



# SEPINOV™ EMT 10

*Hydroxyethyl acrylate / Sodium acryloyldimethyl Taurate Copolymer*

***New 2-in-1 powder polymer:***

- \* excellent emulsifier/stabilizer***
- \* thickener at extreme pH values***

***...VERSATILE in formulation!***





## SEPINOV™ EMT 10 FEATURES

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***New polymer presented in powder form :***

- ↻ ***Thickening capability stable over a wide pH range (3 to 10)***
- ↻ ***Excellent emulsifying/stabilizing capability at low polymer content***
- ↻ ***Easy-to-use pre-neutralized powder, dispersible in the oil or aqueous phase, cold or hot process***
- ↻ ***Novel chemical structure, guaranteeing perfect compatibility with specific active ingredients (DHA, AHA, H<sub>2</sub>O<sub>2</sub>, etc.)***
- ↻ ***Supple texture, easy pick up***



# SEPINOV™ EMT 10

## I. EMULSIFYING-STABILIZING CAPABILITY

➔ **Capability to emulsify-stabilize oil phase at low polymer content**

***Cream-gel formula (pH =6 -7) : Polymer qs viscosity, Cetearyl Ethylhexanoate 15%, Sepicide LD 1%, water qs 100%***

POLYMER	SEPIGEL 305	SEPINOV EMT 10	Acrylates / acrylamide copolymer (and) Mineral oil (and) Polysorbate 85	Acrylates / C10-30 alkylacrylates crosspolymer	Ammonium acryloyldimethyl taurate / Vinyl pyrrolidone copolymer	Sodium polyacrylate
<b>CREAM-GEL 20,000 mPa.s</b>						
<b>Content</b>	1.3%	<b>0.6%</b>	0.9%	0.2%	0.5%	0.25%
<b>Stability at RT</b>	Stable > M3	Stable > M3	unstable	unstable	unstable	unstable
<b>CREAM-GEL 50,000 mPa.s</b>						
<b>Content</b>	2.%	<b>0.9%</b>	2.5%	<b>0.7%</b>	0.75%	0.5%
<b>Stability at RT</b>	Stable > M3	Stable > M3	unstable	Stable > M3	unstable	unstable

0,6% : minimum content to stabilize oil phase  
⇒ 20 000 mPa.s

0,7% : minimum content to stabilize oil phase  
⇒ but only at high viscosity : 50 000 mPa.s and ineffective at acidic pH

1% : minimum content to stabilize oil phase  
⇒ but only at high viscosity : 90 000mPa.s

➔ **Low content of SEPINOV™ EMT 10 :**

- stable cream gel at moderate viscosity,
- at all pH values,
- whatever the oil phases (vegetable oil, silicone oil, mineral oil, ester...),
- even for higher viscosities

