



FILM FORMER STUDY with AGENAMALT 20.222

A STUDY CONDUCTED BY AZELIS

AGRANA STARCH

AGRANA – an internationally oriented Austrian company – specializes in processing and adding value to high quality agricultural raw materials such as corn, potatoes and wheat to make a wide range of starch products, tailored to different industrial uses.

The unique and functional starch portfolio from AGRANA gives you the solution to formulate your personal care products.

OVERVIEW AGENAMALT – FILM FORMERS

HYDROLYZED STARCHES	PRODUCT NAME	BONTANICAL ORIGIN	INCI	NATURALITY STATUS	ISO 16128
CONVENTIONAL	AGENAMALT 20.222	maize (=corn)	maltodextrin	–	In / Ino 0 / 1
ORGANIC CERTIFIED	AGENAMALT 20.235	maize (=corn)	maltodextrin	COSMOS ORGANIC	Io / Ioo 0 / 1

Remark: AGENAMALT 20.235 is the organic version of AGENAMALT 20.222 and shows in application equivalent properties.



AGENAMALT 20.222 (INCI: MALTODEXTRIN)

DESCRIPTION

Appearance:	Off-White Powder
Water content:	max. 5 %
Solubility:	Cold-water soluble
Recommended level:	0,5 – 10 %

AGENAMALT 20.222 is a bio-based biodegradable film former for skin and make-up.

Benefits:

- Good solubility in water (cold processing)
- Clear solution in water
- Excellent film forming properties
- Sustainable naturally derived film former
- Enhancing the durability of make-up cosmetics
- Skin imperfection masking properties
- Suitable for emulsifier free formulations

EMULSIFIER FREE FOUNDATION

This cold-process, natural foundation offers excellent coverage, high natural content, and an exceptional skin feel. It is resistant to wear and transfer, yet can be easily removed with water at the end of the day, thanks to the inclusion of maltodextrin.

PHASE	COMMERCIAL NAME	INCI	% W/W	SUPPLIER
A	Deionised Water	<i>Aqua</i>	73,55	CP Kelco
B	Keltrol CG SFT V	<i>Xanthan Gum</i>	0,50	CP Kelco
	Kelcogel CG-LA	<i>Gellan Gum</i>	0,15	
	Sodium Citrate	<i>Sodium Citrate</i>	0,30	
C	Geogard LSB	<i>Levulinic Acid, Sorbic Acid, Benzoic Acid</i>	1,00	Arxada
	PuraBeet	<i>Betaine</i>	2,50	AGRANA
	AGENAMALT 20.222	<i>Maltodextrin</i>	5,00	AGRANA
D	Kelcosens PiEL Citrus Fiber	<i>Citrus Peel Fiber</i>	2,00	CP Kelco
	Olve Care Shea Oil	<i>Butyrospermum Parkii Oil</i>	8,00	Olvea
E	MiyonAT OLV-White	<i>CI 77891, Hydrogenated Olive Oil Stearyl Ester</i>	4,20	Miyoshi
	MiyonAT OLV-Red	<i>CI 77491, Hydrogenated Olive Oil Stearyl Ester</i>	0,23	Miyoshi
	MiyonAT OLV-Yellow	<i>CI 77492, Hydrogenated Olive Oil Stearyl Ester</i>	0,49	Miyoshi
	MiyonAT OLV-Black	<i>CI 77499, Hydrogenated Olive Oil Stearyl Ester</i>	0,08	Miyoshi
F	Silica Bead SB 300	<i>Silica</i>	2,00	Miyoshi

PROCESS STEP	REMARK
1	Add phase B to phase A and mix with high shear for 5 minutes.
2	Add phase C to the batch and mix until homogeneous.
3	Premix phase D and incorporate it into the batch, mixing with high shear.
4	Premix phase E and add it to the batch, mixing until homogeneous.
5	Add phase F and mix until homogeneous.

Remark: In the control variant, AGENAMALT was replaced with water.

WATER RESISTANCE TEST

INITIAL



SUBMERGED



COMMENTS

- Control – poor spreadability
- AGENAMALT 20.222 improves spreadability.
- Intact film, no spreading or alteration of film formed, when using AGENAMALT 20.222 after submerging.

PRIMER

A natural, gentle primer that makes the skin feel and look softer and smoother.

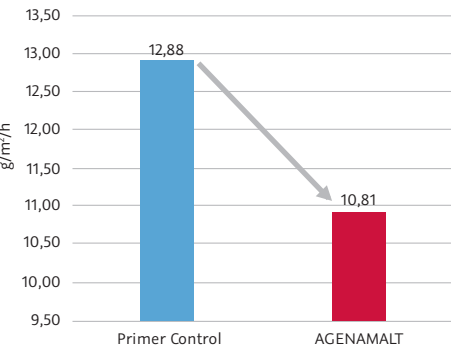
PHASE	COMMERCIAL NAME	INCI	% W/W	SUPPLIER
A	Deionised Water	<i>Aqua</i>	76,05	
B	Keltrol CG SFT V	<i>Xanthan Gum</i>	0,50	CP Kelco
	Kelcogel CG-LA	<i>Gellan Gum</i>	0,15	CP Kelco
	Sodium Citrate	<i>Sodium Citrate</i>	0,30	
C	AGENAMALT 20.222	<i>Maltodextrin</i>	5,00	AGRANA
	PuraBeet	<i>Betaine</i>	2,00	AGRANA
	Geogard Ultra	<i>Gluconolactone, Sodium Benzoate, Calcium Gluconate</i>	1,00	Arxada
D	Kelcosens PiEL Citrus Fiber	<i>Citrus Peel Fiber</i>	2,00	CP Kelco
	Jojoba Oil Virgin	<i>Simmondsia chinensis seed oil</i>	8,00	Olvea
E	RICE PO4 NATURAL	<i>Distarch Phosphate</i>	5,00	AGRANA

PROCESS STEP	REMARK
1	Add phase B to phase A and mix using high shear for 5 minutes.
2	Gradually add phase C to the batch, ensuring thorough mixing between each addition.
3	Premix phase D and incorporate it into the batch, mixing with high shear for 5 minutes.
4	Add phase E to the batch and mix until homogeneous.

