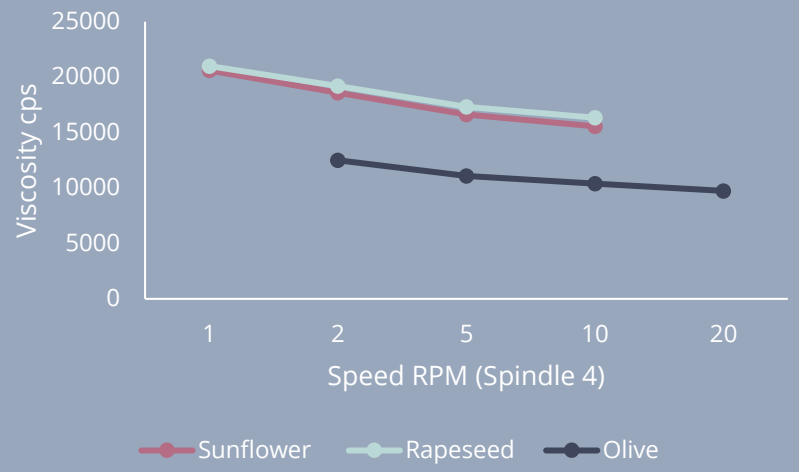
## STEP 5

Check transparency using a centrifuge or watch glass. Add other ingredients if needed. Air will clear after 24 hours.

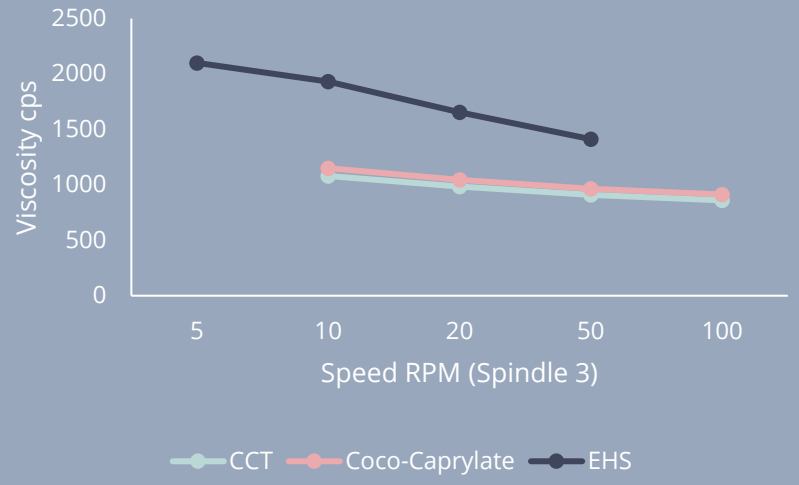
- The amount of water used in the formulation is variable and depends on the oil phase (see framework formulations).
- Most oils and butters are compatible with Micromulse® LB.
- Not compatible with extremes of pH and large amounts of glycols.

# VISCOSITY AND RHEOLOGY DATA

## VISCOSITY WITH DIFFERENT OILS (20% MICROMULSE® LB)

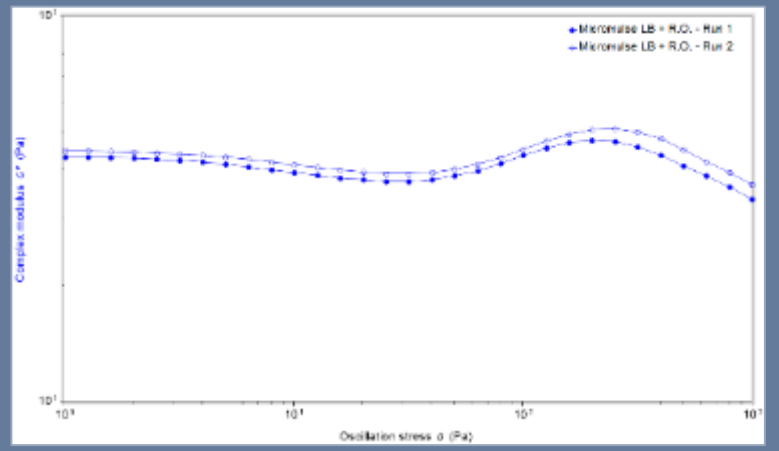



Viscosity depends on the oil used, formulations with vegetable oils have a higher viscosity than esters or CCT. The viscosity is slightly dependent on shear rate.

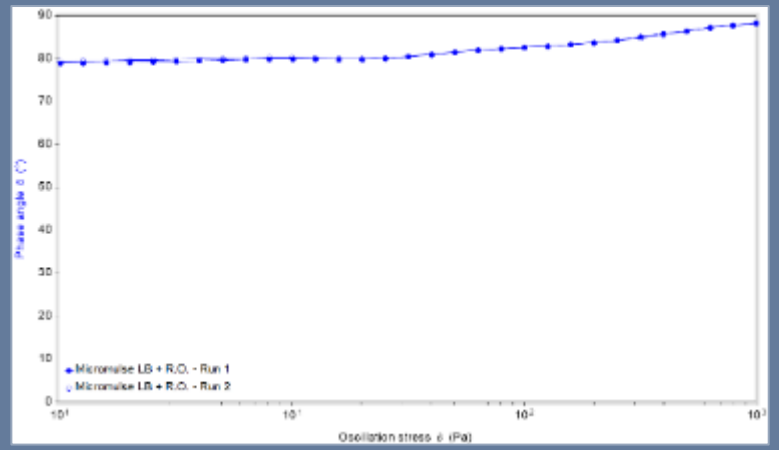



Viscosity depends on the ester used, formulations with esters have a lower viscosity than vegetable oils.

## RHEOLOGY DATA




Rheology is virtually Newtonian in character, meaning the product will flow even though it is thick.



# TRANSPARENCY: HOW MUCH WATER DO I NEED TO ADD?

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## Transparency is generally achieved by matching refractive indices of the internal and external phases.

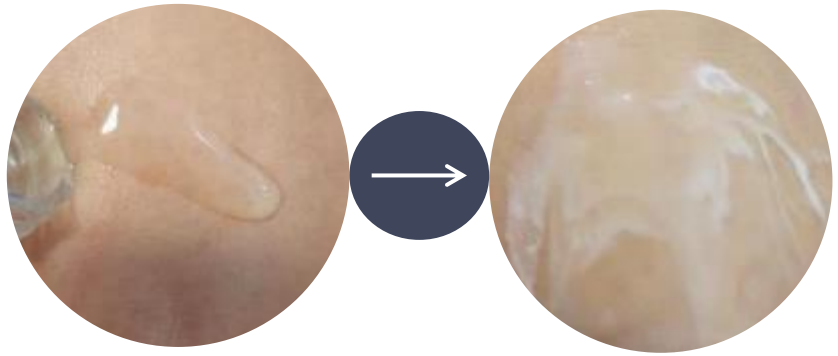
We have determined levels of water in a typical formula: 20% Micromulse® LB, 30% Glycerine, 50% Oil (fix Micromulse® LB & Glycerine, and vary oil / water ratio as a starting point)

| OIL | AVERAGE REFRACTIVE INDEX (note: grades may vary) | % OF WATER REQUIRED FOR TRANSPARENCY* |
|---|---|---|
| Sunflower | 1.474 | 0 |
| Rapeseed | 1.467 | 0 |
| Almond | 1.460 | 0.7 |
| Olive | 1.469 | 1 |
| Rapeseed / Dicaprylyl Ether | 1.459 | 2.5 |
| Olive / CCT | 1.458 | 4.5 |
| Ethylhexyl Stearate | 1.451 | 9 |
| Caprylic/Capric Triglyceride | 1.450 | 9 |
| Coco-Caprylate | 1.437 | 10 |

* For blends of oils, calculate the average refractive index and compare to the table.

