



Jolee

COLD PROCESS EMULSIFIERS

Obtain stable and unique formulas
with our naturally derived emulsifiers

oleon
a natural chemistry

www.oleonhealthandbeauty.com

HEALTH & BEAUTY

COLD PROCESS EMULSIFIERS

Rapeseed



Sunflower



Castor oil



Palm kernel



Wheat



Maize



Starting the journey towards a sustainable future together by limiting our environmental impact is more than ever necessary. In this context, the personal care industry has a substantial role to play. 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.

Oleon has developed two cold process emulsifiers, Jolee 7887 and Jolee 7931. These emulsifiers' renewable building blocks, their cold processability and biodegradable profile are the ideal ingredients for your green formula in order to meet your consumer's demands. As member of the Roundtable on Sustainable Palm Oil (RSPO), Jolee 7931 is available as RPSO Mass Balance.

Naturality profile

according to ISO 16128

NOI = 1



NATRUE Approved

Jolee
Be honest
Be yourself
Be Jolee

Discover our Jolee® story



ADVANTAGES OF COLD PROCESS METHOD

- ✓ Reducing energy cost, manufacturing times and equipment costs
- ✓ Greater flexibility for formulation development
- ✓ Protection of temperature and shear sensitive ingredients (such as fragrances, active compounds, preservatives, etc.)
- ✓ Less equipment required since external heating or cooling is not necessary

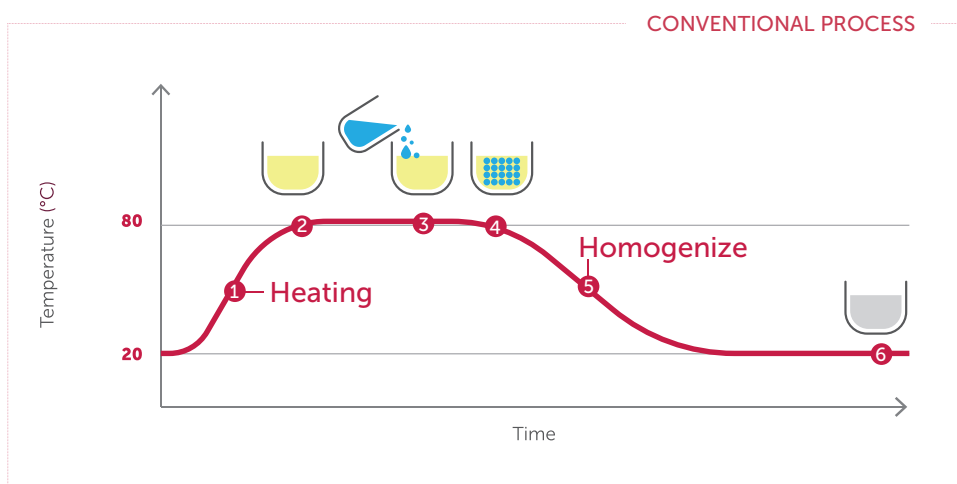
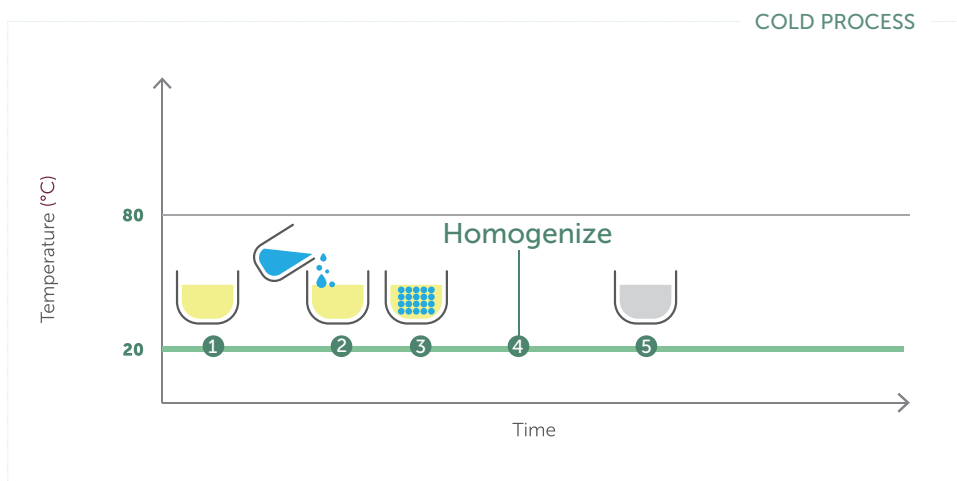


Figure 1 & 2: cold process method versus conventional method.

