

STATEMENT OF RALPH L. HARDING JR.
PRESIDENT, THE SOCIETY OF THE PLASTICS INDUSTRY, INC.
BEFORE THE SUBCOMMITTEE ON THE ENVIRONMENT,
SENATE COMMITTEE ON COMMERCE

AUGUST 21, 1974

Mr. Chairman and members of the subcommittee, my name is Ralph L. Harding, Jr., president of The Society of the Plastics Industry, Inc. Accompanying me today is Jerome Heckman, of the Washington law firm of Keller & Heckman who serves as general counsel of SPI, and who will assist me in responding to any questions which you and members of the subcommittee may have. The Society of the Plastics Industry, Inc. is the principal trade association and spokesman for the plastics industry, representing approximately 1,400 member companies who supply raw materials, process or manufacture plastics or plastics products, engineer or construct molds or similar equipment used by the plastics industry, or engage in the manufacture of machinery needed to manufacture plastics products or materials. The membership of SPI is responsible for the sale of approximately 75 percent of the total dollar volume of U. S. plastics sales, according to industry estimates. Additionally, the Society's Vinyl Chloride and Polyvinyl Chloride Resin Producers Committee represents more than 90 percent of United States capacity for the production of vinyl chloride and polyvinyl chloride resins.

To summarize briefly, vinyl chloride is a chemical which is the raw material from which polyvinyl chloride, the nation's most versatile thermoplastic polymer is formulated. The estimated total PVC production for 1974 is approximately 1.5 billion pounds.

billion pounds, which is the second largest volume of any plastic produced in this country. Because of its versatility, PVC has important end use applications in building and construction, the motor vehicle industry, apparel and home furnishings, phonograph records and communications equipment, as well as miscellaneous products which may vary from baby bottles to supermarket meat wrapping and from credit cards to medical tubing. It should be emphasized that vinyl chloride and PVC cannot by any stretch of the imagination be called a new and unknown chemical substance, for manufacture of vinyl chloride in this country began in 1939 and vinyl chloride and the products made from it have, in the main, been in use for more than 30 years.

The largest use of PVC is by the building and construction industry, which accounts for 43% of consumption. Ten percent of PVC production goes into wire and cable which in turn is used in construction of building, automobiles, ships and planes. Factors of safety and electrical properties as well as cost have made PVC a prime material for use in production of insulated wire and cable. Without PVC, it would take a minimum of three to five years to come up with a replacement insulating material. Twenty-five percent of the PVC production in the U. S. goes into the manufacture of pipe. Again, no immediately available and feasible substitute materials are known. 15% of the PVC produced goes into film and sheet for packaging and coated fabrics.

Another 10% goes into flooring, and 5% is consumed by the phonograph record industry. PVC is regarded as having no known equal as a sealant for bridge and airport construction. The U. S. footwear industry states that it has no substitute for PVC in the manufacture of shoes. The PVC belting industry has similarly said that there is no known substitute for conveyor belting made from PVC--which would affect industries that range from coal mining to grain and processed food handling.

Without further burdening the subcommittee with a recitation of such facts, suffice it to say that PVC is a ubiquitous and critically important material in the industrial and consumer sectors of our economy. That is why representatives of Arthur D. Little, Inc. testified in July at the hearings conducted by the Occupational Safety and Health Administration that an immediate shutdown of the PVC industry could result in the loss of 1.7 to 2.2 million jobs and a loss of domestic production of \$65 to \$90 billion annually. Even these estimates may be conservative. General Motors Corporation submitted a statement for the OSHA hearing record which states that a "severe reduction in the production of vinyl chloride" would directly affect 450,000 GM employees and that the "ripple effect" in GM-related layoffs could possibly reach 1.8 million workers.

