



Triggered Wash-Off Sunscreen Emulsion with Intelimer[®] 8600 Polymer Formulating Guide U001

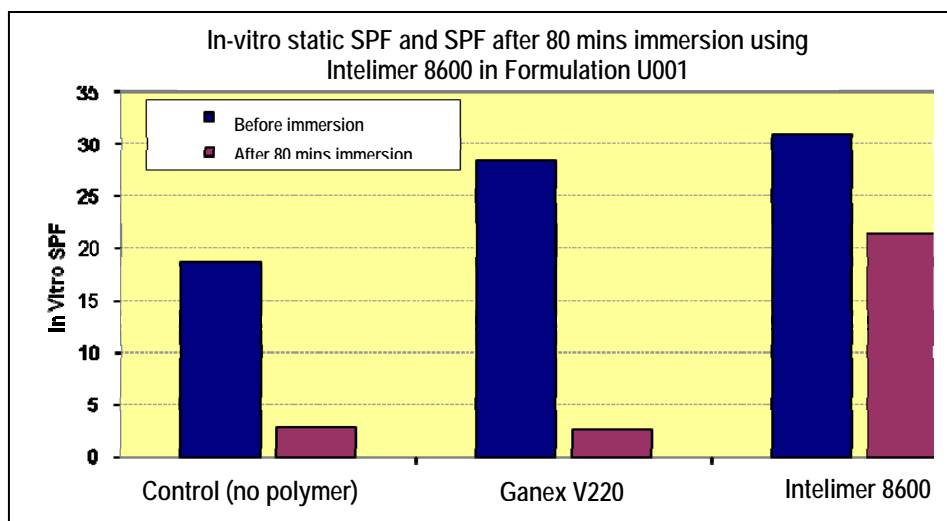
Description

Triggered Wash-Off Sunscreen Emulsion with Intelimer[®] 8600 is designed to be a flexibly water resistant sunscreen with good sensory benefits. Intelimer[®] 8600 polymer is a hydrophobic film forming polymer with the unique benefits of water and rub-off resistance at low temperatures but easy wash-off when triggered by a preset higher temperature, such as that of a hot water shower. The polymer also provides SPF enhancement.

Typical Properties

(not to be used as specifications)

Appearance	White emulsion
pH	6.3
Stability	Passed 4 month 50 °C
Viscosity (cPs) (Spindle C @ 10 rpm)	12,900–14,000



SPF testing was conducted by IMS Inc. All samples were tested using the IMS Inc In-Vitro Waterproof Protocol. In-Vitro SPF measurements made both prior to, and after the samples have been immersed in a controlled temperature water bath at 40 °C while agitated at 300 rpm for 80 minutes. Please note that these conditions are slightly more aggressive than typical *In-vivo* waterproof test conditions.

Ingredient / Trade Name	INCI Designation	%W/W	Function	Supplier
Phase A				
Mineral Oil	Mineral Oil USP	2.0	Emollient	
Polawax	Emulsifying Wax NF	5.0	Emulsifier	Croda
Lipocol® S-2	Steareth-2	0.5	Emulsifier	Lipo
Lipocol® S-21	Steareth-21	1.0	Emulsifier	Lipo
Crodacol® C-70	Cetyl Alcohol	1.0	Stabilizer	Croda
Uvinul MC® 80	Octinoxate	7.5	Sunscreen Active	BASF
Uvinul M® 40	Oxybenzone	6.0	Sunscreen Active	BASF
Neo Heliopan® OS	Octisalate	5.0	Sunscreen Active	Symrise
Phase B				
Deionized Water	Deionized Water	68.7		
Keltrol® CG-T	Xanthan Gum	0.3	Thickener	CP Kelco
Intelimer® 8600 (49.13% solids)	Poly C8-22 Alkyl Acrylate/ Metacrylic Acid Cross Polymer	2.0	Film former/enhance retention of actives	Air Products
Germaben® II	Propylene Glycol, Diazolidinyl Urea, Methylparben, Propylparben	1.0	Preservative	ISP

Procedure

1. Combine all Phase A ingredients into a vessel while stirring mixture.
2. In another vessel add deionized water then slowly add xanthan gum while stirring. Continue to stir until clear homogenous mixture forms.
3. Add other remaining Phase B ingredients one by one to gum mixture while continuing to stir.
4. 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 the mixture.
5. Remove from heat and homogenize the resulting emulsion for three minutes.
6. Let the emulsion cool to the desired temperature.
7. Adjust the pH with Triethanolamine (TEA 99%) and package.

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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Pub. No. 165-08-005-GLB-Sep08

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