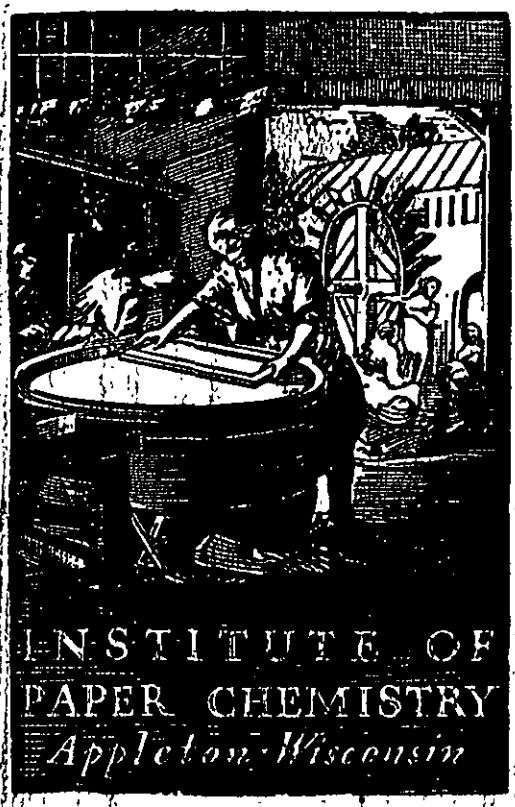

CONTINUOUS BASELINE STUDY

Project 1108-13

Progress Report 160

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1960

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASELINE STUDY

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August 1, 1960

TABLE OF CONTENTS

TABLE OF CONTENTS--CONTINUED

TABLE OF CONTENTS--CONTINUED

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 July, ninety-one 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 averages 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.	44.4	42.8	43.7
Caliper, pt.	14.0	11.5	12.6
Bursting strength, p.s.i. gage	117	106	112
Machine direction, Elmendorf tear, g./sheet	367	284	331
Cross-machine direction, Elmendorf tear, g./sheet	418	345	378

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 July 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	±15	±21
Basis weight										
Number of mills	3	10	16	17						
Percentage of all mills	17.6	58.8	94.1	100.0						
Caliper										
Number of mills	2	6	11	14	16	17				
Percentage of all mills	11.8	35.3	64.7	82.4	94.1	100.0				
Bursting strength										
Number of mills	5	8	10	13	16	16	17			
Percentage of all mills	29.4	47.1	58.8	76.5	94.1	94.1	100.0			
Tearing strength, in										
Number of mills	0	2	5	5	6	8	11	13	15	16
Percentage of all mills	0.0	12.5	31.2	31.2	37.5	50.0	68.8	81.2	93.8	100.0
Tearing strength, across										
Number of mills	0	1	4	5	8	11	12	14	15	16
Percentage of all mills	0.0	6.2	25.0	31.2	50.0	68.8	75.0	87.5	93.8	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 July. 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; however, it was necessary to change diaphragms far more frequently than with the old style and composition diaphragm.

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

During the month of July, ninety-one 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 July 1, 1959, to June 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 43.7 lb., and the cumulative F.K.I. average basis weight is 43.5 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 slightly higher than the cumulative F.K.I. average.

TABLE I

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL

Mill Code	Number
A	7
B	5
C	4
D	2
E	0
F	6
G	9
H	8
I	3
J	6
K	8
L	4
M	0
N	6
O	3
P	8
Q	4
S	7
T	1
Total	91

TABLE II

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

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i. gage	Elmendorf Tear, g./sheet	
				In Machine	Cross Machine
A	43.8	12.0	117	322	369
B	43.4	12.8	106	367	397
C	44.3	12.5	107	302	352
D	42.9	13.0	112	325	382
E	No samples submitted.				
F	43.8	12.8	109	363	418
G	43.7	12.7	108	326	372
H	43.9	12.5	114	320	350
I	43.8	13.0	112	320	369
J	43.1	12.8	115	327	386
K	42.8	14.0	111	320	360
L	43.4	11.9	110	348	403
M	No samples submitted.				
N	43.4	13.2	111	284	345
O	44.3	12.1	114	357	382
P	43.7	12.5	115	334	380
Q	43.9	12.4	112	345	359
S	43.9	13.0	113	339	418
T	44.4	11.5	117	325	384
Current FKI Average:	43.7	12.6	112	331	378
Cumulative FKI Average:	43.5	12.8	109	330	372
FKI Index, %	100.5	98.4	102.8	100.3	101.6

