

Oleee

SILICONE-LIKE EMOLLIENTS

Discover Oleon's range of green alternatives for low viscosity silicones.

oleon
a natural chemistry

HEALTH & BEAUTY

www.oleonhealthandbeauty.com

NATURAL SILICONE-LIKE EMOLLIENTS

Rapeseed



Sunflower



Castor oil



Palm kernel



Wheat



Sugar beet



Sugar cane



Including our Jolee products into your formulations can offer many sustainability benefits to meet your consumer's demands. As these silicone-like emollients are fully based on renewable sources such as rapeseed, palm kernel oil, wheat, and castor oil, this novel range of Jolee products has a small ecological footprint. Moreover, one of the building blocks of our 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. As member of the Roundtable on Sustainable Palm Oil (RSPO), Jolee 7750 is available as RPSO Mass Balance. Our silicone-like emollients are non bio-accumulative, completely biodegradable, and therefore not harmful for the environment.

Naturality profile

according to ISO 16128

NOI = 1



COSMOS APPROVED



Jolee
Be honest
Be yourself
Be Jolee

Discover our Jolee® story



PRODUCT FEATURES



Function

Emollient

Features

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

Usage level

1% - 80%

Safety

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

Application

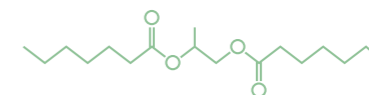


Origin



Biodegradability profile

Readily biodegradable (OECD 301B)



INCI Propylene glycol diheptanoate

CAS 56519-68-7



Function

Emollient

Features

- High surface diffusion
- Easy spread
- Light after feel
- Natural alternative to light silicones

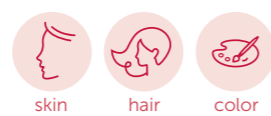
Usage level

1% - 80%

Safety

- Skin irritation: non-irritating (in vivo patch test)
- Genotoxicity: non-mutagenic and non pro-mutagenic (AMES)

Application



Origin



Biodegradability profile

Readily biodegradable (OECD 301B)



INCI Isoamyl laurate
CAS 6309-51-9



Physicochemical properties

Viscosity, surface tension, refractive index and flash point are important parameters in order to choose the perfect silicone-like emollient for your formulations. An overview of Oleon's solutions compared to benchmark silicones can be found in the table below.

	CYCLOPENTASILOXANE (D5)	DIMETHICONE (5 CST)	Jolee 7202	Jolee 7750
Viscosity (25°C) [mm ² /s]	Ca. 4	Ca. 5	Ca. 6.5	Ca. 5.5
Density (25°C) [g/cm ³]	0.950	0.920	0.930	0.850
Refractive index (20°C)	1.396	1.398	1.436	1.436
Flash point (°C)	88	140	180	150
Surface tension (25°C) [mN/m]	18.1	19.1	23.1	29.0

Table 1: Comparison of physicochemical properties between cyclopentasiloxane (D5), dimethicone (5 cSt), and Oleon's silicone-like esters: Jolee 7750 and Jolee 7202.

Compatibility with solvents/oils

Oleon's silicone-like solutions are short chained esters that act as superior solubilizers of lipophilic cosmetic raw materials. At different ratios the compatibility with various solvents was investigated through a visual evaluation. The results show remarkable stability with frequently used oils/solvents in diverse applications like sun care, skin care, and hair care.

	Jolee 7202	Jolee 7750
Ethanol	≤ 75%	≤ 75%
Mineral oil	≤ 75%	≤ 75%
Sunflower oil	≤ 75%	≤ 75%
Dimethicone (5 cSt)	≤ 75%	≤ 75%
Dimethicone (300 cSt)	≤ 75%	≤ 75%
Cyclopentasiloxane (D5)	≤ 75%	≤ 75%
Propylene glycol	Insoluble	Insoluble
Isopropyl myristate	≤ 75%	≤ 75%
C8/C10 triglycerides	≤ 75%	≤ 75%

Table 2: Compatibility of Jolee 7750 and Jolee 7202 with various oils and solvents. Solubility was determined when mixture remained uniform and clear after mixing at 55-60°C and 24hrs at room temperature.

