

**INSTITUTE OF
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CONTINUOUS BASELINE STUDY

✓ **Project 1108-B**

Progress Report 68

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

March 1, 1953

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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In conjunction with the F.K.I. Continuous Baseline Study, seventy-nine different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by twelve different F.K.I. mills to The Institute of Paper Chemistry for testing during the period February 1 through February 28. In addition to the 42-lb. kraft linerboard, four samples of special drum stock were also submitted for evaluation by one of the participating mills. The results on the special stock are tabulated 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	6
B	16
C	8
D	7
E	3
F	3
G	4
H	8
I	5
J	6
K	0
L	6
M	<u>7</u>
	79

These sample lots were tested for basis weight, caliper, bursting strength, G. E. puncture, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 6. In addition to a comparison of the mill averages for the various tests, Table II also shows the current F.K.I. averages, the cumulative F.K.I. averages, and the F.K.I. indexes. The cumulative F.K.I. average includes all the results up to but not including the current period; the current period in the case of his report is February 1 through February 28. The F.K.I. indexes are 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 provides 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 lb. Hence, the index for basis weight determined in per cent as indicated above is 99.5. This signifies that the current average basis weight is slightly lower than the cumulative average, which in this case covered the period from July 25, 1947 through January 31, 1953.

A comparison of the results in Table II and Figure 1 shows that with the exception of Mill E, the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mill D has the highest average basis weight, it being 44.0 lb. or approximately 4.8% higher than the 42-lb. specification. On the other hand, Mill E has the lowest average basis weight, it being 41.7 lb., approximately 0.7% lower than the 42-lb. specification.

The amount by which the mills vary from the 42-lb. specification is as follows:

Mill Code	Per Cent
A	+3.1
B	+3.1
C	+1.7
D	+4.8
E	-0.7
F	+3.8
G	+2.9
H	+2.1
I	+2.1
J	+0.2
K	--
L	+1.9
M	+2.4

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicates that the basis weight results have remained the same.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the mill averages vary from a low of 12.3 for Mill H to a high of 14.3 for Mill C, the average being 13.3 which is somewhat lower than the cumulative average of 14.0.

The average bursting strength values obtained for each mill are graphically presented in Figure 3. It may be observed that the

average bursting strength values for the various mills range from a low of 102 for Mill F to a high of 114 for Mill E. The current F.K.I. average bursting strength is 109, somewhat higher than the cumulative average of 106.

The data of Table II and Figure 4 show that the average G.E. puncture result for all mills is 34 units. Mill F has the highest G.E. puncture average, 41 units, and Mill B has the lowest average, 29 units. The current F.K.I. G.E. puncture average of 34 units is lower than the cumulative F.K.I. average which is 36 units.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 5 and 6. The data of Table II show that Mill E has the highest average machine direction tear value while Mill B has the lowest. Mill D has the highest average cross-machine direction tear value, whereas Mill B has the lowest value. It may be noted that the current F.K.I. average machine and cross-machine direction tear results are lower than the cumulative averages.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for basis weight, caliper, G.E. puncture, and Elmendorf tear are lower than the respective cumulative F.K.I. averages, whereas the current F.K.I. average for bursting strength is higher.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XV for Mills A to M, respectively. In addition to the current and cumulative averages, the mill factor and mill index are given for

each mill. The cumulative mill average is the average test result obtained on the samples submitted by the particular mill up to, but not including, the current average. 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 results for that particular mill or with the cumulative F.K.I. results. As the test data accumulate, the factors and indexes acquire added significance. The reports also contain a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry.

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

It may be noted in Tables III through XVI that the data have been separated on the basis of the sheet finish. The summarized results for the mills which submitted sample lots during the current period are as follows:

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
A	6 ^a		
B	16 ^a		
C	8		
D	7		

(Continued on next page)

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
E	3,4 ^b		
F	3		
G	4		
H	8 ^a		
I	5 ^a		
J			6 ^d
L			6 ^c
M	7		

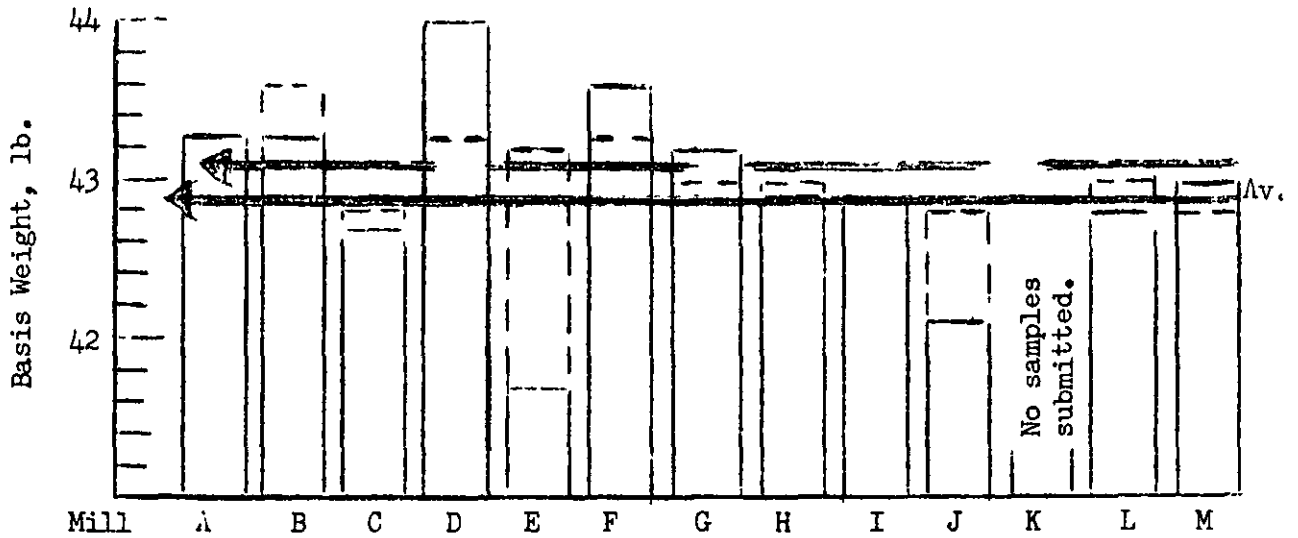
- ^a One side only
- ^b Drum linerboard
- ^c Sheet finish not reported
- ^d Semi-water finish

The results indicate that a majority of the mills are using a water finish on their 42-lb. linerboard.

TABLE II
 SUMMARY OF COMPOSITE MILL AVERAGES—FEBRUARY 1 THROUGH FEBRUARY 28, 1953

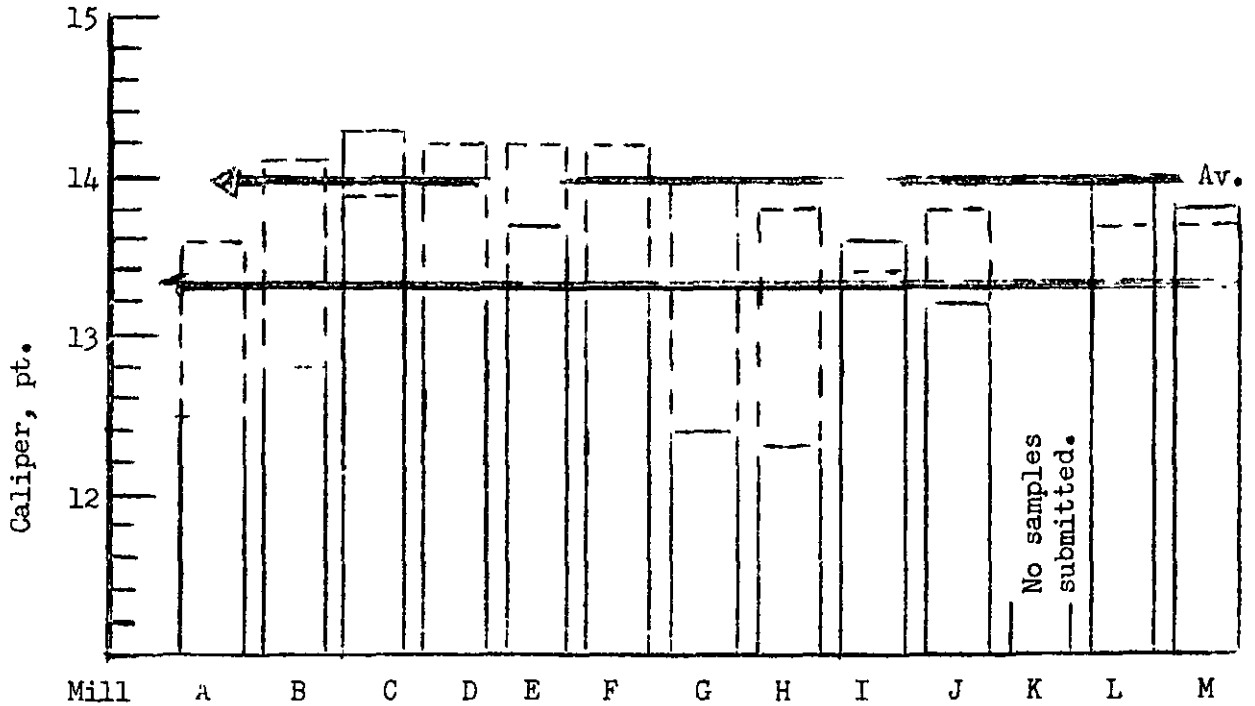
Code No.	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	G.E. Puncture, units	Elmendorf Tear, g./sheet	
				In Direction	Across Direction	
A	43.3	12.5	109.	33	336	386
B	43.3	12.8	111	29	301	354
C	42.7	14.3	105	34	332	383
D	44.0	13.3	110	38	380	429
E	41.7	13.7	114	32	387	369
F	43.6	13.3	102	41	379	419
G	43.2	12.4	109	34	337	376
H	42.9	12.3	107	34	347	393
I	42.9	13.6	108	32	331	380
J	42.1	13.2	110	32	339	389
K	No samples submitted.					
L	42.8	14.0	109	36	356	391
M	43.0	13.8	110	34	377	389
Current FKI Average:	42.9	13.3	109	34	350	388
Cumulative FKI Average:	43.1	14.0	106	36	372	406
FKI Index, %:	99.5	95.0	102.8	94.4	94.1	95.6

