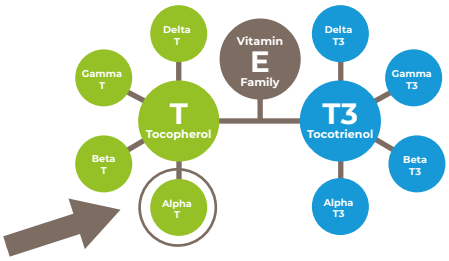
Defy Oxy-Aging with Plant-based Technology

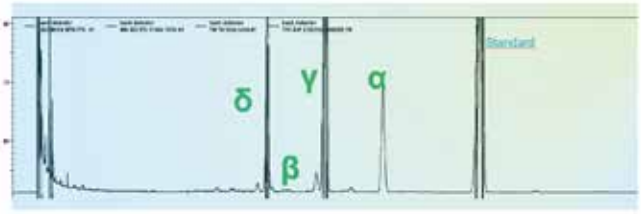
The science of skin defense against Oxy-Aging.
Reinforce skin naturally with plant-based and upcycled solutions.

KENSING™

Not all Vitamin E's are Created Equal

Vitamin E is a familly of 8 molecules with specific sterochemistry





Gas chromatography analysis

Vitamin E Stereochemistry & Efficiency of Natural vs. Synthetic

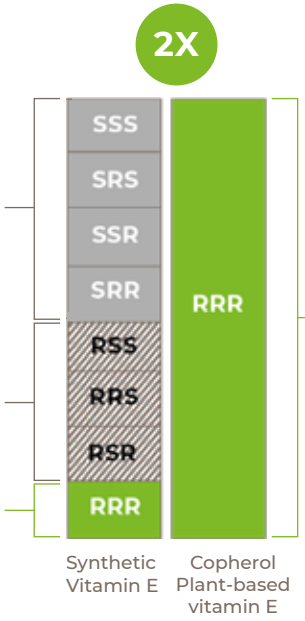
Synthetic Vitamin E

All-rac-α-tocopherol corresponds to all-racemic mixture which includes eight stereoisomers.

50% of the synthetic vitamin E contains isomers that are not bioavailable.

Other isomers (RSR, RRS, RSS) have limited activity and bioavailability.

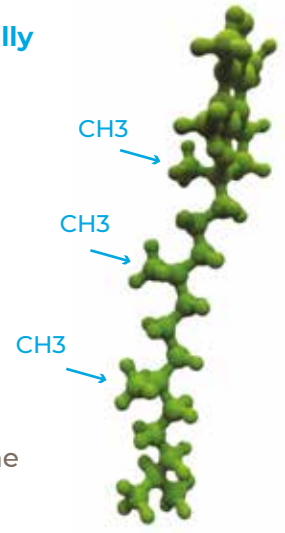
Only 12.5% contains the active RRR isomer.



Sun E® and Copherol® are 2X more biologically active than synthetic Vitamin E

Natural Plant-based Vitamin E

Contains 100% of the active RRR-α-tocopherol natural isomer and is more bioavailable. RRR corresponds to the perfect alignment of CH3 methyl groups.



Replenish Vitamin E Levels

From FOODS ⟶ to BODY ⟶ to SKIN

The physiological pathway of vitamers of Vitamin E

FOODS
Nuts and seeds, vegetable oils, avocado, kiwi, mango, salmon

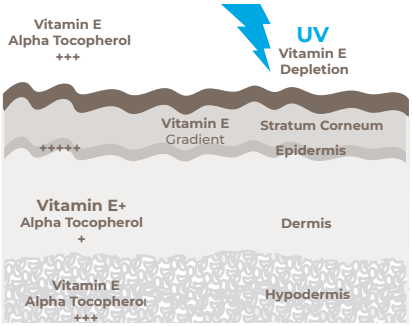
INTESTINAL Absorption

BLOOD

LIVER
The liver selectively retains α-tocopherol thanks to α-TTP

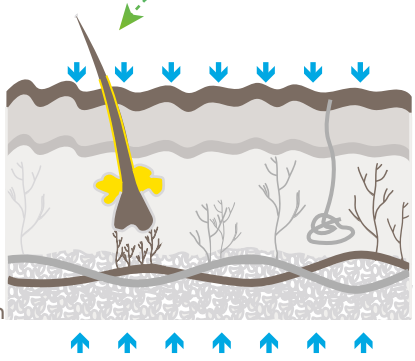
α-Tocopherol Transfer Protein
α- TTP

SKIN
Capillaries diffuse alpha-tocopherol mostly the RRR-alpha vitamer



The skin mainly contains alpha-tocopherol (alpha/gamma-tocopherol ratio 10:1), with a decreasing gradient from the surface to the depth of the epidermis due to the depletion of vitamin E reserves by UV rays.

