



## Moisturizing Cream with Biopolysan<sup>®</sup> 220B

PHASE 1	WT. %
DI Water	QS
Disodium EDTA	0.20%
Xanthan Gum	0.60%
Glycerin	4.00%
PHASE 2	WT. %
Grapeseed Oil	8.00%
Jobba Oil	5.00%
Stearic Acid	3.00%
Cetearyl Alcohol, Glyceryl Stearate, Sodium Stearoyl Lactylate	6.00%
PHASE 3	WT. %
Vitamin E (Tocopherol)	0.50%
<b>Biopolysan<sup>®</sup> 220B</b>	<b>2.00%</b>
Fragrance	QS

### Procedure:

1. Dissolve EDTA in water. Add other ingredients in Phase 1 in order of appearance with medium shear mixing at 40°C.
2. In a separate container, combine all ingredients in Phase 2 and heat to 70°C with medium shear mixing.
3. Add Phase 2 to Phase 1 with high shear mixing. Cool to 40°C.
4. In a separate container, combine ingredients in Phase 3, mix.
5. Add Phase 3 to now combined Phases 1 and 2. Homogenize.

Biopolysan<sup>®</sup> 220B acts as an emollient, emulsifier and preservative in this formulation.

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PHASE 1	WT. %
Deionized Water	60.00%
HOSTAPON <sup>®</sup> SCI 85P (Clariant) (Sodium Cocoyl Isethionate) <sup>1</sup>	3.50%
GLUCOTAIN <sup>®</sup> Plus (Clariant) (Capryloyl/Caproyl Methyl Glucamide (and) Lauroyl/Myristoyl Methyl Glucamide) <sup>2</sup>	10.00%
GENOPAL <sup>®</sup> LT (Clariant) (PEG 150 PG-2) <sup>3</sup>	1.50%
AMPHOSOL <sup>®</sup> CS-50 (Stepan) (Cocamidopropyl Hydroxysultaine) <sup>4</sup>	9.00%
PHASE 2	WT. %
GLUCQUAT <sup>®</sup> 125 (Lubrizol) (Lauryl methyl gluceth-10 hydroxypropyldimonium chloride) <sup>5</sup>	1.50%
CELQUAT <sup>®</sup> 240C (Akzo Nobel) (Polyquaternium-10) <sup>6</sup>	0.20%
DI Water	10.00%
PHASE 3	WT. %
<b>Biopolysan<sup>®</sup> 220B</b>	<b>1.50%</b>
PHASE 4	WT. %
Sodium Hydroxide/Citric Acid	QS
Deionized Water	QS

### Procedure:

In an appropriate vessel, add the water. While heating water to 80-85°C, add the HOSTAPON SCI, GLUCOTAIN Plus, GENOPAL LT and AMPHOSOL CS-50.<sup>1,2,3,4</sup> With temperature at 80-85°C, mix until uniform. Remove from heat.

In a separate beaker, mix CELQUAT 240C, GLUCQUAT 125 and Deionized Water until uniform.<sup>6,5</sup>

Once homogenous, add CELQUAT/GLUCQUAT blend to main batch (Phase 1).<sup>6,5</sup>

Add Biopolysan<sup>®</sup> 220B and mix well. Adjust solution pH with 20% Citric Acid or 20% NaOH and pH to 6.0 to 6.5.

QS batch to 100% with Deionized Water.

<sup>1</sup> HOSTAPON<sup>®</sup> is a registered trademark of Hoechst GmbH LLC

<sup>2</sup> GLUCOTAIN<sup>®</sup> is a registered trademark of Clariant AG

<sup>3</sup> GENOPAL<sup>®</sup> is a registered trademark of Clariant AG

<sup>4</sup> AMPHOSOL<sup>®</sup> is a registered trademark of the Stepan Company Corporation

<sup>5</sup> GLUCQUAT<sup>®</sup> is a registered trademark of Lubrizol Advanced Materials, Inc.

