Kirei—Making Life Beautiful

SKIN CARE

Kao Chemicals Europe

PERSONAL CARE

The skin is the largest protection barrier against the environment. Proper skin care is therefore crucial to keep this barrier strong, healthy and moisturized.

Kao Chemicals Europe, as a provider of ingredients for cosmetics, includes in its portfolio a range of emulsifiers and active substances for skin care.

Surfactants are important ingredients in cosmetic formulations, since they have functions such as **emulsification, dispersing, solubilization, moisturizing and cleansing**. These properties are key to develop skin care emulsions.

OUR PRODUCT RANGE COMPRISES:

- Non-ionic emulsifiers
- Anionic emulsifiers
- Cationic emulsifiers
- Fatty alcohols
- Emollients
- Active ingredients

EMULSIFIERS

The selection of an emulsifier is a critical decision. Emulsifiers ensure the stability of an emulsion and influence the texture, skin feel, and application properties. There are many options available in the market, all offering different benefits to the consumer.

NON-IONIC EMULSIFIERS

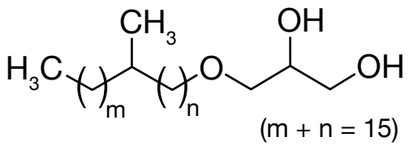
Non-ionic surfactants are the most widely used emulsifiers and the HLB (Hydrophile Lipohile Balance) of the system helps select the emulsifier. By calculating the required HLB of the oil phase and depending on the type of emulsion (o/w or w/o), the best combination of non-ionic emulsifiers can be chosen. For best emulsion stability, it is recommended to blend a low and a high HLB emulsifier.

PENETOL GE-IS

EMULSIFIER FOR W/O EMULSIONS WITH HIGH WATER CONTENT

Within the non-ionic emulsifiers range, **PENETOL GE-IS** is a very low HLB emulsifier for W/O emulsions specially designed to avoid a sticky and greasy feeling. It can stabilize W/O emulsions with high water content as a result of the formation of reversed hexagonal liquid crystals. The fluidity and dynamism of this meshwork contributes to the sensorial properties upon application on the skin.

INCI: Isostearyl Glyceryl Ether



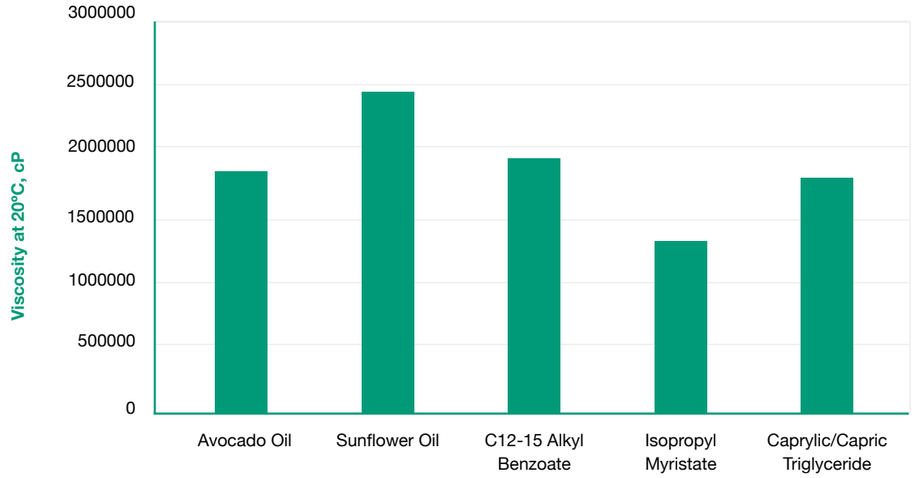
Main characteristics

- Colourless to pale yellow liquid at RT
- 100% a.m.
- HLB: 2
- Typical dosage: 0.5 – 10%
- Natural origin content: 86% (ISO 16128)