Spreadability enhancement of oils

A spreading enhancer is an ingredient that improves the spreadability of oils when incorporated in a cosmetic formulation. Especially when formulating with actives, improved spreadability will enable the actives to better deliver.

The graphs below show the spreading enhancement of two common used oils, caprylic/capric triglyceride and sunflower oil, due to the addition of silicones and/or Oleon's silicone-like alternatives. For all tested enhancers a positive increase in spreadability can be seen in function of added concentration.

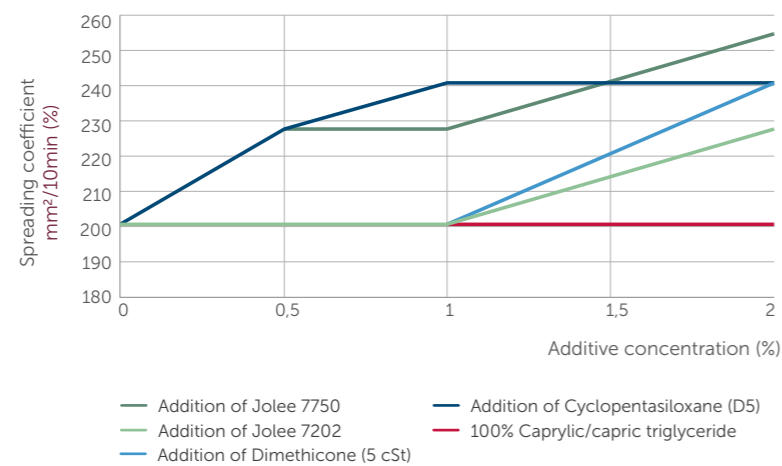


Figure 1: Comparison of the spreadability enhancement of caprylic/capric triglycerides by common used cyclopentasiloxane (D5), dimethicone (5 cSt), Jolee 7750 and Jolee 7202.

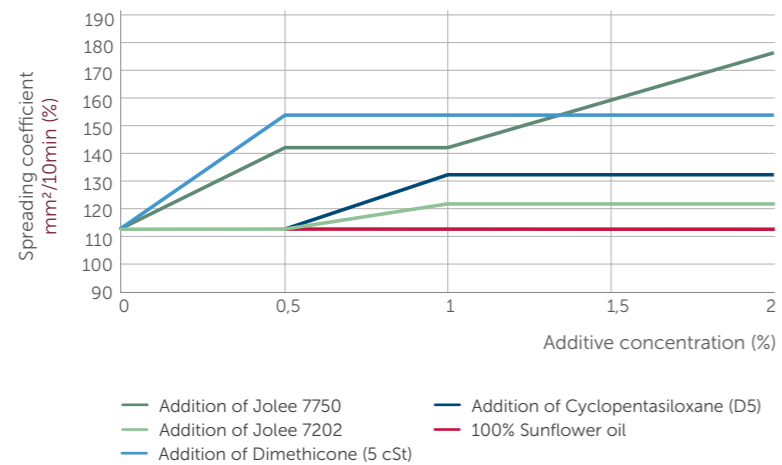


Figure 2: Comparison of the spreadability enhancement of sunflower oil by common used cyclopentasiloxane (D5), dimethicone (5 cSt), Jolee 7750 and Jolee 7202.

APPLICATION BENEFITS

Oleon's emollients allow to abandon the use of silicones while keeping the versatile formulation possibilities.



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. Both Jolee emollients deliver a velvety or silky touch with improved shine to your natural formulations.