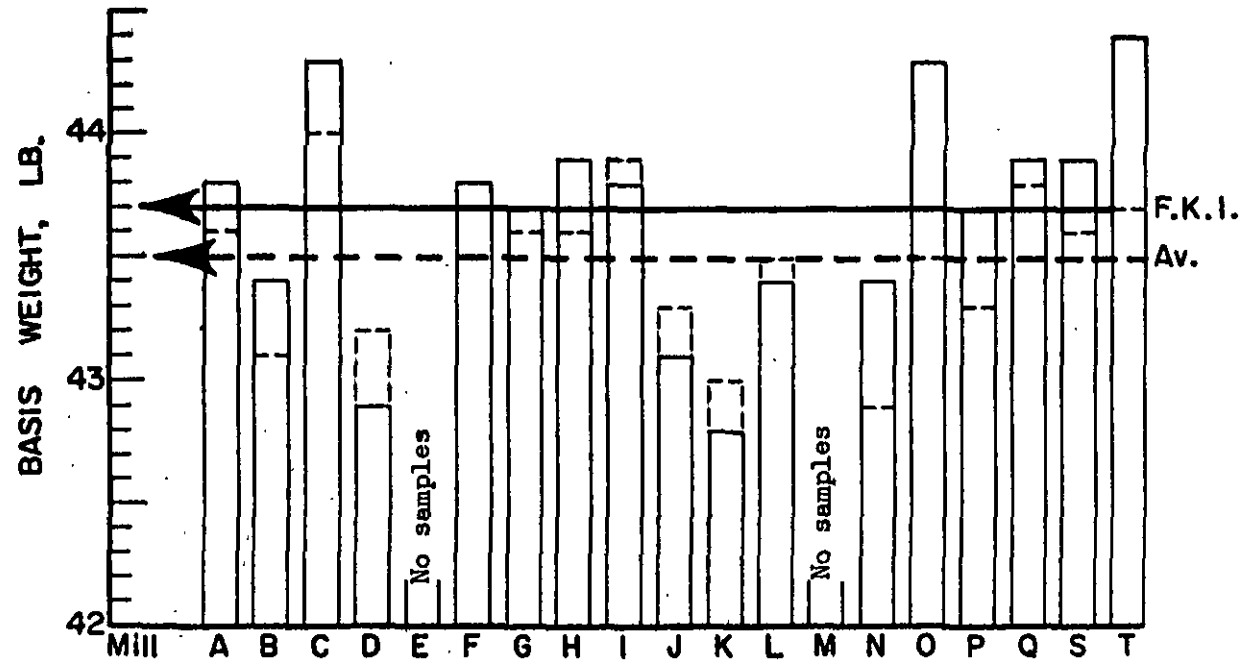

Fig. 1. Comparison of Basis Weight Results for July, 1960

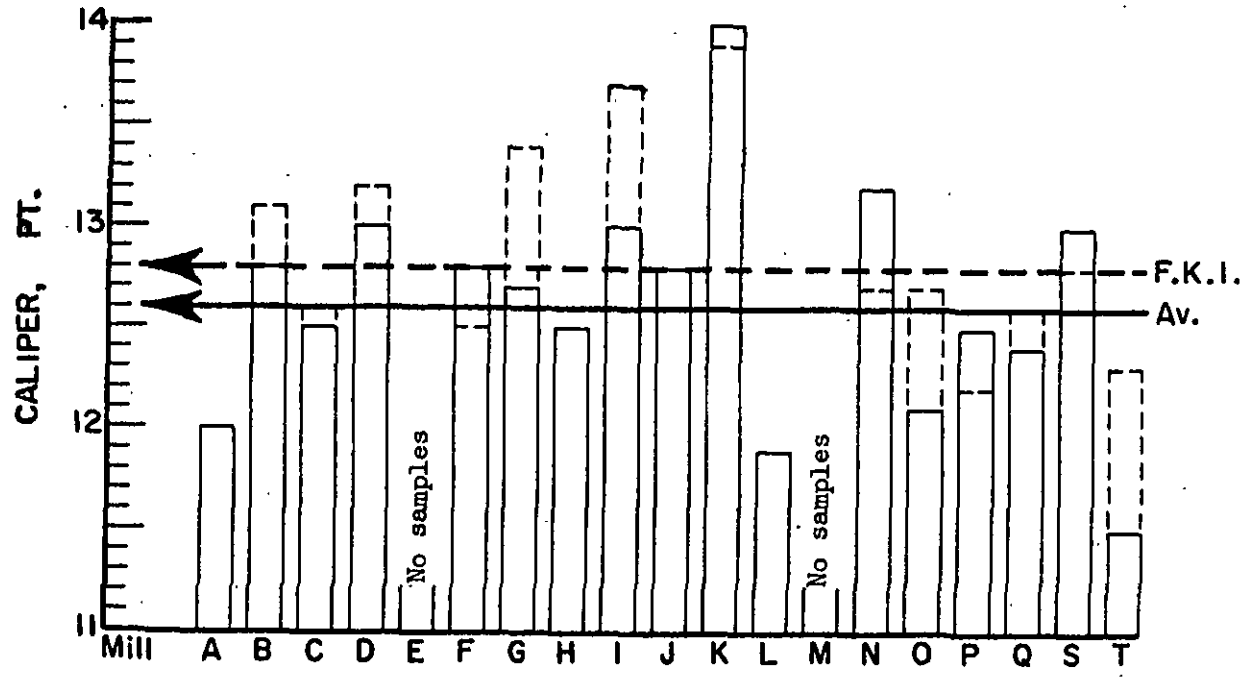

Fig. 2. Comparison of Caliper Results for July, 1960

——— Current mill average
- - - - - Cumulative mill average

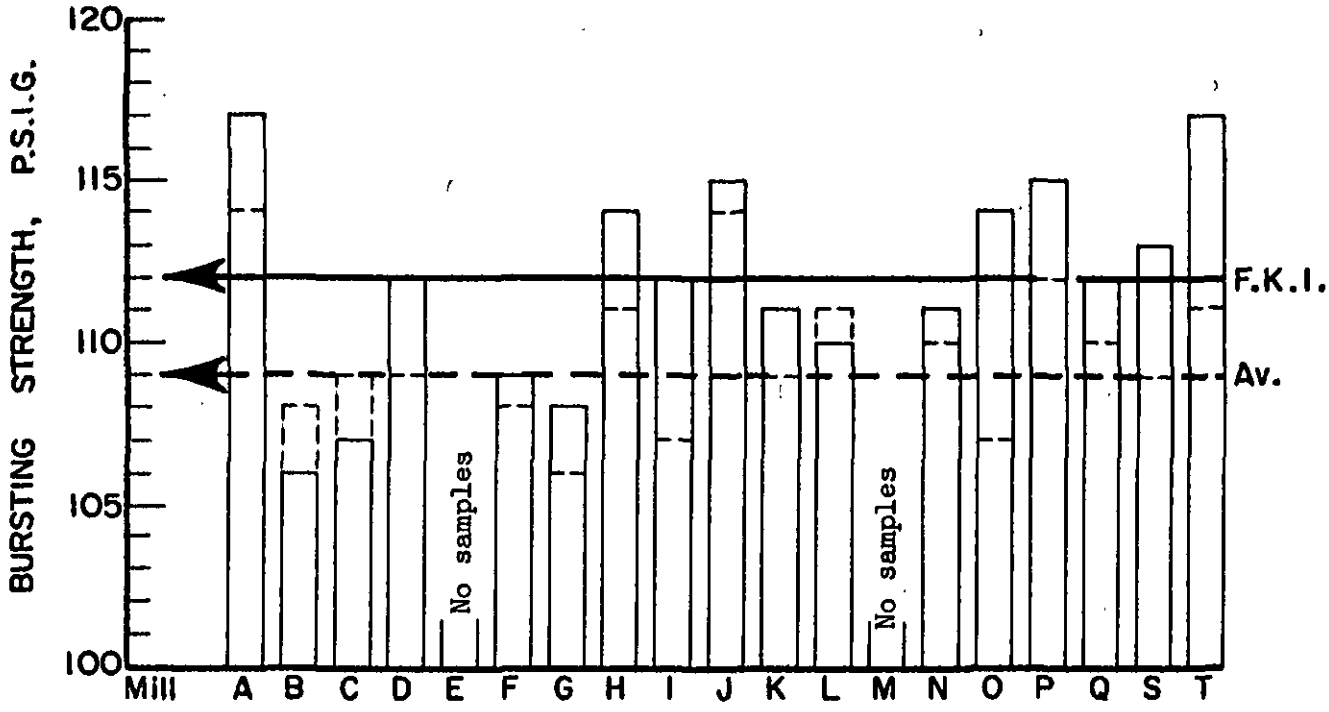

Fig. 3. Comparison of Bursting Strength Results for July, 1960

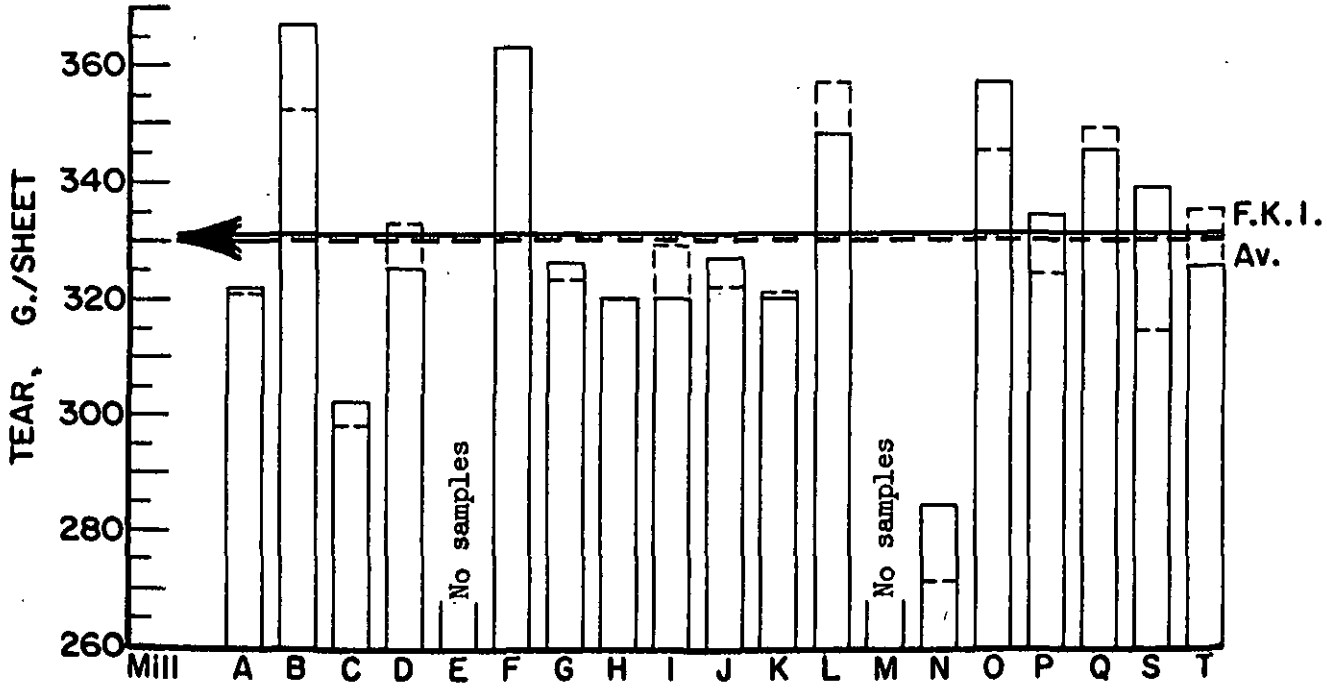

Fig. 4. Comparison of Machine-Direction Tear Results for July, 1960

——— Current mill average

- - - - - Cumulative mill average

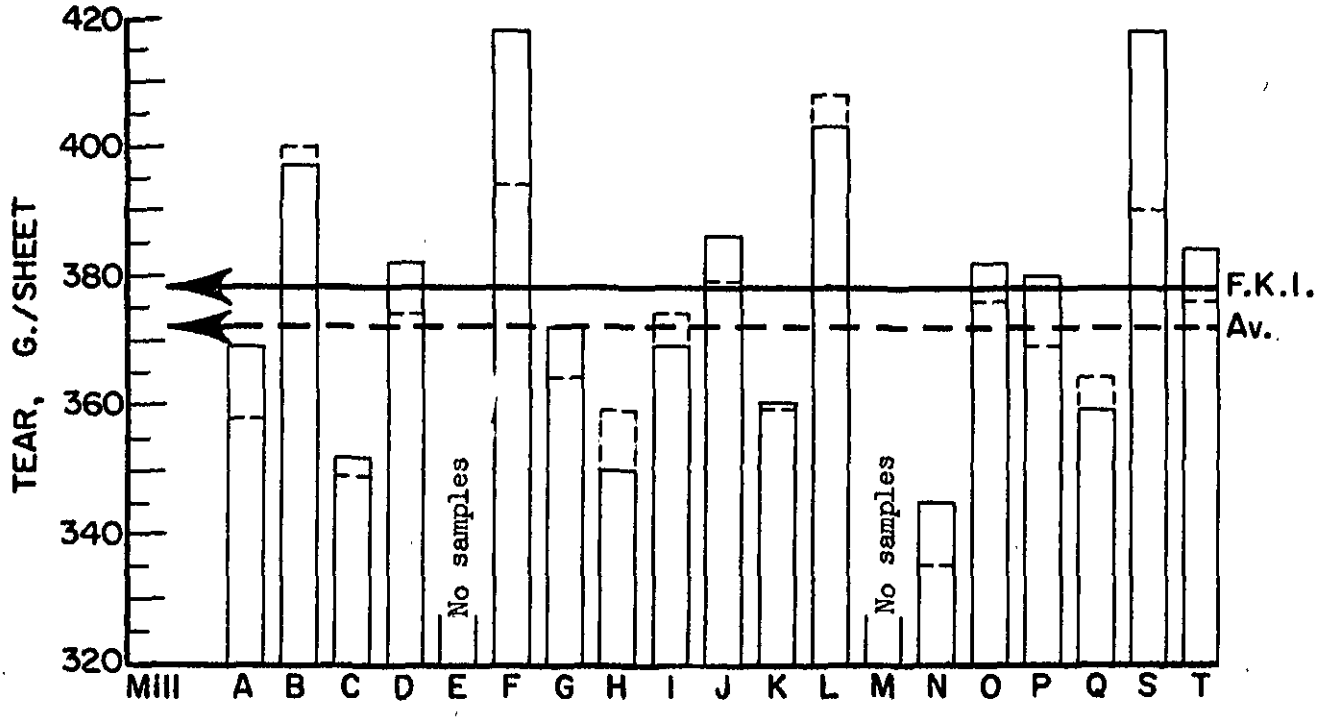

Fig. 5. Comparison of Cross-Machine Direction Tear Results for July, 1960

——— 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 T had the highest average basis weight of 44.4 lb. which was approximately 5.7% higher than the 42-lb. specification. The lowest average basis weight of 42.8 lb. was associated with Mill K.

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 remained constant at 43.7 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 11.5 points for Mill T to a high of 14.0 points for Mill K. The current F.K.I. caliper average was 12.6 points, which was slightly lower than the cumulative F.K.I. average of 12.8 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 106 for Mill B to a high of 117 for Mills A and T. The current F.K.I. bursting strength average was 112 p.s.i. gage, which was higher than the cumulative F.K.I. average of 109.

TABLE II-A

PERCENTAGE DEVIATION FROM 42-LB. BASIS WEIGHT

SPECIFICATION

Mill Code	Per Cent
A	+4.3
B	+3.3
C	+5.5
D	+2.1
E	--
F	+4.3
G	+4.0
H	+4.5
I	+4.3
J	+2.6
K	+1.9
L	+3.3
M	--
N	+3.3
O	+5.5
P	+4.0
Q	+4.5
S	+4.5
T	+5.7

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 B had the highest machine direction tear average of 367 g./sheet, and Mill N had the lowest average of 284 g./sheet. It may be further noted that the highest cross-machine direction tear average of 418 g./sheet was associated with Mills F and S and that the lowest average of 345 g./sheet was associated with Mill N. 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 basis weight, bursting strength, machine direction, and cross-machine direction Elmendorf tear are slightly higher than their respective cumulative F.K.I. averages, and the current F.K.I. average for caliper is slightly lower than its cumulative F.K.I. average.

In order to compare the variation within a given mill, the test results for the participating mills have been tabulated in Tables 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 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--JULY 1 THROUGH JULY 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			Elmendorf Tear, g./sheet Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
186249	W.F.	7/ 1/60	6/13/60	1	44.4	43.8	44.1	12.7	12.0	12.4	134	96	116	400	304	344	416	336	363[a]
186290	W.F.	7/ 5/60	6/26/60	2	44.0	42.6	43.5	12.0	11.5	11.8	136	97	115	344	280	317[a]	448	344	382[a]
186291	W.F.	7/ 5/60	6/26/60	2	44.2	43.6	44.0	12.7	11.4	12.0	143	100	119	352	288	317[a]	432	344	383[a]
