



THE SOCIETY OF THE PLASTICS INDUSTRY, INC.
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FIRST WEEK OF
OSHA HEARINGS ON VINYL CHLORIDE
HELD IN WASHINGTON

Last week the Occupational Safety and Health Administration (OSHA) of the U.S. Department of Labor began public hearings on a proposed new standard for exposure to vinyl chloride monomer (VCM), which has been linked recently to angiosarcoma of the liver in previously heavily exposed workers.

Nearly a thousand representatives of government, industry, organized labor and the medical profession gathered for the hearings, with 82 organizations scheduled to present or submit testimony.

The following is a day-by-day summary of the first week of hearings:

June 25, 1974 (First Day of Hearings)

Daniel Boyd, director of the OSHA Office of Standards Development, reviewed the "no detectable level" standard proposed by OSHA in May; stressed that the government believes it to be "proper and necessary" to weigh economic and technical feasibility in the development of a final standard; and stated that OSHA recognized that control problems within various segments of the industry differed widely.

The second witness, Dr. Herman Kraybill of the National Cancer Institute, reported on recent animal studies on vinyl chloride inhalation and concluded that VCM "fulfills the requirements for a proven carcinogen." He alleged that the present

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temporary occupational health standard of 50 ppm has a 'high probability of causing cancer in man. "

Dr. Marvin Schneiderman, also of the National Cancer Institute, presented testimony on the techniques -- and difficulties -- of extrapolating from animal to human data. Based on a mathematical evaluation of the animal research of Dr. Cesare Maltoni, Dr. Schneiderman concluded that the probability to man of contracting angiosarcoma at 50 ppm (parts per million) would be greater than one in 100.

Dr. Edwin Hyatt, a consultant to OSHA, reviewed the OSHA recommendations for respiratory protection equipment. He admitted under questioning that it would take two years for manufacturers to provide enough self contained breathing apparatus to supply the entire vinyl chloride industry, and that the wearing of such a device for extensive periods of time was "at best an instrument of torture. "

Dr. Marcus Key of the National Institute of Occupational Safety and Health (NIOSH) reported on research activities undertaken by his agency since the beginning of the year, including limited investigations of VCM levels in PVC fabricating plants.

Peter Bommarito, president of the United Rubber Workers, and Chairman of the Industrial Union Department of the AFL-CIO, stated that the United States got along without vinyl chloride for 200 years and that it could get along without it again if the proposed OSHA standard forces the closing of the industry.

Louis S. Beliczky, also of the United Rubber Workers, suggested numerous minor changes in the proposed standard, including the setting of a 0.01 per cent limit on residual VCM in PVC resin. Beliczky admitted that he had no epidemiological or technical feasibility data to support his position, but reaffirmed his belief that the industry "would have no difficulty" in achieving the proposed standard.

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Representatives of the New England Plastics Corporation and the PVC Belting Manufacturers Committee opposed the "no detectable limit" standard on the basis that it would force the closing of the PVC resin industry and would, as a result, eliminate their source of supply and put them out of business.

Dr. Irving J. Selikoff of the Mount Sinai Environmental Science Laboratory reported on various investigations undertaken by the Laboratory within the past few months into the health effects of vinyl chloride. Dr. Selikoff and Dr. William Nicholson, also of the Mount Sinai Staff, emphatically supported the proposed standard. Under questioning, however, Dr. Selikoff stated that, if he were convinced the industry was making every effort possible to reduce employee exposure as fast as possible to as low a level as was achievable, he would be "as patient as Job" in requiring the "no detectable level."

June 26, 1974 (Second Day of Hearings)

The Society of the Plastics Industry (SPI) proposed a new standard for employee safety in the vinyl chloride and polyvinyl chloride industries that would be feasible over the next several years, assuming the development of new control technology.

The industry proposal, presented at the hearings by Anton Vittone, chairman of SPI's Committee of Vinyl Chloride Monomer (VCM) and Polyvinyl Chloride (PVC) Producers, and president of B. F. Goodrich Chemical Co., recommended:

For PVC Resin Plants

... Effective October 5, 1974, a ceiling of 40 parts per million (ppm) of VCM and a maximum daily time weighted average of 25 ppm. Levels above 40 ppm would require the use of practical and effective respiratory protection.

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- ... Effective October 5, 1975, a ceiling level of 25 ppm with no time weighted average. Levels above 25 ppm would require the use of practical and effective respiratory protection.
- ... Effective October 5, 1976, a ceiling level of 25 ppm with a maximum time weighted average of 10 ppm. Levels above 25 ppm would require the use of practical and effective respiratory protection.

