

ABIL® Care 85

Emulsifier for O/W emulsions with a velvety-silky skin feel

- For sprayable emulsions, creams and lotions
- Cold processable emulsions are possible
- Long-lasting skin smoothing perception
- Low usage concentration (1.5 – 3.0 %)
- Formulations with a wide range of cosmetic oils
- Easy to handle (liquid and clear down to 0 °C)

Personal Care

INCI name (CTFA name)

Bis-PEG/PPG-16/16 PEG/PPG16/16 Dimethicone;
Caprylic/Capric Triglyceride

Chemical and physical properties (not part of specifications)	
Form	liquid
HLB value	approx. 10

Properties

- ABIL® Care 85 is a silicone based nonionic emulsifier for oil-in-water emulsions. Due to its specific chemical structure a maximum contribution of silicone character to the skin feel is realized.
- The specific characteristic of ABIL® Care 85 is its strong impact on the after feel of emulsion preparations. ABIL® Care 85 can even overcome the negative influence of other ingredients, for example the tackiness of glycerin or the dry feel of waxy stabilizers.
- The usage concentration of ABIL® Care 85 is 1.5 – 3.0 % depending on the type and amount of co-emulsifier used.
- For cold processed formulations a viscosity enhancing and stabilizing system is necessary. A combination of TEGO® Carbomer and Xanthan Gum is recommended. For optimisation of heat and cold stability ABIL® Care 85 should be combined with low amounts of a hydrophilic co-emulsifier, e. g. 0.2 % TEGO® SMO 80 V (Polysorbate 80).
- For hot processed creams with waxy consistency-enhancers a co-emulsifier is required for the formation of liquid-crystalline structures in the external water phase. For example TEGINACID® C (Cetareth-25) at 0.5 – 1.0 % can be used. As consistency-enhancer a combination of TEGIN® M (Glyceryl Stearate), TEGO® Alkanol 18 (Stearyl Alcohol) and Stearic Acid is suggested.
- The formulations have a wide heat and cold stability range, typically they are stable from – 15 °C up to +45 °C.
- The remarkable skin feel of ABIL® Care 85 has been proven by a panel test. A commercially available body lotion was compared with a formula containing ABIL® Care 85 as emulsifier. The conditioning properties were comparable to the market product (see Fig. 1). The skin feel of the ABIL® Care 85 lotion is preferred. The preference for the ABIL® Care 85 lotion goes parallel with the preference for skin feel. The skin feel is the most important influence on the choice and repeat purchase of a product.

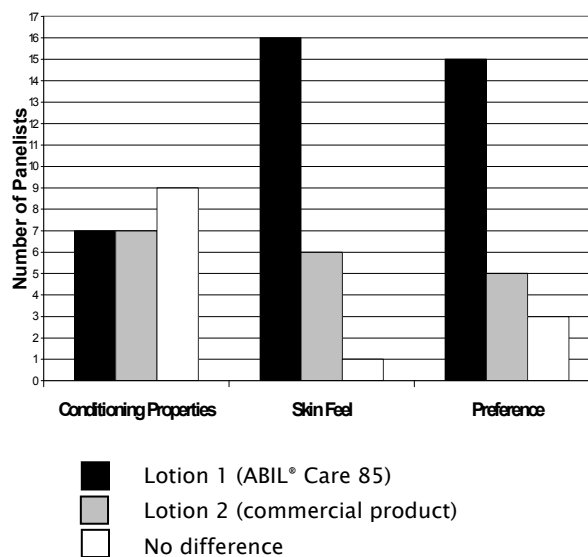


Fig. 1: Panel test to prove the skin feel of ABIL® Care 85 in formulations

Application

ABIL® Care 85 is especially suitable for

- Sprayable emulsions
- Body lotions
- Sunscreen lotions
- After sun lotions
- Skin care creams

Preparation

Sprays and lotions (cold processable)

For this type of formulations both **hot and cold** processing is possible. If oil and water phase are combined hot, the Carbomer/Xanthan Gum should be present in the oil phase before the homogenization step.

