

CFR
center for regulatory services

W.S. Ferguson
P.L. note
+ return
March 25, 1980
Jim Q
Thanks
WAO

Mr. J. W. Anderson
Manager, Material Safety
Corporate Environmental Services
Allied Chemical Corporation
P. O. Box 1057-R
Morristown, NJ 07960

Dear Jim:

SUBJECT: Vinyl Chloride Conference

I did attend several papers and discussion periods from the conference to reevaluate the Toxicity of Vinyl Chloride and Polyvinyl Chloride. Enclosed are a copy of my notes of that meeting.

Much of the information presented at that meeting was consistent with the information previously known about Vinyl Chloride. Of newer interest was the information regarding reproductive effects, and also the determination of relationship between mammary tumors and Vinyl Chloride.

The complete proceedings of this conference are to be published in Environmental Health Perspectives with publication expected in 3-4 months, I will let you know when these proceedings are made available.

I did have an opportunity to meet with representatives of EPA and FDA at the meeting. There is relatively slow movement towards establishment of air emission standards, and the FDA does not believe there will be publication of their final rule on food contact use of PBC for several months.

Sincerely,

Bill

William A. Olson, Ph.D.
Consultant

WAO:jab

MEMORANDUM

CONFERENCE TO REEVALUATE THE TOXICITY OF
VINYL CHLORIDE - POLYVINYL CHLORIDE - STRUCTURAL ANALOGUES

March 20-21, 1980

National Institutes of Health
Bethesda, Maryland

PROGRAM:

See the enclosed program which includes a list of sponsors, list of participants, and agenda.

SCOPE:

The notes as follows are relating to the initial session on "Carcinogenesis Bioassay of Vinyl Chloride Monomer, Sessions V and VI on Thursday, March 2, and sessions the afternoon of March 21, 1980.

PROCEEDINGS PUBLICATION:

The proceedings of this conference are to be published in the Environmental Health Perspectives. It is anticipated that the publication will require approximately two months. A transcript was made of the entire proceedings.

Dr. Maltoni gave the initial presentation in which he discussed the various extensive study he has conducted on vinyl chloride using two strains of rats, swiss mouse, and the golden hamster.

Dr. Maltoni has evaluated vinyl chloride by oral ingestion at dosages ranging from 0.01 mg/kg to 50 mg/kg. He has conducted inhalation studies with concentrations from 1 to 10,000 ppm, with various periods of exposures. He has also conducted studies with vinyl chloride monomer when given intraperitoneal and subcutaneous.

Dr. Maltoni is planning the complete publication of his results, and went through a rather extensive explanation of his work.

Dr. Maltoni was observing malignant tumors at levels as low as 10 ppm in the air, and at least in one case at 5 ppm in the air. Dr. Maltoni reported on experiments where he gave 100 hours total exposure of animals to 10,000 and 6,000 ppm in air, using as a variable the period of exposure, i.e., one hour, four hours, daily, or weekly. There was little difference observed in the various regimens. Dr. Maltoni did determine reduction in liver angiosarcomas with reduced exposure time.

With respect to the oral no carcinogenic effect, Dr. Maltoni could find no difference between 0.3 mg/kg and the controls. At higher levels, Dr. Maltoni found both hepatic and lung tumors.

In studying the age of animals, Dr. Maltoni found that angiosarcomas were much more easily provoked in young animals (newborn). He also determined that there was evidence of in utero effects upon the offspring when the parents were exposed to vinyl chloride.

The evidence was not very conclusive that vinyl chloride monomer produces carcinogenic effects similar to the oral or inhalation.

The work from Mt. Sinai Medical School indicated pulmonary effects of vinyl chloride monomer in mice. In the studies, short-term high level administration was given by inhalation, and also low dosages. In the mouse, there was effects through 1 ppm, however, there is some dispute as to whether the lung effects were indeed malignancies.

In the discussion period, the following issues were raised:

The difference between vinyl chloride monomer and chlorinated hydrocarbons with respect to liver cell hepatoma was discussed. It could not be explained that the usual effect of the chlorinated hydrocarbons upon liver cell malignancies are not observed in vinyl chloride monomer.

A group from the University of California, Berkeley, including Dr. Hooper argued that the information presented, particularly the determination of malignant tumors at 10 ppm, would indicate that the OSHA standard of 1.0 ppm does not have appropriate safety margin. Dr. Hooper said that from the information available to him, there is not so much the difference between species. Dr. Maltoni refused to enter the arguments because he said he is not in the risk assessment business. It was pointed out that the present criteria for an OSHA standard is based upon feasibility.

Questions were raised regarding the thresholds for carcinogens; however, there was no agreement as to whether there is a threshold, or whether with lower levels of exposure there is simply a decreased incidence of tumors which under experimental setting are not possible to measure.

There was discussion of bell-shaped curves, with discussion of the factors of competing tumors or competing toxicity effects including mortality at the high levels.

On the afternoon of the first day, there was a review of the hepatic angiosarcoma incidence in the United States, with a continuing relationship to occupational exposure to vinyl chloride.

With respect to the proposed liver screening test for vinyl chloride exposed workers, Dr. Carlo Tamburro, University of Louisville, outlined his research and his program. This involves a series of activities including the taking of histories, physical examinations, biochemical determinations, radiological examinations, and physiological testing. Dr. Tamburro has established the correlations between certain liver function tests and exposure to vinyl chloride, and other symptoms of VCM related disease. He has done extensive work in a population of over 1000 workers. He has attempted to correlate various observations both with respect to sensitivity and specificity. At this time, he has not reached definite conclusions or recommendations.

Dr. Nick Wheeler, Union Carbide, gave an explanation of the various vinyl PVC processes and products, including a review of the technology prior to the awareness of the carcinogenesis of VCM and the newer technology.

Paper 18 by Mr. Jay Jones, NIOSH, was not on the subject indicated in the program, but had been changed to worker exposure to vinyl chloride and PVC.

The writer of these notes did not attend the session on reproductive effects on vinyl chloride; however, in the closing discussion, the concerns regarding reproductive hazards was made evident.

In the final presentations, Dr. Haddis, Center for Policy Alternatives, MIT, indicated that from 1976 to date, the estimate for dosages of carcinogenicity have stayed within one order of magnitude. The new information from the conference suggested greater potency of vinyl chloride for provoking mammary cancer, and the concerns relative to reproductive hazards.

Dr. Selikoff did not present Paper 38, however, Dr. Bill Nickelson, Mt. Sinai Medical School, made a presentation.

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WAO:gbb

9-79/82