



SYNTRAN® Polymers

For adhesive applications

INTERPOLYMER offers a range of waterbased acrylics that can be used as lamination adhesives or primers based on multiple propriery technologies (bimodal, cationic and high solids). These technologies all impart unique properties to the finished coating:

Bimodal technology combines two different ionic structures in the same polymer network increasing the adhesion to multiple substrates.. This technology allows a formulator to take advantage of the benefits of a cationic acrylic without the traditional compatibility issues.

Cationic technology allows the formulation of universal primers with excellent adhesion on multiple substrates.

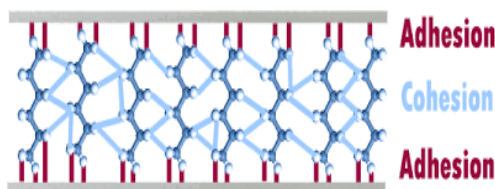
High solids technology creates a film with very high flexibility, excellent water resistance, and excellent coverage. This technology also allows for excellent adhesion over multiple substrate types.

Product Range for Polymers

SYNTRAN® acrylic polymers				
	pH	Solids (%)	MFFT (°C)	Comment
6145	7.5	40	< 10°C	Bimodal for heatseal, blisterpack applications
6302	5.7	35	22	Cationic for adhesion to difficult substrates applications
HX109-104	8.0	58	0°C	High solids for heatseal, lamination applicaitons

Applications Areas

- Blisterpack
- Foils
- Textiles
- Leather
- Plastics



INTERPOLYMER also offers a range of ready-to-use waterbased lamination adhesives called Polymer Plus. It is based on a proprietary hybrid acrylic technology. This technology combines multiple polymer types into the same polymer network increasing the gloss, adhesion and peel strength over multiple substrates. Since these are an Interpolymer internally developed technology, we are able to develop tailor-made solutions based on customer requirements.

Product Range for Polymers Plus

SYNTRAN® polymer plus				
	pH	Solids (%)	MFFT (°C)	Comment
PPX 103-05	8.0	50	0°C	For use in wet & dry lamination applications
PPX 103-08	8.0	40	< 10°C	For use in blisterpack & other heatseal applications

Applications Areas

- Blisterpack
- Foils
- Textiles
- Leather
- Plastics

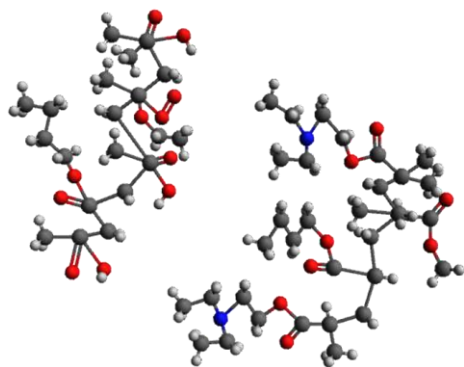


Our company

INTERPOLYMER has been producing waterbased specialty polymers since 1963. We manufacture at 4 facilities worldwide (2 in the United States, 1 each in France and China). INTERPOLYMER is a market leader in several application fields:

- Surface care: Polymers for floor care, carpet cleaners and leather care.
- Consumer specialties: Polymers for mascara, household, hair- and skin- care products, etc.
- Industrial specialties: Functional binders for specialty paint and coating applications, polymers for overprint varnishes and inks, flocculants for ceramics, retanning agents.

With close working relationships with customers, our company produces tailor-made products in order to match specific needs. Our technical service and research and development centres will be your creative and innovative partners.



SYNTRAN® Bimodal Polymers

For enhanced adhesion & stain blocking

INTERPOLYMER offers a range of waterbased acrylics based on a patented bimodal technology with film-forming properties. This technology combining two different ionic structures in the same polymer network increases the adhesion to multiple substrates, wood tannin blocking, stain blocking and dye blocking. This technology allows a formulator to take advantage of the benefits of a cationic acrylic without the traditional compatibility issues.

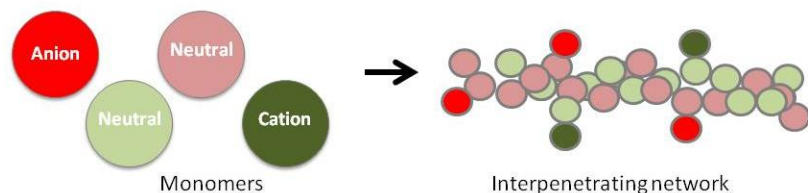
Product Range

SYNTRAN® bimodal acrylics				
	pH	Solids (%)	MFFT (°C)	Comment
1671	8.8	40	55°C	hard film with excellent wear resistance
6145	7.5	40	< 10°C	Soft film with excellent tannin & dye blocking
3106	7.5	41	< 10°C	Highly Flexible film with excellent adhesion
PPX 103-08	8.0	39	< 0°C	Ready-to-use laminating adhesive

These SYNTRAN® bimodal acrylic polymers are used in multiple markets to give improved performance over traditional acrylic emulsions. Since this is an Interpolymer internally developed technology, we are able to develop tailor-made solutions based on customer requirements.

The diagram below demonstrates the complex anionic-cationic network that is formed during our patented process:

Bimodal Network



Formulating Guidelines

Clear Sealer F89-118-02 @30%nv

<i>Ingredient</i>	<i>% wt</i>
Water	24.66
Tributoxyethyl Phosphate	3.21
Diethylene glycol ethyl ether	4.46
1% active fluorosurfactant	0.71
SYNTRAN® 1671	66.96
Defoamer	q.s.
<i>Total</i>	<i>100.0</i>

Tannin / Dye Blocking Primer F74-031-04 @28%nv

<i>Ingredient</i>	<i>% wt</i>
Water	27.0
Propylene glycol	1.0
Defoamer	0.1
SYNTRAN® 6145	71.9
<i>Total</i>	<i>100.0</i>

Applications

- Wood tannin & dye blocking coatings
- Blisterpack & lamination adhesives
- Wood & concrete coatings
- Leather, plastic & textile coatings



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Bimodal Polymers Brochure US 08-17.docx / Page 2 of 2

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SYNTRAN® Cationic Polymers

INTERPOLYMER offers a range of waterbased cationic acrylic polymers for use as functional binders in specialty paints and lacquers for immediate and permanent blocking of various difficult stains. This proprietary cationic technology also allows the formulation of universal primers with excellent adhesion on critical substrates.

Product Range

SYNTRAN® Cationic Polymers					
	pH	Solids (%)	MFFT (°C)	Viscosity (mPas)	Comments
6301	5.7	35	<10	<500	Suitable for low VOC paints and coatings
6302	5.7	35	22	<500	Good sandability and dirt pick-up resistance
6303	5.6	35	40	<1,000	Very good sandability and dirt pick-up resistance

Formulations based on SYNTRAN cationic polymers are characterized by:

- Excellent, permanent blocking of tannin and other coloured wood extractives
- Waterbased, environmentally friendly, low-odour coatings
- Low minimum film forming temperature allowing low-VOC formulations
- Excellent adhesion to a wide variety of substrates
- Easily formulated into highly opaque paints
- Good performance under critical conditions of humidity and temperature
- For pigmented and clear coatings
- Excellent waterbased alternative versus solventbased coatings

