



**Essential<sup>®</sup>  
Polymers**

The Spark of Innovation

# Water-Based Polymer Technologies

for the Coatings Industry



## Selection Guide

# INNOVATIVE

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that fit YOUR needs.



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## Polyurethane Dispersions (PUD)

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Konig (7 day)	Viscosity (cps)	Neutralizing Amine	Backbone	Acid Number	pH
R2675	<ul style="list-style-type: none"> <li>• Metallic ink vehicle</li> <li>• Brilliance</li> <li>• Tarnish resistance</li> <li>• Extended shelf-life</li> </ul>	R2675 is specifically designed for use in metallic inks which utilize bronze or aluminum-based pigments. It imparts water, scuff and rub resistance, and orients the metallic flakes for optimum brilliance while extending the shelf-life of the ink. It displays excellent adhesion to paper and various polyolefin films.	30.5	7.7	75	< 300	TEA	Polyester	19	8.0
R4100*	<ul style="list-style-type: none"> <li>• Film hardness and toughness</li> <li>• Excellent adhesion</li> <li>• Exterior durability</li> <li>• Abrasion resistance</li> </ul>	R4100 is an aliphatic polyurethane dispersion that is designed for topcoat applications where flexibility and a high degree of hardness are required. Coatings formulated with R4100 exhibit excellent adhesion to concrete, wood, metal and a variety of plastics including ABS, polycarbonate, flexible and rigid PVC and polyurethane.	33.0	15.0	130	< 150	TEA	Polyester	25	8.0
R4188*	<ul style="list-style-type: none"> <li>• Abrasion resistance</li> <li>• Film toughness</li> <li>• Excellent adhesion</li> <li>• Exterior durability</li> </ul>	R4188 is a high solids polyurethane dispersion designed to impart superior abrasion resistance and a combination of film hardness, flexibility and toughness which makes it an ideal PUD for topcoat applications.	38.0	10.5	67	< 150	TEA	Polyester	24	8.0
R4200	<ul style="list-style-type: none"> <li>• Inkjet binder</li> <li>• Improves highlighter smear</li> <li>• Long-term jettability</li> <li>• Wet and dry rub resistance</li> </ul>	R4200 improves the performance of inkjet inks for piezo printers. A loading of 4-6% in conjunction with water-based pigments will improve the inkjet ink's durability, resistance to highlighter smear and wet and dry rub resistance.	31.5	4.0	72	< 50	TPA	Polyester	30	9.0
R4242*	<ul style="list-style-type: none"> <li>• Laminating adhesive</li> <li>• Excellent adhesion to mylar/PVC</li> <li>• Block resistance</li> <li>• Low temperature flexibility</li> </ul>	R4242 can be formulated into a laminating adhesive which is specifically designed to be block resistant up to 70°C and maintain its flexibility and toughness below 0°C. It has a low activation temperature of 140°C. It also exhibits crystal clear clarity with peel strength of up to 10N/cm.	33.0	6.8	113	< 100	TEA/TPA	Polyester	25	8.8
R4243	<ul style="list-style-type: none"> <li>• Laminating adhesive</li> <li>• n-MP-free version</li> <li>• Excellent adhesion to mylar/PVC</li> <li>• Block resistance</li> <li>• Low temperature flexibility</li> </ul>	R4243 is an n-MP-free version of R4242 that exhibits all the same properties as a laminating adhesive. It is block resistant up to 70°C and maintains its flexibility and toughness below 0°C. It has a low activation temperature of 140°C. It also exhibits crystal clear clarity with peel strength of up to 10N/cm.	33.0	6.8	113	< 100	TEA/TPA	Polyester	25	9.0
R4270*	<ul style="list-style-type: none"> <li>• Melamine baked systems</li> <li>• Non-yellowing</li> <li>• Mar and scratch resistance</li> </ul>	R4270 is an aliphatic, polyester polyurethane dispersion that was developed for melamine cured systems that will not yellow during the bake cycle. When properly cross-linked, the coatings will exhibit excellent hardness, scratch and mar resistance properties.	33.0	15.0	142	< 300	TEA	Polyester	24	8.0
R4296	<ul style="list-style-type: none"> <li>• n-MP-free</li> <li>• Excellent adhesion to flexible PVC</li> <li>• Block resistance</li> <li>• Low temperature flexibility</li> </ul>	R4296 is an n-MP-free, highly crystalline waterborne aliphatic polyurethane dispersion used for heat-activated adhesives. R4296 can be used in a single-component, heat cured system or as part of a 2-K system.	33.5	9.5	59	< 100	TEA	Polyester	20	8.0
R4511	<ul style="list-style-type: none"> <li>• 2-K system</li> <li>• Hydroxyl-functional</li> <li>• Chemical resistance</li> <li>• &lt; 0.1 per rating</li> <li>• Solvent-free</li> </ul>	R4511 is an aliphatic triethanolamine neutralized hydroxyl-functional polyurethane dispersion that will produce low VOC 2-K coatings when cross-linked with a water dispersible polyisocyanate. The 2-K coating formulated with R4511 can be classified as a vapor barrier because of its extremely low perm rating. It is designed for topcoat applications for concrete, wood, metal and plastics.	35.0	0.0 (cross-linked)	139 (cross-linked)	< 75	Triethanolamine	Polyester	26 (-OH Number 71)	8.0
R4584	<ul style="list-style-type: none"> <li>• Silicone-modified PUD</li> <li>• n-MP-free</li> <li>• Lower coefficient of friction</li> <li>• Mar and scratch resistance</li> </ul>	R4584 is a silicone-modified polyurethane dispersion for use where coatings require outstanding mar and scratch resistance properties and a lower coefficient of friction is seen as a benefit. R4584 will impart water-beading/sheeting properties to your coatings as low as 7.5% based on resin solids. R4584 can be blended with acrylic polymers to create coatings for wood, metal and plastics.	34.0	11.4	NA	< 400	TEA	Polyester	23	8.0



