CRMC
CLAIMS RESOLUTION MANAGEMENT CORPORATION

VIA FEDERAL EXPRESS

MARGARET J. BAUMGARDNER
RESEARCH COORDINATOR

August 22, 2003

Jason Luckasevic
Goldberg, Persky, Jennings & White
1030 Fifth Avenue, Third Floor
Pittsburgh, PA 15219

Re: Documents from Research Facility

Dear Mr. Luckasevic:

Enclosed are the documents relating to "facial tissue" and asbestos. Below are the charges for this research. The charges include time for me to prepare an affidavit and have it notarized.

Iron Mountain box charges	
50 boxes x $4.50 per box	$225.00
Minimum box fee (for single box pulled)	$ 5.00
Rush delivery charge	$ 25.00
Research Coordinator's time	
1.5 hours x $75.00 per hour	$112.50
Bates labels – 134 each x $.07 each	$ 9.38
Copies, microfilm – 3 pages x $.40 per page	$ 1.20
Copies, paper – 128 pages x $.23 per page	$ 26.88
TOTAL	$404.96

Please forward a check for **$404.96** payable to the *Claims Resolution Management Corporation*, to my attention in Denver. If you have any questions, please do not hesitate to contact me.

Sincerely,

Margaret J. Baumgardner

cc: Joanne R. Marvin

Enclosures

AFFIDAVIT

STATE OF COLORADO)
) ss.
COUNTY OF JEFFERSON)

I, Margaret J. Baumgardner, being of full age and first duly sworn do hereby state:

1. I am the Research Coordinator for the Claims Resolution Management Corporation ("CRMC"), a wholly owned subsidiary of the Manville Personal Injury Settlement Trust ("Trust"). The CRMC was created in December 1998 and is staffed by former Trust employees. On January 1, 1999, CRMC began providing claims resolution facility services to the Trust.

2. In this position, I manage the Asbestos Claims Research Facility ("Facility"), a document and records repository, located at 4755 East 46th Avenue, Denver, Colorado. The Facility contains the business records including but not limited to correspondence, memoranda, reports, records and data compilations ("records") of Manville Corporation or related entities ("Manville"), generally, as well as Manville records relevant to litigation of asbestos liability. The Trust has managed and operated the Facility from November 28, 1988, the date on which the Manville bankruptcy plan was consummated.

3. My experience and familiarity with the documents at the Facility began in 1983 while working for Manville. In my work as a paralegal for Manville, I assisted in locating, indexing and packing many of the records which became the foundation documents for the Facility. I continued to work for Manville until September 1987. From March 1988 to September 1988, I was hired to supervise and assist in the indexing of the first 20,000 boxes which were turned over to the Trust in November 1988. From September 1988 to January 1989, I assisted in the privilege review of documents to be given to the Trust. From November 1988 to April 1994, I worked for Freeborn & Peters and was put in charge of the Facility, managing all productions and "new" acquisitions. In September 1995, I was hired by the Trust to manage the Facility. In December 1998, I was hired by the CRMC to manage the Facility for the Trust. Accordingly, I am personally familiar with many of the records stored at the Facility, as well as how the records have been gathered.

4. To the best of my present knowledge, information and belief, I certify that these records were made at or near the time by, or from information transmitted by, a person with knowledge, were kept in the course of the regularly conducted business activity of Manville, and it was the regular practice and the business activity of Manville to make the records.

5. Documents from this Facility were copied for the firm of Goldberg, Persky, Jennings & White. The copies have come from a box, microfilm and the fiber sales summaries at the Facility and are bates labeled MT06068 through MT06202, and these documents are true and correct copies of documents found at the Facility.

Margaret J. Baumgardner

Subscribed and sworn to before
me this 22nd day of August, 2003.

Notary Public

MARY ELLEN YOUNG NOTARY PUBLIC STATE OF COLORADO

My Commission Expires December 11, 2006
4350 Wadsworth Boulevard
Wheat Ridge, Colorado 80033

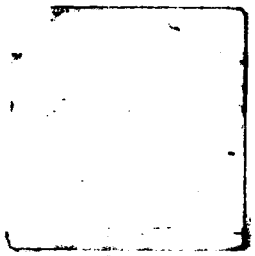
COPY FORM	INITIALS	DATE

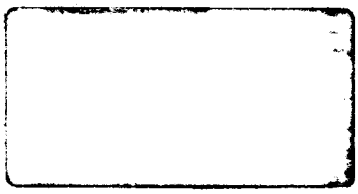
BOX NUMBER	SEGMENT NO.	REQUESTING PARTY
13-00059		GPJW

NOTES

MT06068

[Paper, Tissue





MT06069

AUG 10 1955

A.F.D. Asbestos
August 8, 1955

M.S. Badollet - Research Centre
R.G. Quinn - Research Centre

Scott Paper

As requested by H.G. Donovan, copies of his latest Call Report on Scott Paper are herwith enclosed.

Samples of paper produced in Scott Company laboratory mentioned in the enclosed Call Report are attached to M.S. Badollet's copy.

M.W. Blackhurst

Attach't

Hutch
Please note
+ file
4/11

JOHNS-MANVILLE RESEARCH CENTER

Memorandum M411-8

Date February 3, 1956

ASBESTOS FIBER IN TISSUE - TRIAL RUN AT DOESKIN PRODUCTS COMPANY, ROCKLAND, DELAWARE, JANUARY 31, 1956

Requested by: J. C. Kelleher

Experimental runs of tissue including 2% and 4% 7D04 fiber were conducted on Doeskin Products Company's No. 4 machine on 1/31/56.

The No. 4 machine stock system includes a Hydropulper followed by a 36-in. Bauer Refiner and a Jordan. There is a stock chest between the Hydropulper and Bauer. The Bauer is a 36-in. double disc unit driven by two 50 H.P. motors. Throughput is between 900 and 1000 lbs per hour. The refiner is usually run with .005-in. clearance between plates and the Jordan is set to do a little brushing and no cutting on the stock.

White water goes to a settling system including a flotation unit built by Infilco. This part of the system was not in operation probably due to river conditions. The water supply was highly colored and included a high content of brown colloid material. This made it advisable to spill excess white water rather than recycle it through the saveall system. Machine speeds at this time with cold water are in the range of 900 fpm. However, on regular grades the machine had been operating at 760 to 780 previous to the start of the trial runs.

First batches of stock including asbestos were made up in an old Umpherson beater. Two per cent 7D04 was added. Successive beaters included 4% but due to paper machine conditions usage was cut back to 2%.

The Hydropulper was then employed for fiberizing instead of the beater.

The 2% asbestos stock ran about the same as regular on the machine. The fourdrinier has micarta baffles supporting the wire instead of table rolls. There are three such supports between the stock inlet and the suction box. The sheet is substantially dewatered after passing the suction box. The couches are plain and considerable water is forced through the wire at this point. When 4% asbestos stock was run, the sheet was not dry on leaving the suction box and a torrent of water was forced out at the couch. This resulted in a wetter sheet going to the dryers and a reduction in machine speed to 710-720 fpm. The wire on the machine was 85 mesh bronze. Some improvement in operation resulted when the Jordan was backed off. However, head paper maker decided it would be unwise to continue at 4% because the sheet was near minimum on strength and there was some question as to whether or not it would carry through the converting units. Current specification for strength is 320 grams. The 2% sheet tested 345. The regular sheet runs between 360 and 400 grams.

The freeness of the regular stock is 600 to 630 ml. With 2% asbestos this had been reduced to 550. No reading was obtained on the 4% but performance on the wire indicated a drop in drainage rate below that obtained at 2%. Adjustments of the refiners, both Bauer and Jordan, can compensate to some degree for the slowing of the asbestos. However, when this is done the sheet strength drops off.

Softness comparisons were made by mill personnel and all were in agreement that the asbestos sheets were softer than regular. There are no instruments in the mill for softness tests. Several jumbo rolls were converted into towelling with results said to be equal to regular. This converting operation involves embossing two sheets together employing a steel and a composition roll. Some sticking occurred to the steel roll. This was said to be experienced when the strength of the tissue is low. (We believe formation is also a factor in this and the 4% tissue was poorly formed).

The tissues included a small amount of specks. The mill planned originally to make speck counts on the production. This idea was abandoned due to the small number. The brightness of the asbestos content tissues was not as high as regular but due to the presence of brown coloring matter in the water, no direct comparisons could be made.

The crepe was held at 15% and the inclusion of asbestos did not alter its character.

A flocculant was brought along with the fiber with the object of improving drainage through addition at the head box. There were no facilities available to dissolve the compound, Separan 2610, and a part solution - part suspension, was flowed into the stock as it entered the machine head box. There was no difference in drainage performance evidenced with the flocculant. Usage was estimated at about .5% of asbestos fiber weight. It is possible that the river water colloids exhausted the flocculant. There was some slight change in color of the sheet when the flocculant was added.

The mill planned to continue the run until all the asbestos was used up. They believe that they can use 2% regularly and are interested primarily in displacing $140 per ton bleached pulp with $85 asbestos. At 2% they estimated their asbestos requirement at 250 tons per annum. Results of the run will be reviewed by Messrs. Smith and Phillips with Mike Donovan on February 7 or 8.

Research Center evaluations of the several samples developed the following data:

Asbestos Content, %	0	2	4
Weight grams/sq ft	1.60	1.70	1.55
Crepe %	10	15	10
Water Absorption, %	530	630	520
Castor Oil Absorption, %	1880	2140	2600
Kerosene Oil Absorption, %	422	425	316

Comparative samples are attached.

R. G. Quinn

RGQ:ho

cc: J. C. Kelleher, Asbestos
W. J. Donovan, Philadelphia
E. R. Williams
G. B. Brown
J. S. Parkinson
File - 411
C

MT06072

4

Research and Engineering Center
December 27, 1963

B. Rodney - GHQ

Reports on Use of Asbestos in Organic Paper

DEC 30 1963

There are not many research reports on this subject as shown by the list below. The reports all deal with the use of asbestos in tissue by the Golden Fleece Company and the memorandum Mill-8 covers a trial by the Deaskin Products Company.

Research Reports	Mil-627
	Mil-637
	Mil-637-S1
	Mil-396
	Mil-396-S1
	Mil-493
Research Memorandum	Mill-8

If you need any further information, please let us know.

J. W. Amilcon

jwa

cc: A. C. Smith
L. R. Klein
W. C. Strech
File (2)

MT06073

JOHNS-MANVILLE | CALL REPORT | MAY 27 1964 | ASBESTOS FIBRE DIVISION

Date of Call: May 19, 1964 | Territory: New York | Date of Report: May 22, 1964

Account	Persons Interviewed: Names	Titles
Name: Seymour Paper Mills	Mr. Herman	President
Dept.: Seymour, Conn.	Mr. ?	Prod. Supt.
Address:		

Subject of Call: Promote Sales J-M Asbestos

Customer's Product: Facial Tissue Papers

J.M. Product & Grades: AX--2950M

J-M Action Requested

Competitive Situation and/or Sales Resistance

Pertinent Data

Sample AX-2950 examined and discussed. Better formation and softness stressed as advantages. Not too interested in better formation as present production quite satisfactory but impressed by claim of increased softness. They heard of asbestos before as possibilities. Willing to try... so long as:

1) Price is in the $100 per ton range.

2) Brightness is around 80 - Now having 80 as minimum.

3) Coloring of pastel colors not more difficult than with present stock.

4) No loss or very small percentage of asbestos would pass thru their 80 mesh wire. (contamination of river).

5) We tell them what percentage of asbestos recommended for 1000 lbs. beater - Told them 3-5%

H.G.D. - May we have your comments on possibilities of grade in the $100 range ?

R.G.Quinn - Would you please comment on other subjects ? If we can satisfy them with reasonable answers to these points I believe we could gain access to their plant and witness trial runs.

cc: H.G.Donovan
R. G. Quinn ✓
File

Signed: H.A.BOISCLAIR

AFD-3

MT06074

Research and Engineering Center
June 1, 1964

H. A. Boisclair - Asbestos Fiber, DM

Asbestos Fiber In Facial Tissue
Seymour Paper Mills
Your Report Of May 22, 1964

The major consideration involved in the use of AX-2950 fiber in facial tissue would appear to be coloring of pastel shades. The type of dye employed may have an important bearing on the depth of shade obtained. On the other hand, with highly opened fiber such as the AX-2950 this may not be detected visually as long as the asbestos is well dispersed in the sheet. Before a color trial could be made, it would appear advisable to process some of their cellulose stock and some AX-2950 separately, adding color in the normal range where any precipitant as alum may be regularly employed. Color comparisons of the asbestos and the cellulose would then show what to look for in processing a mixture. Before any color runs are made, it would seem advisable to try a white grade first and establish the acceptability without considering the coloring factor.

The matter of pollution should be considered in connection with the effluent system employed. They may be using a save-all of some kind and this may retain the asbestos fiber also. If it is an open system with no recovery stage, we might use a coagulant for the asbestos at the paper machine headbox.

R. G. Quinn

RGQ:mp

cc: A. C. Smith
H. G. Donovan
W. C. Streib
J. W. Axelson
J. Q. Trice
File
C

411-4

JOHNS-MANVILLE RESEARCH AND ENGINEERING CENTER

Memorandum M411-333

Date December 23, 1963

VISIT TO SCOTT PAPER COMPANY, PHILADELPHIA, PENNSYLVANIA - December 13, 1963

Those present:

Mr. K. M. Fox - New Materials Coordinator
Mr. C. W. Hurley - Development Engineer
Mr. J. E. Connor - Johns-Manville
Dr. J. W. Axelson- Johns-Manville

Some time ago, samples of AX-2950 and AX-2958 were submitted to the Scott Paper Company for evaluation in tissue-type papers. Experimental runs were made on a 10-inch paper machine incorporating 10 and 20% of each of these fibers in a Soundview pulp furnish. No beater or other fiber refining procedure was used. A report on the results of these runs was given to us as well as small rolls of paper remaining from the investigation.

As expected, the tissue made with asbestos fiber in the furnish had a somewhat softer feel to it than the control samples without asbestos. However, there was a very marked decrease in the tensile strength of paper and also an appreciable drop in the absorptivity. In this case, absorptivity refers to the time in seconds required for 0.01 ml of water to disperse in the sheet. This test, therefore, measures the speed rather than the capacity for absorption.

Based on the results of this investigation, the Scott people concluded that these two grades of asbestos fiber could not be used in their tissue. However, they indicated that they would be willing to evaluate additional material if we had some indication that it would overcome the difficulties encountered in this case.

J W Axelson

J. W. Axelson

JWA:jms

cc: C. F. Rassweiler
A. C. Smith
L. R. Blair
W. C. Streib
W. E. Read
N. W. Hendry
H. G. Donovan
J. E. Connor
J. W. Axelson
Library (3)
File (2)
Chrono

CANADIAN Johns-Manville CO. LIMITED
ASBESTOS FIBRE DIVISION

BULLETIN

No. 176
4/13/59

R.C. Patterson
J.V. Harte
W.T. Partridge
J.G. Rowe
C.W. Retzel
M.W. Blackburn
F. Redican

Important Please note

file 411

ASBESTOS FIBRE FOR TISSUE PAPERS

The Johns-Manville Research Centre has developed a specially processed asbestos fibre for use in tissue paper. This special fibre will be known as "Asbestos Fibre For Paper No. 301". It will be packaged in cardboard cartons, and will sell at the price of $150 per ton. It is available in sample quantities only until production equipment is in operation in June of this year.

Much of the development work has been done in connection with a paper manufacturing company. A summary of three test runs is included as Appendix I. Specific figures relating to the last trial run are recorded in Appendix II. Comments of R.G. Quinn of Research Centre are extracted from a letter and included in Appendix III.

Sample stocks of this fibre are being layed in at Asbestos, and small samples will be sent forward at once. Production machinery is scheduled to be installed in the Mills and should be ready for production of this special fibre within the next six weeks to two months.

Potential paper making customers who are interested in asbestos and have received samples and small shipments of standard fibres are listed in Appendix IV. It should be stressed to such people that this special paper fibre is an entirely different product from that which they have seen before. It is a highly cleaned and highly opened fibre, giving increased strength and softness to a tissue paper. It also has suitable brightness and dyeing characteristics for use in white or colored papers.

A few of the questions which have been raised as to the suitability of asbestos fibre in tissue papers and our comments are listed in Appendix V.

Many of these questions can be answered better by paper manufacturers than by fibre producers. We have every intention of taking full advantage of the specialized assistance that is available to us at our Research Centre in the solution of a genuine problem. However, we also expect a prospective user to recognize sufficient advantages in the asbestos fibre to justify him going halfway in overcoming potential difficulties, - hypothetical, or otherwise.

All of this special fibre which is available has been made on the pilot machine at Research Centre, and while sample stocks are on hand at Asbestos, it is limited until the production machine is in operation.

D. L. MONROE

DLM/eh

cc: J.G. Price
R.G. Quinn

Research Laurentide

MT06077

APPENDIX I

ASBESTOS FIBRE IN TISSUE PAPER

SUMMARY OF MANUFACTURER'S TESTS

With the cooperation of the Research Centre, three trial lots of specially processed tissue fibre have been tested in trial runs carried out at a manufacturer's plant.

First Run (Report 8/29/57)

(a) 4% of tissue fibre added
(b) Paper machine remained at normal speed of 850 ft. per minute
(c) Water stock was affected, but easily rectified.
(d) Increased softness was very apparent.

Results of tests made at Research on the above run proved inconclusive.

Second Run (Reported 5/13/58)

(a) Best Restigouche pulp was used.
(b) 5% tissue fibre added.
(c) Paper machine speed was 890 ft. per min.
(d) No machine difficulties were experienced.
(e) Results showed a better formulation of sheet and softer tissue.

Third Run (Reported 7/14/58)

(a) Cheaper pulp and worn felt were used.
(b) 3% tissue fibre added.
(c) Results showed that asbestos:-

(1) Closes the stock and improves the formation of the sheet
(2) Permits usage of cheaper pulp satisfactorily
(3) Cuts down on soda pulp.

CONCLUSIONS

1. The addition of specially processed asbestos fibre to facial tissue permits the usage of cheaper pulp.
2. Paper machine can be run at normal speed without difficulty.
3. Results show a better formation of the sheet and a softer tissue.
4. Further tests have shown a good dispersion of asbestos throughout the sheet.

APPENDIX II

ASBESTOS FIBRE IN TISSUE PAPER

SUMMARY OF LAST TRIAL AT MANUFACTURER'S PLANT

(As reported by M.W. Blackhurst Sept.17,1958)

Product involved:	Facial tissue
Type Asbestos used:	Air cleaned (short) fibre
Percentage used:	5.2 per cent
Paper machine speed:	890 ft. per min.
Hydropulper capacity:	2500 lbs.
Stock:	Restigouche pulp and starch sizing
Per cent asbestos retention in sheet:	85.2%
Weight of standard tissue:	17.9 gm/sq.cm.
Weight of asbestos tissue:	18.6 gm/sq. cm.
Per cent crepe standard tissue:	31.4%
Per cent crepe asbestos tissue:	29.6

Clark Softness Readings:

	Longitudinal	Transverse
Regular Tissue	970	120
Asbestos tissue	650	140

MT06079

APPENDIX III

ASBESTOS FIBRE IN TISSUE PAPER

EXTRACT FROM LETTER BY R. G. QUINN

"Asbestos grades suitable for tissue have a freeness in the 200 to 350 range, depending upon the degree of refining in the mill. Disc mill treatment appears to develop more fibre fineness without as much slowing as experienced with beaters and jordans. The asbestos is comparatively inert and tends to prevent coagulation, or clotting, of the cellulose fibres, and in this way assists formation. The lower drainage rate also makes for better fibre distribution on the wire.

"We have used the Clark softness tester to compare softness of tissues with and without asbestos. On facial with an actual asbestos content of 1.56 per cent, the tissue was 17.5 per cent softer in machine direction and 37 per cent softer in cross direction. Clark values were 168 and 1105 respectively. Retention was 76 per cent in a mill having a fully open system.

"The asbestos tissue fibre classifies approximately 10 per cent on 14 mesh and 30 per cent through 200. It has a G.E. brightness of slightly over 70 per cent.

"Two sidedness may be encountered in forming handsheets due to the faster settling rate of the asbestos. This may be offset with a small percentage treatment of the asbestos with a dispersant such as Blancol, Marasperse or other concentrated ligno sulphonate. It has been found that 5 per cent and less asbestos will effectively soften facial grades and 2 to 3 per cent of the asbestos weight in dispersant would represent very little usage on the full furnish basis. The asbestos stock should be treated with the dispersant before it is mixed with the rest of the furnish."

APPENDIX IV

ASBESTOS FIBRE IN TISSUE PAPER

TERRITORY 5901

Company	Location	Samples	Shipments	Remarks
Blandy Paper Co.	Greenwich, N.Y.	1953 - 4T04,5K04 & 4D04 11/7/56 - 5# AX 2007-M 8/1/57 - 10# AX 1749 2/24/59 - 1# Plastics fibre #2 and #3	1957 - .40 Tons AX 2007-M 1958 - 1.25 Tons 5R21 and 6D20	Asbestos in filter pa
Hollingsworth & Vose	East Walpole, Mass	1/28/55 - 1# 4T12 & 4X 9/30/57 - 5# AX1749-M 1/16/59 - 5# Plastics fibre #1 and #2	1957 - 12 tns. 6D19 1959 - Jan. 2 tons 6D20	Asbestos in paper for electrical insulation
Hurlbrit Paper Co.	South Lee, Mass.	12/30/57 - 100# 5R21 8/26/58 - 5# 4Y 9/3/58 - 5# 3R12,4K12,3D41, & 4DAX 2587 12/3/58 - Russum cleaned	1959 - 0.25 tns. 5R21	Asbestos in tissue pap

MT06081

APPENDIX IV

TERRITORY 5902

Company	Location	Samples	Shipments	Remarks
Scott Paper Co.	Chester, Pa.	11/6/56 - 5# 6D20,7D04 & 7RF5 2/27/57 - 10# 6D04,7D04, & 7RF1 5# 5R21		Asbestos in tissue paper
Reigel Paper Co.	Hughesville,N.J.	8/3/54 - 7TF2,7RF1,7D04,6D20 7D24 & AX 2407-M 2/18/55 - 1# 4T05, & 5K04 2/24/55 - 5# 7TF1, 7H05 & 6D20 3/18/57 - 2# 5R21,6D28, 6D20, 7D04, 7RF1, & 7TF1	1957 - 40 tons 5R21 1958 - 40tons 5R21	Asbestos in automotive oil filters
Brusta Paper Co.	Pisgah Forest N.C.	None	1958 - 5 tons 4Z20	No information

MT06082

APPENDIX IV

TERRITORY 5903

Company	Location	Samples	Shipment	Remarks
Beveridage Paper Co.	Indianapolis, Ind.	3/15/57 - 1# 3R12, 4K12 and 5R21		No information

APPENDIX IV

TERRITORY 5904

Company	Location	Samples	Remarks
Kimberly Clark Corp.	Nemnah, Wisc.	10/7/54 - 200# 4Y 7/13/56- 2# 7D04, 7M07 & 5R21	Asbestos in tissue paper
Thilmany Pulp & Paper Co.	Kaukauna,Wisc.	7/10/56 - 1# 6D28, 5R21 & 4T12	Asbestos in paper products

APPENDIX IV

TERRITORY 5905

Company	Location	Samples	Remarks
International Paper Co.	Mobile, Ala.	6/12/56 - 1# 4M28, 5R21 & 6D20	Asbestos in Tabulating Cards
		6/15/56 - 1# 4M28, 4T04, 5D20, 5R21 6D20, 7K05, 7D04 & 7M05	

MT06085

APPENDIX IV

CANADIAN

Company	Location	Samples	Shipment	Remarks
Howard Smith Paper Mills	Crabtree Mills, Que.	5/29/56 - 1# 7D04		Asbestos in tissue
Interlake Tissue Mills	Merrilton, Ont.	1956 - 5# 7D04		Asbestos in tissue
Dominion Cellulose Ltd.	Toronto, Ont.	5/16/56 - 5# 7D04 9/13/56 - 200# 7D04		Asbestos in tissue
Canada Paper Co.	Windsor Mills, Que.	5/3/56 - 1# 7D04		Asbestos in tissue
E.B. Eddy Co.	Hull, Que.	None	1956-6 tns.7D04	Asbestos in tissue

APPENDIX V

ASBESTOS FIBRE IN TISSUE PAPER

SAMPLE QUESTIONS AND COMMENTS.

