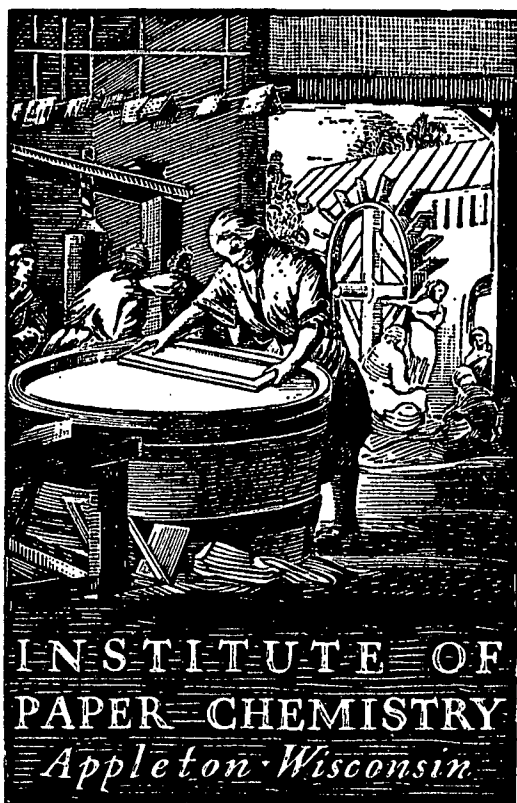




CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 204

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

December 1, 1966

Code Letters for Project 1108-13
Report 204

<u>Company - Mill</u>	<u>Code</u>
The Chesapeake Corp. of Virginia	Y
Container Corp. of America - Fernandina Beach	Z
Continental Can Company - Hopewell	A
- Port Wentworth	M
Crown Zellerbach Corp. - Bogalusa	L
- Antioch	T
Georgia Kraft Company - Macon	B
- Rome	W
Georgia Pacific Corp. - Toledo (Ore.)	F
Great So. Land & Paper - Cedar Springs	Q
Hoerner Waldorf Corp. - Missoula	P
International Paper Co. - Panama City	X
- Springhill	J
- Georgetown	E
- Gardiner	V
Olinkraft, Inc.* - West Monroe	S
Owens-Illinois, Inc. - Valdosta	I
St. Joe Paper Co. - Port St. Joe	K
St. Regis Paper Co. - Jacksonville	G
- Pensacola	D
Tennessee River Pulp & Paper Co.	O
Union Camp Corp.	N
Western Kraft Corp. - Albany	H
West Va. Pulp & Paper Co.	U
Weyerhaeuser Company - Plymouth	C

*(New name for Forest Prod. Div. of
Olin Mathieson)

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 204

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

December 1, 1966

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

INTRODUCTION

As requested by the Technical Division of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous base-line study on 42-lb. fourdrinier kraft linerboard have been prepared by The Institute of Paper Chemistry on a bimonthly basis instead of the previous monthly basis since August 1, 1961. The current report presents results obtained during the months of October and November, 1966.

PRESENTATION AND DISCUSSION OF TEST RESULTS

Each sample lot received for evaluation during October and November was evaluated for basis weight, caliper, bursting strength, and Elmendorf tearing strength. The average strength results for each mill may be seen in Table I and are graphically presented in Fig. 1 to 5. In addition to a comparison of the current mill averages for the various tests, Table I also shows the current F.K.I. averages, the cumulative F.K.I. averages, and F.K.I. indexes. For each test, the current mill average represents the average obtained on all sample lots evaluated from a given mill during the current period, the current F.K.I. average represents the average of the current mill averages, and 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. The F.K.I. index expressed in percent is the ratio of the current F.K.I. average to the cumulative F.K.I. average.

In Table II, a tabulation of the number of sample lots submitted by each mill during the current period is shown.

Supplementary to the summary of basis weight data given in Table I, a tabulation is given in Table III of the amount by which the current basis weight average for each mill varies from the 42-lb. specification set forth in Rule 41.

Shown below from Table I are the maximum and minimum current mill averages and also the current and cumulative F.K.I. averages for each test.

TABLE I
SUMMARY OF COMPOSITE MILL AVERAGES--OCTOBER AND NOVEMBER, 1966

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i.g.	Elmendorf Tear, g./sheet	In Machine Cross Machine
A	42.1	11.9	113	287	356
B	43.6	12.0	107	306	371
C ^a	No samples submitted.				
D	43.1	13.2	123	316	388
E	No samples submitted.				
F ^a	41.6	12.3	111	330	392
G	No samples submitted.				
H	43.0	12.9	107	366	409
I	42.5	11.1	118	292	345
J	43.1	12.6	114	344	388
K	42.8	12.2	104	356	375
L	42.1	12.2	109	256	329
M	43.3	12.4	111	327	348
N	43.2	12.5	109	255	326
O	43.6	13.4	111	355	412
P	42.6	12.8	105	293	343
Q	No samples submitted.				
S	43.1	13.3	121	355	405
T	42.3	12.0	112	304	369
U	42.3	12.0	102	353	391
V	42.5	13.3	107	329	388
W	43.0	11.9	110	320	352
X	43.4	12.3	117	340	385
Y	No samples submitted.				
Z	No samples submitted.				
Current FKl average:	42.8	12.4	111	320	372
Cumulative FKl average:	42.6	12.6	110	325	373
FKl index, %	100.5	98.4	100.9	98.5	99.7

^aCurrent mill averages have been omitted in compliance with Technical Committee's request that current mill averages based on evaluations of fewer than three sample lots of linerboard should be excluded from the summary table and from the calculation of the current FKl averages.

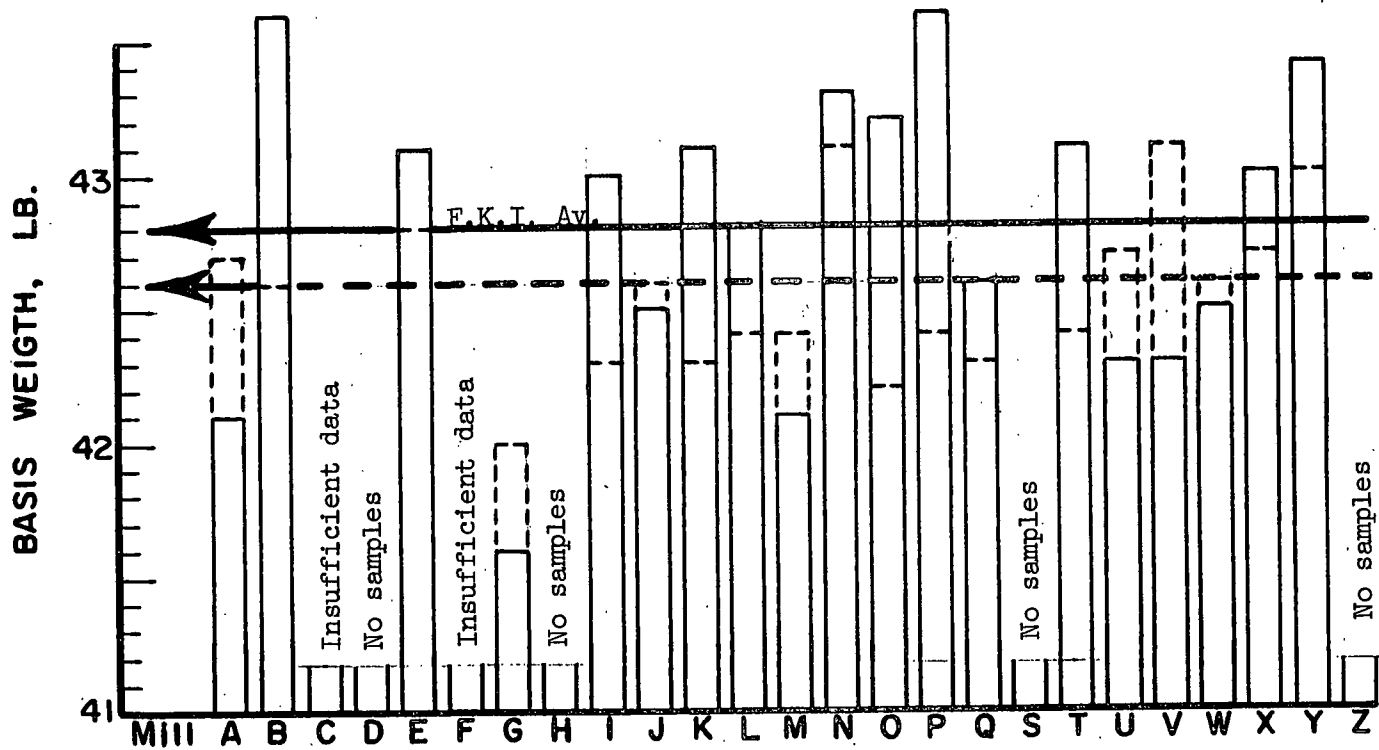
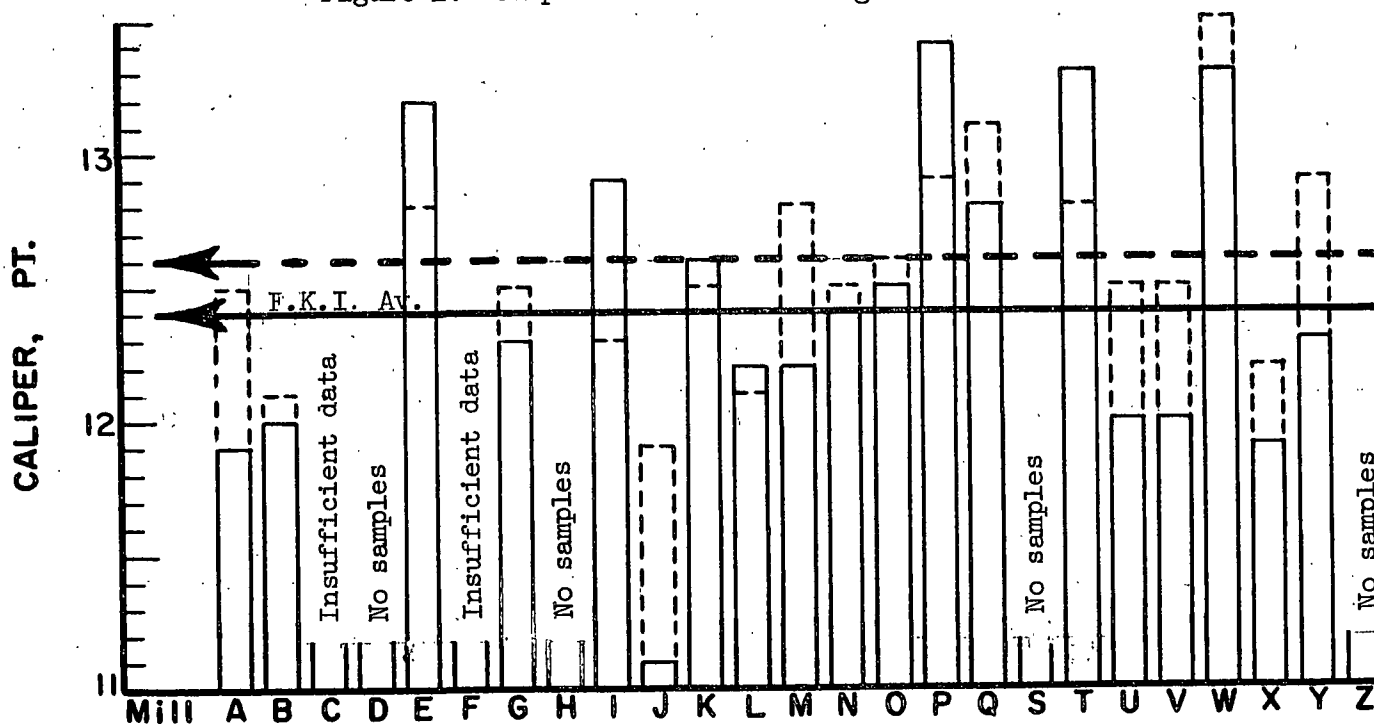


