



## Multifunctional Additives

### Product Information

## **dermosoft® decalact liquid**

### Product features



Antimicrobial active substance

Effective against microorganisms causing skin disorders such as:

- dandruff
- skin odor
- athlete's foot



100 % natural alternative to triclosan and climbazol  
ECOCERT registered

### dermosoft® decalact liquid

#### The product line

**dermosoft® products cover many cosmetic functions**

**dermosoft® decalact liquid features natural antimicrobial activity against:**

- **Melassezia Furfur** (Dandruff)
- **Dermatophytes** (Athlete's foot)
- **Candida albicans** (intimate hygiene)
- **Propionibacterium** acnes (Acne)
- **Corynebacterium** xerosis (Deo)

**liquid product, easy to use**

**dermosoft®** products are carefully chosen multifunctional cosmetic ingredients. The well balanced product profiles are tailored to the needs of cosmetic formulations. Basic cosmetic functions like hydrating, conditioning, masking and others are combined with an excellent antimicrobial profile. **dermosoft®** products will meet many of your requirements for the improvement of cosmetic formulations and along the way protect the product against microorganisms. With the aid of **dermosoft®** cosmetic products can easily be formulated without traditional preservatives.

#### dermosoft® decalact liquid

The product's active principle is based on a mixture of middle chain acyl lactylate produced from 100 % natural components mixed with plant derived Triethyl Citrate for easier handling. The antimicrobial efficacy of **dermosoft® decalact liquid** is optimized to act specifically against microorganisms causing skin disorders like dandruff or athlete's foot or to avoid conditions like skin odour.

The anionic character of **dermosoft® decalact** supports its adhesion to the skin and provides a long term efficacy. With that efficacy profile is the perfect naturally derived alternative to Piroctone Olamine and Zinc Pyrithion in anti-dandruff shampoos or to Triclosan and Climbazole in products against athlete's foot. The Triethyl Citrate in **dermosoft® decalact liquid** is not only reducing the viscosity of **dermosoft® decalact** for easier handling. It also contributes to the desired performance in anti-acne concepts and in deodorant applications. For test results against specific microorganisms please refer to the related sections below taken from the **dermosoft® decalact** product information leaflet. **dermosoft® decalact** can be replaced by **dermosoft® decalact liquid** by increasing the dosage with the factor 1,43.

#### Application

**dermosoft® decalact liquid** is a transparent liquid 7:3 blend of **dermosoft® decalact** with Triethyl Citrate. The incorporation into the water or oil phase is possible. The dosage of **dermosoft® decalact** is depending on the desired effect. Typical dosages are between 0,5 and 2,0%. When used at higher concentrations **dermosoft® decalact liquid** may affect the emulsion stability. **dermosoft® decalact liquid** may also influence the performance of some polymeric gelling agents. As frequently observed for anionic surface active ingredients the pH of the final formulation with **dermosoft® decalact liquid** may shift to lower values. In aqueous or alcoholic solutions the use of a solubilizer may be necessary.

Characteristics of <b>dermosoft® decalact liquid</b>	
Appearance	Amber liquid
Chemical Name	Sodium Decanoyl/Dodecanoyl Lactylate Triethylcitrate
INCI	Sodium Caproyl/Lauroyl Lactylate Triethyl Citrate
Recommended dosage	0,7 – 1,2 %
pH-range	4,0 - 7,5
Regulatory status CMR-ingredients	Registered in EU, Japan No

### dermosoft® decalact liquid

Activity as antimicrobial active substance

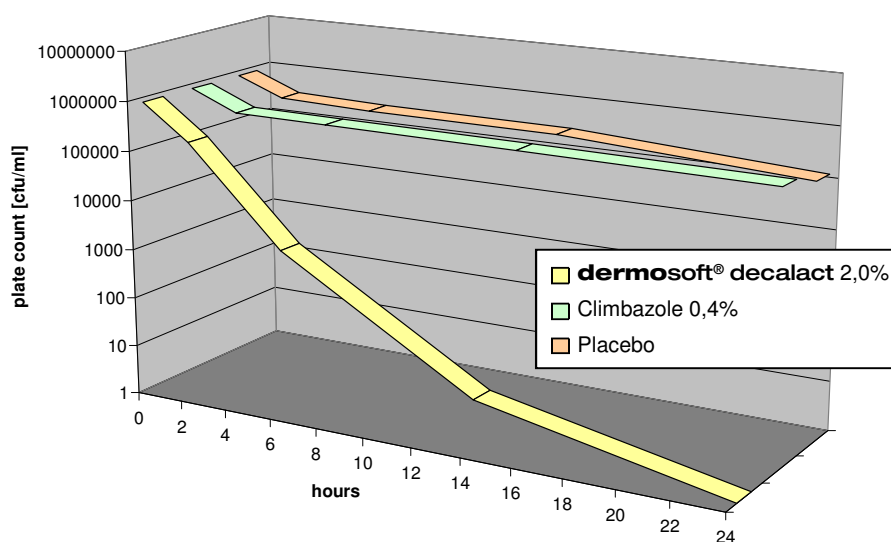
**dermosoft® decalact liquid**  
activity against  
various  
microorganisms

The activity against specific microorganisms related to skin conditions has been evaluated in-vitro and in-vivo.

