




SEPPIC



TextureS



SOLAGUM™ AX
**Combination of thickening
natural polymers**



Where does SOLAGUM™ AX come from ?



- ☞ SOLAGUM™ AX is a new combination of :
- ☞ acacia gum
and xanthan gum
- ☞ The mixture has been optimized to obtain the best performance and is obtained from an innovative production process
- ☞ INCI name : Acacia Senegal Gum (and) Xanthan Gum





Where does SOLAGUM™ AX come from ?



- ☺ Sustainable development concept
- ☺ Acacia gum is harvested in Africa in subsaharian region which represents one of its most important source of income
- ☺ This helps the inhabitants to adopt a sedentary lifestyle
- ☺ The picking is done by hands and is ecofriendly
- ☺ Acacia forest are a natural defense versus the desertification
- ☺ 100 % renewable



 Product profile :

- White to beige powder, no odor
- Density : 0.35-0.45
- Soluble in water
- Size : ~ 100 μm



What are its characteristics ?



What are its characteristics ?

Specifications

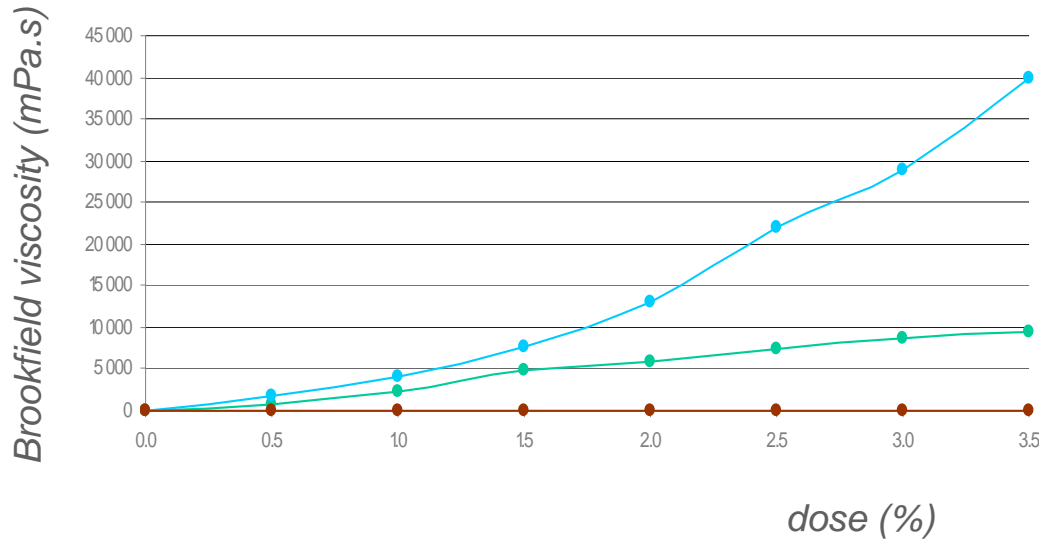
<i>Analysis</i>	<i>Specifications</i>	<i>Method</i>
<i>Appearance</i>	<i>white to beige fine powder</i>	<i>Visual</i>
<i>pH into water at 1%</i>	<i>5-7.5</i>	<i>NFT 73206</i>
<i>Microbiology Total germs</i>	<i>< 1000 cfu/g</i>	<i>ISO 4833</i>
<i>Viscosity in water at 1%</i>	<i>400-600 mPa.s</i>	<i>S 52417</i>



What is it used for ? A natural easy to use thickener



Visco-dose curve into water



- Xanthan gum
- Solagum™ AX
- Acacia gum

Procedure :

- ☞ Weigh the water (at room temperature)
- ☞ Use the defloculator.
- ☞ Add the polymer into the water while stirring
- ☞ Let it homogenize 10 min between 1100 and 1300 rpm
- ☞ Use level : 0.1% to 3%

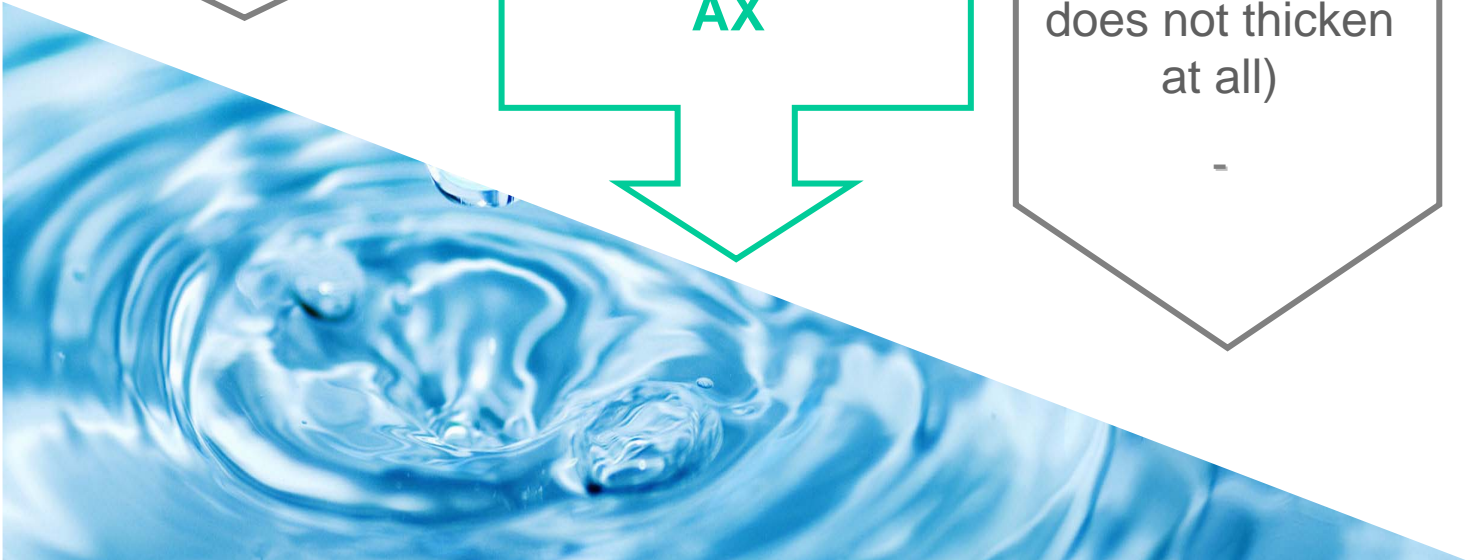


What is it used for ? A medium thickening power

Thickening power
of **xanthan gum**
alone
+

Thickening power
of **SOLAGUM™**
AX

Thickening power
of **acacia gum**
alone (which
does not thicken
at all)
-



SOLAGUM™ AX will find a place in the field of natural thickening polymers in the cosmetic area

