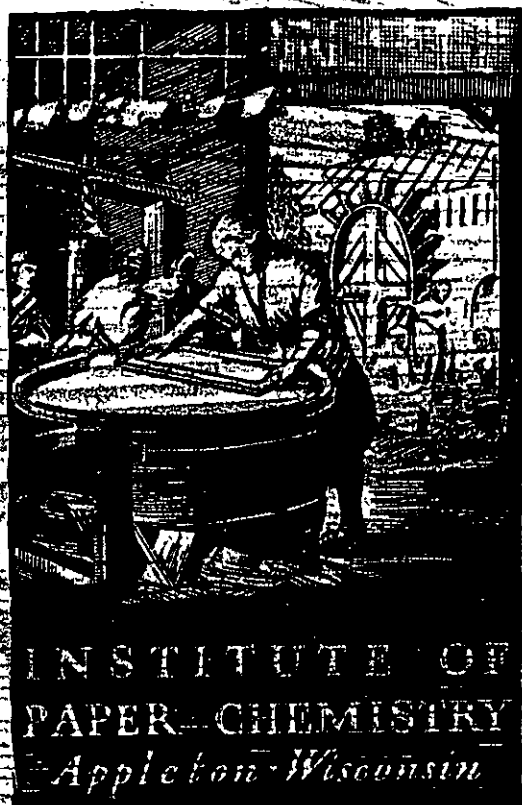




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CONTINUOUS BASELINE STUDY

Project 1100 D

Progress Report 67

10

FOURDRINER KRAFT BOARD INSTITUTE, INC.

February 1, 1962

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

Project 1108-B

Progress Report 67

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

February 1, 1953

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

In conjunction with the F.K.I. Continuous Baseline Study, ninety 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 January 1 through January 31. In addition to the 42-lb. kraft linerboard, five 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	10
E	3
F	10
G	10
H	8
I	5
J	4
K	0
L	4
M	<u>4</u>
	90

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 this report is January 1 through January 31. 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 43.0 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 99.8. 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 December 31, 1952.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mills A and D have the highest average basis weight, it being 43.6 lb. or approximately 3.8% higher than the 42-lb. specification. On the other hand, Mill E has the lowest average basis weight, it being 42.1 lb., approximately 0.2% higher 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	+3.8
B	+1.9
C	+1.7
D	+3.8
E	+0.2
F	+3.1
G	+2.6
H	+2.9
I	+2.4
J	+1.4
K	--
L	+0.7
M	+2.9

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 12.2 for Mill B to a high of 14.4 for Mill C, the average being 13.1 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 99 for Mill F to a high of 116 for Mill J. The current F.K.I. average bursting strength is 108, only slightly 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. Mills D and F have the highest G. E. puncture average, 37 units, and Mill B has the lowest average, 29 units. The current F.K.I. G. E. puncture average of 34 units is slightly 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	8 ^a		
B	16 ^a		
C	8		
D	10		

(Continued on next page.)

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
E	2, 5 ^b		1 ^c
F	8		2 ^c
G	10		
H	8 ^a		
I	5 ^a		
J			4 ^d
L			4 ^c
M	4		

^a One side only.

^b Drum linerboard

^c Sheet finish not reported.

^d Semi-water finish.

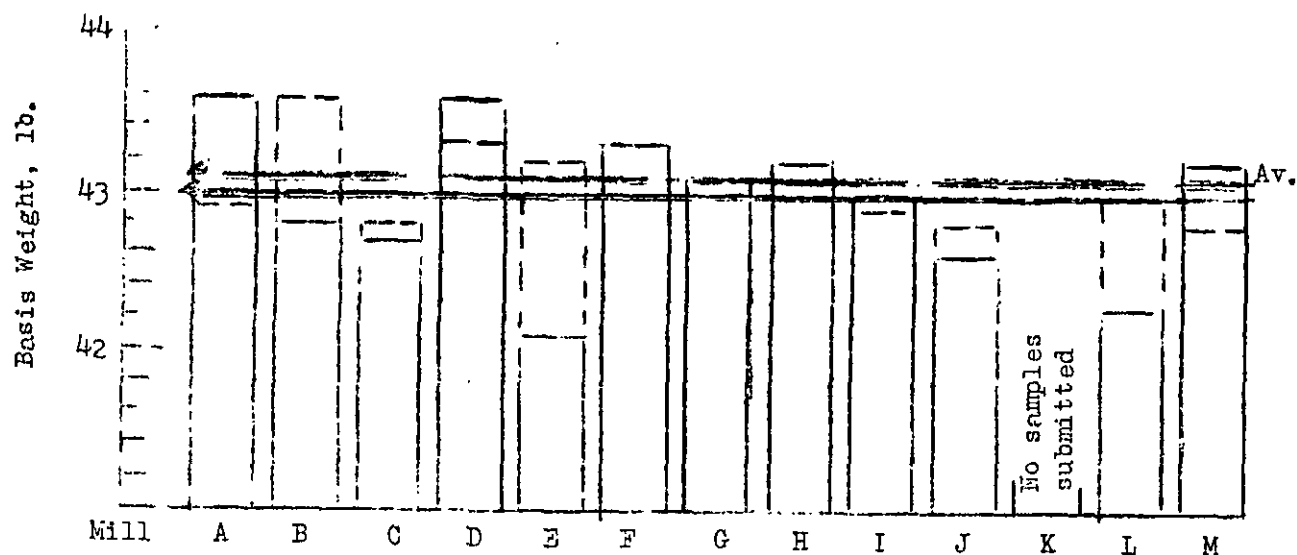
The results indicate that a majority of the mills are using
a water finish on their 42-lb. linerboard.

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--JANUARY 1 THROUGH JANUARY 31, 1953

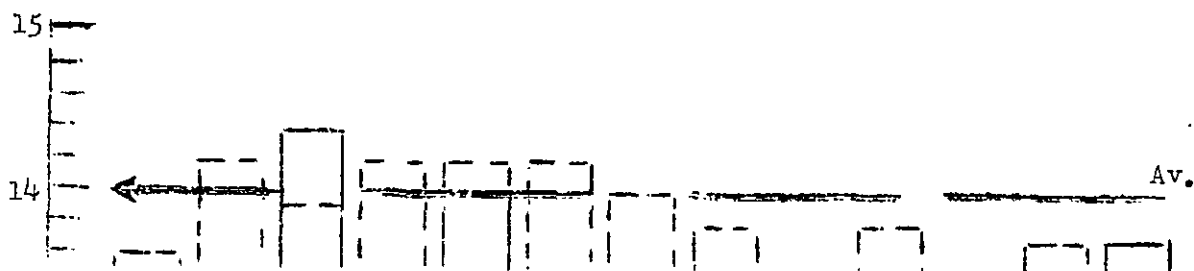
Code No.	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	G. E. Puncture, units	Elmendorf Tear, g./sheet	In Direction Across Direction
A	43.6	12.7	112	35	348	396
B	42.8	12.2	110	29	297	360
C	42.7	14.4	106	33	329	373
D	43.6	13.3	111	37	384	421
E	42.1	14.0	105	33	394	374
F	43.3	13.5	99	37	386	411
G	43.1	12.7	104	33	328	370
H	43.2	12.6	108	34	356	403
I	43.0	13.1	110	32	343	390
J	42.6	12.6	116	31	348	391
K	No samples submitted.					
L	42.3	12.8	108	34	353	387
M	43.2	13.7	107	35	370	401
Current FKl Average:	43.0	13.1	108	34	353	390
Cumulative FKl Average:	43.1	14.0	106	36	373	406
FKl Index, %:	99.8	93.6	101.9	94.4	94.6	96.1

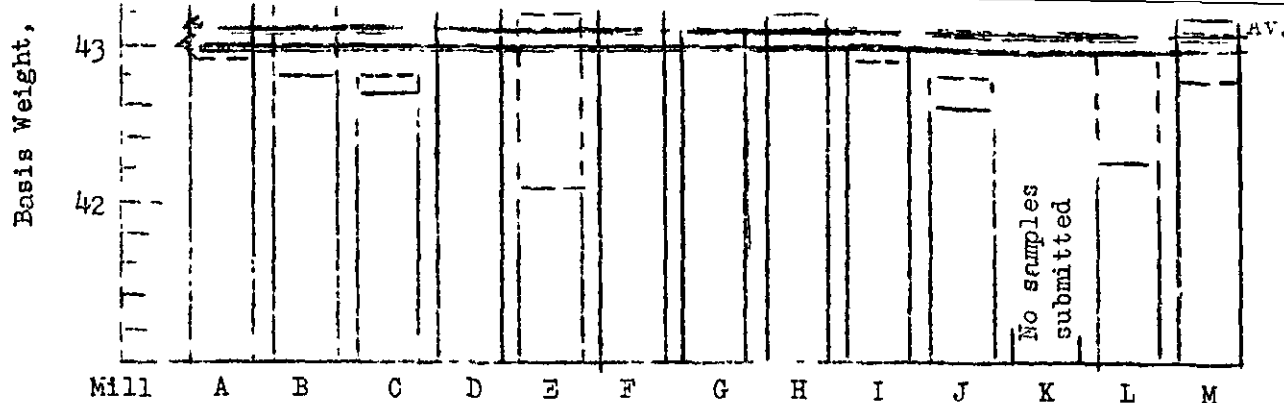
Figure 1



COMPARISON OF BASIS WEIGHT RESULTS
(Period January 1 - January 31)

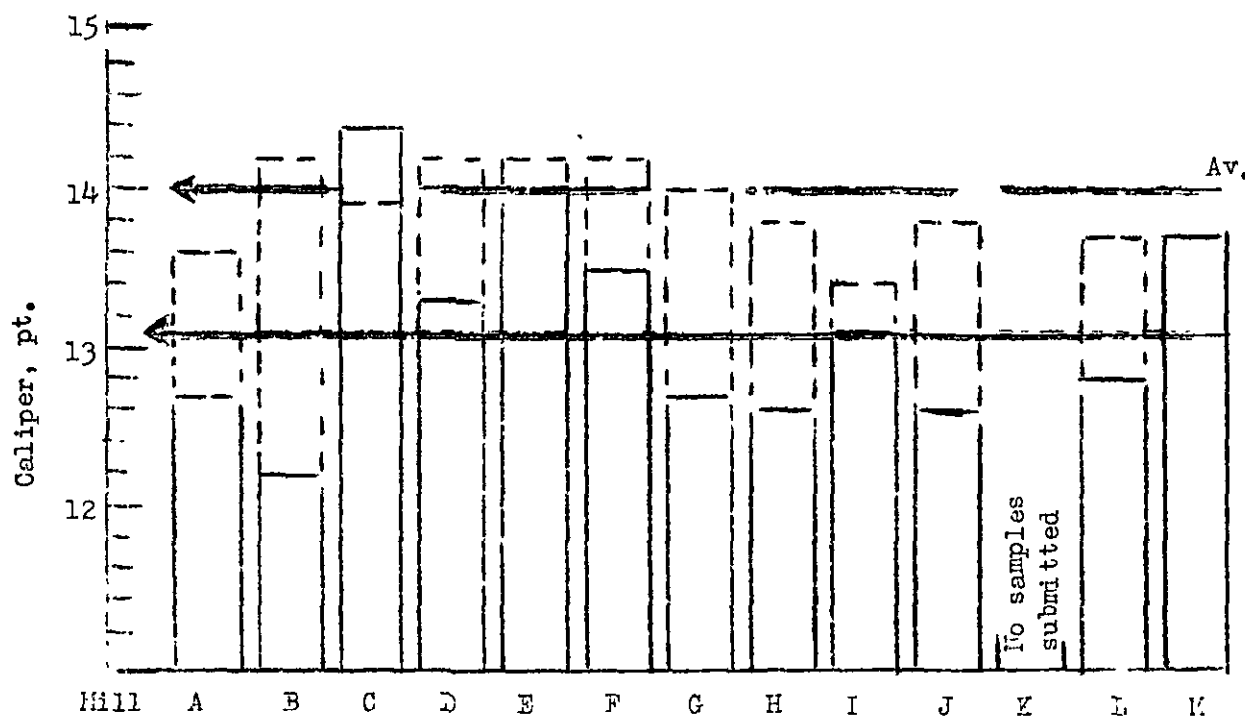
Figure 2





COMPARISON OF BASIS WEIGHT RESULTS
(Period January 1 - January 31)

Figure 2



COMPARISON OF CALIPER RESULTS
(Period January 1 - January 31)