Figure 1



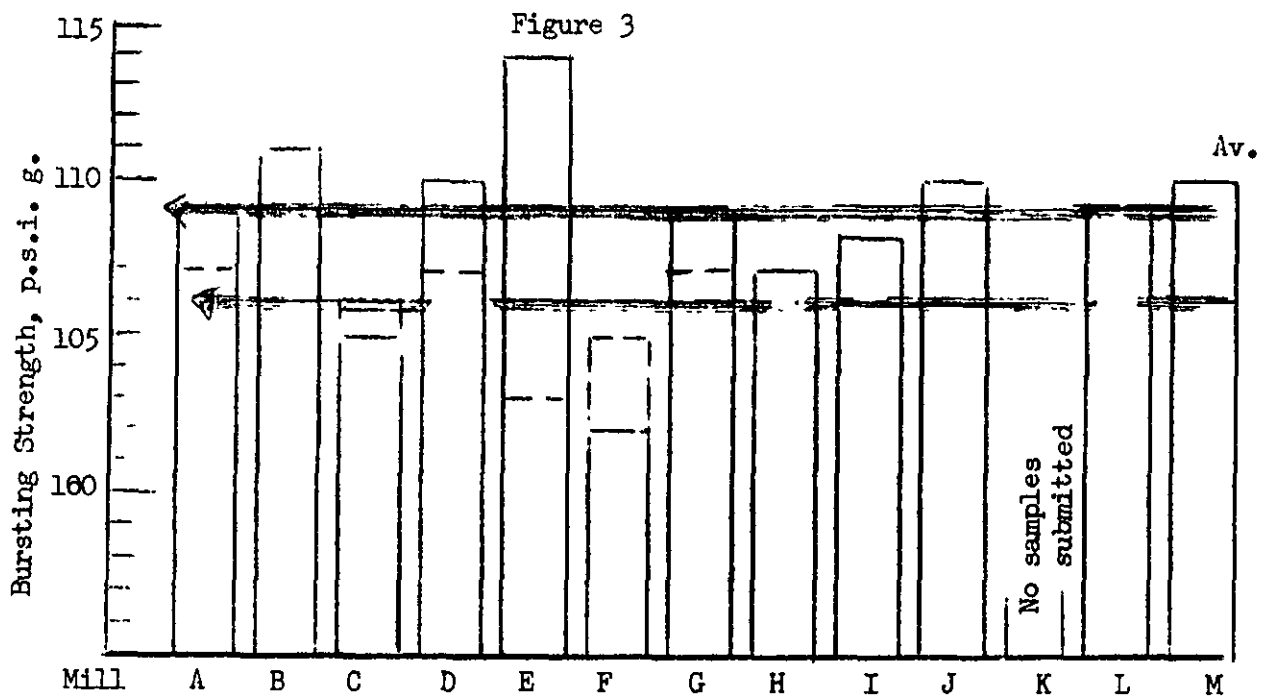
COMPARISON OF BASIS WEIGHT RESULTS
 (Period February 1 - February 28)

Figure 2

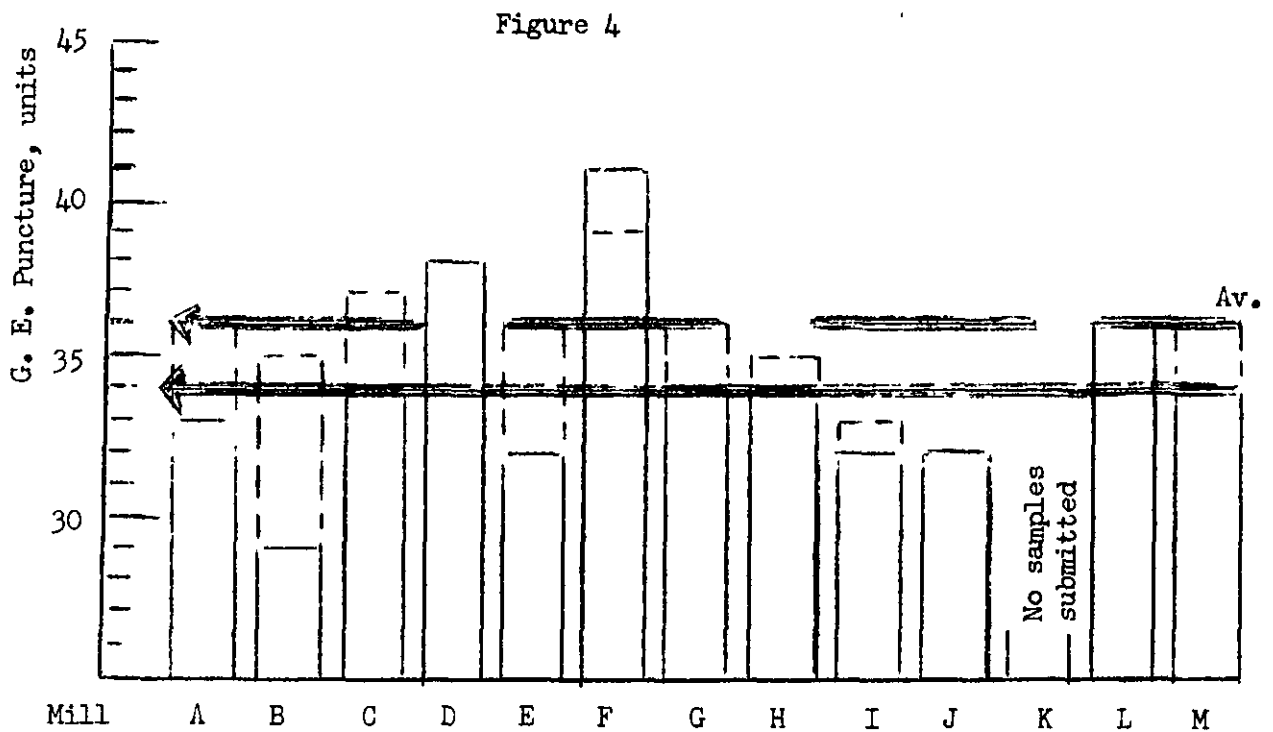


COMPARISON OF CALIPER RESULTS
 (Period February 1 - February 28)

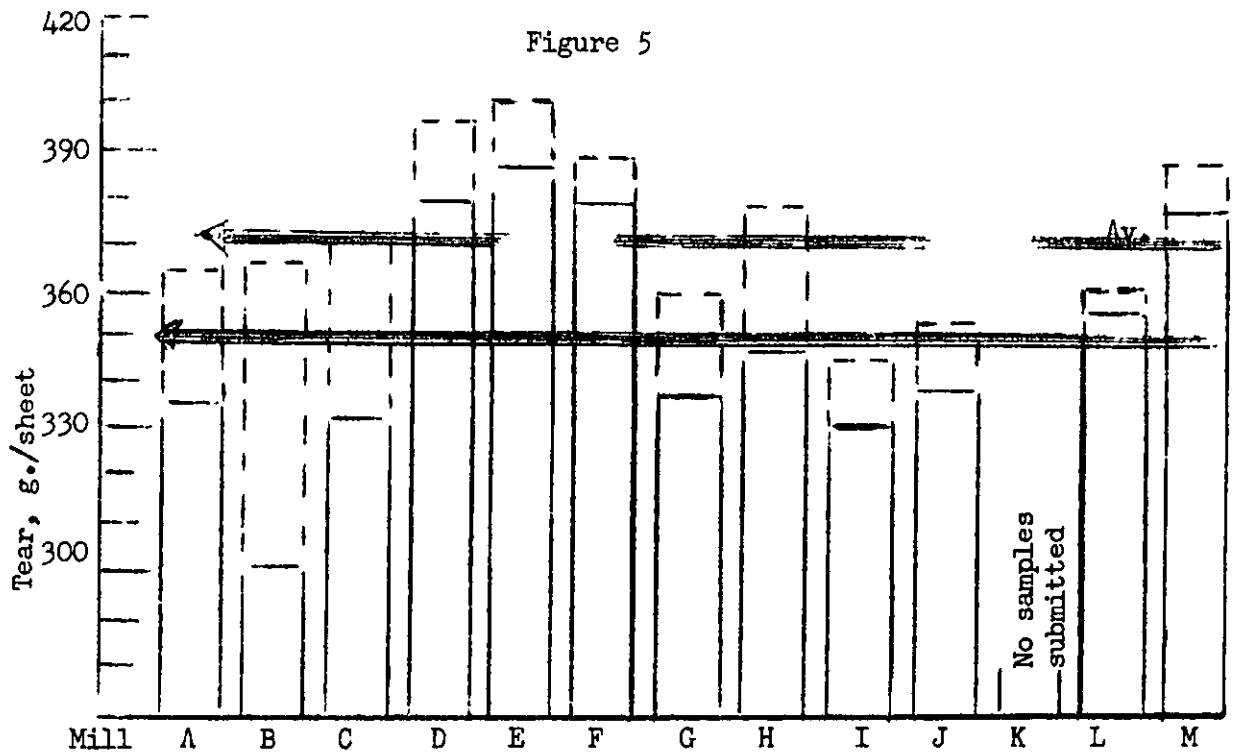
————— Current Mill Average
 - - - - - Cumulative Mill Average



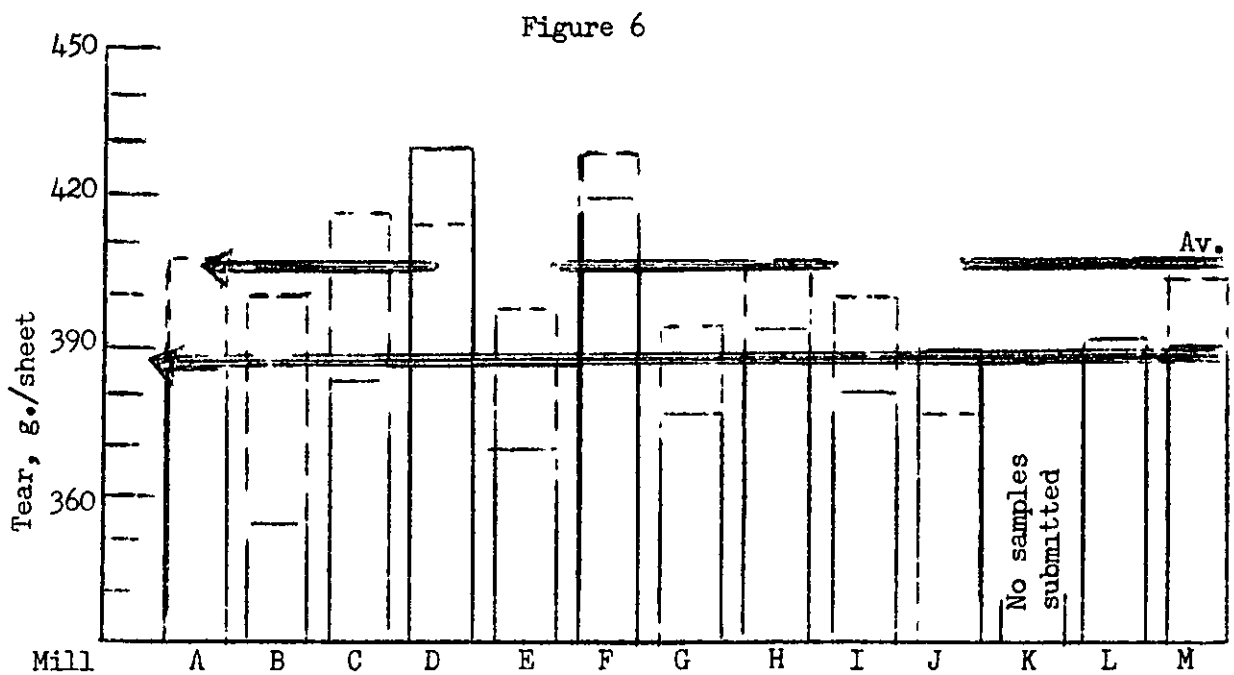
COMPARISON OF BURSTING STRENGTH RESULTS
 (Period February 1 - February 28)



COMPARISON OF G. E. PUNCTURE RESULTS
 (Period February 1 - February 28)



COMPARISON OF TEAR RESULTS, Machine Direction
 (Period February 1 - February 28)



COMPARISON OF TEAR RESULTS, Across-Machine Direction
 (Period February 1--February 28, 1953)

TABLE III
 OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953

Basis Weight, lb.	Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.							
	Max.	Min.	Max.	Min.	Max.	Min.	In	Across								
42.2	43.1	12.8	12.0	12.5	130	73	107	36	30	33	408	280	34.5 ^a	424	336	386 ^a
42.6	43.6	13.0	12.0	12.4	126	84	103	35	31	33	352	296	333 ^a	408	328	378 ^a
43.0	43.8	13.1	12.4	12.9	126	93	110	35	31	33	392	312	355 ^a	432	352	391 ^a
43.0	43.8	13.5	12.8	13.0	131	96	113	37	31	34	392	256	316	472	360	406 ^a
42.0	43.0	12.7	11.7	12.1	129	96	108	36	30	33	448	264	337 ^a	400	320	368 ^a
42.4	42.8	12.5	11.5	12.0	132	81	109	36	30	34	376	288	331 ^a	432	344	388 ^a
43.3				12.5			109			33			336			386
42.9				13.6			107			36			365			408
100.9				91.9			101.9			91.7			92.1			94.6
100.5				89.3			102.8			91.7			90.3			95.1

Mill A--42-lb. Linerboard

ore specimens which tore beyond the 3/8-inch limit.

