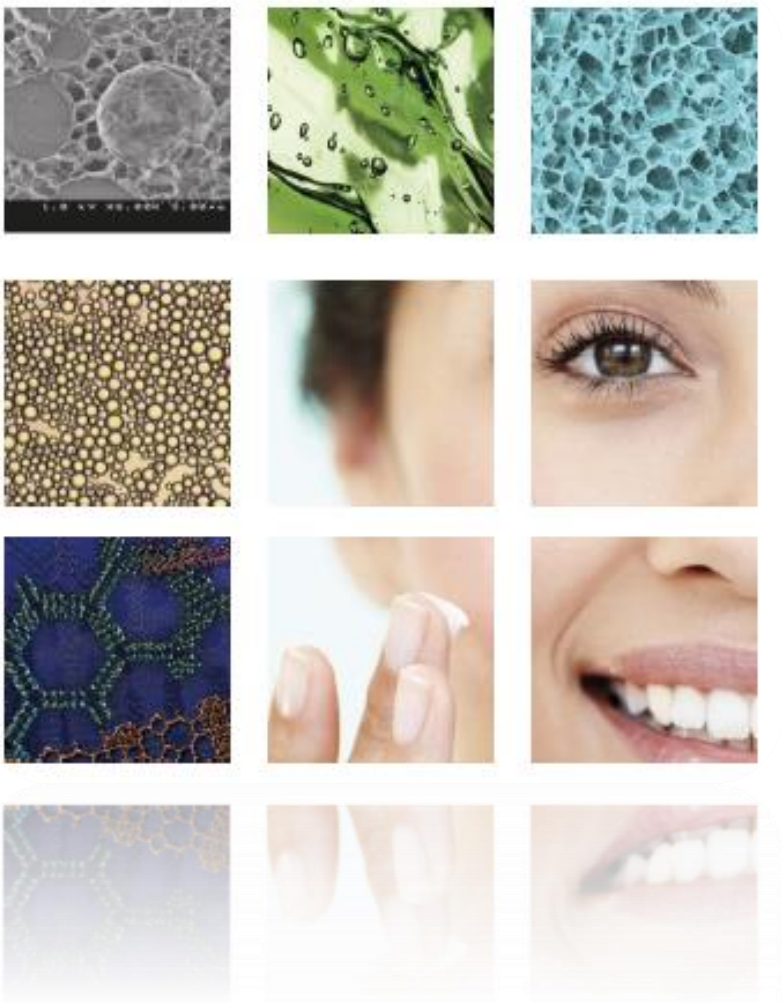
EPHYLA
Natural Active Design

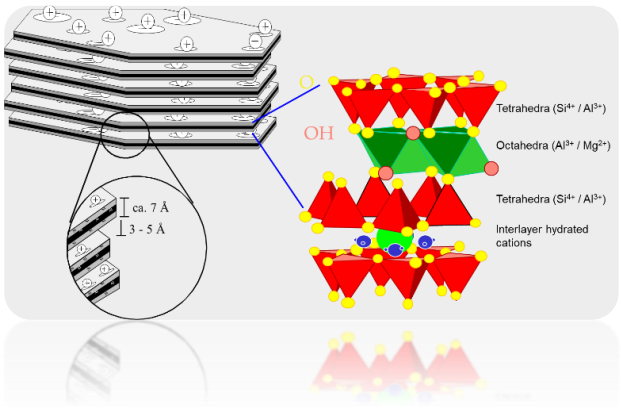


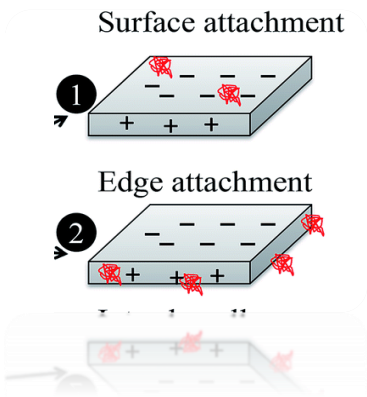
Frametime technology:
Guideline Formulation