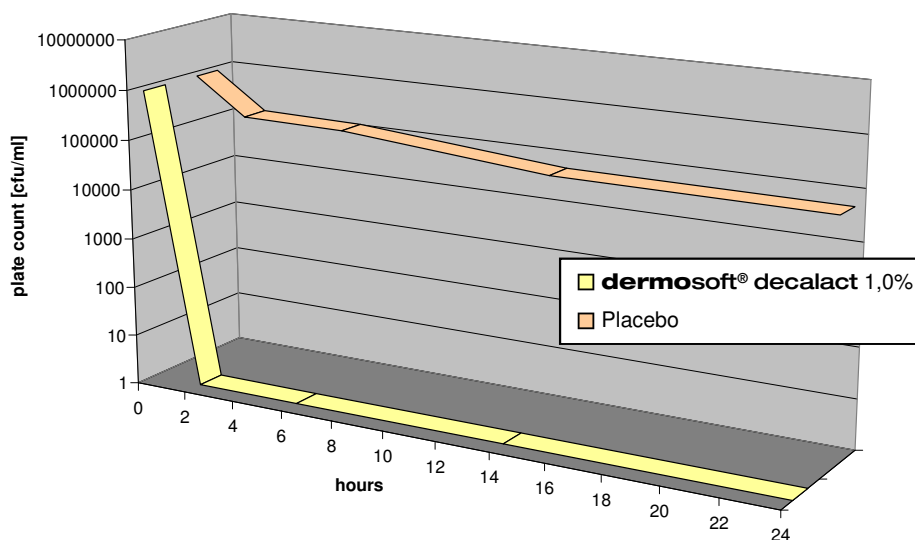
#### dermosoft® decalact liquid against *Candida albicans*

The specific activity of **dermosoft® decalact liquid** against *Candida albicans* has been checked in in-vitro in a rinse-off surfactant base and a carbopol gel (tests performed with **dermosoft® decalact**). The activity against *Candida* is relevant for feminine intimate hygiene products.

rinse-off base pH 4,5



Carbopol gel pH 4,2



## Multifunctional Additives

### dermosoft® decalact liquid

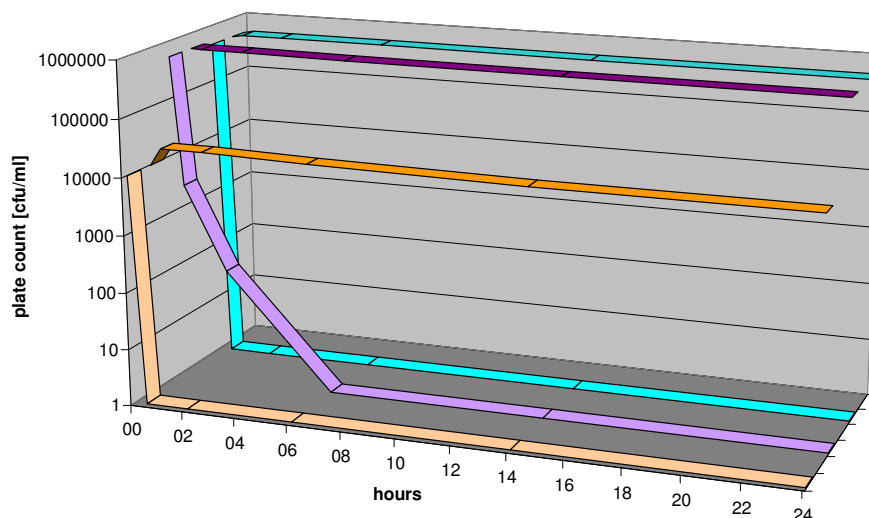
**dermosoft® decalact liquid**  
activity against  
athletes foot and nail  
fungus

**dermosoft® decalact liquid** against *Trichophyton mentagrophytes*, *Trichophyton rubrum* und *Epidermophyton floccosum*

These three microorganisms belong to the group of dermatophytes feeding on carbohydrate and keratin.