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			G.E. Puncture, units			
						Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	
<u>Mill A-42-lb. Linerboard</u>																		
153064	A-416	WFIS	2/ 2/53	1/18/53	1	44.0	42.2	43.1	12.8	12.0	12.5	130	73	107	36	30	33	
153065	A-417	WFIS	2/ 2/53	1/18/53	1	44.0	42.6	43.6	13.0	12.0	12.4	126	84	103	35	31	33	
153108	A-418	WFIS	2/ 5/53	1/25/53	2	44.8	43.0	43.8	13.1	12.4	12.9	126	93	110	35	31	33	
153109	A-419	WFIS	2/ 5/53	1/25/53	2	44.4	43.0	43.8	13.5	12.8	13.0	131	96	113	37	31	34	
153182	A-420	WFIS	2/16/53	2/ 6/53	1	44.0	42.0	43.0	12.7	11.7	12.1	129	96	108	36	30	33	
153183	A-421	WFIS	2/16/53	2/ 5/53	1	43.6	42.4	42.8	12.5	11.5	12.0	132	81	109	36	30	34	
Current Mill Average:						43.3			12.5			109			33			
Cumulative Mill Average:						42.9			13.6			107			36			
Mill Factor, %:						100.9			91.9			101.9			91.			
Mill Index, %:						100.5			89.3			102.8			91.			

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE IV

INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Weight, lb.	Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
42.0	13.0	12.0	126	93	30	27	224	288	376	320	344 ^a
42.2	13.0	12.0	140	84	31	26	256	314 ^a	392	320	349 ^a
41.8	13.8	11.6	131	86	31	26	232	295 ^a	360	312	341 ^a
42.0	13.2	11.9	131	90	30	25	248	279	368	312	340 ^a
42.0	13.0	12.0	126	95	31	26	248	283 ^a	392	304	338 ^a
42.4	13.1	12.1	130	91	30	26	256	291	384	320	352 ^a
42.2	13.2	11.7	132	90	32	27	248	295	392	328	356 ^a
43.2	13.4	12.0	136	74	32	27	232	278 ^a	376	296	336 ^a
44.4	13.9	12.3	141	100	32	27	232	297	408	328	367 ^a
43.9	13.5	12.1	132	101	32	27	272	322	424	352	381 ^a
43.5	13.5	12.3	138	87	31	26	256	305	384	288	341 ^a
44.6	13.9	12.7	140	83	33	28	264	321 ^a	400	320	356 ^a
43.4	13.0	12.0	128	81	34	29	272	311	416	336	370 ^a
43.0	13.2	12.0	133	85	34	29	240	311 ^a	464	320	375 ^a
43.4	13.2	12.2	135	85	33	28	208	289 ^a	416	288	349 ^a
43.6	13.0	12.0	128	93	34	30	288	336 ^a	440	336	374
43.3		12.8		111		29		301			354
43.6		14.1		106		35		367			400
99.3		90.8		104.7		82.9		82.0			88.5
100.5		91.4		104.7		80.6		80.9			87.2

Mill B--42-lb. Linerboard

specimens which tore beyond the 3/8-inch limit.

TABLE IV

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (cont)

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units					
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
<u>Mill B-42-lb. Linerboard</u>																	
153072	B-735	WF1S	2/ 2/53	1/21/53	1	43.8	42.0	42.6	13.0	12.0	12.6	126	93	111	30	27	29
153068	B-736	WF1S	2/ 2/53	1/21/53	1	43.6	42.2	42.8	13.0	12.0	12.7	140	84	109	31	26	29
153069	B-737	WF1S	2/ 2/53	1/21/53	1	43.2	41.8	42.6	13.8	11.6	12.6	131	86	112	31	26	29
153070	B-738	WF1S	2/ 2/53	1/21/53	1	43.4	42.0	42.6	13.2	11.9	12.7	131	90	109	30	25	28
153089	B-739	WF1S	2/ 3/53	1/21/53	1	43.8	42.0	43.0	13.0	12.0	12.5	126	95	112	31	26	28
153090	B-740	WF1S	2/ 3/53	1/21/53	1	43.6	42.4	42.8	13.1	12.1	12.5	130	91	113	30	26	28
153077	B-741	WF1S	2/ 2/53	1/21/53	1	44.0	42.2	42.8	13.2	11.7	12.5	132	90	110	32	27	29
153078	B-742	WF1S	2/ 2/53	1/21/53	1	44.0	42.0	43.2	13.4	12.0	12.6	136	74	108	32	27	29
153176	B-743	WF1S	2/16/53	1/29/53	1	45.6	43.0	44.4	13.9	12.3	13.2	141	100	113	32	27	30
153177	B-744	WF1S	2/16/53	1/29/53	1	44.2	43.6	43.9	13.5	12.1	12.9	132	101	112	32	27	29
153178	B-745	WF1S	2/16/53	1/29/53	1	44.0	42.8	43.5	13.5	12.3	13.0	138	87	110	31	26	29
153179	B-746	WF1S	2/16/53	1/29/53	1	45.4	44.0	44.6	13.9	12.7	13.3	140	83	116	33	28	30
153338	B-747	WF1S	2/24/53	2/16/53	1	44.2	42.0	43.4	13.0	12.0	12.7	128	81	111	34	29	32
153356	B-748	WF1S	2/24/53	2/16/53	1	43.6	42.6	43.0	13.2	12.0	12.7	133	85	113	34	29	31
153357	B-749	WF1S	2/24/53	2/16/53	1	44.4	41.2	43.4	13.2	12.2	12.7	135	85	111	33	28	30
153339	B-750	WF1S	2/24/53	2/16/53	1	44.2	42.6	43.6	13.0	12.0	12.5	128	93	112	34	30	32
Current Mill Average:						43.3		43.3	12.8		12.8			111			29
Cumulative Mill Average:						43.6		43.6	14.1		14.1			106			35
Mill Factor, %:						99.3		99.3	90.8		90.8			104.7			82.9
Mill Index, %:						100.5		100.5	91.4		91.4			104.7			80.6

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE V
INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

sis Weight, lb.	Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.	Max.	Min.	Av.	Max.	Min.	Av.
	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.							
42.0	14.9	14.0	14.4	124	85	102	38	33	36	400	280	335	448	352	383 ^a
43.1	15.0	13.9	14.5	122	83	103	39	33	35	424	312	342	424	352	388 ^a
43.5	15.0	13.3	14.4	134	100	112	38	32	35	392	272	331 ^a	440	352	404 ^a
43.5	14.9	13.8	14.3	126	89	109	38	34	35	400	320	357	448	352	411 ^a
42.2	15.0	14.0	14.5	130	73	105	37	32	34	384	280	332 ^a	456	320	379 ^a
42.1	15.0	14.1	14.6	129	78	105	36	32	34	376	272	326	384	336	362 ^a
41.9	14.4	13.0	13.8	120	84	104	37	31	34	376	256	310	400	328	357 ^a
42.0	14.7	13.2	13.9	112	81	103	37	30	34	352	288	322	408	352	381 ^a
42.7			14.3			105			34			332			383
42.8			13.9			106			37			372			417
99.8			102.9			99.1			91.9			89.2			91.8
99.1			102.1			99.1			94.4			89.2			94.3

specimens which tore beyond the 3/8-inch limit.

TABLE V

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (contir

File No.	Mill Code	Fin- ish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i. gage			G.E. Puncture, units		
						Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.		Max.	Min.
<u>Mill C-42-lb. Linerboard</u>																	
153180	C-443	W.F.	2/16/53	2/ 3/53	1	44.2	42.0	43.0	14.9	14.0	14.4	124	85	102	38	33	36
153181	C-444	W.F.	2/16/53	2/ 3/53	1	44.0	41.8	43.1	15.0	13.9	14.5	122	83	103	39	33	35
153203	C-445	W.F.	2/17/53	2/ 9/53	1	44.0	42.4	43.5	15.0	13.3	14.4	134	100	112	38	32	35
153204	C-446	W.F.	2/17/53	2/ 9/53	1	44.2	42.6	43.5	14.9	13.8	14.3	126	89	109	38	34	35
153205	C-447	W.F.	2/17/53	2/11/53	1	43.2	41.6	42.2	15.0	14.0	14.5	130	73	105	37	32	34
153206	C-448	W.F.	2/17/53	2/11/53	1	43.0	41.6	42.1	15.0	14.1	14.6	129	78	105	36	32	34
153236	C-449	W.F.	2/20/53	2/12/53	1	42.2	41.6	41.9	14.4	13.0	13.8	120	84	104	37	31	34
153237	C-450	W.F.	2/20/53	2/12/53	1	42.2	41.6	42.0	14.7	13.2	13.9	112	81	103	37	30	34
Current Mill Average:						42.7			14.3			105			34		
Cumulative Mill Average:						42.8			13.9			106			37		
Mill Factor, %:						99.8			102.9			99.1			91.9		
Mill Index, %:						99.1			102.1			99.1			94.4		

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE VI

INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Weight, b. Min.	Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.							
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.								
42.2	43.8	13.9	12.8	13.4	129	84	106	44	36	40	448	344	385 ^a	456	376	423 ^a
42.0	43.2	13.4	12.0	12.9	141	96	117	39	33	36	440	328	391 ^a	496	384	439 ^a
40.4	43.6	14.5	13.1	13.8	132	89	107	41	34	38	424	344	387 ^a	504	392	446 ^a
42.8	44.3	13.9	12.2	13.2	141	85	114	40	33	37	440	320	361 ^a	480	368	419 ^a
43.6	44.2	13.9	12.1	13.0	136	100	115	45	36	39	408	320	371 ^a	456	392	425 ^a
43.6	44.3	14.0	12.4	13.4	136	90	108	40	36	38	432	336	381 ^a	472	392	430 ^a
43.4	44.3	13.8	12.8	13.3	137	83	106	42	34	38	464	328	384 ^a	480	376	423 ^a
	44.0		13.3				110			38			380			429
	43.3		14.2				107			38			396			414
	101.6		93.7				102.8			100.0			96.0			103.6
	102.1		95.0				103.8			105.6			102.2			105.7

Mill D--42-lb. Linerboard

TABLE VII

Mill E--42-lb. Linerboard

40.2	41.8	14.4	12.3	13.6	136	110	120	33	28	31	432	320	366 ^a	464	352	383 ^a
40.2	41.6	14.2	13.2	13.9	138	93	110	35	29	32	504	352	413 ^a	408	288	364 ^a
41.0	41.7	14.3	13.0	13.6	136	82	111	36	30	33	416	320	383 ^a	384	328	361 ^a
	41.7		13.7				114			32			387			369
	43.2		14.2				103			36			400			397
	96.5		96.5				110.7			88.9			96.8			92.9
	96.8		97.9				107.5			88.9			104.0			90.9

specimens which tore beyond the 3/8-inch limit.

