

MIGLYOL[®]

REPLACING LIGHT SILICONE OILS
WITH ESTER EMOLLIENTS.



OLEOCHEMICALS

PERSONAL CARE

IOI Oleo GmbH

MIGLYOL®

Silicones have been present in many personal care formulations for decades due to their interesting sensorial profile. For a long time formulators have found it difficult to substitute the different Silicone emollients and maintain the same sensorial profiles in their products. However, in recent years many interesting emollients appeared in the personal care industry that allow to substitute Silicone Oils, particularly the light, fast spreading low molecular species. IOI Oleo has a range of light emollients that for instance makes it easy to replace Cyclomethicone or low weight Dimethicone without losing the special skin feel that these ingredients impart to skin care products. The question whether a Silicon can be replaced unfortunately is not answered just by one or two specific values of the emollient (e.g. spreading value and viscosity), but by the whole physico-chemical and sensorial profile of the possible substitute. These properties may be given for a certain substance but will be more or less pronounced depending on their environment (formulation). Therefore the substitution of Silicon Oils is best verified in your own project.

MIGLYOL® Coco 810

(INCI: Coco Caprylate/Caprata) is the fastest spreading product in the range. With its non-polar character this 100% natural ingredient instantly creates an elegant, silky smoothing film on the skin that will not dominate over the medium spreading oils in the formulation. It is well suited to decrease heavy and greasy skin feel of slow spreading oils and will benefit the formulation with a long lasting care effect.

MIGLYOL® T-C7

(INCI: Triheptanoin) is another fully natural emollient with extremely high spreading on the skin. Unlike most other high spreading silicon replacements this product is a triglyceride like most vegetable oils found in nature. The difference lies in the short fatty acid chains derived from Castor Oil. This palm free emollient is highly polar as well and therefore an excellent solvent for organic UV-filters and powerful dispersing aid for pigments.

MIGLYOL® 8810

(Butylene Glycol Dica- prylate/Dicaprate) and **MIGLYOL® PPG 810** (Propylene Glycol Dicaprylate/Dicaprate) are two light emollients belonging to the same chemical family. Both ingredients are excellent solvents for UV-filters and widely established in many sun care formulations. The high polarity of these ingredients also helps for dispersing pigments, thus it does not surprise that they have been used in Color Cosmetics and BB-Creams already for many years.

Typical properties of our light emollients:

Characteristics	MIGLYOL® Coco 810	MIGLYOL T-C7	MIGLYOL® PPG 810	MIGLYOL® 8810
Odor	Neutral	Neutral	Neutral	Neutral
Appearance	Colorless liquid	Colorless liquid	Colorless liquid	Colorless liquid
Polarity	Low-medium	high	high	high
Viscosity [mPas, 20°C]	9–12	15–23	9–12	9–15
Spreading Behavior	Fast	Fast	Fast	Fast
Film Forming	Low-medium	Medium	Low	Low-medium
Natural Origin	100%	100%	79%	76%
Remarks	RSPO MB available	Non-palm source	RSPO MB available	RSPO MB available
Pigment Dispersion	Low-medium	Very good	Very good	Good
Skin Feel	Light, dry, non-oily	Light, substantive, good lubrication	Light, dry, non-oily	Light, dry, non oily

Silicone replacement made as natural and sustainable as possible: The two natural ingredients MIGLYOL® Coco 810 and MCT T-C7 are ECOCERT listed and generally all our palm based ingredients are available also as RSPO MB certified grades.

Cyclomethicone D5 vs MIGLYOL® Coco 810

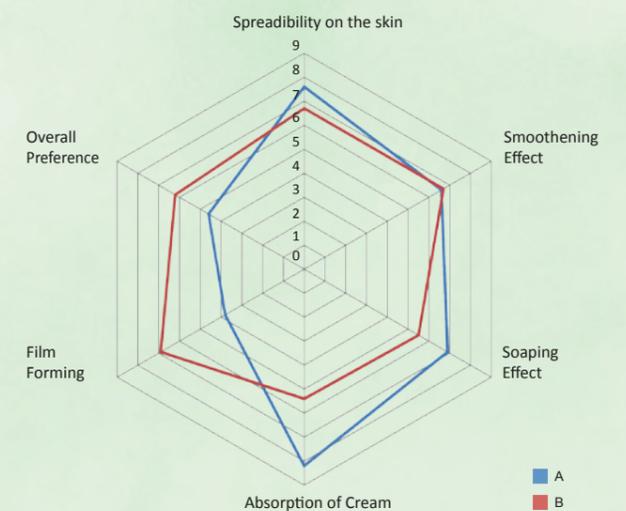
Sensorial Evaluation

Composition of Cream A and Cream B used in the sensorial test

Tradename	INCI	Cream A 10% Cyclopentasiloxane	Cream B 10% CremerCOOR® Coco 810
IMWITOR® 372 P	Glyceryl Stearate Citrate	3,0	3,0
IMWITOR® 900 K	Glyceryl Stearate	2,0	2,0
MIGLYOL® Coco 810	Coco Caprylate/Caprata	–	10,0
Cyclopentasiloxane	Cyclopentasiloxane	10,0	–
WITARIX® MCT 60/40	Caprylic/Capric Triglycerides	10,0	10,0
Cetearyl Alcohol	Cetearyl Alcohol	1,0	1,0
Keltrol® F	Xanthan Gum	0,3	0,3
Phenonip®	Phenoxyethanol (and) Methylparaben (and) Ethylparaben (and) Propylparaben	0,7	0,7
Glycerin 99,5	Glycerin	5,0	5,0
Aqua dem.	Aqua	68,0	68,0
Sodium Hydroxide 10% in water	Sodium Hydroxide	q.s.	q.s.

