



AN EVALUATION OF POTENTIAL OCCUPATIONAL
EXPOSURE TO AIRBORNE ASBESTOS
DURING THE INSTALLATION AND
REMOVAL OF BRAIDED ASBESTOS-
GASKETING MATERIAL
GARLOCK INC., SODUS, NEW YORK
(Braided Asbestos Type 150, 234, 644,
733, 5861 and 5876)

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SUMMARY

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Summary

Neilson Associates was retained by Garlock Inc. to evaluate potential occupational exposure to airborne asbestos fibers resulting from the use of braided asbestos packing material.

The results of the study, conducted under simulated field conditions, clearly show that there is no occupational exposure to airborne asbestos fibers associated with the removal and replacement of braided asbestos packing material.

INTRODUCTION

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INTRODUCTION

Braided asbestos is used as a packing to control leakage around rotating shafts. Continuous movement of a shaft results in the need for replacement and repacking of this braided asbestos material in order to prevent leakage.

The evaluation of potential exposure to airborne asbestos fibers was conducted under simulated field conditions. This report presents the results of our investigation conducted on February 11, 1982 and February 24, 1982.

METHODS

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METHODS

General

All methods used for the collection and analysis of samples in this study are approved by OSHA, NIOSH, and/or AIHA.

Sample Collection

Collection Media- Airborne particulate matter was collected on a type AA (mixed cellulose acetate and nitrate .08u) filter mounted in a three-piece monitoring filter holder.

Sampling Pumps- Air samples were taken by drawing a sample of the air through the collection media with a MSA Model G portable air pump (Mine Safety Appliances Company, Pittsburgh, PA). The air pumps were calibrated to flow rates that ranged from 1.62 liters per minute to 2.01 liters per minute using a primary standard (moving bubble technique).

Area Air Samples- Six (6) area air samples were taken--two (2) February 11, 1982, and four (4) on February 24, 1982. These samples were collected by placing collecting units (sampling pump and collection filter) at locations surrounding the operation under study.

Breathing Zone Samples- Breathing zone samples were taken by placing sampling units on a Barlock test technician with the collection media being placed as close to the breathing zone as practical on the lapel of the technician. A total of two (2) breathing zone samples were taken--one (1) on February 11, 1982 and one (1) on February 24, 1982.

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METHODS (Cont.)

Sample Analysis

The quantification of the levels of airborne asbestos fibers was conducted using the NIOSH method (P&CAM 239).

The above noted method for airborne asbestos fibers counts only the fibers present on a portion of the filter surface with the total number of fibers per filter being calculated, therefore the total count is subject to a statistical counting error which establishes the lower limit of detectability. This lower limit is based upon a fiber count of one (1) fiber in 100 randomly selected microscopic fields which is the maximum number of fields to be examined according to the method. When the ratio of the area examined to the total filter area is determined and this result is multiplied by the quantity of fibers found, the result is the total fibers per filter. However, if no fibers are found, the result is presented as being less than one (<1) fiber. If the quantity of fibers found is <1, then the total fiber count calculated is the established lower limit of detectability.

General Conditions

Samples of Garlock Braided Asbestos Packing Material, specifically types 150, 234, 644, 733, 8361 and 5876 were installed on test stand pumps located at the Scotts Garlock facility. On the average, gasket life was 100 hours.