Figure 1. Comparison of Basis Weight Results



—— Current machine average
----- Cumulative machine average

Figure 2. Comparison of Caliper Results

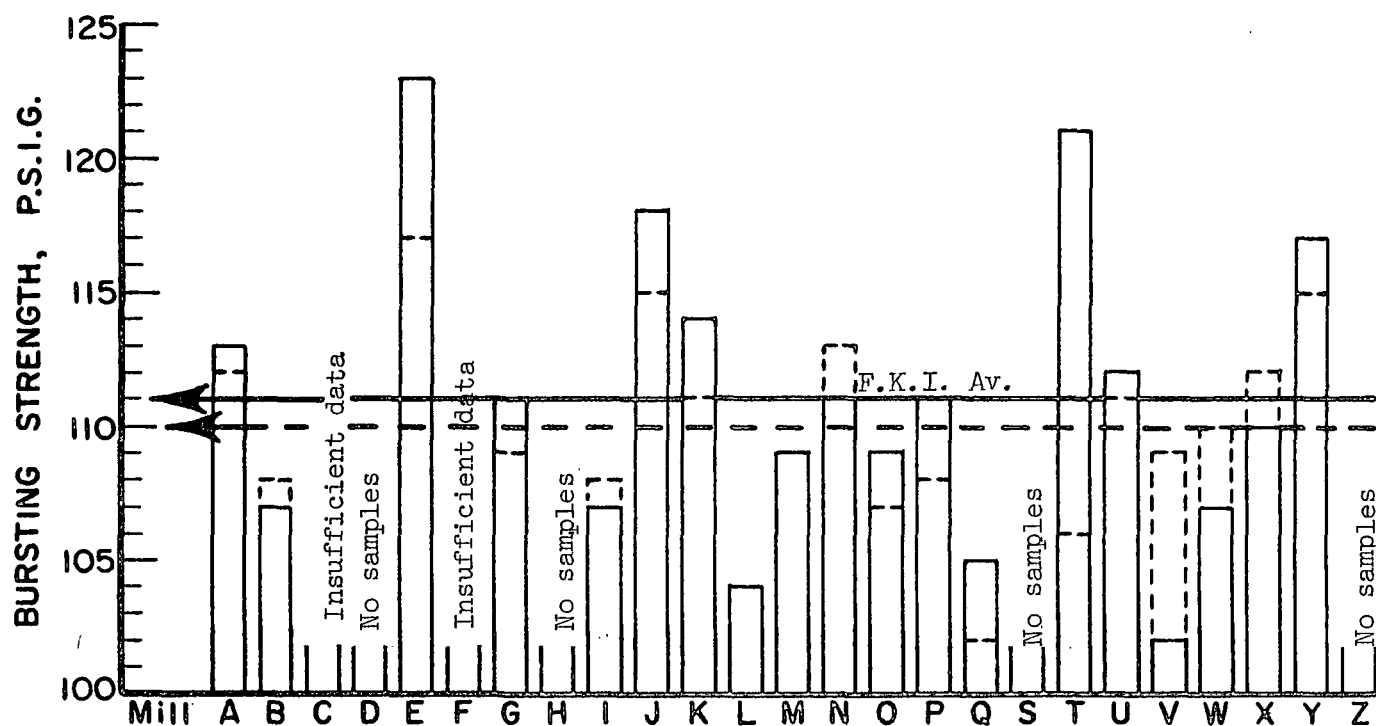


Figure 3. Comparison of Bursting Strength Results

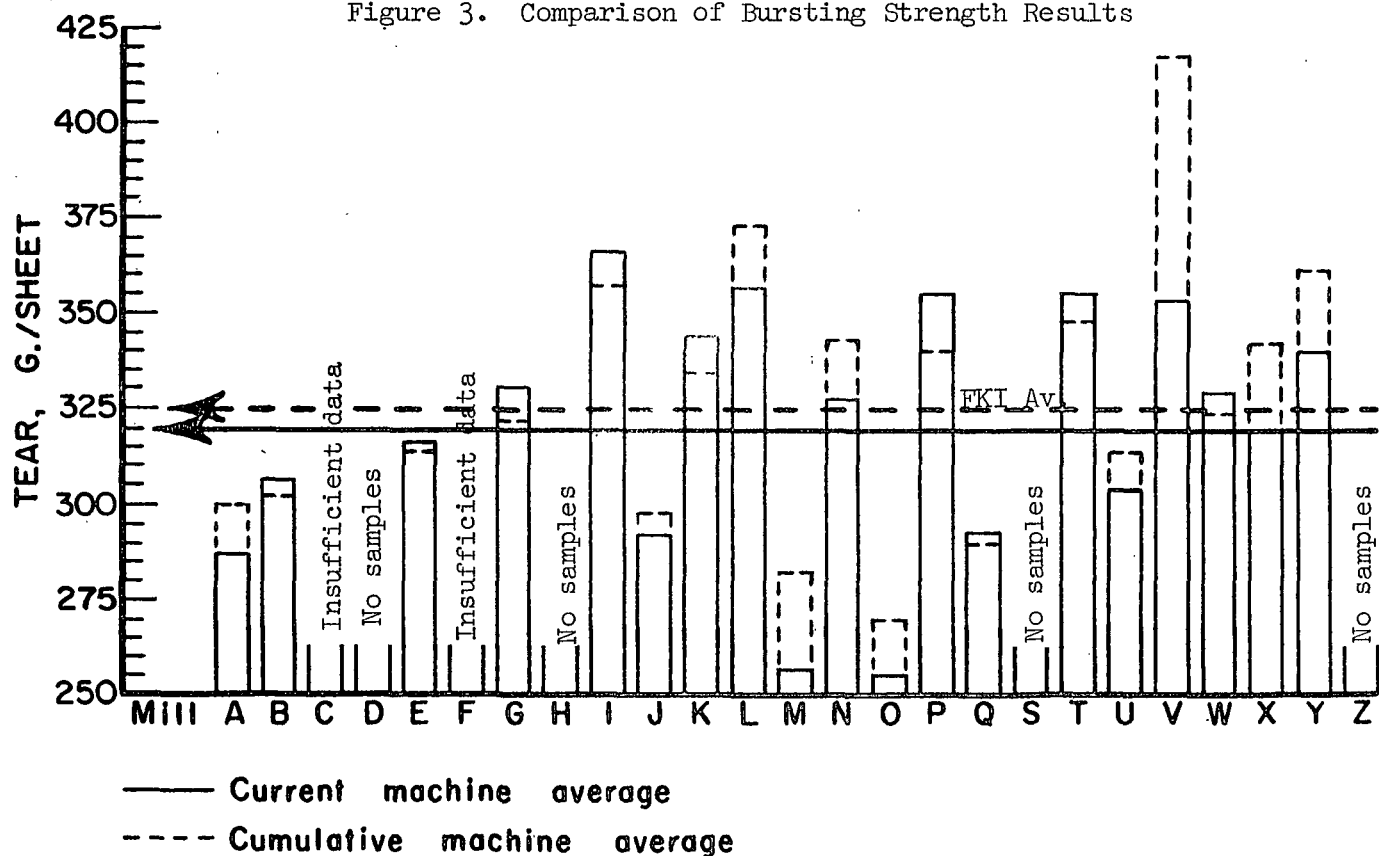


Figure 4. Comparison of Machine-Direction Tear Results

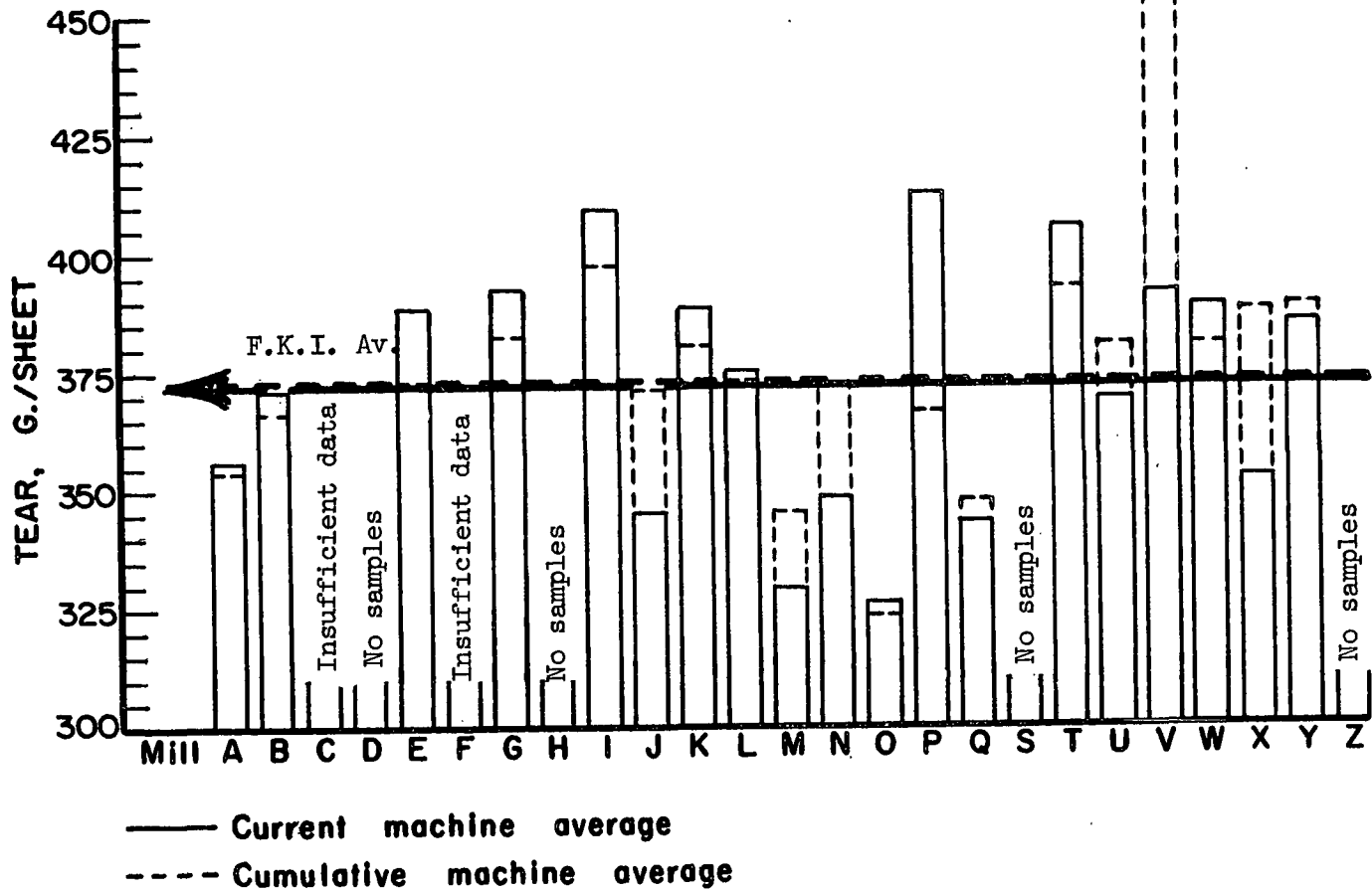


Figure 5. Comparison of Cross-Machine Direction Tear Results

TABLE II

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL DURING
OCTOBER AND NOVEMBER, 1966

Mill Code	Number of Sample Lots
A	8
B	9
C	1
D	0
E	10
F	1
G	3
H	0
I	6
J	4
K	6
L	4
M	8
N	8
O	6
P	5
Q	8
S	0
T	12
U	4
V	24
W	9
X	4
Y	4
Z	<u>0</u>
Total	144

TABLE III

PERCENTAGE DEVIATION OF CURRENT MILL AVERAGES FROM
42-LB. BASIS WEIGHT SPECIFICATION FOR
OCTOBER AND NOVEMBER, 1966

Mill Code	Percentage Deviation
A	+0.2
B	+3.8
C	+2.1
D	--
E	+2.6
F	+2.1
G	-1.0
H	--
I	+2.4
J	+1.2
K	+2.6
L	+1.9
M	+0.2
N	+3.1
O	+2.9
P	+3.8
Q	+1.4
S	--
T	+2.6
U	+0.7
V	+0.7
W	+1.2
X	+2.4
Y	+3.3
Z	--

Test	Current Mill Averages		F.K.I. Averages	
	Max.	Min.	Current	Cumulative
Basis weight, lb.	43.6	41.6	42.8	42.6
Caliper, points	13.4	11.1	12.4	12.6
Bursting strength, p.s.i.g.	123	102	111	110
Machine direction Elmendorf tear, g./sheet	366	255	320	325
Cross-machine direction Elmendorf tear, g./sheet	412	326	372	373

The test results obtained at the Institute and at the mill during the current period are given alphabetically in Tables IV to XXVIII for each mill. Included in each of these tables are the maximum, minimum, and average test data obtained at the Institute on each sample lot of linerboard. The data obtained at the Institute include also for each test the calculation of (1) a current mill average that represents the mean of the averages obtained on the individual sample lots of linerboard evaluated during the current period, (2) a cumulative mill average that represents the mean of the current mill averages for the previous twelve months excluding the current period, (3) a mill factor expressed in percent that represents the ratio of the current mill average to the cumulative mill average, and (4) a mill index expressed in percent that represents the ratio of the current mill average to the cumulative F.K.I. average. The term "mean" in the preceding discussion is synonymous with the simple arithmetic average. As mentioned above, the results presented in Table IV to XXVIII also include data obtained at the mills. The mill data include for each test (1) the average result obtained on each sample lot of linerboard, and (2) a current mill average (calculated at the Institute) that represents the mean of the averages obtained on the individual

(Text continued on Page 31)

TABLE IV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL A
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
