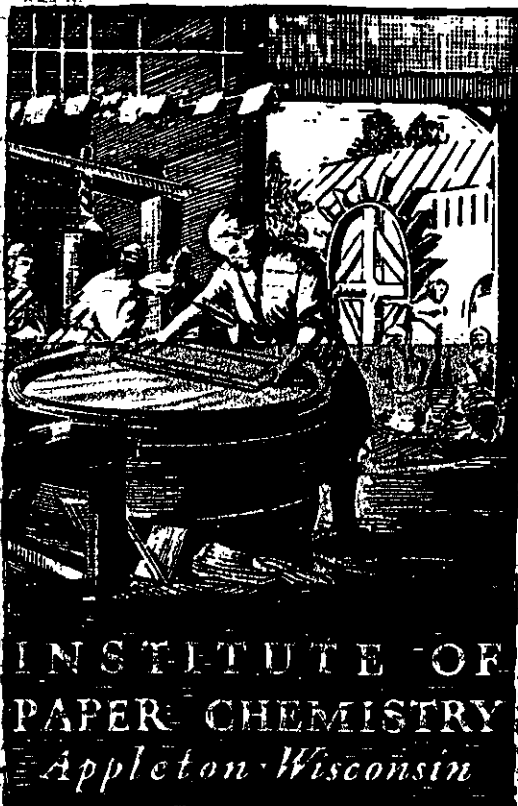


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CONTINUOUS BASELINE STUDY

✓ Project 1108-B

Progress Report 58

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

May 1, 1952

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

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to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

May 1, 1952

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

In conjunction with the F.K.I. Continuous Baseline Study, seventy-five different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by eleven different F.K.I. mills to The Institute of Paper Chemistry for testing during the period April 1 through April 30. In addition to the 42-lb. kraft linerboard, seven 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	8
B	15
C	6
D	7
E	0
F	6
G	6
H	1
I	4
J	6
K	0
L	9
M	<u>2</u>
	75

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 April 1 through April 30. 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 42.7 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 99.1. This signifies that the current average basis weight is lower than the cumulative average, which in this case covered the period from July 25, 1947, through March 31, 1952.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills except Mills C and G conform to the 42-lb. specification set forth in Rule 41. Mill F has the highest average basis weight, it being 44.1 lb. or approximately 5.0% higher than the 42-lb. specification. On the other hand, Mills C and G have the lowest average basis weight, it being 41.9 lb., 0.2% 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	+2.4
B	+2.6
C	-0.2
D	+3.8
E	—
F	+5.0
G	-0.2
H	+1.7
I	+1.0
J	+0.2
K	—
L	+1.7
M	+0.7

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 decreased slightly.

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 H to a high of 14.0 for Mill F, the average being 13.3 which is somewhat lower than the cumulative average of 14.1.

The average bursting strength values obtained for each mill are presented graphically in Figure 3. It may be observed that the average bursting strength values for the various mills range from a low

of 104 for Mills F, H, and M to a high of 113 for Mill J. The current F.K.I. average bursting strength is 108, 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 35 units. Mill F has the highest G. E. puncture average, 40 units, and Mills I and J have the lowest average, 31 units. The current F.K.I. average for G. E. puncture of 35 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 M has the highest average machine direction tear value and Mill I the lowest. Mill F has the highest average cross-machine direction tear value, whereas Mill J 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	8a		
B	15a		
C	6		
D	6	1	
E ^b	7		

(Continued on next page.)

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
F	6		
G	6		
H	1 ^a		
I	4 ^a		
J		2	4 ^d
L			9 ^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--APRIL 1 THROUGH APRIL 30, 1952

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	43.0	13.0	111	34	324	380
B	43.1	13.9	108	32	336	376
C	41.9	13.7	108	36	343	388
D	43.6	13.8	110	38	379	413
E	No samples submitted.					
F	44.1	14.0	104	40	385	424
G	41.9	12.8	110	34	323	374
H	42.7	12.2	104	34	352	370
I	42.4	12.9	110	31	321	376
J	42.1	13.4	113	31	335	357
K	No samples submitted.					
L	42.7	13.1	108	35	330	361
M	42.3	13.4	104	36	397	379
Current FKI Average:	42.7	13.3	108	35	348	382
Cumulative FKI Average:	43.1	14.1	106	36	375	408
FKI Index, %	99.1	94.3	101.9	97.2	92.8	93.6