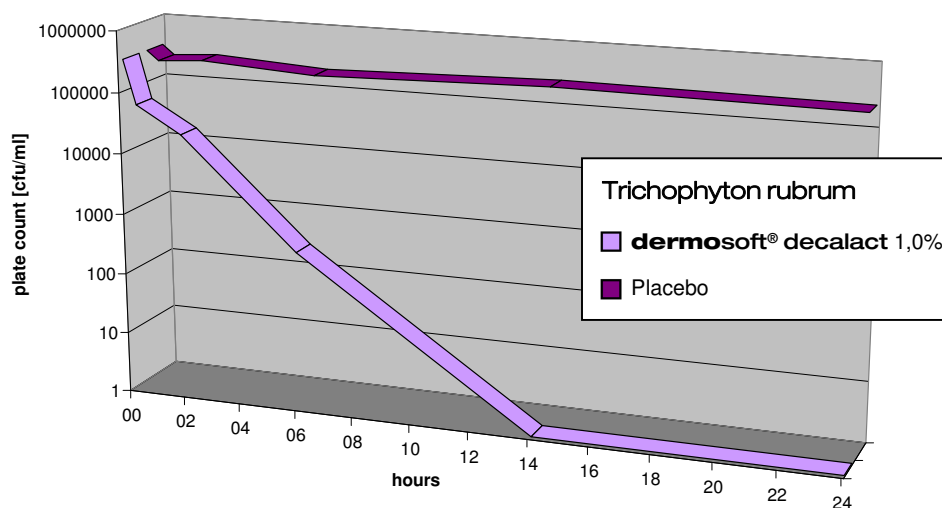
The following tests have been performed with **dermosoft® decalact**.

Pemulen gel pH 5,5



Epidermophyton floccosum	Trichophyton rubrum	Trichophyton mentagrophytes
dermosoft® decalact 1,0%	dermosoft® decalact 1,0%	dermosoft® decalact 1,0%
Placebo	Placebo	Placebo

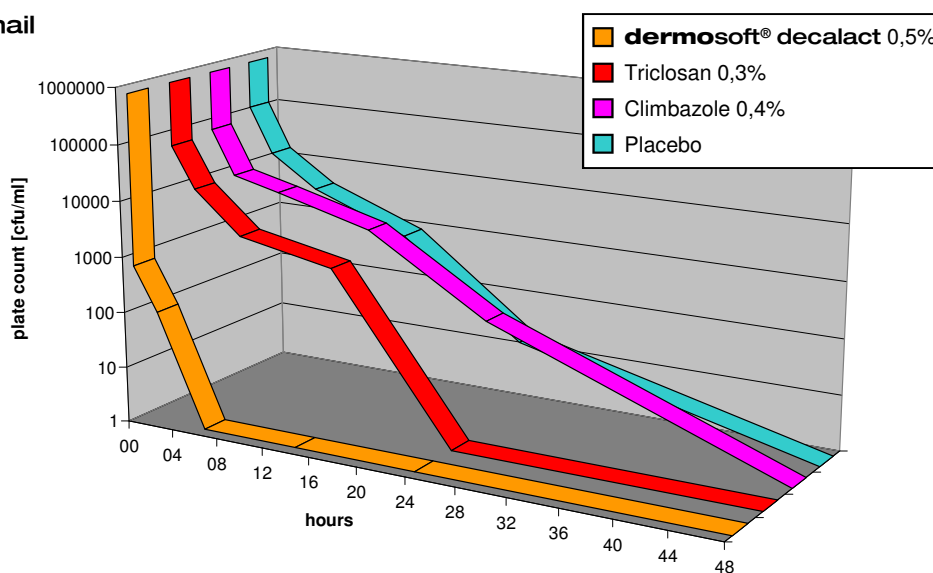
aqueous solution with 2% Polysorbate-20 pH 5,0