<sup>6</sup> CELQUAT<sup>®</sup> is a registered trademark of Akzo Nobel Surface Chemistry LLC

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**Moisturizing Lotion with  
Cucumber Extract and  
Biopolysan® 220B**

<b>PHASE 1</b>	<b>WT. %</b>
Triglyceride	10.00%
Meadowfoam Seed Oil	10.00%
Vitamin C Ascorbyl Palmitate	2.00%
Vitamin E Acetate	1.00%
Cetearyl Alcohol, Cetareth-20	4.00%
<b>PHASE 2</b>	<b>WT. %</b>
DI Water	61.00%
Sodium PCA	2.00%
<b>PHASE 3</b>	<b>WT. %</b>
Sodium Acrylate / Sodium Acryloyldimethyl Taurate Copolymer & Isohexadecane & Polysorbate 80	3.00%
<b>PHASE 4</b>	<b>WT. %</b>
Cucumber Extract	5.00%
<b>Biopolysan® 220B</b>	<b>1.50%</b>
Fragrance	QS

**Procedure:**

Phase 1: Combine ingredients in the order listed and heat to 70°C to melt ingredients. Mix with low-medium shear.

Phase 2: In a separate container, combine ingredients in the order listed and heat to 70°C and mix with low-medium shear.

Add Phase 1 into Phase 2 and mix well (homogenizer is recommended).

Add Phase 3 to Phases 1/2 and mix well (homogenizer is recommended).

Cool Phases 1/2/3 to 40°C and add Phase 4. Mix well.

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**Pearlizing Shower Gel  
with Biopolysan<sup>®</sup> 220B**

<b>PHASE 1</b>	<b>WT. %</b>
DI Water	38.80%
Guar Gum	1.00%
EDTA	0.20%
Glycerin	2.00%
<b>PHASE 2</b>	<b>WT. %</b>
Sulfosuccinate	29.00%
PEG-7 Glyceryl Cocoate	3.00%
Cocamidopropyl Betaine	19.00%
Glyceryl Stearate IP	4.00%
<b>PHASE 3</b>	<b>WT. %</b>
<b>Biopolysan<sup>®</sup> 220B</b>	<b>1.50%</b>
Fragrance/Actives	QS

**Procedure:**

Phase 1: Combine ingredients in the order listed with medium shear mixing.

Phase 2: In a separate container, combine ingredients in Phase 2 in the order they appear and heat to 70°C, mix well.

Add Phase 2 to Phase 1 with medium shear mixing.

Prepare Phase 3 in a separate container. Cool Phase 1/2 to 40°C and add Phase 3. Mix well.

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# Biopolysan<sup>®</sup>

## Cleansing Conditioner with Biopolysan<sup>®</sup> 220B

PHASE 1	WT. %
Water	82.60%
PHASE 2	WT. %
Cetearyl Alcohol	5.00%
Gyceryl Stearate SE	2.00%
Stearamidopropyl Dimethylamine	4.00%
Squalane	1.00%
PHASE 3	WT. %
Dimethicone	1.00%
Rosemary Leaf Extract	1.50%
Silk Protein	1.00%
PHASE 4	WT. %
Fragrance	QS
<b>Biopolysan<sup>®</sup> 220B</b>	<b>1.50%</b>
Citric Acid	QS

### Procedure:

Phase 1: Add water to mixing vessel and heat to 70°C.

Phase 2: In a separate container, combine ingredients in Phase 2 in order of appearance.

Add Phase 1 to Phase 2 and mix with high shear.

Cool Phases 1/2 to 40°C while mixing.

Phase 3: In a separate container, combine ingredients in Phase 3, mix well, and add to Phase 1/2.

Phase 4: In a separate container, combine ingredients in Phase 4, mix well, and add to Phase 1/2/3.

Adjust pH to between 6-6.5 with citric acid (or citric acid solution).

