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# Water-Based Polymer Technologies

for the Coatings Industry



## Selection Guide

# INNOVATIVE

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Polyurethane Dispersions (PUD)

| Polymer Code     | Key Benefits                                                                                                                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                             | % Solids | VOC (%) | König (7 day) | Viscosity (cps) | Backbone  | Acid Number | pH  | Tensile Strength (psi) | % Elongation | 100% Modulus (psi) |
|------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|---------------|-----------------|-----------|-------------|-----|------------------------|--------------|--------------------|
| Eccothane R4054* | <ul style="list-style-type: none"><li>Balance of hardness and flexibility</li><li>Chemical resistance</li><li>Abrasion resistance</li></ul>                                                       | Eccothane R4054 is an aliphatic polyurethane dispersion designed to have a balance between hardness, flexibility and toughness which makes it ideal for topcoat applications.                                                                                                                                                                                                                                                           | 34.5     | 13.9    | 110           | < 150           | Polyester | 25          | 8.0 | 1,800                  | 320          | 1,475              |
| Eccothane R4059  | <ul style="list-style-type: none"><li>High elongation</li><li>Breathable</li><li>Low-VOC, solvent-free</li></ul>                                                                                  | Eccothane R4059 is a soft, aliphatic polyether waterborne polyurethane dispersion engineered for outstanding elasticity and reliable moisture management. It is particularly well-suited for breathable textile coatings, leather and synthetic leather finishes, and flexible substrate coatings. It also serves as an excellent base for specialty low-VOC elastomeric sealants and caulks in interior and protected exterior joints. | 40.0     | 2.0     | 45            | < 500           | Polyether | 25          | 7.6 | 1,150                  | 950          | 790                |
| Eccothane 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>                                    | Eccothane 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           | Polyester | 25          | 8.0 | 2,000                  | 195          | 1,750              |
| Eccothane R4134  | <ul style="list-style-type: none"><li>NMP-free</li><li>Abrasion resistance</li></ul>                                                                                                              | NMP-free aliphatic polyurethane dispersion designed to impart superior abrasion resistance and a combination of film hardness, flexibility and toughness which makes it an ideal PUD for top coat applications. Can be used in conjunction with acrylic polymers for wood and concrete coatings.                                                                                                                                        | 36.0     | 8.8     | 70            | < 500           | Polyester | 26          | 8.0 | 2,000                  | 590          | 1,640              |
| Eccothane R4188* | <ul style="list-style-type: none"><li>Abrasion resistance</li><li>Film toughness</li><li>Excellent adhesion</li><li>Exterior durability</li></ul>                                                 | Eccothane 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           | Polyester | 24          | 8.0 | 1,400                  | 600          | 900                |
| Eccothane 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>                          | Eccothane 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           | Polyester | 25          | 8.8 | 1,900                  | 525          | 1,250              |
| Eccothane R4243  | <ul style="list-style-type: none"><li>Laminating adhesive</li><li>NMP-free version</li><li>Excellent adhesion to mylar/PVC</li><li>Block resistance</li><li>Low temperature flexibility</li></ul> | Eccothane R4243 is an NMP-free version of Eccothane 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           | Polyester | 25          | 9.0 | 1,250                  | 840          | 780                |
| Eccothane R4270* | <ul style="list-style-type: none"><li>Melamine baked systems</li><li>Non-yellowing</li><li>Mar and scratch resistance</li></ul>                                                                   | Eccothane 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           | Polyester | 24          | 8.0 | 1,150                  | 160          | 1,025              |



Polyurethane Dispersions (PUD) - continued

| Polymer Code    | Key Benefits                                                                                                                                                        | Description                                                                                                                                                                                                                                                                                                                                                                                                    | % Solids | VOC (%)            | König (7 day)      | Viscosity (cps) | Backbone  | Acid Number        | pH  | Tensile Strength (psi) | % Elongation | 100% Modulus (psi) |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|--------------------|--------------------|-----------------|-----------|--------------------|-----|------------------------|--------------|--------------------|
| Eccothane R4296 | <ul style="list-style-type: none"><li>NMP-free</li><li>Excellent adhesion to flexible PVC</li><li>Block resistance</li><li>Low temperature flexibility</li></ul>    | Eccothane R4296 is an NMP-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           | Polyester | 20                 | 8.0 | 3,200                  | 530          | 2,725              |
| Eccothane 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> | Eccothane 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            | Polyester | 26 (-OH Number 71) | 8.0 | N/A                    | N/A          | N/A                |
| Eccothane R4584 | <ul style="list-style-type: none"><li>Silicone-modified PUD</li><li>NMP-free</li><li>Lower coefficient of friction</li><li>Mar and scratch resistance</li></ul>     | Eccothane R4584 is a silicone-modified, NMP-free polyurethane dispersion that delivers superior mar and scratch resistance with a lower coefficient of friction. At addition levels as low as 7.5 % (on resin solids), it imparts excellent water-sheeting properties. It blends easily with acrylic polymers for coatings on wood, metal, and plastics.                                                       | 34.0     | 11.4               | NA                 | < 400           | Polyester | 23                 | 8.0 | 3,175                  | 500          | 1,585              |

