

B.F. Goodrich

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B. F. Goodrich Chemical Company

A DIVISION OF THE B. F. GOODRICH COMPANY

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November 20, 1969

To: Task Group "B" on Vinyl Chloride Monomer
Transportation Safety

Gentlemen:

I am forwarding a copy of the minutes of our meeting of November 7, 1969, in New Orleans, for your review.

If you haven't completed the following, please do so as soon as possible:

- 1) All members to submit VCM Tank Car Accident Experience to Mr. R. L. Daniel, Dow Chemical Co., Building A2422, Freeport, Texas 77541. *Done - J. B. Taylor*
- 2) All members to submit emergency phone numbers to F. G. Stephenson, MCA, 1825 Connecticut Avenue, N.W., Washington, D. C. 20009. *Done - J. B. Taylor*
- 3) All members to forward VCM Tank Car Relief Valve Data to Mr. J. R. Little, Monochem Incorporated, P. O. Box 488, Geismar, Louisiana. *Done - J. B. Taylor*

Mr. Paul M. Reed, Tenneco Hydrocarbon Chemical Division, has informed me that air lines have stated there will be no problem with carrying an emergency kit on a commercial flight as personal baggage (letter attached).

Very truly yours,

Dennie L. Dowell
Dennie L. Dowell
Chairman

DLD/mlr

Attachment

SL 091491

TASK GROUP "B" ON VINYL CHLORIDE MONOMER TRANSPORTATION SAFETY

Minutes of November 7, 1969 Meeting

The scheduled meeting of Subgroup B was called to order by D. L. Dowell, Chairman, at 8:20 AM, November 7, 1969 at the Royal Orleans Hotel, New Orleans.

The following members were present:

B. E. Cribbs	Allied Chemical Corp.
A. J. LaVine	Allied Chemical Corp.
H. D. Butter	Continental Oil Co.
L. N. Vernon	Continental Oil Co.
R. E. Phillips	Ethyl Corporation
D. L. Dowell	B. F. Goodrich Chemical
J. R. Little	Monochem, Inc.
T. G. Taylor	PPG Industries
P. M. Reed	Tenneco Hydrocarbon
M. E. Sutherland	Union Carbide Corp.

After introductions, Mr. Dowell mentioned that he was expecting the presence of either F. G. Stephenson or G. E. Best, of MCA. He made the following general announcements:

1. The report of Subgroup B activities is to be presented at a mid-January meeting of the Task Group in Washington.
2. All represented companies are requested to submit a statement of their vinyl chloride rail accident experience to the chairman of Subgroup A, Mr. R. L. Daniel, Dow Chemical Co., Building A2422, Freeport, Texas 77541.
3. Mr. R. L. Daniel, of Dow Chemical Co., has been appointed chairman of Subgroup A.
4. Mr. F. G. Stephenson is expecting a response from companies represented relative to their willingness to assist in emergencies involving vinyl chloride, and advising him of their 24-hour emergency phone numbers.

Mr. Dowell ruled that each company represented would have only one vote in the proceedings of the Subgroup. He then reiterated the objectives of the meeting, to wit:

To establish emergency procedures for vinyl chloride transportation accidents, including recommendations for handling different types of accidents, e.g., where fire is or is not involved.

It was decided to limit discussions to tank car accidents because:

1. This is the immediate problem area,
2. Tank trucks present a nearly identical accident situation to tank cars, and
3. Data developed for tank cars can easily be expanded to any peculiarities surrounding other transportation modes at a later date.

The proposed agenda, dated October 31, 1969, was reviewed and agreed to and discussions proceeded in order of topics therein. A new Item 12, Cooperative Efforts, was added.

Item 3 - Review of Vinyl Chloride Accidents

Each representative gave a brief summary of the rail accident experiences of his company. (This information is being collected in detail by Subgroup A):

Allied

Paducah, Ky., 1969 (this week)
 (1) 20000 gal. car
 No loss of product
 Car was re-trucked and sent on for unloading

This was Allied's only accident. Concern was expressed over potential problems with larger (42000 gal.) cars.

Monochem

Rolling Fork, Wisc., 1966
 (6) cars, (3) of 20000 gal. size
 No leak, rupture or fire
 Cars were partially unloaded and returned

Glendora, Miss., 1969
 (8) cars
 (3) cars burned; (5) cars partially unloaded and returned

New York State, 1969 (yesterday)
 (1) car
 No leaks - no other details available

Monochem sends one man, with unloading hoses and safety equipment, to an accident scene.

It was pointed out that every care should be taken to assure leak-free fittings on a car before it is released to the railroad. Provision should be made for repacking valves and gage rods at the loading rack. A soap test should be made on all fittings before sealing the dome.