9- 5-66	WFLS 2	42.0	41.6	41.9	42.1	+0.2	11.6	11.0	11.2	11	-0.2	135	97	115	114	-1	296	232	269 ^a	272	+ 3	408	312	357 ^a	352	- 5
9-12-66	WFLS 2	42.0	41.0	41.4	42.0	+0.6	11.3	11.0	11.1	11	-0.1	131	88	113	116	+3	336	240	293 ^a	272	-21	376	304	329 ^a	360	+31
9-20-66	WFLS 2	42.0	40.4	41.4	42.1	+0.7	11.5	11.0	11.2	11	-0.2	134	85	113	116	+3	312	256	275 ^a	280	+ 5	368	320	351 ^a	368	+17
9-26-66	WFLS 2	41.8	40.4	41.4	42.0	+0.6	11.7	11.0	11.3	11	-0.3	132	100	119	115	-4	336	224	282	288	+ 6	392	296	336 ^a	368	+32
10- 1-66	WFLS 2	43.8	42.8	43.4	42.8	-0.6	13.0	12.0	12.7	12.0	-0.7	141	94	113	114	+1	360	248	291 ^a	298	+ 7	400	328	363 ^a	403	+40
10-10-66	WFLS 2	43.8	42.8	43.2	43.0	-0.2	12.9	12.3	12.7	12.1	-0.6	140	89	113	116	+3	344	264	309 ^a	321	+12	448	344	391 ^a	384	- 7
10-18-66	WFLS 2	43.4	41.8	42.4	42.1	-0.3	13.0	12.1	12.7	12.2	-0.5	140	82	111	111	0	320	232	279	309	+30	408	312	366 ^a	384	+18
10-24-66	WFLS 2	42.6	41.8	42.1	42.2	+0.1	12.9	12.1	12.6	12.1	-0.5	135	88	110	116	+6	360	224	301 ^a	319	+18	376	336	355 ^a	396	+43
Current mill average:			42.1	42.3	42.2			11.9	11.6		-0.3		113	115		+2		287	295		+ 8		356	377		+21
Cumulative mill average:			42.7					12.5					112					300					354			
Mill factor, %			98.6					95.2					100.9					95.7					100.6			
Mill index, %			98.8					94.4					102.7					88.3					95.4			

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

TABLS V
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
9-20-66	WFLS 1	44.4	42.4	43.8	43.5	-0.3	12.9	12.0	12.2	12.2	0.0	130	85	110	109	-1	368	280	327	375	+48	408	336	371 ^a	415	+44
9-27-66	WFLS 1	42.6	41.8	42.1	42.3	+0.2	12.2	11.2	11.8	12.2	+0.4	119	85	101	106	+5	328	232	289	337	+48	400	304	363 ^a	413	+50
10-4-66	WFLS 1	45.6	44.0	44.4	43.0	-1.4	12.7	11.8	12.2	12.1	-0.1	112	82	101	107	+6	360	272	319	325	+6	440	352	377 ^a	403	+26
10-11-66	WFLS 1	44.2	42.6	43.7	42.9	-0.8	12.9	11.8	12.3	12.3	0.0	134	98	113	109	-4	328	272	301	322	+21	440	352	383 ^a	411	+28
10-18-66	WFLS 1	44.0	42.4	43.3	43.0	-0.3	13.1	11.4	12.2	12.2	0.0	140	96	114	109	-5	328	248	285	353	+68	416	344	367 ^a	418	+51
10-25-66	WFLS 1	44.2	42.2	43.4	42.7	-0.7	12.9	11.3	12.0	12.4	+0.4	121	87	104	106	+2	328	272	299	339	+40	408	320	362	428	+66
11-1-66	WFLS 1	45.0	43.4	44.0	42.8	-1.2	12.2	11.6	11.9	12.1	+0.2	136	87	106	108	+2	368	256	316	328	+12	408	328	375 ^a	403	+28
11-8-66	WFLS 1	45.0	43.2	44.0	43.0	-1.0	12.2	11.2	11.7	11.9	+0.2	132	83	104	107	+3	360	256	308 ^a	324	+16	416	336	381 ^a	403	+22
11-15-66	WFLS 1	44.2	43.4	43.8	43.0	-0.8	13.0	10.8	11.9	12.0	+0.1	136	94	115	109	-6	360	272	311	339	+28	400	312	361 ^a	391	+30
Current mill average:		43.6	42.9	42.9	42.9	-0.7	12.0	12.0	12.1	12.1	+0.1	107	108	108	108	+1	306	338	332	332	+32	371	410	391	410	+39
Cumulative mill average:		42.6			42.6		12.1					108					302					366				
Mill factor, %		102.3			102.3		99.2					99.1					101.3					101.4				
Mill index, %		102.3			102.3		95.2					97.3					94.2					99.5				