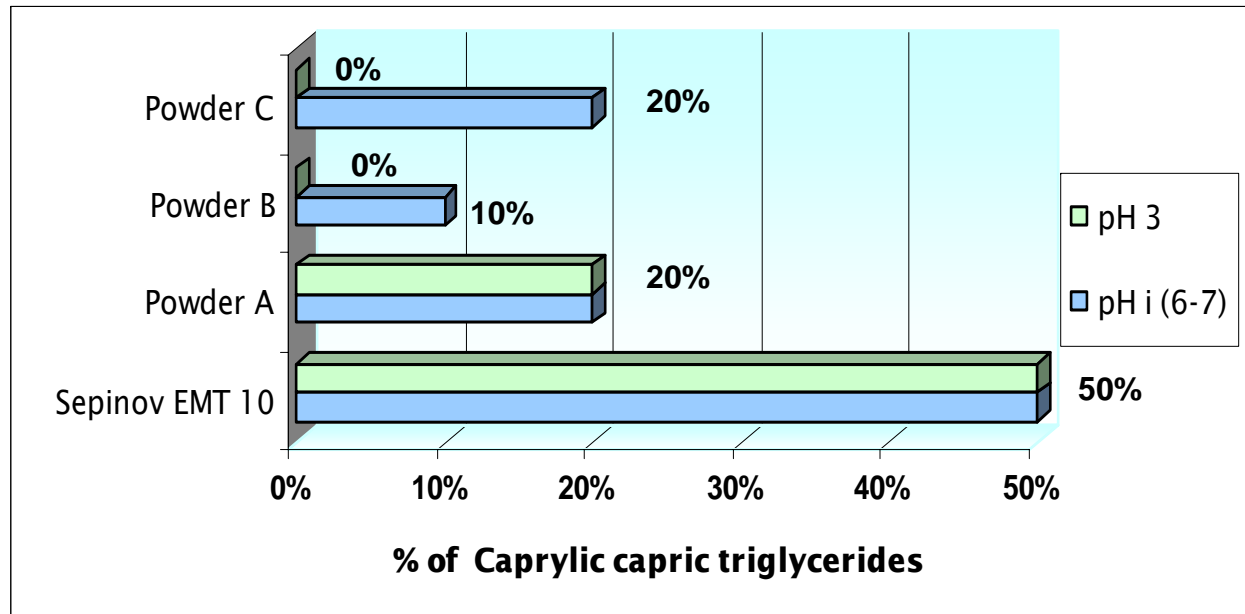


# SEPINOV™ EMT 10

## I. EMULSIFYING-STABILIZING CAPABILITY

➔ **Capability to emulsify-stabilize up to 50% of oil phase**

Cream-gel formula : Caprylic capric triglycerides X %, polymer content qs 100 000 mPa.s, water qs 100 %



**Polymer A** : Ammonium acryloyldimethyltaurate/VP copolymer  
**Polymer B** : Acrylates/C10-30 Alkyl acrylate crosspolymer  
**Polymer C** : Sodium polyacrylate

➔ **2% of SEPINOV™ EMT in a cream-gel can “emulsifies-stabilizes” up to : 50% of Caprylic capric triglyceride or 40% of paraffin oil or 40% of cetearyl isononanoate over a wide pH range**



## SEPINOV™ EMT 10 II. THICKENING CAPABILITY

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### *II Thickening capability*

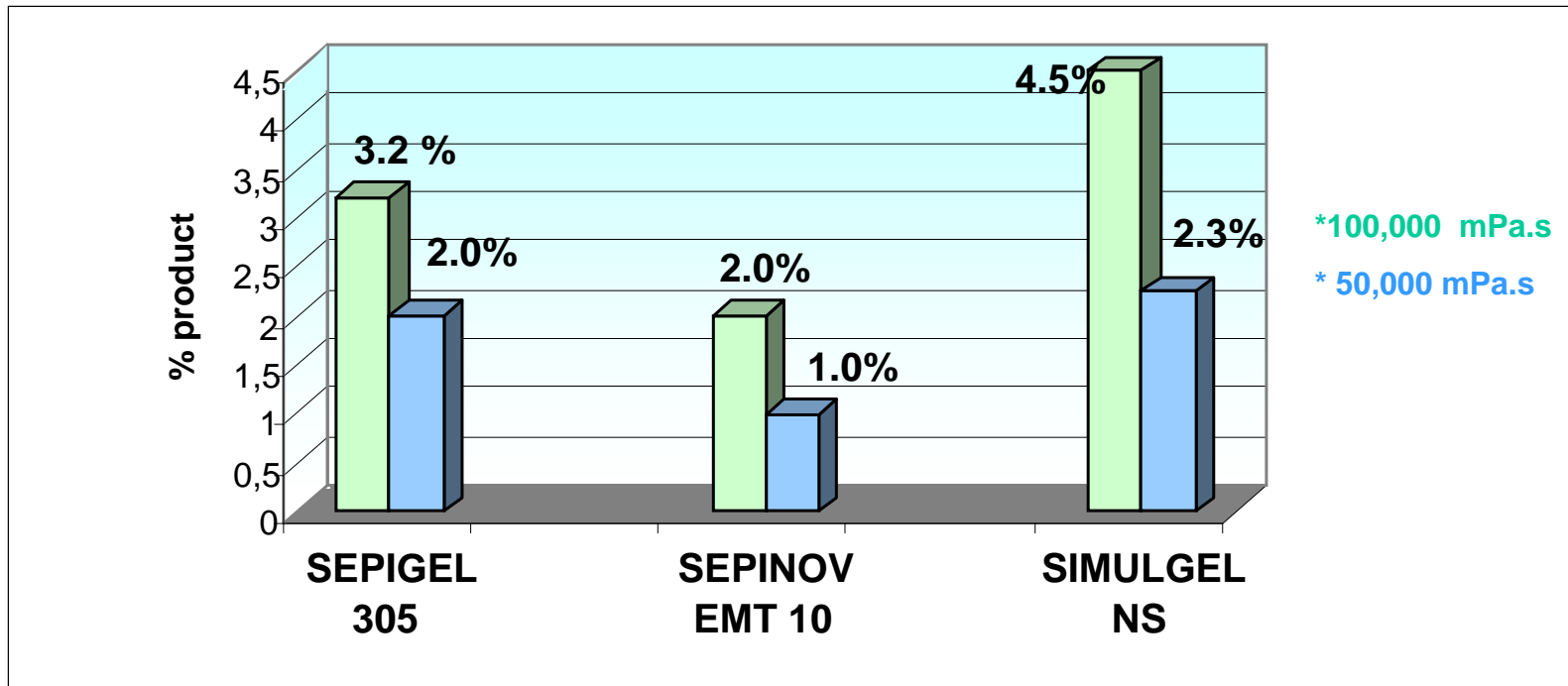
- ↪ *over a wide pH range (3 -10)*
- ↪ *to produce stable aqueous gels whatever the final viscosity*
- ↪ *with electrolytes*
- ↪ *with specific active ingredients : DHA, H<sub>2</sub>O<sub>2</sub>*
- ↪ *with solvents*
- ↪ *transparent formulation*



