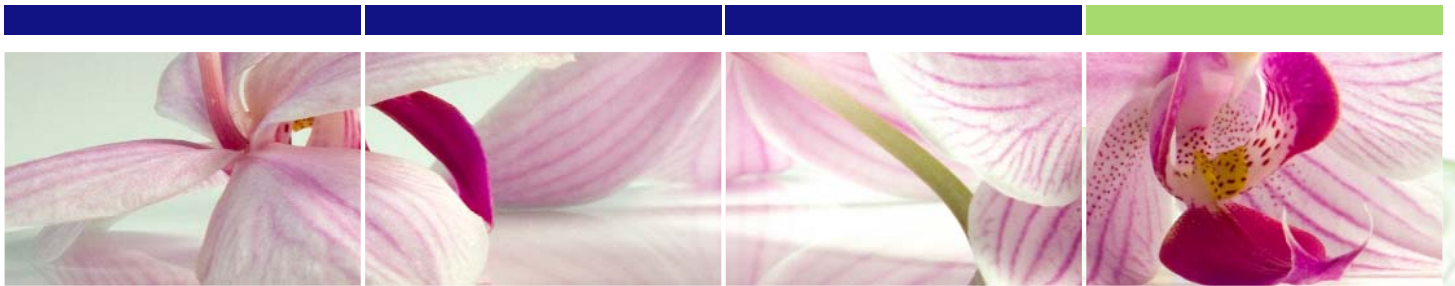




CellActive® - WHITE

Lightening Skin Care



RAHN | Cosmetics

Your partner for excellence

CellActive®- WHITE

CellActive®- WHITE has been specially developed for gentle skin lightening. The balanced combination of Vitamin B3, sulphurous extract of watercress and bio-available zinc provides a naturally lighter complexion. The Essential Cell Boost-Factor promotes the homogeneous pigment distribution in the skin for a generally more uniform lighter appearance.



Confirmed efficacy

Inhibition of melanin production

In vitro study on 3D skin models, result: Up to 50% reduced melanin production

A lighter complexion

In vitro study on Asian skin, result: Skin lightening by 11%

Confirmed skin compatibility

In vitro and *in vivo* studies

Description of the active ingredients:

2-phase principle

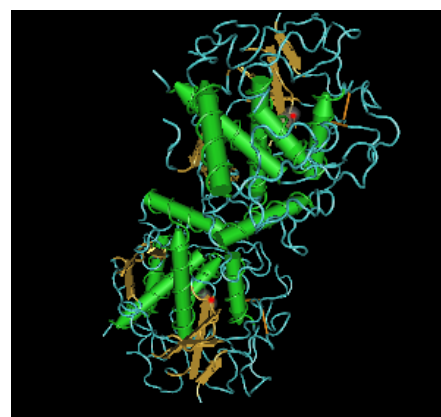
Phase 1: Inhibition of the tyrosinase

Watercress extract

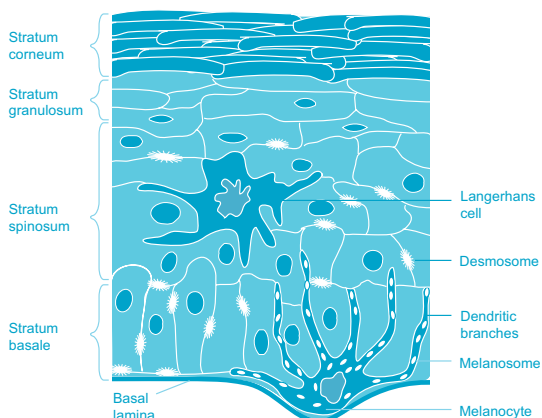
Watercress is naturally rich in hydrosulphide compounds. The extract is able to complex the co-factor, copper. The production of this copper-hydrosulphide chelate deprives the tyrosinase (the key enzyme for the melanin production) of the copper co-factor and thus deactivates the enzyme.

Bio-available zinc

Bio-available zinc attaches itself as a ligand to the tyrosinase and changes the 3-dimensional structure of the enzyme. This conformational change screens the active nucleus of the tyrosinase from its substrate, tyrosin, and thus inhibits melanin production.



Phase 2: Inhibition of the melanin transport



The melanocytes are the skin's pigment producers. They produce the melanin and pack it in melanosomes. The pigments formed are then exported to neighbouring keratinocytes. The contact between melanocyte and keratinocytes is made via dendritic branches. Under normal circumstances, one melanocyte supplies some 36 keratinocytes.

Vitamin B3

Vitamin B3 inhibits the melanosome transfer from the melanocytes to the keratinocytes. The pigmentation of the epidermis is reduced.