186392	W.F.	7/18/60	7/10/60	1	44.2	43.8	44.1	12.3	11.5	12.0	131	88	111	352	280	306	376	336	361[a]
186500	W.F.	7/25/60	7/16/60	2	44.0	43.2	43.7	12.2	11.7	11.9	137	105	120	360	280	317[a]	416	336	375[a]
186501	W.F.	7/25/60	7/17/60	2	44.2	43.4	43.8	12.2	11.5	11.8	148	105	122	360	304	330[a]	424	336	365[a]
186502	W.F.	7/25/60	7/17/60	2	44.2	43.0	43.7	12.2	11.3	11.9	140	89	119	368	296	325[a]	400	336	357[a]
Current Mill Average:							43.8			12.0			117			322			369
Cumulative Mill Average:							43.6			12.0			114			321			358
Mill Factor, %							100.5			100.0			102.6			100.3			103.1
Mill Index, %							100.7			93.8			107.3			97.6			99.2

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 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.
186287	WF1S	7/ 5/60	6/29/60	2	44.8	43.6	44.2	14.0	13.0	13.6	120	85	104	416	304	374[a]	496	368	417[a]
186288	WF1S	7/ 5/60	6/30/60	1	43.8	41.4	42.5	12.1	11.0	11.7	131	83	107	344	304	329[a]	424	344	369[a]
186506	WF1S	7/25/60	7/18/60	2	43.8	42.4	43.1	13.7	12.8	13.2	124	88	106	416	328	375[a]	448	376	411[a]
186507	WF1S	7/25/60	7/19/60	2	44.2	42.0	43.3	13.5	11.9	12.8	133	92	108	392	328	362[a]	488	344	409[a]
186509	WF1S	7/26/60	7/20/60	2	44.2	43.0	43.7	13.4	12.1	12.8	123	80	104	464	320	397[a]	408	336	381[a]
Current Mill Average:							43.4			12.8			106			367			397
Cumulative Mill Average:							43.1			13.1			108			352			400
Mill Factor, %							100.7			97.7			98.1			104.3			99.2
Mill Index, %							99.8			100.0			97.2			111.2			106.7

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 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.
186280	W.F.	7/ 5/60	6/10/60	1	45.2	44.0	44.5	13.2	12.1	12.7	126	87	109	328	256	299	376	320	349[a]
186281	W.F.	7/ 5/60	6/14/60	1	45.4	44.0	44.5	13.0	12.1	12.7	130	84	107	352	256	317	400	320	360[a]
186390	W.F.	7/18/60	6/18/60	1	44.8	43.0	44.0	13.0	12.0	12.3	125	87	106	320	256	297	384	320	364[a]
186391	W.F.	7/18/60	6/23/60	1	44.8	43.6	44.1	12.9	12.0	12.3	127	80	104	336	240	295	368	320	336[a]
Current Mill Average:							44.3			12.5			107			302			352
Cumulative Mill Average:							44.0			12.6			109			298			349
Mill Factor, %							100.7			99.2			98.2			101.3			100.9
Mill Index, %							101.8			97.7			98.2			91.5			94.6

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

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

TABLE VI

MILL D -- 42-LB. LINERBOARD

File No.	Finish	Date Recd.	Date Made	Mch. No.	Basis Weight, lt. Max.	Basis Weight, lt. Min.	Basis Weight, lt. 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.
186491	WF1S	7/22/60	6/30/60	1	44.0	42.0	43.0	13.7	12.1	12.9	131	94	113	368	264	319[a]	424	336	375[a]
186503	WF1S	7/25/60	7/ 1/60	1	43.6	42.0	42.7	13.6	12.4	13.0	130	101	112	392	256	331[a]	424	360	389[a]
Current Mill Average:							42.9			13.0			112			325			382
Cumulative Mill Average:							43.2			13.2			109			333			374
Mill Factor, %							99.3			98.5			102.8			97.6			102.1
Mill Index, %							98.6			101.6			102.8			98.5			102.7

