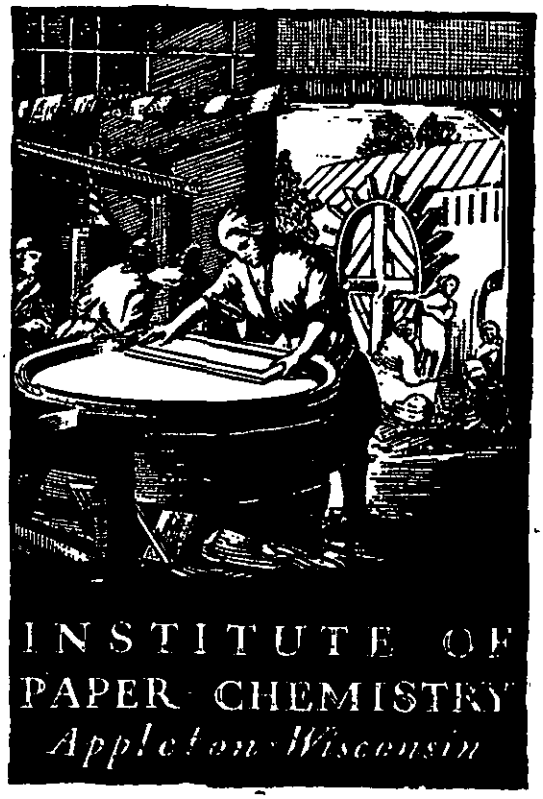

CONTINUOUS BASELINE STUDY

Project 1108-B

Progress Report 8

to

FOURDRINIER KRAFT BOARD INSTITUTE

March 1, 1948

THE INSTITUTE OF PAPER CHEMISTRY

APPLETON, WISCONSIN

CONTINUOUS BASELINE STUDY

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March 1, 1948

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APPLETON, WISCONSIN

In conjunction with the F.K.I. Continuous Baseline Study, fifty-three different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by nine different F.K.I. mills to The Institute of Paper Chemistry for testing during the period February 1 through February 29. In addition to the 42-lb. kraft linerboard, three samples of special drum stock were also submitted for evaluation. The results on the special stock are reported separately in this report. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I

DISTRIBUTION OF 42-lb. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	7
B	9
C	5
D	3
E	0
F	7
G	8
H	6
J	8
	53

The above sample lots were tested for basis weight, caliper, bursting strength, G. E. puncture, and Elmendorf tear. A comparison

of the average strength results for each mill may be seen in Table II and graphically presented in Figures 1 to 6, inclusive. In addition to a comparison of the mill averages, Table II also shows the cumulative F.K.I. averages as well as the F.K.I. index. The cumulative F.K.I. averages include all the results up to but not including the current period; the current period in the case of this report is February 1 through February 29. The F.K.I. index is obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index furnishes a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 42.9 lb. and the cumulative F.K.I. average basis weight is 43.1. Determining the index in per cent as indicated above, the resulting index for basis weight is 99.5%. This signifies that the current average basis weight is approximately 0.5% lower than the cumulative average which, in this case, covered the period July 25 through January 31.

A comparison of the results in Table II and Figure 1 shows that the average basis weight for all mills except Mill D, which was 41.9, was above the 42-lb. specification set forth in Rule 41. Mill B had the highest average basis weight, it being approximately 3.8% higher than the specified 42-lb. The amount by which the mills exceeded the 42-lb. specification is as follows:

Mill Code	Per cent
A	0.5
B	3.8
C	2.6
D	-0.2
F	3.6
G	0.7
H	2.4
J	3.3

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicates that the basis weight has decreased slightly.

A comparison of the average calipers for the various mills (see Figure 2) shows that the mill averages varied from a low of 14.4 for Mill D to 15.5 for Mill H, the average being 14.9, which is lower than the cumulative average.

The average bursting strength values obtained for each mill are graphically shown in Figure 3. It may be observed that the average bursting strength for the various mills ranged from a low of 97 for Mill A to a high of 105 for Mill G. The current F.K.I. average bursting strength was 102 as compared with the cumulative average of 103.

The data of Table II and Figure 4 show that the average G. E. puncture for all mills was 39 units, with Mills A and F having the

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES—FEBRUARY 1 THROUGH FEBRUARY 29, 1948

Caliper, points	Bursting Strength, points	G. E. Puncture, units	Elmendorf Tear, g./sheet	
			In Direction	Across Direction
14.7	97	41	405	425
15.2	98	40	390	414
14.6	103	40	389	420
14.4	104	38	376	395
ubmitted.				
15.0	104	41	389	433
14.7	105	38	373	400
15.5	100	40	393	411
15.2	104	34	347	374
14.9	102	39	383	409
15.3	103	39	382	416
97.4	99.0	100.0	100.3	98.3

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES—FEBRUARY 1 THROUGH FEBRUARY 29, 1948

Code No.	Basis Weight, lb.	Caliper, points	Bursting Strength, points	G. E. Puncture, units	Elmendorf g./she In Direction	Ac
A	42.2	14.7	97	41	405	
B	43.6	15.2	98	40	390	
C	43.1	14.6	103	40	389	
D	41.9	14.4	104	38	376	
E	No samples submitted.					
F	43.5	15.0	104	41	389	
G	42.3	14.7	105	38	373	
H	43.0	15.5	100	40	393	
J	43.4	15.2	104	34	347	
Current FKI Average:	42.9	14.9	102	39	383	
Cumulative FKI Average	43.1	15.3	103	39	382	
FKI Index, %	99.5	97.4	99.0	100.0	100.3	

highest and Mill J the lowest. In connection with Mill J, it may be observed that this mill had the lowest G. E. puncture during the last period.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 5 and 6. The results indicate that the current F.K.I. machine direction tear results were approximately the same as the cumulative average. The across-machine direction tear index was 1.7% lower than the cumulative average. It may be recalled that approximately the same condition existed during the previous period.

A comparison of the F.K.I. indexes indicates that, for the current period, basis weight, caliper, bursting strength, and across-direction tear were slightly lower than the cumulative averages. G. E. puncture and machine direction tear, however, were approximately the same as the cumulative averages.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XI for Mills A to J, respectively. In addition to the current averages, cumulative averages for each mill, together with the mill factor and mill index, are given for each mill. The cumulative mill average is the average test results obtained on the samples submitted by the particular mill up to, but not including the current averages. The mill factor and the mill index are obtained as follows:

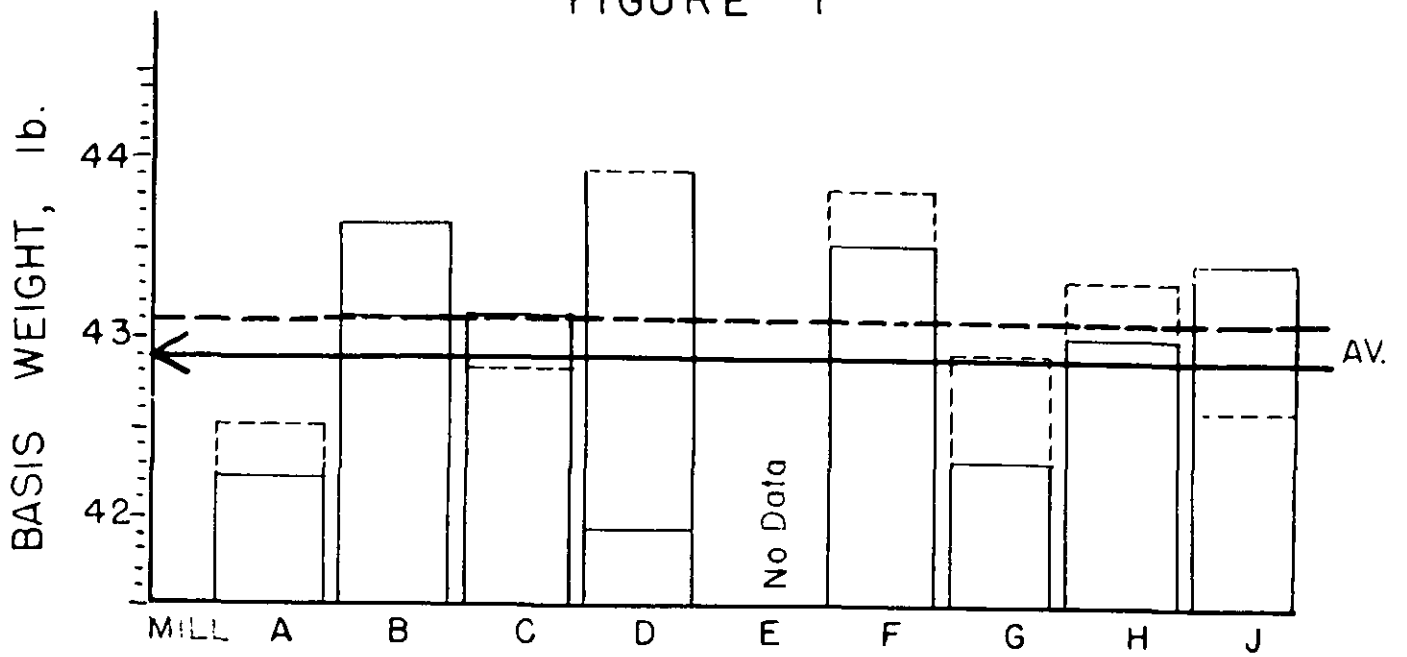
$$\frac{\text{current mill average}}{\text{cumulative mill average}} \times 100 = \text{mill factor (\%)}$$

$$\frac{\text{current mill average}}{\text{cumulative F.K.I. average}} \times 100 = \text{mill index (\%)}$$

The mill factor and the mill index serve as a ready means for comparing the current mill results either with the previous result for that particular mill or with the cumulative F.K.I. results. As more samples are included and as the test data accumulate, the factors and indexes will have added significance. Starting with the report for December, the reports will contain a comparison of the test data obtained at the mills with that obtained at Appleton.