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

TABLE VI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet		
		Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.
		Max. Min. Av.	Max. Min. Av.		Max. Min. Av.	Max. Min. Av.		Max. Min. Av.	Max. Min. Av.		Max. Min. Av.	Max. Min. Av.		Max. Min. Av.	Max. Min. Av.	
8-10-66	1	44.0 42.0 42.9	43.1	+0.2	12.9 11.8 12.4	12.1	-0.3	148 95 121	113	-8	344 272 302 ^a	292	-10	400 328 356 ^a	369	+13
Current mill average:		42.9	43.1	+0.2												
Cumulative mill average:		42.7														
Mill factor, %		100.5														
Mill index, %		100.7														

TABLE VII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL D

No samples submitted.

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

TABLE VIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL E
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.f.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
8-29-66	W.F.	3	44.0	42.2	43.4	43.3	-0.1	13.2	12.2	12.7	12.8	+0.1	143	100	126	131	+5	336	264	315	318	+3	416	368	390 ^a	403	+13
8-30-66	W.F.	3	43.8	42.0	42.8	43.2	+0.4	13.7	12.7	13.1	13.4	+0.3	132	106	121	126	+5	400	256	313	337	+24	480	352	430 ^a	423	-7
9-2-66	W.F.	3	44.0	42.4	43.2	43.5	+0.3	14.0	12.7	13.4	13.1	-0.3	141	99	119	123	+4	384	272	321	334	+13	448	352	382 ^a	416	+34
9-4-66	W.F.	3	43.8	42.4	43.0	43.0	0.0	14.2	13.1	13.7	13.4	-0.3	142	98	122	122	0	368	288	327	325	-2	416	352	377 ^a	415	+38
9-27-66	W.F.	3	43.8	42.8	43.2	43.2	0.0	14.1	12.8	13.4	13.2	-0.2	140	99	119	126	+7	368	280	331	322	-9	456	360	403 ^a	416	+13
9-30-66	W.F.	3	44.0	42.2	42.8	43.2	+0.4	13.7	12.1	12.7	12.6	-0.1	141	101	122	126	+4	400	304	337	324	-13	432	352	383 ^a	407	+24
10-1-66	W.F.	3	43.2	40.8	42.1	42.3	+0.2	12.9	11.7	12.5	12.5	0.0	134	103	121	117	-4	376	248	302 ^a	330	+28	416	352	382 ^a	381	-1
10-20-66	W.F.	3	44.4	43.8	44.0	44.4	+0.4	14.0	13.0	13.5	13.4	-0.1	150	106	130	132	+2	352	256	297	306	+9	424	352	389 ^a	406	+17
10-21-66	W.F.	3	42.8	42.2	42.5	43.0	+0.5	14.0	13.0	13.4	13.3	-0.1	147	100	124	126	+2	352	232	307	293	-14	400	336	371 ^a	408	+37
10-22-66	W.F.	3	44.2	43.4	43.8	43.9	+0.1	13.9	13.1	13.5	13.2	-0.3	160	112	131	131	0	352	256	308	294	-14	440	344	379 ^a	395	+16
Current mill average:			43.1	43.3	+0.2			13.2	13.1	-0.1			123	126	+3			316	318	+2			388	407		+19	
Cumulative mill average:			42.8					12.8					117					314					373				
Mill factor, %			100.7					103.1					105.1					100.6					104.0				
Mill index, %			101.2					104.8					111.8					97.2					104.0				

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

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

TABLE IX
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL F
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliber, points			Bursting Strength, P.S.I.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet														
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill												
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.												
				Diff.			Diff.			Diff.			Diff.			Diff.			Diff.			Diff.			Diff.			Diff.
9-21-66	1	43.8	42.0	42.9	42.6	-0.3	13.3	12.8	13.0	12.6	-0.4	119	86	102	103	+1	448	304	364 ^a	366	+2	456	384	409 ^a	416	+7		
Current mill average:			42.9	42.6	-0.3		13.0	12.6	-0.4		102	103	+1		364	366	+2		375			409	416	+7				
Cumulative mill average:			43.0				13.2				104											405						
Mill factor, %			99.8				98.5				98.1				97.1							101.0						
Mill index, %			100.7				103.2				92.7				112.0							109.7						

TABLE X
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL G

10-19-66	WFLS	2	43.8	41.6	42.3	42.1	-0.2	13.0	12.4	12.7	12.0	-0.7	130	98	112	107	-5	368	248	317	401	+24	416	344	384 ^a	434	+50
10-25-66	WFLS	2	42.0	40.6	41.4	41.6	+0.2	12.8	11.7	12.1	12.0	-0.1	126	88	111	109	-2	432	264	331 ^a	314	-17	432	368	399 ^a	407	+8
10-26-66	WFLS	2	41.8	40.4	41.2	41.3	+0.1	12.7	11.5	12.0	12.0	0.0	140	91	112	107	-5	400	280	341	313	-28	440	344	393 ^a	420	+27
Current mill average:			41.6	41.7	+0.1		12.3	12.0	-0.3		111	108	-3		330	342	+12						392	420	+28		
Cumulative mill average:			42.0				12.5				109				322								382				
Mill factor, %			99.0				98.4				101.8				102.5								102.6				
Mill index, %			97.7				97.6				100.9				101.5								105.1				

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

TABLE II
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I.			Elmendorf Tear, g./sheet		
		Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.	Institute	Mill	Diff.

No samples submitted.

TABLE III
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL I

9-21-66	W.B.	44.6	41.8	43.6	43.2	-0.4	14.0	12.8	13.3	13.2	-0.1	128	84	106	105	-1	416	320	365 ^a	373	+8	448	384	411 ^a	437	+26
9-24-66	W.B.	43.6	39.8	41.8	41.7	-0.1	13.0	11.4	12.3	12.2	-0.1	123	92	106	105	-1	432	304	364 ^a	380	+16	448	352	392 ^a	417	+25
10-7-66	W.B.	44.4	41.6	43.2	43.2	0.0	13.2	12.1	12.8	12.9	+0.1	126	89	105	105	0	440	320	379 ^a	369	-10	448	352	403 ^a	421	+18
10-30-66	W.B.	44.6	42.6	43.8	42.9	-0.9	13.4	12.6	13.0	12.8	-0.2	124	86	108	105	-3	384	312	362 ^a	344	-18	480	384	414 ^a	419	+5
11-7-66	W.B.	44.8	42.4	43.4	43.0	-0.4	14.0	12.8	13.3	12.9	-0.4	129	82	108	107	-1	416	320	363 ^a	343	-20	512	360	416 ^a	399	-17
11-7-66	W.B.	43.6	41.2	42.4	41.9	-0.5	13.1	11.8	12.6	12.3	-0.3	129	81	108	103	-5	408	320	363 ^a	341	-22	480	368	419 ^a	411	-8
Current mill average:		43.0 42.7 -0.3			12.9	12.7	-0.2	107 -105 -2			366	358	-8	409 417 +8												
Cumulative mill average:		42.3			12.3	108			357			397														
Mill factor, %		101.7			104.9	99.1			102.5			103.0														
Mill index, %		100.9			102.4	97.3			112.6			109.7														

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

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

TABLE XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL J
October and November, 1966

Date Made	Finish No.	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.f.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine													
			Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.											
9-19-66	WFLS	1	43.8	42.0	42.5	42.3	42.3	-0.2	11.4	10.8	11.0	10.9	-0.1	137	92	116	115	-1	328	240	286	271	-15	352	320	336 ^a	320	-16
10-7-66	WFLS	1	43.8	42.0	42.7	42.6	42.6	-0.1	11.7	10.5	11.1	11.0	-0.1	136	94	120	118	-2	352	256	295	287	-8	368	320	345 ^a	345	0
10-12-66	WFLS	1	43.6	42.0	42.6	42.6	42.6	0.0	11.3	10.6	11.1	11.0	-0.1	139	86	115	116	+1	360	256	305	281	-24	432	304	351 ^a	343	-8
10-18-66	WFLS	1	43.2	40.6	42.4	42.9	42.9	+0.5	11.4	10.7	11.0	10.9	-0.1	143	98	120	117	-3	344	240	281	290	+9	392	320	347	362	+15
Current mill average:			42.5			42.6	42.6	+0.1	11.1			11.0	-0.1	118			116	-2	292			282	-10	345			343	-2
Cumulative mill average:			42.6			42.6	42.6		11.9			11.9		115					298					371				
Mill factor, %			99.8			99.8	99.8		93.3			93.3		102.6					98.0					93.0				
Mill index, %			99.8			99.8	99.8		88.1			88.1		107.3					89.8					92.5				

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

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

TABLE XIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL K
October and November, 1966

