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ENVIRONMENT

A fresh fight over PCB pollution

The bass swimming in the Hudson River and the salmon wending their way through Lake Ontario probably do not know that the fatty tissues in their bodies are rife with a toxic, nonbiodegradable substance called polychlorinated biphenyl (PCB). But several environmental officials are saying that PCBs flowing into waterways from electrical equipment plants are making the fish unsafe to eat and that people who ingest high levels of PCBs run the risk of stillbirths, miscarriages, and dermatological problems. Environmental agencies are pushing for stringent effluent discharge rules that the industry says cannot be met.

The industry is not taking the onslaught meekly. It claims that further restrictions on PCBs, which are widely used as insulating fluids in industrial capacitors and distribution transformers, would mean trading a dubious health hazard for almost certain safety

The industry says that banning the insulating fluid could be hazardous

and economic problems. And they resent the tendency of many environmentalists to condemn all PCBs in one swoop. "Everyone talks of PCBs as if they were one chemical, but each commercial mixture can have 60 or more isomers," complains William Papageorge, manager of product acceptability at Monsanto Co., this country's only PCB producer. Each separate PCB is differentiated by the number and positioning of chlorine atoms on the molecule. It is the chlorine content that makes the PCBs fire retardant—a prime selling point for the chemicals as insulators. But it is also the chlorine that causes the pollution problem.

The dispute made headlines earlier this month when General Electric Co clashed with the New York State Dept of Environmental Conservation over levels of PCBs flowing from GE's Hudson Falls and Fort Edward plants into the Hudson River. But New York is not alone in its war on PCB users. Wisconsin is in the midst of hearings on PCBs, and Representative Les Aspin (D-Wis.) just introduced a bill to control the chemicals in interstate commerce. The federal Environmental Protection Agency, which made an abortive attempt to set stringent PCB pollution rules in 1973, is planning to reintroduce proposed regulations in February that would severely limit discharges into rivers and streams. EPA spokesmen admit they may have opened a can of worms. "This is a very confusing and complicated issue," sums up Thomas Kopp, a chemist in the EPA's toxic substances office.

No guarantee. Although environmentalists are pushing for controlling PCB discharges into the waterways rather than banning the substance outright, electrical equipment manufacturers say it amounts to much the same thing. In New York, the state will convene hearings on Oct. 6 with an eye toward ordering the GE plants to attain zero discharge of PCBs into the Hudson by Sept. 30, 1976. "There is no way we can say now we will achieve this," says Edward L. Simons, GE's manager of environmental protection. He says the company has sealed off drains that might allow spilled PCBs to get into the river, has changed its methods of filling capacitors, and is either recycling PCB-contaminated waste water or drumming it and sending it off for disposal by incineration or landfill. "But we use tens of thousands of pounds of PCB each day," Simons says. "It is impossible to guarantee no runoff at all."

Other electrical equipment makers, although not now involved in hassles with environmental groups, are tacitly supporting GE's position. "We have encountered no problems with the EPA concerning discharge of PCB compounds, but we are working with them to establish proper levels of allowable discharge," notes M. J. McDonough, a Westinghouse Electric Corp. executive vice-president. McDonough says that Westinghouse has three plants that use PCBs and that they are discharging less than 0.004% of the total amount of PCBs processed.

Both Westinghouse and GE have for years been using PCB mixtures containing only 1% of atoms with more than four chlorines attached. They claim

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that this mixture is for the most part biodegradable and that the PCBs showing up in fish today are leftovers from several years ago. Monsanto's sales figures support this contention. In 1971 it introduced Aroclor 1016, a low-chlorinated PCB mixture for capacitors. It could replace Aroclor 1242, which has high chlorine concentrations. By last year sales of Aroclor 1242 had plummeted from 22-million lb. to 6.2-million lb., while Aroclor 1016 sales hit the 22-million-lb. level. Still, the EPA adamantly rejects the idea of eased standards for the newer PCBs. "It is difficult to tell what mixture you started out with once you analyze PCB concentration in the waters," Kopp maintains. "And less chlorinated PCBs are still highly toxic."

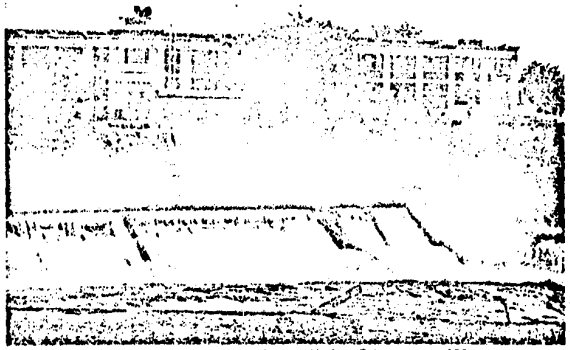
The safety factor. Interestingly, GE is downplaying the economic effects of a switch from PCB and is stressing the safety angle instead. PCBs are actually more expensive than non-flame-retardant substitutes such as mineral oil, Simons contends. "But PCBs are still the most ideal insulating fluids because they conduct heat without conducting electricity, and in the event of equipment failure, they will not cause fires," he says.

Although Dow Chemical Co. has come up with an experimental fluid for capacitors that it says is less toxic than PCB, and Japan's Nippon Petrochemicals Co. is selling various types of naphthalenes as replacements, no one has yet developed a nonflammable substitute for transformers.

Even if the industry could live with flammability as a hazard, a switch to substitutes would be inflationary, the Electronic Industries Assn. says. Because mineral oils and other insulating fluids do not have the good electrical properties of PCBs, larger transformers and capacitors would be needed, says Tyler Nourse, the EIA's vice-president of the parts division. "A halt in the manufacture of PCB-impregnated transformers and capacitors would require the expenditure of $500 million a year in additional electrical equipment," Nourse says.

Monsanto is maintaining a surprising calm in the face of the furor. According to Papageorge, the company has long stopped selling PCBs for nonessential uses—carbonless paper, paints, coatings, and the like. And it has made available to its electronics customers a high-temperature incinerator to dispose of spent PCBs or PCBs that have been accidentally contaminated during the manufacture of electrical equipment.

However, Papageorge bridles at an accusation made recently by Glenn E. Schweitzer, director of the EPA's office of toxic substances, that some of its customers may be reselling PCBs for unauthorized uses. "There are some PCBs still coming in via imports, and there are probably still some unused products from long ago that still find their way into the environment," Papageorge says. "But our customers have too much at stake to do this." The EPA claims the signs point elsewhere. Although he would not name sources, Kopp says, "We have received several letters confirming Schweitzer's charge."



GE says it cannot guarantee zero runoff from its Hudson Falls plant by 1976.

Meanwhile, all eyes are turning to Japan, where PCB production has been banned since 1972. Some PCBs are still imported, but their use is tightly regulated. So far, Japan's experience may put the safety argument on shaky ground. According to the Ministry of International Trade & Industry, there have been no accidents directly related to the PCB ban. ■

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