RADIA®

OLEON'S JELLY

Rheological modifier for your transparent, waterless and natural formulations

oleon
a natural chemistry

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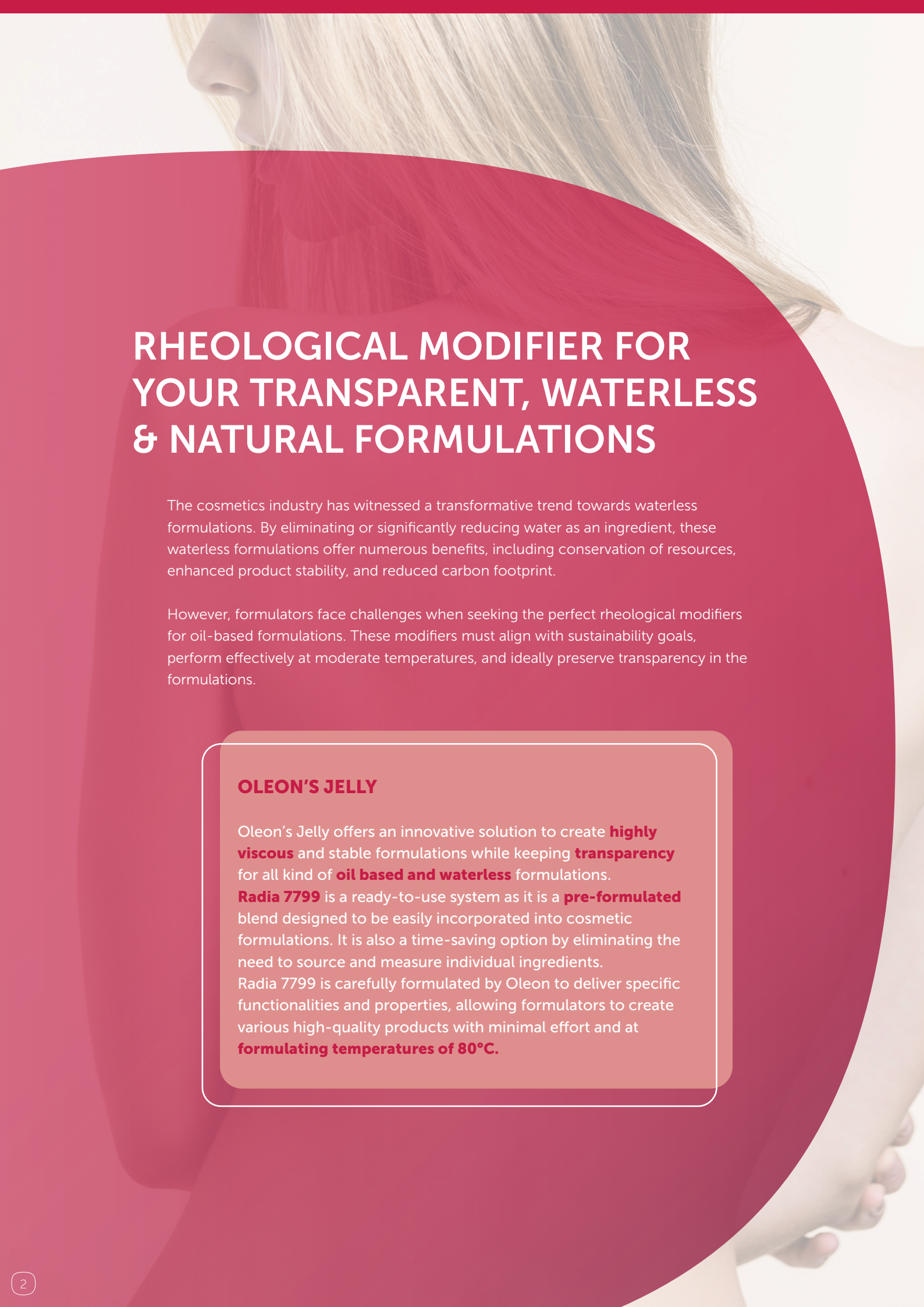


RHEOLOGICAL MODIFIER FOR YOUR TRANSPARENT, WATERLESS & NATURAL FORMULATIONS

The cosmetics industry has witnessed a transformative trend towards waterless formulations. By eliminating or significantly reducing water as an ingredient, these waterless formulations offer numerous benefits, including conservation of resources, enhanced product stability, and reduced carbon footprint.

