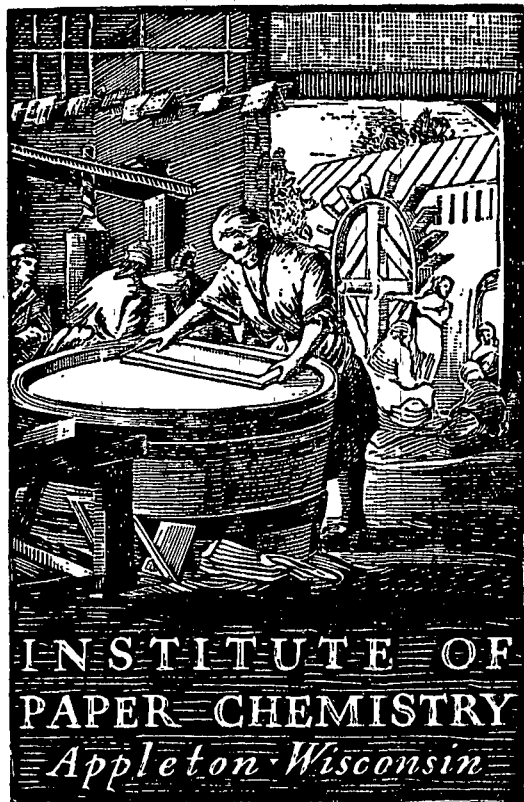


Mr. Brown
June 1967

BASE-LINE



CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

(Data for June and July, 1967)

Project 2694-2

Report Four

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1967

CODE LETTERS FOR REPORT FOUR

Project 2694-2

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

Erratum

Page 33 should be Page 34 and vice versa.

THE INSTITUTE OF PAPER CHEMISTRY

BASE LINE

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

(Data for June and July, 1967)

Project 2694-2

Report Four

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1967

TABLE OF CONTENTS

	Page
SUMMARY	1
INTRODUCTION	4
SUMMARY OF CURRENT MACHINE AVERAGES	6
GRAPHICAL PRESENTATIONS	7
SUMMARY OF TEST RESULTS FOR INDIVIDUAL MACHINES	10
DISCUSSION OF RESULTS	26
SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS	33

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM (Data for June and July, 1967)

SUMMARY

PART I. GENERAL

A. Participation Data:

	<u>Current Period</u>	<u>Previous Period</u>
Period	June-July, 1967	April-May, 1967
Number of machines	32	33
Number of rolls	226	241

B. Distribution of Mediums by Type:

Semichemical	29	30
Bogus	3	3
Kraft	--	--

C. New Participants:

None

None

D. Nonparticipants:

1. Chesapeake (West Point)	1. Chesapeake (West Point)
2. Olinkraft (W. Monroe No. 1)	2. Continental Can (Hodge No. 1)
3. St. Regis (Coshocton No. 1)	3. Olinkraft (W. Monroe No. 1)
4. St. Joe (Port St. Joe No. 1)	4. St. Regis (Coshocton No. 1)
5. West Virginia (Covington No. 7)	5. St. Joe (Port St. Joe No. 1)
6. Crown Zellerbach (Lebanon No. 2)	

PART II. QUALITY DATA

A. Summary of Physical Test Data

Test	Report	Current Machine Averages		F.K.I. Averages	
		Max.	Min.	Current	Cumulative
Basis Weight, lb./1000 ft. ²	Cur.	28.4	25.6	26.9	27.0
	Prev.	28.3	25.8	27.1	27.0
Caliper, pt.	Cur.	11.2	9.5	10.3	10.4
	Prev.	11.9	9.2	10.5	10.4
Concora Flat Crush, p.s.i.	Cur.	40.4	32.4	36.5	35.1
	Prev.	40.3	29.1	35.3	35.1
Single-Face Flat Crush, p.s.i.	Cur.	38.5	30.7	34.5	32.3
	Prev.	37.9	27.7	33.1	32.1

B. Summary of Runnability Data

Runnability		Current Period			Previous Period		
Speed, f.p.m.	Tension, lb./in.	No. of Rolls	% of Total	Cum., %	No. of Rolls	% of Total	Cum., %
<600	Min.	17	7.5	100.0	24	10.0	100.0
600	Min.	39	17.3	92.5	46	19.1	90.0
600	1/2	39	17.3	75.2	54	22.4	70.9
600	1	43	19.0	57.9	32	13.3	48.5
600	1-1/2	88	38.9	38.9	85	35.3	35.3

C. Trends in Quality Data in Current Report With Reference to Data from Previous Report

Physical Tests:

Basis Weight: Decreased from 27.1 to 26.9 lb./M. ft.²

Caliper: Decreased from 10.5 to 10.3 pt.

Concora Flat Crush: Increased from 35.3 to 36.5 p.s.i.

Single-Face Flat Crush: Increased from 33.1 to 34.5 p.s.i.

Comment: The quality changes appear to reflect an effort to increase test values for Concora and single-face flat crush where previous data show a tendency for the mediums from certain machines to be well below the current F.K.I. averages.

Runnability:

<600 f.p.m. at minimum tension: Decreased from 10.0 to 7.5%.

600 f.p.m. at minimum tension: Decreased from 19.1 to 17.3%.

600 f.p.m. at 1/2 lb./in. tension: Decreased from 22.4 to 17.3%.

600 f.p.m. at 1 lb./in. tension: Increased from 13.3 to 19.0%.

600 f.p.m. at 1-1/2 lb./in. tension: Increased from 35.3 to 38.9%.

Comment: The runnability data for the current period are associated with some favorable changes in that the percentage of rolls runnability at 600 f.p.m. with tension of 1 lb. per in. or more is appreciably larger and the percentage of rolls runnability at 600 f.p.m. with minimum tension or at speeds below 600 f.p.m. with minimum tension is appreciably smaller than the corresponding percentages for the previous period.

PART III. CONCORA CALIBRATION DATA

A. Summary of Data (Number and percentage of machines included within the indicated ranges.)

Range, %	Current Period		Previous Period		6-Month Average, % of total ^a
	No. of Machines	% of Total	No. of Machines	% of Total	
<u>±</u> 1.0	4	13.3	11	34.4	27.8
<u>±</u> 2.5	10	33.3	18	56.2	46.0
<u>±</u> 5.0	19	63.3	22	68.8	62.3
<u>±</u> 10.0	28	93.3	31	96.9	96.7
<u>±</u> Max.	30	100.0 ^b	32	100.0 ^c	100.0 ^d

B. Significance of Calibration Data

The current levels of agreement between Institute and mill Concora flat crush data compare favorably with those for the previous report and with those for the previous six-month period at ranges of ± 5.0% and higher; however, at the lower ranges of ± 1.0% and ± 2.5%, the current levels of agreement compare less favorably.

^aAverage for three previous bimonthly periods excluding the current period.

^bMaximum percentage difference was + 16.0.

^cMaximum percentage difference was + 11.9.

^dMaximum percentage difference was + 14.9.

INTRODUCTION

As requested by the Technical Division of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous evaluation of corrugating medium have been prepared by The Institute of Paper Chemistry on a bimonthly instead of monthly basis since August 1, 1961. The current report presents results obtained during the months of June and July, 1967, on 226 rolls of corrugating medium representing the production of thirty-two machines. Each of these 226 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, however, the corrugator was slowed down in increments of 25 f.p.m. until satisfactory runnability was obtained, i.e., no fractured 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. On the other hand, if the medium fabricated satisfactorily at 600 f.p.m. with minimum tension, further runs were made at higher tensions to determine the maximum tension the medium could sustain without fracturing. 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, or if the medium could not be corrugated satisfactorily at 600 f.p.m. with minimum tension, at the highest speed the medium could be corrugated 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 nature of the quantitative relationship between Concora flat crush and combined board flat crush for his medium.

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 the same property 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 same property 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 current average quality with that for the previous twelve months. An index greater than 100% indicates, of course, that current average quality is higher than the average result for the previous twelve months; similarly, an index below 100% indicates that current average quality is lower than that for the previous twelve months.

TABLE 1

SUMMARY OF CURRENT MACHINE AVERAGES

JUNE AND JULY, 1967

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	12	SEMICHEMICAL	27.8	10.4	37.2	35.8
B	5	SEMICHEMICAL	27.5		33.8	32.7
C	9	SEMICHEMICAL	27.4	11.0	36.0	32.3
D	2	SEMICHEMICAL	NOTE A			
E	8	BOGUS	27.8	10.1	37.9	36.8
F	8	SEMICHEMICAL	26.8	10.4	36.2	33.9
G	8	SEMICHEMICAL	27.4	10.7	36.8	33.8
H	9	SEMICHEMICAL	26.9	10.6	36.9	34.2
I	2	SEMICHEMICAL	NOTE A			
J	9	SEMICHEMICAL	26.6	9.7	34.8	33.3
K	9	SEMICHEMICAL	26.6	9.8	39.0	35.8
L	8	SEMICHEMICAL	26.5	9.9	37.7	35.7
M	8	SEMICHEMICAL	26.8	10.6	38.3	35.3
N	11	SEMICHEMICAL	26.7	10.3	40.4	38.5
O	6	SEMICHEMICAL	25.6	11.0	32.5	30.7
P	10	SEMICHEMICAL	26.6	9.5	33.8	31.8
Q	8	BOGUS	28.0	10.1	38.6	37.2
R	6	SEMICHEMICAL	26.8	10.8	37.8	36.9
S	6	SEMICHEMICAL	27.0	10.1	34.7	31.8
T	10	SEMICHEMICAL	26.5	9.6	35.2	32.6
U	8	SEMICHEMICAL	26.9	10.3	32.4	31.1
V	3	SEMICHEMICAL	27.2	10.9	35.8	34.2
W	6	SEMICHEMICAL	26.8	10.6	36.7	35.0
X	2	SEMICHEMICAL	NOTE A			
Y	8	SEMICHEMICAL	27.0	10.1	36.0	34.3
Z	8	SEMICHEMICAL	26.6	10.4	38.3	35.6
AA	9	SEMICHEMICAL	25.9	9.9	36.4	33.8
BB	6	SEMICHEMICAL	26.7	10.6	39.9	38.2
CC	8	SEMICHEMICAL	26.3	10.6	39.1	35.6
DD	8	SEMICHEMICAL	26.3	9.5	36.4	34.5
EE	2	SEMICHEMICAL	NOTE A			
FF	4	BOGUS	28.4	11.2	34.5	33.3
TOTAL	226					
CURRENT F.K.I. AVERAGE			26.9	10.3	36.5	34.5
CUMULATIVE F.K.I. AVERAGE			27.0	10.4	35.1	32.3
F.K.I. INDEX, PERCENT			99.6	99.0	104.0	106.8