Date Made	Finish	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet												
			Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.									
10-7-66	W.F.	2	44.0	42.2	42.9	43.4	13.4	12.5	13.0	12.6	-0.4	136	84	116	115	-1	392	304	340 ^a	304	383	-9	464	344	392 ^a	383	-9
10-7-66	W.F.	2	44.0	42.2	43.1	43.5	13.3	12.6	13.0	12.6	-0.4	140	92	115	113	-2	376	288	333	321	369	-19	464	344	388 ^a	369	-19
10-23-66	W.F.	2	44.0	42.2	43.2	43.3	13.3	12.6	13.0	12.7	-0.3	134	93	110	113	+3	416	256	335 ^a	313	403	+3	440	352	400 ^a	403	+3
10-23-66	W.F.	2	44.0	42.2	43.2	43.5	13.2	12.8	13.0	12.7	-0.3	133	94	115	111	-4	376	304	341	331	403	-1	440	344	404 ^a	403	-1
10-27-66	W.F.	1	43.8	42.6	43.3	42.7	12.2	11.1	11.8	11.7	-0.1	131	97	115	108	-7	432	320	361 ^a	335	377	+2	416	344	375 ^a	377	+2
10-27-66	W.F.	1	43.8	42.2	43.0	42.4	12.2	11.5	11.9	11.8	-0.1	131	90	112	109	-3	424	304	354	328	374	+4	400	352	370 ^a	374	+4
Current mill average:			43.1	43.1	0.0		12.6	12.3	-0.3			114	111	111	-3		344	322	-22		388	-3					
Cumulative mill average:			42.3				12.5					111					334				380						
Mill factor, %			101.9				100.8					102.7					103.0				102.1						
Mill index, %			101.2				100.0					103.6					105.8				104.0						

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

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

TABLE XV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL L
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine		
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.
9-21-66	----	43.8	42.0	42.4	42.6	42.4	42.6	+0.2	12.2	11.9	12.1	11.9	-0.2	118	85	100
10- 4-66	----	43.8	41.6	42.4	42.5	42.4	42.5	+0.1	12.6	12.0	12.1	11.9	-0.2	127	90	108
10-26-66	----	44.8	42.0	43.2	43.5	43.2	43.5	+0.3	13.1	11.2	12.1	11.5	-0.6	127	86	100
11- 8-66	----	44.2	42.6	43.4	43.6	43.4	43.6	+0.2	13.1	12.0	12.4	12.0	-0.4	128	85	109
Current mill average:		42.8		43.0	+0.2		12.2	11.8	-0.4		104	108	+4	356	363	+7
Cumulative mill average:		42.4					12.1			104				373		
Mill factor, %		100.9					100.8			100.0				95.4		
Mill index, %		100.5					96.8			94.5				109.5		

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

TABLE XVI
SUMMARY OF INSTITUTES AND MILL DATA FOR MILL M
October and November, 1966

Date Made	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

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

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

TABLE XVII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL N
October and November, 1966

Date Made	Mch. No.	Basic Weight, lb.			Caliper, points			Bursting Strength, P.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill											
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.											
9-29-66	W.F.	-	46.2	44.0	44.7	44.6	-0.1	13.2	12.2	12.7	12.1	-0.6	135	108	122	123	+1	352	272	317 ^a	315	-2	400	320	361 ^a	367	+6
9-30-66	W.F.	-	44.2	41.8	43.2	42.7	-0.5	13.2	12.1	12.8	12.1	-0.7	135	95	115	118	+3	328	272	299 ^a	284	-15	392	336	357 ^a	359	+2
10-7-66	W.F.	-	43.8	42.6	43.4	43.0	-0.4	13.0	12.1	12.5	11.9	-0.6	127	90	108	112	+4	416	328	367 ^a	361	-6	384	288	349 ^a	369	+20
10-14-66	W.F.	-	44.0	42.6	43.5	43.2	-0.3	13.2	12.5	13.0	12.3	-0.7	117	77	99	95	-4	440	312	352 ^a	355	+3	368	288	334 ^a	328	-6
11-3-66	W.F.	-	43.8	42.2	43.0	42.5	-0.5	12.3	11.9	12.1	11.2	-0.9	136	101	120	118	-2	344	264	303 ^a	260	-43	392	320	356 ^a	335	-21
11-4-66	W.F.	-	43.6	42.0	42.6	42.5	-0.1	12.9	12.0	12.5	11.7	-0.8	125	89	111	108	-3	352	240	287 ^a	285	-2	376	304	343 ^a	333	-10
11-11-66	W.F.	-	42.6	40.8	41.7	41.6	-0.1	13.0	11.9	12.7	11.8	-0.9	120	92	107	110	+3	360	248	312 ^a	276	-36	384	304	343 ^a	329	-14
11-18-66	W.F.	-	44.6	43.8	44.0	43.1	-0.9	11.8	10.8	11.3	11.0	-0.3	132	91	106	101	-5	424	264	375 ^a	321	-54	384	296	345 ^a	312	-33
Current mill average:			43.3	42.9		42.9	-0.4		12.4	11.8		-0.6		111	110		-1		327	307		-20		348	342		-6
Cumulative mill average:			43.1						12.5					113					343					372			
Mill factor, %			100.5						99.2					98.2					95.3					93.5			
Mill index, %			101.6						98.4					100.9					100.6					93.3			

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

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

TABLE XVIII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL O

October and November, 1966

Date Made	Mch. No.	Basis Weight, lb.			Caliper, Points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet												
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
9-1-66	1	43.6	42.0	42.6	43.2	+0.6	12.7	11.6	12.3	12.5	+0.2	129	95	110	106	-4	352	248	282	306	+24	416	320	351 ^a	349	-2
9-16-66	1	44.0	42.0	43.0	43.2	+0.2	12.7	11.9	12.4	12.4	0.0	114	86	101	103	+2	288	200	242 ^a	257	+15	328	272	299 ^a	307	+8
9-12-66	1	45.0	42.2	43.4	43.6	+0.2	13.0	11.9	12.7	12.6	-0.1	130	98	111	105	-6	320	192	257 ^a	275	+18	352	304	323 ^a	337	+14
10-12-66	1	43.8	42.4	43.1	42.9	-0.2	13.0	12.0	12.4	12.3	-0.1	132	88	110	104	-6	272	232	254	269	+15	352	288	325 ^a	340	+15
10-24-66	1	44.2	43.6	43.8	43.7	-0.1	13.4	12.1	13.0	12.9	-0.1	128	83	109	101	-8	288	208	246	278	+32	360	304	327 ^a	341	+14
11-7-66	1	43.8	42.4	43.1	43.1	0.0	12.8	11.5	12.2	12.3	+0.1	126	96	113	103	-10	280	224	248	261	+13	384	304	331 ^a	320	-11
Current mill average:				43.2	43.3	+0.1			12.5	12.5	0.0		109	103	103	-6			255	274	+19			326	332	+6
Cumulative mill average:				42.2					12.6				107						270					323		
Mill factor, %				102.4					99.2				101.9						94.4					100.9		
Mill Index, %				101.4					99.2				99.1						78.5					87.4		

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

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

TABLE XII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL P
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Gross Machine										
		Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.								
10-10-66	----	46.6	43.6	44.6	43.7	-0.9	15.2	13.2	14.1	13.5	-0.6	120	80	105	107	+2	432	272	363 ^a	----	536	400	463 ^a	----
10-27-66	----	43.8	42.0	42.8	42.2	-0.6	14.4	12.0	13.4	12.6	-0.8	117	92	106	110	+4	360	248	305	----	440	344	375 ^a	----
11- 7-66	----	44.0	42.4	43.1	42.3	-0.8	13.3	12.2	12.9	12.2	-0.7	140	90	120	122	+2	416	304	363 ^a	----	424	328	378 ^a	----
11- 7-66	----	45.4	42.8	44.0	43.2	-0.8	13.0	11.9	12.4	11.7	-0.7	150	88	112	114	+2	464	328	387 ^a	----	528	400	437 ^a	----
11- 9-66	----	44.8	42.4	43.7	42.9	-0.8	14.8	13.0	14.1	13.5	-0.6	136	93	113	114	+1	384	320	357	----	464	352	406 ^a	----
Current mill average:		43.6	42.8	-0.8	13.4	12.7	-0.7	111	113	+2	355	----	----	412	----	----								
Cumulative mill average:		42.4	102.8	102.3	12.9	103.9	106.3	108	102.8	100.9	340	----	----	366	----	----								
Mill factor, %														112.6	----	----								
Mill index, %														110.5	----	----								

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

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

TABLE XX
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Q
October and November, 1966

Date Made	Finish	Mch. No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet																																
			Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.	Institute	Mill	Diff.																														
			Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.																		
8-30-66	----	1	43.6	41.0	42.4	43.2	+0.8	12.9	11.9	12.3	12.0	-0.3	127	83	104	103	-1	384	256	295 ^a	319	+24	344	296	329 ^a	395	+66																				
9- 6-66	----	1	43.6	41.8	42.4	42.8	+0.4	13.3	12.0	12.6	12.5	-0.1	126	89	106	104	-2	368	240	305 ^a	308	+ 3	432	320	364 ^a	421	+57																				
-----	----	-	43.0	41.8	42.2			12.8	11.8	12.5			120	91	105			336	224	274			400	320	344 ^a																						
10- 3-66	----	1	44.0	42.0	42.6	42.6	0.0	14.0	12.5	13.2	12.7	-0.5	126	89	102	107	+5	320	248	286	300	+14	344	304	324 ^a	360	+36																				
10-18-66	----	1	44.0	42.2	43.3	43.5	+0.2	14.1	12.1	13.1	12.5	-0.6	113	81	96	96	0	400	240	317 ^a	277	-40	392	304	342 ^a	367	+25																				
10-24-66	----	1	43.6	42.0	42.7	41.7	-1.0	13.6	12.3	13.1	12.1	-1.0	126	87	104	102	-2	328	216	283 ^a	238	-45	400	304	350 ^a	317	-33																				
11- 1-66	----	1	42.4	41.2	42.0	42.7	+0.7	13.3	11.8	12.6	12.6	0.0	123	82	109	107	-2	304	232	267	289	+22	392	296	335 ^a	403	+68																				
11- 6-66	----	1	43.8	42.4	43.2	43.0	-0.2	13.4	12.1	12.8	12.5	-0.3	140	92	117	114	-3	408	288	317 ^a	309	- 8	376	328	353 ^a	412	+59																				
Current mill average:			42.6			12.8			105			293			343																																
Current mill av. excluding Z-40(b):			42.7			42.8			+0.1			12.8			12.4			-0.4			105			105			0			296			291			- 5			342			382			+40		
Cumulative mill average:			42.3			13.1			102			290			347																																
Mill factor, %			100.7			97.7			102.9			101.0			98.8																																
Mill index, %			100.0			101.6			95.5			90.2																																			

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

^bMill data were not available for Sample Z-40. Consequently, the comparisons of Institute and Mill data are based on only those samples for which both sets of data were available.