SKIN
Sebaceous Gland
alpha-tocopherol enriched sebum excretion at the surface of the skin



RRR-Alpha Tocopherol - Restrict Peroxidation, Restore Fluidity, Replenish Vitamin E levels

XY R³-Protection™

Plant-based Vitamin E is One of the Best Oil-soluble Natural and Free-radical Scavenger Antioxidants

Restrict Peroxidation

1-Chemical Protection of Cell Membrane Lipoperoxydation

RRR-alpha tocopherol, commonly known as natural Vitamin E, exhibits protective activity against reactive oxygen species. Due to this antioxidant property, it is naturally incorporated into cell membranes, serving as the primary lipid-soluble antioxidant in human tissue, including the skin.

This allows RRR-alpha tocopherol to function as a protective barrier against oxidation-induced damage. It is well-known for protecting the skin from UV-induced aging. However, at the skin surface, particularly in the stratum corneum, endogenous RRR-alpha tocopherol is rapidly depleted.

UV exposure reduces Vitamin E levels by more than 90%. This highlights the importance of topical supplementation with RRR-alpha-tocopherol to sustain the skin's antioxidant defenses.

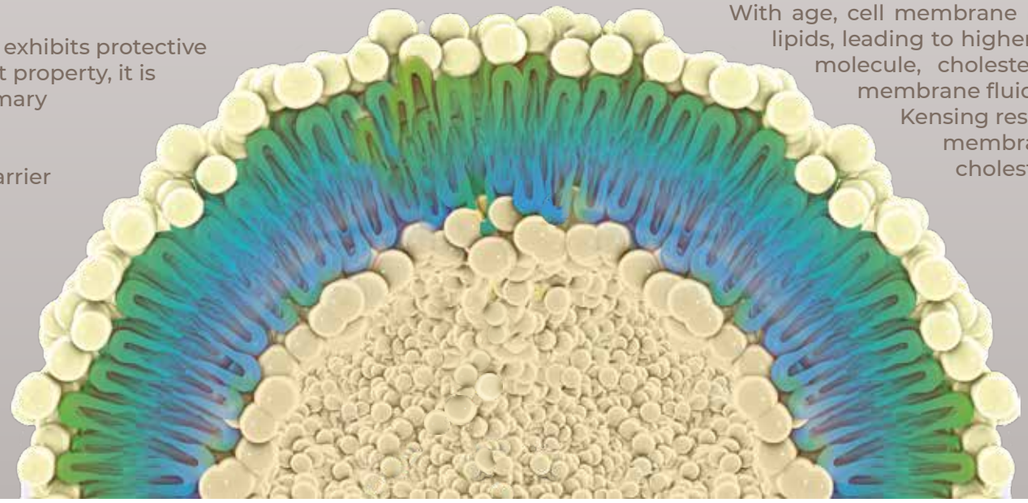
INCI: Tocopheryl Acetate | Tocopherol

Copherol®

Soy Source

Sun E®

Sunflower Source

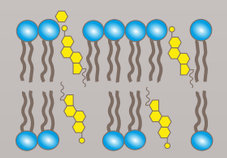


Restore Fluidity

2-Physical & Structural Protection of Cell Membrane Micromechanic

With age, cell membrane rigidity increases due to cumulative damage to cell membrane lipids, leading to higher viscosity and changes in cholesterol content. As an amphiphilic molecule, cholesterol plays an essential role as a physiological modulator of membrane fluidity through its flip-flop movement.

Kensing research, in collaboration with experts in the micromechanics of cell membranes, demonstrated that RRR-alpha-tocopherol enhances cholesterol flip-flop movement, thereby improving membrane fluidity.

