oleon
a natural chemistry

HEALTH & BEAUTY

www.oleonhealthandbeauty.com

COLOR COSMETICS

Specialty products with superior color dispersant properties

INTRODUCTION AND TRENDS

The color cosmetics market is expanding, driven by the global demand for unique beauty trends. These trends reflect evolving consumer preferences, calling on cosmetic brands to adapt and innovate. There is a growing interest in cosmetic products that offer skin protection benefits, highlighting a broader awareness of multifunctional cosmetics. Additionally, consumers across the globe are placing a premium on products produced by ethical and socially responsible brands, signifying a widespread shift towards sustainability, inclusivity and conscious consumption. Oleon Health & Beauty is poised to meet these demands, offering high-quality products that cater to all skin tones. We use the color dispersant properties of our products to offer ingredients used in eye liners, eye shadows, mascaras, lipsticks, foundations and many more.

42%

of adults in Mexico agree that a product made by ethical or socially responsible brands signifies good value for the money.

43%

of Chinese women would want to buy eye shadow if it was easy to apply and shows its color well.

43%

of men in the USA of ages 18-44 are applying makeup more often than a year ago, indicating a growth in male demand for color cosmetics.

48%

of makeup purchasers in Italy would be interested in skin protection claims when choosing a face makeup product.

Source: Hennigan, C. (March 30, 2023). The Future of Color Cosmetics: 2023. Mintel. https://clients.mintel.com/content/report/the-future-of-color-cosmetics-2023

Skinification further evolves

Skinification is a revolutionary trend that is sweeping across the beauty industry and grew from the increasing **self-care** and wellness behavior of consumers. It marks the intersection of cosmetics and skincare, offering you products that not only enhance your beauty but also nurture and protect your skin.

Cosmetics with skincare benefits

Skinification introduces cosmetics with skincare benefits, presenting a dual-purpose approach to your beauty routine. This results in the surge of **hybrid products** where **claims and ingredients** are associated with **skincare.** From lip color to foundations enriched with nourishing ingredients and powder cosmetics. Our formulations embody this revolutionary approach.

Routine optimization

An **enhanced understanding of formula compatibility** plays a crucial role in providing consumers with a more informed and personalized beauty experience in order to create an efficient routine. Skinification doesn't solely prioritize skincare, it also simplifies your beauty routine so formulations are **quick and easy** to use.

Looking at new product launches in color cosmetics for the last five complete years, **lip color** dominates the list followed by **foundations** and all kinds of **powder cosmetics.** Oleon's color cosmetics range therefore focusses on these categories. Although focused on, do not let this limit you: Oleon's products can be used in all kinds of color cosmetics.

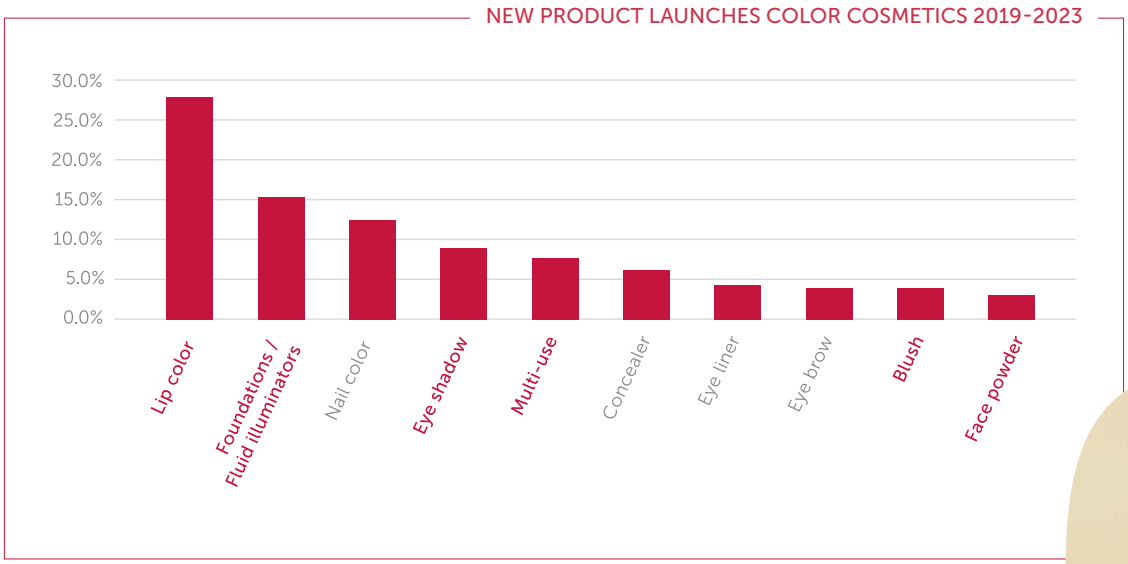


Figure 1: Overview of the new products launched in color cosmetics between 2019-2023. Source: Mintel. https://www.mintel.com.

This brochure will guide you through our newest range of innovative molecules with a beneficial use in color cosmetics as well as fun formulations and an overview of all Oleon products to be used in decorative cosmetics.

Navigate through our ingredients
for color cosmetics

1 VISCOSITY ENHANCERS

Viscosity modifiers play a **crucial role** in the formulation of makeup products, influencing their **texture, application, and overall performance.** These additives are designed to alter the viscosity or thickness of cosmetic formulations, ensuring that the product maintains the desired consistency for ease of application and optimal user experience. They serve as indispensable components in makeup formulations, facilitating the creation of products that strike the perfect balance between application **ease, texture, and durability.**

Oleon has two new and innovative viscosity enhancers in its portfolio which are perfect for natural formulations. The first one called **Radia 7798,** is a **thickened emollient** with a very **soft and pleasant** skin feel. The **viscosity** is around **3000 mPa.s** and Radia 7798 is therefore liquid at room temperature. The second one, called **Radia 7799**, is a rheological modifier that is ideal for **transparent, waterless, and natural formulations.** Radia 7799 is a gel at room temperature with a viscosity above **130 000 mPa.s.**

1.1 Radia 7798 | **Oleon's thickened emollient**

Product features

INCI

Propylene Glycol Diheptanoate, Hydrogenated Dilinoleyl Alcohol (and) Ethylcellulose

Environmental profile

NOI (ISO16128) > 0.9

Usage level

1% - 80%

Features

» Soft skin feel and easy spread

» Excellent pigment dispersing agent

» Natural alternative to highly viscous Dimethicone

» Helps building viscosity

» Viscosity: 3000 mPa.S

Appearance

Thickened emollient
Liquid at room temperature

Application

sun skin hair color

Sensorial analysis

Sensorial analysis is key in the cosmetics industry. The figure below illustrates the sensorial analysis performed in comparison with the benchmark Dimethicone 100cs, known for its smooth texture and great spreadability. Radia 7798 imparts more shine and has comparable penetration and softness to the benchmark. Therefore, Radia 7798 ensures a soft skin feel together with an easy spread.

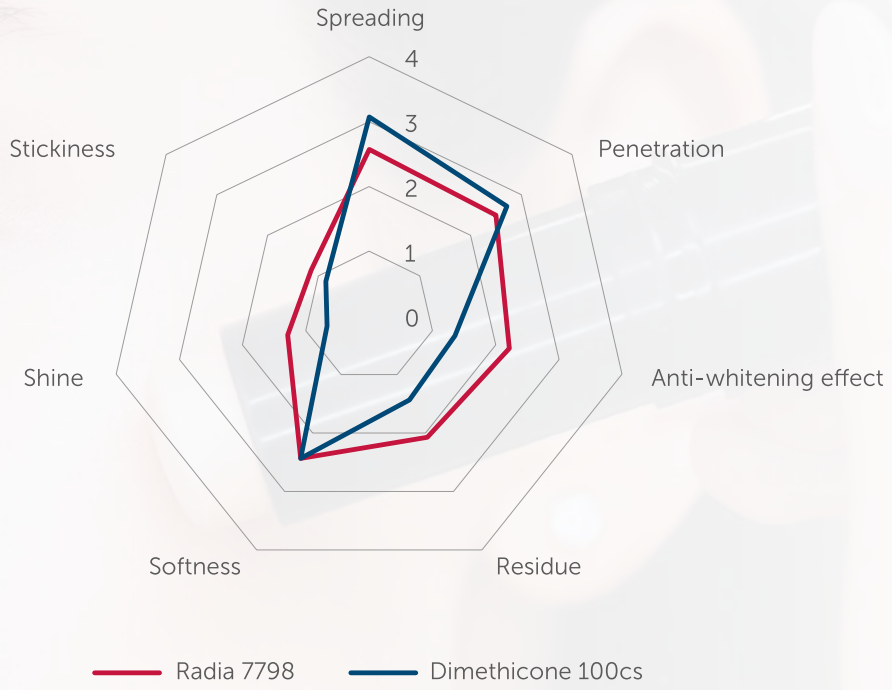


Figure 2: Sensorial analysis conducted by an internal expert panel. Products were rated according to seven parameters on a scale from 0 to 5 (0 = low score; 5 = high score).

Pigment dispersing properties

Effective pigment dispersal is crucial for vibrant makeup, impacting color intensity, even distribution, and product longevity of cosmetic products. Radia 7798 shows superior pigment dispersing properties compared to high viscous silicones (Dimethicone 100cs, Dimethicone 350cs, and Dimethicone 1000cs), as demonstrated in the table. Additionally, Radia 7798 contributes to viscosity buildup in color cosmetic formulations such as lipglosses.

