

TO	W. E. Horton	FIELD POINT OR DEPT. & BLDG. NO. <u>Avon Lake, C.</u>	DATE YOUR LETTER
FROM	T. S. Bialke	FIELD POINT OR DEPT. & BLDG. NO. Akron - D/0020, 5-H	DATE THIS LETTER 11-5-81
SUBJECT	Industrial Hygiene Survey, Sept. 22-25, 1981		

During the period Sept. 22-25, 1981 I conducted an industrial hygiene survey of the Avon Lake General Chemical plant. You will note that this survey report uses a table format to present survey results.

The table has a column for findings of the survey, a column for responsibility (the plant is to note the person(s) names responsible for taking action on survey recommendations when replying to the survey), a column for the date which action is expected to be completed on each item, and a column in which the findings are discussed and recommendations offered to address each item. The table is followed by a brief discussion of air monitoring results and general comments regarding the survey.

This years survey report of the Avon Lake plant identifies a need for the plant to improve implementation of its respirator fitting, cleaning and storage policy. Eye and face protection requirements need to be reviewed in all plant departments. The paint shop paint spray booth is in violation of OSHA standards and needs upgrading.

I want to thank B. Welch, R. Lockemer and J. Gressler for their help and courtesies given to me during my survey.

T. S. Bialke
T. S. Bialke

V

cc: ~~E. B. Katzenmeyer/H. W. Dietz/D-0020 Staff~~
J. Gressler/R. Lockemer/B. Welch
H. Waltemate/E. Martinelli/E. Harrington
W. C. Becker
G. F. Krcmar/R. A. Krueger
N. Aquino/W. Lodge
R. Kaminski/J. Malone
W. Niederst/E. Osborne

26126001

Avon Lake IH Survey - Sept. 22-25, 1981

1.

<u>Survey Findings</u>	<u>Responsibility</u>	<u>Exp. Comp. Date</u>	<u>Recommendation/Comments</u>
<u>Items from Previous Survey</u>			
1. Modify eyewash fountains to eliminate spring loaded valves (previous survey recommendation).			1. Did not see any eyewash fountain with spring loaded valves during this survey. Action on previous recommendation satisfactorily completed.
2. <u>Estane/Estol B/471</u>			
a. Access doors to ventilation system installed (previous survey recommendation).			2. b. When appraised of the seriousness of running line with no ventilation, the foreman contacted the maintenance department. Maintenance responded and repaired the ventilation system that evening. Processes that have a potential for exposing employee to substances that present an immediate or acute hazard (such as in this case an isocyanate) must not be operated if controls, such as a ventilation system that are necessary to protect worker's health) are not functioning properly.
b. On Sept. 22 the extrusion line was being run with the ventilation system down. The foreman said a work order had been issued, but work to correct the problem had not been scheduled until the following day.			
3. Waterblasting of Estane agitators found to be adequate for routine cleaning (previous recommendation). Acetylene torches occasionally used for "rush" cleaning jobs.			3. Airline respirators are required to be worn by employees engaged in the burning off of Estane agitators.
4. Bldg. 452. The three air pumps south of bagger used to supply transport air were not muffled or sound-proofed (previous survey recommendation). Sound level in bagging area greater than 95 dBA with pumps running.			4. Reduce noise from air pumps by enclosing pumps with a noise enclosure

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Survey Findings

Responsibility

Exp. Comp.
Date

Recommendation/Comments

Items from This Survey

1. Numerous common use respirators found to be improperly stored, not clean, or with missing parts, making them unserviceable.

1. ALGC has a well written respirator program, however the findings of this survey indicate that it is not being thoroughly implemented. My July 1978 survey also resulted in a recommendation to improve implementation of the respirator program. Procedures need to be instituted that require a safety and health representative to review that respirators are kept clean and serviceable at least on a monthly basis.

2. Many employees in Geon west poly building were observed with full beards working in job classes that routinely require the wearing of respirators.

