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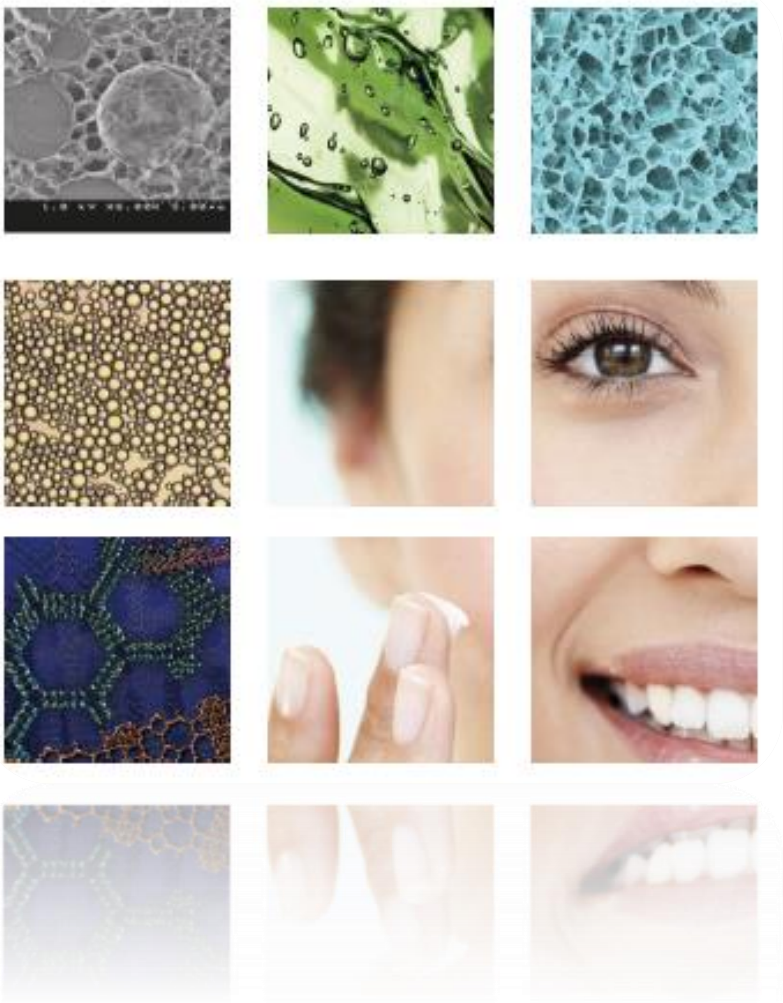

Frametime technology:
Guideline Formulation 2020

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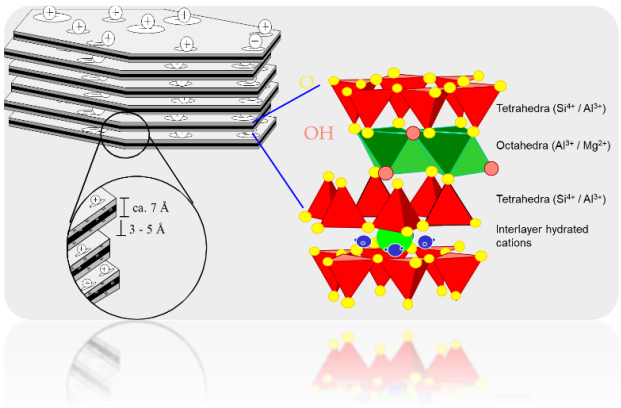
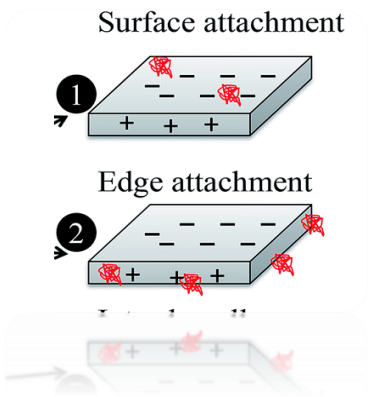
Introducing Frametime technology

