SPECIALTY PRODUCTS

AROCLOR ENVIRONMENT PROGRAM

Bio-Test Tissue Analysis

A two man team was assigned March 15 to begin PCB analysis of the tissues collected from the Bio-Test Laboratories' toxicity studies on Aroclor 1242, Aroclor 1254, and Aroclor 1260. Upon receipt of an inventory list of the tissues saved for analysis by Bio-Test a job list with target dates will be issued for review. In the interim period, the analysis of the tissues from the first sacrifice (3 months) of the two year chronic rat study has been started.

Customer and Plant Support Analysis

EC/GC analysis of a bakery by product meal sample confirmed that it contained 747 ±11 ppm of PCB typical of unaltered Aroclor 1248. The presence of this much unaltered Aroclor 1248 would seem to indicate that the meal was contaminated by direct contact with either Aroclor 1248 or a product containing Aroclor 1248. Likewise, this data would eliminate recycled paper as a dominant PCB source.

The following samples are in hand and are scheduled for analysis as time is available:

Source of Sample	No. of Samples	Sample Description	Type of Analysis
NCR (Dayton)	1	Plant Effluent Composite	Aroclor 1242
Ameripol (B.F. Goodrich)	3	Plant Effluent	Aroclor 1221 Aroclor 5460
J.F. Queeny	1	February Plant Effluent Composite	PCB's
Anniston	8	Plant Effluent	PCT's
Anniston	4	Plant Effluent (inter lab analysis)	PCB's
Anniston	20 (of 54 original)	Fish (watershed survey)	PCB's

A number of samples were analyzed gravimetrically and by EC/GC for Aroclor 1242, Aroclor 1254, and Aroclor 1260 to evaluate the Evans Steel Drum Company, Inc. used drum washing facilities for removal of residual PCB's. The drum washing procedure involves an initial kerosene wash followed by a double caustic washing, a rinse, and a final drying step. Analysis of the kerosene before and after washing and of acetone extracts of the washed drums

indicated that for Aroclor 1242 ~99% of the material retained by the drum could be removed by the kerosene washing step. Removal efficiencies for Aroclor 1254 and Aroclor 1260 were somewhat less. The PCB contaminated kerosene will be shipped to the WGK plant for incineration. The effluent from the secondary washing steps is to be sewered.

SCAS Testing

MCS 1043, MCS 1016, Aroclor 1242, Aroclor 1254 and Arobromochlor 1232

Analysis of variance of the UV analytical data from activated sludge samples taken during the last sampling period yielded the following disappearance rates at the 95% confidence limit:

	% Disappearance Rate
Aroclor 1242*	26.4 ±10.8
MCS 1016	31.3 ±10.8
Arobromochlor 1232	48.3 ±10.8
MCS 1043	55.7 ±10.8

*feed rate 1 mg/48 hrs

Statistically, the differences between the disappearance rates for Aroclor 1242 and MCS 1016 and for Arobromochlor 1232 and MCS 1043 are not significant. The difference between the two pairs of products is, however, significant. The switch to a longer time cycle between feedings, 48 hours vs 24 hours, did not differentiate between Aroclor 1242 and MCS 1016 as it had been hoped it would.

Since it is felt that the current SCAS test should be able to differentiate between MCS 1016 and its distillation residue the feeding and analysis of these materials will begin in the next few weeks.

EC/GC chromatograms of the 72 hour week end samples all showed evidence of degradation (peak disappearance) with the exception of Aroclor 1254, the most refractory material fed, which has remained unchanged over the duration of these experiments. Examples of these chromatograms are shown in the accompanying figures.

Examination of these chromatograms indicates what may be one of the problems with the way we are carrying out the SCAS study of these water insoluble refractory materials. Comparison of the "0-hr" chromatograms with the original standard clearly shows that EC response due to the freshly added test material is superimposed upon the response due to the refractory residue which builds up from previous feedings. It, therefore, appears that as

the duration of the experiment increases the difference between the amount of the test material found in the after and before feeding samples becomes more and more of a small difference between two larger growing numbers.