Figure 1

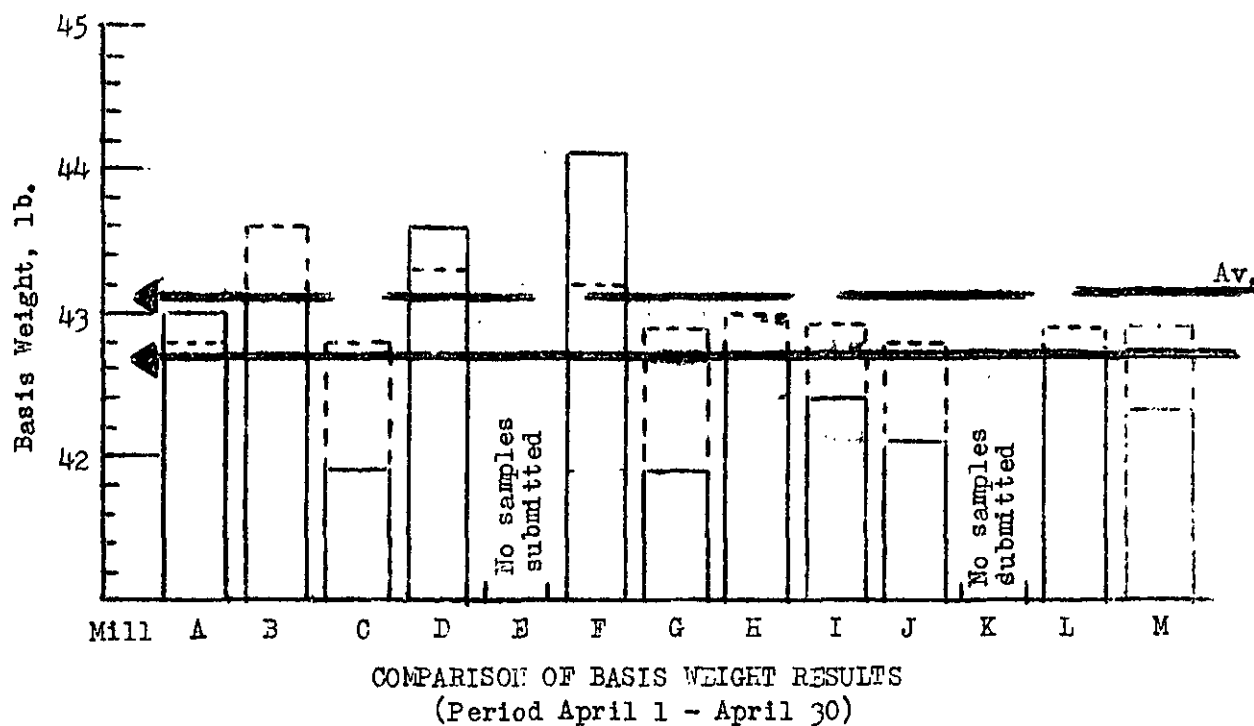


Figure 2

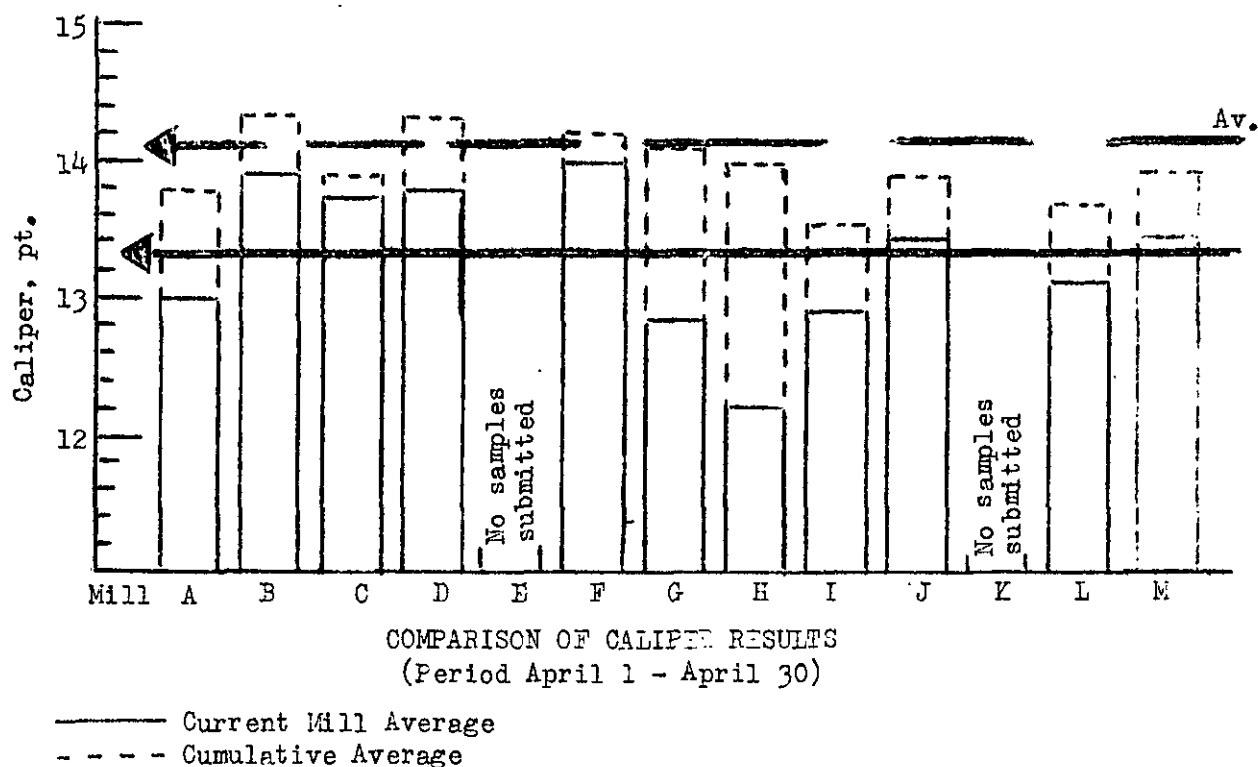


Figure 1

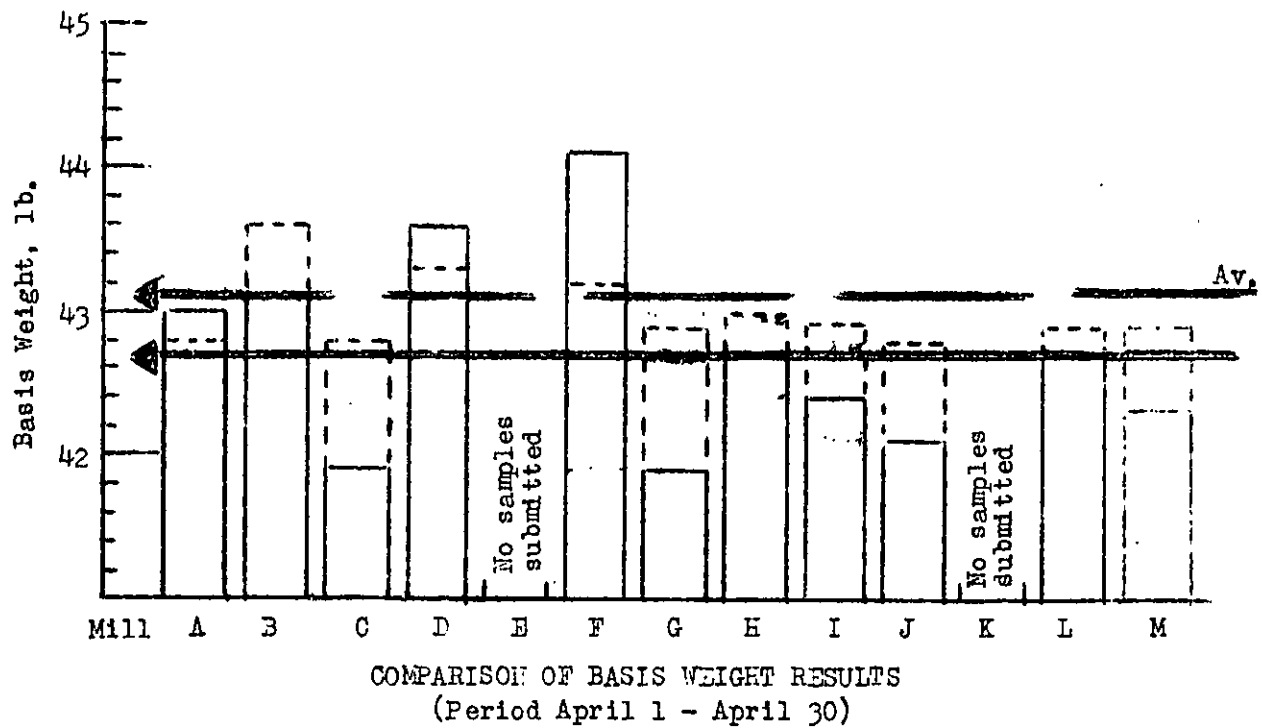


Figure 2

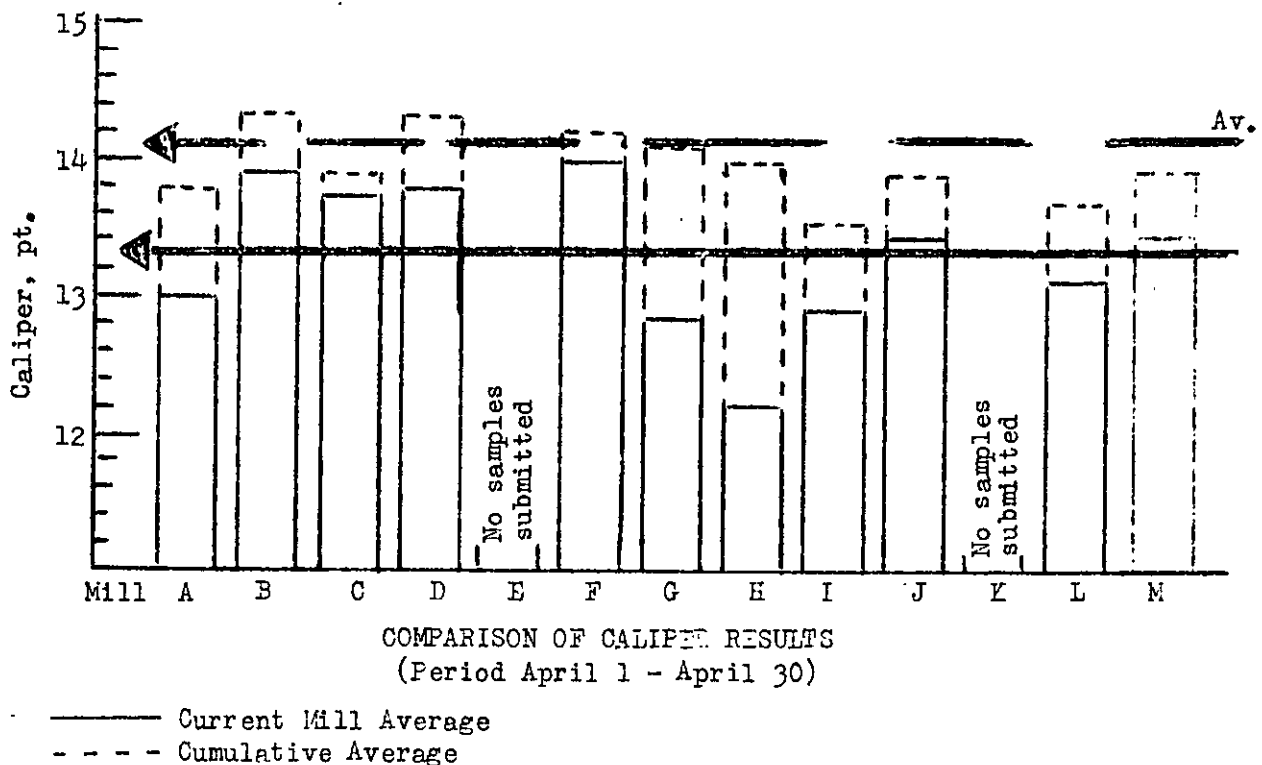


Figure 3

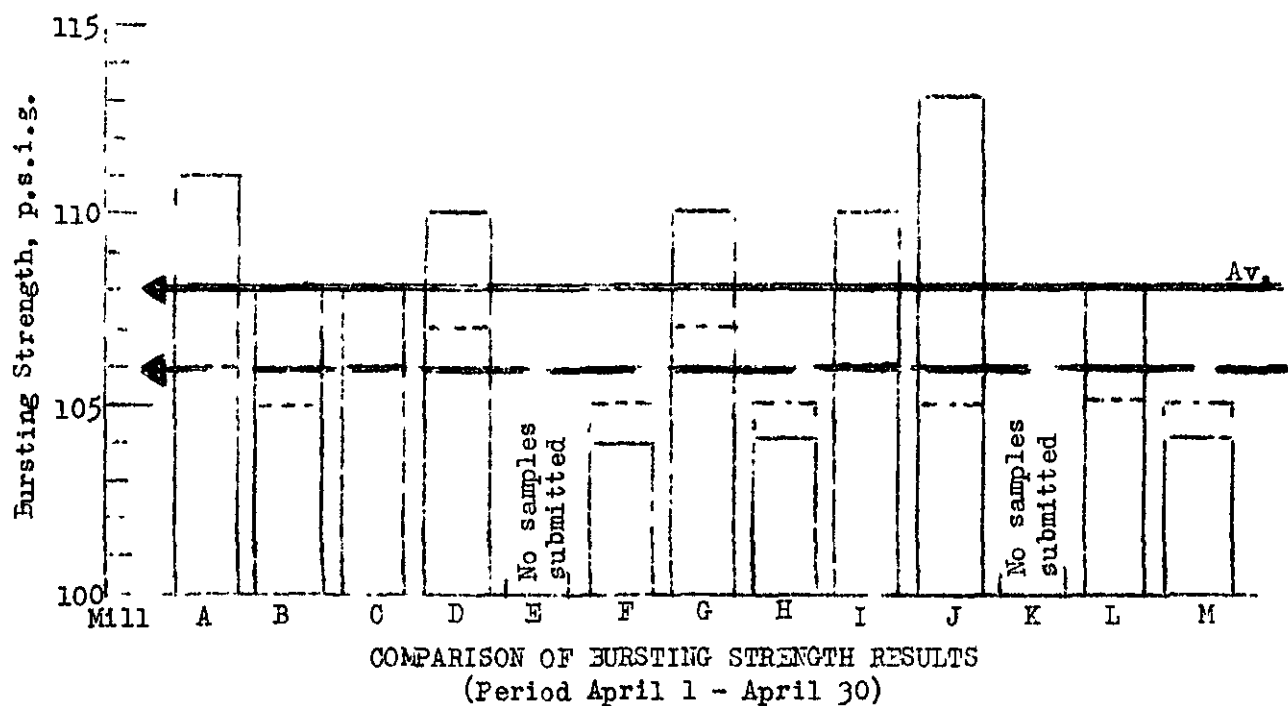


Figure 4

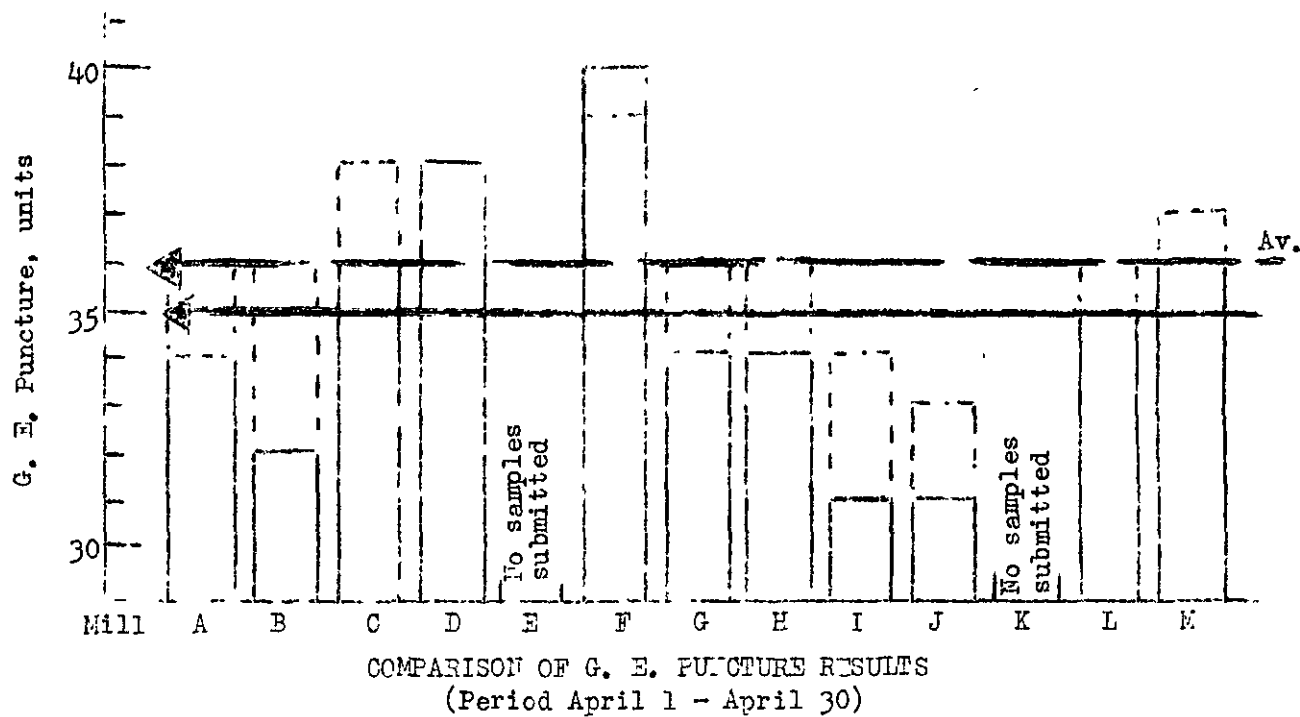


Figure 5

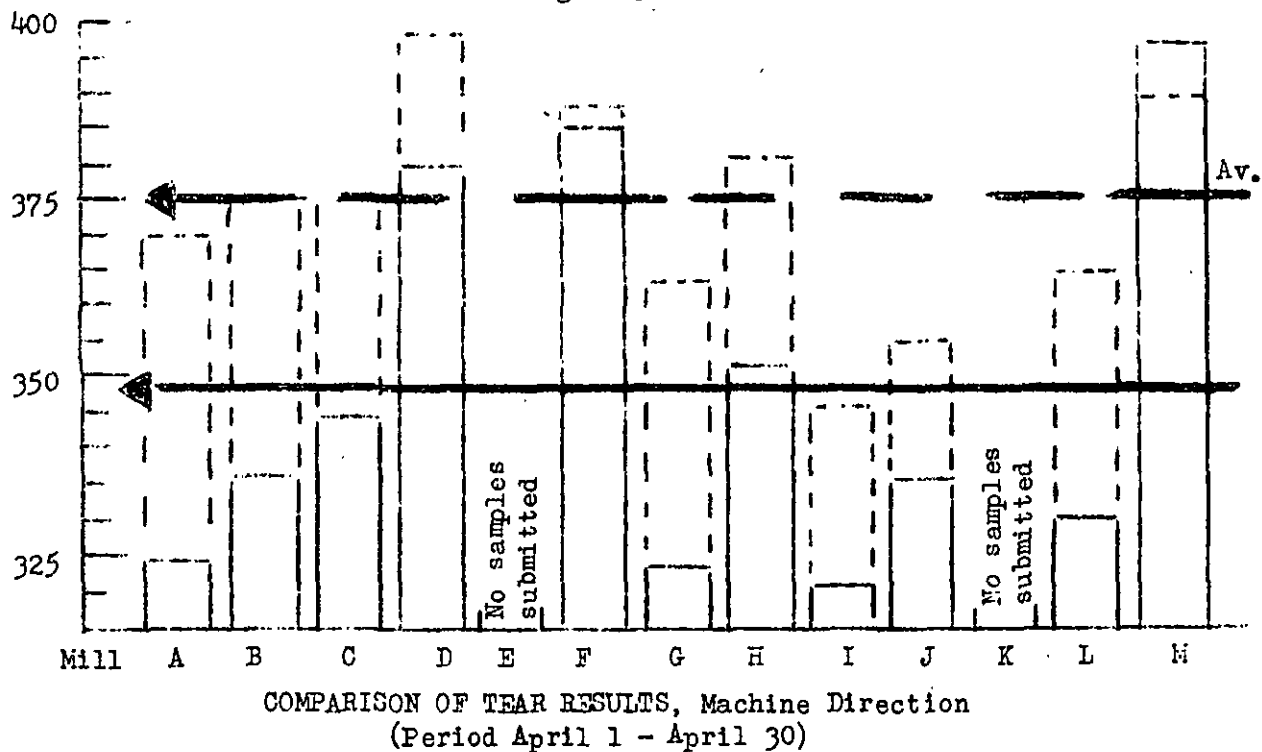


Figure 6

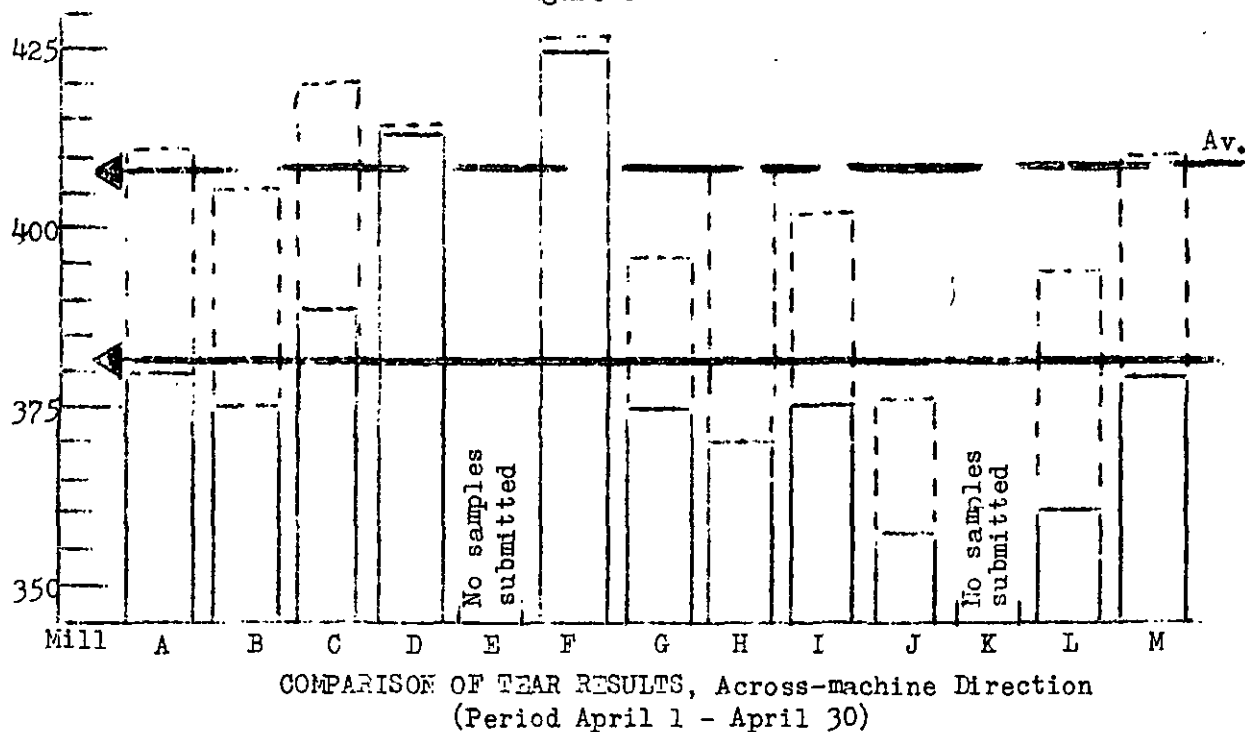


TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952

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.	Max.	Min.
Mill A--42-lb. Linerboard															
150380	A-332	WF1S	4/ 3/52	3/23/52	1	43.6	41.6	42.3	13.2	12.1	12.7	138	83	38	30
150381	A-333	WF1S	4/ 3/52	3/23/52	2	44.4	42.0	43.4	13.1	12.3	12.7	134	91	41	32
150469	A-334	WF1S	4/10/52	3/30/52	2	43.6	41.8	42.6	13.0	12.2	12.6	130	78	34	29
150470	A-335	WF1S	4/10/52	3/30/52	1	43.6	42.6	43.2	13.0	12.1	12.6	129	72	33	28
150558	A-336	WF1S	4/16/52	4/ 6/52	1	43.0	41.6	42.2	13.9	12.4	13.2	134	92	37	31
150559	A-337	WF1S	4/16/52	4/ 6/52	2	43.6	41.6	43.1	13.5	12.4	13.1	136	88	40	32
150622	A-338	WF1S	4/23/52	4/14/52	1	44.2	43.4	44.0	14.2	13.4	13.8	119	84	38	31
150623	A-339	WF1S	4/23/52	4/16/52	2	44.2	42.8	43.7	13.1	12.4	12.8	134	88	34	29
Current Mill Average:						43.0		13.0		13.0		111			
Cumulative Mill Average:						42.8		13.8		13.8		106			
Mill Factor, %:						100.5		94.2		94.2		104.7			
Mill Index, %:						99.8		92.2		92.2		104.7			

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

TABLE IV

Y OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		G. E. Puncture, units		In		Elmendorf Tear, g./sheet		Across					
Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
Mill B--42-lb. Linerboard																	
43.8	42.0	42.9	14.4	13.4	14.0	125	74	104	35	31	33	400	296	361 ^a	432	360	400 ^a
43.6	41.6	42.7	14.5	13.0	13.8	126	86	105	37	30	34	416	304	351 ^a	456	360	406 ^a
45.0	42.0	43.4	14.7	13.3	14.1	134	76	109	37	28	33	416	296	349 ^a	512	400	434 ^a
43.8	42.0	42.8	14.6	13.0	13.9	127	82	104	35	30	32	384	280	330 ^a	408	336	369 ^a
44.2	41.8	42.9	14.3	13.0	13.6	123	91	108	33	27	30	336	272	312	392	344	366 ^a
43.8	42.0	42.6	14.4	13.1	13.7	123	85	106	35	28	31	368	256	317 ^a	416	344	369 ^a
44.0	41.8	42.8	14.7	13.1	13.8	118	94	105	34	28	31	368	224	305	512	320	371 ^a
44.4	42.0	42.8	14.6	13.0	13.8	125	90	107	34	27	31	344	264	308 ^a	424	328	365 ^a
44.8	42.0	43.2	14.7	13.0	13.9	132	90	108	35	27	31	368	280	331 ^a	448	336	370 ^a