— Current Mill Average
- - - Cumulative Mill Average

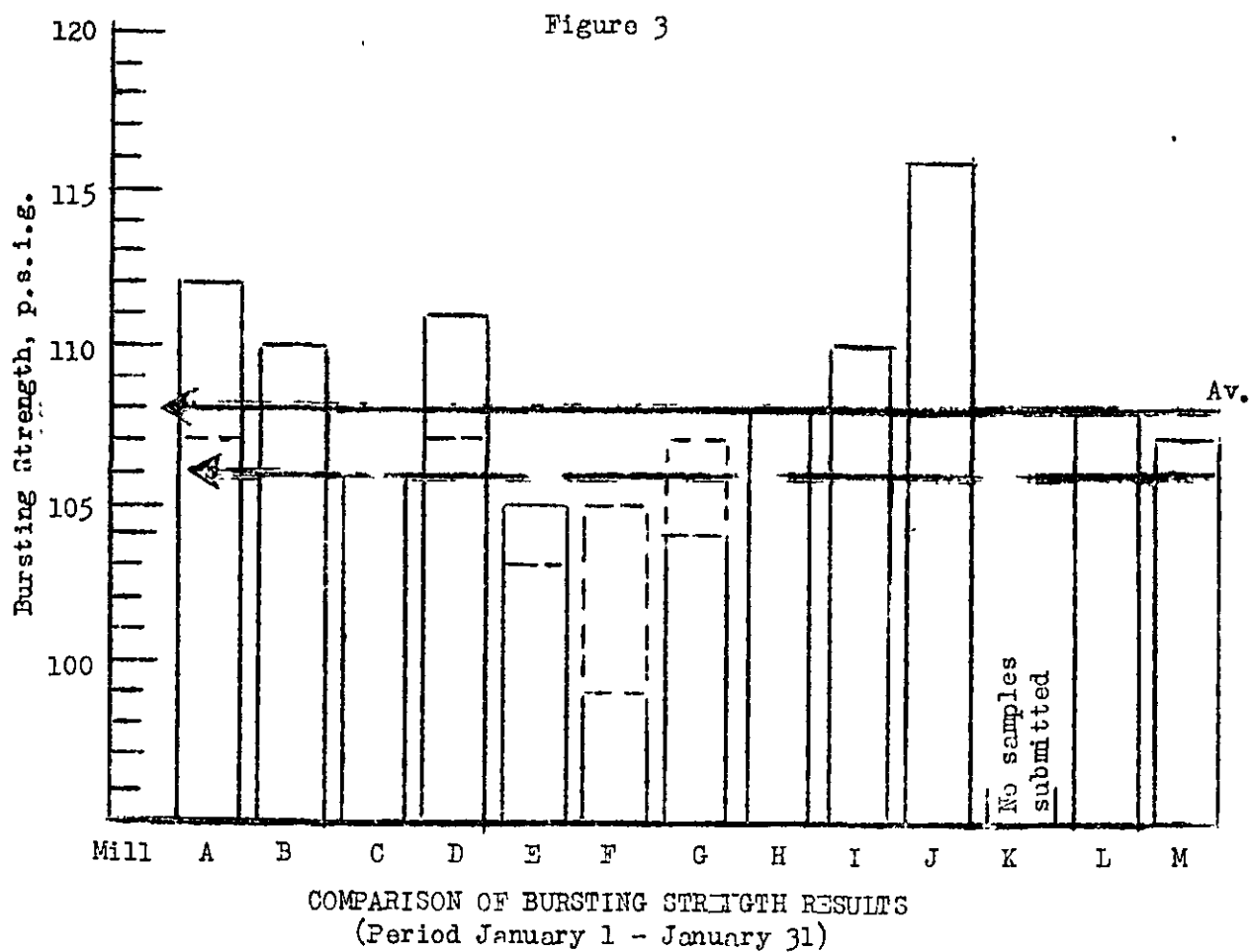
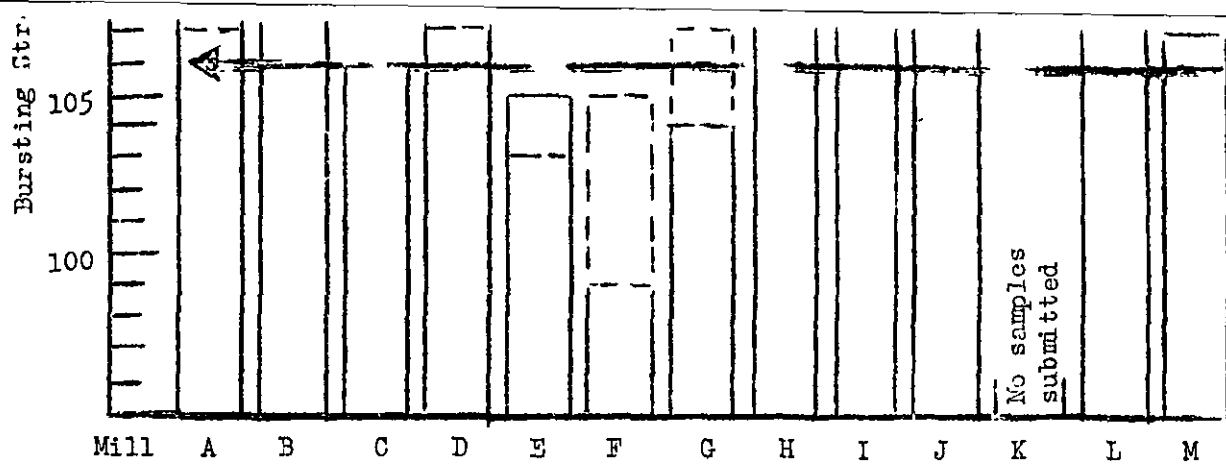


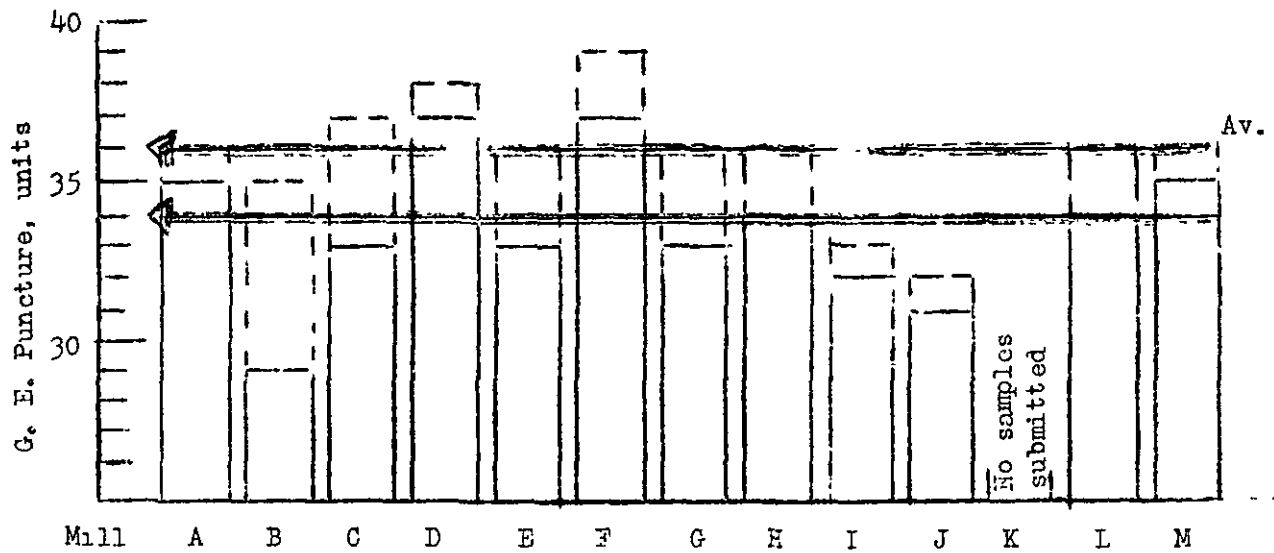
Figure 4





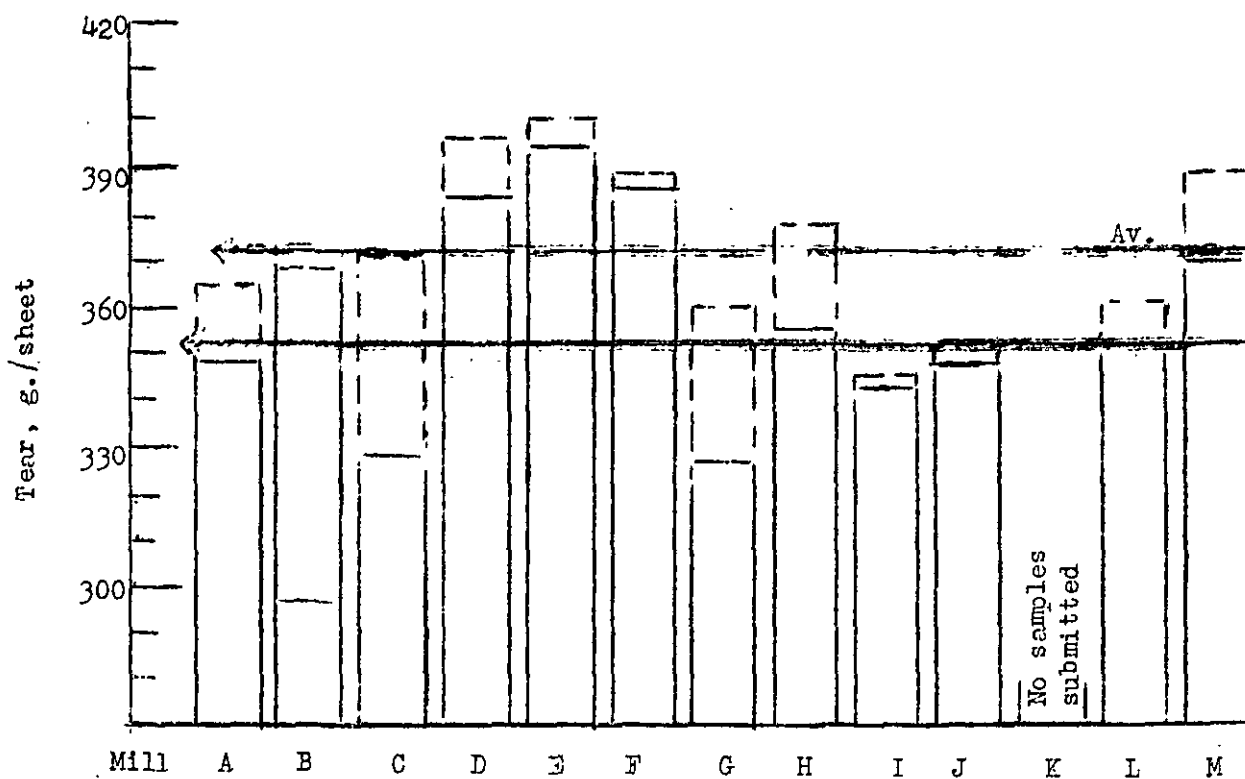
COMPARISON OF BURSTING STRENGTH RESULTS
(Period January 1 - January 31)

Figure 4



COMPARISON OF G. E. PUNCTURE RESULTS
(Period January 1 - January 31)

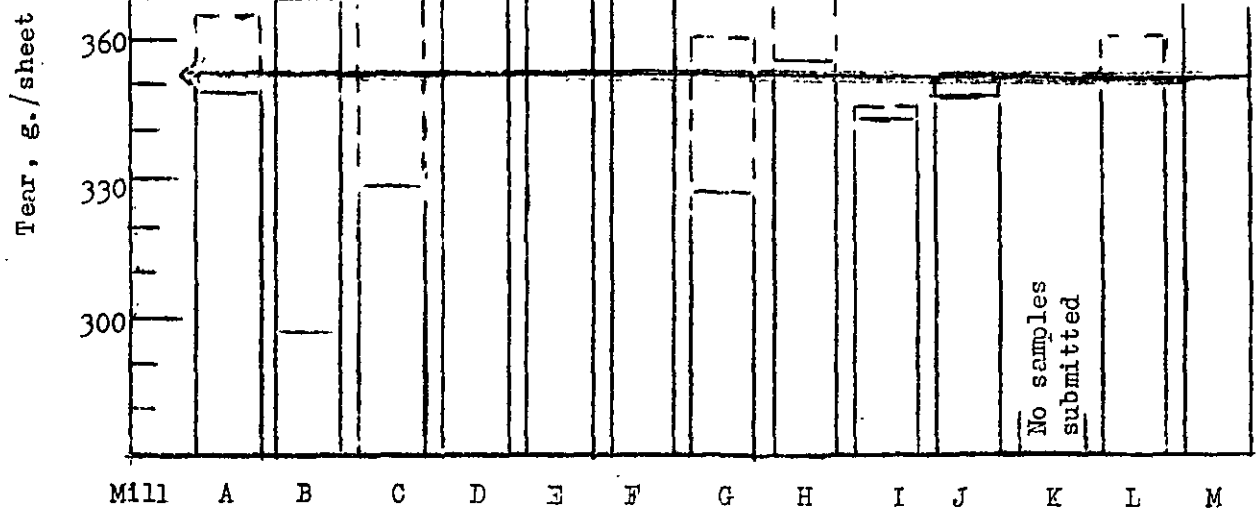
Figure 5



COMPARISON OF TEAR RESULTS, Machine Direction
(Period January 1 - January 31)

