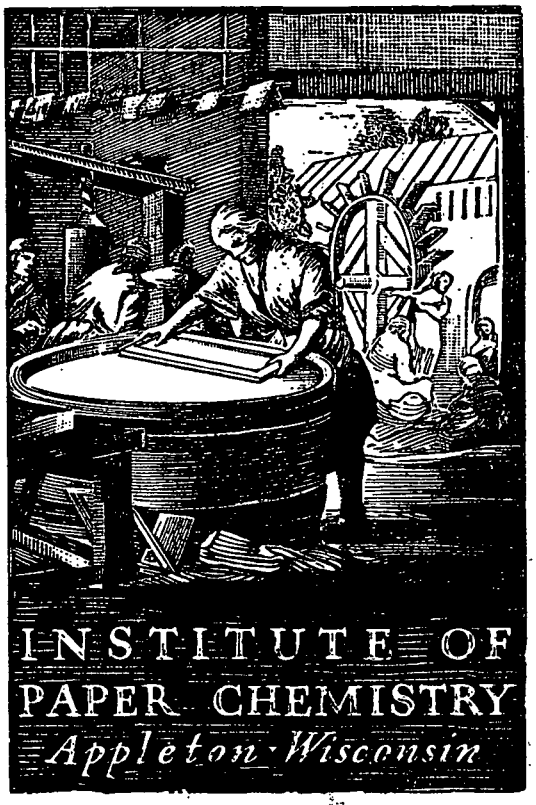

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 165

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

January 1, 1961

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

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January 1, 1961

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

SUMMARY

The objective of the continuous baseline study on linerboard is twofold. The first objective is to provide an indication of the quality of the 42-lb. fourdrinier kraft linerboard being produced by each of the participating mills and by the industry as a whole. The second objective is to provide a procedure whereby the mills have the opportunity to compare their test results with those obtained at the Institute on similar materials, thus providing a convenient system of instrument verification. The first objective is implemented by the weekly sampling of the product of each machine manufacturing 42-lb. kraft linerboard and submitting these weekly samples to The Institute of Paper Chemistry where they are evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The second objective of the continuous baseline study--namely, to provide a convenient system of instrument verification--is achieved by the testing of analogous samples by the mill and the Institute. The mill data are sent to the Institute, and a comparison of Institute and mill test results is included in the monthly reports. In addition to fulfilling the two prime objectives described above, the baseline study is accumulating an invaluable ever-growing reserve of background information essential for the intelligent evaluation of specifications of any kind.

During the month of December, one hundred and four sample lots of 42-lb. fourdrinier kraft linerboard representing the production of seventeen mills were evaluated at The Institute of Paper Chemistry. Shown below are the maximum and minimum current mill average for each test (the current

mill average is the average of the results obtained on all sample lots of linerboard submitted from a given mill during the current period); also shown for each test is the current F.K.I. average which is determined by averaging the current mill averages and is indicative of the test level being maintained by the industry as a whole to the degree that the industry is represented by the participating mills:

	Maximum Current Mill Av.	Minimum Current Mill Av.	Current F.K.I. Av.
Basis weight, lb.	45.2	43.1	43.8
Caliper, pt.	13.5	12.1	12.7
Bursting strength, p.s.i. gage	117	103	110
Machine direction Elmendorf Tear, g./sheet	375	277	333
Cross-machine direction Elmendorf tear, g./sheet	414	339	377

As mentioned previously, the study provides a procedure whereby the mills have the opportunity to compare their test results with those obtained on corresponding sample lots of linerboard at the Institute so that a convenient system of instrument verification is readily available to all participants. A summary of the agreement obtained in the comparisons of Institute and mill test results for the current period is shown below. The tabulated data show the number of mills (and the percentage of all mills which this number represents) whose average test results for the month of December fall within the designated percentages from the average test results obtained at the Institute on corresponding materials.

Average Percentage Difference Between Institute and Mill Test Results

	±0.5	±1	±2	±3	±4	±5	±7.5	±10	±13
Basis weight									
Number of mills	2	7	17						
Percentage of all mills	11.8	41.2	100.0						
Caliper									
Number of mills	0	1	11	14	16	16	17		
Percentage of all mills	0.0	5.9	64.7	82.4	94.1	94.1	100.0		
Bursting strength									
Number of mills	0	2	10	13	15	15	17		
Percentage of all mills	0.0	11.8	58.8	76.5	88.2	88.2	100.0		
Tearing strength, in									
Number of mills	1	5	6	7	9	9	9	14	16
Percentage of all mills	6.2	31.2	37.5	43.8	56.2	56.2	56.2	87.5	100.0
Tearing strength, across									
Number of mills	4	5	6	9	11	13	14	16	
Percentage of all mills	25.0	31.2	37.5	56.2	68.8	81.2	87.5	100.0	

INTRODUCTION

The objective of the continuous baseline study on linerboard is twofold. One objective is to provide an indication of the quality of the 42-lb. fourdrinier kraft linerboard being produced by each of the participating mills and by the industry as a whole. Another objective is to provide a procedure whereby the mills have the opportunity to compare their test results with those obtained at the Institute on similar materials, thus providing a convenient system of instrument verification. The first objective mentioned above is implemented by the weekly sampling of the product of each machine manufacturing 42-lb. kraft linerboard and submitting these weekly samples to The Institute of Paper Chemistry where they are evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The second objective of the continuous baseline study--namely, to provide a convenient system of instrument verification--is achieved by the testing of analogous samples by the mill and the Institute. The mill data are sent to the Institute, and a comparison of Institute and mill test results is included in the monthly reports. In addition to fulfilling the two prime objectives which have been described, the baseline study is accumulating an invaluable ever-growing reserve of background information essential for the intelligent evaluation of specifications of any kind.

The dual objectives of the continuous baseline study on linerboard have been described in the preceding paragraph. The remainder of the report presents the test results for the linerboard samples which were evaluated during the month of December. In line with the dual nature of

the study, the presentation is divided into two parts. Part I presents the results obtained at The Institute of Paper Chemistry, and Part II presents a comparison of results obtained at the Institute with those obtained at the mills. It should be noted that the same code letters are not used to identify the same participants in these reports from month to month. Each participant is privately advised of his own code. Attention is directed to the fact that the bursting strength results presented in these reports have been obtained, beginning in April, with the "new" diaphragm. By "new" diaphragm is meant the composition and style (fillet filled in) introduced by B. F. Perkins and Son, Inc. The same diaphragm distension characteristics, namely, 40-45 p.s.i. at 1.8 cm. distension were used.

PART I: PRESENTATION AND DISCUSSION OF RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY

During the month of December, one hundred and four different sample lots of 42-lb. fourdrinier kraft linerboard from seventeen different F.K.I. mills were evaluated at The Institute of Paper Chemistry. A tabulation of the number of samples classified according to mill may be seen in Table I.

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 current 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 current F.K.I. average represents the average of the current mill averages, whereas the cumulative F.K.I. average represents the average of the current F.K.I. averages for the previous twelve months excluding the current period. Hence, in the case of the current report, the cumulative F.K.I. average covers the period from December 1, 1959, to November 30, 1960. 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 43.8 lb., and the cumulative F.K.I. average basis weight is 43.6 lb. Hence, the F.K.I. index for basis weight determined in per cent as previously described is 100.5 and indicates that the current

F.K.I. average basis weight is higher than the cumulative F.K.I. average.

TABLE I

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL

Mill Code	Number
A	4
B	8
C	6
D	5
E	8
F	9
G	9
H	1
I	4
J	2
K	8
L	8
M	4
N	9
O	0
P	7
Q	8
S	0
T	4
Total	104

TABLE II

SUMMARY OF COMPOSITE MILL AVERAGES--DECEMBER 1 THROUGH DECEMBER 31, 1960

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	44.1	12.2	107	277	341
B	43.5	12.7	111	334	355
C	43.2	13.5	108	332	366
D	44.3	12.6	109	374	413
E	44.2	12.6	110	314	375
F	43.4	12.5	113	304	374
G	43.8	12.8	106	373	405
H	45.2	12.1	112	353	397
I	44.2	12.7	111	352	373
J	43.4	13.1	103	318	377
K	43.1	13.0	106	318	361
L	44.1	12.5	110	326	370
M	43.9	12.1	117	363	410
N	43.8	13.1	113	327	372
O	No samples submitted.				
P	43.1	12.7	115	283	339
Q	43.5	12.1	108	375	414
S	No samples submitted.				
T	44.1	13.5	113	344	372
Current FKI Average:	43.8	12.7	110	333	377
Cumulative FKI Average:	43.6	12.7	110	331	374
FKI Index, %	100.5	100.0	100.0	100.6	100.8