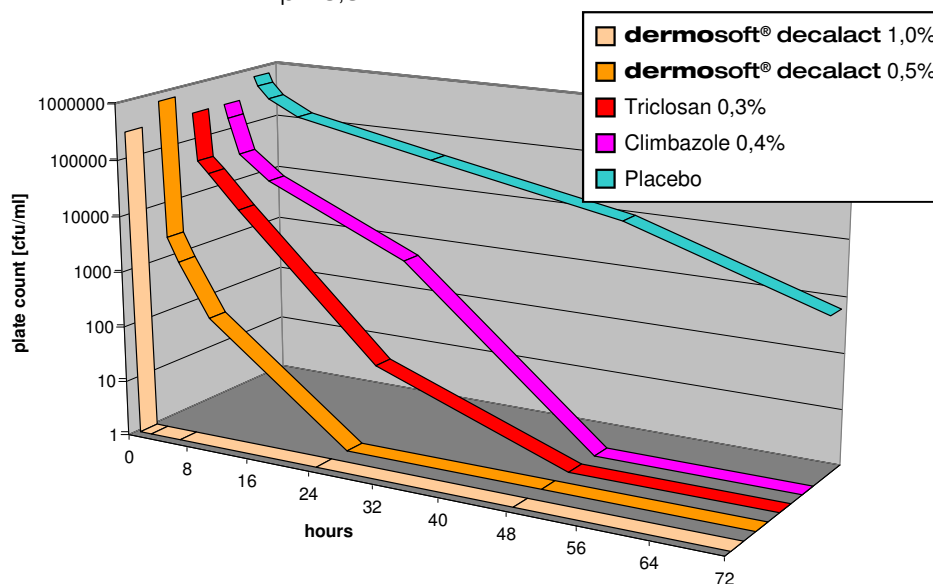
## dermosoft® decalact liquid

**dermosoft® decalact liquid**  
activity against  
athletes foot and nail  
fungus

OW-emulsion foot cream



OW-emulsion well fit foot cream  
pH 5,3



The composition of the foot cream is displayed on the next page

# Multifunctional Additives

## dermosoft® decalact liquid

....against athlete's foot

### Well Fit Foot Cream

110-20-1010

**Claims:** Moisturizing and rich cream for feet with rough and chapped skin  
Prevention of athlete's foot and unpleasant odor  
**dermosoft® decalact as proven active**

Phase	Ingredient	INCI	Supplier	%
<b>A</b>	Deionised Water	Aqua		50.55
	Glycerol (85%)	Glycerin	Merck	2.00
	<b>dermofeel® PA-3</b>	Sodium Phytate, Aqua	<b>Dr. Straetmans</b>	<b>0.10</b>
	<b>dermosoft® OMP</b>	Methylpropanediol; Caprylyl Glycol; Phenylpropanol	<b>Dr. Straetmans</b>	<b>4.00</b>
<b>A1</b>	Keltrol CG-SFT	Xanthan Gum	CP Kelco	0.50
	LaraCare A 200	Galactoarabinan	Larex	0.25
<b>B</b>	<b>dermofeel® GSC</b>	Glyceryl Stearate Citrate	<b>Dr. Straetmans</b>	<b>3.00</b>
	<b>dermosoft® decalact</b>	Sodium Caproyl/Lauroyl Lactylate	<b>Dr. Straetmans</b>	<b>1.00</b>
	Stearinsäure D2	Stearic Acid	Gustav Hees	5.00
	Cutina GMS V	Glyceryl Stearate	Cognis	2.00
	<b>dermofeel® BGC</b>	Butylene Glycol Dicaprylate/Dicaprate	<b>Dr. Straetmans</b>	<b>7.00</b>
	<b>Cupuacu Butter Refined</b>	Theobroma Grandiflorum Seed Butter, Tocopherol	<b>Beraca*</b>	<b>5.00</b>
	Cremerlin Pura	Olus (Vegetable) Oil	Cremer Care	7.00
	<b>dermofeel® MCT</b>	Tricaprylin	<b>Dr. Straetmans</b>	<b>2.00</b>
	<b>dermofeel® TEC eco</b>	Triethyl Citrate	<b>Dr. Straetmans</b>	<b>3.00</b>
	<b>dermofeel® Toco 70</b>	Tocopherol, Helianthus Annuus (Sunflower) Seed Oil	<b>Dr. Straetmans</b>	<b>0.05</b>
<b>B1</b>	Frescolat ML cryst.	Menthyl Lactate	Symrise	0.20
<b>C</b>	Deionised Water	Aqua		5.00
	Emprove Harnstoff perform	Urea	Merck	2.00
<b>D</b>	Perf. Grapefruit	Parfum	Cosnaderm	0.35
				<b>100.00</b>

#### Manufacturing Procedure:

1. Heat phase A and B up to 78°C. Disperse A1 in A and dissolve B1 in phase prior emulsification.
2. Emulsify phase A into phase B Homogenize for approx. 2 min. using an Ultra-Turrax
3. Cool down to 35°C under stirring and add pre-solution of phase C and perfume oil.