The results obtained on the special drum stock may be seen in Table XII.

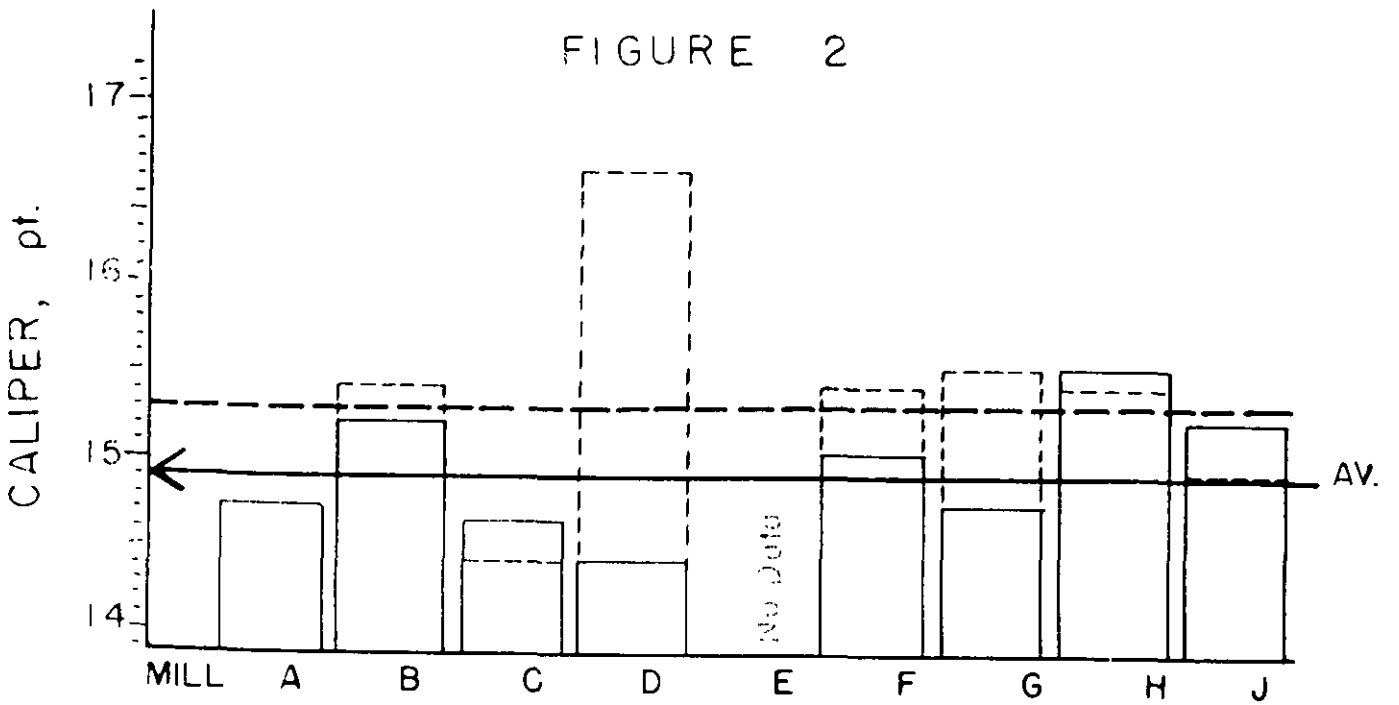
FIGURE 1



COMPARISON OF BASIS WEIGHT RESULTS

(PERIOD FEB. 1 — FEB. 29)

FIGURE 2



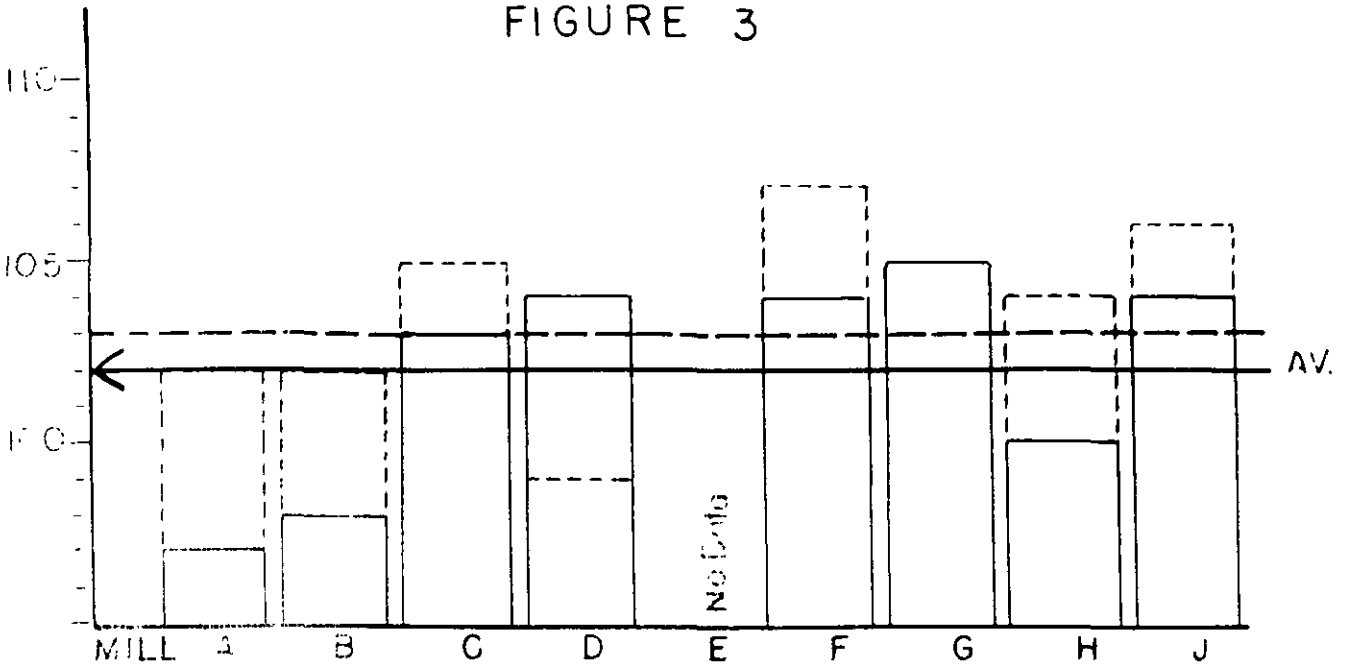
COMPARISON OF CALIPER RESULTS

(PERIOD FEB. 1 — FEB. 29)

—— CURRENT MILL AVERAGE

----- CUMULATIVE MILL AVERAGE

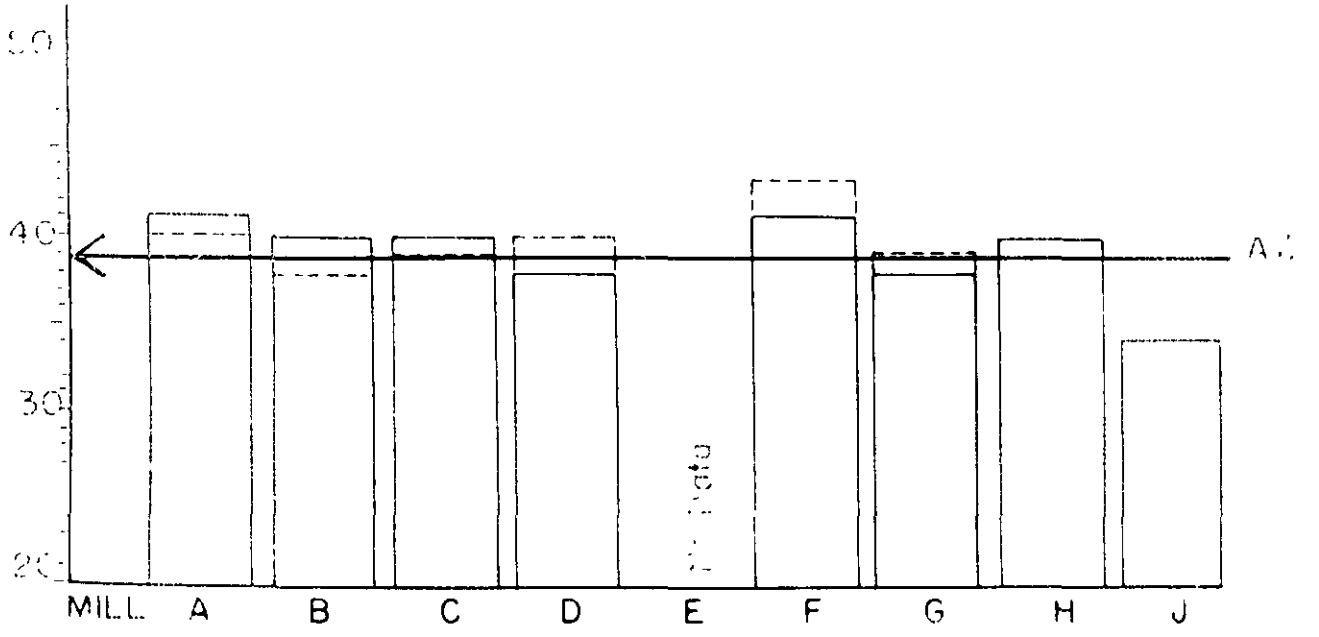
FIGURE 3



COMPARISON OF BURSTING STRENGTH RESULTS

(PERIOD FEB 1 - FEB. 29)

