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# VANDERBILT

## *Minerals Laboratory Report*

**PAINT LAB REPORT No. 3764-3**

**TITLE: PYRAX<sup>®</sup> B Pyrophyllite in Texture Paint**

**INTRODUCTION: PYRAX B** was compared to mica from North Carolina in a series of interior latex texture paints. The **PYRAX B** paint was noticeably brighter and had better peak retention than the mica paint. A 50/50 blend of **PYRAX B** and mica yielded the best mud crack resistance.

**DISCUSSION and RESULTS:** A series of texture paints was prepared containing **PYRAX B**, mica and blends of the two. The mud crack resistance, peak retention, dry brightness and color were compared. The PVC and loading of platy mineral in these paints are quite high. Because the density of the two platy mineral fillers was different (**PYRAX B** density is 23.4 lbs/gal and mica density is 22.8 lbs/gal), the substitutions were made on a volume basis. The blends of **PYRAX B** and mica were as follows:

	<u>PYRAX<sup>®</sup> B Pyrophyllite</u>	<u>mica</u>
<b>061406 A</b>	23.2 gal	0.0 gal
<b>061406 B</b>	17.4 gal	5.8 gal
<b>061406 C</b>	11.6 gal	11.6 gal
<b>061406 D</b>	5.8 gal	17.4 gal
<b>061406 E</b>	0.0 gal	23.2 gal

The formulas as run are given in the attached table.

Dry brightness, L a b color and Brookfield<sup>®</sup> viscosity were measured. The results are given in the attached table. Paint 061406 A (**PYRAX B** alone) was noticeably brighter than the paints containing mica. The viscosity decreased as the quantity of **PYRAX B** decreased and the quantity of mica increased. This resulted in the paints containing higher levels of mica being rather soupy. They spread well but did not form good peaks.

Peak retention and mud crack resistance were tested. All of the paints had good flow under the trowel, but paints 061406 D and E were quite soupy. Paint 061406 A showed the best peak retention. As the amount of **PYRAX B** decreased and the amount of mica increased, the peak retention got noticeably poorer, to the extent that in paint 061406 E, there was no peak retention at all. The best overall mud crack resistance was in paint 061406 C which contained a 50/50 blend of the two platy mineral fillers. The following observations were made regarding the mud crack resistance and peak retention.

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- Formula 061406 A** Good flow under the trowel, formed very good, sharp peaks.  
A few medium sized cracks in the smoothed area.  
Dried peaks were very sharp.  
Several small cracks in peaked area.  
Best dry color.
- Formula 061406 B** Very nice flow under the trowel, formed good, sharp peaks.  
1 medium sized crack in smoothed area.  
Dried peaks were not as sharp as 061406 A.  
A few small cracks in peaked area.
- Formula 061406 C** Very nice flow under the trowel did not form good, sharp peaks.  
No cracks in smoothed area.  
Dried peaks were not sharp.  
A few small cracks in peaked area.
- Formula 061406 D** Soupy, nice flow under trowel did not form good, sharp peaks.  
1 small crack in peaked area.  
Dried peaks very poor.  
A few small cracks in peaked area.
- Formula 061406 E** Very soupy, nice flow under trowel did not form good, sharp peaks.  
1 large crack in smoothed area.  
Dried peaks collapsed.  
A few small cracks in peaked area.  
Noticeably darker color than 061406 A.

**EXPERIMENTAL:** The interior latex texture paints were prepared according to the formulas given in Table 1. The paints were allowed to stand over night at 75° F, 50% RH prior to further testing. Brookfield® viscosity was measured at 10, 20 50 and 100 rpm. Drawdowns were made at 12 mil clearance onto plain white cards. After air drying at 75° F, 50% RH, the G. E. Brightness and L a b color were measured.

The mud crack resistance and peak retention were measured as follows: The texture paints were applied in a thick layer to primed wallboard. One section was smoothed with a trowel. The other section was peaked with the trowel. After air drying at ambient conditions, the paints were examined for mud cracking and peak retention.

**CONCLUSION:** This study showed that **PYRAX® B** Pyrophyllite is better than mica for peak retention of interior latex texture paint. The dry film color of the **PYRAX B** paint was significantly brighter than the mica paint. A 50/50 blend of **PYRAX B** and mica gave the best mud crack resistance.

