



Specifications and Characteristics

| | |
|-----------------------|--|
| INCI | Pentylene Glycol, Glycerin, Citrus Aurantium Amara (Bitter Orange) Fruit Extract, Citrus Reticulata (Tangerine) Fruit Extract, Citrus Aurantium Sinensis 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%) |
| ORIGIN | Derived-natural, 100% renewable carbon |
| NATURAL ORIGIN INDEX | 1 (ISO 16128) |

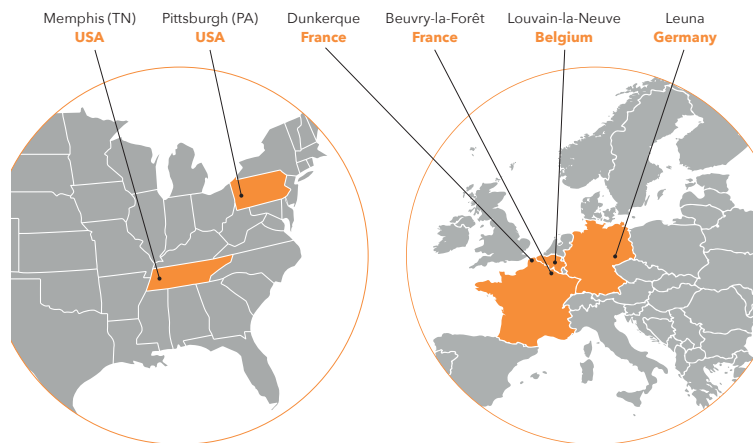


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Created in 2004, **The MINAFIN® Group**, specializes in fine chemistry for the life sciences and high tech industries. Activities include industrial subcontracting, development of chemical syntheses and industrial scale-up of custom-made processes as well as proprietary products with high added value for the pharmaceutical, cosmetics, agriculture and high-tech industries. Strong synergies exist between all business units: MINASOLVE, MINAKEM, MINAGRO, PENNAKEM, PRESSURE CHEMICALS, MINASCENT and EcoXtract.

Serving market leaders as well as emerging players we support our customers' efforts to improve the quality of life in the global community by:

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



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2020 11_V4.2



GREEN OR

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

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

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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.

E-Leen Green OR from MINASOLVE:

UNVEILING THE POWER OF ORANGE
BIOFLAVONOIDS TO DETOXYFY YOUR SKIN WHILE
PROTECTING YOUR NATURAL FORMULATIONS

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

Citrus aurantium amara
(Bitter Orange)

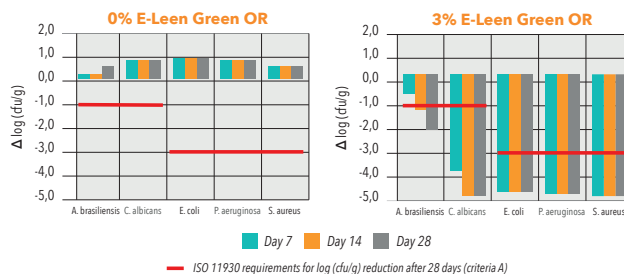
Citrus aurantium sinensis
(Orange)

Citrus reticulata
(Tangerine)



Natural antimicrobial solution

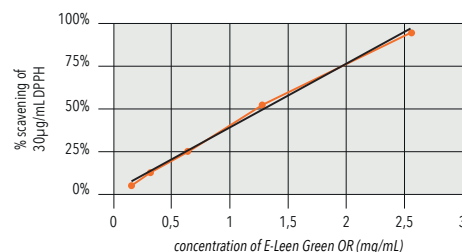
Challenge Test results (ISO 11930) in O/W-emulsion, pH 6.5



E-Leen Green OR fulfils criteria A of ISO 11930

Antioxidant

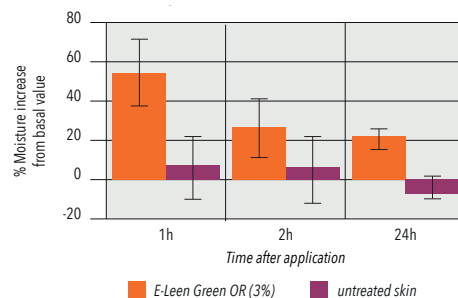
Radical scavenging effect of E-Leen Green OR



E-Leen Green OR at 2% destroys 75% of the free radicals in a 30 µg/mL solution of DPPH

Skin Humectant

Clinical study over 24 hours - 15 volunteers



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

O/W-emulsion used for the challenge test, pH 6.5:

| Phase | Raw material | INCI name | % |
|-------|---------------------------------------|--|-----------|
| A | Water | <i>Aqua</i> | ad 100.0 |
| | Xanthan Gum ⁽¹⁾ | <i>Xanthan Gum</i> | 0.5 |
| B | Emulgade PL 68/50 ⁽²⁾ | <i>Cetearyl Glucoside (and) Cetearyl Alcohol</i> | 5.0 |
| | Shea Butter ⁽³⁾ | <i>Butyrospermum Parkii (Shea) Butter</i> | 3.0 |
| | Joboba Oil ⁽³⁾ | <i>Simmondsia Chinensis (Jojoba) Oil</i> | 3.0 |
| | Hazelnut Oil ⁽⁴⁾ | <i>Corylus Americana (Hazel) Seed Oil</i> | 3.0 |
| C | Bioxan T70 ⁽⁵⁾ | <i>Tocopherol</i> | 0.1 |
| D | E-Leen Green OR ⁽⁶⁾ | <i>please see specifications</i> | 3.0 |
| E | Sodium Hydroxide (10% aq.) | <i>Aqua (and) Sodium Hydroxide</i> | ad pH 6.5 |

Raw material suppliers:

⁽¹⁾ Jungbunzlauer ⁽²⁾ BASF ⁽³⁾ Caesar & Loretz ⁽⁴⁾ SanaBio ⁽⁵⁾ BTSa ⁽⁶⁾ Minasolve

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 ≤ 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 antifungal 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.



Skin care



Face care



Body care



Men care



Make-up



Natural