2. Currently the area OSHA coordinator are responsible for administering the annual respirator training and fit testing program. The importance of obtaining a good respirator fit for exposure to VCM cannot be over-emphasized when you consider the difficulty in obtaining a good fit on a person with a full beard. For this reason, I recommend that the plant's environmental/safety personnel ensure that respirator training/fitting and testing especially on employees with beards, is being done correctly and frequently. To this end, the environmental group at ALGC has made a commitment to try a semi-quantitative fit testing procedure developed by duPont. I will work with the plant to plan and initiate the procedure.

3. No current data kept in plant files documenting worker exposure to asbestos during removal of asbestos containing insulation.

3. To satisfy the requirements of the OSHA asbestos standard, the plant needs to obtain 3-5 air samples for asbestos exposure during insulation removal. Proper procedures are being

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Survey Findings

Responsibility

Exp. Comp.
Date

Recommendation/Comments

followed for handling asbestos, in addition, employees whose jobs put them in contact with asbestos get a yearly physical. Obtaining personnel air samples will document that the procedure ALGC employs is adequate for the exposures encountered. Plant environmental group has been advised of sampling procedures.

4. Conduct personnel monitoring for MDI using the Liquid Media Sampling device. The LMS will permit personnel sampling for MDI without the problem of spilling or inconvenience associated with wearing of impingers. Obtain 15 minute samples during various tasks throughout the workshift on employees in B/433 and 471. The MDI exposure limit is 0.02 ppm ceiling. A ceiling TLV is assigned to substances whose effects on humans are acute and fast acting. The potential for pulmonary sensitization and resulting response of an individual with such sensitivity requires that MDI, i.e. isocyanates, have a ceiling TLV. The only way to ascertain compliance with a substance having a ceiling TLV is to obtain short term (15 minute maximum) samples throughout the workshift.

5. All plant areas greater than 85 dBA are to be surveyed and posted as being noise hazardous with a requirement for wearing of hearing protection. As a minimum, obtain one noise dosimeter reading per employee working in a noise hazardous area per year.

4. Plant has conducted area monitoring for MDI in B/433. However, no personnel monitoring for MDI has been conducted to date to evaluate actual worker exposure to MDI.

5. Noise

a. Areas with sound levels greater than 85 dBA not posted per BFG Medical Policy 5.05.

b. Discontinue the practice of conducting noise dosimeter tests on employees who have demonstrated only threshold shifts.

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<u>Survey Findings-Noise (con't)</u>	<u>Responsibility</u>	<u>Exp.Comp.</u> <u>Date</u>	<u>Recommendation/Comments</u>
c. B/461 Geon East, 2nd floor, sound absorbing barriers moved due to construction work.			c. Portable sound barriers that had been installed around noise producing equipment need to be repositioned. Their proper placement is marked by lines on the floor around each piece of sound producing equipment.
6. An employee in Geon East was observed not wearing eye/face protection while handling a liquid catalyst that had an eye hazard warning label on the container. Investigation of eye/face protection requirements in other process areas, i.e. hydrophyllics and Geon West, where liquid catalyst initiators are handled, revealed that eye/face protection is not always required or worn.			Eye/face protection requirements should be reviewed plant-wide. Any time an employee is required to transfer a reactive liquid such as a catalyst or initiator from one container to another, eye and/or face protection must not only be provided, but it must be worn. A full face shield is preferred.
7. Paint spray booth in carpenter shop had air flow across face 50-60 fpm less than OSHA requirements. Manometer to indicate restricted air flow inoperable.			7. OSHA 1910.107(B)(5)(i) requires that paint spray booths have an air-flow of at least 100 fpm across their open face and have a gauge to indicate when the flow rate drops below required minimum. Increased air flow may be accomplished by increasing fan speed. If that does not work, extensive modifications may be required. Once air-flow meets the requirements of the standard, the manometer must be kept operable.
8. No periodic review or follow-up on leak detection programs in Geon East or West.			8. Each Geon unit has procedures for detecting and correcting VCM leaks. However, the Environmental/Safety group does not routinely review the program. The Environmental/Safety group at ALGC must periodically review the leak detection program to ensure that proper procedures are followed to detect leaks.

