

schülke -+

sensiva® SC 10

Multifunctional cosmetic ingredient



the plus of pure
performance

sensiva® SC 10

- 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%

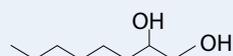
Product description

sensiva® SC 10 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.

sensiva® SC 10 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

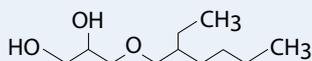
Caprylyl Glycol



$C_8H_{18}O_2$
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



$C_{11}H_{24}O_3$
204.31 g/mol

| | |
|--------------|---------------------------------------|
| CAS no.: | 70445-33-9 |
| CAS name: | 3-[(2-Ethylhexyl)oxy]-1,2-propanediol |
| CTFA name: | Ethylhexylglycerin |
| ELINCS name: | sensiva SC 50 |
| ELINCS no.: | 408-080-2 |

EU-INCI-declaration

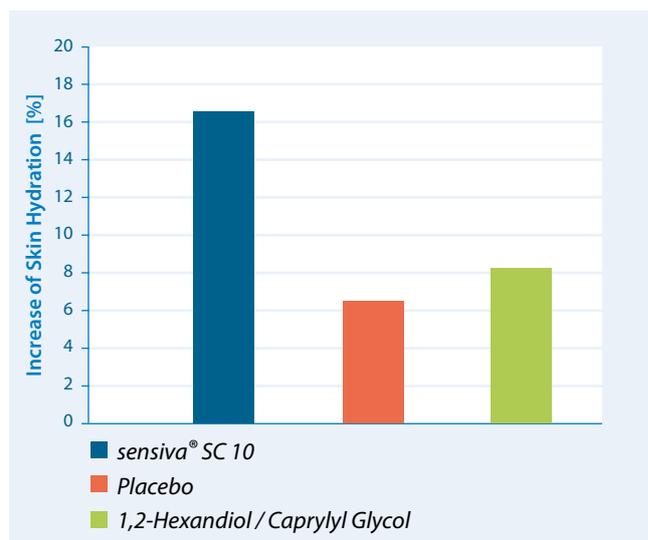
Caprylyl Glycol
Ethylhexylglycerin

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 – sensiva® SC 10 is a mild humectant and emollient which can improve the skin feel of cosmetic formulations, especially if high amounts of glycerin are used.



sensiva® SC 10 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 micro-organisms. From the components of sweat, the sebum and the skin cells, the germs, primarily grampositive bacteria, form substances which have an unpleasant odour.

sensiva® SC 10 contains ethylhexylglycerin, well-known as a deodorant active in the cosmetic market.

Screening tests with sensiva® SC 10 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.

Furthermore, sniff tests have proven sensiva® SC 10 to be as effective in deodorants as triclosan, the most commonly used deodorant active worldwide. The recommended use concentration in deodorants is 0.5%.

sensiva® SC 10

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.

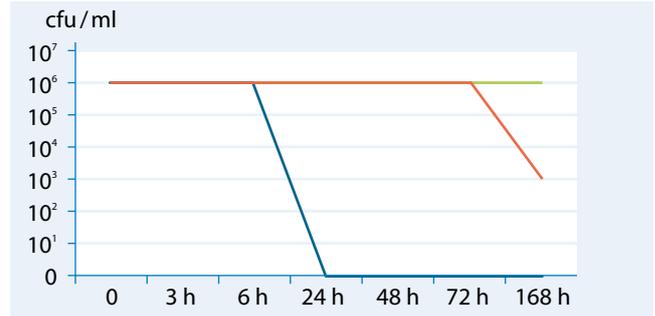
Based on the two multifunctional components, caprylyl glycol and ethylhexylglycerin, sensiva® SC 10 can improve the efficacy of traditional cosmetic preservatives, such as parabens or phenoxyethanol.

