

Babcock & Wilcox

W. R. Perko
H. H. Jensen

O. J. FISHER - P&T CENTRAL TECHNOLOGY		60-2060-
From	M. L. RUTHRAUFF - MANAGER, CORPORATE SAFETY & HEALTH	File No. or Ref.
Subj.	ASBESTOS PRODUCTS	Date MARCH 4, 1976

Ref: Memo Jensen to Gasper 2/27/76 (15G-07)

Attached is a copy of the current company guide regarding use of asbestos products.

The primary basis of our present position is a 1972 NIOSH report of a government survey of exposure in asbestos fabrication. A total of 44 workers were monitored while doing various operations in the fabrication of asbestos products.

We can predict exposure results from this survey, however, the OSHA standard requires that we confirm by routine air monitoring as specified in item 3 of our guide.

↗ A recent legal interpretation has also confirmed medical testing requirements for employees exposed under item 3 of our guide. The medical surveillance is required regardless of the asbestos level found in air monitoring under guide item 3.

Compliance with item 1 and 2 will continue to eliminate any necessity for air or medical monitoring.

M. L. Ruthrauff
M. L. Ruthrauff

MLR/ilm

cc: G. H. Adams
R. R. Lanier
W. E. Livesay
F. McCollum
M. S. Merritt
R. B. Rizor
J. A. Smith
N. R. Perko

W. R. PERKO

MAR 5 1976



THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To	R. E. GASPER, MATERIALS PLANNING & CONTROL	
From	H. H. JENSEN, FPG STANDARDS	BNS 663-5
Cust.		File No. or Ref. 15G.07
Subj.	ASBESTOS PRODUCTS	Date 2-27-76

This letter to cover one customer and one subject only.

In response to your letter of February 11, 1976 outlining the OSHA requirements on the use and application of asbestos which is becoming a critical situation for B&W I wish to advise as follows:

1. The Material Ordering standard 4A2-2A1-4A44 under "GASKETS" presently states that gaskets are to be ordered purchased to size for economical reasons. However, this standard does permit cutting of gaskets from gasket sheet stock in special cases. In my opinion, the standard should be revised to insist on purchased gaskets and the sheet material should be removed from folioed stock.
2. It is my understanding that purchased sheet gaskets used in our shops as received ~~meet the OSHA requirements and no change in our ordering procedure is required~~ if we use the purchased gaskets without change. By copy, O. J. Fisher is requested to advise if this is not correct.
3. ~~There are no (FPG) Std. S/O W/S specifying gaskets to be cut in B&W shops.~~
4. TLT fans and RAH do require gaskets to be cut in the shop. By copy, will M. S. Merritt & R. B. Rizor review their orders for gaskets to be cut from sheet gasket material.
5. FPG Components Engineering have been in contact with Purchasing to determine possible substitute materials but to date, have been unable to establish replacement materials.
6. Asbestos packing is currently being specified in lineal feet (LF) by Engineering & Graphics and the exact lengths required have not been established. If packing can no longer be cut in the shops, it will be a considerable task to establish cut lengths required. The 4A2-2A1-4A44 under "PACKING" will need to be revised to indicate revised instructions to Engineering & Graphics.
7. Attached is a copy of my review of the (FPG) Std S/O W/S for your information.

Henry H. Jensen
Henry H. Jensen

HHJ:dc

cc: G. H. Adams	W. E. Livesay	J. A. Smith
O. J. Fisher	M. S. Merritt	N. R. Perko*
R. R. Lanier	R. B. Rizor	

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To THOSE LISTED BELOW

From R.E. GASPER - MATERIALS PLANNING & CONTROL

809 663-5

Cust.

File No.
or Ref.

~~ESA-16~~ 156.07

Subj.

ASBESTOS PRODUCTS

Date

FEBRUARY 11, 1976

This letter to cover one customer and one subject only.

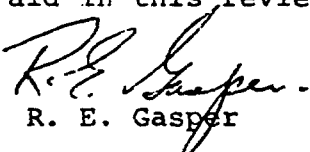
→ G.H. Adams - I&M
H.H. Jensen - Standards
R.R. Lanier - Central Management Purchasing

The availability of asbestos products, plus OSHA requirements on the use and application of asbestos is becoming a critical situation for B&W.

Attached is a letter dated February 4, 1976, from J.A. Smith (Barberton Material Manager) and letter of October 24, 1975 from M.L. Ruthranff (Mgr., Corporate Safety & Health). These letters begin to point out some of the problems we are facing, not only in the Barberton Works, but for all our Works' inventory.

It is recommended that Engineering and Purchasing coordinate your expertise and recommend acceptable material to replace harmful asbestos type products within PGG. If replacement material is not acceptable or available, then pre-cut asbestos type materials would have to be established.

If we can supply any data to aid in this review, please contact us.


R. E. Gasper

REG:es

cc: DDBaughman/w/attach.
FWMcCollum/ECR Safety - Barb.
MOppenheimer/w/attach.
RJRocki/w/attach.
JASmith

Attachments

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To F. W. MC CULLUM - EOR SAFETY
R. E. GASPER - FPGD MATERIALS

From J. A. SMITH - FPGD BARBERTON INVENTORY CONTROL

Cust. File No.
or Ref.

Subj. ASBESTOS PRODUCTS IN BARBERTON WORKS Date FEB. 4, 1976

This letter to cover one customer and one subject only.

In order to assist in clarifying the use of asbestos products relative to OSHA requirements, Barberton Works has compiled a list of all known items containing this material. They have been divided into three categories with our comments.

Folio	Description	On Hand \$	Avg Yearly Usage \$	Contract	Exp
<u>Insulation</u>					
✓ 512-118	Gasket AMB 1/8 in	--	--		X
✓ 512-120	" " 1/4 "	--	--		X
✓ 512-122	" " 1/2 "	--	--		X
512-079	Cloth ASB 1/16 "	10,087	29,488		X

Barberton Works has depleted stocks of millboard. We suggest these folios be asterisked and cancelled as soon as possible. As soon as our inventory of cloth is depleted we should switch to kaowool for which some new folio sizes are required. The cloth folio should then be asterisked and deleted as soon as possible.

Gaskets

✓ 526-170	AMB SILD	400	781	X	
✓ 526-013	ASB WI	--	--	--	
✓ 526-276	COP ASB	278	--	--	
✓ 526-126	HH STL ASB	38	--	--	
✓ 526-377	MH ASB WI	86	--	--	
✓ 526-394	MH Spiral Wound ASB	229	300	X	
✓ 526-537	ASB WI	2,868	--	--	
✓ 526-582	" "	2	70	X	X
✓ 526-525	CPRS ASB	1,178	4,573	X	X
✓ 526-541	" "	1,041	3,555	X	X
✓ 526-586	" - "	1,018	1,373	X	X

A decision must be made on these folios and Barberton Advised. In the meantime we will only order minimums to cover our needs.

R. E. GASPER

FEB 6 1976

<u>File</u>	<u>Description</u>	<u>On Hand \$</u>	<u>Avg. Yearly Usage \$</u>
<u>Safety Items</u>			
583-035	Gloves carpinch O leather ASB lined	351	1,010
583-036	" asbestos mitten	486	276
583-038	" " aluminized back	597	324
583-050	" leather reinforced ASB	823	108
583-055	" jumbo ASB mit	60	--
583-139	Sleeve ASB 23 in	72	--
583-216	Glove ASB gauntlet	1,451	192
583-226	" LH ASB A1 back	--	--

These are all handled by Safety Office and we list these only as reference for F. W. McCollum to review.

If we can be of assistance, please call on us.

J. A. Smith
J. A. Smith

JAS/lb

cc: A. Gordon
E. Woodford

BCC NHJENSEN
WJ ERNST
GIT ADAMS
LR LANIER

Babcock & Wilcox

To THOSE LISTED BELOW

GD 6060-2

From M. L. RUTHRAUFF - MANAGER, CORPORATE SAFETY & HEALTH

File No.
or Ref.

Subj. PLANT USE OF ASBESTOS PRODUCTS

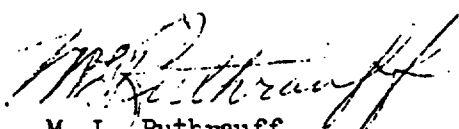
Date
OCTOBER 24, 1975

W. C. Bohling	C. W. Gray	T.V.D. Lee
R. M. Bowman	R. C. Haebig	F. W. McCollum
J. R. Bryan	E. W. Hetzel	R. R. Morris
C. R. Casey	J. L. Keel	G. L. Schaffer
J. C. Dwyer	L. J. Landis	E. H. Sellers
W. A. Frankland	R. J. Landy	G. R. Wagner
M. A. Glora	D. W. Lee	W. F. Wieland

The following conclusions are drawn from our recent inquiry on the above-subject.

