MINASOLVE®
BIO-INGREDIENTS FOR YOUR APPLICATIONS

**Technical Data Sheet**
*March 2020 – V3*

# E-Leen Green A

**The nature-derived ingredient**
**that keeps formulations self-preserved over a large pH range.**

**E-Leen Green A** is a non-ionic multifunctional blend that enables completely **self-preserved cosmetic products.** At the same time, it **moisturizes and conditions the skin**.

**E-Leen Green A** is a **novel, synergistic combination** of nature-based Pentylene Glycol and the nature-derived fragrance component Phenylpropanol. Both ingredients are obtained from **renewable resources**. The major ingredient, **bio-sourced** Pentylene Glycol, is **sustainably made** from sugar cane bagasse. The second ingredient, Phenylpropanol, is derived from Cassia essential oil.

**E-Leen Green A** is **free of listed preservatives.**

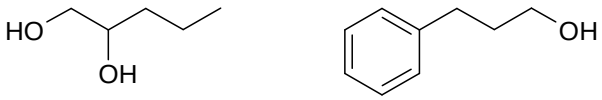
- **Broad-spectrum anti-microbial activity – largely independent of the pH.**
- **Long lasting skin-moisturizing effect – over 24 hours**.
- **Mild fragrance – bringing a comfortable, balsamic and floral note**

**Functions**
- Moisturizer
- Emollient
- Fragrance / Masking
- Antimicrobial,
  for self-preserved formulations

**Applications**
- Skin Care
- Hair Care
- Make up
- Toiletries
- High pH formulations

Verified by ECOCERT
COSMOS APPROVED

## Specifications and characteristics

| | |
|---|---|
| **INCI** | Pentylene Glycol (and) Phenylpropanol |
| **CAS Reg. N°** | [5343-92-0]; [122-97-4] |
| **Appearance** | Clear colourless liquid |
| **Odour** | Faint, aromatic |
| **Density at 20 °C** | 0.96 – 0.98 g/ml |
| **Recommended pH of use** | 3.0 – 10.0 (unlimited) |
| **Recommended use level** | 1.0 to 3.0 % |
| **Regulatory status** | Globally approved; safety and regulatory datasheets are available upon request |
| **Origin, ISO 16128** | Derived natural<br>Natural origin index: 1<br>100 % renewable carbon (of total carbon) |
| **Chemical structures** |  |

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## Application of E-Leen Green A in different cosmetic products

***a)* Purifying Clay Mask – *pH 8.0***

| Phase | Raw material | INCI name | % |
|---|---|---|---|
| A | Water | *Aqua* | ad 100 |
| | **Fresh'in Green+[1]** | ***Pentylene Glycol (and) Fragrance*** | **0.3** |
| | Xanthan Gum [2] | *Xanthan Gum* | 0.5 |
| 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) Seed Oil* | 3.0 |
| | Hazelnut Oil[5] | *Corylus Avellana (Hazel) Seed Oil* | 3.0 |
| C Premix | Water | *Aqua* | 20.0 |
| | CosGreen Surfine[6] | *Kaolin* | 20.0 |
| D | DL-α-Tocopherol (>97%) | *Tocopherol* | 0.1 |
| | Perfume Bamboo & Lemon Grass[7] | *Parfum* | 0.5 |
| | **E-Leen Green A [1]** | ***Pentylene Glycol (and) Phenylpropanol*** | **3.0** |
| E | Sodium Hydroxide solution | *Aqua (and) Sodium Hydroxide* | qs |

***b) Micellar water – pH 7.0***

| Phase | Raw material | INCI name | % |
|---|---|---|---|
| A | Water | *Water* | ad 100 |
| | Allantoin | *Allantoin* | 0.2 |
| | Glycerin | *Glycerin* | 3.0 |
| | Chamomile-Eco[8] | *Glycerin (and) Water (and) Chamomilla Recutita (Matricaria) Flower Extract* | 1.0 |
| | Glycerox 767[9] | *PEG-6 Caprylic/Capric Glycerides* | 2.0 |
| | Plantacare 810 UP[3] | *Caprylyl/Capryl Glucoside* | 2.0 |
| B | **E-Leen Green A [1]** | ***Pentylene Glycol (and) Phenylpropanol*** | **2.0** |
| C | Lactic acid solution (20%) | *Water (and) Lactic Acid* | qs |

**c) *O/W emulsion – pH 5.5***

| Phase | Raw material | INCI name | % |
|---|---|---|---|
| A | Water | *Aqua* | ad 100 |
| | Xanthan Gum [2] | *Xanthan Gum* | 0.5 |
| 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) Seed Oil* | 3.0 |
| | Hazelnut Oil [5] | *Corylus Avellana (Hazel) Seed Oil* | 3.0 |
| C | DL-α-Tocopherol (>97%) | *Tocopherol* | 0.1 |
| | **E-Leen Green A [1]** | ***Pentylene Glycol (and) Phenylpropanol*** | **2.0** |
| D | Citric Acid (25%) | *Aqua (and) Citric Acid* | qs |

