WRITE-UP FOR APPLIED SCIENCES MARCH 1971

MONTHLY SUMMARY

AROCLOR ENVIRONMENTAL PROGRAM

An analytical program covering the analysis of tissues and materials from toxicity work at Industrial Bio-Test the past year was started on March 15. A two man continuous effort is being directed toward establishing polychlorinated biphenyl residues for correlation with toxicity data from animal studies.

Analyses confirmed that a bakery by-product meal from Agway contains about 750 ppm polychlorinated biphenyl typical of Aroclor 1248. The source of the PCB is unknown.

Gravimetric and GC analyses showed that residual Aroclor 1242, 1254 and 1260 can be satisfactorily removed from used drums at Evans Steel Drum Company, Inc. via kerosene washes. The washes would be shipped to WGK for incineration.

BIODEGRADATION TESTING PROGRAM

Results from the last sampling period show that replacement product MCS 1043, which is free of 4, 5 and 6 chlorine isomers, degrades at about twice the rate (56% in 48 hours) of MCS 1016 and Aroclor 1242. The semi-continuous activated sludge technique is not sufficiently reproducible to show small degradation differences between MCS 1016 and Aroclor 1242 per se. Accordingly, we plan to obtain a degradation rate for the high boilers separated from Aroclor 1242 by distillation. This information should allow us to show that MCS 1016 is an improved product more free of non-biodegradable components found as residues in the environment.

The degradation rate for Arobromoclor 1232 appears to be the same order of magnitude as that for MCS 1043.

Data for the above are based on the disappearance of the aromatic ring structure as measured by ultraviolet absorption spectroscopy. An eight week statistical study of the biodegradation test variables shows that higher and more uniform degradation figures are obtained using 48 hour test cycles (instead of 24 hour), relatively low sludge levels and high feed levels of test materials.

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