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INSTITUTE OF
PAPER CHEMISTRY
Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

✓ Project 1108-B

Progress Report 10
to
FOURDRINIER KRAFT BOARD INSTITUTE

May 1, 1948

THE INSTITUTE OF PAPER CHEMISTRY
APPLETON, WISCONSIN

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APPLETON, WISCONSIN

In conjunction with the F.K.I. Continuous Baseline Study, sixty different sample lots of 42-lb. Fourdrinier kraft linerboard were submitted by nine different F.K.I. mills to The Institute of Paper Chemistry for testing during the period April 1 through April 30. In addition to the 42-lb. kraft linerboard, four samples of special drum stock were also submitted for evaluation. The results on the special stock are reported separately in this report. A tabulation of the number of samples classified according to mill may be seen in Table I.

TABLE I
DISTRIBUTION OF 42-lb. LINERBOARD SAMPLES

Mill Code	Samples Submitted
A	6
B	15
C	6
D	5
E	1
F	6
G	8
H	7
J	6
	60

The above sample lots were tested for basis weight, caliper, bursting strength, G. E. puncture, and Elmendorf tear. A comparison of the average strength results for each mill may be seen in Table II and

graphically presented in Figures 1 to 6, inclusive. In addition to a comparison of the mill averages, Table II also shows the cumulative F.K.I. averages as well as the F.K.I. index. The cumulative F.K.I. averages include all the results up to but not including the current period; the current period in the case of this report is April 1 through April 30. The F.K.I. index is obtained as follows:

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

The F.K.I. index furnishes a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.4 lb. and the cumulative F.K.I. average basis weight is 43.1. Determining the index in per cent as indicated above, the resulting index for basis weight is 100.7%. This signifies that the current average basis weight is approximately 0.7% higher than the cumulative average which, in this case, covered the period July 25 through March 31.

A comparison of the results in Table II and Figure 1 shows that the average basis weight for all mills is above the 42-lb. specification set forth in Rule 41. Mill E has the highest average basis weight, it being approximately 4.8% higher than the specified 42-lb. The amount by which the mills exceed the 42-lb. specification is as follows:

Mill Code	Per cent
A	2.1
B	3.1
C	2.1
D	3.8
E	4.8
F	3.1
G	1.0
H	4.3
J	4.5

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

A comparison of the average calipers for the various mills (see Figure 2) shows that the mill averages vary from a low of 14.3 for Mills C & E to 15.6 for Mill G, the average being 15.0, which is slightly lower than the cumulative average. Although only one sample was submitted by Mill E, it may be noted that the particular sample was considerably higher in density than the other samples submitted as may be seen by comparing the weight-caliper ratios.

The average bursting strength values obtained for each mill are graphically shown in Figure 3. It may be observed that the average bursting strength for the various mills ranges from a low of 85 for Mill E to a high of 108 for Mill J. The current F.K.I. average bursting

strength is 101, as compared with the cumulative average of 103.

The data of Table II and Figure 4 show that the average G. E. puncture for all mills is 37 units, with Mill C having the highest and Mill J the lowest. In connection with Mill J. it may be observed that this mill had the lowest G. E. puncture during the last period.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 5 and 6. The results indicate that the current F.K.I. machine direction tear results are approximately 5.2% higher than the cumulative average. Similarly the across-machine direction tear results are approximately 2.7% higher than the cumulative average.

A comparison of the F.K.I indexes indicates that, for the current period, basis weight, and machine and across-machine direction tear are higher than the cumulative averages. Caliper, bursting strength, and G. E. puncture, however, are lower than the cumulative averages.

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

TABLE II
SUMMARY OF COMPOSITE MILL AVERAGES--APRIL 1 THROUGH APRIL 30, 1948

Weight, . .	Caliper, points . .	Bursting Strength, points . .	G. E. Puncture, units . .	Elmendorf Tear, g./sheet	
				In Direction	Across Direction
.9	15.0	101	38	416	453
.3	14.9	102	36	398	421
.9	14.3	105	39	379	426
.6	15.5	101	38	408	421
.0	14.3	85	36	460	436
.3	15.3	96	38	399	432
.4	15.6	104	38	380	416
.8	15.4	105	38	419	440
.9	14.6	108	33	365	387
.4	15.0	101	37	403	426
.1	15.3	103	39	383	415
.7	98.0	95.1	94.9	105.2	102.7

TABLE II
SUMMARY OF COMPOSITE MILL AVERAGES--APRIL 1 THROUGH APRIL 30, 1948

<u>Code No.</u>	<u>Basis Weight, 1b.</u>	<u>Caliper, points</u>	<u>Bursting Strength, points</u>	<u>G. E. Puncture, units</u>	<u>In Dir</u>
A	42.9	15.0	101	38	4
B	43.3	14.9	102	36	3
C	42.9	14.3	105	39	3
D	43.6	15.5	101	38	4
E	44.0	14.3	85	36	4
F	43.3	15.3	96	38	3
G	42.4	15.6	104	38	3
H	43.6	15.4	105	38	4
J	43.9	14.6	108	33	3
Current FKI Average:	43.4	15.0	101	37	4
Cumulative FKI Average:	43.1	15.3	103	39	3
FKI Index, %	100.7	98.0	96.1	94.9	1

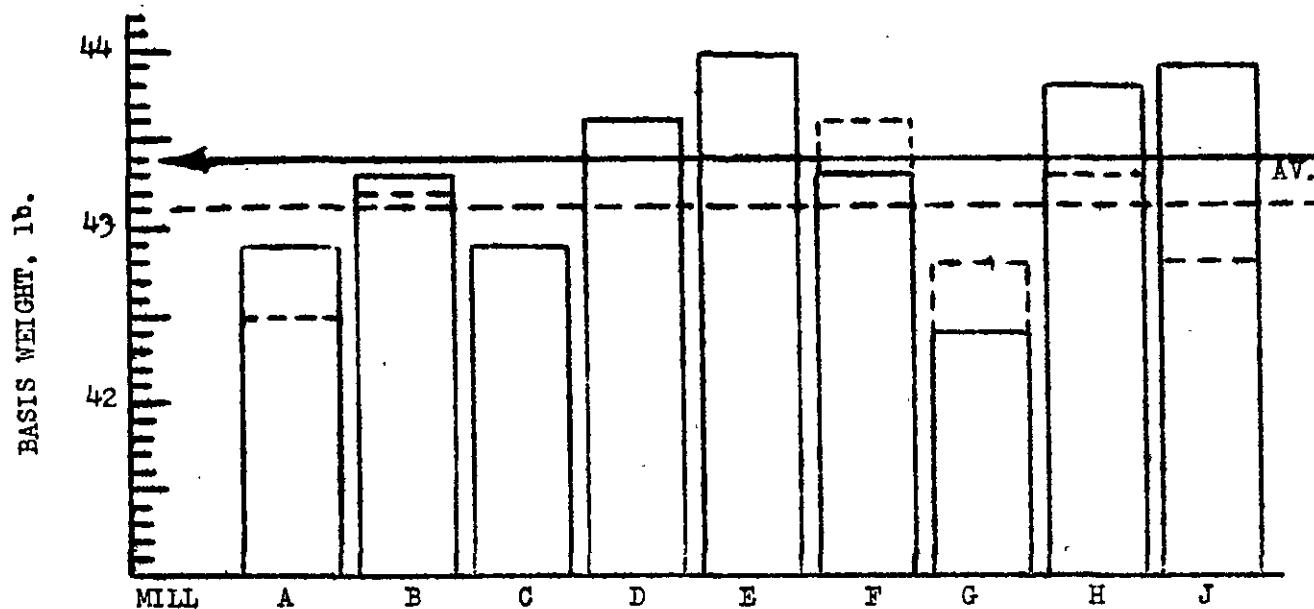
current mill average X 100 = mill factor (%)
cumulative mill average

current mill average X 100 = mill index (%)
cumulative F.K.I. average

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

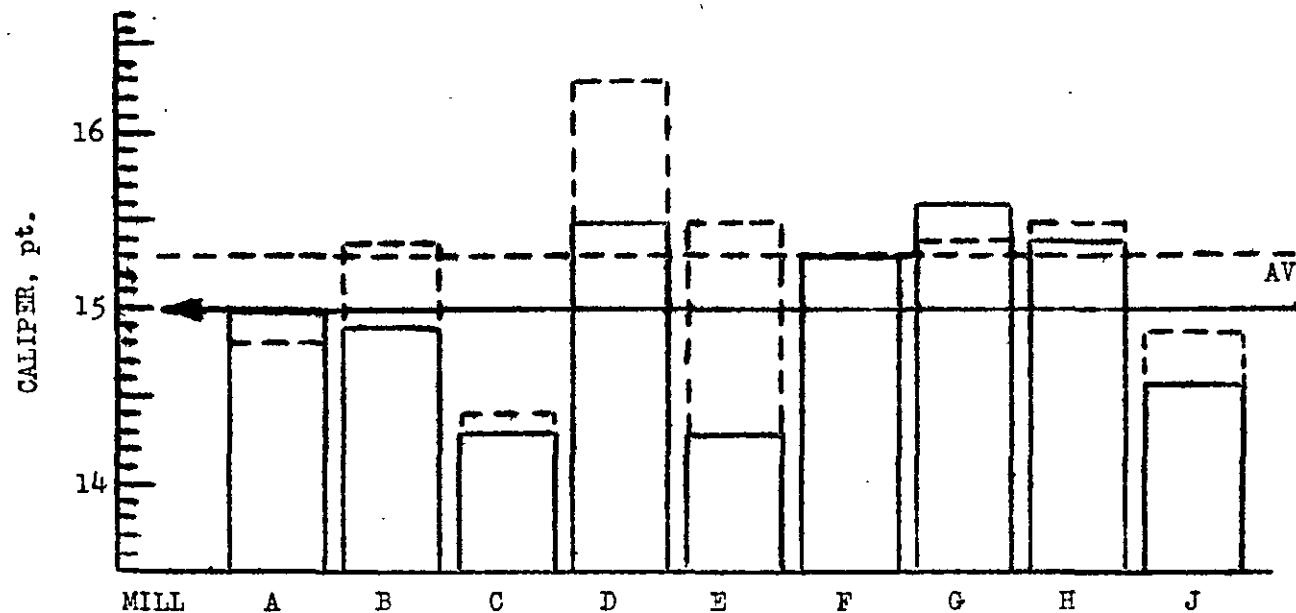
The results obtained on the special drum stock may be seen in Table XII.