- (1) You should specify resin treated or "wet-brushed" asbestos fabric when purchasing materials containing asbestos.
- (2) Cutting or buffing asbestos material should not be practiced in our shops. If such procedures are found necessary, alternate purchase of specific form and sizes should be considered. It is best to have the vendor do all the fabricating and working of asbestos material.
- (3) We should run routine air monitoring where any procedure or operation does not comply with Items No. 1 and No. 2.

(The asbestos standard will soon drop to 2 fibers/cc and there is a proposal to reduce it further to $\frac{1}{2}$ fiber/cc.)
- (4) Materials containing asbestos should be used only where other materials are not available.
- (5) NIOSH evaluation of asbestos vendors' plants does indicate that we should be in full compliance in using asbestos materials per the above guidelines. We do not recommend that asbestos monitoring be instituted other than indicated under Item No. 3.


M. L. Ruthrauff

MLR/mg

bcc: H. E. Auricchio

STANDARDS AND INTERPRETATIONS

The value of E_m shall not exceed unity (1).

(ii) To illustrate the formula prescribed in subdivision (i) of this subparagraph, consider the following exposures:

Material	Actual concentration of 8-hour exposure	8-hour time-weighted average exposure limit
Acetone (Table Z-1)	500 p.p.m.	1,000 p.p.m.
2-Butanone (Table Z-1)	45 p.p.m.	200 p.p.m.
Toluene (Table Z-2)	40 p.p.m.	200 p.p.m.

Substituting in the formula, we have:

$$E_m = \frac{500}{1,000} + \frac{45}{200} + \frac{40}{200}$$

$$E_m = 0.500 + 0.225 + 0.200$$

$$E_m = 0.925$$

Since E_m is less than unity (1), the exposure combination is within acceptable limits.

(e) To achieve compliance with paragraph (a) through (d) of this section, administrative or engineering controls must first be determined and implemented whenever feasible. When such controls are not feasible to achieve full compliance, protective equipment or any other protective measures shall be used to keep the exposure of employees to air contaminants within the limits prescribed in this section. Any equipment and/or technical measures used for this purpose must be approved for each particular use by a competent industrial hygienist or other technically qualified person. Whenever respirators are used, their use shall comply with § 1910.134.

1910.1001—ASBESTOS

(a) Definitions.

For the purpose of this section.

(1) "Asbestos" includes chrysotile, amosite, crocidolite, tremolite, anthophyllite, and actinolite.

(2) "Asbestos fibers" means asbestos fibers longer than 5 micrometers.

(b) Permissible exposure to airborne concentrations of asbestos fibers.

(1) **Standard effective July 7, 1972.** The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed five fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(2) **Standard effective July 1, 1976.** The 8-hour time-weighted average airborne concentrations of asbestos fibers to which any employee may be exposed shall not exceed two fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(3) **Ceiling concentration.** No employee shall be exposed at any time to airborne concentrations of asbestos fibers in excess of 10 fibers, longer than 5 micrometers, per cubic centimeter of air, as determined by the method prescribed in paragraph (e) of this section.

(c) Methods of compliance.

(1) Engineering methods.

(i) **Engineering controls.** Engineering controls, such as, but not limited to, isolation, enclosure, exhaust ventilation, and dust

STANDARDS AND INTERPRETATIONS

collection, shall be used to meet the exposure limits prescribed in paragraph (b) of this section.

(ii) Local exhaust ventilation.

(a) Local exhaust ventilation and dust collection systems shall be designed, constructed, installed, and maintained in accordance with the American National Standard Fundamentals Governing the Design and Operation of Local Exhaust Systems, ANSI Z9.2-1971, which is incorporated by reference herein.

(b) See § 1910.6 concerning the availability of ANSI Z9.2-1971, and the maintenance of a historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(iii) **Particular tools.** All hand-operated and power-operated tools which may produce or release asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, such as, but not limited to, saws, scorers, abrasive wheels, and drills, shall be provided with local exhaust ventilation systems in accordance with subdivision (ii) of this subparagraph.

(2) Work practices.

(i) **Wet methods.** Insofar as practicable, asbestos shall be handled, mixed, applied, removed, cut, scored, or otherwise worked in a wet state sufficient to prevent the emission of airborne fibers in excess of the exposure limits prescribed in paragraph (b) of this section, unless the usefulness of the product would be diminished thereby.

(ii) **Particular products and operations.** No asbestos cement, mortar, coating, grout, plaster, or similar material containing asbestos shall be removed from bags, cartons, or other containers in which they are shipped, without being either wetted, or enclosed, or ventilated so as to prevent effectively the release of airborne asbestos fibers in excess of the limits prescribed in paragraph (b) of this section.

(iii) **Spraying, demolition, or removal.** Employees engaged in the spraying of asbestos, the removal, or demolition of pipes, structures, or equipment covered or insulated with asbestos, and in the removal or demolition of asbestos insulation or coverings shall be provided with respiratory equipment in accordance with paragraph (d)(2)(iii) of this section and with special clothing in accordance with paragraph (d)(3) of this section.

(d) Personal protective equipment.

(1) Compliance with the exposure limits prescribed by paragraph (b) of this section may not be achieved by the use of respirators or shift rotation of employees, except:

(i) During the time period necessary to install the engineering controls and to institute the work practices required by paragraph (c) of this section;

(ii) In work situations in which the methods prescribed in paragraph (c) of this section are either technically not feasible or feasible to an extent insufficient to reduce the airborne concentrations of asbestos fibers below the limits prescribed by paragraph (b) of this section; or

(iii) In emergencies.

(iv) Where both respirators and personnel rotation are allowed by subdivisions (i) (ii), or (iii) of this subparagraph, and both are practicable, personnel rotation shall be preferred and used.

(2) Where a respirator is permitted by subparagraph (1) of this paragraph, it shall be selected from among those approved by the Bureau of Mines, Department of the Interior, or the National Institute for Occupational Safety and Health, Department of Health, Education, and Welfare, under the provisions of 30 CFR Part 11 (37 F.R. 6244 Mar. 25, 1972), and shall be used in accordance with subdivisions (i), (ii), (iii) and (iv) of this subparagraph.

(i) **Air purifying respirators.** A reusable or single use air purifying respirator, or a

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To

SUPERINTENDENTS/MANAGERS

From

K. C. KOCHHAR - SR. FACILITIES ENGINEER

BOS 663-6

Cust.

File No.
or Ref.

Subj.

ASBESTOS SURVEY ----- REMINDER!!!

Date

AUGUST 22, 1978

This letter to cover one customer and one subject only.

Please mail the information regarding the Asbestos Survey immediately, if you have not already done so. I would like to have your response even though you do not use any asbestos in your area.

KCKochhar

K. C. KOCHHAR

KCK:el

xc: L. Johnson



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGION IV

101 MARIETTA TOWER
ATLANTA, GEORGIA 30323

August 16, 1978

PUBLIC HEALTH SERVICE
Suite 502-B

Mr. K. C. Kochhar
Sr. Facilities Engineer
Power Generation Group
Babcock & Wilcox
Wilmington, NC 28401

Dear Mr. Kochhar:

Thank you for your letter of August 10, 1978, to the NIOSH Regional Office. Since I do not have any specialized information in my office about substitutes for asbestos, I am forwarding your letter to:

Information Retrieval and Analysis Section
Clearinghouse for Occupational Safety and Health Information
NIOSH
4676 Columbia Parkway
Cincinnati, Ohio 45226
Telephone: (513) 684-8328

You may expect a reply directly from NIOSH's Cincinnati office within several weeks. I am enclosing a booklet about the health hazards of asbestos for your information. Thank you.

Sincerely,

Paul Roper

Paul Roper
Regional Program Consultant for
Occupational Safety and Health
NIOSH, Region IV

Enclosure

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To H. H. JENSEN - FPGD STANDARDS - BARBERTON

From K. C. KOCHHAR - SENIOR FACILITIES ENGINEER - WILMINGTON

Cust.

Subj. ASBESTOS PRODUCTS

81-2171

BDS 663-6

File No.
or Ref.

Date
AUGUST 8, 1978

This letter to cover one customer and one subject only.

