The Sucrose Esters Evolution

The flexible emulsifiers for a continuous creation of innovative (surprise) formulations, unique production techniques and simple + effective concepts.

François van Etten – Sales and Product Manager

Introduction *Sucrose Esters Evolution*

Flexible emulsifiers:
- Pure emulsifiers, not blends.
- No viscosity build-up
- Light & decreasing the greasiness and oiliness of oils/butters

Innovative production techniques:
- Cold process emulsification
- Oil-in-glycerine emulsions that turn into a milk
- Concentrated emulsion with small oil droplet sizes for skin good penetration

Surprise effects/textures:
- Gel-to-milk
- Cream-to-oil
- Surprisingly light skin feel, even with a high oil phase or butter content.

Simplicity:
- Sucrose esters provide a good skinfeel, mildness, skin moisturisation and easy spreadability: no additional ingredients needed.

Highlighted Sucrose Ester Grades

Multifunctional (powder grade) emulsifier with extra benefits, which can be used as an emulsifier in O/W and O/G emulsions or as a co-surfactant.

Product Name	INCI	Mono%	Di%	Higher%	HLB-value	Stearate/ Palmitate
Sisterna PS750-C	Sucrose Palmitate	75	20	5	16	20/80
Sisterna SP70-C	Sucrose Stearate	70	25	5	15	70/30

Natural Certifications

RSPO MB certified:

License no. :
4-0491-14-100-00

Readily biodegradable (aerobic biodegredation = >85% in 28 days)

Also: Kosher certified and suitable for Halal, Vegetarian and Vegan products

Sisterna SP70-C vs Sisterna PS750-C

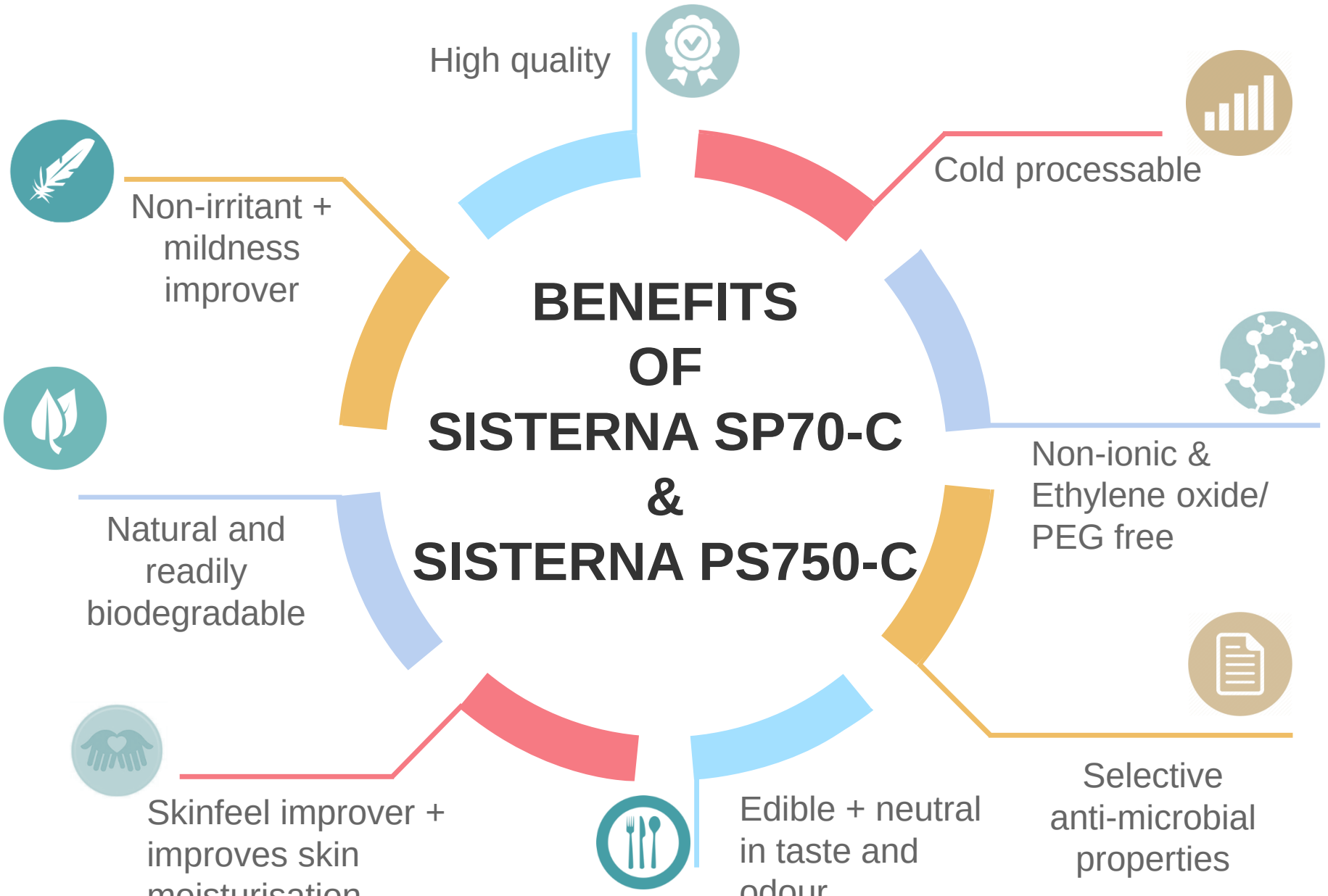
Interchangeable emulsifier + trouble-shooter

Sisterna SP70-C is the go-to grade, sometimes Sisterna PS750-C works better.
In almost all present formulations they are interchangeable for each other.

Sisterna PS750-C:

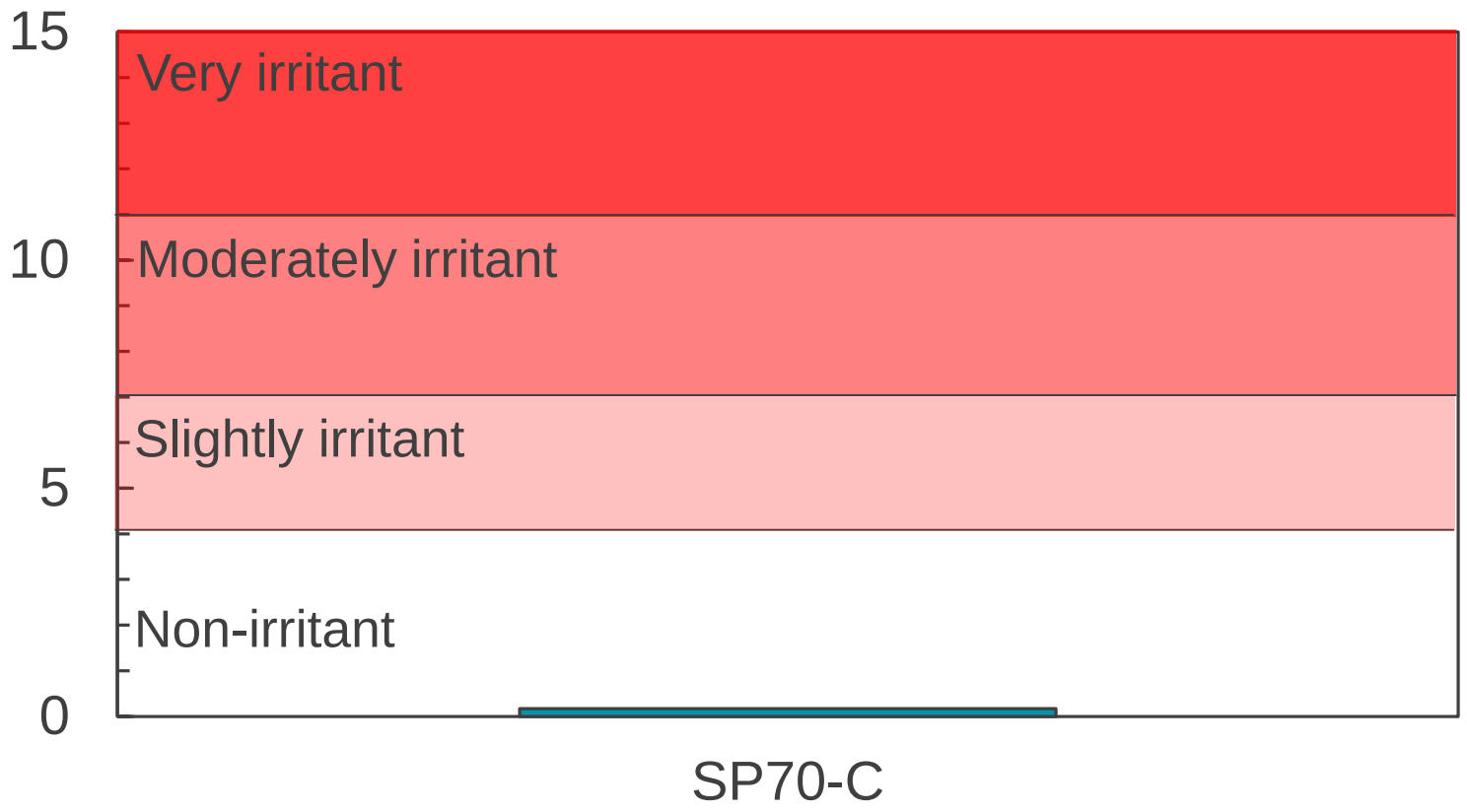
- Less sensitive against electrolytes
- Better water solubility
- Gives a slightly lower viscosity

Product Name	INCI	Mono%	Di%	Higher%	HLB-value	Stearate/ Palmitate
Sisterna PS750-C	Sucrose Palmitate	75	20	5	16	20/80
Sisterna SP70-C	Sucrose Stearate	70	25	5	15	70/30


BENEFITS
OF
SISTERNA SP70-C
&
SISTERNA PS750-C
High quality
Cold processable
Non-ionic &
Ethylene oxide/
PEG free
Selective
anti-microbial
properties
Edible + neutral
in taste and
odour
Skinfeel improver +
improves skin
moisturisation
Natural and
readily
biodegradable
Non-irritant +
mildness
improver

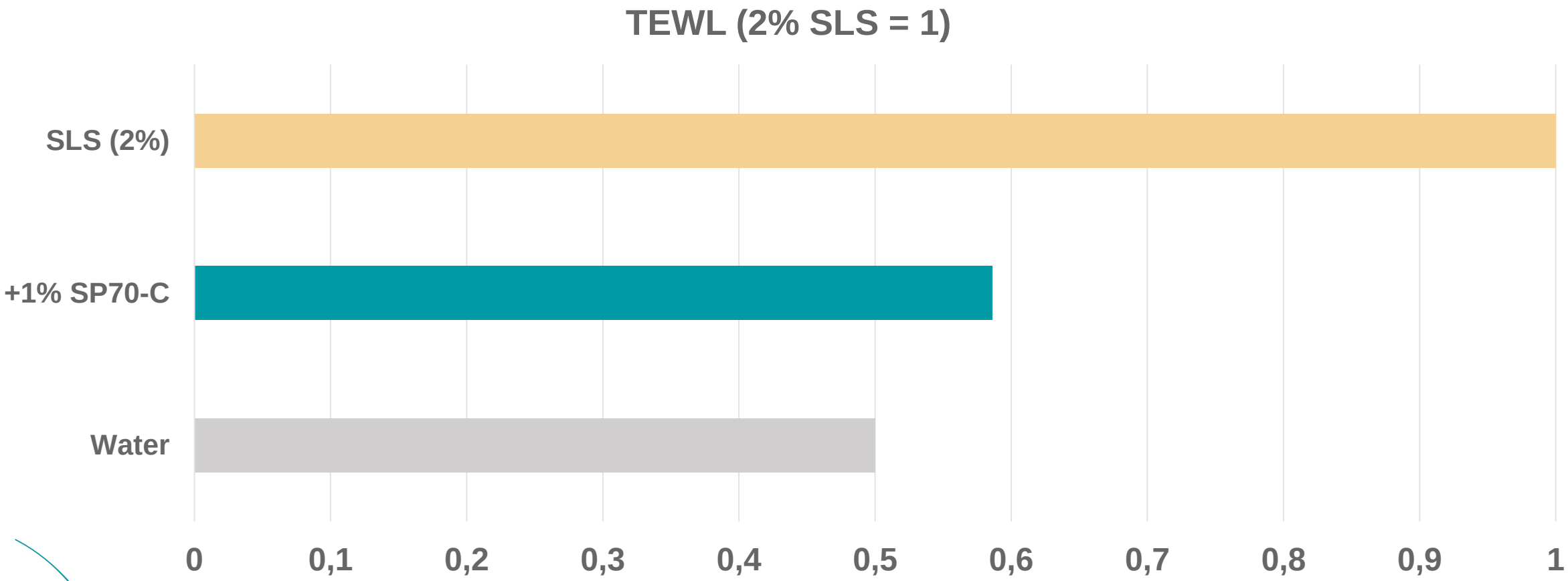
Benefits: non-irritant properties

HET-CAM test (10% solution)



Benefits: Irritation reducing properties

Irritation reduction capacity of Sisterna SP70-C (SLS induced irritation)



Benefits: Moisturising properties (1)