However, formulators face challenges when seeking the perfect rheological modifiers for oil-based formulations. These modifiers must align with sustainability goals, perform effectively at moderate temperatures, and ideally preserve transparency in the formulations.

OLEON'S JELLY

Oleon's Jelly offers an innovative solution to create **highly viscous** and stable formulations while keeping **transparency** for all kind of **oil based and waterless** formulations.
Radia 7799 is a ready-to-use system as it is a **pre-formulated** blend designed to be easily incorporated into cosmetic formulations. It is also a time-saving option by eliminating the need to source and measure individual ingredients.
Radia 7799 is carefully formulated by Oleon to deliver specific functionalities and properties, allowing formulators to create various high-quality products with minimal effort and at **formulating temperatures of 80°C.**

PRODUCT FEATURES: **RADIA 7799**

RADIA®
trademark of **oleon**
7799

INCI
Isocetyl isoarachidol, Hydrogenated dilinoleyl alcohol, Glyceryl caprylate (and) Ethylcellulose

APHA
<100

Transparency
<13 NTU

Dynamic viscosity at 25°C
>130 000 mPa.s

Product features
Solid at room temperature
Pourable at >60°C, formulating temperature >80°C

Functional features
Rheological modifier
Shear thinning effect
Unique sensory profile

Appearance
Transparent gel
Solid at room temperature

Application
sun skin hair color

Sustainability
High natural origin index (according to ISO 16128) >0.9

HOW TO FORMULATE WITH RADIA 7799

- Ideal for waterless formulations
- Heat up to 80°C, the product starts to become pourable at ±60°C
- At 80°C, and under medium stirring, add other (oily) ingredients until homogenized
- Let the mixture cool down slowly

Transparent sticks

INGREDIENT	INCI	SUPPLIER	% W/W
Radia 7799	Isocetyl isoarachidol, Hydrogenated dilinoleyl alcohol, Glyceryl caprylate (and) Ethylcellulose	Oleon	30-60
AJK-OD2046	Octyldocecanol, Dibutyl lauroyl glutamide, Dibutyl ethyl hexanoyl glutamide	Ajinomoto	15-35
Blend of emollients of choice (e.g. Jolee 7750, Radia 7104)		Oleon	5-55

Manufacturing procedure

1. Heat both ingredients of phase A up to >80°C. Mix the two ingredients at >80°C until a homogeneous and transparent mix is obtained.
2. Let it cool down under slow stirring and avoid air incorporation.
3. Pour in the suitable recipient at about 80°C.
4. Cool down to room temperature.

Features of transparent sticks

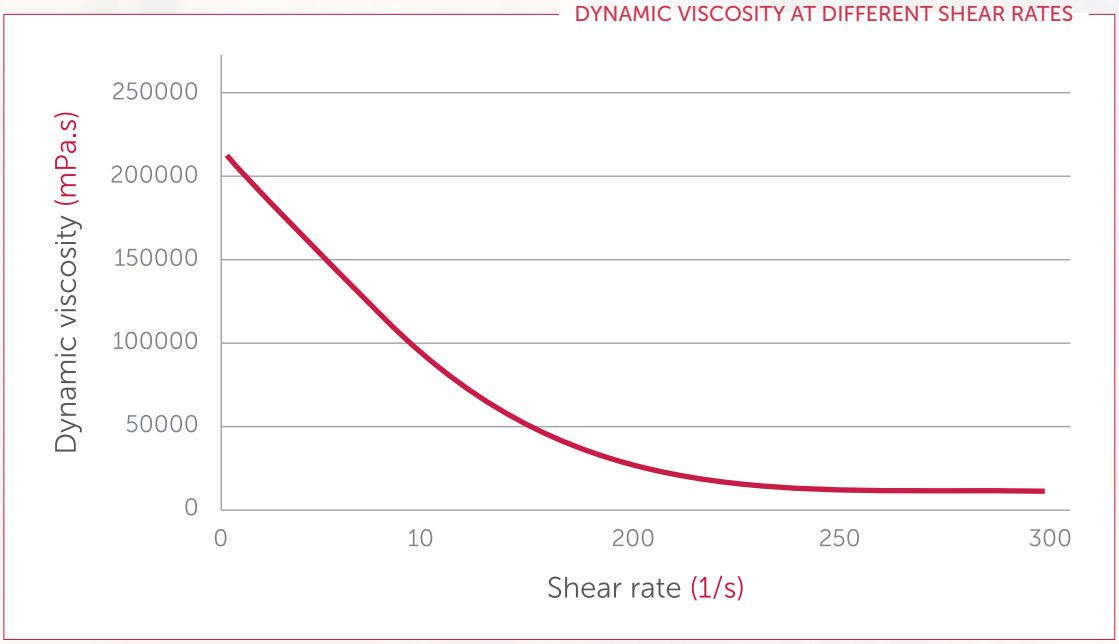
» **Hard stick with easy spread**
» **Transparent**

