

Technical Information

dermofeel® sensolv MB

A natural choice for your beauty routine produced by an eco-efficient process

Intended use

Liquid lipophilic emollient

Benefits at a glance

- Fully based on renewable sources
- Produced by the unique sustainable Evonik eco-efficient (enzymatic) process using 100% renewable energy and with improved impact on global warming by 100% lower CO₂ footprint
- Clear, low-viscous emollient that provides a light & non-sticky skin feel
- High SPF formulations feasible due to very good solubilization of crystalline UV filters
- Good stabilizing properties in color cosmetics due to excellent wetting properties of hydrophobic coated pigments
- Hair conditioning without greasy or heavy residues, no build-up
- Efficient combing force reduction
- Antistatic effect
- Improvement of foam characteristics (foam boosting & creamy foam)

INCI (PCPC name)

Isoamyl Laurate (CFDA: yes)

Chemical and physical properties (not necessarily part of product specifications)

Physical form	Liquid
Viscosity (mPas)	~4.8
Surface tension (mN/m)	~28
Refractive index	1.434 - 1.439
Cloud point (°C)	≤ -15
Pour point (°C)	~ -17
Spreadability	High
Polarity	Medium

Properties

- dermofeel® sensolv MB is an emollient ester of isoamyl alcohol and fatty acid of 100% vegetable origin.
- Fully biodegradable and contributes to the production of certified sustainable palm oil according to the rules set out by RSPO Mass Balance Supply Chain Model
- dermofeel® sensolv MB has an improved impact on global warming by 85% lower CO₂ footprint compared to conventional chemical production & non RSPO certified feedstock as shown by life cycle analysis

Skin care – our studies based on dermofeel® sensolv MB

UV filter solubility

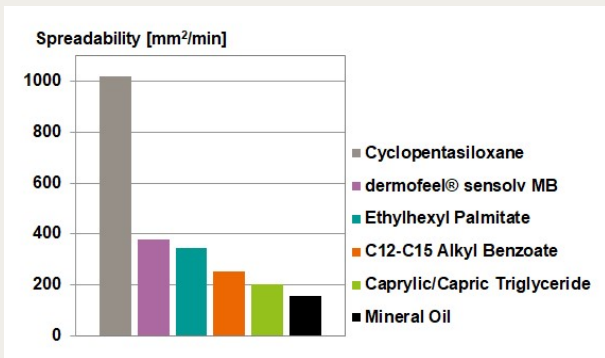
Knowing the capability of UV filter solubility is crucial for formulating efficient sun care products, especially with high sun protection factors. The following table displays the solubility of five of the most widely used lipophilic, crystalline UV filters.

Solubilization performance for organic UV-A and UV-B Filters (%)

Benzophenone-3	12.2
Butyl Methoxydibenzoylmethane	11.2
Ethylhexyl Triazone	5.2
Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine	5.6
Diethylamino Hydroxybenzoyl Hexyl Benzoate	10.9

In vivo spreadability

Spreadability was determined at 23.5 °C by addition of 1 mL emollient on the volar forearm. After one minute a replica of the oil spot was taken with filter paper and the diameter determined in mm²/min.



Pigment wetting

The most commonly used metal oxide pigments with Dimethicone coating were identified and tested (CI 77492 (yellow iron oxide), CI 77499 (black iron oxide), CI 77491 (red iron oxide), CI 77891 (titanium dioxide)). Uncoated Carbon Black was also evaluated (CI 77266).

The ratio of the pigments versus the corresponding emollient was optimized for the highest pigment loading. This allowed clear differentiation of the emollient performance.

The viscosity at 1/100 seconds was measured using a rheometer. Measurements were taken at room temperature, unless noted.

The lower the viscosity, the better the pigment wetting.

No.	Product name	INCI	Overall pigment wetting capability	Score				
				1	2	3	4	5
1	TEGOSOFT® AC MB	Isoamyl Cocoate	*****					
2	dermofeel® sensolv MB	Isoamyl Laurate	*****					
3	TEGOSOFT® P	Isopropyl Palmitate	*****					
4	TEGOSOFT® M	Isopropyl Myristate	*****					

■ Yellow iron oxide, CI 77492 ■ Carbon black, CI 77266
■ Black iron oxide, CI 77499 ■ Titanium dioxide, CI 77891
■ Red iron oxide, CI 77491

Score values reflect the viscosity of the respective pigment/emollient dispersion. The lower the score value, the better the pigment wetting.
 Rating of overall pigment wetting capability:
 ●●●●● superior ●●●●● very high ●●●● high
 ●●●● medium ●● low ● very low
 * Emollient waxes are measured at elevated temperatures above their melting point.

dermofeel® sensolv MB pigment wetting properties make it an ideal natural emollient for color cosmetics.

