

Development Formulation

Daily Essential Facial Fluid Mineral Sunscreen SPF 40 with 1/3 UVA

BR0147

This formulation delivers effective sun protection and transparency through the best synergy of our key dispersion technologies **Solaveil Micno MZ3-300** (zinc oxide) and **Solaveil Clarus CT-100** and **Solaveil Clarus CT-200** (titanium dioxide).

Combined with a special selection of emollients and emulsifiers – **Crodamol GTCC**, **Crodamol PC**, **Cithrol PG32IS** and **Cithrol DPHS**, this formulation offers a very pleasant velvet sensorial of a sunscreen to be used in the day by day as part of your essential skin care routine.

Technical Information:

- UV Filter: To achieve **High Performance** with **Maximum Transparency** and **Easy to Process**, no dust handling or pre-dispersion facilities required:
Solaveil Clarus (TiO2 nano-sized particle) and Solaveil Micno (ZnO micron-sized particle with a patented platelet-shaped)
 - Solaveil Clarus Oil Dispersion: **Solaveil CT-200** and **Solaveil CT-100 (TiO2 - UVB)** - for **ease of handling**. Isohexadecane (**CT-200**) and C12-15 Alkyl benzoate (**CT-100**) carriers fluid that offers a **light, non-greasy feel** and **improve the spreadability** of the formula.
 - Combination to obtain the best relationship between performance, cost effectiveness, associated with the sensorial, corroborating for the best spreadability of the final formula.
 - Solaveil Micno Oil Dispersion: **Solaveil MZ3-300 (ZnO – Broad Spectrum)** - for **ease of handling**. Caprylic/Capric Triglyceride, **natural carrier fluid** that offers a **light, non-greasy feel** and **improve the spreadability** of the formula. Reflect, scatter and absorb UV light generating high SPF efficacy from a single active.
- Emollients: **Crodamol PC** and **Crodamol GTCC Natural emollients**, have **light sensorial** and due to their **low viscosity** they offer **good spreadability** and **aesthetic** for the formula. High Natural % (ISO16128): Crodamol PC 75%, Crodamol GTCC 100%.
- Emulsifiers: Association of **Cithrol PG32IS** and **Cithrol DPHS** is a highly efficient **W/O emulsifier** system to give good **stability for sunscreen** formulas besides this type of emulsion are a **very efficient vehicle for sunscreen actives**, and is particularly **suitable for oil-based dispersions** of TiO2 and ZnO.
 - **Cithrol PG32IS** is a **good dispersing** medium for inorganic pigments, as its liquid form is compatible for cold **process**. Is 100% **Natural** (ISO 16128).

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- **Cithrol DPHS** has an **excellent stabilisation** due to high molecular weight, and large polymeric oil- and water phase anchors. Easy and reproducible emulsion processing, including semi-cold process.

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Ingredient/INCI Name	Functionality	% w/w
Part A		
Deionized Water	-	To 100
Glycerin	Humectant	1.50
Magnesium sulfate heptahydrate	Salting out	0.70
Part B		
Crodamol GTCC (Caprylic/ Capric Triglyceride) ¹	Emollient	3.50
Crodamol PC (Propylene Glycol Dicaprylate/Dicaprate) ¹	Emollient	5.50
Cithrol PG32IS (Polyglyceryl-3 Diisostearate) ¹	Emulsifier	3.00
Cithrol DPHS (PEG 30 Dipolyhydroxystearate) ¹	Emulsifier	0.75
Bentone Gel TNV (C12-15 Alkyl Benzoate (and) Stearalkonium Hectorite (and) Propylene Carbonate) ³	Rheology modifier	0.50
Part C		
Solaveil MZ3-300 (Zinc Oxide (and) Caprylic Capric Triglyceride (and) Polyhydroxystearic Acid) ¹	Inorganic Broad UV filter	30.00
Solaveil CT-100 (C12-15 Alkyl Benzoate (and) Titanium Dioxide (and) Aluminum Stearate (and) Polyhydroxystearic Acid (and) Alumina) ¹	Inorganic UVB filter	10.00
Solaveil CT-200 (Titanium Dioxide (and) Isohexadecane (and) Triethylhexanoin (and) Aluminium Stearate (and) Polyhydroxystearic Acid (and) Alumina) ¹	Inorganic UVB filter	32.00
Lexgard Natural MB (Glyceryl Caprylate (and) Glyceryl Undecylenate) ²	Preservative	1.00
Part D		
Silica	Sensory modifier	1.00
Aluminum Starch Octenylsuccinate	Sensory modifier	2.00

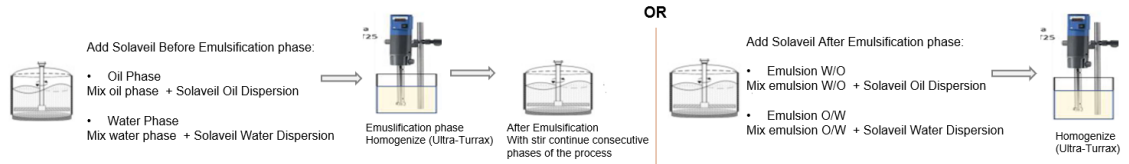
Suppliers: **1: Croda**, 2: Inolex, 3: Elementis**Procedure: Low energy process** (Emulsification at 25°C. Process temperature: 40°C max.)

- Auxiliary beaker: Combine Part A (Aqueous phase) and stir until homogenous.
- Main beaker: Combine Part B (Emollients, Emulsifiers, Rheology modifier), heat until 40°C with stirring until melted and get homogenous system.
- Add Part C (Solaveil Oil Dispersions) to Part B with stirring.
 - The addition of the Solaveil dispersions will help to lower the temperature to 25-30°C.
- At 25-30°C, add Part A to Part B/C slowly with high stirring. Homogenize with Ultra-Turrax at 10,000rpm for 1 min/per 100g.
 - Homogenization can slightly increase the temperature, after homogenization, start cooling until 25-30°C with stirring.
- At 25-30°C add Part D (Sensory modifiers) (Obs: Addition below 40°C (Starch) to ensure sensory modifier functionality). Homogenize with Ultra-Turrax at 4000rpm for 2 min, until get homogeneous system.

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Procedure of Solaveil Dispersion addition:



Appearance: Greyish Cream; pH: N.A.; Viscosity: 7338 cP ± 10% (Spindle 64, 6 rpm, 1 minute, room temperature)

Stability: 3 months at 5 °C, 25 °C, 45 °C and 1 month at 50°C and 0°C/+50°C 12 hour freeze-thaw cycle

In vivo SPF: 74.2 (ISO 24444:2019, 3 subjects, Allergisa BR)

In vivo UVA: 13.9 (ISO 24442: 2011, 3 subjects, Allergisa BR)

CW: 371nm (ISO 24443: 2012, Allergisa BR)

This formulation was developed in Latin America. Contact your local sales representative with enquiries as ingredient availability can vary by region.

Non-warranty

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