43.6	42.0	42.6	14.5	13.0	13.6	133	83	105	33	28	31	408	288	337 ^a	424	328	362 ^a
44.0	42.0	42.8	14.2	13.0	13.7	129	83	107	34	27	31	344	288	318	400	320	361 ^a
44.6	42.6	43.8	14.7	13.4	14.0	135	85	112	38	30	33	416	288	357 ^a	448	368	395 ^a
44.4	42.4	43.6	14.7	13.1	13.9	139	95	111	34	30	32	368	288	329 ^a	432	336	380 ^a
45.0	42.4	43.7	14.4	13.3	13.9	140	72	109	38	30	34	432	352	388 ^a	392	280	317 ^a
46.0	42.8	44.0	15.0	13.4	14.2	127	89	112	36	31	34	384	264	349 ^a	424	344	373 ^a
		43.1			13.9			108		32				336			376
		43.6			14.3			105		36				374			405
		98.9			97.2			102.9		88.9				89.8			92.8
		100.0			98.6			101.9		88.9				89.6			92.2

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

TABLE IV

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (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.	Av.	Max.	Min.	Av.
Mill B--42-lb. Linerboard																	
150365	B-568	WF1S	4/ 1/52	3/18/52	1	43.8	42.0	42.9	14.4	13.4	14.0	125	74	104	35	31	33
150366	B-569	WF1S	4/ 1/52	3/18/52	1	43.6	41.6	42.7	14.5	13.0	13.8	126	86	105	37	30	34
150367	B-570	WF1S	4/ 1/52	3/18/52	1	45.0	42.0	43.4	14.7	13.3	14.1	134	76	109	37	28	33
150411	B-571	WF1S	4/ 7/52	3/29/52	1	43.8	42.0	42.8	14.6	13.0	13.9	127	82	104	35	30	32
150412	B-572	WF1S	4/ 7/52	3/29/52	1	44.2	41.8	42.9	14.3	13.0	13.6	123	91	108	33	27	30
150413	B-573	WF1S	4/ 7/52	3/29/52	1	43.8	42.0	42.6	14.4	13.1	13.7	123	85	106	35	28	31
150414	B-574	WF1S	4/ 7/52	3/29/52	1	44.0	41.8	42.8	14.7	13.1	13.8	118	94	105	34	28	31
150471	B-575	WF1S	4/10/52	3/30/52	1	44.4	42.0	42.8	14.6	13.0	13.8	125	90	107	34	27	31
150472	B-576	WF1S	4/10/52	3/30/52	1	44.8	42.0	43.2	14.7	13.0	13.9	132	90	108	35	27	31
150485	B-577	WF1S	4/11/52	3/30/52	1	43.6	42.0	42.6	14.5	13.0	13.6	133	83	105	33	28	31
150486	B-578	WF1S	4/11/52	3/30/52	1	44.0	42.0	42.8	14.2	13.0	13.7	129	83	107	34	27	31
150598	B-579	WF1S	4/22/52	4/ 8/52	1	44.6	42.6	43.8	14.7	13.4	14.0	135	85	112	38	30	33
150599	B-580	WF1S	4/22/52	4/ 8/52	1	44.4	42.4	43.6	14.7	13.1	13.9	139	95	111	34	30	32
150600	B-581	WF1S	4/22/52	4/ 8/52	1	45.0	42.4	43.7	14.4	13.3	13.9	140	72	109	38	30	34
150601	B-582	WF1S	4/22/52	4/ 8/52	1	46.0	42.8	44.0	15.0	13.4	14.2	127	89	112	36	31	34
Current Mill Average:								43.1			13.9	-		108			32
Cumulative Mill Average:								43.6			14.3			105			36
Mill Factor, %								98.9			97.2			102.9			88.9
Mill Index, %								100.0			98.6			101.9			88.9