FIGURE 1



COMPARISON OF BASIS WEIGHT RESULTS
(Period April 1 - April 30)

FIGURE 2



COMPARISON OF CALIPER RESULTS
(Period April 1 - April 30)

— Current mill average
- - - Cumulative mill average

FIGURE 3

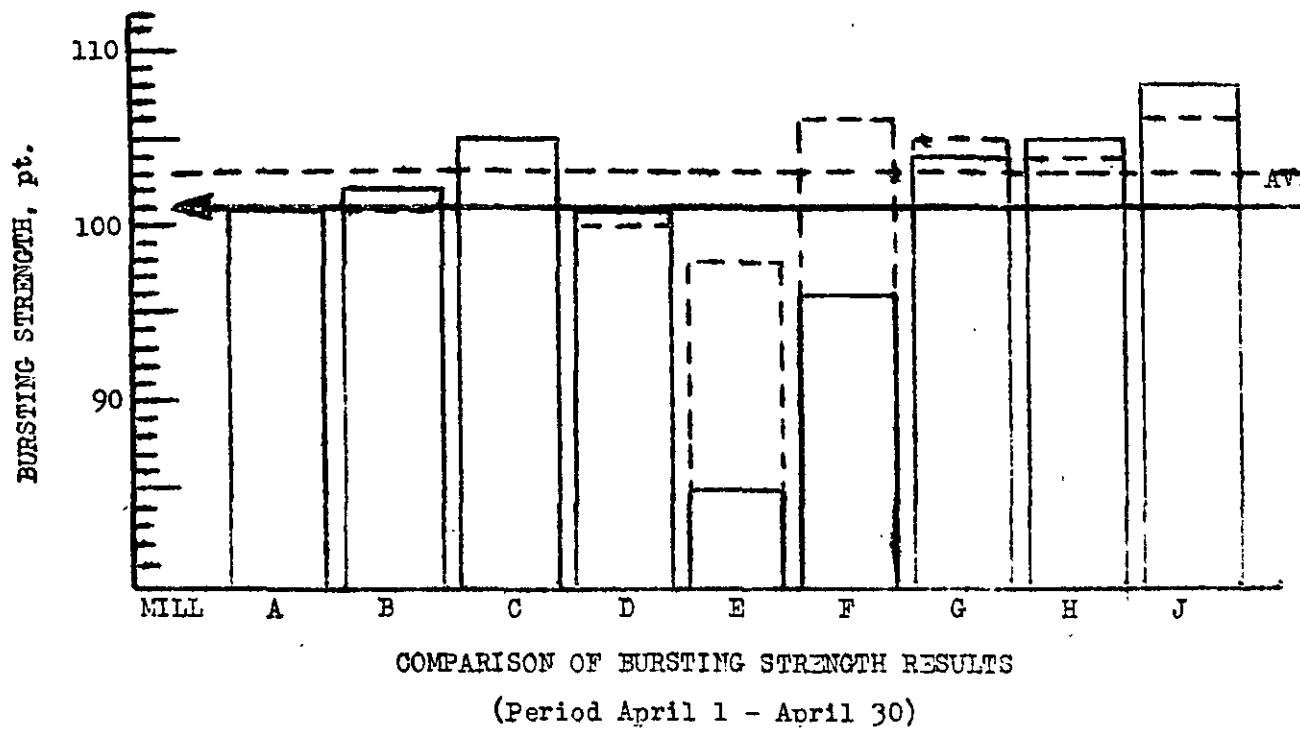


FIGURE 4

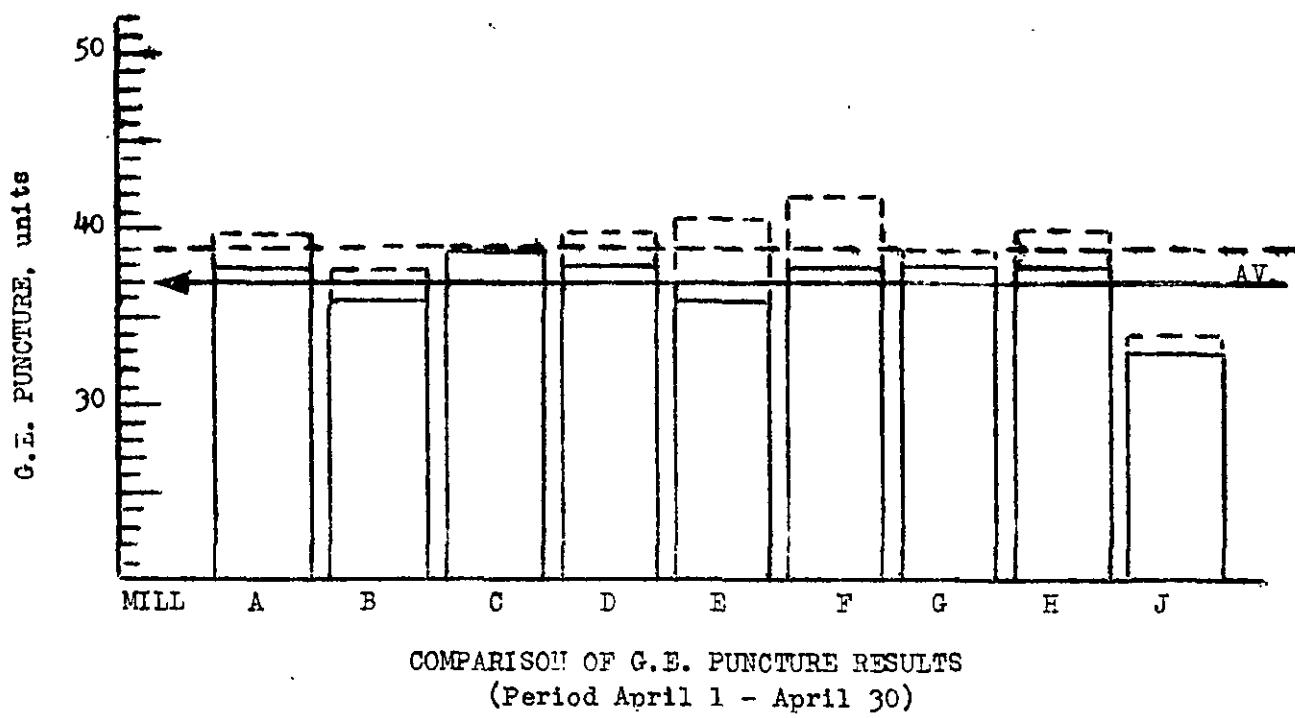


FIGURE 5

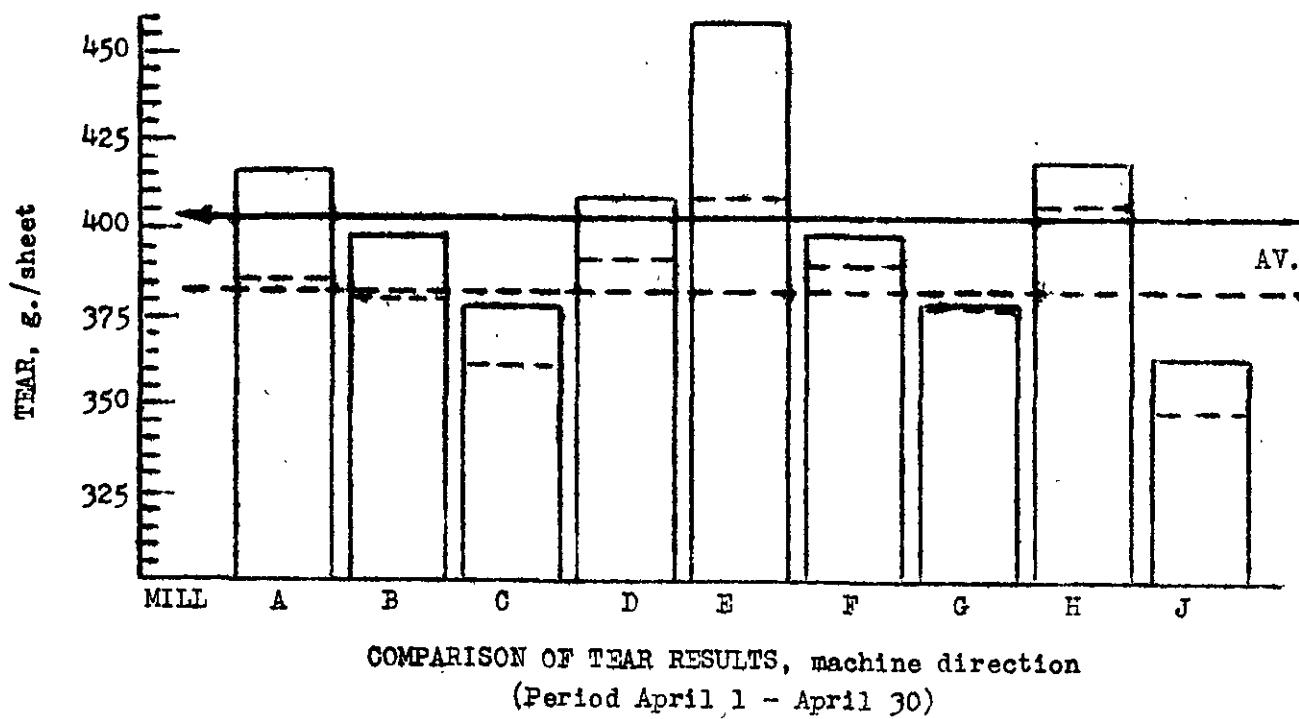
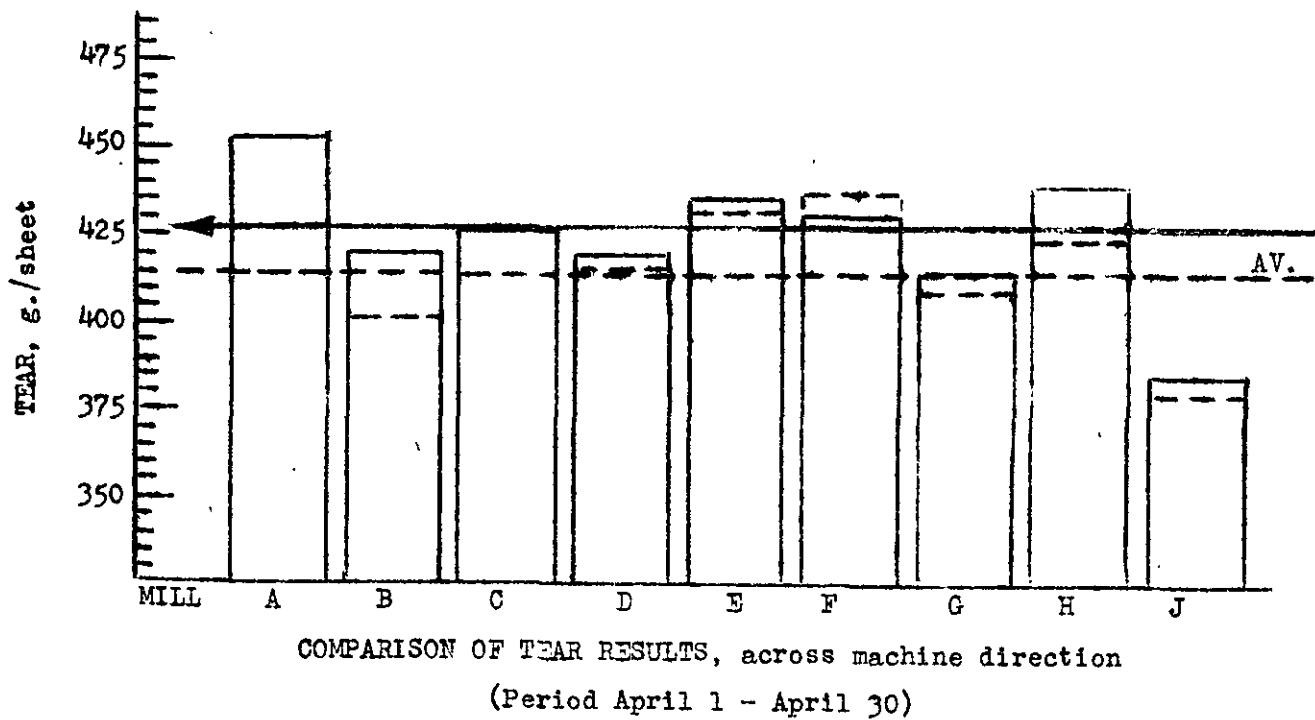


FIGURE 6



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TABLE III
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948

Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Mill A -- 42-lb. Linerboard															
1	47.2	43.6	44.5	16.7	14.3	15.1	114	72	97	43	37	39	472	368	504
1	44.2	41.8	42.5	16.4	14.0	15.1	117	83	97	42	34	38	472	392	472
2	44.0	42.0	43.1	16.8	14.3	15.2	122	80	105	43	35	38	464	336	417
1	44.0	40.2	42.4	16.0	13.6	14.6	120	74	95	42	34	38	472	352	413
1	43.8	41.6	42.6	16.9	14.0	15.0	122	84	101	42	34	39	512	320	412
2	43.8	41.6	42.2	15.2	13.1	14.5	125	97	113	42	34	37	432	344	384
	42.9		15.0							101	38	38	116		453
	42.5		14.8							101	40	40	386		427
	100.9		101.4							100.0	95.0	95.0	107.8		106.1
	99.5		98.0							98.1	97.4	97.4	108.6		109.2

TABLE III

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948

File No.	Mill Code	Date Made	Date Recd.	Mch. No.	Basis Weight, 1 b.			Caliper, points			Bursting Strength, points			G. E. units		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Mill A -- 42-lb. Linerboard																
131093	A-34	4/ 3/48	3/29/48	1	47.2	43.6	44.5	16.7	14.3	15.7	114	72	97	43	37	39
131094	A-35	4/ 3/48	3/30/48	1	44.2	41.8	42.5	16.4	14.0	15.1	117	83	97	42	34	38
131320	A-36	4/10/48	4/ 6/48	2	44.0	42.0	43.1	16.8	14.3	15.2	122	80	105	43	35	38
131366	A-37	4/17/48	4/12/48	1	44.0	40.2	42.4	16.0	13.6	14.6	120	74	95	42	34	38
131367	A-38	4/17/48	4/13/48	1	43.8	41.6	42.6	16.9	14.0	15.0	122	84	101	42	34	39