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Avon Lake III Survey - Sept. 22-25, 1981

5.

<u>Survey Findings</u>	<u>Responsibility</u>	<u>Exp. Comp.</u> <u>Date</u>	<u>Recommendation/Comments</u>
9. November 10-13, 1980 survey reply not documented.			8. and once they are detected, they are eliminated to everyone's satisfaction. Leaks that require maintenance should be tagged, with copy of tag sent to the environmental group for review and follow-up if necessary to improve maintenance department's responsiveness. 9. Reply within 60 days of the survey report as to the plant's programs to address each recommendation. Include person or group responsible for taking action; also the expected date of completion.

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Discussion:

Table I contains the results of personnel sampling conducted for VCL during the survey. The table lists my results along with results of the plant's duplicate sampling efforts. The two methods for sampling and analysis were different. The plant used the Bendix flasher tube for the entire shift. My method employed charcoal tubes with solvent desorption. My results represent the combination of two partial period consecutive samples to get a full shift TWA result.

The two results over the TLV were caused by employees conducting strainer cleaning tasks that require wearing of respirators during that time period. The wearing of respirators during performance of hazardous tasks is permitted under OSHA.

The result on Mr. Kula is not significantly in excess of the permissible exposure limit.

TSB

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TABLE I.

VCM PERSONNEL MONITORING
AVON LAKE GC - 9/22-23, 1981

<u>Name/SS #</u>	<u>Bldg.</u>	<u>Job</u>	<u>Sample Time (min.)</u>	<u>Resp. Worn</u>	<u>TSB* Results (ppm)</u>	<u>Plant Results (ppm)</u>
S. Kula 506-36-5426	Geon East	Blowdown Oper.	410		1.06	0.7
K. Kocsis 289-40-9461	"	Charge Oper.	390	Yes	1.83	2.05
R. Kowalczyck 289-54-5234		Blowdown Oper.	392	"	1.54	1.75

*Results represent sum of two consecutive samples.

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Cleveland

R. C. Lockemer

ALGC - Environmental

12-18-81

Industrial Hygiene Survey, Sept. 22 to 25, 1981

Attached is the Avon Lake General Chemical Plant's response to the Industrial Hygiene Survey Report.

Robert C. Lockemer

RCL/bp

Distribution:

W. E. Horton D. D. Quester
J. W. Gressler J. C. Meck
~~E. B. Katzenmeyer/H. W. Deitz/D-0020 Staff~~
H. Waltemate
A. D. Timpano/B. R. Welch/D. M. Daidone
C. Bayard
D. J. McDonald
D. J. Barnicki
M. L. McCaslin
E. C. Gilbert
D. J. Gargas
W. E. Kenney
D. F. Spink
J. R. Shellenberger
T. J. Biskupich

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Survey Findings (Sept. 22-25, 1981)Items from Previous Survey

1. Modify eyewash fountains to eliminate spring loaded valves (previous survey recommendation).

2. Estane/Estol B/471

a. Access doors to ventilation system installed (previous survey recommendation).

b. On Sept. 22 the extrusion line was being run with the ventilation system down. The foreman said a work order had been issued, but work to correct the problem had not been scheduled until the following day.

3. Waterblasting of Estane agitators found to be adequate for routine cleaning (previous recommendation). Acetylene torches occasionally used for "rush" cleaning jobs.

4. Bldg. 452. The three air pumps south of bagger used to supply transport air were not muffled or sound-proofed (previous survey recommendation). Sound level in bagging area greater than 95 dBA with pumps running.

Recommendation/Comments

1. Did not see any eyewash fountain with spring loaded valves during this survey. Action on previous recommendation satisfactorily completed.