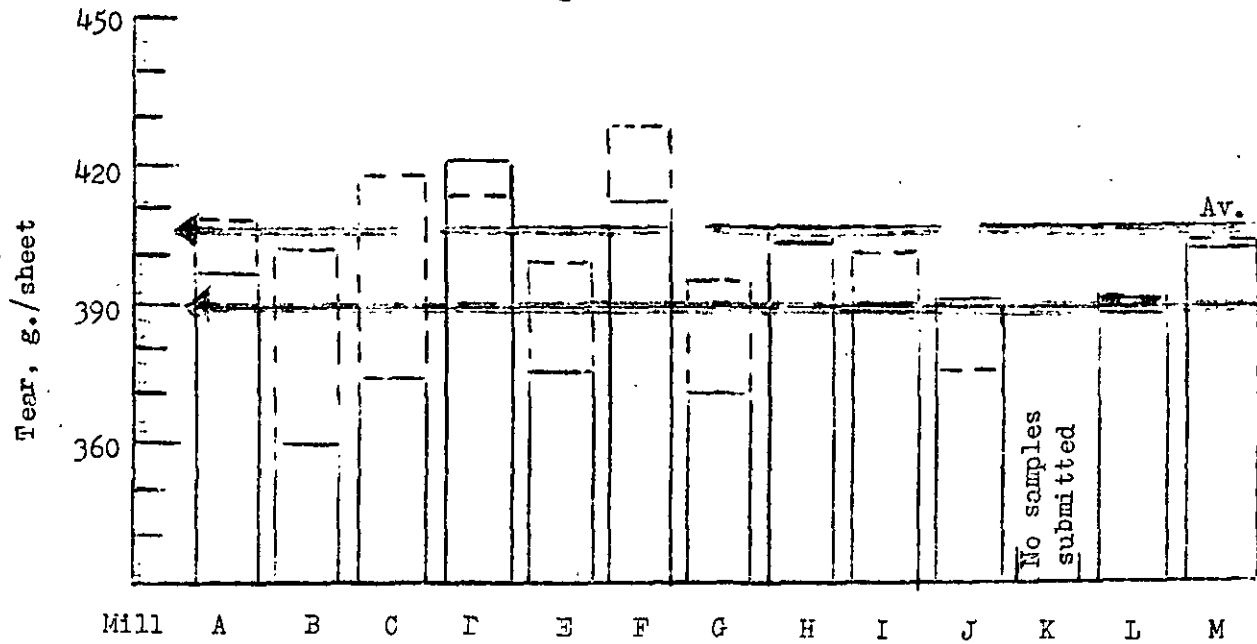
Figure 6





COMPARISON OF TEAR RESULTS, Machine Direction
(Period January 1 - January 31)

Figure 6



COMPARISON OF TEAR RESULTS, Across-machine Direction

(Period January 1 - January 31)

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TABLE III

RY OF INDIVIDUAL TEST LOTS---JANUARY 1 THROUGH JANUARY 31, 1953

as Weight, lb. Min.	Av.	Caliper, points		Bursting Strength, p.s.i. gage		G. E. Puncture, units		Elmendorf Tear, g./sheet				Av.				
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.						
<u>Mill A--42-lb. Linerboard</u>																
41.6	43.4	13.5	12.6	13.2	138	90	115	36	32	34	400	312	361 ^a	443	368	403 ^a
42.4	43.7	13.3	12.7	13.0	138	97	116	38	32	34	384	328	362 ^a	443	360	391 ^a
42.0	43.2	12.8	11.5	12.1	127	86	109	36	31	33	400	296	338 ^a	448	336	385 ^a
42.6	43.6	13.0	12.2	12.8	131	96	114	38	34	36	400	288	346	464	368	422 ^a
42.2	43.4	12.4	11.7	12.1	122	85	103	37	31	34	408	280	345	432	360	393 ^a
42.0	43.6	12.8	12.0	12.5	132	86	110	38	32	35	400	280	344	448	360	394 ^a
43.6	44.0	13.2	12.6	13.0	130	100	114	37	33	35	432	296	352 ^a	432	336	390 ^a
43.2	44.0	13.3	12.5	12.9	135	91	114	38	34	36	400	280	340	448	344	391 ^a
43.6			12.7				112			35			348			396
42.9			13.6				107			36			365			408
101.6			93.4				104.7			97.2			95.3			97.1
101.2			90.7				105.7			97.2			93.3			97.5

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

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953

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.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.		
<u>Mill A--42-lb. Linerboard</u>																
152728	A-408	WFLS	1/ 2/53	12/22/52	1	44.8	41.6	43.4	13.5	12.6	138	90	115	36	32	34
152729	A-409	WFLS	1/ 2/53	12/22/52	1	45.0	42.4	43.7	13.3	12.7	138	97	116	38	32	34
152788	A-410	WFLS	1/ 8/53	12/30/52	1	43.8	42.0	43.2	12.8	11.5	127	86	109	36	31	33
152789	A-411	WFLS	1/ 8/53	1/ 1/53	2	44.2	42.6	43.6	13.0	12.2	131	96	114	38	34	36
152841	A-412	WFLS	1/14/53	1/ 4/53	1	44.0	42.2	43.4	12.4	11.7	122	85	103	37	31	34
152842	A-413	WFLS	1/14/53	1/ 4/53	2	44.2	42.0	43.6	12.8	12.0	132	86	110	38	32	35
152956	A-414	WFLS	1/23/53	1/14/53	2	44.4	43.6	44.0	13.2	12.6	130	100	114	37	33	35
152957	A-415	WFLS	1/23/53	1/14/53	2	44.8	43.2	44.0	13.3	12.5	135	91	114	38	34	36
Current Mill Average:						43.6		12.7		112		112		35		
Cumulative Mill Average:						42.9		13.6		107		107		36		
Mill Factor, %:						101.6		93.4		104.7		104.7		97.2		
Mill Index, %:						101.2		90.7		105.7		105.7		97.2		

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

TABLE IV

DIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

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Weight, lb.	Caliper, points		Bursting Strength, p.s.i. gage		G. E. Puncture, units		Elmendorf Tear, g./sheet		Across						
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
<u>Mill B--42-lb. Linerboard</u>															
0 42.9	12.5	11.9	12.1	133	90	113	31	26	28	368	240	301	432	344	376 ^a
0 43.2	13.6	11.1	12.1	129	87	111	32	26	29	368	232	307	392	296	339 ^a
2 42.5	12.6	11.3	12.1	132	86	109	31	25	29	328	248	285	384	296	347 ^a
0 42.8	12.8	11.1	12.2	124	73	104	30	26	28	344	272	305	416	320	360 ^a
6 42.8	12.9	12.1	12.4	142	83	110	32	26	29	352	216	291	416	336	366 ^a
2 43.2	12.5	11.0	11.9	135	82	112	32	26	29	344	256	307	400	336	359 ^a
0 43.6	12.9	11.0	12.0	149	88	113	31	27	29	408	232	305	400	304	361 ^a
5 43.1	12.6	12.0	12.2	140	93	111	30	25	28	352	216	291	488	288	355 ^a
2 43.2	12.9	11.5	12.2	136	87	113	31	24	28	328	248	292	416	320	351 ^a
0 43.2	13.0	11.8	12.3	135	81	112	32	26	28	352	256	305	392	320	359 ^a
0 43.0	12.9	11.6	12.2	129	88	110	32	26	29	336	272	300 ^a	448	304	377 ^a
2 42.9	12.8	11.4	12.2	131	90	112	30	26	28	336	256	301	400	320	360 ^a
4 42.1	13.1	12.0	12.6	127	91	107	31	26	29	320	224	265	408	312	354 ^a
4 42.3	13.3	12.0	12.8	133	92	113	32	27	30	344	272	310 ^a	400	320	341 ^a
2 42.0	13.3	12.0	12.8	133	75	106	31	26	28	384	256	309 ^a	456	336	373 ^a
5 42.5	13.3	12.3	12.8	130	84	108	34	26	29	320	240	283	400	328	356 ^a
42.8			12.2			110		29				297			360
43.6			14.2			106		35				368			401
98.2			85.9			103.8		82.9				80.7			89.8
99.3			87.1			103.8		80.6				79.6			88.7

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

TABLE IV

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

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.			
Mill B--42-lb. Linerboard																		
152767	B-719	WF1S	1/ 5/53	12/29/52	1	44.0	42.0	42.9	12.5	11.9	12.1	133	90	113	31	26	28	36½
152768	B-720	WF1S	1/ 5/53	12/29/52	1	44.0	42.0	43.2	13.6	11.1	12.1	129	87	111	32	26	29	36½
152769	B-721	WF1S	1/ 5/53	12/29/52	1	43.6	41.2	42.5	12.6	11.3	12.1	132	86	109	31	25	29	32½
152770	B-722	WF1S	1/ 5/53	12/29/52	1	44.0	42.0	42.8	12.8	11.1	12.2	124	73	104	30	26	28	34½
152797	B-723	WF1S	1/ 9/53	12/29/52	1	44.0	41.6	42.8	12.9	12.1	12.4	142	83	110	32	26	29	35½
152798	B-724	WF1S	1/ 9/53	12/29/52	1	44.2	42.2	43.2	12.5	11.0	11.9	135	82	112	32	26	29	34½
152799	B-725	WF1S	1/ 9/53	12/29/52	1	45.0	42.0	43.6	12.9	11.0	12.0	149	88	113	31	27	29	40½
152800	B-726	WF1S	1/ 9/53	12/29/52	1	44.0	41.6	43.1	12.6	12.0	12.2	140	93	111	30	25	28	35½
152816	B-727	WF1S	1/12/53	12/29/52	1	44.2	42.2	43.2	12.9	11.5	12.2	136	87	113	31	24	28	32½
152828	B-728	WF1S	1/13/53	12/29/52	1	44.2	42.0	43.2	13.0	11.8	12.3	135	81	112	32	26	28	35½
152817	B-729	WF1S	1/12/53	12/29/52	1	44.2	42.0	43.0	12.9	11.6	12.2	129	88	110	32	26	29	33½
152829	B-730	WF1S	1/13/53	12/29/52	1	44.0	42.2	42.9	12.8	11.4	12.2	131	90	112	30	26	28	33½
152862	B-731	WF1S	1/17/53	1/ 8/53	1	43.6	40.4	42.1	13.1	12.0	12.6	127	91	107	31	26	29	320
152863	B-732	WF1S	1/17/53	1/ 8/53	1	43.0	41.4	42.3	13.3	12.0	12.8	133	92	113	32	27	30	34½
152864	B-733	WF1S	1/17/53	1/ 8/53	1	43.0	41.2	42.0	13.3	12.0	12.8	133	75	106	31	26	28	38½
152865	B-734	WF1S	1/17/53	1/ 8/53	1	43.4	41.6	42.5	13.3	12.3	12.8	130	84	108	34	26	29	320
Current Mill Average:								42.8			12.2			110			29	
Cumulative Mill Average:								43.6			14.2			106			35	
Mill Factor, %:								98.2			85.9			103.8			82.9	
Mill Index, %:								99.3			87.1			103.8			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--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Weight, lb.	Caliper, points		Bursting Strength, p.s.i. gage		G. E. Puncture, units		Elmendorf Tear, g./sheet									
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.				
<u>M111 C---42-lb. Linerboard</u>																
1.0	43.4	15.1	13.9	14.5	122	76	104	36	30	33	376	320	349	440	328	373 ^a
.8	43.3	15.3	14.2	14.7	124	77	103	38	30	34	416	320	352 ^a	424	328	369 ^a
.6	42.2	14.4	13.4	13.9	130	98	111	34	30	31	360	264	301 ^a	392	328	362 ^a
.2	42.0	14.4	13.2	13.8	132	93	110	33	29	31	352	288	316	424	328	369 ^a
.6	41.4	14.9	13.3	14.0	132	86	107	34	30	32	400	248	313	400	352	375 ^a
.0	41.6	14.8	13.2	14.1	126	79	104	33	28	31	376	264	315 ^a	424	328	371 ^a
.4	44.0	15.9	14.2	15.0	123	83	103	37	32	35	392	288	351 ^a	440	368	400 ^a
.8	43.5	15.8	14.3	15.0	123	85	103	40	34	36	376	240	333	400	304	367 ^a
42.7				14.4			106			33			329			373
42.8				13.9			106			37			372			418
99.8				103.6			100.0			89.2			88.4			89.2
99.1				102.9			100.0			91.7			88.2			91.9