For VCM Producing Plants

- ... Effective October 5, 1974, a ceiling of 25 ppm and a maximum time weighted average of 10 ppm. Levels above 25 ppm would require the utilization of practical and effective respiratory protection.
- ... Effective October 5, 1975, a ceiling of 10 ppm and a maximum time weighted average of 5 ppm. Levels above 10 ppm would require the utilization of practical and effective respiratory protection.

Mr. Vittone said: "Such a commitment cannot be accomplished overnight since, in certain areas, the technology for accomplishing it is, as yet, not developed and, when developed, facilities must be installed requiring time for engineering, procurement, and installation."

He emphasized that the Committee is unanimous in its position that OSHA's proposed permanent standard of "no detectable level" is not technologically feasible and, if adopted, would shut down the industry.

Ralph L. Harding, Jr., President of SPI and the lead-off witness for the industry group, said, "The companies represented here today are sincerely concerned with providing all appropriate and necessary safeguards. They have already achieved substantial improvement in their operations. They are preparing to do whatever is deemed necessary in the way of substantial modifications to plant, process, and product.

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"They have a very strong personal stake in the medical facts and in the safeguards. Nobody has to remind them of their responsibilities to their fellow workers."

Jerome H. Heckman, SPI's general counsel, followed Mr. Harding with an overview of the plastics industry's position with respect to the vinyl chloride problems which included the following:

- ... OSHA may rely on the plastics industry to recognize that so long as any doubt remains as to safety levels and employee or other exposure, it is incumbent upon manufacturers to make the work-place and general environment as risk-free as feasible.
- ... SPI believes it essential that any final standard adopted by the government take into balanced account the full spectrum of public and employee health considerations, social and economic impact, as well as other public interest factors.
- ... At this precarious state of its knowledge SPI believes that misplaced reliance on mere suspicions rather than proven data, or precipitous and emotional reaction to such incomplete information, together with a narrowly construed interpretation of interests, could lead to major economic consequences.
- ... The plastics industry has moved responsibly in all respects to obtain hard data and to plan to deal promptly and effectively with the vinyl chloride question.

The next witness -- Vince P. Ficcaglia, manager of economic analysis and forecasting of Arthur D. Little, Inc. (ADL) of Cambridge, Massachusetts -- summarized the conclusions of a recently published ADL report prepared for the VCM and PVC Committee titled "United States Polyvinyl Chloride Resin Industry Impact Analysis":

- ... An immediate shutdown of all polyvinyl chloride (PVC) resin plants in the U.S. and the subsequent unavailability of PVC resin could result in a loss of 1.7 - 2.2 million jobs in consuming and related industries and a loss of domestic production value of \$65-90 billion annually.
- ... The extent to which materials could be substituted for PVC resin in the immediate term (less than one year), we believe, is quite limited and, therefore, would have an insignificant effect upon reducing the potential job and domestic production losses noted above.

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- ... Because of the high degree of dependency on PVC resin in the building and construction and motor vehicle sectors, these two segments of our economy would suffer the greatest share of the total impact.
- ... Unavailability of PVC resin will have production bottleneck effects in terms of insulated wire and cable, flooring, upholstery, and many other materials.
- ... The economic impact of loss in production and employment would be felt by all regions of the country.

Other major points raised by industry witnesses testifying on behalf of SPI included:

- ... On the basis of the available evidence, it would appear that the national incidence of angiosarcoma of the liver has been underestimated in the past.
- ... A medical survey of present and past industry employees shows, in general, no greater incidence of liver abnormality, even among long term employees, than exists among the general public.
- ... The use of air supplied respirators, as recommended by OSHA, to reduce worker exposure below permissible levels is an impractical substitute for feasible engineering controls, except for short periods of time or in emergencies.
- ... Since there is no single reliable method for the detection of liver abnormalities, medical examination procedures should be left to the discretion of the examining physician.
- ... Since levels of vinyl chloride in the air of PVC fabricating plants are, even today, extremely low, the full requirements of the proposed standard should not be applied to the fabricating industry.
- ... Labels and signs proposed by OSHA are unnecessarily alarming and should be changed to stress precautions that employees should take for the safe handling of PVC resin.

June 27, 1974 (Third Day of Hearings)

Dr. Paul Kotin, former head of the National Institute of Environmental Health Sciences and a special consultant to Air Products and Chemicals, Inc., testified that

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it would be inappropriate to set an occupational health standard for humans solely on the basis of animal experimentation.