2. b. When appraised of the seriousness of running line with no ventilation, the foreman contacted the maintenance department. Maintenance responded and repaired the ventilation system that evening. Processes that have a potential for exposing employees to substances that present an immediate or acute hazard (such as in the case of an isocyanate) must not be operated if controls, such as a ventilation system that is necessary to protect worker's health, is not functioning properly.

3. Airline respirators are required to be worn by employees engaged in the burning off of Estane agitators.

4. Reduce noise from air pumps by enclosing pumps with a noise enclosure.

ALGC Response

1. No response required.

2.a. Access doors to the ventilation were installed
2.b. ALGC has an ongoing program to improve the extruder vent system in B/471. Several modifications to the existing vent system were made in 1981 to increase its capacity. In addition, an AR to install a new vent system will be prepared by the Estane/Estol Dept. during the 1st Quarter of 1982 and submitted for approval.

3. The use of airline respirators when burning off Estane equipment is a standard operating procedure. The procedure will be reviewed with Maintenance personnel during safety meetings to ensure compliance.

4. A GPO to install mufflers on the air pumps will be prepared by Geon West during the 1st Quarter of 1982 and submitted for approval.

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Survey Findings (Sept. 22-25, 1981)Items from This Survey

1. Numerous common use respirators found to be improperly stored, not clean, or with missing parts, making them unserviceable.

2. Many employees in Geon West poly building were observed with full beards working in job classes that routinely require the wearing of respirators.

3. No current data kept in plant files documenting worker exposure to asbestos during removal of asbestos containing insulation.

Recommendation/Comments

1. ALGC has a well written respirator program, however, the findings of this survey indicate that it is not being thoroughly implemented. My July, 1978, survey also resulted in a recommendation to improve implementation of the respirator program. Procedures need to be instituted that require a safety and health representative to review that respirators are kept clean and serviceable at least on a monthly basis.

2. Currently, the area OSHA coordinators are responsible for administering the annual respirator training and fit testing program. The importance of obtaining a good respirator fit for exposure to VCM cannot be over-emphasized when you consider the difficulty in obtaining a good fit on a person with a full beard. For this reason, I recommend that the plant's environmental/safety personnel ensure that respirator training/fitting and testing especially on employees with beards, is being done correctly and frequently. To this end, the environmental group at ALGC has made a commitment to try a semi-quantitative fit testing procedure developed by DuPont. I will work with the plant to plan and initiate the procedure.

3. To satisfy the requirements of the OSHA asbestos standard, the plant needs to obtain 3-5 air samples for asbestos exposure during insulation removal. Proper procedures are being followed for handling asbestos, in addition, employees whose jobs put them in contact with asbestos get a yearly physical. Obtaining personnel air samples will document that the procedure ALGC employs is adequate for the exposures encountered. Plant environmental group has been advised of sampling procedures.

ALGC Response

1. By February, 1982, all production areas will conduct a monthly check of common use respirators to ensure that they are properly cleaned and stored with all necessary parts. The Health, Safety, and Environmental Dept. will conduct a quarterly check of common use respirators in the plant. Records of the monthly and quarterly checks will be maintained by the Health, Safety, and Environmental Dept.

2. An action plan to evaluate the quantitative mask fit procedure developed by DuPont has been prepared by ALGC. The evaluation should be completed during the 1st quarter of 1982.

3. Personnel will be monitored for asbestos exposure.

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Survey Findings (Sept. 22-25, 1981)Items from This Survey

4. Plant has conducted area monitoring for MDI in B/433. However, no personnel monitoring for MDI has been conducted to date to evaluate actual worker exposure to MDI.

5. Noise

- a. Areas with sound levels greater than 85 dBA not posted per BFG Medical Policy 5.05.
- b. Discontinue the practice of conducting noise dosimeter tests on employees who have demonstrated only threshold shifts.

c. B/461 Geon East, 2nd floor, sound absorbing barriers moved due to construction work.