Jolee 7202

Jolee 7750

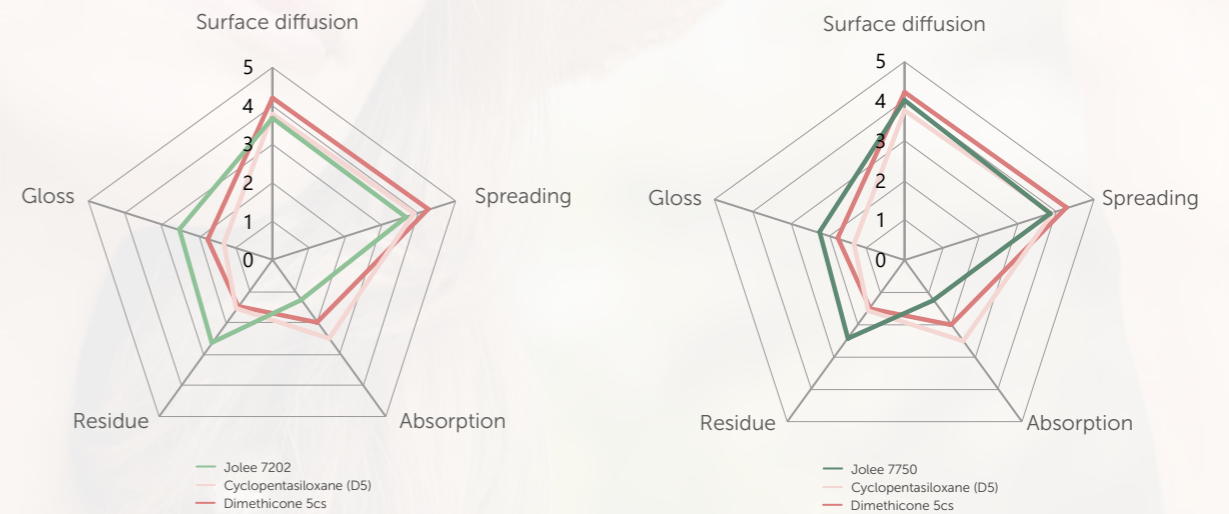


Figure 3 & 4: Sensorial analysis conducted by an internal expert panel. Products were rated according to five parameters on a scale from 0 to 5 (0 = low score; 5 = high score).



All day sun protection

The solubility of organic UV-filters in Jolee 7202 has been evaluated in order to prove its beneficial use in sun care formulations. In comparison to a common used benchmark and silicones, it is clear that Jolee 7202 brings an added value to any formulation containing organic UV-filters, even at high UV-filter concentrations. While formulating this means that, next to its benefit of being a natural silicone alternative, there is also no more need of adding additional UV-filter solubilizers.

The below graph shows the results of the various test solvents. Filters were added to the solvent, heated at 80°C for one hour and stored at room temperature and in parallel overnight at -10°C as an additional stability check.

