

M. VAN LOO
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versus special oils. The following observations were noted:

1. Comparatively bad checking and dirt collection were found on panels using the soya P. E. ester, ARV 1984 and also a 60/40 raw soya, (418) - Kastolene combination replacing the oils in Rex 471. Pittsburgh Plate Glass Company's extracted soybean oil, P 5 X L also tends toward excessive dirt collection.
2. Other special oils examined, namely ARV 1979 - Castor-Soya P. E. Ester, ARV 1981 - Soya P. E. Ester, ARV 1987 - Linseed P. E. Ester, and ARV 1988 - Linseed P. E. Ester gave at least as good results as the Rex 471 formula used as the guide. This was the regular formula of 7-19-40.
3. Both co-fumed and mechanically mixed leaded zinc combined with mica gave poor results with ARV 1999, a Linseed P. E. Ester, as to checking and dirt retention, worse than the regular pigmentation of Rex 471 with this same oil.
4. Generally speaking, no shortcomings appear to be traceable directly to the castor oil, but some definitely appear to be due to the use of soybean oil.

#86 - Durability of Pigments with Special
Reference to Leaded Zinc and White Lead

A bulletin, RC 68, subject "Durability and Tint Retention of Lead-Zinc House Paints as Influenced by Lead Titanate or Non-Chalking TiO_2 " was prepared during the month. This report brought up to date the findings published in Research Bulletin RC 64, of 8-25-41. and now brings up the comparisons of exposures to 16 months. Fundamentally the comparisons cover two types of pigmentation, as follows:

Formula A

10% Basic Lead Carbonate or Sulfate
45% Leaded Zinc 35/65
20% Asbestine
25% Lead Titanate

Formula B

10% Basic Lead Carbonate or Sulfate
45% Leaded Zinc 35/65
14% Non-chalking Titanium Oxide
30% Asbestine

In general, the type A formulation is superior as to dirt retention, and is more resistant to checking than Formula B. Formula A, having less chalking tendency than B, in many cases does not present as good general appearance, because of excessive dirt collection. The exposures include a number of subdivisions in which it is again

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confirmed that co-fumed leaded zincs are superior to mechanically mixed leaded zincs as to durability. For details, see report.

#12 - Exterior Primers

In further studies of crawling, our work has been hampered by difficulties in inducing crawling on the control, or regular Rex 450 Undercoater. However, there was an indication that Rex 450 Undercoater at both 40 and 42% P.V.C. obtained by increasing the asbestos and removing raw linseed oil from the vehicle, showed as much crawling as the regular 36.5% P.V.C. formulation. However, when a P.V.C. of 40% is obtained by replacing raw linseed oil with (348), there are indications of less crawling tendencies than with the regular material. However, body difficulties are encountered under these circumstances.

#103 - Metal Protective Paints

The shortage of phenolic resins may soon force us to replace (2841)G in the Metalastic topcoats. We have used Rex 27399 and Rex 5891 as typical members of the series and have replaced (2841)G on the basis of vehicle solids with (48), (2325), and ARV 2536 (an experimental 100 gallon Dehydrol modified phenolic). In all cases, the replacements dried in 3 to 4 hours, just as well as, or better than, the present formulation. These are going on exposure at Chicago and Miami.

Totrust Light Grey, a product of Wilbur Williams, advertised widely as a substitute for aluminum paints, has failed by bad checking after 6 months' exposure in Chicago. Aluminum topcoats of various types have been exposed under the same conditions for 3 years and are still in perfect condition. Totrust Light Grey appears and performs very much like Metalastic Light Grey. It is probably a Linseed Oil - Zinc Oxide formulation. The checking pattern is exactly the same as Metalastic Light Grey.

Zinc tetroxychromate showed up so poorly in alkyd vehicles in comparison to other zinc chromates as far as moisture resistance was concerned that we feel it necessary to check the work reported by New Jersey Zinc Co. using that pigment in linseed oil. The comparisons will be made against regular zinc chromate and a conservation mixture of zinc chromate and zinc oxide or leaded zinc oxide with an amount of chromate equivalent to zinc tetroxychromate.

The idea of conserving chromates by "chromatizing" pigments, zinc oxides, or white lead is generally considered to be one

#105 - Synthetic Bulletin Colors

A series of panels from Cleveland comparing the (2159) type with the new (6139) + (3) formula have shown them to be nearly equal after 4 months' exposure at the Chicago farm. Differences in favor of one or the other were fairly well balanced. Five representative colors were included in this series.

#86 - Durability of Pigments with Special
Reference to Leaded Zinc and White Lead

Further improvement has been made by the Pigment Division in the production of 414 W. The brightness has been improved considerably and therefore the potential field of usage has been expanded considerably. The original grayness and redness has been practically eliminated and a good white with a yellow cast produced. Formulators are urged to utilize 414 W to the fullest extent possible.

Exposures were put out during the month on paints containing low amounts of basic carbonate white lead or no carbonate. At the time these paints were formulated, there appeared the possibility of reduction in lead available. The TiO_2 was limited to 40 pounds, and leaded zinc introduced as 412, 1526, and 414 W. Zinc oxide ratios go up to 50%, and attempts were made to counterbalance checking tendencies by introducing mica.

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No work done on the following investigations during the month:

#148 - Examination of White Lead

#160 - Painting Bricks

#164 - Reformulation Studies of House Paint to Reduce Dirt Collection

#163 - One Coat House Paint - Discontinued