MINASOLVE®
BIO-INGREDIENTS FOR YOUR APPLICATIONS

Technical Data Sheet
March 2020 – V2

EasySafe GC 8

EasySafe GC 8 is a **mild** and **easy to use** skin humectant that creates **self-preserving cosmetics**. It is **free of fragrances** and therefore suitable for **low-odour** products.

Functions
- Antimicrobial agent
- Humectant
- Re-fatting agent
- Co-surfactant/co-emulsifier

Applications
- Skin care
- Hair care
- Make-up
- Toiletries

Performances:

- **EasySafe GC 8** is **free of conventional preservatives**. Nonetheless it demonstrates a **broad-spectrum antimicrobial activity** against yeasts, moulds, and bacteria. The ingredient disturbs the integrity of microbial cell membranes, a mechanism of action that is unlikely to be affected by common resistance mechanisms. **EasySafe GC 8** is **non-ionic** and therefore exhibits an anti-microbial effect **up to pH 7**.
- **EasySafe GC 8** is a **stable liquid** and a **synergistic combination** of three components:
  - **Caprylyl Glycol,** a well-known **skin humectant** and an antimicrobial boosting agent.
  - **Glyceryl Caprylate/Caprate,** a **humectant and re-fatting agent** with anti-bacterial properties. It also acts as a thickener in aqueous cleaning products. Glyceryl Caprylate/ Caprate is **100 % biobased**, made from coconut oil and RSPO-certified palm kernel oil. It is particularly mild to the skin and non-irritating to the eyes.
  - **Glycerin,** a well known and **100 % biobased** skin humectant that is manufactured from European seed oils of non-GMO origin.
- **EasySafe GC 8** is **readily bio-degradable** and **free of allergens and fragrance components**. It is therefore particularly suitable **for sustainable, mild and low-odour formulations**.

Specifications and characteristics

INCI name	Caprylyl Glycol, Glyceryl Caprylate/Caprate, Glycerin
CAS reg. N°	1117-86-8, 85536-07-8, 56-81-5
Recommended pH of use	4 – 7
Recommended use level	0.75 to 2.0 %
Appearance	Clear, colourless or slightly yellow liquid
Odour	Faint characteristic
Solubility	Soluble in aqueous solutions of surfactants, miscible with polar oils and alcohols
Melting point	< -10 °C
Regulatory status	Globally approved; safety and regulatory data available upon request
Origin, ISO 16128	Derived-natural Natural origin index: 0.60

Chemical structures

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Antimicrobial performance in challenge tests according to ISO 11930

Formulation 1: *O/W-emulsion*

Phase	Ingredient	INCI name	%
A	Water	*Aqua*	ad 100
	Xanthan Gum [1]	*Xanthan Gum*	0.5
	EasySafe GC 8[2]	***Caprylyl Glycol, Glyceryl Caprylate/Caprate, Glycerin***	**1.0 – 1.5**
B	Emulgade PL 68/50 [3]	*Cetearyl Glucoside (and) Cetearyl Alcohol*	5.0
	Shea Butter [4]	*Butyrospermum Parkii (Shea) Butter*	3.0
	Jojoba Oil[4]	*Simmondsia Chinensis (Jojoba) Oil*	3.0
	Hazelnut Oil[5]	*Corylus Avellana (Hazel) Seed Oil*	3.0
C	Tocopherol	*Tocopherol*	0.1
D	Citric Acid (aq.) or Sodium Hydroxide (aq.)	*Citric Acid (and) Aqua or Sodium Hydroxide (and) Aqua*	pH 5.5 / 7.0

Raw material suppliers: [1] Jungbunzlauer, [2] **Minasolve,** [3] BASF, [4] Caesar & Loretz, [5] SanaBio

— ISO 11930 requirements for reduction of log (cfu/g) after 28 days ("criteria A")

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Formulation 2: *Green Shampoo*

Phase	Raw material	INCI name	%
A	Water	*Aqua*	ad 100
	Xanthan Gum [1]	*Xanthan Gum*	0.60
	Plantacare 818 UP [2]	*Coco Glucoside*	15.00
	Plantapon ACG HC [2]	*Sodium Cocoamphoacetate*	5.00
	TEGO Betain F 50 [3]	*Cocamidopropyl Betain*	5.00
B	**EasySafe GC 8**[4]	***Caprylyl Glycol, Glyceryl Caprylate/Caprate, Glycerin***	**1.0 – 2.0**
C	Citric Acid (aq.) or Sodium Hydroxide (aq.)	*Citric Acid (and) Aqua, or Sodium Hydroxide (and) Aqua*	q.s. pH 4.5 – 5.5