Remark: In the primer control variant, only the AGENAMALT was replaced with water.

TEWL =TRANSEPIDERMAL WATER LOSS

TEWL RESULTS



- 12,88 to 10,81 g/m²/h
- Breathable, non-occlusive film
- 19,1 % reduction seen

COMMENTS

AGENAMALT 20.222 improves spreadability and reduces TEWL. A lower TEWL reduces the dryness of the skin.

The PRIMER formulation also include PuraBeet (for moisturization) and RICE PO4 NATURAL (for better after skin feel and lower TEWL).

SHIMMER BLUSH DROPS

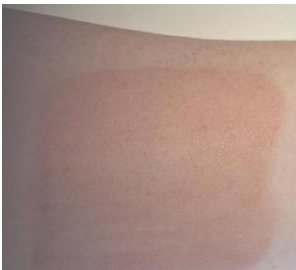
A water-based, wear and transfer-resistant shimmering blush drop. Rootness Energise helps firm the skin, while AGENAMALT 20.222 provides exceptional wear and superior application benefits.

PHASE	COMMERCIAL NAME	INCI	% W/W	SUPPLIER
A	Deionised Water	<i>Aqua</i>	83,98	
	PuraBeet	<i>Betaine</i>	2,00	AGRANA
B	Genuvisco Carrageenan CG-129	<i>Chondrus Crispus Powder</i>	1,00	CP Kelco
	Organic Glycerin	<i>Glycerin</i>	3,50	Daabon
	AGENAMALT 20.222	<i>Maltodextrin</i>	2,50	AGRANA
C	Ronaflair Balance Gold	<i>C.I. 77891, Mica, Tin Oxide</i>	2,00	Merck
	Ronastar Flaming Lights	<i>Alumina, C.I. 77491</i>	3,00	Merck
D	Geogard ECT	<i>Benzyl Alcohol, Salicylic Acid, Glycerin, Sorbic Acid</i>	1,00	Arxada
	979710 Rose Damascena Firad	<i>Rosa Damascena Extract</i>	0,02	Firmenich
	Rootness Energize	<i>Dicaprylyl Ether, Luffa Cylindrica Root Extract</i>	1,00	Clariant

PROCESS STEP	REMARK
1	Mix phase A until homogeneous.
2	Premix phase B and add it to phase A, mixing until homogeneous.
3	Add phase C and mix until homogeneous.
4	Add phase D and mix until homogeneous.

WEAR AND TRANSFER RESISTANCE ASSESSMENT

AIR DRIED 5 MINS



NO TRANSFER SEEN



Comment: Inclusion of AGENAMALT 20.222 effects excellent transfer resistance.

GLOW HIGHLIGHTER

A highlighting gel, suitable for use on the skin or hair, which has superior wear and transfer resistance properties.

PHASE	COMMERCIAL NAME	INCI	% W/W	SUPPLIER
A	Deionised Water	<i>Aqua</i>	77,25	
B	Genugum RL200Z CG	<i>Ceratonia Siliqua Gum</i>	1,75	CP Kelco
	Glycerin	<i>Glycerin</i>	3,00	CP Kelco
C	Deionised Water	<i>Aqua</i>	5,00	
	AGENAMALT 20.222	<i>Maltodextrin</i>	2,50	AGRANA
D	Geogard ECT	<i>Benzyl Alcohol, Salicylic Acid, Glycerin, Sorbic Acid</i>	1,00	Arxada
	Ronaflair Infinity	<i>Alumina</i>	2,50	Merck
	Ronaflair Balance Gold	<i>C.I. 77891, Mica, Tin Oxide</i>	5,00	Merck
	PuraBeet	<i>Betaine</i>	2,00	AGRANA

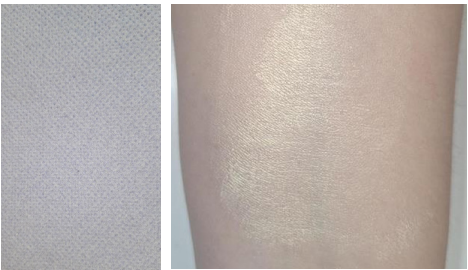
PROCESS STEP	REMARK
1	Premix phase B and add to phase A, mixing until homogenous.
2	Heat the batch to 80°C. Cool with stirring.
3	Premix phase C and add to the batch at 60°C.
4	Add phase D to the batch at 40°C, mixing until homogenous between each addition.

WEAR AND TRANSFER RESISTANCE ASSESSMENT

AIR DRIED 5 MINS



NO TRANSFER



Comment: AGENAMALT 20.222 effects excellent wear resistance.

KEY POINTS – Addition of AGENAMALT 20.222 starch based film former

- Improvement in spreadability of the formulation
- Reduction of TEWL (transepidermal water loss)
- Excellent wear resistance
- Excellent transfer resistance
- Stabilises formulations
- Supports emulsifier free formulations



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