Stabilise your

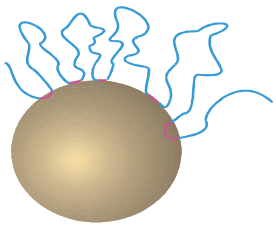
Deo Formulations

with

Elfacos® CD 481

Elfacos® CD 481 is a high molecular weight non-ionic cellulose ether with substantial surface and interfacial activity. Elfacos® CD 481 shows many of the properties and functions associated with traditional cellulose thickeners, but provides additional benefits due to its strong surface activity. In aqueous surfactant systems, Elfacos® CD 481 shows strong polymer-surfactant interactions, which influences phase behaviour and functionalities. Depending on the type and amount of surfactant added, this may lead to enhanced adsorption of cationics at surfaces or stronger foaming of anionic surfactant systems. In disperse systems, Elfacos® CD 481 can act as a stabiliser as it adsorbs on liquid droplets and solid particles. Stable emulsions/dispersions can be formulated at low emulsifier concentrations.

Due to the hydrophobic part in the cellulose polymer, Elfacos® CD 481 will adsorb onto the oil droplet and act as a strong steric stabiliser.



Elfacos® CD 481 in Antiperspirant/Deodorants

The multifunctional properties described above have shown to be advantageous when preparing deodorants/antiperspirants. A perfume free *clear antiperspirant* with 20% active Aluminium Chlorohydrate was formulated into a water based product. Elfacos® CD 481 was used as thickener and gave an improved stability at 40°C storage, compared with commercial formulations. In a *deodorant emulsion for roll-on* application, Elfacos® CD 481 showed to be an excellent emulsion stabiliser and thickener. Without Elfacos® CD 481, the emulsion separated into 2 phases after 2 days at 40°C. In addition to this, it gave a very pleasant skin feel after application. In both types of formulations, Elfacos® CD 481 gives the following benefits:

- ***Good thickening properties***
- ***Increased storage stability***
- ***Excellent skin feel***

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Guideline Formulations

Clear Antiperspirant

Ingredients	INCI Name	% a.m.
Elfacos® CD 481	Hydroxyethyl Ethylcellulose	0.5
Summit ACH 308	Aluminium Chlorohydrate	20.0
D-Sorbit	Sorbitol	2.0
Demin Water	Aqua	to 100

Viscosity: ≈ 200 mPa·s
Stability RT: > 3 months
Stability 40C: > 3 months
Appearance: Clear solution
pH: 4.2

Procedure:
Elfacos® CD 481 is first dissolved in the water above 60°C. The rest of the ingredients are then added below 40°C during stirring.

Deodorant Emulsion (roll-on)

Ingredients	INCI Name	% a.m.
A		
Elfacos® CD 481	Hydroxyethyl Ethylcellulose	0.5
Elfacos® OW 100	Methoxy PEG-17/Dodecyl Glycol Copolymer	2.0
Glycerol	Glycerine	3.0
Demin. water	Aqua	to 100
B		
Lanette O	Cetearyl Alcohol	1.0
Kessco IPM 95	Isopropyl Myristate	2.2
Kessco GMS	Glyceryl Stearate	1.5
Dow 200 100 cp	Dimethicone	0.7
C		
Summit ACH 308	Aluminium Chlorohydrate	15.0
1.2-propanediol	Propylene Glycol	2.0
Perfume		1.0
Preservative		q.s.

Viscosity: ≈7000 mPa·s
Stability RT: > 10 weeks
Appearance: white emulsion
Freeze-thaw cycles (-18°C, +40°C): >5
pH: 4.3

Procedure:
Water phase (A): Heat the water to 70°C, disperse the Elfacos® CD 481 and add the other ingredients.
Oil phase (B): Heat the oil phase to 70-75°C.
The oil phase is added to the water phase, both at 70-75°C, during rapid stirring and then cooled down. After cooling down to below 40°C, (C) is added in described order during rapid stirring. It is recommended to homogenise the emulsion with a rotor-stator homogeniser after addition of the oil phase and part (C).

No efficacy test regarding inhibition of sweat production has been performed on these guideline formulations.

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