

12-16-85

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The Honorable Michael N. Castle
Governor of Delaware
State Capitol Building
Dover, Delaware

Re: Regulation of Vinyl Chloride Monomer

Dear Governor Castle:

On October 22, 1985 you addressed the State Affairs Committee of the Chemical Manufacturers Association. During this presentation, you referred to Delaware's "problem with vinyl chloride gas," your uncertainty concerning the health effects on the general population of releases of vinyl chloride into the air, and the "consistently poor safety practices" of a polyvinyl chloride (PVC) plant owned by Formosa Plastics Corporation.

The Vinyl Institute, a division of the Society of the Plastics Industry, Inc. represents the major domestic producers of vinyl chloride monomer and PVC.* / we strongly agree with your conclusion that neither the public nor members of the chemical industry should "tolerate failure to comply with the law and meet reasonable safety standards."

*/ SPI, the major national trade association of the plastics industry, is a Corporation organized under the Not-for-Profit Corporation Law of the State of New York. Its 1,700 member

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Our primary purpose in contacting you is to indicate our desire and availability to provide technical information on emission control. Members of the Vinyl Institute have been instrumental in dramatically reducing emissions of vinyl chloride as confirmed by U.S. Environmental Protection Agency (EPA) reports.

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We are particularly interested in the application of remedial solutions with proven success to the Formosa facility. This is a concern for two reasons. First, the use of unreliable or unproven control technologies may provide no additional protection to the public and could very well

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companies and individuals and 49 operating units include those who supply raw materials; process or manufacture plastics or plastics products; and engineer or construct molds or similar accessory equipment for the plastics industry. The majority of SPI members are the processors and converters of plastic resins into end products which represent 75% of the dollar volume sale of plastics in this country.

Members of the Vinyl Institute include Air Products & Chemicals, Inc., The BFGoodrich Company, Borden, Inc., Certain-Teed Corporation, The Dow Chemical Company, Georgia Gulf Corporation, Occidental Chemical Corp., PPG, Inc., Shell Chemical Co., Tenneco, Inc., and VISTA Chemical Company. Members of the Vinyl Institute account for approximately 72% of the domestic production of vinyl chloride and 76% of the domestic production of polyvinyl chloride. The Vinyl Council of Canada is a Special Member of the Institute. ICI Europe Ltd. Petrochemicals and Plastics Division is an Associate Member.

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distract both the state and Formosa from implementation of a real solution. Second, well-intentioned but misguided corrective efforts here may lead to unnecessary expenditures and regulation elsewhere throughout the industry.

An example is a provision in Formosa's consent order requiring it to install a vinyl chloride gas containment system, a so-called "gas holder," to minimize emergency venting through relief valves on PVC reactors. In the enclosed letter of September 30, 1985, to Secretary John E. Wilson of the Delaware Department of Natural Resources and Environmental Control, we stressed that gas holders alone will not reliably prevent releases and they are inherently unsafe.

By way of background, vinyl chloride is a gas at ambient temperatures. During its conversion to PVC, known as polymerization, vinyl chloride is placed in a reactor together with an initiator to commence the polymerization reaction. This reaction generates heat (exothermic) and must not be allowed to accelerate to the extent that the heat of reaction cannot be removed by reactor cooling devices. Reaction rates tend to increase as the temperature increases. If the heat of

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reaction is not removed, a runaway reaction can develop and the rapid increase in temperature will increase the pressure inside the reactor vessel beyond safe limits. The size of polymerization reactors and the close proximity of reactors to each other represents the greatest potential for an explosion hazard. It is for this reason that safety regulations and insurance companies require and strictly enforce the use of safety relief devices on pressurized equipment, such as PVC reactors. See, U.S. EPA, Vinyl Chloride - A Review of National Emission Standards, §§ 3.4.1 and 4.2. (1982).

Obviously, a well-trained staff and well-maintained facility are fundamental prerequisites to minimizing vinyl chloride emissions. Nonetheless, even the best-run facilities will, for a variety of reasons, experience abnormal reactor conditions that can potentially lead to excess pressure. The best method of preventing releases from polyvinyl chloride reactors, in our opinion, is to install a system to control over-pressure by very rapidly stopping the reaction. This is generally referred to as "short stopping." Short-stop systems exist that can stop a reaction quickly and prevent the over pressurization that might trigger a release under adverse

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conditions such as power loss, cooling water failure, or loss of mixing in the reactor. We believe a good system of this type would be more effective and safe in preventing emergency vinyl chloride releases from reactors than a gas-holder containment system. Containment systems are not the best available technology and are not an adequate way to deal with accidental emissions.

We would very much appreciate the opportunity to discuss this matter with you, your staff or the Department of Natural Resources to avoid a costly mistake. Although we made this same offer and suggestion in our September 30 letter to Secretary Wilson, unfortunately we have received no response. We look forward to hearing from you on this matter.

Very truly yours,

Roy T. Gottesman
Executive Director

cc: John E. Wilson, Secretary DNREC
Thomas P. Eichler, EPA Regional Administrator

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