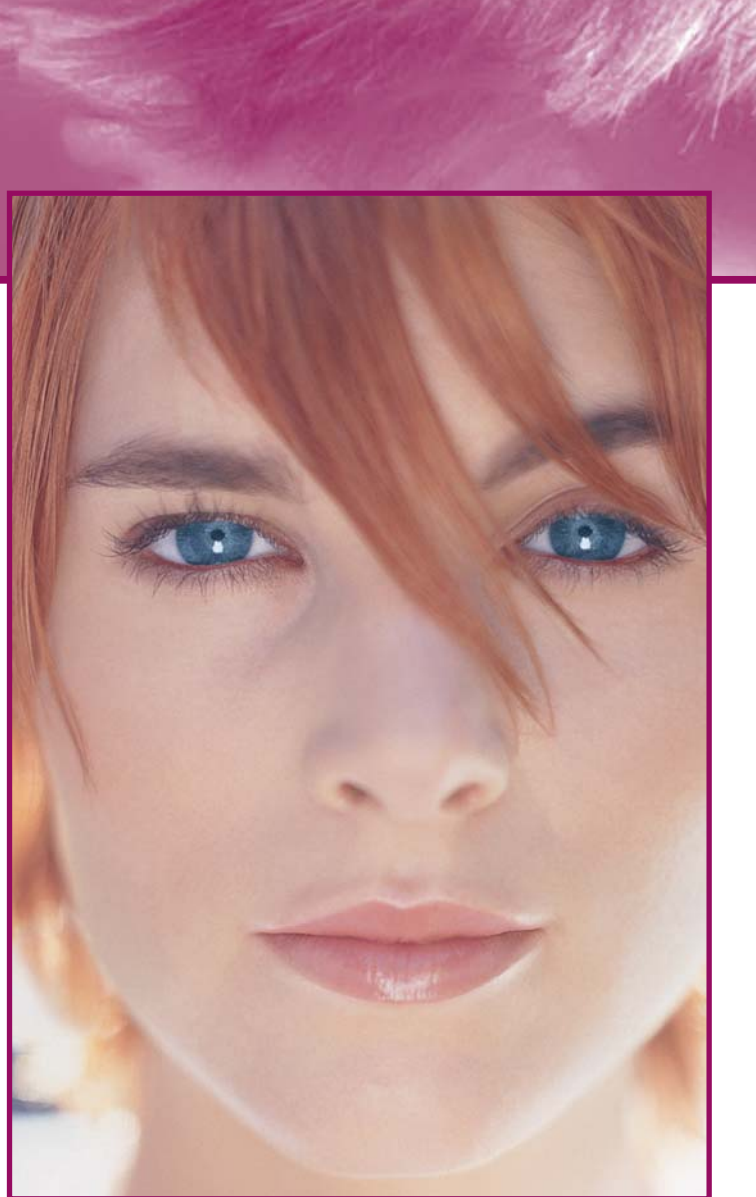


# Syntran® Olefin Graft Polymer Technology



## For Improved Color Retention

Olefin graft multi-functional polymers are designed to accentuate hair care formulations. They can increase color retention when formulated into shampoos, conditioners and reactive dye formulas. These products act to inhibit the migration of molecules in and out of the hair shaft, and thereby impede the process of dye loss.

Hair treated with formulations containing Syntran® PC 5205 Polymer demonstrated improvements in frizz, dry comb, softness and hold.

Because of the unique combination of acrylic and olefin chains, this polymer provides the opportunity to incorporate soft feel and hold characteristics to color enhancing formulas. This multi-functional technology can lead to new ease-of-use products which can generate consumer excitement.

