Inter-organization Correspondence

B.F.Goodrich

TO	FIELD POINT OR DEPT. & BLDG. NO.	DATE YOUR LETTER
R. N. Rylands	Avon Lake General Chemical	
FROM	**FIELD POINT OR DEPT. & BLDG. NO.**	**DATE THIS LETTER**
R. B. Nash, Jr.	Akron - D/0020, 5-H	11/4/76

SUBJECT

INDUSTRIAL HYGIENE SURVEY - ALGC

On August 17-18, 1976 an industrial hygiene survey was conducted at the Avon Lake General Chemical Plant. Tests were run to evaluate employee exposure to carbon tetrachloride and chloroform during the use of Hi-Temp resins. Dust exposure, with subsequent heavy metal analysis, were performed on weighmen. All results were well within acceptable limits. A comparison test was run to evaluate VCM results employing the flasher method versus carbon disulfide. One result with carbon disulfide was 100% higher than the plant flasher method.

Further action is outlined in the following Recommendations and Discussion.

26114001

Recommendations

1. Maintain doors leading to mill area in Bldg. 441 cuber line in closed position to reduce noise levels elsewhere in the building.

2. Require employees on job of mill operator in Bldg. 441 to wear hearing protection at all times when working at the mill or in the cuber room.

3. Have process engineering establish flow of nitric oxide contaminated material and determine areas where exposure could occur.

4. Provide full environmental suit protection, including supplied air, if an employee could be exposed to nitric oxide.

5. If NO cylinders are not to be used, please remove them from the areas.

6. Keep fire doors in Bldg. 463 closed to prevent diffusion of vinyl chloride into the non-regulated section.

7. Enforce the use of respiratory protection in vinyl chloride areas when warning systems are in operation.

8. Reduce threshold alarm level in Bldg. 463 to 1 part per million (ppm for worker protection.

9. Provide additional warning lights for each sampling point so that protection can be provided in a localized area.

10. Obtain additional dust samples in the PVC bagging area to define dust hazardous operations.

BFG46453

Discussion

Bldg. 441 Compound-East

Improvements have been made by enclosing noise hazardous operations in this building. The doors around the finishing mill leading to other areas of the building were open, allowing a significant amount of noise to escape These doors must be kept closed at all times. In addition, the mill operator was not wearing hearing protection which must be worn at all times when working in a noise hazardous area. Ventilated weigh hoods were all functioning in a satisfactory manner to capture loose dusts during weigh-up operations on the second floor.

Bldg. 464 Polymerization

The nitric oxide cylinders should be removed from the polymerization buildings if the plant does not intend to utilize them. If this procedure for short-stopping reactions is to be utilized, process engineering should establish the final location of the injected material and decide whether a potential for employee exposure exists because of the alteration of normal product flow. There should be no skin contact or inhalation of nitric oxide by employees because of harmful effects. If the potential for exposure exists, full protective suits with supplied air respiratory protection must be provided.

Bldg. 463 Latex

This building was divided into a regulated area and a non-regulated warehouse area. The fire doors between the two sections were open during several visits through this building with yellow lights on in the regulated area. These doors should be kept closed at all times to prevent diffusion of vinyl chloride into the non-regulated area. The yellow alarm in this building was elevated to a threshold of 2 ppm u nder the supposition that respiratory protection could be better controlled. During repeated visits to this building, no respiratory protection was employed while the yellow light was in operation. Maintenance personnel were observed working on a pump far beyond the allowable 15 minute time limit with no respiratory protection. The threshold alarm level must be reduced back to 1 ppm vinyl chloride to provide adequate protection for employees.

Bldgs. 451 & 461

Several employees were observed for periods longer than 15 minutes who were working without respiratory protection when the yellow light was flashing in the regulated areas. It must be noted that the single set of lights on a floor is difficult to see from every location. Warning lights should be installed to respond to a particular area of a floor instead of the overall area. Respiratory protection must be enforced when employees are exposed to vinyl chloride in concentrations greater than 1 ppm. In addition, a number of respirators were seen hanging on pipes and valves and not stored in a clean and sanitary manner.

