

**CONTINUOUS EVALUATION OF  
CORRUGATING MEDIUM**

**Project 1108-17**

**Report 112**

**A Progress Report**

**to**

**FOURDRINIER KRAFT BOARD INSTITUTE, INC.**

**April 1, 1965**

CODE LETTERS FOR PROJECT 1108-17

Report 112  
(April 1, 1965)

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

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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Project 1108-17

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A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

April 1, 1965

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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 February and March, 1965, on 201 rolls of corrugating medium representing the production of twenty-nine machines. Each of these 201 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 lb. per inch, 1.0 lb. per inch, 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 CC, respectively. The maximum, minimum, and average results obtained on each roll are shown for all test properties except basis weight for

TABLE I  
 SUMMARY OF CURRENT MACHINE AVERAGES  
 February and March, 1965

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	7	Semichemical	26.5	10.4	38.5	35.9
B	7	Semichemical	26.6	10.3	37.0	34.6
C	1	Semichemical	See note <sup>a</sup>			
D	4	Semichemical	27.6	10.3	35.2	31.5
E	8	Semichemical	26.2	10.2	38.6	33.9
F	8	Semichemical	26.7	10.5	37.8	34.1
G	6	Semichemical	26.8	10.8	34.4	29.7
H	8	Semichemical	27.0	10.6	36.1	33.5
I	8	Bogus	27.1	9.8	35.7	32.2
J	8	Semichemical	27.3	10.6	37.5	32.7
K	8	Semichemical	26.7	10.5	34.9	31.7
L	7	Bogus	27.3	10.2	33.2	30.3
M	10	Semichemical	27.2	10.4	35.2	30.4
N	7	Semichemical	26.6	10.3	32.2	29.6
O	10	Semichemical	26.4	10.1	33.5	30.1
P	4	Semichemical	26.8	8.5	34.5	32.8
Q	3	Bogus	27.6	10.3	36.3	31.8
R	8	Semichemical	26.9	10.7	39.6	35.6
S	9	Semichemical	26.8	9.2	38.6	34.0
T	8	Semichemical	28.4	10.9	34.2	31.1
U	7	Semichemical	28.1	10.3	42.7	38.6
V	7	Semichemical	26.8	10.2	34.5	32.4
W	8	Semichemical	25.9	11.4	31.1	29.3
X	10	Semichemical	27.2	10.7	37.2	32.9
Y	10	Semichemical	26.6	9.8	33.6	29.9
Z	6	Semichemical	27.1	10.7	38.0	34.6
AA	8	Semichemical	26.9	10.8	35.9	32.2
BB	2	Kraft	See note <sup>a</sup>			
CC	4	Bogus	27.9	11.0	32.5	27.6
Total 201						
Current F.K.I. average			27.0	10.4	35.9	32.3
Cumulative F.K.I. average			27.0	10.2	36.0	32.7
F.K.I. index, %			100.0	101.3	99.7	98.9

<sup>a</sup> Current machine averages have been omitted in compliance with the Technical Committee'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.

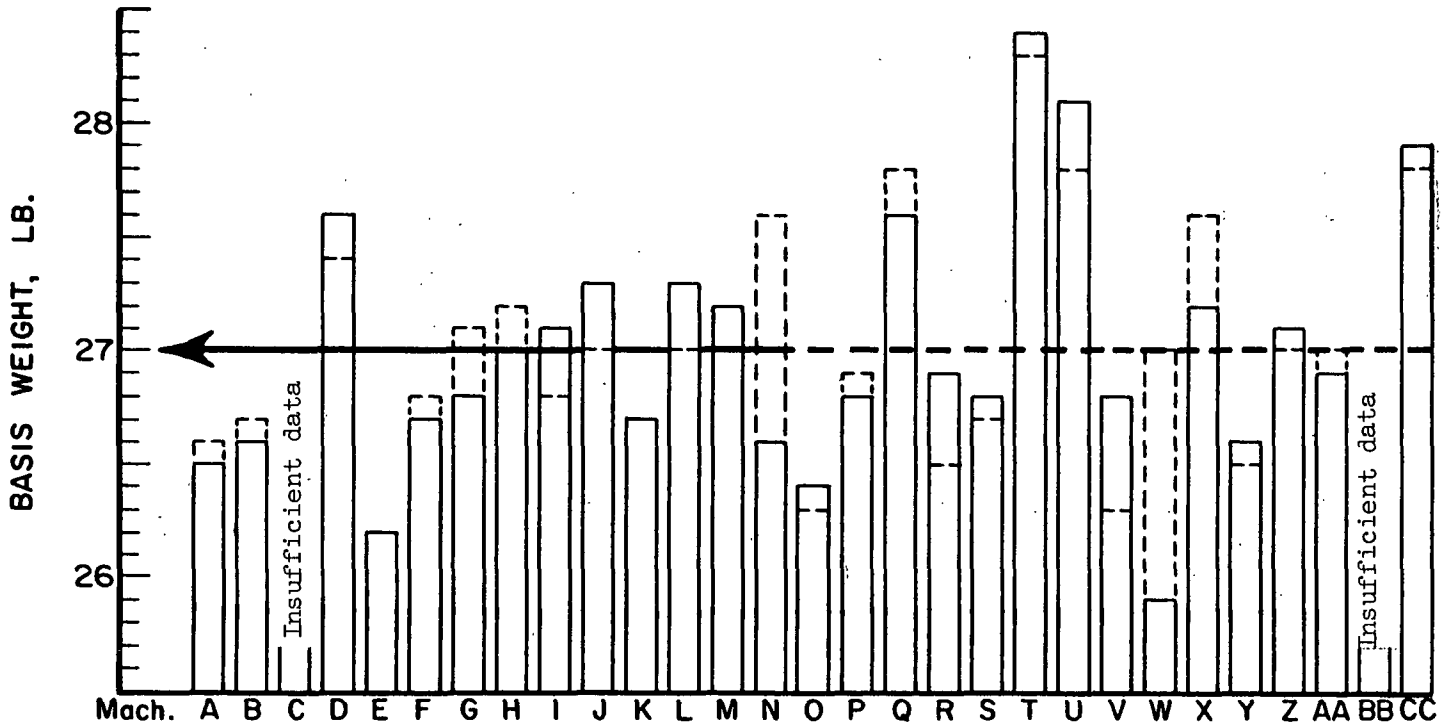
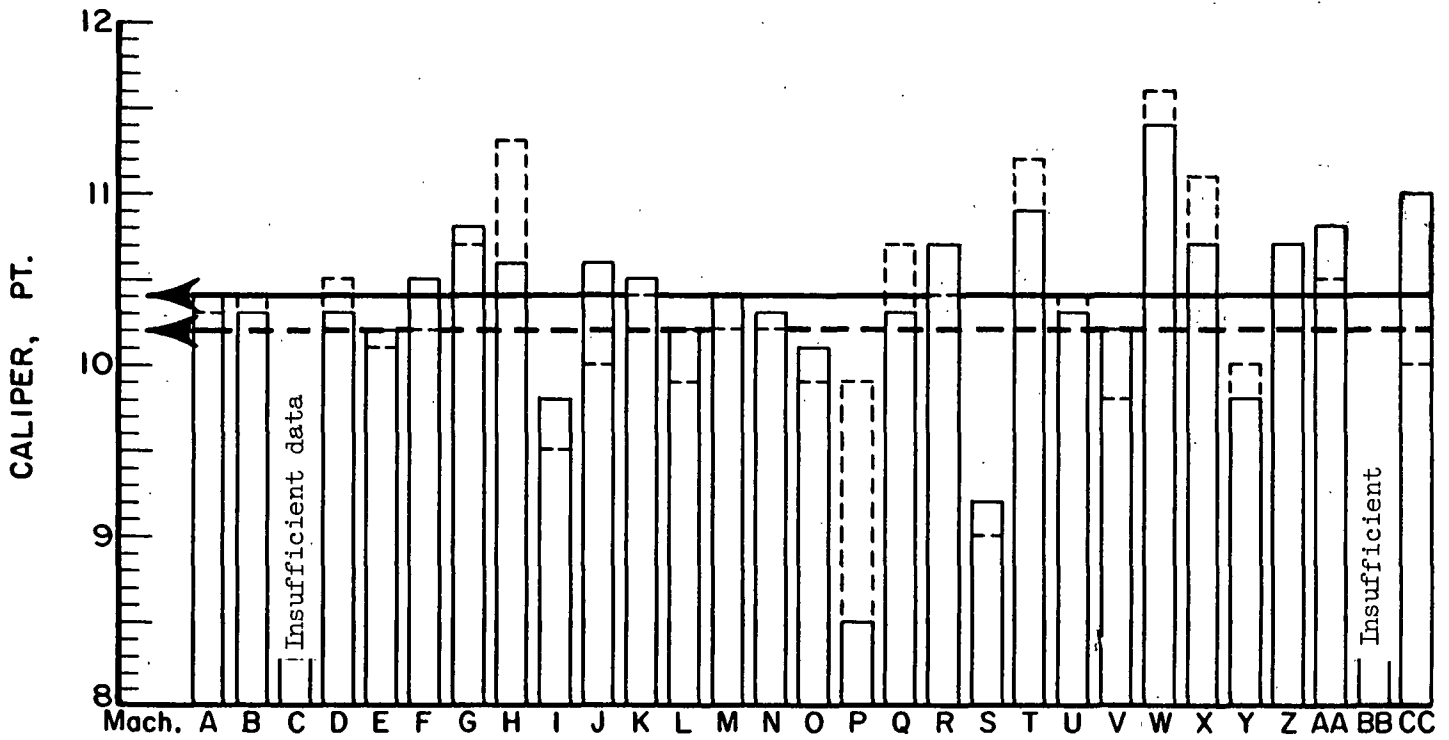


Figure 1. Comparison of Basis Weight Results



— Current machine average      — Current F.K.I. average  
 - - - Cumulative machine average      - - - Cumulative F.K.I. average

