



# PERSONAL CARE PRODUCT CATALOGUE



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ADEKA has been present in the cosmetics & detergents market in Europe for more than 20 years now. In 1999, ADEKA centralized their European sales activities in a new head office, ADEKA Europe GmbH, in Düsseldorf, Germany. ADEKA Corporation is a manufacturer with a century of experience. We have 4 R&D and 15 production sites worldwide.

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# 1. Thickeners

- ✓ REACH & IECIC (China)
- ✓ Packaging: 20 kg can
- ✓ Shelf-life: 2.5 years
- ✓ RSPO member
- ✓ Vegan

## ADEKA NOL GT-730 - MEMORY GEL

INCI: PEG-240/HDI COPOLYMER BIS-DECYLTETRADECETH-20 ETHER, BUTYLENE GLYCOL, WATER

### BEYOND THICKENING

ADEKA NOL GT-730 is a highly efficient thickener for personal care applications particularly designed to thicken aqueous solutions. It is a non-ionic polymer for rheology control that is ideal for crystal clear formulations. ADEKA NOL GT-730 has moisturizing properties, a precise sensorial control, enables the achievement of light textures, good spreadability as well as fresh & pleasant skin feeling.

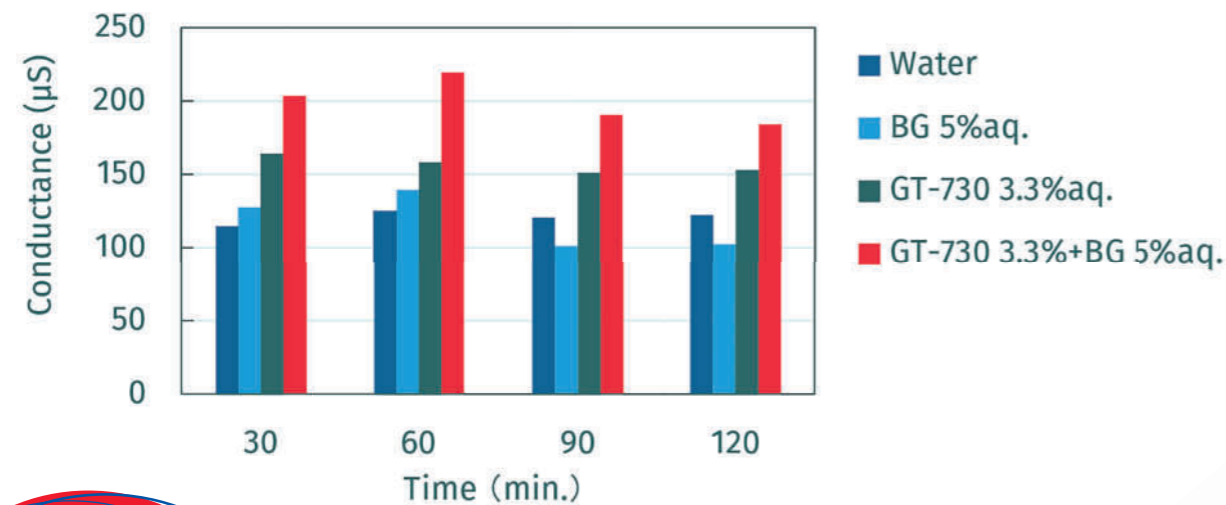
### BENEFITS

- ✓ Crystal clear formulation
- ✓ Compatible with anionic, cationic & non-ionic polymer
- ✓ Compatible with organic & inorganic salt
- ✓ Compatible with oil
- ✓ Compatible with UV absorber & powder

### FEATURES

- ✓ Unique texture
- ✓ High salt tolerance
- ✓ pH range: 2-12
- ✓ Sprayable thixotropic gel
- ✓ Moisturizing effect
- ✓ 30% active
- ✓ Recommended for Skin Care, Hair Care & Make-up

### MOISTURIZING EFFECT



**Test condition:**  
 Measuring equipment: SKICON-200 (SKIN SURFACE HYGROMETER)  
 Room temperature: 22°C  
 Humidity: 50%

**Result:**  
 ADEKA NOL GT-730 at 3.3% has higher moisturizing effect than BG 5%. Moreover, there is synergistic effect with BG.

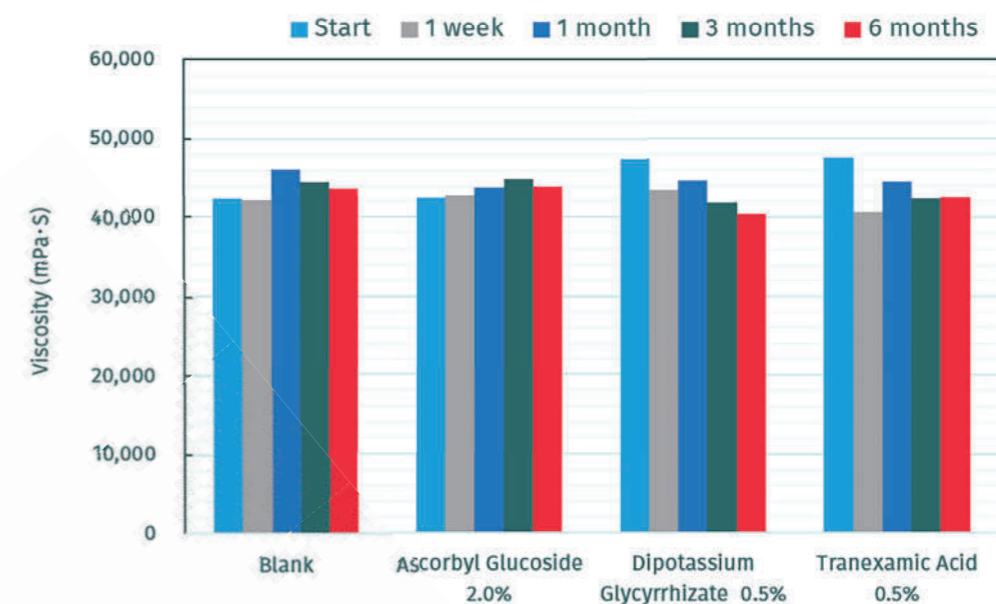


### THE STORY BEHIND

ADEKA NOL GT-730 has a long history of innovation & proven success results. Since its creation at ADEKA laboratory based in Tokyo, over 600 products have been launched into the market all over the world. Our culture of innovation and passion for knowledge enables creativity, which is used to take your ideas, requests & expectations to constantly improve our business. The key factor to our success is our R&D team, working in a collaborative business environment that offers advanced technologies & excellent benefits for the development of products. ADEKA's dedicated work has convinced the members of the jury of In-Cosmetics Global Paris in 2019 and won the Sensory Bar Silver Award in recognition of ADEKA's strong achievement.



### COMPATIBILITY WITH ACTIVE INGREDIENTS



**Test condition:**  
 ADEKA NOL GT-730 : 5wt%, pH : neutralized with NaOH to pH 6.5 - 7.0

**Result:**  
 ADEKA NOL GT-730 gels have good stability with active ingredients for at least 6 months at 25°C.

## ADEKA NOL GT-930

INCI: POLYURETHANE-59, BUTYLENE GLYCOL, WATER

- ✓ REACH
- ✓ No animal testing
- ✓ Packaging: 20 kg can
- ✓ Shelf-life: 2 years
- ✓ Vegan
- ✓ 30% active

### BEYOND THICKENING

ADEKA NOL GT-930 is a multifunctional thickener & water-soluble polymer with stabilizing, thickening and emulsifying properties, giving formulators precise sensorial control, enabling them to achieve light textures, good spreadability, a fresh & pleasant skin feel and good tolerability. ADEKA NOL GT-930 can lead to improved uniform coverage, better dispersion stability and improve O/W emulsions without adding any emulsifier.



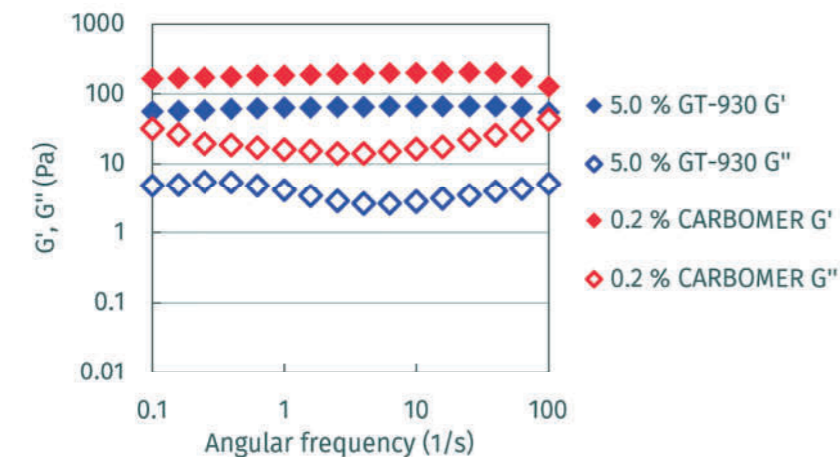
### FEATURES

- ✓ Pigment dispersant
- ✓ Acts as emulsion stabilizer
- ✓ Compatible with anionic, cationic & non-ionic polymer
- ✓ Compatible with organic & inorganic salt
- ✓ Compatible with oil, UV absorber & powder
- ✓ Strong solvent tolerance
- ✓ pH range: 2-12
- ✓ Multifunctional polymer
- ✓ High versatility

### BENEFITS

- ✓ Makes emulsifier-free O/W emulsion
- ✓ Excellent compatibility with high levels of oil
- ✓ Excellent compatibility with high levels of pigments
- ✓ High salt tolerance
- ✓ Sprayable thixotropic gel
- ✓ Light and non-tacky texture
- ✓ Recommended for Skin Care & Make-Up Foundation, BB Cream & Sunscreen

### DYNAMIC VISCOELASTICITY



**Test condition:**  
Temperature: 25°C & Strain: 1%

**Results:**  
The storage modulus  $G'$  is higher than the loss modulus  $G''$  regardless of angular frequency. ADEKA NOL GT-930 behaves as elastic body and is expected to keep stability of powder & O/W colloidal particles as carbomer.

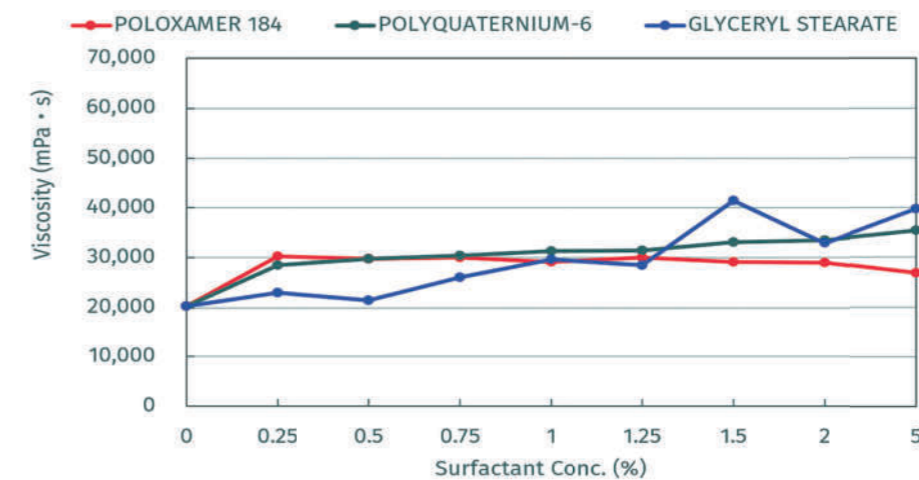


### THE STORY BEHIND

ADEKA NOL GT-930 is the newest generation of Memory gels designed by our dedicated R&D team in Tokyo. After successfully launching ADEKA NOL GT-730, our team developed a new polymer with additional benefits & features. By focusing on innovative excellence, ADEKA is listening to their customers to understand their needs. The success of ADEKA NOL GT-930 is well received in the market and the first customers are already satisfied with its performance. ADEKA's dedicated work has convinced the members of the jury of In-Cosmetics Global Paris in 2019 and won the Sensory Bar Silver Award in recognition of ADEKA's remarkable achievement.



### INFLUENCE OF SURFACTANTS WITH WEAK SURFACE ACTIVITY



**Test condition:**  
ADEKA NOL GT-930 5.0% listed surfactants x%, water (95-x)%

**Results:**  
Water soluble polymer like Polyquaternium-6 or pluronic type<sup>1</sup> surfactants like Poloxamer-184 (ADEKA NOL L-64) has little effect on the viscosity of GT-930 gel.  
<sup>1</sup>ADEKA Corporation product name in Japan

### EMULSIFIER-FREE O/W EMULSION - OIL TYPES

Solid content (%)	1			
Butylene Glycol (%)	2			
Water (%)	67			
Mineral Oil (%)	30	-	-	-
Triethylhexanoin (%)	-	30	-	-
Ethylhexyl Methoxycinnamate (%)	-	-	30	-
Cyclopentasiloxane (%)	-	-	-	30
Viscosity (mPa·s)	11,000	14,000	11,000	12,000

**Results:**  
Stable emulsifier-free emulsion can be prepared regardless of oil type.

## 2. Natural Thickener

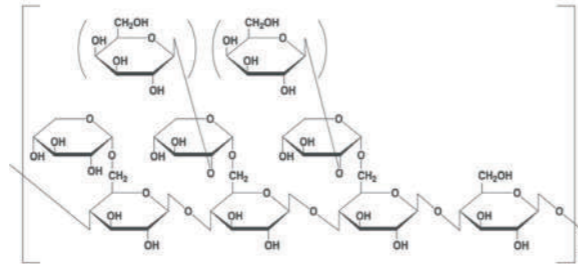
- ✓ 100% natural
- ✓ Powder
- ✓ Shelf-life: 2 years
- ✓ Recommended dosage: 0.05% - 4%

### TAMARIND

INCI: TAMARINDUS INDICA SEED GUM

#### BEYOND THICKENING

Tamarind is a plant-derived polymer, extracted from the seeds of the Tamarindus Indica tree. Even though being used as a food additive for more than 50 years, Tamarind just recently has found its way into cosmetic usage. Tamarind produces transparent solutions with a unique fluidity, providing rich & non-sticky textures. It has a powerful stability and can keep its viscosity even under the influence of heat, pH & salts. An additional unique feature of Tamarind is that it increases its viscosity or forms a gel when used in combination with sugars or polyols. As Tamarind is non-ionic, it has a good compatibility with various surfactants.



#### BENEFITS

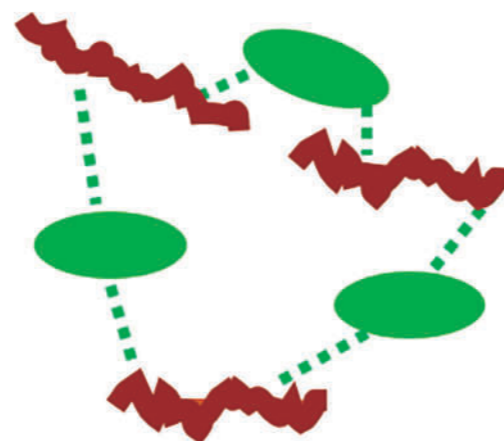
- ✓ 100% natural
- ✓ Moisturizes & soothes skin
- ✓ Clear formulations
- ✓ Soluble in water without heating
- ✓ Stable against heat, acid & salt

#### FEATURES

- ✓ Plant derived
- ✓ Good stability
- ✓ Unique synergy with polyols
- ✓ Compatible with various surfactants
- ✓ Transparent
- ✓ Provides natural, non-sticky texture

#### SYNERGY EFFECT WITH SUGARS AND POLYOLS

- Tamarind
- Sugars / Polyols



When used in combination with sugars/polyols, Tamarind increases the viscosity or forms a gel due to 3D network via hydrogen bonds.



#### THE STORY BEHIND

ADEKA is constantly looking for new opportunities to enlarge the product portfolio. To meet customers' needs and their increasing demand for natural products, ADEKA has expanded its product line with the natural non-ionic polymer Tamarind. Tamarind is produced by separating and refining its polysaccharide component from the seeds of the Tamarindus Indica tree. The 100% natural polymer is highly suitable for various cosmetic applications and just another step of ADEKA striving to meet the customers' needs.

#### COMPATIBILITY WITH SURFACTANTS

TYPE	COMPATIBILITY	NAME OF SURFACTANTS
Anionic Amino acid	Good	Sodium Lauryl Sulfate Sodium Laureth Sulfate Sodium Lauroyl Sarcosinate Sodium Cocoyl Glutamate Sodium Lauroyl Methylaminopropionate
Cationic	Good	Steartrimonium Chloride Benzalkonium Chloride
Amphoteric	Good	Lauryl Betaine
Non-ionic	Good	PPG-8-Ceteth-2 PEG-50 Hydrogenated Castor Oil

Test condition: 0.5% Tamarind - 10% Ionic surfactants or 2% Non-ionic surfactants

#### GELATION WITH SUGARS AND ALCOHOLS

INGREDIENTS	GELATION		PROPERTIES OF GEL			
	SPEED	USAGE LEVEL	HARDNESS	ELASTICITY	SYNERESIS	TRANSPARENCY
Ethanol, etc. (Lower alcohol)	Quick	Gelation achieved with small amount	Firm	Weak	Much	Opaque
BG, PEG, glycerin, etc. (Polyol)	↑	↓	↑	↓	↑	↓
Sorbitol, trehalose, etc. (Sugar alcohol, sugar)	Slow	Gelation not achieved unless a large amount is added	Soft	Strong	Little	Transparent

Test condition: 1% Tamarind - Alcohol/ Polyols: 15% - 60%

Results: Gels with different kinds of characteristics can be made by using different kinds of ingredients such as sugar and alcohol at different usage levels.

