

# SKIN CARE

KAO SOLUTIONS

FOR SKIN CARE FORMULATIONS

KAO'S SURFACTANT TECHNOLOGY APPLIED TO PERSONAL CARE



# SKIN CARE



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

**Kao Chemicals Europe**, as a solution provider for the development and production of cosmetics, also provides a range of **emulsifiers, lipophilic base ingredients and emollients** 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.

In addition, **oil phase ingredients** such as fatty alcohols or esters are major ingredients in cosmetic formulations.

At Kao Chemicals Europe, we currently have the following emulsifiers and consistency factor ingredients available for skin care formulations.

## 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 surfactants are the most widely used emulsifiers and the HLB (Hydrophile-Lipophile Balance)

of the system helps in the selection of 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.

	INCI	PROPERTIES & APPLICATIONS	HLB* Theoretical value
<b>RHEDDOL® AD-15V</b>	Sorbitan Sesquioleate	Emulsifier, especially for unsaturated lipid components and vegetable oils	3.7
<b>KAOPAN® SP-010</b>	Sorbitan Oleate	Emulsifier, especially for vegetable oils	4.3
<b>AMIDET® N</b>	PEG-4 Rapeseedamide	Co-emulsifier, fragrances solubilizer and emulsifier, especially for silicone and vegetable oils	6.0
<b>FINDER® 1618A/18</b>	Ceteareth-6	Co-emulsifier, dispersing agent, wetting agent	10.5
<b>RHEDDOL® 430V</b>	Sorbeth-30 Tetradecate	Emulsifier, especially for triglyceride oils	10.5
<b>LEVENOL® H&amp;B</b>	Glycereth-2 Octoate	Co-emulsifier	10.7
<b>RHEDDOL® 440V</b>	Sorbeth-40 Tetradecate	Emulsifier, especially for triglyceride oils	11.8
<b>LEVENOL® C-301B</b>	Glycereth-7 Octoate	Co-emulsifier	13.4
<b>KAOPAN® TW S120</b>	Polysoxate 60	Emulsifier, especially for esters and mineral and silicone oils	14.9
<b>EMULLEN® 2020G</b>	Octyldodeceth-20	Emulsifier solubilizer for fragrances, essential oils and other hydrophobic compounds	15.0
<b>EMANON® EV-E</b>	Glycereth-7 Caprylate/Caprate	Co-emulsifier	15.8
<b>FINDER® 1618A/35-P</b>	Ceteareth-23	Emulsifier	15.9
<b>KAOPAN® TW L120</b>	Polysoxate 20	Emulsifier and effective solubilizer for essential oils and perfumes	16.7

\*Recommended usage level from 0.5% to 5%.



# SKIN CARE

Anionic surfactants such as Ether Carboxylates can also be used in oil-in-water (O/W) emulsions as emulsifiers and stabilizers. The acid types would require neutralization with a suitable base (e.g. sodium hydroxide).

Cationic emulsifiers are also able to provide non-irritating emulsions for skin care products. They offer stability, aesthetic performance and a unique sensory profile for non-greasy and soft textures, boosting moisture.

ANIONIC	INCI	PROPERTIES & APPLICATIONS
AKYPO® RLM 100	Laureth-11 Carboxylic Acid	Co-emulsifiers for cold and hot processed emulsions. Very skin friendly properties
AKYPO® SOFT 100 BVC	Sodium Laureth-11 Carboxylate	

CATIONIC		
AMIDE1® APA-22	Behenamidopropyl Dimethylamine	Emulsifier with a good eco-toxicological profile
DANOX® HC-30	Behenamidopropyl Dimethylamine, Dipalmitoylethyl Hydroxyethylmonium, Methosulfate, Cetyl Alcohol, Stearyl Alcohol, Lactic Acid	A ready to use emulsifying blend with a synergistic combination of cationic surfactants and fatty alcohol, can be used as a co-emulsifier and consistency enhancer
QUARTAMIN® 60W/25 or 60W/30	Cetrimonium Chloride	
QUARTAMIN® AB	Behentrimonium Chloride	
QUARTAMIN® BTC-131	Behenyl P-C-Trimonium Chloride	Provide non-irritating emulsions with a unique sensory profile, velvety textures and boosting moisturization
TETRAYL® CO-40	Dioleylethyl Hydroxyethylmonium Methosulfate	
TETRAYL® LG/30	Dipalmitoylethyl Hydroxyethylmonium Methosulfate, Cetearyl Alcohol	

