

LEVENOL[®] H&B

**MILDNESS IMPROVER
EMOLIENT AND MOISTURIZER
THICKENER
FOAM BOOSTER**

**GREEN EMOLIENT
FOR PERSONAL CARE
MILD FORMULATIONS**

KAO SURFACTANTS TECHNOLOGY AT YOUR SERVICE



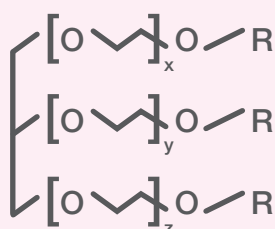
LEVENOL® H&B

Hair & Body care

LEVENOL® H&B is a concentrated liquid surfactant for Hair and Body care formulations with emollient, foaming and viscosity building properties.

LEVENOL® H&B is a glyceryl ester derivative. It is very mild and has emollient, moisturizing, thickening and foam boosting properties, which makes it a very good all-in-one co-surfactant. It also has a good eco-toxicological profile. It is liquid and has no risk/safety warnings, what makes it easy to handle and cold processable.

LEVENOL® H&B Glycereth-2 Cocoate



$x + y + z = 2$
 $R = H \text{ or } R' \text{ CO}^-$
 $R' \text{ CO}^- = \text{Coconut chain}$

MAIN FEATURES

- Very mild to skin and eyes
- Vegetable origin
- 100% active matter
- Cold processable
- Very good eco-toxicological profile
- Improves thickening effect
- Good foam performance

PHYSICAL PROPERTIES

Viscosity (20°C, cP)	~ 450
CMC (25°C, ppm)	23 (ST: 30.5 mN/m)
Density (20°C, g/cm³)	~ 1.05
Pour Point (°C)	-2 / 0
Polarity	Medium
Refractive Index	~ 1.33

TECHNICAL DATA

Active Matter	100
Appearance (20°C)	Transparent liquid
Colour (Apha)	150 max
Odour	Weak characteristic
pH (5% in water)	5 - 7
HLB (calculated)	Approx. 11

LEVENOL® H&B is not water-soluble. To obtain completely transparent solutions, it is recommended to use it in a maximum ratio of 20-25% of the anionic active matter, depending on the total hydrophobic ingredients in the formulation. It is stable at a pH range of 4-9.



MAIN CHARACTERISTICS

It is very common to add emollients to cosmetic formulations in order to improve their sensorial properties. With LEVENOL® H&B this addition to cleansing products does not cause any problems regarding viscosity or foam, which is usually the case when using other emollients.



LEVENOL® H&B combines and perfectly balances its emollient and thickening properties.

LEVENOL® H&B acts as a high-performing emollient, better than the most widely used glyceryl ester derivatives in the market, while boosting both the viscosity and foam behaviour of the formula.

ECO & TOX PROPERTIES

Eye Irritation	Non irritant
Skin Irritation	Non irritant
Skin Sensitisation	Non sensitizer
Acute Oral Toxicity	LD ₅₀ > 2000 mg/kg
Acute Dermal Toxicity	LD ₅₀ > 2000 mg/kg
Aerobic Biodegradation	Readily biodegradable
Anaerobic Biodegradation	Biodegradable
Fish Toxicity	LC ₅₀ > 10 mg/L
Daphnia Toxicity	EC ₅₀ > 10 mg/L
Algae Toxicity	EC ₅₀ > 10 mg/L
RSPO Certification	Available upon request

CHARACTERISTICS COMPARISON

	Emollience	Mildness improvement	Viscosity	Foam creaminess
LEVENOL® H&B	4	4	3	4
PEG-7 Glyceryl Cocoate	3	3	2	3
PEG-6 Caprylic/Capric Glycerides	3	3	1	3
Cocoglucoside	2	3	2	2
Cocamide DEA	2	2	4	2