Raw material suppliers: [1] Jungbunzlauer, [2] BASF, [3] Evonik, [4] **Minasolve**

EasySafe GC 8 creates self-preserved formulations within a pH-range of 4 – 7. It is compatible with common cosmetic ingredients and formulations, and effective already at low concentrations. However, some products based on non-ionic surfactants and/or polysaccharide-based thickeners with a high water content might need a higher concentration of **EasySafe GC 8** for complete protection. The following table gives an indication of the typical use-levels needed to obtain fully protected products:

Formulation 1: "O/W emulsion"			
Use level:	**0.75 %**	**1.0 %**	**1.5 %**
pH 4.5	**B**	**A**	
pH 5.5	**B**	**A**	**A**
pH 7.0	**B**	**B**	**A**
	= likely to fulfil criteria A of ISO 11930		

Formulation 2: "Green Shampoo"			
Use level:	**1 %**	**1.5 %**	**2.0 %**
pH 4.5	**B**	**A**	
pH 5.5	**B**	**B**	**A**
A	**= fulfils criteria A of ISO 11930**		
B	**= fulfils criteria B of ISO 11930**		

➔ **EasySafe GC 8** protects the "O/W emulsion" already at low concentrations of about 1 %

➔ **EasySafe GC 8** can protect the "Green Shampoo", as well. This product is based on a non-ionic surfactant and a natural thickener. It is therefore a particular challenge for antimicrobial protection systems. For optimized activity at neutral pH, **EasySafe GC 8** can also be favorably combined with other multifunctional ingredients, such as **EasySafe P8**.

Minimum Inhibitory Concentrations of EasySafe GC 8 at pH 7:

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Application in cosmetic formulations

- **EasySafe GC 8** is an easy to handle liquid that is stable between -10 °C and +80 °C. The ingredient is suitable for hot and cold processes. **EasySafe GC 8** may partly freeze, if it is cooled below -10 °C. In such cases it should be warmed to ≥ +10 °C. The process of freezing and thawing is completely reversible and does not impact the quality of the product.
- **EasySafe GC 8** needs to be dissolved in the aqueous phase for a maximum antimicrobial effect. The ingredient is therefore preferably added either to the hydrophilic phase or towards the end of the formulation, e.g. after emulsification.
- **EasySafe GC 8** is soluble in aqueous solutions of surfactants, as well as in lower alcohols, alkanediols and polar vegetal oils. It can be dissolved in water with the help of common solubilizers (e.g. Tween 20, Polyglyceryl-4 Laurate/Succinate, etc.). **EasySafe GC 8** is therefore also suitable for clear aqueous formulations.
- **EasySafe GC 8** consists of neutral substances which are stable within a pH-range of 4-7. As soon as EasySafe GC 8 is added, the pH of the formulation must be kept within this range. Otherwise the component Glyceryl Caprylate/Caprate will get saponified or hydrolysed over time. This would lead to a loss of the typical beneficial effects of Glyceryl Caprylate/Caprate.
- **EasySafe GC 8** contains weakly surface-active ingredients that may influence the performance of surfactants or emulsifier systems. It can therefore impact the viscosity of the final product. Such kind of effects can be reduced by adding **EasySafe GC 8** after emulsification and just before the end of the formulation process.

Further readings

- Bergfeld W.F. et al., "Final Report of the Cosmetic Ingredient Review on the Safety Assessment of 1,2-Glycols as Used in Cosmetics", *Cosmetic Ingredient Review*, **2011**.
- Pillai R. et al., "1,2-Alkanediols for Cosmetic Preservation", *Cosmetics & Toiletries Magazine* **2008**, *123 (10)*, 53-61.
- "Final Report of the Amended Safety Assessment of Glyceryl Laurate, […], Glyceryl Caprylate/Caprate, […]", International Journal of Toxicology **2004**, *23 (2), suppl.*, 55-94.
- "Amended Safety Assessment of Monoglyceryl Monoesters as Used in Cosmetics", *Cosmetic Ingredient Review*, **2015**.

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