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Formulation Inspiration
from Arxada



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Basic Emulsions with Geomulse™

Geomulse™ is a line of naturally derived Polyglycerol Esters that offers several benefits to formulators including the perfect balance between an excellent environmental profile, mildness to skin, and superior product performance as well as enormous versatility with applications in virtually any product area and product form.

A basic emulsions kit was developed to promote the sensorial benefits and stability of **Geomulse™** line compared to regular market emulsifiers.

In general, they show:

- A creamier emulsion that is easily spreadable on the skin
- That delivers a greater emollience that is already perceived from the moment you are applying and spreading them on the skin
- Leaving a smoother and velvet sensation right after application
- That can last for hours



Geomulse™ S8, S10 and P11

O/W Emulsifiers, Humectants and Rheology Modifiers



| Raw Material | INCI Name | Function | Supplier | STD 1 vs S8 /S10 | S8 | S10 | STD 2 vs P11 | P11 | S8 + S10 | S8 + S10 + P11 |
|-----------------|---|---------------------------|---------------------------|------------------------|---------|---------|-----------------|---------|-------------|----------------------|
| | | | | % as is | % as is | % as is | % as is | % as is | % as is | % as is |
| Water | Aqua | Carrier | - | 75.50 | 75.50 | 75.50 | 75.50 | 75.50 | 73.00 | 72.00 |
| EDTA Na2 | Disodium EDTA | Chelating Agent | Nutrifarma | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| Glycerin | Glycerin | Humectant | Iberoquímica Farmacêutica | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 |
| Aristoflex® AVC | Ammonium Acryloyldimethyltaurate/VP Copolymer | Co-polymer, Gelling Agent | Clariant | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 | 0.80 |
| TGACC | Caprylic / Capric Triglyceride | Emollient | Organic Compounding | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 | 15.00 |
| BHT | Butylated hydroxytoluene | Antioxidant | Biovital | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 | 0.10 |
| Arlacel® 165 | Glyceryl Stearate (and) PEG-100 Stearate | Emulsifier | Croda | 2.50 | | | | | | |
| Olivem® 1000 | Cetearyl Olivatate, Sorbitan Olivatate | Emulsifier | Hallstar | | | | 2.50 | | | |
| Geomulse™ S8 | Polyglyceryl-6 Distearate | Emulsifier | Arxada | | 2.50 | | | | 2.50 | 2.00 |
| Geomulse™ S10 | Polyglyceryl-10 Stearate | Emulsifier | Arxada | | | 2.50 | | | 2.50 | 2.00 |
| Geomulse™ P11 | Polyglyceryl-10 Dipalmitate | Emulsifier | Arxada | | | | | 2.50 | | 2.00 |
| Troycare™ PE 91 | Phenoxyethanol (and) Ethylhexylglycerin | Preservative | Arxada | 1.00 | 1.00 | 1.00 | | 1.00 | 1.00 | 1.00 |

STD1 - Glyceryl Stearate (and) PEG-100 Stearate: It is a commonly used emulsifier in Personal Care applications. Comparisons can be made against Geomulse™ S8,S10 and P11 or any combination of these products.

STD2- Cetearyl Olivatate, Sorbitan Olivatate: Another benchmark as emulsifier. Comparison should be made against P11.

How to try them: Apply 1 or 2 drops the benchmark in one forearm and do the same for one Geomulse at a time.

Pay attention to:

- Differences in emulsion consistency
- How it spreads on the skin
- The immediate skin feel
- The after feel at the end the process and few minutes later

Geomulse™ O3



W/O Emulsifier, Emollient and Pigments Dispersant

| Raw Material | INCI Name | Function | Supplier | O3 |
|------------------------|--|--------------------------|---------------------------|-------------|
| Water | Aqua | Carrier | - | 51.80 |
| EDTA Na2 | Disodium EDTA | Chelating Agent | Nutrifarma | 0.10 |
| Glycerin | Glycerin | Humectant | Iberoquímica Farmacêutica | 5.00 |
| Sodium Chloride | Sodium Chloride | Binding agent, thickener | Organic Compounding | 1.00 |
| Belsil® DM 50 | PEG-12 Dimethicone | Conditioning Agent | Wacker | 35.00 |
| BHT | Butylated hydroxytoluene | Emollient | Biovital | 0.10 |
| Geomulse™ O3 | Polyglyceryl-10 Decaoleate | Emulsifier | Arxada | 4.00 |
| Cetearyl Alcohol | Cetearyl Alcohol | Emollient | Biotec Dermocosméticos | 2.00 |
| Troycare™ PE 91 | Phenoxyethanol (and) Ethylhexylglycerin | Preservative | Arxada | 1.00 |

This prototype uses Geomulse O3, the ideal emulsifier for W/O emulsions as make-up products, sun care, diaper rash cream and some hair care treatment products.

