

Institute of Paper Science and Technology
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CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 124

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

November 1, 1957

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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In conjunction with the F.K.I. Continuous Baseline Study, The Institute of Paper Chemistry has been directed to identify the participating mills by means of a scrambled system of code letters. Under this system, which was initiated in Progress Report 105, each mill is identified by a code letter different from that used for the previous month.

During the month of October, ninety different sample lots of 42-lb. Fourdrinier kraft linerboard from thirteen different F.K.I. mills were processed at The Institute of Paper Chemistry. 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	0
B	10
C	8
D	8
E	15
F	12
G	2
H	3
I	0
J	6
K	1
L	0
M	5
N	0
O	9
P	0
Q	3
S	8
Total	90

These sample lots were tested for basis weight, caliper, bursting strength, and Elmendorf tear. The average strength results for each mill may be seen in Table II and are graphically presented in Figures 1 to 5. 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. averages is based on the results for the previous twelve months excluding the current period. Hence, in the case of the current report, it covers the period from October 1, 1956, to September 30, 1957. The F.K.I. indexes are obtained as follows:

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

The F.K.I. index provides a ready means of comparing the current quality with previous results. For example, the current F.K.I. average basis weight is 43.0 lb., and the cumulative F.K.I. average basis weight is also 43.0 lb. Hence, the F.K.I. index for basis weight determined in per cent as indicated above is 100% and signifies that the current average basis weight is the same as the cumulative average.

A comparison of the results in Table II and Figure 1 shows that the average basis weight results for all mills conform to the 42-lb. specification set forth in Rule 41. Mill C had the highest average basis weight, which was 43.7 lb. or approximately 4.0% higher than the 42-lb. specification. Mill D had the lowest average basis weight, of 42.4 lb., approximately 1.0% higher than the 42-lb. specification.

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

Mill Code	Per Cent
A	--
B	+1.2
C	+4.0
D	+1.0
E	+3.1
F	+3.3
G	+2.9
H	+1.4
I	--
J	+1.9
K	+1.9
L	--
M	+2.9
N	--
O	+2.9
P	--
Q	+1.9
S	+2.9

A comparison of the average basis weight data for the previous period with the current F.K.I. average indicated that the basis weight results have decreased slightly from 43.2 lb. to 43.0 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the mill averages varied from a low of 11.8 points for Mill E to a high of 13.5 points for Mill S. The current F.K.I. average is 12.8 points, slightly higher than the cumulative F.K.I. average of 12.7 points, as indicated by the F.K.I. index of 100.8%.

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

and Figure 3 that the average bursting strength values for the various mills range from a low of 102 for Mill H to a high of 115 for Mill B. The current F.K.I. average bursting strength is 111 p.s.i. g., the same as the cumulative F.K.I. average of 111 p.s.i. g. as indicated by the F.K.I. index of 100%.

A graphic comparison of the Elmendorf tear results for the various mills is given in Figures 4 and 5. The data of Table II show that mills E and S shared the highest average machine direction tear value of 366 g./sheet, and that Mill B had the lowest value of 295 g./sheet. It may be further noted in Table II that Mill E also had the highest cross-machine direction tear value of 403 g./sheet and that Mills D and Q shared the lowest value of 352 g./sheet. It may be noted further that the current F.K.I. machine direction tear average is slightly lower than the cumulative F.K.I. average and the current F.K.I. cross-machine direction tear average is the same as the cumulative F.K.I. average.

A comparison of the F.K.I. indexes indicates that, for the current period, the current F.K.I. averages for basis weight, bursting strength, and cross-machine direction tear are the same as the corresponding cumulative F.K.I. averages, whereas the current F.K.I. average for caliper is slightly higher than the cumulative F.K.I. average and that for machine direction Elmendorf tear is slightly lower than the cumulative F.K.I. average.

In order to compare the variation within a given mill, the test results for each particular mill have been tabulated in Tables III to XX for Mills A and S, respectively.

The results obtained on special drum stock are presented in Table XXI.

In addition to the current and cumulative average, 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 for the previous twelve months excluding the current period. 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 are a convenient means for comparing the current mill results either with the previous results for that particular mill or with the cumulative F.K.I. results. The reports also present a comparison of the test data obtained at the mills with test data obtained at The Institute of Paper Chemistry. These test data are presented and discussed on subsequent pages of this report.

It may be noted in Tables III through XXI that the test data include information about 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	No samples submitted.		
B	10		
C	8		
D	8		
E	15		

(Continued on following page)

Mill Code	No. of Sample Lots		
	W.F.	D.F.	Misc.
F	9	3 ^a	
G	2		
H	3		
I	No samples submitted.		
J	6		
K	1		
L	No samples submitted.		
M	5 ^a		
N	No samples submitted.		
O	9		
P	No samples submitted.		
Q	3 ^a		
S	8		
R ^b	No samples submitted.		

^a One side only.

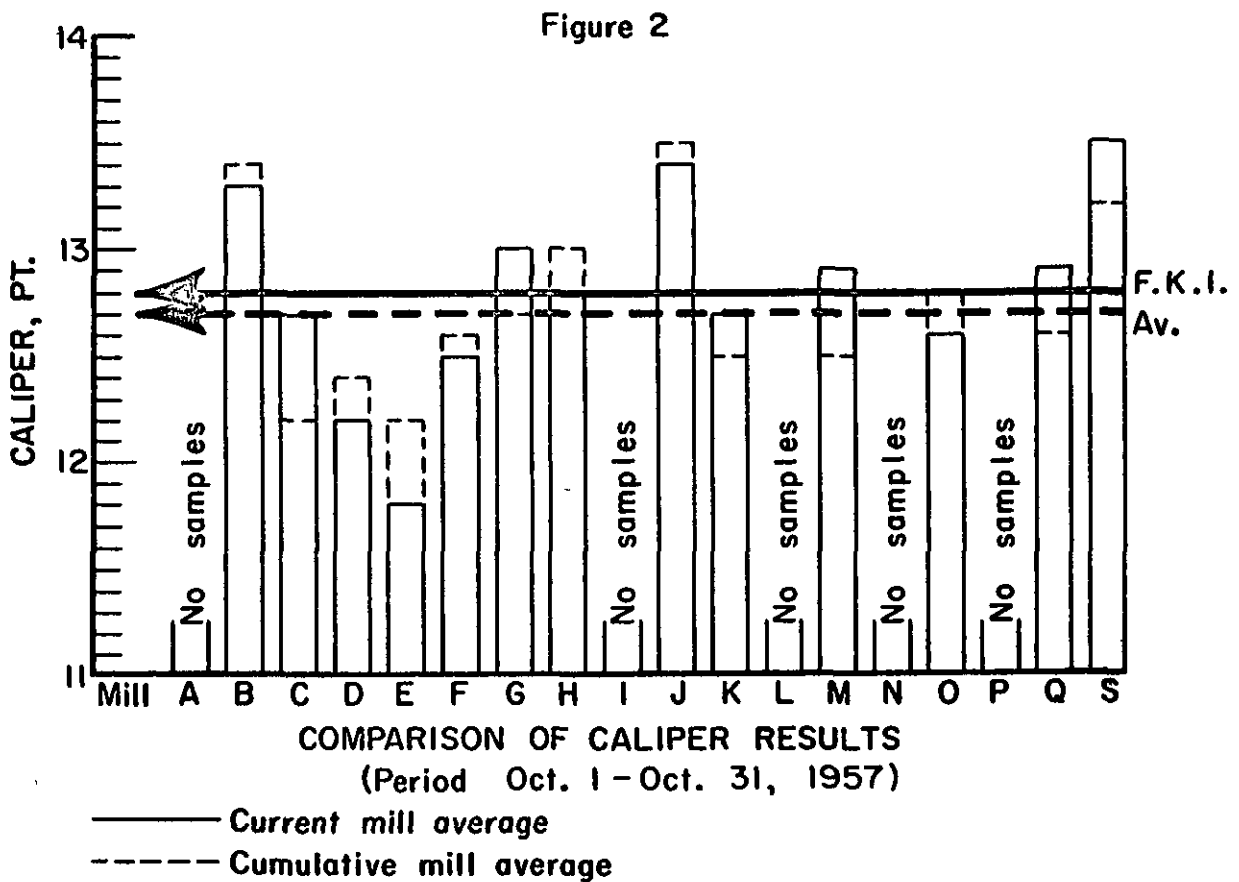
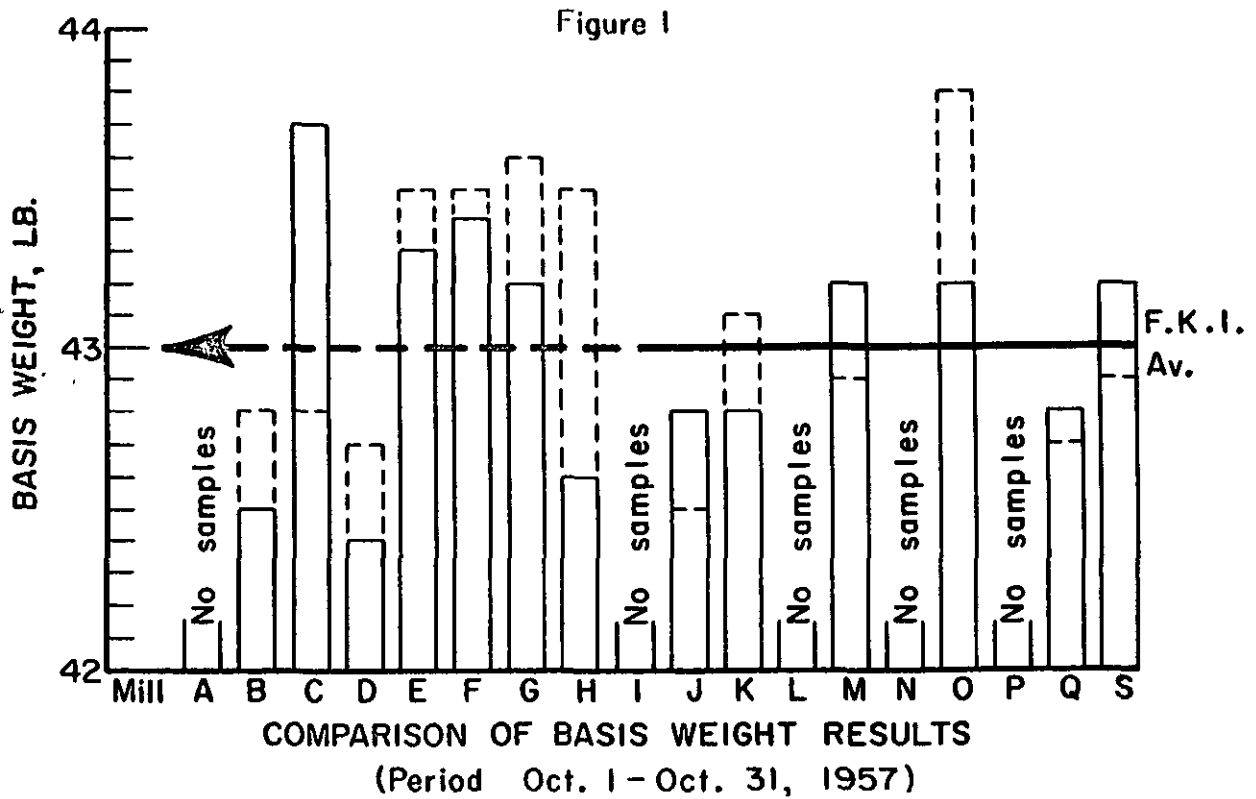
^b Drum linerboard.