The usage level of ABIL® Care 85 is approximately 2 %. A co-emulsifier such as TEGO® SMO 80 V is required for sprayable emulsions.

Production

The components of the oil phase including ABIL® Care 85 and the components of the water phase are mixed separately. The oil phase is added to the water phase with stirring. Then the coarsely dispersed pre-emulsion is homogenized.

If the oil phase has to be charged into the vessel first due to production facility related conditions, the water phase should be added **without stirring** to the oil phase before the homogenization step (to avoid the formation of a water-in-oil emulsion).

After homogenization the dispersion of Carbomer/Xanthan Gum in oil – at 20 % in Mineral Oil, TEGOSOFT® DO (Decyl Oleate) or TEGOSOFT® OS (Ethylhexyl Stearate) – is added and the emulsion is homogenized again for a short time. Avoid the use of triglyceride based esters for dispersion of the Carbomer/ Xanthan Gum.

The Carbomer is then neutralized with e. g. Sodium Hydroxide (pH value approx. 6.0).

Creams

Creams require a co-emulsifier. The combination of ABIL® Care 85 at 1.5 % and TEGINACID® C (Cetareth-25) at 0.5 – 1.0 % is suggested.

Depending on the formula 4.0 – 6.0 % of a consistency-enhancer is required for the formation of viscosity increasing structures in the external water phase. Especially effective is a combination of TEGIN® M (Glyceryl Stearate), TEGO® Alkanol 18 (Stearyl Alcohol) and Stearic Acid in a ratio of e. g. 2 : 1 : 1. The addition of Stearic Acid improves heat stability. TEGO® Carbomer 134 is added for cold stability.

Production

Oil and water phases are heated separately to approx. 80°C. The hot oil phase is added to the hot water phase with stirring. Then it is homogenized (the homogenizer should be placed in the water phase).

If the oil phase has to be charged into the vessel first due to the production facility, the water phase should be added without stirring to the oil phase, then homogenized (to avoid the formation of a water-in-oil emulsion).

After homogenization a dispersion of TEGO® Carbomer 134 – at 20 % in Mineral Oil, TEGOSOFT® DO (Decyl Oleate) or TEGOSOFT® OS (Ethylhexyl Stearate) – is added at 60 °C and the emulsion is homogenised again for a short time. Avoid the use of triglyceride based esters for dispersion of the TEGO® Carbomer 134. During cooling under continuous moderate stirring the viscosity of the initially low viscous emulsion increases to a cream viscosity due to the solidification of the hydrated consistency-enhancers.

Fragrance, heat sensitive or electrolyte containing active ingredients are added between 40 and 35 °C.

The Carbomer can be neutralized with e. g. Sodium Hydroxide between 60 and 35 °C.

Suggested usage concentration

1.5 – 3.0 % ABIL® Care 85

Packaging

200 kg drum

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport and for dangerous substances
- protective measures for storage and handling
- measures in case of accidents and fires
- toxicity and ecological effects

is given in our material safety data sheets.

Guide Line Formulations

Cooling Body Lotion (Cold Processing) Ma 74/99-3	
Phase A	
ABIL® Care 85	2.0 %
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	5.0 %
TEGOSOFT® OS (Ethylhexyl Stearate)	5.0 %
Mineral Oil (30 mPas)	5.0 %
Tocopheryl Acetate	1.0 %
Phase B	
Glycerin	2.0 %
Panthenol	1.0 %
Allantoin	0.1 %
Alcohol	10.0 %
Water	66.2 %
Phase C	
TEGO® Carbomer 140 (Carbomer)	0.15 %
TEGO® Carbomer 141 (Carbomer)	0.15 %
Xanthan Gum	0.1 %
Mineral Oil (30 mPas)	1.6 %
Phase D	
Sodium Hydroxide (10 % in water)	0.7 %
Preservative, Perfume	q.s.