- Frametime is obtained by a surface modification of a natural multilamellar mineral, a bentonite.
- Bentonites forming Frametime are carefully selected and purified in order to fullfully the cosmetic international standard in term of heavy metals and microbiological content.
- Xanthan Gum is used as organic modifier using an Ecofriendly process.
- Frametime comes under powder form and it is preservative free





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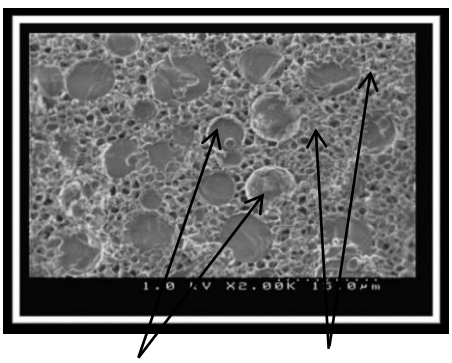
Introducing Frametime technology

Frametime technology is designed to create a Pickering emulsion using a two steps stabilization process:

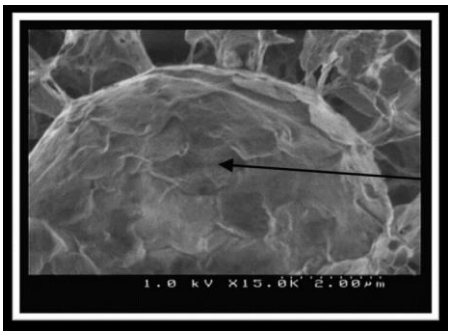
- First step: Frametime forms a layer preventing the coalescence of oil droplets. The oil phase is thus completely encapsulated into the mineral structure.

- Second step: Frametime creates a 3D network in the continuous phase like an honey comb structure. The network formation increases the stability of the emulsion reducing the movement of the discontinuous phase protecting, at the same time, the water soluble ingredients.

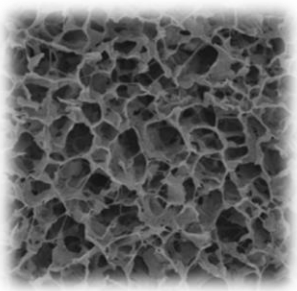


Oil droplets

Water phase



Oil droplet covered by Frametime plates



Frametime 3D network in the Water phase

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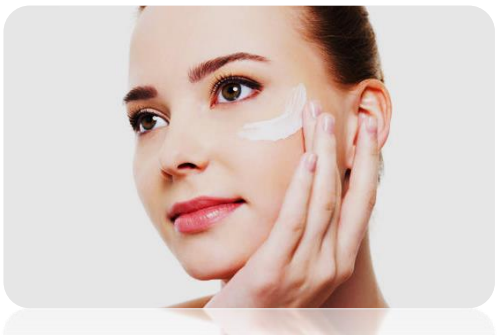
Frametime technology Benefits



Skincare:

- Silkiness feels
- O/W Emulsion stabilization
- Non sticky, non greasy feel even with large amount of vegetable Oil
- Easily spreadable emulsion
- Active Ingredients encapsulations
- Hydration improvement
- TEWL reduction

Water based Make-up (BB cream, foundation, mascara)

- Increase water – resistance
- Reduce pigments separation and settlement
- Increase pigment dispersion

Water based Suncare:

- Boost the Sun Protector Factor
- Reduce pigments separation and settlement

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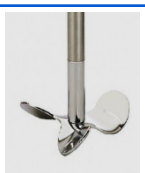
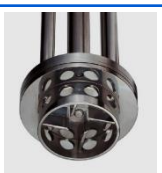
Incorporation and equipment guideline

				
Mixing tool	Propeller	Planetary	Impeller - blade	Rotor-Stator
Shear developpement	Low	Medium	Medium-High	High
Suitability				
Speed rate		> 3000 rpm	> 3000 rpm	> 3000 rpm
Average Mixing Time		> 30 mins	10-15 mins	10-15 mins
Temperature		Water at up to 60°C (140°F) increases Frametime hydration rate improving the dispersion	From room Temperature to 90°C	Room Temperature to 90°C
Incorporation order		Pre-hydrate Frametime in water under vigorous stirring then add the other water soluble ingredients. Then add the oil phase using highest shear rate until completely homogeneous	Pre-hydrate Frametime in water under vigorous stirring then add the other water soluble ingredients. Then add the oil phase using highest shear rate until completely homogeneous One pot emulsion feasible	Pre-hydrate Frametime in water under vigorous stirring then add the other water soluble ingredients. Then add the oil phase using highest shear rate until completely homogeneous One pot emulsion feasible

