

THE SPENCER-WILLIAMS CO.
115th Street and Cottage Grove Avenue
Chicago, Ill.

October 18, 1950

Mr. Robert L. Ziegfeld, Secretary
Lead Industries Association
420 Lexington Avenue
New York 17, New York

Dear Mr. Ziegfeld:

I have reviewed the Tentative Draft, dated September 27, 1950, of the "Outline for Booklet on Use of White Lead Pigment in House Paints" as per your letter of October 5th and have also discussed the contents with Mr. Van Loo of our Paint Research Department.

I note that the term "Lead" is still used quite freely throughout the paper although in most cases the term "White Lead" is used. I believe that we should be consistent and use "White Lead" without quotation marks throughout the paper.

Page 2 - II-A 1. Wouldn't the sentence structure be improved by saying, "by reacting preferentially with the organic acids resulting from the normal breakdown of the vehicle due to oxidization."

II-A 1 b. I prefer "White Lead reacts chemically to neutralize slowly these acidic decomposition products of the vehicle by formation of relatively stable salts, which help materially to prolong the life of the film and improve its water resistance and other properties."

II-B 1. I realize in the photograph furnished you for this illustration that the vehicle is identified as "the oil conservation type". I believe, however, that we should discourage the use of the term "oil conservation" to describe the vehicle so as not to indicate the original purpose of saving oil. I feel that we use this type of vehicle now because it is better and not because it saves oil or is cheaper. I frankly do not know what to call this type of vehicle. Possibly "bodied-oil vehicle" would be satisfactory. Do you have any suggestions?

Page 3 - III-A 1. I believe that we should replace the term "coherence", that follows tensile strength in parenthesis, with the more technical term "cohesion". It is difficult to see how flexibility aids adherence. I would delete the term "aiding adherence" which follows flexibility in the parenthesis. Good adhesion undoubtedly can contribute to good flexibility but there are films with very good flexibility and poor adhesion.

-3-

The sentence would then become, "which plasticizes the film to increase the tensile strength (cohesion) and the flexibility of the paint film". If the term after flexibility must be used, then change it to "aiding adhesion" rather than "aiding adherence".

I believe the "large temperature ranges" should be changed to "large changes in atmospheric conditions" so that the sentence becomes "...the stress of the expansion and contraction caused by the relatively large changes in atmospheric conditions from day to night and season to season." I believe that in the case of house paints, which are normally applied to wood, the transverse expansion of the wood due to moisture is a more important factor than temperature.

III-1 1 b. Again change the term "coherence" to "cohesion" so that the sentence becomes, "...the lead soaps that are formed improve the cohesion, the flexibility, etc." I would change the last sentence of this paragraph by substituting the word "may" so that the sentence becomes, "It is apparent from this picture how these spiny particles may reinforce a paint film."

Page 5. IV-A. At the top of the page I believe again that we should replace "temperature" with "atmospheric conditions". In other words the sentence becomes, starting on Page 4, "...the expansion and contraction of this surface due to variations in atmospheric conditions."

IV-1 1 a. The sentence should be changed from "...lead soaps, which reinforce" to "...lead soaps, which reinforce..."

IV-1 3 and 4. I hope the paints used in these illustrations and subsequent illustrations and called "lead-free" are based on practical paints and not impractically high zinc oxide.

Page 9 VII-B 3. Lead pigments presumably will be replaced by "white lead" in the first sentence and certainly the last sentence should be made to specify "white lead" as we know definitely that red lead certainly can harden in the package and also some lead containing paints can be pretty bad. I believe the last sentence should be changed to read, "Even after exceptionally long storage, paints pigmented with white lead do not harden in the package." This will eliminate the general term "lead pigment in paints".

VII-C Illustrations. I am not sure just what these photographs are but presumably they are of paints with and without lead and I would question very seriously whether you would have two practical paints which are the same in all respects except for the presence of lead and have one brush mark and the other flow out. We should make sure that these are the same paint systems except for the differences in lead.

Page 10 II-A. The first sentence of this paragraph is acceptable except that we should definitely delete, "alone or in combination", so that the sentence becomes, "It is a generally accepted fact that no exterior house paint will give better protection longer under average exposure conditions than a paint in which the chief reactive pigment is white lead."

Page 11 II-B 1. Again use "adhesion" and "cohesion" rather than "adherence" and "coherence". I think we have to be careful too in not recommending a too flexible film for primers because of the possibility of cracking of the top coat due to comparably soft flexible and elastic film.

Page 12 IX C 1. Primer Formulations. I personally do not like to give too much emphasis to formulas represented by Federal Specification TT-P-25 (December 9, 1942) as there are several factors about the specification which we do not feel represent the best thinking in the field of house-paint primers. To mention one, the minimum viscosity Z-4 set on the bodied-linseed oil component is unjustifiably high. Good formulations and in many respects better formulations can be made with the bodied-oil component having viscosities as low as Z-2 to Z-3, and possibly even lower, with judicious selection and combination of oils and pigments. Such formulas can at the same time be made to meet the performance characteristics set forth in the specification.

I don't know just how to introduce this typical formulation represented by TT-P-25 but the following is a suggestion, "Good house paint primers can be formulated with wide variations in pigmentation and vehicle but typical formulations are represented by paints meeting the requirements of Federal Specifications TT-P-25 (December 9, 1942). The broad composition requirements....".

I haven't calculated as yet but I assume that the minimum PVC of the range covered by TT-P-25 is of the order specified above and not below this range.

I know that we unconsciously use superlatives when referring to house paints but I certainly think it should be discouraged. I believe the sentence, "The white lead content specified above provides a good flexible, water-resistant coating, and the best possible surface for recoating." should be changed to, "The white lead content specified above provides a good, flexible, water-resistant coating and a good surface for recoating."

Page 13 II-D 1 a. I believe the first two sentences in this paragraph should be revised. I suggest the following for the reason given below: "White house paints should be long lasting; relatively resistant to moisture, to weather, and too easy scalling; and should preferably be free-chalking without excessive erosion so that a clean and bright appearance is maintained until repainting becomes necessary. The paint should brush easily, it should have adequate hiding power, and it should dry to a desirable gloss. As you know excessive chalking can be just as bad as other factors in cutting down the life of a film. For this reason I think we should modify this statement by saying,

"without excessive erosion" as indicated above. The statement that "...it must dry slowly to a desirable gloss" is highly questionable. I believe that most paint companies would be extremely happy to be able to formulate a fast-drying house paint that had all the desirable properties of the present slow drying paints.

Page 14. There are so many criticisms and controversial points on the proposed Federal Specification TT-P-102, Class A and Class B, that I feel that we should eliminate these formulas completely from the booklet. We could analyze these points, item by item, but I don't think this is necessary at this time as most of the criticisms are obvious. I would recommend that we delete completely Page 14 and insert something to the effect that examples of house paint formulas may be obtained by writing to the Lead Industries Association. In lieu of this, another alternative would be to include typical formulas of a less controversial nature. Such formulas could give ranges so as not to bind the formulator down to extremely narrow limits or no limits at all as given in these specifications. Note the limits set on zinc oxide in Class B (In Class A, obviously the limits on zinc oxide are reversed).

Before including these formulas I certainly feel that we should thoroughly discuss their limitations and the possibility of including other formulas along with them to show examples of good house paints which do not meet the narrow limits set by the specification.

Sincerely yours,

THE SHERWIN-WILLIAMS CO.

C. E. Adams
Auxiliaries Research Laboratory

CMA:mp