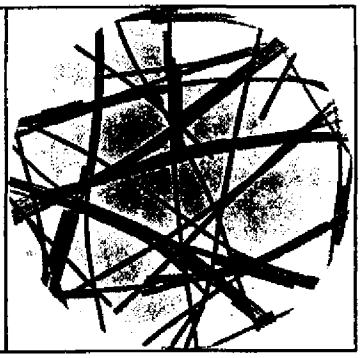
UNION CARBIDE ASBESTOS

PRODUCT INFORMATION BULLETIN



Photomicrograph of Union Carbide's high-purity asbestos fiber

UNION CARBIDE CORPORATION · MINING AND METALS DIVISION · 270 PARK AVENUE, NEW YORK, NEW YORK 10017

UNION CARBIDE HIGH-PURITY ASBESTOS

A UNIQUE FIBROUS SOFTENING AGENT AND RETENTION AID

FOR TISSUE AND TOWELS

PROVIDES

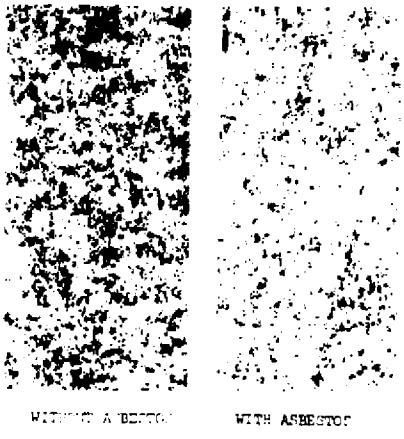
FEXIBILITY; DRAPE; VELVET SURFACE FEEL

CLARK SOFTNESS VALUES :

BLEACHED SULFITE UNFILLED ——— 9.5

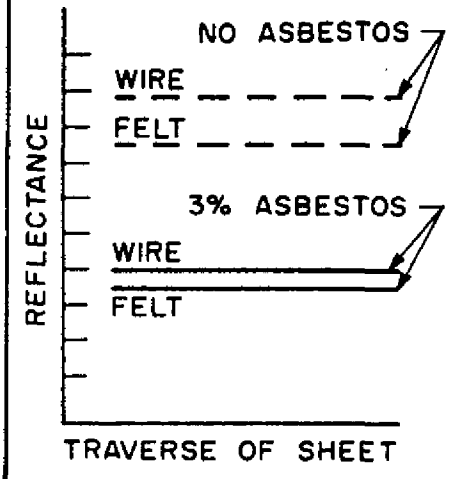
SAME WITH 5% ASBESTOS — 14.1

IMPROVED SHEET FORMATION



WITHOUT ASBESTOS WITH ASBESTOS

INCREASE DYE RETENTION



PLUS

IMPROVED RETENTION OF CELLULOSE FINES AND FILLERS

SEE ATTACHED GRAPHS AND MILL TRIAL DATA

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

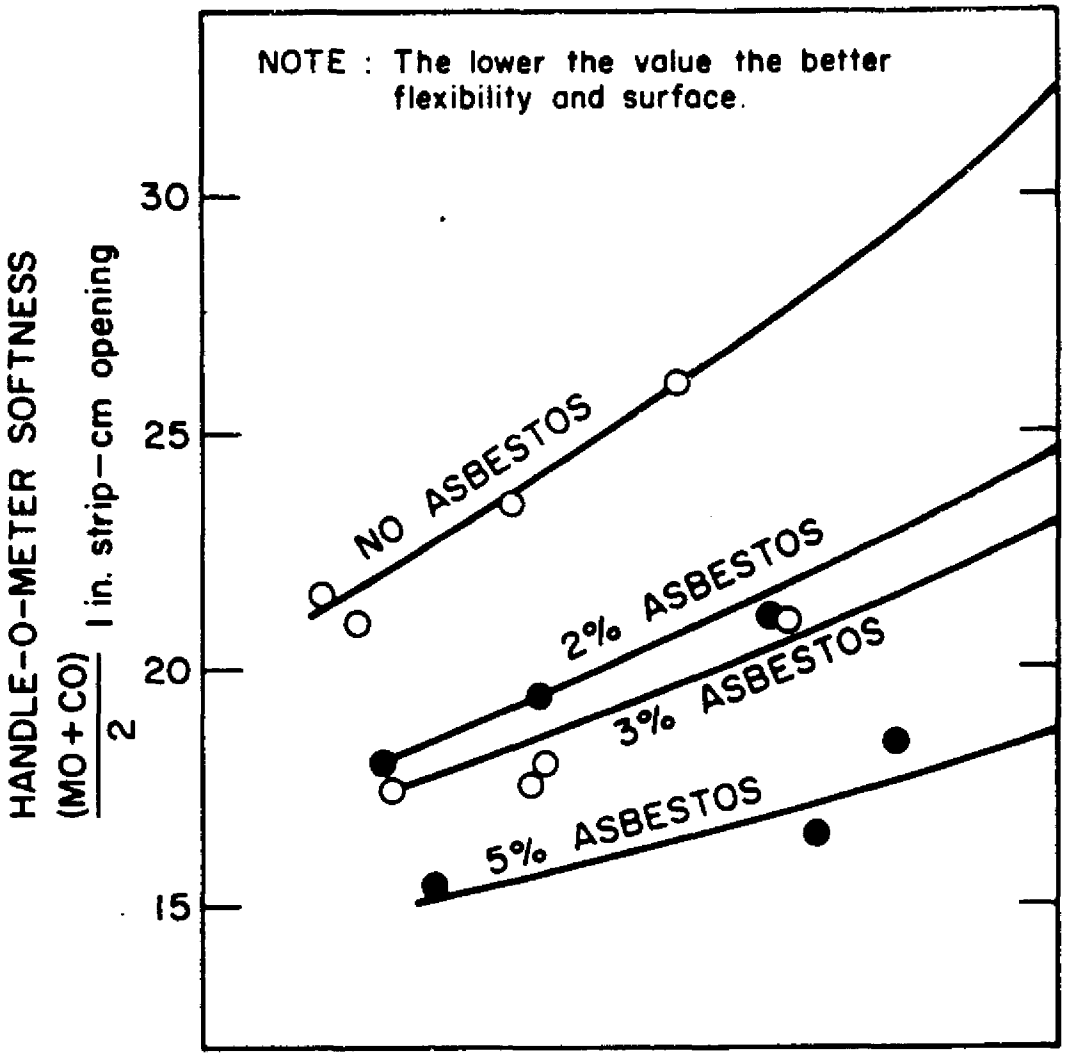
Another example of paper properties experienced with High Purity Asbestos additions is illustrated in Table 1. High Purity Asbestos was added to a 30 lb. wet creped towel and softness was found to improve over 20%. Additional benefits included improvements in wet tear, % stretch, and an obvious reduction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

