

BONDTHANETM

WATERBORNE POLYURETHANES

ENVIRONMENTALLY & USER FRIENDLY

ADVANTAGES:

- LOW ODOR
- LOW V.O.C.
- MAR RESISTANT
- ALKALI RESISTANT
- ABRASION RESISTANT
- NON-FLAMMABLE
- FLEXIBILITY
- SOLVENT- FREE AVAILABLE
- HIGH TENSILE STRENGTH
- COMPATIBILITY

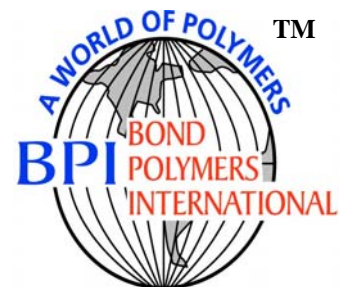


HIGH PERFORMANCE POLYMERS

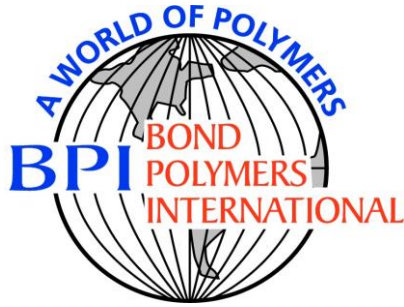
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REVISION: 15



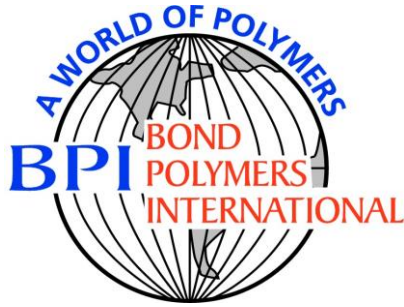
Why are people choosing Waterborne Polyurethane Products?

Waterborne Polyurethanes are fully reacted Urethane polymers dispersed in water. These products contain **no residual free isocyanate**. These polymers are now being widely used in the coatings and adhesives industries, and are finding their way into other high performance niche applications every day. The reason for this is a simple one. Formulators and end users are coming under constantly increasing pressure to deliver **high performance** products that are **environmentally and user friendly**. Waterborne polyurethanes are one of few types of products that can deliver results in both areas.

Waterborne polyurethanes can be selected to deliver high tensile strength, chemical resistance, **high elongation**, UV resistance, low temperature flexibility, water resistance, abrasion resistance, and/or impact resistance. Most waterborne polyurethanes can be crosslinked in a variety of ways to enhance these properties even further. These properties can be obtained with exceptionally **low VOC's** to meet increasingly stringent clean air legislation.

Waterborne polyurethanes are also generally **very compatible** with many other types of waterborne resins such as acrylics. They are used extensively as a modifier with other resins to enhance properties and lower VOC's while maintaining a good cost/performance balance.

At Bond Polymers International, we manufacture a wide range of waterborne polyurethane polymers.



Where are Waterborne Polyurethane Products being used?

The following are areas where waterborne polyurethanes have found a home and where the growth potential is still enormous:

COATINGS:

- Fabric Coatings and Binders
- Film Coatings
- Leather Coatings
- Metal Coatings
- Plastic Coatings
- Textile Coatings
- Vinyl/Upholstery Coatings
- Wood Coatings

GRAPHIC ARTS:

- Inks
- Overprint Varnishes
- Paper coatings
- Wallpaper Varnishes

ADHESIVES:

- Fabric Binders and Laminating
- Heat Seal adhesives
- Laminating adhesives
- Sole attaching adhesives
- Textile Adhesives

MISCELLANEOUS:

- Cosmetics
- Floor Finishes
- Glass fiber sizing
- Glove Manufacturing
- Rope and Thread Manufacturing
- Soccer Ball Coatings

This list is expanding all the time as technical people in various industries discover the merits and potential of these products.

