Technical Information

# ANTIL® SPA 80

## Efficient thickening and conditioning agent for skin and hair cleansing formulations

### Intended use

Rheological additive

### Benefits at a glance

- PEG-free
- liquid monoalkanolamide (no secondary amines)
- easy to handle
- excellent viscosity builder
  - even for SLES free systems
  - even for Sulfosuccinate containing formulas
- provides temperature stable viscosities of surfactant systems
- foam boosting properties
- skin and hair conditioning properties

### INCI (PCPC name)

Isostearamide MIPA; Glyceryl Laurate

### Chemical and physical properties (not part of specifications)

| | |
|---|---|
| Appearance (20 °C) | liquid |

### Properties

ANTIL® SPA 80 is a liquid monoalkanolamide. In contrary to Cocamide DEA, it is free of secondary amines, which are a potential source of nitrosamines. In contrary to Cocamide MEA (solid), it is an easy-to-handle liquid with faster dissolving time.
ANTIL® SPA 80 is compatible with anionic, amphoteric and other non-ionic surfactants as well as fatty acid soaps.

ANTIL® SPA 80 shows excellent thickening properties with the typically used surfactants for cosmetic formulations. It is especially useful for formulations which are difficult to thicken such as ether sulfate-free formulations. Examples are given in the formulation section of this data sheet.

### Thickening efficacy

The excellent viscosity increasing effect has been proven in both, standard surfactant systems as well as mild systems based on a low level SLES in combination with a sulfosuccinate.
In the mild surfactant system including a sulfosuccinate, ANTIL ® SPA 80 clearly outperformed the other tested thickeners.

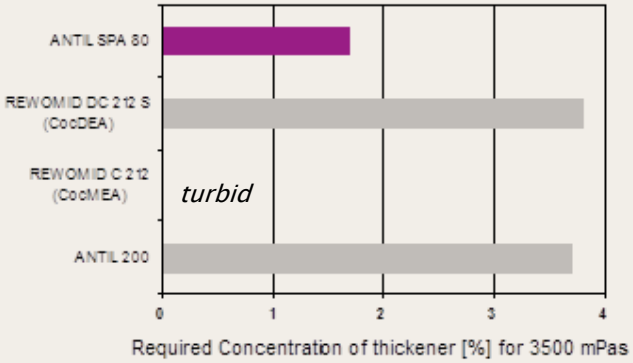


**Figure 1: Thickening efficacy in mild surfactant system based on 5% Sodium Laureth Sulfate/2.5% Cocamidopropyl Betaine (TEGO® Betain F 50) / 2.5% Disodium Laureth Sulfosuccinate (REWOPOL® SB FA 30)**

Figure 1 shows the comparative data of ANTIL ® SPA 80, the common alkanolamides Cocamide DEA and Cocamide MEA, and a standard polymeric thickener ANTIL® 200 (PEG-200 Hydrogenated Glyceryl Palmate; PEG-7 Glyceryl Cocoate).
REWOMID® C 212 (Cocamide MEA) leads to turbidities in this system.

## Temperature-independent viscosity

ANTIL® SPA 80 provides a strong temperature-independent viscosity.
Polymeric, hydrophilic thickeners like ANTIL® 200 (PEG-200 Hydrogenated Glyceryl Palmate; PEG-7 Glyceryl Cocoate) provide a strong temperature dependent viscosity: the viscosity decreases with increasing temperature, and it increases with decreasing temperature.
Hydrophobic thickeners like the alkanolamides provide a lower temperature dependence. ANTIL® SPA 80 shows virtually no temperature dependence.

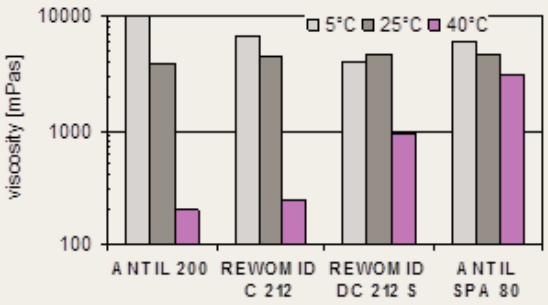


**Figure 2: Temperature dependence of viscosity in standard surfactant system 9% SLES/3% CAPB.**

Figure 2 compares the temperature stability of the viscosity provided by the alkanolamides and the polymeric ANTIL® 200 in a standard surfactant system based on 9% Sodium Laureth Sulfate and 3% Cocamidopropyl Betaine.