\* Recommended usage level from 0.5% to 5%, except for DANOX® HC-30 which ranges from 2.5% to 12%.

## CONSISTENCY FACTOR INGREDIENTS

Fatty alcohols are very effective at enhancing the consistency of creams, even at low use level.

FATTY ALCOHOLS	INCI	PROPERTIES & APPLICATIONS
KALCOI® 6098	Cetyl Alcohol	
KALCOI® 6850	Cetearyl Alcohol	
KALCOI® 6870P	Cetearyl Alcohol	Impart dry waxy emollience to creams and lotions. Emulsion stabilizers and viscosity builders.
KALCOI® 8098	Stearyl Alcohol	

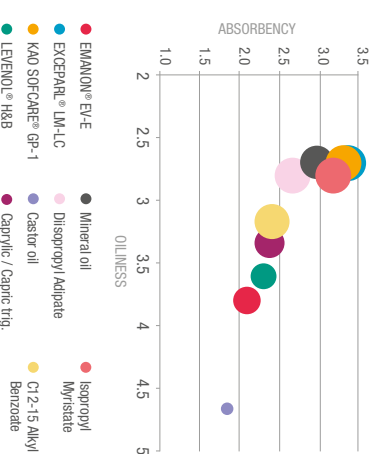
\* Recommended usage level from 2% to 30%.



## EMOLLIENTS

One of the most important functions that a skin care emulsion can provide is **emollience**. Properties such as **oiliness**, **absorbancy** or **spreadability** must be considered, depending on the final applications and the desired texture.

In the graph, these different properties are represented with oiliness shown on the x axis, absorbancy on the y axis and spreadability being the size of the spot.



EMOLLIENTS	INCI	PROPERTIES & APPLICATIONS
COCONAD RK	Tricaprylin	Skin softening agent
EMANON® EV-E	Glycereth-7 Caprylate/Caprate	Cold processable, water soluble emollient
EMANON® HE	PEG-7 Glyceryl Cocoate	Good conditioning effect for soft and smooth skin
EXCEPARL® EH-L	Ethylhexyl Laurate	Oil base with low viscosity, high penetrating and spreading effect
EXCEPARL® EH-S	Ethylhexyl Stearate	Oil base with low viscosity, high penetrating and spreading effect
EXCEPARL® LM-LC	Lauryl Lactate	Light dry skin feeling, 100% natural ingredient, UV-filter solubilizer
KAO SOFCARE® GP-1	PPG-3 Caprylyl Ether	Light dry skin feeling, alternative to silicones
LEVENOL® H&B	Glycereth-2 Cocoate	Rich skin feeling, moisturizing properties, multifunctional ingredient, natural origin

\* Recommended usage level from 1% to 10%.

# FORMULATIONS

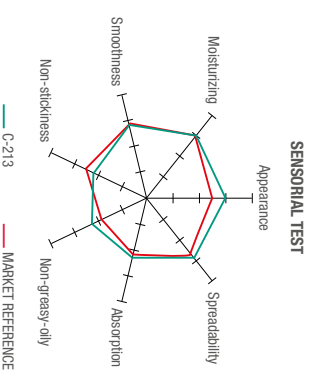
The properties of all these emollients, emulsifiers and consistency factor ingredients, when properly combined, allow to obtain a wide range of different formulations for different applications.