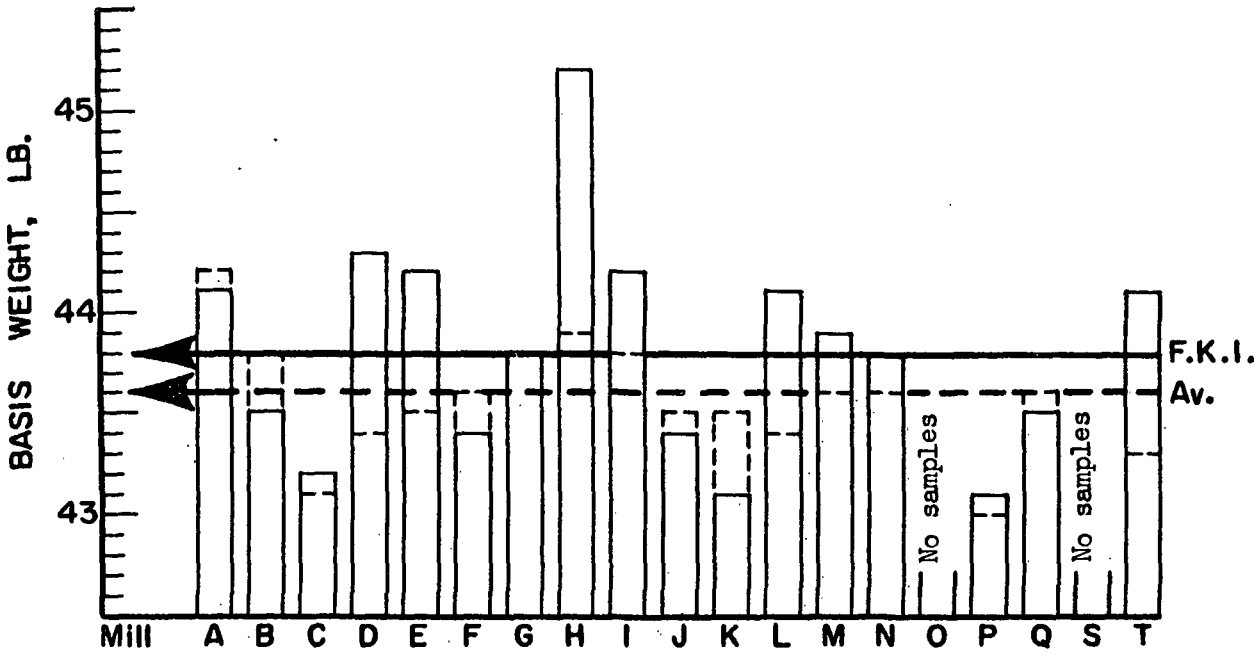

Figure 1. Comparison of Basis Weight Results for December, 1960

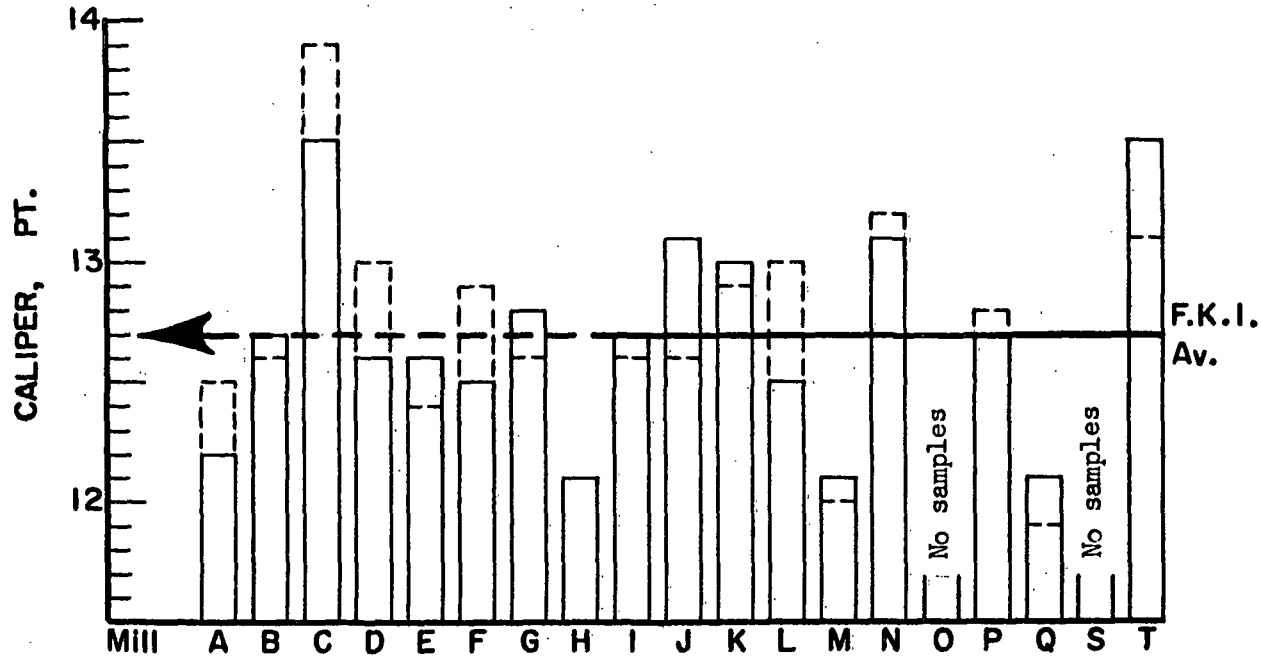

Figure 2. Comparison of Caliper Results for December, 1960

——— Current mill average

- - - - - Cumulative mill average

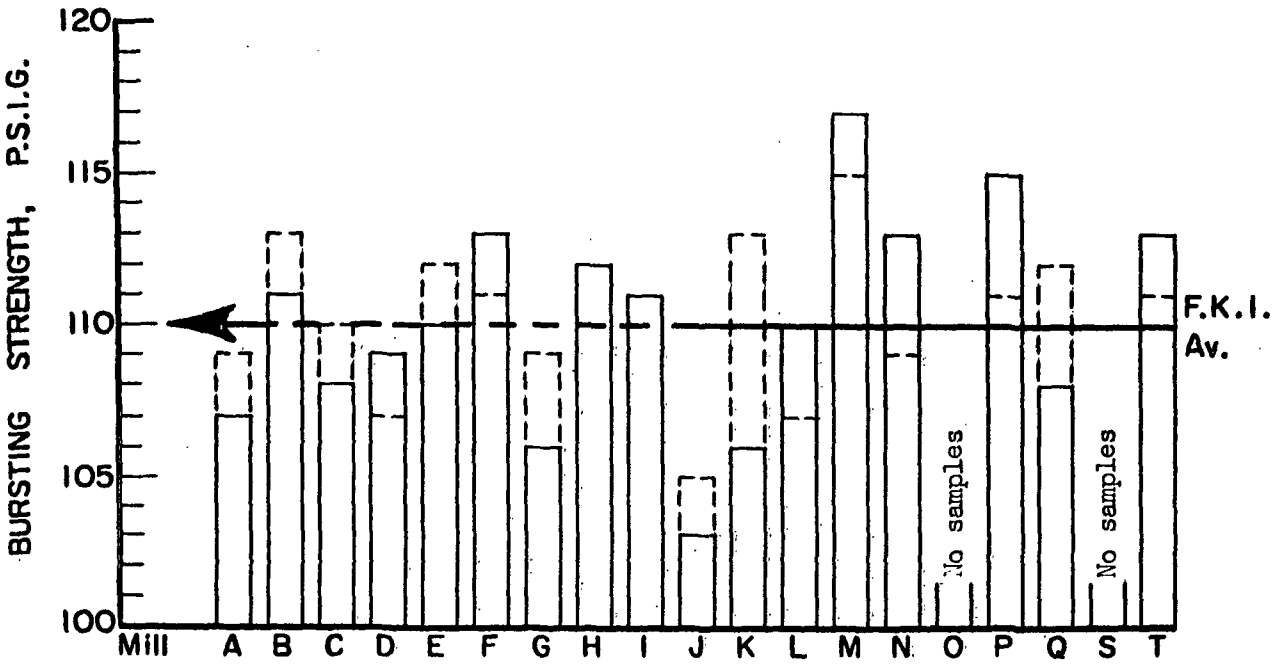

Figure 3. Comparison of Bursting Strength Results for December, 1960

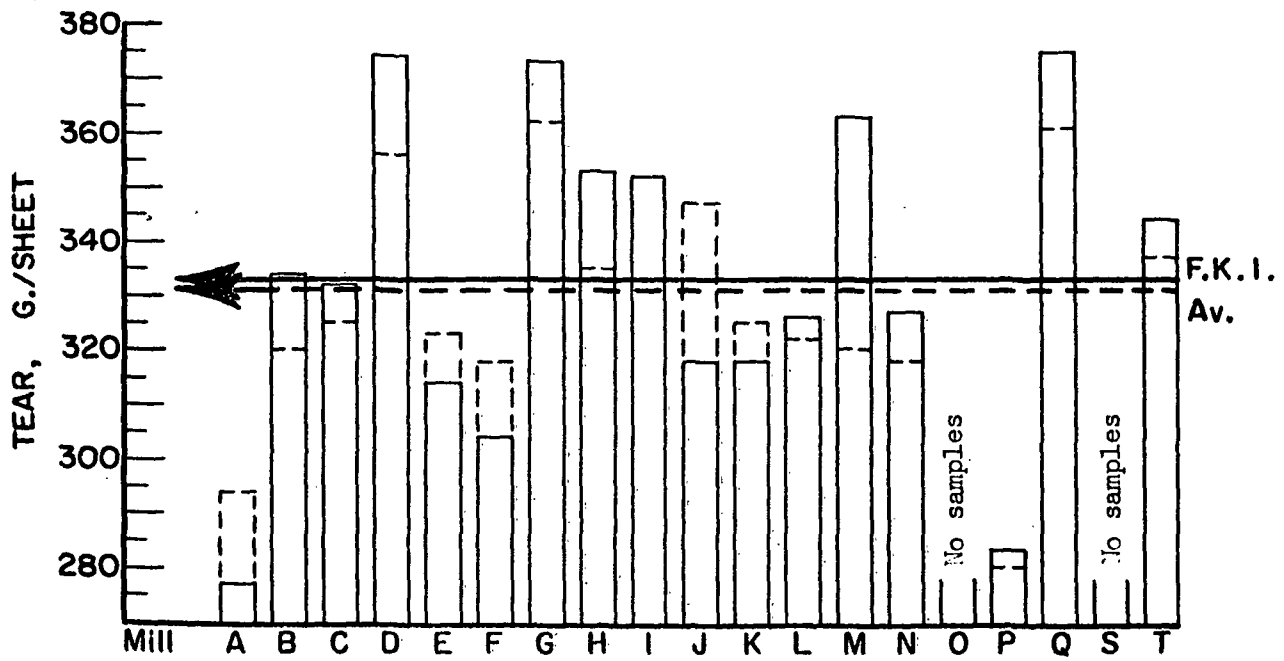

Figure 4. Comparison of Machine-Direction Tear Results for December, 1960

——— Current mill average

– – – – – Cumulative mill average

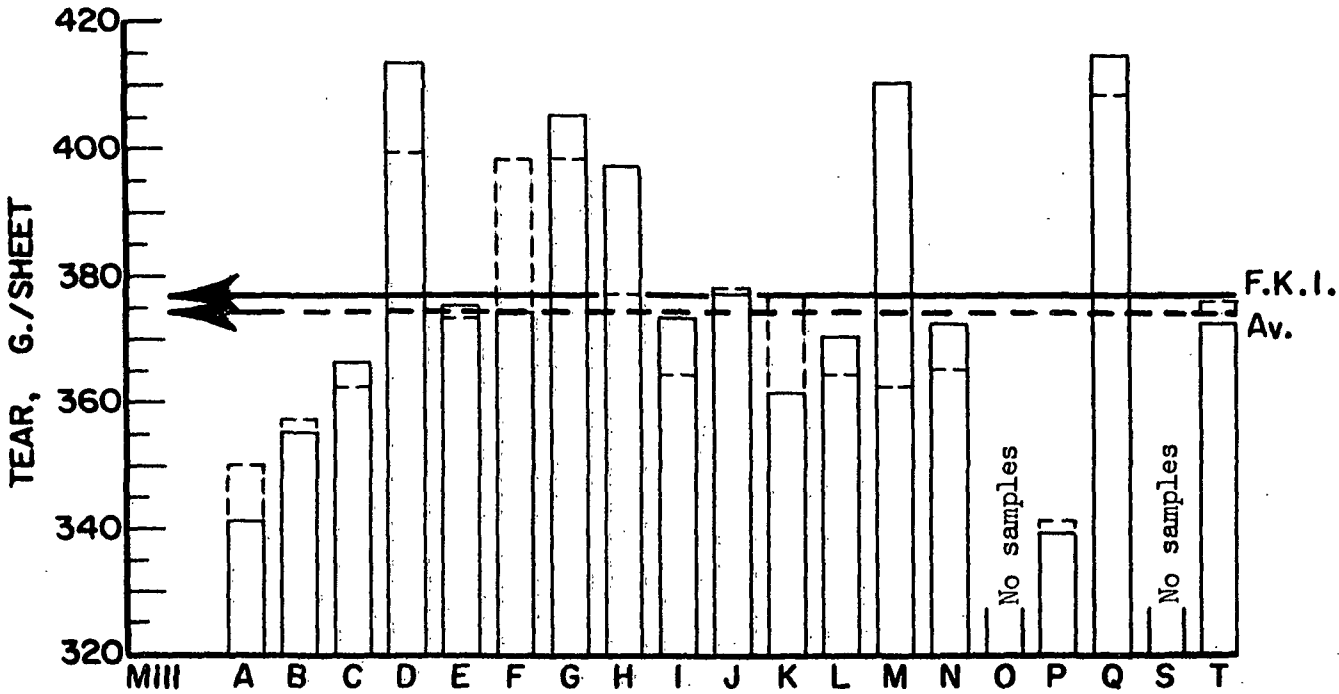

Figure 5. Comparison of Cross-Machine Direction Tear Results for December, 1960

——— Current machine average

- - - - - Cumulative machine average

A comparison of the current mill averages 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 H had the highest average basis weight of 45.2 lb., which was approximately 7.6% higher than the 42-lb. specification. The lowest average basis weight of 43.1 lb. was associated with Mills K and P and was 2.6% higher than the 42-lb. specification. The amount by which the mills vary from the 42-lb. specification is shown in Table II-A. A comparison of the current F.K.I. basis weight average for this period with that for the previous period shows that basis weight has increased slightly from 43.6 lb. to 43.8 lb.

A comparison of the average caliper values for the various mills (see Figure 2) shows that the current mill averages varied from a low of 12.1 points for Mills H, M, and Q to a high of 13.5 points for Mills C and T. The current F.K.I. caliper average was 12.7 points, which was the same as the cumulative F.K.I. average of 12.7 points.

The average bursting strength values given in Table II for each mill are graphically presented in Figure 3. It may be observed in Table II and Figure 3 that the current mill averages for bursting strength ranged from a low of 103 for Mill J to a high of 117 for Mill M. The current F.K.I. bursting strength average was 110 p.s.i. gage, which was the same as the cumulative F.K.I. average of 110 p.s.i. gage.

The Elmendorf tear results shown in Table II for the various mills are presented graphically in Figures 4 and 5. From these presentations it may be observed that Mill Q had the highest machine direction

TABLE II-A

PERCENTAGE DEVIATION FROM 42-LB. BASIS WEIGHT

SPECIFICATION

Mill Code	Per Cent
A	+5.0
B	+3.6
C	+2.9
D	+5.5
E	+5.2
F	+3.3
G	+4.3
H	+7.6
I	+5.2
J	+3.3
K	+2.6
L	+5.0
M	+4.5
N	+4.3
O	---
P	+2.6
Q	+3.6
S	---
T	+5.0

tear average of 375 g./sheet, and Mill A had the lowest average of 277 g./sheet. It may be further noted that the highest cross-machine direction tear average of 414 g./sheet was associated with Mill Q and that the lowest average of 339 g./sheet was associated with Mill P. It may be observed also in Table II and Figures 4 and 5 that the current F.K.I. averages for machine direction and cross-machine direction Elmendorf tear are slightly higher than their respective cumulative F.K.I. averages.

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

In order to compare the variation within a given mill, the test results for the participating mills have been tabulated in Table III to XXI alphabetically. In addition to the current and cumulative average, a mill factor and mill index are given for each mill. The current mill average represents the average test result obtained for all samples evaluated from a given mill during the current period. The cumulative mill average for each test, on the other hand, represents the average of the current mill averages 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 information is included about the sheet finish. A review of the tables for the mills which supplied this information indicates that some kind of water finish is being used by all.