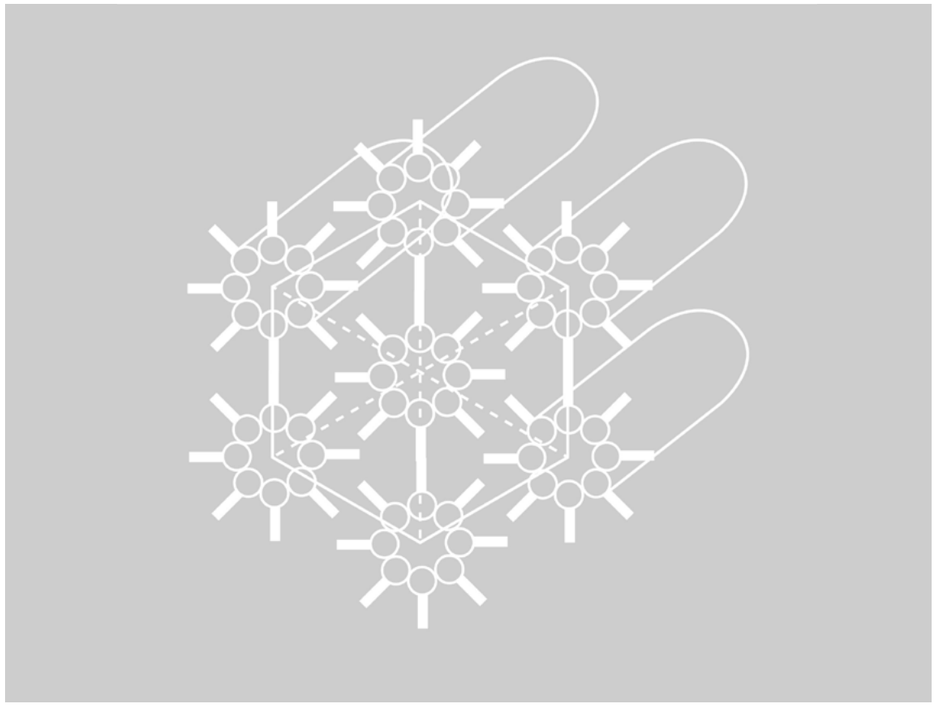
Main properties

- Allows the incorporation of >74% water phase content in W/O emulsions, providing stable W/O emulsions with up to 90% water
- Non-greasy feeling
- Cold processable
- No co-emulsifier required

PENETOL GE-IS shows a good compatibility with a wide range of oils, from non-polar natural oils to polar esters. It can emulsify them, creating rich and nourishing textures, while providing suitable viscosities.



Composition: 4% PENETOL GE-IS, 22.8% Emollient, 2% Glycerin, 1.2% Magnesium Sulfate and 72% Water.

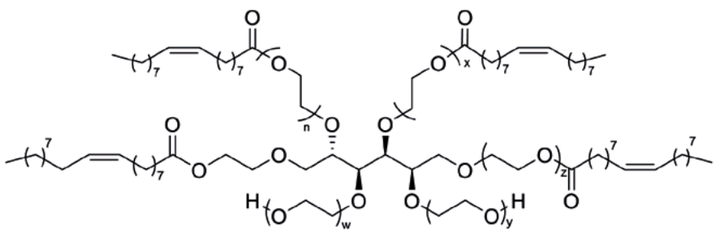


RHEODOL 430V

O/W EMULSIFIER
TRANSFORMING TEXTURES

RHEODOL 430V is an excellent O/W emulsifier and solubilizer for formulations high in oil. It can be included in anhydrous formulations to create products that will self-emulsify when mixed with water.

INCI: Sorbeth-30 Tetraoleate



Main characteristics

- Clear light yellow liquid
- 100% a.m.
- HLB: 10.5
- Typical dosage: 10 – 20% for an oil-based cleanser
- Natural origin content: 59% (ISO 16128)

Main properties

- Good emulsification and solubilization for a wide range of substances, high polar ester oils and plant-derived oils.
- Allows obtaining fine uniform emulsions or even transparent solutions.

Ref. C-331
NATURAL CLEANSING OIL

	%
COCONAD RK Tricaprylin	30
RHEODOL 430V Sorbeth-30 Tetraoleate	15
Olive Oil	55

This cleansing oil shows excellent emulsifying performance allowing to lift excess sebum, clean out clogged pores and remove dead skin and pollutants. Thanks to its texture, transforming from clear oil to light emulsion, it is very easy to rinse.

1. Clear liquid
Apply some drops of the oil on the skin

2. Pleasant oily feel
Massage the oil cleanser on the skin

3. Light emulsion
The oily cleanser turns into milky when water is applied

4. Smooth Rinse-off
Easy rinse-off
No greasy residue
Moisturizing feel

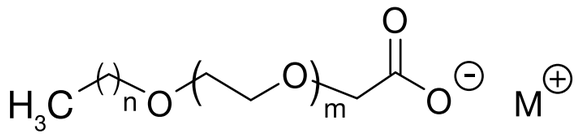
ANIONIC EMULSIFIERS

The combination of anionic emulsifiers with non-ionic emulsifiers improves the stability of O/W emulsions.

AKYPO SOFT 100BVC
MILD CO-EMULSIFIER

AKYPO SOFT 100BVC is a mild anionic O/W co-emulsifier that forms lamellar structures that leave a fresh and light feel, while providing stable emulsions.

INCI: Sodium Laureth-11 Carboxylate



n = 11 ; m = 10

Main characteristics

- Clear, colourless to slightly yellowish liquid
- 70% a.m.
- Typical dosage: 0.5 – 5%
- Natural origin content: 28% (ISO 16128)

Main properties

- Ideal co-emulsifier
- Lamellar structure formation: high water content retention with a fresh and light skin after-feel
- Excellent compatibility with all kind of ingredients
- Good pigment dispersion properties

The acidic form is also available as **AKYPO RLM 100** (Sodium Laureth-11 Carboxylic Acid) and will require neutralization with a suitable base (e.g. sodium hydroxide).

