



THE NATURAL HAIR STYLING SECRET

ADVANCED CONCEPTS WITH NATURAL INGREDIENTS



Reformulation or creation of styling products, from Mousses, through to gels and sprays with Agrana's natural range of styling and functional starches, is a big step forward for the natural cosmetics industry ”

FEBRUARY 2023

**NATURAL HAIR
STYLING SECRET.**



AGRANA's all natural or naturally derived alternatives shows that you do not have to compromise with performance when switching from synthetic to natural. The perfect combination of ingenious starches offering different functionalities results in improved foam volume, superior curl retention and stiffness. Moreover longevity cleansing benefits through an enhanced absorption of oils and sebum may be achieved.

Let AGRANA share the secret to natural hair styling with the following innovative styling solutions.

AGRANA'S STARCHES AS A KEY TO THE STYLING SECRET.

STYLING	PRODUCT	INCI	FORM	THE BIG GREEN PLUS	NATURALITY
	AGENABON 20.219	Hydrolyzed Corn Starch	Cold water soluble	• Natural hold and curl retention, no perceived after hair feel	COSMOS
	AGENANOVA 30.326	Maltodextrin	Cold water soluble	• Strong styling effect, perceivable film on the hair shaft	COSMOS
THICKENER	MAIZE-STYLE ORGANIC	Hydrolyzed Corn Starch	Cold water soluble	• Strong natural styling durability for various hold levels	COSMOS ORGANIC
	AGENAJEL 20.306	Distarch Phosphate	Cold water swellable	• Foam structure and stability providing a dense, tight, creamy, fine texture	COSMOS
	POTATO-JEL NATURAL	Distarch Phosphate	Cold water swellable	• Allows the formulation of natural, synthetic-free and viscosity-stable hair gels	COSMOS
ABSORBENT	RICE PO ₄ NATURAL	Distarch Phosphate	Particulate starch	• Enhanced absorption of oils and sebum ("dry shampoo effect"), longevity cleansed effect between application	COSMOS

APPLICATIONS & COMPATIBILITY OF COSMOS-APPROVED STARCHES.

	ACENABON 20.219	ACENANOVA 30.326	MAIZE-STYLE ORGANIC	ACENAJEL 20.306	POTATO-JEL NATURAL	RICE PO4 NATURAL
STYLING MOUSSE AEROSOL BASED	+++	+++	+	+++	+	++
PUMP FOAM MOUSSE AQUEOUS	+++	+++	+++	+	+	+
PUMP FOAM MOUSSE STRONG HOLD	++	+++	+++	+	+	+
PUMP FOAM MOUSSE WITH ETHANOL	+++	+++	+	+	+	+
STYLING GEL	+++	+++	++	+	+++	+
STYLING CREAM	+++	+	++	+	+++	++
STYLING WAX	+++	+	++	++	++	+++
BEARD GEL	+++	+	+	+	+++	++

By combining the different AGRANA products you can achieve a styling product with light to strong hold, with varying levels of stiffness.

- +++ High performance
- ++ Moderate performance
- + Not recommended

STYLING STARCHES FOR CURL RETENTION.

PRODUCT	VISCOSITY at 15 % i.s.	APPEARANCE	ETHANOL COMPATIBILITY
AGENABON 20.219	5 mPa·s	Clear	High
AGENANOVA 30.326	10 mPa·s	Almost clear	Medium
MAIZE-STYLE ORGANIC	250 mPa·s	Slightly hazy	Low



A look into

CHARACTERISTICS OF STYLING STARCHES

- GMO-free
- 100% of natural origin according to ISO 16128
- Fine, white to off-white powders with neutral to specific odour, free flowing and slightly hygroscopic, and dissolves readily in water



AGENABON 20.219



AGENANOVA 30.326



MAIZE-STYLE ORG.

AGENABON 20.219 (INCI: Hydrolyzed Corn Starch)

Leads to a light to medium hold with a pleasant hair feel without increasing viscosity. It shows the best alcohol compatibility, is easily dissolved and allows clear formulations. Suggested use level is 5 to 20% (in liquid).

AGENANOVA 30.326 (INCI: Maltodextrin)

This film former allows the production of clear styling products with medium to high hold. It has very low impact on the viscosity and shows good alcohol compatibility. Suggested use level is 5 to 15% (in liquid).

