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VANDERBILT Report

VANSIL® W 50 and VANCOTE® W 50 ES

In a 2K Waterborne Epoxy Fast Dry Shop Primer
Formula 082101

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Introduction

VANSIL W 50 and **VANCOTE W 50 ES** were compared to an untreated 1250 mesh wollastonite and an epoxy-silane treated 1250 mesh wollastonite as inert fillers in a 2K waterborne epoxy fast dry shop primer. It was found that **VANSIL W 50** and **VANCOTE W 50 ES** gave better corrosion resistance than did the untreated 1250 mesh wollastonite or the epoxy-silane treated 1250 mesh wollastonite.

Discussion and Results

The attached formulas (082101) were run comparing **VANSIL W 50** to a competitive untreated 1250 mesh wollastonite and **VANCOTE W 50 ES** to a competitive epoxy-silane treated 1250 mesh wollastonite. Molywhite® 212 and red iron oxide were the corrosion inhibitive pigments. Salt-spray tests were run for 1008 hours. All of the coatings gave good corrosion resistance and the blistering was minimal. The coatings were removed from the bottom half of the panels. This revealed more corrosion than was evident at first.

After 1008 hours, the following observations were made with regard to corrosion:

	Unstripped	Stripped
VANSIL W 50	3-4 mm	3-4 mm
Competitive untreated 1250 mesh wollastonite	2-3 mm	4-5 mm
VANCOTE W 50 ES	3-4 mm	2-3 mm
Competitive epoxy-silane treated 1250 mesh wollastonite	4-5 mm	2-3 mm

Experimental

The coatings were prepared according to the formulas given (082101). The two parts of the coatings were combined, allowed to stand 1 hour, then applied to Type S-412 steel panels. Dry film thickness was approximately 2 mil. After air-drying for 7 days, the panels were scribed and exposed to salt-spray according to ASTM B 117 for 1008 hours. The coatings were removed using of a commercially available solvent-based paint stripper.

Formula 082101
Red Iron Oxide Fast Dry Shop Primer
VANSIL® W50 Wollastonite Silicate, **NYTAL® 400** Industrial Talc

PART A

Dispersion	Pounds	Gallons	Kilograms	Liters
Epi-Rez® 5522-WY-55[2] (waterborne epoxy resin)	**334.0**	**37.1**	**40.1**	**37.11**
Diacetone Alcohol	**7.2**	**0.9**	**0.9**	**0.92**
Rhodoline® 640[3] (defoamer)	**3.6**	**0.4**	**0.4**	**0.43**
Water	**60.8**	**7.3**	**7.3**	**7.29**
MAPICO® 214 M[4] (red iron oxide)	**72.0**	**1.7**	**8.6**	**1.68**
Barytes	**72.0**	**2.1**	**8.6**	**2.11**
VANSIL W50 [1]	**107.8**	**4.5**	**12.9**	**4.46**
Molywhite® 212[5] (corrosion inhibitor)	**101.4**	**4.1**	**12.2**	**4.06**
NYTAL 400[1]	**72.0**	**3.0**	**8.6**	**3.03**
325 Mesh Wet Ground Mica[6]	**7.6**	**0.3**	**0.9**	**0.32**

Disperse at high speed for 15 minutes
Reduce speed for let down.

LET DOWN

Epi-Rez 5522-WY-55[2] (waterborne epoxy resin)	**148.9**	**16.5**	**17.9**	**16.54**
Water	**14.5**	**1.7**	**1.7**	**1.74**

Mix at slow speed for 5 minutes

Total PART A	**1001.8**	**79.6**	**120.1**	**79.69**

PART B

Epi-Cure® 8290-Y-60[2] (curing agent)	**61.2**	**6.9**	**7.3**	**6.93**
Water	**112.6**	**13.5**	**13.4**	**13.38**

Mix at slow speed for 5 minutes

Total PART B	**173.8**	**20.4**	**20.7**	**20.31**
Totals	**1175.6**	**100.0**	**140.8**	**100.00**

Add PART B to PART A. *Mix well, let stand 1 hour prior to use.*

PAINT PROPERTIES	Pounds	Kilograms
Density	**11.76 lbs/gal**	**1.408 g/ml**
Solids by weight	**62.9%**	
Solids by volume	**47.0%**	
PVC	**33.3**	
Pigment to Binder Ratio	**1.42:1**	
Calculated VOC	**1.11 lbs/gal**	**133 g/L**

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Raw Material Suppliers:

[1] VANSIL W and NYTAL are registered trademarks of R.T. Vanderbilt Company, Inc.
[2] Epi-Rez and Epi-Cure are registered trademarks of Resolution Performance Products.
[3] Rhodoline is a registered trademark of Rhodia.
[4] MAPICO is a registered trademark of Rockwood Pigments NA, Inc.
[5] Molywhite is a registered trademark of the Sherwin-Williams Company.

Formula 082101 C
Fast Dry Shop Primer
VANSIL W 50
1008 hours

Formula 082101 A
Fast Dry Shop Primer
Competitive untreated 1250 mesh wollastonite
1008 hours

Formula 082101 D
Fast Dry Shop Primer
VANCOTE W 50 ES

1008 hours

Formula 082101 B
Fast Dry Shop Primer
Competitive epoxy-silane treated 1250 mesh wollastonite
1008 hours

For additional information regarding our high quality minerals and chemicals, please visit our website:

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