This observation is supported by the fact that very refractory water insoluble materials, such as Aroclor 1254, consistently yield very scattered data and by the statistical observation that the residue found in the before feeding sample appears to eventually level at a value indicative of the predicted order of degradability of these materials.

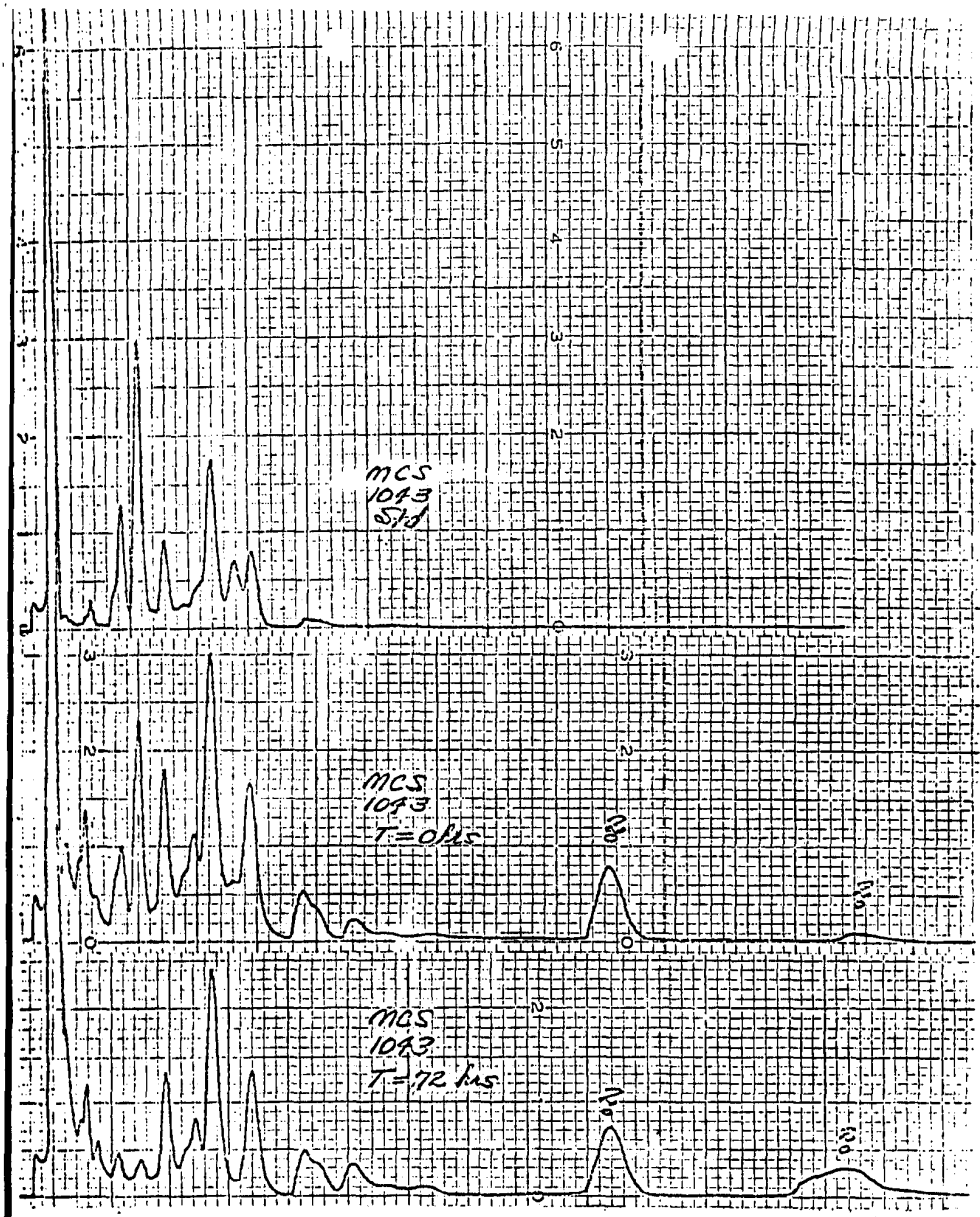
Additional experiments and adjustments are planned to test the validity of this observation in hope of obtaining an SCAS test which will yield more meaningful data for these materials.