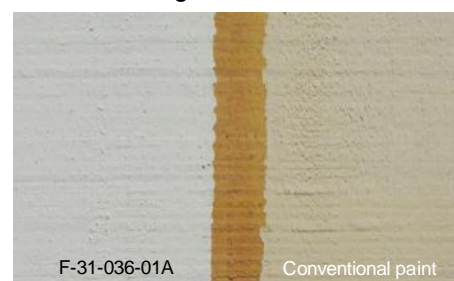


Formulating Guidelines

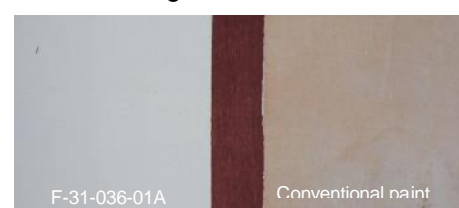
Stain Blocking Primer F-31-036-01A

<u>Grind:</u>	Amount [g]	
Water	180.0	
Agitan 282 ⁽¹⁾	2.5	Defoamer
Tylose H 10000 NG4	2.7	Hydroxy Ethyl Cellulose
Disperbyk 190	8.0	Wetting/Dispersing additive
Kronos 2310	185.0	Pigment
Dorkafill H	90.0	Filler
Opacilite	70.0	Filler
<u>Let down:</u>		
SYNTRAN® 6301 @ 35%	420.0	Cationic, acrylic binder
Dowanol DPnB	10.0	Coalescent
Uracron T291	15.0	Acrylic resin
Agitan 282	2.5	Defoamer
BYK-7420ES	4.5	PU thickener
BYK-425	15.0	PU thickener
Total	1005.2	

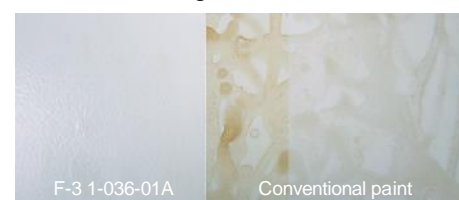
▲ Blocking of wood extractives



▲ Blocking of water-based stains



▲ Blocking of nicotine stains



Applications

- Wood tannin & stain blocking coatings
- Primers & adhesives

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- Industrial specialties: Functional binders for specialty paint and coating applications, polymers for overprint varnishes and inks, flocculants for ceramics, retanning agents.

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Cationic Polymers Brochure 08-17.docx / Page 2 of 2

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SYNTRAN® Polymers

For use in floor finish coatings

INTERPOLYMER offers multiple waterbased polymers designed for use in removable floor finishes. All of these technologies allow for high gloss, high abrasion resistance, low maintenance, and high speed burnishing floor finishes that are still removable with standard stripping solutions.

The MEGATRAN® brand is based on our styrenated acrylic, zinc-crosslinked technology. This unique technology was designed specifically for use in extremely high gloss, removable floor finishes.

Under our SYNTRAN® brand, we have developed both an all-acrylic, zinc-crosslinked technology and a proprietary “green” crosslinking technology. The green technology combines the traditional waterbased styrene-acrylate copolymer and proprietary self-crosslinking system that will add extended life time to green floor polishes.

Product Range

MEGATRAN® series polymers				
	pH	Solids (%)	MFFT (°C)	Comment
240	8.2	38	76°C	Very high gloss and hardness
220	8.2	38	65°C	High gloss, excellent reparability and dirt resistance
260F	8.2	38	70°C	Fluorinated styrenated acrylic

SYNTRAN® series polymers				
	pH	Solids (%)	MFFT (°C)	Comment
A-170	8.2	38	66°C	Styrene Free, excellent durability and hardness
1940	7.6	38	45°C	Zinc Free, excellent durability and alcohol resistances

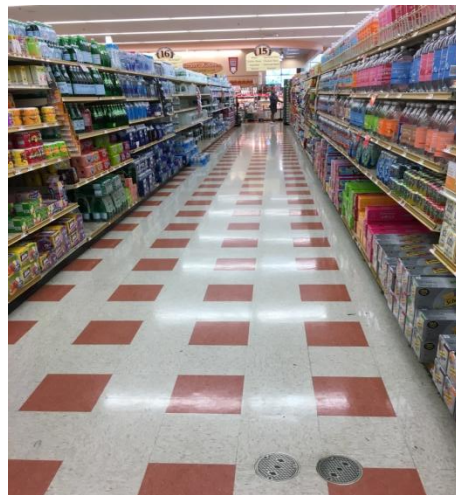
These MEGATRAN® & SYNTRAN® acrylic polymers are used in multiple markets to give improved performance over traditional acrylic emulsions. Since this is an Interpolymer internally developed technology, we are able to develop tailor-made solutions based on customer requirements.

With the addition of our patented SYNTRAN® PA series acrylic olefin grafted waxes to our floor finish polymers, better slip control, improved reparability and buffability are achieved.

Formulating Guidelines

Floor Polish F91-048-03 @25% N.V.

<i>Ingredient</i>	<i>% wt</i>
Tributoxyethyl Phosphate	2.68
Diethylene Glycol Ethyl Ether	5.21
1% active fluorosurfactant	0.74
Propylene Glycol Monophenyl Ether	0.15
Water	32.52
MEGTRAN® 220 @38%N.V.	55.18
SYNTRAN® PA-1475 @38% N.V.	3.52
Defoamer	q.s.
Total	100.0



Applications

- Floor polishes
- Coatings

Our company

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SYNTRAN® Grafted Waxes

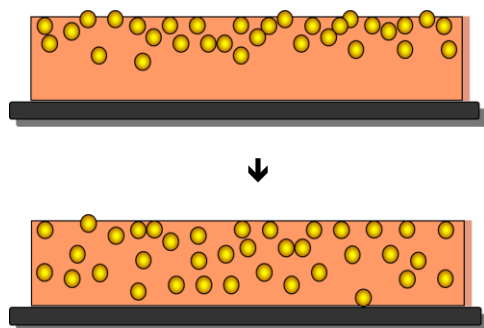
For enhanced mechanical resistances

INTERPOLYMER offers a range of acrylic-olefin wax grafted emulsions based on our patented technology. Wax emulsions are important ingredients of these film-forming formulations and they complement the properties of the polymer dispersions, in particular wear properties but that is not only what they do.

Product Range

SYNTRAN® PA series				
	pH	Solids (%)	Melting Point (°C)	Comment
PA1445	9.2	40	80-100	Slip resistance, gloss, water- and detergent-resistances
PA1465	9.2	38	90-110	Slip resistance, excellent response to buffing
PA1475	9.2	38	85-105	Slip resistance, anti-block, high formulation compatibility

The SYNTRAN® PA series allow formulators to achieve slip resistance, buffability, water resistance, gloss and flexibility. They are based on our patented acrylic-polyethylene wax graft technology which consists in grafting an amorphous functional acrylic polymer onto a crystalline olefin backbone. The grafted acrylate chain hinders the natural migration of the lower density olefin to the surface during drying. The result is a more uniform film composition which improves the appearance and performance of coatings.



Wax emulsion and polymer dispersion are chemically different and tend to separate during drying process. This effect can occur during storage of the coating.

● Wax particle

■ Polish

Grafted acrylate chain hinders the natural migration of the olefin to the surface during drying leading to more uniform film composition.

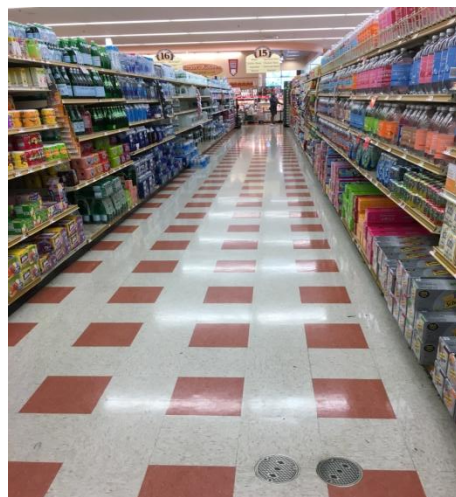
Formulating Guidelines

With the SYNTRAN® PA series of products, better slip control and improved repairability and buffability are achieved.

