ACB Pisum Sativum Peptide
16810 ACB Pisum Sativum Peptide
Anti-Aging + Anti-oxidant + Volumizing + Film-Former + Moisturizing

**Product Code:** 16810

**INCI Name:** *Pisum Sativum (Pea) Peptide*

**INCI Status:** Conforms

**Suggested Use Levels:** 1.0 – 5.0%

**Suggested Applications:** Antioxidant, Volumizing, Skin & Hair Care

**Solubility:** Water Soluble
16810 ACB Pisum Sativum Peptide

Background & Overview

• Hydrolyzed pea protein that utilizes a novel technology to provide all of the exceptional benefits of hydrolyzed proteins

• Provides antioxidant, anti-aging, hydrating benefits to the skin and hair. Not only that, but it also provides volumizing benefits when used in hair care formulations!

• Pea protein continues to gain attention from Nutrition and Health advocates for being a plant-based, hypo-allergenic protein with high nutritional value

• This popular protein has now crossed over into cosmetics as a quality alternative to animal-derived proteins
Benefits of Proteins

• Complex, organic macromolecules essential for sustaining life
  • High molecular weights
  • Vital components in hair and skin

• Common cosmetic uses: Film-formers, Moisturizers, Emulsifiers, Strengthening Agents

• Use of Animal Proteins in cosmetics has shifted to Vegetable Proteins
  • Due to health and safety concerns
Benefits of Pea Protein

- Pisum Sativum Protein peaked the interest of Nutrition and Health Advocates
  - Plant-based
  - Hypo-allergenic
  - Average Biological Value (BV) of 65.4%
    - Indicator of the biological activity of the protein

- Complete source of Amino Acids
  - Most balanced amino acid profile of any vegetable protein – rich in lysine

- Lysine functions as a vital building block in human biology
  - Lysine is an essential amino acid, meaning our bodies do not synthesize it naturally
  - Promotes the health of the hair, scalp and skin
  - Contributes to protein formation
  - Assists in producing carnitine – known to metabolize fatty acids
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Protein Hydrolysis

• Hydrolyzing proteins breaks down the large molecules into smaller molecules

• Smaller molecules are more effective in cosmetics

• Hydrolysis can be conducted using
  • Acid with water
  • Alkaline with water
  • Enzymes with water

• Hydrolyzed Proteins = Lower Molecular Weight
  • 2,000 – 4,000 Da
16810 ACB Pisum Sativum Peptide Protein Hydrolysates

- Can be further modified for use in different applications
  - Lower Molecular Weight
  - Enhance feel
  - Increase Shine
  - Hydration
  - Conditioning
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Product Development

- Controlled Reaction

- Unique process in which microorganisms are employed to hydrolyze the Pisum sativum protein into smaller subunits
  
  - *Lactobacillus* and Pisum sativum protein are inoculated
  
  - *Lactobacillus* secretes lactic acid, inducing hydrolysis of the Pisum sativum protein

- Novel protein benefits
  - HAIR VOLUMIZING
  - ANTIOXIDANT PROPERTIES
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Available Efficacy Data

• **In-vivo Efficacy Studies**
  • Assessment of Hair Characteristics
  • Salon Half-Head Hair Study
  • Hydration Assay
  • Volumizing Assay
  • Hair Pollution Protection Analysis

• **In-vitro Efficacy Studies**
  • Oxygen Radical Absorbance Capacity Assay
  • Sirius Red Fast Green Report
  • Cellular Viability
  • TGF-β ELISA
**16810 ACB Pisum Sativum Peptide**

**Oxygen Radical Absorbance Capacity (ORAC) Assay**

**Protocol**

- Trolox® was used as the positive control
- Test Quantity: 0.5%
- Fluorescent measurements were taken every two minutes for two hours
- **ACB Pisum Sativum Peptide** showed antioxidant activity at levels as low as 0.5% concentration

![Figure 1. Antioxidant capacity of test materials.](image-url)
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Volumizing Assay - Microscopy

Figure 2. Individual strand immediately following treatment with 2.0% Wheat Hydrolysate, note beading

Figure 3. Individual strand immediately following treatment with 2.0% ACB Pisum Sativum Peptide

Figure 4. Individual strand four hours after treatment with 2.0% Wheat Hydrolysate, note beading

Figure 5. Individual strand four hours after treatment with 2.0% ACB Pisum Sativum Peptide

Protocol

- Equipment: Zeiss Axioplan Microscope/Ienapol Polarized Light Microscope/iSolution Software
- Materials: 60 strands of hair
- Test Quantity: 2.0% in Water
- Frequency of Application: Single Application
- Frequency of Measurement: Baseline, immediately following application, and again four hours after application
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Volumizing Assay – Increase in Volume

Figure 6. Increase in hair diameter after application.

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Salon Half Head Study Protocol

• 5 participants

• Concentration of active used: 2.0%

• Principle of measurement: Salon professional and volunteer assessed hair characteristics

• ACB Pisum Sativum Peptide enhances shine, dry and wet combability, manageability and the smoothness of the hair
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Salon Half Head Study

Figure 7. Full Head Baseline Photo of Untreated Hair.

Figure 8. Half-Head Photo of hair treated.
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Salon Half Head Study

Figure 9. Full Head Baseline Photo of Untreated Hair.

Figure 10. Half-Head Photo of hair treated.
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Assessment of Hair Characteristics

Rating from 1 (worst) to 10 (best)

- Baseline Assessment of Untreated Hair
- Assessment of Half Head shampooed with Untreated Control
- Assessment of Half Head shampooed with Pisum Sativum Peptide
- Assessment of Half Head Conditioned with Untreated Control
- Assessment of Half Head Conditioned with Pisum Sativum Peptide
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