TABLE VI

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continue)

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units					
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Av.	Av.		
<u>Mill D-42-lb. Linerboard</u>																	
153103	D-621	S.F.	2/4/53	2/1/53	4	44.6	42.2	43.8	13.9	12.8	13.4	129	84	106	44	36	40
153107	D-622	S.F.	2/5/53	2/2/53	4	44.0	42.0	43.2	13.4	12.0	12.9	141	96	117	39	33	36
153117	D-623	S.F.	2/6/53	2/3/53	4	44.4	40.4	43.6	14.5	13.1	13.8	132	89	107	41	34	38
153137	D-624	S.F.	2/11/53	2/7/53	4	45.8	42.8	44.3	13.9	12.2	13.2	141	85	114	40	33	37
153221	D-625	S.F.	2/18/53	2/13/53	4	45.6	43.6	44.2	13.9	12.1	13.0	136	100	115	45	36	39
153222	D-626	S.F.	2/18/53	2/14/53	4	45.4	43.6	44.3	14.0	12.4	13.4	136	90	108	40	36	38
153256	D-627	S.F.	2/23/53	2/19/53	4	45.2	43.4	44.3	13.8	12.8	13.3	137	83	106	42	34	38
Current Mill Average:						44.0			13.3			110			38		
Cumulative Mill Average:						43.3			14.2			107			38		
Mill Factor, %:						101.6			93.7			102.8			100.0		
Mill Index, %:						102.1			95.0			103.8			105.6		

TABLE VII

Mill E-42-lb. Linerboard

153071	E-397	W.F.	2/2/53	1/28/53	1	43.0	40.2	41.8	14.4	12.3	13.6	136	110	120	33	28	31	4
153079	E-398	W.F.	2/2/53	1/29/53	1	42.8	40.2	41.6	14.2	13.2	13.9	138	93	110	35	29	32	5
153184	E-342	W.F.	2/16/53	2/12/53	1	42.2	41.0	41.7	14.3	13.0	13.6	136	82	111	36	30	33	4
Current Mill Average:						41.7			13.7			114			32			
Cumulative Mill Average:						43.2			14.2			103			36			
Mill Factor, %:						96.5			96.5			110.7			88.9			
Mill Index, %:						96.8			97.9			107.5			88.9			

a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE VIII

INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Weight, lb. Min.	Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.								
	Max.	Min.	Max.	Min.	Max.	Min.	In	Across									
42.0	43.5	14.3	13.0	13.8	119	88	105	44	38	41	416	320	375	456	392	424 ^a	
42.4	43.7	14.1	12.1	13.0	117	91	103	44	38	41	408	336	377	456	376	413 ^a	
42.0	43.7	14.1	12.0	13.3	118	75	98	44	36	40	432	368	385 ^a	488	376	419 ^a	
	43.6			13.3			102			41			379			419	
	43.3			14.2			105			39			389			428	
	100.7			93.7			97.1			105.1			97.4			97.9	
	101.2			95.0			96.2			113.9			101.9			103.2	

TABLE IX

<u>Mill G--42-lb. Linerboard</u>																	
Weight, lb. Min.	Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.								
	Max.	Min.	Max.	Min.	Max.	Min.	In	Across									
41.6	42.5	13.0	11.4	12.3	137	90	107	35	31	33	376	288	331 ^a	408	328	380 ^a	
41.8	42.4	13.7	11.9	12.7	127	70	102	36	31	33	384	288	341 ^a	440	326	389 ^a	
42.0	43.5	12.8	11.8	12.2	150	88	114	37	31	34	368	272	329 ^a	416	320	367 ^a	
43.6	44.2	12.9	11.9	12.4	136	88	113	40	34	37	416	320	346 ^a	432	328	378 ^a	
	43.2			12.4			109			34			337			376	
	43.0			14.0			107			36			360			394	
	100.5			88.6			101.9			94.4			93.6			95.4	
	100.2			88.6			102.8			94.4			90.6			92.6	

e specimens which tore beyond the 3/8-inch limit.

TABLE VIII

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (cont'd)

File No.	Mill Code	Fin- ish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		G.E. Puncture, units						
						Max.	Av.	Max.	Min.	Max.	Min.		Max.	Min.				
153247	F-3	W.F.	2/21/53	2/ 5/53	—	45.6	42.0	43.5	14.3	13.0	13.8	119	88	105	44	38	41	
153248	F-4	W.F.	2/21/53	2/ 5/53	—	44.4	42.4	43.7	14.1	12.1	13.0	117	91	103	44	38	41	
153340	F-5	W.F.	2/24/53	2/ 6/53	—	44.6	42.0	43.7	14.1	12.0	13.3	118	75	98	44	36	40	
Current Mill Average:						43.6			13.3			102					41	
Cumulative Mill Average:						43.3			14.2			105						39
Mill Factor, %:						100.7			93.7			97.1						105
Mill Index, %:						101.2			95.0			96.2						113

TABLE IX

Mill G-42-lb. Linerboard																		
File No.	Mill Code	WFL	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		G.E. Puncture, units						
						Max.	Av.	Max.	Min.	Max.	Min.		Max.	Min.				
153075	G-470	WFL	2/2/ 53	1/27/53	1	43.4	41.6	42.5	13.0	11.4	12.3	137	90	107	35	31	33	
153076	G-471	WFL	2/ 2/53	1/27/53	1	44.0	41.8	42.4	13.7	11.9	12.7	127	70	102	36	31	33	
153110	G-472	WFL	2/ 5/53	2/ 3/53	1	44.0	42.0	43.5	12.8	11.8	12.2	150	88	114	37	31	34	
153111	G-473	WFL	2/ 5/53	2/ 3/53	1	45.0	43.6	44.2	12.9	11.9	12.4	136	88	113	40	34	37	
Current Mill Average:						43.2			12.4			109						34
Cumulative Mill Average:						43.0			14.0			107						36
Mill Factor, %:						100.5			88.6			101.9						94
Mill Index, %:						100.2			88.6			102.8						94

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE X.

INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Weight,	Caliper,		Bursting		G.E.		E Imendorf Tear,								
	Max.	Min.	Max.	Min.	Max.	Min.	In	Across							
Av.	points	points	p.s.i.	gage	units	units	g./sheet	Av.							
	<u>Mill H—42-lb. Linerboard</u>														
43.1	12.5	11.5	12.1	130	81	104	40	32	35	392	328	353	456	344	395 ^a
42.8	12.7	11.4	12.3	130	84	105	38	30	34	440	328	371	440	360	395 ^a
43.1	12.9	12.0	12.4	136	101	113	35	29	32	392	264	341 ^a	496	360	396 ^a
43.7	13.4	12.2	12.8	126	84	107	38	32	36	376	304	345	472	368	409 ^a
43.0	12.6	12.0	12.3	131	80	107	36	31	33	400	304	343 ^a	432	352	387 ^a
43.2	12.7	12.0	12.4	132	93	110	36	31	34	416	288	344	456	344	401 ^a
42.8	13.0	12.0	12.2	139	84	105	38	30	34	432	280	343	448	336	389 ^a
41.9	12.5	12.0	12.2	125	82	107	34	30	32	400	288	337	400	328	370 ^a
42.9			12.3			107			34			347			393
43.0			13.8			106			35			378			406
99.8			89.1			100.9			97.1			91.8			96.8
99.5			87.9			100.9			94.4			93.3			96.8

TABLE XI

<u>Mill I—42-lb. Linerboard</u>															
43.0	13.5	12.9	13.1	119	84	106	35	29	32	416	272	344	424	360	382 ^a
42.8	14.1	13.2	13.7	126	80	107	33	29	31	392	304	342 ^a	448	344	383 ^a
42.4	13.9	13.1	13.6	122	93	106	36	28	32	360	304	323	424	344	376 ^a
43.2	14.2	13.4	13.8	129	91	106	35	29	33	424	288	337 ^a	432	352	389 ^a
43.0	14.6	13.5	13.9	135	85	115	35	30	32	416	256	308	432	336	369 ^a
42.9			13.6			108			32			331			380
42.9			13.4			106			33			345			399
100.0			101.5			101.9			97.0			95.9			95.2
99.5			97.1			101.9			88.9			89.0			93.6

TABLE X

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (co.

File No.	MILL Code	Fin-ish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Calliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units					
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Av.	Av.		
<u>Mill H—42-lb. Linerboard</u>																	
153066	H-375	WF1S	2/ 2/53	1/19/53	2	44.0	42.0	43.1	12.5	11.5	12.1	130	81	104	40	32	35
153067	H-376	WF1S	2/ 2/53	1/20/53	2	44.0	42.0	42.8	12.7	11.4	12.3	130	84	105	38	30	34
153120	H-377	WF1S	2/ 7/53	1/29/53	2	43.8	42.0	43.1	12.9	12.0	12.4	136	101	113	35	29	32
153121	H-378	WF1S	2/ 7/53	1/30/53	2	44.2	43.2	43.7	13.4	12.2	12.8	126	84	107	38	32	36
153138	H-379	WF1S	2/11/53	2/ 2/53	2	44.1	41.6	43.0	12.6	12.0	12.3	131	80	107	36	31	33
153139	H-380	WF1S	2/11/53	2/ 3/53	2	44.1	42.2	43.2	12.7	12.0	12.4	132	93	110	36	31	34
153226	H-381	WF1S	2/19/53	2/ 9/53	2	43.8	42.2	42.8	13.0	12.0	12.2	139	84	105	38	30	34
153227	H-382	WF1S	2/19/53	2/10/53	2	42.4	40.8	41.9	12.5	12.0	12.2	125	82	107	34	30	32
Current Mill Average:						42.9		12.3		107		34					
Cumulative Mill Average:						43.0		13.8		106		35					
Mill Factor, %:						99.8		89.1		100.9		97.1					
Mill Index, %:						99.5		87.9		100.9		94.4					

TABLE XI

Mill I—42-lb. Linerboard

153063	I-271	WF1S	2/ 2/53	1/2./53	1	43.6	42.4	43.0	13.5	12.9	13.1	119	84	106	35	29	32
153162	I-272	WF1S	2/13/53	2/ 6/53	1	43.4	42.0	42.8	14.1	13.2	13.7	126	80	107	33	29	31
153202	I-273	WF1S	2/17/53	2/10/53	1	43.8	42.0	42.4	13.9	13.1	13.6	122	93	106	36	28	32
153235	I-274	WF1S	2/20/53	2/13/53	1	44.0	42.4	43.2	14.2	13.4	13.8	129	91	106	35	29	33
153358	I-275	WF1S	2/24/53	2/19/53	1	43.8	42.0	43.0	14.6	13.5	13.9	135	85	115	35	30	32
Current Mill Average:						42.9		13.6		108		32					
Cumulative Mill Average:						42.9		13.4		106		33					
Mill Factor, %:						100.0		101.5		101.9		97.0					
Mill Index, %:						99.5		97.1		101.9		88.9					

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE XII

OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 26, 1953 (continued)

No.	Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture		Elmendorf Tear, G./sheet		Av.						
	Min.	Av.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.					
<u>Mill J--42-lb. Linerboard</u>																	
6	42.2	42.8	14.5	13.0	13.7	144	95	114	32	30	31	400	272	347 ^a	448	368	404 ^a
5	42.2	42.6	14.0	13.0	13.5	121	93	112	32	30	31	416	288	349	464	352	405 ^a
3	41.8	42.2	13.3	12.6	13.0	140	90	111	35	30	33	408	280	338 ^a	440	352	391 ^a
3	41.4	42.0	13.6	12.4	12.9	119	94	108	36	30	33	360	320	335 ^a	408	328	370 ^a
3	40.8	41.5	13.3	12.4	13.0	138	87	105	33	27	30	416	264	330 ^a	416	336	375 ^a
3	40.8	41.3	13.7	12.4	13.1	126	86	107	33	26	31	384	296	337 ^a	432	344	389 ^a
	42.1				13.2			110			32			339			389
	42.8				13.8			106			32			353			375
	98.4				95.7			103.8			100.0			96.0			103.7
	97.7				94.3			103.8			88.9			91.1			95.8

TABLE XIII

Mill K--42-lb. Linerboard

No samples submitted.

