

ESSENTIAL R4512

HYDROXYL-FUNCTIONAL POLYURETHANE DISPERSION

Essential R4512 is an aliphatic Hydroxyl-functional polyurethane dispersion that will produce virtually 0 g/L VOC coatings when properly cross-linked with a water-dispersible isocyanate such as, Easaqua L 600 at ratios of 4:1 or 3:1. It has outstanding abrasion resistance and chemical resistance properties when the films are completely cured. It can be used as a topcoat for concrete, wood, metal, or plastics.

KEY BENEFITS

- 0 VOC
- Outstanding Abrasion Resistance
- Excellent Chemical Resistance
- Excellent Adhesion
- Solvent 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	8.0
Solids, % by weight	30.0
Viscosity, cP @25°C	
Brookfield, LV2, 60 rpm	< 200
Density Lb./Gal.	8.80
VOC Level (as supplied)	
G/L	< 50
Particle Charge	Anionic
Particle Size.....	25 nm
Acid No.	26 mg KOH per gm of solid
Hydroxyl Content**...71 mg per gm of solid	

*These values should not be interpreted as specifications.

**Without -OH groups of the Triethanolamine.



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Visit us on the web at
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28391 Essential Road • P.O. Box 12
Merton, WI 53056-0012
(262) 538-0091 • FAX: (262) 538-1354

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Hydroxyl-Functional Polyurethane Dispersion

Starting Point Formulation - ALX283 (4:1)

<u>INGREDIENTS</u>	<u>POUNDS</u>
Part A	
Essential R4512	670.70
<i>Additive Package</i>	
Water	114.26
Surfynol 104BC	6.70
Airex 902W	1.30
Foamex 825	2.00
Dynol 960	5.00
Part B	
Easaqua L 600	200.0
TOTAL:	1000.0

Formulation Attributes

Part A	
Solids, % by Weight	27.0
pH	8.0
Viscosity	< 50 cps
VOC	17.7 g/L (if we switch out -104BC, will be 0.0)
Density, Lbs./Gal	8.68

Part A plus Part B	
Solids, % by Weight	40.8
Viscosity	320 cps

Film Properties

Applied using a 50-wire wound bar to cold rolled steel panels.
1 mil dry film thickness.

Konig Hardness	
1 day	38 secs
2 days	76 secs
3 days	110 secs
7 days	152 secs

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Film Properties (continued)

Abrasion Resistance

7 day cure, CS-17 wheels, 1000 mg, 1000 cycles 23 mg lost

Crosshatch Pass

Impact Resistance

160 lbs. Direct Pass

160 lbs. Indirect..... Pass

Mandrel T-Bend Passes 0 t-bend

Chemical Resistance, 24-Hour Spot Test

2 coats applied to concrete tile using a brush at 300 sq feet per gallon.
Allowed to cure for 7 days.

Water Pass

Motor Oil Pass

Transmission Fluid..... Pass

Anti-Freeze..... Pass

Skydrol Pass

Betadine..... Pass

Bleach Pass

Brake Fluid Pass