

TECHNICAL COMMITTEE MEETING

Hilton Gateway Hotel
Gateway Center
Newark, New Jersey
Seth Boyden Room

Thursday
February 1, 1990
9:30a - 4:00p

Attendees:

Frank Borrelli, Georgia Gulf
Larry Brecker, Witco Corporation
Charles Bush, BFGoodrich Company
William Carroll, Occidental Chemical
Bob Elcik, Occidental Chemical
Leon Fishbein, Borden Chemicals
Don Goodman, Occidental Chemical
Roy Gottesman, Vinyl Institute
Bud Hall, Vista Chemical
Robert Hinderer, BFGoodrich Company
Marcelo Hirschler, BFGoodrich Company
Fred Krause, BFGoodrich Company
Gabe Lefebvre, BFGoodrich Company
Richard Magee, NJIT
Al Reventas, Shintech

I. SELF-INTRODUCTIONS AND APPROVAL OF MINUTES

Following self-introductions, the minutes of the December 7, 1989 meeting were approved as received.

II. BUDGET DISCUSSION

Roy Gottesman presented information relating to the current status of expenditures. He noted that of a total budget of \$285,000, bills paid through January 1, 1990 totalled \$100,587.05. The encumbered, or amounts due, totalled \$182,237.67. The carry-over was thus estimated to be \$2,175.28.

He noted that he had estimated \$26,000 as being encumbered for the work being carried out on HCl decay modeling. As Dr. Hirschler estimated, this would amount to \$22,500, the amount that can be estimated for carry-over would be increased to \$5,675.

It was agreed that discussion on the development of the fiscal year 1990-1991 budget would be held after completion of the project reviews.

III. TECHNICAL INFORMATION PAPERS

A. VCM Generation in Landfills

Roy Gottesman reported that the paper on this subject prepared by John Krokosky of Dow had been cleared by his management and had subsequently been submitted to the committee chairman in the approval sequence. He has received approval from Chuck Bush and Mike Reynolds and is awaiting legal approval. The overall conclusion of this paper is that vinyl chloride monomer is not generated from PVC in landfills.

It was agreed that following legal approval, we should attempt to publicize the availability of this information in the trade press.

Assignment:

Roy Gottesman - After legal approval is received from Bob Luss, complete the editing/revisions needed and have the technical information paper on "VCM in Landfills" issued. Arrange with Edward Howard and Company to issue a press release to the appropriate technical magazines announcing the publication of this paper and its availability by request from the Vinyl Institute.

B. Technical Paper on Indoor Air Quality Effects

Roy Gottesman noted that this paper, which had been developed by Frank Borrelli and edited by Edward Howard and Company, our agency, was at the printer and will be available shortly. After discussion, it was agreed that this paper will be made available to member companies, but that we will not publicize it widely. In that fashion, companies who receive requests for information relating to this subject can distribute this paper.

Assignment:

Roy Gottesman - Send out 50 copies of the technical paper "Indoor Air Quality" to each member company representative to be used as needed by the individual companies to respond to inquiries.

It was also agreed that since both of these technical information papers have now been completed, this item will be removed from the agenda.

IV. PROJECT REVIEWS

A. Incineration/Heavy Metals

1. Incineration (General)

Dr. Magee's statement on incineration is still under review at the Academy of Natural Sciences in Philadelphia. Dr. Bush suggested that a summary of incineration information suitable for consumption by a layman would be useful.

Assignment:

Dick Magee - Prepare an abbreviated version of the summary of the report on incineration he wrote for SPI in a form suitable for laymen. Roy Gottesman will then have Edward Howard and Company edit this version for use in an "information package" on PVC and incineration.

Roy Gottesman suggested putting together a package on incineration information including the one-page laymen's summary overview.

Assignment:

Roy Gottesman - Work with Dick Magee to decide on other items to be included in the "information package" on incineration, viz. reprints/articles.

Dick Magee provided a draft of information that resulted from the CORRE Conference on Incineration in Washington in September 1989. This report, which represents an international peer review on the subject indicates that there is no correlation between PVC content in solid waste and dioxin generation in incineration. This report is expected to be released within a month and the Council For Solid Waste Solutions will be preparing a layman's version of the report after its release. It was agreed to include this in the incineration package that is to be developed.