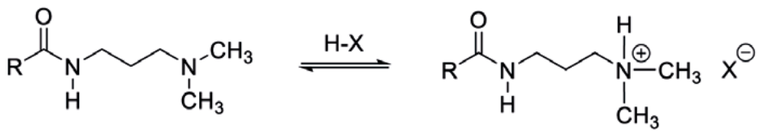
CATIONIC EMULSIFIERS

Cationic emulsifiers are able to provide nonirritating O/W emulsions for skin care products. They offer stability, aesthetic performance and a unique sensory profile for nongreasy and soft textures, boosting moisture. Because of these characteristics, the interest in cationic surfactants for skin care applications has been growing.

AMIDET APA-22
FRESH & LIGHT EMULSIFIER

AMIDET APA-22 is a non-ionic surfactant that must be neutralized to obtain a cationic form, helping its solubilization in water. Oil-in-water emulsions based on **AMIDET APA-22** in its cationic form create lamellar gel network emulsions (LGNs) without the use of other emulsifiers. This structure guarantees the stability of the emulsion by a double stratum of amphiphilic molecules concentrated in the O/W interface. The great quantity of water trapped in the lamellar structures is immediately available when the emulsion is applied on the skin, leaving a fresh and light feel.

INCI: Behenamidopropyl Dimethylamine



Main characteristics

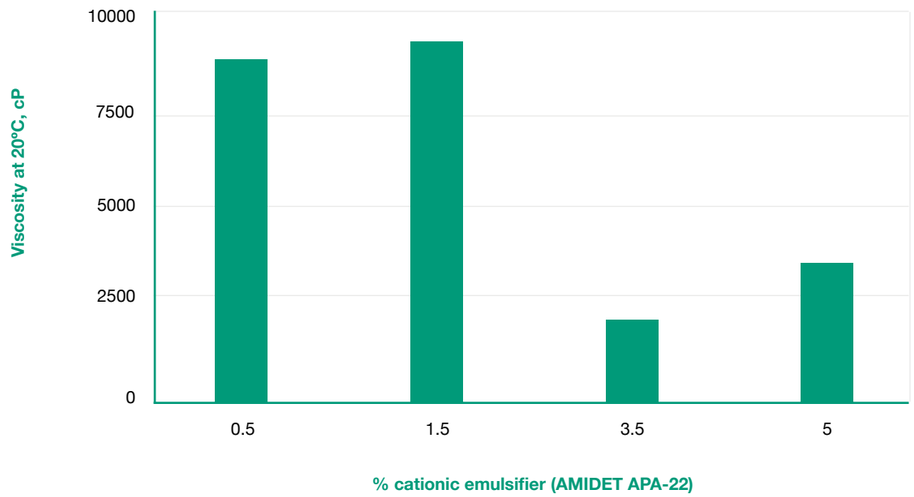
- White to yellowish pellets
- 100% a.m.
- Typical dosage: 0.5 – 5%
- Natural origin content: 82% (ISO 16128)

Main properties

- Lamellar gel network emulsions which leave a fresh and light feel
- High moisturizing feel

AMIDET APA-22 can be used at 0.5 – 5% concentration, depending on the desired viscosity. Thus it can be used to produce a variety of emulsions, from lotions to creams.

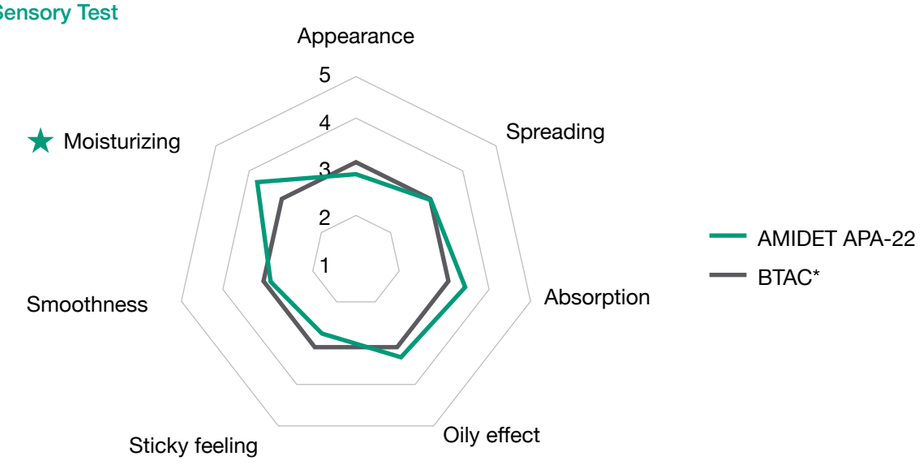
Viscosity of the emulsion with growing emulsifier concentration:



Basic formula: % Cationic Emulsifier + 4% Cetearyl Alcohol + 5% Glycerin + 20% Caprylic/Capric Triglyceride + Water.

Compared to a standard cationic emulsifier in O/W emulsions, **AMIDET APA-22** shows a slightly higher absorption during the application and a higher moisturizing feel.