131486	A-39	4/24/48	4/19/48	2	43.8	41.6	42.2	15.2	13.1	14.5	125	97	113	42	34	37
Current Mill Average:					42.9			15.0			101	38				
Cumulative Mill Average:					42.5			14.8			101	40				
Mill Factor, %					100.9			101.4			100.0	95.0				
Mill Index, %					99.5			98.0			98.1	97.4				

(M)ARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

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TABLE IV

Basis Weight, lb.	Caliper, points			Bursting Strength, points			Puncture, units			G. E. Max. Min. Av.			Elastendorf Tear, g./sheet			
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	
Mill B -- 42-lb. Linerboard																
41.8	43.1	16.0	14.4	15.2	123	90	105	42	36	39	36	41.7	488	352	433	
43.0	43.0	25.6	13.0	14.5	112	83	102	39	36	37	34	402	536	392	438	
43.2	43.2	26.2	14.8	15.5	116	70	96	40	34	37	35	352	393	400	407	
44.0	42.7	10.2	14.9	12.9	111.0	87	100	37	32	35	34	387	520	376	438	
42.8	42.8	42.2	15.2	14.2	14.8	106	78	96	37	33	35	34	328	385	401	401
41.8	43.2	41.8	14.0	14.0	114.8	117	85	104	36	30	33	30	320	373	464	397
45.2	44.5	16.0	13.8	14.9	116	80	100	38	33	36	33	360	403	488	430	
45.0	43.1	41.6	14.8	13.1	14.1	119	82	102	36	32	33	32	336	372	472	360
42.2	43.3	45.0	15.7	13.9	14.7	123	81	102	38	34	36	34	312	385	448	368
45.0	45.0	45.0	15.8	15.8	15.2	112	81	99	38	30	35	31	328	379	480	360
45.0	43.0	40.0	15.0	14.5	115.2	84	101	38	33	36	33	368	406	480	376	
45.0	42.2	42.2	15.6	14.0	14.9	125	86	104	37	32	34	34	360	390	429	384
45.0	42.7	40.4	14.5	14.5	118	90	103	41	34	37	34	472	392	427	368	
46.0	43.8	46.0	14.0	14.2	15.0	122	89	111	45	36	40	41	464	360	408	368
46.0	43.5	42.4	14.5	14.5	119	85	102	40	35	40	40	429	360	408	368	
43.3	45.9	14.9	14.9	14.9	114.9	102	102	36	36	36	36	36	398	421	421	421
43.2	15.4	101.1	101.0	101.0	101.0	101	101	38	38	38	38	381	404.5	402	402	402
100.2	96.8	100.0	101.0	101.0	101.0	101	101	38	38	38	38	381	404.7	404.7	404.7	404.7
100.5	97.4	96.0	96.0	96.0	96.0	96	96	38	38	38	38	381	403.9	403.9	403.9	403.9