# SEPINOV™ EMT 10

## II. THICKENING CAPABILITY

➔ *to produce aqueous gels whatever the final viscosity*



*Spontaneous pH (5- 6)*

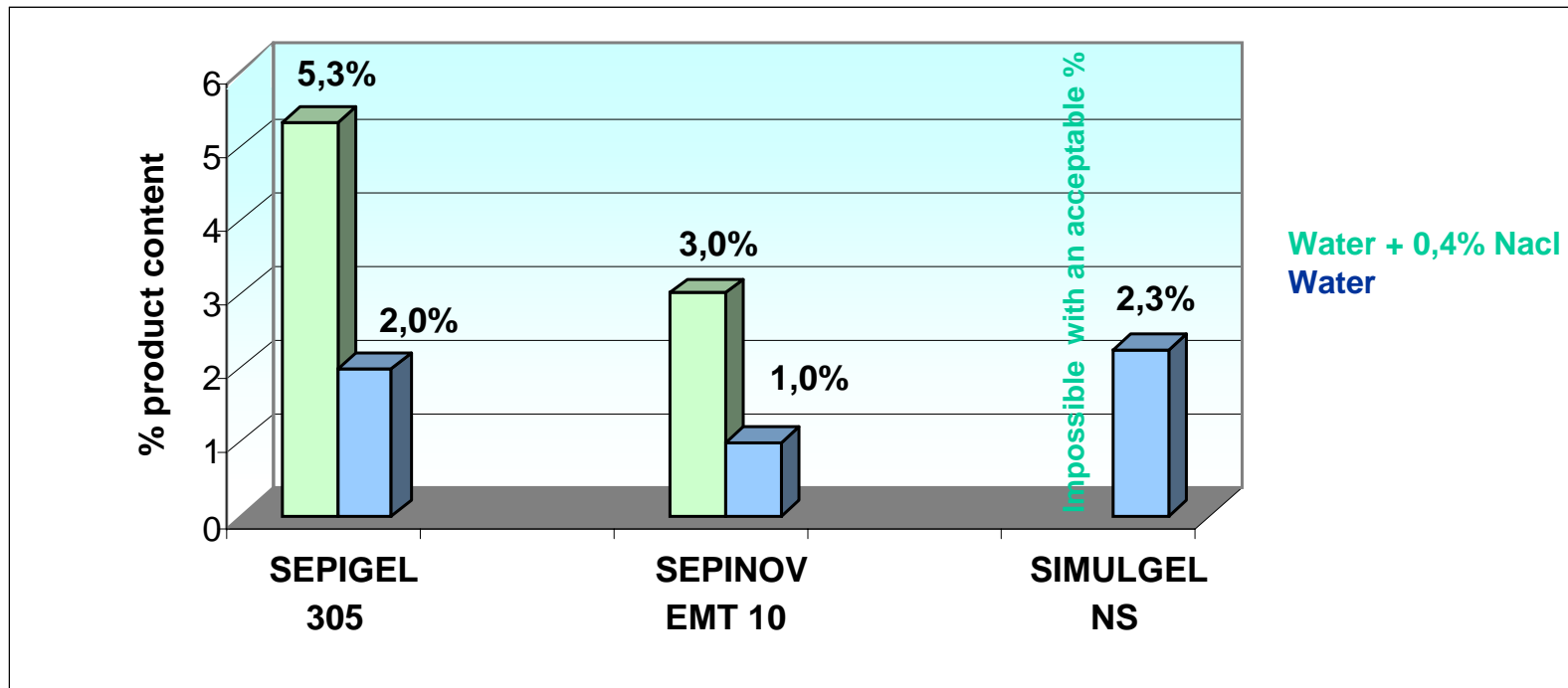
*Viscosity measured with Brookfield LVT S6*

