M I N U T E S

VINYL CHLORIDE SAFETY ASSOCIATION MEETING

Philadelphia, Pennsylvania

April 17 and 18, 1974

1. John T. Barr reviewed the OSHA Temporary Emergency Standards for vinyl chloride. He also mentioned that the MCA toxicology study had shown that two mice developed angiosarcoma when exposed to 50 ppm of vinyl chloride. This may now change these OSHA Standards. The goal is to have a permanent standard by June or July. The present temporary emergency standards apply anyplace where vinyl chloride would be present. This would not only include PVC manufacturers, but would include all customers of resin and compound. Personnel monitoring on a ten-minute sample basis will be required to meet the OSHA Standards.

   Half of the companies present at the meeting are presently using a half-face mask while the others are using full-face masks for air supplied masks. Most people plan to put in air supply systems and are currently using bottled air. Two-thirds of the companies represented use air respirators for areas of vinyl chloride concentration greater than 50 ppm. Five other companies besides Goodrich use respirators for reactor cleaning.

   One-third of the people represented plan to implement the OSHA Emergency Temporary Standards by Monday, April 22, 1974. Several companies reported that changing of charging procedures and opening of reactors helped meet lower residual monomer requirements. Airco has now gone to filling the poly with water before opening it. This has measuredly reduced vinyl chloride content. The water is then discharged to a remote area. A vacuum system could be used for evacuating the reactor prior to opening, but Airco felt that this would require more time. General Tire at Painesville reported that they have an EPA standard for the water discharged of three parts per million vinyl chloride max.

   Twelve of the companies present monitored their dryer vents. One reported values below 50, four reported values of 50 to 200, and seven reported values of 200 and greater. Ventilation and air flow was discussed, and six people take the intake air for the dryers from inside the building. This is wasteful of fuel but helps improve the ventilation. Goodyear plans to provide 30 air changes per hour.

   No companies had any ideas on how to eliminate vinyl chloride vapors to the atmosphere. Someone mentioned it might be scrubbed out with kerosine or red oil and then distilled to remove vinyl chloride later. One plant in Germany apparently is using charcoal to scrub all exhaust. Dow is working on a destructive method for vinyl chloride to convert it to HCl for scrubbing before releasing it to the atmosphere.

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Four people besides Goodrich provided daily change of clothing. Impervious suits, or raingear, are used by American Chemical Company.

The question was brought up regarding a time weighted average and is the time weighted average really necessary now that the April 5th Emergency Temporary OSHA Standards are issued. The Emergency Temporary Standards are concerned with a ceiling value rather than a time weighted average.

It was reported that the SPI is going to represent the PVC industry in a public hearing with OSHA. Twenty companies do not know if they will testify on the proposed standard or not. Three of four companies indicated that they would testify regarding tne proposed standard.

Shell demonstrated and discussed their personnel monitoring system by collecting a sample of vinyl chloride containing air in a plastic bag. This method appears to be very reliable, and does not have the disadvantage of deabsorbing the vinyl chloride from the charcoal trap. The bag can also be kneaded in order to mix the air sample up before running it through the chromatograph. With their bag system, they can monitor a job for eight hours. Shorter samples can also be taken. They claim the bag method is accurate to one part per million.

Most people reported they were using Bendix or MSA pumps to do personnel monitoring. The sipin pump was demonstrated at a room during the evening. This pump appears to do a good job for low flow rates, but the charcoal collecting tube needs to be enlarged. Most companies reported about 90-100% recovery from the charcoal trap. Several are using Pittsburgh PCB-type carbon 12X30 mesh supplied by the Calgon Company. Twenty-four companies are doing personnel monitoring. Three are using the bag method and one is using the gas sample tubes. All others are using the carbon trap method. Bullard has a solid state personnel monitor which we have in trial at Avon Lake. Some companies expressed interest in this system.

Eight plants reported they have had OSHA inspections. Seven plants reported visits by NIOSH, and three of these people had return visits by NIOSH.

2. Pete Bogart of Tenneco reported on the 36,000 gallon car of vinyl chloride that was turned upside down in the roadway in Philadelphia, Pa. The vapor excess flow valve held; however, the liquid excess flow valve which was in the vapor space did not hold. They turned the car back upright to 45° and then the dip leg in the liquid spewed monomer into the street. They were able to design a clamp to close up the leak on the spot. They now have a kit to do this on a routine basis. They had 750 gallon a minute fire water monitor on the car and the water from this was washed from this into the river. OSHA had representatives on the site. According to Pete, they interfered with his people working to stop the vinyl chloride leak and to get the monomer into trucks. OSHA was concerned about carcogenic effect of the people in the immediate area. They felt everyone close to the operation should be wearing Scott airpacks. The people actually working on the car were wearing Scott airpacks. However, OSHA wanted the crane operators and these type people who were anywhere within 50 feet of the car to wear Scott airpacks. Generally, they interfered with the operation of getting the

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monomer contained. They were told that they would be cited for exposure to levels of vinyl chloride above 50 ppm.