## Multifunctional Additives

### dermosoft® decalact liquid

#### dermosoft® decalact liquid activity against dandruff

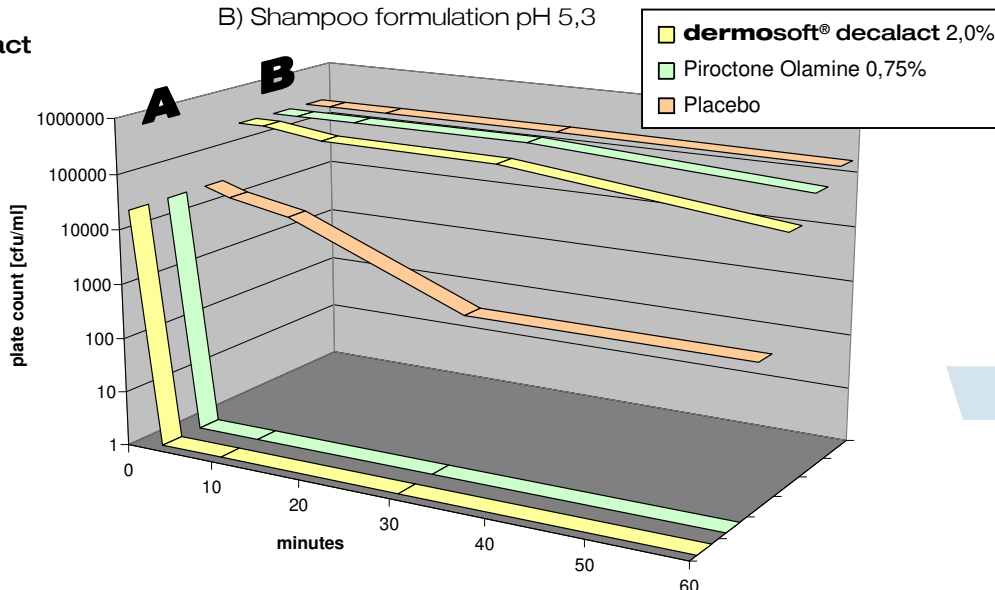
#### in-vitro tests with dermosoft® decalact

#### dermosoft® decalact liquid against Malassezia furfur

The yeast *Malassezia furfur* (old name: *Pityrosporum ovale*) is known to be a main influencing factor in the formation of dandruff. Therefore all dandruff actives are targeting to eliminate *Malassezia furfur* on the scalp. As most cosmetic anti-dandruff products are rinse-off concepts an appropriate active has to exhibit both rapid kill and substantivity to the skin. **dermosoft® decalact** is perfectly fulfilling these requirements as has been demonstrated in in-vitro and in-vivo studies.

A) aqueous solution with 2,5% Polyglyceryl-10 Laurate pH 5,3

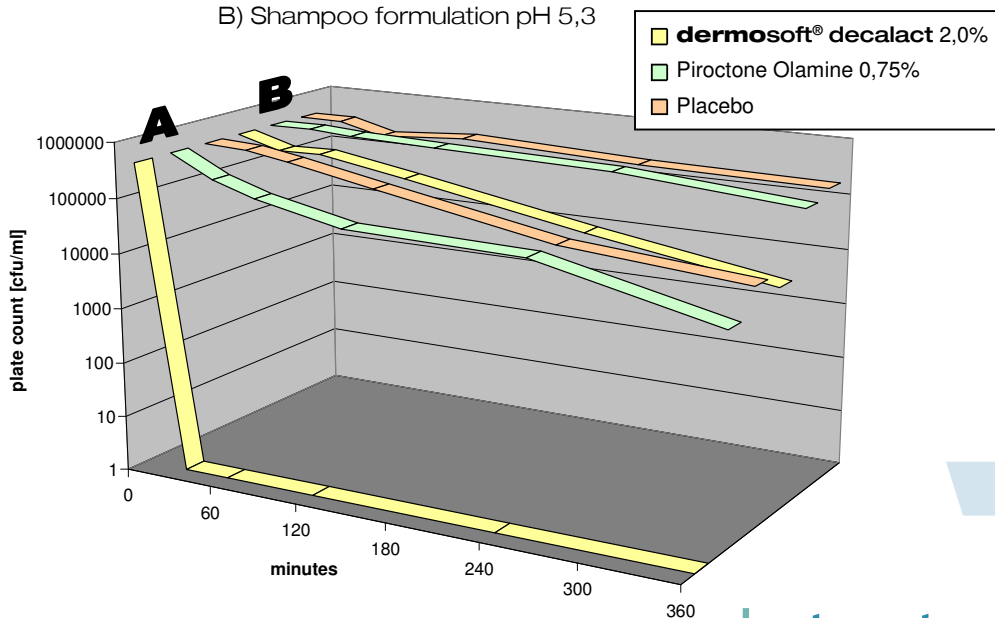
B) Shampoo formulation pH 5,3



It becomes evident that the in-vitro performance in the presence of surface active ingredients in the shampoo is considerable slower than in water with Polyglyceryl-10 Laurate as solubilizer. Further in-vitro tests with different time scale allow to compare the performance of **dermosoft® decalact** with Piroctone Olamine.