How to try them: Apply 1 or 2 drops on the forearm and spread it evenly.

Pay attention to:

- Emulsion consistency
- How it spreads on the skin
- The immediate skin feel
- The after feel at the end the process and few minutes later

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Gentle, moisturizing cleansers



 **Geomulse™**


GEOGARD®
A WORLD IN CHANGE.
PROTECTED™

Bubbly Bliss Baby Wash

What makes it special

Created for all skin types, this baby body wash uses **gentle** cleansers and a **naturally derived** biopolymer to leave delicate skin feeling cleansed, hydrated and nourished.

The secret sauce

Geomulse™ C15 and L15 work in synergy. They help to provide excellent aesthetics, **superior mildness and moisturization** on skin. Geomulse™ C15 is perfectly suited to applications where **mild cleansing** is required. Geomulse™ L15 provides excellent **flash foam, cleansing and foam stability**.

LaraCare® A200 is extracted from the larch tree, **Galactoarabinan** is a **natural, mild, non-irritating and water dispersible biopolymer**. It has **film-forming properties** and helps to **prevent transdermal water loss** whilst helping to sooth the skin.

Geogard® LSB is a completely **organic acid preservative system** comprised of Levulinic, Benzoic, and Sorbic acids. A clear, low color, low odor liquid, able to provide **excellent broad-spectrum protection** against both bacteria and fungi.



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Bubbly Bliss Baby Wash

Skin Cleansing – Liquid Soap

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| Phase | Trade name | INCI | Function | Supplier | % as is |
|-------|-----------------------------|---|--------------|----------|---------|
| 1 | Water | Aqua | Carrier | | 84,50 |
| 1 | Geogard® LSB | Levulinic Acid (and) Sorbic Acid (and) Benzoic Acid | Preservative | Arxada | 1,00 |
| 1 | Laracare® A200 | Galactoarabinan | Film Former | Arxada | 1,00 |
| 2 | Geomulse™ C15 | Polyglyceryl-10 Caprylate/Caprata | Surfactant | Arxada | 10,00 |
| 3 | Geomulse™ L15 | Polyglyceryl-10 Laurate | Surfactant | Arxada | 2,50 |
| 4 | Citric Acid Solution at 20% | Citric Acid | - | - | 0,10 |

Method

1. In a container of adequate capacity, weigh phase 1 and homogenize at low speed (500 RPM), if necessary
2. heat to 40°C;
3. After the surfactants are completely dissolved, add the remaining phase and homogenize at low speed (500 RPM).
4. pH should be around 4,00 – 5,50