### 3. Preservative Boosters

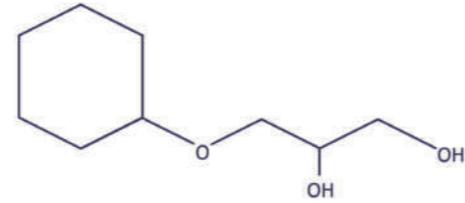
- ✓ REACH
- ✓ Shelf-life: 1.5 years
- ✓ Vegan
- ✓ Recommended dosage: 2% - 3%

#### ADEKA NOL CHG

INCI: CYCLOHEXYLGLYCERIN

#### BEYOND PRESERVATIVE BOOSTERS

ADEKA NOL CHG can boost the efficacy of new preservatives and prevent degradation by bacteria stabilizers when used in combination with other cosmetic ingredients. Due to its surfactant properties, CHG affects the interfacial tension at the cell membrane of microorganisms. This allows some active ingredients, such as antimicrobials & preservative actives, to penetrate more effectively. In addition to providing effective preservation across a broad range of microbes, the ingredient is also effective over a wide pH range. ADEKA NOL CHG can be formulated into both leave-on & rinse-off applications.



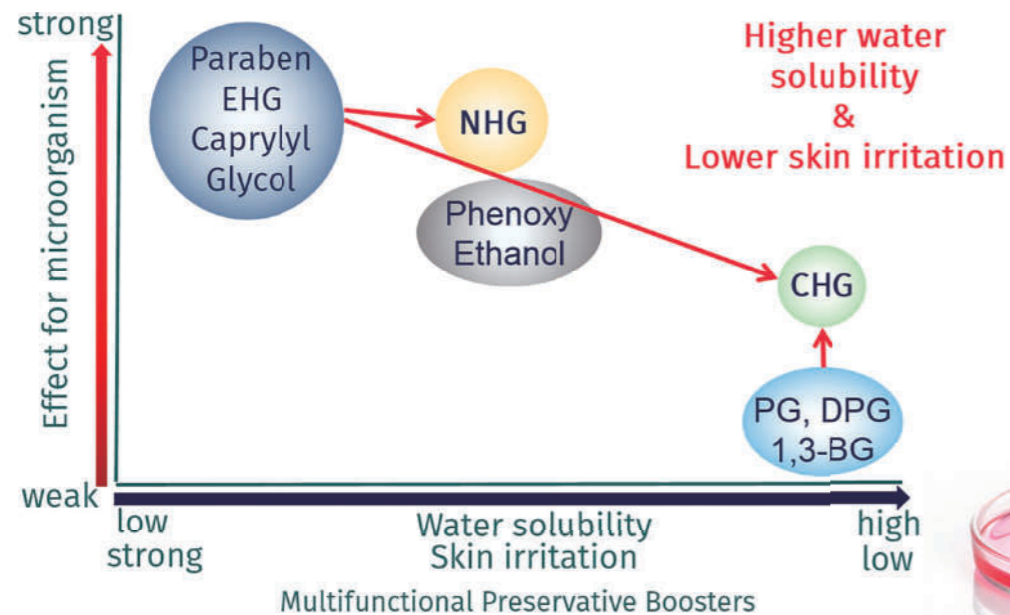
#### BENEFITS

- ✓ New preservation booster
- ✓ Moisturizing effect
- ✓ High water solubility
- ✓ Minimal skin irritation
- ✓ Unaffected by pH
- ✓ Unaffected by oily compound
- ✓ Best for transparent cosmetic formulations
- ✓ Can be used as preservation booster with other preservatives – Synergistic effect

#### FEATURES

- ✓ Good stability in emulsions
- ✓ High performance
- ✓ Registered as humectant
- ✓ Best for Skin Care, Face Masks & Hair Care
- ✓ Penetration enhancer effect of active ingredients

#### CHG & NHG PERFORMANCE MAP



#### THE STORY BEHIND

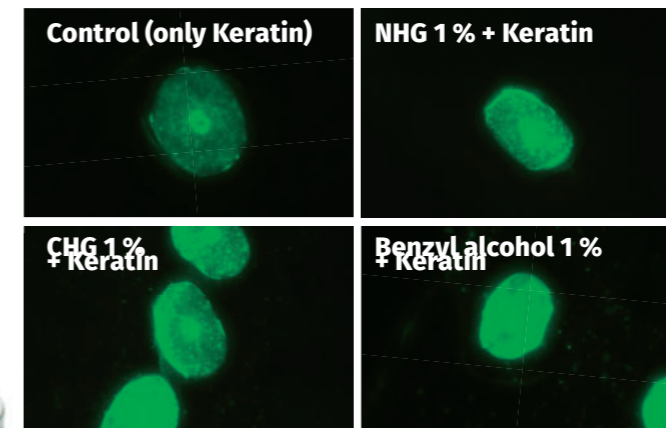
ADEKA has a long history & is a pioneer in producing glycols. Over the last three decades, ADEKA has been producing Caprylyl Glycol and Ethylhexylglycerin. These two glycols are the most famous on the cosmetics market and have been widely used by our partners. For the next decade, ADEKA has developed two preservative boosters which complement the existing ones. The differences are better performance & benefits, high water solubility & low skin irritation. ADEKA's success is to listen to customers' needs and create suitable products, while implementing environmentally-friendly & sustainable practices. ADEKA recently has invested in a new production site with high quality equipment & new safety features.



#### NHG/CHG BEST BLENDS - OUR RECOMMENDATIONS

COMBINATION	MIXING RATIO	DOSAGE (%)	CHARACTERISTICS
NHG : Caprylyl Glycol	1 : 1	0.5 ~ 1.0	<b>Optimized economic</b> blend Useful for any <b>formulations</b>
NHG : EHG	3 : 1	0.6 ~ 2.0	<b>Synergistic effect</b> against bacteria
NHG : Ph-Ethanol	17 : 3	0.5 ~ 2.0	<b>Synergistic effect</b> against mold
CHG : Caprylyl Glycol	3 : 2	0.5 ~ 2.0	<b>Good water solubility</b> <b>Suitable for emulsion</b> systems
CHG : NHG	5 : 1	1.0 ~ 3.0	<b>Less influence</b> on emulsion stability
CHG : EHG	2 : 1	0.5 ~ 1.5	Suitable for <b>Hair Care products</b>

#### PENETRATION ENHANCER EFFECT OF KERATIN



**Test condition:**  
Prepare fluorescently labeled Keratin aq. with 1% each glycol. Dip damaged hair in each solution for 10 min.

**Results:**  
ADEKA NOL CHG 1% with Keratin has same effect as Benzyl alcohol. Can make safe cosmetics for hair by using ADEKA NOL CHG.



- ✓ REACH
- ✓ Shelf-life: 1 year
- ✓ Vegan
- ✓ Recommended dosage: 0.6% - 1.0%

## ADEKA NOL NHG

INCI: HEXYLGLYCERIN

### BEYOND PRESERVATIVE BOOSTERS

ADEKA NOL NHG is easier to solve in formulations and can be used for cosmetics, moisturizers and antimicrobial agents. ADEKA NOL NHG protects against the growth of microorganisms, including bacteria & fungi, in personal care products and is an excellent booster for antimicrobial actives. A repeated challenge test has been performed to successfully illustrate how the use of ADEKA NOL NHG improves the efficacy of antimicrobial properties.



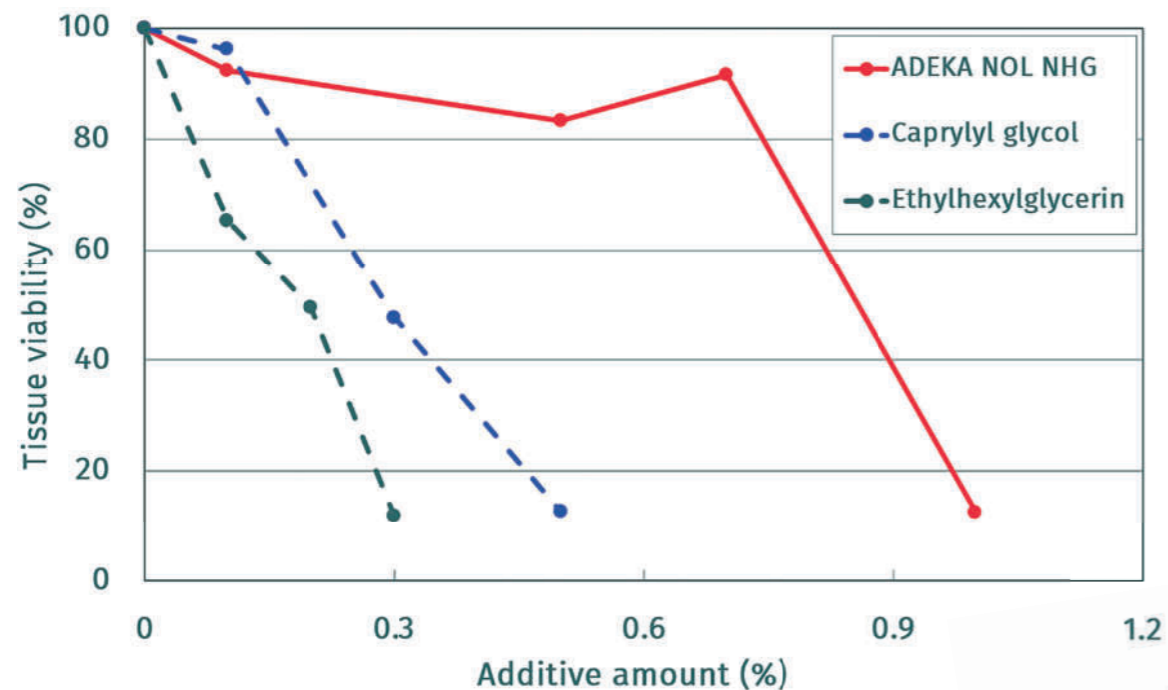
### BENEFITS

- ✓ New preservation booster
- ✓ Broad antimicrobial spectrum
- ✓ Minimal skin irritation
- ✓ Unaffected by pH
- ✓ Unaffected by oily compound
- ✓ Can be used as preservative-free system

### FEATURES

- ✓ Allergy testing
- ✓ Claims testing
- ✓ Microbial challenge testing
- ✓ Studies in emulsions
- ✓ High performances

### IRRITATION TEST



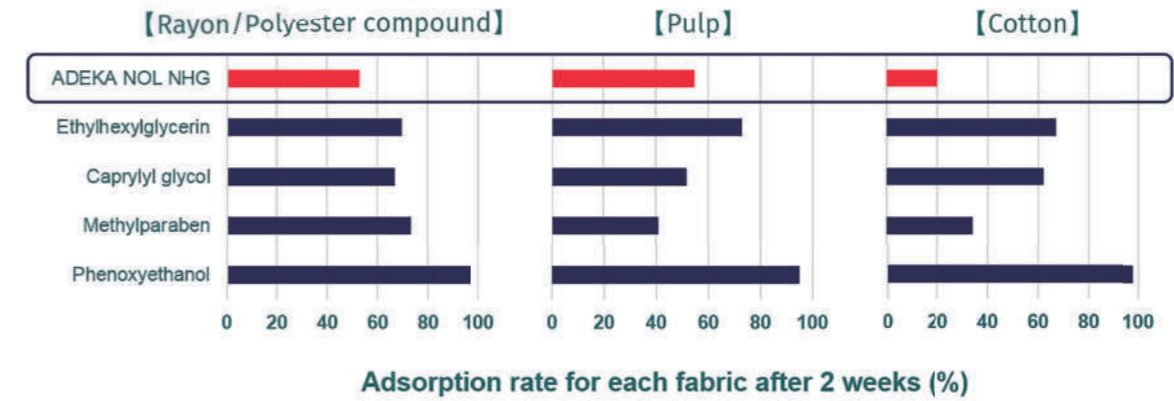
**Test condition:**

Reconstructed human cultured epidermal model used LabCyte EPI-MODEL (Japan Tissue Engineering Co., Ltd). The tissues were exposed to the test materials and incubated with the assay medium for 24 hrs. (37°C, 5% CO<sub>2</sub>). Then, the tissues were transferred to MTT medium and incubated for 3 hrs. (37°C, 5% CO<sub>2</sub>). The tissues were extracted with isopropanol (IPA) and absorbance was measured.

**Results:**

The tissues treated by ADEKA NOL NHG keep higher tissue viability than existing glycols. Therefore, it is expected that skin irritation is lower.

### ADVANTAGE IN THE WET WIPE APPLICATION



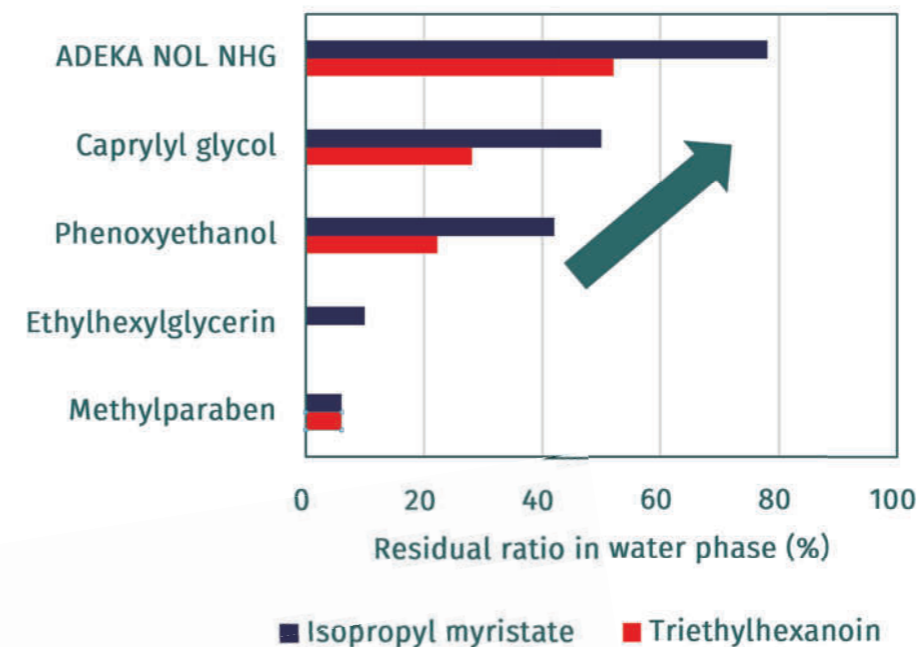
**Test condition:**

A non-woven fabric was soaked in each test solution (3 times the amount of the fabric). After 2 weeks, squeezed solutions were analyzed by gas chromatography.

**Results:**

ADEKA NOL NHG is less adsorbed into non-woven fabrics than parabens and conventional glycols. Therefore, ADEKA NOL NHG is a useful preservative booster for various types of non-woven fabric products (e.g. wet wipes and face masks) because it is more likely to stay in solution.

### WATER-OIL PARTITION RATE



**Test condition:**

Weigh 3 mL of water and oil, add 3 mg of sample and shake. After that, it is quantified by gas chromatography.

**Results:**

ADEKA NOL NHG is not affected by oily ingredients compared to parabens & phenoxyethanol.

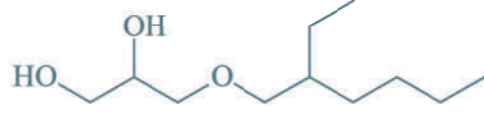
# ADEKA NOL GE-RF

INCI: ETHYLHEXYLGLYCERIN

- ✓ Globally approved
- ✓ Versatile & Multifunctional
- ✓ Shelf-life: 2 years
- ✓ Packaging can/drum/IBC

## BEYOND PRESERVATIVE BOOSTERS

Ethylhexylglycerin is a frequently used multifunctional additive. Beside its deodorant efficacy, it is an excellent booster of many traditional preservatives and other antimicrobial substances. ADEKA NOL GE-RF (E) has been introduced in the personal care market by our partner under their brand name, and the stabilizing system of this composition is patented for our partner in many European countries until 2021. In addition ADEKA proposes two different grades without any additional antioxidants: ADEKA NOL GE-RF with 99% purity and ADEKA NOL GE-108 with 98% purity.



## BENEFITS

- ✓ Acts as emollient & mild humectant
- ✓ Effective against gram-positive bacteria, yeast & mold
- ✓ Booster for antimicrobials
- ✓ Boosting and fixating of fragrance ingredients
- ✓ Strong broad spectrum efficacy
- ✓ Unaffected by pH
- ✓ Unaffected by oily compound

## FEATURES

- ✓ Allergy testing
- ✓ Claims testing
- ✓ Microbial challenge testing
- ✓ High performances
- ✓ Preservative free system
- ✓ Palm Oil-free

## ANTIMICROBIAL ACTIVITY

Minimum Inhibitory Concentration (MIC) for microorganisms

	ETHYLHEXYL GLYCERIN	CAPRYLYL GLYCOL	PHENOXY ETHANOL	METHYL PARABEN
<i>E.coli</i>	0.25%	0.13%	0.50%	0.19%
<i>P. aeruginosa</i>	1.00%<	0.38%	0.50%	0.25%
<i>S. aureus</i>	0.19%	0.38%	1.00%	0.38%
<i>B.subtilis</i>	0.15%	0.26%	1.00%	0.20%
<i>C. albicans</i>	0.19%	0.25%	0.50%	0.13%
<i>Z.rouxii</i>	0.40%	0.20%	0.40%	0.20%
<i>A. brasiliensis</i>	<0.09%	<0.09%	0.30%	0.06%

### TEST MICROORGANISM

#### BACTERIA:

Escherichia coli ATCC 8739  
Pseudomonas aeruginosa ATCC 9027  
Staphylococcus aureus ATCC 6538  
Bacillus subtilis IFO 3134

#### FUNGI

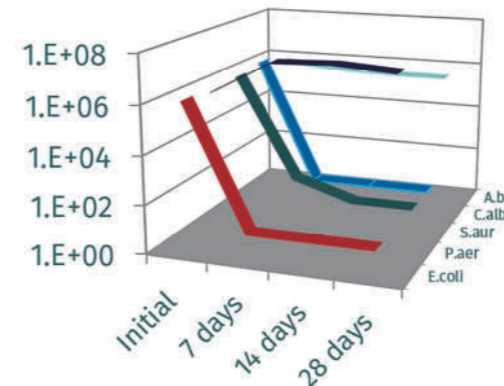
Candida albicans ATCC 10231  
Zygosaccharomyces rouxii IFO 1876  
Aspergillus brasiliensis ATCC 16404

## THE STORY BEHIND

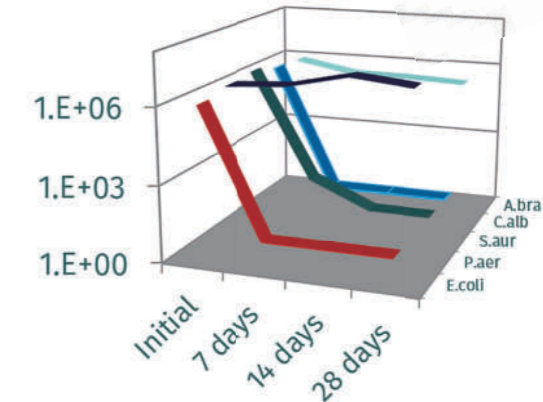
GE-RF & GE-108 were developed based on glycol technology in our laboratory in Japan. ADEKA has designed the structure on customer request, who has promoted ADEKA products under their brand name with discipline & excellence. ADEKA is a pioneer in development of preservative boosters. ADEKA's R&D is the heart of a dedicated, forward-thinking and passionate team who faces any challenges. ADEKA shares their passion of combined expertise and experience in this field in offering solutions for preservation of cosmetics raw materials. ADEKA has a deep expertise on the preservation market.