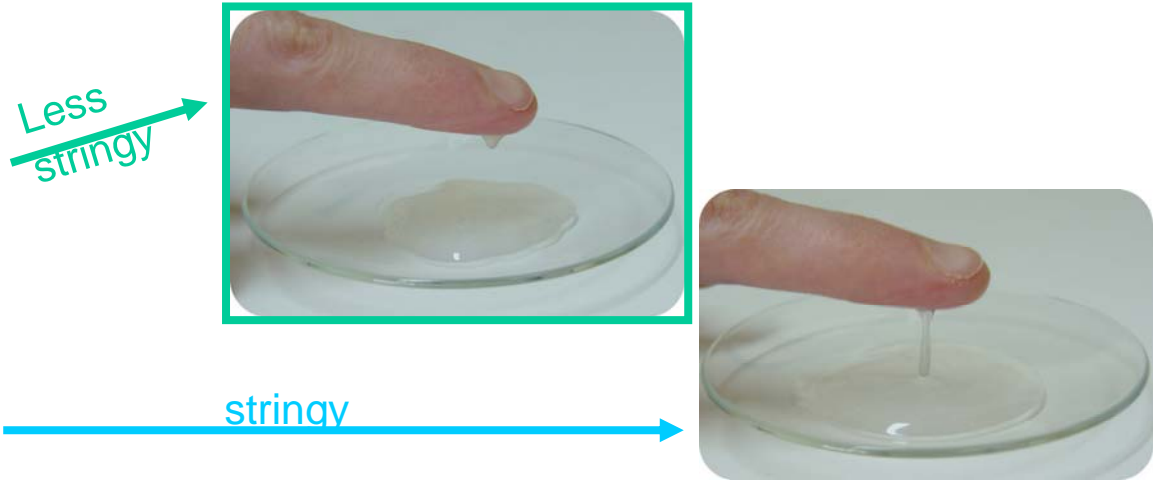


What is it used for ?

Ingredient	Appearance of the gels	Jelly texture	Stringy texture
SOLAGUM™ AX	<i>opalescent</i>	YES	NO
<i>Xanthan gum</i>	<i>opalescent</i>	YES	YES



The aqueous gels containing **SOLAGUM™ AX** do not show any stringy texture ... as opposed to those containing **xanthan gum**





- 🌿 Processability
- 🌿 Rheological profile
- 🌿 Viscosity versus pH
- 🌿 Viscosity with salt, NaOH, H₂O₂
- 🌿 Stabilizing power of oil
- 🌿 Compatibility
- 🌿 Advantages in foaming products
- 🌿 Advantages in emulsions



Processability



Time to realize a smooth aqueous gel



- 3 min for SOLAGUM™ AX
- 19 min for xanthan gum

- Save time !



Resistance to shear



KELTROL™ CG-T





SOLAGUM™ AX

- At RT : better use the defloculator than anchor or rotor stator

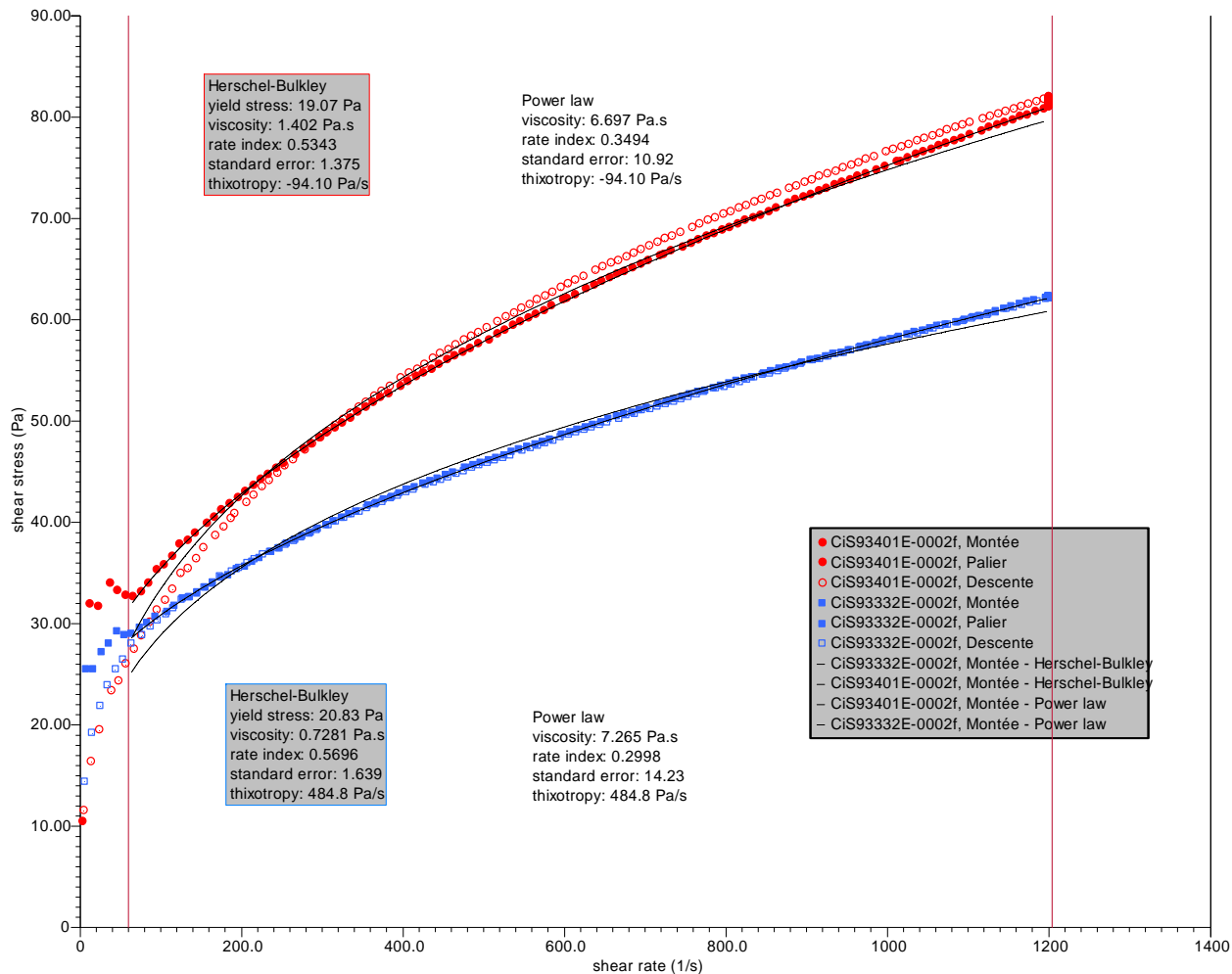
- At 60°C : OK for all equipment



Rheological profile

TextureS  Descriptive compared rheology
 (Rheometer 2000, TA instruments)

Courbes d'écoulement en gradient imposé : gels aqueux Solagum AX vs Keltrol CGT



Characteristics of **Solagum™ AX** (5%) and **xanthane** (2.5%) gels:

