Technical Information dermorganics 1388

The Product: dermorganics 1388

This multifunctional blend of organic acids from natural origin and moisturizing glycerol provides several cosmetic functions, such as masking, skin conditioning and pH regulating. Moreover, it shows an outstanding broadband antimicrobial activity. Can be used alone in rinse-off products. In emulsions, the combination with natural compliant antimicrobial surface active substances allows working without traditional preservatives. This raw material is COSMOS certified and contains organic derived raw material (Glycerin).

CHARACTERISTICS

- INCI: Glycerin; Aqua; Sodium Levulinate; Sodium Anisate
- Appearance: Clear, colorless to light brownish liquid
- 100% naturally derived, already COSMOS certified and compliant with other standards for natural cosmetics (please contact us for further information)

Cosmetic functions:

Hydrating: thanks to moisturizing glycerol Masking: gentle scent, but no interference with other fragrances pH-regulating, Anti-inflammatory ¹² (see Literature Review on penultimate page) Antimicrobial activity

- Standalone solution for antimicrobial protection in rinse-off products
- In emulsions, synergistic boosting effect in combination with antimicrobial surface active substances
- Suitable for all types of emulsions and surfactant based products
- Easy to handle: liquid and clear water soluble
- Cold processable
- Recommended pH range: 4.0 5.5

DOSAGE

Product Concept	Dosage
Emulsions	2.0 - 4.0 % + co-actives*
Surfactant based products	2.0 - 4.0 %
Aqueous based products	Max. 2.5 %

Note: the lower the pH, the lower the required dosage

* In emulsions, it is advised to combine with boosting actives for full antimicrobial protection of the product.

ANTIMICROBIAL EFFICACY

Gram +	Gram –	Yeast	Mould
++	++	++	++

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



How to work with dermorganics 1388

The use level of **dermorganics 1388** is limited by the solubility of its component **p-anisic acid** in water. There is an interdependency between the pH, the concentration and the solubility of p-anisic acid. Moreover, the temperature also influences the dissolution and recrystallization of the material. Overdosage or pH shifts may cause an <u>irreversible crystallization</u> of the p-anisic acid in the formulation. It is therefore recommended to check carefully that the raw material will not crystallize.

Only the dissolved free acid is antimicrobially active.





Lower pH

- \rightarrow less p-anisic acid can be dissolved
- \rightarrow more free acid will be in the solution
- ightarrow more antimicrobial activity of the material

Higher pH

- \rightarrow more p-anisic acid can be dissolved
- \rightarrow less free acid will be in the solution
- \rightarrow less activity of the material
- → consider solubility limit and recrystallization

The addition of ethanol, surfactants, or glycols may improve the solubility. In the end of the formulation process, the pH of the product needs to be adjusted to below 5.5.



MANUFACTURING PROCEDURE (LABORATORY SCALE)

For emulsions:

- 1. It is recommended to add **dermorganics 1388** to the water phase.
- 2. At the end of the formulation process, adjust pH to < 5.5 to regenerate the active p-anisic acid and levulinic acid.

For surfactant based products:

- 1. Mix **dermorganics 1388** with the surfactants and proceed as usual.
- 2. Adjust the pH at the end of formulation process (see above).

Note: The pH of the raw material is 7.0–8.5 – consider the electrolyte input for your formulation.

For aqueous based systems:

Consider recrystallization of dermorganics 1388 in aqueous based systems:

Before the incorporation, the pH needs to be > 7. Therefore, mix **dermorganics 1388** ideally with the pure water phase.

- 1. Add the remaining components of the water phase and mix with the prepared solubilizer phase.
- 2. At the end of formulation process, carefully adjust the pH to below 5.5 to avoid recrystallization.

FORMULATION ADVICE

Compatible with		Ethanol	
		Glycols	
		Surface active substances	
Incompatibility		Electrolyte-sensitive materials	
		Lecithin	
For working with lecithins		Hydrate lecithin first and add dermorganics 1388 at the end of the formulation process	
Dosage in aqueous based systems		Max. dosage dermorganics 1388 2.5% + solvent (solubilizer)	
Boost antimicrobial performance	In emulsions	Combine with surface active antimicrobials (dermosoft* GMCY MB or dermosoft* GMC MB)	
	In aqueous based systems	Incorporate additional organic acid (e.g. dermorganics 700B) and/or water-soluble boosting agents, e.g. Phenethylalcohol nat.)	

APPLICATION IDEAS

Perfectly suitable for all kinds of emulsions, rinse-off products and tonics.

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



Proof of Performance

MICROBIOLOGICAL CHALLENGE TESTS



 $\label{eq:performance} Performance \ in \ O/W-emulsions \ used \ alone \ and \ boosted \ by \ wetting \ agents$

Basic emulsion with 3.0 % dermorganics 1388 and 0.3% dermosoft® GMCY MB (pH 5.3)





Performance in surfactant based product when used alone



Trade Information

International Approval*	EU, USA, Japan, Korea
Packaging	5 kg / 25 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, refer to Product Data Record (PDR) document chapter 5.

LITERATURE

Anti-inflammatory activity of p-anisic acid described in the following literature:

¹ Singh, N. et al. (2006). "Crystal Structures of the Complexes of a Group IIA Phospholipase A₂ with Two Natural Anti-inflammatory agents, Anisic Acid, and Atropine Reseal a Similar Mode of Binding". *PROTEINS*, *64*, 89–100.

² Chen, S. (2011). "Natural Products Triggering Biological Targets – A Review of the Anti-Inflammatory Phytochemicals Targeting the Arachidonic Acid Pathway in Allergy Asthma and Rheumatoid Arthritis". *Current Drug Targets*, *12*, 288-301.

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

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