


 UNION
CARBIDE

INTERNAL CORRESPONDENCE

CHEMICALS AND PLASTICS

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DATE February 11, 1974

COPY TO Mr. T. L. Rapp
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 Suspension Unit Supervisors ✓

SUBJECT Vinyl Chloride Safety Association
 Meeting, Cleveland, Ohio
February 8, 1974

The following brief report of the subject meeting which I attended will be of interest to you. Any questions you may have I will be glad to answer. This special meeting, attended by 59 people representing most of the association members, was called after the President, Joe Mudd (General Tire), started getting calls about articles appearing the press (e.g. Wall Street Journal, January 24, 1974) indicating that the death from angiosarcoma of three, and possibly four, workers at B. F. Goodrich's Louisville PVC plant might be job related. He contacted Goodrich who indicated that they had given all the facts to the Manufacturing Chemists Association (about 75% of VCSA members belong to MCA) and did not want to make a formal presentation to the VCSA at this time.

Walt Iliff, Uniroyal, reported on a MCA meeting called in Washington the previous week after Goodrich published their information. (Nick Wheeler attended this meeting for UCC and will have more details than are presented here.) Iliff's report indicated the following:

Dr. Creech, plant physician at Goodrich's Louisville plant, became aware that the death of three workers from angiosarcoma might be job related and notified the government (NIOSH). Dr. Creech also called attention to the first case of occupational acroosteolysis several years ago. The MCA indicated to NIOSH that they and the vinyl chloride research group already studying AOL were willing to cooperate with them. Task forces of MCA representatives were formed to study various phases of the problem. Dr. Dernehl, Nick Wheeler and perhaps others from UCC are on some of these task forces. A public hearing has been called in Washington February 15, 1974 at which time MCA will present a statement to the Department of Labor.

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Also the MCA task forces will have a meeting in Chicago February 19 and 20. On February 20, MCA members who have contributed to the Tabershaw-Cooper study will receive a preliminary report of that study. A full Tabershaw-Cooper report will be presented at a meeting of the International Cancer Society in October at Florence, Italy. The Tabershaw report will show that 122 people out of 6,000 surveyed show some liver damage.

Following Iliff's report on MCA activity, there were a number of comments concerning instruments and methods employed by various companies to determine vinyl chloride exposure levels in their plants. Of note, Goodrich reported that they were using a Century instrument for spot samples and a Bendix instrument for continuous monitoring. NIOSH inspectors (Vernon Rose, Dr. Lassiter, Mr. Falk) who came to Goodrich's Louisville plant had expressed concern that the Century instrument did not discriminate between various organic vapors. Goodrich also reported that NIOSH had no instrument of their own. General consensus was that J. W. type monitor was good only for a general test. A Century type could be used to pick the worst spots and then put a Bendix type at these spots.

I described briefly the method employed in our recent TLV study at Texas City using activated carbon tubes. Dow strongly supported this type of sampling.

It was noted that the present federal laws call for 500 ppm limit for eight-hour exposure to VCl vapors. The American Conference of Governmental Industrial Hygienists has recommended 200 ppm with an excursion limit of 250 ppm. Someone said that 250 ppm is the odor threshold.

At this point Bogart of Tenneco stated that his opinion was that the VCSA should make no statement as a group to NIOSH or any other organization since the purpose of the VCSA was the free exchange of safety information concerning vinyl chloride among members. There was general agreement with this opinion. Most of our companies are already working through MCA.

ICI reported that a post mortem on a retired poly operator killed in an automobile accident suffered angiosarcoma. He was 71 years old, retired two years ago, had worked in emulsion PVC plant for 20 years.

Hooker reported that a NIOSH team representing both state and federal agencies unexpectedly visited their New Jersey bulk process PVC plant about a week after the WSJ article.

After lunch, Herman Waltemate of B. F. Goodrich, who had accompanied the NIOSH team on their tour through the Louisville plant, went

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over the list of recommendations from NIOSH to Goodrich. Copy attached. Waltemate also said that next Thursday, February 14, Goodrich will show Rose and other NIOSH people through their Pedrickstown PVC plant - much more modern than their Louisville facility. Goodrich is moving to comply with many of the recommendations. They wondered about NIOSH's concern about vinyl dust. Others too considered dust primarily only as a nuisance. A number of people expressed concern about some of the recommendations - daily clothes changes, impervious suits in cleaning operations, self-contained breathing apparatus and others. Waltemate stated that the four workers affected with angiosarcoma had work experiences of 15 to 28 years in all areas of the plant.