Specifications

- Appearance: Pale straw water-thin liquid
- pH: 4,00 – 5,50

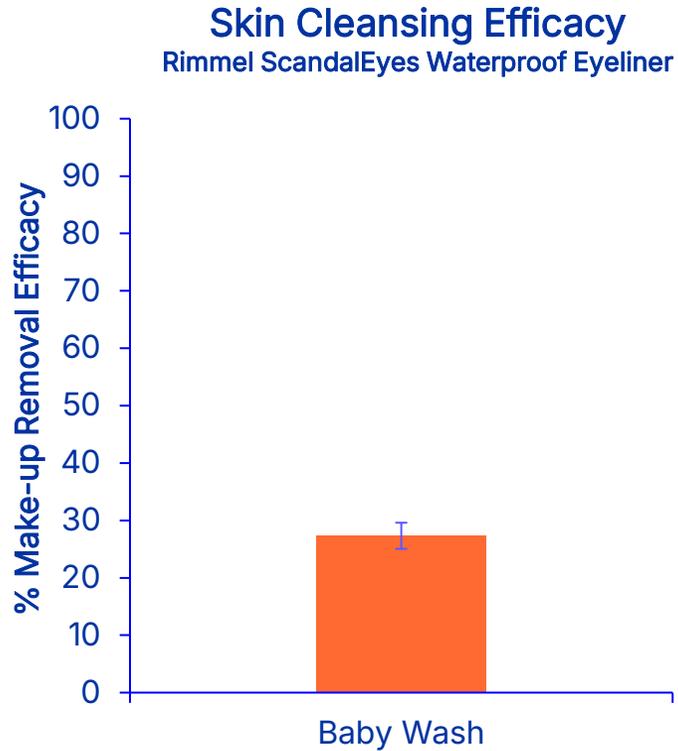


Bubbly Bliss Baby Wash

Skin Cleansing – Liquid Soap

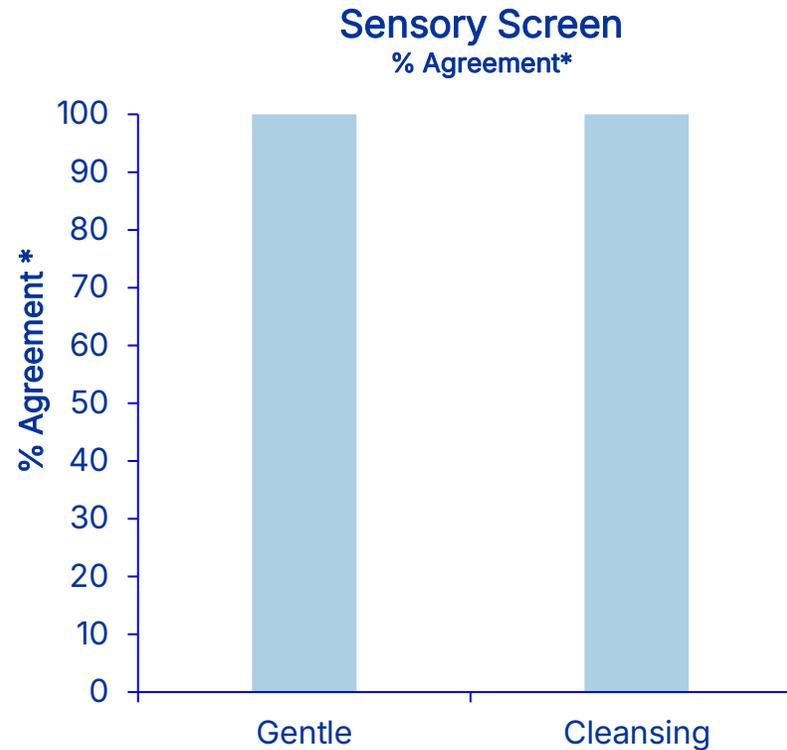


The Baby Wash demonstrates skin cleansing, gentleness and skin hydration benefits.

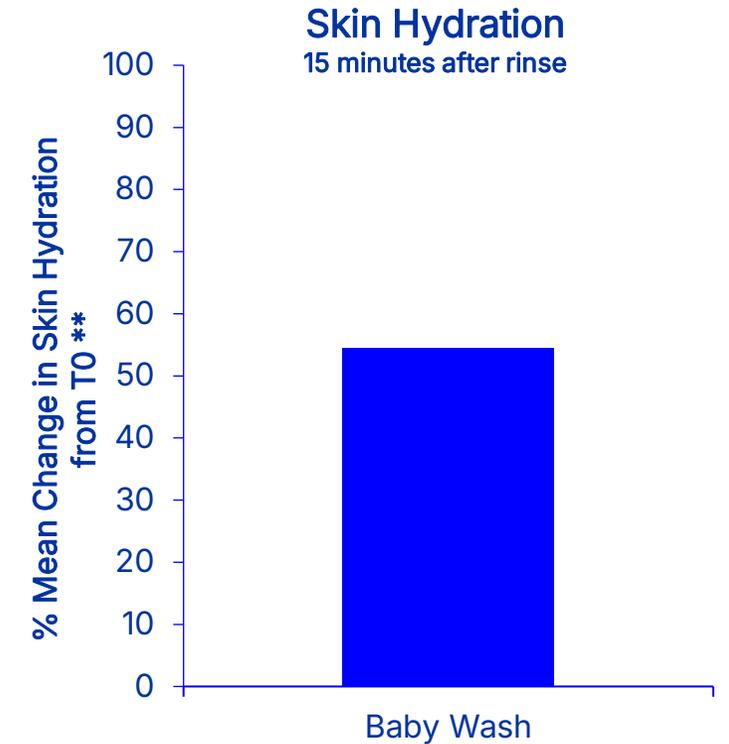


| Connecting Letters Report | | | |
|---------------------------|---|--|-----------|
| Level | | | Mean |
| Baby Wash L* After Wipe | A | | 47.267500 |
| Baby Wash L* Before Wipe | B | | 36.146250 |

Levels not connected by same letter are significantly different.