	Dim 100	Dim 350	Dim 1000	Radia 7798
Black pigment	0,6	0,7	0,73	0,73
Red pigment	0,7	0,7	0,75	0,73
Yellow pigment	1,3	1,28	1,38	1,45
Tianium dioxide	0,83	0,9	0,9	0,9

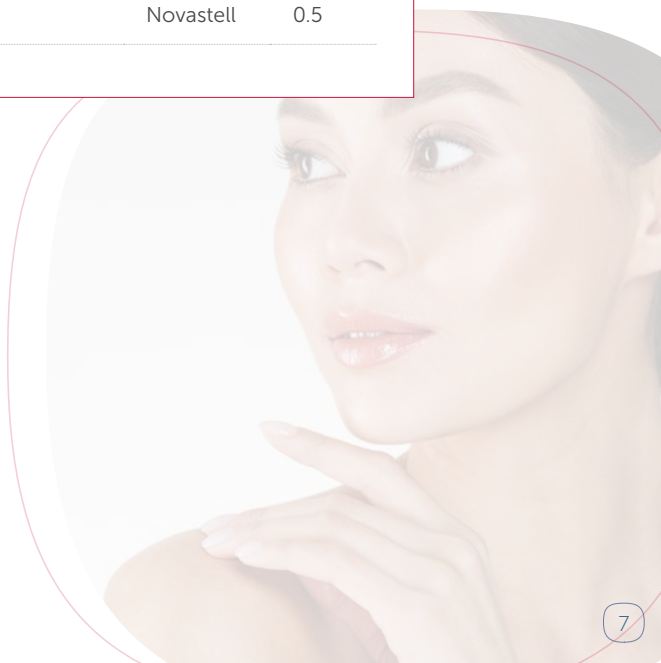
Table 1: Iron oxide pigment dispersion in (g product/ 1g pigment).

How to formulate **Black forest lipgloss**

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	**Radia 7799**	Isocetyl Isoarachidol (and) Hydrogenated Dilinoleyl Alcohol (and) Glyceryl Caprylate (and) Ethylcellulose	Oleon	35
	Castor oil	Ricinus Communis (Castor) Seed Oil	Oleon Ltd	2
	Beeswax	Cera Alba (Beeswax)	Oleon Ltd	5
	Radia 7798	Propylene Glycol Diheptanoate (and) Hydrogenated Dilinoleyl Alcohol (and) Ethylcellulose	Oleon	15
PHASE B	**Radia 7732**	Isopropyl Palmitate	Oleon	20.1
	Jolee 7181	Pentaerythrityl Tetraisostearate	Oleon	21
	Unicert RED K7008-J	Iron Oxides (CI 45380)	Sensient	0.6
	Unipure RED LC304	Iron Oxides (CI 15850)	Sensient	0.6
	BBO-NJE2	Iron Oxides (CI 77499) (and) Jojoba Esters	Kobo	0.2
PHASE C	Tocopherol	Tocopheryl Acetate	Novastell	0.5

Naturality profile
according to ISO16128

NOI = 1
NOI > 0.5
NOI ≤ 0.5



1.2 Radia 7799 | **Oleon's Jelly**

Product features

RADIA®
trademark of **oleon**
7799

INCI

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

Environmental profile

NOI (ISO16128) > 0.9

Usage level

5% - 65%

Features

» Rheological modifier

» Unique sensory profile with shear thinning effect

» Water resistance

» Film-forming properties

» Help structure lipsticks

» Formulation temperature > 80°C

» Viscosity: > 130 000 mPa.S

Application

sun skin hair color

Water resistance & film-forming properties

Film-forming properties in color 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 film-forming properties of two makeup formulations: a lipbalm and lipgloss containing Radia 7799. These formulations were compared to similar ones that contained benchmark products serving as rheological modifier. To ensure a fair evaluation, these formulations have the same viscosity in their final formulation.

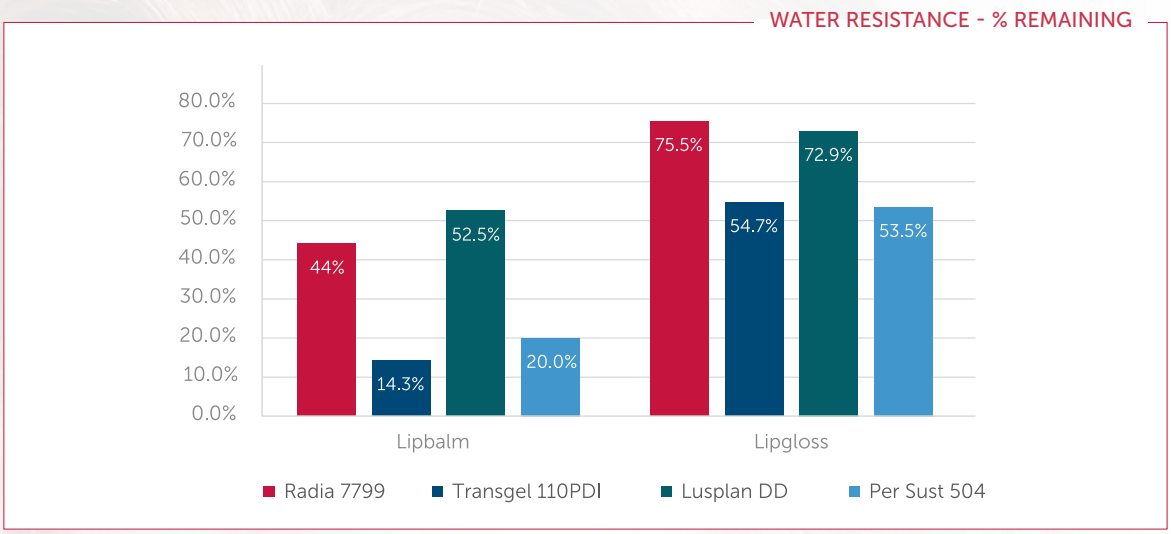


Figure 3: Water resistance of a lipbalm and a lipgloss containing Radia 7799 in comparison with three different benchmarks, expressed as % of remaining formulation after stirring 30 min in water.

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

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

Radia 7799 shows water resistance properties for both formulations.

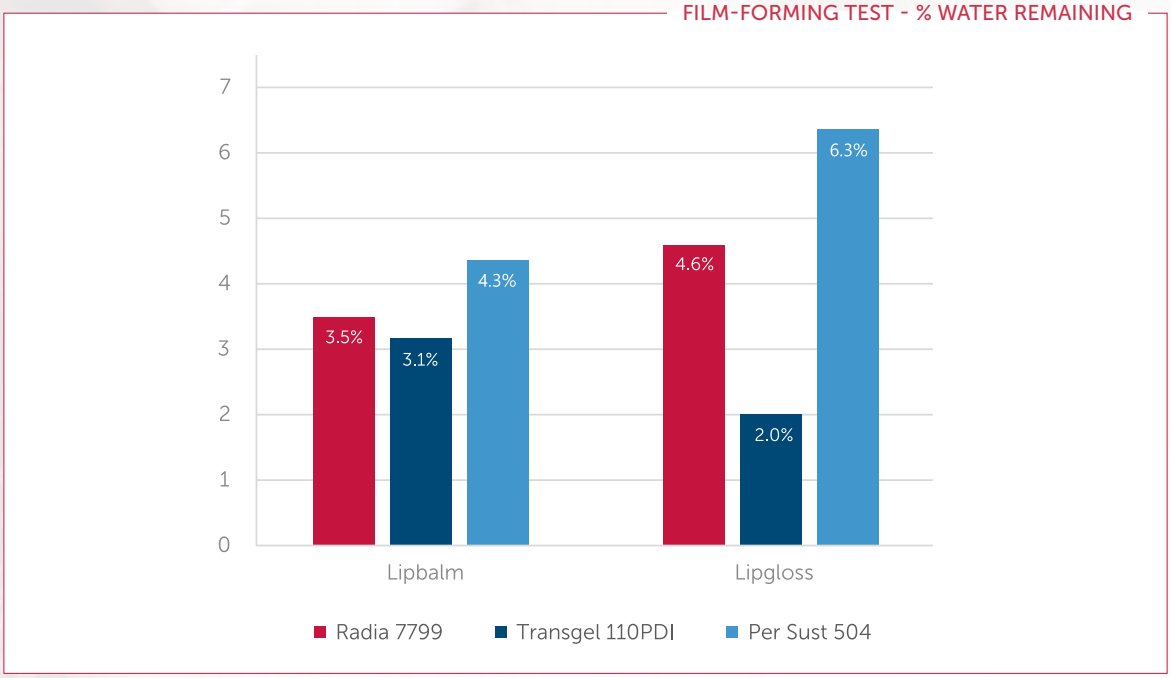


Figure 4: Film-forming properties of a lipbalm and a lipgloss containing Radia 7799 in comparison with three different benchmarks, expressed as % water that is evaporated.

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 film-forming properties of the product.

Radia 7799 shows very good film-forming properties for both formulations.

- 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

How to formulate **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**

2 **SPECIALTY** ALCOHOLS

Specialty alcohols, including Isostearyl Alcohol, Hydrogenated Dilinoleyl Alcohol and Isocetyl Isoarachidol, are key ingredients in the formulation of color cosmetics. These alcohols serve various functions to enhance the performance and aesthetics of makeup products. Especially, these alcohols show beneficial results for pigment dispersing, color intensity, water resistance film-forming and structuring properties.

