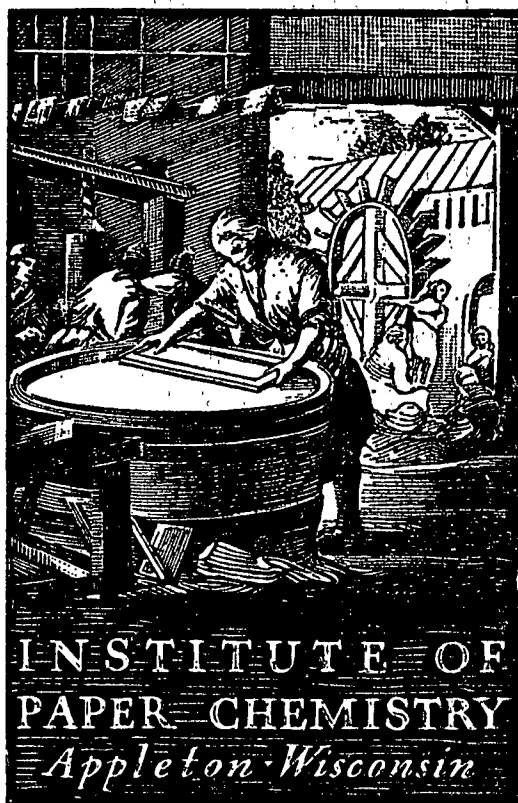




CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Report One Hundred Twenty

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1966

CODE LETTERS - Project 1108-17

	<u>Company - Mill</u>		<u>Code</u>
The Chesapeake Corporation	- West Point	No. 1	--
Container Corp. of America	- Circleville	No. 5	A
Continental Can Company	- Hopewell	No. 1	E
	- Hodge	No. 1	P
Crown Zellerbach Corp.	- Baltimore	No. 1	I
	- Baltimore	No. 2	L
	- Bogalusa	No. 4	F
	- Lebanon	No. 2	CC
Hoerner Boxes, Inc.	- Ontonagon	No. 1	T
International Paper Co.	- Bastrop	No. 1	M
	- Bastrop	No. 2	C
	- Georgetown	No. 1	J
The Mead Corp.	- Harriman	No. 1	Z
	- Knoxville	No. 1	--
	- Lynchburg	No. 2	G
	- Sylva	No. 1	D
	- Sylva	No. 2	K
Olin Mathieson Chemical Corp.	- West Monroe	No. 1	--
	- West Monroe	No. 2	--
	- West Monroe	No. 3	H
Owens-Illinois, Inc.	- Big Island	No. 1	AA
	- Big Island	No. 3	N
	- Tomahawk	No. 1	BB
	- Tomahawk	No. 2	R
	- Tomahawk	No. 3	B
Packaging Corp. of America	- Filer City	No. 1	Q
	- Filer City	No. 2	W
St. Joe Paper Company	- Port St. Joe	No. 1	--
St. Regis Container Corp.	- Coshocton	No. 1	--
Union Camp Corporation	- Savannah	No. 2	X
	- Monroe	No. 2	S
Waldorf Paper Products Co.	- St. Paul	No. 5	--
West Va. Pulp & Paper Co.	- Covington	No. 6	Y
	- Covington	No. 7	--
	- Williamsburg	No. 1	V
	- Williamsburg	No. 2	O
Weyerhaeuser Company (N.C. Div.)	- Plymouth	No. 3	U

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Report 120

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1966

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

INTRODUCTION

As requested by the Technical Division of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous evaluation of corrugating medium have been prepared by The Institute of Paper Chemistry on a bimonthly instead of monthly basis since August 1, 1961. The current report presents results obtained during the months of June and July, 1966, on 190 rolls of corrugating medium representing the production of twenty-nine machines. Each of these 190 rolls of corrugating medium was evaluated for basis weight, caliper, Concora flat crush (conditioned after fluting), H. and D. flat crush on single-faced board, and runnability. The evaluation of runnability was initiated by corrugating each roll under standardized conditions on the Institute's corrugator into A-flute board at 600 feet per minute with minimum tension and recording the draw factor at this condition if the roll ran satisfactorily. If unsatisfactory runnability occurred at this speed, the corrugator was slowed down in increments of 25 f.p.m. until satisfactory runnability was obtained, i.e., no ruptured flutes. In this latter case the draw factor was recorded for the highest speed below 600 f.p.m. at which the roll ran satisfactorily. If the medium fabricated satisfactorily at 600 f.p.m. with minimum tension, further runs were made at higher tensions to determine when cracking occurred. The higher tensions used were 0.5, 1.0 and 1.5 lb. per inch. Flat crush was determined on the single-faced board obtained at a speed of 600 f.p.m. with minimum tension. The flat crush results, in addition to supplying information about quality, provide data which may be used by each participant to evaluate the relationship between Concora flat crush and combined board flat crush.

For each participating machine, test data for the current period are shown in Table I and presented graphically in Fig. 1 to 4. A tabulation of the number of rolls and type of medium evaluated is also given in Table I for each machine. The current machine test averages given in Table I are the means for each test property of the averages obtained on all rolls of corrugating medium evaluated from a given machine during the current period. In addition to the current machine test averages, Table I also presents the current F.K.I. averages, cumulative F.K.I. averages, and the F.K.I. indexes. The current F.K.I. average for each test property is the mean of the current machine averages for all machines participating in the study during a given period (excluding the current machine averages based on the evaluation of fewer than three rolls of corrugating medium as requested by the Technical Division). The cumulative F.K.I. average for each test property is the mean of the current F.K.I. averages for the previous twelve-month period excluding the average for the current period. The F.K.I. index for each test property is obtained as follows:

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

The F.K.I. index for each test property provides a ready means of comparing the current quality with previous results. An index greater than 100% indicates that current quality is higher than the average result for the previous twelve periods; an index below 100% indicates that current quality is lower than the average result for the previous twelve periods.

The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXX for Machines A through Z and Machines AA, BB, and CC, respectively. The

(Text continued on Page 20)

TABLE I

SUMMARY OF CURRENT MACHINE AVERAGES

June and July, 1966

Mill Code	No. of Rolls	Type of Medium	Basis Weight, lb.	Caliper, points	Concora Flat Crush, p.s.i.	Single-Face Flat Crush, p.s.i.
A	8	Semichemical	26.8	10.3	32.4	30.6
B	8	Semichemical	27.3	10.4	36.2	32.3
C	8	Semichemical	27.0	10.2	41.2	37.6
D	8	Semichemical	26.4	10.0	33.7	31.6
E	9	Semichemical	27.8	10.8	38.1	36.3
F	6	Semichemical	27.3	10.7	35.0	31.6
G	8	Semichemical	26.8	10.6	40.7	36.5
H	8	Semichemical	27.1	10.0	26.2	25.4
I	8	Bogus	27.4	10.1	33.8	30.3
J	5	Semichemical	27.6	10.3	39.8	35.3
K	7	Semichemical	27.0	10.0	35.1	32.1
L	8	Bogus	27.2	10.3	35.3	33.6
M	7	Semichemical	27.1	10.4	41.0	37.5
N	6	Semichemical	26.4	10.2	35.1	32.1
O	1	Semichemical	Note ^a			
P	3	Semichemical	26.5	10.4	34.7	33.1
Q	7	Semichemical	26.5	9.3	33.7	30.8
R	8	Semichemical	26.2	10.0	36.8	34.2
S	5	Bogus	27.7	11.3	31.6	28.5
T	8	Semichemical	26.7	10.2	36.1	32.6
U	7	Semichemical	26.7	10.6	38.7	36.3
V	7	Semichemical	27.6	10.5	35.6	32.4
W	7	Semichemical	26.4	9.7	33.0	30.9
X	8	Semichemical	27.5	9.8	38.1	33.9
Y	1	Semichemical	Note ^a			
Z	8	Semichemical	27.7	11.0	33.7	31.0
AA	4	Semichemical	26.3	9.7	35.4	34.0
BB	8	Semichemical	26.6	10.0	39.2	35.6
CC	4	Semichemical	26.6	9.2	36.9	34.2
Total 190						
Current F.K.I. average			27.0	10.2	35.8	33.0
Cumulative F.K.I. average			27.0	10.4	35.1	32.0
F.K.I. index, %			100.0	98.3	101.9	103.1

^a Current machine average has been omitted in compliance with the Technical Division's request that current machine averages based on evaluations of fewer than three rolls of medium should be excluded from the summary table and from the calculation of the current F.K.I. averages.