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

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TABLE V

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (contin

File No.	Mull 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.	Max.	Min.	Max.	Min.	Max.	Min.			
<u>Mill C---42-lb. Linerboard</u>																
152878	C-435	W.F.	1/20/53	1/ 8/53	1	44.6	42.0	15.1	13.9	14.5	122	76	104	36	30	33
152879	C-436	W.F.	1/20/53	1/ 8/53	1	44.2	41.8	15.3	14.2	14.7	124	77	103	38	30	34
152880	C-437	W.F.	1/20/53	1/10/53	1	44.0	41.6	14.4	13.4	13.9	130	98	111	34	30	31
152881	C-438	W.F.	1/20/53	1/10/53	1	43.4	41.2	14.4	13.2	13.8	132	93	110	33	29	31
152882	C-439	W.F.	1/20/53	1/11/53	1	42.2	40.6	14.9	13.3	14.0	132	86	107	34	30	32
152883	C-440	W.F.	1/20/53	1/11/53	1	42.2	41.0	14.8	13.2	14.1	126	79	104	33	28	31
152958	C-441	W.F.	1/23/53	1/12/53	1	44.6	43.4	15.9	14.2	15.0	123	83	103	37	32	35
152959	C-442	W.F.	1/23/53	1/12/53	1	44.8	42.8	15.8	14.3	15.0	123	85	103	40	34	36
Current Mill Average:						42.7		14.4		14.4		106		33		
Cumulative Mill Average:						42.8		13.9		13.9		106		37		
Mill Factor, %:						99.8		103.6		103.6		100.0		89		
Mill Index, %:						99.1		102.9		102.9		100.0		91		

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

INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Fourdrinier Kraft Board Institute, Inc.
Project 1108-b

Mill E--42-1b. Linerboard

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

TABLE VI

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

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.				
						Mill D--42-lb. Linerboard											
152759	D-611	W.F.	1/ 5/53	1/ 1/53	4	44.8	42.6	44.0	13.9	12.7	13.4	147	100	117	40	34	36
152760	D-612	W.F.	1/ 5/53	1/ 2/53	4	43.8	41.8	42.7	13.2	11.4	12.5	133	82	110	40	33	36
152785	D-613	W.F.	1/ 7/53	1/ 3/53	4	46.0	43.6	44.6	13.7	11.8	12.9	125	82	106	41	35	39
152786	D-614	W.F.	1/ 7/53	1/ 4/53	4	45.2	43.8	44.2	14.1	12.4	13.3	133	82	113	39	34	36
152801	D-615	W.F.	1/ 9/53	1/ 5/53	4	44.0	42.0	42.8	13.5	11.6	13.0	144	81	108	41	34	39
152813	D-616	W.F.	1/12/53	1/ 7/53	4	44.2	42.0	43.6	14.5	13.8	14.0	135	62	112	41	32	37
152814	D-617	W.F.	1/12/53	1/ 8/53	4	44.2	42.4	43.6	14.1	13.0	13.6	140	90	116	40	33	36
152836	D-618	W.F.	1/14/53	1/ 9/53	4	45.0	42.0	43.6	14.2	13.2	13.7	142	86	110	42	34	37
152837	D-619	W.F.	1/14/53	1/10/53	4	45.0	42.2	43.3	13.8	12.5	13.2	130	75	109	40	33	37
152838	D-620	W.F.	1/14/53	1/11/53	4	44.6	42.6	44.0	14.2	12.9	13.5	132	96	112	42	36	39
Current Mill Average:								43.6		13.3				111		37	
Cumulative Mill Average:								43.3		14.2				107		38	
Mill Factor, %:								100.7		93.7				103.7		97.4	
Mill Index, %:								101.2		95.0				104.7		102.8	

TABLE VII

Mill E--42-lb. Linerboard

152815	E-391	W.F.	1/12/53	1/ 5/53	1	42.4	40.0	14.0	13.0	114	69	98	38
152866	E-393	W.F.	1/17/53	1/14/53	1	43.4	41.8	14.8	13.4	130	81	106	36
152941	E-394	---	1/22/53	1/16/53	1	44.0	42.2	15.0	13.7	131	100	112	36
Current Mill Average:						42.1			14.0		105		33
Cumulative Mill Average:						43.2			14.2		103		36
Mill Factor, %:						97.5			98.6		101.9		91.7
Mill Index, %:						97.7			100.0		99.1		91.7

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

TABLE VIII

RY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

sis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage		G. E. Puncture, units		Elmendorf Tear, g./sheet										
		Max.	Min.	Av.	Max.	Min.	Av.	In	Across							
Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.						
<u>Mill F--42-lb. Linerboard</u>																
42.0	43.5	14.4	13.1	13.7	110	76	93	40	34	36	408	336	377 ^a	440	368	403 ^a
44.0	44.7	14.5	13.0	13.9	129	74	97	44	38	40	456	352	406	488	392	432 ^a
42.8	43.6	14.0	13.0	13.4	112	83	97	40	36	39	472	352	415 ^a	464	368	431 ^a
43.8	44.4	14.7	13.0	13.8	131	83	102	44	34	40	432	360	393 ^a	520	384	429 ^a
42.2	42.9	14.0	12.4	13.4	116	72	99	40	34	36	440	296	376	448	360	399 ^a
41.8	42.8	13.9	13.0	13.5	121	88	105	41	33	37	416	328	382 ^a	432	376	406 ^a
41.8	43.2	13.9	13.2	13.6	116	81	101	40	34	37	432	352	394 ^a	440	368	405 ^a
41.8	42.6	14.0	13.0	13.5	125	83	100	40	34	37	480	344	389 ^a	472	368	434 ^a
41.6	42.7	13.9	13.0	13.3	117	66	100	35	32	34	400	320	353 ^a	440	344	387 ^a
41.8	42.9	13.8	13.0	13.3	123	78	98	40	35	37	456	320	380 ^a	448	352	389 ^a
43.3				13.5			99			37			386			411
43.3				14.2			105			39			389			428
100.0				95.1			94.3			94.9			99.2			96.0
100.5				96.4			93.4			102.8			103.5			101.0

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

Institute. However, by elimination, it has been assumed to be Mill Code F-100.

TABLE VIII

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (co

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.		
Mill F--42-lb. Linerboard																	
152761	F-93	W.F.	1/ 5/53	12/15/52	--	44.0	42.0	43.5	14.4	13.1	13.7	110	76	93	40	34	3
152762	F-94	W.F.	1/ 5/53	12/17/52	--	46.0	44.0	44.7	14.5	13.0	13.9	129	74	97	44	38	4
152763	F-95	W.F.	1/ 5/53	12/18/52	--	44.0	42.8	43.6	14.0	13.0	13.4	112	83	97	40	36	3
152764	F-96	W.F.	1/ 5/53	12/23/52	--	45.6	43.8	44.4	14.7	13.0	13.8	131	83	102	44	34	4
152765	F-97	W.F.	1/ 5/53	12/23/52	--	43.8	42.2	42.9	14.0	12.4	13.4	116	72	99	40	34	3
152887	F-98	---	1/20/53	12/30/52	--	44.6	41.8	42.8	13.9	13.0	13.5	121	88	105	41	33	3
152888	F-99	---	1/20/53	12/30/52	--	44.2	41.8	43.2	13.9	13.2	13.6	116	81	101	40	34	3
152889	F-100 ^b	W.F.	1/20/53	12/31/52	--	44.0	41.8	42.6	14.0	13.0	13.5	125	83	100	40	34	3
152890	F-1	W.F.	1/20/53	1/ 5/53	--	43.8	41.6	42.7	13.9	13.0	13.3	117	66	100	35	32	3
152891	F-2	W.F.	1/20/53	1/ 6/53	--	44.0	41.8	42.9	13.8	13.0	13.3	123	78	98	40	35	3
Current Mill Average:								43.3			13.5			99			
Cumulative Mill Average:								43.3			14.2			105			
Mill Factor, %:								100.0			95.1			94.3			
Mill Index, %:								100.5			96.4			93.4			

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.^b This sample was unidentified as received by the Institute. However, by elimination, it has been assumed to be

TABLE IX

DUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Lot,	Caliper,		Bursting		G.E.		Elmendorf Tear,				Av.				
	Max.	Min.	Av.	p.s.i. gage	Strength,	Puncture,	In	Across	Av.						
Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
<u>Mill G--42-lb. Linerboard</u>															
42.9	13.8	11.8	12.4	109	83	96	36	31	34	360	240	318 ^a	408	328	355 ^a
43.0	13.2	11.3	12.2	123	74	99	38	32	35	368	304	335 ^a	456	336	381 ^a
43.0	14.1	13.0	13.4	120	84	104	32	29	30	352	272	313 ^a	408	344	365 ^a
42.4	14.1	12.2	13.0	134	84	107	32	28	30	344	288	307 ^a	384	320	356 ^a
42.3	13.9	12.5	13.3	112	75	95	38	32	35	384	320	343 ^a	432	328	365 ^a
43.6	13.9	12.5	13.2	112	76	95	41	34	37	384	280	343	400	296	356 ^a
44.1	13.2	11.8	12.4	143	87	116	36	32	34	424	296	349 ^a	464	360	399 ^a
44.0	14.2	12.3	12.9	139	87	111	38	33	36	384	304	346 ^a	432	352	389 ^a
42.7	12.9	11.2	12.2	127	74	106	35	29	32	336	280	312	392	336	360 ^a
43.1	12.6	11.1	11.8	145	81	110	34	29	32	352	272	313 ^a	424	328	375 ^a
43.1			12.7			104		33	33			328			370
43.0			14.0			107		36	36			361			395
00.2			90.7			97.2		91.7	91.7			90.9			93.7
00.0			90.7			98.1		91.7	91.7			87.9			91.1

TABLE X

Mill H--42-lb. Linerboard															
43.3	12.9	12.1	12.5	142	80	107	36	31	34	408	248	334	480	352	388 ^a
43.8	12.9	12.1	12.6	132	72	107	38	31	34	416	304	363	464	336	391 ^a
42.6	12.9	12.0	12.4	132	87	112	37	32	34	432	288	364 ^a	480	368	415 ^a
43.1	12.9	12.1	12.4	129	90	109	38	30	34	440	304	363 ^a	456	368	417 ^a
42.6	13.1	12.1	12.5	130	75	112	37	32	34	424	280	353 ^a	496	368	411 ^a
43.7	13.2	12.0	12.8	135	84	109	38	32	36	440	296	355	464	328	395 ^a
43.3	13.6	12.0	13.0	136	81	107	37	30	34	424	296	364	440	368	407 ^a
42.7	12.8	11.9	12.2	124	80	103	37	31	34	384	320	350 ^a	464	360	405 ^a
43.2			12.6			108		34	34			356			403
43.0			13.8			106		36	36			379			406
100.5			91.3			101.9		94.4	94.4			93.9			99.3
100.2			90.0			101.9		94.4	94.4			95.4			99.3