Skin Smoothing Cream F 53/00-4	
Phase A	
ABIL® Care 85	1.5 %
TEGINACID® C (Ceteareth-25)	0.5 %
Mineral Oil (30 mPas)	2.0 %
TEGOSOFT® P (Isopropyl Palmitate)	4.5 %
TEGOSOFT® MM (Myristyl Myristate)	1.0 %
TEGIN® M Pellets (Glyceryl Stearate)	3.0 %
Stearic Acid	1.0 %
TEGO® Alkanol 18 (Stearyl Alcohol)	2.0 %
Tocopheryl Acetate	0.5 %
Phase B	
Glycerin	5.0 %
Propylene Glycol	2.0 %
Panthenol	0.5 %
Water	71.0 %
Phase C	
TEGO® Carbomer 134 (Carbomer)	0.1 %
Mineral Oil (30 mPas)	0.4 %
Phase D	
Sodium Hydroxide (10 % in water)	q.s.
Phase E	
Alcohol	5.0 %
Preservative, Perfume	q.s.

Anti Ageing Cream with Ceramide and Ubichinon F 52/00-9	
Phase A	
ABIL® Care 85	1.5 %
TEGINACID® C (Ceteareth-25)	0.5 %
TEGO Alkanol 18 (Stearyl Alcohol)	1.5 %
TEGIN® M Pellets (Glyceryl Stearate)	3.0 %
Stearic Acid	1.5 %
TEGOSOFT® CT (Caprylic/Capric Triglyceride)	7.0 %
TEGOSOFT® OP (Ethylhexyl Palmitate)	6.4 %
TEGOSOFT® MM (Myristyl Myristate)	1.0 %
Ceramide III B (Ceramide NP)	0.1 %
Ethylhexyl Methoxycinnamate	2.0 %
Tocopheryl Acetate	0.5 %
Phase B	
Glycerin	3.0 %
Water	68.5 %
Phase C	
TEGO® Carbomer 134 (Carbomer)	0.1 %
TEGOSOFT® OP (Ethylhexyl Palmitate)	0.4 %
Phase D	
Sodium Hydroxide (10 % in water)	q.s.
Phase E	
Aqua/Alcohol/Lecithin/Ubichinon (Rovisome Q 10)	3.0 %
Preservative, Perfume	q.s.

Liquid Crystal Cream PH 1/00-1	
Phase A	
ABIL® Care 85	0.60 %
TEGINACID® C (Ceteareth-25)	0.40 %
TEGO Alkanol 1618 (Cetearyl Alcohol)	6.00 %
TEGIN® M Pellets (Glyceryl Stearate)	2.00 %
Phase B	
Glycerin	4.00 %
Water	77.90 %
Phase C	
Sodium Hydroxide (10 % in water)	0.35 %
Phase D	
TEGO® Carbomer 134 (Carbomer)	0.15 %
Mineral Oil (30 mPas)	0.6 %
Phase E	
ABIL® Care 85	0.80 %
Water	2.40 %
Cyclomethicone	4.80 %
Preparation:	
<ol style="list-style-type: none"> 1. Heat phase A and B separately to 65 °C (not higher!). 2. Add phase A to phase B and homogenize intensively. 3. Add phase C and D at 60 °C and homogenize for a short time. 4. Preparation of emulsion concentrate (phase E): Dissolve ABIL® Care 85 in water at 25 °C. Add the cyclomethicone to the aqueous phase with stirring and homogenize intensively. 5. Add phase E to (A + B + C + D) with slightly stirring at 25 – 30 °C. 	

Water Resistant Sun Care Lotion (Cold Processing)	
Ma 1/00-3	In Vivo SPF* 14
Phase A	
ABIL® Care 85	2.00 %
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	3.00 %
Mineral Oil (30 mPas)	3.40 %
4-Methylbenzylidene Camphor	3.00 %
Ethylhexyl Methoxycinnamate	2.50 %
Isoamyl p-Methoxycinnamate	2.50 %
Butyl Methoxydibenzoylmethane	2.00 %
Tocopheryl Acetate	0.50 %
Phase B	
TEGO® SMO 80 V (Polysorbate 80)	0.20 %
Glycerin	2.00 %
EDTA	0.10 %
GluCare® S (Sodium Carboxymethyl Betaglukan)	0.10 %
Water	75.90 %
Phase C	
TEGO® Carbomer 140 (Carbomer)	0.15 %
TEGO® Carbomer 141 (Carbomer)	0.15 %
Xanthan Gum	0.10 %
TEGOSOFT® P (Isopropyl Palmitate)	1.60 %
Phase D	
Sodium Hydroxide (10 % in water)	0.80 %
Preservative, Perfume	q.s.