Figure 2. Comparison of Caliper Results



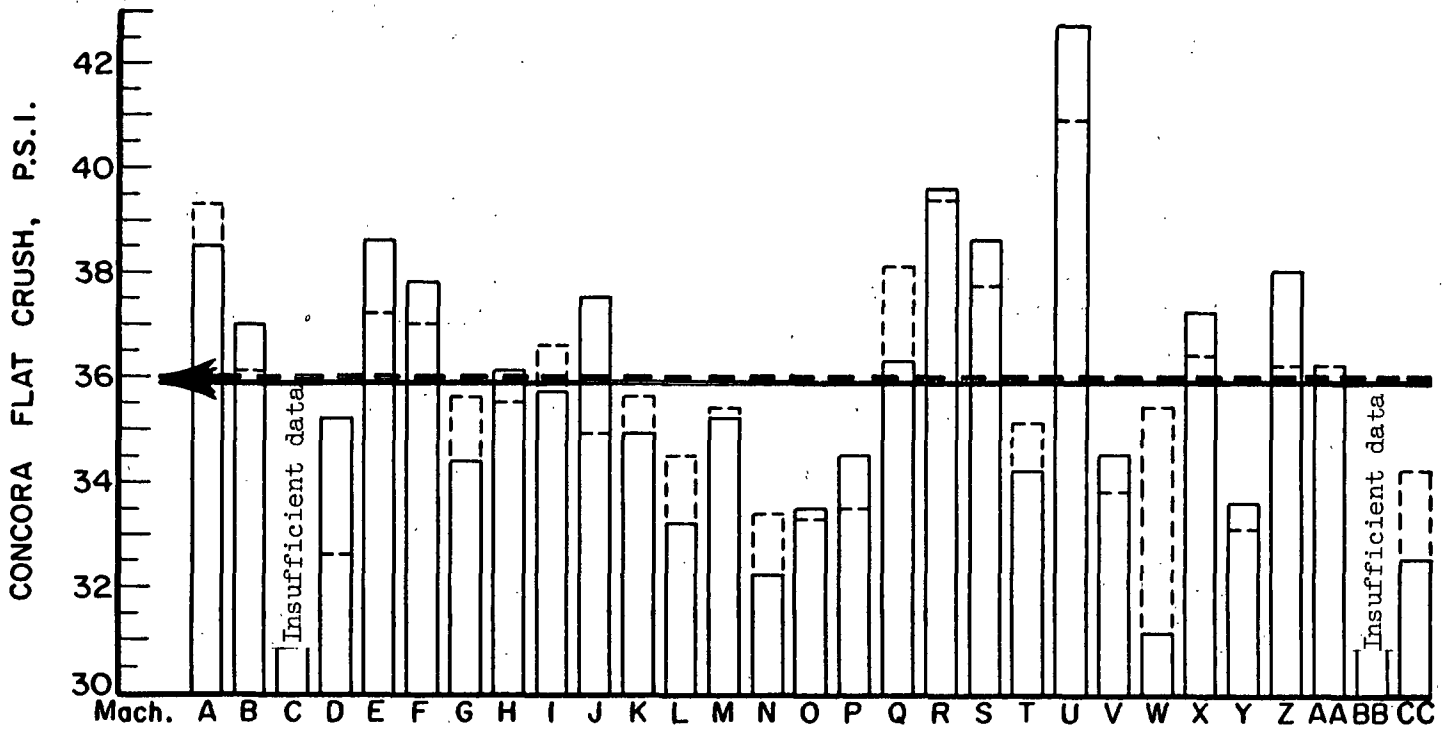


Figure 3. Comparison of Concora Flat Crush Results

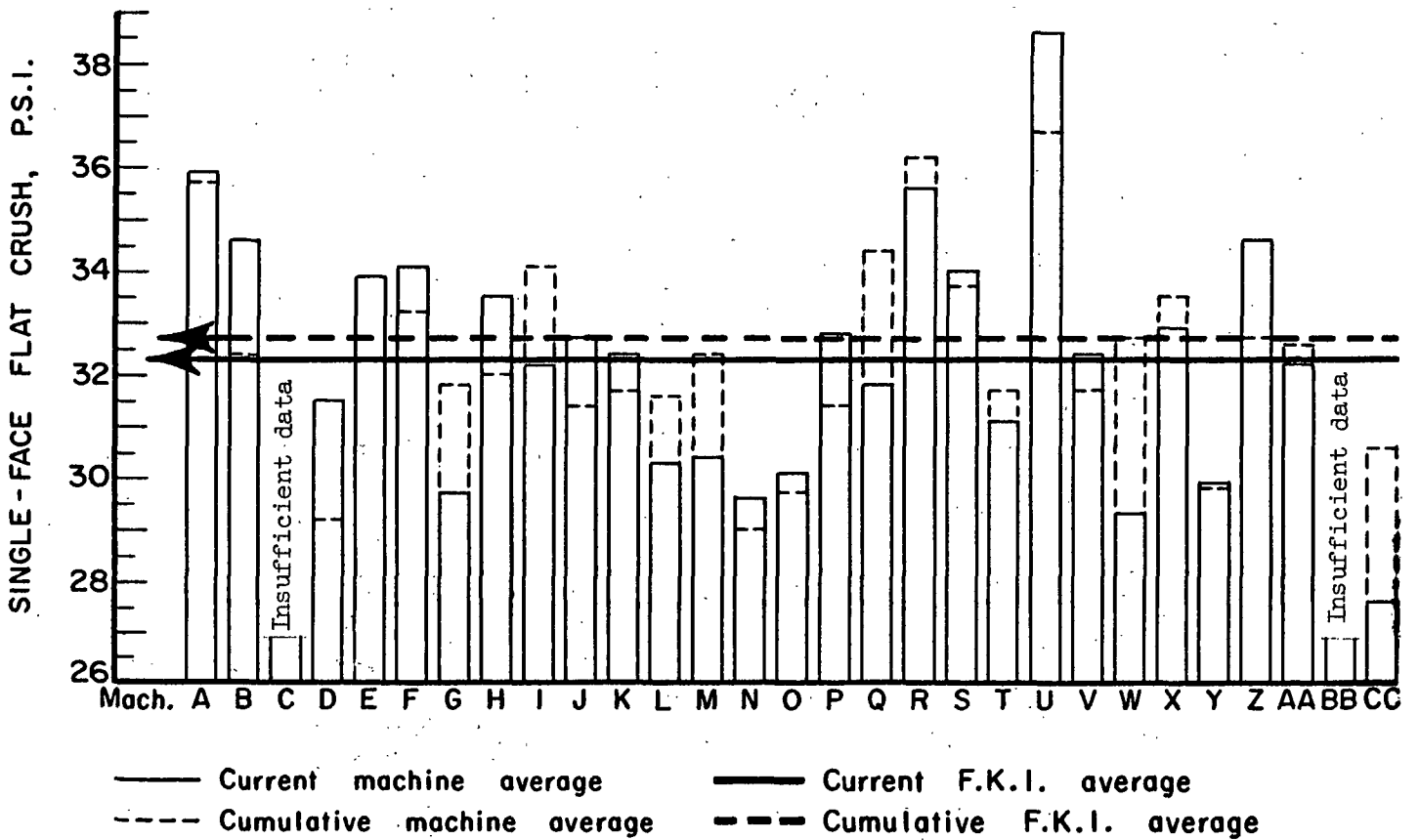


Figure 4. Comparison of Single-Face Flat Crush Results

TABLE II  
SUMMARY OF TEST RESULTS FOR MACHINE A  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
A-1	1-15-65	1-26-65	403	27.3	11.4	10.7	11.0	39.0	36.0	37.6	38.4	35.0	36.1	1	1.563
A-2	1-22-65	2-1-65	404	25.8	10.8	9.7	10.3	37.8	36.6	37.4	36.0	33.6	34.9	Min.	1.552
A-3	1-26-65	2-4-65	405	27.0	10.9	10.2	10.7	41.4	36.6	39.5	37.4	35.0	36.4	1-1/2	1.559
A-4	2-8-65	2-16-65	406	26.5	10.9	9.8	10.1	42.6	38.4	40.4	38.6	36.4	38.0	1-1/2	1.562
A-5	2-10-65	2-18-65	407	26.0	10.6	9.9	10.1	40.2	36.0	38.9	37.0	35.4	36.2	1	1.561
A-6	2-19-65	2-26-65	408	26.5	11.2	9.8	10.7	41.4	30.0	37.1	34.6	32.4	33.5	1-1/2	1.562
A-7	3-1-65	3-11-65	409	26.5	11.0	10.0	10.3	40.8	35.4	38.5	37.0	35.2	36.3	1-1/2	1.555
Current machine average				26.5			10.4			38.5			35.9		1.559
Cumulative machine average				26.6			10.3			39.3			35.7		
Machine factor, %				99.8			101.1			97.8			100.5		
Machine index, %				98.1			102.2			107.0			109.8		

TABLE III  
SUMMARY OF TEST RESULTS FOR MACHINE B  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
B-1	2-4-65	2-10-65	--	26.3	10.9	10.1	10.4	38.4	34.2	35.9	35.2	33.0	34.5	1	1.565
B-2	2-5-65	2-10-65	--	27.1	10.9	10.1	10.6	40.8	36.0	38.2	35.2	33.0	34.3	1-1/2	1.568
B-3	2-6-65	2-10-65	--	26.3	10.3	9.9	10.1	38.4	33.0	36.0	36.4	34.4	35.1	1	1.561
B-4	2-9-65	2-13-65	--	26.3	10.6	10.2	10.4	36.6	34.8	35.6	33.8	33.0	33.4	1	1.563
B-5	3-2-65	3-24-65	--	26.6	10.3	10.1	10.2	36.6	34.8	35.8	35.2	32.4	33.5	1	1.556
B-6	3-3-65	3-24-65	--	27.1	10.9	10.1	10.4	39.6	37.8	38.6	37.6	35.0	36.6	1/2	1.545
B-7	3-16-65	3-24-65	--	26.5	10.7	10.1	10.4	41.4	37.8	39.2	36.6	33.2	34.8	1/2	1.565
Current machine average				26.6			10.3			37.0			34.6		1.560
Cumulative machine average				26.7			10.4			36.1			32.4		
Machine factor, %				99.4			99.5			102.7			106.9		
Machine index, %				98.3			101.2			103.0			105.8		

