

RE: ECKARDT LETTER OF MARCH 27, 1984

It may be wiser to telephone Eckardt rather than writing him. In either case, I think the following points should be made:

1. Dioxin was identified as the causative agent of chloracne in the Kimmig & Schulz article in 1957. It is questionable when Monsanto got this, although it may have been the end of 1959. However, this was never reconfirmed and this article was never used as a citation in a bibliography until 1970.
2. An analytical method for dioxin which could be used in 2,4,5-T became available to us in 1964. However, inasmuch as we had a different process than Dow, it took some time to adapt it to our process because of interference. As far as I know, it was never adapted for use in air.
3. I think he is unrealistic in thinking that Dow would help us in cutting down dioxin levels in a competitive product.
4. I don't know when the 0.1 ppm level was obtained in Dow's product, but it would have been in at least 1964.
5. It should also be remembered that Dow had a series of their own chloracne problems in the middle 1960's.
6. We carried out biological monitoring in areas where these were available, i.e., parathion and para-aminobiphenyl, on through the 1950's and 1960's. (We got out of PAB, as you know, in 1955.)
7. There were many industrial hygiene recommendations made in 2,4,5-T dealing with daily clothes change, daily showers, protective equipment, changes in ventilation, recommendations of equipment changes, etc., culminating in a new plant being built sometime in the early 1960's.
8. Even after the new plant was built, there were major engineering changes (dust collectors, etc.) installed as a result of industrial hygiene recommendations up to the time the plant was closed in 1969.

I think his big hang-up is that he believes we should have used outside experts, i.e. Dow, to cut down on 2,4,5-T dioxin content. This is unrealistic. He also doesn't know that through the 1950's we were trying to establish, by rabbit ear tests at Kettering and Mellon Institute, a means of trying to find where in the process stream the acnegenic method was obtainable. We stopped these methods and a continuous research activity was present to eliminate dioxin down to 1 ppm. I don't know when we reached that.

Dr. Emmet Kelly
April 3, 1984

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