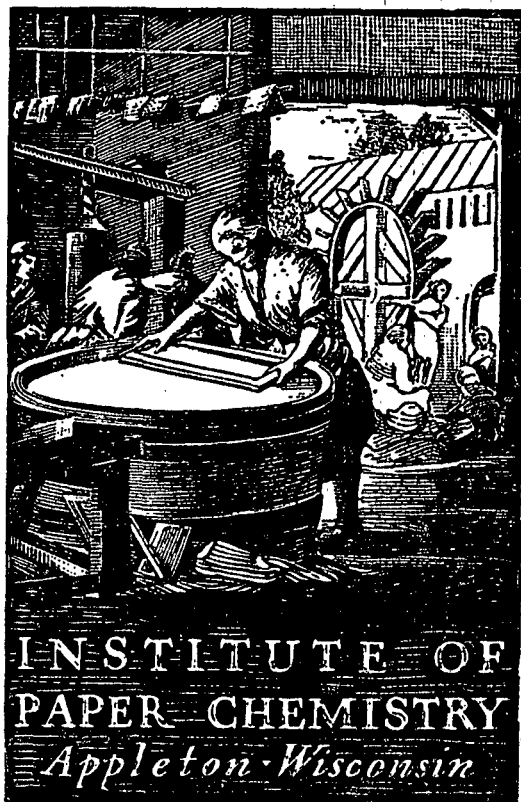




**CONTINUOUS EVALUATION OF
CORRUGATING MEDIUM**

Project 1108-17

Report 121

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1966

CODE LETTERS - Project 1108-17

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

(*new name) *for Waldorf*

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Report 121

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1966

TABLE OF CONTENTS

	Page
INTRODUCTION	1
SUMMARY OF CURRENT MACHINE AVERAGES	3
GRAPHICAL PRESENTATIONS	4
SUMMARY OF TEST RESULTS FOR INDIVIDUAL MACHINES	6
DISCUSSION OF RESULTS	22
INSTITUTE AND MILL CONCORRA FLAT CRUSH TEST RESULTS	28

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 August and September, 1966, on 189 rolls of corrugating medium representing the production of thirty machines. Each of these 189 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 fracturing 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 XXXI for Machines A through Z and Machines AA, BB, CC, and DD, respectively. The

(Text continued on Page 21)

TABLE I
SUMMARY OF CURRENT MACHINE AVERAGES

August and September, 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	Kraft	28.3	8.7	34.0	33.0
B	7	Semichemical	27.2	9.9	37.1	34.2
C	10	Semichemical	26.5	10.1	29.2	27.1
D	8	Semichemical	26.5	10.6	31.9	28.9
E	4	Semichemical	26.7	9.9	35.4	34.0
F	4	Semichemical	26.8	10.3	40.7	38.0
G	9	Semichemical	26.2	10.4	36.6	34.2
H	8	Bogus	26.5	9.8	34.0	32.7
I	8	Semichemical	26.6	10.3	37.7	35.2
J	6	Semichemical	26.4	10.1	33.9	31.0
K	5	Semichemical	26.1	10.5	34.4	31.0
L	5	Semichemical	28.4	10.1	30.5	29.2
M	6	Semichemical	26.3	9.9	37.3	34.2
N	4	Semichemical	27.1 ^a	10.1	29.8	27.6
O	1	Semichemical	Note ^a			
P	10	Semichemical	26.6	10.5	31.2	28.8
Q	8	Semichemical	27.3 ^a	10.4	34.1	31.2
R	1	Semichemical	Note ^a			
S	5	Semichemical	28.2	10.6	39.5	37.7
T	4	Semichemical	24.8	12.0	29.0	27.3
U	6	Semichemical	26.3	10.5	31.0	29.4
V	7	Semichemical	26.5	9.8	35.5	31.8
W	5	Semichemical	26.0	11.6	30.2	28.7
X	10	Semichemical	27.6	11.2	39.0	35.4
Y	8	Semichemical	27.0	10.7	38.0	36.1
Z	7	Semichemical	26.1	10.0	34.3	31.7
AA	5	Semichemical	27.6	10.4	34.7	32.7
BB	9	Semichemical	26.8	10.1	40.5	38.0
CC	3	Semichemical	26.8	10.2	39.7	35.2
DD	8	Bogus	27.7	10.4	31.2	28.8
Total	189					
Current F.K.I. average			26.8	10.3	34.6	32.3
Cumulative F.K.I. average			27.0	10.4	35.2	32.1
F.K.I. index, %			99.2	99.6	98.4	100.4

^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.

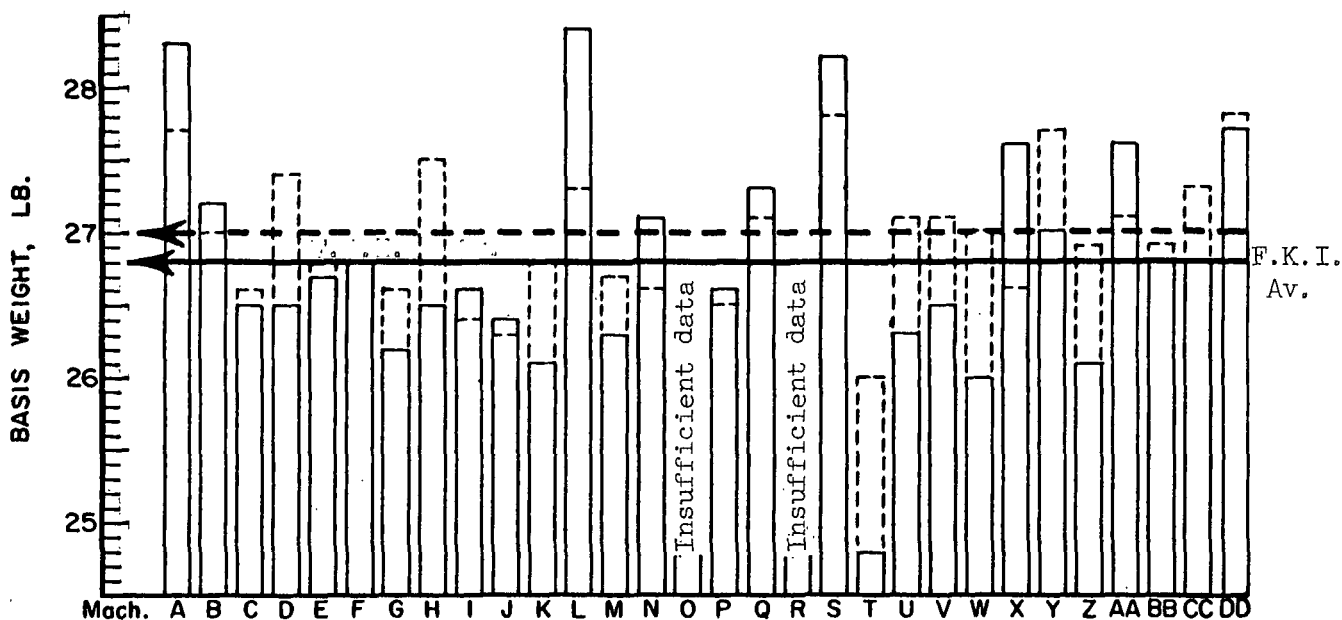
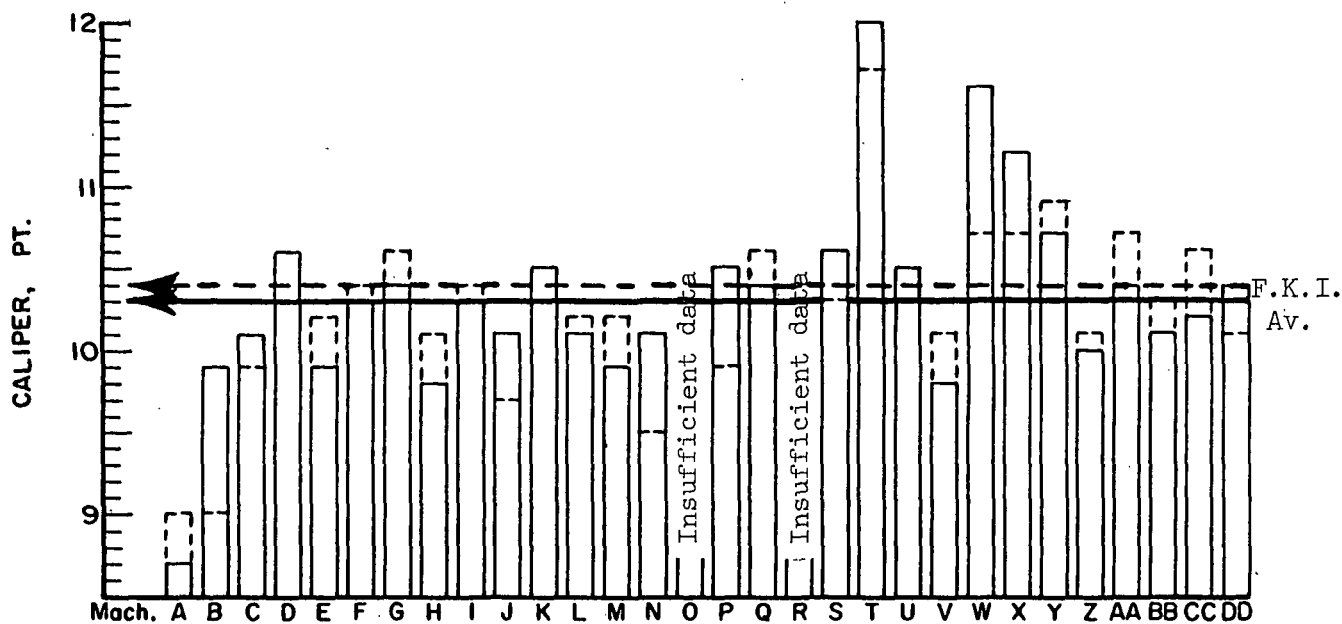


