PLAINTIFF'S EXHIBIT

FD 1384

Inter Office

Personnel and Organization Staff

Mr. C. A. Mokaren, Manager
Sheffield Aluminum Casting Plant

August 23, 1976

cc J. W. Caden, M.D.
E. B. Jeakle
D. Jones
T. P. Nugent

Subject: Industrial Hygiene Study - "Kaowool" Products and Millboard and "Superex" Material

In response to your request on July 20, 1976, the Industrial Hygiene Section completed a study to evaluate employe exposures to airborne particulate concentrations at the Sheffield Aluminum Casting Plant. The operation studied was the band saw cutting of insulating materials in Department 93 maintenance area. The results of this study and the instrumentation employed are attached.

The results indicate that the airborne dust concentrations from the Kaowool Products, which do not contain asbestos, were well within the threshold limit value. However, the asbestos base materials being used at the present time show that the established standard is being exceeded.

Charles E. Plasters
Industrial Hygienist
Industrial Hygiene Section
Employe Health Services Department

ms
Attachments (2)

8005 0513

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SCF-FORD-1365

HFM - 012833

Discussion

The purpose of this study was to evaluate employe exposure to dust concentrations of the "Kaowool" materials and of the asbestos base materials used to line the glo bar furnaces.

It was established that ten minutes cutting time was necessary for the lining of each glo bar furnace. Each of the referenced materials was cut for a ten-minute duration and samples were collected relative to each of the materials being processed.

A breathing zone sample as well as a related bulk sample for each of the "Kaowool" Products were sent to an outside laboratory to determine concentrations by count using contrast phase microscopy and analysis for asbestos and free silica using X-ray diffraction. A bulk sample of Master Insulating Cement was also submitted for analysis of asbestos and free silica.

The results indicate that these materials are fibrous but not asbestiform materials and present no problem pertinent to this contaminant as well as to free silica exposure.

The present state of industrial hygiene knowledge is that "Kaowool" is biologically inert when inhaled, however, experience has shown that it is a mistake to assume that any dust is completely totally inert. It would, therefore, be prudent to implement the following recommendations:

1. During extended periods of grinding or cutting of these products, the use of approved respiratory protection is advised.

2. Install an exhaust ventilation system on the band saw to meet with the specifications of the attached reference.

3. Locate the dust collector for the band saw outside the sawing area and be assured that the exhaust effluents cannot re-enter the building.

Every effort should be extended to eliminate the use of asbestos base materials in the plant. In conclusion, substitution of the Babcock-Wilcox products for asbestos will eliminate use of a material in the Sheffield Plant recognized to be an occupational health hazard subject to OSHA regulations. Nevertheless, the alternative materials will generate nuisance dust during sawing operations which should be exhaust ventilated as indicated on attached engineering specification sheets.

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Data Sheet - Sheffield Aluminum Casting Plant

Kaowool Products

	Sample Data Record #	Results in Million Particles/Cubic Foot of Air
OSHA 8 Hour Time-Weighted Average		20.0
Breathing zone samples - Mr. J. Warren, SS #9510		
a. Cutting Maronite XL board	CEP-86	0.3
b. " Kaowool HS "	CEP-87	0.5
c. " " AL "	CEP-88	0.5
d. " " AL " - rigid one side	CEP-89	1.8
e. " " M "	CEP-90	1.2

Asbestos

		Concentration of Fibers Greater than 5 Microns in Length per Milliliter of Air
OSHA Asbestos Fiber - Threshold Limit Value 8 Hour Time-Weighted Average		2.0
" " "	Ceiling Limit	10.0
Cutting Millboard and Superex		
a. Breathing zone sample - Mr. J. Warren, SS #9510	CEP-91	6.5
b. General air top of welder's bench adjacent to collector	CEP-92	2.2
c. " " sample, top of supervisor's desk	CEP-93	5.5
d. " " " , block cutting saw	CEP-94	0.2

Instrumentation: MSA Model G Pumps
Flow rate 2.0 liters/minute
Millipore Type AA membrane filters

Analysis: Clayton Environmental Consultants - Phase contrast microscopy

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TO	AT
Clayton Environmental Consultants	Southfield, Michigan

Nine samples 37mm for asbestos counting including one blank.

Eight samples bulk for analysis to determine percent asbestos.

SIGNED	DEPT OR LOCATION	DATE
	Industrial Hygiene	July 19, 1976

Ford GENL ADM SEP 67 175 Charles Plasters

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Mr. H. Stephan
Assistant Manager
Plant Engineering
Ford of Europe Incorporated

August 9, 1976

Subject: Use of Asbestos Products

Your letter to Mr. D. J. McChesney of May 20, 1976 has been referred to the industrial hygiene offices for comment. Results of epidemiological studies correlating asbestos exposures and the incidence of lung diseases including bronchogenic carcinoma, mesothelioma, and asbestosis leave little doubt that excessive exposure to asbestos is pathogenic. Over the last decade as more and more evidence surfaced regarding the toxicity of asbestos, permissible exposure limits in the United States have been repeatedly reduced. The current permissible exposure limit in the United States is 2 fibers per cubic centimeter (fibers greater than 5 microns in length) for 8 hours per day, 40 hours per week, and it has been proposed that the limit be further reduced to 0.5 fibers per cubic centimeter (fibers greater than 5 microns in length).

Because of the health implications which may result from using asbestos, a complete evaluation of all operations using asbestos including the impact to the consumer resulting from asbestos in any finished product should be initiated. In order to permit an intelligent decision regarding the elimination or modification of using asbestos in a particular operation, the following guidelines are presented:

1. Always substitute less hazardous material for a more toxic substance whenever possible.

   There are many alternate materials having similar properties to asbestos such as mineral wools, clays, and diatomaceous earth which could be substituted for asbestos without reducing quality. It should be pointed out that while a substitute may be less toxic than asbestos, it does not necessarily mean that it is nontoxic.

2. If asbestos must be used, institute engineering changes so that affected employes are not excessively exposed.

   Engineering changes include, but are not limited to:

   a. Changing work practices
   b. Administrative rotation
   c. Equipment design changes
   d. Mechanical ventilation including exhaust ventilation
   e. Modification of handling methods such as using wet material handling

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3. A third alternative which is not recommended as a permanent solution consists of providing the employe with personal protective devices such as respirators and a daily change of outer clothing.

The United States Government requires the following restrictions in addition to environmental control in all asbestos operations.

a. Periodic medical examinations

b. Record-keeping requirements

c. Employe training and notification of excessive exposures

d. Periodic sampling (depending on degree of exposure)

e. Waste disposal practices

f. Warning sign requirements

A combination of the moral obligation to protect the health and safety of the employe and meet present or proposed legislations in a given country will determine the impact using asbestos will have on a given operation. The goal of any operation is to produce quality results at the lowest possible price without compromising the health and safety of the employes involved in the operation. Safety and quality are constants and the cost variable should be minimized by modifying all other operation variables.

This office, as well as all hygiene personnel within Ford of Europe, will be happy to set up or review an asbestos control program.

Sheldon H. Rabinovitz
Senior Industrial Hygienist
Industrial Hygiene Section
Employe Health Services Department
Central Medical Services Building

SHR/ms

cc P. F. Gidwell
W. J. McChesney
P. E. Toth

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