* % Agreement based on no. of responses rating moderately agree or higher (>7 on the scale), N=6



** Percentage change in skin hydration from T=0 to T=15 minutes, N=8



Nourishing and Luxurious Skin Care & Make up formulations



Fluid Foundation with Soft Focus

What makes it special

Experience a **fluid and high coverage skin foundation** that **spreads easily** on the skin, leaving a **velvety emollience and hydration** that last for hours.

The secret sauce

Geomulse® O3 is used to form a stable emulsio, with high pigmens and oil contents, showing an **excellent pigment dispersion, and wetting properties**, being easy to process. It also adds emollience to the skin, keeping it smooth for hours.

Geogard® LA is a **naturally derived** and highly effective antimicrobial preservative. It is biodegradable and is **friendly to skin microbiome**, enhancing skin hydration.



Fluid Foundation with Soft Focus

Skin Care / Make-Up

| Tradename | INCI Name | Function | Supplier | % as is |
|-------------------------------|--|--------------------------|---------------------------------|-------------|
| Geomulse™ O3 | Polyglyceryl-10 Decaoleate | Emulsifier | Arxada | 5.00 |
| Dub Inin | Isononyl Isononanoate | Emollient | Stearinerie Dubois | 8.00 |
| Bentone Gel® GTCC V | Caprylic/Capric Triglyceride (and) Stearalkonium Hectorite (and) Propylene Carbonate | Thickener | Elementis | 5.00 |
| Aerosil® | Silicon Dioxide | Thickener / Opacifier | Infinity Pharma | 1.50 |
| Unipure® White LC 981 HLC | CI 77891 (and) Hydrogenated Lecithin | Pigment | Sensient Technologies Brasil | 21.53 |
| Unipure® Yellow LC 182 HLC | CI 77492 (and) Hydrogenated Lecithin | Pigment | Sensient Technologies Brasil | 2.73 |
| Unipure® Red LC381 HLC | CI 77491 (and) CI 77499 (and) Hydrogenated Lecithin | Pigment | Sensient Technologies Brasil | 0.55 |
| Unipure® Black LC 989 HLC | CI 77499 (and) Hydrogenated Lecithin | Pigment | Sensient Technologies Brasil | 0.19 |
| TGACC | Caprylic / Capric Triglyceride | Emollient | Biovital | 15.15 |
| Water | Aqua | Carrier | | 34.85 |
| Magnesium Sulfate | Magnesium Sulfate | Thickener | Fragon | 2.00 |
| Sodium Chloride | Sodium Chloride | Thickener | Organic Compounding | 1.00 |
| Glycerin | Glycerin | Emollient | Biovital | 2.00 |
| Geogard® LA | Levulinic acid (and) water | Preservative | Arxada | 0.50 |

Method

1. Phase 1:: In a container, mix the components of Phase 1 until a homogeneous base is obtained. Keep the mixture under moderate agitation to ensure the complete incorporation of the ingredients.
2. Phase 2: Add the ingredients of Phase 2 to the mixture of Phase 1. Continue agitation to ensure uniform dispersion of the components until the mixture is consistent.
3. Phase 3: Gradually add the pigments and oils of Phase 3, while stirring the mixture. Mix until the color is homogeneous, checking the uniformity of the tone.
4. Phase 4: Gradually add the water and salts (magnesium sulfate and sodium chloride) to PHASE 1 + 2 + 3 with mechanical agitation at 1800 rpm. Continue agitation until the salts are completely dissolved and a smooth texture is obtained.
5. Phase 5: Add Phase 5. Mix well to ensure the stability of the final product.

Specifications

- Appearance: Orange/Brown Slight viscous liquid.



Velvet Foundation SPF 50

What makes it special

This Stick Foundation with SPF 50 presents a **velvet touch** with a **high color and UV filter coverage** that **facilitates the make up application process**, delivering an **impeccable finish** that **hydrates the skin for hours**.

