

The Akoline range of emulsifiers comprises several edible lipid members. All natural, vegetable and functional emulsifiers that deliver both aesthetic and skin care benefits to your formulation.

Emulsifiers that taste good – Akoline

The emulsifiers in the Akoline range are all based on natural raw materials. Fatty acids and glycerides derived from vegetable oils make up the lipophilic (oil-soluble) part, while the hydrophilic (water-soluble) part can be, for example, glycerol, citric acid, lactic acid or polyglycerol. These products are all food grade, and some of them conform to regulations in the European Pharmacopoeia. Most of them are also approved by ECOCERT as product of natural origin.

Stabilise and build up consistency, with lipid based emulsifiers

Many of the typical properties of the Akoline emulsifiers are derived from the unique ability of lipids to form liquid crystalline structures. Liquid crystals are efficient emulsion stabilisers and build up the consistency of creams and lotions. They also contribute to the lubricity and enhanced skin feel of many formulations. Of course they fulfil the primary requirements on emulsifiers – to create and stabilise emulsions, both oil-in-water and water-in-oil. They are also compatible with the majority of traditional emulsifiers used in skin care applications.

The Akoline range of emulsifiers (see Table 1) can be divided into three groups, based on their chemistry and functionality. In the first group we find emulsifiers based on citric and lactic acid derivatives of glycer-



Table 1 Akoline product range

Product name	INCI name	HLB
Akoline SL	Sodium Stearoyl Lactylate	17
Akoline GC	Hydrogenated Vegetable Glycerides Citrate	11
Akoline LC	Glycerol Stearate Lactate	12
Akoline LA	Glyceryl Palmitate Lactate	7-8
Akoline PG 7	Polyglyceryl-3 Stearate	7
Akoline PGPR	Polyglyceryl-3 Polyricinoleate	4
Akoline HV32	Glyceryl stearate SE	N/A
Akoline MD50	Glyceryl stearate	2-3
Akoline MG-P	Glyceryl stearate	3-4
Akoline MCM	Caprylic/capric glycerides	6-6

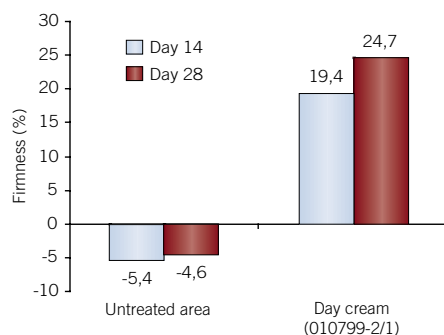
erides and fatty acids. These emulsifiers will give a slow release of alpha-hydroxy acids on the skin, delivering the skin care benefits of these compounds while reducing the irritancy normally observed with the acids. The second group consists of polyglycerol esters that are non-ethoxylated, non-ionic emulsifiers, which contribute to good emolliency and skin feel. They are suitable for both o/w, w/o and anhydrous

formulations. Finally, the third group comprises monoglycerides of varying compositions, used as basic emulsifiers especially for lipid-containing formulations.

Improve skin elasticity and firmness with lactates and citrates

The alpha-hydroxy acid releasing emulsifiers Akoline GC and Akoline SL have been tested in clinical tests with good results

Figure 1 Akoline GC+SL increase skin firmness



Day cream with in total 2.5% Akoline GC and Akoline SL

showing improved skin elasticity and firmness without irritant effects (Figure 1), as well as improved skin smoothness. They are anionic surfactants at intermediate to high pH-values, and are preferably combined with non-ionic emulsifiers to enhance the liquid crystal-forming capacity of the system. An example of a typical formulation that illustrates the formulation principles is given in Table 2. Stearoyl lactylates are good moisturisers, and are also known to enhance lipid synthesis in the skin and increase skin thickness.

Table 2 Skin care formulation with Akoline emulsifiers

	Caring emulsion
Akoline SL	0.5
Akoline MD50	1.0
Akoline PG 7	3.5
Lipex® L'sens	3.0
Lipex® Sheasoft	4.0
Akomed R	4.5
Auxiliary emollients	5.0
Glycerin	3.0
Cyclopentasiloxane	3.0
Carbomer	0.2
Xanthan gum	0.3
Preservative, fragrance	q.s.
Water	ad 100%

Non-ionic polyglycerol esters for improved skin feel

Akoline PG 7 is a medium polarity (HLB=7) non-ionic emulsifier that can replace ethoxylated surfactants in many applications. It is advantageously combined with, for example, Akoline GC to produce stable o/w emulsions due to the formation of liquid

crystalline structures. Akoline PGPR, in contrast, is mainly used for w/o emulsions. It is also suitable in anhydrous formulations for pigment dispersion due to its polarity and high viscosity.

Emulsify and control consistency with monoglycerides

Glyceryl monostearate is a well-known lipophilic emulsifier used mainly in skin-care creams and ointments. The addition of small amounts of an anionic surfactant, such as soap, increases the polarity and makes the glyceryl monostearate self-emulsifying. Soap also enhances the stability of the liquid crystals formed from the monoglycerides, and thus acts as a consistency and stability regulator. The Akoline range contains three grades of glyceryl monostearate to offer variability in properties and application areas. Akoline MG-P is a distilled glyceryl monostearate with a high content of monoglycerides that can be used in lower concentrations than traditional products. Akoline MD50 is a pharmacopoeia-grade glyceryl monostearate, useful for dermo-cosmetics as well as in traditional skin-care products. Akoline HV32 is a self-emulsifying glyceryl monostearate that can be used as a cream or ointment base. Finally, Akoline MCM is a medium-chain (caprylic/capric) mono/diglyceride that has interesting properties. It is mildly anti-microbial and if combined with suitable high-HLB surfactants it can be used in microemulsion formulations.

It is obvious that lipid-based emulsifiers are versatile and functional ingredients for many types of cosmetic formulations. They combine well with most emollients and other emulsifiers, to create formulations that are pleasing to the touch and have a good shelf life.

Figure 2 Akoline GC+SL increase skin smoothness

