



Kao Chemicals Europe

www.kaochemicals-eu.com

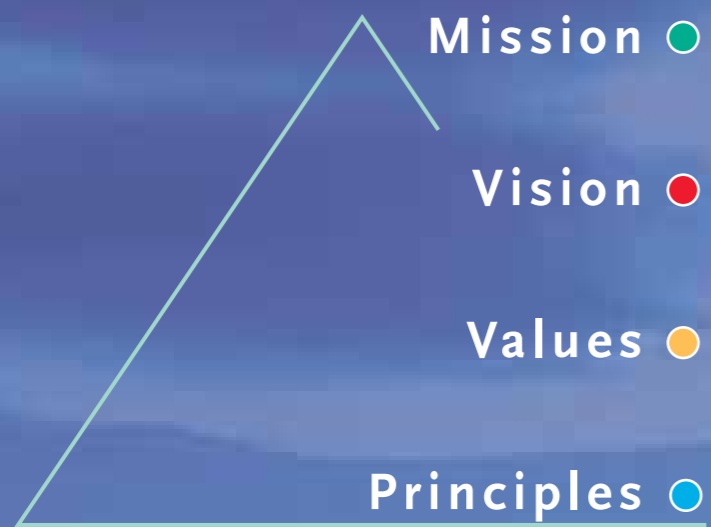
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Personal Care

The Kao way



*Personal Care
Business Unit*





Kao's General Mission Statement

The mission of Kao Chemicals Europe, in line with the mission of Kao Japan, consists of fulfilling market requirements and customer expectations by means of the development, production and marketing of products, achieving a reasonable level of profit and constantly improving its own competitive position and contributing to the development of the people who make up the company, within a framework of full respect for the social and natural environment.



BRINGING NEW VALUE
TO CHEMICALS

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CATEGORY
ANIONIC
CATIONIC
AMPHOTERIC
NON-IONIC
BLENDS
SPECIALITIES

Kao Corporation is a Japanese company with more than a century of experience in the cosmetics and detergents market, having nowadays more than 30 affiliates worldwide.

Kao has been present in the surfactants market in Europe for more than 35 years now. In the year 2000, at the gateway to the new millennium, Kao's Chemical Division united their European production centres in a new head office, Kao Chemicals Europe, in Barcelona, Spain.

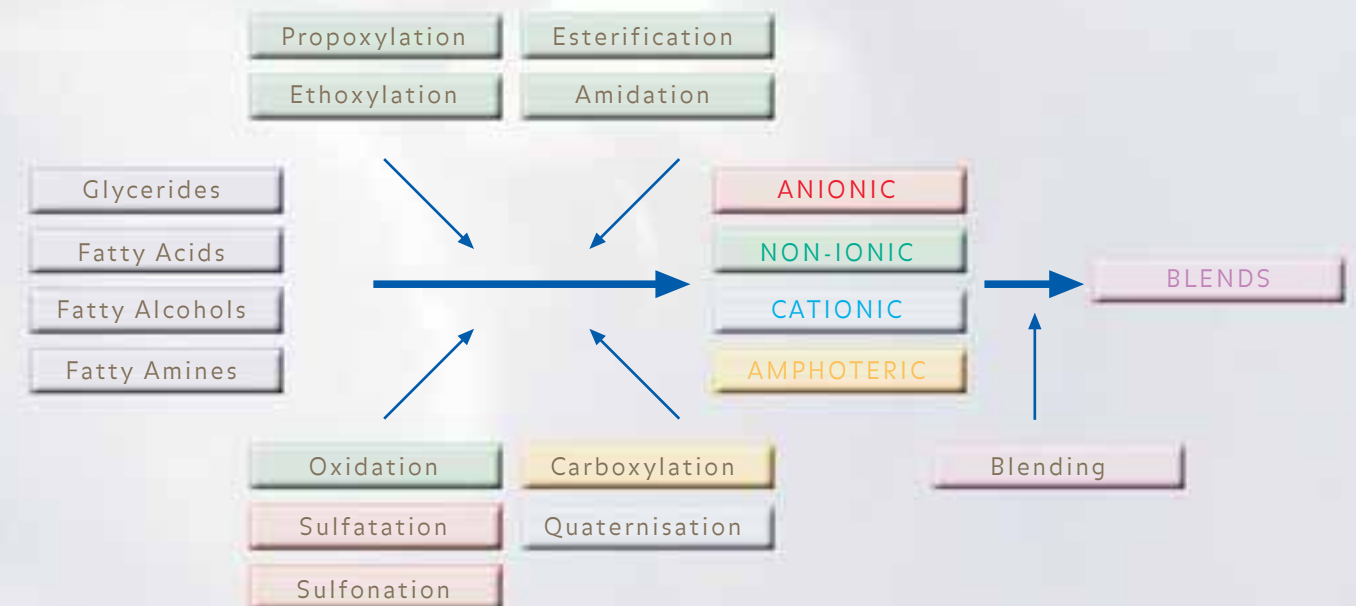
Kao Chemicals Europe has been created to unite the efforts of the different centres, in order to gain efficiency and strength in a market that is becoming more and more demanding and competitive.

With years of experience and the most advanced technology, Kao produces and commercialises in Europe more than 400 different surfactants, which can be applied in many different fields.

In the development and design stage, as well as in the manufacturing process of these surfactants, Kao is committed to health, safety and the environment. In its corporate activities Kao continuously improves and implements measures that minimise the impact on the environment and ensure the safety and the health of its employees and the community. Kao is committed to "Responsible Care".

The aim of this review is to describe the most relevant families of surfactants commercialised by Kao Chemicals Europe, and to point out the benefits and advantages of each one considering their properties and final applications.

See below an overview of the interconnecting process steps that Kao uses to produce these surfactants.



EMAL® / ALFANOX®

Anionic surfactants are usually used as main surfactants in rinse-off products and cleansers for personal hygiene, due to their relatively high effectiveness-cost ratio and their unbeatable properties as foaming agents. Among this range, sodium laureth sulfate is the most used worldwide, due to its foaming capacity and its ability to be thickened even at low concentration.

Kao Chemicals Europe is one of the biggest producers of this surfactant worldwide, selling it under the trade name of EMAL® 270D. This product achieves the highest standards of quality, due to the combination of natural raw materials, technology and the experience conferred by more than 30 years of constant improvement in production.

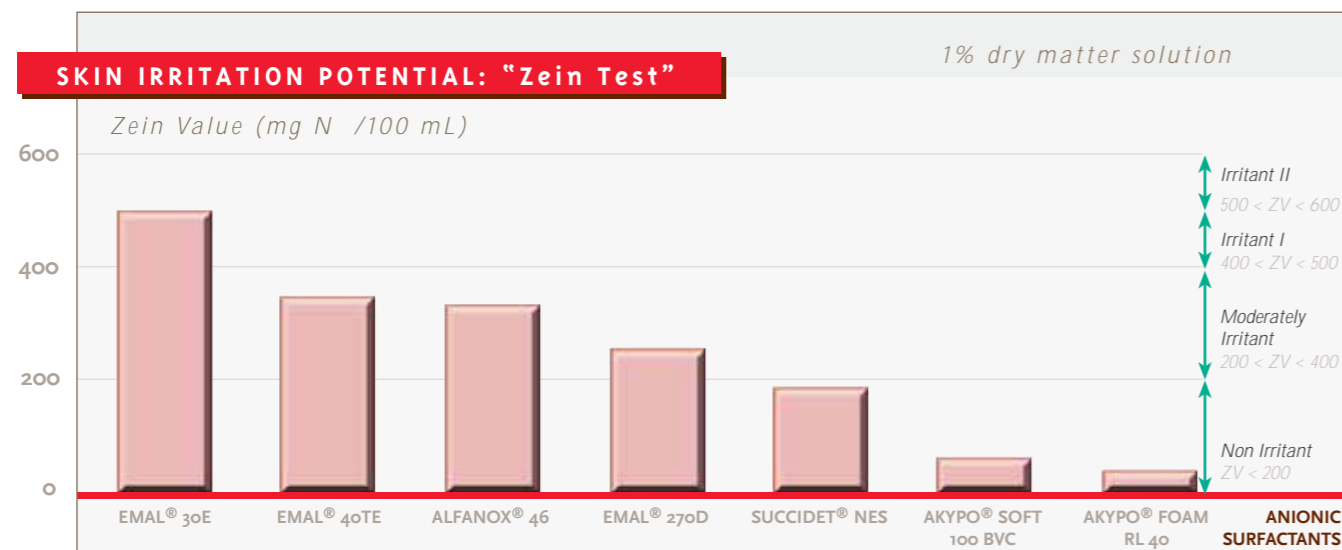
It is very difficult to overcome the application properties of the above mentioned surfactant, but in some especial cases, due to marketing requirements, other minor surfactants can replace it and be used as main surfactant in rinse-off products. These are alkyl sulfates (EMAL® 30E, EMAL® 40TE) or α -olefin sulfonates (ALFANOX® 46).

Another typical application of anionic surfactants is toothpaste. Many, though not all, toothpastes contain sodium lauryl sulfate, in solid form, as foaming agent. This product is sold by Kao Chemicals Europe under trade names of EMAL® 10N, EMAL® 10 P-HD and EMAL® 10 G. They aid in rubbing dental plaque and food off of the teeth, they can eliminate or mask undesirable breath odours, and they can deliver active ingredients such as fluoride to prevent tooth and gum disease.

PROPERTIES

- Foaming Power
- Emulsifying Effect
- Cleansing Effect

MAIN APPLICATION



ANIONIC SURFACTANTS Range

Trademark	CAS Number	INCI Name	Appearance at 20°C	% Active Matter
ALFANOX® 46	68439-57-6	Sodium C14-16 Olefin Sulfonate	Liquid	≈ 38
EMAL® 10N	73296-89-6	Sodium Lauryl Sulfate	Needles	95 min.
EMAL® 10P-HD	73296-89-6	Sodium Lauryl Sulfate	Powder	95 min.
EMAL® 10G	73296-89-6	Sodium Lauryl Sulfate	Granules	95 min.
EMAL® 30E	73296-89-6	Sodium Lauryl Sulfate	Liquid	≈ 30
EMAL® 40TE	90583-18-9	TEA Lauryl Sulfate	Liquid	≈ 40
EMAL® 270D or EMAL® 270E	68585-34-2	Sodium Laureth Sulfate	Paste	≈ 70
EMAL® 227E or EMAL® 228D	68585-34-2	Sodium Laureth Sulfate	Liquid	≈ 27
SUCCIDET® NES or SUCCIDET® S 30	39354-45-5	Disodium Laureth Sulfosuccinate	Liquid	≈ 31

SUCCIDET®

The disodium laureth sulfosuccinate is an anionic surfactant which can be used as main surfactant, although it is typically used as co-surfactant in cosmetic cleansers, mainly due to its mildness and the capacity to reduce the skin and eye irritation potential of anionic surfactants. Kao produces it under the trade name of SUCCIDET®.



AKYPO®

A different type of anionic surfactants is the ether carboxylic derivatives. AKYPO® is a trademark used to denominate the alkyl ether carboxylic acids and their salts.

The products included in the range differ from each other in the degree of ethoxylation and in the alkyl chain length. For cosmetic applications vegetable origin is in favour, the alkyl chain being traditionally based on coconut (C12/14) because of the high foaming properties that are required in this application field. Different ethoxylation degrees are available among the range of AKYPO®.

The name of AKYPO® RLM is used for the ether carboxylic derivatives in concentrated acid form. AKYPO® SOFT is used for the neutralised form of these surfactants. The abbreviation "NV" at the end indicates a sodium salt, while the abbreviation "BVC" indicates a high concentrated sodium salt alkyl ether carboxylate.

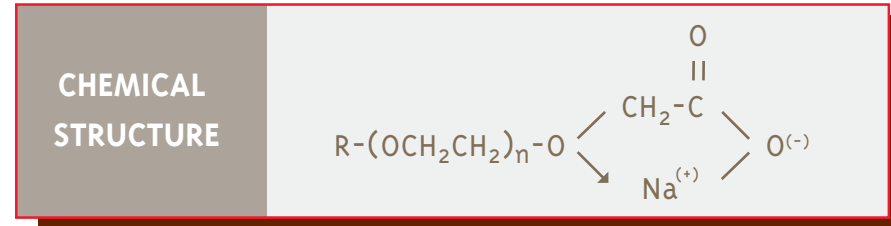
In the early 1970s the good compatibility of alkyl ether carboxylates, used as co-surfactants in shampoos, with all kind of surfactants including cationic type was described in the literature. An explanation for this unusual behaviour for anionic surfactants is the formation of a five-membered ring after deprotonation. Because of this structure, alkyl ether carboxylates are combining the properties of anionic and non-ionic surfactants and are therefore called "cryptoanionic".

The ethercarboxylic derivatives with C12/14 alkyl chain, from natural sources, are characterised by their mildness, their foaming and their solubilizing benefits, therefore they are used as co-surfactants in cosmetic rinse-off products.

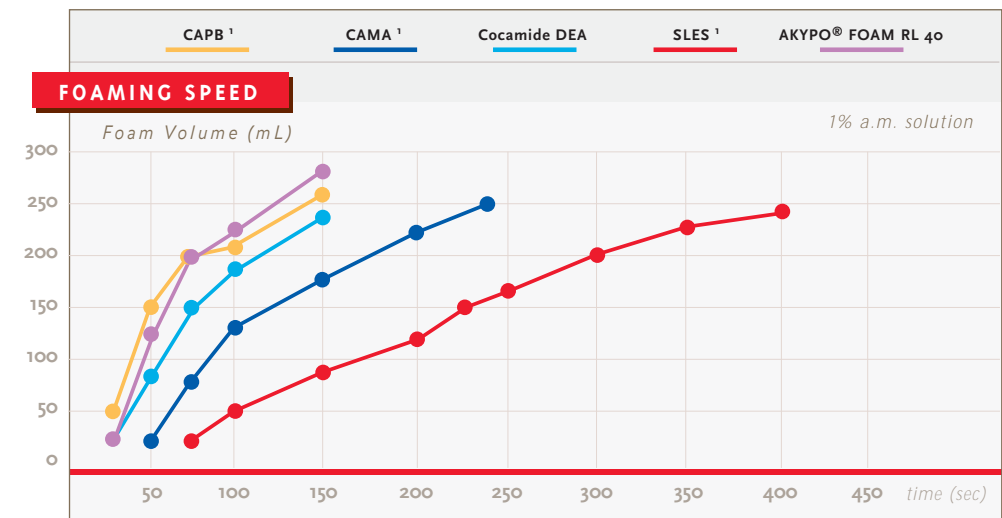
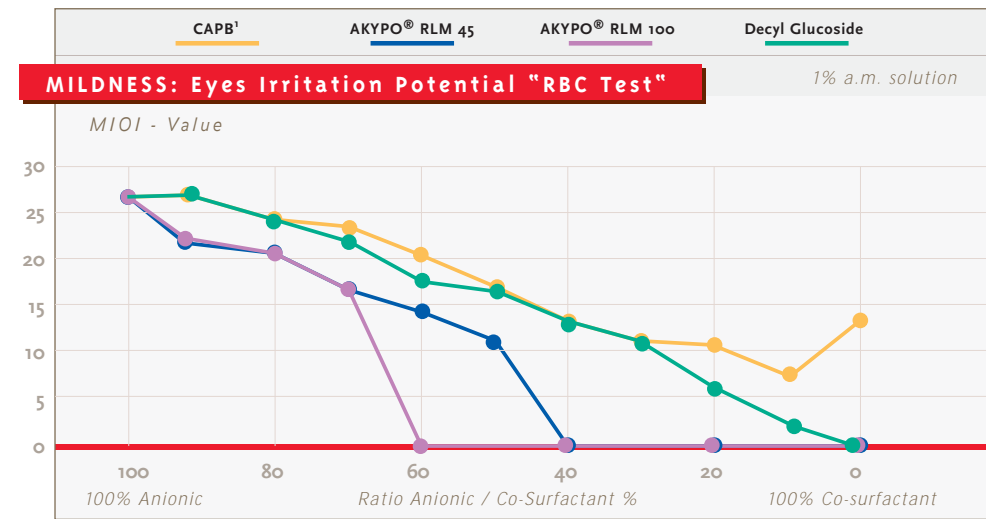
MAIN APPLICATION