Figure 1. Comparison of Basis Weight Results



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

Figure 2. Comparison of Caliper Results

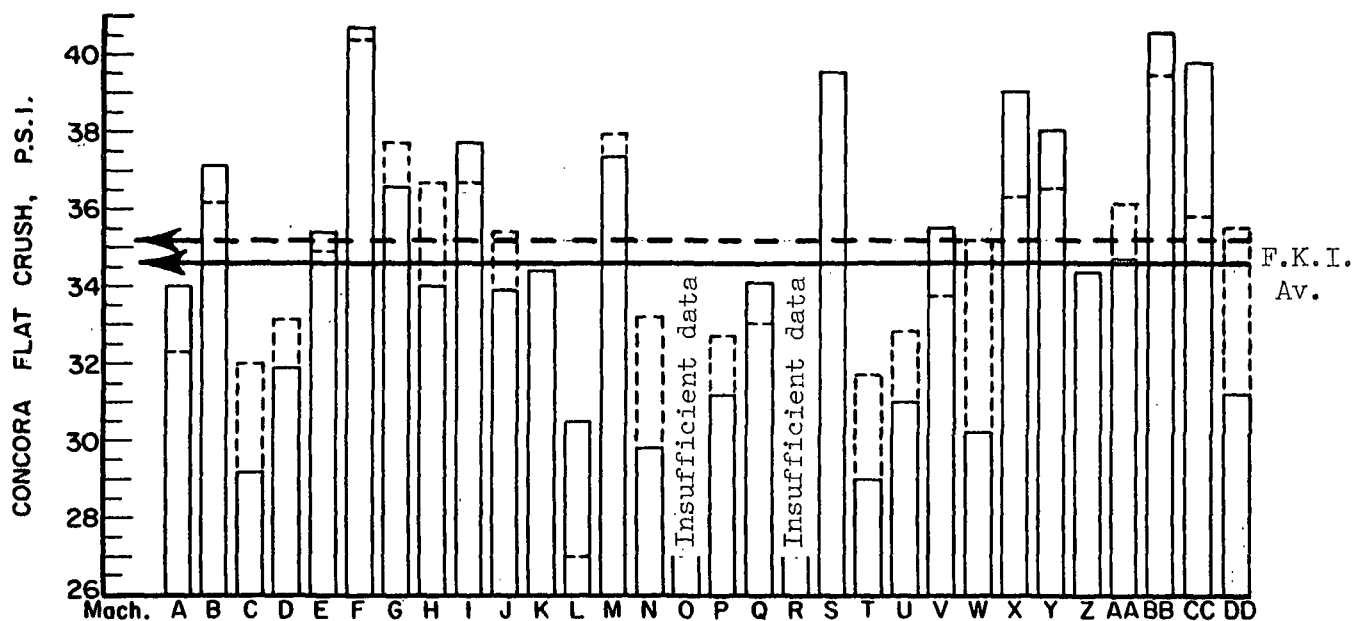


Figure 3. Comparison of Concora Flat Crush Results

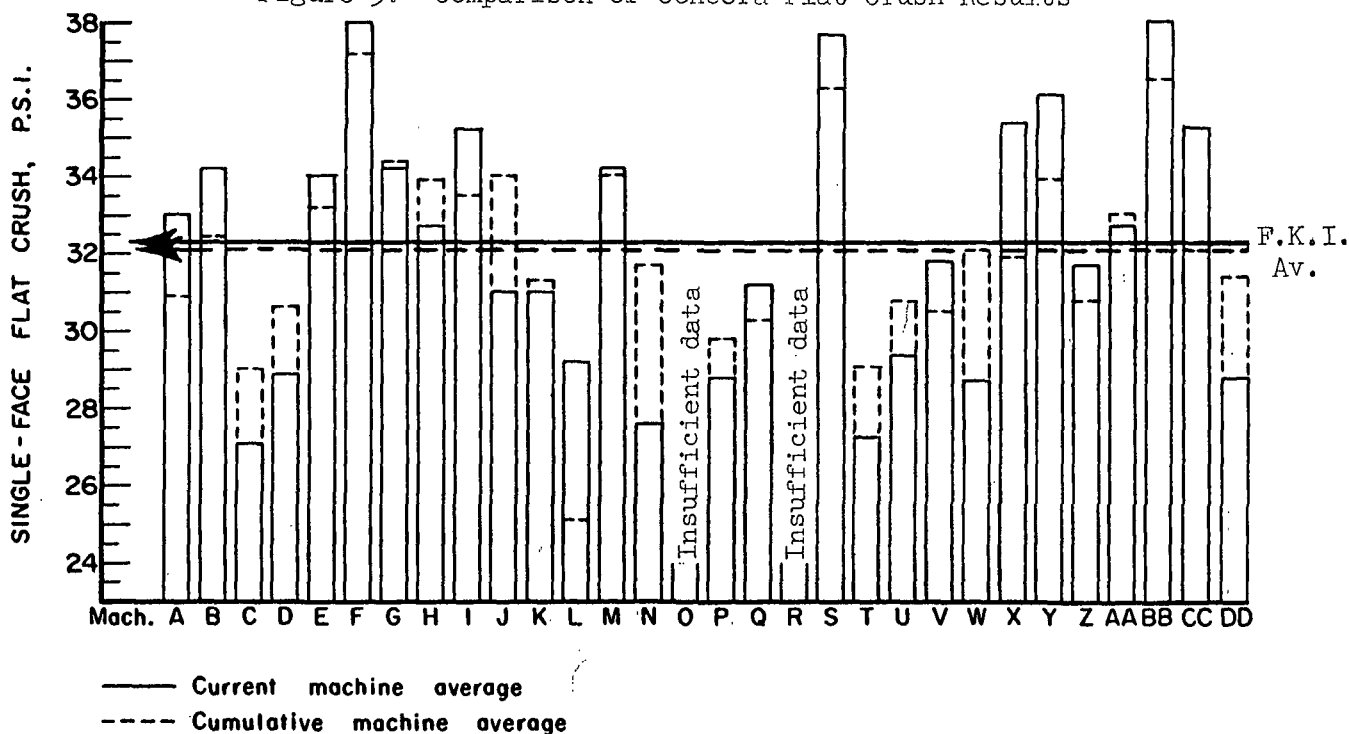


Figure 4. Comparison of Single-Face Flat Crush Results

TABLE II
SUMMARY OF TEST RESULTS FOR MACHINE A
August and September, 1966
(Type of medium: kraft)

(Type of medium: kraft)															
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.	Max.	Min.			
A-1	6-26-66	8-1-66	5	27.9	8.9	8.1	8.6	38.4	33.6	35.3	32.8	29.6	30.8	Noted ^c	1.554
A-2	6-26-66	8-1-66	6	27.1	8.5	8.0	8.2	34.8	30.0	32.6	33.0	29.2	31.6	Note ^e	1.548
A-3	6-26-66	7-28-66	7	30.0	9.2	8.9	9.0	37.2	32.4	34.8	36.4	34.8	35.8	Note ^f	1.549
A-4	6-26-66	7-28-66	8	29.9	9.2	8.9	9.1	42.0	32.4	37.3	37.2	35.4	35.3	Note ^g	1.542
A-5	8-12-66	8-29-66	9	28.0	9.1	8.2	8.8	34.2	30.6	32.9	33.0	30.6	32.1	Note ^h	1.547
A-6	8-12-66	8-29-66	10	27.9	8.9	8.4	8.7	34.8	30.0	33.0	35.4	30.8	33.5	Note ⁱ	1.551
A-7	8-12-66	8-29-66	11	28.0	8.8	8.1	8.6	34.8	30.6	32.6	33.6	32.0	33.1	Note ^j	1.547
A-8	8-12-66	8-29-66	12	27.6	8.9	8.3	8.7	34.8	32.4	33.5	34.6	29.4	31.9	Note ^k	1.542
Current machine average				28.3			8.7			34.0			33.0		1.548
Cumulative machine average				27.7			9.0			32.3			30.9		
Machine factor, %				102.1			97.1			105.4			106.7		
Machine index, %				104.6			84.0			96.6			102.7		