***d) Intimate cleansing gel - pH 4.5***

| Phase | Raw material | INCI name | % |
|---|---|---|---|
| A | Water | *Water* | ad 100 |
| | Allantoin | *Allantoin* | 0.2 |
| | Glycerin | *Glycerin* | 2.0 |
| | Sorbitol | *Sorbitol* | 2.0 |
| | Xanthan Gum [2] | *Xanthan Gum* | 0.5 |
| B | Plantacare 2000 UP[3] | *Decyl Glucoside* | 10.0 |
| | Tego Betain 810[10] | *Capryl/Capramidopropyl Betaine* | 3.0 |
| C | **E-Leen™ Green A [1]** | ***Pentylene Glycol (and) Phenylpropanol*** | **2.0** |
| D | Lactic acid solution (20%) | *Water (and) Lactic Acid* | qs |

**Raw material suppliers:**

[1] **Minasolve;** [2] Jungbunzlauer; [3] BASF; [4] Caesar & Loretz; [5] SanaBio; [6] Argiles du Velay/Cameleon Chemicals; [7] Bell; [8] Provital Group; [9] Croda; [10] Evonik

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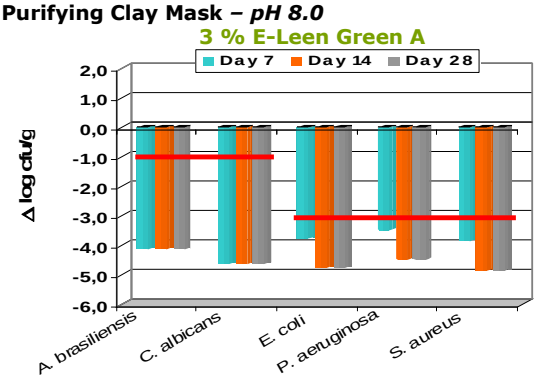
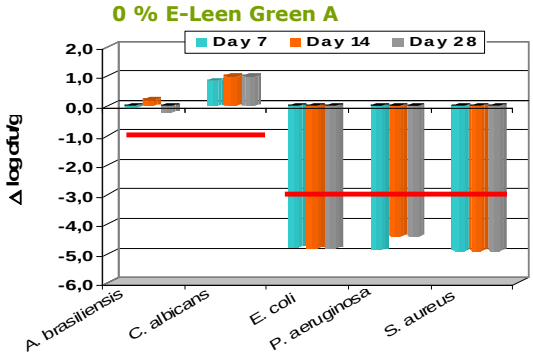
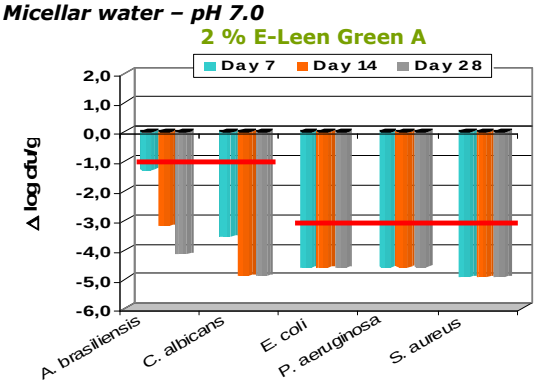
## Results of Microbial Challenge Tests according to ISO 11930