A) Shampoo formulation pH 4,3

B) Shampoo formulation pH 5,3



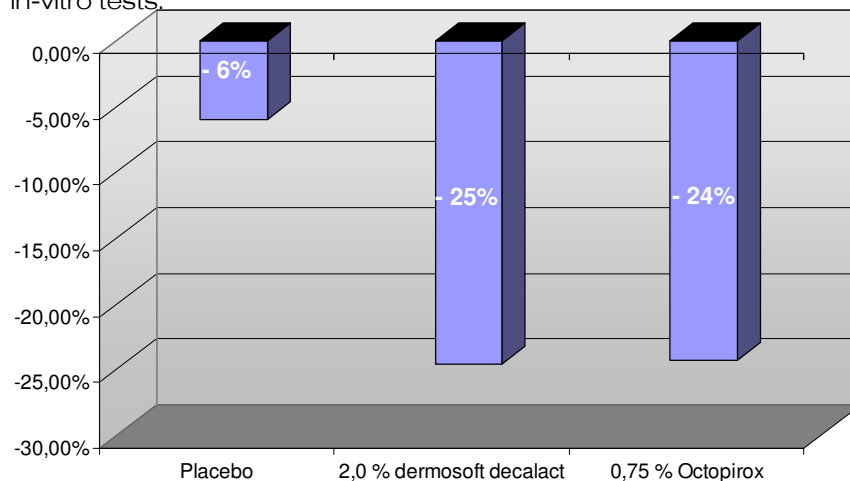
## dermosoft® decalact liquid

### dermosoft® decalact liquid activity against dandruff

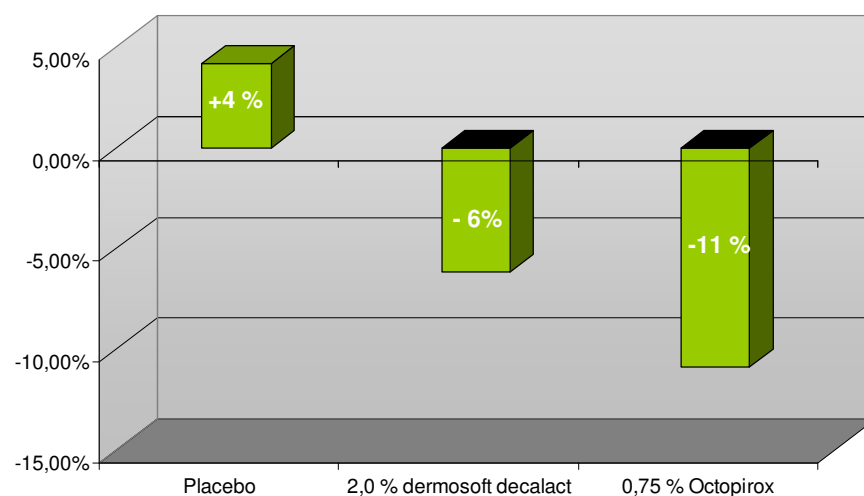
### in-vivo test with dermosoft® decalact

In order to evaluate the practical relevance of the initial in-vitro findings an in-vivo study with 60 volunteers has been performed. The panel has been divided into three groups of 20 individuals. The shampoo with 2% **dermosoft® decalact**, 0,75% Piroctone Olamine and no active as control has been tested. Details of the study design are available upon request. The shampoo formulation is displayed on the next page. It is the same formulation marked as "B" in the in-vitro tests.

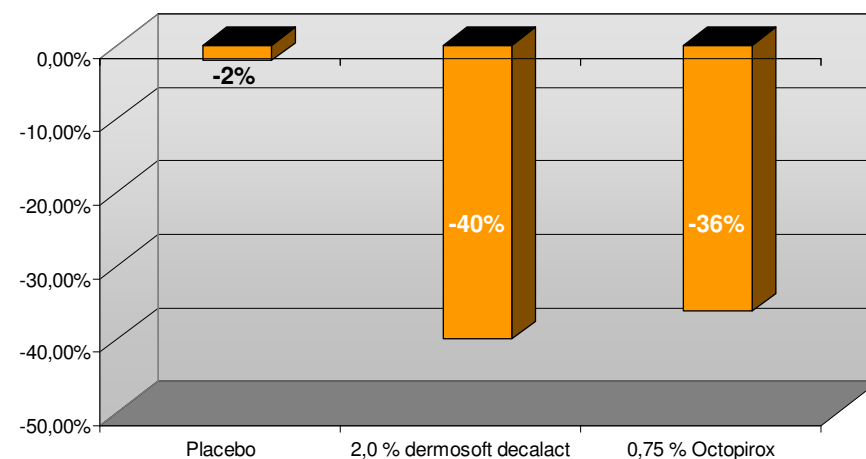
Reduction of  
dandruff scales by  
weight



Reduction of total  
surface of  
corneocytes  
adhering on a  
D-squame



Number of  
corneocytes  
> 0,5 mm² adhering  
on a D-squame





# Multifunctional Additives

## dermosoft® decalact liquid

...against dandruff (in-vitro)