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

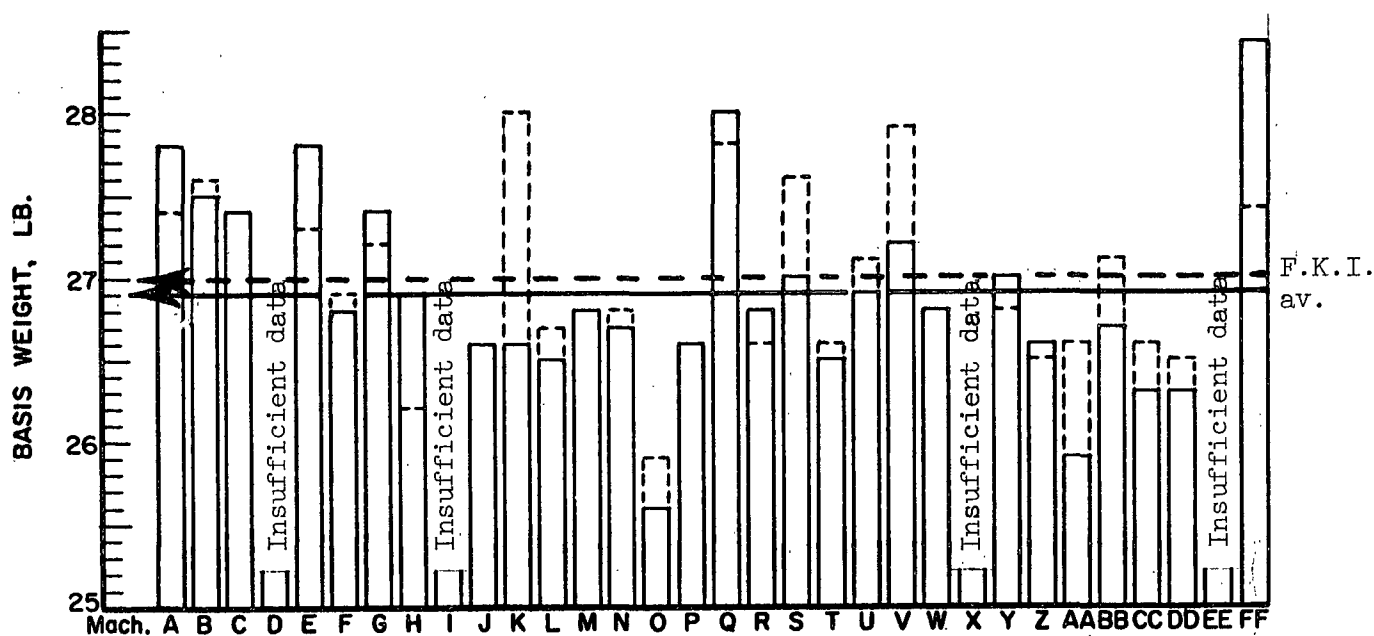


Figure 1. Comparison of Basis Weight Results

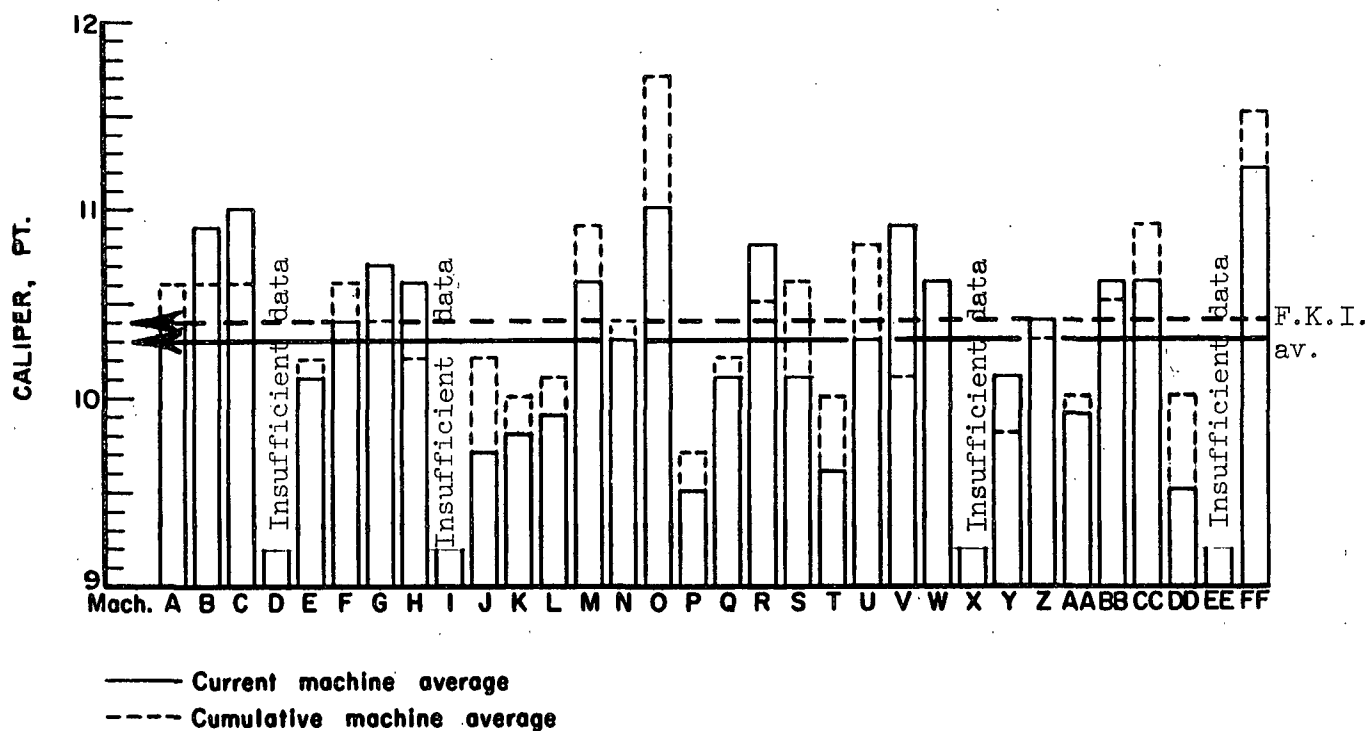
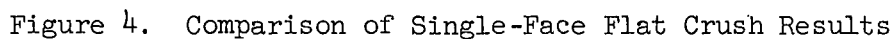
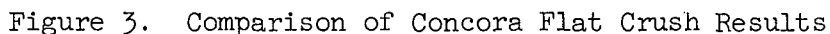


Figure 2. Comparison of Caliper Results



The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXXIII for Machines A through Z and Machines AA, BB, CC, DD, EE, and FF, respectively. The 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 from 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 same property for the previous twelve periods (excluding the current period). Also shown for each machine and for each test property in Tables II to XXXIII are a 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.

(Text continued on p. 26)

TABLE II
SUMMARY OF TEST RESULTS FOR MACHINE A
JUNE AND JULY, 1967

				TYPE OF MEDIUM- SEMICHEMICAL											
CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A	FACTOR*B		
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.			AV.	
A-1	4- 6-67	601	28.0	10.9	10.3	10.7	39.6	37.2	38.4	38.4	36.0	37.0	1.0	1.562	
A-2	4-14-67	602	28.1	10.7	10.0	10.3	41.4	40.2	40.4	39.4	38.2	38.8	1.0	1.560	
A-3	4-20-67	603	27.6	10.7	10.0	10.3	39.0	36.0	37.1	38.0	35.0	36.9	1.0	1.561	
A-4	4-28-67	604	28.0	10.0	9.3	9.7	37.8	36.0	36.6	36.6	34.0	35.4	1.0	1.564	
A-5	5- 5-67	605	27.7	10.7	10.0	10.4	40.2	34.2	36.6	35.8	34.2	35.0	0.5	1.564	
A-6	5-13-67	606	27.7	10.9	10.3	10.5	39.6	34.8	37.2	35.6	34.6	34.9	1.5	1.568	
A-7	5-18-67	607	27.8	10.8	10.2	10.5	38.4	34.2	36.0	37.2	35.0	35.8	1.0	1.562	
A-8	5-28-67	608	27.6	10.7	9.8	10.4	36.6	33.6	35.4	35.6	32.0	34.0	1.0	1.563	
A-9	6- 6-67	609	28.1	10.8	10.3	10.6	37.8	33.0	35.4	37.4	31.8	34.3	0.5	1.559	
A-10	6-13-67	610	27.5	10.7	9.9	10.2	37.8	33.0	36.5	35.4	34.4	34.9	1.5	1.559	
A-11	6-27-67	611	27.8	10.7	10.3	10.5	37.8	34.2	36.0	35.6	34.0	34.8	1.5	1.559	
A-12	7- 5-67	612	27.9	10.7	10.3	10.5	42.0	40.2	41.3	40.2	36.8	38.5	1.5	1.559	
CURRENT MACHINE AVERAGE				27.8			10.4			37.2			35.8		1.561

