

# ESSENTIAL R4188

## WATERBORNE ALIPHATIC POLYURETHANE DISPERSION

### DESCRIPTION

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

### TYPICAL PROPERTIES\*

Appearance	Translucent
pH	7.6
Solids, % by Weight	38.0
Solids, % by Volume	34.7
Viscosity, cP @ 25°C	50
Density, Lbs./Gal.	8.80
VOC Level (As Supplied)	
Lbs./Gal.	1.68
G/L	201
Particle Charge	Anionic
Particle Size	Colloidal
Acid Number	24

*\*These values should not be interpreted as specifications.*

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## R4188 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 FORMULATIONS

### 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
<b>Premix Next Three Items:</b>		
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	<u>3.80</u>	<u>0.44</u>
	<b>856.45</b>	<b>100.00</b>
<b>Formulation Attributes:</b>		
Solids, % by Weight	30.09	
Solids, % by Volume	27.38	
Viscosity, Seconds Z#2	30	
pH	8.5	
Density, Lbs./Gal.	8.5	
Calculated VOC (Excluding Water)		
G/L	255	
Lbs./Gal.	2.13	

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## 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

<u>Product</u>	<u>Description</u>	<u>Supplier</u>
ESSENTIAL R4188	Polyurethane Dispersion	Essential Industries
ESSENTIAL 5809	Emulsion	Essential Industries
Dowanol® DPM	Solvent	Dow Chemical
Dowanol DPnB	Solvent	Dow Chemical
Jonwax® 26	Wax Emulsion	Johnson Polymer
Tego® Glide 440	Mar Inhibitor	Tego
Tego 800	Defoamer	Tego
Zonyl® FSJ	Flow Aid	DuPont
Acrysol RM-825	Thickener	Rohm & Haas