TABLE XIV

OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Weight, lb.	Calliper, points	Bursting Strength, p.s.i. gage		G.E. Puncture, units		Elmendorf Tear, g./sheet		Av.								
		Max.	Min.	Max.	Min.	Max.	Min.									
42.2	43.2	14.6	13.2	14.2	136	95	112	45	33	37	400	328	369 ^a	440	368	397 ^a
41.2	42.2	13.9	12.0	13.1	126	88	112	40	33	35	368	288	322 ^a	408	352	378 ^a
42.4	43.2	15.0	14.0	14.4	134	87	113	38	33	35	432	320	366 ^a	472	336	398 ^a
42.6	43.3	15.0	14.0	14.5	129	86	107	42	34	37	408	296	353 ^a	448	360	407 ^a
41.6	42.2	14.6	13.0	13.9	120	73	100	40	32	36	448	336	365 ^a	440	320	384 ^a
42.0	42.3	14.0	13.0	13.7	139	94	109	37	32	34	416	288	359 ^a	416	352	381 ^a
42.8		14.0			109		109		36	36			356			391
43.0		13.7			106		106		36				361			391
99.5		102.2			102.8		102.8		100.0				98.6			100.0
99.3		100.0			102.8		102.8		100.0				95.7			96.3

Mill L-42-lb. Linerboard

TABLE XV

Mill M-42-lb. Linerboard

40.8	42.0	13.8	13.0	13.2	136	92	114	37	32	34	480	328	374 ^a	448	368	395 ^a
41.4	42.5	14.4	13.2	13.9	134	88	111	37	31	34	400	328	363	440	344	397 ^a
41.0	42.8	14.5	13.7	14.0	143	84	111	34	26	29	432	336	377 ^a	448	368	399 ^a
43.4	44.4	14.9	14.2	14.6	120	83	107	37	33	35	464	328	374 ^a	408	312	372 ^a
41.0	43.4	14.6	13.8	14.2	127	73	105	40	32	36	440	336	389	440	368	395 ^a
40.0	42.7	14.0	13.3	13.8	125	100	109	39	30	35	424	280	358 ^a	440	328	385 ^a
42.0	43.2	13.6	12.7	13.2	127	100	111	36	32	35	440	360	401 ^a	408	344	379 ^a
43.0		13.8			110		110		34	37			377			389
42.8		13.7			106		106		36	36			388			403
100.5		100.7			103.8		103.8		94.4				97.2			96.5
99.8		98.6			103.8		103.8		94.4				101.3			95.8

more specimens which tore beyond the 3/8-inch limit.

TABLE XIV

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (

File No.	Mill Code	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units					
						Max.	Min.	Max.	Min.	Max.	Min.						
153241	L-149		2/21/53	1/2/53	1	44.2	42.2	43.2	14.6	13.2	14.2	136	95	112	45	33	37
153242	L-150		2/21/53	1/3/53	1	43.6	41.2	42.2	13.9	12.0	13.1	126	88	112	40	33	35
153243	L-151		2/21/53	1/4/53	1	44.0	42.4	43.2	15.0	14.0	14.4	134	87	113	38	33	35
153244	L-152		2/21/53	1/18/53	1	44.2	42.6	43.3	15.0	14.0	14.5	129	86	107	42	34	37
153245	L-153		2/21/53	1/18/53	1	44.0	41.6	42.2	14.6	13.0	13.9	120	73	100	40	32	36
153246	L-154		2/21/53	1/27/53	1	43.2	42.0	42.3	14.0	13.0	13.7	139	94	109	37	32	34
													Mill L-42-lb. Linerboard				
Current Mill Average:													42.8	14.0	109	36	
Cumulative Mill Average:													43.0	13.7	106	36	
Mill Factor, %:													99.5	102.2	102.8	100.	
Mill Index, %:													99.3	100.0	102.8	100.	

TABLE XV

Mill M-42-lb. Linerboard

153073	M-142	W.	2/2/53	1/20/53	2	43.4	40.8	42.0	13.8	13.0	13.2	136	92	114	37	32	34
153074	M-143	W.	2/2/53	1/23/53	2	44.2	41.4	42.5	14.4	13.2	13.9	134	88	111	37	31	34
153123	M-144	W.	2/7/53	1/27/53	2	45.4	41.0	42.8	14.5	13.7	14.0	143	84	111	34	26	29
153133	M-145	W.	2/10/53	2/1/53	4	45.6	43.4	44.4	14.9	14.2	14.6	120	83	107	37	33	35
153134	M-146	W.	2/10/53	2/4/53	2	45.8	41.0	43.4	14.6	13.8	14.2	127	73	105	40	32	36
153335	M-147	W.	2/24/53	2/9/53	2	45.6	40.0	42.7	14.0	13.3	13.8	125	100	109	39	30	35
153336	M-148	W.	2/24/53	2/9/53	4	44.0	42.0	43.2	13.6	12.7	13.2	127	100	111	36	32	35
Current Mill Average:													43.0	13.8	110	34	
Cumulative Mill Average:													42.8	13.7	106	36	
Mill Factor, %:													100.5	100.7	103.8	94.	
Mill Index, %:													99.8	98.6	103.8	94.	

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

TABLE XVI

SUMMARY OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (

File No.	Mill Code	Finish	Date Recd.	Date Mpd.	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G. E. Puncture, units						
						Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Av.	Max.			
153116	E-399	W.F.	2/ 6/53	2/ 4/53	1	47.6	45.6	46.7	14.6	13.1	13.8	132	91	110	38	27	33	
153122	E-340	W.F.	2/ 7/53	2/ 5/53	1	49.8	48.0	48.2	15.2	14.2	14.7	142	99	114	40	32	35	
153161	E-341	W.F.	2/13/53	2/11/53	1	49.4	46.8	48.2	15.3	14.0	14.6	125	85	108	41	35	38	
153337	E-343	W.F.	2/24/53	2/19/53	1	49.4	46.4	48.2	15.3	13.8	14.5	133	83	110	40	34	37	
													<u>Mill E-44/46-lb. Drum Linerboard</u>					
													Current Mill Average:		47.8	14.4	110	36
													Cumulative Mill Average:		47.2	14.3	101	40
													Mill Factor, %:		101.3	100.7	108.9	90.1

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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 XVII, the atmospheric conditions used prior to and during the testing period varied considerably.

TABLE XVII

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., ° F.	Time, hr.	R.H., %	Temp., ° F.	Time, hr.
A		None		42-66	76-82	--
B	30-44	67-74	0.5	50	67-70	24-120
C	50	73	24-96	50	73	2-24
D	30-31	77-78	8	50-51	72-73	16
E		None		44-59	76-82	--
F		None		49-50	71-72	48
G		None		50	73	24
H		None		50	73	24
I		None		28-50	81-90	--
J		None		50	72-73	0.5
K		No samples submitted.				
L		None		47-58	80-90	--
M		None		21-47	74-81	--
E*		None		39-51	76-78	--

* Drum linerboard.

A summary of the mill comparisons for the current period as compared with the previous period may be seen in Tables XVIII and XIX,

respectively. The comparison for the various mills is given in Tables XX to XXXII, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XXXIII. In all the comparisons given in Table XVIII to XXXIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XVIII and XIX indicates that in the majority of cases there is good agreement between the mill and Institute data. Table XVIII shows the average difference encountered in the comparison of Institute and mill results for the sample lots submitted by each mill for the current period, as well as the maximum difference encountered in comparing the Institute and mill test results for a given sample lot. In Table XIX, the average differences shown for each test in Table XVIII have been calculated on a percentage basis for each mill. In addition, for purposes of comparison, the average percentage differences for the preceding two periods are shown.

It may be noted in Table XIX that the maximum variation between the average basis weight results of the Institute and those of a given mill on corresponding samples is one per cent for the current period. This figure compares favorably with the maximum variation of two per cent for the preceding two periods. Further, it may be noted that the average basis weight results for Mills E, G, and H are higher than those for the Institute, whereas the results for Mills A, B, C, D, F, I, L, and M are lower, and the result for Mill J is the same. In general, the agreement in basis weight results is very good for the current period.

The maximum variation in caliper for the current period is seven per cent. Compared with the values for the Institute, the average results for Mills A, B, C, D, E, F, H, I, J, L, and M are lower while the average result for Mill G is the same. The accord between Institute and mill caliper values is good with the exception of Mill E.

It may be noted in Table XIX that the bursting strength results exhibit a maximum variation of eight per cent for the current period. The average results for Mills A, C, F, L, and M are higher than those for the Institute, whereas the results for Mills B, D, E, G, and J are lower and the results for Mills H and I are the same. The agreement in bursting strength results is good except for Mills E and F.

The G. E. puncture results exhibit a maximum variation of twelve per cent for the current period. Compared with the values for the Institute, the results for Mills A, F, and G are higher, whereas the results for Mills B, C, E, H, I, J, and M are lower. The agreement between the Institute and mill results is good with the exception of the variation for Mills B, G, I, and M.

It may be seen in Table XIX that the average machine direction tear results for Mills A, I, and J are higher than those for the Institute, whereas the results for Mills B, C, D, E, F, G, H, L, and M are lower. The maximum variation for the current period is ten per cent. Only the difference encountered for Mill E appears to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills C, D, I, J, and M are

higher than those for the Institute whereas the average results for the other mills are lower. The maximum variation for the current period is six per cent. None of the differences appear to be excessive.

TABLE XVIII

SUMMARY OF TEST RESULT COMPARISONS
(Average Mill and Institute Results)

No. Samples Compared	Mills*											
	A	B	C	D	E	F	G	H	I	J	L	M
<u>Basis Weight</u>												
Institute	43.3	43.3	42.7	44.0	41.7	43.6	43.2	42.9	42.9	42.1	42.8	43.0
Mill	42.7	43.0	42.5	43.5	41.9	43.4	43.3	43.5	42.3	42.1	42.7	42.4
Av. Diff.**	-0.6	-0.3	-0.2	-0.5	+0.2	-0.2	+0.1	+0.6	-0.6	0.0	-0.1	-0.6
Max. Diff.***	-1.3	-0.7	-0.3	-0.8	+0.6	-0.5	+0.3	+1.0	-0.9	+0.3	+0.7	-1.0
<u>Caliper</u>												
Institute	12.5	12.8	14.3	13.3	13.7	13.3	12.4	12.3	13.6	13.2	14.0	13.8
Mill	12.2	12.6	13.9	12.9	12.7	12.9	12.4	12.2	13.1	13.1	13.3	13.2
Av. Diff.**	-0.3	-0.2	-0.4	-0.4	-1.0	-0.4	0.0	-0.1	-0.5	-0.1	-0.7	-0.6
Max. Diff.***	-0.6	-0.3	-0.7	-0.5	-1.3	-0.5	-0.1	-0.3	-0.7	-0.2	-1.0	-1.0
<u>Bursting Strength</u>												
Institute	109	111	105	110	114	102	109	107	108	110	109	110
Mill	111	110	107	108	105	108	107	107	108	107	113	114
Av. Diff.**	+2	-1	+2	-2	-9	+6	-2	0	0	-3	+4	+4
Max. Diff.***	+8	-6	+4	-5	-10	+8	-5	+5	+4	-5	+8	+9
<u>G. E. Puncture</u>												
Institute	33	29	34	38	32	41	34	34	32	32	36	34
Mill	34	26	33	--	31	43	37	33	28	31	--	31
Av. Diff.**	+1	-3	-1	--	-1	+2	+3	-1	-4	-1	--	-3
Max. Diff.***	+2	-6	-3	--	-3	+3	+3	+1	-7	+1	--	-7
<u>Tearing Strength, in</u>												
Institute	336	301	332	380	387	379	337	347	331	339	356	377
Mill	340	282	327	379	347	353	320	333	339	340	330	370
Av. Diff.**	+4	-19	-5	-1	-40	-26	-17	-14	+8	+1	-26	-7
Max. Diff.***	+27	-54	-28	-25	-111	-34	-32	-40	+23	-32	-75	-55
<u>Tearing Strength, across</u>												
Institute	386	354	383	429	369	419	376	393	380	389	391	389
Mill	385	353	388	444	347	404	373	379	402	400	377	408
Av. Diff.**	-1	-1	+5	+15	-22	-15	-3	-14	+22	+11	-14	+19
Max. Diff.***	-14	-44	+24	+25	-69	-28	+33	-26	+44	+44	-45	+43