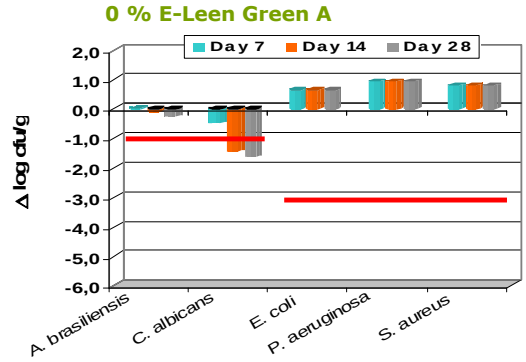
***a)* Purifying Clay Mask – *pH 8.0***



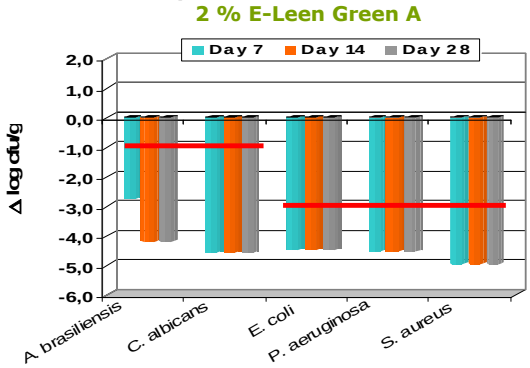



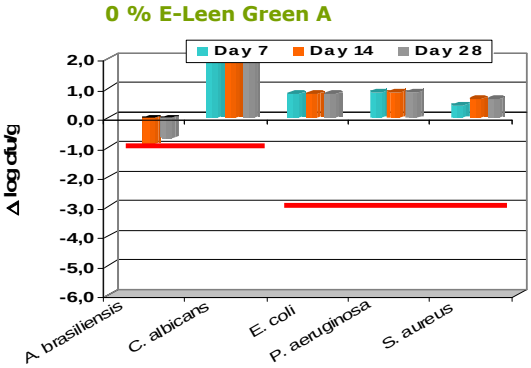

***b) Micellar water – pH 7.0***



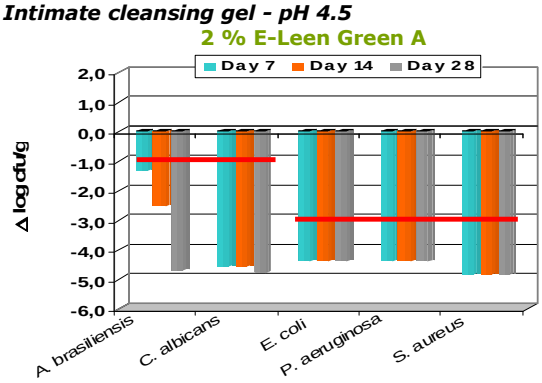



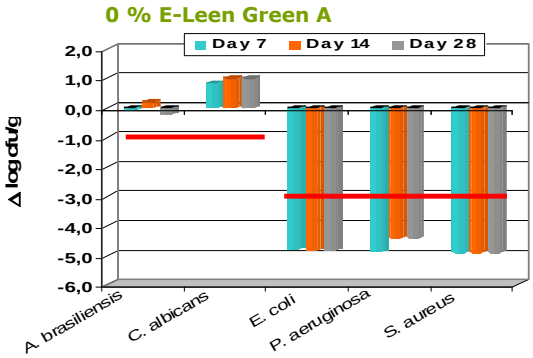

***c) O/W emulsion – pH 5.5***




***d) Intimate cleansing gel - pH 4.5***




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

→ **E-Leen Green A** demonstrates a broad spectrum antimicrobial activity, over a large pH range, in a variety of products, such as emulsions, detergents-based solutions and gels.

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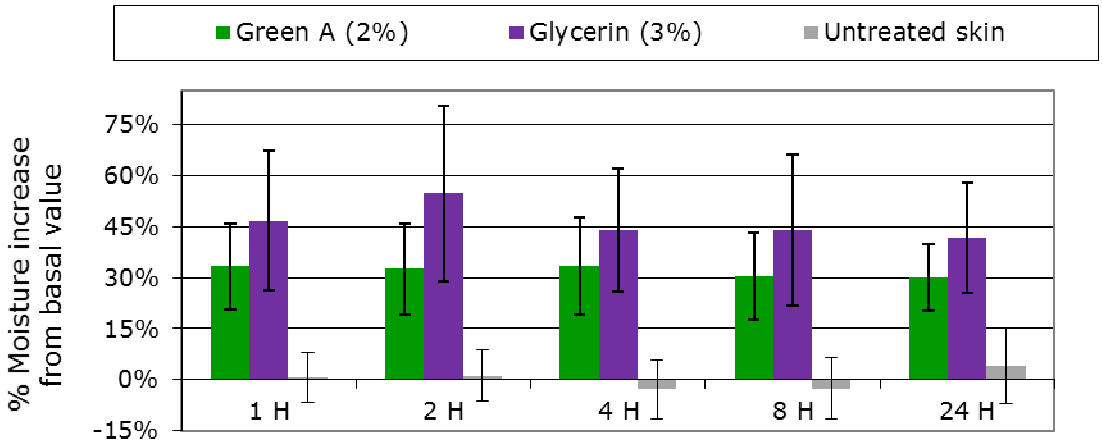
## Corneometry study

**E-Leen Green A** is an effective **skin humectant**. Its long-lasting moisturizing effect, similar to glycerin, was demonstrated in a corneometry study over 24 hours. Aqueous solutions of the test substances were applied to the forearms of 15 female panellists, aged 18 - 65.




## Application in cosmetic formulations

**E-Leen Green A** is soluble in water at the recommended use levels. It is also miscible with alcohols, polar oils and emollient esters.

**E-Leen Green A** is suitable for hot or cold processing (max. 130 °C) and can be added at any stage of the production process. For maximum efficacy, it is preferably incorporated into an aqueous phase and/or after emulsification. The blend is compatible with all common cosmetic ingredients. The anti-microbial efficacy might be reduced by the presence of ethoxylated non-ionic surfactants.

## Further readings

- Bathia SP. et al., "Fragrance material review on 3-phenyl-1-propanol", *Food Chem. Toxicol., 49 (Suppl 2), 246-251,* **2011.**
- Pillai R. et al., "1,2-Alkanediols for Cosmetic Preservation", *Cosmetics & Toiletries Magazine*, *123 (10), 53-61,* **2008.**
- Schnittger S. et al., "Use of alkanediols in personal care formulations – closer look at antimicrobial activity", *Proceedings of the SCC Annual Scientific Meeting & Technology Showcase*, New York, **2006**.

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