Recommendation/Comments

4. Conduct personnel monitoring for MDI using the Liquid Media Sampling device. The LMS will permit personnel sampling for MDI without the problem of spilling or inconvenience associated with wearing of impingers. Obtain 15 minute samples during various tasks throughout the workshift on employees in B/433 and 471. The MDI exposure limit is 0.02 ppm ceiling. A ceiling TLV is assigned to substances whose effects on humans are acute and fast acting. The potential for pulmonary sensitization and resulting response of an individual with such sensitivity requires that MDI, i.e., isocyanates, have a ceiling TLV. The only way to ascertain compliance with a substance having ceiling TLV is to obtain short term (15 minute maximum) samples throughout the workshift.

5. All plant areas greater than 85 dBA are to be surveyed and posted as being noise hazardous with a requirement for wearing of hearing protection. As a minimum, obtain one noise dosimeter reading per employee working in a noise hazardous area per year.

c. Portable sound barriers that had been installed around noise producing equipment need to be re-positioned. Their proper placement is marked by lines on the floor around each piece of sound producing equipment.

ALGC Response

4. Once data on the LMS device have been supplied to the plant, the Health, Safety, and Environmental Affairs Dept. and the Estane Dept., will develop an action plan to monitor personnel exposure to MDI. Personnel monitoring will be completed by the 3rd Quarter of 1982.

5.a. Building noise surveys have been completed and noise hazardous areas defined. All areas with sound levels greater than 85 dBA will be posted in January, 1982.

5.b. Noise dosimeter testing will be conducted once per year on all employees who work in noise hazardous areas. Additional dosimetry testing will be conducted only on those employees who receive a medical referral recommendation on the Audiometry Action Report.

c. The sound barriers will be kept in their proper positions.

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Survey Findings (Sept. 22-25, 1981)

Items from This Survey

6. An employee in Geon East was observed not wearing eye/face protection while handling a liquid catalyst that had an eye hazard warning label on the container. Investigation of eye/face protection requirements in other process areas, i.e., hydrophilics and Geon West, where liquid catalyst initiators are handled, revealed that eye/face protection is not always required or worn.

7. Paint spray booth in carpenter shop had air flow across face 50-60 fpm less than OSHA requirements. Manometer to indicate restricted air flow inoperable.

8. No periodic review or follow up on leak detection programs in Geon East or West.

9. November 10-13, 1980 survey reply not documented.

Recommendations/Comments

Eye/face protection requirements should be reviewed plant-wide. Any time an employee is required to transfer a reactive liquid such as catalyst or initiator from one container to another, eye and/or face protection must not only be provided, but it must be worn. A full face shield is preferred.

7. OSHA 1910.107(B)(5)(i) requires that paint spray booths have an air flow of at least 100 fpm across their open face and have a gauge to indicate when the flow rate drops below required minimum. Increased air flow may be accomplished by increasing fan speed. If that does not work, extensive modifications may be required. Once air flow meets the requirements of the standard, the manometer must be kept operable.

8. Each Geon unit has procedures for detecting and correcting VCM leaks. However, the Environmental/Safety group does not routinely review the program. The Environmental/Safety group at ALGC must periodically review the leak detection program to ensure that proper procedures are followed to detect leaks.

9. Reply within 60 days of the survey report as to the plant's programs to address each recommendation. Include person or group responsible for taking action; also the expected date of completion.

ALGC Response

Face shields will be worn when weighing or charging catalyst.

7. The paint spray booth vent system has been modified and the air flow across the open face increased to 100 fpm. The existing manometer has been repaired. As the filters become clogged the Maintenance Dept. will correlate pressure drop with face velocity to define a maximum acceptable pressure drop. A pressure drop in excess of the maximum will require cleaning or replacing the filters.

8. Leak detection reports will be reviewed by the Health, Safety, and Environmental Dept.

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C. E. Fleming

Avon Lake T.C.

