

## SurfaTech® Naturally Derived Polymers

**CosmoSurf®** - Our naturally derived line of functional polymers is designed to offer eco-friendly, functional alternatives to synthetic polymers and ingredients. The CosmoSurf® line of polymers is primary film formers and dispersants utilized in sun care, color cosmetics, skincare, and hair care applications. The CosmoSurf® portfolio allows for 80 minute, naturally derived water-resistance, and dispersing attributes in chemical and mineral sun care formulations. Additionally, the CosmoSurf® naturally derived polymers are ideal in anhydrous and emulsion-based pigmented formulations incorporating treated and untreated inorganics delivering film-forming and primary dispersing performance. The CosmoSurf® naturally derived polymers are functional alternatives to polyquaternium conditioning agents, allowing for "Quat-Free" claims in conditioning and shampoo formulations. In skin care applications, the CosmoSurf® polymers provide substantive film-forming performance designed to retain actives on the skin without compromising the target sensory profile of the formulation.

**SurfaCare®** - The SurfaCare®, naturally derived polymers provide oil thickening performance that won't compromise the target sensory profile while enhancing the stability of the emulsion. Moreover, the SurfaCare® portfolio delivers film-forming properties with high gloss impact allowing for an eco-friendly alternative to petroleum and silicone ingredients.

### PIGMENTED FORMULATIONS

Color cosmetic emulsions and anhydrous, tinted skin care emulsions.



<b>CosmoSurf® DDG-20</b>	INCI: bis-octyldodecyl dimer dilinoleate/ propanediol copolymer	Primary dispersant and film former.
<b>CosmoSurf® DDG-28</b>	INCI: bis-dodecylhexyldecyl dimer dilinoleate/ propanediol copolymer	Primary dispersant and film former.
<b>CosmoSurf® CE-140</b>	INCI: Stearyl/Octyldodecyl Citrate Crosspolymer	Primary film former and feel modifier.
<b>SurfaCare® S</b>	Oleic/Linoleic/Linolenic Polyglycerides	Oil thickener and emulsion stabilizer.

### Recommended Formulation Procedure:

#### **CosmoSurf® DDG-20 & CosmoSurf® DDG-28**

CosmoSurf® DDG-20/28 are added directly into the oil phase of the emulsion, as well as anhydrous formulations before introducing any treated or untreated inorganic ingredients. The suggested usage ranges from 3.00-10.00%/wt depending on the target application, where the inorganics are mixed under a medium lightening mixer and can be finished with a low mix of a Silverson for about 10-15 min. A slight sensory profile can be observed between the CosmoSurf® DDG-20 and the CosmoSurf® DDG-28, where the CosmoSurf® DDG-28 is slightly richer upon spread.

#### **CosmoSurf® CE-140**

CosmoSurf® CE-140 is added directly to the oil phase and mixed for 10 minutes at 5°C above its reported melting point. The higher concentration range is suggested for anhydrous formulations.

#### **SurfaCare® S**

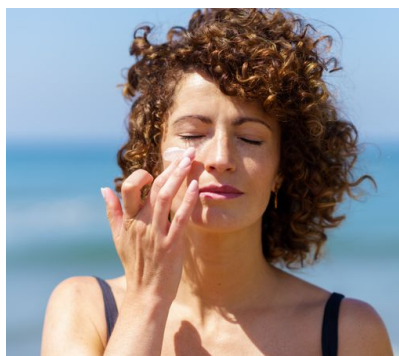
Surfacare® S is added directly to the oil phase and mixed for 10 minutes at 5°C above its reported melting point value. The suggested usage ranges between 1.00-6.00%/wt., depending on the target application. The higher concentration range is suggested for anhydrous formulations as well.

#### **SurfaCare® TRP**

SurfaCare® TRP is added directly to the oil phase and mixed under mild mixing conditions until uniform. The Surfacare® TRP can sustain high-temperature conditions in anhydrous stick formulations. The suggested usage ranges between 0.50-3.00%/wt. depending on the intended applications; the usage can be between 3.00-8.00%/wt. for liquid lip gloss formulations.