Polyurethane/Acrylic Hybrids (Solvent-Free)

| Polymer Code    | Key Benefits                                                                                                                                      | Description                                                                                                                                                                                                                                                                                                                                                                                                                         | % Solids | VOC (%)               | König (7 day) | Viscosity (cps) | Neutralizing Amine | Backbone  | Acid Number         | pH  |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------|---------------|-----------------|--------------------|-----------|---------------------|-----|
| Eccothane H4300 | <ul style="list-style-type: none"><li>High hardness</li><li>Mar and scratch resistance</li></ul>                                                  | Eccothane H4300 is an aliphatic urethane/acrylic hybrid with incredible hardness. This solvent-free, low-VOC polymer reaches a König Hardness of 180 seconds within days. 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 |
| Eccothane H4370 | <ul style="list-style-type: none"><li>Balance hardness</li><li>Abrasion resistance</li></ul>                                                      | Eccothane H4370, 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 |
| Eccothane H4388 | <ul style="list-style-type: none"><li>High-solids</li><li>Abrasion resistance</li></ul>                                                           | Eccothane H4388, a solvent-free urethane/acrylic hybrid, has been designed for excellent abrasion resistance. H4388 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 |
| Eccothane H4431 | <ul style="list-style-type: none"><li>Low-VOC 2-K coatings</li><li>Excellent chemical resistance</li><li>Adhesion to various substrates</li></ul> | Eccothane H4431 is an aliphatic triethanolamine neutralized Hydroxyl-functional Urethane/Acrylic Hybrid that will produce low-VOC 2-K coatings when cross-linked with a water-dispersible polyisocyanate; such as, Easaqua L-600 and Easaqua M-502. The coatings created have excellent chemical resistance properties and have excellent König hardness. It is designed for topcoat applications for concrete, wood, and plastics. | 45.0     | 3.9 (Triethanolamine) | 87            | < 350           | TEA                | Polyester | 28 (-OH Number 195) | 7.5 |



## Self Cross-Linking Acrylic Emulsion Polymers

| Polymer Code   | Key Benefits                                                                                                                                             | Description                                                                                                                                                                                                                                                                                                                                            | % Solids | VOC (%) | Viscosity (cps) | pH  | König (7 day) | Tg (°C) | Acid Number |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|-----------------|-----|---------------|---------|-------------|
| Eccocryl S5103 | <ul style="list-style-type: none"><li>• Primer for MDF board</li><li>• Block resistance</li><li>• Low-VOC</li><li>• Adhesion</li></ul>                   | Eccocryl S5103 is a self cross-linking acrylic polymer that was developed to create a primer for medium-density fiberboard (MDF) 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          |
| Eccocryl S5138 | <ul style="list-style-type: none"><li>• Small particle size</li><li>• 100% acrylic</li><li>• Chemical and stain resistance</li></ul>                     | Eccocryl S5138 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          |
| Eccocryl S5191 | <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>        | Eccocryl S5191 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          |
| Eccocryl S5204 | <ul style="list-style-type: none"><li>• Joint sand stabilizer</li><li>• Blush resistance</li><li>• Water resistance</li><li>• Stain resistance</li></ul> | Eccocryl S5204 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  | König (7 day) | Tg (°C) | Acid Number |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|-----------------|-----|---------------|---------|-------------|
| Eccothane S6025 | <ul style="list-style-type: none"><li>• NMP-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> | Eccothane S6025 is an NMP-free, APEO-free self-crosslinking urethane/acrylic polymer. It can be formulated into low-VOC (< 250 g/l) wood finishes that meet MFMA criteria. The polycarbonate backbone delivers outstanding durability, gloss retention, chemical resistance, and mar/scratch resistance. It is also ideal for topcoats on wood furniture and kitchen cabinets. | 33.0     | 3.7     | < 25            | 8.0 | 149           | 23      | 26          |
| Eccothane S6030 | <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>                                            | Eccothane S6030 is a blend of a self cross-linking acrylic and a polyurethane dispersion that provides excellent protection to polished stained concrete. S6030 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          |
| Eccothane S6055 | <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>                                           | Eccothane S6055 is a solvent-free version of Eccocryl S6025 that uses our proprietary self cross-linking urethane/acrylic technology. S6055 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          |



Acrylic Emulsion Polymers

| Polymer Code   | Key Benefits                                                                                                                                          | Description                                                                                                                                                                                                                                                                                                                                                                                              | % Solids | VOC (%) | Viscosity (cps) | pH  | König (7 day) | Tg (°C) | Acid Number |
|----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|---------|-----------------|-----|---------------|---------|-------------|
| Eccocryl R5034 | <ul style="list-style-type: none"><li>• Direct to metal</li><li>• High Tg</li><li>• Excellent stain resistance</li></ul>                              | Eccocryl 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          |
| Eccocryl R5126 | <ul style="list-style-type: none"><li>• 100% acrylic</li><li>• Hardness</li><li>• Water resistance</li></ul>                                          | Eccocryl 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          |
| Eccocryl 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> | Eccocryl 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          |
| Eccocryl R5169 | <ul style="list-style-type: none"><li>• Good hold out</li><li>• Excellent clarity and gloss</li><li>• Excellent resolubility</li></ul>                | Eccocryl 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          |
| Eccocryl R5810 | <ul style="list-style-type: none"><li>• High-solids</li><li>• Direct to metal</li><li>• Excellent water resistance</li></ul>                          | Eccocryl 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          |

## Contact Us

For more information or to request a sample,  
please visit us at:  
[www.essentialpolymers.com](http://www.essentialpolymers.com)

Or contact:

Jay Shaffer – Vice President

Essential Polymers & Research and Development

ph: 262.528.4000 or 262.538.0091

email: [jshaffer@essentialpolymers.com](mailto:jshaffer@essentialpolymers.com)

Andrew Starling

Technical Sales Manager

ph: 336.906.5771 or 262.538.0091

email: [astarling@essentialpolymers.com](mailto:astarling@essentialpolymers.com)