## CHALLENGE TEST IN LOTION

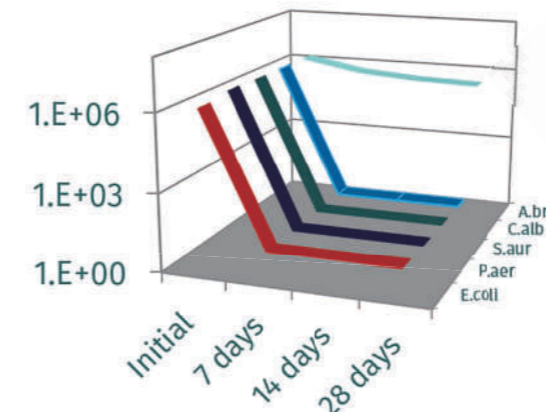
GE-RF (0.4%)



BG 5 % + GE-RF (0.4%)



BG 10 % + GE-RF (0.4%)



### Results:

The combination of 0.4% GE-RF and 10% BG has synergistic effects against A.bra. and P.aer..



## ADEKA NOL OG

INCI: CAPRYLYL GLYCOL

- ✓ Globally approved
- ✓ Multifunctional
- ✓ Shelf-life: 1 year
- ✓ Packaging can/drum/container
- ✓ Recommended dosage: 0.1% - 0,6%

### BEYOND PRESERVATIVE BOOSTERS

Caprylyl Glycol is a multifunctional additive with viscosity regulating, excellent wetting properties and a broad efficacy against microorganisms. Excellent efficacy and no pH restrictions is used in skin care and make-up cosmetics such as moisturizers, sunscreens, cleanser, lip-gloss and foundation. The antimicrobial activity of caprylyl Glycol can be used as a secondary benefit to complement and support the preservation of customer's cosmetic formulations. The combination of wetting agents with organic acids allows working even at higher pH (6 – 6,5). Caprylyl glycol's flexible nature allows it to be incorporated into a variety of formats while serving consumer needs.



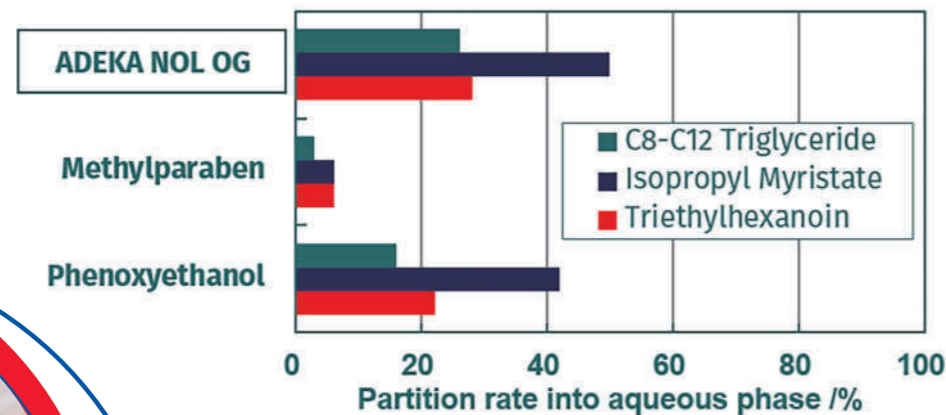
### BENEFITS

- ✓ Multifunctional additive
- ✓ Function as a stabilizer
- ✓ Effective as humectant and emollient
- ✓ Antimicrobial efficacy
- ✓ Excellent wetting properties
- ✓ Broad efficacy against germs.
- ✓ Boosts traditional preservatives
- ✓ Provides deodorizing efficacy

### FEATURES

- ✓ Wetting, hydrating & Co-emulsifying,
- ✓ Emulsion efficacy improvement
- ✓ Boosted and faster activity against all germs
- ✓ Co-solubilizing
- ✓ Enhances dispersibility of pigments
- ✓ Viscosity regulating
- ✓ Colorless liquid with mild odor

### ANTIMICROBIAL ACTIVITY

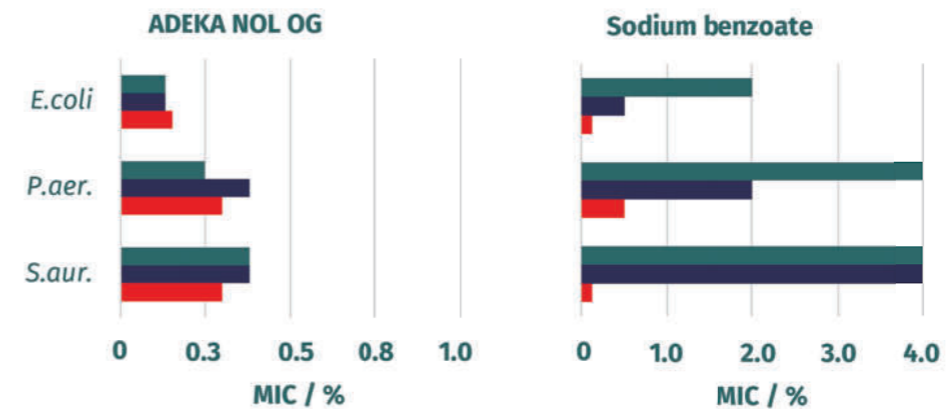


**Test method:**  
 1. Mixed each oil and water 1:1, add the test ingredients to it and shake.  
 2. Placed each test solution overnight. After that, sampled from the water and oil layer respectively and analyzed by gas chromatography  
**Results:**  
 ADEKA NOL OG is not affected by oils compared to Methylparaben and Phenoxyethanol.

### THE STORY BEHIND

ADEKA is the undisputed market leader in the glycol industry, we are the pioneer in the market of preservative boosters and ADEKA caprylyl glycol has been marketed worldwide in the last 20 years. Today, we deliver caprylyl glycol direct or via our distribution channel. ADEKA Japan has a committed team with over 25 years of experience in the preservation market, we meet the regulations and we are in line with ever changing market needs. Our dedicated microbiological team offers services such as challenge tests to customers to enable formulators to implement the most adequate preservation for your formulations, we compare the activity of different preservatives and find the most appropriate level of use for your formula.

### EFFECT OF PH



ADEKA NOL OG is pH independent.

**Test condition:**  
 Broth dilution method was used.  
 1. Adjusted Mueller-Hinton Broth to each pH.  
 2. Test microorganisms are inoculated into the sample solutions. Concentration of inoculation is approximately 10<sup>6</sup> cfu/mL.  
 3. After cultivation, the minimum concentration inhibited microorganism growth is judged as MIC when the sample solution turns cloudy.

### ANTIMICROBIAL ACTIVITY

Minimal Inhibitory Concentration for microorganism

	ADEKA NOL OG	METHYLPARABEN	PHENOXYETHANOL
<i>E.coli</i>	0.1%	0.2%	0.5%
<i>P.aeruginosa</i>	0.4%	0.3%	0.5%
<i>S.aureus</i>	0.4%	0.4%	1.0%
<i>C.albicans</i>	0.3%	0.1%	0.5%
<i>A.brasiliensis</i>	<0.1%	0.1%	0.3%

**Test Condition:**  
 Comparison with preservatives at pH=7

## ADEKA NOL NHG eco

INCI: HEXYLGLYCERIN

- ✓ REACH
- ✓ Recommended dosage: 0.6% - 1%
- ✓ Shelf-life: 1 year
- ✓ 100% natural origin
- ✓ Vegan

### BEYOND PRESERVATIVE BOOSTERS

ADEKA NOL NHG eco\* is a naturally derived preservative booster, which can be added to personal care products at low concentration to fight a broad range of bacteria, yeast & mold. The preservative booster has the same performances as our synthetic product, ADEKA NOL NHG, in terms of moisturizing effect, high water solubility, tolerance to chemical constituents of other cosmetic ingredients and has a higher synergistic effect. In addition NHG eco has minimum skin irritation properties.



\*Trial product

### BENEFITS

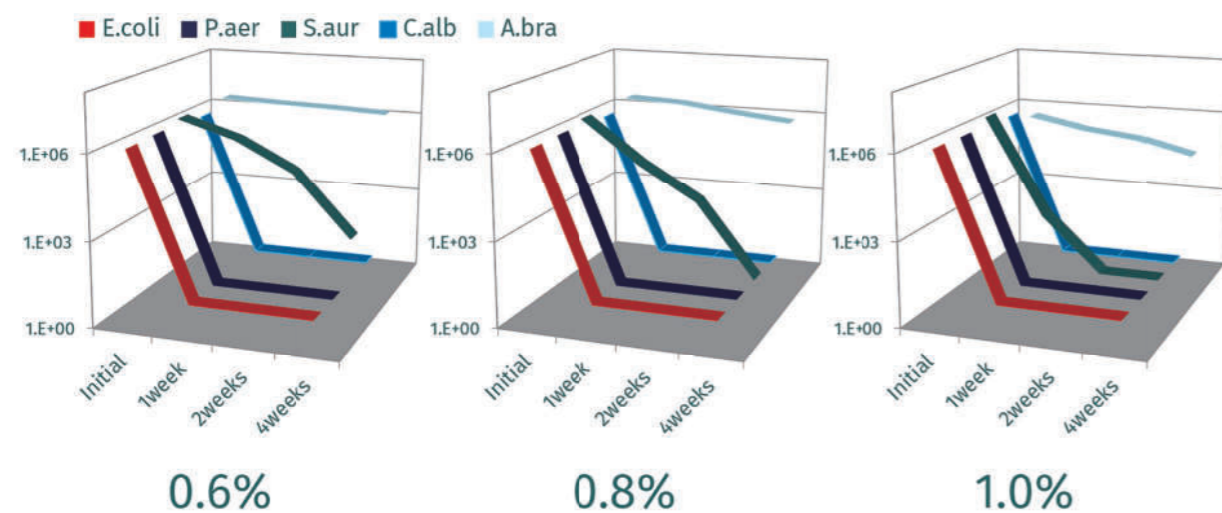
- ✓ Preservation booster
- ✓ Low irritation
- ✓ High water solubility
- ✓ Low absorption into fabrics
- ✓ High performance
- ✓ Registered as humectant
- ✓ Best for Skin Care, Face Masks & Hair Care products
- ✓ Eco-friendly
- ✓ Adequate effect against microorganisms
- ✓ Water solubility at 1%

### FEATURES

- ✓ Microbial challenge testing
- ✓ Claims testing
- ✓ Preservative-free system
- ✓ Safe & Green

### PRESERVATION PERFORMANCE OF NHG eco

Preservation effect above 0.6% in the lotion formulation.



### THE STORY BEHIND

During the last years, the cosmetic industrie has been continuously looking for new compounds that can perform preservative function effectively and safely, since the European Commission banned the use of certain parabens in 2014. In fact, some cosmetic ingredients can play more than one role in a cosmetic formulation, leading to cosmetic products, that are free of preservatives or self-preservative. ADEKA has developed a natural derived version of our synthetic product ADEKA NOL NHG with identical benefits. This product is the bridge between synthetic & natural, filling the gap of customers' expectations to have a green product and achieve the need of the formulator in the laboratory for efficacy, stability performance and global acceptance.

### MIC (%) DATA OF NATURAL BASED INGREDIENTS

	MINIMUM INHIBITORY CONCENTRATION (MIC %)				
	<i>E.coli</i>	<i>Paer.</i>	<i>S.aur.</i>	<i>C.alb.</i>	<i>A.bra.</i>
ADEKA NOL NHG eco	0.38 %	1.00 %	0.75 %	0.38 %	0.19 %
Benzyl Alcohol	0.25 %	0.19 %	0.38 %	0.38 %	0.19 %
Caprylhydroxamic Acid	0.05 %	0.13 %	0.19 %	0.01 %	0.19 %
Phenylpropanol	0.38 %	0.5 %	0.5 %	0.38 %	0.19 %
Pentylene Glycol	3.00 %	2.00 %	4.00 %	4.00 %	3.00 %
Propanediol	10.00 %	5.00 %	15.00 %	5.00 %	>20.00 %
Butylene glycol	12.00 %	8.00 %	16.00 %	12.00 %	12.00 %

**Test condition:**  
Mueller-Hinton Broth is used as dilution solvent for test sample solution. The sample solutions are prepared in a series of doubling dilution on microplate. Test microorganisms are inoculated into the sample solution. After cultivation, the minimum concentration inhibited microorganism growth is judged as MIC when the sample solution turns cloudy.

## ADEKA NOL CGE eco

- ✓ ISO 16128:  
Natural origin index 1.0
- ✓ Purity: > 99%
- ✓ Water solubility: 0.25%
- ✓ Shelf-life: 1 year
- ✓ Recommended dosage:  
0.1% - 0.5%

INCI: CAPRYLYL GLYCERYL ETHER

### BEYOND PRESERVATIVE BOOSTERS

ADEKA NOL CGE eco\* is a naturally derived preservation booster with antifungal activity. ADEKA NOL CGE eco has been developed to be used in conjunction with one of our broad-spectrum antimicrobials, ADEKA NOL CHG, NHG or ADEKA NOL NHG eco.



\*Trial product

### ANTIMICROBIAL ACTIVITY: MIC (%)

		ADEKA NOL CGE eco	METHYL PARABEN	PHENOXY ETHANOL	CAPRYLYL GLYCOL	ETHYLHEXYL GLYCERIN
Bacteria	<i>E.coli</i>	0.19	0.19	0.50	0.13	0.25
	<i>P. aeruginosa</i>	0.50<	0.25	0.50	0.38	1.00<
	<i>S. aureus</i>	0.09	0.38	1.00	0.38	0.19
Fungi	<i>C. albicans</i>	0.03	0.13	0.50	0.25	0.19
	<i>A. brasiliensis</i>	0.03	0.06	0.25	<0.09	<0.09
Water solubility		0.25%	0.25%	2.70%	0.30%	0.20%

### BENEFITS

- ✓ Can be used as preservative-free system
- ✓ Reduction effect of total addition amount in formulation
- ✓ Provides unique textures & sensorial properties
- ✓ Can make natural cosmetics
- ✓ Registered as humectant
- ✓ Eco-friendly

### FEATURES

- ✓ Best for Skin Care, Face Masks, Hair Care & Sunscreen
- ✓ Anti-fungal activity
- ✓ Synergistic effects with conventional glycols
- ✓ Free from animal testing
- ✓ Mild odor
- ✓ Does not contain nanoparticles

### THE STORY BEHIND

Lately, the cosmetic and personal care market has been more & more driven towards natural ingredients by the rising consumers' awareness of personal health & safety and their demand for safer cosmetics free of harmful chemicals. ADEKA is constantly scouting for new, safer ingredients & innovative products. With this new development, ADEKA focuses on customers who develop natural formulations. ADEKA is specialized in developing new products and expanding their knowledge of natural preservative boosters. Our aim is to assist cosmetic chemists & formulators in choosing the optimal and best product solution for a wide range of applications including Skin Care, Hair Care, Clay Mask and Sunscreen.



### SYNERGISTIC EFFECTS WITH CONVENTIONAL MATERIALS

	MIC (%)				
	CAPRYLYL GLYCOL	CGE eco : CAPRYLYL GLYCOL (1 : 1)	CGE eco	CGE eco : PHENOXYETHANOL (1 : 9)	PHENOXY ETHANOL
<i>E.coli</i>	0.13	0.19	0.19	0.38	0.50
<i>P. aeruginosa</i>	0.38	1.00	0.50<	0.50	0.50
<i>S. aureus</i>	0.38	0.13	0.09	0.38	1.00
<i>C. albicans</i>	0.25	<0.09	0.03	0.19	0.50
<i>A. brasiliensis</i>	<0.09	<0.09	0.03	<0.09	0.25

**Test condition:**  
Mueller-Hinton Broth is used as dilution solvent for test sample solution. The sample solutions are prepared in a series of doubling dilution on microplate. Test microorganisms are inoculated into the sample solutions. After cultivation, the minimum concentration inhibited microorganism growth is judged as MIC when the sample solution turns cloudy.

# 4. Moisturizer

- ✓ REACH & IECIC (China)
- ✓ Packaging: 18 kg can
- ✓ Shelf-life: 9 months
- ✓ Recommended dosage: 1.0% - 10%

## ADEKA NOL TPE-2424

INCI: PPG-24-GLYCERETH-24

### BEYOND MOISTURIZERS

ADEKA NOL TPE-2424 is a water-soluble emollient agent which makes clear formulations and has a good compatibility with the skin. Compared to polyols and oils, ADEKA NOL TPE-2424 leads to a smooth application with less friction and has a moisturizing effect on the skin.



