Monsanto

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TO EIA PCB Ad Hoc Committee

At various meetings Monsanto has been asked for clarification on the detection of Aroclors in environmental materials. I think the best way to explain this is by examples as follows:

A. Aroclors in Water

If three separate samples of Aroclor 1016, 1242 and 1254 were introduced into identical water systems, after a very long period the residue by GLC analysis could appear similar and the GLC trace of the residue would look similar to the trace for Aroclor 1254.

If the samples were analyzed at an early part of the experiment you could distinguish the Aroclors. However, after a relatively short period it would be difficult to distinguish Aroclor 1016 from Aroclor 1242.

If Aroclor 1016 were added to a sample already containing Aroclor 1242 and Aroclor 1242 at comparable levels, in a relatively short period of time it would be difficult to conclude that Aroclor 1016 was added.

If Aroclor 1254 was added to a water sample, it is extremely unlikely that this would ever be identified as Aroclor 1016. In a laboratory under UV light it might be possible to remove chlorine but this would not easily occur in nature.

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B. Aroclors in Fish

There are two important points to remember:

1. Accumulation in fat tissue concentrates the chlorinated biphenyl. In GLC traces it is analogous to turning up the sensitivity of the instrument which increases the amplitude of the peaks.

2. Higher chlorinated isomers are more readily absorbed in the fat and slower to disappear whereas the lower chlorinated isomers are less absorbed and disappear faster.

If you put a fish in a tank containing Aroclor 1016 in water for a relatively short period of time (one week), and run an analysis of PCBs in the liver tissue, the PCB GLC trace might be identified as being only the higher chlorinated isomers. The longer the fish remains in the water the more the residue in the liver could resemble the higher chlorinated Aroclors such as Aroclor 1254.

If you have any specific questions, please let me know.

Sincerely,

J. Coleman Weber cs

J. Coleman Weber
Manager, Product Acceptability

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