FROM

T. S. Bialke

FIELD POINT OR DEPT. & BLDG. NO.
Akron - D/0020, 5-H

DATE THIS LETTER
2-8-82

SUBJECT

Industrial Hygiene Survey-Avon Lake T.C.

During the period December 7-10, 1981 I conducted an industrial hygiene survey at the Avon Lake Technical Center. Attached is my report detailing findings of the survey.

This year the format of the I.H. survey has been changed, resulting in a better understanding of how the recommendations relate to each finding and to allow the facility and outside reviewer to follow actions on recommendations. You will note that the report has four columns headed survey findings, responsibility, expected date of completion and recommendations or comments. The "findings" column describes the situation that needs correcting. In the "responsibility" column, the facility is requested to name the person(s) who will be responsible for completing the necessary corrective action(s). The "expected date of completion" column should be used to put the timetable or date at which action is expected to be completed. The "recommendations/comments" column contains a discussion of the findings at the time of the survey together with recommendations which, if implemented, should correct or improve the problem or situation found. The table format should be used when reporting on actions taken to address the survey findings.

This years survey of ALTC identified incomplete actions on converting spring loaded eyewash fountains over to stay open types, laboratory hoods not rated per Chemical Group SA127 and need for hearing protection and controls in the extruder building.

ALTC monitoring programs are more than sufficient and recommendations are offered to reduce some industrial hygiene monitoring.

I would like to thank R. Hardesty for his assistance during my survey.

T.S. Bialke
T.S. Bialke

v

cc: R. Hardesty
H. Waltemate/E. Martinelli
W.C. Becker/W.C. Holbrook
E.B. Katzenmeyer/H.W. Dietz/R.A. Guyton/D/0020 Staff

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Survey Findings

Responsi-
bility

Exp.Date
of Comp.

Recommendations/Comments

Items from Previous Survey(s)

1. Found 21 spring loaded eyewash
fountains had not been changed
over to stay-open valve type.

2. All laboratory hoods not
routinely checked for ventilation
rates or rated per BFG Chemical
Group SA127.

3. Hydrazine exposures associated
with ADVA process were monitored by
the Technical Center per last years
recommendations. Results for four
samples were 0.08-0.18 ppm. ACGIH
TLV for 8 hours is 0.1. Exposures
were from tasks of charging reactor
and sampling collection.

1. In the 1979 and 1980 IH survey reports
it was recommended that all spring loaded
eyewash fountains be modified with a type
that would remain open. In the November
1981 reply to the 1980 IH survey, the
Technical Center indicated that all foun-
tains had been changed over. Finding 21
fountains that had not been modified indi-
cates a need for the Technical Center to
pay closer attention to the review and
follow-up of recommendations.

2. The BFG Chemical Group SA127 requires
quarterly flow checks and rating of labor-
atory hoods. Due to the large number of
hoods at ALTC and manpower limitation, the
Center is experiencing, the following
compromise was agreed upon.

a. The Technical Center will measure all
hoods and rate them per SA127 in the 1st
quarter 1982.

b. The Center will institute quarterly
maintenance checks on blowers, belts and
duct work on all hoods.

c. The Center will check flow rates on
an annual basis for the newer compensa-
ting hoods and measure flow rates on the
older single-pass hoods on a quarterly
basis.