It is not our purpose today to elaborate further on questions of economic impact. We believe that such questions have relevance in the OSHA proceedings with regard to establishing standards for worker safety and SPI comments to the issues are on record before that body. It is a fact, however, that the nation's awareness of the vinyl chloride problem followed the voluntary disclosure in January of this year by the B. F. Goodrich Chemical Company

that four vinyl chloride workers in that company's Louisville, Ky. plant had died from angiosarcoma of the liver. At the time of the OSHA hearings, 19 worker deaths from liver angiosarcoma had been linked to vinyl chloride exposure, 13 of them in this country. According to Dr. Daniel P. Boyd, director of OSHA's Office of Standards Development, it was OSHA's judgment at the outset of these hearings, which began on June 26, that vinyl chloride is a carcinogenic agent. He based this statement on industrially-commissioned animal toxicological studies performed by Professor Cesare Maltoni of the Instituto di Oncologia, Bologna, Italy, and the Industrial Bio-Test Laboratories in this country, together with the 19 reported liver angiosarcoma deaths. In the ensuing months since January, many agencies of the Federal Government have also become involved in the vinyl chloride problem consistent with their responsibilities. Thus, the Food and Drug Administration, Environmental Protection Agency, Consumer Product Safety Commission, together with the appropriate health research agencies such as the National Cancer Institute and the National Institute for Occupational Safety and Health and the Center for Disease Control have undertaken both regulatory actions and research programs with regard to vinyl chloride and polyvinyl chloride.

There seems to be no dispute at this time that vinyl chloride monomer is a carcinogen in both man and animals. However, it must be emphasized that the information developed thus far does not yet constitute a body of "hard data" on the totality of the vinyl chloride hazard.

It is apparent that the first signs of the biological effects of vinyl chloride inhalation do not become visible until after many years of exposure. With vinyl chloride, the latency period has averaged around 20 years. However, it has been difficult to pinpoint and correlate the known cases of disease with past

levels of exposure, in part due to lack of past exposure data. The best evidence thus far indicates that the workers who died were exposed to high levels of vinyl chloride for long periods of time. The only study to date that has compared exposure levels with disease, or the lack of it, was conducted by the the Dow Chemical Company at its Midland division. The results show a general cancer increase among heavily exposed workers (above 200 parts per million on a time-weighted average for an eight-hour day) but none among workers below that level. No angiosarcomas were found. In general, the Dow study tends to show that low levels of VCM exposure do not result in an excess of disease.

The OSHA record also establishes that there are 36 vinyl chloride plants in the United States and that the 13 known worker deaths occurred among the employees of four plants--seven at one plant, three at another, two at a third plant and one at a fourth. All four plants involved are more than 20 years old. Again, while it is not precisely known what the exact levels of past exposure were at these plants, testimony developed at the OSHA hearings indicates that the levels of exposure were substantially higher than those which prevail in the industry today. Four other vinyl chloride plants in the U. S. are more than 20 years old but had no angiosarcoma cases, which may indicate that operating levels were below the threshold needed to cause the disease.

Because of the difficulty in establishing the exact level of hazard, great importance has been placed on the animal studies conducted in Italy and the United States. The results of these tests thus far can be summarized as showing

1. Angiosarcoma of the liver is both time and dose-related--the heavier the exposure the more animals become diseased; and the longer the exposure,

greater chance for contracting the disease.

2. Angiosarcomas have been detected in old test animals (rats) at exposure levels of 50 parts per million. Deaths in mice have been reported at 50 ppm.

3. Other neoplasms in addition to angiosarcoma have been reported by Dr. Maltoni in his animal test work as being VCM-related.

Great speculation has centered around this rather narrow body of test data, the critical point being whether the animal results are translatable to human experience and to what degree. For instance, it is known that some of the test animals used to date are significantly more sensitive to the development of angiosarcoma than humans.