A further suggestion was made that more attention be given to the valve specifications for vinyl chloride tank cars even to the point of standardizing on certain units because of their better service experience. Mr. Little offered to submit data on those valves which he had found to be superior in terms of freedom from leaks.

The pros-and-cons of insulation in an accident situation were discussed briefly.

UCC

No accidents to date
Car sizes range from 20000 gal. to 48000 gal.

The opinion was voiced that span bolster equipped cars may stay on the rails better even though they are of large capacity.

PPG

Preston, La.
(4) cars, (3) of 38000 gal. size
One car had head punctured by a coupler
Loss of product - no fire
One-mile evacuation

Some of the contents of the car vaporized; the remainder was drained from the tank. An attempt to float residual product from the tank by pumping in water failed when the water froze.

The erroneous data appearing in press articles was noted, stressing the importance of having knowledgeable people at the scene.

A comment was made on the prevalence of rail wear problems on plant curves. One company has alleviated the situation by installing oilers on curves.

Tenneco

Splendora, Texas, 1966
(3) 20000 gal. cars
One car burned

Accidents also at
 Leggett, Texas
 E. Germantown, Ind.
 Pasadena, Texas
 Nacodoches, Texas
 Terre Haute, Ind.
 East St. Louis, Ill.

Hulcher Railroad Service Co., of Virden, Illinois was mentioned as an efficient cleanup contractor.

Mr. Reed gave details of the classic case of vinyl chloride polymerization in a tank car. He recommended the peroxide test for checking the oxygen content of a car before loading, and cautioned that any car showing evidence of a pressure rise after loading should not be shipped.

He also reviewed the case of fatigue cracking on a series of cars having internal structural members at the bolsters.

Tenneco specifies auxiliary domes, containing eduction, vapor and sample lines, at each end of the tank.

Ethyl

Cincinnati, 1968
 (2) 23500 gal. cars
 No loss of product
 Product transferred to other cars

Illinois, 1969
 (2) cars
 No loss of product. Cars were retrucked and sent to destination.

Conoco

Stillwell, Okla., 1968
 (5) cars - all burned

Mr. Butter noted a 36-hour lapse before notification by the railroad.

Seakirk, N.Y., 1969
 (2) cars - no leaks

Mansfield, La., 1969

(2) cars - no leaks

East St. Louis, Ill., 1968

(1) car

Leak discovered at stubsill - to tank connection. (Not a result of an accident.)

Product transferred to another car.

The need for good record keeping of accident data was emphasized.

BFG

Verona, Ky., 1966

(1) car - no leaks

Car contents transferred to another car.

Attention is called to the need for good ground connections between cars and to ground during the transfer of product. BFG uses an 8-ft. copper ground rod. Use of an Anderson ground continuity meter, P5 (now UL listed), is recommended for checking grounding connections.

Australia

(3) separate trailer loads have been lost. Leaks, but no fire, occurred on two of these occasions: Pressure gages were sheared. The leaks were controlled by driving wooden plugs into the broken fittings.

Mr. Phillips reviewed current activities of the AAR Committee on Tank Cars toward improving tank car design. Copies of recent papers on steels, insulation, safety valves, or other subjects relative to tank car specifications can be sent to interested members.

The Interchange Rules will require interlocking couplers on all new tank cars after January 1, 1970.

MCA has established an official position in opposition to any moratorium or restriction to tank car size.

Item 4 - Categories of Accidents

The following constitutes formal recommendations of the subgroup.

CONSENSUS #1

Spilled vinyl chloride should not be deliberately ignited.

Passed unanimously

CONSENSUS #2

A vinyl chloride fire should not be extinguished.

Passed unanimously

Mr. Reed made copies of B of E Pamphlet 22 available to the members. It constitutes recommended practice for derailments involving tank cars.

A. No leaks

This situation is usually competently handled by railroad personnel.

It was noted here that the railroad's prime object is to reopen traffic and that railroad people are in charge. Shipper representatives are only advisers. Proper procedures in handling vinyl chloride must be emphasized as the only means of expediting the clearing of the scene.

B. Controllable leaks

- a. Small holes. Drive wooden plugs.
- b. Larger holes. Neoprene patch, bonded or chained to tank.

Jagged holes are difficult to close. A "moly-bolt" device securing a patch might be attempted.

No valve standardization exists in vinyl chloride cars. No vinyl chloride safety kits exist.

Mr. Little was selected to accumulate data on safety relief valves in service with the object of specifying a safety kit or kits. Messrs. Cribbs and Phillips will assist. All members were asked to submit data on all types of safety relief valves known to be in VCM service.

C. Uncontrollable leaks - no fire

- a. Isolate area.
- b. Remove sources of ignition.
- c. Control spread of vapors by water spray.