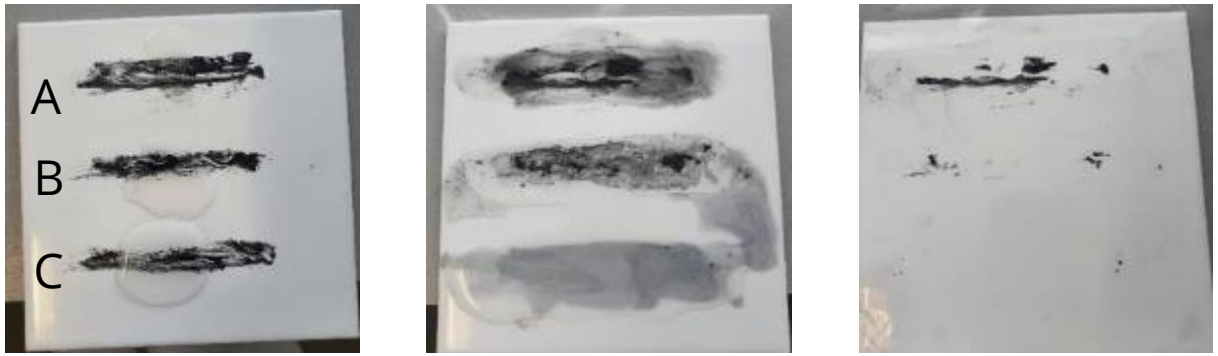
# FEATURES / TESTS WITH MICROMULSE®LB

## OIL-TO-MILK TRANSFORMING TEXTURE



## MAKE UP REMOVAL

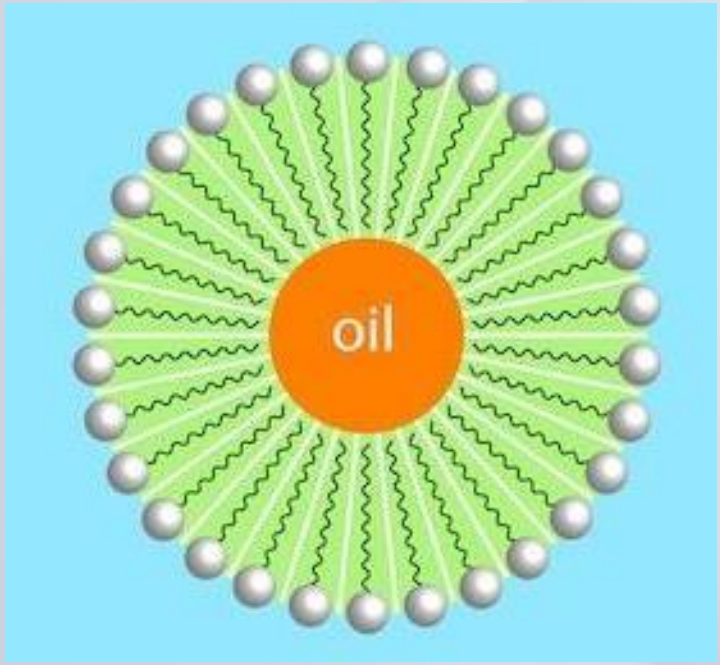
Waterproof makeup removal was tested using 3 formulas: A: A cleansing oil made of pure oils, B: A cleansing oil made with oil plus synthetic emulsifiers, C: Micromulse® LB Micellar Cleansing Oil – C performed best.




Micromulse® LB Micellar Cleansing Oil performed best, removing all of the waterproof makeup easily.

## STRUCTURE OF A MICROMULSE® LB MICELLAR OIL

Oil is captured within a micelle made up of a mild surfactant (Polyglycerol ester and saponin). The external phase is made up of water and glycerine. When water is added, the external phase changes composition, making it cloudy. Make up, dirt and grease are easily removed by the oil and surfactant.



# APPLICATIONS OF MICROMULSE® LB

Formulations available at alchemy-ingredients.com

Soothing Bath Oil

Scalp Massage Oil

Pumpkin Spice Shower Oil

Micellar Cleansing Oil

Miracle Hair Oil

## Application examples:

### BATH & SHOWER OILS

### ESSENCE MASKS

### HAIR WATERS

### CLEANSING OILS

ALCHEMY
ingredients

# SOPHOCOLL®

Collagen-Lipid Bio-Surfactant Complex to strengthen & moisturise skin & hair

# SOPHOCOLL®: KEY FACTS

**INCI:** Aqua, Sodium Cocoyl Collagen Amino Acids, Glycolipids

A mild nutritional surfactant blend that can be used on its own or as a foam booster and moisturising additive.

- Easy to use liquid blend
- 100% Natural Origin (ISO 16128)
- COSMOS Approved
- PEG and Ethoxylate Free
- Vegetable Origin & Vegan
- Globally approved
- Cold Process
- Use level 5 – 25%
- Sustainable manufacturing process

# SOPHOCOLL®: MAKING A SURFACTANT BASED PRODUCT

## STEP 1

If using as a secondary surfactant Sophocoll® can be added together with the other surfactants before thickening with salt, or if using natural thickeners such as Sclerothix®, add to thickened water phase.

## STEP 2

Sophocoll® can also be added at the end of the manufacturing process once the formulation has been made with the other surfactants and is already thickened. Stir gently to avoid excess air.

## STEP 3

Adjust pH once all surfactants have been added. If using Sophocoll® as the primary surfactant the pH needs to be above 6.5 to prevent haziness, but in combination it can be below this.

**Use Level**

- In micellar water / mild cleansing solution etc: 1 – 5%
- As a repair additive in surfactant-based formulations: 5-10%
- As a primary surfactant: 15 – 20%

## STABLE WITH MANY SURFACTANT SYSTEMS

Adding up to 5% of Sophocoll® to the formulation should not change viscosity, stability or pH.

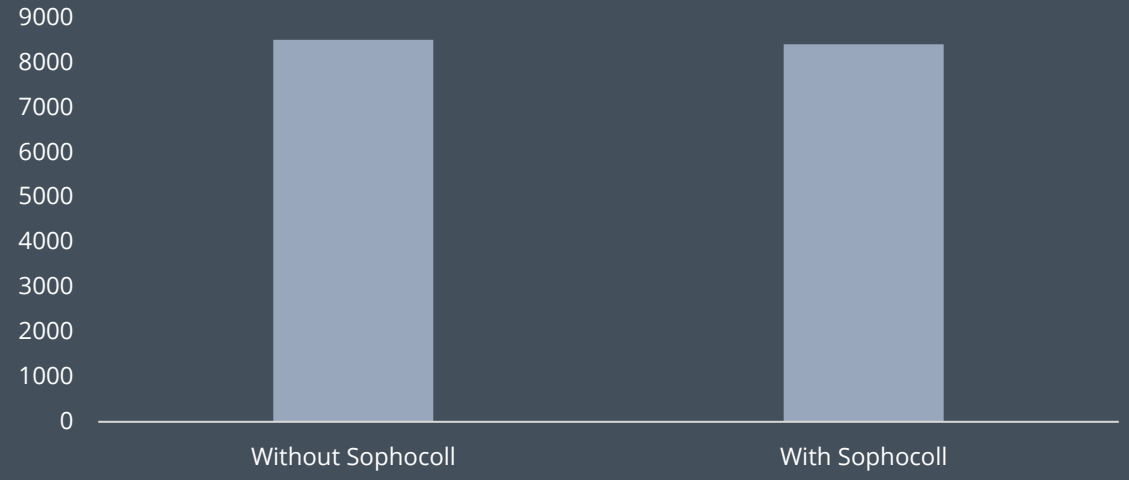
The effect of adding 5% Sophocoll® is shown below.

| SURFACTANT | % SOLIDS CONTENT | RESULT |
|---|---|---|
| Cocamidopropyl betaine | 6.67 | Stable, transparent |
| Sodium Laureth Sulphate | 5 | Stable, transparent |
| Caprylyl/Capryl Glucoside | 10 | Stable, transparent |
| Decyl Glucoside | 10 | Stable, translucent |
| Sodium Lauroyl Sarcosinate | 5 | Stable, transparent |
| Sodium C14-16 Olefin Sulfonate | 7.6 | Stable, transparent |
| Sodium Lauroyl Glutamate | 4 | Stable, translucent |

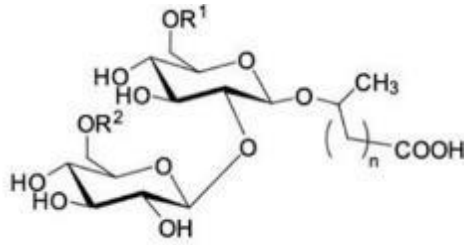
## FRAMEWORK FORMULATION

| | |
|---|---|
| Surfactant Blend | Variable |
| Sophocoll® | 1-5% |
| Salt or other thickener | QS |
| pH adjuster e.g. Citric Acid | QS |
| Preservative | 1% |
| Water | Qs to 100% |

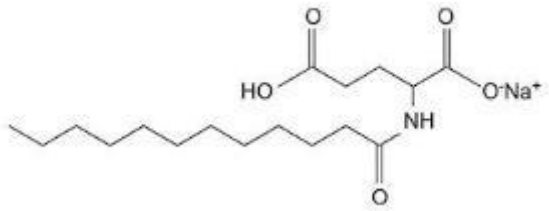
Effect on Viscosity with added Sophocoll®



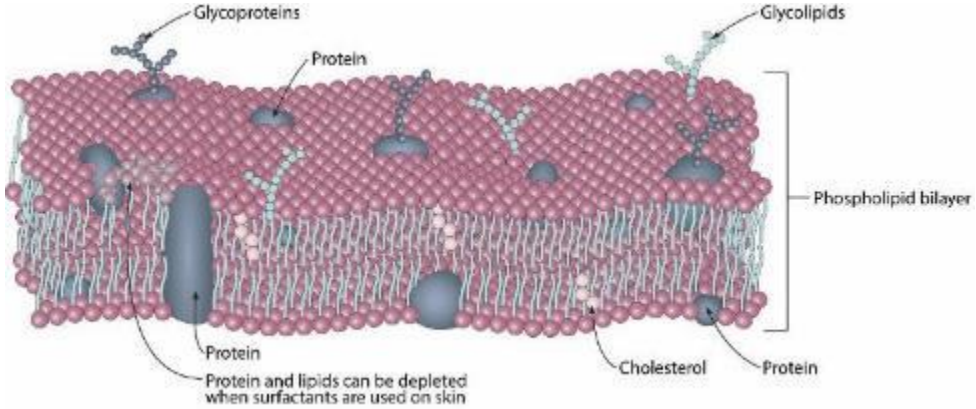
# FEATURES / TESTS WITH SOPHOCOLL®



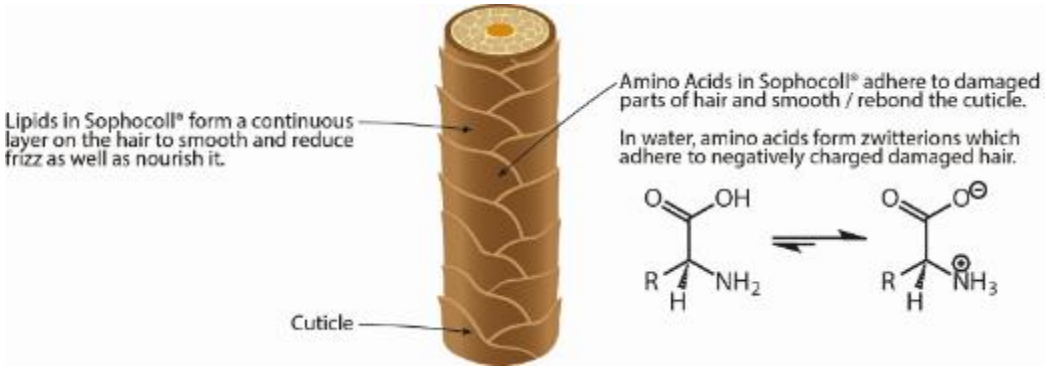

Molecular structure of Glycolipid




Molecular structure of Vegan Collagen surfactant




Surfactants can be harsh to skin and hair, causing essential components to be stripped out. As Sophocoll® is bio-identical, it nourishes the skin, putting back essential molecules.




