May 19, 1969

Dr. A. Goldberg
Research Laboratory
PPG Industries
Creighton, Pennsylvania 15030

Dear Dr. Goldberg:

Confirming our conversation Friday, I have included two publications which relate to the toxicity and safe usage of two of our Aroclors.

You will recall that I pointed out that the book, "Dangerous Properties of Industrial Materials" acknowledges these publications only in that it does mention the threshold limit values or "TLV's". The discussion of "toxicity" is factual to the extent that there can be skin effects and a systemic effect evidenced in the liver. I am not aware of any recent publication which indicates that the toxic action could be increased if there is exposure to carbon tetrachloride at the same time. I think, however, that this is probably the case but that in industry today one would not find exposures to the two materials because of the very limited use of carbon tetrachloride.

As Dr. Treon's publication (enclosed) indicates the toxicity of the 54% chlorinated biphenyl is greater than for the 42% chlorinated material. I don't know, however, of any data which show that the more highly chlorinated biphenyls--i.e. 60% or 68%-- are more or less toxic. On the basis of acute toxicity studies it appears that toxicity does increase with chlorination from 21% chlorine to the 48 and 54% chlorination with subsequent decrease in toxicity as chlorination continues.

I do not know any basis for the statement that oxides of chlorinated diphenyls are more toxic.

In connection with the skin lesions and the systemic effects we at Monsanto know of only three instances in the last 30 years

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where industrial usage of the chlorinated biphenyls have resulted in skin effects. We know of no instances of serious systemic injury.

In the cases where chloracne has developed there has been excessive prolonged and repeated skin contact or the materials were used at elevated temperatures without any exhaust ventilation to remove the vapors released under such circumstances.

In summary we believe that our chlorinated biphenyls are not seriously hazardous materials as long as one recognizes that prolonged and repeated skin contact and the inhalation of vapors should be avoided.

If I can be of any further assistance, please let me know.

Very truly yours,

Elmer P. Wheeler
Manager, Environment Health

EPW:cja

Enclosure

bcc: Ken Wells

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