TABLE III
SUMMARY OF TEST RESULTS FOR MACHINE B
August and September, 1966
(Type of medium: semichemical)

(Type of medium: semichemical)															
B-1	7-19-66	7-28-66	696	27.1	10.0	9.0	9.6	40.2	37.2	38.3	36.2	33.2	34.8	1	1.557
B-2	7-29-66	8-16-66	697	27.5	11.0	9.0	10.1	40.2	32.4	35.2	35.6	32.4	33.9	1-1/2	1.558
B-3	8-5-66	8-24-66	698	27.4	10.8	9.5	10.0	39.6	34.8	37.1	36.2	33.6	34.9	1-1/2	1.566
B-4	8-25-66	8-25-66	699	27.1	10.5	8.9	9.5	40.2	38.4	39.5	35.8	32.0	34.6	1-1/2	1.566
B-5	8-20-66	9-6-66	700	26.9	10.5	8.4	9.4	41.4	38.4	39.7	36.8	35.2	36.2	1-1/2	1.564
B-6	8-30-66	9-9-66	701	27.5	11.2	9.8	10.4	37.8	33.6	35.0	33.8	31.2	32.2	1/2	1.567
B-7	9-9-66	9-23-66	702	26.7	11.6	9.8	10.5	36.0	33.6	34.8	34.6	31.0	32.6	1	1.569
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
1.564															

^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 350 f.p.m.
^dMaximum speed at which this roll could be corrugated with minimum tension was 475 f.p.m.
^eMaximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.
^fMaximum speed at which this roll could be corrugated with minimum tension was 525 f.p.m.
^gMaximum speed at which this roll could be corrugated with minimum tension was 225 f.p.m.
^hMaximum speed at which this roll could be corrugated with minimum tension was 200 f.p.m.
ⁱMaximum speed at which this roll could be corrugated with minimum tension was 300 f.p.m.

TABLE IV

SUMMARY OF TEST RESULTS FOR MACHINE C
August and September, 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	7-24-66	7-27-66	225	26.9	10.8	9.5	31.2	27.0	29.6	26.4	1-1/2	1.570
C-2	7-23-66	7-27-66	226	25.3	9.3	8.8	31.8	28.8	29.0	27.6	1-1/2	1.570
C-3	7-30-66	8-4-66	227	26.8	10.9	9.9	29.4	24.6	26.0	23.6	1-1/2	1.577
C-4	8-9-66	8-12-66	228	26.9	10.9	9.8	31.8	28.8	29.6	27.6	1-1/2	1.571
C-5	8-20-66	8-25-66	229	26.9	10.8	9.7	31.2	28.2	28.8	27.2	1-1/2	1.566
C-6	8-20-66	8-25-66	230	26.5	10.9	9.5	32.4	30.0	30.8	27.0	1-1/2	1.568
C-7	8-29-66	9-6-66	231	25.8	10.8	9.0	31.8	28.2	28.6	25.4	1-1/2	1.573
C-8	9-2-66	9-12-66	232	26.6	10.6	9.6	29.4	27.6	27.4	26.0	1-1/2	1.570
C-9	9-15-66	9-21-66	233	26.7	11.7	9.8	27.6	27.0	26.0	24.2	1-1/2	1.572
C-10	9-21-66	9-23-66	234	26.7	11.2	9.0	31.2	25.8	26.2	24.8	1-1/2	1.577
Current machine average												
				26.5	10.1		29.2		27.1		1.571	
Cumulative machine average				26.6	9.9		32.0		29.0			
Machine factor, %				99.9	102.0		91.1		93.3			
Machine index, %				98.1	97.7		82.8		84.3			

TABLE V

SUMMARY OF TEST RESULTS FOR MACHINE D
August and September, 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	8-12-66	8-23-66	1588	25.7	11.7	10.2	35.4	31.8	33.2	29.2	Noted ^c	1.538
D-2	8-12-66	8-23-66	1589	26.0	11.4	9.7	38.4	30.6	34.2	30.6	Noted ^c	1.537
D-3	8-15-66	8-24-66	1596	26.3	11.0	9.2	34.8	30.6	31.4	27.2	Noted ^c	1.536
D-4	8-15-66	8-24-66	1597	26.3	10.8	9.2	33.6	31.2	29.6	27.6	Noted ^c	1.538
D-5	8-25-66	9-9-66	1604	26.5	10.8	10.0	31.2	26.4	28.2	25.0	Noted ^c	1.540
D-6	8-25-66	9-9-66	1605	27.0	11.0	10.6	34.2	31.8	31.0	28.0	Noted ^c	1.544
D-7	8-25-66	9-9-66	1612	27.4	11.0	10.5	32.4	28.8	29.2	25.8	Noted ^c	1.543
D-8	8-25-66	9-9-66	1613	26.4	10.8	10.3	32.4	28.2	27.4	24.2	Noted ^c	1.545
Current machine average												
				26.5	10.6		31.9		28.9		1.540	
Cumulative machine average				27.4	10.6		33.1		30.6			
Machine factor, %				96.7	100.0		96.6		94.4			
Machine index, %				97.8	102.2		90.7		89.9			

^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 375 f.p.m.

^dMaximum speed at which this roll could be corrugated with minimum tension was 350 f.p.m.

^eMaximum speed at which this roll could be corrugated with minimum tension was 275 f.p.m.

^fMaximum speed at which this roll could be corrugated with minimum tension was 300 f.p.m.

TABLE VI

SUMMARY OF TEST RESULTS FOR MACHINE E

August and September, 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.		
E-1	7-25-66	8-11-66	166	26.6	10.7	9.3	10.0	37.2	33.6	37.2	35.2	1/2	1.551
E-2	8-1-66	8-11-66	167	26.4	10.9	9.1	10.2	37.8	32.4	36.2	32.6	Min. ^c	1.553
E-3	8-8-66	9-15-66	168	27.0	10.2	9.1	9.7	36.6	35.4	34.0	29.4	Note	1.542
E-4	8-8-66	9-15-66	169	26.9	9.9	9.0	9.5	36.6	34.8	34.8	32.2	Min.	1.548
Current machine average													
				26.7	9.9		9.9	35.4		34.0			1.548
Cumulative machine average				26.8	10.2		10.2	34.9		33.2			
Machine factor, %				99.8	96.3		96.3	101.6		102.6			
Machine index, %				98.8	95.2		95.2	100.6		105.9			

TABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F

August and September, 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.		
F-1	8-19-66	9-12-66	771	26.3	10.8	9.8	10.4	42.6	37.8	39.0	35.2	1-1/2	1.560
F-2	8-22-66	9-12-66	772	27.5	10.8	10.0	10.3	43.8	40.2	38.4	36.6	1-1/2	1.560
F-3	8-31-66	9-15-66	773	26.9	10.9	9.8	10.4	40.8	37.8	40.4	37.4	1/2	1.554
F-4	9-1-66	9-15-66	774	26.5	10.7	10.0	10.2	43.2	39.6	40.0	36.8	1	1.558
Current machine average													
				26.8	10.3		10.3	40.7		38.0			1.558
Cumulative machine average				26.8	10.4		10.4	40.4		37.2			
Machine factor, %				100.0	99.3		99.3	100.7		102.0			
Machine index, %				99.2	95.5		95.5	115.7		118.2			

^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 500 f.p.m.

