EVIDENCE OF THE DECLINE OF POLYCHLORINATED BIPHENYLS IN THE ENVIRONMENT

Following Monsanto's unilateral action restricting the sale of polychlorinated biphenyls for use only in sealed electrical systems, in which they serve as fire resistant insulating fluids, encouraging reports were received which further support our contention that with proper handling and usage the release of PCBs to the environment can be controlled.

A team from the Woods Hole Oceanographic Institution studied North Atlantic surface waters and reported (Harvey et al, Nature, Lond. 1974, 252, 387) that by the end of 1973 the levels of PCBs in these waters were 40 times lower than those found in 1972. These authors also reported a tenfold decrease of PCB in the atmosphere over the Northwest Atlantic since 1973 and a fivefold decrease since 1973 in the PCB content of mixed plankton from this area.

In a recent report (Blus et al, Bull. Env. Contam. & Toxicol. U. S., 1973, 13, 646) the PCB residues reported in eggs of the brown pelican from Louisiana decreased from a geometric mean of 3.91 mg/g in 1971 to 2.89 mg/g in 1973.

An example of decreasing PCB concentrations in fresh water was submitted during the 1974 hearings relating to Toxic Pollutant Effluent Standards (Sec. 307a P. L. 92-500). Dr. G. Veith, National Water Quality Laboratory, Duluth, Minnesota, referred in his affidavit to an unpublished report entitled PCBs in the Great Lakes. The results of this work by Michigan Water Resources Commission, Bureau of Water Management, Department of Natural Resources, Environmental Protection Branch, have since

MONS 043419

been reported to the Lake Michigan Toxic Substances Committee, May 1973, under the title "Monitoring for Polychlorinated Biphenyls in the Aquatic Environment - Programs Underway in Michigan Waters." In this work, monitoring of major Great Lakes tributaries during 1971 - 1973 identified the Saginaw River as having the highest concentrations of PCBs of any tributary within Michigan boundaries. Intensive sampling throughout the river basin in search of point sources successfully isolated ten major points of PCB discharge to the river system. Each of the industrial sources was asked to identify the cause of their losses and to take corrective action. A marked decline of PCB levels ranging from 0.4 to 2.9 ppb in 1971 to <0.02 to 0.21 ppb after October, 1972 was observed following a program of monitoring and control.

The presence of PCBs in food has also diminished. In a review of food surveys by the Food and Drug Administration (Ramsey, Q. Bull. Ass. Fd Drug Off. U.S. 1973, 37, 43), the PCB contamination of both food and packaging materials had shown some reduction in 1973 compared with the findings of 1971 surveys. The trend seemed to be continuing. An FDA fiscal 1974 survey showed that levels of PCBs in paperboard dropped by a whole order of magnitude from an average of 15.3 ppm in 1972 to 1.4 ppm in 1974. Because of the significant decline in PCB incidence, the agency predicted that monitoring may be relaxed at some time in the future (Food Chemical News, U.S., 1974, 17, No. 10, 11)

In summary, these reports of the decline of PCBs in marine and fresh water systems and in human food and food packaging indicate that elimination of PCBs in "open" type applications has removed the major source of PCBs entering the environment. It is our considered opinion that the examples reported are typical of what is happening in other locations.