A survey is being made for the asbestos products which are being used at Wilmington Works. The purpose is to identify all purchased and stock items containing asbestos. We plan to develop a list of alternate products and eventually try to substitute the asbestos products with safe products in our facility.

I understand you have some very useful information available with you regarding this matter. I would very much appreciate your initial feedback and your thoughts regarding this matter by August 16, 1978.

KCKochhar
K. C. KOCHHAR

KCK:el

xc: J. D. Coleman
B. R. McGinnis

MR KOCHHAR

8-16-78

ATTACHED ARE COPIES OF LETTERS ON THIS SUBJECT FROM FPGD STANDARDS FILES. WE WERE UNABLE TO FIND ANY SATISFACTORY REPLACEMENTS AT A REASONABLE PRICE. WE HAVE CONTINUED TO ORDER GASKETS FROM ASBESTOS MATERIAL CUT BY VENDORS WITH THE WET BRUSHED OR RESIN TREATED NOTATION. PLEASE ADVISE OF ANY PROGRESS YOU MAKE.

P.S. I HAVE BEEN TRANSFERRED FROM FPGD STANDARDS TO FPGD MATERIAL MANAGEMENT BUT AM STILL OSHA COORDINATOR FOR FPGD.

Hank

"Committed to Excellence"

H. JENSEN
FPGD MATLS MGT

STANDARDS AND INTERPRETATIONS

respirator described in subdivision (ii) or (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed no more than 10 times those limits.

(ii) **Powered air purifying respirators.** A full facepiece powered air purifying respirator, or a powered air purifying respirator, or a respirator described in subdivision (iii) of this subparagraph, shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average concentrations of asbestos fibers are reasonably expected to exceed 10 times, but not 100 times, those limits.

(iii) **Type "C" supplied-air respirators, continuous flow or pressure-demand class.** A type "C" continuous flow or pressure-demand, supplied-air respirator shall be used to reduce the concentrations of airborne asbestos fibers in the respirator below the exposure limits prescribed in paragraph (b) of this section, when the ceiling or the 8-hour time-weighted average airborne concentrations of asbestos fibers are reasonably expected to exceed 100 times those limits.

(iv) **Establishment of a respirator program.**

(a) The employer shall establish a respirator program in accordance with the requirements of the American National Standard Practices for Respiratory Protection, ANSI Z88.2-1969, which is incorporated by reference herein.

(b) See § 1910.6 concerning the availability of ANSI Z88.2-1969 and the maintenance of an historic file in connection therewith. The address of the American National Standards Institute is given in § 1910.100.

(c) No employee shall be assigned to tasks requiring the use of respirators if, based upon his most recent examination, an examining physician determines that the employee will be unable to function normally wearing a respirator, or that the safety or health of the employee or other employees will be impaired by his use of a respirator. Such employee shall be rotated to another job or given the opportunity to transfer to a different position whose duties he is able to perform with the same employer, in the same geographical area and with the same seniority, status, and rate of pay he had just prior to such transfer, if such a different position is available.

(3) **Special clothing:** The employer shall provide, and require the use of, special clothing, such as coveralls or similar whole body clothing, head coverings, gloves, and foot coverings for any employee exposed to airborne concentrations of asbestos fibers, which exceed the ceiling level prescribed in paragraph (b) of this section.

(4) **Change rooms:**

(i) **At any fixed place of employment** exposed to airborne concentrations of asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section, the employer shall provide change rooms for employees working regularly at the place.

(ii) **Clothes lockers:** The employer shall provide two separate lockers or containers for each employee, so separated or isolated as to prevent contamination of the employee's street clothes from his work clothes.

(iii) **Laundering:**

(a) Laundering of asbestos contaminated clothing shall be done so as to prevent the release of airborne asbestos fibers in excess of the exposure limits prescribed in paragraph (b) of this section.

(b) Any employer who gives asbestos-

Babcock & Wilcox

Power Generation Group

Wilmington, N.C. 28401

Telephone: (919) 791-9010

August 10, 1978

NIOSH Region IV
DHEW, PHS, Division of Preventive Health Services
101 Marietta Tower
Suite 502-B
Atlanta, Georgia 30323

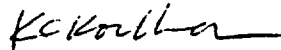
Dear Sirs:

We are attempting to substitute products containing asbestos with safe products in our facility. We would like to have the following information if available:

1. A list of products containing asbestos and suggested alternate safe products.
2. Are there any studies made specifically for industries manufacturing steam generation equipment regarding the use of asbestos and proposed substitute products?
3. Any other sources from where information might be available regarding this matter.

Thank you.

Yours truly,



K. C. KOCHHAR,
Sr. Facilities Engineer

KCK:el

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To	H. H. JENSEN - FPGD STANDARDS - BARBERTON	
From	K. C. KOCHHAR - SENIOR FACILITIES ENGINEER - WILMINGTON	BOS 663-6
Cust.		File No. or Ref.
Subj.	ASBESTOS PRODUCTS	Date AUGUST 8, 1978

This letter to cover one customer and one subject only.

A survey is being made for the asbestos products which are being used at .
Wilmington Works. The purpose is to identify all purchased and stock items containing
asbestos. We plan to develop a list of alternate products and eventually try to
substitute the asbestos products with safe products in our facility.

I understand you have some very useful information available with you regarding
this matter. I would very much appreciate your initial feedback and your thoughts
regarding this matter by August 16, 1978.

KCKochhar
K. C. KOCHHAR

KCK:el

xc: J. D. Coleman
B. R. McGinnis

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To | B. R. MCGINNIS - MGR. MANUFACTURING SERVICES

From | J. D. COLEMAN - MGR. I&M MANUFACTURING

BDS 663-6

Cust. | File No.
or Ref.

Subj. | USE OF ASBESTOS
Date
AUGUST 2, 1978

This letter to cover one customer and one subject only.

At the Management Safety Committee meeting on August 2, 1978, we discussed the use of asbestos in the plant.

We would like to embark on a program to eliminate asbestos from the facility. To this end, will you please have a survey of all purchased asbestos products made. The survey should include the use and a statement of alternate products, etc.

Please try to get this done by September 1, 1978.



J. D. Coleman

JDC:ht

xc: Larry G. Johnson

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To

SUPERINTENDENTS/MANAGERS

From

K. C. KOCHHAR - SR. FACILITIES ENGINEER

BDS 663-6

Cust.

File No.
or Ref.

Subj.

ASBESTOS SURVEY ----- REMINDER!!!

Date

AUGUST 22, 1978

This letter to cover one customer and one subject only.

Please mail the information regarding the Asbestos Survey immediately, if you have not already done so. I would like to have your response even though you do not use any asbestos in your area.

KCKochhar

K. C. KOCHHAR

KCK:el

xc: L. Johnson

KC
The only area
I am unsure of is
~~the~~ XEROX EQUIPMENT
Bell Evans

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To | W. E. LIVESAY - FPG ENGINEERING COMPONENTS - BARBERTON

From | K. C. KOCHHAR - SR. FACILITIES ENGINEER - WILMINGTON

80S 663-6

Cust. | File No.
or Ref.

Subj. | ASBESTOS GASKET AND PACKING
Date
AUGUST 24, 1978

| This letter to cover one customer and one subject only.

Reference your letter of May 6, 1976 to Peggy Claytor; CMP Accessories regarding Asbestos Gasket & Packing, File No. GSKT 15G.07. (copy enclosed).

Please inform the progress made in eliminating the asbestos materials in the company products.

Wilmington Works is presently involved in a survey of asbestos materials used in the plant. Our ultimate goal is to substitute the asbestos products with safe products. Any information regarding this matter will be greatly appreciated.

K. C. Kochhar
K. C. KOCHHAR

KCK:el
enclosure

cc: J. D. Coleman
B. R. McGinnis

Babcock & Wilcox

Power Generation Group

Wilmington, N.C. 28401

Telephone: (919) 791-9010

August 23, 1978

Publications Distribution Branch
Bureau of Mines
4800 Forbes Avenue
Pittsburgh, Pennsylvania 15213

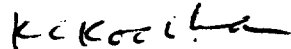
Dear Sir:

Please send me a single copy of the following publication:

CLIFTON, R. A. ASBESTOS - 1977: MINERAL COMMODITY PROFILES
MCP-6. U. S. DEPARTMENT OF INTERIOR, BUREAU OF MINES, September, 1977.

Thank you.