### BENEFITS

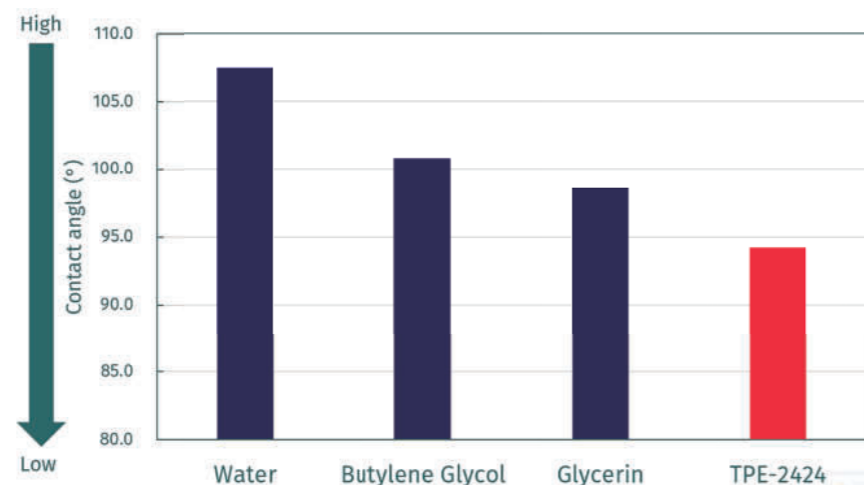
- ✓ Soothes the skin
- ✓ Prevents dryness
- ✓ Protects the skin
- ✓ Moisturizes
- ✓ No tacky feeling
- ✓ Excellent performance

### FEATURES

- ✓ Water-soluble emollient agent
- ✓ Clear formulation
- ✓ Good compatibility on the skin
- ✓ High friction-reduction

### COMPATIBILITY WITH SKIN

Evaluated contact angle by using artificial skin & contact angle meter.



**Test condition:**  
5 wt-% TPE-2424, 95 wt-% aqua

**Results:**  
Compared to conventional polyols, TPE-2424 has good compatibility with skin and good feeling of penetration.

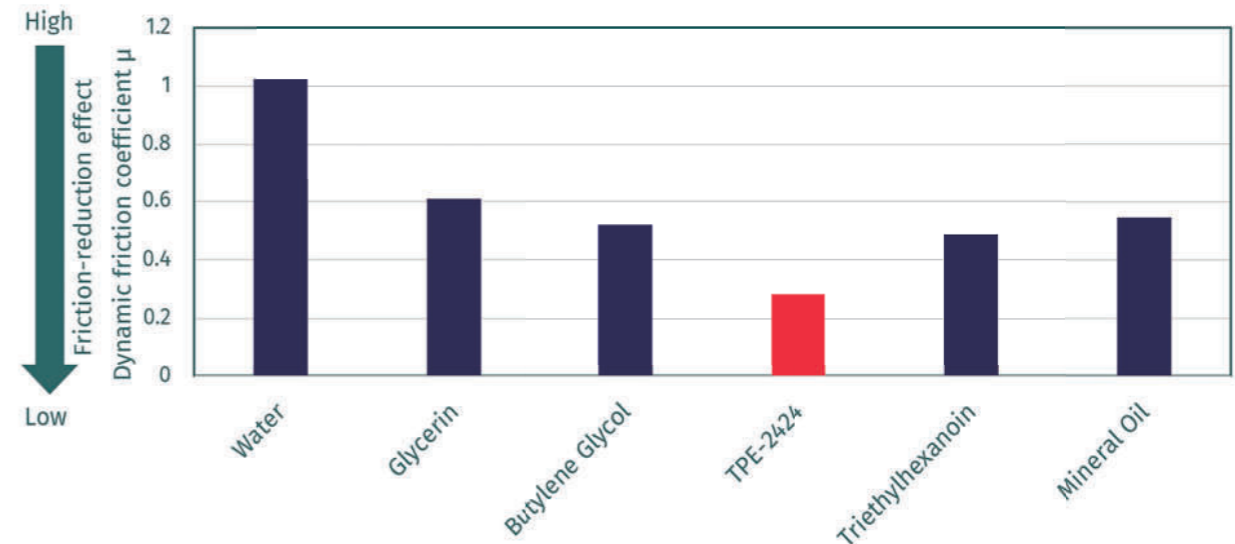


### THE STORY BEHIND

Over the last several years, there has been an increase in the number of people with dry skin due to changes of the environment. ADEKA has developed ADEKA NOL TPE-2424 with new functions to satisfy the consumers' needs & ensure worry-free application. The challenge of ADEKA R&D is to develop the most suitable raw materials with refined functions. Our dedicated development team is focused on establishing high performance and developing new technologies to support the formulators and customers with better results and specifications.

### FRICTION-REDUCTION EFFECT

Evaluated dynamic friction coefficient by using artificial skin & friction tester.



**Test condition:**  
50 wt-% aqua: Glycerin, Butylene Glycol, TPE-2424  
100 wt-% (with no water): Triethylhexanoin, Mineral Oil

**Results:**  
Compared to conventional polyols and oils, TPE-2424 makes applications smooth with less friction. It feels slippery and/or thick.



# 5. Natural & Functional Ingredients

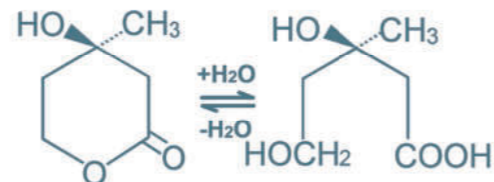
- ✓ Packaging: 100g/1kg bottle
- ✓ Liquid
- ✓ Shelf-Life: 1 year (1 ~ 10°C)
- ✓ Recommended dosage: 0.05%

## ADEKA MEVALONOLACTONE

INCI: MEVALONOLACTONE

### BEYOND ANTI-AGING

ADEKA Mevalonolactone (MVA) is a dehydrated substance of mevalonic acid which turns into mevalonic acid in water. Mevalonic acid is an important substance widely distributed in nature.



Within living organisms it is converted to various substances called steroids & isoprenoids such as vitamin K, CoQ10 (ubiquinone), cholesterol, squalene. It is indispensable for life activities. ADEKA has found a yeast strain which highly produces Mevalonolactone and has succeeded in producing natural Mevalonolactone in 1999. ADEKA Mevalonolactone is a functional ingredient produced by fermentation which increases lipid (free fatty acid) of cultured cells & reduces moisture transpiration from epidermis. It gives freshness to the skin, reduces wrinkles & boosts the rejuvenating process.

### BENEFITS

- ✓ Gives freshness to the skin
- ✓ Production of important factor of intercellular lipid
- ✓ Maintains the barrier function of the skin
- ✓ Helps to prevent skin dehydration
- ✓ Reduces wrinkles
- ✓ Anti-aging effect



### FEATURES

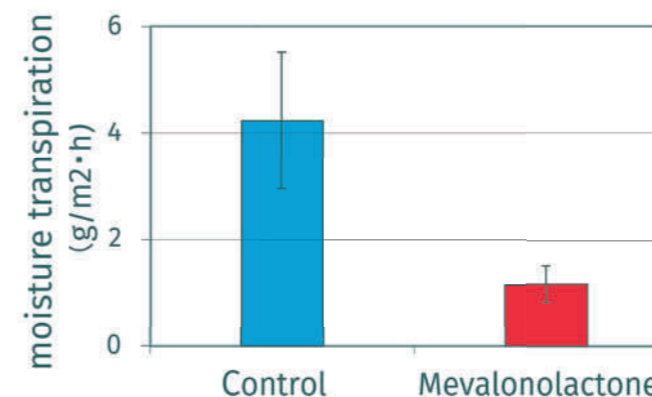
- ✓ Discovered in the production process of Japanese sake
- ✓ Exists widely throughout nature
- ✓ Humectant that works at dermis & epidermis
- ✓ Excellent skin conditioner and humectant
- ✓ Highly Water/Alcohol Soluble
- ✓ ADEKA 'original'
- ✓ Natural type (100% R-Type) by fermentation



### THE STORY BEHIND

Over the past years, the awareness of cosmetic customers for natural products has constantly been on the rise. At the same time, anti-aging products enjoy an increase in popularity. Following ADEKA's pursuit of always meeting & satisfying its customers' demands, the life science team has put great effort into meeting the demand for both natural & rejuvenating products. With ADEKA Mevalonolactone, the team has succeeded in developing a high quality natural functional ingredient, paving the way for more natural and sustainable cosmetic formulations.

### MOISTURE TRANSPARATION

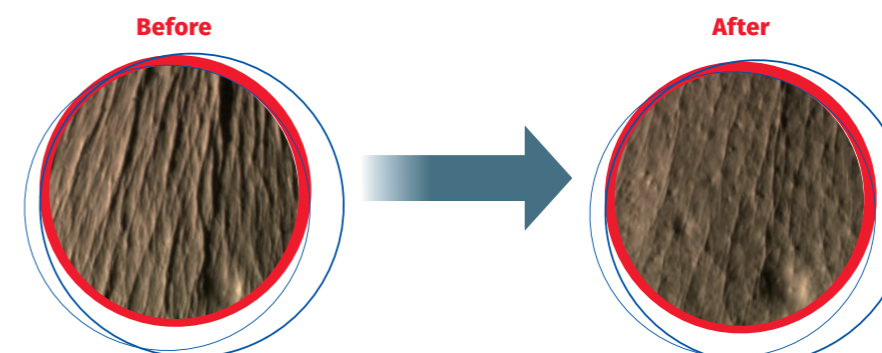


**Test condition:** Mevalonolactone is added to the 3-Dimensional Cultured Tissue Model, and incubated for 5 days. Quantity of moisture transpiration from epidermal cell is measured by TEWL meter.  
**Results:** Mevalonolactone reduces moisture transpiration from epidermis.



### ANTI-WRINKLE EFFECT

**Subject:** 24 healthy people, 20 to 60 years old (dry skin or atopic dermatitis patients are excluded)  
**Samples:** (A) 0.05% Mevalonolactone + 0.1% β-Glucan containing cream / (B) Placebo cream  
**Application:** Applied to half of subjects' face twice a day. Use of other cosmetics are prohibited.  
**Analysis:** Depth of wrinkle were measured by Skin Visiometer (Skin-Visiometer SV 600, Germany)  
**Test Period:** 8 weeks



- ✓ Packaging: 1 kg bottle
- ✓ Shelf-Life: 2 years
- ✓ Liquid type (Ferment)
- ✓ Recommended dosage: 1% LQ-S

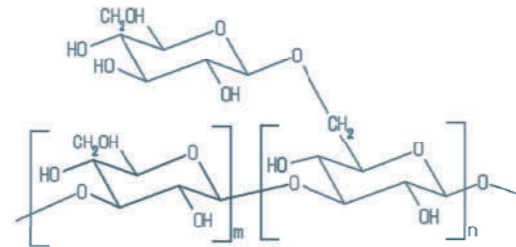
## ADEKA BETA-GLUCAN LQ-S

INCI:AUREOBASIDIUM PULLULANS FERMENT, PHENOXYETHANOL, ETHYLHEXYGLYCERIN

### BEYOND ANTI-AGING

ADEKA Beta-Glucan LQ-S is a natural, active ingredient derived from dried persimmon (Japanese traditional food). It is suitable for a variety of cosmetic products that support beauty & health. ADEKA Beta-Glucan LQ-S can improve the regeneration of skin cells and the recovery of the natural moisturizing factor production.

It is therefore optimal for anti-aging and rejuvenating skin care products. In addition, ADEKA Beta-Glucan LQ-S is an immune system booster, taking effect at the important basic level for the best and most basic skin protection in a completely natural way.



### BENEFITS

- ✓ Good water-binding capacity
- ✓ Good moisturizing effects
- ✓ Sun damage protection
- ✓ Improves health of scalp
- ✓ Reduces wrinkles
- ✓ Good for skin conditioning
- ✓ Emulsion stabilizing effect

### FEATURES

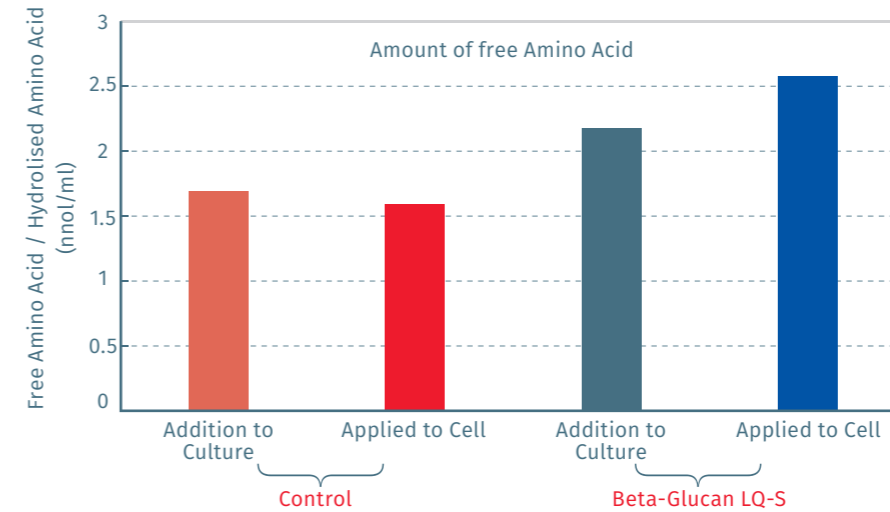
- ✓ Made from food grade ingredients
- ✓ Water-soluble
- ✓ Odorless & Colorless
- ✓ Gives good texture
- ✓ High stability
- ✓ Can be used as a humectant



### THE STORY BEHIND

In recent times, anti-aging and rejuvenating products have become more & more popular. As ADEKA's R&D expert team is always thinking forward to be ahead of trends, they have developed ADEKA Beta-Glucan LQ-S, a natural active ingredient, derived from Japanese dried persimmon. ADEKA Beta-Glucan LQ-S perfectly covers the consumers' interest in rejuvenating products, while it simultaneously satisfies their demand for naturality.

### PRODUCTION OF FREE AMINO ACIDS, NATURAL MOISTURIZING FACTOR



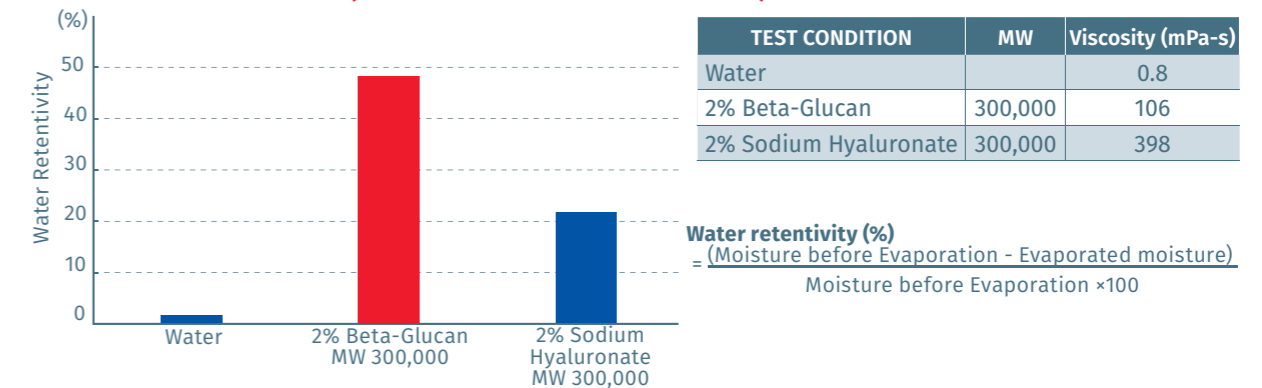
#### Test condition:

Beta-1.3-1.6-Glucan is added to culture or applied to cell of 3-Dimensional Cultured Tissue Model and incubated. Amino Acids from epidermal cell are extracted and measured under fluorescence.

#### Results:

Addition of Beta-1.3-1.6-Glucan to cultured human Keratinocytes promotes production of free Amino Acids

### WATER RETENTIVITY (2 HOURS RETENTION TIME)



#### Test condition:

Sample solution was poured onto filter paper & kept under constant temperature and humidity. Water retention after 2 hrs. evaporation (1 atm, 22°C, 50% humidity) was measured.

#### Results:

Water retentivity of 2% Beta-Glucan solution is twice as high in comparison to Sodium Hyaluronate. On the other hand, viscosity is 1/4.

- ✓ 100 % natural & non GMO
- ✓ COSMOS approved
- ✓ Recommended dosage 1-4%

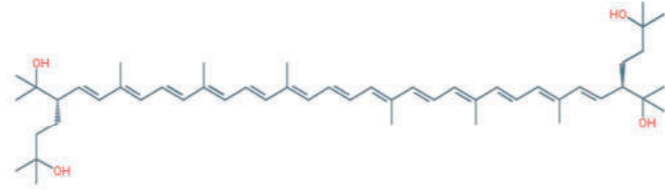
## 6. Biotechnology Process – Fermentation

### HALORUBIN

INCI: GLYCERIN, XANTHOPHYLLS

#### BEYOND ANTIOXIDANTS

**HALORUBIN** is made of the C50 carotenoid Bacterioruberin, which represent one of the most versatile antioxidants found in nature. This antioxidant is mainly produced by Haloarchaea to protect them against strong light, DNA damage resulting from radiography, UV irradiation and exposure to reactive oxygen species (ROS). The degree of these activities depends on the chemical structure, such as conjugated double bonds, terminal groups and carbon chain length. HALORUBIN exhibit 13 conjugated double bonds and 4 terminal hydroxyl groups along a 50 carbon chain. This structure makes HALORUBIN an superior antioxidant over other commercial antioxidants, such as Tocopherol or  $\beta$ -Carotene. Moreover, HALORUBIN increases membrane rigidity through acting as a “rivet” in cell membranes because of its 4 hydroxyl substitutes in the structure. It also decreases water permeability by acting as a barrier to prevent water loss of cells. HALORUBIN is manufactured by an sustainable process via biofermentation using a specific strain of Haloarchaea, called Halobacterium salinarum.