On the matter of evacuation, consider the worst possibility that can occur. We are awaiting Mr. L. B. Crider's study, proposing an evacuation area based on wind velocity and tank volume. At present a 1-5 mile area, downwind, seems practical. At Preston, La., PPG found no explosive mixture 3/4 mile away. More discussion is necessary on this topic.

D. Uncontrollable leaks- fire

- a. Evacuate area.
- b. Keep adjacent cars cool, if possible, with monitor nozzle.
- c. Keep official personnel away.

"Treat an unburned tank as if it is about to explode". Cars near a burning car are possible hazards.

Ansul Purple K will extinguish a vinyl chloride fire.
Reignition often occurs.

If vinyl chloride gets to a sewer, evacuate area and flush sewers with fire hoses.

Item 5 - Personnel at the Scene

Personnel sent to an accident should be capable, knowledgeable with VCM and not restricted by title.

The individual should be at each company's option, but technical qualification is recommended.

It is suggested that MCA provide data for, or conduct, a training course for police, railroad employees, etc.

Item 6 - Safety Equipment at Scene

The following are considered essential:

- a. Explosion meter
- b. Self-contained air supply (Scott air pack recommended over Chemox)
- c. Wood plugs and wood mallet (see B of E 22)
- d. Data sheet and pencil
- e. Camera and film
- f. Flashlight (Bureau of Mines approved)
- g. Rubber gloves
- h. Slicker suit
- i. Rubber overshoes
- j. Safety line
- k. Take a backup man

Avoid wearing woolen clothing.
Obtain pipe plugs at local sources.

Mr. Reed is to determine whether or not emergency air supplies can be carried as baggage on commercial aircraft.

Item 7 - Spilled Vinyl Chloride

See Consensus No. 1.

Item 8 - Recovery of Vinyl Chloride

The Subgroup recommends that vinyl chloride be removed from damaged cars. Transfer to empty tank cars, if possible.

Spray water on exterior of tank. Use pump with flooded suction. When pumped down as far as possible, use water or perchloroethylene to float out remainder of VCM. Fill empty tank with water or nitrogen.

Before permitting the railroad crew to use a cutting torch, fill the tank with water; empty; steam the tank, if possible; then check with explosion meter. *It is recommended that the tank be checked for explosion before cutting.*

The railroad may be able to supply a water car, if advised to do so.

If a vinyl-ice mixture forms, keep a water stream to the tank until it dissipates.

Cleanup crews should have a ground continuity meter, bonding wires and hoses.

Handling of vinyl chloride in a damaged car can be influenced by weather conditions. The Subgroup has no answers to the winter weather problem. At low temperatures, since vaporization is reduced, patch tank, if possible, so that it can be moved.

Item 9 - First Contact Recommendations

Recommendations depend upon the information received. Give fire/no fire advice and information on products of combustion:

1. If burning - let it burn.
2. If not burning - don't ignite.
3. Never puncture a car.
4. Evacuate and seal off area.
5. Clear area of ignition sources.
6. Avoid concentrations of fumes or combustion products. Smoke is hydrogen chloride.
7. Be sure Bureau of Explosives inspector has been contacted.
8. Advise that a representative is on the way with technical advice. Give name, if possible.

Item 10 - Press Releases

At the scene - refer the press to the B of E inspector. Be honest.

Away from the scene - put off comment until representative reports. Be honest.

If asked "where" or "when" - give answer, if known.

If asked "how did it happen": do not give an answer, even speculative.

If asked "what are the burning products": mostly HCl (muriatic acid).

If asked "what about phosgene": traces will dissipate.

If asked "what is vinyl chloride": colorless like water, unless frost forms; sweet odor; used to make your kitchen floor tiles.

Item 12 - Cooperative Efforts

"Subgroup B recommends the establishment of a mutual aid system for vinyl chloride accidents. This system should see that the nearest qualified man gets to the scene as an adviser until the shipper's representative arrives.

"Corporate approval of this recommendation from the companies represented on Subgroup B is sought by the members."

The members were urged to submit their emergency phone numbers, and statement of willingness to provide advice, to F. G. Stephenson.

Item 11 - Objectives to be Complete by Mid-January

1. All members to submit accident experience to Daniel.
2. All members to submit emergency numbers to Stephenson.
3. All members to submit safety relief valve data to Little.
4. Little, Cribbs and Phillips to study safety kit possibilities.
5. Reed to check acceptability of air pack on commercial planes.

The meeting adjourned at 3:20 PM. The next session will be held one day previous to the mid-January task force meeting with the members to be notified in advance.

Respectfully,



R. E. Phillips
Ethyl Corporation

Approved D. L. Dowell
D. L. Dowell, Chairman
B. F. Goodrich