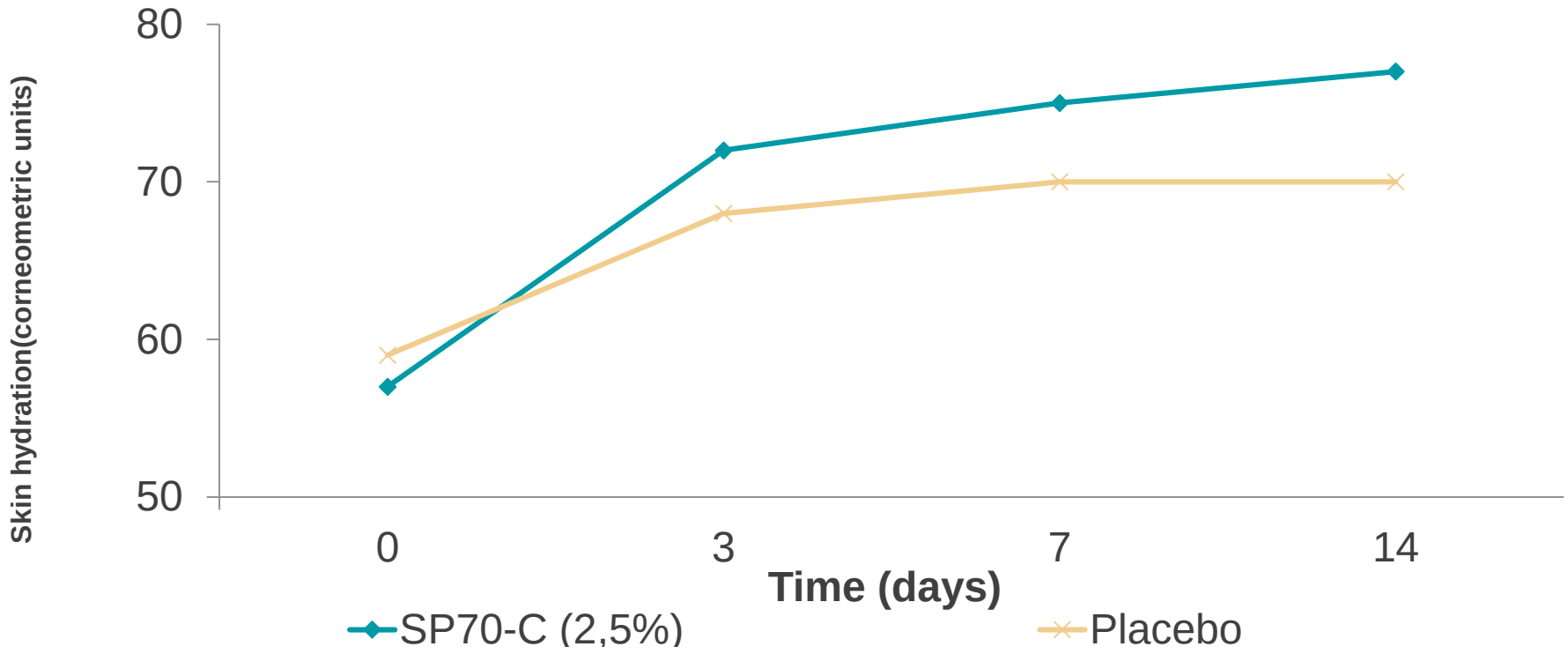
Measuring moisturisation by adding Sisterna SP70-C to a placebo formula

- Emulsions are applied twice a day
- Skin hydration is measured by means of a corneometer at day 0, 3, 7 and 14

Test formulation	parts
Water	63,9
Glycerin	3,0
Xanthan gum	0,4
Paraffium liquidum	22,0
Steareth-2	1,8
Steareth-21	2,7
Sisterna SP70-C	**0% / 2,5%**
Triclosan	0,2
Phenoxyethanol	0,7
Diazolidinyl ureau	0,3

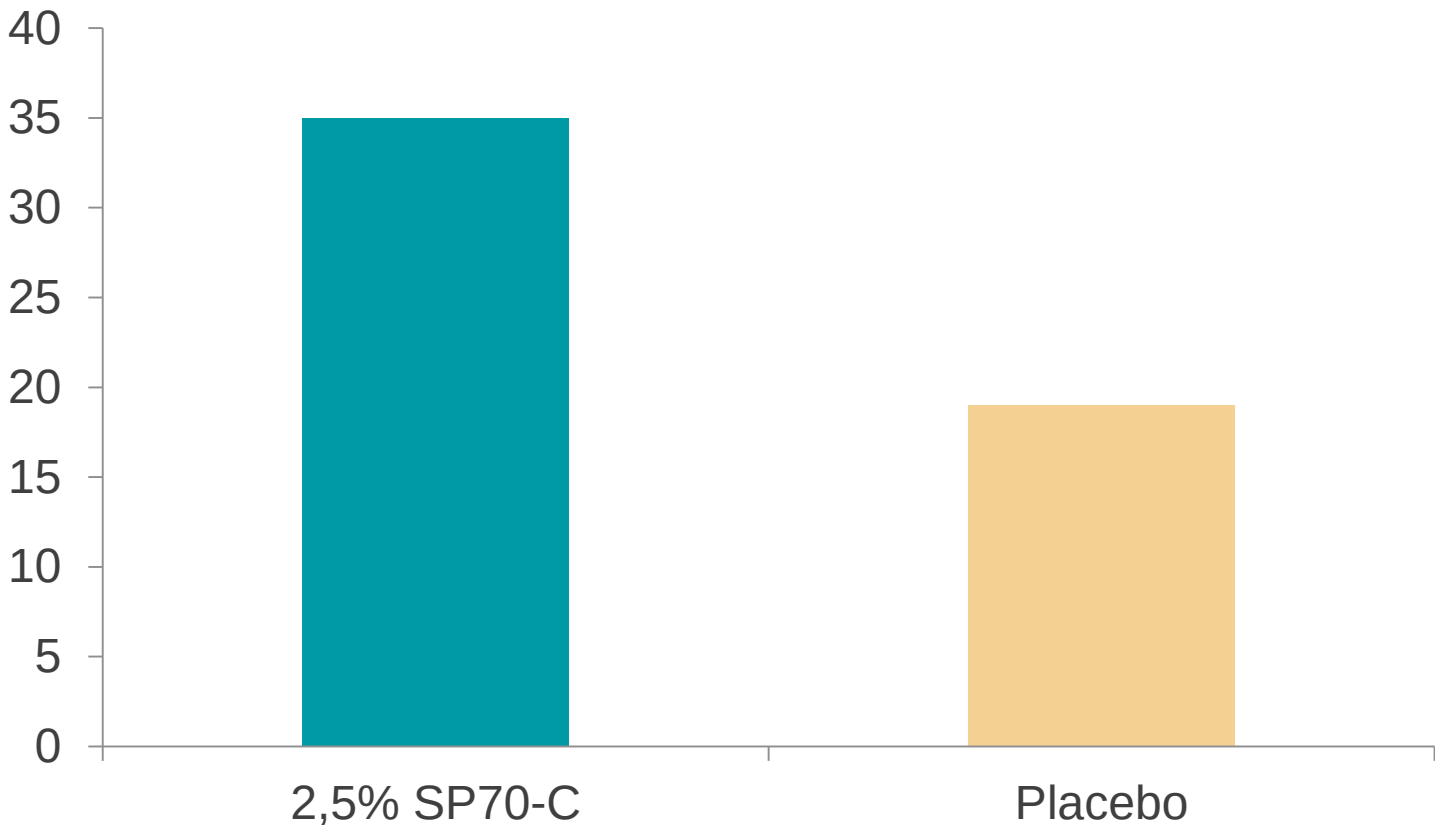
Benefits: Moisturising properties (2)

Long term moisturising properties



Benefits: Moisturising properties (3)

Increase in skin moisture level (%) after 14 days



Benefits: Skinfeel

Provides excellent skin feel, largely independent of the oil phase.

Decreases the greasiness of oils, butters and waxes, making it feel lighter.

Improves the spreading properties.

Feels slightly cool on the skin.

