

**CONTINUOUS EVALUATION OF
CORRUGATING MEDIUM**

Project 1108-17

Report 115

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

October 1, 1965

CODE LETTERS FOR PROJECT 1108-17
Report 115

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

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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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, 1965, on 177 rolls of corrugating medium representing the production of twenty-eight machines. Each of these 177 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 XXIX for Machines A through Z and Machines AA and BB, respectively. The maximum, minimum, and average results obtained on each roll are shown for all test properties

TABLE I
 SUMMARY OF CURRENT MACHINE AVERAGES
 August and September, 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	2	Semichemical	See note ^a			
B	4	Semichemical	26.6	10.5	35.1	32.0
C	6	Semichemical	26.8	10.7	32.5	29.4
D	4	Semichemical	26.3	10.7	36.4	31.7
E	4	Bogus	27.4	11.5	33.4	30.4
F	7	Semichemical	26.7	10.5	37.5	33.6
G	9	Semichemical	27.8	10.2	34.4	31.1
H	3	Semichemical	26.6	10.2	39.6	37.1
I	4	Semichemical	26.7	9.7	34.6	33.4
J	10	Semichemical	26.5	10.6	36.7	34.1
K	5	Semichemical	26.7	10.6	35.1	31.5
L	1	Semichemical	See note ^a			
M	8	Bogus	27.3	10.0	35.4	31.7
N	7	Semichemical	26.8	10.2	32.5	31.1
O	9	Semichemical	26.7	10.2	33.1	30.6
P	8	Bogus	28.2	10.0	38.0	36.0
Q	7	Semichemical	27.0	8.9	36.8	34.3
R	9	Semichemical	27.4	10.8	35.9	34.2
S	4	Kraft	27.1	8.9	32.9	31.7
T	9	Semichemical	26.7	9.9	32.3	29.5
U	6	Bogus	27.1	10.6	33.5	31.8
V	8	Semichemical	26.7	10.2	36.2	33.8
W	8	Semichemical	28.2	10.5	34.4	32.0
X	8	Semichemical	27.0	10.0	32.4	31.5
Y	9	Semichemical	26.4	9.9	33.7	31.0
Z	3	Semichemical	26.7	10.2	38.4	35.5
AA	7	Semichemical	26.7	9.9	31.2	29.4
BB	8	Semichemical	27.3	11.0	35.3	33.2
Total			177			
Current F.K.I. average			27.0	10.2	34.9	32.4
Cumulative F.K.I. average			27.0	10.3	35.7	32.5
F.K.I. index, %			100.0	99.7	97.6	99.6

^a 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.

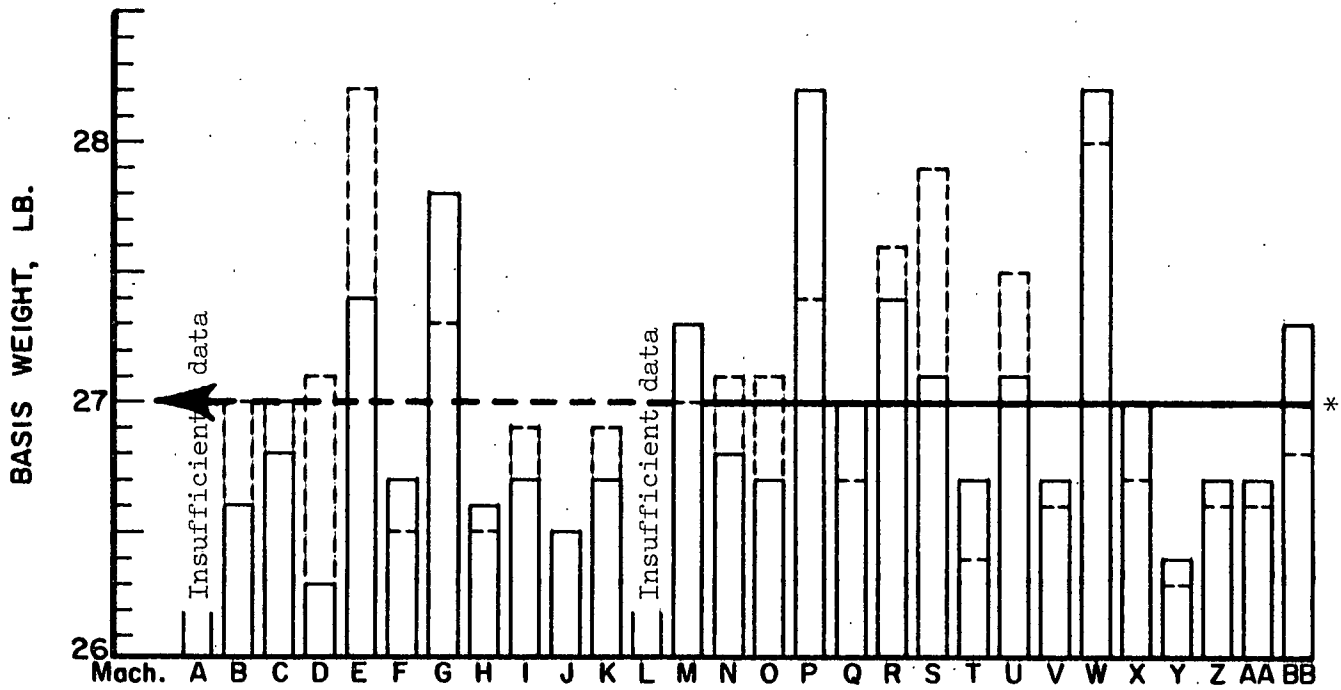
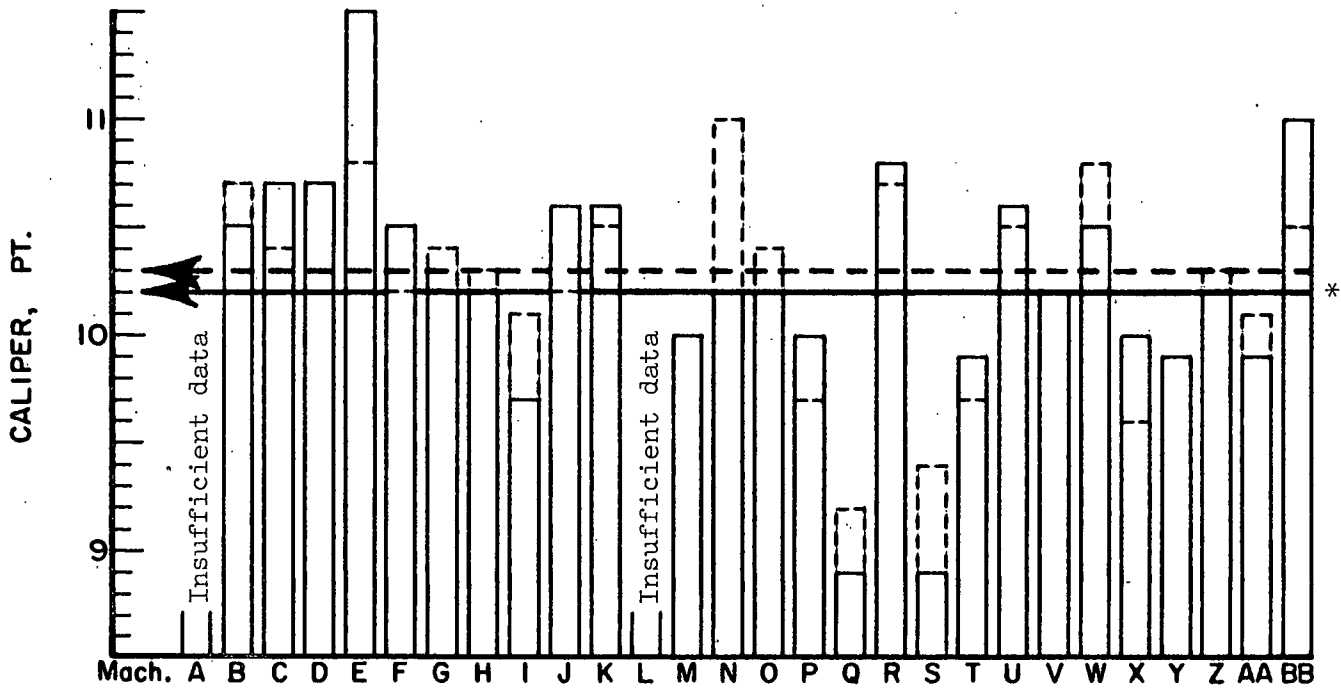


Figure 1. Comparison of Basis Weight Results



— Current machine average
 - - - Cumulative machine average

Figure 2. Comparison of Caliper Results

*"F.K.I. Av."