Bondthane™ Waterborne Polyurethane Dispersions

Product	UD-104	UD-108	UD-125	UD-211	UD-215
Type	Aliphatic Polyester	Aliphatic Polyether	Aliphatic Polyester	Aliphatic Polyester	Aliphatic Polyester
% Co-Solvent	0%	0%	8.2%	8.2%	7.75%
Solids	38%	33%	33%	35%	35%
PH	8.5-10.0	8.5-10.5	8.0-10.0	8.5-10.5	7.5-9.5
Weight/gallon	8.7 lbs.	8.6 lbs.	8.7 lbs.	8.8 lbs.	8.8 lbs.
Sward Hardness	12	4	2	18	18
Tensile Strength	6500 psi	4000 psi	N/A	5000 psi	2500 psi
100% Modulus	1200 psi	250 psi	<100 psi	2000 psi	1550 psi
% Elongation	400%	525%	1000%	400%	350%
Viscosity	400 cps	300 cps	<1000 cps	50 cps	<200 cps
Brief Description	Relatively soft solvent free with excellent blend of properties. Heat sealable in adhesive applications	Very soft with excellent hydrolytic stability. Used for adhesive and textile applications	Very soft and tacky polyurethane for use in adhesive and primer applications	Excellent abrasion resistance. Used in leather or PVC topcoats and ink binders	Medium hardness flexibility. NMP free, SDS and user friendly. Good topcoat for a variety of flexible substrates or inks.

- This information represents typical physical properties for comparative purposes and is not intended as a product specification.

The information presented in this Technical Data Bulletin is intended to convey the best available data on this compound to facilitate its safe handling and to stimulate interest in its use. The uses referred to are listed for purposes of illustration only, and it is recommended that sufficient investigation to be carried on to establish the suitability of their application in any particular use. No guaranty or warranty is implied or intended as to the suitability of any chemical compound for any particular use. Nothing herein is to be construed as advising or authorizing practice of any invention covered by existing patents without license from the owners thereof.

Bondthane™ Waterborne Polyurethane Dispersions

Product	UD-220	UD-238	UD-250	UD-255	UD-263
Type	Aliphatic Polyester	Aliphatic Polyester/ Polyether	Aliphatic Polyester	Aliphatic Polyester	Aliphatic Polyester
% Co-Solvent	13.7%	4%	8.5%	8.7%	8.2%
Solids	35%	35%	35%	35%	35%
PH	7.5-9.5	7.5-9.5	7.5-9.5	7.5-9.5	7.5-9.5
Weight/gallon	8.8 lbs.	8.7 lbs.	8.8 lbs.	8.8 lbs.	8.8 lbs.
Sward Hardness	38	10	30	30	22
Tensile Strength	6500 psi	3100 psi	5500 psi	3150 psi	4800 psi
100% Modulus	5000 psi	945 psi	4000 psi	2900 psi	2900 psi
% Elongation	200%	560%	200%	135%	350%
Viscosity	300 cps	<500 cps	200 cps	<500 cps	700 cps
Brief Description	Primarily used for high quality wood and plastic coatings but superior properties on many rigid substrates	Soft hand, flexible polyurethane with slick feel. Used for leather and PVC topcoats.	Excellent alkali and detergent resistance. Hard polymer used for wood, plastic, or rigid substrates.	NMP free hard polymer for rigid substrates, uses alternate co-solvent to replace NMP	Excellent blend of flexibility, abrasion resistance and gloss. Used in leather or PVC topcoats.

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Bondthane™ Waterborne Polyurethane Dispersions

Product	UD-270	UD-275	UD-295	UD-301	UD-302
Type	Aliphatic Polyester	Aliphatic Polyester	Aliphatic Polyester	Aliphatic Polyester	Aliphatic Polyether
% Co-Solvent	7%	6.2%	8.1%	13.4%	0%
Solids	40%	35%	34%	40%	40%
PH	7.5-9.5	7.5-9.5	7.5-9.5	8.0-10.0	7.5-9.5
Weight/gallon	8.8 lbs.	8.54 lbs.	8.8 lbs.	8.8 lbs.	8.6 lbs.
Sward Hardness	10	8	34	6	4
Tensile Strength	4500 psi	3000 psi	4966 psi	5000 psi	2500 psi
100% Modulus	1000 psi	985 psi	4031 psi	300 psi	600 psi
% Elongation	500%	635%	160%	600%	500%
Viscosity	200 cps	<1000 cps	300 cps	150 cps	700 cps
Brief Description	Medium soft polyurethane for a variety of flexible substrate coatings	NMP free medium soft polymer for flexible substrates, uses alternate co-solvent to replace NMP	Hard and relatively brittle polyurethane. Can be used in thin topcoats that are diecut.	Soft, non-tacky, excellent adhesion to a variety of substrates For both primer and adhesive applications	Soft economical co-solvent free polyurethane for a variety of textile or flexible substrate applications

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Bondthane™ Waterborne Polyurethane Dispersions