The question of VCM hazard extending beyond those areas of maximum exposure in the polymerization process is also an open one. During the OSHA hearings, NIOSH included two "fabricator" angiosarcoma cases, one involving a worker who operated a wire-insulating machine and an accountant not directly employed in fabricating, but whose work allegedly required frequent trips into the PVC plant where he was employed. Similarly, the Center for Disease Control published in its June 15 morbidity and mortality report, indications of two angiosarcoma cases occurring among longtime residents of the Bridgeport-Stratford area in Connecticut, neither of whom had any direct occupational exposure but lived for long periods of time in the vicinity of the electrical products and the PVC processing plants mentioned above.

Since angiosarcoma of the liver is known to result from other causes, the significance of these cases is at this point difficult to determine. The CDC report stated that additional studies would be needed to define the risk factors for PVC workers and that in the suspected community exposure cases, the findings established no causal connection. Because most PVC processing plants currently operate at extremely low exposure levels except in mixing, storage, or unloading areas, SPI is of the view that worker risk in such facilities is probably non-existent.

The Environmental Protection Agency, on June 11, 1974, stated that based on preliminary monitoring results at seven chemical companies, including two vinyl chloride and 10 polyvinyl chloride plants, "there is no scientific evidence to indicate that these emissions pose an imminent hazard to people living near these plants. However, prudence dictates that reasonable steps should be promptly taken to reduce vinyl chloride emissions to the lowest practical level."

The Society of the Plastics Industry, Mr. Chairman, is certainly concerned about protecting not only the health of workers directly employed in the industry but the public at large. We hold the opinion that the "environmental ethic" must be shared by all segments of society and the industry must carry out its responsibilities in this regard.

However, our position is that decisions and policy judgments with regard to chemical substances must be made on the best available fact-finding basis. Supposition and conjecture cannot be relied upon to make these decisions.

Thus, in the OSHA proceedings SPI has contended that while needless risk should not be countenanced, where the degree of that risk has or cannot be determined, time should be provided to permit technologically feasible improvements to minimize actual or potential health hazard.

There is, of course, a debate over what constitutes feasible improvements to be resolved before appropriate forums. SPI has proposed in the OSHA proceedings a permissible level standard for PVC resin plants as follows:

1. Effective October 5, 1974, a ceiling of 40 parts per million of VCM and a maximum daily time-weighted average of 25 parts per million (levels above 40 ppm would require the use of respirator protection.)
2. Effective October 5, 1975, a ceiling level of 25 ppm with no time-weighted average. (respirators to be worn at levels above 25 ppm.)
3. Effective October 5, 1976, a ceiling of 25 ppm with a maximum time-weighted average of 10 ppm. (levels above 25 ppm require respirators.)

As regards worker safety, SPI believes this recommendation to be both feasible and capable of protecting employees. Further, SPI believes that adoption of a final workplace safety regulation must not require operational levels which tend to drive out the majority of independent producers and permit the continuance of only a few who, for varying reasons, can meet such levels.

The chairman, wearing his other hat as a member of the Anti-Trust and Monopoly Subcommittee, is better equipped than I to evaluate this problem.

Certainly, the plastics industry has not shrunk from its worker and environmental responsibilities to date nor does it intend to. The current vinyl chloride problem would not have been avoided even if passage of the Toxic Substances Control Act had been completed during the first session of the 93rd Congress.

Nevertheless, SPI has no quarrel with legislation which attempts to reduce the future impact on human beings and the environment of new chemical substances, providing once again that such legislation recognizes that there are very substantial questions of feasibility involved. In that light, we believe that between the pending Senate-passed S. 426 and the House-passed H. R. 5356, the House language more realistically addresses the problem of pre-market testing and the proper assessment of environmental and human health impact prior to the development of new technologies.

In conclusion, Mr. Chairman, let me state that the plastics industry is no less a passenger on Space Ship Earth than any one else. As corporate and individual citizens we also want an environment which is not fraught with hazard. We therefore ask only that all involved should approach this task in a manner that permits us to make laws and regulations which fit Aristotle's description: "That law is reason free from passion."