General Tire then described in some detail their procedure for venting and preparation for entry of autoclaves at their Ashtabula, Ohio PVC plant between batches. They have installed a gas holder (50,000 ft³) for venting autoclaves to. This is maintained at about 1 psig by constantly pulling off of it with a compressor to a condenser. They reported a considerable increase in monomer recovery and now have over 97% vinyl chloride accountability! Safety aside, we should consider a gas holder for our operation.

The meeting adjourned after agreeing that we should meet again in two - three months to review new developments.

R L Frantz

R. L. Frantz

RLF/st

Attachment

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Enclosure 1

**NIOSH Recommended Precautionary Monitoring and Control Procedures for
Polymerization Processes Involving Vinyl Chloride**

I. General Housekeeping Procedures

A. The spillage of Vinyl Chloride and Polyvinyl Chloride in and around the production facilities should be controlled as follows:

- 1. Housekeeping procedures should be implemented to assure immediate removal of VC and PVC material around polymerization operations including drying, packaging and loading operations.**
- 2. Recovered PVC material which is to be packaged should be stored in closed containers.**
- 3. Waste PVC material should be stored in closed containers and consideration should be given to the adequacy of its disposal and/or destruction. Care should be taken in the storage of closed containers to insure that unsafe conditions do not result from an internal build-up of pressure in the container.**

B. Inventories of beginning and recovered quantities of VC and quantities of PVC produced, packaged and recovered should be made to determine losses and probable areas affected.

C. PVC material should be removed from overhead structures and conduits where it tends to collect.

D. Consumption of food should be permitted only in separate facilities provided for this purpose, and no food products should be permitted elsewhere in the polymerization facility.

II. Protective Clothing

A. A daily change of protective clothing including full coveralls, or the equivalent, should be provided each employee in areas where possible exposure to VC PVC could occur. Clothing contaminated by accidental spills should be changed as soon as feasible.

B. Protective gloves and footwear, or footcovers, should be worn as appropriate in those PVC operations where exposure to PVC material is possible.

C. Protective head covers should be worn during PVC operations as appropriate (e.g. hard hats in those areas where physical protection of the head is necessary and hair coverings, or the equivalent, in

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operations such as cleaning of polymerization reactor tanks and packaging operations).

D. Where employees are engaged in maintenance or cleaning operations of polymerization reactors tanks they should wear full impervious suits to guard against skin contact of PVC material and VC vapors. Procedures for safe entry to confined spaces should be observed.

III. Showers

Showers at the termination of an eight-hour work shift should be mandatory for all workers with possible contact with VC-PVC.

IV. Monitoring

A. Environmental Monitoring

1. In-plant environmental monitoring programs should be implemented; and where workers are required to enter polymerization tanks, a survey of the VC concentrations should be made in the reactors immediately after opening, immediately prior to entry of maintenance personnel and during the tank cleaning operation.
2. Data obtained from the environmental monitoring program should be used to indicate those areas where efforts should be directed to reduce airborne levels of VC.
3. Positive programs to initially control VC levels well below the present Federal Standard of 500 ppm should be developed (some companies are targeting at 50 ppm) and efforts to further reduce levels should be given consideration concomitantly with the necessary modifications in engineering and design controls.
4. The concentration of VC in exhaust ventilation should be determined to estimate the amount of VC lost during operations and the possible exposure of personnel immediately outside the facility.
5. Monitoring for PVC particulate material should be accomplished to estimate the degree of exposure to this substance throughout the facility.

B. Personal Monitoring

1. Integrated, eight-hour personal monitoring samples should be obtained from those employees considered to receive the greatest exposure to VC or PVC.

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2. Breathing zone samples should be obtained to complement environmental monitoring program for VC, and similar samples should be obtained for PVC.

V. Respiratory Protection

Because VC is a gas under ambient conditions and PVC is a solid under these conditions, it is recommended that respiratory protection for employees take these circumstances into consideration.

A. Where employees are engaged in cleaning and maintenance operations inside polymerization reactors they should be equipped with an atmosphere-supplied respirator in order to protect against both VC vapor and PVC particulates.

B. During housekeeping procedures and packaging operations where the possibility of PVC dust inhalation is a factor, it is recommended that an air-purifying respirator equipped with a mechanical filter designed to remove particulate material be worn. Respiratory protective devices which meet this requirement, as well as protect against VC vapors in concentrations less than 0.1% have been approved by the NIOSH Testing and Certification Laboratory and bear the numbers: TC-23C-40, TC-23C-47, TC-23C-48.

C. Where employees are engaged in transfer operations of VC from railway tankcars to storage facilities or at any similar transfer point which requires manual operations, they should wear a self-contained breathing apparatus (SCBA) during such operations to guard against unexpected release of VC during such operations. *(only when connect disconnected)*

D. Other operations involving possible exposure to VC or PVC should be evaluated as the individual situation exists and respiratory protection provided as appropriate.

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