Discussion (cont)

Bldg. 438 Compound-West

A personal dust sample was collected on Mr. D. McKay and analyzed for cadmium, barium and nickel with the following results:

		Analysis	TLV
Sample Time: 370 minutes	Cadmium	.004	0.2
	Barium	.057	0.5
	Nickel	.022	1.0

The weighing was performed in the ventilated weigh area by the CML liner. As indicated by the results, all levels of metals were well within acceptable limits. Two samples were obtained during a run of 603X560, a Hi-Temp material, and analyzed for chloroform and carbon tetrachloride. One area sample was located over the Henschel mixer and the other personal sample on Mr. R. Vanek, C-line CML mill operator.Results from both four-hour samples were below detectable limits for chloroform and carbon tetrachloride. The minimum detectable level for these samples was 2 ppm for chloroform and 1 ppm for carbon tetrachloride. Exposure to these chemicals does not appear to be significant during the processing of Hi-Temp material.

Bldg. 452 PVC Bagging

A total dust sample was obtained on Mr. C. Sawson, a PVC bagger, with a 350 minute result of 5.2 mg/M^3 which is an acceptable level if PVC dust is considered an inert nuisance dust. Additional samples obtained by Mr. D. Rider in the same area indicated significant overexposure to Mr. T. Betzel during housekeeping and Mr. K. Hart, a spray dryer operator. Further work needs to be performed in the bagging area to identify dust hazardous jobs and provide engineering controls to reduce these exposures to below the 10 mg/M^3 level. Until controls are implemented, respiratory protective equipment must be mandatory in dust hazardous operations.

Vinyl Chloride - Flasher vs. Carbon Disulfide

A cross check between the flasher and carbon disulfide methods was performed for vinyl chloride. Simultaneous samples were obtained on an employee in Bldg. 461 for 90 minutes, with the flasher samples #7550 indicating 0.8 ppm of VCL while carbon disulfide #7551 indicated 0.9 ppm of VCL. On a second employee, the flasher sample #7552 indicated 0.8 ppm of VCL while the carbon disulfide sample indicated 1.6 ppm. These results agree fairly well on one test and are 100% off on the other. Further studies on field collected samples need to be performed to reconfirm validity of the flasher method after many uses of the PMCC tube with the cooperation of the Environmental Lab in Brecksville.

I wish to thank your staff for their cooperation during my visit.

Robert B. Nash, Jr.
Industrial Hygienist

v
cc: W. Gunning, M. Manges, D. Rider

Inter-organization Correspondence

B.F.Goodrich

TO	FIELD POINT OR DEPT. & BLDG. NO.	DATE YOUR LETTER
E.B. Katzenmeyer	Akron - D/0020, 5-H	
FROM	FIELD POINT OR DEPT. & BLDG. NO.	DATE THIS LETTER
M.C. Manges	Avon Lake General Chemical FEB 28 1977	2-22-77
SUBJECT		

RESPONSE TO AN INDUSTRIAL HYGIENE SURVEY AT ALGC

On August 17-18, 1976 Mr. R.B. Nash, Industrial Hygienist conducted an industrial hygiene survey at the Avon Lake General Chemical Plant. During Mr. Nash's visit he made several observations and recommendations on the work environment in serveral of our production areas. The following is a status of our progress on Mr. Nash's recommendations.

26115001

Building 441 - Compound East

"Maintain doors leading to the mill area in bldg. 441 cuber line in the closed position to reduce noise levels elsewhere in the building." It is not clear which doors Mr. Nash is referring to but all doors leading to the cuber room are labeled to be closed at all times. The doors between the mill area and powder area are not part of our noise control program. Their primary purpose is to assure compliance with FDA standards while producing food grade product, at which time these doors are closed.

"Require employees on the job of mill operator in bldg. 441 to wear hearing protection at all times when working at the mill or in the cuber room." The operator in question was probably the relief operator who under our administrative noise control plan is not required to wear hearing protection. His daily noise dose is 80% of the allowable government standard as determined by recent dosimetry data. Every employee, including the relief operator is required to wear hearing protection while in the cuber room.

Building 463 - Latex

"The fire doors between the regulated area and the warehouse were open. ... doors should be kept closed ... ." These doors are normally closed 99% of the time but are occasionally left open while transferring raw material from the warehouse to the process area. This work is normally performed by the warehouseman whose personnel monitoring results for the last nine months have averaged 0.36 ppm. The production foremen have been instructed to keep the doors closed as much as possible.

"Reduce threshold alarm in bldg. 463 to 1 ppm. ... Provide additional warning lights for each sampling point ... . Enforce the use of respiratory protection in VCl areas ... ." All four of our regulated areas now have their alarm levels set at 1 ppm (yellow-light) and 3 ppm (red-light) with the audible alarm set at 100 ppm. We are also installing additional warning lights for selected sampling points in the process areas which have the effect of dividing the process floor into monitoring zones. We feel that the zone monitoring approach will greatly assist us in enforcing our respirator program.