TABLE VIII
SUMMARY OF TEST RESULTS FOR MACHINE G
August and September, 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.		
G-1	7-6-66	7-26-66	292	27.4	10.9	9.9	39.6	35.4	37.0	32.0	Min.	1.539
G-2	7-13-66	7-27-66	530	27.4	10.7	10.1	40.2	37.2	37.8	35.4	Min.	1.558
G-3	7-19-66	8-10-66	751	25.5	11.1	10.0	37.2	33.6	35.8	33.8	1	1.564
G-4	7-19-66	8-10-66	776	26.8	11.2	10.5	39.0	35.4	37.8	36.0	1 1/2	1.556
G-5	8-8-66	8-18-66	209	25.3	10.9	10.4	37.2	32.4	30.8	28.0	Note ^d	1.546
G-6	8-15-66	8-30-66	339	26.0	10.7	9.6	37.8	33.6	33.4	32.2	Note ^d	1.550
G-7	8-16-66	8-30-66	483	26.9	11.8	10.5	37.2	34.8	34.8	33.8	Min. ^e	1.559
G-8	8-22-66	9-7-66	647	24.7	9.7	9.2	36.0	33.0	35.8	32.0	Note ^f	1.550
G-9	8-24-66	9-8-66	734	26.3	10.6	9.7	40.2	36.0	35.2	31.6	Note ^f	1.541
Current machine average				26.2	10.4		36.6		34.2		1.551	
Cumulative machine average				26.6	10.6		37.7		34.4			
Machine factor, %				98.5	96.7		97.0		99.5			
Machine index, %				97.1	100.0		103.9		106.5			

TABLE IX
SUMMARY OF TEST RESULTS FOR MACHINE H
August and September, 1966
(Type of medium: bogus)

(Type of medium: bogus)													
H-1	7-18-66	8-17-66	432	28.5	10.1	9.0	9.7	40.2	34.8	37.8	36.6	35.6	36.4
H-2	7-25-66	8-17-66	433	27.1	10.8	9.4	9.8	38.4	34.2	36.7	35.4	33.6	34.6
H-3	7-26-66	8-17-66	434	26.1	10.7	9.3	9.8	33.6	28.8	32.0	33.4	31.0	31.9
H-4	7-28-66	8-17-66	435	25.5	10.8	9.5	10.0	34.2	31.8	33.0	33.4	30.6	32.0
H-5	8-10-66	9-15-66	436	26.1	10.2	8.7	9.7	38.4	34.2	36.0	35.6	33.4	34.8
H-6	8-15-66	9-15-66	437	25.5	10.3	9.2	9.8	30.0	26.4	28.7	29.6	27.6	28.8
H-7	8-24-66	9-15-66	438	27.5	10.3	8.8	9.6	34.2	30.6	33.0	33.2	30.4	32.0
H-8	8-25-66	9-15-66	439	25.5	9.9	9.0	9.5	37.2	30.6	34.6	31.6	29.8	30.9
Current machine average				26.5			9.8			34.0			32.7
Cumulative machine average				27.5			10.1			36.7			33.9
Machine factor, %				96.4			96.7			92.6			96.4
Machine index, %				97.9			94.1			96.5			101.7
													1.560

^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 350 f.p.m.
^dMaximum speed at which this roll could be corrugated with minimum tension was 250 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 575 f.p.m.

TABLE X
SUMMARY OF TEST RESULTS FOR MACHINE I
August and September, 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.			
I-1	7-28-66	8-23-66	--	26.0	10.9	10.0	10.5	36.0	33.0	34.7	34.0	1/2	1.559
I-2	8-15-66	8-30-66	--	26.0	10.3	9.5	10.0	38.4	36.0	37.6	34.0	1-1/2	1.558
I-3	8-18-66	8-30-66	--	26.3	10.7	10.0	10.3	36.0	32.4	34.7	33.3	1	1.562
I-4	8-18-66	8-30-66	--	26.8	10.8	10.0	10.5	39.0	34.2	36.6	33.9	1	1.562
I-5	9-12-66	9-22-66	--	26.8	10.8	10.2	10.5	39.6	39.0	39.5	34.8	1	1.564
I-6	9-12-66	9-22-66	--	27.1	10.8	10.2	10.6	39.6	37.8	38.5	35.8	1	1.561
I-7	9-13-66	9-22-66	--	27.2	10.8	10.0	10.3	42.0	38.4	39.4	36.4	1	1.563
I-8	9-14-66	9-22-66	--	26.4	10.2	9.8	10.0	42.0	39.0	40.7	34.0	1	1.560
Current machine average				26.6	10.3		37.7		35.2		1.561		
Cumulative machine average				26.4	10.4		36.7		33.5				
Machine factor, %				100.6	98.9		102.6		105.2				
Machine index, %				98.2	99.5		107.1		109.6				

TABLE XI
SUMMARY OF TEST RESULTS FOR MACHINE J
August and September, 1966

(Type of medium: semichemical)

J-1	8-8-66	9-20-66	167	26.9	10.5	10.0	10.2	34.2	32.4	33.4	33.6	29.0	30.9	1/2	1.565
J-2	8-9-66	9-20-66	209	26.4	10.5	10.0	10.2	37.2	34.2	35.8	32.2	30.6	31.2	1/2	1.569
J-3	8-19-66	9-20-66	109	26.6	10.6	10.0	10.2	35.4	33.6	34.8	33.2	31.2	32.4	1	1.564
J-4	8-23-66	9-20-66	1440	26.3	10.2	9.9	10.0	36.6	33.0	34.6	31.4	30.4	30.9	1	1.564
J-5	9-3-66	9-20-66	235	26.1	10.3	9.8	10.0	34.8	30.0	32.6	31.6	28.4	29.9	1/2	1.565
J-6	9-4-66	9-20-66	326 ^c	25.8	10.1	9.8	10.0	34.2	30.6	32.5	32.4	29.4	30.6	1	1.565
Current machine average															
Cumulative machine average				26.4		10.1				33.9			31.0		1.565
Machine factor, %				100.3		9.7				35.4			34.0		
Machine index, %				97.5		103.8				96.0			91.2		
						97.5				96.4			96.4		

^aMaximum tension at 600 f.p.m.

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

^cThe roll of medium was stenciled roll Number 376 made on Sept. 8, 1966, whereas the mill data sheet was marked roll Number 326 made on Sept. 4, 1966.

TABLE XII

SUMMARY OF TEST RESULTS FOR MACHINE K

August and September, 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.	Av.	Max.	Min.	Max.	Min.		
K-1	7-21-66	8-16-66	39	27.4	11.1	10.4	10.8	36.6	32.4	35.4	31.6	1/2	1.557
K-2	7-30-66	8-16-66	40	25.3	10.8	10.0	10.4	36.0	31.8	34.6	30.2	1	1.564
K-3	8-3-66	8-16-66	41	25.5	10.3	9.8	10.0	37.2	32.4	30.0	27.6	1	1.565
K-4	8-6-66	8-16-66	42	26.3	11.0	10.0	10.6	37.2	31.8	33.4	27.6	1	1.560
K-5	8-9-66	8-16-66	43	26.0	10.9	10.2	10.5	36.0	31.2	30.2	27.6	1	1.564
Current machine average													
				26.1	10.5			34.4		31.0		1.562	
Cumulative machine average				26.8	10.5			34.4		31.3			
Machine factor, %				97.4	100.0			100.0		98.8			
Machine index, %				96.4	100.9			97.6		96.4			

TABLE XIII

SUMMARY OF TEST RESULTS FOR MACHINE L

August and September, 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.	Av.	Max.	Min.	Max.	Min.		
L-1	7-16-66	8-1-66	13	27.2	10.7	10.1	10.4	20.4	18.6	20.2	18.2	1/2	1.573
L-2	8-2-66	8-18-66	14	28.6	10.5	9.8	10.2	31.2	27.6	29.6	29.4	1-1/2	1.569
L-3	8-24-66	9-8-66	15	29.4	9.6	9.1	9.3	37.2	34.8	35.8	34.4	1/2	1.565
L-4	8-31-66	9-19-66	16	28.9	11.2	10.2	10.8	32.4	29.4	29.8	26.6	Note ^c	1.562
L-5	9-3-66	9-19-66	17	28.1	10.1	9.8	9.9	37.8	32.4	34.6	33.4	Min.	1.562
Current machine average													
				28.4	10.1			30.5		29.2		1.566	
Cumulative machine average				27.3	10.2			27.0		25.1			
Machine factor, %				104.3	99.5			113.0		116.5			
Machine index, %				105.2	97.9			86.6		90.9			

^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 500 f.p.m.