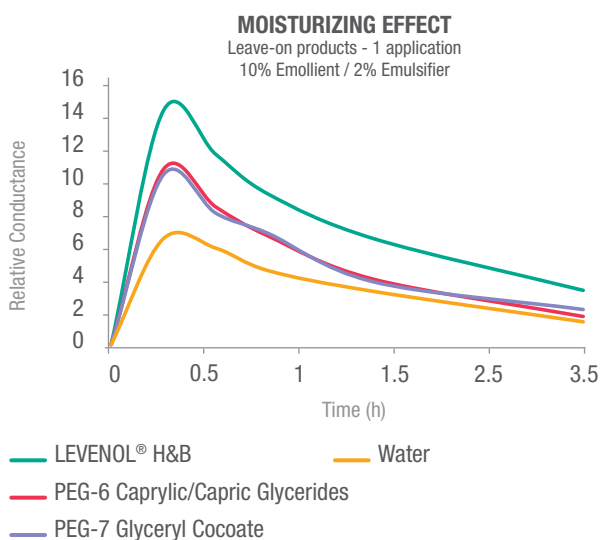
1: Worst
4: Best

MAIN PROPERTIES

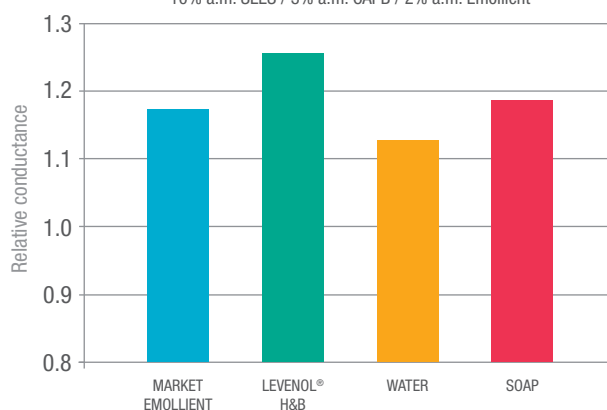
EMOLLIENT & MOISTURIZING EFFECT

Emollients are substances that soften and smooth the skin. They are used to improve its condition, reducing dryness and scaling. The typical emollients in the market are oils or oil derivatives, with glyceryl ester derivatives being among the most widely used.

Although they share the glycerine ester structure, the effectiveness of LEVENOL® H&B as a moisturizing agent is much better than those of PEG-7 Glyceryl Cocoate or PEG-6 Caprylic/Capric Glycerides. This enhanced effect can be seen in both rinse-off and leave-on formulations, as the following in vivo tests show:



MOISTURIZING EFFECT
Rinse-off products - 5-day treatment
10% a.m. SLES / 3% a.m. CAPB / 2% a.m. Emollient



LEVENOL® H&B emollient effect is greater than typical emollients in the market.

Ref. C-213

MOISTURIZING CREAM

	%
LEVENOL® H&B Glycereth-2 Cocoate	5.0
KALCOL® 6850 Cetearyl Alcohol	1.0
AKYPO® RLM 100 Laureth-10 Carboxylic Acid	1.0
Mineral Oil	8.0
Isopropyl Myristate	7.0
Glycerin	5.0
Additives*	q.s.
Deionized Water	Up to 100

SLES : Sodium Laureth Sulfate

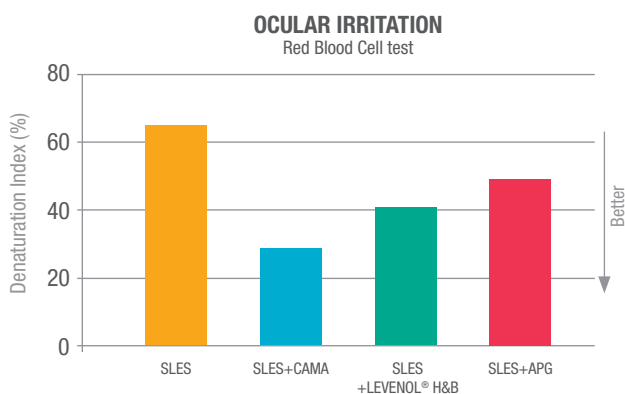
CAPB : Cocamidopropyl Betaine



MILDNESS

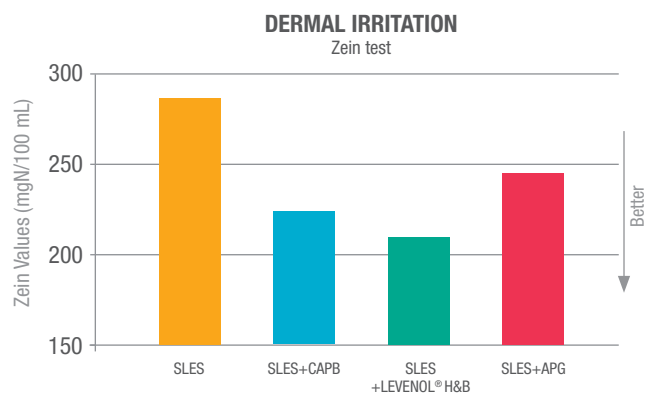
One of the key requirements of a surfactant is that it has to be safe and risk-free for human use. LEVENOL® H&B satisfies these demanding needs.