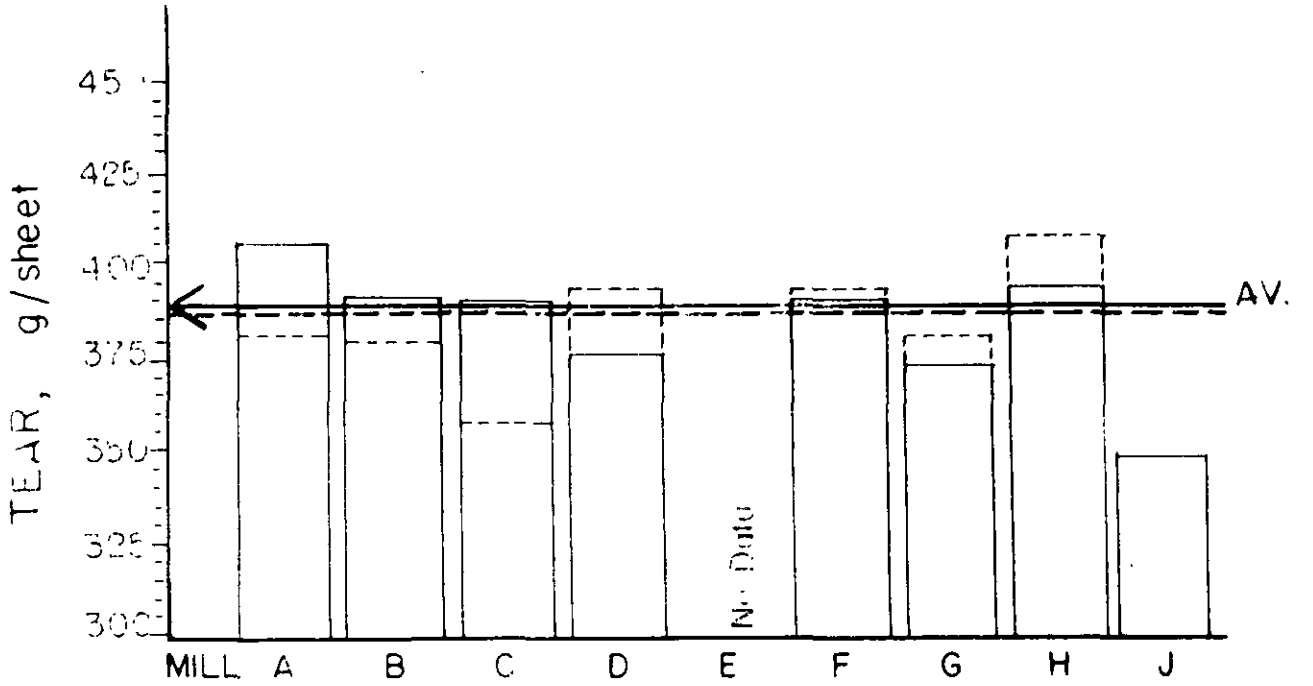
FIGURE 4



COMPARISON OF G.E. PUNCTURE RESULTS

(PERIOD FEB 1 - FEB. 29)

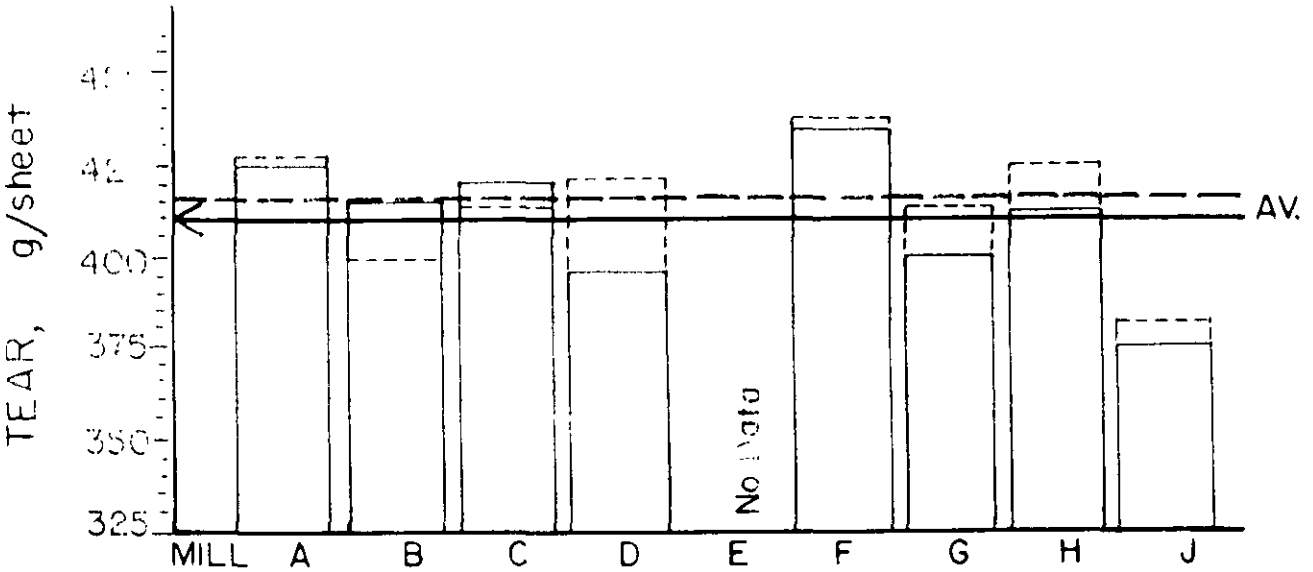
FIGURE 5



COMPARISON OF TEAR RESULTS, machine direction

(PERIOD FEB. 1 ~ FEB. 29)

FIGURE 6



COMPARISON OF TEAR RESULTS, across machine directio

(PERIOD FEB. 1 - FEB. 29)

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948

Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
												In			Across		
Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Mill A — 42-lb. Linerboard																	
43.0	40.0	41.8	15.8	13.2	14.7	129	83	101	45	35	40	432	328	369	448	336	407
44.0	40.0	42.5	15.5	13.9	14.8	115	78	94	45	36	41	432	328	379	456	368	417
44.0	41.8	42.9	16.0	14.1	15.0	115	74	97	42	39	41	544	360	427	480	384	428
43.0	40.2	42.0	15.7	14.2	15.0	105	76	93	43	36	40	472	360	413	488	344	433
44.0	41.2	42.6	16.2	13.8	14.7	120	74	98	44	37	40	472	376	423	488	368	428
44.0	40.8	42.6	16.2	13.2	14.5	113	77	96	48	38	43	464	368	416	464	360	423
43.0	39.0	41.3	15.1	13.1	14.3	115	83	99	47	38	43	448	360	408	472	400	439
		42.2			14.7			97			41			405			425
		42.5			14.7			102			40			382			426
		99.3			100.0			95.1			102.5			106.0			99.8
		97.9			96.1			94.2			105.1			106.0			102.2

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.
Mill A — 42-lb. Linerboard																	
129986	A-17	2/ 2/48	1/26/48	2	43.0	40.0	41.8	15.8	13.2	14.7	129	83	101	45	35	40	432
129987	A-18	2/ 2/48	1/27/48	2	44.0	40.0	42.5	15.5	13.9	14.8	115	78	94	45	36	41	432
130008	A-19	2/ 5/48	2/ 2/48	2	44.0	41.8	42.9	16.0	14.1	15.0	115	74	97	42	39	41	544
130015	A-20	2/ 6/48	2/ 3/48	2	43.0	40.2	42.0	15.7	14.2	15.0	105	76	93	43	36	40	472
130214	A-21	2/16/48	2/11/48	2	44.0	41.2	42.6	16.2	13.8	14.7	120	74	98	44	37	40	472
130260	A-22	2/23/48	2/16/48	2	44.0	40.8	42.6	16.2	13.2	14.5	113	77	96	48	38	43	464
130261	A-23	2/23/48	2/17/48	2	43.0	39.0	41.3	15.1	13.1	14.3	115	83	99	47	38	43	448
Current Mill Average:							42.2			14.7			97			41	
Cumulative Mill Average:							42.5			14.7			102			40	
Mill Factor, %							99.3			100.0			95.1			102.5	
Mill Index, %							97.9			96.1			94.2			105.1	