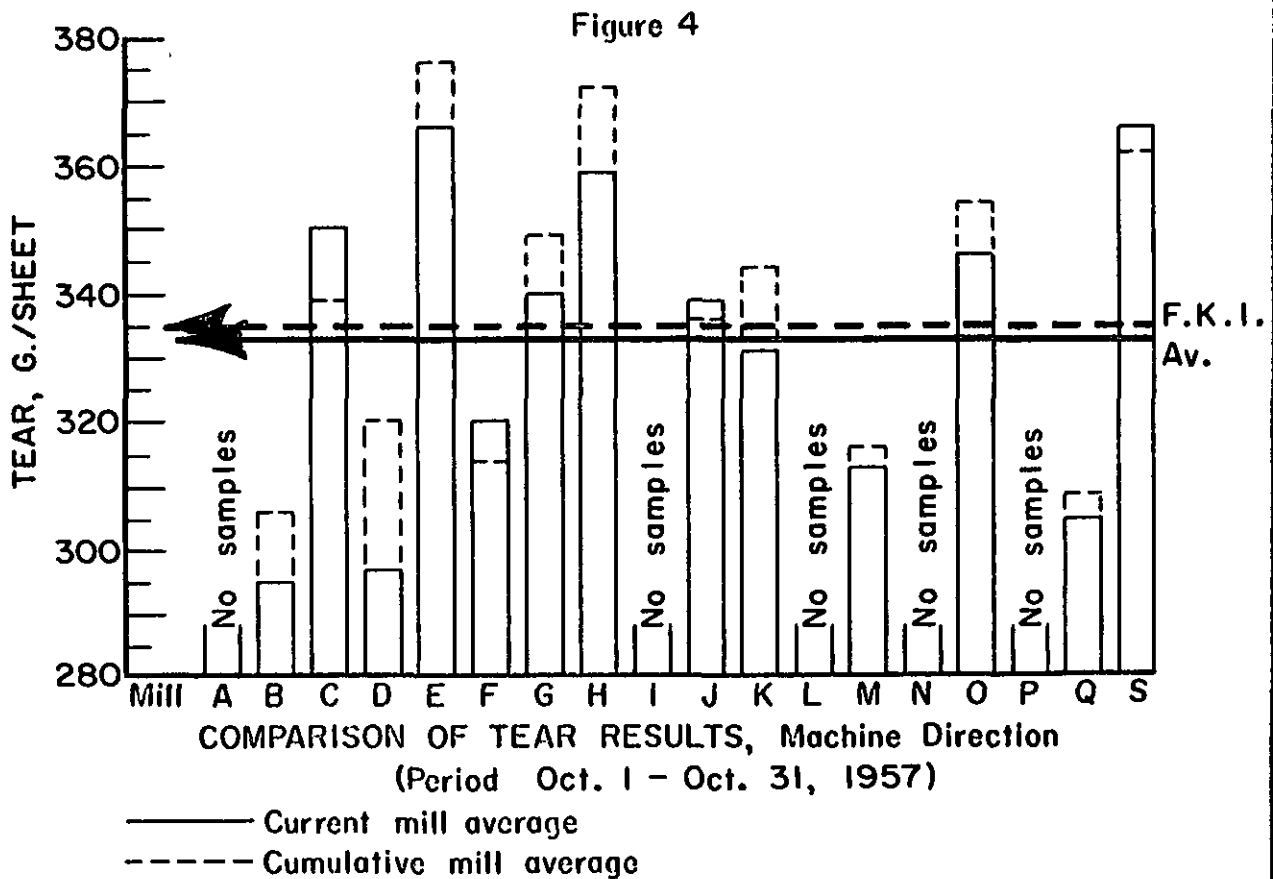
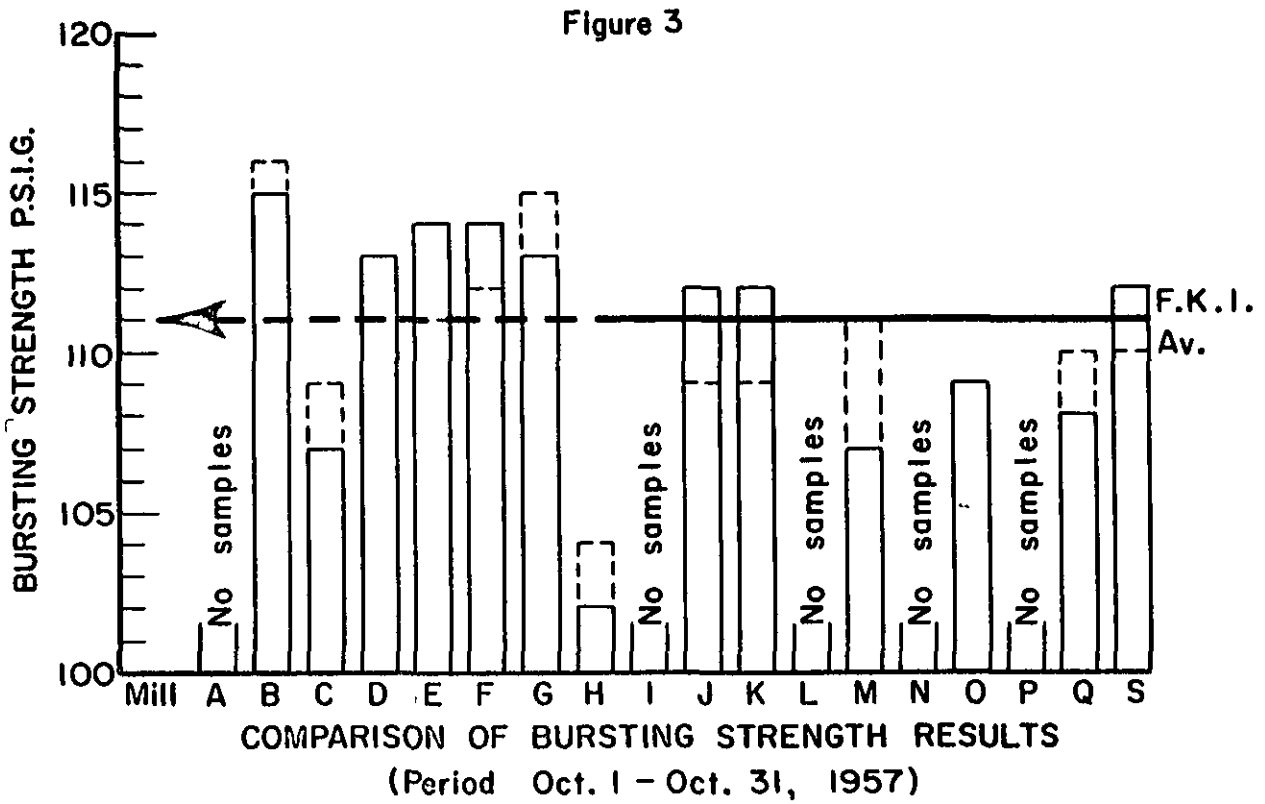
The results indicate that all participating mills are using a water finish on their 42-lb. linerboard.

