Anti-Dandruff

Description

usNeo is a botanical active derived from the lichen Usnea barbata for the use in anti-dandruff shampoos and related hair care products.

- Significant reduction of dandruff by 69.5% after 28 days of application
- In-vivo proven efficacy
- China-INCI compliant

Introduction

Dandruff is the shedding of dead skin cells from the scalp. It is characterized by white flakes that accumulate mostly on the scalp, in the hair, and on the clothing.

Recent studies indicate that microorganisms play an important role in the etiology of dandruff. Due to the partial hydrolysis of sebaceous triglycerides on the scalp (caused by the lipase secretion of microorganisms), unsaturated fatty acids are formed which can penetrate into the skin and trigger skin cell shedding.

The active ingredient in usNeo, usnic acid, is effectively treating the microbial cause of dandruff.

Figure 1. UsNeo: mode of action

Dandruff causing Factors
- Microfloral metabolism
- Sebaceous gland secretions
- Individual susceptibility

High antimicrobial activity

- Microorganisms
- Lipase secretion
- Unsaturated fatty acids
- Skin barrier damage
- Shedding/ flaking

Usnic Acid
- Inhibition of microbial RNA and DNA synthesis
Clinical Effect

- **Test Design**
  30 volunteers, products coded (blind study)
  Group I used shampoo containing 2% usNeo
  Group II used shampoo without active (placebo)

- **Treatment**
  28 days, 3 times per week

- **Equipment**
  High resolution macrophotography (Visioface)

- **Method**
  Macrophotography of the top of the head before and after treatment, followed by visual scalp assessment to calculate the total dandruff severity score (TDSS)
  \[ \text{Total dandruff severity score (TDSS)} = \text{Total percent involvement} \times \text{Total severity score} \]

Result

Group I (shampoo with 2% usNeo):

- 71.4% of the volunteers showed a positive effect (reduction of dandruff)
- 69.5% average reduction of dandruff
- The best result observed was a dandruff reduction of 100%

Group II (placebo): no significant change

*Figure 2.* Top of the head before the test shampoo application (left) and 28 days after
**Consumer Evaluation**

A subjective evaluation was performed with a questionnaire regarding acceptability, tolerance and efficacy.

- Study participants were very satisfied with the test shampoo containing 2% usNeo.
- 85.7% of the test persons said they would like to continue using the product and would also recommend it to others.
- After 28 days of application participants noticed a decrease in dandruff (71.4%), a soothing effect (78.6%) and an overall cleaner appearance (78.6%).

**Frame Formulation**

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>INCI</th>
<th>% W/W</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deionised Water</td>
<td>Water</td>
<td>47.40</td>
</tr>
<tr>
<td>Hydrolyzed Wheat Protein</td>
<td>Hydrolyzed Wheat Protein</td>
<td>0.50</td>
</tr>
<tr>
<td>Zetesol NL-2U</td>
<td>Sodium Laureth Sulfate</td>
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<tr>
<td>Amphotensid B5</td>
<td>Cocoamidopropyl Betaine</td>
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<tr>
<td>Olive Oil W</td>
<td>PEG-10 Olive Glycerides</td>
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<td>Purton SFD</td>
<td>Soyamide DEA</td>
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<td>Zetesol 2056</td>
<td>MIPA-Laureth Sulfate</td>
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<td>Genapol LA 030</td>
<td>Laureth-3</td>
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<tr>
<td>usNeo™</td>
<td>Propanediol, Usnea Barbata (Lichen) Extract, Tromethamine, Tetrasodium Glutamate Diacete, Water, Sodium Hydroxide</td>
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<tr>
<td>Perfume</td>
<td>Fragrance</td>
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<td>Preservative</td>
<td>Phenoxyethanol</td>
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<td>Pearlagent GM 4175</td>
<td>Sodium Laureth Sulfate, Cocamide DEA, Cocamide MEA, Glycol Stearate, Propylene Glycol</td>
<td>3.00</td>
</tr>
</tbody>
</table>

**Procedure**

1) Mix all together in given order whilst stirring
INCI

EU: Propanediol, Usnea Barbata Extract, Tromethamine, Tetrasodium Glutamate Diacetate, Aqua, Sodium Hydroxide
US: Propanediol, Usnea Barbata (Lichen) Extract, Tromethamine, Tetrasodium Glutamate Diacetate, Water, Sodium Hydroxide

(Please refer to proprietary composition declaration for up-to-date INCI listing.)

Safety & Regulatory

Toxicology:

- Not phototoxic (according to OECD guideline N° 432)
- Not mutagenic using AMES test (according to OECD guideline N° 471)
- Not a skin irritant (using epicutaneous test for assessment of skin irritating potential)
- No allergens (as per current EU Cosmetic Regulation)

REACH: Compliant with the REACH regulation (EC) No 1907/2006 and its amendment

Compliance

China INCI compliant

References