3. It was reported that 16 companies who are fabricators (also PVC manufacturers) have started monitoring for vinyl chloride vapors. They have found high levels in the compounding operation, especially when handling bulk resin. Suspension resin in ribbon blenders have obtained values as high as 500 parts per million on both OVA and gas chromatographic analysis.

   A poll was then taken to determine what each company could live with. No company would agree to a ceiling value for vinyl chloride vapor since instantaneous leaks could cause high values. Concerning time weighted averages, the poll showed the following results for PVC manufacturers:

   10 parts per million -- 5 companies can live with this value (this includes B. F. Goodrich)

   20 parts per million -- 4 companies

   30 parts per million -- 6 companies

   40 parts per million -- 19 companies

   50 parts per million -- 5 companies

   Vinyl chloride monomer producers:

   10 parts per million -- 7 companies

   20 parts per million -- 2 companies

4. Mr. C. H. Kim reported on the MCA studies. Only one company admitted to not belonging to the MCA, and this was Atlantic Tubing. The MCA does not want to get involved with further work with vinyl chloride monomer because of the political and economic impact. Therefore, each individual company is going to have to develop their own rebuttal to the OSHA proposed standards.

MCA STUDY RESULTS

Male/Female MICE	RATS	HAMSTERS	VCl Level	Total Tumors	LUNG	ANGIO-SARCOMA	SKIN
10/5	4/4	13/22	0 ppm	Control --- No Tumors Found			
31/9	10/8	20/20	50 ppm	4	2	2	2
7/13	6/9	22/29	200 ppm	6	3	4	2
8/13	5/7	27/27	2500 ppm	19	17	17	3

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There has been no report yet from the Tabershaw-Cooper study. Doctor Maltoni is also finding tumors in his controlled study very early. Therefore, this is probably at the 50 part per million level. Firestone personnel have asked for hazard pay when working in PVC and vinyl chloride polymerization conditions.

5. Mr. Harlan Jewett of General Tire discussed their measurement of vinyl chloride levels in slurry. Their slurry contains approximately 30% PVC and 70% water. They take 100 millileters of slurry and add hexane and distill it and cold trap out the vapor and then run chromatographic results on this material. They claim to get a 10 ppm accuracy. Normally, they get 1500 parts per million vinyl chloride if stripping is satisfactory. This is on a total slurry weight basis. Similarly, they analyze dry resin by adding a solvent and then cold trapping the material in a distillation operation and then run a VPC on the trapped material.

   Several of the companies reported that resins with lower molecular weight and lower porosity have higher vinyl chloride content. Stripping temperature and time was reported to be important. In the Chemical Engineering magazine of April 15, 1974, DeGasse in Germany apparently have a process to oxidize low molecular weight hydrocarbons. It was reported that about half of the PVC producers represented currently analyze their resins on a routine basis. General Tire reported that they have tried thin film stage stripping to reduce residual monomer levels in the slurry. 800 ppm is about as low as they can get. Goodyear reported a five-fold variation from lot to lot on the same type of resin. Airco reported they obtain three-fold variation. No one present wanted to discuss any specific numbers concerning monomer content of their resins.

6. Joe Mudd of General Tire reported on their medical surveillance program. They have hired an outside laboratory, American Biological, in Louisville, to do blood and urine testing. Cost is approximately $25 per employee. Ten percent of their total people showed some abnormalities of blood and urine. For ordinary problems, they were told to see their family doctors. Eight of fifteen had elevated enzymes in the SMA-12 test and these people will be given resamples. General is getting all employees to complete health evaluation forms. General plans to get hand and chest x-rays in addition to the blood and urine work. A general physical will then be done on only certain suspect employees. One company reported they had a doctor from Mt. Sinai Hospital come to their plant and do a hands and physical test to determine liver size and potential abnormalities. PPG reported they have run liver tests for twelve years and found that if a man is alright originally, they have not found him to be out on subsequent testing.

   Fourteen companies have added liver tests to pre-employment physicals. Three were doing this already. No companies are doing any physical testing for employees required to wear respirators or cartridge masks. Most companies felt that contract employees should be given the same type tests as your employees have. By contract employees we are talking about those that are normally working on a day-by-day basis in the PVC plants.

