Monsanto
FROM: (NAME & LOC)

Cumming Paton - St. Louis General Offices

D W Miller

DATE : October 13, 1969

SUBJECT : AROCLOR 5460/CHLORINATED BIPHENYL CONTENTS

REFERENCE :

cc: E. Emery - JFQ Research
M. W. Farrar - JFQ Research
G. W. Miller - Anniston
J. E. Smith - JSMIT
W. F. Waychoff

TO : W. A. Kuhn
Anniston

Ed Emery discussed with me his latest work on chlorinated biphenyl contents of Aroclor 5460 as part of our effort to resubmit a petition to FDA.

His technique continues to look promising.

Ed's latest experiments were:

1. Comparison of chlorinated biphenyl content of Lot AI-43 (lot used for FDA feeding studies) and current Aroclor 5460 production (Lot AL-536).

2. Chlorinated biphenyl contents of low color Aroclor 5460 (both Na and Na OH treatments).

3. Biphenyl content of Santowax R related to chlorinated biphenyl content of Aroclor 5460.

4. Removal of chlorinated biphenyl from Aroclor 5460 and "respiking" with known amounts of Aroclor 1260.

Results are:

	% Chlorinated Biphenyl
AI-43	1.26
AL-536*	0.22
Na treated low color Aroclor 5460	0.09
Na OH treated low color Aroclor 5460	0.03
Lab "Purified" Aroclor 5460	0.03
Purified Aroclor 5460 spiked with known Aroclor 1260	Good Recovery

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*Lot AL-536 was produced from Santowax R containing 0.4% biphenyl (Anniston determination). (Per V. R. Haupt's memo to you August 29.) This should mean that AL-536 should contain 0.47% chlorinated biphenyl. Ed ran a biphenyl content on the Santowax R and got 0.31% biphenyl or approximately 0.35% chlorinated biphenyl. This points up a discrepancy.

Two solutions occur to me:

1. I believe we have been blending Aroclor 5460 from the solid line and the solids produced in the liquid line. Is it possible that an extremely pure Aroclor 5460 from the liquid system could have been blended into Aroclor 5460 produced using a Santowax R of 0.3 - 0.4% biphenyl. Can this be checked with Anniston.

2. We are certain that no degradation of terphenyl to biphenyl takes place during chlorination. Could it be, however, that biphenyl or chlorinated biphenyl condense during chlorination to give quater or higher polyphenyls. This could also account for the chlorinated biphenyl in Lot AL-536 being lower than expected.

Ed wants to look at several other lots of Aroclor 5460 together with the Santowax R actually used to produce them. I suggest we send Ed only samples which we know were made solely on the original solid line preferably at a time when we didn't have Therminol leaks. Can you please arrange for these to be sent to Ed.

Several other aspects deserve comment:

Low color Aroclor 5460

1. Do we have any information on the lot of Aroclor 5460 and the Santowax R biphenyl content used to make Na OH treated and Na treated low color material respectively. Since the chlorinated biphenyl contents

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are so low, the question arises did the Na/Na OH treatment contribute to this or, fortuitously, did we have "pure" Santowax R/Aroclor 5460.

2. The low color Aroclor 5460 has been looked at by Ed as far as terphenyl isomer distribution and polyphenyl content are concerned. He says the low color material does not differ from lot AI-43 in these respects. This is welcome news. It means we should seriously consider going back to the FDA with only low color Aroclor 5460 for approval. This would mean we'd consider switching to low color FDA-approved 5460 at a 2-3 cent/pound premium. Could you, therefore, let us know which route you'd prefer to take on low color Aroclor 5460 production and the cost of producing at 0.5, 1, 5, and 10 M pound production rates. Also, what capital and time span would be involved in commercializing low color material.

Thank you.

Cumming Paton

/dbw

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