

Mild Preserved™

Multifunctional cosmetic ingredient



the plus of pure
performance

Mild Preserved™

- versatile skin care additive
- applicable in a wide variety of cosmetic products
- mild humectant and emollient
- booster for traditional preservative actives
- antimicrobial stabiliser blend

Use / Use-concentrations

Skin care additive for leave-on and rinse-off formulations, deodorants, wet-wipes 0.5 – 2.0 %

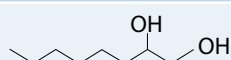
Product description

Mild Preserved™ is a multifunctional cosmetic additive based on ethylhexylglycerin and caprylyl glycol. Its unique properties make it suitable for use in a wide range of cosmetic applications. It combines the excellent skin care and deodorising properties of ethylhexylglycerin with the moisturising and antimicrobial properties of caprylyl glycol.

Mild Preserved™ is a mild humectant and skin emollient with a unique skin feel. Additionally, it can contribute to the antimicrobial stability of cosmetic formulations. It can also be used to improve the efficacy of traditional cosmetic preservatives, such as parabens or phenoxyethanol.

Composition

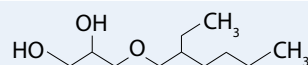
Caprylyl Glycol



C₈H₁₈O₂
146.23 g/mol

CAS no.:	1117-86-8
CAS name:	1,2-Octanediol
CTFA name:	Caprylyl Glycol
EINECS Name:	Octan-1,2-diol
EINECS no.:	214-254-7

Ethylhexylglycerin



C₁₁H₂₄O₃
204.31 g/mol

CAS no.:	70445-33-9
CAS name:	3-(2-ethylhexyloxy)propane-1,2-diol
CTFA name:	Ethylhexylglycerin
ELINCS name:	
ELINCS no.:	408-080-2
REACH registration no.:	01-0000015745-65-0001

EU-INCI-declaration

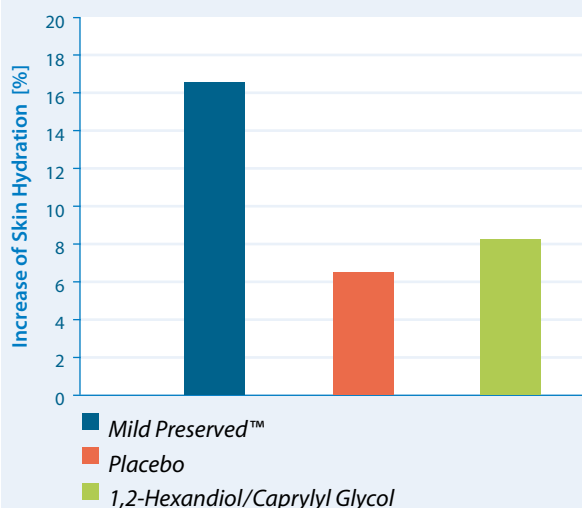
Caprylyl glycol
Ethylhexylglycerin *

US-INCI-declaration

Caprylyl glycol (and)
Ethylhexylglycerin *

Skin care properties

Sufficient hydration is a basic requirement for a healthy, elastic skin. Most cosmetic products contain humectants to maintain or improve skin moisture. Polyols like glycerol or propylene glycol, as well as longer chained glycols, are often used for these purposes. Based on the ingredients – caprylyl glycol and ethylhexylglycerin, with a structure similar to glycerin – Mild Preserved™ is a mild humectant and emollient which can improve the skin feel of cosmetic formulations, especially if high amounts of glycerin are used.



Mild Preserved™ shows good skin moisturising properties while at the same time improving the skin feel of cosmetic formulations.

Deodorising efficacy

Body odour arises when sweat, odourless itself, is decomposed by microorganisms. From the components of sweat, the sebum and the skin cells, the germs, primarily grampositive bacteria, form substances which have an unpleasant odour.

Mild Preserved™ contains ethylhexylglycerin, well-known as a deodorant active in the cosmetic market.

Screening tests with Mild Preserved™ have shown that it reliably inhibits the growth and multiplication of odour causing bacteria, while at the same time it does not affect beneficial skin flora.

The recommended use concentration in deodorants is 0.5 % - 1.0 %.