* 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 the 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 XIX
SUMMARY OF TEST RESULTS--COMPARISON BY PERIODS

	Basis Weight	Caliper	Average Difference, % Bursting Strength	G. E. Puncture	Tearing In	Strength Across
Mill A						
Current period	-1	-2	+2	+3	+1	-0.3
67th period	-0.5	-2	+0.9	0	-3	-5
66th period	-0.5	-2	+0.9	+3	-4	-5
Mill B						
Current period	-0.7	-2	-0.9	-10	-6	-0.3
67th period	-0.7	0	-0.9	-14	-6	-6
66th period	-0.7	0	+0.9	-10	-8	-6
Mill C						
Current period	-0.5	-3	+2	-3	-2	+1
67th period	0	-3	+0.9	-3	+0.9	+5
66th period	+0.2	-0.7	+0.9	-9	-2	+2
Mill D						
Current period	-1	-3	-2	--	-0.3	+3
67th period	-0.7	-2	0	--	-6	+2
66th period	-0.7	-0.8	+1	--	-2	+3
Mill E						
Current period	+0.5	-7	-8	-3	-10	-6
67th period	-0.2	-9	-9	+15	-17	-17
66th period	-1	-9	-6	0	-26	-24
Mill F						
Current period	-0.5	-3	+6	+5	-7	-4
67th period	-0.9	-4	-2	+11	-6	+0.5
66th period	-0.7	-3	0	+3	-7	-3
Mill G						
Current period	+0.2	0	-2	+9	-5	-0.8
67th period	-0.5	-2	+1	+15	-8	-5
66th period	+0.2	-0.8	-4	+9	-13	-7
Mill H						
Current period	+1	-0.8	0	-3	-4	-4
67th period	0	-3	+4	-3	-8	-5
66th period	+0.2	-2	+5	-3	-9	-7
Mill I						
Current period	-1	-4	0	-12	+2	+6
67th period	-2	-3	-0.9	-6	-2	+2
66th period	0	-2	+3	-9	-2	+2
Mill J						
Current period	0	-0.8	-3	-3	+0.3	+3
67th period	0	0	-6	+3	-1	+2
66th period	-0.2	0	-5	0	-1	+2
Mill L						
Current period	-0.2	-5	+4	--	-7	-4
67th period	-2	+0.8	+0.9	--	-5	-0.8
66th period	-0.7	+1	+2	--	-11	-7
Mill M						
Current period	-1	-4	+4	-9	-2	+5
67th period	-1	-4	+5	-11	+6	+8
66th period	-2	-7	+4	-31	-5	-1

TABLE XI
OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953

Institute Data versus Mill Data

Light, l	Caliper, points		Bursting Strength, p.s.i. gag		G.E. Punctures, units		Elmendorf Tear, g./sheet		IPC MILL DIFF.	IPC MILL DIFF.	IPC MILL DIFF.	IPC MILL DIFF.	IPC MILL DIFF.			
	IPC	MILL	IPC	MILL	IPC	MILL	In	Across								
<u>Mill A--42-lb. Linerboard</u>																
9	-0.2	12.5	12.3	-0.2	107	111	+ 4	33	33	0	345 ^a	359	+14	386 ^a	383	- 3
9	-0.7	12.4	12.2	-0.2	103	111	+ 8	33	33	0	333 ^a	360	+27	378 ^a	383	+ 5
5	-1.3	12.9	12.3	-0.6	110	110	0	33	35	+ 2	355 ^a	335	-20	391 ^a	395	+ 4
2	-0.6	13.0	12.5	-0.5	113	114	+ 1	34	36	+ 2	316	339	+23	406 ^a	403	- 3
5	-0.5	12.1	12.0	-0.1	108	109	+ 1	33	34	+1	337 ^a	326	-11	368 ^a	370	+ 2
4	-0.4	12.0	12.0	0.0	109	109	0	34	34	0	331 ^a	320	-11	388 ^a	374	-14
7	-0.6	12.5	12.2	-0.3	109	111	+ 2	33	34	+ 1	336	340	+ 4	386	385	- 1

more specimens which tore beyond the 3/8-inch limit.

lated from the totals of the individual readings.

TABLE XX

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953

Institute Data versus Mill Data

File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basic Weight, lb.		IPC Mill Diff.	Calliper, points		IPC Mill Diff.	Bursting Strength, p.s.i. gag		G.E. Puncture, units			
					IPC	Mill		IPC	Mill		IPC	Mill				
153064	A-416	WF1S	1/18/53	1	43.1	42.9	-0.2	12.5	12.3	-0.2	107	111	+ 4	33	33	0
153065	A-417	WF1S	1/18/53	1	43.6	42.9	-0.7	12.4	12.2	-0.2	103	111	+ 8	33	33	0
153108	A-418	WF1S	1/25/53	2	43.8	42.5	-1.3	12.9	12.3	-0.6	110	110	0	33	35	+ 2
153109	A-419	WF1S	1/25/53	2	43.8	43.2	-0.6	13.0	12.5	-0.5	113	114	+ 1	34	36	+ 2
153182	A-420	WF1S	2/ 6/53	1	43.0	42.5	-0.5	12.1	12.0	-0.1	108	109	+ 1	33	34	+1
153183	A-421	WF1S	2/ 5/53	1	42.8	42.4	-0.4	12.0	12.0	0.0	109	109	0	34	34	0
Current Mill Average:					43.3	42.7	-0.6	12.5	12.2	-0.3	109	111	+ 2	33	34	+ 1

Mill A-42-lb. Linerboard

³ This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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

TABLE XXI
 OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Institute Data versus Mill Data															
ht, Diff.	Caliper, IPC	IPC	Diff.	Bursting Strength, p.s.i. gage	IPC	Diff.	G.E. Puncture, units	IPC	Diff.	Elmendorf Tear, g./sheet	IPC	Diff.	Across IPC	Mill	Diff.
+0.1	12.6	12.7	+0.1	111	111	0	29	25	-4	288	279	-9	344 ^a	357	+13
-0.2	12.7	12.8	+0.1	109	110	+1	29	25	-4	314 ^a	260	-54	349 ^a	332	-17
-0.2	12.6	12.8	+0.2	112	111	-1	29	25	-4	295 ^a	263	-32	341 ^a	326	-15
0.0	12.7	12.8	+0.1	109	108	-1	28	25	-3	279	275	-4	340 ^a	336	-4
-0.2	12.5	12.5	0.0	112	111	-1	28	25	-3	283 ^a	268	-15	338 ^a	338	0
-0.1	12.5	12.4	-0.1	113	108	-5	28	25	-3	291	267	-24	352 ^a	350	-2
-0.1	12.5	12.6	+0.1	110	110	0	29	24	-5	295	281	-14	356 ^a	356	0
-0.6	12.6	12.5	-0.1	108	112	+4	29	24	-5	278 ^a	291	+13	336 ^a	375	+39
-0.1	13.2	13.0	-0.2	113	116	+3	30	28	-2	297	289	-8	367 ^a	367	0
-0.3	12.9	12.9	0.0	112	112	0	29	26	-3	322	283	-39	381	357	-24
-0.1	13.0	12.9	-0.1	110	111	+1	29	26	-3	305	305	0	341 ^a	351	+10
-0.4	13.3	13.1	-0.2	116	113	-3	30	27	-3	321 ^a	309	-12	356 ^a	390	+34
-0.7	12.7	12.4	-0.3	111	108	-3	32	26	-6	311	259	-52	370 ^a	326	-44
-0.2	12.7	12.4	-0.3	113	107	-6	31	26	-5	311 ^a	283	-28	375 ^a	353	-22
-0.4	12.7	12.4	-0.3	111	108	-3	30	26	-4	289 ^a	285	-4	349 ^a	359	+10
-0.3	12.5	12.4	-0.1	112	108	-4	32	27	-5	336 ^a	320	-16	374 ^a	377	+3
-0.3	12.8	12.6	-0.2	111	110	-1	29	26	-3	301	282	-19	354	353	-1

Mill B-42-lb. Linerboard

re specimens which tore beyond the 3/8-inch limit.
 ited from the totals of the individual readings.

TABLE XXI

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (

Institute Data versus Mill Data

File No.	Mill Code	Fin- ish	Date Made	Moh. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units					
					IPC Mill	Diff.	IPC Mill	Diff.	IPC Mill	Diff.		IPC Mill	Diff.			
<u>Mill B-42-lb. Linerboard</u>																
153072	B-735	WF1S	1/21/53	1	42.6	42.7	+0.1	12.6	12.7	+0.1	111	111	0	29	25	- 4
153068	B-736	WF1S	1/21/53	1	42.8	42.6	-0.2	12.7	12.8	+0.1	109	110	+ 1	29	25	- 4
153069	B-737	WF1S	1/21/53	1	42.6	42.4	-0.2	12.6	12.8	+0.2	112	111	- 1	29	25	- 4
153070	B-738	WF1S	1/21/53	1	42.6	42.6	0.0	12.7	12.8	+0.1	109	108	- 1	28	25	- 3
153089	B-739	WF1S	1/21/53	1	43.0	42.8	-0.2	12.5	12.5	0.0	112	111	- 1	28	25	- 3
153090	B-740	WF1S	1/21/53	1	42.8	42.7	-0.1	12.5	12.4	-0.1	113	108	- 5	28	25	- 3
153077	B-741	WF1S	1/21/53	1	42.8	42.7	-0.1	12.5	12.6	+0.1	110	110	0	29	24	- 5
153078	B-742	WF1S	1/21/53	1	43.2	42.6	-0.6	12.6	12.5	-0.1	108	112	+ 4	29	24	- 5
153176	B-743	WF1S	1/29/53	1	44.4	44.3	-0.1	13.2	13.0	-0.2	113	116	+ 3	30	28	- 2
153177	B-744	WF1S	1/29/53	1	43.9	43.6	-0.3	12.9	12.9	0.0	112	112	0	29	26	- 3
153178	B-745	WF1S	1/29/53	1	43.5	43.4	-0.1	13.0	12.9	-0.1	110	111	+ 1	29	26	- 3
153179	B-746	WF1S	1/29/53	1	44.6	44.2	-0.4	13.3	13.1	-0.2	116	113	- 3	30	27	- 3
153338	B-747	WF1S	2/16/53	1	43.4	42.7	-0.7	12.7	12.4	-0.3	111	108	- 3	32	26	- 6
153356	B-748	WF1S	2/16/53	1	43.0	42.8	-0.2	12.7	12.4	-0.3	113	107	- 6	31	26	- 5
153357	B-749	WF1S	2/16/53	1	43.4	43.0	-0.4	12.7	12.4	-0.3	111	108	- 3	30	26	- 4
153339	B-750	WF1S	2/16/53	1	43.6	43.3	-0.3	12.5	12.4	-0.1	112	108	- 4	32	27	- 5
Current Mill Average:					43.3	43.0	-0.3	12.8	12.6	-0.2	111	110	- 1	29	26	- 3

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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

TABLE XXII
OF INDIVIDUAL TEST LOTS--FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)
Institute Data versus Mill Data

