ANTIL® Soft SC

The natural choice for a multifunctional thickening agent for Rinse-Off

- Excellent thickening in various surfactant systems
- Foam boosting even in PEG-free systems
- Improves foam creaminess and skin feel
- Reduces moisture loss after surfactant treatments
- Highly efficient as solubilizer
- PEG-free, natural based, high active matter
- Complies with Ecocert standards
- Readily biodegradable
- Liquid – easy to process
- Economic advantage

Personal Care

INCI Name (CTFA Name)

Sorbitan Sesquicaprylate

Chemical and physical properties (not part of specifications)

Form	liquid
Appearance (25°C)	clear
Active matter	>99 %
Solubility in	
- Water	dispersable
- Ethyl Alcohol	soluble
- Surfactant formulas	clearly soluble*

* depending on the concentration and systems

Properties

ANTIL® Soft SC is a liquid cosmetic ingredient with the following properties:

- excellent thickener
- foam booster
- improved skin after-feel
- reduces moisture loss after surfactant treatments
- solubilizer for fragrances and emollients

ANTIL® Soft SC can be utilized at low levels to produce clear body washes or shampoos. ANTIL® Soft SC is cold processable, due to its relatively low viscosity and low pour point, thus it is very easy to process.

Thickening

Figure 1 shows an overview of the thickening efficacy in a typical surfactant system, e.g. 9% SLES / 3% CAPB / 0.7% NaCl. The graph indicates the concentration of thickener, which was needed to achieve a viscosity of 3500 mPas. ANTIL® Soft SC shows superior performance over more commonly used surfactant thickeners.

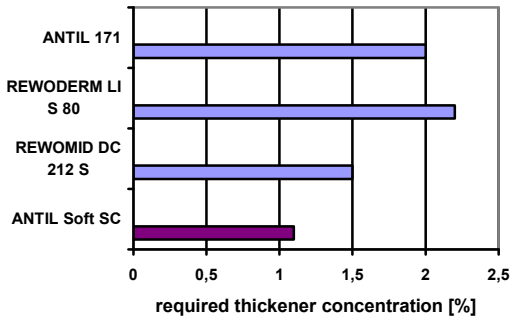

Figure 1: Thickening efficacy of different surfactant thickeners:
ANTIL® 171 = PEG-18 Glyceryl Oleate/Cocoate
REWODERM® LI S 80 = PEG-200 Hydrogenated Glyceryl Palmate; PEG-7 Glyceryl Cocoate
REWOMID® DC 212 S = Cocamide DEA

Figure 2 shows the outstanding thickening efficacy ANTIL® Soft SC in a PEG-free surfactant system based on 4.8 % Sodium Cocoamphoacetate / 4.9 % CAPB / 3.6 % Disodium Lauryl Sulfosuccinate / pH=5.5.
ANTIL® Soft SC can replace the PEG-free thickening agent. An 80 % decrease in the use level was obtained while achieving a viscosity of 3500 mPas.

Additionally, ANTIL® Soft SC can be used as a co-thickener. By adding a small amount of ANTIL® Soft SC to a standard PEG-free thickening agent, the amount of thickener could be reduced by 66 % in order to achieve the same viscosity.

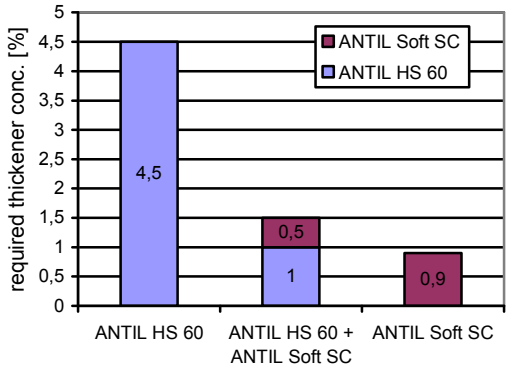

Figure 2: Thickening effect in a PEG-free surfactant system. Viscosity (Brookfield) = 3500 mPas.
ANTIL® HS 60 = Cocamidopropyl Betaine; Glyceryl Laurate