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960

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. gage			Elmendorf Tear, g./sheet					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187859	W.F.	12/ 1/60	11/ 1/60	1	46.0	43.8	44.6	12.9	11.8	12.2	130	85	105	328	248	277	392	304	344[a]
188044	W.F.	12/22/60	11/ 3/60	1	44.6	42.2	43.4	12.7	11.8	12.2	119	84	101	304	216	255[a]	360	288	314[a]
188271	W.F.	12/28/60	12/ 5/60	1	46.0	43.0	44.4	13.0	11.9	12.2	125	86	107	344	248	289[a]	376	304	343[a]
188272	W.F.	12/28/60	12/ 9/60	1	45.6	43.4	44.1	12.9	11.8	12.3	138	89	112	344	240	287[a]	400	320	362[a]
Current Mill Average:							44.1			12.2			107			277			341
Cumulative Mill Average:							44.2			12.5			109			294			350
Mill Factor, %							99.8			97.6			98.2			94.2			97.4
Mill Index, %							101.1			96.1			97.3			83.7			91.2

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE IV

MILL B -- 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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187873	W.F.	12/ 5/60	11/30/60	-	44.4	43.8	44.1	13.1	12.5	12.9	128	95	113	344	296	320[a]	392	312	363[a]
187874	W.F.	12/ 5/60	12/ 1/60	-	44.4	43.8	44.0	13.2	12.4	12.9	137	87	108	336	280	306[a]	400	312	354[a]
187875	W.F.	12/ 5/60	12/ 2/60	-	45.0	42.6	43.6	12.8	12.0	12.4	130	99	118	352	296	324[a]	376	328	351[a]
187934	W.F.	12/12/60	12/ 7/60	-	43.8	42.2	42.7	13.0	12.3	12.7	131	90	110	360	288	326[a]	376	320	342[a]
187935	W.F.	12/12/60	12/ 8/60	-	44.2	42.8	43.6	12.8	12.3	12.5	128	92	110	368	272	335[a]	392	328	357[a]
187936	W.F.	12/12/60	12/ 9/60	-	44.2	43.2	43.8	13.5	12.5	13.1	131	89	112	424	288	350[a]	472	328	371[a]
188045	W.F.	12/22/60	12/15/60	-	44.0	42.8	43.7	13.0	12.1	12.6	126	96	110	408	320	366[a]	368	312	344[a]
188046	W.F.	12/22/60	12/16/60	-	43.6	42.0	42.4	12.9	12.1	12.4	116	90	105	368	320	343[a]	384	328	357[a]
Current Mill Average:							43.5			12.7			111			334			355
Cumulative Mill Average:							43.8			12.6			113			320			357
Mill Factor, %							99.3			100.8			98.2			104.4			99.4
Mill Index, %							99.8			100.0			100.9			100.9			94.9

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187878	WF1S	12/ 5/60	11/25/60	2	44.0	42.2	43.2	14.1	12.8	13.4	123	85	108	344	288	310[a]	368	312	347[a]
187879	WF1S	12/ 5/60	11/26/60	2	43.8	42.0	42.5	13.6	13.0	13.2	130	97	110	344	272	317[a]	368	312	341[a]
188018	WF1S	12/19/60	12/ 1/60	2	44.8	43.4	43.8	14.0	13.1	13.7	126	77	107	400	320	357[a]	440	360	399[a]
188019	WF1S	12/19/60	12/ 3/60	2	44.4	42.2	43.1	14.1	13.0	13.7	122	74	103	408	272	345[a]	424	352	390[a]
188020	WF1S	12/19/60	12/ 4/60	2	43.6	42.4	43.1	14.1	13.0	13.4	122	83	109	400	304	347[a]	392	336	367[a]
188021	WF1S	12/19/60	12/ 5/60	2	44.0	42.4	43.4	14.2	13.0	13.7	127	93	113	368	256	313[a]	400	328	352[a]
Current Mill Average:							43.2			13.5			108			332			366
Cumulative Mill Average:							43.1			13.9			110			325			362
Mill Factor, %							100.2			97.1			98.2			102.2			101.1
Mill Index, %							99.1			106.3			98.2			100.3			97.9

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187861	WF1S	12/ 1/60	11/21/60	2	44.4	43.0	43.8	13.1	12.2	12.7	141	80	109	416	312	352[a]	456	360	408[a]
188012	WF1S	12/19/60	12/ 9/60	2	45.4	43.6	44.6	12.7	12.0	12.3	130	82	111	400	288	367[a]	464	400	430[a]
188013	WF1S	12/19/60	12/12/60	2	45.2	44.0	44.7	13.7	12.2	12.9	130	77	106	496	320	403[a]	456	368	401[a]
188033	WF1S	12/20/60	12/13/60	2	45.6	43.4	44.6	13.7	12.2	12.6	119	91	105	464	320	383[a]	456	368	413[a]
188041	WF1S	12/21/60	12/15/60	2	45.0	43.4	44.1	13.0	11.7	12.4	133	88	113	408	328	363[a]	448	368	414[a]
Current Mill Average:							44.3			12.6			109			374			413
Cumulative Mill Average:							43.4			13.0			107			356			399
Mill Factor, %							102.1			96.9			101.9			105.1			103.5
Mill Index, %							101.6			99.2			99.1			113.0			110.4

