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Monsanto plans to stop making PCB's

Monsanto, the only U.S. producer of polychlorinated biphenyls (PCB's), says it will stop making them "eventually." F. J. Fitzgerald, a Monsanto corporate vice president, says it's too early to set an exact timetable for the phase-out. But, he adds, "as soon as we are satisfied that the electrical power industry's needs for usable, acceptable alternate dielectric fluids has been met, by whomever, Monsanto will voluntarily shut down its PCB manufacturing unit."

PCB's came into commercial use more than 45 years ago. Their main use has been as dielectric and heat transfer fluids for capacitors and transformers, but they also found wide application as plasticizers, as hydraulic and lubricating fluids, and as components of "carbonless carbon paper." U.S. production peaked at 72 million lb in 1970.

The compounds were long thought to be relatively inert and nontoxic. But about 1966 a Swedish scientist discovered PCB residues in fish and wildlife tissues. Since then PCB's have been detected, sometimes in high concentrations, in a variety of fish and animals, in rivers and lakes, in bottom sediments, and even in foods. Adverse effects began to be attributed to PCB's. For example, one study showed that feeding chickens small amounts of PCB's caused a marked drop in egg "hatchability." Also, the reproduction rate fell off precipitously in ranch mink fed PCB-contaminated coho salmon from Lake Michigan. The mink ranchers had to switch to different, more expensive feeds.

Because of the growing concern about environmental effects, Monsanto in 1971 voluntarily adopted the policy of selling PCB's only for use in closed electrical systems. Production fell to about 40 million lb a year. Despite the restriction, PCB contamination has remained distressingly high in some areas. According to some studies, PCB levels in Lake Michigan trout and coho salmon actually have increased since 1972.

Consequently, there has been a growing clamor for a complete ban. Last November, for example, at a

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My thanks go to the meetings sitions staff of the American Ch[illegible]ciety, the American Embassy [illegible] City, and the U.S. Information Agency whose able assistance and support contributed significantly to the import of my paper.

E. J. Nienhouse

Professor of Chemistry, Ferris State College, Big Rapids, Mich.

HMPA experiments

SIR: Hexamethylphosphoramide, $[(CH_3)_2N]_3P{:}O$, has been receiving increasing use in the last few years as a solvent with exceptional power. Consequently, it is now found in a great many chemical laboratories.

The acute toxicity of hexamethylphosphoramide (HMPA) for experimental animals is low to moderate by ingestion, inhalation and skin absorption. It is also a skin irritant. The chronic toxicity of HMPA is, by contrast, more severe.

HMPA has been used as an effective chemisterilant for a number of insect pests. It is a chemical mutagen for several insect species and interferes with spermatogenesis in rats. Several investigators have noticed that rats exposed to HMPA by inhalation frequently develop a fatal pneumonia which apparently results from activation of [illegible] gh exposure [illegible] id with seven [illegible] rificed in ex- [illegible] in the mid- [illegible] Six rats were randomly selected from the low-dose group (50 ppb) for sacrifice and no malignancy was found.

There appears to be no doubt that this rare form of cancer has been produced in rats by inhalation exposure to HMPA in a concentration as low as 400 ppb (analytical) in a period of about eight months.

We urge everyone using HMPA to handle it with the precautions appropriate to a potential carcinogen. Our investigation will continue and will be reported in the scientific literature when completed.

J. A. Zapp Jr.

Director, Haskell Laboratory for Toxicology & Industrial Medicine, Du Pont Co., Wilmington, Del.

Drug profits

SIR: In his letter on pharmaceutical research (C&EN, Nov. 24, 1975, page 3), Dr. Musa gives the development cost per drug at $2.5 to $4.0 million; there may be individual drugs which are brought to market for expenditures in this range but they are not indicative of the whole. In the past couple of years the drug companies have spent over a billion dollars on new product research and have introduced about 40

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Chicago meeting on PCB's, assistant interior secretary Nathaniel P. Reed complained that multimillion-dollar programs to rebuild Great Lakes fisheries would be "for naught" if high PCB concentration made the fish unfit for consumption. He called for elimination of all sources of PCB's within three years. And Environmental Protection Agency administrator Russell E. Train has on several occasions cited the PCB problem as evidence of the need for a strong toxic substances control act.

For most applications, switching from PCB's has caused no great difficulty. But because of a combination of PCB properties—stability, nonflammability, and high dielectric constant—no completely satisfactory substitutes have been found for use in transformers and capacitors. However, several companies are working on finding substitutes. □

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Fountain: to gain physician support

likely to approve drugs physicians are already using so as to avoid possible malpractice suits.

FDA has the competence within its own staff to deal with many of the issues it presents to advisory

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