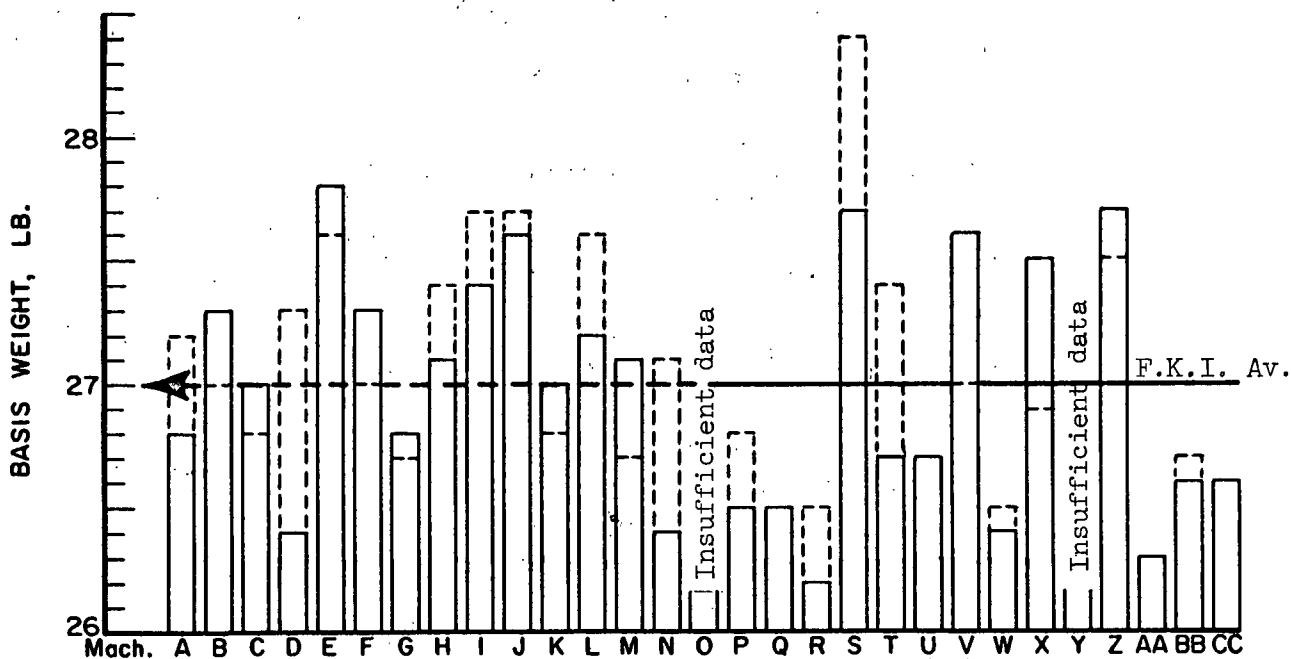


Figure 1. Comparison of Basis Weight Results

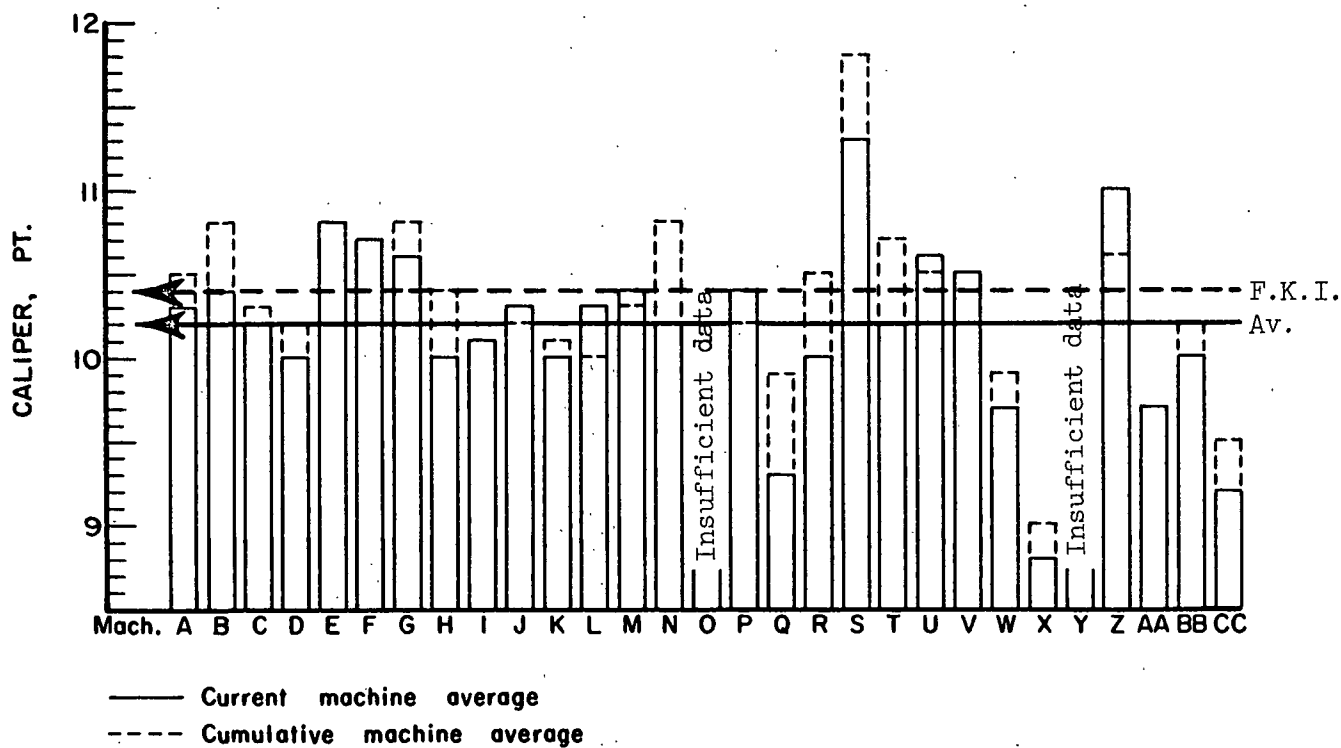


Figure 2. Comparison of Caliper Results

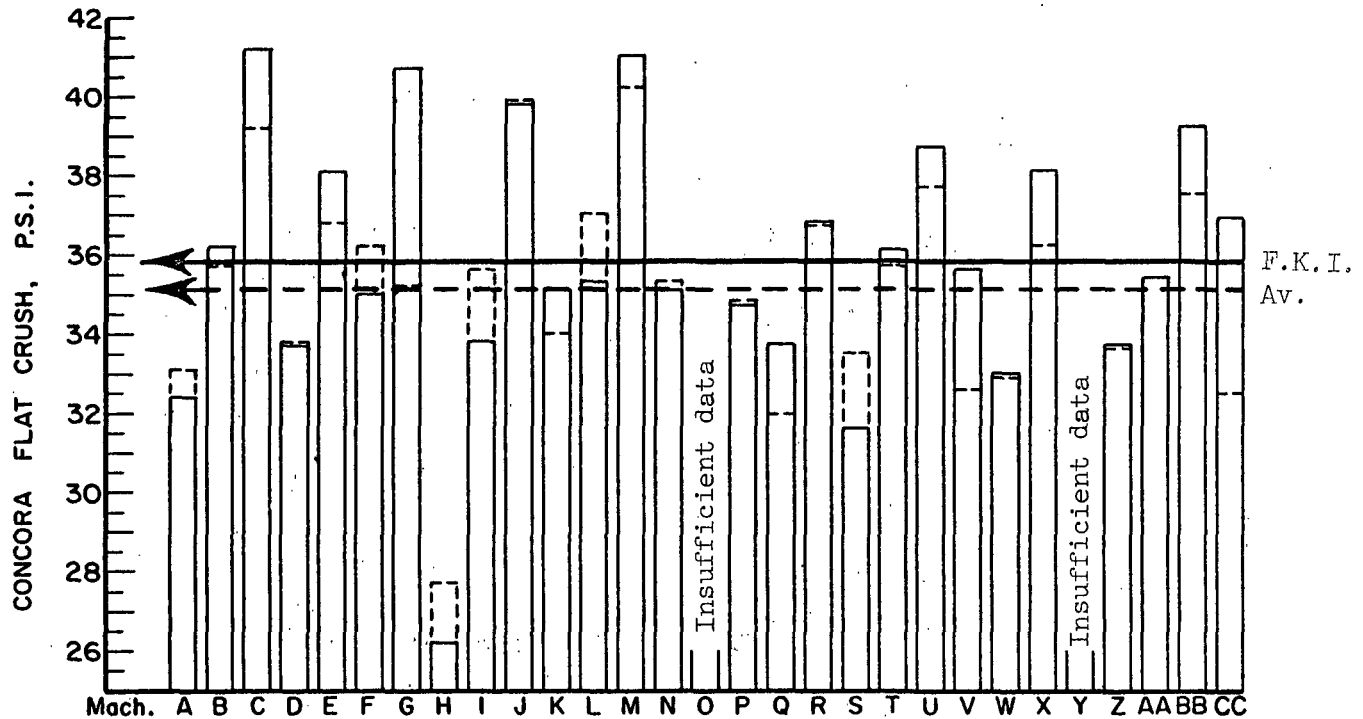


Figure 3. Comparison of Concora Flat Crush Results

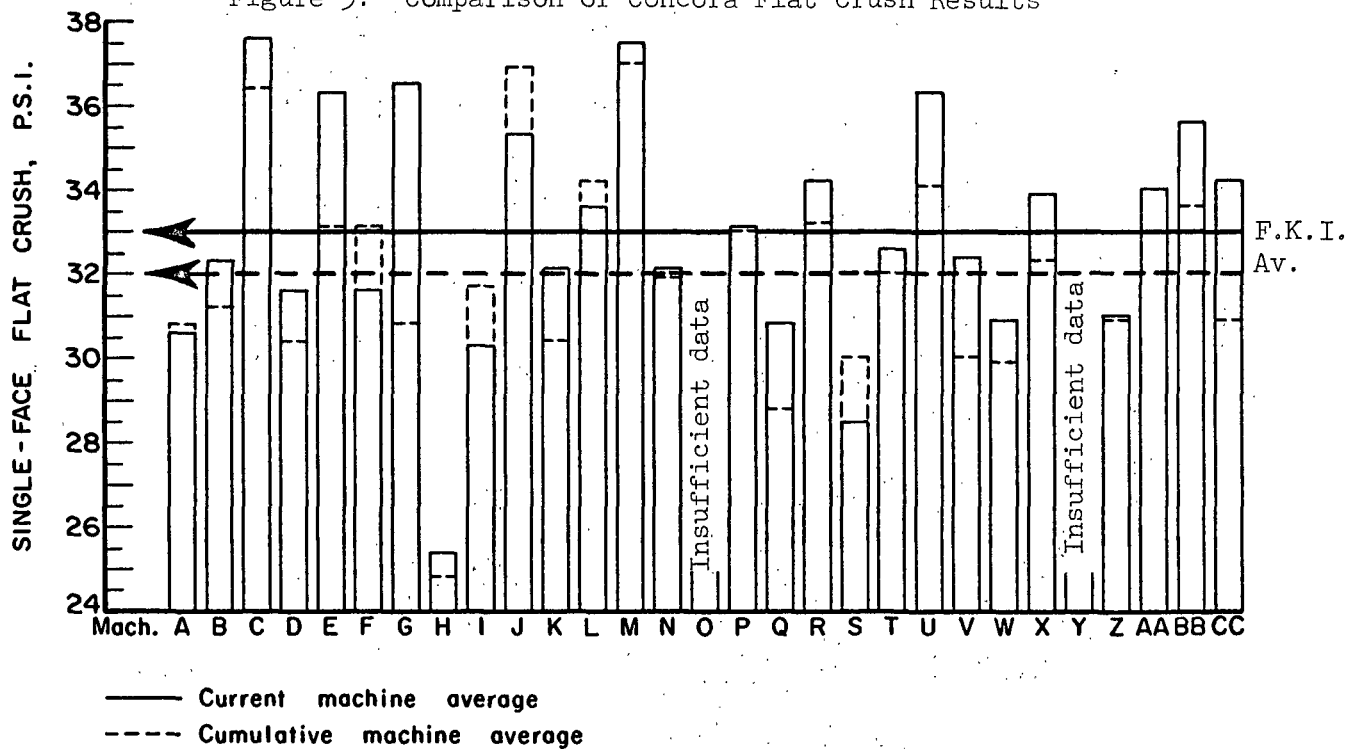


Figure 4. Comparison of Single-Face Flat Crush Results

TABLE II
SUMMARY OF TEST RESULTS FOR MACHINE A
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt. Max. Min. Av.	Concora Flat Crush, p.s.i. Max. Min. Av.	Single-Face Flat Crush, p.s.i. Max. Min. Av.	Runnability, lb./in. ^a	draw ^b factor
A-1	6-1-66	6-14-66	133	26.7	10.4 9.8 10.0	34.8 30.0 33.0	32.4 31.4 32.0	1-1/2	1.567
A-2	6-1-66	6-14-66	134	26.8	10.8 10.0 10.3	34.8 33.0 34.0	33.2 30.8 32.1	1	1.566
A-3	6-1-66	6-14-66	135	26.5	10.5 10.0 10.2	35.4 34.2 34.8	32.4 29.2 31.0	1	1.567
A-4	6-1-66	6-14-66	136	25.8	10.0 9.5 9.8	34.2 30.0 32.9	32.4 30.0 31.4	1	1.566
A-5	6-30-66	7-13-66	137	26.8	10.7 10.0 10.4	34.2 30.0 31.8	31.4 29.4 30.1	1/2	1.565
A-6	6-30-66	7-13-66	138	27.0	10.9 10.2 10.5	34.2 30.0 31.6	31.4 28.8 29.8	1/2	1.568
A-7	7-1-66	7-13-66	139	27.4	10.9 10.4 10.7	32.4 30.0 30.8	31.0 27.2 29.0	1/2	1.562
A-8	7-1-66	7-13-66	140	27.1	10.9 10.1 10.8	32.4 28.2 30.0	29.8 27.2 28.9	1/2	1.560
Current machine average									
				26.8	10.3	32.4	30.6		1.565
Cumulative machine average				27.2	10.5	33.1	30.8		
Machine factor, %				98.5	98.2	97.7	99.2		
Machine index, %				98.9	99.6	92.1	95.6		