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

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL S - -

October and November, 1966

	Bursting Strength,	Elmendorf Tear, g./sheet	Elmendorf Tear, g./sheet
	p.s.i.g.	In Machine	Cross Machine
	Institute	Institute	Institute
	Mos. Min. Av.	Mos. Min. Av.	Mos. Min. Av.
	Av. Diff.	Av. Diff.	Av. Diff.
Mch.	Basic Weight, lb.	Caliber, points	
	Institute	Institute	
	Mos. Min. Av.	Mos. Min. Av.	
	Av. Diff.	Av. Diff.	
Date			

No samples submitted.

TABLE XIX

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL T

9-15-66	----	1	45.0	43.6	43.9	42.8	-1.1	13.8	12.8	13.2	12.7	-0.5	143	82	109	110	+ 1	424	320	359	338	-21	456	352	397 ^a	388	- 9
9-15-66	----	1	43.8	42.0	43.2	42.7	-0.5	14.0	13.0	13.4	13.0	-0.4	150	95	124	127	+ 3	416	280	365 ^a	369	+ 4	480	368	417 ^a	405	-12
9-15-66	----	1	44.0	42.4	43.3	42.7	-0.6	14.1	13.0	13.5	12.9	-0.6	145	90	125	126	+ 1	480	296	368 ^a	349	-19	424	368	403 ^a	381	-22
9-15-66	----	-	43.8	42.2	43.1	42.9	-0.2	14.0	13.0	13.6	12.9	-0.7	159	102	128	128	0	424	312	367 ^a	370	+ 3	488	368	430 ^a	406	-24
10- 8-66	----	1	41.8	40.2	41.0	40.6	-0.4	14.1	12.1	13.3	12.8	-0.5	135	94	117	108	- 9	400	280	341 ^a	310	-31	400	336	372 ^a	356	-16
10- 8-66	----	1	43.8	42.0	42.8	41.9	-0.9	14.6	12.5	13.7	12.8	-0.9	139	92	116	110	- 6	400	296	351	301	-50	448	352	393 ^a	347	-46
10-11-66	----	1	43.8	42.0	42.8	41.7	-1.1	14.1	12.6	13.5	12.8	-0.7	150	94	120	108	-12	376	312	345 ^a	291	-54	448	384	409 ^a	334	-75
10- 8-66	----	1	43.8	42.0	42.7	42.0	-0.7	14.2	12.7	13.4	12.9	-0.5	141	100	115	113	- 2	464	304	369 ^a	309	-60	432	352	402 ^a	360	-42
11- 1-66	----	1	44.2	41.8	43.1	42.8	-0.3	14.2	12.9	13.7	13.3	-0.4	148	92	125	117	- 8	408	304	365	322	-43	448	368	403 ^a	359	-44
11- 2-66	----	1	43.8	41.8	43.0	42.7	-0.3	14.3	12.8	13.6	13.2	-0.4	148	96	121	115	- 6	408	272	345 ^a	331	-14	448	376	407 ^a	382	-25
11- 1-66	----	1	44.8	42.8	43.9	43.3	-0.6	13.8	12.0	12.8	12.4	-0.4	152	109	125	119	- 6	400	272	340 ^a	339	- 1	480	360	413 ^a	381	-32
11- 1-66	----	-	45.0	43.2	44.1	43.4	-0.7	13.2	11.9	12.5	12.4	-0.1	158	96	126	122	- 4	400	272	347	323	-24	464	384	416 ^a	377	-39
Current mill average:			43.1	42.5	-0.6			13.3	12.8	-0.5				121	117	- 4				355	329	-26			405	373	-32
Cumulative mill average:			42.4					12.8						106						348					392		
Mill factor, %			101.7					103.9						114.2						102.0					103.3		
Mill index, %			101.2					105.6						110.0						109.2					108.6		

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

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

TABLE XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL U
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet In Machine			Elmendorf Tear, g./sheet Cross Machine												
		Institute Max.	Institute Min.	Mill Av.	Institute Max.	Institute Min.	Mill Av.	Institute Max.	Institute Min.	Mill Av.	Institute Max.	Institute Min.	Mill Av.	Institute Max.	Institute Min.	Mill Av.										
9-13-66	W.F. 1	42.6	42.0	42.2	42.1	-0.1	12.2	11.8	12.0	11.7	-0.3	128	91	113	110	-3	360	272	313	291	-22	440	352	379 ^a	378	-1
9-20-66	W.F. 1	44.2	42.4	43.0	43.5	+0.5	12.1	11.2	11.9	11.5	-0.4	125	85	113	117	+4	352	272	313 ^a	279	-34	448	352	388 ^a	364	-24
9-26-66	W.F. 1	43.6	42.0	42.5	43.6	+1.1	12.3	11.3	12.0	11.9	-0.1	126	91	111	114	+3	352	256	292 ^a	274	-18	368	320	348 ^a	367	+19
9-27-66	W.F. 1	43.8	40.4	41.7	42.3	+0.6	12.9	11.7	12.2	12.0	-0.2	131	87	111	111	0	336	256	295 ^a	266	-29	448	304	361 ^a	361	0
Current mill average:				42.3	42.9	+0.6			12.0	11.8	-0.2			112	113	+1			304	277	-27			369	367	-2
Cumulative mill average:				42.7					12.5					111					314					380		
Mill factor, %				99.1					96.0					100.9					96.8					97.1		
Mill index, %				99.3					95.2					101.8					93.5					98.9		

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

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

TABLE XLIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL V
October and November, 1966

Date Made	Finish	Mch. No.	Basis Weight, lb.			Caliber, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Cross Machine												
			Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.										
6-25-66	----	1	43.6	42.0	42.4	43.1	+0.7	13.0	11.6	12.3	12.6	+0.3	116	75	89	86	-3	424	336	379 ^a	333	-46	464	352	383 ^a	386	+3
6-25-66	----	1	44.0	40.4	42.9	42.9	0.0	13.0	11.0	12.0	12.3	+0.3	125	79	106	104	-2	448	288	344 ^a	351	+7	464	360	409 ^a	400	-9
6-25-66	----	1	44.0	40.6	42.4	43.0	+0.6	13.0	11.8	12.3	12.5	+0.2	121	86	105	101	-4	440	328	367 ^a	339	-28	416	336	387 ^a	378	-9
6-25-66	----	1	44.0	42.0	43.1	43.3	+0.2	13.0	11.5	12.3	12.7	+0.4	122	81	107	100	-7	488	336	400	332	-68	512	336	405 ^a	366	-39
6-25-66	----	1	44.0	40.8	43.2	43.7	+0.5	13.5	11.1	12.5	12.8	+0.3	128	80	101	99	-2	432	328	375 ^a	379	+4	448	344	407 ^a	386	-21
6-25-66	----	1	44.2	42.0	43.6	43.9	+0.3	12.7	11.3	12.2	12.5	+0.3	127	78	98	94	-4	504	320	397 ^a	397	0	480	352	396 ^a	386	-10
-----	----	1	44.4	42.0	43.6	43.6	0.0	12.7	11.6	12.2	12.2	0.0	126	77	106	102	-4	400	304	354 ^a	306	-48	416	352	387 ^a	366	-21
-----	----	1	44.0	42.2	43.3	43.1	-0.2	12.9	11.8	12.3	12.2	-0.1	124	76	100	99	-1	400	280	349 ^a	309	-40	432	336	389 ^a	378	-11
-----	----	1	44.0	43.6	43.8	43.6	-0.2	13.2	12.0	12.4	12.4	0.0	133	80	102	97	-5	384	280	345 ^a	339	-6	432	352	397 ^a	346	-51
-----	----	1	44.0	42.0	43.1	42.9	-0.2	12.4	11.0	11.8	11.7	-0.1	130	77	106	99	-7	400	304	341 ^a	311	-30	432	320	383 ^a	375	-8
-----	----	1	44.0	42.2	42.9	43.2	+0.3	12.9	11.4	12.1	12.0	-0.1	131	79	104	102	-2	448	328	380 ^a	347	-33	440	368	403 ^a	361	-42
-----	----	1	44.0	42.2	43.7	42.6	-1.1	13.0	11.5	12.4	12.7	+0.3	139	73	107	101	-6	424	304	355	333	-22	440	368	410 ^a	389	-21
-----	----	44.0	41.0	42.2				12.9	11.3	12.1			135	84	108			392	288	346 ^a			480	368	415 ^a		
-----	----	42.2	41.2	41.8				12.6	11.1	12.0			126	85	102			416	328	357 ^a			432	376	405 ^a		
-----	----	42.2	40.0	41.2				12.0	10.8	11.5			124	72	100			424	312	361 ^a			448	352	377 ^a		
-----	----	42.2	40.0	41.7				12.1	10.8	11.4			130	71	101			432	272	346 ^a			440	336	377 ^a		
-----	----	41.4	39.8	40.3				11.5	10.2	10.9			129	70	97			400	312	340 ^a			400	320	355 ^a		
-----	----	41.6	40.0	40.2				12.0	10.7	11.2			132	81	101			360	304	325 ^a			416	328	365 ^a		