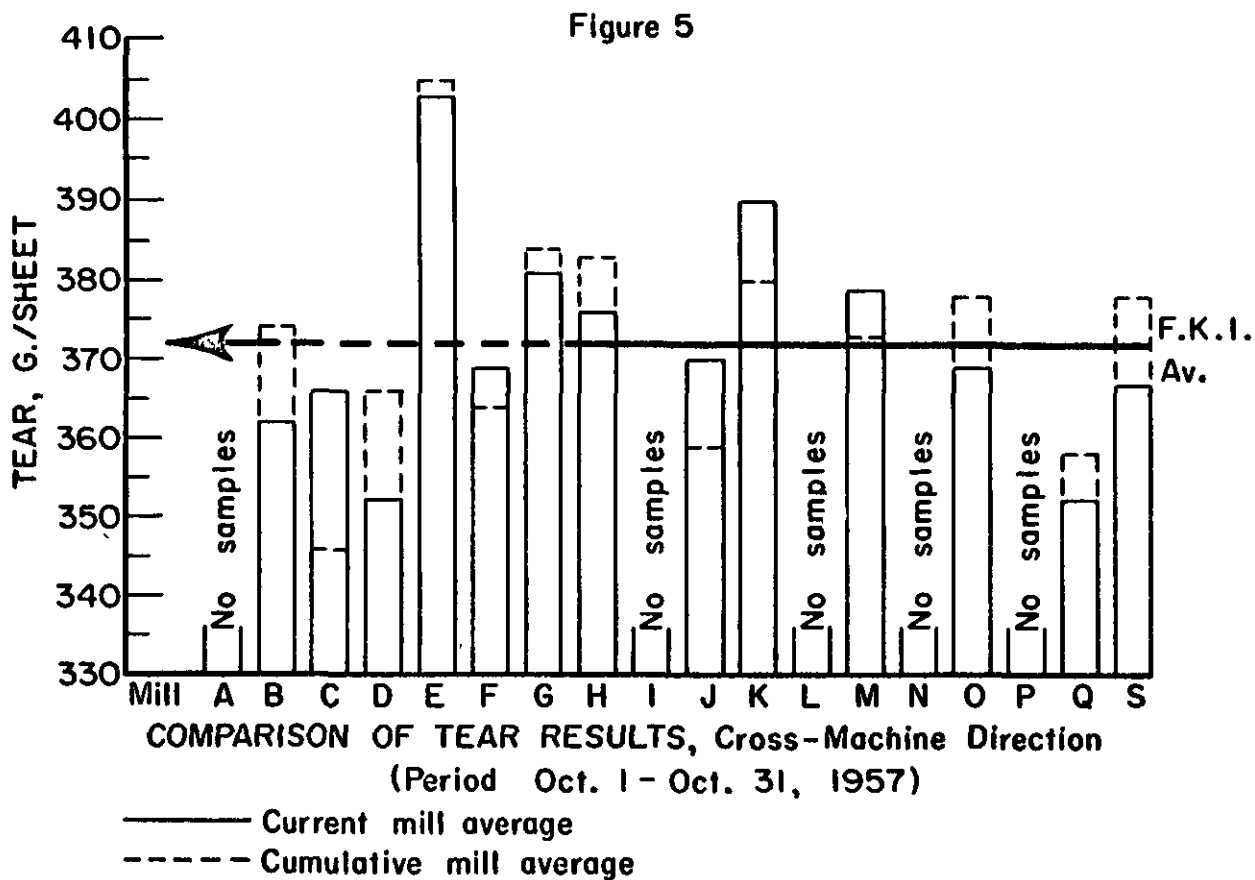
TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--OCTOBER 1 THROUGH OCTOBER 31, 1957

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	In Machine	Elmendorf Tear, g./sheet	Cross Machine
A	No samples submitted.	13.3	115	295.	362	
B	42.5	12.7	107	350	366	
C	42.4	12.2	113	297	352	
D	43.3	11.8	114	366	403	
E	43.4	12.5	114	320	369	
F	43.2	13.0	113	340	381	
G	42.6	12.8	102	359	376	
H	No samples submitted.					
I	42.8	13.4	112	339	370	
J	42.8	12.7	112	331	390	
K	No samples submitted.					
L	43.2	12.9	107	313	379	
M	No samples submitted.					
N	43.2	12.6	109	346	369	
O	No samples submitted.					
P	42.8	12.9	108	305	352	
Q	43.2	13.5	112	366	367	
S						
Current FKl Average:	43.0	12.8	111	333	372	
Cumulative FKl Average:	43.0	12.7	111	335	372	
FKl Index, %	100.0	100.8	100.0	99.4	100.0	100.0







SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957

TABLE III

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gauge		Elmendorf Tear, g./sheet							
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
175662	W.F.	10/1/57	9/9/57	1	42.2	40.6	13.9	12.7	13.2	138	85	113	336	256	291	392	320	353 ^a
175663	W.F.	10/1/57	9/12/57	1	43.4	41.6	13.7	11.8	12.7	143	89	114	304	232	274 ^a	392	320	351 ^a
175720	W.F.	10/11/57	9/17/57	1	44.4	42.6	14.0	12.2	13.2	150	104	121	352	272	310	432	352	387 ^a
175721	W.F.	10/11/57	9/21/57	1	43.8	42.0	13.9	12.5	13.2	130	94	112	312	240	274	376	304	339 ^a
175799	W.F.	10/25/57	9/24/57	1	44.0	42.0	14.3	12.5	13.5	127	90	110	384	272	309 ^a	416	328	367 ^a
175800	W.F.	10/25/57	9/28/57	1	42.0	41.0	13.5	12.3	13.0	133	95	115	320	224	261 ^a	440	352	382 ^a
175801	W.F.	10/25/57	10/1/57	1	43.0	41.8	15.0	14.1	14.6	148	89	113	368	288	327	400	344	372 ^a
175802	W.F.	10/25/57	10/4/57	1	43.0	41.0	14.2	12.9	13.4	140	103	120	368	272	319	432	352	383 ^a
175803	W.F.	10/25/57	10/7/57	1	44.0	42.4	14.1	13.1	13.8	135	85	116	336	288	315 ^a	352	304	335 ^a
175804	W.F.	10/25/57	10/11/57	1	42.0	41.0	13.0	12.0	12.6	132	96	115	320	240	274 ^a	368	320	346 ^a
Current Mill Average:						42.5		13.3		13.3		115		295		362		
Cumulative Mill Average:						42.8		13.4		13.4		116		306		374		
Mill Factor, %						99.3		99.3		99.3		99.1		96.4		96.8		
Mill Index, %						98.8		104.7		104.7		103.6		88.1		97.3		

No samples submitted.

TABLE IV

MILL B -- 42-LB. LINERBOARD

175662	W.F.	10/1/57	9/9/57	1	42.2	40.6	13.9	12.7	13.2	138	85	113	336	256	291	392	320	353 ^a
175663	W.F.	10/1/57	9/12/57	1	43.4	41.6	13.7	11.8	12.7	143	89	114	304	232	274 ^a	392	320	351 ^a
175720	W.F.	10/11/57	9/17/57	1	44.4	42.6	14.0	12.2	13.2	150	104	121	352	272	310	432	352	387 ^a
175721	W.F.	10/11/57	9/21/57	1	43.8	42.0	13.9	12.5	13.2	130	94	112	312	240	274	376	304	339 ^a
175799	W.F.	10/25/57	9/24/57	1	44.0	42.0	14.3	12.5	13.5	127	90	110	384	272	309 ^a	416	328	367 ^a
175800	W.F.	10/25/57	9/28/57	1	42.0	41.0	13.5	12.3	13.0	133	95	115	320	224	261 ^a	440	352	382 ^a
175801	W.F.	10/25/57	10/1/57	1	43.0	41.8	15.0	14.1	14.6	148	89	113	368	288	327	400	344	372 ^a
175802	W.F.	10/25/57	10/4/57	1	43.0	41.0	14.2	12.9	13.4	140	103	120	368	272	319	432	352	383 ^a
175803	W.F.	10/25/57	10/7/57	1	44.0	42.4	14.1	13.1	13.8	135	85	116	336	288	315 ^a	352	304	335 ^a
175804	W.F.	10/25/57	10/11/57	1	42.0	41.0	13.0	12.0	12.6	132	96	115	320	240	274 ^a	368	320	346 ^a
Current Mill Average:						42.5		13.3		13.3		115		295		362		
Cumulative Mill Average:						42.8		13.4		13.4		116		306		374		
Mill Factor, %						99.3		99.3		99.3		99.1		96.4		96.8		
Mill Index, %						98.8		104.7		104.7		103.6		88.1		97.3		

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE V

MILL C -- 42-LB. LINERBOARD

File No	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet		Across						
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		Max.	Min.	Av.			
175686	W.F.	10/ 2/57	9/10/57	-	46.2	44.4	45.5	14.5	13.2	13.7	120	76	100	416	304	370 ^a	432	336	362 ^a
175697	W.F.	10/ 2/57	9/10/57	-	46.8	44.6	45.4	14.2	13.1	13.7	115	86	102	416	296	353 ^a	448	304	379 ^a
175695	J.F.	10/ 7/57	9/23/57	-	44.2	43.0	43.8	12.9	12.1	12.5	131	80	110	384	312	349	408	344	375 ^a
175696	W.F.	10/ 7/57	9/23/57	-	44.2	43.8	44.0	13.0	12.1	12.6	135	91	110	384	304	340	400	312	362 ^a
175743	W.F.	10/15/57	9/30/57	-	42.2	40.8	41.8	12.5	11.5	12.0	121	88	108	400	288	349 ^a	424	344	381 ^a
175744	W.F.	10/15/57	9/30/57	-	42.4	38.0	41.6	12.6	11.6	12.1	128	82	110	416	312	346	400	320	351 ^a
175807	W.F.	10/28/57	10/13/57	-	45.6	42.0	43.7	13.1	12.1	12.6	128	93	108	384	296	343	408	320	367 ^a
175808	W.F.	10/28/57	10/13/57	-	44.6	42.0	43.6	13.2	12.0	12.6	124	88	105	384	304	354 ^a	400	320	351 ^a
Current Mill Average:							43.7			12.7	107		350		366				
Cumulative Mill Average:							42.8			12.2	109		339		346				
Mill Factor, %							102.1			104.1	98.2		103.2		105.8				
Mill Index, %							101.6			100.0	96.4		104.5		98.4				

^aThis average includes the readings for one or more specimens which tore beyond the 3/32-inch limit.

