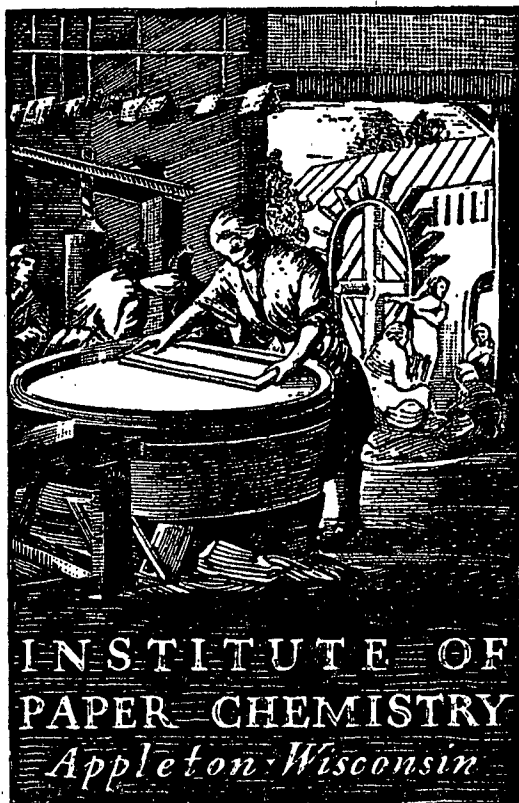




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CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 203

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1966

Your mill at Valdosta is identified by
the following code letter in this report:

F

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS BASE-LINE STUDY

Project 1108-13

Report 203

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1966

TABLE OF CONTENTS

	Page
INTRODUCTION	1
PRESENTATION AND DISCUSSION OF TEST RESULTS	2
SUMMARY OF COMPOSITE MILL AVERAGES	3
GRAPHICAL PRESENTATIONS	4
NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL	7
PERCENTAGE DEVIATION FROM 42-LB. BASIS WEIGHT SPECIFICATIONS	8
INSTITUTE AND MILL TEST DATA FOR INDIVIDUAL MILLS	10
SUMMARY OF TEST RESULTS COMPARISONS	33
COMPARISON OF INSTITUTE-MILL DIFFERENCES	34
SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS	35
PRECONDITIONING AND CONDITIONING DATA FOR THE MILL TESTS	36

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 August and September, 1966.

PRESENTATION AND DISCUSSION OF TEST RESULTS

Each sample lot received for evaluation during August and September 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--AUGUST AND SEPTEMBER, 1966

Mill	Basis Weight, lb.	Caliper, points	Bursting Strength, p.s.i.g.	Elmendorf Tear, g./sheet	In Machine	Cross Machine
A ^a						
B	43.2	12.9	115	299	364	
C	42.6	13.3	108	333	393	
D	42.4	12.6	108	276	332	
E	42.6	11.4	115	299	373	
F ^a						
G	42.3	12.9	105	296	358	
H	43.7	12.2	111	325	381	
I	No samples submitted.					
J	43.2	13.1	113	363	390	
K	43.0	12.8	109	328	364	
L	41.9	12.2	104	326	371	
M	No samples submitted.					
N	42.9	12.2	103	366	380	
O	42.4	12.1	109	321	383	
P	43.0	12.1	113	314	382	
Q	43.8	13.0	107	396	439	
S ^a						
T	42.6	12.6	114	266	338	
U	43.1	13.1	123	332	391	
V ^a						
W	43.0	12.3	113	348	410	
X	42.8	12.9	105	325	381	
Y ^a						
Z	42.7	12.6	110	313	366	
Current FKl average:	42.9	12.6	110	324	378	
Cumulative FKl average:	42.5	12.6	110	326	373	
FKl index, %	100.9	100.0	100.0	99.4	101.3	

^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.

