

3/1/78

PCB

1. Q. Do PCBs cause cancer?

- A. There are allegations that PCBs cause cancer in man, but we have no evidence to confirm this. (Toxicologist George Levinskas says that even if PCBs do cause cancer, it won't happen until after the liver has been virtually destroyed.)

2. Q. What did PCBs do to the workers who manufactured the material?

- A. Monsanto has had virtually no problems. Two incidents of chloro-acne among workers -- at a Swann Corporation plant in the 1930s and one on ships during World War II -- were both traced to impurities, and not to the PCBs themselves.

Presently, Monsanto is conducting an epidemiological study of 300 workers who were employed in the manufacture of PCBs at one time or another. We expect to have preliminary results within 6 months.

3. Q. How did the information about PCB skin problems among Swann employees become public in the 1930s?

- A. Two dermatologists from Atlanta, Ga., who served as consultants during the plant investigation of employee skin problems, published their findings in "The Archives of Dermatology and Syphilology" (Vol. 33, pg. 1027; 1936).

4. Q. What kind of testing has Monsanto done on PCBs?
What tests are underway at this time?

- A. In the past, when questions arose about worker safety, Monsanto conducted a number of subacute inhalation studies with rats. We used the data from these tests to set the threshold exposure for our workers.

In the late 1960s, we initiated an extended series of studies on rats, dogs and chickens, and made our information available to the regulatory agencies.

Because of growing evidence independent of these studies that PCBs were remaining in the environment, Monsanto took action in 1970 and 1971 to stop manufacture and sale of PCBs to uses in open applications. Results of our animal studies were later used by FDA to set acceptable levels for human ingestion.

At present, Monsanto is sponsoring a long-term study of the effect of PCBs on monkeys -- looking at health and also reproductive effects.

MONS 003334

5. Q. What do PCBs actually do to the environment?

A. The original advantage of PCBs over other electrical insulating material has turned out to be the cause of present environmental problems. A heavy, oily liquid, PCB is almost inert, and will burn only under extremely high temperatures. The material is not soluble in water, which is why it persists in our waterways; it is soluble in fat, which is why fish in PCB-contaminated rivers and lakes have measurable amounts of PCB in their fatty tissues.

The FDA has set what it believed were safe limits for human ingestion of PCB over long periods. This amount -- 1 microgram of PCB per kilogram of body weight per day -- was then used to set acceptable tolerances in foods. The limit in fish, for example, is 5 ppm. The FDA monitors the levels of PCB in foods on a regular basis.

6. Q. When did Monsanto begin manufacturing PCBs? Why?

A. PCBs were manufactured by Swann Corporation (purchased by Monsanto in 1935) in 1929 in response to the electrical industry's need for an explosion-proof insulating fluid for transformers. PCBs remained the "Cadillac" of the insulating materials, used in about 15 percent of electrical applications, where special safety needs existed. Over the years, other applications were found for PCBs in heat-transfer systems, sealants, adhesives and printing inks.

7. Q. When did Monsanto stop making PCBs?

A. In 1971 after scientific investigations had confirmed the presence of PCBs in the U.S. environment, Monsanto terminated sales of PCB to all non-electrical (open) applications. At the same time, we began publicizing potential environmental problems and the need to prevent entry of PCBs into the environment. Note: the Anniston, Ala., PCB facility was shut down at that time. Presence (or absence) of this facility has not been emphasized in the press. In July, 1977, the company ceased manufacturing PCBs altogether with all inventory distributed by October 31, 1977. Monsanto could not responsibly stop manufacture earlier. The product was in demand by our customers for a material which would prevent the possibility of electrical fires in apartment buildings and other high-population areas. Mineral oils -- used in most other applications -- have a stability problem that makes them potentially hazardous. In fact, fire insurance, building and electrical codes in many parts of the country have traditionally required use of PCBs in high density population applications. Monsanto's timetable for withdrawal from the PCB business had the endorsement of the federal government; in 1975 then-EPA Administrator Russell Train said he would not ask Monsanto to stop PCB production because that would shut down the electrical power industry and railroads in short order.

8. Q. Does anyone else still manufacture PCBs?

A. PCBs are still being manufactured in Germany, France, Spain, Italy and certain eastern European countries. Monsanto ceased manufacturing PCBs in Newport, South Wales. Theoretically, the material could be imported into the U.S. market until 1/1/79 under TSCA.

9. Q. What is Monsanto doing to clean up the environment?

A. There is no known technology that will guarantee 100% collection and disposal of PCBs from mud and silt bottoms of waterways. Dredging, for instance, doesn't do much but recirculates PCBs which have settled into the bottom of the waterway.

Right now, incineration is the best known technology for destroying PCBs. A leading incineration service is developing equipment that will shred a PCB capacitor and then incinerate the liquid in one operation. For several years, Monsanto operated a small incinerator at our Krummrich plant to help customers destroy PCB waste liquids; a rag or other material contaminated by PCBs could not be incinerated there. The incinerator is being dismantled since more effective incineration capacity is available elsewhere. The incinerator will be disposed of in an approved landfill for hazardous waste.

10. Q. What else is being done to get rid of PCBs?

A. The Ontario Foundation in Canada, General Electric's Schenectady Lab and the Institute of Fermentation in Japan are attempting to develop bacteria which will break down PCBs.

Also, in November, 1977, MIT reported a new method of destroying PCBs in water by using high-energy electrons.

11. Q. Are there any lawsuits pending against Monsanto for producing PCBs? For how much?

A. A number of lawsuits, including several class actions, have been filed against Monsanto, alleging damages and claiming that Monsanto failed to warn of the alleged dangers of PCBs. Altogether, those suits seek more than \$2 billion.

12. Q. Did Monsanto fail to warn of PCB dangers?

A. Absolutely not. From the time PCBs were first identified by the Swedish scientist in 1966-67, Monsanto has played a major role in the resolution of this environmental matter. For example, in the 1967-70 period, Monsanto refined test procedures for determining the presence of PCBs. It undertook animal feeding studies. Monsanto has made every effort to keep its customers and the public current on developments in the PCB environmental concern.

13. Q. What about nursing babies? What is the problem of PCBs in mothers' milk?

A. There have been reports that in a few instances PCBs had been detected in human breast milk. We do not believe, however, that this is a serious problem. The concern, of course, is that breast milk might constitute the bulk of an infant's diet.

14. Q. Where are the most serious PCB pollution problems?

A. PCBs have been found most heavily in Lake Michigan and the Hudson River. They seem to be located in the vicinity of former industrial users of the material.

15. Q. Are you working with your former customers to do anything about the PCB problem?

A. We have been working closely with former customers as they phase out of the PCB business. We keep close watch of studies underway seeking to deal with PCBs in the environment.

16. Q. What happened at Yusho, Japan?

A. In 1968 there was accidental poisoning of an unknown number of people in Japan by Kanemi rice oil contaminated with PCBs. The disease is now called "Yusho" or "Yusho oil" disease after the principal location involved.

Approximately 1,300 patients were treated because of actual exposure.

An unknown number of children, born up to three years after their mothers' initial exposure, also showed symptoms of the disease.

There is much dispute about the level of PCBs the people ingested, but it is probably in the 800-1,000 ppm range.