PROPERTIES

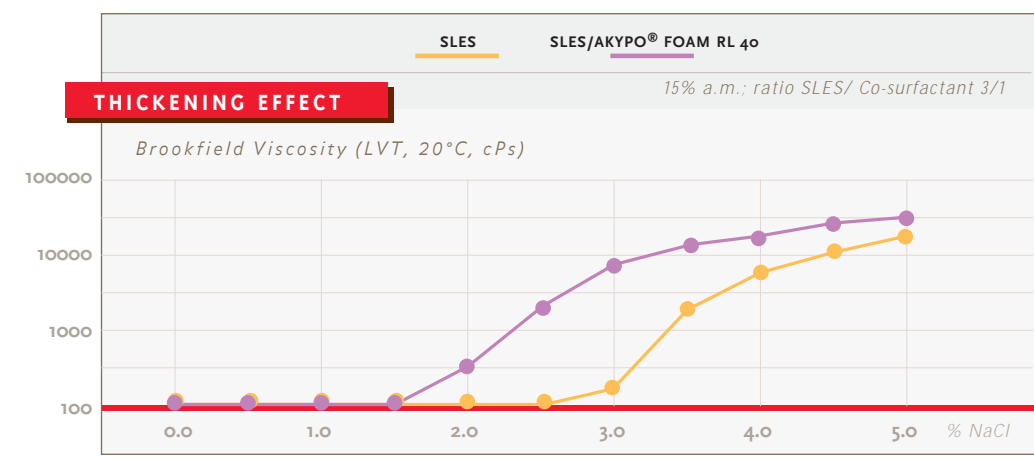
- Mildness
- Solubilizing Effect
- Foam Stabilizing Effect
- Compatibility
- Cryptoanionic Character

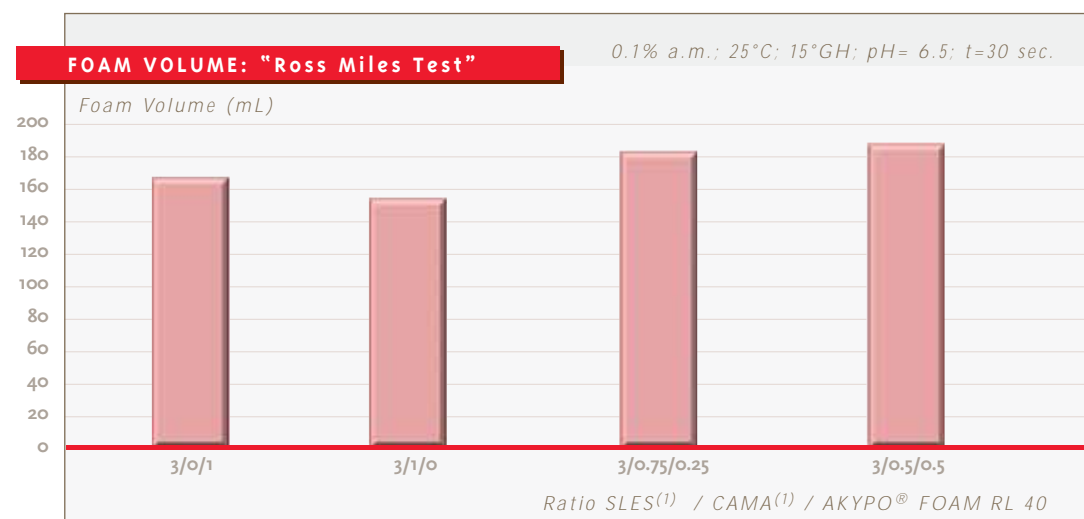


The newly developed alkyl ether carboxylate derivative is AKYPO® FOAM RL 40. This product meets the market requirements of a good surfactant: high concentrated, preservative free, mildness, positive influence on the viscosity and rapid foaming with good lathering. This relevant influence on the foam is even more outstanding when AKYPO® FOAM RL 40 is combined with SLES and amphoteric surfactants.



(1) CAPB: Cocamidopropyl Betaine
CAMA: Sodium Cocoamphoacetate
SLES: Sodium Laureth Sulfate





Amine oxides have been well known to surfactant chemists for decades. These surfactants are characterised by their versatility.

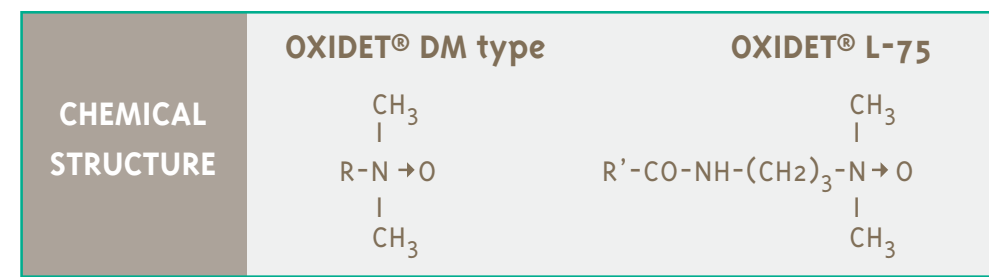
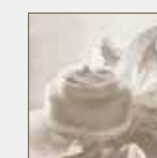
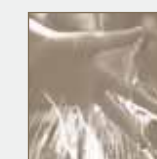
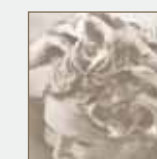
Amine oxides are obtained by a reaction of a tertiary amine with hydrogen peroxide. The semi-polar bond between the nitrogen and the oxygen is responsible for much of the uniqueness and functionality of amine oxides.

Amine oxides are non-ionic, but when the pH is lowered, the semi-polar linkage becomes stronger and the molecule assumes a weak positive charge, becoming a cationic surfactant with conditioning properties.

The Kao Chemicals Europe 's trademark for amine oxides is OXIDET®.

They are used as co-surfactants in foaming cleansers, like shampoos or body gels. Compared to typical surfactants used in detergents like CAPB or cocamide DEA, OXIDET® L-75 provides higher foam.

MAIN APPLICATION



AKYPO® RLM Range :

Trademark	CAS Number	INCI Name	R	n	Appearance at 20°C	% Active Matter
AKYPO® RLM 45 CA	27306-90-7	Laureth-6 Carboxylic Acid	C12-14	4.5	Liquid	≈ 92
AKYPO® RLM 45 N	27306-90-7	Sodium Laureth-6 Carboxylate	C12-14	4.5	Paste	≈ 82
AKYPO® RLM 70	27306-90-7	Laureth-8 Carboxylic Acid	C12-14	7	Liquid	≈ 90
AKYPO® RLM 100	27306-90-7	Laureth-11 Carboxylic Acid	C12-14	10	Liquid	≈ 90

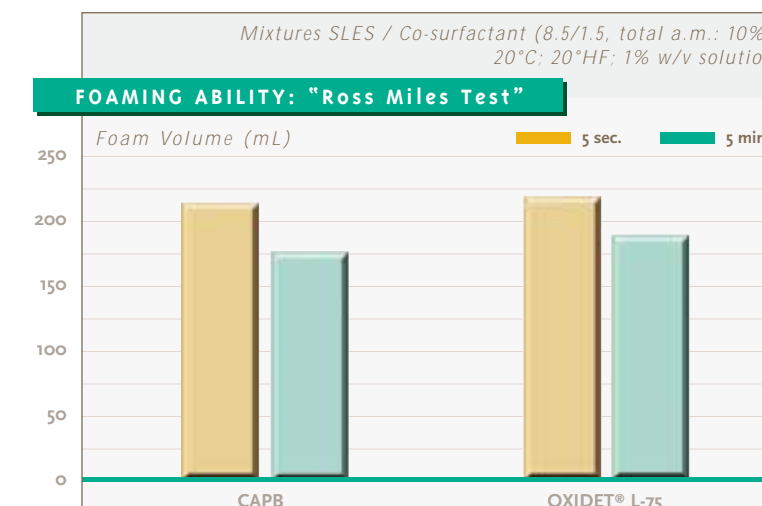
OXIDET® Range :

Trademark	CAS Number	INCI Name	Appearance at 20°C	% Active Matter	R
OXIDET® DM-20	1643-20-5	Lauramine Oxide	Liquid	≈ 30	C12
OXIDET® DMCLD	61788-90-7	Cocamine Oxide	Liquid	≈ 30	Coconut
OXIDET® L-75	68155-09-9	Cocamidopropylamine Oxide	Liquid	≈ 30	R'-CO: Coconut

AKYPO® SOFT Range :

Trademark	CAS Number	INCI Name	R	n	Appearance at 20°C	% Active Matter
AKYPO® FOAM RL 40	33939-64-9	Sodium Laureth-5 Carboxylate	C12	4	Paste	≈ 60
AKYPO® SOFT 45 NV	33939-64-9	Sodium Laureth-6 Carboxylate	C12-14	5	Liquid	≈ 22
AKYPO® SOFT 100 NV	33939-64-9	Sodium Laureth-11 Carboxylate	C12-14	10	Liquid	≈ 22
AKYPO® SOFT 70 BVC	33939-64-9	Sodium Laureth-8 Carboxylate	C12-14	7	Paste	≈ 70
AKYPO® SOFT 100 BVC	33939-64-9	Sodium Laureth-11 Carboxylate	C12-14	10	Liquid	≈ 70

- PROPERTIES**
- Foam Booster
 - Thickener
 - Mild Surfactant
 - Emulsifier



Almost since their introduction on the market, amphoteric surfactants have been used in personal care products.

It is well known that betaines show, in general mildness, good pH stability, and hard water tolerance. They increase the viscosity when combined with anionic surfactants, and act as foam boosters.

Kao Chemicals Europe's trademark for this group of surfactants is BETADET®.

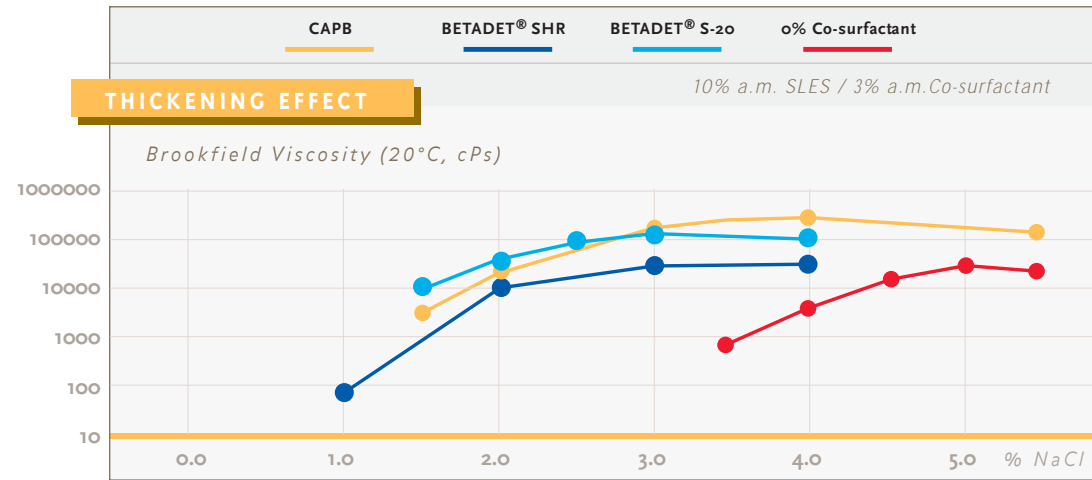
Cocamidopropyl betaine (CAPB) is by far the most used Betaine, not only due to the low cost but also to its effectiveness.

PROPERTIES

- Skin Compatible
- Foam Booster
- Thickening Agent
- Detoxification Effect
- Hard Water Tolerance