1. Question: Will the inclusion of asbestos in tissue papers be harmful in the case of certain allergies.

   Answer: Our Medical Director has advised that we have no reason to expect harmful affects in any such case.

2. Question: What will be the affect of such an indestructible material as asbestos in septic tank systems.

   Answer: While we cannot see that the small percentage of asbestos included in tissue paper will hasten the day that a septic tank will have to be cleared of sludge, we recognize that paper makers may regard it as a problem and are asking expert advice from our General Plant Engineering Division.

3. Question: What is the affect of differential dye acceptance between the asbestos and cellulose fibres in a paper stock.

   Answer: A.P. Gouveia of Research has replied that the opened fibres will accept certain colouring and considering the small amount of crude fibre present, there should be no discernable difference in the finished product.

Practically all questions of such detailed and specific nature as the foregoing are best answered by specialists within their own field, which we would naturally expect to find within the paper industry. They should not be allowed to confuse the issue by being thrown in as "red herrings". However, if there is a sincere requirement for consideration of a potential problem by our people let us know and we will get an answer if possible.

A.F.D. ASBESTOS
June 28th 1956,

R. G. Quinn - Research Center, Manville

Asbestos in Tissues

Attached is a copy of our Call Report, covering the recent mill trial. Would you kindly look it over and any suggestions or comments you might have, will be appreciated.

Frankly, I was just as baffled by this drop in wet strength as they were, it may be that asbestos does not re-act favourably with this type of resin.

I will try and advise you of the next trial a week before or sooner if possible.

M.W. Blackhurst

MWB/jb

Maurice W. Blackhurst

cc: J. C. Kelleher
W. N. Reakes
E. R. Williams - Research Center, Manville

Att'd.

MT06088

June 29, 1956

The E. B. Eddy Company
Booth Street
Ottawa, Ontario

Attention: Mr. R. de Montigny
Technical Director

MT06089

Dear Mr. de Montigny:

Although the recent production run of tunelling incorporating asbestos did not fulfill all expectations, I feel that results obtained under conditions which I understood were not too favourable, were encouraging enough to warrant further evaluation.

I have given this problem considerable thought since my return, and two questions arise in my mind.

First, would excessive amounts of Uformite Resin affect the wet strength? We have similar problems with asbestos fibre. For instance, fibre is added to cement products to increase tensile strength, to a maximum point above which strength drops off when fibre is added.

Secondly, the addition of Uformite raises the P.H. value beyond the allowed maximum, which is brought within specifications by the addition of acid. Could not the acid have a decomposing effect on the Cellulose stock and subsequently lower the wet strength of the paper?

I would be very interested to know of any further conclusions you might have formed along this line. In the meantime I have forwarded a complete report covering the mill trial to our Mr. R. G. Quinn, for his comments.

If you would let me know a week or so in advance, of the next trial, I will try to arrange for Mr. Quinn to be on hand. I feel with the right conditions, results will be much improved, however I plan on wearing my bullet-proof vest just in case.

Once again, many thanks to yourself, Mr. McGee and other members of your staff for your kindness and patience shown on our behalf.

Very truly yours,

Maurice W. Blackhurst
Sales Representative

MWB/jb
cc: Mr.G.McGee
E.B. Eddy Co.,Ottawa,Ont.
J.C.Kelleher
W.N.Reakes
E.R.Williams - Research, Manville
R.G.Quinn - Research, Manville

COPY

New Uses June 22nd 1956

The E. B. Eddy Co.

Main Office, Ottawa, Plant, Hull

Z.M.Nibleck, Senior Buyer, Dr.R.deMontigny,

Tech.Director, Mr. George McGee, Mill Supt., Dave O'Neil, Supervisor of Stock Prep.

Made a run of "Westowel" towelling, using 7D04 asbestos shorts. This is a high wet strength low absorbant towel.

They have two problems prevailent at all times, when making this type towelling. Obtaining sufficient wet strength and keeping down the P.H. value to a max. of 4.5.

To increase wet strength they add to the stock "Uformite Resin", this is a Urea-formaldehyde type resin, having a P.H. value of about 9.0 to 9.4.

The addition of too much Resin will raise the P.H. value above the max. of 4.5, then a small amount of acid has to be introduced to bring it within specification.

The run was made using 50% ground woodpulp, approximately 47% Cellulose pump and 3% 7D04 asbestos.

Stock preparation consisted of Hollander beaters and Jordan, followedby a Yankee Fourdrinier paper machine.

They had encountered more than the usual amount of trouble all week keeping up the wet strength, and excessive amounts of Uformite resin was added to keep it up to the max.

The 7D04 was introduced into the system via the beaters at 8:30 A.M. Friday, McGee figured it would take about one hour before the asbestos was fully into the system.

MT06090

Cont'd.

C
O
P
Y Cont'd.

At 9.00 A.M. conditions were comparatively normal, wet burst strength was 44, lower than usual 50 to 56, but above ~~mm~~ of 40.
9:30 A.M., production normal, however, wet strength had dropped from 44 down to 27, it continued to drop gradually until at 11:00 A.M. it was 19. At this point, I was referred as "that fella with the asbestos".
Rather than cut out the asbestos entirely at this point, which is what production wanted to do, I suggested to de Montigny that we reduce the quantity of asbestos slowly from 3% to 0%, and then if wet strength returned to normal, we would then know if the trouble was with the fibre. This they did.
During the rest of the afternoon, wet strength flustuated between 16 and 24, by 4:00 P.M. they calculated that the 7DO4 would be out of the system completely. However, there was no improvement in wet strength.
Throughout the day no production difficulties were experienced.

Dry bursting strength normal,
moisture normal,
weight -do-
drop test -do-

The sheet containing 3% 7DO4 was a better looking sheet. All were in agreement that sheet was much softer than usual.

MT06091

Y Cont'd.

They had no immediate solution, why the sudden drop in strength, and while they are suspicious of the asbestos, they are not convinced it alone caused the trouble.

George McGee said it was a bad day to try anything new, because of the trouble all week with low wet strength. He felt that due to the excessive amounts of resin used to increase wet strength, the system had become saturated.

After discussing the results with Dr. deMontigny and George McGee, they felt that the asbestos hadn't been given a fair trial, and results were encouraging enough to have a further production run, this will be in two to three weeks time. They would like to see both Bob Quinn and I present at that time.

M. W. Blackhurst

MT06092

411 - 4.B.5

Johns-Manville Research Center

Report No. 441-493

Date June 3, 1958

Title: ASBESTOS IN FACIAL TISSUE - GOLDEN FLEECE MILL, GREENWICH, N.Y. RUN NO. 3

SUMMARY

A third trial run was conducted on May 13, 1958 at Golden Fleece Mills to demonstrate the softening action of short, air cleaned asbestos fiber on facial tissue. Previous runs were unsatisfactory due to low retention with 7D04 (Research Report 441-394) and to low percentage usage (Research Report 441-394, S1) of air cleaned fiber. The fiber used in the third trial was prepared by the Asbestos Fiber Section. It was a Russum Cleaner material prepared as described in Research Report 411-237.

The percentage asbestos supplied in the furnish was 5.2. Finished tissue contained 4.44 percent asbestos, so that the retention was 85.2 percent, which is high. The immediate action of the asbestos was to greatly improve sheet formation. Mill operators classified the asbestos containing tissue as softer than regular. The Clark Softness tester results showed the regular to be softer in machine direction and the asbestos sheet slightly softer in transverse direction. The asbestos tissue appeared slightly weaker to the operators.

Analyses of dust removed from spreader bars between the Yankee Dryer and reel showed a higher asbestos content (18.2 percent) than the sheet. As the wire side of the sheet only contacts these bars it is reasoned that because of the faster settling rate of the asbestos fiber on the fourdrinier wire, the asbestos content of the underside of the sheet is considerably higher than that of the topside.

The weight of the asbestos tissue averaged 18.6 grams/sq cm as compared with 17.9 grams/sq cm for the regular. The percent crepe of the asbestos sheet was 29.6 as compared with 31.4 percent in the regular. Moisture contents of testing humidities were approximately four percent. Paper machine speed was 890 ft/min.

The value of Russum asbestos in facial tissue is primarily a question of economics.

Contents: Summary and Discussion.

Approved by J. S. Parkinson

Reported by R. G. Quinn

cc C. F. Rassweiler, GH
C. F. Rassweiler, GH
Attn: H. S. Allen
S. Collier, GH
K. V. Lindell, Asbestos
J. C. Kelleher, Asbestos
W. R. Wilkinson, DH (S)
A. L. Fowler, DH (S)
A. Boisclair, AFD, DH
E. R. Williams (2&S)
J. Q. Trice
M. S. Badollet
J. S. Parkinson

Johns-Manville Research Center

Report No. 411-237

Date May 7, 1958

Title: CLEANED ASBESTOS SHORTS FOR USE IN GOLDEN FLEECE TISSUE PAPER
Priority Project No. 9

SUMMARY

A second trial run has been arranged with the Golden Fleece Company to produce tissue paper containing cleaned asbestos shorts.

As in the first run, the fiber was prepared in the Russum cleaner from the rejects of previous cleaning of 6D20. However, the present feed contained less long fiber than formerly, resulting in a cleaned product which was very low in +14 mesh material. The fiber tended to nodulate and was judged unsatisfactory to use as such. An acceptable product was obtained by blending with longer fiber, which was produced by cleaning, opening, and screening 6D20.

The procedure described in this report is undoubtedly not the most desirable, but if the fiber produced is satisfactory, then its properties can perhaps be duplicated by other, more efficient ways in the future. The final product for shipment to Golden Fleece amounted to 250 lb, resembled a clean 4Z, and contained 5.1 per cent +14 mesh fiber and 31.2 per cent fines.

Contents: Summary, Introduction, Discussion, and Conclusions and Recommendations.

Approved by M. S. Badollet

Reported by R. P. Fowler

fap

cc: C. F. Rasswiler, GH (S)
C. F. Rassweiler
Attn: H. S. Allen, GH
S. Collier, GH
K. V. Lindell, Asbestos
Attn: H. S. Deeley
J. C. Kelleher, Asbestos
J. O. Eby, Asbestos
C. A. Greenlay, Asbestos
E. R. Williams (2+S)
G. B. Brown
J. S. Parkinson
R. G. Quinn
File:
J. Q. Trice
Library (5)
Chrono

MT06094

Notebook No. 1128, pp 89, 90

File 411.4-9

JOHNS-MANVILLE

Asbestos Fibre Division

Asbestos Fibre New Uses Program

Date February 13, 1958

Project No. AFD-8

Report No. INTERIM III

Identification Interim Progress Report

Title Asbestos in Tissues

411-4.5

Further development by this department is being held up until the second trial run at the Golden Fleece Company, N.Y. has been completed and results are known; this is scheduled for the latter part of this month.

On February 7th the writer visited the Pulp and Paper Research Institute of Canada and discussed with Dr. R. de Montigny the results so far obtained with the use of asbestos in tissues. Dr. R. de Montigny was formerly Technical Director for the E.B. Eddy Paper Mills in Ottawa.

The primary reason for this call was to determine the value of these results and the possible interest of the Paper Industry adopting asbestos fibre as a raw material. As Dr. de Montigny is familiar with all the work done prior to the development of Russum cleaned fibre, we reviewed the results of the first test using Russum cleaned fibre at the Golden Fleece Company.

He believed the good operating results plus the increase in softness as measured by the Clark tester warrants a further trial. However, he cautioned that although softness is important other characteristics such as absorbency and tensile strength are critical.

I asked him what characteristics tissue manufacturers considered most important or desirable for good consumer acceptance. He listed them with one or two qualifications in the following order of importance, i.e.:

Softness
Tensile Strength
Absorbency
Brightness

This order would cover toilet and facial type tissues, for domestic and industrial type towelling - strength and absorbency might assume equal importance with softness.

Conclusions

Dr. de Montigny believed that if asbestos fibre was to find a place in tissue type paper, it must fulfil the following qualifications.

1. Noticeably increase softness to the touch.
2. At least have no deleterious effect on tensile strength and absorbency.
3. Have little or no visible effect on brightness.
4. When retention of asbestos in sheet and percentage loss considered, selling price of fibre to be at least below price of bleached sulphite. Going price in Canada at the moment is $125.00 per ton.

Plans for Future Development

These will be decided when results of the second trial at Golden Fleece Mills are known

cc- K.V. Lindell
E.R. Williams - Res.Centre
M.W. BLACKHURST
cc- C.F. Rassweiler - GHQ
G.B. Brown - Res. Centre

MWB/mb

Research Center
December 10, 1957
File 411

H. A. Beiselair, A.F.D., N.Y.

Asbestos Fiber in Facial Tissue
Golden Fleece Mill
Yours 12/2/57

In consorrence with the plan to make another trial at Golden Fleece, arrangements have been made with M. S. Badollet for the preparation of 250 lb of fiber corresponding to the same specifications as the last batch.

As a reminder, we agreed that the next trial will be limited to white tissue only to avoid complications with color problems at the outset.

R. G. Quinn

rd

cc J. C. Kelleher, RLD Asbestos
E. R. Williams
M. S. Badollet
J. Trice
J. S. Parkinson
File and C

Johns-Manville Research Center

Report No. 441-394, S1

Date September 12, 1957

Title: ASBESTOS IN FACIAL TISSUE, GOLDEN FLEECE MILL, GREENWICH, N.Y. RUN NO. 2

SUMMARY

The Asbestos Fiber Section prepared a batch of air cleaned fiber closely approaching specifications for an ideal fiber for use in facial tissues. This specification developed from previous trials made at Scott, Doeskin and Golden Fleece mills. The fiber batch compared with the specification as follows:

	Actual	Specified
Plus 14 mesh	9.4%	15 to 20%
Cumulative + 100 mesh	52%	55% min.
Minus 200 mesh	28%	30% max.

The fiber was added to a yellow colored tissue furnish at Golden Fleece mill on August 29, 1957. Fifty pounds were furnished to a chest with 1250 lb rated capacity, with the object of getting four percent asbestos into the mix. However, analyses indicated 2.05 percent asbestos in the furnish. The sheet on the same basis was found to contain 1.56 percent asbestos, so that the retention was 76 percent.

Upon addition of fiber it was immediately necessary to decrease water usage in the stock going to the fourdrinier so as to maintain sheet weight. The asbestos closed up the sheet and improved formation. Some white asbestos particles were noticeable in the tissue due to inability of the asbestos to adsorb the coloring. These were not judged objectionable particularly since they were as soft as the rest of the sheet. All operators rated the asbestos containing tissue as softer than regular. The differences were not obvious in softness but an improvement in formation was readily observed.

Laboratory tests showed the asbestos content tissue to be 17.5 percent softer by Clark Softness Tester measurement in machine direction and 37 percent softer in cross direction.

Golden Fleece plan to make further trials late in September or early October. Results indicate the fiber is a desirable fraction for this application.

Contents: Summary and Operating Details

Reported by R. G. Quinn

rd

cc C. F. Rassweiler, GH
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Attn: H. S. Allen
S. Collier, GH
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R. V. Lindell, Asbestos
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E. R. Williams
J. Q. Trice
M. S. Badollet
J. S. Parkinson
Notebook

MT06097

File 441

411-4

Research Center
March 18, 1957

M. S. Badollet

As requested, here are a few suggestions for bringing "Asbestos Fiber as a Filler in the Plastics Industry" up to date.

The need for revision is obvious; much of the material in the body of the brochure is taken up with background information about asbestos. The tables on the last page should be replaced and possibly both photographs. In a recent report by M. S. Badollet and M. R. Kinsman entitled, "The Role of Asbestos in Plastics", a more suitable table on thermosetting moldings can be found.

Below, you will find a suggested revised form, most of the information is taken from the above report.

Asbestos fibers could be used in making dollar bills, but, if you manufacture molded plastics, asbestos may be able to help you in safer ways. Over the past twenty years, plastics manufacturers have increased the use of asbestos in molding compounds till, today, it is estimated that 14,000 tons a year are used in plastics.

Fillers were originally used in molding compounds to reduce costs and to make molding practical. The properties of asbestos made it an excellent product for this use. It combines the resistance to fire, heat and the elements of a mineral with the texture and workability of cotton or wool.

The principal advantages of asbestos as a filler are its mineral nature, fibrous form, availability in large quantities, its natural occurrence in fibers of any desired length and low cost due to volume production. Canadian chrysotile, by virtue of its properties and abundance, is by far the most widely used variety.

(At this point, I would call attention to the photograph of the asbestos fibers and discuss a few of its other properties including its fineness, strength, flexibility, color, heat resistance, acid resistance, electrical resistance, specific gravity, and chemical composition similar to the way it is treated in the original folder.)

Plastics producers use varieties of chrysotile ranging from the longer group 4 fibers (about ½-inch in length down); through the "shorts" varieties, 3/8-inch in length down; to the "floats" which are 1/16-inch down to microscopic in size and represent the bulk of asbestos used in plastics. In special cases where extreme strength is required, longer fibers ranging up to crudes of 3/8-inch and longer are available.

These fibers are used as fillers in cold molding, thermosetting plastics and, to a lesser extent, in thermo-plastic materials. In general, chrysotile has some unique characteristics as a filler:

Fibrous structure;
Adjustable percentage of fiber lengths;
Excellent retention of binders;
Ease of processing and molding;
High filler loadings.

In each class of plastics, asbestos has more specific and unique advantages. These are listed conveniently.

<u>Advantages of Asbestos Fillers in Cold Molding Field</u>

1. Lower molding cost.

2. Make cold molding possible by controlling the flow of material under pressure while it is in the cold mold.

3. Improve mechanical properties.
4. Increase hardness.
5. Decrease molded shrinkage.
6. Increase fire and heat resistance.

7. Allow ejection from the mold and improve handling of the uncured moldings.

MT06099

Bitumens are sometimes loaded with up to 85 per cent asbestos to produce a fairly cheap product with good electrical insulating, and heat resistant properties.

Advantages of Asbestos Fillers in Thermosetting Plastics

1. Excellent binder retention.
2. Easy to process and mold.
3. Permits loading at higher levels than with other mineral fillers.
4. Produces the hardest and toughest moldings at these high loadings.
5. Improved heat resistance, up to 450°F with certain loadings.
6. Impact strength can be varied within wide limits by varying the quantity and length of asbestos used.

In addition to these, asbestos, because it is a mineral, has many other advantages in common with other mineral fillers, except two important points. It is (a) fibrous and available in lengths desired, and (b) a relatively soft mineral and less abrasive to molds.

Advantages of Asbestos as a Filler in Thermoplastic Materials

Fillers find a fairly limited use in this field but, where it can be used, asbestos has the following advantages:

1. Improves heat resistance;
2. Improves compressive strength and hardness;
3. Improves resistance to flammability;
4. Improves arcing resistance;
5. Reduces the tendency to cold-flow;
6. Lowers cost.

(In the original form, an insert on the second page stated how Johns-Manville would help in any additional technical assistance required by a prospective asbestos consumer. It might be well to leave it where it is or finish off the brochure with this idea. I shall leave this up to those with more experience in preparing these sales services.)

Frank Radican

mm

JOHNS-MANVILLE

Asbestos Fibre Division

Asbestos Fibre New Uses Program

Date March 12, 195

Project No. AFD-8

Report No. Interim I

Identification — INTERIM PROGRESS REPORT

Title — ASBESTOS IN TISSUES

Summary of Developments to Date

Asbestos fibre has been experimented with in various tissue products, primarily to increase the surface softness and absorbency of the sheet.

Our contacts have been Scott Paper Co. and Doeskin Products in the U.S. and the E.B. Eddy Co. in Canada. Other contacts were made, however, the bulk of the experimental work was carried on in co-operation with these companies.

Initial experimental work by Scott Paper Co. indicated that the addition of small percentages of short asbestos fibre to the tissue stock increased the surface softness in the sheet. One other advantage was the price saving on asbestos fibre at approximately $80.00 per ton over cellulose stock at $140.00 to $160.00 per ton.

During these initial tests several disadvantages were evident, but it was felt that the possible increase in softness, plus the price saving justified further exploration of this potential use.

After making laboratory tests, Doeskin Products made an experimental production run on tissue towelling, using 2% and then 4% 7D04 in the stock.

The addition of 2% asbestos had the following effects, i.e.:

> Reduced machine speed 800 - 780 ft./min., brightness slightly off but acceptable, slight improvement of surface feel.

The addition of asbestos was then increased to 4% with the following results, i.e.:

> Machine speed reduced to 710 ft./min., brightness slightly below standard, reduced tensile strength, improved surface softness, no objectionable specks.

Based on these results, Doeskin were impressed with the increase in softness, oil absorption, plus the saving in cost of pulp, and ordered one ton of 7D04 for further trials on all machines using 4%. That was back in January '56, for various reasons these trials have been continually postponed by this company, and the chances of them being made now seem remote.

Results from the work done at the E.B. Eddy Co., Ottawa, were more conclusive, but less encouraging.

Asbestos shorts 7D04 were tried here in varying percentages, from 1% up to 4%, in toilet tissues and groundwood towelling, 6 tons of 7D04 was purchased for these experimental production runs.

The asbestos had little or no effect on the softness of the towelling, there was a marked deterioration of agsd absorbency, also the retention of asbestos in the finished sheet was low, approximately 30%.

In tissues, softness improvement was marginal, and could have been within experimental error. There was no beneficial effect on absorbency, again the retention was low at approximately 25%.

Generally speaking, results were comparative in all cases, and could be summarized as follows:

> Little improvement in softness. Low retention in finished sheet. Reduced tensile strength, reduced machine speed.

While these were the main objections experienced, other disadvantages were encountered which varied from plant to plant.

From our experience with these companies and others, it has been concluded that there is a large potential market for a fibre of satisfactory length and quality, somewhere in the region of 30,000 tons, in the U.S. and Canada. Such a fibre would be of 7D length, high in fibre content, well opened, low in -200 mesh fines.

Research have suggested the following as an ideal target for a satisfactory fibre, based on McNett values.

+14M	Cum +100M	-200M
20.0 Max.		30 Max.
15.0 Min.	55 Min.	

It appears that there are two means by which we could produce such a fibre, i.e.:

1. Cleaning of 7D04 by air elutriation.
2. Extracting an ideal fibre from tailings by screening.

A Sales product request has been issued and approved. Research and Development are now constructing as rapidly as possible a new method of dust and rock removal.

Plans for Future Development

Upon completion of this experimental pilot plant at Research, a sufficient quantity of cleaned fibre will be sold to a customer for use in tissue paper to prove the value of the fibre and check the production costs.

