SEP 17 1968

cc: D. R. Hansen
L. D. Press
D. H. Bechtold
K. A. Wells
E. F. Wheeler

September 16, 1968

Mr. Leroy Goldbeck
Kimberly Clark Corp.
Research Center
Neenah, Wisc., 54957

Dear Leroy:

I requested from Elmer Wheeler, Monsanto's Manager of Environmental Health, more specific information on the type of ventilation necessary to prevent [redacted] odors from being harmful to workers. He relayed the following:

"Somewhat arbitrarily we have said in the past that if Aroclor 1254 is heated above 150°F then mechanical exhaust ventilation should be provided to remove vapors. This may or may not be conservative depending on the concentration of Aroclor in a formulation, the surface area exposed, the duration of the elevated temperature and the amount of general room ventilation provided.

"Sufficient ventilation" is that amount needed to reduce vapor concentrations of Aroclor 1254 to the Threshold Limit value (TLV) of -0.5 milligrams per cubic meter of air. The TLV is that amount which workers can inhale 8 hours a day, 5 days a week for a working lifetime without danger of injury.

This obviously will lead to the question of Kimberly Clark of how the concentration in a workman is determined. Aroclor vapors cannot be measured with simple instruments that can be used for such common work place contaminants such as carbon monoxide, hydrogen sulfate, many chlorinated hydrocarbon solvents, etc. The measurement of Aroclor vapors requires sampling equipment and techniques that involve wet chemistry analysis in a suitable laboratory.

"Sufficient ventilation" can also be defined as the amount of air moving over the source of a contaminant (in this case Aroclor) and into appropriately defined ventilating systems to carry the vapors outside the working area. Depending on the type and nature of the source the design of the ventilating system can be simple or complex. In either case a common household situation serves to illustrate the point. For example, one

would not try to capture and remove the odor of frying fish or cooking cabbage in the area of the kitchen range by placing a window fan in an upstairs window or attic. Common sense says to put a hood over the range where it is more convenient to move smaller quantities of air and yet capture the offending materials. Secondly, it obviously is preferable not to draw the odors through the rest of the house. This seems so obvious that no one would expect to find designs of ventilating systems in industry that would draw Aroclor vapors across a workroom exposing unnecessarily a large number of people and secondly moving many more cubic feet of air to control the exposure than if the ventilation was applied directly over the source. Unfortunately plant engineers are repeatedly misapplying exhaust ventilation as indicated in the example above."

If we can help you further along these lines, let me know.

I checked further to see what work had been done with Aroclor 1254 for skin sensitivity. I found that in 1948 patch tests had been run by Washington University in St. Louis on 200 volunteers which led us to conclude that Aroclor 1254 was not a primary irritant.

This test, however, was conducted using a calendered PVC film containing 11% by weight of Aroclor 1254. This test is similar to the one run on Santicizer 141 which led us to recommend it to you as a non-irritant. As you know, further tests under Kimberly Clark's use conditions showed S-141 to be a primary irritant. As a result, we would naturally be very hesitant to say that Aroclor 1254 would not be an irritant. Our original recommendations therefore, still stand.- more work need be done by you to prove Aroclor 1254's level of irritability.

Hope this information helps speed this project along, Lorey. Look forward to discussing its status soon.

Sincerely,

G. Lee Judy
Cello-Chem Sales

GLJ:ma
cc: Warren Griffith