TABLE VII

MILL E -- 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--JULY 1 THROUGH JULY 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.
186305	W.F.	7/11/60	6/20/60	-	45.0	42.2	43.5	12.9	12.0	12.3	123	94	110	400	304	351	456	400	415[a]
186306	W.F.	7/11/60	6/23/60	-	44.8	44.0	44.2	13.2	12.2	12.8	121	98	107	456	320	369[a]	472	352	418[a]
186307	W.F.	7/11/60	6/28/60	-	44.4	43.8	44.1	14.0	12.3	12.9	132	84	111	432	344	376[a]	456	400	425[a]
186308	W.F.	7/11/60	6/30/60	-	44.4	43.2	44.0	13.1	12.0	12.6	125	84	108	384	312	353	464	352	427[a]
186483	W.F.	7/22/60	7/ 9/60	-	44.4	42.6	43.7	13.5	12.5	13.1	131	92	107	432	328	365[a]	464	376	409[a]
186484	W.F.	7/22/60	7/14/60	-	45.0	42.0	43.1	13.2	12.4	13.0	136	87	109	432	320	366[a]	448	368	411[a]
Current Mill Average:							43.8			12.8			109			363			418
Cumulative Mill Average:							43.8			12.5			108			363			394
Mill Factor, %							100.0			102.4			100.9			100.0			106.1
Mill Index, %							100.7			100.0			100.0			110.0			112.4

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 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.
186257	W.F.	6/30/60	6/ 2/60	1	46.4	43.8	45.1	13.9	13.0	13.5	124	94	107	392	304	356	400	344	373[a]
186301	W.F.	7/ 8/60	6/15/60	1	43.4	40.6	42.1	12.1	11.1	11.7	124	94	111	336	264	296	384	296	344[a]
186302	W.F.	7/ 8/60	6/29/60	1	44.0	42.0	42.9	12.8	11.9	12.1	126	79	106	384	264	311	400	328	373[a]
186303	W.F.	7/ 8/60	6/29/60	1	44.2	42.2	43.5	12.3	11.8	12.0	128	80	108	360	280	321	432	312	372[a]
186304	W.F.	7/ 8/60	6/30/60	1	44.6	43.0	44.0	13.0	12.1	12.5	126	90	110	416	320	354	424	352	381[a]
186495	W.F.	7/25/60	7/ 3/60	1	45.8	43.8	44.6	13.9	12.8	13.4	137	90	113	352	272	325[a]	432	328	370[a]
186496	W.F.	7/25/60	7/ 5/60	1	44.2	42.8	43.6	13.0	12.3	12.8	128	98	113	392	256	305[a]	408	312	344[a]
186497	W.F.	7/25/60	7/17/60	1	45.4	43.0	43.9	13.9	12.9	13.4	118	79	103	448	264	333[a]	432	368	394[a]
186498	W.F.	7/25/60	7/15/60	1	44.2	42.0	43.4	13.8	12.2	13.0	124	86	105	376	232	331[a]	488	344	394[a]
Current Mill Average:							43.7			12.7			108			326			372
Cumulative Mill Average:							43.6			13.4			106			323			364
Mill Factor, %							100.2			94.8			101.9			100.9			102.2
Mill Index, %							100.5			99.2			99.1			98.8			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--JULY 1 THROUGH JULY 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.
186284	W.F.	7/ 5/60	6/29/60	-	44.2	43.8	44.0	12.5	12.0	12.2	138	101	117	328	240	302	384	328	353[a]
186285	W.F.	7/ 5/60	6/30/60	-	44.2	43.8	44.0	13.0	12.1	12.4	131	101	118	336	256	303[a]	400	328	356[a]
186286	W.F.	7/ 5/60	7/ 1/60	-	44.0	43.4	43.8	12.5	12.0	12.1	123	87	107	392	296	345[a]	384	328	356[a]
186334	W.F.	7/13/60	7/ 7/60	-	44.8	43.2	43.9	13.2	12.5	12.9	134	98	114	384	280	318[a]	384	296	337[a]
186335	W.F.	7/13/60	7/ 8/60	-	44.4	43.4	44.0	12.9	11.8	12.4	134	110	119	360	288	312[a]	360	288	328[a]
186336	W.F.	7/13/60	7/ 9/60	-	44.0	43.0	43.6	13.6	12.8	13.1	137	103	121	344	280	313[a]	408	336	364[a]
186393	W.F.	7/18/60	7/14/60	-	44.2	43.8	44.0	12.8	11.9	12.4	127	101	117	336	288	310	392	320	350[a]
186394	W.F.	7/18/60	7/15/60	-	44.0	43.8	43.9	13.0	12.0	12.6	116	89	100	400	312	353[a]	384	320	354[a]
Current Mill Average:							43.9			12.5			114			320			350
Cumulative Mill Average:							43.6			12.5			111			320			359
Mill Factor, %							100.7			100.0			102.7			100.0			97.5
Mill Index, %							100.9			97.7			104.6			97.0			94.1

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

SUMMARY OF INSTITUTE DATA—JULY 1 THROUGH JULY 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.
186252	----	7/ 1/60	6/15/60	2	43.8	42.2	43.3	13.9	12.9	13.3	125	90	104	336	256	300[a]	432	336	372[a]
186253	WF1S	7/ 1/60	6/16/60	2	44.6	43.6	44.0	13.9	12.8	13.4	136	96	117	336	272	305	400	336	359[a]
186282	WF1S	7/ 5/60	6/18/60	2	44.2	43.6	44.0	13.0	12.0	12.3	131	100	115	400	296	355	400	352	376[a]
Current Mill Average:							43.8			13.0			112			320			369
Cumulative Mill Average:							43.9			13.7			107			329			374
Mill Factor, %							99.8			94.9			104.7			97.3			98.7
Mill Index, %							100.7			101.6			102.8			97.0			99.2

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 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.
186250	----	7/ 1/60	5/ 2/60	1	44.6	42.2	44.0	14.0	12.1	13.2	130	93	111	368	288	331	432	344	382[a]
186251	----	7/ 1/60	5/ 3/60	1	44.0	42.2	43.2	14.0	12.3	13.1	134	90	112	400	272	323	400	360	387[a]
186431	----	7/20/60	5/ 7/60	1	44.4	42.4	43.8	14.0	12.8	13.3	133	95	113	432	320	343	416	352	384[a]
186432	----	7/20/60	5/12/60	1	44.4	42.0	43.5	13.5	12.3	12.9	143	99	119	400	288	324[a]	400	352	377[a]
186433	----	7/20/60	5/29/60	1	42.0	40.2	41.0	12.3	11.0	11.6	138	94	116	352	272	308	432	336	361[a]
186434	----	7/20/60	5/29/60	1	44.0	42.4	43.4	13.4	12.0	12.8	143	102	119	352	304	333	496	384	425[a]
Current Mill Average:							43.1			12.8			115			327			386
Cumulative Mill Average:							43.3			12.8			114			322			379
Mill Factor, %							99.5			100.0			100.9			101.6			101.8
Mill Index, %							99.1			100.0			105.5			99.1			103.8

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 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.
186258	WF1S	7/ 1/60	6/27/60	2	44.0	42.0	43.0	14.8	13.8	14.3	133	86	111	384	288	343[a]	384	328	360[a]
186259	WF1S	7/ 1/60	6/28/60	2	44.8	39.4	41.3	15.1	13.1	13.8	129	94	111	320	272	304	400	320	358[a]
186485	WF1S	7/22/60	7/ 3/60	2	44.0	42.0	43.3	14.1	13.0	13.6	143	100	117	360	264	311[a]	392	360	373[a]
186486	WF1S	7/22/60	7/ 4/60	2	41.8	40.0	40.6	14.0	13.0	13.6	127	77	99	328	248	290[a]	384	312	344[a]
186487	WF1S	7/22/60	7/ 5/60	2	44.2	42.2	43.2	14.5	13.9	14.1	138	95	111	344	280	315[a]	376	336	359[a]
186488	WF1S	7/22/60	7/12/60	2	44.2	42.2	43.4	14.2	13.7	14.0	133	91	113	400	296	330[a]	408	312	356[a]
186489	WF1S	7/22/60	7/13/60	2	44.0	42.4	43.5	15.0	14.0	14.5	131	88	110	424	264	343[a]	400	328	376[a]
186490	WF1S	7/22/60	7/14/60	2	45.4	43.8	44.2	14.4	13.7	14.1	139	103	119	408	280	322[a]	416	312	358[a]
Current Mill Average:							42.8			14.0			111			320			360
Cumulative Mill Average:							43.0			13.9			109			321			359
Mill Factor, %							99.5			100.7			101.8			99.7			100.3
Mill Index, %							98.4			109.4			101.8			97.0			96.8