2.1 Radianol 1980 | **Isostearyl Alcohol**

Product features

Radianol
1980
INCI Isostearyl Alcohol

INCI
Isostearyl Alcohol

CAS
27458-93-1

Physical form
Liquid

Features
» Good film-forming properties
» Good water resistance
» Useful in matt decorative cosmetics
» Excellent pigment dispersing agent

Application
sun skin color hair

Environmental profile
NOI (ISO16128) = 1

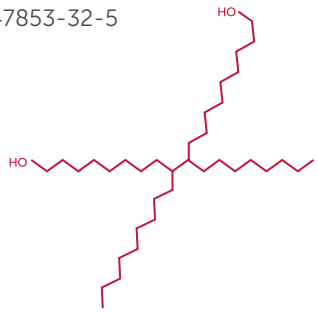
2.2 Radianol 1990 | **Hydrogenated Dilinoleyl Alcohol**

Product features

Radianol 1990
INCI Hydrogenated Dilinoleyl Alcohol

INCI
Hydrogenated Dilinoleyl Alcohol

CAS
147853-32-5



Physical form
Liquid

Features
» Saturated fatty alcohol with two primary hydroxyl groups
» Stable to oxidation
» Stable to color detoriation
» Improves color intensity

Application
sun skin color

Environmental profile
NOI (ISO16128) = 1

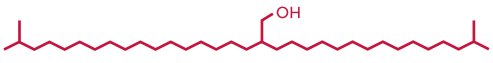
2.3 Radiastar 1436 | **Isocetyl Isoarachidol**

Product features

Radiastar 1436
INCI Isocetyl Isoarachidol

INCI
Isocetyl Isoarachidol

CAS
2773314-89-7



Physical form
Liquid

Features
» Excellent pigment disperser
» Soft and cushioning touch
» Water resistance
» Alternative for squalane
» Increases break strength in lipsticks
» Increases gloss

Application
sun skin color hair

Environmental profile
NOI (ISO16128) = 1

Application data

Application testing has been performed for water resistance and film-forming, lipstick hardness and cutting resistance, glossiness, and color intensity properties. The evaluation is conducted by testing four red lipsticks, each one containing the same concentration of a different specialty alcohol: Radianol 1980, Radianol 1990 or Radiastar 1436. These formulations are compared to the same red lipstick containing an equal concentration of benchmark C12-15 Alkyl Benzoate. Following paragraphs display the performed application tests.

Water resistance & film-forming properties

Water resistance and film-forming properties play crucial roles in the formulation of makeup products, ensuring long-lasting and reliable performance. Makeup formulations with effective water resistance are designed to withstand exposure to water, sweat, and environmental factors, providing a durable and smudge-resistant finish.

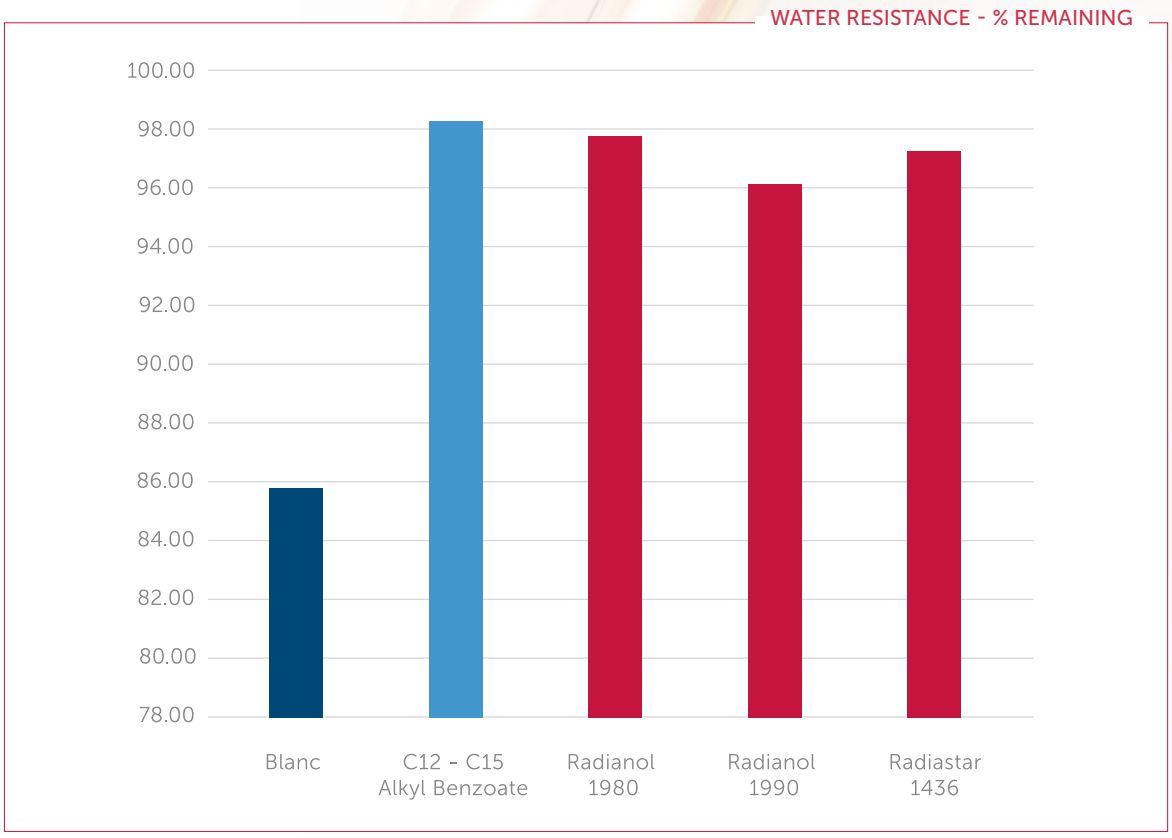


Figure 5: Water resistance properties of the specialty alcohols evaluated in a red lipstick in comparison with the benchmark C12-15 Alkyl Benzoate, expressed as % of remaining formulation after stirring 30 min in water.

Protocol
The aim of this protocol is to determine the quantity of the product remaining on a cotton tissue after 30 min. stirring into water. The evaluation is based on a weight difference measurement.

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

All specialty alcohols show good water resistance properties compared to the blank because of their higher viscosity.

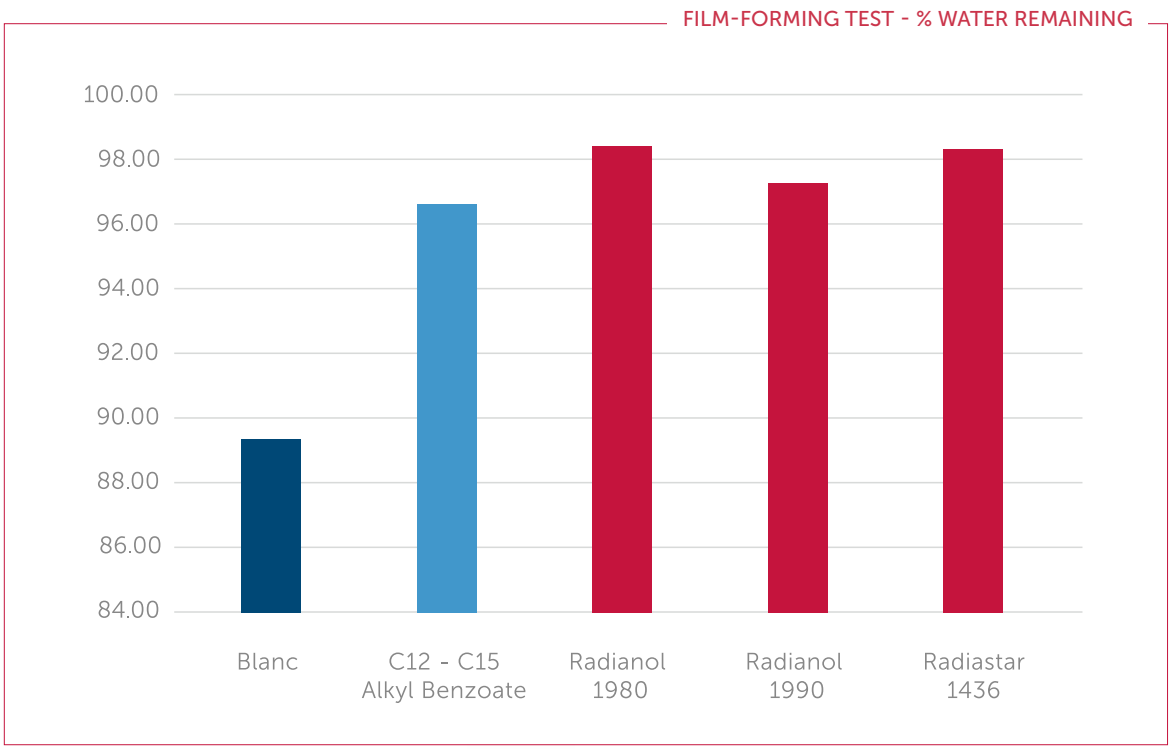


Figure 6: Film-forming properties of the specialty alcohols evaluated in a red lipstick in comparison with the benchmark C12-15 Alkyl Benzoate, expressed as % water remaining.

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 higher the % of water remaining, the better the film-forming properties.

Radianol 1980 and Radiastar 1436 perform best. All specialty alcohols show better film-forming properties than the reference C12-15 Alkyl Benzoate.

Lipstick hardness & cutting resistance

Lipstick hardness and cutting resistance are important characteristics that influence the durability and application of lipsticks. The hardness of a lipstick relates to its firmness, determining how well it maintains its shape during application. A balance must be struck to ensure the lipstick is neither too soft, leading to breakage, nor too hard, making application challenging.