TABLE III
SUMMARY OF TEST RESULTS FOR MACHINE B
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt. Max. Min. Av.	Concora Flat Crush, p.s.i. Max. Min. Av.	Single-Face Flat Crush, p.s.i. Max. Min. Av.	Runnability, lb./in. ^a	draw ^b factor
B-1	6-4-66	6-20-66	--	26.8	10.2 9.7 10.0	39.0 34.2 36.2	35.8 32.6 34.4	1/2	1.556
B-2	6-23-66	6-30-66	--	27.2	10.9 10.2 10.7	38.4 34.8 37.2	34.6 33.2 33.7	1/2	1.551
B-3	6-24-66	6-30-66	--	27.0	10.8 10.0 10.4	38.4 33.0 35.9	34.4 30.4 32.3	1/2	1.553
B-4	6-25-66	6-30-66	--	27.4	11.3 10.4 10.8	40.2 32.4 36.7	35.0 31.6 33.3	1/2	1.560
B-5	7-14-66	7-22-66	--	28.2	11.0 10.5 10.9	36.0 32.4 34.2	31.2 29.6 30.4	1	1.562
B-6	7-17-66	7-22-66	--	27.4	10.5 10.0 10.1	39.6 33.6 36.7	31.4 30.0 30.7	1	1.564
B-7	7-18-66	7-22-66	--	27.4	10.7 10.0 10.2	40.2 34.2 36.2	32.4 29.6 31.0	1	1.563
B-8	7-19-66	7-25-66	--	26.9	10.3 9.9 10.1	38.4 34.8 36.7	33.4 31.0 32.3	1-1/2	1.566
Current machine average									
				27.3	10.4	36.2	32.3		1.559
Cumulative machine average				27.0	10.8	35.7	31.2		
Machine factor, %				100.9	96.0	101.5	103.4		
Machine index, %				100.9	100.0	103.1	100.9		

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

TABLE IV

SUMMARY OF TEST RESULTS FOR MACHINE C
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
C-1	5-23-66	5-31-66	453	27.6	10.7	10.0	10.1	47.4	44.0	40.6	1/2	1.563
C-2	5-30-66	6-9-66	454	26.6	11.2	9.4	10.1	41.4	36.8	35.6	1-1/2	1.565
C-3	6-8-66	6-15-66	455	26.7	11.5	8.6	10.3	43.2	39.6	35.8	1-1/2	1.562
C-4	6-17-66	7-6-66	456	26.1	11.0	9.6	10.1	43.2	37.8	35.4	1-1/2	1.561
C-5	6-21-66	7-6-66	457	26.8	11.1	9.0	10.0	43.2	37.8	37.0	1-1/2	1.566
C-6	6-29-66	7-6-66	458	26.6	10.5	9.0	9.8	42.0	36.0	34.2	1-1/2	1.565
C-7	7-7-66	7-13-66	459	28.7	11.5	10.1	10.8	40.8	37.2	36.0	1-1/2	1.561
C-8	7-14-66	7-21-66	460	26.8	11.0	10.0	10.5	47.4	39.4	35.4	1-1/2	1.557
Current machine average				27.0			10.2	41.2		37.6		1.562
Cumulative machine average				26.8			10.3	39.2		36.4		
Machine factor, %				100.6			99.5	105.2		103.1		
Machine index, %				100.0			98.5	117.4		117.5		

TABLE V

SUMMARY OF TEST RESULTS FOR MACHINE D
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
D-1	5-20-66	6-1-66	64	27.1	10.0	9.5	9.8	36.6	33.4	29.8	Min.	1.561
D-2	5-25-66	6-1-66	65	26.0	10.4	10.0	10.2	33.0	29.4	26.6	Min.	1.556
D-3	6-1-66	6-13-66	66	25.3	10.5	10.0	10.2	34.8	31.6	30.0	Min. ^c	1.559
D-4	6-10-66	6-23-66	67	26.9	10.8	10.0	10.4	35.4	34.0	31.0	Note	1.540
D-5	6-17-66	6-27-66	68	26.0	10.0	9.6	9.8	35.4	35.2	31.8	Min.	1.544
D-6	6-23-66	7-5-66	69	26.4	9.8	9.2	9.5	37.8	29.8	27.6	1/2	1.566
D-7	6-29-66	7-8-66	70	27.2	10.9	9.8	10.3	39.6	34.8	30.8	Min.	1.555
D-8	7-14-66	7-20-66	71	26.6	10.5	9.2	9.9	40.8	36.4	34.2	1/2	1.562
Current machine average				26.4			10.0	33.7		31.6		1.555
Cumulative machine average				27.3			10.2	33.8		30.4		
Machine factor, %				96.9			98.5	99.6		103.9		
Machine index, %				97.7			96.4	95.8		98.7		

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

^cMaximum speed at which this roll could be corrugated with minimum tension was 475 f.p.m.

TABLE VI
SUMMARY OF TEST RESULTS FOR MACHINE E
June and July, 1966

(Type of medium: semichemical)															
Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw factor ^b			
					Max.	Min.	Max.	Min.	Max.	Min.					
E-1	5-20-66	6-14-66	555	28.4	11.0	10.3	10.9	34.8	33.6	34.2	35.4	33.6	34.5	1/2	1.556
E-2	5-28-66	6-14-66	556	28.1	11.0	10.5	10.8	35.4	33.6	34.7	35.2	32.0	33.8	1/2	1.556
E-3	6-2-66	6-14-66	557	27.6	11.2	11.0	11.0	34.2	31.8	32.8	34.6	31.8	33.0	1/2	1.551
E-4	6-8-66	7-15-66	558	28.1	10.9	10.5	10.8	43.2	38.4	40.1	38.4	36.6	37.5	1-1/2	1.564
E-5	6-16-66	7-15-66	559	28.1	10.9	10.2	10.6	42.0	37.8	39.8	40.0	38.0	38.8	1-1/2	1.562
E-6	6-24-66	7-15-66	560	28.0	10.8	10.0	10.5	44.4	37.8	42.5	40.6	37.8	39.6	1-1/2	1.560
E-7	7-1-66	7-25-66	561	27.9	11.2	10.8	11.0	44.4	38.4	40.9	38.4	37.6	37.9	1-1/2	1.565
E-8	7-8-66	7-25-66	562	26.9	11.0	10.5	10.9	40.8	36.0	38.0	37.4	33.6	34.9	1-1/2	1.565
E-9	7-13-66	7-25-66	563	27.0	10.9	10.3	10.6	42.6	37.8	39.5	39.0	36.0	37.2	1-1/2	1.567
Current machine average				27.8			10.8			38.1			36.3		1.561
Cumulative machine average				27.6			10.8			35.8			33.1		
Machine factor, %				100.6			100.0			106.2			109.7		
Machine index, %				102.8			103.9			108.3			113.7		

TABLE VII
SUMMARY OF TEST RESULTS FOR MACHINE F
June and July, 1966

(Type of medium: semichemical)															
F-1	5-17-66	5-27-66	19	25.7	11.2	10.0	10.4	35.4	34.2	34.9	32.4	28.8	30.5	Min. ^c	1.554
F-2	5-25-66	6-3-66	20	27.1	10.9	10.1	10.6	34.8	30.0	33.4	32.0	29.4	30.8	Note ^d	1.546
F-3	6-4-66	6-20-66	21	29.4	14.0	10.9	12.0	34.8	32.4	33.4	31.4	28.8	30.2	Note ^e	1.532
F-4	6-8-66	6-20-66	22	27.3	12.0	10.7	11.0	37.2	32.4	35.4	34.6	32.0	32.6	Note ^e	1.543
F-5	6-15-66	6-29-66	23	27.6	10.8	9.8	10.2	39.0	34.8	37.0	34.6	32.0	33.4	1/2 ^f	1.559
F-6	6-21-66	7-13-66	24	26.5	10.9	9.9	10.3	38.4	34.2	35.9	33.4	30.2	31.9	Note	1.532
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
				27.3	10.7	10.7	35.0	31.6	31.6	35.0	31.6	31.6	31.6		1.544
				27.0	10.7	10.7	36.2	36.2	36.2	36.2	33.1	33.1	33.1		
				100.9	100.0	100.0	96.6	96.6	96.6	96.6	95.4	95.4	95.4		
				100.9	103.6	103.6	99.6	99.6	99.6	99.6	98.7	98.7	98.7		

^aMaximum tension at 600 f.p.m.
^b600 f.p.m., minimum tension.
^cMaximum speed at which this roll could be corrugated with minimum tension was 325 f.p.m.
^dMaximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.
^eMaximum speed at which this roll could be corrugated with minimum tension was 500 f.p.m.
^fMaximum speed at which this roll could be corrugated with minimum tension was 350 f.p.m.