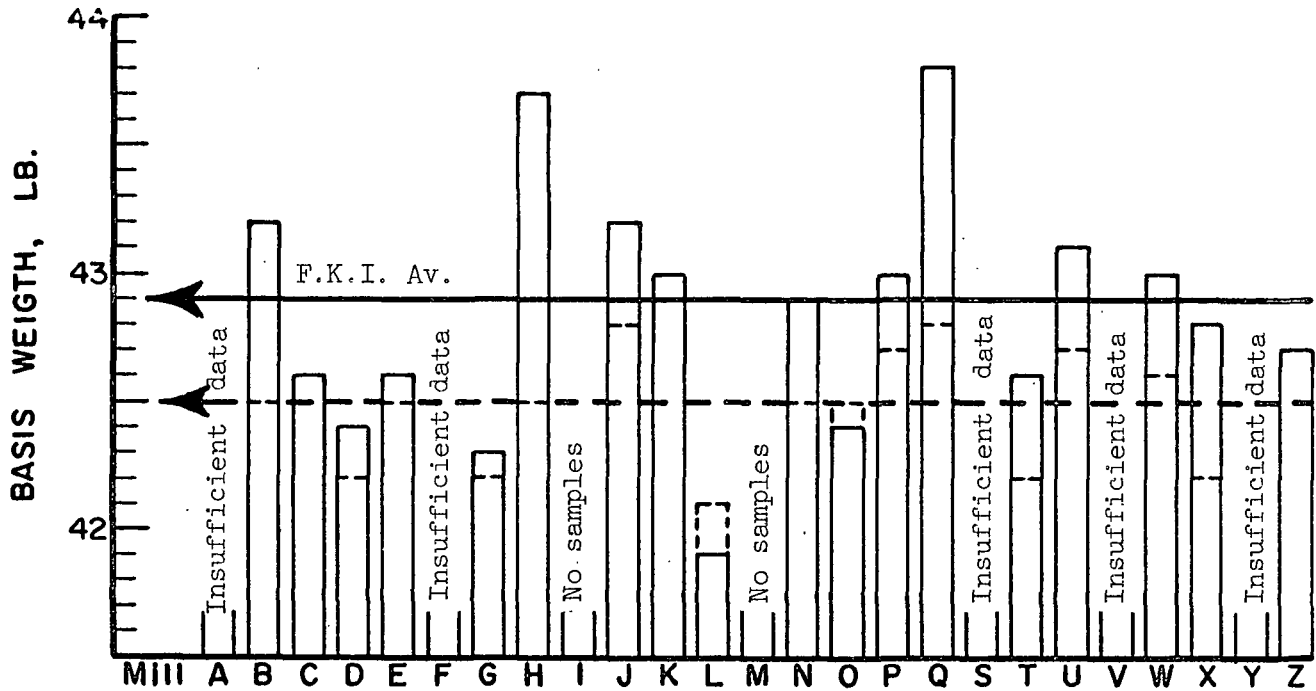


Figure 1. Comparison of Basis Weight Results

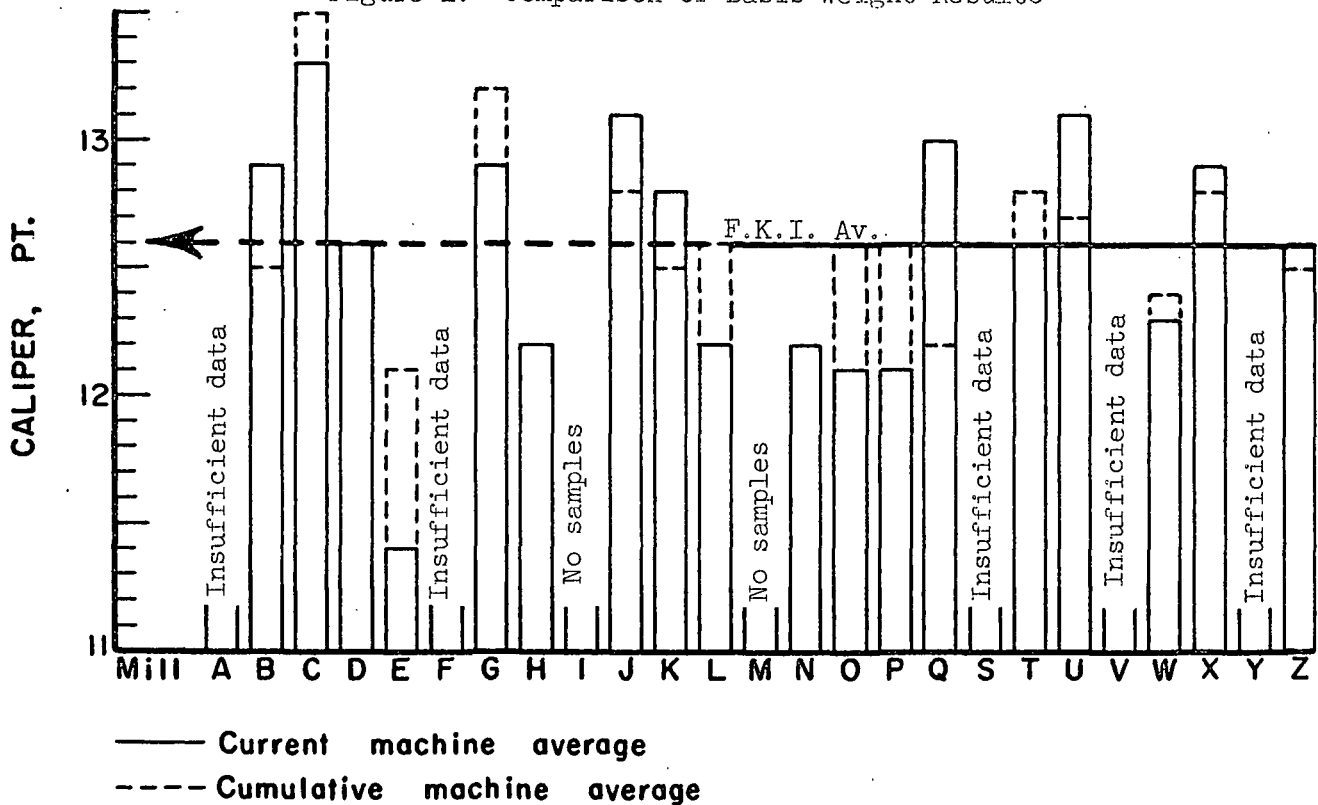


Figure 2. Comparison of Caliper Results

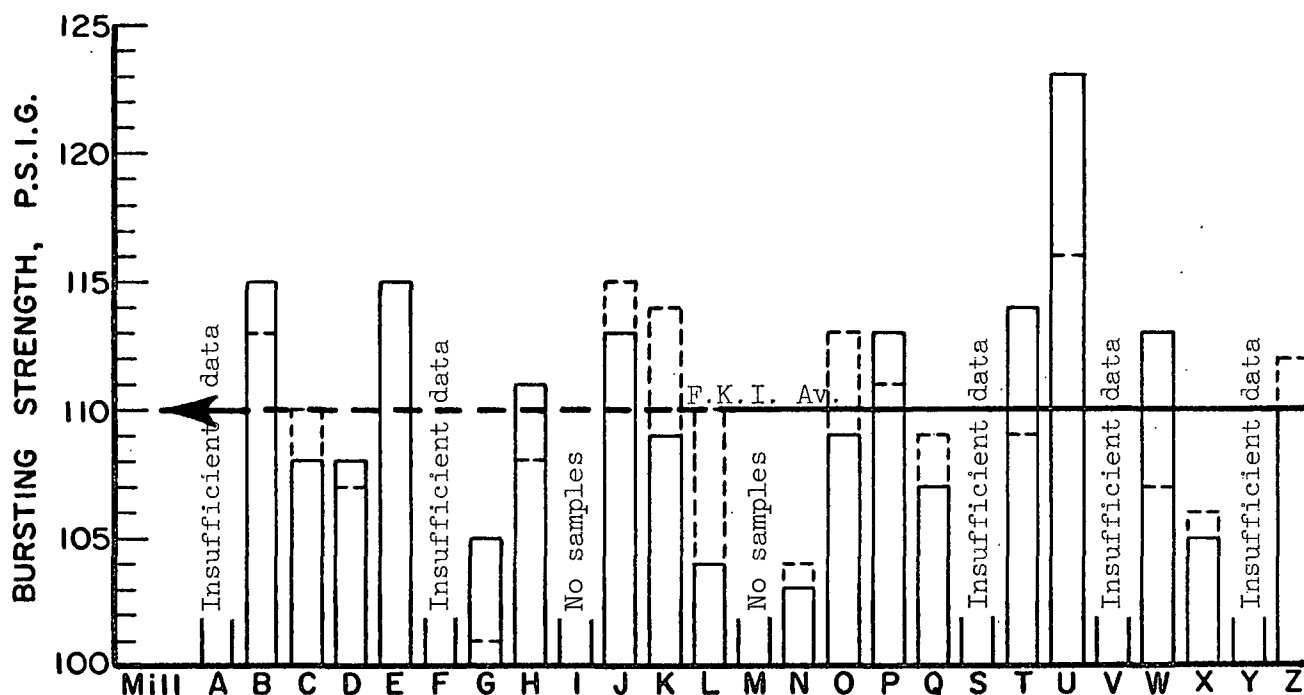


Figure 3. Comparison of Bursting Strength Results

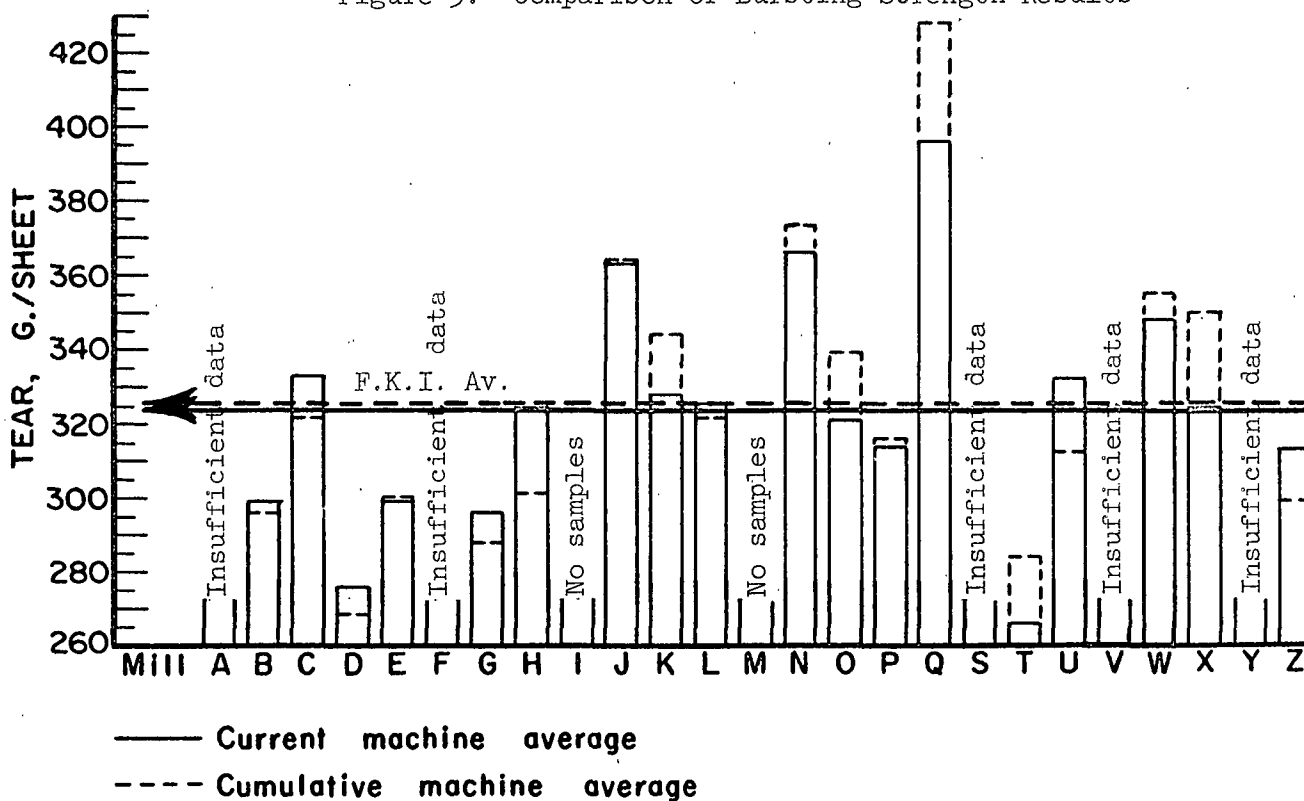


Figure 4. Comparison of Machine-Direction Tear Results

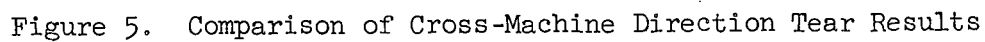


Figure 5. Comparison of Cross-Machine Direction Tear Results

TABLE II

NUMBER OF SAMPLE LOTS SUBMITTED BY EACH MILL DURING
AUGUST AND SEPTEMBER, 1966

Mill Code	Number of Sample Lots
A	2
B	5
C	9
D	5
E	9
F	1
G	9
H	9
I	0
J	4
K	8
L	6
M	0
N	6
O	5
P	8
Q	3
S	1
T	4
U	6
V	1
W	4
X	13
Y	2
Z	<u>8</u>
Total	128