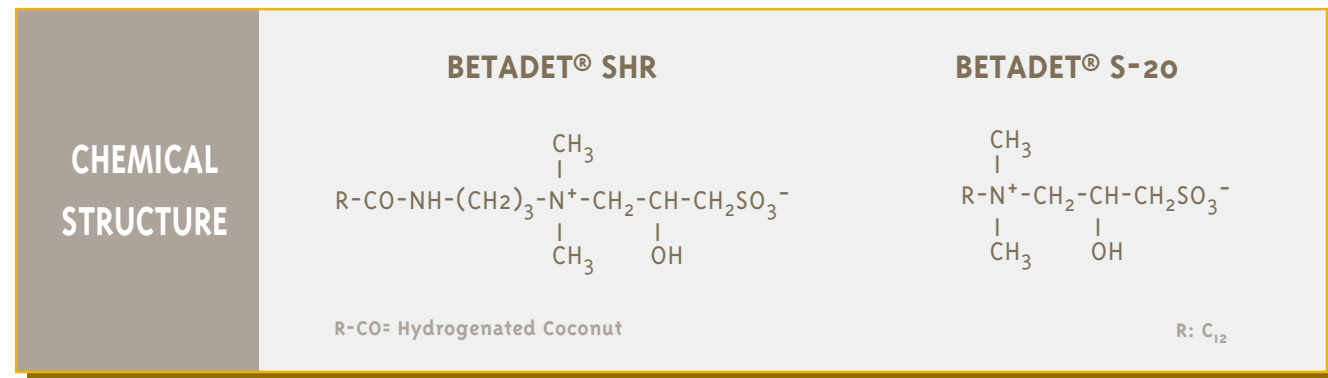
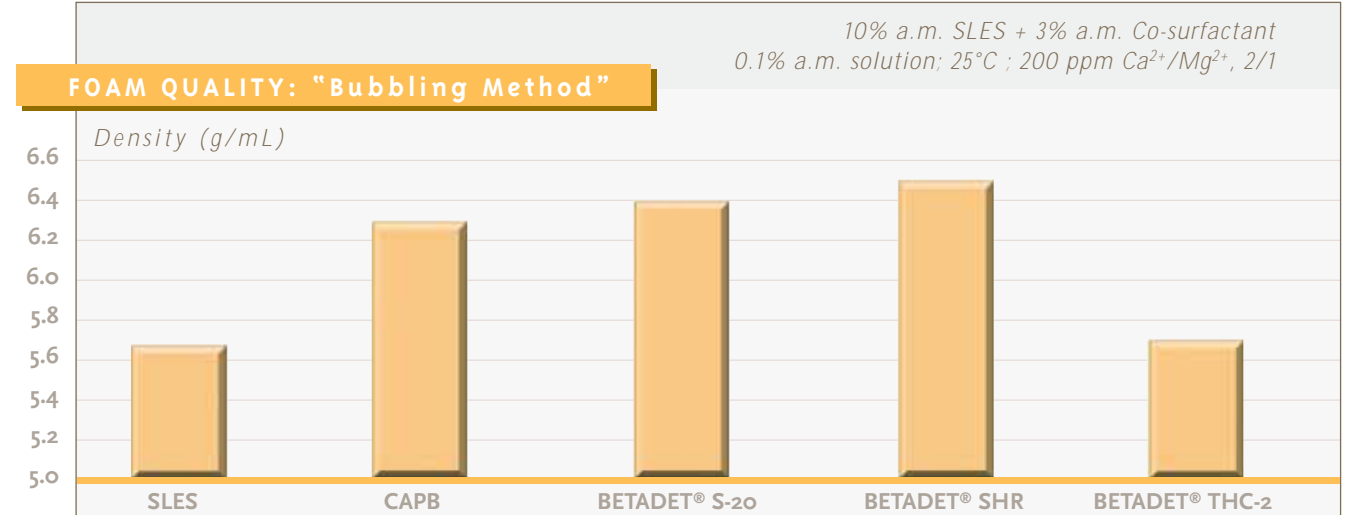
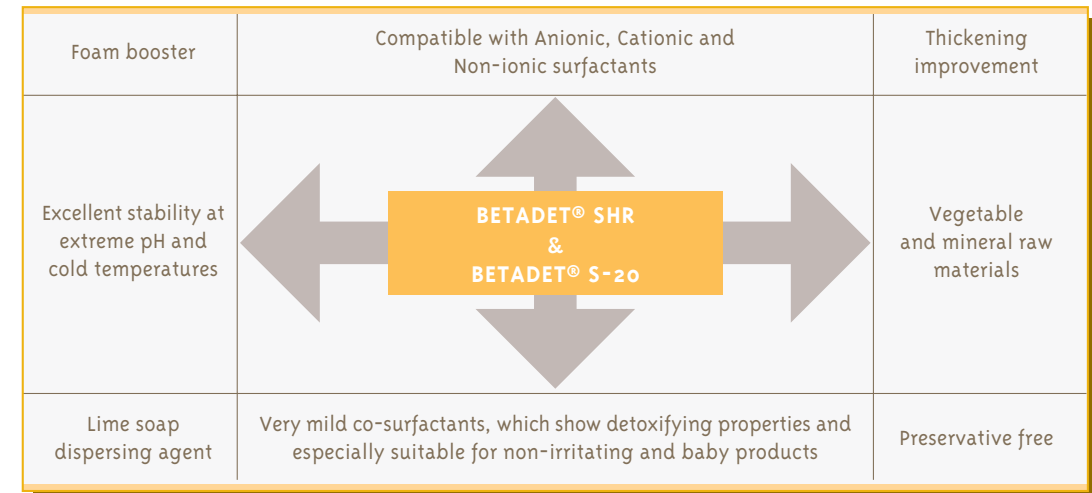
BETADET® Range :

Trademark	CAS Number	INCI Name	Appearance at 20°C	% Active Matter
BETADET® HR	61789-40-0	Cocamidopropyl Betaine	Liquid	≈ 30
BETADET® HR-50K	61789-40-0	Cocamidopropyl Betaine	Liquid	≈ 40
BETADET® S-20	13197-76-7	Lauryl Hydroxysultaine	Liquid	≈ 38
BETADET® SHR	68139-30-0	Cocamidopropyl Hydroxysultaine	Liquid	≈ 44
BETADET® THC-2	68650-39-5	Disodium Cocoamphodiacetate	Viscous Liquid	≈ 40



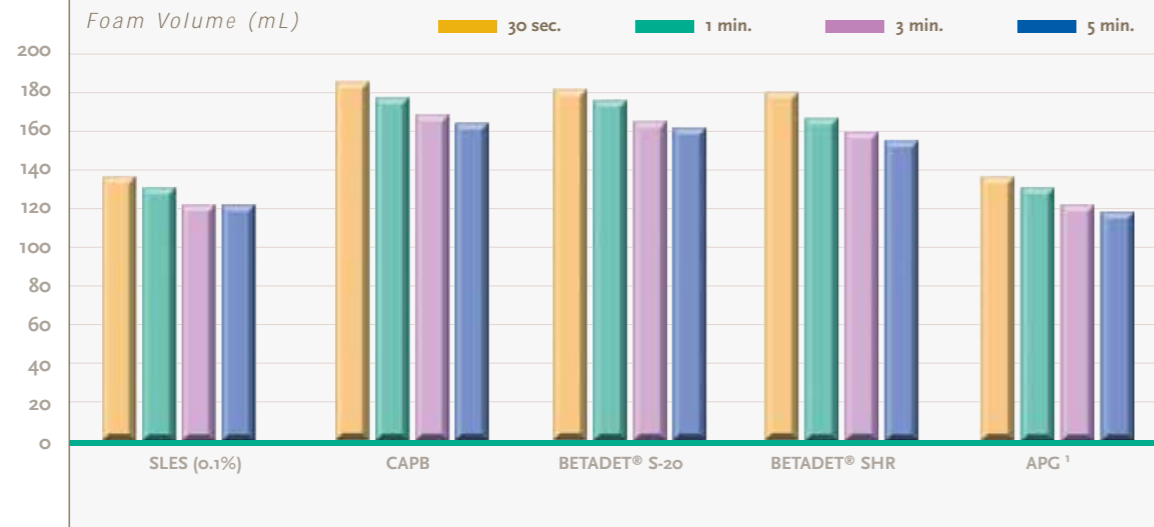
Besides the CAPB (BETADET® HR and BETADET® HR-50K), sulfobetaines or hydroxysultaines must be pointed out. Hydroxysultaines are trialkyl ammonium compounds similar to alkylbetaines but having an alkylsulfonate group. These surfactants present added advantages compared to standard CAPB. Kao Chemicals Europe's trademarks are BETADET® S-20 and BETADET® SHR.

Almost since their introduction on the market, amphoteric surfactants have been used in personal care products.



Foam Stability in the presence of sebum; 10% a.m. SLES + 3% a.m. Co-surfactant
0.1% a.m. solution; 40°C; 200 ppm Ca²⁺/Mg²⁺, 2/1; 0.5% Sebum

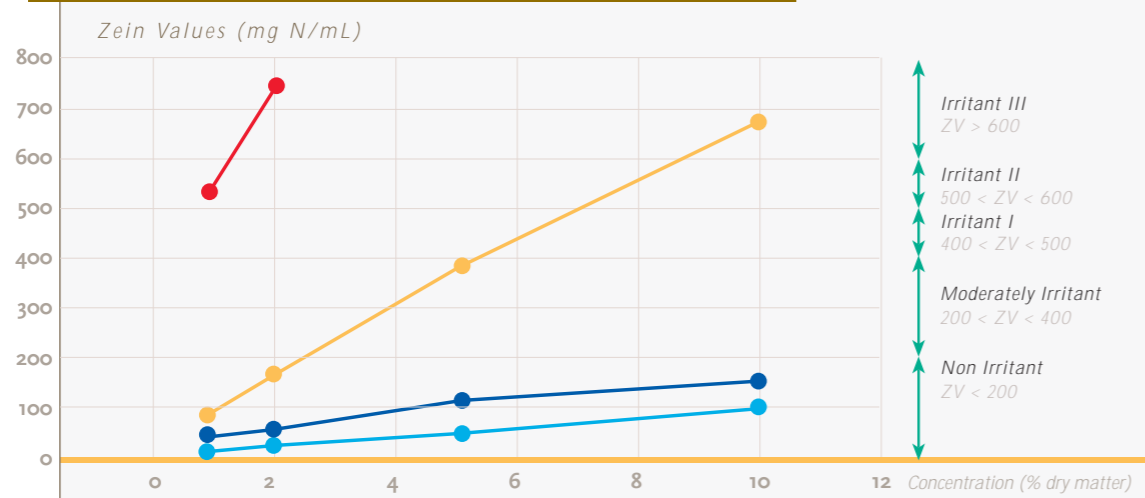
FOAM VOLUME : "Foaming Reverse Stirring Method"



MAIN APPLICATION



MILDNESS : Skin Irritation Potential "Zein Test"



(1) APG: Decyl Glucoside
SDS: Sodium Dodecyl Sulfate

Non-ionic surfactants have been used by the cosmetic industry for many years and for many different applications. A fundamental requirement for any cosmetic product is the need for high skin compatibility under normal conditions of use. The addition of a secondary surfactant in a cosmetic formula to improve the physico-chemical and toxicological properties of the main surfactant, as well as its final performance, is almost an obligation. LEVENOL®, registered trade name of KAO for a new range of non-ionic surfactants, meet these demands.

Chemically, LEVENOL® is a glycerine polyoxyethylene ester. The different degrees of ethoxylation and esterification provide a wide range of products with many different application properties regarding foaming and thickening ability, solubilization and emulsifying capability and moisturising effect.

The LEVENOL® range is characterised by its ecological and toxicological advantages when compared with other non-ionic surfactants. The surfactants included in the LEVENOL® range don't need any risk and safety phrase warnings on its label, even at 100% concentration. This fact makes them very suitable for environmentally friendly cosmetics, which therefore can achieve better classification according to the European Directive of Preparations (1999/45/EC).

LEVENOL® products are also included in the positive list of Bra Miljöval (good environmental choice) in the Nordic countries.

MAIN APPLICATION



Among all the surfactants included in the LEVENOL® range, the one which is recommended as co-surfactant is LEVENOL® H&B.

LEVENOL® H&B is a multifunctional raw material for toiletries performing as a thickener, foam booster, skin and hair moisturizer and also emollient. It performs as detoxifying agent when combined with anionic surfactants.

Besides these properties as co-surfactant in cleansers it can be also used as emollient and emulsifier in leave-on or any skin care products.

LEVENOL® C-201 is a good solubilizer for oils, perfumes, fragrances and some silicones.



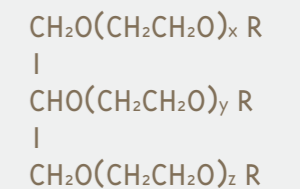
PROPERTIES

- Ecological-No Labelling Needed
- No "R" or "S" Sentences
- Non-irritant for the Skin
- Non-irritant for the Eyes
- Vegetable Origin
- Preservative Free

