Puricare™
by Beauty Creations
The new «2 in 1» anti-stress, anti-pollution active for hair

Puricare™: micro-proteins from Moringa seeds
- Protects hair against pollution and UV
- Improves hair sensorial and mechanical properties

Hair and environmental stress

Today more than ever, environmental pollution is an actual topic. No day passes without the media reporting on damages caused by pollution and its effect on our health, on nature, on our life and our environment on general. Even if we all aware of the fact that pollution has negative effects on the way our hair looks and feels, there is very little scientific evidence to support this. Even fewer solutions are offered in hair care to counteract the effect of pollution. The air surrounding us is polluted mainly by exhaust gas and particles from cars, industrial emissions and emission from «simple» household chores such as cooking and cleaning.

Environmental pollution also plays an important role in the degradation of certain atmospheric layers. As a result of this damaging UV irradiation increasingly passes through the atmosphere to reach the earth. Hair, as well as skin, is subject to these environmental aggressions.

Especially in the city, hair looses its volume and hair color, natural or artificial, fades. Hair looks dry, misses strength and elasticity. Hair becomes more porous and less pleasant to the touch.

Contrary to the skin, that has different mechanisms to fight against stress and to regenerate normal metabolism, hair is quite vulnerable, lacking such systems for self-protection.

Therefore, to protect hair against pollution effects and at the same time improve its aesthetic and mechanical properties, Puricare™ has been developed.
Definition / Composition

Puricare™ is a peptide obtained by extraction of Moringa oleifera seeds (= Moringa pterygosperma), in a hydro-glycerinated medium.

Moringa oleifera is an exotic tree that reaches 5 meters high, also called nebeday in Africa (from «never die», the tree that never dies), horse-radish tree or drumstick tree, because of its long pods. Moringa oleifera, native to India, grows in tropical and sub-tropical areas, especially in Africa and Asia. It produces white flowers, that give fruits looking like long pods (20 to 50 cm long) containing 7 to 20 spherical seeds, with small wings. Moringa is widely used in these areas for its nutritive (pods) and medicinal (leaves and flowers) properties. Its seeds yield an oil, also called «Behen oil», which was used by ancient civilizations to prepare cosmetic, medicinal or religious ointments. The crushed seeds are also known for their very high capacity to purify drinking water and are used to obtain important quantities of drinking water from rivers.

Main components: Micro-protein, with molecular weight between 6,000 and 13,000 daltons.

Reference
LS 9727

INCI name
Puricare™ LS9727 Water (and) Glycerin (and) Moringa Pterygosperma Seed Extract.

Hair benefits
Puricare™ is a true «2 in 1» active.
1. Protecting hair against environmental pollution stress:
   • by fighting against exhaust gas and UV,
   • by preventing deposition of all micro-particles, coming from environment.
2. Providing a conditioning and strengthening effect on normal and damaged hair.

Originality
Puricare™ is a native peptide, from botanical exotic origin. It is obtained by mild extraction of Moringa seeds, without using any chemical solvent. Puricare™ does not influence the organoleptical characteristics of the cosmetic product (color, odor...).

Cosmetics use
• Anti-pollution shampoos.
• Shampoos for dry hair.
• Hair care for hair damaged by UV, pollution, perms, colors.
• Conditioners.
• Leave-on gels.
• Tonics.

Puricare™ can be formulated in «crystal clear» shampoos.

Dosage / Solubility / Mode of incorporation
1. Dose of use: 2 to 4%.
2. Solubility: soluble in water, insoluble in oils and fats.
3. Mode of incorporation: Puricare™ is introduced into the cosmetic product during the finishing process, at room temperature.

Optimal pH: between 3 and 8.

Analytical characteristics
1. Aspect: yellow liquid with a weak characteristic odor.
2. Specifications: upon request.

Tolerance
Good.

Efficacy
Test summaries hereafter.

Storage
In its original packaging, at 15 - 25°C.
Results
Exposure of hair tresses to cycles of exhaust gas / UVB caused a strong increase of the combing parameters. Application of a lotion containing 2% Puricare™ strongly decreased this phenomenon (approx. 30%).

