20339PF ACB Bio-Chelate 5 PF
Nourishing + Antioxidant + Improves Skin Density

**Product Code:** 20339PF

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

**INCI Status:** Conforms

**Suggested Use Levels:** 0.5 – 5.0%

**Suggested Applications:** Skin and Hair Care, Antioxidant, Conditioning

**Solubility:** Water Soluble
20339PF ACB Bio-Chelate 5 PF

A Growing Trend

• Outer beauty is a reflection of inner health.

• Mineral inclusion in cosmetics is a growing trend to improve the appearance of the skin including damage, inflammation, and wrinkles.

• Vitamins and minerals are perceived as health promoters by consumers – relatable ingredients.

• Stress depletes nutrients and while vitamins and minerals are used for positive nutritional value, minerals cannot be synthesized within the body.
Proper nutrition is the key to promoting and maintaining healthy skin, scalp, and hair.

Priming the skin and hair with adequate minerals is an excellent means to deeply nourish both.

Minerals play a key role in overall health.
- Constituents of hair, bones, teeth, muscle, blood, soft tissues, and nerve cells.

Minerals are divided into 2 categories:
- **Major elements** typically consisting on calcium, phosphorous, silicon, magnesium, sodium, potassium, chloride, and sulfur.
- **Micronutrients** consist of iron, copper, iodine, manganese, zinc, fluorine, cobalt, chromium, molybdenum, and selenium.
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Cosmetic Application

• By chelating vitamins and minerals we obtain the beneficial aspects without residual, damaging effects.

• ACB Bio-Chelate 5 PF consists of five fermented, essential minerals; Zinc, Iron, Silicon, Copper, and Magnesium.

• Through fermentation, these minerals are transformed into bioactive material that is easily recognized by our skin, scalp, and hair.
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Cosmetic Application

• The 5 essential minerals used in ACB Bio-Chelate 5 PF work as co-factors in many enzymatic reactions, such as protein synthesis and cellular reproduction.

• Natural known enzyme functions:
  • Zinc – enzymatic activity, antioxidant, wound healing, protein synthesis, cellular function.
  • Copper – cofactor, utilization of iron, elastin, keratin, enzymatic activities.
  • Magnesium – Fatty acid & vitamin C metabolism, neuromuscular activity.
  • Iron – Helps red blood cells deliver oxygen, support the immune system, required for energy production, protein formation & cell maturation.
  • Silicon – Protein matrix construction, structure of connective tissue, bone development.
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*in-vivo* High Resolution Ultrasound Skin Imaging Assay

**Protocol**

- **Equipment:** DermaLab Combo
- **Principle of measurement:** Ultrasound Probe
- **Subjects:** 10 (m/f)
- **Test area:** Volar forearms
- **Concentration of active used:** 2.0%
- **Frequency of application:** Twice Daily

**Figure 1.** Improvements in skin density following application of the test material.
Solutions of ACB Bio-Chelate 5 PF and Trolox® were prepared in 10% DMSO, 75nM potassium phosphate buffer.

Materials were prepared at three dilutions.

For the ORAC assay – test material and Trolox® combined with fluorescein and incubated.

Fluorescent measurements were taken every 2 minutes for 2 hours.

ORAC values of samples calculated.

Figure 2. Antioxidant capacity of ACB Bio-Chelate 5 PF.
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*in-vivo* Hair Smoothing Assay

**Protocol**

- European blonde hair tresses were damaged by a 2X-bleach/wave process.
- Individual hair fibers were cut into equal halves to produce six hair strands:
  - 3 strands for experimental and 3 strands for control.
- The three damaged fibers were treated with 100% **ACB Bio-Chelate 5 PF** and allowed to dry.
- Scanning Electron Microscopy (SEM) provided the observation of the surface architecture of the hair strands.
- SEM images indicate **ACB Bio-Chelate 5 PF** can smooth the cuticle of physically and chemically damaged hair.

*Figure 3.* SEM images on untreated hair (left image) and hair treated with **ACB Bio-Chelate 5 PF** (right image).
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Salon Half-Head Study

Protocol

• Study conducted to determine comparison of control shampoo vs. 2.0% ACB Bio-Chelate 5 PF in shampoo as well as a comparison between control conditioner vs. 2.0% ACB Bio-Chelate 5 PF in conditioner.

• 5 volunteer participant’s hair was photographed prior to treatment and again after shampoo, conditioner, and styling.

• Half-head images were used in conjunction with a sensory assessment subjectively rating the parameters: cleansing, smoothing, dry and wet combability, anti-frizz, overall feel, shine, and hydration.

• ACB Bio-Chelate 5 PF is capable of enhancing dry combability, anti-frizz, overall feel, shine, and hydration.
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