APPLICATION

- Body Cleansers
- Liquid Hand Soaps
- Shampoos
- Facial Cleansers
- Skin Care

CHEMICAL STRUCTURE

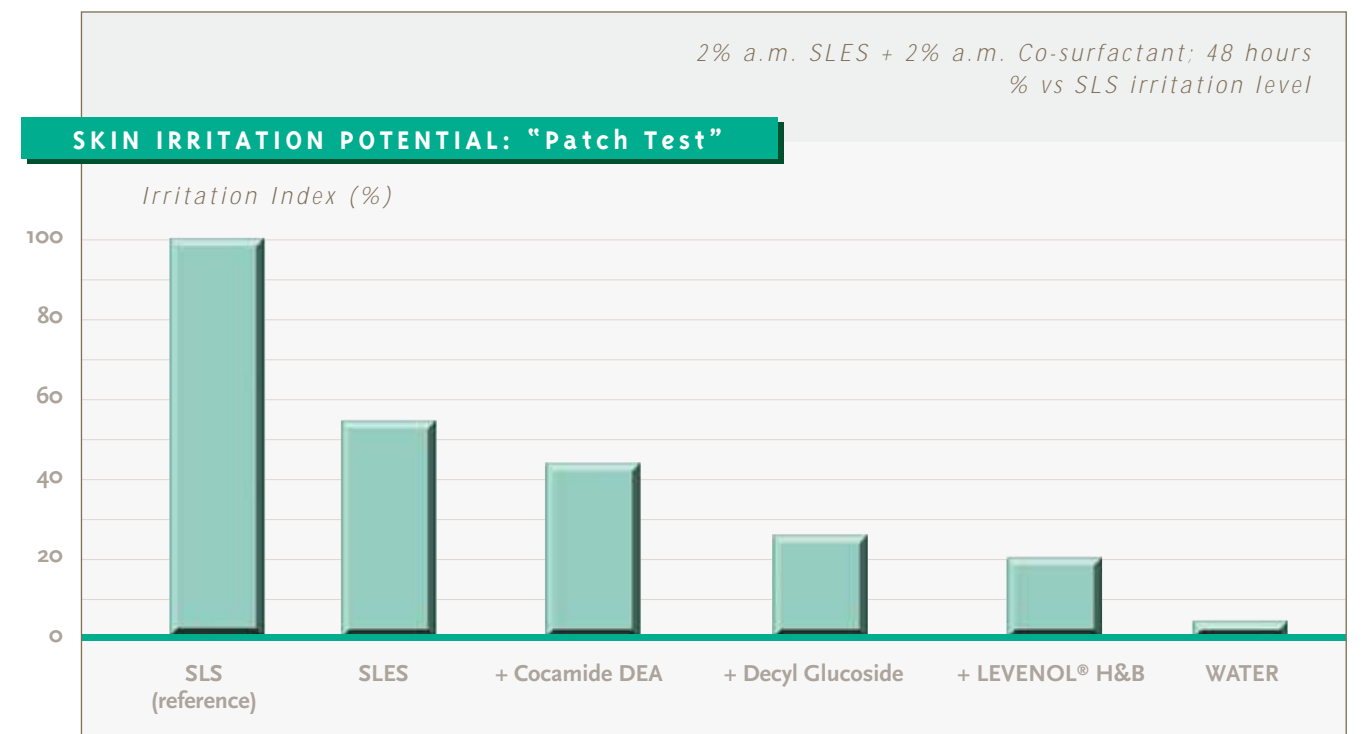
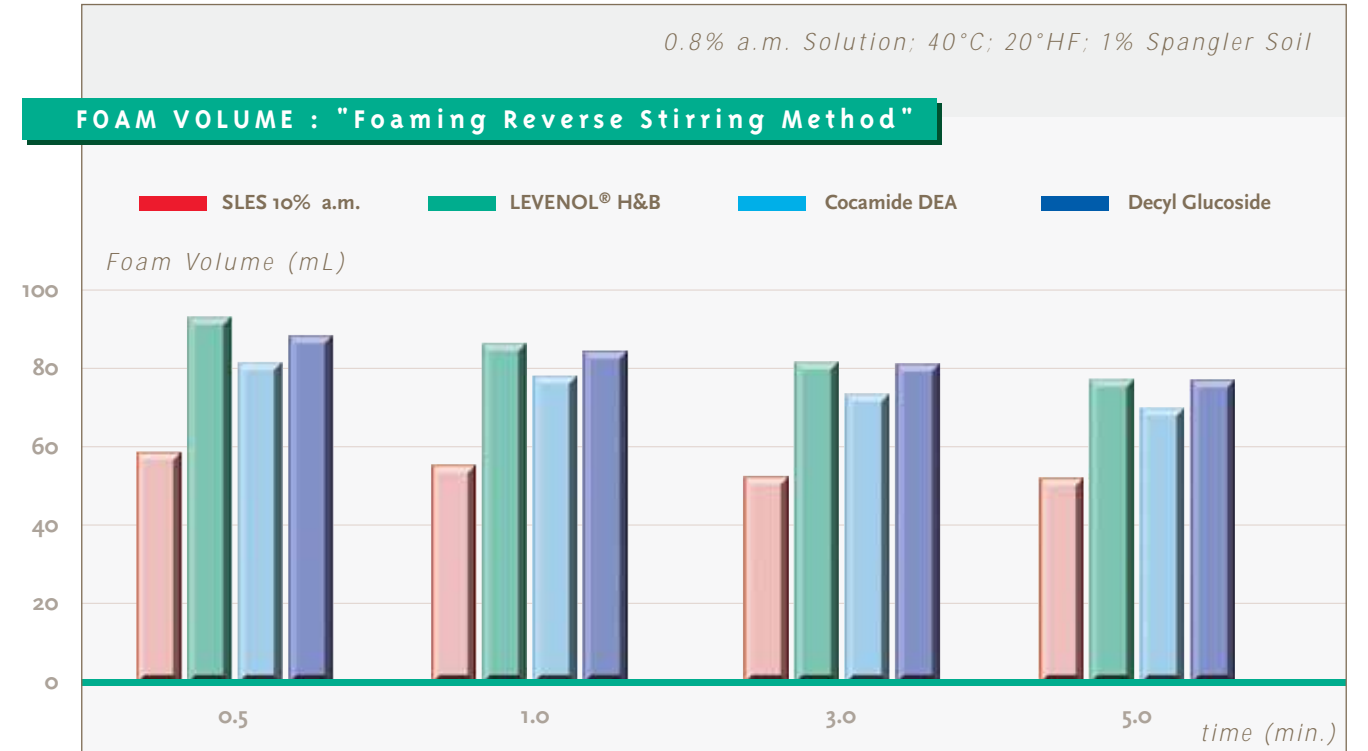
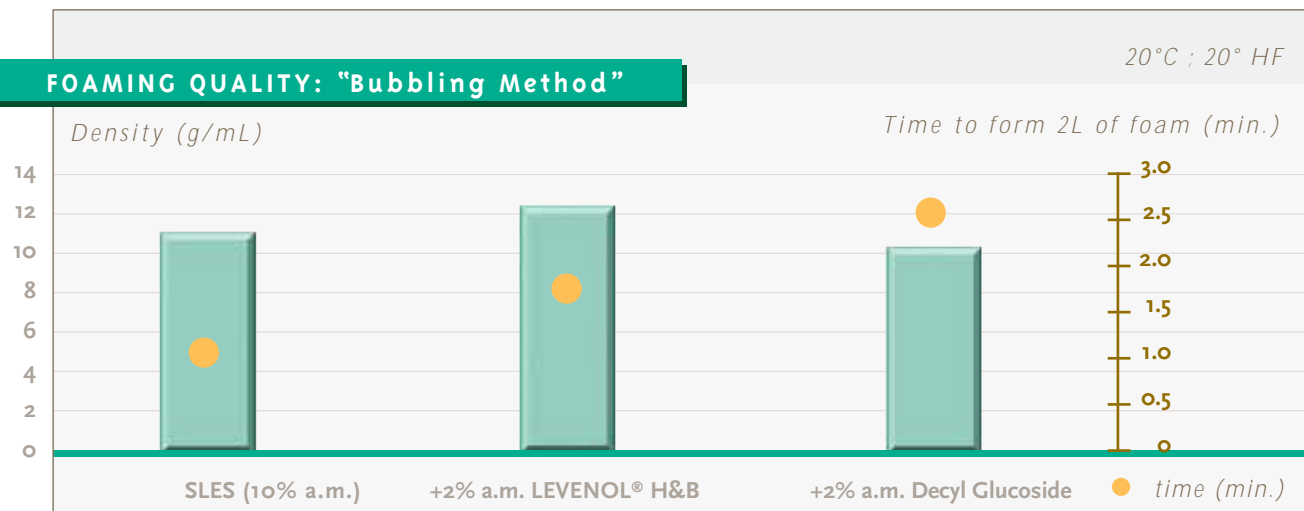
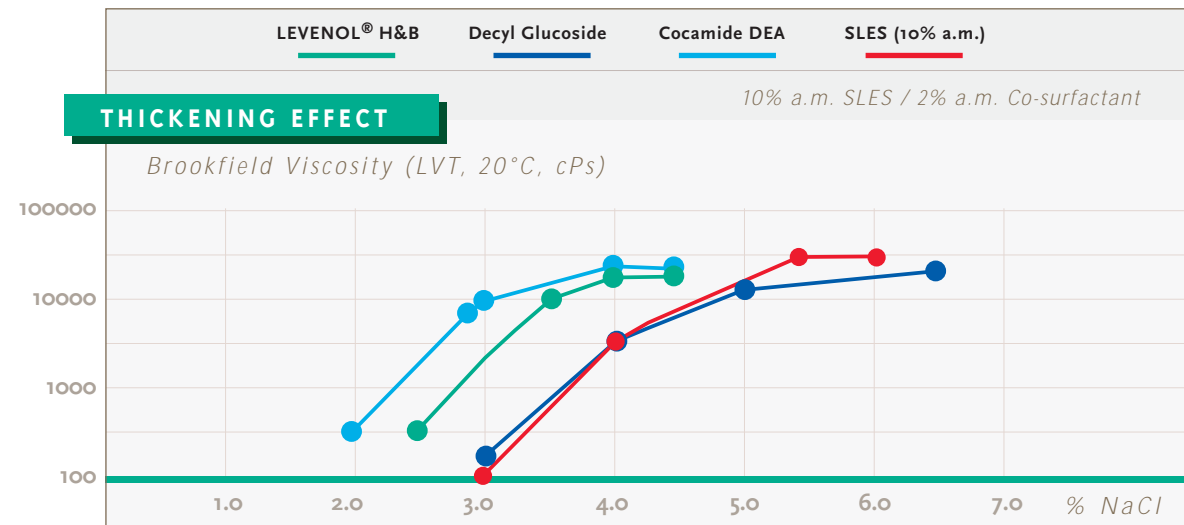


R = H or R'-CO (Coconut chain)
x+y+z=2

LEVENOL H&B

- Foam Booster
- Thickener
- Skin Emollient

LEVENOL® Range					
Trademark	CAS Number	INCI Name	Appearance at 20°C	% Active Matter	Properties & Application
LEVENOL® H&B	68201-46-7	Glycereth-2 Cocoate	Liquid	≈ 100	Good Foaming & Thickening Skin Emollient
LEVENOL® C-301	68201-46-7	Glycereth-7 Cocoate	Liquid	≈ 100	Medium Foaming & Thickening
LEVENOL® C-201	68201-46-7	Glycereth-17 Cocoate	Liquid	≈ 100	Solubilizing Effect



Thickeners

AMIDET®

The Kao Chemicals Europe's trademark for alkanolamides and their derivatives is AMIDET®.

In the cosmetic field, alkanolamides are well known for their ability to greatly enhance the viscosity of aqueous sodium alkyl sulfate and alkyl ether sulfate solutions.

Alkanolamides are also characterized by their excellent foam boosting and stabilizing properties.

Cocamide DEA (AMIDET® B-112) has been the most used alkanolamide for years, as viscosity enhancing agent and foam booster, due to its liquid appearance and its good price-performance ratio.

Concerns over the safety of secondary alkanolamides have led to a steady decline on their use and new alternatives have been introduced in the market using "DEA-free" concept. Cocamide MEA (AMIDET® A-111-P) is one of the alternatives in spite of its solid appearance and high melting point.

In Kao Chemicals Europe range there are also different types of ethoxylated monoethanolamides, based on different alkyl chain and ethoxylation degree, which are used in a variety of applications as emulsifiers and solubilizers.

The most "unique" surfactant that Kao Chemicals Europe produces is AMIDET® N. This product is based on rapeseed oil, a vegetable oil with high content of C18 unsaturated fatty acid and is therefore liquid.

AMIDET® N is highly concentrated with strong solubilizing and emulsifying properties, especially for silicone derivatives, perfumes and vegetable oils. Compared to cocamide DEA, it is a better thickener and foam booster, being also wash active.

Another alkanolamide derivative is AMIDET® A 15, which is a modified ether carboxylic acid. Because its unbeatable thickening effect it becomes a very good gelling agent in hair coloration products. Moreover it also improves the colour up-take and the levelling effect on the hair surface.

PROPERTIES

AMIDET® N

- Thickener
- Foam Booster
- Solubilizer
- Emulsifier
- Mildness

AMIDET® A 15

- Hair Dyes Application
- Levelling Agent
- Gelling effect
- Colour Up-take

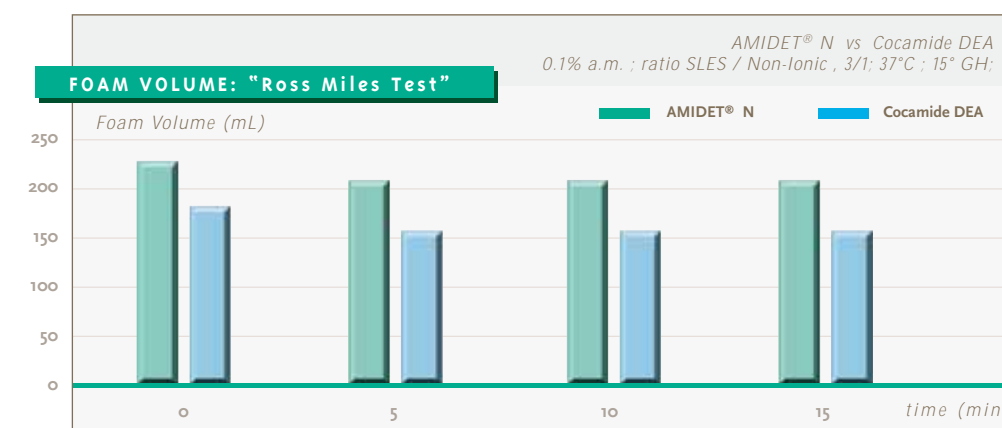
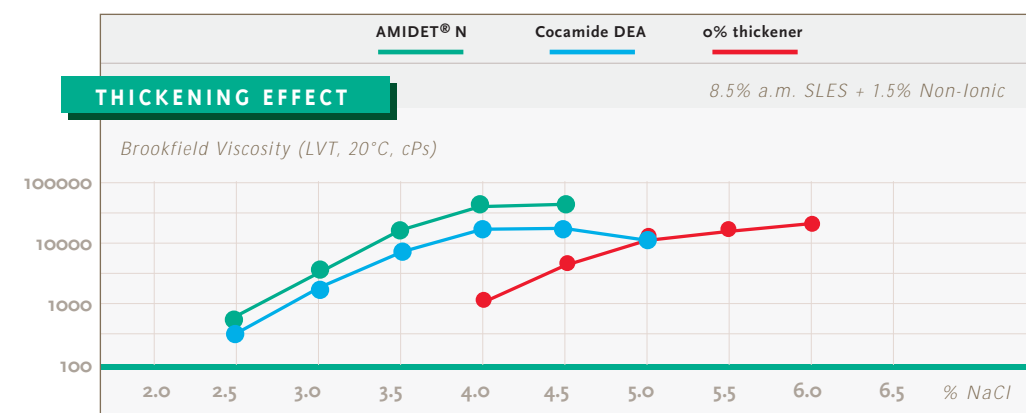
CHEMICAL STRUCTURE

AMIDET® N

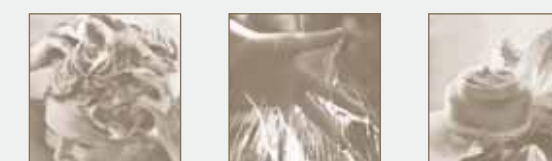
$R-CO-NH-(CH_2CH_2O)_nH$
R-CO: rapeseed oil n=3

AMIDET® A 15

$R-O-(CH_2CH_2O)_n-CH_2-CO-NH-CH_2CH_2OH$
R-CO: C13/C15 n=1.5



MAIN APPLICATION



AMIDET® Range:				
Trademark	CAS Number	INCI Name	Appearance at 20°C	% Dry Matter
AMIDET® A-111-P	68140-00-1	Cocamide MEA	Pellets	≈ 100
AMIDET® B-112	68603-42-9	Cocamide DEA	Liquid	≈ 100
AMIDET® N	85536-23-8	PEG-4 Rapeseedamide	Liquid	≈ 95
AMIDET® A 15	107628-04-6	Trideceth-2 Carboxamide MEA	Liquid	≈ 95
AMIDET® A/17	61791-08-0	PEG-5 Cocamide	Liquid	≈ 100
AMIDET® A/26	61791-08-0	PEG-14 Cocamide	Liquid	≈ 100

QUARTAMIN® / TETRANYL® / AMIDET®

Hair conditioners are used to provide a variety of benefits to hair: they reduce the combing force, enhance the gloss, confer smoothness and anti-static properties and they improve the manageability of the hair.

The ability of the cationic compounds to provide conditioning properties to hair is due both to the hydrophobic nature of the alkyl chain as well as to the cationic charge of the polar head.

Particularly well proven are cationic surfactants having a trimethyl ammonium group. Among these products, cetrimonium chloride (CTAC), containing a cetyl alkyl chain (C16), is one of the most widely used. In Kao Chemicals Europe this product comes in three different concentrations, QUARTAMIN® 60L at 50%, QUARTAMIN® 60W30 at 30% and QUARTAMIN® 60W25 at 25%.

A similar structure is that of behentrimonium chloride (BTAC), where the alkyl fatty chain consists primarily of a behenic radical (C22). This compound has been used more and more over the last years, due to the excellent performance associated to the very long alkyl chain. Kao Chemicals Europe produces the behentrimonium chloride under the trade name of QUARTAMIN® AB and a mixture with cetearyl alcohol, which is QUARTAMIN® ABK. This concentrated pre-mix for hair rinses application comes without any kind of solvent.

It is well known that monoalkyl compounds present limitations regarding to their ecotoxicological properties. Kao Chemicals Europe produces different environmentally friendly products, which are readily biodegradable and show also good properties on aquatic toxicity.

Based on the long experience in domestic softeners, Kao developed a special cosmetic grade TEA-esterquat, based on oleic alkyl chain. This is TETRANYL® CO-40.

A different esterquat produced by Kao Chemicals Europe is based on C22 alkyl chain and it is commercialised as a pure cationic surfactant, QUARTAMIN® BTC 131, as well as blended with cetyl alcohol as a pre-mix. This one enables the production of cream rinses just by dilution at 40°C.