EPHYLA
Natural Active Design

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





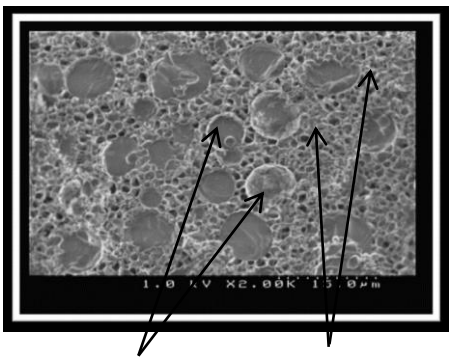
EPHYLA
Natural Active Design

Introducing Frametime technology

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

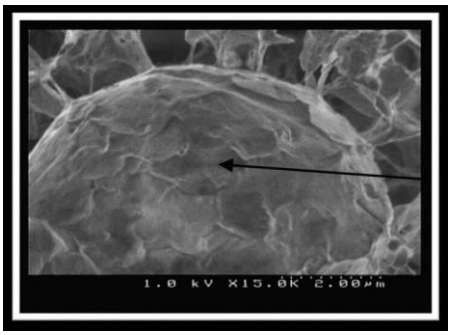
- First step: Frametime forms a layer preventing the coalescence of oil droplets. The oil phase is thus completely encapsulated into the mineral structure.

- 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.

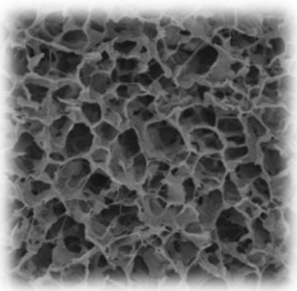


Oil droplets

Water phase



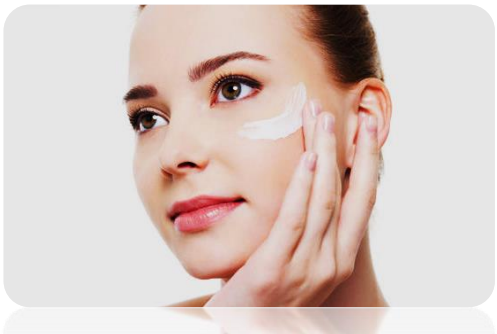
Oil droplet covered by Frametime plates



Frametime 3D network in the Water phase

EPHYLA
Natural Active Design

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)

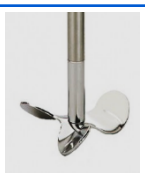
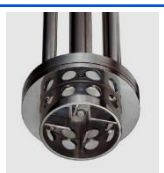
- Increase water – resistance
- Reduce pigments separation and settlement
- Increase pigment dispersion

Water based Suncare:

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

EPHYLA
Natural Active Design

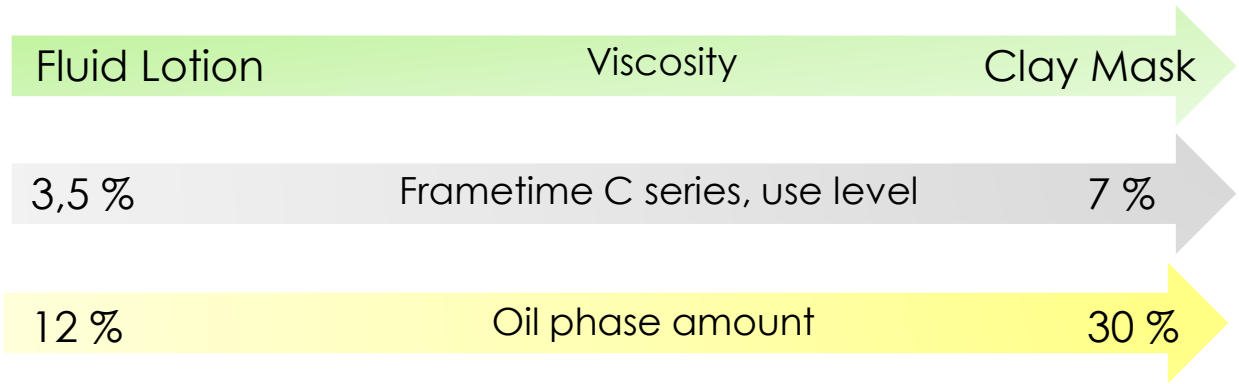
Incorporation and equipment guideline

				
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

EPHYLA
Natural Active Design

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
Emulsification process temperature range	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