Benefits: Anti-microbial Properties of SP70-C

Test method:

- Media containing various concentrations of Sisterna SP70-C are inoculated with various strains of micro-organisms
- Inhibition of the microbial growth is measured after 20-28 hours

Reduction at a dosage of 1600 mg/l (= 0,16%) Sisterna SP70-C

A) Odour formation	
•Corynebacterium xerosis	80-100%
•Corynebacterium minutissimum	60-80%
B) Diaper rash	
•Corynebacterium ammoniagenes	80-100%
•Staphylococcus aureus	80-100%
•Candida albicans	0%
D) Athlete's foot (foot fungus)	
•Trichophyton rubrum/mentagrophytes	80-100%
F) Normal skin flora	
•Staphylococcus epidermis	0%

From production techniques to example formulations

Formulations

- Cold Process, High Viscous Cream
- Light Cream-To-Oil

- Good Night Face Cleanser
- Delicate Sandy Scrub
- Purifying Clay-to-Milk Mask

- Conditioning Spray
- Moisturising Body Spray
- Gel-Lotion Eye Serum
- Spanish Eye Serum

Production techniques

1. Cold emulsification with sucrose esters

Why cold emulsification?

- Safer to prepare than heated emulsions
- Economical and time saving: no heating up or cooling down
- No limitations towards temperature sensitive ingredients (perfume, actives, preservatives…)
- Environmentally friendly: less energy consumption
  - Environmentally friendly production (& readily biodegradability) > Natural

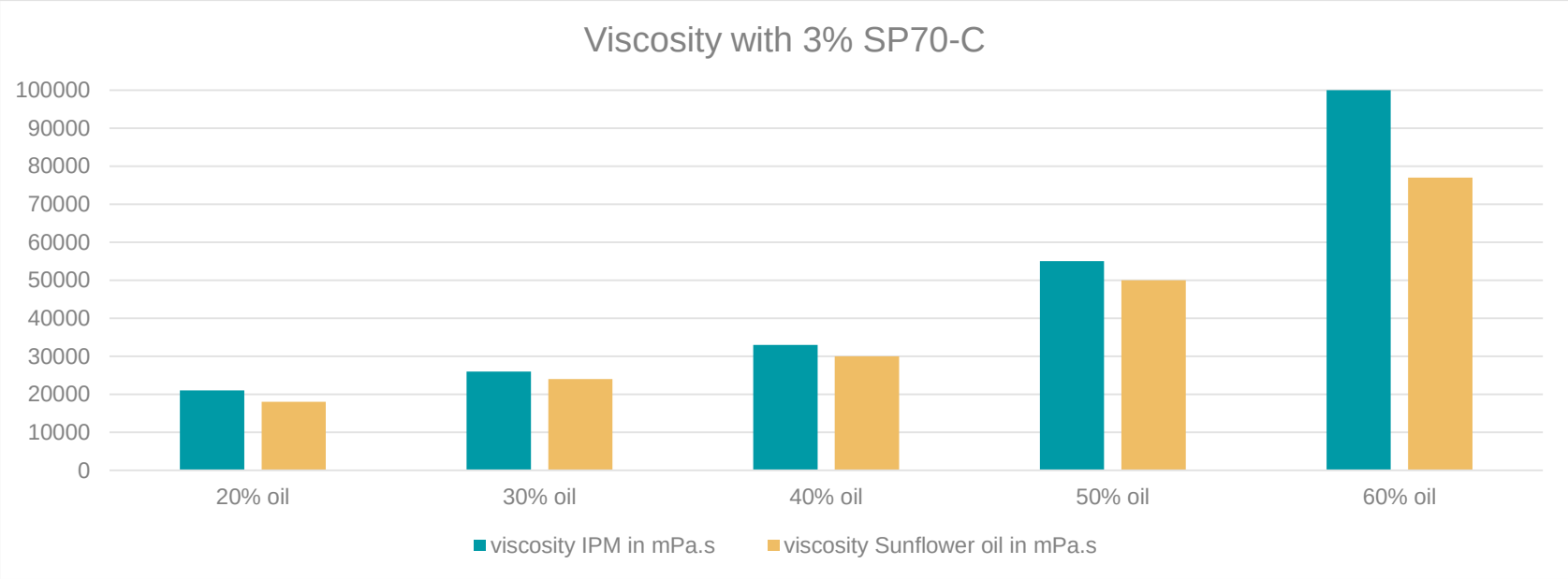
Basic formulation

1	Deionized water Glycerin (99%) Genuvisco CG131 Keltrol CG-FT	Aqua Glycerin Carrageenan Xanthan gum	Ad 100 4.00 0.30 0.30
2	**Sisterna SP70-C** or **Sisterna PS750-C**	**Sucrose Stearate** **Sucrose Palmitate**	**2.00 - 3.00**
3	Sunflower oil IPM Caprylic Capric Triglyceride	Helianthus Annuus (Sunflower) Seed Oil Isopropyl Myristate Caprylic/Capric Triglyceride	20.00 – 60.00
4	Preservative		0.10

Manufacturing Procedure:

- Add xanthan gum and carrageenan to the water phase and stir until a homogeneous solution is obtained
- Add Sisterna SP70-C to the oil phase (to avoid air entrapment)
- Add the oil phase to the water phase and homogenise for 3 minutes with a high shear mixer
- While homogenising the preservative is added

Influencing the viscosity



The viscosity can be increased by increasing the oil phase
The oil type (polarity) has an influence on the viscosity

Additionally:

- Influence the viscosity by selecting a hydrocolloid with viscosity build-up (e.g. Sclerotium Gum)
- Increasing the % of Sucrose Esters will increase viscosity (and gives a better skin feel)

Stability

To prevent creaming the addition of a stabilising system is advised

Tested stabilising system	INCI	Test conc (%)	Skinfeel	Stability
Keltrol CG-SFT	Xanthan Gum	0.3	Substantive and soft	Creaming issue
Amaze XT	Dehydroxyxanthan gum	0.3	slippery	OK
Genuvisco CG131 + Keltrol CG-SFT	Carrageenan + Xanthan Gum	0.3 + 0.3	Soft and silky	OK
Avicel PC611 + Keltrol CG-SFT	Microcrystalline Cellulose, Cellulose Gum + Xanthan Gum	1.5 + 0.2	Light and soft but sometimes sticky during rub out	OK
Amigel	Sclerotium Gum	0.75 – 1.25	Light and silky	OK
Bentone Hydroclay 700	Hectorite, Xanthan Gum	0.5 – 1.5	Soft and light	OK

CE.007 High Viscous Light Cream

	Ingredient	INCI-name	% w/w
1	Deionised Water	Aqua	31.50
	Glycerin	Glycerin	3.00
	Bentone Hydroclay 700	Hectorite, Xanthan Gum	1.50
	Sensiva SC80	Propanediol, Caprylyl Glycol, Caprylhydroxamic Acid	1.00
2	CCT Oil	Caprylic Capric Triglycerides	59.70
	Sisterna SP70-C*	**Sucrose Stearate**	**3.00**
	Sweet Escape 233206-A	Parfum	0.30

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Premix the Bentone Hydroclay 700 into the glycerin of (1). / 2. Add Sensiva SC80 to the water of (1). / 3. Disperse the premix of glycerin into (1) under paddle missing for 20 minutes. / 4. Mix (2) in given order while stirring to homogeneous solution. / 5. Add (2) into (1) while homogenising. / 6. Adjust pH if necessary.