MAIN APPLICATION



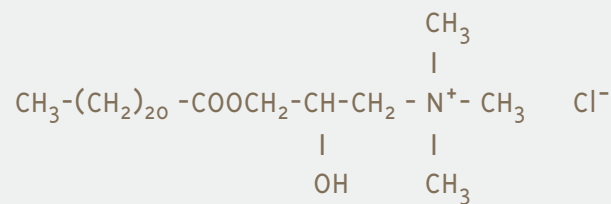
CATIONIC SURFACTANTS Range:

Trademark	CAS Number	INCI Name	Appearance at 20°C	Active Matter (Cationic, %)	Solvent
QUARTAMIN® 60W25	112-02-7	Cetrimonium Chloride	Liquid	25%	Water
QUARTAMIN® 60W30	112-02-7	Cetrimonium Chloride	Liquid	30%	Water
QUARTAMIN® 60L	112-02-7	Cetrimonium Chloride	Liquid	50%	Water IPA
QUARTAMIN® TH-V	68002-62-0	Steartrimonium Chloride	Liquid	50%	Water IPA
QUARTAMIN® AB	68607-24-9	Behentrimonium Chloride	Pellets	85%	IPA
QUARTAMIN® ABK	68607-24-9 + 67762-27-0	Behentrimonium Chloride + Cetearyl Alcohol	Pellets	35%	None
QUARTAMIN® BTC 131	69537-38-8	Behenoyl PG-Trimonium Chloride	Pasty	≈ 70%	Water Hexylene Glycol
QUARTAMIN® BTC 131 VC	69537-38-8 36653-82-4	Behenoyl PG-Trimonium Chloride + Cetyl Alcohol	Pasty	≈ 30%	Water Hexylene Glycol
TETRANYL® CO-40	94095-35-9	Dioleylethyl Hydroxyethylmonium Methosulfate	Liquid	80%	DPG
AMIDET® APA22	60270-33-9	Behenamidopropyl Dimethylamine	Pellets	100%	None

Another class of "pseudo-cationics" are amidoamine derivatives, which in acidic media present a net cationic charge and perform as a cationic surfactant. AMIDET® APA22, a C22 amidoamine presents also good results on environmental aspects and also on effectiveness on combing force and anti-static properties.

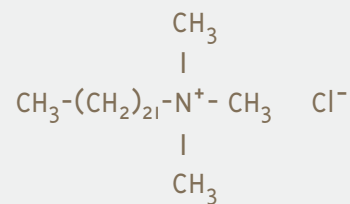
CHEMICAL STRUCTURE

QUARTAMIN® BTC 131



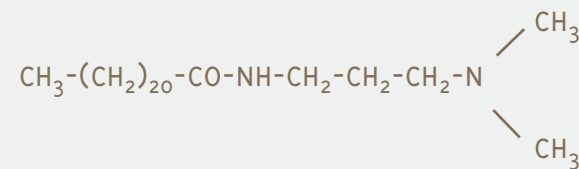
Behenoyl PG-Trimonium Chloride

QUARTAMIN® AB



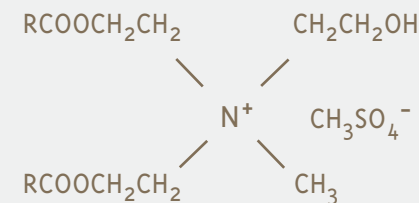
Behentrimonium Chloride

AMIDET® APA 22



Behenamidopropyl Dimethylamine

TETRANYL® CO-40



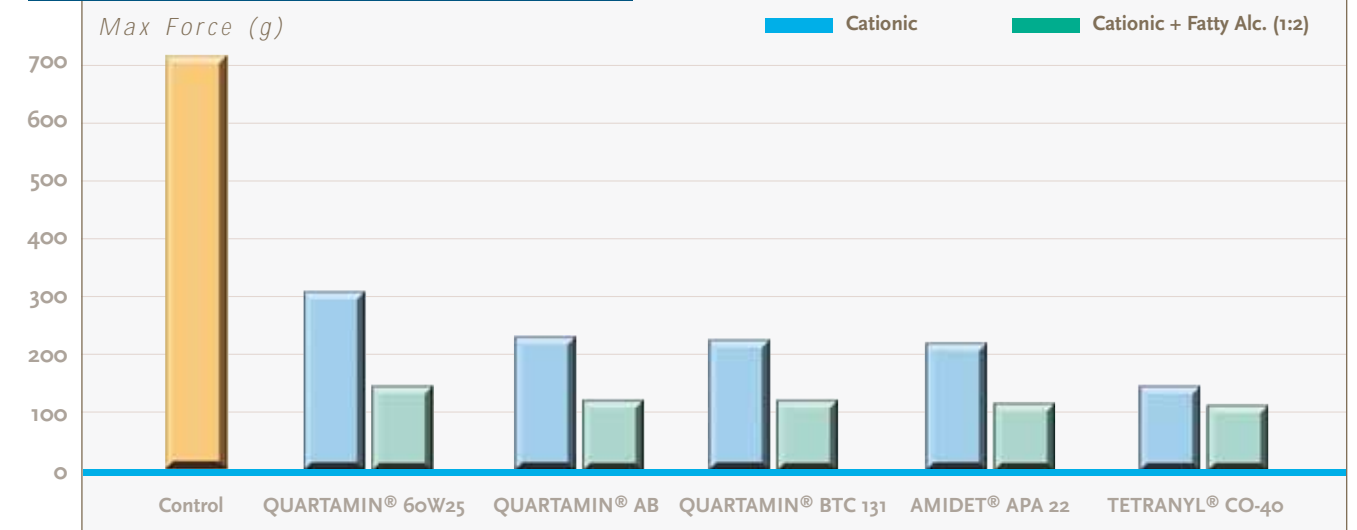
Oleic Esterquat

	Single Cat.	Cat/FA (1/2)
Quat	1.5	1.5
Cetearyl Alcohol	-	3.0
Water	up to 100	
Lactic Acid	pH adjusted to 3.5	

The lower the Combing Force (Max Force), the better conditioning and smoothing effect

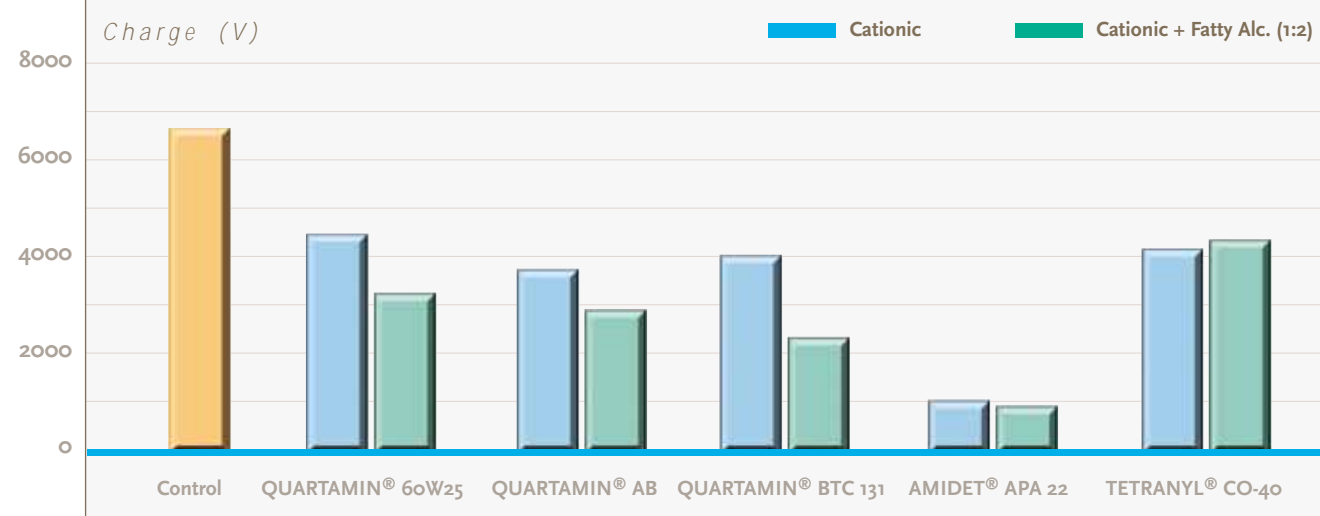
COMBING FORCE - WET CONDITION

1.5% a.m. cationic; Caucasian Virgin Hair; Instron Dynamometer



ANTISTATIC PROPERTIES

Natural Hair; Conditioning at 21°C; 40% RH



Besides cationic surfactants used in hair rinses, fatty alcohols play a major role as thickeners and conditioners. Worldwide KAO is one of the major producers of fatty alcohols based on vegetable origin.

In cream rinses mainly three types of fatty alcohols are applied, cetyl alcohol, stearyl alcohol and cetearyl alcohol, being the last one the most used. All these fatty alcohols are available as beads.

Other application areas for these types of alcohols are skin care creams and lotions.

MAIN APPLICATION



KALCOL® Range:

Trademark	CAS Number	INCI Name	R
KALCOL® 6098	36653-82-4	Cetyl alcohol	C16 : 98%
KALCOL® 8098	112-92-5	Stearyl alcohol	C18 : 98%
KALCOL® 6850	67762-27-0	Cetearyl alcohol	C16 : 50% / C18 : 50%
KALCOL® 6870P	67762-27-0	Cetearyl alcohol	C16 : 75% / C18 : 25%

DANOX® / AKYPO® SAL

Image and appearance have always been very important and for cosmetic products even more so.

Pearling agents are widely used in cleansing cosmetic products to improve their appearance. By incorporating them a white product with a high shiny and brilliant appearance is obtained.

The pearling effect gives an appearance of richness and luxury, which makes cosmetic products more attractive to consumers. Other reasons to use pearling agents is to hide a hazy or slightly opaque appearance produced by the incorporation of poorly soluble additives.

Development of pearling agents concentrates (PAC) is complex and their final composition is usually a result of a long R&D investigation and optimisation of the crystallisation process.

Mainly, all the pearlescent concentrates found in the market are based on ethylene glycol distearate (EGDS) and fatty amides. The use of fatty amides helps the formation of crystals of EGDS and improves the nacreous appearance. Recently, fatty amides have been abandoned due to increasing sensitivity in the market, and there is a trend towards milder and more innocuous products.

Following European trends in pearling agents, Kao Chemicals Europe developed DANOX® BF-22 without alkanolamides; the preservative was eliminated in DANOX® P-15 and our most recent development DANOX® PL-10, does not contain amides, is preservative free, highly concentrated and very mild to the skin and eyes, maintaining an excellent performance. Furthermore ingredients of the DANOX® PL-10 improve skin and hair condition by increasing moisture content.

Pearling agents concentrates (PAC) are usually added to the surfactant solution at the end of the production process at room temperature, avoiding heating of the total solution and the controlled crystallisation process. They save time and energy. Their common use percentage is between 2 and 10%.

Among the range of Kao Chemicals Europe, AKYPO® SAL 2010 S and DANOX® PAC-T are very effective pearling agents with excellent price-performance ratio. Both products are based on Cocamide DEA. DANOX® P-15 is a very effective pearling additive, which can be used at a very low percentage; it is based on Cocamide MEA. DANOX® BF-22 is based on amphoteric and non-ionic surfactants therefore it is compatible with any type of surfactants. It is a very effective pearling additive. It gives a fine silky gloss effect. Finally, DANOX® PL -10 is a new pearling agent developed in accordance to the new market trends.

DANOX® / AKYPO® SAL

PROPERTIES

Pearling Effect



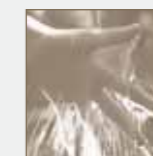
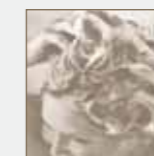
PAC as it is

APPLICATION



3% PAC in a pink coloured water solution

MAIN APPLICATION



PAC Range		
Trademark	INCI Name	% Active Matter
AKYPO® SAL 2010 S	Sodium Laureth Sulfate Cocamide DEA Glycol Distearate	≈ 36
DANOX® PAC-T	Sodium Laureth Sulfate Cocamide DEA Glycol Distearate	≈ 36
DANOX® BF-22	Cocamidopropyl Betaine Laureth-4 Glycol Distearate	≈ 44
DANOX® P-15	Sodium Laureth Sulfate Cocamide MEA Glycol Distearate	≈ 40
DANOX® PL-10	Sodium Laureth Sulfate Glycereth-2 Cocoate Glycol Distearate	≈ 52

LEVENOL® / EMANON®

Ingredients providing care benefits for skin and hair in personal cleansing products are becoming increasingly important. Formulators of cosmetic products like to use components that can provide better sensorial characteristics to these final cleansers. To maintain the right balance between emollients and the surfactant base is important to achieve optimal cleansing and lathering properties in rinse-off products. In general emollients are used to soften the skin.

The most used water soluble emollient applied in hair and body shampoos is the well-known ester, PEG-7 glyceryl cocoate, which Kao Chemicals Europe produces under the trade name of EMANON® HE.