TABLE VIII

SUMMARY OF TEST RESULTS FOR MACHINE G
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		lb./in. ^a	Runnability, draw b factor			
	Max.	Min.			Max.	Min.	Max.	Min.	Max.	Min.					
G-1	5-25-66	6-2-66	337	27.5	10.9	10.2	10.6	41.4	38.4	40.1	39.6	36.0	37.8	1-1/2	1.555
G-2	5-25-66	6-2-66	338	27.4	10.9	10.1	10.5	41.4	37.8	39.5	36.4	34.0	35.5	1-1/2	1.562
G-3	6-9-66	6-20-66	345	27.1	11.5	10.0	10.8	43.2	40.8	42.0	39.8	37.8	38.7	1-1/2	1.562
G-4	6-9-66	6-20-66	346	26.0	11.1	10.0	10.5	44.4	41.4	42.6	38.4	36.6	37.5	1-1/2	1.566
G-5	6-22-66	6-30-66	353	26.3	11.0	10.0	10.5	41.4	32.4	37.6	36.6	32.0	33.8	1-1/2	1.565
G-6	6-22-66	6-30-66	354	27.1	10.9	10.0	10.5	45.6	39.0	42.2	36.6	35.4	36.0	1-1/2	1.569
G-7	7-13-66	7-20-66	361	27.6	11.0	10.5	10.8	46.2	39.6	42.4	40.0	36.8	38.3	1-1/2	1.568
G-8	7-13-66	7-20-66	362	25.9	10.5	10.0	10.3	40.2	39.0	39.5	37.0	31.6	34.7	1-1/2	1.569
Current machine average				26.8			10.6			40.7			36.5		1.564
Cumulative machine average				26.7			10.8			35.2			30.8		
Machine factor, %				100.6			98.1			115.6			118.6		
Machine index, %				99.2			101.7			115.9			114.3		

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE H
June and July, 1966

(Type of medium: semichemical)

H-1	5-12-66	6-3-66	5	27.6	10.0	9.7	10.0	31.2	28.8	30.0	28.6	26.6	27.5	1	1.567
H-2	5-13-66	6-3-66	6	28.3	11.0	10.3	10.8	33.0	26.4	28.8	29.6	28.0	28.9	1	1.567
H-3	5-26-66	6-6-66	7	26.4	10.2	9.8	10.0	28.8	24.0	26.3	24.0	22.0	23.1	1	1.564
H-4	6-7-66	6-23-66	8	27.6	10.8	10.2	10.4	27.6	22.2	24.6	26.4	23.8	25.1	1/2	1.565
H-5	6-9-66	6-23-66	9	27.0	9.9	9.0	9.4	28.8	23.4	26.9	26.6	25.4	25.9	Min.	1.562
H-6	6-18-66	7-7-66	10	28.0	10.6	10.1	10.2	25.8	20.4	23.6	24.4	21.0	23.0	1	1.564
H-7	6-22-66	7-7-66	11	26.4	9.8	9.1	9.3	28.8	24.6	26.5	27.6	25.8	26.8	1/2	1.567
H-8	6-30-66	7-25-66	12	25.7	10.1	9.7	10.0	24.0	22.8	23.3	24.0	20.4	22.6	1-1/2	1.569
Current machine average															
				27.1			10.0		26.2			25.4			1.566
Cumulative machine average				27.4			10.4		27.7			24.8			
Machine factor, %				99.0			96.7		94.7			102.2			
Machine index, %				100.3			96.6		74.7			79.3			

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

TABLE X
SUMMARY OF TEST RESULTS FOR MACHINE I
June and July, 1966

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw factor ^b	
					Max.	Min.	Max.	Min.	Max.	Min.			
I-1	5-16-66	6-23-66	324	27.6	10.8	10.0	10.4	36.0	30.2	26.4	28.4	1-1/2	1.575
I-2	5-17-66	6-23-66	325	26.9	9.9	8.7	9.4	40.2	34.2	31.4	32.6	1-1/2	1.578
I-3	5-24-66	6-23-66	326	27.5	10.8	9.7	10.2	43.2	34.8	32.0	33.6	1-1/2	1.575
I-4	5-27-66	6-23-66	327	27.6	10.1	9.3	9.8	39.0	34.4	31.6	32.5	1-1/2	1.575
I-5	6-20-66	7-20-66	328	25.7	10.7	9.5	10.0	32.4	29.0	26.6	28.0	1-1/2	1.571
I-6	6-21-66	7-20-66	329	27.1	10.3	9.6	9.9	38.4	32.8	30.0	31.8	1-1/2	1.569
I-7	6-23-66	7-20-66	330	28.4	11.0	9.9	10.5	32.4	30.0	28.0	29.1	1-1/2	1.575
I-8	6-27-66	7-20-66	331	28.4	11.1	10.5	10.8	34.2	27.4	25.8	26.4	1-1/2	1.570
Current machine average				27.4	10.1		33.8		30.3		1.574		
Cumulative machine average				27.7	10.1		35.6		31.7				
Machine factor, %				99.0	100.0		94.9		95.6				
Machine index, %				101.4	97.7		96.3		94.7				

TABLE XI
SUMMARY OF TEST RESULTS FOR MACHINE J
June and July, 1966

(Type of medium: semichemical)

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^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

^cMaximum speed at which roll could be corrugated with minimum tension was 475 f.p.m.

^dMaximum speed at which roll could be corrugated with minimum tension was 525 f.p.m.

^eMaximum speed at which roll could be corrugated with minimum tension was 550 f.p.m.

^fMaximum speed at which roll could be corrugated with minimum tension was 575 f.p.m.

TABLE XII
SUMMARY OF TEST RESULTS FOR MACHINE K
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
K-1	5-18-66	6-2-66	55	27.0	10.0	10.0	38.4	31.2	33.2	26.8	Note ^c	1.544
K-2	6-3-66	6-13-66	56	27.6	10.5	10.1	34.8	30.6	32.8	30.8	Min.	1.551
K-3	6-11-66	6-23-66	57	26.9	10.1	9.9	35.4	32.4	32.0	30.4	Min.	1.543
K-4	6-17-66	6-27-66	58	26.9	10.0	9.7	36.0	34.2	33.4	30.4	Min.	1.554
K-5	6-23-66	7-7-66	59	26.7	9.8	9.0	35.4	33.0	33.8	31.8	Min. ^d	1.553
K-6	6-29-66	7-8-66	60	27.4	10.9	10.0	42.0	35.4	34.0	32.0	Note	1.542
K-7	7-13-66	7-20-66	61	26.8	10.4	9.9	38.4	35.4	36.4	32.6	1	1.563
Current machine average												
				27.0	10.0		35.1		32.1		1.550	
Cumulative machine average				26.8	10.1		34.0		30.4			
Machine factor, %				100.8	99.0		103.4		105.4			
Machine index, %				100.0	96.7		100.0		100.3			

TABLE XIII
SUMMARY OF TEST RESULTS FOR MACHINE L
June and July, 1966

(Type of medium: bogus)

L-1	5-16-66	6-23-66	424	28.5	10.7	9.9	10.2	38.4	31.8	34.3	33.2	30.4	32.0	1-1/2	1.561
L-2	5-23-66	6-23-66	425	27.0	10.9	10.0	10.4	38.4	31.8	35.6	35.2	32.0	33.6	1-1/2	1.564
L-3	5-24-66	6-23-66	426	28.0	11.0	9.9	10.4	43.8	34.8	38.3	37.6	34.6	36.3	1-1/2	1.566
L-4	5-27-66	6-23-66	427	27.4	10.9	9.5	10.3	37.2	33.6	34.9	35.4	32.8	34.6	1-1/2	1.558
L-5	6-17-66	7-20-66	428	26.6	11.3	10.3	10.9	36.6	32.4	34.2	34.0	32.0	33.0	1-1/2	1.557
L-6	6-20-66	7-20-66	429	26.9	10.7	9.5	10.0	37.8	34.2	35.8	33.0	31.6	32.5	1-1/2	1.553
L-7	6-21-66	7-20-66	430	26.6	10.7	9.7	10.3	36.6	33.6	35.0	35.4	34.2	34.5	1-1/2	1.553
L-8	6-27-66	7-20-66	431	26.4	10.2	9.1	9.7	36.6	32.4	34.2	33.0	30.4	32.2	1-1/2	1.553
Current machine average															
				27.2			10.3		35.3			33.6			1.558
Cumulative machine average				27.6			10.0		37.0			34.2			
Machine factor, %				98.6			102.5		95.4			98.3			
Machine index, %				100.5			99.1		100.5			105.0			

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

^cMaximum speed at which the roll could be corrugated with minimum tension was 425 f.p.m.

^dMaximum speed at which the roll could be corrugated with minimum tension was 550 f.p.m.

TABLE XIV
SUMMARY OF TEST RESULTS FOR MACHINE M
June and July, 1966

(Type of medium: semichemical)												
Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
M-1	5-23-66	5-31-66	764	26.8	11.0	10.1	10.6	43.8	38.4	41.2	1	1.559
M-2	5-30-66	6-9-66	765	26.8	10.5	9.3	9.9	45.0	40.2	42.4	1-1/2	1.563
M-3	6-8-66	6-15-66	766	26.9	10.4	9.8	10.0	43.8	40.2	41.9	1-1/2	1.563
M-4	6-23-66	7-6-66	767	27.2	11.1	10.0	10.4	38.4	37.8	38.3	1-1/2	1.550
M-5	6-29-66	7-6-66	768	26.7	11.1	10.0	10.6	41.4	36.6	39.6	1-1/2	1.555
M-6	7-7-66	7-13-66	769	28.1	11.7	10.8	11.1	46.2	37.8	40.6	1	1.554
M-7	7-14-66	7-21-66	770	26.9	10.9	9.8	10.4	43.8	41.4	43.1	1/2	1.549
Current machine average												
				27.1	10.4		41.0		37.5		1.556	
Cumulative machine average				26.7	10.3		40.2		37.0			
Machine factor, %				101.2	101.7		102.0		101.4			
Machine index, %				100.1	100.0		116.7		117.4			

TABLE XV
SUMMARY OF TEST RESULTS FOR MACHINE N
June and July, 1966

(Type of medium: semichemical)												
Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
N-1	5-18-66	6-20-66	3800	26.4	10.6	9.8	10.2	37.2	31.2	34.7	1/2	1.559
N-2	5-25-66	6-20-66	2664	26.5	10.9	10.0	10.4	34.8	30.0	33.2	1/2	1.556
N-3	6-1-66	6-20-66	124	26.3	10.3	10.1	10.2	38.4	33.0	35.3	1/2	1.560
N-4	6-2-66	6-20-66	328	26.4	10.8	10.0	10.4	36.0	33.0	34.8	1/2	1.558
N-5	6-3-66	6-20-66	558	26.0	10.4	10.0	10.1	37.2	34.8	35.8	1/2	1.560
N-6	6-5-66	6-20-66	919	26.5	10.7	9.9	10.1	39.0	35.4	37.0	1/2	1.558
Current machine average												
				26.4	10.2		35.1		32.1		1.558	
Cumulative machine average				27.1	10.8		35.3		31.9			
Machine factor, %				97.2	94.2		99.6		100.7			
Machine index, %				97.4	98.6		100.0		100.5			

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw factor ^b		
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
0-1	6-3-66	6-13-66	108	26.9	12.0	10.7	11.2	36.0	32.4	34.3	32.8	30.4	31.6	1/2	1.552
Current machine average															
				26.9			11.2			34.3			31.6		1.552
				27.0			11.3			32.7			29.7		
				99.8			99.3			105.1			106.4		
				99.6			108.3			97.7			98.8		