Germ count reduction test

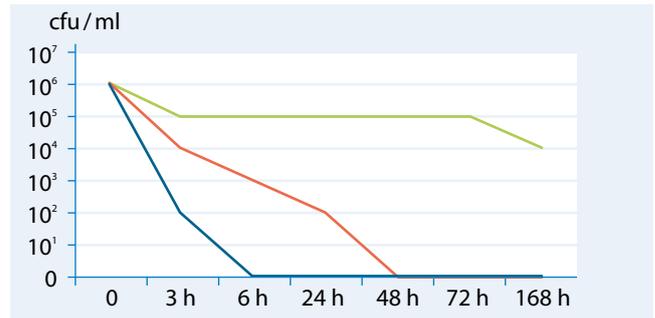
Germ count reduction tests of methylparaben in combination with sensiva® SC 10 in O/W emulsions have proven sensiva® SC 10 to be an enhancer of traditional preservative actives.

| 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 |

Aspergillus niger



Candida albicans



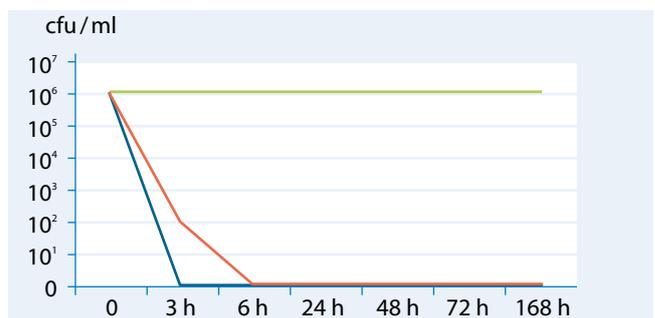
Staphylococcus aureus



Pseudomonas aeruginosa



Escherichia coli



The antimicrobial efficacy of methylparaben is accelerated by sensiva® SC 10.

- 0.2% Methylparaben
- 1.0% sensiva® SC 10
- 0.2% Methylparaben + 1.0% sensiva® SC 10

cfu = colony forming units

sensiva® SC 10

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. sensiva® SC 10 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 sensiva® SC 10 can contribute to the antimicrobial stability of a cosmetic formulation.

Repeated challenge test (schülke KoKo Test)

In this test, the schülke 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.

sensiva® SC 10 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% sensiva® SC 10 | - | - | - | - | - | - | - |
| + 1.0% 1,2-Hexandiol/ Caprylyl Glycol | - | +++ Y | +++ Y | ./. | | | |

Legend:

| | | | |
|----|-------------------------|-----|----------------------------|
| 0 | = Sterility control | - | = free of microbial growth |
| B | = Bacteria | + | = slight growth |
| M | = Moulds | ++ | = moderate growth |
| Sp | = Sporeforming bacteria | +++ | = massive growth |
| Y | = Yeasts | | |

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 and CLS 1999 |

Indications for use

General remarks

sensiva® SC 10 is a clear, colourless liquid with slight characteristic odour. It is stable to hydrolysis, temperature and pH.

Use concentration

The recommended use concentration for sensiva® SC 10 is 0.5 – 2.0%.

Emulsions

As both components in sensiva® SC 10 are surface active ingredients which can interact with emulsifier systems, we recommend incorporating sensiva® SC 10 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

sensiva® SC 10 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 sensiva® SC 10 in aqueous systems.

Influence on viscosity

sensiva® SC 10 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

sensiva® SC 10 is a medium spreading emollient comparable to octyldodecanol, hexyldecanol, dicaprylyl ether or decyl oleate.

Influence on foaming behaviour

sensiva® SC 10 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: | clear, colourless – nearly colourless liquid |
| Colour index (Hazen): | max. 100 |
| Odour: | characteristic |
| Density (20 °C): | approx. 0.94 g/cm ³ |
| Refractive Index (20 °C): | approx. 1.4485 |
| 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 sensiva® SC 10, 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 sensiva® SC 10, 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 sensiva® SC 10.

* 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

24 months at recommended storage conditions.

Toxicology

sensiva® SC 10 is used as a multifunctional additive for cosmetics and toiletries with a recommended use concentration of 0.5 – 2.0%. Both components of sensiva® SC 10 have undergone toxicological testing. On the basis of the results, with the given upper concentration of 2.0%, sensiva® SC 10 can be considered safe for the use in cosmetics and toiletries. The skin compatibility of sensiva® SC 10 has been tested in a patch test using a concentration of 2.0% sensiva® SC 10 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 sensiva® SC 10 is regarded as safe in cosmetic formulations up to a concentration of 2.0%.

Environmental information

schülke 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 schülke 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.



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Our recommendations regarding our products are based on in-depth scientific testing in our Research Department; they are given in good faith, but no liability can be derived from them. It is the responsibility of the final product manufacturer to assure that claims made for the final product are in conformance with all applicable local laws. In other respect our Conditions of Sale and Supply apply.

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Air Liquide Group