Yours truly,



K. C. KOCHHAR,
Facilities Engineer

KCK:el

Babcock & Wilcox

Power Generation Group

Wilmington, N.C. 28401

Telephone: (919) 791-9010

August 23, 1978

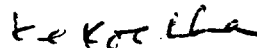
American Industrial Hygiene Institute
P. O. Box 453
Lansing, Michigan

Dear Sir:

We are attempting to substitute products containing asbestos with safe products in our facility. We would like to have the following information if available:

1. A list of products containing asbestos and suggested alternate products.
2. Are there any studies made specifically for industries manufacturing steam generation equipment regarding the use of asbestos and proposed substitute products?
3. Any other pertinent information regarding the asbestos products and their impact on man and environment.

Yours truly,



K. C. KOCHHAR,
Sr. Facilities Engineer

KCK:el

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To	SUPERINTENDENTS/MANAGERS	
From	K. C. KOCHHAR - SR. FACILITIES ENGINEER	
Cust.		File No. or Ref.
Subj.	ASBESTOS SURVEY ----- REMINDER!!!	Date AUGUST 22, 1978
This letter to cover one customer and one subject only.		

Please mail the information regarding the Asbestos Survey immediately, if you have not already done so. I would like to have your response even though you do not use any asbestos in your area.

KCKochhar

K. C. KOCHHAR

KCK:el

xc: L. Johnson



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

REGION IV

101 MARIETTA TOWER
ATLANTA, GEORGIA 30323

August 16, 1978

PUBLIC HEALTH SERVICE
Suite 502-B

Mr. K. C. Kochhar
Sr. Facilities Engineer
Power Generation Group
Babcock & Wilcox
Wilimington, NC 28401

Dear Mr. Kochhar:

Thank you for your letter of Agust 10, 1978, to the NIOSH Regional Office. Since I do not have any specialized information in my office about substitutes for asbestos, I am forwarding your letter to:

Information Retrieval and Analysis Section
Clearinghouse for Occupational Safety and Health Information
NIOSH
4676 Columbia Parkway
Cincinnati, Ohio 45226
Telephone: (513) 684-8328

You may expect a reply directly from NIOSH's Cincinnati office within several weeks. I am enclosing a booklet about the health hazards of asbestos for your information. Thank you.

Sincerely,

Paul Roper

Paul Roper
Regional Program Consultant for
Occupational Safety and Health
NIOSH, Region IV

Enclosure

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

81-2471

To

H. H. JENSEN - FPGD STANDARDS - BARBERTON

From

K. C. KOCHHAR - SENIOR FACILITIES ENGINEER - WILMINGTON

BDS 663-6

Cust.

File No.
or Ref.

Subj.

ASBESTOS PRODUCTS

Date

AUGUST 8, 1978

This letter to cover one customer and one subject only.

A survey is being made for the asbestos products which are being used at Wilmington Works. The purpose is to identify all purchased and stock items containing asbestos. We plan to develop a list of alternate products and eventually try to substitute the asbestos products with safe products in our facility.

I understand you have some very useful information available with you regarding this matter. I would very much appreciate your initial feedback and your thoughts regarding this matter by August 16, 1978.

KCKochhar
K. C. KOCHHAR

KCK:el

xc: J. D. Coleman
B. R. McGinnis

MR KOCHHAR

8-16-78

ATTACHED ARE COPIES OF LETTERS ON THIS SUBJECT FROM FPGD STANDARDS FILES. WE WERE UNABLE TO FIND ANY SATISFACTORY REPLACEMENTS AT A REASONABLE PRICE. WE HAVE CONTINUED TO ORDER GASKETS FROM ASBESTOS MATERIAL CUT BY VENDORS WITH THE WET BRUSHED OR RESIN TREATED NOTATION. PLEASE ADVISE OF ANY PROGRESS YOU MAKE.

P.S. I HAVE BEEN TRANSFERRED FROM FPGD STANDARDS TO FPGD MATERIAL MANAGEMENT BUT AM STILL OSHA COORDINATOR FOR FPGD.

Hank

"Committed to Excellence"

H. JENSEN
FPGD MATLS MGT

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

~~HRP~~
HHJ

To

THOSE LISTED BELOW

From

O. J. FISHER - CT PRODUCT COMP - OSHA

BDC 663-5

Cust.

File No.
or Ref.

Subj.

COMPANY USE OF ASBESTOS

Date

SEPT. 17, 1976

This letter to cover one customer and one subject only.

G. H. Adams
J. J. Angelo
D. D. Baughman
J. E. Chapman
Peggy Claytor
W. J. Ernst
E. J. Griffin

H. H. Jensen ✓
J. R. Keifer
C. A. Maher
J. R. Miracle
L. C. Moore
J. T. Ruble
J. A. Smith
R. C. Wolf

Attached is a copy of M. L. Ruthrauff's September 14, 1976 letter and its attachments on the above subject. You will find this material of interest.



O. J. Fisher

OJF/mg

Attachment

cc: P.M. Brister/wo att.
M. L. Ruthrauff/ wo att.

DISTRIBUTION:

H. E. Auricchio
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R. E. Erwine
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O. J. Fisher
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P. M. Frazier
W. A. Gerlipp
M. P. Guth
J. E. Hanna
J. L. Keel/H. Farmer
J. C. Land
J. W. Lyon
F. W. McCollum
W. S. Missell/E. W. Hetzel
H. Moore

F. A. Perrera
E. C. Rhodes
G. L. Schaffer
F. L. Scollon
K. E. Shy
G. Stoll
R. J. Stuart
K. H. Sturtz
S. Szwest
C. A. Turcotte
R. J. Vopelak
G. R. Wagner
R. E. Woolbert
R. L. Zaccagnini

TABLE FOOTNOTES

1. Present OSHA ceiling value of 10 fibers per cc of air
2. Present OSHA, 8-hour TWA, TLV of 2 fibers per cc of air
3. Proposed OSHA, 8-hour TWA, TLV of $\frac{1}{2}$ fiber per cc of air
 - (a) "No" asbestiform fibers detected - see Analytical Method
 - (b) "One" asbestiform fiber detected - see Analytical Method
 - (c) Does not exceed present standard when 8-hour TWA is calculated
 - (d) Sample exceeds ceiling value when 8-hour TWA is calculated

ASBESTOS SAMPLING

PAGE 2

Sample Number	Nature of Sample	Description of Sample	Asbestiform Fibers Per CC of Air	
19-4	Asbestos Gaskets	Handling assorted pre-cut packing gaskets, some showing a resin-type treatment	0.87	3
15-4	Asbestos Rope	Handling/cutting rope and ribbon packing material, some showing	2.00	2c
04-2	Mfg. of Asbestos Coated Weld Rod	Pouring and weighing semi-dry materials for #7010 weld wire coat	1.5	3
12-3	"	Pug mill unloading and cleaning damp mixture of materials	<0.36	a
11-3	"	Dumping bags of dry material into pug mill	1.1	3b
05-3	"	Mixed, semi-dry materials being placed into die of slug press, slugs removed, cleaned, and bagged.	0.36	a
16-3	"	Slug press operation	<0.48	b
08-2	"	Extruder line, moved around to various work stations	0.29	b
10-3	"	End of extruder where A.C. check and adjustments are made	0.41	b
07-3	"	Inspection/packing station at end of production line, after dryer	<0.10	a
01-1	Welding with Asbestos-Coated Weld Rod	Removing & replacing weld rods from shipping can	<0.72	3a
02-1	"	Weld being made - cassette taped to shoulder, behind hood	0.13	b
07-1	"	Weld being made - cassette taped to shoulder, behind hood	<0.15	a
10-1	"	Weld being made - cassette held near weld, but not in smoke	<0.72	3a
08-1	"	Weld being made - cassette held near weld, but not in smoke	0.36	b
04-1	"	Weld being made - cassette held near weld, but not in smoke	0.72	3b
06-1	"	Weld being made - cassette held 5 feet above & to the side	<0.83	3a
05-1	"	Weld being made - cassette held directly in weld smoke	<2.9	2ac