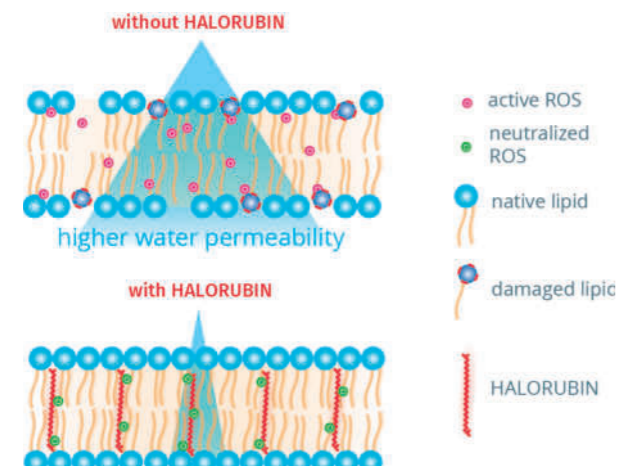
#### BENEFITS

- ✓ DNA protective
- ✓ Support against photoaging
- ✓ Fights free radicals
- ✓ Absorption of blue light

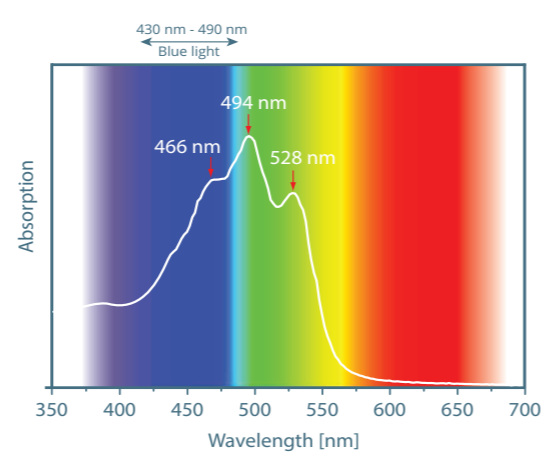
#### FEATURES

- ✓ Multifunctional antioxidant
- ✓ Vegan suitable & eco-friendly
- ✓ Sustainable production through biofermentation

#### HALORUBIN - A VERSATILE ANTIOXIDANT PROTECTION AGAINST BLUE LIGHT

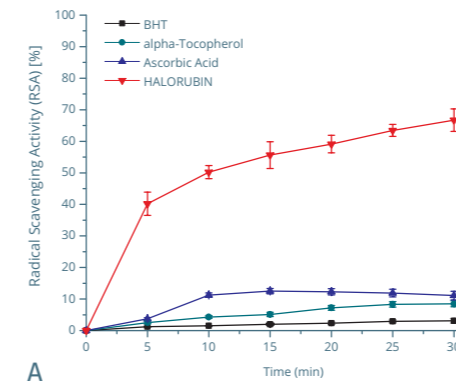


HALORUBIN incorporate perfectly into lipid bilayers of cells and reinforce the biomembrane It act as a barrier against water loss and allows permeability to oxygen and other molecules. Moreover, HALORUBIN actively protect biomembranes against harmful environmental stress factors, such as UV light, heat and reactive oxygen species (ROS).

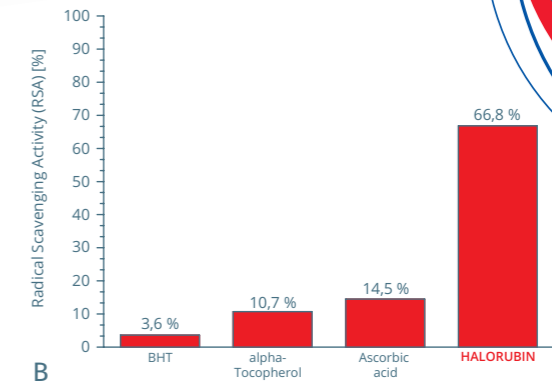


HALORUBIN absorbs light in the range of 430 nm to 490 nm thus providing an effective protection against the toxic effect of blue light on skin, one major cause of photoaging through generation of blue light-induced free radicals.

#### RADICAL SCAVENGING ACTIVITY



**A** Radical scavenging activity of HALORUBIN and other commercial relevant antioxidants (1  $\mu$ g/ml) towards the DPPH radical over 30 min.

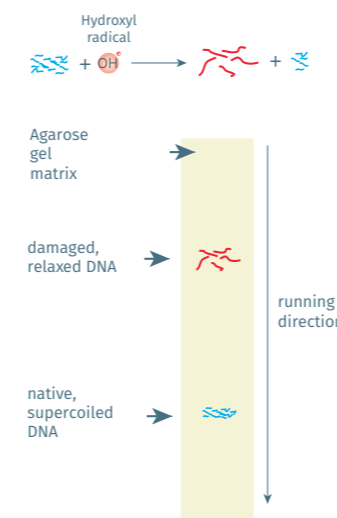


**B** Radical scavenging activity after 30 min of HALORUBIN and other commercial relevant antioxidants.

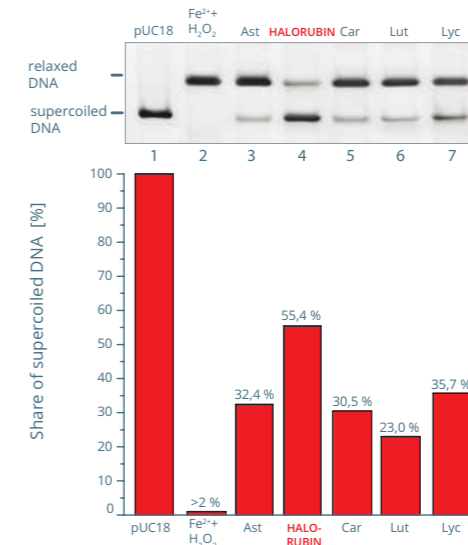
#### RESULTS

The antioxidant power of HALORUBIN was measured by widely used DPPH assay to test free radical scavenging activity (RSA) of potential antioxidants. At a concentration of 1.0  $\mu$ g/ml HALORUBIN reached a RSA by 66.8 %. HALORUBIN is able to clear more than 65 % of free radicals within a given time (30 min, Picture A). Thus, HALORUBIN is much more active in scavenging free radicals than BHT (3,6 %), alpha-Tocopherol (10,7 %) or Ascorbic acid (14,5 %) under the same experimental conditions (Picture B).

#### DNA PROTECTION



Native, supercoiled DNA runs migrate faster through a agarose gel matrix compared to damaged, relaxed DNA and can be therefore clearly separated.



Agarose gel electrophoresis of DNA after treatment with Fenton-reaction in presence with HALORUBIN and other carotenoids. Band intensities were normalized to the untreated control (column 1).

#### RESULTS

In the presence of hydroxyl radicals ( $\text{OH}\cdot$  radicals), DNA is damaged, often leading to mutations or degradation (relaxed form). Antioxidants can protect DNA from damage by scavenging  $\text{OH}\cdot$  radicals. The extent of DNA damage is represented by the percentage of supercoiled state in DNA bands. The antioxidant effects of tested samples were demonstrated by normalizing the tested samples to the band signal of DNA in native state (column 1). Without any antioxidant, DNA is totally broken into the relaxed form by  $\text{OH}\cdot$  radicals generated by the Fenton reaction (column 2). HALORUBIN could save up to 55,4 % of the DNA in the native state against damage induced by  $\text{OH}\cdot$  radicals (column 4). Thus HALORUBIN shows the most effective protection against  $\text{OH}\cdot$  radicals compared to Astaxanthin (Ast),  $\beta$ -Carotene, Lycopene (Lyc) and Lutein (Lut).

- ✓ 100% natural & Non-GMO
- ✓ COSMOS approved
- ✓ Recommended dosage 1-4%
- ✓ Biodegradable & vegan
- ✓ Sustainable

## HALOCARE

INCI: GLYCERIN, GLYCOSAMINOGLYCANS

### BEYOND PRO-AGING

HALOCARE is a sustainable multifunctional ingredient that is bioengineered using natural bioprocess. HALOCARE is a Pro-aging cosmetic ingredient that moisturizes, replenishing the skin, providing an optimal environment for epidermal proteins to form and maintain a strong barrier, thus restoring a smooth and radiant appearance. A line of high ecological cosmetics made with extract from Haloarchaea combines biotechnology and nature to revitalize and illuminate the skin. Biotechnology of Extremophiles provides a sustainable alternative to produce high-quality extracts or unique compounds. HALOCARE is a new biotechnological extract from Haloarchaea comprising a defined composition of sulfated Glycosaminoglycans (sGAG), very similar to the functional GAGs found in human skin.

### BENEFITS

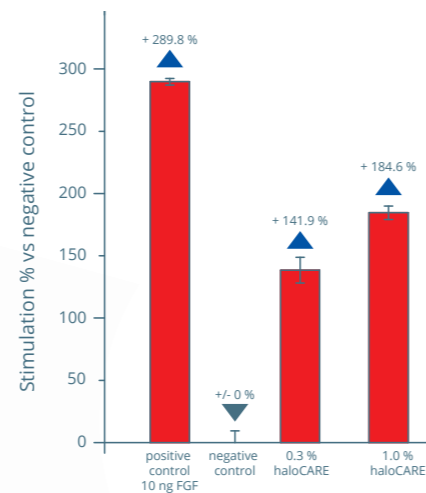
- ✓ Regenerates & protects degradation of Elastin
- ✓ Premium conditioning
- ✓ Deeply hydrates
- ✓ Firms & nourishes
- ✓ Re-energises & protects the skin

### FEATURES

- ✓ Sustainable manufacturing
- ✓ Natural bioactive
- ✓ 100% natural
- ✓ Non-GMO
- ✓ COSMOS, vegan & China
- ✓ Clean beauty

### REGENERATIVE EFFECT ON HUMAN SKIN CELLS (IN VITRO)

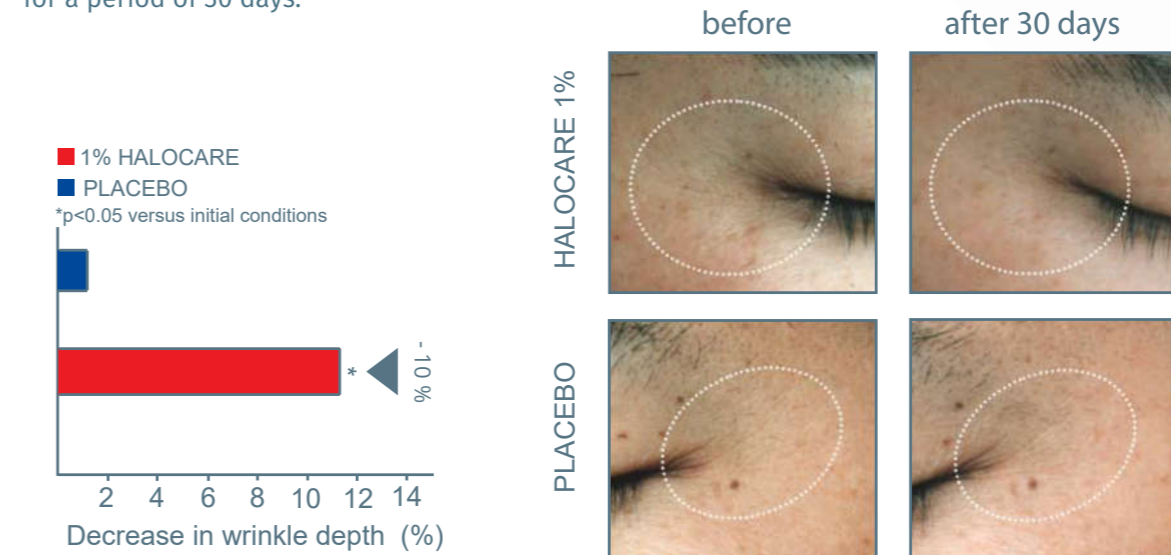
Result: HALOCARE shows a concentration dependent proliferating stimulation on human fibroblasts monolayer in relation to the negative control by 141.9% using 0.3% and 184.6% using 1% HALOCARE. The positive control with 10 ng Fibroblast Growth factor (FGF) validates the model.



Method: The proliferation is assessed by the measurement of BrdU (Bromodeoxyuridine) incorporated in the cells DNA during its replication

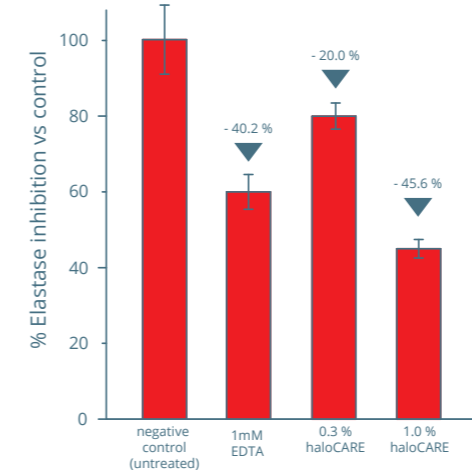
### IMPROVEMENT OF WRINKLE DEPTH (IN VIVO)

Test: Twenty Caucasian women aged between 39 and 65 years tested a cream with 1% HALOCARE at the corners of the eyes and the corresponding placebo on the other half of eye corner area twice daily for a period of 30 days.



### PROTECTION AGAINST UVB-MEDIATED DAMAGE

Result: HALOCARE at tested concentration effectively inhibits metalloproteinases, like Elastase, resulting in decreased activity. Released Elastase triggered through UV and sun light exposure are inhibited in enzymatic activity (up to 45.6% vs control) to prevent degradation of connective tissue proteins elastin and collagen.



Test: Human skin fibroblasts were cultivated in presence of 0.3% or 1% HALOCARE. Cells were irradiated using a UVB medical lamp (Philips) as the source at a constant exposure regimen of 65 mJ/ cm<sup>2</sup> for 3 h/ day over 4 days. Afterwards, UVB-mediated Elastase activity were measured in cell lysates. EDTA serves as positive control.





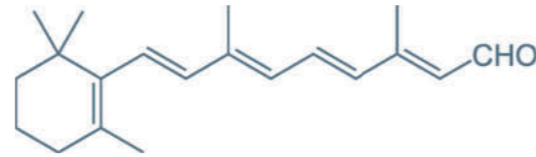
- ✓ 100% natural & non GMO
- ✓ COSMOS approved
- ✓ Recommended dosage 1-4%
- ✓ Biodegradable
- ✓ Sustainable

## RETINATUREL

INCI: GLYCERIN, RETINAL

### BEYOND ANTIOXIDANTS

RETINATUREL contains natural retinal, produced in the Halophilic microorganism Halobacterium salinarum. Retinal is a retinoic acid precursor, which is formed as an intermediate metabolite in the transformation of retinol to retinoic acid in human keratinocytes. In the skin retinal is metabolized to retinoic acid (which is a well known anti-aging agent) as well as to retinol and retinylesters (which generally get depleted during photoaging), indicating its use in the treatment of photoaging. It is a bioactive key intermediate in the metabolism of vitamin A. Retinaturel is 100% natural and manufactured by bio-fermentation.



### BENEFITS

- ✓ Support treatment acne and rosacea
- ✓ Reduce wrinkles and fine lines
- ✓ Improve elasticity and hydration of skin
- ✓ Alleviate skin roughness
- ✓ Better tolerance profile compared to other retinoids

### FEATURES

- ✓ Biotechnology production
- ✓ Eco-friendly
- ✓ Sustainable process
- ✓ Suitable for vegans
- ✓ Manufactured in Germany

### SKIN AGING-PHYSICAL PROPERTIES

#### BACKGROUND

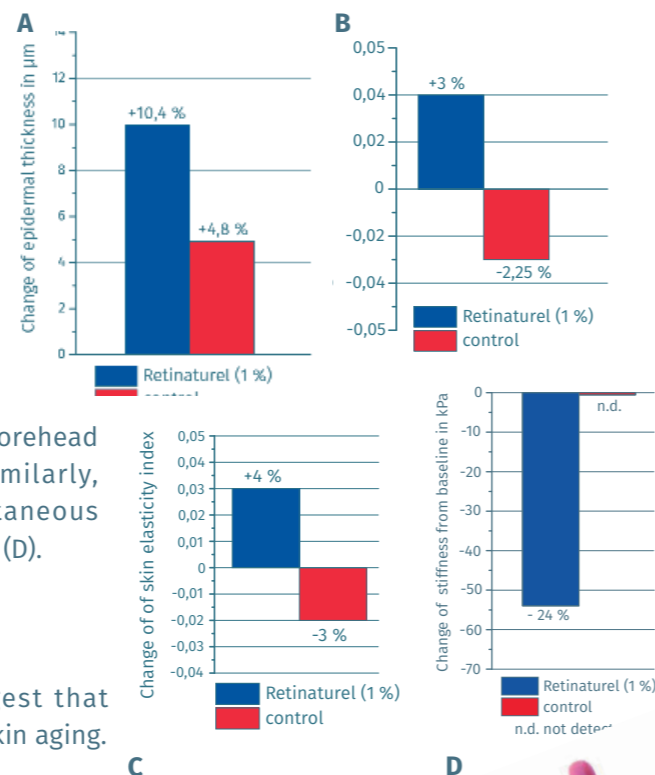
The natural precursor of retinoic acid, i.e. retinal, has been proven to exert retinoid activities

#### RESULTS

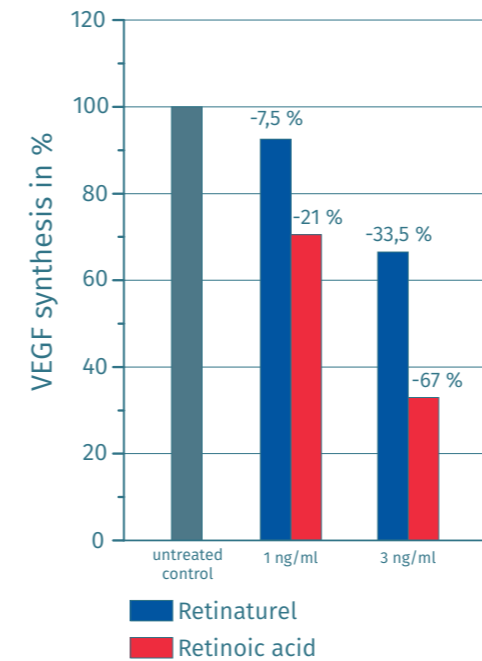
RETINATUREL treatment induced a significant increase in epidermal thickness (A) of the forehead area, as well as dermal thickness (B). Similarly, retinal treatment tended to increase cutaneous elasticity (C) and reduce cutaneous stiffness (D).

