

# ESSENTIAL R4370

## ALIPHATIC POLYURETHANE/ ACRYLIC HYBRID

Essential R4370, a urethane/acrylic hybrid, is solvent-free; allowing for coatings to be formulated to < 100 g/l while still offering a balance of hardness and flexibility.

For improved resistance, Essential R4370 can be cross-linked with either a polyaziridine or a trimer. These 2K systems exhibit excellent gloss and exceptional chemical and mar resistance.

Essential R4370 has shown excellent adhesion to various substrates; in particular, wood, concrete and cold-rolled steel.

### KEY BENEFITS

- Low VOC
- Solvent-free
- n-MP-free

**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 .....	7.7
Solids, % by Weight .....	35
Viscosity, cP @ 25°C -	
Brookfield, LV2, 60rpm .....	100
Density Lbs./Gal. ....	8.72
VOC Level (As Supplied)	
Lbs./Gal. ....	0.4
G/L .....	51.4
Particle Charge .....	Anionic
Acid Number .....	25

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



The Spark of Innovation

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[www.essentialpolymers.com](http://www.essentialpolymers.com)

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## Film Properties

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

Tensile Strength, PSI ..... 3900

Elongation at Break, % ..... 50

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

Konig Hardness (Seconds) (1 day, 7 day) ..... 84, 102

Grit Feed Taber Abrasion (Mg Loss, 500 Cycles, 1000g) ..... 25

## Starting Point Formulation

### ESSENTIAL R4370 - Clear 2-K Formulation

<u>MATERIALS</u>	<u>POUNDS</u>
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#### Part A

Essential R4370	675.50
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#### Premix Next Items:

Water	135.30
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Dowanol® DPnB	20.20
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BYK 028	0.20
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BYK 346	0.70
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Zonyl® FSP	0.70
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#### Part B

Rhodacoat® EZ	35.40
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Progyld® DMM	4.00
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**872.00**

#### Formulation Attributes:

Solids, % by Weight	31.0
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Solids, % by Volume	27.5
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Viscosity	< 50 cps.
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Calculated VOC (Excluding Water)

G/L	132
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Lbs./Gal.	1.10
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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 Maple Veneer (3 Coats, 1-Mil Dry Per Coat) 1 Hour Covered Spot Test.

Water .....No Effect	70% IPA .....No Effect
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Formula 409 .....No Effect	5% Bleach .....No Effect
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50% Ethanol .....No Effect	10% HCl .....No Effect
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Suntan Lotion SPF 45 .....No Effect	100% DEET .....Slight softening, recovers
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## Starting Point Formulation

### ESSENTIAL R4370 - Clear Formulation

<u>MATERIALS</u>	<u>POUNDS</u>
Essestial R4370	679.95

#### Premix Next Two Items:

Water	156.30
Dowanol® DB	13.59

#### Then Add:

BYK® 028	0.22
BYK® 346	0.84
	<b>850.90</b>

#### Formulation Attributes:

Solids, % by Weight	28.0
Solids, % by Volume	26.2
Viscosity, #4 Ford cup, Seconds	15.20
Calculated VOC (Excluding Water)	
G/L	100
Lbs./Gal.	0.8

## 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 Coats, 1-Mil Dry Per Coat)  
1 Hour Covered Spot Test.

Water .....	No Effect
Soda .....	No Effect
Beer .....	No Effect
Formula 409 .....	Slight Film Damage

## Supplier Information

<u>Product</u>	<u>Description</u>	<u>Supplier</u>
Essential R4370	Polyurethane Dispersion	Essential Polymers
Dowanol® DB, DnPB	Solvent	Dow Chemical
BYK® 028	Defoamer	BYK Chemie
BYK® 346	Flow Agent	BYK Chemie
Progyld® DMM	Solvent	Dow Chemical
Zonyl® FSP	Leveling Agent	Du Pont
Rhodacoat® EZ	Trimer	Rhodia



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