NATURAL W/O EMULSIFIER FOR NOURISHING LOTIONS AND CREAMS

Jolee 7887 is a natural non-ionic Water-in-Oil (W/O) emulsifier and is compatible with a wide variety of oils such as caprylic/capric triglycerides, sunflower oil, and apolar oils. W/O emulsions are ideal for sun care, baby care and rich cream formulations.

The sensory feeling of a W/O formulation can be perceived by consumers as too greasy and sticky, therefore formulators are being challenged to find and select the right oils, emollients and emulsifiers. Formulating with Jolee 7887 gives you the advantage to obtain W/O emulsions with a light and fresh after feel as it has the ability to create stable formulations with an inner water phase up to 82%. This high amount of inner water phase ensures a pleasant light skin feeling while keeping the skin nourished and hydrated.



Product features



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%

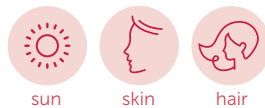
Usage level

1% - 4%

Safety

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

Application

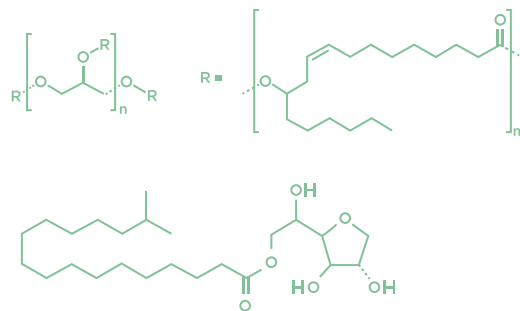


Origin



Biodegradability profile

Readily biodegradable (OECD 301B)



INCI Polyglyceryl-3 polyricinoleate
(and) Sorbitan isostearate

CAS 68936-89-0, 71902-01-7

Physicochemical properties

Appearance	Viscous amber colored liquid
Kinematic viscosity (40°C)	$\geq 1150 \text{ mm}^2/\text{s}$
Acid value	$\leq 3 \text{ mg KOH/g}$
Iodine value	50 – 70 g I ₂ /100g
Color (Gardner)	≤ 8
Refractive index (60°C)	1.4655 – 1.4665
HLB	4.2

Formulation knowhow



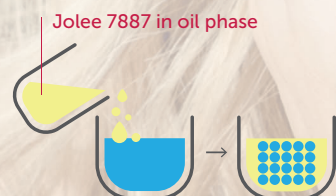
SKIN



SUN



HAIR



TIPS & TRICKS

- Introduce Jolee 7887 (1-4%) into the oil phase.
Oil phase: all kind of oils such as caprylic/capric triglycerides, sunflower oil, and apolar oils (except silicones).
Recommended oil phase concentration: 10-30%.
- Electrolytes are tolerated. Add magnesium sulfate in the water phase to build viscosity and improve stability (0.5% - 20%).
- Slowly add the oil phase containing emulsifier into the water phase. No heating required. Homogenize the emulsion with Ultra Turrax.

Formulation *Intensive restoring hand cream*

	INGREDIENT	INCI	% W/W
PHASE A	Water	Aqua	To 100
	 Glycerine 4811	Glycerin	5
	Magnesium sulfate 7 H ₂ O	Magnesium sulfate	0.5
	Sweet almond oil	Prunus amygdalus dulcis oil	5.5
PHASE B	 Jolee 7202	Propylene glycol diheptanoate	4.5
	Essential oil Cassie flower wax	Acacia farnesiana flower wax	1.5
	 Jolee 7887	Polyglyceryl-3 polyricinoleate (and) Sorbitan isostearate	3
	 Radia 7104	Caprylic/capric triglyceride	4
PHASE C	Preservative	Phenoxyethanol	0.5
	Vitamin E	Tocopherol	0.05
	Fragrance	Perfume	0.35

Manufacturing procedure

- 1 Weigh all the ingredients of phase A in a beaker and mix to a homogeneous solution. Heat at 35°C.
- 2 Weigh all the ingredients of phase B one by one in the main beaker and heat up to 35°C until a clear solution is obtained.
- 3 Slowly add phase A to phase B. Do this under stirring (1000 rpm). Homogenize the emulsion during 1 min at Ultra Turrax.
- 4 Add phase C while mixing.

Properties

Appearance: shiny and soft W/O emulsion
pH: N/A
Viscosity: 111.400 cP (spindle 6, 5 rpm)



NATURAL SOLUBILIZER AND CO-EMULSIFIER

Jolee 7931 is an excellent solubilizer and an ideal alternative for polysorbate 20 or PEG-40 hydrogenated castor oil. As it is derived from 100% natural raw materials and readily biodegradable, the green profile of this ingredient gives you the opportunity to create 100% natural formulas.

Jolee 7931 can be used either as solubilizer or as cold process co-emulsifier for Oil-in-Water (O/W) emulsions. Moreover, it shows cleansing properties which contribute to the multi-functional character of this product.