Customize your formulation

» Add emollients to **improve skinfeel**
» Reduce concentration of Radia 7799 to **add other emollients**
» Increase AJK-OD2046 concentration to give **structure and hardness**

Shear-thinning behavior

Shear-thinning refers to a compound or a mixture of compounds whose viscosity decreases when it is subjected to an increasing stress, such as shear rate or spreading on the skin of a cosmetic product. The shear-thinning behavior gives Radia 7799 its unique sensory profile which is shown in the graph below.



Graph 1: *Dynamic viscosity of Radia 7799 in function of Shear rate.*

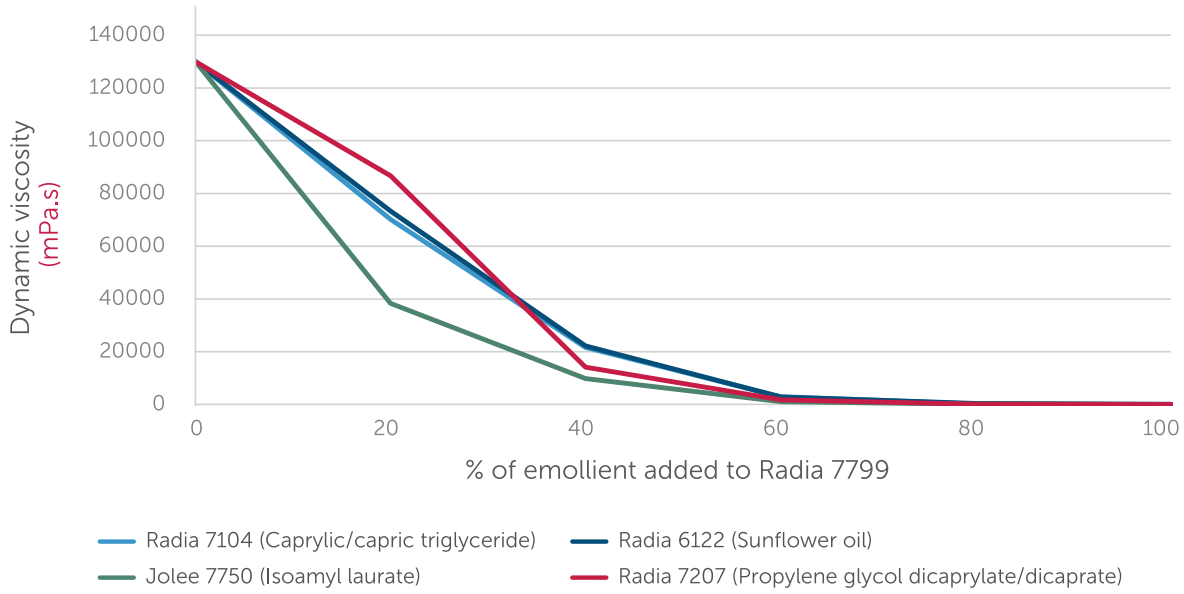
The viscosity decreases as more force is applied, which is ideal for **easy spreading** and reducing **film thickness.**

COMPATIBILITY DATA

Emollients

By adding different concentrations of emollients to Radia 7799, you can achieve the desired viscosity for your formulation and enhance the skin feel.