Sensory Test



★ **Significant differences**

Formula: 4.15% Cationic Emulsifier + 8% Glycerin + 4.5% Mineral Oil + 4.2% Caprylic/Capric Triglyceride + 0.4% PEG-14 Dimethicone + 3.8% Cetearyl Alcohol + 0.05% NaCl + Water

*BTAC: Behentrimonium Chloride

DANOX HC-30
READY-TO-USE

DANOX HC-30 is a **ready-to-use blend** including AMIDET APA-22 and also the consistency factors needed in a skin care product, allowing an easier formulation process. It also makes the formulation of solid skin care products possible.

INCI: Behenamidopropyl Dimethylamine, Dipalmitoylethyl Hydroxyethylmonium Methosulfate, Cetyl alcohol, Stearyl alcohol and Lactic acid.

Main characteristics

- Yellowish white pellets
- 100% a.m.
- Typical dosage: 2.5 – 12%
- Natural origin content: 94% (ISO 16128)

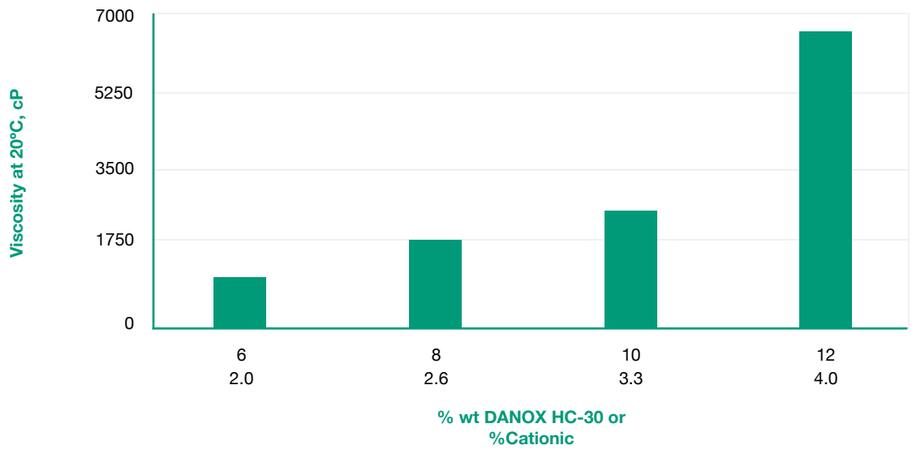
Main properties

- Vegetable origin & environmentally friendly
- Ready to use & easy to handle
- Recommended for solid skin care products

DANOX HC-30 can be used at concentrations of 2.5 to 12% depending on the desired viscosity. For optimal emulsion stability, a ratio of 70/30 between emollient system and **DANOX HC-30** is recommended.

DANOX HC-30 allows to create low viscosity emulsions (<4000 cP) with good stability at different temperatures.

Viscosity of the emulsion with a growing concentration of **DANOX HC-30** and cationic emulsifier in it.

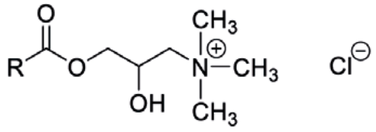


Basic formula: % DANOX HC-30 + [% Caprylic/Capric Triglyceride + % EXCEPARL LM-LC + % KAO SOFCARE GP-1 at ratio 1:1:0.8] + 5% Glycerin + Water. Ratio between DANOX HC-30 and emollient system is 30/70

QUARTAMIN BTC 131
ECO-FRIENDLY EMULSIFIER

QUARTAMIN BTC 131 is a monoester quaternary cationic surfactant in form of waxy paste, with an outstanding eco-toxicological profile.

INCI: Behenoyl PG-Trimonium Chloride



Main characteristics

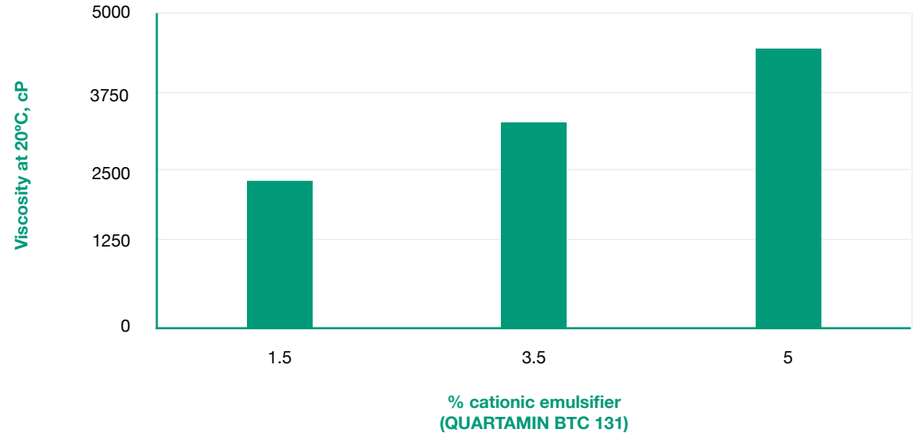
- White to yellowish waxy paste
- 60% a.m.
- Typical dosage: 1 – 5%
- Natural origin content: 72% (ISO 16128)

Main properties

- Low temperature process (40°C)
- Excellent Eco-toxicological profile and non-labelled product

QUARTAMIN BTC 131 can be used at 1 – 5% concentration, depending on the desired viscosity. It can be used to produce low-viscosity emulsions.