Because of its non-irritating feature, Jolee 7931 can be used in all applications. It is a great ingredient especially for toiletries like bathing oils and body cleansers.



Product features



Function

Solubilizer
Oil-in-water (O/W) co-emulsifier

Features

Natural alternative for polysorbate 20 and PEG-40 hydrogenated castor oil
Cold process co-emulsifier

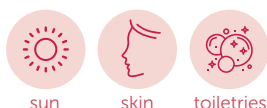
Usage level

1% - 3%

Safety

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

Application

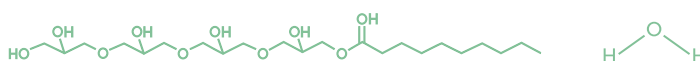


Origin



Biodegradability profile

Readily biodegradable (OECD 301B)



INCI Polglyceryl-4 caprate (and) Aqua

CAS 160391-93-5

Physicochemical properties

Appearance	Viscous liquid
Surface tension (20°C)	25 mN/m
Refractive index (20°C)	1.4725
CMC	49 ppm
Contact angle (Fe/Parafilm)*	± 58/61°
HLB	14

* Contact angle measured on Fe or Parafilm surface. Added at 1% in water.

Solubilization properties

Jolee 7931 has excellent solubilizing properties which can be used to solubilize perfumes, essential oils, or oils in aqueous solutions. It is a great green alternative for PEG-40 hydrogenated castor oil or polysorbate 20. In the table below, you can find the percentage of solubilizer needed to solubilize 1% of oils, essential oils or actives.

		JOLEE 7931 POLYGLYCERYL-4 CAPRATE AND WATER	POLYSORBATE 20	PEG-40 HYDROGENATED CASTOR OIL
<i>100 % Natural</i>				
Oils	C8/C10 triglyceride	>20%	>20%	15%
	Isopropyl myristate	10%	>20%	10%
	Mineral oil	>20%	>20%	>20%
	Isoamyl laurate	15%	>20%	20%
Essential oils	Lemon	8%	10%	6%
	Orange	6%	10%	6%
	Chamomile	4%	8%	3%
	Lavender	1%	6%	1%
Actives	Tocopheryl acetate	15%	>20%	12%

Table 1: comparison of percentage surfactant (Jolee 7931, polysorbate 20, PEG-40 hydrogenated castor oil) needed to solubilize 1% of oils, essential oils or actives.

Formulation knowhow



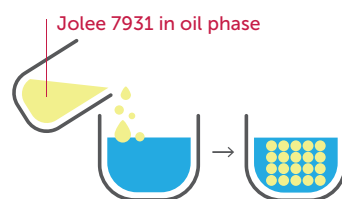
SKIN



SUN









TOILETRIES



TIPS & TRICKS

- Introduce Jolee 7931 into oil or water phase (1-3%). Add a primary emulsifier to stabilize your emulsion.
- Oil phase: preferable polar oils and triglycerides.
- Add the oil phase to the water phase. No heating required. Homogenize the emulsion with Ultra Turrax. Electrolytes are tolerated.

Formulation *Soft O/W lotion*

	INGREDIENT	INCI	% W/W
PHASE A	Water	Aqua	To 100
	 Glycerine 4811	Glycerin	2.5
	Solagum AX	Xanthan gum (and) Acaccia gum	1
PHASE B	 Jolee 7931	Polyglyceryl-4 caprate (and) Aqua	1
	 Radiamuls 2935K	Glyceryl oleate citrate SE	5
	 Jolee 7750	Isoamyl laurate	15
	 Radia 7104	Caprylic/capric triglyceride	8
	 Jolee 7202	Propylene glycol diheptanoate	5
	Apricot oil	Prunus armeniaca (Apricot) kernel oil	5
PHASE C	Preservative	Phenoxyethanol	0.5
	Fragrance	Perfume	0.05

Manufacturing procedure

- 1 Weigh water in the main beaker.
- 2 Mix glycerin with gums to a homogeneous paste.
- 3 Add paste in the main beaker under slow stirring (400 rpm).
- 4 Weigh all oils and emulsifiers of phase B. Homogenize with a spatula until a clear solution is obtained.
- 5 Add phase B slowly to phase A under intensive stirring (1000 rpm).
- 6 Stir 1 minute with Ultra Turrax at 9000 rpm.
- 7 Add preservative and perfume.

Properties

Appearance: light and fresh lotion
 Viscosity: 11.500 cP (disk 4, 10 rpm)

Sustainability at Oleon is not only about our Natural Chemistry, it is also reflected in our daily choices. For printing this brochure, we opted for uncoated and naturally white (unbleached) paper made from 100% recycled fibers.



