UNION CARBIDE

INTERNAL CORRESPONDENCE

PLAINTIFF'S EXHIBIT UC-160

CHEMICALS AND PLASTICS

P. O. BOX 579, NIAGARA FALLS, NEW YORK 14302

To (Name) Mr. B. K. Barton
Company 565 Riford Road
Location Neenah, Wisc. 54956

Date November 21, 1969

Originating Dept. Research and Development Department

Answering letter date

Copy to See Attached Distribution

Subject American Can Company
Green Bay, Wisconsin

The attached report summarizes the machine trial held at the American Can Company mill in Green Bay, Wisconsin on November 6, 1969 for the purpose of evaluating High Purity Asbestos as a softening agent in paper. Except for the contained analytical test data, the report is mainly of academic interest, as the success of the trial depends entirely on the results of the subjective handfeel test program which their marketing group will perform. If they decide that the benefits produced by our material are a salable asset, it will probably be necessary to run a second trial so that adequate towel samples can be obtained for field testing.

G. L. Dickson

GLD/bsn
Attach.

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TECHNICAL SERVICE REPORT

THE EVALUATION OF HIGH PURITY ASBESTOS AS A SOFTENING AGENT IN PAPER TOWELING

for

American Can Company
Green Bay, Wisconsin
November 6, 1969

by

G. L. Dickson

Group Manager - W. L. Carrick

Project No. 452-M33

November 17, 1969

UNION CARBIDE CORPORATION
Chemicals & Plastics
Research and Development Department
Niagara Falls, New York 14302

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SUBJECT

This report summarizes the High Purity Asbestos trial performed by American Can Company at their Green Bay, Wisconsin mill on November 6, 1969. The primary objective of this work was to acquire sufficient samples of toweling containing two levels of asbestos which would eventually be evaluated by American Can's marketing department. It is their intent to develop a product with improved handfeel softness properties, but which possesses strength characteristics similar to their present production. Also of consideration at this time was the effect of asbestos addition on both their production and converting operations.

TRIAL RESULTS

Samples of converted toweling of adequate size containing two levels of asbestos addition were obtained from this trial. It has been reported that portions of these have been forwarded to American Can's marketing group for their review, which should be carried out in the near future. No operational problems were encountered during either the manufacture of these trial samples or their subsequent conversion into household towel rolls. Although no formal evaluation was made at the time on the effect of asbestos addition on handfeel softness, it is felt that a significant increase resulted. As is usual, this was accompanied by a loss in strength which was minimized by the presence of IAD (carboxymethyl cellulose) and Kymene 557 in the furnish.

TRIAL DISCUSSION

This evaluation was carried out in four parts, only the last two directly involving the addition of asbestos to the papermaking furnish. The following is a brief summary of the four trial periods.

Part A

Production was carried out under normal conditions but with 0.39% Kymene 557 being added to the furnish. (For strength improvement).

Part B

During this period, 2.02 lb. IAD (carboxymethyl cellulose)/ton of paper and 0.21% Kymene were added to the furnish. This reportedly was similar costwise to the total amount of Kymene added in Part A. However, based on the small amount of test data available (refer Table I),

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it appears that better physical test results were obtained under the latter conditions.

Part C

Approximately 2% High Purity Asbestos was introduced into the system at the machine stuff box (in slurry form), utilizing an asbestos pellet repulper (R-1). Because of the brief trial period involved, it must be assumed that equilibrium conditions were probably not attained. However, because of the proximity of the asbestos point of addition to the headbox, the major effects of the asbestos were realized in a relatively short time.

Part D

The final trial period was the same as Part C except the addition of asbestos was increased to about 4% based on their machine production.

Additional data concerning various aspects of the trial are contained in the attached Mill Trial Data Sheet. Table I contains a summary of the physical test results obtained by their paper inspectors during the four trial phases. Table II contains analytical data obtained by our Niagara Falls laboratory on reel specimens and samples of converted towels (after embossing, printing, and rewinding).

CONCLUSIONS

No problems were encountered during the trial and sufficient converted towels were obtained for evaluation by their people. Initial results indicate that softness was benefited with a moderate loss in sheet strength. The lower tensile strength did not effect converting in any respect. Because of the short trial periods and the presence of talc in the pulp (contains magnesium which interferes with analyzing for asbestos), it was not possible to calculate asbestos retention. This is an important parameter however, and some effort should be made to determine this value at a later date.