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE IV  
SUMMARY OF TEST RESULTS FOR MACHINE C  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
C-1	1-25-65	2-10-65	44	25.2	10.1	9.4	9.9	30.6	28.8	30.0	29.8	27.0	28.6	1/2	1.561
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
				25.2			9.9			30.0			28.6		1.561
				26.2			9.7			33.5			28.7		1.564
				96.1			102.4			89.7			87.4		1.560
				93.2			96.8			83.4			87.5		1.571

TABLE V  
SUMMARY OF TEST RESULTS FOR MACHINE D  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
D-1	1-19-65	2-1-65	6	26.7	10.0	9.1	9.6	37.2	31.8	34.8	33.4	32.4	32.8	1	1.568
D-2	1-27-65	2-4-65	7	27.6	11.5	10.7	11.0	36.6	31.8	34.7	30.8	28.4	29.8	1/2	1.564
D-3	2-8-65	2-22-65	8	28.5	11.0	10.5	10.7	38.4	30.0	34.8	32.0	31.0	31.6	1/2	1.560
D-4	2-20-65	3-4-65	9	27.6	10.1	10.0	10.0	37.2	36.0	36.7	33.8	30.4	31.9	1-1/2	1.571
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
				27.6			10.3			35.2			31.5		1.566
				27.4			10.5			32.6			29.2		1.566
				100.8			98.3			108.2			107.8		1.566
				102.1			101.1			98.0			96.4		1.566

TABLE VI  
SUMMARY OF TEST RESULTS FOR MACHINE E  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
E-1	1-11-65	1-29-65	308	25.2	10.8	10.0	10.2	39.0	34.2	35.5	33.8	31.4	32.4	1/2	1.567
E-2	1-15-65	1-29-65	434	27.0	10.3	9.3	9.8	45.6	41.4	43.3	38.0	36.8	37.4	1-1/2	1.576
E-3	1-19-65	1-29-65	550	26.8	10.7	9.7	10.2	43.8	39.0	40.9	36.4	33.6	35.3	1	1.574
E-4	2-1-65	2-17-65	9	25.3	10.7	10.0	10.3	38.4	34.2	36.1	31.8	29.8	30.9	1	1.570
E-5	2-8-65	2-19-65	224	26.3	10.3	9.7	10.0	42.0	33.0	37.8	36.0	32.8	34.6	1/2	1.564
E-6	2-11-65	2-19-65	310	26.3	11.2	10.6	10.9	43.2	36.0	39.0	35.0	32.8	33.7	Min.	1.567
E-7	2-15-65	2-25-65	433	26.3	10.7	10.0	10.2	40.8	36.6	39.7	36.4	35.0	35.7	1/2	1.566
E-8	3-1-65	3-12-65	7	26.9	9.8	9.2	9.5	37.8	34.8	36.1	33.0	29.4	31.4	1-1/2	1.566
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
				26.2			10.2			38.6			33.9		1.569
				26.2			10.1			37.2			33.9		1.569
				100.0			100.6			103.6			100.0		1.569
				97.1			100.0			107.2			103.8		1.569

<sup>a</sup> Maximum tension at 600 f.p.m.  
<sup>b</sup> 600 f.p.m., minimum tension.

TABLE VII  
SUMMARY OF TEST RESULTS FOR MACHINE F  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw b factor				
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.		
F-1	2-3-65	2-10-65	--	27.4	11.1	10.8	10.9	40.8	35.4	38.3	34.6	33.2	33.8	1-1/2	1.565	
F-2	2-4-65	2-10-65	--	26.5	11.2	10.3	10.7	40.2	37.2	38.5	35.6	33.0	34.5	1-1/2	1.569	
F-3	2-5-65	2-10-65	--	27.0	11.0	10.5	10.8	41.4	37.2	38.6	37.2	34.6	35.4	1-1/2	1.571	
F-4	2-6-65	2-10-65	--	26.4	10.9	10.3	10.7	39.0	34.2	36.5	33.4	32.4	32.8	1-1/2	1.570	
F-5	3-10-65	3-24-65	--	26.7	10.6	10.1	10.3	39.0	36.6	37.8	35.6	31.6	34.0	1/2	1.560	
F-6	3-10-65	3-24-65	--	26.7	10.8	10.0	10.4	41.4	37.2	38.9	34.6	32.2	33.9	1/2	1.559	
F-7	3-11-65	3-24-65	--	26.7	10.7	10.2	10.4	39.0	35.4	37.3	35.0	32.4	33.4	1	1.559	
F-8	3-16-65	3-24-65	--	26.5	10.2	9.7	9.9	37.8	35.4	36.6	36.0	32.6	34.8	1-1/2	1.562	
Current machine average				26.7			10.5			37.8			34.1			1.564
Cumulative machine average				26.8			10.2			37.0			33.2			
Machine factor, %				99.7			102.9			102.1			102.7			
Machine index, %				98.9			103.0			105.1			104.2			

TABLE VIII  
SUMMARY OF TEST RESULTS FOR MACHINE G  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw b factor				
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.		
G-1	2-6-65	2-16-65	1	26.9	11.2	10.7	10.9	36.6	33.6	35.2	31.0	29.6	30.4	1	1.564	
G-2	2-11-65	3-17-65	2	26.4	10.6	10.0	10.3	34.2	31.8	32.5	28.0	26.6	27.5	1	1.570	
G-3	3-3-65	3-17-65	3	26.5	11.0	10.0	10.6	34.8	31.2	33.4	31.8	28.6	29.8	1	1.565	
G-4	3-4-65	3-17-65	4	26.6	11.4	10.3	10.9	36.6	28.8	33.1	31.4	28.4	29.8	1-1/2	1.571	
G-5	3-9-65	3-17-65	5	26.9	11.3	10.9	11.1	35.4	34.2	34.9	30.6	28.0	29.2	1	1.569	
G-6	3-18-65	3-17-65	6	27.3	11.4	10.4	10.9	40.8	34.8	37.4	33.0	29.0	31.4	1-1/2	1.571	
Current machine average				26.8			10.8			34.4			29.7			1.568
Cumulative machine average				27.1			10.7			35.6			31.8			
Machine factor, %				98.7			101.0			96.7			93.2			
Machine index, %				99.0			105.4			95.7			90.8			

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE IX  
 SUMMARY OF TEST RESULTS FOR MACHINE H  
 February and March, 1965  
 (Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>		draw factor <sup>b</sup>	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
H-1	1-26-65	2-8-65	71	27.2	11.8	10.8	40.8	33.6	37.4	33.8	32.6	33.1	1/2	1.568
H-2	1-26-65	2-8-65	72	27.9	11.8	10.9	40.8	34.2	36.6	31.6	30.0	30.8	1/2	1.568
H-3	1-27-65	2-8-65	73	26.3	10.1	9.3	36.0	32.4	34.0	32.0	31.0	31.4	1	1.565
H-4	1-27-65	2-8-65	74	26.5	10.9	10.0	37.2	33.0	34.8	32.2	30.0	31.6	1	1.565
H-5	2-16-65	3-4-65	75	26.8	11.0	10.1	39.6	32.4	36.5	36.8	32.6	34.8	Min.	1.547
H-6	2-16-65	3-4-65	76	26.8	11.1	10.2	40.2	34.2	37.2	36.6	34.6	35.6	1/2	1.553
H-7	2-19-65	3-4-65	77	27.3	11.1	10.2	37.2	34.8	36.7	35.6	33.8	34.6	1/2	1.557
H-8	2-19-65	3-4-65	78	26.8	11.0	10.2	39.0	32.4	35.5	37.4	34.6	35.9	1/2	1.560
Current machine average				27.0			10.6		36.1			33.5		1.560
Cumulative machine average				27.2			11.3		35.5			32.0		
Machine factor, %				99.0			94.5		101.7			104.7		
Machine index, %				100.0			104.1		100.3			102.4		

TABLE X  
 SUMMARY OF TEST RESULTS FOR MACHINE I  
 February and March, 1965  
 (Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>		draw factor <sup>b</sup>	
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.		
I-1	1-7-65	2-4-65	260	27.1	9.9	9.0	38.4	34.8	36.7	34.8	32.8	33.7	1-1/2	1.562
I-2	1-14-65	2-4-65	261	28.2	10.2	9.4	44.4	36.0	39.0	37.4	35.0	36.5	Min.	1.553
I-3	1-26-65	2-4-65	262	29.1	10.9	9.9	37.2	33.0	35.2	28.8	26.6	27.4	1-1/2	1.563
I-4	1-28-65	2-4-65	263	27.9	10.9	10.0	39.0	34.2	36.0	32.6	31.6	32.1	1-1/2	1.565
I-5	2-11-65	3-5-65	264	24.9	10.0	9.0	33.6	31.2	32.3	30.8	28.6	29.4	1-1/2	1.556
I-6	2-13-65	3-5-65	265	26.6	10.0	9.0	38.4	34.8	36.2	35.4	31.2	33.5	1-1/2	1.558
I-7	2-23-65	3-5-65	266	24.8	10.0	8.5	32.4	30.0	31.3	31.6	29.6	30.7	1-1/2	1.566
I-8	2-24-65	3-5-65	267	27.9	10.8	9.8	40.8	37.2	38.8	34.8	33.2	33.9	1-1/2	1.565
Current machine average				27.1			9.8		35.7			32.2		1.561
Cumulative machine average				26.8			9.5		36.6			34.1		
Machine factor, %				100.8			103.4		97.6			94.3		
Machine index, %				100.1			95.6		99.2			98.4		