MAIZE-STYLE ORGANIC (INCI: Hydrolyzed Corn Starch)

This natural styling polymer provides perfect results in water-based styling products, such as hair mousses, gels and creams when high hold is desired. It has excellent film-forming properties and provides long-lasting hold. Suggested use level is 2 to 8% (in liquid).



The amazing

PROPERTIES OF STYLING STARCHES

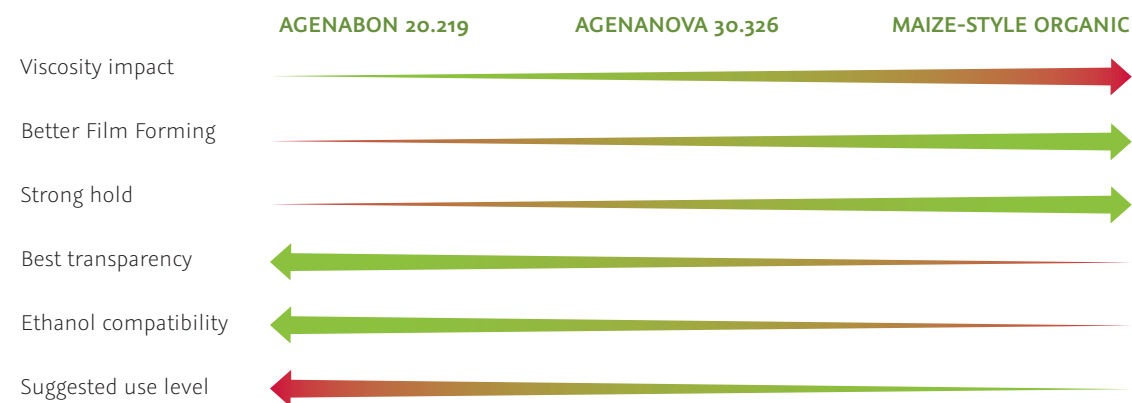
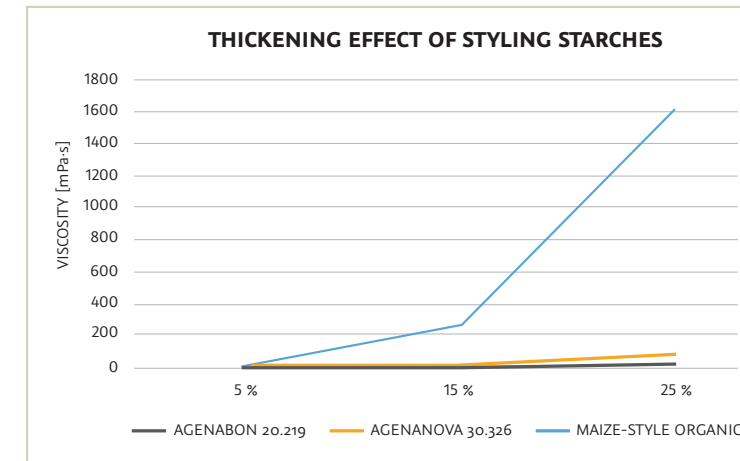


Fig. 1. Influence of various starches on formulation parameters

A look into

VISCOSITY PROFILES OF STYLING STARCHES.



Procedure of Measurement:

Add Styling Polymer into hot water whilst stirring. Stir for 10 min at 1000 rpm with turbine stirrer. Cool down to room temperature and measure viscosity with Brookfield at 100 rpm.



A look into

TRANSPARENCY & FILM FORMING OF STYLING STARCHES.

The use of MAIZE STYLE ORGANIC can be used alone to obtain excellent styling properties. However by combining the different styling starches, you can achieve varying styling attributes ranging from natural to strong hold.

The transparency achievable with COSMOS approved styling starches is comparable to synthetic film formers.



Fig. 2. Film with 100% MAIZE-STYLE ORGANIC



Fig. 3. Film with 50% MAIZE-STYLE ORGANIC & 50% AGENABON 20.219



Fig. 4. Film with 50% MAIZE-STYLE ORGANIC & 50% AGENANOVA 30.326

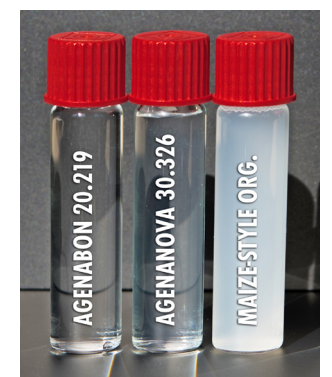


Fig. 5. 5% solution of styling starches

Overview

THICKENING STARCHES FOR HAIR STYLING PRODUCTS.

