dr. straetmans®

Technical Information

dermosoft® GMCY MB

The Product: dermosoft® GMCY MB

dermosoft® GMCY MB consists of the 100% plant derived, single ingredient Glyceryl Caprylate. This multifunctional wetting agent provides moisturizing properties and is suitable for many cosmetic applications. It has a co-emulsifying effect in emulsions, solubilisates and pigment dispersions. Besides this multitude of cosmetic functions, the material also shows strong antimicrobial activity.

CHARACTERISTICS

- INCI: Glyceryl Caprylate
- Appearance: White, waxy solid (at 20°C)
- 100% naturally derived, ECOCERT/COSMOS approved and compliant with other standards for natural cosmetic; please contact us for further information

Cosmetic functions:

- Wetting and co-emulsifying: Due to an amphiphilic structure, it lowers the surface tension between oil- and water phase, building smaller droplets and lowering the energy demand during the emulsification process
- Improves solubility and self-emulsification properties in oil based/water free products like bath oils
- Antimicrobial activity
- Good skin compatibility **refer to toxicological summary document*

- Easy to handle: addition to the oil phase or water phase possible
- Processable at lower temperatures (melting point 35°C)
- Recommended pH range: 4.0 – 7.0

DOSAGE

Product Concept	Dosage	Gram +	Gram –	Yeast	Mould
Emulsions	0.3 – 0.7 % *	++	+	++	
Surfactant based products	0.3 – 1.0 % (as a wetting agent)	+		+	
Special Oil Based Rinse off products	Up to 5.0 %	n.a.	n.a.	n.a.	n.a.

*eye care and sensitive skin products: recommended not to exceed 0.3 %
Legend: + = good, but needs a co-active | ++ = very good alone

EVONIK POWER TO CREATE

How to work with dermosoft® GMCY MB

MANUFACTURING PROCEDURE *(LABORATORY SCALE)*

For emulsions:

1. Can be added to water or oil phase before emulsification, continue as usual.
2. During dissolving process: avoid heating above 80°C and pH > 7.
   Note: In Combination with **dermosoft® 1388** / **dermosoft® anisate** or alkaline presolutions, addition to the oil phase is recommended.
3. Due to its surface activity, **dermosoft® GMCY MB** may have an impact on emulsion viscosity and stability. Please consider in product development.

Also low temperature process possible

For surfactant based products:

1. Dissolve **dermosoft® GMCY MB** directly into the concentrated surfactant base.
2. During dissolving process: Recommended to work below 60°C and to avoid pH > 7.
3. Higher concentrations may cause turbidity, lower viscosity and may influence stability.

For aqueous based systems:

1. Directly dissolve **dermosoft® GMCY MB** into water with the help of a solubilizer.

FORMULATION ADVICE

Improve antimicrobial activity – *combine with*	Fungicidal additive (e.g. **dermosoft® 688 eco**, **dermosoft® 1388 eco**, **dermosoft® anisate eco**)
	Zn-salts (0.1-0.2%),
	Sodium Citrate (0.5-1%)
	Sodium Lactate (0.5-1%)
Limited antimicrobial activity in	Surfactant based formulations
Incompatibility	Lecithin or phospholipid structures can be destabilized by higher concentrations of surfactants, to avoid this - First hydrate lecithin - Add small concentrations of **dermosoft® GMCY MB** to oil phase
	Alkaline substances, pH > 7 combined with high temperatures can lead to hydrolysis of **dermosoft® GMCY MB**

APPLICATION IDEAS

Perfectly suitable for O/W-, W/O-emulsions and color cosmetics, additional protection for water-free formulations (e.g. lipsticks, oil gels).

For more formulation ideas visit us at:
https://www.dr-straetmans.de/en/products

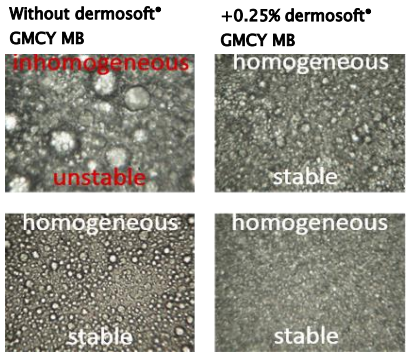
EVONIK POWER TO CREATE

Proof of Performance

dermosoft® GMCY MB has an amphiphilic molecule structure and acts as a wetting agent. Its ability to allocate at the surfaces of lipophilic and hydrophilic phases lowers the surface tension between the phases.