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187994	W.F.	12/19/60	12/ 9/60	2	44.6	43.0	43.8	13.5	12.6	13.1	131	87	108	384	272	322[a]	432	344	375[a]
187995	W.F.	12/19/60	12/ 9/60	2	44.6	43.6	44.0	13.4	12.1	12.7	130	88	106	368	320	343[a]	464	360	412[a]
187996	W.F.	12/19/60	12/ 9/60	2	44.8	43.4	44.0	13.3	12.3	12.9	122	87	106	368	288	325[a]	432	360	386[a]
187997	W.F.	12/19/60	12/ 7/60	1	44.8	42.8	43.8	12.4	11.2	11.9	134	102	116	320	280	299[a]	400	320	364[a]
187998	W.F.	12/19/60	12/ 7/60	1	44.6	43.2	44.0	12.7	11.5	12.2	127	105	115	328	272	301[a]	384	304	361[a]
188028	W.F.	12/20/60	12/ 7/60	1	45.2	43.2	44.5	13.1	11.4	12.3	125	92	111	368	256	301	392	304	355[a]
188029	W.F.	12/20/60	11/30/60	2	46.0	44.0	44.8	13.1	12.0	12.7	127	91	109	368	264	313[a]	464	344	391[a]
188030	W.F.	12/20/60	11/30/60	2	45.2	44.2	44.7	13.1	11.9	12.7	127	88	110	336	288	309	384	336	359[a]
Current Mill Average:							44.2			12.6			110			314			375
Cumulative Mill Average:							43.5			12.4			112			323			373
Mill Factor, %							101.6			101.6			98.2			97.2			100.5
Mill Index, %							101.4			99.2			100.0			94.9			100.3

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE VIII

MILL F -- 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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187858	WF1S	12/ 1/60	11/17/60	1	46.0	43.8	44.6	13.0	11.8	12.4	127	90	112	336	248	293[a]	400	296	355[a]
187863	WF1S	12/ 1/60	11/21/60	1	44.0	42.2	43.3	13.0	11.4	12.3	135	97	113	336	264	297[a]	432	328	365[a]
187877	WF1S	12/ 5/60	11/23/60	1	44.0	42.4	43.6	13.1	12.1	12.6	119	89	110	344	232	288[a]	432	344	375[a]
187957	WF1S	12/14/60	11/29/60	1	44.0	42.8	43.6	13.1	12.0	12.5	124	96	112	392	240	299	416	352	382[a]
187958	WF1S	12/14/60	12/ 5/60	1	44.0	42.2	43.0	12.9	12.1	12.5	126	95	114	344	264	309	432	328	375[a]
188278	WF1S	12/28/60	12/ 8/60	1	44.0	42.6	43.4	13.0	12.1	12.6	125	101	115	336	256	300[a]	432	320	362[a]
188279	WF1S	12/28/60	12/12/60	1	44.0	42.6	43.6	13.2	12.2	12.7	126	92	113	400	280	330[a]	400	320	365[a]
188280	WF1S	12/28/60	12/16/60	1	44.0	42.2	43.4	13.3	12.2	12.7	132	89	114	384	240	296	480	328	386[a]
188281	WF1S	12/28/60	12/20/60	1	43.6	42.0	42.4	13.0	11.9	12.3	142	95	110	400	272	327[a]	432	360	398[a]
Current Mill Average:							43.4			12.5			113			304			374
Cumulative Mill Average:							43.6			12.9			111			318			398
Mill Factor, %							99.5			96.9			101.8			95.6			94.0
Mill Index, %							99.5			98.4			102.7			91.8			100.0

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188001	W.F.	12/19/60	11/26/60	-	44.8	42.6	43.4	13.3	12.3	12.9	121	91	103	448	336	382[a]	448	368	403[a]
188002	W.F.	12/19/60	11/26/60	-	44.2	43.4	43.9	13.4	11.9	12.8	129	98	111	416	320	371[a]	432	360	387[a]
188003	W.F.	12/19/60	11/27/60	-	44.4	42.4	43.4	13.5	12.0	12.8	127	87	104	440	352	384[a]	448	368	405[a]
188004	W.F.	12/19/60	11/27/60	-	44.6	43.2	43.9	13.3	12.0	12.7	124	89	106	408	304	377[a]	464	368	400[a]
188005	W.F.	12/19/60	12/ 5/60	-	44.6	43.0	44.0	13.5	12.2	13.0	123	88	107	432	272	353[a]	480	376	417[a]
188006	W.F.	12/19/60	12/ 6/60	-	44.8	42.8	44.0	13.4	12.3	12.8	122	85	108	416	328	377[a]	464	384	413[a]
188007	W.F.	12/19/60	12/ 6/60	-	45.6	42.8	44.2	13.2	12.0	12.7	118	88	103	408	328	370[a]	456	360	404[a]
188008	W.F.	12/19/60	12/ 5/60	-	44.4	43.0	43.6	13.2	12.2	12.6	125	77	107	432	328	376[a]	464	368	397[a]
188009	W.F.	19/19/60	12/ 6/60	-	44.6	42.8	44.0	13.6	12.0	12.5	118	88	103	384	336	366[a]	464	392	418[a]
Current Mill Average:							43.8			12.8			106			373			405
Cumulative Mill Average:							43.8			12.6			109			362			398
Mill Factor, %							100.0			101.6			97.2			103.0			101.8
Mill Index, %							100.5			100.8			96.4			112.7			108.3

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187904	W.F.	12/ 8/60	11/11/60	3	46.0	43.8	45.2	12.8	11.8	12.1	136	73	112	432	304	353[a]	440	328	397[a]
Current Mill Average:							45.2			12.1			112			353			397
Cumulative Mill Average:							43.9			12.1			112			335			377
Mill Factor, %							103.0			100.0			100.0			105.4			105.3
Mill Index, %							103.7			95.3			101.8			106.6			106.1

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XI

MILL I -- 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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187852	W.F.	12/ 1/60	11/10/60	-	45.0	43.0	44.0	13.8	12.1	13.0	123	94	109	368	280	325[a]	408	328	365[a]
187853	W.F.	12/ 1/60	11/10/60	-	46.0	43.6	44.6	13.0	11.2	12.2	139	96	115	392	320	347[a]	400	352	371[a]
188014	W.F.	12/19/60	11/29/60	-	44.8	41.6	43.4	13.1	12.0	12.7	123	95	110	400	328	363[a]	392	336	369[a]
188015	W.F.	12/19/60	12/ 1/60	-	45.6	44.8	45.1	13.5	12.3	12.9	125	93	109	416	344	372[a]	432	352	388[a]
Current Mill Average:							44.2			12.7			111			352			373
Cumulative Mill Average:							43.8			12.6			111			352			364
Mill Factor, %							100.9			100.8			100.0			100.0			102.5
Mill Index, %							101.4			100.0			100.9			106.3			99.7

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XII

MILL J -- 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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187917	S.F.	12/ 9/60	11/24/60	7	44.6	41.0	42.5	13.5	12.0	12.9	130	79	102	384	280	318[a]	432	328	379[a]
187959	S.F.	12/15/60	12/ 7/60	7	45.8	42.0	44.3	13.8	12.2	13.2	121	88	104	368	280	317[a]	400	344	374[a]
Current Mill Average:							43.4			13.1			103			318			377
Cumulative Mill Average:							43.5			12.6			105			347			378
Mill Factor, %							99.8			104.0			98.1			91.6			99.7
Mill Index, %							99.5			103.1			93.6			96.1			100.8

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187910	----	12/ 9/60	10/ 6/60	1	44.0	41.0	42.5	13.8	12.1	12.8	132	86	108	384	280	322[a]	392	328	359[a]
187911	----	12/ 9/60	10/ 6/60	1	44.0	41.8	42.7	13.9	12.2	13.1	125	77	104	368	280	319	384	312	354[a]
187912	----	12/ 9/60	10/26/60	1	45.0	43.0	43.9	14.0	12.2	13.1	135	85	106	432	296	341	416	344	375[a]
187913	----	12/ 9/60	10/23/60	1	44.0	42.4	43.6	13.9	12.9	13.3	123	78	104	352	304	321	432	336	383[a]
187914	----	12/ 9/60	10/25/60	1	44.0	42.0	43.3	14.0	12.5	13.2	134	85	108	360	288	319	384	320	350[a]
188016	----	12/19/60	10/ 8/60	1	43.6	40.4	42.2	13.1	11.9	12.4	133	88	109	352	256	301[a]	384	336	362[a]
188032	----	12/20/60	10/11/60	1	43.4	42.2	42.9	14.0	12.7	13.2	131	75	106	392	272	331[a]	400	320	352[a]
188017	----	12/19/60	10/27/60	1	45.8	42.4	43.9	13.9	12.6	13.2	118	80	102	328	272	291	384	336	354[a]
Current Mill Average:							43.1			13.0			106			318			361
Cumulative Mill Average:							43.5			12.9			113			325			377
Mill Factor, %							99.1			100.8			93.8			97.8			95.8
Mill Index, %							98.9			102.4			96.4			96.1			96.5