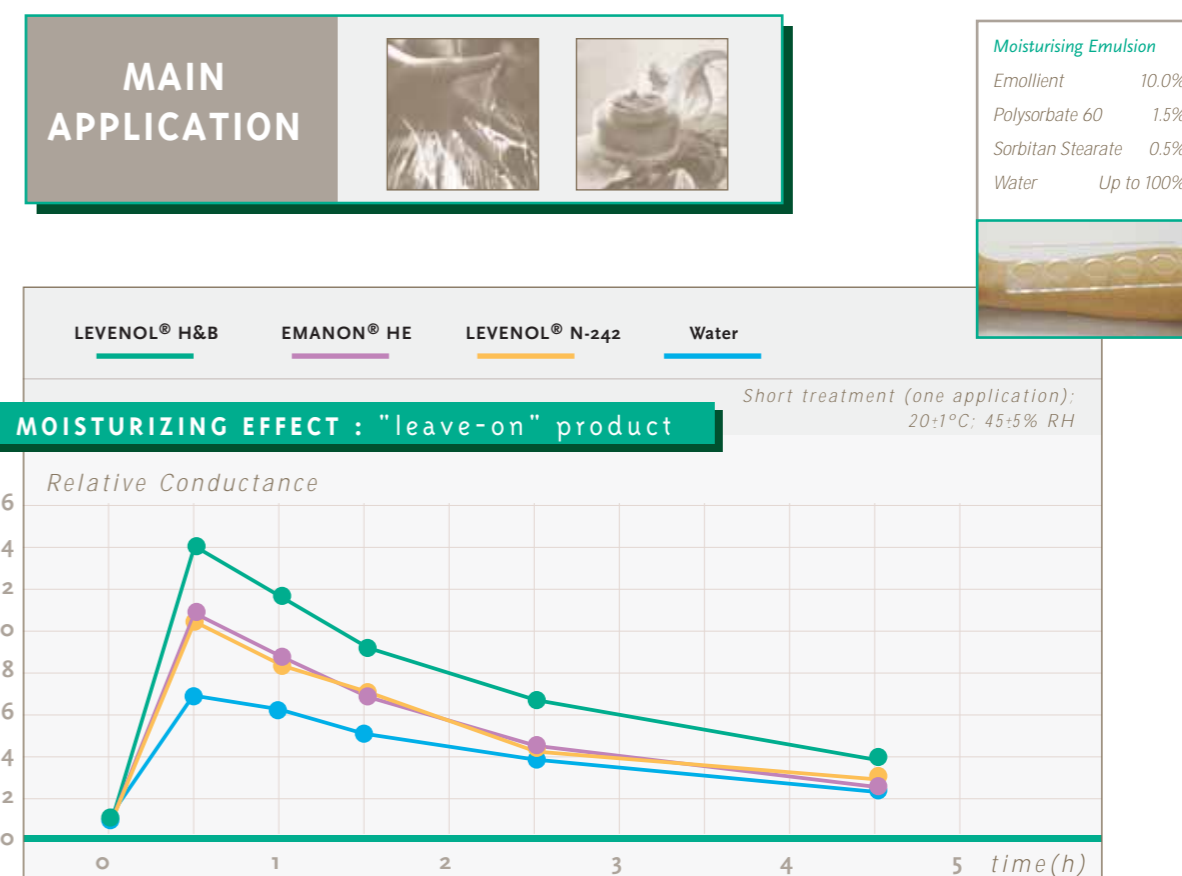
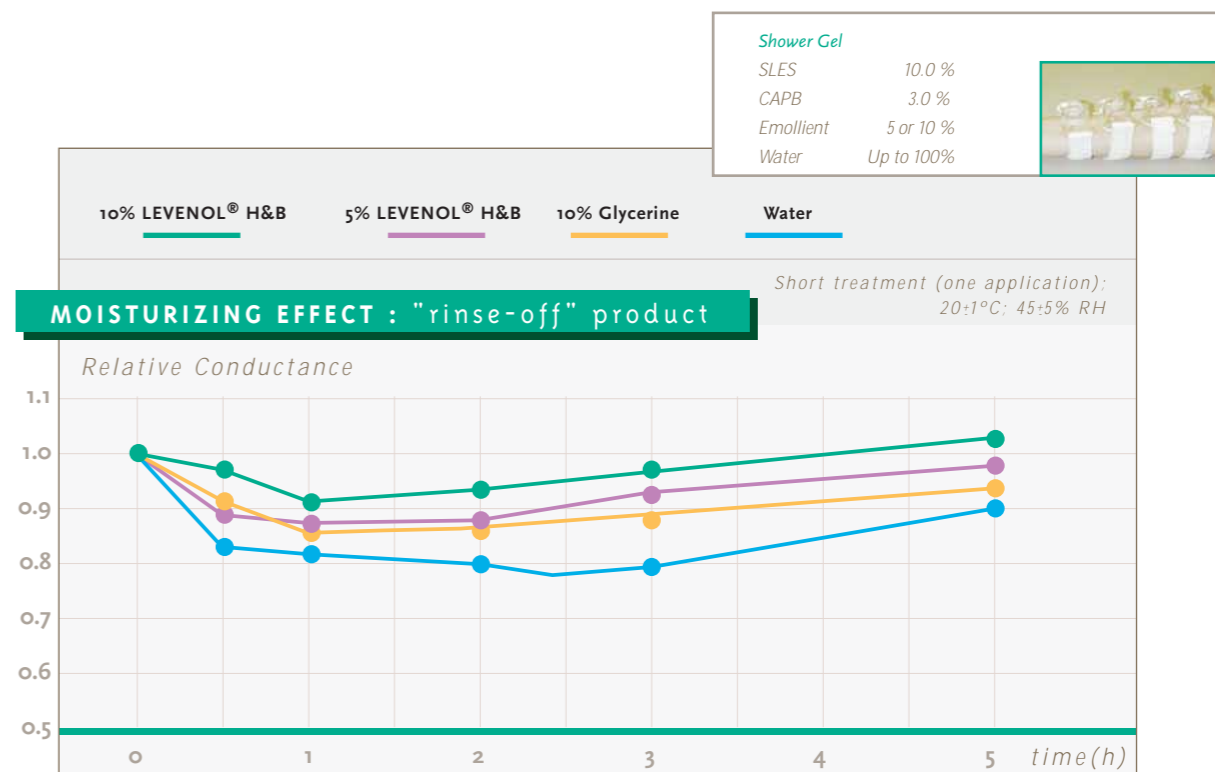
Another water-soluble oil is PEG-6 caprylic/capric glycerides, LEVENOL® N-242, which is used in bath products as re-greasing agent, imparting a long-lasting skin feeling.

Besides the properties mentioned before of LEVENOL® H&B as co-surfactant, this non-ionic surfactant also presents very nice properties regarding skin care. Coconut oil has been widely used in cosmetics for years. Its small molecular structure allows for easy adsorption, giving the skin a soft smooth texture. Coconut oil softens the skin, but protects against damage, promotes healing and gives it a more healthy appearance and shine. The low degree of ethoxylation in LEVENOL® H&B lead to an ester with similar emollient benefits to coconut oil, and which can be used in both aqueous systems and in leave-on products.

With LEVENOL® H&B used as co-surfactant, cosmetic formulators can develop high quality products at lower cost, because there is no need for additional moisturizers to be added.

MOISTURIZERS Range :

Trademark	CAS Number	INCI Name	Appearance at 20°C	% Active Matter
EMANON® HE	68201-46-7	PEG-7 Glyceryl Cocoate	Liquid	≈ 100
LEVENOL® H&B	68201-46-7	Glycereth-2 Cocoate	Liquid	≈ 100
LEVENOL® N-242	308067-12-1	PEG-6 Caprylic/Capric Glycerides	Liquid	≈ 100
FINDET® LN/8750	61790-81-6	PEG-75 Lanolin	Liquid	≈ 50



Following the introduction of the "2 in 1" concept in the early 90's, the use of silicones and cationic polymers, as well as the use of essential oils in personal cleansers, became more and more extended. Body and hair cleansers are required to offer additional properties such as a soft feel, enhanced shine or good combing. The use of these additives in clear aqueous formulations such as gels, conditioners or shampoos, will haze the solution and can eventually lead to separation. Especially the silicones are hardly emulsified in water solutions such as shampoos. To avoid haziness and prevent separation, the use of a solubilizer is required. Surfactants usually used as solubilizers have a high HLB and disperse clearly in water. They have to be used in the proper ratio with the oil. This surfactant to oil ratio can range from 2:1 to higher, although the optimum is based on empirical results.

One of the most effective solubilizers, useful to incorporate many different type of oils, is PEG-40 hydrogenated castor oil, which Kao Chemicals Europe produces under the trade name of FINDET® ARH/52. Besides this well known surfactant, Kao Chemicals Europe's product range also includes some relevant surfactants that combine comparable solubilizing properties to the above mentioned product, together with some additional benefits as co-surfactants, such as foaming ability, thickening effect or emolliency. This is the case of some products in the AKYPO®, AMIDET® or LEVENOL® families. Detailed information about process-ability, compositions and additional benefits are available upon request, as well as some related publications.

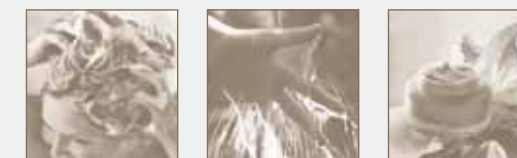
ADDITIONAL PROPERTIES

Co-surfactant

Mildness

Vegetable Origin

MAIN APPLICATION



As it is known, an emulsion is a system of two or more immiscible materials in which one material or phase is dispersed as particles in the other. Emulsifying agents are required to reduce the interfacial tension and stabilize these emulsions. They may be anionic, cationic, non-ionic or even amphoteric surfactants in nature. To select the most convenient emulsifier, the type of emulsion to be prepared has to be decided. The most common type in cosmetic products today is oil-in-water (O/W), in which water is the continuous phase, resulting in a cooling effect, due to water evaporation, when it is applied directly to the skin. On the other hand, when a water-in-oil (W/O) emulsion is used, the oil makes contact immediately with the skin, giving a more occlusive oily film and less refreshing effect. This type of emulsions is used in night creams, makeup removers, sunscreens, etc.

The Hydrophile-Lipophile system (HLB), developed by Griffin in 1949, makes the choice of the emulsifier quite simpler and systematic. The HLB system is the ratio of oil-soluble and water-soluble portions of a molecule, and it is mainly used for non-ionic surfactants.

Kao Chemicals Europe offers a group of sorbitan esters which are widely used as emulsifiers, and which cover a wide HLB range. This is the KAOPAN® family.

Another important group of surfactants, which are mostly used in the cosmetic field as emulsifying agents are the fatty alcohol ethoxylates. Kao Chemicals Europe produces them under the name of FINDET®. Alkyl chain length and ethoxylation degree are variable.

EMULSIFIERS & SOLUBILIZERS Range:

Trademark	CAS Number	INCI Name	Appearance at 20°C	HLB
KAOPAN® SP-L10	68154-36-9	Sorbitan Laurate	Liquid	8.6
KAOPAN® SP-S10	1338-41-6	Sorbitan Stearate	Solid-Pellets	4.7
KAOPAN® SP-O10	1338-43-8	Sorbitan Oleate	Liquid	4.3
KAOPAN® TW L120	9005-64-5	Polysorbate-20	Liquid	16.7
KAOPAN® TW S120	9005-67-8	Polysorbate-60	Liquid	14.9
KAOPAN® TW O120	9005-65-6	Polysorbate-80	Liquid	15.0
FINDET® 1214N/23	68439-50-9	Laureth-11 & Myreth-11	Solid-Paste	14.3
FINDET® 1618A/18	68439-49-6	Cetareth-6	Solid	10.2
FINDET® 1618A/35-P	68439-49-6	Cetareth-23	Solid-Pellets	16.0
FINDET® 1618A/72-P	68439-49-6	Cetareth-60	Solid-Pellets	18.3
FINDET® 1816/32-E	68920-66-1	Oleth-20 & Ceteth-20	Solid	15.4
FINDET® ARH/52	61788-85-0	PEG-40 Hydrogenated Castor Oil	Soft Paste	13.9
LEVENOL® SR-152	180254-52-8	PEG-40 Sunflower Glycerides	Liquid	13.2

SOLUBILIZERS & CO-SURFACTANTS Range :

Trademark	CAS Number	INCI Name	Appearance at 20°C	% Active Matter
AKYPO® RLM 70	33939-64-9	Laureth-8 Carboxylic Acid	Liquid	≈ 90
AKYPO® SOFT 70 BVC	33939-64-9	Sodium Laureth-8 Carboxylate	Pasty	≈ 72
AKYPO® SOFT 100 BVC	33939-64-9	Sodium Laureth-11 Carboxylate	Liquid	≈ 72
LEVENOL® C-201	68201-46-7	Glycereth-17 Cocoate	Liquid	≈ 100
AMIDET® A 15	107628-04-6	Trideceth-2 Carboxamide MEA	Liquid	≈ 95

Shampoo

Applications

Hair Care

Body Cleansers

Others

NORMAL SHAMPOO

For all the family

Formula

		C-024	C-073
		Concentrated	Mild
MAIN SURFACTANT	EMAL® 270D or 270E	23	----
	EMAL® 228D or 227E	----	28.5
CO-SURFACTANT	BETADET® HR-50K	10	----
	BETADET® HR	----	10.0
	AKYPO® SOFT 100 NV	----	11.5
THICKENER	AMIDET® B-112	1.0	----
	AMIDET® N	----	1.0
EMOLLIENT	EMANON® HE	0.8	----
APPEARANCE MODIFIER	DANOX® P-15	3.0	----
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.
	Citric Acid /NaOH (diluted)	q.s.	q.s.
	NaCl	q.s.	≈ 0.8
	Deionized water	Up to 100%	Up to 100%

	Appearance	Pearled	Transparent
CHARACTERISTICS	pH	6.5	6.5
	Viscosity (cPs, 20°C)	8.000	2.500
	Dry matter (%)	25.0	17.0
	Cloud Point (°C)	----	- 10

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- When EMAL® 270D (SLES at 70% concentration) is used, it is recommended to heat the water up to around 45°C before adding it.
- All the other components are soluble in the SLES solution.
- Add DANOX® P-15 before viscosity adjust in order to be sure about its homogeneous incorporation.

BABY SHAMPOO

Keep your baby smiling

Formula

		C-011	C-068	C-095	C-100
		Without NaCl	Pearled	Regular	Very Mild
MAIN SURFACTANT	EMAL® 270D or 270E	---	12.0	---	12.0
	EMAL® 228D or 227E	14.00	---	31.5	---
CO-SURFACTANT	BETADET® S-20	13.0	7.5	9.0	7.0
	LEVENOL® H&B	2.0	2.0	2.0	2.0
	AKYPO® FOAM RL 40	---	---	---	1.5
THICKENER	KAOPAN® TW L120	1.0	---	q.s.	---
	PEG-120 Methyl Glucose Dioleate	≈ 0.6	---	---	---
	AMIDET® N	---	1.0	0.7	1.5
APPEARANCE MODIFIER	DANOX® PL-10	---	3.0	---	---
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.	q.s.
	Citric Acid / NaOH (diluted)	q.s.	q.s.	q.s.	q.s.
	NaCl	---	q.s.	---	---
	Deionized Water	Up to 100%	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance	Transparent	Pearled	Transparent	Transparent
	pH	6.5	6.5	6.5	6.5
	Viscosity (cPs, 20°C)	8.000	10.000	4.300	2.200
	Dry matter (%)	13.0	17.0	14.5	16.2
	Cloud Point (°C)	-4	---	-8	< -10
	Zein Test	Non Irritant	Non Irritant	Non Irritant	Non Irritant

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- In the case of ref. C-011, adjust the final desired viscosity using PEG-120 Methyl Glucose Dioleate to increase it or KAOPAN® TW L120 to decrease it.

ANTIDANDRUFF SHAMPOO

Keep you hair & scalp healthy

Formula

		C-026	C-050	C-114
		Zn-Pt	Climbazole	Piroctone Olamine
MAIN SURFACTANT	EMAL® 270D or 270E	15.0	23.0	---
	EMAL® 228D or 227E	---	---	25.0
	EMAL® 40TE	6.0	---	---
CO-SURFACTANT	BETADET® HR-50K	---	10.0	---
	BETADET® HR	5.0	---	---
	BETADET® THC-2	---	---	5.0
	AKYPO® FOAM RL 40	---	---	5.0
THICKENER	AMIDET® B-112	2.0	1.0	---
	Hydroxypropyl Cellulose	0.2	---	---
EMOLLIENT	EMANON® HE	0.8	0.8	---
CONDITIONER	TETRANYL® CO-40	0.5	---	---
	Zinc Pyrithione	1 active	---	---
	Climbazole	---	0.5	---
	Piroctone Olamine	---	---	0.5
	Salicylic Acid	---	---	0.3
	TETRANYL® U	0.5	---	1.0
APPEARANCE MODIFIER	DANOX® P-15	3.0	3.0	---
OTHERS	Additives*	q.s.	q.s.	q.s.
	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.
	Citric Acid / NaOH (diluted)	q.s.	q.s.	q.s.
	NaCl	< 1.0	q.s.	q.s.
	Deionized Water	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance	Opaque/pearled	Transparent
	pH	5.5	6.0
	Viscosity (cPs, 20°C)	5.000	4.000
	Dry matter (%)	21.0	15.0
	Cloud Point (°C)	---	-6

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- Ref. C-026 : solubilize Hydroxypropyl Cellulose into the water avoiding lumps formation.
- Ref. C-050 : mix Climbazole, AMIDET® B-112 and EMANON® HE, heating a little bit to improve solubility.

“ 2 i n 1 ” S H A M P O O

Keep your hair beauty

PROCESS - GENERAL REMARKS:

- When EMAL® 270D (SLES at 70% concentration) is used, it is recommended to heat the water up to around 45°C before adding it.
- All the other components are soluble in the SLES solution with the exception of some of the conditioners, those which are solid. In the case of QUARTAMIN® AB, all the mixture has to be heated up to 75°C.
- In the case of AMIDET® APA22 mix it with 10% of water and heat up to 65°C. Stir and add the blend to the basic composition.
- In ref. C-093, mix AMIDET® N, LEVENOL® H&B and QUARTAMIN® BTC 131, heat up to 50°C, stir until clear and add to the basic formula.