- Non thixotropic
- Yield point around 20 Pa
- Shear thinning products

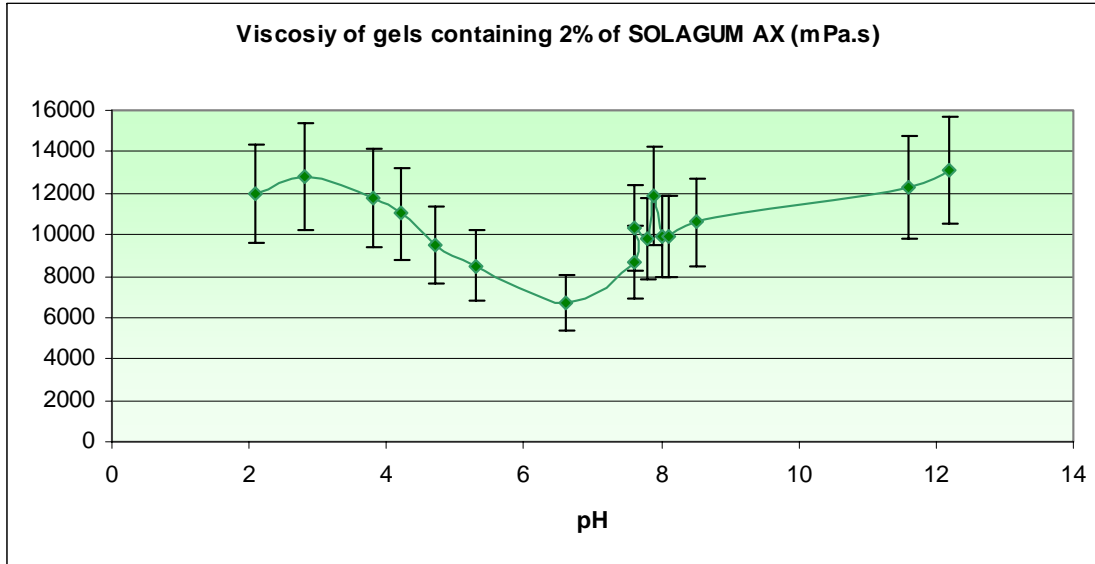


Rheological profile

- 🌱 Both gels have similar rheological profiles
- 🌱 They are non thixotropic
- 🌱 Furthermore, they have a yield point around 20 Pa
- 🌱 Comparable to the yield point of other polymers in the range



Viscosity versus pH



The gels containing SOLAGUM™ AX are stable from **pH 3 to pH 12**, they allow for the realization of any kind of cosmetic product

For instance at low pH with lactic acid

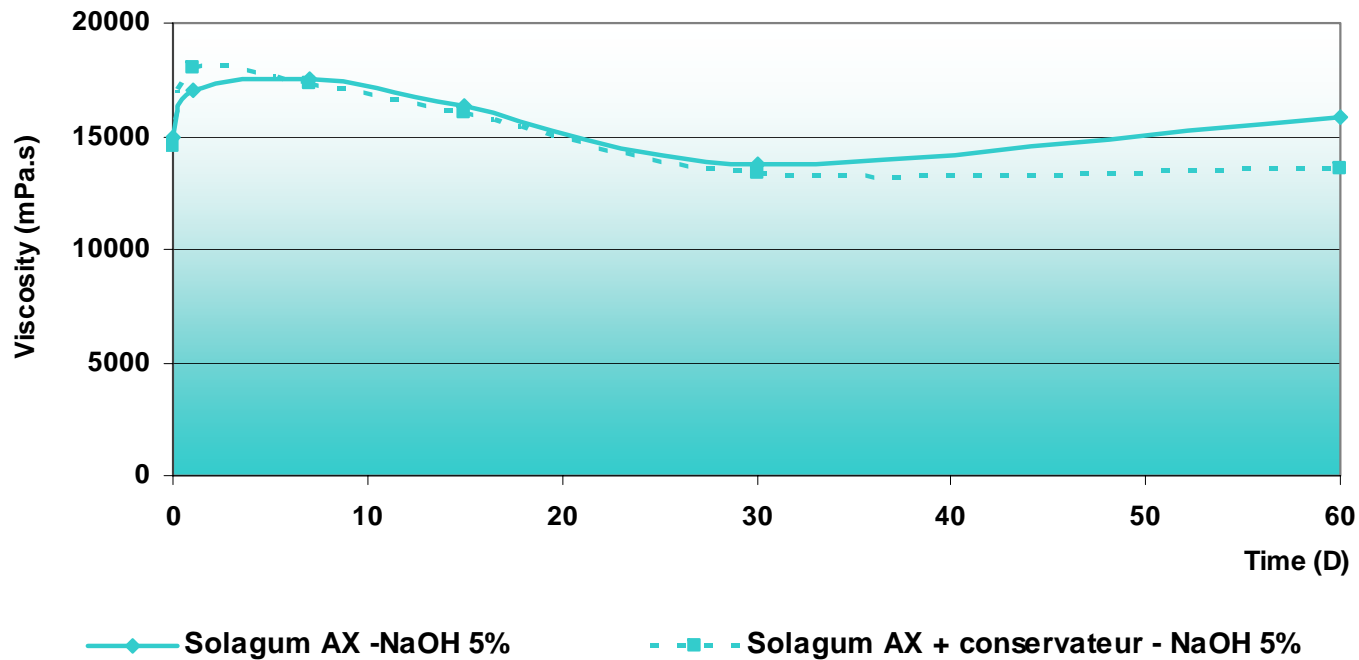


pH : 2,8 3,2 12 7,5 6,8



Viscosity in basic medium

Viscosity with NaOH



SOLAGUM™ AX is stable in alkaline medium

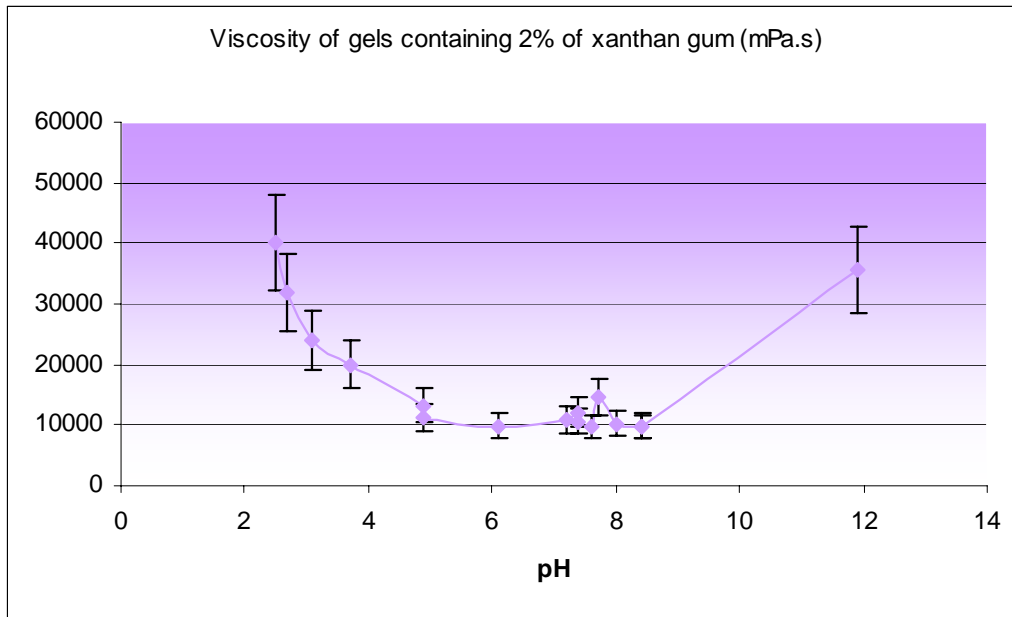
It is compatible with 5% of NaOH (pH 12.5)

