PLAINTIFF'S EXHIBIT
UC-146

TECHNICAL SERVICE REPORT

THE EVALUATION OF ASBESTOS T-135 AS A REPLACEMENT FOR TITANIUM DIOXIDE EXTENDERS

for

International Paper Company
Moss Point, Mississippi
October 8, 1968

by

G. L. Dickson

Group Manager - W. L. Carrick

Project No. 443-N11

October 22, 1968

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

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SUBJECT

This report covers the paper machine evaluation of Asbestos T-135 at International Paper Company, Moss Point, Mississippi on October 8, 1968. The objective of this trial was to determine the compatability of asbestos in a typical coating grade paper furnish, and to evaluate it as a replacement for a titanium dioxide extender (Paper-Ad).

TRIAL RESULTS

The results of this trial indicate that Asbestos T-135 can be used as a complete replacement for titanium dioxide extenders in coating-base paper furnishes. No problems were encountered during the trial concerning machine operations, and the substitution of Asbestos T-135 for Paper-Ad resulted in production with better brightness and equivalent opacity properties. Because of the short trial period involved, it was not feasible to monitor their wet-end system at this time. Thus, any increase in filler retention resulting from the addition of asbestos to the furnish was not ascertained. This aspect will, undoubtedly, be considered during a second machine trial which is now being scheduled by their people.

DISCUSSION

Asbestos T-135 was introduced into this mill's No. 3 machine system during the production of a white coating base paper. The original intention was to add Asbestos T-135 with their clay slurry in the same ratio as their normal Paper-Ad and clay combination. This proved to be too viscous; therefore, the slurry was modified to overcome this problem. Their normal slurry combination and that used during the trial are as follows:

Normal Clay/Paper-Ad Combination

200 lb. Paper-Ad
600 lb. Clay
Made up with water to 533 gallons

Clay/Asbestos T-135 Combination

120 lb. Asbestos T-135
680 lb. Clay
Made up with water to 533 gallons

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During this trial there was no titanium dioxide added to the furnish except that which was present in their broke. The addition level of Paper-Ad/clay combination approximated 12.8 GPM during the pre-trial period, while the T-135/clay slurry was added at a rate of 12.6 GPM. Although the cost of the latter is somewhat higher than their normal mixture, it is felt that the addition level of the T-135/clay was not optimized at this time.

CONCLUSIONS

The main trial objective, to determine the compatability of Asbestos T-135 in a coating-base stock furnish, was realized. Except for a minor problem involving high viscosity of the clay/Asbestos T-135 slurry, the trial ran smoothly. Production specifications were maintained during the trial and a moderate increase in brightness resulted. Because of the short trial period, no attempt was made at this time to optimize on the addition level of Asbestos T-135, or to determine its effect on filler retention. As both of these are important factors, they will undoubtedly be considered during a more lengthy trial which is now being scheduled.

G. L. Dickson/bsn

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TABLE I

Analyses of Reel Samples

October 8, 1968

Reel Time	% Ash	% TiO_2	% T-135	Opacity	Brightness
7:45 a.m.	5.01	0.09	0	88.6	78.0
9:00 "	4.63	0.11	0	87.0	77.0
Average	4.82	0.10	0	87.8	77.5
10:15 a.m.	4.90	0.08	0.55	87.2	78.6
12:15 p.m.	4.67	0.05	0.86	87.6	79.2
12:45 "	4.77	0.09	0.80	87.4	79.2
1:25 "	4.46	0.08	0.86	88.0	79.2
Average	4.70	0.08	0.77	87.6	79.0

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UNION CARBIDE CORPORATION
MINING & METALS DIVISION
MILL TRIAL DATA SHEET

I. COMPANY LOCATION AND DATE OF TRIAL International Paper Co., Moss Point, Miss. October 8, 1968

II. COMPANY REPRESENTATIVES AND TITLES Lewis Walker: Assistant to P.M. Superintendent, Lowell Barfield: Assistant to P.M. Superintendent

III. UCC REPRESENTATIVES John McReynolds, Gordon Dickson

IV. TRIAL OBJECTIVES (In order of importance) To evaluate Asbestos T-135 as a replacement for titanium dioxide extenders

V. PRODUCT IDENTIFICATION

Type of Product Coating-base stock Coated ~~Yes~~/No

Grade Name White Label

Basis Weight 61.5 lb. (24 x 36-500)

Daily Production 110 tons Lb./hour 15,375

Total Daily Production of Mill

(Tissue and Board) No. of Plys -

VI. MACHINE DESCRIPTION

Type of Machine Fourdrinier, with pressurized headbox

Machine No. 3 (Cylinder) No. of Cylinders -

Machine Speed 1000 FPM (Tissue) Reel Speed -

(Tissue) % Crepe - Wire Mesh

Wire Width Machine Trim

Size Press Vertical Calenders Double (0 & 2 nips)

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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_____

Makeup pH_____ Machine pH_____

IX. FURNISH MAKEUP* Basis (lb./ton, etc.)_____

Furnish Constituent	%	Pounds
Bleached Pine Kraft	35	
Bleached Hardwood Kraft	45	
Broke	20	
Rosin Size		10 lb./ton
Alum		10 lb./ton
Clay: Pre-Trial	5.6	864 lb./hour
Trial	6.3	964 lb./hour
Paper-Ad: Pre-trial	1.9	288 lb./hour
Asbestos T-135: Trial	1.1	170 lb./hour

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

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X. ASBESTOS ADDITION - Pellet Repulper (Type) None

Asbestos Grade T-135 opened Lot No.

Point of Addition Machine Chest

Pounds of Asbestos Added _____ per ton BDF _____ per beater

_____ per hour

Per cent asbestos addition on BDF

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
Pre-trial	Normal clay and Paper-Ad slurry added to furnish at 12.8 gal./minute. Slurry make-up 200 lb. Paper-Ad 600 lb. Clay Diluted to 533 gallons (Total Volume)
Trial	Clay and Asbestos T-135 slurry added to furnish at 12.6 GPM Slurry Make-up 120 lb. Asbestos T-135 680 lb. Clay Diluted to 533 gallons (Total Volume)

Recorded by Earsken L Dickson Date October 8, 1968

Witnessed and Understood by _____ Date _____

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JAR FILE

Mr. J. S. McReynolds (4)
960 Tifton Drive
Baton Rouge, La. 70815

October 23, 1968

See Attached Distribution

International Paper Company
Moss Point, Mississippi
Asbestos T-135 Mill Trial

The attached report contains the data obtained from the paper machine evaluation of Asbestos T-135 at subject mill on October 8. The main purpose of the trial was to determine the compatability of T-135 in their system and to evaluate it as a replacement for Paper-Ad. As it appeared successful from both aspects, they are now planning on running a second trial which will be of longer duration. It would be desirable if we could receive wet-end samples from this next trial, as we were unable to do so during the present one.

G. L. Dickson

GLD/bsn
Attach.

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