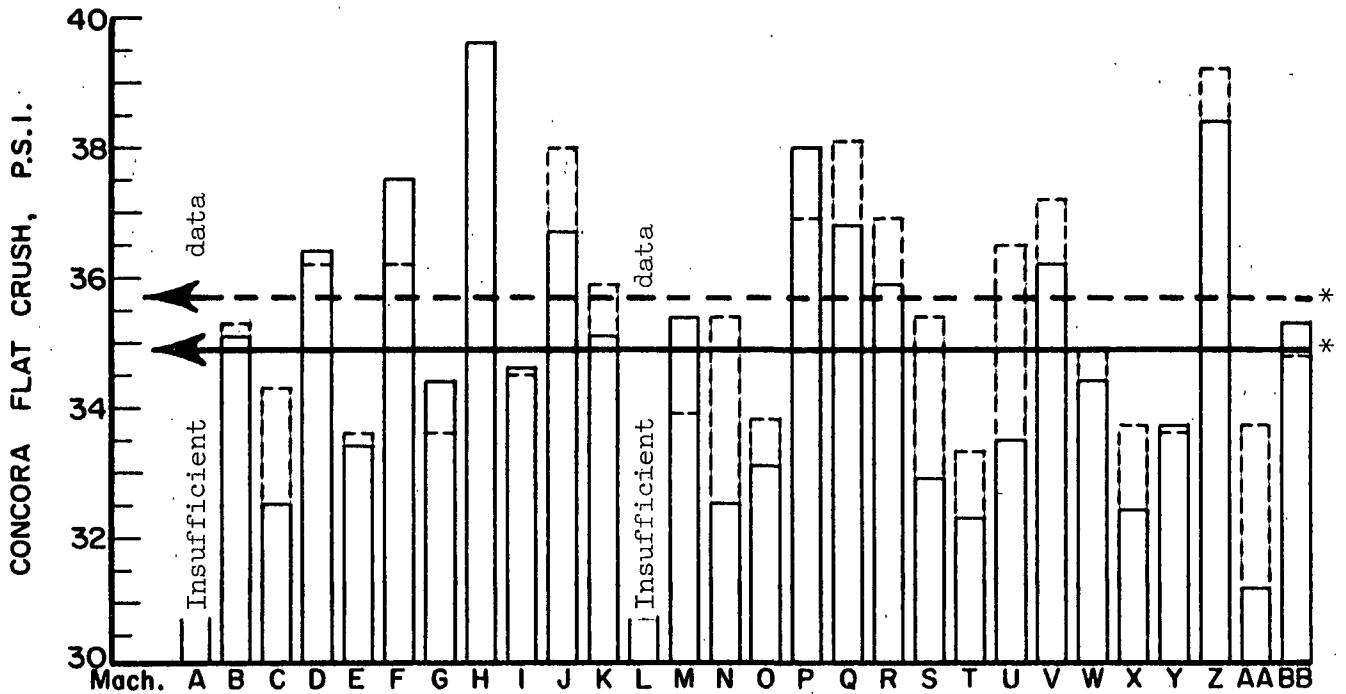
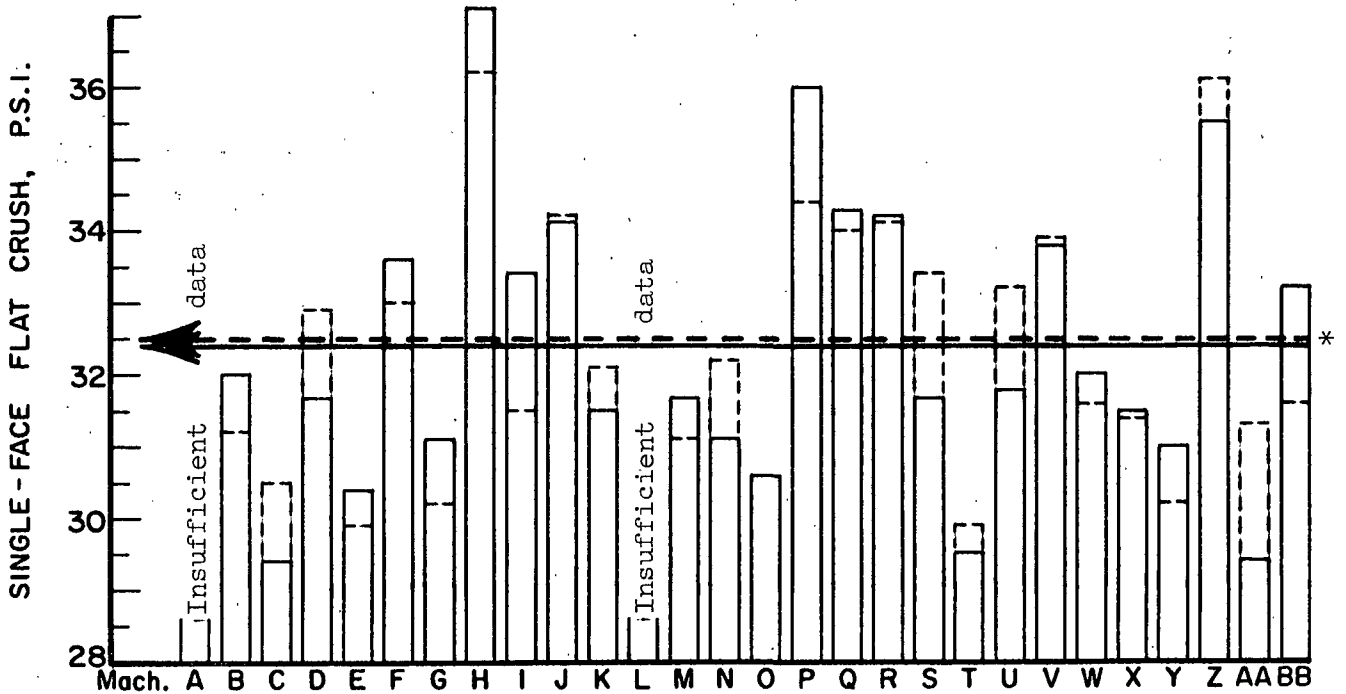


Figure 3. Comparison of Concora Flat Crush Results



— Current machine average
 - - - Cumulative machine average

Figure 4. Comparison of Single-Face Flat Crush Results

*"F.K.I. Av."

TABLE II
SUMMARY OF TEST RESULTS FOR MACHINE A
August and September, 1965

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.		
A-1	7-8-65	8-22-65	607	27.6	11.2	10.2	10.6	39.6	36.0	37.0	36.0	1.555
A-2	7-9-65	8-22-65	608	27.4	11.0	10.2	10.6	40.2	36.6	27.6	33.6	1.538
Current machine average				27.5	10.6		38.3		38.3		1.546	
Cumulative machine average				27.7	10.4		41.0		37.1			
Machine factor, %				99.1	102.3		95.4		96.3			
Machine index, %				101.6	103.0		107.1		110.0			

TABLE III
SUMMARY OF TEST RESULTS FOR MACHINE B
August and September, 1965

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.		
B-1	7-17-65	8-17-65	22	26.4	11.0	10.4	10.8	36.0	30.0	31.4	28.8	1.565
B-2	8-2-65	8-17-65	23	26.1	10.9	10.1	10.6	32.4	29.4	32.0	28.4	1.563
B-3	8-3-65	8-17-65	24	26.9	10.9	10.0	10.2	39.0	36.0	37.2	32.4	1.565
B-4	8-6-65	8-17-65	25	27.1	10.5	9.9	10.3	38.4	34.8	33.8	31.8	1.562
Current machine average				26.6	10.5		35.1		32.0		1.565	
Cumulative machine average				27.0	10.7		35.3		31.2			
Machine factor, %				98.7	98.1		99.6		102.6			
Machine index, %				98.6	101.9		98.3		98.6			

TABLE IV
SUMMARY OF TEST RESULTS FOR MACHINE C
August and September, 1965

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.		
C-1	7-24-65	8-5-65	161	26.2	11.0	10.1	10.6	35.4	29.4	31.4	28.6	1.567
C-2	7-30-65	8-5-65	162	26.8	11.3	10.9	11.0	32.4	30.0	30.4	27.6	1.567
C-3	8-31-65	9-10-65	177	27.8	11.3	10.9	11.1	37.8	32.4	30.4	28.8	1.570
C-4	8-31-65	9-10-65	178	27.9	11.8	11.0	11.3	36.6	31.8	31.4	27.8	1.569
C-5	9-4-65	9-15-65	185	26.3	10.3	10.0	10.2	33.0	30.6	29.6	28.8	1.577
C-6	9-4-65	9-15-65	186	25.8	10.3	10.0	10.1	33.0	30.0	30.8	28.4	1.570
Current machine average				26.8	10.7		32.5		29.4		1.570	
Cumulative machine average				27.0	10.4		30.5		29.4			
Machine factor, %				99.3	102.5		96.5		96.5			
Machine index, %				99.2	104.3		91.0		90.6			