*Comparison of the % of polymer used to produce aqueous gels at 50.000 and 100.000 mPa.s with SEPINOV™ EMT 10, SIMULGEL NS and SEPIGEL 305*



## SEPINOV™ EMT 10 II. THICKENING CAPABILITY

➔ *to produce aqueous gels with electrolytes*



*Spontaneous pH (5-6)*

*Viscosity measured with  
Brookfield LVT S6*

*Comparison of % of polymer used to produce aqueous gels at 50.000 mPa.s  
with and without 0.4% NaCl*



# SEPINOV™ EMT 10 II .THICKENING CAPABILITY

## ➔ *Compatibility with DHA*

### Cream-gel self-tan formula

Ingredients	Percentage
<b>Polymer</b>	1% substance
C12 -15 alkylbenzoate	10%
DC200/350	5%
DHA	5%
Glycerin	3%
Propylene glycol	2%
Sepicide HB	1%
Tocopherol	0.05%
Water	q.s.100
Citric acid	q.s. pH4

→ Compatible?

} Compatible

} Compatible

### 2 tests to determine the compatibility with DHA:

**1 – Color change after 3 months at 45°C: calculation  $\Delta E = \sqrt{(\Delta L^2 + \Delta a^2 + \Delta b^2)}$  thanks to measurements of L, a, b by the chromameter (Minolta CR200)**

