

Interpolymer offers
several suggested formulations for
Syntran[®] PC 5227.

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- SPF 15 Skin and Sun Creme F-18-81
- SPF 15 Spray Gel Sunscreen F-24-02
- SPF 15 Skin and Sun Crème F-18-80
- SPF 30 Skin and Sun Crème F-24-03
- SPF 45 Skin and Sun Crème with TiO₂ F-24-07

SPF 15 SKIN AND SUN CREME
Formulation F-18-81

Economical w/o emulsion crème with novel polymer designed to boost organic UV absorbers to perform at a level of SPF 15. Superior moisturizing formula spreads easily and rubs in quickly. Satin smooth skin feel. Great for dry or chapped skin. Very low irritation potential.

	<u>INCI Designation</u>	<u>Weight %</u>
Phase A—Heat to 75°C		
Distilled Water	Water	61.32
Dissolvine Na2S (Akzo Nobel)	Disodium EDTA	0.05
Propylene Glycol	Propylene Glycol	2.00
TEA 99%	Triethanolamine	0.10
Phase B—Add at 75°C		
Finsolv TN (Finetex)	C12-15 Alkyl Benzoate	3.00
Finsolv G-2 (Finetex)	C16-17 Alkyl Benzoate	9.00
Protachem SMO (Protameen)	Sorbitan Oleate	0.20
Escalol 557 (ISP)	Ethylhexyl Methoxycinnamate	2.25
Escalol 567 (ISP)	Benzophenone-3	1.00
Escalol 587 (ISP)	Ethylhexyl Salicylate	1.00
Crodafos CES (Croda)	Cetearyl Alcohol (and) Ceteth-10 Phosphate (and) Dicapryl Phosphate	4.00
Cetearyl Alcohol 50/50(RITA)	Cetearyl Alcohol	4.00
Crodafos CS20 Acid (Croda)	Cetearyl Alcohol (and) Ceteth-20 Phosphate (and) Dicapryl Phosphate	1.33
Phase C—Add at 60°C		
SYNTRAN® PC 5227	Polyacrylate-15 (and) Polyacrylate-17	10.00
Phase D—Add at 45°C		
Liquid Germall Plus (ISP)	Diazolidinyl Urea, IPBC	0.60
Fragrance	Fragrance	0.15
	YIELD:	<u>100.00</u>

Procedure

Combine Phase A ingredients and heat to 75° C. Melt all ingredients in Phase B. Add Phase B to Phase A @ 75°C. Stir with high shear and cool. At 60°C add Phase C. At 45°C add Phase D. Adjust pH 6-7.

11/23/2005

SPF 15 SPRAY GEL SUNSCREEN

Formulation F-24-02

Alcohol-free and **silicone-free** high SPF sunscreen spray gel. This simple yet elegant aqueous formula is the most economical *sprayable* sun protection product available today. Patented **SYNTRAN**[®] technology is proven to boost SPF requiring less organic sunscreen to achieve high SPF. Easy rub-in, non-whitening formula dries to invisible tack-free film.

	<u>INCI Designation</u>	<u>Weight %</u>
Phase A—Heat to 75°C		
Distilled Water	Water	73.15
Dissolvine Na2S (Akzo Nobel)	Disodium EDTA	0.05
Butylene Glycol	Butylene Glycol	2.00
Structure 3001 (National Starch)	Acrylates/Ceteth-20 Itaconate Copolymer	2.35
Phase B—heat tot 75°C		
Protachem SMO (Protameen)	Sorbitan Oleate	0.50
Escalol 557 Octinoxate (ISP)	Ethylhexyl Methoxycinnamate	7.50
Escalol 567 Oxybenzone (ISP)	Benzophenone-3	3.00
Escalol 587 Octisalate (ISP)	Ethylhexyl Salicylate	3.00
Procol CS-20D (Protameen)	Cetearyl Alcohol,Cetereth-20	0.75
Phase C—Add at 55-60°C		
AMP-95 (Angus)	Amino Methyl Propanol	0.40
SYNTRAN[®] PC 5227	Polyacrylate-15 (and) Polyacrylate-17	7.00
Phase D—Add at 45°C		
Liquid Glydant Plus (Lonza)	DMDMH, IBPC	0.30
	YIELD:	100.00

Procedure

Combine Phase A ingredients and heat to 75° C. In a separate vessel, melt all ingredients in Phase B. Add Phase B to Phase A @ 75°C. Homomix until smooth and homogeneous. Cool to 55-60°C add AMP-95. Stir until product thickens. Add Syntran PC 5227, continue to stir until smooth and homogeneous. Cool to 45°C add Phase D. Continue to stir with side sweep until cool.

Adjust pH 8.00 – 8.60.

Viscosity: 200-800cps

4/2006

ECONOMICAL SPF 30 SKIN AND SUN CREME
Formulation F-18-80

Economical oil/water emulsion crème with novel polymer designed to boost organic UV absorbers to perform at a level of SPF 30. Superior moisturizing formula spreads easily and rubs in quickly. Satin smooth skin feel. Great for dry or chapped skin. Low irritation potential.