DYNAMIC VISCOSITY AT DIFFERENT % OF EMOLLIENTS



Graph 2: The dynamic viscosity of Radia 7799 in function of the percentage of emollients added. The emollients evaluated in combination with Radia 7799 are Caprylic/capric triglyceride (Radia 7104), Isoamyl laurate (Jolee 7750), Sunflower oil (Radia 6122) and Propylene glycol dicaprylate/dicaprate (Radia 7207).

Polar components

Below humectants and emulsifiers are ideal in combination with Radia 7799 (tested at concentration of 10%):

- Glycerol
- Polysorbate 20
- Propylene glycol
- Polysorbate 80
- 1,3 Butylene glycol
- Polyglycerol-3 diisostearate
- Glycerol oleate citrate
- Sorbitan laurate
- Polyglycerol-4 caprate
- Sorbitan oleate

Polar components give the possibility to make formulations which are compatible with water. Oilgels, formed by Radia 7799 and an emulsifier, such as waterfree bath oils and hand soaps, create an oil to milk experience.

Grapefruit Body Jelly

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	**Glycerine 4811**	Glycerin	Oleon	32
	Plantacare 2000UP	Decyl Glucoside	Trulux	13
	Tensagex EOC670LD	Sodium Lauryl Ether Sulfate	KLK tensagem	13
PHASE B	**Radia 7104**	Caprylic/Capric Triglyceride	Oleon	10
	Radia 6122	Helianthus Annuus (Sunflower) Seed Oil	Oleon	8.5
	Radia 7799	Isocetyl Isoarachidol (and) Hydrogenated Dilinoleyl Alcohol (and) Glyceryl Caprylate (and) Ethylcellulose	Oleon	11
	Jolee 7931	Polyglyceryl-4 Caprate (and) Aqua	Oleon	1.75
	Radiasurf 7908	Glyceryl Laurate	Oleon	1.75
	Radiasurf 7903	Glyceryl Oleate	Oleon	3
	Apricot kernel oil	Prunus Armeniaca (Apricot) Kernel Oil	Kerfoot	2
PHASE C	Tocopherol	Tocopheryl Acetate	Sigma	0.5
	Lexgard E	Ethylhexylglycerin	Inolex	0.3
	Apricot scrub	Prunus Armeniaca (Apricot) Kernel Powder	Aroma-Zone	1.9
	Grapefruit essential oil	Citrus Paradisi (Grapefruit) Peel Oil	Kerfoot	1
	Organic vegetable bisabolol	Bisabolol ((L)-Alpha-Bisabolol	Aroma-Zone	0.1
	Red pomgrenate food coloring	Helianthus Annuus (Sunflower) Hybrid oil, Simmondsia Chinensis (Jojoba) Seed Oil, Lithospermum Erythrorhizon Root Extract	Aroma-Zone	0.2

Manufacturing procedure

1. Weigh all the ingredients of phase B in the main beaker. Heat the mixture up to 80°C and mix the ingredients.
2. Weigh all the ingredients of phase A in the other beaker. Heat the mixture up to 80°C and mix the ingredients.
3. Under medium stirring, add phase A to phase B until homogenized.
4. Let the mixture cool down to 40°C. Add one by one the ingredients of phase C. Cool down to room temperature.

Naturality profile
according to ISO16128

NOI = 1
NOI > 0.5

UV filters

Radia 7799 is an ideal pre-formulated blend to formulate sungels or sunstick formulations. Radia 7799 is compatible with frequently used UV filters.

→ **ORGANIC** UV filters

- Bis-Ethylhexyloxyphenol methoxyphenyl triazine
- Butyl methoxydibenzoylmethane
- Diethylhexyl butamido triazone
- Ethylhexyl methoxycinnamate
- Ethylhexyl salicylate
- Homosalate
- Octocrylene
- Oxybenzone or benzophenone-3
- Phenylbenzimidazole Sulfonic Acid

