

Technical Information
ABIL® Wax

Liquid to waxy lipophilic emollients for improved emollient spreading and pigment dispersion in leave-on applications

Intended use

(Waxy) lipophilic emollient

Benefits at a glance

- Liquid to waxy components for skin care emulsions, decorative cosmetics and sun protection products
- Formulations with ABIL® Wax give a pleasant silky skin feel
- Soluble in cosmetic oils
- ABIL® Wax improves pigment dispersion and emollient spreadability

INCI (PCPC name)

ABIL® Wax 9800	Stearyl Dimethicone
ABIL® Wax 9801	Cetyl Dimethicone
ABIL® Wax 9840	Cetyl Dimethicone

Properties

- ABIL® Wax 9801 and 9840 are liquid to waxy organopolysiloxanes, which are synthesized by linking polydimethyl siloxanes with long chain hydrocarbons.
- Due to their unique chemical structure these products are interesting positioned between lipid-like organic substances and polydimethyl-siloxanes (known as silicone oils).
- ABIL® Wax 9801 and 9840 are soluble in all oils and waxes commonly used in cosmetics.

- The very high spreadability and the emollient-effect of the ABIL® Waxes enable them to improve the application and skin care properties of formulations. They can also contribute to the wash resistance.
- Due to their improved spreading effects on skin ABIL® Wax 9801 and ABIL® Wax 9840 will increase the effectivity of UV-filters in emulsions. Thus it is possible to reduce the level of UV-filters and maintain the SPF. The optimum ABIL® Wax type depends on the type or combination of UV-filters employed. For emulsions only based on either organic filters or on only physical filters ABIL® Wax 9801 is especially suitable.

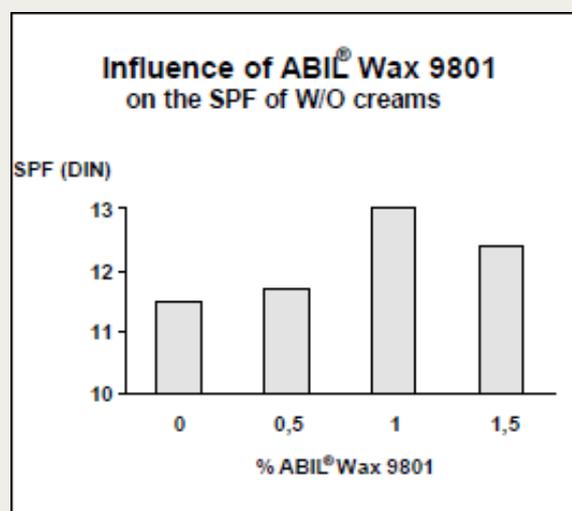


Figure 1 shows the SPF response (DIN) in W/O creams containing 3% Ethylhexyl Methoxycinnamate related to the added quantity of ABIL® Wax 9801. The maximum SPF is achieved by the addition of 1% ABIL® Wax 9801.

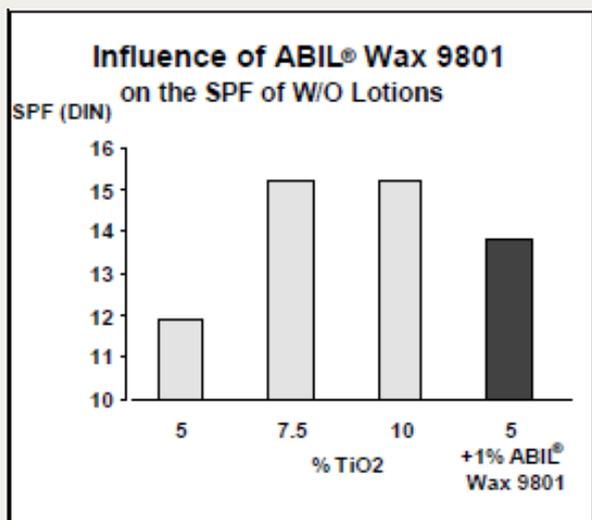


Figure 2 shows the SPF values (DIN) of W/O lotions containing different quantities of TiO₂. For this application the SPF can also be increased significantly by the addition of ABIL® Wax 9801.

For formulations containing a mixture of organic UV filters and TiO₂, ABIL® Wax 9840 is especially recommended to improve the sun protection factor response.