TABLE IV

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
												In			Across		
Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Mill B -- 42-lb Linerboard																	
47.0	43.0	44.8	16.8	15.1	16.1	136	81	104	46	40	42	480	336	394	464	384	418
44.4	41.0	42.9	16.6	14.0	15.3	121	82	101	41	32	38	432	328	384	448	360	414
46.0	42.8	44.2	16.2	14.2	15.3	117	80	101	47	38	41	432	344	382	472	384	419
45.4	42.0	43.4	16.3	14.5	15.6	118	81	97	43	38	41	464	344	403	456	384	415
45.0	40.0	43.0	15.3	13.1	14.6	115	80	95	44	36	39	440	336	395	480	360	423
45.8	40.4	43.6	15.4	13.5	14.7	118	78	95	41	36	38	464	336	385	464	368	416
45.0	42.0	43.6	15.6	14.5	15.1	109	89	100	42	34	39	464	360	397	480	352	416
44.6	40.6	43.1	16.2	13.9	14.9	124	77	100	44	37	42	400	352	381	448	376	410
45.8	41.8	43.9	16.0	14.8	15.5	113	69	94	43	36	39	432	352	390	456	344	399
		43.6			15.2			98			40			390			414
		43.1			15.4			102			38			379			398
		101.2			98.7			96.1			105.3			102.9			104.0
		101.2			99.3			95.1			102.6			102.1			99.5

TABLE IV

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.
								Mill B -- 42-lb Linerboard									
130000	B-11	2/ 4/48	1/29/48	3	47.0	43.0	44.8	16.8	15.1	16.1	136	81	104	46	40	42	480
130001	B-12	2/ 4/48	1/30/48	3	44.4	41.0	42.9	16.6	14.0	15.3	121	82	101	41	32	38	432
130163	B-13	2/ 9/48	2/ 1/48	3	46.0	42.8	44.2	16.2	14.2	15.3	117	80	101	47	38	41	432
130164	B-14	2/ 9/48	2/ 2/48	3	45.4	42.0	43.4	16.3	14.5	15.6	118	81	97	43	38	41	464
130183	B-15	2/12/48	2/ 4/48	1	45.0	40.0	43.0	15.3	13.1	14.6	115	80	95	44	36	39	440
130212	B-16	2/16/48	2/ 9/48	1	45.8	40.4	43.6	15.4	13.5	14.7	118	78	95	41	36	38	464
130213	B-17	2/16/48	2/ 9/48	3	45.0	42.0	43.6	15.6	14.5	15.1	109	89	100	42	34	39	464
130258	B-18	2/23/48	2/10/48	3	44.6	40.6	43.1	16.2	13.9	14.9	124	77	100	44	37	42	400
130259	B-19	2/23/48	2/10/48	1	45.8	41.8	43.9	16.0	14.8	15.5	113	69	94	43	36	39	432
Current Mill Average:							43.6			15.2			98			40	
Cumulative Mill Average:							43.1			15.4			102			38	
Mill Factor, %							101.2			98.7			96.1			105.3	
Mill Index, %							101.2			99.3			95.1			102.6	

TABLE V

ARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture units			Elmendorf Tear, g./sheet					
												In			Across		
ax.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
			Mill C -- 42-lb. Linerboard														
3.8	41.6	42.7	15.7	13.5	14.3	127	80	102	42	35	38	400	328	358	464	363	405
3.8	42.4	43.4	15.8	13.6	15.0	132	75	100	44	36	41	408	336	363	456	375	412
2.8	41.0	41.9	15.2	13.9	14.7	117	84	101	45	36	39	432	392	409	464	384	415
4.4	43.0	43.6	15.2	13.4	14.4	124	78	105	44	38	41	480	344	427	536	392	444
5.0	43.0	44.0	15.6	13.0	14.8	119	82	104	41	38	40	440	352	387	456	392	423
		43.1			14.6			103			40			389			420
		42.8			14.4			105			39			357			413
		100.7			101.4			98.1			102.6			109.0			101.7
		100.0			95.4			100.0			102.6			101.8			101.0

TABLE V

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture units				
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	M
Mill C — 42-lb. Linerboard																		
129988	C-13	2/ 2/48	1/26/48	1	43.8	41.6	42.7	15.7	13.5	14.3	127	80	102	42	35	38	400	3
130004	C-14	2/ 4/48	1/29/48	1	43.8	42.4	43.4	15.8	13.6	15.0	132	75	100	44	36	41	408	3
130161	C-15	2/ 7/48	2/ 2/48	1	42.8	41.0	41.9	15.2	13.9	14.7	117	84	101	45	36	39	432	3
130167	C-16	2/ 9/48	2/ 5/48	1	44.4	43.0	43.6	15.2	13.4	14.4	124	78	105	44	38	41	480	3
130210	C-17	2/16/48	2/ 9/48	1	45.0	43.0	44.0	15.6	13.0	14.8	119	82	104	41	38	40	440	3
Current Mill Average:							43.1			14.6			103			40		
Cumulative Mill Average							42.8			14.4			105			39		
Mill Factor, %							100.7			101.4			98.1			102.6		
Mill Index, %							100.0			95.4			100.0			102.6		

TABLE VI

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture units			Elmendorf Tear, g./sheet					
												In			Across		
Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Mill D -- 42-lb. Linerboard																	
42.2	40.0	41.3	15.2	14.0	14.6	113	75	96	40	34	37	424	320	363	416	336	373
43.8	40.2	42.1	14.5	13.2	14.2	124	81	112	42	35	38	464	312	385	472	376	419
43.6	41.6	42.4	14.9	13.8	14.4	130	71	103	42	37	39	416	352	381	416	344	394
		41.9			14.4			104			38			376			395
		43.9			16.7			99			40			393			421
		95.4			96.2			105.1			95.0			95.7			93.8
		97.2			94.1			101.0			97.4			98.4			95.0

TABLE VII

Mill E -- 42-lb. Linerboard

No samples of this grade submitted

TABLE VI

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture units			
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.
Mill D -- 42-lb. Linerboard																	
130211	D-14	2/16/48	2/ 9/48	4	42.2	40.0	41.3	15.2	14.0	14.6	113	75	96	40	34	37	424
130244	D-15	2/20/48	2/17/48	4	43.8	40.2	42.1	14.5	13.2	14.2	124	81	112	42	35	38	464
130280	D-16	2/25/48	2/23/48	4	43.6	41.6	42.4	14.9	13.8	14.4	130	71	103	42	37	39	416
Current Mill Average:							41.9			14.4			104			38	
Cumulative Mill Average:							43.9			16.7			99			40	
Mill Factor, %							95.4			96.2			105.1			95.0	
Mill Index, %							97.2			94.1			101.0			97.4	

TABLE VII

Mill E -- 42-lb. Linerboard

No samples of this grade submitted

TABLE VIII

UMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Basis Weight lb.			Caliper points			Bursting Strength, points			G. E. Puncture units			Elmendorf Tear, g./sheet					
												In			Across		
Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
						Mill F -- 42-lb. Linerboard											
47.0	42.8	44.1	16.0	14.0	14.9	122	90	104	46	39	42	472	376	419	464	392	432
50.0	44.4	47.2	16.2	14.4	15.3	122	82	104	47	38	43	504	376	448	584	392	458
46.0	42.2	44.0	17.7	15.0	16.3	116	78	101	46	38	43	456	360	415	528	400	449
43.0	41.0	42.0	15.6	13.4	14.5	116	84	101	43	33	38	408	328	367	464	392	433
44.0	42.0	42.9	15.3	13.8	14.6	124	88	106	42	36	39	384	320	351	464	352	407
42.8	40.8	41.6	15.5	14.3	14.9	113	86	102	41	36	38	392	320	349	488	376	419
43.8	41.2	42.8	15.1	13.3	14.5	125	87	109	46	37	41	408	320	371	496	376	432
		43.5			15.0			104			41			389			433
		43.8			15.4			107			43			391			437
		99.3			97.4			97.2			95.3			99.5			99.1
		100.9			98.0			101.0			105.1			101.8			104.1

his sample is marked "F-6."
this sample is marked "F-7."

TABLE VIII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight lb.			Caliper points			Bursting Strength, points			G. E. Puncture units				
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	M
								Mill F -- 42-lb. Linerboard										
130165	F-5*	2/ 9/48	2/ 4/48	1	47.0	42.8	44.1	16.0	14.0	14.9	122	90	104	46	39	42	472	3
130166	F-6**	2/ 9/48	2/ 6/48	1	50.0	44.4	47.2	16.2	14.4	15.3	122	82	104	47	38	43	504	3
130219	F-8	2/16/48	2/10/48	1	46.0	42.2	44.0	17.7	15.0	16.3	116	78	101	46	38	43	456	3
130220	F-9	2/16/48	2/11/48	1	43.0	41.0	42.0	15.6	13.4	14.5	116	84	101	43	33	38	408	3
130237	F-10	2/19/48	2/17/48	1	44.0	42.0	42.9	15.3	13.8	14.6	124	88	106	42	36	39	384	3
130257	F-11	2/23/48	2/19/48	1	42.8	40.8	41.6	15.5	14.3	14.9	113	86	102	41	36	38	392	3
130294	F-12	2/27/48	2/24/48	1	43.8	41.2	42.8	15.1	13.3	14.5	125	87	109	46	37	41	408	3
Current Mill Average							43.5			15.0			104			41		
Cumulative Mill Average:							43.8			15.4			107			43		
Mill Factor, %							99.3			97.4			97.2			95.3		
Mill Index, %							100.9			98.0			101.0			105.1		

* The mill data sheet corresponding to this sample is marked "F-6."
** The mill data sheet corresponding to this sample is marked "F-7."