Viscosity of the emulsion with growing emulsifier concentration.

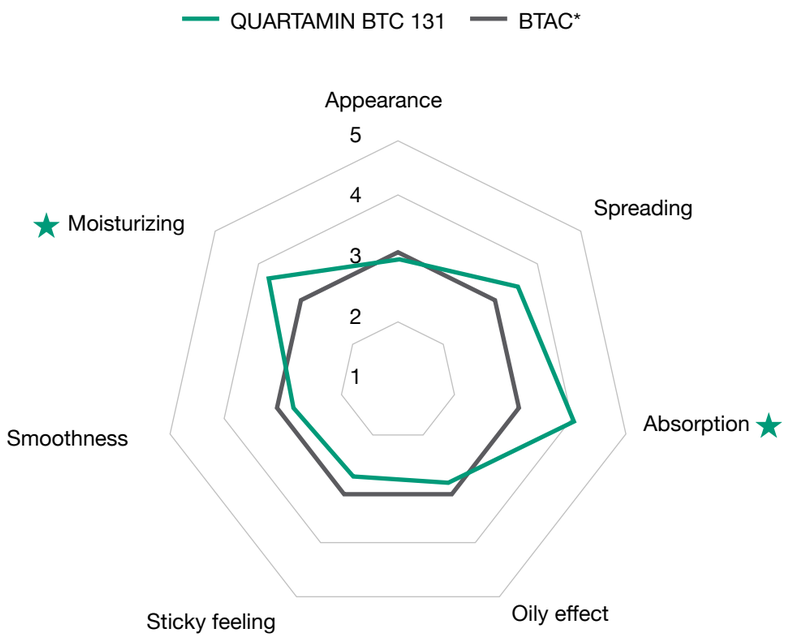


Basic formula: % Cationic Emulsifier + 4% Cetearyl Alcohol + 5% Glycerin + 20% Caprylic/Capric Triglyceride + Water.

QUARTAMIN BTC 131
ECO-FRIENDLY EMULSIFIER

Compared to a standard cationic emulsifier in O/W emulsions, **QUARTAMIN BTC 131** can create O/W emulsions with excellent spreading properties and absorption during application and high moisturizing after-feel.

Sensory Test



★ **Significant differences**

Formula: 4.15% Cationic Emulsifier + 8% Glycerin + 4.5% Mineral Oil + 4.2% Caprylic/Capric Triglyceride + 0.4% PEG-14 Dimethicone + 3.8% Cetearyl Alcohol + 0.05% NaCl + Water

*BTAC: Behentrimonium Chloride

EMOLLIENTS

The final desired texture in a skin care emulsion is mainly achieved through the emollients in the formula. Properties such as oiliness, absorbance or spreadability are key to define final application and desired feeling. A combination of emollients is needed to achieve the targeted sensory profile.

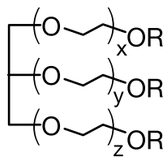
EMOLLIENTS	SPREADABILITY	ABSORPTION	OILINESS	AFTER-FEEL
LEVENOL H&B	•	••	•••	•••
EXCEPARL LM-LC	•••	•••	•	•
KAO SOFCARE GP-1	•••	•••	•	•
COCONAD RK	•••	••	••	••
EXCEPARL EH-S*	••	••	••	••
Capric/Caprylic Triglyceride	••	••	••	•••

••• High/Rich •• Medium • Low/Light *EXCEPARL EH-S: Ethylhexyl Stearate

LEVENOL H&B
HIGH MOISTURIZATION

Besides its emollient properties, LEVENOL H&B provides a rich skin feel and adds moisturizing ability to the formulation.

INCI name: Glycereth-2 Cocoate



x + y + z = 2
R: H or CO-R' (Coconut chain)