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 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.
186254	W.B.	7/ 1/60	6/16/60	-	44.4	43.0	43.7	12.5	11.1	11.9	129	87	110	360	280	335	432	368	400[a]
186255	W.B.	7/ 1/60	6/20/60	-	43.4	41.6	42.5	12.0	10.8	11.5	133	95	111	376	272	340	416	360	386[a]
186256	W.B.	7/ 1/60	6/21/60	-	44.2	41.8	43.4	12.3	11.4	12.0	130	90	110	400	320	361	456	360	405[a]
186464	W.B.	7/21/60	6/24/60	-	44.2	43.0	44.0	12.5	11.8	12.2	119	98	109	400	320	354	464	384	420[a]
Current Mill Average:							43.4			11.9			110			348			403
Cumulative Mill Average:							43.5			11.9			111			357			408
Mill Factor, %							99.8			100.0			99.1			97.5			98.8
Mill Index, %							99.8			93.0			100.9			105.5			108.3

TABLE XV

MILL M -- 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--JULY 1 THROUGH JULY 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.
186260	W.F.	7/ 1/60	5/27/60	1	43.8	42.8	43.5	13.8	12.9	13.2	130	85	110	296	248	271	376	320	344[a]
186261	W.F.	7/ 1/60	5/30/60	1	44.0	42.2	43.2	13.8	12.8	13.3	135	100	115	320	240	298	400	312	358[a]
186262	W.F.	7/ 1/60	6/13/60	1	44.2	42.4	43.7	13.8	12.8	13.3	127	85	110	320	240	271	376	320	346[a]
186263	W.F.	7/ 1/60	6/16/60	1	43.6	42.0	42.6	13.2	12.8	13.0	127	87	109	320	256	281	392	320	339[a]
186435	W.F.	7/20/60	6/20/60	1	44.0	43.0	43.7	13.8	12.8	13.1	136	85	110	336	272	299[a]	376	304	336[a]
186436	W.F.	7/20/60	6/24/60	1	44.0	42.4	43.3	14.0	13.1	13.5	129	81	109	320	240	287	384	320	348[a]
Current Mill Average:							43.4			13.2			111			284			345
Cumulative Mill Average:							42.9			12.7			110			271			335
Mill Factor, %							101.2			103.9			100.9			104.8			103.0
Mill Index, %							99.8			103.1			101.8			86.1			92.7

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

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

TABLE XVII

MILL O -- 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.
186283	S.F.	7/ 5/60	6/21/60	7	44.2	42.2	43.5	12.0	11.0	11.5	128	90	110	352	288	324	400	320	364[a]
186309	S.F.	7/11/60	6/30/60	7	45.2	42.2	44.1	12.0	11.0	11.6	131	95	114	384	304	336	416	336	391[a]
186508	S.F.	7/25/60	7/12/60	7	46.8	43.0	45.2	13.8	12.3	13.1	148	95	117	472	312	411[a]	464	328	393[a]
Current Mill Average:							44.3			12.1			114			357			382
Cumulative Mill Average:							43.5			12.7			107			345			376
Mill Factor, %							101.8			95.3			106.5			103.5			101.6
Mill Index, %							101.8			94.5			104.6			108.2			102.7

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

SUMMARY OF INSTITUTE DATA--JULY 1 THROUGH JULY 31, 1960 (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					
														In			Across		
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
186337	W.F.	7/13/60	6/ 6/60	1	44.0	43.2	43.7	13.0	11.2	12.5	136	85	114	400	304	332[a]	432	344	383[a]
186338	W.F.	7/13/60	6/ 6/60	1	44.2	43.0	43.8	13.2	11.8	12.5	136	98	119	408	312	351[a]	392	336	365[a]
186339	W.F.	7/13/60	6/ 7/60	1	44.2	43.0	43.6	13.2	12.0	12.6	138	98	115	360	296	325[a]	424	336	367[a]
186340	W.F.	7/13/60	6/ 7/60	1	44.0	43.0	43.6	13.2	12.0	12.5	137	93	116	392	328	350[a]	440	312	368[a]
186369	W.F.	7/15/60	6/13/60	2	44.4	43.6	44.0	13.0	12.3	12.8	133	96	115	368	288	327[a]	400	352	375[a]
186370	W.F.	7/15/60	7/ 8/60	2	44.2	43.2	43.8	13.1	11.8	12.4	137	87	114	360	296	333[a]	464	376	403[a]
186371	W.F.	7/15/60	7/ 8/60	2	44.2	43.0	43.5	12.9	11.7	12.4	130	91	112	384	280	325[a]	440	360	393[a]
186372	W.F.	7/15/60	7/ 8/60	2	44.0	42.2	43.5	12.9	11.8	12.4	137	98	117	408	272	326[a]	440	352	383[a]
Current Mill Average:							43.7			12.5			115			334			380
Cumulative Mill Average:							43.3			12.2			112			324			369
Mill Factor, %							100.9			102.5			102.7			103.1			103.0
Mill Index, %							100.5			97.7			105.5			101.2			102.2

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

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

TABLE XIX

MILL Q -- 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.
186292	W.F.	7/ 6/60	6/27/60	-	46.0	41.6	43.9	13.1	12.0	12.5	130	100	114	400	320	354	384	320	357[a]
186293	W.F.	7/ 6/60	6/27/60	-	44.4	42.4	43.9	13.1	12.0	12.3	126	95	112	424	320	347[a]	400	336	374[a]
186504	W.F.	7/25/60	7/ 7/60	-	44.6	43.4	44.0	12.9	11.8	12.2	134	94	112	408	296	337[a]	392	312	354[a]
186505	W.F.	7/25/60	7/ 7/60	-	44.2	42.6	43.7	13.3	11.8	12.6	127	88	110	384	280	343[a]	384	328	353[a]
Current Mill Average:							43.9			12.4			112			345			359
Cumulative Mill Average:							43.8			12.6			110			349			364
Mill Factor, %							100.2			98.4			101.8			98.9			98.6
Mill Index, %							100.9			96.9			102.8			104.5			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—JULY 1 THROUGH JULY 31, 1960 (continued)

TABLE XX

MILL S -- 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.
186277	WF1S	7/ 5/60	6/20/60	1	44.8	43.8	44.1	13.4	12.8	13.1	130	88	110	400	264	334	496	368	416[a]
186278	WF1S	7/ 5/60	6/21/60	1	44.2	43.0	43.9	13.2	12.1	12.9	135	97	112	392	264	334[a]	464	368	409[a]
186279	WF1S	7/ 5/60	6/23/60	1	44.2	43.8	44.0	13.2	12.7	13.0	140	92	113	368	280	337[a]	456	360	402[a]
186367	WF1S	7/15/60	7/ 5/60	1	44.2	43.0	43.6	13.2	12.1	12.9	137	89	115	368	288	321[a]	464	368	407[a]
186368	WF1S	7/15/60	7/ 7/60	1	44.2	43.2	43.7	13.8	12.4	13.2	135	89	112	424	272	343	456	392	424[a]
186492	WF1S	7/22/60	7/11/60	1	44.6	43.0	44.0	13.8	12.5	13.1	134	92	112	448	304	367[a]	536	384	431[a]
186493	WF1S	7/22/60	7/12/60	1	44.0	42.6	43.7	14.0	12.1	12.9	130	99	115	408	248	339[a]	488	400	433[a]
Current Mill Average:							43.9			13.0			113			339			418
Cumulative Mill Average:							43.6			12.8			109			314			390
Mill Factor, %							100.7			101.6			103.7			108.0			107.2
Mill Index, %							100.9			101.6			103.7			102.7			112.4

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

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

TABLE XXI

MILL T -- 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.
186289	W.F.	7/ 5/60	5/21/60	2	45.4	43.8	44.4	12.0	11.1	11.5	133	88	117	352	296	325[a]	416	344	384[a]
Current Mill Average:							44.4			11.5			117			325			384
Cumulative Mill Average:							43.7			12.3			111			335			376
Mill Factor, %							101.6			93.5			105.4			97.0			102.1
Mill Index, %							102.1			89.8			107.3			98.5			103.2

[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		
	R.H., %	Temperature, °F.	Time, hr.	R.H., %	Temperature, °F.	Time, hr.
A		None		50	73	24
B		None		50	73	24
C	38-47	78-82	0.5	50	73	24-48
D		None		61	82-90	--
E			No samples submitted.			
F	50	73-74	48+	50	73	48+
G	50	73	24	50	73	24
H	34-36	77-78	8	48-52	72	16
I	50	70-72	120	50	70-72	120
J	50	72	48-120	50	72	3
K	50	72	24		None	
L		None		49-55	71-77	48
M			No samples submitted.			
N		None		44-65	86-98	--
O	50	73	24		None	
P	50	73	24	50	73	24
Q		None		50	73	24
S		None		55-58	70-73	--
T		None		50	73	24

