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C. J. KLEMPERT

PROPOSED STATEMENT TO OSHA
FROM THE FIRESTONE PLASTICS COMPANY

February 26, 1974

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The Firestone Plastics Company, a Division of The Firestone Tire & Rubber Company, has its company headquarters in Pottstown, Pa. The company began its PVC polymerization activities in September of 1947 when it constructed its first plant in Pottstown, Pa. This plant has been expanded and continually modernized since its inception. During its history this facility has produced over 2 billion pounds of PVC with no incidence of occupationally related health problems. In 1968, due to the increased demands of the entire plastics industry, Firestone started up a new PVC polymerization plant in Perryville, Maryland.

Firestone does not manufacture VCM but purchases it on the merchant market from various manufacturers.

At our divisional headquarters in Pottstown we carry out Research and Development activities, technical services, and maintain an extensive engineering staff devoted to new product development, process improvement, process efficiency, and plant design, as well as normal production functions. Directly on the premises of each of our facilities we have at least one safety engineer whose prime function is to maintain safe working conditions for our employees. Our employees are trained regularly on the safe handling of chemicals using the best information available. Proper labeling of toxic or corrosive chemicals is maintained and standard safe handling procedures are known to our employees and are rigorously enforced.

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Periodic plant inspections by our Corporate Industrial Hygiene Staff take place to supplement our divisional safety programs. Typical, but highly effective, safety contests and employee safety incentive programs are regularly implemented.

Our Perryville, Maryland facility is a modern high volume production plant that produces PVC homopolymers and plastomeric PVC pelletized compound. Aqueous suspension polymerization is the only method used in this plant at this time.

The Pottstown plant is a more diverse operation. In this plant we produce PVC homopolymers by both suspension and quasi emulsion polymerization methods. In addition, various copolymers of VC, using vinyl acetate and maleate esters, are also manufactured. Vinylidene chloride is not and has not been used in any of our production operations for the last 20 years. Our reactors are typical of those used in the industry as well as our finishing and drying operations which include both rotary and spray drying systems. All of our raw materials are purchased against rigorous raw material specifications and most are regularly checked by our Analytical Department to determine if they comply with our purity specifications.

On January 23, 1974, we were advised by the Manufacturing Chemists Association (MCA) that B. F. Goodrich had a probable occupationally related health problem in their Louisville, Kentucky plant. Industry representatives were invited to an emergency meeting in the MCA office, Washington D. C., on January 25, 1974, at which time B. F. Goodrich representatives briefed us on the information available to date relating to the incidence of angiosarcoma in Louisville. The problem B. F. Goodrich presented

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to us is now well-known and the prompt responsible actions taken by B. F. Goodrich in relating the evidence they had to the proper State, Federal, Labor, and Industry representatives is highly commended by our company.

Firestone was represented at this MCA briefing session by key technical and medical management personnel. Upon return to Pottstown that evening, and again on Saturday, January 26, 1974, top management of the Plastics Company was advised of the Goodrich situation. It was decided that it was our management's responsibility to promptly advise our PVC workers of the B. F. Goodrich findings.

On Tuesday and Wednesday, January 29 and 30, 1974, our plant management, in both of our PVC plants, met personally with all of our people in small groups of 12 to 15. They presented the information we had available at that time, basically that which appeared in the B. F. Goodrich press releases, and promised to keep our people abreast of any new developments. Questions presented by our workers to plant management that could not be answered on the spot were followed up later and the best answers we had at the time were provided.

This was our immediate response to a very serious situation and one designed to indicate to our employees that management was active in (1) trying to understand the problem, and (2) prepared to take whatever action was necessary, based on a calm analysis of the situation, to protect the health and safety of our employees.

We now wish to direct attention to five major topics that all in one way or another bear on the situation at hand:

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1. VCM handling and exposure.
2. PVC handling and exposure.
3. Medical procedures.
4. Support of various industry organizations.
5. Future planned activities.

1. VCM HANDLING AND EXPOSURE

VCM is a gas at ambient temperature that is heavier than air and tends to disperse poorly in the air, therefore technically accurate monitoring has presented some very difficult problems. On a regular basis, for some years, we have been taking spot air samples and determining their VCM contents. If areas of high concentrations were recognized, corrective measures were taken.

We have always recognized reactor cleaning as the most likely place for high worker exposure to VCM. On this basis, we have designed our operations to function with the minimum number of reactor openings and worker entries between polymerization batches. Using the most advanced engineering techniques, we have made great strides over the years, on both a chemical and mechanical basis, to reduce the number of times a man must enter a reactor, thereby reducing the worker exposure hazard. Additionally, reactors are ventilated with fresh air prior to entry of the cleaner and during his time in the reactor. Other safety procedures that our company recognizes for entering closed vessels, that do not bear on this problem, are also routinely carried out. Self-contained air masks are provided throughout the plant in case of accidental high air exposures of VCM.

We sincerely believe we have taken all the necessary precautions to prevent employee exposure to all the chemicals we use consistent with the knowledge we have had of the toxicity of these chemicals.

2. PVC HANDLING AND EXPOSURE

The polymerized PVC in the form of a slurry in water or an emulsion is moved through a closed piping system to a degassing type stripping vessel. Unreacted VCM is removed by vacuum and sent through a closed system to a purifying system and recovered for reuse. The product is now pumped to large blend tanks located outside of the plant.