Lot Diff.	Caliper, points	IPC Mill Diff.	Ebursting Strength, p.s.i. gage		IPC Mill Diff.	G.E. Puncture, units	IPC Mill Diff.	Elmendorf Tear, g./sheet		IPC Mill Diff.	Across Mill Diff.				
			IPC Mill Diff.	IPC Mill Diff.				In	IPC Mill Diff.						
			<u>Mill C--42-lb. Linerboard</u>												
-0.2	14.4	14.0	-0.4	102	106	+ 4	36	34	- 2	335	332	- 3	383 ^a	393	+10
-0.2	14.5	14.0	-0.5	103	107	+ 4	35	34	- 1	342	351	+ 9	388 ^a	401	+13
+0.1	14.4	14.0	-0.4	112	113	+ 1	35	34	- 1	331 ^a	332	+ 1	404 ^a	400	- 4
0.0	14.3	14.0	-0.3	109	112	+ 3	35	35	0	357	331	-26	411 ^a	387	-24
-0.3	14.5	14.1	-0.4	105	106	+ 1	34	32	- 2	332 ^a	314	-18	379 ^a	388	+ 9
-0.2	14.6	14.0	-0.6	105	105	0	34	31	- 3	326	298	-28	362	359	- 3
-0.2	13.8	13.5	-0.3	104	106	+ 2	34	32	- 2	310	321	+11	357 ^a	381	+24
-0.3	13.9	13.2	-0.7	103	104	+ 1	34	32	- 2	322	335	+13	381 ^a	396	+15
-0.2	14.3	13.9	-0.4	105	107	+ 2	34	33	- 1	332	327	- 5	383	388	+ 5
				<u>Mill D--42-lb. Linerboard</u>											
-0.8	13.4	13.1	-0.3	106	107	+ 1	40			385 ^a	370	-15	423 ^a	435	+12
-0.5	12.9	12.8	-0.1	117	116	- 1	36			391 ^a	366	-25	439 ^a	452	+13
+0.5	13.8	13.3	-0.5	107	104	- 3	38			387 ^a	391	+ 4	446 ^a	466	+20
-0.7	13.2	12.8	-0.4	114	112	- 2	37			361 ^a	383	+22	419 ^a	444	+25
-0.4	13.0	12.6	-0.4	115	114	- 1	39			371 ^a	372	+ 1	425 ^a	441	+16
-0.8	13.4	12.9	-0.5	108	103	- 5	38			381 ^a	374	- 7	430 ^a	422	- 8
-0.7	13.3	12.9	-0.4	106	102	- 4	38			384 ^a	398	+14	423 ^a	445	+22
-0.5	13.3	12.9	-0.4	110	108	- 2	38			380	379	- 1	429	444	+15

are specimens which tore beyond the 3/8-inch limit.

ated from the totals of the individual readings.

TABLE XXII

SUMMARY OF INDIVIDUAL TEST LOTS - FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (contin.)
Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Diff.	Mill C--42-lb. Linerboard		IPC Mill Diff.	IPC Mill Diff.	IPC M	
					IPC	Mill	IPC	Mill		IPC	Mill				
153180	C-443	W.F.	2/ 3/53	1	43.0	42.8	14.4	14.0	-0.4	102	106	+ 4	36	34	335
153181	C-444	W.F.	2/ 3/53	1	43.1	42.9	14.5	14.0	-0.5	103	107	+ 4	35	34	342
153203	C-445	W.F.	2/ 9/53	1	43.5	43.6	14.4	14.0	-0.4	112	113	+ 1	35	34	331 ^a
153204	C-446	W.F.	2/ 9/53	1	43.5	43.5	14.3	14.0	-0.3	109	112	+ 3	35	35	357
153205	C-447	W.F.	2/11/53	1	42.2	41.9	14.5	14.1	-0.4	105	106	+ 1	34	32	332 ^a
153206	C-448	W.F.	2/11/53	1	42.1	41.9	14.6	14.0	-0.6	105	105	0	34	31	326
153236	C-449	W.F.	2/12/53	1	41.9	41.7	13.8	13.5	-0.3	104	106	+ 2	34	32	310
153237	C-450	W.F.	2/12/53	1	42.0	41.7	13.9	13.2	-0.7	103	104	+ 1	34	32	322
Current Mill Average:					42.7	42.5	14.3	13.9	-0.4	105	107	+ 2	34	33	332

TABLE XXIII

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Diff.	Mill D--42-lb. Linerboard		IPC Mill Diff.	IPC Mill Diff.	IPC M	
					IPC	Mill	IPC	Mill							
153103	D-621	S.F.	2/ 1/53	4	43.8	43.0	13.4	13.1	-0.3	106	107	+ 1	40	38 ^a	
153107	D-622	S.F.	2/ 2/53	4	43.2	42.7	12.9	12.8	-0.1	117	116	- 1	36	36	391 ^a
153117	D-623	S.F.	2/ 3/53	4	43.6	44.1	13.8	13.3	-0.5	107	104	- 3	38	38	387 ^a
153137	D-624	S.F.	2/ 7/53	4	44.3	43.6	13.2	12.8	-0.4	114	112	- 2	37	37	361 ^a
153221	D-625	S.F.	2/13/53	4	44.2	43.8	13.0	12.6	-0.4	115	114	- 1	39	39	371 ^a
153222	D-626	S.F.	2/14/53	4	44.3	43.5	13.4	12.9	-0.5	108	103	- 5	38	38	381 ^a
153256	D-627	S.F.	2/19/53	4	44.3	43.6	13.3	12.9	-0.4	106	102	- 4	38	38	384 ^a
Current Mill Average:					44.0	43.5	13.3	12.9	-0.4	110	108	- 2	38	38	380

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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

TABLE XXIV

TABLE OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Institute Data versus Mill Data

Weight, lb.	Caliper, points	IPC Mill Diff.	Bursting Strength, p.s.i. gage		G.E. Puncture, units	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	Elmendorf Tear, g./sheet							
			IPC Mill Diff.	IPC Mill Diff.					In	Across						
.0	+0.2	13.6	13	-0.6	120	110	-10	31	30	-1	366 ^a	342	-24	383 ^a	375	-8
.3	-0.3	13.9	12.6	-1.3	110	100	-10	32	29	-3	413 ^a	302	-111	364 ^a	295	-69
.3	+0.6	13.6	12.6	-1.0	111	106	-5	33	34	+1	383 ^a	398	+15	361 ^a	372	+11
.9	+0.2	13.7	12.7	-1.0	114	105	-9	32	31	-1	387	347	-40	369	347	-22

Mill E-42-lb. Linerboard

TABLE XXV

Mill F-42-lb. Linerboard

.3	-0.2	13.8	13.4	-0.4	105	113	+8	41	43	+2	375	352	-23	424 ^a	415	-9
.6	-0.1	13.0	12.5	-0.5	103	109	+6	41	44	+3	377	357	-20	413 ^a	405	-8
.2	-0.5	13.3	12.8	-0.5	98	103	+5	40	43	+3	385 ^a	351	-34	419 ^a	391	-28
.4	-0.2	13.3	12.9	-0.4	102	108	+6	41	43	+2	379	353	-26	419	404	-15

TABLE XXVI

Mill G-42-lb. Linerboard

.8	+0.3	12.3	12.3	0.0	107	106	-1	33	36	+3	331 ^a	302	-29	380 ^a	347	-33
.7	+0.3	12.7	12.6	-0.1	102	103	+1	33	36	+3	341 ^a	309	-32	380 ^a	348	-32
.4	-0.1	12.2	12.2	0.0	114	109	-5	34	36	+2	329 ^a	330	+1	367 ^a	400	+33
.2	0.0	12.4	12.4	0.0	113	109	-4	37	38	+1	346 ^a	339	-7	378 ^a	399	+21
.3	+0.1	12.4	12.4	0.0	109	107	-2	34	37	+3	337	320	-17	376	373	-3

c more specimens which tore beyond the 3/8-inch limit.

culated from the totals of the individual readings.

TABLE XXV
SUMMARY OF INDIVIDUAL TEST LOTS - FEBRUARY 1 THROUGH FEBRUARY 29, 1955

Institute Data versus Mill Data

File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		G.E. Puncture, units			
					IPC Mill	Diff.	IPC Mill	Diff.	IPC Mill	Diff.				
153071	E-397	W.F.	1/28/53	1	41.8	+0.2	13.6	13	120	110	-10	31	30	- 1
153079	E-398	W.F.	1/29/53	1	41.6	-0.3	13.9	12.6	110	100	-10	32	29	- 3
153184	E-342	W.F.	2/12/53	1	41.7	+0.6	13.6	12.6	111	106	- 5	33	34	+ 1
Current Mill Average:					41.7	+0.2	13.7	12.7	111	105	- 9	32	31	- 1

TABLE XXV

Mill E-42-lb. Linerboard														
File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		G.E. Puncture, units			
					IPC Mill	Diff.	IPC Mill	Diff.	IPC Mill	Diff.				
153247	F-3	W.F.	2/ 5/53	-	43.5	-0.2	13.8	13.4	105	113	+ 8	41	43	+ 2
153248	F-4	W.F.	2/ 5/53	-	43.7	-0.1	13.0	12.5	103	109	+ 6	41	44	+ 3
153340	F-5	W.F.	2/ 6/53	-	43.7	-0.5	13.3	12.8	98	103	+ 5	40	43	+ 3
Current Mill Average:					43.6	-0.2	13.3	12.9	102	108	+ 6	41	43	+ 2

TABLE XXVI

Mill G-42-lb. Linerboard														
File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i.		G.E. Puncture, units			
					IPC Mill	Diff.	IPC Mill	Diff.	IPC Mill	Diff.				
153075	G-470	WFL	1/27/53	1	42.5	+0.3	12.3	12.3	107	106	- 1	33	36	+ 3
153076	G-471	WFL	1/27/53	1	42.4	+0.3	12.7	12.6	102	103	+ 1	33	36	+ 3
153110	G-472	WFL	2/ 3/53	1	43.5	-0.1	12.2	12.2	114	109	- 5	34	36	+ 2
153111	G-473	WFL	2/ 3/53	1	44.2	0.0	12.4	12.4	113	109	- 4	37	38	+ 1
Current Mill Average:					43.2	+0.1	12.4	12.4	109	107	- 2	34	37	+ 3

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.
 Note: All "current mill average" data are calculated from the totals of the individual readings.

TABLE XXVII

OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Institute Data versus Mill Data

Diff.	Caliper, points		Diff.	Bursting Strength, p.s.i. gage		Diff.	G.E. Puncture, units		Diff.	Blenderf Tear, g./sheet					
	IPC	Mill		IPC	Mill		IPC	Mill		Diff.	IPC	Mill	Diff.		
<u>Mill H—42-lb. Linerboard</u>															
0.5	12.1	12.1	0.0	104	109	+ 5	35	34	- 1	353	339	-14	395 ^a	385	-10
0.5	12.3	12.0	-0.3	105	108	+ 3	34	33	- 1	371	331	-40	395 ^a	377	-18
0.5	12.4	12.2	-0.2	113	111	- 2	32	33	+ 1	341 ^a	349	+ 8	396 ^a	384	-12
0.3	12.8	12.7	-0.1	107	111	+ 4	36	36	0	345	351	+ 6	409 ^a	388	+21
0.9	12.3	12.2	-0.1	107	104	- 3	33	32	- 1	343 ^a	323	-20	387 ^a	361	-26
0.8	12.4	12.3	-0.1	110	105	- 5	34	33	- 1	344	325	-19	401 ^a	379	-22
0.0	12.2	12.1	-0.1	105	103	- 2	34	33	- 1	343	328	-15	389 ^a	386	- 3
0.7	12.2	12.0	-0.2	107	104	- 3	32	32	0	337	315	-22	370 ^a	373	+ 3
0.6	12.3	12.2	-0.1	107	107	0	34	33	- 1	347	333	-14	393	379	-14

TABLE XXVIII

Mill I—42-lb. Linerboard

0.7	13.1	12.9	-0.2	106	110	+ 4	32	29	- 3	344	331	-13	382 ^a	398	+16
0.5	13.7	13.2	-0.5	107	107	0	31	29	- 2	342 ^a	359	+17	383 ^a	427	+44
0.0	13.6	13.1	-0.5	106	107	+ 1	32	29	- 3	323	333	+10	376 ^a	401	+25
0.9	13.8	13.1	-0.7	106	106	0	33	26	- 7	337 ^a	342	+ 5	389 ^a	399	+10
0.8	13.9	13.2	-0.7	115	112	- 3	32	27	- 5	308	331	+23	369 ^a	383	+14
0.6	13.6	13.1	-0.5	108	108	0	32	28	- 4	331	339	+ 8	380	402	+22

the specimens which tore beyond the 3/8-inch limit.

ded from the totals of the individual readings.