Foam boosting in PEG-free formulation

Compared to standard surfactant systems, PEG-free surfactant systems display inferior foam quality and quantity. The addition of 0.5 % ANTIL® Soft SC to a PEG-free surfactant formula significantly improves all tested foam parameters: flash foam, foam volume and foam creaminess (*figure 3).*

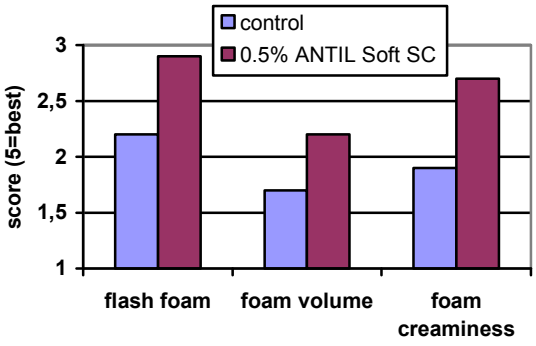

Figure 3: foam results of a sensory hand wash test with a 10 person panel.
Surfactant base: 3.6% Disodium Lauryl Sulfosuccinate / 4.8% Sodium Cocoamphoacetate / 4.9% Cocamidopropyl Betaine / pH=5.5

Improvement of foam and skin feel

ANTIL® Soft SC enhances the foam creaminess and improves skin feel in rinse-off applications.
The results of a sensory hand wash test (10 person panel) with surfactant formulations which include PEG-7 Glyceryl Cocoate (TEGOSOFT® GC) as the market standard are shown in *Figure 4*. For most properties, ANTIL® Soft SC outperforms the standard, even with lower concentration.

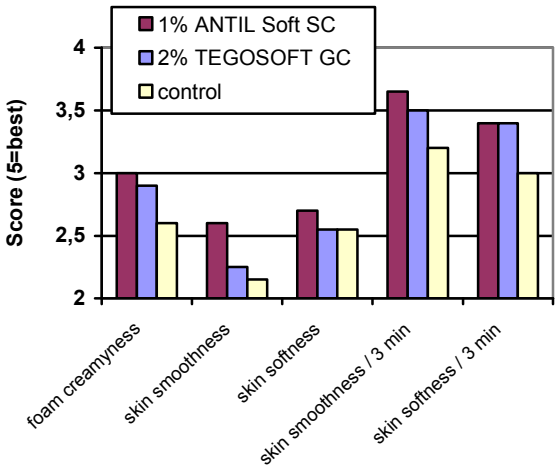

Figure 4: results of a sensory hand wash test with a 10 person panel.
Surfactant base: 9% SLES / 3% CAPB / 1% NaCl / pH=5.5

Skin Hydration

Surfactant treatments in general reduce the moisture content of the skin. *Figure 5* shows the result of corneometer measurements after 11 surfactant treatments within 5 days. The addition of ANTIL® Soft SC reduces moisture loss by 31% compared to standard (statistically significant).

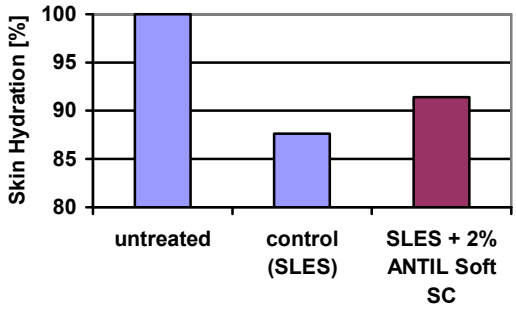

Figure 5: results of Corneometer measurements after 11 surfactant treatments within 5 days on 30 test persons, conducted by an independent institute.
Surfactant base: 12% SLES / 2% additive/ pH=6

Solubilizing

ANTIL® Soft SC provides efficient solubilizing properties in surfactant formulas. It outperforms standard solubilizer such as Polysorbate-20 (TEGO® SML 20), PEG-40 Hydrogenated Castor Oil (TAGAT® CH 40) and PEG-7 Glyceryl Cocoate (TEGOSOFT® GC)). *Figure 6* shows the amount of clearly solubilized Isopropyl Myristate (TEGOSOFT® M) in a surfactant base plus 0.5% of the respective additive after 10 minutes.