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
													In			Across		
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
	Mill G — 42-lb. Linerboard																	
1	42.0	39.8	41.1	15.9	14.2	15.0	114	84	101	40	30	35	416	352	385*	424	344	381*
1	44.0	42.4	43.2	15.3	13.3	14.6	112	79	100	38	34	36	400	320	360	408	336	381
1	44.0	42.0	43.0	15.1	13.1	14.2	121	87	105	41	35	38	416	344	382	440	344	393
1	43.8	42.0	42.8	15.5	13.6	14.7	121	85	109	44	38	41	448	344	401	496	368	419
1	42.8	40.2	42.0	15.5	13.8	14.5	129	80	108	41	36	38	432	344	376	456	368	417
1	43.6	41.0	42.2	15.1	14.1	14.6	116	90	104	38	32	36	432	352	376	432	376	401
1	42.6	40.0	41.4	16.1	14.9	15.5	123	83	107	42	35	38	368	296	341	472	360	403
1	44.2	41.8	43.0	15.7	13.2	14.6	119	93	107	43	35	39	400	312	365	440	368	402
			42.3			14.7			105			38			373			400
			42.9			15.5			105			39			381			413
			98.6			94.8			100.0			97.4			97.9			96.9
			98.1			96.1			101.9			97.4			97.6			96.2

yond the 3/8-inch limit.
g to this sample is marked "G-22"; the sample, however, was identified as "G-23."

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continu

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb. Max.	Basis Weight, lb. Min.	Basis Weight, lb. Av.	Caliper, points Max.	Caliper, points Min.	Caliper, points Av.	Bursting Strength, points Max.	Bursting Strength, points Min.	Bursting Strength, points Av.	G. E. Puncture, units Max.	G. E. Puncture, units Min.	G. E. Puncture, units Av.	M
								Mill G — 42-lb. Linerboard									
130002	G-17	2/ 4/48	1/29/48	1	42.0	39.8	41.1	15.9	14.2	15.0	114	84	101	40	30	35	4
130003	G-18	2/ 4/48	2/ 1/48	1	44.0	42.4	43.2	15.3	13.3	14.6	112	79	100	38	34	36	4
130009	G-19	2/ 5/48	2/ 2/48	1	44.0	42.0	43.0	15.1	13.1	14.2	121	87	105	41	35	38	4
130010	G-20	2/ 5/48	2/ 3/48	1	43.8	42.0	42.8	15.5	13.6	14.7	121	85	109	44	38	41	4
130182	G-21	2/12/48	2/ 9/48	1	42.8	40.2	42.0	15.5	13.8	14.5	129	80	108	41	36	38	4
130218	G-23**	2/16/48	2/12/48	1	43.6	41.0	42.2	15.1	14.1	14.6	116	90	104	38	32	36	4
130238	G-23	2/19/48	2/16/48	1	42.6	40.0	41.4	16.1	14.9	15.5	123	83	107	42	35	38	3
130239	G-24	2/19/48	2/17/48	1	44.2	41.8	43.0	15.7	13.2	14.6	119	93	107	43	35	39	4
Current Mill Average:							42.3			14.7			105			38	
Cumulative Mill Average:							42.9			15.5			105			39	
Mill Factor, %							98.6			94.8			100.0			97.4	
Mill Index, %							98.1			96.1			101.9			97.4	

* Several of the specimens tore beyond the 3/8-inch limit.
** The mill data sheet corresponding to this sample is marked "G-22"; the sample, however, was identified as "G-23."

TABLE X

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Mch. No.	Basis Weight lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
													In			Across		
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
							Mill H -- 42-lb. Linerboard											
3	44.2	42.2	43.3	15.9	14.2	14.9	117	73	100	42	37	39	424	320	355	432	360	390
2	44.4	40.6	42.6	17.0	14.3	15.9	112	79	94	45	34	40	448	336	397	464	360	407
2	44.0	42.0	43.2	17.0	14.4	15.4	114	80	98	44	32	41	432	336	376	512	384	430
2	44.2	42.6	43.5	17.2	14.8	16.1	124	84	104	42	35	39	488	400	435	440	368	409
2	44.0	40.4	42.8	16.2	14.2	15.4	114	83	102	42	35	39	432	368	398	456	360	407
2	43.8	41.2	42.8	16.0	14.6	15.2	116	85	102	44	38	41	448	360	398	472	400	424
			43.0			15.5			100			40			393			411
			43.3			15.4			104			40			407			425
			99.3			100.6			96.2			100.0			96.6			96.7
			99.8			101.3			97.1			102.6			102.9			98.8

TABLE X

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continu

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			M
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	
								Mill H -- 42-lb. Linerboard									
129985	H-16	2/ 2/48	1/26/48	3	44.2	42.2	43.3	15.9	14.2	14.9	117	73	100	42	37	39	4
129984	H-17	2/ 2/48	1/26/48	2	44.4	40.6	42.6	17.0	14.3	15.9	112	79	94	45	34	40	4
130005	H-18	2/ 4/48	1/28/48	2	44.0	42.0	43.2	17.0	14.4	15.4	114	80	98	44	32	41	4
130223	H-19	2/17/48	2/ 9/48	2	44.2	42.6	43.5	17.2	14.8	16.1	124	84	104	42	35	39	4
130224	H-20	2/17/48	2/10/48	2	44.0	40.4	42.8	16.2	14.2	15.4	114	83	102	42	35	39	4
130295	H-21	2/27/48	2/23/48	2	43.8	41.2	42.8	16.0	14.6	15.2	116	85	102	44	38	41	4
Current Mill Average:							43.0			15.5			100			40	
Cumulative Mill Average:							43.3			15.4			104			40	
Mill Factor, %							99.3			100.6			96.2			100.0	
Mill Index, %							99.8			101.3			97.1			102.6	

TABLE XI

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Lot No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
													In			Across		
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
				Mill J — 42-lb. Linerboard														
1	45.0	44.0	44.6	16.1	14.2	15.4	136	86	114	38	32	35	416	280	356	512	352	397
1	44.0	42.0	42.8	15.7	14.8	15.3	139	90	108	35	31	33	400	288	333	408	336	373
1	45.6	42.4	43.7	16.4	14.4	15.2	107	80	96	34	28	32	392	312	348	392	296	343
1	45.8	43.6	44.3	15.1	13.3	14.5	115	72	95	32	28	30	400	312	344	440	312	357
1	43.0	41.4	42.0	16.5	14.1	14.7	117	78	107	37	32	34	376	288	343	456	304	389
1	42.4	40.4	41.5	15.4	14.4	14.9	131	98	110	36	31	34	416	320	351	416	352	385
1	45.6	43.6	44.4	17.2	16.0	16.4	119	89	103	40	36	38	400	320	356	464	336	385
1	44.4	43.0	43.8	15.4	14.2	15.0	113	89	102	37	33	35	400	320	345	408	336	363
			43.4			15.2			104			34			347			374
			42.6			14.9			106			34			347			380
			101.9			102.0			98.1			100.0			100.0			98.4
			100.7			99.3			101.0			87.2			90.8			89.9

TABLE XI

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.
Mill J — 42-lb. Linerboard																	
129989	J-13	2/ 2/48	1/29/48	1	45.0	44.0	44.6	16.1	14.2	15.4	136	86	114	38	32	35	416
129990	J-14	2/ 2/48	1/30/48	1	44.0	42.0	42.8	15.7	14.8	15.3	139	90	108	35	31	33	400
130184	J-15	2/12/48	2/ 6/48	1	45.6	42.4	43.7	16.4	14.4	15.2	107	80	96	34	28	32	392
130185	J-16	2/12/48	2/ 6/48	1	45.8	43.6	44.3	15.1	13.3	14.5	115	72	95	32	28	30	400
130215	J-17	2/16/48	2/13/48	1	43.0	41.4	42.0	16.5	14.1	14.7	117	78	107	37	32	34	376
130216	J-18	2/16/48	2/13/48	1	42.4	40.4	41.5	15.4	14.4	14.9	131	98	110	36	31	34	416
130262	J-19	2/23/48	2/19/48	1	45.6	43.6	44.4	17.2	16.0	16.4	119	89	103	40	36	38	400
130263	J-20	2/23/48	2/20/48	1	44.4	43.0	43.8	15.4	14.2	15.0	113	89	102	37	33	35	400
Current Mill Average:							43.4			15.2			104			34	
Cumulative Mill Average:							42.6			14.9			106			34	
Mill Factor, %							101.9			102.0			98.1			100.0	
Mill Index, %							100.7			99.3			101.0			87.2	

TABLE XII

UMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Basis Weight, lb.			Caliper, points			Bursting Strength points			G. E. Puncture, units			Elmendorf Tear g./sheet					
												In			Across		
Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Mill E — 44/46-lb. Drum Linerboard																	
47.0	45.0	46.1	14.6	13.7	14.2	99	69	84	48	40	43	528	392	455	480	400	437
48.0	46.0	47.2	14.9	14.0	14.4	102	59	86	49	39	44	488	392	449	456	368	416
48.4	46.4	47.8	15.0	14.2	14.6	122	73	97	47	40	43	448	352	401	504	400	448
		47.0			14.4			89			44			435			434
		45.8			14.3			96			42			426			441
		102.6			100.7			92.7			104.8			102.1			98.4

TABLE XII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength points			G. E. Puncture, units			
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max
Mill E — 44/46-lb. Drum Linerboard																	
129983	E-8	2/ 2/48	1/28/48	1	47.0	45.0	46.1	14.6	13.7	14.2	99	69	84	48	40	43	528
130162	E-9	2/ 7/48	2/ 4/48	1	48.0	46.0	47.2	14.9	14.0	14.4	102	59	86	49	39	44	488
130217	E-10	2/16/48	2/12/48	1	48.4	46.4	47.8	15.0	14.2	14.6	122	73	97	47	40	43	448
Current Mill Average:							47.0			14.4			89			44	
Cumulative Mill Average:							45.8			14.3			96			42	
Mill Factor, %							102.6			100.7			92.7			104.8	

As a supplementary part of the Continuous Baseline Study, comparisons of the mill test results with those obtained at The Institute of Paper Chemistry on corresponding samples have been included in this report. As may be noted in Table XIII, the atmospheric conditions used prior to and during the testing period varied considerably.

