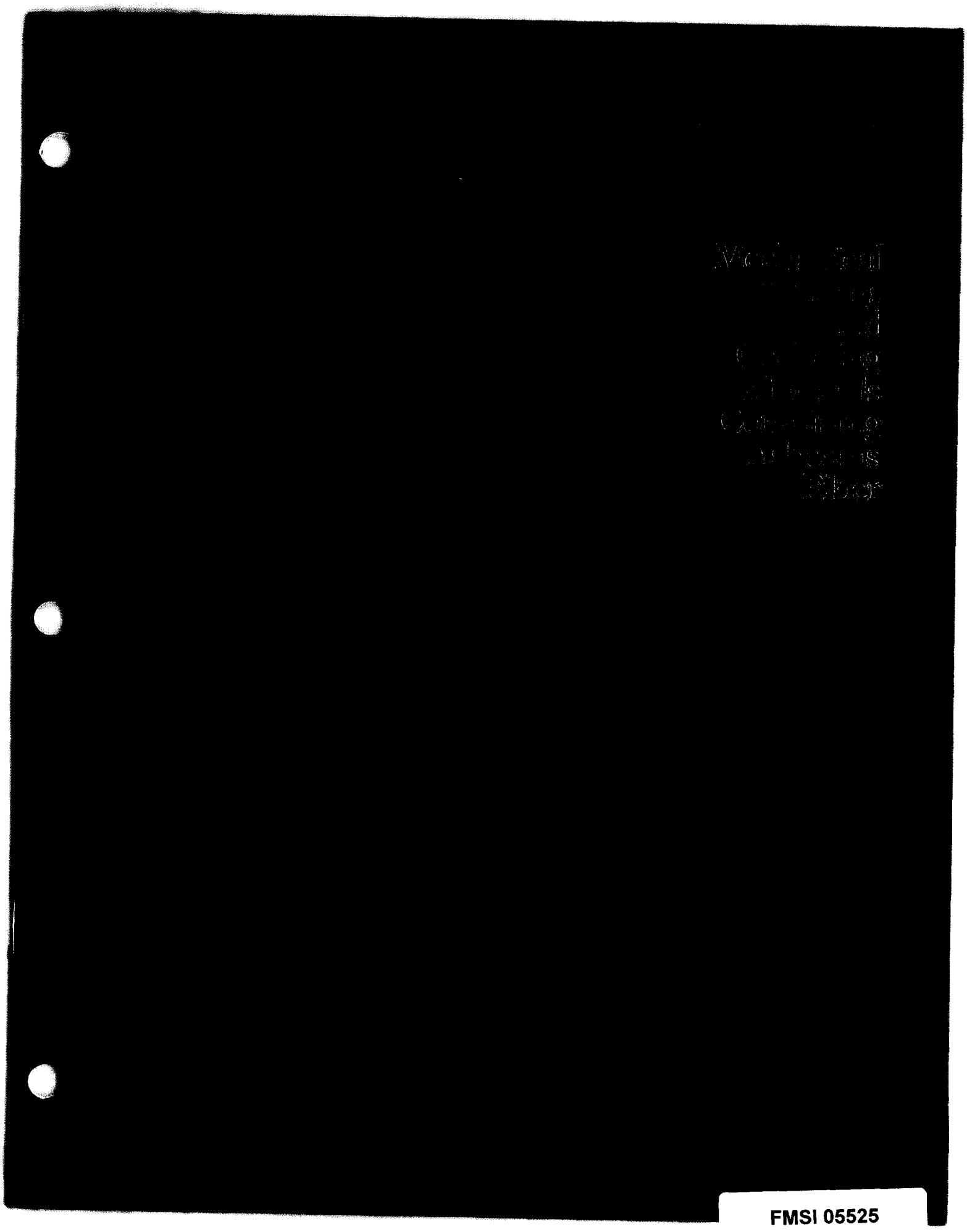


FMSI 05525

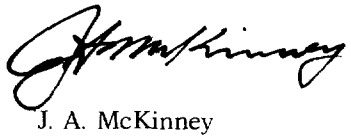
Policy Statement

Asbestos is a useful mineral with many essential applications. In virtually all applications the asbestos is bound, locked-in or encapsulated so that exposure to fiber is controlled and does not present a hazard to the health and safety of workers or the general public. Asbestos should continue to serve useful functions in our modern technological society and to play an important role in Johns-Manville's production of goods for that society.

Believing as we do that proper handling and use of asbestos fiber and asbestos-containing products do not pose health hazards, Johns-Manville will continue to promote those nonhazardous products and uses and to defend them against unjustified regulation.

