

UNION CARBIDE CORPORATION
Chemicals & Plastics

270 Park Avenue, New York, New York 10017

To: (See Attached Distribution List)

Date: July 9, 1974

Subject: Comments on Proposed Standard
For Occupational Exposure to VCM

The testimony to date clearly established that an assessment of the risk of VCM exposure at any level was made impossible by the absence of medical knowledge. Under such circumstance, all uncertainties must not be resolved in favor of health safety as proposed by OSHA in setting non-detectable limits on VCM.

Since the appropriate threshold level for safe toleration of VCM is unknown, OSHA proposes to protect against the unknown by simply assuming that exposure to any VCM presents a health hazard.

In doing so, OSHA disregards the documented human experience - SPI, Dow and Carbide testimony - which provides direct evidence to the contrary; namely, that exposure of workmen to moderate amounts of VCM over extended periods does not present a health hazard.

We must emphasize that our proposal rests not on the view that VCM exposure of workmen represents no risk but rather on the view that given the evidence, no substantial danger of angiosarcoma of the liver has been proven to exist with exposures of workmen to any moderate VCM concentrations (50 - 250 ppm, TWA - 8hr.) We hold that OSHA must base its limits of exposure on proof of a demonstrable hazard to emphasize health rather than a conjecture as to the possible relationship of incidence of disease vs. VCM exposure levels.

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Attachment

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DISTRIBUTION LIST -- WEEKLY FLASH REPORT -- VINYL OPERATIONS

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BACKGROUND INFORMATION ON VINYL CHLORIDE AND EMPLOYEE HEALTH

Union Carbide has been producing polyvinyl chloride in South Charleston, West Virginia, since 1935, and in Texas City, Texas, since 1947. The company stopped producing vinyl chloride monomer several years ago and now purchases the monomer from other companies.

Even before the discovery of a possible relationship between exposure to vinyl chloride monomer and angiosarcoma (a rare type of cancer that affects the blood vessels of the liver), the company's work practices have been directed toward minimizing workers' exposure to any chemicals -- including vinyl chloride.

Union Carbide's vinyl chloride plants are operating well below the limit set by the U. S. government for worker exposure to vinyl chloride monomer. The government standard is 50 parts per million of vinyl chloride monomer and the level of exposure at Union Carbide plants is 25 parts per million on a time-weighted average, with some personnel operating positions at time-weighted average levels as low as 5 parts per million.

Personnel monitors are being used by the company to evaluate the degree of exposure to vinyl chloride by individual workers. In addition, the air at the workplace is being monitored and when these indicate concentrations above 50 parts per million air masks are required to be worn by workers in the area. This is done about 5 per cent of the time for two-thirds of the operating positions.

When B. F. Goodrich disclosed early this year that several of its employees who worked in the polymerization of vinyl chloride had died of angiosarcoma, Union Carbide began a review of the medical records of its current employees and the medical and death records of former employees.

To date, this review has turned up one case of angiosarcoma and another possible case of the liver disease. The first case resulted

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in the 1968 death of an employee who had worked in vinyl chloride polymerization at South Charleston from 1944 to 1962. This death was reported to the National Institute of Occupational Safety and Health on February 28.

In mid-March, Union Carbide learned of a liver ailment of an employee who worked in vinyl chloride polymerization from 1942 to 1964. This illness was reported to NIOSH as adenocarcinoma, as it was initially diagnosed by several pathologists. Subsequently the National Cancer Institute disclosed at a meeting of the New York Academy of Sciences on May 10 that this case had been diagnosed as angiosarcoma. Union Carbide has requested written confirmation of this diagnosis so that the employee and other employees can be informed.

Union Carbide provides periodic health checks for its employees and those who have been working with vinyl chloride for ten years or more will receive medical examinations every six months. All of the company's vinyl chloride workers have been reexamined since February 1974. In addition, the company has joined with Local 598 of the International Association of Machinists and Aerospace Workers in assisting a medical research team from the Mt. Sinai School of Medicine, New York, to further examine the vinyl chloride workers.

Union Carbide is stepping up efforts to lower vinyl chloride emissions by improving equipment and developing new engineering concepts, as well as to provide advanced instrumentation to monitor vinyl chloride emissions.

The company is also participating in several industry-wide studies to learn more about the problem and how to deal with it. These studies are being sponsored by the Manufacturing Chemists Association,

the Society of the Plastics Industry and the National Institute of Occupational Safety and Health.

