



# MANUFACTURING CHEMISTS ASSOCIATION

1825 CONNECTICUT AVENUE, N. W. • WASHINGTON, D. C. 20009 • (202) 483-6126

November 19, 1971

To: Participants in the November 16, 1971 Vinyl Chloride Conference

Subject: Report on Proceedings of the Conference Held at the Hotel Washington, Washington, D. C.

Attendance:

|                  |                                    |
|------------------|------------------------------------|
| Anthony, M. V.   | Stauffer Chemical Company          |
| Bell, Z. G.      | PPG Industries, Inc.               |
| Cassidy, L. E.   | Canadian Industries, Ltd.          |
| Duffield, D. P.  | ICI Ltd.                           |
| Fedoruk, J. C.   | Allied Chemical Company            |
| Fritz, R. J.     | Esso Chemical Company              |
| Gabbett, J. F.   | Pantasote Company of New York      |
| Hendricks, N. V. | Standard Oil Company (N.J.)        |
| Johnson, M. N.   | Monsanto Company                   |
| Johnson, K. D.   | Manufacturing Chemists Association |
| Knapp, W. A.     | Allied Chemical Company            |
| Knoepfel, R. W.  | Solvay American                    |
| Lefevre, M. J.   | Solvay et Cie                      |
| Lindquist, A. B. | Stauffer Chemical Company          |
| McCormick, W. E. | The B. F. Goodrich Company         |
| Madden, W. W.    | Firestone Plastics                 |
| Mudd, J. R.      | General Tire & Rubber Company      |
| Pitts, S. F.     | Continental Oil Company            |
| Siegel, A. C.    | Tenneco Chemicals, Inc.            |
| Sheth, K. K.     | Allied Chemical Company            |
| Smith, W. M.     | Air Products and Chemicals, Inc.   |
| Torkelson, T. R. | The Dow Chemical Company           |
| Weekers, Pierre  | Solvay et Cie                      |
| Wheeler, R. N.   | Union Carbide Corporation          |
| White, N. G.     | Shell Chemical Company             |
| Zwicker, B.M.G.  | The B. F. Goodrich Company         |

Our present awareness of the alleged carcinogenicity of vinyl chloride monomer has resulted from studies begun in an effort to elucidate the mechanisms of pathogenesis of the osteolysis seen in some vinyl chloride workers. As most of the companies represented at this meeting were participants in, or otherwise

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concerned with, the Case Registry project at the University of Michigan. Dr. K. D. Johnson (MCA staff representative) led off the meeting with a brief report of the status of the project. He requested an indication of the interest of the project sponsors in an extension of the program beyond the exhaustion of currently committed funds, and pointed out that there is now on deposit with MCA to the credit of the individual project sponsors, adequate funds for the maintenance of the Registry for several more years.

Upon a showing of interest by the delegates present, Dr. Johnson agreed to send copies to each sponsor of the University of Michigan proposal for a project extension, together with a report of his remaining credit and anticipated cost for the indicated contract extension. He extended to any companies, not now a project sponsor, that have employees at risk and that may wish to become a party to the study, an invitation to request more detailed information on programs and costs from him at MCA. (Note: subsequent to the Conference, MCA received a University of Michigan proposal estimating a cost of \$4,000 per year for the maintenance of the Registry and its records.)

Mr. N. V. Hendricks summarized the recent events and publications which had alerted the industry to the reported tumorigenic properties of vinyl chloride, and called upon Mr. McCormick to report on the studies of this problem that had been made by MCA's Occupational Health Committee.

Mr. McCormick reviewed the literature reports, and summarized the information that had been received from Dr. P. L. Viola, the principal investigator in the reported studies, during a visit to the U. S. by Dr. Viola under the sponsorship of a group of interested companies. On the basis of these data, a suggested research protocol has been developed, and cost estimates secured from a number of competent consulting laboratories for the performance of the specified tests.

Dr. Marcel Lefevre traced the experience of Solvay et Cie with industrial hygiene problems associated with vinyl chloride synthesis and polymerization, and defined the relationship of his company to Dr. Viola's studies, both past and current. He revealed that additional exposure studies, at seven concentration levels, are now underway with a "composite" source of vinyl chloride, 50% acetylene derived and 50% from ethylene dichloride.

It appeared that any U. S. research should seek answers to three questions:

- (1) Are the tumorigenic properties of the vinyl chloride used in his studies by Dr. Viola related to vinyl chloride, per se, or to impurities present?

The following individuals were designated to serve on this group. Subsequent consultation with MCA management determined that these individuals could most appropriately operate as a planning group, without specific ties to any standing MCA technical committee, with oversight on behalf of MCA through its staff representative, Dr. K. D. Johnson. When and if they present a research proposal to MCA with a request for MCA administration, the Board will at that time, as a part of any such project authorization, define lines of organizational supervision and reporting for the industry steering committee set up to guide the project.