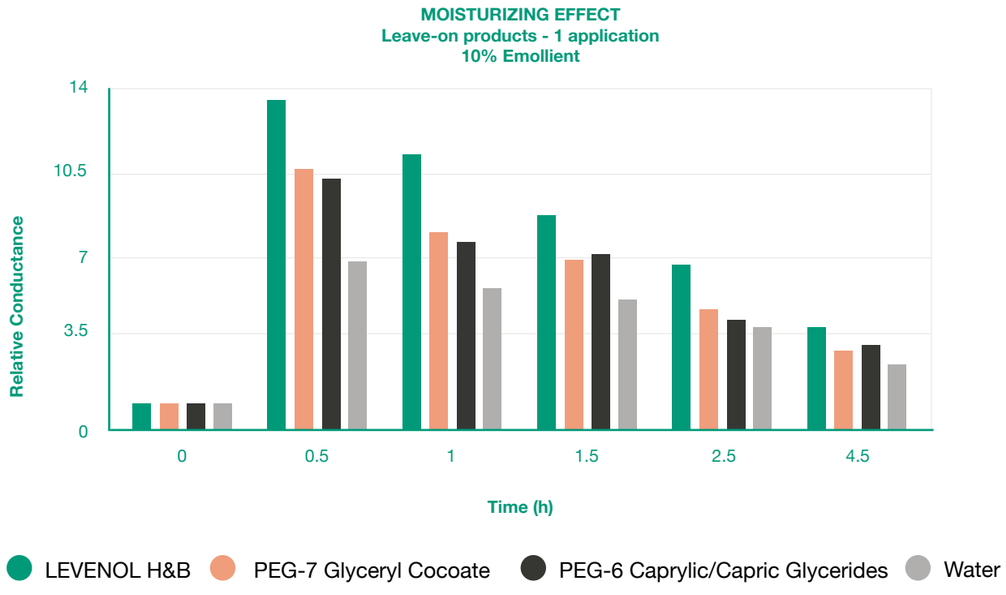
Main characteristics

- Clear liquid
- 100% a.m.
- Typical dosage: depending on the final application
- Natural origin content: 75% (ISO 16128)

Main properties

- Vegetable origin & very good eco-toxicological profile
- Cold processable
- Rich feel: suitable for night creams and body lotions

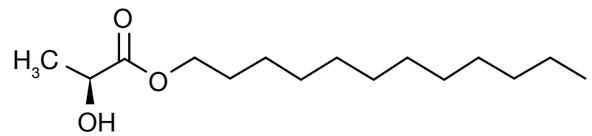
LEVENOL H&B moisturizing effect is greater than the typical emollients in the market, having similar chemical structure.



EXCEPARL LM-LC
100% NATURAL

EXCEPARL LM-LC is a 100% natural emollient with a light feel.

INCI: Lauryl Lactate



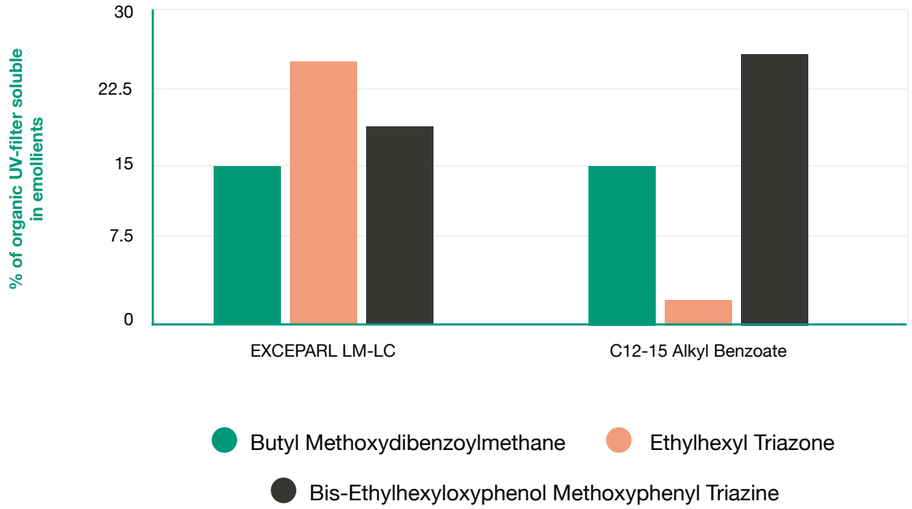
Main characteristics

- Clear liquid
- 100% a.m.
- Typical dosage: depending on the final application. The ideal maximum recommended dosage for sun creams is about 10%
- Natural origin content: 100% (ISO 16128)

Main properties

- NATRUE-certified
- Excellent solubilization of organic UV-filters: suitable for sun creams
- Light feeling: suitable for daily creams and body lotions

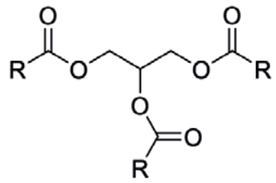
Besides its emollience, **EXCEPARL LM-LC** allows the solubilization of higher quantities of some common UV-filters than some standard solubilizers.



COCONAD RK
HIGH POLARITY

COCONAD RK is a 100% natural emollient with good spreadability and a pleasant skin feel. Thanks to its high polarity, it can also disperse UV filters such as Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine and pigments for color cosmetics.

INCI: Tricaprylin



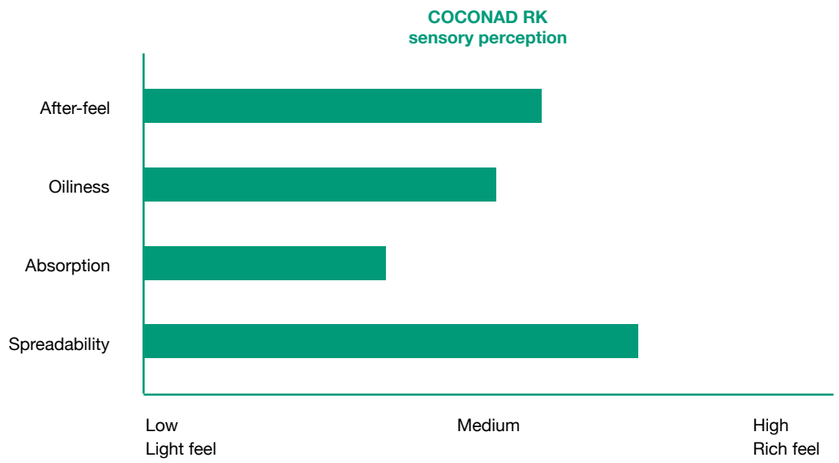
Main characteristics

- Colorless to light yellow liquid
- 100% a.m.
- Typical dosage: depending on the final application
- Natural origin content: 100% (ISO 16128)