* Stabilised with synthetic alpha-Tocopherol

Mild Preserved™

Antimicrobial effectiveness against odour-causing Gram-positive bacteria

Determination of the minimum inhibitory concentrations of Mild Preserved™ in the serial dilution test is shown in the following values:

Species	ATCC No.	MIC value [%]
<i>Staphylococcus epidermidis</i>	12228	> 0.32 %
<i>Corynebacterium xerosis</i>	373	0.16 %
<i>Corynebacterium flavescentis</i>	10340	0.32 %
<i>Corynebacterium callunae</i>	15991	0.32 %
<i>Leifsonia aquaticum</i>	14665	0.16 %
<i>Ochrobacter anthropi</i>	11425	0.08 %
<i>Kocuria rhizophila</i>	9341	0.32 %

Booster for traditional preservative actives

In response to the increasing discussion about preservative actives, there has been interest in reducing the amount of traditional preservatives in cosmetic formulations. Based on the two multifunctional components, caprylyl glycol and ethylhexylglycerin, Mild Preserved™ can improve the efficacy of traditional cosmetic preservatives, such as parabens or phenoxyethanol.

Germ count reduction test

Germ count reduction tests of methylparaben in combination with Mild Preserved™ in O/W emulsions have proven Mild Preserved™ to be an enhancer of traditional preservative actives.

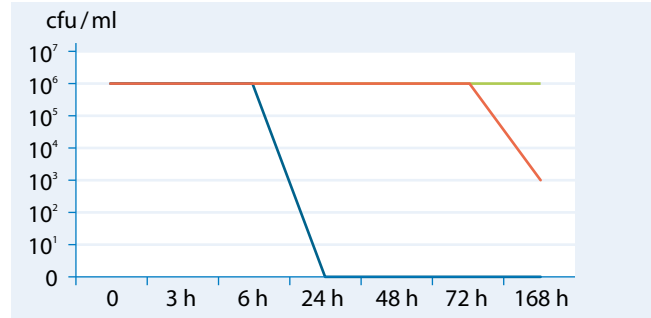
Test organisms	ATCC-No.
<i>Aspergillus niger</i>	6275
<i>Candida albicans</i>	10231
<i>Staphylococcus aureus</i>	6538
<i>Pseudomonas aeruginosa</i>	15442
<i>Escherichia coli</i>	11229

The antimicrobial efficacy of methylparaben is accelerated by Mild Preserved™.

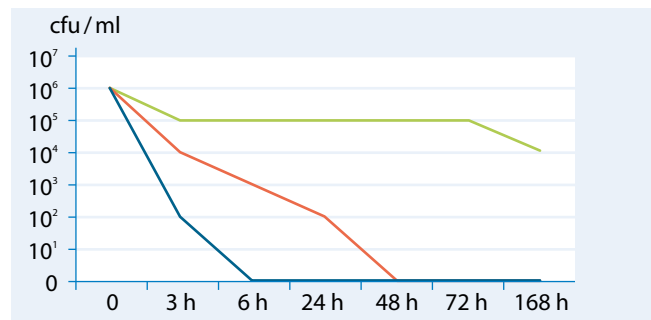
- 0.2 % Methylparaben
- 1.0 % Mild Preserved™
- 0.2 % Methylparaben + 1.0 % [VBA] W³