The secret sauce

Geomulse® O3 is used to **effectively and easily disperse pigments and filters**, while helping to **improve stick structuring**, **decreasing effects of syneresis**, **improving pay-off** and adding **emollience to the skin**.

Marula Oil is an ECOCERT **emollient**, rich in **natural essential oils** that has **antioxidant properties**, it **nourishes** the skin without making it oily. It brings an **ancestral background** of usage to hydrate, protect and nourish both skin and hair.

Geogard® Boost PGC is used as a naturally-derived multifunctional agent that delivers **skin hydration**, being **friendly to its microbiome balance**, provides and suitable for all skin types.



Velvet Foundation SPF 50

Sun Care / Make-Up

| Phase | Tradename | INCI Name | Function | Supplier | % as is |
|----------|-------------------------------|---|-------------------|---------------|-------------|
| 1 | MeghCare® SEW 350 | Oryza sativa (Rice) bran wax | Humectant | Focus | 8,00 |
| 1 | MeghCare® SEW 400 | Synthetic Candelilla Wax | Humectant | Focus | 6,00 |
| 1 | MeghCare® SEW 120 | Synthetic Carnauba | Humectant | Focus | 7,50 |
| 1 | Tinogard® TT | Pentaerythrityl Tetra-di-t-Butyl Hydroxyhydrocinnamate | Antioxidant | BASF | 0,10 |
| 2 | DUB ININ | Isononyl Isononanoate | Emollient | Focus | 32,40 |
| 2 | Parsol® Shield | Bis-Ethylhexyloxyphenol Methoxyphenyl Triazine | UV Filter | DSM | 4,00 |
| 2 | Parsol® DHHB | Diethylamino Hydroxybenzoyl Hexyl Benzoate | UV Filter | DSM | 5,00 |
| 2 | Uvinul® T-150 | Ethylhexyl Triazone | UV Filter | BASF | 2,00 |
| 2 | Parsol® 340 | Octocrylene | UV Filter | DSM | 4,00 |
| 2 | Parsol® TX | Titanium Dioxide (and) Silica (and) Dimethicone | UV Filter | DSM | 5,00 |
| 2 | Parsol® ZX | Zinc Oxide, Triethoxycaprilylsilane | UV Filter | DSM | 5,00 |
| 2 | Marula Oil | Sclerocarya Birrea Seed Oil | Emollient | Arxada | 2,00 |
| 3 | Valvance® touch 210 | Silica | Sensory modifier | DSM | 4,00 |
| 3 | Geogard® PGC | Propylene Glycol Caprylate | Emollient | Arxada | 1,00 |
| 3 | KOBOTINT® 1 | Titanium Dioxide (CI 77891) (And) Iron Oxides (CI 77491) (And) Iron Oxides (CI 77492) (And) Iron Oxides (CI 77499) (And) Caprylic/Capric Triglyceride (And) Distearidimonium Hectorite (And) Isopropyl Titanium Triisostearate (And) 1,2-Hexanediol (And) Caprylyl Glycol | Pigments blend | Kobo | 12,00 |
| 3 | Geomulse™ O3 K RSPO MB | Polyglyceryl-10 Decaoleate | Emulsifier | Arxada | 2,00 |

Method

1. Weigh all phase 1 into the main container and heat until completely melted at 85-100°C;
2. Add phase 2 to the main system and homogenize at low speed until completely dispersed in the filters at 75-85°C;
3. After complete dispersion, add phase 3 to phase 1 at low speed at 65°C until completely homogenized;
4. After obtaining a homogeneous liquid, bottle it in a stick container and wait 2 hours for it to reach the appropriate viscosity.

Specifications

- Appearance: Orange/Brown Solid Stick.



Cleansing Balm Stick

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What makes it special

A trend in the Personal Care & Beauty market, this cleansing balm in **stick format is a pleasant and luxurious way of cleaning the skin and removing make-up**. It has cleansing properties, **being friendly to skin microbiome and improving moisturization and overall skin feel**, without the need of rinse off – only a dry wipe to remove make-up is enough.

The secret sauce

Geomulse™ S8 provides formulation **structuring and emulsification** and Geomulse™ O3 will contribute to **pigment dispersion and removal**, while Geomulse™ C15 will provide **mild cleansing properties**, improving **naturality index, skin barrier function and moisturization**.