Depending on the desired end properties, each wax can be used alone in a formulation or in combination to get synergistic effect that will combine advantages of each type of wax.

Floor Polish F91-048-03 @25% N.V.

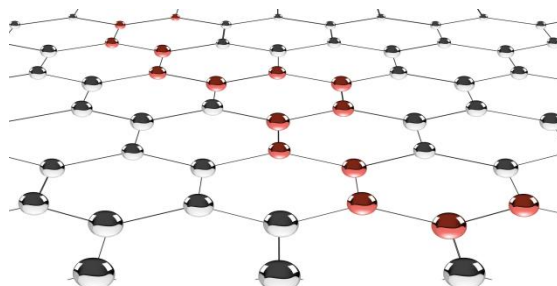
Ingredient	% wt
Tributoxyethyl Phosphate	2.68
Diethylene Glycol Ethyl Ether	5.21
1% active fluorosurfactant	0.74
Propylene Glycol Monophenyl Ether	0.15
Water	32.52
MEGTRAN® 220 @38%N.V.	55.18
SYNTRAN® PA-1475 @38% N.V.	3.52
Defoamer	q.s.
Total	100.0



Applications

SYNTRAN® Waxes are used in:

- Coatings
- Floor polishes
- Wash and wax formulas
- Leather polishes
- Inks and Overprint Varnishes



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Grafted Waxes Brochure US 08-17.docx / Page 2 of 2

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INTERPOLYMER

WATERBASED ACRYLIC POLYMERS

Product	Polymer Description	% Solids	pH	MFFT (Actual)	Tg (Calculated)	Acid Number (Calculated)	Crosslinking Type	Common Areas of Use
Syntran 3101	Alkali-Soluble Acrylic Solution	30%	7.0	90°C	88°C	200	None	GA
Syntran 3211	Shell-Core Acrylic Emulsion	44%	7.5	90°C	na	60	None	GA
Syntran 1921	Acrylic Emulsion	38%	7.5	82°C	67°C	85	Covalent	FF, C
Syntran 1922	Acrylic Emulsion	38%	8.0	78°C	62°C	110	Covalent	FF, C
Megatran 240	Acrylic Emulsion	38%	8.2	76°C	43°C	85	Zinc	FF, C, ST
Syntran 1655	Self-Crosslinking Acrylic Emulsion	40%	8.0	74°C	68°C	50	Covalent	C, W, ST
Megatran 233	Acrylic Emulsion	40%	8.5	70°C	54°C	80	Zinc	FF, C, ST
Megatran 260F	Fluorinated Acrylic Emulsion	38%	8.2	70°C	45°C	102	Zinc	FF, ST
Syntran A-170	Styrene Free Acrylic Emulsion	38%	8.2	66°C	56°C	65	Zinc	FF, C
Megatran 220	Acrylic Emulsion	38%	8.2	65°C	40°C	95	Zinc	FF, C, ST
Syntran 1950C	Acrylic Emulsion	40%	7.5	55°C	50°C	91	None	FF, GA
Syntran 1657	Self-Crosslinking Acrylic Emulsion	42%	7.5	55°C	35°C	50	Covalent	C, W, ST
Syntran 1671	Bimodal Acrylic Emulsion	40%	8.8	52°C	45°C	27	Ionic	C, ST
Syntran 6130	Bimodal Acrylic Emulsion	40%	8.8	52°C	45°C	27	Ionic	C, GA
Syntran 1940	Ammonia Free Acrylic Emulsion	38%	7.6	45°C	36°C	71	Covalent	FF, C
Syntran 3201	Self-Crosslinking Acrylic Emulsion	42%	7.5	45°C	35°C	50	Covalent	GA, ST
Syntran 1076	Acrylic Emulsion	40%	8.0	35°C	31°C	27	None	C, GA
Syntran 3104	Acrylic Emulsion	41%	7.5	20°C	5°C	34	None	T, ST
Syntran 2002	Acrylic Emulsion	38%	7.5	20°C	17°C	30	None	L, T, ST
Syntran 3215	Shell-Core Acrylic Emulsion	44%	7.5	20°C	5°C	40	None	GA, ST
Syntran 1693	Self-Crosslinking Acrylic Emulsion	42%	7.5	15°C	5°C	50	Covalent	GA, ST
Syntran 6145	Tannin Blocking, Bimodal Acrylic Emulsion	40%	8.0	< 10°C	na	39	Ionic	W, P, ST
Syntran 3106	Bimodal Acrylic Emulsion	41%	7.5	< 10°C	5°C	35	Ionic	ST
Syntran 6200	Large Particle Size Acrylic Emulsion	50%	7.5	5°C	0°C	6	None	T, L, P, ST

Area of Use Code

FF = Floor Finish, CC= Carpet Care, W = Wood, T = Textile, P = Paint, C = Concrete, GA = Graphic Arts, L = Leather, ST = Specialty Industrial

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INTERPOLYMER

WATERBASED SPECIALTY POLYMERS

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Syntran PA-1445	Polyethylene-Acrylic Graft Emulsion	40%	9.3	58°C	na	< 5	None	FF, ST
Syntran PA-1465	Polyethylene-Acrylic Graft Emulsion	38%	9.2	35°C	na	8	None	FF, ST
Syntran PA-1475	Polyethylene-Acrylic Graft Emulsion	38%	9.2	20°C	na	10	None	FF, ST
Syntran 5900	Opacifier, Polystyrene Emulsion	35%	2.8	90°C	na	na	None	ST
Syntran 5903	Opacifier, Acrylic Emulsion	35%	7.0	80°C	na	na	None	ST
Syntran 5904	Opacifier, Acrylic Emulsion	40%	2.5	80°C	na	na	None	ST
Syntran 5905	Opacifier, Acrylic Emulsion	40%	2.5	80°C	na	na	None	ST
Syntran 8252	Polyacrylic Acid Solution Polymer	20%	9.0	> 100°C	106°C	560	None	P, ST
Syntran 1501	Alkali-Soluble Acrylic Solution	25%	8.2	58°C	85°C	85	None	FF
Syntran 1511	Alkali-Soluble Acrylic Solution	25%	7.7	< 20°C	15°C	78	None	ST
Syntran 1555	Alkali-Soluble Acrylic Solution	25%	8.0	66°C	74°C	98	None	FF
Syntran 1560	Alkali-Soluble Acrylic Solution	25%	7.0	70°C	81°C	119	None	FF
Syntran 1580	Alkali-Soluble Acrylic Solution	20%	8.8	> 100°C	105°C	166	None	FF
Syntran 4010	Fluorinated Acrylic Solution	20%	8.5	> 100°C	110°C	140	None	CC, GT
Syntran 4015	Acrylic Solution, Soil-Suspension Aid	30%	7.5	> 100°C	152°C	500	None	CC
Syntran 4020	Acrylic Emulsion, Embrittling Aid	35%	6.0	> 100°C	105°C	75	None	CC
Syntran 4022	Acrylic Emulsion, Soil-Suspension Aid	30%	6.0	> 100°C	152°C	515	None	CC
Syntran 4080	Acrylic Emulsion, Embrittling Aid	40%	8.5	> 100°C	110°C	30	None	CC
Syntran 4125	Acrylic Solution, Embrittling Aid	20%	8.0	> 100°C	114°C	165	None	CC
Syntran 4180	Acrylic Solution, Rotary Applications	20%	8.8	> 100°C	105°C	166	Zinc	CC

Area of Use Code

FF = Floor Finish, CC= Carpet Care, W = Wood, T = Textile, P = Paint, C = Concrete, GA = Graphic Arts, L = Leather, ST = Specialty Industrial

INTERPOLYMER – A company of Zschimmer & Schwarz

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SYNTRAN® Polymers For graphic arts

INTERPOLYMER has designed aqueous SYNTRAN® non film forming emulsions, styrene-acrylic solutions, self-crosslinking and film forming emulsions for Inks and Overprint Varnishes.