→ **INORGANIC** UV filters

- Titanium dioxide
- Zinc oxide

Shimmer sunscreen stick

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	**Radia 7799**	Isocetyl Isoarachidol, Hydrogenated Dilinoleyl Alcohol, Glyceryl Caprylate, Ethylcellulose	Oleon	30
	AJK OD2046	Dibutyl Ethylhexanoyl Glutamide (and) Dibutyl Lauroyl Glutamide (and) Octyldodecanol	Ajinomoto	15
	Jolee 7202	Propylene Glycol Diheptanoate	Oleon	17
	Radia 7336	Decyl Oleate	Oleon	9
	Uvinul MC 80	Ethylhexyl Methoxycinnamate	BASF	9
	Octyl salicylate	Octyl Salicylate	Vertellus	5
	Escalol 597	Octocrylene	Ashland	9
	Radia 6122	Helianthus Annuus (sunflower) Seed Oil	Oleon	4.85
PHASE B	Perfume	Perfume	/	0.7
	Vitamin E	Tocopherol	BASF	0.1
	Colorona® Glitter Bronze	Mica (and) Iron Oxides (CI 77491)	EMD Performance Materials / Rona	0.02
	Ronastar® Golden Sparks	Calcium Aluminum Borosilicate (and) Silica (and) Titanium Dioxide (and) Tin Oxide	EMD Performance Materials / Rona	0.25
	Ronastar® Purple Sparks	Calcium Aluminum Borosilicate (and) Silica (and) Titanium Dioxide (and) Tin Oxide	EMD Performance Materials / Rona	0.08

Manufacturing procedure

1. Weigh all the ingredients of phase A and heat up to 80-90°C.
2. Once the ingredients are melted, keep stirring at 500 rpm until temperature reaches 70°C.
3. Premix ingredients of phase B and add to phase A at 70°C.
4. Pour quickly the mixture into the appropriate container and let it cool down to form the solid sunscreen stick.

Naturality profile
according to ISO16128

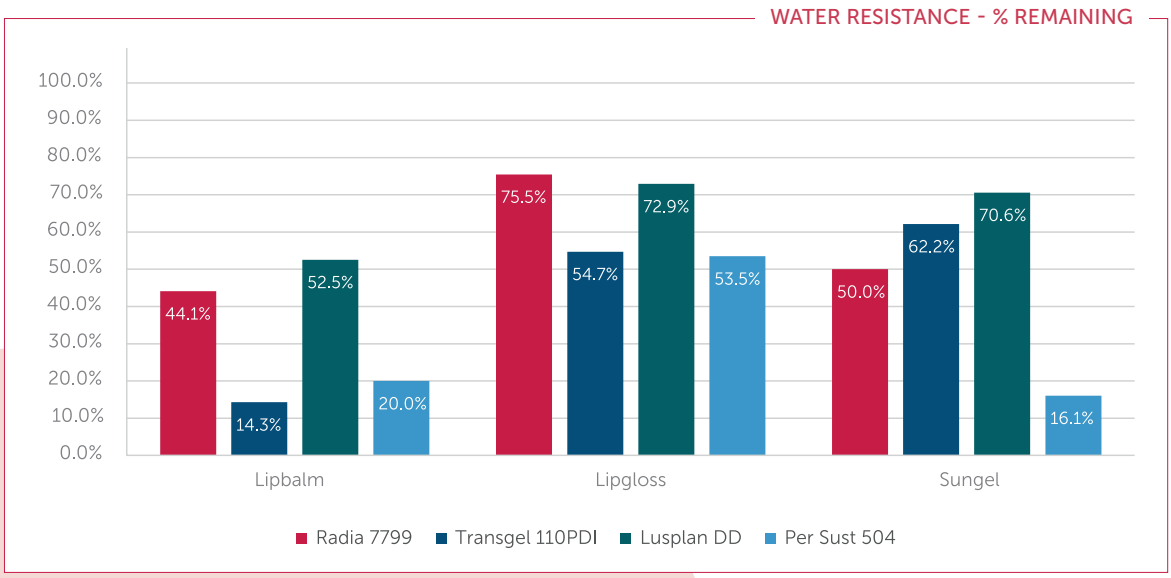
NOI = 1
NOI > 0.5

WATER RESISTANCY & FILMFORMING PROPERTIES

Filmforming properties in cosmetic formulations are crucial for creating products that adhere well to the skin. Radia 7799 gives a continuous, thin film on the surface, which imparts various benefits such as improving product durability, water-resistance, and enhancing the overall appearance of the formulation.