Dick Magee provided a copy of a paper entitled "Basic Research on the Emission of Poly-cyclic Aromatic Hydrocarbons Caused by Waste Incineration" by K. Yasuda and associates in Japan which was published in the December 1989 issue of JAPCA. As this work is seriously flawed, the American Society of Mechanical Engineers has written to the editor of this journal expressing the view that the

engineering conclusion drawn is incorrect and "highly misleading". Dick Magee provided a copy of a letter by K.C. Lee which has been sent to JAPCA.

2. Lead Stabilizers in PVC

Bud Hall pointed out that there are critical and non-critical uses for lead stabilizers in PVC. While substitutes can be found for most areas, the only critical area is in wire and cable insulation.

Any progress that can be made in cleaning up wire and cable scrap so that PVC can be reclaimed and lead can be removed from the waste stream would be very helpful. Both Bud Hall and Fred Krause indicated that some preliminary work has been carried out by their respective companies. While there has been progress, feasibility has not yet been demonstrated.

Roy Gottesman suggested that the Vinyl Institute should consider sponsoring work on this. He suggested that a possible approach might be to ask lead producers or the lead industry's association for their assistance in this problem. Bill Carroll offered an opinion that we might want to consider the Hafner technology. Building on this idea, Roy suggested that the technology being developed at RPI by Dr. Bruce Nauman might be suitable for removal of PVC away from inorganic materials.

Following some discussion, it was agreed that a small subcommittee should be set up to develop a strategy for recovery of PVC and safe disposal of lead from wire and cable insulation scrap.

Assignment:

Roy Gottesman - Coordinate activities of a committee consisting of Bud Hall and/or Joe Ledvina (Vista), Gabe Lefebvre (BFGoodrich), and Lee Fishbein (Borden) to develop a strategy for recovery of PVC and safe disposal of lead from wire and cable insulation scrap. This committee should investigate the RPI technology under development by Dr. Bruce Nauman for its applicability here.

3. Council For Solid Waste Solutions Policy Statement

Bob Elcik reported that the Council For Solid Waste Solutions (CSWS) will issue a statement urging the

removal of heavy metals such as cadmium, lead, mercury and hexavalent chromium from all plastics where substitutes are available. It is expected that this statement will be issued on February 15, 1990.

Assuming that this statement is acceptable to the Vinyl Institute, Roy Gottesman suggested that the Vinyl Institute consider endorsing CSWS's proposal.

Assignments:

Bob Elcik - Provide a copy of the final approval position statement by CSWS on heavy metals to all members of the Technical Committee.

Chuck Bush/Roy Gottesman - Review CSWS position statement on heavy metals and make a recommendation to the Vinyl Institute Executive Board on its endorsement of this statement or a modification thereof.

4. Franklin Associates Report

Gabe Lefebvre reported on the analysis carried out by Larry Brecker at the Witco laboratories on the levels of lead in imported shoes. It was found that the lead levels were very low and after considerable discussion, it was agreed that Gabe Lefebvre should indicate that a level of 0.5 phr should be used by Franklin Associates in determining the lead level contribution from shoes (rather than the originally-suggested 4.0 phr level).

It was agreed that it is necessary that the Franklin Associates report be completed and that concerns about the methodology be communicated to EPA. Further, it was noted that the level of lead from vinyl sources is decreasing annually.

Gabe Lefebvre further suggested that the revised Franklin Associates report be incorporated into a new EPA draft on regulating lead and cadmium, which is being finalized. He noted that an EEC directive has been issued to ban cadmium in pigments and to eliminate its use in stabilizers in 18 months.

Assignment:

Gabe Lefebvre - Meet with Franklin Associates and arrange for revisions and the publication of their

report regarding the usage of lead stabilizers. See that the revised Franklin Associates report is submitted to EPA.

It was agreed that once the Franklin Associates report is issued, it will be publicized through the Vinyl Institute and provided to our member companies.

5. Swedish Proposal for Incineration Study

Gabe Lefebvre reported that in his recent visit to Europe, he had been advised by Harold Clayton of Norsk Hydro that they have solicited a proposal from Professor Christopher Rappe to carry-out an incinerator study. This study is estimated to cost approximately \$200,000. Although there were some reservations as to the necessity for this work and whether the Vinyl Institute should be supporting it, it was agreed that Gabe Lefebvre should obtain a copy of the proposal for review.