TABLE III

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

Mill Code	Percentage Deviation
A	+2.1
B	+2.9
C	+1.4
D	+1.0
E	+1.4
F	+2.4
G	+0.7
H	+4.0
I	--
J	+2.9
K	+2.4
L	-0.2
M	--
N	+2.1
O	+1.0
P	+2.4
Q	+4.3
S	+1.9
T	+1.4
U	+2.6
V	+6.7
W	+2.4
X	+1.9
Y	+1.9
Z	+1.7

Test	Current Mill Averages		F.K.I. Averages	
	Max.	Min.	Current	Cumulative
Basis weight, lb.	43.8	41.9	42.9	42.5
Caliper, points	13.3	11.4	12.6	12.6
Bursting strength, p.s.i.g.	123	103	110	110
Machine direction Elmendorf tear, g./sheet	396	266	324	326
Cross-machine direction Elmendorf tear, g./sheet	439	332	378	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 sample lots of linerboard. In addition to the presentations of Institute and

(Text continued on Page 32)

TABLE IV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL A
August and September, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.				Caliper, points				Bursting Strength, p.s.i.g.				Elmendorf Tear, g./sheet											
		Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.								
8-25-66	1	44.0	41.8	42.5	0.0	14.1	12.8	13.4	12.7	-0.7	117	84	100	104	+4	464	272	363 ^a	347	-16	448	368	409 ^a	410	+1
9-10-66	1	43.8	42.0	43.2	-0.2	14.0	12.9	13.3	13.0	-0.3	113	84	96	103	+7	400	304	362 ^a	341	-21	464	352	397 ^a	380	-17
Current mill average:			42.9	42.8	-0.1		13.3	12.9	-0.4			98	104	+6			362	344	-18			403	395	-8	
Cumulative mill average:				43.0			13.1					105					378					406			
Mill factor, %				99.8			101.5					93.3					95.8					99.3			
Mill index, %				100.9			105.6					89.1					111.0					108.0			

^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 V
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL B
August and September, 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 Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	In Machine Max.	In Machine Min.	Av.	Institute Max.	Institute Min.	Av.										
7-19-66	----	44.4	42.2	43.8	44.2	+0.4	13.3	12.9	13.1	12.5	-0.6	138	82	113	102	-11	352	272	311 ^a	290	-21	400	304	361 ^a	359	-2
7-27-66	----	44.2	42.6	43.5	43.4	-0.1	13.7	12.7	13.2	12.6	-0.6	131	97	113	104	-9	352	256	293 ^a	285	-8	392	320	362 ^a	366	+4
8-2-66	----	43.4	42.0	42.3	42.4	+0.1	13.2	12.0	12.3	11.9	-0.4	140	93	119	111	-8	384	248	289 ^a	268	-21	400	328	368 ^a	356	-12
8-3-66	----	44.0	42.2	43.5	43.5	-0.0	13.3	12.0	12.8	12.5	-0.3	138	98	119	111	-8	336	248	299 ^a	276	-23	392	312	360 ^a	371	+11
8-6-66	----	43.8	42.0	42.8	43.0	+0.2	13.7	12.0	12.8	12.4	-0.4	137	95	115	106	-9	352	288	306 ^a	263	-43	400	344	367 ^a	364	-3
Current mill average:		43.2	43.3	+0.1	12.9	12.4	-0.5	115	107	-8	299	276	-23	364	363	-1										
Cumulative mill average:		42.5			12.5			113			296			360												
Mill factor, %		101.6			103.2			101.8			101.1			101.1												
Mill index, %		101.6			102.4			104.5			91.7			97.6												

^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 VI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL C
August and September, 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	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.										
7-12-66	WTIS 1	44.0	42.0	42.8	42.6	-0.2	13.8	12.2	13.0	12.7	-0.3	126	81	110	106	-4	400	304	352	365	+13	480	352	416 ^a	421	+5
7-17-66	WTIS 1	43.6	41.8	42.5	42.1	-0.4	13.6	12.2	13.0	12.3	-0.7	132	86	110	108	-2	368	272	327	371	+44	448	344	404 ^a	422	+18
7-25-66	WTIS 1	43.8	42.0	42.7	42.1	-0.6	14.0	12.5	13.3	12.5	-0.8	133	91	109	109	0	384	296	341 ^a	356	+15	448	352	400 ^a	415	+15
8-1-66	WTIS 1	43.6	41.2	42.6	41.9	-0.7	13.9	12.0	13.1	12.5	-0.6	137	95	111	108	-3	392	296	353	373	+20	440	344	386 ^a	414	+28
8-7-66	WTIS 1	43.4	41.8	42.4	41.9	-0.5	14.8	12.1	13.2	12.5	-0.7	127	90	107	109	+2	400	280	339	373	+34	448	320	396 ^a	405	+9
8-12-66	WTIS 1	44.0	41.8	42.5	42.6	+0.1	14.1	13.0	13.6	12.7	-0.9	131	90	108	106	-2	352	272	319 ^a	339	+20	424	304	378 ^a	376	-2
8-20-66	WTIS 1	43.8	42.0	42.4	42.1	-0.3	14.4	13.0	13.6	13.0	-0.6	123	84	103	106	+3	360	288	326 ^a	328	+2	408	352	379 ^a	391	+12
8-27-66	WTIS 1	44.0	41.8	42.6	42.1	-0.5	14.8	13.0	13.7	13.1	-0.6	124	84	105	105	0	384	272	324	364	+40	448	336	389 ^a	406	+17
9-4-66	WTIS 1	44.0	42.2	42.9	42.5	-0.4	14.8	12.7	13.6	13.1	-0.5	125	84	103	105	+2	368	256	317	319	-2	432	352	392 ^a	376	-16
Current mill average:				42.6	42.2	-0.4		13.3	12.7	-0.6			108	107	-1			333	354	+21				393	403	+10
Cumulative mill average:				42.6				13.5					110					322						377		
Mill factor, %				100.0				98.5					98.2					103.4						104.2		
Mill index, %				100.2				105.6					98.2					102.1						105.4		

^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 VII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL D

August and September, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.				Caliper, points				Bursting Strength, P.s.i.s.				Elmendorf Tear, g./sheet				Elmendorf Tear, g./sheet						
		Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill	Institute		Mill					
		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.	Max.	Min.	
7-13-66	----	42.4	41.6	42.0	42.5	12.5	12.5	12.5	0.0	125	84	106	103	-3	304	240	263 ^a	308	+45	368	272	319 ^a	340	+21
7-29-66	----	42.4	41.5	41.8	42.6	12.4	12.4	12.4	+0.2	120	90	109	106	-3	312	200	259 ^a	292	+33	360	288	318 ^a	342	+24
7-30-66	----	43.2	42.0	42.6	43.1	12.7	12.7	12.7	-0.2	136	93	112	109	-3	312	232	272 ^a	321	+49	416	312	341 ^a	362	+21
8-15-66	----	43.8	42.0	42.6	43.1	12.8	12.8	12.8	-0.1	120	91	107	104	-3	344	240	297 ^a	309	+12	400	320	347 ^a	364	+17
8-27-66	----	43.4	42.2	42.9	43.1	12.6	12.6	12.6	0.0	127	83	106	105	-1	344	240	288 ^a	318	+30	352	320	332 ^a	348	+16
Current mill average:		42.4		42.9	+0.5	12.6	12.6	0.0		108	106	-2			276	310	+34			332	351	+19		
Cumulative mill average:		42.2				12.6				107					268					323				
Mill factor, %		100.5				100.0				100.9					103.0					102.8				
Mill index, %		99.8				100.0				98.2					84.7					89.0				

^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 VIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL E
August and September, 1966