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE M

August and September, 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	8-16-66	8-23-66	--	26.3	10.3	9.8	10.0	42.0	34.8	35.8	34.3	1-1/2	1.564	
M-2	8-16-66	8-23-66	--	26.3	10.1	10.0	10.0	40.2	36.0	35.4	34.3	1-1/2	1.564	
M-3	8-22-66	9-22-66	--	26.1	9.7	9.0	9.3	39.6	35.4	34.8	33.5	1	1.565	
M-4	9-12-66	9-22-66	--	26.1	10.0	9.5	9.8	37.8	35.4	35.8	35.0	1-1/2	1.568	
M-5	9-13-66	9-22-66	--	26.4	10.0	9.6	9.8	40.2	35.4	36.6	34.6	1-1/2	1.569	
M-6	9-18-66	9-22-66	--	26.8	10.5	10.0	10.3	37.8	34.8	34.8	33.7	1-1/2	1.569	
Current machine average														1.566
Cumulative machine average														1.566
Machine factor, %														100.6
Machine index, %														106.6

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE N

August and September, 1966

(Type of medium: semichemical)

N-1	8-16-66	9- 6-66	H-1	27.1	10.4	9.8	10.1	32.4	28.2	30.1	29.6	27.4	28.2	1	1.570
N-2	8-16-66	9- 6-66	H-2	26.9	10.5	9.9	10.1	32.4	26.4	30.0	28.4	27.0	27.8	1/2	1.570
N-3	8-16-66	9- 6-66	H-3	27.1	10.6	10.0	10.2	31.2	26.4	29.6	28.8	26.6	27.6	1/2	1.566
N-4	8-16-66	9- 6-66	H-4	27.4	10.5	9.6	10.2	31.2	26.4	29.5	28.0	25.0	26.6	1/2	1.568
Current machine average															1.568
Cumulative machine average															1.568
Machine factor, %															102.0
Machine index, %															106.9
															97.7
															84.7
															87.0
															31.7
															27.6

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

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O

August and September, 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.	Av.	Av.			
O-1	7-29-66	9-6-66	17760	25.9	10.2	9.7	9.8	36.6	30.6	33.5	33.4	30.2	31.9	1-1/2	1.572
Current machine average															
				25.9			9.8			33.5			31.9	1.572	
Cumulative machine average				27.0			10.4			32.3			29.0		
Machine factor, %				96.0			94.9			103.7			109.8		
Machine index, %				95.9			95.0			95.1			99.2		

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P

August and September, 1966

(Type of medium: semichemical)

P-1	7-24-66	7-27-66	225	26.7	10.8	10.0	10.3	32.4	28.8	30.4	31.4	26.8	29.2	1-1/2	1.568
P-2	7-22-66	7-27-66	226	26.7	10.6	10.0	10.2	33.6	27.6	29.9	30.0	27.6	29.0	1-1/2	1.570
P-3	7-30-66	8-4-66	227	25.8	10.8	10.0	10.4	28.8	26.4	27.7	29.0	25.6	26.9	1-1/2	1.572
P-4	8-9-66	8-12-66	228	25.4	10.3	10.0	10.1	30.6	27.6	28.7	29.4	27.6	28.1	1-1/2	1.569
P-5	8-19-66	8-25-66	229	26.8	11.0	10.4	10.7	34.2	32.4	33.6	31.0	29.4	30.1	1	1.563
P-6	8-20-66	8-25-66	230	26.8	11.0	10.3	10.6	31.8	30.0	31.0	30.8	27.8	29.1	1	1.563
P-7	8-29-66	9-6-66	231	25.4	10.4	9.2	9.7	34.2	31.8	32.5	30.8	26.6	28.2	1-1/2	1.572
P-8	9-3-66	9-12-66	232	26.2	10.3	9.8	10.0	34.2	31.2	32.8	30.0	27.6	28.6	1-1/2	1.566
P-9	9-15-66	9-21-66	233	30.2	12.9	11.8	12.3	37.2	33.6	35.2	33.6	30.2	32.2	1	1.570
P-10	9-21-66	9-23-66	234	26.3	10.8	9.8	10.3	32.4	28.2	30.1	30.0	25.6	27.0	1-1/2	1.574
Current machine average															
Cumulative machine average				26.6	10.8	10.5			31.2	28.8					1.569
Machine factor, %				26.5	10.6	9.9			32.7	29.8					
Machine index, %				100.7	106.0				95.3	96.9					
				98.6	101.0				88.5	89.7					

^aMaximum tension at 600 f.p.m.

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

TABLE XVIII
SUMMARY OF TEST RESULTS FOR MACHINE Q
August and September, 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 Min. Max.	Runnability, draw factor ^b
Q-1	7-7-66	8-9-66	113	26.9	11.1 10.8 11.0	35.4 33.0 34.3	32.0 31.2 31.5	1	1.560
Q-2	7-14-66	8-9-66	114	27.4	11.0 10.3 10.7	36.0 34.2 35.3	32.8 31.0 32.1	1 1/2	1.553
Q-3	7-23-66	8-9-66	115	27.9	10.8 10.2 10.5	36.0 33.6 34.7	34.2 30.4 32.4	1	1.562
Q-4	7-29-66	8-9-66	116	27.1	10.8 10.1 10.6	36.0 33.6 35.0	32.0 29.0 30.6	1/2	1.558
Q-5	8-4-66	9-8-66	117	27.6	10.4 9.8 10.1	34.8 32.4 33.6	31.4 30.2 30.7	Min.	1.557
Q-6	8-11-66	9-8-66	118	28.0	10.6 10.1 10.3	34.8 34.2 34.4	33.6 31.4 32.2	1/2	1.555
Q-7	8-18-66	9-8-66	119	26.9	10.2 9.4 10.0	35.4 31.8 33.4	31.8 29.8 30.4	Min.	1.554
Q-8	8-26-66	9-8-66	120	26.9	10.5 10.0 10.2	33.0 30.6 31.8	30.6 29.0 29.8	Min.	1.555
Current machine average				27.3	10.4	34.1	31.2		1.557
Cumulative machine average				27.1	10.6	33.0	30.3		
Machine factor, %				100.8	98.5	103.2	102.9		
Machine index, %				101.1	100.0	96.7	97.2		

TABLE XIX
SUMMARY OF TEST RESULTS FOR MACHINE R
August and September, 1966
(Type of medium: semichemical)

R-1	8-14-66	8-23-66	--	26.5	10.9 9.8 10.4	37.2 35.4 36.4	32.2 29.2 31.2	1	1.563
Current machine average				26.5	10.4	36.4	31.2		1.563
Cumulative machine average				27.1	10.8	35.7	31.4		
Machine factor, %				97.8	96.6	101.8	99.6		
Machine index, %				98.1	100.0	103.3	97.2		

TABLE XX
SUMMARY OF TEST RESULTS FOR MACHINE S
August and September, 1966
(Type of medium: semichemical)

S-1	6-8-66	8-16-66	630	27.3	10.7 10.0 10.2	39.0 33.0 36.0	36.4 33.2 34.2	Note ^c	1.539
S-2	6-30-66	9-20-66	631	28.3	10.5 10.2 10.3	40.8 39.0 39.7	39.4 36.2 38.0	Min.	1.556
S-3	7-13-66	9-20-66	632	28.6	11.0 10.2 10.7	45.0 37.2 40.8	39.0 37.6 38.4	Min.	1.556
S-4	7-26-66	9-20-66	633	28.5	11.2 10.8 11.0	42.0 37.2 39.7	41.8 37.8 39.7	Min.	1.557
S-5	8-13-66	9-20-66	634	28.4	10.8 10.2 10.6	43.8 39.0 41.0	39.6 36.6 38.3	Min.	1.558
Current machine average				28.2	10.6	39.5	37.7		1.553
Cumulative machine average				27.8	10.3	39.5	36.3		
Machine factor, %				101.5	102.4	100.0	103.8		
Machine index, %				104.4	101.8	112.1	117.4		

^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.

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T
August and September, 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.		
T-1	8-2-66	8-10-66	1	24.1	13.1	11.0	31.8	25.8	28.8	25.4	1	1.558
T-2	8-2-66	8-10-66	2	25.4	11.9	10.8	33.6	28.2	31.0	26.2	1/2	1.558
T-3	9-15-66	9-23-66	3	25.2	13.0	11.2	34.2	28.2	26.6	25.0	1	1.567
T-4	9-15-66	9-23-66	4	24.2	13.5	11.7	28.8	25.2	28.0	25.6	1	1.564
Current machine average												
				24.8	12.0		29.0		27.3		1.562	
Cumulative machine average				26.0	11.7		31.7		29.1			
Machine factor, %				95.1	101.8		91.2		93.7			
Machine index, %				91.5	115.4		82.2		84.9			

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U
August and September, 1966

(Type of medium: semichemical)

U-1	7-30-66	8-22-66	141	26.0	10.6	10.0	10.3	32.4	28.8	31.1	31.6	28.8	29.8	1/2	1.554
U-2	7-30-66	8-22-66	142	25.8	10.7	10.0	10.3	31.2	30.0	30.7	30.2	28.6	29.4	1/2	1.554
U-3	8-20-66	9-13-66	143	26.9	11.0	10.2	10.6	33.6	28.8	30.5	28.8	26.6	27.7	Min.	1.553
U-4	8-20-66	9-13-66	144	25.5	10.9	10.2	10.6	31.8	28.8	29.9	30.6	26.8	28.4	Min.	1.553
U-5	8-28-66	9-13-66	145	27.0	11.2	10.2	10.6	34.8	30.0	32.8	31.0	29.0	30.0	Min.	1.556
U-6	8-28-66	9-13-66	146	26.9	10.9	10.6	10.8	33.0	29.4	31.2	32.0	29.6	31.0	1/2	1.556
Current machine average															
				26.3			10.5			31.0		29.4			1.554
Cumulative machine average				27.1			10.5			32.8		30.8			
Machine factor, %				97.0			100.0			94.5		95.5			
Machine index, %				97.4			101.6			88.1		91.4			

^aMaximum tension at 600 f.p.m.