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

TABLE V

Y OF INDIVIDUAL TEST CTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

h.	Basis Weight,		Caliper,		Bursting		G. E.		Elmendorf Tear,		g /sheet							
	lb.	points	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.						
p.	Max.	Min.	Av.	Av.	p.s.i.	gauge	Max.	Min.	Av.	Max.	Min.	Av.						
	Max.	Min.	Av.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.						
Mill C--42-lb. Linerboard																		
	42.6	41.6	42.0	14.7	13.2	13.9	132	85	109	38	32	35	368	304	339	464	352	397 ^a
	43.4	40.6	42.1	14.5	13.8	14.1	134	82	110	40	32	37	392	304	355	415	368	399 ^a
	42.4	41.4	42.0	14.0	12.8	13.6	138	87	111	36	33	34	376	320	342 ^a	416	368	335 ^a
	42.6	40.4	41.4	13.9	12.9	13.3	122	75	100	37	33	35	360	296	329	424	336	369 ^a
	42.8	41.4	42.0	14.1	12.6	13.7	132	80	111	39	34	37	384	320	346	424	336	382 ^a
	42.4	41.2	41.8	14.2	13.2	13.9	137	77	108	38	33	35	400	304	346	432	360	395 ^a
			41.9			13.7		108		36					343			388
			42.8			13.9		106		38					374			420
			37.9			98.6		101.9		94.7					91.7			92.4
			97.2			97.2		101.9		100.0					91.5			95.1

TABLE VI

Mill D--42-lb. Linerboard																	
45.0	42.2	43.9	15.1	13.8	14.5	127	78	107	43	36	40	424	352	385 ^a	536	376	435 ^a
45.6	43.6	44.5	14.8	13.5	14.0	118	86	103	43	36	40	448	376	419 ^a	480	368	415 ^a
44.2	42.8	43.6	15.0	13.0	13.7	130	80	107	42	35	39	424	312	378 ^a	512	360	404 ^a
44.0	42.0	43.0	14.0	12.4	13.4	136	93	113	42	35	37	400	312	353 ^a	455	384	412 ^a
44.0	42.0	43.2	13.8	12.5	13.1	135	96	118	39	33	36	400	320	357 ^a	480	352	416 ^a
44.4	42.0	45.1	14.8	13.3	14.1	131	78	108	43	37	39	448	296	357 ^a	464	328	399 ^a
46.0	42.6	44.2	14.9	12.7	13.8	138	79	114	42	32	37	448	360	403 ^a	496	344	407 ^a
		45.6		13.8				110		38				379			413
		43.3		14.3				107		38				399			414
		100.7		96.5				102.8						95.0			99.8
		101.2		97.5				105.6						101.2			101.2

TABLE V

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

File No.	Mill Code	Fin- ish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength		G. E. Puncture, units					
						Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.			
Mill C--42-lb. Linerboard																	
140370	C-362	W.F.	4/ 1/52	3/26/52	1	42.6	41.6	42.0	14.7	13.2	13.9	132	85	109	38	32	35
150529	C-363	W.F.	4/14/52	4/ 2/52	1	43.4	40.6	42.1	14.5	13.8	14.1	134	82	110	40	32	37
150579	C-364	W.F.	4/19/52	4/ 8/52	1	42.4	41.4	42.0	14.0	12.8	13.6	138	87	111	36	33	34
150580	C-365	W.F.	4/19/52	4/10/52	1	42.6	40.4	41.4	13.9	12.9	13.3	122	75	100	37	33	35
150581	C-366	W.F.	4/19/52	4/11/52	1	42.8	41.4	42.0	14.1	12.6	13.7	132	80	111	39	34	37
150591	C-367	W.F.	4/21/52	4/14/52	1	42.4	41.2	41.8	14.2	13.2	13.9	137	77	108	38	33	35
Current Mill Average:							41.9		13.7				108		36		
Cumulative Mill Average:							42.8		13.9				106		38		
Mill Factor, %:							97.9		98.6				101.9		94.7		
Mill Index, %:							97.2		97.2				101.9		100.0		

TABLE VI

Mill D--42-lb. Linerboard													
150555	D-521	W.F.	4/16/52	4/14/52	4	45.0	42.2	43.9	15.1	13.8	14.5	127	78
150566	D-522	W.F.	4/17/52	4/15/52	4	45.6	43.6	44.5	14.8	13.5	14.0	118	86
150571	D-523	W.F.	4/18/52	4/16/52	4	44.2	42.8	43.6	15.0	13.0	13.7	130	80
150620	D-524	W.F.	4/23/52	4/17/52	4	44.0	42.0	43.0	14.0	12.4	13.4	136	93
150621	D-525	W.F.	4/23/52	4/18/52	4	44.0	42.0	43.2	13.8	12.5	13.1	135	96
150644	D-526	D.F.	4/24/52	4/22/52	4	44.4	42.0	43.1	14.8	13.3	14.1	131	78
150658	D-527	W.F.	4/26/52	4/23/52	4	46.0	42.6	44.2	14.9	12.7	13.8	138	79
Current Mill Average:						43.6		13.8				110	
Cumulative Mill Average:						43.3		14.3				107	
Mill Factor, %:						100.7		96.5				102.8	
Mill Index, %:						101.2		97.5				103.5	

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

TABLE VII

INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

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

Mill E--42-lb. Linerboard

Mill E--42-lb. Linerboard

No samples submitted

TABLE VIII

Mill F--42-lb. Linerboard

42.2	43.8	13.7	12.4	13.1	133	95	116	40	34	36	400	304	347 ^a	432	352	407 ^a
43.6	44.0	13.6	12.7	13.1	118	92	109	44	39	42	384	312	357	480	400	439 ^a
44.0	45.1	15.0	13.4	14.3	123	--	102	48	40	43	432	360	405 ^a	512	368	423 ^a
42.2	43.8	15.1	13.7	14.2	136	77	95	44	35	39	480	368	424 ^a	464	368	419 ^a
42.0	43.4	15.1	13.1	14.3	117	75	102	44	36	40	416	336	383 ^a	488	368	417 ^a
43.4	44.4	15.9	13.3	14.9	111	92	102	50	38	42	448	336	394 ^a	488	384	439 ^a
44.1			14.0				104			40			385			424
43.2			14.2				105			39			388			427
102.1			98.6				99.0			102.6			99.2			99.3
102.3			99.3				98.1			111.1			102.7			103.9

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

TABLE VII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (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.
Mill E--42-lb. Linerboard												

No samples submitted

TABLE VIII

Mill F--42-lb. Linerboard

150415	F-22	W.F.	4/ 7/52	3/20/52	--	45.0	42.2	43.8	13.7	12.4	13.1	133	95	116	40	34	36
150416	F-23	W.F.	4/ 7/52	3/21/52	--	45.2	43.6	44.0	13.6	12.7	13.1	118	92	109	44	39	42
150531	F-24	W.F.	4/14/52	4/ 1/52	--	46.8	44.0	45.1	15.0	13.4	14.3	123	--	102	48	40	43
150594	F-25	W.F.	4/21/52	4/ 2/52	--	45.0	42.2	43.8	15.1	13.7	14.2	136	77	95	44	35	39
150595	F-26	W.F.	4/21/52	4/ 9/52	--	44.0	42.0	43.4	15.1	13.1	14.3	117	75	102	44	36	40
150596	F-27	W.F.	4/21/52	4/11/52	--	46.0	43.4	44.4	15.9	13.3	14.9	111	92	102	50	38	42
Current Mill Average:						44.1		44.1		14.0		104		104		40	
Cumulative Mill Average:						43.2		43.2		14.2		105		105		39	
Mill Factor, %:						102.1		102.1		98.6		99.0		99.0		102.6	
Mill Index, %:						102.3		102.3		99.3		98.1		98.1		111.1	

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

TABLE IX

MMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Basis 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>Mill G--42-lb. Linerboard</u>																	
43.6	41.8	42.4	13.1	11.9	12.5	133	90	112	38	32	34	368	288	323	416	360	391 ^a
42.4	40.6	41.4	13.4	11.9	12.6	127	87	107	35	31	33	368	280	327	400	352	373 ^a
43.2	41.8	42.2	14.4	12.4	13.3	130	84	110	38	32	34	360	272	318 ^a	408	320	369 ^a
42.6	41.6	42.1	14.0	12.0	12.6	131	95	114	36	30	33	368	288	325	416	336	373 ^a
42.4	40.8	41.8	13.5	11.5	12.6	129	91	110	38	30	34	360	256	320 ^a	400	320	357 ^a
42.0	40.4	41.4	14.9	11.5	13.2	119	91	107	36	31	33	368	280	325	400	352	379 ^a
41.9				12.8				110		34				323		374	
42.9				14.1				107		36				363		396	
97.7				90.8				102.8		94.4				89.0		94.4	
97.2				90.8				103.8		94.4				86.1		91.7	

TABLE X

<u>Mill H--42-lb. Linerboard</u>																	
43.4	41.8	42.7	12.8	11.8	12.2	123	89	104	37	30	34	432	288	352 ^a	424	336	370 ^a
42.7					12.2			104			34			352			370
43.0					14.0			105			36			382			408
99.3					87.1			99.0			94.4			92.1			90.7
99.1					86.5			98.1			94.4			93.9			90.7

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

TABLE IX

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (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.

Mill G--42-lb. Linerboard

150408	G-408	WFL	4/ 7/52	3/31/52	1	43.6	41.8	42.4	13.1	11.9	12.5	133	90	112	38	32	34
150409	G-409	WFL	4/ 7/52	3/31/52	1	42.4	40.6	41.4	13.4	11.9	12.6	127	87	107	35	31	33
150564	G-410	WFL	4/17/52	4/11/52	1	43.2	41.8	42.2	14.4	12.4	13.3	130	84	110	38	32	34
150565	G-411	WFL	4/17/52	4/11/52	1	42.6	41.6	42.1	14.0	12.0	12.6	131	95	114	36	30	33
150583	G-412	WFL	4/19/52	4/16/52	1	42.4	40.8	41.8	13.5	11.5	12.6	129	91	110	38	30	34
150584	G-413	WFL	4/19/52	4/16/52	1	42.0	40.4	41.4	14.9	11.5	13.2	119	91	107	36	31	33

Current Mill Average:

41.9 12.8 110 34

Cumulative Mill Average:

42.9 14.1 107 36

Mill Factor, %:

97.7 90.8 102.8 94.4

Mill Index, %:

97.2 90.8 103.8 94.4

TABLE X

Mill H--42-lb. Linerboard

150532	H-319	WFLS	4/14/52	2/ 4/52	2	43	4	41.8	42.7	12.8	11.8	12	2	123	89	104	37	30	34
Current Mill Average:									42.7			12.2				104			34
Cumulative Mill Average:									43.0			14.0				105			36
Mill Factor, %:									99.3			87.1				99.0			94.4
Mill Index, %:									99.1			86.5				98.1			94.4

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

TABLE XI

DIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Weight, 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.				
Mall I--42-lb. Linerboard																
))))	42.3	13.8	12.5	13.4	124	90	112	34	30	32	368	288	324	448	352	383 ^a
	42.4	13.1	12.1	12.5	143	84	115	35	28	31	368	240	313 ^a	400	352	372 ^a
	42.1	13.2	12.0	12.6	128	96	111	32	28	30	368	256	317	456	328	379 ^a
	42.1	13.8	12.3	13.0	118	84	104	34	29	31	376	296	329 ^a	416	344	371 ^a
	42.4			12.9			110			31			321			376
	42.9			13.5			106			34			346			402
	98.8			95.6			103.8			91.2			92.8			93.5
	98.4			91.5			103.8			86.1			85.6			92.2