^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 V
SUMMARY OF TEST RESULTS FOR MACHINE D
August and September, 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 ^b factor		
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min. ^c		Note ^d	Note ^e
D-1	8-2-65	8-17-65	17	27.0	11.3	10.4	10.9	37.2	33.0	35.3	35.3	34.6	32.2	33.0	1.555
D-2	8-14-65	9-20-65	18	25.6	11.4	10.0	10.5	38.4	31.8	35.4	35.4	31.4	29.6	30.5	1.539
D-3	8-17-65	9-20-65	19	26.0	10.9	10.0	10.6	37.8	34.2	36.4	36.4	32.4	29.6	30.9	1.536
D-4	8-31-65	9-20-65	20	26.5	11.4	10.0	10.7	40.8	37.2	38.4	38.4	33.6	31.0	32.3	1.539
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
				26.3			10.7			36.4				31.7	1.542
				27.1			10.7			36.2				32.9	
				96.9			100.0			100.3				96.4	
				97.3			103.9			101.7				97.5	

TABLE VI
SUMMARY OF TEST RESULTS FOR MACHINE E
August and September, 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. ^a		draw ^b factor		
					Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min. ^c		Note ^d	Note ^e
E-1	8-2-65	9-10-65	62	27.4	12.0	11.1	11.6	36.6	31.8	34.6	34.6	32.6	31.0	31.8	1.559
E-2	8-11-65	9-10-65	63	27.6	12.0	11.0	11.6	37.2	31.8	34.1	34.1	31.4	30.2	30.9	1.562
E-3	8-11-65	9-10-65	64	27.1	11.7	11.0	11.3	36.0	31.2	33.1	33.1	31.4	29.4	30.4	1.554
E-4	8-19-65	9-10-65	65	27.7	12.0	11.1	11.5	34.2	30.0	31.7	31.7	29.0	28.0	28.6	1.559
Current machine average															
Cumulative machine average															
Machine factor, %															
Machine index, %															
				27.4			11.5			33.4				30.4	1.558
				28.2			10.8			33.6				29.9	
				97.4			106.1			99.4				101.8	
				101.5			112.0			93.3				93.6	

^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 100 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 200 f.p.m.

TABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F
August and September, 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.		draw factor ^b
					Max.	Min.	Max.	Min.	Max.	Min.	lb./in. ^a	factor ^b	
F-1	8-5-65	8-31-65	-	26.5	10.7	9.8	10.1	39.0	34.8	37.3	34.7	1.562	
F-2	8-8-65	8-31-65	-	26.3	10.4	9.9	10.2	37.8	35.4	37.0	32.1	1.557	
F-3	8-17-65	8-31-65	-	27.8	10.9	10.3	10.7	45.6	36.6	40.6	34.9	1.555	
F-4	8-24-65	8-31-65	-	26.7	10.9	10.2	10.5	39.0	37.2	38.4	33.9	1.558	
F-5	9-10-65	9-23-65	-	26.3	10.8	10.0	10.4	37.2	33.6	35.5	33.4	1.559	
F-6	9-18-65	9-23-65	-	26.8	11.0	10.3	10.8	39.0	33.6	36.4	33.2	1.553	
F-7	9-19-65	9-23-65	-	26.8	11.2	10.6	10.8	39.0	34.8	37.4	33.0	1.565	
Current machine average				26.7			10.5	37.5		37.5	33.6		1.558
Cumulative machine average				26.5			10.2	36.2		36.2	33.0		
Machine factor, %				100.8			102.6	103.5		103.5	101.9		
Machine index, %				99.0			102.3	104.9		104.9	103.4		

TABLE VIII

SUMMARY OF TEST RESULTS FOR MACHINE G
August and September, 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.		draw factor ^b
					Max.	Min.	Max.	Min.	Max.	Min.	lb./in. ^a	factor ^b	
G-1	7-21-65	8-2-65	29	27.9	10.8	10.0	10.5	36.0	31.2	32.9	30.9	1.550	
G-2	7-28-65	8-11-65	30	27.4	10.5	10.0	10.3	39.0	30.0	34.4	31.7	1.550	
G-3	8-7-65	8-17-65	31	27.4	10.4	10.0	10.2	34.8	30.0	31.9	30.7	1.565	
G-4	8-10-65	8-19-65	32	28.3	10.5	9.3	10.2	36.6	32.4	34.1	28.9	1.561	
G-5	8-17-65	8-27-65	33	28.0	11.0	10.3	10.6	39.0	34.2	35.8	31.4	1.553	
G-6	8-26-65	9-7-65	34	28.2	10.6	10.0	10.2	37.8	34.8	35.9	34.2	1.557	
G-7	9-2-65	9-13-65	35	27.0	10.0	9.9	10.0	34.8	31.8	33.2	28.8	1.569	
G-8	9-8-65	9-24-65	36	28.0	10.3	9.5	10.0	36.6	34.2	35.4	29.6	1.560	
G-9	9-15-65	9-24-65	37	28.4	10.8	9.5	10.1	37.8	34.8	36.4	33.4	1.564	
Current machine average				27.8			10.2	34.4		34.4	31.1		1.559
Cumulative machine average				27.3			10.4	33.6		33.6	30.2		
Machine factor, %				102.0			98.8	102.5		102.5	102.7		
Machine index, %				103.0			99.7	96.4		96.4	95.7		

^aMaximum tension at 600 f.p.m.

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

^cMaximum speed at which this roll could be corrugated with minimum tension was 500 f.p.m.

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE H
August and September, 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.	Av.		
H-1	7-20-65	7-28-65	741	27.1	10.9	10.0	10.5	42.0	37.2	39.1	39.1	38.4	37.4	38.0	1-1/2	1.561
H-2	8-5-65	8-17-65	742	26.2	10.2	9.6	9.9	41.4	36.0	38.8	38.8	36.8	35.0	35.9	1	1.561
H-3	8-31-65	9-13-65	743	26.6	10.7	10.0	10.3	43.8	37.8	40.9	40.9	38.4	36.4	37.4	1/2	1.557
Current machine average													37.1	1.560		
Cumulative machine average													36.2			
Machine factor, %													100.4			
Machine index, %													99.3			
													100.6			
													114.2			

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I
August and September, 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.	Av.		
I-1	7-12-65	7-29-65	147	27.4	10.9	9.0	9.9	39.6	32.4	35.6	35.6	33.4	34.3	34.3	1-1/2	1.560
I-2	7-13-65	7-29-65	148	25.9	11.8	9.0	10.0	33.6	32.4	33.1	33.1	32.4	33.5	33.5	1	1.563
I-3	7-25-65	8-4-65	149	27.2	10.0	9.0	9.7	37.2	34.8	35.8	35.8	34.0	33.4	33.4	1/2	1.562
I-4	7-26-65	8-4-65	150	26.5	10.0	9.0	9.4	35.4	33.0	34.0	34.0	34.4	32.4	32.4	1	1.558
Current machine average													34.6	1.561		
Cumulative machine average													34.5			
Machine factor, %													99.5			
Machine index, %													96.3			
													100.3			
													96.9			
													102.8			

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

TABLE XI
SUMMARY OF TEST RESULTS FOR MACHINE J
August and September, 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.	Av.	
J-1	7-9-65	7-27-65	351	27.1	10.6	10.0	10.3	42.6	37.8	40.9	36.4	35.0	1/2	1.557	
J-2	7-16-65	8-3-65	559	26.5	11.2	10.2	10.8	39.6	34.8	37.0	33.4	31.6	Note ^c	1.538	
J-3	7-26-65	8-12-65	854	26.9	10.6	9.9	10.4	37.2	34.8	36.1	35.6	34.6	Min. ^d	1.548	
J-4	8-2-65	8-22-65	2	26.6	10.8	10.1	10.4	36.0	31.8	34.1	32.6	30.6	Note ^e	1.543	
J-5	8-9-65	8-22-65	196	26.3	11.0	10.2	10.6	35.4	31.8	33.6	34.8	30.8	Note ^f	1.548	
J-6	8-12-65	8-24-65	291	26.3	11.8	10.4	11.0	42.0	33.6	37.6	42.0	35.4	Note ^g	1.548	
J-7	8-19-65	9-13-65	530	26.4	10.3	10.0	10.1	38.4	34.2	36.5	35.6	32.4	1-1/2	1.571	
J-8	8-23-65	9-13-65	680	26.1	10.6	9.9	10.2	39.6	33.6	37.1	35.2	31.4	1/2	1.570	
J-9	9-3-65	9-22-65	140	26.5	11.6	10.3	10.9	39.6	37.2	38.3	37.8	36.0	Note ^g	1.547	
J-10	9-8-65	9-22-65	309	26.7	11.6	10.9	11.2	39.0	31.8	35.6	34.4	31.4	Note ^h	1.552	
Current machine average				26.5			10.6	36.7		36.7	34.1			1.552	
Cumulative machine average				26.5			10.2	38.0		38.0	34.2				
Machine factor, %				100.0			105.0	96.6		96.6	99.9				
Machine index, %				98.2			102.8	102.6		102.6	105.0				