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

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V

August and September, 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.		
V-1	7-20-66	8-9-66	72	26.1	10.9	9.9	37.8	34.2	32.8	30.2	1	1.560
V-2	7-27-66	8-5-66	73	26.5	10.0	9.3	38.4	28.2	28.8	31.1	1-1/2	1.563
V-3	8-6-66	8-24-66	74	25.7	10.2	9.7	36.6	29.4	33.4	31.6	Min.	1.555
V-4	8-10-66	8-24-66	75	25.9	9.9	9.0	38.4	30.0	35.4	33.1	Min.	1.558
V-5	8-18-66	9-2-66	76	25.6	9.6	8.9	40.2	33.0	32.6	31.3	1/2	1.558
V-6	8-24-66	9-8-66	77	26.9	10.2	9.8	38.4	30.0	34.4	30.4	Note	1.546
V-7	9-14-66	9-26-66	79	28.9	10.8	9.8	38.4	37.2	36.2	34.7	Min.	1.547
Current machine average												
					9.8		35.5		31.8			
Cumulative machine average					10.1		33.7		30.5			
Machine factor, %					97.6		105.4		104.3			
Machine index, %					95.0		100.8		98.9			

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W

August and September, 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.		
W-1	8-8-66	9-20-66	1689 ^a	26.4	12.5	11.3	31.2	28.8	30.1	28.4	1/2	1.556
W-2	8-11-66	9-20-66	2181 ^a	25.9	11.9	11.2	32.4	28.8	30.5	28.8	1	1.560
W-3	8-12-66	9-20-66	2422	25.7	11.8	11.2	31.2	27.6	29.9	27.6	1/2	1.558
W-4	8-15-66	9-20-66	3141	25.8	11.8	11.2	31.8	28.2	29.8	27.6	1/2	1.560
W-5	9-1-66	9-20-66	109	26.2	11.8	11.2	33.6	30.0	30.8	27.0	1/2	1.559
Current machine average												
					11.6		30.2		28.7			
Cumulative machine average					10.7		35.2		32.1			
Machine factor, %					107.6		85.9		89.4			
Machine index, %					111.6		85.8		89.4			

^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 425 f.p.m.

^dRoll Number 2188 was stenciled on the roll of medium whereas Roll Number 2181 was given on the mill data sheet.

TABLE XXV
SUMMARY OF TEST RESULTS FOR MACHINE X
August and September, 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.		
X-1	7-31-66	8-10-66	369	30.4	12.0	11.5	11.9	45.6	41.2	38.2	40.0	1.562
X-2	7-31-66	8-10-66	370	29.3	12.0	11.4	11.7	42.0	39.4	37.0	38.1	1.566
X-3	8-15-66	8-25-66	377	27.5	12.1	11.0	11.6	40.8	35.6	32.6	34.1	1.565
X-4	8-15-66	8-25-66	378	27.2	12.0	11.2	11.6	39.6	34.8	32.8	33.8	1.565
X-5	8-20-66	9-2-66	385	26.9	11.1	10.7	10.9	41.4	36.2	33.2	34.6	1.568
X-6	8-20-66	9-2-66	386	26.4	10.7	10.0	10.5	41.4	35.4	33.4	34.6	1.570
X-7	9-7-66	9-21-66	393	27.4	12.2	10.8	11.6	40.2	35.0	32.4	33.5	1.568
X-8	9-7-66	9-21-66	394	27.4	11.3	10.8	11.1	39.6	36.4	32.8	34.2	1.571
X-9	9-14-66	9-26-66	401	27.0	10.8	10.2	10.4	40.8	37.8	34.2	35.9	1.568
X-10	9-14-66	9-23-66	402	27.0	10.7	10.0	10.3	40.8	36.6	33.2	35.0	1.564
Current machine average												
				27.6	11.2		39.0		35.4		1.567	
Cumulative machine average				26.6	10.7		36.3		31.9			
Machine factor, %				103.7	104.3		107.2		110.9			
Machine index, %				102.2	107.6		110.6					

TABLE XXVI
SUMMARY OF TEST RESULTS FOR MACHINE Y
August and September, 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.		
Y-1	7-20-66	8-11-66	564	27.1	11.0	10.4	10.8	40.2	38.2	34.8	36.8	1.560
Y-2	7-27-66	8-11-66	565	26.7	11.0	10.5	10.8	39.6	37.4	34.2	36.0	1.561
Y-3	8-5-66	9-23-66	566	27.0	11.0	10.4	10.7	39.0	38.2	34.2	36.0	1.562
Y-4	8-11-66	9-23-66	567	28.1	11.2	10.8	11.0	42.6	41.0	36.4	38.6	1.560
Y-5	8-18-66	9-23-66	568	27.3	11.2	10.8	10.9	40.2	38.6	36.0	37.2	1.564
Y-6	8-25-66	9-22-66	569	26.4	11.2	10.1	10.6	39.6	36.0	33.2	34.6	1.567
Y-7	8-31-66	9-22-66	570	26.9	10.7	10.0	10.3	39.0	36.0	33.2	34.8	1.562
Y-8	9-8-66	9-22-66	571	26.1	10.4	10.0	10.2	36.6	36.0	34.0	35.1	1.563
Current machine average												
				27.0	10.7		38.0		36.1		1.562	
Cumulative machine average				27.7	10.9		36.5		33.9			
Machine factor, %				97.1	98.2		104.3		106.7			
Machine index, %				100.0	102.9		107.9		112.4			

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

TABLE XXVII
SUMMARY OF TEST RESULTS FOR MACHINE Z
August and September, 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.			
Z-1	7-23-66	8-4-66	62	25.4	10.0	9.4	9.8	35.4	31.2	34.0	32.0	1	1.569
Z-2	7-27-66	8-5-66	63	27.7	10.9	10.2	10.7	40.2	36.6	35.6	33.9	1	1.562
Z-3	8-6-66	8-24-66	64	26.0	10.4	10.0	10.2	34.2	32.4	33.2	31.4	Min.	1.552
Z-4	8-11-66	8-24-66	65	26.0	10.4	9.8	10.1	37.8	33.6	31.2	29.8	1/2	1.558
Z-5	8-18-66	9-2-66	66	24.9	8.8	8.0	8.5	35.4	28.8	29.6	28.0	Min. ^c	1.548
Z-6	8-24-66	9-8-66	67	26.5	10.8	9.9	10.4	34.8	30.0	34.2	32.6	Note ^c	1.543
Z-7	9-14-66	9-26-66	69	26.4	10.2	9.8	10.0	37.2	34.2	35.8	34.2	Min.	1.557
Current machine average				26.1			10.0			34.3	31.7		1.556
Cumulative machine average				26.9			10.1			34.3	30.8		
Machine factor, %				97.2			98.3			100.0	103.1		
Machine index, %				96.6			96.2			97.4	98.6		

TABLE XXVIII
SUMMARY OF TEST RESULTS FOR MACHINE AA
August and September, 1966
(Type of medium: semichemical)

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

^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 225 f.p.m.