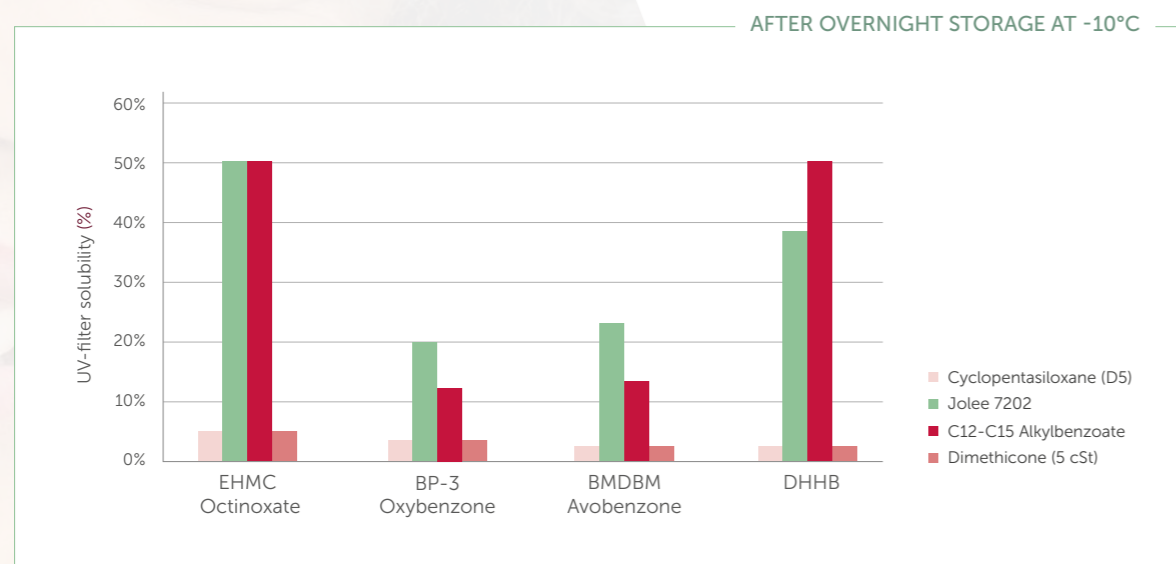
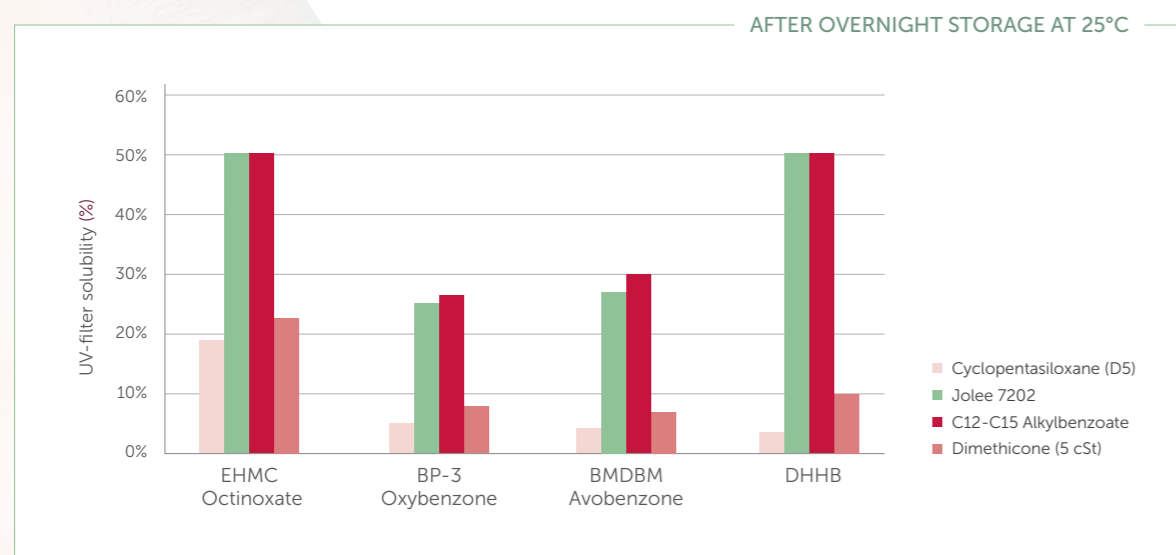


Figure 5 & 6: Solubility of UV-filters in Jolee 7202 compared to C12-C15 alkylbenzoate, cyclopentasiloxane and dimethicone (5 cSt). (EHMC = Ethylhexyl methoxycinnamate (US: Octinoxate); BP-3= Benzophenone-3 (US: Oxybenzone); BMDMB= Butyl methoxydibenzoylmethane (US: Avobenzone); DHHB= Diethylamino hydroxybenzoyl hexyl benzoate).

Beach-proof

Say no to an itchy sand feel! Jolee 7202 complements all sun care formulations with a unique sand repelling action. Furthermore, it improves the skin feel with its **non-sticky, soft and powdery touch**.

The sand repellent power of Jolee 7202 in comparison with two volatile silicones, cyclopentasiloxane (D5) and dimethicone (5 cSt) is shown below. For the test, 60 µL of sun oil was applied on a second skin patch. Afterwards, 5 gram dried, fine sand was pored on the patch and evenly spread. The excess of sand was removed. The graph shows the percentage of sand repelled in function of emollients used in the emulsion.

Jolee 7202 improves the skin feel with its non-sticky, soft and powdery touch.

