

## E-Leen Green OR

The 100% nature-derived alternative to conventional preservatives

### UNVEILING THE POWER OF ORANGE BIO-FLAVONOIDS TO DETOXYIFY YOUR SKIN

E-Leen Green OR is a **multifunctional ingredient** with a **broad spectrum antimicrobial activity**. It protects cosmetic formulations against microbial contamination.

E-Leen Green OR is a balanced composition of **nature-derived humectants** and **natural bio-flavonoids**. It is **free of listed preservatives** and especially suitable for leave-on skin care products.

- ▶ Skin humectant
- ▶ Antimicrobial protection at pH 3 - 6.5 (bacteria and fungi)
- ▶ Antioxidant bio-flavonoids with free-radical scavenging effect
- ▶ 100% sustainably sourced *manufactured from agro-wastes*

### Specifications and Characteristics

INCI	Pentylene Glycol, Glycerin, Citrus Aurantium Amara (Bitter Orange) Fruit Extract, Citrus Reticulata (Tangerine) Fruit Extract, Citrus Aurantium Sinensis (Orange) Peel Extract, Ascorbic Acid, Citric Acid, Lactic Acid
CAS REG. N°	[5343-92-0]; [56-81-5]; [72968-50-4]; [8008-31-9]; [97766-30-8]; [50-81-7]; [77-92-9]; [79-33-4]
APPEARANCE	Clear yellow liquid
ODOUR	Odourless or faint
SOLUBILITY	Hydrophilic, readily soluble in water and alcohol
RECOMMENDED PH LEVEL	3.0 ▶ 6.5
RECOMMENDED USE LEVEL	1.0 ▶ 3.0% (max. 5.5%)
REGULATORY STATUS	Globally approved

#### ORIGIN

- ▶ 100% nature-derived Pentylene Glycol
- ▶ Natural Citrus actives, extracted with natural glycerine



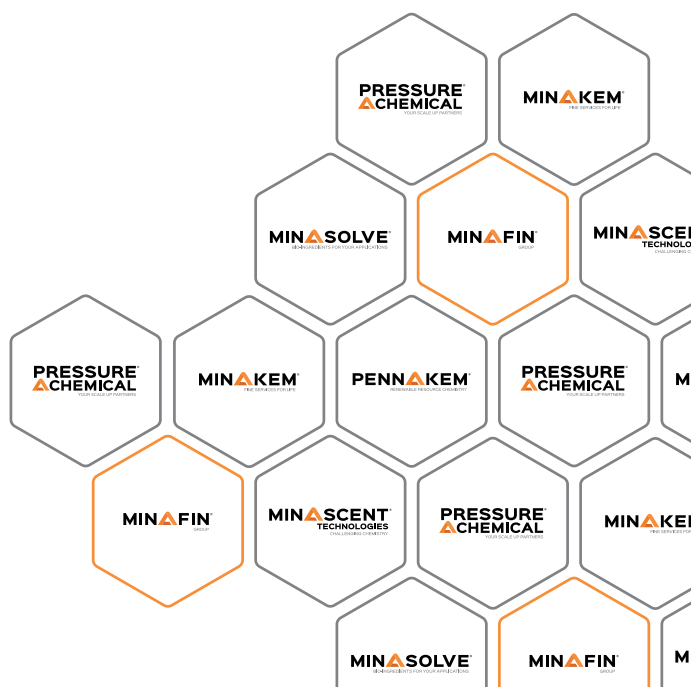
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- ▶ Minakem®
- ▶ Minasolve®
- ▶ Pennakem®
- ▶ Pressure Chemical®
- ▶ Minascen®

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- ▶ Improving our chemistry and operational excellence today
- ▶ Creating and innovating for tomorrow
- ▶ Driving our enterprises together to go beyond expectations



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# GREEN OR

## MULTIFUNCTIONAL INGREDIENT: UNIQUE COMBINATION OF CITRUS EXTRACT WITH A-LEEN 5

- ✓ **Natural antimicrobial solution**
- ✓ **Alternative to conventional preservatives**
- ✓ **Skin humectant & anti-oxidant bio-flavonoids**
- ✓ **100% sustainable, made from Biomass**
- ✓ **100% water soluble**

