



# Product Information

## Multifunctionals:

### **dermosoft**<sup>®</sup> GMCY

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Product features:

- Multifunctional raw material
- Wetting agent
- Moisturizing
- Strong antimicrobial activity
- 100% naturally derived

**drstraetmans**

An Evonik brand.

# dermosoft® GMCY

## The product: dermosoft® GMCY

dermosoft® GMCY 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, solubilises and pigment dispersions. Moreover, it shows a strong antimicrobial activity and allows to lower the dosage of traditional preservatives or even to replace them completely.

### 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 and Antimicrobial efficacy

| 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

## How to work with dermosoft® GMCY

### 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** / anisate or alkaline presolutions, addition to the oil phase is recommended.
3. Due to its surface activity, **dermosoft® GMCY** may have an impact on emulsion viscosity and stability. Please consider in product development.

Also low temperature process possible (50-60°C).

#### For surfactant based products:

1. Dissolve 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 into water with help of solubilizer.

### Formulation advice

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

### Application Ideas

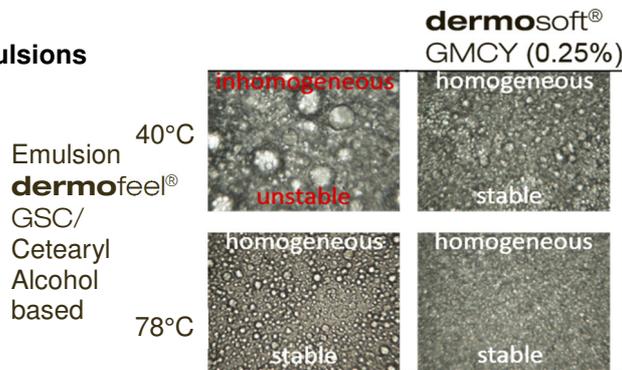
Perfectly suitable for O/W-, W/O-emulsions and color cosmetics, additional protection for water-free formulations (e.g. lipsticks, oil gels).

For more formulation ideas visit us at:  
<http://www.dr-straelmans.de/en/products/>

## Proof of Performance

**dermo**soft**<sup>®</sup> GMCY** 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

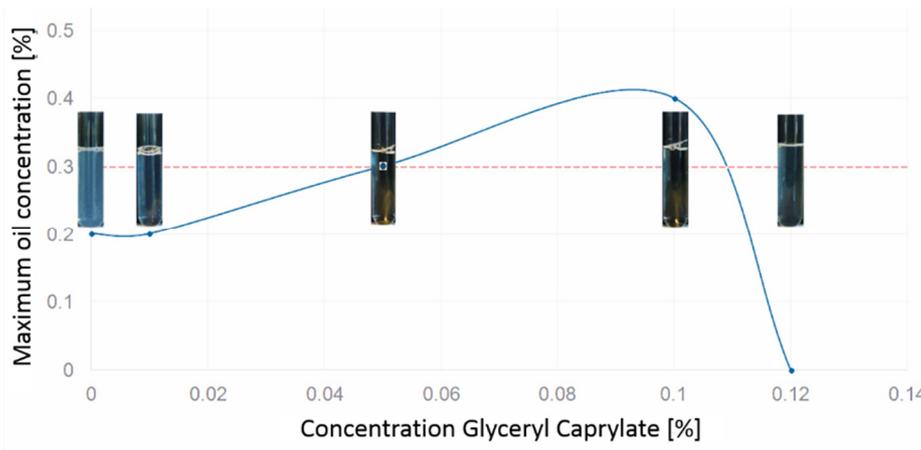


In *emulsions*, wetting agents enable the formation of smaller droplets with lower energy demand in the emulsification process.

### Effects in Solubilization

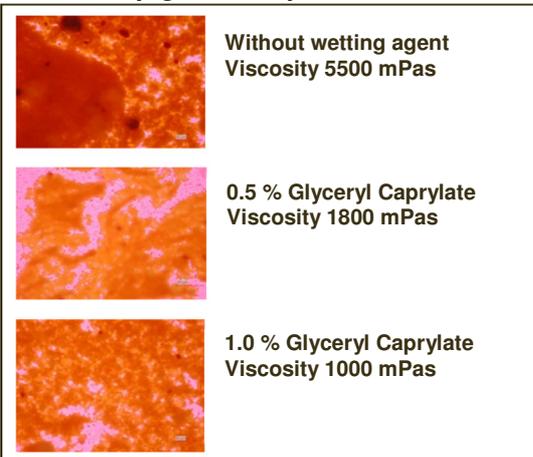
In *solubilizations*, wetting agents increase the solubilizer efficacy. The amount of solubilizer can be lowered and often the sensorial profile of the formulation is improved.

Maximal solubilization efficacy of 1% solubilizer in the presence of varying concentrations of **dermo**soft**<sup>®</sup> GMCY**



**dermo**soft**<sup>®</sup> GMCY** reveals a concentration-dependent, beneficial effect on the solubilizer performance with an optimal concentration level.