CE.006 Light Cream-to-Oil

	Ingredient	INCI-name	% w/w
1	Deionized Water	Aqua	30.10
	Optiphen BSB-W	Benzyl Alcohol, Aqua, Sodium Benzoate, Potassium Sorbate	1.00
	Glycerin	Glycerin	5.00
	Clearogel SG	Sclerotium Gum	0.30
	Keltrol CG-SFT	Xanthan Gum	0.30
2	VASLight	Undecane, Tridecane, Hydrogenated Olive Oil Unsaponifiables, Coco-Caprylate/Caprate	20.00
	Lipex SheaSolve	Shea Butter Ethyl Esters	20.00
	GSOLight	Vitis Vinifera (Grape) Seed Oil	19.80
	Sisterna SP70-C*	**Sucrose Stearate**	**3.00**
	Dermofeel Toco 70 Non-Gmo	Tocopherol, Helianthus Annuus (Sunflower) Seed Oil	0.20
	Argan Infusion (240046)	Parfum	0.30
3	Citric Acid (10% Aq. Sol.)	Citric Acid	q.s.

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Disperse the Clearogel SG and Xanthan Gum into the glycerin while stirring. / 2. Add the dispersion (1) into the water with preservative while stirring with a high shear mixer for 10 min. / 3. Mix (2) in given order and homogenise until Sisterna SP70-C is well dispersed into the oil. / 4. Add (2) into (1) while homogenising. / 5. Adjust pH with (3) if necessary.

2. Gel-to-milk / Oil Gel formulations

With Sisterna SP70-C or Sisterna PS750-C you have the possibility to produce transparent gel-to-milk (oil-gel emulsions), that turn into a milk when diluted with water upon use.

This concept is suitable for applications such as make up cleansers, scrubs, massage balms, bath jelly’s and many more possibilities.

Basic formulations

Option 1	
Phase 1	
Glycerin (99%)	ad 100%
Sisterna SP70-C or PS750-C	2%
Water	0-5%
Phase 2	
Vegetable oil, CCT oil	30-60%

Option 2	
Phase 1	
Glycerin (99%)	ad 100%
Sisterna SP70-C or PS750-C	1%
Sisterna L70-C	2,5%
Water	0-5%
Phase 2	
Vegetable oil, CCT oil	30-60%

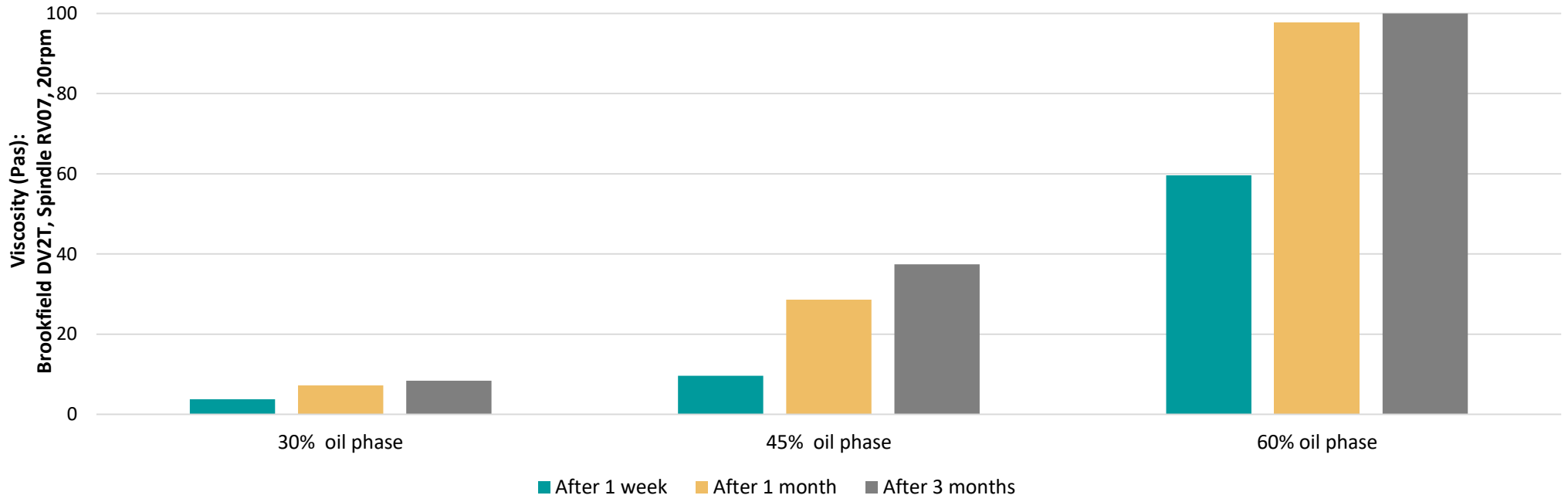
Manufacturing procedure

- Hot process
  Heat phase 1 and 2 to 70°C. Slowly add phase 2 to phase 1 under high shear.

- Semi-cold process:
  Only heat phase 1 to 70°C. Slowly add phase 2 to 1 under high shear.

- Cold process:
  Only possible with option 2. Slowly add phase 2 to 1 under high shear.

Viscosity: oil concentrations – 2% SP70-C



Results of testing 3 different oil concentrations with **2% Sisterna SP70-C**

- A low oil phase will give the lowest viscosity and visa versa
- The viscosity will increase over time, reaching the final viscosity between 1 and 3 months
- The increase of the viscosity over time is bigger when having a higher oil phase

Viscosity reduction option: Sisterna L70-C

Adding parts of Sisterna L70-C instead of SP70-C/PS750-C: reduces the final viscosity + preventing a viscosity increase over time.

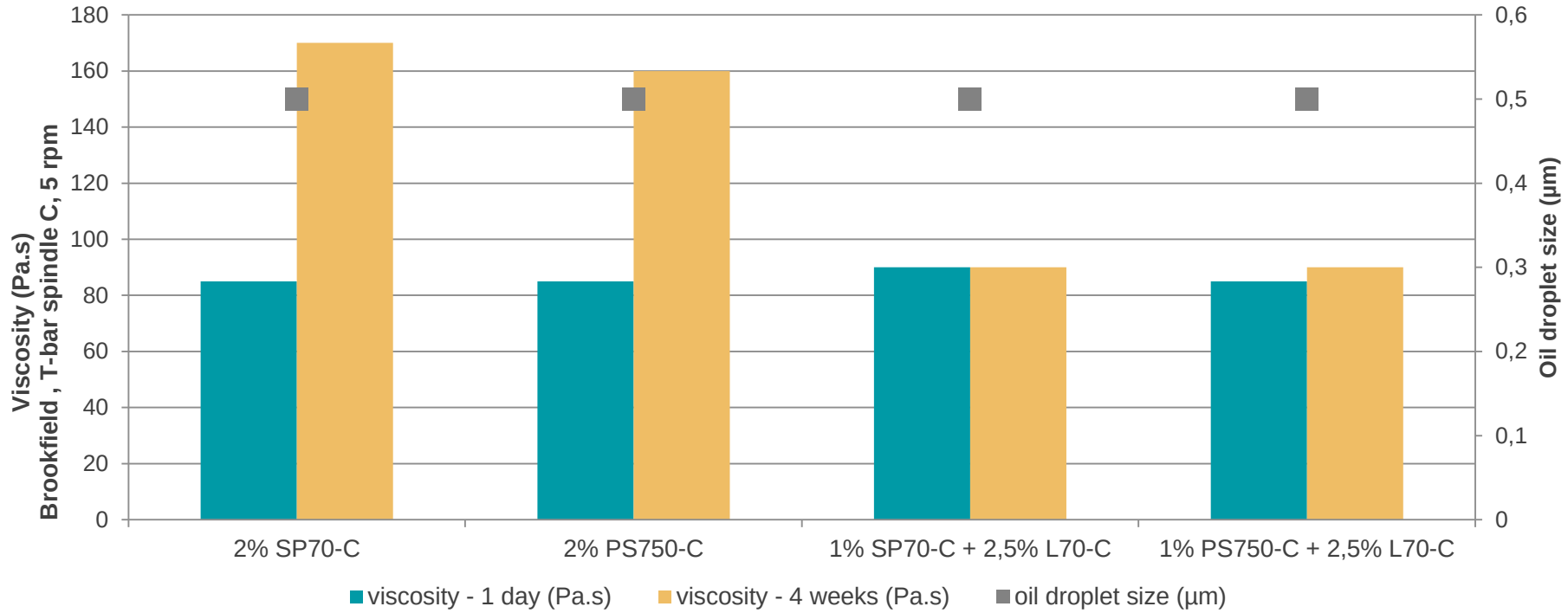
Important: Gel-to-milk formulations can not be made with only Sisterna L70-C.