	<u>INCI Designation</u>	<u>Weight %</u>
Phase A—Heat to 75°C		
Distilled Water	Water	62.07
Dissolvine Na2S (Akzo Nobel)	Disodium EDTA	0.05
Propylene Glycol	Propylene Glycol	2.00
TEA 99%	Triethanolamine	0.10
Phase B—Add at 75°C		
Finsolv TN (Finetex)	C12-15 Alkyl Benzoate	3.00
Protachem SMO (Protameen)	Sorbitan Oleate	0.20
Escalol 557 (ISP)	Ethylhexyl Methoxycinnamate	7.50
Escalol 567 (ISP)	Benzophenone-3	3.00
Escalol 587 (ISP)	Ethylhexyl Salicylate	3.00
Crodafos CES (Croda)	Cetearyl Alcohol (and) Ceteth-10 Phosphate (and) Dicityl Phosphate	4.00
Cetearyl Alcohol 70/30(RITA)	Cetearyl Alcohol	3.00
Crodafos CS20 Acid (Croda)	Cetearyl Alcohol (and) Ceteth-20 Phosphate (and) Dicityl Phosphate	1.33
Phase C—Add at 60°C		
SYNTRAN® PC 5227	Polyacrylate-15 (and) Polyacrylate-17	10.00
Phase D—Add at 45°C		
Liquid Germall Plus (ISP)	Diazolidinyl Urea, IPBC	0.60
Fragrance	Fragrance	0.15
	YIELD:	100.00

Procedure

Combine Phase A ingredients and heat to 75° C. Melt all ingredients in Phase B. Add Phase B to Phase A @ 75°C. Stir with high shear and cool slowly. At 60°C add Phase C. At 45°C add Phase D. Homomix until smooth and homogeneous. Continue to stir with side sweep until cool. Adjust pH 6-7.

10/2005

SPF 30 SKIN AND SUN CRÈME
Formulation F-24-3

Economical oil and water emulsion crème with novel polymer designed to boost organic UV absorbers to perform at a level of SPF 30. Superior moisturizing formula spreads easily and rubs in quickly. Satin smooth skin feel. Great for dry or chapped skin. Low irritation potential.

	<u>INCI Designation</u>	<u>Weight %</u>
Phase A—Heat to 75°C		
Distilled Water	Water	64.13
Dissolvine Na2S (Akzo Nobel)	Disodium EDTA	0.05
Butylene Glycol	Butylene Glycol	2.00
Structure 3001 (National Starch)	Acrylates/Ceteth-20 Itaconate Copolymer	2.00
Phase B—Add at 75°C		
Finsolv G-2 (Finetex)	C16-17 Alkyl Benzoate	3.00
Protachem SMO (Protameen)	Sorbitan Oleate	0.20
Escalol 557 Octinoxate (ISP)	Ethylhexyl Methoxycinnamate	7.50
Escalol 567 Oxybenzone (ISP)	Benzophenone-3	3.00
Escalol 587 Octisalate (ISP)	Ethylhexyl Salicylate	3.00
Crodafos CES (Croda)	Cetearyl Alcohol (and) Ceteth-10 Phosphate (and) Dicityl Phosphate	5.00
Cetyl Alcohol	Cetyl Alcohol	1.40
Stearyl Alcohol	Stearyl Alcohol	0.60
Phase C—Add at 50°C		
AMP-95 (Angus)	Amino Methyl Propanol	0.42
SYNTRAN® PC 5227	Polyacrylate-15 (and) Polyacrylate-17	7.00
Phase D—Add at 45°C		
Liquid Germall Plus (ISP)	Diazolidinyl Urea, IPBC	0.60
Fragrance	Fragrance	0.10
	YIELD:	100.00

Procedure

Combine Phase A ingredients and heat to 75° C. Melt all ingredients in Phase B. Add Phase B to Phase A @ 75°C. Stir with high shear and cool. At 50°C add Phase C. At 45°C add Phase D. Homomix until smooth and homogenous. Continue to stir with side sweep until cool.

Adjust pH 7.0-7.5.

4/2006

SPF 45 SKIN AND SUN CRÈME WITH TiO₂

Formulation F-24-7

Water and oil emulsion crème with novel polymer designed to boost organic UV absorbers to polymer at a level of SPF 70. Superior moisturizing formula spreads easily and rubs in quickly. Satin smooth skin feel. Great for dry or chapped skin. Lower irritation potential.

	<u>INCI Designation</u>	<u>Weight %</u>
Phase A—Heat to 75°C		
Distilled Water	Water	56.62
Dissolvine Na ₂ S (Akzo Nobel)	Disodium EDTA	0.05
Butylene Glycol	Butylene Glycol	2.00
Structure 3001 (National Starch)	Acrylates/Ceteth-20 Itaconate Copolymer	2.00
Phase B—Add at 75°C		
Finsolv G-2 (Finetex)	C16-17 Alkyl Benzoate	3.00
Protachem SMO (Protameen)	Sorbitan Oleate	0.20
Escalol 557 Octinoxate (ISP)	Ethylhexyl Methoxycinnamate	7.50
Escalol 567 Oxybenzone (ISP)	Benzophenone-3	5.00
Escalol 587 Octisalate (ISP)	Ethylhexyl Salicylate	5.00
Titanium Dioxide USP/FCC (Universal Preserv-a-chem)	TiO ₂	3.00
Crodafos CES (Croda)	Cetearyl Alcohol (and) Ceteth-10 Phosphate (and) Dicetyl Phosphate	5.00
Cetyl Alcohol	Cetyl Alcohol	1.40
Stearyl Alcohol	Stearyl Alcohol	0.60
Phase C—Add at 55°C		
AMP-95 (Angus)	Amino Methyl Propanol	0.42
SYNTRAN[®] PC 5227	Polyacrylate-15 (and) Polyacrylate-17	7.50
Phase D—Add at 45°C		
Liquid Germall Plus (ISP)	Diazolidinyl Urea, IPBC	0.60
Fragrance	Fragrance	0.10
	YIELD:	100.00

Procedure

Combine Phase A ingredients and heat to 75° C. Melt all ingredients in Phase B. Add Phase B to Phase A @ 75°C. Stir with high shear and cool. At 55°C add Phase C. At 45°C add Phase D. Homomix until smooth and homogenous. Continue to stir with side sweep until cool.

Adjust pH 6.0-7.0.

4/2006