Assignment:

Gabe Lefebvre - Obtain a copy of the proposal from Professor Rappe to Norsk Hydro for an incinerator study from Harold Clayton. Send copies of this proposal to Chuck Bush, Roy Gottesman and Dick Magee for evaluation/critique and determination as to desirability/necessity of VI funding/involvement.

B. Recycling Projects

1. Sortation

a. NRT

Bill Carroll reported that NRT is obtaining the equipment, the x-ray source having been ordered and another detector source having been contacted. Baled, mixed bottles for experimental work have been supplied by OxyChem.

Assignment:

Bill Carroll - Arrange for review meeting at NRT in Nashville on March 6th and confirm the meeting date and time with Frank Borrelli, Lee Fishbein, Roy Gottesman and Fred Krause.

b. CPRR/PRF

Frank Borrelli reported that he, Bela Mikofalvy of BFGoodrich Company and Roy Gottesman had visited Rutgers on January 30th and saw a demonstration of the ASOMA unit applied to a mixed plastic stream. Frank noted that the unit seemed to work extremely well, eliminating PVC bottles. A crushed bottle was also detected.

Both Frank Borrelli and Roy Gottesman indicated that the program requires coordination and deployment of the requisite manpower, so that we could have a demonstration plant available and operating to show people starting the second quarter of 1990.

Assignment:

Frank Borrelli/Bill Carroll/Roy Gottesman - Arrange to meet with Wayne Pearson (PRF) and Rutgers (CPRR Administration) to assure that the "ASOMA" separation process receives the necessary manpower, resources and priority during the PRF Annual Meeting in Atlanta on February 28-March 2, 1990.

c. Canadian Sortation Technology

Bill Carroll inquired whether any meeting participants had knowledge of a small company in Montreal that is reportedly developing sortation technology to separate PVC from PET. None of the meeting participants had any information to offer.

Assignment:

Bill Carroll - Attempt to obtain information on PVC separation technology reported to be available from a company in Montreal and advise the Technical Committee regarding evaluation of same.

d. Rhode Island/New England CRInc.

Lee Fishbein reported that he had written to Victor Bell advising him of the sortation projects underway under Vinyl Institute sponsorship and strongly urging that Rhode Island includes vinyl plastics in their future

collection plans. Bill Carroll noted that Janet Keller on Bell's staff is apparently still very anti-PVC despite the September meeting which Lee Fishbein and Roy Gottesman had with both Victor Bell and her.

Lee also reported on his recent contact with Steve Katz at New England CRInc. Lee provided an update of the sortation projects and Bill Carroll indicated that he has been in contact with New England CRInc. regarding the OxyChem buyback program. Lee Fishbein noted that New England CRInc. has been awarded contracts for MRFs in Dutchess County, New York and in Maryland. He noted that Steve Katz indicated a willingness to help arrange a demonstration for PVC sortation at a large MRF when we have the developed technology. He further noted that New England CRInc. is very negative on commingled plastics using the ET-1 apparatus, having sold their unit some 9 months ago. It is their view that the technology is economically unattractive, and that the properties of the synthetic lumber produced are poor.

Assignment:

Lee Fishbein - Continue periodic contacts with Steve Katz at New England CRInc. and Victor Bell at the Rhode Island Department of Environmental Management to inform them of progress on sortation projects and encourage their inclusion of vinyl in their collection programs.

e. **Union Carbide Recycling Facility**

Roy Gottesman reported that Meredith Scheck had attended a briefing on January 31st in which Union Carbide announced a 40 million pounds per year plastics recycling plant to be located in Piscataway, New Jersey. They indicated that they have proprietary technology for removal of PVC and will be taking mixed plastics.

Roy Gottesman encouraged Vinyl Institute members who are planning to be involved in buyback programs to establish a dialogue with Union Carbide to assure that they will be offering to take mixed plastics containing vinyl into their facility.

2. Commingled Plastics

Bill Carroll reported that recent work at Rutgers on the ET-1 shows that a slower screw speed can result in better quality, but obviously, it diminishes productivity. Bill feels that the ET-1 program should be discontinued and he has recommended to the PRF Steering Committee that they move onto other things at Rutgers. He believes that the PRF program should now move on to the development of a new family of resins, rather than continuing to spend time on commingled plastics.