SYNTRAN® Polymers for Graphic Arts are based on a **unique proprietary technology** developed by INTERPOLYMER with the control of the polymerization process from the beginning.

- ➔ It allows a perfect control of the properties and performances of the polymers
- ➔ We can develop tailor-made solutions

SYNTRAN® Polymers for Graphic Arts have a low pH which reflects the **limited amount of ammonia** used during the polymerization process

- ➔ It provides more convenience during the production process

Product Range

SYNTRAN® Non Film Forming Emulsions

	pH	Solids (%)	MFFT (°C)	Comments
3211	7.1	44.0	90°C	Waterbased acrylic copolymer

SYNTRAN® Film Forming Emulsion

	pH	Solids (%)	MFFT (°C)	Comments
3215	7.5	44.0	20°C	Waterbased shell-core acrylic copolymer
3201	7.5	42.0	45°C	Waterbased self-crosslinking acrylic copolymer
1693	7.5	42.0	15°C	Waterbased self-crosslinking acrylic copolymer

SYNTRAN® Resin Solutions

	pH	Solids (%)	MFFT (°C)	Comment
3101	7.0	30.0	90°C	Waterbased alkali solubilised styrene-acrylic copolymer

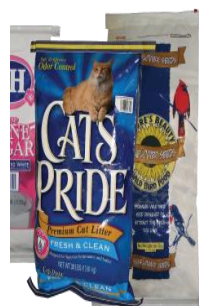
Formulating Guidelines

Overprint Varnish F74-054-01	
<i>Ingredient</i>	<i>% wt</i>
SYNTRAN® 3215	61.75
Water	32.00
Leveler	0.15
Defoamer	0.10
SYNTRAN® PA-1465	5.50
Thickener	0.50
<i>Total</i>	<i>100.0</i>



Applications

- Inks and Overprint varnishes for paper and paperboard
- For Flexographic & gravure printing processes
- Packaging



Our company

INTERPOLYMER has been producing waterbased specialty polymers since 1963. We manufacture at 4 facilities worldwide (2 in the United States, 1 each in France and China). INTERPOLYMER is a market leader in several application fields:

- Surface care: Polymers for floor care, carpet cleaners and leather care.
- Consumer specialties: Polymers for mascara, household, hair- and skin- care products, etc.
- Industrial specialties: Functional binders for specialty paint and coating applications, polymers for overprint varnishes and inks, flocculants for ceramics, retanning agents.

With close working relationships with customers, our company produces tailor-made products in order to match specific needs. Our technical service and research and development centres will be your creative and innovative partners.

OPV Polymers Brochure US 08-17.docx / Page 2 of 2

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SYNTRAN[®] Polymers

For enhanced architectural paints

INTERPOLYMER offers a range of waterbased acrylics that can be used in architectural paints based on multiple proprietary technologies (bimodal, opacifier, self-crosslinking and high solids). These technologies all impart unique properties to the finished paint:

Bimodal technology combines two different ionic structures in the same polymer network increasing the adhesion to multiple substrates, wood tannin blocking, stain blocking and dye blocking. This technology allows a formulator to take advantage of the benefits of a cationic acrylic without the traditional compatibility issues.

Opacifier technology can be used to replace a percentage of titanium dioxide used in white paints, while maintaining the same or similar coverage. The ideal reduction level of titanium dioxide is approximately 15%, when using this technology. Higher reduction of titanium dioxide levels can be achieved, but you may experience a slight loss in coverage of the paint.

Self-crosslinking technology combines two different crosslinking mechanisms on the same polymer backbone, which substantially increase the chemical resistance, stain resistance and water resistance of the cured polymer film. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintain standard, long-term shelf stability.

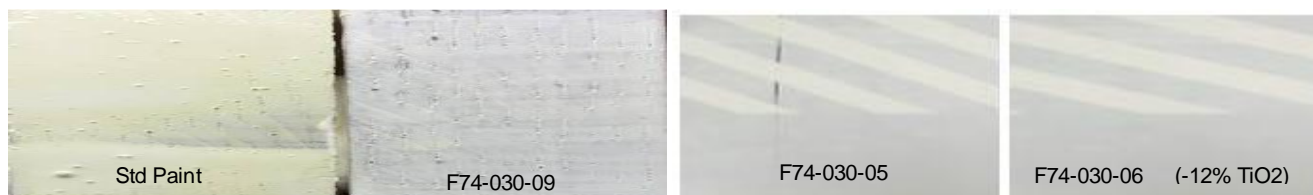
High solids technology creates a film with very high flexibility, excellent water resistance, and excellent coverage. This technology also allows for excellent adhesion over multiple substrate types.

Product Range

SYNTRAN [®] acrylics				
	pH	Solids (%)	MFFT (°C)	Comment
6145	7.5	40	< 10°C	Bimodal for tannin & stain blocking paints
5903	7.0	35	80°C	Opacifier for reduced TiO ₂ usage in paints
1693	7.5	42	15°C	Self-crosslinking for fortified paints
6200	7.5	50	5°C	High solids for use in traditional paints

These SYNTRAN[®] acrylic polymers are used in multiple markets to give improved performance over traditional acrylic emulsions. Since these are an Interpolymer internally developed technology, we are able to develop tailor-made solutions based on customer requirements.

Formulating Guidelines



Tannin Blocking Primer F74-030-09 @45%nv		Semi-gloss White Paint F74-030 -05		-06
<u>Grind</u>	% wt	<u>Grind</u>	% wt	% wt
Titanium Dioxide Slurry	28.14	Titanium Dioxide Slurry	31.09	27.18
SYNTRAN® 1511	0.66	SYNTRAN® 1511	0.65	0.61
Wetting agent	0.10	Wetting agent	0.09	0.09
Defoamer	0.03	Defoamer	0.03	0.03
<u>Letdown</u>		<u>Letdown</u>		
Water	7.61	Water	2.37	3.29
SYNTRAN® 6145	62.00	SYNTRAN® 1693	55.46	57.52
Propylene glycol	0.66	SYNTRAN® 5903	-	4.61
Wetting agent	0.10	Propylene glycol	0.89	0.92
Defoamer	0.03	AMP PC-2000	0.03	0.03
Rheology modifier	0.66	Wetting agent	0.09	0.09
Total	100.0	Defoamer	0.03	0.03
		Rheology modifier	1.48	1.54
		Water	7.79	4.05
		Total	100.0	100.0

Our company

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- Consumer specialties: Polymers for mascara, household, hair- and skin- care products, etc.
- Industrial specialties: Functional binders for specialty paint and coating applications, polymers for overprint varnishes and inks, flocculants for ceramics, retanning agents.

With close working relationships with customers, our company produces tailor-made products in order to match specific needs. Our technical service and research and development centres will be your creative and innovative partners.