TABLE IV

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, 1b.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
					Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Mill B — 42-lb. Linerboard																
131054	B-31	4/ 1/48	3/21/48	3	44.8	41.8	43.1	16.0	14.4	15.2	123	90	105	42	36	39
131055	B-32	4/ 1/48	3/23/48	3	43.8	41.8	43.0	15.6	13.0	14.5	112	83	102	39	36	37
131089	B-33	4/ 3/48	3/25/48	1	45.8	41.8	43.2	16.2	14.8	15.5	116	70	96	40	34	37
131212	B-34	4/ 6/48	3/30/48	3	44.0	40.2	42.7	14.9	12.9	14.0	112	87	100	37	32	35
131213	B-35	4/ 6/48	3/31/48	3	43.8	42.2	42.8	15.2	14.2	14.8	106	78	96	37	33	35
131303	B-36	4/ 8/48	4/ 2/48	1	44.2	41.8	43.2	15.9	14.0	14.8	117	85	104	36	30	33
131304	B-37	4/ 8/48	4/ 3/48	1	46.2	42.6	45.5	16.0	13.8	14.9	116	80	100	38	33	36
131315	B-38	4/10/48	4/ 4/48	3	44.0	41.6	43.1	14.8	13.1	14.1	119	82	102	36	32	33
131316	B-39	4/10/48	4/ 5/48	3	45.0	42.2	43.3	15.7	13.9	14.7	123	81	102	38	34	36
131323	B-40	4/12/48	4/ 6/48	1	45.0	40.0	43.0	15.8	14.4	15.2	112	81	99	38	30	35
131324	B-41	4/12/48	4/ 7/48	1	46.0	42.2	44.2	15.7	14.9	15.2	123	84	103	38	33	36
131371	B-42	4/19/48	4/11/48	3	43.6	41.6	42.2	15.6	14.0	14.9	125	66	104	37	32	34
131372	B-43	4/19/48	4/12/48	3	44.0	40.4	42.7	15.6	14.5	14.9	118	90	103	41	34	37
131502	B-44	4/26/48	4/20/48	3	46.0	43.8	44.5	16.0	14.2	15.0	122	89	111	45	36	41
131503	B-45	4/26/48	4/20/48	1	46.2	42.4	44.3	17.0	14.9	15.7	119	85	102	44	35	40
Current Mill Average:					43.3			14.9			102			36		
Cumulative Mill Average:					43.2			15.4			101			38		
Mill Factor, %					100.2			96.8			101.0			94.7		
Mill Index, %					100.5			97.4			99.0			92.3		

MAPES

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1945 (continued)

Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			E. /sheet Across			Elmendorf Tear,		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
<u>Mill C - 42-lb. Linerboard</u>																		
1	43.8	41.8	42.7	14.4	13.1	13.9	125	97	112	41	37	39	440	328	373	456	392	422
1	43.2	41.8	42.7	15.2	13.7	14.4	122	84	105	42	36	38	368	328	352	432	376	403
1	43.2	42.4	43.6	15.3	14.0	14.5	114	73	95	43	36	38	340	320	378	464	392	421
1	44.0	42.2	43.2	15.7	13.5	14.7	128	84	107	40	36	37	340	368	403	480	384	445
1	43.8	42.0	42.6	15.2	13.0	14.1	121	81	108	43	38	40	424	344	381	472	400	433
1	43.6	42.0	42.8	14.7	13.2	14.2	140	77	104	45	36	41	416	352	389	480	400	434
	42.9	41.3	41.4	14.3	11.3	13.0	125	97	112	41	37	39	39	379	379	379	426	426
	42.9	41.4	41.4	14.4	11.4	13.1	122	84	105	40	35	37	39	362	362	362	415	415
100.0	99.3	99.3	99.3	14.7	13.2	14.2	140	77	104	45	36	41	100.0	100.0	100.0	104.7	104.7	102.7
99.5	93.5	93.5	93.5	14.4	11.9	13.0	125	97	112	41	37	39	39	379	379	379	426	426

TABLE V
SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, 1lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
					Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Mill C -- 42-lb. Linerboard																
131057	C-26	4/ 1/48	3/25/48	1	43.8	41.8	42.7	14.4	13.1	13.9	125	97	112	41	37	39
131090	C-27	4/ 3/48	3/29/48	1	43.2	41.8	42.7	15.2	13.7	14.4	122	84	105	42	36	38
131299	C-28	4/ 7/48	4/ 1/48	1	44.2	42.4	43.6	15.3	14.0	14.5	114	73	95	43	36	38
131317	C-29	4/10/48	4/ 5/48	1	44.0	42.2	43.2	15.7	13.5	14.7	128	84	107	40	36	37
131388	C-30	4/20/48	4/12/48	1	43.8	42.0	42.6	15.2	13.0	14.1	121	81	108	43	38	40
131507	C-31	4/26/48	4/19/48	1	43.6	42.0	42.8	14.7	13.2	14.2	140	77	104	45	36	41
Current Mill Average:					42.9			14.3			105			39		
Cumulative Mill Average:					42.9			14.4			105			39		
Mill Factor, %					100.0			99.3			100.0			100.0		
Mill Index, %					99.5			93.5			101.9			100.0		

TABLE VI
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, E./sheet			
	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	
Mill D — 42-1b. Linerboard																
4	45.4	43.0	43.9	17.2	14.1	15.5	136	76	104	42	37	39	464	344	404	
4	43.0	42.0	42.2	16.4	14.0	14.9	115	84	99	40	34	37	400	344	379	
4	45.0	42.6	45.8	16.8	14.1	15.3	119	91	105	40	31	35	432	352	396	
4	44.4	42.0	43.3	16.9	14.6	15.5	111	76	94	41	31	38	528	368	434	
4	46.0	43.6	44.7	17.2	15.1	16.4	121	82	103	44	37	41	504	352	480	
	43.6			15.5			101				38			408		
	43.6			16.3			100				40			392		
	100.0			95.1			101.0				95.0			104.1		
	101.2			101.3			98.1				97.4			106.5		
														101.4		

issing for this sample. Therefore, the averages for this sample do not represent the standard number of tests.

TABLE VI
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, 1b.	Caliper, points			Bursting Strength, points			G. E. Puncture, units		
						Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Mill D — 42-lb. Linerboard														
131058	D-20	4/ 1/48	3/29/48	4	45.4	43.0	43.9	17.2	14.1	15.5	136	76	104	42
131088	D-21	4/ 3/48	4/ 1/48	4	43.0	42.0	42.2	16.4	14.0	14.9	115	84	99	40
131327	D-22	4/12/48	4/ 9/48	4	45.0	42.6	43.8	16.8	14.1	15.3	119	91	105	40
131348	D-23	4/15/48	4/13/48	4	44.4	42.0	43.3	16.9	14.6	15.5	111	76	94	41
131436	D-24*	4/21/48	4/19/48	4	46.0	43.6	44.7	17.2	15.1	16.4	121	82	103	41
Current Mill Average:				43.6				15.5			101			38
Cumulative Mill Average:				43.6				16.3			100			40
Mill Factor, %				100.0				95.1			101.0			95.0
Mill Index, %				101.2				101.3			98.1			97.4

*The sheets B5, D5, and F5 were missing for this sample. Therefore, the averages for this sample do not represent the

TABLE VII

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948 (continued)

III ETAV

TABLE VII

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Made	Date Tested	Inch. No.	Basis Weight, 1lb.	Caliper, points	Bursting Strength, points			G. E. Puncture,		
							Max.	Min.	Avg.	Max.	Min.	Avg.
MILL E — 42-lb. Linerboard												
131336	E-18	4/14/48	4/ 9/48	1	45.2	42.8	44.0	14.8	14.0	14.3	109	66
Current Mill Average:					44.0		14.3				85	
Cumulative Mill Average:					43.4		15.5				98	
Mill Factor, %					101.4		92.3				86.7	
Mill Index, %					102.1		93.5				82.5	
												92.3

TABLE VIII

File No.	Mill Code	Date Made	Date Tested	Inch. No.	Basis Weight, 1lb.	Caliper, points	Bursting Strength, points			G. E. Puncture,		
							Max.	Min.	Avg.	Max.	Min.	Avg.
MILL F — 42-lb. Linerboard												
131206	F-21	4/ 6/48	3/31/48	1	44.0	42.4	43.6	17.0	15.2	16.1	118	80
131298	F-22	4/ 7/48	4/ 3/48	1	44.0	42.2	43.3	15.5	14.0	14.9	134	84
131309	F-23	4/ 9/48	4/ 6/48	1	44.0	41.4	42.3	16.0	14.0	15.1	115	84
131335	F-24	4/14/48	4/ 9/48	1	44.0	40.8	42.9	16.1	14.7	15.2	116	84
131374	F-25	4/19/48	4/13/48	1	44.0	42.0	42.8	15.2	13.0	14.5	109	73
131375	F-26	4/19/48	4/15/48	1	46.0	44.0	45.0	17.2	15.0	15.9	108	78
Current Mill Average:					43.3		15.3				96	
Cumulative Mill Average:					43.6		15.3				106	
Mill Factor, %					99.3		100.0				90.6	
Mill Index, %					100.5		100.0				93.2	
												97.4