Date Made	Finish No.	Mch.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet			Elmendorf Tear, g./sheet													
			Institute	Max.	Min.	Av.	Diff.	Institute	Max.	Min.	Av.	Diff.	In Machine	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Diff.							
6-22-66	W.F.	1	42.6	41.8	42.2	42.0	-0.2	11.9	10.8	11.5	11.1	-0.4	144	84	115	112	-3	336	256	293 ^a	264	-29	400	352	369 ^a	333	-36	
7-5-66	W.F.	1	43.4	41.8	42.4	42.7	+0.3	12.1	11.2	11.8	11.5	-0.3	151	92	112	111	-1	336	256	295	295	0	440	352	391 ^a	382	-9	
7-20-66	W.F.	1	44.0	42.2	43.2	42.7	-0.5	12.1	11.1	11.6	11.4	-0.2	144	93	115	113	-2	368	280	314	293	-21	448	360	393 ^a	367	-26	
7-24-66	W.F.S	1	43.8	42.0	42.8	42.9	+0.1	12.1	11.1	11.8	11.3	-0.5	140	98	113	112	-1	336	272	309	296	-13	424	368	393 ^a	381	-12	
8-9-66	W.F.S	1	43.6	42.0	42.5	43.0	+0.5	12.5	11.0	11.8	11.4	-0.4	147	96	116	113	-3	336	272	302	301	-1	456	336	396 ^a	375	-21	
8-20-66	W.F.S	1	43.8	42.0	42.8	42.4	-0.4	11.8	10.8	11.2	11.0	-0.2	142	98	116	117	+1	360	256	305 ^a	303	-2	392	304	359 ^a	363	+4	
8-25-66	W.F.S	1	43.8	42.0	42.4	42.3	-0.1	11.3	10.7	11.0	10.9	-0.1	145	101	119	118	-1	352	272	313	270	-43	424	304	359 ^a	331	-28	
9-10-66	W.F.S	1	43.8	42.0	42.8	42.7	-0.1	11.2	10.5	11.0	11.0	0.0	141	101	116	116	0	352	240	285	287	+2	392	328	359 ^a	341	-18	
9-15-66	W.F.S	1	43.8	42.0	42.8	42.6	-0.2	11.1	10.7	11.0	11.0	0.0	138	106	117	115	-2	320	240	278	277	-1	376	296	338 ^a	328	-10	
Current mill average:			42.6	42.6	42.6	42.6	0.0		11.4	11.2	11.4	11.2	-0.2		115	114	114	-1	299	287	287	287	-12	373	356	369	356	-17
Cumulative mill average:			42.5						12.1						115				300									
Mill factor, %			100.2						94.2						100.0				99.7									101.1
Mill index, %			100.2						90.5						104.5				91.7									100.0

^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
August and September, 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.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.	Institute	Max.	Min.	Av.										
8-9-66	W.B.	44.2	42.2	43.0	43.5	+0.5	13.1	11.2	12.2	12.2	0.0	115	92	103	106	+3	432	312	362	360	-2	416	336	383 ^a	400	+17
Current mill average:				43.0	43.5	+0.5			12.2	12.2	0.0			103	106	+3			362	360	-2			383	400	+17
Cumulative mill average:				42.2					12.3					108					362					402		
Mill factor, %				101.9					99.2					95.4					100.0					95.3		
Mill index, %				101.2					96.8					93.6					111.0					102.7		

^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 I
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL G
August and September, 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.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.					
6-20-66	W.F. 1	44.0	42.0	43.2	43.9	+0.7	13.9	12.6	13.2	12.8	-0.4	129	82	105	107	+2	312	272	295 ^a	311	+16	408	336	367 ^a	383	+16
7-4-66	W.F. 1	42.0	41.6	41.9	42.7	+0.8	13.4	11.7	12.6	12.8	+0.2	127	87	107	103	-4	352	256	308 ^a	288	-20	400	320	357 ^a	383	+26
7-16-66	W.F. 1	42.2	40.4	41.8	42.8	+1.0	13.3	12.6	13.0	12.7	-0.3	126	84	103	104	+1	360	272	304	309	+5	400	344	377 ^a	387	+10
7-18-66	----- 1	42.2	41.6	41.9	42.4	+0.5	13.9	12.8	13.4	13.1	-0.3	131	89	112	105	-7	368	232	281 ^a	309	+28	368	304	351 ^a	387	+36
7-27-66	----- 1	43.2	42.0	42.2	43.1	+0.9	13.5	12.3	12.9	12.6	-0.3	124	90	107	108	+1	344	232	291 ^a	302	+11	368	304	346 ^a	401	+55
8-5-66	----- 1	42.4	41.8	42.1	43.4	+1.3	13.2	12.0	12.8	12.6	-0.2	125	90	107	106	-1	328	272	302 ^a	334	+32	408	320	371 ^a	427	+56
8-8-66	----- 1	42.4	42.0	42.2	42.8	+0.6	13.3	12.8	13.0	13.0	0.0	119	79	100	104	+4	328	256	290	317	+27	384	320	348 ^a	439	+91
8-16-66	----- 1	43.2	42.0	42.3	42.8	+0.5	13.5	12.0	12.7	12.3	-0.4	116	83	103	101	-2	328	256	287 ^a	291	+4	392	320	349 ^a	387	+38
8-22-66	----- 1	44.2	42.2	43.3	43.3	0.0	13.0	12.2	12.8	12.6	-0.2	119	93	106	100	-6	384	232	302 ^a	283	-19	384	320	360 ^a	397	+37
Current mill average:		42.3		43.0	+0.7	12.9		12.7	-0.2			105	104	-1			296	305	+9			358	399	+41		
Cumulative mill average:		42.2				13.2						101					288					344				
Mill factor, %		100.2				97.7						104.0					102.8					104.1				
Mill index, %		99.5				102.4						95.5					90.8					96.0				

^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 XI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL H

August and September, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, p.s.i.g.			Elmendorf Tear, g./sheet																
		Institute		Mill Av.	Institute		Mill Av.	Institute		Mill Av.	Institute		Mill Av.														
		Max.	Min.		Max.	Min.		Max.	Min.		Max.	Min.															
				Diff.																							
7-17-66	WFIS 1	44.0	42.4	43.2	43.4	+0.2	12.9	11.6	12.2	12.1	-0.1	132	89	107	105	-2	400	288	345	365	+20	448	360	399 ^a	446	+47	
7-26-66	WFIS 1	44.0	43.0	43.5	42.8	-0.7	12.8	12.0	12.2	12.0	-0.2	132	86	111	108	-3	368	272	315	361	+46	432	320	379 ^a	426	+47	
8-2-66	WFIS 1	44.2	43.6	44.0	42.9	-1.1	13.2	11.8	12.4	12.0	-0.4	138	89	112	107	-5	400	296	349 ^a	351	+2	464	312	368 ^a	429	+41	
8-9-66	WFIS 1	44.2	43.0	43.7	43.0	-0.7	13.1	10.8	12.1	12.2	+0.1	147	92	115	111	-4	344	272	306	327	+21	440	344	393 ^a	403	+10	
8-16-66	WFIS 1	44.0	42.4	43.7	42.9	-0.8	13.0	11.0	11.9	12.2	+0.3	137	94	115	110	-5	360	272	321	321	0	400	336	361 ^a	402	+41	
8-23-66	WFIS 1	44.6	43.4	44.0	43.0	-1.0	13.2	11.7	12.4	12.2	-0.2	133	83	106	107	+1	352	296	317 ^a	357	+40	448	336	375 ^a	429	+54	
8-30-66	WFIS -	44.4	43.0	43.9	42.9	-1.0	13.0	11.3	12.1	12.2	+0.1	191	92	115	108	-7	400	256	326 ^a	361	+35	448	336	386 ^a	428	+42	
9-6-66	WFIS 1	44.0	42.2	43.4	42.8	-0.6	13.0	10.3	12.1	12.0	-0.1	140	91	116	111	-5	392	232	326 ^a	339	+13	440	320	371 ^a	412	+41	
9-13-66	WFIS 1	44.2	43.6	43.9	42.9	-1.0	12.8	11.9	12.1	12.3	+0.2	121	85	104	107	+3	368	272	319	322	+3	416	344	380 ^a	409	+29	
Current mill average:				43.7	43.0	-0.7		12.2	12.1	-0.1		111	108	-3			325	345	+20			381	420	+39			
Cumulative mill average:				42.5				12.2				108					301					364					
Mill factor, %				102.8				100.0				102.8					108.0					104.7					
Mill index, %				102.8				96.8				100.9					99.7					102.1					

^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 XII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL I
August and September, 1966

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

No samples submitted.