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Project 11084B

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TABLE XXVII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 195

Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units	
					IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.
153066	H-375	WFLS	1/19/53	2	43.1	+0.6	12.1	12.1	104	109	35	34
153067	H-376	WFLS	1/20/53	2	42.8	+0.5	12.3	12.0	105	108	34	33
153120	H-377	WFLS	1/29/53	2	43.1	+0.5	12.4	12.2	113	111	32	33
153121	H-378	WFLS	1/30/53	2	43.7	-0.3	12.8	12.7	107	111	36	36
153138	H-379	WFLS	2/ 2/53	2	43.0	+0.9	12.3	12.2	107	104	33	32
153139	H-380	WFLS	2/ 3/53	2	43.2	+0.8	12.4	12.3	110	105	34	33
153226	H-381	WFLS	2/ 9/53	2	42.8	+1.0	12.2	12.1	105	103	34	33
153227	H-382	WFLS	2/10/53	2	41.9	+0.7	12.2	12.0	107	104	32	32
Current Mill Average:					42.9	+0.6	12.3	12.2	107	107	34	33

Mill H-42-lb. Linerboard

TABLE XXVIII

Mill I-42-lb. Linerboard												
153063	I-271	WFLS	1/21/53	1	43.0	-0.7	13.1	12.9	106	110	32	29
153162	I-272	WFLS	2/ 6/53	1	42.8	-0.5	13.7	13.2	107	107	31	29
153202	I-273	WFLS	2/10/53	1	42.4	0.0	13.6	13.1	106	107	32	29
153235	I-274	WFLS	2/13/53	1	43.2	-0.9	13.8	13.1	106	106	33	26
153358	I-275	WFLS	2/19/53	1	43.0	-0.8	13.9	13.2	115	112	32	27
Current Mill Average:					42.9	-0.6	13.6	13.1	108	108	32	28

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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

TABLE XXIX

INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Institute Data versus Mill Data

ff.	Caliper, points	IPC Mill Diff.	Bursting Strength, p.s.i. gage		G.E. Puncture, units	IPC Mill Diff.	Elmendorf Tear, g./sheet		IPC Mill Diff.	Across Mill Diff.				
			IPC Mill Diff.	Linerboard			In	IPC						
.2	13.7	13.5	-0.2	114	112	-2	31	31	347 ^a	327	-20	404 ^a	402	-2
.3	13.5	13.3	-0.2	112	112	0	31	31	349	317	-32	405 ^a	391	-14
.2	13.0	12.9	-0.1	111	106	-5	33	32	338 ^a	350	+12	391 ^a	419	+28
.0	12.9	12.9	0.0	108	104	-4	33	32	335 ^a	357	+22	370 ^a	414	+44
.0	13.0	13.0	0.0	105	106	+1	30	31	330 ^a	353	+23	375 ^a	394	+19
.1	13.1	13.0	-0.1	107	105	-2	31	30	337 ^a	339	+2	389 ^a	381	-8
.0	13.2	13.1	-0.1	110	107	-3	32	31	339	340	+1	389	400	+11

TABLE XXX

Mill K—42-lb. Linerboard

No samples submitted.

TABLE XXXI

Mill L—42-lb. Linerboard

3	14.2	13.7	-0.5	112	118	+6	37	369 ^a	357	-12	397 ^a	394	-3
7	13.1	12.2	-0.9	112	120	+8	35	322 ^a	337	+15	378 ^a	384	+6
3	14.4	13.8	-0.6	113	117	+4	35	366 ^a	364	-2	398 ^a	396	-2
3	14.5	13.7	-0.8	107	109	+2	37	353 ^a	326	-27	407 ^a	383	-24
7	13.9	13.4	-0.5	100	106	+6	36	365 ^a	312	-53	384 ^a	366	-18
4	13.7	12.7	-1.0	109	109	0	34	359 ^a	284	-75	381 ^a	336	-45
1	14.0	13.3	-0.7	109	113	+4	36	356	330	-26	391	377	-14

specimens which tore beyond the 3/8-inch limit.
d from the totals of the individual readings.

TABLE XXII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (cc)

Institute Data versus Mill Data

File No.	Mill Code	Fish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units														
					IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.		IPC	Mill Diff.												
Mill J—42-lb. Linerboard																									
153080	J-403	B.F.	1/17/53	—	42.8	43.0	+0.2	13.7	13.5	-0.2	111	112	-1	31	31	0	34								
153081	J-404	B.F.	1/17/53	—	42.6	42.9	+0.3	13.5	13.3	-0.2	112	112	0	31	31	0	34								
153163	J-405	B.F.	1/31/53	—	42.2	42.0	-0.2	13.0	12.9	-0.1	111	106	-5	33	32	-1	33								
153164	J-406	B.F.	1/31/53	—	42.0	42.0	0.0	12.9	12.9	0.0	108	104	-4	33	32	-1	33								
153228	J-407	B.F.	2/11/53	—	41.5	41.5	0.0	13.0	13.0	0.0	105	106	+1	30	31	+1	33								
153229	J-408	B.F.	1/11/53	—	41.3	41.2	-0.1	13.1	13.0	-0.1	107	105	-2	31	30	-1	33								
Current Mill Average:													42.1	42.1	0.0	13.2	13.1	-0.1	110	107	-3	32	31	-1	33

TABLE XXX

Mill K—42-lb. Linerboard

No samples submitted.

TABLE XXXI

Mill L—42-lb. Linerboard

153241	L-149	1/2/53	1	43.2	43.5	+0.3	14.2	13.7	-0.5	112	118	+6	37	36									
153242	L-150	1/3/53	1	42.2	42.9	+0.7	13.1	12.2	-0.9	112	120	+8	35	32									
153243	L-151	1/4/53	1	43.2	43.5	+0.3	14.4	13.8	-0.6	113	117	+4	35	36									
153244	L-152	1/18/53	1	43.3	43.0	-0.3	14.5	13.7	-0.8	107	109	+2	37	35									
153245	L-153	1/18/53	1	42.2	41.5	-0.7	13.9	13.4	-0.5	100	106	+6	36	36									
153246	L-154	1/27/53	1	42.3	41.9	-0.4	13.7	12.7	-1.0	109	109	0	34	35									
Current Mill Average:													42.8	42.7	-0.1	14.0	13.3	-0.7	109	113	+4	36	35

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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

TABLE XXXII

INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (continued)

Institute Data versus Mill Data

Caliper, points	IPC Mill Diff.	Bursting Strength, p.s.i. gage		IPC Mill Diff.	G.E. Puncture, units	IPC Mill Diff.	Elmendorf Tear, g./sheet		IPC Mill Diff.					
		IPC Mill Diff.	IPC Mill Diff.				In	Across						
<u>Mill M--42-lb. Linerboard</u>														
13.2	12.6	-0.6	114	118	+ 4	34	27	- 7	374a	319	-55	395a	397	+ 2
13.9	13.3	-0.6	111	113	+ 2	34	31	- 3	363	321	-42	397a	373	-24
14.0	13.6	-0.4	111	114	+ 3	29	26	- 3	377	337	-40	399a	412	+13
14.6	13.6	-1.0	107	115	+ 9	35	33	- 2	374a	383	+ 9	372a	397	+25
14.2	13.3	-0.9	105	111	+ 6	36	33	- 3	389	413	+24	395a	434	+39
13.8	13.0	-0.8	109	110	+ 1	35	31	- 4	358a	385	+27	385a	419	+34
13.2	12.8	-0.4	111	117	+ 6	35	34	-1	401a	432	+31	379a	422	+43
13.8	13.2	-0.6	110	114	+ 4	34	31	- 3	377	370	- 7	389	408	+19

TABLE XXXIII

Mill E--44/46-lb. Linerboard

13.8	12.8	-1.0	110	112	+ 2	33	32	- 1	427a	373	-54	390a	357	-33
14.7	13.4	-1.3	114	107	- 7	35	42	+ 7	446a	381	-65	412a	387	-25
14.6	13.1	-1.5	108	103	- 5	38	38	0	444a	392	-52	422a	383	-39
14.5	13.3	-1.2	110	102	- 8	37	39	+ 2	445a	398	-47	427a	385	-42
14.4	13.2	-1.2	110	106	- 4	36	38	+ 2	440	386	-54	413	378	-35

Dimensions which tore beyond the 3/8-inch limit.

From the totals of the individual readings.

PAPER XXXII

SUMMARY OF INDIVIDUAL TEST LOTS—FEBRUARY 1 THROUGH FEBRUARY 28, 1953 (c)

Institute Data versus Mill Data

File No.	Mill Code	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		G.E. Puncture, units						
					IPC	Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.							
153073	M-142	W.	1/20/53	2	42.0	41.8	-0.2	13.2	12.6	-0.6	114	118	+ 4	34	27	- 7	3
153074	M-143	W.	1/23/53	2	42.5	42.0	-0.5	13.9	13.3	-0.6	111	113	+ 2	34	31	- 3	3
153123	M-144	W.	1/27/53	2	42.8	42.2	-0.6	14.0	13.6	-0.4	111	114	+ 3	29	26	- 3	3
153133	M-145	W.	2/ 1/53	4	44.4	43.5	-0.9	14.6	13.6	-1.0	107	115	+ 9	35	33	- 2	3
153134	M-146	W.	2/ 4/53	2	43.4	42.6	-0.8	14.2	13.3	-0.9	105	111	+ 6	36	33	- 3	3
153335	M-147	W.	2/ 9/53	2	42.7	41.7	-1.0	13.8	13.0	-0.8	109	110	+ 1	35	31	- 4	3
153336	M-148	W.	2/ 9/53	4	43.2	42.7	-0.5	13.2	12.8	-0.4	111	117	+ 6	35	34	- 1	4
Current Mill Average:					43.0	42.4	-0.6	13.8	13.2	-0.6	110	114	+ 4	34	31	- 3	3

TABLE XXXIII

		Mill E-44/46-lb. Linerboard															
153116	E-399	W.F.	2/ 4/53	1	46.7	46.6	-0.1	13.8	12.8	-1.0	110	112	+ 2	33	32	- 1	4
153122	E-340	W.F.	2/ 5/53	1	48.2	47.3	-0.9	14.7	13.4	-1.3	114	107	- 7	35	42	+ 7	4
153161	E-341	W.F.	2/11/53	1	48.2	47.8	-0.4	14.6	13.1	-1.5	108	103	- 5	38	38	0	4
153337	E-343	W.F.	2/19/53	1	48.2	47.1	-1.1	14.5	13.3	-1.2	110	102	- 8	37	39	+ 2	4
Current Mill Average:					47.8	47.2	-0.6	14.4	13.2	-1.2	110	106	- 4	36	38	+ 2	4

^aThis average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.

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

