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PROGRESS REPORT

ORGANIC CHEMICALS DIVISION

ST. LOUIS RESEARCH DEPT.

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REPORTED BY	JOB NO.	REPORT NO.	CODE
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	FOR: FEBRUARY, 1958		

SPECIAL INSTRUCTIONS

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3. F. J. Locke - Springfield	11.
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*COPY INCLUDES DETAILS

TITLE

EXPLORATORY APPLICATION WORK ON PLASTICIZERS

PROBLEM

Light Stabilizers for Aroclor 1254.
Oxidative Degradation of Plasticizers.

SUMMARY

Aroclors for use in paints and lacquers suffer from instability toward light. For preliminary experiments in stabilization, eight samples of Aroclor 1254 with and without additives were exposed in the Fadeometer in open quartz tubes for 1000 hours. Gardner colors were determined periodically. The increase in color of the control 1254 is apparently linear with time; final color 10.5. Aroclor 1254 + 2% U.V. No. 9 as a sun screen also darkens linearly with time; final color 4.5 Therefore, the control darkened about 10-12 times faster than the sample with U.V. No. 9. Other additives such as bisphenol A, triphenyl phosphite, and PVC stabilizers were essentially inactive or were harmful.

The oxidation at 108°C. of several hydrocarbon type extender plasticizers was carried out for comparison with HB-40 in the paper which has been written for presentation at the Spring ACS meeting. Bearflex 1751 turns dark rapidly and gives indication of modest to severe latent degradation. HB-20 behaves similarly to HB-40 but oxidizes slightly less rapidly. Mobilsol L slowly darkens with very slight peroxide formation and slight latent degradation indicated.

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Bisphenol A in concentrations from 0-2.0% does not retard "evaporation" of HB-40 at 105°C. as it did in DIDA in spite of the fact it retards oxidation. This may be because the cyclohexyl rings require a double attack by oxygen before a fragment may be split off and that before this occurs the BPA has been destroyed.

Plans have been made for immediate study of polycarbonates for plasticization, polyblending, stabilization, etc.

Kern Sears
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