TABLE XII
SUMMARY OF TEST RESULTS FOR MACHINE K
August and September, 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.	Av.	
K-1	8-7-65	8-31-65	-	26.8	10.9	10.5	10.7	40.8	33.0	37.3	33.6	31.6	Min.	1.556	
K-2	8-18-65	8-31-65	-	26.1	10.8	10.0	10.4	35.4	33.6	34.8	33.0	30.8	1/2	1.558	
K-3	8-23-65	8-31-65	-	27.1	10.9	10.1	10.6	38.4	31.8	34.9	32.0	28.6	Min.	1.544	
K-4	8-29-65	9-1-65	-	26.9	10.6	10.0	10.2	36.0	31.2	33.4	32.0	29.2	Min.	1.554	
K-5	9-20-65	9-28-65	-	26.6	11.4	10.7	11.0	37.2	33.0	35.2	33.0	31.6	1-1/2	1.567	
Current machine average				26.7			10.6	35.1		35.1	31.5			1.556	
Cumulative machine average				26.9			10.5	35.9		35.9	32.1				
Machine factor, %				99.1			100.4	97.8		97.8	98.0				
Machine index, %				98.8			105.0	98.2		98.2	105.0				

^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 125 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 350 f.p.m.
^fMaximum speed at which this roll could be corrugated with minimum tension was 500 f.p.m.
^gMaximum speed at which this roll could be corrugated with minimum tension was 300 f.p.m.
^hMaximum speed at which this roll could be corrugated with minimum tension was 525 f.p.m.

TABLE XIII
 SUMMARY OF TEST RESULTS FOR MACHINE L
 August and September, 1965

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.		
L-1	8-18-65	9-1-65	71	27.8	13.4	10.9	12.0	35.4	32.4	34.1	31.4	28.2	29.7	1/2	1.558
Current machine average				27.8			12.0			34.1			29.7		1.558
Cumulative machine average				25.2			9.9			30.0			28.6		
Machine factor, %				110.5			121.0			113.6			103.9		
Machine index, %				103.0			116.6			95.3			91.5		

(Type of medium: semichemical)

TABLE XIV
 SUMMARY OF TEST RESULTS FOR MACHINE M
 August and September, 1965

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.		
M-1	7-14-65	8-9-65	184	26.9	10.9	9.7	10.0	37.8	31.8	34.7	32.8	31.0	31.7	1-1/2	1.574
M-2	7-16-65	8-9-65	185	27.1	10.5	9.9	10.2	37.8	34.2	36.1	32.4	30.8	31.8	1-1/2	1.576
M-3	7-26-65	8-9-65	186	26.3	10.3	9.3	9.9	35.4	32.4	33.4	29.6	27.4	28.3	1-1/2	1.574
M-4	7-29-65	8-9-65	187	25.2	10.1	8.9	9.4	37.2	30.0	33.6	33.8	30.4	32.4	1-1/2	1.569
M-5	8-10-65	9-20-65	188	27.4	10.9	9.9	10.3	37.2	33.6	35.3	32.6	30.2	31.2	1-1/2	1.573
M-6	8-18-65	9-20-65	189	27.4	10.7	9.7	10.1	37.8	33.0	35.8	35.4	31.4	33.4	1-1/2	1.577
M-7	8-26-65	9-20-65	190	28.0	11.2	9.8	10.4	37.2	32.4	36.0	31.2	29.8	30.6	1-1/2	1.575
M-8	8-27-65	9-20-65	191	29.9	11.0	9.1	10.0	43.2	33.6	38.5	35.4	33.0	34.0	1-1/2	1.572
Current machine average				27.3			10.0			35.4			31.7		1.574
Cumulative machine average				27.0			10.0			33.9			31.1		
Machine factor, %				101.0			100.0			104.6			101.8		
Machine index, %				101.0			97.7			99.1			97.5		

(Type of medium: bogus)

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

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE N
August and September, 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.		
N-1	7-29-65	8-12-65	95	26.5	10.2	9.9	10.0	34.2	30.6	32.3	31.4	30.0	31.0	1/2	1.563
N-2	7-29-65	8-12-65	96	26.4	10.5	9.5	10.0	34.8	31.2	33.1	33.0	30.6	31.8	1/2	1.566
N-3	7-29-65	9-13-65	97	26.6	10.2	9.9	10.0	35.4	30.0	33.0	33.4	30.2	31.7	1/2	1.565
N-4	7-29-65	8-12-65	98	26.3	10.9	10.0	10.3	34.8	31.2	33.1	32.8	31.0	31.8	1/2	1.566
N-5	8-23-65	9-13-65	99	27.1	10.9	10.0	10.4	33.6	30.0	32.2	32.0	30.4	31.2	Min.	1.561
N-6	8-23-65	9-13-65	100	27.4	10.6	10.0	10.2	34.2	30.6	32.2	32.2	28.8	30.2	Min.	1.561
N-7	8-23-65	9-13-65	101	27.4	10.9	10.1	10.5	33.6	30.6	31.4	31.2	29.2	30.0	Min.	1.558
Current machine average				26.8			10.2			32.5			31.1		1.563
Cumulative machine average				27.1			11.0			35.4			32.2		
Machine factor, %				99.0			93.3			91.7			96.5		
Machine index, %				99.2			99.4			90.8			95.7		

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O
August and September, 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.		
O-1	7-21-65	8-2-65	21	26.5	10.3	9.6	9.9	33.0	29.4	31.6	32.0	28.0	30.6	Min.	1.544
O-2	7-28-65	8-5-65	22	27.4	10.6	9.8	10.3	33.6	31.2	31.9	33.2	29.2	31.4	Min.	1.552
O-3	8-4-65	8-17-65	23	26.8	10.8	10.0	10.4	36.6	31.2	33.7	31.6	30.0	30.8	Min.	1.560
O-4	8-11-65	8-19-65	24	26.9	10.1	9.7	10.0	38.4	29.4	34.0	29.6	27.8	28.6	1/2	1.552
O-5	8-17-65	8-27-65	25	25.7	10.3	10.0	10.2	30.0	25.2	27.8	28.2	25.2	26.5	Min.	1.557
O-6	8-26-65	9-7-65	26	27.0	11.0	10.0	10.4	37.8	34.2	35.9	36.0	32.0	33.4	Min.	1.549
O-7	9-2-65	9-13-65	27	24.9	10.0	9.1	9.8	34.8	31.2	33.1	32.8	31.4	32.1	1/2	1.564
O-8	9-8-65	9-22-65	28	25.7	10.2	9.5	9.9	34.2	27.0	32.4	28.6	27.6	28.2	Min.	1.563
O-9	9-15-65	9-27-65	29	29.6	11.0	10.5	10.8	38.4	34.2	37.2	35.2	32.2	34.0	1/2	1.563
Current machine average				26.7			10.2			33.1			30.6		1.556
Cumulative machine average				27.1			10.4			33.8			30.6		
Machine factor, %				98.6			98.1			97.8			100.0		
Machine index, %				98.9			99.2			92.5			94.3		

^aMaximum tension at 600 f.p.m.

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

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P
August and September, 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. ^a	draw ^b factor				
					Max.	Min.	Max.	Min.	Max.	Min.						
P-1	7-12-65	8-9-65	284	28.7	11.0	9.5	10.4	40.8	37.2	38.9	38.9	37.0	33.8	35.6	1-1/2	1.555
P-2	7-14-65	8-9-65	285	28.9	10.7	10.0	10.3	40.8	35.4	38.5	38.5	37.4	36.0	36.5	1-1/2	1.553
P-3	7-26-65	8-9-65	286	26.4	10.0	9.0	9.4	43.2	37.2	39.2	39.2	38.8	35.6	36.8	1-1/2	1.556
P-4	7-29-65	8-9-65	287	27.6	10.0	9.0	9.7	39.0	34.8	36.2	36.2	36.4	34.8	35.6	1-1/2	1.558
P-5	8-10-65	9-20-65	288	27.9	10.4	9.1	9.9	37.8	31.8	34.0	34.0	33.8	31.8	32.9	1/2	1.545
P-6	8-16-65	9-20-65	289	28.2	10.6	9.7	10.2	41.4	39.0	39.6	39.6	38.6	36.0	37.0	1-1/2	1.559
P-7	8-24-65	9-20-65	290	29.0	10.9	9.6	10.3	40.2	36.0	38.5	38.5	39.4	35.8	37.8	1	1.544
P-8	8-25-65	9-20-65	291	28.9	10.9	9.6	10.2	41.4	37.8	39.0	39.0	36.6	35.6	36.1	1-1/2	1.551
Current machine average													36.0	1.553		
Cumulative machine average													34.4			
Machine factor, %													104.8			
Machine index, %													110.9			

