Actiwhite™
by Beauty Creations

The tailor-made whitener and spot preventer to improve skin appearance
Lightening the skin complexion and giving skin back its original glow are the major challenges for the cosmetic world, as they target all generation.

Reduction of the age spots consists of decreasing the melanin present in the skin, preventing its formation and diminishing its transport. Although many depigmentation ingredients act on melanin formation inhibition through tyrosinase, few of them combine rapidly visible in vivo effectiveness, compliance with Asian regulatory requirements and high-cutaneous tolerance.

Recognized depigmentation substances are either unstable in formulation, cytotoxic like hydroquinone, or even sensitizing such as kojic acid.

These disadvantages have given us the foundations for a new strategy of depigmentation ingredient development.

Actiwhite™ with a good cutaneous tolerance, is a water-dispersible white powder which is easy to formulate in all formulation types (4<pH<8).

Actiwhite™ is a synergistic complex of sucrose dilaurate and pea extract that is in line with the regulatory requirements of the Chinese and Japanese Quasi-Drug markets.

Actiwhite™ has been subject to two clinical studies demonstrating its skin-lightening effect and ability to correct age spots.

Properties

- Inhibitor of PMEL-17 gene expression, implicated on the melanosomal maturation.
- Inhibitor of tyrosinase activity.

Applications

- Brightening, anti-dark spots and body care.
- Radiance care: complexion perfector.
- Express spots eraser for face and hands.
- Concentrated lightening care for neck and cleavage.
Synergy of Actiwhite™ components

The combination of the pea extract and sucrose dilaurate has a greater inhibiting effect compared to the same raw material tested individually.

Actiwhite™ has reduced the expression of gene PMEL-17, involved in both maturing melanosome and synthesising melanins.

In vitro study on human epidermal melanocytes.
A melanogenesis specific DNA chip was used and the variations in expression of the PMEL-17 gene were confirmed by qRT-PCR.
Tyrosinase inhibitor

Significant reduction of tyrosinase activity.

The anti-tyrosinase activity of Actiwhite™ is similar to kojic acid.

In vitro study on B16 melanocytes.
Tyrosinase activity measurement by optical density.

Melanogenesis reduction

Significant reduction of the released melanin quantity.

In vitro study on B16 melanocytes.
Measurement of the proportion of released and intracellular melanin by optical density.
After 6 weeks of treatment, the lightening effect of Actiwhite™ is equivalent to the hydroquinone our reference substance which is tested under the same conditions. Actiwhite™ does not cause any cutaneous irritation.

After 12 weeks of treatment, our results with Actiwhite™ are still significant. The tolerance of Actiwhite™ is optimum.

*This clinical study was conducted with sucrose dilaurate and pea extract at a dose equivalent to Actiwhite™ at 1.7%.

In vivo study
Randomized trial on 26 Asian female volunteers, aged between 18 to 45, with dark or very dark skin on the outside forearm.

Twice a day application of an emulsion containing 1.7% Actiwhite™ or 2% hydroquinone. Non treated area is used as control. Measurement of pigmentation index by Mexameter®.
Clinical study: anti-age spot effect

**Colorimetric measurements**

Lightening parameter (\(\Delta ITA\))

After 14 days, age spots are significantly lighter.

**Evaluation by a dermatologist**

After 56 days, the dermatologist evaluated that age spots are:
- less numerous,
- less visible,
- smaller.

**Self-assessment**

Number of dark spots

After 2 months, up to 80% of women noticed an age spot reduction.

Size of dark spots

Color intensity of dark spots

Statistics:
- Percentage calculated on the basis of the answer obtained on 25 (Actiwhite™) or 27 (kojic acid) volunteers
- Statistics: Mean of 25 (Actiwhite™) or 27 (kojic acid) volunteers using ANOVA (mixed GLM) with Dunnett post-hoc test
  - * \(p<0.05\)
  - ** \(p<0.001\)

Statistics:
- Mean of 25 (Actiwhite™) or 27 (kojic acid) volunteers
  - * \(p<0.05\)
  - ** \(p<0.001\)
Clinical study: skin complexion

Colorimetric measurements

Lightening parameter (ΔIT A)°

Pigmented spot - Spotless area

Kojic acid at 2%
Actiwhite™ at 2%

Statistics:
Mean of 25 (Actiwhite™) or 27 (kojic acid) volunteers
ANOVA (mixed GLM) with Dunnett post-hoc test
* 0.05≤p<0.1
** p<0.05
*** p<0.01

D14 − D0 D56 − D0

0.5 1 1.5 2 2.5 3
+2.6% +14.7% +16.1%
+

After 56 days, skin complexion is more homogeneous.