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE VI
MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. Gage		Elmendorf Tear, g./sheet								
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.					
175659	W.F.	10/ 1/57	9/18/57	2	44.2	42.4	43.4	12.7	11.3	12.2	140	71	115	416	264	339 ^a	440	328	379 ^a
175660	W.F.	10/ 1/57	9/18/57	2	44.6	42.4	43.7	12.8	11.5	12.3	150	91	120	368	280	314 ^a	416	336	369 ^a
175718	W.F.	10/11/57	9/23/57	2	43.0	41.0	42.0	12.5	11.5	12.0	144	78	114	336	256	301	384	320	362 ^a
175719	W.F.	10/11/57	9/25/57	2	42.2	41.6	41.9	12.4	11.3	11.9	148	97	118	352	240	294	392	320	356 ^a
175724	W.F.	10/14/57	9/30/57	2	42.4	41.0	41.6	12.6	11.0	11.8	140	90	109	328	248	275 ^a	384	304	337 ^a
175725	W.F.	10/14/57	9/30/57	2	44.2	41.4	42.6	13.5	12.2	12.9	135	78	109	352	200	289 ^a	368	280	327 ^a
175741	W.F.	10/15/57	10/ 4/57	2	43.6	41.6	42.7	13.4	12.0	12.9	130	89	108	304	240	270	384	320	353 ^a
175742	W.F.	10/15/57	10/ 3/57	2	42.0	41.0	41.7	13.1	10.6	11.8	131	90	109	320	256	293 ^a	368	288	332 ^a
Current Mill Average:					42.4		42.4		12.2		113		297		352				
Cumulative Mill Average:					42.7		42.7		12.4		113		320		366				
Mill Factor, %					99.3		99.3		98.4		100.0		92.8		96.2				
Mill Index, %					98.6		98.6		96.1		101.8		88.7		94.6				

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE VII

MILL E -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I., gage			Elmendorf Tear, g./sheet					
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
175697	W.B.	10/7/57	9/16/57	-	45.4	42.0	43.8	12.4	11.4	11.9	145	88	111	400	360	381	504	336	423 ^a
175698	W.B.	10/7/57	9/19/57	-	45.6	42.0	43.9	12.3	11.6	12.0	134	100	117	432	320	363 ^a	432	360	401 ^a
175699	W.B.	10/7/57	9/20/57	-	43.8	40.0	42.1	12.0	11.0	11.5	142	96	120	384	304	343 ^a	440	320	364 ^a
175700	W.B.	10/7/57	9/22/57	-	44.2	42.0	43.6	12.9	11.9	12.3	125	88	110	424	352	386 ^a	496	368	423 ^a
175701	W.B.	10/7/57	9/26/57	-	44.2	42.0	43.4	12.2	11.8	12.0	128	102	118	400	320	361	432	368	403 ^a
175702	W.B.	10/7/57	9/26/57	-	44.6	42.2	43.6	12.2	11.9	12.0	131	104	118	400	312	366 ^a	464	376	409 ^a
175703	W.B.	10/7/57	9/28/57	-	44.6	41.6	43.6	12.0	10.9	11.6	124	83	104	424	336	365 ^a	432	368	390 ^a
175726	W.B.	10/14/57	10/1/57	-	45.4	41.4	43.6	12.0	11.1	11.5	122	89	104	384	320	350 ^a	400	320	369 ^a
175727	W.B.	10/14/57	10/1/57	-	44.0	42.2	43.5	12.2	11.1	11.8	134	90	114	384	320	357 ^a	424	344	380 ^a
175728	W.B.	10/14/57	10/2/57	-	44.4	40.0	42.8	12.0	11.0	11.7	129	84	111	448	304	367 ^a	432	336	389 ^a
175770	W.B.	10/21/57	10/2/57	-	44.4	41.8	43.5	12.5	11.3	12.0	127	80	112	456	352	397 ^a	520	384	434 ^a
175771	W.B.	10/21/57	10/4/57	-	44.0	41.0	43.0	12.0	11.4	11.7	137	94	119	432	320	360 ^a	464	368	421 ^a
175810	W.B.	10/28/57	10/10/57	-	44.6	42.0	43.4	12.0	11.0	11.5	126	89	111	416	336	375 ^a	464	368	401 ^a
175811	W.B.	10/28/57	10/14/57	-	44.2	41.2	42.6	12.1	11.6	11.9	133	90	114	400	296	357 ^a	464	352	403 ^a
175812	W.B.	10/28/57	10/15/57	-	44.4	41.8	43.1	12.2	11.2	11.8	137	95	122	400	320	366 ^a	488	392	437 ^a
Current Mill Average:					43.3			11.8			114			366			403		
Cumulative Mill Average:					43.5			12.2			111			376			405		
Mill Factor, %					99.5			96.7			102.7			97.3			99.5		
Mill Index, %					100.7			92.9			102.7			109.3			108.3		

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE VIII

MILL F -- 42-LB. LINERBOARD

file no.	Finish	Date Recd.	Date Mace	Mch. No.	Basis weight, lb.			Calliper, points			Bursting Strength, P.S.I., Edge			Elmendorf Tear, E./sheet					
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
175661	W.F.S	10/ 1/57	9/21/57	1	44.0	43.0	43.7	12.8	12.0	12.5	132	84	113	336	248	297 ^a	400	344	361 ^a
175688	W.F.S	10/ 2/57	9/21/57	1	44.4	43.0	44.0	12.9	12.3	12.7	125	96	112	368	280	329 ^a	400	344	368 ^a
175689	W.F.S	10/ 2/57	9/24/57	2	44.0	42.6	43.4	12.7	11.5	12.3	129	93	112	384	288	337 ^a	416	352	379 ^a
175694	W.F.	10/ 4/57	9/24/57	2	44.0	42.2	43.4	13.0	11.8	12.5	144	104	119	400	288	333 ^a	400	352	375 ^a
175708	W.F.	10/ 7/57	9/26/57	2	44.0	42.6	43.2	13.0	11.9	12.5	126	83	109	384	272	322	416	344	374 ^a
175709	W.F.	10/ 7/57	9/29/57	2	44.0	42.0	43.0	13.0	11.8	12.2	136	101	119	400	288	340	416	368	399 ^a
175710	W.F.	10/ 7/57	9/29/57	1	44.0	41.0	42.3	13.0	12.2	12.5	122	70	110	336	240	299	384	336	354 ^a
175760	W.F.	10/17/57	10/ 7/57	2	44.0	43.4	43.7	12.4	11.9	12.2	130	89	109	352	272	307 ^a	400	320	354 ^a
175763	W.F.	10/21/57	10/ 7/57	2	43.8	43.0	43.4	13.0	12.0	12.5	137	99	115	368	272	314	400	320	353 ^a
175764	W.F.	10/21/57	10/13/57	2	44.0	43.0	43.4	13.0	12.1	12.5	125	97	113	400	280	319	392	336	360 ^a
175765	W.F.	10/21/57	10/14/57	2	44.6	42.2	43.6	13.7	12.5	12.9	129	96	116	368	304	319	408	336	381 ^a
175798	W.F.	10/25/57	10/20/57	2	44.0	42.6	43.4	13.0	11.9	12.3	133	96	117	352	288	324 ^a	400	336	367 ^a
Current Mill Average.					43.4			12.5			114			320			369		
Cumulative Mill Average.					43.5			12.6			112			314			364		
Mill Factor, %					99.8			99.2			101.8			101.9			101.4		
Mill Index, %					100.9			98.4			102.7			95.5			99.2		

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE IX
MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet									
					Max.	Av.	Max.	Av.	Max.	Av.	In	Across	Max.	Av.						
175722	S.F.	10/14/57	10/4/57	-	45.0	42.4	43.8	13.3	12.2	12.8	143	87	118	400	304	359	464	352	395 ^a	
175723	S.F.	10/14/57	10/9/57	-	44.2	41.0	42.7	14.1	12.6	13.2	130	86	109	376	272	321 ^a	408	344	366 ^a	
Current Mill Average					43.2		13.0		113		340		381							
Cumulative Mill Average:					43.6		12.7		115		349		384							
Mill Factor, %					99.1		102.4		98.3		97.4		99.2							
Mill Index, %					100.5		102.4		101.8		101.5		102.4							

TABLE X

MILL H -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet									
					Max.	Av.	Max.	Av.	Max.	Av.	In	Across	Max.	Av.						
175658	S.F.	10/1/57	9/23/57	7	44.2	41.0	43.0	14.0	12.6	13.1	124	64	96	416	304	365 ^a	400	336	367 ^a	
175769	S.F.	10/21/57	10/10/57	7	44.0	41.0	42.7	13.2	12.0	12.6	131	90	107	384	280	346	408	344	380 ^a	
175809	S.F.	10/28/57	10/18/57	7	43.8	41.0	42.1	13.1	12.0	12.6	123	77	104	424	312	366	456	344	381 ^a	
Current Mill Average:					42.6		12.8		102		359		376							
Cumulative Mill Average:					43.5		13.0		104		372		383							
Mill Factor, %					97.9		98.5		98.1		96.5		98.2							
Mill Index, %					99.1		100.8		91.9		107.2		101.1							

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XI

MILL I -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	No. Mch.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. gage		Elmendorf Tear, g./sheet	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.

