

9443.1988(06)

SOXTEC EXTRACTION SYSTEM VS. SOXHLET EXTRACTION SYSTEM FOR
PREPARATION OF PCB SAMPLES

May 31, 1988

Mr. R. Wade Knight
U.S. E.P.A. Region IV
College Station Road
Athens, Georgia 30613

Dear Wade:

We have reviewed the data package submitted by Joseph Stewart of Oak Ridge National Laboratory in support of his petition to use the SOXTEC extraction system, in place of the conventional Soxhlet extraction system (Method 3540), for preparation of PCB samples for Method 8080 at ORNL. The PCB data generated from split samples, run concurrently, using the conventional Soxhlet and the SOXTEC extraction techniques for sample preparation, shows that these preparative techniques are equivalent, within allowable standard deviation limits. These data also demonstrate that Method 8080, utilizing either extraction technique, is appropriate for the analysis of PCB's in soil and clay matrices at the low ppm level. The SOXTEC system actually proved to be the superior technique when time constraints were considered, taking only 2 hours for sample preparation vs. 17 hours for Soxhlet.

From the submitted information, we believe that ORNL has demonstrated the equivalency of the Soxhlet and SOXTEC extraction procedures for generating PCB data, and their petition to use the SOXTEC extraction system for preparation of PCB samples in place of the Soxhlet method (Method 3540) should be granted. Furthermore, we in the RCRA program, with support from Superfund, are in the process of using this ORNL data to develop a general extraction procedure for SW-846 using the SOXTEC apparatus.

We are in the process of assembling samples to be split for a multilaboratory validation study of the SOXTEC extraction procedure for PCB's. This will be followed by a program to expand the utility of this technique into a general SW-846

RO 13187

method with a scope equivalent to that of Method 3540.

If we can be of any further assistance to you, please call Barry Lesnik at FTS 382-4761.

Sincerely yours,

David Friedman, Chief
OSW-Methods Section (WH-562B)

cc: Barry Lesnik