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Asbestos Protective Clothing

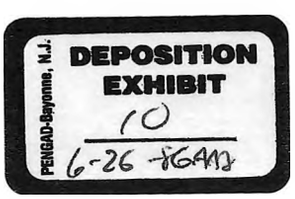
I. THE HEALTH HAZARDS OF ASBESTOS PROTECTIVE CLOTHING

A. Environmental Exposures

In 1970 Drs. Bamber and Butterworth studied asbestos exposure in the breathing zone of persons wearing a normal industrial asbestos apron and asbestos gloves. In all measurements the air levels of asbestos generated were above the current OSHA standard or "threshold limit value" (TLV) for asbestos of 2 fibers per cubic centimeter of air (2 fibers/cc). They concluded, " a workers wearing asbestos protective clothing could be exposed to airborne concentrations in his breathing zone well above the ... TLV. Even at a distance of 6 feet from the worker, the concentration could exceed the TLV". (1)

In the 1971 Dr. Lumley tested firefighter helmets with unlined asbestos covers and found that a new helmet released 2.3 fibers/cc and a helmet after several washings still released 1.38 fibers /cc. No old or frayed helmets were measured. (2)

In 1975 Dr. Gibbs studied asbestos exposure to steel workers wearing asbestos coats, gloves and hoods. In one plant the average exposure was 2 fibers per cc. In another plant, using a different brand of clothing, exposures ranged from 9.9 to 26 fibers per cc! (3)



(1) Bamber and Butterworth, " Asbestos hazard from protective clothing". Annals Occupational Hygiene, Vol. 13, pp. 77-80, 1970.

(2) Lumley, "Asbestos dust levels inside firefighting helmets with chrysotile asbestos covers". Annals Occupational Hygiene Vol. 14, pp. 285-286, 1971.

(3) Gibbs, " Fiber release from asbestos garments". Annals Occupational Hygiene, Vol. 18, pp. 143-149, 1975.

Drs. Samini and Williams in 1981 studied asbestos exposure in workers wearing asbestos gloves. They found air levels of asbestos in the workers' breathing zone ranging from .95 fibers to 11.74 fibers per cc. In only one case (.95 fibers) was exposure below 2 fibers/cc. In addition, they found that after workers removed the gloves, over 10,000 asbestos fibers remained on each square centimeter of the hand. (A square centimeter is one fourth of the size of a postage stamp). This means that millions of asbestos fibers could be present on the hands of one worker, and easily transferred to a sandwich, beverage container, cigarette, etc. It should be mentioned that the manufacturer of the gloves tested advertised them as "lint-free". The authors concluded, "available substitutes for asbestos gloves are discussed, and adoption of these substitutes is recommended strongly" (emphasis added) (4).

(4) Samini and Williams, " Occupational exposure to asbestos fibers resulting from use of asbestos gloves". American Industrial Hygiene Association Journal, Vol 42, pp. 870-875, 1981.

B. Health Consequences of Exposures at 2 Fibers Per cc

The British scientist Dr. Peto has calculated that approximately 10% of workers exposed to an average concentration of 2 fibers per cc over a working lifetime will die from asbestosis (lung scarring) or an asbestos-related cancer. (5) Dr. Nicholson from the Mt. Sinai Hospital in New York (where much of the U.S. asbestos research has been conducted) estimates that between 10% and 18% of workers so exposed will die from asbestosis or asbestos-related cancer. (6)

These figures do not include those workers who will develop non-fatal asbestosis but not die from it. The number of such cases is far greater than those dying from asbestosis. Many of these workers will suffer incurrable and untreatable shortness of breath.

C. Case Examples of Persons Dying from Exposure to Asbestos Protective Clothing

Most cases of asbestos-caused deaths are never published in the scientific literature, since thousands of such deaths occur each year. However, two cases from asbestos protective clothing have been reported in the French literature by Dr. Sors and colleagues (7). One involved a malignant pleural mesothelioma (a universally fatal cancer caused by asbestos). The other was a patient with lung scarring ("pulmonary asbestosis").

An unpublished U.S. death from protective clothing is that of a 58 year old foreman who worked in the blast furnace area of Asarco. He developed malignant mesothelioma. His only known exposure to asbestos was wearing asbestos gloves between 1956 and 1960.

(5) Peto, J., "The hygiene standard for chrysotile asbestos". The Lancet March 4, 1978, pp 484-489.

(6) Nicholson, W., pp 133-134 in Disability Compensation for Asbestos-Associated Disease in the U.S., edited by Dr. Irving Selikoff.

(7) Sors, etal., "Health hazards of asbestos protective clothing". Archives des Maladies Professionnelles, Vol 40, pp 987-995, 1979.

II. USES OF ASBESTOS CLOTHING IN MARYLAND

A. EPA Ban of Asbestos Consumer Clothing

Until 1970's woman's coats purchases by consumers were allowed to contain up to 5% asbestos. After some Italian coats were imported containing 8% asbestos, a furor arose. As Dr. Irving Seilikoff, the foremost U.S. expert on asbestos disease, stated, "If I had a baby, I wouldn't hold it up to a coat like that". The Environmental Protection Agency moved to ban asbestos from consumer coats. They originally hoped to also ban asbestos industrial garments but lacked jurisdiction for such a ban on items not sold to ordinary consumers.