Product Name	INCI	Mono%	Di%	Higher%	HLB-value	Lauric
Sisterna L70-C	Aqua (and) Sucrose Laurate (and) Alcohol	70	25	5	15	40%

Natural Certifications

RSPO Credits:

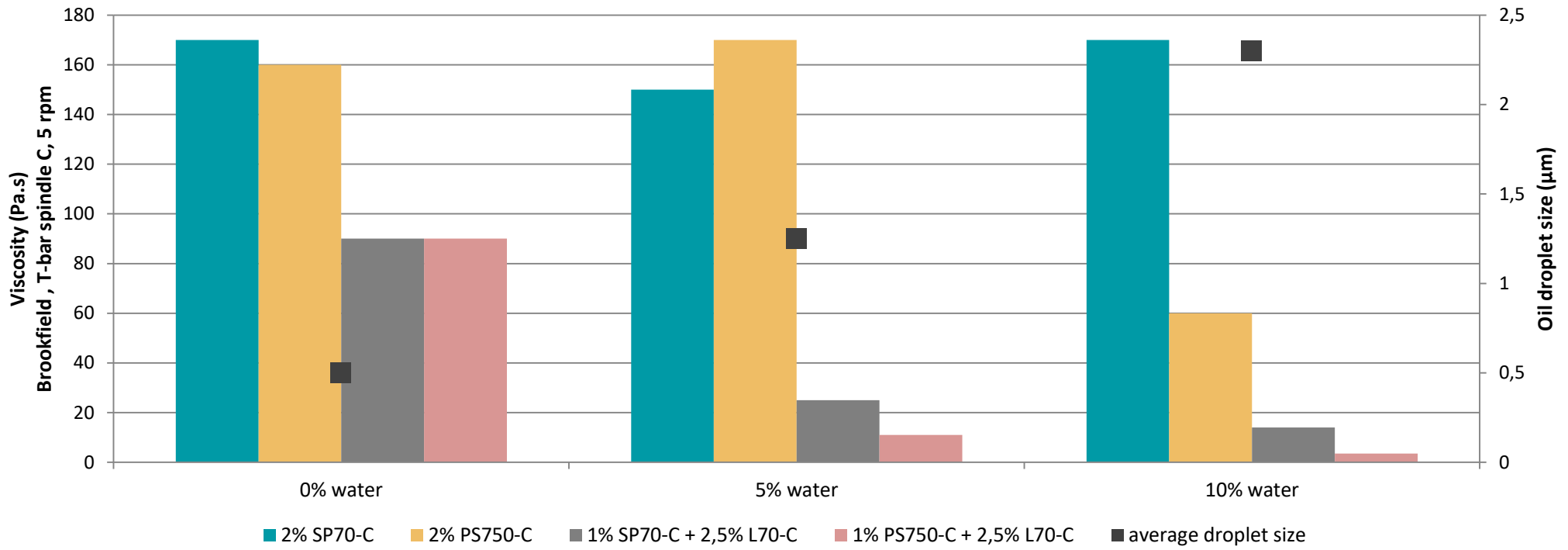
Oil droplet size and viscosity – 60% oil phase



Results of a 60% oil phase, using 2% of pure sucrose esters (L70-C = 40% Sucrose Laurate)

- 2% sucrose ester is sufficient to emulsify 60% vegetable oil
- In all cases low oil droplet sizes are obtained
- Viscosity will increase over time with SP70-C or PS750-C

Viscosity: effect of adding water



Viscosities presented: after 4 weeks with a 60% oil phase

- Adding 10% of water: results in a larger oil droplet size, causing instability.
- Adding water to a combination of L70-C with SP70-C/PS750-C: reduce the viscosity
- Adding water to a formulation with only SP70-C/PS750-C: no significant effect.

Transparency and how to influence

Transparency can be obtained by matching refractive indices of the oil and glycerin phases.

	refractive index
glycerin + 0% water added to the formulation	1.47
glycerin + 5% water added to the formulation	1.45
glycerin + 10% water added to the formulation	1.43
vegetable oil	1.47
caprylic/capric triglyceride	1.45

Note: This is a theoretical approach. It might be needed to adjust the transparency by adding water, even when only vegetable oil is used.

Water Activity – Preservative-free formulation

- The water content of gel-to-milk formulas is very low, which has an impact on the water activity (aw)
- When the aw value is below 0.6, growth of microorganisms is inhibited or prevented. Adding preservatives is not necessary.

Analysed formulation	Composition	a_w value
GE.004 Rich Vulcano Clay Mask	No water, 2% PS750-C	0.16
GE.005 Soft Kiss Lip Mask	5% water, 3 % PS750-C, 1%, L70-C	0.52
GE.006 Good Night Facial Cleanser	5% water, 1 % SP70-C, 2,5%, L70-C	0.44
GE.007 Golden In-Shower Butter Gel	No water, 2 % PS750-C, 3%, L70-C	0.22

Gel-to-milk formulas are suitable preservative-free formulations.

GE.006 Good Night Facial Cleanser

	Ingredient	INCI-name	% w/w
1	Glycerin (99%)	Glycerin	31.20
	Sisterna SP70-C *	**Sucrose Stearate**	**1.00**
	Sisterna L70-C	**Aqua, Sucrose Laurate, Alcohol**	**2.50**
	Deionised water	Aqua	5.00
2	Caprylic/Capric Triglyceride	Caprylic/Capric Triglyceride	60.00
	Natural Care (342791-A)	Parfum	0.30

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Disperse Sisterna SP70-C into the glycerin. Add other ingredients of (1) in given order. / 2. Add (2) to (1) very slowly while homogenising.