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q
August and September, 1965

(Type of medium: semichemical)

Q-1	7-29-65	8-5-65	649	27.1	9.5	8.8	9.1	40.2	35.4	37.7	37.7	37.2	33.8	35.5	1-1/2	1.568
Q-2	8-3-65	8-13-65	650	27.5	8.9	8.3	8.7	38.4	35.4	36.8	36.8	36.6	34.2	35.0	1/2	1.558
Q-3	8-16-65	8-24-65	651	26.0	9.1	8.2	8.7	35.4	32.4	34.1	34.1	31.6	28.4	30.2	1-1/2	1.570
Q-4	8-20-65	8-30-65	652	27.6	9.9	9.0	9.5	37.8	35.4	37.0	37.0	34.8	32.4	34.1	1/2	1.558
Q-5	9-1-65	9-14-65	653	26.5	9.0	8.4	8.8	41.4	35.4	38.3	38.3	35.6	33.6	34.8	1-1/2	1.569
Q-6	9-5-65	9-15-65	654	26.7	9.1	8.8	9.0	39.6	35.4	37.7	37.7	35.8	33.4	35.0	1-1/2	1.577
Q-7	9-15-65	9-27-65	655	27.5	9.2	8.5	8.8	37.8	34.2	36.4	36.4	37.0	34.0	35.2	1-1/2	1.573
Current machine average													34.3	1.568		
Cumulative machine average													34.0			
Machine factor, %													100.9			
Machine index, %													105.5			

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

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R
August and September, 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.	Av.	
R-1	7-9-65	8-11-65	512	26.6	10.2	9.6	10.0	34.8	33.0	34.0	34.0	31.8	33.0	1	1.555
R-2	7-15-65	8-18-65	513	26.8	10.0	9.0	9.8	36.0	31.2	33.6	33.6	31.0	32.4	1-1/2	1.558
R-3	7-21-65	8-11-65	514	27.1	10.5	9.0	10.0	36.6	32.4	34.7	34.7	32.6	34.2	1	1.561
R-4	7-28-65	8-26-65	515	27.2	11.4	10.9	11.1	37.8	32.4	35.4	35.4	33.8	34.4	1	1.564
R-5	8-2-65	8-26-65	516	27.3	11.3	10.8	11.0	36.0	32.4	34.4	34.4	33.6	34.0	1/2	1.563
R-6	8-10-65	8-26-65	517	27.4	11.4	11.1	11.3	40.8	37.2	38.6	38.6	33.0	34.4	1/2	1.566
R-7	8-17-65	9-21-65	518	28.1	11.9	11.4	11.6	40.2	34.8	36.8	36.8	33.6	35.2	1/2	1.555
R-8	8-25-65	9-21-65	519	28.1	11.2	11.0	11.1	42.0	36.0	38.6	38.6	33.2	34.0	1/2	1.559
R-9	9-8-65	9-20-65	520	27.8	11.6	11.1	11.4	40.2	34.8	37.1	37.1	35.6	36.6	1/2	1.554
Current machine average													34.2	1.559	
Cumulative machine average													34.1		
Machine factor, %													100.4		
Machine index, %													105.4		

TABLE XX

SUMMARY OF TEST RESULTS FOR MACHINE S
August and September, 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. ^a	draw factor ^b			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
S-1	8-25-65	9-13-65	11	27.0	9.0	8.7	8.9	34.2	31.2	33.0	33.0	30.6	33.0	Min.	1.548
S-2	8-25-65	9-13-65	12	27.2	9.0	8.6	8.9	34.8	31.2	33.2	33.2	29.6	31.4	Min.	1.549
S-3	8-25-65	9-13-65	13	27.1	9.2	8.8	9.0	34.2	30.6	32.8	32.8	30.8	32.0	Min.	1.563
S-4	8-25-65	9-13-65	14	27.1	9.0	8.7	8.9	36.6	30.6	32.8	32.8	29.6	30.3	Min.	1.557
Current machine average													31.7	1.554	
Cumulative machine average													33.4		
Machine factor, %													94.8		
Machine index, %													97.5		

^a Maximum tension at 600 f.p.m.

^b 600 f.p.m., minimum tension.

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T
August and September, 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 b factor			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
T-1	7-31-65	8-10-65	174	28.0	10.2	9.9	10.1	33.6	31.2	32.4	30.4	29.4	29.9	1/2	1.557
T-2	8-2-65	8-10-65	175	27.1	10.3	9.9	10.1	32.4	29.4	31.1	29.8	27.0	28.3	1	1.570
T-3	8-11-65	8-16-65	176	25.9	9.8	9.0	9.2	35.4	31.2	33.6	32.8	30.4	31.2	1-1/2	1.569
T-4	8-19-65	8-23-65	177	26.8	10.1	9.8	10.0	39.0	33.0	36.0	31.4	29.6	30.7	1	1.568
T-5	8-25-65	8-31-65	178	26.8	10.0	10.0	10.0	31.8	30.0	31.3	29.4	27.6	28.5	1/2	1.564
T-6	9-2-65	9-8-65	179	26.0	9.9	9.2	9.6	33.2	28.8	29.8	30.2	27.6	28.5	1-1/2	1.569
T-7	9-4-65	9-10-65	180	26.3	9.8	9.0	9.4	33.6	28.8	32.6	32.6	30.8	31.3	1-1/2	1.568
T-8	9-16-65	9-21-65	181	26.9	10.6	10.0	10.3	35.4	30.6	32.9	29.4	27.2	28.5	1-1/2	1.570
T-9	9-18-65	9-24-65	182	26.4	10.4	10.0	10.2	33.0	29.4	31.2	29.2	27.6	28.4	1-1/2	1.571
Current machine average				26.7			9.9			32.3			29.5		1.567
Cumulative machine average				26.4			9.7			33.3			29.9		
Machine factor, %				100.9			101.2			97.0			98.5		
Machine index, %				98.7			96.0			90.3			90.7		

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U
August and September, 1965

(Type of medium: bogus)

U-1	8-4-65	8-26-65	482	26.4	10.8	9.9	10.3	36.6	31.2	33.2	31.6	29.6	30.4	1/2	1.560
U-2	8-11-65	8-26-65	483	26.7	10.7	10.0	10.5	33.6	29.4	31.7	30.6	28.4	29.6	Min.	1.551
U-3	8-19-65	8-26-65	484	27.1	10.8	10.0	10.3	33.0	29.4	31.4	31.6	28.0	29.8	Min.	1.551
U-4	9-8-65	9-27-65	485	27.6	11.2	10.0	10.8	37.8	31.2	33.7	35.0	30.4	31.9	1-1/2	1.570
U-5	9-16-65	9-27-65	486	27.1	11.1	10.3	10.8	38.4	30.0	34.8	34.6	33.0	33.6	1/2	1.557
U-6	9-19-65	9-27-65	487	28.0	11.2	10.4	10.8	39.6	31.8	36.1	36.6	33.4	35.2	1/2	1.553
Current machine average				27.1			10.6			33.5			31.8		1.557
Cumulative machine average				27.5			10.5			36.5			33.2		
Machine factor, %				98.8			101.0			91.8			95.5		
Machine index, %				100.4			102.9			93.7			97.7		

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

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V
August and September, 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.	Av.
V-1	8-6-65	8-31-65	--	26.3	10.2	9.8	10.0	37.2	33.6	36.0	36.0	34.4	1	1.556
V-2	8-8-65	8-31-65	--	26.7	10.5	10.1	10.3	39.0	34.8	36.5	33.6	34.6	1/2	1.558
V-3	8-13-65	8-31-65	--	26.5	10.5	10.2	10.3	39.6	35.4	37.8	33.6	34.4	Min.	1.554
V-4	8-28-65	9-1-65	--	27.0	10.5	10.0	10.1	39.0	36.0	37.2	33.4	34.3	1	1.564
V-5	9-4-65	9-23-65	--	26.1	10.3	10.0	10.1	37.2	32.4	35.5	32.4	31.2	1	1.570
V-6	9-11-65	9-23-65	--	26.7	10.3	10.0	10.2	37.8	31.8	34.1	33.4	33.1	1-1/2	1.564
V-7	9-15-65	9-23-65	--	27.6	10.5	10.1	10.2	40.2	34.2	37.3	36.0	34.7	1-1/2	1.568
V-8	9-17-65	9-23-65	--	27.0	10.4	10.0	10.2	36.6	33.6	35.0	35.2	33.4	1	1.566
Current machine average				26.7			10.2			36.2				1.562
Cumulative machine average				26.6			10.2			37.2				
Machine factor, %				100.3			100.0			97.2				
Machine index, %				98.9			99.1			101.2				