Building 464 - Geon East

"If NO cylinders are not to be used, please remove them from the areas." An alternate method of short stopping polymerization reactions has been employed. The NO cylinders will be returned to the supplier.

Building 438 - Compound West/B-452 - Dryer Bldg.

"A total dust sample was obtained ... with a result of 5.2 mg/M^3 which is an acceptable level ... additional samples ... in the same area indicate significant overexposure. ... protective equipment must be mandatory ... ." Dust mask are required of all baggers and personnel working in apparent dust hazardous jobs. We have ordered additional dust sampling equipment to increase our dust monitoring frequency.

Vinyl Chloride Flasher vs. Carbon Disulfide

"Further studies on field collected samples need to be performed to reconfirm validity of the flasher method after many uses of the PMCC tube with the cooperation of the Environmental Lab in Brecksville." I refer you to page 3 paragraph 4 of "Evaluations of Bendix Flasher tubes and MSA tubes as VCM Monitors" by J.W. Born, P.M. Zakriski, and R.D. Hardesty of the Corporate Environmental Service Dept. "The PMCC's and MSA tubes give equivalent results when sampling 1 ppm VCM-air mixtures for 6 hours at high humidities."

M.C. Manges

MCM:bjc

cc: R.N. Rylands
R.S. Mather
M.D. Tawney
J.C. Meck
file

26115002

BFG46457

Inter-organization Correspondence — B.F.Goodrich

TO	FIELD POINT OR DEPT. & BLDG. NO.	DATE YOUR LETTER
R. N. Rylands	Avon Lake	
FROM	**FIELD POINT OR DEPT. & BLDG. NO.**	**DATE THIS LETTER**
T. S. Bialke	Akron - D/0020, 5-H	11-4-77

SUBJECT

INDUSTRIAL HYGIENE REVIEW - AVON LAKE

On September 8-9, 1977, Jim Klupar, Ken Kaminski and I visited the Avon Lake General Chemical plant for the purpose of evaluating employee exposures to dust generated during compounding and mixing of PVC resins.

In addition to the dust evaluation, we performed an industrial hygiene walk-thru of the Geon East, Geon West and Estane areas.

This report contains a brief discussion of the dust evaluation and recommendations based on the walk-thru survey. Please provide me with a status report on these recommendations within 30 days.

I would like to thank the Avon Lake General Chemical staff for their cooperation and I look forward to working with them in the future.

Thomas S. Bialke
Industrial Hygienist

v

cc: G. Krupa
D. Rider
H. Waltemate
J. Klupar/K. Kaminski
W. Gunning

26116001

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Recommendations:

1. Discontinue the use of compressed air to blow surfaces clean within and around the weigh booths. Using compressed air for cleaning creates a serious safety hazard for eye injuries as well as excessive dust in these areas. Dry vacuuming or wet sweeping are the only cleaning methods that do not generate excessive dust atmospheres.

2. Respirator Program

   a. Remove all unapproved air filtering respirators i.e, those bearing a Bureau of Mines (BM) number and replace with NIOSH/MESA approved respirators only.

   b. Discontinue use of the 3M8500 disposable respirator, as it is not approved for industrial use.

   c. Routinely clean and disinfect airline respirators stored at work sites and modify the storage box to prevent contamination of the cleaned respirators.

   d. Review and update General Notice SA-45, Respiratory Protection, to reflect new requirements.

3. Ensure that the doors to the noise enclosures around the cubers remain closed.

Discussion:

It was observed during the clean-up of Geon West compound weighing area that compressed air was being used to blow the scale and work surfaces clean. For obvious reasons this practice must be prohibited. Alternative methods for clean-up are dry vacuuming; a vacuum line is in the immediate area, or wet sweeping. Dry vacuuming is preferred over wet sweeping because it creates less of a "mess" and is accomplished faster.

Numerous unapproved respirators were found throughout the plant. All air-filtering respirators bearing a Bureau ofMines (BM) number should be replaced with approved respirators bearing a NIOSH/MESA TC number. A 3M8500 disposable respirator was found in a weigh area. This mask is not approved by NIOSH and should not be used in any BFG facility. Appendix I contains a list of approved respirators and their recommended uses.

Many of the air line respirators stored in Geon West were found to be soiled and in need of cleaning. The boxes in which they are stored also need modifications to prevent the masks from becoming contaminated. This may best be accomplished by sealing up the boxes with gaskets.

From these findings, it is recommended that the complete respirator program at ALGC be reviewed and updated to reflect changes in the law and the new requirements.