✱ If formula ivory to pale yellow



⇔ **Compatible**

⇔  $\Delta E < 8 \pm 2$

✱ If formula yellow to brown



⇔ **Non-compatible**

⇔  $\Delta E > 8 \pm 2$

**2 – Enzymatic assay after 3 months at 40°C (performed by Merck): measurement of DHA degradation by absorbance**

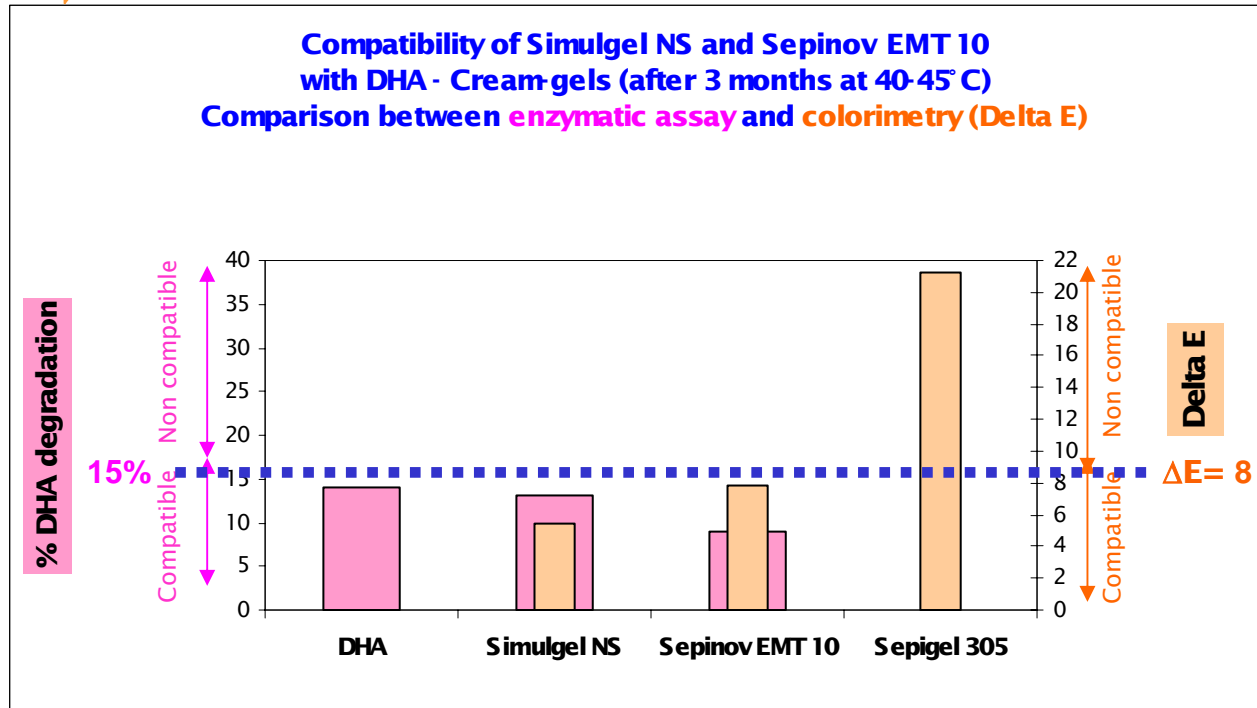
*Stability of an aqueous solution containing 5% DHA after 3 months at 40°C = 85% ± 5%*

✱ If **DHA degradation in the formula < 15% ± 2%** ⇔ **Compatible**

✱ If **DHA degradation in the formula > 15% ± 2%** ⇔ **Non-compatible**



### Compatibility with DHA



- \* If **DHA degradation < 15% ± 2%** ⇔ **Compatible with DHA** ⇔ **ΔE < 8 ± 2**
- \* If **DHA degradation > 15% ± 2%** ⇔ **Non-compatible with DHA** ⇔ **ΔE > 8 ± 2**

**In our polymer range, Simulgel NS and Sepinov EMT10 show the best compatibility with DHA. Simulgel NS and Sepinov EMT10 are ideal polymers on the market to stabilize your self-tan formulas.**

There is a good correlation between enzymatic assay and color change (ΔE)



## SEPINOV™ EMT 10 II. THICKENING CAPABILITY

➔ **Compatibility with  $H_2O_2$  for the formulation of transparent bleaching gel at pH 4,5**

**Bleaching cream-gel formula:**

- SEPINOV™ EMT 10	1.0%
- stabilized $H_2O_2$	6.0%
- Tromethamine	qs pH 4.5

**Appearance :transparent gel  
Viscosity: 33 000 mPa.s**

➔ **Transparent bleaching gel stable with 6 %  $H_2O_2$  at pH4,5**

**Stability testing in progress : Constant appearance and viscosities**

- 3 months at RT
- 3 months at 4°C
- 1 month at 45°C

**TEMPORARY RESULTS**



## SEPINOV™ EMT 10

### III. FORMULATION ADVICE

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#### ➔ *Great flexibility of use*

- ***No neutralization***
- ***Easy to disperse in the oil or aqueous phase (cold or hot process)***
- ***Resistant to high temperatures (80°C)***
- ***Resistant to shear***
- ***Resistant to pH variations (effective at all pH values)***

#### ➔ *Formulation tips*

↳ ***Recommended level : 0.2 to 3 %***

↳ ***Cream -gel : disperse SEPINOV™ EMT 10 in the oil phase or the aqueous phase. Cold or hot process.***