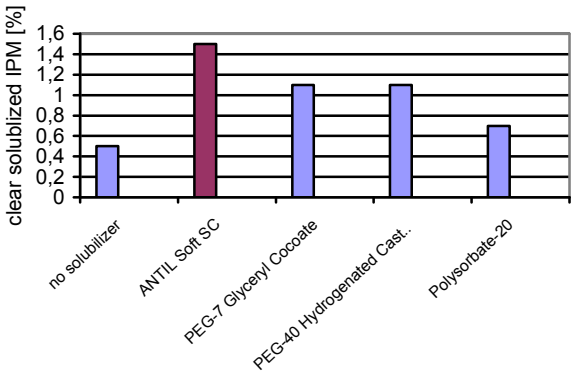

Figure 6: Amount of clearly solubilized Isopropyl Myristate (IPM) in a surfactant base:
11.25% SLES / 3.75% CAPB / 0.5% solubilizer additive.

Application

ANTIL® Soft SC is suitable for surfactant based formulas such as body washes and shampoos.

Recommended usage concentration

The usage concentration may vary between 0.3 – 2.0 % depending on the surfactant system.

Example for clear solubility in

9% SLES / 3% CAPB / 0.7% NaCl	1.7 %
9% SLES / 3% Sodium Cocoamphoacetate	1.7 %
3.6% Disodium Lauryl Sulfosuccinate / 4.8% NaCocoamphoacetate / 4.9% CAPB (PEG-free)	1.1 %
5 % SLES / 2.5 % CAPB / 2.5 % Disodium Laureth Sulfosuccinate	1.0 %

Packaging

880 kg pallet (4 x 220 kg drums)
1050 kg container

Storage and processing hints

In general, ANTIL® Soft SC is easy to use since it is a low viscous liquid.
In standard surfactant systems like SLES/CAPB it can be added at every production step, also a final addition is possible.
Due to the lipophilic characteristic, the clear solubility is limited, depending on the surfactant system.
Possible turbidities might disappear after a few hours, at least over night.
In case not, we recommend to dissolve ANTIL® Soft SC in the concentrated primary surfactant **before** adding the water. For final adjustment of viscosity it should be possible to add at least a part of ANTIL® Soft SC at the end of processing.
It also might help to extend the stirring time.

The viscosity of ANTIL® Soft SC increases reversibly at lower temperatures.

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 accidents and fires
- toxicity and ecological effects

is given in our material safety data sheets.

Guide line formulations

Hair and Body Shampoo, PEG- & Sulfate free **AK 175/9**	
REWOTERIC® AM C (Sodium Cocoamphoacetate)	15.00 %
REWOPOL® SB F 12 P (Disodium Lauryl Sulfosuccinate)	3.80 %
ANTIL® Soft SC	0.90 %
Perfume	0.30 %
Water	64.00 %
TEGO® Betain F 50 (Cocomidopropyl Betaine)	13.00 %
Citric Acid, 30%	3.00 %
Preservative	q.s.

Preparation:

Mix the ingredients in the given order at ~ 40°C. Adjust the pH value to 5.0.

Viscosity (Brookfield): 3600 mPas.