3. Vermont Republic Industries

Don Goodman reported that Al Voegele has taken preliminary steps to effect a technology transfer to Clinton County, New York. There has been no action on the development of a program for recovery of post-consumer plastics in Vermont.

Don Goodman recommended that a small grant be given to VRI during the coming year to enable Al Voegele to travel to conferences and to provide other interested communities with information on the VRI program.

Assignment:

Don Goodman - Continue liaison with Al Voegele at VRI, providing reports to the Technical Committee at its meetings.

4. R2B2

Frank Borrelli reported that he had recently met with Mike Schedler. There is an indication that R2B2 is expanding its activities and is involved with programs in Miami, Florida, Freehold and Farmingdale, New Jersey, Philadelphia, Pennsylvania and Charlotte, North Carolina. They are apparently involved in both financial planning and as a consultant on recycling. Mike Schedler is apparently looking for funding to improve manual plastics sortation procedures and is also trying to develop end use markets. Bob Elcik reported that he does not expect that the Council For Solid Waste Solutions will continue to provide a grant to R2B2 next year.

It was suggested that a continuation of funding to R2B2 might be useful just for the public relations

value. With that in mind, Frank Borrelli is to ask for a specific proposal from R2B2.

Assignment:

Frank Borrelli - Obtain a project proposal from Mike Schedler at R2B2 for consideration for funding in next fiscal year's budget.

5. ASTM

It was noted that there is an urgent need for individuals to volunteer to participate in the committees being formed in ASTM to be certain that the standards that are being developed do not negatively impact PVC and that recycled material is used in non-critical applications.

Assignment:

All Technical Committee Members - Advise Frank Borrelli of individuals who can volunteer to serve on the ASTM D-20 Committee on plastics recycling standards.

6. University of Toledo Proposal

The proposal received from Dr. Robert Bennett at the University of Toledo for a market research study on end uses of recycled PVC was discussed. It was agreed that there is considerable merit in having a third party report on this that could then be used with various groups indicating the potential end applications for recycled PVC. The group voted 7 to 2 to engage Dr. Bennett to carry-out end market research. However, it was agreed that there is the necessity to see that the work is clearly focused and that building products be included in addition to containers.

Assignment:

Roy Gottesman - Arrange for a meeting with Dr. Robert Bennett of the University of Toledo to include Frank Borrelli, Bill Carroll and Fred Krause during the PRF Annual Meeting in Atlanta. The purpose of this meeting is to focus the market research proposal on end uses for recycled PVC and to see that building products such as extruded profiles and siding are included.

7. Because of the extensive agenda, and the need to develop a Technical Committee budget proposal for the next fiscal year, items dealing with fire and combustion toxicity, a report on the Council For Solid Waste Solutions program and other subjects were not discussed.

Assignment:

Bob Hinderer - Coordinate work with SwRI and Dr. Kaplan to assure prompt completion and publication of the three fire toxicity papers.

V. DEVELOPMENT OF BUDGET PROPOSAL FOR FISCAL YEAR 1990-1991

The budget proposal which is appended to these minutes was developed.

VI. NEXT COMMITTEE MEETING

It was agreed that the next Technical Committee Meeting will be held on May 10, 1990 in conjunction with the Vinyl Institute Annual Meeting at South Seas Plantation, Captiva Island, Florida.

The meeting was adjourned at 4:00 p.m.

Respectfully submitted,



Roy T. Gottesman

LIST OF ASSIGNMENTS

FRANK BORRELLI

- Obtain a project proposal from Mike Schedler at R2B2 for consideration for funding in next fiscal year's budget.

BILL CARROLL

- Arrange for review meeting at NRT in Nashville on March 6th and confirm the meeting date and time with Frank Borrelli, Lee Fishbein, Roy Gottesman and Fred Krause.
- Attempt to obtain information on PVC separation technology reported to be available from a company in Montreal and advise the Technical Committee regarding evaluation of same.

BOB ELCIK

- Provide a copy of the final approval position statement by CSWS on heavy metals to all members of the Technical Committee.

LEE FISHBEIN

- Continue periodic contacts with Steve Katz at New England CRInc. and Victor Bell at the Rhode Island Department of Environmental Management to inform them of progress on sortation projects and encourage their inclusion of vinyl in their collection programs.

DON GOODMAN

- Continue liaison with Al Voegele at VRI, providing reports to the Technical Committee at its meetings.