G. L. Dickson/bsn

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TABLE I

SUMMARY OF PAPER INSPECTION REPORT

Trial Period	No. of Tests	Basis Weight	Bulk	Tensile WM	Tensile AM	Stretch WM	Aged WM Wet Tensile	Absorbency
Specs.	Aim	14.6	.040	750	250	20.0	220	10
	Min	13.9	.038	450	150		150	
	Max	15.3	.042					50
Part A	6	14.6	.039	725	250	30.0	240	6-1/2
Part B	2	14.5	.037	790	280	37.0	210	7
Part C	4	14.3	.041	680	200	38.4	165	5
Part D	2	13.8	.038	480	150	32.5	150	7

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TABLE II

SAMPLE ANALYSES

Time Sampled	% Ash	% Mg	% Mg due to Asbestos	Asbestos Content
Reel Samples				
6:10 AM (Part A)	0.32	0.10	0	0
10:40 AM (Part B)	0.25	0.07	0	0
11:20 AM (Part C)	1.17	0.32	0.235	0.94%
12:20 PM (Part D)	2.86	0.73	0.645	2.58%
Converted Samples				
Part A	0.63	0.11	0	0
Part B	0.58	0.10	0	0
Part C	1.86	0.48	0.375	1.50%
Part D	2.63	0.68	0.575	2.30%

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UNION CARBIDE CORPORATION
MINING & METALS DIVISION

MILL TRIAL DATA SHEET

November 6, 1969

I. COMPANY LOCATION AND DATE OF TRIAL American Can Co., Green Bay, Wisc.

II. COMPANY REPRESENTATIVES AND TITLES Bruce Robertson, Earl Sandstrum, Marvin Fobes

III. UCC REPRESENTATIVES B. K. Barton and G. L. Dickson

IV. TRIAL OBJECTIVES (In order of importance) To prepare samples of toweling containing two levels of High Purity Asbestos

V. PRODUCT IDENTIFICATION

Type of Product White Dry Creped Toweling Coated ~~Yes~~/No

Grade Name 670

Basis Weight 14.6 lb. (24 x 36-500)

Daily Production 100-110 tons lb./hour 8,800

Total Daily Production of Mill -

(Tissue and Board) No. of Plys -

VI. MACHINE DESCRIPTION

Type of Machine Fourdrinier (Yankee)

Machine No. 9 (Cylinder) No. of Cylinders -

Machine Speed 2540 FPM (Tissue) Reel Speed 1960 FPM

(Tissue) % Crepe 23.2 Wire Mesh

Wire Width Machine Trim 184 inches

Size Press No Calenders No

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VII. AUXILIARY EQUIPMENT

Refiners	Type	Location	Loading (amp.)

Saveall (Type)_____ Flow Rate_____

VIII. STOCK PREPARATION - Continuous or Batch

Type Beater and Capacity_____

No. of Beater Chests and Capacity_____

Machine Chest Capacity_____

Stock Freeness (Mach. Chest and Stuff Box)_____

Headbox Consistency 0.182 - 0.199%

Makeup pH_____ Machine pH_____

IX. FURNISH MAKEUP* Basis (lb./ton, etc.) (Refer to trial log for addition levels.)

Furnish Constituent	%	Pounds
Kymene 557		
IAD (Carboxymethyl cellulose)		
High Purity Asbestos		

* For board systems include furnish for each medium - topliner, underliner, filler, and backliner.

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X. ASBESTOS ADDITION - Pellet Repulper (Type) R-1

Asbestos Grade High Purity Pellets Lot No. -

Point of Addition Stuff box (immediately prior to fan pump)

Pounds of Asbestos Added _____ per ton BDF _____ per beater

_____ per hour

Per cent asbestos addition on BDF 2% and 4%

XI. SUPPLEMENTARY INFORMATION

Quality Control Data Record

Stock Prep. Log

Sampling (in order of importance)

Pitch & Retention Trials	Board Trials	Tissue and Towel
Reel	Tray Water	Stuff box
Stuff box	Vat	Reel
Headbox	Stuff box	Headbox
Tray	Reel	
Saveall effluent	Saveall effluent	
Saveall influent	Saveall influent	

Identify samples by name, date, time

Wet samples should approximate 500 ml.

Weight of BD filter pad is required for all vat, tray, and saveall samples.

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XII. TRIAL LOG (Comments including changes in furnish and operating conditions)

Time	Comments
Part A	0.39% Kymene 557 added
Part B	0.21% Kymene 557 added. 2.02 pounds IAD/ton
Part C	0.21% Kymene 557 added 2.02 pounds IAD/ton 200 pounds/hour High Purity Asbestos (2.25%)
Part D	0.28% Kymene 557 added. 2.02 pounds IAD/ton 353 pounds/hour High Purity Asbestos (4%)

Recorded by Gordon L Dickson Date Nov 18, 1969

Witnessed and Understood by _____ Date _____

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