

ESSENTIAL R4188

WATERBORNE POLYURETHANE DISPERSION

Essential R4188 is a high-solids aliphatic polyurethane dispersion designed to impart superior abrasion resistance. R4188 delivers a combination of film hardness, flexibility and toughness which makes it an ideal PUD for topcoat applications.

R4188 is ideal for the formulation as a sealer or topcoat for masonry-type substrates to protect against the migration of soluble salts through these substrates. R4188 has shown to have excellent efflorescence resistance properties.

KEY BENEFITS

- Abrasion resistance
- Film toughness
- Excellent adhesion
- Exterior durability

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TYPICAL PROPERTIES*

Appearance	Translucent
pH.....	8.0
Solids, % by Weight	38.0
Solids, % by Volume	34.7
Viscosity, cP @ 25°C -	
Brookfield, LV2, 30rpm	75
Density Lbs./Gal.....	8.80
VOC Level (As Supplied)	
Lbs./Gal..	2.0
G/L.....	242.3
Partical Charge	Anionic
Partical Size.....	Colloidal
Acid Number	24

*These values should not be interpreted as specifications.



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WATERBORNE POLYURETHANE DISPERSION

Film Properties

All tests were performed on coatings kept at 77°F and 50% RH for seven days before testing.

Tensile Strength, PSI 2100
Elongation at Break, %..... 255

Tests Performed on Aluminum Panels (1-Mil Dry Films)

Konig Hardness (Seconds) 1 Day, 7 Day 67, 67
Grit Feed Taber Abrasion (Mg Loss, 500 Cycles, 1000g) 2

Starting Point Formulation

ESSENTIAL R4188 / ESSENTIAL R5809 – Clear Formulation

<u>Materials</u>	<u>Pounds</u>	<u>Gallons</u>
Essential R5809	501.00	57.45
Essential R4188	134.00	15.23
Water	86.90	10.43

Premix Next Three Items:

Water	29.00	3.48
Dowanol® DPM	7.50	0.94
Dowanol® DPnB	60.00	7.94
Jonwax® 26	19.00	2.32
Tego® Glide 440	3.90	0.46
Tego 800	10.50	1.22
Zonyl® FSJ	0.85	0.09
Acrysol® RM-825	3.80	0.44
	856.45	100.00

Formulation Attributes:

Solids, % by Weight	30.05
Solids, % by Volume	27.50
Viscosity, Seconds	30-35
Desity, Lbs./Gal.	8.5
Calculated VOC (Excluding Water)	
G/L	255
Lbs./Gal.	2.13

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WATERBORNE POLYURETHANE DISPERSION

Performance Information

All tests were performed on coatings kept at 77°F and 50% RH for seven days before testing.

Tests Performed on Aluminum Panels (1-Mil Dry Films)

Konig Hardness (Seconds)	179
Grit Feed Taber Abrasion (Mg Loss, 500 Cycles, 1000g)	32

Tests Performed on Maple Veneer After a Seven Day Dry (2 Coats, 1-Mil Dry Per Coat) 1 Hour Covered Spot Test.

Water	No Effect
Soda.....	No Effect
Beer.....	No Effect
Mustard	No Effect
Formula 409.....	Slight Effect

Supplier Information

Product

ESSENTIAL R4188
ESSENTIAL R5809
Dowanol® DPM
Dowanol DPnB
Jonwax® 26
Tego® Glide 440
Tego 800
Zonyl® FSJ
Acrysol RM-825

Description

Polyurethane Dispersion
Emulsion
Solvent
Solvent
Wax Emulsion
Mar Inhibitor
Defoamer
Flow Aid
Thickener

Supplier

Essential Polymers
Essential Polymers
Dow Chemical
Dow Chemical
Johnson Polymer
Tego
Tego
DuPont
Rohm & Haas