

House Paint - 301 Line
House Paint - lead free
Electron Microscope

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Philadelphia Laboratory
January 7, 1948

JL 6 '53

MEMORANDUM REPORT No. M-177

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AMERICAN ZINC SALES COMPANY
AZO ZZZ-55 ZINC OXIDE IN HOUSE PAINTS

At Mr. Marshall's suggestion a sample of AZO ZZZ-55 Zinc Oxide has been submitted by the American Zinc Sales Company for examination as a source of lead-free zinc oxide for house paint. See letter from Mr. A. C. Eide of American Zinc Sales Company, August 22, 1947, and from John Marshall, August 27, 1947. The sample has been coded SR21949. A previous sample of this same grade was received in the laboratory in November 1945 but was examined only for architectural and refrigerator products. We have no previous experience with this grade in house paint.

Mr. Eide describes the product as consisting of round or nodular particles, approximately 0.22 microns average diameter with no colloidal fines. To confirm this information, electron micrographs have been obtained. They show that the material is indeed nodular and is free from fines. The average particle size is considerably smaller than W-19, which has been our standard lead-free zinc oxide for house paint in the past. On the hypothesis that fine particles in the zinc oxide are responsible for poor durability in house paint, this grade would be expected to give fair durability but perhaps not quite so good as W-19.

The sample has been made into house paint in comparison with W-19 and with AZO ZZZ-11, the acicular grade recommended by the American Zinc Sales Company for house paint. The composition of the paint is similar to 301-864 #40 Outside White, except that the basic sulfate white lead in leaded zinc oxide has been replaced by an equal volume of titanium oxide and extender. The working properties of the paint made with AZO ZZZ-55 were slightly better than that made with W-19 and the gloss was slightly higher. The best working properties were obtained with AZO ZZZ-11 but the gloss and appearance was not as good as AZO ZZZ-55. In solids content, AZO ZZZ-55 is about equal to W-19 and gives definitely higher solids than AZO ZZZ-11. These results will be found in notebook 3381, page 149.

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The paints will be exposed to determine the durability in Series #9663. As an accelerated test for durability, distensibility measurements on films of the zinc oxide as a single pigment in RC-141 resin will be made in Exposure Series 9664. Conclusions on the suitability on this grade of zinc oxide for house paint will be reserved until durability information has been obtained.

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