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	7	5	4	2	0	6	9	8	3	6	8	4	0	6	3	8	4	7	1
Basis Weight																			
Institute	43.8	43.4	44.3	42.9		43.8	43.7	43.9	43.8	43.1	42.8	43.4		43.4	44.3	43.7	43.9	43.9	44.4
Mill	43.0	42.2	43.2	42.1		43.0	43.5	43.6	43.1	43.1	43.2	43.1		42.7	43.8	43.4	43.4	43.5	44.6
Av. Diff.**	-0.8	-1.2	-1.1	-0.8		-0.8	-0.2	-0.3	-0.7	0.0	+0.4	-0.3		-0.7	-0.5	-0.3	-0.5	-0.4	+0.2
Max. Diff.***	-1.2	-1.5	-1.2	-0.9		-1.2	-0.5	-1.4	-1.3	±0.3	+1.9	-0.4		-1.3	-0.8	-0.9	-0.9	-1.4	+0.2
Caliper																			
Institute	12.0	12.8	12.5	13.0		12.8	12.7	12.5	13.0	12.8	14.0	11.9		13.2	12.1	12.5	12.4	13.0	11.5
Mill	11.6	12.4	12.1	12.4		12.3	12.7	12.3	12.9	12.6	14.0	11.7		12.7	12.0	12.4	12.2	12.9	11.7
Av. Diff.**	-0.4	-0.4	-0.4	-0.6		-0.5	0.0	-0.2	-0.1	-0.2	0.0	-0.2		-0.5	-0.1	-0.1	-0.2	-0.1	+0.2
Max. Diff.***	-0.6	-0.7	-0.6	-0.6		-0.7	+0.3	-0.4	-0.3	-0.5	-0.5	-0.2		-1.0	±0.2	-0.3	-0.3	-0.2	+0.2
Bursting Strength																			
Institute	117	106	107	112		109	108	114	112	115	111	110		111	114	115	112	113	117
Mill	113	106	109	107		111	108	113	112	112	110	110		111	117	110	108	106	118
Av. Diff.**	-4	0	+2	-5		+2	0	-1	0	-3	-1	0		0	+3	-5	-4	-7	+1
Max. Diff.***	-8	+4	+4	-6		+5	-4	+12	-4	-6	-8	± 2		+1	+4	-10	-5	-10	+1
Tearing Strength, in																			
Institute	322	367	302	325		363	326	320	320	327	320	348		284	357	334	345	339	325
Mill	327	--	295	394		368	350	278	315	311	351	372		274	335	351	306	343	355
Av. Diff.**	+5	--	-7	+69		+5	+24	-42	-5	-16	+31	+24		-10	-22	+17	-39	+4	+30
Max. Diff.***	+16	--	-25	+75		+22	+51	-56	-25	-35	+79	+50		+60	-58	+32	-51	+37	+30
Tearing Strength, across																			
Institute	369	397	352	382		418	372	350	369	386	360	403		345	382	380	359	418	384
Mill	384	--	362	447		410	420	333	386	371	395	432		330	389	400	352	415	414
Av. Diff.**	+15	--	+10	+65		-8	+48	-17	+17	-15	+35	+29		-15	+7	+20	-7	-3	+30
Max. Diff.***	+63	--	+19	+71		-39	+90	-38	+50	-42	+43	+49		-83	+29	+42	-17	+17	+30

* 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 averages 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
A	Current	-2	-3	-3	+2	+4
	159th	-2	-0.9	-0.8	-4	-0.8
	158th	-1	-2	+2	+3	+4
B	Current	-3	-3	0	--	--
	159th	-3	-3	-0.9	--	--
	158th	-2	-3	+2	--	--
C	Current	-2	-3	+2	-2	+3
	159th	-2	-4	+3	-0.4	+5
	158th	-1	-2	+4	-0.3	+3
D	Current	-2	-5	-4	+21	+17
	159th	-1	-3	-3	+7	+8
	158th	-0.9	-2	0	+7	+8
E	Current	--	--	--	--	--
	159th	--	--	--	--	--
	158th	--	--	--	--	--
F	Current	-2	-4	+2	+1	-2
	159th	-2	-5	0	-4	-5
	158th	-1	-0.8	-3	-0.3	-9
G	Current	-0.5	0	0	+7	+13
	159th	-1	-2	-2	-0.9	+9
	158th	-0.9	0	+3	+6	+14
H	Current	-0.7	-2	-0.9	-13	-5
	159th	-1	-2	-0.9	-13	-5
	158th	-0.7	-3	0	-9	-8
I	Current	-2	-0.8	0	-2	+5
	159th	-2	-1	-0.9	-6	+11
	158th	-1	-2	+0.9	-4	+6
J	Current	0	-2	-3	-5	-4
	159th	+0.2	-2	0	+1	+5
	158th	-1	-4	-2	-3	+2
K	Current	+0.9	0	-0.9	+10	+10
	159th	+0.5	-0.7	-4	+3	+8
	158th	0	-2	0	0	+8
L	Current	-0.7	-2	0	+7	+7
	159th	-0.9	-2	0	+2	+3
	158th	-0.7	-2	+0.9	-0.8	+3
M	Current	--	--	--	--	--
	159th	--	--	--	--	--
	158th	-1	-4	+9	-5	-6
N	Current	-2	-4	0	-4	-4
	159th	-2	-7	+0.9	-13	-1
	158th	-3	-2	-2	-21	-11
O	Current	-1	-0.8	+3	-6	+2
	159th	-2	-2	+3	-3	-0.8
	158th	-2	-2	+6	+1	+5
P	Current	-0.7	-0.8	-4	+5	+5
	159th	0	+0.8	-3	+9	+10
	158th	0	-0.8	+2	+8	+11
Q	Current	-1	-2	-4	-11	-2
	159th	-2	-2	-2	-18	-10
	158th	-2	-2	+0.9	-14	-3
S	Current	-0.9	-0.8	-6	+1	-0.7
	159th	-2	-4	-4	0	-3
	158th	-2	-3	-2	+6	+3
T	Current	+0.5	+2	+0.9	+9	+8
	159th	-0.7	-2	+4	+12	+6
	158th	0	-2	+2	+7	+11

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 three per cent. By comparison, the largest average percentage difference noted for the previous two periods was also three per cent. Further, it may be noted that the average basis weight results for Mills K and T were higher than those for the Institute and the average result for Mill J was the same as that for the Institute, whereas the 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 five per cent. This was lower than the maximum variation of seven per cent for the previous two periods. Compared with the Institute's results, the average test result for Mill T was higher, the average test results for Mills G and K were the same, 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.

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 nine per cent. The average bursting strength results for Mills B, G, I, L, and N were the same as the corresponding results for the Institute, the average results for Mills C, F, O, 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.

It may be seen in Tables XXIII and XXIV that the average machine direction tear results for Mills A, D, F, G, K, L, P, S, and T 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 twenty-one per cent which was the same as the maximum variation associated with the two preceding periods. Agreement between the Institute and mill results was generally good. However, the variations for Mills D, H, K, 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 A, C, D, G, I, K, L, O, P, and T 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 seventeen per cent, which was slightly higher than the maximum variation of fourteen 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. However, the variations for Mills D, G, and K appeared excessive.

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 July fall within designated percentages from the average test results obtained at the Institute.

COMPARISON OF INSTITUTE AND MILL DATA--JULY 1 THROUGH JULY 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.
186249	W.F.	6/13/60	1	44.1	43.3	-0.8	12.4	12.1	-0.3	116	111	-5	344	349	+ 5	363[a]	426	+63
186290	W.F.	6/26/60	2	43.5	42.6	-0.9	11.8	11.6	-0.2	115	114	-1	317[a]	313	- 4	382[a]	369	-13
186291	W.F.	6/26/60	2	44.0	42.8	-1.2	12.0	11.4	-0.6	119	114	-5	317[a]	333	+16	383[a]	381	- 2
186392	W.F.	7/10/60	1	44.1	43.5	-0.6	12.0	11.7	-0.3	111	112	+1	306	322	+16	361[a]	361	0
186500	W.F.	7/16/60	2	43.7	43.2	-0.5	11.9	11.5	-0.4	120	114	-6	317[a]	312	- 5	375[a]	370	- 5
186501	W.F.	7/17/60	2	43.8	42.9	-0.9	11.8	11.6	-0.2	122	114	-8	330[a]	335	+ 5	365[a]	382	+17
186502	W.F.	7/17/60	2	43.7	43.1	-0.6	11.9	11.5	-0.4	119	114	-5	325[a]	325	0	357[a]	400	+43
Current Mill Average:				43.8	43.0	-0.8	12.0	11.6	-0.4	117	113	-4	322	327	+ 5	369	384	+15