↳ ***Emulsion : add SEPINOV™ EMT 10 at the beginning of the process. Disperse it in the oil phase or the aqueous phase **before** emulsification***



## SEPINOV™ EMT 10 IV. TOXICOLOGICAL DATA

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### ➔ ***Excellent tolerance of SEPINOV™ EMT 10 :***

- ***Well tolerated in 48 h patch (20 volunteers): non-irritant at 2.2% in water***
- ***Good ocular tolerance (HET CAM, RBCA): non-irritant at 5% in water***
- ***Non-mutagenic (Ames test)***
- ***Non-irritant and non-sensitizing (Marzulli and Maibach)***



## SEPINOV™ EMT 10 CONCLUSIONS

<b>Characteristics</b>	<b>SEPINOV™ EMT 10</b>
<b>Appearance</b>	<b>POWDER</b> , pre-neutralized, ready to use
<b>Emulsifying-stabilizing capacity</b>	High performance <b>at low polymer content</b>
<b>Thickening capacity</b>	Consistent over a <b>wide pH range</b>
<b>Sensory</b>	<b>Supple texture</b> – easy to pick up Soft, non-tacky feel
<b>Compatibility with specific active ingredients</b>	
<b>AHA</b>	Yes
<b>DHA</b>	Yes
<b>H2O2</b>	Yes
<b>solvents</b>	yes
<b>Transparent formulation</b>	<b>Highly-particular conditions</b> Without oil phase + ORAMIX CG10 (caprylyl/capryl glucoside) < 1% and/or Glycol



## SEPINOV™ EMT 10 FORMULATION

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- ***SEPINOV™ EMT 10 is suitable for the following applications:***
  - ***facial care***
  - ***body care (slimming, etc.)***
  - ***massage***
  - ***suncare***
  - ***hair care (dressing gel, bleaching gel, etc.)***
  - ***makeup***



## Moisturizing serum 6997

• <b>SEPINOV EMT10</b> ( <i>Hydroxyethylacrylate / Sodium acryloyldimethyl taurate copolymer - SEPPIC</i> )	0.9%
• <b>LANOL 99</b> ( <i>isononyl isononanoate - SEPPIC</i> )	15.0%
• <b>AQUAXYL</b> ( <i>Xylitylglucoside and anhydroxylitol and xylitol - SEPPIC</i> )	3.0%
• <b>SEPICIDE HB</b> ( <i>Phenoxyethanol/Methylparaben/Ethylparaben /Propylparaben /Butylparaben - SEPPIC</i> )	0.3%
• <b>SEPICIDE CI</b> ( <i>Imidazolidinyl urea - SEPPIC</i> )	0.2%
• Parfum / Fragrance	0.1%
• Water	Qsp 100%

**INTEREST : Cream-gel with 15% of oil phase and a viscosity beyond 20,000mPa.s**

### **Characteristics**

Aspect	White
pH	6.0-6.5
Viscosity	<b>20.000 mPa.s – 25.000 mPa.s</b>
Stability	Stable at RT - 45°C

### **Procedure**

Introduce step by step Sepinov EMT 10 in water under mechanic stirring. Stir this phase until the gel is viscous. Add Lanol 99 then Aquaxyl under mixing. Add preservatives and fragrance.



## Body cream rich in oil 6999

<b>A</b>	<ul style="list-style-type: none"><li>• <b>MONTANOV L</b> (C14-22 alcohol and C12-20 alkylglucoside - SEPPIC)</li><li>• C12-15 alkylbenzoate</li></ul>	1.0 % 50.0%
<b>B</b>	<ul style="list-style-type: none"><li>• <b>SEPINOV EMT10</b> (Hydroxyethylacrylate / Sodium acryloyldimethyl taurate copolymer - SEPPIC)</li><li>• Aqua</li></ul>	1.0% Qsp 100%
<b>C</b>	<ul style="list-style-type: none"><li>• <b>SEPICIDE HB</b> (Phenoxyethanol/Methylparaben/Ethylparaben /Propylparaben /Butylparaben - SEPPIC)</li><li>• <b>SEPICIDE CI</b> (Imidazolidinyl urea - SEPPIC)</li><li>• Parfum / Fragrance</li><li>• Triethanolamine</li></ul>	0.3% 0.2% 0.1% Qs

**INTEREST : Emulsion with 50% of oil phase and a low level of emulsifier**

### **Characteristics**

Aspect	White emulsion
pH	5.0-5.5
Viscosity	70.000 mPa.s
Stability	Stable at RT - 45°C

### **Procedure**

Heat Montanov L and the ester at 80°C. Introduce step by step Sepinov EMT10 in the oily phase. Add water warmed before at 75°C.