TABLE XII

Mall J--42-lb. Linerboard

41.9	13.5	13.5	12.5	13.0	126	88	108	33	28	31	352	296	323 ^a	400	328	364 ^a
41.5	13.6	12.2	12.9	131	92	110	32	28	30	384	280	327 ^a	360	280	329 ^a	329 ^a
42.6	15.0	14.0	14.4	128	102	114	34	30	32	424	280	339 ^a	400	272	353 ^a	353 ^a
42.6	15.2	13.7	14.4	128	87	108	37	31	33	424	312	343 ^a	408	336	376 ^a	376 ^a
42.2	13.6	12.4	12.9	136	95	120	32	27	30	360	264	338 ^a	400	336	359 ^a	359 ^a
42.0	13.4	12.2	13.0	131	85	115	33	28	30	384	304	339 ^a	432	320	363 ^a	363 ^a
42.1		13.4				113			31			335			357	357
42.8		13.9				105			33			355			376	376
98.4		96.4				107.6			93.9			94.4			94.9	94.9
97.7		95.0				106.6			86.1			89.3			87.5	87.5

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

TABLE XI

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (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.	Av.			
Mill I--42-lb. Linerboard																	
150530	I-229	WF1S	4/14/52	4/ 9/52	1	43.6	42.0	42.3	13.8	12.5	13.4	124	90	112	34	30	32
150590	I-230	WF1S	4/21/52	4/16/52	1	43.8	41.0	42.4	13.1	12.1	12.5	143	84	115	35	28	31
150602	I-231	WF1S	4/22/52	4/18/52	1	42.4	41.8	42.1	13.2	12.0	12.6	128	96	111	32	28	30
150645	I-232	WF1S	4/24/52	4/21/52	1	43.4	41.0	42.1	13.8	12.3	13.0	118	84	104	34	29	31
Current Mill Average:						42.4		42.9		12.9		110		31			
Cumulative Mill Average:						42.9		42.9		13.5		106		34			
Mill Factor, %:						98.8		98.8		95.6		103.8		91.2			
Mill Index, %:						98.4		98.4		91.5		103.8		86.1			

TABLE XII

Mill J--42-lb. Linerboard

150417	J-345	B.F.	4/ 7/52	3/28/52	1	42.2	41.4	41.9	13.5	12.5	13.0	126	88	33	28	31
150418	J-346	B.F.	4/ 7/52	3/28/52	1	42.2	41.0	41.5	13.6	12.2	12.9	131	92	32	28	30
150501	J-347	D.F.	4/12/52	4/ 4/52	1	43.8	41.8	42.6	15.0	14.0	14.4	128	102	34	30	32
150502	J-348	D.F.	4/12/52	4/ 4/52	1	43.6	39.8	42.6	15.2	13.7	14.4	128	87	37	31	33
150592	J-349	B.F.	4/21/52	4/11/52	1	43.4	41.4	42.2	13.6	12.4	12.9	136	95	32	27	30
150593	J-350	B.F.	4/21/52	4/11/52	1	43.0	41.2	42.0	13.4	12.2	13.0	131	85	33	28	30
Current Mill Average:						42.1		42.1		13.4		113				31
Cumulative Mill Average:						42.8		42.8		13.9		105				33
Mill Factor, %:						98.4		98.4		96.4		107.6				93.9
Mill Index, %:						97.7		97.7		95.0		106.6				86.1

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

TABLE XIII

INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

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

Mill K--42-lb. Linerboard

No samples submitted.

TABLE XIV

Mill L--42-lb. Linerboard

2	43.4	14.2	12.2	13.5	122	84	102	38	34	36	400	304	345 ^a	432	344	381 ^a
6	42.5	14.0	11.2	12.6	129	87	109	38	33	36	344	280	324 ^a	408	336	369 ^a
8	42.2	14.4	12.0	13.3	124	77	101	36	32	34	360	280	319 ^a	400	304	347 ^a
4	43.3	14.1	12.0	13.0	127	74	105	38	32	35	360	304	337 ^a	408	320	357 ^a
6	42.5	13.7	11.8	13.0	140	94	113	38	32	35	376	288	337 ^a	432	312	367 ^a
6	42.4	14.0	11.8	13.0	130	87	111	36	32	34	352	280	320 ^a	392	312	353 ^a
8	43.2	14.3	12.3	13.3	141	85	108	36	32	34	384	304	331	384	336	362 ^a
4	42.4	13.5	11.4	12.6	132	88	112	37	32	34	368	288	333 ^a	400	320	366 ^a
8	42.5	14.0	12.4	13.3	133	78	114	36	30	34	352	272	327 ^a	368	328	351 ^a
	42.7		13.1				108		35				330			361
	42.9		13.7				105		36				364			393
	99.5		95.6				102.9		97.2				90.7			91.9
	99.1		92.9				101.9		97.2				88.0			88.5

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

TABLE XIII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

File No.	Mill Code	Fin- ish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points	G. E. Puncture, units
						Max.	Min.		
Mill K--42-lb. Linerboard									

No samples submitted.

TABLE XIV

Mill L--42-lb. Linerboard

150386	L-67	4/4/52	2/2/52	1	44.4	42.2	43.4	14.2	12.2	13.5	122	84	102	38	34	36	40
150387	L-68	4/4/52	2/4/52	1	43.8	41.6	42.5	14.0	11.2	12.6	129	87	109	38	33	36	34
150388	L-69	4/4/52	2/17/52	1	42.8	41.8	42.2	14.4	12.0	13.3	124	77	101	36	32	34	36
150389	L-70	4/4/52	2/17/52	1	44.2	42.4	43.3	14.1	12.0	13.0	127	74	105	38	32	35	37
150390	L-71	4/4/52	2/22/52	1	43.4	41.6	42.5	13.7	11.8	13.0	140	94	113	38	32	35	37
150391	L-72	4/4/52	2/25/52	1	43.2	41.6	42.4	14.0	11.8	13.0	130	87	111	36	32	34	35
150397	L-73	4/15/52	3/4/52	1	44.4	41.8	43.2	14.3	12.3	13.3	141	85	108	36	32	34	38
150538	L-74	4/15/52	3/8/52	1	43.8	41.4	42.4	13.5	11.4	12.6	132	88	112	37	32	34	36
150539	L-75	4/15/52	3/9/52	1	43.4	41.8	42.5	14.0	12.4	13.3	133	78	114	36	30	34	35

Current Mill Average:

42.7

13.1

108

Cumulative Mill Average:

42.9

13.7

105

Mill Factor, %:

95.6

102.9

Mill Index, %:

92.9

101.9

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

TABLE XV

INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

sis Weight, lb.	Caliper, points		Bursting Strength, p.s.i.gage		G. E. Puncture, units		Elmendorf Tear, g./sheet			
Min.	Av.	Max.	Min.	Av.	Max.	Min.	In	Av.	Max.	Across
Mill M--42-lb. Linerboard										
41.2	42.9	14.3	13.4	13.8	120	83	99	40	33	37
40.4	41.7	13.8	12.5	13.1	118	83	104	38	33	36
40.4	42.1	13.9	13.0	13.4	123	71	104	39	34	36
40.2	41.9	13.5	12.5	13.1	123	82	105	38	30	34
42.0	42.7	14.0	13.0	13.5	118	80	106	37	33	35
41.4	42.8	14.2	12.9	13.6	117	75	100	41	32	36
40.8	41.9	14.0	13.0	13.5	128	92	109	40	35	37
42.3			13.4				104			36
42.9			13.9				105			37
98.6			96.4				99.0			97.3
98.1			95.0				98.1			103.0
										102.3
										105.9
										92.4
										92.9
										379
										410
										385
										391 ^a
										378 ^a
										372 ^a
										373 ^a
										360 ^a
										387 ^a
										394 ^a
										352
										336
										432
										400
										400
										432
										392
										440
										336
										352
										432
										397
										388
										102.3
										105.9
										92.4
										92.9

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

TABLE XV

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

File No.	Milp 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.	Max.	Min.	Max.	Min.	Max.	Min.				
Mill M--42-lb. Linerboard																	
150368	M-81	W.	4/ 1/52	3/25/52	4	44.6	41.2	42.9	14.3	13.4	13.8	120	83	99	40	33	37
150369	M-82	W.	4/ 1/52	3/26/52	4	43.0	40.4	41.7	13.8	12.5	13.1	118	83	104	38	33	36
150466	M-83	W.	4/10/52	4/ 1/52	4	43.6	40.4	42.1	13.9	13.0	13.4	123	71	104	39	34	36
150467	M-84	W.	4/10/52	4/ 3/52	4	43.6	40.2	41.9	13.5	12.5	13.1	123	82	105	38	30	34
150582	M-85	W.	4/19/52	4/ 8/52	4	43.6	42.0	42.7	14.0	13.0	13.5	118	80	106	37	33	35
150603	M-86	W.	4/22/52	4/15/52	2	44.0	41.4	42.8	14.2	12.9	13.6	117	75	100	41	32	36
150604	M-87	W.	4/22/52	4/17/52	4	42.6	40.8	41.9	14.0	13.0	13.5	128	92	109	40	35	37
Current Mill Average:						42.3		13.4		104		36					
Cumulative Mill Average:						42.9		13.9		105		37					
Mill Factor, %:						98.6		96.4		99.0		97.3					
Mill Index, %:						98.1		95.0		98.1		100.0					

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

TABLE XVI

OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Basis 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.	Max.	Min.	Av.						
Mill E-44/46-lb. Drum Linerboard																	
20.0	47.6	48.6	15.5	13.0	14.7	122	90	107	44	40	42	464	376	438 ^a	480	344	411 ^a
22.0	46.0	47.2	15.7	14.1	14.7	126	76	102	44	37	40	464	360	413 ^a	424	328	380 ^a
24.0	47.4	48.0	16.0	14.5	15.3	124	72	106	40	28	36	512	384	431 ^a	400	312	354 ^a
26.6	47.4	48.0	15.8	14.3	15.0	132	95	108	39	35	37	432	368	408 ^a	384	336	375
28.2	47.0	48.0	15.6	14.7	15.1	119	80	101	42	35	38	464	384	424 ^a	416	336	365 ^a
30.2	44.6	45.7	14.6	13.2	14.0	141	94	121	39	33	36	448	360	405	440	376	414 ^a
33.8	46.4	47.7	15.0	13.4	14.1	115	95	106	37	32	35	432	368	402	432	336	375 ^a
	47.6				14.7			107			38			417			382
	47.2				14.3			100			40			446			424
	100.8				102.8			107.0			95.0			93.5			90.1

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

TABLE XVI

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (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.	Av.	Max.	Min.	Av.
Mill E--44/46-lb. Drum Linerboard																	
150382	E-322	W.F.	4/ 3/52	3/31/52	1	50.0	47.6	48.6	15.5	13.0	14.7	122	90	107	44	40	42
150410	E-323	W.F.	4/ 7/52	4/ 1/52	1	49.0	46.0	47.2	15.7	14.1	14.7	126	76	102	44	37	40
150468	E-324	W.F.	4/10/52	4/ 7/52	1	49.0	47.4	48.0	16.0	14.5	15.3	124	72	106	40	28	36
150487	E-325	W.F.	4/11/52	4/ 8/52	1	48.6	47.4	48.0	15.8	14.3	15.0	132	95	108	39	35	37
150589	E-326	W.F.	4/21/52	4/15/52	1	49.2	47.0	48.0	15.6	14.7	15.1	119	80	101	42	35	38
150642	E-327	W.F.	4/24/52	4/18/52	1	46.2	44.6	45.7	14.6	13.2	14.0	141	94	121	39	33	36
150643	E-328	W.F.	4/24/52	4/22/52	1	48.8	46.4	47.7	15.0	13.4	14.1	115	95	106	37	32	35
Current Mill Average:								47.6		14.7		107					38
Cumulative Mill Average								47.2		14.3		100					40
Mill Factor, %:								100.8		102.8		107.0					95.0

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	No preconditioning			42-64	71-80	--
B	44-61	69-76	1/2 to 3/4	50	70	48-96
C	45-49	72-77	1 to 13 days	44-49	72-76	7-8
D	30-31	77-78	8	50-53	71-74	16
E*	No preconditioning			33-64	75-92	--
F	No preconditioning			46-48	68-72	24
G	No preconditioning			50	73	24-48
H	No preconditioning			50	73	24
I	No preconditioning			33-50	74-80	--
J	No preconditioning			50	73	1/2
K	No samples submitted.					
L	No preconditioning			42-61	58-86	--
M	No preconditioning			22-49	60-82	--

* 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 Tables 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 three per cent for the preceding two periods. Further, it may be noted that the average basis weight results for Mills B, C, G, H, and J are higher than those for the Institute, whereas the results for Mills A, D, F, L, and M are lower and the result for Mill I 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 four per cent. Compared with the values for the Institute, the average

result for Mill J is the same whereas the results for Mills A, B, C, D, F, G, H, I, L and M are lower. The accord between Institute and mill caliper values is good.