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## Minerals Formula

### Formula 061406

#### Texture Paint

**DARVAN® 811**<sup>1</sup> Dispersing Agent, **VANZAN®**<sup>1</sup> Xanthan Gum,  
**VANSIL® WG**<sup>1</sup>, Wollastonite

	<u>Pounds</u>	<u>Gallons</u>
<b>DISPERSION</b>		
Water	445.0	53.4
<b>DARVAN 811</b> <sup>1</sup>	10.0	0.9
Triton® CF-10 <sup>2</sup>	2.5	0.3
Drewplus® L 475 <sup>3</sup>	4.0	0.5
Mineral Filler	535.0	23.2
<i>Preblend the next two items and add:</i>		
Ti-Pure® R 931 <sup>4</sup>	61.5	2.1
<b>VANZAN</b> <sup>1</sup>	10.0	1.5
<i>Mix at medium speed for 10 minutes. Reduce speed for let down.</i>		
<b>LET DOWN</b>		
<b>VANSIL WG</b> <sup>1</sup>	95.0	3.9
Airflex® 400 Latex <sup>5</sup>	125.0	14.1
<i>Mix at slow speed for 5 minutes.</i>		
<b>PAINT PROPERTIES</b>		
Weight per gallon		12.9
% Solids	by weight	60.7
	by volume	39.1
PVC		74.7
Pigment to binder ratio		7.71:1
Calculated VOC		0 lbs/gal 0 g/L

	<u>061406 A</u>	<u>061406 B</u>	<u>061406 C</u>	<u>061496 D</u>	<u>061406 E</u>
<b>Brookfield Viscosity</b>					
10 rpm	105 K	94K	84 K	79 K	70 K
20 rpm	62 K	53 K	49 K	45 K	40 K
50 rpm	32 K	27 K	24 K	22 K	20 K
100 rpm	20 K	16 K	14 K	13 K	12 K
<b>Dry Film Brightness and color</b>					
GE. Brightness	82.4	80.0	77.8	75.3	73.8
L	92.3	91.5	90.7	89.7	89.1
a	-0.1	0.0	0.0	0.1	0.2
b	2.5	3.2	3.9	4.4	4.9
ΔE		1.07	2.13	3.23	4.01

#### RAW MATERIAL SUPPLIERS

- <sup>1</sup>Vanderbilt Minerals, LLC, Norwalk, CT  
<sup>2</sup>Dow Chemical Company, Midland, MI  
<sup>3</sup>Ashland Chemical Company, Covington, KY  
<sup>4</sup>E.I. du Pont de Nemours & Company, Wilmington, DE  
<sup>5</sup>Air Products and Chemicals, Inc., Allentown, PA

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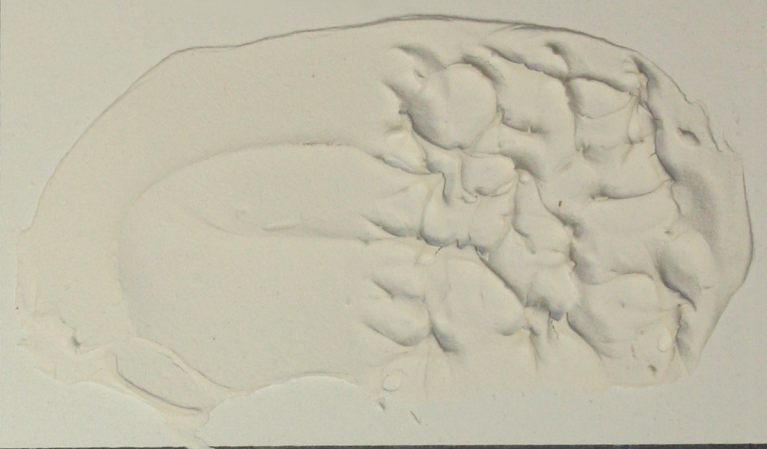
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**Formula 061406A**



**Formula 061406B**



**Formula 061406C**



**Formula 061406D**



**Formula 061406E**