TABLE III
SUMMARY OF TEST RESULTS FOR MACHINE B
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL														
B-1	5- 8-67	14	27.4	11.2	10.0	10.7	38.4	31.2	35.4	33.2	31.0	32.2	MIN.	1.555
B-2	5-15-67	15	27.2	11.0	10.3	10.6	35.4	31.8	33.8	35.0	32.2	33.1	MIN.	1.557
B-3	6- 6-67	16	27.8	11.9	10.8	11.2	34.2	30.6	32.5	31.6	29.6	30.4	MIN.	1.554
B-4	6-12-67	17	27.5	12.0	10.5	11.2	37.2	30.6	34.4	35.6	34.2	35.0	0.5	1.559
B-5	6-19-67	18	27.5	11.3	10.3	10.8	35.4	30.0	33.0	33.4	31.6	32.7	MIN.	1.555
CURRENT MACHINE AVERAGE			27.5	10.9			33.8			32.7			1.556	
CUMULATIVE MACHINE AVERAGE			27.6	10.6			34.7			32.2				
MACHINE FACTOR, PERCENT			99.6	102.8			97.4			101.6				
MACHINE INDEX, PERCENT			101.8	104.8			96.3			101.2				

A Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

TABLE IV
SUMMARY OF TEST RESULTS FOR MACHINE C
JUNE AND JULY, 1967

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	
C-1	5-21-67	465702	27.3	11.2	10.5	10.9	37.2	33.6	35.3	1.5
C-2	5-23-67	456674	27.4	10.9	9.8	10.5	36.6	34.2	35.2	1.0
C-3	6-1-67	46202	27.6	11.0	10.2	10.7	39.0	32.4	35.9	1.0
C-4	6-5-67	46942	27.9	11.5	11.0	11.2	36.0	33.0	35.0	0.5
C-5	6-14-67	463902	26.4	11.2	10.7	10.9	42.0	34.2	36.8	1.5
C-6	7-7-67	47891	27.1	11.2	10.0	10.8	39.6	35.4	37.1	1.5
C-7	7-7-67	47951	27.5	11.9	10.4	11.4	39.0	31.8	35.3	1.0
C-8	7-12-67	472351	27.6	11.9	11.0	11.5	36.0	34.2	35.3	1.5
C-9	7-20-67	474712	28.0	11.2	10.5	11.0	39.6	36.6	38.2	1.567
CURRENT MACHINE AVERAGE										
				27.4	11.0	10.6	36.0	32.3	33.7	1.572
CUMULATIVE MACHINE AVERAGE				27.4	10.6	10.6	33.7	30.3	30.3	
MACHINE FACTOR, PERCENT				100.0	103.8	105.8	106.8	106.6	106.6	
MACHINE INDEX, PERCENT				101.5	105.8	105.8	102.6	100.0	100.0	

TABLE V
SUMMARY OF TEST RESULTS FOR MACHINE D
JUNE AND JULY, 1967

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	
D-1	5-13-67	44	27.6	10.9	10.3	10.6	40.2	37.2	38.9	NOTE C
D-2	5-16-67	45	28.0	12.3	11.4	11.9	40.2	34.2	36.1	NOTE C
CURRENT MACHINE AVERAGE										
				27.8	11.2	11.2	37.5	35.1	35.1	1.551
CUMULATIVE MACHINE AVERAGE				27.7	10.4	10.4	32.7	30.4	30.4	
MACHINE FACTOR, PERCENT				100.4	107.7	107.7	114.7	115.5	115.5	
MACHINE INDEX, PERCENT				103.0	107.7	107.7	106.8	108.7	108.7	

^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 350 f.p.m.

TABLE VI
SUMMARY OF TEST RESULTS FOR MACHINE E
JUNE AND JULY, 1967

TYPE OF MEDIUM- BOGUS															
CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW					
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	LB./IN.*A	FACTOR*8				
E-1	5- 3-67	472	28.0	10.6	9.8	10.2	39.6	37.2	38.6	39.4	36.2	37.8	1.5	1.554	
E-2	5- 8-67	473	27.5	10.5	9.0	9.9	43.8	39.6	41.2	41.8	38.2	39.3	1.5	1.554	
E-3	5-11-67	474	26.6	10.4	9.2	9.9	42.6	37.2	40.2	39.6	38.6	39.0	0.5	1.545	
E-4	5-20-67	475	27.9	10.1	9.1	9.7	39.0	35.4	36.7	37.4	34.8	36.4	1.5	1.552	
E-5	6- 8-67	476	28.7	11.0	10.3	10.7	39.0	33.6	35.8	35.6	33.6	34.6	1.5	1.565	
E-6	6-13-67	477	28.4	10.7	9.4	10.2	37.2	31.8	35.2	35.6	33.2	34.4	1.5	1.553	
E-7	6-15-67	478	27.4	10.0	8.5	9.3	42.0	38.4	39.6	41.0	35.4	37.6	1.5	1.545	
E-8	6-24-67	479	28.1	11.0	9.7	10.7	37.2	34.8	35.6	36.0	33.0	34.9	1.5	1.553	
CURRENT MACHINE AVERAGE														36.8	1.552
CUMULATIVE MACHINE AVERAGE														31.9	
MACHINE FACTOR, PERCENT														115.4	
MACHINE INDEX, PERCENT														113.9	

TABLE VII
SUMMARY OF TEST RESULTS FOR MACHINE F
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL													
F-1	6-14-67	26.5	11.0	10.1	10.5	38.4	36.0	37.1	35.8	33.8	34.7	1.0	1.561
F-2	6-15-67	26.6	10.9	10.1	10.5	37.2	34.2	35.5	36.0	33.0	34.4	1.0	1.563
F-3	6-16-67	27.0	11.1	10.2	10.7	37.2	30.6	34.6	33.8	33.0	33.5	0.5	1.558
F-4	6-17-67	27.1	10.9	10.4	10.7	37.8	34.2	35.8	34.6	33.2	33.8	0.5	1.560
F-5	7- 8-67	26.8	10.5	9.8	10.2	39.6	34.8	36.5	35.0	33.8	34.4	1.0	1.560
F-6	7- 9-67	27.0	10.3	9.8	10.0	38.4	34.8	37.1	34.4	32.6	33.7	1.0	1.559
F-7	7-17-67	26.9	10.8	10.1	10.4	36.0	33.6	34.8	34.4	32.8	33.7	1.5	1.562
F-8	7-18-67	26.5	10.8	10.0	10.2	40.8	33.6	37.9	34.0	32.4	33.1	1.0	1.561
CURRENT MACHINE AVERAGE													
CUMULATIVE MACHINE AVERAGE													
MACHINE FACTOR, PERCENT													
MACHINE INDEX, PERCENT													
												33.9	1.560
												31.8	
												106.6	
												105.0	

A Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

TABLE VIII
SUMMARY OF TEST RESULTS FOR MACHINE G
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL														
CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.			
G-1	5-24-67	123	28.5	11.7	10.9	11.2	40.8	37.2	38.9	35.6	31.8	33.4	MIN.	1.550
G-2	6- 9-67	124	27.1	11.2	10.6	10.9	37.2	32.4	35.6	36.2	34.2	35.1	MIN.	1.562
G-3	6-16-67	125	27.7	11.0	10.5	10.8	39.0	30.0	34.8	34.2	30.2	31.4	MIN.	1.566
G-4	6-19-67	126	27.4	11.0	10.0	10.6	37.8	32.4	35.3	33.8	28.2	30.7	0.5	1.569
G-5	6-28-67	127	26.0	10.5	9.7	10.0	34.8	29.4	32.3	32.2	28.8	30.5	MIN.	1.552
G-6	7- 7-67	128	26.3	11.0	9.8	10.4	34.2	31.2	32.6	31.4	28.8	29.5	MIN.	1.549
G-7	7-15-67	129	28.4	11.9	11.0	11.4	45.6	39.6	42.6	40.8	39.2	39.9	MIN.	1.558
G-8	7-17-67	130	27.4	10.5	10.0	10.2	47.4	39.6	42.5	42.2	38.4	39.7	MIN.	1.564
CURRENT MACHINE AVERAGE													33.8	1.558
CUMULATIVE MACHINE AVERAGE													32.2	
MACHINE FACTOR, PERCENT													105.0	
MACHINE INDEX, PERCENT													104.6	

TABLE IX
SUMMARY OF TEST RESULTS FOR MACHINE H
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL															
H-1	5-21-67	566711	26.9	11.5	10.7	11.0	37.2	35.4	36.0	34.0	32.2	32.6	1.5	1.577	
H-2	5-23-67	558341	26.8	10.3	9.9	10.2	39.6	36.0	37.4	36.2	33.2	35.1	MIN.	1.557	
H-3	5-31-67	55992	27.4	11.0	10.1	10.6	42.0	36.0	38.2	34.8	32.8	34.2	1.5	1.569	
H-4	6- 5-67	561381	27.5	12.0	11.3	11.6	40.2	36.0	37.6	36.0	34.6	35.4	0.5	1.558	
H-5	6-13-67	563711	27.4	10.9	10.0	10.4	42.6	39.0	40.8	40.0	37.8	38.6	1.5	1.574	
H-6	7- 7-67	57252	26.0	10.5	9.3	10.1	36.0	32.4	34.8	34.8	31.2	33.1	1.5	1.571	
H-7	7- 7-67	57802	26.7	11.3	10.2	10.9	36.6	34.2	34.9	32.8	31.6	32.0	1.5	1.565	
H-8	7-12-67	572362	26.7	10.3	9.9	10.0	37.2	33.0	34.6	32.8	30.8	31.9	1.5	1.575	
H-9	7-18-67	573901	27.0	11.5	10.5	10.9	40.8	34.2	38.2	37.0	33.8	35.2	1.0	1.565	
CURRENT MACHINE AVERAGE														34.2	1.568
CUMULATIVE MACHINE AVERAGE														30.9	
MACHINE FACTOR, PERCENT														110.7	
MACHINE INDEX, PERCENT														105.9	

A Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT. LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY				
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	FACTOR*B
I-1	5-19-67	165	26.7	10.7	10.0	10.4	36.6	33.0	35.2	35.0	33.4	34.2	1.0	1.565
I-2	5-19-67	166	26.7	10.6	10.0	10.2	34.8	30.6	32.8	35.0	31.2	32.7	1.0	1.565
CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

J-1	5-11-67	12	26.3	10.7	9.6	10.2	35.4	28.8	32.0	32.8	28.0	31.0	NOTE C	1.546
J-2	5-20-67	13	26.8	10.0	8.9	9.4	40.2	33.0	36.4	35.0	31.2	33.0	1.0	1.559
J-3	5-24-67	14	27.0	11.0	10.4	10.8	34.8	27.6	30.7	34.2	28.0	30.7	NOTE D	1.546
J-4	6-1-67	15	25.7	10.3	9.1	9.9	33.6	31.2	32.9	34.6	31.4	33.0	MIN.	1.553
J-5	6-9-67	16	26.5	10.1	9.8	10.0	39.6	36.6	37.9	36.0	34.2	35.1	1.0	1.572
J-6	6-14-67	17	26.9	9.9	9.2	9.5	35.4	31.8	33.7	34.4	31.2	33.0	MIN.	1.553
J-7	6-20-67	18	26.2	9.7	9.0	9.2	39.0	34.2	36.0	36.6	32.6	35.4	1.0	1.586
J-8	6-29-67	19	26.7	9.2	8.5	8.9	37.8	34.2	36.5	34.6	33.8	34.4	0.5	1.558
J-9	7-8-67	20	27.2	9.8	8.8	9.3	39.0	34.8	36.8	35.4	33.2	34.4	1.0	1.567
CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														
1.560														
33.3														
31.3														
106.4														
103.1														
34.8														
33.9														
102.6														
99.1														

A Maximum tension at 600 f.p.m.

B 600 f.p.m., minimum tension.

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

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

TABLE XII
SUMMARY OF TEST RESULTS FOR MACHINE K
JUNE AND JULY, 1967

TYPE OF MEDIUM- SENICHEMICAL														
CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.		AV.			
K-1	4-10-67	658	26.0	10.0	9.1	9.6	43.8	36.0	39.1	35.4	33.4	34.3	MIN.	1.546
K-2	4-13-67	659	25.9	10.0	9.1	9.5	40.8	38.4	39.6	37.0	33.0	35.5	MIN.	1.548
K-3	4-29-67	660	26.0	10.0	9.1	9.5	40.8	36.6	38.4	39.4	36.0	37.1	MIN.	1.558
K-4	5-14-67	661	25.6	9.8	9.0	9.5	39.6	36.0	37.4	37.8	35.4	36.8	0.5	1.562
K-5	5-24-67	662	25.9	10.1	9.0	9.5	39.6	36.0	38.0	38.8	36.2	37.7	0.5	1.559
K-6	6-12-67	663	26.8	9.9	9.2	9.7	41.4	34.8	39.0	37.6	33.0	35.4	MIN.	1.544
K-7	6-28-67	664	27.7	10.8	9.8	10.4	42.6	39.0	40.8	36.4	34.6	35.4	1.5	1.573
K-8	7-10-67	665	27.9	10.8	10.3	10.6	42.0	38.4	39.4	37.6	32.4	34.6	1.5	1.574
K-9	7-12-67	666	27.7	10.7	9.9	10.3	41.4	37.8	39.5	37.8	34.8	35.8	1.5	1.576
CURRENT MACHINE AVERAGE														1.560
CUMULATIVE MACHINE AVERAGE			26.6	9.8		39.0		35.8						
MACHINE FACTOR, PERCENT			95.0	10.0		41.1		37.7						
MACHINE INDEX, PERCENT			98.5	98.0		94.9		95.0						
				94.2		111.1		110.8						

TABLE XIII
SUMMARY OF TEST RESULTS FOR MACHINE L
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL													
L-1	6- 6-67	26.8	10.3	10.0	10.2	39.0	36.0	37.4	37.8	35.8	36.7	1.5	1.574
L-2	6- 7-67	27.2	10.5	10.0	10.2	41.4	33.6	38.2	38.6	36.0	37.2	1.5	1.574
L-3	7- 1-67	27.2	10.7	10.3	10.4	39.6	36.0	38.3	38.2	36.8	37.6	1.0	1.561
L-4	7- 2-67	27.1	10.7	10.3	10.5	41.4	36.6	38.5	37.8	36.0	37.0	1.5	1.563
L-5	7- 8-67	26.0	9.7	9.1	9.5	39.0	36.6	38.2	36.4	34.0	35.3	1.5	1.567
L-6	7- 9-67	25.4	9.4	8.9	9.2	39.6	36.6	38.0	34.4	31.8	33.2	1.5	1.568
L-7	7-18-67	26.2	10.0	9.7	9.9	38.4	36.0	37.4	35.6	34.2	35.1	1.5	1.566
L-8	7-20-67	26.0	10.0	9.0	9.5	37.2	32.4	35.4	34.0	32.8	33.4	1.5	1.567
CURRENT MACHINE AVERAGE													
CUMULATIVE MACHINE AVERAGE		26.5		9.9				37.7			35.7		1.567
MACHINE FACTOR, PERCENT		99.2		10.1				38.3			34.6		
MACHINE INDEX, PERCENT		98.1		98.0				98.4			103.2		
				95.2				107.4			110.5		

A. Maximum tension at 600 f.p.m.
B. 600 f.p.m., minimum tension.

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE M

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORDA 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.				
M-1	6- 3-67	545	26.5	10.7	10.2	10.4	33.6	35.9	38.4	33.6	35.2	1.5	1.562
M-2	6- 3-67	546	27.0	10.8	10.3	10.5	41.4	36.0	38.2	34.8	36.7	1.5	1.566
M-3	6- 8-67	553	27.8	11.0	10.5	10.8	43.8	39.0	41.4	39.8	34.4	1.5	1.572
M-4	6- 8-67	554	28.0	11.2	10.4	10.9	44.4	37.8	40.0	41.4	37.0	1.5	1.570
M-5	6-25-67	561	26.2	10.9	10.0	10.5	39.6	37.2	37.9	36.0	32.6	1.5	1.562
M-6	6-25-67	562	26.4	10.9	10.4	10.7	41.4	35.4	39.4	37.0	34.0	1.5	1.568
M-7	7-17-67	569	26.3	11.0	10.0	10.6	39.6	34.8	36.4	33.4	30.2	1.5	1.562
M-8	7-17-67	570	26.3	11.0	10.0	10.8	38.4	36.0	37.4	32.2	30.8	1.5	1.563
CURRENT MACHINE AVERAGE													
CUMULATIVE MACHINE AVERAGE				26.8		10.6		38.3		35.3			1.565
MACHINE FACTOR, PERCENT				26.8		10.9		38.0		33.6			
MACHINE INDEX, PERCENT				100.0		97.2		100.8		105.0			
				99.2		101.9		109.1		109.3			

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE N

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

N-1	5-10-67	514	27.1	10.2	10.0	10.1	43.2	40.2	41.9	41.0	38.4	40.0	1.557
N-2	5-16-67	515	26.3	10.2	9.8	10.0	43.8	39.6	41.3	40.2	37.0	38.2	1.557
N-3	5-24-67	516	26.0	10.9	10.1	10.5	42.0	37.8	39.5	38.6	36.6	37.5	1.558
N-4	5-29-67	517	26.2	10.7	9.6	10.0	40.8	36.0	39.5	39.8	37.6	38.5	1.565
N-5	5-31-67	518	26.3	10.8	10.0	10.4	42.6	37.2	40.1	39.8	36.6	38.4	1.564
N-6	6- 5-67	519	27.4	11.5	10.3	10.7	43.2	37.8	40.7	40.4	37.2	39.1	1.566
N-7	6-13-67	520	26.5	10.5	10.0	10.2	42.6	39.6	41.3	41.2	37.4	38.8	1.559
N-8	6-16-67	521	26.6	11.1	10.3	10.7	40.2	36.0	37.8	36.8	35.6	36.2	1.562
N-9	6-22-67	522	26.5	10.6	9.8	10.1	43.2	39.0	41.0	38.6	36.6	37.7	1.561
N-10	6-26-67	523	27.1	10.7	9.9	10.2	40.8	39.6	40.3	40.4	37.0	39.0	1.564
N-11	7-13-67	524	27.6	11.1	10.0	10.6	46.8	37.8	41.3	41.2	38.8	39.8	1.563
CURRENT MACHINE AVERAGE													1.561
CUMULATIVE MACHINE AVERAGE			26.7		10.3			40.4				38.5	
MACHINE FACTOR, PERCENT			99.6		99.0			103.1				105.5	
MACHINE INDEX, PERCENT			98.9		99.0			115.1				119.2	

^AMaximum tension at 600 f.p.m.
^B600 f.p.m., minimum tension.