Paint Polymers Brochure US 08-17.docx / Page 2 of 2

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INTERPOLYMER Waterbased Polymers

General Technology Overview

INTERPOLYMER offers a range of waterbased acrylics and waxes based on proprietary technologies that can be used in multiple coatings applications. These polymers are used in multiple markets to give improved performance over traditional acrylic emulsions. Since these technologies are Interpolymer internally developed, we are able to tailor make solutions to meet our customers' requirements.

Below is an overview of each of our proprietary technologies:

Bimodal Technology based on a patented process that combines two different ionic structures in the same polymer network increasing the adhesion to multiple substrates, wood tannin blocking, stain blocking and dye blocking. This technology allows a formulator to take advantage of the benefits of a cationic acrylic without the traditional compatibility issues.

Opacifier Technology based on polystyrene for whiteness & brightness at low levels in household products. They can also be used to replace a percentage of titanium dioxide used in white paints, while maintaining the same coverage.

Self-Crosslinking Technology combines two different crosslinking mechanisms on the same polymer backbone, which substantially increase the chemical resistance, stain resistance and water resistance of the cured polymer film. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintain standard, long-term shelf stability.

Shell-Core / Hybrid Technology based on a proprietary process combining polymer types into the same network to improve film formation and overall physical properties.

High Solids Technology creates a film with very high flexibility, excellent water resistance, and excellent coverage. This technology also allows for excellent adhesion over multiple substrate types.

	pH	Solids (%)	MFFT (°C)	Technology	Comment
6145	7.5	40	< 10°C	Bimodal	Wood tannin, stain blocking and excellent adhesion
5903	7.0	35	80°C	Opacifier	Whitening of cleaners & TiO2 reduction useage in paints
1693	7.5	42	15°C	Self-crosslinked	Excellent stain, chemical and water resistance
3215	7.5	44	20°C	Shell-Core	Excellent gloss & ink receptivity in OPV's
6209	8.0	58	0°C	High Solids	Excellent for heatseal, lamination applicaitons

Polymers Technology Brochure US 01-18.docx / Page 1 of 2

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Olefin Graft Technology based on a patented process combining olefin and acrylate together in same polymer network for enhanced wear resistance, anti-blocking and mar resistance. The grafted acrylate chain hinders the natural migration of the lower density olefin to the surface during drying. The result is a more uniform film composition which improves the appearance and performance of coatings.

Polymeric Surfactant / Alkali Soluble Technology based on polyacrylic & polymethacrylic acid for enhanced dispersancy, compatibility and sequestering in various coating applications.

Metal Crosslinking Technology based on zinc-crosslinking technology or our proprietary “green” crosslinking technology. These unique technologies were designed specifically for use in extremely high gloss, removable floor finishes.

Custom Manufacturing for select customers based on our proprietary technologies. These products are designed for ease of use by our customers in their application areas.

	<i>pH</i>	<i>Solids (%)</i>	<i>MFFT (°C)</i>	<i>Technology</i>	<i>Comment</i>
PA-1475	9.2	38	20°C	Olefin-Graft	Slip resistance, anti-block, high formulation compatibility
1511	7.7	25	< 20°C	Polymeric Surfactant	Excellent wetting & dispersibility of pigments
220	8.2	38	65°C	Zinc Crosslinked	High gloss, reparability and dirt resistance in floor finish
1940	7.6	38	45°C	Green Crosslinked	Zinc Free, durability and alcohol resistance in floor finish
PPX 110-01	7.2	36	< 20°C	Custom	Ready-to-use, self-crosslinking coating with excellent water, chemical and stain resistances at < 100 g/L VOC
FF Conc A	8.0	36	< 20°C	Custom	Concentrated floor finish with excellent durability and gloss

Our company

INTERPOLYMER has been producing waterbased specialty polymers since 1963. We manufacture at 4 facilities worldwide (2 in the United States, 1 each in France and China). INTERPOLYMER is a market leader in several application fields:

- Surface care: Polymers for floor care, carpet cleaners and leather care.
- Consumer specialties: Polymers for mascara, household, hair- and skin- care products, etc.
- Industrial specialties: Functional binders for specialty paint and coating applications, polymers for overprint varnishes and inks, flocculants for ceramics, retanning agents.

With close working relationships with customers, our company produces tailor-made products in order to match specific needs. Our technical service and research and development centres will be your creative and innovative partners.



SYNTRAN® Self-Crosslinking Polymers

For enhanced chemical & stain resistances

INTERPOLYMER offers a range of waterbased acrylics based on a proprietary self-crosslinking technology. This technology combines two different crosslinking mechanisms on the same polymer backbone, which substantially increase the chemical resistance, stain resistance and water resistance of the cured polymer film. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintain standard long-term shelf stability.

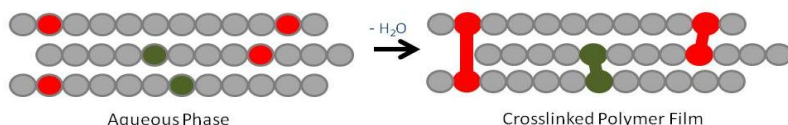
Product Range

SYNTRAN® self-crosslinking acrylics				
	pH	Solids (%)	MFFT (°C)	Comment
1655	8.0	40	74°C	Very hard film with excellent chemical resistances
1657	7.5	42	55°C	Med hardness, excellent water, chemical resistances
1693	7.5	42	15°C	Room temperature film former with excellent resistance

These SYNTRAN® self-crosslinking acrylic polymers are used in multiple markets to give improved performance over traditional acrylic emulsions. Since this is an Interpolymer internally developed technology, we are able to develop tailor-made solutions based on customer requirements.

The diagram below demonstrates how the crosslinking does not react with itself until the water is removed from the system during the standard film formation process:

Self-Crosslinking Mechanism



Formulating Guidelines

Concrete Sealer F99-169-03 @30%nv

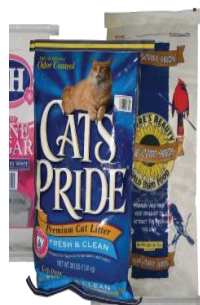
<i>Ingredient</i>	<i>% wt</i>
Water	28.99
Benzoflex 9-88	2.89
Propylene glycol butyl ether	2.71
1% active fluorosurfactant	0.90
SYNTRAN® 1657	64.51
Defoamer	q.s.
<i>Total</i>	<i>100.0</i>

Wood Bright Topcoat F74-051-04 @30%nv

<i>Ingredient</i>	<i>% wt</i>
Water	29.31
Tributoxyethyl phosphate	5.67
Diethylene glycol ethyl ether	3.24
1% active fluorosurfactant	0.81
Defoamer	q.s.
SYNTRAN® 1655	57.13
SYNTRAN® PA-1465	3.84
<i>Total</i>	<i>100.0</i>

Applications

- Concrete, wood and plastic coatings
- Furniture and cabinet coatings
- Overprint varnishes for labels, paper and packaging
- Architectural Paints



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SX Polymers Brochure US 08-17.docx / Page 2 of 2

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SYNTRAN® 1654

Technical Bulletin

SYNTRAN® 1654 is based on our removable film technology. This unique technology allows for room temperature film formation to give the substrate scratch & mar protection, but also allows for the film to be removed simply by peeling away from the substrate once the temporary coating is no longer required.

Performances

Applications	Peelable protective coatings
Features and Benefits	Removable (peelable) film from select substrates Quick setting, flexible, but non tacky film Hydrophobic film with high gloss

Typical Chemical and Physical Properties (all testing done at 22°C, unless specified)

Physical form	White emulsion
Solids content	42 ± 1.0%
pH value	8.0 ± 1.0
Viscosity	< 500 cps
Density	1.054 ± 0.005
MFFT	< 5°C
Freeze-thaw stability	Protect from freezing
Stability at 52°C	Unchanged after 30 days

Safety, Storage, Handling

Please refer to Material Safety Data Sheet.
Shelf life: 12 months from shipping date in originally sealed containers.
Storage: between 5°C and 35°C.