Starches which thicken are suitable for many cosmetic applications. They are stable over a wide pH range and have excellent salt tolerance. Many synergies can be seen with other natural thickeners such as xanthan gum, locust bean gum and cellulose which allow many textures and viscosities to be achieved in the final formulations.

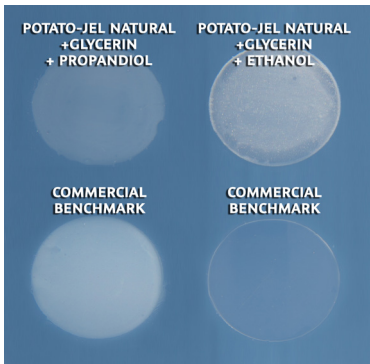
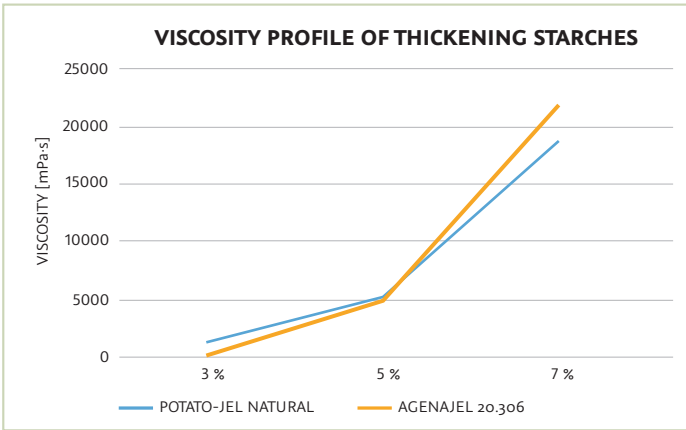


Fig. 6. Dried thickener starch films to show transparency



Gel production procedure: Make a premix of Starch Thickener and 15 % AGENABON 20.219. Add Premix into hot water and stir 10 min at 1500 rpm with turbine stirrer. Cool down to room temperature and measure viscosity with Brookfield at 20 rpm.

A look into

CHARACTERISTICS OF THICKENING STARCHES.

POTATO-JEL NATURAL: allows the creation of natural, synthetic free hair styling gels without compromising performance. The performance of the formulation can be adjust further by the addition of propanediol to make the film more elastic or by using alcohol the result film is almost invisible.

AGENAJEL 20.306: a starch tickener which can be used to stabilise a wide range of cosmetic formulations such as shampoos and shower gels. Many synergies can be seen with other natural thickeners such as xanthan gum, locust bean gum and cellulose to achieve higher viscosities, with lower use levels.

ABSORBENT STARCH.

RICE PO₄ NATURAL is the perfect choice for natural mousses. In combination with AGENAJEL 20.306 the foam structure and stability are improved. Its oil absorption properties also mean excess oil on the hair is controlled.



Applications

AEROSOL BASED STYLING MOUSSE.

The unique combination of different starch types, from styling to thickeners, show there is now no need to use synthetic polymers to achieve high performing hair styling mousses. The styling characteristics are met or exceeded with improved high humidity curl and curl memory combined with excellent hair feel.



	Formulation	
	with AGENANOVA 30.326	with AGENABON 20.219
Aqua	Up to 100 %	
Xanthan Gum	0,15%	
Glycerin	0,5 - 2,0%	
Coco-Glucoside or Caprylyl/Capryl Glucoside	0,5 - 1,5%	
Distarch Phosphate (AGENAJEL 20.306)	2,8 %	2,4 %
Maltodextrin (AGENANOVA 30.326)	2,8 %	-
Hydrolyzed Corn Starch (AGENABON 20.219)	-	2,8 %
Distarch Phosphate (RICE PO ₄ NATURAL)	1,9%	1,9%
pH Adjustment (Sodium Hydroxide, Citric Acid)	q.s.	
As desired	q.s.	
Parfume	q.s.	
Propellant (Isobutane, Propane, Butane)	6,0 %	

Description

FOAM COMPARISON. CURL RETENTION. HAIR.