## FOAMING TEST

A commercial shampoo was dosed with 5% Sophocoll® and foam was dispensed through a foamer bottle. It was found that the foam lasted twice as long with added Sophocoll®.


Foam lasted twice as long with Sophocoll added.

## MAKEUP REMOVAL

A Sophocoll® toner / micellar water was tested with a selection of waterproof makeup to see how it compared with a commercial toner / micellar water. The formulation containing Sophocoll® (left) was more effective than the commercial formula (right).

## HAIR STRENGTH

A 5% Sophocoll® shampoo was used to wash hair and compared with one without – it was found to increase the strength of the hair by 30%.

| | TEST 1 | TEST 2 | TEST 3 | AVERAGE WEIGHT OF BREAKAGE |
|---|---|---|---|---|
| SHAMPOO | 50g | 45g | 55g | 50g |
| SHAMPOO + 5% SOPHOCOLL® | 70g | 60g | 65g | 65g |

# SOPHOCOLL® APPLICATIONS

## Formulations available at alchemy-ingredients.com


Soothing Scalp Smoothie


Rice Water Micellar Foam


Tropical Cleanser


Rose Water Toner


Detoxifying Scalp Serum


Conditioning Cowash

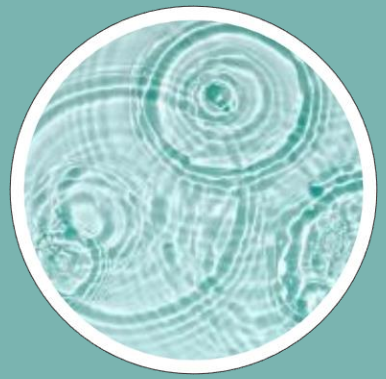
## Application examples:

### SHAMPOO

### SHOWER GEL

### FACIAL WASH

### MICELLAR WATER / TONER



### SPECIALIST WASH

ALCHEMY
ingredients

# MICROMULSE® FOAM

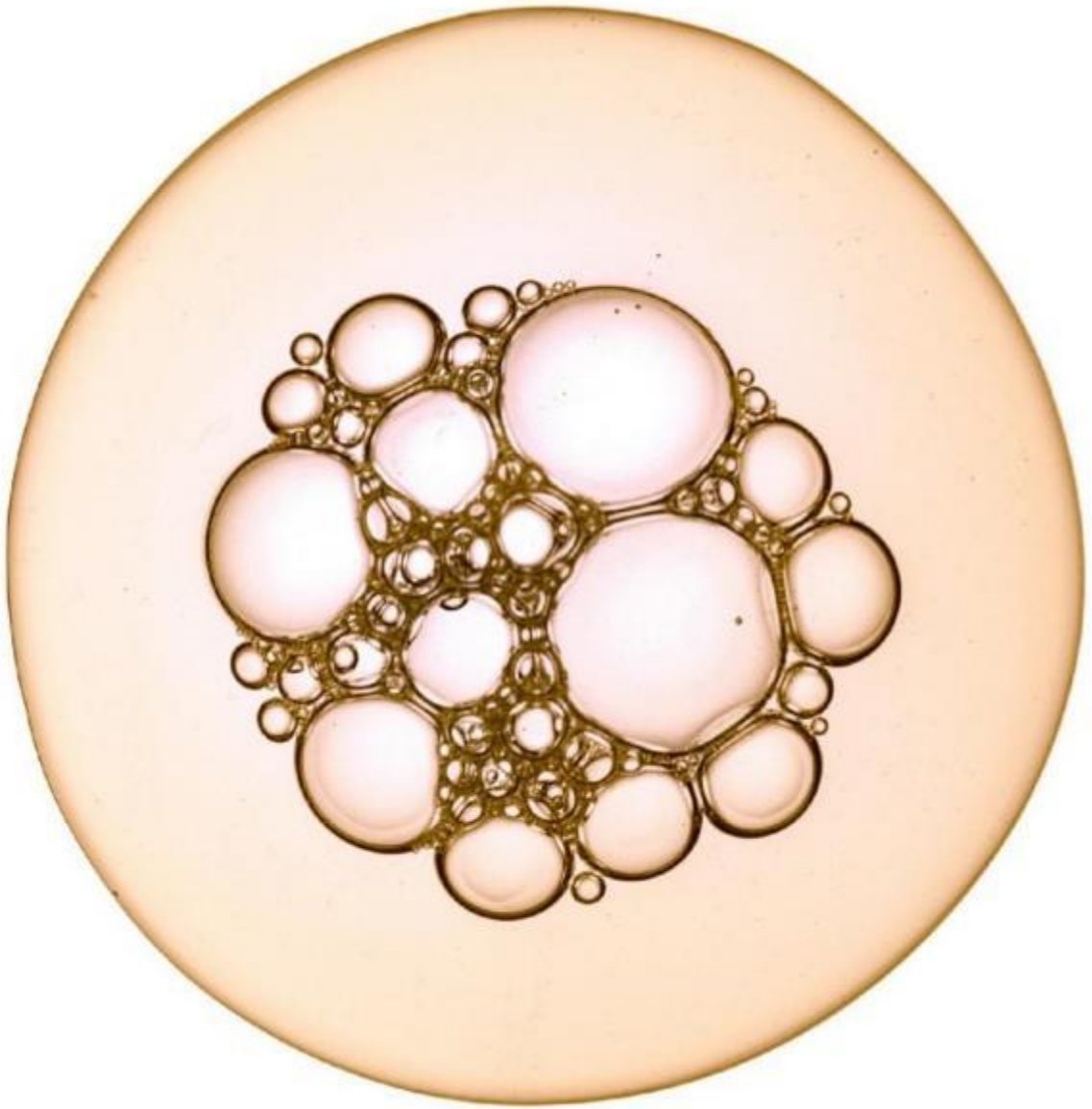
Oil-to-Foam
Transforming Textures

# MICROMULSE® FOAM: KEY FACTS

**INCI:** Sodium Cocoyl Amino Acids, Aqua, Coco-Caprylate / Caprate, Polyglyceryl-10 Laurate

A microemulsion ingredient to add to oil to produce wash off, oil-to-milk, or foaming textures.

- Easy to use liquid blend
- 100% Natural Origin (ISO 16128)
- COSMOS Approved
- PEG and Ethoxylate Free
- Vegetable Origin & Vegan
- Globally approved
- Cold Process
- Use level 5 – 25%



# MICROMULSE® FOAM: MAKING A FOAMING OR CLEANSING OIL

## STEP 1

Weigh out oil and Micromulse® Foam phases separately. If butters are being used, melt these in the oil phase, otherwise keep at room temperature.

## STEP 2

If other oil soluble ingredients such as essential oils, perfume or actives are being used, add them to the oil.

## STEP 3

Slowly add Micromulse® Foam to the oil phase using an overhead mixer. DO NOT HOMOGENISE or over mix. Stop once the mixture looks homogenous.

- Avoid adding extra water to Micromulse® Foam formulations as they may become unstable.
- Not compatible with other surfactants, emulsifiers and high polarity materials.
- Preservatives are not necessary in formulations.

# THREE USES FOR ONE INGREDIENT

## 5% MICROMULSE® FOAM

- Can be added to oils at a low level to help oils wash off easily.
- Gives a transparent product in oil.
- Helps remove makeup and excess sebum from skin.

## 10-15% MICROMULSE® FOAM

- At a medium surfactant level the oil will not foam but it will transform into a milk.
- Can be used as a shower or body cleansing oil.

