

CREATING CLEAR GEL EMULSIONS WITH OLIVEM[®] 2020

The combination of Olivem[®] 2020 with Olivem[®] 300 or Florasolvs[®] Macadamia-16 produces transparent emulsions which can be used in various cosmetic products for a more appealing appearance, pleasing skin-feel, and unique texture.



The visual effect of transparent cosmetic formulations has great appeal for consumers. It is easy to obtain transparent gels using polymers, but for more pleasant sensoriality, clear oil-in-water dispersions are generally preferred. Unfortunately, the latter can be very challenging for cosmetic formulators to work with.

The most oft-used technique to create a clear oil-in-water dispersion is to prepare microemulsions: thermodynamically stable dispersions with a particle size of roughly 50 nanometers. Microemulsions are low-viscosity systems containing an aqueous phase, oil phase, surfactant, and a cosurfactant, and are formed by simple mixing. However, there are several drawbacks to microemulsions: they require high levels of surfactants that can have an irritating effect; they need a cosurfactant that is typically an insoluble polyol, and because they are thin, they should be thickened using rheology modifiers like water soluble polymers.

Hallstar's unique multifunctional ingredient, Olivem[®] 2020, overcomes these obstacles. By combining Olivem[®] 2020 with our biomimetic water-soluble emollients Olivem[®] 300 or Florasolvs[®] Macadamia-16, we can create transparent, non-irritating water dispersions that boast a soft, creamy sensoriality and adjustable viscosity. Olivem[®] 2020 already contains the oil phase Ethylhexyl Olivate, the cosurfactant Polyglyceryl-4 Olivate and the polymer Sodium Acrylates Copolymer. By adding Olivem[®] 300 or Florasolvs[®] Macadamia-16, which act as solubilizers, it is possible to obtain transparent emulsions.

Simple Procedure

At room temperature, disperse Olivem[®] 2020 into the water-soluble emollient, and then add this oil phase into the water phase while mixing at 250rpm. The ratio between Olivem[®] 2020 and the solubilizer is very important. Best performance is obtained when the Olivem[®] 2020 to solubilizer ratio equals 1:2 or 1:3. But you can also modulate the viscosity depending on your needs. By increasing the solubilizer, the viscosity will decrease; play with the Olivem[®] 2020 to solubilizer ratio to obtain the desired texture!

In terms of solubilizer selection, Olivem[®] 300 or Florasolvs[®] Macadamia-16 create the highest quality results, but other non-irritant solubilizers, from natural to synthetic, could be used as well.



Creating clear formulations is not the only potential application of Olivem® 2020. Its properties can be used to obtain an exceptionally glossy surface in a O/W standard emulsion. Indeed, if this clear emulsion is used as the water phase, the emulsion's surface will exhibit a brilliant shine. In addition, the emulsion imparts to the formulation a velvety and cushioning texture – similar to a silicon elastomer gel.

Olivem® 2020 clear formulations can suspend pearls at every temperature (even at 45°C) and are compatible with a wide range of preservatives or boosters, such as Phenoxyethanol, Caprylyl Glycol, Chlorphenesin, Hexylene Glycol, Propanediol and Ethanol.

Application Trends in Clear Gel Emulsions

- Make-up (such as mascara, eye-liner, lip-gloss, eyeshadow)
- Skin care and Sun care (all emulsion types)
- Hair care (such as hair gels and masks)



Sample Formulation

Glitter Eyeliner: Formula Number: CS124-18-07B

Phase	INCI Name [INN/USAN] (Other Information)	Trade Name	% Wt	Function
A	Water (Aqua) (deionized)		up to 100	Volatile Carrier
	PVP		8.50	FilmFormer
	Panthenol		0.50	Active Ingredient
	Phenoxyethanol, Caprylyl Glycol, Chlorphenesin		a.n.	Preservative
B	Ethylhexyl Oliviate, Sodium Acrylates Copolymer, Polyglyceryl-4 Oliviate	Olivem® 2020	1.70	Multifunctional Cold Emulsifier
	Carthamus Tinctorius (Safflower) Seed Oil, Astragalus Membranaceus Root Extract, Ubiquinone, Tocopherol, Spilanthes Acmella Flower/Leaf/Stem Extract	LIFT Oleoactif®	0.50	Active Ingredient
	Olive Oil PEG-7 Esters	Olivem® 300	3.40	Emollient/Sebum Recovering Properties
C	Polyethylene terephthalate, Acrylates Copolymer		a.n.	Pearlescence
	Polyethylene terephthalate, Acrylates Copolymer		a.n.	Pearlescence
	Calcium Aluminum Borosilicate, Silica, Titanium Dioxide, Perfluorononyl Dimethicone/Methicone/Amodimethicone Crosspolymer, Tin Oxide		a.n.	Pearlescence
	Alcohol		8.50	Volatile Carrier

Preparative Procedure

1. Prepare and mix phase B
2. Add phase B into phase A while mixing
3. Add phase C and mix
4. Add phase D and mix

Product Characteristics (25°C)

Appearance (25°C): Glittery clear gel
 Viscosity (4 rpm, Brk, RVDV-E, T-D, after 24h at room temperature, mPa·s): 8.000-13.000
 pH: 6.5-7.5