

# Soline®



Reinforcement of the barrier function and soothing action for dry, mature or reactive skin.

## A concentrate of invaluable molecules

Soline® is an oily active ingredient rich in unsaponifiable molecules. Small amounts of these molecules are naturally present in sunflower seed oil, and they are classed as noble molecules in view of their properties.

Using a physical (solvent-free) process called "molecular distillation", the unsaponifiable fraction of the oil is concentrated to obtain the oil distillate, which is then deodorised.

## An active ingredient with dual activity: moisturising and soothing

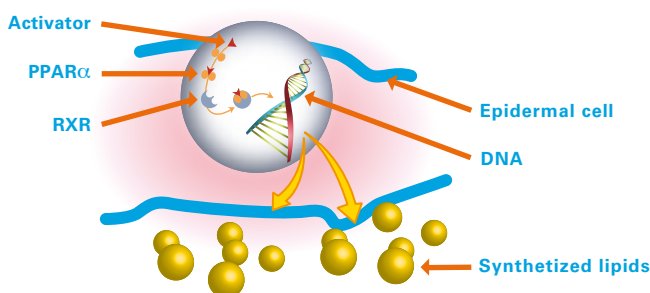


Good moisturisation is essential to preserve the appearance, suppleness, smoothness and tone of the skin. The level of moisturisation may be abnormally low if the skin's ability to retain water (barrier function) is impaired. This is the case with dry or mature skin, as the epidermis thins with age.

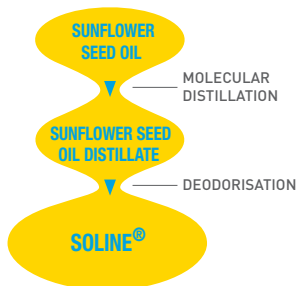
Soline® stimulates the synthesis of key lipids, thus strengthening the intercorneocyte cement and ensuring the most effective skin moisturisation.

Due to its action on the inflammation mediators, Soline® is also a soothing active ingredient.

## An identified action mechanism



These two activities are directly associated with the ability of Soline® to activate the PPAR  $\alpha$  receptor of the keratinocytes (in vitro test).



APPLICATION: moisturising and/or soothing treatment

DOSE: 0.5 to 2%

DESCRIPTION: a pale yellow liquid, which may contain crystals in suspension

INCI name: Helianthus Annuus (Sunflower) Seed Oil Unsaponifiables

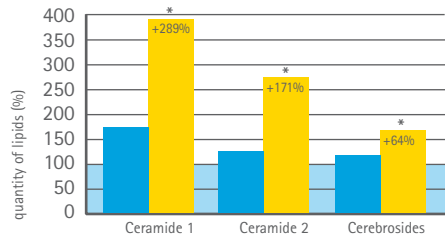
**EXPANSCIENCE®**  
LABORATOIRES



# Soline®

## Moisturises by reinforcing the barrier function

Soline® is capable of stimulating the synthesis of key lipids by the keratinocytes (ex vivo test). These lipids are therefore directly present in situ, and wholly available to perform their role and contribute effectively to reinforcing the barrier function of the epidermis.



\*statistically significant compared to the control area and excipient

A cream containing 2% of active ingredient was applied to skin explants (18h incubation at 37°C). An increase in ceramides 1 and 2 and cerebrosides was observed, with no change in the quantity of total lipids.

● LEVEL OF NON TREATED SKIN  
● EGF 10ng/ml  
● 2% OF SOLINE® EMULSION

## Soothing effect

Soline® reduces the quantity of inflammation mediators (cytokines) in the presence of an aggressive chemical agent (PMA) or UV radiation (in vitro tests). The production of these mediators is also regulated by the key transcription factor NFκB.

In vitro, stimulation of the keratinocytes induces activation of NFκB, which leads to increased fluorescence in the nuclei (translocation). Treatment with 0.0002% Soline® significantly inhibits activation of NFκB (36%).

These results therefore demonstrate the modulating effect of Soline® on the inflammatory cascade from the PPARα receptor, through transcription factor NFκB, to the mediators.

## Clinical test

20 volunteers with dry to scaly skin tested a cream containing 2% of active ingredient.

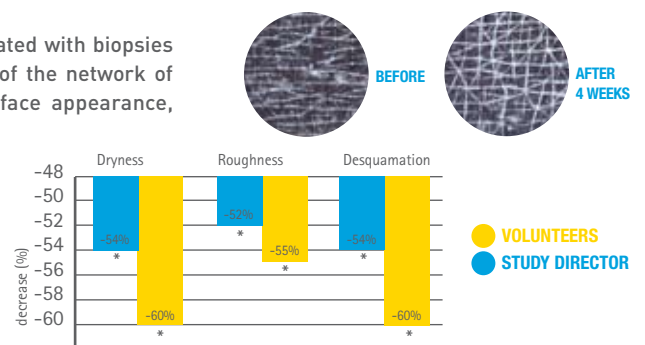
### 1 - After a single application:

- There was an immediate increase in moisturisation (corneometer): +48.6% moisturisation 1 hour after application, and the efficacy is lasting, as the increase is +34.2% after 24 hours.

### 2 - After 4 weeks (applied twice daily):

- The microrelief and surface appearance were evaluated with biopsies conducted before and after the study. Restructuring of the network of micro-depressions, and a 52% improvement in surface appearance, were observed.

- The appearance of the skin was also evaluated by scores given by the volunteers and the study director. The dryness, roughness and desquamation parameters significantly improved after 4 weeks.



\*statistically significant compared to the initial values

As a result of its dual moisturising and soothing activity, Soline offers a complete response to the problems of dry, uncomfortable skin with a tendency to tautness.

[www.expanscience-ingredients.com](http://www.expanscience-ingredients.com)

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