--continued

TABLE XXIV (continued)
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL V
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliber, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet in Machine			Elmendorf Tear, g./sheet Cross Machine		
		Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.
		42.2	40.4	41.7	12.1	10.7	11.5	123	82	103	400	312	347	472	352	399 ^a
		42.0	40.0	40.7	11.7	10.5	11.2	126	80	107	400	256	342 ^a	416	352	393 ^a
		42.2	40.0	41.2	12.9	11.4	12.1	127	74	100	392	280	328	448	336	391 ^a
		42.2	40.2	41.8	12.5	10.5	11.8	118	79	100	384	288	333 ^a	432	336	377 ^a
		42.2	40.2	41.7	12.8	11.3	12.2	123	78	99	408	272	333 ^a	432	352	387 ^a
		42.2	40.6	41.9	12.7	11.7	12.2	115	70	95	392	304	333 ^a	448	360	395 ^a
Current mill average:		42.3			12.0			102			353			391		
Current mill av. excluding the Y-5 and Y-6 samples(b):		43.2			12.2			103			366			396		
Cumulative mill average:		43.1			12.5			109			417			457		
Mill factor, %		98.1			96.0			93.6			84.7			85.6		
Mill index, %		99.3			95.2			92.7			108.6			104.8		

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

^bMill data were not available for all samples submitted. Consequently, the comparisons of Institute and Mill data are based on only those samples for which both sets of data were available.

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

TABLE XIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL W
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet												
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill										
		Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.										
9-12-66	WFIS 1	43.0	41.4	42.3	42.1	-0.2	13.6	12.2	12.8	12.8	0.0	125	96	109	112	+3	424	256	337 ^a	341	+4	400	336	369 ^a	420	+51
9-20-66	WFIS 1	43.8	42.0	42.8	43.2	+0.4	14.1	12.9	13.3	13.0	-0.3	124	89	104	107	+3	416	280	322 ^a	312	-10	440	368	400 ^a	387	-13
9-26-66	WFIS 1	43.0	41.8	42.5	42.7	+0.2	14.8	13.0	13.6	13.0	-0.6	120	84	102	108	+6	376	256	315	355	+40	440	320	373 ^a	392	+19
10- 2-66	WFIS 1	43.2	41.8	42.2	42.3	+0.1	14.0	12.0	13.1	12.8	-0.3	131	89	109	109	0	384	256	303	356	+53	424	344	375 ^a	410	+35
10- 8-66	WFIS 1	44.0	41.8	42.4	42.4	0.0	14.5	13.1	13.8	12.9	-0.9	129	87	107	107	0	368	232	289	371	+82	432	352	377 ^a	409	+32
10-15-66	WFIS 1	44.0	42.0	42.8	42.5	-0.3	14.1	12.4	13.1	12.8	-0.3	133	92	110	108	-2	416	320	370 ^a	346	-24	544	368	408 ^a	413	+5
10-22-66	WFIS 1	43.8	41.8	42.9	42.7	-0.2	13.9	12.5	13.0	12.7	-0.3	121	97	109	108	-1	392	288	347	349	+2	480	360	402 ^a	420	+18
10-30-66	WFIS 1	43.2	41.0	42.0	41.8	-0.2	14.2	12.9	13.4	12.8	-0.6	131	83	104	105	+1	368	288	325	311	-14	432	320	376 ^a	377	+1
11- 6-66	WFIS 1	44.2	42.0	42.9	42.6	-0.3	14.1	12.0	13.1	12.8	-0.3	120	82	109	110	+1	392	288	349 ^a	343	-6	456	368	409 ^a	421	+12
Current mill average:		42.5	42.5	42.5	42.5	0.0	13.3	12.9	13.3	12.9	-0.4	107	108	108	+1	329	343	343	343	+14	388	405	405	405	+17	
Cumulative mill average:		42.6					13.5					110					324					380				
Mill factor, %		99.8					98.5					97.3					101.5					102.1				
Mill index, %		99.8					105.6					97.3					101.2					104.0				

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

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

TABLE XVI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL X
October and November, 1966

Date Made	Mch. No.	Finish	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Cross Machine																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
			Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
			Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				

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

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

TABLE XIVII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL 1
October and November, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.				Caliper, points				Bursting Strength, P.s.i.g.				Elmendorf Tear, g./sheet in Machine				Elmendorf Tear, g./sheet									
		Institute		Mill		Institute		Mill		Institute		Mill		Institute		Mill		Institute		Mill							
		Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.						
10- 7-66	W.F.	2	44.2	42.4	43.5	43.4	-0.1	12.9	11.2	11.8	11.8	0.0	147	104	121	109	-12	368	272	324	319	- 5	416	336	365 ^a	377	+12
10- 7-66	W.F.	2	44.0	42.0	43.0	43.0	0.0	12.7	11.1	11.8	11.9	+0.1	138	102	118	109	- 9	352	264	315	301	-14	400	328	370 ^a	385	+15
11- 3-66	W.F.	-	45.4	43.8	44.3	44.1	-0.2	13.3	12.7	13.0	13.1	+0.1	150	97	122	112	-10	408	336	363	347	-16	464	376	417 ^a	432	+15
11- 3-66	W.F.	-	43.8	42.4	42.9	42.6	-0.3	13.2	12.0	12.6	12.6	0.0	125	91	106	102	- 4	416	296	356 ^a	333	-23	448	344	389 ^a	401	+12
Current mill average:			43.4	43.3	-0.1	12.3	12.3	0.0	117	108	- 9	340	325	-15	385	399	+14										
Cumulative mill average:			43.0			12.9			115			361			388												
Mill factor, %			100.9			95.3			101.7			94.2			99.2												
Mill index, %			101.9			97.6			106.4			104.6			103.2												

TABLE XIVIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL 2

No samples submitted.

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

sample lots of linerboard. In addition to the presentations of Institute and mill data described, Tables IV through XXVIII also include under each test heading a column labeled "Diff.". This column shows the differences between averages obtained at the Institute and those obtained at the mills. The data obtained at the Institute are used as the reference in calculating these differences.

The average test results obtained at the Institute and at the mills are summarized in Table XXIX for the current period. Shown in this table for each mill is the difference for each test between the current mill average based on Institute data and the current mill average based on mill data. In addition, for each test the maximum difference encountered in comparing Institute and mill averages for individual sample lots is shown. In Table XXX, the differences for each test between the current mill averages based on Institute data and those based on mill data shown in Table XXIX have been converted to percent (based on Institute data as a reference). In addition, for purposes of comparison, the percentage differences from the previous two bimonthly reports are shown in Table XXX.

A summary of the agreement obtained in the comparisons of Institute and mill test data for the current period is shown in Table XXXI. This summary is based on the results given in Table XXX. The tabulated data show the number of mills, and the percentage of all mills which this number represents, whose average test results for the current period fall within designated percentages from the average test results obtained at the Institute. It may be noted from this summary that agreement between the results obtained at the Institute and those obtained at the mills was generally good.

TABLE XXIX
SUMMARY OF TEST RESULT COMPARISONS (AVERAGE MILL AND INSTITUTE RESULTS) FOR OCTOBER AND NOVEMBER, 1966

Mills ^a	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	S	T	U	V	W	X	Y	Z
No. of samples compared	8	9	1	0	10	1	3	0	6	4	6	4	8	8	6	5	7	0	12	4	12	9	4	4	0
	Basis Weight																								
Institute	42.1	43.6	42.9	--	43.1	42.9	41.6	--	43.0	42.5	43.1	42.8	42.1	43.3	43.2	43.6	42.7	--	43.1	42.3	43.2	42.5	43.0	43.4	--
Mill	42.3	42.9	43.1	--	43.3	42.6	41.7	--	42.7	42.6	43.1	43.0	42.3	42.9	43.3	42.8	42.8	--	42.5	42.9	43.2	42.5	42.3	43.3	--
Av. diff. ^b	+0.2	-0.7	+0.2	--	+0.2	-0.3	+0.1	--	-0.3	+0.1	0.0	+0.2	+0.2	-0.4	+0.1	-0.8	+0.1	--	-0.6	+0.6	0.0	0.0	-0.7	-0.1	--
Max. diff. ^c	+0.7	-1.4	+0.2	--	+0.5	-0.3	+0.2	--	-0.9	+0.5	-0.6	+0.3	+0.5	-0.9	+0.6	-0.9	-1.0	--	-1.1	+1.1	-1.1	+0.4	-1.0	-0.3	--
	Caliper																								
Institute	11.9	12.0	12.4	--	13.2	13.0	12.3	--	12.9	11.1	12.6	12.2	12.2	12.4	12.5	13.4	12.8	--	13.3	12.0	12.2	13.3	11.9	12.3	--
Mill	11.6	12.1	12.1	--	13.1	12.6	12.0	--	12.7	11.0	12.3	11.8	12.7	11.8	12.5	12.7	12.4	--	12.8	11.8	12.4	12.9	11.7	12.3	--
Av. diff. ^b	-0.3	+0.1	-0.3	--	-0.1	-0.4	-0.3	--	-0.2	-0.1	-0.3	-0.4	+0.5	-0.6	0.0	-0.7	-0.4	--	-0.5	-0.2	+0.2	-0.4	-0.2	0.0	--
Max. diff. ^c	-0.7	+0.4	-0.3	--	+0.3	-0.4	-0.7	--	-0.4	-0.1	-0.4	-0.6	+0.7	-0.9	+0.2	-0.8	-1.0	--	-0.9	-0.4	+0.4	-0.9	-0.3	+0.1	--
	Bursting Strength																								
Institute	113	107	121	--	123	102	111	--	107	118	114	104	109	111	109	111	105	--	121	112	103	107	110	117	--
Mill	115	108	113	--	126	103	108	--	105	116	111	108	113	110	103	113	105	--	117	113	99	108	109	108	--
Av. diff. ^b	+2	+1	-8	--	+3	+1	-3	--	-2	-2	-3	+4	+4	-1	-6	+2	0	--	-4	+1	-4	+1	-1	-9	--
Max. diff. ^c	+6	+6	-8	--	+7	+1	-5	--	-5	-3	-7	+8	+7	-5	-10	+4	+5	--	-12	+4	-7	+6	-3	-12	--
	Tearing Strength, in																								
Institute	287	306	302	--	316	364	330	--	366	292	344	356	256	327	255	355	296	--	355	304	366	329	320	340	--
Mill	295	338	292	--	318	366	342	--	358	282	322	363	272	307	274	--	291	--	329	277	340	343	305	325	--
Av. diff. ^b	+8	+32	-10	--	+2	+2	+12	--	-8	-10	-22	+7	+16	-20	+19	--	-5	--	-26	-27	-26	+14	-15	-15	--
Max. diff. ^c	+30	+68	-10	--	+28	+2	+84	--	-22	-24	-36	+21	+32	-54	+32	--	-45	--	-60	-34	-68	+82	-34	-23	--
	Tearing Strength, cross																								
Institute	356	371	356	--	388	409	392	--	409	345	388	375	329	348	326	412	342	--	405	369	396	388	352	385	--
Mill	377	410	369	--	407	416	420	--	417	343	385	376	367	342	332	--	382	--	373	367	376	405	335	399	--
Av. diff. ^b	+21	+39	+13	--	+19	+7	+28	--	+8	-2	-3	+1	+38	-6	+6	--	+40	--	-32	-2	-20	+17	-17	+14	--
Max. diff. ^c	+43	+66	+13	--	+38	+7	+50	--	+26	-16	-19	-17	+71	-33	+15	--	+68	--	-75	-24	-51	+51	-26	+15	--