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XIV

MILL L -- 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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187930	W.F.	12/12/60	11/13/60	1	45.6	44.0	44.3	13.5	12.2	12.8	142	99	115	368	264	318[a]	400	336	366[a]
187931	W.F.	12/12/60	11/16/60	1	46.2	44.0	45.5	13.8	12.5	13.1	131	84	112	408	320	365[a]	432	344	387[a]
187932	W.F.	12/12/60	11/28/60	1	46.0	44.2	44.9	13.1	12.0	12.6	121	90	106	384	280	344[a]	448	344	391[a]
187933	W.F.	12/12/60	11/27/60	1	44.2	42.0	43.7	13.2	12.2	12.8	121	88	104	352	288	321[a]	400	336	362[a]
188265	W.F.	12/27/60	12/ 4/60	1	45.2	43.8	44.4	13.2	11.8	12.4	125	100	110	360	304	327[a]	424	336	377[a]
188266	W.F.	12/27/60	12/ 3/60	1	45.0	40.8	43.5	12.6	11.5	11.8	126	90	112	408	280	328[a]	448	336	388[a]
188267	W.F.	12/27/60	12/ 7/60	1	43.8	42.0	42.9	12.5	11.7	12.1	125	97	111	328	256	302	400	328	351[a]
188268	W.F.	12/27/60	12/19/60	1	45.6	42.8	43.8	13.0	12.1	12.6	130	90	112	368	272	301	352	320	341[a]
Current Mill Average:							44.1			12.5			110			326			370
Cumulative Mill Average:							43.4			13.0			107			322			364
Mill Factor, %							101.6			96.2			102.8			101.2			101.6
Mill Index, %							101.1			98.4			100.0			98.5			98.9

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
188010	W.F.	12/19/60	11/28/60	1	44.2	43.4	43.7	12.4	11.2	11.8	132	99	116	384	320	338	392	360	374[a]
188011	W.F.	12/19/60	12/ 1/60	2	44.6	43.6	44.2	13.0	12.1	12.5	135	88	112	440	360	389[a]	480	400	437[a]
188047	W.F.	12/22/60	12/ 2/60	2	44.2	42.8	43.7	12.2	11.6	12.0	150	100	122	448	328	377[a]	480	384	425[a]
188048	W.F.	12/22/60	12/11/60	2	44.6	43.0	44.0	12.6	11.8	12.2	138	103	119	384	312	347[a]	432	368	403[a]
Current Mill Average:							43.9			12.1			117			363			410
Cumulative Mill Average:							43.6			12.0			115			320			362
Mill Factor, %							100.7			100.8			101.7			113.4			113.3
Mill Index, %							100.7			95.3			106.4			109.7			109.6

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XVI

MILL N -- 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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
187862	W.F.	12/ 1/60	11/12/60	2	44.2	43.0	43.8	14.0	13.1	13.5	124	94	108	360	296	331[a]	408	344	376[a]
187876	WF1S	12/ 5/60	11/20/60	2	44.2	43.0	43.8	13.3	12.1	12.7	133	103	115	360	288	331[a]	408	320	366[a]
187903	WF1S	12/ 7/60	11/26/60	2	45.0	42.6	43.8	13.1	12.5	12.9	133	90	116	384	304	353[a]	400	336	360[a]
187915	WF1S	12/ 9/60	11/27/60	2	44.0	43.0	43.7	13.3	12.6	13.0	135	94	114	336	272	308	400	352	367[a]
187916	WF1S	12/ 9/60	11/28/60	2	44.0	43.6	43.8	13.7	12.9	13.2	126	95	113	416	288	332	400	336	381[a]
187979	WF1S	12/16/60	12/ 5/60	2	44.2	43.2	43.8	13.5	12.2	13.0	132	90	109	480	296	358[a]	432	376	399[a]
188269	WF1S	12/27/60	12/11/60	2	44.4	43.8	44.1	13.5	13.0	13.2	125	98	112	352	264	315	408	336	369[a]
188270	WF1S	12/27/60	12/12/60	2	44.2	42.6	43.8	13.8	12.8	13.3	127	95	112	384	240	303	384	320	342[a]
188277	WF1S	12/28/60	12/15/60	2	44.0	43.2	43.7	13.5	12.9	13.2	132	94	115	344	288	311[a]	464	328	384[a]
Current Mill Average:							43.8			13.1			113			327			372
Cumulative Mill Average:							43.6			13.2			109			318			365
Mill Factor, %							100.5			99.2			103.7			102.8			101.9
Mill Index, %							100.5			103.1			102.7			98.8			99.5

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XVII

MILL O -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb. Max.	Basis Weight, lb. Min.	Basis Weight, lb. Av.	Caliper, points Max.	Caliper, points Min.	Caliper, points Av.	Bursting Strength, p.s.i. gage Max.	Bursting Strength, p.s.i. gage Min.	Bursting Strength, p.s.i. gage Av.	Elmendorf Tear, g./sheet In Max.	Elmendorf Tear, g./sheet In Min.	Elmendorf Tear, g./sheet In Av.	Elmendorf Tear, g./sheet Across Max.	Elmendorf Tear, g./sheet Across Min.	Elmendorf Tear, g./sheet Across Av.
No samples submitted.																			

TABLE XVIII

MILL P -- 42-LB. LINERBOARD

187854	W.F.	12/ 1/60	10/24/60	1	44.2	43.4	43.9	13.0	12.3	12.8	134	85	111	296	240	273[a]	368	312	339[a]
187855	W.F.	12/ 1/60	10/28/60	1	43.0	42.0	42.5	12.8	11.6	12.1	144	95	114	352	248	295[a]	352	296	329[a]
187856	W.F.	12/ 1/60	11/ 2/60	1	43.8	42.0	43.0	13.6	12.2	12.9	135	85	116	320	248	280[a]	352	328	339[a]
188273	W.F.	12/28/60	11/ 7/60	1	43.8	42.2	43.0	14.1	12.8	13.1	147	91	117	336	240	280[a]	392	304	350[a]
188274	W.F.	12/28/60	11/10/60	1	44.0	42.4	43.0	12.9	12.0	12.2	133	95	116	352	288	320[a]	384	320	338[a]
188275	W.F.	12/28/60	11/15/60	1	43.8	42.2	42.8	13.4	12.5	12.9	138	94	116	320	232	267	360	312	334[a]
188276	W.F.	12/28/60	11/18/60	1	44.0	42.0	43.1	13.9	12.4	13.1	131	90	116	304	240	267	360	312	341[a]
Current Mill Average:							43.1			12.7			115			283			339
Cumulative Mill Average:							43.0			12.8			111			280			341
Mill Factor, %							100.2			99.2			103.6			101.1			99.4
Mill Index, %							98.9			100.0			104.5			85.5			90.6

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

SUMMARY OF INSTITUTE DATA -- DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XIX

MILL Q -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb. Max.	Basis Weight, lb. Min.	Basis Weight, lb. Av.	Caliper, points Max.	Caliper, points Min.	Caliper, points Av.	Bursting Strength, p.s.i. gage Max.	Bursting Strength, p.s.i. gage Min.	Bursting Strength, p.s.i. gage Av.	Elmendorf Tear, g./sheet In Max.	In Min.	In Av.	Across Max.	Across Min.	Across Av.
187902	W.B.	12/ 7/60	11/18/60	-	44.2	42.2	43.6	13.0	11.8	12.1	135	89	113	464	352	403[a]	464	368	420[a]
187928	W.B.	12/12/60	11/22/60	-	44.4	43.6	44.0	12.5	12.0	12.2	127	94	110	472	336	393	448	368	412[a]
187929	W.B.	12/12/60	11/25/60	-	44.0	42.4	43.6	12.5	11.5	12.0	124	88	107	456	336	367[a]	480	368	421[a]
188031	W.B.	12/20/60	12/ 2/60	-	44.2	42.2	43.4	12.6	11.2	12.1	125	103	111	400	304	346[a]	416	352	391[a]
187999	W.B.	12/19/60	12/ 9/60	-	45.0	43.6	44.3	12.7	11.6	12.2	127	81	106	432	312	377[a]	496	384	430[a]
188000	W.B.	12/19/60	12/10/60	-	43.4	42.2	42.9	12.4	11.1	11.8	127	81	108	464	336	387[a]	464	384	420[a]
188042	W.B.	12/21/60	12/11/60	-	43.2	41.2	42.1	12.3	11.2	11.7	119	87	107	400	320	365[a]	440	360	402[a]
188043	W.F.	12/21/60	12/14/60	-	44.4	43.2	44.0	13.0	11.8	12.3	124	79	106	384	320	363[a]	456	376	413[a]
Current Mill Average:							43.5			12.1			108			375			414
Cumulative Mill Average:							43.6			11.9			112			361			408
Mill Factor, %							99.8			101.7			96.4			103.9			101.5
Mill Index, %							99.8			95.3			98.2			113.3			110.7

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

SUMMARY OF INSTITUTE DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XX

MILL S -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lb. Max.	Basis Weight, lb. Min.	Basis Weight, lb. Av.	Caliper, points Max.	Caliper, points Min.	Caliper, points Av.	Bursting Strength, p.s.i. gage Max.	Bursting Strength, p.s.i. gage Min.	Bursting Strength, p.s.i. gage Av.	Elmendorf Tear, g./sheet In Max.	Elmendorf Tear, g./sheet In Min.	Elmendorf Tear, g./sheet In Av.	Elmendorf Tear, g./sheet Across Max.	Elmendorf Tear, g./sheet Across Min.	Elmendorf Tear, g./sheet Across Av.
No samples submitted.																			

TABLE XXI

MILL T -- 42-LB. LINERBOARD

187857	WF1S	12/ 1/60	11/13/60	1	44.6	43.6	44.0	14.2	13.1	13.9	124	94	111	344	288	321[a]	384	312	351[a]
187860	WF1S	12/ 1/60	11/16/60	1	45.2	43.6	44.1	14.5	13.0	13.8	128	99	111	368	288	331[a]	368	328	347[a]
187905	WF1S	12/ 8/60	11/27/60	1	44.8	43.8	44.0	13.6	12.9	13.2	134	99	115	432	320	363[a]	432	368	398[a]
187906	WF1S	12/ 8/60	11/28/60	1	45.0	43.8	44.1	13.8	12.5	13.1	129	100	115	432	312	363[a]	432	352	393[a]
Current Mill Average:							44.1			13.5			113			344			372
Cumulative Mill Average:							43.3			13.1			111			337			376
Mill Factor, %							101.8			103.1			101.8			102.1			98.9
Mill Index, %							101.1			106.3			102.7			103.9			99.5

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

PART II: COMPARISON OF RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY WITH THOSE OBTAINED AT THE MILLS

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. Mill test conditions are shown in Table XXII, where it may be noted that the atmospheric conditions used prior to and during the testing period were relatively uniform for the mills which reported this information. However, the preconditioning and conditioning time periods varied considerably.