### Shampoo Med Anti-Dandruff

D033-2.2-710

**Claims\*:** anti dandruff efficacy supported by dermosoft® decalact  
Optimum conditioning for all hair types

Phase	Ingredient	INCI	Supplier	%
A	Deionised Water	Aqua		54.10
	<b>dermofeel® PA-3</b>	Sodium Phytate, Aqua	<b>Dr. Straetmans</b>	<b>0.10</b>
	<b>dermosoft® 1388</b>	Glycerin, Aqua, Sodium Levulinate, Sodium Anisate	<b>Dr. Straetmans</b>	<b>3.50</b>
	D-Panthenol	Panthenol	BASF	1.00
	Texapon N 70	Sodium Laureth Sulfate	Cognis	14.00
	Tego Betain F 50	Cocamidopropyl Betaine	Evonik Goldschmidt	8.00
	Rewopol SB FA 30 ph	Disodium Laureth Sulfosuccinate	Evonik Goldschmidt	5.00
	<b>dermosoft® decalact</b>	Sodium Caproyl/Lauroyl Lactylate	<b>Dr. Straetmans</b>	<b>2.00</b>
A1	Deionised Water	Aqua		10.00
	<b>Amylomer™ H 75 M</b>	Hydroxypropyl Oxidized Starch PG-Trimonium Chloride	<b>Dr. Straetmans</b>	<b>2.00</b>
B	Perf. Atemoxa Shower Gel Frag 489881	Parfum	Drom	0.30
	Sodium Chloride	Sodium Chloride		q. s.
	Citric Acid (sol.20%)	Citric Acid	Merck	q. s.
				<b>100.00</b>

#### Manufacturing Procedure:

1. Mix ingredients of phase A in given order until completely dissolved.
2. Add premix of A1.
3. Add Components of phase B and adjust viscosity with sodium chloride and pH with citric acid.

#### Specification Values:

Appearance: clear viscous gel.

pH: 5.2 – 5.4.

Viscosity (Brookfield: LV 3; Speed 10): 3.000 – 6.000 mPa's.

#### Stability:

Stable for more than 3 months at 40°C, room temperature, and 4°C

**Microbiological stability:** Proven.

\* anti-dandruff claim supported by in vivo and in vitro efficacy studies

### **dermosoft® decalact liquid**

#### **dermosoft® decalact liquid activity against acne**

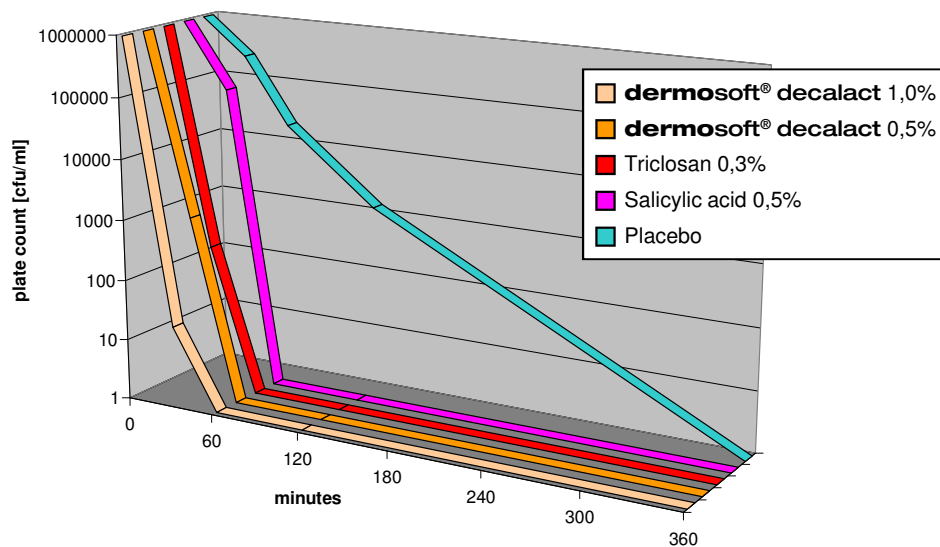
#### **dermosoft® decalact liquid** against *Propionibacterium acnes*

Acne is a local inflammation on the skin. In the first step an excess sebum production is plugging skin pores. The warm and moist conditions in the closed pores are perfect to promote the growth of anaerobic microorganisms such as *Propionibacterium acnes*. The growing population of microorganisms is stimulating an inflammation reaction that leads to visible red pimples. Consequently an acne treatment concept is aiming to

- control the sebum excretion
- fight the microorganisms
- stop the inflammation

**dermosoft® decalact liquid** can be used to fight the relevant microorganisms in such a acne treatment concept. The performance against *Propionibacterium acnes* has been demonstrated in an in-vitro study. The test performed with **dermosoft® decalact**.

aqueous solution with 1% Polyglyceryl-10 Laurate pH 4,5



While the main antibacterial activity is based on **dermosoft® decalact**, the Triethyl Citrate portion in **dermosoft® decalact liquid** contributes to the anti-acne concept as well. It is known that the enzymatic cleavage of Triethyl Citrate leads to the formation of bactericidal metabolites with antibacterial activity against *Propionibacterium acnes*<sup>1</sup>.