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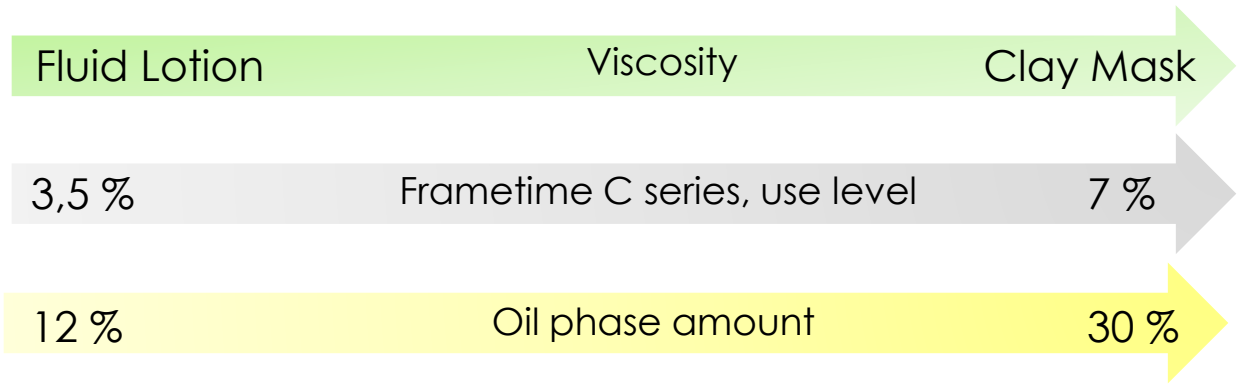
Incorporation and incompatibility guideline

Application dosage



Best working pH	4-11
Electrolyte tolerance	Frametime offers a good tolerance to electrolytes. These latter should not be added until dispersion is completed.
Compatibility with a Co-emulsifier	Cetearyl Alcohol; specific waxes, amino acids create a good synergy
Thermal stability	10 -90 °C
Alcohol tolerance	Frametime offers a good tolerance to ethanol up to few percentage
Compatibility with a stabilizer	Charged polymer can interact strongly with Frametime structure causing a loss in stability. Natural thickening agent (xhantan gum, alginate, aggr) offer a perfect stability
Cold vs Hot Process	Frametime can be used in both cold and hot emulsification process
Optimum oil phase concentrations	Frametime works best in medium oil phase range (12-30%)
Viscosity range	600 - 22000 mPa s

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Available grades and Applications

Commercial Name	INCI
Frametime CX	Bentonite & Xanthan gum & Citric acid
Frametime CXG	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Frametime LTX	Sodium magnesium silicate & Xanthan gum & Citric acid

Frametime C series Applications	Frametime CX	Frametime CXG
Lotion - Milk (lower viscosity emulsion)	*	***
Standard Cream	**	***
Mask - Balm (higher viscosity emulsion)	***	**
Emulsifier free	***	*

Frametime LTX Applications for water borne systems	Use Level
Mineral transparent gel in water	0,5 -3 %
Active Ingredient delivery system	2 – 5 %
Texturizing agent	0,2 -1 %
Rheological agent (shear thinning)	0,2 – 0,6 %

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FAQ and Formulation tips

- Which is the HLB ? Frametime is physical emulsifier and not a chemical one. So HLB is not pertinent here

- Certified or not certified? Frametime CXG is COSMOS certified, Frametime CX and LTX are COSMOS ready

- Is it Natural ? 100% natural!

- At the lab scale, if your vessel is not equipped with an anchor with scrappers do not forget to use your spatula in order to remove the powder from the walls during mixing. If your blade fits well your vessel (similar diameters) you will probably not need to use an external spatula.