^aComparison based on averages involved only those samples on which mill test data were submitted.

^bAverage difference is the difference between the Institute mill average and the mill average based on mill test data.

^cMaximum difference encountered in comparing the Institute average and the mill averages for any sample submitted by that particular mill.

TABLE XXX
COMPARISON OF INSTITUTE-MILL DIFFERENCES FOR OCTOBER AND
NOVEMBER, 1966, AND TWO PREVIOUS BIMONTHLY PERIODS

Average Difference, %													
Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, cross	Mill	Period	Basis Weight	Caliper	Bursting Strength	Tear, in	Tear, cross
A	June-July	+0.7	-4	0	-6	+2	N	June-July	-0.2	-5	-3	-6	+4
	Aug.-Sept.	0	-5	-0.9	-6	-2		Aug.-Sept.	-0.7	-4	+0.9	-2	-2
	Current	+0.5	-3	+2	+3	+6		Current	-0.9	-5	-0.9	-6	-2
B	June-July	+0.7	+0.8	-0.9	+14	+14	O	June-July	+1	-0.8	-6	-4	-4
	Aug.-Sept.	-2	-0.8	-3	+6	+10		Aug.-Sept.	+1	0	-2	+12	+6
	Current	-2	+0.8	+0.9	+10	+11		Current	+0.2	0	-6	+7	+2
C	June-July	+0.7	-3	-6	-5	+4	P	June-July	-0.9	-4	+3	--	--
	Aug.-Sept.	+0.2	-4	-7	-8	-0.3		Aug.-Sept.	-2	-1	+5	--	--
	Current	+0.5	-2	-7	-3	+4		Current	-2	-5	+2	--	--
D	June-July	--	--	--	--	--	Q	June-July	+4	-2	+2	+10	+16
	Aug.-Sept.	--	--	--	--	--		Aug.-Sept.	+2	-2	-1	+3	+11
	Current	--	--	--	--	--		Current	+0.2	-3	0	-2	+12
E	June-July	+1	-2	+2	+3	+7	S	June-July	-0.7	-2	-4	-3	+1
	Aug.-Sept.	+0.5	-2	+0.8	+0.3	+6		Aug.-Sept.	-2	-0.8	-2	+2	+0.8
	Current	+0.5	-0.8	+2	+0.6	+5		Current	--	--	--	--	--
F	June-July	-0.2	-2	+2	-4	+1	T	June-July	-0.5	-3	+13	-8	-5
	Aug.-Sept.	-0.2	-3	+6	-5	-2		Aug.-Sept.	-2	-2	+6	+5	+1
	Current	-0.7	-3	+1	+0.5	+2		Current	-1	-4	-3	-7	-8
G	June-July	+1	-0.8	-2	+6	+10	U	June-July	+1	-2	+0.9	-5	+0.8
	Aug.-Sept.	+0.5	-2	0	+3	+18		Aug.-Sept.	0	0	0	-11	-4
	Current	+0.2	-2	-3	+4	+7		Current	+1	-2	+0.9	-9	-0.5
H	June-July	--	--	--	--	--	V	June-July	--	--	--	--	--
	Aug.-Sept.	--	--	--	--	--		Aug.-Sept.	-2	0	-6	+9	+4
	Current	--	--	--	--	--		Current	0	+2	-4	-7	-5
I	June-July	+1	0	-0.9	-1	+1	W	June-July	+0.2	-3	-2	+9	+7
	Aug.-Sept.	+1	0	+3	-0.6	+4		Aug.-Sept.	-0.9	-5	-0.9	+6	+3
	Current	-0.7	-2	-2	-2	+2		Current	0	-3	+0.9	+4	+4
J	June-July	0	-2	-0.9	-1	+0.5	X	June-July	+1	-2	-0.9	+5	+6
	Aug.-Sept.	0	-2	-0.9	-4	-5		Aug.-Sept.	-0.9	-2	+4	+1	-4
	Current	+0.2	-0.9	-2	-3	-0.6		Current	-2	-2	-0.9	-5	-5
K	June-July	+0.7	-2	-2	+0.6	+1	Y	June-July	+1	0	-7	0	+3
	Aug.-Sept.	+0.9	-0.8	-0.9	+6	+2		Aug.-Sept.	+0.5	+0.8	-6	+0.3	+3
	Current	0	-2	-3	-6	-0.8		Current	-0.2	0	-8	-4	+4
L	June-July	+0.5	-2	+3	+2	+4	Z	June-July	+0.2	+0.8	0	--	--
	Aug.-Sept.	+0.7	-4	+3	-2	0		Aug.-Sept.	-0.9	-2	-4	--	--
	Current	+0.5	-3	+4	+2	+0.3		Current	--	--	--	--	--
M	June-July	+0.2	+3	-3	-2	+6		June-July					
	Aug.-Sept.	-0.5	+2	0	0	+5		Aug.-Sept.					
	Current	+0.5	+4	+4	+6	+12		Current					

TABLE XXXI

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS FOR OCTOBER AND NOVEMBER, 1966

		Average Percentage Difference Between Institute and Mill Test Results ^a									
		+0.5	+1	+2	+3	+4	+5	+7.5	+10	+12	
Basis Weight											
Number of mills	13	18	21								
Percentage of mills	61.9	85.7	100.0								
Caliper											
Number of mills	2	5	12	17	19	21					
Percentage of mills	9.5	23.8	57.1	81.0	90.5	100.0					
Bursting Strength											
Number of mills	1	7	12	15	18	21					
Percentage of mills	4.8	33.3	57.1	71.4	85.7	100.0					
Tearing Strength, in											
Number of mills	1	2	5	8	11	12	18	20	20		
Percentage of mills	5.0	10.0	25.0	40.0	55.0	60.0	90.0	100.0	100.0		
Tearing Strength, cross											
Number of mills	2	4	8	8	11	14	16	17	20		
Percentage of mills	10.0	20.0	40.0	40.0	55.0	70.0	80.0	85.0	100.0		

^aBased on the average percentage differences between Institute and mill data given in Table XXX.

Preconditioning and conditioning data pertinent to the test results obtained at the mills during the current period are given in Table XXXII.

TABLE XXXII.
PRECONDITIONING AND CONDITIONING DATA FOR MILL TESTS
October and November, 1966

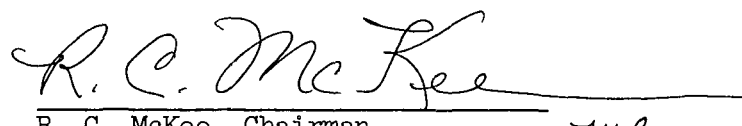
Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H.%	Temp., °F.	Time, hr.
A	50	72	24	--	--	--
B	55	72	--	--	--	--
C	50	72	960	50	72	3.5
D ^a	--	--	--	--	--	--
E	--	--	--	50	73	24
F	50	74	18	50	74	18
G	50	70-72	120	50	70-72	120
H ^a	--	--	--	--	--	--
I	50-56	70-73	48	50	73	--
J	58-72	79-86	0.5	50	73	24-48
K _b	50	73	24	50	73	24
L	--	--	--	--	--	--
M	--	--	--	50-67	76-90	--
N	34-35	75-77	8	48-52	72	16
O	50	72	72	50	72	72
P	60	70	2.5	52-60	68-71	16-26
Q _a	--	--	--	40-58.5	68.5-75	24-72
S ^a	--	--	--	--	--	--
T	50	72	48	50	72	48
U	35	73	48	50	73	48
V	50	72	24	50	72	24
W	50	73	24	50	73	24
X	<35-35	73	24	50	73	48
Y ^a	--	--	--	50	73	24
Z	--	--	--	50	--	--

^aNo samples were submitted for evaluation during the current period.

^bNo data were submitted relative to preconditioning and conditioning.

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