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P
June and July, 1966

(Type of medium: semichemical)

P-1	5-20-66	6-15-66	163	26.9	12.9	10.5	11.4	34.8	30.0	33.4	33.4	31.0	32.4	1/2	1.552
P-2	6-20-66	7- 5-66	164	26.3	10.4	9.3	9.9	37.2	32.4	34.8	35.2	32.2	34.3	1	1.556
P-3	6-20-66	7- 5-66	165	26.3	10.8	9.0	10.0	37.2	34.8	36.0	33.2	30.8	32.5	1-1/2	1.560
Current machine average															
				26.5			10.4			34.7			33.1		
				26.8			10.2			34.8			33.0		
				98.9			102.8			99.8			100.2		
Machine factor, %															
Machine index, %															
				97.9			100.0			98.8			103.4		
1.556															

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q
June and July, 1966

(Type of medium: semichemical)

Q-1	6-2-66	6-9-66	218	26.3	9.4	8.2	9.0	38.4	34.8	36.7	34.2	31.8	32.4	1-1/2	1.575
Q-2	6-4-66	6-10-66	219	27.7	9.2	8.8	9.0	38.4	34.2	37.1	36.8	34.0	35.0	1-1/2	1.573
Q-3	6-11-66	6-17-66	220	26.3	10.3	9.2	9.8	32.4	30.6	31.3	31.4	29.4	30.7	1	1.569
Q-4	6-18-66	6-23-66	221	26.2	9.9	9.0	9.5	37.8	34.2	35.4	32.6	30.6	31.6	1-1/2	1.568
Q-5	6-28-66	7-5-66	222	26.9	10.4	9.1	9.8	34.2	28.8	31.8	27.0	24.4	26.0	1-1/2	1.571
Q-6	7-6-66	7-13-66	223	26.4	9.1	8.7	8.9	34.8	29.4	32.0	30.8	28.8	29.9	1-1/2	1.572
Q-7	7-14-66	7-19-66	224	26.0	10.0	9.0	9.3	34.2	29.4	31.3	30.4	29.2	29.7	1-1/2	1.572
Current machine average															
				26.5			9.3			33.7			30.8		1.571
				26.5			9.9			32.0			28.8		
Machine factor, %				100.0			93.7			105.4			106.8		
Machine index, %				98.2			89.9			95.8			96.2		

^aMaximum tension at 600 f.p.m.
^b600 f.p.m., minimum tension.

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw ^b factor
					Max.	Min.	Av.	Max.	Min.	Av.	Min.	Max.	
R-1	6-4-66	6-20-66	--	26.4	10.4	9.5	9.9	38.4	35.4	37.2	34.2	34.2	1.550
R-2	6-9-66	6-20-66	--	25.7	10.0	9.5	9.8	39.0	36.0	37.2	35.6	36.9	1.553
R-3	6-15-66	6-30-66	--	25.9	10.0	9.5	9.8	39.6	36.0	37.3	35.0	35.0	1.556
R-4	6-21-66	6-30-66	--	26.5	10.8	10.0	10.4	42.0	34.8	38.9	34.0	35.1	1.564
R-5	7-13-66	7-22-66	--	26.7	10.0	10.0	10.0	38.4	36.6	37.4	34.7	34.7	1.568
R-6	7-17-66	7-22-66	--	25.7	10.0	9.9	10.0	41.4	33.6	36.2	30.4	31.7	1.562
R-7	7-19-66	7-25-66	--	26.5	10.5	9.9	10.1	38.4	33.0	35.4	32.4	32.9	1.570
R-8	7-20-66	7-25-66	--	25.7	10.1	9.8	10.0	36.0	33.0	34.7	32.6	33.2	1.566
Current machine average				26.2			10.0			36.8		34.2	1.561
Cumulative machine average				26.5			10.5			36.7		33.2	
Machine factor, %				98.8			95.6			100.3		103.1	
Machine index, %				96.7			96.4			104.7		107.0	

TABLE XX

SUMMARY OF TEST RESULTS FOR MACHINE S
June and July, 1966

(Type of medium: Bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw ^b factor
					Max.	Min.	Av.	Max.	Min.	Av.	Min.	Max.	
S-1	4-12-66	5-27-66	87	27.1	12.7	11.0	11.9	34.8	32.4	34.0	32.0	32.4	1.556
S-2	4-15-66	5-27-66	88	27.1	12.3	10.9	11.6	32.4	28.8	30.5	26.2	27.5	1.556
S-3	5-11-66	5-27-66	89	28.7	12.0	9.7	10.8	32.4	29.4	30.8	27.8	29.2	1.552
S-4	5-12-66	5-27-66	90	27.1	11.1	9.4	10.2	37.8	30.0	35.3	24.6	26.4	1.520
S-5	5-15-66	5-27-66	91	28.2	12.8	10.9	11.7	28.8	24.0	27.2	25.6	26.8	1.554
Current machine average				27.7			11.3			31.6		28.5	1.548
Cumulative machine average				28.4			11.8			33.5		30.0	
Machine factor, %				97.3			95.2			94.1		94.9	
Machine index, %				102.3			108.5			89.8		89.1	

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw factor ^b		
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.			
T-1	5-23-66	6-6-66	84	26.2	10.4	9.7	9.9	39.0	34.8	37.1	35.0	32.4	33.3	Min.	1.560
T-2	6-2-66	6-13-66	85	26.4	10.6	10.0	10.3	42.0	30.0	35.3	34.8	31.2	32.6	Min.	1.550
T-3	6-7-66	6-14-66	86	27.2	11.0	10.9	10.9	36.6	31.2	33.1	32.8	29.8	31.2	Min.	1.553
T-4	6-16-66	6-22-66	87	27.3	10.5	10.0	10.2	37.8	34.2	36.0	35.6	33.0	34.6	1/2	1.560
T-5	6-19-66	6-23-66	88	26.7	10.3	10.0	10.1	36.0	31.2	34.7	32.2	30.4	31.3	Min.	1.553
T-6	6-30-66	7-8-66	89	26.0	10.3	9.2	9.9	39.6	33.6	36.5	32.0	29.6	31.0	Min.	1.562
T-7	7-13-66	7-20-66	90	26.1	10.9	10.0	10.5	37.8	32.4	35.9	31.4	28.6	29.8	Min.	1.562
T-8	7-18-66	7-25-66	91	27.4	10.1	9.9	10.0	42.0	36.0	40.1	37.4	36.0	36.8	1/2	1.566
Current machine average				26.7			10.2			36.1			32.6		1.558
Cumulative machine average				27.4			10.7			35.7			32.0		
Machine factor, %				97.2			95.9			101.1			101.9		
Machine index, %				98.6			98.7			102.7			101.9		

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U
June and July, 1966

(Type of medium: semichemical)

U-1	5-16-66	6-10-66	465	26.7	10.8	9.8	10.1	38.4	35.4	37.0	37.6	35.4	36.0	1/2	1.553
U-2	5-24-66	6-10-66	696	26.3	10.9	10.0	10.4	42.0	38.4	40.3	39.0	38.0	38.6	Note	1.550
U-3	5-27-66	6-10-66	807	27.1	10.9	10.3	10.7	39.6	37.2	38.2	37.6	35.2	36.4	1/2	1.564
U-4	6-2-66	6-27-66	106	26.7	11.4	10.3	10.9	40.2	37.2	38.4	35.2	34.0	34.7	Note ^e	1.543
U-5	6-13-66	6-27-66	483	28.0	10.9	10.5	10.7	45.0	40.8	43.2	40.2	37.0	37.9	Note ^e	1.542
U-6	6-17-66	7-12-66	627	26.3	10.9	10.4	10.7	39.6	33.0	37.3	37.6	35.4	36.4	Min.	1.537
U-7	6-27-66	7-12-66	3	26.0	11.0	10.0	10.6	38.4	34.8	36.5	35.0	32.8	33.9	Min.	1.554
Current machine average															
				26.7			10.6			38.7			36.3		
Cumulative machine average				26.7			10.5			37.7			34.1		
Machine factor, %				100.0			100.4			102.6			106.3		
Machine index, %				98.8			102.1			110.1			113.5		

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

^cMaximum speed at which this roll could be corrugated with minimum tension was 475 f.p.m.

^dMaximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.

^eMaximum speed at which this roll could be corrugated with minimum tension was 325 f.p.m.

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
V-1	5- 5-66	6-13-66	105	27.8	11.5	10.3	10.8	34.8	32.8	31.4	1/2	1.561
V-2	5-12-66	6-13-66	106	28.4	10.9	10.1	10.5	37.2	36.4	34.8	1	1.558
V-3	5-26-66	6-13-66	107	27.5	11.2	10.2	10.6	34.2	34.6	31.8	1-1/2	1.559
V-4	6- 3-66	7- 7-66	109	28.0	10.8	10.2	10.5	32.4	32.6	30.8	1/2	1.550
V-5	6- 9-66	7- 7-66	110	26.7	10.6	9.8	10.3	31.8	33.0	31.0	1/2	1.555
V-6	6-17-66	7- 7-66	111	27.6	10.9	10.0	10.5	36.0	31.8	30.0	1	1.560
V-7	6-22-66	7- 7-66	112	27.4	10.6	10.0	10.2	38.4	31.8	30.4	1/2	1.556
Current machine average												
				27.6			10.5	35.6			32.4	1.557
Cumulative machine average				27.0			10.5	32.6			30.0	
Machine factor, %				102.3			100.0	109.2			108.1	
Machine index, %				102.2			100.9	101.3			101.3	

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W
June and July, 1966

(Type of medium: semichemical)

W-1	6- 1-66	6- 9-66	218	26.5	10.4	8.9	9.7	36.0	31.8	34.2	32.6	28.4	30.4	1-1/2	1.572
W-2	6- 4-66	6-10-66	219	26.8	9.2	8.9	9.0	36.6	33.6	35.2	33.6	31.4	32.6	1-1/2	1.572
W-3	6-11-66	6-17-66	220	26.7	10.9	10.0	10.4	33.6	29.4	32.3	30.8	29.0	30.0	1-1/2	1.562
W-4	6-18-66	6-23-66	221	27.4	9.7	8.9	9.3	39.0	36.6	37.9	34.6	33.4	34.3	1-1/2	1.567
W-5	6-28-66	7- 5-66	222	25.9	10.0	9.2	9.7	33.0	28.8	31.9	35.2	32.2	33.8	1-1/2	1.570
W-6	7- 7-66	7-13-66	223	25.7	10.1	9.6	9.9	30.6	27.0	28.8	28.0	26.2	27.1	1-1/2	1.569
W-7	7-13-66	7-19-66	224	25.5	10.1	9.7	9.8	32.4	28.2	30.5	28.6	27.0	27.8	1-1/2	1.571
Current machine average															
				26.4			9.7		33.0				30.9		1.569
Cumulative machine average				26.5			9.9		32.9				29.9		
Machine factor, %				99.6			98.1		100.1				103.3		
Machine index, %				97.4			93.4		93.8				96.5		

