ACB Pisum Sativum Peptide
16810 ACB Pisum Sativum Peptide
Anti-Aging + Antioxidant + 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
16810 ACB Pisum Sativum Peptide

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
16810 ACB Pisum Sativum Peptide

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
16810 ACB Pisum Sativum Peptide
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
16810 ACB Pisum Sativum Peptide

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**
16810 ACB Pisum Sativum Peptide

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.*
16810 ACB Pisum Sativum Peptide
Volumizing Assay - Microscopy

**Protocol**

- **Equipment:** Zeiss Axioplan Microscope/lenapol 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
16810 ACB Pisum Sativum Peptide
Volumizing Assay – Increase in Volume

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

Figure 6. Increase in hair diameter after application.
16810 ACB Pisum Sativum Peptide
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
16810 ACB Pisum Sativum Peptide
Salon Half Head Study

Figure 7. Full Head Baseline Photo of Untreated Hair. Half-Head Photo of hair treated.

Figure 8. Full Head Baseline Photo of Untreated Hair. Half-Head Photo of hair treated.
16810 ACB Pisum Sativum Peptide
Salon Half Head Study

Figure 9. Full Head Baseline Photo of Untreated Hair. Half-Head Photo of hair treated.

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

- Cleansing
- Smoothing
- Wet Combability
- Dry Combability
- Anti-Frizz
- Overall Feel
- Shine
- Hydration

Rating from 1 (worst) to 10 (best)

Assessment of the Control Shampoo
Assessment of the Experimental (2.0% ACB Pisum Sativum Peptide in Control Shampoo)
Assessment of the Control Conditioner
Assessment of the Experimental (2.0% ACB Pisum Sativum Peptide in Control Conditioner)

Figure 11. Rating of hair characteristics following sensory assessment.
16810 ACB Pisum Sativum Peptide
Anti-Aging + Antioxidant + 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