On May 10, the Occupational Safety and Health Administration proposed that the level of vinyl chloride monomer exposure at plants be lowered from the present temporary standard of 50 parts per million to a "no detectable"* level. However, there is no technology or operating procedure at present to achieve this reduction. One alternative would be to insist that workers wear air masks in the vinyl chloride operating area. Experience has shown this to be extremely impractical. Thus, if the proposed standard becomes permanent, and a person in the work area can never be exposed to more than $1\frac{1}{2}$ parts per million of vinyl chloride monomer, Union Carbide will find it virtually impossible to operate its vinyl chloride units.

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*OSHA has defined "no detectable" level as one part per million plus or minus 50 per cent.

NIOSH visited plant weeks starting June 10, 17 ~ led by James (Jay) Jones
{ Dispersion Vinyls
 Solvent Vinyls
 NGS-2 (Dynel) Resin

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Oct. 74 - Oct. 75	40 ceiling	25 TWA	SPI proposal
Oct. 75 - Oct. 76	25 ceiling	no TWA	
Oct. 76	25 ceiling	10 TWA	

Get Bert Murray & evaluate community exposure to KM

1. 3/11/74 first community sampling for vinyl chloride monomer
2. Air sampling has been done by:
 - a. Grab samples ~ syringe & analyzed by gas chromatograph detectability 60 ppb
 - b. Carbon tube sampling & analyzed by gas chromatograph detectability < 1. ppm
3. Thirty samples in community
> " " in plant areas outside of vinyl & dyrol units

To: Mr. E. Bell
Mr. G. P. Bigelow
Mr. T. W. Carmody
Dr. C. P. Carpenter
Dr. C. U. Dernehl
Mr. M. E. Eisenhour
Mr. R. J. Hanna
Mr. A. W. Lutz
Dr. W. R. Manning
Mr. G. T. Scott
Mr. R. N. Wheeler✓
Mr. J. W. Whittlesey

Date: July 12, 1974

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R. N. WHEELER, JR.

Subject: Observations on the Public Hearing
Proposed Standard for Occupational
Exposure to Vinyl Chloride
Department of Labor Auditorium
Washington, D. C.

The second session of the Hearing, which opened on Monday, July 8th, under the administration of Gordon J. Myatt, completed the revised agenda in which some 37 testifiers presented information on the matter of the proposed permanent standard for occupational exposure to vinyl chloride monomer. Since each of you spent significant time at the first session of the Hearing and contributed significantly to the Carbide and industry position as put upon the record of the Hearing, you may find interest in some observations of mine arising from participation in both sessions.

1. At the outset of the Hearing, it was hoped that the testimony would be oriented toward accumulating a record of information on the total matter relating to the proposed permanent standard. The information gathering process would bring together factual information relative to all aspects of the Standard; from the most recent findings on the biological activity of VCM to the most remote economic impact of PVC on the retail price of shoes. However, the very limited evidence put on record by the testimony of representatives for OSHA, NIOSH and the Department of Labor and the inflammatory efforts of organized labor representatives to becloud the medical-technical-economic aspects of the issue contrasted unfavorably with the factual, documented responses of the SPI and the many individual industrial contributions. As the depth of evidence grew against the lack of substance to support the proposed standard, so grew the hostility of Solicitors Kline and Kuchenbacker toward the witnesses. Cross examination sharpened, particularly on presentations made by individuals representing small fabricating and compounding companies, users of PVC resins (General Cable, American Footwear Industries), and trade associations (Rubber Manufacturers Association). The Hearing turned toward adversary proceeding.