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Of the PVC producers, the following survey was taken: All plan to do personnel and employee screening. All planned to continue this periodically. All people plan to have pre-employment physicals and will not hire people if they have liver problems. Mal Trowbridge from Goodyear reported that three of his people refused to take the blood test and they were not forced to do so.

7. Several companies have installed systems to pick up dust from the bagging spout and bagging areas. Of the companies represented, 20 give their employees dust respirators, 16 of the companies see their employees wear the respirators, but only 10 of them force their people to actually wear them. No one is currently using fresh air masks for dusting applications. Conoco reported that they are considering this, however. Five companies reported they have automatic bag packaging operations; 22 companies reported they load bulk cars by gravity; 14 reported they convey resin to the loading operation; 2 people reported they use a closed-type double pipe system for loading PVC to cars. Ten companies reported using dust masks in the compound areas, but some were using them for only compounds containing lead. Seven people supply work clothes to their employees for dusty operations. Of the plants represented, 14 did a thorough clean-up of dust in their plant originally, but do not have any plan for continuing. Ten companies allow their personnel to eat in operating areas. Since the NIOSH standards have come out, six people have stopped this practice.

   Of the companies represented at the meeting, sixteen use Class I, Group D, Division 1 electrical systems, while six use Class I, Group D, Division 2.

GENERAL COMMENTS

Various instrument manufacturers were represented at rooms in the motel. Wilks has a good IR unit which could be an excellent instrument to monitor not only vinyl chloride but vinylidene chloride as well. Century and Bendix were also represented. Bullard was there, and they have a personnel monitoring system which uses a solid state cell with a pump for personnel monitoring. This appears to be an extremely simple type operation.

Conoco reported low levels (0-10 ppm) of residual monomer at their Oklahoma plant. Their plant runs routinely and wind storms are not any problem. They do provide outdoor work clothing for their operators. Their worst problems as far as weather is concerned is ice storms, and this can cause a plant shutdown if it gets too bad. About 90% of the time their workers are inside the Control Room or a sheltered area.

G. D. Schaaf

GDS/cls
Atts. 5
4/29/74

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UNIROYAL CHEMICAL
Division of UNIROYAL, Inc.
Painesville, Ohio 44077
216-357-7574

April 25, 1974

TO: MEMBERS OF THE VINYL CHLORIDE SAFETY ASSOCIATION

Attached is a reference copy of the attendance roster of the April 17 and 18, 1974 meeting of the Vinyl Chloride Safety Association at the Philadelphia International Airport Motel. Also, the names and addresses of those firms which set up independent displays at the motel are listed.

In the interest of mailing costs, copies are being forwarded to the principal representative of each member firm for his internal distribution.

Very truly yours,

W. M. Iliff

W. M. Iliff
Secretary
Vinyl Chloride Safety Assoc.

WMI:bap

Attachments

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VINYL CHLORIDE SAFETY ASSOCIATION
ATTENDANCE ROSTER - APRIL 17 & 18, 1974 MEETING
PHILADELPHIA INTERNATIONAL AIRPORT MOTEL

Company	Name	Title	Address	Telephone No.
AIR PRODUCTS	J. C. Novak	Div. Safety	Valley Forge, Pa.	215-687-6150
	J. T. Barr	Technical Manager	5 Executive Mall, Wayne, Pa. 19087	215-687-6150
ALLIED CHEMICAL	L. V. Haff	Technical Supvr.	Box 6, Solvay, N. Y.	315-468-1611
AMERICAN CHEMICAL CORP.	Harold E. Kling	Plant Manager	P.O. Box 1110, Long Beach, Calif.	714-834-8571
ATLANTIC TUBING & RUBBER	Edwin T. Biehl	General Manager	129 John Verente Blvd. P.O. Box - Lands Corner New Bedford, Mass. 02745	617-998-3551
	Robert E. Lander	Project Engineer	Ditto	Ditto
BORDEN CHEMICAL	William T. Gerson	PVC Prod. Mgr.	Illiopolis, Ill.	217-428-0350
	Sherwood J. Moll	Supv. Engineer	Leominister, Mass. 01453	617-KE-1711
	Russell L. Morcior	Spec. Proj. Engr.	Ditto	Ditto
BRITISH IND. PLASTICS	T. H. MacEwan	Dev. Manager	Aycliffe, Co. Durham DL5-6AN, England	---
CERTAIN-TEED PRODUCTS	C. Arthur Gellner	Plant Manager	Lake Charles, La.	201-464-9000
	J. L. Nickels	Tech. Supt.	Lake Charles, La.	Ditto
	Wm. R. Krause	Mgr. - Safety	Valley Forge, Pa.	215-687-5000
CONTINENTAL OIL CO.	Earl Gremillion	Safety Director	Westlake, La.	318-882-0550
	Paul Fetzer	Chief Chemist	Ditto	Ditto
	R. E. Laramy		Ponca City, Okla.	405-762-3456
	R. M. Walston		Ditto	Ditto
	Jerry Powell		P.O. Box 91, Aberdeen, Miss.	601-364-8111
	J. F. Gabbeth		Park 80-Plaza East, Saddle Brook, N.J.	---
	G. F. Tillson		P.O. Box 15360, OKC, Okla.	---
	D. V. Porchey		Drawer 1267, Ponca, Okla.	405-762-3456
DIAMOND SHAMROCK	Jim Worthington	Group Leader	P.O. Box 348, Painesville, Ohio	216-352-9311
	Roy Henderson	Plant Manager	River Road, Delaware City, Del.	302-834-4561