Main properties

- COSMOS Certified
- High polarity
- Pigment dispersion properties
- Pleasant skin feel

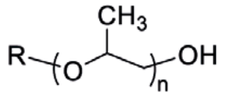
COCONAD RK shows a sensory profile with a medium to high spreadability, medium oiliness and rich after-feel.



KAO SOFCARE GP-1
SILICONE ALTERNATIVE

KAO SOFCARE GP-1 is an alternative to silicones that provides a velvety-soft skin feel and shine, leaving a low oily residue.

INCI: PPG-3 Caprylyl Ether



$R=C_8$, $n=2.7$

Main characteristics

- Colorless to light yellow liquid
- 100% a.m.
- Typical dosage: depending on the final application

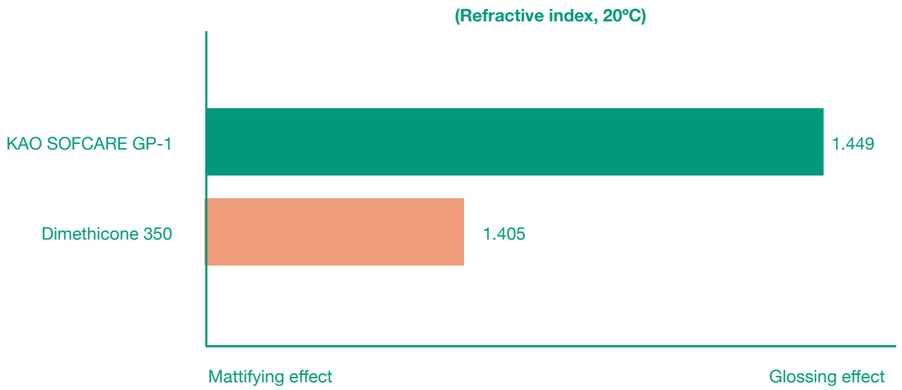
Main properties

- Derived from vegetable fatty oil
- Without water or any solvents (VOCs)
- Velvety feeling, silicone replacement

KAO SOFCARE GP-1
SILICONE ALTERNATIVE

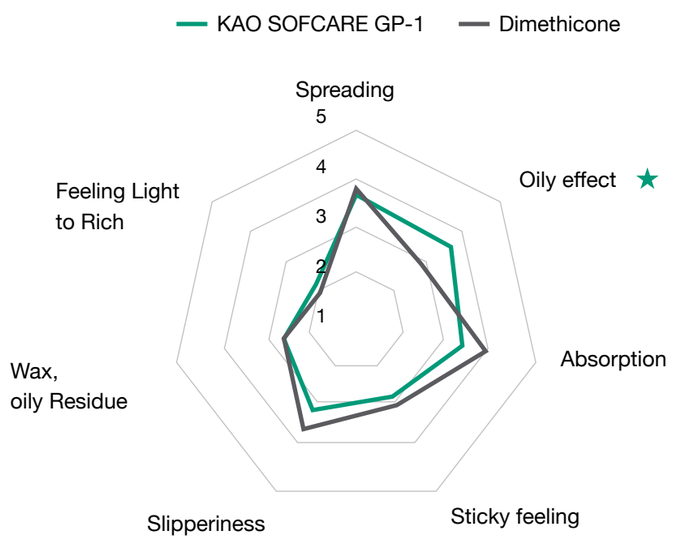
KAO SOFCARE GP1 has a higher refractive index than dimethicone, being a great alternative to silicones in terms of skin brightness.

Skin Brightness



Compared to dimethicone, **KAO SOFCARE GP-1** provides a sensory lighter skin feeling with a less waxy and oily feel and a higher absorbency during application.

Sensory Test



★ **Significant differences**
From 1 to 5: from low/light to high/rich attribute

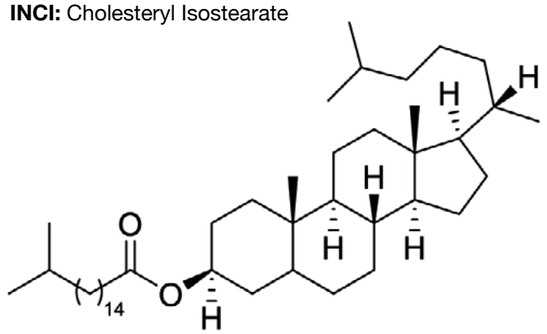
Guideline formulations:
C-324 based on Dimethicone vs C-325 based on KAO SOFCARE GP-1

ACTIVE INGREDIENT

EXCEPARL IS-CE-A
BIOMIMETIC SKIN LIPID

EXCEPARL IS-CE-A is a cholesterol ester, which is one of the structural components of intercellular lipids, and plays a key role to keep skin moisture. Most cholesterol esters consist of straight alkyl chain fatty acids with a high melting point and they are normally solid at room temperature.

