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EPA APPROVES PCB DESTRUCTION PROCESS

The Environmental Protection Agency last week approved the first chemical process for destroying toxic polychlorinated biphenyls, which have been widely used in electrical transformer and capacitor insulating fluids. The process, developed by Sunohio of Canton, Ohio, and called PCBX (C&EN, Sept. 22, 1980, page 6), becomes the only approved alternative to incineration or burial for PCB-contaminated oils.

EPA's acting assistant administrator for pesticides and toxic substances, Edwin H. Clark, says the process is "of significant value in solving the nationwide PCB problem." Contamination of the environment by PCB's has become ubiquitous since their introduction in 1929. Animal tests have shown that PCB exposure can lead to reproductive failures, birth defects, skin lesions, and tumors.

Clark says the process has been approved for limited use in EPA Region IV (based in Atlanta) and for more widespread use in Region VII (headquartered in Kansas City, Mo.). Under current rules, each regional administrator determines what PCB disposal practices are used in that region. And the process will be limited to decontamination of mineral oils used as coolants and dielectrics in large electrical transformers. About 750 million lb of PCB's are still in use or in storage, much of which could be eliminated by PCBX.

The PCBX process uses a proprietary reagent that strips the chlorine atoms from the compounds, converting them to chloride. The biphenyl moiety is polymerized to a polyphenylene and precipitated from the oil with calcium chloride, into a holding tank. The cleaned oil can be returned to the transformer for reuse. Excess reagent in the oil is destroyed or removed before going back to the transformer. The waste polyphenylene from the process is not soluble in water, is only slightly soluble in alcohol or other hydrocarbon solvents, and is considered environmentally safe.

The prototype setup used by Sunohio for the EPA tests can decontaminate oil at a rate of about 10 gal per minute, but future setups are expected to do better. The system's size and efficiency permit it to be built into a truck trailer, which can go to the transformers, rather than having to transport the oil from the transformers to a plant. It can take PCB levels from any concentration down to less than 2 ppm, the detection limit for these compounds.

At this time Sunohio has only one unit ready for commercial use, but two more are under construction and a total of five mobile units are planned. The technology also is available for licensing. Sunohio officials estimate the price of decontamination to be competitive with other systems, figuring about \$3.00 per gal

vs. up to more than \$5.00 per gal for incineration.

Preliminary testing indicates that with modifications the process can be used to destroy chlorinated pesticides as well. Although Sunohio officials are reluctant to speculate, this also could save companies with stores of now illegal pesticides considerable expense in disposing of the materials. □

Senate okays funds for binary weapons facility

After only a 40-minute debate on the floor, the Senate last week approved \$20 million to equip the Pine Bluff, Ark., facility which is being built to produce binary nerve-gas shells.

The money, sought by the Reagan Administration in its fiscal 1981 defense supplemental request, already was approved by the House. It is, however, only a pittance of the estimated \$2 billion to \$4 billion required to bring binary chemical weapons into full production.

The Senate's decision to accede to the Administration's request was reached without value of Appropriations Committee hearings. Opponents of a resumption of a chemical arms race argue that the decision was, therefore, reached inappropriately.

Sen. Mark O. Hatfield (R.-Ore.), chairman of the Appropriations Committee, last year successfully blocked insertion of \$19 million in the defense appropriations bill for the weapons facility. This time around, in an emotional outburst, he asked: "My God, is there no limit to the voracious appetite of the military machine that wants to suck up every dollar that we have?" Again he cited lack of public hearings, and lack of consultation with NATO allies on whose soil these weapons will have to be stockpiled.

Sen. David H. Pryor (D.-Ark.), in whose state the facility will be built, and who opposes a chemical weapons program, argued that such a program "repeals the spirit of what the civilized world has been working toward since the Geneva agreements of 1925." He noted that the action taken by the Senate would "reverse the position of the past three Administrations" and begin "a race that has no finish line."



Mobile Sunohio unit cleans PCB-contaminated transformer oil on site