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W
August and September, 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.	Av.
W-1	7-26-65	8-4-65	1388	29.3	10.9	10.5	10.7	37.8	34.2	36.6	36.4	29.3	Note ^c	1.537
W-2	7-26-65	8-4-65	1389	28.9	11.1	10.7	10.9	39.0	34.8	36.8	32.4	34.4	Note ^d	1.544
W-3	8-9-65	8-19-65	1396	28.0	10.6	9.9	10.2	33.6	31.2	32.4	31.4	31.9	Note ^e	1.554
W-4	8-9-65	8-19-65	1397	27.6	10.2	9.6	9.9	33.6	28.2	31.3	28.6	29.9	Min.	1.561
W-5	8-15-65	8-24-65	1404	27.4	10.8	9.8	10.2	34.8	31.8	33.8	29.8	31.2	Min.	1.552
W-6	8-15-65	8-24-65	1405	27.4	10.8	10.0	10.3	34.2	31.2	32.9	29.8	32.0	Min.	1.554
W-7	9-1-65	9-13-65	1412	28.7	11.0	10.4	10.8	38.4	33.0	34.7	35.0	33.1	Min.	1.558
W-8	9-1-65	9-13-65	1413	28.4	11.2	11.0	11.1	39.0	33.0	36.6	37.2	34.0	Min.	1.555
Current machine average				28.2			10.5			34.4				1.552
Cumulative machine average				28.0			10.8			34.9				
Machine factor, %				100.7			97.9			98.6				
Machine index, %				104.3			102.5			96.2				

^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 525 f.p.m.

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

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

TABLE XXV
SUMMARY OF TEST RESULTS FOR MACHINE X
August and September, 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.	Av.	Max.	Min.	Av.	Max.	Min.	Av.		
X-1	7-7-65	7-30-65	G-1	26.8	10.3	9.2	9.8	34.2	28.2	31.4	32.0	28.8	30.3	1/2	1.569
X-2	7-8-65	7-30-65	G-2	26.3	10.5	9.0	9.6	34.2	30.6	32.4	34.6	30.8	32.4	1-1/2	1.571
X-3	7-15-65	7-30-65	G-3	27.8	11.1	10.0	10.5	32.4	30.0	31.0	33.4	28.8	31.8	1-1/2	1.579
X-4	7-15-65	7-30-65	G-4	27.9	10.7	9.8	10.2	34.8	33.0	33.5	33.6	31.4	32.2	1-1/2	1.578
X-5	8-2-65	8-22-65	H-1	27.4	11.6	9.8	10.2	37.8	30.6	33.6	33.4	31.0	32.4	Min.	1.555
X-6	8-2-65	8-22-65	H-2	25.9	10.6	8.8	9.7	35.4	28.2	31.8	31.0	30.0	30.5	1/2	1.563
X-7	8-2-65	8-22-65	H-3	26.0	10.3	9.2	9.9	33.6	32.4	33.0	31.8	29.6	30.7	1/2	1.566
X-8	8-3-65	8-22-65	H-4	27.5	10.8	9.8	10.1	33.0	30.6	32.2	31.8	30.8	31.4	1-1/2	1.567
Current machine average				27.0			10.0			32.4			31.5		1.568
Cumulative machine average				26.7			9.6			33.7			31.4		
Machine factor, %				100.9			104.3			95.9			100.1		
Machine index, %				100.0			97.1			90.5			96.8		

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

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y
August and September, 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.		lb./in. ^a	Runnability, draw factor ^b			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
Y-1	7-31-65	8-10-65	174	27.1	10.4	9.5	10.1	39.0	34.8	36.6	34.8	33.0	34.0	1	1.568
Y-2	8-2-65	8-10-65	175	26.3	9.9	9.2	9.6	34.8	32.4	33.0	30.8	28.6	29.6	1	1.571
Y-3	8-10-65	8-16-65	176	25.7	10.0	9.2	9.5	33.6	32.4	33.4	34.6	29.6	31.0	1	1.570
Y-4	8-19-65	8-23-65	177	26.2	10.0	8.5	9.5	36.0	31.2	34.3	34.6	31.4	32.7	1	1.569
Y-5	8-25-65	8-31-65	178	26.1	10.3	9.4	10.0	30.6	27.0	28.9	29.0	25.4	27.1	1	1.565
Y-6	9-2-65	9-8-65	179	26.0	10.0	9.8	9.9	34.8	31.2	33.6	30.8	28.6	29.4	1	1.572
Y-7	9-4-65	9-10-65	180	26.2	10.1	9.4	9.8	37.2	34.2	35.4	32.6	30.4	31.4	1	1.566
Y-8	9-16-65	9-21-65	181	27.0	10.7	10.0	10.2	37.2	31.2	34.1	32.2	29.4	31.0	1	1.570
Y-9	9-18-65	9-24-65	182	26.7	11.0	9.0	10.1	35.4	33.0	34.3	33.6	32.0	32.7	1	1.569
Current machine average													1.569		
Cumulative machine average													33.7		
Machine factor, %													30.2		
Machine index, %													102.5		
													95.4		

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z
August and September, 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.		lb./in. ^a	Runnability, draw factor ^b			
					Max.	Min.	Max.	Min.	Max.	Min.			Av.	Av.	
Z-1	8-3-65	8-17-65	421	26.3	11.0	9.1	10.1	40.8	37.8	38.6	37.4	35.4	36.8	1	1.561
Z-2	8-26-65	9-13-65	422	27.1	10.9	10.0	10.3	38.4	34.8	37.2	40.2	33.6	36.0	1	1.560
Z-3	8-31-65	9-13-65	423	26.8	10.7	9.9	10.1	42.6	36.6	39.5	34.8	32.2	33.8	1	1.563
Current machine average													1.561		
Cumulative machine average													35.5		
Machine factor, %													36.1		
Machine index, %													98.4		
													109.4		

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

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA
 August and September, 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 ^b factor				
					Max.	Min.	Max.	Min.	Max.	Min.			Av.			
AA-1	7-4-65	8-4-65	65	27.0	9.5	9.0	9.2	34.2	31.2	33.1	31.6	29.6	30.5	1-1/2	1.567	
AA-2	7-11-65	8-4-65	66	26.0	10.2	10.0	10.1	31.8	30.0	31.0	30.6	28.4	29.6	1-1/2	1.557	
AA-3	7-17-65	8-4-65	67	26.8	9.9	9.0	9.6	34.2	31.2	32.8	32.2	30.2	31.5	1/2	1.560	
AA-4	7-28-65	8-4-65	68	26.5	10.7	9.8	10.2	33.0	30.6	31.7	30.8	29.0	29.9	1/2	1.557	
AA-5	8-9-65	9-1-65	69	26.7	10.0	9.7	9.9	34.8	31.8	33.0	31.6	29.6	30.4	Min.	1.559	
AA-6	8-12-65	9-1-65	70	26.8	10.5	10.2	10.3	30.0	25.8	28.3	28.8	25.6	26.6	Min.	1.553	
AA-7	8-23-65	9-1-65	72	26.9	10.2	9.4	9.9	30.0	27.0	28.7	28.4	26.4	27.3	1/2	1.562	
Current machine average				26.7			9.9		31.2		31.2		29.4			1.559
Cumulative machine average				26.6			10.1		33.7		33.7		31.3			
Machine factor, %				100.1			97.9		92.7		92.7		93.9			
Machine index, %				98.8			96.2		87.3		87.3		90.5			

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB
 August and September, 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 ^b factor				
					Max.	Min.	Max.	Min.	Max.	Min.			Av.			
BB-1	7-20-65	9-24-65	4032	27.3	11.7	10.5	11.0	37.8	34.2	36.4	34.4	32.4	33.5	Min.	1.549	
BB-2	8-5-65	9-24-65	928	27.2	11.2	10.7	10.9	36.6	33.0	34.8	34.8	33.2	33.9	Min.	1.552	
BB-3	8-12-65	9-24-65	2864	27.0	11.3	10.7	11.0	37.2	32.4	33.8	33.6	32.8	33.2	Min.	1.556	
BB-4	8-18-65	9-24-65	4224	27.1	11.3	10.7	11.0	37.8	34.2	35.5	35.8	33.2	34.3	Min.	1.556	
BB-5	8-28-65	9-24-65	1272	27.7	11.2	10.5	10.9	38.4	34.8	36.6	35.0	32.0	33.4	1/2	1.557	
BB-6	9-2-65	9-24-65	175	27.1	11.5	10.8	11.1	36.6	33.0	35.2	34.4	31.6	32.8	1/2	1.557	
BB-7	9-9-65	9-24-65	1348	27.3	11.3	10.9	11.1	36.6	33.0	34.6	34.0	32.0	33.0	Min.	1.556	
BB-8	9-14-65	9-24-65	2344	27.6	11.5	10.9	11.1	37.8	33.6	35.9	32.4	29.4	31.1	Min.	1.555	
Current machine average				27.3			11.0		35.3		35.3		33.2			1.555
Cumulative machine average				26.8			10.5		34.8		34.8		31.6			
Machine factor, %				101.9			104.7		101.7		101.7		104.8			
Machine index, %				100.9			107.3		98.9		98.9		102.0			