TABLE XXVI

MILL B -- 42-LB. LINERBOARD

186287	WF1S	6/29/60	2	44.2	43.1	-1.1	13.6	13.3	-0.3	104	102	-2	374[a]			417[a]		
186288	WF1S	6/30/60	1	42.5	41.0	-1.5	11.7	11.4	-0.3	107	111	+4	329[a]			369[a]		
186506	WF1S	7/18/60	2	43.1	42.0	-1.1	13.2	12.6	-0.6	106	105	-1	375[a]			411[a]		
186507	WF1S	7/19/60	2	43.3	42.0	-1.3	12.8	12.1	-0.7	108	108	0	362[a]			409[a]		
186509	WF1S	7/20/60	2	43.7	43.1	-0.6	12.8	12.5	-0.3	104	103	-1	397[a]			381[a]		
Current Mill Average:				43.4	42.2	-1.2	12.8	12.4	-0.4	106	106	0	367			397		

[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--JULY 1 THROUGH JULY 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			Elmendorf Tear, g./sheet Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
186280	W.F.	6/10/60	1	44.5	43.5	-1.0	12.7	12.1	-0.6	109	110	+1	299	295	- 4	349[a]	365	+16
186281	W.F.	6/14/60	1	44.5	43.5	-1.0	12.7	12.3	-0.4	107	111	+4	317	292	-25	360[a]	357	- 3
186390	W.F.	6/18/60	1	44.0	43.1	-0.9	12.3	12.1	-0.2	106	109	+3	297	301	+ 4	364[a]	370	+ 6
186391	W.F.	6/23/60	1	44.1	42.9	-1.2	12.3	12.0	-0.3	104	108	+4	295	293	- 2	336[a]	355	+19
Current Mill Average:				44.3	43.2	-1.1	12.5	12.1	-0.4	107	109	+2	302	295	- 7	352	362	+10

TABLE XXVIII

MILL D -- 42-LB. LINERBOARD

186491	WF1S	6/30/60	1	43.0	42.1	-0.9	12.9	12.4	-0.5	113	107	-6	319[a]	394	+75	375[a]	446	+71
186503	WF1S	7/ 1/60	1	42.7	42.1	-0.6	13.0	12.4	-0.6	112	108	-4	331[a]	393	+62	389[a]	447	+58
Current Mill Average:				42.9	42.1	-0.8	13.0	12.4	-0.6	112	107	-5	325	394	+69	382	447	+65

[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--JULY 1 THROUGH JULY 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			Elmendorf Tear, g./sheet Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
No samples submitted																		

TABLE XXX

MILL F -- 42-LB. LINERBOARD

186305	W.F.	6/20/60	-	43.5	43.1	-0.4	12.3	11.8	-0.5	110	108	-2	351	357	+ 6	415[a]	376	-39
186306	W.F.	6/23/60	-	44.2	43.6	-0.6	12.8	12.6	-0.2	107	111	+4	369[a]	379	+10	418[a]	424	+ 6
186307	W.F.	6/28/60	-	44.1	43.4	-0.7	12.9	12.3	-0.6	111	111	0	376[a]	360	-16	425[a]	400	-25
186308	W.F.	6/30/60	-	44.0	42.8	-1.2	12.6	12.0	-0.6	108	112	+4	353	355	+ 2	427[a]	403	-24
186483	W.F.	7/ 9/60	-	43.7	42.6	-1.1	13.1	12.4	-0.7	107	112	+5	365[a]	372	+ 7	409[a]	431	+22
186484	W.F.	7/14/60	-	43.1	42.5	-0.6	13.0	12.7	-0.3	109	110	+1	366[a]	388	+22	411[a]	429	+18
Current Mill Average:				43.8	43.0	-0.8	12.8	12.3	-0.5	109	111	+2	363	368	+ 5	418	410	- 8

[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--JULY 1 THROUGH JULY 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.
186257	W.F.	6/ 2/60	1	45.1	45.0	-0.1	13.5	13.6	+0.1	107	106	-1	356	350	- 6	373[a]	436	+63
186301	W.F.	6/15/60	1	42.1	42.2	+0.1	11.7	12.0	+0.3	111	108	-3	296	333	+37	344[a]	434	+90
186302	W.F.	6/29/60	1	42.9	42.9	0.0	12.1	12.3	+0.2	106	108	+2	311	362	+51	373[a]	408	+35
186303	W.F.	6/29/60	1	43.5	43.0	-0.5	12.0	12.0	0.0	108	108	0	321	359	+38	372[a]	396	+24
186304	W.F.	6/30/60	1	44.0	43.6	-0.4	12.5	12.6	+0.1	110	106	-4	354	384	+30	381[a]	443	+62
186495	W.F.	7/ 3/60	1	44.6	44.4	-0.2	13.4	13.3	-0.1	113	112	-1	325[a]	375	+50	370[a]	441	+71
186496	W.F.	7/ 5/60	1	43.6	43.3	-0.3	12.8	12.8	0.0	113	110	-3	305[a]	309	+ 4	344[a]	396	+52
186497	W.F.	7/17/60	1	43.9	43.5	-0.4	13.4	13.2	-0.2	103	106	+3	333[a]	322	-11	394[a]	395	+ 1
186498	W.F.	7/15/60	1	43.4	43.2	-0.2	13.0	12.8	-0.2	105	108	+3	331[a]	361	+30	394[a]	434	+40
Current Mill Average:				43.7	43.5	-0.2	12.7	12.7	0.0	108	108	0	326	350	+24	372	420	+48

[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--JULY 1 THROUGH JULY 31, 1960 (continued)

TABLE XXXII

MILL H -- 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.
186284	W.F.	6/29/60	-	44.0	42.6	-1.4	12.2	11.9	-0.3	117	116	- 1	302	247	-55	353[a]	315	-38
186285	W.F.	6/30/60	-	44.0	43.4	-0.6	12.4	12.1	-0.3	118	119	+ 1	303[a]	267	-36	356[a]	324	-32
186286	W.F.	7/ 1/60	-	43.8	43.3	-0.5	12.1	12.0	-0.1	107	108	+ 1	345[a]	301	-44	356[a]	333	-23
186334	W.F.	7/ 7/60	-	43.9	44.0	+0.1	12.9	12.6	-0.3	114	108	- 6	318[a]	273	-45	337[a]	331	- 6
186335	W.F.	7/ 8/60	-	44.0	43.3	-0.7	12.4	12.1	-0.3	119	115	- 4	312[a]	256	-56	328[a]	313	-15
186336	W.F.	7/ 9/60	-	43.6	43.9	+0.3	13.1	12.7	-0.4	121	118	- 3	313[a]	281	-32	364[a]	348	-16
186393	W.F.	7/14/60	-	44.0	43.9	-0.1	12.4	12.7	+0.3	117	111	- 6	310	285	-25	350[a]	364	+14
186394	W.F.	7/15/60	-	43.9	44.2	+0.3	12.6	12.7	+0.1	100	112	+12	353[a]	313	-40	354[a]	337	-17
Current Mill Average:				43.9	43.6	-0.3	12.5	12.3	-0.2	114	113	- 1	320	278	-42	350	333	-17

[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--JULY 1 THROUGH JULY 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.
186252	----	6/15/60	2	43.3	43.4	+0.1	13.3	13.3	0.0	104	107	+3	300[a]	313	+13	372[a]	422	+50
186253	WF1S	6/16/60	2	44.0	43.3	-0.7	13.4	13.1	-0.3	117	113	-4	305	303	- 2	359[a]	359	0
186282	WF1S	6/18/60	2	44.0	42.7	-1.3	12.3	12.3	0.0	115	116	+1	355	330	-25	376[a]	378	+ 2
Current Mill Average:				43.8	43.1	-0.7	13.0	12.9	-0.1	112	112	0	320	315	- 5	369	386	+17