## Polyurethane/Acrylic Hybrids (Solvent-Free)

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Konig (7 day)	Viscosity (cps)	Neutralizing Amine	Backbone	Acid Number	pH
R4300	<ul style="list-style-type: none"> <li>High hardness</li> <li>Mar and scratch resistance</li> </ul>	R4300 is an aliphatic urethane/acrylic hybrid with incredible hardness. This solvent-free, low VOC polymer reaches a Konig Hardness of 180 secs within days of being applied. This polymer would be an excellent candidate for coatings that require high hardness, as well as mar and scratch resistance.	36.5	1.4	180	< 100	TEA	Polyester	18	8.0
R4370	<ul style="list-style-type: none"> <li>Balance hardness</li> <li>Abrasion resistance</li> </ul>	R4370, a urethane/acrylic hybrid, is solvent-free, allowing for coatings to be formulated to < 100 g/l while still offering a balance of hardness and flexibility.	35.0	1.4	102	< 100	TEA	Polyester	19	7.7
R4388	<ul style="list-style-type: none"> <li>High solids</li> <li>Abrasion resistance</li> </ul>	R4388, a solvent-free urethane/acrylic hybrid, has been designed for excellent abrasion resistance. R4388 offers a good combination of film hardness, flexibility and toughness making it an ideal polymer candidate for topcoat applications.	39.0	1.4	79	< 300	TEA	Polyester	19	7.7

## Acrylic Emulsion Polymers

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Viscosity (cps)	pH	Konig (7 day)	Tg (°C)	Acid Number
R5034	<ul style="list-style-type: none"> <li>Direct to metal</li> <li>High Tg</li> <li>Excellent stain resistance</li> </ul>	Essential R5034 is a very hard, high Tg acrylic emulsion polymer that can be formulated into DTM formulations, as well as stain resistant waterborne wood sealers. Formulations based on R5034 will give excellent salt spray resistance properties. Also, when formulated into a wood sealer it exhibits excellent resistance properties to coffee, iodine, mustard, tea and many other staining agents.	40.0	0	< 100	8.0	80	69	24
R5126	<ul style="list-style-type: none"> <li>100% acrylic</li> <li>Hardness</li> <li>Water resistance</li> </ul>	R5126 is a pure acrylic emulsion polymer with a high Tg. When formulated properly, the coatings will provide excellent exterior performance. The coatings will provide excellent adhesion to various substrates and provide water and stain resistance properties. R5126 has been formulated into pool and masonry coatings, as well as concrete sealers and primers.	45.0	0	< 200	8.0	104	49	16
R5129	<ul style="list-style-type: none"> <li>Direct to metal</li> <li>Clarity</li> <li>Fast recoatability</li> <li>Excellent water resistance</li> </ul>	R5129 is an acrylic emulsion polymer for DTM applications. When formulated it exhibits corrosion, mar resistance and toughness on metal substrates. This product forms fast-drying, medium hard films which are clear and glossy with water resistance and excellent leveling.	40.0	0	< 100	7.6	42	25	29
R5169	<ul style="list-style-type: none"> <li>Good hold out</li> <li>Excellent clarity and gloss</li> <li>Excellent resolubility</li> </ul>	R5169 is an acrylic polymer designed for craft paints and can be used in overprint varnish formulations. It has excellent gloss and clarity, as well as excellent water resistance. It can also be used in athletic field marking paints.	50.0	0	< 150	7.7	24	8	28
R5810	<ul style="list-style-type: none"> <li>High solids</li> <li>Direct to metal</li> <li>Excellent water resistance</li> </ul>	R5810 is a high solids acrylic emulsion polymer for DTM applications. When formulated it exhibits corrosion resistance, mar resistance and toughness on metal substrates. This product forms fast-drying, medium hard films which are clear and glossy with water resistance and excellent leveling.	50.0	0	< 300	7.6	42	25	30



