



A Division of The Society of The Plastics Industry, Inc.

July 27, 1989

Mr. Craig Mattheissen
Senior Chemical Engineer
U.S. Environmental Protection Agency
Mail Stop OS 120
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Mattheissen:

As I indicated I would do during our July 18th meeting in the SPI Washington office, I have reviewed the EPA Acute Hazardous Event Data Base as it relates to polyvinyl chloride (PVC). For ease of reviewing this information, I have reformatted the data for PVC on the attached chart (Attachment 1). All entries on the data base relate to fires that occurred in the State of New Jersey, presumably because fire incident reports are filed with the Office of Fire Safety and coordinated through the Department of Environmental Protection. Because this is apparently a "fire incident data base" the following comments address the role of PVC in a fire as well as review other information specifically related to the portion of the EPA Acute Hazardous Events Data Base dealing with PVC.

WHAT IS POLYVINYL CHLORIDE (PVC)?

Polyvinyl chloride, or PVC, is produced from vinyl chloride monomer (VCM), a gaseous chemical, through a chemical reaction called polymerization. As you know, VCM is a hazardous (flammable) material which is strictly regulated by the Environmental Protection Agency (EPA), the Department of Transportation and the Occupational Safety and Health Administration. VCM is transformed through polymerization into a white granular powder, PVC, which is a non-hazardous material.

FIRE PROPERTIES OF PVC

All organic materials, whether they be natural products (such as wood, wool, cotton, silk, rubber or leather), or synthetic products (such as PVC, nylon, rayon, acrylic, polyethylene, or polyurethane) will burn when ignited. When any material is involved in a fire, it releases smoke, which contains many different combustion products, mainly gases, virtually all of which are toxic. Among

these fire gases, two are always present in a fire, irrespective of the material which is burning because they are the end products of combustion of all organic materials. These gases are carbon monoxide and carbon dioxide. Carbon monoxide is universally recognized as the greatest toxic hazard in real fires and is lethal in even small concentrations. Therefore, it is standard practice for firefighters that no one enters a fire environment without wearing full protective clothing including self-contained breathing apparatus.

In addition to carbon monoxide and carbon dioxide, burning vinyl (PVC) produces hydrogen chloride, which is an irritating gas. It has a sharp, pungent odor which is detectable at very low concentrations (0.8 ppm), and does not incapacitate or become dangerous until it reaches concentrations much higher than those measured in real fires. The enclosed Vinyl Institute technical information bulletin, "Fire Properties of Polyvinyl Chloride" is attached for your reference (Attachment 2). A variety of other technical information is in the enclosed folder.

HOW MANY EVENTS WERE THERE IN WHICH ONLY PVC WAS LISTED? DID ANY DEATHS OCCUR IN EVENTS IN WHICH ONLY PVC WAS LISTED?

The 13 entries represent only 11 events as entry #2 and entry #5 represent the same event. Similarly, entry #7 and entry #8 are the same event. Events in which only PVC (and HCl) was listed include #2, 3, 4, 10, and 11. The other six events (1, 6, 7, 8, 9, 12 and 13) involved other materials in addition to PVC. As discussed immediately below, there were no deaths in the fire listed as entries #2 and #5; additionally, as noted in entry #5, there were some substances in addition to PVC in this fire. Therefore, there were no deaths in entries 3, 4, 10 and 11 (fires in which only PVC was present).

WHAT OTHER INFORMATION DO WE KNOW ABOUT ANY OF THESE EVENTS?

- Entry #2 and #5 relate to a fire in a warehouse owned by the Oliver Brown Trucking Company, 90% of which was leased to Flexon Industries for use as a storage facility of PVC scrap. A copy of the official "Fire Incident Report" filed with the New Jersey Bureau of Fire Safety by the Plainfield Fire Division is attached. Also attached is a copy of an article summarizing the fire written by the then Deputy Chief of the Plainfield Fire Division for Fire Command (January 1986 edition, Attachment 3 and 4). This article summarizes the entire incident, including the fire division's coordination with CHEMTREC, state and local health department officials, and local hospitals.