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2. The thrust of the questioning by Solicitors Kline and Kuchenbecker centered on the performance to date of the individual manufacturers under the regulation as defined by the Temporary Standard, with leading questions in such areas as level of exposure, monitoring, medical surveillance, records, engineering control and work practice programs until the testimony revealed an area of noncompliance with existing standard. This approach was used to discredit the witness or to bring a concession by the witness that the permanent standard of no detectable level could or would be met by October 5th.
3. The record of the testimony is defective in a major way. The recording service covering the record-making caused to be deleted large portions of the testimony, particularly in those segments that were unfavorable to the OSHA proposed standard - for example, the testimony of Mr. Hyatt who characterized air respirators as "devices of torture" was deleted from the record on the claim of a defective recording instrument. While Law Judge G. J. Myatt promised to attempt to have reconstructed much of the missing testimony, I sense that much of the missing input will remain forever lost and that which is reconstructed may be of questionable value as evidence.
4. Mr. Cefalo of International Association of Machinists and Aerospace Workers and Mr. Mazzocchi of Oil, Chemical and Atomic Workers International Union added nothing of substance to the record. Each supported, in total, the position of Mr. Bommarito that a "no detectable level" for VCM was required to protect workers in PVC plants; that any plant not able to achieve such operations by October 5th should file a variance with OSHA and then negotiate with OSHA and the appropriate union for permits to continue operation with fixed dates for full compliance. A Mr. Vernon Jensen of the OCAW local at Bound Brook (UCC) testified as to the grave need for including fabricating plants within the strict limits of the proposed Standard. He included complaint against UCC on reliability of its determination of VCM in the workplace air; on dust control facilities; and on slowness in initiating work practice changes in the face of known danger of VCM exposure.

Mr. Cefalo acknowledged exceptional treatment of Dr. Selikoff and his associates from Mount Sinai School of Medicine during their visitation at the South Charleston plant.
5. On the matter of metabolism of VCM, Dr. Rowe of Dow reported that preliminary data indicate VCM may metabolize by several routes; suggested the possibility that "swamping" or overloading of the primary metabolic pathway under high exposure conditions may lead to the formation of metabolites which are carcinogenic. Dow also recorded its view that the high death rate of mice at all levels of exposure at Industrial Bio-Test is likely due to the "swamping" of the pathways of mice, making mice not suited for VCM testing.
6. Dow, Firestone, Diamond, Air Products and Uniroyal joined Carbide with documentation that medical records indicate worker populations exposed to vinyl chloride over periods of ten to twenty-five years have a malignancy rate no different than that expected for the unexposed groups with

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which they were compared. The continued search of records show no evidence of deaths due to angiosarcoma other than those previously reported to OSHA. The conclusion must be drawn that exposure to significant concentrations of VCM for extended periods of time has no measurable adverse effect on worker health.

7. As the human experience record was formed from the testimony of SPI and the several individual companies, Dr. Lassiter became more insistent that animal studies are the only ethical way to measure dose response and to set limits; that the human experience data inadvertently accumulated in the VCM case but should not be used in setting the standard since similar data would not be available when OSHA would set standards on other materials suspect of inducing tumor formation. The logic of Lassiter's position was unclear.
8. Firestone made an impressive presentation with a most important documentation of the engineering feasibility issue. Firestone hired Dr. Higgins (Temple) and contracted with Catalytic Construction (engineering design consultants) to determine the equipment requirements and estimated costs of reaching various emission levels at the two Firestone plants - Pottstown and Perryville. The same study was put upon the Firestone Engineering Department separately. All three groups came to the conclusion: (1) that the "no detectable" level was not feasible based on known engineering design concept and on presently available equipment; (2) that none of the engineering studies supports the SPI proposal that limits of 25 ppm ceiling and 10 ppm TWA can be reached; (3) that engineering studies support the generalization that the greater the investment in additional facilities, the greater is the potential that VCM emissions will be reduced but that the levels that can be achieved can only be determined after the fact of installation of the equipment and the modification of operating conditions to achieve optimum advantage from its installation (there being no way before the fact to estimate the magnitude (if any) in lessening VCM emission to be achieved by bringing into operation any particular new facility).
9. Dr. Lassiter continued to make reference to OASH information that many plants manufacturing VCM and PVC had approached the proposed permanent Standard by reaching average TWA readings in the range of 5 ppm. The OSHA team refused to recognize that the language of the Standard was concerned with maximum levels of exposure rather than with averaged TWA values. Additionally, OSHA data are so limited as to badly underestimate the magnitude of the VCM emission problem in existing plants where continuous area monitoring is used to compile the data base.
10. The total Hearing testimony developed no documentation that there existed medical knowledge on which to assess the risk of human VCM exposure. OSHA insisted that all uncertainties must be resolved in favor

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of health safety by setting non-detectable limits on VCM; protect against the unknown by simply assuming that any exposure whatsoever presents a health hazard. The industry counter of documented human experience - favorable employee health records for workmen exposed to moderate to high concentrations of VCM over extended periods of time - provides direct evidence contrary to the OSHA "no risk" argument. Because the human experience data is a keystone, UCC and others are dedicated to improve the documentation of this data for later presentation as may be required in court.

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