TABLE XIII

Mill Code	Preconditioning R.H., %	Temp., °F.	Time	Conditioning R.H., %	Temp., °F.	Time
A		None		56-87	56-81	None
B	44-58	50-68	30 min.	50	70	24 hrs.
C	50	72	4-12 days	50	72	1.5 - 4.5 days
D	32-41	80-84	4 hrs.	52-54	72-74	16 hrs.
E		None		35-40	80-84	None
F			No Conditioning			
G			No Conditioning			
H	50	73	24 hrs.	50	73	None
J		None		24-66	56-75	2-24 hrs.

A summary of the mill comparisons for the current period as compared with the previous period may be seen in Tables XIV and XV, respectively. The comparison for the various mills are given in Tables XVI to XXIV, inclusive, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XXV. In all the comparisons given in Tables XIV to XXV, includive, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XIV and XV indicates that in the majority of cases there is good agreement between the mill data and that of the Institute. As may be seen in Table XV, the maximum variation in the average basis weight between the results of the Institute and those of a given mill on corresponding samples was approximately 2% for the current period. In regard to caliper for the current period. the results for all mills, with the exception of Mill A, were lower than those obtained at the Institute. Mills F and J had the greatest variation which amounted to approximately 4% for both mills. It may be observed on reviewing the bursting strength test results that all the mill averages were higher than those of the Institute, except Mill J which was approximately 2% lower. The bursting strength results for Mills A, B, and F appear to be significantly higher.

With the exception of Mill A, the G. E. puncture results for all mills were lower than the reference values, with Mills A, H, and J having the greatest variation. The tear results appear to vary more widely than any of the other tests. With the exception of Mills C, F, and G, the mills' results for across-machine direction tear were lower.

The data in Table XV also show the comparison of the average per cent differences between mill and Institute test results for the past three periods. It may be noted that the maximum variation in basis weight encountered to date amounts to approximately 3%. The maximum average variation encountered in the basis weight results appears to be less for the current period than for preceding periods.

It may also be noted that the variation encountered in the bursting strength values for each mill for the current period was approximately the same as for the previous period. The same conditions appear to exist for the G. E. puncture and tearing strength results. In the case of the G. E. puncture and tearing strength results, the variation encountered for Mill J has been rather consistent for the past three periods.

TABLE XIV

SUMMARY OF TEST RESULT COMPARISONS

ge Mill and stitute Results	Mills*							
	A	B	C	D	F	G	H	J
amples compared	7	9	5	3	7	8	6	8
weight								
titute	42.2	43.6	43.1	41.9	43.5	42.3	43.0	43.4
l	42.9	43.4	42.5	42.8	43.3	42.0	43.2	42.8
difference**	+0.7	-0.2	-0.6	+0.9	-0.2	-0.3	+0.2	-0.6
. difference***	+1.2	-1.2	-1.0	+0.9	-1.5	-1.1	+0.8	-1.3
ier								
titute	14.7	15.2	14.6	14.4	15.0	14.7	15.5	15.2
l	14.8	14.9	14.2	14.0	14.4	14.2	15.0	14.6
difference**	+0.1	-0.3	-0.4	-0.4	-0.6	-0.5	-0.5	-0.6
. difference***	±0.3	-0.7	-0.7	-0.5	-0.9	-0.9	-1.1	-0.9
ing strength								
titute	97	98	103	104	104	105	100	104
l	106	105	107	104	111	106	104	102
difference**	+9	+7	+4	0	+7	+1	+4	-2
. difference***	+13	+10	+8	+3	+12	+7	+8	-8
puncture								
stitute	41	40	40	38	41	38	40	34
l	45	38	37	--	40	37	36	28
difference**	+4	-2	-3	--	-1	-1	-4	-6
. difference***	+10	-4	-4	--	± 3	+3	-7	-8
ing strength, in								
stitute	405	390	389	376	389	373	393	347
l	387	363	402	348	418	358	351	270
difference**	-18	-27	+13	-28	+29	-15	-42	-77
. difference***	-64	-50	+73	-57	+54	-73	-62	-137
ing strength, across								
stitute	425	414	420	395	433	400	411	374
l	415	393	466	384	467	408	394	317
difference**	-10	-21	+46	-11	+34	+8	-17	-57
. difference***	-69	-37	+59	-41	+79	+42	-41	-110

Comparison based on averages involves only those samples on which mill test data were submitted.
Average difference is the difference between the Institute mill average and mill average based on mill test data.
Maximum difference encountered in comparing the Institute average and the mill average for any sample submitted by that particular mill.

TABLE XV

SUMMARY OF TEST RESULTS--COMPARISON BY PERIODS

	Average Difference, per cent					
	Basis Weight	Caliper	Bursting Strength	G.E. Puncture	Tearing Strength, in	Tearing Strength, across
11 A						
Current period	+2	+0.7	+ 9	+10	- 4	- 2
7th period	+0.9	0	+ 9	+ 8	- 5	- 5
6th period	0	-0.7	+ 2	- 2	- 4	- 4
11 B						
Current period	-0.5	-2	+ 7	- 5	- 7	- 5
7th period	-1	-3	+ 8	- 3	-14	- 9
6th period	-0.2	-1	+ 7	0	- 8	- 4
11 C						
Current period	-1	-3	+ 3	- 8	+ 3	+10
7th period	-2	-3	+ 4	- 5	+ 0.3	+ 6
6th period	--	--	--	--	--	--
11 D						
Current period	+2	-3	0	--	- 8	- 3
7th period	+0.2	-6	+ 2	--	-11	- 0.3
6th period	--	--	--	--	--	--
11 E						
Current period	--	--	--	--	--	--
7th period	-0.7	-4	+17	-16	- 8	- 1
6th period	-3	-3	+ 2	-29	-19	-18
11 F						
Current period	-0.5	-4	+ 7	- 2	+ 7	+ 8
7th period	+0.7	-4	+ 2	0	+ 1	+ 4
6th period	+0.9	-3	0	0	+17	+12
11 G						
Current period	-0.7	-3	+ 1	- 3	- 4	+ 2
7th period	-1	-3	- 5	- 8	- 6	- 4
6th period	-0.2	-2	+ 0.9	- 3	- 5	- 2
11 H						
Current period	+0.5	-3	+ 4	-10	-11	- 4
7th period	+0.2	-7	+ 5	-10	-12	- 5
6th period	0	-6	+ 2	- 3	- 8	- 8
11 J						
Current period	-1	-4	- 2	-18	-22	-15
7th period	-1	-4	- 4	-18	-25	-17
6th period	-2	-4	- 8	-20	-24	-14

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948

Institute Data versus Mill Data

is Weight, lb.		Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
											In			Across		
Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
					Mill A — 42-lb. Linerboard											
42.6	+0.8	14.7	14.9	+0.2	101	104	+3	40	42	+2	369	377	+8	407	426	+19
43.2	+0.7	14.8	14.9	+0.1	94	106	+12	41	46	+5	379	416	+37	417	434	+17
43.1	+0.2	15.0	14.8	-0.2	97	110	+13	41	43	+2	427	364	-63	428	386	-42
42.8	+0.8	15.0	14.7	-0.3	93	106	+13	40	41	+1	413	349	-64	433	364	-69
43.3	+0.7	14.7	15.0	+0.3	98	106	+8	40	50	+10	423	421	-2	428	446	+18
43.0	+0.4	14.5	14.5	0.0	96	107	+11	43	46	+3	416	418	+2	423	445	+22
42.5	+1.2	14.3	14.4	+0.1	99	104	+5	43	43	0	408	365	-43	439	401	-38
42.9	+0.7	14.7	14.8	+0.1	97	106	+9	41	45	+4	405	387	-18	425	415	-10