EPHYLA
Natural Active Design

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 %

EPHYLA
Natural Active Design

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

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Clay Mask 2.0**
Formula Ref	**EP_MP_F5**

Phase	Commercial Name	%	INCI
Oil	Perfume	0,5	Fragrance
Oil	Biophytosebum	5	Decyl olive oil esters & Squalane
Oil	Desert Date Oil (Ephyla)	8	Balanites roxburghii seed oil
Oil	Dub Mct 5545	7	Caprylic / capric triglyceride
Oil	Unipure white LC987 EM	2	CI 77891 & silica
Oil	Amihope LL	0,3	Lauroyl lysine
Powder	White clay	18	kaolin
Powder	Frametime CXG (Ephyla)	6	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Water	Propanediol	5	Propanediol
Water	Glycerin	15	Glycerin
Water	Water	qsp	aqua
Water	Sepicide LD	0,8	phenoxyethanol
		100	
	Final pH	**5,5**	

Protocol

- Pre-hydrate Frametime in water under vigorous stirring then add the other ingredients under powder form under stirring.
- Prepare the oil phase taking care to well disperse the Pigments and the Amihope using highest shear rate.
- Once completely homogeneous add the oil phase to the water phase using highest shear rate.
- Adjust the pH with diluted citric acid.

Stability	Freeze and thaw : passed	Stability at 45°C : 2 months

EPHYLA
Natural Active Design

Customer (brand)	Ephyla
Formula Name	Pre-sun cream
Formula Reference	EP_PB_F1

Phase	Commercial Name	%	INCI
Powder	Frametime Cxg (Ephyla)	5	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Powder	Amisoft Hs11P	0,4	Sodium stearoyl glutamate
Powder	Algin	0,15	Algin
Powder	UlvaProtect (Ephyla)	1	bentonite & ulva lactuca extract
Oil	Amihope LL	1	Lauroyl lysine
Oil	Neossance squalane	6	Squalane
Oil	Baobab Oil (Ephyla)	5	Adansonia digitata seed oil
Oil	Desert Date Oil (Ephyla)	5	Balanites roxburghii seed oil
Oil	Dub Mct 5545	3	Caprylic / capric triglyceride
Oil	Benzyl Alcohol	0,35	Benzyl alcohol
Oil	Perfume	0,5	Fragrance
Water	Urea solution 40%	1,5	Lactic acid & Urea & Aqua
Water	Sodium Benzoate	0,35	Sodium benzoate
Water	Glycerin	1,5	Glycerin
Water	Propanediol	5	Propanediol
Water	Water	64,25	Aqua

Final pH	5,5

Protocol

- Pre-hydrate Frametime in water under vigorous stirring then add the other ingredients under powder form under stirring.
- Then add the other water soluble ingredients.
- Prepare the oil phase taking care to well disperse the Amihope using highest shear.
- Once completely homogeneous add the oil phase using highest shear rate until complete homogeneous. Adjust the pH with diluted citric acid.

Stability	Stability at 45°C: 2 months

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Anti-cellulite cream**
Formula Reference	**EP_GAC_F3**

Phase	Commercial Name	%	INCI
A	Water	QSP	Aqua
A	Caffeine	2	Caffeine
Powder	Frametime Cxg (Ephyla)	5	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Powder	Xanthan Gum FFPC	0,4	Xanthan gum
Oil	Neossance hemisqualane	15	C13-15 alkane
Oil	Perfume	0,5	Fragrance
C	Alcohol	7	Alcohol
D	Leucidal SF complete M15025	2	Lactobacillus Ferment & Lactobacillus & Cocos nucifera (Coconut) fruit extract
		100	

Final pH	5,5

Protocol
• Solubilize the Caffeine in water (A) at 65°C under stirring. • Add the powder phase under shear using highest speed until completely homogeneous. • Add the oil phase Oil under shear using highest speed until completely homogeneous . • Add the Alcohol (C) and then the Preservative (D) stepwise under shear until completely homogeneous • Adjust the pH.