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

The G. E. puncture results exhibit a maximum variation of twenty-eight per cent for the current period. Compared with the values for the Institute, the results for Mills B, C, G, H, I, and M are lower, whereas the results for Mills A and F are higher and the results for Mill J is the same. The average test value reported by Mill M appears to be abnormally small. The agreement between the Institute and mill results is good with the exception of the variation for Mill M which is especially large.

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 average results for Mills B, C, D, F, G, H, L, and M are lower. The maximum variation for the current period is sixteen per cent. The differences encountered for Mills L and M appear to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills A, C, F, H, I, and J are higher than those for the Institute whereas the average results for

Mills D, G, L, and M are lower and the average result for Mill B is the same. The maximum variation for the current period is eight per cent. None of the differences appear to be exceptionally large.

TABLE XVIII

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

	A	B	C	D	F	G	H	I	J	L	M
No. Samples Compared	8	15	6	7	6	6	1	4	6	9	7
Basis Weight											
Institute	43.0	43.1	41.9	43.6	44.1	41.9	42.7	42.4	42.1	42.7	42.3
Mill	42.7	43.2	42.0	43.4	43.8	42.0	42.9	42.4	42.3	42.1	41.4
Av. Diff.**	-0.3	+0.1	+0.1	-0.2	-0.3	+0.1	+0.2	0.0	+0.2	-0.6	-0.9
Max. Diff.***	-1.0	-0.4	+0.6	-0.4	-0.8	+0.3	+0.2	+0.3	+0.4	-1.0	-1.5
Caliper											
Institute	13.0	13.9	13.7	13.8	14.0	12.8	12.2	12.9	13.4	13.1	13.4
Mill	12.7	13.7	13.6	13.6	13.6	12.6	12.0	12.8	13.4	12.8	12.9
Av. Diff.**	-0.3	-0.2	-0.1	-0.2	-0.4	-0.2	-0.2	-0.1	0.0	-0.3	-0.5
Max. Diff.***	-0.5	-0.7	-0.5	-0.5	-0.5	-0.4	-0.2	+0.4	+0.2	-1.1	-0.9
Bursting Strength											
Institute	111	108	108	110	104	110	104	110	113	108	104
Mill	112	104	107	109	110	108	102	112	110	106	111
Av. Diff.**	+1	-4	-1	-1	+6	-2	-2	+2	-3	-2	+7
Max. Diff.***	+7	-7	-5	-4	+9	-4	-2	+3	-5	-9	+11
G. E. Puncture											
Institute	34	32	36	38	40	34	34	31	31	35	36
Mill	35	29	34	--	41	32	32	28	31	--	26
Av. Diff.**	+1	-3	-2	--	+1	-2	-2	-3	0	--	-10
Max. Diff.***	+4	-4	-3	--	+2	-3	-2	-5	+1	--	-13
Tearing Strength, in											
Institute	324	336	343	379	385	323	352	321	335	330	397
Mill	344	311	337	357	375	297	344	338	348	277	359
Av. Diff.**	+20	-25	-6	-22	-10	-26	-8	+17	+13	-53	-38
Max. Diff.***	+51	-64	-26	-35	-33	-39	-8	+41	+28	-76	-75
Tearing Strength, across											
Institute	380	376	388	413	424	374	370	376	357	361	379
Mill	394	376	393	404	425	347	394	388	371	332	366
Av. Diff.**	+14	0	+5	-9	+1	-27	+24	+12	+14	-29	-13
Max. Diff.***	+36	+76	-22	-33	+28	-42	+24	+35	+35	-54	-59

* 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 Strength in	Strength across
Mill A						
Current period	-0.7	-2	+0.9	+3	+6	+4
57th period	-0.9	-2	-3	+6	+4	+4
56th period	-0.7	-2	-0.9	+3	+6	+5
Mill B						
Current period	+0.2	-1	-4	-9	-7	0
57th period	+0.5	-0.7	-0.9	-3	-10	-4
56th period	+1	-0.7	-5	-6	-11	-6
Mill C						
Current period	+0.2	-0.7	-0.9	-6	-2	+1
57th period	-0.2	-3	+4	-3	-1	+1
56th period	-0.2	-1	+3	-3	+1	+4
Mill D						
Current period	-0.5	-1	-0.9	--	-6	-2
57th period	0	-1	0	--	-4	-3
56th period	-0.5	-3	-2	--	-9	-6
Mill F						
Current period	-0.7	-3	+6	+2	-3	+0.2
57th period	-0.5	-4	+5	+5	0	+4
56th period	-0.7	-4	+2	-2	-8	-3
Mill G						
Current period	+0.2	-2	-2	-6	-8	-7
57th period	0	-2	+2	+9	-8	-5
56th period	0	-3	+2	-3	-10	-7
Mill H						
Current period	+0.5	-2	-2	-6	-2	+6
57th period	+2	+0.8	+2	0	-3	+4
56th period	+1	-0.8	-0.9	-3	-0.8	+3
Mill I						
Current period	0	-0.8	+2	-10	+5	+3
57th period	-0.2	-2	+6	-16	-3	+5
56th period	-0.2	-2	+0.9	-12	-2	+0.5
Mill J						
Current period	+0.5	0	-3	0	+4	+4
57th period	+0.9	+0.8	-0.9	+3	+2	+4
56th period	+0.5	-2	-2	+3	+2	+4
Mill L						
Current period	-1	-2	-2	--	-16	-8
57th period	--	--	--	--	--	--
56th period	-2	-0.7	-2	--	-19	-12
Mill M						
Current period	-2	-4	+7	-28	-10	-3
57th period	-3	-3	+9	-29	-7	-3
56th period	-3	-4	+6	-33	-9	-10

Summary of Individual Test Lots--April 1 Through April 30, 1952

TABLE XX

Institute Data versus Mill Data

Weight, lb.	Caliper, points		Diff.	Bursting Strength, p.s.i. gage		Diff.	G. E. Puncture, units		Diff.	IPC Mill Diff.		Diff.	Elmendorf Tear, g./sheet		Diff.	IPC Mill Diff.		Diff.
	IPC Mill	points		IPC	Diff.		IPC	Diff.		IPC	Diff.		IPC	Diff.		IPC	Diff.	
<u>Mill A--42-lb. Linerboard</u>																		
-0.4	12.7	12.4	-0.3	109	114	+5	33	35	+2	321 ^a	327	+6	397 ^a	390	-7	390	-7	
-0.1	12.7	12.2	-0.5	111	113	+2	36	38	+2	349 ^a	332	-17	403 ^a	407	+4	407	+4	
-0.2	12.6	12.4	-0.2	112	113	+1	32	36	+4	308	330	+22	375 ^a	383	+8	383	+8	
-0.7	12.6	12.6	0.0	109	108	-1	31	33	+2	318	369	+51	347 ^a	383	+36	383	+36	
+0.2	13.2	13.0	-0.2	115	112	-3	34	35	+1	319	353	+34	372 ^a	399	+27	399	+27	
-0.5	13.1	12.6	-0.5	112	111	-1	36	36	0	341 ^a	366	+25	389 ^a	403	+14	403	+14	
-0.2	13.8	13.7	-0.1	104	111	+7	35	37	+2	328	347	+19	388 ^a	397	+9	397	+9	
-1.0	12.8	12.5	-0.3	111	111	0	32	34	+2	311	324	+13	373 ^a	392	+19	392	+19	
-0.3	13.0	12.7	-0.3	111	112	+1	34	35	+1	324	344	+20	380	394	+14	394	+14	

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

related from the totals of the individual readings.

TABLE VI

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952

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	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.					
<u>Mill A--42-lb. Linerboard</u>																	
150380	A-332	WFIS	3/23/52	1	42.3	41.9	-0.4	12.7	12.4	-0.3	109	114	+5	33	35	+2	321 ^a
150381	A-333	WFIS	3/23/52	2	43.4	43.3	-0.1	12.7	12.2	-0.5	111	113	+2	36	38	+2	349 ^a
150469	A-334	WFIS	3/30/52	2	42.6	42.4	-0.2	12.6	12.4	-0.2	112	113	+1	32	36	+4	308
150470	A-335	WFIS	3/30/52	1	43.2	42.5	-0.7	12.6	12.6	0.0	109	108	-1	31	33	+2	318
150558	A-336	WFIS	4/ 6/52	1	42.2	42.4	+0.2	13.2	13.0	-0.2	115	112	-3	34	35	+1	319
150559	A-337	WFIS	4/ 6/52	2	43.1	42.6	-0.5	13.1	12.6	-0.5	112	111	-1	36	36	0	341 ^a
150622	A-338	WFIS	4/14/52	1	44.0	43.8	-0.2	13.8	13.7	-0.1	104	111	+7	35	37	+2	328
150623	A-339	WFIS	4/16/52	2	43.7	42.7	-1.0	12.8	12.5	-0.3	111	111	0	32	34	+2	311
Current Mill Average:					43.0	42.7	-0.3	13.0	12.7	-0.3	111	112	+1	34	35	+1	324

^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 XXI

OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Institute Data versus Mill Data

Weight, Diff.	Caliper, points		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	IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill
Mill B--42-lb. Linerboard														
-0.2	14.0	13.9	-0.1	104	105	+1	33	30	-3	361 ^a	297	-64	400 ^a	342
-0.4	13.8	13.7	-0.1	105	104	-1	34	30	-4	351 ^a	297	-54	406 ^a	369
-0.4	14.1	13.8	-0.3	109	107	-2	33	30	-3	349 ^a	306	-43	434 ^a	386
+0.3	13.9	13.7	-0.2	104	104	0	32	28	-4	330 ^a	315	-15	369 ^a	361
-0.2	13.6	13.5	-0.1	108	101	-7	30	27	-3	312	298	-14	366 ^a	375
+0.2	13.7	13.6	-0.1	106	103	-3	31	27	-4	317 ^a	309	-8	369 ^a	384
+0.2	13.8	13.8	0.0	105	102	-3	31	28	-3	305	308	+3	371 ^a	374
+0.2	13.8	13.6	-0.2	107	101	-6	31	27	-4	308 ^a	290	-18	365 ^a	353
+0.1	13.9	13.6	-0.3	108	102	-6	31	28	-3	331 ^a	281	-50	370 ^a	347
+0.3	13.6	13.6	0.0	105	105	0	31	28	-3	337 ^a	294	-43	362 ^a	352
+0.1	13.7	13.6	-0.1	107	103	-4	31	28	-3	318	300	-18	361 ^a	371
+0.2	14.0	13.6	-0.4	112	106	-6	33	31	-2	357 ^a	345	-12	395 ^a	409
+0.2	13.9	13.7	-0.2	111	104	-7	32	31	-1	329 ^a	339	+10	380 ^a	413
+0.1	13.9	13.6	-0.3	109	106	-3	34	30	-4	388 ^a	349	-39	317 ^a	393
+0.2	14.2	13.5	-0.7	112	108	-4	34	30	-4	349 ^a	338	-11	373 ^a	403
+0.1	13.9	13.7	-0.2	108	104	-4	32	29	-3	336	311	-25	376	376
														0

more specimens which tore beyond the 3/8-9inch limit.

ated from the totals of the individual readings.

