

CROSS REFERENCES:

Speed Easy
Emulsion Paints
Protein Free - Emulsion Paints

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Mr 18'53

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Philadelphia Laboratory
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ETHYLENE/CARBON MONOXIDE POLYAMINES AS BINDERS
FOR WATER PAINT

Samples of flat wall emulsion type paints using the subject material as a binder have been submitted to the laboratory for evaluation by the Experimental Station.

SUMMARY:

The three samples as submitted are of no immediate interest due primarily to their extremely low solids content at brushing viscosity (20-25% by weight vs. 40-45% by weight for current Speed Easy). This low solids content adversely affects hiding, spreading and brushing. Wet erosion resistance is satisfactory for 2 of the 3 samples submitted. The set up time for all samples is satisfactory, but after an overnight dry the films are somewhat softer than Speed Easy. One sample is odor free. The other 2 have an objectionable odor somewhat similar to sour fruit.

DESCRIPTION:

Brushing: The samples are packaged as soft paste. When reduced 50 - 80% by volume with water the material is quite thixotropic resulting in sloppy brushing. The sample coded 181-A is gummy under the brush and wets poorly. The samples coded as 175-B and 175-C wet and spread easily, but have practically no hiding. All samples are sloppy. (Note: The covering letter which accompanied the samples does not indicate any composition differences between the 181-A and the 175-B sample. Both contain 14.3% polyamine. The 175-C sample contains 10.7% polyamine. Other composition variables are listed in the table below). By comparison with the polyamine samples Speed Easy wets and spreads good, is not sloppy and has uniform, solid hiding.

Odor: Previous samples of similar paints had a marked acetic acid odor. In the present samples no acetic acid odor is present, but the 175-B and 175-C samples have a marked sourfruit odor. Sample 181-A is essentially odor free. Speed Easy is not entirely odor free, but it is considered less objectionable than the 175-B and C samples.

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Hiding: As mentioned above, all of the polyamine paints have poor hiding, probably due to their very low solids content at brushing viscosity.

Color: After one month's exposure in the light, no noticeable discoloration has developed, although the blue tint of the paint may be masking any discoloration present. This exposure will be continued as Exposure Series #9912. Previous samples showed a tendency to discolor in the light.

Wet erosion resistance: The reduced material was applied over sand blasted glass panels. After five days air dry the paints were tested for wet erosion resistance in the Gardner M-105 washability machine. The number of strokes required to produce a film failure for paints included in the evaluation are listed below:

<u>Sample</u>	<u>Strokes before failure</u>
7077-181-A	1600 +
7077-175-B	1315
7077-175-C	8
Wesco Speed Easy	10
Standard Speed Easy	120
Improved Speed Easy	800

The samples containing 14.3% polyamine have satisfactory water resistance. The sample containing 10.7% polyamine is about equal to current Wesco production of Speed Easy in water resistance. We consider this degree of performance to be unsatisfactory: (100 strokes after 5 days is considered standard performance).

Dry: The initial set-up time of the polyamine paints is satisfactory, but overnight dry is unsatisfactory because the films are somewhat softer than the Speed Easy film.

Stability: The polyamine paints appear to be relatively coarse dispersions, but are stable under the brush. Five cycles of the freeze-thaw test do not adversely affect stability. This performance is considered satisfactory for emulsion paint.

COMPOSITION:

For reference purposes the indicated composition of the samples is listed below:

<u>Sample</u>	<u>Solids</u>	<u>Pigment</u>	<u>Polyamine*</u>	<u>Colloid*</u>
7077-181-A	35%	80% T102 20% Asbestine	14.3%	1.4% MC (4000 cps)
7077-175-B	"	" "	14.3%	" " "
7077-175-C	"	" "	10.7%	" " "

* Based on pigment.

CONCLUSIONS:

The present samples show a general improvement over samples submitted in December 1947. Further improvements should result from higher solids content and reduce thixotropic characteristics. Both of these improvements would probably result if a lower viscosity grade of methocellulose were used.

The details of this evaluation are recorded in Notebook 3478, pages 14, 15, 32, and 33.

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