TroyCare™ EPP37 is an oil-soluble and highly effective antimicrobial solution to protect formulation against spoilage in every day use.



Cleansing Balm Stick

Mild Cleanser and Make-up remover

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| Tradename | INCI Name | Function | Supplier | % as is |
|-------------------------------------|---|---------------------------------|-----------|---------|
| Geomulse™ S8 K RSPO MB Pastille" | Polyglyceryl-6 Distearate | Emulsifier | Arxada | 10 |
| TGACC | Caprylic / Capric Triglyceride | Emollient / Vehicle | Biovital | 65,4 |
| Agent AJK-OD 2046 | Dibutyl Ethylhexanoyl Glutamide (and) Dibutyl Lauroyl Glutamide (and) Octyldodecanol | Gelling Agent | Ajinomoto | 18 |
| Tinogard TT | Pentaerythrityl Tetra-di-t- Butyl Hydroxyhydrocinnamate | Antioxidant | BASF | 0,1 |
| Shea Butter | Butyrospermum Parkii (Shea Butter) | Emollient | Biovital | 2 |
| TroyCare™ EPP37 | Phenylpropanol (and) Ethylhexylglycerin | Preservative | Arxada | 0,5 |
| Geomulse™ O3 K RSPO MB | Polyglyceryl-10 Decaoleate | Surfactant / Emulsifier | Arxada | 2 |
| Geomulse™ C15 K RSPO MB | Polyglyceryl-10 Caprylate/Caprates | Mild Surfactant / Emulsifier | Arxada | 2 |

Method

1. Weigh all components into a container of suitable capacity;
2. Heat to 90 °C;
3. Homogenize at low speed (200 RPM to 500 RPM);
4. Fill it hot and let it dry.

Specifications

- Appearance: Opaque Off-white, solid aspect.



Soft+ Gel Moisturizer

What makes it special

This hydration gel moisturizer is a **soft feel, refreshing** skin care product, with a **quick absorption rate**, ideal for different skin types. It leaves a **smooth sensation** without making the skin feeling heavy. Its formulation is enriched with a combination of different naturally derived technologies.

The secret sauce

Geomulse® O13 is used to make as a surfactant that can facilitate the **solubilization of actives**, but also working as an **emollient** in the formulation, delivering a **velvet feel on the skin**.

Geogard® PGC is a **naturally derived preservative booster that has multifunctional benefits as emollience** . It will potentiate the performance of Troycare® AP keeping formulation protected against microbial contaminations. This preservative system will be **friendly to skin microbiome** and will help enhancing skin hydration.

LaraCare® A200 is a **natural biopolymer** that will create a film on the skin, reducing the appearance of fine lines on the skin and keeping long lasting hydration effects.



Soft+ Gel Moisturizer

Skin Care / Moisturizer

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| Phase | Tradename | INCI Name | Function | Supplier | % as is |
|-------|---------------------------|---|----------------------------------|----------|---------|
| 1 | Water | Aqua | Solvent | - | 81,55 |
| 2 | TroyCare® AP | Hydroacetophenone | Preservative / Antioxidant | Arxada | 0,80 |
| 2 | Xanthan Gum FNCS-PC | Xanthan Gum | Thickening agent | Sarfam | 0,30 |
| 3 | Aristoflex® AVC | Ammonium Acryloyldimethyltaurate/VP Copolymer | Gelling Agent | Clariant | 1,00 |
| 4 | Zemea® | Propanediol | Humectant | Dupont | 15,00 |
| 4 | Geogard® PGC | Propylene glycol Caprylate | Preservative Booster / Emollient | Arxada | 0,15 |
| 4 | Belle SCE875268 | - | Fragrance | Scentec | 0,10 |
| 5 | Geomulse™ O13 K RSPO MB | Polyglyceryl-10 Oleate | Emulsifier/ Surfactant | Arxada | 0,50 |
| 6 | LaraCare® A200 Biopolymer | Galactoarabinan | Film Former | Arxada | 0,50 |

Method

1. Weigh the components of phase 1 into a container of adequate capacity. Heat the system up to 50°C.
2. Spray phase 2 onto phase 1 and wait for hydration.
3. Homogenize the main system at medium homogenization (800-1000 RPM) until the gel is completely formed.
4. Spray phase 3 onto the main phase at medium homogenization (800-1000 RPM) until the polymer opens.
5. At low homogenization (200 RPM), add the following phases one by one.