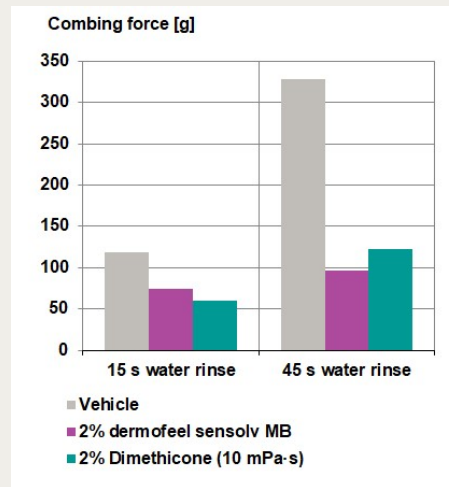
Hair care – our studies based on dermofeel® sensolv MB

Traditional hair care is distinguished by silicones combined with quaternized / cationic substances, which leave hair with good, easy combing, shine and a silky touch but might also cause a build-up effect (valid for Dimethicone) with reduced lasting

of the hairstyle. Natural hair care typically employs natural & vegetable alternatives like olive oil, coconut oil, argan oil which do not build up, but also have limited conditioning properties. Because of instabilities and separation, the incorporation of oils into shampoos may be difficult.

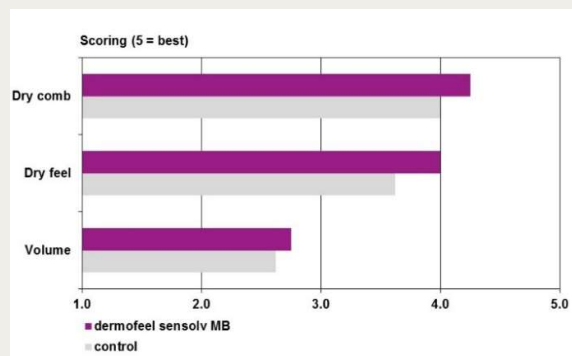
Conditioning performance

Caucasian bleached hair was washed 3 x with 10% ether sulfate solution. 1 mL conditioner was added and left for 1 min, before rinsing with water. Combing force was determined on wet hair.



The conditioning performance and the lastingness of **dermofeel® sensolv MB** is comparable to Dimethicone 10 mPa·s.

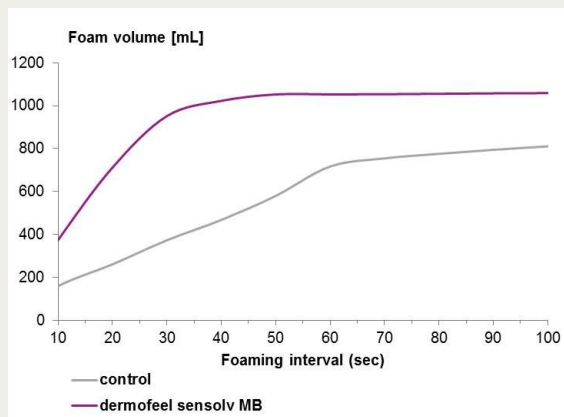
Conditioning performance was tested by sensory hair swatch test from a sulfate- and PEG-free surfactant system (8.8% Lauryl Glucoside, 3.3% Coco Glucoside, 12.5% REWOTERIC® AM C, 14.9% TEGO® Betain P 50 C, 0.2% Jaguar C 162, 0.5% **dermofeel® sensolv MB**, 1.0% ANTIL® SPA 80, pH = 5).



dermofeel® sensolv MB improves the conditioning properties of dry hair.

Foam Kinetics – Flash Foam

Foam kinetics were evaluated with a SITA foam tester (c = 0.5%, T = 30 °C, Water ~10 °dH, pH 6, 1500 rpm) from a sulfate- and PEG-free surfactant system (as above).



dermofeel® sensolv MB has foam boosting properties.

Caring sensation

The foam of shampoos containing **dermofeel® sensolv MB** is creamy and fine pored (Test system natural shampoo based on: 6.0% Sodium Lauryl Sulfate, 5.0% Sodium Cocoyl Glutamate; Disodium Cocoyl Glutamate, 18.5% Lauryl Glucoside, 1.0% Coco Glucoside/Glyceryl Oleate, 0 or 1% **dermofeel® sensolv MB**).



dermofeel® sensolv MB creates creamy and fine pored, dense foam. The creaminess increases with higher amounts of **dermofeel® sensolv MB**.

Formulation hints

Skin care: Minimal hydrolysis of isoamyl esters can occur in aqueous environment leading to release of isoamyl alcohol. This has no effect on the stability of the formulation. However, in unperfumed formulations a distinct odor could be perceived. The hydrolysis is accelerated at low pH values and elevated temperatures. In such case it is recommended to test a variety of perfumes/ etheric oils, which can well cover the odor of isoamyl alcohol. It is also recommended to adjust the formulation to a more neutral pH (~ 6.5 – 7.0). Solutions for preservation at neutral pH are available from the Evonik Dr. Straetmans portfolio.

Hair Care & Body wash: **dermofeel® sensolv MB** can be clearly incorporated at doses of up to 0.5 to 1.0% in surfactant based systems. Dosages > 1.5% require a viscosity adjustment! The use of thickening agents like ANTIL® types or common jellifying agents is recommended. For improvement of conditioning performance mild surfactant combination (no/low level sulfates) and reduced total amount of surfactants is recommended.

Application

dermofeel® sensolv MB – Your opportunities

Face care – e. g. natural based cosmetics, for regions with hot climate.

Sun care – e. g. effective sun protection products with improved spreadability and lighter textures, sun care products with high SPF, sun care for men, natural based sun care.

Baby & Body care – e. g. natural based body care, body oils.

Color cosmetics – e. g. natural based foundations.

Hair care & body wash – e. g. natural based body washes, natural clear shampoos, natural conditioner rinses.

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

If you are interested in guideline formulations please visit our homepage <https://personal-care.evonik.com>.

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