No samples submitted.

TABLE XII

MILL J -- 42-LB. LINERBOARD

175707	WFLS	10/7/57	9/18/57	2	45.0	43.2	44.1	14.3	13.2	13.8	129	80	108	408	320	355 ^a	456	352	399 ^a	
175754	WFLS	10/16/57	10/7/57	2	44.2	42.0	42.8	13.7	12.3	12.9	126	95	111	400	304	345 ^a	408	304	375 ^a	
175755	WFLS	10/16/57	10/10/57	2	43.0	41.6	42.2	13.8	12.5	13.1	129	88	114	424	272	359 ^a	392	320	355 ^a	
175815	WFLS	10/28/57	10/17/57	2	43.4	42.0	42.7	13.5	12.8	13.2	130	82	110	416	272	329 ^a	400	336	371 ^a	
175816	WFLS	10/28/57	10/18/57	2	44.0	42.0	43.0	14.1	13.1	13.7	131	97	115	392	280	332 ^a	424	336	373 ^a	
175817	WFLS	10/28/57	10/19/57	2	43.0	41.4	42.2	14.0	12.9	13.5	137	92	114	352	280	312 ^a	368	312	355 ^a	
Current Mill Average:					42.8		13.4		112		339		370							
Cumulative Mill Average:					42.5		13.5		109		336		359							
Mill Factor, %					100.7		99.3		102.8		100.9		103.1							
Mill Index, %					99.5		105.5		100.9		101.2		99.5							

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XIII

MILL K -- 42-LB. LINERBOARD

File No	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, Points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet								
					Max.	Min. Av.	Max.	Min. Av.	Max.	Min. Av.	Max.	Min. Av.	Max.	Min. Av.					
175706	F	10/7/57	9/19/57	2	43.6	42.4	42.8	13.0	12.4	12.7	131	85	112	368	280	331	424	368	390 ^a
Current Mill Average					42.8					12.7			112			331			390
Cumulative Mill Average:					43.1					12.5			109			344			380
Mill Factor, %					99.3					101.6			102.8			96.2			102.6
Mill Index, %					99.5					100.0			100.9			98.8			104.8

TABLE XIV

MILL L -- 42-LB. LINERBOARD

No samples submitted.

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XV

MILL M -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet								
					Max.	Min. Av.	Max.	Min. Av.	Max.	Min. Av.	In	Across	Max.	Min. Av.					
175765	F1S	10/21/57	10/14/57	1	44.0	42.0	43.3	13.8	12.1	13.0	120	85	105	352	248	312 ^a	432	312	367 ^a
175767	F1S	10/21/57	10/15/57	1	44.0	42.0	43.2	13.2	12.3	12.8	126	90	105	384	280	320 ^a	448	344	386 ^a
175768	F1S	10/21/57	10/16/57	1	43.6	42.2	43.0	13.1	12.0	12.7	130	93	108	352	272	302 ^a	432	360	391 ^a
175813	F1S	10/28/57	10/17/57	1	44.4	42.4	43.2	13.7	12.4	13.0	131	90	112	416	288	332	432	320	387 ^a
175814	F1S	10/28/57	10/18/57	1	45.4	42.4	43.3	13.8	12.5	13.1	136	91	111	336	264	300 ^a	424	320	367 ^a
Current Mill Average							43.2			12.9			107			313			379
Cumulative Mill Average							42.9			12.5			111			316			373
Mill Factor, %							100.7			103.2			96.4			99.1			101.6
Mill Index, %							100.5			101.6			96.4			93.4			101.9

TABLE XVI

MILL N -- 42-LB. LINERBOARD

No samples submitted.

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XVII
 MILL O -- 42-LB. LINERBOARD

File No	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		P.S.I. gage		Bursting Strength,		Elmendorf Tear, g./sheet					
					Max.	Av.	Max.	Av.	Max.	Av.	Max.	Av.	In	Across	Max.	Av.		
175756	N.F.	10/17/57	10/9/57	-	44.0	43.0	13.5	12.2	13.1	131	86	109	384	288	325 ^a	400	328	356 ^a
175757	J.F.	10/17/57	10/10/57	-	43.0	42.4	12.3	11.5	11.9	130	100	111	352	296	322 ^a	400	320	364 ^a
175758	N.F.	10/17/57	10/11/57	-	45.0	44.0	13.5	12.8	13.0	123	85	109	400	320	360 ^a	416	328	369 ^a
175787	W.F.	10/24/57	10/16/57	-	44.4	43.4	13.0	12.1	12.3	128	85	104	400	304	352 ^a	440	320	375 ^a
175788	N.F.	10/24/57	10/17/57	-	43.2	42.2	13.0	12.0	12.4	133	88	107	400	304	343 ^a	384	320	355 ^a
175789	N.F.	10/24/57	10/18/57	-	44.0	42.2	13.0	12.1	12.5	127	90	110	376	320	349 ^a	400	344	373 ^a
175818	W.F.	10/28/57	10/23/57	-	44.0	42.0	13.0	12.1	12.5	127	93	113	432	320	369 ^a	448	336	388 ^a
175819	N.F.	10/28/57	10/24/57	-	43.6	42.0	13.2	12.1	12.8	123	85	106	408	304	354 ^a	400	336	366 ^a
175820	W.F.	10/28/57	10/25/57	-	43.8	42.4	13.2	12.4	12.8	127	93	111	384	296	341 ^a	416	328	377 ^a
Current Mill Average:					43.2		12.6		109		109		346		369			
Cumulative Mill Average:					43.8		12.8		109		109		354		378			
Mill Factor, %					98.6		98.4		100.0		97.7		103.3		97.6			
Mill Index, %					100.5		99.2		98.2		103.3		99.2		99.2			

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XVIII
 MILL P -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. Gage		Elmendorf Tear, g./sheet	
					Max.	Av.	Max.	Av.	Max.	Av.	In	Across

No samples submitted.

TABLE XIX
 MILL Q -- 42-LB. LINERBOARD

175711	WFS	10/7/57	9/25/57	1	44.0	41.4	42.5	14.3	12.0	13.3	137	84	102	406	256	311	400	336	359 ^a
175712	WFS	10/7/57	9/26/57	1	44.6	40.8	42.8	14.2	12.6	13.3	132	91	110	368	272	313 ^a	392	320	365 ^a
175786	WFS	10/23/57	10/16/57	1	43.8	42.2	43.0	12.7	11.8	12.2	126	93	112	336	240	291	352	320	331 ^a
Current Mill Average:							42.8		12.9				108			305			352
Cumulative Mill Average:							42.7		12.6				110			309			358
Mill Factor, %							100.2		102.4				98.2			98.7			98.3
Mill Index, %							99.5		101.6				97.3			91.0			94.6

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

SUMMARY OF INSTITUTE DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XX

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	No. Scn.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i., gage		Elmendorf Tear, g./sheet							
					Max.	Av.	Max.	Av.	Max.	Av.	In	Across	Max.	Av.				
175656	A.	10/ 1/57	9/11/57	4	44.2	43.5	14.2	12.8	13.7	124	92	111	464	344	387 ^a	408	344	380 ^a
175657	N.	10/ 1/57	9/25/57	4	44.2	43.5	14.4	13.2	13.8	127	96	114	400	336	369 ^a	400	344	372 ^a
175704	N.	10/ 7/57	9/25/57	4	45.0	43.5	14.3	13.3	13.8	128	96	110	400	328	375 ^a	400	336	364 ^a
175705	N.	10/ 7/57	9/26/57	4	43.8	42.2	13.8	12.9	13.2	128	92	112	400	312	359 ^a	392	328	366 ^a
175761	N.	10/18/57	10/ 1/57	4	43.8	42.5	14.0	12.4	13.2	128	87	109	360	312	329 ^a	392	312	354 ^a
175762	N.	10/18/57	10/ 4/57	4	44.0	42.6	13.7	12.9	13.2	139	94	120	424	336	371 ^a	432	328	369 ^a
175805	N.	10/28/57	10/ 9/57	4	43.8	42.0	14.0	12.9	13.4	137	96	116	432	336	373	400	336	367 ^a
175806	N.	10/28/57	10/17/57	4	44.4	43.8	14.2	13.7	14.0	122	77	106	448	328	365 ^a	400	344	362 ^a
Current Mill Average:					43.2		13.5			112			366			367		
Cumulative Mill Average:					42.9		13.2			110			362			378		
Mill Factor, %					100.7		102.3			101.8			101.1			97.1		
Mill Index, %					100.5		106.3			100.9			109.3			98.7		

TABLE XXI

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted.

^aThis 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 XXII, the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the conditioning periods varied considerably.

