



AN EVALUATION OF POTENTIAL OCCUPATIONAL
EXPOSURE TO AIRBORNE ASBESTOS FIBERS
ENCOUNTERED DURING INSTALLATION AND
REMOVAL OF ASBESTOS-CONTAINING GASKETS
GARLOCK INC., PALMYRA, NEW YORK

Gasket Type 604

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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 during installation and removal of asbestos-containing gaskets and the associated cleaning of the recessed flange at their Palmyra, New York plant site. The results of this investigation clearly indicate that an occupational exposure hazard does not exist.

INTRODUCTION

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INTRODUCTION

A study was conducted by Neilson Associates to evaluate potential occupational exposure to airborne asbestos fibers during installation and removal procedures for asbestos-containing gaskets.

Air samples, both area and breathing zone, were taken during this study at Garlock Inc., Palmyra, New York, on November 18, 1981, and February 11, 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 - Particulate matter was collected on a type AA (mixed cellulose acetate and nitrate .8.) filter mounted in a three piece air monitoring filter holder.

Sampling Pumps- Air samples were taken by drawing a sample of the air under study through the collection media with a MSA Model G portable air pump (Mine Safety Appliances Company, Pittsburgh, PA). The air pumps were calibrated to a flow rate of 2.0 liters per minute using a standard rotameter on November 18, 1981 and from 1.560 to 1.741 liters per minute using a primary standard (moving bubble technique) on February 11, 1982.

Area Air Samples (11-18-81)- Four (4) area air samples were taken in the work area at the following distances from the technician and testing equipment:

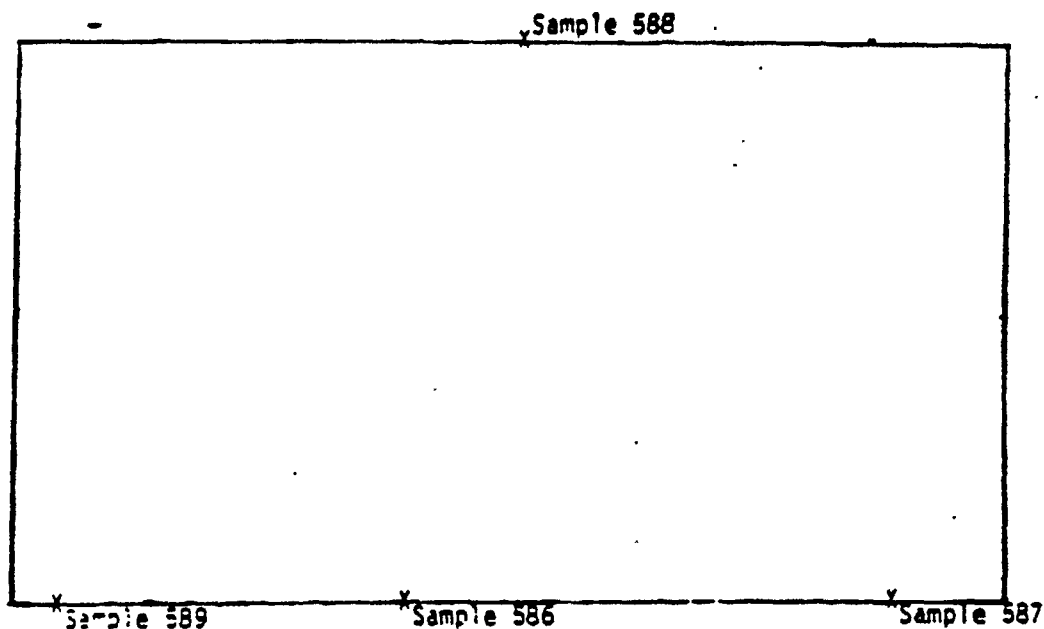
- a) Sample Number 586--located on working surface, 1 ft. from vice
- b) Sample Number 587--located to right of technician at a 3 ft. distance
- c) Sample Number 588--located in front of technician at a 6 ft. distance
- d) Sample Number 589--located on storage cabinet top at a 6 ft. distance

NOTE: See Figure 1

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METHODS

(Cont.)



Sample 585 X Technician
& work location

Figure 1: Sampling Locations

Breathing Zone Samples (11-18-81)- Breathing zone samples were taken by placing sampling units on the Garlock technician with the collection medium being placed as close to the breathing-zone as was practical (on the lapel of technician). The data collected are representative of airborne asbestos fibers being breathed by the individual under study. (For location of Breathing Zone Sample, refer to Figure 1, Sample 585.)

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METHODS

(Cont.)

