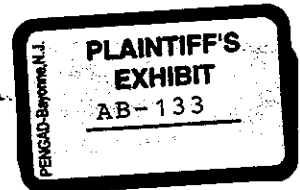


ABEX CORPORATION
INDUSTRIAL HYGIENE SURVEY
(ASBESTOS)
AMERICAN BRAKEBLOK
WINCHESTER, VIRGINIA
AUGUST 14 - 18, 1972



PURPOSE

This survey was the continuation of a study which was initiated to determine the extent of asbestos exposure to employees in the Plant. Additional surveys will be scheduled to complete the evaluation.

Several of the asbestos samples collected from locations processing lead compounds were also selected for lead analysis to determine airborne concentrations at various operations.

SUMMARY

Samples were collected in five different departments throughout the Plant, including Book Preform, Book Press, Block Preform, Strip Finishing, and Inspection and Packaging.

The results of the asbestos study disclosed two (2) locations where airborne asbestos concentrations were above the current eight-hour time weighted average exposure limit of 5 fibers/ml.

Referring to Sample No. 15 in the Analyses of Air Samples for Asbestos, the concentration found at Machine No. P-11, operated by C. Orndorff was 6.01 fibers/ml. Exposure levels at other Block Preform machines in the area were also elevated, but did not reach the 5 fiber/ml exposure limit. It was noted that the mix is handled intimately by the operators during the pre-form cycle. In addition to manually transferring the mix from container to the mold, the material is measured and spread by hand. As none of the Preform units are provided with adequate exhaust ventilation, the continuous manual operations are generating increased airborne concentrations of asbestos fibers.

Sample No. 56, at a concentration of 5.37 fibers/ml, was collected at the vertical saw adjacent to the Book Press Department. The saw was operated by R. F. Putnam, and was in nearly continuous use during collection of the sample. The unit is not provided with local exhaust ventilation, and significant quantities of airborne particulates are generated

~~Change from the existing asbestos dust or clothing lockers~~
must be provided for all regularly employed personnel who work at a fixed place of employment where airborne concentrations exceed 5 fibers/ml.

RESPIRATORY PROTECTION

The O.S.H.A. Rules & Regulations require that a respiratory protection program be established by the employer, and specifies the use of air purifying respirators to control exposures which exceed 5 fibers/ml but are less than 50 fibers/ml. However, the use of respirators is an interim means of controlling exposures, and they may only be used during the time period necessary to install engineering controls or implement a change in work practices.

It is our understanding the MSA Dust Foe Respirators with replaceable cartridges are available to the employees upon request. These respirators are approved by the U. S. Department of the Interior, Bureau of Mines. However, it should be ascertained that the replaceable cartridge used with the respirator for protection against asbestos dust is the Type F FILTER.

The operators of Machine No. P-11 in Block Preform and the vertical saw in the Book Press Department should be provided with respirators of this type. Until engineering controls have been installed, the use of respirators should be required at all times during operation of these units. If the Plant respiratory protection program needs improvement, expansion, or further development, referral to ANSI Standard Z88.2-1969 will provide assistance in meeting requirements.

POSTING REQUIREMENTS

In all locations where airborne concentrations exceed 5 fibers/ml. caution signs must be provided and displayed. The signs should be posted at all approaches to the areas in question, and should be located at such a distance from the operations that an employee can take necessary protective steps before entering the area. The legend and sign specifications are listed on page 11321 of the attached O.S.H.A. asbestos standard.

The main approaches to Block Preform and the vertical saw in the Book Press Department will require posting until airborne asbestos concentrations can be reduced to acceptable levels.

LABELING REQUIREMENTS

Caution or warning labels should be affixed to all raw materials, mixtures, scrap, waste, debris and other products containing asbestos which have the potential for releasing asbestos fibers into the ambient air. If asbestos fibers have been modified by a bonding agent, binder, or other material which fixes the fibers and prevents their release during any reasonably foreseeable use, no labeling is required. Labeling specifications are listed on page 11321 of the attached O.S.H.A. asbestos standard.

NOTIFICATION REQUIREMENTS

The two employees whose asbestos exposures exceed the current permissible limit of 5 fibers/ml should be notified in writing of the exposures as soon as practicable but no later than five (5) days from receipt of this report. In addition, the employees should also be advised, within a reasonable time period, of the corrective action being taken.

Employee notification requirements are listed on page 11322 of the attached O.S.H.A. asbestos standard.

HOUSEKEEPING AND WASTE DISPOSAL

Some of the precautions that must be observed to prevent or restrict the dispersion of asbestos fibers are listed below. Please take note that although dry sweeping of asbestos fibers is not specifically prohibited in the Rules and Regulations, it is an inferred recommendation, and has been specifically cited in other documents.

1. The practice of sweeping asbestos and asbestos containing materials from floors, equipment and supplies should be prohibited.
 - a. Spilled, scattered, or extraneously deposited asbestos fibers should be removed with vacuum cleaning equipment exclusively.

2. Suction hoses should be used by employees to remove asbestos fibers from their work clothing before entering the locker-room to change. Defined locations should be established for this purpose to encourage routine usage.

- b. Vacuum cleaning should be of such frequency that the work areas are maintained free of accumulated asbestos fibers.
 - c. Asbestos containing waste should be placed in impervious containers resistant to tearing or breaking under normal handling conditions. The containers should be tightly sealed with a warning label affixed.
 - d. Disposal should be by burial or other means to insure non-dispersal to the environment.
2. Suction hoses should be used by employees to remove asbestos fibers from their work clothing before entering the locker-room to change. Defined locations should be established for this purpose to encourage routine usage.
3. Bag Storage and Handling.
- a. Bagged asbestos fibers should be stored in a clean dry space where they are protected from damage.
 - b. A rotation system should be employed to ensure that older bags are used first.
 - c. Damaged bags should be placed in larger slipover bags and resealed.
 - d. Small tears in bags should be patched with tape. This will require periodic inspection of bag storage areas.
 - e. Asbestos containing jute or Kraft paper bags should be placed in larger plastic bags.
 - f. Bag storage and bag opening areas should be as close as practical.
 - g. Bags should be opened in a hooded area only, using a sharp knife to slit the bag.
 - h. Emptied bags should be tightly rolled or folded flat under the hood.
 - i. Empty bags should be bundled into larger polyethylene bags, sealed, labeled, and removed to a landfill for disposal.

It was observed in Book Preform that accumulated layers of compressed asbestos are allowed to collect on the floors in aisles and at individual machines for prolonged periods of time. In addition, asbestos dust is accumulating on equipment and overheads throughout the area. As previously discussed, a vacuum cleaning program should be implemented to maintain the work area reasonably free of accumulated asbestos fibers. The Rules & Regulations state that a cleaning program should provide for the removal of asbestos fibers before accumulations reach a point where dispersal would create hazardous airborne concentrations.

PERSONAL HYGIENE

As absorption of lead into the system through inhalation and ingestion is enhanced by smoking, the practice should be prohibited in production areas. This recommendation applies particularly to those locations where lead and lead compounds are routinely handled. As a final note, cross sectional studies have disclosed that the incidence of cancer among asbestos workers who smoke is dramatically higher than among the non-smoking population.

Our thanks to Charlie Mallory, Bob Brown, Charles Curtis and associates for the cooperation extended during the survey.

SURVEY MADE BY:

M. David Gidley
M. David Gidley
Industrial Hygienist

APPROVED BY:

C. H. Borcharding, Jr.
C. H. Borcharding, Jr.
Mgr. Ind. Hyg./Loss Prevention

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