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY					
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*B	
O-1	5-15-67	25	25.3	10.7	9.7	10.1	35.4	33.0	34.0	32.4	30.0	31.0	NOTE C	1.537	
O-2	5-15-67	26	24.6	10.5	9.9	10.3	36.6	30.0	32.9	31.2	28.2	29.4	NOTE D	1.531	
O-3	6- 8-67	27	25.5	12.0	11.0	11.6	37.2	30.6	32.8	33.6	30.0	31.8	0.5	1.557	
O-4	6- 8-67	28	26.1	11.5	11.0	11.3	33.0	28.2	31.2	31.4	29.0	30.2	0.5	1.563	
O-5	7-15-67	29	26.0	11.6	11.0	11.3	34.8	28.8	31.4	31.4	30.0	30.8	0.5	1.556	
O-6	7-15-67	30	26.0	11.7	11.1	11.4	34.8	30.0	32.5	31.6	30.0	31.0	0.5	1.554	
CURRENT MACHINE AVERAGE														30.7	1.549
CUMULATIVE MACHINE AVERAGE														30.5	
MACHINE FACTOR, PERCENT														100.6	
MACHINE INDEX, PERCENT														95.0	

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

P-1	5-18-67	268	26.3	9.7	9.1	9.4	33.6	32.4	32.8	33.0	31.0	32.1	1.0	1.567	
P-2	5-22-67	269	26.2	9.6	9.0	9.2	35.4	32.4	33.7	31.6	29.4	30.9	1.5	1.570	
P-3	5-30-67	270	25.8	9.8	9.2	9.5	36.0	32.4	34.3	33.2	31.6	32.3	1.0	1.569	
P-4	6- 3-67	271	26.4	9.2	9.0	9.0	38.4	34.2	35.6	33.4	32.0	32.5	1.5	1.574	
P-5	6- 9-67	272	25.9	9.8	9.3	9.6	34.8	28.8	32.6	30.6	29.4	30.2	1.5	1.576	
P-6	6-19-67	273	28.3	10.8	10.2	10.4	37.8	33.6	35.9	36.4	34.4	35.4	1.0	1.567	
P-7	6-25-67	274	27.4	10.1	9.8	10.0	36.6	33.0	34.6	33.8	32.2	33.0	1.0	1.564	
P-8	7- 1-67	275	26.7	10.6	9.1	9.5	37.2	33.0	34.6	34.0	31.4	32.4	1.5	1.576	
P-9	7- 9-67	276	26.9	9.8	9.6	9.7	35.4	32.4	33.6	32.6	30.4	31.5	1.5	1.574	
P-10	7-16-67	277	25.7	9.3	8.9	9.1	31.2	28.2	29.8	29.2	27.0	28.0	1.5	1.575	
CURRENT MACHINE AVERAGE														31.8	1.571
CUMULATIVE MACHINE AVERAGE														30.1	
MACHINE FACTOR, PERCENT														105.6	
MACHINE INDEX, PERCENT														98.5	

*Maximum tension at 600 f.p.m.

B 600 f.p.m., minimum tension.

C Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.

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

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q

JUNE AND JULY, 1967

TYPE OF MEDIUM- BOGUS

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., 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*8					
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.							
Q-1	5- 3-67	372	28.4	10.6	10.0	10.4	39.6	31.2	36.0	35.6	31.6	33.3	1.5	1.556		
Q-2	5- 8-67	373	28.4	10.9	9.8	10.3	43.8	37.2	39.4	38.4	35.4	36.7	1.5	1.573		
Q-3	5-11-67	374	29.1	10.8	10.0	10.4	40.2	35.4	38.3	38.8	35.8	37.6	1.5	1.571		
Q-4	5-23-67	375	27.3	10.4	9.1	9.7	42.6	38.4	40.2	41.6	38.0	39.6	1.5	1.568		
Q-5	6- 3-67	376	27.6	10.7	9.8	10.2	41.4	37.2	39.0	40.4	37.6	38.9	1.5	1.568		
Q-6	6-15-67	377	27.1	10.2	9.1	9.8	39.6	36.6	38.3	37.6	35.2	36.6	1.5	1.566		
Q-7	6-19-67	378	28.0	10.3	9.4	9.9	42.6	39.0	40.4	39.6	37.0	38.3	1.5	1.566		
Q-8	6-27-67	379	28.0	10.3	9.7	10.1	38.4	36.0	36.8	38.2	34.6	36.2	1.5	1.571		
CURRENT MACHINE AVERAGE															37.2	1.567
CUMULATIVE MACHINE AVERAGE															30.5	
MACHINE FACTOR, PERCENT															122.0	
MACHINE INDEX, PERCENT															115.2	

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

R-1	4-21-67	617	26.2	10.8	10.0	10.4	41.4	39.0	40.6	40.6	38.0	39.2	NOTE D	1.550	
R-2	5-10-67	55	26.8	11.1	10.7	10.9	41.4	37.2	39.1	38.2	34.8	36.6	NOTE C	1.540	
R-3	5-31-67	782	28.1	11.9	10.9	11.3	39.6	37.8	38.3	37.0	35.2	36.1	NOTE E	1.536	
R-4	6-13-67	238	27.6	11.0	10.8	10.9	40.2	34.2	37.3	38.0	35.8	36.8	MIN.	1.540	
R-5	6-15-67	330	25.7	10.7	10.0	10.4	36.6	32.4	34.6	37.4	35.6	36.2	MIN.	1.546	
R-6	6-26-67	696	26.5	11.0	10.5	10.7	40.2	36.0	37.2	38.2	34.4	36.3	MIN.	1.543	
CURRENT MACHINE AVERAGE														36.9	1.542
CUMULATIVE MACHINE AVERAGE														37.1	
MACHINE FACTOR, PERCENT														101.9	
MACHINE INDEX, PERCENT														107.7	
														114.2	

A. Maximum tension at 600 f.p.m.

B. 600 f.p.m., minimum tension.

C. Maximum speed at which this roll could be corrugated with minimum tension was 150 f.p.m.

D. Maximum speed at which this roll could be corrugated with minimum tension was 200 f.p.m.

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

TABLE XX

SUMMARY OF TEST RESULTS FOR MACHINE S

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., 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.					
S-1	5-4-67	153	27.5	10.7	10.0	10.4	38.4	32.4	35.5	31.0	30.0	30.6	MIN.	1.546
S-2	5-17-67	155	26.4	10.6	9.7	10.2	34.2	32.4	33.5	31.2	28.6	30.1	MIN.	1.552
S-3	5-24-67	156	27.2	10.4	9.9	10.1	36.0	34.8	35.4	33.8	31.4	32.2	MIN.	1.552
S-4	6-7-67	157	26.7	10.4	9.5	10.0	33.6	30.6	32.6	32.8	29.6	31.1	0.5	1.553
S-5	6-22-67	158	27.1	10.0	9.6	9.9	38.4	36.0	37.2	36.6	34.2	35.1	MIN.	1.555
S-6	6-27-67	159	27.1	10.7	9.5	10.2	36.6	30.6	34.2	32.8	30.2	31.9	MIN.	1.552
CURRENT MACHINE AVERAGE														
						10.1	34.7					31.8	1.551	
CUMULATIVE MACHINE AVERAGE						10.6	34.0					30.8		
MACHINE FACTOR, PERCENT						95.3	102.0					103.2		
MACHINE INDEX, PERCENT						97.1	98.9					98.5		

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

T-1	5-18-67	268	26.5	10.0	9.2	9.6	38.4	33.6	36.0	32.6	30.0	31.4	1.5	1.567
T-2	5-21-67	269	25.7	9.3	8.9	9.0	40.2	36.0	37.9	35.0	31.0	33.4	1.5	1.572
T-3	5-29-67	270	26.0	10.1	9.4	9.8	34.8	30.0	32.0	31.2	29.2	30.1	1.0	1.565
T-4	6-3-67	271	26.5	10.4	9.1	9.8	35.4	32.4	34.3	32.4	29.6	31.2	1.5	1.568
T-5	6-9-67	272	26.3	10.2	9.5	9.9	38.4	30.6	34.3	35.2	31.6	33.7	1.5	1.569
T-6	6-17-67	273	26.3	10.0	9.5	9.8	35.4	30.0	33.2	32.6	29.6	31.1	1.5	1.560
T-7	6-25-67	274	26.8	10.0	9.0	9.4	40.8	35.4	38.5	36.6	34.8	35.5	1.5	1.568
T-8	7-1-67	275	27.4	10.2	9.5	9.8	37.8	34.2	36.0	36.0	32.0	33.6	1.5	1.575
T-9	7-9-67	276	27.4	9.4	8.9	9.2	37.2	34.2	36.2	36.2	32.4	34.4	1.5	1.574
T-10	7-17-67	277	26.4	10.0	9.2	9.7	34.2	32.4	33.4	33.8	29.8	31.5	1.5	1.569
CURRENT MACHINE AVERAGE														1.568
CUMULATIVE MACHINE AVERAGE														32.6
MACHINE FACTOR, PERCENT														29.9
MACHINE INDEX, PERCENT														109.0
														100.9

*Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M.		CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY LB./IN.*A FACTOR*8	
			SG. FT.		MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	AV.	
U-1	5-10-67	1763	27.3	10.7	10.0	10.3	35.4	31.8	33.8	32.8	29.2	30.8
U-2	5-10-67	1764	27.0	10.9	10.0	10.4	37.2	31.8	34.8	33.0	30.4	32.1
U-3	5-24-67	1771	26.3	10.7	10.2	10.5	34.8	25.8	31.3	32.6	28.0	30.5
U-4	5-25-67	1772	26.8	10.8	10.2	10.4	35.4	31.2	33.8	32.8	30.0	31.2
U-5	6- 8-67	1779	27.0	10.4	10.0	10.1	34.8	28.8	32.0	33.0	30.6	31.8
U-6	6- 8-67	1780	26.7	10.3	9.8	10.0	34.2	29.4	31.2	31.8	29.6	30.7
U-7	6-21-67	1787	26.9	10.7	10.0	10.4	31.8	28.2	30.5	32.8	28.4	31.1
U-8	6-21-67	1788	27.0	11.0	10.3	10.6	34.2	30.0	32.0	33.0	28.2	30.3
CURRENT MACHINE AVERAGE				26.9	10.3		32.4			31.1		1.543
CUMULATIVE MACHINE AVERAGE				27.1	10.8		32.0			29.7		
MACHINE FACTOR, PERCENT				99.3	95.4		101.2			104.7		
MACHINE INDEX, PERCENT				99.6	99.0		92.3			96.3		

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M.		CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY LB./IN.*A FACTOR*8	
			SG. FT.		MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	AV.	
V-1	6- 1-67	46	27.9	11.3	10.9	11.1	37.2	34.8	36.2	35.0	33.0	34.1
V-2	6- 6-67	47	27.0	11.0	10.5	10.8	37.2	34.2	35.6	34.2	33.0	33.8
V-3	6-21-67	48	26.8	11.0	10.4	10.7	36.6	34.2	35.6	35.8	33.6	34.8
CURRENT MACHINE AVERAGE				27.2	10.9		35.8			34.2		1.564
CUMULATIVE MACHINE AVERAGE				27.9	10.1		34.2			31.7		
MACHINE FACTOR, PERCENT				97.5	107.9		104.7			107.9		
MACHINE INDEX, PERCENT				100.7	104.8		102.0			105.9		

A Maximum tension at 600 f.p.m.

B 600 f.p.m., minimum tension.

C Maximum speed at which this roll could be corrugated with minimum tension was 125 f.p.m.

D Maximum speed at which this roll could be corrugated with minimum tension was 150 f.p.m.

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

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

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

TABLE XXIV
SUMMARY OF TEST RESULTS FOR MACHINE W
JUNE AND JULY, 1967

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	TYPE OF MEDIUM- SEMICHEMICAL				CONCORA FLAT CRUSH, P.S.I.				SINGLE-FACE FLAT CRUSH, P.S.I.				RUNNABILITY	
				MAX.	MIN.	AV.		MAX.	MIN.	AV.		MAX.	MIN.	AV.		LB./IN.*A	DRAW FACTOR*8
W-1	5-18-67	73	27.1	10.9	10.5	10.7		40.8	34.8	37.4		37.2	35.0	35.8		1.0	1.559
W-2	5-20-67	74	26.8	10.7	10.1	10.5		38.4	35.4	37.2		36.0	34.2	34.7		1.0	1.558
W-3		75	26.5	10.8	10.2	10.6		36.6	31.2	34.4		35.2	32.4	33.4		0.5	1.559
W-4	6-11-67	76	26.6	10.6	10.0	10.2		39.0	36.0	37.1		35.4	33.6	34.7		MIN.	1.555
W-5	6-18-67	77	26.8	11.4	10.9	11.1		40.8	33.0	36.1		35.2	32.4	34.3		0.5	1.556
W-6	7-2-67	78	27.0	10.8	10.3	10.6		40.8	32.4	38.0		38.2	36.2	36.9		1.0	1.560
CURRENT MACHINE AVERAGE				26.8						36.7				35.0			1.558
CUMULATIVE MACHINE AVERAGE				26.8						35.2				32.2			
MACHINE FACTOR, PERCENT				100.0						104.3				108.7			
MACHINE INDEX, PERCENT				99.2						104.6				108.4			

TABLE XXV
SUMMARY OF TEST RESULTS FOR MACHINE X
JUNE AND JULY, 1967

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	TYPE OF MEDIUM- SEMICHEMICAL				CONCORA FLAT CRUSH, P.S.I.				SINGLE-FACE FLAT CRUSH, P.S.I.				RUNNABILITY	
				MAX.	MIN.	AV.		MAX.	MIN.	AV.		MAX.	MIN.	AV.		LB./IN.*A	DRAW FACTOR*8
X-1	5-11-67	154	27.5	10.3	9.2	9.8		37.2	33.6	35.5		34.6	33.2	33.9		MIN.	1.552
X-2	6-27-67	160	27.7	10.8	10.2	10.4		37.2	33.6	35.2		32.6	29.0	31.0		MIN.	1.554
CURRENT MACHINE AVERAGE				27.6						35.4				32.4			1.553
CUMULATIVE MACHINE AVERAGE				27.2						33.7				31.3			
MACHINE FACTOR, PERCENT				101.5						105.0				103.5			
MACHINE INDEX, PERCENT				102.2						100.9				100.3			

A Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.		CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		LB./IN. ² A	DRAW FACTOR* B	RUNNABILITY NOTE C	
			MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.				
Y-1	5-17-67	736	27.4	10.9	9.4	10.3	37.8	34.2	35.6	34.2	32.8	33.4	1.5	1.572
Y-2	5-28-67	737	27.4	10.9	9.7	10.5	37.8	34.2	35.6	33.0	31.4	32.2	NOTE C	1.546
Y-3	6-7-67	738	26.9	10.9	9.9	10.4	36.6	34.2	35.6	36.2	33.8	35.1	0.5	1.566
Y-4	6-11-67	739	27.0	10.8	9.0	9.8	38.4	34.8	37.0	37.4	34.4	35.4	1.0	1.555
Y-5	6-15-67	740	27.1	11.0	9.2	10.0	39.6	34.2	36.4	36.0	33.6	34.9	1.5	1.567
Y-6	6-26-67	741	25.7	10.0	9.0	9.5	36.6	33.6	35.5	33.8	31.4	32.6	1.0	1.566
Y-7	6-30-67	742	26.6	10.6	9.1	9.7	36.6	33.6	35.8	37.8	34.2	35.8	1.5	1.572
Y-8	7-12-67	743	28.3	11.5	9.8	10.4	39.0	34.2	36.5	36.2	32.0	34.7	1.5	1.570
CURRENT MACHINE AVERAGE														34.3
CUMULATIVE MACHINE AVERAGE														32.3
MACHINE FACTOR, PERCENT														106.2
MACHINE INDEX, PERCENT														106.2

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

Z-1	6-14-67	26.8	10.8	10.2	10.6	39.6	37.2	38.4	37.2	35.8	36.6	1.5	1.564
Z-2	6-15-67	26.7	11.0	10.3	10.7	39.6	37.8	38.6	36.4	34.6	35.6	1.5	1.563
Z-3	6-28-67	26.5	10.8	10.2	10.5	42.6	37.2	40.1	37.8	36.4	37.1	1.0	1.558
Z-4	6-29-67	26.8	10.9	10.3	10.5	40.8	37.2	39.1	38.2	34.8	36.2	0.5	1.556
Z-5	7-12-67	26.7	10.9	10.1	10.4	40.8	36.0	37.9	36.2	34.4	35.0	0.5	1.556
Z-6	7-13-67	27.1	10.8	10.3	10.5	41.4	36.6	38.9	35.4	32.6	33.6	0.5	1.559
Z-7	7-14-67	26.3	10.4	9.8	10.1	37.8	36.0	36.6	37.8	33.4	35.5	0.5	1.560
Z-8	7-16-67	26.2	10.6	10.0	10.3	39.0	35.4	36.8	37.0	33.4	35.5	1.0	1.559
CURRENT MACHINE AVERAGE													1.559
CUMULATIVE MACHINE AVERAGE													35.6
MACHINE FACTOR, PERCENT													34.6
MACHINE INDEX, PERCENT													102.9
													110.2

^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.

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M.		CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY									
			SQ. FT.		MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	NOTE C	LB./IN.*A FACTOR*8	MIN.	NOTE C	MIN.	NOTE C	MIN.	NOTE C
AA-1	5-11-67	12	26.3		10.1	9.5	9.9	37.2	32.4	34.9	34.2	29.8	32.3							1.556
AA-2	5-20-67	13	26.0		10.2	9.8	10.0	37.8	31.2	34.4	34.0	33.6	33.8							1.550
AA-3	5-24-67	14	25.4		10.3	9.1	9.7	36.0	30.6	34.0	32.4	30.8	31.7							1.551
AA-4	5-31-67	15	25.2		10.2	9.7	10.0	38.4	33.0	34.6	34.4	30.2	32.5							1.552
AA-5	6- 9-67	16	26.9		10.5	10.0	10.2	43.2	37.8	40.7	38.8	37.8	38.0							1.573
AA-6	6-14-67	17	25.4		10.7	10.0	10.3	36.6	28.8	33.1	31.2	28.6	29.4							1.558
AA-7	6-20-67	18	26.0		10.0	9.3	9.7	40.8	37.8	39.7	38.4	35.6	37.2							1.559
AA-8	6-29-67	19	26.2		9.9	9.2	9.6	40.8	36.6	37.8	37.6	34.2	36.0							1.559
AA-9	7- 6-67	20	26.1		10.0	9.4	9.7	39.0	37.8	38.4	35.8	31.0	33.7							1.564

