Monsanto

FROM (LOCATION) St. Louis

DATE March 30, 1970

SUBJECT

REFERENCE

cc H. S. Bergen - HBSPI
H. L. Minckler - HMINC
P. S. Park - PPARK
J. E. Springgate - JSPPI

TO W. B. Papageorge
WPAPA

We have been in communication with a Dr. Hill of the Ohio State Board of Health. He has found PCB, particularly Aroclor 1254, in samples of milk from at least three herds in Ohio. He has traced this contamination back to silage from three different silos. Dr. Hill reported concentrations of 0.2 ppm of PCB in the silage in the center of the silo and up to 20 ppm in the material next to the walls. He also stated that concentrations in the milk were between 0.1 ppm and 0.6 ppm and that some of the milk had been destroyed.

The silos are concrete silos whose interior surfaces were painted in 1967 using a formulation that contained 1254. I don't know if there was any other Aroclor in the formulation nor do we know the coating manufacturer although, this could be found out if important. The presence of PCB in the silage came from flaking off of the material and possibly from leaching out during the silage storage. At present they will have to destroy about 150 tons of silage which is valued at about $30 per ton. As a rough guess, they consider there may be 50 other silos involved in Ohio that were painted with the same formulation. They are also looking into the fat contamination of the cows themselves.

All in all, this could be quite a serious problem, having legal and publicity overtones.

This brings us to a very serious point. When are we going to tell our customers not to use any Aroclor in any paint formulation that contacts food, feed, or water for animals or humans? I think it is very important that this be done. It may be that some of the customers will assure themselves on the basis of non-extractability that a particular formulation might be safe but I think we should make a blanket recommendation against these uses.

R. E. Kelly

R. Emmet Kelly, M. D.

REK/ln

MONS 099541

EXHIBIT P-18 3-13-01 Papageorge

WATER_PCB-SD0000017652

Monsanto

E. S. Tucker - R&D Laboratories - South Second Street

April 16, 1970

PCB CONTAMINATED MILK, STATE OF OHIO, DEPT. OF AGRICULTURE, FOODS, DAIRIES, AND DRUGS LABORATORIES
C. Weaver letter (copy attached)

R. E. Kelly - GO
E. P. Wheeler - GO
W. R. Richard - GO
M. W. Farrar - Res. 1
R. E. Keller - Res. 1
R. H. Munch - Res. 2

TO : W. B. Papageorge
General Offices

GC/Mass and EC/GC analysis of the raw milk petroleum ether extract and the silo scrapings confirmed that they contain significant levels of PCB's.

Unaltered Aroclor 1254 was found in the silo scrapings at a level of 2.87%, while the raw milk extracts contained an estimated PCB level of 0.6-0.7 ppm. Although the isomer distribution of the PCB's in the raw milk extract was altered with respect to the Aroclor 1254 standard, the isomers present were those that occur in Aroclor 1254. This observation was further confirmed by GC/Mass analysis which detected trace amounts of tetrachlorobiphenyl and large amounts of penta and hexachlorobiphenyl.

The raw milk samples initially sent by ODA were destroyed in transit and could not be analyzed. A second set was requested and upon receipt analyzed. Equivalent results were obtained and an estimated level of 0.7-0.8 ppm was found.

Representative electron capture chromatograms of the sample extracts are included and even a visual examination leaves no doubt that the ODA results are qualitatively correct. I cannot address myself to the quantitative results since they did not provide us with the amounts they estimate to be present. However, we have established that our procedures are quantitative.

Interestingly, this is probably the first clear cut chance we have had to observe which PCB homologs are most resistant to metabolism, etc., in a mammal. For this reason, I have labeled the peaks in the Aroclor 1254 electron capture chromatogram according to the homolog(s) they represent.

Another interesting sidelight is that we have observed strikingly similar isomer alterations in the electron capture chromatograms of an extract of a human fat biopsy fat sample, supplied to us by WARF Institute (Sample #9120924) and in extracts of raw milk samples supplied to us by the Maryland Coop Milk Producers. Both organizations had suspicioned PCB contamination, unfortunately, in both cases GC/Mass confirmation could not be obtained because of the limited amount of sample available (WARF) or the low level of contamination (MCMP).

E. S. Tucker

MONS 099542

db
Attachments - 3

WATER_PCB-SD0000017653