SES/9-9-76

ASBESTOS SAMPLING

Sample Number	Nature of Sample	Description of Sample	Asbestiform Fibers Per CC of Air	
09-2	Asbestos Cloth	Cut a piece of untreated cloth from a roll with a knife and folded it	0.72	3b
03-2	"	In front of cloth roll stand after another employee cut a piece of untreated cloth from a roll with a knife	<0.36	a
03-3	"	Cut a piece of wet-brushed cloth from a sheet with scissors	<0.36	a
06-3	"	Cut a piece of wet-brushed cloth from a sheet with scissors and also tore it	0.45	b
02-3	"	Cut a piece of wet-brushed cloth from a sheet with scissors and knife	<0.48	a
22-3	"	Used asbestos cloth under pre-heat, shaken	43.0	1d
02-2	"	Used cloth with burn marks, folded and patted	3.9	2c
10-2	Asbestos Gasket Material	Cut a piece of gasket material with knife & then tore it	<0.64	3a
14-3	"	Scraped a piece of gasket material with knife	0.72	3b
18-3	"	Cut a piece of gasket material with knife	<0.7	3a
23-3	"	Cut a piece of gasket material with knife	<0.7	3a
17-3	"	Cut a piece of gasket material with knife	<0.7	3a
21-3	Asbestos Rope Packing	Cut a piece of rope packing material with knife	<0.7	3a
13-3	Asbestos Gloves	Personnel sample working while wearing new pair of untreated gloves	0.13	b
01-2	"	Handling a bundle of new, untreated gloves	<1.5	3a
09-4	Asbestos Mill-board	Cut 1/2" millboard with sabre saw	0.24	b
20-4	"	Cut 1/8" millboard with scissors	<0.24	a
06-5	"	Scoring and breaking strips of 1/4" millboard	0.83	3

Babcock & Wilcox

INDUSTRIAL HYGIENE - ASBESTOS FILE

GO 6060-

From S. E. SINGLETON - CORPORATE SAFETY AND HEALTH

File No.
or Ref.

Subj. SUMMARY AND CONCLUSIONS OF ASBESTOS SAMPLING

Date
SEPTEMBER 8, 1976

GENERAL

The attached table summarizes asbestos sampling to date. A survey was conducted to determine the various forms and uses of asbestos materials within the Company. Representative air samples were then collected during typical operations by using MSA Gravimetric Dust Sampling equipment and open-face AA filter cassettes supplied by Clayton Environmental Consultants. The Clayton laboratory then analyzed the samples using the standard NIOSH method.

ANALYTICAL METHOD

The Clayton laboratory uses Phase Contrast Illumination Microscopy as specified by NIOSH. A given sample is transformed into a transparent gel and a pie shaped wedge is cut from it. Using 400 power magnification a minimum of 20 microscope fields and a maximum of 100 fields are scrutinized, depending upon the detection of at least 100 fibers. However, 100 fields is not exceeded even if fewer than 100 fibers are viewed.

Results are reported as asbestiform fibers because the method does not allow for strict identification that the fibers being counted are actually asbestos. That can only be determined from separate analysis of bulk samples. To qualify as asbestiform, fibers must be greater than 5 micrometers in length and have an aspect ratio of 3 to 1 or greater.

Where no asbestiform fibers are seen in 100 microscope fields, that is reported as < 2900 fibers per total filter. The resulting concentration is shown with < symbol and a value dictated by volume. Where one asbestiform fiber is seen in 100 fields, that is reported as 2900 fibers per total filter. The resulting concentration value is likewise dictated by the volume sampled.

DISCUSSION OF RESULTS

The table footnotes show the two current Threshold Limit Values and the proposed value. The ceiling value, according to NIOSH, is the peak allowable concentration as determined by a minimum sampling time of fifteen minutes. OSHA's current standard includes no mention of this minimum sampling time. The Time-Weighted Average exposure limits are for an 8-hour work day. These can either be determined by sampling for 8 hours, or sampling for a representative time period and calculating based upon the length of time the exposure to asbestos is present. The last column of the table contains footnote codes which relate the test results to these exposure limits.

If the proposed TLV ($\frac{1}{2}$ fiber per cc of air, 8-hour TWA) is adopted, then many of the samples collected represent conditions of possible "overexposure". All of the test results shown in the table are for representative sampling times. The footnotes also refer to certain key samples for which the 8-hour time weighted average exposures were calculated and compared with the TLV's.

ASBESTOS PRODUCTS

The asbestos products used in the sampling were the following:

1. Treated and untreated cloth
2. Pre-cut gaskets and gasket materials
3. Rope and ribbon packing materials
4. Millboard
5. Coated weld rods
6. Gloves

Interviews with 2 asbestos product manufacturers revealed the following:

1. Untreated cloth products should bear a health hazard label.
2. Treated fabrics have greater abrasion resistance, as much as 79% greater than untreated.
3. Treated fabrics exhibit as much as 75% reduction of airborne fibers in tests comparing them to untreated.
4. ASTM grade classifications for asbestos textiles are as follows:

<u>Grade</u>	<u>Asbestos Content by Weight</u>	<u>Temp. Limit</u>
Commercial	75% to 80%	400°F.
Underwriters	80% to 85%	450°F.
A	85% to 90%	550°F.
AA	90% to 95%	600°F.
AAA	95% to 99%	750°F.
AAAA	99% to 100%	900°F.

Where asbestos content is less than 100%, binder materials such as cotton, neoprene, brass wire, etc., are woven with the asbestos to give it strength. Fiber-capturing applications such as wet-brushing, resin-bonding, etc., are designed to be effective at least to the above temperature limits for general performance of the cloth. When these limits are exceeded, the binders and the "health" treatments are burned out. The resulting material has little mechanical strength and readily frees fibers into the air. Some typical B&W service temperatures are as follows:

1. Opposite surface of steel under preheat = 500°F.
2. Chimney effect of heated air (from drums, nozzles, etc.) = 700°F.
3. Direct flame impingement from a natural gas preheat torch = 2000°F.

No "health" treatments are rendered to millboard products and so performing any kind of mechanical work (sawing, cutting, breaking, etc.) on millboard will release fibers.

RECOMMENDATIONS

1. Substitute materials should be sought and used wherever possible.
2. Where asbestos fabrics are used, they should be purchased as wet-brushed or resin-treated and whichever ASTM grade suits the applications.
3. Treated fabrics should either be purchased in needed sizes, or be cut to size with scissors or a sharp knife (not ripped or otherwise "violently" separated).
4. Places where cloth is cut should be cleaned daily to control any possible build-up of asbestos debris.
5. Cloth should be discarded when it has been in service long enough for the cotton binder and wet-brushing treatment to be burned away. The cloth thus has little or no strength and "dusts" easily. The time required for the cloth to become unsuitable depends upon the type of service, particularly the temperature.
6. Asbestos millboard should be purchased in needed sizes and not be cut or sheared to size after purchase.
7. Periodic asbestos-in-air sampling should continue and include area sampling as well as day-long, personal sampling.

Note: See Corporate Safety and Health Procedure No. 1001.1 for additional information and clarification.


S. E. SINGLETON

SES/sfb
Attachment

THE BABCOCK & WILCOX COMPANY
POWER GENERATION GROUP

To DISTRIBUTION

From W.J. ERNST - MATERIALS PLANNING & CONTROL

BDS 663-5

Cust.

File No.
or Ref. FSA-16

Subj. ASBESTOS GASKET AND PACKING OIS REVISION

Date JUNE 21, 1976

This letter to cover one customer and one subject only.

FPG Materials & Control has revised all stock asbestos gasket and packing folio Ordering Information Sheets (OIS) to include the following statement:

Gasket Must Be Wet Brushed Or Resin Treated

Or

Packing Must Be Wet Brushed Or Resin Treated

This statement has been added to the OIS's to meet OSHA requirements for asbestos. Also this change is in accordance with the current company guide regarding use of asbestos products.

Also we have developed and issued four standard clauses for purchase for contract asbestos type gaskets and they are as follows:

- #573 Gasket Silicated ASB Millboard
- #574 Gasket ASB Wire Inserted
- #575 Gasket Compressed ASB
- #576 Gasket Garlock #7021

All Divisions and Works must specify on all orders for stock and purchase for contract asbestos type gaskets and packing material the words "Wet Brushed Or Resin Treated".