- As this material notes, this was an arson fire, to which two juveniles confessed. The single-story warehouse was of ordinary construction with brick walls, steel columns, and wood roof. The 20-foot high structure was built in 1814. There was no approved certificate of occupancy for the building for the storage purpose. The building's sprinkler system was out of service. The building's wood floors were soaked with machine oil from a previous tenant. The final fire report notes that there were no deaths, injuries treated in a number of local hospitals, and a multi-day neighborhood evacuation.
- Entry #3 occurred in an abandoned water treatment plant that was being demolished. During the demolition process, a worker apparently using a torch started a fire. Under normal operating conditions, these pipes would have been under water.
- Entry #10 has no known contact information relative to either company or location and we are therefore unable to provide any comment on this event.
- Therefore, the only entry on the data base in which there were deaths was entry #1 (Airlite Aluminum, 5/27/86), in which several substances in addition to PVC were listed.

After reviewing this material, I trust that you will agree that PVC should not be included on any acute hazardous events database.

Once again, thank you for taking the time to meet with me and my SPI colleagues on July 18th. As you know, SPI will be commenting separately on the use of the databases. If you have any questions relative to vinyl, please let me know.

Sincerely yours,

MNS/pmb
enclosure

POLYVINYL CHLORIDE

ENTRY	CATEGORY	DATE	COMPANY	CAUSE	SUBSTANCES LISTED	DEATHS	INJURIES	EVAQUATIONS	DATA SOURCE
1	Deaths	5/21/86	Airfile Aluminum Kenner, NJ	fire, exp./ smelting furnace	PVC, toluene dithiocyanate, methylene chloride, isocyanate, styrene, chlorine	2	0	yes	PHI
2	Deaths	3/21/85	Oliver Brown Trucking Plainfield, NJ	fire, exp./ warehouse	PVC pipes	1	50	8250	UPI
3	Injuries	7/16/85	Unknown Cedar Rapids, Iowa	sparkling/ workers' torch	PVC, HCl	0	56	10,000	NYT
4	Injuries	11/2/85	Public Service Electricity & Gas Plainfield, NJ	electrical short/ underground vault	PVC	0	11	0	MI2
5	Injuries	3/20/85	Plexon Industries Plainfield, NJ	Arson	PVC, polypropylene polyethylene	0	yes	yes	MI2
6	Evacuations	3/18/85	Jack's Auto Wreckers Montee Township	fire, exp.	PVC, phosgene, rubber tires, oil	0	0	yes	MI2
7	Evacuations	10/29/84	A Plasties Industries Unknown, NJ	fire, exp., vandalism suspected	polyethylene, PVC, polypropylene	0	0	0	MI2
8	Evacuations	10/29/84	A Plasties Industries Paterson, NJ	fire, exp.	polyethylene, PVC, polypropylene	0	0	yes	MI2
9	Evacuations	9/23/80	Illco Rubber Hamilton Township, NJ	fire, exp.	PVC, hydrogen cyanide, styrene	0	0	yes	MI2
10	Evacuations	2/10/86	Unknown Unknown location	fire, exp./ probably powerline	PVC	0	0	yes	MI2
11	Air	7/18/82	Specialty Display Keterfield, Md	fire, exp.	PVC, HCl	unknown	unknown	unknown	MI2
12	Air	3/31/82	Polymer East Brunswick, NJ	fire, exp., storage container	PVC, oil, rubber	unknown	unknown	unknown	MI2
13	Air	12/10/86	B & G Plastics Jersey City, NJ	fire, exp.	PVC, polyethylene	unknown	unknown	unknown	PHI



CHEMICAL MANUFACTURERS ASSOCIATION

July 28, 1989

Mr. Frederick W. Talcott
Office of Policy Analysis
U.S. Environmental Protection Agency
401 M Street, S.W.
Washington, D.C. 20460

Dear Mr. Talcott:

The Chemical Manufacturers Association (CMA) appreciates the opportunity to comment on the 1988 draft update of the Acute Hazardous Events Data Base (AHEDB). The recommended changes below are critical to an accurate understanding of the material in the data base.

