

ESSENTIAL R4100

WATERBORNE POLYURETHANE DISPERSION

Essential R4100 is an aliphatic polyurethane dispersion with outstanding hardness. It is designed for topcoat applications where flexibility and a high degree of hardness are required. Coatings formulated with R4100 exhibit excellent adhesion to concrete, wood, metal and a variety of plastics including ABS, polycarbonate, flexible and rigid PVC and polyurethane.

R4100 is compatible with acrylic emulsions and is useful in upgrading the adhesion, toughness and flexibility of the coating. To further upgrade the properties, the coating can be cross-linked with a polyfunctional aziridine or trimer.

It exhibits excellent exterior durability and can be used to produce both clear and pigmented coatings. R4100 has excellent mechanical stability and wetting properties, making it a useful grinding vehicle.

KEY BENEFITS

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

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.

TYPICAL PROPERTIES*

Appearance	Translucent
pH	8.0
Solids, % by Weight	33.0
Solids, % by Volume	29.0
Viscosity, cP @ 25°C -	
Brookfield, LV2, 60rpm	75
Density Lbs./Gal.	8.65
VOC Level (As Supplied)	
Lbs./Gal.	2.8
G/L	340.2
Particle Charge	Anionic
Particle Size	Colloidal
Acid Number	25

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



**Essential™
Polymers**

The Spark of Innovation

Visit us on the web at
www.essentialpolymers.com

28391 Essential Road • P.O. Box 12
Merton, WI 53056-0012
(262) 538-0091 • FAX: (262) 538-1354

ESSENTIAL R4100

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 4000
Elongation at Break, % 90

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

Konig Hardness (Seconds) 1 Day, 7 Day 90, 130

Grit Feed Taber Abrasion (Mg Loss, 500 Cycles, 1000g) 12

Starting Point Formulation

ESSENTIAL R4100 – Clear Formulation

<u>MATERIALS</u>	<u>POUNDS</u>	<u>GALLONS</u>
ESSENTIAL R4100	752.20	85.87
Dynol® 604	4.30	0.52

Premix Next Two Items:

Water	60.30	7.24
Dowanol® DPnB	12.40	1.64

Then Add:

Tego® Foamex 800	6.10	0.71
Tego® Glide 440	1.80	0.21
Jonwax® 26	29.30	3.58
Tafigel® PUR 40	<u>2.00</u>	<u>0.23</u>
	868.40	100.00

Formulation Attributes:

Solids, % by Weight	30.05
Solids, % by Volume	27.50
Viscosity, Seconds	30-35
Calculated VOC (Excluding Water)	
G/L	336
Lbs./Gal.	2.81



The Spark of Innovation

28391 Essential Road
P.O. Box 12
Merton, WI 53056-0012
(262) 538-0091 • FAX: (262) 538-1354

www.essentialpolymers.com

ESSENTIAL R4100

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 Maple Veneer (3 Coatings, 1-Mil Dry Per Coat) 1 Hour Covered Spot Test.

Water	No Effect
Soda	No Effect
Beer	No Effect
Formula	Slight Film Damage

Supplier Information

Product

Essential R4100
Dynol® 604
Dowanol® DPnB
Tego® Foamex 800
Tego® Glide 440
Jonwax® 26
Tafigel® PUR 40

Description

Polyurethane Dispersion
Wetting Agent
Solvent
Defoamer
Slip Agent
Wax Emulsion
Thickener

Supplier

Essential Polymers
Air Products
Dow Chemical
Evonik Industries
Evonik Industries
BASF
Ultra Additives



The Spark of Innovation

28391 Essential Road
P.O. Box 12
Merton, WI 53056-0012
(262) 538-0091 • FAX: (262) 538-1354

www.essentialpolymers.com