Fig. 8. Foam stability

CURL RETENTION

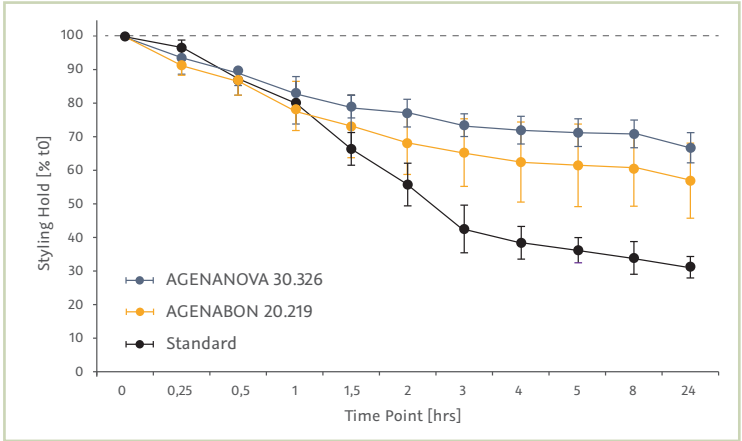


Fig. 7. Comparison change in length of curled hair swatches, 24 hrs. 80 % moisture.



For more information ask for AGRANA's Formulation & Test Report HAIR STYLING FOAMS

$$CR[\%] = \frac{L-L_t}{L-L_0} \cdot 100$$

Application

NATURAL STYLING
PUMP FOAM
SOLUTIONS.


Hair styling from a hair mousse format, results in improved smoothness, more texture whilst giving volume, protection and even conditioning benefits. Mousses from an pump air foamer, shows an alternative option to an aerosol format whilst retaining a perfect mousse texture.

NATURAL STYLING with PUMP FOAM SOLUTIONS



NATURAL HAIR STYLING MOUSSE

- Creamy soft foam
- Quick styling
- Natural hold
- Soft feel after application



FRAGRANCE-FREE NATURAL HAIR MOUSSE

- Light, quick collapsing foam
- Alcohol free
- Medium hold
- Flexible feel after application



STRONG HOLD NATURAL HAIR MOUSSE

- Rich, creamy foam
- Strong, flexible hold
- Defined curls
- Better definition




Fig. 9. Comparison of 3 pump foam solutions.

Application

NATURAL HAIR
STYLING MOUSSE.

With **AGENABON 20.219** and **MAIZE-STYLE ORGANIC**
"Formulated and developed by Azelis Personal Care EMEA, UK (ref. 21016064)"

A natural hair styling mousse foam for styling hair with creamy foam and strong styling properties. This mousse was developed specially for use with air foamer packaging.

Manufacturing instructions: Premix all ingredients except alcohol. Add alcohol in the end to the ready-made formulation.

Ingredients	INCI-Name	% w/w	Supplier
Deionised Water	Aqua	61,40	
Alcohol	Alcohol Denat.	20,00	
AGENABON 20.219	Hydrolyzed Corn Starch	10,00	AGRANA
MAIZE-STYLE ORGANIC	Hydrolyzed Corn Starch	3,00	AGRANA
Keramare™	Aqua, Glycerin, Cystoseira, Compressa Extract, Zea mays (Corn) Starch, Benzyl Alcohol, Dehydroacetic Acid, Sodium Benzoate, Gluconolactone, Calcium Gluconate	3,00	Provital
Eversoft® UCS 3oS	Aqua, Disodium Cocoyl Glutamate	2,00	Sino Lion
Sharon Biomix™ Clear	Phenoxyethanol, Glycerine, Citrus Reticulata Fruit Extract, Citrus Aurantium Amara Fruit Extract, Citrus Sinensis Peel Extract, Ascorbic acid, Citric acid, Lactic acid, Aqua	0,50	Sharon
Pomegranate and Honey 8o4	Parfum	0,10	IFF

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Application

FRAGRANCE FREE
NATURAL HAIR
MOUSSE.