A second method to remove the -200 mesh dust fraction by wet washing will also be considered. J.O. Eby will meet with members of our Research staff to discuss the possibilities of this method.

Scott Paper Co. are ready and willing to discuss the requirements of a satisfactory fibre for tissues, and any other pertinent problems connected with the production and usage of such a fibre.

MWB

Maurice W. Blackhurst

cc - K.V. Lindell
C.F. Rassweiler - Box 91, GHQ
E.R. Williams - Research Centre, Box 159
G.B. Brown - Research Centre, Box 159
M.S. Badollet - Research Centbe, Box 159
W.N. Reakes
J.C. Kelleher

MWB/mb

Johns-Manville Research Center

Report No. 441-405

Date September 28, 1956

Title: EVALUATION OF 5K2535M (REPROCESSED WASTE FIBER) IN HANDSHEETS

SUMMARY

A sample of 5K2535M, reprocessed waste fiber, was submitted by the Asbestos Fibers Section for comparisons with 5K04 in paper handsheets. The results of the comparison were as follows:

Fiber	5K04	5K2535M
Fiber Freeness, ml. S.R. on 2 grams	694	591
Basis Weight lbs per 100 sq ft	6.3	6.3
Caliper, mils	15.9	16.3
Mullen, psi	11.2	10.5
Tensile lbs per in.	6.6	5.9
Stretch, per cent	0.8	0.6
Tear, grams	109	105
Kerosene, per cent	53	53
Curley Densometer sec per 100 cc	124	188

The use of 5K2535M fiber in place of 5K04 gave a slower draining stock and a slightly weaker paper. If porosity was important in the paper, 5K2535 could not be substituted for 5K04.

Contents: Summary

Approved by R. G. Quinn Reported by M. C. Hutchins

rd

cc C. F. Rassweiler, GH
H. R. Berlin, DH
A. L. Fowler, DH
E. R. Williams ✓
M. S. Badollet
J. S. Parkinson
File

MT06104

Blind Copy - R. G. Quinn

Philadelphia, Pa.
January 16, 1956

J. C. Kelleher - Asbestos

Scott Paper Company
Chester, Pennsylvania

At present subject has 100# bag of 6 D AX 2494 M. They secured it with the purpose of evaluating in paper towels. As of 1-12-56 very little had been done along this line. However, they did show me a paper towel containing 12% 6D. It was a grand piece of merchandize. It was soft and absorbent and had a very pleasing feel to the skin. However, at present, machine speeds it is not a desirable product - production-wise. They did tell me that they are revising their thinking and beginning to evaluate products producable at speed of 200 to 300 ft. /min. In this field asbestos has a place. They are also considering producing tissue without crepeing. Here also asbestos could find a place as one of objections raised against asbestos was its effect on crepeing. Hence - no crepeing - no trouble.

All personnel in technical development and research are well acquainted with the good and bad properties of asbestos and they believe that within the next year or two asbestos will become one of their standard raw materials. While it may not find a place in all presently produced products, they feel it will definitely go into some new products now under development.

We have spent five years of time and effort (plus many samples) on this account. My personal belief is that it has been time and money well spent. We have established that asbestos can be used in this industry. We have sold the largest producer of tissue on the good properties of asbestos. We have one of the largest research and development departments (devoted to paper products) looking for possible uses of asbestos in that industry. Samples of paper products have been produced on a lab scale containing asbestos and have shown improved properties which have a definite retail customer appeal and (feel, softness, absorbancy). These are good solid reasons why I believe that the demand for asbestos in paper products will approach that which now exists for asbestos in building products within the next ten years.

H. G. Donovan

cc: W. N. Reakes
File

MT06105

Johns-Manville Research Center

Report No. 441-333

Date September 8, 1955

Title: ADDITION OF PROCESSED ASBESTOS TO CELLULOSE TISSUE FOR INCREASED SOFTNESS

SUMMARY

The addition of three per cent of refined, centricleaned 6DAX 2469M to wiping tissue increased the softness. The accompanying loss in sheet strength, low asbestos retention (56%), decreased stock drainage rate, and the presence of asbestos clots in the sheet indicate a need for changes in the fiber processing procedure. Evaluations of other fibers might also aid in the development of an asbestos fiber for tissue.

The possibilities of developing an acceptable fiber for this application are not promising due to the comparatively slow drainage properties of short fibered asbestos.

Contents: Summary, Introduction, Discussion, Conclusions and Recommendations, and Appendix.

Approved by: R. G. Quinn

Reported by: M. C. Hutchins

cc: C. F. Rassweiler, GH
J. C. Kelleher, Asbestos
E. R. Williams
J. S. Parkinson
File (3)

Research Center
June 21, 1955
File: 411

RECEIVED
JUN 22 1955
E. R. WILLIAMS

J. C. Kelleher, Asbestos

Asbestos Fiber for Tissue Papers
Scott Paper Company
Chester, Pennsylvania

Two bags of 6DAX2469 fiber were taken to Scott on Friday, June 17 and delivered to Messrs. Sparrow and Coppick of their Research Laboratory. The fiber was checked by the Asbestos Fiber Section and the McNett Classifications were as follows:

+ 14	-	14.8
+ 28	-	9.6
+100	-	11.1
+200	-	7.3
-200	-	57.4

Air Analysis
Fiber - 53.4%
Dust - 29.5%
Rock - 17.1%

This fiber is higher in dust content with the specification of 53% maximum suggested, and is somewhat lower in +14 mesh than the 17% hoped for. The Scott people looked at the fiber under the microscope but made no comment.

The trial run made in the mill a month or two back was discussed briefly. It was established that

(1) The paper did not crepe evenly.
(2) Moisture content of the sheet was excessive necessitating extra drying load.
(3) Retention of asbestos was low and was calculated to be in the 20 to 30% range.
(4) Asbestos performed its function of softening the tissue even at 2½% to 3% usage.
(5) Asbestos slowed the save-alls down due to high fines loss through the fourdrinier wire.

There were no facts available as to the machine speed or freeness with and without asbestos. Neither were the Scott men acquainted with the treatment ahead of the paper machine. They stated that a jordan and a Dirtec were used but had no particulars. It is apparent that the trial was not followed too closely and was handled in a half-hearted manner. Johns-Manville personnel should have an opportunity to cooperate in such runs if we are to make progress. We don't know for sure whether the fiber was lost in important amounts at the Dirtec, whether it was ground too much or anything definite to use as a base for further suggestions.

In reference to points 1 and 2 above, it is likely that the excessive moisture reported may be responsible for the uneven, inadequate creping result.

The Scott men reported their laboratory investigations showed that 3% asbestos (Bauer ground AX2494M) dropped the stock freeness about 100 points Canadian Standard freeness. They operate at 450 c.c. We plan to check this action on their stock here.

The interest in asbestos fiber has dropped due to the failure of the last run. However, if we can give them a material that will not slow up either their machine or save-all operations, it would revive the project.

MT06107

A short discussion was held on the possible use of coagulants to offset the slowing action of asbestos. They have investigated such products as Separan and found they do not flocculate the cellulose fibers. It is likely, therefore, that such materials being outstandingly effective on asbestos would fit into the picture. We also will investigate this in our laboratory.

Coppick showed us the Bauer Cleaner and Refiner available for trials in their Research Laboratory. The cleaner is a 606 model and the refiner is a single disc laboratory sample grinder. With this setup, the chances of preparing a good sample of asbestos are not good. The plates have about 4" diameter working surface and in order to open up pencils the discs would have to be set up close resulting in the generation of fines. Coppick was aware of this and asked that we prepare four or five pounds on our equipment and supply it to him wet. This we agreed to do.

If Scott's story that 3% asbestos produces the softness increment desired is correct, I think we have a pretty good chance of working this application out to their satisfaction.

R. G. Quinn

RGQ:ho

cc: H. G. Donovan, AFD, Philadelphia
M. S. Badollet
E. R. Williams
J. S. Parkinson
File - 411
C

411

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

Territory Philadelphia Date 3/23/55

Name of Account Scott Paper Company

Address Chester, Pa.

Names and titles of persons interviewed Donald Sparrow

Charles Bens

Comments Test run of 6D (AX2&9&M) was run on 3/22/55. Report to date follows.

Equipment: Standard crepe tissue machine equipped with Dirtex separator.

Amount Asbestos used Began with [illegible] and reduced to 3%

Length of Run 12 hours

Results 1. Softening desired obtained

2. Good formation

3. No pencils or dirt present in finished paper

4. Less freeness as expected (not objectionable)

5. Slight increase in paper moisture content but dryness o.k. at doctor blade.

6. Some loss in adhesion on drier but this remedied by increase in glue.

7. Poor "creeping" on half the roll so that when roll split half was o.k. and half n.g. This creeping trouble not experienced in lab runs or on test run made at Glens Falls several years ago. This may be due to the asbestos in opinion of Scott Personnel.

Conclusions

No definite decision as yet since no test data has been developed on paper product. (Such information as retention not developed as yet.)

Signed .....

MT06109

FORM AFD-2

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

-2-

Territory_____ Date_____

Name of Account_____

Address _____

Names and titles of persons interviewed_____

Comments_____

Conclusions Continued

Another test run seems desirable but until the test run just completed is evaluated and discussed no decision can be made. The creaping trouble may have been due to the condition of the felt on the drier which had been in use for some time. The cause of this difficulty has not definitely been pinned down.

I would like R. Quinn's comments on these results as well as previously requested (from Montreal), data on pumping properties of asbestos in water slurry.

MT06110

Signed H. G. Donovan

FORM AFB-2

Research Center
January 6, 1955
File: 411

J. C. Kelleher, A.F.D., Montreal

Asbestos Fiber
Scott Paper Company
Chester, Pa.

Mr. Donovan and the writer discussed the use of asbestos fiber in tissues yesterday with Messrs. Sparrow, Benz, and Medieros of Scott Research at Chester.

Harsh chemical pulps, made principally on the West Coast, introduce undesired properties in tissues. Scott Research has established that these can be overcome through the introduction of 5% asbestos fiber in the furnish. They found also that long, fine, fibers are more effective than short ones for the purpose. By long fibers they mean the plus 14 mesh McNett fraction. Beyond these points they have not fully developed any concrete information. Tonnages involved at 5% usage are estimated at 20,000 to 25,000 tons per annum.

This project is active in their Research but it will require obviously three to six months at least before sufficient information is built up to support a recommendation for a commercial trial. It will be desirable to keep in close contact with Scott during this development because regular grades of fiber will not meet their needs and, if the use is to materialize, special fiber will have to be prepared for them.

Various aspects of the use of asbestos were discussed. These may be classified into (1) factors having a bearing on product quality, (2) considerations involved in manufacturing process, (3) possible problems in use, (4) cost.

(1) Product Quality

Tissues must be free of specks of dark substances. The sheet must be no higher than 30, and preferably average around 8, on a TAPPI speck count. This means that there should be no more than this number per hundred square meters of paper. The magnetite in our fiber alone would make it very difficult to meet this requirement. The size of the particle is important. A 40 or 50 mesh speck would be readily apparent in the sheet, while something in the 200 to 300 mesh range probably could not be detected. However, there is another objection to such fines, namely, they reduce the brightness of the sheet.

The inclusion of excessive fines in the tissue results in dusting. There is a consumer resistance to dusty tissues.

Summarizing, an ideal fiber for this application should be substantially free of magnetite or dark granular material readily apparent in the tissue. It should be as white as possible, preferably in the range of 50 to 60 G.E. brightness. It should have a high +14 mesh fraction and this fiber must be well opened. Any pencil content would be harmful.

(2) Manufacturing Process

The pulps are shipped to main converting plants such as Detroit, Michigan; Waterville, Maine; and Chester, Pa. In the pulping process centrifugal cleaners are used and these would remove specks from the asbestos. It is understood that cleaners are not used ahead of the converting machines in the paper mills. It would involve a substantial investment to so equip the mills. Therefore, it may be more desirable

to add the asbestos to the chemical pulp in the pulp mill and remove objectionable ingredients at this point. This would involve doubling freight rates but still may be economically sound.

Some of the samples of fiber submitted were fractionated by Scott with the following results:

	On 14	On 28	On 48	Passed 48
AX2494M (6D Bauer ground)	1.8%	3.8%	4.8%	90%
5R21	2.3	5.5	5.6	87
AX2395M (7R Bauer ground)	0	0.5	1.7	78
5K04	14.7	7.4	5.7	72
Groundwood Pulp	0	7 to 12	25	65

The data on groundwood pulp gives an upper limit on fines tolerance from an operating angle. The paper machines operate at 2500 ft/min. and they cannot tolerate reduction in drainage rates. Fines are the most important determinant in this and therefore a 65% limit of -48 mesh material is indicated.

The retention of stock on the fourdrinier wire is very low in their operation. Approximately 50% goes through the wire. This is recirculated in the white water and the excess white water goes to the saveall system. The point was made that if the asbestos is too fine it will build up in the white water and will not be retained percentagewise in the sheet. Increasing concentration in the white water would then slow up the stock on the paper machine. Such action would build up only until an equilibrium point was reached. Facts of this type only could be determined through commercial operation.

The possible action of asbestos in the saveall system was touched on briefly. They use two different fiber recovery systems in series. The first units are filters (Waco) in which the water to be clarified is passed through a preformed web of tissue pulp. The second unit is a Bulkley-Dunton flotation saveall wherein the water containing very fine suspensoid - almost colloidal - is treated with a frothing agent which, due to infused air, causes the fines to float and enable them to be skimmed off. The question was asked whether asbestos would possibly interfere with either operation. In the case of the Waco, again excess asbestos fines is a potential slowing agent. However, the pulp fines also have very poor drainage qualities and our opinion is that asbestos would not be likely to be noticed in this stage. Lack of knowledge of the flotation chemicals and procedures made it impossible to obtain anything tangible in this step. However, our experience with flotation chemicals in vacuum saveall operation indicates that recovery of the asbestos fines in this stage would be comparable with cellulose. It might be added that fillers, some of them silicates, are reclaimed along with pulps in this type of saveall equipment. It is with pulps in this type of saveall equipment. It is believed that the saveall problems do not present a likely obstacle if the fines content is not excessive.

On refining of the fiber, beaters and jordans are available at the paper mills and disc refiners are used at the pulp mills. Here again the pulp mill equipment is more desirable as the disc refiner will generate less fines than either the beater or jordan. A cushioning action may be obtained from chemical pulp in passing through the jordans ahead of the paper machine. This has been indicated in some of their experimental work to date.

The adhesiveness of the tissue sheet to the Yankee dryer on the paper machine is an important factor in creping. Whether this will be comparable to straight pulp sheets is yet to be found out. Good adhesion is desirable and our experience at Tilton is that asbestos should stick quite well to the chromium dryer drum surface.

The reduction of the jumbo rolls of tissue to small consumer rolls involves high speed slitting operations. The question of wear and tear on the slitters was brought up. It is our opinion that no difficulties should be encountered in this step as long as the fiber is free of magnetite and granular inclusions. Also the matter of health hazard connected with slitter dust in the mill was discussed. The present operation causes occasional nasal blocking and the possibility of silicosis development from the dust must be satisfactorily resolved with their Industrial Relations Department. It was suggested that when the project is further along that their people contact our General Headquarters Industrial Relations Department for available information on the subject.

(3) Problems in Use

The main topic under this heading was the action of asbestos in septic systems. The fact that decomposition would not be likely could be used against their product. They have already encountered considerable sales resistance with their high wet strength tissues because they do not break up readily and may cause plugging of sanitary systems. There does not appear to be anything to do to asbestos to overcome this obstacle. Whether or not it is a real or imaginary one appears to be an open question.

(4) Cost

There are a number of chemical softening agents which, Scott reported, will make a harsh pulp soft. These materials have several disadvantages, the chief ones being cost and greasiness of feel in sheets containing them. These materials cost 35 cents per pound and up. We were not informed as to the percentage required to get a soft sheet. However, it was indicated that asbestos at $93 per ton delivered would be more desirable cost-wise. This price is about the same as their chemical pulps cost them and as long as it is not exceeded, asbestos is in an acceptable position.

The cost angle is further emphasized in connection with the manufacture of the pulp itself. It is possible to produce soft pulps from Western woods by lower yield cooking procedures. The use of such processes would increase costs and also lower output. Scott is in a position where they are having difficulty meeting sales requirements and production is several weeks behind.

My opinion in the overall is there is better than an even chance that this use can be developed either with clean fiber at the converting mill or with a suitable magnetite containing grade at the pulp mill. I think it unlikely that an acceptable grade can be made to sell for a 6D price. I would suggest that the following specifications be discussed with those involved in asbestos fiber development:

1. Magnetite content less than 1% and all below 100 mesh.

2. Same for rock content.

3. Fines minus 48 mesh - 65% maximum.

4. No pencils.

5. Preferably 5 to 10% of +14 mesh fine fiber.

MT06113

Scott is to work on the materials already supplied using a cleaner similar to that at the pulp mills. The AX2494M product looks best to them except for the high -48 fraction. I think it would be well to make sure full data are obtained on this and other materials supplied to them - otherwise trouble might develop getting back on the beam if duplication is requested. It is apparent that uniformity will be a permanent consideration in making this a volume outlet.

R. G. Quinn

RGQ:ho

cc: M. Donovan, A.F.D., Phila.
S. Collier, GH
A. B. Cummins
M. S. Badollet
E. R. Williams
J. S. Parkinson
~~File~~
C

JOHNS-MANVILLE RESEARCH LABORATORIES
Manville, New Jersey

Report No. 13-107
Problem 7-LP-004-1
March 10, 1943

PREPARATION OF SPECIAL FIBRE FOR ASBESTOS TISSUE PAPERS

SUMMARY

A special grade of low dust content short fibre was prepared at the Mines in accordance with Report M-6N-12-133. Two bags of this fibre (designation AX-2019-M) were submitted for evaluation.

The color of the fibre was lighter than normal as a result of dust removal. The yield on washing averaged 39%, representing an appreciable increase over the 15-25% usually obtained with 6D04 fibre. Much of this increase, however, was in the form of rock, the percentage of which was so high that it was not feasible to settle it out of the fibrous suspension in the washer. The washed fibre could not be used in thin paper production because of this high rock content.

Microscopic examination of the washed fiber showed numerous, short stubby pencils. It is difficult to fiberize such material. In paper these particles cause low strength as they are difficult to bind together.

***
*** ***
***

This report consists of Summary sheet only.

APPROVED BY _____ R. G. QUINN

REPORT BY _____ W. F. CONNOLLY

ewr

cc--Dr. C. F. Rassweiler - Vice President - GHQ.
Mr. H. K. Sherry - Vice President - Asbestos
Mr. H. S. Deeley - Industrial Engineering - Asbestos
Mr. W. N. Reakes - Fibre Development - Asbestos
Mr. M. S. Badollet - Research Laboratories - Manville
Mr. E. R. Williams - Research Manager - Manville
Mr. G. B. Brown - Research Laboratories - Manville

A.F.D. ASBESTOS
March 18, 1964

H.A. Boisclair - Box 270, N.Y.

ASBESTOS FOR FACIAL TISSUE
Your letter Mar. 13/64

No, Tony, I didn't forget your request for $120-140 range, - but the AX2950-M is the only good looking fibre we have for this use.

Other possibilities are the Paperbestos series and the AX2862-M, except for high minus 200 mesh McNett fines.

A comparison of test data for AX2862-M and AX2950-M is attached. Similar test data for the Paperbestos fibres is given in Sales Bulletin S-235. (See also S-254 for pricing and current availability).

While it is almost certain that we could clean up, or develop, a shorter grade in the $120-140 price range, it would take considerable Fibre Development work, on equipment which is scheduled at full production capacity for the next couple of months.

Your suggestion of looking at the AX2950-M first, to see if this sort of fibre is suitable, is a good one, following which we will be most willing to discuss a shorter grade.

Your requisition is going forward and you will be receiving the samples shortly.

D.L. MONROE

DLM/jd
Encl.

cc: R.G. Quinn - Man. Res.
H.G. Donovan - Man. Res.

MT06116

J-M Retap:	AX2862-M % Retained	AX2950-M % Retained
Plus 4 mesh	-	-
" 6 "	0.3	68.0
" 10 "	52.0	20.2
" 20 "	38.7	10.0
" 35 "	7.2	0.6
" 65 "	0.5	0.2
Pan	1.3	0.8
Surface Area:	22,300 cm^2/gm	24,400 cm^2/gm
J-M McNett:		
Plus 14 mesh	0.5%	1.5%
" 28 "	2.1	5.3
" 100 "	17.0	40.4
" 200 "	8.9	10.1
Minus 200 "	71.5	42.7
Color:	63.5	74.5
Q.A.M.A. Crude:	nil	nil
Sample No.:	9555	9895

JOHNS-MANVILLE RESEARCH AND ENGINEERING CENTER

Memorandum M411-298

Date June 3, 1963

VISITS TO THE SCOTT PAPER COMPANY AND QUALITY PAINTS, INC., PHILADELPHIA, PENNSYLVANIA.

On May 10 the writer accompanied by J. E. Connor visited the Scott Paper Company for the purpose of discussing asbestos fiber in paper products, principally, tissue and toweling applications where softness and absorptivity are of primary importance. Those persons interviewed were:

Mr. Karl Fox, Information Specialist
Mr. Charles Hurley, Research Engineer

The writer first explained that recent advances in milling technology has enabled Johns-Manville to produce cleaner, grit free fibers for the paper industry. Four of these products, Paperbestos #1, AX2958M, AX2950M, and AX2942M were presented to Scott along with handsheets made from the material and the test results of both the fiber and paper.

Mr. Fox and Mr. Hurley closely examined the fiber samples and handsheets and then stated that both the AX2958M and AX2950M interested them. Mr. Hurley asked if it would be possible to remove most of the +4 mesh (McNett value) material from the AX2958M as it would form fiber clots in his system. He also asked if the -200 mesh (McNett value) material could be lowered. In their words, the ideal fiber for them would contain at least 90 per cent minus 4 plus 200 mesh (McNett values) material and be free of all grit and pieces of crude.

I was agreed that the writer would supply Scott with five pounds each of AX2958M and AX2950M. Additional work will be done on the 4A in an attempt to lower both the +4 and -200 mesh fractions. If such a material can be made, a small sample will also be forwarded to Scott for evaluation.

Quality Paints - Mr. Ben Lipson

Quality is presently evaluating our 7RF1 in a joint filler application. Mr. Lipson did not appear to know what fiber properties were desirable for this application but agreed to evaluate a large batch using JM 7RF1. J. E. Connor will supply Mr. Lipson with 100 pounds of JM 7RF1. Quality is presently using Cary 7RF9.

W. E. Read

W. E. Read

jp
cc: N. W. Hendry, Asbestos
D. L. Monroe, Asbestos
J. E. Connor, Philadelphia
C. F. Rassweiler, GH
A. C. Smith
L. R. Blair
W. C. Streib
J. W. Axelson
H. G. Donovan
W. E. Read
Library (3)

MT06118

SEP 11 1959

A.F.D. ASBESTOS
September 8th, 1959

H. A. Boisclair - N.Y. 280
J. G. Battersby - Philadelphia
J. V. Harte - Cleveland
W. T. Partridge - Chicago
F. W. Redican - Houston
C. W. Weitzel - San Francisco
H. G. Donovan - Manville Res.
J. Q. Trice - Manville Res.
J. R. M. Hutcheson
C. A. Greenlay

Production of #301 Type Fibre

We have not been successful to this date in producing a 301 type fibre, suitable to the paper industry, which we might sell in a range of price from $150 to $160 per ton. Due to the lack of success attained we now are deferring this project to some probable future time and hence we are not in a position to supply this type of fibre.