All the in vitro methods like the Zein solubilization test, related to skin irritation potential, or the Red Blood Cell test, related to eye irritation, show that LEVENOL® H&B is milder than other well-known co-surfactants and, moreover, has a greater mildness-improving effect on SLES-based products.



The mildness-improving effect of LEVENOL® H&B makes it a very good co-surfactant for SLES-based formulations that need emolliency without compromising viscosity.

SLES : Sodium Laureth Sulfate CAPB : Cocamidopropyl Betaine
APG: Coco Glucoside CAMA: Sodium Cocoamphoacetate



LEVENOL® H&B can be considered the ingredient of choice for improving the dermatological compatibility of basic surfactants and it is suitable for extremely mild products.

Ref.: C-264

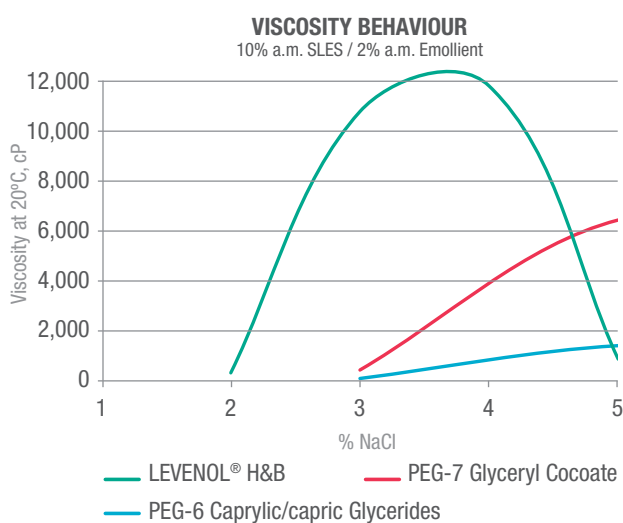
ANIONIC-FREE SHOWER GEL %

BETADET® S-20 Lauryl Hydroxysultaine	35.0
BETADET® HR Cocamidopropyl Betaine	16.0
LEVENOL® H&B Glycereth-2 Cocoate	10.0
Additives*	q.s.
Deionized Water	Up to 100

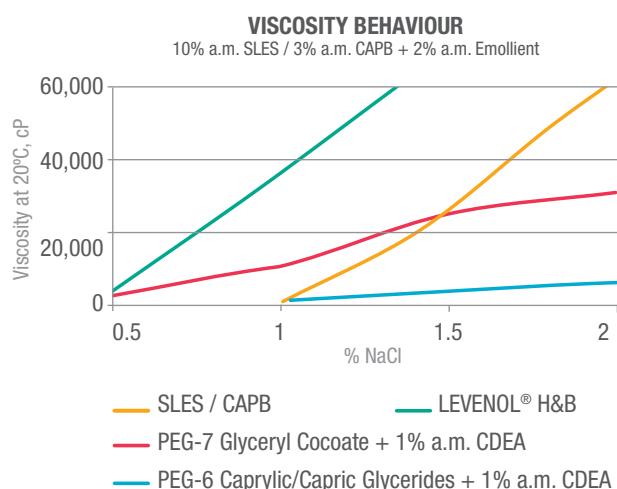
Additives*: pH adjustment, preservatives, fragrance, dyes, etc.

VISCOSITY BUILDING PROPERTIES

Regarding viscosity behaviour in the final formula, LEVENOL® H&B performs much better than typical emollients.

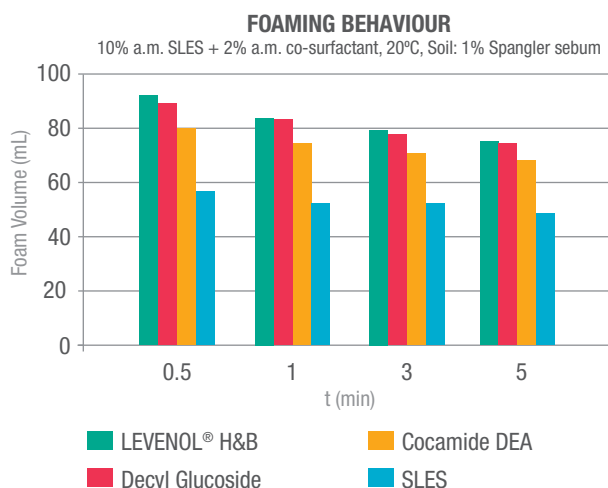


The thickening effect of LEVENOL® H&B enables formulators to reduce or even avoid the use of other thickeners such as Cocamide DEA, reducing the cost of the formulation, while increasing the level of emolliency.