Evaluation by a dermatologist

Complexion homogeneity
Skin clarity/ brightness

Kojic acid at 2%:
Actiwhite™ at 2%

Statistics:
Mean of 25 (Actiwhite™) or 27 (kojic acid) volunteers
Wilcoxon’s T test / D0
* p<0.05
*** p<0.001

D14 D56 D14 D56

0 0.5 1 1.5 2 2.5 3
*
***

After 14 days, the dermatologist evaluated that the skin is more luminous and has uniform color.

Self-assessment

Skin complexion

Kojic acid at 2%
Actiwhite™ at 2%

Statistics:
Percentage calculated on the basis of the answer obtained on 25 (Actiwhite™) or 27 (kojic acid) volunteers

D0 D14 D56 D0 D14 D56

At 2%, the effects of Actiwhite™ and kojic acid are considered to be comparable.
Clinical study

In vivo study

Randomized trial on 25 Asian female volunteers between 18 to 70 years old of having a phototype III and IV, all skin types. The specific requirement was the presence of well-defined pigmented spots on each side of the face associated to a spotless area.

Twice a day application for 8 weeks of an emulsion containing 2% Actiwhite™ or 2% kojic acid. Evaluation by colorimetric measurement (\(\Delta ITA^2\)), dermatologist, self-assessment and macrophotograph of visibility, size and number of the age spot, skin complexion.
Summary datasheet

REFERENCE Actiwhite™ PW LS 9860

DESCRIPTION Synergistic complex of pea extract and sucrose dilaurate.

DOSE OF USE 2%

REGULATORY DATA
INCI (US) Maltodextrin, Sucrose Dilaurate, Sodium Cocooyl Glutamate, Pisum Sativum (Pea) Extract
CAS 9050-36-6, 25915-57-5, 68187-32-6, 90082-41-0
EINECS 232-940-4, 247-345-5, 269-087-2, 290-130-6
China All the raw materials comprising the INCI name Actiwhite™ are listed on the "International Cosmetic Ingredient Standard Chinese Name" (2007 version).

Japanese Cosmetic Denomination
Marutodekisutorin (556716), Jiraurinsansukurohsu (005227), Kokoirugurutaminsan Na (502046), Endouekisu (532281). Each of the Actiwhite™ ingredients complies with Japanese Standard of Quasi-Drug Ingredients (JSQI) or the corresponding monograph for quasi-drug additive use (Maltodextrin is covered in JP by Dextrin, 1422).

Preservative None
Natural label Raw material conform to Ecocert standards of Natural and Organic cosmetics.

PRELIMINARY SPECIFICATIONS
Organoleptic characteristics white powder, low odor
pH 4.5 - 6.5 (product at 2%)
Water content ≤ 5.0%
Total nitrogen 0.35 - 0.60%
Sucrose dilaurate 27.0 - 39.0%
Free sugar 55.0 - 65.0%
Microbiological control Upon request

FORMULATION
Solubility Dispersible in water.
Mode of incorporation Incorporated into the water phase at 80°C, or at room temperature for cold processing.
Recommended pH 4 - 8

PATENT APPLICATION EP1993508 (DE, FR, IT, GB, ES) and its equivalents in KR, JP, US

CUSTOMS CODE 38 24 90 97

STORAGE At ambient temperature (15-25°C), in its original packaging, protected from moisture and light.

SHELF LIFE 24 months

MATERIALS

MANUFACTURER
BASF Beauty Care Solutions France SAS
3 rue de Seichamps - 54425 Pulnoy (France)

Commercial sample of Actiwhite™ and examples of formulation (at 2% in a hydrogel and an emulsion).
 qRT-PCR: “quantitative Reverse Transcriptase - Polymerase Chain Reaction” is a method of quantifying the expression of genes.

**PMEL-17 gene:** gene coding for the Premelanosomal protein Pmel-17 involved in melanosome biogenesis, the seat of melanin synthesis.

**B16 melanocytes:** melanocyte cellular line classically used to test melanin ratios.

**ΔITA (Individual Typological Angle):** the skin color is defined according to its luminosity L and its ITA. It defines the degree of pigmentation of the skin of an individual. The higher the ITA, the lighter the skin.
Although all statements and information in this publication are believed to be accurate and reliable, they are presented gratis and for guidance only, and risks and liability for results obtained by use of the products or application of the suggestions described are assumed by the user. SELLER MAKES NO WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, BY FACT OR LAW, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Statements or suggestions concerning possible use of the products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should not assume that toxicity data and safety measures are indicated or that other measures may not be required. The claims and supporting data provided in this publication have not been evaluated for compliance with any jurisdiction’s regulatory requirements and the results reported may not be generally true under other conditions or in other matrices. Users must evaluate what claims and information are appropriate and comply with a jurisdiction’s regulatory requirements. Recipient of this publication agrees to (i) indemnify and hold harmless each entity of the BASF organization for any and all regulatory action arising from recipient’s use of any claims or information in this publication, including, but not limited to, use in advertising and finished product label claims, and (ii) not present this publication as evidence of finished product claim substantiation to any regulatory authority.