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

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.	Max.	Min.	Max.	Min.	Max.	Min.				
						Av.	Av.	Av.	Av.	Av.	Av.	Av.	Av.				
Mill G--42-lb. Linerboard																	
152711	G-460	WFL	1/ 2/53	12/22/52	1	43.8	41.8	42.9	13.8	11.8	109	83	96	36	31	34	36
152712	G-461	WFL	1/ 2/53	12/22/52	1	43.8	41.6	43.0	13.2	11.3	123	74	99	38	32	35	36
152775	G-462	WFL	1/ 6/53	1/ 2/53	1	43.6	42.0	43.0	14.1	13.0	120	84	104	32	29	30	31
152776	G-463	WFL	1/ 6/53	1/ 2/53	1	43.2	41.8	42.4	14.1	12.2	134	84	107	32	28	30	31
152832	G-464	WFL	1/13/53	1/ 7/53	1	43.0	42.0	42.3	13.9	12.5	112	75	95	38	32	35	38
152833	G-465	WFL	1/13/53	1/ 7/53	1	44.0	42.4	43.6	13.9	12.5	112	76	95	41	34	37	38
152968	G-466	WFL	1/24/53	1/18/53	1	45.0	42.2	44.1	13.2	11.8	143	87	116	36	32	34	41
152969	G-467	WFL	1/24/53	1/18/53	1	44.8	43.2	44.0	14.2	12.3	139	87	111	38	33	36	39
152973	G-468	WFL	1/26/53	1/22/53	1	43.2	42.2	42.7	12.9	11.2	127	74	106	35	29	32	33
152974	G-469	WFL	1/26/53	1/22/53	1	44.0	42.0	43.1	12.6	11.1	145	81	110	34	29	32	33
Current Mill Average:						43.1		43.1	12.7		104			33		36	
Cumulative Mill Average:						43.0		43.0	14.0		107					91.7	
Mill Factor, %:						100.2		100.2	90.7		97.2					91.7	
						100.0		100.0	90.7		98.1						

TABLE X

Mill H--42-lb. Linerboard

File No.	Mill Code	Finish	1/ 2/53	12/22/52	2	44.4	42.2	43.3	12.9	12.1	12.5	142	80	107	36	31	34
152725	H-367	WFLS	1/ 2/53	12/22/52	2	44.4	42.2	43.3	12.9	12.1	12.5	142	80	107	36	31	34
152726	H-368	WFLS	1/ 2/53	12/26/52	2	44.4	43.0	43.8	12.9	12.1	12.6	132	72	107	38	31	34
152805	H-369	WFLS	1/10/53	12/29/52	2	43.6	42.2	42.6	12.9	12.0	12.4	132	87	112	37	32	34
152806	H-370	WFLS	1/10/53	12/30/52	2	44.0	42.2	43.1	12.9	12.1	12.4	129	90	109	38	30	34
152843	H-371	WFLS	1/14/53	1/ 5/53	2	43.6	42.0	42.6	13.1	12.1	12.5	130	75	112	37	32	34
152844	H-372	WFLS	1/14/53	1/ 6/53	2	44.0	42.4	43.7	13.2	12.0	12.8	135	84	109	38	32	36
152971	H-373	WFLS	1/24/53	1/12/53	2	44.4	42.0	43.3	13.6	12.0	13.0	136	81	107	37	30	34
152972	H-374	WFLS	1/24/53	1/16/53	2	43.6	42.0	42.7	12.8	11.9	12.2	124	80	103	37	31	34
Current Mill Average:									43.2		12.6		108				34
Cumulative Mill Average:									43.0		13.8		106				36
Mill Factor, %:									100.5		91.3		101.9				94.4
Mill Index, %:									100.2		90.0		101.9				94.4

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

TABLE XI

INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

ght, Av.	Caliper, points		Bursting Strength, p.s.i. gage		G. E. Puncture, units		Elmendorf Tear, g./sheet								
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
	Mill I--42-lb. Linerboard														
42.8	13.9	12.3	13.1	128	93	111	34	29	32	400	304	341 ^a	432	360	393 ^a
43.0	13.8	12.9	13.2	130	86	109	35	28	32	376	296	332 ^a	448	360	384 ^a
43.7	13.6	13.0	13.2	130	100	112	36	30	33	408	312	358	432	352	388 ^a
42.8	13.4	12.8	13.0	125	87	106	34	30	32	432	264	349 ^a	464	368	405 ^a
43.0	13.9	12.8	13.2	130	89	109	34	30	32	376	304	333 ^a	448	336	383 ^a
43.0			13.1			110			32			343			390
42.9			13.4			106			33			345			400
100.2			97.8			103.8			97.0			99.4			97.5
99.8			93.6			103.8			88.9			92.0			96.1

TABLE XII

Mill J--42-lb. Linerboard															
42.0	13.3	12.0	12.7	137	95	116	32	28	30	416	320	364 ^a	448	352	396 ^a
42.2	13.2	12.2	12.7	138	95	115	33	28	31	352	312	333 ^a	456	336	389 ^a
43.3	13.0	11.9	12.5	136	89	115	34	30	32	408	296	340	416	360	387 ^a
43.0	13.0	11.8	12.6	137	103	117	35	29	32	392	312	356 ^a	432	352	394 ^a
42.6			12.6			116			31			348			391
42.8			13.8			106			32			353			374
99.5			91.3			109.4			96.9			98.6			104.5
98.8			90.0			109.4			86.1			93.3			96.3

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

TABLE XI

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (cont)

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.		Max.	Min.	Max.	Min.					
						Av.	Av.		Av.	Av.	Av.	Av.					
<u>Mill I--42-lb. Linerboard</u>																	
152766	I-266	WF13	1/ 5/53	1/ 1/53	1	43.6	42.0	42.8	13.9	12.3	13.1	128	93	111	34	29	32
152807	I-267	WF1S	1/10/53	1/ 2/53	1	43.8	42.2	43.0	13.8	12.9	13.2	130	86	109	35	28	32
152830	I-268	WF1S	1/13/53	1/ 7/53	1	44.0	43.2	43.7	13.6	13.0	13.2	130	100	112	36	30	33
152853	I-269	WF1S	1/16/53	1/12/53	1	43.4	42.4	42.8	13.4	12.8	13.0	125	87	106	34	30	32
152886	I-270	WF1S	1/20/53	1/16/53	1	43.8	42.4	43.0	13.9	12.8	13.2	130	89	109	34	30	32
Current Mill Average:						43.0			13.1		110			32			
Cumulative Mill Average:						42.9			13.4		106			33			
Mill Factor, %:						100.2			97.8		103.8			97.0			
Mill Index, %:						99.8			93.6		103.8			88.9			

TABLE XII

Mill J--42-lb. Linerboard													
152818	J-399	B.F.	1/12/53	12/31/52	--	42.6	41.0	42.0	13.3	12.0	12.7	137	95
152819	J-400	B.F.	1/12/53	12/31/52	--	43.0	41.6	42.2	13.2	12.2	12.7	138	95
152939	J-401	B.F.	1/22/53	1/10/53	--	44.2	42.0	43.3	13.0	11.9	12.5	136	89
152940	J-402	B.F.	1/22/53	1/10/53	--	44.0	42.0	43.0	13.0	11.8	12.6	137	103
Current Mill Average:						42.6		12.6		116		31	
Cumulative Mill Average:						42.8		13.8		106		32	
Mill Factor, %:						99.5		91.3		109.4		96.9	
Mill Index, %:						98.8		90.0		109.4		86.1	

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

Fourdrinier Kraft Board Institute, Inc.
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TABLE XIII

INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Weight, Av.	Caliper, points Max. Min.	Bursting Strength, p.s.i. gage Max. Min.	Av.	G. E. Puncture, units Max. Min.	Av.	Elmendorf Tear, g./sheet		
						In	Across	Min. Max. Min. Av.

Mill K--42-lb. Linerboard

No samples submitted.

TABLE XIV

Mill L--42-lb. Linerboard

42.2	14.0	11.8	12.8	136	92	112	36	31	34	400	336	365 ^a	456	352	389 ^a
42.1	13.8	12.1	12.8	120	91	106	39	33	36	392	304	350 ^a	448	344	403 ^a
42.1	14.0	12.1	13.0	126	83	108	36	30	33	408	312	353 ^a	424	328	379 ^a
42.8	13.4	11.2	12.7	127	83	105	36	32	34	384	280	345 ^a	408	336	376 ^a
42.3			12.8			108			34			353			387
43.0			13.7			106			36			361			391
98.4			93.4			101.9			94.4			97.8			99.0
98.1			91.4			101.9			94.4			94.6			95.3

TABLE XV

Mill M--42-lb. Linerboard

42.8	14.0	13.0	13.6	127	86	103	39	32	36	408	264	357	440	352	383 ^a
43.4	14.1	13.1	13.6	121	88	108	40	34	37	448	368	409 ^a	496	336	419 ^a
43.7	14.2	13.6	13.9	138	75	108	36	32	34	408	320	361	416	376	393 ^a
42.9	14.0	13.3	13.7	132	77	110	38	31	35	416	296	352	480	352	409 ^a
43.2			13.7			107			35			370			401
42.8			13.7			106			36			389			403
100.9			100.0			100.9			97.2			95.1			99.5
100.2			97.9			100.9			97.2			99.2			98.8

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

TABLE XIII

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

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.

Mill K--42-lb. Linerboard

No samples submitted.

TABLE XIV

Mill L--42-lb. Linerboard

152713	L-139	1/	2/53	11/	8/52	1	43.0	41.6	42.2	14.0	11.8	12.8	136	92	112	36	31	34	400
152714	L-140	1/	2/53	11/	15/52	1	42.6	41.4	42.1	13.8	12.1	12.8	120	91	106	39	33	36	392
152715	L-141	1/	2/53	11/	16/52	1	43.2	40.6	42.1	14.0	12.1	13.0	126	83	108	36	30	33	408
152716	L-142	1/	2/53	11/	20/52	1	43.6	41.8	42.8	13.4	11.2	12.7	127	83	105	36	32	34	384
Current Mill Average:																			
Cumulative Mill Average:																			
Mill Factor, %:																			
Mill Index, %:																			

TABLE XV

Mill M--42-lb. Linerboard

152834	M-138	W.	1/13/53	1/	5/53	2	44.0	41.8	42.8	14.0	13.0	13.6	127	86	103	39	32	36	408
152835	M-139	W.	1/13/53	1/	7/53	4	44.6	42.0	43.4	14.1	13.1	13.6	121	88	108	40	34	37	448
152884	M-140	W.	1/20/53	1/	11/53	2	45.0	42.0	43.7	14.2	13.6	13.9	138	75	108	36	32	34	408
152885	M-141	W.	1/20/53	1/	13/53	2	44.2	41.8	42.9	14.0	13.3	13.7	132	77	110	38	31	35	416
Current Mill Average:																			
Cumulative Mill Average:																			
Mill Factor, %:																			
Mill Index, %:																			

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

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TABLE XVI

INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

ht, in.	Caliper, points		Bursting Strength, p.s.i. gage		G. E. Puncture, units		G./sheet In		Tmendorf Tear, Across	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Mill E--44/46-lb. Drum Linerboard										
18.2	17.0	15.6	16.4	134	102	118	42	36	39	464
7.4	17.0	15.2	16.4	115	87	101	43	38	41	488
8.2	16.5	15.0	15.6	117	75	99	43	34	38	504
7.8	15.4	14.0	14.7	136	90	112	36	30	32	440
7.4	15.7	14.5	15.2	136	86	112	40	34	37	512
7.8		15.7				108			37	
7.2		14.3				101			40	
7.3		109.8				106.9			92.5	
									97.7	
										396
										419
										94.5

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

TABLE XVI

SUMMARY OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (cont)

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.	Max.	Min.	Max.	Min.	Max.	Min.	Av.	Max			
<u>Mill E--44/46-lb. Drum Linerboard</u>																		
152710	E-389	W.F.	1/ 2/53	12/23/52	1	49.6	47.4	48.2	17.0	15.6	16.4	134	102	118	42	36	39	464
152727	E-390	W.F.	1/ 2/53	12/30/52	--	48.2	46.0	47.4	17.0	15.2	16.4	115	87	101	43	38	41	488
152831	E-392 ^b	W.F.	1/13/53	1/ 8/53	1	50.0	46.8	48.2	16.5	15.0	15.6	117	75	99	43	34	38	504
152942	E-395	W.F.	1/22/53	1/20/53	1	49.4	46.4	47.8	15.4	14.0	14.7	136	90	112	36	30	32	440
152970	E-296 ^c	W.F.	1/24/53	1/21/53	1	49.2	45.4	47.4	15.7	14.5	15.2	136	86	112	40	34	37	512
Current Mill Average:						47.8		15.7		108		37						
Cumulative Mill Average:						47.2		14.3		101		40						
Mill Factor, %:						101.3		109.8		106.9		92.5						

^a This average includes the readings for one or more specimens which tore beyond the 3/8-inch limit.^b This sample was identified as 47-lb. Drum Linerboard.^c It is assumed this Mill Code should be E-396.

