ASBESTOS

070421

076973

INFORMATION BULLETIN

UNION CARBIDE CORPORATION · METALS DIVISION · 270 PARK AVENUE, NEW YORK, NEW YORK

UNION CARBIDE HIGH-PURITY ASBESTOS

A NEW WHITE FIBROUS FILLER AND RETENTION AID

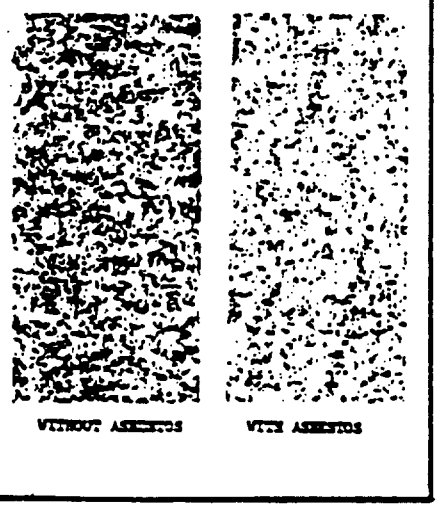
FOR PRINTING PAPERS

PLAINTIFF'S EXHIBIT

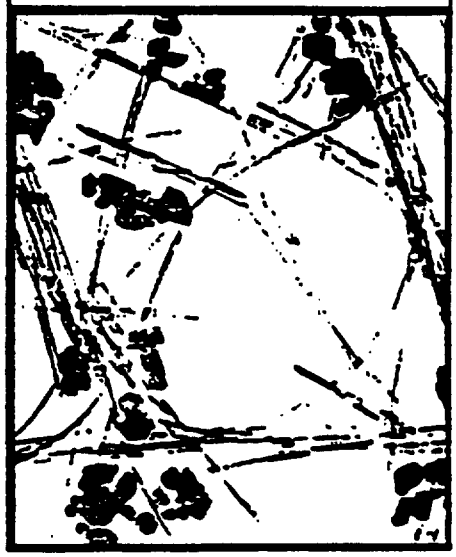
UC-4836

IT PROVIDES:

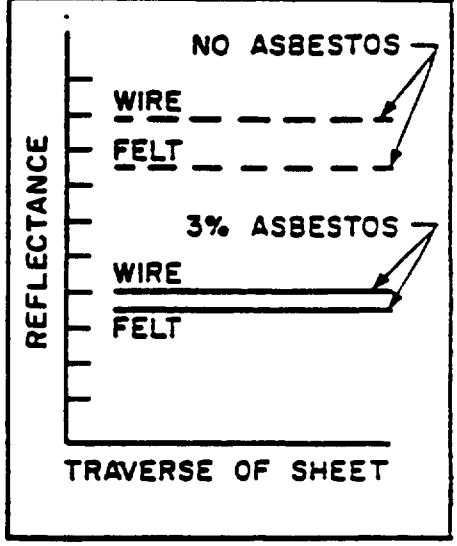
IMPROVED SHEET FORMATION



IMPROVED TiO_2 RETENTION



INCREASE DYE RETENTION



DeposAl DEPO. EXH. 20
3/10/89
KIRBY A. KENNEDY
CO. OF REPORTER

PLUS

Opacity	Cellulose Fines Retention
Brightness	Printability Improvements
Reduced Show-Through	Reduced Static Electricity Buildup

001069

SEE ATTACHED MILL TRIAL DATA

DEPO. EXH. 6
KIRBY A. KENNEDY
COURT REPORTER

RETENTION OF TITANIUM DIOXIDE IN BOND PAPER

070422

076974

Purpose of Trial: Improve Titanium Dioxide Retention to effect either material cost savings or improve the opacity of 37 lb. Bond produced by this paper company.

Type of Paper Machine: Open Fourdrinier — 126" Trim — machine speed 700 ft./min.

Production rate: 70 tons per day.

Furnish (in use):	Furnish Change During Trial:
18% Hardwood-Sulfite	no change
26% Softwood-Sulfite	no change
56% Softwood-Kraft	no change
Additives*	2.4% Asbestos
1.6% Talc	no change
13.0% Clay	to 10.6% Clay
0.4% Emulsified Wax	no change
3.0% Titanium Dioxide	to 2.4% (Post trial retention data indicated that 1% TiO_2 could have been removed without a loss in opacity).

Savings Resulting From Improved TiO_2 Retention:

Reduction of TiO_2: 1% of 70 tons of paper per day = $350/day savings.

Cost of 2.4% asbestos (3¢/lb. due to 2¢/lb. clay reduction) $100/day

Net savings per day due to asbestos retention of TiO_2 ..... $250 or $3.60/ton paper

Annual Savings $37,800

These savings are for this one grade being produced 150 days per year.
Actually this company has other grades where the same results may be obtained.

Other Gains associated with this mill evaluation:

1. Saveall Effluent was improved in clarity. This unit was handling an estimated one million gallons of excess white water per day and the use of 2.4% asbestos allowed a 35% reduction of solids passing to the sewer. This amounts to reduced stream polution and more tons of paper per 100 tons of stock.
2. Closure or more uniform formation was indicated by porosity readings.
3. Opacity values increased during the use of asbestos even though clay and TiO_2 quantities were reduced as shown above.
4. Smoothness values were improved.

Physical Characteristics of the Bond Paper produced:

Percentage Asbestos:	0%	1%	2.4%
Basis Weight (lbs./300 Ft^2)	38.3	37.0	38.0
Machine Direction Tensile	12.6	13.0	13.8
Cross Direction Tensile	8.3	8.0	6.5
Mullen	20.6	20.8	22.0
Tear	32/33	30/33	34/36
Smoothness (Gain)	53	32	31
Opacity (Gain)	82.5	83	84-84.5
Brightness	83	82-83	82
Wax Pick	18/16	18/18	18/18
Caliper	3.23	3.09	3.10
% Ash in the Bond Paper (gain)	10.2	11.3	12.4

*Based on 5050 lb. batch of cellulose fiber