B. Types of Industrial Uses of Asbestos Clothing

Asbestos-containing clothing is used for several uses, including:

- gloves used to handle very hot items in basic metal industries and for welders
- jackets, trousers, hoods, aprons and boots worn to protect against molton metal splash or for approaching fires
- helmets worns by firefighters

The grade of asbestos used for many of these garments is "Underwriter's" grade, which contains 85% asbestos!

C. Extent of Use of Asbestos Industrial Clothing

No survey has been done of the extent of use of asbestos in protective clothing in Maryland or elsewhere in the U.S. Firefighters describe some helmets and ocassional coats still in use. Asbestos gloves and clothing have been observed in some (but not most) hot process operations and in some (but not most) welding sites inspected, including but not limited to shipyard use. It is the opinion of several scientists and inspectors interviewed that substitute products have replaced asbestos in the majority but not all of these situations.

Asbestos clothing is, however, still sold in Maryland. For example, the Wheeler Company advertises asbestos gloves and mittens made with 85% asbestos. However, they also advertise non-asbestos substitutes for the same uses (8). Industrial Products Company sells asbestos gloves and protective clothing in Maryland although they also sell non-asbestos substitutes for the same uses (9). MSA also distributes asbestos clothing as well as non-asbestos clothing for the same industrial uses (10).

No asbestos textiles are manufactured in Maryland nor are asbestos protective garments manufactured in Maryland.

(8) Wheeler Protective Apparel Catalogue 4330 West Belmont Avenue, Chicago, Illinois 60641.

(9) Industrial Products Safety Company, 21 Cabot Boulevard, Langhorne, Pa. 19047.

(10) MSA, 600 Penn Center Boulevard, Pittsburg, Pa. 15235.

III. SUBSTITUTES FOR ASBESTOS CLOTHING

A. Technical Feasibility

The United States Steel Corporation has banned the use of all asbestos protective clothing from all corporate sites (see letter, 11). This includes welding, hot process operations and firefighting, i.e, the three uses of such clothing. They have found that substitutes work well and are cost feasible.

The Steel Grip Company, which manufacturers protective clothing for hot process industries, as of March 1983 stopped selling their entire asbestos product line and sold only asbestos substitutes. Discussions with their technical personnel revealed the following: First, the decision was made because they recognized the major hazards associated with such clothing (including its manufacture and use) and, secondly, for the financial interests of their corporation. They felt that the long term economic liabilities of such clothing use outweighed the economic income to be received from such clothing. Further, they have not had a siginificant problem with cancelled orders: the vast majority of their buyers have been able to switch to other alternative products.

General Electric Corporation also no longer uses asbestos gloves in their welding operations, and General Motors is in the process of similar alternative planning.

(11) December 1, 1983 letter from Dr. William Miller, the U.S. Steel Corporation to Dr. Grace Ziem.

The entire welding training program of the Steamfitters Training School in Baltimore is conducted without asbestos gloves and such gloves are not used by the vast majority of graduates in their trade. Finally, Sweden has banned such clothing in their entire country, (including welding, basic metal production and firefighting). See letter,(12)

B. Cost Feasibility

1) Direct Costs of Use

No systematic cost studies could be located by contacting any supplier, manufacturer or user company. It must be mentioned that cost depends not only on initial purchase price, but also wear life. Some of the asbestos substitutes are tougher and last longer than does asbestos.

It was the impression of the above companies that considering purchase cost and wear, many substitutes were very close to being cost competitive. Also, as liability costs for asbestos rise, its purchase price has also risen; and as substitutes for asbestos are produced by more and more producers in larger and larger quantities, their purchase price will likely continue to fall relative to asbestos. Wear life research continues on these products, further lowering the cost of use of alternatives.

2) Indirect Cost of Use

IMPORTS

Under the current 2 fiber OSHA asbestos standard, most asbestos textile manufactueres are unable to control factory exposure levels adequately.

(12) Letter from B. Gustafsson, Swedish embassy
December 8, 1983 to Dr. Grace Ziem.

They have thus moved all plants but one to foreign countries, e.g. Mexico and other poor countries where working conditions are poorly controlled. When the new OSHA asbestos standard being developed of 0.5 fibers takes effect, it is likely the last plant will leave the country.

This means that all asbestos protective clothing will be made with imported textiles. In contrast, asbestos substitutes have been primarily developed in the United States. Cost issues must thus consider jobs lost and foreign trade balances, in addition to the ethical issue of exposing poor, unprotected third world workers.

COMPENSATION AND LIABILITY

Workers who develop asbestos-related disease from use of abestos clothing can collect compensation from their employers. Studies by the U.S. Labor Department also show that over 50% of occupational disease costs are borne by the taxpayer and by medical insurance premium payers. In addition, Maryland law permits a worker who develops occupational disease where harmful exposure was intentional to bring suit directly against employers. Employers informed about the information in this packet might be considered by the courts to be liable if they knowingly permit further exposure.

REDUCED ENFORCEMENT COSTS

Persons wearing asbestos protective clothing may have exposures over the current OSHA standard and when the .5 fiber standard takes effect, they will very probably be legally over-exposed. This means that to protect such persons, the State enforcement agencies would have tr identify these work-sites, inspect them and, where needed, initiate legal proceedings.

This is an extremely costly process. Use of asbestos alternatives eliminates the need for all such enforcement activity.

IV. SUMMARY

Just as the Steel Grip and other above companies have realized, asbestos clothing is a long term financial liability. It is also a major and preventable health hazard. I urge the State of Maryland to act now to protect our workers as well as its own budgetary funds for enforcement and other occupational disease costs.