Mild Hair and Body Wash with Ecocert conform ingredients **AK 224/5.8**	
Lauryl Glucoside, 50%	8.00 %
ANTIL® HS 60 (Cocoamidopropyl Betaine; Glyceryl Laurate)	6.00 %
ANTIL® Soft SC	0.90 %
Water	63.55 %
TEGO® Betain F 50 (Cocamidopropyl Betaine)	20.00 %
Perfume	0.10 %
Benzyl Alcohol; Glycerin; Benzoic Acid; Sorbic Acid (Rokonsal BSB-N, ISP)	0.45 %
Citric Acid	1.00 %

Preparation:

Mix the ingredients in the given order. An adequate mixing procedure and time is recommended (anchor stirrer, 15 min).
Adjust the pH value to 5.0.

Viscosity (Brookfield): 1600 mPas

Remark: under stability test (07/09)

Moisturizing Body Wash **AK 131/2**	
Phase A	
Sodium Laureth Sulfate (28%)	30.00 %
ANTIL® Soft SC	0.70 %
Perfume	0.30 %
Phase B	
Water	55.70 %
TEGOCEL® fluid HPM 4000 (Hydroxypropyl Methylcellulose)	1.20 %
TEGO® Betain C 60 (Cocomidopropyl Betaine)	8.10 %
TEGOSOFT® APM (PPG-3 Myristyl Ether)	1.00 %
TEGO® Pearl N 300 (Glycol Distearate; Laureth-4; Cocamidopropyl Betaine)	2.00 %
REWODERM® LI S 80 (PEG-200 Hydrogenated Glyceryl Palmate; PEG-7 Glyceryl Cocoate)	1.00 %
Preservative, Citric Acid	q.s.

Preparation:

Disperse the TEGOCEL® fluid HPM 4000 in the water.
Prepare phases A and B separately.
Add B to A while stirring. Adjust the pH value to 5.5.

Viscosity (Brookfield): 6000 mPas.

Mild Facial Cleansing Foam **AK 175/1**	
Phase A	
Water	82.50 %
TEGO® Cosmo C 100 (Creatine)	0.25 %
TEGOCEL® HPM 50	0.50 %
Phase B	
TEGO® Betain 810 (Capryl/Capramidopropyl Betaine)	6.60 %
REWOPOL® SB CS 50 B (Disodium PEG-5 Laurylcitrate Sulfosuccinate; Sodium Laureth Sulfate)	8.00 %
ANTIL® Soft SC	0.70 %
Perfume	0.25 %
LACTIL® (Sodium Lactate; Sodium PCA; Glycine; Fructose; Urea; Niacinamide; Inositol; Sodium Benzoate; Lactic Acid)	1.00 %
Panthenol	0.20 %
Preservatives	q.s.

Preparation:

Disperse the TEGO® Cosmo C 100 and the TEGOCEL® HPM 50 in the water.
Prepare phases A and B separately.
Add A to B while stirring.
Add the remaining ingredients in the given order.
Adjust pH-value to 5.5.

Remarks:
- for application with pump foamer, e.g. of Rexam/Airspray.

Clear Moisturizing Shower Gel AK 175/4	
Sodium Laureth Sulfate (28%)	37.00 %
ANTIL® Soft SC	1.00 %
Perfume	0.30 %
Water	42.30 %
REWOTERIC® AM C (Sodium Cocoamphoacetate)	9.00 %
TEGO® Betain 810 (Capryl/Capramidopropyl Betaine)	7.60 %
LACTIL® (Sodium Lactate; Sodium PCA; Glycine; Fructose; Urea; Niacinamide; Inositol; Sodium Benzoate; Lactic Acid)	1.00 %
Citric Acid, 30%	1.30 %
REWODERM LI S 80 (PEG-200 Hydrogenated Glyceryl Palmate; PEG-7 Glyceryl Cocoate)	0.50 %
Preservative, Citric Acid	q.s.

Preparation:

Mix the ingredients in the given order. Adjust the pH value to 5.5.

Viscosity (Brookfield): 5700 mPas.

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