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE XI  
SUMMARY OF TEST RESULTS FOR MACHINE J  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, P.S.I.		Single-Face Flat Crush, P.S.I.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.
J-1	1-25-65	2-2-65	57	26.4	10.7	10.0	10.4	37.2	33.6	31.8	27.6	29.9	1-1/2	1.570
J-2	1-25-65	2-2-65	58	26.7	10.7	10.0	10.4	39.0	32.4	32.6	27.6	30.6	1-1/2	1.571
J-3	2-10-65	2-17-65	65	27.8	11.2	10.3	10.8	43.8	37.8	36.8	34.4	35.7	1-1/2	1.571
J-4	2-10-65	2-17-65	66	27.8	11.0	10.6	10.8	41.4	38.4	34.4	31.8	33.0	1-1/2	1.572
J-5	2-24-65	3-3-65	73	27.9	11.2	10.2	11.0	40.8	36.6	37.6	30.8	33.0	1-1/2	1.569
J-6	2-24-65	3-3-65	74	27.7	11.1	10.0	10.8	37.8	32.4	34.6	30.8	33.2	1-1/2	1.568
J-7	3-2-65	3-11-65	81	26.8	11.0	10.1	10.6	41.4	34.8	34.2	30.0	32.8	1-1/2	1.568
J-8	3-2-65	3-11-65	82	27.0	11.0	10.1	10.6	40.8	34.2	36.2	32.4	33.6	1-1/2	1.568
				Current machine average	27.3			10.6		37.5				1.570
				Cumulative machine average	27.0			10.0		34.9				31.4
				Machine factor, %	100.8			106.3		107.6				104.0
				Machine index, %	100.8			104.1		104.3				100.0

TABLE XII  
SUMMARY OF TEST RESULTS FOR MACHINE K  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, P.S.I.		Single-Face Flat Crush, P.S.I.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.
K-1	1-13-65	3-3-65	2982	26.5	10.8	10.1	10.3	37.2	36.0	34.8	33.6	34.0	1	1.563
K-2	1-27-65	3-3-65	5983	27.1	11.0	10.8	10.9	35.4	34.2	33.4	31.6	32.4	1/2	1.560
K-3	2-5-65	3-3-65	1201	26.4	11.1	10.1	10.8	35.4	33.6	32.6	30.8	31.5	1	1.560
K-4	2-13-65	3-3-65	3078	26.5	11.0	10.3	10.8	35.4	30.0	32.4	30.0	31.4	1/2	1.562
K-5	2-20-65	3-15-65	4547	26.8	10.5	10.1	10.2	37.8	33.6	31.4	29.8	30.5	1/2	1.557
K-6	2-26-65	3-15-65	6272	27.1	10.5	10.0	10.2	36.0	32.4	32.4	31.0	31.4	1/2	1.557
K-7	3-2-65	3-15-65	303	26.7	10.8	10.0	10.2	34.8	33.6	33.2	30.8	31.6	1/2	1.560
K-8	3-9-65	3-16-65	2068	26.4	10.5	10.0	10.2	38.4	33.0	31.6	28.8	30.6	1	1.562
				Current machine average	26.7			10.5		34.9				1.560
				Cumulative machine average	26.7			10.4		35.6				32.4
				Machine factor, %	100.0			100.9		98.2				97.7
				Machine index, %	98.7			102.4		97.0				96.9

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE XIII  
 SUMMARY OF TEST RESULTS FOR MACHINE L  
 February and March, 1965

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	
L-1	1-7-65	2-4-65	161	27.4	11.0	9.5	10.2	34.2	30.0	32.6	27.6	29.5	1-1/2	1.573
L-2	1-23-65	2-4-65	162	26.9	10.0	9.0	9.6	41.4	38.4	40.2	32.4	33.5	1-1/2	1.576
L-3	1-23-65	2-4-65	163	26.1	10.2	9.6	10.0	34.8	31.2	33.0	29.8	31.3	1-1/2	1.568
L-4	2-12-65	3-5-65	164	26.8	10.2	9.3	10.0	36.0	32.4	33.6	30.8	32.2	1-1/2	1.564
L-5	2-13-65	3-5-65	165	26.6	10.5	9.9	10.0	34.2	31.8	33.0	29.4	32.4	1-1/2	1.564
L-6	2-22-65	3-5-65	166	28.7	11.1	10.2	10.7	31.2	28.8	30.0	25.6	26.4	1-1/2	1.571
L-7	2-26-65	3-5-65	167	28.5	11.1	10.1	10.6	31.2	28.8	30.0	25.4	27.1	1-1/2	1.571
Current machine average														
Cumulative machine average														
Machine factor, %														
Machine index, %														
				27.3			10.2			33.2				1.570
				27.0			9.9			34.5				
				101.1			103.0			96.2				
				100.9			100.0			92.3				

TABLE XIV  
 SUMMARY OF TEST RESULTS FOR MACHINE M  
 February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	
M-1	1-15-65	1-26-65	129	27.3	11.0	10.0	10.5	36.0	34.2	35.2	29.6	30.2	1-1/2	1.574
M-2	1-16-65	1-26-65	130	26.8	10.7	10.0	10.4	35.4	33.6	34.3	27.6	29.0	1-1/2	1.574
M-3	1-17-65	1-26-65	131	26.8	10.7	10.0	10.4	38.4	34.2	35.5	28.2	29.7	1-1/2	1.574
M-4	1-18-65	1-26-65	132	27.1	10.8	10.1	10.3	36.6	33.6	35.0	27.2	29.3	1-1/2	1.575
M-5	1-30-65	2-12-65	133	27.8	11.3	10.0	10.8	37.8	34.8	36.5	30.4	31.4	1-1/2	1.574
M-6	1-30-65	2-12-65	134	27.8	11.0	10.0	10.5	37.8	33.6	35.0	28.6	29.8	1-1/2	1.573
M-7	1-31-65	2-12-65	135	27.9	11.0	10.0	10.6	37.2	32.4	35.5	28.6	30.0	1-1/2	1.575
M-8	1-31-65	2-12-65	136	27.6	11.0	10.0	10.6	34.2	33.0	33.7	28.6	29.4	1-1/2	1.574
M-9	2-8-65	2-17-65	137	26.8	10.3	9.7	10.0	36.6	33.0	35.5	31.2	31.9	1-1/2	1.573
M-10	2-8-65	2-17-65	138	26.5	10.8	9.3	10.0	38.4	33.0	35.5	31.0	32.8	1-1/2	1.574
Current machine average														
Cumulative machine average														
Machine factor, %														
Machine index, %														
				27.2			10.4			35.2				1.574
				27.2			10.2			35.4				
				100.0			102.5			99.4				
				100.8			101.8			97.8				

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE XV  
SUMMARY OF TEST RESULTS FOR MACHINE N  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.		
N-1	1-16-65	2-1-65	10	25.7	10.1	9.8	10.0	31.8	29.4	30.5	31.6	29.4	30.3	1-1/2	1.572
N-2	1-23-65	2-1-65	11	26.3	10.5	10.0	10.2	32.4	30.0	31.0	30.6	27.8	29.3	1-1/2	1.570
N-3	1-28-65	2-4-65	12	27.4	10.7	9.9	10.4	34.8	30.6	33.4	31.6	29.0	29.9	1	1.568
N-4	2-14-65	2-22-65	13	26.8	10.6	10.0	10.1	37.2	30.6	33.7	32.8	29.8	30.9	1-1/2	1.571
N-5	2-16-65	3-4-65	14	25.7	10.1	9.5	10.0	34.2	30.0	31.4	29.0	26.6	28.2	1	1.566
N-6	3-6-65	3-25-65	15	28.3	11.4	10.6	11.0	35.4	30.6	32.8	29.4	27.8	28.7	1	1.567
N-7	3-12-65	3-25-65	16	26.4	10.6	10.1	10.4	34.8	31.2	32.9	30.6	29.0	29.7	1/2	1.568
Current machine average													1.569		
Cumulative machine average													29.6		
Machine factor, %													29.0		
Machine index, %													101.9		
													90.5		

TABLE XVI  
SUMMARY OF TEST RESULTS FOR MACHINE O  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.		
O-1	1-21-65	1-26-65	147	27.1	10.0	9.1	9.7	37.2	31.8	34.8	34.2	28.6	29.5	1-1/2	1.577
O-2	1-27-65	2-3-65	148	26.8	10.1	9.7	9.9	36.6	32.4	35.0	34.2	30.8	32.2	1-1/2	1.577
O-3	2-2-65	2-8-65	149	26.0	11.1	9.8	10.3	35.4	32.4	34.0	30.2	27.6	29.4	1-1/2	1.575
O-4	2-9-65	2-12-65	150	26.8	11.0	9.5	10.3	35.4	33.0	34.7	31.8	28.8	31.0	1-1/2	1.578
O-5	2-17-65	2-19-65	151	26.3	9.8	9.2	9.5	40.2	34.2	36.7	34.2	30.2	31.8	1-1/2	1.573
O-6	2-23-65	3-1-65	152	26.3	11.1	10.0	10.5	34.2	31.2	32.6	31.0	28.6	29.7	1-1/2	1.576
O-7	3-2-65	3-5-65	153	26.4	11.1	10.0	10.4	34.8	31.8	33.7	32.8	30.4	31.1	1-1/2	1.569
O-8	3-10-65	3-15-65	154	26.0	10.9	10.0	10.3	33.0	28.8	31.0	29.4	26.8	28.1	1-1/2	1.575
O-9	3-13-65	3-18-65	155	26.8	10.8	9.7	10.3	33.6	28.8	32.2	32.0	28.8	30.2	1-1/2	1.572
O-10	3-22-65	3-25-65	156	25.6	11.0	10.0	10.3	31.8	28.8	30.2	30.8	26.0	28.4	1-1/2	1.572
Current machine average													1.574		
Cumulative machine average													30.1		
Machine factor, %													29.7		
Machine index, %													101.6		
													92.2		

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.



TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P  
 February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.		Av.	Av.	
P-1	2-11-65	3-4-65	B-1	26.5	9.2	8.2	8.8	37.8	35.4	36.6	34.4	35.0	Note <sup>c</sup>	1.539
P-2	2-11-65	3-4-65	B-2	26.3	8.2	8.0	8.1	35.4	31.8	33.6	31.2	32.4	1/2	1.560
P-3	2-11-65	3-4-65	B-3	27.4	8.1	7.9	8.0	36.6	32.4	35.2	31.4	33.2	Min.	1.549
P-4	2-12-65	3-4-65	B-4	27.1	9.9	9.0	9.3	35.4	30.0	32.8	30.0	30.8	Min.	1.540
Current machine average														
Cumulative machine average														
Machine factor, %														
Machine index, %														
				26.8			8.5			34.5		32.8		1.547
				26.9			9.9			33.5		31.4		
				99.6			86.1			103.1		104.4		
				99.2			83.5			96.0		100.4		

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q  
 February and March, 1965

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, draw factor <sup>b</sup>			
					Max.	Min.	Max.	Min.	Max.	Min.		Av.	Av.	
Q-1	2-2-65	2-22-65	472	27.9	10.6	10.0	10.2	40.2	36.0	37.7	34.8	32.6	1-1/2	1.571
Q-2	2-5-65	2-22-65	473	27.3	10.2	10.0	10.1	39.6	33.0	35.3	32.6	31.3	1-1/2	1.570
Q-3	2-9-65	2-22-65	474	27.5	10.9	10.0	10.6	37.8	34.2	36.0	32.8	31.5	1-1/2	1.570
Current machine average														
Cumulative machine average														
Machine factor, %														
Machine index, %														
				27.6			10.3			36.3		31.8		1.570
				27.8			10.7			38.1		34.4		
				99.3			96.5			95.4		92.5		
				102.0			100.7			101.0		97.3		

<sup>a</sup>Maximum tension at 600 f.p.m.

<sup>b</sup>600 f.p.m., minimum tension.

<sup>c</sup>Maximum speed at which this roll could be corrugated with minimum tension was 375 f.p.m.

TABLE XIX  
SUMMARY OF TEST RESULTS FOR MACHINE R  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	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.			Av.		
R-1	1-15-65	1-26-65	728	27.0	11.4	10.6	11.0	41.4	37.2	38.6	37.4	35.8	36.6	1/2	1.564
R-2	1-18-65	1-26-65	729	27.4	11.0	10.1	10.7	43.2	40.2	41.9	37.4	36.2	36.8	1-1/2	1.562
R-3	1-20-65	1-27-65	730	27.0	10.9	10.1	10.5	40.2	37.2	38.9	36.4	34.4	35.7	1-1/2	1.560
R-4	1-26-65	2-8-65	731	26.8	11.3	9.8	10.8	40.8	37.2	39.4	35.6	34.6	35.2	1/2	1.555
R-5	2-12-65	2-25-65	732	26.7	11.2	10.3	10.7	40.8	37.2	39.4	35.4	31.6	33.5	1-1/2	1.565
R-6	2-18-65	2-26-65	733	26.5	11.1	9.8	10.8	41.4	38.4	39.8	36.2	31.6	34.5	1-1/2	1.564
R-7	2-25-65	3-8-65	734	26.7	11.3	10.0	10.6	40.2	36.6	38.5	37.4	33.4	35.0	1	1.553
R-8	3-1-65	3-11-65	735	27.0	11.0	10.0	10.4	41.4	39.6	40.4	38.0	36.6	37.4	1	1.552
				Current machine average	26.9		10.7		39.6		39.6		35.6		1.559
				Cumulative machine average	26.5		10.4		39.4		39.4		36.2		
				Machine factor, %	101.5		102.5		100.4		100.4		98.2		
				Machine index, %	99.5		104.4		110.1		104.8		108.8		

TABLE XX  
SUMMARY OF TEST RESULTS FOR MACHINE S  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	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.			Av.		
S-1	1-19-65	1-28-65	624	27.2	10.0	9.0	9.5	41.4	39.0	40.4	36.2	35.0	35.7	1-1/2	1.572
S-2	1-26-65	2-12-65	625	26.0	9.9	8.8	9.2	40.2	37.2	38.6	33.6	31.4	32.6	1-1/2	1.573
S-3	2-4-65	2-17-65	626	26.8	10.3	9.0	9.5	39.0	36.6	37.8	35.4	34.0	34.4	Min.	1.555
S-4	2-6-65	2-15-65	627	27.4	9.7	9.3	9.4	42.6	37.8	41.2	37.0	34.0	35.9	1-1/2	1.564
S-5	2-12-65	2-23-65	628	27.8	9.4	8.9	9.2	43.8	37.8	40.0	34.8	34.0	34.5	1-1/2	1.568
S-6	2-25-65	3-8-65	629	26.8	9.6	8.9	9.1	40.2	37.2	38.5	36.8	33.8	35.2	1/2	1.559
S-7	2-28-65	3-15-65	630	27.4	9.8	9.1	9.4	40.2	36.0	37.8	35.6	32.8	34.0	1/2	1.560
S-8	3-10-65	3-18-65	631	26.0	9.5	8.9	9.0	39.0	34.2	37.2	33.0	30.4	31.6	1/2	1.564
S-9	3-15-65	3-25-65	632	25.7	9.0	8.7	8.9	38.4	34.2	36.2	33.0	31.4	32.2	1/2	1.562
				Current machine average	26.8		9.2		38.6		38.6		34.0		1.564
				Cumulative machine average	26.7		9.0		37.7		37.7		33.7		
				Machine factor, %	100.2		102.5		102.5		102.5		100.8		
				Machine index, %	99.1		90.4		107.4		104.1		104.1		

a Maximum tension at 600 f.p.m.  
b 600 f.p.m., minimum tension.

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T  
 February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.				
T-1	1-27-65	2-9-65	1290	27.7	10.3	9.9	10.1	33.6	30.0	31.3	26.0	28.6	1/2	1.569
T-2	1-27-65	2-9-65	1291	28.2	10.3	10.0	10.1	34.8	33.0	34.1	29.0	30.1	1/2	1.567
T-3	2-10-65	2-17-65	1298	29.3	11.7	11.2	11.4	38.4	32.4	36.5	30.8	32.0	1	1.561
T-4	2-10-65	2-17-65	1299	28.7	11.8	11.1	11.4	40.8	33.0	36.4	32.2	33.6	1	1.561
T-5	3-2-65	3-10-65	1306	27.9	11.0	10.5	10.8	36.0	31.2	34.3	34.8	33.0	1/2	1.567
T-6	3-2-65	3-10-65	1307	28.1	11.0	10.0	10.6	36.6	31.8	34.4	30.0	31.6	1	1.561
T-7	3-15-65	3-25-65	1314	29.3	11.8	11.0	11.4	35.4	33.6	34.4	28.4	30.2	Min.	1.563
T-8	3-15-65	3-25-65	1315	28.1	11.6	11.0	11.4	34.8	30.6	32.5	29.4	30.0	Min.	1.560
Current machine average				28.4	10.9		10.9		34.2		31.1		1.564	
Cumulative machine average				28.3	11.2		11.2		35.1		31.7		1.568	
Machine factor, %				100.5	97.1		97.1		98.2		98.2		95.2	
Machine index, %				105.1	106.6		106.6		95.2		95.2		95.2	

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U  
 February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.				
U-1	12-23-64	1-28-65	587	29.0	11.8	10.7	11.2	44.4	38.4	41.8	36.2	37.0	Note <sup>c</sup>	1.538
U-2	1-5-65	1-28-65	588	27.1	9.9	9.3	9.8	45.0	42.0	43.3	36.0	36.8	1-1/2	1.564
U-3	1-10-65	1-28-65	589	27.2	10.0	9.6	9.8	44.4	37.2	40.9	37.8	38.6	1-1/2	1.568
U-4	1-31-65	2-17-65	592	27.8	11.0	10.0	10.6	45.0	42.6	43.7	36.4	38.0	Min.	1.553
U-5	2-2-65	3-9-65	593	28.4	10.9	10.0	10.4	43.8	40.8	42.6	37.6	40.7	1	1.532
U-6	2-14-65	3-9-65	594	28.7	10.3	9.9	10.1	45.0	41.4	43.2	38.2	39.2	1-1/2	1.533
U-7	2-18-65	3-9-65	595	28.6	10.9	10.0	10.3	45.6	39.0	43.6	38.4	39.8	1-1/2	1.559
Current machine average				28.1	10.3		10.3		42.7		38.6		1.555	
Cumulative machine average				27.8	10.4		10.4		40.9		36.7		1.568	
Machine factor, %				101.2	98.7		98.7		104.5		105.1		118.0	
Machine index, %				104.0	100.9		100.9		118.8		118.8		118.0	

<sup>a</sup>Maximum tension at 600 f.p.m.

<sup>b</sup>600 f.p.m., minimum tension.

<sup>c</sup>Maximum speed at which this roll could be corrugated with minimum tension was 550 f.p.m.