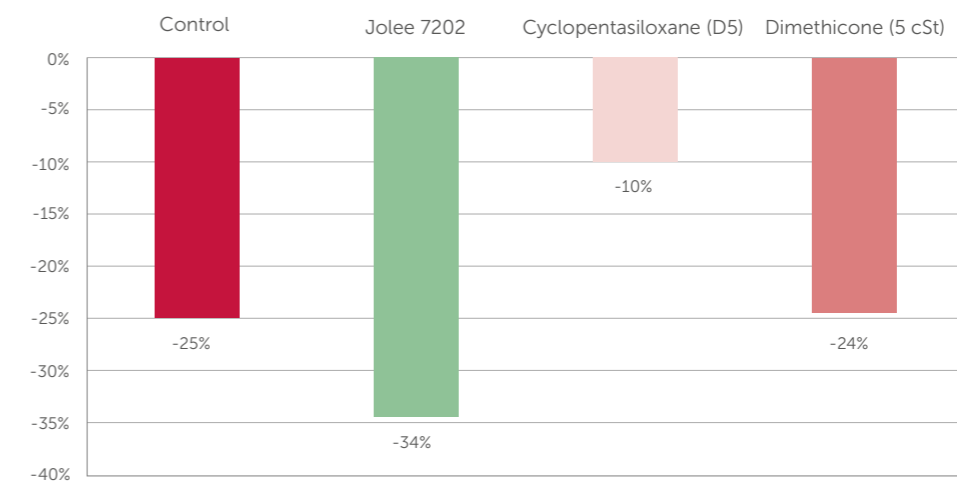


Figure 7: Sand repellent power of Jolee 7202 in comparison to a control and two volatile silicones, cyclopentasiloxane (D5) and dimethicone (5 cSt).

HAIR

Hair detangling

In vitro tests have been performed on four leave-in hair oil formulations containing either Oleon's silicone-like emollients or cyclopentasiloxane (D5) to study the detangling efficacy. This efficacy was determined by measuring the combing force needed to comb tresses treated with hair oil compared to hair tresses treated with water. Hair oil formulations contained 70% of the test product as shown below.

Formulation Leave-in hair oil

PHASE A	INGREDIENT	INCI	% W/W	% W/W
		Radia 7363	Triolein	5
	Radia 7104	Caprylic/capric triglycerides	15	15
	Jojoba oil	Simmondsia Shinensis (Jojoba) seed oil	5	5
	Jolee 7380	Trimethylolpropane triisostearate	5	5
	Oleon's silicone alternative		70	0
	Cyclopentasiloxane (D5)		0	70

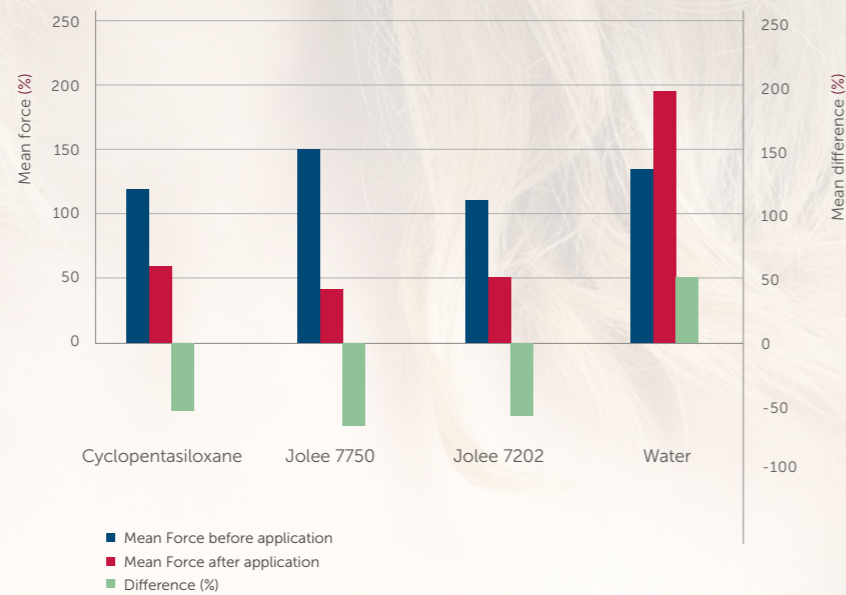


Figure 8: Combing force needed to detangle hair tresses at T0* (before application of hair oil) and T1 (after application of hair oil). Measurements were performed on dark brown, straight Caucasian hair with a TA.XT plus Texturometer from Stable Micro Systems. In red the decrease/increase of combing force is shown as a percentage of the initial combing force. *The values obtained at T0 differ due to the fact that no hair tress is equal to another and combing differences might be observed in each tress.

Oleon's silicone-like emollients show a significant decrease in combing force needed to detangle the tresses compared to untreated hair. Based on conducted in vitro test it can be concluded that Oleon's silicone-like emollients have a similar efficacy as cyclopentasiloxane.