Therefore, it can be used for depilatories, « straighten out » and perms

Conservateur = preservative

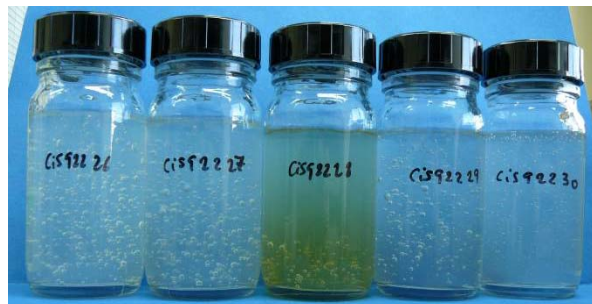


Viscosity versus pH



The viscosity of the gels containing xanthan gum decreases and especially between pH 4 to pH 8.

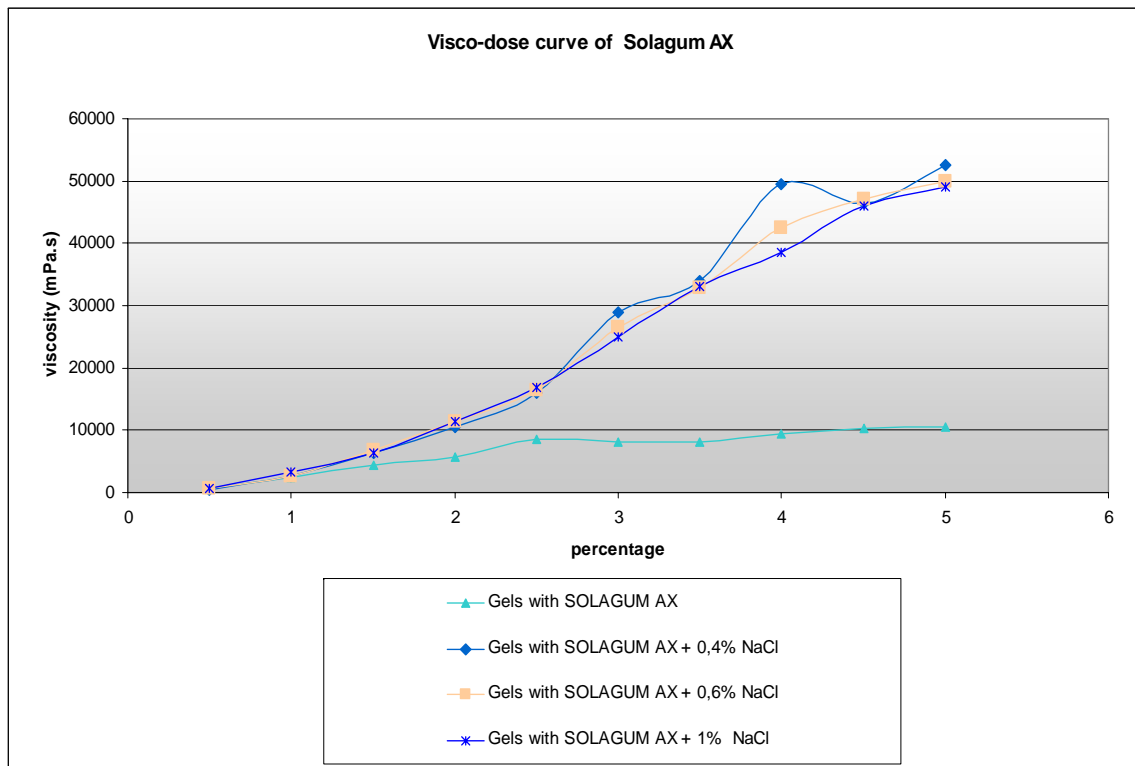
The gels become yellow at high pH, it is therefore not recommended to use xanthan gum at a pH higher than 10.



pH : 3,0 2,2 12,4 11,6 7,5



Influence of NaCl on the viscosity of the gels containing SOLAGUM™ AX



Trick !

Add between 0,6 and 1% of NaCl
To boost the viscosity of
SOLAGUM™ AX!

SEPICIDE™ LD = phenoxyethanol

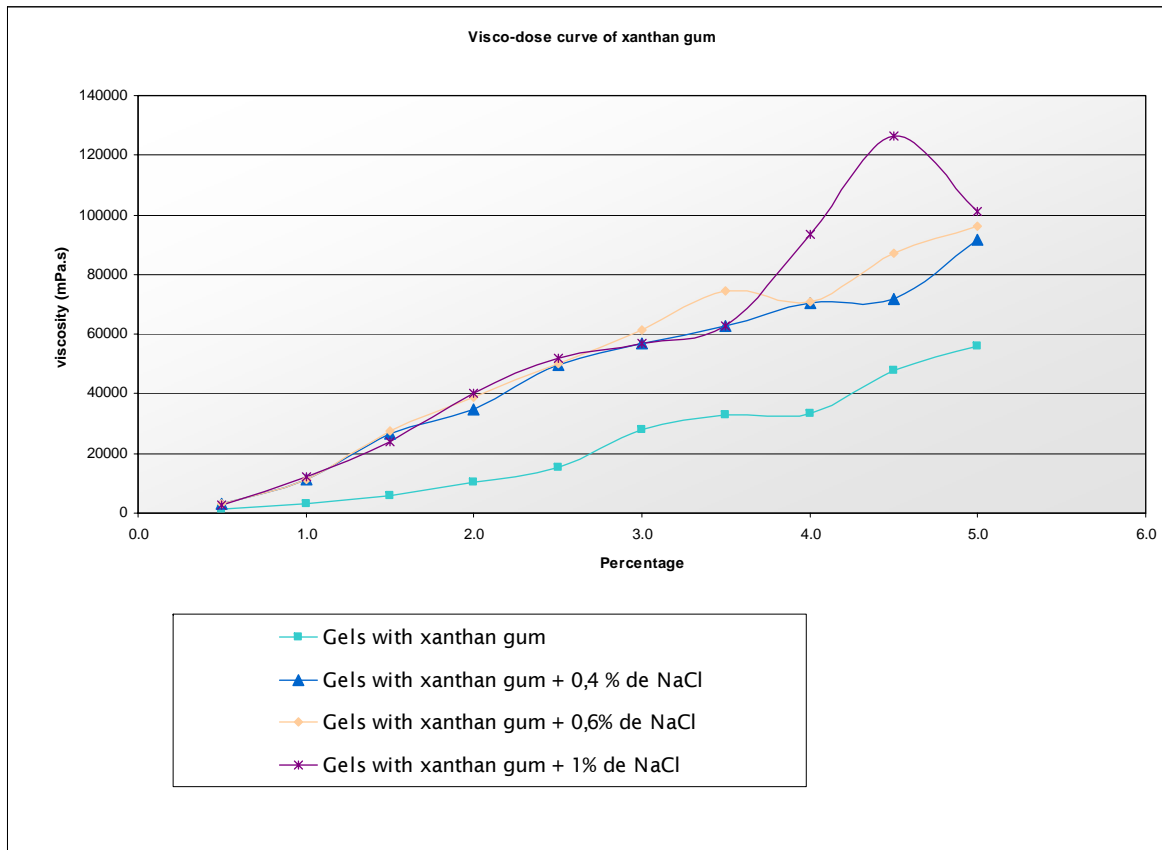
All the gels contain
1% of SEPICIDE™ LD.