TABLE XXIII  
SUMMARY OF TEST RESULTS FOR MACHINE V  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, P.S.I.		Single-Face Flat Crush, P.S.I.		Runnability, lb./in. <sup>a</sup>	Draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	
V-1	1-5-65	2-10-65	41	27.6	10.5	10.0	10.2	37.8	33.6	35.8	32.2	32.9	1-1/2	1.561
V-2	1-14-65	2-10-65	42	27.1	10.0	9.9	10.0	39.0	34.8	37.4	33.2	33.8	1	1.561
V-3	1-21-65	2-10-65	43	25.7	10.0	9.5	9.8	33.6	32.4	33.1	28.2	29.8	1-1/2	1.568
V-4	2-5-65	3-9-65	45	26.8	11.0	10.1	10.7	37.2	34.8	35.4	31.6	32.9	Min.	1.548
V-5	2-12-65	3-9-65	46	26.8	10.2	10.0	10.0	37.2	31.2	34.0	32.0	33.3	Min.	1.552
V-6	2-18-65	3-9-65	47	26.5	11.0	10.1	10.6	34.2	31.8	33.4	31.4	32.5	1/2	1.558
V-7	2-24-65	3-9-65	48	26.7	10.8	10.0	10.4	34.2	30.6	32.8	31.4	31.9	1/2	1.552
Current machine average				26.8			10.2			34.5				1.557
Cumulative machine average				26.3			9.8			33.8				
Machine factor, %				101.6			104.4			102.3				
Machine index, %				99.0			100.0			96.0				

TABLE XXIV  
SUMMARY OF TEST RESULTS FOR MACHINE W  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, P.S.I.		Single-Face Flat Crush, P.S.I.		Runnability, lb./in. <sup>a</sup>	Draw factor <sup>b</sup>		
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	
W-1	1-26-65	2-4-65	63	26.6	11.7	10.8	11.2	34.2	32.4	33.1	29.6	30.5	1-1/2	1.567
W-2	1-26-65	2-4-65	64	26.0	11.5	10.5	11.0	34.8	29.4	32.4	28.0	29.7	1-1/2	1.565
W-3	2-8-65	2-16-65	71	25.2	12.9	11.2	12.2	31.8	28.8	30.4	27.6	28.5	1/2	1.555
W-4	2-8-65	2-16-65	72	25.6	11.9	11.2	11.5	34.8	30.0	32.6	28.8	29.8	Min.	1.545
W-5	2-22-65	3-3-65	79	26.3	11.5	10.9	11.2	31.2	26.4	29.5	30.4	31.4	1-1/2	1.560
W-6	2-22-65	3-3-65	80	26.3	12.0	11.0	11.5	31.2	28.8	30.5	27.6	29.2	1-1/2	1.563
W-7	3-3-65	3-15-65	87	26.0	11.9	10.9	11.3	33.0	28.8	30.5	25.6	27.1	1/2	1.561
W-8	3-3-65	3-15-65	88	25.3	11.9	11.0	11.6	31.2	27.6	29.5	27.8	28.5	1-1/2	1.559
Current machine average				25.9			11.4			31.1				1.559
Cumulative machine average				27.0			11.6			35.4				
Machine factor, %				95.8			98.9			87.8				
Machine index, %				95.8			111.9			86.4				

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE XXV  
SUMMARY OF TEST RESULTS FOR MACHINE X  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>				
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.		
X-1	1-8-65	2-11-65	488	26.0	11.1	10.4	10.9	33.0	27.0	30.8	31.2	29.6	30.2	1-1/2	1.569	
X-2	1-12-65	2-11-65	489	26.4	11.1	10.9	11.0	36.6	31.8	33.8	34.0	29.4	31.6	1-1/2	1.571	
X-3	1-20-65	2-11-65	490	25.8	11.0	10.2	10.8	37.2	31.2	33.4	32.8	30.6	31.6	1	1.572	
X-4	1-29-65	2-11-65	491	26.5	11.0	10.5	10.9	36.0	31.2	33.0	31.2	28.2	29.4	1-1/2	1.571	
X-5	2-3-65	3-17-65	492	28.4	10.9	10.4	10.7	43.2	37.8	40.4	36.0	32.4	33.8	1-1/2	1.571	
X-6	2-9-65	3-17-65	493	28.0	11.1	10.4	10.7	42.6	37.8	40.0	35.4	33.0	34.3	1-1/2	1.569	
X-7	2-15-65	3-17-65	494	38.0	10.7	10.2	10.5	42.0	37.2	40.1	35.0	33.0	33.8	1-1/2	1.569	
X-8	2-26-65	3-17-65	495	27.6	10.9	10.1	10.7	43.8	37.8	39.5	35.0	31.8	34.2	1-1/2	1.571	
X-9	3-3-65	3-24-65	496	28.0	10.9	10.1	10.6	41.4	37.8	40.4	37.0	34.0	35.2	1	1.568	
X-10	3-8-65	3-24-65	497	27.8	10.9	10.3	10.6	42.0	39.6	40.8	36.6	33.6	35.5	1	1.567	
Current machine average				27.2			10.7		37.2		37.2		32.9			1.570
Cumulative machine average				27.6			11.1		36.4		36.4		33.5			
Machine factor, %				98.6			96.8		102.1		98.3		100.8			
Machine index, %				100.8			104.9		103.5		100.8					

TABLE XXVI  
SUMMARY OF TEST RESULTS FOR MACHINE Y  
February and March, 1965  
(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>				
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.		
Y-1	1-20-65	1-26-65	147	27.0	10.0	9.5	9.9	37.2	31.8	34.2	30.4	27.2	29.0	1-1/2	1.578	
Y-2	1-27-65	2-3-65	148	27.1	10.9	9.8	10.2	35.4	34.2	34.9	30.4	28.0	29.0	1-1/2	1.576	
Y-3	2-2-65	2-8-65	149	26.2	10.7	9.8	10.2	34.8	31.2	32.5	28.6	28.0	28.2	1-1/2	1.574	
Y-4	2-9-65	2-12-65	150	26.8	10.0	9.8	10.0	31.8	30.0	31.0	31.4	28.8	29.6	1-1/2	1.576	
Y-5	2-16-65	2-19-65	151	26.7	9.9	9.1	9.5	38.4	34.2	36.2	33.4	31.0	32.3	1-1/2	1.573	
Y-6	2-23-65	3-1-65	152	26.3	9.9	9.1	9.6	37.2	32.4	34.9	31.6	29.8	30.8	1-1/2	1.577	
Y-7	3-2-65	3-5-65	153	26.8	10.0	9.3	9.8	36.0	33.6	35.2	32.8	27.8	30.8	1-1/2	1.572	
Y-8	3-9-65	3-15-65	154	26.5	10.1	9.5	9.9	33.6	29.4	31.6	31.8	29.8	30.6	1-1/2	1.570	
Y-9	3-14-65	3-18-65	155	26.4	9.3	9.0	9.1	34.2	31.8	33.2	31.4	30.2	30.7	1-1/2	1.574	
Y-10	3-22-65	3-25-65	156	26.4	9.8	9.3	9.5	34.8	30.6	32.5	29.4	26.4	27.8	1-1/2	1.574	
Current machine average				26.6			9.8		33.6		33.6		29.9			1.574
Cumulative machine average				26.5			10.0		33.1		33.1		29.8			
Machine factor, %				100.5			97.1		101.5		101.5		100.3			
Machine index, %				98.5			95.4		93.5		93.5					

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z  
February and March, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw factor <sup>b</sup>					
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.			
Z-1	1-5-65	1-26-65	1	28.3	11.4	10.9	11.2	38.4	35.4	37.0	38.4	33.8	35.4	Note <sup>c</sup>	1.549		
Z-2	2-2-65	2-17-65	2	27.1	11.9	10.6	11.0	42.6	40.8	41.8	38.0	35.2	37.1	1/2	1.556		
Z-3	2-11-65	2-22-65	3	27.2	11.6	10.9	11.1	39.6	36.6	38.0	35.2	33.8	34.4	Min.	1.557		
Z-4	2-17-65	3-2-65	4	26.8	11.0	10.0	10.4	40.2	35.4	37.3	36.4	33.8	34.9	Min.	1.546		
Z-5	2-21-65	3-11-65	5	25.7	10.3	9.0	9.9	37.2	34.8	35.6	33.6	31.6	32.3	Min.	1.554		
Z-6	3-9-65	3-17-65	7	27.4	10.9	10.2	10.6	40.2	37.2	38.4	34.8	33.2	33.8	1/2	1.557		
Current machine average				27.1			10.7			38.0						1.553	
Cumulative machine average				27.0			10.7			36.2							
Machine factor, %				100.3			100.0			105.0							
Machine index, %				100.2			104.6			105.7							

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA  
February and March, 1965

(Type of medium: semichemical)

AA-1	2-5-65	2-10-65	--	27.0	11.0	10.1	10.4	38.4	36.0	37.3	33.6	32.4	33.0	1-1/2	1.570		
AA-2	2-7-65	2-10-65	--	27.1	11.0	10.5	10.9	37.8	36.0	37.0	33.0	31.6	32.2	1-1/2	1.565		
AA-3	2-8-65	2-16-65	--	26.7	11.7	10.7	11.0	37.8	31.2	34.4	32.2	30.8	31.5	1/2	1.555		
AA-4	2-9-65	2-16-65	--	26.9	11.1	10.5	10.8	38.4	34.2	36.6	33.8	31.8	32.8	1/2	1.557		
AA-5	3-2-65	3-24-65	--	26.6	10.7	10.1	10.6	36.6	34.8	35.4	33.2	31.0	32.0	1/2	1.556		
AA-6	3-7-65	3-24-65	--	27.1	11.3	10.7	11.0	39.6	34.2	36.8	32.6	31.2	31.7	Min.	1.554		
AA-7	3-9-65	3-24-65	--	27.1	11.2	10.7	10.9	36.6	33.0	34.8	33.6	31.6	32.9	1/2	1.561		
AA-8	3-12-65	3-24-65	--	26.7	11.0	10.6	10.8	37.2	31.2	35.2	32.6	29.8	31.5	1/2	1.562		
Current machine average				26.9			10.8			35.9						1.560	
Cumulative machine average				27.0			10.5			36.2							
Machine factor, %				99.7			103.1			99.2							
Machine index, %				99.5			105.6			99.9							

<sup>a</sup>Maximum tension at 600 f.p.m.

<sup>b</sup>600 f.p.m., minimum tension.