A study was performed to examine the water resistance and filmforming properties of three formulations: lipbalm, lipgloss and sungel containing Radia 7799. These formulations were compared to similar ones that contained benchmark products serving as rheological modifier. To ensure a fair evaluation, we compared these formulations having the same viscosity in their final formulation.

Water resistancy



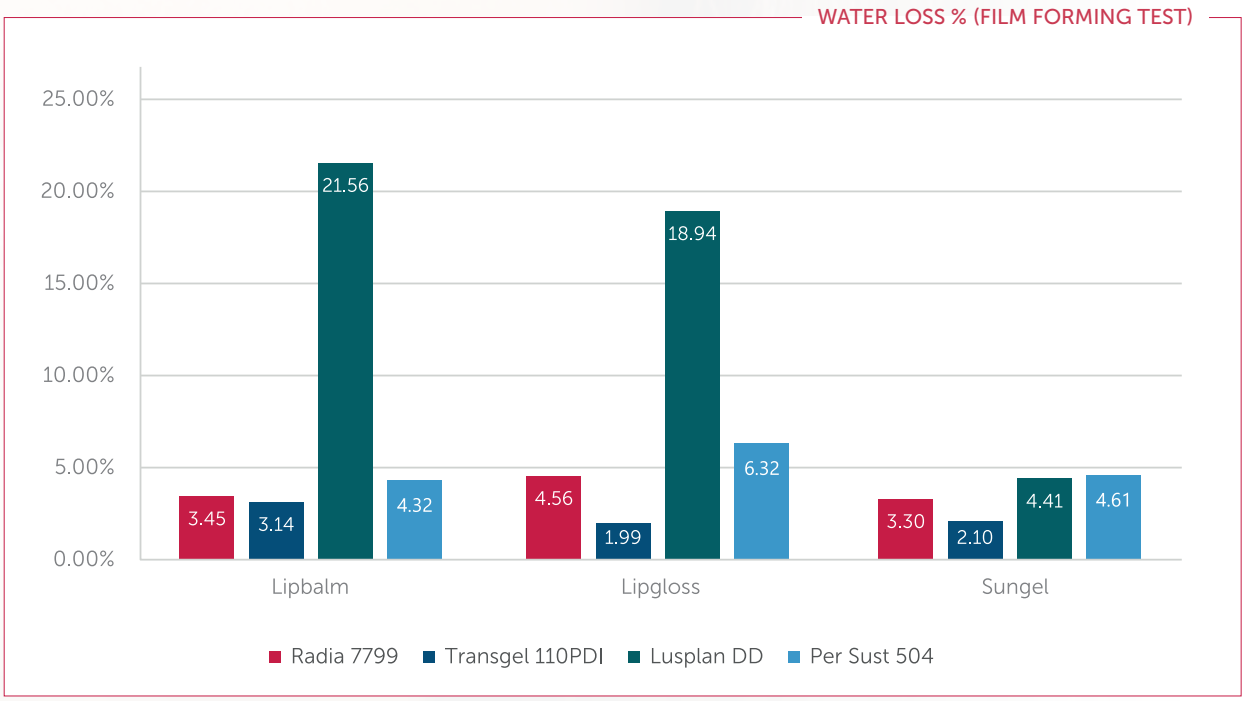
Graph 3: Water resistance of a lipbalm, lipgloss and a sungel containing Radia 7799 in comparison with three different benchmarks, expressed as % of remaining formulation after stirring 30min in water.

Protocol
The quantity of the product remaining on a cotton tissue after 30 min stirring into water. The evaluation is based on a weigh difference measurement.

Results interpretation
The higher the %, the better the water resistance of the product.

Radia 7799 shows water resistance properties for the three formulations.

Filmforming



Graph 4: Filmforming properties of a lipbalm, lipgloss and a sungel containing Radia 7799 in comparison with three different benchmarks, expressed as % water that is evaporated.

Radia 7799 shows very good filmforming properties for the three formulations.

Protocol
Evaluation is based on an in-house test measuring water evaporation from a plastic cup. The less water evaporation, the more the product can form a film.

Results interpretation
The lower the %, the better the filmforming properties of the product.

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