## Ref. C-204 DAILY FACIAL CREAM %

LEVENOL® H&B Glycerin-2 Cococate	5.0
KAOPAN® TW L120 Polysebate 20	1.5
KAOPAN® SP-010 Sorbitan Oleate	1.5
Capric/Caprylic Triglyceride	3.0
Mineral Oil	3.0
Cetyl Ethylhexanoate	3.0
Dimethicone	2.0
Ethylhexyl Methoxycinnamate	1.5
Carbomer	0.13
Additives*	q.s.
Deionized water	Up to 100
Appearance (20°C)	White emulsion
Viscosity Brookfield 20°C (cP)	Approx. 8,000
pH (as it is)	Approx. 6.5

## Ref. C-213 ANTI-AGING MOISTURISING CREAM %

LEVENOL® H&B Glycerin-2 Cococate	5.0
KALCOL® 6850 Cetearyl Alcohol	1.0
AKYPO® RLM 100 Laneth-11 Carboxylic Acid	1.0
Mineral Oil	8.0
Isopropyl Myristate	7.0
Glycerin	5.0
Tocopheryl Acetate	0.5
Carbomer	0.5
Additives*	q.s.
Deionized water	Up to 100
Appearance (20°C)	White emulsion
Viscosity Brookfield 20°C (cP)	Approx. 56,000
pH (as it is)	Approx. 5.5



## Ref. C-312 MOISTURISING BODY CREAM %

EXCEPARL® LM-LC Lanryl Lactate	3.0
AKYPO® RLM 100 Laneth-11 Carboxylic Acid	3.0
KAOPAN® TW S120 Polysebate 60	1.5
LEVENOL® H&B Glycerin-2 Cococate	1.0
KALCOL® 6850 Cetearyl Alcohol	1.0
Isopropyl Myristate	1.0
Acrylates/C10-30 Alkyl Acrylate Crosspolymer	1.0
Additives*	q.s.
Deionized water	Up to 100
Appearance (20°C):	White emulsion
Viscosity Brookfield 20°C (cP)	Approx. 50,000
pH (as it is)	Approx. 6.0

## Ref. C-313 BODY LOTION %

KAO SFCARE® GP-1 PEG-3 Caprylic Ether	6.0
KALCOL® 6850 Cetearyl Alcohol*	3.5
EXCEPARL® LM-LC Lanryl Lactate	3.0
QUARTANIN® BTC-131 Behenyl PG-Triethanol Chloride	2.14
Glycerin	2.0
Isopropyl Myristate	1.0
Additives*	q.s.
Deionized water	Up to 100
Appearance (20°C):	White emulsion
Viscosity Brookfield 20°C (cP)	Approx. 8,000
pH (as it is)	Approx. 6.0

\* Additives: pH adjustment, preservatives, fragrance, q.s., etc.

## Ref. C-128 MOISTURISING SKIN CARE %

AMIDET® APA-22 Behenamidopropyl Dimethylamine	2.8
KALCOL® 8098 Stearyl Alcohol	2.0
KALCOL® 6098 Cetyl Alcohol	1.5
Capric/Caprylic Triglyceride	15.0
Glycerin	5.0
Glyceryl stearate	2.5
Isopropyl Myristate	1.0
Additives*	q.s.
Deionized water	Up to 100
Appearance (20°C)	White emulsion
Viscosity Brookfield 20°C (cP)	Approx. 45,000
pH (as it is)	Approx. 6.5

## Ref. C-194 HAND CREAM %

EMAND® EI-E Glycerin-7 Copolyaldehyde	2.0
KAOPAN® SP 010 Sorbitan Oleate	0.5
Mineral Oil	8.0
Isopropyl Myristate	7.0
Glycerin	3.0
Propandiol Dicaprylate	1.5
Tocopheryl Acetate	1.0
Carbomer	0.2
Appearance (20°C)	White emulsion
Viscosity Brookfield 20°C (cP)	Approx. 15,000
pH (as it is)	Approx. 5.5

# KAO CHEMICALS EUROPE

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Enriching lives,  
in harmony with nature.

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