

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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* DISCLAIMER: The information and recommendations contained herein are based on data believed to be correct. The information is offered solely for the customer's consideration, investigation and verification because of numerous factors beyond our control affecting the results of the use of products, Essential Industries, INC. makes no warranty of any kind, expressed or implied, including those of merchantability and fitness for a particular purpose, other than that the product conforms to its applicable current standard specification. The manufacturer's only obligation shall be to replace such quantity of the product proven to be defective.

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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
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	<u>3.80</u>	<u>0.44</u>
	856.45	100.00
Formulation Attributes:		
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