COLOR

Increased pigment dispersion

Jolee 7202 and Jolee 7750 are both recommended to be used as a pigment disperser due to their high wetting power. The pigment dispersion capacity can be shown on the graph below, where Oleon's silicone-like emollients are compared to different benchmarks.



Figure 9: Amount of emollient (gram) needed to solubilize 1 gram of pigment (iron oxides C177491 Jojoba esters).

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.



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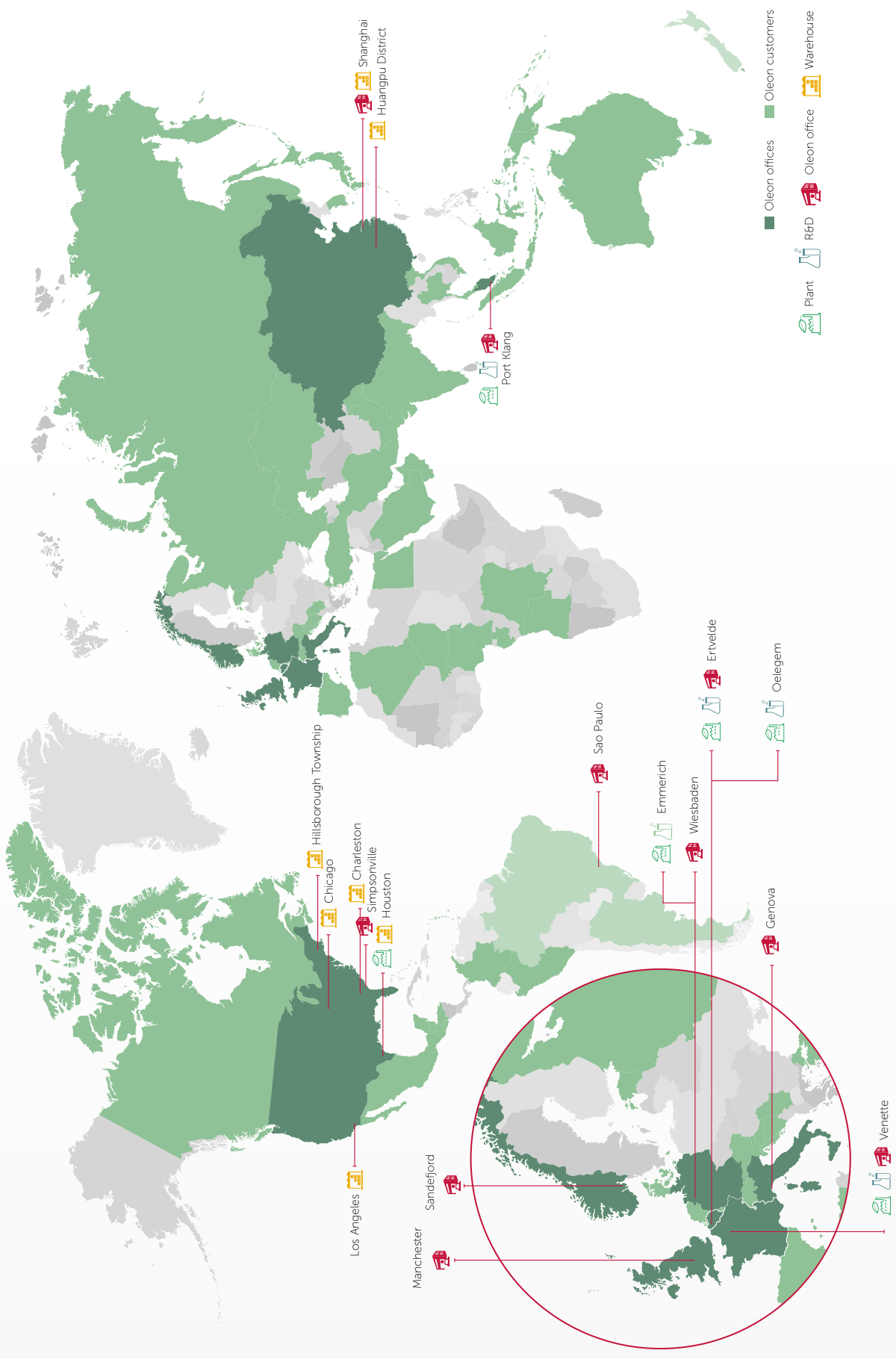
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