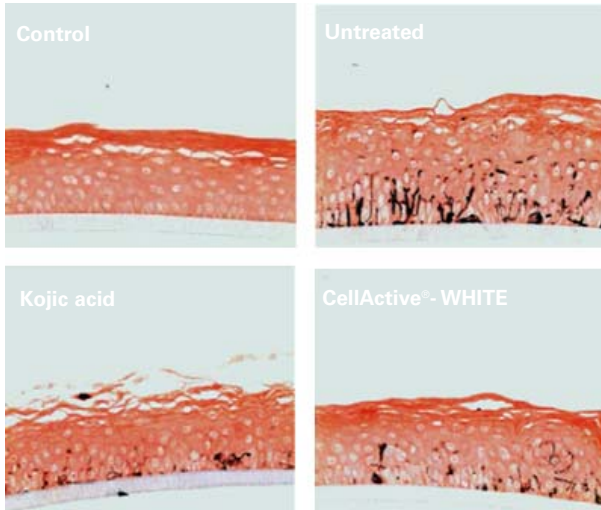
Essential Cell Boost-Factor

The Essential Cell Boost-Factor supports the formation of cell adhesion proteins and promotes the uniform pigment distribution in the skin.

Lightening Skin Care

Studies of efficacy

Inhibition of the melanin synthesis (*in vitro*)



Measurement parameters: Melanin content in the 3D skin model

Method: Treatment with 0.05% CellActive®- WHITE or placebo; control with the tyrosinase inhibitor, kojic acid; treatment duration: 16 days; evaluation of histological sections of reconstituted epidermis (see figure).

Result: Reduction in melanin content of 52%.

Applications

Skin lightening products for face and body. Use in emulsions O/W and W/O and in gels.

INCI

EU: Aqua, Alcohol denat., Niacinamide, Zinc PCA, Chlorella Vulgaris/Lupinus Albus Protein Ferment, Nasturtium Officinale Flower/Leaf Extract

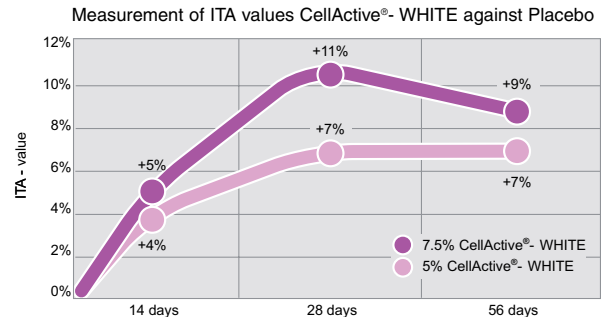
USA: Water, Alcohol denat., Niacinamide, Zinc PCA, Chlorella Vulgaris/Lupinus Albus Protein Ferment, Nasturtium Officinale Flower/Leaf Extract

Japan: Water, Alcohol denat., Niacinamide, Zinc PCA, Chlorella Vulgaris/Lupinus Albus Protein Ferment, Nasturtium Officinale Flower/Leaf Extract

Concentrations

3 - 10%

Skin lightening - Asian skin type (*in vivo*)



Measurement parameters: Lightness index of the skin as ITA values

Method: Treatment with 5% or 7.5% CellActive®- WHITE or placebo; treatment duration 56 days; measurement points after 0, 14, 28 and 56 days; evaluation of the skin lightening by measurement of the ITA value using the Chromameter MINOLTA CR300 (see figure).

Result: Skin lightening by 11% after 28 days

Skin lightening of Caucasian skin type (*in vivo*)



Measurement parameters: Visual appearance of the skin of the lower arm

Method: Treatment with 10% CellActive®- WHITE or placebo; treatment duration: 28 days; comparison of the photographs of the left and right lower arms (see figure).

Result: Visibly lightened skin appearance

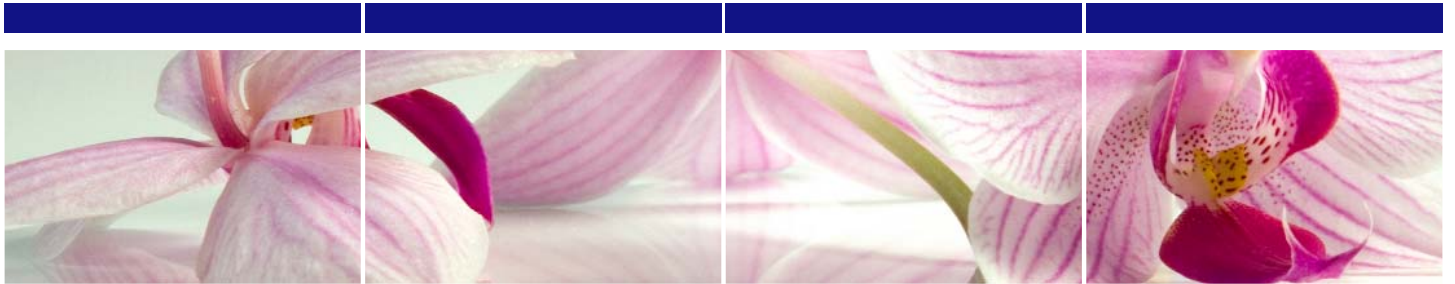
Additional information

Preserving agent: No preservative

Animal experiments: Has not been tested on animals, no ingredients of animal origin

Toxicology: Non-toxic for humans and environment

Security: Is free from GMO, BSE, CMR, pesticides, mineral oil, heavy metals



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