Homogenize with high shear for few minutes (rotor/stator turbine).

Cool the emulsion under moderate stirring and introduce phase C at around 30°C.

Adjust the final pH around 5 if necessary.





## Clear serum for oily skin without oil phase 6939

<b>A</b>	• Water	20.0%
	• <b>LIPACIDE C8G</b> ( <i>Capryloyl glycine - SEPPIC</i> )	1.0%
	• <b>MONTANOX 20</b> ( <i>Polysorbate 20 - SEPPIC</i> )	2.0%
	• Sodium hydroxyde	Qs
<b>B</b>	• <b>SEPINOV EMT10</b> ( <i>Hydroxyethylacrylate / Sodium acryloyldimethyl taurate copolymer - SEPPIC</i> )	2.0%
<b>C</b>	• Ethanol	5.0%
	• <b>SEPICIDE HB</b> ( <i>Phenoxyethanol/Methylparaben/Ethylparaben /Propylparaben /Butylparaben - SEPPIC</i> )	0.3%
	• Water	Qsp 100%

**INTEREST : Gel with a clear appearance and a softness texture**

### **Characteristics**

Aspect	<b>Clear gel</b>
pH	Around 5.2
Viscosity	Around 1.500 mPa.s
Stability	Stable at RT - 45°C

### **Procedure**

Solubilize Lipacide C8G and Montanox 20 under mechanic stirring, in water heated at 80°C (the mixture should be clear).

Cool at around 30°C then adjust the pH around 5.2 with the sodium hydroxide.

Introduce step by step Sepinov EMT 10 in phase A under mixing.

Add water then Ethanol and Sepicide HB.



## Silicon care 7011

<b>A</b>	<ul style="list-style-type: none"><li>• Cyclopentasiloxane</li><li>• <b>ORAMIX CG110</b> (<i>Caprylic capric glucoside - SEPPIC</i>)</li><li>• <b>SEPINOV EMT10</b> (<i>Hydroxyethyl acrylate &amp; Sodium acryloyldimethyl taurate copolymer - SEPPIC</i>)</li></ul>	15.00 % 2.00 % 0.20 %
<b>B</b>	<ul style="list-style-type: none"><li>• Water</li></ul>	QSP 100%
<b>C</b>	<ul style="list-style-type: none"><li>• Cyclopentasiloxane &amp; dimethiconol</li></ul>	65.00 %
<b>D</b>	<ul style="list-style-type: none"><li>• <b>KATHON CG</b> (<i>Methylchloroisothiazolinone and methylisothiazolinone - ROHM &amp; HAAS</i>)</li><li>• Fragrance</li></ul>	0.05% 0.30 %

**INTEREST : silicon rich cream : SEPINOV EMT 10 allows to emulsify up to 80% of silicon internal phase**

### **Characteristics**

Appearance

**white emulsion**

pH

around 5

Viscosity at room temp

26,000 mPa.s BROOKFIELD LV2 6rpm

Viscosity after 1 month at 45°C

14,700 mPa.s BROOKFIELD LV2 6rpm

Recovery of viscosity at RT

25,000 mPa.s BROOKFIELD LV2 6rpm

(after 1 month at 45°C)

Stability

> M1 at room temp & 45°C

> M1 after freeze thaw cycles -5 / +40°C

Stable when centrifuged 20' at 3000 rpm

### **Procedure (pilot DUMEK 2kg)**

Premix ingredients in A. Add A into the water phase and start homogenization (rotor stator speed1=700rpm 2' then speed2=1500 rpm 8'). Then add phase C and keep homogenization for 10' at 1500rpm. Finally add ingredients in D thus homogenizing 5' more.



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