May17 / Page 1 of 2

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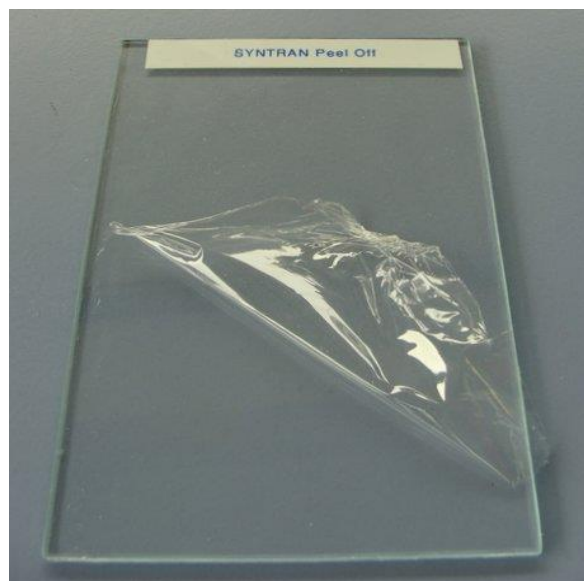
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SYNTRAN® 1654

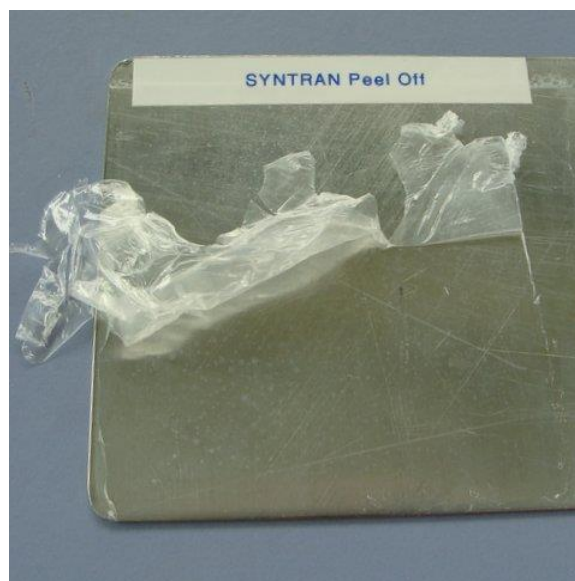
Technical Bulletin

Removability Test *(Photos show results of 0.75 mil film on selected substrates)*

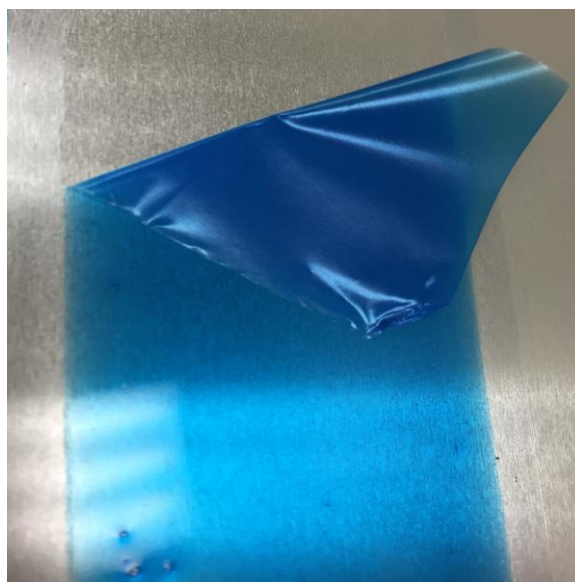
Glass



Steel



Aluminum



May17 / Page 2 of 2

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SYNTRAN® 1655

Technical Bulletin

SYNTRAN® 1655 is based on a proprietary self-crosslinking technology. This technology combines two different crosslinking mechanisms on the same polymer backbone, which substantially increase the chemical resistance, stain resistance and water resistance of the cured polymer film. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintain standard long-term shelf stability.

Performances

Applications	Concrete sealers Furniture & KCMA coatings
Features and Benefits	Excellent household stain resistances Excellent hot tire & Skydrol resistance Film has very high gloss and hardness Low VOC requirements to formulate coating

Typical Chemical and Physical Properties (do not constitute specifications)

Physical form	White emulsion
Solids content	40 \pm 1.0%
pH value	8.0 \pm 1.0
Viscosity	< 200 cps
Density	1.051 \pm 0.005
MFFT	75 \pm 3°C
Freeze-thaw stability	Protect from freezing
Stability at 52°C	Unchanged after 30 days

Safety, Storage, Handling

Please refer to Material Safety Data Sheet.
Shelf life: 12 months from shipping date in originally sealed containers.
Storage: between 5°C and 35°C.

May17 / Page 1 of 2

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SYNTRAN® 1655

Technical Bulletin

100 Proof Alcohol Test *(Photos show results of coated oak panel after 24 hours)*

Formulation based on Syntran 1655



Formulation based on standard acrylic



Hot Tire Resistance Test *(Photos show results of 60°C tire strip pressed on surface at 1000 psi for 15 mins)*

Formulation based on Syntran 1655

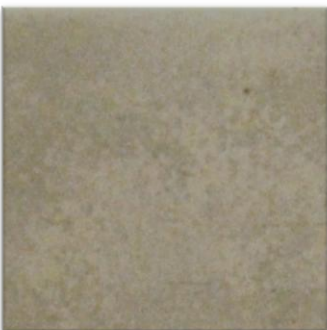


Formulation based on standard acrylic



Skydrol Spot Test *(Photos show results of coated concrete tiles after 60 mins)*

Formulation based on Syntran 1655



Formulation based on standard acrylic



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SYNTRAN® 1657

Technical Bulletin

SYNTRAN® 1657 is based on a proprietary self-crosslinking technology. This technology combines two different crosslinking mechanisms on the same polymer backbone, which substantially increase the chemical resistance, stain resistance and water resistance of the cured polymer film. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintain standard long-term shelf stability.

Performances

Applications	Concrete sealers Label, board and packaging coatings (OPV)
Features and Benefits	Excellent household stain resistances Excellent hot tire & Betadine resistance Excellent water submersion resistance Film has very high gloss, hardness with good printability Low VOC requirements to formulate coating

Typical Chemical and Physical Properties (all testing done at 22°C, unless specified)

Physical form	White emulsion
Solids content	42 ± 1.0%
pH value	7.5 ± 1.0
Viscosity	< 500 cps
Density	1.050 ± 0.005
MFFT	55 ± 3°C
Freeze-thaw stability	Protect from freezing
Stability at 52°C	Unchanged after 30 days

Safety, Storage, Handling

Please refer to Material Safety Data Sheet.
Shelf life: 12 months from shipping date in originally sealed containers.
Storage: between 5°C and 35°C.