Viscosity with salt



For xanthan gum



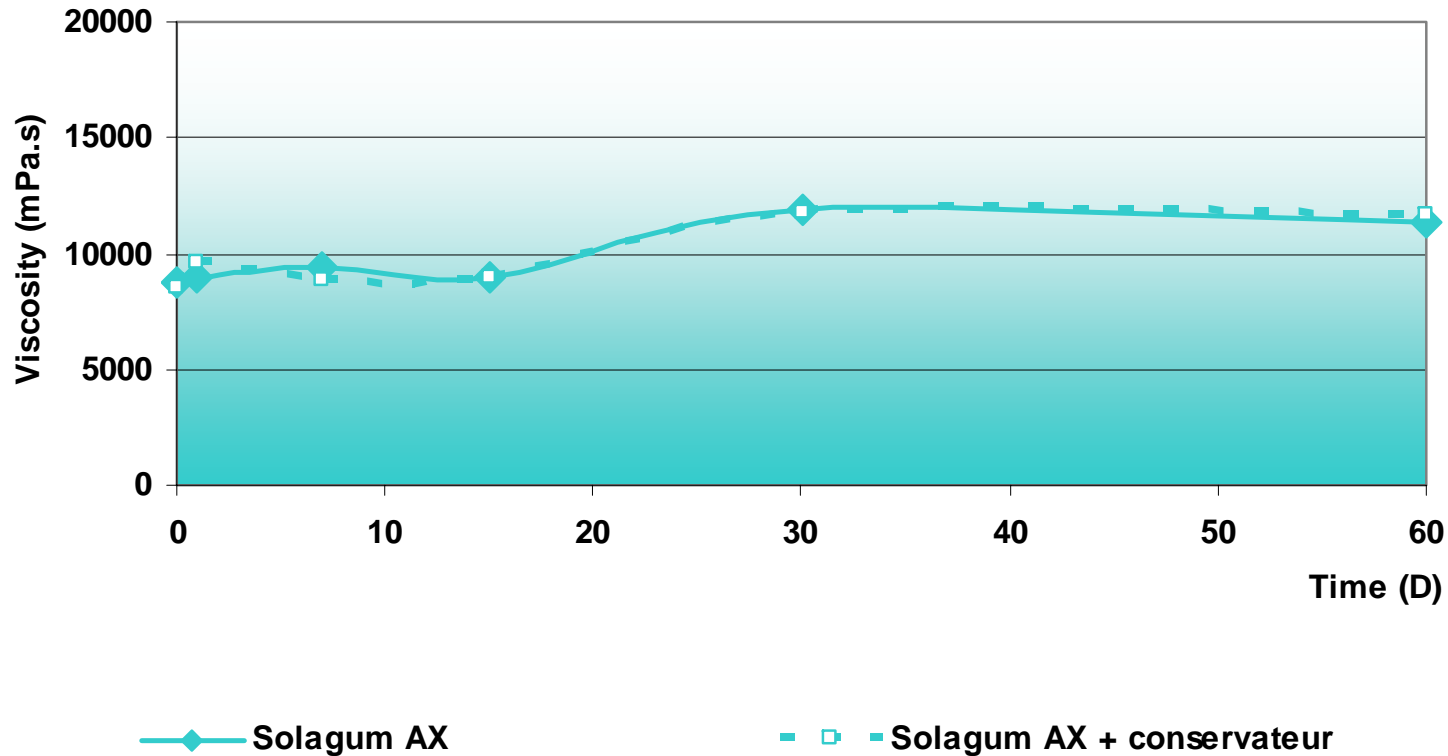
The viscosity of the gels containing xanthan gum increases while adding salt

All the gels contain 1% of SEPICIDE™ LD.



Viscosity in oxydative medium

Viscosity with H₂O₂ 5%



SOLAGUM™ AX is stable in an oxydative medium containing up to 5% of H₂O₂ at RT

In these conditions, there is no need for preservative

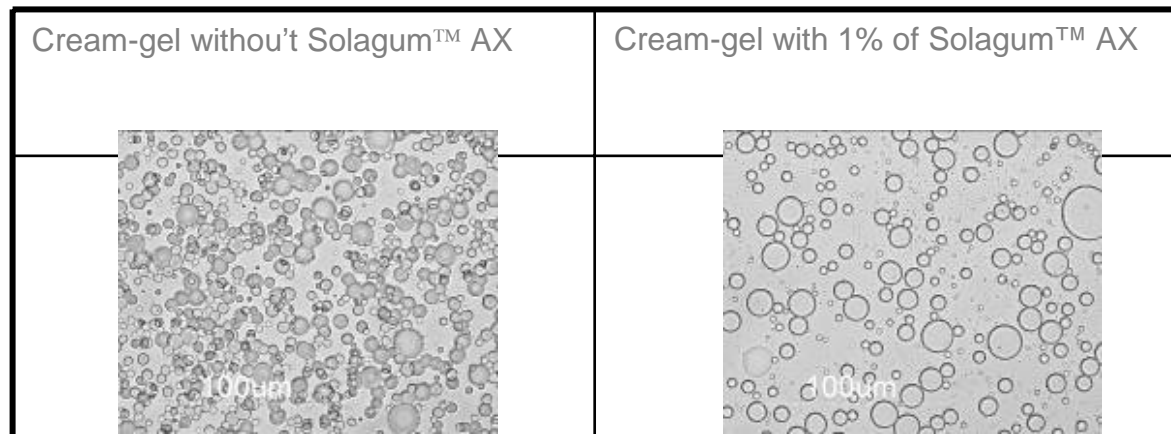
It can therefore be used in hair color developers

Conservateur = preservative



Cream-gel with Solagum™ AX

- Stabilization of 50% of oil maximum whatever the % of polymer used (from 1 to 4%) : caprylic capric triglyceride (50%) and mineral oil (40%)
- In case of exsudation, with large amount of oil : add 0.5% of ORAMIX™ CG 110
- We obtain a smooth and glossy gel like with synthetic polymers





Compatibility with solvents

- Ethanol, monopropylene glycol and glycerine OK <50%
- Not possible to create a gel in an anhydrous medium : necessary to create H bonds

 Compatibility with DHA : no

 No sprayability



Use in foaming products

- 🌱 SOLAGUM™ AX is able to thicken foaming formula when it is used from 0.5% to 2.5%
 - Formula containing LESNa (10% of active matter), a preservative, SOLAGUM™ AX and water
- 🌱 When its concentration is $> 2.5\%$, we observe an opacification and a yellowing
- 🌱 Valorization : development of a hair care and a shampoo underway

A horizontal banner with a background of blue water ripples. The text "Use in emulsions" is centered in a green, sans-serif font.