We will advise those customers who have placed orders for #301 type fibre that we are unable to supply.

Fibre #301 has no connection with our ability to produce Plastibest 30 at a quoted price of 17¢ per pound. Although there are difficulties involved in the production of this latter grade due to operating difficulties with the Russum cleaner, we are reasonably confident that we can produce and sell Plastibest 30 as required at 17¢ per pound.

A second reason for deferring the production tests on #301 type fibre, is the present shortage of Group 7 feed required for the production of #301. At the moment, we are not able on a five day week basis to produce enough Group 7 fibre to satisfy demand and our inventory is being reduced in order to satisfy full requirements. We are unable to operate on a six day week basis due to the existing high inventories of Group 4 and our inability to sell as much Group 4 as we would produce on a six day week basis.

In view of the shortage of Group 7 feed it is self-evident that we should not proceed to encourage the use of a 301 type fibre for paper which would further deplete our Group 7 feed and which, upon close examination, would not return us a profit.

Possibly due to changes in milling technology and knowledge and future availability of Group 7 feed, we may reopen the question of producing a special fibre for paper. However, until further notice such fibre will not be available for this use.

N. R. GREENLAY

NRG/ea

MT06119

Research Center
July 27, 1959

File: 411-4.12
411-4.9

J. Q. Trice

Special Fibers for Plastics
and Tissues

In the past few weeks there has been wide-spread confusion as to the official designations for these special fibers. We have reviewed the records and have unscrambled these numbers as follows: Those designations listed in the first column are the ones which should be used and those listed in the last column should not be used.

Official Designation	Original Feed	Incorrect Designations
Plastibest 10	4T28	97I, AF #97I, Asbestos Plastic Fiber No. 1
Plastibest 20	6D20	98I, AF #98I, Asbestos Plastic Fiber No. 2
Plastibest 30	6D20 & 7R06	101, 101-I, AF #101-I, Golden Fleece
Paper fiber #301	6D20 & 7R06	101, 101-I, AF #101-I, Golden Fleece

At various times we have noted the number 101 or 101-I referred to as a paper fiber. It can be seen from the above table that originally the 101 fiber was a mixture of 6D20 and 7R06. As near as can be determined, the designation 101 as used today appears to refer to a special cleaned fiber which was made from an original feed of 7R06 only. Since our records do not show the 101 fiber to be made from 7R06, it would be wise to avoid the use of this number. We believe:

1. That this fiber is not a standard fiber,
2. That if it becomes a standard fiber it should be given another number and not the 101 number,

We hope the above table has clarified what we believe to be the official designations for the special fibers for plastics and tissues. In summary, we believe that the designations listed under "Official Designation" should be used for the subject fibers and that the designations marked under the column "Incorrect Designations" should not be used.

A. P. Gouveia

fap
cc: (See other side)

cc: K. V. Lindell, Asbestos
N. W. Hendry, Asbestos
D. L. Monroe, Asbestos
M. D. Dunn, Asbestos
J. O. Eby, Asbestos
C. A. Greenlay, Asbestos
V. C. Lindsay, Asbestos
G. B. Brown
H. G. Donovan
J. Dec
Attention: R. T. Crouch
File:
M. S. Badollet
Chrono

Johns-Manville
Research Center

Report No. 411-237-S1

Date November 7, 1958

Title: CLEANED ASBESTOS SHORTS FOR USE IN GOLDEN FLEECE TISSUE PAPER.
Project No. 9

SUMMARY

The Golden Fleece Company was satisfied with the second lot of cleaned asbestos shorts and was willing to continue experimenting with a third lot of fiber for use in their tissue paper.

In preparing this third batch in the pilot model Russum cleaner several different feed fibers were investigated in place of the cleaner-rejects used in the first two runs. These were 7R06, 7F04, and blends of 7R06 with 6D20. The latter two were satisfactory, but 7R06 produced a product deficient in +14 mesh fiber. However, the bulk of the fiber for Golden Fleece was made from cleaned 7R06 by blending cleaned 6D20 with it, which raised the +14 mesh fraction to 4.4 per cent. About 250 lb of fiber resembling a high 5D with 30.5 per cent -200 mesh fines was shipped to Golden Fleece and was judged satisfactory by them.

Based on the three acceptable lots of fiber prepared so far for tissue paper, the following tentative McNett specifications are recommended:

	+14M %	+100M Cum %	-200M %
Feed	1.0 - 2.5	10 - 16	80 max
Product	4 - 12	50 - 60	28 - 31

These tests showed the feed specifications were met by a blend of 30 per cent 6D20, 70 per cent 7R06, which additionally produced the highest recovery (20 per cent). In production cleaning, however, a graded fiber would not be used and controls would be necessary to keep the feed near the upper limit of the specification for optimum efficiency of cleaning.

Contents: Summary, Introduction, Discussion, Conclusions and Recommendations.

Approved by M. S. Badollet M. S. Badollet

Reported by R P Fowler R. P. Fowler

fap

cc: C. F. Rassweiler, GH (S)
C. F. Rassweiler,
Attn: H. S. Allen, GH
S. Collier, GH
K. V. Lindell, Asbestos
Attn: H. S. Deeley
J. C. Kelleher, Asbestos
M. D. Dunn, Asbestos
J. O. Eby, Asbestos
C. A. Greenlay, Asbestos
E. R. Williams (2+S)
G. B. Brown
J. S. Parkinson
R. G. Quinn
R. P. Fowler
File:
J. Q. Trice
Library (5)
Chrono

MT06122

Notebook No. 1128, pp 96-99

File 411.4-9

411 - 4

4

Research Center
October 24, 1958

File: 411.4-9

M. G. Donovan, San Francisco

Russum-cleaned Fiber
Your Memorandum 10/16/58

This will answer your questions in the above memorandum.

The total iron content of a sample of Golden Fleece type fiber was about 2.7 per cent expressed as Fe, compared with 3.7 per cent Fe for standard 4T28. The magnetic rating was also lower at 2.7 against 5.9 for 4T28.

A price or price range has not been established. Several questions have yet to be resolved regarding available feed, projected demand, production costs, etc. The only indication that can be safely given is that a Russum-cleaned fiber suitable for use in tissues will most probably have to be in the neighborhood of $150 per ton or less, to be competitive with wood pulps used.

A typical Mellett on a sample of Russum fiber used at the Golden Fleece Mill ran as follows:

+14M	+28M	+100M	+200M	-200M
6%	7%	40%	17%	30%

Kerosene Absorption:

Standard 4T28 - 122 cc
Golden Fleece type - 123 cc

By the Q. S. test this particular fiber graded close to a 4Z.

As a matter of interest we should point out that the tissue-type fiber from the Russum cleaner is not the only grade that can and will eventually be produced.

Also, the final product or grade from the cleaner will depend on two things; the feed, and the degree of cleaning. For instance, starting with 7B06 and reducing the -200 mesh fines to 30 per cent upgrades this to a 4Z.

Referring to J. C. Kelleher's letter to me of October 6, a sample of Golden Fleece type fiber will be sent to you when the next run is made. This will not be before two weeks, due to pressure of priority projects.

M. W. Blackburst

fap
cc: J. C. Kelleher, Asbestos
N. W. Hendry, Asbestos
G. B. Brown
File:
J. Q. Trice
M. S. Badollet
Chrome

AIR MAIL

Research Center
September 17, 1958

File: 411.4-9

H. G. Donovan, San Francisco

RECEIVED
G. B. BROWN
SEP 18 1958

Asbestos in Tissues
Summary of Last Trial at Golden Fleece

Product involved: Facial Tissue
Type Asbestos used: Russum cleaned (short) fiber
Percentage used: 5.2 per cent
Paper machine speed: 890 ft per min.
Hydrapulper capacity: 2500 lb
Stock: Beatgouche pulp and starch sizing

Per cent asbestos retention in sheet: 85.2%
Weight of stand. tissue: 17.9 gm/sq cm
Weight of asbestos tissue: 18.6 gm/sq cm
Per cent crepe stand. tissue: 31.4%
Per cent crepe asbestos tissue: 29.6

Clark Softness Readings

	Longitudinal	Transverse
Regular Tissue	970	120
Asbestos Tissue	650	140

Remarks: The value of Russum cleaned asbestos in tissues is primarily one of economics.

M. W. Blackhurst

fap
cc: G. B. Brown
File:
J. Q. Trice
M. S. Badollet
Chrono

MT06124

G. B. Brown
cc: M. D. Dunn, Asbestos
J. O. Eby, Asbestos
C. A. Greenlay, Asbestos
R. P. Fowler
File: J. Q. Trice
M. S. Badollet
Chrome

411.4-2.1

Research Center
July 8, 1958

File: 411.4-9

RECEIVED
G. B. BROWN
JUL 9 1958

M. S. Deeley, Asbestos

Tissue Paper Fiber
Priority Project No. 9

It appears that very short, clean asbestos fiber can be used satisfactorily in tissue paper. This potential market is so large that even a small portion of it could be extremely profitable, providing only that such a fiber can be economically produced.

Two lots of cleaned fiber have been prepared in the Russum cleaner for trial at the Golden Fleece Company (Reports 411-227 and 411-237) using rejects from previous cleaning of 6D20. However, it is felt that other feed fibers should be investigated, in case cleaner-rejects should be found to be unsatisfactory, insufficient in quantity, or unavailable.

It appears from the two trials mentioned above that the length of both the feed and product fibers is very critical. A tentative Mollett specification for both fibers is suggested below:

	Feed	Product
+14 mesh	1.0 - 1.5%	5 - 12%
cum.+100 mesh	9% min	50 - 55%
-200 mesh	80% max	28 - 31%

Of presently produced group 7 fibers, 7R06 seems to come closest to the feed specification, and is similar in other test properties as well. However, considerable work is scheduled to determine positively whether 7R06 is satisfactory and the best operating conditions for cleaning it.

This work is awaiting the purchase of another fine mesh screen, which also must be evaluated.

The economics of cleaning shorts for tissue paper has yet to be determined, but it is absolutely dependent upon obtaining the feed fiber at zero or a very nominal cost per ton. Recoveries in this work are very low, averaging less than 15 per cent, which automatically increases the cost of the fiber sevenfold. In addition, low recoveries and low feed rates result in a fairly high operating cost per ton of product. It is essential, therefore, that the feed be material such as the byproduct rejects from other cleaning operations or surplus group 7 fibers in order not to exceed the acceptable market price of $150 per ton. Can you supply us with information as to whether a long-range surplus of 7R06 might reasonably be expected?

It may be possible to use other types of feed by, perhaps, blending two fibers or preprocessing them, which will be brought out in the proposed investigation. However, 7R06 seems satisfactory from present information, and knowing its projected availability will help us in keeping our thinking straight.

R. P. Fowler

MT06125

Johns-Manville Research Center

Report No. 441-Int-476

Date May 28, 1958

Title: ASH OF DUST FROM CREPE PAPER - Composition Identification

Requested by: M. C. Hutchins FD-27

JUN 3

Reason for Request

To determine if ash from slitter and bar dust collected during a run of facial tissue containing asbestos is from alloy creping doctor blades or from asbestos which may be preferentially pulled out of tissue.

Material Submitted

Sample Ident. No.	Laboratory Index No.	Description
P1-3081	A69-99-1	Ash (1800F) of dust collected May 13, 1958, during a run at the Golden Fleece Paper Mill, Greenwich, N.Y.

Method of Analysis

The sample was examined by X-ray diffraction and emission spectrography.

Results of Analysis

X-ray Diffraction

X-ray No.	Sample	Results
1349-127-1	Ash (1800F)	Mica *Forsterite Quartz

*Chrysotile fiber converts to forsterite upon ignition.

Spectrographic

Major High	Minor	Small	Trace
Magnesium	Aluminum	Titanium	Nickel
Silicon	Iron	Calcium	Manganese
	Potassium	Sodium	Chromium
		Copper	Barium

The presence of forsterite in the ash, as found by X-ray diffraction, indicates that chrysotile fiber was present in the dust before ignition. Due to the small amount of copper found in the ash along with lesser amounts of other metals, it would appear that the alloy creping doctor blades contributed very little to the ash content of the dust. The dust ash is essentially asbestos, mica and quartz.

X-ray Diffraction by: J. McGourty

Spectrography by: A. J. Sutherland

cc: E. R. Williams (2)
A. B. Cummins
J. S. Parkinson
R. G. Quinn
M. C. Hutchins

MT06126

Notebook No. 1566, p 39 (7241) File 441(6)

4

411.4-9

Research Center
January 21, 1958

File: 411.4-9

RECEIVED
G. B. BROWN

J. C. Kelleher, Asbestos

Sample of Fiber for Tissue Use
Project No. 9
Yours 1/2/58

We are sending you today a 1½-lb sample of the fiber being evaluated at Golden Fleece. This fiber was made up by screening with the Russum cleaner on 100M screens the -40M screen drops and baghouse dust from the cleaning of 6D20 fiber. The data on this fiber are covered in our Report No. 411-227 of which you have a copy, but briefly the McNett values were:

+14M	Cum. +100M	-200M
9.4	52.0	28.0

You will note that these are the values shown in M. W. Blackhurst's letter of 1/2/58. However, his letter indicates the belief that this fiber was produced by cleaning 6D. As noted above, it is produced by recovering the drops from the previous cleaning of 6D.

The "cleaned and ground 6D20" which was covered by R. P. Fowler's letter of 12/20/57 was sent to you based on the understanding that you wished a sample of such a short fiber. Unless there is some particular interest in such a fiber, we would suggest that you discard this sample.

Please let me have your thoughts on the number and size of samples that you would require to discuss this further with other tissue manufacturers.

J. Q. Tries

JQT:dvp

cc: W. M. Reakes, Asbestos
M. W. Blackhurst, Asbestos
G. B. Brown
M. S. Badollet

MT06127

Note here [illegible] of attached [illegible]

G.L.

11 JAN 6 1958

A.F.D. ASBESTOS
January 2nd, 1958

J. Q. Trice, Research Center, Manville

Cleaned and Ground 6D20

We have just noted Mr. Fowler's letter of December 20th and the various steps through which the Russum cleaned fibre was put before the samples were submitted to us.

We believe it would be desirable before we send out these samples to sit down with you again and decide just what our objectives are and what samples should be submitted.

At first glance we feel that we should have the material for submission to the tissue paper manufacturers. This might not have to be a product which has been Mikropulverized in addition to the four passages through the Russum Cleaner.

Secondly, we would probably want a shorter more refined fibre similar to the sample described by Mr. Fowler for submission to customers for special uses.

I believe it would be well to try to start out with a definite policy in this matter so as to avoid as much confusion as possible with respect to the number of samples submitted.

To give you an idea of how this shapes up I am attaching hereto a copy of Mr. Blackhurst's memorandum of January 2nd and also a copy of a letter from Mr. Partridge indicating how fast the men in the field want information as soon as they hear there is something new in the offing.

I hope to see you January 16th, when we may have an opportunity to go over this, among other matters.

J. C. KELLEHER

JCK/e
Attc'd

cc: G.B. Brown, Research Center, Manville
M.S. Badollet, Research Center, Manville
W.M. Reakes
M.M. Blackhurst

MT06128

A.F.D. Asbestos
January 2, 1958

MEMORANDUM TO: J. C. Kelleher

FROM: M. W. Blackhurst

SUBJECT: Recleaned 6D Via Russum Cleaner
R. P. Fowler's letter December 20th

The sample of Russum cleaned 6D being sent here by R.P. Fowler and described in his letter is somewhat different than the specification set up by Research for use in tissues and generally agreed upon, and the material used in the Golden Fleece trial. Here is a comparison:

	Spec.	Golden Fleece	Above Sample
+ 14 mesh	15 to 20%	9.4%	10.2
+ 100 mesh	55% min.	52%	not given
- 200 mesh	30% max.	28%	49.8

This specification and the material used in the Golden Fleece trial was made from 6D which had been passed through the Russum cleaner four times. In addition to this the latest sample has been screened and micropulverized.

We originally estimated that a price for a suitable tissue fibre must be in the $100 to $150 per ton range to be competitive with cellulose wood pulp. Judging by recent correspondence this fact is being overlooked

In your memo to me of December 2nd you mention probably prices for this material of $200 to $300 per ton. It is my opinion that this would be far in excess of a price acceptable to the tissue industry.

To my knowledge a probable cost and selling price for this cleaned tissue fibre has not been estimated except for one or two wild guesses.

Incidentally, we have not yet had a reply from G.B. Brown to your letter of October 28th regarding the advisability of a meeting with Scott Paper Company.

M. W. BLACKHURST

MWB/mb

C
O
P
Y

Chicago District

12/18/57

J. C. KELLEHER - ASBESTOS 1500

BEVERIDGE PAPER COMPANY
My letter of Sept. 17
Maurice Blackhurst's letter Sept. 25

We are glad to hear that it may be possible to submit samples of this specially clean fibre to the paper industries in this territory in the very near future. We would like to submit at least five lbs. samples initially to Marathon Corp, Kimberly-Clark, and Charmin paper Mills in the Wisconsin area.

Do we have any information on the price range of the fibre? Can we forecast when it may be available commertially and will we be in a position to ship in quantities from six to twelve carloads per year?

When sending requisitions for the above samples what grade designation should we refer to and how soon can we get samples for these customers?

DON PARTRIDGE

DP:hh

cc: W.N. Rekkes - Asbestos 1500
Maurice Blackhurst " "
File

Research Center
December 20, 1957

File: 411

J. C. Kelleher, Asbestos

Cleaned and Ground 6D20

We are sending you today five pounds of cleaned and ground 6D20 fiber which you requested during the meeting held at Research in November.

The original 6D20 feed was passed through the Munson fiber cleaner four times, reducing the fines to 14.7 per cent, with a +14 mesh content of 46.0 per cent. Recovery of cleaned product was about 13 per cent. This clean fiber was screened and aspirated to remove rock, and then was ground in a laboratory Mikropulveriser. Feed rate for this operation was only about one pound per hour. The +14 mesh McNett fraction was reduced to 10.2 per cent and the fines percentage increased to 49.8.

The product was given an identification number of CX-10.

R. P. Fowler

fsp

cc: G. B. Brown
J. Q. Trice
M. S. Badollet
chrono

MT06131

Asbestos Fibre Division

Asbestos Fibre New Uses Program

Project No. AFD-8

Report No. Interim II

Identification

Title

INTERIM PROGRESS REPORT

ASBESTOS IN TISSUES

Recently the asbestos fibre section of Research prepared a batch of air cleaned fibre close to the specifications for an ideal tissue fibre. This was 6D20 rejects given several passes through the experimental Russum cleaner.

With this batch of air cleaned fibre, a trial was made at Golden Fleece Mills on a Yankee cylinder type machine. The addition of fibre necessitated decreased water usage in the stock to maintain sheet weight, otherwise operating conditions were normal.

Analysis of the furnish indicated 2.05 percent asbestos. The sheet was found to contain 1.56 percent asbestos, so the retention was 76 percent. All operators rated the tissue containing asbestos as softer than regular. Laboratory tests showed it to be 17.5 percent softer in machine direction and 37 percent softer in cross direction. The addition of asbestos closed up the sheet and improved formation.

Since this experimental run was made on August 29, 1957, the Mill Manager has for reasons unknown to us, left the Golden Fleece Co. Unfortunately, his successor does not appear to share his enthusiasm over the use of asbestos. He feels that little can be gained by the addition of asbestos as most of it is lost as dust before the wrapping roll.

It is felt that his attitude towards the former manager and his work has a definite influence on his comments. However, he has agreed to make another trial run within the next month. A further report will be issued when results of this trial are known.

MAURICE W. BLACKHURST

cc- K.V. Lindell
C.F. Rassweiler - Box 91, GHQ
E.R. Williams - Research Centre, Box 159
G.B. Brown - Research Centre, Box 159
J.Q. Trice - Research Centre, Box 159
M.S. Badollet - Research Centre, Box 159
J.C. Kelleher
W.N. Reakes

MWB/mb

MT06132

Johns-Manville Research Center

Report No. 411-227

Date October 4, 1957

Title: CLEANED SHORT FIBER FOR USE IN TISSUE PAPER AT GOLDEN FLEECE COMPANY PLANT

SUMMARY

At the request of the Paper Section the Russum cleaner equipped with 100 mesh screens was operated to recover 264 pounds of a short clean fiber which was sent to the Golden Fleece Company for a plant test. The feed used was drops and baghouse material collected from previous cleaning operations on 6D20 when the cleaner was equipped with 40 mesh screens.

The results of the tissue paper test has been reported by Mr. R. G. Quinn of the Paper Section in Report No. 441-394 S1 and shows that tissue paper can be made containing asbestos fiber.

This report gives the properties of the clean short fiber and shows that it only contained a maximum of 30 per cent of fines -200 mesh and that it graded a 4Z.

Contents: Summary, Introduction, Experimental Operation, and Conclusions.

Approved M S Badollet
M. S. Badollet

Reported by R. B. Frishmuth
R. B. Frishmuth

fap

cc: C. F. Rassweiler, GHQ (S)
C. F. Rassweiler,
Attn: H. S. Allen, GHQ (C)
S. Collier, GHQ
K. V. Lindell, Asbestos
J. C. Kelleher, Asbestos
R. G. Quinn
J. S. Parkinson
E. R. Williams (2-C 1-S)
G. B. Brown
J. Q. Trice
M. S. Badollet
file

MT06133

Notebook 1138 Pages 44, 49.

File 411

MAR 15 1957

A.F.D., Asbestos
March 12, 1957
(Dict. 3-10-57)

R.G. Quinn - Research

Crown Zellerbach
Camas, Wisconsin

We are attaching herewith a copy of our H.G. Donovan's report covering his call on the above customer.

We are passing this information on to you to keep you advised on the subject and for any comment that you care to make.

W.N.R.

W.N. REAKES

cc - G.B. Brown - Research

WNR/mb

MT06134

COPY

CANADIAN JOHNS-MANVILLE ASBESTOS LIMITED

CUSTOMER CALL REPORT

Territory West Coast Date 1/7/57

Name of Account Crown Zellerbach

Address Camas, Wisconsin

Names and titles of persons interviewed C.W. Davidson, Plant Technical Director; Chris Yang, Research Chemist; Joe Barrett, Chemist; Jim McCort has been replaced by Davidson.

Comments Results from use of asbestos in tissue (hand sheets) - (pulp made in Waring blender - 10 minutes mixing time) show no advantage in using asbestos. This is a 50% hardwood furnish.

1. Oil absorption lower with asbestos. Loss in T.S.
2. Loss in brightness ½ point for each % of asbestos present.
3. A little improvement in surface softness but not enough to warrant using.
4. Lower water absorption with asbestos.

They are testing asbestos in hand sheets on toweling using soft wood . This may show improved oil absorption. They told me that hard wood pulp had exceptionally high oil absorption while soft wood has low oil absorption. I'll follow.

Results of tests on hand sheets attached.

MT06135

Signed (Signed) H.G. Donovan

FORM AFD-2A 7539

CANADIAN JOHNS-MANVILLE ASBESTOS LIMITED

CUSTOMER CALL REPORT

Territory _____ Date 1/7/57

Name of Account Crown Zellerbach

Address _____

Names and titles of persons interviewed _____

Comments * - In no case was wet strength resin added to furnish.