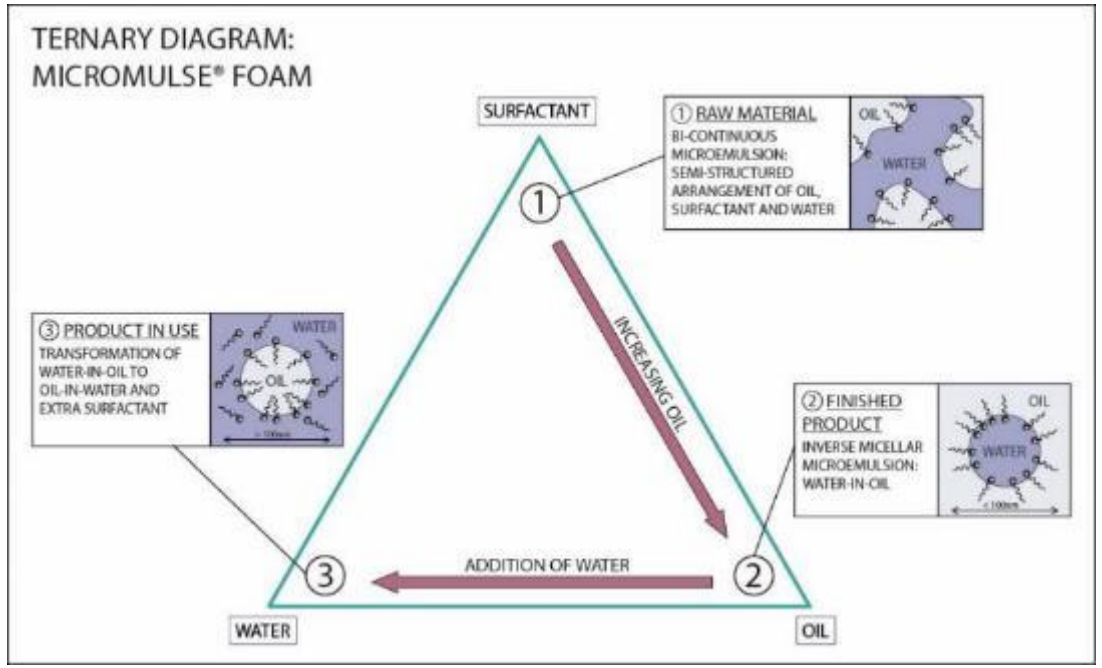
## 20%+ MICROMULSE® FOAM

- At higher surfactant levels the ingredient will produce an oil-to-foam effect.
- Applications in shower oil, foaming bath oil, shampoo, facial cleansing oil
- Suitable for use with a wide variety of oils.

TRANSFORMING MILD FUNCTIONAL

# FEATURES / TESTS WITH MICROMULSE® FOAM

Micromulse Foam formulations transform from an oil to a cream to a foaming product.




## OIL BASED SHAMPOO CONCEPT

Shampoos can be made from Micromulse Foam, they foam and cleanse well while providing moisturisation via the oil. This concept was tested on curly and straight hair below, and achieved a good result.

Curly Hair:
The hair tresses (human hair) were washed and dried 3 times:

- Left: SLES / CAPB Shampoo
- Right: Micromulse® Foam shampoo

Straight Hair:
The hair tresses (human hair) were washed and dried 3 times:

- Left: SLES / CAPB Shampoo
- Right: Micromulse® Foam shampoo

# MICROMULSE® FOAM: APPLICATIONS

## Formulations available at alchemy-ingredients.com

Foaming Coconut Scalp Scrub

Aperol Spritz Shower Oil

Nourishing Cleansing Oil

Jamaican Black Castor Oil Shampoo

Almond Shower Oil

## Application examples:

### CLEANSING OILS

### SHOWER OIL

### SHAMPOO

### BATH OIL

ALCHEMY
ingredients

# INSTATHIX®

Fast formulation of
Oil-in-Gel emulsions

# INSTATHIX®: KEY FACTS

**INCI:** Xanthan Gum, Sodium Stearoyl Lactylate, Tapioca Starch, Algin

An emulsifier / thickener blend that can be used on its own to create cream-gels and serums or as a stabiliser or co-emulsifier.

- Powder blend
- 100% Natural Origin (ISO 16128)
- COSMOS Approved
- 100% Vegetable origin
- Typical use level 1 – 4%
- Vegan and gluten free
- Globally approved
- Very safe and mild, suitable for skin types.

# MAKING A CREAM-GEL OR SERUM WITH INSTATHIX®

## STEP 1

Weigh out oil and water phases separately, if butters are present melt these in the oil phase. Heat water phase to 70°C.

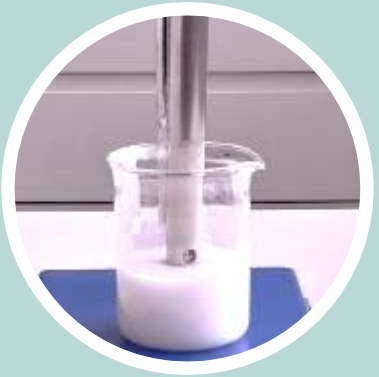
## STEP 2

Add Instathix® to oil phase and stir to disperse the powder. If only liquid oils are present this can be done at room temperature.

## STEP 3

Add the hot water phase to the oil phase and stir well. Ensure the mixture is above 70°C and hold for several minutes.

## STEP 4



Homogenise for several minutes until an emulsion forms. Cool down on an overhead mixer and add heat sensitive ingredients.

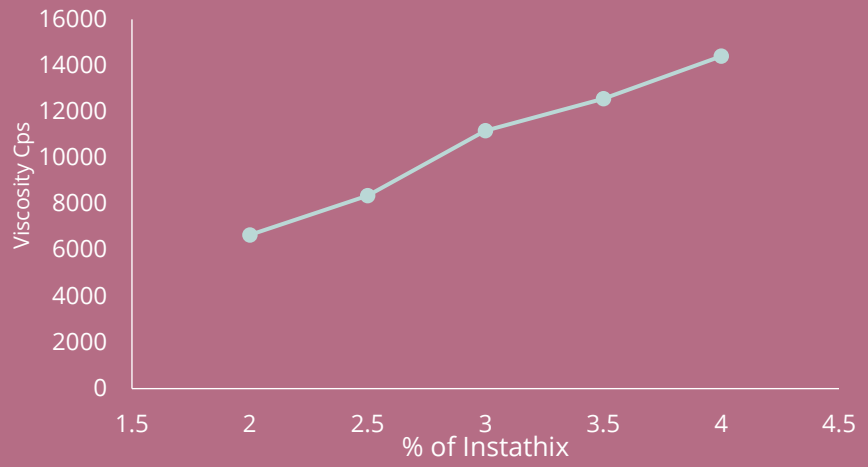
## STEP 5

A rich cream will be formed, note that final viscosity may only be reached 24 hours later.

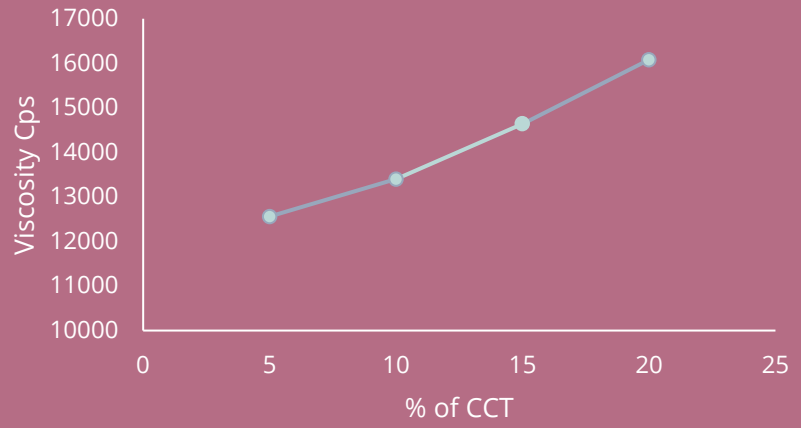
- 1 part of Instathix® will emulsify up to 4 parts of oil. Using Glyceryl Stearate allows for more oil to be added.
- Instathix® formulations should be kept between pH 5 and 9, low pHs cause a change in texture (this is reversible) .
- Some surfactants can be gelled with Instathix®, list is available.

# PHYSICAL DATA

## VISCOSITY

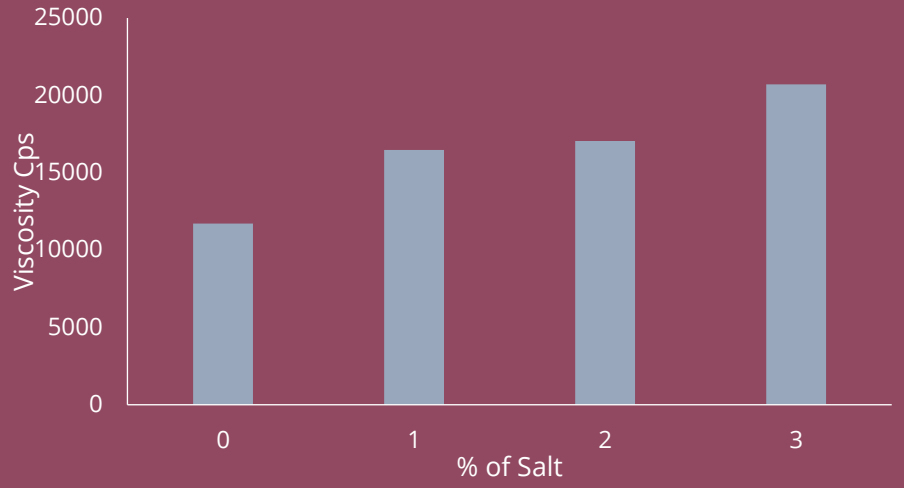


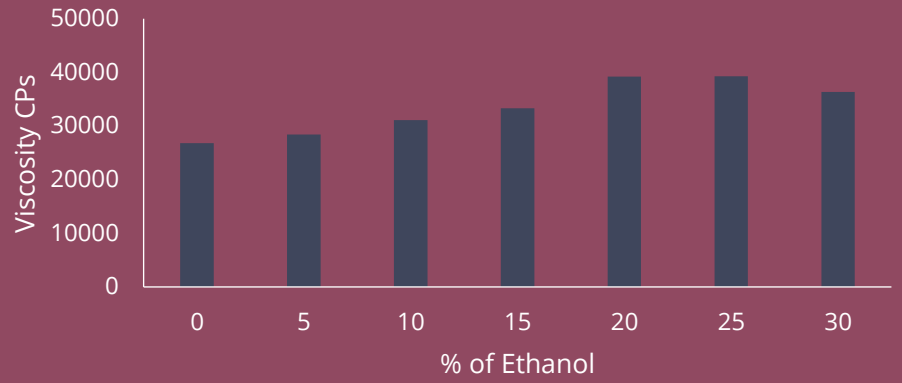

There is a gradual increase in viscosity with an increase in the % of Instathix® used. a level of between 2 and 4% IS recommended when used as the sole emulsifier.