TABLE XVII

					Mill B -- 42-lb. Linerboard											
43.6	-1.2	16.1	15.4	-0.7	104	105	+1	42	39	-3	394	367	-27	418	399	-19
42.7	-0.2	15.3	15.2	-0.1	101	105	+4	38	38	0	384	368	-16	414	386	-28
44.0	-0.2	15.3	15.0	-0.3	101	104	+3	41	39	-2	382	367	-15	419	389	-30
43.8	+0.4	15.6	15.1	-0.5	97	105	+8	41	39	-2	403	357	-46	415	387	-28
43.4	+0.4	14.6	14.6	0.0	95	105	+10	39	38	-1	395	345	-50	423	386	-37
43.2	-0.4	14.7	14.3	-0.4	95	105	+10	38	38	0	385	347	-38	416	393	-23
43.3	-0.3	15.1	14.8	-0.3	100	106	+6	39	38	-1	397	377	-20	416	393	-23
43.0	-0.1	14.9	14.6	-0.3	100	105	+5	42	38	-4	381	366	-15	410	402	-8
43.6	-0.3	15.5	15.2	-0.3	94	104	+10	39	38	-1	390	371	-19	399	401	+2
43.4	-0.2	15.2	14.9	-0.3	98	105	+7	40	38	-2	390	363	-27	414	393	-21

e calculated from the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC
Mill A — 42-lb. Linerboard																
129986	A-17	1/26/48	2	41.8	42.6	+0.8	14.7	14.9	+0.2	101	104	+3	40	42	+2	369
129987	A-18	1/27/48	2	42.5	43.2	+0.7	14.8	14.9	+0.1	94	106	+12	41	46	+5	379
130008	A-19	2/ 2/48	2	42.9	43.1	+0.2	15.0	14.8	-0.2	97	110	+13	41	43	+2	427
130015	A-20	2/ 3/48	2	42.0	42.8	+0.8	15.0	14.7	-0.3	93	106	+13	40	41	+1	413
130214	A-21	2/11/48	2	42.6	43.3	+0.7	14.7	15.0	+0.3	98	106	+8	40	50	+10	423
130260	A-22	2/16/48	2	42.6	43.0	+0.4	14.5	14.5	0.0	96	107	+11	43	46	+3	416
130261	A-23	2/17/48	2	41.3	42.5	+1.2	14.3	14.4	+0.1	99	104	+5	43	43	0	408
Current Mill Average:				42.2	42.9	+0.7	14.7	14.8	+0.1	97	106	+9	41	45	+4	405

TABLE XVII

Mill B -- 42-lb. Linerboard

130000	B-11	1/29/48	3	44.8	43.6	-1.2	16.1	15.4	-0.7	104	105	+1	42	39	-3	394
130001	B-12	1/30/48	3	42.9	42.7	-0.2	15.3	15.2	-0.1	101	105	+4	38	38	0	384
130163	B-13	2/ 1/48	3	44.2	44.0	-0.2	15.3	15.0	-0.3	101	104	+3	41	39	-2	382
130164	B-14	2/ 2/48	3	43.4	43.8	+0.4	15.6	15.1	-0.5	97	105	+8	41	39	-2	403
130183	B-15	2/ 4/48	1	43.0	43.4	+0.4	14.6	14.6	0.0	95	105	+10	39	38	-1	395
130212	B-16	2/ 9/48	1	43.6	43.2	-0.4	14.7	14.3	-0.4	95	105	+10	38	38	0	385
130213	B-17	2/ 9/48	3	43.6	43.3	-0.3	15.1	14.8	-0.3	100	106	+6	39	38	-1	397
130258	B-18	2/10/48	3	43.1	43.0	-0.1	14.9	14.6	-0.3	100	105	+5	42	38	-4	381
130259	B-19	2/10/48	1	43.9	43.6	-0.3	15.5	15.2	-0.3	94	104	+10	39	38	-1	390
Current Mill Average:				43.6	43.4	-0.2	15.2	14.9	-0.3	98	105	+7	40	38	-2	390

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XVIII

OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Institute Data versus Mill Data

ight, Diff.	Caliper, points IPC	Caliper, points Mill	Caliper, points Diff.	Bursting Strength, points IPC	Bursting Strength, points Mill	Bursting Strength, points Diff.	G. E. Puncture, units IPC	G. E. Puncture, units Mill	G. E. Puncture, units Diff.	Elmendorf Tear, g./sheet In IPC	Elmendorf Tear, g./sheet In Mill	Elmendorf Tear, g./sheet In Diff.	Elmendorf Tear, g./sheet Across IPC	Elmendorf Tear, g./sheet Across Mill	Elmendorf Tear, g./sheet Across Diff.
Mill C — 42-lb. Linerboard															
-0.5	14.3	13.9	-0.4	102	104	+2	38	37	-1	358	431	+73	405	464	+59
-1.0	15.0	14.6	-0.4	100	104	+4	41	37	-4	363	384	+21	412	459	+47
-0.3	14.7	14.0	-0.7	101	106	+5	39	37	-2	409	400	-9	415	455	+40
-0.8	14.4	14.1	-0.3	105	111	+6	41	37	-4	427	389	-38	444	470	+26
-0.3	14.8	14.4	-0.4	104	112	+8	40	38	-2	387	405	+18	423	481	+58
-0.6	14.6	14.2	-0.4	103	107	+4	40	37	-3	389	402	+13	420	466	+46

TABLE XIX

Mill D — 42-lb. Linerboard

+0.9	14.6	14.2	-0.4	96	99	+3	37			363	347	-16	373	380	+7
+0.6	14.2	13.7	-0.5	112	110	-2	38			385	328	-57	419	378	-41
+0.9	14.4	14.0	-0.4	103	105	+2	39			381	368	-13	394	395	+1
+0.9	14.4	14.0	-0.4	104	104	0	38			376	348	-28	395	384	-11

ulated from the totals of the individual readings.

TABLE XVIII

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	I
Mill C — 42-lb. Linerboard																
129988	C-13	1/26/48	1	42.7	42.2	-0.5	14.3	13.9	-0.4	102	104	+2	38	37	-1	35
130004	C-14	1/29/48	1	43.4	42.4	-1.0	15.0	14.6	-0.4	100	104	+4	41	37	-4	36
130161	C-15	2/ 2/48	1	41.9	41.6	-0.3	14.7	14.0	-0.7	101	106	+5	39	37	-2	40
130167	C-16	2/ 5/48	1	43.6	42.8	-0.8	14.4	14.1	-0.3	105	111	+6	41	37	-4	42
130210	C-17	2/ 9/48	1	44.0	43.7	-0.3	14.8	14.4	-0.4	104	112	+8	40	38	-2	38
Current Mill Average:				43.1	42.5	-0.6	14.6	14.2	-0.4	103	107	+4	40	37	-3	38

TABLE XIX

Mill D — 42-lb. Linerboard

130211	D-14	2/ 9/48	4	41.3	42.2	+0.9	14.6	14.2	-0.4	96	99	+3	37			36
130244	D-15	2/17/48	4	42.1	42.7	+0.6	14.2	13.7	-0.5	112	110	-2	38			38
130280	D-16	2/23/48	4	42.4	43.3	+0.9	14.4	14.0	-0.4	103	105	+2	39			38
Current Mill Average:				41.9	42.8	+0.9	14.4	14.0	-0.4	104	104	0	38			37

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XX

IVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Institute Data versus Mill Data

Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
									In			Across		
IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
Mill E -- 42-lb. Linerboard														

ted.

TABLE XXI

Mill F -- 42-lb. Linerboard

14.9	14.0	-0.9	104	101	-3	42	41	-1	419	473	+54	432	511	+79
15.3	14.9	-0.4	104	102	-2	43	42	-1	448	457	+9	458	515	+57
16.3	15.6	-0.7	101	113	+12	43	41	-2	415	427	+12	449	477	+28
14.5	13.9	-0.6	101	113	+12	38	41	+3	367	421	+54	433	463	+30
14.6	14.2	-0.4	106	115	+9	39	39	0	351	389	+38	407	446	+39
14.9	14.1	-0.8	102	114	+12	38	38	0	349	366	+17	419	413	-6
14.5	14.1	-0.4	109	117	+8	41	38	-3	371	393	+22	432	446	+14
15.0	14.4	-0.6	104	111	+7	41	40	-1	389	418	+29	433	467	+34

s marked "F-6."
s marked "F-7."

from the totals of the individual readings.

TABLE XX

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC
Mill E — 42-lb. Linerboard																
No samples submitted.																

TABLE XXI

Mill F — 42-lb. Linerboard

130165	F-5*	2/ 4/48	1	44.1	43.9	-0.2	14.9	14.0	-0.9	104	101	-3	42	41	-1	419
130166	F-6**	2/ 6/48	1	47.2	45.7	-1.5	15.3	14.9	-0.4	104	102	-2	43	42	-1	448
130219	F-8	2/10/48	1	44.0	44.5	+0.5	16.3	15.6	-0.7	101	113	+12	43	41	-2	415
130220	F-9	2/11/48	1	42.0	42.1	+0.1	14.5	13.9	-0.6	101	113	+12	38	41	+3	367
130237	F-10	2/17/48	1	42.9	42.5	-0.4	14.6	14.2	-0.4	106	115	+9	39	39	0	351
130257	F-11	2/19/48	1	41.6	41.6	0.0	14.9	14.1	-0.8	102	114	+12	38	38	0	349
130294	F-12	2/24/48	1	42.8	42.6	-0.2	14.5	14.1	-0.4	109	117	+8	41	38	-3	371
Current Mill Average:				43.5	43.3	-0.2	15.0	14.4	-0.6	104	111	+7	41	40	-1	389

* The mill data sheet corresponding to this sample is marked "F-6."
** The mill data sheet corresponding to this sample is marked "F-7."