- How I can avoid « peluchage » ? Since Frametime remains at the surface of the skin you need to reduce the use of film forming polymers which can roll the clay-plate and create a peluchage effect. In order to avoid peluchage you can add an amino acid such as Lauryl Lisine.

- How I can improve the play time ? Add a water solution of Urea 40%m/m at 1,5%

- How I can pass Freeze and Thaw tests? It is simple you need to prevent water to freeze. Add some glycols like glycerol and/or Propanediol

- Is it China Compliant? Yes it is

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Formulation Form

Customer (brand)	**EPHYLA**
Formula Name	**Eye Contour**
Formula Ref	**EP_CE_F4**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	Frametime CXG (EPHYLA)	3,00	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
B	Xanthan Gum FF	0,10	Xanthan gum
B	Sensiteam Be (EPHYLA)	1,00	Bentonite & Lannea microcarpa fruit extract
B	Sericite GMS 4C	0,50	Mica
C	HTRE (EPHYLA)	0,50	Helianthus annuus seed oil & Canarium luzonicum gum nonvolatiles
C	Ephyster MCR (EPHYLA)	4,00	Brassica napus extract
C	Moringa Oil (EPHYLA)	2,00	Moringa oleifera seed oil
C	Desert Date Oil (EPHYLA)	2,00	Balanites roxburghii seed oil
C	Bioxan Sf T50	0,05	Tocopherol & Helianthus annuus seed oil
D	Preservative	QS	/
E	Perfume	QS	Parfum
		100,00	

FINAL PH : 6 -7

Protocol
1- Add phase B to A and mix until completely homogeneous
2- Prepare the phase C, add to the A&B and homomix until completely homogeneous
3- Add D and mix until completely homogeneous
4- Add E and mix until completely homogeneous

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Formulation Form

Customer (brand)	**EPHYLA**
Formula Name	**Slimming body lotion**
Formula Ref	**EP_LM_F1**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	Frametime CXG (EPHYLA)	4,50	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
B	Xanthan Gum FF	0,10	Xanthan gum
B	Body 3 Complex (EPHYLA)	2,00	Bentonite & Butyrospermum parkii butter extract & Persea gratissima seed extract
B	Sericite GMS 4C	1,00	Mica
C	Glycerin	2,00	Glycerin
D	Desert date oil (EPHYLA)	6,00	Balanites roxburghii seed oil
D	Moringa oil (EPHYLA)	4,00	Moringa oleifera seed oil
D	Ephyster MCR (EPHYLA)	5,00	Brassica napus extract
D	Bioxan SF T50	0,05	Tocopherol & Helianthus annuus seed oil
E	Preservatives	QS	/
F	Perfume	QS	Parfum
		100,00	

FINAL PH : 5 - 6

Protocol
1- Add phase B to A and mix until completely homogeneous
2 - Add C and mix
3- Prepare the D phase, add D and mix until completely homogeneous
4- Add E and mix until completely homogeneous
5- Add F and mix until completely homogeneous

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Formulation Form

Customer (brand)	**EPHYLA**
Formula Name	**Silky cream**
Formula Ref	**EP_CO_F1**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	Frametime CXG (EPHYLA)	5,00	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
B	Xanthan Gum FF	0,30	Xanthan gum
B	Regeneryl (EPHYLA)	1,00	Montmorillonite & Borojoa patinoi fruit juice & Ulva lactuca extract
B	Sericite GMS 4C	1,00	Mica
B	Maltodextrin	1,50	Maltodextrin
C	Vitamin D3-like (EPHYLA)	1,00	Aqua & Sodium citrate & Saccharomyces/Grape ferment extract & Sodium benzoate
C	Glycerin	2,50	Glycerin
D1	Kokum Butter (EPHYLA)	4,00	Garcinia indica seed butter
D1	Moringa oil (EPHYLA)	4,00	Moringa oleifera seed oil
D1	Coconut oil	5,00	Cocos nucifera oil
D1	Cetearyl alcohol	2,00	Cetearyl alcohol
D1	Ephyster MCR (EPHYLA)	2,00	Brassica napus extract
D2	Vitamin C Tetra E (EPHYLA)	1,00	Ascorbyl tetraisopalmitate
D2	HTRE (EPHYLA)	2,00	Helianthus annuus seed oil & Canarium luzonicum gum nonvolatiles
E	Preservatives	QS	/
F	Perfume	QS	Parfum
		100,00	