Use in emulsions

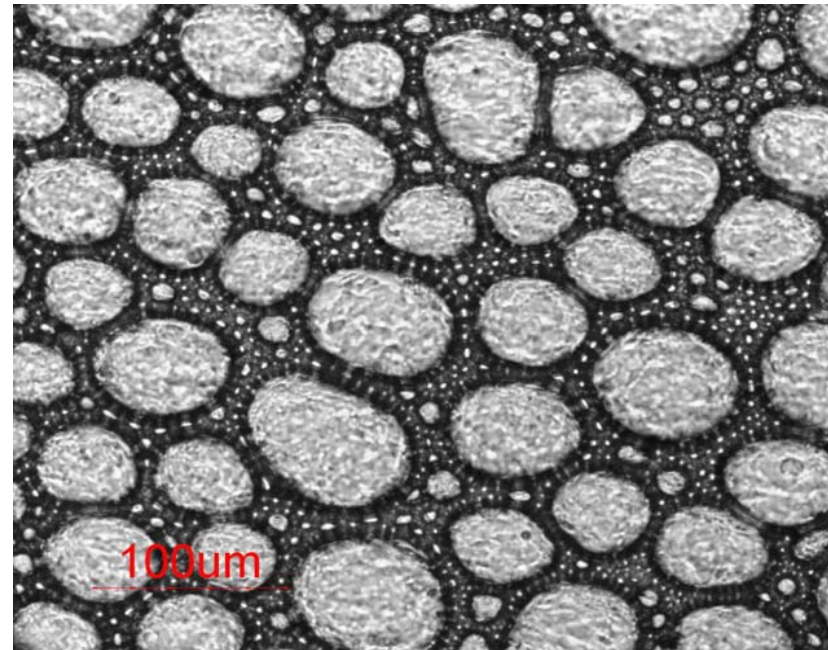
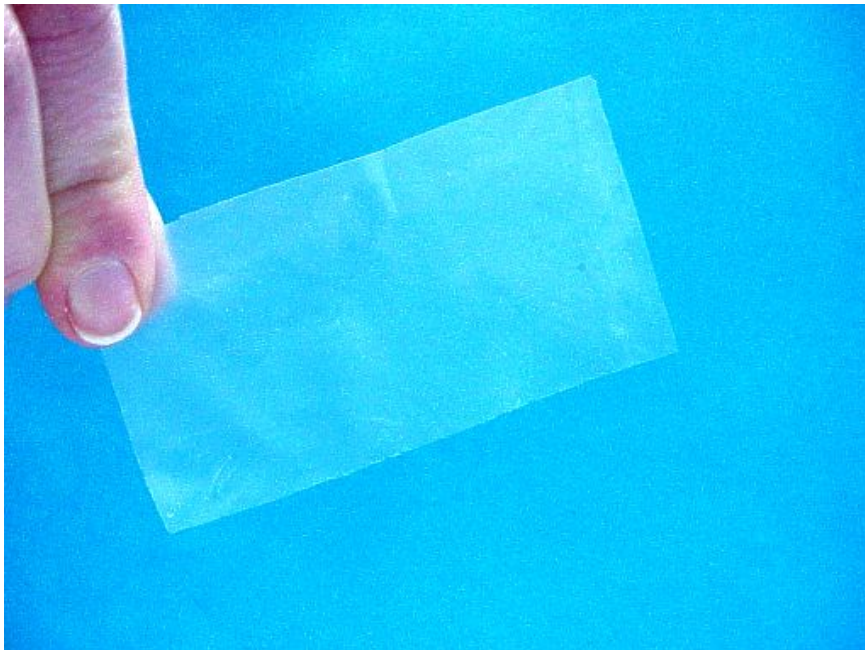
- 🌿 The texture of the emulsions containing SOLAGUM™ AX are rich and non sticky
 - Formula containing MONTANOV™ L (3%), triglyceride (10%), SOLAGUM AX and water
- 🌿 The feeling of « a film on the skin » is due to the film forming properties of acacia gum
- 🌿 SOLAGUM™ AX itself is a film forming polymer
- 🌿 The film obtained is cohesive



Film forming properties

Film obtained with an aqueous gel with 2% of SOLAGUM™ AX

Microscopic photo of the film :
The coating of xanthan gum is easily observed





Valorization-new formulas underway :

- Fluid formula for bodycare even at 0.5% the advantage of SOLAGUM™ AX can be perceived
- Antiaging organic cream





What is it used for ?

- ✿ Valorization of SOLAGUM™ AX in 2 different cosmetic products formulations to point out the ease of use, the compatibility with the other ingredients and its versatility
- ✿ **Natural day cream 7158**, a cream with astonishing sensorial attributes in accordance with ECOCERT® standard
- ✿ **Passion Jelly 7159**, a facial foaming scrub that will provide an exotic fruity smoothness on the skin



Natural day cream with SOLAGUM™ AX - 7158

Texture

A	MONTANOV™202 (Arachidyl Alcohol and Behenyl Alcohol and Arachidyl Glucoside) 3 % MONTANOV™ 14 (Myristyl Alcohol and Myristyl Glucoside) 1.5 % Behenyl behenate 2 % Butyrospermum parkii (bio) 1.5 % Squalane 3 % Glyceryl undecylenate 1.5 % Simmondsia chinensis (jojoba) seed oil (bio) 3 % Caprylic capric triglyceride 3 % Isopropyl isostearate 3 %
B	Aqua / water Up to 100 %
C	SOLAGUM™ AX (Acacia senegal gum & Xanthan gum) 0.6 %
D	Tocopherol 0.1 % Water and Hordeum vulgare extract (bio) 11 % Benzyl alcohol and Dehydroacetic acid 0.6 % Aquaxyl™ (Xylitylglucoside and Anhydroxylitol and Xylitol) 3 % Sodium levulinate 0.5 %
E	Sodium hydroxyde (24%) Up to pH 5.0

Procedure :

Weigh ingredients of phase A then heat at 80°C – Introduce B in the main tank then heat at 80°C – Add C in A then put the mix (C+A) in water B – Emulsify – Cool down under agitating – Add ingredients of phase D one after one around 40°C – Adjust final pH with phase E if necessary



Natural day cream with SOLAGUM™ AX - 7158



Characteristics :