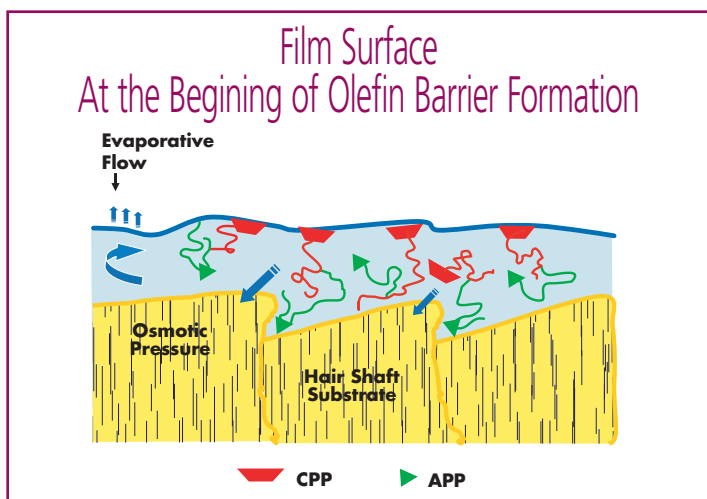
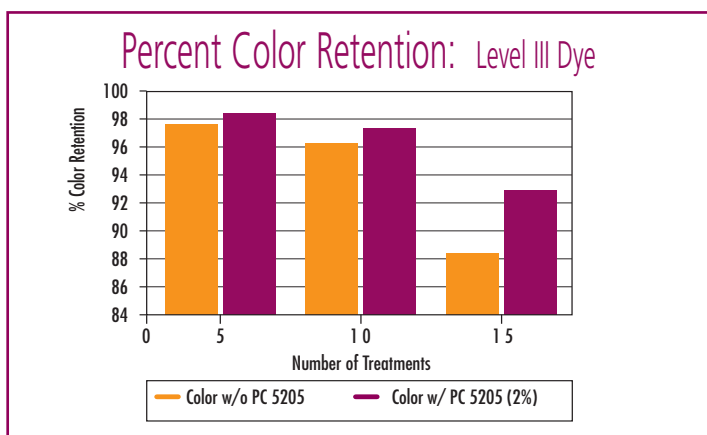
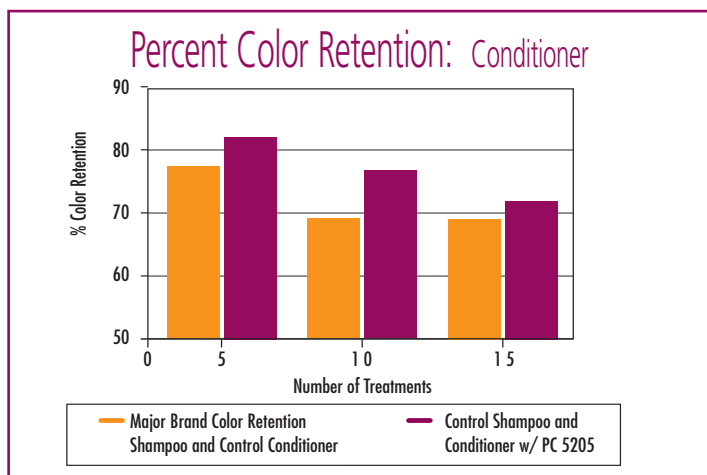
## Benefits of PC 5205 Polymer

- Improved Color Retention
- Improved Dye Receptivity  
- Lower Raw Materials Cost
- Excellent "Feel"
- Increased Gloss
- Styling Potential
- Barrier Properties
- Film Elasticity

## Typical Physical Properties

Property	Syntran® PC 5205
INCI Name	Polyacrylate - 15 (and) Polyacrylate - 17
Appearance	White Emulsion
% Solids	30.0
pH Value at 22°C	9.3
Viscosity at 22°C, mPa.s	100

## Performance Properties – Olefin Graft Polymers for Color Retention



## Starting Point Formulation

### Leave-In Conditioner with Color Protection

#### Formulation F-18-78

Excellent detangling and softening power on hair combined with color retention properties. Great for all hair types. Superior color protection against color wash-out and UV rays.

	INCI Designation	Weight %
<b>Phase A</b>		
Distilled Water	Water	87.18
Dissolvine Na2S (Akzo Nobel)	Disodium EDTA	0.05
Propylene Glycol	Propylene Glycol	1.50
Ritapan DL (Rita)	Panthenol	0.30
SYNTRAN PC 5205	Polyacrylate-15 (and) Polyacrylate-17	5.00
Crodasorb UVHPP (Croda)	Polyquaternium-59, Butylene Glycol	0.50
<b>Phase B</b>		
Mackstat DM (McIntyre)	DMDM Hydantoin	0.40
Promois Silk 1000Q (Rita)	Hydroxypropyltrimonium Hydrolyzed Silk	0.10
Promois S-720 (Rita)	Hydrolyzed Silk	0.05
<b>Phase C</b>		
Brij 98 Veg (Uniqema)	Oleth-20	0.35
Fragrance	Fragrance	0.07
<b>Phase D</b>		
SYNTRAN PC 5320	Polyquaternium-37	3.00
Protaquat CT-29 (Protamcen)	Cetrimonium Chloride	1.50
10% Aqueous Citric Acid Solution	Citric Acid	Adjust to pH 4.5 - 5.5
<b>YIELD:</b>		<b>100.00</b>

#### Procedure

Heat water to 40°C. Individually, add Phase A ingredients. Stir between each addition until homogenous. Add Phase B ingredients. Melt Phase C ingredients at 45°C, add to Phase A/B, stir until homogenous. Add Phase D ingredients. Adjust pH with 10% aqueous Citric Acid solution to pH 4.5 – 5.5.

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