EFFECTS IN EMULSIONS

Emulsion based on Glyceryl Stearate Citrate/ Cetearyl Alcohol

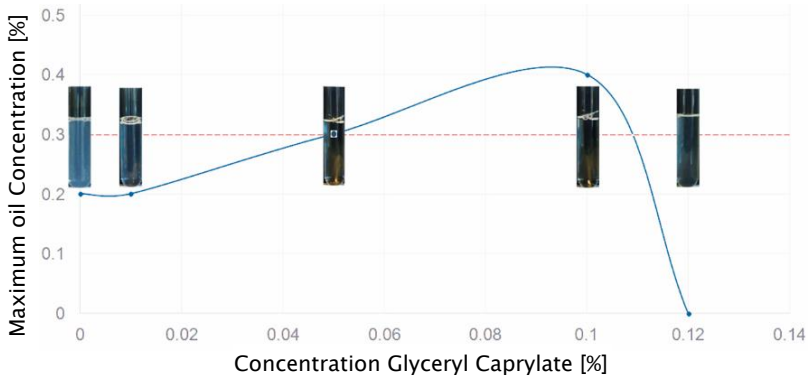


In emulsions, wetting agents enable the formation of smaller droplets with lower energy demand in the emulsification process.

EFFECTS IN SOLUBILIZATION

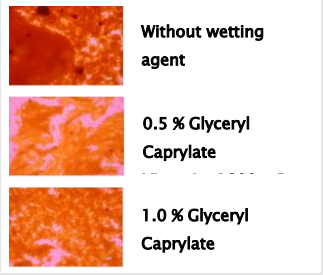
In *solubilizations*, wetting agents increase the solubilizer efficacy. The amount of solubilizer can be lowered and often the sensorial profile of the formulation is improved.

Maximal solubilization efficacy of 1% solubilizer in the presence of varying concentrations of **dermosoft® GMCY MB**



dermosoft® GMCY reveals a concentration-dependent, beneficial effect on the solubilizer performance with an optimal concentration level.

EFFECTS IN PIGMENT DISPERSION



Microscopic images of mineral pigment dispersions in a cosmetic oil

The small surfactant molecules of wetting agents can also wet the surface of solid particles and thereby lower the surface tension.
This enhances *pigment dispersion* in e.g. color cosmetics.

The oil pre-dispersions containing **dermosoft® GMCY MB** appeared more homogeneous and brilliant. Mineral pigments were more finely dispersed.

EVONIK POWER TO CREATE

ANTIMICROBIAL PROPERTIES

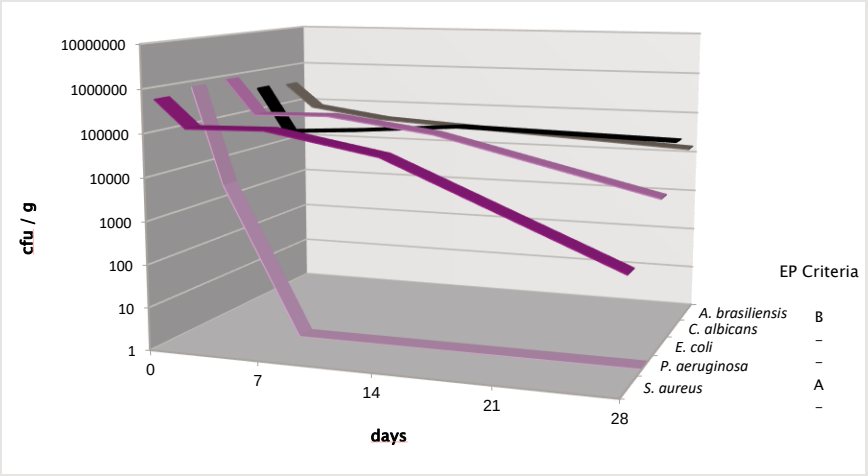
Wettig agents have a boosting effect on antimicrobial systems. Especially in combination with organic acids, the activity against bacteria and yeast can be improved. The wetting agents destabilize the cell membranes of the microorganisms. This way, the organic acids penetrate more easily into the cell. The acids disturb the cell's metabolism and the microorganism perishes.