TABLE IX
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

h.	Basis Weight, lb.	Caliper, points			Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet							
		Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.					
<u>Mill G -- 42-lb. Linerboard</u>																		
43.6	41.6	42.6	16.6	14.9	15.9	121	88	106	41	36	39	400	326	383	456	360	409	
43.6	41.6	42.4	16.0	13.9	14.9	125	92	108	41	36	38	384	336	357	440	384	412	
43.0	41.8	42.3	17.0	15.1	16.1	125	85	100	39	32	36	392	336	373	472	352	417	
43.0	41.8	42.2	16.0	14.5	15.1	116	87	102	38	33	35	416	352	378	448	368	418	
43.6	41.2	42.1	16.7	15.1	15.7	110	82	98	40	33	37	432	320	378	464	360	404	
42.6	41.4	42.0	16.5	14.9	15.6	133	76	107	40	34	37	408	336	377	448	352	407	
43.8	42.0	42.6	16.8	15.2	16.2	118	87	103	44	37	40	440	344	408	488	384	428	
43.6	42.2	43.0	16.1	14.5	15.4	129	95	111	42	36	39	424	352	386	464	400	430	
42.4								104		38		380				416		
42.8									105		39		379				410	
99.1										99.0		97.4		100.3			101.5	
98.4											101.0		97.1			100.2		

TABLE IX
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, 1lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
					Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
Mill G — 42-lb. Linerboard																
131074	G-34	4/ 2/48	3/29/48	1	43.6	41.6	42.6	16.6	14.9	15.9	121	88	106	41	36	39
131075	G-35	4/ 2/48	3/30/48	1	43.6	41.6	42.4	16.0	13.9	14.9	125	92	108	41	36	38
131307	G-36	4/ 9/48	5/ 4/48	1	43.0	41.8	42.3	17.0	15.1	16.1	125	85	100	39	32	36
131308	G-37	4/ 9/48	4/ 5/48	1	43.0	41.8	42.2	16.0	14.5	15.1	116	87	102	38	33	35
131487	G-38	4/ 24/48	4/ 22/48	1	43.6	41.2	42.1	16.7	15.1	15.7	110	82	98	40	33	37
131488	G-39	4/ 24/48	4/ 22/48	1	42.6	41.4	42.0	16.5	14.9	15.6	133	76	107	40	34	37
131505	G-40	4/ 26/48	4/ 23/48	1	43.8	42.0	42.6	16.8	15.2	16.2	118	87	103	44	37	40
131506	G-41	4/ 26/48	4/ 23/48	1	43.6	42.2	43.0	16.1	14.5	15.4	129	95	111	42	36	39
Current Mill Average:					42.4			15.6			104			38		
Cumulative Mill Average:					42.8			15.4			105			39		
Mill Factor, %					99.1			101.3			99.0			97.4		
Mill Index, %					98.4			102.0			101.0			97.4		

OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948 (continued)

Basis Weight, 1lb.	Caliper, points			Bursting Strength, points			G. E. Puncture, units			G. E. Puncture, units			Ellendorf Tear, g./sheet		
	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
<u>Mill H — 42-lb. Linerboard</u>															
45.0	41.8	43.8	46.1	15.0	15.5	15.4	81	99	91	37	39	408	328	373	407
44.0	41.8	42.8	45.8	14.8	15.3	15.0	90	105	96	36	39	456	312	367	419
45.8	42.4	44.2	46.6	15.0	15.7	15.9	75	105	93	36	39	512	368	445	450
44.5	43.6	44.0	46.0	14.5	15.4	15.4	87	101	92	35	38	472	368	432	445
44.0	42.0	43.0	46.1	14.5	15.4	15.4	81	101	90	33	37	448	352	414	437
47.6	43.6	45.3	47.2	14.4	15.4	15.4	82	114	92	37	40	480	408	445	485
44.4	43.0	43.8	45.7	14.8	15.2	15.2	94	108	91	36	39	480	384	423	434
	43.8		45.4				105			38		419			440
	43.3		45.5				104			40		406			424
101.2		99.4					101.0			95.0			103.2		103.8
101.6		100.7					101.9			97.4			109.4		106.0

TABLE X

SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
					Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
<u>MILL H -- 42-lb. Linerboard</u>																
131056	H-27	4/ 1/48	3/23/48	2	45.0	41.8	43.8	16.1	15.0	15.5	114	81	99	41	37	39
131204	H-28	4/ 6/48	3/29/48	2	44.0	41.8	42.8	15.8	14.8	15.3	130	90	105	39	34	36
131205	H-29	4/ 6/48	3/30/48	2	45.8	42.4	44.2	16.6	15.0	15.7	119	75	105	43	36	39
131318	H-30	4/10/48	4/ 5/48	2	44.6	43.6	44.0	16.0	14.5	15.4	115	87	101	42	35	38
131319	H-31	4/10/48	4/ 6/48	2	44.0	42.0	43.0	16.1	14.5	15.4	125	81	101	40	33	37
131373	H-32	4/19/48	4/12/48	2	47.6	43.6	45.3	17.2	14.4	15.4	132	82	114	42	37	40
131504	H-33	4/25/48	4/19/48	2	44.4	43.0	43.8	15.7	14.8	15.2	133	94	108	41	36	39
Current Mill Average:					43.8			15.4			105			38		
Cumulative Mill Average:					43.3			15.5			104			40		
Mill Factor, %					101.2			101.0			95.0					
Mill Index, %					101.6			101.9			97.4					

TABLE XI
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

TABLE XI
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, 1b.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
Mill J — 42-lb. Linerboard																
131091	J-31	4/ 3/48	4/ 1/48	1	44.4	42.2	43.5	15.0	13.9	14.5	128	93	111	34	31	32
131092	J-32	4/ 3/48	3/31/48	1	44.2	42.0	43.4	14.8	14.0	14.3	136	96	113	37	31	34
131325	J-33	4/12/48	4/ 8/48	1	45.8	43.8	44.6	15.5	13.5	14.6	121	72	105	36	30	33
131326	J-34	4/12/48	4/ 8/48	1	45.0	42.2	43.8	15.1	14.4	14.8	118	83	101	37	31	34
131376	J-35	4/19/48	4/15/48	1	45.6	43.6	44.3	15.0	13.5	14.4	129	95	109	34	30	32
131377	J-36	4/19/48	4/15/48	1	45.6	42.4	43.9	15.6	14.1	15.0	128	83	109	40	31	34
Current Mill Average:					43.9			14.6			108			33		
Cumulative Mill Average:					42.8			14.9			106			34		
Mill Factor, %					102.6			98.0			101.9			97.1		
Mill Index, %					101.9			95.4			104.9			84.6		

TABLE XII
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

1.	Basis Weight, lb.	Caliper, points	Bursting Strength, points	G. E. Puncture, units	Erlendorf Tear, g./sheet			Across In.		
					Max.	Min.	Av.	Max.	Min.	Av.
<u>Mill E — 44/46-lb. Drum Linerboard</u>										
48.0	45.8	46.9	14.0	13.0	13.4	11.1	72	99	45	38
47.8	46.2	47.1	14.5	13.5	14.0	11.0	77	92	45	39
49.0	47.8	48.4	14.9	13.6	14.3	10.2	70	87	41	36
49.6	46.4	48.0	15.0	13.6	14.3	11.0	79	92	48	41
									41	41
47.6					14.0		92		42	
46.0					14.4		94		43	
103.5					97.2		97.9		97.7	
									104.0	
										103.2

: been F-5 was identified as E-5 by the submitting mill.

TABLE XII

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948 (continued)

File No.	Mill Code	Date Recd.	Date Made	Mch. No.	Basis Weight, 1lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
					Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.	Max.	Min.	Avg.
MILL E — 44/46-1b. Drum Linerboard																
131207	E-16	4/ 6/48	4/ 2/48	1	48.0	45.8	46.9	14.0	13.0	13.4	111	72	99	45	38	42
131310	E-17	4/ 9/48	4/ 6/48	1	47.8	46.2	47.1	14.5	13.5	14.0	110	77	92	45	39	42
131361	E-19*	4/16/48	4/14/48	1	49.0	47.8	48.4	14.9	13.6	14.3	102	70	87	44	39	42
131478	E-20	4/23/48	4/20/48	1	49.6	46.4	48.0	15.0	13.6	14.3	110	79	92	48	41	44
Current Mill Average:					47.6			14.0			92			42		
Cumulative Mill Average:					46.0			14.4			94			43		
Mill Factor, %					103.5			97.2			97.9			97.7		

* The sheet in F series which should have been F-5 was identified as E-5 by the submitting mill.

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

TABLE XIII

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time	R.H., %	Temp., °F.	Time
A	No Preconditioning	55-83	66-86	-----	-----	-----
B	35-88	70-88	1/2 hr.	50	70	24 hrs.
C	50-72	50-74	2-10 days	50-72	50-74	4 hrs. - 4-1/2 days
D	38-43	78-82	4 hrs.	52-56	74-76	16 hrs.
E	No Preconditioning	30	79	-----	-----	-----
F	No Preconditioning	-----	-----	No Conditioning	-----	-----
G	No Preconditioning	-----	-----	No Conditioning	-----	-----
H	No Preconditioning	50	73	24 hrs.	-----	-----
J	----	79	----	41-74	74-80	1 - 2 hrs.