Stability	Stability at 45°C: 1 months (ongoing)

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Anti-wrinkle serum**
Formula Ref	**EP_SAR_F3**

Phase	Commercial Name	%	INCI
A	Gel LTX (Ephyla)	50	Aqua & sorbitol & Sodium magnesium silicate & Xanthan gum & Citric acid & Propanediol & Capryloyl glycine
Oil	Desert Date Oil (Ephyla)	3	Balanites roxburghii seed oil
Oil	Shea Butter (Ephyla)	3	Butyrospermum parkii butter
Oil	Cetearyl alcohol	3	Cetearyl alcohol
Water	Water	QSP	Aqua
Powder	Frametime CX (Ephyla)	2	Bentonite & Xanthan gum & Citric acid
Powder	Hyaluronic Acid HMW (Ephyla)	0,2	Sodium hyaluronate
Powder	Revertime (Ephyla)	0,1	Montmorillonite & Ulva lactuca extract
Powder	Borohyal (Ephyla)	1	Bentonite & Borojoa patinoi fruit juice
D	AMTicide coconut	1,2	Lactobacillus & Cocos nucifera (coconut) fruit extract
D	Leucidal liquid M15008	1,2	Aqua & Leuconostoc/radish root ferment filtrate
		100	

Final pH	**5 - 5,5**

Protocol
• Pre-hydrate Frametime in water under vigorous stirring then add the other ingredients under powder form under stirring. • Heat the oil phase up to melting temperature (<60°C). According to your equipment, if necessary heat the water phase up to 50°C. • Add the oil phase to the water phase using highest shear rate until completely homogeneous. • Add the A phase phase using highest shear rate until completely homogeneous. • Then and the preservative (D) • Adjust the pH.

Stability	Stability at 45°C : 1 month (ongoing)

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Anti-wrinkle cream**
Formula Ref	**EP_CAR_F4**

Phase	Commercial Name	%	INCI
Water	Water	65,7	Aqua
Water	Glycerin	3	Glycerin
Powder	Frametime CXG (Ephyla)	4,5	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Powder	Revertime (Ephyla)	0,1	Montmorillonite & Ulva lactuca extract
Powder	Xanthan Gum FF	0,2	Xanthan gum
Powder	Hyaluronic Acid HMW (Ephyla)	0,1	Sodium hyaluronate
Oil	Amihope LL	0,5	Lauroyl lysine
Oil	Cetearyl alcohol	3,5	cetearyl alcohol
Oil	Kokum Butter (Ephyla)	5,5	Garcinia indica seed butter
Oil	Desert Date Oil (Ephyla)	11	Balanites roxburghii seed oil
Oil	Organic virign coconut oil	3	Cocos nucifera oil
C	Perfume	0,5	Parfum
D	AMTicide coconut	1,2	Lactobacillus & Cocos nucifera (coconut) fruit extract
D	Leucidal liquid M15008	1,2	Water & Leuconostoc/radish root ferment filtrate
		100	

Final pH	**5 - 5,5**

Protocol
• Pre-hydrate Frametime in water under vigorous stirring then add the other ingredients under powder form under stirring. • Heat the oil phase up to melting temperature (<60°C). • Prepare the oil phase taking care to well disperse the Amihope using highest shear. • According to your equipment, if necessary heat the water phase up to 50°C. • Add the oil phase to the water phase using highest shear rate until completely homogeneous. • Add the Perfume (C) and the preservative (D) • Adjust the pH.

Stability	Stability at 45°C : 2 months

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Refreshing Shampoo**
Formula Ref	**EP_SF_F6**

Phase	Commercial Name	%	INCI
Water	Water	79,4	Aqua
Water	Glycerin	1	Glycerin
Water	Geogard ultra	1	Gluconolactone & Sodium benzoate & Calcium gluconate
Water	Aminat G	0,8	Glycerin & Ethyl lauroyl arginate hcl
Water	Sodium benzoate	0,5	Sodium benzoate
Powder	Frametime CXG (Ephyla)	5,5	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Powder	Xanthan Gum FF	0,2	Xanthan gum
Oil	Desert Date Oil (Ephyla)	1	Balanites roxburghii seed oil
Oil	Benzyl alcohol	1	Benzyl alcohol
Oil	Perfume	0,6	Parfum
C	Pureact I78	3	Sodium cocoyl isethionate
C	Sodium cocosulfate	6	Sodium cocosulfate
		100	

Final pH	**5,5 - 6**

Protocol
• Pre-hydrate Frametime in water (80% of the available water) then add the other ingredients under powder form under vigorous stirring until completely homogeneous. • Add the oil phase to the water phase using highest shear rate until completely homogeneous. • Solubilize the surfactants (C) using 20% of the remaining water at pH < 4 • Add it to the previous phase under stirring (and vacuum if it possible). • If necessary adjust the pH.