Cutting resistance, on the other hand, refers to the lipstick's ability to withstand forces during application without crumbling or breaking. Lipsticks with good cutting resistance provide a smooth and even application without requiring excessive pressure.

Therefore, achieving the right balance between hardness and cutting resistance ensures a lipstick product that is easy to apply, maintains its shape, and withstands external forces, resulting in a satisfactory user experience and a longer-lasting, well-defined lip color.

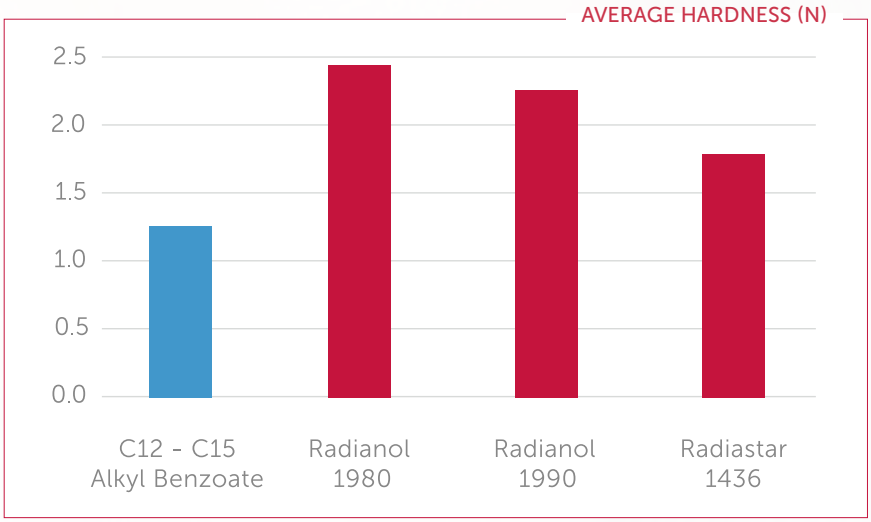


Figure 7: The average hardness and cutting resistance of the specialty alcohols evaluated in a lipstick in comparison with the benchmark C12-15 Alkyl Benzoate, expressed in Newton.

Protocol
The aim of this protocol is to determine the hardness of the stick using a 2mm needle probe and measuring the force needed to penetrate the lipstick.

Results interpretation
The higher the average hardness (N), the harder the lipstick.

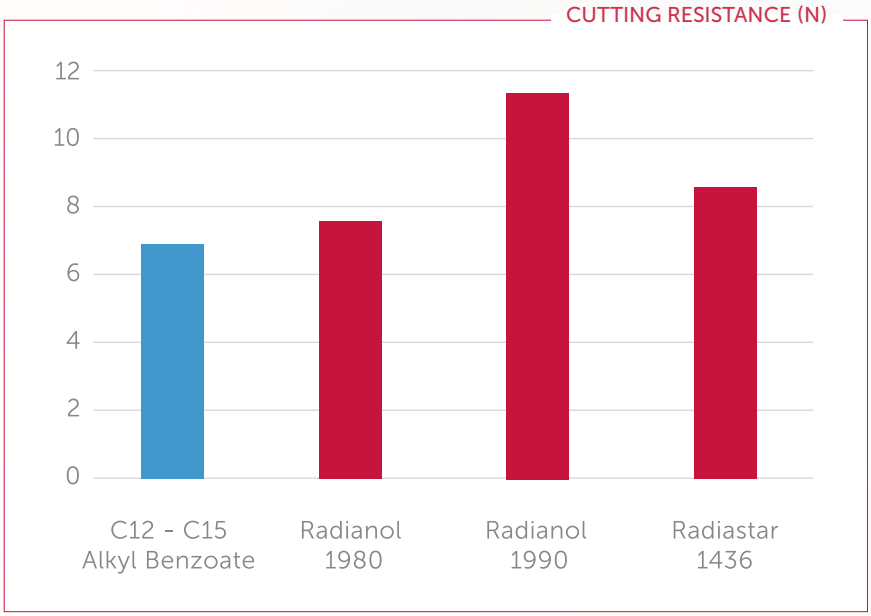


Figure 8: The average hardness and cutting resistance of the specialty alcohols evaluated in a lipstick in comparison with the benchmark C12-15 Alkyl Benzoate, expressed in Newton.

Protocol
The aim of this protocol is to determine the cutting resistance of the stick using thread and measuring the force needed to cut the lipstick.

Results interpretation
The higher the average hardness (N), the harder the sample.

When correlating hardness and cutting resistance, the graphs show that Radiastar 1436 increases the break strength of lipsticks without increasing the harness of lipsticks. It can be used to create a more resilient lipstick without compromising the payoff.

Glossiness

Glossiness in color cosmetics serves as a key aesthetic element, contributing to the overall allure and visual impact of makeup products. Whether it is shiny or matt, the specialty alcohols can be applied to both formulation aesthetics.

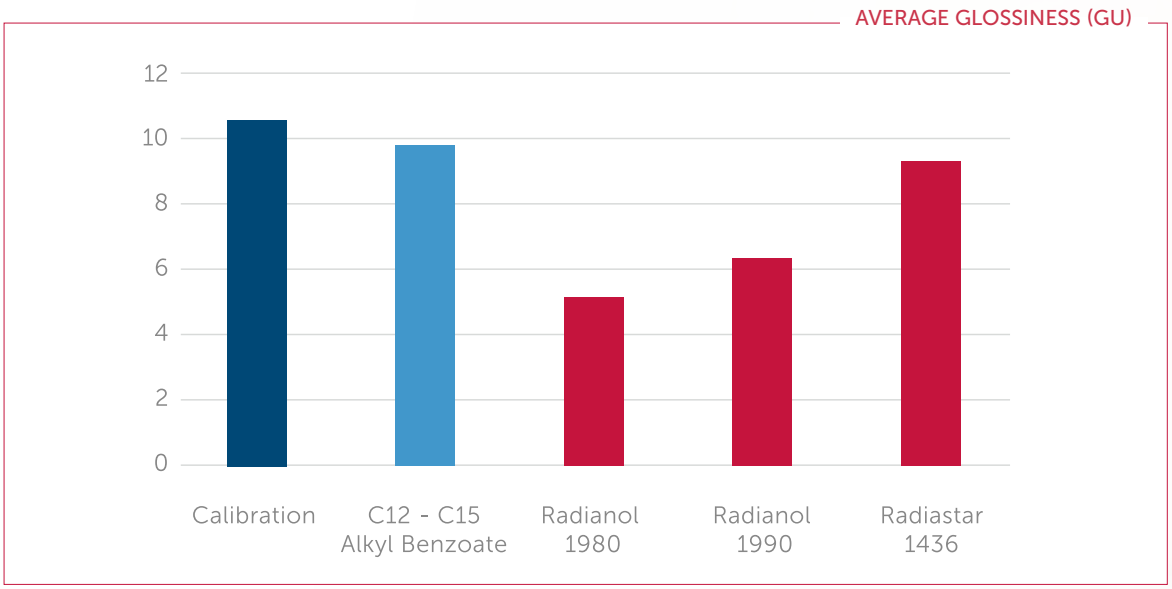


Figure 9: Glossiness of the specialty alcohols evaluated in a red lipstick in comparison with the benchmark C12-15 Alkyl Benzoate.

Protocol
The aim of this protocol is to determine the glossiness of the product with Glossymeter analysis.

Results interpretation
The higher the gloss results, the shinier, more glossy appearance.

Radiastar 1436 gives a nice gloss to the lipstick comparable to C12-15 Alkyl Benzoate. Radianol 1980 and Radianol 1990 can be useful in matt color cosmetics.

Color intensity

Color intensity in cosmetics significantly influences the visual impact and effectiveness of makeup products. It refers to the vividness, richness, and depth of color pigments present in various cosmetic formulations, including lipsticks, eyeshadows and blushes. High color intensity ensures that the applied makeup delivers a bold and noticeable effect, allowing for vibrant and striking looks. To ensure a good color intensity, emollients like the specialty alcohols help distributing the pigments evenly for a good payoff.

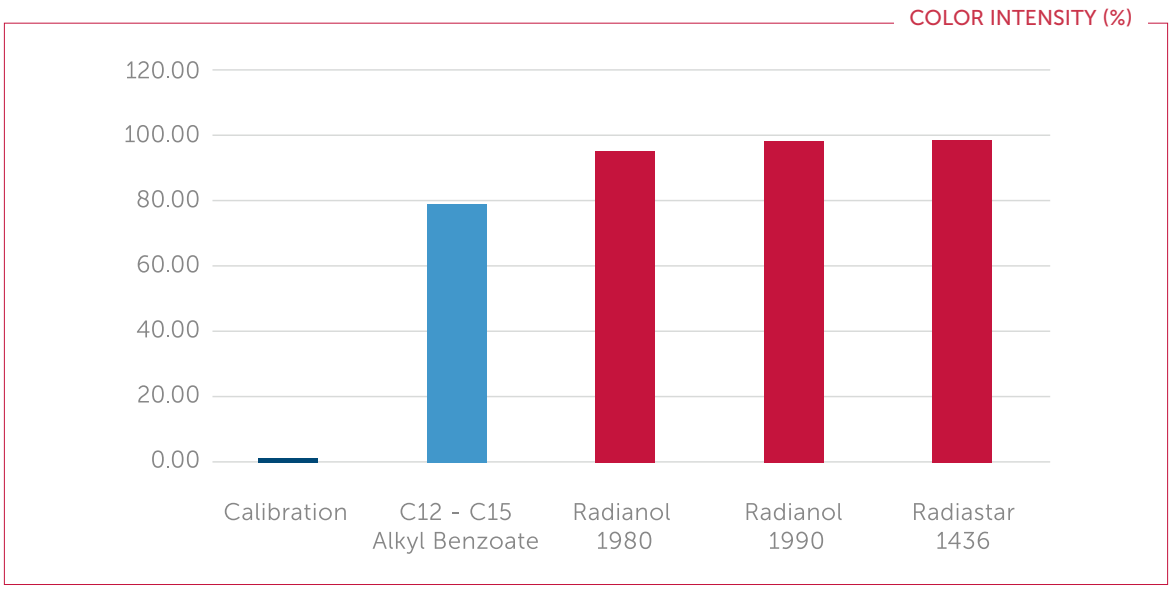


Figure 10: Color intensity of the specialty alcohols evaluated in a red lipstick in comparison with the benchmark C12-15 Alkyl Benzoate.