May17 / Page 1 of 2

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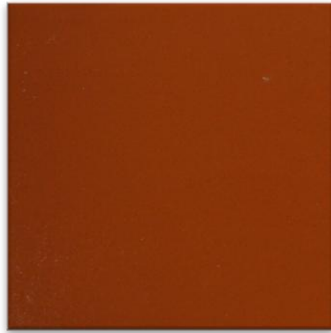
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SYNTRAN® 1657

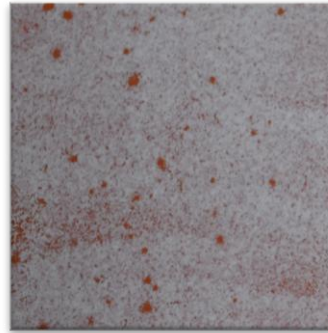
Technical Bulletin

Water Submersion Test *(Photos show results of coated red quarry tiles after 7 days submersion)*

Formulation based on Syntran 1657



Formulation based on standard acrylic



Hot Tire Resistance Test *(Photos show results of 60°C tire strip pressed on surface at 1000 psi for 15 mins)*

Formulation based on Syntran 1657

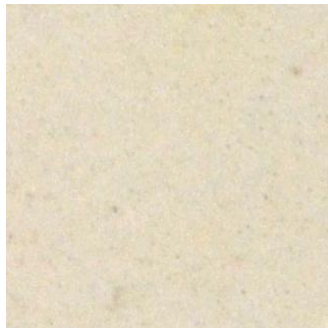


Formulation based on standard acrylic

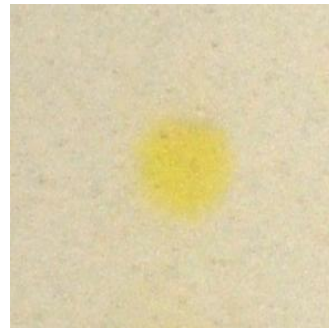


Betadine Spot Test *(Photos show results of coated floor tiles after 60 mins)*

Formulation based on Syntran 1657



Formulation based on standard acrylic



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SYNTRAN® 1693

Technical Bulletin

SYNTRAN® 1693 is based on our proprietary self-crosslinking technology. This technology combines two different crosslinking mechanisms on the same polymer backbone substantially increasing the chemical resistance stain resistance and water resistance. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintains long-term shelf stability.

Performances

Applications	Label, board and packaging coatings (OPV) Concrete sealers Furniture & KCMA coatings
Features and Benefits	Excellent household stain resistances Excellent alkali submersion resistance Excellent water submersion resistance Excellent adhesion to multiple substrates Film has very high gloss, flexibility with good printability Zero VOC requirements to formulate coating

Typical Chemical and Physical Properties (all testing done at 22°C, unless specified)

Physical form	White emulsion
Solids content	42 ± 1.0%
pH value	7.5 ± 1.0
Viscosity	< 200 cps
Density	1.050 ± 0.005
MFFT	15 ± 3°C
Freeze-thaw stability	Protect from freezing
Stability at 52°C	Unchanged after 30 days

Safety, Storage, Handling

Please refer to Material Safety Data Sheet.
Shelf life: 12 months from shipping date in originally sealed containers.
Storage: between 5°C and 35°C.

May17 / Page 1 of 2

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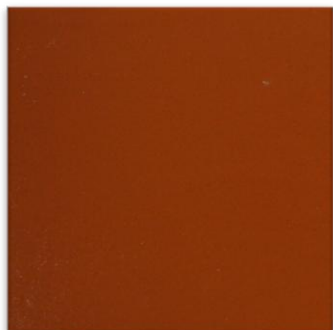
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SYNTRAN® 1693

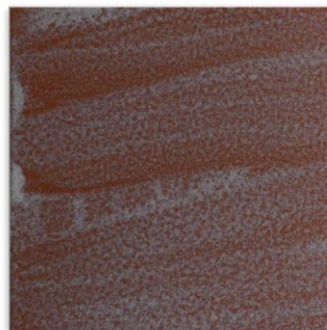
Technical Bulletin

Water Submersion Test *(Photos show results of coated red quarry tiles after 7 days submersion)*

Formulation based on Syntran 1693

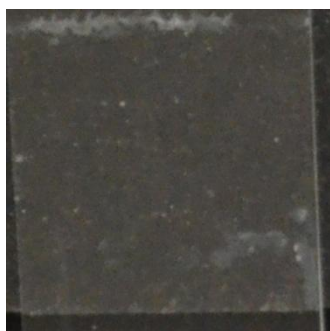


Formulation based on standard acrylic



Hot Alkali Resistance Test *(Photos show results of coated panel submerged in 80°C NaOH sol after 1 hour)*

Formulation based on Syntran 1693

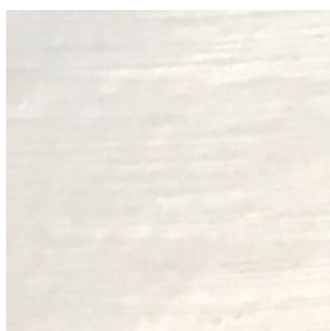


Formulation based on standard acrylic



Alcohol Rub Test *(Photos show results of painted tiles after 10 rubs with rubbing alcohol using AATCC crockmeter)*

Formulation based on Syntran 1693



Formulation based on standard acrylic



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SYNTRAN® 5903

Technical Bulletin

SYNTRAN® 5903 is based on our opacifier technology. This unique technology was designed to give improved brightness and whiteness in personal care and household coatings. This technology also can be used to replace a percentage of titanium dioxide used in white paints, but maintaining the same or similar coverage. The ideal reduction level of titanium dioxide is approximately 15%, when using this technology. Higher reduction of titanium dioxide levels can be achieved, but you may experience a slight loss in coverage of the paint.

Performances

Applications	Paints and coatings Shampoos, soaps and lotions Carpet cleaners and laundry detergents
Features and Benefits	High gloss and brightness High compatibility and stability in multiple formulation types Excellent coverage in paint formulas Low VOC requirements to formulate coating

Typical Chemical and Physical Properties (all testing done at 22°C, unless specified)

Physical form	White emulsion
Solids content	35 ± 1.0%
pH value	7.0 ± 1.0
Viscosity	< 500 cps
Density	1.027 ± 0.005
MFFT	80 ± 3°C
Freeze-thaw stability	Protect from freezing
Stability at 52°C	Unchanged after 30 days

Safety, Storage, Handling

Please refer to Safety Data Sheet.
 Shelf life: 12 months from shipping date in originally sealed containers.
 Storage: between 5°C and 35°C.

May17 / Page 1 of 2

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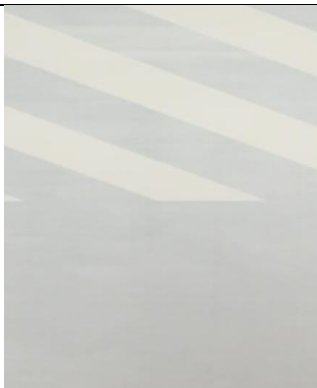

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ACRYLIC SEMI-GLOSS WHITE PAINT BASED ON SYNTRAN® 5903

			
	F74-030-05 (% Weight)	F74-030-06 (% Weight)	F74-030-07 (% Weight)
<i>Grind:</i>			
Universal Grade Slurry TiO2	31.09	27.18	21.48
Syntran 1511 @ 25% n.v.	0.65	0.61	0.64
Wetting Agent	0.09	0.09	0.10
Defoaming	0.03	0.03	0.03
Biocide	q.s	q.s.	q.s.
<i>Letdown:</i>			
Water	2.37	3.29	2.79
Syntran 1693 @ 42% n.v	55.46	57.52	60.05
Syntran 5903 @ 35% n.v.	0.00	4.61	12.18
Propylene Glycol	0.89	0.92	0.96
AMP PC-2000	0.03	0.03	0.03
Wetting Agent	0.09	0.09	0.10
Defoamer	0.03	0.03	0.03
Rheology Modifier	1.48	1.54	1.60
Water	<u>7.79</u>	<u>4.05</u>	<u>0.00</u>
	100.00%	100.00%	100.00%
Percent Non Volatiles:	45.0%	45.0%	45.0%
Calculated VOC:	25.6 g/L	26.7 g/L	28.03 g/L
Percent PVC:	21.7%	23.1%	25.7%
Pigment to Binder Ratio:	0.91	0.72	0.50
Gloss @ 60 degree:	60-70	60-70	60-70
% Reduction TiO2:	0%	-12%	-30%
Coverage on 9A card:	Used as Standard	Same as standard	Good, less than std
X-Rite Spec Readings:			
L, a, b	94.56, -0.85, 0.90	94.25, -0.84, 0.94	94.92, -0.89, 1.31

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SYNTRAN® 6145

Technical Bulletin

SYNTRAN® 6145 is based on a patented bimodal technology with film-forming properties. This technology combining two different ionic structures in the same polymer network increases the adhesion to multiple substrates, wood tannin blocking, stain blocking and dye blocking. This technology allows a formulator to take advantage of the good aspects of a cationic acrylic without the traditional compatibility issues.