3. Require wearing of airline respirators
for tasks of charging reactor and
collection of samples.

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<u>Survey Findings</u>	<u>Responsi- bility</u>	<u>Exp.Date of Comp.</u>	<u>Recommendations/Comments</u>
<u>Items Found during This Survey</u>			
1. Respirators seen during walk-through were clean and serviceable, but approximately 50% not protected from becoming soiled during storage.			1. Place all clean respirators in plastic bags or other suitable protective covering to prevent contamination during storage.
2. In Lab #11, the Porosimeter device had much mercury contamination in and around it.			2. Place Porosimeter on a pan/tray to contain any Hg that may be spilled and dropped on the floor. Clean, then seal floor with polymeric sealer to prevent any Hg already soaked into it from evaporating into the lab's work environment. A smooth floor would allow for easier clean-up of any spilled Hg. The existing floor is of a tarazzo tile type with many nooks and crannies, making it nearly impossible to completely remove any spilled Hg. Obtain uring Hg level checks on employees working in Lab #11. After clean-up determine airborne Hg levels in Lab #11.
3. Employee engaged in weighing up of pigments in compound room was observed smoking.			3. Lead, antimony, and a variety of other compounds are handled in the Tech Center's compounding area. Adjacent, through a door, is an area lunchroom. Smoking must be prohibited in the compounding area; if employees are to smoke, it must be restricted to the lunchroom. Employees also must be instructed to wash their hands before smoking. Smoking materials must also be prohibited from being carried or stored in the compounding area.

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<u>Survey Findings</u>	<u>Responsi- bility</u>	<u>Exp.Date of Comp.</u>	<u>Recommendations/Comments</u>
4. Noise levels in excess of 85 dBA are encountered when certain pieces of equipment are used in the extruder building such as cubers, dicers, air blow-offs. No hearing protection is being worn.			4. Post the extruder building as "noise hazardous" when running cuber, dicer, blow-offs, etc. Immediately require that when such noise producing equipment is being run, hearing protection is mandatory. Investigate the possibility of employing portable noise attenuation/absorbing panels around noise producing equipment. Designing permanent enclosures around such equipment is impossible due to the mobility required in the extruder building. However, portable sound absorbing panels, custom designed with windows, slots, etc., would reduce the transmission of noise throughout the building.
5. Bldg. 414 Hydrin/PVC works. A ventilation system in all of B/414 was observed with open ducts leading nowhere; flexible ductwork with holes in them and accumulation of material on the insides.			5. All ventilation systems in B/414 need to have an engineering review to determine how to better utilize existing capacities and cost out repair to damaged systems. These systems need to have a periodic duct work and fan blade clean-out. An engineering review with the intent of better utilization of existing capacities, plugging of unused ducts, etc., would provide for more effective control and have a potential for saving energy. As the system now exists, much heat is exhausted unnecessarily.
PVC resin is stored in the Bower storage cabinet in B/414. No local exhaust is provided.			The Bower storage cabinet needs to have local exhaust ventilation provided to it which will create a slight negative pressure inside the cabinet, thus preventing any residual vinyl chloride monomer released from the stored resin from escaping into the work environment.
The Tyler screen in the Hydrin process is not enclosed to prevent release of vapors.			The Tyler screen has a hood over it to capture vapors released from the product. The hood had curtains extending from it

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Survey Findings

Responsi-
bility

Exp.Date
of Comp.

Recommendations/Comments

6. Epichlorohydrin, toluene and heptane levels in Hydrin well below TLV.

7. Carboset 7000 process monitored in past for respirable dust. Obtain several samples to better evaluate nose irritation problem.

lab

8. DOP/test ovens have local exhaust ventilation system interlocked with opening of door to capture DOP fumes released from heating test. DOP exposures in lab have never been documented.

which enclosed the screen, enabling the ventilation system to better capture escaping fumes. This curtain, which had been removed, must be replaced.

6. Reduce personnel monitoring for epichlorohydrin, toluene and heptane to twice per year or whenever there is a process or equipment change or modification.

7. Carboset 7000 has caused nose irritation complaints by workers. Currently the problem is resolved through use of respirators and by putting vaseline in the nose. Respirable dust samples were collected on affected employees in the past. However, total dust measurements would be a more meaningful way of quantifying the exposure level associated with nasal irritation as respirable dust sampling does not quantify particulates normally deposited in the upper respiratory tract. A total dust measurement quantifies all inhaled and deposited particles.

8. Obtain 3-5 personnel DOP samples to document effectiveness of interlocking controls.

TSB

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