Area Air Samples (2-11-82)- Three (3) area air samples were taken in the work area. (See Figure 2.)

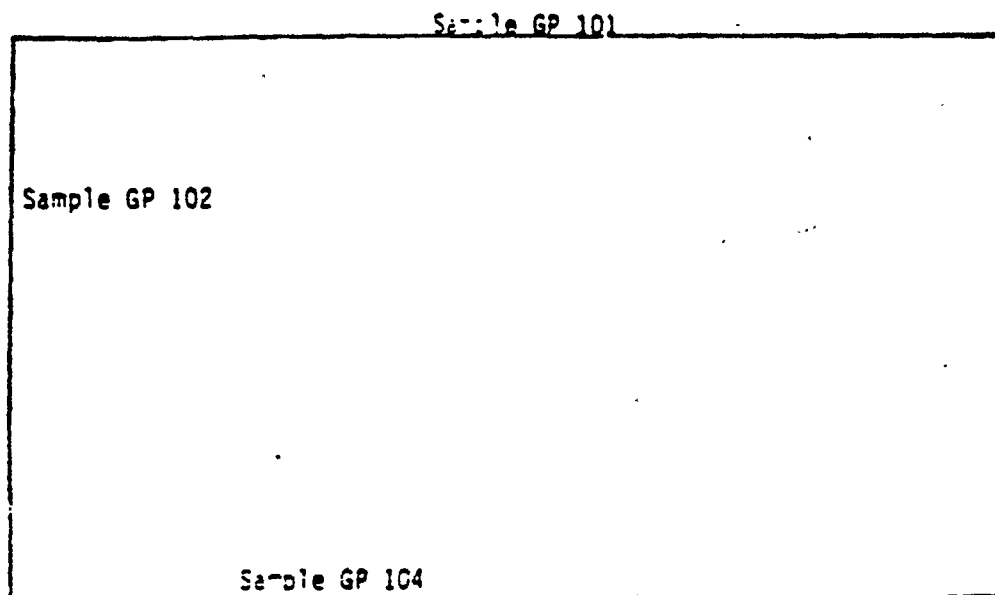


Figure 2: Sampling Locations

Breathing Zone Sample (2-11-82)- The breathing zone sample was taken by placing the sampling unit on the Garlock technician with the collection medium being placed as close to the breathing zone as was practical (on the lapel of technician). The data collected are representative of airborne asbestos fibers being breathed by the individual under study. Location of Breathing Zone Sample, refer to Figure 2, Sample GP 104.

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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

Gaskets were mounted on a set of flanges, one of which has a groove which partially confines the gasket. Steam temperature and pressure were monitored for the duration of the test.

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METHODS

(Cont.)

Visual Documentation

Visual records of the removal and cleaning process was made by color video recording.

RESULTS & CONCLUSIONS

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RESULTS & CONCLUSIONS

A total of nine (9) air samples were taken. Seven (7) of these samples were area and two (2) were breathing zone samples. The number of fibers per filter was below the detectable limit (BDL) in all samples. Therefore, the concentration of asbestos was essentially zero (0) fibers per cubic centimeter. (This is zero (0) % of the TLV.) Refer to Appendix 1 - Data Reporting Sheet.

The evaluation of potential occupational exposure to airborne asbestos fibers encountered during testing procedures for asbestos-containing gaskets clearly indicate that an occupational exposure hazard does not exist.

Appendix I

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CARLOCK INC.-PALMYRA N.Y.

APPENDIX 1

11/18/81 and 2/11/82
(0422)

Sample No.

585	Breathing zone sample - S.NICHOLS	20	2	12.05	12.43	34	68000	0	0	0
586	Area Sample - ON WORKING SURFACE-1 FT.FROM VICE	12	2	12.09	12.43	34	68000	0	0	0
587	Area Sample - 3 FT TO RIGHT OF TEST TECHNICIAN	2	2	12.09	12.43	34	68000	0	0	0
588	Area Sample - 6 FT. IN FRONT OF TEST TECHNICIAN	1	2	12.09	12.43	34	68000	0	0	0
589	Area Sample - 6 FT. FROM TEST TECHNICIAN-ON TOP OF CABINET	10	2	12.09	12.43	34	68000	0	0	0
0422-GP-101	Area Sample - ----	19	1.944	14.31	15.07	36	69984	0	0	0
0422-GP-102	Area Sample - ----	11	1.907	14.31	15.07	36	72812	0	0	0
0422-GP-103	Breathing zone sample - Jim Arrelli	20	1.919	14.27	15.07	40	76760	0	0	0
0422-GP-104	Area Sample - ----	21	2.007	14.31	15.07	36	72252	0	0	0