Appearance	white liquid
pH after 1 month at RT	5.1
Viscosity after 1 month at RT	6 800 mPa.s BROOKFIELD LV speed 6
Viscosity after 1 month at 45°C	3 450 mPa.s BROOKFIELD LV speed 6
Stability	more than 1 month at RT and 45°C

7158 – Natural day cream





Passion Jelly with SOLAGUM™ AX - 7159

A	SOLAGUM™ AX (<i>Acacia Senegal Gum and Xanthan Gum</i>)	1.00%
	SEPINOV™ EMT 10 (<i>Hydroxyethyl Acrylate/Sodium Acryloyldimethyl Taurate Copolymer</i>)	1.00%
	Aqua/Water	Up to 100%
B	PROTEOL™ APL (<i>Sodium Cocoyl Apple Amino Acids</i>)	3.00%
	Sodium Lauryl Ether Sulfate (27.3%MA)	15.40%
	Methylchloroisothiazolinone and Methylisothiazolinone	0.08%
	Polyethylene	1.00%
	Cocos Nucifera	1.00%
	Parfum/Fragrance	0.40%
	Color	Up

Procedure :

Weigh water – Add slowly SOLAGUM™ AX under mixing – Add slowly SEPINOV™ EMT10 in aqueous gel when homogeneous – Add ingredients phase B, one after one, under mixing – Measure pH and adjust if necessary



Passion Jelly with SOLAGUM™ AX - 7159

Texture Characteristics :

Appearance

pH after 1 month at RT

Viscosity after 1 month
at RT

Viscosity after
1 month at 45°C

Stability

Orange liquid

7.1

6 100 mPa.s BROOKFIELD LV M3 speed 6

5 600 mPa.s BROOKFIELD LV M3 speed 6
more than 1 month at RT and 45°C

7159
Passion Jelly





Latest NEWS

🌱 Creation of 3 new formula containing SOLAGUM™ AX :

- **Hydrafresh cream gel AS40004**
- **An answer to the crisis with a low cost cream AS40009** (even at 0.2% SOLAGUM™ AX plays its role!)
- A **sunscreen milk SPF 30** to show the compatibility with organic and mineral UV filters **AS40002**



Hydrafresh cream gel – AS40004

Texture

A	LANOL™ 99 (isononyl isonononate) 2.00 % SEPI NOV™ EMT 10 (Hydroxyethyl acrylate / Sodium acryloyldimethyltaurate Copolymer) 1.20 % Dimethiconol 0.20 % Dimethicone 3.00 % Cyclomethicone 1.00 %
B	SOLAGUM™ AX (Acacia senegal gum & Xanthan gum) 0.12 % Carbomer 0.20 % Glycerine 8.00 % 1,3-Butylene Glycol 5.00 % Water Up to 100 % EDTA-4Na 0.05%
C	Cyclomethicone 1.00 %
D	Triethanolamine (20%) 0.95 %
E	Alcohol 8.00 %
F	Tocopheryl acetate 0.10 % AQUAXYL™ (Xylitylglucoside and Anhydroxylitol and Xylitol) 1.00 % β-Glucan 0.50 % Phenoxyethanol and Ethylhexylglycerin 0.90 % Fragrance 0.06 % Limonene 0.02 % Color Up to



Hydrafresh cream gel – AS40004

Characteristics :

Appearance	green cream gel
pH	7.0
Viscosity after 1 month at RT	63800 mPa.s BROOKFIELD LV S4 S6
Viscosity after 1 month at 45°C	55000 mPa.s BROOKFIELD LV S4 S6
Stability	at least 1 month at RT and 45°C



Low cost cream – AS40009

A	SIMULSOL™ 165 (PEG-100 stearate and Glyceryl stearate)	2.00 %
	MONTANOV™ 202 (C20-22 alcohol and arachidyl glucoside)	1.00 %
	Cetearyl Alcohol	1.80 %
	Mineral oil	5.00 %
	Isooctyl palmitate	7.00 %
	Caprylic capric triglyceride	1.50%
	Isohexadecane	1.00%
	Dimethicone	0.5%
B	SIMULGEL™ SMS 88 (Sodium Acrylate/ Acryloyldimethyl-taurate/Dimethylacrylamide Crosspolymer & Isohexadecane & Polysorbate 60)	0.8%
C	Water	Up to 100 %
	Propylene glycol	4.00%
	SOLAGUM™ AX (Acacia senegal gum & Xanthan gum)	0.20%
D	2-Bromo-2Nitropropane-1,3-Diol/Methylchloroisothiazolinone/methylisothiazolinone	0.10 %
	Fragrance	0.10 %



Low cost cream – AS40009

Characteristics :

Appearance	white emulsion
pH	6.5
Viscosity after 1 month at RT	84800 mPa.s BROOKFIELD LV S4 S6
Viscosity after 1 month at 45°C	52000 mPa.s BROOKFIELD LV S4 S6
Stability	at least 1 month at RT and 45°C



Sunscreen milk SPF 30 - AS40002

Texture

	SENSANOV™ WR (C20-22 Alkyl phosphate and C20-22 alcohols)	1 %
	MONTANOV™ 82 (Cetearyl Alcohol and coco Glucoside)	2 %
	Lanol™ 99	2 %
	Ethylhexyl methoxycinnamate	6 %
	Octocrylène	4 %
	Bis-ethylhexyloxyphenol Methoxyphenyltriazine	1 %
	Triethanolamine	0.12 %
B	C12-15 alkylbenzoate	8 %
	Titanium dioxide	4%
C	Aqua/water	Qsp 100%
	Glycerine	3%
	SOLAGUM™ AX (Acacia senegal gum & Xanthan gum)	0.3 %
	Tetrasodium EDTA	0.1 %
	ORAMIX™ CG 110 (Caprylyl capryl glucoside)	0.5 %
D	Cyclomethicone	2 %
E	SIMULGEL™ FL (Hydroxyethylacrylate/Sodium acryloyldimethyltaurate copolymer and isoheaxadecane and polysorbate 60)	1.5 %
F	Methylene bis-benzotriazolyl tetramethylbutylphenol (50%)	5 %
	Citric acid 25%	0.04 %
G	DI-alpha-tocopheryl acetate	0.5 %
	Phenoxyethanol and ethylhexylglycerin	1 %
	Parfum/fragrance	0.1 %



Sunscreen milk SPF 30 - AS40002



Characteristics :

Aspect	pale yellow emulsion
pH	around 7.7
Viscosity at RT	15900 mPa.s BROOKFIELD LV S3 S6
Viscosity after 1 month at 45°C	13 000 mPa.s BROOKFIELD LV S3 S6
Stability	at least 1 month at RT and at 45°C

How is it made ? Acacia gum



- 🌿 Acacia senegal, also named “gommier blanc”, is a type of tree from **Africa**
- 🌿 Arabic gum (acacia gum) comes from the **exsudate** of the acacia senegal tree and is largely used in pharmaceutical, food, cosmetic and textile industries.
- 🌿 Picking is made by cutting the trunk and the branches of the tree. Wood is used to produce tools handles and high quality coal. The bark contains a large amount of tanins and is used in popular pharmacopeia for its astringent properties.