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Company	Name	Title	Address	Telephone No.
DOW CHEMICAL COMPANY	Arnold A. Allemang	Development Supv	A-2422 Bldg., Freeport, Texas	713-238-4649
	Glen S. Sauls	Lab Supv	P.O. Box 150, Plaquemine, La.	504-348-6591 (421)
	Emmett Brown	Research Supv	Ditto	Ditto (393)
	Tom K. Christianson	Process Engineer	564 Bldg., Midland, Mich.	517-636-5040
ETHYL CORPORATION	Harry Loflin	Ass't. Supt.	Baton Rouge, La.	504-357-4361
	James A. Wingate	Sr. Tech. Ser. Engr.	Ditto	Ditto
	J. Kenneth Presswood	Supv. Tech. Ser.	Ditto	Ditto
FIRESTONE PLASTICS	W. W. Madden		Pottstown, Pa.	215-326-2000
	C. W. Englblom		Ditto	Ditto
	F. L. Ellris		Ditto	Ditto
GENERAL TIRE & RUBBER CO.	R. W. Laundrie	Manager	Akron, Ohio 44329	216-798-3327
	J. R. Madd	Plant Manager	P.O. Box 68, Ashtabula, Ohio	216-998-1120
	Harlan Jewett	Technical Supt.	Ditto	Ditto
GEORGIA PACIFIC	H. A. Lloyd		P.O. Box 629, Plaquemine, La.	504-687-6321
	F. K. Hall		Ditto	Ditto
B. F. GOODRICH COMPANY	Glen D. Schaaf	Mfg. Admin.	6100 Oak Tree Blvd., Cleveland, Ohio	216-524-0200
	Herman Saltonate	Mgr. Safety Admin.	Ditto	Ditto
GOODYEAR TIRE & RUBBER CO.	Mal Trowbridge		Niagara Falls, N.Y.	516-283-7682
	Amos Dixon	Prod. Supt.	Plaquemine, La.	504-348-3151
GREAT AMERICAN CHEMICAL	A. W. Fuhrman	Vice-President	Fitchburg, Mass. 01420	617-343-6973
	John C. Floros	V. P. Mfg.	Ditto	Ditto
HOOKER CHEMICAL	William T. Kjbat	Prod. Supt.	Burlington, N. J.	609-499-2300
	Brian L. Cole	Proc. Engr.	Ditto	Ditto
	Myles McEachron	Prod. Dept. Head	Hicksville, N. Y.	516-WE1-8100
	Malcolm Brown	Process Engr.	Ditto	Ditto
	Mark Soole	Plant Safety Chem.	Burlington, N. J.	609-499-2300

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VINYL CHLORIDE SAFETY ASSOCIATION
ATTENDANCE ROSTER - APRIL 17 & 18, 1974 MEETING
PHILADELPHIA INTERNATIONAL AIRPORT MOTEL