Protocol
The aim of this protocol is to determine the color intensity of the product with Mexameter analysis.

Results interpretation
The higher the %, the better the color intensity.

Radianol 1990 and Radiastar 1436 have high color intensity as it gives the highest erythema value. All alcohols perform better than the reference.

Pigment dispersing properties

As mentioned before, specialty alcohols have excellent pigment dispersion properties, which is shown in the figure below compared to different benchmarks. The hydroxyl groups of the specialty alcohols help with wetting the pigments. Therefore, the pigment can be dispersed more efficiently, which results in better dispersing properties.

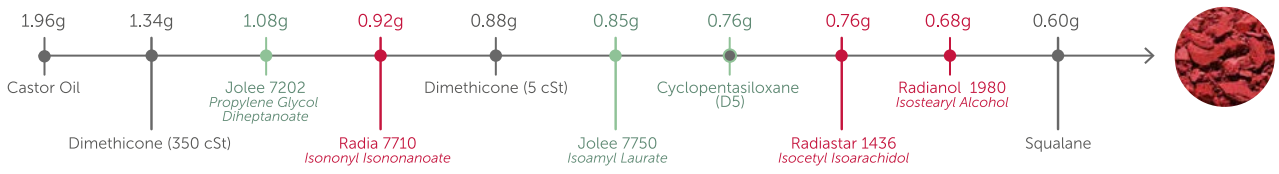
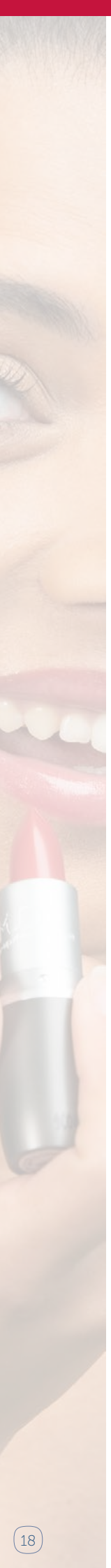


Figure 11: Amount of emollient (gram) needed to solubilize 1 gram of pigment (red iron oxides).



How to formulate **Lipstick with isoC36 Guerbet alcohol**

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	Rice wax	Oryza Sativa (Rice) Bran Wax	Aroma-zone	12
	Radia 7500	Cetyl Palmitate	Oleon	10
	Radia 7744	Myristyl Myristate	Oleon	2
	Cetearyl alcohol	Cetearyl Alcohol	Ecogreen	2
	Radia 7245	Polyglyceryl-3 Diisostearate	Oleon	2
	Lucee Btr Sheanut RBD	Butyrospermum Parkii (Shea) Butter	Oleon	1
	Jolee 7181	Pentaerythritol Tetraisostearate	Oleon	18
PHASE B	**Radiastar 1436**	Isocetyl Isoarachidol	Oleon	20
	Radia 7373	Triisostearin	Oleon	15
	Radia 7104	Caprylic/Capric Triglyceride	Oleon	13.5
	Unipure red LC304	Iron Oxides (CI 15850)	Sensient	1
	Unipure red LC328	Iron Oxides (CI 45410)	Sensient	1
	Titanium dioxide	Titanium Dioxide	Sigma	2
PHASE C	Tocopherol	Tocopheryl Acetate	Sigma	0.5

Naturality profile
according to ISO16128

NOI = 1 NOI > 0.5 NOI ≤ 0.5

3 SILICONE-LIKE EMOLLIENTS

As shown in Figure 11, other excellent pigment dispersing agents are Jolee 7750 and Jolee 7202 due to their high wetting power. Jolee 7750 and Jolee 7202 are light emollients, fully based on renewable sources, that can be used as an alternative to light silicones. Moreover, one of the building blocks of Jolee 7750 is produced from fusel oil, which is a by-product in the bioethanol industry and thus contributes to the waste reduction of our planet.

3.1 Jolee 7750 | **Isoamyl Laurate**

Product features

Jolee 7750

INCI
Isoamyl Laurate

CAS
6309-51-9

Function
Emollient

Usage level
1% - 80%

Features
» High surface diffusion & easy spread

» Light after feel

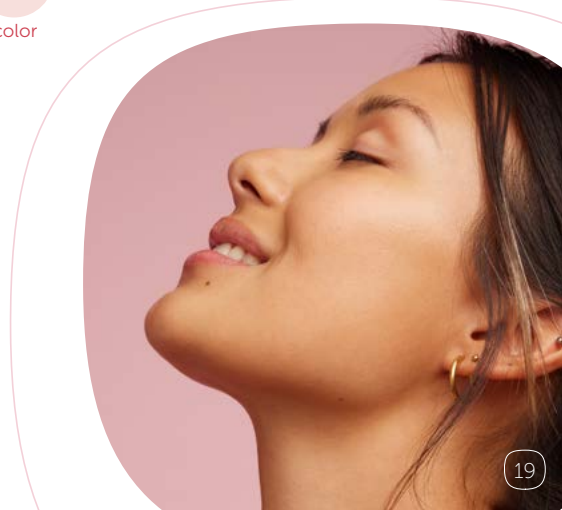
» Natural alternative to light silicones

» Pigment disperser

Safety
» Skin irritation: non-irritating (in vivo patch test)

» Ames test: non-mutagenic and non pro-mutagenic

Application
skin hair color

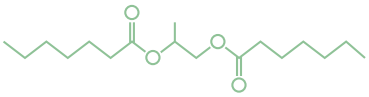


3.2 Jolee 7202 | **Propylene Glycol Diheptanoate**

Product features

Jolee 7202

INCI
Propylene Glycol Diheptanoate
CAS
56519-68-7



Function
Emollient

Usage level
1% - 80%

Features
» Good surface diffusion
» Easy spread
» Velvety and powdery after feel
» Slight shine
» Natural alternative to light silicones

Application
skin hair color sun

Silky or velvety: choose your favorite light emollient

Oleon's 100% natural silicone-like emollients offer an exquisite sensory profile comparable to that of benchmark silicones. The low viscosity and quick absorption result in high spreading and quick penetrating properties. Although both Jolee emollients deliver an improved shine to your natural formulations, Jolee 7202 provides a more powdery and velvety afterfeel, while Jolee 7750 has a more silky afterfeel.

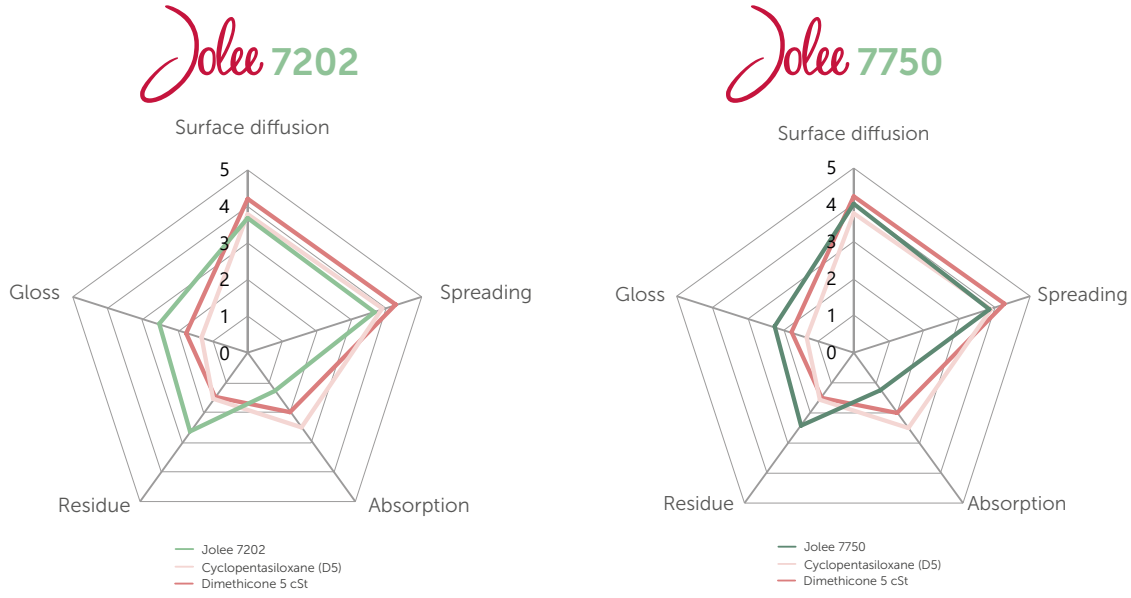
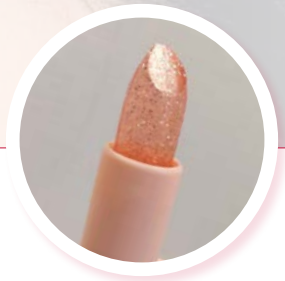


Figure 12 & 13: Sensorial analysis conducted by an internal expert panel. Products were rated according to five parameters on a scale from 0 to 5 (0 = low score; 5 = high score).