<sup>c</sup>Maximum speed at which this roll could be corrugated with minimum tension was 350 f.p.m.

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB  
 February and March, 1965

(Type of medium: kraft)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw <sup>b</sup> factor		
					Max.	Min.	Max.	Min.	Max.	Min.				
BB-1	1-21-65	3-10-65	1	28.2	10.0	9.1	9.8	38.4	31.2	34.0	36.4	34.1	1/2	1.562
BB-2	1-21-65	3-10-65	2	27.9	10.0	9.2	9.7	34.8	30.6	32.9	34.8	33.5	1/2	1.569
Current machine average				28.0			9.8			33.4		33.8		1.566
Cumulative machine average				28.1			9.4			36.3		33.5		
Machine factor, %				99.9			104.6			92.1		101.0		
Machine index, %				103.7			95.7			92.9		103.5		

TABLE XXX

SUMMARY OF TEST RESULTS FOR MACHINE CC  
 February and March, 1965

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runnability, lb./in. <sup>a</sup>	draw <sup>b</sup> factor		
					Max.	Min.	Max.	Min.	Max.	Min.				
CC-1	12-18-64	3-22-65	44	28.3	11.0	10.0	10.6	38.4	34.8	37.2	33.6	32.8	1-1/2	1.566
CC-2	1-19-65	3-22-65	45	27.7	12.7	11.3	12.1	31.2	25.2	27.8	24.2	21.6	1-1/2	1.568
CC-3	1-23-65	3-22-65	46	26.5	10.2	9.5	9.9	35.4	33.0	34.0	31.8	29.6	1-1/2	1.566
CC-4	1-31-65	3-22-65	47	29.0	12.0	11.0	11.5	31.8	30.0	31.0	25.6	21.8	1-1/2	1.568
Current machine average				27.9			11.0			32.5		27.6		1.567
Cumulative machine average				27.8			10.0			34.2		30.6		
Machine factor, %				100.2			110.2			94.9		90.3		
Machine index, %				103.2			107.9			90.3		84.4		

<sup>a</sup>Maximum tension at 600 f.p.m.  
<sup>b</sup>600 f.p.m., minimum tension.

which only the average is shown; in addition, the over-all average result for all rolls submitted for a given machine is shown for each test property. The latter over-all 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 (February and March, 1965). 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	Cum. F.K.I. Average
Basis wt., lb.	28.4	25.9	27.0	27.0
Caliper, pt.	11.4	8.5	10.4	10.2
Concora flat crush, p.s.i.	42.7	31.1	35.9	36.0
Single-face flat crush, p.s.i.	38.6	27.6	32.3	32.7

The runnability data for the 201 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	3	1.5	100.0
600 f.p.m. - minimum tension	17	8.5	98.5
600 f.p.m. - 1/2 lb. per in. tension	44	21.9	90.0
600 f.p.m. - 1 lb. per in. tension	32	15.9	68.1
600 f.p.m. - 1-1/2 lb. per in. tension	105	52.2	52.2

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 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 over-all 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 per cent. Comparative data from the previous two reports are also included in Part II of Table XXXII.

TABLE XXXI

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR FEBRUARY AND MARCH, 1965

Machine A				Machine B				Machine C							
Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence <sup>a</sup>	Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence	Code	Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence
A-1	1-15-65	37.6	37.9	+0.3	B-1	2-4-65	35.9	35.6	-0.3	C-1	44	1-26-65	30.0	25.7	-4.3
A-2	1-22-65	37.4	37.8	+0.4	B-2	2-5-65	38.2	36.8	-1.4						
A-3	1-26-65	39.5	37.6	-1.9	B-3	2-6-65	36.0	35.8	-0.2						
A-4	2-8-65	40.4	38.9	-1.5	B-4	2-9-65	35.6	35.5	-0.1						
A-5	2-10-65	38.9	38.6	-0.3	B-5	3-2-65	35.8	36.0	+0.2						
A-6	2-19-65	37.1	38.4	+1.3	B-6	3-3-65	38.6	38.6	0.0						
A-7	3-1-65	38.5	38.8	+0.3	B-7	3-16-65	39.2	37.2	-2.0						
Current machine av.		38.5	38.3	-0.2	Current machine av.		37.0	36.5	-0.5	Current machine av.			30.0	25.7	-4.3
Machine D				Machine E				Machine F							
Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence <sup>a</sup>	Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence	Code	Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence
D-1	1-19-65	34.8	34.2	-0.6	E-1	1-11-65	35.5	35.6	+0.1	F-1	--	2-3-65	38.3	37.1	-1.2
D-2	1-27-65	34.7	35.8	+1.1	E-2	1-15-65	43.3	39.6	-3.7	F-2	--	2-4-65	38.5	37.6	-0.9
D-3	2-8-65	34.8	28.6	-6.2	E-3	1-19-65	40.9	39.1	-1.8	F-3	--	2-5-65	38.6	38.3	-0.3
D-4	2-20-65	36.7	37.0	+0.3	E-4	2-1-65	36.1	35.9	-0.2	F-4	--	2-6-65	36.5	37.7	+1.2
					E-5	2-8-65	37.8	36.6	-1.2	F-5	--	3-10-65	37.8	36.4	-1.4
					E-6	2-11-65	39.0	38.5	-0.5	F-6	--	3-10-65	38.9	36.5	-2.4
					E-7	2-15-65	39.7	37.6	-2.1	F-7	--	3-11-65	37.3	36.2	-1.1
					E-8	3-1-65	36.1	33.0	-3.1	F-8	--	3-16-65	36.6	37.0	+0.4
Current machine av.		35.2	33.9	-1.3	Current machine av.		38.6	37.0	-1.6	Current machine av.			37.8	37.1	-0.7
Machine G				Machine H				Machine I							
Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence <sup>a</sup>	Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence	Code	Mill Roll No.	Date Made	Insti-tute	P.s.i. Mill	Differ-ence
G-1	2-6-65	35.2	38.0	+2.8	H-1	1-26-65	37.4	36.0	-1.4	I-1	260	1-7-65	36.7	37.7	+1.0
G-2	2-11-65	32.5	35.4	+2.9	H-2	1-26-65	36.6	37.3	+0.7	I-2	261	1-14-65	39.0	39.4	+0.4
G-3	3-3-65	33.4	37.6	+4.2	H-3	1-27-65	34.0	35.6	+1.6	I-3	262	1-26-65	35.2	33.0	-2.2
G-4	3-4-65	33.1	38.4	+5.3	H-4	1-27-65	34.8	38.3	+3.5	I-4	263	1-28-65	36.0	34.8	-1.2
G-5	3-9-65	34.9	38.5	+3.6	H-5	2-16-65	36.5	37.3	+0.8	I-5	264	2-11-65	32.3	32.5	+0.2
G-6	3-18-65	37.4	38.3	+0.9	H-6	2-16-65	37.2	37.7	+0.5	I-6	265	2-13-65	36.2	36.5	+0.3
					H-7	2-19-65	36.7	37.4	+0.7	I-7	266	2-23-65	31.3	32.7	+1.4
					H-8	2-19-65	35.5	37.2	+1.7	I-8	267	2-24-65	38.8	38.2	-0.6
Current machine av.		34.4	37.7	+3.3	Current machine av.		36.1	37.1	+1.0	Current machine av.			35.7	35.6	-0.1

Please see end of table for footnote.

TABLE XXXI (Continued)  
INSTITUTE AND MILL CONCORRA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR FEBRUARY AND MARCH, 1965

Machine J				Machine K				Machine L						
Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.		Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.		Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.	
			Insti- tute	Mill				Insti- tute	Mill				Insti- tute	Mill
J-1	57	1-25-65	35.0	39.8	K-1	2982	1-13-65	36.7	36.4	L-1	161	1-7-65	32.6	32.3
J-2	58	1-25-65	35.9	39.6	K-2	5983	1-27-65	34.8	34.6	L-2	162	1-23-65	40.2	40.7
J-3	65	2-10-65	39.8	42.9	K-3	1201	2-5-65	34.2	35.5	L-3	163	1-25-65	33.0	33.4
J-4	66	2-10-65	39.6	41.4	K-4	3078	2-13-65	33.2	35.8	L-4	164	2-12-65	33.6	33.1
J-5	73	2-24-65	37.9	40.2	K-5	4547	2-20-65	35.8	35.8	L-5	165	2-13-65	33.0	33.1
J-6	74	2-24-65	35.8	41.0	K-6	6272	2-26-65	34.9	36.2	L-6	166	2-25-65	30.0	29.0
J-7	81	3-2-65	38.4	42.2	K-7	303	3-2-65	34.2	36.4	L-7	167	2-26-65	30.0	28.8
J-8	82	3-2-65	37.8	40.2	K-8	2068	3-9-65	35.4	36.2					
Current machine av.			37.5	40.9	Current machine av.			34.9	35.9	Current machine av.			33.2	32.9
Current machine av.			37.4	40.9	Current machine av.			+1.0	+1.0	Current machine av.			-0.3	-0.3

Machine N				Machine O				Machine P						
Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.		Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.		Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.	
			Insti- tute	Mill				Insti- tute	Mill				Insti- tute	Mill
N-1	10	1-16-65	30.5	32.3	O-1	147	1-21-65	34.8	32.6	P-1	B-1	2-11-65	36.6	34.9
N-2	11	1-23-65	31.0	31.4	O-2	148	1-27-65	35.0	34.2	P-2	B-2	2-11-65	33.6	35.8
N-3	12	1-28-65	33.4	33.4	O-3	149	2-2-65	34.0	32.3	P-3	B-3	2-11-65	35.2	32.0
N-4	13	2-14-65	33.7	34.4	O-4	150	2-9-65	34.7	33.6	P-4	B-4	2-12-65	32.8	32.3
N-5	14	2-16-65	31.4	29.4	O-5	151	2-17-65	36.7	34.6					
Current machine av.			32.0	32.2	Current machine av.			33.5	33.1	Current machine av.			34.5	33.8
Current machine av.			+0.2	+0.2	Current machine av.			-0.4	-0.4	Current machine av.			-0.7	-0.7