WJE:es

W.J. Ernst

Distribution:	G.H. Adams	J.R. Keifer
	J.J. Angelo	C.A. Maher
	D.D. Baughman	J.R. Miracle
	J.E. Chapman	L.C. Moore
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	O.J. Fisher	M.L. Ruthrauff
	E.J. Griffin	J.A. Smith
	H.H. Jensen	R.C. Wolf

**PROPERTIES THERMO-CHEM
GLASS FIBER ROPE
(Compared with Asbestos)**

**Thermo-Chem
Glass Fiber Rope**

STYLE TP770

TEMPERATURE RESISTANCE (Percentage of weight loss after exposure to heat)			
Style TP500 Asbestos Rope	500F	750F	
Style TP770 Thermo-Chem Rope	18.3%	23.9%	8.5%
ACID RESISTANCE (Weight loss after 21 days in 10% Hydrochloric Acid, at room temperature)			
Style TP500 Asbestos Rope	34%		
Style TP770 Thermo-Chem Rope	0		
ALKALI RESISTANCE (Weight loss after 21 days in 4% Sodium Hydroxide, at room temperature)			
Style TP500 Asbestos Rope	0		
Style TP500 Thermo-Chem Rope	0		
PH>13			
TENSILE STRENGTH - ROOM TEMPERATURE Thermo-Chem Rope better than TP500 Asbestos			
Style TP500 Asbestos Rope	134		
Style 770 Thermo-Chem Rope	230		
CHLORIDE CONTENT Less than 100 P.P.M.			
Thermo Conductivity - "K" Value (Tested at 5.5lb/cu. ft. density - 0.25 @ 75F. mean - 0.40 @ 350F. mean			

"The physical (or chemical) properties of Johns-Manville Thermo-Chem Rope represent typical, average values obtained in accordance with accepted test methods and are subject to normal manufacturing variations. They are supplied as a technical service and are subject to change without notice. Check the Johns-Manville district office to assure current information."

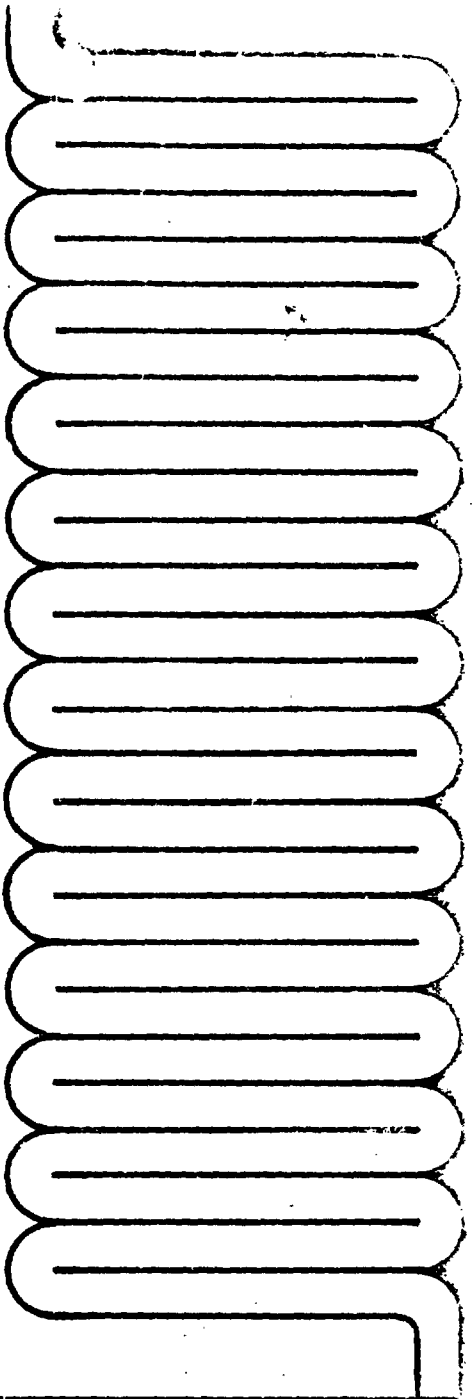
Designed for general purpose packing for emergency or gasketing where other materials are not available. In addition used in severe service as substitute for Blue Asbestos.

Handles temperatures to 750F, most corrosive chemicals.

PRODUCT WARRANTY

J-M products are warranted free from defects in workmanship and in raw materials of our own manufacture. These products are not guaranteed as to performance under any specific service condition nor for any specific period of time. Our liability for breach of any Warranty, express or implied, is limited at our sole option, to refund of the invoice value of our products, or to the replacement thereof F.O.B. our plant or other shipping point, full freight allowed to prior destination.

JM Johns-Manville



new

**thermo-chrom
glass fiber rope**

JM

Johns-Manville

Greenwood Plaza • Denver, Colorado 80217

Sales Offices in Principal Cities

for: General Purpose Packing, Gasketing, Severe Acid Service

features:

- Greater Sealability
- Lower Load Requirements
- Wide Chemical Resistance
- Higher Temperatures

PK-353A 10-72

Printed in USA

6 BASE FIBERS USED IN JOHNS-MANVILLE THERMO-PAC AND THERMO-CHEM ROPE

THERMO-PAC 500 —Commercial Grade White Chrysotile Asbestos Fiber

THERMO-PAC 750 —AAA (95/98%) White Chrysotile Asbestos Fiber

THERMO-CHEM 770 —Glass Fiber

THERMO-PAC 1000 —Pure (98/100%) White Chrysotile Asbestos Fiber

THERMO-PAC 2300 —Refractory Alumina-Silica Fiber

THERMO-PAC 2700 —Refractory Alumina-Silica-Chromia Fiber

APPROXIMATE WEIGHT— Pounds Per 100 Ft.

STYLE	1/5	3/16	1/4	3/8	7/16	1/2	5/8	3/4	7/8	1	1-1/4	1-1/2	1-3/4	2
THERMO-PAC 500	1/2	1-1/4	1-3/4	4	7	10	14	20	25	33	50	57	67	80
THERMO-PAC 750			2	5	6-1/2	7-1/2	11-1/2	14	20-1/2	33	50	57	67	80
THERMO-CHEM 770			1/2	1-1/4		3	4	5	8	10	15	25	33	50
THERMO-PAC 1000	3/4	1-1/2	2-1/2	5	7-1/2	10	14	20	25	33	50	67	84	100
THERMO-PAC 2300			3/4	2-1/4		3-1/4	5	7	9	15	19	26	36	45
THERMO-PAC 2700			3/4	2-1/4		3-1/4	5	7	9	15	19	26	36	45

CROSS-REFERENCE TO PREVIOUS J-M STYLES

With the introduction of the new J-M Thermo-Pac and Thermo-Chem line, users of J-M Asbestos Ropes will find the following table helpful. It provides a cross-check from old style numbers to the new ones. Other styles, not listed below, will be continued, but the ones listed below are *standard*.

Thermo-Pac 500—Styles 195, 4195, 4196

Thermo-Pac 750—Styles 4182, 4187

Thermo-Chem Glass Fiber—Style 770

Thermo-Pac 1000—Styles 4200, 4202

Thermo-Pac 2300—Style 4300

Thermo-Pac 2700—Style 4303

INVENTORY RECOMMENDATIONS

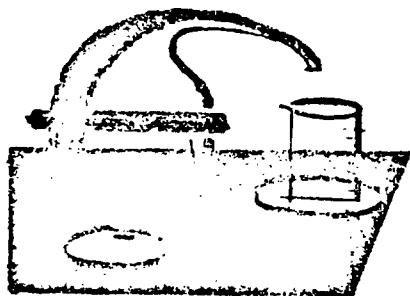
For simplified, economical inventory, J-M recommends stocking Thermo-Pac 1000 for all operations up to 1000F. This reduces the number of styles carried in inventory. It insures that the one rope carried will handle all services to 1000F. For operating temperatures above this, Thermo-Pac 2300 should be stocked; temperatures above 2300F are unusual and can be met accordingly.

Check your requirements—sizes and temperatures. You will find you can reduce your inventory by standardizing on the J-M Thermo-Pac and Thermo-Chem styles and sizes for your equipment.

J-M THERMO-CHEM ROPE can handle efficiently and economically

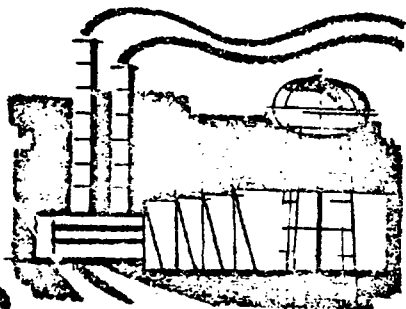
5

CHEMICAL INDUSTRIES



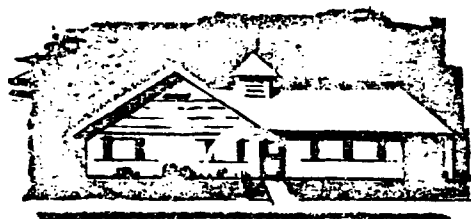
J-M Thermo-Pac 1000 is successfully used as calking rope for bell and spigot joints in chemical lines. Because it contains no organic components, it is used as yarning rope for water lines. In addition to its heat-resistance, the chemically inert characteristics have made it a "standard" in other chemical-handling operations such as packing for carboy-stoppers, and in Cryogenic services, and other applications where this property is required.