Tensile Strength Tests in oz./½" strip

	0% Asb.	1%	2%	4%	10%
7K05	7.9	8.3	8.0	7.0	5.8
7D04	8.0	7.6	6.7	8.2	5.9
7D24	6.2	7.6	5.1	6.0	5.1
5K04	8.0	7.5	6.4	8.2	5.7

Canadian Freeness

7D24	660	635	590	575	455
5K04	676	598	560	528	403
7K05	663	625	585	560	518
7D04	690	638	593	570	491

Oil Absorption
% increase in weight after floating off surplus

5K04	95.5	95.5	90.6	91.4	89.7
7D24	97.1	95.4	90.3	92.6	90.0
7K05	93.4	94.4	90.0	90.0	88.4
7D04	99.5	94.8	96.5	90.5	88.1

Signed .....

FORM AFD-2A 7539

MT06136

CANADIAN JOHNS-MANVILLE ASBESTOS LIMITED

CUSTOMER CALL REPORT

Territory _____ Date 1/7/57

Name of Account Crown Zellerbach

Address _____

Names and titles of persons interviewed _____

Comments Water absorption - 0.1 cc H_2O Drop Test

Measure time in seconds for H_2O to be absorbed.

Asbestos	0%	1%	2%	4%	10%
7D24	5.5	4.6	5.6	7.4	23.1
5K04	7.7	9.8	12.8	16.0	63.0
7K05	11.4	7.7	8.0	10.3	21.6
7D04	7.7	9.0	9.7	14.9	29.2

Formula on toweling is 50% ground wood - 50% unbleached sulfite.

Signed .....

FORM AFD-2A 7539

MT06137

SALES PRODUCT REQUEST No. AFD-56-1

This form is to be used for requesting development of new products or changes in existing products. Prepare in quintuplicate and send four copies to the Office of the Vice President for Research and Development, Items 1, 3, 4, 5, 6 and 7 are to be filled out by the person originating this request. The Director of the Research Center shall act upon this request as provided in the President's Bulletin No. 19-360 or shall arrange for the transfer of this request to the office of the Division Production manager.

If work is to be undertaken to satisfy this request, the organization to which the work is assigned will fill out the reverse side of this form, sending one copy to the originating source, one copy to the office of the Vice-President for Research and Development, and one copy to the Director, Research Center.

The submission or approval of this request does not represent authorization for expenditure of funds, unless such expenditure is approved in accordance with present procedure.

1. Date September 25, 1956
Title Asbestos Fibre For Tissue Papers

2. ☐ Director, Research Center
☐ Passed on to:
Date

RECEIVED
OCT 1 1956
C. F. RASSWEILER

3. Description of Proposal:

To develop a satisfactory fibre for use in tissue papers.

4. Detailed specification of requirements, including physical and chemical properties, and approximate maximum allowable plant cost:

To develop a relatively short fibre with sufficient fibrous content and low fines with a suitable degree of openness to give desired fibre retention and performance.

Such a fibre is described in R. S. Bedaliot's memorandum of August 10th - File 411, which has been summarized as per copy attached.

A recommendation to develop such a fibre is also made in R. S. Quinn's report No. 441-394.

RECEIVED
OCT 4 1956
P. H. SOROKA

996-07-11-076
Develop asbestos fibre for tissue paper

MT06138

5. Detailed reason for request:

Trial runs made with several paper companies indicate a large potential new use for asbestos fibre, if a suitable grade can be furnished to be used as an additive to wood pulp.

6. Sales Data: (sales outlets, competition, proposed selling price, and five-year sales forecast.)

One company alone has indicated a usage of upwards of 10,000 tons - other companies could easily double that amount. Wood pulp costs range from $100 - $130 per ton and our price would have to be in line.

7. Importance and Urgency: (Including relative urgency in comparison with uncompleted SPRs of same sales responsibility.)

Our new use program is assuming greater importance. A successful item of large volume is necessary to justify expense. This development is at a high point of interest and should be given high priority. It offers a real opportunity to utilize excess fibres.

Submitted By

Approved By

(Over)

C
P
Y

A.F.D. ASBESTOS
September 5th, 1956

J. C. Kelleher

Summary of M. S. Badollet's Report
Asbestos in Tissue Papers

In making a tissue paper with 7D04 only 20 % of the original 7D fibre is retained. The McNett value of this 20 % is as follows:

+ 14M	+ 28M	+ 100M	+200M	- 200M	CUM + 100M
19.5%	12.1	26.8	8.5	33.1	58.4

These values are the ideal target for a satisfactory fibre for tissue papers.

A satisfactory fibre was produced from mill tails, by screening them over a series of 4 screens, the middlings from each screen was used for the feed, undersized was dumped, oversize could be used for Group 6 production.

This middlings feed was then air cleaned, the McNett on the recovered fibre was:

+ 14M	+ 28M	+ 100M	+ 200M	- 200M	CUM + 100M
16.3%	35.8	29.1	3.8	15.0	81.2

A temporary set-up to produce a fibre of this nature would be along the above lines.

This type of processing is possible if economical. From preliminary calculations based on tailings, equipment would be costly, even if tailings were priced at zero cost.

We have no idea of the cost of air cleaning equipment, however, we are asking our physics department to estimate costs.

MWB/sb

Maurice W. Blackhurst.

MT06139

Johns-Manville Research Center

Report No. 441-394

Date July 24, 1956

Title: ASBESTOS IN FACIAL TISSUE--GOLDEN FLEECE MILL--GREENWICH, NEW YORK

SUMMARY

A trial run was conducted on the Yankee Fourdrinier at Golden Fleece Mill to incorporate 7D04 fiber in a standard white, creped, facial tissue. Though over four per cent asbestos was furnished to the beater only 1.1 per cent was retained in the sheet. The white, or drainage, water from the machine included 32.6 per cent asbestos. When this white water was passed over a Bird Saveall, most of the asbestic solids were lost through the wire of this unit. The reclaimed solids contained only 11.8 per cent asbestos.

The furnish was modified so that the asbestos fiber supplanted some soda pulp, softener and starch. The sheet made with the asbestos fiber was judged to be softer than standard material. Clark softness tests resulted in a factor of 1.16 with asbestos and 1.03 without. These values check the hand tests made by operators at the mill.

The run demonstrated that the retention is excessively low due to the high fines content of the asbestos. Further trials with 7D04 are not recommended.

Contents: SUMMARY, DATA and DESCRIPTION, RECOMMENDATIONS.

Approved by J. S. Parkinson JSP:z Reported by R. G. Quinn

am

cc: C. F. Rassweiler, GH
K. V. Lindell, Asbestos
J. C. Kelleher, Asbestos
A. Boisclair, AFD New York
H. R. Berlin, DH
S. Collier, GH
E. R. Williams
J. S. Parkinson

MT06140

Notebook

41 - 5

Research Center
August 10, 1956

File: 411

J. C. Kelleher, Asbestos

Asbestos in Tissue Papers
Golden Fleece Paper Mill
Your letter to R. G. Quinn July 26

Your letter to R. G. Quinn has been discussed and, on the basis of previous tests and experiences on the use of asbestos in tissue papers, we are offering the ideal target for the McNett value of the fiber for this job.

+14M	Cum +100M	-200M
%	%	%
20.0 Max.	-	30 Max.
15.0 Min.	55 Min.	-

In making a tissue paper with 7D04, only 20% of the original 7D fiber is retained in the paper and 80% is discarded. The McNett value of this 20% fraction of 7D04 is as follows:

+14M	+28M	+100M	+200M	-200M	Cum +100M
%	%	%	%	%	%
19.5	12.1	26.8	8.5	33.1	58.4

These values have been used to set up an ideal target for a satisfactory fiber for use in tissue papers.

In your letter you ask us to discuss means of producing such a fiber for use in tissue papers. This request is a difficult one since so many factors are involved, some of which are not answerable at present.

1. If 7D04 is to be made first, and cleaned so that 80% of it is thrown away and only 20% recovered, then the 7D04 price prior to cleaning must be placed at a very low value to meet the tissue fiber product value of $100 per ton as you suggest.

2. If 7D04 or any other 7D, 7F, 7K, 7M, etc. fibers are to be made in large quantities and cleaned, it will reduce the production of other Group 7 fibers.

3. It seems certain that cleaning a 6D fiber is not the answer because it will contain too much long fibers. Actually, the fiber lengths desirable for tissue paper fibers is somewhere between a 10M and a 24M size by dry screening methods.

4. If methods such as scalping and screening of Groups 6 and 7 fibers using 10M and 24M screens are used, you will still find the -200M fines to be within the range of 60% to 70%. The additional cleaning using air elutriation or water washing must be done to have a fiber to meet the ideal target.

5. If additional fiber is to be taken from the tailings to increase the quantity of Group 6, then the quantity of -10M +24M fibers will also be reduced in tails.

6. If we try to extract an ideal fiber from tails, our tests show that it could be done at a high cost. For example, we took regular mill tails of several years ago and screened them over 4 screens in series. The first screen was 8 x 8M and 24 x 24M, the second screen received the mids and screened them over a 10 x 10M and 24 x 24M, the mids were again screened over a 10 x 10M and 24 x 24M and finally the mids of the third screen were screened over a 24 x 24M and aspirated. The undersizes were dumped, but the oversizes contained fibers that could be used for Group 6 production.

The recovered aspirated fiber was 0.7% of the original tails. It had a McNett of 7% +14M and 55% -200M. This product was then air elutriated by the Sinclair equipment and they recovered 37% as a good clean fiber. This recovery based upon the original tails would be 0.259%.

The McNett test on the Sinclair recovered fiber was:

	+14M %	+28M %	+100M %	+200M %	-200M %	Cum +100M %
	16.3	35.8	29.1	3.8	15.0	81.2
Ideal Target	15 Min.				30 Max.	55 Min.

Therefore, this type of processing is possible if economical. We do not know the costs of air cleaning nor just what costs the Mines would charge to do this type of screening to recover a fiber prior to the air cleaning unit.

Just as a starter using this scheme, we can visualize a temporary small set up something like the following:

Three screen lines set up in parallel with four 5 x 10-ft screens in series in each line and aspiration on the last screen of each line. This would produce O.S. for the recovery of additional Group 6 and mids for the feed for the air cleaner. If each line of 4 screens were fed at the rate of 5 tons per hour, then the total of 15 tons per hour of tails would produce 0.105 tons of a product with a Q.S. of 5R for air cleaning. The air cleaner then must be capable of handling 210-lb per hour. If we assume the same recovery of 37% by the air cleaner then the tissue paper fiber product would be 77.7-lb per hour with a fictitious Q.S. of 3Z. This would be a low production product of about 250-tons per year.

From the above preliminary calculations based upon tailings, you can see that the equipment would be costly even if the tailings are priced at zero costs and the concentrates from the screenings could be shipped just across the Canadian border for further cleaning.

Cleaning of 7D04 by air elutriation also gives a fictitious Q.S. of 32. Therefore, some scheme of pricing the fiber product must be set up in order to meet your suggested $100 per ton selling price.

At the present time we have no idea on the cost of the air cleaning equipment; however, we are asking the Physics Department to study the above quantities and estimate their costs on that basis.

We are enclosing two samples of fiber so that you can see what a clean tissue fiber looks like.

M. S. Badollet

encl.

lg
cc: E. R. Williams
A. B. Cummins
C. B. Bradley
R. G. Quinn
D. Sinclair
File

Research Center
July 19, 1956

File 411

J. C. Kelleher, Asbestos

Asbestos in Tissue Papers
Golden Fleece Paper Mills, Greenwich, N. Y.

A trial of 7D04 in 10 lb facial tissue was conducted 7/16/56. Amount of fiber added was kept fairly constant at slightly over 4%. There were no unusual circumstances developing as the run progressed. The procedures were maintained the same throughout the run, although it was evident at the start that retention of asbestos was very low. There is a saveall on the white water system. All reclaimed fiber is fed back into the sheet. It was apparent that much of the first lots of asbestos fed to the system ended up in the saveall. Mr. Stanley Cumpler, General Manager, offered to increase fiber usage but with limitation in supply—they had only 600 lbs to begin with—it was judged more desirable to maintain existing rates and let them gradually encounter the drainage limitations anticipated when the 7D fines are returned to the chest.

There are two impeller type mixers or pulpers in the beater room. These units handle 1200 lbs of pulp (bleached Bastigouche) per 45 minute cycle. The half bag of asbestos was mixed in a few minutes before dumping. Usual furnish includes 5% soda pulp, a softener about 0.5% potato starch with the bleached Bastigouche. The asbestos furnish included only the Bastigouche with the starch, soda pulp and softener being eliminated. However, small quantities of these ingredients continued in circulation within the mill system which includes a closed white water set-up.

It was Mr. Cumpler's opinion as well as those of the operators that the asbestos sheet was slightly softer than standard furnish. However, the asbestos sheet did not include much asbestos fiber at the time these opinions were formed. There was little or no ash left after ignition. The 7D04 fiber is so short that it readily washes thru the 70 mesh fourdrinier wire. This is accentuated at the low forming consistencies employed.

Samples were taken of white water draining from the machine, recovered fiber at the Bird saveall and finished tissue. Determinations are being run to establish the asbestos fiber content of these materials. Mr. Cumpler is to be advised as to results after which he plans to order a quantity of fiber for additional trials.

With each trial it becomes more apparent that a more suitable grade of asbestos will be needed to fill the many requirements of this application. A major cost item is machine clothing and it is obvious that the existing grades being supplied will lower the life of these auxilaries. When downtime necessary for replacement of clothing is taken into consideration, with increase in frequency, asbestos won't be likely to remain in use very long.

Results of tests and descriptive matter on the mill equipment will be covered in a separate report to follow shortly.

R. G. Quinn

jc

cc: A. Boisclair, DH
M. S. Badollet
E. R. Williams
J. S. Parkinson
File

JOHNS-MANVILLE RESEARCH CENTER

Memorandum M411-7

Date January 24, 1956

ASBESTOS FIBER FOR TISSUE
DOESKIN PRODUCTS COMPANY
ROCKDALE, DELAWARE

W. G. Donovan, J. Battersby, and the writer visited Doeskin Products' mill on January 20 and discussed usage of asbestos fiber in the line of tissues made in this four machine paper mill. Messrs. Philips (Technical Control) and Smith (Paper Mill Superintendent) were contacted.

There are no centrifugal cleaning devices ahead of the machines. Stock is given a mild beating in a group of Umpherson beaters, moves through some horizontal storage chests which are agitated but not enough to prevent settling of grit. They do not check speck count and almost anything is permitted in the sheet. Accordingly, they do not regard fine rock specks as anything to worry about. On this basis we agreed to conduct a trial on one machine. Input is 900 lbs/hour and they wish to use 3% asbestos in the furnish, based upon their laboratory handsheet results. Machine speeds are between 1500 and 1700 ft per minute.

Best and quickest way to get the answer is to take a few bags down in the back of a car. Grade is 7D04. This we plan to do on January 31. Messrs. Donovan and Battersby will make reservations in Wilmington for night of the 30th.

R. G. Quinn

RGQ:ho

cc: J. C. Kelleher, AFD Asbestos
W. G. Donovan, Philadelphia
E. R. Williams
G. B. Brown
J. S. Parkinson
~~File - 411~~
C

MT06146

JOHNS-MANVILLE RESEARCH CENTER

Memorandum M411-8

Date February 3, 1956

ASBESTOS FIBER IN TISSUE - TRIAL RUN AT DOESKIN PRODUCTS COMPANY, ROCKLAND, DELAWARE, JANUARY 31, 1956

Requested by: J. C. Kelleher

Experimental runs of tissue including 2% and 4% 7D04 fiber were conducted on Doeskin Products Company's No. 4 machine on 1/31/56.

The No. 4 machine stock system includes a Hydropulper followed by a 36-in. Bauer Refiner and a Jordan. There is a stock chest between the Hydropulper and Bauer. The Bauer is a 36-in. double disc unit driven by two 50 H.P. motors. Throughput is between 900 and 1000 lbs per hour. The refiner is usually run with .005-in. clearance between plates and the Jordan is set to do a little brushing and no cutting on the stock.

White water goes to a settling system including a flotation unit built by Infilco. This part of the system was not in operation probably due to river conditions. The water supply was highly colored and included a high content of brown colloid material. This made it advisable to spill excess white water rather than recycle it through the saveall system. Machine speeds at this time with cold water are in the range of 900 fpm. However, on regular grades the machine had been operating at 760 to 780 previous to the start of the trial runs.

First batches of stock including asbestos were made up in an old Umpherson beater. Two per cent 7D04 was added. Successive beaters included 4% but due to paper machine conditions usage was cut back to 2%.

The Hydropulper was then employed for fiberizing instead of the beater.

The 2% asbestos stock ran about the same as regular on the machine. The fourdrinier has micarta baffles supporting the wire instead of table rolls. There are three such supports between the stock inlet and the suction box. The sheet is substantially dewatered after passing the suction box. The couches are plain and considerable water is forced through the wire at this point. When 4% asbestos stock was run, the sheet was not dry on leaving the suction box and a torrent of water was forced out at the couch. This resulted in a wetter sheet going to the dryers and a reduction in machine speed to 710-720 fpm. The wire on the machine was 85 mesh bronze. Some improvement in operation resulted when the Jordan was backed off. However, head paper maker decided it would be unwise to continue at 4% because the sheet was near minimum on strength and there was some question as to whether or not it would carry through the converting units. Current specification for strength is 320 grams. The 2% sheet tested 345. The regular sheet runs between 360 and 400 grams.

The freeness of the regular stock is 600 to 630 ml. With 2% asbestos this had been reduced to 550. No reading was obtained on the 4% but performance on the wire indicated a drop in drainage rate below that obtained at 2%. Adjustments of the refiners, both Bauer and Jordan, can compensate to some degree for the slowing of the asbestos. However, when this is done the sheet strength drops off.

Softness comparisons were made by mill personnel and all were in agreement that the asbestos sheets were softer than regular. There are no instruments in the mill for softness tests. Several jumbo rolls were converted into towelling with results said to be equal to regular. This converting operation involves embossing two sheets together employing a steel and a composition roll. Some sticking occurred to the steel roll. This was said to be experienced when the strength of the tissue is low. (We believe formation is also a factor in this and the 4% tissue was poorly formed).

The tissues included a small amount of specks. The mill planned originally to make speck counts on the production. This idea was abandoned due to the small number. The brightness of the asbestos content tissues was not as high as regular but due to the presence of brown coloring matter in the water, no direct comparisons could be made.

The crepe was held at 15% and the inclusion of asbestos did not alter its character.

A flocculant was brought along with the fiber with the object of improving drainage through addition at the head box. There were no facilities available to dissolve the compound, Separan 2610, and a part solution - part suspension, was flowed into the stock as it entered the machine head box. There was no difference in drainage performance evidenced with the flocculant. Usage was estimated at about .5% of asbestos fiber weight. It is possible that the river water colloids exhausted the flocculant. There was some slight change in color of the sheet when the flocculant was added.

The mill planned to continue the run until all the asbestos was used up. They believe that they can use 2% regularly and are interested primarily in displacing $140 per ton bleached pulp with $85 asbestos. At 2% they estimated their asbestos requirement at 250 tons per annum. Results of the run will be reviewed by Messrs. Smith and Phillips with Mike Donovan on February 7 or 8.

Research Center evaluations of the several samples developed the following data:

Asbestos Content, %	0	2	4
Weight grams/sq ft	1.60	1.70	1.55
Crepe %	10	15	10
Water Absorption, %	530	630	520
Castor Oil Absorption, %	1880	2140	2600
Kerosene Oil Absorption, %	422	425	316

Comparative samples are attached.

R. G. Quinn

RGQ:ho

cc: J. C. Kelleher, Asbestos
W. J. Donovan, Philadelphia
E. R. Williams
G. B. Brown
J. S. Parkinson
File - 411
C

MT06148

411

JOHNS-MANVILLE RESEARCH CENTER

Memorandum M411-7

Date January 24, 1956

ASBESTOS FIBER FOR TISSUE
DOESKIN PRODUCTS COMPANY
ROCKDALE, DELAWARE

JAN 25 1956

E. R. WILLIAMS

W. G. Donovan, J. Battersby, and the writer visited Doeskin Products' mill on January 20 and discussed usage of asbestos fiber in the line of tissues made in this four machine paper mill. Messrs. Philips (Technical Control) and Smith (Paper Mill Superintendent) were contacted.

There are no centrifugal cleaning devices ahead of the machines. Stock is given a mild beating in a group of Umpherson beaters, moves through some horizontal storage chests which are agitated but not enough to prevent settling of grit. They do not check speck count and almost anything is permitted in the sheet. Accordingly, they do not regard fine rock specks as anything to worry about. On this basis we agreed to conduct a trial on one machine. Input is 900 lbs/hour and they wish to use 3% asbestos in the furnish, based upon their laboratory handsheet results. Machine speeds are between 1500 and 1700 ft per minute.

Best and quickest way to get the answer is to take a few bags down in the back of a car. Grade is 7D04. This we plan to do on January 31. Messrs. Donovan and Battersby will make reservations in Wilmington for night of the 30th.

R. G. Quinn

RGQ:ho

cc: J. C. Kelleher, AFD Asbestos
W. G. Donovan, Philadelphia
~~E. R. Williams~~
G. B. Brown
J. S. Parkinson
File - 411
C

MT06149

Research Center
September 21, 1955
File: 411

W. N. Reakes, Asbestos

Asbestos Fiber for Tissues
Scott Paper Co., Chester, Pa.
H. G. Donovan's Report of 8/8/55

Attached is copy of the subject report upon which you asked for comments.

The processing of the heat treated 6D20 was too severe. This fiber will not withstand much refining action. It also is more easily rejected in centrifugal cleaning. Subjecting the fiber to these units would leave very little +48 mesh fiber. Then, following this with screening through .008" and .012" flat plates, the chances of there being any +48 mesh fiber left are quite remote. The resulting asbestos undoubtedly was all fine fraction and hence the freeness drop was excessive.

There is no mention made of the mixing procedure used when the processed heat-treated 6D20 was added to the tissue pulp. The way to do this without running into clumping is to add the dilute asbestos gradually to the pulp while the latter is being well agitated. The asbestos then will be dispersed within the pulp suspension and will not have a chance to coagulate. It is also important that the asbestos suspension from the screens not be allowed to stand as it will clump together and form clots. Once they are formed there is no chance of getting them redispersed in the pulp body.

It may be difficult to carry this operation out in the laboratory or pilot plant as the coagulating time of asbestos suspensions is generally a matter of seconds. To offset this action, a small percentage of a dispersant such as Marasperse, Daxad, Blancol or Polyfon T may be used. The addition of 0.5 to 0.7% of asbestos fiber weight is sufficient to prevent coagulation in asbestos suspensions 0.5% solids. The lower the consistency of the asbestos, the lower will be the amount of dispersant required. It should be mentioned that excessive addition of dispersant should be avoided as it will slow up the drainage rate of the asbestos and possibly the tissue stock itself. The optimum percentage to employ should be determined in advance by shaking up the suspension in a graduate and observing how long it takes before flocculation occurs.

As to a better procedure with heat treated 6D20, I would suggest:

(1) No refining - run the suspension through the cleaner at low inlet pressure - about 10 to 15 pounds inlet pressure instead of 40, which is standard. Add dispersing agent to the fiber beforehand and it will cut down the cleaned losses.

(2) Screen through 30 to 50 cut plates. Ordinarily 50 cut is used on asbestos. For this application 30 might be more desirable but the fact that the cleaner has already substantially rejected granular and pencil content, a 50 cut might be satisfactory. In fact it might be feasible to employ the fiber from the cleaner without screening at all.