Aroclor 5460, Aroclor 5432, Arobrom 5465, and Hexabromobiphenyl

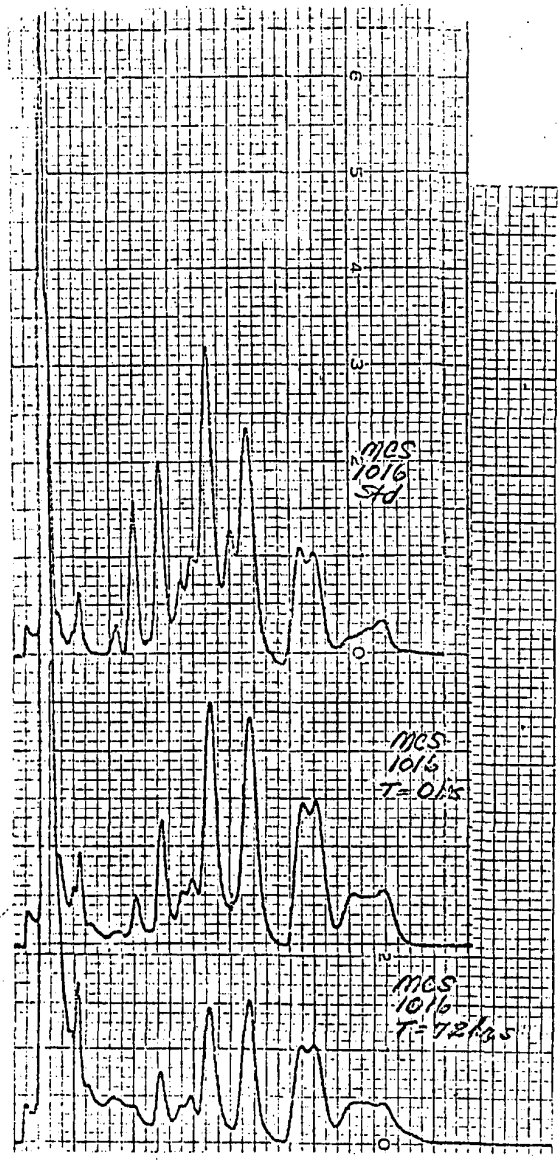
Sampling of the SCAS units being fed these materials has been re-scheduled in order to divert manpower for the analysis of the Bio-Test Laboratories tissues.