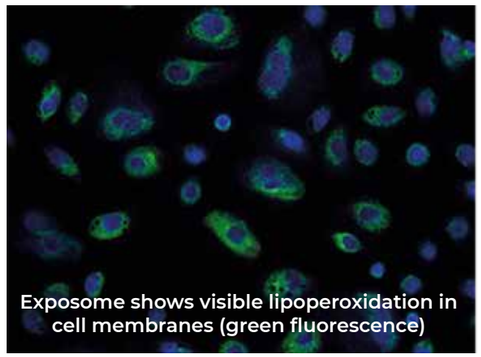


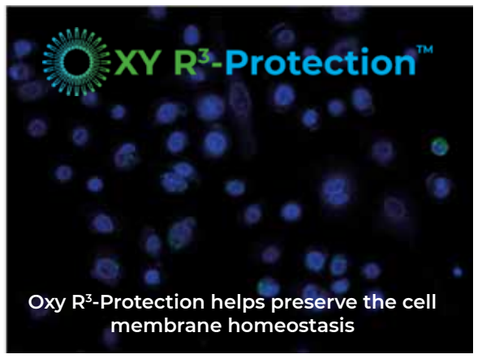
The flip-flop movement of cholesterol induces microcurvatures in cell membrane which leads to membrane fluidity involved in cellular homeostasis.

Natural Mixed Tocopherols:
Active Substance; Vegetable
INCI: Tocopherol

Non-GMO Source: Sunflower
Label: Clean Label, Non-Soy
Process: No Chemical Modification
Allergens: Non-Allergenic Origins

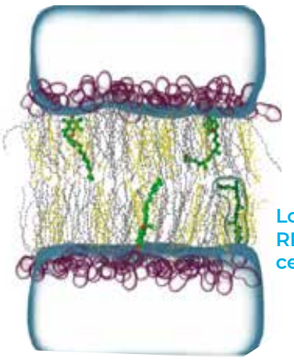
CHEMICAL protection of RRR-α-tocopherol against exposome. (UV + Pollution) of skin cells by inhibiting lipoperoxidation



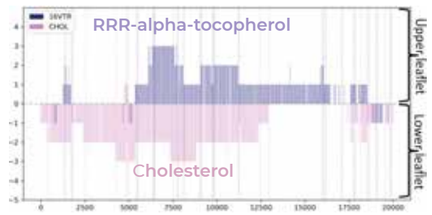


Confocal microscopy + Fluorimetry on Co-culture of keratinocytes & melanocytes.
Magnification x20, scale bar 50µm, blue = nuclei, Green = lipid peroxydation.

DYNAMIC Bioinformatic Molecular simulations in a lipidic membrane model based on 70% phospholipids and 30% cholesterol.



Location and behavior of RRR-alpha-tocopherol in cell membranes

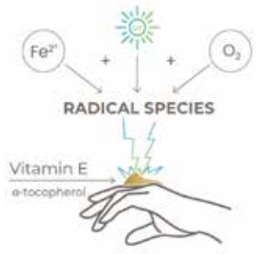


Measurement of RRR-alpha-tocopherol flip-flop induced cholesterol flip-flop

Oxidative stress

Skin is under constant attack every day!
External factors (UV radiation, air pollution, smoking) and internal metabolic processes both generate Reactive Oxygen Species (ROS), posing a continuous threat to skin health.

Exposome



Oxy-aging

Cumulative ROS aggressions lead to Oxy-aging Inside human skin.
ROS can attack biomolecules such as lipids of the cell membrane but also extracellular and intracellular proteins (DNA) leading to the impairment of their biological function.
Radical oxidation reactions can trigger micro-inflammation, which in turn can contribute to premature aging of the skin.

Skin Benefits

XY R³-Protection™

PROTECTION at a cellular level

Maintains skin cell membrane homeostasis.
Prevents age-related skin membrane rigitidy.

PROTECTION at a tissular level

Vitamin E is a core anti-age active ingredient. It acts at every layer of the skin, protecting the epidermis against environmental oxidative stress but also indirectly protecting the macro-structure of the dermis against premature aging.

Lipid-Cohesion Generol®

Skin barrier Protection & Reinforcement

Generol®, plant-based phytosterols active improve the skin barrier function

Due to their structural similarity to cholesterol, phytosterols exhibit high skin affinity, allowing them to effectively reinforce barrier function, facilitate repair processes, and enhance protection against environmental stressors.

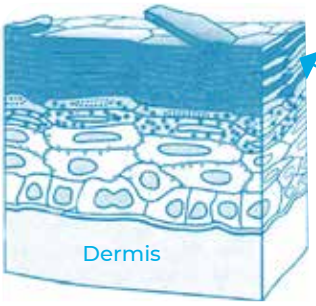
Generol, which is rich in beta-sitosterol, provides additional skin-soothing effects through its recognized anti-inflammatory properties, helping to reduce irritation, inflammation, and redness.