(3) The reject from the cleaner, if sufficient in volume, might be opened up in the Bauer refiner and the opened fiber run through a second cleaner to improve recovery.

In writing this I am assuming that the policy is to encourage interest by Scott in heat treated fiber. Our other approach would involve the use of coagulants in the tissue stock so that the slowing action of Bauer refined, cleaner treated fiber would be reduced.

R. G. Quinn

RGQ:ho

cc: J. C. Kelleher, Asbestos
E. R. Williams
J. S. Parkinson
M. S. Badollet
File
C

Attach.

COPY

CANADIAN JOHNS-MANVILLE ASBESTOS LIMITED

CUSTOMER CALL REPORT

Territory: Philadelphia Date 8/8/55

Name of Account Scott Paper Company

Address Chester, Pa.

Names and titles of persons interviewed Sid Coppick, Engineer

Comments:

They ran the sample of heat treated 6D20 thru their Bauer and centricleaner and also thru two flat screens. Dimension of mesh of screens was .012" in one and .008" on the other. Hence, they were assured that there would be no clumps of fiber going into the pulp mixture. This was then added to the pulp stock and checked for freeness and then made into handsheets.

Results on freeness were:

Basic Pulp Stock	- 516
+2% Asbestos	- 412
+3% Asbestos	- 360
+5% Asbestos	- 313

All handsheets showed bad formation and clumps of fiber. From the conditions it appeared that the asbestos formed clumps when added to the pulp stock. They found on Bauer and centricleaning the freeness dropped.

Would appreciate Quinn's comments and suggestions. Scott willing to evaluate anything new we can offer.

Signed H. G. Donovan

MT06152

COPY

JOHNS-MANVILLE
Asbestos Fibre Division

CUSTOMER CALL REPORT

Territory PHILADELPHIA Date 7-15-55

Name of Account SCOTT PAPER COMPANY

Address CHESTER, PENN.

Names and titles of persons interviewed SID COPPICH

Comments I delivered a 5# sample of heat treated 6D20 recieved from Research. We ran the fibre through a British Standard Freeness test. This test consists of taking a standard pulp stock (In this case their # 41) which contains 1.57% solids and adding 3% of asbestos on weight of solids, then running the test.

METHOD 382 cc of 1.57% solids stock diluted to 2200 cc. Two 1000 cc portions taken of this stock. To one portion add 3% of asbestos (on wt. of solids in 1000 cc). Both portions run through (seperately) British Std. Disintegrator for 5 minutes. Then each portion is run through a freeness tester which is a brass tube about 4" in diameter with a perforated brass plate on the botton. When the portion to be tested is poured into this cylinder the amount of free flowing water passing through is collected and amt. collected measured in cc. This reading is corrected for temperature and consistency. The corrected freeness on the stock containing asbestos was 431; on the stock without asbestos the corrected reading of freeness was 512. The freeness test on 6D AX 2469 M stock I submitted from Quinn at research was 284 hence as far as freeness is concerned the heat treated asbestos represents a considerable improvement and its freeness is in the usuable range for paper manafacture. I pointed out to Coppich that we were not making this asbestos at present and that I didn't know

OVER -

Signed .....

FORM AFD-2

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

2

Territory Phila. Date 7-15-55

Name of Account SCOTT PAPER

Address

Names and titles of persons interviewed

Comments

if we were interested in producing it. In any case they will take the sample run it thru their Bauer opener and Centri-Cleaner and run on their lab paper machine. This won't be complete for three or four weeks.

I obtained sheets of paper made from the 6D AX 2469 M and wood pulp and from wood pulp alone. 3% 6D used. The stock supply by research was not as well opened as they require and clumps & pencils of asbestos appear in this lab produced paper. On sheet containing asbestos I have incircleded some of clots.

Signed H. G. DONOVAN

FORM AFD-2

MT06154

Research Center
June 22, 1955

J. C. Kelleher - Asbestos

Scott Paper - Your letter June 2

The samples of 6D AZ2469M was received and our results are compared with those of the mines. We find that the +14 mesh is only 11-1/2 per cent instead of 14.9 per cent as reported by the mines. In the Specifications we requested 17 per cent minimum. A few days later we received three bags of 6D AZ2469M. Our results on these three bags using the Mellott and air analysis are as follows:

Bag	+14M %	+28M %	+100M %	+200M %	-200M %	Fiber %	Dust %	Rock %
1	14.9	9.2	11.7	8.1	56.1	54.5	29.4	16.1
2	14.1	9.5	11.2	7.8	57.4	52.7	30.0	17.0
3	15.5	9.6	11.0	6.8	57.1	54.2	29.0	16.8

Mr. Quinn took one of these bags with him to the Scott Paper Company for testing and he is writing a report on his visit.

M. S. Radellet

SK

cc: R. G. Quinn
C. R. Greenlay - Asbestos
H. G. Donovan - Philadelphia
G. B. Brown
E. R. Williams

MT06155

A.F.D. ASBESTOS
June 2nd, 1955

M. S. Badollet, Manville Research

Asbestos Fibre for Scott Paper
S.P.R. AFD-55-2

To permit taking the next step in this development, Messrs. Quinn and Badollet ask that we have a bag of 6D-AX2469 forwarded to Mr. Badollet in a car of fibre going to Manville.

They have set up as a desired specification for this bag on McNett +14 - 17% minimum, Cumulative +100 - 38% minimum and, -200 - 53% minimum.

After considerable effort and trial, the Mines determine that the best they could do was somewhat lower than the specification requested, and we therefore permitted a bag to go forward carrying the following data:

			RESEARCH RESULTS
	+ 14 Mesh	- 14.9	11.5
	+ 28 "	- 9.1	9.7
	+100 "	- 10.3	11.2
	+200 "	- 10.7	12.8
	-200 "	- 55.0	54.8
Cumulative	+100 "	- 34.3	32.4

+14M CRUDE = 5.0%

It would appear that this is the maximum quality of AX-2469 possible under present conditions.

I believe that the intention was to use this bag on a trip being made to Scott Paper by Messrs. Quinn and Donovan to determine whether, with their own equipment, Scott Paper could beneficiate this fibre sufficient to meet their needs. If not, we have to prepare the final product and it would mean a much more highly refined job than we have attempted to do up to the present time, and that phase of the problem will have to stand on its own feet after Messrs. Quinn and Donovan's report.

J. C. McELHER

JCK/c

cc: R. G. Quinn, Manville Research
H. G. Donovan, Philadelphia
E. R. Williams, Manville Research
J. O. Eby
C. A. Greenlay
W. G. Bradburn
W. N. Reakes

MT06156

Research Center
May 9, 1955

File: 441

A. B. Cummins

Sales Product Request No. AFD-55-2
Asbestos Fiber for Scott Paper

The Mines originally submitted 6D AX2494M (Bauer ground 6B) to Scott for a test. This fiber by McNett only had 3 per cent +14M fiber, 20 per cent cumulative +100M and 71.3 per cent -200M fines. The Scott paper convert was too much fines and too little fiber +14M.

The way to satisfy this potential use of fiber is as follows:

1. The Mines must use as a feed to the Bauer grinder a 6D fiber similar to the shipment made to Manville (6D AX2469M in Car 52253) last September or better. It contained +14M fiber McNett 17 per cent, cumulative +100M fiber 38 per cent and 53 per cent fines -200M.

2. After Bauer grinding this quality of 6D, it should be satisfactory to submit to Scott as the +14M and -200M will be within the range Scott is looking for.

3. Present day 6D AX2498M from the new mill all contain around 70 per cent fines -200M and this is too much. Also the +14M wet screen is around 6 or 7 per cent which is too low. After Bauer grinding this quality of 6D the +14M will be low and the -200M will be nearer 80 per cent and this will not satisfy the Scott Paper Company.

In other words, this problem is a simple one. You must start with a good grade of 6D as a feed to the Bauer grinder. Five or six tests in Canada at the Fiber Development Department should develop this fiber to meet the specification as follows:

1. Feed - 6D McNett +14M 15 to 20 per cent, cumulative +100M 35 to 40 per cent and fines -200M 45 to 55 per cent.

2. After Bauer grinding the McNett test should be +14M 10 to 15 per cent, cumulative +100M 25 to 35 per cent and fines -200M 55 to 60 per cent.

3. There will not be any crudy pencils present in the Bauer ground material.

The above set of specifications have been developed after discussions with Donovan and Quinn after they visited the Scott Paper Company. Fiber meeting these specifications should be made and submitted to the Scott Paper Company for a trial test. There is no use in submitting a Bauer ground fiber of 70 to 80 per cent fines -200M.

M. S. Badollet

tm

MT06157

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

Territory PHILADELPHIA Date 3-25-55

Name of Account SCOTT PAPER CO

Address CHESTER PA

Names and titles of persons interviewed DON SPARROW, CHAS BENZ KEN BRITT.

Comments Gave them information on pumping re either centrifugal pumping or plunger pumping can be used on that grade of asbestos also that the maximum percentage of asbestos that could be pumped would be about 6%.

They had a meting yesterday and discussed the results of the trial run. Several problems not mentioned in my discussion with them earlier this week were brought up. First the recovery of asbestos fibre was only 25%. Retention analysis showed only 1% asbestos (even at that figure satisfactory softening was obtained) Second (as probably due to poor recovery) * the asbestos plugged their "save-all" unit so that they had to discard the waste water and asbestos. The plugging of the "Save all" is a serious problem. On top of this just before the asbestos trial was run their machine began producing a soft tissue by means of some adjustments in the equipment. Thus the problem at Detroit was solved. It may be that changes made may prove too expensive but at present in this location asbestos is not a factor. As development work is done at other

* Their wood pulp have only 2 to 10% — 150 mesh fines. On soft woods the highest retention is on 14 mesh screen. On hard woods highest retention is on 28 mesh screen with nothing on 14 mesh screen

Signed _____

FORM D-2

MT06158

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

(2)

Territory Philadelphia Date 7-25-55

Name of Account Scott Paper

Address

Names and titles of persons interviewed

Comments plants asbestos could again enter the picture however that would be contingent on the solution of the problems encountered. As a result they intend to do more work on asbestos in the laboratory. In order to determine whether the fines present in asbestos were the trouble they would like to test a couple of pounds of Quentera broke (assuming ~~temporarily~~ that it would be free of fines) ~~of fibre with low fines content~~ It is purely a research approach and they realize that such material is not available for any other purpose than research testing. From such testing we can determine just what asbestos must have to overcome some of these problems. When we have that information then we can decide whether we can make such a product and also whether it would be economical for Scott's use. Since only 1% of asbestos softens the paper satisfactorily their ideas on original cost have changed and if we could produce such a fibre at 300 to 400/ton it might very well be acceptable

Signed

FORM AFD-2

MT06159

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

(3)

Territory Phila Date 3-25-55

Name of Account Scott Paper Co

Address

Names and titles of persons interviewed

Comments We also discussed the crepeing problem again. and I suggested they use oxidized starch as an adhesive on their Yankee Driers. At present the adhesive used is sprayed on the Yankee. Quinn had told me that ~~had~~ oxidized starch in concentrations of 2 to 3% of asbestos content was a very effective adhesive.

They now intend to make a 5 day run on wet crepe at Marinette Wisc using a chemical softner (made by Scott at price approx 20¢/#). The system at Detroit make paper on dry crepe method where a chemical softner has not worked. If they continue to have success with the chemical softner on wet crepe systems asbestos will not be tried there.

Some improvement on the softness of paper produced at Sound View Washington has been accomplished by mechanical means & processing but that is also subject to financial analysis. It may not be economical.

Their Fort Edward N.Y. plant may be the spot where asbestos will break the ice. The trial run several years ago on AX2407 resulted in no "save all" problems and no crepeing problem. However freeners should be improved if possible.

The above information is not encouraging but I believe

Signed

FORM AFD-2

MT06160

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

(4)

Territory Phila Date 7-25-55

Name of Account Scott Paper Co

Address

Names and titles of persons interviewed

Comments That eventually asbestos will find a place in this industry. Right now Scott personnal has more know how and experience with asbestos than any other company in the non asbestos paper industry. In connection with that Britt told me that he has seen some tissues supposed to contain asbestos made several years ago. He believes it was produced by the Burrows Paper Co of Little Falls N.Y. Did we ever supply these people with fibre and if so what were the results? The samples of paper were evidently experimental.

[illegible]

H H Donovan

Signed

FORM AFD-2

MT06161

Scott

Research Center
January 27, 1955

AX 2494M 100# bag

Bauer Ground 6D
Shipped 11-25-54 to Scott Paper

QS	2M oz	4M oz	10M oz	Pan oz
			7.4	8.6

Air Analysis	Fiber %	Dust %	Rock %
	80.0	12.0	8.0

Density

Loose

8.0 lb/cu ft

Rotap	6M F	10M F	20M F	35M F	35M G	65M F	65M G	Pan G	Total F	Total G
	0.8	36.2	46.2	10.1	0.1	1.1	0.2	5.4	94.4	5.7

McNett	+14M %	+28M %	+100M %	+200M %	-200M %	Cum +100 %
	3.0	6.8	11.0	7.9	71.3	20.8

MT06162

JAN 7 - 1955

JOHNS-MANVILLE

Asbestos Fibre Division

411 plb

CUSTOMER CALL REPORT

Territory Philadelphia Date Jan. 5, 1955

Name of Account Scott Paper Company

Address Chester, Pa.

Names and titles of persons interviewed Don Sparrow, Chas. Bean, Bob Medieros

Comments Call with Bob Quinn of Research.

Discussed introduction of Asbestos into wood pulp for production into toilet tissue.

They are approaching the problem of debonding from three angles. They are:

1. Introduction of small (under 10) percentages of asbestos (This in lab's opinion the most promising method)
2. Degredation of wood pulp.
3. Use of cationic (chemical) softner.

Following points covered in discussion:

1. Dirt in fibre. Principally iron particles which can be removed in a Vortrep or some similar centrifical separator. Scott believe this can be worked out. For lab test runs they have a small separator of this type which they will use in making lab pilot plant runs.
2. Fibre nuggils. These can be eliminated in the beating operation or removed in same equipment as used in removing dirt.
3. Retention. Quinn said our retention was 80% on 90 mesh cylinder. For Scott's process should be around 95%.

Signed .....

MT06163

FORM AED-2 STD.

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

Territory Philadelphia Date Jan.5, 1955

Name of Account Scott Paper Company

Address

Names and titles of persons interviewed

Comments 4. Specific Gravity and retention of asbestos fines in water. Spec given as 2.65. Present water cleaning equipment with alum added should eliminate asbestos fines in waste water.

5. Slitting Problems. (tearing of edges) Quinn advised that at Tilton we found that when the iron was removed no slitting problem existed.

6. Freeness. (or filtration rate) So far Scott has found freeness of asbestos to be about same as ground wood. No difficulty anticipated from that source.

7. Brightness of asbestos. As supplied it is between 40 - 50. On removal of magnetite jumps to 80. On experiments made by Scott presence of asbestos gives a whiter paper.

8. Advantages of Press. Packaging. Unit load and possibility of dumping bag (without slitting) into beater. Treated Kraft paper objectionable. Quinn mentioned bleached Kraft bags with easily desperable printing ink such as use by Celite. With such bags no opening necessary.

Signed

MT06164

FORM AFD-2 SPCo

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

Territory Philadelphia Date Jan. 5, 1955

Name of Account Scott Paper Company

Address

Names and titles of persons interviewed

Comments 9. Filtration. Possibility of fines of asbestos accumulating in closed system. However this problem can only be evaluated and importance determined by production run.

10. Health Hazard of Asbesting. Since this question will be raised in final analysis the lab men wish to know the story on this. We expressed the opinion that in such small amounts no trouble could occur. However advised them to write Dr. K. Smith in New York City and give him complete story and percent of asbestos to be used and ask his opinion. Quinn pointed out that resinous bonding agents used in paper were much more a source of trouble than asbestos. Official Scott attitude is that cellulose dust is not harmful, however unofficial thoughts are that it presents a health problem. I'll advise Smith that they intend contacting him and give him details.

11. Adhesiveness of Asbesting to paper making cylinders. They have found it to be less than wood pulp, so no problem.

12. Foam & Scum Formation. Quinn pointed out that such condition occurring when certain types starches and protiens are used was aggrivated by presence of asbestos. Scott personnel not too concerned about such a possibility.

Signed

MT06165

FORM AFD-2 SPCo

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

Territory Philadelphia Date Jan. 5, 1955

Name of Account Scott Paper Company

Address

Names and titles of persons interviewed

Comments 13. Plugging of pipes, seas pools etc. Doubtful that Asbestos in small percentages would cause any trouble here. Quinn pointed out that asbestos forms base for beneficial bacteria growth and that it has been established that this factor is helpful in keeping sewer pipes clear of various types of clogging growths.

14. Their Bauer McNett tests so far are as follows:

	∮ 14	∮ 28	∮ 48	- 48
6D AX 2494M	1.6%	3.8%	4.8	90.0
5R21	2.3	5.5	5.6	87.0
AX 2395 M	0.0	6.5	1.7	78.0
5R24	14.7	7.4	5.7	72.0
Ground Wood	0.0	7.0 to 12.0	25.0	63.0 to 68.0

All members of Scott personnal interviewed indicated that they were of the opinion that Asbestos was the answer to present problem of debonding and softening harsh wood pulp. At present they are evaluating a chemical softner and expect to make a lab run within a few days on 6D AX 2494M. They do not believe that the chemical softner will do the job that Asbestos will.

Signed

FORM AFD-2 SIN'o

MT06166

JOHNS-MANVILLE

Asbestos Fibre Division

CUSTOMER CALL REPORT

- 5 -

Territory Philadelphia Date Jan. 5, 1955

Name of Account Scott Paper Company

Address

Names and titles of persons interviewed

Comments Since our last meeting they have found that if approved fibre asbestos will be used in their plants at Detroit, Mich.; Maine; Chester, Pa.; and Brunswick, Ga. with the work starting at Detroit. Sound View, Washington will not enter the picture until process is operating in other plants.

All expressed appreciation of our visit and information supplied by Bob Quinn.

Went to lunch with Scott people.

MT06167

Signed H. G. Donovan

FORM 45D-2 SM

A.F.D. MONTREAL
Nov. 8, 1954.

A. B. Cummins, Manville Research

Scott Paper Company

Sometime ago Commercialization Project No. 905-2 was inaugurated and it included an item for producing a clean 6D fibre for use by the Scott Paper Co.

The interest temporarily died on the part of Scott Paper but has again been revived.

Attached hereto is a copy of H. G. Donovan's Call Report of 10/29/54 with a sample of the web produced by Scott Paper from our 5B08, AX-2407-M.

Before submitting samples of our New Mill fibres which, after an examination of the data here, we doubt would be successful, we would like to have this situation discussed with Mr. Quinn in view of his close association with asbestos fibre in very fine papers.

We would like to suggest that Messrs. Badollet and Quinn examine the fibres mentioned in this report and any others which they feel might be of interest and after examining the crudy pencils, long strands of fibre, grit and other items which might be detrimental to the Scott Paper process, come up with their recommendation as to which, if any, of our fibres would be most likely to succeed.

In the event that they feel none of them as now produced would do this job, and my own belief is that that is about the answer, then I would like to suggest that Mr. Quinn offer suggestions as to how a fibre might be produced which would satisfy Scott, whether by wet washing or by special mechanical treatment.

When and if we can develop something which would suit Scott, we can then consider the matter of how to produce it in quantity, whether it is a processing plant job which we might farm out to some current processer or whether it is something we could do in the pilot plant at Asbestos could be determined.

In the meantime by copy of this letter we are advising Mr. Greenlay that this subject is again open and to review his work on the matter and offer any additional suggestions he may have.

You will note that this could develop into one of our biggest and best outlets for possibly 6D or 5R and we have ample capacity should these grades lend themselves to the application.

J. C. KELLEHER

MT06168

JCK/T
cc: M. S. Badollet, Manville Research
R. G. Quinn, Manville Research
H. S. Deeley, Asbestos 1500
C. A. Greenlay, Asbestos 1500
W. N. Emakes
H. G. Donovan, Philadelphia

COPY

CUSTOMER CALL REPORT

Territory: Philadelphia Date: 10-29-54
Name of Account: Scott Paper Co., Chemical Research Labs.
Address: Chester, Pa.
Names & titles of persons interviewed: Mr. Sparrow, Chales Bems, Robert W. Madeiros

Comments: Within the last couple of years this company bought the plant and timber holdings of the Sound view Paper Co., near Everett, Washington. Their research group have recently been working on problems at that location and have found that wood fibre from that location requires a long heating time to produce proper pulp for paper making and to secure what they call "better formation" of wood fibres in paper. This results in a harsh, high tensile strength paper. Hence on the basis of their experience with asbestos pooducing a soft "feel" and reducing paper strength they intend to evaluate our asbestos in this application.

They desire a fibre with following general qualifications.

1. As high fibre content as possible.
2. As little rock as possible, i.e. black specks and rock that would result in pull outs on paper.
3. No bundles - as close to completely opened fibre as is feasible with milling equipment.
4. They would prefer to operate economically in the range of wood pulp, ie: $80.00 to $100.00 per ton. (These figures are their cost. Actually such pulp on open market would be around $120 to $140 per ton.
5. They desire efficient "debonding" by the fibre (asb.) However, this is something that they will have to experiment with to determine desired length of fibre. If Bob Quinn at research has any data on the efficiency of fibre in reducing tensile strength and relation of such reduction to fibre length it would be of considerable help to the Scott men.

They have produced so called "hand sheets" in the lab from AX 2407 M. In these very small bundles of fibres show up since the paper is of the facial tissue type. I am attaching one of those sheets for your observation.

I am requesting for their lab evaluation, 4T(AX 2463) new mill (see below))
5K04) 25 pounds
6D from new mill (see below)) of each.
MT06169 AX 2395 M)

The reason I pick new mill 4T and 6D is that I understand it is low in rock. Do we have a willowed and screened 4T from Mill 5 as well as a similar 6D from same mill? If so I believe they would be of interest here.

I am sending Bob Madeiras a few pound samples of AX 2395 M and 5K04 for preliminary work while awaiting larger samples.

Production, if they decide to use asbestos, would be at Everitt Washington, Fort Edward, N.Y. Mobile, Alabama and Chester, Pa. First production and majority user would be Everett, Wash.

They believe they will require a 10% addition of asbestos to produce the results they desir Hence if it works out they would need around 25.000 tons a year at the Everett, Washington Plant. I told them if asbestos was what they wanted we could give them what they needed. We may be fortunate and have one of the samples solve their problem or if that fails, we ma have to work out something for them. I sure hope we're foortunate. I'd appreciate comments on this.

W. . Donovan

RESEARCH LABORATORIES

JOHNS-MANVILLE

MANVILLE, N. J.

REPORT NO. 13-97

PAGE NO. 7-PE-004-1

DATE 9-22-42

REQUESTED BY:

SUBJECT: PREPARATION OF SPECIAL FIBRE FOR ASBESTOS TISSUE PAPERS

SUMMARY:

Two hundred pounds of specially processed fibre were prepared at the Mines in accordance with Fibre Development Department Report M-GN 7-113. The object was to produce a short fibre with minimum dust content so as to increase overall yield of washed fibres.

This fibre was washed in the usual manner and a yield of 54% was obtained. This represents a large increase over the yield of untreated 6D04 fibre, which is 25%. The processing therefore was effective in removal of dust. However, much of the increased yield is rock and the washed fibre could not be used in thin asbestos paper production.

It is suggested that similar processing be applied to fibre of lower rock content. Coarse granular material in appreciable percentages is objectionable.