Results of Comparison of MIGLYOL® Coco 810 with Cyclomethicone D5 in O/W Cream

The biggest differences are seen for the absorption of the cream and film forming effect. The spreadability and soaping of the two creams have very similar rating and the smoothing effect is seen as identical by the test panel. Significant differences are that Cream A (with Cyclomethicone) shows very fast absorption and low substantivity/film forming effect compared to Cream B (containing MIGLYOL® Coco 810). The general rating of the sensorial quality is better for Cream B, apparently because of a better film forming effect that is responsible for the long lasting care effect of this formulation. Due to the different properties of our light emollients, the products finds a broad range of application in different segments of Personal Care products.



Typical applications of our emollients:

Characteristics	MIGLYOL® Coco 810	MIGLYOL T-C7	MIGLYOL® PPG 810	MIGLYOL® 8810
Sun Care		•	•	•
Face Care	•	•	•	•
Baby Care	•	•		
Color Cosmetics		•	•	•
Massage Oil	•	•		
Hand Cream	•	•	•	•
Lip Products	•		•	•
Natural Cosmetics	•	•		

FORMULATIONS

Light Day Cream No. 650

Soothing skin sensation

Phase	Tradename	INCI	Amount %
A	Glycerin 99,5 %	Glycerin	3,0
A	Phenonip® XB	Phenoxyethanol (and) Methylparaben (and) Ethylparaben (and) Propylparaben	0,7
A	Disodium EDTA	Disodium EDTA	0,05
A	Aqua dem.	Aqua	ad. 100,0
B	UltraThix P-100 polymer	Acrylic Acid/VP Crosspolymer	0,5
C	Sodium Hydroxide 10% in water	Sodium Hydroxide	1,0
C	Aqua dem.	Aqua	5,0
D	IMWITOR® 375	Glyceryl Citrate/Lactate Oleate/Linoleate	
D	MIGLYOL® Coco 810	Coco Caprylate/Caprate	5,0
D	MIGLYOL® 8810	Butylene Glycol Dicaprylate/Dicaprate	5,0
D	MIGLYOL® OE	Simmondsia Chinensis Seed Oil, (and) Oleyl Erucate	1,0
D	Tocopherol	Tocopherol	0,5
E	Fragrance	Parfum (EU)/Fragrance (US)	q.s.
F	RapiThix A-60 polymer	Sodium Polyacrylate (and) Hydrogenated Polydecene (and) Trideceth-6	1,0

Preparation

Prepare this formulation at room temperature.

1. Phase A is mixed.
2. Add 1/2 of premixed phase C to phase A with stirring.
3. Add phase B to phase A and homogenise.
4. Premix phase D until uniform.
5. Add phase D to phase A/B/C.
6. Homogenise.
7. Add phase E to the emulsion.
8. Add remaining phase C to the emulsion.
9. Homogenise.
10. Add phase F to the emulsion and mix well.

Supplier

IOI Oleo: IMWITOR®, MIGLYOL®

Ashland: UltraThix, RapiThix

Clariant: Phenonip

Specification

Viscosity at 20°C, 7 days after production:

Shear rate 10/s: 9500–13000 mPas

(Malvern Kinexus Cone/Plate 4°/40mm (CP4/40))

Stability: 20°C/3 month: pass // 40°C/3 month: pass // 50°C/1 week : pass

pH: ≈ 6,0 | Appearance: White

In particular, IOI Oleo GmbH makes no representations or warranties, either express or implied, of merchantability, fitness for a particular purpose that the products to which the information refers may be used without infringing the intellectual property rights of others, or of any other nature are made hereunder with respect to information or the products to which information refers. In no case shall the information be considered a part of our terms and conditions of sale.

Sprayable Body Oil No. 721

Lightweight Body Oil for a silky, non-greasy skin feel featuring the Secrets of Africa

Phase	Tradename	INCI	Amount %
A	MIGLYOL® 829	Caprylic/Capric/Succinic Triglyceride	4,0
A	MIGLYOL® Coco 810	Coco Caprylate/Caprate	40,5
A	MIGLYOL® PPG 810	Propylene Glycol Dicaprylate/Dicaprate	25,0
A	Tegosoft® HP	Isohexyl Palmitate Succinic Triglyceride	5,0
A	WITARIX® MCT 60/40	Caprylic/Capric Triglyceride	24,0
A	SOFTIGEN®OIL Baobab Organic	Adansonia Digitata Seed Oil	2,0
A	SOFTIGEN®OIL Barbary Fig Organic	Opuntia Ficus-Indica Seed Oil	0,5
A	SOFTIGEN®OIL Argan Organic	Argania Spinosa Kernel Oil	1,0
A	Tocopherol	Tocopherol	0,4
A	Fragrance	Parfum (EU) /Fragrance (US)	q.s.

Preparation

Put all ingredients together and stir at room temperature until homogenous.

Supplier

IOI Oleo: MIGLYOL®, SOFTIGEN®, WITARIX®

Evonik Nutrition & Care GmbH: Tegosoft®

Specification

Appearance: Slightly yellow, clear

IOI Oleo GmbH

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