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# Biopolysan<sup>®</sup>

## Deodorant Stick with Biopolysan<sup>®</sup> 220B

PHASE 1	WT. %
Cyclomethicone	70.00%
Zinc Ricinoleate	4.00%
Cetearyl Alcohol	10.00%
Safflower Oil	1.50%
Talc	2.50%
Starch	0.40%
Beeswax	4.00%
Microcrystalline Wax	3.50%
PHASE 2	WT. %
<b>Biopolysan<sup>®</sup> 220B</b>	<b>1.00%</b>
Fragrance (Perfume)	QS

### Procedure:

Phase 1: Combine all the ingredients in Phase 1 in a heat resistant vessel and heat to 75°C with mixing until uniform.

Phase 2: Combine the ingredients in Phase 2 and add to Phase 1. Mix with blender or homogenizer.

Pour hot into deodorant containers.

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# Biopolysan<sup>®</sup>

## Baby Shampoo with Biopolysan<sup>®</sup> 220B

PHASE 1	WT. %
Sulfosuccinate	10.00%
Cocomidapropyl Betaine	5.00%
Decyl Polyglucose	4.00%
PEG-150 Distearate	5.00%
DI Water	73.00%
Xanthan Gum	0.80%
<b>Biopolysan<sup>®</sup> 220B</b>	<b>1.50%</b>
Fragrance	QS
Citric Acid	QS

### Procedure:

Add ingredients in the order listed.  
Heat to 50°C to melt PEG-150 Distearate.  
Mix with low shear to avoid over foaming.  
Adjust pH to between 7-8.

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**Restoring Hand Cream  
with Biopolysan® 220B**

<b>PHASE 1</b>	<b>WT. %</b>
DI Water	0.62%
EDTA	0.002%
Guar Gum	0.007%
Aloe Vera (Juice)	0.04%
<b>PHASE 2</b>	<b>WT. %</b>
Polysorbate 60	0.02%
Ceteareth-20	0.02%
Cetyl Alcohol	0.03%
Coconut Oil	0.05%
Shea Butter	0.05%
Almond Oil	0.06%
Dimethicone	0.02%
Capric/Caprylic Triglycerides	0.05%
<b>PHASE 3</b>	<b>WT. %</b>
Vitamin E	0.015%
<b>Biopolysan® 220B</b>	<b>0.015%</b>
Fragrance	QS

**Procedure:**

Phase 1: Dissolve EDTA into DI water and then add the other ingredients in Phase 1, heat to 70°C with low-medium shear mixing.

Phase 2: In a separate container, combine all ingredients in Phase 2 and heat to 70°C with mixing.

Add Phase 2 to Phase 1 and mix until homogenous.

Phase 3: Combine ingredients in Phase 3 and mix well.

Add Phase 3 to Phases 1/2 once Phase 1/2 cool to 40°C. Mix well or homogenize.

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# Biopolysan<sup>®</sup>

## Heel Repair Lotion with Biopolysan<sup>®</sup> 220B

PHASE 1	WT. %
DI Water	42.0%
Disodium EDTA	0.05%
Carbopol <sup>®</sup> 940 <sup>1</sup>	0.75%
PHASE 2	WT. %
Water	34.20%
UREA	5.00%
PHASE 3	WT. %
Organic Unrefined Coconut Oil	4.50%
Cetyl Alcohol	2.00%
Glyceryl Stearate SE	2.00%
PHASE 4	WT. %
<b>Biopolysan<sup>®</sup> 220B</b>	<b>5.00%</b>
Benzyl Alcohol	0.50%
Eucalyptus/Peppermint EO	QS

### Procedure:

Prepare Phase 1 by adding EDTA to water and then hydrating and dispersing Carbopol<sup>®</sup>. Heat to 70°C.

In a separate container, prepare Phase 2 by combining UREA in water. Heat to 40°C.

In a separate container, prepare Phase 3 by combining the ingredients and heating to 70°C.

In a separate container, prepare Phase 4 by combining all ingredients and mixing.

With high shear mixing, add Phase 2 to Phase 3.

With high shear mixing add Phase 1 to 2+3.

Cool to 40°C and add Phase 4.

pH range >8.00

Viscosity

<sup>1</sup> Carbopol<sup>®</sup> is a registered trademark of the Lubrizol Corporation

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