Technical Information

ANTIL® Soft SC

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

Intended use

Rheological additive

Hydrophilic emollient

Benefits at a glance

- 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

INCI (PCPC 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.

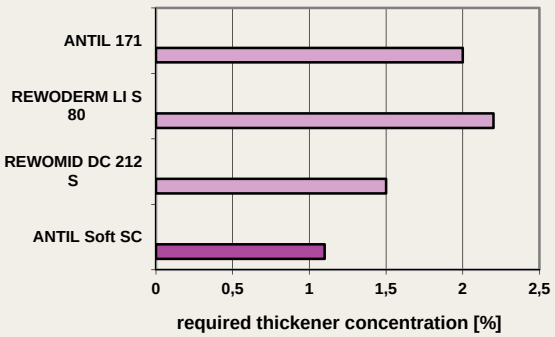

Figure 1: Thickening efficacy of different surfactant thickeners:
ANTIL® 171 = PEG-18 Glyceryl Oleate/Cocoate REWODERM® LI S 80 = PEG-200 Hydrogenated Glyceryl Palmate; PEG-7 Glyceryl Cocoate REWOMID® DC 212 S = Cocamide DEA

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 cothickener. 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.

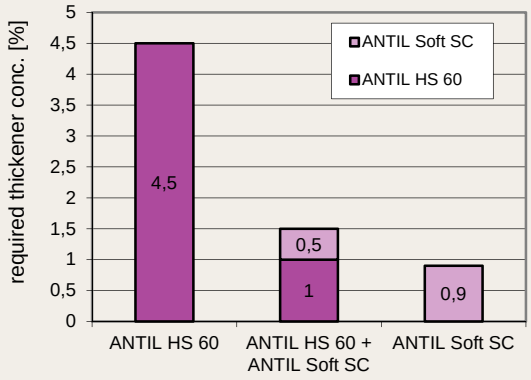

Figure 2: Thickening effect in a PEG-free surfactant system. Viscosity (Brookfield) = 3500 mPas.
ANTIL® HS 60 = Cocamidopropyl Betaine; Glyceryl Laurate

Foam boosting in PEG-free formulation

Compared to standard surfactant systems, PEGfree 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)*.

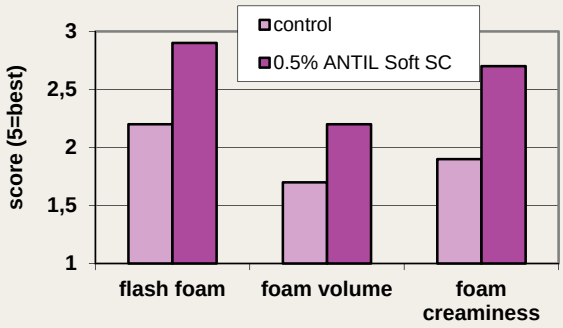

Figure 3: foam results of a sensory hand wash test with a 10 person panel.
Surfactant base: 3.6% Disodium Lauryl Sulfosuccinate / 4.8% Sodium Cocoamphoacetate / 4.9% Cocamidopropyl Betaine / pH=5.5

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.

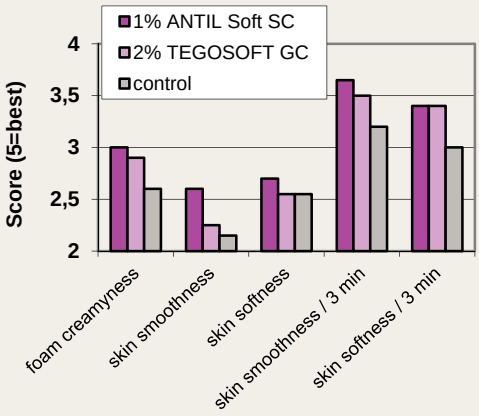

Figure 4: results of a sensory hand wash test with a 10 person panel.
Surfactant base: 9% SLES / 3% CAPB / 1% NaCl / pH=5.5

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).

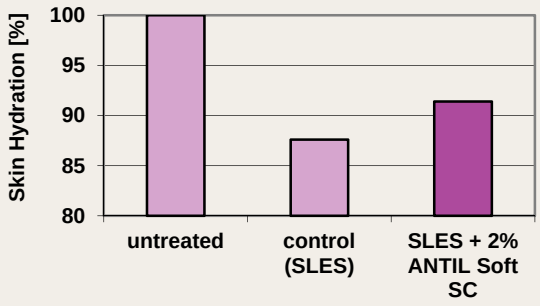

Figure 5: results of Corneometer measurements after 11 surfactant treatments within 5 days on 30 test persons, conducted by an independent institute.
Surfactant base: 12% SLES / 2% additive/ pH=6

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.

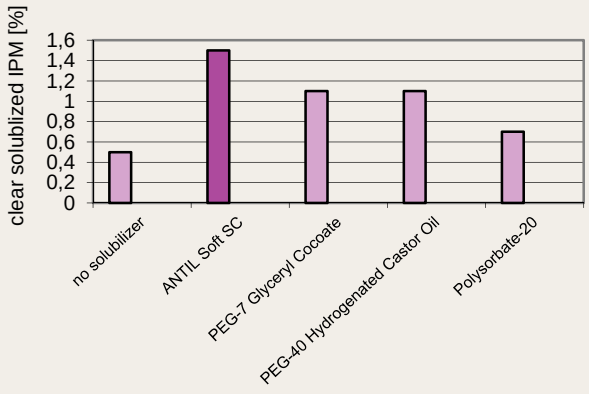

Figure 6: Amount of clearly solubilized Isopropyl Myristate (IPM) in a surfactant base:
11.25% SLES / 3.75% CAPB / 0.5% solubilizer additive.

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.

Guideline 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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