* * * *

This report consists of Summary only.

ewr

Dr. C. F. Rassweiler, V. P., GHQ
Mr. H. K. Sherry, V. P., Asbestos
Mr. H. S. Deeley, Asbestos
Mr. W. N. Reakes, Asbestos
Mr. M. S. Badollet, Research, Mvl.
Mr. E. R. Williams Res. Mgr., Mvl.

MT06170

APPROVED R. G. QUINN

REPORT BY

NOV 2 [illegible]

A.F.D. MONTREAL
Nov. 25th, 1954

M. S. Badollet, Manville Research

Scott Paper

Since our meeting at Manville when we discussed the Scott Paper situation, I talked to Mr. Donovan who was leaving on a Southern trip. He had been in touch with Scott Paper and they were very anxious to get a sample of AL-2305 for evaluation in their process. We saw no objection to going ahead with this and the material was furnished by Mr. Donovan.

I note from two of his recent Call Reports which include samples of paper made by Scott that they are making real progress. In the last paragraph of Donovan's report he says, "They would welcome Bob Quinn visiting them and I am to set up a date when I return from down South".

I feel this is one of the most promising prospects on new use that we have with us at the present time.

When Donovan makes the date with Quinn, he can go over with him his various reports on the subject, review the progress to date and work from there.

J. C. KELLENER

JCK/T

cc: R. G. Quinn, Manville Research
J. S. Parkinson, Manville Research
E. R. Williams, Manville Research
A. B. Cummins, Manville Research
H. G. Donovan, Philadelphia
N. M. Beakes

MT06171

-Sec 11 Wayne Co.
Examination of Fibers

Identification	Method of Preparation	Total +80M %	Total +80M Crude %	Total +80M-Fine %	Remarks
5ROy	Mill Reg Production Old Mill	28.70	5.94	0.30	
5KOy	" " " " "	40.10	4.44	0.24	Stringy
7DOy	" " " " "	23.94	4.50	0.60	
CD(AV 2YL3M)	" " " New Mill "	26.60	10.60	1.24	
CD(AX 2YL3M)	Wallowed 1X	24.90	9.98	0.36	
CD(AX 2YL3M)	1 Pass thru Stanlevant	27.10	10.04	0.20	
D(AX 2YL3M)	1 Pass thru Stanlevant followed by 1 Pass thru Willow	32.54	9.22	0.22	
D(AX 2YL3M)	1 Pass thru Willow " " 1 " " Stanlevant	29.98	9.14	0.20	
V 3 3 5M	Regular Production Old Mill	3.40	3.10	0.30	

MT06172

MANVILLE, N. J.
June 25, 1942

RECEIVED
JUN 25 1942
RESEARCH
LABORATORIES

MR. H. S. DEELEY
Fiber Development Dept.
Asbestos Factory

V 200

SPECIAL FIBER FOR ASBESTOS TISSUES

Mr. Badollet has discussed the possibilities of producing a more suitable fiber for thin papers, using your Double Whizzer unit. For evaluation of fiber here, we should have two 100-lb. bags of each grade. It was suggested that 6D04 and 7D24 be run thru the unit with the object of removing the maximum amount of dust from these grades. Samples could be included in a Manville car, marked for the writer's attention.

In order to prepare a PE for such runs, we would like to have a cost estimate and accordingly would appreciate your advising us on this detail and also when you can schedule the trials.

R. G. QUINN
Research Laboratories

Mr. M. S. Badollet - MVL
Mr. E. R. Williams - MVL

MT06173

MANVILLE, N. J.
July 6, 1942

RECEIVED
JUL 6 1942
RESEARCH
LABORATORIES

MR. H. S. DENLEY
Asbestos, Que.

200

SPECIAL FIBRE FOR ASBESTOS TISSUES

In accordance with your memorandum of July 3rd we have made up a FE which is being forwarded to your location through regular channels. In making this up we have eliminated reference to the Velos machine. Mr. Shoemaker attempted to use this unit in his experimental plant here for dust removal and results were not of any consequence. In view of this experience we do not believe it advisable to experiment with other than the Double Whisker for this purpose. Anything you could do to speed along this specially prepared fibre for us would be greatly appreciated.

H. G. QUIGG
Research Laboratories

Mr. H. S. Radcliff - Res. Labs.
Mr. H. K. Sherry - V.P. - Asbestos
Mr. H. H. Reakes - Asbestos
Mr. H. R. Williams - Res. Mgr.

MT06174

Asbestos Paper Charged File

RECEIVED
AUG 29 1966
ASBESTOS FIBER DEPARTMENT

August 25, 1966

H. A. Boisclair, NY 270

cc
N. W. Hendry, Asbestos 1500
W. C. Streib

UNION CARBIDE CORPORATION
Brochures on Asbestos in Paper
Yours-8/11/66

Thanks for the above. I believe Research has seen them all. We have been conducting a market survey to determine if there really is an established market and these claimed uses are actual. So far, pitch control in certain areas appears to be an outlet for Coalinga asbestos. A few companies use it in very small amounts for TiO_2 retention. However, it does cause loss of strength and poor filtration (slows down the paper machine).

We'll keep you informed of any new developments.

H. G. Donovan
Research & Engineering Center

P.S.--W.C.Streib--- H.A.Boisclair sent in attached. I believe you've seen most of them.

HGD

Reply to U-23
Asbestos in Cellulose Paper

Union Carbide is currently promoting high purity grades of asbestos from their Coalinga, California, mine for use in cellulose papers. JM development programs concerned with this use of JM asbestos fibers over a span of several years have indicated benefits to be gained are marginal. Reports from the paper industry on the performance of Union Carbide's asbestos are varied; and when coupled with our findings, indicate that the operational and economic benefits to be derived from the development of a fiber suitable for use in cellulose papers are somewhat questionable but the following program is suggested.

The initial phase of investigation will concern processing of both Coalinga and Jeffrey chrysotile to provide fibers of relatively low grit and iron content suitable for use in cellulose paper. Both dry and wet fiber processing methods for opening and cleaning fiber will be evaluated to aid in developing new and cleaner fiber for this use. Handsheet studies will be used to define the effects of asbestos additions on sheet

forming characteristics, sheet appearance, and sheet physical properties. Fiber that shows promise for use in cellulose paper will be used in studying means for blending it with TiO_2 to provide a product similar to Union Carbide's Asbestos "T". Asbestos "T" will serve as control in this program. The product that appears most promising in handsheet studies will be evaluated on pilot plant equipment.

Subsequent phases of investigation would include evaluation of fiber and/or fiber products resulting from phase 1, and evaluation of competitive materials to establish comparative data for applications as a pitch control or retention aid, as well as contributions to softness, opacity, and printability characteristics of specialty papers.

Other phases of the project which are requested will be carried out as potential fibers are developed for specific uses.

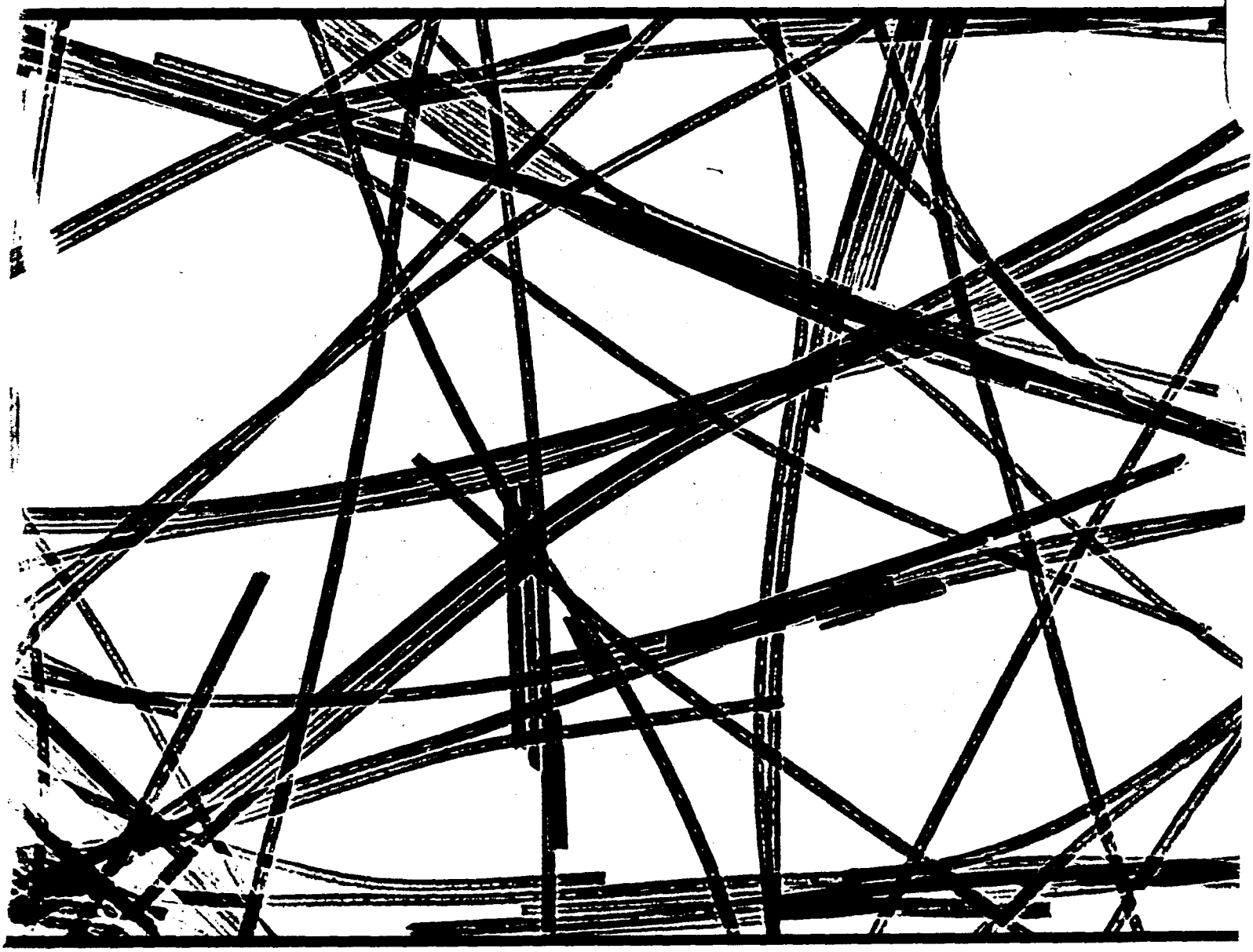
10. $40,000 total $60,000

11. 36

12. unknown

REFINED CHRYSOTILE ASBESTOS

- PRODUCT SPECIFICATIONS
- DESCRIPTIONS
- USES



UNION CARBIDE

UNION CARBIDE CORPORATION
Mining and Metals Division
270 Park Avenue, New York, N. Y. 10017

MT06178

HIGH-PURITY, SHORT-FIBER ASBESTOS AVAILABLE FROM UNION CARBIDE

RESOURCES AND CAPABILITY: Union Carbide owns and mines an extensive deposit of short-fiber (chrysotile) asbestos in the New Idria district of California. Ore mined from this region is processed in Union Carbide's up-to-date mill in King City, California.

NEW PROCESS ASSURES A HIGH-PURITY PRODUCT: Union Carbide's mill incorporates a unique process which results in a short-fiber asbestos product which is purer than any other commercially available. During the processing cycle, each individual chrysotile fibril is fully liberated from the surrounding fibrils and entrapped impurities.

Union Carbide's asbestos is:

- Lower in grit, magnetite, and unrefined fiber bundles.
- Higher in brightness and surface area—uniform in quality.

UNION CARBIDE'S ASBESTOS AVAILABLE IN TWO MAJOR GRADES: Union Carbide's range of HIGH-PURITY grades of asbestos is designed to meet the needs of a number of new uses for chrysotile asbestos. A range of STANDARD grades of asbestos is competitive with the conventionally produced Grade 7 asbestos.

USE:

HIGH-PURITY GRADES

Cellulosic paper: contributes to retention, pitch control, softness, opacity, and printability

Specialty papers

Ceiling tiles

Fresh water treatment: acts as a clarifying agent and decolorizer

Waste water treatment: acts as a flocculant, BOD removal agent and enhances oxidation

Plastic Products: can be used as a reinforcing material and as a filler for non-opaque plastics

STANDARD GRADES

Vinyl-asbestos floor tiles

Asbestos-cement products

Asphalt floor tile

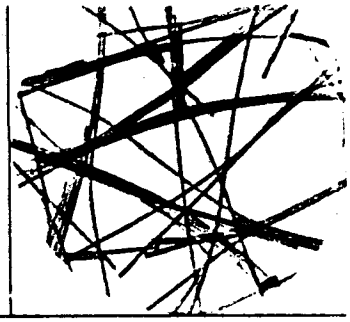
Asphalt road paving

Filled plastics

MT06179

ASBESTOS

INFORMATION BULLETIN



UNION CARBIDE HIGH-PURITY ASBESTOS

A UNIQUE FIBROUS SOFTENING AGENT AND RETENTION AID FOR TISSUE AND TOWELS

PROVIDES

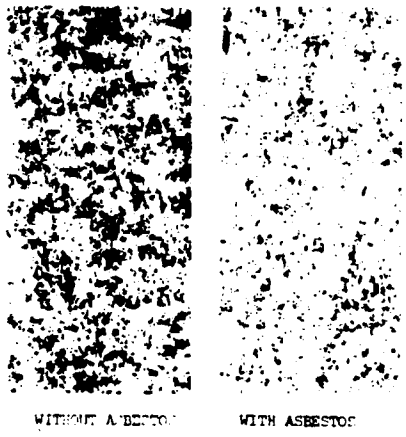
FEXIBILITY; DRAPE; VELVET SURFACE FEEL

CLARK SOFTNESS VALUES :

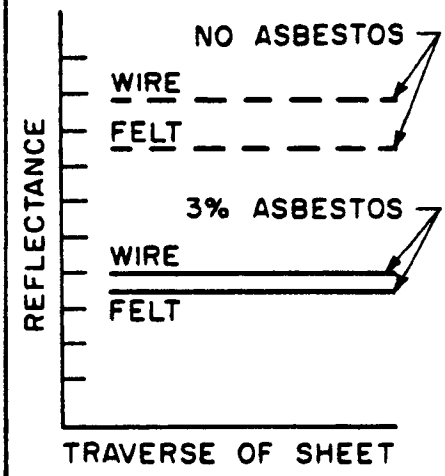
BLEACHED SULFITE UNFILLED ——— 9.5

SAME WITH 5% ASBESTOS — 14.1

IMPROVED SHEET FORMATION



INCREASE DYE RETENTION



PLUS

IMPROVED RETENTION OF CELLULOSE FINES AND FILLERS

SEE ATTACHED GRAPHS AND MILL TRIAL DATA

MT06180

APPLICATION SOFTNESS FOR FACIAL TISSUE

Purpose of Trial: Improve overall softness and reduce raw material costs.

Type of Paper Machine: Yankee — 120" Trim with 75/58 mesh wire
Machine Speed: 1000 ft./min. with 10% Crepe
Production Rate: 20 tons/day

Furnish (in use):	Furnish Possible Using 4% High Purity Asbestos:
10% Kraft Bleached Hardwood ($90 per ton)	29% Kraft Bleached Hardwood ($90 per ton)
66% Spruce Sulfite ($150 per ton)	43% Kraft Bleached Pine ($110 per ton)
24% Broke ($130 per ton)	24% Broke ($102 per ton)
	4% Asbestos ($150/ton)
Furnish Cost . . . $139 per ton paper	$110 per ton paper

Savings to paper company per year (300 days) $174,000

Economic Gain and Quality Improvement:

This trial indicated that this paper company can save $174,000 per year in their facial operation alone. High Purity Asbestos was evaluated at the 2%, 4%, and 6% level. A panel of people experienced in evaluating facial tissue handfeel judged the 4 and 6% asbestos content paper the best they had felt for handfeel. A side benefit was noted by the paper company people—that the asbestos contributed to more uniform formation.

Physical Characteristics of the Facial Tissue:

Percent Asbestos:	0%	2%	4%	4-6%
Basis Weight (Lbs./3000 ft.^{2})	11.53	10.96	10.66	10.94
Bulk or Caliper (Std. Test)	32	31	30.9	31.2
Machine Direction Tensile (oz./15 mm strip)	9.3	8.6	7.1	5.1
Cross Direction Tensile (oz./15 mm strip)	4.8	3.8	3.4	2.6
Tensile Ratio (M.D./C.D.)	2.0	2.2	2.1	2.0
Absorption (seconds/.01 ml)	5	5	5	5

RESULT OF THIS WORK WITH THIS PAPER COMPANY:

This company now uses asbestos in all products: tissue, towels, and facial tissue.

SOFTNESS AND FORMATION

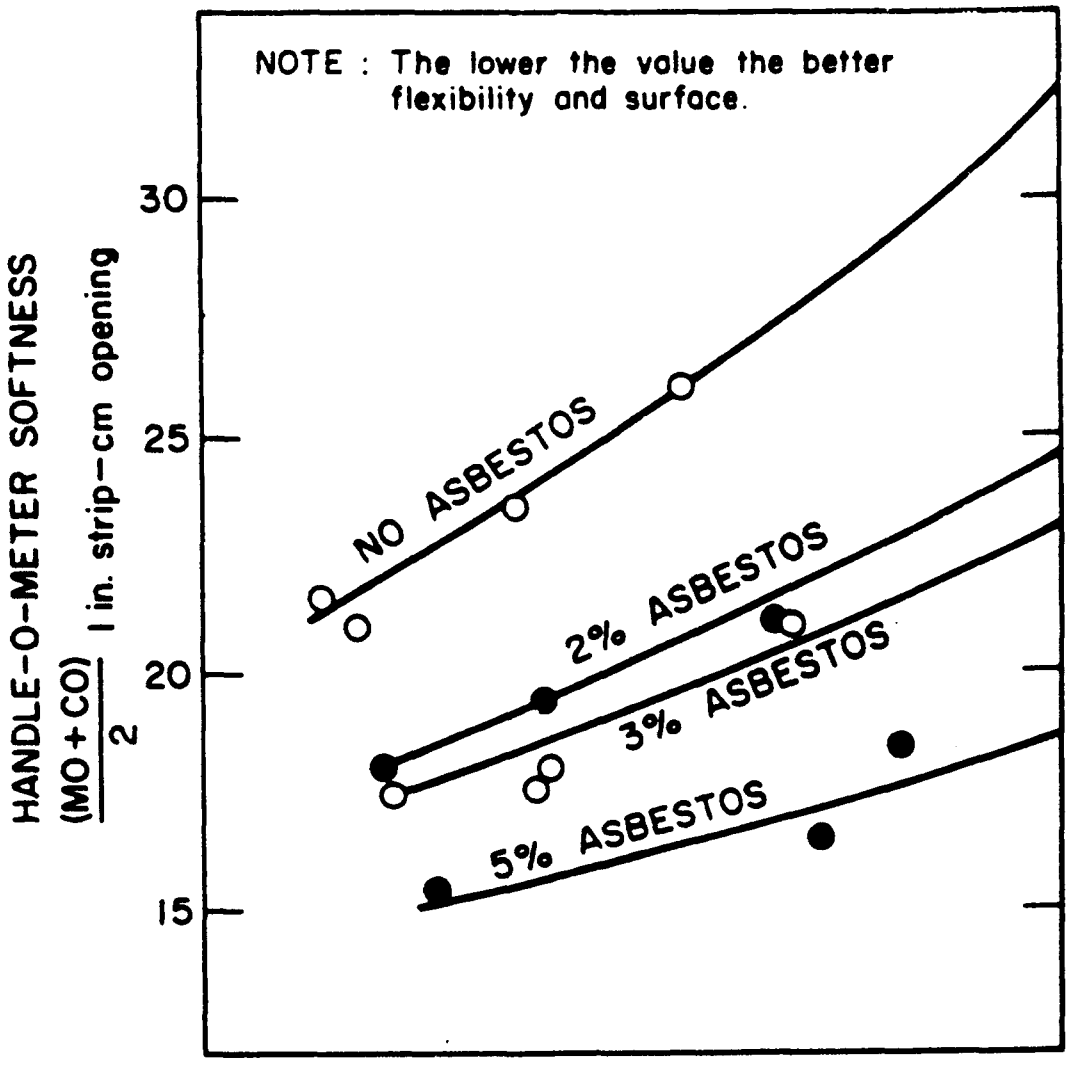
Another example of paper properties experienced with High Purity Asbestos additions is illustrated in Table 1. High Purity Asbestos was added to a 30 lb. wet creped towel and softness was found to improve over 20%. Additional benefits included improvements in wet tear, % stretch, and an obvious reduction of solids in the clarified water at the effluent of the saveall.

TABLE I

TRIAL DATA

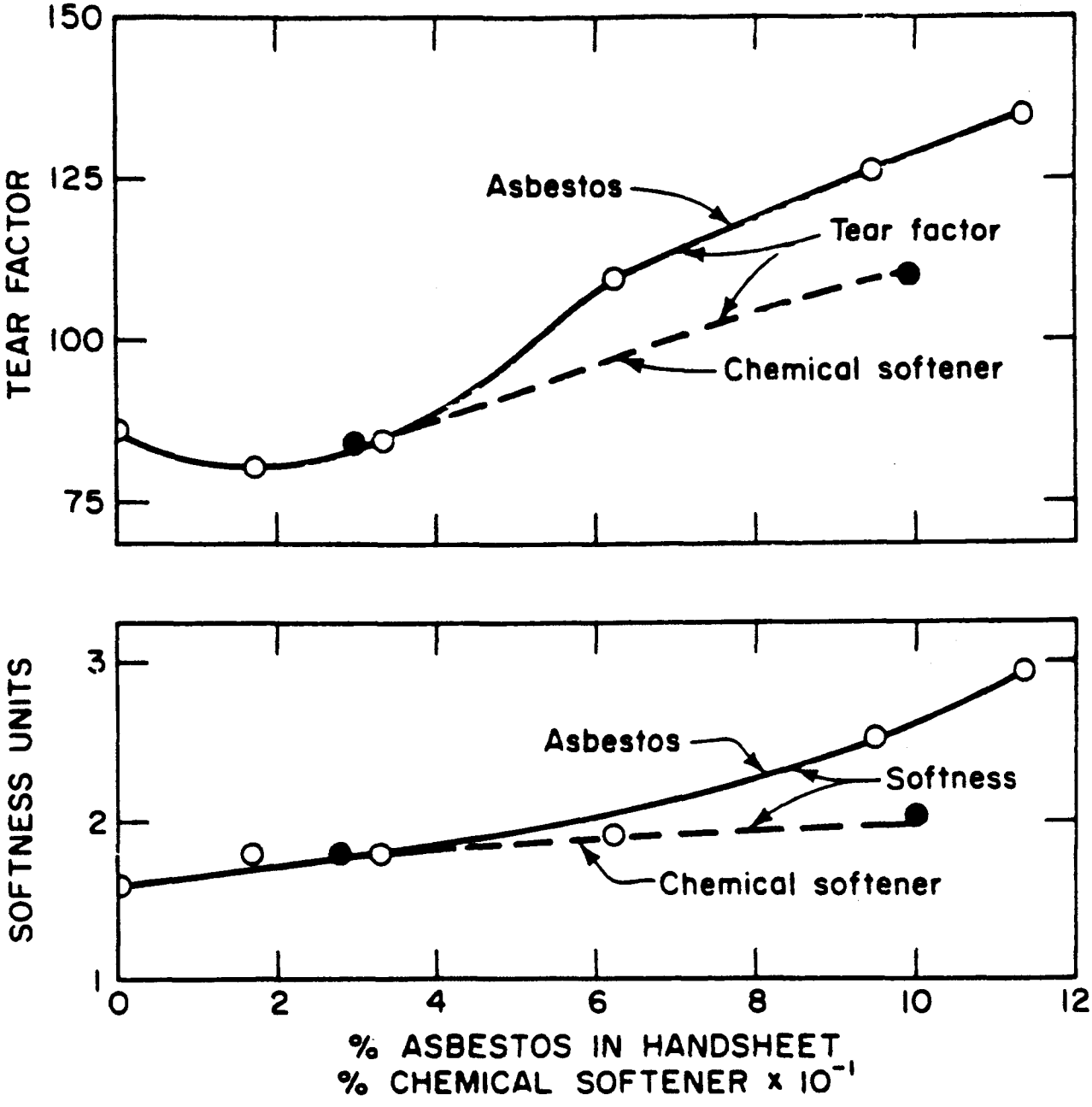
		With Asbestos in Paper		
	No Asbestos	2%	3%	4%
Basis Weight (lbs./24"x36"x48")	30.0	30.1	29.8	30.4
Softness (Crush Test)	2200	1700	1680	1680
Bulk (4 ply cap.)	0.267	0.268	0.266	0.274
% Stretch	6.5	7.4	7.2	7.1
Wet Tensile Aged (one inch strip aged in oven at 108°C for 10 min.)				
Machine Direction	2.7	—	2.8	2.7
Cross Direction	1.7	—	1.5	1.6
Dry Tensile (one inch strip)				
Machine Direction	9.6	—	9.3	8.6
Cross Direction	5.7	—	5.5	5.5
Wet Tear				
Machine Direction	30	—	36	42
Cross Direction	34	—	42	52
Absorbency (1/10cc)				
Seconds	35	—	33	35

Formation improvements are often dramatic with High Purity Asbestos addition.