According to Dr. Kotin, animal experiments have given the scientists about as much useful information as they are capable of producing. What is needed now, he said, is reliable human data, which is unfortunately not currently available.

Dr. Kotin also reported on a medical survey of Air Products workers undertaken under his direction to determine whether they have been adversely affected by long term exposure to VCM. According to Dr. Kotin, the results do not show such an effect. A mortality study of deceased workers likewise showed no excess mortality from VCM related ailments.

In other testimony, scientists from a number of VCM and PVC companies, appearing on behalf of SPI, recommended various changes in the proposed standard in the areas of air monitoring, respiratory protection and medical examination procedures.

A special panel of PVC fabricators, also appearing under the aegis of SPI, presented monitoring data showing that fabricating operations do not normally release detectable amounts of VCM into workplace air and called upon OSHA to eliminate the PVC fabricating industry from many requirements of the proposed standard.

In another presentation, Tenneco Chemicals, Inc. testified that it would be forced to close all its vinyl chloride plants if the OSHA proposal of a "no detectable level" of VCM exposure were adopted.

Tenneco outlined in detail the technical infeasibility of the proposed standard within its own operations, and stressed that the difficulties encountered in attempting to operate with all its employees wearing air supplied respirators full time would be insurmountable.

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The company supported the standard proposed by the SPI in its testimony on Wednesday but stated that it hoped to be able to achieve the final SPI standard recommendation somewhat sooner at a new plant which Tenneco is constructing in Texas.

Representatives of the Air Products company testified that they had a "reasonable hope of achieving" an average TWA (time-weighted-average) exposure of 20-25 parts per million (ppm) of VCM in their plants by October of this year but stressed that it would be impossible to do better without significant improvements in current control technology. As a complication to this problem, Air Products reported that it was experiencing major difficulties in obtaining delivery of even existing control machinery.

Dr. John Peters of the Harvard School of Public Health reported on mortality data he had compiled from two B.F. Goodrich plants in Kentucky. The data showed excesses of death from liver disease (primarily angiosarcoma), lung cancer, brain tumors and suicides. Under questioning, Dr. Peters admitted that he had data from two other B.F. Goodrich plants which he had not included in his compilation (neither of these two plants had any reported cases of angiosarcoma); that he had not attempted to obtain similar data from any other companies in the industry; and that he had not determined whether the excess death rates were statistically significant because the numbers "were too small" to even attempt such an analysis.

June 28, 1974 (Fourth Day of Hearings)

The Dow Chemical Company was the lead-off witness on the fourth day of hearings. Subjects covered by the six-man Dow team included new toxicological data, health histories of Dow vinyl chloride workers, engineering and monitoring methods designed to prevent worker exposure to the chemical, and protective equipment used in vinyl chloride manufacturing.

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Dr. B.B. Holder, Medical Director of Dow's Midland Division, reported that a mortality study of 594 workers exposed to vinyl chloride between 1942 and 1960 showed no deaths from angiosarcoma of the liver, an excess in total cancer deaths among workers exposed to greater than 200 ppm, but no excess for employees exposed to less than 200 ppm.

The Dow study was the first undertaken in the industry which related worker mortality to levels of exposure known to have existed decades ago.

It was also reported that preliminary data indicates that vinyl chloride may be metabolized in the body by several routes, suggesting the possibility that "swamping" or overloading of the primary metabolic pathway under high exposure (greater than 200 ppm) may lead to the formation of carcinogenic metabolites in the body.

Dow also stated that the company is generally limiting worker exposure to less than 10 ppm on an eight hour time weighted average (TWA) in its monomer plants, but that numerous problems still remain.

The Diamond Shamrock Corporation supported the overall SPI position, but said that its data indicates that PVC resins containing less than 0.1% unreacted VCM can safely be exempt from coverage in the final regulation and that there is no need to reduce the exemption level to 0.01% as proposed by SPI.

Medical examinations conducted on all 709 current Diamond Shamrock vinyl chloride employees showed only 47 with liver "elevations." According to corporate Medical Director Dr. Richard McBurney, "the results were comparable to what we found in our office workers or workers in other facilities with no exposure to VCM."

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Of 190 former employees with at least one year of exposure to VCM, no angiosarcomas were found among the 10 deaths in the group.

The Brunswick Corporation, a producer of catheters and other medical devices made from PVC, testified that a shutdown of the PVC industry could threaten the lives of thousands of Americans each year who undergo surgery during which such devices are implanted or used.

Following the testimony of Brunswick, the hearing was adjourned until the 8th of July.

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