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

A comparison of the test data in Tables XIV and XV indicates that in the majority of cases there is good agreement between the mill data and that of the Institute. As may be seen in Table XV, the maximum variation in the average basis weight between the results of the Institute and those of a given mill on corresponding samples is approximately 2% for the current period. In regard to caliper for the current period, the results for all mills except Mill B are lower than those obtained at the Institute. Mills A, B, C, and H are in accord with the Institute's values. It may be observed on reviewing the bursting strength test results that all the mill averages are higher than those of the Institute, except G and J, which are lower, and H, which is the same. The bursting strength results for Mills B and E appear to be significantly higher.

With the exception of Mills B and E, the G. E. puncture results for all mills are the same as or higher than the reference values, with Mills A, E, and F having the greatest variation. The tear results appear to vary more widely than any of the other tests. Mill E has the greatest variation for both in and across machine direction tear.

The data in Table XV also show the comparison of the average per cent differences between mill and Institute test results for the past three periods. It may be noted that the maximum variation in basis weight encountered to date amounts to approximately 2%. The maximum average variation encountered in the basis weight results for the current period is commensurate with the variation for the preceding periods.

It may also be noted that the variation encountered in the

bursting strength values for each mill for the current period is approximately the same as for the previous period. The same conditions appear to exist for the G. E. puncture and tearing strength results. In the case of the G. E. puncture and tearing strength results, the variation encountered for Mill J is approximately 50% less for the current period than for the two preceding periods.

TABLE XIV
SUMMARY OF TEST RESULT COMPARISONS

Average Mill and Institute Results	Mills*									
	A	B	C	D	E	F	G	H	I	J
No. samples compared	6	15	6	5	1	6	8	7	6	
Basis weight										
Institute	42.9	43.3	42.9	43.6	44.0	43.3	42.4	43.8	43.9	
Mill	42.7	43.1	42.6	43.7	43.4	42.7	42.6	43.9	42.9	
Av. difference**	-0.2	-0.2	-0.3	+0.1	-0.6	-0.6	+0.2	+0.1	-1.0	
Max. difference***	-1.8	-1.0	-0.7	+1.1	-0.6	-1.0	+1.0	-1.4	-1.3	
Caliper										
Institute	15.0	14.9	14.3	15.5	14.3	15.3	15.6	15.4	14.6	
Mill	14.9	15.0	14.2	15.1	13.9	14.6	15.2	15.2	14.1	
Av. difference**	-0.1	+0.1	-0.1	-0.4	-0.4	-0.7	-0.4	-0.2	-0.5	
Max. difference***	-0.4	+0.6	-0.2	-0.6	-0.4	-1.2	-0.6	-0.6	-0.7	
Bursting strength										
Institute	101	102	105	101	85	96	104	105	108	
Mill	105	108	109	103	90	99	102	105	104	
Av. difference**	+4	+6	+4	+2	+5	+3	-2	0	-4	
Max. difference***	+10	+12	+10	+9	+5	+13	-4	+4	-9	
O. E. puncture										
Institute	38	36	39	38	36	38	38	38	33	
Mill	45	35	40	--	30	42	39	38	34	
Av. difference**	+7	-1	+1	--	-6	+4	+1	0	+1	
Max. difference***	+12	-3	+6	--	-6	+6	+5	-4	+3	
Tearing strength, in										
Institute	416	398	379	408	460	399	380	419	365	
Mill	416	358	417	351	351	433	363	383	319	
Av. difference**	0	-40	+38	-57	-109	+34	-17	-36	-46	
Max. difference***	-65	-82	+147	-86	-109	+127	-58	-83	-92	
Tearing strength, across										
Institute	453	421	426	421	436	432	416	440	387	
Mill	445	391	466	392	355	492	407	419	350	
Av. difference**	-8	-30	+40	-29	-81	+60	-9	-21	-37	
Max. difference***	-49	-65	+62	-46	-81	+139	-23	-74	-78	

*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 XV

SUMMARY OF TEST RESULTS--COMPARISON BY PERIODS

		Average Difference, per cent					
		Basis Weight	Caliper	Bursting Strength	G.E. Puncture	Tearing Strength, in	Tearing Strength, across
Mill A							
	Current period	-0.5	-0.7	+4	+18	0	-2
	9th period	+0.2	0.0	+7	+12	+7	+1
	8th period	+2	+0.7	+9	+10	-4	-2
Mill B							
	Current period	-0.5	+0.7	+6	-3	-10	-7
	9th period	-0.7	-0.6	+9	-8	-6	-4
	8th period	-0.5	-2	+7	-5	-7	-5
Mill C							
	Current period	-0.7	-0.7	+4	+3	+10	+9
	9th period	-0.5	0.0	+4	-5	+7	+10
	8th period	-1	-3	+3	-8	+3	+10
Mill D							
	Current period	+0.2	-3	+2	--	-14	-7
	9th period	+0.9	-3	-1	--	-16	-9
	8th period	+2	-3	0	--	-8	-3
Mill E							
	Current period	-1	-3	+6	-17	-24	-19
	9th period	-2	0	+6	-15	+4	+7
	8th period	--	--	--	--	--	--
Mill F							
	Current period	-1	-5	+3	+11	+9	+14
	9th period	-0.2	-5	+5	0	+6	+4
	8th period	-0.5	-4	+7	-2	+7	+8
Mill G							
	Current period	+0.5	-3	-2	+3	-4	-2
	9th period	+0.7	-3	-1	+2	-0.5	+0.5
	8th period	-0.7	-3	+1	-3	-4	+2
Mill H							
	Current period	+0.2	-1	0	0	-9	-5
	9th period	+0.5	-2	+3	-5	-11	-6
	8th period	+0.5	-3	+4	-10	-11	-4
Mill J							
	Current period	-2	-3	-4	+3	-13	-10
	9th period	-2	-5	-7	-17	-29	-23
	8th period	-1	-4	-2	-18	-22	-15

TABLE XVI
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948

Institute Date versus Kill Date

TABLE XVI

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, 1lb.			Caliper, points			Bursting Strength, points			G. E. Puncture units		
				IPC	MILL	Diff.	IPC	MILL	Diff.	IPC	MILL	Diff.	IPC	MILL	Diff.
<u>MILL A — 42-lb. Linerboard</u>															
131093	A-34	3/29/48	1	44.5	42.7	-1.8	15.7	15.6	-0.1	97	106	+9	39	42	+3
131094	A-35	3/30/48	1	42.5	42.2	-0.3	15.1	15.1	0.0	97	105	+8	38	44	+6
131320	A-36	4/6/48	2	43.1	43.4	+0.3	15.2	15.2	0.0	105	105	0	38	50	+12
131366	A-37	4/12/48	1	42.4	42.7	+0.3	14.6	14.5	-0.1	95	105	+10	38	47	+9
131367	A-38	4/13/48	1	42.6	42.9	+0.3	15.0	14.9	-0.1	101	104	+3	39	49	+10
131486	A-39	4/19/48	2	42.2	42.5	+0.3	14.5	14.1	-0.4	113	103	-10	37	39	+2
Current Mill Average:				42.9	42.7	-0.2	15.0	14.9	-0.1	101	105	+4	38	45	+7

TABLE XVII
Institute Data versus Mill Data
OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

s Weight, lb.	Caliper, points	Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet		
		IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
<u>MILL B — 42-lb. Linerboard</u>										
.8	-0.3	15.2	15.1	-0.1	105	106	+1	39	36	-3
.7	-0.3	14.5	14.4	-0.1	102	106	+4	37	35	-2
.2	-1.0	15.5	15.4	-0.1	96	107	+11	37	35	-2
.7	0.0	14.0	14.4	+0.4	100	112	+12	35	34	-1
.7	-0.1	14.8	14.7	-0.1	96	105	+9	35	35	0
.8	-0.4	14.8	14.6	-0.2	104	109	+5	33	34	+1
.9	-0.6	14.9	15.5	+0.6	100	108	+8	36	37	+1
.2	+0.1	14.1	14.4	+0.3	102	108	+6	33	33	0
.6	+0.3	14.7	15.1	+0.4	102	107	+5	36	35	-1
.0	0.0	15.2	15.1	-0.1	99	108	+9	35	35	0
.8	-0.4	15.2	15.0	-0.2	103	109	+6	36	36	0
.8	-0.4	14.9	15.1	+0.2	104	110	+6	34	33	-1
3	-0.4	14.9	15.4	+0.5	103	108	+5	37	34	-3
2	-0.3	15.0	14.9	-0.1	111	115	+4	41	38	-3
1	-0.2	15.7	15.9	+0.2	102	105	+3	40	38	-2
1	-0.2	14.9	15.0	+0.1	102	108	+6	36	35	-1
								398	358	-40
								421	391	-30

ulated from the totals of the individual readings.