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		34-68	72-80	--
B	32-47	72	1/2	50	70	24-216
C	50-52	71-73	4-6 days	50-52	71-73	4-24
D	30-52	72-78	8	31-53	71-78	16
E		None		46-55	78-82	--
F		None		38-62	71-1/2 to 73	48
G		None		50	73	24
H		None		50	73	24
I		None		39-54	80-84	--
J		None		50	72-73	1/2
K		No samples submitted.				
L		None		45-61	72-90	--
M		None		41-1/2 to 61	74-81	--
N*		None		46-52	74-80	--

* 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 two 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 C, H, and J are the same as those for the Institute, whereas the results for Mills A, B, D, E, F, G, I, L, and M are lower. 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 nine per cent. Compared with the values for the Institute, the average results for Mills A, C, D, E, F, G, H, I, and M are lower while the average result for Mill L is higher, and the average result for Mills B and J are 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 nine per cent for the current period. The average results for Mills A, C, G, H, L and M are higher than those for the Institute, whereas the results for Mills B, E, F, I, and J are lower and the result for Mill D is the same. The agreement in bursting strength results is good except for Mills E and J.

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

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

TABLE XVIII

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

	Mills*											
	A	B	C	D	E	F	G	H	I	J	L	M
% Samples Compared	8	16	8	10	3	10	10	8	5	4	4	4
<u>Basis Weight</u>												
Institute	43.6	42.8	42.7	43.6	42.1	43.3	43.1	43.2	43.0	42.6	42.3	43.2
Mill	43.4	42.5	42.7	43.3	42.0	42.9	42.9	43.2	42.3	42.6	41.6	42.7
Av. Diff.**	-0.2	-0.3	0.0	-0.3	-0.1	-0.4	-0.2	0.0	-0.7	0.0	-0.7	-0.5
Max. Diff.***	-0.6	-1.0	+0.5	-0.7	-0.3	-2.0	-0.6	+1.2	-1.3	-0.4	-0.9	-1.3
<u>Caliper</u>												
Institute	12.7	12.2	14.4	13.3	14.0	13.5	12.7	12.6	13.1	12.6	12.8	13.7
Mill	12.5	12.2	13.9	13.1	12.8	12.9	12.4	12.2	12.7	12.6	12.9	13.2
Av. Diff.**	-0.2	0.0	-0.5	-0.2	-1.2	-0.6	-0.3	-0.4	-0.4	0.0	+0.1	-0.5
Max. Diff.***	-0.4	+0.4	-0.7	-0.3	-1.3	-0.9	-0.6	-0.4	-0.6	-0.1	+0.5	-0.8
<u>Bursting Strength</u>												
Institute	112	110	106	111	105	99	104	108	110	116	108	107
Mill	113	109	107	111	96	97	105	112	109	109	109	112
Av. Diff.**	+1	-1	+1	0	-9	-2	+1	+4	-1	-7	+1	+5
Max. Diff.***	+9	+5	+8	+6	-12	-8	+9	+7	+3	-8	+5	+7
<u>G. E. Puncture</u>												
Institute	35	29	33	37	33	37	33	34	32	31	34	35
Mill	35	25	32	--	38	41	38	33	30	32	--	31
Av. Diff.**	0	-4	-1	--	+5	+4	+5	-1	-2	+1	--	-4
Max. Diff.***	+2	-5	-4	--	+7	+6	+7	-3	-3	+2	--	-8
<u>Tearing Strength, in</u>												
Institute	348	297	329	384	394	386	328	356	343	348	353	370
Mill	337	278	332	360	327	363	303	329	337	344	334	391
Av. Diff.**	-11	-19	+3	-24	-67	-23	-25	-27	-6	-4	-19	+21
Max. Diff.***	-38	-63	+28	-47	-93	-48	-56	-53	-23	-28	-37	+69
<u>Tearing Strength, across</u>												
Institute	396	360	373	421	374	411	370	403	390	391	387	401
Mill	378	340	391	431	311	413	352	381	399	397	384	434
Av. Diff.**	-18	-20	+18	+10	-63	+2	-18	-22	+9	+6	-3	+33
Max. Diff.***	-48	-56	+47	+23	-77	+44	-46	-46	+20	-27	-20	+62

* 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, %		Tearing In	Strength Across
			Bursting Strength	G. E. Puncture		
Mill A						
Current period	-0.5	-2	+0.9	0	-3	-5
66th period	-0.5	-2	+0.9	+3	-4	-5
65th period	0	-2	0	-3	-3	-4
Mill B						
Current period	-0.7	0	-0.9	-14	-6	-6
66th period	-0.7	0	+0.9	-10	-8	-6
65th period	-0.7	-0.8	-0.9	-9	-16	-9
Mill C						
Current period	0	-3	+0.9	-3	+0.9	+5
66th period	+0.2	-0.7	+0.9	-9	-2	+2
65th period	0	-0.7	+4	-3	-2	+1
Mill D						
Current period	-0.7	-2	0	--	-6	+2
66th period	-0.7	-0.8	+1	--	-2	+3
65th period	-0.5	-2	-4	--	-1	+4
Mill E						
Current period	-0.2	-9	-9	+15	-17	-17
66th period	-1	-9	-6	0	-26	-24
65th period	-0.2	-9	-3	0	-18	-12
Mill F						
Current period	-0.9	-4	-2	+11	-6	+0.5
66th period	-0.7	-3	0	+3	-7	-3
65th period	-1	-3	-1	-5	-8	-3
Mill G						
Current period	-0.5	-2	+1	+15	-8	-5
66th period	+0.2	-0.8	-4	+9	-13	-7
65th period	+0.5	-2	-5	+9	-10	-7
Mill H						
Current period	0	-3	+4	-3	-8	-5
66th period	+0.2	-2	+5	-3	-9	-7
65th period	+2	-0.8	+0.9	-3	+4	+2
Mill I						
Current period	-2	-3	-0.9	-6	-2	+2
66th period	0	-2	+3	-9	-2	+2
65th period	0	-3	+4	-13	-1	-2
Mill J						
Current period	0	0	-6	+3	-1	+2
66th period	-0.2	0	-5	0	-1	+2
65th period	+0.7	0	-4	+7	-7	-1
Mill L						
Current period	-2	+0.8	+0.9	--	-5	-0.8
66th period	-0.7	+1	+2	--	-11	-7
65th period	-0.9	+4	+3	--	-4	+0.8
Mill M						
Current period	-1	-4	+5	-11	+6	+8
66th period	-2	-7	+4	-31	-5	-1
65th period	-2	-7	+2	-39	-15	-12

TABLE XI

OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953

Institute Data versus Mill Data

Caliper, points IPC Mill	Bursting Strength, p.s.i. gage IPC Mill Diff.	G. E. Puncture, units IPC Mill Diff.	Elmendorf Tear,										
			In	g./sheet	Across	IPC Mill Diff.							
							IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.				
<u>Mill A--42-lb. Linerboard</u>													
13.2	13.1	-0.1	115	110	-5	34	36	361 ^a	367	+ 6	403 ^a	383	-20
13.0	13.0	0.0	116	113	-3	34	35	362 ^a	359	- 3	391 ^a	375	-16
12.1	11.9	-0.2	109	112	+3	33	33	338 ^a	341	+ 3	385 ^a	394	+ 9
12.8	12.4	-0.4	114	115	+1	36	35	346	308	-38	422 ^a	374	-48
12.1	11.8	-0.3	103	112	+9	34	34	345	309	-36	393 ^a	364	-29
12.5	12.4	-0.1	110	117	+7	35	35	344	313	-31	394 ^a	380	-14
13.0	12.7	-0.3	114	113	-1	35	37	352 ^a	348	- 4	390 ^a	378	-12
12.9	12.7	-0.2	114	113	-1	36	38	340	348	+ 8	391 ^a	380	-11
12.7	12.5	-0.2	112	113	+1	35	35	348	337	-11	396	378	-18

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

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953

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. gage		G. E. Puncture, units		Elmendorf g./sh In			
					IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.		
<u>Mill A--42-1b. Linerboard</u>																
52728	A-408	WFLS	12/22/52	1	43.4	43.6	+0.2	13.2	13.1	-0.1	115	110	-5	361 ^a	+ 6	4
52729	A-409	WFLS	12/22/52	1	43.7	43.7	0.0	13.0	13.0	0.0	116	113	-3	362 ^a	- 3	3
52788	A-410	WFLS	12/30/52	1	43.2	42.8	-0.4	12.1	11.9	-0.2	109	112	+3	338 ^a	+ 3	3
52789	A-411	WFLS	1/ 1/53	2	43.6	43.0	-0.6	12.8	12.4	-0.4	114	115	+1	346	-38	4
52841	A-412	WFLS	1/ 4/53	1	43.4	43.1	-0.3	12.1	11.8	-0.3	103	112	+9	345	-36	3
52842	A-413	WFLS	1/ 4/53	2	43.6	43.5	-0.1	12.5	12.4	-0.1	110	117	+7	344	-31	3
52956	A-414	WFLS	1/14/53	2	44.0	43.6	-0.4	13.0	12.7	-0.3	114	113	-1	352 ^a	- 4	3
52957	A-415	WFLS	1/14/53	2	44.0	43.7	-0.3	12.9	12.7	-0.2	114	113	-1	340	+ 8	3
Current Mill Average:					43.6	43.4	-0.2	12.7	12.5	-0.2	112	113	+1	348	-11	3

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

TABLE XXI

OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Institute Data versus Mill Data				Elmendorf Tear, g./sheet			
Caliper, points	IPC	Diff.	Bursting Strength, p.s.i., gage	G.E. Puncture, units		IPC	Diff.
				IPC	Mill Diff.		
<u>Mill B--42-lb. Linerboard</u>							
12.1	12.3	+0.2	113	111	-2	28	25
12.1	12.2	+0.1	111	109	-2	29	25
12.1	12.2	+0.1	109	110	+1	29	25
12.2	12.1	-0.1	104	109	+5	28	25
12.4	12.3	-0.1	110	110	0	29	25
11.9	12.3	+0.4	112	110	-2	29	25
12.0	12.2	+0.2	113	110	-3	29	25
12.2	12.1	-0.1	111	109	-2	28	25
12.2	11.9	-0.3	113	110	-3	28	24
12.3	12.0	-0.3	112	108	-4	28	24
12.2	12.0	-0.2	110	107	-3	29	25
12.2	12.0	-0.2	112	109	-3	28	25
12.6	12.5	-0.1	107	108	+1	29	25
12.8	12.4	-0.4	113	109	-4	30	25
12.8	12.4	-0.4	106	106	0	28	24
12.8	12.5	-0.3	108	107	-1	29	25
12.2	12.2	0.0	110	109	-1	29	25
				301	-3	301	-20
				307	-4	307	-39
				285	-4	285	-13
				305	-3	305	-27
				291	-4	291	-16
				307	-4	307	-24
				305	-4	305	-20
				291	-3	291	-15
				292	-4	292	-4
				305	-4	305	-18
				300 ^a	-1	300 ^a	-23
				301	-2	301	-3
				265	+5	265	-35
				310 ^a	-42	310 ^a	-28
				309 ^a	-63	309 ^a	-56
				283	-18	283	-44
				297	-19	297	-20
				335	-41	335	-6
				339 ^a	-6	339 ^a	+4
				347 ^a	-6	347 ^a	-6
				360 ^a	-25	360 ^a	-15
				366 ^a	-15	366 ^a	-9
				359 ^a	-14	359 ^a	-5
				361 ^a	-11	361 ^a	-23
				355 ^a	-3	355 ^a	-35
				351 ^a	-28	351 ^a	-56
				359 ^a	-44	359 ^a	-44
				377 ^a	-20	377 ^a	-20
				360 ^a	-39	360 ^a	-39
				354 ^a	-13	354 ^a	-13
				361 ^a	-27	361 ^a	-27
				373 ^a	-16	373 ^a	-16
				356 ^a	-24	356 ^a	-24
				360	-20	360	-20

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

in the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953 (con)