Specifications

- Appearance: slightly whitish and viscous gel



Solid and Pomade Oils for Hair Care

What makes it special

Moisturizing hair care solid oil and pomade formats were developed for application on Hair that suffers of dry conditions. It is enriched with butter and waxes, forming a **protective film** on the hair, improving the **smoothness, shine** and **controlling the hydration balance**.

The secret sauce

Geomulse® S8 is a naturally derived Polyglyceryl Ester which works as a structuring agent and emulsifier, which brings naturality, **stability and improved emollience** to the formulation.

Geogard® Boost PGC is naturally derived Propylene Glycol Caprylate which is a preservation potentiator, however for this application, it is used to add additional emollience benefits, **improved microbiome health and more translucent effect to the formulation**.

TroyCare™ EPP37 is an alternative preservative, **with broad spectrum of action**, that is easily soluble in oily phase of the formulation, being free of Phenoxyethanol.



Beauty Hair Solid Oil

Enriched Hair Hydration Treatment

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| Tradename | INCI Name | Function | Supplier | % as is |
|------------------------------------|--|------------------------------------|-----------|---------|
| Water | Aqua | Carrier | | 10.00 |
| Glycerin | Glycerin | Emollient | Biovital | 30.00 |
| Geomulse™ S8 K RSPO MB Pastille | Polyglyceryl-6 Distearate | Emulsifier, Structuring agent | Arxada | 5.00 |
| TGACC | Caprylic / Capric Triglyceride | Emollient | Biovital | 27.60 |
| ALKEST® CSO 400H | PEG-40 Hydrogenated Castor Oil | Emollient / Skin conditioning | Indorama | 5.00 |
| AJK-OD 2046 | Dibutyl Ethylhexanoyl Glutamide (and) Dibutyl Lauroyl Glutamide (and) Octyldodecanol | Gelling Agent | Ajinomoto | 20.00 |
| Geogard® Boost PGC | Propylene Glycol Caprylate | Emollient, Preservative Booster | Arxada | 2.00 |
| TroyCare™ EPP37 | Phenylpropanol (and) Ethylhexylglycerin | Preservative | Arxada | 0.40 |

Method

1. Weigh all components in a suitable container and heat to 75°C to 85°C
2. Mechanically agitate at 800 rpm until completely homogenized (centrifugal propeller);
3. After homogenization, stop heating the main system and keep mechanically agitating at 500 rpm until reaching 75°C;
4. Stop homogenization and bottle at 75°C.
5. Use a heat gun to remove foam from the packaging.

Specifications

- Appearance: Opaque, Off-white, solid aspect.



No Mess Hair Pomade

Enriched Hair Hydration Treatment

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| Tradename | INCI Name | Function | Supplier | % as is |
|--|--|--|---------------|-------------|
| Water | Aqua | Carrier | | 10.00 |
| Glycerin | Glycerin | Emollient | Biovital | 28.00 |
| Geomulse™ S8 K RSPO MB Pastille | Polyglyceryl-6 Distearate | Emulsifier, Structuring agent | Arxada | 5.00 |
| TGACC | Caprylic / Capric Triglyceride | Emollient | Biovital | 39.10 |
| Glycolube® GMS-C | Glyceryl Stearate | Conditioning Agent, Emulsifier | Arxada | 6.00 |
| ALKEST® CSO 400H | PEG-40 Hydrogenated Castor Oil | Emollient / Skin conditioning | Indorama | 7.50 |
| Aerosil | Silica | Thickener, Rheology modifier | Evonik | 2.00 |
| Geogard® Boost PGC | Propylene Glycol Caprylate | Emollient, Preservative Booster | Arxada | 2.00 |
| TroyCare™ EPP37 | Phenylpropanol (and) Ethylhexylglycerin | Preservative | Arxada | 0.40 |

Method

1. Weigh all components in a suitable container and heat to 75°C to 85°C
2. Mechanically agitate at 800 rpm until completely homogenized (centrifugal propeller);
3. After homogenization, stop heating the main system and keep mechanically agitating at 500 rpm until reaching 75°C;
4. Stop homogenization and bottle at 75°C.
5. Use a heat gun to remove foam from the packaging.

Specifications

- Appearance: Opaque, Off-white, pomade aspect.



Thank you