GE.015 Delicate Sandy Scrub

	Ingredient	INCI-name	% w/w
1	Glycerin (99%)	Glycerin	30.00
	Sisterna SP70-C*	**Sucrose Stearate**	**2.00**
2	VS - Olive Squalane	Squalane	5.00
	Lipex Preact	Canola Oil	12.00
	GSOLight	Vitis Vinifera (Grape) Seed Oil	20.00
	VAS - Vegetable Alternative to Silicone	Hydrogenated Ethylhexyl Olivate, Hydrogenated Olive Oil Unsaponifiables	12.00
	Organic Jojoba Oil Refined	Simmondsia Chinensis (Jojoba) Seed Oil	12.00
3	Matcha Infusion 354261-A	Parfum	1.00
	Phytpeel Green Rhyolite 300	Pumice, Shellac, CI 77288	6.00

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Disperse Sisterna SP70-C into the glycerin (1) and heat up to 70°C. / 2. Mix the ingredients of the oil phase (2) in given order and heat up to 75°C. / 3. Add (2) to (1) slowly while homogenising. / 4. Cool down to 35 °C and add the ingredients of (3) to (1+2) while stirring.

GE.014 Purifying Clay-to-Milk Mask

	Ingredient	INCI-name	% w/w
1	Glycerin (99%)	Glycerin	38.00
	Sisterna SP70-C*	**Sucrose Stearate**	**2.00**
2	VS - Olive Squalane	Squalane	5.00
	Apricot Oil	Prunus Armeniaca (Apricot) Kernel Oil	12.50
	VAL - Vegetable Alternative to Lanolin	Butyrospermum Parkii (Shea) Butter, Glyceryl Rosinate, Olea Europaea (Olive) Oil Unsaponifiables	9.00
	Jojoba Oil	Simmondsia Chinensis (Jojoba) Seed Oil	12.40
	Tocomix L70-IP	Tocopherol, Helianthus Annuus (Sunflower) Seed Oil	0.10
3	Vibrant Energy 261236-A	Parfum	1.00
	Green Clay ER	Illite	20.00

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Disperse Sisterna SP70-C into the glycerin (1) and heat up to 70°C. / 2. Mix the ingredients of the oil phase (2) in given order and heat up to 75°C. / 3. Add (2) to (1) slowly while homogenising. / 4. Cool down to 35 °C and add the ingredients of (3) to (1+2) while stirring.

3. Sprayable emulsions and concentrated Serums

Easy manufacturing technique to obtain emulsions with oil droplet sizes of 0.3µm:

Intermediate concentrated oil/glycerin emulsification step

- Optimum ratio oil/glycerin is 50/50 to 60/40
- Homogenisation with standard homogenising equipment
- Dilution with water phase afterwards

A good production technique for:

- Creating stable liquid/sprayable emulsions using a **non-ethoxylated** non-ionic emulsifier
- Developing effective serums due to the small droplet size

Basic formulation

	Ingredient	INCI-name	% w/w
1	Glycerin (99%)	Glycerin	5.00 – 8.00
	Sisterna PS750-C or **Sisterna SP70-C**	**Sucrose Palmitate** / **Sucrose Stearate**	**1.00 – 2.00** / **1.00 – 2.00**
2	Sunflower oil	Helianthus Annuus (Sunflower) Seed Oil	5.00 – 12.00
	Vitamin E Acetate	Tocopherol Acetate	0.10
	Preservative	Preservative	1.00
3	Deionised water	Aqua	Ad 100
	Avicel PC 611 (FMC Biopolymer)	Microcrystalline (and) Cellulose Gum	1.50

Oil/Glycerin ratio:
between 50/50 and 60/40

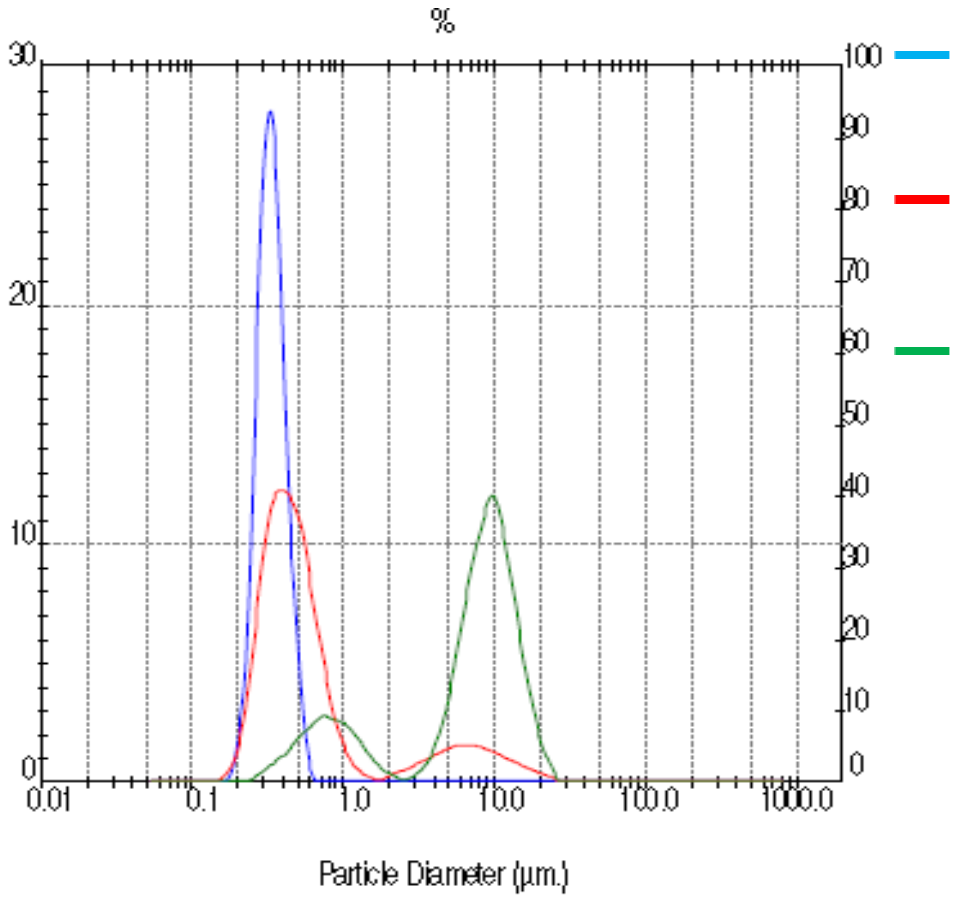
When increasing oil %, also increase Sucrose Ester content

Phase 1 + phase 2 = intermediate concentrated oil/glycerin emulsification step

Cold or Hot Process

Production method:
1. Disperse Sisterna SP70-C into the glycerin / 2. Mix ingredients of (2) separately / 3. Add (2) to (1) and homogenise with a high shear mixer for 1 minute / 4. Add Avicel PC611 to the water of (3) and shear for 10 minutes with a high shear mixer / 5. Add oil-in-glycerin emulsion (1+2) to (3) while mixing / 6. Add (4) and adjust pH 6,5 with Citric Acid if necessary

Concentrated emulsion technique vs other emulsification methods



: intermediate concentrated oil/glycerin emulsification step

* : high pressure homogenisation (500 bar)

* : high shear homogenisation

* = spray/wipe emulsion produced without using concentrated emulsion intermediate

Conclusion: smaller oil droplets when producing with a concentrated emulsion intermediate phase

Influence of hydrocolloid and oil % on appearance

1) Hydrocolloid selection determines the texture of the product.