## Additional benefits

Beside the excellent thickening profile, ANTIL® SPA 80 provides both skin and hair conditioning properties as well as foam boosting effects.
The foam boosting and skin conditioning effect have been shown by a sensory hand wash test conducted by 10 panellists (trained experts). The results (Figure 3) show that ANTIL® SPA 80 outperforms the market standard PEG-7 Glyceryl Cocoate.
The hair conditioning efficacy has been shown by wet combing force measurements with Diastron MTT 175 of virgin brown hair, predamaged by permanent wave treatment. The results shown in Figure 4 are based on 4 swatches each. The addition of ANTIL® SPA 80 reduces the wet combing work significantly (t-test).

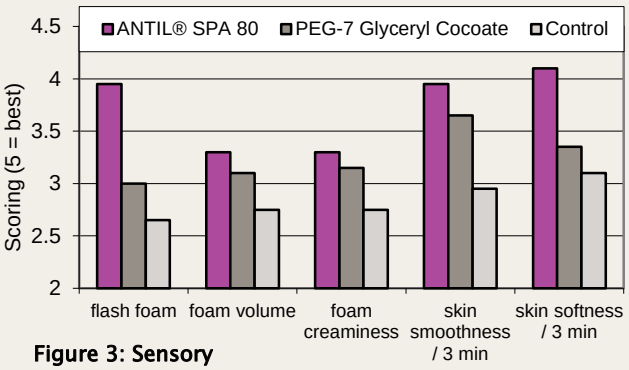


**Figure 3: Sensory hand wash test results. Surfactant system: 9% SLES/3% CAPB / 1.5% NaCl / 1% additive.**

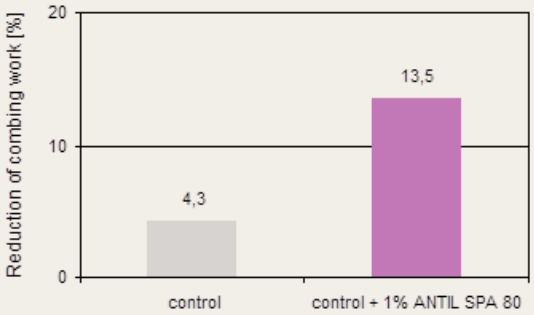


**Figure 4: Wet combing force measurement results. Test formula: 9.0% SLES, 3.0% CAPB, 0.8 % NaCl, 2.5% ANTIL® 171, pH 5.5**

## Application

ANTIL® SPA 80 can be used in shampoos, foam baths, shower gels and skin cleansers as an excellent viscosifier with foam boosting and skin and hair conditioning properties.

## Processing

At 22° C ANTIL® SPA 80 is a viscous, pumpable liquid. It is cold processable. A slight heating to 35-40°C improves processing (see figure 5) and dissolving. Intensive stirring is recommended.

It is advantageous to incorporate ANTIL® SPA 80 into the concentrated primary surfactant.

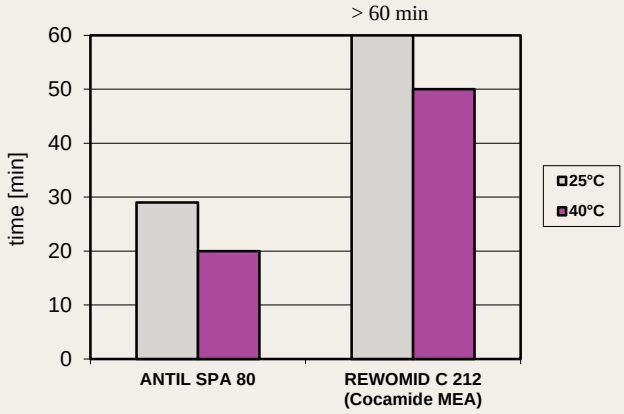


**Figure 5: Processing time for complete solution (anchor stirrer, 200 rpm). Surfactant system: 9% SLES/3% CAPB / 0.7% % NaCl / 1% additive.**

## Storage

ANTIL® SPA 80 tends to get cloudy or precipitated and higher viscous during prolonged storage at temperatures below 20°C. In this case we recommend to heat to approx. 40°C and homogenize.
This has no influence on the quality of the material.

## Recommended usage concentration

0.5 - 3% ANTIL® SPA 80

## Preservative

ANTIL® SPA 80 is preservative-free.

