Product Information Multifunctionals: **dermo**soft® GMC

Product features:

- Multifunctional raw material
- Boosting wetting agent
- Wide pH range
- Vegetable based
- 100% naturally derived

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An Evonik brand.

The product: dermosoft® GMC

dermosoft® GMC consists of 100% plant derived, single ingredient Glyceryl Caprate.
This multifunctional wetting agent provides moisturizing properties and excellent antimicrobial activity. Therefore it is perfectly suitable as soft antimicrobial booster, especially in W/O-emulsions. Furthermore it has co-emulsifying properties and supports an efficient emulsification with a low impact on the stability of emulsions.

Characteristics

- *INCI: Glyceryl Caprate*
- Appearance: White, waxy solid (at room temperature)
- 100% naturally derived, COSMOS approved and compliant with other standards for natural cosmetics (please contact us for further information)

Cosmetic functions:

- Wetting and co-emulsifying: Due to the amphiphilic structure, it lowers the surface tension between oil- and water phase, building smaller droplets and lowering the energy demand during the emulsification process
- Antimicrobial activity: Particularly excellent antimicrobial activity against gram positive bacteria; therefore it is suitable for deodorant products
- Hydrating: Glycolic structure can bind water molecules

- Suitable for W/O-emulsions
- Easy to handle: addition to the oil or water phase possible
- Processable at lower temperatures (melting point ~ 40°C)
- Wide pH range: 4.0 – 7.0

Dosage

Product Concept	Dosage
Emulsions	0.4 – 0.8%*
Surfactant based products	0.5 – 0.8%
As Deodorant Active	0.5 – 1.0 %

** Eye care and sensitive skin products: recommended not to exceed 0.3% + co active*
Face care products: recommended not to exceed 0.5%

Antimicrobial efficacy

Gram +	Gram -	Yeast	Mould
++	+	+	

Legend: + = good, but needs a co-active | ++ = very good alone

dermosoft® GMC

Manufacturing procedure *(laboratory scale)*

For emulsions:

1. Add **dermo**soft® GMC to the aqueous phase or oil phase before emulsification.
2. During dissolving process: avoid heating above 80°C and pH > 7.
3. Due to its surface activity, **dermo**soft® GMC may have an impact on emulsion viscosity and stability. Please consider in product development.

Note: In Combination with **dermo**soft® 1388/ anisate *or alkaline presolutions, addition to the oil phase is recommended.*

Also suitable for W/O emulsions.

For surfactant based products:

1. Dissolve **dermo**soft® GMC directly into the concentrated surfactant base.
2. During dissolving process, it is recommended to work below 60°C and to avoid pH > 7.

Note: Higher concentrations may cause turbidity, lower viscosity and may influence stability.

For aqueous based systems:

1. Directly dissolve **dermo**soft® GMC into water with help of solubilizer.

Formulation advice

Improve antimicrobial performance – *combine with*	Fungicidal actives (e.g. **dermo**soft® 688 eco, **dermo**soft® anisate eco, **dermo**soft® 1388 eco)
	Zn-salts (in W/O-emulsions)
	Sodium Citrate
	Sodium Lactate
Incompatibility	Alkaline substances, pH > 7 and high temperatures over a long periode can lead to hydrolysis
	Lecithin or phospholipid structures can be destabilized by higher concentrations of surfactants, to avoid this - First hydrate lecithin - Add small concentrations of **dermo**soft® GMC to the oil phase
Limited antimicrobial activity	Surfactant based formulations

Application Ideas

Perfectly suitable for natural W/O-emulsions and natural deodorant products.