ROY GOTTESMAN

- After legal approval is received from Bob Luss, complete the editing/revisions needed and have the technical information paper on "VCM in Landfills" issued. Arrange with Edward Howard and Company to issue a press release to the appropriate technical magazines announcing the publication of this paper and its availability by request from the Vinyl Institute.
- Send out 50 copies of the technical paper "Indoor Air Quality" to each member company representative to be used as needed by the individual companies to respond to inquiries.

- Work with Dick Magee to decide on other items to be included in the "information package" on incineration, viz. re-prints/articles.
- Coordinate activities of a committee consisting of Bud Hall and/or Joe Ledvina (Vista), Gabe Lefebvre (BFGoodrich), and Lee Fishbein (Borden) to develop a strategy for recovery of PVC and safe disposal of lead from wire and cable insulation scrap. This committee should investigate the RPI technology under development by Dr. Bruce Nauman for its applicability here.
- Arrange for a meeting with Dr. Robert Bennett of the University of Toledo to include Frank Borrelli, Bill Carroll and Fred Krause during the PRF Annual Meeting in Atlanta. The purpose of this meeting is to focus the market research proposal on end uses for recycled PVC and to see that building products such as extruded profiles and siding are included.

BOB HINDERER

- Coordinate work with SwRI and Dr. Kaplan to assure prompt completion and publication of the three fire toxicity papers.

GABE LEFEBVRE

- Meet with Franklin Associates and arrange for revisions and the publication of their report regarding the usage of lead stabilizers. See that the revised Franklin Associates report is submitted to EPA.
- Obtain a copy of the proposal from Professor Rappe to Norsk Hydro for an incinerator study from Harold Clayton. Send copies of this proposal to Chuck Bush, Roy Gottesman and Dick Magee for evaluation/critique and determination as to desirability/necessity of VI funding/involvement.

DICK MAGEE

- Prepare an abbreviated version of the summary of the report on incineration he wrote for SPI in a form suitable for laymen. Roy Gottesman will then have Edward Howard and Company edit this version for use in an "information package" on PVC and incineration.

FRANK BORRELLI/BILL CARROLL/ROY GOTTESMAN

- Arrange to meet with Wayne Pearson (PRF) and Rutgers (CPRR Administration) to assure that the "ASOMA" separation process

receives the necessary manpower, resources and priority during the PRF Annual Meeting in Atlanta on February 28-March 2, 1990.

CHUCK BUSH/ROY GOTTESMAN

- Review CSWS position statement on heavy metals and make a recommendation to the Vinyl Institute Executive Board on its endorsement of this statement or a modification thereof. .

ALL TECHNICAL COMMITTEE MEMBERS

- Advise Frank Borrelli of individuals who can volunteer to serve on the ASTM D-20 Committee on plastics recycling standards.

FISCAL YEAR 1990-1991 BUDGET PROPOSAL
TECHNICAL COMMITTEE

<u>PROJECT</u>	<u>PRIORITY</u>	<u>AMOUNT</u>	<u>REMARKS</u>
<u>Recycling</u>			
NRT (Remainder/Contract)	A	\$ 50,000	Sortation
PRF (CPRR) (Remainder/Contract)	A	25,000	Sortation
PRF Membership	A	50,000	General
University of Toledo (Dr. Bennett)	A	10,000	End Use /Market Research
R2B2	B/C	10,000	Collect/Sortation
Vermont Republic Ind.	B	5,000	General Support
Others (Hennepin Cty, MN)	A	10,000	PVC Separation (Demo. Project)
<u>Incineration</u>			
Rappe/Norsk Hydro Program	C	50,000	Needs Evaluation of Proposed Proj.
Miscellaneous	B	10,000	To be defined
<u>Fire/Combustion/Corrosivity</u>			
Complete HCl Decay Work	B	50,000	Comp. Data Analy- sis (M.Galloway)
Smoke Toxicity	*	50,000	Contingency Item
Corrosivity	*	50,000	Contingency Item
<u>Health Effects</u>			
Toxicology Consultant (Dr. H. Kaplan)	A	15,000	Compl. 3 Reports (\$36K) and "Truth Squad" (\$9K)
TOTAL		\$385,000	

*Dr. Hirschler is to provide further definition/justification for these two projects.

SPI-10999