cfu = colony forming units

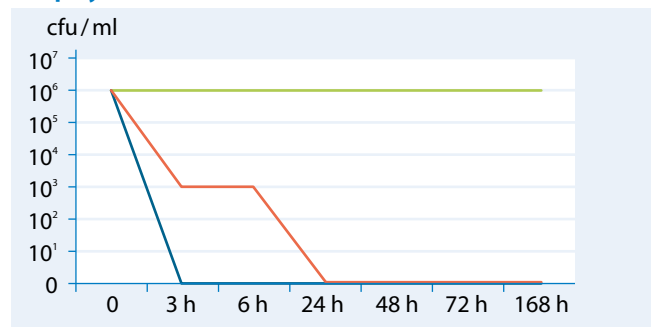
Aspergillus niger



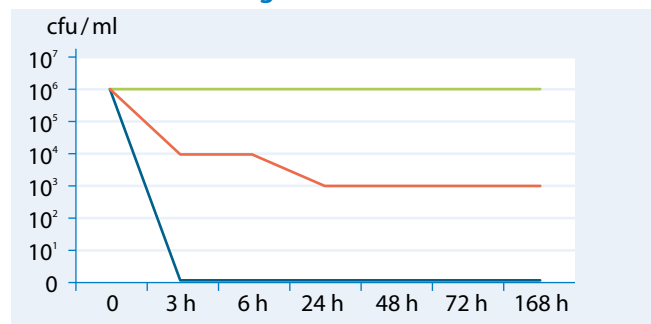
Candida albicans



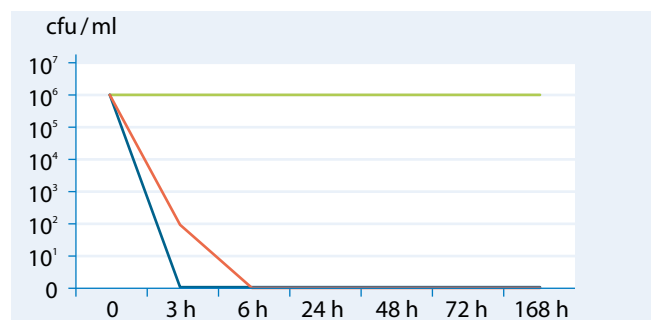
Staphylococcus aureus



Pseudomonas aeruginosa



Escherichia coli



Antimicrobial stabiliser blend

Cosmetic formulators are looking for ways to keep their products microbiologically stable without the use of traditional preservative systems. This includes a combination of possibilities to prevent micro-organisms from growing, e.g. modifying pH value or water activity of a formulation, using chelating agents or multifunctional materials, as well as looking for a suitable packaging.

Glycols at a certain level are known to be antimicrobial. Mild Preserved™ is a multifunctional cosmetic ingredient consisting of caprylyl glycol and ethylhexylglycerin. Caprylyl glycol shows antimicrobial efficacy against typical germs found in cosmetic formulations. Ethylhexylglycerin is well known as a booster for preservatives and antimicrobial actives. Preservative challenge tests have shown that Mild Preserved™ can contribute to the antimicrobial stability of a cosmetic formulation.

Repeated challenge test (KoKo Test)

In this test, the KoKo test, a mixture of bacteria, yeast and moulds is inoculated 6 times (once a week) into the test material with the goal of keeping the test material germ free for this period. The inoculum contains pathogenic microorganisms and germs which are well known for product spoilage. All species are cultivated separately and mixed directly before the addition, to ensure a constant composition and germ count of the inoculum. Total germ count is approximately 10^{8-9} cfu/ml, which equates to a germ count of approximately 10^6 cfu/ml per test organism in the sample.

Experience has shown that a cosmetic product without growth of micro-organisms after 6 inoculation cycles can be considered microbiologically stable for 30 months, which is recommended for cosmetic products.

? [V B d W H W³ can contribute to the microbiological stability of a cosmetic formulation. For more results please contact us.

O/W Lotion	Inoculation Cycles						
	0	1	2	3	4	5	6
Without antimicrobial stabilisation	-	+++ B, Y, M	+++ B, Y, M	./.			
+ 1.0 % ? [V B d W H W ³			-	-	-	-	-
+ 1.0 % 1,2-Hexandiol/ Caprylyl Glycol	-	+++ Y	+++ Y	./.			
Legend: 0 = Sterility control B = Bacteria M = Moulds Sp = Sporeforming bacteria Y = Yeasts - = free of microbial growth + = slight growth ++ = moderate growth +++ = massive growth							

International approvals

	Caprylyl Glycol	Ethylhexylglycerin
Europe/USA:	INCI name: Caprylyl Glycol	INCI name: Ethylhexylglycerin
Australia:	listed on AICS TGA approved	listed on AICS/NICNAS (NA/966) TGA approved
Canada:	listed on DSL	listed on DSL
Japan:	listed on ENCS	listed on ENCS listed on JSQI listed on Japanese INCI list

Indications for use

General remarks

Mild Preserved™ is a clear, colourless liquid with slight characteristic odour. It is stable to hydrolysis, temperature and pH < 12.

Use concentration

The recommended use concentration for Mild Preserved™ is 0.5 – 2.0 %.

Emulsions

As both components in Mild Preserved™ are surface active ingredients which can interact with emulsifier systems, we recommend incorporating Mild Preserved™ after the emulsification process. At this time, the emulsion has already formed and any negative influence on the emulsifier system will be relatively low.