With **AGENABON 20.219** and **MAIZE STYLE ORGANIC**
"Formulated and developed by Azelis Personal Care EMEA, Germany (ref. 21016046)"

A fragrance free, pump, hair styling mousse with natural styling properties.

Manufacturing instructions: Mix all ingredients.

Ingredients	INCI-Name	% w/w	Supplier
Deionised Water	Aqua	79,50	
AGENABON 20.219	Hydrolyzed Corn Starch	10,00	AGRANA
MAIZE STYLE ORGANIC	Hydrolyzed Corn Starch	3,00	AGRANA
Keramare™	Aqua, Glycerin, Cystoseira, Compressa Extract, Zea mays (Corn) Starch, Benzyl Alcohol, Dehydroacetic Acid, Sodium Benzoate, Gluconolactone, Calcium Gluconate	3,00	Provital
Holisurf® HF	Hydrolyzed Candida, Bombicola/Glucose/ Rapeseed Oil Ferment Extract	4,00	Holiferm
Sharon Biomix™ Clear	Phenoxyethanol, Glycerin, Citrus Reticulata Fruit Extract, Citrus Aurantium Amara Fruit Extract, Citrus Aurantium Sinensis Peel Extract, Ascorbic Acid, Citric Acid, Lactic Acid	0,50	Sharon

Application

STRONG HOLD
NATURAL HAIR
MOUSSE.

with **AGENABON 20.219**
"Formulated and developed by Azelis Personal Care EMEA, UK (ref. 21016041_01)"

A natural hair styling mousse, with rich creamy foam to leave the hair soft yet styled. This mousse was developed specially for use with air foamer packaging.

Manufacturing instructions: Premix all ingredients except alcohol. Add alcohol in the end to the ready-made formulation.

Ingredients	INCI-Name	% w/w	Supplier
Deionised Water	Aqua	59,40	
Alcohol	Alcohol Denat.	20,00	
AGENABON 20.219	Hydrolyzed Corn Starch	15,00	AGRANA
Keracyn™	Propanediol, Aqua, Glycerin, Cynara scolymus Leaf Extract	3,00	Provital
Eversoft® UCS 3oS	Aqua, Disodium Cocoyl Glutamate	2,00	Sino Lion
Sharon Biomix™ Clear	Phenoxyethanol, Glycerine, Citrus Reticulata Fruit Extract, Citrus Aurantium Amara Fruit Extract, Citrus Sinensis Peel Extract, Ascorbic acid, Citric acid, Lactic acid, Aqua	0,50	Sharon
Pomegranate and Honey 8o4	Parfum	0,10	IFF

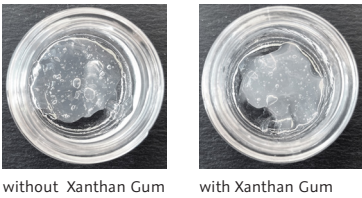
Trendy

HAIR & BEARD STYLING
WITH THICKENING STARCHES.

Styling gels are usually synthetic polymer thickened hydrogels in which a special styling polymer provides the styling effect (stiffness/hold). With POTATO-JEL NATURAL, natural-based, semi-transparent hydrogels with comparable rheological properties can be produced.

AGENABON 20.219 takes over the function of the styling polymer with excellent performance parameters such as stiffness and curl retention, which are comparable to those of PVP derivatives. In addition, POTATO-JEL NATURAL based hair gels are characterized by high flexibility. These include synergistic viscosity effects with Xanthan Gum and high solubility values for AGENABON 20.219 ($\leq 20\%$).

Hair Styling Gel Formulation



The addition of Xanthan Gum to POTATO-JEL NATURAL gels leads to a significant increase in viscosity but a lower transparency.

Application

HAIR STYLING
GEL.

With AGENABON 20.219 and POTATO-JEL NATURAL

"Formulated and developed by Azelis Personal Care EMEA, Germany (ref. 956-16-1 and 2)"

Manufacturing instructions: Heat Phase A up to 70°C. Add Phase B to Phase A and stir intensively until the gel is homogeneous. Adjust pH 5,3 with Citric Acid.