#### Ad Hoc Planning Group for Vinyl Chloride Research

Dr. M. V. Anthony  
Vice President-  
Environmental Affairs  
Stauffer Chemical Company  
Suite 1208  
1612 K Street, N. W.  
Washington, D. C. 20006  
(202) 347-7627

Mr. N. V. Hendricks  
Assistant Director for  
Environmental Sciences  
Standard Oil Company (N.J.)  
Medical Department  
30 Rockefeller Plaza  
New York, New York 10020  
(212) 974-2786

M. N. Johnson, M. D.  
Assistant Medical Director  
Monsanto Company  
800 N. Lindbergh Boulevard  
St. Louis, Missouri 63166  
(314) 694-2188

Kenneth S. Lane, M. D.  
Assistant Medical Director  
Union Carbide Corporation  
270 Park Avenue  
New York, New York 10017  
(212) 551-4787

Mr. W. E. McCormick  
Manager, Department of  
Environmental Control  
The B. F. Goodrich Company  
500 S. Main Street  
Akron, Ohio 44318  
(216) 379-2562

Dr. T. R. Torkelson  
Toxicology Specialist  
The Dow Chemical Company  
Chemical Biology Research  
1803 Building  
Midland, Michigan 48640  
(517) 636-5197

Mr. Norman G. White  
Manager, Industrial Hygiene  
Shell Chemical Company  
Div. of Shell Oil Company  
2525 Murworth  
Houston, Texas 77025  
(713) 666-6311

Mr. Benjamin M. G. Zwicker  
Director, Technical Planning  
B. F. Goodrich Chemical Company  
A Div. of The B. F. Goodrich Co.  
3135 Euclid Avenue  
Cleveland, Ohio 44115  
(216) 881-8200

Dr. Kenneth D. Johnson  
Manufacturing Chemists Association  
1825 Connecticut Avenue, N. W.  
Washington, D. C. 20009  
(202) 483-6126 x 244

- (2) If impurities are implicated, are the significant contaminants uniquely related to one or another of the commercial vinyl chloride synthesis methods?
- (3) If the pertinent carcinogen can be identified, can a "no-effects" level be demonstrated?

Inasmuch as the material used by Dr. Viola was of undocumented composition, and variously noted to contain from 1 to 3 percent impurities, and whereas American commercial practice now may specify total organic impurities to as low as 100 ppm (99.99% assay), some hope, but not great confidence, was expressed that it could be shown that Dr. Viola's results were attributable to the impurities in his sample. Mr. Knoepfel volunteered to attempt to identify the production lots from which Dr. Viola had secured his samples, and to secure available analytical data on such lots. The qualitative list of the impurities reported by Dr. Viola as present in his material is appended to this report of proceedings.

Mr. McCormick reviewed the test protocol his group had suggested, and expressed his view that current plans should contemplate the eventual need of an epidemiological survey of workers with possible exposure to potentially carcinogenic concentrations of atmospheric contaminants in vinyl chloride operations. He commented thereby that the \$183,000 low bid must be considered as just the start of the anticipated project costs, and that any epidemiology or protocol expansion could substantially increase the funding requirements.

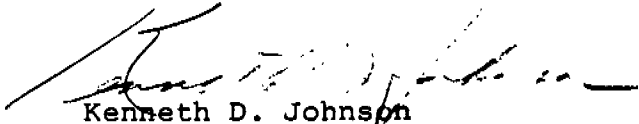
The suggestion that research costs be reduced by limiting the tests with acetylene-derived material to the highest exposure level only, primarily as a "positive control," received general support.

The problems of defining routes of funding or concurrence on a specific test protocol led to the decision to appoint a smaller study group to reach agreement on these points and to report the results of their deliberations in the form of a specific research proposal with specific funding requirements and mechanisms. One of the major questions posed to this group was the extent to which tests should be planned on a concurrent basis, to save time, or on a sequential basis, to minimize investment in tests subsequently shown to be unnecessary or non-informative.

The main conference adjourned at 2:45 P.M., and the Planning Group convened. They agreed that:

- (1) vinyl chloride manufacturers should be solicited for analytical data on their commercial grade of vinyl chloride, listing identified impurities and their characteristic ranges, methods of analysis, and limits of detection;
- (2) their interest be determined in contracting for the provision of a supply of vinyl chloride of uniform quality over the life of the research project, including their proposed specifications and analytical verification of specification conformance;
- (3) the Planning Group's proposal should include a recommendation for funding on a sharing of costs prorated among participating vinyl chloride producers and polymerizers on the basis of total capacity (monomer synthesis plus PVC production, each taken separately, as published in Oil, Paint and Drug Reporter and/or the Stanford Research Institute's Directory of Chemical Producers, is shown in attachment to this report);
- (4) that discussions with the offering laboratories be continued to clarify cost changes associated with suggested protocol modifications, and that Drs. Lane, M. N. Johnson, and Torkelson and Messrs. Hendricks and McCormick review test protocols in the light of new information developed at the conference, and prepare recommendations on a "best value" research protocol; and
- (5) the next meeting be held in Washington, Tuesday, December 14, at 9:00 A.M. (as the MCA Conference Room is not available at that time, MCA will arrange for a meeting room space in a convenient hotel, and will notify members of the Planning Group as soon as space can be confirmed.)

Respectfully submitted,

  
Kenneth D. Johnson  
Staff Representative

KDJ/cj  
Enclosures (3)

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