Solubility

Mild Preserved™ has limited solubility in water (approx. 0.1 %). Solubility in organic solvents, such as alcohols, glycols and glycol ethers, is very good.

To increase the solubility in water, solubilisers like propylene glycol are necessary. Emulsifiers or surfactants may also help to improve the solubility of Mild Preserved™ in aqueous systems.

Influence on viscosity

Mild Preserved™ can increase the viscosity of surfactant-based formulations. This can reduce the amount of salt which is necessary for viscosity adjustment, especially in rinse-off formulations.

Spreadability

Mild Preserved™ is a medium spreading emollient comparable to octyldodecanol, hexyldecanol, dicaprylyl ether or decyl oleate.

Influence on foaming behaviour

Mild Preserved™ will not influence the foaming behaviour of surfactant based products with regards to the character, the amount and the stability of foam.

Physical-chemical Data	
Appearance (20°C):	clear, colourless – light yellow liquid
Colour index (Hazen):	max. 100
Odour:	characteristic
Density (20 °C):	approx. 0.94 g/cm ³
Refractive Index (20 °C):	approx. 1.448
pH-value (1 g/l):	6 – 8
Flash point (DIN 51 758):	> 100 °C
Flow time (DIN 53 211 / 20 °C)	approx. 29 s
Viscosity (Brookfield RVT, 20 °C, spindle 1/20 rpm):	approx. 210 mPa s
Water solubility (20 °C):	approx. 1 g/l
Solidification temperature:	approx. 15 °C

Material Compatibility*

In material compatibility tests with the concentrate of Mild Preserved™, stainless steel, brass, copper, zinc and aluminium, as well as polyethylene (PE), polyoxymethylene (POM), polyamide (PA), hard polyvinyl chloride (hard PVC), polystyrene (PS), polysulphone (PSU), polycarbonate (PC), polymethylmethacrylate (PMMA), polyethylenterephthalate (PET) and acrylnitrilbutadienstyrolcopolymer (ABS) proved to be suitable materials for handling the undiluted product. Other non-metallic materials should be checked for their suitability. For sealing material when handling undiluted Mild Preserved™, fluorine rubber or ethylene-propylene terpolymers (EPDM) or polytetrafluor-ethylene (PTFE) should be preferred. Other sealing materials can show swelling or lead to a visible discolouration of Mild Preserved™.

* Compatibility has to be proved in each case.

Storage

Store at room temperature in the original container, protect from frost, heat and direct sunlight. The product crystallises at temperatures below 15 °C. This process is reversible at room temperature without any changes in the product quality.

Shelf life

36 months at recommended storage conditions.

Toxicology

Mild Preserved™ is used as a multifunctional additive for cosmetics and toiletries with a recommended use concentration of 0.5 – 2.0 %. Both components of Mild Preserved™ have undergone toxicological testing. On the basis of the results, with the given upper concentration of 2.0 %, Mild Preserved™ can be considered safe for the use in cosmetics and toiletries. The skin compatibility of Mild Preserved™ has been tested in a patch test using a concentration of 2.0 % Mild Preserved™ in Paraffinum liquidum compared to a placebo. The test areas did not show at any time changes and alterations of the skin such as erythema or desquamation. Additionally to that none of the test persons complained about subjective sensations such as itching. Considering these data the use of Mild Preserved™ is regarded as safe in cosmetic formulations up to a concentration of 2.0 %.

Environmental information

factory has DIN EN ISO 9001 and DIN EN 46001 certification (Reg. No. 4567-01) and a validated environmental management system in accordance with the Eco Audit Regulation (Reg No. DE-S-150 00003). The canisters and drums used by factory are made of polyethylene (HDPE) and are labelled accordingly. The containers are affiliated to a recycling system that guarantees free pick-up and sensible utilisation of used containers throughout Europe. The labels are made of PE. Our packaging materials contain no PVC, and are recyclable.

Industrial property rights

EP 1806123 „Storage-stable compositions of glycerol monoalkyl ethers“ (patent pending)
DE 10028638 „Storage-stable composition useful in cosmetic and pharmaceutical compositions comprises combination of glycerol monoalkyl ether with antioxidant“ (patent pending)
US 2008255015 „Composition based on glycerol ether/polyol mixtures“ (patent pending)
EP 1992327 „Composition based on glycerol ether/polyol mixtures“ (patent pending)