In general, the higher the level of oil used in the formulation, the higher the viscosity. Butters will give a higher viscosity than oils alone.

## ADDDED INGREDIENTS



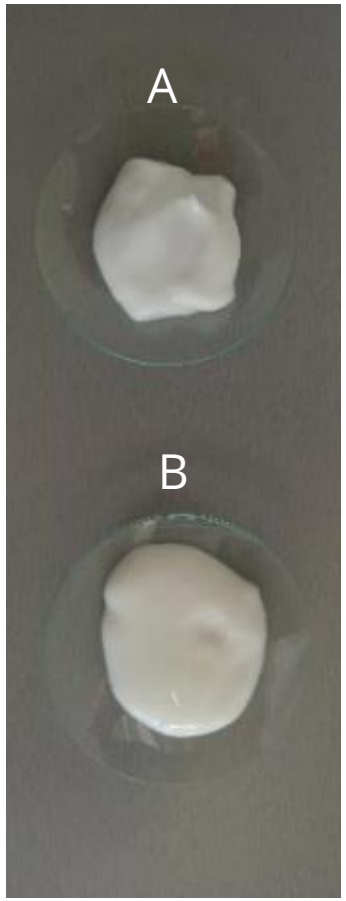

Instathix formulations are generally stable with up to 3% salt and 30% Ethanol.

# FEATURES / TESTS WITH INSTATHIX®

## REPLACEMENT OF SYNTHETIC EMULSIFIER/THICKENERS

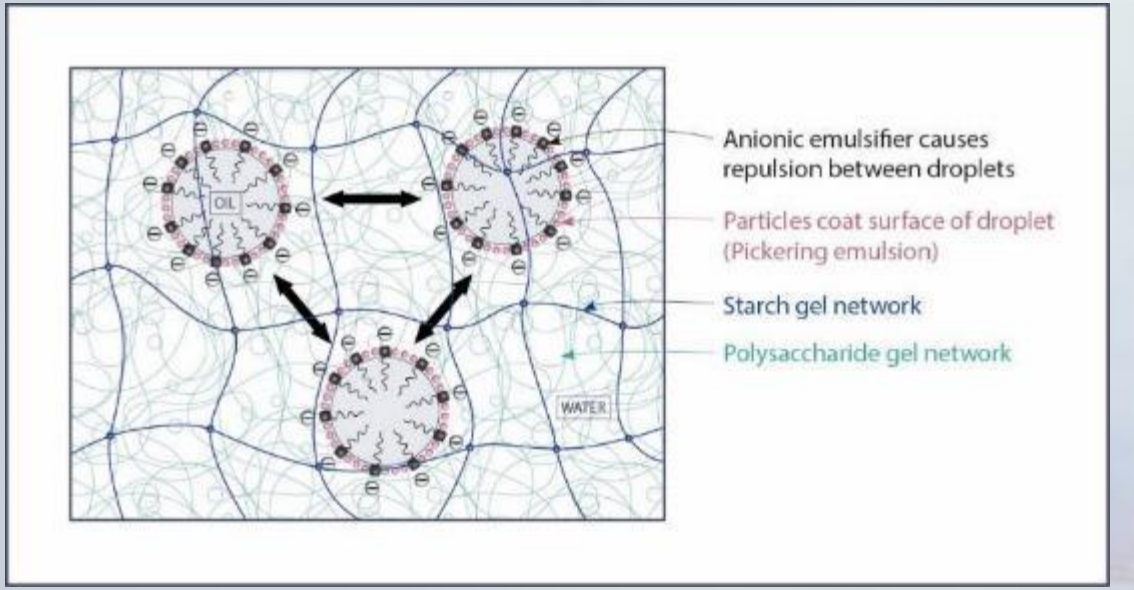
A typical synthetic emulsifier / thickener cream (A) was tested alongside a 3.5% Instathix® cream (B). Properties were ranked 0-3. The rheological characteristics were also assessed.

| PHASE | A | B |
|---|---|---|
| Synthetic Emulsifier | 2% | |
| Instathix® | | 3.5% |
| Caprylic/Capric Triglyceride | 10% | 10% |
| Glycerine | 5% | 5% |
| Water | 82% | 80.5% |
| Preservative | 1% | 1% |
| **PROPERTY** | **A** | **B** |
| Whiteness | ▲▲▲ | ▲▲ |
| Translucency | ▲▲▲ | ▲▲▲ |
| Moisturising feel | ▲ | ▲▲▲ |
| Powdery feel | ▲ | ▲▲ |
| Natural Index | | ▲▲▲ |




## STABILISATION OF UNSTABLE FORMULAS

Using Instathix at approximately 1-2% can stabilise unstable formulas and also enhance the texture.



# APPLICATIONS OF INSTATHIX®

## Formulations available at alchemy-ingredients.com


Calming Body Lotion


Pina Colada Body Lotion


Vitamin C Serum


Hyaluronic Facial Serum


SPF 15 Day Cream


Hair Pigment Putty


Mattifying Day Cream


Body Yoghurt

## Application examples:

DAILY MOISTURISER

SERUMS

CREME/GEL

RICH NIGHT CREAM

CLAY MASK

ALCHEMY
ingredients

# LUXAMUL®

The cold process, active-compatible emulsifier

# LUXAMUL®: KEY FACTS

**INCI:** Xanthan Gum, Sclerotium Gum, Sapindus Mukorossi Fruit Extract

A luxurious cold process emulsifier / thickener for use with high levels of actives and acids, with a cream-gel texture.

- Easy to use powder blend
- 100% natural (ISO 16128)
- COSMOS approved
- Globally approved
- Plant derived, no chemically processed material
- Palm free
- Use level 1.5 – 2%
- Cold process

# MAKING A CREAM OR SERUM WITH LUXAMUL®

## STEP 1

Premix Luxamul® in glycerine or oil to disperse the powder.

## STEP 2

Add to the water phase and homogenise. If butters or waxes are used, melt in the oil phase.

## STEP 3

Pour the oil phase into the water phase while on the homogeniser. An all-in-one method can also be used.

## STEP 4

Homogenise at high speed for several minutes until the emulsion is fully combined. Transfer to overhead mixer.

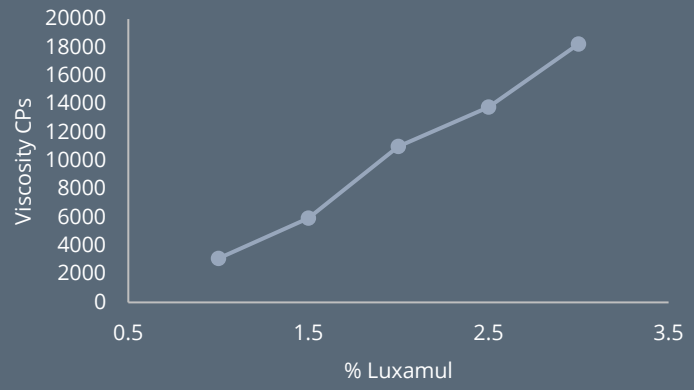
## STEP 5

Transfer to overhead mixer for several minutes to fully hydrate. A smooth white cream should result.

- 1 part of Luxamul® emulsifies up to 10 parts of oil. If more oil is required, Glyceryl Stearate can be used.
- All types of oil are compatible.
- Avoid adding extra gums as they may affect the texture and stickiness.
- Luxamul® can be used in conjunction with some surfactants to thicken them and provide cleansing and conditioning benefits.

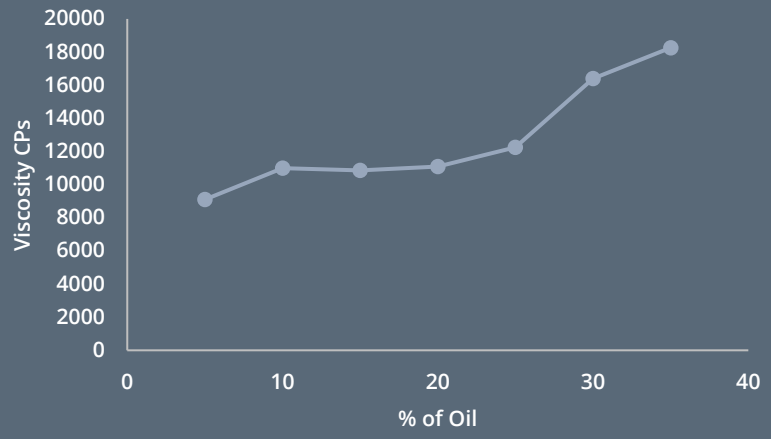
# PHYSICAL DATA

## VISCOSITY WITH % OF LUXAMUL®



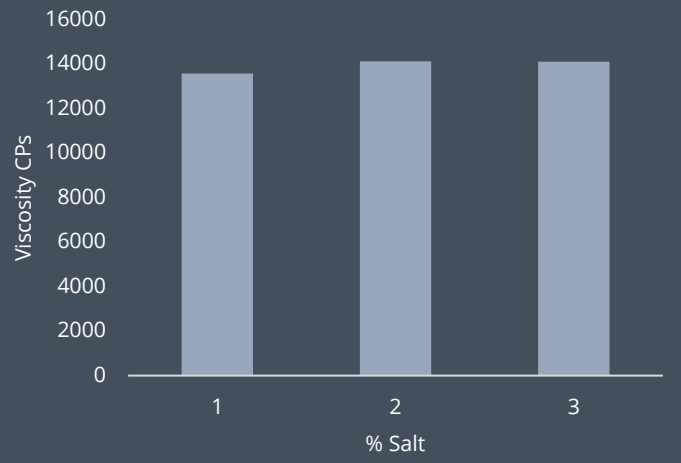

There is a gradual increase in viscosity with % of Luxamul® . A maximum of 3% is recommended.