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

TABLE XXV

SUMMARY OF TEST RESULTS FOR MACHINE X
June and July, 1966

(Type of medium: semichemical)

Mill Roll No.	Date Received	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw ^b factor			
			Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.				
X-1	5-20-66	27.4	9.8	9.0	9.3	41.4	36.0	38.8	36.4	33.4	35.0	Min.	1.550	
X-2	5-27-66	27.1	8.9	8.2	8.6	43.2	34.8	38.3	34.4	31.4	32.6	1	1.566	
X-3	6-2-66	27.3	9.1	8.6	8.9	40.2	35.4	38.5	35.6	33.0	34.4	1	1.562	
X-4	6-11-66	27.9	9.3	8.7	9.0	40.8	38.4	38.9	35.2	33.0	34.3	1	1.563	
X-5	6-18-66	27.9	9.0	8.7	8.9	39.6	35.4	37.6	35.4	33.4	34.5	1-1/2	1.566	
X-6	6-28-66	27.4	8.9	8.2	8.6	38.4	35.4	36.2	35.6	31.4	33.4	1	1.563	
X-7	7-5-66	27.6	8.9	8.4	8.7	40.2	34.8	37.6	35.6	32.4	34.0	1	1.566	
X-8	7-10-66	27.6	9.0	8.1	8.5	41.4	36.0	39.0	33.4	31.8	32.7	1-1/2	1.562	
Current machine average														
Cumulative machine average														
Machine factor, %														
Machine index, %														
			27.5	8.8				38.1			33.9			1.562
			26.9	9.0				36.2			32.3			
			102.4	97.6				105.2			104.9			
			101.7	84.9				108.4			105.9			

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y
June and July, 1966

(Type of medium: semichemical)

Y-1	7-7-66	7-15-66	38	27.3	10.7	10.0	10.4	37.2	32.4	34.4	35.6	32.6	33.9	1	1.562
Current machine average															
				27.3			10.4			34.4			33.9		
				26.7			10.6			34.4			30.9		
				102.1			98.3			100.0			109.7		
				100.8			100.0			98.0			106.0		

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a	draw b factor ^c						
					Max.	Min.	Max.	Min.	Max.	Min.								
Z-1	5-25-66	6-6-66	1556	26.8	11.0	10.2	10.7	30.0	28.8	29.3	25.8	22.6	24.9	Noted ^c	1.542			
Z-2	5-25-66	6-6-66	1557	25.8	10.9	10.1	10.5	31.2	27.0	28.4	30.0	25.4	27.0	Noted ^e	1.545			
Z-3	6-7-66	6-17-66	1564	25.9	10.6	10.0	10.2	32.4	28.8	30.7	29.6	26.0	28.5	Noted ^f	1.539			
Z-4	6-7-66	6-17-66	1565	26.3	10.6	10.0	10.2	36.6	28.8	31.4	30.4	25.6	27.8	Noted ^g	1.541			
Z-5	6-24-66	7-6-66	1572	29.5	12.7	11.0	11.8	43.2	35.4	39.7	37.8	34.4	36.4	Noted ^h	1.540			
Z-6	6-24-66	7-6-66	1573	29.5	12.5	11.0	11.6	40.2	35.4	37.9	34.8	33.2	33.9	Noted ^h	1.541			
Z-7	6-24-66	7-6-66	1580	29.1	12.2	10.7	11.4	37.8	32.4	35.2	34.8	33.2	34.2	Noted ^h	1.536			
Z-8	6-24-66	7-6-66	1581	28.5	12.0	10.3	11.2	38.4	33.6	36.6	35.8	34.2	35.0	Noted ^h	1.539			
Current machine average																33.7	31.0	1.540
Cumulative machine average																33.6	30.9	
Machine factor, %																100.1	100.3	
Machine index, %																95.8	96.9	

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA
June and July, 1966

(Type of medium: semichemical)

AA-1	5-17-66	6-20-66	1687	26.1	9.9	9.4	9.7	35.4	31.8	33.7	34.0	31.6	32.9	1-1/2	1.568	
AA-2	5-26-66	6-20-66	2787	26.3	10.1	9.4	9.7	39.0	33.6	36.8	35.8	33.4	34.9	1-1/2	1.569	
AA-3	6-1-66	6-20-66	11	26.0	10.0	9.5	9.8	36.0	31.2	34.0	34.0	31.8	33.0	1-1/2	1.570	
AA-4	6-2-66	7-25-66	78	26.8	10.0	9.1	9.8	39.6	34.8	37.0	36.0	34.2	35.2	1-1/2	1.568	
Current machine average															34.0	1.569
Cumulative machine average															--	--
Machine factor, %															--	--
Machine index, %															106.3	

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

^cMaximum speed at which this roll could be corrugated with minimum tension was 525 f.p.m.

^dMaximum speed at which this roll could be corrugated with minimum tension was 550 f.p.m.

^eMaximum speed at which this roll could be corrugated with minimum tension was 225 f.p.m.

^fMaximum speed at which this roll could be corrugated with minimum tension was 250 f.p.m.

^gMaximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.

^hMaximum speed at which this roll could be corrugated with minimum tension was 450 f.p.m.

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw factor ^b
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
BB-1	6-3-66	6-20-66	--	26.8	10.8	10.0	10.1	41.4	38.4	39.7	39.0	37.0	1.565
BB-2	6-9-66	6-20-66	--	26.8	10.3	10.0	10.1	42.0	38.4	40.2	38.4	34.0	1.564
BB-3	6-14-66	6-20-66	--	26.6	10.0	9.8	9.9	44.4	40.2	42.1	39.4	36.2	1.562
BB-4	6-21-66	6-30-66	--	26.6	10.2	9.8	10.0	41.4	36.0	38.8	36.6	34.4	1.572
BB-5	7-12-66	7-22-66	--	26.5	9.9	9.2	9.8	40.2	38.4	39.1	37.8	34.8	1.567
BB-6	7-13-66	7-22-66	--	26.5	10.2	10.0	10.0	40.2	37.8	38.5	35.6	33.0	1.573
BB-7	7-13-66	7-22-66	--	26.5	10.1	9.9	10.0	39.0	36.0	37.9	34.2	32.6	1.574
BB-8	7-15-66	7-22-66	--	26.2	10.0	9.8	9.9	39.0	34.8	37.4	34.8	32.4	1.572
Current machine average													
				26.6			10.0			39.2			1.569
Cumulative machine average				26.7			10.2			37.5			
Machine factor, %				99.4			97.8			104.6			
Machine index, %				98.3			96.2			111.6			

TABLE XXX

SUMMARY OF TEST RESULTS FOR MACHINE CC
June and July, 1966

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M ft. ²	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. ^a		draw factor ^b
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
CC-1	6-28-66	7-22-66	F-1	26.6	10.0	8.9	9.3	45.0	34.8	40.2	36.2	34.0	1.566
CC-2	6-28-66	7-22-66	F-2	27.1	9.1	8.8	9.0	41.4	34.8	37.0	35.6	33.2	1.560
CC-3	6-28-66	7-22-66	F-3	26.1	10.0	9.0	9.5	37.2	30.0	33.7	34.6	32.2	1.560
CC-4	6-28-66	7-22-66	F-4	26.5	10.0	8.9	9.2	38.4	34.8	36.7	36.0	31.4	1.563
Current machine average													
				26.6			9.2			36.9			1.562
Cumulative machine average				26.6			9.5			32.5			
Machine factor, %				100.0			97.1			113.6			
Machine index, %				98.2			89.2			107.0			

^aMaximum tension at 600 f.p.m.

^b600 f.p.m., minimum tension.

maximum, minimum and average results obtained on each roll are shown for all test properties except basis weight for which only the average is shown; in addition, the overall average result for all rolls submitted for a given machine is shown for each test property. The latter overall averages are reported as "current machine averages." A cumulative machine average for each test property is also shown and represents the mean of the current machine averages for the previous twelve periods (excluding the current period). Also shown for each machine and for each test property in Tables II to XXX are the machine factor and machine index which are defined as follows:

$$\frac{\text{current machine average}}{\text{cumulative machine average}} \times 100 = \text{machine factor (\%)}$$

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

The machine factor and machine index provide a means for comparing the current machine average for each test property with either the previous results for the particular machine or with the cumulative results for all machines, i.e., the cumulative F.K.I. average.

DISCUSSION OF RESULTS

Shown below from Table I are the maximum and minimum current machine averages noted for each test property during the current period (June and July, 1966). Also shown below for each test property is the current F.K.I. average which represents the mean of the current machine averages for the current period and, hence, is indicative of the test level being maintained by the industry as a whole to the extent that the industry is represented by the participating machines. Also given below for each test property is the cumulative F.K.I. average which represents the mean of the current F.K.I. averages for the previous twelve months.

	Max. Current Machine Av.	Min. Current Machine Av.	Current F.K.I. Average	Cumulative F.K.I. Average
Basis wt., lb.	27.8	26.2	27.0	27.0
Caliper, pt.	11.3	8.8	10.2	10.4
Concora flat crush, p.s.i.	41.2	26.2	35.8	35.1
Single-face flat crush, p.s.i.	37.6	25.4	33.0	32.0

The runnability data for the 190 rolls evaluated during the current period are summarized as follows:

Runnability	Number of Rolls	Percentage of Total Rolls	Cumulative Percentage
Less than 600 f.p.m. with minimum tension	22	11.6	100.0
600 f.p.m. - minimum tension	25	13.2	88.4
600 f.p.m. - 1/2 lb. per in. tension	39	20.5	75.2
600 f.p.m. - 1 lb. per in. tension	26	13.7	54.7
600 f.p.m. - 1-1/2 lb. per in. tension	78	41.1	41.1

Supplementary to the runnability data described above, draw factors were determined for each roll of medium at 600 f.p.m. with minimum tension (or, for rolls with poor runnability, at the maximum speed runnable with minimum tension) and are given in Tables II through XXX for Machines A to Z and Machines AA, BB, and CC, respectively.

In Table XXXI a comparison of Institute and mill Concora flat crush test results obtained on conditioned specimens is given for each machine for the current period. The inclusion of these comparisons is made possible by the fact that interested participants submit their Concora flat crush test results to The Institute of Paper Chemistry (on data sheets obtainable from the Institute). This affords each participant the opportunity to review the level of agreement noted for his data with the levels noted for the other participants. Comparisons of this kind are a helpful adjunct to other calibration procedures. Shown in Table XXXI are (1) the Institute and mill Concora averages for each roll included in these comparisons, (2) the difference between the roll average based on Institute data and that based on mill data, (3) the Institute and mill averages based on all rolls included in the comparison, and (4) the difference between these overall averages.