## Packaging

720 kg pallet (4 x 180 kg)

## 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.

## Guideline formulations

| **Conditioning Shampoo UW 41/7/4** | |
|---|---|
| Sodium Laureth Sulfate, 28% | 32.00% |
| ABIL® T Quat 60 (Silicone Quaternium-22) | 0.50% |
| Water | 57.85% |
| Polyquaternium-10, Polymer JR 400, Amerchol | 0.20% |
| TEGO® Betain F 50 (Cocamidopropyl Betaine) | 8.00% |
| ANTIL® SPA 80 | 1.20% |
| Perfume | 0.25% |
| Preservatives, NaCl | q.s. |
| **Preparation:** Mix the ingredients in the given order. | |

| **Mild Hair & Body Shampoo, PEG- and Sulfate-free UW 41/8** | |
|---|---|
| Lauryl Glucoside, 50% | 8.80% |
| ANTIL® SPA 80 | 1.00% |
| Water | 58.60% |
| Coco Glucoside, 50% | 3.30% |
| REWOTERIC® AM C (Sodium Cocoamphoacetate) | 11.30% |
| TEGO® Betain F 50 (Cocamidopropyl Betaine) | 14.90% |
| Perfume | 0.20% |
| Citric Acid, 30% | 1.90% |
| Preservatives, NaCl | q.s. |
| **Preparation:** Mix the ingredients in the given order. | |

| Conditioning Anti-Dandruff Shampoo<br>UW 41/3 | |
|---|---|
| **Phase A** | |
| TEGIN® G 1100 Pellets<br>(Glycol Distearate) | 3.0% |
| Sodium Laureth Sulfate, 28% | 40.0% |
| **Phase B** | |
| Perfume | 0.3% |
| Zinc-Pyrion NF (48%)<br>(Zinc Pyrithione) | 2.0% |
| ABIL® Quat 3272<br>(Quaternium-80) | 1.0% |
| **Phase C** | |
| Water | 36.7% |
| TEGO® Carbomer 341 ER<br>(Acrylates / C10-30 Alkyl Acrylate Crosspolymer) | 0.2% |
| Polyquaternium-10 | 0.3% |
| NaOH, 25% | 0.3% |
| **Phase D** | |
| REWOTERIC® AM B U 185<br>(Undecylenamidopropyl Betaine) | 12.5% |
| ANTIL® SPA 80 | 3.7% |
| Perfume, Preservatives | q.s. |

**Preparation:**

A: Heat the ingredients to approximately 65 °C until TEGIN® G 1100 is melted. Cool while stirring until approximately 45 °C.

B: Add the ingredients in the given order to phase A.

C: Dissolve the TEGO® Carbomer 341 ER in the water.
Add PQ-10. Neutralize with NaOH. Add C to phases A+B.

D: Add the ingredients in the given order.
Adjust the final viscosity with NaCl.

| Mild Baby Shampoo, slightly conditioning, sulfatefree<br>UW 41/9/2 | |
|---|---|
| REWOPOL® SB FA 30<br>(Disodium Laureth Sulfosuccinate) | 12.50% |
| ANTIL® SPA 80 | 1.70% |
| TEGOSOFT® GC<br>(PEG-7 Glyceryl Cocoate) | 0.50% |
| Perfume | 0.25% |
| Water | 67.75% |
| REWOTERIC® AM C<br>(Sodium Cocoamphoacetate) | 13.10% |
| VARISOFT® PATC<br>(Palmitamidopropyltrimonium Chloride) | 2.30% |
| Citric Acid, 30% | 1.90% |
| Preservative | q.s. |

**Preparation:**

Mix the ingredients in the given order at ~ 30°C.
Adjust the pH value to 5.5 with Citric Acid.

| PEG- and sulfate-free Conditioning Shampoo<br>UW 41/5 | |
|---|---|
| REWOTERIC® AM C<br>(Sodium Cocoamphoacetate) | 15.0% |
| REWOPOL® SB F 12 P<br>(Disodium Lauryl Sulfosuccinate) | 3.8% |
| Water | 67.9% |
| TEGO® Betain F 50<br>(Cocamidopropyl Betaine) | 10.0% |
| VARISOFT® PATC<br>(Palmitamidopropyltrimonium Chloride) | 2.3% |
| ANTIL® SPA 80 | 1.0% |
| Perfume, Preservatives | q.s. |
| **Preparation:**<br>Mix the ingredients in the given order at approximately 45 °C. Adjust the pH value with Citric Acid to 5.7. Finally add preservatives as required. | |

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