### 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.

Microscopic images of mineral pigment dispersions in a cosmetic oil

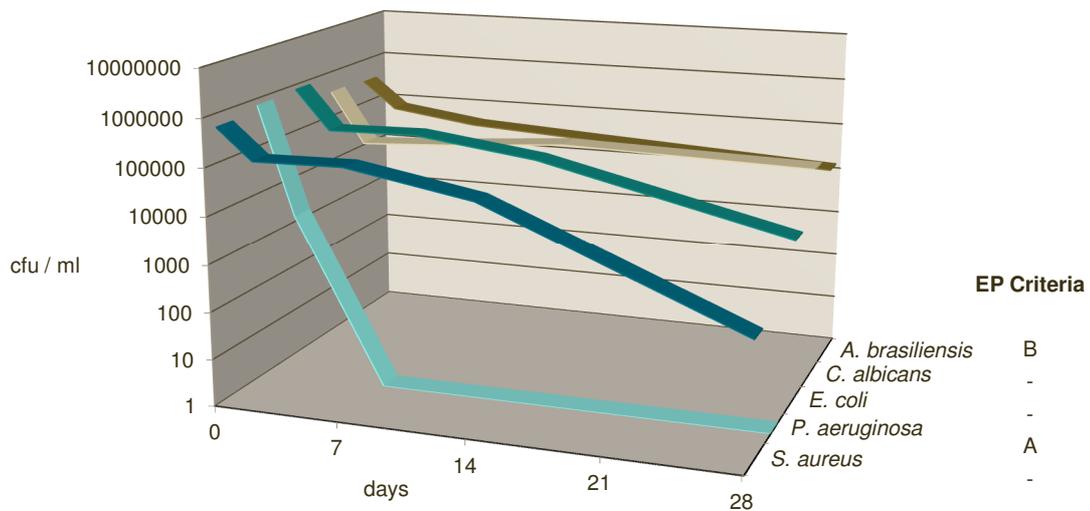
The oil pre-dispersions containing **dermo**soft**<sup>®</sup> GMCY** appeared more homogeneous and brilliant. Mineral pigments were more finely dispersed.

# dermosoft® GMCY

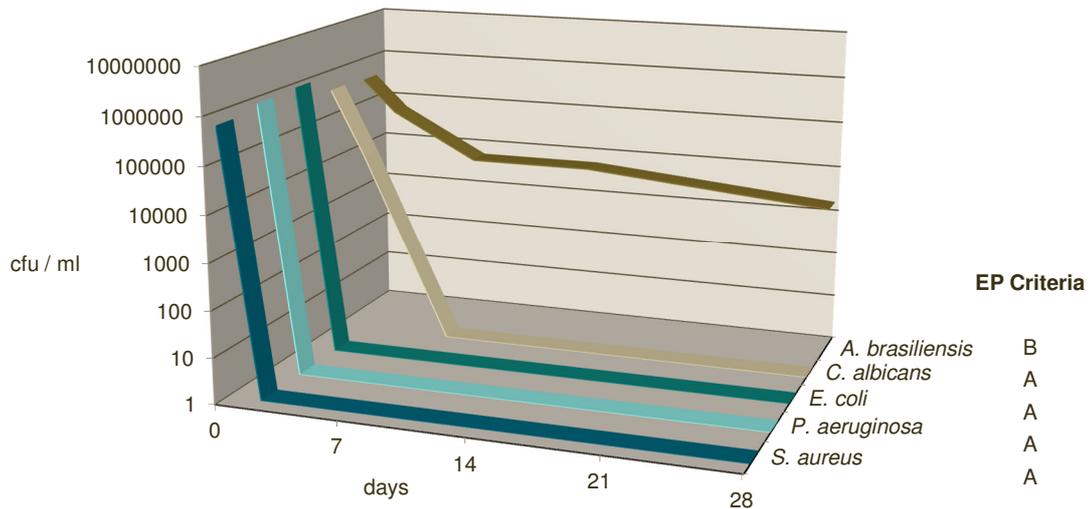
Wetting agents have a boosting effect on antimicrobial systems. Especially in combination with organic acids, the activity against bacteria and yeast can be improved. The wetting agents destabilize the cell membranes of the microorganisms. This way, the organic acids penetrate more easily into the cell.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

## Microbiological challenge tests demonstrate the boosting effect of dermosoft® GMCY

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



Basic emulsion with 3.5 % dermosoft® 1388 (Glycerin, Aqua, Sodium Levulinate, Sodium Anisate) + 0.3 % dermosoft® GMCY (pH 5.2)



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

## Trade Information

|   |  |
|---|--|
| International Approval*                   | EU, USA, Canada, Australia**, 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.

\*\* Moreover, allowed for OTC dermal products with maximum dosage 1%; not allowed for applications in eye area.

## Literature

Jänichen, J. React Fast, With Safe Alternatives. *Cosma*, **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, contact our Dr. Straetmans sales team:  
sales@dr-straetmans.de  
or your local representative.

# Dr. Straetmans Worldwide Network

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



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