

TO	E. Martinelli	FIELD POINT OR DEPT. & BLDG. NO. Avon Lake GC	DATE YOUR LETTER
FROM	T.S. Bialke	FIELD POINT OR DEPT. & BLDG. NO. Akron - D/0020, 5-H	DATE THIS LETTER 5-24-79
SUBJECT			

INDUSTRIAL HYGIENE SURVEY - AVON LAKE GC

On May 15-17, 1979 I conducted an industrial hygiene survey at the Avon Lake General Chemical plant.

As in the past, the routine monitoring programs for vinyl chloride and acrylonitrile were excellent. It would appear from the AN data generated to date that it will not be necessary to regulate any area for AN.

I would like to thank Bill Gunning's staff, and particularly Bill Welch, for his assistance in making this survey enjoyable.

T.S. Bialke
T. S. Bialke

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RECOMMENDATIONS:

1. Estane/Estol

- a. Modify exhaust duct over Estane lines 1 & 2 mixer feed openings to prevent escape of vapors by enclosing mixer or lowering hood closer to source of vapors.
- b. Review design of Estol line to ensure that local exhaust ventilation systems prevent escape of vapors.

2. Bldg. 437

Install "closed system" per discussion if TOM usage becomes routine.

3. Bldg. 438

- a. Insulate pneumatic cube transfer lines (Banbury and CML) for noise control.
- b. Muffle exhaust from cube cyclone in Banbury lines.
- c. Isolate cooler motor and blower housings located outside from the duct work. Periodically perform maintenance on motor and housings to eliminate noisy operation.

4. Bldg. 435 Maintenance Shop

- a. Replace cadmium containing silver solder with a cadmium-free type.
- b. Install a damper on the local exhaust ventilation (LEV) leading to sonic cleaner from the welding exhaust system.

5. Bldg. 452

- a. Initiate a program to repair/plug PVC leaks in hopper/shaker and other parts of automatic bagger that are sources of fugitive PVC dust emissions.
- b. Require the wearing of dust respirators when workers are involved in PVC spill clean-up or when upset conditions prevail.
- c. Install muffler on pneumatic shaker screen exhaust.

6. Plant-Wide

- a. Modify and/or relocate valves on eyewash fountains to make them more easily accessible in case of an emergency.
- b. Replace spring loaded eyewash fountain valves with a type that will remain open when actuated. Examples found in B/438 S.E. stairwell, B/463.
- c. Clean out all ventilation systems designed for control of contaminants before initiation of airflow checks.

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Recommendations (con't)

6. Plant Wide

- d. Arrange for individuals tasked with industrial hygiene/environmental health monitoring and coordination to attend appropriate courses in basic industrial hygiene.

DISCUSSION:

Estane-Bldg. 433

As recommended in the July 1978 I.H. survey, the hoods over both Estane mixer feed lines must be lowered closer to the feed opening, or modified to more completely enclose the mixer to ensure that the fumes produced are contained at the source of generation. Condensed material can be seen coating the outside of both exhaust hoods, demonstrating the inefficiency of the present system. The ventilation for the Estol line to be located in B/471 must be reviewed to ensure that the present inefficient local exhaust system over the Estane lines is not duplicated in Estol. Perhaps such a complete enclosure of this emission source may further reduce MDI levels. Until the system is completely enclosed, the necessity for frequent isocyanate monitoring is dubious.

Bldg. 437

The addition of TOM (tertiary octyl mercaptan) was observed. No problem was encountered except for a disagreeable odor. However, if this material is to be used on a more frequent basis, a system of a closed nature must be employed. A dual valved dip tube permanently attached to the TOM drum was discussed with R.C. Horne. Such a system should be planned for future additions. The requirement for locally exhausting the drumming step needs to be evaluated.

Bldg. 438

The pneumatic transfer lines for tube transport contribute to the high background noise levels near the baggers. Insulation of these lines (Banbury and CML) will reduce worker exposure to noise. Also, the exhaust ports on the cyclone separators should be redesigned to eliminate the noise they produce.

It is acknowledged that the solution to muffling the cyclone exhaust is not simple. Mufflers of various types are available; however, their efficiency is compromised with the occasional carry-over of PVC material. Perhaps a simple screen in front of a muffler would keep such material from plugging it. The solutions to the problem must not be dismissed as being impossible until they have actually been tried.

The motor driving the cooling ventilation for the CML was again contributing to the background noise in the CML bagging area. Maintenance must be performed on the motor and bearings to ensure its quiet operation.

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Discussion (con't)

Bldg. 435

Silver solder containing cadmium was found being used in the welding shop. Cadmium-free silver solders are available and should be substituted for the type now being used. The inhalation of Cd fumes can produce acute effects similar to welding fume fever and chronic exposure can lead to emphysema or kidney damage.

The LEV for the sonic cleaner has been added to an existing welding exhaust system. The drop to the sonic cleaner should have a damper which can be closed when not in use to ensure that the welding exhaust ventilation rate is not reduced.

Bldg. 452

The automatic bagger was observed to have numerous leaks in the hopper and bagger. Such leaks release PVC dust into the work atmosphere and needlessly expose workers to PVC dust. A program of preventive maintenance must be initiated to plug these leaks. Also, the workers were observed cleaning up PVC spills without respiratory protection. As conditions warrant, respiratory protection must be required. The 3M 8710 disposable dust mask is adequate.

A Gaylord box with a pneumatic shaker screen is used to contain cleaned up PVC dust. The exhaust from the shaker can be easily muffled to eliminate this source of high intensity noise.

General - Plant-Wide

Numerous eyewash fountains were found with valves that were hard to reach and operated in different directions. It would appear that no plant-wide standard for eyewash fountains exists. The position and type of valve arrangement should be reviewed with the intent of making all valves easily accessible when an employee is blinded with something in his eyes. Also at least two eyewash fountains were found to have spring loaded valves which require the user to hold it down to produce a stream of water. To properly cleanse the eye of material requires a person to hold their eyes open with both hands, an impossible task with an eyewash that shuts off automatically.

A plant-wide evaluation of all ventilation systems designed for control of environmental hazards is being planned. Before the system's airflows are evaluated, all ventilation systems must be cleaned out. Once this has been accomplished, a program of periodic airflow checks and periodic clean out and maintenance can be initiated.

Individuals tasked with industrial hygiene monitoring and OSHA compliance should be given the opportunity to further their education by attending courses in basic industrial hygiene. Such courses, coupled with the excellent on-the-job training that working at a chemical plant provides, will ensure that Avon Lake and the Chemical Group will always have a pool of top-notch people protecting the health of the worker.

Avon Lake IH Survey
May 15-17, 1979

4.

Discussion (con't)

Monitoring programs for vinyl chloride and acrylonitrile are in order. The respirator program is being rewritten and should follow the guidelines discussed in the 9/14/78 industrial hygiene survey report.

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