FINAL PH : 5 - 6

Protocol
1- Add phase B to A and mix until completely homogeneous
2 - Add C and mix
3- Heat D1 to 60°C and homogenize
4- Add D2 to D1 and homogenize
5- Add D1&D2 to A&B&C and mix until completely homogeneous
6- Add E and mix until completely homogeneous
7- Add F and mix until completely homogeneous

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Formulation Form

Customer (brand)	**EPHYLA**
Formula Name	**Purifying mask**
Formula Ref	**EP_MP_F15**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	White clay	18,00	Kaolin
B	Frametime CX (EPHYLA)	6,00	Bentonite & Xanthan gum & Citric acid
B	Sericite GMS 4C	1,00	Mica
C	Propanediol	5,00	Propanediol
C	Glycerin	7,00	Glycerin
D	Neossance squalane	5,00	Squalane
D	Desert Date Oil (EPHYLA)	7,00	Balanites roxburghii seed oil
D	HTR1 (EPHYLA)	3,00	Helianthus annuus seed oil & Protium heptaphyllum resin
D	Ephyster MCR (EPHYLA)	5,00	Brassica napus extract
E	Unipure white LC987 EM	2,00	CI 77891 & silica
F	Preservatives	QS	/
G	Perfume	QS	Parfum
		100,00	

FINAL PH : 5,5 - 6,5

Protocol
1- Add phase B to A and mix until completely homogeneous
2 - Add C and mix
3 - Prepare the D phase, add E and homomix until completely homogeneous
4 - Add D&E phase at A&B&C and mix until completely homogeneous
5- Add F and mix until completely homogeneous
6- Add G and mix until completely homogeneous

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Customer (brand)	**EPHYLA**
Formula Name	**Sunscreen SPF-30**
Formula Ref	**EP_CSN_F7**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	Frametime CX (EPHYLA)	3,00	Bentonite & Xanthan gum & Citric acid
B	Ulvaprotect (EPHYLA)	1,00	#N/A
B	Salt	1,00	Sodium chloride
C	Vitamine D3 like (EPHYLA)	1,00	Aqua & Sodium citrate & Saccharomyces/Grape ferment extract & Sodium benzoate
C	Propanediol	4,00	Propanediol
C	Glycerin	4,00	Glycerin
D	Desert Date oil (EPHYLA)	2,00	Balanites roxburghii seed oil
D	Ephyster MCR (EPHYLA)	21,00	Brassica napus extract
D	Cetearyl alcohol	2,00	Cetearyl alcohol
D	HTRE (EPHYLA)	2,00	Helianthus annuus seed oil & Canarium luzonicum gum nonvolatiles
D	NS-EX-81 (Next Step Lab)	1,00	Polyglyceryl-8 oleate
E	Super Zinc Sheer Natural (VIZOR)	15,00	Zinc oxide & Polyhydroxystearic acid
F	Perfume	QS	Parfum
F	Preservatives	QS	/
		100,00	

FINAL PH : 7 - 8

Protocol
1 - Add the B phase to A, and mix until completely homogeneous 2 - Add C to AB, and mix 3 - Prepare and heat the D phase at 70°C, homogenize 4 - Add E to D, mix and heat at 70°C during 10 min until perfect dispersion of pigments 5 - Add DE to ABC and mix until comletely homogeneous 6 - Add F to ABCDE, and mix