TABLE XXII

Mill Code	Preconditioning		Time, hr.	Conditioning		Time, hr.
	R.H., %	Temp., °F.		R.H., %	Temp., °F.	
A			No samples submitted.			
B		None		52-84	76-90	--
C		None		50	73	0.5
D	50	73	24	50	73	24
E	47-51	73-74	48	46-51	72-74	48
F		None		50-53	73	24
G		None		50	73	48
H	50	73	24	50	73	--
I			No samples submitted.			
J	50	70-72	24		None	
K		None		50	73	24
L			No samples submitted.			
M	51-55	68-69	--	50-51	66-67	--
N			No samples submitted.			
O	35-36	78	8	51-53	72-73	16
P			No samples submitted.			
Q	65-68	71-76	24-48	69-73	73-81	2
S	52	70	--	46-53	69-73	--

A summary of the Institute and mill test results for the current period is shown in Table XXIII, and a comparison of differences between Institute and mill test results is given in Table XXIV for the

current period and the two previous periods. The comparisons are given in Tables XXV to XLII, for the 42-lb. liner samples. A comparison of the special drum stock is given in Table XLIII. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

A comparison of the test data in Tables XXIII and XXIV reveals the level of agreement between mill and Institute data for basis weight, caliper, bursting strength, and Elmendorf tear. Table XXIII shows the average difference between Institute and mill test results for all sample lots submitted by each mill for the current period. In addition, the maximum difference encountered in comparing the Institute and mill test results for a given sample lot is shown. In Table XXIV, the average differences shown for each test in Table XXIII 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 XXIV that the maximum variation between the average basis weight results of the Institute and those of a given mill on corresponding samples is three per cent for the current period. By comparison, the maximum percentage variation noted for the previous two periods was also three per cent. Further, it may be noted that the average basis weight results for Mills D, G, J, K, and O are higher than those for the Institute, the average result for Mill Q is the same and the average results for the other mills are lower. None of the variations for the current period appear to be excessive.

The maximum variation in caliper for the current period is four per cent. This variation is lower than the maximum variation of six per cent for the previous two periods. Compared with the Institute's test results, the test results for all mills are lower with the exception of the result for Mill G which is slightly higher. None of the variations appear to be excessive.

It may be noted in Table XXIV that the bursting strength results exhibited a maximum variation of seven per cent for the current period. The average results for Mills D, E, H, K, and M are higher than those for the Institute, the average results for Mills C, F, and O are the same, and the results for the other mills are lower. Only the variations associated with the results for Mills H, J, and Q appear to be excessive.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills D, F, K, and M are higher than those for the Institute, the average result for Mill C is the same and the results for the other mills are lower. The maximum variation for the current period is nine per cent. None of the variations for the current period appear to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills C, D, F, H, J, K, M, O and Q are higher than those for the Institute, the average result for Mill B is the same and the average results for the other mills are lower. The maximum variation for the current period is nine per cent. None of the variations for the current period are large enough to be considered excessive.

TABLE XXIII
SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS)

Mills*	Basis Weight																		
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	8
Institute	42.5	43.7	42.4	43.3	43.4	43.2	42.6	42.8	42.8	42.8	42.8	43.2	43.2	43.2	43.2	43.2	42.8	43.2	43.2
Mill	42.0	43.4	42.9	43.0	42.9	44.2	42.4	44.0	43.1	43.1	43.1	42.5	42.5	43.4	43.4	42.8	42.8	43.2	43.2
Av. Diff.**	-0.5	-0.3	+0.5	-0.3	-0.5	+1.0	-0.2	+1.2	+0.3	+0.3	+0.3	-0.7	-0.7	+0.2	+0.2	0.0	0.0	-0.5	-0.5
Max. Diff.***	-1.3	-0.9	+0.7	-0.9	-1.2	+1.4	-0.4	+1.9	+0.3	+0.3	+0.3	-1.0	-1.0	+1.1	+1.1	+0.2	+0.2	-1.2	-1.2
<u>Caliper</u>																			
Institute	13.3	12.7	12.2	11.8	12.5	13.0	12.8	13.4	12.7	12.7	12.7	12.9	12.9	12.6	12.6	12.9	12.9	13.5	13.5
Mill	13.0	12.4	11.9	11.4	12.2	13.1	12.4	13.0	12.2	12.2	12.2	12.7	12.7	12.1	12.1	12.5	12.5	12.9	12.9
Av. Diff.**	-0.3	-0.3	-0.3	-0.4	-0.3	+0.1	-0.4	-0.4	-0.4	-0.5	-0.5	-0.2	-0.2	-0.5	-0.5	-0.4	-0.4	-0.6	-0.6
Max. Diff.***	-0.6	-0.5	-0.5	-0.5	-0.5	+0.2	-0.5	-0.7	-0.5	-0.5	-0.5	-0.5	-0.5	-0.8	-0.8	-0.6	-0.6	-0.8	-0.8
<u>Bursting Strength</u>																			
Institute	115	107	113	114	114	114	102	112	112	112	112	107	107	109	109	108	108	112	112
Mill	109	107	114	115	114	114	108	104	104	116	116	108	108	109	109	100	100	109	109
Av. Diff.**	-6	0	+1	+1	0	-1	+6	-8	-8	+4	+4	+1	+1	0	0	-8	-8	-3	-3
Max. Diff.***	-10	+4	+5	+6	+7	-2	+9	-12	-12	+4	+4	-5	-5	+4	+4	-12	-12	-8	-8
<u>Tearing Strength, In</u>																			
Institute	295	350	297	366	320	340	359	339	331	331	331	313	313	346	346	305	305	366	366
Mill	283	350	311	354	327	321	333	366	362	362	362	339	339	336	336	282	282	358	358
Av. Diff.**	-12	0	+14	-12	+7	-19	-26	-27	+31	+31	+31	+26	+26	-10	-10	-23	-23	-8	-8
Max. Diff.***	-43	+38	+34	-45	+54	-24	-45	+50	+31	+31	+31	+43	+43	-32	-32	-34	-34	-36	-36
<u>Tearing Strength, across</u>																			
Institute	362	366	352	403	369	381	376	370	390	390	390	379	379	369	369	352	352	367	367
Mill	362	391	360	399	384	379	382	404	425	425	425	398	398	377	377	374	374	364	364
Av. Diff.**	0	+25	+8	-4	+15	-2	+6	+34	+35	+35	+35	+19	+19	+8	+8	+22	+22	-3	-3
Max. Diff.***	-26	+65	+16	-36	+49	-11	+36	+63	+35	+35	+35	+42	+42	+23	+23	+30	+30	-17	-17

* Comparison based on averages involved 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 XXIV
 COMPARISON OF INSTITUTE-MILL DIFFERENCES BY PERIODS
 Average Differences, per cent

Mill	Period	Basis Weight	Caliper	Burst	Tear, in	Tear, across	Null	Period	Basis Weight	Caliper	Burst	Tear, in	Tear, across
A	Current	--	--	--	--	--	J	Current	+3	-3	-7	-8	+9
	123rd	-2	-3	-5	+13	+16		123rd	+3	-6	-5	+4	+10
	122nd	-0.7	-5	+0.9	+11	+15		122nd	+3	-6	-6	+2	+14
B	Current	-1	-2	-5	-4	0	K	Current	+0.7	-4	+4	+9	+9
	123rd	-1	-3	-4	-5	-3		123rd	0	-2	+0.9	+9	+17
	122nd	-1	-2	-6	-10	-5		122nd	+0.7	-3	+3	+4	+12
C	Current	-0.7	-2	0	0	+7	L	Current	--	--	--	--	--
	123rd	-0.5	-0.6	-0.9	+4	+8		123rd	+0.5	-4	-5	+2	+13
	122nd	+0.2	-3	-2	+12	+16		122nd	--	--	--	--	--
D	Current	+1	-2	+0.9	+5	+2	I	Current	-2	-2	+0.9	+8	+5
	123rd	+0.7	-2	-3	+1	-1		123rd	-2	-0.6	-0.9	+8	+6
	122nd	+1	-2	+4	+4	+3		122nd	-0.5	-2	0	+6	+10
E	Current	-0.7	-3	+0.9	-3	-1	I	Current	--	--	--	--	--
	123rd	-0.5	-5	0	-3	+1		123rd	--	--	--	--	--
	122nd	-0.5	-4	-4	-10	-2		122nd	--	--	--	--	--
F	Current	-1	-2	0	+2	+4	O	Current	+0.5	-4	0	-3	+2
	123rd	-2	0	-3	+3	+6		123rd	-0.7	-0.8	-3	-3	-0.5
	122nd	0	-3	+0.9	+4	+1		122nd	+0.7	-2	-2	-0.6	-1
G	Current	+2	+0.6	-0.9	-6	-0.5	P	Current	--	--	--	--	--
	123rd	-0.5	-2	-4	-11	-4		123rd	--	--	--	--	--
	122nd	+0.2	-2	-6	-5	+0.3		122nd	--	--	--	--	--
H	Current	-0.5	-3	+6	-7	+2	Q	Current	0	-3	-7	-8	+6
	123rd	+0.7	-2	+1	-2	+8		123rd	0	-3	-9	-3	+4
	122nd	+0.2	-3	+4	-6	+1		122nd	-0.5	-4	-4	+4	+6
I	Current	--	--	--	--	--	S	Current	-1	-4	-3	-2	-0.6
	123rd	-0.5	+0.6	-2	+4	+4		123rd	-2	-6	-3	+0.3	-0.5
	122nd	-0.9	0	-0.9	+5	+8		122nd	-0.5	-6	-4	-2	+0.3

