Monsanto

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PCB HEALTH AND ENVIRONMENTAL EFFECTS FACT SHEET

PCBs Not "Deadly Toxins"

Polychlorinated biphenyls or PCBs are fire-retardant compounds used mainly as fluids to cool and insulate electrical equipment. They have been widely and mistakenly regarded as among the most toxic compounds known. They frequently have been incorrectly labeled as "deadly toxins" and "cancer-causing agents."

The weight of scientific evidence, however, including many health-effects studies done in the last few years, indicates that PCBs are neither extremely toxic nor carcinogenic.

For example, a 1982 review of current scientific literature on PCB health effects by independent consultants (Drill, Friess, et al., Arlington, VA) and submitted to the EPA noted: "At human exposure levels as high as those previously encountered in occupational settings, PCBs can cause chloracne and increases in the levels of one

or more liver enzymes. Neither effect represents a serious or life-threatening health problem. From present evidence, no firm associations can be made between PCB exposure and any other human health effects, even after long-term occupational exposures."

Similarly, an April 1982 review of PCB epidemiologic studies by Monsanto Company's Dr. William R. Gaffey concluded: "All studies agreed that there was no relationship between reported illnesses and symptoms and PCB exposure."

In 1971, Monsanto voluntarily halted the sale of PCBs for "open" uses, such as in hydraulic and heat-transfer fluids and in paints, because of concern about PCBs' persistence and continued presence in the environment. In 1977, the company voluntarily stopped all PCB manufacture, including products for use in "totally enclosed" electrical equipment once Monsanto was assured that suitable substitute compounds were available.

Monsanto has no intention or desire to re-enter the PCB business. Current company policy urges that PCBs, like other industrial chemicals, receive proper handling and disposal to minimize environmental release. The company is also concerned that PCBs be accurately understood and fairly portrayed. This often has not occurred in the past, and the result has been needless public panic and overzealous, costly regulation.

Recent Human Exposure Studies

Since PCBs were singled out for regulation in the 1976 Toxic Substances Control Act, about two dozen human exposure studies have been published. These studies show no relationship between any specific type of cancer and PCBs, nor any increase in overall cancer mortality as a result of PCB-exposure. Neither do they show a connection between PCBs and other serious illnesses or death.

The studies include data on large numbers of industrial workers who, over many years, were occupationally exposed to PCBs at significantly higher levels than are presently allowed in the workplace or usually found in the environment. For example, one study by the National Institute of Occupational Safety and Health, involved more than 2,500 electrical equipment manufacturing workers, more than half of whom were exposed to PCBs on the job in excess of 20 years (some for up to 40 years).

A November 1981 review of toxicity studies done by the consulting firm, Ecology and Environment, Inc. and submitted to the U.S. EPA stated: "There is no evidence of an excess in total mortality or in mortality due to cancer, cardiovascular disease, or nervous system disease associated with occupational exposure to PCBs. PCBs have not been linked to any human cancer, and studies to date indicate it is highly unlikely future studies will establish such a link. Therefore, it appears that PCBs are not a remarkable toxicant, but a chemical which requires high doses to produce harmful effects."

Other Health-Effects Research

1. The National Cancer Institute concluded from a 1978 lifetime rat feeding study that PCBs were "not cacinogenic...under the test conditions." Three similar rat studies sponsored by Monsanto at an independent laboratory found that PCBs were not cancer agents. To date, only one animal feeding study -- using rats and done by the Center for Disease Control (CDC) in 1975 (Kimbrough et al.) -- concluded that PCBs caused liver cancer. A subsequent review of both the Monsanto and CDC tests by an independent research institute found that none of the tests demonstrated cancer-causing effects.
2. Standard toxicity tests demonstrate that PCBs are less harmful than table salt (NaCl).

Yusho Incident

During 1968 in Yusho, Japan, about 1,000 Japanese became ill after eating cooking oil contaminated with up to 3,000 ppm of a Japanese-manufactured PCB (Kanechlor 400) and other trace impurities. Symptoms included skin discoloration, acne-like conditions, eye discharges, and central nervous system irregularities. Scientists now generally agree that this incident was not caused by PCBs per se but rather by toxic impurities present in the PCBs.

Environmental Effects

Recent data indicate that environmental levels of PCBs are declining. A 1979 National Research Council study found significant reductions of PCBs in air over the North Atlantic Ocean. Recent data show that PCB levels in fish from three different geographical regions -- the Great Lakes, New York State, and Alabama/Georgia -- ranged from one to five ppm in 1980-81 as compared to levels of 60 ppm in 1973 and 18 ppm in 1975.

Two publications -- one in 1980 by the New York State Department of Environmental Conservation, the other in 1979 by the Sport Fishing Institute, Washington, D.C. -- report that PCB persistence in the environment, as measured by the "half-life" in fish tissue, ranges from 4 to 5 years, not hundreds of years as sometimes claimed.

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