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Customer (brand)	**EPHYLA**
Formula Name	**Sunscreen SPF-50**
Formula Ref	**EP_CS50_F3**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	Frametime CX (EPHYLA)	3,00	Bentonite & Xanthan gum & Citric acid
B	Ulvaprotect (EPHYLA)	1,00	#N/A
B	Salt	1,00	Sodium chloride
C	Vitamine D3 like (EPHYLA)	1,00	Aqua & Sodium citrate & Saccharomyces/Grape ferment extract & Sodium benzoate
C	Propanediol	4,00	Propanediol
C	Glycerin	4,00	Glycerin
D	Ephyster MCR (EPHYLA)	17,00	Brassica napus extract
D	Desert Date oil (EPHYLA)	3,00	Balanites roxburghii seed oil
D	HTRE (EPHYLA)	2,00	Helianthus annuus seed oil & Canarium luzonicum gum nonvolatiles
D	Cetearyl alcohol	2,00	Cetearyl alcohol
D	NS-EX-81 (Next Step Lab)	1,00	Polyglyceryl-8 oleate
E	Super Zinc Sheer Natural (VIZOR)	20,00	Zinc oxide & Polyhydroxystearic acid
F	Perfume	QS	Parfum
F	Preservatives	QS	/
		100,00	

FINAL PH : 7 - 8

Protocol
1 - Add the B phase to A, and mix until completely homogeneous 2 - Add C to AB, and mix 3 - Prepare and heat the D phase at 70°C, homogenize 4 - Add E to D, mix and heat at 70°C during 10 min until perfect dispersion of pigments 5 - Add DE to ABC and mix until comletely homogeneous 6 - Add F to ABCDE, and mix

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Customer (brand)	**Ephyla**
Formula Name	**Liquid Shampoo**
Formula Ref	**EP_SHL_F4**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
B	Frametime CXG (EPHYLA)	4,50	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
C	Moringa Oil (EPHYLA)	0,50	Moringa oleifera seed oil
C	HTR1 (EPHYLA)	1,00	Helianthus annuus seed oil & Protium heptaphyllum resin
C	Desert Date Oil (EPHYLA)	0,50	Balanites roxburghii seed oil
D	Sulfetal C90C	5,00	Sodium coco-sulfate
D	Pureact I78	4,00	Sodium cocoyl isethionate
E	Preservatives	QS	/
F	Perfume	QS	Parfum
		100,00	

FINAL PH : 5 - 6

Protocol
1- Add B to phase A and homogenize
2- Prepare the C phase, add C and mix until completely homogeneous
3- Solubilize D in the remaining water and add to A&B&C under low shear rate
4- Add E and mix until completely homogeneous
5- Add F and mix until completely homogeneous

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Customer (brand)	**EPHYLA**
Formula Name	**Cleansing Oil**
Formula Ref	**EP_HD_F2**

Phase	Commercial Name	%	INCI
A	Ephyster MCR (EPHYLA)	21,9	Brassica napus extract
A	NS-EX-81 (Next Step Lab)	4	Polyglyceryl-8 oleate
B	Desert date oil (EPHYLA)	25	Balanites roxburghii seed oil
B	Moringa Oil (EPHYLA)	10	Moringa oleifera seed oil
B	HTR1 (EPHYLA)	3	Helianthus annuus seed oil & Protium heptaphyllum resin
B	Neossance squalane	23	Squalane
B	Vitamin C Tetra E (EPHYLA)	1	Ascorbyl tetraisopalmitate
B	Jojoba oil	10	Simmondsia chinensis seed oil
B	Bioxan SF T50	0,1	Tocopherol & Helianthus annuus seed oil
B	Perfume	QS	Parfum
		100	

Protocol
1- Heat to 60 °C Homogenize phase A 2- Add the other ingredients when temperature is below 30°C and homogenize

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Formulation Form

Customer (brand)	**EPHYLA**
Formula Name	**Precious dry oil**
Formula Ref	**EP_HPR_F1**

Phase	Commercial Name	%	INCI
A	Ephyster MCR (EPHYLA)	QSP	Brassica napus extract
A	Moringa Oil (EPHYLA)	46,00	Moringa oleifera seed oil
A	HTRE (EPHYLA)	2,00	Helianthus annuus seed oil & Canarium luzonicum gum nonvolatiles
A	Perfume	QS	Parfum
		100,00	

Protocol
1- Mix until completely homogeneous

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Do not hesitate to contact us contact@ephyla3.com