Johns-Manville Thermo-Chem glass fiber rope Style 770 is recommended for the most severe acid service (one example is for underground chemical sewers).



ALUMINUM PLANTS

Anywhere the control of heat and sealing is needed—heat-treating ovens, grooves for door sealing, pouring ladles, vacuum seals on crucibles, and in many other dry heat-sealing applications, J-M Thermo-Pac is the recommended sealing material.



DOMESTIC APPLIANCES

Throughout the Appliance Industry—on heaters, furnaces, incinerators and hot water heaters—in grooves between boiler sections, as door or lid seals, in furnace casings, on oil burner nozzles, and in gasketing of hot air furnace pipes—J-M Thermo-Pac is a standard.

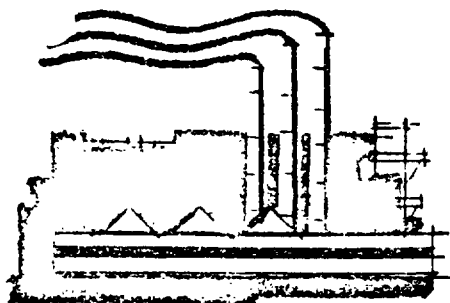


SPECIAL APPLICATIONS

Manufacturers and users are constantly finding new applications for J-M Thermo-Pac. Examples: door seals on high-temperature dust collectors, seal between a 1000 watt electric bulb and the outer casing of outdoor floodlights, cushioning for acid carboys in crates, seals between cars in brick kilns, cushioning for Pyrex glass in a metal frame to compensate for unequal heat expansion, wipers to remove excess zinc in galvanizing sheet metal and wire, insulating "bubble-trays" in fractionating towers of petroleum refineries—and *countless* other uses!

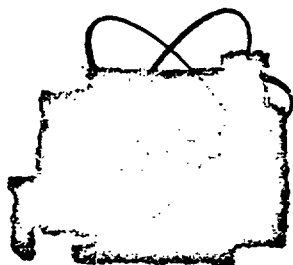
Thermo-Chem glass fiber rope, Style 770, is an excellent substitute for Thermo-Pac 500 and 750 where asbestos is not desired.

4 APPLICATIONS...Here are some of the many services J-M THERMO-PAC



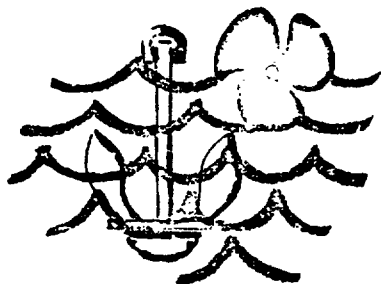
STEEL MILLS AND FOUNDRIES

Uses for J-M Thermo-Pac are almost endless. Sealing molds, sealing vacuum-pouring equipment (where leakage can ruin an entire billet), sealing sand molds off from pouring ladles, calking joints in large cores which must be segmented—almost anywhere you look, you will see high temperature rope in use.



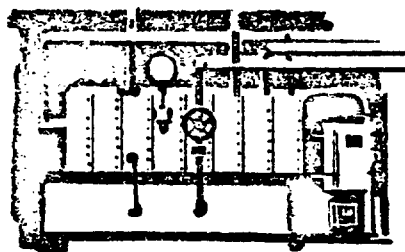
ATOMIC ENERGY

J-M Thermo-Pac 1000 is standard in the Industry because it withstands an integrated neutron flux of 10^{19} NTV units.



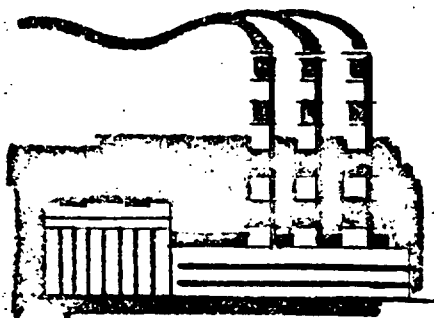
MARINE SERVICE

J-M Thermo-Pac is an essential in the Engine Room for general boiler service such as calking, filling and expansion joints, wrapping hard-to-reach steam lines. In emergencies, it is ideal for quick repair of damaged steam lines. On diesel-powered vessels, J-M Thermo-Pac is widely used for wrapping exhaust pipes, often "smoothed-off" with a coating of J-M Asbestos Cement.



GENERAL INDUSTRY

Anywhere heat sealing is required, whether heat-treating furnaces, boilers or processing operations, J-M Thermo-Pac is recommended and widely used.



POWER PLANTS

Between boiler walls and brick-work to allow for expansion and contraction, wrapping steam and exhaust lines where space limitations preclude formed insulation, covering small ducts, calking hard-to-reach spaces, insulating hot pipes passing through fire-walls and bulkheads—there are literally hundreds of applications for various J-M Thermo-Pac Ropes. It is the standard for use in grooves for door sealing, between boiler sections, expansion joints and in handling hot gases.

Thermo-Chem Rope best suited to your operating conditions



JOHNS-MANVILLE THERMO-PAC AND THERMO-CHEM ROPES ARE BASIC TO INDUSTRIAL PLANT AND MARINE MAINTENANCE

They are the ideal general-purpose packings, whether for emergency packing and gasketing where other materials are not available, or where the shape or condition of the equipment will not allow the use of less pliable, less adaptable materials.

These ropes are extremely versatile in that size can be reduced or increased—simply by separating the strands or building up thickness by twisting several together. They are available in a number of materials to suit your particular requirements—ranging from minus 400F to plus 2700F.

In addition, for severe acid service, Thermo-Chem glass fiber, Style 770 which resists corrosive action by acids, is available for services to 750F.

*On the following pages, you will find a description of many
uses for J-M Asbestos, Glass Fiber and Refractory Ropes.*

Now you can specify a particular J-M Thermo-Pac*

THE MOST VERSATILE PACKING YOU CAN BUY

Here is a new *simplified* way for you to select and specify Johns-Manville Asbestos, Glass Fiber and Refractory Ropes. Each Style is designated by the temperature range it will handle efficiently, at the lowest cost for the job requirement. This simplification of J-M lines will accomplish two things for you:

1st

it will enable you to specify the right product more quickly and easily.

2nd

It pinpoints your needs and will help reduce your inventory requirements. In addition, it will reduce the possibility of using a product that cannot handle the job.

In the past, sizes under $\frac{3}{8}$ " have been called "Wick." Generally, these small sizes of rope have been relatively softer and less dense than the sizes $\frac{3}{8}$ " and up, traditionally designated "Rope." In the new Thermo-Pac line, for added simplicity, all sizes are called "Rope." However, sizes less than $\frac{3}{8}$ " will continue to be soft and light density products. Where special conditions require it, more tightly twisted and dense ropes in sizes less than $\frac{3}{8}$ " can be furnished on Special Order.

*Johns-Manville Trademark

JUST 6 J-M STYLES FOR ALL ROPE USES

The Style Number indicates the top temperature limit that the style will handle. This will prove most economical for the job.

THERMO-PAC 500	Service to 500F
THERMO-PAC 750	Service to 750F
THERMO-CHEM 770	Service to 750F
THERMO-PAC 1000	Service to 1000F
THERMO-PAC 2300	Service to 2300F
THERMO-PAC 2700	Service to 2700F

Asbestos fiber is used in ropes for the temperature ranges up to 1000F; above that, Refractory filaments are the base fibers.

THE BABCOCK & WILCOX COMPANY
NER GENERATION GROUP

5/17/6 ~~HHJ~~

H. H. Jensen
FPG Standards

To	PEGGY CLAYTOR - CMP ACCESSORIES	
From	W. E. LIVESAY - FPG ENGINEERING, COMPONENTS	
Cust.	File No. or Ref.	7/3 GSKT 8/1 15G.07
Subj.	Date	
ASBESTOS GASKET AND PACKING		MAY 6, 1976

BDS 663-5

This letter to cover one customer and one subject only.

The asbestos gasket and packing material listed below is current items now being used in the 7U damper manual and 8U door manual and listed in the 4A4 standard material list by vendor's trade name.