Performances

Applications	Stain & Tannin blocking coatings
Features and Benefits	Excellent tannin, stain and dye blocking Excellent adhesion to multiple substrates High compatibly with other resins & additives

Typical Chemical and Physical Properties (all testing done at 22°C, unless specified)

Physical form	White emulsion
Solids content	40 ± 1.0%
pH value	8.0 ± 1.0
Viscosity	< 200 cps
Density	1.030 ± 0.005
MFFT	< 10°C
Freeze-thaw stability	Protect from freezing
Stability at 52°C	Unchanged after 30 days

Safety, Storage, Handling

Please refer to Material Safety Data Sheet.
Shelf life: 12 months from shipping date in originally sealed containers.
Storage: between 5°C and 35°C.

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SYNTRAN® 6145

Technical Bulletin

Tannin Migration Test *(Photos show results of sealed, then painted oak panels after 1 Month)*

Syntran 6145 Sealer

No Sealer



Syntran 6145 Sealer

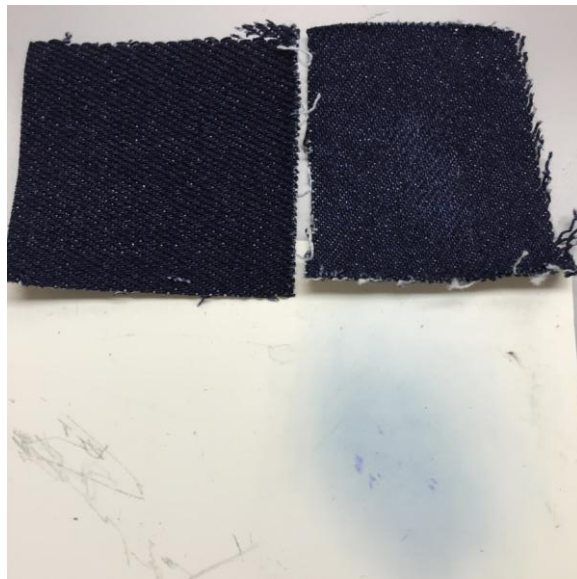
No Sealer



Dye Migration Test *(Photos show results of textiles saturated with water then placed on PVC after 4 hours)*

Syntran 6145 Primer

Uncoated



Syntran 6145 Primer

Uncoated



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SYNTRAN® Polymers

For wood coatings

INTERPOLYMER offers a range of waterbased acrylics that can be used in wood coatings based on multiple propriety technologies (bimodal and self-crosslinking). These technologies all impart unique properties to the finished coatings:

Bimodal technology combines two different ionic structures in the same polymer network increasing the adhesion to multiple substrates, wood tannin blocking, stain blocking and dye blocking. This technology allows a formulator to take advantage of the benefits of a cationic acrylic without the traditional compatibility issues.

Self-crosslinking technology combines two different crosslinking mechanisms on the same polymer backbone, which substantially increase the chemical resistance, stain resistance and water resistance of the cured polymer film. This technology was designed for the self-crosslinking mechanism to fully cure at room temperature, but maintain standard, long-term shelf stability.

Product Range

SYNTRAN® acrylics				
	pH	Solids (%)	MFFT (°C)	Comment
6130	8.8	40	52°C	Bimodal film with excellent wear resistance and adhesion properties
6145	7.5	40	< 10°C	Bimodal film with excellent tannin blocking and adhesion properties
1655	8.0	40	74°C	Self-crosslinking film with excellent wear and chemical resistances
1693	7.5	42	< 20°C	Self-crosslinking film with excellent water and chemical resistances

These SYNTRAN® acrylic polymers are used in multiple markets to give improved performance over traditional acrylic emulsions. Since these are an Interpolymer internally developed technology, we are able to develop tailor-made solutions based on customer requirements.

Applications

- Furniture and kitchen cabinet coatings
- Flooring, decks, and fence coatings
- Sanding, stain and all-in-one sealers
- Tannin blocking sealers

Formulating Guidelines

Clear Sealer / Topcoat F89-118-02 @30%nv

<i>Ingredient</i>	<i>% wt</i>
Water	24.66
Tributoxyethyl Phosphate	3.21
Diethylene glycol ethyl ether	4.46
1% active fluorosurfactant	0.71
SYNTRAN® 6130	66.96
Defoamer	q.s.
<i>Total</i>	<i>100.0</i>

Tannin Blocking Sealer F74-031-04 @28%nv

<i>Ingredient</i>	<i>% wt</i>
Water	27.0
Propylene glycol	1.0
Defoamer	q.s.
SYNTRAN® 6145	72.0
<i>Total</i>	<i>100.0</i>

Clear Sealer / Topcoat F74-051-02 @30%nv

<i>Ingredient</i>	<i>% wt</i>
Water	27.0
Propylene glycol	1.0
1% active fluorosurfactant	0.8
Defoamer	q.s.
SYNTRAN® 1693	71.2
<i>Total</i>	<i>100.0</i>

Clear Topcoat F74-051-04 @30%nv

<i>Ingredient</i>	<i>% wt</i>
Water	29.31
Tributoxyethyl phosphate	5.67
Diethylene glycol ethyl ether	3.24
1% active fluorosurfactant	0.81
Defoamer	q.s.
SYNTRAN® 1655	57.13
SYNTRAN® PA-1465	3.84
<i>Total</i>	<i>100.0</i>

Note: add 5% waterbased dye to any of the above sealer formulas to transform into stain sealer.

Our company

INTERPOLYMER has been producing waterbased specialty polymers since 1963. We manufacture at 4 facilities worldwide (2 in the United States, 1 each in France and China). INTERPOLYMER is a market leader in several application fields:

- Surface care: Polymers for floor care, carpet cleaners and leather care.
- Consumer specialties: Polymers for mascara, household, hair- and skin- care products, etc.
- Industrial specialties: Functional binders for specialty paint and coating applications, polymers for overprint varnishes and inks, flocculants for ceramics, retanning agents.

With close working relationships with customers, our company produces tailor-made products in order to match specific needs. Our technical service and research and development centres will be your creative and innovative partners.

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The suggestions and data included are based on information we believe to be reliable. They are offered in good faith, but without guarantee, as conditions and methods of use of our products are beyond our control. We recommend that the prospective user determine the suitability of our materials and suggestions before adopting them on a commercial scale. It is the buyer's responsibility to determine the suitability of the above formulation through quality control and field testing. Suggestions for uses of our products should not be understood as recommendations that they be used in violation of any existing or pending patents.

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