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

except basis weight for 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 XXIX 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, 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	Cumulative F.K.I. Average
Basis wt., lb.	28.2	26.3	27.0	27.0
Caliper, pt.	11.5	8.9	10.2	10.3
Concora flat crush, p.s.i.	39.6	31.2	34.9	35.7
Single-face flat crush, p.s.i.	37.1	29.4	32.4	32.5

The runnability data for the 177 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	14	7.9	100.0
600 f.p.m. - minimum tension	43	24.3	92.1
600 f.p.m. - 1/2 lb. per in. tension	42	23.7	67.8
600 f.p.m. - 1 lb. per in. tension	28	15.8	44.1
600 f.p.m. - 1-1/2 lb. per in. tension	50	28.2	28.2

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 XXIX for Machines A to Z and Machines AA and BB, respectively.

In Table XXX 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 XXX 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 XXX are summarized in Part I of Table XXXI 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 XXXI 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 XXXI.

TABLE XXX
 INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1965

Machine A				Machine B				Machine C									
Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.		Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.		Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.				
			Insti-tute	Mill				Differ-ence	Insti-tute				Mill	Differ-ence	Insti-tute	Mill	Differ-ence
A-1	607	7-8-65	38.3	40.2	+1.9	B-1	22	7-17-65	34.1	33.0	-1.1	C-1	161	7-24-65	31.8	37.2	+5.4
A-2	608	7-9-65	38.3	39.0	+0.7	B-2	23	8-2-65	31.6	33.7	+2.1	C-2	162	7-30-65	31.1	31.9	+0.8
						B-3	24	8-3-65	38.0	35.2	-2.8	C-3	177	8-31-65	35.0	34.8	-0.2
						B-4	25	8-6-65	36.8	36.0	-0.8	C-4	178	8-31-65	34.2	35.7	+1.5
Current machine av.	38.3	39.6	+1.3	Current machine av.	35.1	34.5	-0.6	Current machine av.	32.5	34.6	+2.1						

Machine D				Machine E				Machine F									
Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.		Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.		Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.				
			Insti-tute	Mill				Differ-ence	Insti-tute				Mill	Differ-ence	Insti-tute	Mill	Differ-ence
D-1	17	8-2-65	35.3	34.3	-1.0	E-1	62	8-2-65	34.6	39.5	+4.9	F-1	--	8-5-65	37.3	38.4	+1.1
D-2	18	8-14-65	35.4	35.0	-0.4	E-2	63	8-11-65	34.1	37.2	+3.1	F-2	--	8-8-65	37.0	36.8	-0.2
D-3	19	8-17-65	36.4	36.1	-0.3	E-3	64	8-11-65	33.1	37.4	+4.3	F-3	--	8-17-65	40.6	37.6	-3.0
D-4	20	8-31-65	38.4	37.6	-0.8	E-4	65	8-19-65	31.7	36.8	+5.1	F-4	--	8-24-65	38.4	35.4	-3.0
Current machine av.	36.4	35.8	-0.6	Current machine av.	33.4	37.7	+4.3	Current machine av.	37.5	36.6	-0.9						

Machine G				Machine H				Machine J									
Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.		Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.		Code	Mill Roll No.	Date Made	Concorda Flat Crush, p.s.i.				
			Insti-tute	Mill				Differ-ence	Insti-tute				Mill	Differ-ence	Insti-tute	Mill	Differ-ence
G-1	29	7-21-65	32.9	34.9	+2.0	H-1	741	7-20-65	39.1	39.6	+0.5	J-1	351	7-9-65	40.9	37.7	-3.2
G-2	30	7-28-65	34.4	34.6	+0.2	H-2	742	8-5-65	38.8	38.8	0.0	J-2	559	7-16-65	37.0	37.4	+0.4
G-3	31	8-7-65	31.9	29.2	-2.7	H-3	743	8-31-65	40.9	41.0	+0.1	J-3	854	7-26-65	36.0	37.7	-2.3
G-4	32	8-10-65	34.1	32.3	-1.8							J-4	2	8-2-65	34.1	32.5	-1.6
G-5	33	8-17-65	35.8	29.2	-6.6							J-5	196	8-9-65	33.6	33.8	+0.2
G-6	34	8-26-65	35.9	34.6	-1.3							J-6	291	8-12-65	37.6	39.6	+2.0
G-7	35	9-2-65	33.2	30.8	-2.4							J-7	530	8-19-65	36.5	31.9	-4.6
G-8	36	9-8-65	35.4	37.0	+1.6							J-8	680	8-23-65	37.1	32.8	-4.3
G-9	37	9-15-65	36.4	33.4	-3.0							J-9	140	9-3-65	38.3	37.3	-1.0
Current machine av.	34.4	32.9	-1.5	Current machine av.	39.6	39.8	+0.2	Current machine av.	36.7	35.1	-1.6						

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

TABLE XXX (Continued)

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1965

Machine K					Machine L					Machine M				
Concora Flat Crush, p.s.i.					Concora Flat Crush, p.s.i.					Concora Flat Crush, p.s.i.				
Code	Mill No.	Date Made	Institute	Difference ^a	Code	Mill No.	Date Made	Institute	Difference ^a	Code	Mill No.	Date Made	Institute	Difference ^a
K-1	--	8-7-65	37.3	+0.4	L-1	71	8-18-65	34.1	-3.4	M-1	184	7-14-65	34.7	-1.8
K-2	--	8-18-65	34.8	+1.4						M-2	185	7-16-65	36.1	-5.4
K-3	--	8-23-65	34.9	+0.9						M-3	186	7-26-65	33.4	-4.2
K-4	--	8-29-65	33.4	+2.4						M-4	187	7-29-65	33.6	+1.4
K-5	--	9-20-65	33.2	+0.6						M-5	188	8-10-65	35.3	+1.2
Current machine av.			35.1	+1.2	Current machine av.			34.1	-3.4	Current machine av.			35.4	-1.1
Machine N					Machine O					Machine P				
Concora Flat Crush, p.s.i.					Concora Flat Crush, p.s.i.					Concora Flat Crush, p.s.i.				
Code	Mill No.	Date Made	Institute	Difference ^a	Code	Mill No.	Date Made	Institute	Difference ^a	Code	Mill No.	Date Made	Institute	Difference ^a
N-1	95	7-29-65	32.3	+0.6	O-1	21	7-21-65	31.6	+0.7	P-1	284	7-12-65	38.9	-5.1
N-2	96	7-29-65	33.1	-1.8	O-2	22	7-28-65	31.9	-1.2	P-2	285	7-14-65	38.5	-3.7
N-3	97	7-29-65	33.0	+0.7	O-3	23	8-4-65	33.7	+0.1	P-3	286	7-26-65	39.2	-2.9
N-4	98	7-29-65	33.1	-0.3	O-4	24	8-11-65	34.0	-2.9	P-4	287	7-29-65	36.2	-3.0
N-5	99	8-23-65	32.2	+1.9	O-5	25	8-17-65	27.8	+2.6	P-5	288	8-10-65	34.0	-1.0
N-6	100	8-23-65	32.2	+1.6	O-6	26	8-26-65	35.9	-1.9	P-6	289	8-16-65	39.6	+2.0
N-7	101	8-23-65	31.4	+4.4	O-7	27	9-2-65	33.1	-3.2	P-7	290	8-24-65	38.5	+2.8
Current machine av.			32.5	+1.0	Current machine av.			33.1	-1.4	Current machine av.			38.0	-1.6

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

TABLE XXX (Continued)
 INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1965