TABLE XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL J

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

8-4-66	W.F.	-	44.0	42.0	43.1	42.9	-0.2	14.0	13.0	13.3	13.2	-0.1	134	96	111	105	-6	440	320	371 ^a	378	+7	440	360	406 ^a	425	+19
8-4-66	W.F.	-	44.0	42.2	43.2	43.2	0.0	14.0	12.9	13.3	13.2	-0.1	126	92	114	101	-13	432	320	371 ^a	376	+5	440	368	399 ^a	399	0
9-5-66	W.F.	-	44.0	42.2	43.0	43.4	+0.4	13.9	12.0	12.9	13.1	+0.2	137	95	114	109	-5	416	320	357 ^a	337	-20	416	328	371 ^a	382	+11
9-6-66	W.F.	-	44.0	42.2	43.6	44.0	+0.4	13.4	12.7	13.1	13.1	0.0	127	96	112	107	-5	416	304	354 ^a	365	+11	408	320	382 ^a	403	+21
Current mill average:					43.2	43.4	+0.2		13.1	13.2	+0.1			113	106	-7				363	364	+1		390		402	+12
Cumulative mill average:					42.8				12.8					115						364				387			
Mill factor, %					100.9				102.3					98.3						99.7				100.8			
Mill index, %					101.6				104.0					102.7						111.3				104.6			

^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 IV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL K
August and September, 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.	Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.	Institute	Mill	Diff.	Max.	Min.	Av.							
8-4-66	W.F.	-	43.2	41.4	42.0	41.6	-0.4	13.1	12.1	12.7	12.5	-0.2	120	98	108	107	-1	328	288	304 ^a	295	-9	432	328	373 ^a	344	-29
8-5-66	W.F.	-	43.4	42.2	42.5	42.2	-0.3	13.2	12.8	13.0	12.7	-0.3	131	95	109	109	0	368	304	332 ^a	315	-17	408	336	368 ^a	356	-12
8-12-66	W.F.	-	44.4	42.2	43.7	43.4	-0.3	13.1	12.0	12.4	12.1	-0.3	138	100	118	118	0	336	272	300	324	+24	392	336	356 ^a	355	-1
8-19-66	W.F.	-	44.0	42.0	42.6	42.6	0.0	13.9	13.0	13.3	12.5	-0.8	126	90	104	106	+2	392	272	334	328	-6	416	320	371 ^a	378	+7
9-1-66	W.F.	-	44.5	42.2	43.2	42.5	-0.7	11.8	11.0	11.4	11.0	-0.4	122	97	110	110	0	392	304	347 ^a	340	-7	336	296	315 ^a	324	+9
9-2-66	W.F.	-	44.0	42.4	43.5	43.2	-0.3	13.2	12.1	12.7	12.1	-0.6	125	102	113	117	+4	384	304	326 ^a	300	-26	464	352	383 ^a	371	-12
9-9-66	W.F.	-	44.6	43.0	43.5	43.4	-0.1	14.2	13.2	13.6	13.0	-0.6	114	87	103	105	+2	400	288	362 ^a	369	+7	432	344	379 ^a	359	-20
9-16-66	W.F.	-	46.0	42.0	43.0	42.9	-0.1	14.0	12.0	13.3	12.6	-0.7	119	87	104	108	+4	360	256	321 ^a	312	-9	416	304	367 ^a	372	+5
Current mill average:			43.0			42.7	-0.3	12.8			12.3	-0.5	109			110	+1	328			323	-5	364			357	-7
Cumulative mill average:			43.0					12.5					114					344					373				
Mill factor, %			100.0					102.4					95.6					95.3					97.6				
Mill index, %			101.2					101.6					99.1					100.6					97.6				

^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.

August and September, 1966

"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 INSTITUTE AND MILL DATA FOR MILL M

August and September, 1966

Date Made	Finish No.	Moh.	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.	Institute	Max. Min.	Av.

No samples submitted.

TABLE XVII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL N

Date Made	Finish No.	Moh.	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.	Institute	Max. Min.	Av.
7-20-66	----	-	44.0	42.0	43.0	42.9	-0.1		13.1	12.0	12.6	12.1	-0.5		109	84	97
7-29-66	----	-	44.0	42.0	43.0	43.1	+0.1		13.0	12.0	12.6	12.3	-0.3		119	87	99
8-10-66	----	-	42.8	42.0	42.2	42.9	+0.7		12.2	11.1	11.9	11.3	-0.6		136	93	105
8-23-66	----	-	45.6	42.0	43.4	43.4	0.0		12.5	11.6	12.0	11.4	-0.6		121	91	107
8-29-66	----	-	----	----	----	42.8 ^c	---		11.9	11.0	11.6	11.4	-0.2		117	79	106
9- 8-66	----	-	44.4	42.0	43.1	43.9	+0.8		13.0	11.8	12.5	11.8	-0.7		131	91	105
Current mill average:			42.9	43.2	+0.3				12.2	11.7	-0.5				103	106	+3
Cumulative mill average:			42.5						12.2						104		
Mill factor, %			100.9						100.0						99.0		
Mill index, %			100.9						96.8						112.3		
															380	380	0
															373		
															101.9		
															101.9		

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

^bOriginal value questionable. Sample returned to company; therefore impossible to recheck.

^cNot included in calculation of current mill average.

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
August and September, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliber, 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.										
8-19-66	W.F. 2	43.6	41.8	42.3	43.1	+0.8	13.1	11.8	12.4	12.3	-0.1	125	85	108	109	+1	424	272	336	344	+8	432	352	392 ^a	412	+14
8-26-66	W.F. 2	44.2	43.0	43.6	43.9	+0.3	12.9	12.0	12.4	12.3	-0.1	138	94	110	107	-3	392	280	326 ^a	350	+24	472	352	409 ^a	413	+4
8-26-66	W.F. 2	43.8	42.2	43.2	43.8	+0.6	13.0	11.8	12.3	12.3	0.0	126	84	107	107	0	448	264	334 ^a	353	+19	420	360	408 ^a	415	+7
9-12-66	W.F. 1	42.0	40.2	41.4	41.5	+0.1	12.0	11.1	11.6	11.4	-0.2	131	98	113	108	-5	336	272	311	324	+13	400	312	347 ^a	364	+17
9-12-66	W.F. 1	42.0	40.4	41.4	41.6	+0.2	12.0	11.2	11.6	11.6	0.0	127	87	108	107	-1	328	248	298	334	+36	384	312	353 ^a	358	+5
Current mill average:		42.4		42.8	+0.4		12.1	12.0	-0.1			109	108	-1			321	341	+20			383	392	+9		
Cumulative mill average:		42.5					12.6					113					339					384				
Mill factor, %		99.8					96.0					96.5					94.7					99.7				
Mill index, %		99.8					96.0					99.1					98.5					102.7				

^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.

TABLE XIX
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL P
August and September, 1966

Date Made	Mch. No.	Finish	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.											
7-6-66	W.F.	1	45.2	43.2	44.1	43.6	-0.5	12.8	11.7	12.2	12.3	+0.1	121	91	108	111	+3	368	256	303 ^a	273	-30	432	320	373 ^a	364	-9	
7-7-66	W.F.	1	44.2	43.0	43.9	44.1	+0.2	13.2	12.2	12.8	12.6	-0.2	128	96	111	113	+2	360	280	325 ^a	277	-48	448	344	395 ^a	362	-33	
7-12-66	W.F.	1	43.4	42.0	42.5	42.5	0.0	12.1	11.1	11.8	11.8	0.0	140	90	117	115	-2	344	256	299 ^a	288	-11	424	328	379 ^a	384	+5	
7-23-66	W.F.	1	43.8	42.2	43.1	42.7	-0.4	13.0	11.9	12.4	12.3	-0.1	132	97	114	111	-3	336	272	313	287	-26	416	360	385 ^a	356	-29	
8-1-66	W.F.	1	43.8	42.2	43.0	43.0	0.0	12.8	11.1	11.9	12.0	+0.1	130	90	111	113	+2	368	272	321 ^a	280	-41	416	352	377 ^a	367	-10	
8-9-66	W.F.	1	44.0	42.0	43.4	43.1	-0.3	13.0	11.4	12.1	12.1	0.0	145	82	115	113	-2	352	272	321 ^a	282	-39	432	344	387 ^a	371	-16	
8-23-66	W.F.	1	42.2	40.8	41.8	42.2	+0.4	12.8	11.1	11.9	11.9	0.0	125	90	113	114	+1	344	288	307 ^a	288	-19	408	336	380 ^a	376	-4	
8-30-66	W.F.	1	43.2	41.8	42.4	42.5	+0.1	12.4	11.1	11.8	11.6	-0.2	142	99	117	118	+1	384	240	324 ^a	274	-50	416	304	377 ^a	361	-16	
Current mill average:			43.0	43.0	0.0			12.1	12.1	0.0			113	113	0			314	281	-33						382	368	-14
Cumulative mill average:			42.7					12.6					111					316								382		
Mill factor, %			100.7					96.0					101.8					99.4								100.0		
Mill index, %			101.2					96.0					102.7					96.3								102.4		