We will continue to market asbestos and asbestos-containing products which can be manufactured and used safely.

Asbestos has been an important part of Johns-Manville and the company has taken a responsible position of leadership in the industry. We will continue to provide that leadership.



J. A. McKinney
Chairman and Chief Executive Officer
Johns-Manville Corporation

Introduction

Medical and scientific research has revealed a potential health hazard connected with excessive exposure to asbestos in occupational environments. As a result, a considerable amount of research on asbestos has been directed toward primary mining and manufacturing industries. Scientists have also looked at related occupations to determine if any risk existed.

In the mid 1960's, researchers found that some people engaged in the application of asbestos-containing insulations also exhibited an increased disease risk when exposures were excessive and continued over a long period of time. Efforts then were made to control the generation of asbestos dust in those industries. In some instances, where exposure control was difficult, personal protective equipment was supplied or substitute materials were developed.

Other occupational groups also have been identified as being at increased risk. These groups include shipyard workers who worked in inadequately controlled work environments in the past, primarily in government-run naval shipyards.

There also have been some isolated cases of disease in persons exposed para-occupationally. These cases would include family members who were exposed years ago to excessive amounts of asbestos brought home by family members who worked in the industry.

Although much research has been completed, there is no evidence of any disease risk outside of occupational and para-occupational environments, and in those environments the disease has resulted from excessive, uncontrolled exposures occurring in the past, at which time the risk had not yet been determined.

Asbestos-Containing Products and Health

Medical and epidemiological research has shown no evidence of any risk to the general public resulting from the use of finished products containing asbestos, or from the release of minute amounts of asbestos fiber from such products into the ambient air. For even greater safety, Johns-Manville packings and gasket materials contain asbestos that has been encapsulated into the finished product with a strong bonding agent.

Encapsulated products will not, during normal handling and use, release asbestos fibers in excess of permissible limits. In this way, packings and gaskets differ from the easily crumbled, friable products used in the past. Because friable products do have the potential to create airborne fiber levels in excess of regulated limits during routine handling, the manufacture and sale of virtually all of these products has been discontinued in the United States.

In packings and gaskets, the asbestos fiber provides a reinforcing function along with dimensional stability and high temperature and pressure resistance. Because the fiber is encapsulated by the binder, normal handling, fabrication, and use need not result in the release of respirable fibers. For this reason, asbestos-containing packings and gaskets can continue to be used safely, providing a unique combination of cost and performance benefits.

It is important to note also, that we now know more about the potential health effects of asbestos and ways to use this material without risk than we know about many other potentially hazardous and toxic materials. Because a vast wealth of information on safe work practices is available to the person using asbestos-containing products, it is, in a very practical sense, potentially safer to use these products than many of the substitute materials about which little is known.

Appendix A

HAGER LABORATORIES, INCORPORATED ANALYTICAL SERVICES FOR INDUSTRY

REPORT ON SERVICE NUMBER 3910
August 21, 1980

To: George Swallow
Johns-Manville, Denver, CO

Requirement: Employees of a major gasket fabricator in Wisconsin, engaged in punching gaskets from asbestos containing materials, were sampled to determine exposure concentrations of airborne asbestos fiber.

Method: Employees engaged in the various operations involved in the production of gaskets wore personal sampling pumps while handling asbestos-containing materials. The pumps drew air through .8 micron celluose filters. The filters were clarified in the laboratory, the percentage of birefringent fibers was determined under polarized light and the asbestos fiber concentration was determined by phase contrast microscopy.

Results:

Sample Number	Total Fibers less blank	Air Volume liters	Air Concentration fibers/cc
7/29 #1	34200	302	0.11
7/29 #2	31800	380	0.08
7/29 #3	29300	384	0.08
7/29 #4	63500	376	0.17
7/29 #5	57400	243	0.24
7/29 #6	119000	282	0.42
7/29 #7	107000	160	0.67
7/29 #8	92800	154	0.60
7/29 #9	51300	214	0.24
7/29 #10	30500	104	0.29
7/29 #12	20800	296	0.06
7/29 #14	19500	194	0.10
7/29 #16	19500	168	0.12
7/29 #18	23100	200	0.12