INCI: Cholesteryl Isostearate



Main characteristics

- Light yellow soft paste
- 100% a.m.
- Typical dosage: 0.15 – 5%
- Natural origin content: 100% (ISO 16128)

Main properties

- Low melting point: 28–35°C
- Excellent skin compatibility
- Recommended for dry skin treatments
- High water hold property: improves skin water-retaining ability
- Non-greasy texture
- High performance moisturizing agent
- Suitable for moisturizing and antiaging creams, lotions, makeup foundations and lipsticks among others

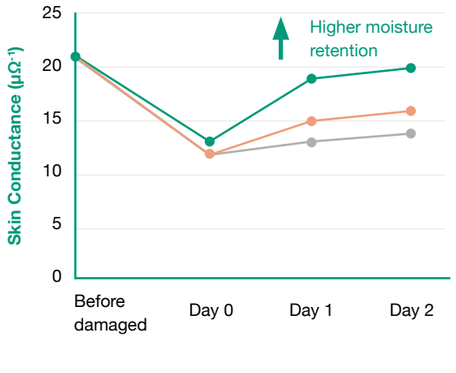
EXCEPARL IS-CE-A
BIOMIMETIC SKIN LIPID

Moisturizing Efficacy

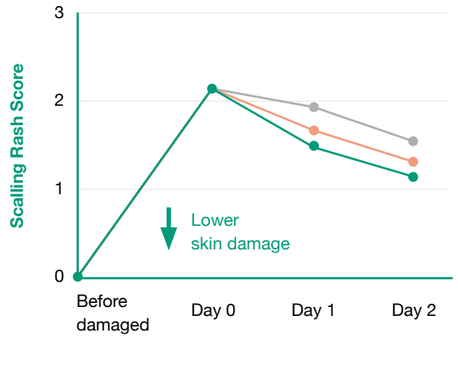
EXCEPARL IS-CE-A has a positive effect on dry skin recovery.

Moisturizing efficacy of **EXCEPARL IS-CE-A** at two concentration levels compared to a W/O emulsion (blank) without it:

Skin Hydratation



Skin Recovery



W/O cream (blank) consist of 2% PENETOL GE-IS, 3% Petrolatum, 5% Squalene and 10% Octyldodecyl Myristate.

Dry skin (induced by acetone/ether pre-treatment) shows a significant recovery of water-retaining properties after topical application of the W/O base cream with **EXCEPARL IS-CE-A**.

This recovery is associated with improvement in scaling compared to the base cream without **EXCEPARL IS-CE-A**.

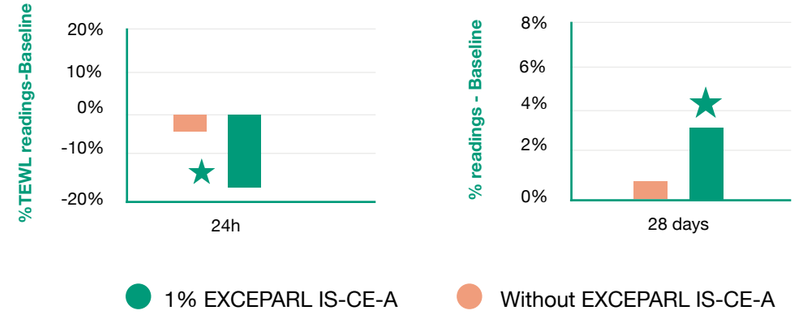
Repairing Efficacy

In addition to its moisturizing properties, **EXCEPARL IS-CE-A** also improves the skin barrier function and its elasticity, especially on dry skin and after long-term application.

An O/W cream containing 1% **EXCEPARL IS-CE-A** was applied to a dry skin once a day within 28 days and compared to a cosmetic placebo (same emulsion without EXCEPARL IS-CE-A). The repairing effect is demonstrated by means of trans-epidermal water loss (TEWL) and by the effect on the skin elasticity.

TEWL

Skin Elasticity (Ur/Uf)



O/W base cream: 1% (or 0%) EXCEPARL IS-CE-A, 5% Emulsifier System (Polysorbate 60, Sorbitan Oleate), 4% Cetearyl Alcohol, 5% Caprylic/Capric Triglyceride, Preservative and Water.

The product containing **EXCEPARL IS-CE-A** improves the skin barrier function up to 24h after its single application and promotes long-term elasticity improvement after 28 days of application.

Kirei—Making Life Beautiful

For requests and further info
about our products
please contact here

Contact

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kaochemicals-eu.com

PERSONAL CARE