

SODIUM HYDROXIDE CATALYZED KEM-GLO ALKIDS

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DISCUSSION: Two experimental Kem-Glo Alkyls were received from the Chicago Resin Laboratory for evaluation. These were designated as (39 99 87) and (39 99 88) representing (39 67 50) and (39 55 52) respectively in which the lead catalyst has been replaced with sodium hydroxide. This is in keeping with new government regulation that there shall be no added lead to paints sold for use in the home environment. The (39 99 87) and (39 99 88) were factory production batches at Chicago.

PROCEDURE: The experimental alkyls were tested in Kem-Glo, Kem Velvet and Kem Hi-Gloss formulations where the bulk of these alkyls will be used. Laboratory batches were made on the Cowles MSD and tested for the specified properties. Samples were placed in the laboratory hot box at 140° for a period of at least one week. After removal, the samples were tested for stability in drying, flow, gloss and viscosity. The samples were also examined for any tendency to seed.

Panels were prepared from the room temperature samples for water immersion and humidity tests. In these tests, standard materials made with lead catalyzed alkyls were used for comparison. Steel panels, primed and unprimed as well as wooden panels were prepared.

RESULTS: Enamel properties such as viscosity, brushing, drying, gloss and flow were all standard. Hot box samples all retained satisfactory drying, good flow control and were free of any seeding tendencies.* Viscosities showed some drop but not serious. There is a tendency for thixotropic type material such as Kem-Glo and Kem Velvet to show a drop in viscosity in prolonged hot box tests. Test results are tabulated on the attached sheet. * In the case of the Kem Hi-Gloss samples where a direct comparison was made with standard materials, the sodium hydroxide vehicles show a definite advantage in drying stability after 7 days in the hot box.

CONCLUSION: From the results of our tests, Kem-Glo alkyls (39 55 52) and (39 67 50) made with sodium hydroxide replacing litharge as catalyst performed satisfactory in the products in which they are used. These are Kem-Glo, Kem Velvet and Kem Hi-Gloss. Mr. C. E. Carlson of the Resin Laboratory in Chicago states that there should be no problems in adopting the sodium hydroxide catalyzed vehicles in production. Actually, sodium hydroxide has been used for some time in a number of regular resin formulations.

On the basis of these results and declarations we recommend the immediate revision of (39 55 52) and (39 67 50) to show use of the sodium hydroxide catalyst. With the last of the Kem Hi-Gloss and Dashler

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Enamels being revised to eliminate added lead such as pigments and driers, there only remains the .02 to .03% lead in the two Ham-Tlo alkyds. When the lead has been removed from these alkyds we will have a zero lead content on the basis of "added lead" for a very large segment of our solvent type Trade Products items.

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	13 V 91 Non-Velvet White (100%)	Std. 13 V 91	Not Max 14 days
Viscosity, 20°C	27	27	27
Brushing	OK	Good	OK
Drying (lock-free)	2 hrs.	1 1/2 - 2 hrs.	1 1/2 hrs.
Flow Rate	1/2 - 1 1/2	0-1/2 to 1 - 2	1/2 - 1
Class 100	OK	OK	OK
Fineness	6	6 1/2	6

	14 V 92 Non-Velvet White (100%)	Std. 14 V 92	Not Max 14 days
Viscosity, 20°C	27	27 - 32	19
Brushing	OK	Good	OK
Drying (lock-free)	1 1/2 hrs.	1 1/2 - 2 hrs.	2 hrs.
Flow Rate	1/2 - 3	0-1 to 1-3	1/2-1
Class 100	6 1/2	6 - 6	OK
Fineness	6	5 1/2	6

	15 V 93 Non-Velvet White (100%)	Std. 15 V 93	Not Max 14 days
Viscosity	6 1/2-6	5 - 6 1/2	6 1/2-6
Viscosity 20°C	27	OK	27
Flow Rate	2 - 13	2 - 13	2-13.5
Drying (lock-free)	2 hrs. 15 min.	2 hrs. 15 min.	2 hrs.
Class	OK	OK	OK

	16 V 94 Non-Velvet White (100%)	Std. 16 V 94	Not Max 14 days
Fineness	6 1/2	6	6 1/2
Viscosity 20°C	27	27	27
Flow Rate	1 - 5	1 - 5	1 - 5
Drying (lock-free)	2 1/4 hrs.	2 1/4 hrs.	2 hrs.
Class 100	OK	OK	OK

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* - Standard made with Purel Paint, (49 52 11), white enamel for paint
(49 52 12) which would account for a part of the loss of drying
of the standard.

Water immersion and humidity tests run on bare steel and primed panels
showed no appreciable difference after 96 hours.

Humidity tests run on wood panels were in poor condition after 96 hours
and showed no significant difference between standard and "60" enamel
paints.

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