

Monsanto

MCS 1238 *Township*

FROM (NAME & LOCATION) R. E. Hatton - B2SD

DATE February 2, 1976

cc M. Petrilli

SUBJECT Westinghouse Concerns on Biphenyl
Content of Dielectrics

J. Alley
G. Levinskas - A2SC
R. H. Munch - T1B
M. E. Gibbs - W1A

TO ☒ D. Wood

During the past two weeks I have discussed this subject numerous times with Lew Schoaff and Bob Sawyer at Bloomington and Dr. Mandelcorn at Pittsburgh. The following paragraphs summarize these discussions.

The basic problem appeared to be a recent requirement, that Westinghouse feels they should meet, in NIOSH rules which limits worker exposure to biphenyl (TLV is 0.2 ppm). This concern was quite difficult to define because of communication problems related to the personalities involved. Lou Schoaff initially raised the question of the amount of biphenyl in our MCS 1238 and the maximum concentration of biphenyl in air that could occur if MCS 1238 was held at various temperatures. The current biphenyl content of MCS 1238 is less than 0.04%. However, some of the earlier lots of MCS 1238 may have contained as much as 0.5 to 0.6% biphenyl.

MIPB now being delivered averages about 0.03 to 0.04% biphenyl with a purchase specification of 0.05% maximum. Westinghouse analyzed one lot of MCS 1238 and found 0.6% biphenyl. Both they and we plan to conduct additional analyses.

Using biphenyl vapor pressure data provided by Westinghouse, the information in Table I was calculated and transmitted to Lew Schoaff. It was pointed out that this represents the maximum concentration of biphenyl possible at the various biphenyl levels in a closed container and does not consider dilution of the vapors with excess air. This was agreed to by Lew but he felt the data were necessary information for their considerations. In further discussions they agreed that the only meaningful numbers to the OSHA inspectors and to their workers would be the actual biphenyl concentration in the working area and, therefore, they plan to run air samples to determine actual levels.

Lew asked what would be required to produce MCS 1238 with 0.01% maximum biphenyl. He was told that although this could be done it would result in additional costs for the product and that we really did not want to go below our present 0.04% maximum.

MONS 029088

During discussions Lew indicated that he had gotten MIPB from other sources, that these suppliers easily met the 0.05% biphenyl specification and could probably meet the lower 0.01% level.

During these discussions with me and with Dr. Levinskas, Lew was given considerable information on the toxicity, handling characteristics and environmental aspects of MCS 1238. He was told that the basic ingredients of MCS 1238 were possible eye irritants and that he should consider the toxicological characteristics of the entire fluid and not just the biphenyl portion. He responded that although this was true the present NIOSH regulations were written only on biphenyl and not the other parts of MCS 1238. He indicated that he felt that Monsanto had not done as much environmental studies as the competitive fluid suppliers and I took issue with him. I agreed to provide him the same information which had been provided to Westinghouse corporate headquarters. This has been done.

I raised questions as to the necessity for the fluid being in the atmosphere at the high temperatures mentioned. Lew's comment was that 135°C. was used during their laboratory compatibility work and would not be too much of a problem since laboratory hoods were used. He stated that they discharge the ovens with the fluid at relatively high temperatures. Oxidation and degradation of the fluid at the proposed temperatures was reviewed in detail.

During these discussions questions were raised concerning Westinghouse Inerteen 54201KJ. They were told that we followed their specification and composition, namely, 32.5% Aroclor 1221, 32.5% Aroclor 1016 and 35% trichloro benzene. Bob Sawyer had made statements to local authorities on the composition stating that it was 65% Aroclor 1232. On checking various sources I found that the material supplied contained equal quantities of Aroclor 1221 and Aroclor 1242 up until the last May when the Aroclor 1242 was replaced by Aroclor 1016. This information satisfied both Bob Sawyer and Lew Schoaff. Dr. Mandelcorn raised the issue of the biphenyl concentration in Inerteen 54201KJ. Monsanto information indicates a level of about 11% biphenyl in the Aroclor 1221. This could lead to excessive amounts in the air (using calculations as above) even at lower processing temperatures. Dr. Mandelcorn asked if Monsanto was interested in reformulating this product and was told that we would not be because of the limited volumes involved and the eventual phasing out of the PCB materials. The advantages of the MCS 1238 in this application were reviewed with Mandelcorn and Schoaff.

In summary, Westinghouse is concerned about the potential of exceeding the LTV of 0.2ppm for biphenyl when handling certain Inerteens or MCS 1238 at high temperatures. This concern is based on recent NIOSH regulations. Information was exchanged with Westinghouse and I believe that their present questions have been adequately answered.

However, we should be aware that such questions may be raised by other users. (Attn: Dr. Levinskas: Comments please.) The available toxicity statement on MCS 1238 recommends good industrial practices and this should include limited exposure to high temperature vapors.



R. E. Hatton

REH/cc

MONS 029090