

20339PF.

ACB

Bio-Chelate 5 PF

Pro-Collagen

Antioxidant

Frizz Reduction



VEGAN



SEPHORA
CLEAN



CREDO
CLEAN



GLOBALLY
COMPLIANT



ISO 16128



THE FEATURES.

Biofermentation blends science and nature to support beauty from within. When elements like zinc, copper, magnesium, iron, and silicon are fermented with *Saccharomyces*, they work together to enhance skin and hair health. *Saccharomyces* acts as a fermentation agent, breaking down these materials into more bioactive forms, enhancing their bioavailability and yielding valuable health-promoting compounds. Incorporate ACB Bio-Chelate 5 PF into your next formulation to reap its collagen boosting, antioxidant, and hair care benefits!

INCI: Water & Saccharomyces/Zinc Ferment & Saccharomyces/Copper Ferment & Saccharomyces/Magnesium Ferment & Saccharomyces/Iron Ferment & Saccharomyces/Silicon Ferment

TECHNICAL DATA SHEET.

THE STORY.

Biofermentation represents a fusion of science and nature, where the outer beauty reflects inner health through the power of bioactive ingredients. Among these, zinc, copper, magnesium, iron, and silicon, when fermented with *Saccharomyces*, unveil a remarkable synergy in skin and hair care. This innovative approach harnesses the transformative potential of fermentation, unlocking the bioavailability and potency of these essential minerals. As a result, skin and hair care products infused with bio-fermented metals offer a holistic solution for nourishing and rejuvenating from within.

In skin and hair care, the incorporation of metals represents a modern evolution of age-old beauty traditions. Through the innovative process of biofermentation, copper, zinc, magnesium, iron, and silicon are transformed into potent elixirs for rejuvenating skin and hair benefits. This technique enhances their efficacy, ensuring they deliver their beneficial properties effectively.¹ As a result, skin and hair care rituals today blend ancient wisdom with cutting-edge technology, offering users a luxurious experience that honors both tradition and innovation.

Furthermore, bio-fermented metals in cosmetic formulations offer additional benefits beyond their individual properties. This holistic approach ensures that the skin and hair receive balanced nutrition, leading to improved overall health and vitality. Overall, bio-fermented elements represent a groundbreaking advancement in skin and hair care technology, offering a natural and effective solution for achieving healthy, radiant appearance.



THE SCIENCE.

The collaboration between *Saccharomyces*, silicon, and metals like zinc, copper, magnesium, and iron in skin and hair care formulations is pivotal in unlocking their potent collagen boosting, antioxidant, and hair care benefits. *Saccharomyces* acts as a fermentation agent, breaking down these materials into more bioactive forms, enhancing their bioavailability and yielding valuable health-promoting compounds.

Zinc has been shown to offer a variety of benefits, such as having a significant effect on skin regeneration, collagen metabolism, and hair and nail growth.² This heavy metal can also offer antioxidant properties as it can help fight free radicals responsible for oxidative alteration in cells or tissues.³

Copper is known to play a functional role in wound healing and skin care. Its peptides are referenced as being able to trigger the activation of metalloproteinase enzymes present in the skin, leading to the removal of damaged proteins such as sun damaged collagen and elastin.³ In addition, copper peptides-based skin creams are formulated in order to accelerate rebuilding mechanisms of new collagen and elastin into the skin.

Magnesium is referenced as influencing the migration of keratinocytes and regulating epidermal differentiation and proliferation.⁴ This heavy metal has also been shown to stimulate collagen synthesis in cultured fibroblasts, indicating its potential role in promoting connective tissue formation.

Iron is referred to as being essential for healthy skin, hair, nails, and more.⁵ A deficiency of this heavy metal can lead to various skin ailments, fragile nails, and dry, brittle hair. Iron-containing proteins are said to function in collagen metabolism, even playing a role in cutaneous wound healing.

Silicon is suggested to be important for optimal synthesis of collagen and for activating the hydroxylation enzymes, which plays a prominent role in the formation of the collagen network, helping to improve skin strength and elasticity.⁶

By using a combination of the above elements with *Saccharomyces*, ACB Bio-Chelate 5 PF is able to provide powerful collagen boosting, antioxidant, and hair care benefits.

THE TECHNICAL DETAILS.

INCI. Water & Saccharomyces/Zinc Ferment & Saccharomyces/Copper Ferment & Saccharomyces/Magnesium Ferment & Saccharomyces/Iron Ferment & Saccharomyces/Silicon Ferment

CAS. 7732-18-5 & 8013-01-2 & 8013-01-2 & 8013-01-2 & 8013-01-2 & 8013-01-2

EINECS. 231-791-2 & 232-387-9 & 232-387-9 & 232-387-9 & 232-387-9 & 232-387-9

EUROPE. Compliant at Suggested Use Levels

USA. Compliant

CHINA. Compliant

Origin. Botanical/Bacteria/Yeast/Mineral

Natural Antimicrobial. Leuconostoc/Radish Root Ferment Filtrate*

Preservatives. None

Solvents Used. Water

Appearance. Light green/Amber Hazy Liquid

THE FORMULATION TIPS.

pH Stability. 3 - 9

Temperature Stability. Stable up to 70° Celsius

Use Level. 0.5 - 5%

Ionic State. Nonionic

Alcohol Compatibility. 1-5% is compatible with up to 90% SDA-40

Solubility. Water Soluble

Pro Tips. It is recommended that this product is added to the aqueous phase

* Please note this product contains Leuconostoc/Radish Root Ferment Filtrate (Tradename: M15008-Leucidal® Liquid) - produced by Active Micro Technologies, LLC - containing 18.0-22.0% Phenolics (tested as Salicylic Acid). Please refer Leucidal® Liquid product literature for additional information.