## SUN CARE FORMULATIONS

Emulsion - Chemical & Mineral, Anhydrous Sprays- Chemical



<b>CosmoSurf® DDG-20</b>	INCI: bis-octyldodecyl dimer dilinoleate/ propanediol copolymer	Primary dispersant and film former.
<b>CosmoSurf® DDG-28</b>	INCI: bis-dodecylhexyldecyl dimer dilinoleate/ propanediol copolymer	Primary dispersant and film former.
<b>CosmoSurf® CE-140</b>	INCI: Stearyl/Octyldodecyl Citrate Crosspolymer	Primary film former and feel modifier.
<b>SurfaCare® S</b>	Oleic/Linoleic/Linolenic Polyglycerides	Oil thickener and emulsion stabilizer.
<b>CosmoSurf® PG1-IS</b>	INCI: polyglyceryl-3 stearate/ Isostearate/dimer dilinoleate crosspolymer	Primary film former

## Recommended Formulation Procedure:

### CosmoSurf® DDG-20 & CosmoSurf® DDG-28

CosmoSurf® DDG-20/28 are added directly into the oil phase for emulsion and anhydrous formulations. The CosmoSurf® DDG-20 and the CosmoSurf® DDG-28, when utilized in mineral SPF products will provide a multifunctional profile as a primary dispersant and film former for water resistance claims. The suggested usage concentration when dispersing the Zinc oxide or titanium dioxide is between 6.00-8.00%/wt. depending on total inorganic concentrations. The target polymer concentration in the final formulation, to achieve water resistance claims, is 3.00-5.00%/wt. The suggested usage range for emulsion chemical SPF products is 2.00-3.00%/wt.; for anhydrous chemical spray SPF formulations, the suggested usage range is 2.00-4.00%/wt.

### CosmoSurf® CE-140

CosmoSurf® CE-140 is a functional complex, designed to deliver superior film-forming performance for Suncare formulations. This complex maximizes water resistance, solubility parameters, and ingredient compatibility. The CosmoSurf® CE-140 is added directly into the oil phase and the suggested usage for mineral or chemical SPF products is 2.00-3.00%/wt. The CosmoSurf® CE-140 can be heated 5° C above its reported melting point and mixed under medium mixing speed for 10 minutes.

### CosmoSurf® PG1-IS

CosmoSurf® PG1-IS is a functional film former, the CosmoSurf® PG1-IS is based on polyglyceryl-3 allowing for exceptional sensory. The CosmoSurf® PG1-IS is added directly into the oil phase at a suggested usage level of 2.00-3.00%/wt. for chemical emulsion SPF formulations. The suggested usage level for the CosmoSurf® PG1-IS in mineral SPF products is 3.00-4.00%/wt. and 2.00-3.00%/wt. for anhydrous chemical SPF products. The CosmoSurf® PG1-IS can be heated 5°C above its reported melting point and mixed under medium mixing speed for 10 minutes.

## SKIN CARE FORMULATIONS

Emulsion – Lotions,  
Creams & Serums.



### Recommended Formulation Procedure:

#### **CosmoSurf® PG1-IS**

CosmoSurf® PG1-IS is ideal for offering feel modification in polar oils as well as extending the film-forming properties that will not compromise the spread for both O/W and W/O formulations. The suggested usage level in the oil phase of the emulsion is 1.00-2.00% added directly to the oil allowing for ease of manufacturing. The CosmoSurf® PG1-IS, based on polyglycerol-3 functionality, will also enhance the hydration properties when applied to creams, lotions, and serums. CosmoSurf® PG1-IS can be heated 5°C above its reported melting point and mixed under medium mixing speed for 10 minutes.

#### **SurfaCare® S**

SurfaCare® S is added directly to the oil phase and mixed for 10 min at 5°C above its reported melting point value. The suggested usage range for O/W emulsions is between 3.00-5.00%/wt., where the typical oil phase total concentration ranges between 18.0%-25.0%/wt. The suggested usage concentration for W/O emulsions is between 5.00-8.00%wt. and for anhydrous formulations the suggested usage range is between 12.0-20.00%/wt. depending on the target viscosity profile required.

## HAIR CARE FORMULATIONS

Conditioners, 2-1  
Shampoos and Styling  
Creams.



### Recommended Formulation Procedure:

#### **CosmoSurf® CE-250**

CosmoSurf® CE-250 is added directly into the oil phase of the formulation, heated 5°C above its reported melting point, and mixed under medium mixing for 10 -15 mins. The suggested usage level is 2.00-3.00%/wt. depending on the degree of conditioning desired and the target viscosity. The CosmoSurf® CE-250 will provide wet and dry comb conditioning properties comparable to traditional polyquaterniums for dry to normal or damaged hair.

#### **CosmoSurf® CE-140**

CosmoSurf® CE-140 is added directly into the oil phase of the formulation, heated 5°C above its reported melting point, and mixed under medium mixing for 10 -15 mins. The suggested usage level is 2.00-3.00%/wt. depending on the degree of conditioning desired and the target viscosity. The CosmoSurf® CE-140, as does the CosmoSurf® CE-250 will provide wet and dry comb conditioning properties comparable to traditional polyquaterniums for dry to normal hair.