Stability	Thermal Cycle Test (4 °C – 25°C – 45°C) : 3 months

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Makeup remover lotion**
Formula Ref	**EP_LD_F2**

Phase	Commercial Name	%	INCI
Powder	Frametime CX (Ephyla)	4,5	Bentonite & Xanthan gum & Citric acid
Powder	Xanthan gum FF	0,1	Xanthan gum
Oil	HTR1 (Ephyla)	2,5	Helianthus annuus seed oil & Protium heptaphyllum resin extract
Oil	Organic virgin coconut oil	1,5	Cocos nucifera oil
Oil	Shea Butter	2	Butyrospermum parkii butter
Oil	Sunflower Oil	14	Helianthus annuus seed oil
Water	Water	68,4	Aqua
Water	Propanediol	4	Propanediol
C	Perfume	0,6	Parfum
D	AMTicide coconut	1,2	Lactobacillus & Cocos nucifera (coconut) fruit extract
D	Leucidal liquid M15008	1,2	Aqua & Leuconostoc/radish root ferment filtrate
		100	

Final pH	**5 - 5,5**

Protocol
• Pre-hydrate Frametime in water under vigorous stirring then add the other ingredients under powder form under stirring. According to your equipment, if necessary heat the water phase up to 50°C. • Heat the oil phase up to melting temperature (<45°C). • Add the oil phase to the water phase using highest shear rate until completely homogeneous. • Add the Perfume (C) and the preservative (D) • Adjust the pH.

Stability	Stability at 45°C : 1 month (ongoing)

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Lip Balm**
Formula Ref	**EP_LB_F2**

Phase	Commercial Name	%	INCI
Powder	Frametime CXG (Ephyla)	5	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Powder	Hyaluronic Acid HMW (Ephyla)	0,1	Sodium hyaluronate
Powder	Xanthan Gum FF	0,4	Xanthan gum
A	Htr1 (Ephyla)	3	Helianthus annuus seed oil & Protium heptaphyllum resin extract
A	Kokum Butter (Ephyla)	10	Garcinia indica seed butter
Oil	Carnauba Wax	1,5	Cera carnauba
Oil	Cetyl alcohol	5	Cetyl alcohol
Oil	Neossance hemisqualane	10	C13-15 alkane
Water	Water	56	Aqua
Water	Glycerin	2	Glycerin
Water	Propanediol	5	Propanediol
B	Leucidal liquid M15008	2	Aqua & Leuconostoc/radish root ferment filtrate
		100	

Final pH	**5,5 - 6**

Protocol
• Heat the oil phase up to melting temperature. • Add the A phase at 50°C under stirring. • Pre-hydrate Frametime in water under vigorous stirring then add the other ingredients under powder form under stirring. According to your equipment, if necessary heat the water phase up to 50°C. • Add the oil phase to the water phase using highest shear rate until completely homogeneous. • Add the preservative (B) • Adjust the pH.

Stability	Stability at 45°C : 2 months

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**BB cream**
Formula Ref	**EP_BBC_F3**