CURRENT MACHINE AVERAGE 25.9
CUMULATIVE MACHINE AVERAGE 26.6
MACHINE FACTOR, PERCENT 97.4
MACHINE INDEX, PERCENT 95.9

33.8
31.2
108.3
104.6

1.558

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB

JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

BB-1	6- 9-67	793	26.6	10.9	10.0	10.5	44.4	37.2	40.4	38.2	37.0	37.8	1.5	1.572
BB-2	6- 9-67	794	26.4	10.7	9.4	10.0	41.4	39.0	40.4	41.0	37.4	39.2	1.5	1.572
BB-3	6-23-67	795	27.9	10.9	10.0	10.6	46.2	40.2	43.2	44.0	40.2	42.5	1.0	1.556
BB-4	6-26-67	796	25.2	10.3	9.5	10.0	42.6	36.0	40.3	39.4	37.8	38.4	1.5	1.563
BB-5	7-11-67	797	27.2	11.5	11.0	11.2	40.8	33.0	38.4	37.0	34.2	36.0	1.0	1.560
BB-6	7-12-67	798	27.1	11.9	11.0	11.2	37.8	36.0	36.7	36.0	35.2	35.6	0.5	1.543

CURRENT MACHINE AVERAGE 26.7
CUMULATIVE MACHINE AVERAGE 27.1
MACHINE FACTOR, PERCENT 98.5
MACHINE INDEX, PERCENT 98.9

38.2
37.2
102.7
118.3

1.561

A Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

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

TABLE XXX

SUMMARY OF TEST RESULTS FOR MACHINE CC
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, FT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW					
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	LB./IN.*A	FACTOR*B				
CC-1	5-17-67	3883	27.0	11.5	10.3	10.8	43.2	39.6	41.4	39.6	36.8	37.8	MIN.	1.558	
CC-2	5-22-67	4869	25.8	11.0	10.0	10.3	40.8	33.0	38.0	36.4	32.0	34.2	0.5	1.570	
CC-3	5-25-67	5603	26.6	11.7	10.4	11.0	40.8	38.4	39.6	41.0	35.0	37.4	MIN.	1.559	
CC-4	5-30-67	6744	26.0	11.0	10.4	10.8	41.4	33.0	37.3	38.4	31.2	34.4	0.5	1.561	
CC-5	6- 5-67	851	26.0	11.0	10.1	10.6	40.8	35.4	38.3	40.2	31.8	35.6	0.5	1.562	
CC-6	6-12-67	2332	26.6	10.9	10.2	10.5	42.6	36.6	40.1	37.0	30.2	34.4	0.5	1.559	
CC-7	6-22-67	4527	25.8	11.2	10.0	10.4	40.2	34.8	37.6	36.8	34.8	35.7	0.5	1.561	
CC-8	6-26-67	5315	26.3	11.3	10.5	10.8	42.6	37.8	40.4	38.4	31.4	35.0	0.5	1.561	
CURRENT MACHINE AVERAGE														35.6	1.561
CUMULATIVE MACHINE AVERAGE														31.4	
MACHINE FACTOR, PERCENT														113.4	
MACHINE INDEX, PERCENT														110.2	

TABLE XXXI

SUMMARY OF TEST RESULTS FOR MACHINE DD
JUNE AND JULY, 1967

TYPE OF MEDIUM- SEMICHEMICAL

CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														
DD-1	5-15-67	1630	26.6	9.5	9.0	9.2	39.0	36.6	38.2	38.0	35.0	36.7	0.5	1.563
DD-2	5-22-67	2570	26.7	9.5	9.0	9.3	38.4	36.0	37.7	37.0	34.2	35.9	0.5	1.567
DD-3	5-29-67	3389	27.0	9.9	9.4	9.7	40.8	33.0	37.6	36.6	33.2	35.2	MIN.	1.558
DD-4	6- 5-67	474	26.0	9.8	9.3	9.6	40.8	34.8	36.6	36.8	35.0	35.9	0.5	1.568
DD-5	6-12-67	1190	25.7	9.8	9.2	9.4	37.8	32.4	34.4	34.0	32.0	33.0	1.5	1.566
DD-6	6-19-67	2050	26.3	9.7	9.1	9.4	37.2	34.8	36.4	33.6	30.8	32.8	1.5	1.565
DD-7	6-26-67	2832	26.1	9.9	9.4	9.7	37.2	33.6	35.0	35.4	33.0	34.0	1.5	1.567
DD-8	7- 3-67	281	26.0	9.8	9.0	9.4	37.2	33.0	35.4	33.6	31.6	32.2	1.5	1.571
CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														
34.5														
32.5														
106.2														
106.8														
1.565														

A Maximum tension at 600 f.p.m.
B 600 f.p.m., minimum tension.

TABLE XXXII
SUMMARY OF TEST RESULTS FOR MACHINE EE

JUNE AND JULY, 1967

TYPE OF MEDIUM-- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	LB./IN.*A	DRAW FACTOR*8			
EE-1	4-23-67	182	26.9	11.0	9.7	10.3	34.2	33.0	33.6	34.8	32.2	33.5	1.0	1.560
EE-2	7-10-67	164	27.6	11.3	10.0	10.5	42.0	39.0	40.3	36.8	36.0	36.4	1.5	1.571
CURRENT MACHINE AVERAGE												37.0	35.0	1.565
CUMULATIVE MACHINE AVERAGE												35.1	33.3	
MACHINE FACTOR, PERCENT												105.4	105.1	
MACHINE INDEX, PERCENT												105.4	108.4	

TABLE XXXIII

SUMMARY OF TEST RESULTS FOR MACHINE FF

JUNE AND JULY, 1967

TYPE OF MEDIUM-- BOGUS

FF-1	4-24-67	112	27.4	11.8	10.7	11.4	33.0	30.6	31.8	32.0	29.2	30.9	1.5	1.564
FF-2	4-27-67	113	29.1	13.0	12.2	12.6	38.4	33.6	35.8	36.0	34.6	35.5	1.5	1.558
FF-3	6-17-67	114	30.6	11.1	10.3	10.8	37.8	33.6	36.1	35.8	33.8	34.6	1.5	1.571
FF-4	7-16-67	115	26.3	10.7	9.8	10.2	35.4	33.0	34.2	32.8	31.4	32.3	1.5	1.564
CURRENT MACHINE AVERAGE														1.564
CUMULATIVE MACHINE AVERAGE														33.3
MACHINE FACTOR, PERCENT														27.8
MACHINE INDEX, PERCENT														119.8
														103.1

A Maximum tension at 600 f.p.m.

B 600 f.p.m., minimum tension.

DISCUSSION OF RESULTS

Shown below from Table I are the maximum and minimum current machine averages obtained for each test property during the current period (June and July, 1967) and the previous period (April and May, 1967). Also shown for each test property is the current F.K.I. average which represents the mean of the current machine averages 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 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.

	Period	Current Machine Averages		F.K.I. Averages	
		Maximum	Minimum	Current	Cumulative
Basis wt., lb./1000 ft. ²	Cur.	28.4	25.6	26.9	27.0
	Prev.	28.3	25.8	27.1	27.0
Caliper, pt.	Cur.	11.2	9.5	10.3	10.4
	Prev.	11.9	9.2	10.5	10.4
Concora flat crush, p.s.i.	Cur.	40.4	32.4	36.5	35.1
	Prev.	40.3	29.1	35.3	35.1
Single-face flat crush, p.s.i.	Cur.	38.5	30.7	34.5	32.3
	Prev.	37.9	27.7	33.1	32.1

The quality data summarized above for the current and previous periods appear to reflect an effort to increase Concora and single-face flat crush test values where previous data show a tendency for the mediums from certain machines to be well below the current F.K.I. averages.

The runnability data for the 226 rolls evaluated during the current period and the 241 rolls evaluated during the previous period are summarized as follows:

Runnability	Current Period			Previous Period		
	No. of Rolls	% of Total	Cum., %	Rolls	% of Total	Cum., %
Less than 600 f.p.m. with minimum tension	17	7.5	100.0	24	10.0	100.0
600 f.p.m. - minimum tension	39	17.3	92.5	46	19.1	90.0
600 f.p.m. - 1/2 lb. per in. tension	39	17.3	75.2	54	22.4	70.9
600 f.p.m. - 1 lb. per in. tension	43	19.0	57.9	32	13.3	48.5
600 f.p.m. - 1-1/2 lb. per in. tension	88	38.9	38.9	85	35.3	35.3

It may be noted that the runnability data for the current period are associated with some favorable changes in that the percentage of rolls runnable at 600 f.p.m. with tension of one lb. per in. or more is appreciably larger and the percentage of rolls runnable at 600 f.p.m. with minimum tension or at speeds below 600 f.p.m. with minimum tension is appreciably smaller than the corresponding percentages for the previous period.

Supplementary to the runnability data, 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 XXXIII for Machines A to Z and Machines AA, BB, CC, DD, EE, and FF, respectively.