For more information on this mode of action, please contact *sales-drs@evonik.com*

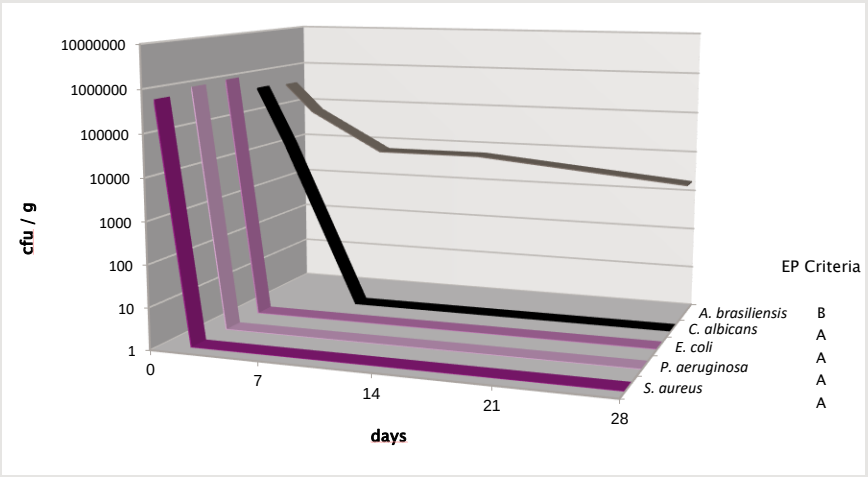
MICROBIOLOGICAL CHALLENGE TESTS

Microbiological challenge tests demonstrate the boosting effect of **dermosoft® GMCY MB**

Basic emulsion with 3.5 % dermosoft® 1388 (pH 5.2)



Basic emulsion with 3.5 % dermosoft® 1388 + 0.3 % dermosoft® GMCY MB (pH 5.2)



dermosoft® GMCY MB is an efficient booster to improve the antimicrobial efficacy of organic acids in cosmetic emulsions.

EVONIK POWER TO CREATE

Trade Information

International Approval*	EU, USA, Canada, Australia**, China, Japan, South Korea
Packaging	18 kg
Shelf life (stored in original container)	36 months

* Information is based on our best knowledge and reviewed for the most requested regions only. We recommend to check current regulatory requirements in individual target countries. For more information contact our regulatory department or refer to our regulatory status statement.
** Moreover, listed to be used in dermal applications (OTC/ Medicines, exempt eye products) up to a concentration of ≤ 1%.

Literature

Jänichen, J. React Fast, With Safe Alternatives. *Cossma*, **2014**, Sept, 20-21.

Thiemann, A.; Scholze, J.; Salmina-Petersen, M.; Jänichen, J. Wetting Agents: Friends or Enemies of Solubilizers. *SOFW*, **2014**, Nov, 46-53.

Thiemann, A.; Grandke, N.; Gröne, S.; Salmina-Petersen, M; Jänichen, J. Wetting Agents - Their Concentration-Dependent Effects on the Energy Demand in the Formation of Stable Emulsions. *SOFW*, **2015,** Mar, 10-16.

Thiemann, A.; Gröne, S.; Salmina-Petersen, M; Jänichen, J. Wetting Agents - Multifunctional Ingredients in Color Cosmetics. *SOFW*, **2015**, Sept, 34-40.

Thiemann, A.; Jänichen, J. The Formulator's Guide to Safe Cosmetic Preservation. *Personal Care Europe*, **2014**, Nov, 39-43.

For further information, please contact:
sales-drs@evonik.com

Evonik Dr. Straetmans GmbH
Merkurring 90
22143 Hamburg, Germany
Phone +49 40 669356 0
Fax +49 40 669356 310
info-drs@evonik.com
www.dr-straetmans.de/en

EVONIK
POWER TO CREATE