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Industry flies in face of PCB hazards

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NEWBURGH — Despite growing evidence that polychlorinated biphenyls, or PCBs, are harmful to the environment and may cause cancer, major manufacturers continue to use them and claim a suitable substitute is not available.

Several chemical companies, however, have developed substitutes for PCBs, which are used as insulating fluids in power capacitors and transformers. Manufacturers say the substitutes are more costly and flammable. And some industry spokesmen say only a complete federal ban on production of PCBs will bring a switchover to PCB substitutes.

If your're wondering what capacitors and transformers are, just look out a window to the nearest telephone pole. If there is a large steel grey cylinder about the size of a garbage can up there, it's a transformer. If there is a group of three rectangular units, they're capacitors.

Transformers alter high voltage power into the low voltage power used by most lights and appliances. Capacitors regulate electricity so it can be used by electric motors with greater efficiency.

Dow Chamical, McGraw Edison, General Electric, Exxon and Monsanto (the only U.S. producer of PCB) are among the companies producing PCB substitutes.

Spokesmen for major producers of capacitors and transformers claim their customers, mostly utilities, don't want to pay more money for equipment that is less safe than PCBs.

While PCBs are very fire resistant, chemical companies admit the substance does not break down readily into safe, recyclable elements in the environment.

And the high chlorine content of the PCBs, which helps make the chemicals fire resistant, contributes to their much-criticized toxicity.

Another characteristic of PCBs is their tendency to accumulate in the fatty tissues of animals, similar to the characteristic of DDT that made this widely-used product so controversial. Ironically, PCBs were discovered in animals during tests for DDT.

Fish living in water that has a PCB concentration of two or three parts per billion have been found with a PCB concentration in body fat as high as 350 parts per million (ppm). The federal Food and Drugs Administration has set the safe level of PCBs in fish at five ppm.

There may be other reasons why manufacturers are unwilling to give up use of PCBs. A lawyer for the Department of Environmental Conservation (DEC) said recent testimony by General Electric, the major PCB pollutor on the Hudson River, showed the company has patent interests in the chemical.

According to the lawyer, GE receives a royalty on the production of PCBs. Sales of the chemical have gone as high as 73 million pounds in 1970. In 1974, 34.4 million pounds were sold.

Exxon's PCB substitute, called DINP, has been tested but reportedly is not widely accepted by the capacitor industry. DINP costs less (54 cents a pound instead of 80 to 75 cents a pound for PCBs), has a lower toxicity, has higher biodegradability, and has been on the market since 1973. A spokesman

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closeup

PCBs stored in fatty tissue

NEWBURGH — When PCBs enter the Hudson River they tend to remain suspended and attached to plankton or other organisms or they sink into river sediment, scientists say.

In either case, they pass into snails and other organisms which are eaten by fish. In these organisms the PCBs are stored in the fatty tissue and accumulate in concentrations up to 200,000 times greater than the concentrations of PCBs in the water around them, according to experts.

If the fish or an animal which feeds on the fish is consumed by a human, the PCBs are transferred to the human. Scientists estimate that half the American population have PCBs in their systems.

Tests on monkeys and data from an incident in Japan indicates that PCBs cause skin eruptions and ulcers and may cause cancer and adversely affect reproductive systems, according to Dr. Abraham D. Sofaer, the hearing officer for the hearings conducted concerning GE's discharge of PCBs into the Hudson River.

for Exxon says that requests for samples of DINP have doubled since the PCB crisis came to light. He also says DINP has a lower fire resistance than PCBs.

And the chemical substitute Dow developed with McGraw Edison is reputed to be 45 times more biodegradable than PCBs, 30 times less biocentratable, and 20 times less toxic. The material will probably be 50 to 75 per cent more costly.

But the characteristic the manufacturers appear to be most interested in involves flamability. And while PCBs burn at 316 degrees fahrenheit the Dow substitute burns at 199 degrees.

Thus, a McGraw Edison spokesman admits that while interest in the chemical is high, customer acceptance of capacitors using the chemical is low.

"The customers have no incentive to change," he said.

Manufacturers claim that while they are having little success with substitutes, they are switching to PCBs with lower poisonous chlorine concentration. Monsanto produces PCBs under the trade name of Aroclor. During the late 1960s their major PCB products were sold under the trade names of Aroclor 1242 and 1254 which had 42 and 54 per cent chlorine contents respectively.

In recent years sales have shifted to Aroclor 1221 and 1016. Monsanto has admitted, however, that the number 1016 is meaningless and that Aroclor 1016 really has chlorine concentrations of about 41 per cent.

Environmentalists and scientists who recently testified at DEC hearings held on GE's pollution of the Hudson River say the newer PCB mixtures are as toxic as others.

A surprising incongruity in the battle over PCBs and substitutes is Japan's total ban on the chemicals since 1972. That country's ban followed a variety of problems with PCBs including the so-called Yusho incident, in which cooking oil was contaminated with a PCB which resulted in skin diseases and possibly still births.

Little is known about how Japan has satisfied its PCB needs after the ban.

"It's very difficult to get information on what they're doing," said a spokesman for the Natural Resources Defence Council Inc. of New York City. "We have a real problem in exchange of information. All we really know is that their substitutes are not as good as PCBs in terms of flammability and they have to build larger (capacitators and generators) units."

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