^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 XI

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Q

August and September, 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 Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.	Institute Max.	Institute Min.	Av.
6-10-66	----	44.8	43.0	43.9	13.6	12.8	13.1	13.0	-0.1	126	94	109	99	464	360	408 ^a
6-10-66	----	45.0	42.6	43.6	13.2	12.2	12.9	13.1	+0.2	130	86	107	102	440	328	384 ^a
6-10-66	----	45.2	43.4	44.0	13.6	12.5	13.0	12.9	-0.1	129	86	105	101	464	336	395
Current mill average:		43.8	43.1	-0.7	13.0	13.0	0.0	107	101	-6	396	433	+37	439	456	+17
Cumulative mill average:		42.8			12.2			109			428			467		
Mill factor, %		102.3			106.6			98.2			92.5			94.0		
Mill index, %		103.1			103.2			97.3			121.5			117.7		

TABLE XII

SUMMARY OF INSTITUTE AND MILL DATA FOR MILL S

9-10-66	W.F. 1	43.2	42.0	42.8	42.4	-0.4	13.1	11.9	12.4	12.1	-0.3	126	82	109	113	+4	368	288	323	327	+4	440	360	390 ^a	376	-14
Current mill average:		42.8	42.4	-0.4	12.4	12.1	-0.3	109	113	+4	323	327	+4	390			390			92.3		100.0				
Cumulative mill average:		42.7			12.2			113			96.5			99.1			104.6									
Mill factor, %		100.2			101.6			96.5			99.1															
Mill index, %		100.7			98.4			99.1																		

^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 XIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL T
August and September, 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.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.							
7-8-66	W.F.	1	43.2	42.2	42.7	42.3	-0.4	12.7	11.6	12.3	12.5	+0.2	130	100	115	111	-4	320	232	267 ^a	274	+7	376	304	327 ^a	363	+36	
7-15-66	W.F.	1	42.2	41.8	42.0	42.4	+0.4	13.0	12.0	12.5	12.6	+0.1	140	86	113	112	-1	320	224	263	273	+10	384	304	342 ^a	364	+22	
7-29-66	W.F.	1	43.4	42.6	43.0	42.6	-0.4	13.3	12.7	13.0	13.1	+0.1	143	88	116	119	+3	352	232	285 ^a	284	-1	400	312	355 ^a	360	+5	
8-4-66	W.F.	1	43.2	42.2	42.6	42.2	-0.4	13.0	12.2	12.7	12.9	+0.2	128	93	112	112	0	272	224	250 ^a	233	-17	360	296	328 ^a	336	+8	
Current mill average:			42.6		42.4	-0.2			12.6		12.8	+0.2			114	114	0			266	266	0			338	356	+18	
Cumulative mill average:			42.2						12.8						109					284						345		
Mill factor, %			100.9						98.4						104.6					93.7						98.0		
Mill index, %			100.2						100.0						103.6					81.6						90.6		

^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 XXIII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL U
August and September, 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.										
7- 6-66	W.F. 3	44.0	42.4	43.4	43.4	0.0	13.9	12.9	13.3	13.0	-0.3	153	107	122	122	0	432	304	363 ^a	321	-42	424	344	375 ^a	418	+43
7- 8-66	W.F. 3	43.6	42.2	42.8	43.2	+0.4	13.5	12.3	12.9	12.8	-0.1	138	94	118	121	+3	360	296	329	348	+19	432	368	412 ^a	438	+26
7-17-66	W.F. 3	43.8	42.2	42.8	42.9	+0.1	13.5	12.3	13.0	12.8	-0.2	154	99	125	122	-3	368	272	329	327	-2	448	384	406 ^a	393	-13
7-18-66	W.F. 3	43.6	42.0	42.4	42.9	+0.5	13.3	12.2	12.9	12.7	-0.2	144	97	121	124	+3	376	272	333	332	-1	464	368	402 ^a	411	+9
8- 7-66	W.F. 3	44.0	43.4	43.7	43.6	-0.1	14.0	12.9	13.4	13.1	-0.3	154	100	124	129	+5	352	272	314 ^a	319	+5	424	352	376 ^a	398	+22
8- 8-66	W.F. 3	44.0	43.2	43.7	43.8	+0.1	14.0	13.0	13.3	13.3	0.0	155	100	129	128	-1	392	256	322	351	+29	400	352	372 ^a	418	+46
Current mill average:			43.1	43.3	+0.2		13.1	12.9	-0.2				123	124	+1			332	333	+1			391	413	+22	
Cumulative mill average:			42.7				12.7						116					312					369			
Mill factor, %			100.9				103.1						106.0					106.4					106.0			
Mill index, %			101.4				104.0						111.8					101.8					104.8			

^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 XXIV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL V
August and September, 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	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.													
7-18-66	----	46.4	43.0	44.8	44.1	-0.7	12.3	11.2	12.0	11.9	-0.1	147	102	127	125	-2	384	304	343 ^a	351	+ 8	416	336	393 ^a	396	+ 3			
Current mill average:		44.8		44.1		-0.7		12.0		11.9		-0.1		127		125		343		351		+ 8			393		396		+ 3
Cumulative mill average:		45.1						11.9					122					350							403				
Mill factor, %		99.3						100.8					104.1					98.0							97.5				
Mill index, %		105.4						95.2					115.5					105.2							105.4				

^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 IV
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL W
August and September, 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	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.									
7-26-66	2	44.4	42.0	42.7	42.2	42.2	-0.5	13.0	11.4	12.1	12.0	-0.1	145	95	112	108	-4	376	280	330 ^a	---	480	368	423 ^a	---
7-29-66	1	44.8	43.0	44.1	43.5	43.5	-0.6	13.8	11.8	12.8	12.2	-0.6	153	100	125	113	-12	368	320	351 ^a	---	440	384	407 ^a	---
8-12-66	2	46.0	42.0	43.1	42.7	42.7	-0.4	12.9	12.0	12.3	12.4	+0.1	132	80	104	105	+1	432	304	366	---	448	384	414 ^a	---
8-22-66	2	43.4	42.0	42.2	42.1	42.1	-0.1	12.5	11.8	12.0	12.0	0.0	134	98	112	110	-2	416	272	343	---	440	336	397 ^a	---
Current mill average:		43.0	42.6	42.6	42.6	42.6	-0.4	12.3	12.1	12.1	12.1	-0.2	113	109	109	-4	348				410				
Cumulative mill average:		42.6						12.4					107				355				404				
Mill factor, %		100.9						99.2					105.6				98.0				101.5				
Mill index, %		101.2						97.6					102.7				106.7				109.9				

^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 XVI
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL X
August and September, 1966