How to formulate **Stardust Lip Glaze**

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	**Radia 7799**	Isocetyl Isoarachidol (and) Hydrogenated Dilinoleyl Alcohol (and) Glyceryl Caprylate (and) Ethylcellulose"	Oleon	34
	AJK OD2046	Dibutyl Ethylhexanoyl Glutamide (and) Dibutyl Lauroyl Glutamide (and) Octyldodecanol	Ajinamoto	34
	Jolee 7181	Pentaerythrityl Tetraisostearate	Oleon	10
	Eutanol G	Octyldodecanol	BASF	10
	Radia 7245	Polyglyceryl-3 Diisostearate	Oleon	6
PHASE B	**Jolee 7202**	Propylene Glycol Diheptanoate	Oleon	2.5
	Jolee 7750	Isoamyl Laurate	Oleon	2.5
	Cosmetic Bio-Glitter® SPARKLE - Silver 8301/008H	Rayon (and) Glycerin (and) Aqua (and) Urea (and) Styrene/Acrylates Copolymer (and) CI 77000 (Aluminum Powder)	Blue Sun International	0.2
	Cosmetic Bio-Glitter® SPARKLE - Rose Gold 8341/008H	Rayon (and) Aqua, (and) Urea (and) Styrene/Acrylates Copolymer (and) (and) CI 42090 (Blue 1 lake) (and) CI 19140 (Yellow 5 lake) (and) CI 15850 (Red 7 lake) (and) CI 77000 (Aluminum Powder)	Blue Sun International	0.2
	Uvascreen OMC	Octyl Methoxycinnamate	Thornhill	0.1
	Red D&C 27	CI 45410	Kobo	0.2
	Citric Acid Soln Anhydrous	Citric Acid	Sigma	0.1
	Vanilla Falvour	Aroma	TKB Trading	0.2

Naturality profile
according to ISO16128

NOI = 1 NOI > 0.5 NOI ≤ 0.5

4 LONGLASTING **FILM-FORMING EMOLLIENTS**

4.1 Jolee 7181 | **Pentaerythrityl Tetraisostearate**

Jolee 7181, Pentaerythrityl Tetraisostearate, is a versatile and widely used ingredient in the realm of makeup formulation, renowned for its exceptional properties that contribute to the overall performance and aesthetics of cosmetic products. As a specialized ester derived from pentaerythritol, this compound serves multiple functions, primarily functioning as an effective binder, emollient, and texture enhancer. Its unique molecular structure imparts a smooth and velvety feel, making it a favored choice for creating luxurious textures in various makeup formulations.

Product features

Jolee 7181

INCI
Pentaerythrityl Tetraisostearate

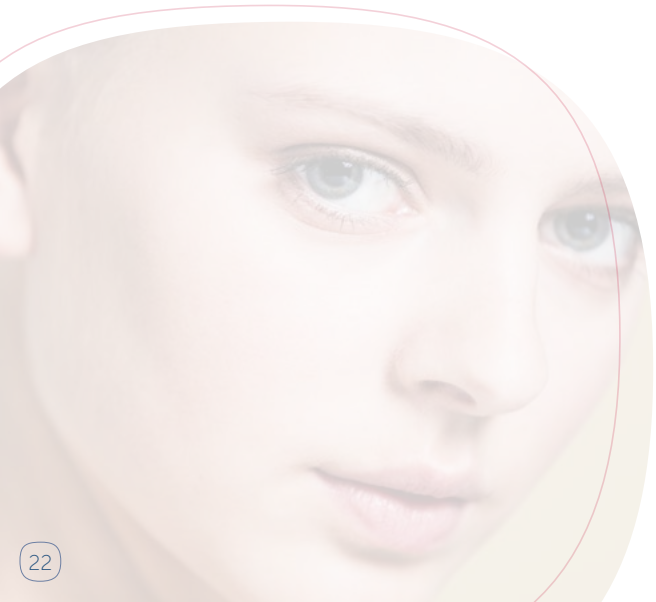
CAS
62125-22-8

Usage level
1% - 20%

Features
» Rich emollient
» Smoothens and softs the hair
» Improves heat resistance
» Water resistance
» Highly protective filmformer
» Improves anti-bleeding
» Excellent color intensity

Application
skin hair color

Environmental profile
Readily biodegradable
NOI (ISO16128): 0.9



Film-forming properties

The evaluation of film-forming properties of Jolee 7181 is determined in a lipstick compared to three benchmarks known for their film-forming properties. To ensure a fair evaluation, the concentration of the benchmarks is the same as the concentration of Jolee 7181.

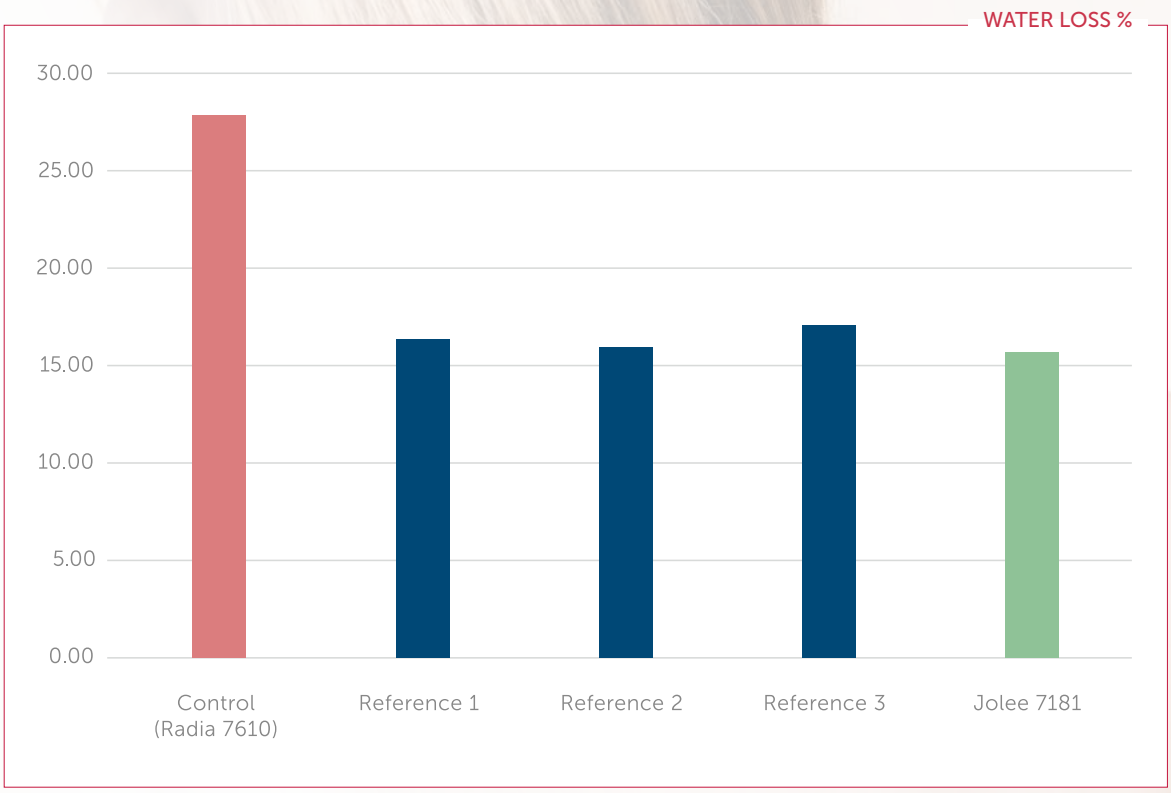


Figure 14: Film-forming properties of Jolee 7181 evaluated in a lipstick in comparison with three benchmarks, as % water remaining lost.

Protocol
The aim of this protocol is to determine the permeability of a product and its ability to form a film. The evaluation is based on an in-house test measuring water evaporation from a plastic cup.

Results interpretation
The higher the % of water remaining, the better the film-forming properties.

Jolee 7181 performs very good and in line with the benchmarks.

Color intensity

Color intensity in cosmetics significantly influences the visual impact and effectiveness of makeup products. It refers to the vividness, richness, and depth of color pigments present in various cosmetic formulations, including lipsticks, eyeshadows and blushes. High color intensity ensures that the applied makeup delivers a bold and noticeable effect, allowing for vibrant and striking looks. To ensure a good color intensity, emollients like the specialty alcohols help distributing the pigments evenly for a good payoff.