## Self Cross-Linking Acrylic Emulsion Polymers

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Viscosity (cps)	pH	Konig (7 day)	Tg (°C)	Acid Number
R5103	<ul style="list-style-type: none"> <li>Primer for MDF board</li> <li>Block resistance</li> <li>Low VOC</li> <li>Adhesion</li> </ul>	R5103 is a self cross-linking acrylic polymer that was developed to create a primer for Medium Density Fiber boards for doors and trim. The formulations are block resistant to temperatures up to 150°F. They have excellent adhesion to the fiber board and are water resistant.	45.0	0	< 150	9.5	98	65	19
R5138	<ul style="list-style-type: none"> <li>Small particle size</li> <li>100% acrylic</li> <li>Chemical and stain resistance</li> </ul>	R5138 is a translucent, pure acrylic designed for wood furniture refinishing. It has excellent adhesion to a wide variety of woods. The polymer's small particle size imparts a unique clarity to the coating which can be observed both in the can and on the wood.	40.0	0.1	< 100	9.0	66	47	32
R5181	<ul style="list-style-type: none"> <li>Passes ASTM C309</li> <li>&lt; 100 g/l sealers</li> <li>Non-blushing</li> <li>Wet adhesion to concrete</li> </ul>	R5181 can be formulated into <100 g/l VOC concrete cure and seals and interior and exterior wet-look topcoats. The coating is non-blushing, non-yellowing and exhibits excellent wet adhesion and chemical resistance properties.	40.0	0.1	< 300	7.8	143	20	40
R5191	<ul style="list-style-type: none"> <li>Non-blushing</li> <li>Stops efflorescence</li> <li>&lt; 50 g/l sealers</li> <li>Wet adhesion</li> </ul>	R5191 is a self cross-linking acrylic which is suitable for a wide variety of applications ranging from concrete to wood and even paper. It can be formulated into a < 50 g/l interior and exterior wet-look sealer. The finish is non-blushing, non-yellowing and exhibits excellent wet adhesion, chemical and stain resistance properties.	41.0	0.1	< 200	7.5	47	6	42
R5204	<ul style="list-style-type: none"> <li>Joint sand stabilizer</li> <li>Blush resistance</li> <li>Water resistance</li> <li>Stain resistance</li> </ul>	R5204 is a self cross-linking acrylic polymer that can be formulated into < 50 g/l concrete paver sealers and joint sand stabilizers. When formulated properly, the coatings exhibit water resistance properties repelling oil, grease and other stains. As a joint stabilizer it bonds and locks down the joint sand.	44.0	0	< 300	8.0	75	13	50