TABLE XXI

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

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	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.				
Mill B--42-lb. Linerboard																
150365	B-568	WF1S	3/18/52	1	42.9	-0.2	14.0	13.9	-0.1	104	105	+1	33	30	-3	361
150366	B-569	WF1S	3/18/52	1	42.7	-0.4	13.8	13.7	-0.1	105	104	-1	34	30	-4	351
150367	B-570	WF1S	3/18/52	1	43.4	-0.4	14.1	13.8	-0.3	109	107	-2	33	30	-3	349
150411	B-571	WF1S	3/29/52	1	42.8	+0.3	13.9	13.7	-0.2	104	104	0	32	28	-4	330
150412	B-572	WF1S	3/29/52	1	42.9	-0.2	13.6	13.5	-0.1	108	101	-7	30	27	-3	312
150413	B-573	WF1S	3/29/52	1	42.6	+0.2	13.7	13.6	-0.1	106	103	-3	31	27	-4	317
150414	B-574	WF1S	3/29/52	1	42.8	+0.2	13.8	13.8	0.0	105	102	-3	31	28	-3	305
150471	B-575	WF1S	3/30/52	1	42.8	+0.2	13.8	13.6	-0.2	107	101	-6	31	27	-4	308
150472	B-576	WF1S	3/30/52	1	43.2	+0.1	13.9	13.6	-0.3	108	102	-6	31	28	-3	331
150485	B-577	WF1S	3/30/52	1	42.6	+0.3	13.6	13.6	0.0	105	105	0	31	28	-3	337
150486	B-578	WF1S	3/30/52	1	42.8	+0.1	13.7	13.6	-0.1	107	103	-4	31	28	-3	318
150598	B-579	WF1S	4/ 8/52	1	43.8	+0.2	14.0	13.6	-0.4	112	106	-6	33	31	-2	357
150599	B-580	WF1S	4/ 8/52	1	43.6	+0.2	13.9	13.7	-0.2	111	104	-7	32	31	-1	329
150600	B-581	WF1S	4/ 8/52	1	43.7	+0.1	13.9	13.6	-0.3	109	106	-3	34	30	-4	388
150601	B-582	WF1S	4/ 8/52	1	44.0	+0.2	14.2	13.5	-0.7	112	108	-4	34	30	-4	349
Current Mill Average:					43.1	+0.1	13.9	13.7	-0.2	108	104	-4	32	29	-3	336

^a This average includes the readings for one or more specimens which tore beyond the 3/8-9nch limit.

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

TABLE III
Y OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Institute Data versus Mill Data

[illegible]

TABLE XXIII

Mull D--42-lb. Linerboard													
-0.4	14.5	14.1	-0.4	107	108	+1	40	385 ^a	368	-17	435 ^a	402	-33
-0.3	14.0	13.8	-0.2	103	104	+1	40	419 ^a	384	-35	415 ^a	406	-9
+0.1	13.7	13.6	-0.1	107	110	+3	39	378 ^a	349	-29	404 ^a	398	-6
0.0	13.4	13.2	-0.2	113	110	-3	37	356 ^a	335	-21	412 ^a	405	-7
-0.4	13.1	12.8	-0.3	118	114	-4	36	357 ^a	333	-24	416 ^a	400	-16
-0.2	14.1	14.0	-0.1	108	108	0	39	357 ^a	347	-10	399 ^a	403	+4
-0.4	13.8	13.3	-0.5	114	112	-2	37	400 ^a	383	-17	407 ^a	411	+4
-0.2	13.8	13.6	-0.2	110	109	-1	38	379	357	-22	413	404	-9

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

uted from the totals of the individual readings.

TABLE XXII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

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	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	
Mill C--42-lb. Linerboard																	
150370	C-362	W.F.	3/26/52	1	42.0	42.0	0.0	13.9	13.4	-0.5	109	113	+4	35	35	0	339
150529	C-363	W.F.	4/ 2/52	1	42.1	42.7	+0.6	14.1	14.1	0.0	110	105	-5	37	37	0	355
150579	C-364	W.F.	4/ 8/52	1	42.0	42.0	0.0	13.6	13.6	0.0	111	107	-4	34	33	-1	342 ^a
150580	C-365	W.F.	4/10/52	1	41.4	41.9	+0.5	13.3	13.3	0.0	100	104	+4	35	33	-2	329
150581	C-366	W.F.	4/11/52	1	42.0	41.9	-0.1	13.7	13.5	-0.2	111	108	-3	37	34	-3	346
150591	C-367	W.F.	4/14/52	1	41.8	41.8	0.0	13.9	13.5	-0.4	108	107	-1	35	33	-2	346
Current Mill Average:					41.9	42.0	+0.1	13.7	13.6	-0.1	108	107	-1	36	34	-2	343

TABLE XXIII

Mill D--42-lb. Linerboard

150555	D-521	W.F.	4/14/52	4	43.9	43.5	-0.4	14.5	14.1	-0.4	107	108	+1		40			385 ^a	
150566	D-522	W.F.	4/15/52	4	44.5	44.2	-0.3	14.0	13.8	-0.2	103	104	+1		40			419 ^a	
150571	D-523	W.F.	4/16/52	4	43.6	43.7	+0.1	13.7	13.6	-0.1	107	110	+3		39			378 ^a	
150620	D-524	W.F.	4/17/52	4	43.0	43.0	0.0	13.4	13.2	-0.2	113	110	-3		37			356 ^a	
150621	D-525	W.F.	4/18/52	4	43.2	42.8	-0.4	13.1	12.8	-0.3	118	114	-4		36			357 ^a	
150644	D-526	D.F.	4/22/52	4	43.1	42.9	-0.2	14.1	14.0	-0.1	108	108	0		39			357 ^a	
150658	D-527	W.F.	4/23/52	4	44.2	43.8	-0.4	13.8	13.3	-0.5	114	112	-2		37			400 ^a	
Current Mill Average:					43.6	43.4	-0.2	13.8	13.6	-0.2	110	109	-1		38			379	

^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

INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952

Institute Data versus Mill Data

Caliper, points	IPC Mill Diff.	Bursting Strength,		IPC Mill Diff.	G. E. Puncture, units		IPC Mill Diff.	Elmendorf Tear, In		IPC Mill Diff.	Across	
		IPC	p.s.i. gage		IPC	units		IPC	IPC		IPC	IPC

Mill E--42-lb. Linerboard

No samples submitted.

TABLE XXV

Mill F--42-lb. Linerboard

13.1	12.6	-0.5	116	119	+3	36	38	+2	347 ^a	345	-2	407 ^a	395	-12
13.1	12.6	-0.5	109	115	+6	42	44	+2	357	371	+14	439 ^a	433	-6
14.3	14.0	-0.3	102	106	+4	43	44	+1	405 ^a	399	-6	443	443	+20
14.2	14.0	-0.2	95	104	+9	39	39	0	424 ^a	404	-20	419 ^a	447	+28
14.3	14.0	-0.3	102	107	+5	40	39	-1	383 ^a	369	-14	417 ^a	421	+4
14.9	14.5	-0.4	102	108	+6	42	42	0	394 ^a	361	-33	439 ^a	412	-27
14.0	13.6	-0.4	104	110	+6	40	41	+1	385	375	-10	424	425	+1

TABLE XXVI

Mill G--42-lb. Linerboard

12.5	12.3	-0.2	112	114	+2	34	32	-2	323	309	-14	391 ^a	361	-30
12.6	12.2	-0.4	107	108	+1	33	30	-3	327	288	-39	373 ^a	338	-35
13.3	13.0	-0.3	110	106	-4	34	33	-1	318 ^a	297	-21	369 ^a	349	-20
12.6	12.5	-0.1	114	110	-4	33	32	-1	325	303	-22	373 ^a	352	-21
12.6	12.5	-0.1	110	107	-3	34	33	-1	320 ^a	296	-24	357 ^a	343	-14
13.2	13.0	-0.2	107	106	-1	33	32	-1	325	289	-36	379 ^a	337	-42
12.8	12.6	-0.2	110	108	-2	34	32	-2	323	297	-26	374	347	-27

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

from the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST RESULTS--APRIL 1 THROUGH APRIL 30, 1952

Institute Data versus Mill Data[illegible]

No samples submitted.

TABLE XXV

[illegible]

TABLE XXVI

Mill G--42-lb. Linerboard																	
150408	G-408	WFL	3/31/52	1	42.4	42.6	+0.2	12.5	12.3	-0.2	112	114	+2	34	32	-2	323
150409	G-409	WFL	3/31/52	1	41.4	41.3	-0.1	12.6	12.2	-0.4	107	108	+1	33	30	-3	327
150564	G-410	WFL	4/11/52	1	42.2	42.1	-0.1	13.3	13.0	-0.3	110	106	-4	34	33	-1	318
150565	G-411	WFL	4/11/52	1	42.1	42.2	+0.1	12.6	12.5	-0.1	114	110	-4	33	32	-1	325
150583	G-412	WFL	4/16/52	1	41.8	42.1	+0.3	12.6	12.5	-0.1	110	107	-3	34	33	-1	320
150584	G-413	WFL	4/16/52	1	41.4	41.5	+0.1	13.2	13.0	-0.2	107	106	-1	33	32	-1	325
Current Mill Average:					41.9	42.0	+0.1	12.8	12.6	-0.2	110	108	-2	34	32	-2	323

^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.

RY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Institute Data versus Mill Data

Weight, lb.	Diff.	Caliper, points	IPC	Mill	Diff.	Bursting Strength, p.s.i. gage	IPC	Mill	Diff.	G. E. Puncture, units	IPC	Mill	Diff.	In g./sheet	Across IPC	Mill	Diff.	Elmendorf Tear,
Mill H--42-lb. Linerboard																		
+0.2		12.2	12.0	-0.2	104	102	-2	34	32	-2	352 ^a	344	-8	370 ^a	394	+24		
+0.2		12.2	12.0	-0.2	104	102	-2	34	32	-2	352	344	-8	370	394	+24		

TABLE XXVIII

Mill I--42-lb. Linerboard

-0.2	13.4	13.1	-0.3	112	115	+3	32	28	-4	324	324	0	383 ^a	360	-23				
0.0	12.5	12.3	-0.2	115	116	+1	31	26	-5	313 ^a	354	+41	372 ^a	407	+35				
+0.3	12.6	13.0	+0.4	111	109	-2	30	28	-2	317	350	+33	379 ^a	404	+25				
+0.2	13.0	12.8	-0.2	104	106	+2	31	28	-3	329 ^a	323	-6	371 ^a	379	+8				
0.0	12.9	12.8	-0.1	110	112	+2	31	28	-3	321	338	+17	376	388	+12				

TABLE XXIX

Mill J--42-lb. Linerboard

0.0	13.0	12.9	-0.1	108	108	0	31	30	-1	323 ^a	351	+28	364 ^a	376	+12				
+0.4	12.9	12.8	-0.1	110	109	-1	30	30	0	327 ^a	343	+16	329 ^a	363	+34				
+0.3	14.4	14.3	-0.1	114	109	-5	32	33	+1	339 ^a	357	+18	353 ^a	388	+35				
-0.1	14.4	14.4	0.0	108	106	-2	33	34	+1	343 ^a	360	+17	376 ^a	377	+1				
+0.3	12.9	13.1	+0.2	120	115	-5	30	30	0	338 ^a	348	+10	359 ^a	369	+10				
+0.4	13.0	13.1	+0.1	115	113	-2	30	31	+1	339 ^a	328	-11	363 ^a	351	-12				
+0.2	13.4	13.4	0.0	113	110	-3	31	31	0	335	348	+13	357	371	+14				

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

lated from the totals of the individual readings.