TABLE XXXIV

MILL J -- 42-LB. LINERBOARD

186250	----	5/ 2/60	1	44.0	43.7	-0.3	13.2	12.7	-0.5	111	110	-1	331	322	- 9	382[a]	394	+12
186251	----	5/ 3/60	1	43.2	43.2	0.0	13.1	12.8	-0.3	112	111	-1	323	314	- 9	387[a]	380	- 7
186431	----	5/ 7/60	1	43.8	43.5	-0.3	13.3	13.1	-0.2	113	107	-6	343	308	-35	384[a]	369	-15
186432	----	5/12/60	1	43.5	43.8	+0.3	12.9	12.7	-0.2	119	119	0	324[a]	316	- 8	377[a]	362	-15
186433	----	5/29/60	1	41.0	40.9	-0.1	11.6	11.6	0.0	116	112	-4	308	291	-17	361[a]	336	-25
186434	----	5/29/60	1	43.4	43.5	+0.1	12.8	12.7	-0.1	119	114	-5	333	315	-18	425[a]	383	-42
Current Mill Average:				43.1	43.1	0.0	12.8	12.6	-0.2	115	112	-3	327	311	-16	386	371	-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--JULY 1 THROUGH JULY 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			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
186258	WF1S	6/27/60	2	43.0	43.7	+0.7	14.3	13.8	-0.5	111	112	+1	343[a]	332	-11	360[a]	400	+40
186259	WF1S	6/28/60	2	41.3	43.2	+1.9	13.8	14.0	+0.2	111	106	-5	304	365	+61	358[a]	382	+24
186485	WF1S	7/ 3/60	2	43.3	43.6	+0.3	13.6	13.8	+0.2	117	116	-1	311[a]	345	+34	373[a]	416	+43
186486	WF1S	7/ 4/60	2	40.6	41.0	+0.4	13.6	14.0	+0.4	99	104	+5	290[a]	369	+79	344[a]	376	+32
186487	WF1S	7/ 5/60	2	43.2	44.0	+0.8	14.1	14.2	+0.1	111	114	+3	315[a]	350	+35	359[a]	390	+31
186488	WF1S	7/12/60	2	43.4	42.7	-0.7	14.0	13.8	-0.2	113	106	-7	330[a]	333	+ 3	356[a]	389	+33
186489	WF1S	7/13/60	2	43.5	43.5	0.0	14.5	14.0	-0.5	110	108	-2	343[a]	380	+37	376[a]	406	+30
186490	WF1S	7/14/60	2	44.2	44.0	-0.2	14.1	14.2	+0.1	119	111	-8	322[a]	333	+11	358[a]	400	+42
Current Mill Average:				42.8	43.2	+0.4	14.0	14.0	0.0	111	110	-1	320	351	+31	360	395	+35

TABLE XXXVI

MILL L -- 42-LB. LINERBOARD

186254	W.B.	6/16/60	-	43.7	43.3	-0.4	11.9	11.7	-0.2	110	108	-2	335	385	+50	400[a]	449	+49
186255	W.B.	6/20/60	-	42.5	42.5	0.0	11.5	11.4	-0.1	111	113	+2	340	368	+28	386[a]	429	+43
186256	W.B.	6/21/60	-	43.4	43.0	-0.4	12.0	11.8	-0.2	110	110	0	361	388	+27	405[a]	439	+34
186464	W.B.	6/24/60	-	44.0	43.6	-0.4	12.2	12.0	-0.2	109	109	0	354	347	- 7	420[a]	412	- 8
Current Mill Average:				43.4	43.1	-0.3	11.9	11.7	-0.2	110	110	0	348	372	+24	403	432	+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--JULY 1 THROUGH JULY 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.
No samples submitted																		

TABLE XXXVIII

MILL N -- 42-LB. LINERBOARD

186260	W.F.	5/27/60	1	43.5	42.6	-0.9	13.2	12.8	-0.4	110	110	0	271	264	- 7	344[a]	349	+ 5
186261	W.F.	5/30/60	1	43.2	42.4	-0.8	13.3	13.1	-0.2	115	115	0	298	258	-40	358[a]	350	- 8
186262	W.F.	6/13/60	1	43.7	42.6	-1 1	13.3	12.7	-0.6	110	110	0	271	263	- 8	346[a]	348	+ 2
186263	W.F.	6/16/60	1	42.6	43.3	+0.7	13.0	12.5	-0.5	109	110	+1	281	341	+60	339[a]	256	-83
186435	W.F.	6/20/60	1	43.7	42.4	-1.3	13.1	12.9	-0.2	110	110	0	299[a]	259	-40	336[a]	335	- 1
186436	W.F.	6/24/60	1	43.3	42.6	-0.7	13.5	12.5	-1.0	109	109	0	287	260	-27	348[a]	343	- 5
Current Mill Average:				43.4	42.7	-0.7	13.2	12.7	-0.5	111	111	0	284	274	-10	345	330	-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--JULY 1 THROUGH JULY 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			Across		
				IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.	IPC	Mill	Diff.
186283	S.F.	6/21/60	7	43.5	43.2	-0.3	11.5	11.5	0.0	110	114	+ 4	324	308	-16	364[a]	358	- 6
186309	S.F.	6/30/60	7	44.1	43.3	-0.8	11.6	11.8	+0.2	114	117	+ 3	336	342	+ 6	391[a]	387	- 4
186508	S.F.	7/12/60	7	45.2	44.9	-0.3	13.1	12.9	-0.2	117	120	+ 3	411[a]	353	-58	393[a]	422	+29
Current Mill Average:				44.3	43.8	-0.5	12.1	12.0	-0.1	114	117	+ 3	357	335	-22	382	389	+ 7

TABLE XL

MILL P -- 42-LB. LINERBOARD

186337	W.F.	6/ 6/60	1	43.7	43.7	0.0	12.5	12.4	-0.1	114	114	0	332[a]	364	+32	383[a]	393	+10
186338	W.F.	6/ 6/60	1	43.8	43.7	-0.1	12.5	12.6	+0.1	119	112	- 7	351[a]	370	+19	365[a]	407	+42
186339	W.F.	6/ 7/60	1	43.6	43.8	+0.2	12.6	12.5	-0.1	115	113	- 2	325[a]	355	+30	367[a]	403	+36
186340	W.F.	6/ 7/60	1	43.6	43.8	+0.2	12.5	12.6	+0.1	116	112	- 4	350[a]	352	+ 2	368[a]	407	+39
186369	W.F.	6/13/60	2	44.0	43.6	-0.4	12.8	12.5	-0.3	115	112	- 3	327[a]	332	+ 5	375[a]	384	+ 9
186370	W.F.	7/ 8/60	2	43.8	42.9	-0.9	12.4	12.1	-0.3	114	109	- 5	333[a]	343	+10	403[a]	398	- 5
186371	W.F.	7/ 8/60	2	43.5	42.8	-0.7	12.4	12.1	-0.3	112	105	- 7	325[a]	348	+23	393[a]	408	+15
186372	W.F.	7/ 8/60	2	43.5	43.4	-0.1	12.4	12.1	-0.3	117	107	-10	326[a]	345	+19	383[a]	398	+15
Current Mill Average:				43.7	43.4	-0.3	12.5	12.4	-0.1	115	110	- 5	334	351	+17	380	400	+20

[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--JULY 1 THROUGH JULY 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.
186292	W.F.	6/27/60	-	43.9	43.0	-0.9	12.5	12.2	-0.3	114	110	-4	354	303	-51	357[a]	359	+ 2
186293	W.F.	6/27/60	-	43.9	43.5	-0.4	12.3	12.3	0.0	112	107	-5	347[a]	313	-34	374[a]	357	-17
186504	W.F.	7/ 7/60	-	44.0	43.9	-0.1	12.2	12.0	-0.2	112	107	-5	337[a]	303	-34	354[a]	344	-10
186505	W.F.	7/ 7/60	-	43.7	43.3	-0.4	12.6	12.3	-0.3	110	108	-2	343[a]	303	-40	353[a]	347	- 6
Current Mill Average:				43.9	43.4	-0.5	12.4	12.2	-0.2	112	108	-4	345	306	-39	359	352	- 7

[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--JULY 1 THROUGH JULY 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.
186277	WF1S	6/20/60	1	44.1	42.7	-1.4	13.1	12.9	-0.2	110	106	- 4	334	337	+ 3	416[a]	407	- 9
186278	WF1S	6/21/60	1	43.9	43.2	-0.7	12.9	12.9	0.0	112	109	- 3	334[a]	327	- 7	409[a]	399	-10
186279	WF1S	6/23/60	1	44.0	43.2	-0.8	13.0	12.9	-0.1	113	107	- 6	337[a]	321	-16	402[a]	393	- 9
186367	WF1S	7/ 5/60	1	43.6	44.1	+0.5	12.9	12.8	-0.1	115	106	- 9	321[a]	358	+37	407[a]	424	+17
186368	WF1S	7/ 7/60	1	43.7	44.4	+0.7	13.2	13.0	-0.2	112	104	- 8	343	359	+16	424[a]	426	+ 2
186492	WF1S	7/11/60	1	44.0	43.6	-0.4	13.1	12.9	-0.2	112	105	- 7	367[a]	350	-17	431[a]	431	0
186493	WF1S	7/12/60	1	43.7	43.7	0.0	12.9	12.9	0.0	115	105	-10	339[a]	349	+10	433[a]	426	- 7
Current Mill Average:				43.9	43.5	-0.4	13.0	12.9	-0.1	113	106	- 7	339	343	+ 4	418	415	- 3

TABLE XLIII

MILL T -- 42-LB. LINERBOARD

186289	W.F.	5/21/60	2	44.4	44.6	+0.2	11.5	11.7	+0.2	117	118	+ 1	325[a]	355	+30	384[a]	414	+30
Current Mill Average:				44.4	44.6	+0.2	11.5	11.7	+0.2	117	118	+ 1	325	355	+30	384	414	+30

[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.

THE INSTITUTE OF PAPER CHEMISTRY

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