## Self Cross-Linking Urethane/Acrylic Polymers

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Viscosity (cps)	pH	Konig (7 day)	Tg (°C)	Acid Number
R6025	<ul style="list-style-type: none"> <li>n-MP-free and APEO-free</li> <li>Outstanding gloss retention</li> <li>&lt; 250 g/l VOC topcoats</li> <li>Excellent chemical resistance</li> <li>Mar and scratch resistance</li> </ul>	R6025 uses our proprietary self cross-linking urethane/acrylic technology. It can be formulated to pass MFMA criteria for water-based wood finishes. These coatings exhibit outstanding durability and gloss retention because of the polycarbonate backbone in the polyurethane component of the polymer. It also can be formulated into topcoats for wood furniture and kitchen cabinets because of its excellent chemical and stain resistance properties.	33.0	3.7	< 25	8.0	149	23	26
R6030	<ul style="list-style-type: none"> <li>Chemical and stain resistance</li> <li>Mar and scratch resistance</li> <li>Non-yellowing</li> <li>Responds to diamond polishing</li> </ul>	R6030 is a blend of a self cross-linking acrylic and a polyurethane dispersion that provides excellent protection to polished stained concrete. R6030 hardens the surface while forming a thin protective coat that offers superior chemical, stain and mar resistance. It is also very responsive to burnishing with diamond impregnated pads.	40.0	1.6	< 50	8.0	65	35	11
R6055	<ul style="list-style-type: none"> <li>Solvent-free</li> <li>Creates &lt; 100 g/l VOC coatings</li> <li>Outstanding gloss retention</li> <li>Mar and scratch resistance</li> </ul>	R6055 is a solvent-free version of R6025 that uses our proprietary self cross-linking urethane/acrylic technology. R6055 can be formulated into < 100 g/l VOC water-based wood coatings. These coatings exhibit outstanding durability and gloss retention because of the polycarbonate backbone on the polyurethane component of the polymer.	35.0	< 0.5	< 50	8.0	78	33	26





## Floor Finish Polymers

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Viscosity (cps)	pH	Konig (7 day)	Tg (°C)	Acid Number
R2125	<ul style="list-style-type: none"> <li>• Good gloss and hold out</li> <li>• Excellent clarity</li> <li>• Promotes removability/resolubility</li> </ul>	R2125 is a general purpose solution of the ammonia salt of an alkali soluble resin that is used for pigment dispersion, printing ink, overprint varnish and floor finish formulations.	25.0	0	< 100	8.5	NA	105	210
R2352	<ul style="list-style-type: none"> <li>• APEO-free</li> <li>• Scuff resistance</li> <li>• Extremely high gloss</li> <li>• Quick recoatability</li> </ul>	R2352 is a zinc cross-linked polymer that can be formulated into very high gloss floor finishes with excellent durability. The starting point formulation is non-yellowing and scuff-resistant. It is ideal for areas where frequent buffing is not typically performed; such as schools, retail stores and lobbies.	41.0	0	< 400	8.0	132	52	43
R2358	<ul style="list-style-type: none"> <li>• Metal-free (Zinc)</li> <li>• Low odor</li> <li>• High gloss</li> <li>• Excellent durability</li> <li>• Ease of removability</li> </ul>	R2358 is a metal-free self cross-linking high solids polymer that can be formulated into floor finishes that compete with most zinc cross-linked finishes. The unique chemistry allows formulators to create a low odor finish which exhibits excellent gloss along with black heel mark and detergent resistance properties. The formulated finishes can meet or exceed Green Seal GS-40 standards.	39.5	0	< 50	7.5	78	64	57
R4045	<ul style="list-style-type: none"> <li>• All-acrylic, alkali-soluble emulsion</li> <li>• Good gloss</li> <li>• High solids</li> <li>• Good resolubility</li> </ul>	R4045 is an all-acrylic, alkali-soluble emulsion that improves leveling and provides gloss with low color to floor finish formulations. Provided as a 46% solids emulsion for ease of handling, it becomes a clear solution when the pH is > 7.5.	46.5	0	< 100	4.0	NA	27	67

## Concentrated Floor Finishes

Polymer Code	Key Benefits	Description	% Solids	VOC (%)	Viscosity (cps)	pH	Konig (7 day)
R5861*	<ul style="list-style-type: none"> <li>• High gloss</li> <li>• Dri-brite systems</li> <li>• Economical</li> </ul>	R5861 is a 38% solids concentrated floor finish that, when cut to 25% or less, creates a finish with excellent gloss. It is ideal for areas where buffing is not required.	37.0	3.8	< 50	8.5	129
R5865	<ul style="list-style-type: none"> <li>• Extremely high gloss</li> <li>• Scuff resistance</li> <li>• Quick recoatability</li> <li>• APEO-free</li> </ul>	R5865 is a concentrated floor finish. When cut to 25% solids or less it creates a finish that is non-yellowing, has extremely high gloss, excellent durability and mar resistance. The formulation, which is APEO-free and Phthalate-free, is also low in odor. It is ideal for areas where frequent buffing is not typically performed.	36.0	3.5	< 100	8.0	128

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