Phase	Commercial Name	%	INCI
Powder	Frametime Cxg (Ephyla)	5	Bentonite & Xanthan gum & Sodium stearoyl glutamate & Citric acid
Powder	Amihope LL	1	Lauroyl lysine
Powder	Amisoft Hs11P	0,4	Sodium stearoyl glutamate
Oil	Pigment blend (Next Step Lab)	3	NA
Oil	Sesame Oil	6	Sesamum indicum seed oil
Oil	Desert Date Oil (Ephyla)	10	Balanites roxburghii seed oil
Oil	Dub Mct 5545	6	Caprylic / capric triglyceride
Oil	Benzyl Alcohol	0,35	Benzyl alcohol
Oil	Ns-Ex-81 (Next Step Lab)	1	Polyglyceryl-8 oleate
Oil	Ns Solar Cover Dsp Zno-Tio2 (Next Step Lab)	4	Titanium dioxyde & Tricaprylin & Zinc oxide & Polyglyceryl-3 polyricinoleate & Stearic acid & Aluminium hydroxide & Silica
Oil	Perfume	0,5	Parfum
Water	Urea solution 40%	1,5	Lactic acid & Urea & Aqua
Water	Glycerin	1,5	Glycerin
Water	Propanediol	5	Propanediol
Water	Water	54,4	Aqua
Water	Sodium Benzoate	0,35	Sodium benzoate
		100	

Final pH	**5 - 5,5**

Protocol
• Pre-hydrate Frametime in water under vigorous stirring • Add the other ingredients under powder form under stirring. • Prepare the oil phase taking care to well disperse the Pigments and other minerals using highest shear rate. Once completely homogeneous add the oil phase to the water phase using highest shear rate until completely homogeneous. • Adjust the pH with diluted citric acid.

Stability	Stability at 45°C : 2 months

EPHYLA
Natural Active Design

Customer (brand)	**Ephyla**
Formula Name	**Sunscreen cream**
Formula Ref	**EP_VZ-14-0205-2**

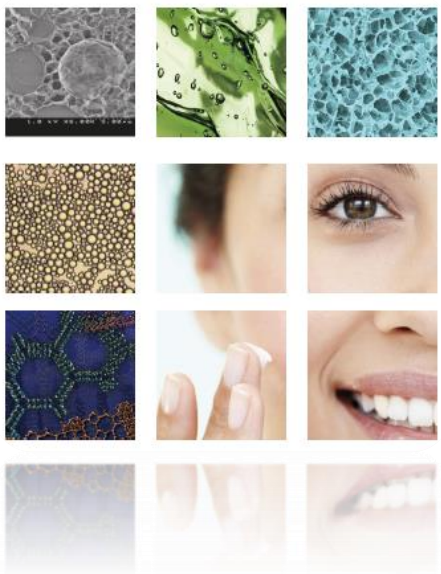
Phase	Commercial Name	%	INCI
Powder	Frametime CX	3,5	Bentonite & Xanthan gum & Citric acid
Powder	Frametime LTX	0,5	Sodium magnesium silicate & Xanthan gum & Citric acid
Water	Water	qsp	Water
Water	NS Phytothix (Next Step Lab)	0,3	Acacia senegal gum & Carrageenan
Water	NS Phytomoist (Next Step Lab)	2,5	Tremella Fuciformis & Betain & Glycerin & Aqua & Potassium Sorbate & Phenoxyethanol
Water	Sorbitol 70%	3	Sorbitol, Water
Water	Propanediol	2	Propanediol
Water	Potassium Sorbate	0,3	Potassium Sorbate
C	NS Vsol-5 (Next Step Lab)	9,4	Isododecane & Hydrogenated polydecene & Dimethicone
C	NS Jenipol 200 (Next Step Lab)	5	Isododecane & Trimethylsiloxysilicate & Dimethicone
C	Mirasil PTM	3	Phenyl trimethicone
C	Jeesilc 35C	3	Dimethicone Crosspolymer-3 & Dimethicone
C	NS EX 81 (Next Step Lab)	0,5	Polyglyceryl-8 Oleate
D	SuperZinc 1000 (Vizor)	10	(Zinc Oxide proprietary coating patent pending)
E	Benzyl Alcohol	1	Benzyl Alcohol
		100	

Final pH	**5 - 5,5**

Protocol
• Pre-hydrate Frametime in water under vigorous stirring then add the other water soluble ingredients under stirring • Prepare the C phase taking care to well disperse the Pigments (D) using highest shear rate. Once completely homogeneous add the oil phase to the water phase using highest shear rate until completely homogeneous. • When batch is emulsified, add phase E • Adjust the pH

Stability	Stability at 45°C : 2 months

EPHYLA
Natural Active Design



Do not hesitate to contact us contact@ephyla3.com