Lit. 1: A. Charakida, M. Charakida, A.C. Chu Double-blind, randomized, placebo-controlled study of a lotion containing triethyl citrate and ethyl linoleate in the treatment of acne vulgaris. *Br. J. Dermatol.* 157(3) (2007) 569-574.

### dermosoft® decalact liquid

#### dermosoft® decalact liquid activity against body odor

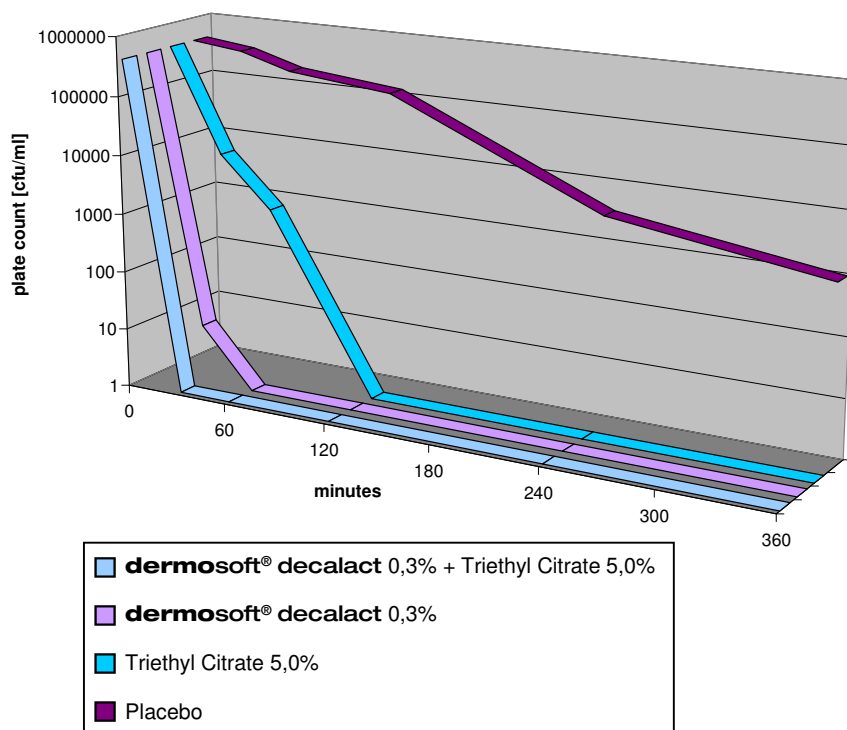
#### dermosoft® decalact liquid against Corynebacterium xerosis

Deodorant formulations are based on three pillars:

- prevention of sweat formation
- prevention of odor formation
- masking of odor

The role of **dermosoft® decalact liquid** in concepts against body odor is to control those microorganisms being responsible for the degradation of sweat into odorous compounds. The performance against *Corynebacterium xerosis* has been demonstrated in an in-vitro study. Please note that the dosage of Triethyl citrate in the test is by far exceeding the amount in a formula when using **dermosoft® decalact liquid** at the recommended use level. Apart from a contribution to the antibacterial effect a main role of Triethyl Citrate in deodorants is to block the enzyme that is responsible for the degradation of sweat. It is recommended to increase the dosage of Triethyl Citrate in the deodorant formulation by addition of **dermofeel® TEC eco** to make use of the beneficial effects of Triethyl Citrate to full extent.

aqueous solution with 1% Polyglyceryl-10 Laurate pH 5,0



For more information regarding the activity against body odor please refer to the product leaflet of **dermosoft® decalact deo**. **dermosoft® decalact deo** is a specific blend for deodorant applications. The superior performance is proven by an in-vivo sniff test study against benchmark.

### **dermosoft® decalact liquid**

**Formulation examples are featured in the formulation database on the Dr.Straetmans website**

Formulations with our products are available for both, traditional and natural cosmetics concepts. Please refer to the Dr. Straetmans homepage for formulation inspirations.

#### **Toxicology**

**dermosoft® decalact liquid** is not sensitizing and does not contain genetically modified material, dioxine, phthalates, BSE-related material or CMR-material. It has been evaluated as a safe cosmetic and food ingredient with an excellent toxicological profile.

#### **Packing units**

**dermosoft® decalact liquid** is available in 10 kg net plastic cans.

#### **Environmental Information**

The components of **dermosoft® decalact liquid** are produced in an environmentally unobjectionable process by esterification of natural building blocks. **dermosoft® decalact liquid** is readily biodegradable. **dermosoft® decalact liquid** has not been tested on animals.

#### **Handling and storage**

**dermosoft® decalact liquid** can be stored in closed original containers for at least 3 years. **dermosoft® decalact liquid** does not need to be preserved and thus does not contain any preserving agents.

For further information contact our Dr. Straetmans sales team:  
[sales@dr-straetmans.de](mailto:sales@dr-straetmans.de)  
or your local representative.

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