THE BENEFITS OVERVIEW.

Collagen Boosting High Resolution Ultrasound Skin Imaging Study



Stylist Approved Salon Half-Head Study



Antioxidant Oxygen Radical Absorbance Capacity (ORAC) Assay

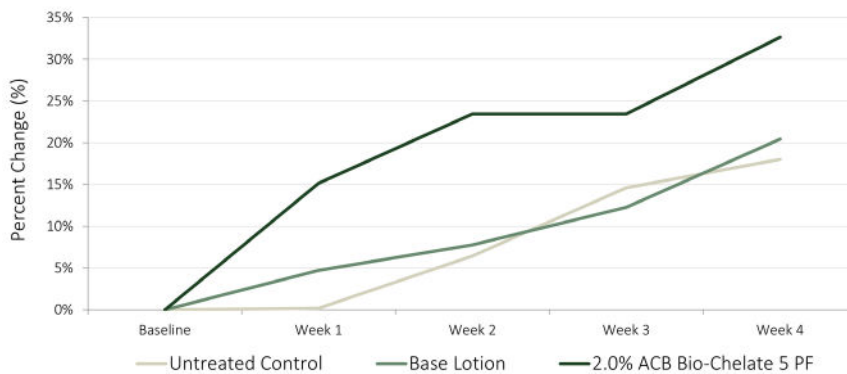


THE EFFICACY.

Collagen Boosting

A high resolution ultrasound skin imaging study was conducted to assess the ability of ACB Bio-Chelate 5 PF to improve Collagen Fiber Density. 10 volunteers between the ages of 23 and 45, who were known to be free of any skin pathologies with Fitzpatrick skin types I to III, participated in this study. Three randomly assigned test sites were identified on the volar forearm of participants and baseline measurements were recorded. Following baseline measurements, participants applied 0.2 g of each test material on their volar forearms twice a day for four weeks. Results indicate ACB Bio-Chelate 5 PF improves normal skin aging by augmenting collagen density resulting in a healthier and more youthful skin appearance.

High Resolution Ultrasound Skin Imaging

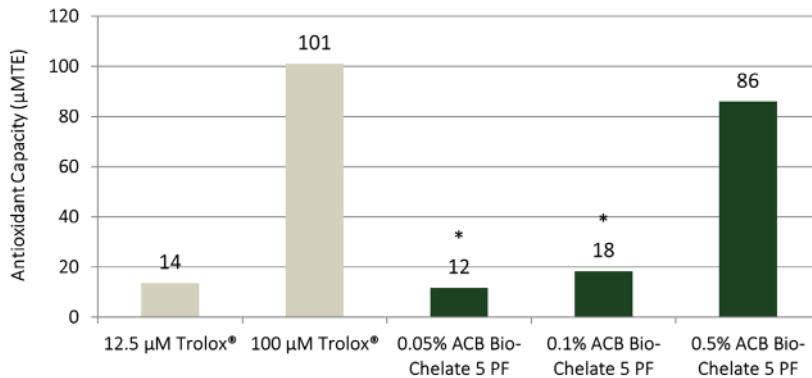


Boosts collagen synthesis by +32%

Antioxidant

An oxygen radical absorbance capacity (ORAC) assay was conducted to assess the antioxidant capacity of ACB Bio-Chelate 5 PF. Solutions of ACB Bio-Chelate 5 PF and Trolox® (positive control) were prepared in 75 mM potassium phosphate buffer. Materials were prepared at three different concentrations/dilutions. Trolox® was used as a reference for antioxidant capacity and prepared at concentrations ranging from 12.5 µM to 100 µM in 75 mM potassium phosphate buffer. Results indicate ACB Bio-Chelate 5 PF is capable of providing antioxidant properties and aids in the anti-aging process through protection at the cellular level.

Oxygen Radical Absorbance Capacity (ORAC)



Increases antioxidant capacity by +16% at 0.5%

ACB Bio-Chelate 5 PF

THE EFFICACY CONTINUED.

Stylist Approved

A salon half-head study was conducted to evaluate the perceived hair benefits of ACB Bio-Chelate 5 PF in a shampoo and conditioner on wet and dry hair. These results indicate ACB Bio-Chelate 5 PF improves the perceived benefits with wet and dry hair when added to shampoo and conditioner at recommended use levels. Collectively, ACB Bio-Chelate 5 PF demonstrates visual and perceived hair characteristics which contribute to a healthier looking hair appearance.



**Improves
frizz
by +57%**



**Enhances
shine
by +40%**

References:

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