4725 Paris Street/Denver, Colorado 80239/(303) 371-1441

Results: (Cont.)	Sample Number	Total Fibers less blank	Air Volume liters	Air Concentration fibers/cc
	7/30 #20	49500	244	0.20
	7/30 #21	40300	510	0.08
	7/30 #22	15900	422	0.04
	7/30 #23	56200	186	0.30
	7/30 #24	33000	309	0.11
	7/30 #25	30800	288	0.11
	7/30 #26	89200	284	0.31
	7/30 #27	35400	124	0.29
	7/30 #28	20800	200	0.10
	7/30 #29	44900	133	0.34
	7/30 #30	35400	152	0.23
	7/31 #31	81100	100	0.81
	7/31 #32	9800	206	0.05
	7/31 #33	45200	216	0.21
	7/31 #34	12200	288	0.04
	7/31 #35	35400	274	0.13

Discussion: Unfortunately, the nature of the production schedule was such that it was difficult to obtain long term samples for asbestos-containing materials. In general, the jobs each employee ran were of short duration and involving a variety of materials. All exposure concentrations measured were well below the OSHA standard of 2 fibers/cc.

Raw data and sample filters are retained on file and available upon request.

Submitted by: Terry L. Howard

Terry L. Howard
Certified Industrial Hygienist

TLH/hjm

Sample	Operation	Machine Type	Material	Air Conc. fibers/cc	Date	Time
Punch Press						
#1	Punch Press	Blanking Press #6	Armstrong Accopac AN890	0.11	7/29	6:59-9:30
#7	Punch Press	Blanking Press #68	Raybestos RMA-56	0.67	7/29	9:32-10:52
#22	Punch Press	Blanking Press #39	Nicolet #245	0.04	7/30	7:14-10:45
#33	Punch Press	Punch Press #53	Accopac AN890	0.21	7/31	7:12-9:00
Power Shear						
#4	Power Shear	Seybold Power Shear	Nicolet #357 & Accopac AN890	0.17	7/29	7:22-10:30
#30	Shear Press	Shear Press	JM 78 & Raybestos RM-F-53	0.23	7/30	12:40-13:56
#31	Shear Press	Nash Shear Press	Accopac AN890	0.81	7/31	6:50-7:40
Roussel Press						
#3	Roussel Press	Roussel Press #61	Nicolet #355	0.08	7/29	7:13-10:25
#12	Roussel Press	Roussel Press #61	Nicolet #355	0.06	7/29	12:23-14:03
#34	Roussel Press	Roussel Press #47	Accopac AS428 & Accobest with anti-stick AN8012	0.04	7/31	8:04-10:28
Picking						
#5	Picking		Nicolet #225	0.24	7/29	7:35-10:38
#14	Picking		Nicolet #225	0.10	7/29	10:39-14:05
#23	Picking	Jig	JM 70-C	0.30	7/30	7:25-8:58
#26	Picking	Jig	JM 70-C	0.31	7/30	8:58-11:20
Tumbling						
#6	Tumbling	Tumbling Machines	Nicolet #225 Accopac AN890	0.42	7/29	7:43-10:04
#8	Tumbling	Tumbling Machines	Nicolet #225	0.60	7/29	10:04-11:21

Sample	Operation	Machine Type	Material	Air Conc. fibers/cc	Date	Time
Materials Handling						
#24	Material Handler		All	0.11	7/30	7:35-11:11
#29	Material Handler		All	0.34	7/30	12:31-14:02
Platen Press						
#2	Platen Press	Platen Press #20 Hand Fed	Velbestos #250	0.08	7/29	7:07-10:17
#10	Platen Press	Platen Press #20 Hand Fed	Velbestos #250	0.29	7/29	10:23-11:15
#18	Platen Press	Platen Press #20 Hand Fed	Velbestos #250	0.12	7/29	12:20-14:00
#21	Platen Press	Platen Press #43 Hand Fed	Raybestos RM-F-53	0.08	7/30	6:58-11:13
#28	Platen Press	Platen Press #43 Hand Fed	Raybestos RM-F-53	0.10	7/30	12:20-14:00
#9	Platen Press	Platen Press Sheet Auto. Feed	JM 70-C	0.24	7/29	9:26-11:13
#16	Platen Press	Platen Press Sheet Auto. Feed	JM 70-C	0.12	7/20	12:16-13:40
#20	Platen Press	Platen Press #49 Sheet Auto. Feed	JM #78 JM 70-C	0.20	7/30	6:50-8:52
#25	Platen Press	Platen Press #49 & Platen Press #46 Sheet Auto. Feed	Raybestos RM-F-53 JM 70-C	0.11	7/30	8:58-11:20
#27	Platen Press	Platen Press #46 Sheet Auto. Feed	Raybestos RM-F-53	0.29	7/30	12:14-13:16
#32	Platen Press	Platen Press #48	Nicolet #375	0.05	7/31	7:00-8:43
#35	Platen Press	Platen Press #48	Accopac AN890	0.13	7/31	8:43-11:00

Appendix B

Johns-Manville Corporation: Health, Safety and Environment Department Industrial Hygiene Survey Conducted July 1980, In Wisconsin

Procedures

This industrial hygiene monitoring study of an asbestos-using gasket operation in Wisconsin, was performed on July 29, 1980 to July 31, 1980.