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXII

MARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Institute Data versus Mill Data

sis Weight, lb.		Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet					
											In			Across		
Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
				Mill G — 42-lb. Linerboard												
40.4	-0.7	15.0	14.4	-0.6	101	108	+7	35	34	-1	385*	342	-43	381*	423	+42
42.1	-1.1	14.6	14.2	-0.4	100	105	+5	36	34	-2	360	336	-24	381	387	+6
42.0	-1.0	14.2	13.6	-0.6	105	105	0	38	36	-2	382	309	-73	393	362	-31
42.2	-0.6	14.7	14.0	-0.7	109	113	+4	41	40	-1	401	370	-31	419	425	+6
42.4	+0.4	14.5	14.6	+0.1	108	106	-2	38	41	+3	376	408	+32	417	443	+26
41.4	-0.8	14.6	13.7	-0.9	104	104	0	36	36	0	376	363	-13	401	393	-8
42.0	+0.6	15.5	15.0	-0.5	107	107	0	38	38	0	341	362	+21	403	421	+18
43.5	+0.5	14.6	14.4	-0.2	107	103	-4	39	41	+2	365	375	+10	402	411	+9
42.0	-0.3	14.7	14.2	-0.5	105	106	+1	38	37	-1	373	358	-15	400	408	+8

he 3/8-inch limit.
his sample is marked "G-22"; the sample, however, was identified as "G-23."

e calculated from the totals of the individual readings.

TABLE XXII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948--continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	
							Mill G — 42-lb. Linerboard									
130002	G-17	1/29/48	1	41.1	40.4	-0.7	15.0	14.4	-0.6	101	108	+7	35	34	-1	3
130003	G-18	2/ 1/48	1	43.2	42.1	-1.1	14.6	14.2	-0.4	100	105	+5	36	34	-2	3
130009	G-19	2/ 2/48	1	43.0	42.0	-1.0	14.2	13.6	-0.6	105	105	0	38	36	-2	3
130010	G-20	2/ 3/48	1	42.8	42.2	-0.6	14.7	14.0	-0.7	109	113	+4	41	40	-1	4
130182	G-21	2/ 9/48	1	42.0	42.4	+0.4	14.5	14.6	+0.1	108	106	-2	38	41	+3	3
130218	G-23**	2/12/48	1	42.2	41.4	-0.8	14.6	13.7	-0.9	104	104	0	36	36	0	3
130238	G-23	2/16/48	1	41.4	42.0	+0.6	15.5	15.0	-0.5	107	107	0	38	38	0	3
130239	G-24	2/17/48	1	43.0	43.5	+0.5	14.6	14.4	-0.2	107	103	-4	39	41	+2	
Current Mill Average:				42.3	42.0	-0.3	14.7	14.2	-0.5	105	106	+1	38	37	-1	

* Several of the specimens tore beyond the 3/8-inch limit.
** The mill data sheet corresponding to this sample is marked "G-22"; the sample, however, was identified as "G-23."

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXIII

F INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Institute Data versus Mill Data

:t Diff.	Caliper, points			Bursting Strength, points			G. E. Puncture units			Elmendorf Tear, g./sheet					
										In			Across		
	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
						Mill H -- 42-lb. Linerboard									
-0.1	14.9	14.3	-0.6	100	106	+6	39	34	-5	355	340	-15	390	399	+9
-0.8	15.9	15.7	-0.2	94	102	+8	40	37	-3	397	337	-60	407	381	-26
-0.3	15.4	15.1	-0.3	98	106	+8	41	34	-7	376	344	-32	430	389	-41
0.0	16.1	15.0	-1.1	104	105	+1	39	35	-4	435	373	-62	409	404	-5
0.0	15.4	15.0	-0.4	102	102	0	39	36	-3	398	356	-42	407	395	-12
0.0	15.2	14.9	-0.3	102	102	0	41	37	-4	398	355	-43	424	393	-31
-0.2	15.5	15.0	-0.5	100	104	+4	40	36	-4	393	351	-42	411	394	-17

TABLE XXIV

						Mill J -- 42-lb. Linerboard									
-0.2	15.4	14.8	-0.6	114	115	+1	35	32	-3	356	276	-80	397	337	-60
-1.3	15.3	14.6	-0.7	108	107	-1	33	27	-6	333	239	-94	373	284	-89
-0.5	15.2	14.4	-0.8	96	93	-3	32	28	-4	348	274	-74	343	312	-31
-0.6	14.5	14.3	-0.2	95	94	-1	30	30	0	344	333	-11	357	356	-1
0.0	14.7	14.4	-0.3	107	105	-2	34	26	-8	343	291	-52	389	358	-31
-0.2	14.9	14.4	-0.5	110	110	0	34	26	-8	351	291	-60	385	345	-40
-0.7	16.4	15.5	-0.9	103	95	-8	38	31	-7	356	248	-108	385	292	-93
-1.3	15.0	14.1	-0.9	102	94	-8	35	27	-8	345	208	-137	363	253	-110
-0.6	15.2	14.6	-0.6	104	102	-2	34	28	-6	347	270	-77	374	317	-57

lated from the totals of the individual readings.

TABLE XXIII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight lb. IPC	Mill	Diff.	Caliper, points IPC	Mill	Diff.	Bursting Strength, points IPC	Mill	Diff.	C. E. Puncture units IPC	Mill	Diff.	E In IPC	Mill
									Mill H -- 42-lb. Linerboard								
129985	H-16	1/26/48	3	43.3	43.2	-0.1	14.9	14.3	-0.6	100	106	+6	39	34	-5	355	340
129984	H-17	1/26/48	2	42.6	43.4	+0.8	15.9	15.7	-0.2	94	102	+8	40	37	-3	397	337
130005	H-18	1/28/48	2	43.2	43.5	+0.3	15.4	15.1	-0.3	98	106	+8	41	34	-7	376	344
130223	H-19	2/ 9/48	2	43.5	43.5	0.0	16.1	15.0	-1.1	104	105	+1	39	35	-4	435	373
130224	H-20	2/10/48	2	42.8	42.8	0.0	15.4	15.0	-0.4	102	102	0	39	36	-3	398	356
130295	H-21	2/23/48	2	42.8	42.8	0.0	15.2	14.9	-0.3	102	102	0	41	37	-4	398	355
Current Mill Average:				43.0	43.2	+0.2	15.5	15.0	-0.5	100	104	+4	40	36	-4	393	351

TABLE XXIV

Mill J — 42-lb. Linerboard

129989	J-13	1/29/48	1	44.6	44.4	-0.2	15.4	14.8	-0.6	114	115	+1	35	32	-3	356	276 -
129990	J-14	1/30/48	1	42.8	41.5	-1.3	15.3	14.6	-0.7	108	107	-1	33	27	-6	333	239 -
130184	J-15	2/ 6/48	1	43.7	43.2	-0.5	15.2	14.4	-0.8	96	93	-3	32	28	-4	348	274 -
130185	J-16	2/ 6/48	1	44.3	43.7	-0.6	14.5	14.3	-0.2	95	94	-1	30	30	0	344	333 -
130215	J-17	2/13/48	1	42.0	42.0	0.0	14.7	14.4	-0.3	107	105	-2	34	26	-8	343	291 -
130216	J-18	2/13/48	1	41.5	41.3	-0.2	14.9	14.4	-0.5	110	110	0	34	26	-8	351	291 -
130262	J-19	2/19/48	1	44.4	43.7	-0.7	16.4	15.5	-0.9	103	95	-8	38	31	-7	356	248 -1
130263	J-20	2/20/48	1	43.8	42.5	-1.3	15.0	14.1	-0.9	102	94	-8	35	27	-8	345	208 -1
Current Mill Average:				43.4	42.8	-0.6	15.2	14.6	-0.6	104	102	-2	34	28	-6	347	270 -

Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXV

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Institute Data versus Mill Data

Basis Weight, lb.			Caliper, points			Bursting Strength points			G. E. Puncture units			Elmendorf Tear, g./sheet					
												In			Across		
IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
Mill E — 44/46-lb. Drum Linerboard																	
46.1	44.6	-1.5	14.2	13.7	-0.5	84	94	+10	43	40	-3	455	422	-33	437	451	+14
47.2	45.7	-1.5	14.4	14.0	-0.4	86	92	+6	44	41	-3	449	454	+5	416	485	+69
47.8	47.2	-0.6	14.6	14	-0.6	97	96	-1	43	41	-2	401	442	+41	448	480	+32
47.0	45.8	-1.2	14.4	13.9	-0.5	89	94	+5	44	40	-4	435	439	+4	434	472	+38

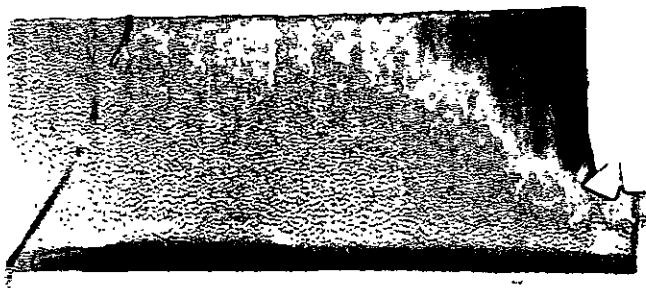


TABLE XXV

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 29, 1948—continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength points			G. E. Puncture units				
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	M
				Mill E — 44/46-lb. Drum Linerboard													
129983	E-8	1/28/48	1	46.1	44.6	-1.5	14.2	13.7	-0.5	84	94	+10	43	40	-3	455	4
130162	E-9	2/ 4/48	1	47.2	45.7	-1.5	14.4	14.0	-0.4	86	92	+6	44	41	-3	449	4
130217	E-10	2/12/48	1	47.8	47.2	-0.6	14.6	14	-0.6	97	96	-1	43	41	-2	401	4
Current Mill Average:				47.0	45.8	-1.2	14.4	13.9	-0.5	89	94	+5	44	40	-4	435	4