#### CONCLUSION

Taken together, the results further suggest that RETINATUREL has counteracting effects on skin aging.



### TREATMENT OF ROSACEA (IN VITRO)



#### BACKGROUND

Vascular endothelial growth factor (VEGF), a potent angiogenic factor and vasodilator, is strongly expressed by epidermal keratinocytes in many angiogenesis-dependent skin disorders. Retinoids may modulate VEGF in skin and this may be related to an effect on rosacea

#### RESULTS

The amount of VEGF strongly decreased with retinoid concentration (e.g. 33,5%, 67% inhibition at 3ng/ml Retinaturel and retinoic acid, respectively).

#### CONCLUSION

The decrease in VEGF expression by keratinocytes on contact with retinoids may prevent skin neoangiogenesis in certain skin diseases like rosacea.

- ✓ 100% natural & non GMO
- ✓ COSMOS approved
- ✓ Recommended dosage 1-4%

## RETINAL O<sup>5</sup>

INCI: GLYCERIN, RETINAL, XANTHOPHYLLS

RETINAL O<sup>5</sup> combines the safe protective activity of Halorubin with anti-aging benefits of Retinaturel. The unique combination protects against blue light and provide anti photo ageing activity. It is a strong booster of cell protection while it also boosts the hydration of the skin.

### BENEFITS

- ✓ Safe protective activity
- ✓ Anti-aging benefits
- ✓ Boost hydration of skin
- ✓ Cell protective booster
- ✓ Protects against blue light
- ✓ Provide anti photo ageing activity

### FEATURES

- ✓ Biotechnology production
- ✓ 100% Natural, Eco-friendly & non-GMO
- ✓ Sustainable process
- ✓ Suitable for vegans
- ✓ Manufactured in Germany

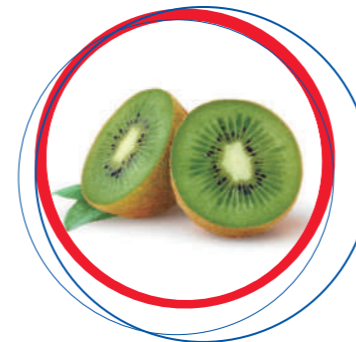
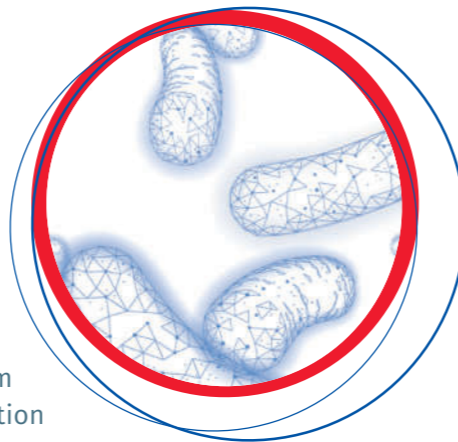


- ✓ Cosmos certified
- ✓ Packaging: 20 kg can
- ✓ Customization available

## MAJIME BIO

### BEYOND PREBIOTICS & MICROBIOME

Majime Bio is a natural ingredient produced by fermentation by lactic acid bacteria (LAB). Traditionally fermented substances, such as our Fruit Ferments, are prebiotic and therefore extremely beneficial to the skin microbiome. The fermentation process give rise to bioactive compounds, amino acids & organic acid, which work synergistically with one another to help the skin become healthier overall. The improvement of the functional properties of our new Majime Bio extracts by LAB fermentation results from several mechanisms: elimination of antinutritional factors, production of skin-effective metabolites (Alpha Hydroxy Acids, AHA), improvement of absorption of bioactive compounds and increase of available micronutrients (vitamins, mineral phenolic compounds) leads to an increase in the antioxidant capacity of the ingredients. In addition, ADEKA can produce your customized Majime Bio with a fruit type of your choice.



**MAJIME BIO - KIWI**  
 INCI: ACTINIDIA CHINENSIS (KIWI) FRUIT WATER,  
 LACTOBACILLUS FERMENT

- BENEFITS**
- ✓ Antioxidant
  - ✓ Vitamin C + E and Polyphenols

**MAJIME BIO - COCOS**  
 INCI: COCOS NUCIFERA (COCONUT) FRUIT JUICE  
 LACTOBACILLUS FERMENT

- BENEFITS**
- ✓ Antioxidant
  - ✓ Antimicrobial
  - ✓ Moisturizing



**MAJIME BIO - GREEN TEA/ GINGER**  
 INCI: CAMELLIA SINENSIS LEAF EXTRACT  
 ZINGIBER OFFICINALE (GINGER) WATER  
 LACTOBACILLUS FERMENT

- BENEFITS**
- ✓ Anti-inflammatory
  - ✓ Antimicrobial
  - ✓ Antioxidant
  - ✓ Contains catechine
  - ✓ Soothing



### THE BENEFITS OF FRUITS

Fruits and their bioactive compounds are praised for powerful anti-aging & rejuvenating properties making them enormously popular among natural cosmetic producers. Fermentation adds new properties to fruits extracts in a natural way and makes them more friendly to the skin microbiome.



### FEATURES

- ✓ Organic Fruits
- ✓ Green cosmetics
- ✓ Clean cosmetics
- ✓ Sustainable
- ✓ Eco-Friendly & Non-GMO
- ✓ Application in Hair & Skin Care



**MAJIME BIO - CRANBERRY**  
 INCI: VACCINIUM MACROCARPON  
 (CRANBERRY) FRUIT JUICE,  
 LACTOBACILLUS FERMENT

- BENEFITS**
- ✓ Nourishing
  - ✓ Soothing
  - ✓ Moisturizing



**MAJIME BIO - APPLE/ MATCHA**  
 INCI: PYRUS MALUS (APPLE) FRUIT WATER  
 CAMELLIA SINENSIS LEAF  
 LACTOBACILLUS FERMENT

- BENEFITS**
- ✓ Refreshing
  - ✓ Regenerating
  - ✓ Revitalizing



### THE STORY BEHIND

In the last years sustainable beauty and well-being moved into the mainstream. The certified organic and natural sector continued to lead this growth, as more consumers needed reassurance that what they were buying is delivered based on trust, integrity, sustainability and also benefited the environment. ADEKA is following this trend and thanks to our expertise and knowledge on cosmetics and the industry, we can offer our customers high-performance natural & organic new products and delivering results-driven bio beauty without asking consumers to sacrifice their values. The success of ADEKA is to overcome any challenge. We believe in responding by incorporating stricter environmental standards, greater transparency, and enlarging our productfolio with more natural products across our spectrum of fermented products.

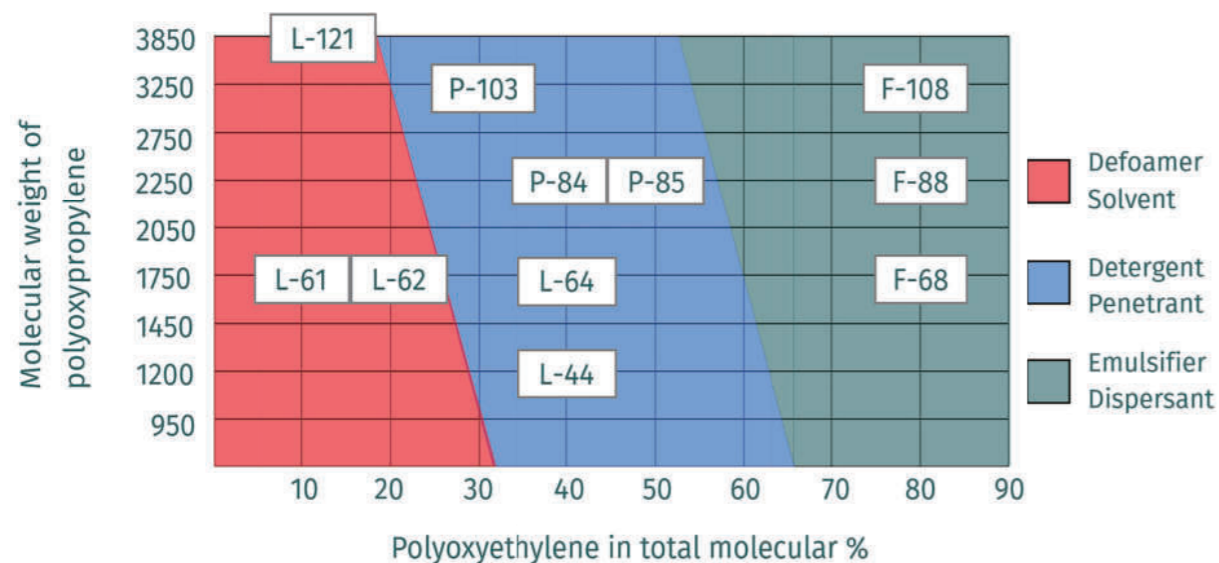
# 7. Defoaming Surfactants

- ✓ REACH
- ✓ Multifunctional
- ✓ High performances
- ✓ Cosmetic & Detergent use

## ADEKA NOL L, F, P SERIES

### BEYOND SURFACTANTS

ADEKA NOL L, F, P series are nonionic polymer surfactants which are composed of polyethylene glycol & polypropylene glycol. By varying the molecular weight and ratio, it is possible to achieve various properties. Furthermore, ADEKA NOL L, F, P series have mildly irritation properties making the products useful for cosmetic ingredients as well as for detergents.



### BENEFITS

- ✓ Low toxicity
- ✓ Solubilize & Stabilize
- ✓ Broad molecular weight
- ✓ Low foaming & Defoaming
- ✓ Excellent emulsifier
- ✓ Excellent dispersant & Solubilizer
- ✓ Excellent lubricity
- ✓ Highest cleansing activity

### FEATURES

- ✓ Non-corrosive
- ✓ Miscible & Compatible with ionic surfactants
- ✓ PO / EO block copolymer
- ✓ Multifunctional



PRODUCTS	INCI	REACH	CHINA	RECOMMENDED APPLICATIONS			COSMETIC APPLICATIONS			SHELF-LIFE IN YEARS	
				DETERGENCY	ANTI-FOAMING	FOAMING	SOLUBILIZER	FUNCTION	APPLICATION		PACKAGING
ADEKA NOL L-44	POLOXAMER 124	✓	✓	☑☑		☑	☑	Cleansing agent	Make-up remover, Cleansing wipe, Hand soap, Body soap	200 kg drum, 18k g can	1.5
ADEKA NOL L-61	PEG/PPG-5/30 COPOLYMER POLOXAMER 181	✓	✗		☑☑			Defoaming agent, Solubilizer	Lotion, Cream	200 kg drum, 18 kg can	1.5
ADEKA NOL L-62	POLOXAMER 183	✓	✗	☑	☑			Defoaming agent, Solubilizer	Lotion, Cream	200 kg drum, 18 kg can	0.5
ADEKA NOL L-64	PEG/PPG-25/30 COPOLYMER POLOXAMER 184	✓	✓	☑☑		☑	☑	Cleansing agent, Co-emulsifier	Make-up remover, Cleansing wipe, Shampoo, Body soap, Conditioner, Lotion	200 kg drum, 18 kg can	1.5
ADEKA NOL L-121	POLOXAMER 403	✓	✗		☑☑			Defoaming agent, Solubilizer	Lotion, Cream	200 kg drum, 18 kg can	1.5
ADEKA NOL P-84	POLOXAMER 234	✓	✓	☑		☑	☑	Dispersant, solubilizer, foaming & cleansing agent	Lotion, Cream, Shampoo	200 kg drum, 18 kg can	0.75
ADEKA NOL P-85	POLOXAMER 235	✓	✓	☑		☑	☑	Dispersant, solubilizer, foaming & cleansing agent	Lotion, Cream, Shampoo	200 kg drum, 18 kg can	1
ADEKA NOL P-103	POLOXAMER 333	✓	✗	☑				Dispersant, solubilizer, foaming & cleansing agent	Lotion, Cream, Shampoo	200 kg drum, 18 kg can	1.5
ADEKA NOL F-68	POLOXAMER 188	✓	✓	☑		☑☑	☑☑	Dispersant, solubilizer, foaming & cleansing agent	Mouthwash, Shaving gel, Cleansing water	15 kg bag	0.5
ADEKA NOL F-88	POLOXAMER 238	✓	✓			☑☑	☑☑	Dispersant, solubilizer, foaming & cleansing agent	Lotion, Cream, Shampoo	15 kg bag	1.5
ADEKA NOL F-108	PEG/PPG-300/55 COPOLYMER POLOXAMER 338	✓	✓			☑☑	☑☑	Gelling agent, Emulsifier, Solubilizer	Cream, Mouthwash, Shampoo, Body serum	15 kg bag	1.5

☑ = General use, ☑☑ = Main use

# 8. Film Former

- ✓ China INCI (IECIC)
- ✓ REACH
- ✓ Packaging: 18 kg can
- ✓ Shelf-life: 1 year
- ✓ No animal testing

## ADEKA NOL OU-1

OU-1 INCI: PPG-12/SMDI COPOLYMER

### BEYOND FILM FORMERS

ADEKA NOL OU-1 is an oil soluble polymer that helps to enhance adhesion and is widely applicable in cosmetic formulations for Skin, Lashes, Hair or Nail. It improves water- & rub-resistance, overall stability of the film, imparts gloss and helps suspend pigments. It has an excellent color stability & no odor. The recommended usage level in formulations is 1-10%.



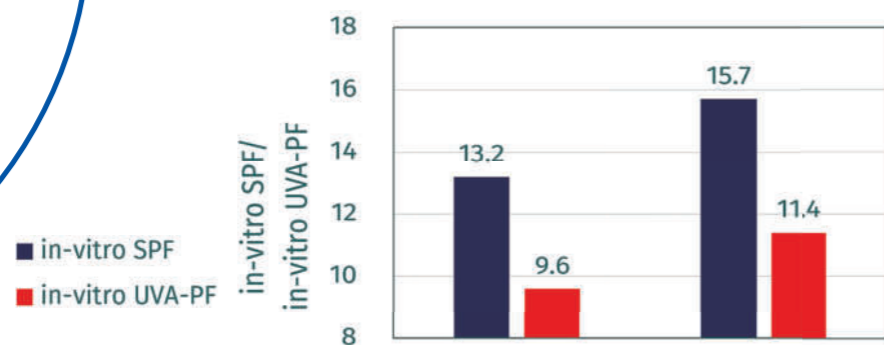
#### BENEFITS

- ✓ Good holding and volumizing
- ✓ Non greasy & sticky
- ✓ Natural feeling
- ✓ Boost SPF

#### FEATURES

- ✓ Environmental-friendly
- ✓ Water resistant
- ✓ Humidity resistant
- ✓ Flexible
- ✓ Easy to use & High performance

### OU-1 - SPF BOOST EFFECT



**Test condition:** Tested in-vitro SPF and in-vitro UVA-PF on sunscreen formula with general organic UV filters.  
**Results:** OU-1 can boost both in-vitro SPF and in-vitro UVA-PF by 20%.

### PROPERTIES: OU-1 - OIL SOLUBILITY

OIL		SOLUBILITY
INCI NAME	POLARITY	
Triethylhexanoin	High	Readily soluble
Ethylhexyl Hydroxystearate	Medium	Readily soluble
Isononyl Isononanoate		Readily soluble
Cyclopentasiloxane	Low	Insoluble
Diphenylsiloxy Phenyl Trimethicone		Readily soluble
Hydrogenated Polyisobutene		Insoluble

**Test condition:** Temperature: 25°C, OU-1 content: 10%

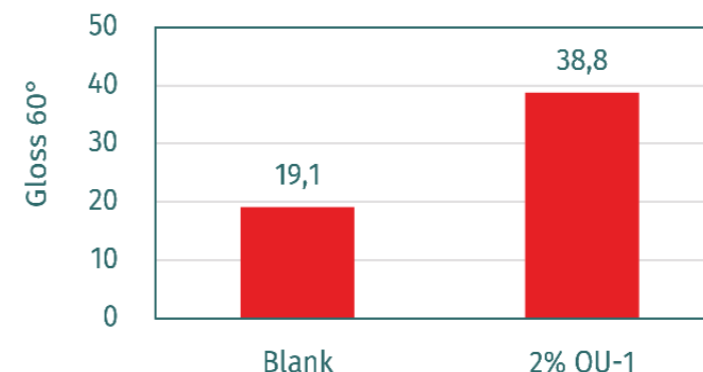


### THE STORY BEHIND

ADEKA extended their product line with a film former, putting their focus on a high quality level Oil-Soluble Film Former. The reason is simple: too many customers were not satisfied with the quality of existing oil film formers on the market. ADEKA is always eagerly accepting to face the quality challenges & puts the highest effort into the development of superior quality in their laboratory in Japan. The R&D team with specialized expertise and complementary skill sets, innovates & produces constantly excellent performing products. It is always focused on performance & best results.



### OU-1 - GLOSS ENHANCING EFFECT



**Test condition:** Prepare blank formula and the formula with 2% OU-1. Spread 0.1g sample of each formula uniformly onto BIOSKIN plate (Beaulax). Measure Glossiness from 60 degree angle using GlossMeter VG7000 (Nippon Denshoku Industries).  
**Results:** OU-1 can enhance the gloss drastically.

### OU-1: FILM PROPERTIES IN COMPARISON WITH OTHER FILM FORMERS

FILM FORMER	PRODUCT A	PRODUCT B	OU-1
INCI	VP/EICOSENE COPOLYMER	HYDROGENATED POLYCYCLOPENTADIENE, CAPRYLIC/CAPRIC TRIGLYCERIDE	PPG-12/SMDI COPOLYMER
Appearance	Solid	Clear liquid	Clear liquid
Refractive index	-	1.466	1.465
Temperature necessary for dissolution to oil	60°C	Room temperature	Room temperature
Texture (After the oil dissolution)	No change	Thickness	Thickness
Recommended oil	Hydrocarbon oil	Hydrocarbon oil	Ester oil
Characteristic	Hard to use for solidity	Dilution product Water repellency Aacridity (itch) to the skin	Active 100% Mixture with the oil is very easily

**Test condition:** Temperature: 25°C

**Results:** OU-1 is superior in miscibility and thickness with oil at room temperature.



# 9. Emulsifiers

- ✓ Natural & Synthetic
- ✓ Eco-friendly
- ✓ Multifunctional
- ✓ Easy to use
- ✓ PEG-free

## BEYOND EMULSIFIERS

SUNSOFT emulsifiers have very unique & exclusive structural properties mainly featured by low content of cyclic polyglycerols enabling enhanced hydrophilicity. They can offer a wide range of applications covering emulsification, solubilization, detergency & foaming. Any formulation with SUNSOFT guarantees a well-absorbing sensory experience with less greasy residue, only leaving the skin feel soft and hydrated. SUNOIL emollient enhance the absorption of oil components through the skin while leaving the skin feel soft & smooth. TAISSET can contribute to the enhanced stability of emulsions while forming polarized association structures around the interface between oil & water.

