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POLYCHLORINATED BIPHENYLS (PCBs)

What are they:

They are 209 different hydrocarbons containing from one to 10 chlorine atoms per molecule.

They are insoluble in water, very stable to heat with most of the mixtures of individual compounds showing little or no tendency to burn.

Health and Environmental Hazards:

Health hazards to humans associated with the manufacture and use of PCBs were reported as early as 1936.

Almost 1300 people in Japan were affected by PCB contaminated rice oil in 1968. As a result, a number died and many more were seriously affected.

Studies on rhesus monkeys fed 2.5 to 5.0 parts per million (ppm) PCB in their diet showed serious reproductive effects, facial lesions, loss of hair and enlarged livers.

It is estimated that half of all Americans carry a body burden of from 1 to 3 ppm PCBs in their tissues.

Japan has banned all uses of PCBs since 1972.

The limit on the PCB concentration in fish for human consumption in Canada is 2 ppm.

PCBs behave in the environment similarly to DDT. They are absorbed from the water by organisms and stored in fatty tissue. Excessive residues were found in Great Lakes fish in 1969.

Concentration factors for PCBs in tissue over that present in the water can be 100,000.

Many of the individual PCB compounds have half-lives of tens to hundreds of years in the environment.

The U. S. FDA limit for PCBs in the edible portion of fish is 5 ppm. The concentration of PCBs in lake trout in Lake Michigan in 1971 was 23 ppm.

Following the ban of the use of DDT in the early 70's, the DDT levels in Lake Michigan fish has dropped by 50 to 87%. The concentration of PCBs in those fish is as high or higher than in 1972.

PCB levels ranging from 47 to 81 ppm have been found in carp in 17 public and private lakes throughout Illinois. These carp were caught in Green Bay, Wisconsin, from Lake Michigan, which is thought to be the source of the PCBs in the fish.

It is thought that high PCB levels may be the reason for the failure of natural reproduction in lake trout in Lake Michigan.

Uses:

Because of their physical and electrical properties, they have found numerous industrial and manufacturing uses.

Since 1971, the sole U. S. manufacturer has voluntarily limited sales except for use in electrical transformers and capacitors. An important use of the capacitors is in fluorescent light fixtures.

Economic Factors:

The high concentration of PCBs in fish in Lake Michigan and the other Great Lakes jeopardizes the salmon program in Illinois and the entire $350 million, Great Lakes sports fishery industry.

Substitutes:

Other products, one or more of which can satisfactorily substitute for the different applications of PCBs, are available from five different U. S. and foreign suppliers.

Solid state electronic devices are being developed to replace the ballasts used on fluorescent light fixtures, a major use of PCB filled capacitors.

Other Legislation:

Bills to ban the sale, manufacture and, in some cases, the disposal of PCBs have been passed in Indiana and Michigan, and are pending in Wisconsin and Minnesota.

The Indiana law recites that, "Because an emergency exists, this act takes effect on May 1, 1976."

Sponsoring Organizations: "PCB Ban" Committee

Illinois Wildlife Federation
American Association of University Women
Lake County (Ind.) Fish and Game Preservation Association
Izaak Walton League
Lake Michigan Interleague Group of the League of Women Voters
National Council of Jewish Women, Area 14
Independent Voters of Illinois
Business and Professional People for Public Interest
Lake Michigan Federation

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Summary of the Illinois Bill:

This bill sets a timetable for the orderly phase out of the use of PCBs in materials manufactured, sold used or disposed of in Illinois after July 1, 1975. A certificate of use and an annual report will be required for products containing more than 100 ppm of PCBs. The Illinois Pollution Control Board will set rules for the disposal of PCBs or materials containing PCBs. Violation of the regulations