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB
August and September, 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 factor ^b
BB-1	7-18-66	7-29-66	461	27.4	10.8 10.0 10.4	40.2 39.6 40.1	38.0 36.4 37.3	1-1/2	1.556
BB-2	7-26-66	8- 8-66	462	26.5	10.2 9.5 10.0	45.0 40.2 42.0	39.2 36.4 37.9	1	1.564
BB-3	7-26-66	8- 8-66	463	26.5	10.2 9.7 10.0	41.4 40.2 40.8	39.4 37.6 38.4	1	1.565
BB-4	8- 2-66	8-12-66	464	27.3	10.5 9.8 10.1	43.2 40.2 42.2	41.0 39.0 40.0	1-1/2	1.557
BB-5	8- 4-66	8-12-66	465	27.6	10.7 10.0 10.3	42.0 38.4 40.6	40.2 39.0 39.5	1	1.560
BB-6	8-11-66	8-24-66	466	26.8	10.8 9.7 10.2	42.6 39.0 40.8	37.8 36.6 37.0	1-1/2	1.562
BB-7	8-12-66	8-24-66	467	26.3	10.0 9.8 9.9	44.4 40.2 41.5	37.4 37.4 37.6	1-1/2	1.564
BB-8	8-25-66	9-12-66	468	26.6	10.4 9.7 10.1	40.8 37.2 39.0	36.0 36.0 38.3	1-1/2	1.562
BB-9	8-31-66	9-15-66	469	25.7	10.3 10.0 10.1	39.0 36.0 37.1	36.4 35.0 35.9	1	1.565
Current machine average				26.8	10.1	40.5	38.0		1.562
Cumulative machine average				26.9	10.3	39.4	36.5		
Machine factor, %				99.6	98.4	102.7	104.1		
Machine index, %				98.9	97.6	114.9	118.2		

TABLE XXX

SUMMARY OF TEST RESULTS FOR MACHINE CC
August and September, 1966

(Type of medium: semichemical)

CC-1	7-27-66	8- 8-66	92	26.5	10.4 9.7 10.0	43.8 37.2 39.0	36.4 33.4 35.1	Min.	1.558
CC-2	8- 1-66	8- 8-66	93	27.1	10.8 10.0 10.3	44.4 38.4 40.7	38.6 33.4 36.4	Min.	1.557
CC-3	8- 8-66	8-16-66	94	26.9	10.8 9.8 10.3	40.8 37.8 39.4	35.2 32.0 33.9	Min.	1.564
Current machine average				26.8	10.2	39.7	35.2		1.560
Cumulative machine average				27.3	10.6	35.8	32.1		
Machine factor, %				98.3	96.4	110.9	109.5		
Machine index, %				99.2	98.4	112.7	109.4		

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

TABLE XXXI

SUMMARY OF TEST RESULTS FOR MACHINE DD

August and September, 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.		lb./in. ^a	Runnability, draw ^b factor
					Max.	Min.	Max.	Min.	Max.	Min.		
DD-1	7-25-66	8-15-66	332	27.1	10.9	9.5	34.8	28.8	31.0	28.4	1-1/2	1.572
DD-2	7-26-66	8-15-66	333	27.7	11.0	9.5	34.8	27.0	33.6	30.2	1-1/2	1.572
DD-3	7-28-66	8-15-66	334	27.3	11.5	10.1	29.4	25.2	28.8	23.6	1-1/2	1.575
DD-4	7-29-66	8-15-66	335	27.3	10.9	10.0	33.6	28.2	29.6	26.4	1-1/2	1.573
DD-5	8-10-66	9-15-66	336	27.6	10.9	9.8	31.2	25.2	24.8	23.0	1-1/2	1.577
DD-6	8-15-66	9-15-66	337	27.2	10.6	9.3	33.6	32.4	30.0	28.6	1-1/2	1.570
DD-7	8-23-66	9-15-66	338	28.6	10.9	10.0	33.6	30.6	31.6	28.4	1-1/2	1.574
DD-8	8-25-66	9-15-66	339	29.0	11.2	10.4	34.8	32.4	34.2	29.2	1-1/2	1.572
Current machine average				27.7		10.4			31.2	28.8		1.573
Cumulative machine average				27.8		10.1			35.5	31.4		
Machine factor, %				99.8		103.9			87.8	91.9		
Machine index, %				102.5		100.0			88.5	89.7		

^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 XXXI 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 (August and September, 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.	28.4	24.8	26.8	27.0
Caliper, pt.	12.0	8.7	10.3	10.4
Concora flat crush, p.s.i.	40.7	29.0	34.6	35.2
Single-face flat crush, p.s.i.	38.0	27.1	32.3	32.1

The runnability data for the 189 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	25	13.2	100.0
600 f.p.m. - minimum tension	26	13.8	86.8
600 f.p.m. - 1/2 lb. per in. tension	29	15.3	73.0
600 f.p.m. - 1 lb. per in. tension	46	24.3	57.7
600 f.p.m. - 1-1/2 lb. per in. tension	63	33.3	33.3

Supplementary to the runnability data described, 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 XXXI for Machines A to Z and Machines AA, BB, CC, and DD, respectively.

In Table XXXII 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 XXXII 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 XXXII are summarized in Part I of Table XXXIII 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 XXXIII 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 XXXIII.

TABLE XXXII

INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1966

Machine A										Machine B										Machine C																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
Mill		Concora Flat Crush,		Date	Made	Roll	P.s.i.		Differ- ence ^a	Mill		Date	Made	Roll	Concora Flat Crush,		Differ- ence ^a	P.s.i.		Insti- tute	Date	Made	Roll	Concora Flat Crush,		Differ- ence ^a	P.s.i.		Insti- tute	Date	Made	Roll	Concora Flat Crush,		Differ- ence ^a																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Code	No.	Insti- tute	Mill				Insti- tute	Mill		Insti- tute	Mill				Insti- tute	Mill		Insti- tute	Mill					Insti- tute	Mill		Insti- tute	Mill					Insti- tute	Mill		Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute	Mill	Insti- tute

See end of table for footnote.

TABLE XXXII (Continued)
INSTITUTE AND MILL CONCORRA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1966

Machine K					Machine L					Machine M							
Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,							
Mill Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence ^a	Mill Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence ^a	Mill Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence ^a			
39	7-21-66	34.7	36.4	+1.7	13	7-16-66	19.8	22.1	+2.3	M-1	--	8-16-66	38.0	35.8	-2.2		
40	7-30-66	34.1	35.9	+1.8	14	8-2-66	29.8	32.5	+2.7	M-2	--	8-16-66	37.7	36.1	-1.6		
41	8-3-66	34.9	34.7	-0.2	15	8-24-66	35.9	34.2	-1.7	M-3	--	8-22-66	37.2	35.5	-1.7		
42	8-6-66	34.4	37.1	+2.7	16	8-31-66	31.3	29.6	-1.7	M-4	--	9-12-66	36.8	35.9	-0.9		
43	8-9-66	33.7	35.6	+1.9	17	9-3-66	35.6	34.9	-0.7	M-5	--	9-13-66	37.3	35.8	-1.5		
Current machine av.					34.4	35.9	30.5	30.7	+0.2	Current machine av.					37.3	35.9	-1.4
Machine N					Machine P					Machine Q							
Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,							
H-1	8-16-66	30.1	28.6	-1.5	P-1	225	7-24-66	30.4	31.8	Q-1	113	7-7-66	34.3	35.5	+1.2		
H-2	8-16-66	30.0	31.1	+1.1	P-2	226	7-22-66	29.9	30.4	Q-2	114	7-14-66	35.3	38.6	+3.3		
H-3	8-16-66	29.6	30.5	+0.9	P-3	227	7-30-66	27.7	29.2	Q-3	115	7-23-66	34.7	39.2	+4.5		
H-4	8-16-66	29.5	28.7	-0.8	P-4	228	8-9-66	28.7	29.5	Q-4	116	7-29-66	35.0	37.2	+2.2		
					P-5	229	8-19-66	33.6	35.2	Q-5	117	8-4-66	33.6	37.6	+4.0		
					P-6	230	8-20-66	31.0	32.6	Q-6	118	8-11-66	34.4	37.2	+2.8		
					P-7	231	8-29-66	32.5	34.7	Q-7	119	8-18-66	33.4	36.2	+2.8		
					P-8	232	9-3-66	32.8	32.2	Q-8	120	8-26-66	31.8	35.2	+3.4		
					P-9	233	9-15-66	35.2	34.9								
					P-10	234	9-21-66	30.1	30.0								
Current machine av.					29.8	29.7	31.2	32.0	+0.8	Current machine av.					34.1	37.1	+3.0
Machine R					Machine S					Machine T							
Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,							
--	8-14-66	36.4	35.0	+1.4	S-1	630	6-8-66	36.0	38.8	T-1	1	8-2-66	27.6	38.6	+11.0		
					S-2	631	6-30-66	39.7	38.9	T-2	2	8-2-66	31.4	38.5	+7.1		
					S-3	632	7-13-66	40.8	38.4	T-3	3	9-15-66	29.8	36.5	+6.7		
					S-4	633	7-26-66	39.7	38.0	T-4	4	9-15-66	27.0	36.7	+9.7		
					S-5	634	8-13-66	41.0	38.2								
Current machine av.					36.4	35.0	39.5	38.5	-1.0	Current machine av.					29.0	37.6	+8.6

^a See end of table for footnote.