TABLE I

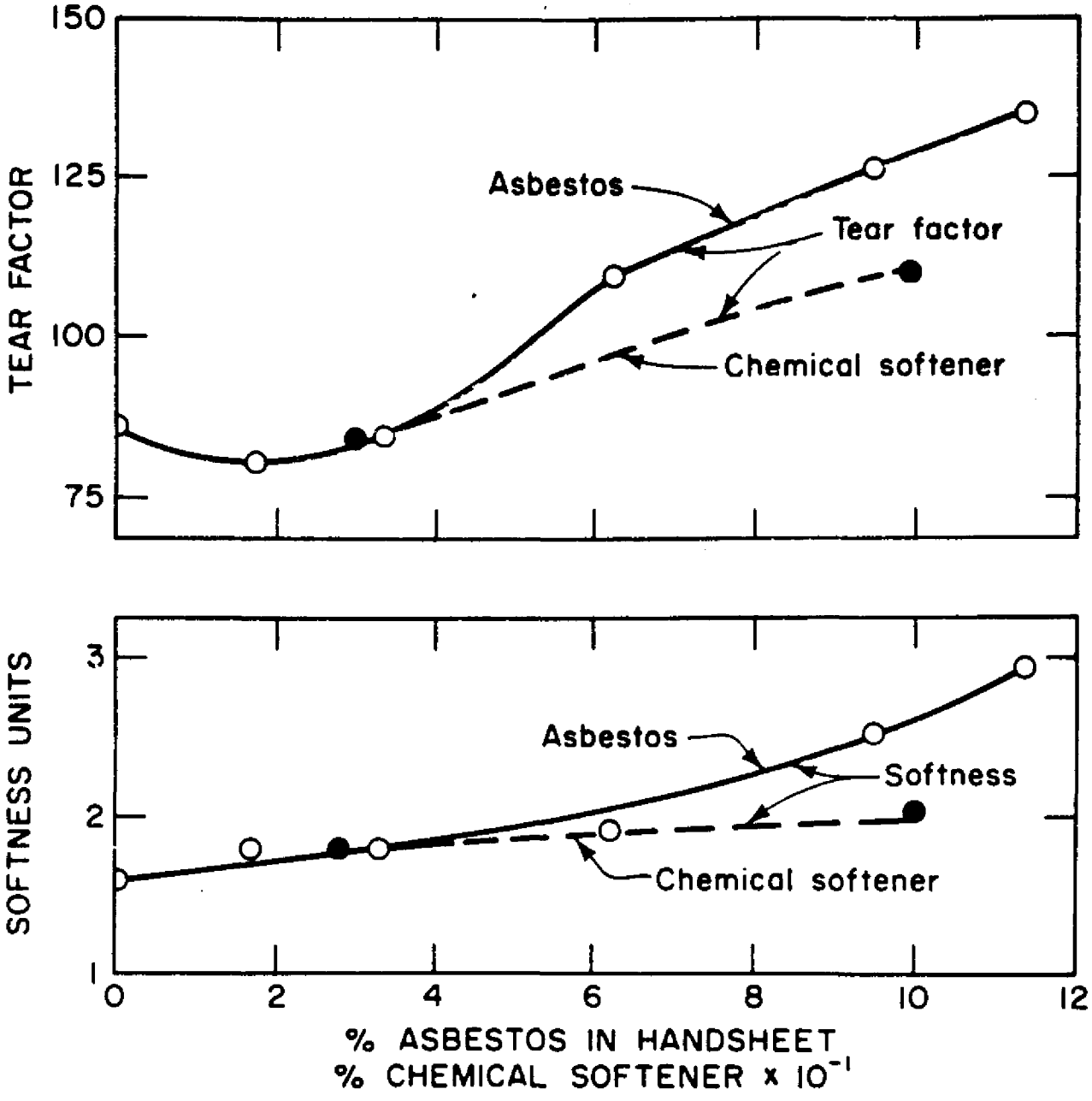
TRIAL DATA

		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

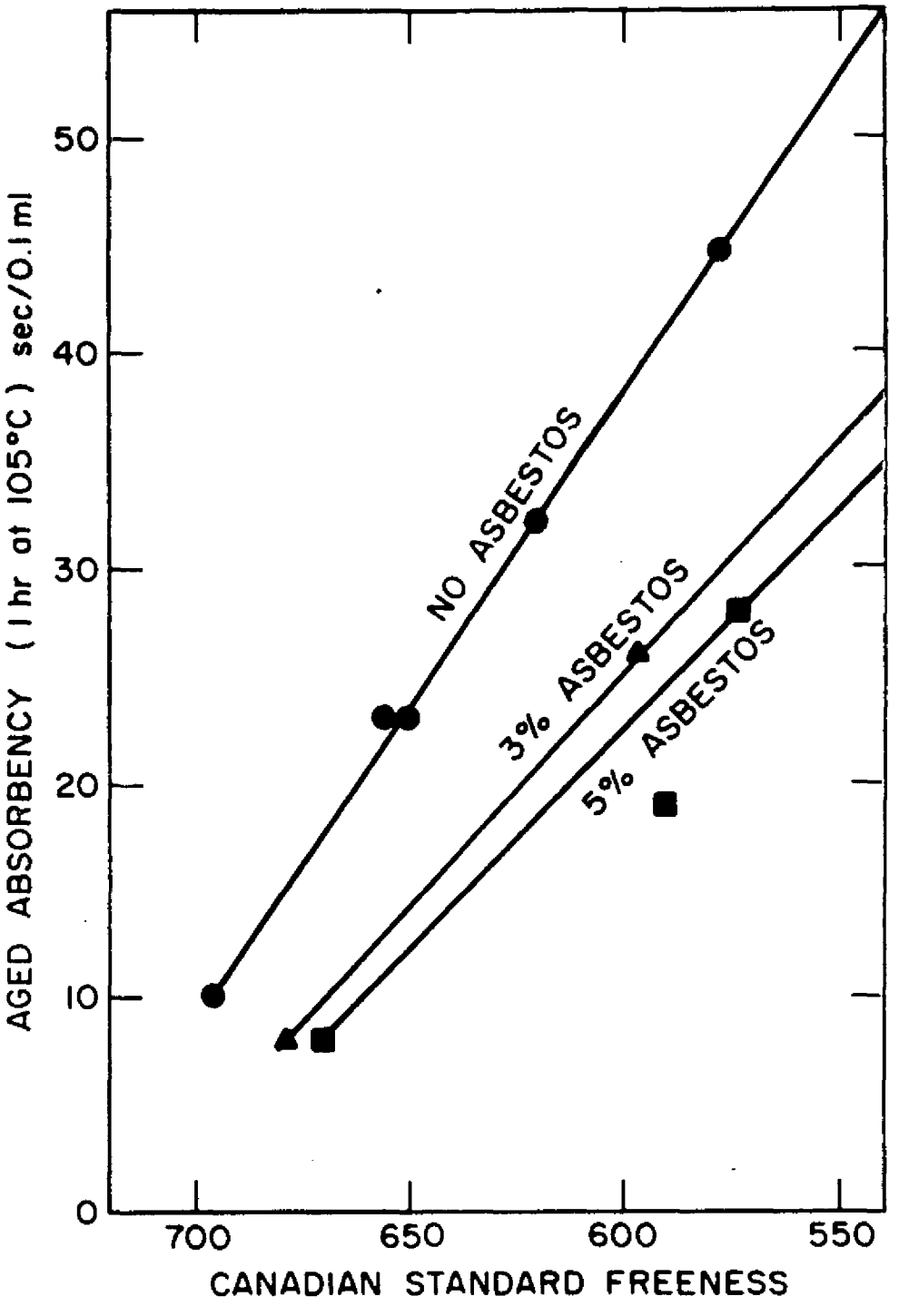
Formation improvements are often dramatic with High Purity Asbestos addition.



Asbestos softening of a 40-lb. towel.



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



Asbestos improving aged towel absorbency.