Monsanto

FROM (NAME & LOCATION) E. M. Emery - R&D Laboratories - 1700 So. Second - St. Louis

DATE : June 19, 1969

SUBJECT : AROCLOR 5460/FDA APPROVAL

REFERENCE

TO : Cumming Paton
General Offices

cc: V. R. Haupt - Anniston
W. H. Hunt/R. E. Kelly - GO
R. M. Kountz - GO
W. A. Kuhn - GO
J. E. Smith - GO
G. W. Miller - Anniston
M. E. Gibbs - S. Second
R. E. Keller - S. Second
M. W. Farrar - S. Second
J. F. Quinn - S. Second
M. W. Dietrich - S. Second
J. P. Mieure - S. Second

In answer to your memo to me of June 17, 1969, the Aroclor 5460 analyses that we carried out last February on Lots AK-189, AK-261 and AI-43 all showed between 0.9 and 1.5% chlorinated biphenyls with less than 0.1% of the lower chlorinated terphenyls which overlap into the chlorinated biphenyl region of the chromatogram. These interfering terphenyls have to be corrected for by rapid scan mass spectrometry monitoring of the chromatograph peaks.

Our recent work has been done on just one current lot of Anniston production. This sample was taken from the 5 gallon batch sent to Marv Gibbs for his fractionation study. This is Lot AL-118, dated March 6,1969. This material shows approximately 0.5% chlorinated biphenyls (consisting primarily of 5, 6 and 7 chlorines per molecule) but also 0.8% of the lower chlorinated terphenyls (consisting of 0 to 3 chlorines per molecule) which interfere with the chlorinated biphenyl determination. This requires a major correction by mass spectrometry resulting in poor accuracy and precision on the net chlorinated biphenyl figure. In addition, the need for mass spectrometry monitoring of the GC peaks no longer makes the method suitable as a routine plant control.

By copy of this memo, I would ask Jerry Miller at Anniston to please send us the production history on this Lot AL-118.

We are currently trying a new approach to this analytical problem which looks very promising. We are using the Beroza Carbon Skeleton Determinator (which was developed in U.S. Government Labs) to hydrogenate the injected sample at the inlet of the chromatographic column. This will strip all of the chlorines off of the biphenyl and terphenyls. Then GC separation of the hydrogenated biphenyl from the terphenyls is a very simple job. Our first feasibility experiment looked very good. We hope to complete the tests of this method by the end of next week (June 27) before Jerry Gasser goes on vacation.

E. M. Emery

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