- Avicel PC611 → Milk / liquid
- Carrageenan + Xanthan Gum → Lotions
- Sclerotium Gum + Xanthan Gum → Gel (or gel lotions)
- Hectorites + Xanthan Gum → Lotions/Creams

2) The % of oil (and glycerine) phase determines the appearance (whiteness) of the product

- 5% oil (and 5% glycerine): less white → a gel appearance is possible
- 12% oil (and 8% glycerine): white emulsion → lotion/cream appearance

Picture: Gel vs Gel lotion

- Left: Formulation SE.006 - 5% oil + Sclerotium Gum + coloured water active
- Right: Formulation SE.011 - 12% oil + Sclerotium Gum

SE.008 Conditioning Spray

	Ingredient	INCI-name	% w/w
1	Glycerin (99%)	Glycerin	5.00
	Sisterna SP70-C*	**Sucrose Stearate**	**1.50**
2	VAVSLight	Dodecane, Hydrogenated Olive Oil Unsaponifiables, Coco-Caprylate/Caprate	5.00
	Relaxed Music 354053-C	Parfum	0.30
	Tocomix L70-IP	Tocopherol, Helianthus Annuus Seed Oil	0.10
3	Deionized water	Aqua	85.10
	Avicel PC611	Microcrystalline Cellulose, Cellulose Gum	1.50
	Wasabi Flavone	Butylene Glycol, Wasabia Japonica Leaf Extract	0.50
4	Euxyl K 712	Sodium Benzoate, Potassium Sorbate, Aqua	1.00
	Citric Acid (10% Aq. Sol.)	Citric Acid	q.s.

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Disperse Sisterna SP70-C into the glycerine (1). / 2. Mix ingredients of (2) in given order. / 3. Add (2) to (1) and homogenise with a high shear mixer for 1 minute. 4. Add Avicel PC611 to the water of (3) and shear for 10 minutes with a high shear mixer. / 5. Add oil-in-glycerin emulsion (1+2) to (3) while mixing. / 6. Add (4) and adjust pH 6,5 with Citric Acid if necessary.

SE.009 Nourishing Body Spray

	Ingredient	INCI-name	% w/w
1	Glycerin (99%)	Glycerin	8.00
	Sisterna SP70-C*	**Sucrose Stearate**	**2.00**
2	Olive Oil	Olea Europaea (Olive) Fruit Oil	4.00
	Almond Oil	Prunus Amygdalus Dulcis (Sweet Almond) Oil	4.00
	Jojoba Oil	Simmondsia Chinensis (Jojoba) Oil	4.00
	Dermofeel Toco 70 Non-GMO	Tocopherol, Helianthus Annuus (Sunflower) Seed Oil	0.20
	Camomile (338572-A)	Parfum	0.30
3	Deionized water	Aqua	75.00
	Avicel PC611	Microcrystalline Cellulose, Cellulose Gum	1.50
4	Euxyl PE 9010	Phenoxyethanol, Ethylhexylglycerin	1.00
	Citric Acid (10% Aq. Sol.)	Citric Acid	q.s.

***** Alternative grade: **Sisterna PS750-C** (INCI: **Sucrose Palmitate**).

1. Disperse Sisterna SP70-C into the glycerin (1). / 2. Mix ingredients of (2) in given order. / 3. Add (2) to (1) and homogenise with a high shear mixer for 1 minute. 4. Add Avicel PC611 to the water of (3) and shear for 10 minutes with a high shear mixer. / 5. Add oil-in-glycerin emulsion (1+2) to (3) while mixing. / 6. Add (4) and adjust pH 6,5 with Citric Acid if necessary.

SE.011 Gel-Lotion Eye Serum

	Ingredient	INCI-name	% w/w
1	Glycerin 99%	Glycerin	8.00
	Sisterna SP70-C	**Sucrose Stearate**	**2.00**
2	MOT - Maxi Olive 3T-Action	Olea Europaea (Olive) Oil Unsaponifiables, Tocopherol	3.00
	Active Lipo Extract Maqui	Helianthus Annuus (Sunflower) Seed Oil, Aristotelia Chilensis Fruit Extract, Tocopherol	3.00
	Active Lipo Extract Olivo Foglie	Helianthus Annuus (Sunflower) Seed Oil, Olea Europaea Leaf Extract, Tocopherol	3.00
	Active Lipo Extract The Verde	Helianthus Annuus (Sunflower) Seed Oil, Camellia Sinensis Leaf Extract, Tocopherol	3.00
	Tocomix L70-IP	Tocopherol, Helianthus Annuus (Sunflower) Seed Oil	0.10
3	Deionised Water	Aqua	75.90
	Clearogel SG ECO	Sclerotium Gum	1.00
	Keltrol CG SFT	Xanthan Gum	0.30
	Euxyl PE9010	Phenoxyethanol, Ethylhexylglycerin	1.00
4	Citric Acid (20%)	Citric Acid	q.s.

1. Disperse Sisterna SP70-C into the glycerin (1). / 2. Add (2) to (1) and homogenise with a high shear mixer for 1 minute. / 3. Slowly add the Clearogel SG ECO and Keltrol CG SFT-V to the blend of water with preservative under medium shear. Then mix at the highest possible shear for 10 minutes. / 4. Add oil in glycerin emulsion (1+2) to (3) while mixing. / 5. Adjust pH if necessary with (4).

SE.006 Spanish Eyes Serum

	Ingredient	INCI-name	% w/w
1	Glycerin 99%	Glycerin	5.00
	Sisterna SP70-C	**Sucrose Stearate**	**1.00**
2	MOT - Maxi Olive 3T-Action	Olea Europaea (Olive) Oil Unsaponifiables, Tocopherol	2.00
	Oleosoft-4OC	Olea Europaea (Olive) Fruit Oil, Prunus Amygdalus Dulcis (Sweet Almond) Oil, Linum Usitatissimum (Linseed) Seed Oil, Borago Officinalis Seed Oil, Tocopherol	3.00
	Tocomix L70-IP	Tocopherol, Helianthus Annuus Seed Oil	0.10
3	Deionised Water	Aqua	66.50
	Granulated Amigel	Sclerotium Gum	0.75
4	Deionised Water	Aqua	14.65
	JuvenEye	Bellis Perennis (Daisy) Flower Extract, Hieracum Pilosella (Hawkweed) Extract	5.00
	W TR-Active	Glycerin, Tuber Magnatum Extract, Sodium Benzoate, Potassium Sorbate	1.00
	Euxyl PE9010	Phenoxyethanol, Ethylhexylglycerine	1.00
5	NaOH (50% solution)	Sodium Hydroxide	q.s.

1. Disperse Sisterna SP70-C into the glycerin (1). / 2. Add (2) to (1) and homogenise with a high shear mixer for 1 minute. / 3. Add Amigel to the cold water of (3) and shear for 10 minutes with a high shear mixer until fully incorporated. / 4. Add oil in glycerin emulsion (1+2) to (3) while mixing. / 5. Add (4) and adjust pH if necessary with (5).

Thank you for your attention!

Possibility to e-mail additional questions:

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