The Concora flat crush data shown in Table XXXI are summarized in Part I of Table XXXII where for each machine the following information is given: (1) Current machine average based on Institute data, (2) current machine average based on mill data, (3) the average differences - that is, the difference between the current machine average based on Institute data and that based on mill data, and (4) the maximum difference encountered in comparing Institute and mill test averages for individual rolls. In Part II of Table XXXII the average differences given in Part I have been converted to percent. Comparative data from the previous two reports are also included in Part II of Table XXXII.

TABLE XXXI
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1966

Machine A										Machine B										Machine C											
Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,						
Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a		
A-1	133	6-1-66	33.0	36.8	+3.8	B-1	--	6-4-66	36.2	35.5	-0.7	C-1	453	5-23-66	46.1	44.0	-2.1	C-1	453	5-23-66	46.1	44.0	-2.1	C-1	453	5-23-66	46.1	44.0	-2.1		
A-2	134	6-1-66	34.0	36.2	+2.2	B-2	--	6-23-66	37.2	36.6	-0.6	C-2	454	5-30-66	39.2	38.5	-0.7	C-2	454	5-30-66	39.2	38.5	-0.7	C-2	454	5-30-66	39.2	38.5	-0.7		
A-3	135	6-1-66	34.8	39.1	+4.3	B-3	--	6-23-66	35.9	37.1	+1.2	C-3	455	6-8-66	41.0	38.6	-2.4	C-3	455	6-8-66	41.0	38.6	-2.4	C-3	455	6-8-66	41.0	38.6	-2.4		
A-4	136	6-1-66	32.9	36.7	+3.8	B-4	--	6-25-66	36.7	34.9	-1.8	C-4	456	6-17-55	41.0	37.4	-3.6	C-4	456	6-17-55	41.0	37.4	-3.6	C-4	456	6-17-55	41.0	37.4	-3.6		
A-5	137	6-30-66	31.8	36.7	+4.9	B-5	--	7-14-66	34.2	35.2	+1.0	C-5	457	6-21-66	41.5	37.6	-3.9	C-5	457	6-21-66	41.5	37.6	-3.9	C-5	457	6-21-66	41.5	37.6	-3.9		
A-6	138	6-30-66	31.6	36.4	+4.8	B-6	--	7-17-66	36.7	37.3	+0.6	C-6	458	6-29-66	39.2	39.5	+0.3	C-6	458	6-29-66	39.2	39.5	+0.3	C-6	458	6-29-66	39.2	39.5	+0.3		
A-7	139	7-1-66	30.8	34.6	+3.8	B-7	--	7-18-66	36.2	35.3	-0.9	C-7	459	7-7-66	38.9	37.4	-1.5	C-7	459	7-7-66	38.9	37.4	-1.5	C-7	459	7-7-66	38.9	37.4	-1.5		
A-8	140	7-1-66	30.0	34.6	+4.6	B-8	--	7-19-66	36.7	35.8	-0.9	C-8	460	7-14-66	43.0	39.0	-4.0	C-8	460	7-14-66	43.0	39.0	-4.0	C-8	460	7-14-66	43.0	39.0	-4.0		
Current machine av.					32.4	36.4	+4.0	Current machine av.					36.2	36.0	-0.2	Current machine av.					41.2	39.0	-2.2	Current machine av.					41.2	39.0	-2.2
Machine D										Machine E										Machine F											
Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a		
D-1	64	5-20-66	34.6	31.0	-3.6	E-1	555	5-20-66	34.2	36.5	+2.3	F-1	19	5-17-66	34.9	30.8	-4.1	F-1	19	5-17-66	34.9	30.8	-4.1	F-1	19	5-17-66	34.9	30.8	-4.1		
D-2	65	5-25-66	29.5	43.0	+13.5	E-2	556	5-28-66	34.7	36.5	+1.8	F-2	20	5-25-66	33.4	32.5	-0.9	F-2	20	5-25-66	33.4	32.5	-0.9	F-2	20	5-25-66	33.4	32.5	-0.9		
D-3	66	6-1-66	32.8	32.4	-0.4	E-3	557	6-2-66	32.8	35.8	+3.0	F-3	21	6-4-66	35.4	34.1	+0.7	F-3	21	6-4-66	35.4	34.1	+0.7	F-3	21	6-4-66	35.4	34.1	+0.7		
D-4	67	6-10-66	34.0	33.4	-0.6	E-4	558	6-8-66	40.1	43.9	+3.8	F-4	22	6-8-66	35.4	33.5	-1.9	F-4	22	6-8-66	35.4	33.5	-1.9	F-4	22	6-8-66	35.4	33.5	-1.9		
D-5	68	6-17-66	33.4	38.4	+5.0	E-5	559	6-16-66	39.8	42.5	+2.7	F-5	23	6-15-66	37.0	34.6	-2.4	F-5	23	6-15-66	37.0	34.6	-2.4	F-5	23	6-15-66	37.0	34.6	-2.4		
D-6	69	6-23-66	34.3	31.9	-2.4	E-6	560	6-24-66	42.5	42.1	-0.4	F-6	24	6-21-66	35.9	35.5	-0.4	F-6	24	6-21-66	35.9	35.5	-0.4	F-6	24	6-21-66	35.9	35.5	-0.4		
D-7	70	6-29-66	34.4	31.4	-3.0	E-7	561	7-1-66	40.9	38.5	-2.4																				
D-8	71	7-14-66	36.4	27.0	-9.4	E-8	562	7-8-66	38.0	35.8	-2.2																				
						E-9	563	7-13-66	39.5	39.0	-0.5																				
Current machine av.					33.7	33.6	-0.1	Current machine av.					38.1	39.0	+0.9	Current machine av.					35.0	33.5	-1.5	Current machine av.					35.0	33.5	-1.5
Machine G										Machine H										Machine I											
Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a	Code	Mill Roll No.	Date Made	Insti- tute	p.s.i. Mill	Differ- ence ^a		
G-1	337	5-25-66	40.1	39.3	-0.8	H-1	5	5-12-66	30.0	26.0	-4.0	I-1	324	5-16-66	32.5	30.7	-1.8	I-1	324	5-16-66	32.5	30.7	-1.8	I-1	324	5-16-66	32.5	30.7	-1.8		
G-2	338	5-25-66	39.5	41.1	+1.6	H-2	6	5-13-66	28.8	23.7	-5.1	I-2	325	5-17-66	36.1	35.0	-1.1	I-2	325	5-17-66	36.1	35.0	-1.1	I-2	325	5-17-66	36.1	35.0	-1.1		
G-3	345	6-9-66	42.0	39.9	-2.1	H-3	7	5-26-66	26.3	32.6	+6.3	I-3	326	5-24-66	38.0	36.4	-1.6	I-3	326	5-24-66	38.0	36.4	-1.6	I-3	326	5-24-66	38.0	36.4	-1.6		
G-4	346	6-9-66	42.6	36.6	-6.0	H-4	8	6-7-66	24.6	31.0	+6.4	I-4	327	5-27-66	35.6	34.3	-1.3	I-4	327	5-27-66	35.6	34.3	-1.3	I-4	327	5-27-66	35.6	34.3	-1.3		
G-5	353	6-22-66	37.6	38.5	+0.9	H-5	9	6-9-66	26.9	34.2	+7.3	I-5	328	6-20-66	30.7	28.3	-2.4	I-5	328	6-20-66	30.7	28.3	-2.4	I-5	328	6-20-66	30.7	28.3	-2.4		
G-6	354	6-22-66	42.2	37.3	-4.9	H-6	10	6-18-66	23.6	27.9	+4.3	I-6	329	6-21-66	36.5	33.2	-3.3	I-6	329	6-21-66	36.5	33.2	-3.3	I-6	329	6-21-66	36.5	33.2	-3.3		
G-7	361	7-13-66	42.4	42.0	-0.4	H-7	11	6-22-66	26.5	34.8	+8.3	I-7	330	6-23-66	30.4	27.8	-2.6	I-7	330	6-23-66	30.4	27.8	-2.6	I-7	330	6-23-66	30.4	27.8	-2.6		
G-8	362	7-13-66	39.5	39.0	-0.5	H-8	12	6-30-66	23.3	27.6	+4.3	I-8	331	6-27-66	30.7	25.3	-5.4	I-8	331	6-27-66	30.7	25.3	-5.4	I-8	331	6-27-66	30.7	25.3	-5.4		
Current machine av.					40.7	39.2	-1.5	Current machine av.					26.2	29.7	+3.5	Current machine av.					33.8	31.4	-2.4	Current machine av.					33.8	31.4	-2.4

See end of table for footnote.