Company	Name	Title	Address	Telephone No.
IMPERIAL OIL ENT., LTD. (EXXON)	T. H. Sutherland	Sr. Res. Chemist	P.O. Box 3022, Sarnia, Ont., Canada	519-339-2699
INDUSTRIAS RESISTOL, S. A.	Jaime R. Sauchez D.		61 Mazarick, Mexico City, Mexico	565-4711
KEYSOR-CENTURY	S. K. Law	Proc. Engr.	Saugus, California	805-259-2360
MONSANTO	David L. Gendron	Prod. Supvr.	Springfield, Mass.	413-788-6911
	Garland W. Fletcher		Ditto	Ditto
NORSK HYDRO, A. S., NORWAY	Rolf Kogstad		290 Madison Ave., NYC, N.Y. 10017	MU-5622
OLIN CHEMICAL	Fred Klebacher	Supvr. Analytical	238 S. Main St., Assonet, Mass.	617-678-4591
	Robert Rawlings	Sr. Engineer	Ditto	Ditto
PANTASOTE COMPANY	Joseph Bick		Passaic, N. J.	201-777-8500
	K. K. Sheth	Mgr. Resin Prod.	Ditto	Ditto
	Roy W. McCune		Ditto	Ditto
	H. Rzempoluch	Plant Manager	Point Pleasant, W. Va.	304-675-1020
PPG INDUSTRIES	J. M. Denison		P.O. Box 3472, Ponce, P. R.	843-4115
	Roy Stack		Pittsburgh, Pa.	412-434-2403
	Robert P. Lynch		Lake Charles, La.	318-882-1200
	Fred Ewald		P.O. Box 31, Barberton, Ohio 44203	216-753-4561
ROBIN TECH, INCORPORATED	John Ertel		P.O. Box 2342, Fort Worth, Texas	817-332-7323
SHELL CHEMICAL COMPANY	D. G. Miller	Mgr. G. Operations	Deer Park, Texas	713-479-2331
	W. M. Anderson	Sr. Chemist	Ditto	Ditto
STAUFFER CHEMICAL COMPANY	Ray A. Asti	Plant Manager	Delaware City, Del. 19706	302-834-4575
	Bill Hager	Personnel & Safety	Ditto	Ditto

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VINYL CHLORIDE SAFETY ASSOCIATION
ATTENDANCE ROSTER - APRIL 17 & 18, 1974
PHILADELPHIA INTERNATIONAL AIRPORT MOTEL

Company	Name	Title	Address	Telephone No.
TENNECO CHEMICALS, INC.	Philip R. Scatito	Works Manager	Burlington, N. J.	609-386-9200
	P. L. Bogart	Div. Safety Mgr.	Flemington, N. J.	201-782-4011
	William C. Champion	Supv. Qual. Cont.	Ditto	Ditto
	Arthur C. Siegel	Ass't. Works Mgr.	Burlington, N. J.	609-386-9200
UNION CARBIDE COMPANY	Robert L. Frantz	Prod. Dept. Head	Texas City, Texas	713-945-7411
UNIROYAL CHEMICAL	C. H. Kim	Technical Supt.	P.O. Box 460, Painesville, Ohio	216-357-7574
	G. E. Brumbaugh	Methods Supvr.	Ditto	Ditto
	Walt M. Iliff	Plant Engineer	Ditto	Ditto
UNIVERSAL PVC RESINS, INC.	J. C. Palinsky	Safety Supvr.	786 Hardy Road, Painesville, Ohio	216-352-6241

NAME AND ADDRESS OF INSTRUMENT FIRMS ATTENDANT AT AIRPORT MOTEL IN PRIVATE ROOMS

BENDIX PROCESS INSTRUMENT DIVISION - P. O. Drawer 477, Ronceverte, West Virginia 24970, Tel. 304-647-4358
Jesse C. Patton, Ph.D., Applications Chemist
Don H. Dick, Regional Sales Manager

E. B. BULLARD COMPANY - Sausalito, California 94965
Stephan A. Straughan, Regional Sales Manager
3503 Spice Bush Trail, Greensboro, North Carolina 27410, Tel. 919-288-7448

CENTURY SYSTEMS CORPORATION - Box 133, Arkansas City Kansas 67005, Tel. 316-447-3311
Robert W. Blihar, Regional Sales Manager
P. O. Box 647, Middletown, New Jersey 07748, Tel. 201-671-6124

GAS TECH, INCORPORATED - JOHNSON INSTRUMENT DIVISION - P. O. Box 5649, Charlottesville, Virginia 22903, Tel. 804-973-5458
Edward F. McFadden, Eastern Regional Manager

GUARDIAN SAFETY EQUIPMENT COMPANY - 214-216 South 45th Street, Philadelphia, Pennsylvania 19104, Tel. EVergreen 2-2350
Jack Kelly

ANATOLE J. SIPIN COMPANY - 386 Park Avenue, South, New York, New York 10016, Tel. 212-689-2250
A. J. Sipin

WILKS SCIENTIFIC CORPORATION - South Norwalk, Connecticut, Tel. 203-838-4537
Paul A. Wilks, Jr., President