ADDITIVES:

- If higher conditioning effect or some specific benefits are desired, some other additives can be added like: silicones, vitamins, polymers, etc.
- To improve feeling while rinsing, our recommendation is to use SOFCARE® KG-101E at 0.3%.

SOFCARE® KG-101E

(Cationic Polymer)

Hair Care Application
Foam speed & creaminess
Better feeling while rinsing
Improve detangling
Better comb-ability
Smooth hair feeling

Produced by Kao Corporation in Asia

Formula

		C-066	C-072	C-080	C-093
		Very Mild	Regular Transparent	Regular Pearled	After Perm
MAIN SURFACTANT	EMAL® 270D or 270E	---	---	12.0	---
	EMAL® 228D or 227E	25.0	32.0	---	43.0
CO-SURFACTANT	BETADET® S-20	5.0	8.0	4.0	---
	BETADET® HR	---	---	3.0	---
	LEVENOL® H&B	2.0	2.0	1.5	1.5
	AKYPO® SOFT 70 BVC	4.0	---	---	2.0
THICKENER	AMIDET® N	---	---	---	2.0
FOAM BOOSTER	AMIDET® A 15	1.0	---	---	---
APPEARANCE MODIFIER	DANOX® PL-10	3.0	---	3.0	---
CONDITIONER	QUARTAMIN® AB	0.5	---	---	---
	AMIDET® APA22	---	0.5	---	---
	TETRANYL® CO-40	---	---	0.5	---
	QUARTAMIN® BTC 131	---	---	---	0.2
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.	q.s.
	Citric Acid /NaOH (diluted)	q.s.	q.s.	q.s.	q.s.
	NaCl (viscosity adjust)	q.s.	---	≈ 0.7	≈ 1.5
	Deionized Water	Up to 100%	Up to 100%	Up to 100%	Up to 100%

	Appearance	Pearled	Transparent	Pearled	Transparent
CHARACTERISTICS	pH	6.0	6.5	6.5	6.5
	Viscosity (cPs, 20°C)	9.000	3.700	10.500	4.000
	Dry matter (%)	17.0	15.0	16.0	18.0
	Cloud Point (°C)	---	< - 10	---	- 6

More details about process are available upon request

HAIR GLOSS SHAMPOO

Improve hair shine

Formula

		C-067	C-078
		Clear	Clear
MAIN SURFACTANT	EMAL® 227E or 228D	36.0	36.0
SOLUBILIZER	AKYPO® SOFT 100 BVC AKYPO® SOFT 70 BVC	--- 10	5.0 5.0
THICKENER	AMIDET® N PEG-150 Distearate	5.0 0.5	5.0 ---
CONDITIONER	Guar Gum (1) Jojoba Oil Cyclomethicone (2) QUARTAMIN® BTC 131	0.5 0.5 0.5 ---	--- --- 0.5 0.3
OTHERS	Preserv. / Fragr. / Dye(s) Citric Acid / NaOH (diluted) NaCl Deionized Water	q.s. q.s. q.s. Up to 100%	q.s. q.s. ≈ 3.0 Up to 100%

		Transparent	Transparent
CHARACTERISTICS	Appearance	Transparent	Transparent
	pH	6.5	6.3
	Viscosity (cPs, 20°C)	5.000	4.000
	Dry matter (%)	25.0	17.0
	Cloud Point (°C)	- 4	- 4

(1) Hydroxypropyl Guar Hydroxypropyltrimonium Chloride
(2) DC 245

PROCESS - GENERAL REMARKS:

C-067

- A** - Add guar gum to the water and reduce pH using citric acid to improve its incorporation. Continue adding EMAL® 227E.
 - B** - Mix AKYPO® SOFT 70 BVC, AMIDET® N and PEG-150 Distearate at 60°C.
 - B** - Mix Jojoba oil and cyclomethicone. Stir till clear.
 - D** - Add "C" over "B".
 - E** - Add "D" over "A".
- Continue with the addition of the rest of the components.

C-078

- A** - Mix Jojoba oil and cyclomethicone. Stir till clear.
 - B** - Mix QUARTAMIN® BTC 131 and AMIDET® N at 75°C. Stir till clear.
 - C** - Add "B" over "A".
 - D** - Add AKYPO® SOFT 100 BVC.
 - E** - Add AKYPO® SOFT 70 BVC.
 - F** - Mix EMAL® 228D with water.
 - G** - Add "F" over "E".
- Continue with the addition of the rest of the components.

HAIR RINSE CONDITIONER

Conditioning according to your needs

Formula

		C-054	C-056	C-053
		Normal Hair	Damaged Hair	Hair Mask
CONDITIONER	QUARTAMIN® ABK	4.5	6.0	9.0
CO-EMULSIFIER	FINDET® 1618A/35-P	0.5	---	1.0
EMOLLIENT	EXCEPARL® HO/IPM LEVENOL® H&B Protein Derivative ⁽¹⁾ Glycerine	--- --- --- ---	0.5 0.5 --- ---	2.0 --- 2.0 3.0
OTHERS	Additives Fragr./ Dye(s) / Preserv. Deionized Water	q.s. q.s. Up to 100%	q.s. q.s. Up to 100%	q.s. q.s. Up to 100%

			White Emulsion
CHARACTERISTICS	Appearance		White Emulsion
	pH		3.5 - 4.5
	Viscosity (cPs, 20°C)	5.000	16.000
	Dry matter (%)	5.0	7.0
	Cationic Active Matter (%)	1.5	2.0
			50.000
			15.0
			3.0

More details about process are available upon request
(1) Hydroxypropyltrimonium Hydrolized Wheat Protein

EXCEPARL® HO/IPM

(Cetyl Octanoate / Isopropyl Myristate)

90 / 10

Emollient
Conditioner

Available upon request

PROCESS - GENERAL REMARKS:

- Heat water up to around 50°C and add LEVENOL® H&B, FINDET® 1618A/35-P and glycerine.
- Continue heating till 80°C and add QUARTAMIN® ABK in flakes and EXCEPARL® HO/IPM. Keep stirring 30 minutes at 80°C.

HAIR RINSE CONDITIONER

Don't forget the environment

Formula

		C-109	C-110	C-115
		Normal Hair	Dry Hair	Normal Hair Low temperature
CONDITIONER	QUARTAMIN® BTC 131	2.0	2.0	---
	QUARTAMIN® BTC 131 VC	---	---	6.5
	Quaternium-80	---	1.0	---
CONDITIONER & THICKENER	KALCOL® 6850	3.0	3.0	---
EMOLLIENT	LEVENOL® H&B	---	---	0.5
OTHERS	Additives	q.s.	q.s.	q.s.
	NaCl	---	0.75	---
	Fragr./ Dye(s) / Preserv.	q.s.	q.s.	q.s.
	Deionized Water	Up to 100%	Up to 100%	Up to 100%

			White Emulsion		
CHARACTERISTICS	Appearance			White Emulsion	
	pH		3.5 - 4.5		
	Viscosity (cPs, 20°C)	10.100	9.000	10.000	
	Dry matter (%)	4.5	5.75	4.0	
	Cationic Active Matter(%)	≈ 1.2	≈ 2.2	≈ 1.7	

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- In order to obtain higher viscosities with QUARTAMIN® BTC 131 add it to 30% of the water at 60°C. Once incorporated add fatty alcohol and the rest of conditioners and emollients. After homogenization cool down to 40°C and then add the rest of water and additives.
- In the case of QUARTAMIN® BTC 131 VC add it to 50% of the water at 40°C. Once incorporated add the rest of conditioners and emollients. After homogenization add the rest of water and additives.
- If higher conditioning effect or some specific benefits are desired, some other additives can be added like: silicones, vitamins, polymers, etc.

Formula

		C-074	C-075	C-076	C-077
		Thin Hair	Normal Hair	Damaged Hair	Hair Mask
MAIN CONDITIONER	AMIDET® APA22	1.1	1.7	2.2	3.2
NEUTRALIZER	Lactic Acid (90%)	≈ 0.3	≈ 0.5	≈ 0.6	≈ 0.7
CONDITIONER & THICKENER	KALCOL® 6850	2.2	3.3	4.4	7.0
OTHERS	Additives	q.s.	q.s.	q.s.	q.s.
	Fragr./ Dye(s) / Preserv.	q.s.	q.s.	q.s.	q.s.
	Deionized water	Up to 100%	Up to 100%	Up to 100%	Up to 100%

			White Emulsion		
CHARACTERISTICS	Appearance			White Emulsion	
	pH		3.5 - 4.5		
	Viscosity (cPs, 20°C)	7.000	15.000	22.000	40.000
	Dry matter (%)	4.0	5.5	7.0	11.0
	Cationic Active Matter(%)	1.3	2.0	2.5	5.5

PROCESS - GENERAL REMARKS:

- Heat water up to around 75°C. Add the lactic acid and then AMIDET® APA22 under stirring, avoiding air incorporation.
- Once the mixture is clear add KALCOL® 6850 under stirring. Once the fatty alcohol is completely melted keep stirring at 75°C for 30 minutes, until total homogeneity.
- Start the cooling process in a gradual slope (5°C / 30 min.).
- Perfume and preservative must be added at temperature below 40°C. Then adjust the pH.

HAIR RINSE CONDITIONER

LEAVE-ON HAIR CONDITIONER

Clear Gel - Cold Process

Rinse is not needed

Formula

		C-060	C-008	C-007
		Clear/Hot	Clear/Cold	Emulsion/Cold
MAIN CONDITIONER	QUARTAMIN® AB	1.0	---	---
	QUARTAMIN® 60W25	5.0	10.0	---
	TETRANYL® CO-40	---	---	1.7
CO-EMULSIFIER & THICKENER	OXIDET® DMCLD	6.0	---	---
	LEVENOL® C-301	---	---	0.5
THICKENER	Hydroxyethyl Cellulose	≈ 1.2	≈ 1.0	≈ 1.0
STABILIZER	Propylene Glycol	---	2.0	2.0
OTHERS	Additives	q.s.	q.s.	q.s.
	Fragr./ Dye(s)/ Preserv.	q.s.	q.s.	q.s.
	NaOH (diluted)	q.s.	---	q.s.
	Triethanolamine	---	0.5	---
	Deionized Water	Up to 100%	Up to 100%	Up to 100%

		Clear Gel	White Emulsion
CHARACTERISTICS	Appearance	Clear Gel	White Emulsion
	pH		3.5 - 4.5
	Viscosity (cPs, 20°C)	10.000	1.500
	Dry matter (%)	5.0	3.5
	Cationic Active Matter(%)	2.0	2.5

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- The addition of Triethanolamine to the water reduces the incorporation time of the Hydroxyethyl Cellulose. The percentage of this polymer depends on the desired final viscosity.
- QUARTAMIN® AB is a solid in pellets and needs to be heated at around 75°C and mixed with the other surfactants before being added to the water phase.
- If higher conditioning effect or some specific benefits are desired, some other additives can be added like: silicones, vitamins, polymers, etc.

Formula

		C-107	C-108
		Clear	Emulsion
MAIN CONDITIONER	AMIDET® APA22	0.5	0.96
EMULSIFIER	OXIDET® DMCLD	1.0	---
THICKENER & CONDITIONER	SOFCARE® KG-101E	0.1	---
	KALCOL® 6850	---	2.5
STABILIZER	Glycerine	1.0	1.0
EMOLLIENT	Isopropyl Myristate	---	1.0
OTHERS	Additives	q.s.	q.s.
	Fragr./ Dye(s)/ Preserv.	q.s.	q.s.
	Lactic acid (diluted)	q.s.	q.s.
	Deionized water	Up to 100%	Up to 100%

		Clear Liquid	Emulsion
CHARACTERISTICS	Appearance	Clear Liquid	Emulsion
	pH	4.0 - 4.5	4.5-5.0
	Viscosity (cPs, 20°C)	7	7000
	Dry matter (%)	3.0	5.8
	Cationic Active Matter(%)	0.6	1.1

PROCESS - GENERAL REMARKS:

- AMIDET® APA22 is a solid in pellets and needs to be heated at around 80°C. It also needs to be neutralised with lactic acid, which is added to water before addition of the amide.
- OXIDET® DMCLD and KALCOL® 6850 are also added at 80°C.
- SOFCARE® KG-101E must be pre-diluted in water. This solution is obtained by 30 minutes stirring at 50°C. The polymer solution is added at room temperature.
- All other ingredients are added at room temperature one by one.

ADDITIVES:

- If higher conditioning effect or some specific benefits are desired, some other additives can be added like: vitamins, polymers, extracts, silicones, etc.

HAND LIQUID SOAP

Hand Cleanser - Soapy Feeling

Formula

	C-081	C-119	CG-032
	Mild	"Soap" based	Abrasive
MAIN SURFACTANT	EMAL® 270D or 270E	---	---
	EMAL® 228D or 227E	---	27.0
	PRIOLY® B-750D	30.0	---
	AKYPO® SOFT 100 BVC	---	4.5
	AKYPO® FOAM RL 40	---	8.0
CO-SURFACTANT	BETADET® SHR	---	---
	BETADET® HR	---	5.0
	LEVENOL® H&B	2.0	---
THICKENER	AMIDET®N	---	3.5
APPEARANCE MODIFIER	DANOX® PL-10	3.5	---
	Propylene Glycol	---	---
SPECIFIC ADDITIVE	Walnutshell Powder	---	12.0
	Bentonite	---	3.5
	Titanium Dioxide	---	0.5
OTHERS	Additives	q.s.	q.s.
	Preserv. / Fragr. / Dye(s)	q.s.	q.s.
	Citric Acid /NaOH (diluted)	q.s.	q.s.
	NaCl (viscosity adjust)	≈ 1.5	---
	Deionized water	Up to 100%	Up to 100%

CHARACTERISTICS	C-081	C-119	CG-032
Appearance	Pearled	Pearled	Opaque
pH	6.3	6.9	6.5
Viscosity (cPs, 20°C)	5.900	3.000	≈ 20.000
Dry matter (%)	15.5	27.0	31.5

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- Propylene Glycol is used to reduce viscosity.
- To improve skin feeling, our recommendation is to use SOFCARE® KG-301P at 0.3-0.5 %.

PRIOLY® B-750D

(Phosphate esters blend)

Very mild co-surfactant
Easily rinsed-off

Produced by Kao Corporation in Asia

FACE CLEANSER

Mild Cleanser - Make-up Remover

Formula

	C-070	C-089	C-104
	Foaming	Make-up Remover	Fresh & Clean
MAIN SURFACTANT	EMAL® 228D or 227E	27.0	---
	PRIOLY® B-750D	---	30.0
CO-SURFACTANT	BETADET® S-20	5.0	---
	LEVENOL® H&B	2.0	---
THICKENER	Acrylic Polymer	---	0.1
	KALCOL® 6850	---	0.3
	RHEODOL® TW-IS399C	---	2.0
EMULSIFIER	FINDET® 1214N/23	---	1.5
EMOLLIENT	Glyceryl Stearate	---	3.0
	Mineral Oil	---	10.0
	SOFCARE® KG-301P (4% sol.)	---	5.0
MOISTURIZER	Glycerine	6.0	2.5
SPECIFIC ADDITIVE	Dimethicone Copolyol	---	1.0
	Tocopheryl Acetate	---	0.5
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.
	Citric Acid /TEA (diluted)	q.s.	q.s.
	Deionized Water	Up to 100%	Up to 100%

CHARACTERISTICS	C-070	C-089	C-104
Appearance	Transparent	Emulsion	Opaque
pH	5.5	7.2	6.0
Viscosity (cPs, 20°C)	1.300	3.700	3.500
Dry matter (%)	17.0	19.0	24.0
Cloud Point (°C)	-8	---	---

Details about process are available upon request

PROCESS - GENERAL REMARKS:

- In the case of Ref. C-070, viscosity can be controlled using LEVENOL® H&B.
- Process at 70°C in the case of Ref. C-089.
- In the case of Ref. C-104 prepare a 4% solution of SOFCARE® KG-301P in water by stirring 30 minutes at 50°C.