The survey was conducted by Frank J. Angelos and Michael Carter, industrial hygienists from the Waukegan, Illinois laboratory.

A walkaround survey of the various operations was conducted on July 28, 1980 to determine procedures being used, material schedules, and appropriate subjects for monitoring. Monitoring commenced at 6 A.M. the following morning, July 29, 1980.

Industrial hygiene monitoring methods, recommended by the National Institute for Occupational Safety and Health (NIOSH), were used for measuring asbestos fiber concentrations.

This method is applicable to the determination of atmospheric concentrations of airborne particulate containing asbestos fibers. The membrane filter method was utilized, since it is suited for sampling in mixed dust areas. This method permits accurate sampling of asbestos fibers with minimal interference from other particulate materials.

Samples were taken using an aerosol monitor equipped with a 37 mm membrane filter and a small vacuum pump connected by a short length of 1/4 inch rubber tubing. The pump was fastened to the belt of operators, with the rubber tubing running over the shoulder to the operator's collar and attached with an alligator clip. The aerosol monitor was then attached to the end of the tubing. The pump was then activated and the operator was told to follow his normal work procedures.

Aerosol monitors were prepared under rigid quality control conditions according to NIOSH procedures, and were sealed until attached to the personal monitors. Each monitor was labeled with an identification number, which was recorded on separate sample sheets. Each sample sheet contained, in addition to the aerosol I.D. number, the date of the sample, time duration, name and clock number of the operator, the type of product being used, and a description of the operation being performed.

During personal sampling, frequent visual checks were made of the monitoring equipment to verify its proper functioning, and of the operator to assure that the monitor was in the breathing zone at all times.

Notations were also made when different materials were used. Since the purpose of the sampling was to determine exposure to asbestos fibers, monitoring was conducted only while operators were working with asbestos-containing materials.

Monitoring equipment was removed during lunch breaks since many employees left the premises during this period. Sampling recommenced immediately after such breaks.

General area samples also were taken using the membrane filter method. In these instances, monitoring equipment was placed on stands at breathing zone level in the areas to be sampled. The purpose of these samples was to determine the influence of an emission source on the surrounding areas.

After personal sampling was completed, the aerosol monitors were sealed and packed, and pumps were removed. Sample sheets were completed, noting the duration of monitoring.

The aerosol monitors were returned to the laboratory and membrane filter counts were made with a 430X magnification phase contrast microscope, using procedures recommended by NIOSH and the Occupational Safety and Health Administration (OSHA). These counts were expressed in fibers per cubic centimeter of air (f/cc). The permissible exposure limit - time weighted average - established by OSHA for workplace concentrations of asbestos fiber is 2 fibers per cubic centimeter (2.0 f/cc) for fibers five micrometers in length and greater.

In total, 21 separate samples were taken over a three-day period on various operators using different asbestos-containing materials. The results of these samples are shown in the accompanying tables.

Summary of Results

The average fiber concentration of all samples taken was 0.1 f/cc, with a range of 0.02 f/cc to 0.20 f/cc.* The average was well below the 2.0 f/cc recommended permissible exposure level for asbestos fiber concentrations as established by OSHA.

An area sample taken between the gasket department and the press area, where asbestos millboard was being fabricated, was calculated at 0.06 f/cc or < 0.1 f/cc and, was, therefore, not considered a significant emission source to contaminate the other samples.

General housekeeping in all areas of sampling was judged to be good to excellent.

*Conventionally, the asbestos evaluation technique has a minimum sensitivity of 0.1 fibers per cubic centimeter. Results are given to hundredths of a fiber per cubic centimeter for evaluation purposes only.