Product	UD-303	UD-312	UD-315	UD-375	UD-410
Type	Aliphatic Polyether	Aliphatic Polyether	Aliphatic Polyester	Aliphatic Polyether	Aliphatic Polyether
% Co-Solvent	0%	0%	7.5%	0%	0%
Solids	35%	35%	40%	60%	35%
PH	7.5-9.5	7.5-9.5	7.0-9.0	7.0-9.0	5.0-7.0
Weight/gallon	8.7 lbs.	8.65 lbs.	8.79 lbs.	8.58 lbs.	8.7 lbs.
Sward Hardness	<4	8	8	<4	<4
Tensile Strength	1250 psi	2300 psi	3500 psi	N/A	N/A
100% Modulus	250 psi	900 psi	670 psi	100 psi	40 psi
% Elongation	730%	510%	650%	1000+%	600%
Viscosity	<500 cps	<300 cps	<500 cps	1000 cps	<100 cps
Brief Description	Very soft flexible co-solvent free PUD for textile and leather basecoat applications	Medium soft co-solvent free PUD for textile and flexible substrates	NMP free and lower VOC version of UD-301.	High solids co-solvent free PUD which exhibits a soft, rubbery feel film with low gloss	Very soft slightly tacky hydrophilic non-ionic for special applications requiring hydrophilic properties

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Bondthane™ Waterborne Polyurethane Dispersions

Product	UD-420	UD-610	UD-615	UD-620
Type	Aliphatic Polyether	Aliphatic Polyester	Aliphatic Polyester	Aliphatic Polyester
% Co-Solvent	0%	13%	6.8%	8.3%
Solids	40%	40%	40%	34%
PH	5.0-7.0	8.0-9.5	8.0-9.5	8.0-9.5
Weight/gallon	8.7 lbs.	8.9 lbs.	8.8 lbs.	8.8 lbs.
Sward Hardness	<4	<4	10	30
Tensile Strength	1200 psi	5225 psi	4030 psi	3800 psi
100% Modulus	500 psi	395 psi	920 psi	2500 psi
% Elongation	370%	995%	800%	230%
Viscosity	<500 cps	100 cps	150 cps	150 cps
Brief Description	Medium soft hydrophilic non-ionic PUD. Not as soft or tacky as UD-410	Relatively soft, self-crosslinking polymer for flexible substrates such as non-wovens and textiles	Self-crosslinking polyurethane of medium hardness. Excellent for flexible substrate coatings	Hard self-crosslinking polyurethane for use on rigid plastics and excellent adhesion to glass and ceramic tile

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Bondthane™ Application Selector Chart

PRODUCT	PROPERTIES				COATINGS											ADHESIVES		
	CO-SOLVENT FREE	NMP FREE	WEIGHT SOLIDS %	ELONGATION PERCENTAGE	SWARD HARDNESS	WOOD FLOORING	WOOD FURNITURE	RIGID VINYL COATINGS	METAL COATINGS	RIGID PLASTIC COATINGS	FLEXIBLE VINYL \ PVC	LEATHER FINISHES	TEXTILE COATINGS	INKS & OPV'S	BONDED LEATHER	HEAT SEAL ADHESIVES	LAMINATING ADHESIVES	SEALANTS
UD-104	●	●	38	400	12						●		●			●	●	●
UD-108	●	●	33	525	4								●			●	●	●
UD-125			33	1000	2												●	
UD-211			35	400	18					●	●	●		●	●			
UD-215		●	35	350	18					●	●			●	●			
UD-220			35	200	38	●	●	●	●	●								
UD-238			35	560	10						●	●			●			
UD-250			35	200	30	●	●	●	●	●				●				
UD-255		●	35	135	30	●	●	●	●	●								
UD-263			35	350	22			●	●	●	●	●		●	●			
UD-270			40	500	10						●	●	●	●	●			
UD-275		●	35	635	8						●	●	●	●	●			
UD-295			34	160	36			●		●				●				
UD-301			40	600	6						●	●	●		●	●	●	●
UD-302	●	●	40	500	4												●	
UD-303	●	●	35	730	<4										●		●	
UD-312	●	●	35	510	8										●			
UD-315		●	40	650	8						●	●	●		●	●	●	●
UD-375	●	●	60	1000	<4									●	●			
UD-410	●	●	35	600	<4										●			
UD-420	●	●	40	370	<4										●			
UD-610			40	995	<4												●	●
UD-615			40	800	10						●	●	●	●	●			
UD-620			34	230	30	●	●	●	●	●				●				