RHEODOL® TW-IS399C

(PEG-160 Sorbitan Triisostearate)

Viscous paste to solid
Thickener
High viscosity at low dosage

Produced by Kao Corporation in Asia

“DERMO” BODY CLEANSER

Keep the skin clean, fresh and safe

Formula

		C-017		C-040		C-044		C-103	
		Regular	Opaque	Sport	Sport	Sport	Sport		
MAIN SURFACTANT	EMAL® 270D or 270E	14.0	---	---	12.7	---	---	---	---
	EMAL® 228D or 227E	---	30.0	33.0	---	---	---	---	---
CO-SURFACTANT	BETADET® THC-2	---	5.0	---	---	---	---	---	---
	BETADET® HR	10.0	10.0	6.0	---	---	---	---	---
	BETADET® HR-50K	---	---	---	4.7	---	---	---	---
	LEVENOL® H&B	2.5	2.0	1.8	---	---	---	---	---
THICKENER	AMIDET® B-112	---	1.7	---	2.0	---	---	---	---
EMOLLIENT	EMANON® HE	---	0.7	---	---	---	---	---	---
	LEVENOL® N-242	---	---	---	1.0	---	---	---	---
APPEARANCE MODIFIER	Opacifier	---	0.7	0.5	0.5	---	---	---	---
SPECIFIC ADDITIVE	TETRANYL® U	---	---	1.0	1.0	---	---	---	---
	Triclosan	---	---	0.2	0.2	---	---	---	---
OTHERS	Additives	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
	Citric Acid /NaOH (diluted)	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
	NaCl (viscosity adjust)	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.	q.s.
	Deionized Water	Up to 100%	Up to 100%	Up to 100%	Up to 100%	Up to 100%	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS		Transparent		Opaque		Opaque	
		Transparent	Opaque	Transparent	Opaque	Transparent	Opaque
	Appearance	Transparent	Opaque	Opaque	Opaque	Opaque	Opaque
	pH	6.0	6.5	6.0	6.0	6.0	6.0
	Viscosity (cPs, 20°C)	6.000	10.000	5.000	2.000	5.000	2.000
	Dry matter (%)	16.0	17.0	14.5	13.5	14.5	13.5
	Cloud Point (°C)	-8	---	---	---	---	---

PROCESS - GENERAL REMARKS:

- When EMAL® 270D (SLES at 70% concentration) is used, it is recommended to heat the water up to around 45°C before adding it.
- It is recommended to pre-dilute the opacifier in water and to avoid the excessive stir after being added to the total formula, not to damage the particle size.

ADDITIVES:

- If higher conditioning effect or some specific benefits are desired, some other additives can be added like: vitamins, polymers, extracts, silicones, etc.
- To improve skin feeling, our recommendation is to use SOFCARE®KG-301P at 0.3% .It must pre-diluted in water. This solution is obtained by 30 minutes stirring at 50°C. The polymer solution is added at room temperature.

SOFCARE® KG-301P (Cationic Polymer)

Skin Care Application

- Body Shampoo
- Face Cleanser
- Hand Cleanser

Improves feeling of soap base cleansers

Improves skin conditioning

Slippery feeling during rinsing

Foam enhancer: rich and creamy foam

Produced by Kao Corporation in Asia

TETRANYL® U

(Undecylenamidopropyltrimonium
Methosulfate)

Cationic Surfactant
Fungicide Effect
Skin & Hair application

Available upon request

More details about process are available upon request

MOISTURIZING BODY CLEANSER

Moisturizing effect - Mildness

Formula

		C-096	C-097	C-094	C-102
		Regular	Extra	Regular	Regular
MAIN SURFACTANT	EMAL® 227E or 228D	32.0	32.0	30.0	30.0
CO-SURFACTANT	BETADET® SHR	---	---	3.6	---
	BETADET® HR	5.0	5.0	---	---
	BETADET® S-20	3.0	3.0	---	4.2
	AKYPO® SOFT 45 NV	---	---	10.0	---
	AKYPO® SOFT 70 BVC	3.0	3.0	---	---
	LEVENOL® H&B	2.0	2.0	2.0	---
THICKENER	AMIDET® N	1.0	1.0	2.0	2.0
EMOLLIENT	SOFCARE® KG-301P	---	0.5	---	---
	LEVENOL® N-242	---	---	---	2.0
APPEARANCE MODIFIER	DANOX® PL-10	---	3.0	---	---
OTHERS	Additives	q.s.	q.s.	q.s.	q.s.
	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.	q.s.
	Citric acid (diluted) (pH adjust)	q.s.	q.s.	q.s.	q.s.
	NaCl (viscosity adjust)	q.s.	q.s.	q.s.	q.s.
	Deionized water	Up to 100%	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance	Transparent	Pearled	Transparent	Transparent
	pH	6.0	6.0	5.6	5.7
	Viscosity (cPs, 20°C)	6.000	11.000	7.300	2.000
	Dry matter (%)	16.0	18.0	17.5	17.0
	Cloud Point (°C)	-10	---	-10	< -8

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- EMAL® 227E (SLES at 27% concentration) is easily soluble in water at room temperature.
- EMAL® 270D (SLES at 70% concentration) can be also used. In that case, it is recommended to heat the water up to around 45°C before adding it.

ADDITIVES:

- If higher conditioning effect or some specific benefits are desired, some other additives can be added like: vitamins, polymers, extracts.
- To improve skin feeling, our recommendation is to use SOFCARE® KG-301P at 0.3-0.5 % as in the case of ref. C-097.

SLES FREE BODY CLEANSER

"Keep Up-dated" with market trends

Formula

		C-101	C-105	C-106
MAIN SURFACTANT	ALFANOX® 46	---	27.0	12.2
	SUCCIDET® NES	---	---	20.0
	AKYPO® FOAM RL 40	8.0	---	---
CO-SURFACTANT	BETADET® HR	17.0	---	5.0
	BETADET® S-20	---	10.5	---
	OXIDET® L-75	---	---	5.0
THICKENER	AMIDET® N	3.8	2.1	1.0
	PEG-150 Pentaerythrityl Tetrastearate	---	≈ 1.5	≈ 1.5
EMOLLIENT	EMANON® HE	---	---	0.5
CONDITIONER	QUARTAMIN® BTC 131	0.3	---	---
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.
	Citric Acid / NaOH (diluted)	q.s.	q.s.	q.s.
	Deionized Water	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance	Transparent	Transparent	Transparent
	pH	6.6	6.5	5.6
	Viscosity (cPs, 20°C)	6.400	≈ 5.000	≈ 5.000
	Dry matter (%)	15.0	21.5	17.5
	Cloud Point (°C)	+2	< -10	< -10

More details about process are available upon request

PROCESS - GENERAL REMARKS:

- Dissolve QUARTAMIN® BTC 131 in AMIDET® N by stirring and heating up to 60°C.

BODY CARE

Take care of your body

Formula

		C-o85	C-o86	C-o87
		Baby Lotion	Hand Cream	Light Body Milk
EMULSIFIER	KAOPAN® SP-S10	1.0	---	---
	KAOPAN® SP-O10	---	1.8	1.2
	KAOPAN® TW O120	---	2.2	---
CO-EMULSIFIER & MOISTURIZER	EMANON® HE	5.0	---	---
	LEVENOL® H&B	3.0	3.0	5.0
EMOLLIENT & OIL	Stearic Acid	2.0	---	---
	Vaseline Oil	10.0	26.0	---
	Cetyl Octanoate	1.0	7.0	8.0
	Isopropyl Myristate	---	---	1.0
THICKENER	KALCOL® 6098	1.0	---	---
	KALCOL® 8098	1.0	---	---
	Acrylic Polymer	---	0.3	0.13
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.	q.s.
	Citric acid (diluted)	q.s.	q.s.	q.s.
	Triethanolamine	---	≈ 0.6	≈ 0.23
	Deionized water	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance	Emulsion	
	pH	5.4	7.0
	Viscosity (cPs, 20°C)	3.600	13.000
	HLB	9.5	9.7

Details about process are available upon request

PROCESS - GENERAL REMARKS:

- Process at 70°C.
- Pre-dilute the Acrylic Polymer in water before using it.

BATH OIL

Relax in the Spa - Wellness

Formula

		CG-015	CG-030
		Foaming Oil	2-phases Foaming Oil
SOLUBILIZER	AKYPO® RLM 45	4.0	---
	AKYPO® RLM 100	4.0	---
	FINDET® ARH/52	---	5.0
CO-SOLUBILIZER	FINDET® 1214N/16	15.0	---
	AMIDET® N	15.0	---
EMOLLIENT & OIL	Mineral Oil	28.0	20.0
	Jajoba Oil	28.0	---
	Tocopheryl Acetate	0.1	---
MOISTURIZER	Glycerine	---	5.0
FOAMING COMPONENT	EMAL® 270D	---	13.0
	BETADET® HR-50K	---	8.0
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.
	NaOH (pH adjust)	≈ 1.0	q.s.
	Deionized water	---	Up to 100%

CHARACTERISTICS	Appearance	Emulsion	2-phases
	pH	7.5	5.5
	Viscosity (cPs, 20°C)	100	---

Details about process are available upon request

PROCESS - GENERAL REMARKS:

- High content of fragrance is usually used to improve pleasance when bathing.

WET WIPES

Refresh & Clean - Very mild

Formula

		C-015	C-057
		Refreshing	Cleansing
MAIN SURFACTANT	LEVENOL® H&B	2.0	4.5
CO-SURFACTANT	QUARTAMIN® 6oW25	0.2	----
SPECIFIC ADDITIVE	Ethyl Alcohol	15.0	----
	Propylene Glycol	----	7.0
	Camomille Extract	----	2.0
	Glycerine	3.0	----
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.	q.s.
	NaOH (pH adjust)	q.s.	q.s.
	Deionized water	Up to 100%	Up to 100%
CHARACTERISTICS	Appearance		Opaque
	pH	5.5	5.5

HAIR COLORING TEMPORARY

Only for a short

Formula

		C-113
		Colour Cream
EMULSIFIER	FINDET® 1618A/35-P	0.5
EMULSIFIER & CONDITIONER	AMIDET® APA22	2.0
THICKENER	KALCOL® 6o98	4.0
NEUTRALIZER	Lactic Acid (90%)	0.3
DYE(S)	Ruby Red 5%	1.0
OTHERS	Lactic Acid (pH adjust)	q.s.
	Fragrance / Preservative	q.s.
	Deionized Water	Up to 100%
CHARACTERISTICS	Appearance	Viscous emulsion
	pH	7.0
	Viscosity (cPs, 20°C)	25.000

SHAVING FOAM

Only for him

Formula

		C-046
		Aerosol
FOAMING SURFACTANT	OXIDET® DMCLD	3.0
	BETADET® HR-5oK	1.0
EMOLLIENT & THICKENER	LEVENOL® H&B	0.5
	KALCOL® 6o98	0.5
SPECIFIC ADDITIVE	Stearic Acid	7.5
	Dimethicone Copolyol	1.0
	Glycerine	3.0
OTHERS	Preserv. / Fragr. / Dye(s)	q.s.
	Triethanolamine (pH adjust)	3.5
	Deionized water	Up to 100%

PROCESS - GENERAL REMARKS:

- Process at 80°C.
- Mix 95% of this blend with 5% of propellant in a can.

PROCESS - GENERAL REMARKS:

- Heat the water around 60°C, add lactic acid and the fatty phase together with the emulsifiers melted. Cool down to 40°C and add the dye solution. Adjust pH and add the rest of additives.
- Other dyes can be used.
- This cream is applied directly to the hair obtaining a nice red brilliant colour.

HAIR COLORING OXIDATION DYEING

Add colour to your hair

Formula CREAM BASE

		C-111	CG-027A	CG-027B
		Semi permanent	Semi permanent	Permanent
EMULSIFIER & REFATTING	Oleic Acid	10.0	---	---
EMULSIFIER & CONSISTENCY	Oleth-13	10.0	---	---
EMULSIFIER	FINDET® 1618 A/35-P	---	2.1	2.1
THICKENER	KALCOL® 6850	---	11.2	11.2
THICKENING & LEVELLING	AMIDET® APA22	5.0	---	---
	AMIDET® A 15	---	5.0	5.0
ALKALIZER	Monoethanolamine	7.5	q.s.	---
	NH3 25%	---	---	10.0
SOLVENT	Ethyl Alcohol	10.0	---	---
STABILIZER (antioxidant, chelating, etc.)	Sodium sulfite	0.5	---	0.5
	Ascorbic acid	0.5	---	---
	EDTA-Na4	0.5	0.35	0.35
DYE PRECURSOR	Resorcinol	q.s.	q.s.	q.s.
	Toluene-2,5-Diamine Sulfate	q.s.	q.s.	q.s.
OTHERS	Additives	q.s.	q.s.	q.s.
	Fragrance	q.s.	q.s.	q.s.
	Deionized water	Up to 100%	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance		Yellowish emulsion	
	pH (10%)	10.5	9.7	11.2
	Viscosity (cPs, 20°C)	2.500	39.000	4.500

PROCESS - GENERAL REMARKS:

- **CREAM:** Heat the water around 80°C, add the emulsifiers and the AMIDET®. Add MEA and Oleic acid. Cool down to 55°C and add EtOH, stabilizers and dye Precursors. Cool down to 40°C and add the rest of additives.
- **DEVELOPER:** Heat the water around 70°C, add the fatty phase together with the emulsifiers melted. Cool down to 30-35°C. Adjust pH and add the rest of additives.

Mix 1 to 1
CREAM BASE / DEVELOPER

Formula DEVELOPER

		C-112	C-014
		Bleaching Emulsion	Bleaching Emulsion
OXIDIZING AGENT	H2O2 (50%)	12.0	12.0
EMULSIFIER	FINDET® 1618 A/35-P	---	0.5
	FINDET® 1618 A/72-P	---	1.1
EMULSIFIER & CONDITIONER	QUARTAMIN® AB	4.0	---
THICKENER	KALCOL® 6098	2.0	---
	KALCOL® 6870P	---	3.4
HUMECTANT	Glycerine	1.0	---
OTHERS	Phosphoric acid (pH adjust)	q.s.	q.s.
	Fragrance	q.s.	q.s.
	Deionized Water	Up to 100%	Up to 100%

CHARACTERISTICS	Appearance	White emulsion	
	pH	3.5	3.5
	Viscosity (cPs, 20°C)	375	1.500