Ingredients	INCI-Name	Standard viscosity % w/w	High viscosity % w/w	Supplier
PHASE A				
Demin. Water	Aqua	72,40	76,40	
Glycerine	Glycerin	4,00	4,00	
BLANOVA® Sodium Benzoate	Sodium Benzoate	0,60	0,60	Azelis
AGENABON 20.219	Hydrolyzed Corn Starch	10,00	10,00	AGRANA
PHASE B				
POTATO-JEL NATURAL	Distarch Phosphate	8,50	8,50	AGRANA
Ouvricare T	Xanthan Gum	0,50	0,50	Solvay
PHASE C				
Ethanol	Alcohol Denat.	4,00	0,00	

Addition of ethanol speeds up drying behavior on the hair. Clearness can be improved by adding small amounts of Propylenglycol Alginate (0,5%), or using AGENAJEL CLEAR instead of POTATO-JEL Natural.

Astonishing

THICKENING EFFECTS
WITH XANTHAN GUM.

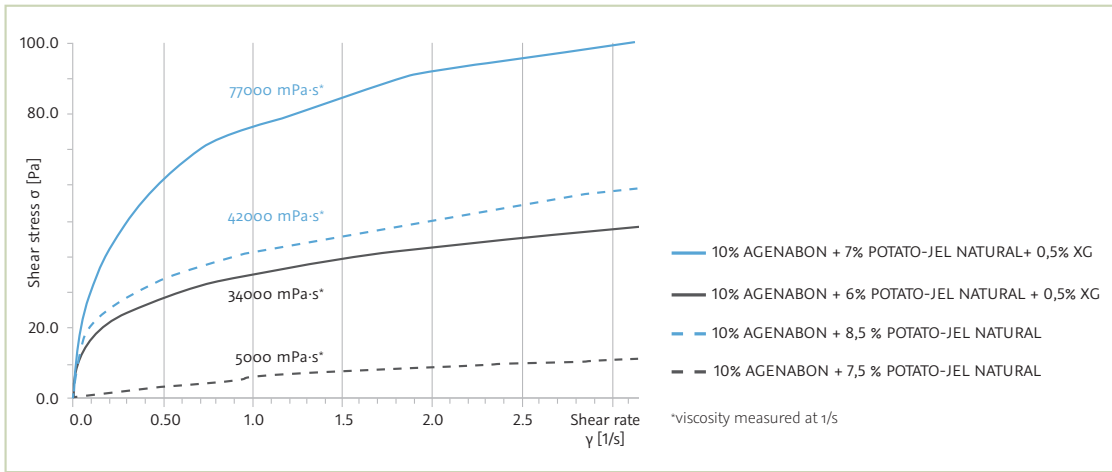


Fig. 10. Flow curves of POTATO-JEL NATURAL/AGENABON 20.219 hydrogels: Hair Styling Gels with and without Xanthan Gum

From an input concentration of approx. 6% POTATO-JEL NATURAL gel viscosities increase significantly. Very high gel viscosities are achieved by adding Xanthan Gum (synergistic viscosity effect).



Application

BEARD GEL
WITH
MOISTURIZING
EFFECT.

With POTATO-JEL NATURAL and PuraBeet® Betaine Anhydrous

"Formulated and developed by Azelis Personal Care EMEA, Germany (ref. 956-11-5)"

Manufacturing instructions: Mix Phase A until the solution is clear. Heat Phase A up to 70°C. Add Phase B to Phase A and homogenize. Cool down to room temperature and add Phase C to phase AB. Adjust pH 5,3 with Citric Acid.

Ingredients	INCI-Name	% w/w	Supplier
PHASE A			
Demin. Water	Aqua	66,90	
BLANOVA® Active D-Panthenol 75 %	Panthenol, Aqua	1,00	Azelis
Glycerine	Glycerin	4,00	
BLANOVA® Sodium Benzoate	Sodium Benzoate	0,60	Azelis
AGENABON 20.219	Hydrolyzed Corn Starch	5,00	AGRANA
PHASE B			
POTATO-JEL NATURAL	Distarch phosphate	8,50	AGRANA
PHASE C			
Demin. Water	Aqua	10,00	
PuraBeet® Betaine Anhydrous	Betaine	4,00	AGRANA

New formulation concept with POTATO-JEL NATURAL for natural-based semi-transparent Beard Gel.



THE ALL NATURAL STYLING SOLUTION.

Formulate your natural GREEN styling mousses
with AGRANA's unique and functional starches.

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