E. S. Tucker

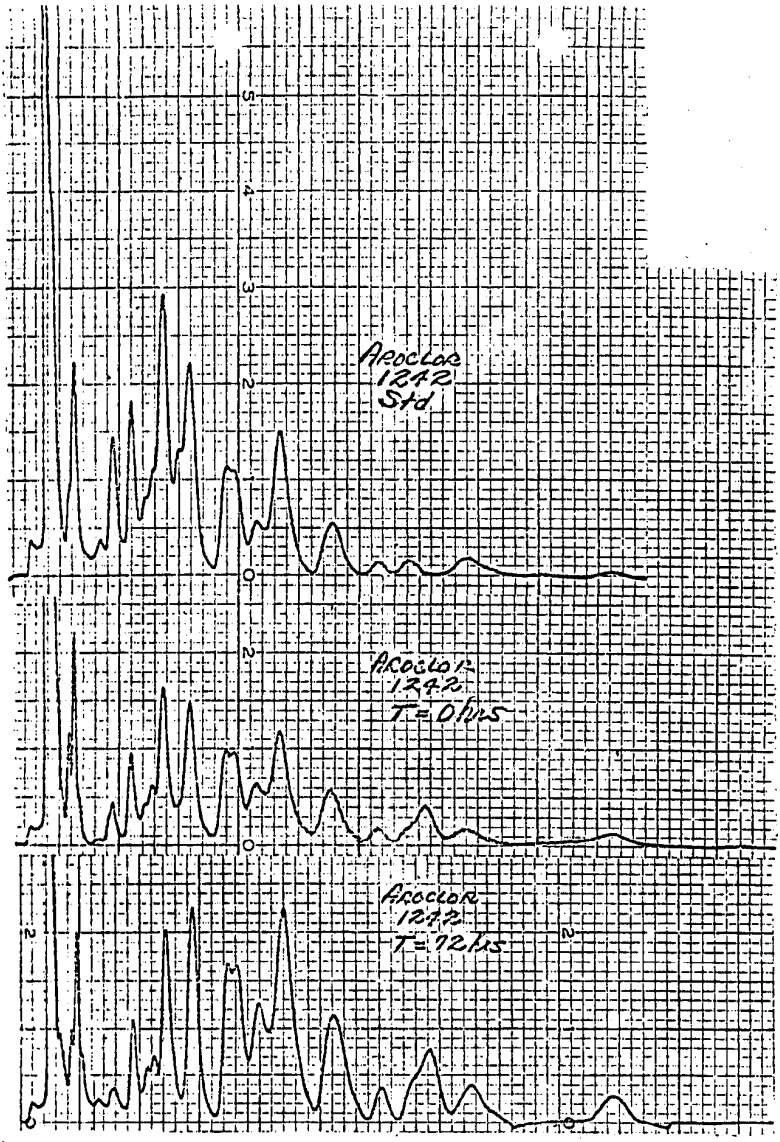
db
3/22/71



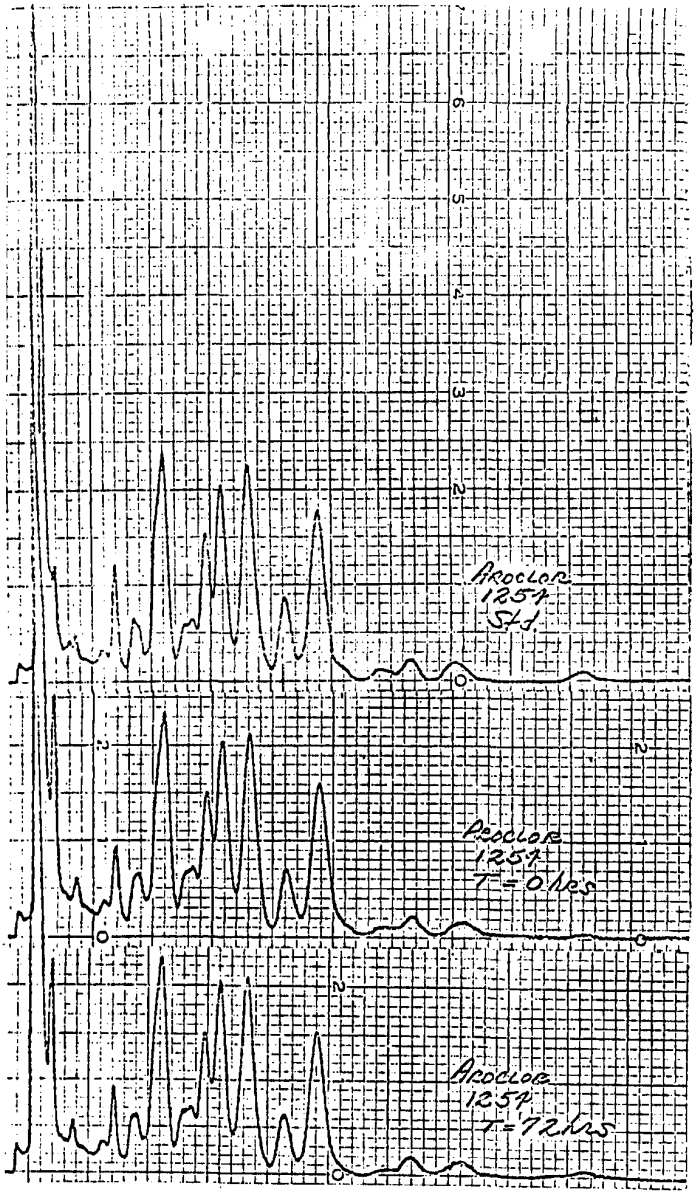
MONS 040515



MONS 040516



MONS 040517



MONS 040518