Machine R				Machine S				Machine T						
Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.		Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.		Code	Mill Roll No.	Date Made	Concorra Flat Crush, P.S.I.	
			Insti- tute	Mill				Insti- tute	Mill				Insti- tute	Mill
R-1	728	1-15-65	38.6	38.9	S-1	624	1-19-65	40.4	37.1	T-1	1290	1-27-65	31.3	29.9
R-2	729	1-18-65	41.9	38.5	S-2	625	1-26-65	38.6	37.2	T-2	1291	1-27-65	34.1	34.4
R-3	730	1-20-65	38.9	37.8	S-3	626	2-4-65	37.8	38.0	T-3	1298	2-10-65	36.5	37.6
R-4	731	1-26-65	39.4	38.0	S-4	627	2-6-65	41.2	40.9	T-4	1299	2-10-65	36.4	34.8
R-5	732	2-12-65	39.4	38.9	S-5	628	2-12-65	40.0	38.5	T-5	1306	3-2-65	34.3	32.9
R-6	733	2-18-65	39.8	38.2	S-6	629	2-25-65	38.5	39.8	T-6	1307	3-2-65	34.4	32.8
R-7	734	2-23-65	38.5	37.4	S-7	630	2-28-65	37.8	40.5	T-7	1314	3-15-65	34.4	34.4
R-8	735	3-1-65	40.4	39.6	S-8	631	3-10-65	37.2	37.5	T-8	1315	3-15-65	32.5	34.1
Current machine av.			39.6	38.4	Current machine av.			38.6	38.6	Current machine av.			34.2	33.9
Current machine av.			-1.2	-1.2	Current machine av.			0.0	0.0	Current machine av.			-0.3	-0.3

Please see end of table for footnote.

TABLE XXXI (Continued)  
 INSTITUTE AND MILL CONCORRA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR FEBRUARY AND MARCH, 1965

Machine U				Machine V				Machine X						
Code	Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Mill Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Mill Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Differ- ence	
				Mill				Mill				Mill		
U-1	587	12-23-64	41.8	41.2	41	1-5-65	35.8	31.0	488	1-8-65	30.8	35.6	+4.8	
U-2	588	1-5-65	43.3	41.6	42	1-14-65	37.4	29.6	489	1-12-65	33.8	34.3	+0.5	
U-3	589	1-10-65	40.9	38.3	43	1-21-65	33.1	27.0	490	1-20-65	33.4	37.7	+4.3	
U-4	592	1-31-65	43.7	37.7	45	2-5-65	35.4	31.7	491	1-29-65	33.0	35.4	+2.4	
U-5	593	2-2-65	42.6	40.9	46	2-12-65	34.0	30.1	492	2-3-65	40.4	39.4	-1.0	
U-6	594	2-14-65	43.2	41.3	47	2-18-65	33.4	30.2	493	2-9-65	40.0	41.2	+1.2	
U-7	595	2-18-65	43.6	43.0	48	2-24-65	32.8	29.2	494	2-15-65	40.1	39.7	-0.4	
Current machine av.				42.7	40.6	Current machine av.		34.5	29.8	Current machine av.		37.2	38.2	+1.0
Machine Y				Machine Z				Machine AA						
Code	Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Mill Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Mill Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Differ- ence	
Y-1	147	1-20-65	34.2	34.7	1	1-5-65	37.0	37.3	AA-1	2-5-65	37.3	37.8	+0.5	
Y-2	148	1-27-65	34.9	33.8	2	2-2-65	41.8	39.1	AA-2	2-7-65	37.0	36.5	-0.5	
Y-3	149	2-2-65	32.5	30.8	3	2-11-65	38.0	38.3	AA-3	2-8-65	34.4	35.8	+1.4	
Y-4	150	2-9-65	31.0	32.5	4	2-17-65	37.3	35.8	AA-4	2-9-65	36.6	37.2	+0.6	
Y-5	151	2-16-65	36.2	35.8	5	2-21-65	35.6	36.5	AA-5	3-2-65	35.4	35.5	+0.1	
Y-6	152	2-23-65	34.9	35.5	6	3-9-65	38.4	35.3	AA-6	3-7-65	36.8	35.8	-1.0	
Y-7	153	3-2-65	35.2	32.4	7				AA-7	3-9-65	34.8	35.9	+1.1	
Y-8	154	3-9-65	31.6	32.9					AA-8	3-12-65	35.2	35.5	+0.3	
Y-9	155	3-14-65	33.2	33.4					Current machine av.					
Y-10	156	3-22-65	32.5	32.5					38.0	37.0	35.9	36.2	+0.3	
Current machine av.				33.6	33.4	Current machine av.		38.0	37.0	Current machine av.		35.9	36.2	+0.3
Machine BB				Machine CC										
Code	Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Mill Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Mill Roll No.	Date Made	Insti- tute	Concorra Flat Crush, p.s.i.	Differ- ence	
BB-1	1	1-21-65	34.0	34.9	44	12-18-65	37.2	32.6					-4.6	
BB-2	2	1-21-65	32.9	33.0	45	1-19-65	27.8	30.8					+3.0	
Current machine av.				33.4	34.0	Current machine av.		32.5	32.4	Current machine av.		32.5	32.4	-0.1

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

TABLE XXXII

PART I: A COMPARATIVE SUMMARY FOR EACH MACHINE OF THE CONCORDA FLAT CRUSH AVERAGES BASED ON INSTITUTE DATA AND THOSE BASED ON MILL DATA

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	7	7	1	4	8	8	6	8	8	8	8	7	0	5	10	4	0	8	9	8	7	7	0	10	10	6	8	2	4
Concorda flat crush, P. S. I.																													
Current machine av. (Institute) <sup>a</sup>	38.5	37.0	30.0	35.2	38.6	37.8	34.4	36.1	35.7	37.5	34.9	33.2	--	32.0	33.5	34.5	--	39.6	38.6	34.2	42.7	34.5	--	37.2	33.6	38.0	35.9	33.4	32.5
Current machine av. (Mill) <sup>b</sup>	38.3	36.5	25.7	33.9	37.0	37.1	37.7	37.1	35.6	40.9	35.9	32.9	--	32.2	33.1	33.8	--	38.4	38.6	33.9	40.6	29.8	--	38.2	33.4	37.0	36.2	34.0	32.4
Average difference <sup>c</sup>	-0.2	-0.5	-4.3	-1.3	-1.6	-0.7	-3.3	-1.0	-0.1	-3.4	-1.0	-0.3	--	+0.2	-0.4	-0.7	--	-1.2	0.0	-0.3	-2.1	-4.7	--	+1.0	-0.2	-1.0	+0.3	+0.6	-0.1
Maximum difference	-1.9	-2.0	-4.5	-6.2	-3.7	-2.4	-5.3	-3.5	-2.2	-5.2	-2.6	-1.2	--	-2.0	-5.4	-3.2	--	-3.4	-3.3	-1.6	-8.0	-7.8	--	-4.8	-2.8	-3.1	+1.4	+0.9	-4.6

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

Average difference, % <sup>d</sup>	Current report (Feb.-March)	11th Report (Dec.-Jan.)	110th Report (Oct.-Nov.)
	-0.5	-1.4	-14.3
	-2.8	0.0	--
	+1.0	+2.0	--
	-4.1	-1.9	+9.6
	+1.6	+1.4	+11.9
	--	--	--
	-3.7	-1.1	+11.5
	+4.8	-0.3	+9.1
	+4.4	-11.4	+8.6
	-3.6	-13.7	+2.1
	0.0	0.0	-0.9
	+4.1	+2.3	+2.0
	0.0	-2.2	-11.3
	-3.0	-2.6	-2.6
	-2.7	+2.6	+2.7
	-0.6	-2.6	-0.6
	+2.7	+0.3	-1.7
	-7.3	+0.3	-1.7
	+2.6	+2.1	+1.2
	+0.8	+1.8	+1.8
	-2.6	-2.7	-2.6
	+0.8	+0.8	+0.8
	-2.7	-2.7	-2.7
	+1.8	+1.8	+1.8
	-0.3	-0.3	-0.3
	+2.0	+2.0	+2.0

<sup>a</sup> Comparisons based on current machine average include only those rolls for which mill data were submitted.

<sup>b</sup> Average 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.

<sup>c</sup> Maximum difference is the greatest difference encountered in comparing Institute and mill test averages for individual rolls. See Table XXXI.

<sup>d</sup> Average difference (per cent) 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 XXXVIII a summary of the agreement between Institute and mill Concora flat crush data is given for the current period, the comparative data from the previous bimonthly period are also included. The data shown for the current period compare favorably with corresponding data for the previous period and indicate that agreement between Institute and mill Concora data was good. For example, it may be seen in Table XXXVIII that, for the current period, 34.6% of the comparisons of Institute and mill data differed by 1% or less, 53.8% of the comparisons differed by 2.5% or less, and 84.6% of the comparisons differed by 5% or less. The maximum difference of 14.3% for the current period was somewhat higher than the maximum difference of 11.9% for the previous period.

TABLE XXXVIII

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL  
 CONCORA FLAT CRUSH DATA

Average Percentage Difference Between Institute and Mill Concora Flat Crush Test Results <sup>a</sup>	Percentage of All Machines Included Within the Indicated Range	
	Previous Period <sup>b</sup>	Current Period <sup>c</sup>
+ 1.0	16.0	34.6
+ 2.5	52.0	53.8
+ 5.0	72.0	84.6
+ 10.0	92.0	92.3
+ 14.3	100.0 <sup>d</sup>	100.0

<sup>a</sup>The average obtained at the Institute was used as the reference in the calculation of the percentage differences.

<sup>b</sup>December and January, 1964-65.

<sup>c</sup>February and March, 1965.

<sup>d</sup>Maximum percentage difference was 11.9.

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