INCI: PEG-10 Soy Sterol | PEG-16 Soy Sterol | Glycine Soja (Soybean) Sterols

Generol® acts by biomimetic insertion in the lamellar lipidic cement of the stratum corneum that is lower restoring the barrier cohesion.

Skin Benefits

- Improve skin barrier function
- Lock in moisture and protective properties
- Soothe, strengthen, and repair skin
- Improve dry and irritated skin and scalp



Epidermal Lipidic Cement
50 % ceramides
25 % fatty acids
25 % cholesterol

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Enhanced Formulation Stability and Anti-Oxidant Protection

As modern natural formulations are heavily loaded with vegetable oils, they need even more antioxidant protection to ensure a long product shelf life. Oxidation significantly degrades cosmetic formulations in two main ways: First, it degrades fatty acids critical for base formulation stability. This negatively affects emulsion stability, color, and scent. Second, it impairs active ingredients in the formulation, which negatively impacts product performance and efficacy.

- Best-in-class oxidation protection
- Natural protection
- Higher purity and potency
- Extends product shelf-life
- Preserves active ingredients
- Highly effective in unsaturated vegetable oils
- 3X more effective than synthetic
- Odorless with excellent organoleptic profile for use in cosmetics
- Clean label
- Sustainable
- Kosher and Halal Certified
- Low Carbon Footprint
- Continual supply security

Covi-ox®

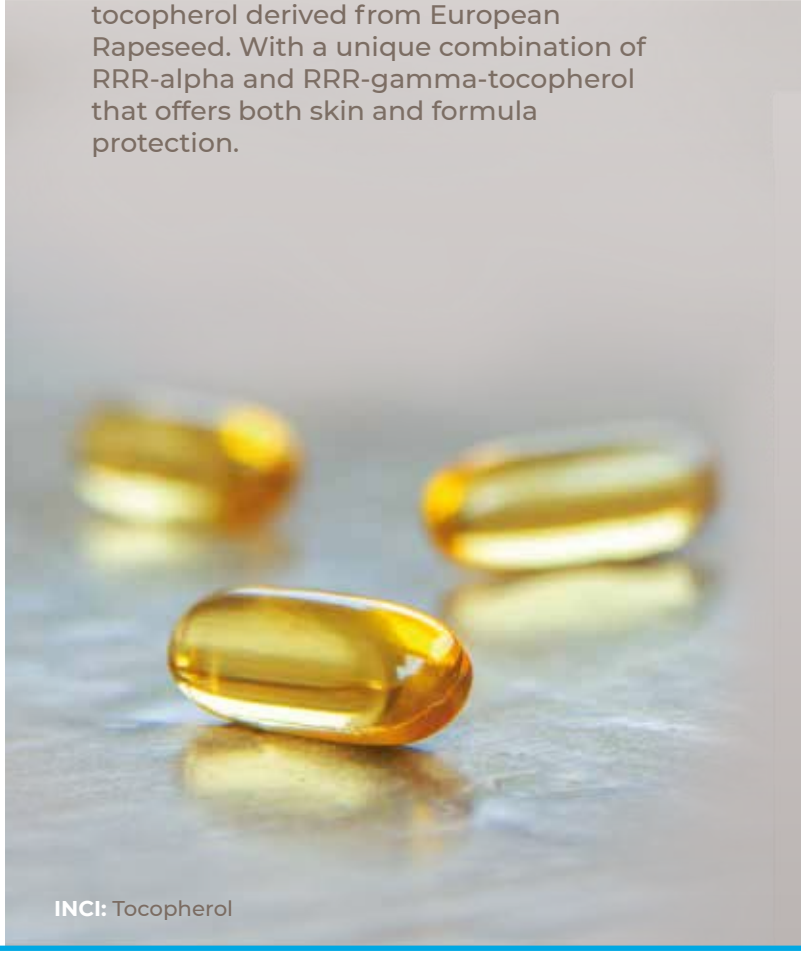
Covi-ox plant-based mixed tocopherols are 3x more effective than synthetic all-rac-alpha-tocopherol and up to 10x more effective than other antioxidants at extending the shelf life of natural oils.

INCI: Tocopherol

Nutripherol®

Beauty from Within: Dual Action Natural Antioxidant Power

Upcycled, soy-free, non-GMO mixed tocopherol derived from European Rapeseed. With a unique combination of RRR-alpha and RRR-gamma-tocopherol that offers both skin and formula protection.



INCI: Tocopherol

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