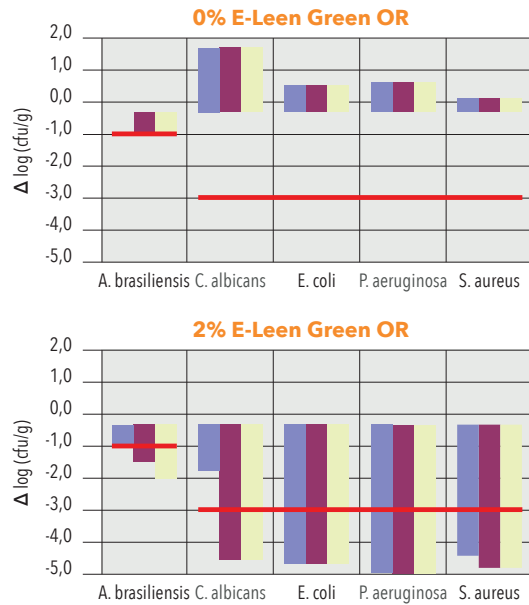
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## Challenge Test results (ISO 11930) in O/W-emulsion

At pH 5.5: fulfils criteria A of ISO 11930



At pH 6.5: fulfils criteria A of ISO 11930

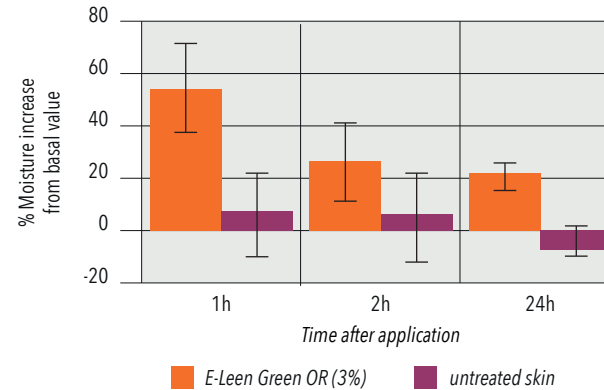


— Requirements of ISO 11930 for log (cfu/g) reduction within 28 days (criteria A)

## Skin Humectant

E-Leen Green OR has a long-lasting moisturizing effect on skin.

### Clinical study over 24 hours - 15 volunteers

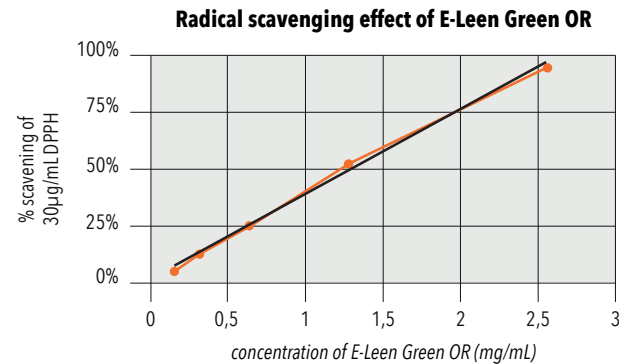


## Applications

- ▶ **E-Leen Green OR** is soluble in water, alcohol and polar vegetable oils.
- ▶ **E-Leen Green OR** can be added at any stage of the production process. It is suitable for hot or cold processing, and it is compatible with most common cosmetic ingredients. For maximum efficacy it is preferably incorporated into the aqueous phase or added at the end.
- ▶ Since the blend is slightly acidic, it may be advisable to add it to the formulation before the final pH-adjustment step.
- ▶ **E-Leen Green OR** is recommended for formulations with a pH of  $\leq 6.5$ . Its activity will be maintained also at higher pH levels. However, a yellow discoloration can occur and the bioflavonoids may get oxidized more easily by air oxygen.
- ▶ **E-Leen Green OR** is especially suitable for the protection of emulsions. It can also be used for single-phase products, but in such cases it may be necessary to combine it with a second anti-fungal agent, such as e.g. an organic acid or an aromatic alcohol.
- ▶ **E-Leen Green OR** should not get in contact with strong oxidizing agents, such as hydrogen peroxide, as this will destroy the active components and/or lead to discoloration.

## Antioxidant

E-Leen Green OR at 2% destroys 75% of the free radicals in a 30  $\mu\text{g}/\text{mL}$  solution of DPPH



The given information is accurate to the best of our knowledge. Customers are advised to perform their own studies on the usefulness of any ingredient for a particular application. Any recommended usage information is only provided as indication, and should not be considered as recommendation to violate of any laws, patents, or official regulations dealing with manufacture, composition, local procedures, product design, or end usage.