CC. PARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957

TABLE XXV

MILL A -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Inch No.	Basis weight,		Caliper,		Bursting Strength,		Elmendorf Tear,							
				lb. Mill	Diff.	IPC	Mill	points	IPC	Mill	g./sheet	In	Across				
				IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill	IPC	Mill	Diff.	
175562	"F.	9/9/57	1	41.6	41.8	+0.2	13.2	13.1	-0.1	113	108	-5	291	294	+3	353a	+2
175563	"F.	9/12/57	1	42.2	41.7	-0.5	12.7	12.6	-0.1	114	109	-5	274a	282	+8	351a	+6
175720	"F.	9/17/57	1	43.5	42.6	-0.9	13.2	13.0	-0.2	121	111	-10	310	277	-33	387a	-26
175721	"F.	9/21/57	1	43.1	41.8	-1.3	13.2	12.7	-0.5	112	109	-3	274	262	-12	339a	+4
175799	"F.	9/24/57	1	43.1	41.9	-1.2	13.5	12.9	-0.6	110	106	-4	309a	268	-41	367a	-2
175800	"F.	9/28/57	1	41.9	41.8	-0.1	13.0	12.7	-0.3	115	106	-9	261a	279	+18	382a	-25
175801	"F.	10/1/57	1	42.6	42.4	-0.2	14.6	14.3	-0.3	113	110	-3	327	303	-24	372a	+9
175802	"F.	10/4/57	1	42.1	41.8	-0.3	13.4	13.2	-0.2	120	116	-4	319	317	-2	383a	+1
175803	"F.	10/7/57	1	43.6	42.6	-1.0	13.8	13.2	-0.6	116	111	-5	315a	272	-43	335a	+25
175804	"F.	10/11/57	1	41.7	41.5	-0.2	12.6	12.6	0.0	115	107	-8	274a	276	+2	346a	+12
Current Mill Average.				42.5	42.0	-0.5	13.3	13.0	-0.3	115	109	-6	295	283	-12	362	0

no samples submitted

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

Since 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.

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXVII

MILL C -- 42-LB. LINERBOARD

File No.	Finish	Date made	Inch. No.	Basis Weight, lb.		Calliper, points		Bursting Strength, p.s.i. Page		Elmendorf Tear, g./sheet								
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.					
175586	"F.	9/10/57	-	45.5	45.3	-0.2	13.7	13.4	-0.3	100	104	+4	370 ^a	371	+1	362 ^a	417	+55
175587	"F.	9/10/57	-	45.4	45.0	-0.4	13.7	13.2	-0.5	102	102	0	353 ^a	355	+2	378 ^a	394	+16
175588	"F.	9/23/57	-	43.8	42.9	-0.9	12.5	12.3	-0.2	110	110	0	349	319	-30	375 ^a	366	-9
175589	"F.	9/23/57	-	44.0	43.2	-0.8	12.6	12.4	-0.2	110	108	-2	340	328	-12	362 ^a	369	+7
175743	"F.	9/30/57	-	41.8	41.8	0.0	12.0	11.7	-0.3	108	110	+2	349 ^a	333	-16	381 ^a	377	-4
175744	"F.	9/30/57	-	41.6	41.9	+0.3	12.1	11.6	-0.5	110	110	0	346	332	-14	351 ^a	380	+29
175807	"F.	10/13/57	-	43.7	43.2	-0.5	12.6	12.2	-0.4	108	108	0	343	381	+38	367 ^a	410	+43
175808	"F.	10/13/57	-	43.6	43.6	0.0	12.6	12.5	-0.1	105	106	+1	354 ^a	385	+31	351 ^a	416	+65
Current Mill average				43.7	43.4	-0.3	12.7	12.4	-0.3	107	107	0	350	350	0	366	391	+25

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

175659	"F.	9/18/57	2	43.4	43.8	+0.4	12.2	11.9	-0.3	115	120	+5	339 ^a	325	-14	379 ^a	392	+13
175660	"F.	9/18/57	2	43.7	43.8	+0.1	12.3	11.8	-0.5	120	119	-1	314 ^a	331	+17	369 ^a	382	+13
175718	"F.	9/23/57	2	42.0	42.4	+0.4	12.0	11.7	-0.3	114	115	+1	301	320	+19	362 ^a	362	0
175719	"F.	9/25/57	2	41.9	42.4	+0.5	11.9	11.7	-0.2	118	114	-4	294	313	+19	356 ^a	365	+9
175724	"F.	9/30/57	2	41.6	42.3	+0.7	11.8	11.8	0.0	109	110	+1	275 ^a	309	+34	337 ^a	343	+6
175725	"F.	9/30/57	2	42.6	43.1	+0.5	12.9	12.4	-0.5	109	113	+4	289 ^a	297	+8	327 ^a	343	+16
175741	"F.	10/4/57	2	42.7	43.0	+0.3	12.9	12.4	-0.5	108	112	+4	270	287	+17	353 ^a	342	-11
175742	"F.	10/3/57	2	41.7	42.3	+0.6	11.8	11.7	-0.1	109	110	+1	293 ^a	305	+12	332 ^a	347	+15
Current Mill average				42.4	42.9	+0.5	12.2	11.9	-0.3	113	114	+1	297	311	+14	352	360	+8

Note: 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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXIX

MILL E -- 42-LB. LINERBOARD

File No.	Date Made	Ycn. No.	Basis Weight, lb.		Calliper, points		Bursting Strength, P.S.I., gage		Elmendorf Tear, 5./sheet								
			IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.							
175597	9/16/57	-	43.8	43.5	-0.3	11.9	11.4	-0.5	111	113	-2	381	336	-45	423 ^a	387	-36
175603	9/19/57	-	43.9	43.4	-0.5	12.0	11.5	-0.5	117	120	+3	363 ^a	344	-19	401 ^a	391	-10
175699	9/20/57	-	42.1	41.9	-0.2	11.5	11.0	-0.5	120	122	+2	343 ^a	311	-32	364 ^a	377	+13
175700	9/22/57	-	43.6	43.1	-0.5	12.3	11.8	-0.5	110	109	-1	386 ^a	359	-27	423 ^a	411	-12
175701	9/26/57	-	43.4	42.6	-0.8	12.0	11.5	-0.5	118	112	-6	361	355	-6	403 ^a	385	-18
175702	9/26/57	-	43.6	43.0	-0.6	12.0	11.5	-0.5	118	116	-2	366 ^a	339	-27	409 ^a	409	0
175703	9/28/57	-	43.6	43.2	-0.4	11.6	11.2	-0.4	104	110	+6	365 ^a	344	-21	390 ^a	384	-6
175726	10/1/57	-	43.5	43.4	-0.2	11.5	11.2	-0.3	104	107	+3	350 ^a	351	+1	369 ^a	381	+12
175727	10/1/57	-	43.5	43.0	-0.5	11.8	11.3	-0.5	114	116	+2	357 ^a	337	-20	380 ^a	393	+13
175723	10/2/57	-	42.8	43.4	+0.6	11.7	11.3	-0.4	111	110	-1	367 ^a	372	+5	389 ^a	409	+20
175770	10/2/57	-	43.5	43.5	0.0	12.0	11.8	-0.2	112	111	-1	397 ^a	380	-17	434 ^a	415	-19
175771	10/4/57	-	43.0	42.9	-0.1	11.7	11.4	-0.3	119	117	-2	360 ^a	368	+8	421 ^a	409	-12
175810	10/10/57	-	43.4	43.4	0.0	11.5	11.4	-0.1	111	115	+4	375 ^a	369	-6	401 ^a	393	-8
175811	10/14/57	-	42.6	42.7	+0.1	11.9	11.6	-0.3	114	120	+6	357 ^a	344	-13	403 ^a	396	-7
175812	10/15/57	-	43.1	42.2	-0.9	11.8	11.5	-0.3	122	122	0	366 ^a	396	+30	437 ^a	449	+12
Current Mill Average			43.3	43.0	-0.3	11.8	11.4	-0.4	114	115	+1	366	354	-12	403	399	-4

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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXX

MILL F -- 42-LB LINERBOARD

File No.	Finnsn	Date Made	'ch. No.	Basis weight, lb.		Caliper, points		Bursting Strength, D.S.I. Gage		Elmendorf Tear, g./sheet		Across					
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.		
175661	F.S.	9/21/57	1	43.7	43.3	-0.4	12.5	12.3	-0.2	113	111	-2	297 ^a	351	390	+29	
175668	F.S.	9/21/57	1	44.0	43.5	-0.5	12.7	12.2	-0.5	112	113	+1	329 ^a	347	402	+34	
175689	F.S.	9/24/57	2	43.4	43.1	-0.3	12.3	12.1	-0.2	112	114	+2	337 ^a	352	377	-2	
175694	" F.	9/24/57	2	43.4	43.0	-0.4	12.5	12.1	-0.4	119	112	-7	333 ^a	327	384	+9	
175708	" F.	9/26/57	2	43.2	42.8	-0.4	12.5	12.1	-0.4	109	114	+5	322	321	392	+18	
175709	" F.	9/29/57	2	43.0	42.8	-0.2	12.2	12.1	-0.1	119	115	-4	340	325	378	-21	
175710	" F.	9/29/57	1	42.3	43.2	+0.9	12.5	12.1	-0.4	110	113	+3	299	329	370	+16	
175760	" F.	10/ 7/57	2	43.7	42.5	-1.2	12.2	12.0	-0.2	109	116	+7	307 ^a	307	379	+25	
175763	" F.	10/ 7/57	2	43.4	42.9	-0.5	12.5	12.1	-0.4	115	113	-2	314	305	378	+25	
175764	" F.	10/13/57	2	43.4	42.5	-0.9	12.5	12.4	-0.1	113	113	0	319	306	367	+7	
175765	" F.	10/14/57	2	43.6	42.8	-0.8	12.9	12.5	-0.4	116	113	-3	319	311	379	-2	
175793	" F.	10/20/57	2	43.4	42.5	-0.9	12.3	12.1	-0.2	117	117	0	324 ^a	344	416	+49	
Current Mill Average.				43.4	42.9	-0.5	12.5	12.2	-0.3	114	114	0	320	327	369	384	+15