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

Proof of Performance

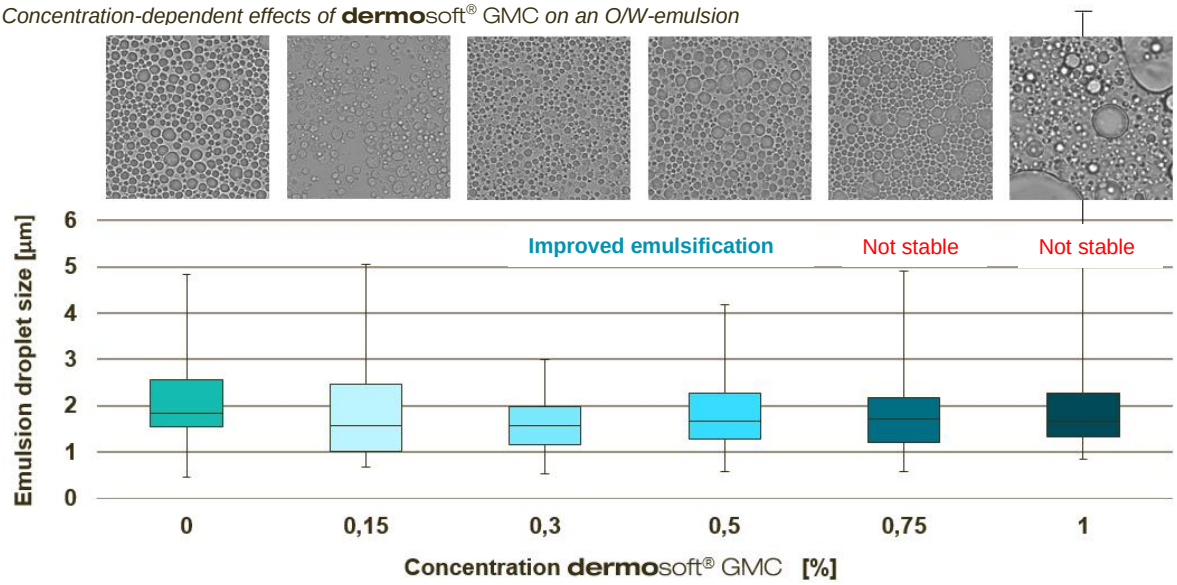
dermosoft® GMC has an amphiphilic molecule structure and acts as a wetting agent.
Its ability to allocate at the surfaces of lipophilic and hydrophilic phases lowers the surface tension between the phases.

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

Effects in Emulsions

The effects on the emulsion droplet size depends on the concentration of dermosoft® GMC. Low concentrations (< 0.3%) support stable emulsions with very fine and homogeneous droplets and slightly higher viscosity. To prevent destabilization of the emulsion at high concentrations (> 0.75%), it is recommended to add further stabilizers. dermosoft® GMC improves the emulsification process with an ideal concentration of 0.3 – 0.5%.

Concentration-dependent effects of dermosoft® GMC on an O/W-emulsion



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.