FOAMING ABILITY

LEVENOL® H&B can be considered a good foam booster and stabilizer, comparable to the most widely used co-surfactants. It improves the creaminess of the foam and makes the product more pleasant during application to the hair or skin. As a non-ionic surfactant, its foaming effect is not affected by water hardness, and it enhances foam even in the presence of oils.



Ref.: C-211

ANTI-DANDRUFF SHAMPOO

	%
EMAL® 270D Sodium Laureth Sulfate	14.0
AKYPO® FOAM RL 40 Sodium Laureth-5 Carboxylate	5.0
DANOX® PL-10 Pearling agent	4.0
LEVENOL® H&B Glycereth-2 Cocoate	2.5
EXCEPARL® LM-LC Lauryl Lactate	1.5
TETRANYL® U Undecylenamidopropyltrimonium Methosulfate	0.5
Zinc Pyrithione (50%)	2.0
Additives*	q.s.
Deionized Water	Up to 100

SLES : Sodium Laureth Sulfate
CDEA : Cocamide DEA

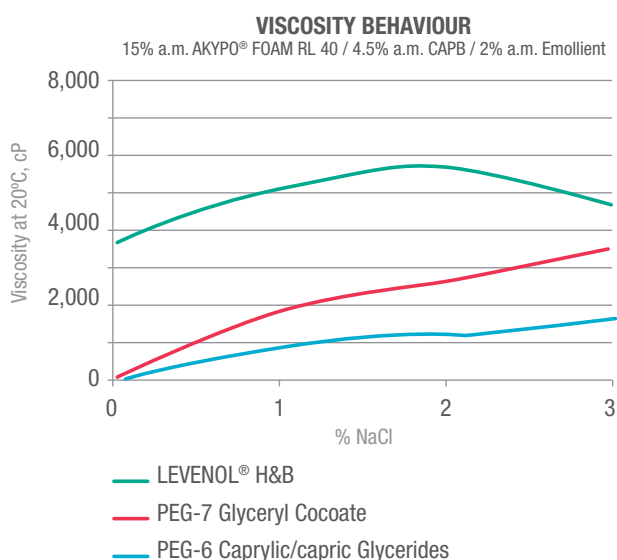
CAPB : Cocamidopropyl Betaine

MAIN PROPERTIES

ULTRA-MILD FORMULATIONS

LEVENOL® H&B is also very useful for adding emolliency to sulfate-free formulations without compromising the viscosity, one of the key drawbacks when working with this kind of product.

Good viscosities are easily achieved with LEVENOL® H&B in different systems with an anionic surfactant other than SLS/SLES. This is also the case when using AKYPO® FOAM RL 40, a Kao Chemicals Europe speciality which is an ether carboxylate with comparable foamability and much better mildness than SLES.



The thickening effect of LEVENOL® H&B makes it a good choice for formulations.

Ref. C-276

ULTRA-MILD BATH GEL

	%
AKYPO® FOAM RL 40 Sodium Laureth-5 Carboxylate	25.0
BETADET® HR Cocamidopropyl Betaine	15.0
LEVENOL® H&B Glycereth-2 Cocoate	1.0
Additives*	q.s.
Deionized water	Up to 100

Even anionic-free formulations with good viscosities are possible using LEVENOL® H&B, like the mild shower gel formulation seen on page 5 (C-264).

ADDITIONAL PROPERTIES

BOOSTING EFFECT ON UV FILTERS

LEVENOL® H&B can solubilize UV filters like other glyceryl ester derivatives: λ_{max} increased for all the UV sunscreens, meaning that the inclusion of these chemicals in sunscreens improves the SPF efficacy.

UV Filters experimentally checked:

- Octylmethoxycinnamate
- Benzophenone-3
- Octyldimethyl PABA

Additives*: pH adjustment, preservatives, fragrance, dyes, etc.

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in harmony with nature.

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(Edited Mar 2020. EU version)

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