Date Made	Finish No.	Mch.	Basis Weight, lb.			Caliper, points			Bursting Strength,			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.										
7-29-66	----	1	45.6	41.8	44.1	43.1	-1.0	14.1	12.1	13.0	12.7	-0.3	137	84	106	112	+ 6	368	264	320 ^a	351	+31	424	344	380 ^a	391	+11
7-29-66	----	1	45.0	42.8	44.0	42.9	-1.1	12.9	11.5	12.2	12.7	+0.5	124	86	103	115	+12	384	288	335 ^a	334	- 1	456	328	377 ^a	381	+ 4
7-29-66	----	1	44.0	41.6	43.0	42.4	-0.6	13.3	12.2	12.9	12.7	-0.2	120	90	101	114	+13	384	280	331 ^a	336	+ 5	416	336	373 ^a	384	+11
7-29-66	----	-	44.2	41.6	43.3	42.1	-1.2	13.2	12.8	13.0	12.8	-0.2	125	90	103	113	+10	368	256	321	347	+26	424	320	375 ^a	379	+ 4
8-10-66	----	1	44.2	43.2	43.7	42.6	-1.1	15.0	13.0	13.7	13.4	-0.3	135	68	104	108	+ 4	440	296	381	352	-29	472	392	429 ^a	391	-38
8-10-66	----	1	44.6	42.2	43.9	42.8	-1.1	14.1	12.9	13.4	13.0	-0.4	131	75	109	114	+ 5	432	344	381	352	-29	496	400	431 ^a	387	-44
8-10-66	----	1	44.4	42.8	43.8	42.7	-1.1	14.9	12.8	13.6	13.0	-0.6	139	88	110	115	+ 5	432	312	365 ^a	355	-10	488	384	431 ^a	386	-45
8-10-66	----	1	44.0	43.0	43.6	42.6	-1.0	14.8	12.6	13.8	13.4	-0.4	126	84	106	110	+ 4	448	336	388 ^a	349	-39	488	368	415 ^a	381	-34
9-1-66	----	1	42.2	40.6	41.6	40.6	-1.0	13.1	12.0	12.5	12.1	-0.4	136	90	108	108	0	320	264	291	332	+41	384	320	343 ^a	397	+54
9-1-66	----	1	41.8	40.4	41.2	40.6	-0.6	13.0	11.4	12.3	12.0	-0.3	130	90	107	107	0	304	240	273	326	+53	384	312	356 ^a	393	+37
9-2-66	----	1	42.2	40.2	41.4	41.1	-0.3	12.9	11.3	12.1	11.9	-0.2	115	92	105	111	+ 6	336	224	273	327	+54	432	296	358 ^a	372	+14
9-3-66	----	1	42.0	40.6	41.4	40.7	-0.7	13.1	11.9	12.5	12.3	-0.2	120	76	100	106	+ 6	320	240	285	342	+57	360	320	334 ^a	382	+48
9-3-66	----	1	42.2	41.2	41.9	40.9	-1.0	13.0	11.5	12.4	12.2	-0.2	115	80	102	106	+ 4	336	240	285	335	+50	384	320	348 ^a	374	+26
Current mill average:			42.8	41.9	41.9	41.9	-0.9	12.9	12.6	12.6	12.6	-0.3	105	111	111	111	+ 6	325	241	241	341	+16	381	385	385	385	+ 4
Cumulative mill average:			42.2					12.8					106					350					392				
Mill factor, %			101.4					100.8					99.1					92.9					97.2				
Mill index, %			100.7					102.4					95.5					99.7					102.1				

^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 XIVII
SUMMARY OF INSTITUTE AND MILL DATA FOR MILL Y
August and September, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.			Caliper, points			Bursting Strength, P.S.I.			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.																		
8-22-66	----	44.0	40.2	42.4	13.1	12.0	12.4	12.2	-0.2	-0.2	127	93	114	116	+2	392	272	347 ^a	---	---	400	312	361 ^a	---	---									
9-2-66	----	43.8	42.2	43.2	15.2	14.0	14.6	14.4	-0.2	-0.2	120	90	107	113	+6	368	232	305 ^a	---	---	448	344	394 ^a	---	---									
Current mill average:		42.8			42.0			-0.8			13.5			13.3			-0.2			110			115			+5			326			378		
Cumulative mill average:		42.3									12.8									109									347			366		
Mill factor, %		101.2									105.5									100.9									93.9			103.3		
Mill index, %		100.7									107.1									100.0									100.0			101.3		

^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 2

August and September, 1966

Date Made	Mch. Finish No.	Basis Weight, lb.				Caliber, 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.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	Max.	Min.	Av.	Diff.	
7-8-66	WFLS 2	42.8	41.8	42.2	0.0	12.9	12.1	12.6	11.9	-0.7	128	95	110	104	360	264	309	277	392	336	360 ^a	357 - 3
7-12-66	WFLS 2	43.6	42.0	42.6	-0.1	13.0	12.0	12.4	12	-0.4	127	93	110	109	336	256	293 ^a	285	440	320	374 ^a	356 -18
7-18-66	WFLS 2	42.8	42.2	42.4	-0.2	13.0	12.0	12.6	12	-0.6	139	96	114	109	376	264	315	304	392	328	351 ^a	363 +12
7-27-66	WFLS 2	43.6	42.0	42.5	-0.5	13.0	12.1	12.6	12	-0.6	127	91	111	104	336	264	295	297	416	336	364 ^a	368 + 4
8-3-66	WFLS 2	43.2	42.0	42.5	+1.3	13.1	12.2	12.7	12.2	-0.5	124	89	108	115	368	288	319 ^a	281	400	320	372 ^a	357 -15
8-8-66	WFLS 2	43.2	42.0	42.6	+0.3	13.2	12.2	12.7	12	-0.7	133	85	108	108	384	296	337 ^a	289	400	344	362 ^a	351 -11
8-18-66	WFLS 2	44.0	43.2	43.5	-0.4	13.2	12.4	12.8	12.2	-0.6	131	99	112	113	384	272	320 ^a	304	416	336	378 ^a	358 -20
8-24-66	WFLS 2	44.0	43.2	43.6	-0.8	13.2	12.2	12.7	12.1	-0.6	138	87	110	111	368	240	318 ^a	314	432	320	369 ^a	349 -20
Current mill average:				42.7	42.7	0.0		12.6	12.0	-0.6		110	109	-1		313	294	-19		366	357	- 9
Cumulative mill average:				42.7				12.5				112				299				354		
Mill factor, %				100.0				100.8				98.2				104.7				103.4		
Mill index, %				100.5				100.0				100.0				96.0				98.1		

^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.

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 AUGUST AND SEPTEMBER, 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	2	5	9	5	9	1	9	9	0	4	8	6	0	5	5	8	3	1	4	6	1	4	13	2	8
Institute	42.9	43.2	42.6	42.4	42.6	43.0	42.3	43.7	--	43.2	43.0	41.9	--	42.9	42.4	43.0	43.8	42.8	42.6	43.1	44.8	43.0	42.8	42.8	42.7
Mill	42.8	43.3	42.2	42.9	42.6	43.5	43.0	43.0	--	43.4	42.7	42.1	--	43.2	42.8	43.0	43.1	42.4	42.4	43.3	44.1	42.6	41.9	42.0	42.7
Av. diff. ^b	-0.1	+0.1	-0.4	+0.5	0.0	+0.5	+0.7	-0.7	--	+0.2	-0.3	+0.2	--	+0.3	+0.4	0.0	-0.7	-0.4	-0.2	+0.2	-0.7	-0.4	-0.9	-0.8	0.0
Max. diff. ^c	-0.2	+0.4	-0.7	+0.8	+0.5	+0.5	+1.3	-1.1	--	+0.4	-0.7	+0.9	--	+0.8	+0.8	-0.5	-0.9	-0.4	+0.4	+0.5	-0.7	-0.6	-1.2	-0.9	+1.3
Institute	13.3	12.9	13.3	12.6	11.4	12.2	12.9	12.2	--	13.1	12.8	12.2	--	12.2	12.1	12.1	13.0	12.4	12.6	13.1	12.0	12.3	12.9	13.5	12.6
Mill	12.9	12.4	12.7	12.6	11.2	12.2	12.7	12.1	--	13.2	12.3	11.9	--	11.7	12.0	12.1	13.0	12.1	12.8	12.9	11.9	12.1	12.6	13.3	12.0
Av. diff. ^b	-0.4	-0.5	-0.6	0.0	-0.2	0.0	-0.2	-0.1	--	+0.1	-0.5	-0.3	--	-0.5	-0.1	0.0	0.0	-0.3	+0.2	-0.2	-0.1	-0.2	-0.3	-0.2	-0.6
Max. diff. ^c	-0.7	-0.6	-0.9	+0.2	-0.5	0.0	-0.4	-0.4	--	+0.2	-0.8	-0.5	--	-0.7	-0.2	-0.2	+0.2	-0.3	+0.2	-0.3	-0.1	-0.6	-0.6	-0.2	-0.7
Institute	98	115	108	108	115	103	105	111	--	113	109	104	--	103	109	113	107	109	114	123	127	113	105	110	110
Mill	104	107	107	106	114	106	104	108	--	106	110	104	--	106	108	113	101	113	114	124	125	109	111	115	109
Av. diff. ^b	+6	-8	-1	-2	-1	+3	-1	-3	--	-7	+1	0	--	+3	-1	0	-6	+4	0	+1	-2	+4	+6	+5	-1
Max. diff. ^c	+7	-11	-4	-3	-3	+3	-7	-7	--	-13	+4	+6	--	+6	-5	+3	-10	+4	-4	+5	-2	-12	+13	+6	+7
Institute	362	299	333	276	299	362	296	325	--	363	328	326	--	366	321	314	396	323	266	332	343	348	325	326	313
Mill	344	276	354	310	287	360	305	345	--	364	323	335	--	398	341	281	433	327	266	333	351	--	341	--	294
Av. diff. ^b	-18	-23	+21	+34	-12	-2	+9	+20	--	+1	-5	+9	--	-8	+20	-33	+53	+4	0	+1	+8	--	+16	--	-19
Max. diff. ^c	-21	-43	+44	+49	-43	-2	+32	+46	--	-20	-26	-49	--	-16	+36	-50	+53	+4	-17	-42	+8	--	+57	--	-48
Institute	403	364	393	332	373	383	358	381	--	390	364	371	--	380	383	382	439	390	338	391	393	410	381	378	366
Mill	395	363	403	351	356	400	399	420	--	402	357	437	--	380	392	368	456	376	356	413	396	--	385	--	357
Av. diff. ^b	-8	-1	+10	+19	-17	+17	+41	+39	--	+12	-7	+66	--	0	+9	-14	+17	-14	+18	+22	+3	--	+4	--	-9
Max. diff. ^c	-17	-12	+28	+24	-36	+17	+91	+54	--	+21	-29	+96	--	-20	+17	-33	+39	-14	+36	+46	+3	--	+54	--	-20