Conclusion
Puricare™ significantly improved the combing parameters of hair damaged by pollution stress (exhaust gas / UVB) compared to placebo. Puricare™ has a good anti-city pollution effect on hair.
Dust particle test

Aim
To evaluate the capacity of Puricare™ to reduce the adhesion of dust particles on the hair surface.

Protocol

Fig. 4 - Schema of the protocol.

Results

Fig. 5 - Evaluation of the hair surface occupied by particles.

Conclusions

Hair previously treated with a shampoo containing 2% Puricare™ attracts less particles than hair treated by placebo or untreated hair. Puricare™ protects hair against pollution by particle deposition and adhesion.
Strengthening effect on hair fiber - traction test

Aim
To evaluate the strengthening effect of a shampoo containing 2% or 4% Puricare™ compared to a placebo shampoo. Mechanical properties of the hair are evaluated by a traction test.

Protocol
Hair is submitted to a force and its percentage of elongation is measured. Hair strength is evaluated by 3 parameters:
- the force applied to obtain 15% elongation of the hair fiber,
- the maximal force that can be applied on the hair,
- the work corresponding to the maximal force.

The higher the 3 parameters, the stronger the hair.

Conclusion
Puricare™ has significantly improved the mechanical properties of hair (strength, resistance) compared to placebo. The effect is dose-dependent. Puricare™ has a good strengthening effect on damaged hair.
Aim
To demonstrate the conditioning and repairing effect of a shampoo containing 2% Puricare™ on damaged hair in comparison to a placebo shampoo. The surface of the lifted scales is measured by scanning electron microscopy.

Protocol

Fig. 10 - Schema of the protocol.

Results

Fig. 11 - Evaluation of lifted scale surface.

Fig. 12 - Scanning electron micrographs of Puricare™ repairing activity on damaged hair.

Conclusion
The treatment with Puricare™ has significantly improved the hair surface properties. Puricare™ shows a good conditioning and repairing effect on hair.
Aim
To evaluate the photoprotective activity of a lotion containing 2% Puricare™ against UV damage on hair. Hair damage is evaluated by fluorescence measurements, using dansyl chloride as a marker. Dansyl chloride gives a yellow fluorescence under UV light after reaction with amino-acid groups present in proteins, such as keratin, and peptides. A degradation of keratin leads to a decrease of this fluorescence.

Protocol

![Schema of the protocol.](image)

**Results**

![Evaluation of the protective efficiency against hair damage due to UVB after dansyl chloride reaction.](image)

Mean of 10 assays ± SEM
1 factor ANOVA
A posteriori test: PLSD of Fisher
(*) significant / control (p < 0.01)
(**) significant / control and placebo (p < 0.01)
(NS) not significant

**Conclusion**
The lotion containing 2% Puricare™ has a significant photoprotective activity on hair against UVB in comparison to the placebo lotion.
Although all statements and information in this publication are believed to be accurate and reliable, they are presented gratis and for guidance only, and risks and liability for results obtained by use of the products or application of the suggestions described are assumed by the user. THERE ARE NO WARRANTIES OF ANY KIND. ALL EXPRESS AND IMPLIED WARRANTIES ARE DISCLAIMED. Statements or suggestions concerning possible use of the products are made without representation or warranty that any such use is free of patent infringement and are not recommendations to infringe any patent. The user should not assume that toxicity data and safety measures are indicated or that other measures may not be required. The claims and supporting data provided in this publication have not been evaluated for compliance with any jurisdiction’s regulatory requirements and the results recorded may not be generally true under other conditions or in other matrices. Users must evaluate what claims and information are appropriate and comply with a jurisdiction’s regulatory requirements. Recipient of this publication agrees to (i) indemnify and hold harmless each entity of the BASF organization for any and all regulatory action arising from recipient's use of any claims or information in this publication, including, but not limited to, use in advertising and finished product label claims, and (ii) not present this publication as evidence of finished product claim substantiation to any regulatory authority.