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

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. In Table XXIII the over-all average difference between Institute and mill results is shown for each of these tests based on the current mill averages--i.e., based on the data 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 over-all 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.

TABLE XXII

PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS

Mill Code	Preconditioning			Conditioning		
	Relative Humidity, %	Temperature, °F.	Time, hr.	Relative Humidity, %	Temperature, °F.	Time, hr.
A	36-44	67-78	0.5	50	73	24
B	35	77-78	8	48-52	72-73	16
C	50	72	24		None	
D		None		50	73	24
E	50	73	24	50	73	24
F	56	72	--	55-58	70-74	--
G	44-52	74-75	48	50	73	--
H		None		50	73	24
I		None		50	73	24
J	50	73	24		None	
K	50	73	48	50	73	3
L	50	73	24	50	73	24
M		None		50	73	24
N	50	70-72	120	50	70-72	120
O				No samples submitted.		
P		None		30-76	75-84	--
Q		None		45-46	71-72	48
S				No samples submitted.		
T		None		42-53	72-78	--

TABLE XXIII

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

Mills*	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T
No. of Samples Compared	4	8	6	5	8	9	9	1	4	2	8	8	4	9	0	7	8	0	4
Basis Weight																			
Institute	44.1	43.5	43.2	44.3	44.2	43.4	43.8	45.2	44.2	43.4	43.1	44.1	43.9	43.8		43.1	43.5		44.1
Mill	43.4	43.1	42.8	43.3	43.5	42.6	42.8	44.3	44.0	43.0	43.1	43.8	43.2	42.8		42.2	42.9		43.0
Av. Diff.**	-0.7	-0.4	-0.4	-1.0	-0.7	-0.8	-1.0	-0.9	-0.2	-0.4	0.0	-0.3	-0.7	-1.0		-0.9	-0.6		-1.1
Max. Diff.***	-1.1	-1.2	-0.5	-1.6	-1.4	-1.3	-1.7	-0.9	-0.7	-0.6	±0.6	-0.5	-1.0	-1.3		-1.7	-0.8		-1.3
Caliper																			
Institute	12.2	12.7	13.5	12.6	12.6	12.5	12.8	12.1	12.7	13.1	13.0	12.5	12.1	13.1		12.7	12.1		13.5
Mill	12.0	12.2	13.2	11.7	12.4	12.3	12.4	11.9	12.6	12.8	12.6	12.7	11.9	13.3		12.4	11.7		12.9
Av. Diff.**	-0.2	-0.5	-0.3	-0.9	-0.2	-0.2	-0.4	-0.2	-0.1	-0.3	-0.4	+0.2	-0.2	+0.2		-0.3	-0.4		-0.6
Max. Diff.***	-0.3	-0.6	-0.5	-1.1	-1.2	-0.5	-0.6	-0.2	-0.2	-0.3	-0.5	+0.5	-0.2	+0.7		-0.7	-0.5		-0.7
Bursting Strength																			
Institute	107	111	108	109	110	113	106	112	111	103	106	110	117	113		115	108		113
Mill	110	113	106	113	111	108	108	110	109	109	112	111	115	111		113	111		116
Av. Diff.**	+3	+2	-2	+4	+1	-5	+2	-2	-2	+6	+6	+1	-2	-2		-2	+3		+3
Max. Diff.***	+6	+8	-7	+9	+6	-7	+6	-2	-4	+7	+9	-7	-6	-7		-5	+6		+4
Tearing Strength, in																			
Institute	277	334	332	374	314	304	373	353	352	318	318	326	363	327		283	375		344
Mill	280	291	290	--	316	300	374	358	341	292	292	338	347	294		257	338		336
Av. Diff.**	+3	-43	-42	--	+2	-4	+1	+5	-11	-26	-26	+12	-16	-33		-26	-37		-8
Max. Diff.***	+8	-83	-77	--	+31	-42	-30	+5	-32	-27	-41	+28	-24	-51		-65	-52		-64
Tearing Strength, across																			
Institute	341	355	366	413	375	374	405	397	373	377	361	370	410	372		339	414		372
Mill	341	326	355	--	390	362	401	418	375	352	361	398	391	386		350	404		371
Av. Diff.**	0	-29	-11	--	+15	-12	-4	+21	+2	-25	0	+28	-19	+14		+11	-10		-1
Max. Diff.***	-17	-70	-28	--	+36	-87	-46	+21	+11	-27	+14	+48	-28	+70		+29	-41		+55

* 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 Difference, Per cent

Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, across	Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, across
A	Current	-2	-2	+3	+1	0	K	Current	0	-3	+6	-8	0
	164th	-2	-2	+5	-3	+4		164th	-2	-4	+10	-10	-0.6
	163rd	-2	-4	+2	-2	+0.8		163rd	-1	-4	+6	-6	+0.8
B	Current	-0.9	-4	+2	-13	-8	L	Current	-0.7	+2	+0.9	+4	+8
	164th	-2	-2	0	-12	-6		164th	-1	+0.8	+2	+4	+11
	163rd	-2	-3	-3	-17	-10		163rd	-0.9	+0.8	+0.9	-2	+6
C	Current	-0.9	-2	-2	-13	-3	M	Current	-2	-2	-2	-4	-5
	164th	-0.2	-1	-2	-2	+3		164th	-3	-2	-0.9	-0.6	+1
	163rd	-0.2	-0.7	-4	+0.9	+8		163rd	-2	-2	+4	-5	-2
D	Current	-2	-7	+4	--	--	N	Current	-2	+2	-2	-10	+4
	164th	-2	-6	+3	--	--		164th	-2	+2	-0.9	-7	+4
	163rd	-2	-2	-2	--	--		163rd	-2	+3	-4	-6	+4
E	Current	-2	-2	+0.9	+0.6	+4	O	Current	--	--	--	--	--
	164th	-1	+0.8	0	-6	-4		164th	--	--	--	--	--
	163rd	-0.7	-2	-2	-6	-2		163rd	-2	-5	-4	-4	-8
F	Current	-2	-2	-4	-1	-3	P	Current	-2	-2	-2	-9	+3
	164th	-0.9	0	-3	+7	+4		164th	-2	-2	0	-13	+2
	163rd	-1	-2	-4	+5	+5		163rd	--	--	--	---	--
G	Current	-2	-3	+2	+0.3	-1	Q	Current	-1	-3	+3	-10	-2
	164th	-2	-2	+3	-0.5	-0.5		164th	-1	-3	+2	-8	-1
	163rd	-2	-0.8	0	+5	+2		163rd	-1	-3	-0.9	-9	0
H	Current	-2	-2	-2	+1	+5	S	Current	--	--	--	--	--
	164th	--	--	--	--	--		164th	--	--	--	--	--
	163rd	-0.9	-3	+0.9	+2	+10		163rd	--	--	--	--	--
I	Current	-0.5	-0.8	-2	-3	+0.5	T	Current	-2	-4	+3	-2	-0.3
	164th	-0.9	+0.8	-4	-5	-3		164th	-2	-2	+3	-3	+2
	163rd	-1	0	-3	-9	-3		163rd	-2	-2	+3	+10	+12
J	Current	-0.9	-2	+6	-8	-7							
	164th	-0.7	-2	+11	-8	-4							
	163rd	-0.5	-0.8	+7	-11	-3							

It may be noted in Table XXIV that for the current period the largest average percentage difference between the average basis weight results of the Institute and those of a given mill on corresponding samples was two per cent. By comparison, the largest average percentage difference noted for the previous two periods was three per cent. Further, it may be noted that the average basis weight result for Mill K was the same as that for the Institute, whereas the average basis weight results for the other mills were lower than the corresponding results for the Institute. In general, agreement between Institute and mill basis weight results was good.

The maximum variation in caliper for the current period was seven per cent. This was higher than the maximum variation of six per cent for the previous two periods. Compared with the Institute's results, the average test results for Mills L and N were higher and the average test results for the other mills were lower. Agreement was very good for the majority of comparisons of Institute and mill caliper results. Only the variation for Mill D appeared to be excessive.

It may be noted in Table XXIV that the bursting strength results exhibited a maximum variation of six per cent for the current period. The maximum variation for the two preceding periods was eleven per cent. The average bursting strength results for Mills A, B, D, E, G, J, K, L, Q and T were higher than those for the Institute, and the average results for the other mills were lower. Agreement between Institute and mill results was very good with the exception of the variations noted for Mills J and K.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills A, E, G, H and L were higher than those for the Institute, and the average results for the other mills were lower. The maximum variation for the current period was thirteen per cent which was lower than the maximum variation of seventeen per cent associaged with the two preceding periods. Agreement between the Institute and mill results was generally good. However, the variations for Mills B, C, N, and Q appeared to be excessive.

With regard to the cross-machine direction tear results, it may be noted that the average results for Mills E, H, I, L, N, and P were higher than those for the Institute, the average results for Mills A and K were the same as those for the Institute, and the average results for the other mills were lower. The maximum variation for the current period was eight per cent, which was lower than the maximum variation of twelve per cent for the two preceding periods. As in the case of the machine direction results, agreement between Institute and mill results was generally good.

The comparisons of Institute and mill data for individual sample lots are given alphabetically in Tables XXV to XLIII for the various mills. In all the comparisons given in Tables XXV to XLIII, the Institute's test values have been used as the reference line.

The reader's attention is directed to page 3 of this report where the comparison of Institute and mill test data is summarized to show the number of mills (and the percentage of all mills which this number represents) whose average test results for the month of December fall within designated percentages from the average test results obtained at the Institute.

