



## Sunscreen Lotion with Titanium Dioxide and Intelimer<sup>®</sup> 8600 Polymer Formulating Guide U003

### Description

Sunscreen Lotion with Titanium Dioxide and Intelimer 8600 polymer is designed to be a high SPF sun screen lotion that provides excellent wash off resistance and sensory properties. The unique benefit of Intelimer 8600 in this formulation is that it improves wash off resistance and enhances SPF.

### Procedure

- Combine all Phase A ingredients into a vessel while stirring.
- In another vessel add deionized water then slowly add xanthan gum and PemulinTR-2 while stirring. Continue to stir until clear homogenous phase.
- Add other remaining Phase B ingredients one by one to water phase while continuing to stir.
- Begin heating both vessels until the temperature of both vessels is between 80-85 °C. Once a 80-85 °C temperature has been achieved, add Phase A to Phase B slowly while continuing to stir.
- Remove from heat and homogenize the resulting emulsion for three minutes.

### Typical Properties

(not to be used as specifications)

Appearance	White cream
pH	6.8
Viscosity (cPs) (Spindle D @ 10 rpm)	20,000–50,000

Ingredient/ Trade Name	INCI Designation	% w/w	Function	Supplier
<b>Phase A</b>				
Ceraphyl <sup>®</sup> 368	Ethylhexyl Palmitate	10.0	Emollient	ISP
Uvinul <sup>®</sup> N539T	Octocrylene	8.0	Sunscreen Active	BASF
Uviniul <sup>®</sup> MC80	Octinoxate	7.5	Sunscreen Active	BASF
Uvinul <sup>®</sup> M40	Oxybenzone	5.0	Sunscreen Active	BASF
Finsolv <sup>®</sup> TN	C12-15 Alkyl Benzoate	5.0	Solublizer	Innospec
Permethyl <sup>®</sup> 222C	C13-15 Alkane (and) C12-20 Isoparaffin	2.0	Emollient	Presperse
Dow Corning <sup>®</sup> 245	Cyclomethicone	2.0	Emollient	Dow Corning
Dow Corning <sup>®</sup> 556	Phenyltrimethicone	2.0	Emollient	Dow Corning
Cosmowax J	Cetearyl Alcohol (and) Cetareth-20	2.0	Emulsifier	Croda
Crodacol <sup>®</sup> C-70	Cetyl Alcohol	1.0	Stabilizer	Croda
T-Lite <sup>®</sup> SF	Titanium dioxide	10.0	Sunscreen Active	BASF
<b>Phase B</b>				
Deionized Water	Deionized Water	41.4	Diluent	
Keltrol <sup>®</sup> CG-T	Xanthan Gum	0.2	Thickener	CP Kelco
Pemulin <sup>®</sup> TR-2	Acrylates/C10-30 Alkyl Acrylate Crosspolymer	0.1	Emulsifier	Lubrizol
Intelimer 8600 (1% solids)	Poly C8-22 Alkyl Acrylate/ Metacrylic Acid Cross Polymer	2.0	Film Former and SPF Enhancer	Air Products
Pricerine <sup>®</sup> 9088	Glycerine 99.5%	2.0	Humectant	Uniquema

## For Samples or More Information

If you would like additional information or technical assistance in preparing specific formulations, write or call Air Products and Chemicals, Inc.

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