## VISCOSITY WITH % OF OIL

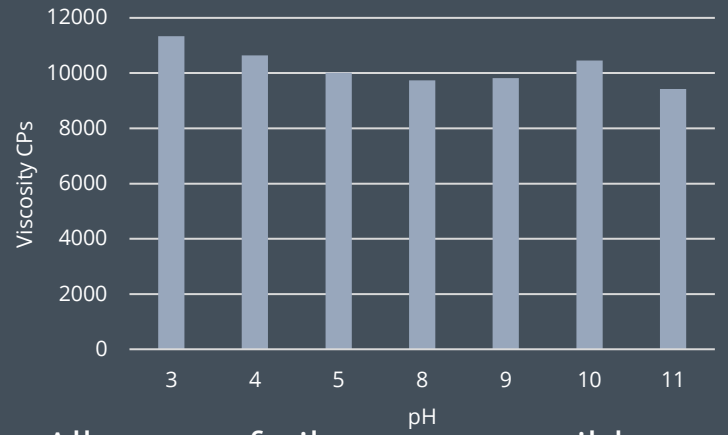



There is a gradual increase in viscosity with % of oil added.

## SALT




Luxamul® formulations can tolerate up to 3% salt without affecting texture or viscosity.



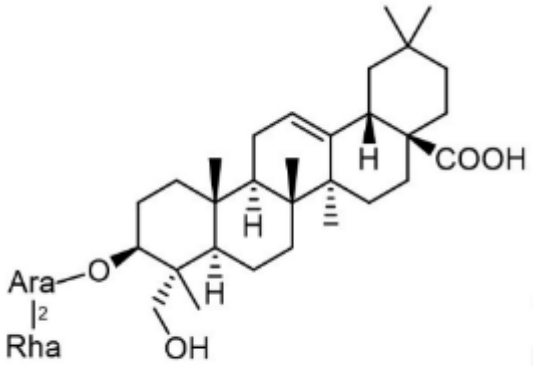

Luxamul® formulations are stable between pH 3 and 11.

- All types of oils are compatible.
- Most actives, glycols and surface active materials are compatible.

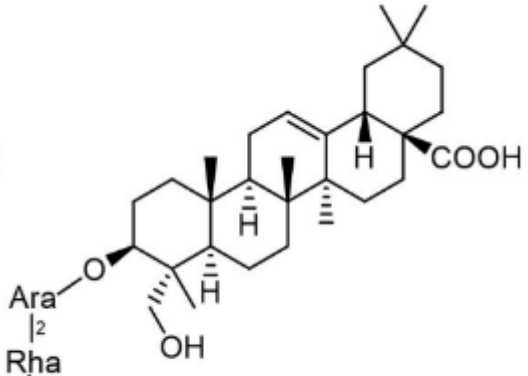
# FEATURES / TESTS WITH LUXAMUL®

## PLANT ORIGIN

Saponins are extracted using water from Soapberries – these are wild harvested on wasteland and provide extra income for farmers.

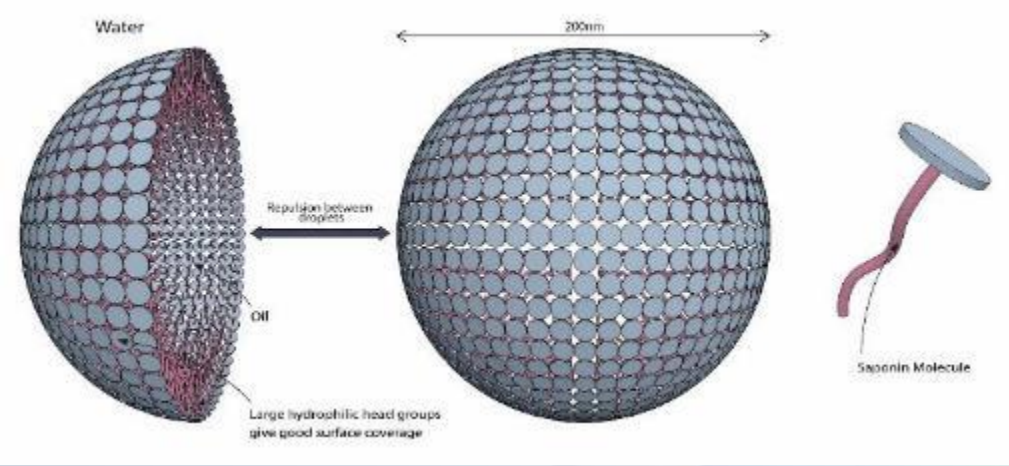



sapindoside A

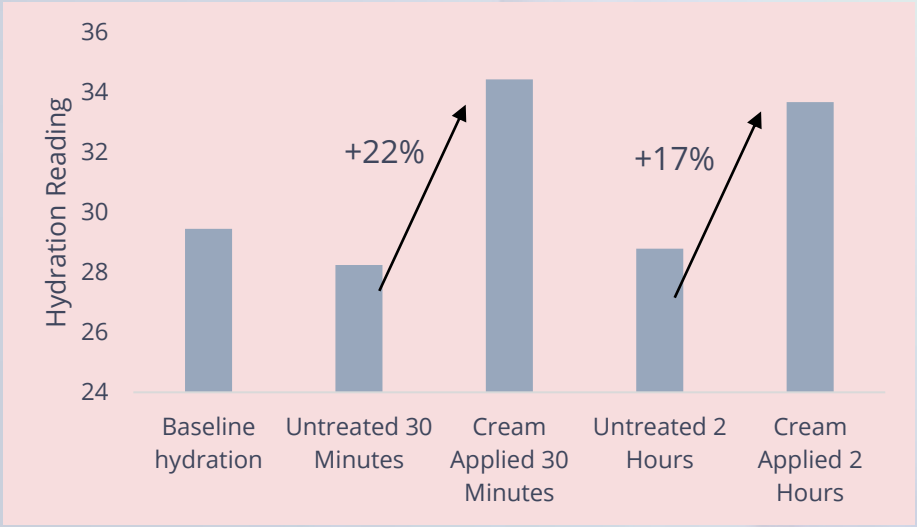



sapindoside B

Saponins are complicated molecules found in many plants which act as emulsifiers and foaming agents.




The superior stability of Luxamul® formulations can be explained by the structure of the saponin molecule and the size of the oil droplets.

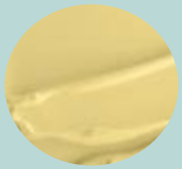



A cream made with Luxamul® was tested using a corneometer on a panel of volunteers and was shown to increase hydration of skin.