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960

TABLE XXV

MILL A -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187859	W.F.	11/ 1/60	1	44.6	43.8	-0.8	12.2	11.9	-0.3	105	108	+3	277	285	+8	344[a]	350	+ 6
188044	W.F.	11/ 3/60	1	43.4	42.9	-0.5	12.2	12.0	-0.2	101	107	+6	255[a]	261	+6	314[a]	309	- 5
188271	W.F.	12/ 5/60	1	44.4	43.8	-0.6	12.2	11.9	-0.3	107	112	+5	289[a]	286	-3	343[a]	359	+16
188272	W.F.	12/ 9/60	1	44.1	43.0	-1.1	12.3	12.1	-0.2	112	112	0	287[a]	289	+2	362[a]	345	-17
Current Mill Average:				44.1	43.4	-0.7	12.2	12.0	-0.2	107	110	+3	277	280	+3	341	341	0

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXVI

MILL B -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187873	W.F.	11/30/60	-	44.1	43.7	-0.4	12.9	12.4	-0.5	113	111	-2	320[a]	307	-13	363[a]	335	-28
187874	W.F.	12/ 1/60	-	44.0	43.2	-0.8	12.9	12.4	-0.5	108	106	-2	306[a]	303	- 3	354[a]	347	- 7
187875	W.F.	12/ 2/60	-	43.6	43.7	+0.1	12.4	12.2	-0.2	118	114	-4	324[a]	304	-20	351[a]	369	+18
187934	W.F.	12/ 7/60	-	42.7	42.4	-0.3	12.7	12.1	-0.6	110	114	+4	326[a]	281	-45	342[a]	313	-29
187935	W.F.	12/ 8/60	-	43.6	43.4	-0.2	12.5	12.0	-0.5	110	116	+6	335[a]	273	-62	357[a]	328	-29
187936	W.F.	12/ 9/60	-	43.8	42.6	-1.2	13.1	12.5	-0.6	112	114	+2	350[a]	267	-83	371[a]	317	-54
188045	W.F.	12/15/60	-	43.7	43.8	+0.1	12.6	12.3	-0.3	110	118	+8	366[a]	292	-74	344[a]	311	-33
188046	W.F.	12/16/60	-	42.4	41.7	-0.7	12.4	12.1	-0.3	105	108	+3	343[a]	303	-40	357[a]	287	-70
Current Mill Average:				43.5	43.1	-0.4	12.7	12.2	-0.5	111	113	+2	334	291	-43	355	326	-29

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXVII

MILL C -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187878	WFIS	11/25/60	2	43.2	43.0	-0.2	13.4	13.2	-0.2	108	108	0	310[a]	272	-38	347[a]	338	- 9
187879	WFIS	11/26/60	2	42.5	42.0	-0.5	13.2	12.9	-0.3	110	103	-7	317[a]	290	-27	341[a]	313	-28
188018	WFIS	12/ 1/60	2	43.8	43.3	-0.5	13.7	13.3	-0.4	107	107	0	357[a]	320	-37	399[a]	390	- 9
188019	WFIS	12/ 3/60	2	43.1	42.7	-0.4	13.7	13.5	-0.2	103	103	0	345[a]	308	-37	390[a]	384	- 6
188020	WFIS	12/ 4/60	2	43.1	42.7	-0.4	13.4	13.0	-0.4	109	104	-5	347[a]	270	-77	367[a]	361	- 6
188021	WFIS	12/ 5/60	2	43.4	43.2	-0.2	13.7	13.2	-0.5	113	110	-3	313[a]	283	-30	352[a]	346	- 6
Current Mill Average:				43.2	42.8	-0.4	13.5	13.2	-0.3	108	106	-2	332	290	-42	366	355	-11

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXVIII

MILL D -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187861	WFIS	11/21/60	2	43.8	43.2	-0.6	12.7	12.2	-0.5	109	110	+1	352[a]			408[a]		
188012	WFIS	12/ 9/60	2	44.6	43.6	-1.0	12.3	11.6	-0.7	111	120	+9	367[a]			430[a]		
188013	WFIS	12/12/60	2	44.7	43.1	-1.6	12.9	11.8	-1.1	106	107	+1	403[a]			401[a]		
188033	WFIS	12/13/60	2	44.6	43.4	-1.2	12.6	11.7	-0.9	105	112	+7	383[a]			413[a]		
188041	WFIS	12/15/60	2	44.1	43.1	-1.0	12.4	11.4	-1.0	113	114	+1	363[a]			414[a]		
Current Mill Average:				44.3	43.3	-1.0	12.6	11.7	-0.9	109	113	+4	374			413		

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXIX

MILL E -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187994	W.F.	12/ 9/60	2	43.8	43.0	-0.8	13.1	11.9	-1.2	108	108	0	322[a]	353	+31	375[a]	403	+28
187995	W.F.	12/ 9/60	2	44.0	43.7	-0.3	12.7	12.8	+0.1	106	107	+1	343[a]	329	-14	412[a]	425	+13
187996	W.F.	12/ 9/60	2	44.0	43.6	-0.4	12.9	12.9	0.0	106	107	+1	325[a]	332	+ 7	386[a]	409	+23
187997	W.F.	12/ 7/60	1	43.8	43.5	-0.3	11.9	12.8	+0.9	116	112	-4	299[a]	300	+ 1	364[a]	371	+ 7
187998	W.F.	12/ 7/60	1	44.0	42.9	-1.1	12.2	11.9	-0.3	115	113	-2	301[a]	293	- 8	361[a]	362	+ 1
188028	W.F.	12/ 7/60	1	44.5	43.1	-1.4	12.3	12.0	-0.3	111	113	+2	301	295	- 6	355[a]	365	+10
188029	W.F.	11/30/60	2	44.8	44.2	-0.6	12.7	12.4	-0.3	109	113	+4	313[a]	307	- 6	391[a]	391	0
188030	W.F.	11/30/60	2	44.7	44.3	-0.4	12.7	12.3	-0.4	110	116	+6	309	319	+10	359[a]	395	+36
Current Mill Average:				44.2	43.5	-0.7	12.6	12.4	-0.2	110	111	+1	314	316	+ 2	375	390	+15

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXX

Mill F -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187858	WFIS	11/17/60	1	44.6	43.3	-1.3	12.4	12.5	+0.1	112	110	-2	293[a]	317	+24	355[a]	388	+33
187863	WFIS	11/21/60	1	43.3	43.1	-0.2	12.3	12.3	0.0	113	107	-6	297[a]	283	-14	365[a]	337	-28
187877	WFIS	11/23/60	1	43.6	42.8	-0.8	12.6	12.2	-0.4	110	108	-2	288[a]	246	-42	375[a]	288	-87
187957	WFIS	11/29/60	1	43.6	42.6	-1.0	12.5	12.3	-0.2	112	106	-6	299	315	+16	382[a]	403	+21
187958	WFIS	12/ 5/60	1	43.0	42.3	-0.7	12.5	12.2	-0.3	114	110	-4	309	312	+ 3	375[a]	369	- 6
188278	WFIS	12/ 8/60	1	43.4	42.4	-1.0	12.6	12.2	-0.4	115	108	-7	300[a]	315	+15	362[a]	373	+11
188279	WFIS	12/12/60	1	43.6	42.5	-1.1	12.7	12.4	-0.3	113	109	-4	330[a]	302	-28	365[a]	363	- 2
188280	WFIS	12/16/60	1	43.4	42.1	-1.3	12.7	12.2	-0.5	114	110	-4	296	301	+ 5	386[a]	369	-17
188281	WFIS	12/20/60	1	42.4	42.3	-0.1	12.3	12.1	-0.2	110	108	-2	327[a]	307	-20	398[a]	371	-27
Current Mill Average:				43.4	42.6	-0.8	12.5	12.3	-0.2	113	108	-5	304	300	- 4	374	362	-12

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188001	W.F.	11/26/60	-	43.4	42.8	-0.6	12.9	12.6	-0.3	103	106	+3	382[a]	393	+11	403[a]	417	+14
188002	W.F.	11/26/60	-	43.9	42.2	-1.7	12.8	12.2	-0.6	111	110	-1	371[a]	359	-12	387[a]	396	+ 9
188003	W.F.	11/27/60	-	43.4	42.6	-0.8	12.8	12.5	-0.3	104	106	+2	384[a]	396	+12	405[a]	423	+18
188004	W.F.	11/27/60	-	43.9	43.0	-0.9	12.7	12.5	-0.2	106	111	+5	377[a]	383	+ 6	400[a]	420	+20
188005	W.F.	12/ 5/60	-	44.0	43.0	-1.0	13.0	12.8	-0.2	107	105	-2	353[a]	365	+12	417[a]	371	-46
188006	W.F.	12/ 6/60	-	44.0	42.9	-1.1	12.8	12.2	-0.6	108	109	+1	377[a]	347	-30	413[a]	385	-28
188007	W.F.	12/ 6/60	-	44.2	42.9	-1.3	12.7	12.2	-0.5	103	108	+5	370[a]	393	+23	404[a]	416	+12
188008	W.F.	12/ 5/60	-	43.6	42.8	-0.8	12.6	12.0	-0.6	107	103	-4	376[a]	357	-19	397[a]	396	- 1
188009	W.F.	12/ 6/60	-	44.0	43.2	-0.8	12.5	12.4	-0.1	103	109	+6	366[a]	369	+ 3	418[a]	389	-29
Current Mill Average:				43.8	42.8	-1.0	12.8	12.4	-0.4	106	108	+2	373	374	+ 1	405	401	- 4

TABLE XXXII

MILL H -- 42-LB. LINERBOARD

187904	W.F.	11/11/60	3	45.2	44.3	-0.9	12.1	11.9	-0.2	112	110	-2	353[a]	358	+5	397[a]	418	+21
Current Mill Average:				45.2	44.3	-0.9	12.1	11.9	-0.2	112	110	-2	353	358	+5	397	418	+21

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXXIII

MILL I -- 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 In			Elmendorf Tear, g./sheet Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187852	W.F.	11/10/60	-	44.0	43.7	-0.3	13.0	13.0	0.0	109	105	-4	325[a]	331	+ 6	365[a]	355	-10
187853	W.F.	11/10/60	-	44.6	44.7	+0.1	12.2	12.2	0.0	115	112	-3	347[a]	336	-11	371[a]	369	- 2
188014	W.F.	11/29/60	-	43.4	43.3	-0.1	12.7	12.5	-0.2	110	109	-1	363[a]	331	-32	369[a]	376	+ 7
188015	W.F.	12/ 1/60	-	45.1	44.4	-0.7	12.9	12.9	0.0	109	108	-1	372[a]	367	- 5	388[a]	399	+11
Current Mill Average:				44.2	44.0	-0.2	12.7	12.6	-0.1	111	109	-2	352	341	-11	373	375	+ 2