TABLE XVII

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.				Caliper, points				Bursting Strength, points				G. E. units			
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	
Mill B --- 42-lb. Linerboard																			
131056	B-31	3/21/48	3	43.1	42.8	-0.3	15.2	15.1	-0.1	105	106	+1	39	36	-3	417			
131055	B-32	3/23/48	3	43.0	42.7	-0.3	14.5	14.4	-0.1	102	106	+4	37	35	-2	402			
131089	B-33	3/25/48	1	43.2	42.2	-1.0	15.5	15.4	-0.1	96	107	+11	37	35	-2	393			
131212	B-34	3/30/48	3	42.7	42.7	0.0	14.0	14.4	+0.4	100	112	+12	35	34	-1	387			
131213	B-35	3/31/48	3	42.8	42.8	-0.1	14.8	14.7	-0.1	96	105	+9	35	35	0	385			
131303	B-36	4/2/48	1	43.2	42.8	-0.4	14.6	14.6	-0.2	104	109	+5	33	34	+1	373			
131304	B-37	4/3/48	1	44.5	43.9	-0.6	14.9	15.5	+0.6	100	108	+8	36	37	+1	403			
131315	B-38	4/4/48	3	43.1	43.2	+0.1	14.1	14.4	+0.3	102	108	+6	33	33	0	372			
131316	B-39	4/5/48	3	43.3	43.6	+0.3	14.7	15.1	+0.4	102	107	+5	36	35	-1	385			
131323	B-40	4/6/48	1	43.0	43.0	0.0	15.2	15.1	-0.1	99	108	+9	35	35	0	379			
131324	B-41	4/7/48	1	44.2	43.8	-0.4	15.2	15.0	-0.2	103	109	+6	36	36	0	406			
131371	B-42	4/11/48	3	42.2	41.8	-0.4	14.9	15.1	+0.2	104	110	+6	34	33	-1	390			
131372	B-43	4/12/48	3	42.7	42.3	-0.4	14.9	15.4	+0.5	103	108	+5	37	34	-3	418			
131502	B-44	4/20/48	3	44.5	44.2	-0.3	15.0	14.9	-0.1	111	115	+4	41	38	-3	427			
131503	B-45	4/20/48	1	44.3	44.1	-0.2	15.7	15.9	+0.2	102	105	+3	40	38	-2	429			
Current Mill Average:				43.3	43.1	-0.2	14.9	15.0	+0.1	102	108	+6	36	35	-1	398			

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

MARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

Institute Data versus Mill Data

TABLE XVIII

Basis Weight, lb.	Caliper, points	Bursting Strength, points			G. E. units			Elmendorf Tear, g./sheet		
		IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
<u>Mill C — 42-lb. Linerboard</u>										
7 42.0	-0.7	13.9	13.7	-0.2	112	118	+6	39	37	-2
7 42.5	-0.2	14.4	14.4	0.0	105	115	+10	38	37	-1
6 43.1	-0.5	14.5	14.4	-0.1	95	100	+5	38	40	+2
2 43.0	-0.2	14.7	14.5	-0.2	107	106	-1	37	43	+6
6 42.7	+0.1	14.1	14.1	0.0	108	110	+2	40	44	+4
8 42.7	-0.1	14.2	14.0	-0.2	104	106	+2	41	41	0
9 42.6	-0.3	14.3	14.2	-0.1	105	109	+4	39	40	+1
								379	417	+38

TABLE XIX

Basis Weight, lb.	Caliper, points	Mill D — 42-lb. Linerboard			G. E. units			Elmendorf Tear, g./sheet		
		IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
<u>Mill E — 42-lb. Linerboard</u>										
9 43.8	-0.1	15.5	14.9	-0.6	104	104	0	39	37	-2
2 43.3	+1.1	14.9	14.7	-0.2	99	101	+2	37	34	-3
5 43.5	-0.3	15.3	14.9	-0.4	105	108	+3	35	35	0
3 43.7	+0.4	15.5	15.2	-0.3	94	103	+9	38	43	+5
7 44.3	-0.4	16.4	15.8	-0.6	103	101	-2	41	35	-6
5 43.7	+0.1	15.5	15.1	-0.4	101	103	+2	38	408	-51

TABLE XX

Basis Weight, lb.	Caliper, points	Mill E — 42-lb. Linerboard			G. E. units			Elmendorf Tear, g./sheet		
		IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
0 43.4	-0.6	14.3	13.9	-0.4	85	90	+5	36	30	-6
0 43.4	-0.6	14.3	13.9	-0.4	85	90	+5	36	30	-6

* or this sample. Therefore, the averages for this sample do not represent the standard number of tests calculated from the totals of the individual readings.

TABLE XVIII

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, 1lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
Mill C — 42-1b. Linerboard															
131057	C-26	3/25/48	1	42.7	42.0	-0.7	13.9	13.7	-0.2	112	118	+6	39	37	-2
131090	C-27	3/29/48	1	42.7	42.5	-0.2	14.4	14.4	0.0	105	115	+10	38	37	-1
131299	C-28	4/ 1/48	1	43.6	43.1	-0.5	14.5	14.4	-0.1	95	100	+5	38	40	+2
131317	C-29	4/ 5/48	1	43.2	43.0	-0.2	14.7	14.5	-0.2	107	106	-1	37	43	+6
131388	C-30	4/12/48	1	42.6	42.7	+0.1	14.1	14.1	0.0	108	110	+2	40	41	+4
131507	C-31	4/19/48	1	42.8	42.7	-0.1	14.2	14.0	-0.2	104	106	+2	41	41	0
Current Mill Average:				42.9	42.6	-0.3	14.3	14.2	-0.1	105	109	+4	39	40	+1

TABLE XIX

Mill D — 42-1b. Linerboard															
131058	D-20	3/29/48	4	43.9	43.8	-0.1	15.5	14.9	-0.6	104	104	0	39		
131088	D-21	4/ 1/48	4	42.2	43.3	+1.1	14.9	14.7	-0.2	99	101	+2	57		
131327	D-22	4/ 9/48	4	43.8	43.5	-0.3	15.3	14.9	-0.4	105	108	+3	35		
131348	D-23	4/13/48	4	43.3	43.7	+0.4	15.5	15.2	-0.3	94	103	+9	38		
131436	D-24*	4/19/48	4	44.7	44.3	-0.4	16.4	15.8	-0.6	103	101	-2	41		
Current Mill Average:				43.6	43.7	+0.1	15.5	15.1	-0.4	101	103	+2	38		

TABLE XX

Mill E — 42-1b. Linerboard															
131336	E-18	4/ 9/48	1	44.0	43.4	-0.6	14.3	13.9	-0.4	85	90	+5	36	30	-6
Current Mill Average:				44.0	43.4	-0.6	14.3	13.9	-0.4	85	90	+5	36	30	-6

*The sheets B5, D5, and F5 were missing for this sample. Therefore, the averages for this sample do not represent the totals of the individual readings.

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

TABLE XII
OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued
Institute Data versus Mill Data

is Weight, 1b.	Caliper, points	Bursting Strength, points	G. E. units	Elmendorf Tear, g./sheet					
				In	Mill	IPC	Across		
							IPC	Mill	Diff.
<u>Mill F — 42-lb. Linerboard</u>									
3.0	-0.6	16.1	15.5	-0.6	100	91	-9	37	+4
2.3	-1.0	14.9	14.2	-0.7	99	98	-1	37	+4
2.2	-0.1	15.1	14.8	-0.3	93	101	+3	36	+6
2.2	-0.7	15.2	14.5	-0.7	99	103	+4	37	+6
2.0	-0.8	14.5	13.7	-0.8	88	101	+13	40	+1
4.3	-0.7	15.9	14.7	-1.2	94	101	+7	39	+4
2.7	-0.6	15.3	14.6	-0.7	96	99	+3	38	+4
								399	433
								+34	+32
								432	492
								+60	+60

Calculated from the totals of the individual readings.

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

TABLE XXI
Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. Puncture, units		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
MILL F — 42-lb. LINERBOARD															
131206	F-21	3/31/48	1	43.6	43.0	-0.6	16.1	15.5	-0.6	100	91	-9	37	41	+4
131298	F-22	4/3/48	1	43.3	42.3	-1.0	14.9	14.2	-0.7	99	98	-1	37	41	+4
131309	F-23	4/6/48	1	42.3	42.2	-0.1	15.1	14.8	-0.3	93	101	+3	36	42	+6
131335	F-24	4/9/48	1	42.9	42.2	-0.7	15.2	14.5	-0.7	99	103	+4	37	43	+6
131374	F-25	4/13/48	1	42.8	42.0	-0.8	14.5	13.7	-0.8	88	101	+13	40	41	+1
131375	F-26	4/15/48	1	45.0	44.3	-0.7	15.9	14.7	-1.2	94	101	+7	39	43	+4
Current Mill Average:				43.3	42.7	-0.6	15.3	14.6	-0.7	96	99	+3	38	42	+4

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

TABLE XXII
OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948--continued
Institute Data versus Mill Data

Specs Weight, 1lb.	Caliper, points	Bursting Strength, points	G. E. Puncture, units			Elmendorf Tear, g./sheet		
			IPC	Mill	Diff.	IPC	Mill	Diff.
<u>Mill G -- 42-lb. Linerboard</u>								
42.5 -0.1	15.9	15.3	-0.6	106	+2	39	38	-1
43.1 +0.7	14.9	14.8	-0.1	108	-4	38	39	+1
43.3 +1.0	16.1	15.6	-0.5	100	99	-1	36	+4
43.2* +1.0	15.1	14.6*	-0.5	102	101*	-1	35	+5
42.0 -0.1	15.7	15.4	-0.3	98	96	-2	37	37
41.4 -0.6	15.6	15.2	-0.4	107	103	-4	37	37
42.7 +0.1	16.2	15.8	-0.4	103	102	-1	40	40
42.5 -0.5	15.4	15.2	-0.2	111	107	-4	39	40
42.6 +0.2	15.6	15.2	-0.4	104	102	-2	38	39
						+1	380	363
							-17	416
							-9	407

of specimens tested by the company. Therefore, these values do not represent the standard number calculated from the totals of the individual readings.