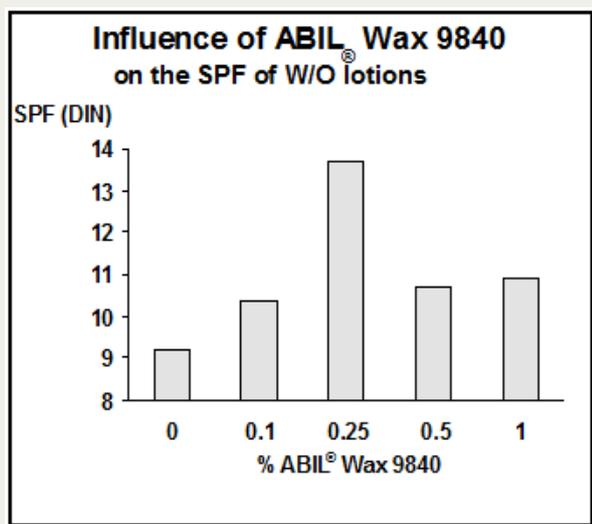


Figure 3 shows the SPF values (DIN) of W/O-lotions which contain both 3% TiO₂ and 3% Ethylhexyl Methoxycinnamate

In products based on a combination of organic and inorganic filters the best boosting-effect can be achieved by adding 0.25 % ABIL® Wax 9840.

ABIL® Wax 9800	ABIL® Wax 9801	ABIL® Wax 9840
Slight boosting of SPF in O/W emulsions	SPF boosting with organic or inorganic UV-filters in W/O	SPF boosting with organic and inorganic UV-filter combinations in W/O
Anti-agglomeration agent for TiO ₂	Good pigment dispersion in O/W make-up	
Not compatible with castor oil, compatible with quaternary compounds for hair care	Good compatibility with cyclics; anti-whitening in anti-perspirants	Long wearing effect in pressed powders
	Good spreading (even in O/W)	Maximum spreading agent for oils
	Soft skin feel	O/W: good silky skin feel

	ABIL® Wax 9800	ABIL® Wax 9801	ABIL® Wax 9840
Improved emollient spreading	•	•	•
Improved pigment dispersion	•	•	•
Anti-agglomerate	•		
Soluble in Cyclomethicone	•	•	•
Liquid (25 °C)		•	•
Silky skin feel		•	•

Suggested usage concentration

ABIL® Wax 9800	1.00 – 5.00%
ABIL® Wax 9801	1.00 – 5.00%
ABIL® Wax 9840	0.25 – 1.00%

Hazardous goods classification

Information concerning

- classification and labelling according to regulations for transport of chemicals
- protective measures for storage and handling
- measures in case of accidents and fire
- toxicological and ecotoxicological effects

is given in our safety data sheets.

Guideline formulations

Moisture Caring BB Cream SPF 15 (SG 13/16-1)

Phase A

ABIL® EM 180 (Cetyl PEG/PPG-10/1 Dimethicone)	2.00%
ABIL® Wax 9801 (Cetyl Dimethicone)	2.00%
Ethylhexyl Methoxycinnamate; Diethylamino Hydroxybenzoyl Hexyl Benzoate (Uvinul A Plus B, BASF)	10.00%
Cyclomethicone	2.00%
HyaCare® Filler CL (Aqua; Ethylhexyl Stearate; Sodium Hyaluronate Crosspolymer; Polyglyceryl-4 Diisostearate/Polyhydroxystearate/Sebacate; Sodium Isostearate)	2.00%
Phytosphingosine (Phytosphingosine)	0.10%
Hydrogenated Castor Oil	0.50%
Microcrystalline Wax	0.50%

Phase B

Micro Talc IT Extra-AW (Talc)	2.00%
CI 77891, Titanium Dioxide, Alumina, Triethoxycaprylylsilane (Hombitan AC 360, Sachtleben)	4.00%
Unipure Yellow LC 182 (Sensient)	0.36%
Unipure Red LC 381 (Sensient)	0.12%
Unipure Black LC 989 (Sensient)	0.08%
AEROSIL R 972 V (Silica Dimethylsilylate)	0.50%
Nylon-12	2.00%
TEGOSOFT® OS (Ethylhexyl Stearate)	5.00%
TEGOSOFT® DEC (Diethylhexyl Carbonate)	6.00%

Phase C

Water	54.29%
HyaCare® (Sodium Hyaluronate)	0.05%
Glycerin	5.00%
Sodium Chloride	0.80%

Phase D

Phenoxyethanol; Ethylhexylglycerin (EUXYL PE 9010, Schülke&Mayr GmbH)	0.70%
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Processing

1. Disperse the pigments/powders homogeneously in phase B.
2. Heat phase A to approx. 85 °C.
3. Add phase B to phase A with stirring and keep the temperature.
4. Add phase C (80 °C or room temperature) to phases A/B slowly while stirring.
5. Homogenize for a short time.
6. Cool with gentle stirring below 30 °C and add phase D.
7. Homogenize again.

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