

Product Information

dermosoft® 1388

The Product: dermosoft® 1388

dermosoft® 1388 is a multifunctional blend of organic acids combined with moisturizing glycerol. Besides its cosmetic functions, such as masking, skin conditioning and pH regulating, it has an outstanding antimicrobial activity. In combination with antimicrobial surface active substances, there is no need for traditional preservatives.

CHARACTERISTICS

- INCI: Glycerin; Aqua; Sodium Levulinate; Sodium Anisate
- Appearance: Clear, colorless to light brownish liquid

- Cosmetic functions:
 - Hydrating: thanks to moisturizing glycerol
 - Masking: gentle scent, but no interference with other fragrances
 - pH-regulating
 - Anti-inflammatory ^{1 2} (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
- Good skin compatibility
- 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.

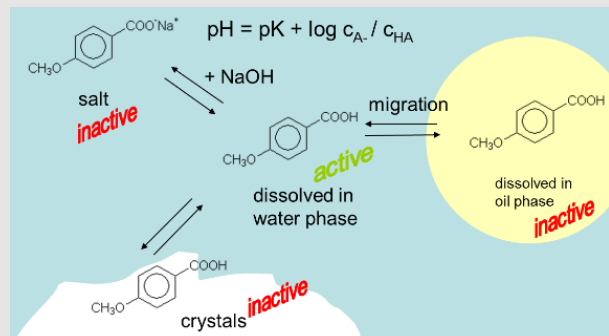
ANTIMICROBIAL EFFICACY

Gram +	Gram -	Yeast	Mould
++	++	++	++

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

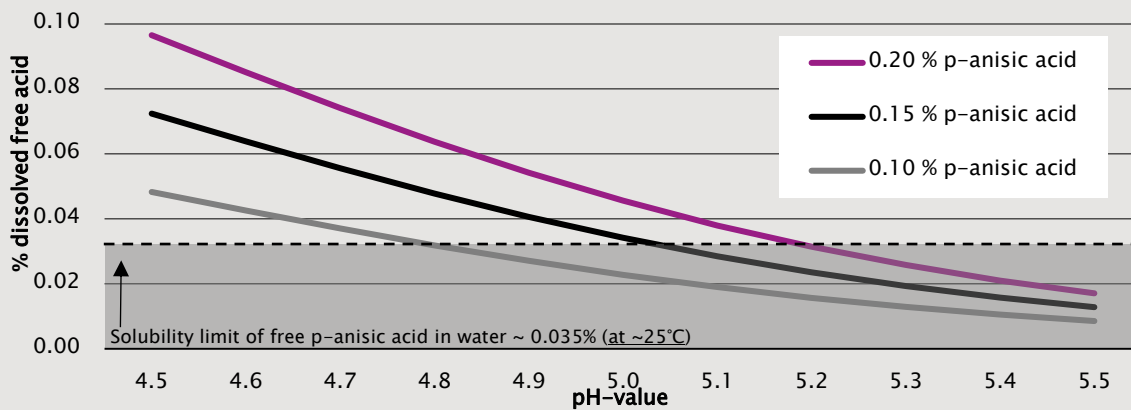
How to work with dermosoft® 1388

The use level of **dermosoft® 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 irreversible crystallization 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.

(1) Free active p-anisic acid (pKa = 4.47) in water (at ~25°C)



Lower pH

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

Higher pH

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

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.

How to work with dermosoft® 1388

MANUFACTURING PROCEDURE (LABORATORY SCALE)

For emulsions:

1. It is recommended to add **dermosoft® 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 **dermosoft® 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 dermosoft® 1388 in aqueous based systems:

1. Before the incorporation, the pH needs to be > 7. Therefore, mix **dermosoft® 1388** ideally with the pure water phase.
2. Add the remaining components of the water phase and mix with the prepared solubilizer phase.
3. 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 dermosoft® 1388 at the end of the formulation process
Dosage in aqueous based systems		Max. dosage dermosoft® 1388 2.5% + solvent (solubilizer)
Boost antimicrobial performance	In emulsions	Combine with surface active antimicrobials (dermosoft® Octiol or dermosoft® Hexiol)
	In aqueous based systems	Incorporate additional organic acid (e.g. dermosoft® 700B) and/or water soluble boosting agents (e.g. dermosoft® PEA , dermosoft® Hexiol).