TABLE XXI
SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948--continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.	Caliper,			Bursting Strength, points			G. E. Puncture, units			
					IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	
<u>Mill G -- 42-lb. Linerboard</u>														
131074	G-34	3/29/48	1	42.6	42.5	-0.1	15.9	15.3	-0.6	106	108	+2	39	-1
131075	G-35	3/30/48	1	42.4	43.1	+0.7	14.9	14.8	-0.1	103	104	-1	38	+1
131307	G-36	4/5/48	2	42.3	43.3	+1.0	16.1	15.6	-0.5	100	99	-1	36	+4
131308	G-37	4/5/48	1	42.2	43.2*	+1.0	15.1	14.6*	-0.5	102	101*	-1	35	+5
131487	G-38	4/22/48	1	42.1	42.0	-0.1	15.7	15.4	-0.3	98	96	-2	37	0
131488	G-39	4/22/48	1	42.0	41.4	-0.6	15.6	15.2	-0.4	107	103	-4	37	0
131505	G-40	4/23/48	1	42.6	42.7	+0.1	16.2	15.8	-0.4	103	102	-1	40	0
131506	G-41	4/23/48	1	43.0	42.5	-0.5	15.4	15.2	-0.2	111	107	-4	39	+1
Current Mill Average:				42.4	42.6	+0.2	15.6	15.2	-0.4	104	102	-2	38	+1
Institute Data <u>versus</u> Mill Data														

* The sheet "E-8" was missing from the group of specimens tested by the company. Therefore, these values do not represent total of readings.

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

TABLE XIII
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

Institute Data versus Mill Data

asis Weight, 1b.	Caliper, points	Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet		
		IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
<u>Mill H — 42-lb. Linerboard</u>										
43.7 -0.1	15.5 15.4 -0.1	99	103	+4	39	37	-2	373	378	+5
43.2 -0.4	15.3 15.0 -0.3	105	107	+2	36	38	+2	397	391	-6
44.4 +0.2	15.7 15.1 -0.6	105	106	+1	39	35	-4	445	362	-83
44.6 +0.6	15.4 15.5 +0.1	101	100	-1	38	40	+2	432	387	-45
43.6 +0.5	15.4 15.2 -0.2	101	102	+1	37	39	+2	414	400	-14
43.9 -1.4	15.4 15.4 0.0	114	110	-4	40	40	0	445	377	-68
43.5 -0.3	15.2 15.0 -0.2	108	104	-4	39	40	+1	423	388	-35
43.9 +0.1	15.4 15.2 -0.2	105	105	0	38	38	0	419	383	-36
								440	419	-21

re calculated from the totals of the individual readings.

TABLE H-11

SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. units		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
<u>M111 H — 42-lb. Linerboard</u>															
131056	H-27	3/23/48	2	43.8	43.7	-0.1	15.5	15.4	-0.1	99	103	+4	39	37	-2
131204	H-28	3/29/48	2	42.8	43.2	-0.4	15.3	15.0	-0.3	105	107	+2	36	38	+2
131205	H-29	3/30/48	2	44.2	44.4	+0.2	15.7	15.1	-0.6	105	106	+1	39	35	-4
131318	H-30	4/ 5/48	2	44.0	44.6	+0.6	15.4	15.5	+0.1	101	100	-1	38	40	+2
131319	H-31	4/ 6/48	2	43.0	43.6	+0.6	15.4	15.2	-0.2	101	102	+1	37	39	+2
131373	H-32	4/12/48	2	45.3	43.9	-1.4	15.4	15.4	0.0	114	110	-4	40	40	0
131504	H-33	4/19/48	2	43.8	43.5	-0.3	15.2	15.0	-0.2	108	104	-4	39	40	+1
Current Mill Average:				43.8	43.9	+0.1	15.4	15.2	-0.2	105	105	0	38	38	0
													419	383	

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

TABLE XIV
MATERIAL OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948—continued
Institute Data versus Mill Data

basis weight, lb.	Caliper, points	Bursting Strength, points			G. E. Puncture, units			Elmendorf Tear, g./sheet								
		IPC Mill Diff.		IPC Mill Diff.	IPC Mill Diff.		IPC Mill Diff.	IPC Mill Diff.		Across Mill Diff.						
		IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.	IPC Mill Diff.						
<u>Mill J — 42-lb. Linerboard</u>																
42.3	-1.2	14.5	13.8	-0.7	111	102	-9	32	+2	361	335	-26	394	374	-20	
42.5	-0.9	14.3	14.1	-0.2	113	114	+1	34	+3	365	349	-16	397	400	+3	
43.5	-1.1	14.6	14.0	-0.6	105	100	-5	33	+2	371	337	-34	381	351	-30	
42.9	-0.9	14.8	14.3	-0.5	101	97	-4	34	-1	387	348	-39	379	356	-23	
43.6	-0.7	14.4	13.8	-0.6	109	106	-3	32	0	358	266	-92	382	304	-78	
42.6	-1.3	15.0	14.4	-0.6	109	102	-7	34	32	-2	349	281	-68	391	315	-76
42.9	-1.0	14.6	14.1	-0.5	108	104	-4	33	+1	365	319	-46	387	350	-37	

*Re calculated from the totals of the individual readings.

TABLE XXIV
SUMMARY OF INDIVIDUAL TEST LOTS—APRIL 1 THROUGH APRIL 30, 1948--continued
Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, points			G. E. units		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
<u>MILL J — 42-lb. Linerboard</u>															
131091	J-31	4/ 1/48	1	43.5	42.3	-1.2	14.5	13.8	-0.7	111	102	-9	32	34	+2
131092	J-32	3/31/48	1	43.4	42.5	-0.9	14.3	14.1	-0.2	113	114	+1	34	37	+3
131325	J-33	4/ 8/48	1	44.6	43.5	-1.1	14.6	14.0	-0.6	105	100	-5	33	35	+2
131326	J-34	4/ 8/48	1	43.8	42.9	-0.9	14.8	14.3	-0.5	101	97	-4	34	33	-1
131376	J-35	4/15/48	1	44.3	43.6	-0.7	14.4	13.8	-0.6	109	106	-3	32	32	0
131377	J-36	4/15/48	1	43.9	42.6	-1.3	15.0	14.4	-0.6	109	102	-7	34	32	-2
Current Mill Average:				43.9	42.9	-1.0	14.6	14.1	-0.5	108	104	-4	33	34	+1
365															

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

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OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1946--continued

Institute Data versus Mill Data

Basis Weight, lb.	Caliper, points			Bursting Strength, points			G. F. Puncture, units			Eliendorf Tear, g./sheet		
	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	In	Across
<u>Mill E - 1/4x1/4x1-lb. Drum Linerboard</u>												
46.5	-0.4	13.4	13	-0.4	99	106	+7	41	-1	427	474	+47
46.0	-0.7	14.0	13.7	-0.3	92	98	+6	437	-2	507	501	+70
45.9	+0.5	14.3	14.1	-0.2	87	96	+9	456	+4	503	486	+52
46.4	-1.6	14.3	14.3	0.0	92	96	+4	42	-2	422	459	+22
47.0	-0.6	14.0	13.8	-0.2	95	99	+7	42	0	445	473	+73
								92	47	512	526	+60
										520	526	+60
										459	473	+78
										459	473	+78
										508	508	+51

re calculated from the totals of the individual readings.

TABLE XXV
SUMMARY OF INDIVIDUAL TEST LOTS--APRIL 1 THROUGH APRIL 30, 1948--continued

Institute Data versus Mill Data

File No.	Mill Code	Date Made	Mch. No.	Basis Weight, 1lb.		Caliper, points		Bursting Strength, IPC points		G. E. Puncture, units	
				IPC	MILL DIFF.	IPC	MILL DIFF.	IPC	MILL DIFF.	IPC	MILL DIFF.
MILL 2 - 4/16-1b. Drum Liverboard											
131207	E-16	4/ 2/48	1	46.9	-0.4	13.4	-0.4	99	+7	42	-1
131310	E-17	4/ 6/48	1	47.1	-0.7	14.0	-0.3	92	+6	42	-2
131361	E-19	4/14/48	1	48.4	+0.9	14.3	-0.2	87	+9	46	+1
131478	E-20	4/20/48	1	48.0	-0.4	14.3	0.0	92	+4	42	-2
Current Mill Average:				47.6	47.0	-0.6	14.0	13.8	-0.2	92	+7
										42	0
										42	0

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