TABLE XXXII (Continued)
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1966

Machine U					Machine V					Machine W				
Code	Mill Roll No.	Date Made	Concorda Flat Crush,		Code	Mill Roll No.	Date Made	Concorda Flat Crush,		Code	Mill Roll No.	Date Made	Concorda Flat Crush,	
			Insti- tute	P.s.i. Mill				Insti- tute	P.s.i. Mill				Insti- tute	P.s.i. Mill
U-1	141	7-30-66	31.1	31.7	V-1	72	7-20-66	36.0	30.0	W-1	1689	8-8-66	30.1	36.0
U-2	142	7-30-66	30.7	31.2	V-2	73	7-27-66	35.5	31.2	W-2	2181	8-11-66	30.5	35.8
U-3	143	8-20-66	30.5	33.7	V-3	74	8-6-66	32.6	33.5	W-3	2422	8-12-66	29.9	34.4
U-4	144	8-20-66	29.9	34.1	V-4	75	8-10-66	35.0	36.0	W-4	5141	8-15-66	29.8	35.4
U-5	145	8-28-66	32.8	34.3	V-5	76	8-18-66	36.4	29.9	W-5	109	9-1-66	30.8	36.4
U-6	146	8-28-66	31.2	33.5	V-6	77	8-24-66	34.7	28.8					
					V-7	79	9-14-66	38.2	38.9					
Current machine av.			31.0	33.1	Current machine av.			35.5	32.6	Current machine av.			30.2	35.6
				+2.1					-2.9					+5.4
Machine X					Machine Y					Machine Z				
Code	Mill Roll No.	Date Made	Concorda Flat Crush,		Code	Mill Roll No.	Date Made	Concorda Flat Crush,		Code	Mill Roll No.	Date Made	Concorda Flat Crush,	
			Insti- tute	P.s.i. Mill				Insti- tute	P.s.i. Mill				Insti- tute	P.s.i. Mill
X-1	369	7-31-66	44.8	45.3	Y-1	564	7-20-66	38.9	37.2	Z-1	62	7-23-66	33.0	31.6
X-2	370	7-31-66	40.7	42.6	Y-2	565	7-27-66	38.0	37.8	Z-2	63	7-27-66	38.0	29.9
X-3	377	8-15-66	37.2	38.1	Y-3	566	8-5-66	38.3	38.2	Z-3	64	8-6-66	33.4	28.6
X-4	378	8-15-66	38.5	37.9	Y-4	567	8-11-66	40.3	39.4	Z-4	65	8-11-66	34.9	33.1
X-5	385	8-20-66	37.1	42.9	Y-5	568	8-18-66	38.9	39.7	Z-5	66	8-18-66	31.4	28.9
X-6	386	8-20-66	38.8	41.4	Y-6	569	8-25-66	37.2	36.7	Z-6	67	8-24-66	33.4	32.8
X-7	393	9-7-66	36.7	35.7	Y-7	570	8-31-66	37.1	36.6	Z-7	69	9-14-66	35.9	38.0
X-8	394	9-7-66	37.1	34.6	Y-8	571	9-8-66	35.4	38.0					
X-9	401	9-14-66	39.0	39.4										
X-10	402	9-14-66	39.7	39.5										
Current machine av.			39.0	39.7	Current machine av.			38.0	38.0	Current machine av.			34.3	31.8
				+0.7					0.0					-2.5
Machine AA					Machine BB					Machine DD				
Code	Mill Roll No.	Date Made	Concorda Flat Crush,		Code	Mill Roll No.	Date Made	Concorda Flat Crush,		Code	Mill Roll No.	Date Made	Concorda Flat Crush,	
			Insti- tute	P.s.i. Mill				Insti- tute	P.s.i. Mill				Insti- tute	P.s.i. Mill
AA-1	25	7-19-66	36.5	34.4	BB-1	461	7-18-66	40.1	37.2	DD-1	332	7-25-66	32.2	31.4
AA-2	26	7-29-66	33.5	32.9	BB-2	462	7-26-66	42.0	39.6	DD-2	333	7-26-66	31.9	32.1
AA-3	27	8-3-66	35.3	33.1	BB-3	463	7-26-66	40.8	38.9	DD-3	334	7-28-66	26.9	28.9
AA-4	28	8-9-66	35.4	35.5	BB-4	464	8-2-66	42.2	39.1	DD-4	335	7-29-66	30.2	32.0
AA-5	29	9-1-66	33.0	33.3	BB-5	465	8-4-66	40.6	40.0	DD-5	336	8-10-66	28.9	27.4
					BB-6	466	8-11-66	40.8	39.0	DD-6	337	8-15-66	33.1	34.0
					BB-7	467	8-12-66	41.5	38.8	DD-7	338	8-23-66	32.6	34.9
					BB-8	468	8-25-66	39.0	38.9	DD-8	339	8-25-66	33.5	34.0
					BB-9	469	8-31-66	37.1	37.7					
Current machine av.			34.7	33.8	Current machine av.			40.5	38.8	Current machine av.			31.2	31.8
				-0.9					-1.7					+0.6

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

TABLE XXIII

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 (AUGUST-SEPTEMBER, 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	DD
Number of rolls compared	8	7	10	8	0	4	9	8	8	6	5	5	6	4	0	10	8	1	5	4	6	7	5	10	8	7	5	9	0	8
Concorda flat crush, p.s.i.																														
Current machine av. (Institute) ^a	34.0	37.1	29.2	31.9	--	40.7	36.6	34.0	37.7	33.9	34.4	30.5	37.3	29.8	--	31.2	34.1	36.4	39.5	29.0	31.0	35.5	30.2	39.0	38.0	34.3	34.7	40.5	--	31.2
Current machine av. (Mill) ^b	34.8	39.6	30.3	30.8	--	39.0	35.7	34.9	36.9	36.3	35.9	30.7	35.9	29.7	--	32.0	37.1	35.0	38.5	37.6	33.1	32.6	35.6	39.7	38.0	31.8	33.8	38.8	--	31.8
Average difference ^c	+0.8	+2.5	+1.1	-1.1	--	-1.7	-0.9	+0.9	-0.8	+2.4	+1.5	+0.2	-1.4	-0.1	--	+0.8	+3.0	+1.4	-1.0	+8.6	+2.1	-2.9	+5.4	+0.7	0.0	-2.5	-0.9	-1.7	--	+0.6
Maximum difference ^c	+4.4	+4.2	+2.8	+4.0	--	-2.2	-2.7	+3.3	-3.4	+3.0	+2.7	+2.7	-2.2	-1.5	--	+2.2	+4.5	+1.4	+2.8	+11.0	+4.2	-6.5	+5.9	+5.8	+2.6	-8.1	-2.2	-3.1	--	+2.5

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	Current report (Aug.-Sept.)	120th report (June-July)	119th report (April-May)
	+2.4	+6.7	+3.8
	--	+2.6	-2.4
	--	+1.6	+1.3
	--	-1.9	-1.9
	--	-2.2	-4.8
	--	-4.6	-6.2
	--	-2.1	-2.7
	--	-2.7	-4.1
	--	+7.1	+1.7
	--	+4.4	+0.7
	--	-3.8	-0.3
	--	-4.6	-0.3
	--	-6.4	-4.2
	--	+15.5	-6.7
	--	+6.9	+4.4
	--	-3.9	+23.4
	--	+2.8	+12.3
	--	-0.6	-0.3
	--	+4.5	+3.5
	--	+6.8	-8.2
	--	-2.5	+29.7
	--	+3.8	-2.5
	--	+1.8	-3.7
	--	+0.0	+2.4
	--	+8.4	+3.7
	--	-7.3	-2.6
	--	-7.7	-4.3
	--	-5.3	-3.1
	--	+1.9	-7.1
	--	-7.1	-9.1

^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 XXIII.
^cMaximum difference is the greatest difference encountered in comparing Institute and mill test averages for individual rolls. See Table XXIII.
^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 XXXIV 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 good and approximately the same as the agreement for the previous period.

TABLE XXXIV

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	11.1	11.1
+ 2.5	33.3	33.3
+ 5.0	74.1	70.4
+10.0	92.6	92.6
Max.	100.0 ^d	100.0 ^e

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

^bJune and July, 1966.

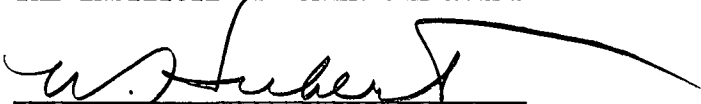
^cAugust and September, 1966.

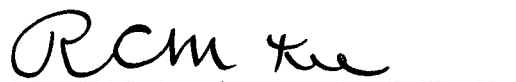
^dMaximum percentage difference was +13.4.

^eMaximum percentage difference was +29.7.

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

THE INSTITUTE OF PAPER CHEMISTRY


W. N. Hubert, Research Aide


R. C. McKee, Chairman
Container Section

IPST HASELTON LIBRARY



5 0602 01053267 1