How is it made ? Acacia gum

- ❧ Acacia gum is a very grafted acid polysaccharide, mixture of potassium, magnesium and calcium salts. Monomer units of the free acid (arabic acid) are G-galactose, L-arabinose, L-rhamnose and D-glucuronic acid.
- ❧ Acacia gum is generally composed of 2 fractions of 2 different polysaccharides. The molecular weight is between 200 000 and 300 000 Daltons. Even at high concentration, its thickening power is very low and it is used for its emulsifying power in the food industry (O/W emulsions).

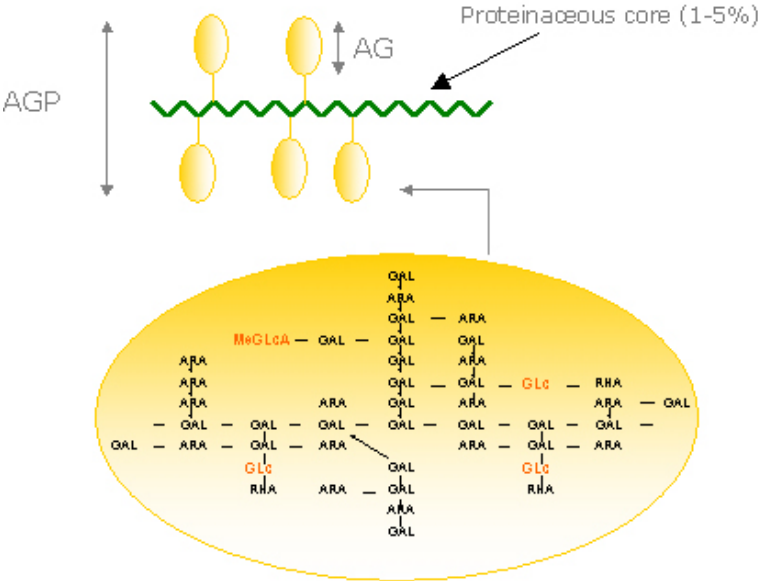


How is it made ? Acacia gum

Texture Acacia senegal



Structure of acacia gum





How is it made ? Xanthan gum

The xanthan gum is produced by exogene fermentation of glucose or sucrose by *Xanthomonas campestris*. It is then precipitated from the medium by the addition of isopropyl alcohol. The precipitate is then dried and milled to the desired size.





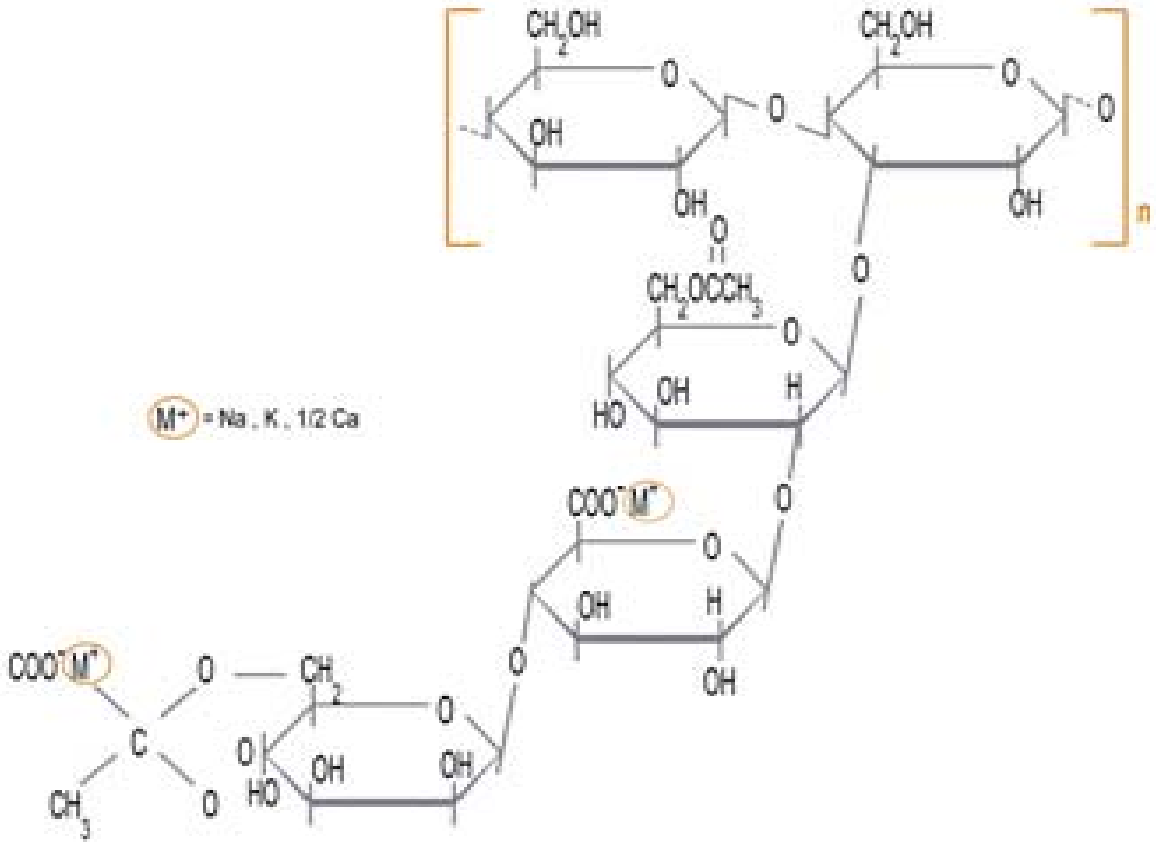
How is it made ? Xanthan gum

- 🌱 The xanthan is a polysaccharide of very high molecular weight (one to several millions of Daltons) . The main segment is composed of D-glucose on which are grafted several sided chains (one sided segment for 2 glucoses).
- 🌱 The lateral chains constituted of 3 sugars : α -D mannose, β -D glucuronic and α -D mannose at the end. Glucuronic and pyruvic acids give a very important anionic nature to the xanthan gum.



How is it made ? Xanthan gum

Structure of the xanthan gum





Delivery and regulatory status

 In the cosmetic area, the product can be put on the different markets worldwide :

- USA, Canada, Australia,
- Japan, China, Korea,
- New Zealand and Philippines.

Furthermore, SOLAGUM™ AX is agreed by ECOCERT® !
and soon by COSMOS ®





Conclusion : 5 KEY POINTS ON SOLAGUM™ AX

INCI name : Acacia senegal gum & Xanthan gum

- 🌱 The first SEPPIC polymer certified by ECOCERT™
- 🌱 New combination of thickening polymers from vegetable origin from an innovative production process
- 🌱 Easy to use with a cold or a hot process
- 🌱 Does not create any stringy effect in aqueous gels, gives non sticky gels
- 🌱 Ecofriendly product and enables time saving during process



The analytical specifications warranted are only those mentioned on the certificate of analysis supplied with each delivery of the product.

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