In the case of the slurry or suspension polymers, the product is moved again through a closed system to a solid bowl centrifuge where the large mass of the water is removed. The wet cake (~15% moisture) is then gravity fed to rotary dryers where the remainder of the water is removed. The product from the discharge of the dryer is conveyed via a closed system either to closed bulk storage bins or put into 50-lb. paper bags.

In the case of the quasi emulsion polymer, after being pumped from the blend tanks, it is spray dried. This product currently is all packaged in paper bags and not stored in bulk.

The following general facts are known to us:

- a. All freshly dried resin contains extremely small amounts of entrained VCM.

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- b. Emulsion resins, commonly called dispersion resins, are very fine in particle size and dusty and plant design takes this potential dust hazard into account.
- c. Suspension resins, often called general purpose resins, are generally coarse in particle size and generally provide little hazard in terms of airborne dust.
- d. With the tendency of the various resin types to become airborne, we can state that fortunately the emulsion resin, the dusty types, when freshly made have extremely low levels of entrained VCM - in the order of 10 ppm or less.

The suspension grade products, which pose a small dust problem when freshly made, may contain higher levels of entrained VCM - averaging perhaps to 300-500 ppm.

Therefore, one may conclude those PVC resin grades that potentially can be in the breathing zone of the worker contain extremely low to non-measurable amounts of VCM while those that do present the least likelihood of inhalation do contain measurable but low levels of VCM.

One would conclude from the facts presented that PVC dust presents a very unlikely source of high VCM exposure to the worker. In addition, the closed conveying systems used to move PVC throughout the plant tends to reinforce this thinking.

3. MEDICAL PROCEDURES

A medical dispensary is located on the premises of our Pottstown plant which is staffed 24 hours per day. An M.D. is on the

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premises approximately 3-4 hours per day and is on call at all times. Perryville, being a smaller plant, uses the services of a nearby hospital dispensary, but always has an M.D. on call.

A pre-employment physical examination is mandatory. Any employee returning to work after being away for more than 7 calendar days is required to report to our company doctor for screening prior to returning to his regular work station.

We have examined all the death certificates of employees of our Pottstown plant who died while in the employ of Firestone and our retirees. This was accomplished through a study by the University of North Carolina School of Public Health and covered the period 1964 through 1972 and from our own records for calendar 1973. This initial study showed no deaths due to angiosarcoma.

In addition, we pursued hospital records and autopsy reports on all those deaths that were due to liver disease and again found none due to angiosarcoma. To be certain we have not missed anything, this study is continuing.

Therefore, to the best of our knowledge, based upon the best medical counsel available to us, no deaths have been due to angiosarcoma in our PVC worker population.

4. SUPPORT OF VARIOUS INDUSTRY ORGANIZATIONS

Firestone has been an active member of MCA for many years, as well as charter members of the Vinyl Chloride Safety Association - an independent organization composed of most

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PVC and VCM producers. In addition, we are active members of SPI and SPE and several other organizations which are concerned not only with dissemination of technical information but with safety and health activities in our industry.

While we regularly participate in many of the activities of each of these organizations, the emphasis here is the MCA activities that have been already made part of the record. We have contributed financially and professionally to all of the VCM/PVC related MCA studies which include:

Animal exposure studies by Industrial Bio-Test Laboratories, Epidemiological studies by Tabershaw-Cooper Associates, and The Acroosteolysis study now completed.

We plan to continue our active financial and professional support of additionally planned MCA studies as well as those that we deem appropriate by other organizations that bear upon the problem at hand.

5. FUTURE PLANNED ACTIVITIES

As well as supporting studies by the various organizations just mentioned, we also are implementing the following programs:

- a. Increased medical surveillance of all our PVC workers as recommended by medical teams already seeking out appropriate medical protocols.
- b. Implementation of a multipoint, continuous, sequential monitoring system for VCM and a personal VCM monitoring system. Where such monitoring indicates areas of high exposure, a system for tracing the source of exposure will be utilized and the necessary corrective actions will be taken.

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- c. Any and all work practices that are deemed appropriate to reduce worker exposure to VCM are already being implemented by plant management.
- d. While we consider our plant ventilation systems quite effective, we are already taking steps to improve this as well as taking other engineering steps designed to reduce worker exposure to VCM.

On all of these matters we will work closely with other members of our industry and our labor unions so that we can best pool our expertise as well as with the appropriate State and Federal agencies so all of the necessary corrective steps indicated may be taken just as promptly as possible.

In conclusion, Firestone takes the position that -

1. The high incidence of angiosarcoma found in the B. F. Goodrich plant in Louisville is beyond coincidence and justifies immediate investigatory action by both industry and government.
2. We further expect and look forward to a reasonable set of work practice standards that deal directly with the problem to be developed jointly by industry, labor, and government. Firestone will implement such work standards in its plants just as soon as it is practical.
3. We offer our expertise and cooperation to other members of our industry and to labor and government who are acting toward a responsible solution to this problem.
4. Firestone is already committed, as outlined above, to unilateral actions in terms of increased medical surveillance, VCM monitoring, and improved work practices and any other appropriate measures designed to reduce VCM exposure to the workman.

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5. We therefore sincerely request that all parties involved in this investigation refrain from acting with undue haste resulting in the issuance of a Temporary Emergency Standard which may create economic upheaval immediately effecting labor and industry and ultimately government.
6. Finally, Firestone addresses itself to this problem primarily in light of its ethical and moral responsibilities to its employees and seeks responsible, rational action and guidance from all concerned leading toward improved employee safety.