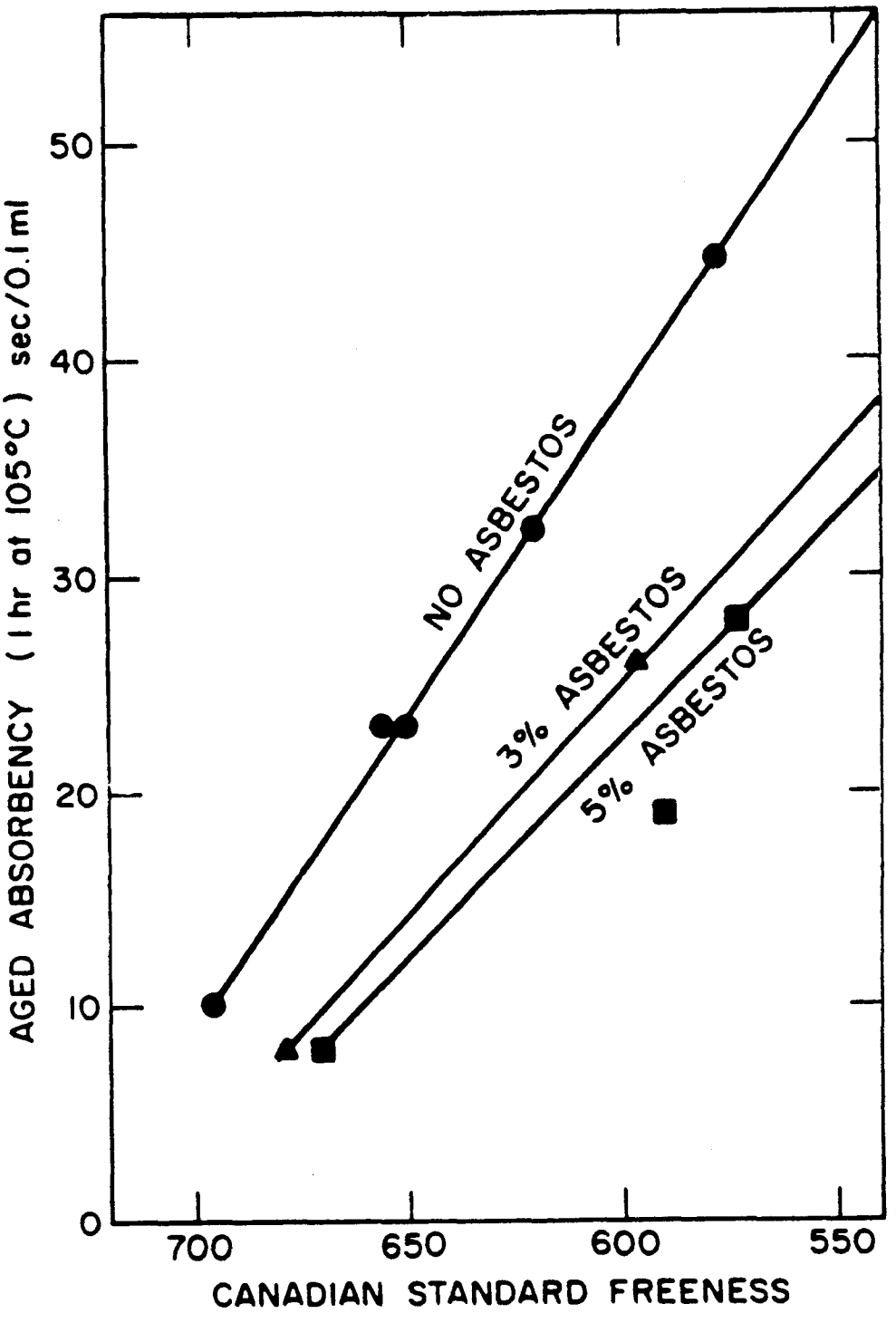
Asbestos softening of a 40-lb. towel.

MT06183



Effects of asbestos on paper softness and tear (kraft pulp, standard weight).

MT06184



Asbestos improving aged towel absorbency.

MT06185

UNION C[illegible]BIDE CO[illegible]PORATION
MINING & METALS DIVISION
270 PARK AVENUE, NEW YORK, N.Y. 10017

July 20, 1966

Mr. A. E. Binger
Vice President - Sales
Smith & Kanzler Corporation
P. O. Box 146
Linden, New Jersey

Dear Mr. Binger:

Thank you for your recent inquiry in regard to Union Carbide High-Purity Asbestos

Enclosed is our brochure covering the various uses of our material in paper which we feel will be of interest. The probability is good that you will find this fiber can improve your paper product and/or costs.

Our High-Purity Asbestos is priced at $125.00 per ton in carload lots, F.O.B. King City, California, and may be obtained in either pelleted or opened fiber form, the former being readily dispersible in a beater or hydrapulper. We have arranged for a small smaple of each type to be sent to your attention.

We appreciate your interest in our material, and if we can be of any further assistance please do not hesitate to call me.

Very truly yours,

R. T. Larkin (DH)

R. T. Larkin
Technical Representative

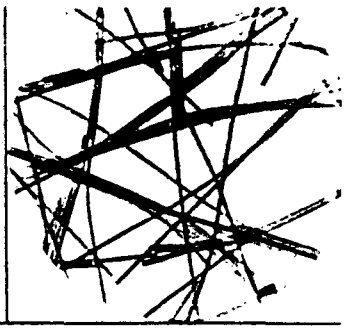
RTL/dh

Enclosure

MT06186

ASBESTOS

INFORMATION BULLETIN



UNION CARBIDE HIGH-PURITY ASBESTOS

A NEW FIBROUS FILLER AND RETENTION AID

FOR PAPERBOARD

PROVIDES

IN TOP LINER—

- Opacity
- Pigment Retention
- Improved Formation
- Reduced Underliner Show-Through
- Cost Savings

PLUS

Improved Printability

Surface Flexibility and Toughness

For Improved Folding

SEE ATTACHED MILL TRIAL DATA

MT06187

APPLICATION—BOARD MILL EVALUATION

TOP LINER OF 22 PT. FOLDING BOXBOARD

Purpose of Trial:

1. Improve Titanium Dioxide Retention
2. Reduce stream pollution
3. Improve surface coverage or reduce underliner show-through.

Type of Paper Machine: An 8-cylinder Board Machine with 120" of effective trim.
Production Rate: 165 tons per day Machine Speed: 270 ft./min.
Basis Weight: 85 lbs./1000 Ft.^{2} or 255 lbs./3000 Ft.^{2}

Top Liner Furnish: (All waste papers)	Top Liner Furnish with Asbestos:
50% Blank (unprinted Newsprint) News	no change
29% Hard White Envelope Clippings	no change
21% Bleached Sulfate Cuttings	no change

Chemical and Color Additives:	Chemical and Color Additives:
1% TiO_2 (25¢/lb.)	1% TiO_2*
1% Mer-Size	no change
1% Natural Gum	no change
0.5% Sodium Aluminate	no change
pH 5.8 with Alum.	no change
6% Luster Clay (3¢/lb.) (reduced 3% with 3% asbestos added)	3% Asbestos added
3 oz. Paper Blue R.	no change

* Not needed with asbestos; see comments below.

Material Savings and quality gains associated with the use of asbestos:

I. Improved Brightness:

% Asbestos	0	2	3
Top Liner Brightness	65	66	67
Basis Weight (Lbs./1000 Ft.^{2})	85.5	85.1	85.4

II. Surface coverage improvement and reduced underliner show through was apparent to the Technical Superintendent and stated to be a very important quality gain.

III. The customer stated that shade was much better with the asbestos; getting away from their characteristic "tattle-tale" grey appearance.

IV. The brightness levels obtained with improved retention due to asbestos would, without question according to the Technical Superintendent, allow the elimination of the 1% TiO_2. The top liner represents 2500 lbs. per hour or 25 lbs./hr. of TiO_2. At 25¢/lb., 600 lbs. of TiO_2 per day would yield $150/day savings. Since 3¢/lb. luster clay was replaced pound for pound with asbestos, the actual cost of the asbestos use would be about 2¢/lb. or $36/day leaving this Paper Mill a daily savings of $114 or with the 22 pt. Folding Box Board being produced on this one machine 100 days per year *annual savings would be $11,400 per year.*

V. Top liner vat overflow to the sewer was reduced to coincide with the use of 3% asbestos yielding an estimated savings of $310 per day of *$31,000 annually.*

VI. These savings are significant. They are enhanced by improvement in the bending characteristics of heavier board brought about by the flexibility effects of asbestos.

MT06188

APPLICATION

IMPROVING BOARD TOP LINER

TYPE BOARD: 33 pt. — 120 lb./1000 Ft.^{2} WHITE VAT LINED CHIP

Purpose of Application:

1. Improve top liner appearance and reduce show-through
2. Improve top liner brightness
3. Improve smoothness
4. Improve printing characteristics

Type of Paper Machine: 5 cylinder machine producing 40 tons per day. These results would apply to many high tonnage machines producing the same grade of board.

Asbestos Used: High Purity at the 1% addition level

Furnish for Top Liner:		
	Tabulating Stock	42%
	Kraft	52%
	Clay	5%
	Size (Rosin)	0.3%
	Alum	0.7%

System pH 4.5

RESULTS OBTAINED FROM THIS APPLICATION OF HIGH PURITY ASBESTOS

I. *SHOW-THROUGH REDUCTION OR TOP LINER FORMATION IMPROVEMENT* was visually apparent. Using the top liner brightness divided by the bottom liner brightness as an indication of reduced show-through indicated a 20% improvement.

II. Brightness of the top liner was improved 4 points (62.5 increased to 66.5 with the asbestos present).

III. Smoothness (Sheffield) of the top liner was improved 16%.

IV. The board samples containing the asbestos gave improved Vanceometer readings indicating better printability. Better printability should also be expected with the improved brightness, smoothness, reduced show-through and improved uniformity.

This manufacturer continues to use High Purity Asbestos as a result of this work. Substantial quality gain permits the producer to reduce the weight of top liner with accompanying savings.

IMPROVE QUALITY...CUT COSTS
WITH UNION CARBIDE'S HIGH-PURITY ASBESTOS

UNION CARBIDE **ASBESTOS**

IS:

* Grit free
* Higher in brightness and surface area
* Instantly dispersible

HERE'S WHAT IT CAN DO FOR YOUR PAPER

* Superior TiO_2 Retention

Greatly improved by the high surface charge of the fiber as shown in the photomicrograph.

* Positive Pitch Control—because of the high-surface area and absorptivity of Union Carbide's fiber.
* Opacity, Printability, and Sheet Formation—all improved by greater retention and more uniform dispersion of all fines.
* Softness—Union Carbide's high-purity asbestos softens tower and tissue stock by simple addition of fiber—gives excellent hand feel.

AND IT'S AVAILABLE:

Union Carbide owns and mines an extensive deposit of short fiber (chrysotile) asbestos in the New Idria district of California. A modern mill, incorporating a unique process, produces a short-fiber asbestos product which is purer than any other commercially available. During the processing cycle, each individual chrysotile fibril is fully liberated from the surrounding fibrils and entrapped impurities.

MT06190

NEW TO THE PAPER INDUSTRY

UNION CARBIDE

HIGH PURITY ASBESTOS

INCREASES

* Softness
* Retention
* Opacity
* Pitch Control
* Sheet Formation
* Printability

AT LOWER COST

SALES OFFICES FOR UNION CARBIDE ASBESTOS

Northeastern Region
270 Park Avenue
New York, N. Y. 10017
212 551-4420

Southern Region
1371 Peachtree St. N. E.
Atlanta, Ga. 30309
404 873-4966

Midwest region
1300 Lakeside Avenue
Cleveland, Ohio 44114
216 621-4202

Western Region
22 Battery Street
San Francisco, Calif. 94106
415 982-1360, Ext. 16

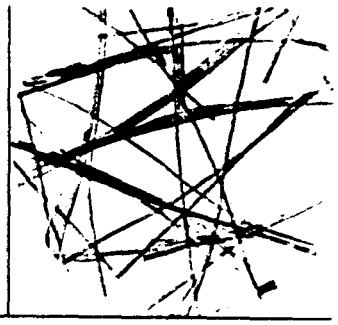
UNION CARBIDE

UNION CARBIDE CORPORATION
MINING AND METALS DIVISION
270 Park Avenue
New York, N. Y. 10017

MT06191

ASBESTOS

INFORMATION BULLETIN



TECHNICAL SERVICE

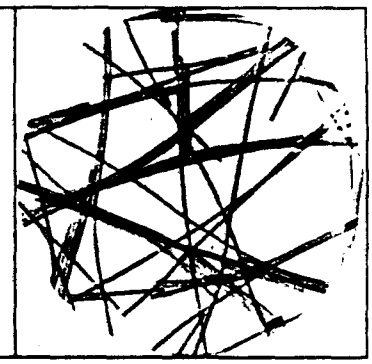
The wide range of applications for high-purity asbestos fiber is being examined by Union Carbide's Technical Service staff. Variations in paper manufacturing processes are continuously studied for specific areas of application.

The principal goal of technical services is to provide the assistance to paper companies which will enable them to draw realistic conclusions about the superiority of high-purity asbestos. The staff works closely with the manufacturer in mill trials and other test runs using high-purity asbestos.

Extensive laboratory facilities at Union Carbide's Research Center near Tuxedo, New York provides the Technical Service staff with the necessary research back-up.

ASBESTOS

INFORMATION BULLETIN



PREPARATION AND METHOD OF ADDITION OF THE HIGH-PURITY ASBESTOS FIBER TO THE FURNISH FOR THE MANUFACTURE OF PAPER

1. Method of Addition

The asbestos fiber is added to the stock preparation system for homogeneous distribution in the same manner as regular wood pulps. Present experience and information on retention properties suggests the following order of addition when using a slurry or opened asbestos fiber:

a. White water

b. Asbestos

c. Normal order of addition for pulps

d. Resin

e. Filler

f. Dye

g. Alum

Suggested practice above is based on the normal makeup. Unusual deviations from the system makeup shown above should be considered as a special case. For example, if bentonite or talc were being used, normally the elimination of this material would be suggested. Asbestos fiber with its superior oil absorbency characteristics, as well as its high specific surface value would be more effective for pitch control properties.

For furnishing Kraft or sulfite specialty grades furnish makeup should be planned for mill trials considering the individual characteristics for each system. As with all stock preparation systems for proper blending of pulps, good agitation to obtain a uniform distribution of the blend of pulp and asbestos fiber is desirable. From experience and the technology developed to date the fibrous asbestos should be treated as a pulp rather than an additive.

2. Points of Addition

A. Batch Type Furnish Makeup Systems

The high-purity asbestos fiber can be blended with the furnish in:

1. Hydropulpers
2. Slushmakers
3. Beaters (when roll is used for blending or beating)
4. Dynopulpers
5. Hi-Lo pulper
6. Pulpmaster
7. Mix tanks with good agitation

B. Continuous Stock Systems

When pulps and chemicals are continuously blended for furnish and chemical makeup, asbestos fiber can be dispersed at 2% solids in Union Carbide's new pellet disintegrator. Good mechanical shear-type agitation is desirable but not absolutely essential. Experience reveals that a mixing tank with a centrifugal pump and recirculation line will provide adequate agitation for opened high-purity asbestos fiber.

C. Specific Retention Applications - Dye Retention Improvement

With critical dye retention problems where the asbestos is to be evaluated strictly for dye efficiency improvement in the manufacture of specialty products, premixing of the asbestos and dye solution should be practiced. With a batch system, this is done as the first step in furnish makeup. With a continuous system a mix tank would have to be used. That is the continuously metered dye solutions and the continuously metered asbestos fibrous slurry would be fed to a small mixing tank which could be gravity-fed to the furnish blending chest.

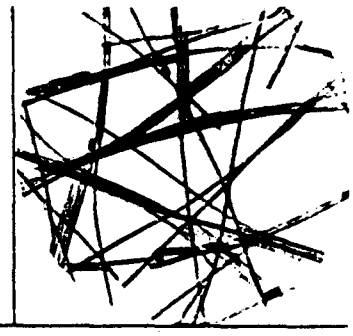
With all applications for paper quality improvements and material retention improvements, methods of incorporating the asbestos fiber should be used to allow homogeneous distribution and intimate contact. Union Carbide's new pellet disintegrator can be used if there is any doubt.

D. pH Conditions

For best dispersion asbestos fiber should be blended with the furnish in the pH range of 4 to 6 -- 5 is optimum.

ASBESTOS

INFORMATION BULLETIN



THE USES OF HIGH-PURITY ASBESTOS IN PAPER

How various paper companies have benefited by using high-purity asbestos:

Softness and Surface Feel Improvement:

1. Superior handfeel and softness qualities not obtainable before the use of high-purity asbestos.
2. Elimination of expensive synthetic fibers used for softening.
3. Improved drying and release properties at the creping dryer.
4. More waste paper and less expensive chemical pulps could be used.
5. Elimination of expensive softer pulps.
6. High quality tissue could be made with Southern Kraft pulps.
7. Formation improvement as well as softening -- two factors that are diametrically opposed in normal papermaking.

Pitch Control:

1. Less rejections for holes due to pitch deposits.
2. Cleaner system and more efficient operation.
3. Cleaner felts and wires.
4. Fewer machine breaks and lost time.

Retention of TiO_2:

1. Substantial cost savings and reduced pollution.

Newsprint Opacity Improvement and Printing Gains.

Board Coverage and Printing Gains:

1. Less expensive furnish required for the top liner.
2. Reduced TiO_2 requirements for the top liner.

3. Improved uniformity of formation.

4. Improved top liner smoothness.

5. Indications of improved printability.

Improved Saveall Efficiency:

Typical case histories illustrating improved efficiency in saveall.

Company "A"

Condition	Effluent (lbs. solids/1000 gal)
Before Asbestos Addition	2.2
During Trial (1-2% Asbestos)	1.5
After Trial	2.4

Reduction in Solids Losses = 35%

Company "B"

Condition	Effluent (lbs. solids/1000 gal)
Before Asbestos Addition	3.25
During Trial (2.5% Asbestos)	0.55

Reduction in Solids Losses = 83%

Note: Separan used before and during trial.

Company "C"

Condition	Saveall - (lbs. solids/1000 gals) Influent	Effluent	
Before Asbestos Addition	17.9	4.36	
During Trial (2% Asbestos)			
1.0 hr.	14.3	1.15	
2.0 hr.	13.2	0.90	
3.0 hr.	11.0	0.71	
After Trial	21.4	6.00	
Average:			
Without Asbestos	19.65	5.18	74%*
With Asbestos	12.83	0.92	93%*
Reduction in Solids due to Asbestos =	35%	82%	

*Recovery of solids to the Saveall.

MT06196

COPY FORM	INITIALS	DATE

BOX NUMBER	SEGMENT NO.	REQUESTING PARTY
Fiber Sales Sun.		GTW

NOTES

MT06197

CUSTOMER	TERR.	GRADE	1950	1951	1952	1953	1954	1955	1956	1957	1958
SCOTT PAPER CO. ✓	02	6D20		0.05							
		6DAX.2494						2			
		7D15		0.05							
		7K15		0.05							
		AX.2407			1						
SEABOARD ASPHALT PRODS. ✓	02	7R06	110								
BLACK LINE		7T06	595	670	385	640	400	518	280	200	120
" " (SRK)		7T15									
		7TF2						2			
SOCONY PAINT PRDS.		7M06							0.25		
SECURE PRODS. MFG. CO. ✓		7R05					1				
SELBY BATTERSBY & CO. ✓	02	4T12				0.10					
BLACK LINE											
		7RF6		60	90	90	60	60	90	30	70

MT06198

00133

COPY FORM	INITIALS	DATE

BOX NUMBER	SEGMENT NO.	REQUESTING PARTY
Microfilm		GPJW

NOTES

MEMORANDUM

TO: Files

FROM: W. C. Thurber

Date: November 27, 1973

COPIES TO: Messrs. J. H. Marsh
R. H. Mereness
J. Solon

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Today I spoke with Dr. T. Boaz (202-389-6805), Executive Director, Committee on Biological Effects of Atmospheric Pollutants, National Research Council, as to whether or not the matter of asbestos-containing facial tissues had been discussed in any recent NRC meetings. While Dr. Boaz was aware of a recent resurgence of interest in the asbestos health question spawned by such matters as the Reserve Mining Tailings disposal, the use of asbestos-containing talc in cosmetics, and filtration of beer, etc., he was not personally aware of any recent discussions in NRC concerning the possible hazards resulting from the release of asbestos from facial tissues.

At Dr. Boaz' suggestion, I also talked to Dr. Douglas H. K. Lee (919-549-8411), of the National Institute for Environmental Health Services, Durham, N.C. Dr. Lee was also unaware of any recent discussions of this matter. He, in turn, suggested that I contact the newly formed Consumer Products Safety Commission. At this juncture, I turned the detective work over to Bob Mereness of AIA.

WCT:es

Bill Thurber
Union Carbide
212/551-2345.

Checked in detail—
99% sure not selling asbestos
for facial tissue.

Saw DJS
Had U.C. lit - which talked about
one UC customer who was
using asbestos in facial tissue.

Said would confirm to DJS that lit
was old (1965) - that he would
run down that customer + make
sure that customer not now
using asbestos in facial tissue.

Bill thinks DJS trying to generate
money from Paper unions. Wants
go in plants + inspect if asbestos

DJS said he could prove anything in
his laboratory.
Said workers can breathe as much
asbestos dust + if they do not

Data sheet dated back to 196X

Stopped selling it to the small paper co in 1965. Reason — Hand made paper not only sort that work.