APPLICATION IDEAS

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

For more formulation ideas visit us at:

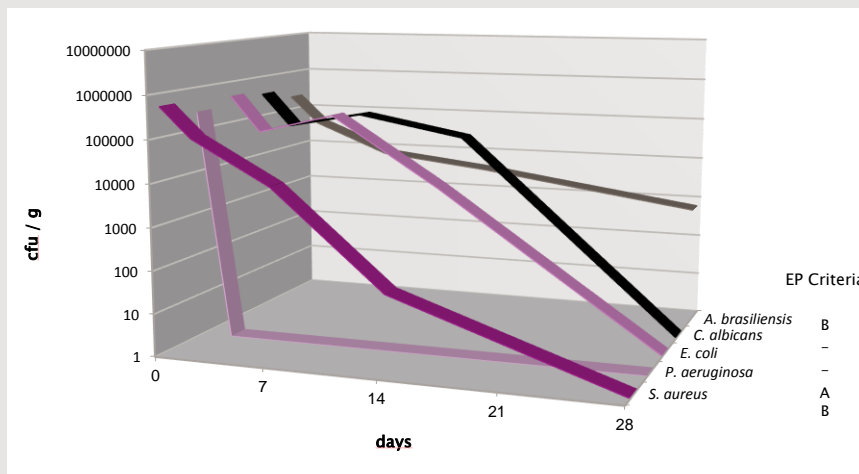
<https://www.dr-straetmans.de/en/products/>

Proof of Performance

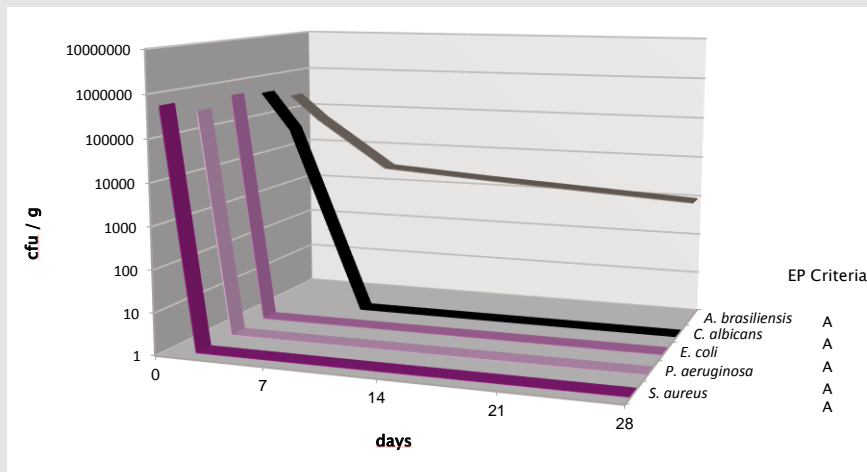
MICROBIOLOGICAL CHALLENGE TESTS

Performance in O/W-emulsions used alone and boosted by wetting agents

Basic emulsion with 3.5% dermosoft® 1388 (pH 5.3)

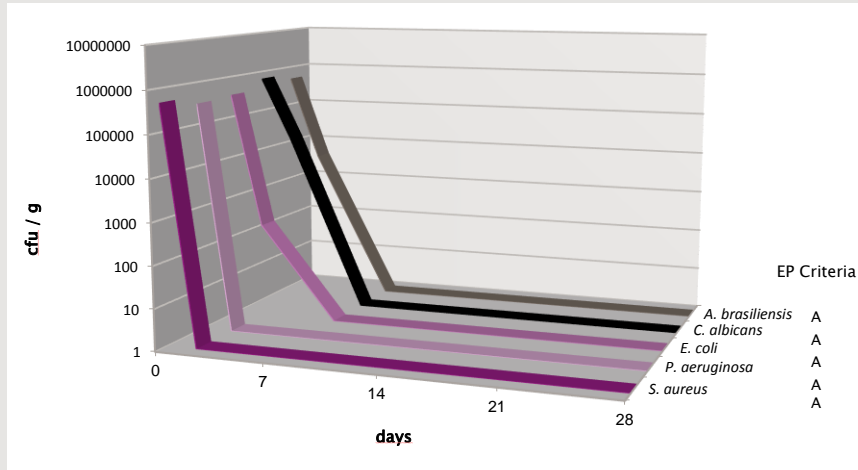


Basic emulsion with 3.5% dermosoft® 1388 and 0.3% dermosoft® GMCY MB (pH 5.3)



Performance in surfactant based product when used alone

PEG-free Shampoo with 3.5 % dermosoft® 1388 (pH 5.3)



Trade Information

International Approval*	EU, USA, Japan, Korea
Packaging	10 kg / 25 kg / 200 kg / 1.000 kg
Shelf life (stored in original container)	36 months

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 Reveal 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.

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