December 13, 1974

Dr. Renate D. Kimbrough
Toxicology Branch
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Department of Health, Education
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Atlanta, Georgia 30333

Dear Dr. Kimbrough:

I appreciated receiving a copy of the paper entitled "Evidence of Tetrachlorodibenzofuran (TCDF) in Aroclor 1254® and the Urine of Rats Following Dietary Exposure to Aroclor 1254®." I asked Monsanto's Dr. James P. Mieure, who is associated with our analytical services group, if he would care to comment. His comments were as follows:

"Unlike the recent work of Roach at FDA, this paper does not present sound evidence for finding tetrachlorodibenzofuran (TCDF) in Aroclor 1254. In my opinion, the mass spectral data refute, rather than enforce, the author's implication of identifying TCDF in our product. The isolated material is probably chlorinated methylbiphenyl. One of the authors, A. Curley, was informed of this possibility about a year ago by E. S. Tucker in a private communication.

"As correctly stated in the text and illustrated in Figure 1, the mass spectra of chlorinated dibenzofurans contain a multiplet of peaks corresponding to a loss of CO Cl (63 mass units) from the parent multiplet. However, none of the mass spectra of Aroclor 1254 fractions in Figure 2 exhibit any evidence of a M-63 multiplet (M/e 241 for TCDF). Hence the parent multiplet at M/e 304, which the authors attribute to TCDF, must have a different origin.

"Based on our knowledge of the composition of Aroclor 1254, the isolated component is likely methyltetrachlorobiphenyl (chlorinated methylbiphenyl). The mass spectrum of this material

would have a parent ion multiplet at M/e 304 identical to that of TCDF. The major fragmentation would be the loss of two chlorine or hydrogen chloride moieties. This is consistent with the spectrum in Figure 2A. Anniston biphenyl typically contains about 200 ppm methylbiphenyl. Therefore, it is not unreasonable to find chlorinated methylbiphenyl in our Aroclor products."

I hope you find Dr. Mieure's comments interesting and informative.

Sincerely,

W. B. Papageorge
Manager, Product Acceptability
Specialty and Process Chemicals

WBP:pw