Table I contains the results of air sampling conducted on September 8-9. From the sampling data, it appears that there is no nuisance dust exposure at Avon Lake in the compounding, weighing or mixing areas. This is due to good techniques on the part of the weighmen and compounders and the automatic weighing apparatus used for bulk items. A complete report of the findings and comparisons of our PVC compounding operation will be made after all BFG PVC compounding operations have been visited.

Although there does not appear to be a dust problem in the compounding area, Avon Lake may have a dust exposure problem in the paste bagging and Estane bagging areas. This is based on previous sampling data and observations of the operation. I therefore suggest that some personnel monitoring for employee dust exposures be undertaken in the paste and Estane bagging areas to minimize employee exposures to nuisance dust. Contact me in Akron for assistance in establishing sampling times, frequency and number. (Ext. 4224).

Thomas S. Bialke
Industrial Hygiene

v

TABLE I.

NUISANCE DUST SAMPLING RESULTS

Avon Lake GC, Sept. 8-9, 1977

Sample	Sample Time (min.)	Exposure Time (min.)	Exposure Concentration (mg/M^3)
BZ Marshall Hyslett Henschel Oper., Geon E, Bldg. 441	344	420	0.32
BZ Sam Cole, Weighman Geon E, Bldg. 331	337	420	2.6
BZ Bob Eis, Henschel Oper. Bldg. 438, West	345	420	0.42
BZ Jose Copa, CML Weighman Bldg. 438 West	358	420	2.3

BZ = Breathing Zone

All materials handled during sampling periods may be classified as nuisance i.e., not having an assigned TLV.

APPENDIX I.

RESPIRATOR TYPES AND USES

Type	Recommended Use
A. Dust Respirators	
1. 3M 8500 Disposable	Not approved
2. 3M 8710 Disposable	Non-toxic dust, asbestos, talc, soapstone, silica, carbon black
3. 3M 9900 Disposable	All above plus toxic dusts i.e. lead dust
4. MSA Dustfoe 66	Talc, soapstone, silica, carbon black
5. Norton (formerly Welsh) 7100	Talc, soapstone, silica, carbon black, lead dust
6. Norton (Welsh) 7580 (with 7500-8 filter)	Talc, soapstone, silica, carbon black, toxic dusts i.e., lead, PBNA
B. Organic Vapor	
1. MSA Custom Comfo II (#459433) with #459315 Cartridge (MSA Cartridge #44135 is no longer approved by OSHA/NIOSH. MSA respirators with this cartridge must be converted to the 459315 type cartridge by installation of a conversion kit #459971).	Organic vapors i.e., trichloroethylene, 1197, 1205, 1599, methyl chloroform. Call ext. 4224 for other usages.
2. Norton (Welsh) 7501 with 7500-1 cartridge	Organic vapors i.e., trichloroethylene, 1197, 1205, 1599, methyl chloroform. Call ext. 4224 for other usages.
C. Organic Vapor, Dust and Mists	
1. MSA Custom Comfo II (#459433) with #459315 cartridge and #459693 filter and #459027 cover	Asbestos, talc, carbon black and organic vapors i.e. trichloroethylene, 1197, 1205, 1599, methyl chloroform. Call ext. 4224 for other usages.
2. Norton (Welsh) 7511 with 7500-1 cartridge and 7500-6 filter and 7500-14 cover	(Same as above.)

APPENDIX I. (con't)

RESPIRATOR TYPES AND USES

Type	Recommended Use
D. Paint Spray and Mists	
1. MSA Custom Comfo II (#448849) with #459315 cartridge with 448842 filters	Organic vapors, paint, solvents, and paint, lacquer and enamel mists.
2. Norton (Welsh) 7531 with 7500-1 cartridge and 7500-10 filter and 7500-14 cover	(Same as above).

September 15, 1978

R. N. Rylands
E. W. Harrington
A. W. Clements

Re: INDUSTRIAL HYGIENE SURVEY - AVON LAKE CHEMICAL

During July Mr. Thomas Bialke conducted an industrial hygiene survey at the Avon Lake Chemical plant. A copy of his report is attached.

Please note that Mr. Bialke has made a number of recommendations concerning asbestos, respirators, noise, etc. I would appreciate learning the status of these recommendations.

E. B. Katzenmeyer, Jr.
Manager, Industrial Hygiene

v

cc: G. Krcmar
H. Waltemate
W. Holbrook
R. Strassburg
R. Kelley
R.A. Guyton, M.D.
H.W. Dietz, M.D.

26117001

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