Machine Q				Machine R				Machine S							
Concora Flat Crush,				Concora Flat Crush,				Concora Flat Crush,							
Code	Mill Roll No.	Date Made	P.s.i. Mill	Differ- ^a ence	Code	Mill Roll No.	Date Made	P.s.i. Mill	Differ- ^a ence	Code	Mill Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ^a ence
Q-1	649	7-29-65	40.8	+3.1	R-1	512	7-9-65	34.0	+0.9	S-1	11	8-25-65	33.0	36.0	+3.0
Q-2	650	8-3-65	40.8	+4.0	R-2	513	7-15-65	33.6	+1.0	S-2	12	8-25-65	33.2	34.3	+1.1
Q-3	651	8-16-65	35.7	+1.6	R-3	514	7-21-65	34.7	-0.5	S-3	13	8-25-65	32.8	35.8	+3.0
Q-4	652	8-20-65	38.5	+1.5	R-4	515	7-28-65	35.4	-2.0	S-4	14	8-25-65	32.8	35.2	+0.4
Q-5	653	9-1-65	40.2	+1.9	R-5	516	8-2-65	34.4	-0.9						
Q-6	654	9-5-65	42.5	+4.8	R-6	517	8-10-65	38.6	-5.0						
Q-7	655	9-15-65	40.2	+3.8	R-7	518	8-17-65	36.8	+0.8						
					R-8	519	8-25-65	38.6	-0.6						
					R-9	520	9-8-65	37.1	+2.0						
					Current machine av.			35.9	-0.5	Current machine av.			32.9	34.8	+1.9
Machine T				Machine V				Machine W							
Code	Mill Roll No.	Date Made	P.s.i. Mill	Differ- ^a ence	Code	Mill Roll No.	Date Made	P.s.i. Mill	Differ- ^a ence	Code	Mill Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ^a ence
T-2	175	8-2-65	31.3	+0.2	V-1	--	8-6-65	36.0	+0.8	W-1	1388	7-26-65	36.6	35.4	-1.2
T-3	176	8-11-65	33.6	-2.3	V-2	--	8-8-65	36.5	-0.1	W-2	1389	7-26-65	36.8	36.8	0.0
T-4	177	8-19-65	32.3	-3.7	V-3	--	8-13-65	37.8	+0.2	W-3	1396	8-9-65	32.4	33.7	+1.3
T-6	179	9-2-65	29.8	-0.6	V-4	--	8-28-65	37.2	-0.4	W-4	1397	8-9-65	31.3	34.1	+2.8
T-7	180	9-4-65	32.2	-1.1	V-5	--	9-4-65	35.5	+0.1	W-5	1404	8-15-65	33.8	33.4	-0.4
T-8	181	9-16-65	30.0	-2.9	V-6	--	9-11-65	34.1	+3.0	W-6	1405	8-15-65	32.9	35.4	+2.5
T-9	182	9-18-65	30.2	-1.0	V-7	--	9-15-65	37.3	0.0	W-7	1412	9-1-65	34.7	37.4	+2.7
					V-8	--	9-17-65	35.0	+1.4	W-8	1413	9-1-65	36.6	36.8	+0.2
					Current machine av.			30.8	-1.6	Current machine av.			34.4	35.4	+1.0

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

TABLE XXX (Continued)
INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR AUGUST AND SEPTEMBER, 1965

Machine X				Machine Y				Machine Z												
Concora Flat Crush,				Concora Flat Crush,				Concora Flat Crush,												
Code	Roll No.	Date Made	Insti- tute	Mill	P.s.i.	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Mill	P.s.i.	Differ- ence ^a							
X-1	G-1	7-7-65	31.4	174	32.6	+1.2	Y-1	174	7-31-65	36.6	34.1	-2.5	Z-1	421	8-3-65	38.6	38.4	-0.2		
X-2	G-2	7-8-65	32.4	175	36.0	+3.6	Y-2	175	8-2-65	33.0	32.3	-0.7	Z-2	422	8-26-65	37.2	37.8	+0.6		
X-3	G-3	7-15-65	31.0	176	33.0	+2.0	Y-3	176	8-10-65	33.4	31.8	-1.6	Z-3	423	8-31-65	39.5	39.2	-0.3		
X-4	G-4	7-15-65	33.5	177	33.0	-0.5	Y-4	177	8-19-65	34.3	34.4	+0.1								
X-5	H-1	8-2-65	33.6	180	34.1	+0.5	Y-7	180	9-4-65	35.4	31.6	-3.8								
X-6	H-2	8-2-65	31.8	181	38.4	+6.6	Y-8	181	9-16-65	34.1	31.0	-3.1								
X-7	H-3	8-2-65	33.0	182	38.6	+5.6	Y-9	182	9-18-65	34.3	32.5	-1.8								
X-8	H-4	8-3-65	32.2		34.7	+2.5														
Current machine av.				32.4	35.0	+2.6	Current machine av.				34.4	32.5	-1.9	Current machine av.				38.4	38.5	+0.1
Machine AA				Machine BB																
Code	Roll No.	Date Made	Insti- tute	Mill	P.s.i.	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Mill	P.s.i.	Differ- ence ^a							
AA-5	69	9-1-65	33.0	4032	31.0	-2.0	BB-1	4032	7-20-65	36.4	36.7	+0.3								
AA-6	70	9-1-65	28.3	928	28.4	+0.1	BB-2	928	8-5-65	34.8	36.9	+2.1								
AA-7	72	9-1-65	28.7	2864	29.0	+0.3	BB-3	2864	8-12-65	33.8	35.9	+2.1								
				4224			BB-4	4224	8-18-65	35.5	36.5	+1.0								
							BB-5	1272	8-28-65	36.6	35.8	-0.8								
							BB-6	175	9-2-65	35.2	35.7	+0.5								
							BB-7	1348	9-9-65	34.6	35.8	+1.2								
							BB-8	2344	9-14-65	35.9	35.5	-0.4								
Current machine av.				30.0	29.5	-0.5	Current machine av.				35.3	36.1	+0.8							

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

TABLE XXXI

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

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	
Number of rolls compared	2	4	6	4	4	7	9	3	0	10	5	1	8	7	9	8	7	9	4	7	0	8	8	8	7	3	3	8	
Concorda flat crush, p.s.i.																													
Current machine av. (Institute) ^a	38.3	35.1	32.5	36.4	35.4	37.5	34.4	39.6	--	36.7	35.1	34.1	35.4	32.5	33.1	38.0	36.8	35.9	32.9	32.4	--	36.2	34.4	32.4	34.4	34.4	38.4	30.0	35.3
Current machine av. (Mill) ^a	39.6	34.5	34.6	35.8	37.7	36.6	32.9	39.8	--	35.1	36.3	30.7	34.3	33.5	31.7	36.4	39.8	35.4	34.8	30.8	--	36.8	35.4	35.0	32.5	38.5	29.5	36.1	
Average difference ^b	+1.3	-0.6	+2.1	-0.6	+4.3	-0.9	-1.5	+0.2	--	-1.6	+1.2	-3.4	-1.1	+1.0	-1.4	-1.6	+3.0	-0.5	+1.9	-1.6	--	+0.6	+1.0	+2.6	-1.9	+0.1	-0.5	+0.8	
Maximum difference ^c	+1.9	-2.8	+5.4	-1.0	+5.1	-3.0	-6.6	+0.5	--	-4.6	+2.4	-3.4	-5.4	+4.4	-3.8	-5.1	+4.8	-5.0	+3.0	-3.7	--	+3.0	+2.8	+6.6	-3.8	+0.6	-2.0	+2.1	

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, % ^d																													
Current report (Aug.-Sept.)	+3.4	-1.7	+6.5	-1.6	+12.9	-2.4	-4.4	+0.5	--	-4.4	+3.4	-10.0	-3.1	+3.1	-4.2	-4.2	+8.2	-1.4	+5.8	-4.9	--	+1.7	+2.9	+8.0	-5.5	+0.3	-1.7	+2.3	
114th report (June-July)	-3.8	+1.7	+2.9	-4.7	+7.0	-4.1	-9.3	-3.8	--	-5.7	-0.6	--	-2.9	+3.2	-3.9	-6.5	+2.6	+7.0	+8.1	-6.0	--	+0.3	+0.5	+9.5	-2.9	+1.0	-15.1	0.0	
113th report (April-May)	-2.2	+3.4	+7.0	-0.8	+4.8	+0.6	+0.6	-1.0	--	-2.7	+1.4	--	+2.4	+7.0	+0.3	-1.1	+3.0	+0.3	+16.8	0.0	--	-1.1	+1.2	+0.3	+0.9	-0.5	-12.5	+0.3	

^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 XXX.

^cMaximum difference is the greatest difference encountered in comparing Institute and mill test averages for individual rolls. See Table XXX.

^dAverage 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 XXXII 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, at most levels of comparison, somewhat better than the agreement for the previous period.

TABLE XXXII

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	20.0	7.7
+ 2.5	28.0	34.6
+ 5.0	64.0	73.1
+10.0	96.0	96.2
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.

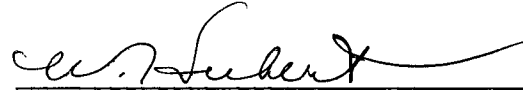
^bJune and July, 1965.

^cAugust and September, 1965.

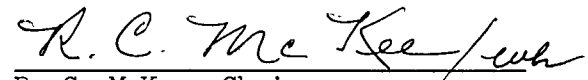
^dMaximum percentage difference was 15.1.

^eMaximum percentage difference was 12.9.

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