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. gage		G.E. Puncture, units							
					IPC	lb. Diff.	IPC	points	IPC	Mill Diff.	IPC	Mill Diff.						
Mill B-42-lb. Linerboard																		
152767	B-719	WFLS	12/29/52	1	42.9	42.8	-0.1	12.1	12.3	+0.2	113	111	-2	28	25	-3	301	281
152768	B-720	WFLS	12/29/52	1	43.2	42.7	-0.5	12.1	12.2	+0.1	111	109	-2	29	25	-4	307	268
152769	B-721	WFLS	12/29/52	1	42.5	42.4	-0.1	12.1	12.2	+0.1	109	110	+1	29	25	-4	285	272
152770	B-722	WFLS	12/29/52	1	42.8	42.6	-0.2	12.2	12.1	-0.1	104	109	+5	28	25	-3	305	278
152797	B-723	WFLS	12/29/52	1	42.8	42.7	-0.1	12.4	12.3	-0.1	110	110	0	29	25	-4	291	275
152798	B-724	WFLS	12/29/52	1	43.2	42.7	-0.5	11.9	12.3	+0.4	112	110	-2	29	25	-4	307	283
152799	B-725	WFLS	12/29/52	1	43.6	42.6	-1.0	12.0	12.2	+0.2	113	110	-3	29	25	-4	305	285
152800	B-726	WFLS	12/29/52	1	43.1	42.6	-0.5	12.2	12.1	-0.1	111	109	-2	28	25	-3	291	276
152816	B-727	WFLS	12/29/52	1	43.2	42.6	-0.6	12.2	11.9	-0.3	113	110	-3	28	24	-4	292	288
152828	B-728	WFLS	12/29/52	1	43.2	43.0	-0.2	12.3	12.0	-0.3	112	108	-4	28	24	-4	305	287
152817	B-729	WFLS	12/29/52	1	43.0	42.8	-0.2	12.2	12.0	-0.2	110	107	-3	29	25	-4	300 ^a	299
152829	B-730	WFLS	12/29/52	1	42.9	42.6	-0.3	12.2	12.0	-0.2	112	109	-3	28	25	-3	301	299
152862	B-731	WFLS	1/ 8/53	1	42.1	41.6	-0.5	12.6	12.5	-0.1	107	108	+1	29	25	-4	265	270
152863	B-732	WFLS	1/ 8/53	1	42.3	42.0	-0.3	12.8	12.4	-0.4	113	109	-4	30	25	-5	310 ^a	268
152864	B-733	WFLS	1/ 8/53	1	42.0	41.7	-0.3	12.8	12.4	-0.4	106	106	0	28	24	-4	309 ^a	246
152865	B-734	WFLS	1/ 8/53	1	42.5	42.1	-0.4	12.8	12.5	-0.3	108	107	-1	29	25	-4	283	265
Current Mill Average:					42.8	42.5	-0.3	12.2	12.2	0.0	110	109	-1	29	25	-4	297	278

^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.

Institute Data versus Mill Data

[illegible]

M11 D--42-lb. Linerboard

13.4	13.3	-0.1	117	116	-1	36	383 ^a	362	-21	421 ^a	429	+9
12.5	12.4	-0.1	110	110	0	36	363 ^a	317	-46	401 ^a	424	+23
12.9	12.7	-0.2	106	107	+1	39	393 ^a	358	-35	430 ^a	441	+11
13.3	13.0	-0.3	113	112	-1	36	383 ^a	359	-24	432 ^a	417	-15
13.0	12.8	-0.2	108	106	-2	39	390 ^a	374	-16	428 ^a	436	+8
14.0	13.9	-0.1	112	111	-1	37	391 ^a	385	-6	438 ^a	453	+15
13.6	13.5	-0.1	116	116	0	36	373 ^a	395	+22	429 ^a	450	+21
13.7	13.5	-0.2	116	107	-3	37	372 ^a	347	-25	409 ^a	416	+7
13.2	13.1	-0.1	109	115	+6	37	395 ^a	357	-38	401 ^a	404	+3
13.5	13.2	-0.3	112	111	-1	39	396 ^a	349	-47	424 ^a	435	+11
13.3	13.1	-0.2	111	111	0	37	384	360	-24	421	431	+10

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

SUMMARY OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953 (contin

Institute Data versus Mill Data

File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight,		Caliper,		Bursting		G.E.	
					lb.	Diff.	IPC	points	IPC	p.s.i. gage	IPC	Puncture, units
					IPC Mill	Diff.	IPC	Mill	Diff.	IPC Mill	Diff.	IPC
Mill C--42-lb. Linerboard												
152878	C-435	W.F.	1/ 8/53	1	43.4	0.0	14.5	14.4	-0.1	104	107	+ 3
152879	C-436	W.F.	1/ 8/53	1	43.3	0.0	14.7	14.2	-0.5	103	111	+ 8
152880	C-437	W.F.	1/10/53	1	42.2	+0.1	13.9	13.4	-0.5	111	111	0
152881	C-438	W.F.	1/10/53	1	42.9	+0.3	13.8	13.3	-0.5	110	111	+ 1
152882	C-439	W.F.	1/11/53	1	41.4	+0.5	14.0	13.5	-0.5	107	107	0
152883	C-440	W.F.	1/11/53	1	41.6	+0.2	14.1	13.4	-0.7	104	106	+ 2
152958	C-441	W.F.	1/12/53	1	44.0	-0.4	15.0	14.5	-0.5	103	102	- 1
152959	C-442	W.F.	1/12/53	1	43.5	0.0	15.0	14.4	-0.6	103	102	- 1
Current Mill Average:					42.7	0.0	14.4	13.9	-0.5	106	107	+ 1

TABLE XXIII

Mill D--42-lb. Linerboard

152759	D-611	W.F.	1/ 1/53	4	44.0	-0.5	13.4	13.3	-0.1	117	116	- 1	36	383 ^a
152760	D-612	W.F.	1/ 2/53	4	42.7	-0.7	12.5	12.4	-0.1	110	110	0	36	363 ^a
152785	D-613	W.F.	1/ 3/53	4	44.6	-0.3	12.9	12.7	-0.2	106	107	+ 1	39	393 ^a
152786	D-614	W.F.	1/ 4/53	4	44.2	-0.4	13.3	13.0	-0.3	113	112	- 1	36	383 ^a
152801	D-615	W.F.	1/ 5/53	4	42.8	-0.1	13.0	12.8	-0.2	108	106	- 2	39	390 ^a
152813	D-616	W.F.	1/ 7/53	4	43.6	0.0	14.0	13.9	-0.1	112	111	- 1	37	391 ^a
152814	D-617	W.F.	1/ 8/53	4	43.6	-0.6	13.6	13.5	-0.1	116	116	0	36	373 ^a
152836	D-618	W.F.	1/ 9/53	4	43.6	-0.5	13.7	13.5	-0.2	116	107	- 3	37	372 ^a
152837	D-619	W.F.	1/10/53	4	43.3	-0.3	13.2	13.1	-0.1	109	115	+ 6	37	395 ^a
152838	D-620	W.F.	1/11/53	4	44.0	-0.2	13.5	13.2	-0.3	112	111	- 1	39	396 ^a
Current Mill Average:					43.6	-0.3	13.3	13.1	-0.2	111	111	0	37	384

^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 XIV

OF INDIVIDUAL TEST LOTS--JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Institute Data versus Mill Data

Caliper, points	IPC	Diff.	Bursting Strength, p.s.i. gage	IPC	IPC Mill Diff.	G. E. Puncture, units	IPC	IPC Mill Diff.	In	IPC	IPC Mill Diff.	Elmsdorf Tear, E./sheet	Across Diff.	
Mill E-42-lb. Linerboard														
3	13.4	12.3	98	92	- 6	32	34	+ 2	391 ^a	298	-93	350 ^a	278	-72
0	14.1	12.9	106	96	-10	33	40	+ 7	401 ^a	345	-56	379 ^a	302	-77
0	14.4	13.1	112	100	-12	33	38	+ 5	391 ^a	337	-54	392 ^a	354	-38
1	14.0	12.8	105	96	- 9	33	38	+ 5	394	327	-67	374	311	-63

TABLE XXV

Mill F-42-lb. Linerboard

0	13.7	12.8	-0.9	93	96	+3	36	36	0	377 ^a	347	-30	403 ^a	401	-2
0	13.9	13.0	-0.9	97	94	-3	40	30	0	406	371	-35	432 ^a	403	-29
4	13.4	13.0	-0.4	97	98	+1	39	45	+6	415 ^a	417	+2	431 ^a	475	+44
0	13.8	13.2	-0.6	102	98	-4	40	44	+4	393 ^a	397	+4	429 ^a	437	+8
2	13.4	12.8	-0.6	99	101	+2	36	40	+4	376	328	-48	394 ^a	375	-24
1	13.5	13.0	-0.5	105	97	-8	37	41	+4	382 ^a	391	+9	406 ^a	421	+15
4	13.6	13.1	-0.5	101	97	-4	37	41	+4	394 ^a	356	-38	405 ^a	409	+4
1	13.5	13.2	-0.3	100	95	-5	37	41	+4	389 ^a	361	-28	424 ^a	416	-18
3	13.3	12.5	-0.8	100	97	-3	34	37	+3	353 ^a	309	-44	387 ^a	360	-27
4	13.3	12.8	-0.5	98	98	0	37	40	+3	380 ^a	355	-25	389 ^a	428	+39
4	13.5	12.9	-0.6	99	97	-2	37	41	+4	386	363	-23	411	413	+2

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

titute. However, by elimination, it has been assumed to be Mill Code F-100.

from the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST LOTS - JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Institute Data versus Mill Data																	
File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight,			Caliper,		Diff.	Bursting		G. E.				
					IPC	Mill	Diff.	IPC	Mill		points	Strength,	p.s.i. gage	Puncture, units			
															IPC	Mill	Diff.
<u>Mill E-42-lb. Linerboard</u>																	
152815	E-391	W.F.	1/ 5/53	1	41.1	40.8	-0.3	13.4	12.3	-1.1	98	92	- 6	32	34	+ 2	391 ^a 298
152866	E-393	W.F.	1/14/53	1	42.4	42.4	0.0	14.1	12.9	-1.2	106	96	-10	33	40	+ 7	401 ^a 345
152941	E-394	---	1/16/53	1	42.9	42.9	0.0	14.4	13.1	-1.3	112	100	-12	33	38	+ 5	391 ^a 337
Current Mill Average:					42.1	42.0	-0.1	14.0	12.8	-1.2	105	96	- 9	33	38	+ 5	391 ⁴ 327

TABLE XXV

<u>Mill F-42-lb. Linerboard</u>																		
152761	F-93	W.F.	12/15/52	--	43.5	42.5	-1.0	13.7	12.8	-0.9	93	96	+ 3	36	377 ^a	347		
152762	F-94	W.F.	12/17/52	--	44.7	42.7	-2.0	13.9	13.0	-0.9	97	94	- 3	40	406	371		
152763	F-95	W.F.	12/18/52	--	43.6	44.0	+0.4	13.4	13.0	-0.4	97	98	+ 1	39	415 ^a	417		
152764	F-96	W.F.	12/23/52	--	44.4	44.4	0.0	13.8	13.2	-0.6	102	98	- 4	40	393 ^a	397		
152765	F-97	W.F.	12/23/52	--	42.9	42.7	-0.2	13.4	12.8	-0.6	99	101	+ 2	36	376	328		
152887	F-98	---	12/30/52	--	42.8	42.7	-0.1	13.5	13.0	-0.5	105	97	- 8	37	382 ^a	391		
152888	F-99	---	12/30/52	--	43.2	42.8	-0.4	13.6	13.1	-0.5	101	97	- 4	37	394 ^a	356		
152889	F-100 ^b	W.F.	12/31/52	--	42.6	42.7	+0.1	13.5	13.2	-0.3	100	95	- 5	37	389 ^a	361		
152890	F-1	W.F.	1/ 5/53	--	42.7	42.4	-0.3	13.3	12.5	-0.8	100	97	- 3	34	353 ^a	309		
152891	F-2	W.F.	1/ 6/53	--	42.9	42.5	-0.4	13.3	12.8	-0.5	98	98	0	37	380 ^a	355		
Current Mill Average:														37	41	+ 4	386	363

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

b This sample was unidentified as received by the Institute. However, by elimination, it has been assumed to be Mall Cod

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

TABLE XXVI

INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 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			
Mill G--42-lb. Linerboard													
12.4	12.1	-0.3	96	+ 3	34	41	318 ^a	+ 7	317	-1	355 ^a	359	+ 4
12.2	12.1	-0.1	99	0	35	41	335 ^a	+ 6	313	-22	381 ^a	361	-20
13.4	13.0	-0.4	104	- 2	30	37	313 ^a	+ 7	287	-26	365 ^a	319	-46
13.0	12.8	-0.2	107	- 7	30	35	307 ^a	+ 5	285	-22	365 ^a	316	-40
13.3	12.7	- 0.6	95	+ 9	35	40	343 ^a	+ 5	290	-53	364 ^a	351	-14
13.2	12.6	-0.6	95	+ 9	37	41	343	+ 4	287	-56	356 ^a	332	-24
12.4	12.3	-0.1	116	+ 1	34	37	349 ^a	+ 3	321	-28	399 ^a	372	-27
12.9	12.4	-0.5	111	0	36	38	346 ^a	+ 2	311	-35	389 ^a	379	-10
12.2	11.9	-0.3	106	+ 2	32	35	312	+ 3	307	- 5	360 ^a	362	+ 2
11.8	11.8	0.0	110	- 1	32	35	313 ^a	+ 3	309	- 4	375 ^a	370	- 5
12.7	12.4	-0.3	104	+ 1	33	38	303	+ 5	303	- 25	370	352	-18