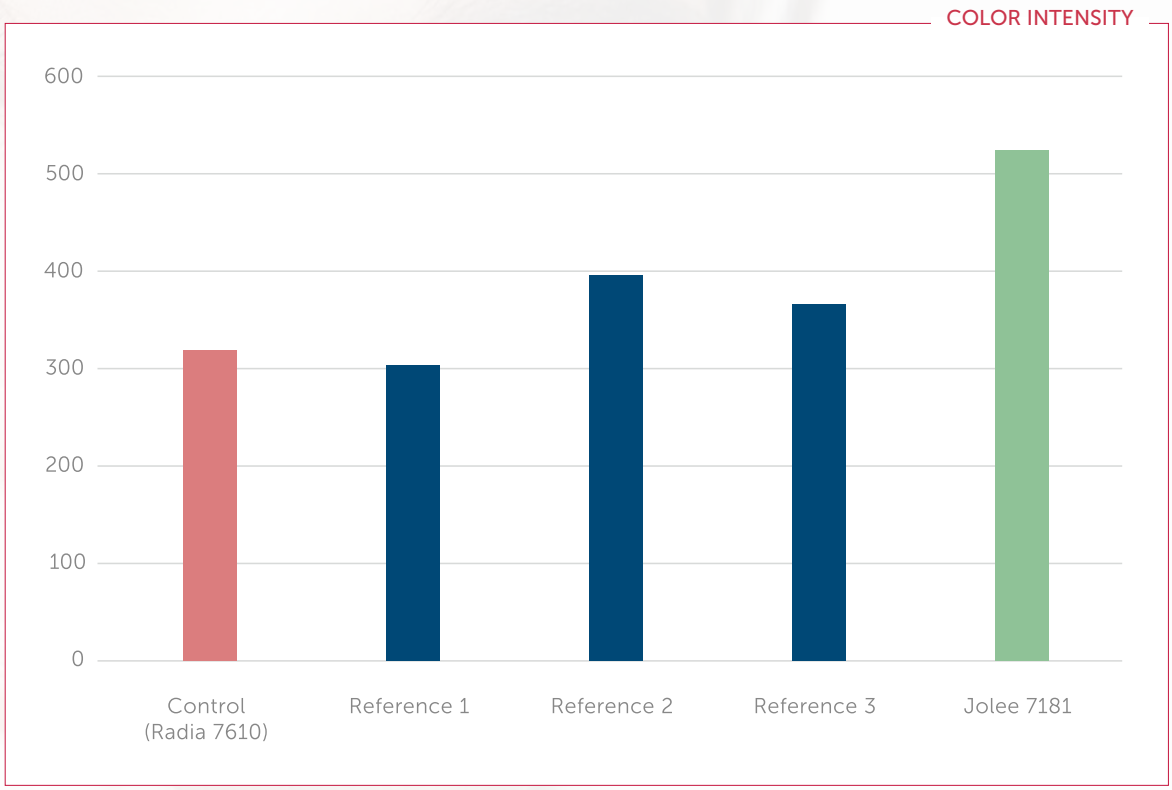


Figure 15: Color intensity of Jolee 7181 evaluated in a lipstick in comparison with three benchmarks.

Protocol
The aim of this protocol is to determine the color intensity of the product with Mexameter analysis.

Results interpretation
The higher the color intensity results, the shinier, more glossy appearance.

Jolee 7181 has a very nice color intensity, better than the benchmarks.

How to formulate **Milky Way Mascara**

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	Deionized water	Aqua	Supplier	Up to 100
	Keltrol CG	Xanthan Gum	CP Kelco	0.8
	TEA 99%	Triethanolamine	Sigma	0.5
	Nipaguard EHP	Phenoxyethanol (and) Ethylhexylglycerin	Clariant	0.7
	PreservMix 500	Benzyl Alcohol (and) Glyceryl Caprylate (and) Glyceryl Undecylenate	Akema	0.8
PHASE B	**Radia 7799**	Isocetyl Isoarachidol (and) Hydrogenated Dilinoleyl Alcohol (and) Glyceryl Caprylate (and) Ethylcellulose	Oleon	3
	Carnauba T1 Wax	Copernicia Cerifera (Carnauba) Wax	Oleon Ltd	3
	Radia 7744	Myristyl Myristate	Oleon	3
	Rice Bran wax	Oryza Sativa (Rice) Bran Wax	Aroma-zone	3
	Radia 7245	Polyglyceryl-3 Diisostearate	Oleon	3
	Radia 6122	Helianthus Annuus (Sunflower) Seed Oil	Oleon	3
PHASE C	**Radiastar 1420**	Octyldodecanol	Oleon	6
	Jolee 7181	Pentaerythritol Tetraisostearate	Oleon	4
	Radia 7207	Propylene Glycol Dicaprylate/Dicaprate	Oleon	5.5
	SunPURO Black iron oxide	CI 77499 (Iron Oxides)	Sun Chemical	2
	SunSHINE Mystic Black	CI 77499 (Iron Oxides) (and) Synthetic Fluorphlogopite (and) CI 77891 (Titanium Dioxide)	Sun Chemical	3
	Sunshine Glitter White C803400	Synthetic Fluorphlogopite (and) CI 77891 (Titanium Dioxide)	Sun Chemical	5

Naturality profile
according to ISO16128

NOI = 1 NOI > 0.5 NOI ≤ 0.5

5 COLD PROCESS EMULSIFIERS

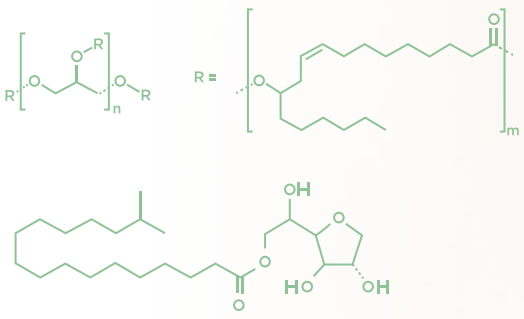
5.1 Jolee 7887 | **W/O emulsifier**

The concept of cold processing has been developed due to the growing consumer demand for eco-friendly processes and products. Cold processing is a greener production method whereby cosmetic formulations can be obtained at room temperature. This will not only reduce the energy demand but also the required manufacturing time. In comparison, conventional methods for emulsions require significant quantities of energy and time – heating and cooling alone accounts for over 90% of the total energy consumption.

Product features

Jolee 7887

INCI Polglyceryl-3 Polyricinoleate (and) Sorbitan Isostearate
CAS 68936-89-0, 71902-01-7



Function
Primary Water-in-Oil (W/O) emulsifier

Features
» Compatible with wide variety of oils (excluding silicones)

» Cold process emulsifier (1-4%)

» Creates stable emulsions with high internal water phase, up to 82%

Usage level
1% - 4%

Safety
Skin irritation: non-irritating (in vivo patch test)

Application
sun skin hair

Biodegradability profile
Readily biodegradable (OECD 301B)

How to formulate **Liquid Foundation**

	INGREDIENT	INCI	SUPPLIER	% W/W
PHASE A	Water	Aqua	/	Up to 100
	Mg.SO4	Magnesium Sulfate	Sigma	0.5
	Citric Acid (20% soln)	Citric Acid	Sigma	qs
PHASE B	**Jolee 7887**	Polyglyceryl-3 Polyricinoleate (and) Sorbitan Isostearate	Oleon	5
	Radiamuls Citrem 2932K	Glyceryl Stearate Citrate	Oleon	2
	Radia 7104	Caprylic/capric Triglyceride	Oleon	6
PHASE C	**Radia 7336**	Decyl Oleate	Oleon	7
	Radia 7739	Isopropyl Isostearate	Oleon	7
	Jolee 7202	Propylene Glycol Diheptanoate	Oleon	11
	Radiastar 1420	Octyldodecanol	Oleon	8.5
	Pigment blend	CI 77891 (Titanium Dioxide) (and) Talc (and) CI 77947 (Zinc Oxide) (and) CI 77492 (Iron Oxide) (and) CI 77492 (Iron Oxide) (and) CI 77499 (and) CI 77491 (Iron Oxides) (and) Hydrogen Dimethicone (and) Triethoxycaprylysilane	Kobo	5
PHASE D	Vitamin E	Tocopheryl Acetate	BASF	0.1
	Nipaguard EHP	Phenoxyethanol (and) Ethylhexylglycerin	Clariant	1

Naturality profile
according to ISO16128

NOI = 1 NOI > 0.5 NOI ≤ 0.5

5.2 Jolee 7777 | **W/O/W emulsifier**

Jolee 7777 is an optimized emulsifier blend which enables the formulation of W/O/W (water-in-oil-in-water) emulsions in just one step through a direct emulsification process. This combination enables a sensorial change during application: the initial O/W emulsion offers a light sensory followed by the nourishing finish known from W/O emulsions.