TABLE XXXI (Continued)
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1966

Machine J					Machine K					Machine L				
Concorda Flat Crush,					Concorda Flat Crush,					Concorda Flat Crush,				
p.s.i.					p.s.i.					p.s.i.				
Code	Roll No.	Date Made	Insti- tute	Differ- ence	Code	Roll No.	Date Made	Insti- tute	Differ- ence	Code	Roll No.	Date Made	Insti- tute	Differ- ence
J-1	625	3-31-66	42.5	+0.5	K-1	55	5-18-66	34.6	-1.6	L-1	424	5-16-66	34.3	-3.8
J-2	626	4-8-66	41.6	-0.3	K-2	56	6-3-66	32.9	-2.5	L-2	425	5-23-66	35.6	+0.6
J-3	627	4-23-66	38.6	+2.7	K-3	57	6-11-66	35.7	-3.6	L-3	426	5-24-66	38.3	-2.9
J-4	628	5-5-66	39.4	+1.4	K-4	58	6-17-66	35.2	-1.2	L-4	427	5-27-66	34.9	-1.4
J-5	629	5-14-66	36.8	+1.2	K-5	59	6-23-66	34.3	-2.9	L-5	428	6-17-66	34.2	-2.9
					K-6	60	6-29-66	38.2	-2.7	L-6	429	6-20-66	35.8	-4.6
					K-7	61	7-13-66	37.2	-4.6	L-7	430	6-21-66	35.0	-1.0
Current machine av.	39.8		40.9	+1.1	Current machine av.	35.1		32.4	-2.7	Current machine av.	35.3		33.1	-2.2
Machine M					Machine N					Machine O				
Concorda Flat Crush,					Concorda Flat Crush,					Concorda Flat Crush,				
p.s.i.					p.s.i.					p.s.i.				
Code	Roll No.	Date Made	Insti- tute	Differ- ence	Code	Roll No.	Date Made	Insti- tute	Differ- ence	Code	Roll No.	Date Made	Insti- tute	Differ- ence
M-1	764	5-23-66	41.2	-1.6	N-1	3800	5-18-66	34.7	+1.2	O-1	108	6-3-66	34.3	-1.3
M-2	765	5-30-66	42.4	-2.6	N-2	2664	5-25-66	33.2	+2.2					
M-3	766	6-8-66	41.9	-4.7	N-3	124	6-1-66	35.3	+1.1					
M-4	767	6-23-66	38.3	-0.4	N-4	328	6-2-66	34.8	+0.4					
M-5	768	6-29-66	39.6	-0.6	N-5	558	6-3-66	35.8	+0.1					
M-6	769	7-7-66	40.6	+0.8	N-6	919	6-5-66	37.0	+1.2					
M-7	770	7-14-66	43.1	-4.2										
Current machine av.	41.0		39.1	-1.9	Current machine av.	35.1		36.2	+1.1	Current machine av.	34.3		33.0	-1.3
Machine Q					Machine R					Machine S				
Concorda Flat Crush,					Concorda Flat Crush,					Concorda Flat Crush,				
p.s.i.					p.s.i.					p.s.i.				
Code	Roll No.	Date Made	Insti- tute	Differ- ence	Code	Roll No.	Date Made	Insti- tute	Differ- ence	Code	Roll No.	Date Made	Insti- tute	Differ- ence
Q-1	218	6-2-66	36.7	-2.6	R-1	--	6-4-66	37.2	-1.7	S-1	87	4-12-66	34.0	-1.7
Q-2	219	6-4-66	37.1	-1.8	R-2	--	6-9-66	37.2	-2.2	S-2	88	4-15-66	30.5	-1.0
Q-3	220	6-11-66	31.3	-0.5	R-3	--	6-15-66	37.3	-3.1	S-3	89	5-11-66	30.8	+1.8
Q-4	221	6-18-66	35.4	-3.7	R-4	--	6-21-66	38.9	-1.5	S-4	90	5-12-66	35.3	+2.1
Q-5	222	6-28-66	31.8	+1.0	R-5	--	7-13-66	37.4	-0.8	S-5	91	5-15-66	27.2	+2.0
Q-6	223	7-6-66	32.0	+0.8	R-6	--	7-17-66	36.2	-0.8					
Q-7	224	7-14-66	31.3	+1.3	R-7	--	7-19-66	35.4	+0.6					
					R-8	--	7-20-66	34.7	+1.2					
Current machine av.	33.7		32.9	-0.8	Current machine av.	36.8		35.8	-1.0	Current machine av.	31.6		32.2	+0.6

See end of table for footnote.

TABLE XXXI (Continued)
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1966

Machine U				Machine V				Machine W			
Concorda Flat Crush,				Concorda Flat Crush,				Concorda Flat Crush,			
Code	Mill No.	Date Made	p.s.i.	Code	Mill No.	Date Made	p.s.i.	Code	Mill No.	Date Made	p.s.i.
U-1	465	5-16-66	37.0	V-1	105	5-5-66	35.0	W-1	218	6-1-66	34.2
U-2	696	5-24-66	38.8	V-2	106	5-12-66	37.8	W-2	219	6-4-66	35.2
U-3	807	5-27-66	38.2	V-3	107	5-26-66	35.6	W-3	220	6-11-66	32.3
U-4	106	6-2-66	38.4	V-4	109	6-3-66	36.5	W-4	221	6-18-66	37.9
U-5	483	6-13-66	38.8	V-5	110	6-9-66	32.8	W-5	222	6-28-66	31.9
U-6	627	6-17-66	37.3	V-6	111	6-17-66	35.3	W-6	223	7-7-66	28.8
U-7	3	6-27-66	36.5	V-7	112	6-22-66	36.2	W-7	224	7-13-66	30.5
Current machine av.			38.7	Current machine av.			35.6	Current machine av.			33.0
			37.3				37.9				32.2
			-1.4				+2.3				-0.8
Machine X				Machine Y				Machine Z			
Concorda Flat Crush,				Concorda Flat Crush,				Concorda Flat Crush,			
Code	Mill No.	Date Made	p.s.i.	Code	Mill No.	Date Made	p.s.i.	Code	Mill No.	Date Made	p.s.i.
X-1	688	5-20-66	38.8	Y-1	38	7-7-66	34.4	Z-1	1556	5-25-66	29.3
X-2	689	5-27-66	38.3					Z-2	1557	5-25-66	28.4
X-3	690	6-2-66	38.5					Z-3	1564	6-7-66	30.7
X-4	691	6-11-66	38.9					Z-4	1565	6-7-66	31.4
X-5	692	6-18-66	37.6					Z-5	1572	6-24-66	39.7
X-6	693	6-28-66	36.2					Z-6	1573	6-24-66	37.9
X-7	694	7-5-66	37.6					Z-7	1580	6-24-66	35.2
X-8	695	7-10-66	39.0					Z-8	1581	6-24-66	36.6
Current machine av.			38.1	Current machine av.			34.4	Current machine av.			33.7
			39.1				37.4				34.4
			+1.0				-1.4				+0.7
Machine AA				Machine BB				Machine CC			
Concorda Flat Crush,				Concorda Flat Crush,				Concorda Flat Crush,			
Code	Mill No.	Date Made	p.s.i.	Code	Mill No.	Date Made	p.s.i.	Code	Mill No.	Date Made	p.s.i.
AA-1	1687	5-17-66	33.7	BB-1	--	6-3-66	39.7	CC-1	F-1	6-28-66	40.2
AA-2	2787	5-26-66	36.8	BB-2	--	6-9-66	40.2	CC-2	F-2	6-28-66	37.0
AA-3	11	6-1-66	34.0	BB-3	--	6-14-66	42.1	CC-3	F-3	6-28-66	33.7
AA-4	78	6-2-66	37.0	BB-4	--	6-21-66	38.8	CC-4	F-4	6-28-66	36.7
				BB-5	--	7-12-66	39.1				
				BB-6	--	7-13-66	38.5				
				BB-7	--	7-13-66	37.9				
				BB-8	--	7-15-66	37.4				
Current machine av.			35.4	Current machine av.			39.2	Current machine av.			36.9
			36.0				37.4				36.8
			+0.6				-1.8				-0.1

^aThis difference is the amount in p.s.i. units by which the mill result is higher or lower than the Institute result.

TABLE XXXI
PART I: A COMPARATIVE SUMMARY FOR EACH MACHINE OF THE CONCORDA FLAT CRUSH AVERAGES BASED ON INSTITUTE DATA AND THOSE BASED ON MILL DATA
FOR THE CURRENT PERIOD (JUNE AND JULY, 1966)

Machine code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC
Number of rolls compared	8	8	8	8	9	6	8	8	8	5	7	8	7	6	1	0	7	8	5	0	7	7	7	8	1	8	4	8	4
Concorda flat crush, p.s.i.																													
Current machine av. (Institute) ^a	32.4	36.2	41.2	33.7	38.1	35.0	40.7	26.2	33.8	39.8	35.1	35.3	41.0	35.1	34.3	--	33.7	36.8	31.6	--	38.7	35.6	33.0	38.1	34.4	33.7	35.4	39.2	36.9
Current machine av. (Mill) ^b	36.4	36.0	39.0	33.6	39.0	33.5	39.2	29.7	31.4	40.9	32.4	33.1	39.1	36.2	35.0	--	32.9	35.8	32.2	--	37.3	37.9	32.2	39.1	33.0	34.4	36.0	37.4	36.8
Average difference ^c	+4.0	-0.2	-2.2	-0.1	+0.9	-1.5	-1.5	+3.5	-2.4	+1.1	-2.7	-2.2	-1.9	+1.1	-1.5	--	-0.8	-1.0	+0.6	--	-1.4	+2.3	-0.6	+1.0	-1.4	+0.7	+0.6	-1.8	-0.1
Maximum difference	+4.9	-1.8	-4.0	+13.5	+3.8	-4.1	-6.0	+8.3	-5.4	+2.7	-4.6	-4.6	-4.7	+2.2	-1.5	--	-3.7	-3.1	+2.1	--	-4.4	+4.0	-2.8	+2.3	-1.4	+4.0	+2.2	-5.0	-3.0

PART II: A TABULATION FOR EACH MACHINE OF THE AVERAGE DIFFERENCE (PERCENT) BETWEEN THE CONCORDA FLAT CRUSH
BASED ON INSTITUTE DATA AND THAT BASED ON MILL DATA

Average difference, % ^d	+12.3	-0.6	-5.3	-0.3	+2.4	+4.3	-3.7	+13.4	-7.1	+2.8	-7.7	-6.2	-4.6	+3.1	-3.8	--	-2.4	-2.7	+1.9	--	-3.6	+6.5	-2.4	+2.6	-4.1	-2.1	+1.7	-4.6	-0.3
Current report (June-July)	+4.5	-4.9	-3.1	-0.6	+8.4	-4.4	-7.5	+15.5	-9.1	-3.9	+3.7	-6.4	-2.2	+3.5	+6.5	--	+1.3	-4.6	+0.9	--	-4.8	+6.9	+4.4	+1.6	-6.7	-1.9	--	-6.4	-4.2
110th Report (April-May)	+4.2	-2.3	-2.3	-3.2	+7.0	-2.5	-0.5	--	-7.2	+1.8	-1.5	-1.1	-0.2	-1.9	+9.5	--	+8.0	+0.3	+3.3	--	-2.2	+5.9	+9.0	+3.4	+10.1	-2.1	--	+0.8	+1.5
118th Report (Feb.-March)																													

^aComparisons based on current machine average include only those rolls for which mill data were submitted.
^bAverage difference is the difference between the current machine average based on Institute test results and that based on mill test results with the Institute test results used as the reference. See Table XXXI.
^cMaximum difference is the greatest difference encountered in comparing Institute and mill test averages for individual rolls. See Table XXXI.
^dAverage difference (percent) is computed by dividing the average difference in p.s.i. (shown above in Part I of this table) by the Institute current machine average and multiplying the result by 100.

In Table XXXIII a summary of the agreement between Institute and mill Concora flat crush data is given for the current period; comparative data from the previous bimonthly period are also included. The data shown for the current period indicate that agreement between Institute and mill Concora data was somewhat better than the agreement for the previous period.

TABLE XXXIII

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL
CONCORA FLAT CRUSH DATA

Average Percentage Difference Between Institute and Mill Concora Flat Crush Test Results ^a	Percentage of All Machines Included Within the Indicated Range	
	Previous Period ^b	Current Period ^c
+ 1.0	6.9	11.1
+ 2.5	20.7	33.3
+ 5.0	58.6	74.1
+10.0	93.1	92.6
Max.	100.0 ^d	100.0 ^e

^a The average obtained at the Institute was used as the reference in the calculation of the percentage differences.

^b February and March, 1966.

^c April and May, 1966

^d Maximum percentage difference was +23.4.

^e Maximum percentage difference was +13.4.

Note: Lack of conditioning after fluting may be responsible for the large maximum differences reported above in Note ^d.

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