Packing Description and Size	Folio	Temp. °F
✓ 1. LF PKG SQ ASB BRD C13 3/8x3/8	526456-S	1000
✓ 2. LF PKG SQ ASB BRD GAR234 1/2x1/2	526469-S	500
✓ 3. LF PKG SQ ASB BRD JM787 1/2x1/2	526471-S	500
✓ 4. LF PKG TAPE ASB WN JM122AAA 2x1/8	526575-S	850
✓ 5. LF PKG TAPE ASB WN JM122AAA 3x1/8	526577-S	850
✓ 6. LF PKG RND ASB BRD MS1530B 5/8	526480-S	450
✓ 7. LF PKG RND ASB TW JM1000 (JM4200) 3/4	526490-S	1000
✓ 8. PKG RING ENDLESS 4 IN. ID (GARLOCK 611) 4-3/4 OD x 3/8	526607-S	500
✓ 9. PKG RING JM398 7/8 ID 1-5/8 OD x 3/8	526609-S	1000
✓ 10. PKG RING JM398 1-1/4 ID 2 IN. OD x 3/8	526606-S	1000
✓ 11. PKG RING JM398 1-3/4 ID 2-1/4 OD x 1/4	526601-S	1000
✓ 12. PKG RING JM398 1-15/16 ID 2-11/16 OD x 3/8	526602-S	1000
✓ 13. PKG RING JM398 2-1/8 ID 2-7/8 OD x 3/8	526604-S	1000
✓ 14. PKG RING RAJAH 2-9/16 ID 3-9/16 OD x 1/2 (JM-2)	526622-S	750
✓ 15. PKG RING RAJAH 3-1/4 ID 4-1/2 OD x 5/8 (JM-2)	526625-S	750

May 6, 1976

Gasket Description and Size	Folio	Temp. °F
✓ 1. GSKT CPRS ASB 7 x 1/16 x 7 (JM60)	526230-S	850
✓ 2. GSKT AMB SILD 13-1/2x1/4x13-1/2 (JM106) SILD	526170-S	—
✓ 3. GSKT ASB WI 6 IN. ID x 9-1/4 OD x 1/8 (JM101)	526361-S	400
✓ 4. GSKT CPRS ASB 2-3/8 ID x 3 IN. OD x 1/16 (JM60)	526188-S	850
✓ 5. GSKT CPRS ASB 3 IN. ID x 3-7/16 OD x 1/16 (JM60)	526190-S	850
✓ 6. GSKT CPRS ASB 3-3/8 ID x 4 IN. OD x 1/16 (JM60)	526198-S	850
✓ 7. GSKT ABS WI 18x1/8x20-1/2 (JM101)	526291-S	400
8. GSKT ASB WI 20x1/8x26-1/2 (JM101)	P-87705A-7G	400

It is Component Engineering's goal to completely eliminate the use of the above asbestos material in company products and that a meeting be arranged with the present suppliers of these items for the possible substitution of other materials for each application. The following order of vendor meetings is desired if possible - 1) Johns-Manville, 2) Raybestos Manhattan, 3) Garlock and 4) Union Carbide-Garfoil.

By copy of this letter to R. E. Gasper - Material Planning and Control, the writer requests a yearly usage of the above items be made available prior to vendor meetings as this will be of aid to determine the priority of material usage.

After the above meetings it then can be decided as to what requirements Engineering can accept and the most economical of replacement materials.

If additional information is required, please advise.

W. E. Livesay
W. E. Livesay

WEL:nt

cc: C. M. Davis
R. E. Gasper
H. H. Jensen
E. W. Kreider*
T. P. Seifert - N. Canton
W. C. Stoll*

Possible Substitutes for Asbestos Products

I. TP-774 Glass fiber rope

1/2" #3.19/lb.

3/4" #3.20/lb.

Service up to 750° F

See pg 6 for weight per 100 ft.

II. Thermo-Clear Glass Fiber Lining Tape

② #1122 - 0.0627 tk.

2" wide, #31.48 / 100 ft. roll

3" wide, #37.83 / 100 ft. roll

③ #1122 - 1.00 t/k.

2" wide, #40.43 / 100 ft. roll

3" wide, #51.98 / 100 ft. roll

III. TP-2300 - Refractory Rope

3/8" "thick" Diameter #9.92/lb.

Service up to 2300°

See pg. 6 for weight per 100 ft.

Raybestos Workers Settle Asbestos Claims, Possibly Setting Precedent for Industry

3/16/81

By RAYMOND A. JOSEPH
Staff Reporter of THE WALL STREET JOURNAL

NEWARK, N.J.—An out-of-court settlement announced by a federal judge here could become a pattern for thousands of similar cases involving claims against asbestos companies and their insurers.

Clarkson S. Fisher, a federal judge in New Jersey, said Friday a settlement was reached in the six-year-old case, which had consolidated nine suits containing 680 separate claims of \$2 million each. Judge Fisher didn't disclose any amount in his official four-page settlement document. However, the Associated Press said court records show that a \$9.4 million fund has been set up to compensate 680 workers who had filed suits charging they were poisoned by asbestos while working at a Raybestos-Manhattan Inc. plant in Passaic, N.J. A court clerk didn't dispute the figure.

Defendants in the case, all makers of asbestos products, were Johns-Manville Corp., Asbestos Corp. of America and three Canadian concerns, Bell's Asbestos Co., Asbestos Corp. and Cassier Asbestos Ltd. Metropolitan Life Insurance Co. also was a defendant.

Raybestos-Manhattan wasn't a defendant. The Raybestos plant where the workers were employed used material provided by the defendants to make such products as brake shoes for automobiles. The company said Friday that its accountants, Alexander Grant & Co., New York, advised it that they intend to include a qualification in its next annual report covering financial statements for 1978 to 1980.

Judge Fisher said two senior Bergen County Superior Court judges—James I. Teocano and Roger W. Breslin Sr.—were appointed to process the claims and decide on how much each plaintiff should receive.

Reviewing Cases

They are expected to complete their review of cases by May 1. The funds will be distributed by the end of the year, Judge Fisher said. The reported settlement averages about \$13,800 for each plaintiff, although how the money will be divided isn't known.

Irving Seilkoff, a professor at Mount Sinai School of Medicine in New York, who in the early 1960s was among the first to make known the dangers of asbestos, said that not all of those exposed to asbestos may have contracted the same disease.

In studies of various groups exposed to asbestos he said, "one out of four in some cases, and one out of five in others," would eventually die from lung cancer. The disease most commonly referred to in connection with asbestos is asbestosis, a scarring of the lungs akin to emphysema. But Dr. Seilkoff said that one out of 15 dies of mesothelioma, a type of lung cancer that is caused by asbestos.

Judge Fisher hailed the settlement as a "speedy" way to speed the processing of many asbestos-related suits without the expense and delay of a trial. "It would have taken 10 years to process the suits," he said.

Raybestos-Manhattan's stock price rose 1 1/2 points to 27 1/2 after the settlement was announced. The company said it had a loss for 1980, which will include asbestos-related claims through 1980.

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crecy. Johns-Manville and Metropolitan Life declined to comment. The other defendants couldn't be reached.

Cautious About Claims

Meanwhile, Raybestos's accountants are being cautious about future claims against their client. They are concerned about which theory will prevail in assessing damages: "exposure" or "manifestation." Advocates of "exposure" believe that liability and expenses should be shared by insurers on a pro rata basis over the period of the plaintiff's exposure to asbestos.

Advocates of "manifestation" assert that the insurance carriers on the date of the plaintiff's manifestation of an asbestos-related disease should be responsible.

Two court decisions—including one by a federal appeals court—have used the exposure theory.

If the exposure concept is applied in the case of Raybestos, the company may be liable for claims it hadn't provided for. The concern arises because Raybestos can't currently document the carrier, nature and extent of its insurance coverage before September 1961 and is "uncertain regarding the adequacy of its insurance coverage" for 1961 to 1962. Before the court decisions, Raybestos said it believed it had adequate coverage, based on the manifestation concept.

Raybestos said that as of Jan. 31 asbestos-related complaints against it had more than doubled to 5,375 from 2,240 at the end of 1979. There was also a "significant increase" in the level of settlements and related expenses during last year, Raybestos said. The company added that additional asbestos-related suits seeking damages at yet undetermined amounts may yet be filed. Thus, Raybestos said it isn't possible to determine its potential liability and the impact on its financial condition.

As reported, Raybestos-Manhattan posted a loss for 1980, which will include asbestos-related claims through 1980.