Product features

Jolee 7777

INCI Polyglyceryl-3 Polyricinoleate, Glyceryl Oleate Citrate SE (and) Polyglyceryl-3 Diisostearate

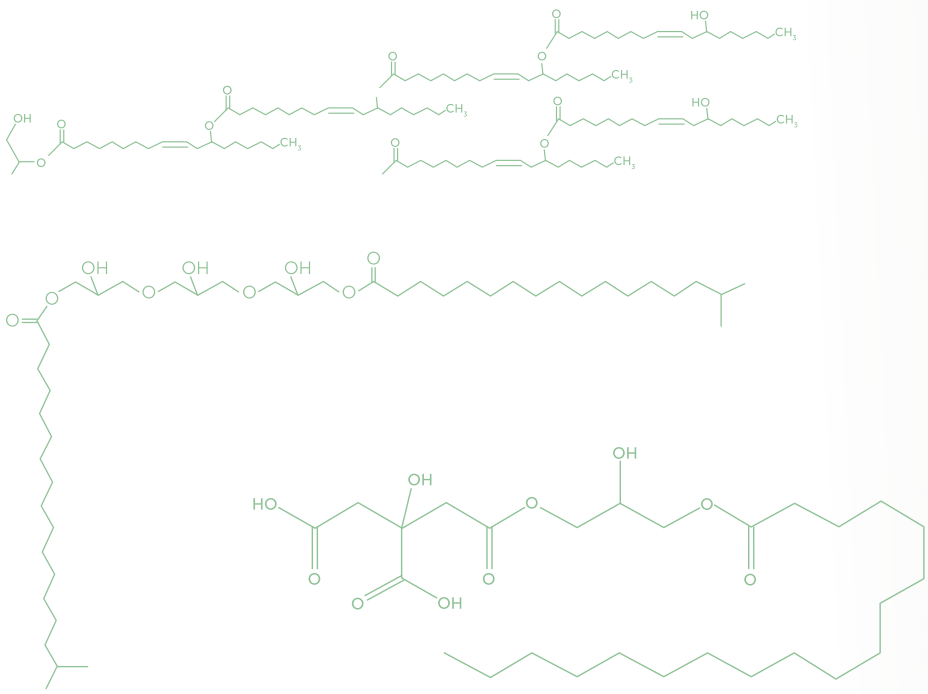
Function
Emulsifier blend for W/O/W emulsions

Features
Cold process emulsifier
1-step multiple emulsions

Usage level
4% - 8%

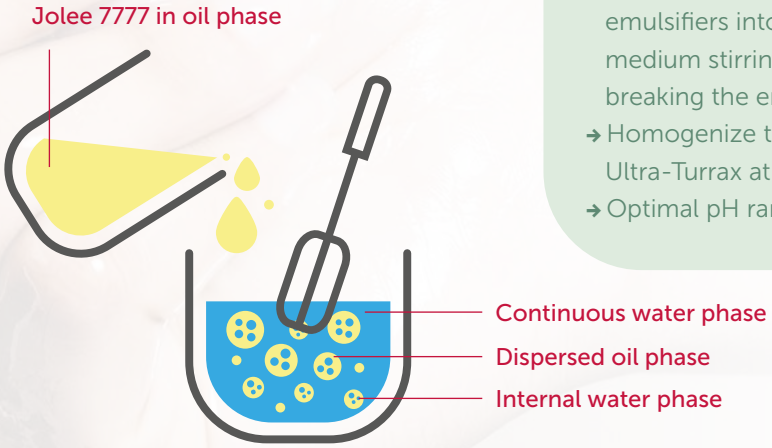
Application
sun skin

Biodegradability profile
Readily biodegredable (OECD 301B)



A multiple emulsion in one emulsification step

The combination of both water-in-oil and oil-in-water emulsifiers, allows a W/O/W multiple emulsion to be formed by simply adding the oil phase, which contains the emulsifier package, to the water phase of your formulation.

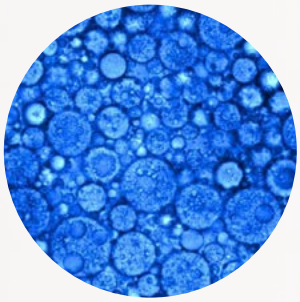


- Add Jolee 7777 to the oil phase.
- Slowly add the oil phase containing emulsifiers into the water phase under medium stirring (700 - 900 rpm) to avoid breaking the emulsion.
- Homogenize the final emulsion with Ultra-Turrax at 8000 rpm for 1 minute.
- Optimal pH range: 4 -10.

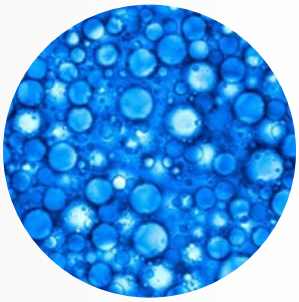
TIPS & TRICKS

- Oils: medium polar oil (e.g. triglycerides).
- Add thickener to stabilize the formulation (0.5 - 1.5%).
- Add electrolytes for optimal osmotic balance.
- Ultra Turrax stirring: medium during oil addition (700 - 900 rpm until dispersed) and high after emulsion is formed (8000 rpm - 1 min).

Let's have a closer look...



W/O/W emulsion



O/W emulsion

Figure 16 & 17: 100x magnification microscopic image of W/O/W emulsion (left) and O/W emulsion (right).

6 PRODUCT **OVERVIEW**

TRADE NAME	INCI NAME	PHYSICAL STATE	DYN. VISCOSITY @25°C [mPa.s]	NATURAL ORIGIN INDEX (ISO 16128)	CHINA REGISTRATION		COLOR COSMETICS			
					IECIC	IECSC	Lip color	Foundation	Powder	Mascara
EMOLLIENTS										
Jolee 7750	**Isoamyl Laurate**	**liquid**	5	1	x	x	x	x	x	x
Radia 7710	**Isononyl Isononanoate**	**liquid**	6	0	x	x		x	x	
Jolee 7202	**Propylene Glycol Diheptanoate**	**liquid**	7	1	Ongoing, deadline 2026	Ongoing, deadline 2026	x	x	x	x
Radia 7732	**Isopropyl Palmitate**	**liquid**	8	0.8	x	x	x			
Radia 7220	**Coco-Caprylate/ Caprate**	**liquid**	10	1	x	x	x	x		x
Radia 7207	**Propylene Glycol Dicaprylate/Dicaprate**	**liquid**	11	1	x	x				x
Radia 7208	**Propylen Glycol Dicaprylate/Dicaprate**	**liquid**	11	0.8	x	x				x
Radia 7507	**Cetearyl Ethylhexanoate**	**liquid**	12	0.7	x	x	x	x	x	
Radia 7779	**Ethylhexyl palmitate**	**liquid**	13	0.7	x	x	x	x	x	
Radia 7104	**Caprylic/Capric Triglyceride (60/40)**	**liquid**	29	1	x	x	x	x	x	
Radia 7506	**Cetyl Ethylhexanoate**	**liquid**	14	0.7	x	x	x	x		
Radia 7102K	**Caprylic/Capric Triglyceride (70/30)**	**liquid**	30	1	x	x	x	x	x	
Radia 7610	**Triethylhexanoin**	**liquid**	31	0	x	x		x	x	
Radianol 1980	**Isostearyl Alcohol**	**liquid**	68	1	x	x	x	x	x	x
Radiastar 1436	**Isocetyl Isoarachidol**	**liquid**	313	1			x	x	x	x
Jolee 7181	**Pentaerythrityl Tetraisostearate**	**liquid**	410	0.9	x	x	x		x	x
Jolee 7185	**Pentaerythrityl Tetraisostearate (100% biobased)**	**liquid**	410	0.9	x	x	x		x	x
Radia 7798	**Propylene Glycol Diheptanoate, Hydrogenated Dilinoleyl Alcohol (and) Ethylcellulose**	**liquid**	3000	> 0,9	Ongoing, deadline 2026	Ongoing, deadline 2026	x			x
HUMECTANTS										
Glycerine 4810	**Glycerin**	**liquid**		1	x	x	x	x	x	x
Glycerine 4811	**Glycerin**	**liquid**		1	x	x	x	x	x	x
Radianol 4710	**Propylene Glycol**	**liquid**		1	x	x		x		x

TRADE NAME	INCI NAME	PHYSICAL STATE	HLB	NATURAL ORIGIN INDEX (ISO 16128)	CHINA REGISTRATION		COLOR COSMETICS			
					IECIC	IECSC	Lip color	Foundation	Powder	Mascara
EMULSIFIERS										
Water in Oil Emulsifiers										
Radiamuls POLY 2253K	**Polyglyceryl-3 Polyricinoleate**	**liquid**	4.0	1	x	x		x		
Jolee 7887	**Polyglyceryl-3 Polyricinoleate (and) Sorbitan Isostearate**	**liquid**	4.2	1	x	x		x		
Radia 7245	**Polyglyceryl-3 Diisosstearate**	**liquid**	4.5	1	x	x	x	x		x
Radiasurf 7758	**Sorbitan Isostearate**	**liquid**	4.7	1	x	x	x	x	x	
Radiamuls Sorb 2156K	**Sorbitan Oleate**	**liquid**	4.7	1	x	x		x		
Radiasurf 7145	**Sorbitan Stearate**	**solid**	5.0	1	x	x		x		
Radiasurf 7125	**Sorbitan Laurate**	**paste**	7.6	1	x	x		x		
Oil in Water Emulsifiers										
Radiasurf 7147	**Polysorbate 60**	**liquid**	15.0	0	x	x				x
Water in Oil in Water Emulsifiers										
Jolee 7777	**Polyglyceryl-3 Polyricinoleate (and) Glyceryl Oleate Citrate (and) Polyglyceryl-3 Diisostearate**	**liquid**	8.8	1	x			x		
TEXTURIZERS										
Radia 7798	**Propylene Glycol Diheptanoate, Hydrogenated Dilinoleyl Alcohol (and) Ethylcellulose**	**liquid**		> 0,9	Ongoing, deadline 2026	Ongoing, deadline 2026	x			x
Radianol 1990	Hydrogenated Dilinoleyl Alcohol	liquid		1	x	x	x			x
Radiacid 0976	Hydrogenated Dimer Dilinoleic Acid	liquid		1	x	x	x			x
Radia 7799	Isocetyl Isoarachidol, Hydrogenated Dilinoleyl Alcohol (and) Ethylcellulose	solid		> 0,9			x			x
Radia 7744	Myristyl Myristate	solid		1	x	x				x
Radiacid 0152	Stearic Acid	solid		1	x	x		x	x	x
Radia 7500	Cetyl Palmitate	solid		1	x	x	x			

oleon
a natural chemistry

www.oleon.com

HEALTH & BEAUTY

Oleon nv | Assenedestraat 2, 9940 Ertvelde, Belgium | **T** + 32 (0)9 341 10 11 | **E** info@oleon.com