# LUXAMUL®: APPLICATIONS

## Formulations available at alchemy-ingredients.com

Cooling Breeze Serum



Overnight Renewal Cream

Hydrating Hemp Body Serum

Soothing Scalp Smoothie

## Application examples:

DAY / NIGHT CREAMS

BODY LOTION

FACIAL WASH

SERUMS

BABY PRODUCTS

ALCHEMY
ingredients

# SCLEROTHIX®

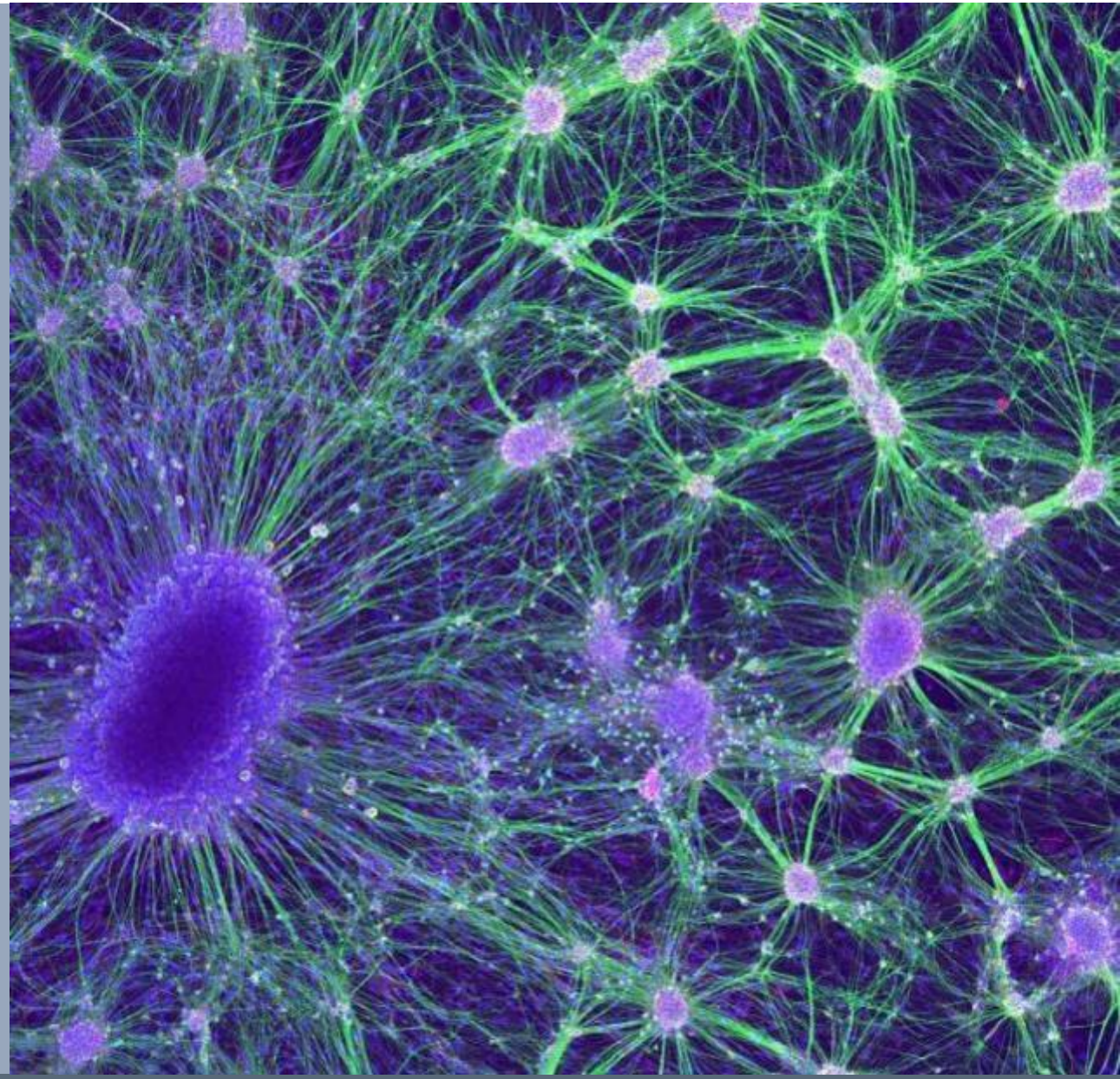
Versatile water thickening and gelling

# SCLEROTHIX®: KEY FACTS

**INCI:** Xanthan Gum, Sclerotium Gum, Algin

A transparent, smooth, suspending gelling agent ideal for gels, creams and surfactant formulations.

- White Powder
- 100% Natural Origin (ISO 16128), COSMOS
- Typical use level 1 – 2%
- Origin: Fermentation of glucose (Xanthan & Sclerotium), Seaweed (Algin)
- Gluten free and vegan
- Non sticky and non pilling
- Globally approved
- Cold Processable



# MAKING A GELLED WATER PHASE WITH SCLEROTHIX®

## STEP 1

Add Sclerothix® directly to water phase (sprinkle on top of the water).

## STEP 2

Alternatively, pre-wet powder in glycerine and then add to water.

## STEP 3

Sclerothix® disperses in cold water or can be processed hot (viscosities may be slightly different).

## STEP 4

Homogenisation for a few minutes is required to disperse and hydrate the powder fully.

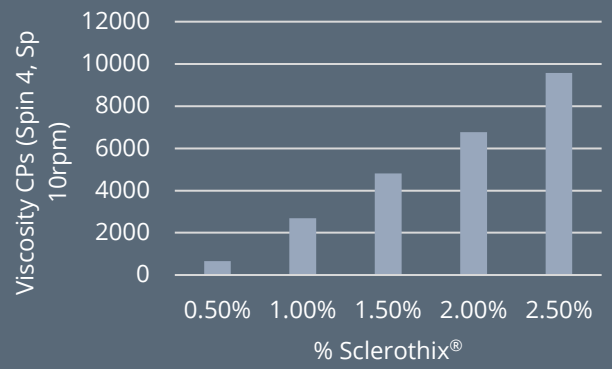
## STEP 5

Air will be trapped in the gel, but will clear in approx. 24 hours, or use a centrifuge. Using heat traps less.

- If thickening an emulsion: Sclerothix® can be added at any stage but it may be easier to make the gel phase first before emulsifying.
- Sclerothix® is ideal for stabilising emulsions or for suspending particles such as exfoliators, clays or pigments.
- If a surfactant based formulation is being made, it is recommended to form the gel and then add in the surfactant gently to avoid excess air becoming trapped.

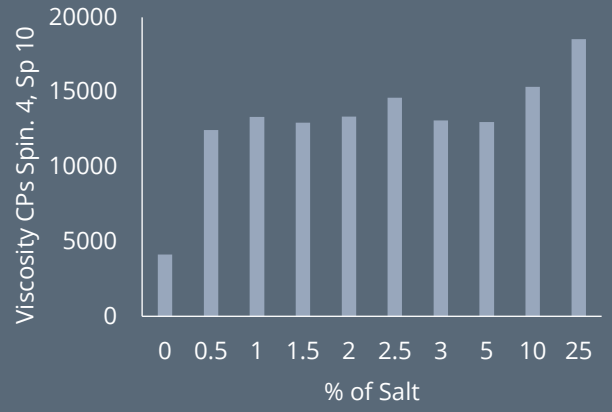
# COMPATIBILITY DATA

## VISCOSITY



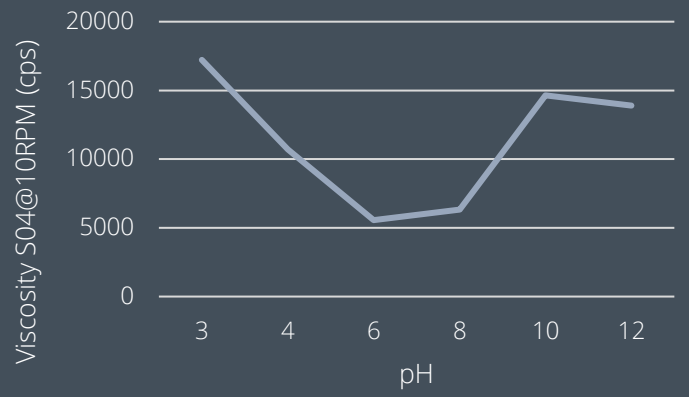

There is a gradual increase in viscosity with % of Sclerothix® in water. Other ingredients may affect viscosity.

## WITH SALT




Sclerothix® gels can tolerate salt (NaCl), viscosity increases and smoothness may be lost at higher levels.

## PH




Sclerothix® gels are stable between pH 3 and 10.

## OTHER COMPATIBILITIES

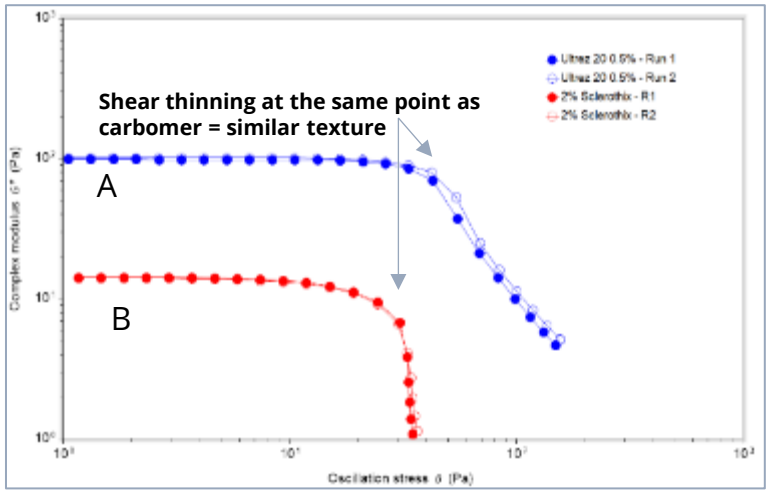
- Stable with up to 30% added ethanol.
- Incompatible with cationic compounds.
- Stable with most preservatives, note that if preservative is not soluble in water the gel will be cloudy.
- Generally compatible with all oils, emulsifiers and actives.
- Compatible with many surfactants, list is available.

## REPLACEMENT OF CARBOMER

A Carbomer gel (A) gel was tested alongside a 1.5% Sclerothix® gel (B). Properties were ranked 0-3. The rheological characteristics were also assessed.

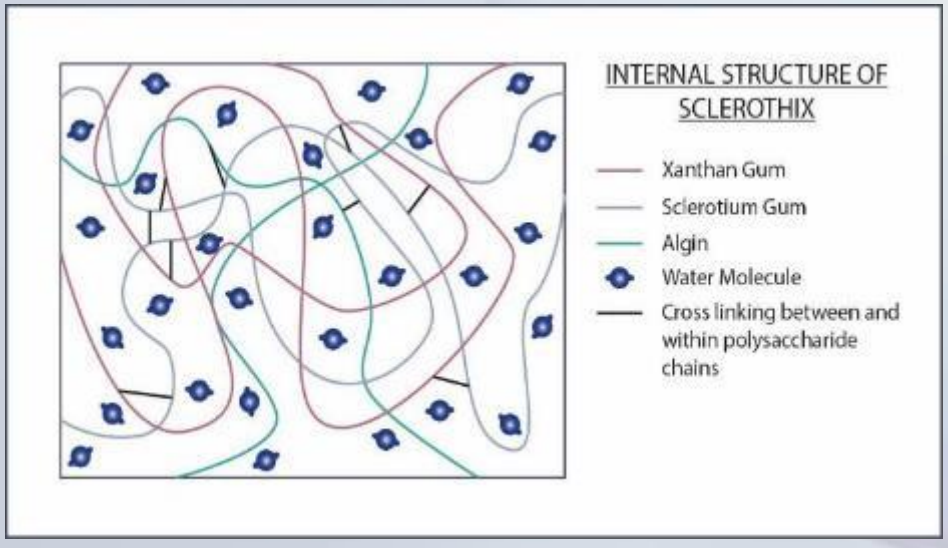
| PROPERTY | A | B |
|---|---|---|
| Transparency | ▲ ▲ ▲ | ▲ ▲ |
| Smoothness | ▲ ▲ ▲ | ▲ ▲ ▲ |
| Moisturising Feel | ▲ | ▲ ▲ ▲ |
| Spreadability | ▲ ▲ | ▲ ▲ ▲ |
| Natural Index | | ▲ ▲ ▲ |






## SUSPENSION AND STABILISATION

Various types of particles were suspended in a 2% Sclerothix® gel and monitored over time. Particles did not drop out during the test period. Sclerothix® was also able to stabilise emulsions at a 1% level.