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

^b Average difference is the difference between the Institute mill average and the mill averages based on mill test data.

^c Maximum 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 AUGUST AND SEPTEMBER, 1966

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	April-May	-0.5	-5	-2	-9	-6	N	April-May	+0.9	-3	+4	-0.5	+3
	June-July	-0.2	-2	+2	-4	+1		June-July	+0.5	-2	+3	+2	+4
	Current	-0.2	-3	+6	-5	-2		Current	+0.7	-4	+3	-2	0
B	April-May	+0.9	-2	0	-5	+7	O	April-May	+2	-0.8	-2	+2	+5
	June-July	+0.7	-3	-6	-5	+4		June-July	+0.7	-2	-2	+0.6	+1
	Current	+0.2	-4	-7	-8	-0.3		Current	+0.9	-0.8	-0.9	+6	+2
C	April-May	+0.2	-3	-0.9	+7	+7	P	April-May	+0.7	-0.8	-2	0	+2
	June-July	+0.2	-3	-2	+9	+7		June-July	+1	-2	+0.9	-5	+0.8
	Current	-0.9	-5	-0.9	+6	+3		Current	0	0	0	-11	-4
D	April-May	+1	-0.8	-0.9	+5	+8	Q	April-May	+0.7	-2	-1	-5	-2
	June-July	+1	-0.8	-6	-4	-4		June-July	--	--	--	--	--
	Current	+1	0	-2	+12	+6		Current	-2	0	-6	+9	+4
E	April-May	-0.2	-3	-0.9	-5	-3	S	April-May	+0.2	-2	+3	-2	-3
	June-July	0	-2	-0.9	-1	-0.5		June-July	+1	-2	-0.9	+5	+6
	Current	0	-2	-0.9	-4	-5		Current	-0.9	-2	+4	+1	-4
F	April-May	+1	+0.8	-4	+3	+4	T	April-May	0	+2	+0.9	-6	+4
	June-July	+1	0	-0.9	-1	+1		June-July	+0.2	+3	-3	-2	+6
	Current	+1	0	+3	-0.6	+4		Current	-0.5	+2	0	0	+5
G	April-May	+3	-2	+3	+3	+13	U	April-May	+0.2	-2	+2	0	+3
	June-July	+4	-2	+2	+10	+16		June-July	+1	-2	+2	+3	+7
	Current	+2	-2	-1	+3	+11		Current	+0.5	-2	+0.8	+0.3	+6
H	April-May	+1	+0.8	-0.9	+17	+16	V	April-May	-0.9	-2	-2	-6	+3
	June-July	+0.7	+0.8	-0.9	+14	+14		June-July	-0.7	-2	-4	-3	+1
	Current	-2	-0.8	-3	+6	+10		Current	-2	-0.8	-2	+2	+0.8
I	April-May	--	--	--	--	--	W	April-May	-0.2	+0.8	+3	--	--
	June-July	--	--	--	--	--		June-July	+0.2	+0.8	0	--	--
	Current	--	--	--	--	--		Current	-0.9	-2	-4	--	--
J	April-May	-0.2	-0.8	-0.9	-3	-1	X	April-May	+0.7	-2	+8	-7	-7
	June-July	+1	0	-7	0	+3		June-July	-0.5	-3	+13	-8	-5
	Current	+0.5	+0.8	-6	+0.3	+3		Current	-2	-2	+6	+5	+1
K	April-May	-0.2	-4	-2	-3	+0.3	Y	April-May	-0.5	-2	+2	--	--
	June-July	-0.2	-5	-3	-6	+4		June-July	-0.9	-4	+3	--	--
	Current	-0.7	-4	+0.9	-2	-2		Current	-2	-1	+5	--	--
L	April-May	+1	-2	-0.9	+10	+10	Z	April-May	+0.2	-5	0	-9	0
	June-July	+1	-0.8	-2	+6	+10		June-July	+0.7	-4	0	-6	+2
	Current	+0.5	-2	0	+3	+18		Current	0	-5	-0.9	-6	-2
M	April-May	--	--	--	--	--		April-May	--	--	--	--	--
	June-July	--	--	--	--	--		June-July	--	--	--	--	--
	Current	--	--	--	--	--		Current	--	--	--	--	--

TABLE XXXI
SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL RESULTS FOR AUGUST AND SEPTEMBER, 1966

	Average Percentage Difference Between Institute and Mill Test Results ^a								
	+ 0.5	+ 1	+ 2	+ 3	+ 4	+ 5	+ 7.5	+ 10	+ 18
Basis Weight									
Number of mills	9	17	23						
Percentage of mills	39.1	73.9	100.0						
Caliper									
Number of mills	4	9	17	18	21	23			
Percentage of mills	17.4	39.1	73.9	78.3	91.3	100.0			
Bursting Strength									
Number of mills	3	10	12	15	17	18	23		
Percentage of mills	13.0	43.5	52.2	65.2	73.9	78.3	100.0		
Tearing Strength, in									
Number of mills	3	5	8	10	11	13	17	19	21
Percentage of mills	14.3	23.8	38.1	47.6	52.4	61.9	81.0	90.5	100.0
Tearing Strength, cross									
Number of mills	2	4	8	10	14	16	18	19	21
Percentage of mills	9.5	19.0	38.1	47.6	66.7	76.2	85.7	90.5	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
August and September, 1966

Mill Code	Preconditioning			Conditioning		
	R.H., %	Temp., °F.	Time, hr.	R.H., %	Temp., °F.	Time, hr.
A	50	72-76	18-24	50	72-76	18-24
B	50	72-73	72-140	50	72-73	35-4
C	50-58	66-73	24	48-58	66-82	24
D	50	72	72	50	72	72
E	36-68	78-90	0.5	50	72-73	24-48
F	55	75	48	50	73	--
G	58	73	2-72	56-63	70-77	4-96
H	55	72	--	--	--	--
I ^a	--	--	--	--	--	--
J	--	--	--	50	73	24
K	34-36	75-78	8	48-52	72-73	16
L	50	72	120	50	72	120
M ^a	--	--	--	--	--	--
N ^b	--	--	--	--	--	--
O	50	73	24	50	73	24
P	35-50	73	48	50	73	48
Q	--	--	--	44	75	24
S	35	73	24	50	73	48
T	--	--	--	56-77	90-94	--
U	--	--	--	50	73	24
V	35	90	24	50	73	48
W	--	--	--	50-53	72-73	24-240
X	50	72	48-72	50	72	0-48
Y	--	--	--	60	72-75	2
Z	50	72	24	--	--	--

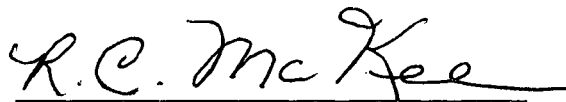
^aNo samples were submitted for evaluation during the current period.

^bNo data were submitted relative to preconditioning and conditioning.

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