Asbestos Fiber Samples Evaluated July 28-31, 1980 In Wisconsin

Sample I.D.	Date	Time	Product Type	Job Description	Results F/CC	TWA F/CC	Permissible TLV F/CC
D-101WGC 1	7/29/80	7:10-10:15	.031 ± .003 CS-301 Accopac Pressed Asbestos Roll	Press Operator Kluge Continuous Feed Platen Press-Web Flow	0.13		2.0
D-101WGC 2	7/29/80	10:15-11:20	.031 ± .003 CS-301 Accopac Pressed Asbestos Roll	Press Operator Kluge Continuous Feed Platen Press-Web Flow	0.15	0.1	2.0
D-101WGC 3	7/29/80	12:07-14:02	.031 ± .003 CS-301 Accopac Pressed Asbestos Roll	Press Operator Kluge Continuous Feed Platen Press-Web Flow	0.05		2.0
D-102WGC 1	7/29/80	7:22-10:20	0.047 Valqua 1505 Compressed Asbestos Sheet	Press Operator Samco Hydraulic Beam Press	0.02		2.0
D-102WGC 2	7/29/80	10:20-11:21	Raybestos F-53 RM Compressed Asbestos Sheet	Press Operator Samco Hydraulic Beam Press	0.05	<0.1	2.0
D-102WGC 3	7/29/80	12:10-14:03	Raybestos F-53 RM Compressed Asbestos Sheet	Press Operator Samco Hydraulic Beam Press	0.04		2.0
D-103WGC 1	7/29/80	7:33-10:29	Nicolet #375 Compressed Asbestos Sheet	Picking Jig & Hand Picking	0.09		2.0
D-103WGC 2	7/29/80	10:29-11:14	Nicolet #375 Compressed Asbestos Sheet	Hand Picking & Packaging	0.10	0.1	2.0
D-103WGC	7/29/80	12:12-14:05	J.M. 70-C Compressed Asbestos Service Sheet	Hand Picking & Packaging	0.20		2.0
D-104WGC 1	7/29/80	10:10-11:13	.0312 ± .005 J.M. #78 Compressed Asbestos Sheet	Operator Automatic Platen Press	0.12	<0.1	2.0
D-104WGC 2	7/29/80	12:08-14:01	.0312 ± .005 J.M. #78 Compressed Asbestos Sheet	Operator Automatic Platen Press	0.03		2.0

Sample I.D.	Date	Time	Product Type	Job Description	Results F/CC	TWA F/CC	Permissible TLV F/CC
D-105WGC 1	7/30/80	6:48-8:56	0.312 ± .005 J.M. #78 Compressed Asbestos Sheet	Picking Operator Helping Platen Press Operator	0.12		2.0
D-105WGC 2	7/30/80	8:56-11:16	9:45 A.M. Product Change to Raybestos RM F-53	Picking Operator Helping Platen Press Operator	0.09	0.1	2.0
D-105WGC 3	7/30/80	12:15-13:22	9:45 A.M. Product Change to Raybestos RM F-53	Picking Operator Helping Platen Press Operator	0.12		2.0
D-106WGC 1	7/30/80	7:14-9:18	0.625 AS-428 Accopac Asbestos Compressed Sheet	Reeves Punch Press Operator	0.12		2.0
D-107WGC 1	7/30/80	7:17-11:15	Accopac Compressed Asbestos Sheet in Roll	Platen Press Continuous Roll Feed	0.05	<0.1	2.0
D-107WGC 2	7/30/80	12:14-13:28	Accopac Compressed Asbestos Sheet in Roll	Platen Press Continuous Roll Feed	0.03		2.0
D-108WGC 1	7/30/80	7:28-10:15	Raybestos A56 Compressed Asbestos Sheet	Hand Picking & Packaging	0.06	<0.1	2.0
D-108WGC 2	7/30/80	10:15-11:15	Raybestos F-53 Compressed Asbestos Sheet	Hand Picking & Packaging	0.19		2.0
D-109WGC 1	7/31/80	6:55-10:55	Millboard	Area Sample Between Head Gasket Dept. & Press Area	0.06		2.0
D-110WGC 1	7/31/80	7:29-8:45	0.312 Nicolet #375 Compressed Asbestos Sheet	Picking Operator on Platen Press	0.09		2.0

Mechanical Packings and Gasketing Materials

Studies conducted under actual conditions of fabrication, installation, use and removal of Johns-Manville's asbestos-containing mechanical packings and gasketing materials have shown that no health hazard is posed by the use of these materials.

All Johns-Manville packings and gasketing materials contain asbestos in an encapsulated form—the fibers are tightly bound in the product by elastomeric binders. When proper work practices are followed during fabrication, generation of airborne asbestos fiber is inconsequential and poses no threat to the health of workers. Once fabricated, there is virtually no possibility of the asbestos fibers becoming airborne. In fact, industrial hygiene surveys conducted by Johns-Manville as well as by an independent laboratory and by government agencies have consistently shown that workplace exposures from gasketing materials containing asbestos are 10 to 20 times below allowable OSHA workplace concentrations.

Therefore we firmly believe that the proper use of asbestos-based mechanical packings and gasketing materials represents no hazard to the health of users.

Paul Kotin, M.D.
Senior Vice President
Health, Safety and Environment Department