

SECTION I.

RECOMMENDATIONS

1. Make certain that your written respiratory protection program is in total compliance with OSHA 29 CFR 1910.134.
2. Make certain that you continue to perform complete blood counts on those employees routinely exposed to benzene. The blood tests should be run on a quarterly basis.
3. Reduce the benzene concentration at the X-70 process, third floor of the Polymer Chemicals Building.
4. Make certain that the compressed air system used for breathing air meets the requirements of OSHA 29 CFR 1910.134. Also, reference BFG Chemical Company Engineering Standard ST-404.6 "Breathing Air Supply for Areas not Immediately Hazardous to Human Life".
5. Make certain that employees routinely assigned to jobs involving the handling of leaded chemicals continue to receive semi-annual lead blood and urine examinations.
6. Increase the hood performance at the pre-compounding station located on the second floor of Bldg. 741 - Compounding Building to approximately 175 fpm (feet per minute) face velocity.
7. Repair the non-operational ventilation system associated with the weigh hood located in the pigment room, third floor of the Polymerization Building.
8. Install an eyewash fountain and shower in the immediate vicinity of the acid handling area at the cooling tower.
9. Make certain that all workers handling asbestos materials (new and rip-out) receive annual chest x-rays and pulmonary function tests, and that all precautions as outlined in OSHA 29 CFR 1910.1001 are being followed.
10. Color code, or permanently label, all new or unused asbestos insulation; thereby properly identifying it as asbestos when it is removed from pipes and vessels.
11. Whenever possible, purchase only asbestos-free insulation.
12. Provide additional ventilation in the old boiler house to control the welding fumes and gasses generated there.
13. Purchase only those welding rods which do not contain fluoride compounds.
14. Replumb the transport lines from the VCM cylinder to the vinyl hood in the Lab Building such that the outlet is inside the hood and pointing vertically, or away from, the front of the hood. Presently all plumbing terminates outside the hood.

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15. Require that cuber room doors in the Compounding Building be kept closed at all times when cuber is operating.
16. Maintain a six to ten foot clear distance around all external exhaust fans located in the Polymer Chemical Building. Presently these fans are being blocked by stored raw materials.
17. Replace the exterior wall panels in the Polymer Chemicals Building to increase the effectiveness of the present ventilation system.
18. On the purchase of all new cartridge respirators, be sure that they are NIOSH approved.
19. Develop a new bag disposal procedure to minimize dust exposures to employees at the hopper filling operation on the fourth floor of the Compounding Building.
20. Place all recovery operators who work on the first floor of the Polymerization Building on the hearing conservation program. This is to consist of issuing and enforcing the wearing of hearing protectors and preplacement, annual and termination audiometric examinations.
21. Improve the ventilation in the Polymerization Building such that dead air areas could not exist in high potential VCM leakage areas. Specific areas would include the metering lines on the third floor and the compressors on the first floor.

DISCUSSION

Due to the illness of the Safety Supervisor on the second and third days of my visit, I was unable to adequately review some of your safety/industrial hygiene programs. It was mentioned that the plant does have a written respirator program; however, it should be reviewed and made certain that it meets the requirements set forth in OSHA 29 CFR 1910.134.

Also of concern is whether employees exposed to benzene (X-70 process and Geltral process) are receiving complete blood counts quarterly. As Table III indicates, employees working with the X-70 process experience high benzene concentrations which approach or exceed the TLV. These high concentrations are attributed to process leaks and lack of ventilation. Two temporary solutions are possible until permanent controls are implemented; one is the use of appropriate respirators and the second is the use of floor fans to dissipate areas of high concentration. Your OVA should give an indication of the effectiveness of this system.

On the second floor of Bldg. 741-Compounding Bldg., a hood is used for pre-compounding a variety of pigments including lead. As Table IV and Table V document, the hood is not adequate. Face velocities should be 150-175 fpm to adequately control fugitive dust. It should also be ascertained as to whether the employee is receiving semi-annual blood lead tests.

The breathing air systems used in the plant, especially so in the Polymerization Building, must meet OSHA 29 CFR 1910.134 requirements. BFG Chemical Company has recently prepared an engineering specification for breathing air systems which fully meets the OSHA requirements.

An eyewash fountain and shower is needed at the cooling tower. Presently both chromic and sulfuric acids are being handled and stored there. Both acids are used in treating the water supply in an operation that involves only one employee. This employee is provided with a face shield, but does not have an eyewash fountain or shower within any acceptable distance.

Those employees working with asbestos, either installing, removing, or bagging, should be provided with adequate protective equipment and be fully advised of the safe handling procedures necessary with asbestos. OSHA 29 CFR 1910.1001 adequately describes what is needed for an effective asbestos program. Employees not previously exposed to asbestos should not be assigned to handle it except as a last resort.

All unused asbestos material should be color-coded or labeled as such for proper identification as to its hazard, if and when it is used, and removed at a later date.

During the survey, welding was observed in the old boiler house. Under the operating conditions prevailing at the time (open double door, one floor fan and ceiling fan operating), no problem exists as substantiated by Table V. In winter months, however, it is anticipated that the doors will be closed, the floor fan turned off or removed, and the ceiling fan possibly turned off. Under these circumstances the work area would be unsatisfactory. I recommend that a local exhaust system be installed. This system could be portable, or permanent, and would primarily consist of an air mover, transport duct and small hood attachment. The exhaust air of this system should be vented outside the building, regardless of whether it is filtered or not.

Because of BFG's philosophy of minimizing potential health problems when practicable, I recommend that only those welding rods and fluxes that are fluoride free be purchased. At present, the stock of rods containing fluoride may be used, but only under localized exhaust ventilation.

The vinyl hood located in the Lab Building presently has plumbing running from VCM cylinders over to, and terminating in front of the vinyl hood. This should be corrected such that the plumbing terminates inside the hood with the tubing opening pointing in a vertical plane, or toward the back of the hood. The reasoning behind this is apparent in that if the rubber tubing running from the plumbing into the hood is removed or comes loose and the cylinder is venting, then monomer could contaminate the laboratory, possibly with significant exposures.

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As Tables I and II show, the recovery operators working on the first floor of the Polymerization Building are being over-exposed to noise. These employees should be issued hearing protectors and required to wear them in high noise areas as well as receive pre-placement, annual, and termination audiometric examinations. Care should be taken that the employees are thoroughly indoctrinated as to hazards of high noise.

It was observed that many dead air areas exist in the Polymerization Building. Ideally, with a substance as toxic as vinyl chloride, a 50 ft. per minute air velocity should be maintained in all areas where VCM leaks are likely to occur. Further, this air movement should be of uniform flow and continuously exhausted from the workplace with fresh air being continuously brought into the work area. At present, air flow is minimal at best in the area of the metering lines on the third floor. On the first floor in the compressor area, the air movement is in the vertical direction at approximately 10 to 20 ft. per minute, and could account for, at least in part, the high VCM levels on the mezzanine floor.

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