# APPLICATIONS OF SCLEROTHIX®

## Formulations available at alchemy-ingredients.com


Barrier Repair Night Cream


Tropical Cleanser


Detoxifying Scalp Serum


Brow and Lash Serum


Cold process emulsion


AHA Body and Facial gel


Glow Serum

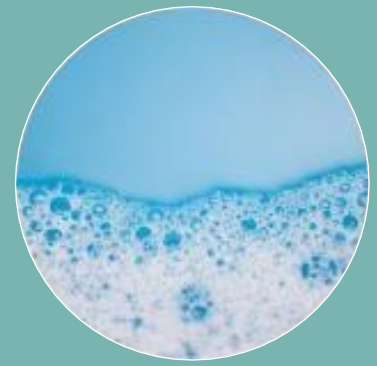

Petals and Peptides serum


Superfruit Micellar Gel

## Application examples:

### EYE, FACE & BODY GELS

### FOAMING PRODUCTS



### SCRUBS & MASKS

### EMULSIONS

### MICELLAR GELS

ALCHEMY
ingredients

# CLEARTHIX® S

## Transparent Thickening of Water

# CLEARTHIX® S: KEY FACTS

**INCI:** Cellulose Gum, Algin

A versatile, transparent, flowable thickener for gels, surfactant formulations and creams.

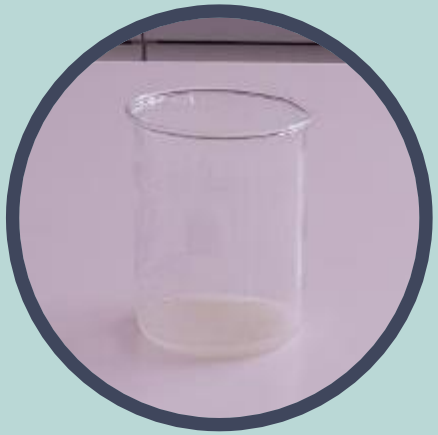
- White Powder
- COSMOS Approved
- 1 – 2% use level
- Non sticky and non pilling
- Gluten free and vegan
- Origin: Seaweed (Algin) and Wood (Cellulose)
- Globally approved
- Cold processable

# MAKING A GELLED WATER PHASE WITH CLEARTHIX ® S

## STEP 1

Add Clearthix® S directly to water phase (sprinkle on top of the water).

## STEP 2

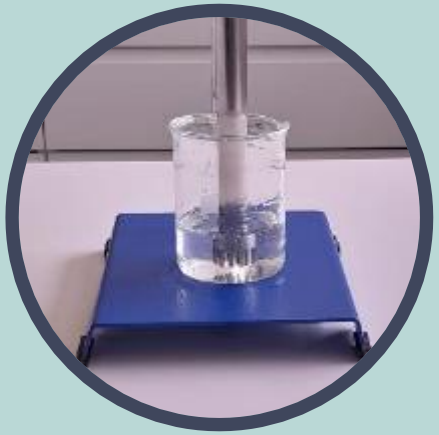


Alternatively, pre-wet powder in glycerine and then add to water.

## STEP 3

The process does not need to involve heat but it is heat stable if required.

## STEP 4



Homogenisation for a few minutes is required to disperse and hydrate the powder fully.

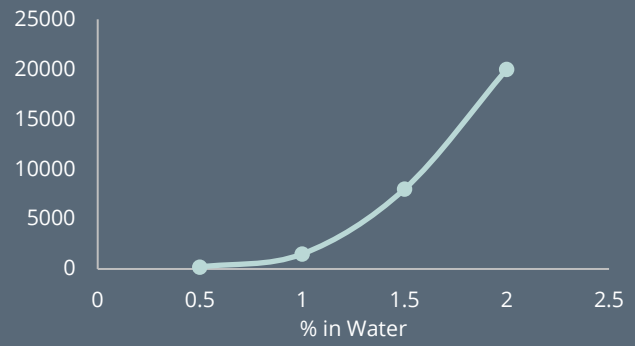
## STEP 5

Air may be trapped in the gel, but will clear in approximately 24 hours, or use a centrifuge.

- If thickening an emulsion: Clearthix® S can be added at any stage but it may be easier to make the gel phase first before emulsifying.
- Note that Clearthix® S does not suspend particles.
- If a surfactant based formulation is being made, it is recommended to form the gel and then add in the surfactant gently to avoid excess air becoming trapped.

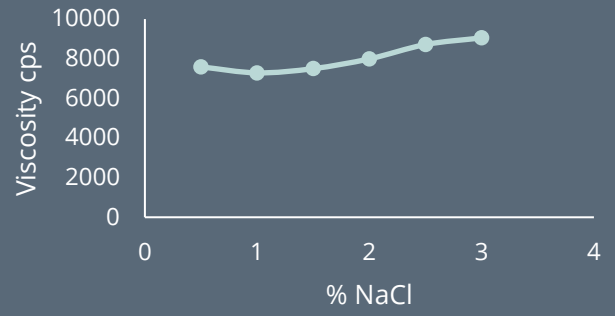
# COMPATIBILITY DATA

## VISCOSITY



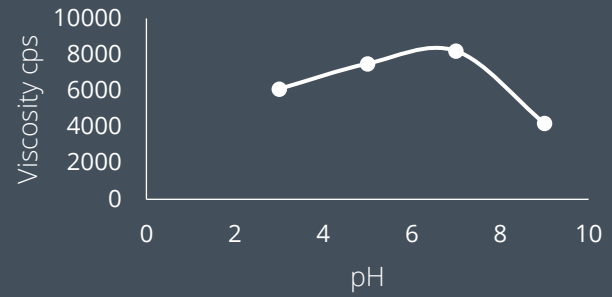

There is a gradual increase in viscosity with % of Clearthix® S in water. Other ingredients may affect viscosity.

## WITH SALT




Viscosity remains stable at up to 4% salt (NaCl).

## PH



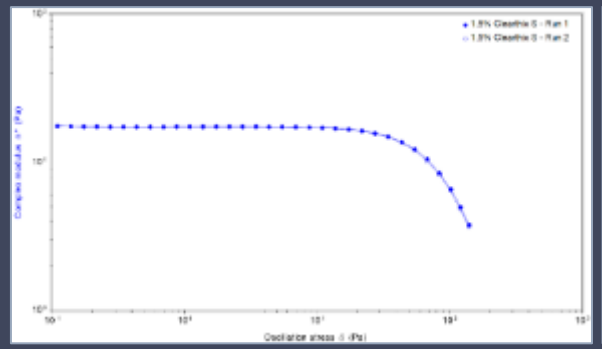

Clearthix® S is stable between pH 5 and 9.

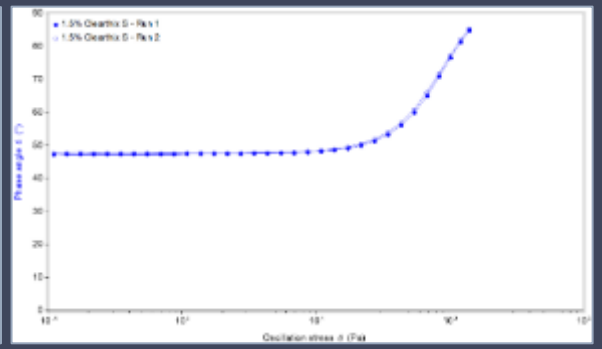
## OTHER COMPATIBILITIES

- Stable with up to 30% added ethanol, viscosity may drop slightly.
- Incompatible with cationic compounds.
- Stable with most preservatives, note that if preservative is not soluble in water the gel will be cloudy.
- Generally compatible with all oils, emulsifiers and actives.
- Compatible with many surfactants, list is available.

Clearthix® S can be used as a carbomer substitute where gentle, flowable thickening is required. It is especially compatible with Hyaluronic acid, where it gives a luxurious texture.

- The rheology of Clearthix® S was tested, this showed a Newtonian flow with slight shear thinning.
- This means the gels flow but do not suspend particles. The gels are ideal for use as a base for serums and flowable gels as well as surfactant based formulations.





# APPLICATIONS OF CLEARTHIX® S

## Formulations available at alchemy-ingredients.com


Hyaluronic Acid Lip Elixir


After Sun Soothing Gel


Hyaluronic Hair Serum


Goji Berry Cleanser

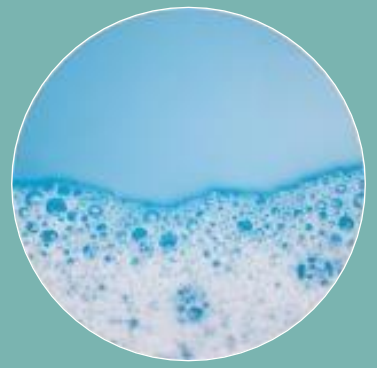

Pore Minimiser


Hyaluronic Facial Gel

## Application examples:

### EYE, FACE & BODY GELS

### FOAMING PRODUCTS



### SCRUBS & MASKS

### EMULSIONS

### HAIR SERUMS