PHYSICAL CHEMISTRY ANALYTICAL CHEMISTRY SPECTROSCOPY INSTRUMENT RESEARCH
COMPUTER TECHNOLOGY STATISTICS

# MONTHLY SUMMARY

April, 1970

For

Functional Fluids

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FUNCTIONAL FLUIDS

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ENVIRONMENTAL AROCLOR PROJECT

It appears that disposal of PCB's can be accomplished successfully by thermal oxidation. This conclusion was made after analysis of gas samples from John Zink Company. They were analyzed for PCB, chloride, chlorine, and total organic chlorine. Data were sent to CED and a report is being issued. Additionally, heats of combustion of the PCB's were estimated for CED evaluations.

Water and sediment samples from 6 Pydraul customers were analyzed for PCB's. It is concluded that PCB's are finding their way to sewers, streams and lakes inasmuch as amounts ranging from low ppb to high ppm were determined.

EC/GC determinations for PCB's showed low levels of materials in muriatic acid from Monsanto's central drumming facility. These contaminants appear to be lower chlorinated biphenyls. Confirmation studies are underway.

Paint scrapings from silos and raw milk extracts showed presence of PCB by GC/Mass and EC/GC analysis. The paint scrapings contained 2.87% Aroclor 1254. The raw milk contained an estimated 0.6-0.7 ppm PCB, probably originally Aroclor 1254 but with an altered isomer distribution.

Analytical methods and data collected to date were discussed with Westinghouse in an informational meeting on the PCB problem.

A preliminary report on biodegradation of Aroclor was written. Tentatively, Aroclor 1221 degrades in river die-away experiments. Higher Aroclor products may not. More conclusive experiments are underway. A current study involves removal of certain fractions from Aroclor products which might be intractable to biodegradation. Electron-capture chromatograms suggest that most refractory materials can be separated by distillation.

We are continuing to assist the WGK Plant in monitoring bromine content of chlorine they use to make Aroclor products. Seven samples, collected in the past month, were shown by XRF to contain 250-400 ppm bromine.

We are preparing to determine the presence of dioxins in the presence of other chlorinated materials. GC studies show that octachlorodibenzo-p-dioxin can be determined but that the tetrachloro isomer will have interference from the components in Aroclor 1260.

A better method to determine percentages of various components in undistilled Aroclor is necessary. A suitable GC method appears to have been developed as a consequence of studies made on 60 distillation cuts from 4 Aroclor samples.

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SKYDROL 500

Flight tests are currently being performed on Skydrol 500C by various airlines. Only tests involving at least 80% Skydrol 500C will be