## BENEFITS

- ✓ Perfect cleansing
- ✓ Long-lasting skin softness & hydration
- ✓ Eco- & Skin-Friendly
- ✓ Natural & PEG-Free
- ✓ Biodegradable
- ✓ High stability
- ✓ Pleasant texture

## FEATURES





- ✓ Solubilizers
- ✓ O/W & W/O emulsifiers
- ✓ Make-up removers
- ✓ Mild detergents
- ✓ Emollient
- ✓ Hair conditioners
- ✓ Viscosity modifier

## OUR PRODUCTS

PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [°C]	PH RANGE	USAGE CONCENTRATION	SHELF-LIFE IN MONTHS
SUNSOFT Q-10Y-C	POLYGLYCERYL-10 CAPRATE	Powerful solubilizer best suited for solubilization of essential and perfume oils in water-based systems.	Maintains crystal-clear appearance. Less affected by temperature changes and high salt concentration. Delivers moisturizing benefits with no stickiness.	17.3	0	✓	✗	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT Q-12Y-C(MB)	POLYGLYCERYL-10 LAURATE	Powerful solubilizer best suited for solubilization of essential and perfume oils in water-based systems. Also effectively maintains a crystal-clear appearance of micellar cleansing water.	Maintains crystal-clear appearance. Less affected by temperature changes and high salt concentration. Delivers moisturizing benefits with no stickiness.	17.1	0	✓	✓	18 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT Q-121Y-C	POLYGLYCERYL-10 LAURATE	Excellent primary surfactant for micellar cleansing water/wipes, while being water-soluble yet well compatible with oils.	Perfect cleansing ability. Low skin irritation. Long-lasting hydration.	15.7	0	✓	✓	16 kg can	viscous liquid	-	4-7	0.1-5%	24
SUNSOFT Q-123Y-C	POLYGLYCERYL-10 TRILAUARATE	Powerful O/W emulsifier having superb moisture retention. Suitable for a light texture emulsion. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides. Also can be used as a primary surfactant for oil-base make-up removers owing to its excellent self-emulsifying capacity.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion. Perfect cleansing ability.	10.4	0.50-1.00	✓	✗	18 kg can	viscous liquid	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24



PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [°C]	PH RANGE	USAGE CONCENTRATION	SHELF- LIFE IN MONTHS
SUNSOFT Q-14Y-C	<b>POLYGLYCERYL-10 MYRISTATE</b>	Powerful solubilizer best suited for solubilization of essential and perfume oils in water-based systems.	Maintains crystal-clear appearance. Less affected by temperature changes and high salt concentration. Delivers moisturizing benefits with no stickiness.	16.7	0	✓	✓	18 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT Q-14S-C(MB)	 <b>POLYGLYCERYL-10 MYRISTATE</b>	All-natural solubilizer best suited for solubilization of essential and perfume oils in water-based systems.	Maintains crystal-clear appearance. Less affected by temperature changes and high salt concentration. Delivers moisturizing benefits with no stickiness.	15.7	1	✓	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT Q-142Y-C	<b>POLYGLYCERYL-10 DIMYRISTATE</b>	Powerful O/W emulsifier having compelling moisture retention. Suitable for rich-textured emulsions. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion.	12.3	0.50-1.00	✓	✓	16 kg can	paste	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24
SUNSOFT Q-17Y-C	<b>POLYGLYCERYL-10 OLEATE</b>	Powerful solubilizer best suited for solubilization of lipophilic emollients (e.g. Squalane) in water-based systems. Suitable for making O/W emulsions in combination with lipophilic surfactants.	Less affected by temperature changes and high salt concentration. Delivers much enhanced moisturizing benefits with no stickiness.	15.9	0	✓	✓	18 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT Q-17S-C(G)(MB)	<b>POLYGLYCERYL-10 OLEATE</b>	All-natural solubilizer best suited to solubilization of lipophilic emollients (e.g. Squalane) in water-based systems. Suitable for making O/W emulsion in combination with lipophilic surfactants.	Less affected by temperature changes and high salt concentration. Delivers much enhanced moisturizing benefits with no stickiness.	15.0	1	✓	✓	18 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT Q-172Y(G)-C(MB)	<b>POLYGLYCERYL-10 DIOLEATE</b>	Powerful O/W emulsifier having superb moisture retention. Suitable for a light texture emulsion. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides. Also can be used as a primary surfactant for oil-base make-up removers owing to its excellent self-emulsifying capacity.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion. Perfect cleansing ability.	11.9	0.50-1.00	✓	✓	18 kg can	paste	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24
SUNSOFT Q-175S-(G)C(MB)	<b>POLYGLYCERYL-10 PENTAOLEATE</b>	All natural W/O emulsifier. Can be used as HLB adjuster for a wide range of cosmetic formulations.	Fast absorbing emulsion. Delivers moisturizing benefits.	7.0	1	✓	✓	16 kg can	viscous liquid	-	4-7	0.1-5%	24
SUNSOFT Q-1710S(G)-C(MB)	<b>POLYGLYCERYL-10 DECAOLEATE</b>	All natural W/O emulsifier. Can be used as HLB adjuster for a wide range of cosmetic formulations. Excellent water capture and moisture retention efficacy. Also works as an emollient that can soften solid fats and oils.	Fast absorbing emulsion. Delivers moisturizing benefits.	3.9	1	✓	✓	16 kg can	paste	-	4-7	Oil-base formulations: 0.5-30% Emulsions: 0.5-10% Makeup products: 0.5-30%	18
SUNSOFT Q-18Y-C(MB)	<b>POLYGLYCERYL-10 STEARATE</b>	Powerful solubilizer best suited for solubilization of lipophilic emollients (e.g. Squalane) in water-based systems. Suitable for making O/W emulsions in combination with lipophilic surfactants.	Less affected by temperature changes and high salt concentration. Delivers much enhanced moisturizing benefits with no stickiness.	17.5	0	✓	✓	16 kg can	paste	-	4-7	0.1-5%	24




PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [° C]	PH RANGE	USAGE CONCENTRATION	SHELF- LIFE IN MONTHS
SUNSOFT Q-18S-C(MB) 	POLYGLYCERYL-10 STEARATE	All-natural solubilizer best suited for solubilization of lipophilic emollients (e.g. Squalane) in water-based systems. Suitable for making O/W emulsions in combination with lipophilic surfactants.	Less affected by temperature changes and high salt concentration. Delivers much enhanced moisturizing benefits with no stickiness.	15.1	1	✓	✓	10 kg carton	pellet	38-45	4-7	0.1-5%	24
SUNSOFT Q-182Y-C	POLYGLYCERYL-10 DISTEARATE	Powerful O/W emulsifier having compelling moisture retention. Suitable for rich-textured emulsions. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion.	11.1	0.50-1.00	✓	✓	10 kg carton	pellet	62-67	4-7	0.1-10%	24
SUNSOFT Q-182S-C(MB) 	POLYGLYCERYL-10 DISTEARATE	All-natural O/W emulsifier having excellent moisture retention. Suitable for rich-textured emulsions. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides.	Long-lasting hydration. Highly stable formulation.	11.0	1	✓	✓	10 kg carton	pellet	45-55	4-7	0.1-10%	24
SUNSOFT Q-185S-C(MB) 	POLYGLYCERYL-10 PENTASTEARATE	All natural W/O emulsifier. Can be used as HLB adjuster for a wide range of cosmetic formulations.	Fast absorbing emulsion. Delivers moisturizing benefits.	7.0	1	✓	✓	10 kg carton	powder	47-57	4-7	0.1-5%	24
SUNSOFT Q-192Y-C(MB)	POLYGLYCERYL-10 DIISOSTEARATE	Powerful O/W emulsifier having superb moisture retention. Suitable for a light texture emulsion. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides. Also can be used as a primary surfactant for oil-base make-up removers owing to its excellent self-emulsifying capacity.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion. Perfect cleansing ability.	11.1	0.50-1.00	✓	✓	18 kg can	paste	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24
SUNSOFT Q-8H-C(MB)	POLYGLYCERYL-6 CAPRYLATE	Specially-designed surfactant for micellar cleansing water/wipes. Removing make-ups and impurities at high speed by reducing surface tension dramatically.	Perfect cleansing ability. Low skin irritation. Long-lasting hydration.	14.6	0	✓	✓	18 kg can	viscous liquid	-	4-7	3-10%	24
SUNSOFT Q-81F-C(MB) 	POLYGLYCERYL-6 CAPRYLATE	All natural surfactant suitable for a wide range of make-up removers. Improves the stability of cleansing oil at low temperatures. Can be used for water-base makeup removers in combination with solubilizer.	Perfect cleansing ability. Low skin irritation. Long-lasting hydration.	13.0	1	✓	✓	18 kg can	viscous liquid	-	4-7	0.1-10%	24
SUNSOFT Q-102H-C(MB)	POLYGLYCERYL-6 DICAPRATE	Versatile surfactant, highly recommendable as co-surfactant both for oil-base and water-base make-up removers as it is easy to form self-assembly structure.	Perfect cleansing ability. Low skin irritation. Long-lasting hydration.	10.2	0.50-1.00	✓	✓	18 kg can	viscous liquid	-	4-7	0.1-20%	24
SUNSOFT Q-123H-C(MB)	POLYGLYCERYL-6 TRILAURATE	Optimized surfactant for high viscous water-base make-up removers as it is easy to form self-assembly structure.	Perfect cleansing ability. Low skin irritation. Long-lasting hydration.	8.3	0.50-1.00	✓	✗	16 kg can	viscous liquid	-	4-7	0.5-20%	24

PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [°C]	PH RANGE	USAGE CONCENTRATION	SHELF- LIFE IN MONTHS
SUNSOFT A-12E-C(MB)	<b>POLYGLYCERYL-5 LAURATE</b>	Powerful solubilizer best suited for solubilization of essential and perfume oils in water-based systems.	Maintains crystal-clear appearance. Less affected by temperature changes and high salt concentration. Delivers moisturizing benefits with no stickiness.	15.8	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-14E-C	<b>POLYGLYCERYL-5 MYRISTATE</b>	Powerful solubilizer best suited for solubilization of essential and perfume oils in water-based systems.	Maintains crystal-clear appearance. Less affected by temperature changes and high salt concentration. Delivers moisturizing benefits with no stickiness.	15.4	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-141E-C	<b>POLYGLYCERYL-5 MYRISTATE</b>	Powerful O/W emulsifier having compelling moisture retention. Suitable for rich-textured emulsions. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion.	12.2	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-143E-C	<b>POLYGLYCERYL-5 TRIMYRISTATE</b>	Powerful W/O emulsifier. Can be used as HLB adjuster for a wide range of cosmetic formulations.	Fast absorbing emulsion. Delivers moisturizing benefits.	7.6	0	<4mT/ year	✗	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-17E(G)-C(MB)	<b>POLYGLYCERYL-5 OLEATE</b>	Powerful solubilizer best suited for solubilization of lipophilic emollients (e.g. Squalane) in water-based systems. Suitable for making O/W emulsions in combination with lipophilic surfactants.	Less affected by temperature changes and high salt concentration. Delivers much enhanced moisturizing benefits with no stickiness.	14.9	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-171E-C	<b>POLYGLYCERYL-5 OLEATE</b>	Powerful O/W emulsifier having superb moisture retention. Suitable for a light texture emulsion. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides. Also can be used as a primary surfactant for oil-base make-up removers owing to its excellent self-emulsifying capacity.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion. Perfect cleansing ability.	12.7	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-172E-C	<b>POLYGLYCERYL-5 DIOLEATE</b>	Powerful O/W emulsifier having superb moisture retention. Suitable for a light texture emulsion. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides. Also can be used as a primary surfactant for oil-base make-up removers owing to its excellent self-emulsifying capacity.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion. Perfect cleansing ability.	11.9	0	<4mT/ year	✓	16 kg can	paste	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24
SUNSOFT A-173E-C	<b>POLYGLYCERYL-5 TRIOLEATE</b>	Powerful W/O emulsifier. Can be used as HLB adjuster for a wide range of cosmetic formulations.	Fast absorbing emulsion. Delivers moisturizing benefits.	7.1	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24
SUNSOFT A-18E-C	<b>POLYGLYCERYL-5 STEARATE</b>	Powerful solubilizer best suited for solubilization of lipophilic emollients (e.g. Squalane) in water-based systems. Suitable for making O/W emulsions in combination with lipophilic surfactants.	Less affected by temperature changes and high salt concentration. Delivers much enhanced moisturizing benefits with no stickiness.	15.0	0	<4mT/ year	✓	16 kg can	paste	-	4-7	0.1-5%	24



PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [°C]	PH RANGE	USAGE CONCENTRATION	SHELF-LIFE IN MONTHS
SUNSOFT A-181E-C(MB)	POLYGLYCERYL-5 STEARATE	Powerful O/W emulsifier having compelling moisture retention. Suitable for rich-textured emulsion. Easy to create lamellar gel network in combination with higher fatty alcohol or monoglycerides.	Long-lasting hydration. Highly stable formulation. Smoother & faster absorbing emulsion.	12.9	0	<4mT/year	✓	10 kg carton	pellet	68-76	4-7	0.1-10%	24
SUNSOFT A-186E-C	POLYGLYCERYL-5 HEXASTEARATE	Powerful W/O emulsifier. Can be used as HLB adjuster for a wide range of cosmetic formulations.	Fast absorbing emulsion. Delivers moisturizing benefits.	4.0	0	<4mT/year	✗	10 kg carton	granule	50-55	4-7	0.1-5%	24
SUNETHER L-4	POLYGLYCERYL-4 LAURYL ETHER	Multi-functional non-ionic detergent equipped with superior foamability and detergency. Maintains its optimal performance (foamability) even in hard water to restraint or disperse metallic soap.	Highly stable in wide range of pH and temperature. Low skin irritation Antimicrobial activity	12.3	0	<4mT/year	✓	18 kg can	viscous liquid	-	4-12	0.5-10%	24
SUNSOFT Q-12D-C	POLYGLYCERYL-2 LAURATE	O/W emulsifier based on all-plant raw materials, having distinct capability of reducing interface tension dramatically.	O/W emulsion with fine particles. Surfactant for oil-base make-up removers. Enabling refreshing rinseability.	8.5	1	<4mT/year	✓	16 kg can	viscous liquid	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24
SUNSOFT Q-17D-C(MB)	POLYGLYCERYL-2 OLEATE (main component)	O/W emulsifier based on all-plant raw materials.	O/W emulsion with fine particles. Surfactant for oil-base make-up removers. Enabling refreshing rinseability.	7.0	1	✓	✓	16 kg can	paste	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	12
SUNSOFT Q-17B(G)-C(MB)	POLYGLYCERYL-2 SESQUIOLEATE	O/W emulsifier based on all-plant raw materials.	O/W emulsion with fine particles. Surfactant for oil-base make-up removers. Enabling refreshing rinseability.	5.3	1	<4mT/year	✓	18 kg can	viscous liquid	-	4-7	O/W emulsions: 0.1-5% Oil-base cleansing: 0.5-20%	24
SUNSOFT α-C	POLYGLYCERYL-5 STEARATE	One-step emulsifying agent for O/W emulsion, which easily forms lamellar gel network structure in a wide range of formulations.	Highly stable emulsion without any co-surfactant. A wide range of oils can be emulsified. Smoother & faster absorbing emulsion. Watery & hydrating texture.	-	0	<8mT/year	✓	10 kg carton	pellet	55-59	4-7	3-7%	24
	GLYCERYL STEARATE				1		✓						
TAISET 50-C(MB)	POLYGLYCERYL-6 OCTASTEARATE, GLYCERYL BEHENATE	All-natural stability enhancer and oil soluble viscosity modifier, recommendable for O/W, W/O emulsions and color cosmetics.	Enhanced formulation stability over time. Prestigious spreadability. Sweatproof for O/W emulsion (e.g. Sunscreen).	-	1	<8mT/year	✓	10 kg carton	pellet	68-78	4-7	0.2-3%	24



PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [°C]	PH RANGE	USAGE CONCENTRATION	SHELF-LIFE IN MONTHS
TAISET OG-C	POLYGLYCERYL-20 OCTADECABEHENATE/HYDROXYSTEARATE	Oil soluble aesthetic modifier covering range of oils/waxes. It gives various textures from balm-like hardness to slightly cushioning oil, even enabling very subtle and delicate sensorial perception. Providing velvety & melting texture, enchanting spreadability, smoother final touch, yet not causing stickiness on skin. Allowing less color change and more stability.	Thixotropic thickener with faster & higher viscosity recovery. Create desired effects in look and feel. Incomparable thickening efficacy. Easy-to-handle including lower melting point.	-	0.50-1.00	✓	✗	10 kg carton	flake	65-70	4-7	0.5-5%	24
SUNSOFT APF-(G)-C(MB)	 APRICOT KERNEL OIL POLYGLYCERYL-6 ESTERS	All-natural hair conditioning agent derived from apricot oil, covering both roots and strands. Optimized for shampoo formulation. COSMOS approved.	Improved hair manageability & detangling. Enhanced hair protection effect.	-	1	✓	✓	16 kg can	paste	-	4-7	0.5-3%	18
SUNSOFT TAP-C(MB)	 APRICOT KERNEL OIL POLYGLYCERYL-6 ESTERS	All-natural hair conditioning agent derived from plentiful apricot oil, covering both roots and strands. COSMOS approved.	Improved hair manageability & detangling. Enhanced hair protection effect.	-	1	✓	✓	16 kg can	liquid	-	4-7	0.5-3%	18
SUNSOFT M-12J	POLYGLYCERYL-10 LAURATE	Versatile low irritant detergent for a wide range of rinse-off products. Impeccable detergency and foaming ability as a nonionic surfactant	Selective sebum removability without causing dry skin or scalp. Antimicrobial activity.	15.5	0	<4mT/year	✓	16 kg can	viscous liquid	-	4-7	0.5-20%	24
SUNSOFT No.818R-C(MB)	POLYGLYCERYL-5 POLYRICINOLEATE	Powerful W/O emulsifier for high water content emulsions. Excellent powder dispersant in polar oils.	Refreshing & watery W/O emulsion. Smoother spreadability for Sunscreen and foundation etc.	0-2	0	<4mT/year	✓	16 kg can	viscous liquid	-	4-7	0.1-10%	24
SUNSOFT No.818SK-C(MB)	 POLYGLYCERYL-6 POLYRICINOLEATE	All-natural W/O emulsifier for high water content emulsions. Excellent powder dispersant in polar oils.	Refreshing & watery W/O emulsion. Smoother spreadability for Sunscreen and foundation etc.	0-2	1	✓	✓	16 kg can	viscous liquid	-	4-7	0.1-10%	24
SUNSOFT No.707-C(MB)	GLYCERYL CAPRYLATE	All-natural preservative booster	Antimicrobial activity. Foam booster for amino acid surfactants	5.5	1	<4mT/year	✓	16 kg can	liquid	-	4-7	0.1-3%	24
SUNSOFT No.750-C	GLYCERYL LAURATE	All-natural preservative booster	Antimicrobial activity. Foam booster for amino acid surfactants.	5.3	1	<4mT/year	✓	10 kg carton	powder	57-63	4-7	0.1-3%	24
SUNSOFT No.8080-C	GLYCERYL OLEATE	Emulsifier based on all-plant raw materials. Suitable for low viscous O/W emulsions. Rich in monoesters.	Lightweight & well-spreading texture. Much higher stability.	4.1	1	<4mT/year	✓	15 kg carton	paste	48-56	4-7	0.5-10%	9
SUNSOFT O-30S-C	GLYCERYL OLEATE	Emulsifier based on all-plant raw materials. Suitable for low viscous O/W emulsions.	Lightweight & well-spreading texture. Much higher stability.	2.8	1	<4mT/year	✓	16 kg can	liquid	-	4-7	0.5-10%	24
SUNSOFT No.8000V-C	GLYCERYL STEARATE	Emulsifier based on all-plant raw materials. Suitable for high viscous O/W emulsions. Rich in monoesters.	Creates a prestigious and protective layer on skin. Much higher stability.	4.1	1	<4mT/year	✓	10 kg carton	powder	63-68	4-7	0.5-10%	12
SUNSOFT No.8004-C	GLYCERYL STEARATE	Emulsifier based on all-plant raw materials. Suitable for high viscous O/W emulsions. Rich in monoesters.	Creates a prestigious and protective layer on skin. Much higher stability.	3.9	1	<4mT/year	✓	10 kg carton	powder	67-70	4-7	0.5-10%	12
SUNSOFT No.2500-C	GLYCERYL STEARATE	Emulsifier based on all-plant raw materials. Suitable for high viscous O/W emulsions.	Creates a prestigious and protective layer on skin. Much higher stability.	3.0	1	<4mT/year	✓	10 kg carton	solid	57-63	4-7	0.5-10%	12



PRODUCT	INCI	CHARACTERISTICS	BENEFITS	HLB	NATURAL ORIGIN INDEX ISO16128	REACH	CHINA	PACKAGING	FORM	MELTING POINT [°C]	PH RANGE	USAGE CONCENTRATION	SHELF-LIFE IN MONTHS
SUNSOFT No.118-C	GLYCERYL STEARATE SE	Emulsifier based on all-plant raw materials. Suitable for high viscous O/W emulsions.	Creates a prestigious and protective layer on skin. Much higher stability. Self-emulsifying properties.	3.4	1	<4mT/year	✓	10 kg carton	powder	58-62	4-7	0.5-10%	24
SUNSOFT No.30-C	GLYCERYL STEARATE SE	Emulsifier based on all-plant raw materials. Suitable for high viscous O/W emulsions.	Creates a prestigious and protective layer on skin. Much higher stability. Self-emulsifying properties.	3.4	1	<4mT/year	✓	10 kg carton	powder	50-65	4-7	0.5-10%	24
SUNSOFT No.8100-C(MB)	GLYCERYL BEHENATE	Emulsifier based on all-plant raw materials. Suitable for high viscous O/W emulsions. Rich in monoesters.	Increases hardness of emulsion (cream). Much higher stability at high temperatures.	3.4	1	<4mT/year	✓	10 kg carton	powder	75-85	4-7	0.5-20%	12
SUNSOFT GSC-C	GLYCERYL STEARATE CITRATE	Glycerol-based versatile O/W emulsifier. Perfect sensorial modifier for O/W emulsions.	Beautiful gliding on skin with a lightweight texture. Long-lasting hydration.	8.0	1	<4mT/year	✓	10 kg carton	flake	57-61	4-7	0.5-3%	24
SUNOIL DDI(MB)	POLYGLYCERYL-10 DECAISOSTEARATE	PGFE-based emollient enhances the absorption of oil components through the skin while leaving the skin feel soft and smooth. Excellent water capture and moisture retention efficacy.	Enhances the skin absorption of various base oils. Makes skin feel softer and soother. Excellent water-holding capacity.	-	0.50-1.00	✓	✓	16 kg can	liquid	-	4-7	Oil-base formulations: 0.5-70% Emulsions: 0.5-10% Make-up products: 0.5-30%	24
SUNOIL GDI-D	GLYCERYL DIISOSTEARATE	Non-sticky emollient having excellent pigment dispersibility. Recommended for lip and make-up cosmetics. Owing to its skin barrier properties, it is also suitable for skin care products.	High color payoff. Natural and radiant glow.	-	0	<4mT/year	✓	16 kg can	liquid	-	4-7	Make-up products: 0.2-1% Skin Care products: 1-30%	24
SUNOIL O-183	TRISOSTEARIN	High viscose emollient having excellent adhesion to skin. Provides rich and luxurious texture and glossy appearance. Recommended for lip and make-up cosmetics. Owing to its outstanding skin barrier properties, it is also suitable for skin care products.	Excellent adhesion to skin. Rich and luxurious texture. Natural and radiant glow. Skin barrier properties.	-	0	<4mT/year	✓	16 kg can	liquid	-	4-7	Make-up products: 0.2-1% Skin Care products: 1-30%	24
SUNOIL GTI-D	TRISOSTEARIN	Light and non-sticky emollient. Recommended for lip and make-up cosmetics. Owing to its skin barrier properties, it is also suitable for skin care products.	Light & non-sticky sensorial perception. Natural and radiant glow.	-	0	<4mT/year	✓	16 kg can	liquid	-	4-7	Make-up products: 0.2-1% Skin Care products: 1-30%	24



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# 11. Glossary

## Glossary

### A

#### A. brasiliensis

Aspergillus brasiliensis is a spore producing fungi that produces black conidia (spores) that are readily dispersed in the environment.

#### Acrid

Sharp or biting to the taste or smell; bitterly pungent; irritating to the eyes, nose, etc.:

#### Alpha hydroxy acids

Class of chemical compounds, consisting of carboxylic acid substituted with a hydroxyl group on the adjacent carbon. AHAs are well known for their use in the cosmetics industry, in products that aid reducing wrinkles and improve look and feel of skin.

#### Amino Acid

An organic molecule that is made up of a basic amino group (-NH<sub>2</sub>), an acidic carboxyl group (-COOH), and an organic R group (or side chain) that is unique to each amino acid.

#### Angular frequency

Angular frequency  $\omega$  is a scalar measure of rotation rate. It refers to the angular displacement per unit time, the rate of change of the phase of a sinusoidal waveform or as the rate of change of the argument of the sine function.. see ADEKA NOL GT-930

#### Anionic polymer

A long chain of millions of carbon atoms on which negatively charged spots are attached along the chain. The negatively charged spots act like tiny hooks. They are attracted to positively charged particles.

#### Anti-inflammatory

The property of a substance or treatment that reduces inflammation or swelling

#### Antimicrobial agent

A natural or synthetic substance that kills or inhibits the growth of microorganisms such as bacteria, fungi and algae.

#### Antioxidants

Substances that can prevent or slow damage to cells caused by free radicals, unstable molecules that the body produces as a reaction to environmental and other pressures.

### B

#### Biodegradable

Biodegradation is the breakdown of organic matter by microorganisms, such as bacteria and fungi. Biodegradable means that such a breakdown of organic matter is possible.

#### Booster

An action or thing that improves or increases something.

#### B.subtilis

Bacillus subtilis, known also as the hay bacillus or grass bacillus, is a Gram-positive, catalase-positive bacterium, found in soil and the gastrointestinal tract of ruminants and humans.

### C

#### C. albicans

Candida albicans is an opportunistic pathogenic yeast that is a common member of the human gut flora. It can also survive outside the human body. It is one of the few species of the genus Candida that causes the human infection candidiasis.

#### Catechin

Type of natural phenol and antioxidant. It is a plant secondary metabolite. It belongs to the group of flavan-3-ols (or simply flavanols), part of the chemical family of flavonoids.

#### Cationic polymer

A long chain of millions of carbon atoms on which positively charged spots are attached around the perimeter. The positively charged spots act like tiny hooks to attract negatively charged particles.

#### Cholesterols

A waxy, fat-like substance found in all the cells in the body. Cholesterol is needed to make hormones, vitamin D, and substances that help digest foods. Too much cholesterol in the body can combine with other substances in the blood to form plaque.

#### Conductance

Ability of a substance to conduct electric current. Conductance is measured to evaluate skin hydration.. see ADEKA NOL GT-730

#### Conventional

Traditional and/ or ordinary

#### Conventional glycols

Traditional / ordinary glycols

#### Cultivation

A method of multiplying microorganisms by letting them reproduce in predetermined culture media under controlled laboratory conditions.

### D

#### Dispersant

Either a non-surface active polymer or a surface-active substance added to a suspension, usually a colloid, to improve the separation of particles and to prevent settling or clumping. Dispersants consist normally of one or more surfactants.

### E

#### E.coli

Bacteria found in the environment, foods, and intestines of people and animals. Some kinds of E. coli can cause diarrhea, while others cause urinary tract infections, respiratory illness and pneumonia, and other illnesses.

#### Emulsifier

An emulsion is a mixture of two or more liquids that are normally immiscible. An emulsifier (also known as an "emulgent") is a substance that stabilizes an emulsion by increasing its kinetic stability.

#### Evaporation

The process of a substance in a liquid state changing to a gaseous state due to an increase in temperature and/or pressure.

### F

#### Fermentation

A metabolic process that produces chemical changes in organic substrates through the action of enzymes.

### G

#### G' & G''

G' refers to the elastic modulus, and reflects elastic behavior of a material when deformed. G'' refers to the viscous modulus, which reflects the flow of a material while it is deformed.. see ADEKA NOL GT-930

#### Glycols

Chemical compound, colorless, sweet liquid, used chiefly as a solvent.

### H

#### Humectant

A common moisturizing agent, often a molecule with several hydrophilic groups, most often hydroxyl groups. They're known for their ability to retain moisture while also preserving the overall properties of the product at hand.

### I

#### Inorganic salt

A salt that does not contain C-H bonds as opposed to an organic salt that contains C-H bonds.

#### Isoprenoids

Large and diverse class of naturally occurring organic chemicals derived from terpenes. Most are multicyclic structures with oxygen-containing functional groups.

#### Itch

An uncomfortable sensation on the skin that causes a desire to scratch.

### L

#### Lipids

Molecules containing hydrocarbons and make up the building blocks of the structure and function of living cells. Examples of lipids include fats, oils, waxes, certain vitamins, hormones and most of the cell membrane that is not made up of protein.

### M

#### Metabolites

The intermediate products of metabolic reactions catalyzed by various enzymes that naturally occur within cells. This term is usually used to describe small molecules, although broader application is often practiced.

#### MIC

Minimum inhibitory concentration: lowest concentration of an antimicrobial that will inhibit the visible growth of a microorganism following overnight incubation, usually reported as mg/L.A

#### Microbiome

The community of micro-organisms living together in a particular habitat. Humans, animals and plants have their own unique microbiomes, but so do soils, oceans and even buildings.

#### Microorganism

Any organism too small to be viewed by the unaided eye, as bacteria, protozoa, and some fungi and algae.

#### moisturizing

to add or restore moisture; assuring the skin receives all the water it needs

#### MPa

Megapascal, the mega unit used to measure the intensity of pressure which means force per unit area.

#### Mueller-Hinton Broth

A general purpose medium that may be used in the cultivation of a wide variety of fastidious and non-fastidious microorganisms. This medium is not supplemented with calcium or magnesium ions.

### N

#### Nanoparticle

Particles between 1 and 100 nanometres (nm) in size with a surrounding interfacial layer.

#### Neutralize

To make something chemically neutral.

#### Non-ionic polymer

Uncharged polymer; neither charged positive nor negative

### Non-woven fabric

A fabric-like material made from staple fibre and long fibre, bonded together by chemical, mechanical, heat or solvent treatment. The term is used in the textile manufacturing industry to denote fabrics which are neither woven nor knitted.

### O

#### Organic salt

A salt that contains C-H bonds as opposed to an inorganic salt that does not contain C-H bonds.

### P

#### P. aeruginosa

Pseudomonas aeruginosa is a common encapsulated, Gram-negative, rod-shaped bacterium that can cause disease in plants and animals, including humans.

#### Parabens

A group of chemicals widely used as artificial preservatives in cosmetic and body care products. Their antimicrobial properties are most effective against fungi and gram positive bacteria.

#### Partition rate

A partition coefficient (P) or distribution coefficient (D) is the ratio of concentrations of a compound in a mixture of two immiscible solvents at equilibrium.

#### pH

pH is a measure of hydrogen ion concentration, a measure of the acidity or alkalinity of a solution. The pH scale usually ranges from 0 to 14.

Aqueous solutions at 25°C with a pH less than 7 are acidic, while those with a pH greater than 7 are basic or alkaline. A pH level of 7.0 at 25°C is defined as "neutral".

#### Placebo cream

Placebo is an inert substance or treatment which is designed to have no therapeutic value. A placebo cream does not contain an active substance meant to affect health.

#### Plant-derived

Made from a plant.

#### Polymer

A large molecule made up of repeating sequences of identical smaller molecules.

The addition of polymers has led to better performance for many personal care and cosmetic products, providing benefits not available before, such as water resistance or "sweat-proof" characteristics and other long-lasting properties.

#### Polyol

An organic compound containing multiple hydroxyl groups. A molecule with more than two hydroxyl groups is a polyol. They are also known as alditols, sugar alcohols, and polyhydric alcohols.

### Preservatives

Any substances which are exclusively or mainly intended to inhibit the development of microorganisms in the cosmetic product.

#### Probiotics & Prebiotics

Probiotics are live beneficial bacteria that, when applied topically, influence the composition of skin microflora. Through fermentation process, probiotic bacteria produce acidic compounds like lactic acid, reducing the pH of skin.

Prebiotics can be readily incorporated into skincare products and are an excellent alternative to live bacteria. Prebiotics are the food source that help to keep your probiotics alive and active.

### R

#### Rayon

A manufactured fiber made from natural sources such as wood and agricultural products that are regenerated as cellulose fiber. The many types and grades of rayon can imitate the feel and texture of natural fibers such as silk, wool, cotton, and linen.. see ADEKA NOL NHG

#### Repellency

Repelling: to drive back / to fight against

#### Retentivity

The power of retaining, or the power to retain magnetization.

#### Rheology

The study of the change in form and the flow of matter, embracing elasticity and viscosity.

### S

#### S. aureus

Staphylococcus aureus or "staph" is a type of bacteria found on human skin, in the nose, armpit, groin, and other areas. S. aureus is the leading cause of skin and soft tissue infections, such as abscesses, boils, furuncles, and cellulitis.

#### Skin Visiometer

An established tool to evaluate the topography of the skin surface by light transmission of a very thin, special blue dyed silicone replica.

#### Solubilizer

A mixture of ingredients that allows a small amount of 'hydrophobic' (insoluble in water) ingredients to be uniformly dispersed in water or water-based products. Solubilizers belong to the surfactant group alongside emulsifiers.

#### Squalene

A natural organic compound originally obtained for commercial purposes primarily from shark liver oil (hence its name, as Squalus is a genus of sharks), although plant sources (primarily vegetable oils) are now used as well, including amaranth seed, etc.

### Stability

Status of physical, chemical and microbiological quality as well as functionality and aesthetics of products when stored under appropriate conditions.

#### Steroids

Steroids are a man-made version of chemicals, known as hormones, that are made naturally in the human body. Steroids are designed to act like these hormones to reduce inflammation.

#### Surfactant

A substance which tends to reduce the surface tension of liquid in which it is dissolved

### T

#### TEWL

Transepidermal water loss - the amount of water that passively evaporates through skin to the external environment due to water vapor pressure gradient on both sides of the skin barrier and is used to characterize skin barrier function.

#### Thickener

A thickening agent or thickener is a substance which can increase the viscosity of a liquid without substantially changing its other properties.

### U

#### Ubiquinone

Ubiquinone is a vitamin-like substance that is made naturally in the body. It is a nutrient that the body needs in small amounts to function and stay healthy. Ubiquinone helps mitochondria (small structures in the cell) make energy.

### V

#### Viscosity

The viscosity of a fluid is a measure of its resistance to deformation at a given rate. For liquids, it corresponds to the informal concept of "thickness": for example, syrup has a higher viscosity than water.. see ADEKA NOL GT-730

### Z

#### Z.rouxii

Zygosaccharomyces rouxii is an interesting species of yeast that is infamous within the food industry. Its capacity to thrive in both highly saline and sugar-dense environments is what makes Z. rouxii a predominant food spoiling agent.

### NOTES

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