Monsanto INDUSTRIAL CHEMICALS CO.

FROM : J. P. Mieure - T2F

DATE : December 3, 1974

SUBJECT : FDA DETECTION OF CHLORINATED DIBENZOFURANS IN AROCLOR

REFERENCE :

cc: R. E. Keller - T1B
R.H. Munch - T1B
W. R. Richard - T3A

TO : W. B. Papageorge
82SK

Per your recent request, I have talked by telephone with John Roach of FDA regarding his paper at the national meeting of the Association of Official Analytical Chemists reporting detection of chlorinated dibenzofurans (CDF) in Aroclors. This memo documents our conversation.

According to Mr. Roach, he and his co-workers have isolated and identified CDF in Aroclors 1016, 1242 and 1254 but not in Aroclor 1221. These reference Aroclors were provided by Monsanto. The concentrations were in the low (probably 1-10) ppm range. Dichlorodibenzofurans were found in Aroclor 1016, di-tetra homologs in Aroclor 1242 and tetra and penta homologs in Aroclor 1254. He estimates their lower limit of detection at less than 0.1 ppm.

The analytical method was similar, but not identical, to that used to determine CDF in Kanechlor 400 (see attached reference). Isolation of the CDF was accomplished by column chromatography followed by identification by GC/MS. I raised the question whether other potential impurities such as chlorinated methyl biphenyls (which have similar mass spectra) could have been mistakenly identified as CDF. Roach's response was negative, followed by a sophisticated and technically correct explanation that they have obtained and characterized several chlorinated methyl biphenyls as reference materials to eliminate this possibility. They are currently attempting to identify some of the individual isomers which have been isolated.

Roach agreed to send me a copy of the paper he presented at the AOAC meeting as well as a preprint of their entire study when completed in about two months. They plan to publish their findings.

Their methodology is similar to that first reported by Vos and duplicated in our laboratories during a 1971 survey of our Aroclor products for CDF. This survey did not detect any CDF with a lower detection limit of 0.5 ppm for each isomer. (Several isomers at lower concentrations totaling >1 ppm could have been present). Roach indicated their current technique gives better (but not complete) recoveries than the method of Vos. FDA also has a more sensitive MS than our current model, although we will have a superior instrument in a few weeks

J. P. Mieure

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PLAINTIFF'S EXHIBIT 513

PLAINTIFF'S EXHIBIT 113

EX. 757