

# ESSENTIAL R4196

## WATERBORNE POLYURETHANE DISPERSION

Essential R4196 is a highly crystalline waterborne aliphatic polyurethane dispersion which exhibits excellent alcohol resistance. Its unique balance of chemical resistance, toughness, adhesion and hardness make it ideal for coatings for the wood flooring and furniture markets. Additional applications may include high performance plastic coatings.

R4196 may be blended with a variety of acrylic emulsions, if desired, or cross-linked to provide enhanced properties.

### KEY BENEFITS

- Exceptional alcohol resistance
- Hardness
- Increase block resistant temperature
- Adhesion

### TYPICAL PROPERTIES\*

Appearance .....	Translucent
pH .....	8.0
Solids, % by Weight .....	33.0
Solids, % by Volume .....	30.3
Viscosity, cP @ 25°C -	
Brookfield, LV2, 60rpm .....	< 205
Density Lbs./Gal. ....	8.7
VOC Level (As Supplied)	
Lbs./Gal. ....	2.05
G/L .....	247
Particle Charge .....	Anionic
Particle Size .....	Colloidal
Acid Number .....	20

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

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.



The Spark of Innovation

Visit us on the web at  
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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 .....	2600
Elongation at Break, % .....	20
Tests Performed on Aluminum Panels (1-Mil Dry)	
Konig Hardness (Seconds) 1 Day, 7Day .....	105, 134
Taber Abrader (Mg Loss, 500 Cycles, 1000g) .....	4

### Starting Point Formulation

#### ESSENTIAL R4196 / JONCRYL 1980 – Clear Wood Coating

<u>MATERIALS</u>	<u>POUNDS</u>	<u>GALLONS</u>
Essential R4196	152.00	17.35
Joncryl 1980	488.00	56.93
Dynol 604	4.00	0.50

#### Premix Next Three Items:

Water	128.80	15.33
Dowanol® DPM	18.00	2.30
Dowanol® DPnB	18.00	2.40
Jonwax® 26	28.00	3.40
Tego® Glide 440	1.50	0.18
Tego® Foamex 805	10.00	1.20
Zonyl® FSJ	0.80	0.09
Acrysol® RM-825	<u>3.00</u>	<u>0.32</u>
	<b>852.10</b>	<b>100.00</b>

#### Formulation Attributes:

Solids, % by Weight	30.56
Solids, % by Volume	28.78
Viscosity, Seconds Z#2	30
pH	8.5
Density, Lbs./Gal.	8.51
Calculated VOC (Excluding Water)	
G/L	194
Lbs./Gal.	1.62



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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) .....	126
CS-10 Taber Abrasion (500 Cycles) .....	36 mg

#### Tests Performed on Maple Veneer (3 Coatings, 1-Mil Dry Per Coat)

##### 1 Hour Covered Spot Test.

Water .....	No Effect
Soda .....	No Effect
Beer .....	No Effect
50% Ethanol .....	No Effect
Mustard.....	No Effect

### Supplier Information

<u>Product</u>	<u>Description</u>	<u>Supplier</u>
Essential R4196	PUD	Essential Polymers
JONCRYL® 1980	Emulsion	BASF
Dynol® 604	Surfactant	Air Products
Dowanol® DPM	Solvent	Dow Chemical
Dowanol® DPnB	Solvent	Dow Chemical
Jonwax® 26	Wax Emulsion	BASF
Tego® Glide 440	Mar Inhibitor	Evonik Industries
Tego® Foamex 805	Defoamer	Evonik Industries
Tafigel® PUR 40	Thickener	Ultra Additives
Zonyl® FSJ	Flow Aid	DuPont
Aerysol RM-825	Thickener	Dow Chemical



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