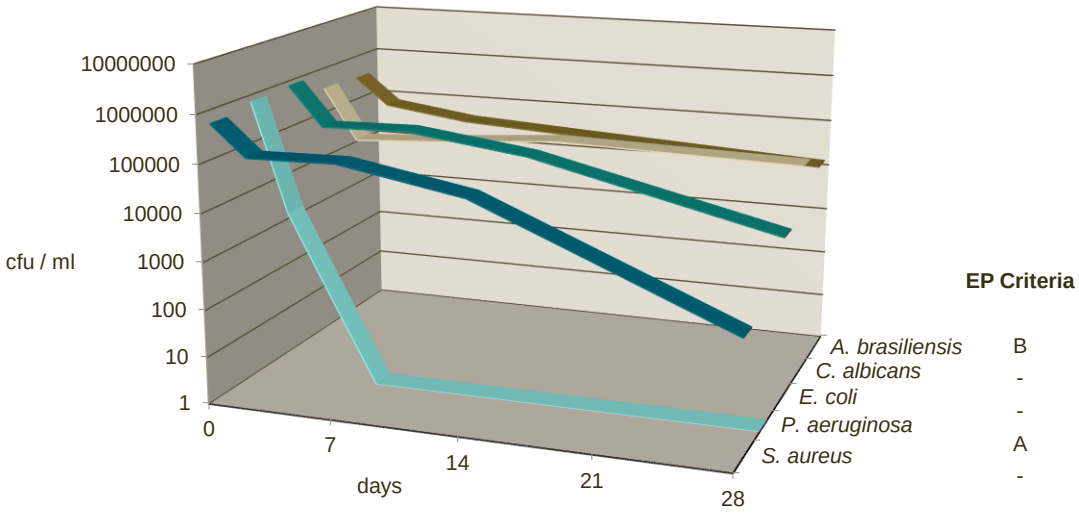
Effects in pigment dispersions

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.

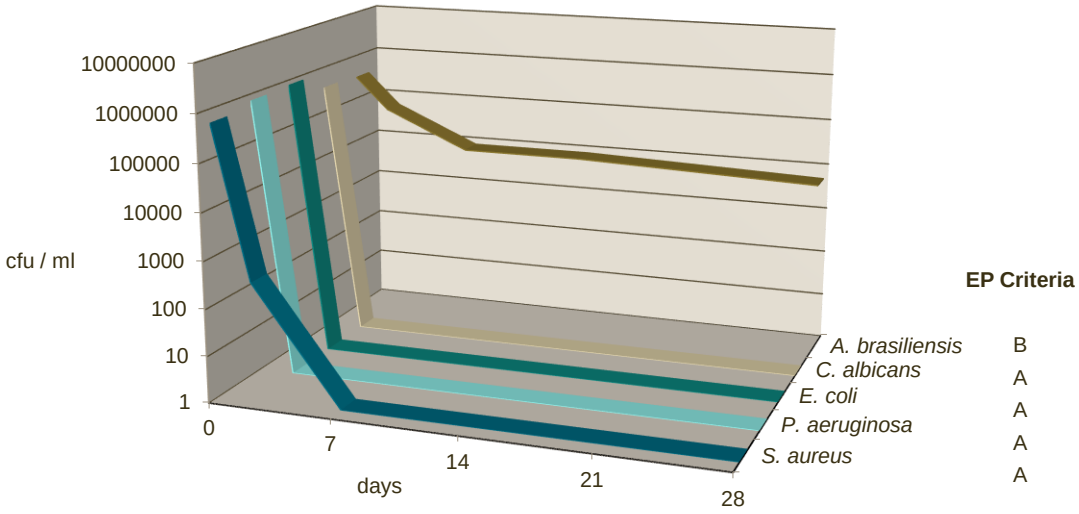
Wetting agents have a boosting effect on antimicrobial systems. Especially in combination with organic acids, the activity against bacteria and yeast can be improved. The wetting agents destabilize the cell membranes of the microorganisms. This way, the organic acids penetrate more easily into the cell. The acids disturb the cell's metabolism and the microorganism perishes.
For more information on this efficacy process, please contact sales@dr-straetmans.de.

Antimicrobial boosting effect of dermosoft® GMC

Basic emulsion with 3.5 % dermosoft® 1388 (INCI: Glycerin; Aqua; Sodium Levulinate; Sodium Anisate) (pH 5.2)



Basic emulsion with 3.5 % dermosoft® 1388 (INCI: Glycerin; Aqua; Sodium Levulinate; Sodium Anisate) and 0.5 % dermosoft® GMC (pH 5.2)



dermosoft® GMC is an efficient booster to improve the antimicrobial efficacy of organic acids in cosmetics emulsions.

Trade Information

International Approval*	EU, USA, Australia, Canada, China, Japan, 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.*

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.

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

For further information, contact our Evonik Dr. Straetmans sales team:
sales@dr-straetmans.de
or your local representative.

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Dr. Straetmans Worldwide Network

https://www.dr-straetmans.de/en/meta/contact

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