CMA is a nonprofit trade association whose members represent more than 90% of the basic chemical manufacturing capacity in the United States. The AHEDB is an attempt to characterize, on a national basis, the circumstances surrounding the accidental release of toxic substances and their consequences. CMA and its member companies have devoted considerable resources to preventing and controlling such events and are extremely qualified to comment on the draft.

The Environmental Protection Agency is to be complimented for its efforts to develop and refine the AHEDB. Responsible public policy on accidental release prevention must be based on sound data. The AHEDB represents EPA's best effort, to date, to pull that information together.

The following comments are intended to further improve the data base by clarifying several points presented in the draft which might otherwise be misinterpreted.

1. Fatalities resulting from acute exposures to toxic chemicals make up only a tiny fraction of the deaths in the data base.

The absence of causal data and the format of the report combine to give the impression that most if not all the reported fatalities occurred as a result of the toxic effects of the released materials. This is erroneous and cannot be supported by the data base. CMA studied the 1986 draft AHEDB and found the vast majority of the deaths in the data base to have resulted from blasts, fires or vehicle collisions. As an illustration, the explosion of a fireworks factory is still the single most lethal event in the AHEDB with 13 deaths. While any fatality is regrettable, EPA should note in the full document and in the executive summary that chemical exposure was lethal in only a very few instances.

2. Although nontransportation accidents have resulted in fatalities, they have been limited to the plant site; deaths in the general community have been rare or nonexistent.

CMA's 1986 study of fatal events in the data base showed that fatalities resulting from chemical plant events involved laborers in those plants. Indeed, the circumstances where fatalities were a result of chemical exposure most often involved a process upset inside a containment structure. CMA does not believe any fatalities occurred to outside populations as a result of chemical releases. The executive summary should acknowledge the lack of evidence linking chemical releases to fatalities in the community.

3. Transportation accidents have resulted in fatalities, but the primary lethal agent has been vehicle collisions, not chemical exposures.

The problems associated with the transportation of chemicals are well known; finding solutions to them is the source of considerable effort by the chemical and transportation industries. As noted above, however, the data base demonstrates no linkages between chemical exposure and the fatalities ascribed to transportation events in the AHEDB. Evacuations resulting from fatal collisions between tanker trucks and other vehicles are precautionary in nature. They should not be used as indices of the lethality of an event. The AHEDB currently has a caveat in its report on transportation stating that attempts have been made to delete fatalities which were not related to the chemical releases. That language should be modified to indicate that most if not all of the remaining transportation fatalities are collision related.

4. The discussion of events with toxic potential equal to or greater than Bhopal is misleading and flawed in its approach.

There are two major clarifications needed here:

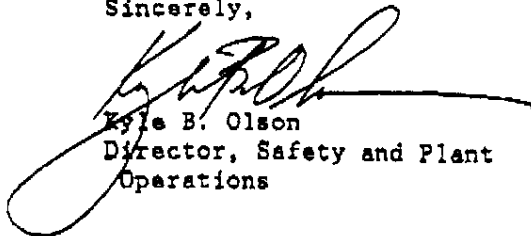
- o The selection of events using only quantity and toxicity criteria results in the identification of several materials which are either in solid form or liquids of low volatility. Such substances are unlikely to pose a threat to a community, and are easily cleaned up. The list of events should be edited to reflect this fact.

- o CMA believes the discussion of reasons why the remaining events did not have tragic consequences fails to place an appropriate emphasis on preparations by industry and community authorities to respond to and manage chemical emergencies. Tremendous effort has gone into the preparation of emergency plans, the testing of those plans and the commitment of the resources necessary to fulfill them. The AHEDB and the executive summary should acknowledge that commitment as the major factor that it is.

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In conclusion, CMA believes the development of a well designed data base on accident releases can be an important asset in the development of practical public policy on accident prevention. CMA looks forward to working with EPA in the future on this and other important issues.

Sincerely,



Kyle B. Olson
Director, Safety and Plant
Operations

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