*according Colipa method (5 persons)

Sun Care Lotion with Tinosorb M as UV Filter (Cold Processing)	
Ma 1/00-2	In Vivo SPF* 30
Phase A	
ABIL® Care 85	2.00 %
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	3.00 %
TEGOSOFT® DC (Decyl Cocoate)	2.00 %
TEGOSOFT® P (Isopropyl Palmitate)	0.40 %
Avocado (Persea Gratissima) Oil	1.00 %
Ethylhexyl Methoxycinnamate	5.00 %
Isoamyl p-Methoxycinnamate	5.00 %
Tocopheryl Acetate	0.50 %
Phase B	
TEGO® SMO 80 V (Polysorbate 80)	0.20 %
Glycerin	2.00 %
GluCare® S (Sodium Carboxymethyl Betaglukan)	0.10 %
Water	68.0 %
Phase C	
TEGO® Carbomer 140 (Carbomer)	0.15 %
TEGO® Carbomer 141 (Carbomer)	0.15 %
Xanthan Gum	0.10 %
TEGOSOFT® P (Isopropyl Palmitate)	1.6 %
Phase D	
Methylene Bis-Benzotriazolyl Tetramethylbutylphenol (Tinosorb M)	8.00 %
Phase E	
Sodium Hydroxide (10 % in water)	0.8 %
Preservative, Perfume	q.s.

*according Colipa method (5 persons)

O/W Body Spray with TEGOSOFT® DEC	
Ma 101/01-2	
Phase A	
ABIL® Care 85	1.5 %
TEGO® SML 20 (Polysorbate 20)	1.0 %
TEGOSOFT® TN (C12-15 Alkyl Benzoate)	3.0 %
TEGOSOFT® DEC (Diethylhexyl Carbonate)	6.0 %
Cyclomethicone	2.0 %
Mineral Oil (30 mPas)	3.0 %
Phenoxyethanol; Methylparaben; Ethylparaben; Butylparaben; Propylparaben; Isobutylparaben (Phenonip)	0.7 %
Phase B	
TEGO® Cosmo C 100 (Creatine)	0.5 %
Glycerin	2.0 %
Water	80.9 %
Phase C	
TEGO® Carbomer 141 (Carbomer)	0.1 %
TEGO® Carbomer 341 ER (Acrylates/C10-30 Alkyl Acrylates Crosspolymer)	0.1 %
Mineral Oil (30 mPas)	0.8 %
Phase D	
Sodium Hydroxide (10 % in water)	0.4 %
Perfume	q.s.

Viscosity (Brookfield RVT, Sp. no. 4, 10 rpm):
1500 -2000 mPas

Sun Protection Spray with Titanium Dioxide (Cold Processing)	
Ma 71/00-3	
Phase A	
ABIL® Care 85	2.0 %
TEGOSOFT® DC (Decyl Cocoate)	2.0 %
TEGOSOFT® OP (Ethylhexyl Palmitate)	7.5 %
Jjoba (Buxus Chinensis) Oil	1.0 %
Tocopheryl Acetate	0.5 %
Ethylhexyl Methoxycinnamate	3.0 %
Phase B	
TEGO® SMO 80 V (Polysorbate 80)	0.2 %
Glycerin	2.0 %
Water	67.8 %
Titanium Dioxide; Alumina; Silica; Sodium Polyacrylate (Tioveil AQ-G)	12.5 %
Phase C	
Polyacrylamide/C13-14 Isoparaffin/ Laureth-7 (Sepigel 305)	1.5 %
Preservative, Perfume	q.s.

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