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

187917	S.F.	11/24/60	7	42.5	42.2	-0.3	12.9	12.8	-0.1	102	109	+7	318a	294	-24	379[a]	357	-22
187959	S.F.	12/ 7/60	7	44.3	43.7	-0.6	13.2	12.9	-0.3	104	108	+4	317a	290	-27	374[a]	347	-27
Current Mill Average:				43.4	43.0	-0.4	13.1	12.8	-0.3	103	109	+6	318	292	-26	377	352	-25

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXXV

MILL K -- 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 In			Elmendorf Tear, g./sheet Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187910	----	10/ 6/60	1	42.5	43.1	+0.6	12.8	12.6	-0.2	108	110	+2	322[a]	298	-24	359[a]	350	- 9
187911	----	10/ 6/60	1	42.7	42.6	-0.1	13.1	12.6	-0.5	104	112	+8	319	307	-12	354[a]	350	- 4
187912	----	10/26/60	1	43.9	43.3	-0.5	13.1	12.7	-0.4	106	112	+6	341	300	-41	375[a]	368	- 7
187913	----	10/23/60	1	43.6	43.0	-0.6	13.3	12.8	-0.5	104	110	+6	321	296	-25	383[a]	373	-10
187914	----	10/25/60	1	43.3	43.2	-0.1	13.2	12.8	-0.4	108	113	+5	319	290	-29	350[a]	363	+13
188016	----	10/ 8/60	1	42.2	42.0	-0.2	12.4	12.0	-0.4	109	113	+4	301[a]	277	-24	362[a]	366	+ 4
188032	----	10/11/60	1	42.9	43.4	+0.5	13.2	12.7	-0.5	106	115	+9	331[a]	303	-28	352[a]	366	+14
188017	----	10/27/60	1	43.9	44.0	+0.1	13.2	12.9	-0.3	102	110	+8	291	264	-27	354[a]	351	- 3
Current Mill Average:				43.1	43.1	0.0	13.0	12.6	-0.4	106	112	+6	318	292	-26	361	361	0

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXXVI

MILL L -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187930	W.F.	11/13/60	1	44.3	43.9	-0.4	12.8	12.6	-0.2	115	120	+5	318[a]	346	+28	366[a]	414	+48
187931	W.F.	11/16/60	1	45.5	45.0	-0.5	13.1	13.6	+0.5	112	105	-7	365[a]	344	-21	387[a]	404	+17
187932	W.F.	11/28/60	1	44.9	44.4	-0.5	12.6	13.1	+0.5	106	107	+1	344[a]	365	+21	391[a]	419	+28
187933	W.F.	11/27/60	1	43.7	43.2	-0.5	12.8	12.6	-0.2	104	106	+2	321[a]	318	- 3	362[a]	374	+12
188265	W.F.	12/ 4/60	1	44.4	44.4	0.0	12.4	12.8	+0.4	110	110	0	327[a]	346	+19	377[a]	400	+23
188266	W.F.	12/ 3/60	1	43.5	43.2	-0.3	11.8	12.0	+0.2	112	112	0	328[a]	351	+23	388[a]	404	+16
188267	W.F.	12/ 7/60	1	42.9	42.6	-0.3	12.1	12.0	-0.1	111	111	0	302	320	+18	351[a]	387	+36
188268	W.F.	12/19/60	1	43.8	43.8	0.0	12.6	12.8	+0.2	112	114	+2	301	314	+13	341[a]	379	+38
Current Mill Average:				44.1	43.8	-0.3	12.5	12.7	+0.2	110	111	+1	326	338	+12	370	398	+28

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXXVII

MILL M -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
188010	W.F.	11/28/60	1	43.7	43.1	-0.6	11.8	11.6	-0.2	116	116	0	338	326	-12	374[a]	363	-11
188011	W.F.	12/ 1/60	2	44.2	43.7	-0.5	12.5	12.3	-0.2	112	112	0	389[a]	387	- 2	437[a]	422	-15
188047	W.F.	12/ 2/60	2	43.7	42.7	-1.0	12.0	11.9	-0.1	122	116	-6	377[a]	354	-23	425[a]	397	-28
188048	W.F.	12/11/60	2	44.0	43.3	-0.7	12.2	12.0	-0.2	119	117	-2	347[a]	323	-24	403[a]	383	-20
Current Mill Average:				43.9	43.2	-0.7	12.1	11.9	-0.2	117	115	-2	363	347	-16	410	391	-19

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXXVIII

MILL N -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187862	W.F.	11/12/60	2	43.8	42.9	-0.9	13.5	13.1	-0.4	108	108	0	331[a]	282	-49	376[a]	380	+ 4
187876	WFIS	11/20/60	2	43.8	43.1	-0.7	12.7	12.9	+0.2	115	108	-7	331[a]	304	-27	366[a]	411	+45
187903	WFIS	11/26/60	2	43.8	42.5	-1.3	12.9	13.0	+0.1	116	109	-7	353[a]	302	-51	360[a]	373	+13
187915	WFIS	11/27/60	2	43.7	42.6	-1.1	13.0	13.0	0.0	114	113	-1	308	296	-12	367[a]	390	+23
187916	WFIS	11/28/60	2	43.8	42.5	-1.3	13.2	13.5	+0.3	113	114	+1	332	286	-46	381[a]	373	- 8
187979	WFIS	12/ 5/60	2	43.8	43.1	-0.7	13.0	13.1	+0.1	109	111	+2	358[a]	322	-36	399[a]	404	+ 5
188269	WFIS	12/11/60	2	44.1	42.9	-1.2	13.2	13.2	0.0	112	109	-3	315	278	-37	369[a]	364	- 5
188270	WFIS	12/12/60	2	43.8	42.8	-1.0	13.3	14.0	+0.7	112	113	+1	303	282	-21	342[a]	412	+70
188277	WFIS	12/15/60	2	43.7	43.0	-0.7	13.2	13.6	+0.4	115	112	-3	311[a]	296	-15	384[a]	370	-14
Current Mill Average:				43.8	42.8	-1.0	13.1	13.3	+0.2	113	111	-2	327	294	-33	372	386	+14

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XXXIX

MILL O -- 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 In			Elmendorf Tear, g./sheet Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
No samples submitted																		

TABLE XL

MILL P -- 42-LB. LINERBOARD

187854	W.F.	10/24/60	1	43.9	42.2	-1.7	12.8	12.5	-0.3	111	113	+2	273[a]	247	-26	339[a]	342	+ 3
187855	W.F.	10/28/60	1	42.5	42.0	-0.5	12.1	12.0	-0.1	114	111	-3	295[a]	253	-42	329[a]	337	+ 8
187856	W.F.	11/ 2/60	1	43.0	42.5	-0.5	12.9	12.7	-0.2	116	115	-1	280[a]	282	+ 2	339[a]	368	+29
188273	W.F.	11/ 7/60	1	43.0	42.5	-0.5	13.1	12.4	-0.7	117	115	-2	280[a]	274	- 6	350[a]	368	+18
188274	W.F.	11/10/60	1	43.0	42.1	-0.9	12.2	12.1	-0.1	116	111	-5	320[a]	255	-65	338[a]	339	+ 1
188275	W.F.	11/15/60	1	42.8	42.2	-0.6	12.9	12.4	-0.5	116	112	-4	267	245	-22	334[a]	347	+13
188276	W.F.	11/18/60	1	43.1	42.0	-1.1	13.1	12.4	-0.7	116	112	-4	267	246	-21	341[a]	345	+ 4
Current Mill Average:				43.1	42.2	-0.9	12.7	12.4	-0.3	115	113	-2	283	257	-26	339	350	+11

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XLI

MILL Q -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
187902	W.B.	11/18/60	-	43.6	43.0	-0.6	12.1	11.8	-0.3	113	114	+1	403[a]	351	-52	420[a]	408	-12
187928	W.B.	11/22/60	-	44.0	43.2	-0.8	12.2	12.1	-0.1	110	112	+2	393	352	-41	412[a]	421	+ 9
187929	W.B.	11/25/60	-	43.6	43.0	-0.6	12.0	11.8	-0.2	107	108	+1	367[a]	355	-12	421[a]	416	- 5
188031	W.B.	12/ 2/60	-	43.4	42.8	-0.6	12.1	11.7	-0.4	111	115	+4	346[a]	311	-35	391[a]	403	+12
187999	W.B.	12/ 9/60	-	44.3	43.7	-0.6	12.2	11.7	-0.5	106	109	+3	377[a]	331	-46	430[a]	389	-41
188000	W.B.	12/10/60	-	42.9	42.6	-0.3	11.8	11.5	-0.3	108	109	+1	387[a]	341	-46	420[a]	397	-23
188042	W.B.	12/11/60	-	42.1	41.6	-0.5	11.7	11.2	-0.5	107	106	-1	365[a]	335	-30	402[a]	389	-13
188043	W.B.	12/14/60	-	44.0	43.6	-0.4	12.3	12.1	-0.2	106	112	+6	363[a]	328	-35	413[a]	408	- 5
Current Mill Average:				43.5	42.9	-0.6	12.1	11.7	-0.4	108	111	+3	375	338	-37	414	404	-10

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

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

COMPARISON OF INSTITUTE AND MILL DATA--DECEMBER 1 THROUGH DECEMBER 31, 1960 (continued)

TABLE XLII

MILL S -- 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					
													In			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
No samples submitted																		

TABLE XLIII

MILL T -- 42-LB. LINERBOARD

187857	WFIS	11/13/60	1	44.0	43.1	-0.9	13.9	13.3	-0.6	111	113	+2	321[a]	351	+30	351[a]	391	+40
187860	WFIS	11/16/60	1	44.1	43.4	-0.7	13.8	13.3	-0.5	111	113	+2	331[a]	391	+60	347[a]	402	+55
187905	WFIS	11/27/60	1	44.0	42.8	-1.2	13.2	12.5	-0.7	115	119	+4	363[a]	302	-61	398[a]	347	-51
187906	WFIS	11/28/60	1	44.1	42.8	-1.3	13.1	12.5	-0.6	115	118	+3	363[a]	299	-64	393[a]	344	-49
Current Mill Average:				44.1	43.0	-1.1	13.5	12.9	-0.6	113	116	+3	344	336	- 8	372	371	- 1

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

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

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