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

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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXXI

MILL G -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet								
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.					
175722	W.F.	10/ 4/57	-	43.8	44.2	+0.4	12.8	12.8	0.0	118	118	0	359	335	-24	395 ^a	384	-11
175723	W.F.	10/ 9/57	-	42.7	44.1	+1.4	13.2	13.4	+0.2	109	107	-2	321 ^a	307	-14	366 ^a	375	+9
Current Mill Average:				43.2	44.2	+1.0	13.0	13.1	+0.1	113	112	-1	340	321	-19	381	379	-2

TABLE XXXII

MILL H -- 42-LB. LINERBOARD

175658	S.F.	9/23/57	7	43.0	42.6	-0.4	13.1	12.8	-0.3	96	105	+9	365 ^a	344	-21	367 ^a	403	+36
175769	S.F.	10/10/57	7	42.7	42.6	-0.1	12.6	12.5	-0.1	107	112	+5	346	335	-11	380 ^a	371	-9
175809	S.F.	10/18/57	7	42.1	41.9	-0.2	12.6	12.1	-0.5	104	108	+4	366	321	-45	381 ^a	371	-10
Current Mill Average				42.6	42.4	-0.2	12.8	12.4	-0.4	102	108	+6	359	333	-26	376	382	+6

TABLE XXXIII

MILL I -- 42-LB. LINERBOARD

No samples submitted

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

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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXXIV
MILL J -- 42-LB. LINERBOARD

File No.	Date Made	Finish	Kch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet								
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.					
175707	9/18/57	.71S	2	44.1	+1.2	13.8	13.2	-0.6	108	104	-4	355 ^a	389	+34	389 ^a	452	+63	
175754	10/7/57	.71S	2	42.8	+1.9	12.9	12.6	-0.3	111	108	-3	345 ^a	369	+24	375 ^a	388	+13	
175755	10/10/57	.71S	2	42.2	+0.5	13.1	12.7	-0.4	114	102	-12	359 ^a	366	+7	355 ^a	385	+30	
175815	10/17/57	.71S	2	42.7	+1.1	13.2	13.1	-0.1	110	102	-8	329 ^a	379	+50	371 ^a	399	+28	
175816	10/13/57	.71S	2	43.0	+0.7	13.7	13.0	-0.7	115	103	-12	332 ^a	350	+18	373 ^a	413	+40	
175817	10/19/57	.71S	2	42.2	+1.7	13.5	13.3	-0.2	114	106	-8	312 ^a	342	+30	355 ^a	388	+33	
Current Mill Average				42.8	44.0	+1.2	13.4	13.0	-0.4	112	104	-8	339	366	-27	370	404	+34

TABLE XXXV
MILL K -- 42-LB. LINERBOARD

175706	4.F.	9/19/57	2	42.8	+0.3	12.7	12.2	-0.5	112	116	+4	331	362	+31	390 ^a	425	+35	
Current Mill Average				42.8	43.1	+0.3	12.7	12.2	-0.5	112	116	+4	331	362	+31	390	425	+35

TABLE XXXVI
MILL L -- 42-LB. LINERBOARD
No samples submitted

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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXXVII

MILL M -- 42-LB. LINERBOARD

File No.	Famism	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet								
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	In	Across	IPC	Mill Diff.					
175766	WFLS	10/14/57	1	43.3	42.6	-0.7	13.0	13.0	0.0	105	106	+1	312 ^a	347	+35	367 ^a	409	+42
175767	WFLS	10/15/57	1	43.2	42.7	-0.5	12.8	12.7	-0.1	105	108	+3	320 ^a	347	+27	386 ^a	403	+17
175768	WFLS	10/16/57	1	43.0	42.7	-0.3	12.7	12.7	0.0	108	108	0	302 ^a	345	+43	391 ^a	401	+10
175813	WFLS	10/17/57	1	43.2	42.4	-0.8	13.0	12.5	-0.5	112	107	-5	332	316	-16	387 ^a	393	+6
175814	WFLS	10/18/57	1	43.3	42.3	-1.0	13.1	12.8	-0.3	111	108	-3	300 ^a	339	+39	367 ^a	382	+15
Current Mill Average				43.2	42.5	-0.7	12.9	12.7	-0.2	107	108	+1	313	339	+26	379	398 ¹	+19

TABLE XXXVIII

MILL N -- 42-LB. LINERBOARD

No samples submitted

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

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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XXXIX

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Made	Ych. No.	Basis weight, lb.		Caliper, points		Bursting Strength, p.s.i. gage		Elmendorf Tear, g./sheet			
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.
175756	M.F.	10/9/57	-	43.9	+0.3	13.1	-0.8	109	0	325 ^a	+10	356 ^a	+23
175757	M.F.	10/10/57	-	42.4	0.0	11.9	-0.7	111	+2	322 ^a	-3	364 ^a	+4
175758	M.F.	10/11/57	-	44.3	+0.2	13.0	-0.7	109	-4	360 ^a	-7	369 ^a	+15
175787	M.F.	10/16/57	-	43.4	+0.3	12.3	-0.3	104	+1	352 ^a	-14	375 ^a	+6
175788	M.F.	10/17/57	-	42.2	+0.7	12.4	-0.5	107	0	343 ^a	-3	355 ^a	+20
175789	M.F.	10/18/57	-	43.0	+1.1	12.5	0.0	110	+4	349 ^a	-2	373 ^a	+12
175816	M.F.	10/23/57	-	43.5	-0.2	12.5	-0.3	113	-3	369 ^a	-32	388 ^a	-3
175819	M.F.	10/24/57	-	42.6	-0.1	12.8	-0.5	106	-3	354 ^a	-19	366 ^a	-6
175820	M.F.	10/25/57	-	43.1	-0.3	12.8	-0.5	111	0	341 ^a	-22	377 ^a	+2
Current Mill Average.				43.2	+0.2	12.6	-0.5	109	0	346	-10	369	+8

TABLE XL

MILL P -- 42-LB. LINERBOARD

No samples submitted

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

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

COMPARISON OF INSTITUTE AND MILL DATA--OCTOBER 1 THROUGH OCTOBER 31, 1957 (continued)

TABLE XLI

MILL Q -- 42-LB. LINERBOARD

File No.	Furnish	Date Made	Mch. No.	Basis Weight, lb.		Caliper, points		Bursting Strength, P.S.I. Gage		Elmendorf Tear, g./sheet		Across						
				IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.	IPC	Mill Diff.					
175711	F1S	9/25/57	1	42.5	42.7	+0.2	13.3	12.7	-0.6	102	95	-7	311	291	-20	359 ^a	389	+30
175712	F1S	9/26/57	1	42.8	42.7	-0.1	13.3	12.7	-0.6	110	98	-12	313 ^a	279	-34	365 ^a	373	+8
175756	F1S	10/16/57	1	43.0	43.0	0.0	12.2	12.0	-0.2	112	109	-3	291	277	-14	331 ^a	360	+29
Current mill average:				42.8	42.8	0.0	12.9	12.5	-0.4	108	100	-8	305	282	-23	352	374	+22

TABLE XLII

MILL S -- 42-LB. LINERBOARD

175656	"	9/11/57	4	43.5	42.7	-0.8	13.7	12.9	-0.8	111	111	0	387 ^a	379	-8	380 ^a	370	-10
175657	"	9/25/57	4	43.5	43.0	-0.5	13.8	13.1	-0.7	114	113	-1	369 ^a	369	0	372 ^a	372	0
175704	"	9/25/57	4	43.5	42.9	-0.6	13.8	13.0	-0.8	110	107	-3	375 ^a	352	-23	364 ^a	347	-17
175705	"	9/26/57	4	43.1	42.6	-0.5	13.2	12.8	-0.4	112	112	0	359 ^a	355	-4	366 ^a	363	-3
175761	"	10/1/57	4	42.5	42.4	-0.1	13.2	12.6	-0.6	109	103	-6	329 ^a	331	+2	354 ^a	349	-5
175762	"	10/4/57	4	42.6	42.9	+0.3	13.2	12.6	-0.6	120	113	-7	371 ^a	355	-16	369 ^a	369	0
175805	"	10/9/57	4	43.2	42.0	-1.2	13.4	12.8	-0.6	116	108	-8	373	337	-36	367 ^a	380	+13
175806	"	10/17/57	4	43.8	43.4	-0.4	14.0	13.6	-0.4	106	101	-5	365 ^a	390	+25	362 ^a	363	+1
Current mill average:				43.2	42.7	-0.5	13.5	12.9	-0.6	112	109	-3	366	358	-8	367	364	-3

TABLE XLIII

MILL R -- 47-LB. DRUM LINERBOARD

No samples submitted

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