TABLE XXVII

Mill H--42-lb. Linerboard

12.5	12.1	-0.4	107	+ 7	34	33	334	+18	388 ^a	395	+ 7
12.6	12.2	-0.4	107	+ 4	34	34	363	-36	391 ^a	381	-10
12.4	12.1	-0.3	112	0	34	33	364 ^a	-25	415 ^a	367	-28
12.4	12.1	-0.3	109	+ 3	34	33	365 ^a	-40	417 ^a	371	-46
12.5	12.3	-0.2	112	+ 2	34	33	353 ^a	-53	411 ^a	369	-42
12.8	12.6	-0.2	109	+ 3	36	33	355	-29	395 ^a	373	-22
13.0	12.6	-0.4	107	+ 3	34	35	364	-31	407 ^a	389	-18
12.2	12.0	-0.2	103	+ 5	34	33	350 ^a	-19	405 ^a	381	-24
12.6	12.2	-0.4	108	+ 4	34	33	356	-27	403	381	-22

means which torw beyond the 3/8-inch limit.

and the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST LOTS - JANUARY 1 THROUGH JANUARY 31, 1953 (cont)

Institute Data versus Mill Data

File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Diff.		Bursting St. length, p.s.i. gage		G.E. Puncture, units			
					IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill		
Mill G--42-lb. Linerboard																
152711	G-460	WFL	12/22/52	1	42.9	42.8	-0.1	12.4	12.1	-0.3	96	99	+ 3	34	41	+ 7
152712	G-461	WFL	12/22/52	1	43.0	43.0	0.0	12.2	12.1	-0.1	99	99	0	35	41	+ 6
152775	G-462	WFL	1/ 2/53	1	43.0	42.8	-0.2	13.4	13.0	-0.4	104	102	- 2	30	37	+ 7
152776	G-463	WFL	1/ 2/53	1	42.4	42.3	-0.1	13.0	12.8	-0.2	107	100	- 7	30	35	+ 5
152832	G-464	WFL	1/ 7/53	1	42.3	42.1	-0.2	13.3	12.7	- 0.6	95	104	+ 9	35	40	+ 5
152833	G-465	WFL	1/ 7/53	1	43.6	43.3	-0.3	13.2	12.6	-0.6	95	104	+ 9	37	41	+ 4
152968	G-466	WFL	1/18/53	1	44.1	43.8	-0.3	12.4	12.3	-0.1	116	117	+ 1	34	37	+ 3
152969	G-467	WFL	1/18/53	1	44.0	44.0	0.0	12.9	12.4	-0.5	111	111	0	36	38	+ 2
152973	G-468	WFL	1/22/53	1	42.7	42.6	-0.1	12.2	11.9	-0.3	106	108	+ 2	32	35	+ 3
152974	G-469	WFL	1/22/53	1	43.1	42.5	-0.6	11.8	11.8	0.0	110	109	- 1	32	35	+ 3
Current Mill Average:					43.1	42.9	-0.2	12.7	12.4	-0.3	104	105	+ 1	33	38	+ 5

TABLE XXVII

Mill H-42-lb. Linerboard

152725	H-367	WFLS	12/22/52	2	43.3	43.7	+0.4	12.5	12.1	-0.4	107	114	+ 7	34	33	- 1
152726	H-368	WFLS	12/26/52	2	43.8	43.7	-0.1	12.6	12.2	-0.4	107	111	+ 4	34	34	0
152805	H-369	WFLS	12/29/52	2	42.6	42.8	+0.2	12.4	12.1	-0.3	112	112	0	34	33	- 1
152806	H-370	WFLS	12/30/52	2	43.1	43.1	0.0	12.4	12.1	-0.3	109	112	+ 3	34	33	- 1
152843	H-371	WFLS	1/ 5/53	2	42.6	43.8	+1.2	12.5	12.3	-0.2	112	114	+ 2	34	33	- 1
152844	H-372	WFLS	1/ 6/53	2	43.7	43.1	-0.6	12.8	12.6	-0.2	109	112	+ 3	36	33	-3
152971	H-373	WFLS	1/12/53	2	43.3	43.1	-0.2	13.0	12.6	-0.4	107	110	+ 3	34	35	+ 1
152972	H-374	WFLS	1/16/53	2	42.7	42.7	0.0	12.2	12.0	-0.2	103	108	+ 5	34	33	- 1
Current Mill Average:					43.2	43.2	0.0	12.6	12.2	-0.4	108	112	+ 4	34	33	- 1

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

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

OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Institute Data versus Mill Data

Lot No.	Caliper, points	IPC Mill Diff.	Bursting Strength, p.s.i. gage	G.E. Puncture, units	Elmendorf Tear, g./sheet										
					IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.					
Mill I--42-lb. Linerboard															
.5	13.1	12.6	-0.5	111	109	-2	32	30	-2	341 ^a	343	+2	393 ^a	398	+5
.8	13.2	12.7	-0.5	109	110	+1	32	30	-2	332 ^a	334	+2	384 ^a	399	+15
.3	13.2	12.6	-0.6	112	110	-2	33	30	-3	358	335	-23	388 ^a	399	+11
.4	13.0	12.7	-0.3	106	109	+3	32	30	-2	349 ^a	332	-17	405 ^a	396	-9
.5	13.2	13.0	-0.2	109	109	3	32	32	0	333 ^a	343	+10	383 ^a	403	+20
.7	13.1	12.7	-0.4	110	109	-1	32	30	-2	343	337	-6	390	399	+9

TABLE XXIX

Mill J--42-lb. Linerboard

.2	12.7	12.6	116	108	-8	30	30	0	364 ^a	336	-28	396 ^a	369	-27
.2	12.7	12.7	115	111	-4	31	31	0	333 ^a	325	-8	389 ^a	398	+9
.4	12.5	12.5	115	109	-6	32	33	+1	340	361	+21	387 ^a	409	+22
.0	12.6	12.5	117	109	-8	32	34	+2	356 ^a	353	-3	394 ^a	413	+19
.0	12.6	12.6	116	109	-7	31	32	+1	348	344	-4	391	397	+6

TABLE XXX

Mill K--42-lb. Linerboard

No samples submitted.

TABLE XXXI

Mill L--42-lb. Linerboard

.6	12.8	12.8	112	116	+4	34	34		365 ^a	328	-37	389 ^a	370	-19
.6	12.8	13.0	106	104	-2	36	36		350 ^a	328	-22	403 ^a	383	-20
.7	13.0	12.7	108	108	0	33	33		353 ^a	343	-10	379 ^a	392	+13
.9	12.7	13.2	105	110	+5	34	34		345 ^a	337	-8	376 ^a	389	+13
.7	12.8	12.9	108	109	+1	34	34		353	334	-19	387	384	-3

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

SUMMARY OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953 (contin)

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.	IPC
<u>Mill I--42-lb. Linerboard</u>																	
152766	I-266	WFLS	1/ 1/53	1	42.8	42.3	-0.5	13.1	12.6	-0.5	111	109	-2	32	30	- 2	341 ^a
152807	I-267	WFLS	1/ 2/53	1	43.0	42.2	-0.8	13.2	12.7	-0.5	109	110	+1	32	30	- 2	332 ^a
152830	I-268	WFLS	1/ 7/53	1	43.7	42.4	-1.3	13.2	12.6	-0.6	112	110	-2	33	30	- 3	358
152853	I-269	WFLS	1/12/53	1	42.8	42.4	-0.4	13.0	12.7	-0.3	106	109	+3	32	30	- 2	349 ^a
152886	I-270	WFLS	1/16/53	1	43.0	42.5	-0.5	13.2	13.0	- 0.2	109	109	3	32	32	0	333 ^a
Current Mill Average:					43.0	42.3	-0.7	13.1	12.7	-0.4	110	109	-1	32	30	- 2	343

OF INDIVIDUAL TEST LOTS—JANUARY 1 THROUGH JANUARY 31, 1953 (continued)

Institute Data versus Mill Data

t, iff.	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.	Across IPC Mill Diff.			
			IPC	Diff.		IPC	Diff.		In	Diff.		IPC	Diff.		
<u>Mill M--42-lb. Linerboard</u>															
.5	13.6	13.1	-0.5	103	108	+ 5	36	32	- 4	357	391	+34	383 ^a	445	+62
.6	13.6	13.4	-0.2	108	115	+ 7	37	33	- 4	409 ^a	478	+69	419 ^a	476	+57
.3	13.9	13.1	-0.8	108	112	+ 4	34	26	- 8	361	344	-17	393 ^a	394	+ 1
.7	13.7	13.0	-0.7	110	115	+ 5	35	34	- 1	352	350	- 2	409 ^a	420	+11
.5	13.7	13.2	-0.5	107	112	+ 5	35	31	- 4	370	391	+21	401	434	+33

TABLE XXXIII

Mill E--44/46-lb. Drum Linerboard

.7	16.4	14.6	-1.8	118	107	-11	39	36	- 3	411 ^a	365	-46	423 ^a	380	-43
.0	16.4	14.8	-1.6	101	92	- 9	41	40	- 1	447 ^a	322	-125	403 ^a	277	-126
.8	15.6	13.8	-1.8	99	96	- 3	38	38	0	453 ^a	399	-54	392 ^a	361	-31
.5	14.7	13	-1.7	112	99	-13	32	32	0	392 ^a	342	-50	353 ^a	350	- 3
.5	15.2	14.1	-1.1	112	106	- 6	37	37	0	451 ^a	412	-39	407 ^a	379	-28
.7	15.7	14.1	-1.6	108	100	- 8	37	36	- 1	431	368	-63	396	349	-47

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

from the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST LOGS--JANUARY 1 THROUGH JANUARY 31, 1953 (cont)

Institute Data versus Kill Data

File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight,		Caliper,		Bursting		Puncture, units	IPC					
					lb.	Diff.	points	Diff.	Strength, p.s.i.	gage							
					IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.				
<u>Mill M--42-lb. Linerboard</u>																	
152834	M-138	W.	1/ 5/53	2	42.8	42.3	-0.5	13.6	13.1	-0.5	103	108	+ 5	36	32	- 4	357
152835	M-139	W.	1/ 7/53	4	43.4	44.0	+0.6	13.6	13.4	-0.2	108	115	+ 7	37	33	- 4	409
152884	M-140	W.	1/11/53	2	43.7	42.4	-1.3	13.9	13.1	-0.8	108	112	+ 4	34	26	- 8	361
152885	M-141	W.	1/13/53	2	42.9	42.2	-0.7	13.7	13.0	-0.7	110	115	+ 5	35	34	- 1	352
Current Mill Average:					43.2	42.7	-0.5	13.7	13.2	-0.5	107	112	+ 5	35	31	- 4	370

TABLE XXXIII

Mill E--44/46-lb. Drum Linerboard

Run	W.F.	12/23/52	1	48.2	46.5	-1.7	16.4	14.6	-1.8	118	107	-11	39	36	-3	411
152710	E-389	W.F.	12/23/52	1	48.2	46.5	-1.7	16.4	14.6	118	107	-11	39	36	-3	411
152727	E-390	W.F.	12/30/52	--	47.4	46.4	-1.0	16.4	14.8	101	92	-9	41	40	-1	447
152831	E-392 ^b	W.F.	1/8/53	1	48.2	47.4	-0.8	15.6	13.8	99	96	-3	38	38	0	452
152942	E-395	W.F.	1/20/53	1	47.8	47.3	-0.5	14.7	13	112	99	-13	32	32	0	392
152970	E-296 ^c	W.F.	1/21/53	1	47.4	47.9	+0.5	15.2	14.1	112	106	-6	37	37	0	451
Current Mill Average:																
					47.8	47.1	-0.7	15.7	14.1	108	100	-8	37	36	-1	431

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

^b This sample was identified as 47-lb. Drum Linerboard.

c It is assumed this Mill Code should be E-396.

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