TABLE XXVII

SUMMARY OF INDIVIDUAL TEST LOSS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Institute Data versus Mill Data

File No	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, pcnts	Bursting Strength, p.s.i. gage		IPC Mill Diff.	Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	In Mill			
					IPC	Mill		IPC	Mill									
Mill H--42-lb. Linerboard																		
150532	H-319	WF1S	2/ 4/52	2	42.7	42.9	+0.2	12.2	12.0	-0.2	104	102	-2	34	32	-2	352 ^a	34
Current Mill Average:					42.7	42.9	+0.2	12.2	12.0	-0.2	104	102	-2	34	32	-2	352	34

G. E.

Puncture, units

TABLE XXVIII

Mill I--42-lb. Linerboard

150530	I-229	WF1S	4/ 9/52	1	42.8	42.6	-0.2	13.4	13.1	-0.3	112	115	+3	32	28	-4	324
150590	I-230	WF1S	4/16/52	1	42.4	42.4	0.0	12.5	12.3	-0.2	115	116	+1	31	26	-5	313 ^a
150602	I-231	WF1S	4/18/52	1	42.1	42.2	+0.3	12.6	13.0	+0.4	111	109	-2	30	28	-2	317
150645	I-232	WF1S	4/21/52	1	42.1	42.3	+0.2	13.0	12.8	-0.2	104	106	+2	31	28	-3	329 ^a
Current Mill Average:					42.4	42.4	0.0	12.9	12.8	-0.1	110	112	+2	31	28	-3	321

TABLE XXIX

Mill J--42-lb. Linerboard

150417	J-345	B.F.	3/28/52	1	41.9	41.9	0.0	13.0	12.9	-0.1	108	108	0	31	30	-1	323 ^a
150418	J-346	B.F.	3/28/52	1	41.5	41.9	+0.4	12.9	12.8	-0.1	110	109	-1	30	30	0	327 ^a
150501	J-347	D.F.	4/ 4/52	1	42.6	42.9	+0.3	14.4	14.3	-0.1	114	109	-5	32	33	+1	339 ^a
150502	J-348	D.F.	4/ 4/52	1	42.6	42.5	-0.1	14.4	14.4	0.0	108	106	-2	33	34	+1	343 ^a
150592	J-349	B.F.	4/11/52	1	42.2	42.5	+0.3	12.9	13.1	+0.2	120	115	-5	30	30	0	338 ^a
150593	J-350	B.F.	4/11/52	1	42.0	42.4	+0.4	13.0	13.1	+0.1	115	113	-2	30	31	+1	339 ^a
Current Mill Average:					42.1	42.3	+0.2	13.4	13.4	0.0	113	110	-3	31	31	0	335

^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.

Institute Data versus Mill Data

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

No samples submitted.

TABLE XXI

Mill L-42-lb. Lincrbord												
13.5	13.4	-0.1	102	100	-2	36	345 ^a	269	-76	381 ^a	327	-54
12.6	12.7	+0.1	109	105	-4	36	324 ^a	289	-35	369 ^a	341	-28
13.3	12.2	-1.1	101	108	+7	34	319 ^a	272	-47	347 ^a	315	-32
13.0	12.8	-0.2	105	110	+5	35	337 ^a	279	-58	357 ^a	340	-17
13.0	12.9	-0.1	113	105	-8	35	337	270	-67	367 ^a	327	-40
13.0	12.9	-0.1	111	102	-9	34	320 ^a	251	-69	353 ^a	306	-47
13.3	12.8	-0.5	108	109	+1	34	331	281	-50	362 ^a	335	-27
12.6	12.7	+0.1	112	109	-3	34	333 ^a	295	-38	366 ^a	345	-21
13.3	13.1	-0.2	114	109	-5	34	327 ^a	287	-40	351 ^a	352	+ 1
13.1	12.8	-0.3	108	106	-2	35	330	277	-53	361	332	-29
.6												

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

TABLE III

SUMMARY OF INDIVIDUAL TEST LOGS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

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	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.

Mill K--42-lb. Linerboard

No samples submitted.

TABLE XXXI

Mill L--42-lb. Linerboard

150386	L-67		2/ 2/52	1	43.4	42.4	-1.0	13.5	13.4	-0.1	102	100	-2	36	345 ^a
150387	L-68		2/ 4/52	1	42.5	41.9	-0.6	12.6	12.7	+0.1	109	105	-4	36	324 ^a
150388	L-69		2/17/52	1	42.2	42.0	-0.2	13.3	12.2	-1.1	101	108	+7	34	319 ^a
150389	L-70		2/17/52	1	43.3	42.5	-0.8	13.0	12.8	-0.2	105	110	+5	35	337 ^a
150390	L-71		2/22/52	1	42.5	41.9	-0.6	13.0	12.9	-0.1	113	105	-8	35	337 ^a
150391	L-72		2/25/52	1	42.4	41.7	-0.7	13.0	12.9	-0.1	111	102	-9	34	320 ^a
150537	L-73		3/ 4/52	1	43.2	42.8	-0.4	13.3	12.8	-0.5	108	109	+1	34	331
150538	L-74		3/ 8/52	1	42.4	42.0	-0.4	12.6	12.7	+0.1	112	109	-3	34	333 ^a
150539	L-75		3/ 9/52	1	42.5	41.9	-0.6	13.3	13.1	-0.2	114	109	-5	34	327 ^a
Current Mill Average:					42.7	42.1	-0.6	13.1	12.8	-0.3	108	106	-2	35	330

^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 XXXII

INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)
Institute Data versus Mill Data

Lot	Caliper, points		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.								
	Mill M--42-lb. Linerboard						In. Across								
.5	13.8	12.9	-0.9	99	107	+ 8	37	25	-12	420 ^a	360	-60	391 ^a	332	-53
.3	13.1	12.3	-0.8	104	108	+ 4	36	27	- 9	395 ^a	359	-36	378 ^a	365	-13
.3	13.4	13.2	-0.2	104	111	+ 7	36	28	- 8	394	364	-30	372 ^a	339	-33
.7	13.1	12.6	-0.5	105	116	+11	34	28	- 6	387 ^a	387	0	373 ^a	399	+26
0	13.5	13.2	-0.3	106	116	+10	35	26	- 9	390 ^a	394	+ 4	360 ^a	379	+19
.5	13.6	12.9	-0.7	100	108	+ 8	36	26	-10	385	315	-70	387 ^a	383	- 4
.3	13.5	12.9	-0.6	109	114	+5	37	24	-13	408 ^a	333	-75	394 ^a	369	-25
.9	13.4	12.9	-0.5	104	111	+7	36	26	-10	397	359	-38	379	366	-13

TABLE XXXIII

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

.7	14.7	14.1	-0.6	107	103	- 4	42	40	- 2	438 ^a	371	-67	411 ^a	368	-43
.6	14.7	13.9	-0.8	102	96	- 6	40	41	+ 1	413 ^a	387	-26	380 ^a	418	+38
.6	15.3	14.1	-1.2	106	92	-14	36	32	- 4	431 ^a	294	-137	354 ^a	279	-75
.3	15.0	14.0	-1.0	108	106	- 2	37	39	+ 2	408 ^a	297	-111	375	304	-71
.0	15.1	13.8	-1.3	101	95	- 6	38	43	+ 5	424 ^a	345	-79	365 ^a	314	-51
.1	14.0	13.6	-0.4	121	120	- 1	36	42	+ 6	405	213	-192	414 ^a	213	-201
.1	14.1	13.0	-1.1	106	96	-10	35	38	+ 3	402	350	-52	375 ^a	344	-31
.7	14.7	13.8	-0.9	107	101	- 6	38	39	+1	417	322	-95	382	320	-62

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

ed from the totals of the individual readings.

TABLE XXXII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1952 (continued)

Institute Data versus Mill Data

File No.	Mill Code	Fin- ish	Date Made	Mch. No.	Basis Weight,		IPC	Caliper,		IPC	Bursting		IPC	Mill Diff.	IPC	G. E. Puncture, units	IPC
					lb.	points		Strength,	p.s.i. gage								
					Mill Diff.	lb.		IPC	points	Mill Diff.	Strength,	p.s.i. gage	IPC	Mill Diff.	IPC		IPC
Mill M-42-lb. Linerboard																	
150368	M-81	W.	3/25/52	4	42.9	41.4	-1.5	13.8	12.9	-0.9	99	107	37	25	-12	420	
150369	M-82	W.	3/26/52	4	41.7	40.4	-1.3	13.1	12.3	-0.8	104	108	36	27	-9	390	
150466	M-83	W.	4/1/52	4	42.1	41.8	-0.3	13.4	13.2	-0.2	104	111	36	28	-8	391	
150467	M-84	W.	4/3/52	4	41.9	41.2	-0.7	13.1	12.6	-0.5	105	116	34	28	-6	380	
150582	M-85	W.	4/8/52	4	42.7	42.7	0.0	13.5	13.2	-0.3	106	116	35	26	-9	390	
150603	M-86	W.	4/15/52	2	42.8	41.3	-1.5	13.6	12.9	-0.7	100	108	36	26	-10	380	
150604	M-87	W.	4/17/52	4	41.9	40.6	-1.3	13.5	12.9	-0.6	109	114	37	24	-13	400	

TABLE XXXIII

Mill E-44/46-lb. Drum Linerboard

150382	E-322	W.F.	3/31/52	1	48.6	47.9	-0.7	14.7	14.1	-0.6	107	103	42	40	-2	43							
150410	E-323	W.F.	4/1/52	1	47.2	47.8	+0.6	14.7	13.9	-0.8	102	96	40	41	+1	41							
150468	E-324	W.F.	4/7/52	1	48.0	47.4	-0.6	15.3	14.1	-1.2	106	92	36	32	-4	43							
150487	E-325	W.F.	4/8/52	1	48.0	46.7	-1.3	15.0	14.0	-1.0	108	106	37	39	+2	40							
150589	E-326	W.F.	4/15/52	1	48.0	47.0	-1.0	15.1	13.8	-1.3	101	95	38	43	+5	42							
150642	E-327	W.F.	4/18/52	1	45.7	45.6	-0.1	14.0	13.6	-0.4	121	120	36	42	+6	40							
150643	E-328	W.F.	4/22/52	1	47.7	45.6	-2.1	14.1	13.0	-1.1	106	96	35	38	+3	40							
Current Mill Average:																							
					47.6	46.9	-0.7	14.7	13.8	-0.9	107	101	38	39	+1	41							

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

Not.: All "current mill average" data are calculated from the totals of the individual readings.