In Table XXXIV 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

TABLE XXXIV

INSTITUTE AND MILL CONCORRA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1967

Machine A					Machine B					Machine C				
Concorra Flat Crush,					Concorra Flat Crush,					Concorra Flat Crush,				
Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a
A-1	601	4-6-67	38.4	+1.2	B-1	14	5-8-67	35.4	-0.4	C-1	465702	5-21-67	35.3	-1.3
A-2	602	4-14-67	39.7	-0.7	B-2	15	5-15-67	33.8	-0.4	C-2	456674	5-23-67	35.2	-0.4
A-3	603	4-20-67	37.1	-0.5	B-3	16	6-6-67	32.5	+0.4	C-3	46202	6-1-67	35.9	-2.3
A-4	604	4-28-67	36.6	-0.2	B-4	17	6-12-67	34.4	+0.2	C-4	46942	6-5-67	35.0	-0.8
A-5	605	5-5-67	36.6	-0.8	B-5	18	6-19-67	33.0	+1.7	C-5	463902	6-14-67	36.8	-2.6
A-6	606	5-13-67	37.2	-0.5						C-6	47891	7-7-67	37.1	-2.3
A-7	607	5-18-67	36.0	+0.1						C-7	47951	7-7-67	35.3	-1.7
A-8	608	5-28-67	35.4	+1.1						C-8	472351	7-12-67	35.3	-1.1
A-9	609	6-6-67	35.4	+0.6						C-9	474712	7-20-67	38.2	-2.2
A-10	610	6-13-67	36.5	+1.3										
A-11	611	6-27-67	36.0	+1.1										
A-12	612	7-5-67	41.3	-4.7										
Current machine av.										Current machine av.				
37.2								33.8	+0.3	36.0				
37.1								34.1		34.4				
-0.1										-1.6				
Machine D					Machine E					Machine F				
Concorra Flat Crush,					Concorra Flat Crush,					Concorra Flat Crush,				
Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a
D-1	44	5-13-67	38.9	+0.1	E-1	472	5-3-67	38.6	-4.0	F-1	--	6-14-67	37.1	-1.7
D-2	45	5-16-67	36.1	+2.1	E-2	473	5-8-67	41.2	-8.1	F-2	--	6-15-67	35.5	+0.6
					E-3	474	5-11-67	40.2	-5.5	F-3	--	6-16-67	34.6	+2.0
					E-4	475	5-20-67	36.7	-5.7	F-4	--	6-17-67	35.8	-1.1
					E-5	476	6-8-67	35.8	-2.9	F-5	--	7-8-67	36.5	-1.7
					E-6	477	6-13-67	35.2	-1.7	F-6	--	7-9-67	37.1	-1.7
					E-7	478	6-15-67	39.6	+0.8	F-7	--	7-17-67	34.8	+0.4
					E-8	479	6-24-67	35.6	-0.7	F-8	--	7-18-67	37.9	-2.4
Current machine av.										Current machine av.				
37.5								37.9	-3.5	36.2				
38.6								34.4		35.5				
+1.1										-0.7				
Machine H					Machine I					Machine J				
Concorra Flat Crush,					Concorra Flat Crush,					Concorra Flat Crush,				
Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a	Code	Roll No.	Date Made	Insti- tute	Differ- ence ^a
H-1	566711	5-21-67	36.0	-1.6	I-1	165	5-19-67	35.2	-0.9	J-1	12	5-11-67	32.0	-3.1
H-2	558341	5-23-67	37.4	-1.4	I-2	166	5-19-67	32.8	+1.2	J-2	13	5-20-67	36.4	-5.2
H-3	55992	5-31-67	38.2	-3.0						J-3	14	5-24-67	30.7	-0.5
H-4	561381	6-5-67	37.6	-1.5						J-4	15	6-1-67	32.9	-3.1
H-5	563711	6-13-67	40.8	-4.1						J-5	16	6-9-67	37.9	-1.7
H-6	57232	7-7-67	34.8	-0.8						J-6	17	6-14-67	33.7	-6.1
H-7	57802	7-7-67	34.9	-2.0						J-7	18	6-20-67	36.0	-3.8
H-8	572362	7-12-67	34.6	-1.2						J-8	19	6-29-67	36.5	-3.9
H-9	573901	7-18-67	38.2	-4.0						J-9	20	7-8-67	36.8	-7.5
Current machine av.										Current machine av.				
36.9								34.0	+0.2	34.8				
34.8								34.2		30.9				
-2.1										-3.9				

^a See end of table for footnote.

TABLE XXXIV (Continued)
INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1967

Machine K				Machine L				Machine M			
Concora Flat Crush,				Concora Flat Crush,				Concora Flat Crush,			
Code	Mill Roll No.	Date Made	Differ- ence ^a	Code	Mill Roll No.	Date Made	Differ- ence ^a	Code	Mill Roll No.	Date Made	Differ- ence ^a
K-1	658	4-10-67	-0.7	L-1	--	6- 6-67	-0.6	M-1	545	6- 3-67	-1.9
K-2	659	4-13-67	-1.8	L-2	--	6- 7-67	-1.0	M-2	546	6- 3-67	-4.0
K-3	660	4-29-67	-0.7	L-3	--	7- 1-67	-0.7	M-3	553	6- 8-67	-0.8
K-4	661	5-14-67	+0.2	L-4	--	7- 2-67	-2.1	M-4	554	6- 8-67	+0.6
K-5	662	5-24-67	-0.2	L-5	--	7- 8-67	-1.7	M-5	561	6-25-67	-4.1
K-6	663	6-12-67	+0.8	L-6	--	7- 9-67	-2.5	M-6	562	6-25-67	-4.1
K-7	664	6-28-67	-2.2	L-7	--	7-18-67	-2.4	M-7	569	7-17-67	-0.2
K-8	665	7-10-67	-1.7	L-8	--	7-20-67	-0.7	M-8	570	7-17-67	-3.6
K-9	666	7-12-67	-1.3								
Current machine av.			-0.8	Current machine av.			-1.5	Current machine av.			-2.2
Machine N				Machine O				Machine P			
Concora Flat Crush,				Concora Flat Crush,				Concora Flat Crush,			
Code	Mill Roll No.	Date Made	Differ- ence ^a	Code	Mill Roll No.	Date Made	Differ- ence ^a	Code	Mill Roll No.	Date Made	Differ- ence ^a
N-1	514	5-10-67	-4.0	O-1	25	5-15-67	-7.2	P-1	268	5-18-67	+1.2
N-2	515	5-16-67	-4.0	O-2	26	5-15-67	-4.7	P-2	269	5-22-67	-1.8
N-3	516	5-24-67	-2.3	O-3	27	6- 8-67	+4.0	P-3	270	5-30-67	-2.9
N-4	517	5-29-67	-1.5	O-4	28	6- 8-67	+1.7	P-4	271	6- 3-67	-2.6
N-5	518	5-31-67	-3.1	O-5	29	7-15-67	+6.0	P-5	272	6- 9-67	-2.1
N-6	519	6- 5-67	-2.3	O-6	30	7-15-67	+7.6	P-6	273	6-19-67	-1.8
N-7	520	6-13-67	-3.0					P-7	274	6-25-67	-3.5
N-8	521	6-16-67	-1.3					P-8	275	7- 1-67	0.0
N-9	522	6-22-67	-3.7					P-9	276	7- 9-67	-2.2
N-10	523	6-26-67	-2.7					P-10	277	7-16-67	-1.0
N-11	524	7-13-67	-2.9								
Current machine av.			-2.8	Current machine av.			+5.2	Current machine av.			-1.7
Machine Q				Machine R				Machine S			
Concora Flat Crush,				Concora Flat Crush,				Concora Flat Crush,			
Code	Mill Roll No.	Date Made	Differ- ence ^a	Code	Mill Roll No.	Date Made	Differ- ence ^a	Code	Mill Roll No.	Date Made	Differ- ence ^a
Q-1	372	5- 3-67	-5.2	R-1	617	4-21-67	+1.2	S-1	153	5- 4-67	+1.9
Q-2	373	5- 8-67	-5.6	R-2	55	5-10-67	-2.0	S-2	155	5-17-67	+3.3
Q-3	374	5-11-67	-5.1	R-3	782	5-31-67	-2.2	S-3	156	5-24-67	-0.1
Q-4	375	5-23-67	-2.8	R-4	238	6-13-67	-3.5	S-4	157	6- 7-67	+1.7
Q-5	376	6- 3-67	-1.4	R-5	330	6-15-67	-0.2	S-5	158	6-22-67	0.0
Q-6	377	6-15-67	-2.4	R-6	696	6-26-67	-3.8	S-6	159	6-27-67	0.0
Q-7	378	6-19-67	-3.1								
Q-8	379	6-27-67	-3.1								
Current machine av.			-3.6	Current machine av.			-1.7	Current machine av.			+1.2

^aSee end of table for footnote.

TABLE XXXIV (Continued)
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1967

Machine T										Machine U										Machine V									
Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,					Concora Flat Crush,				
Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence						
T-1	268	5-18-67	36.0	33.8	-2.2	U-1	1763	5-10-67	33.8	32.0	-1.8	V-1	46	6-1-67	36.2	36.8	+0.6												
T-2	269	5-21-67	37.9	34.7	-3.2	U-2	1764	5-10-67	34.8	30.8	-4.0	V-2	47	6-6-67	35.6	39.7	+4.1												
T-3	270	5-29-67	32.0	31.0	-1.0	U-3	1771	5-24-67	31.3	31.2	-0.1	V-3	48	6-21-67	35.6	37.1	+1.5												
T-4	271	6-3-67	34.3	29.4	-4.9	U-4	1772	5-25-67	33.8	31.2	-2.6																		
T-5	272	6-9-67	34.3	31.2	-3.1	U-5	1779	6-8-67	32.0	33.1	+1.1																		
T-6	273	6-17-67	33.2	30.0	-3.2	U-6	1780	6-8-67	31.2	29.4	-1.8																		
T-7	274	6-25-67	38.5	35.2	-3.3	U-7	1787	6-21-67	30.5	28.0	-2.5																		
T-8	275	7-1-67	36.0	33.5	-2.5	U-8	1788	6-21-67	32.0	29.4	-2.6																		
T-9	276	7-9-67	36.2	33.8	-2.4																								
T-10	277	7-17-67	33.4	32.6	-0.8																								
Current machine av.					32.5	-2.7	Current machine av.					32.4	30.6	-1.8	Current machine av.					35.8	37.9	+2.1							
Machine W										Machine X										Machine Y									
Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence						
W-1	73	5-18-67	37.4	37.4	0.0	X-1	154	5-11-67	35.5	31.8	-3.7	Y-1	736	5-17-67	35.6	36.2	+0.6												
W-2	74	5-20-67	37.2	38.4	+1.2	X-2	160	6-27-67	35.2	35.6	+0.4	Y-2	737	5-28-67	35.6	38.9	+3.3												
W-3	75	5-20-67	34.4	38.4	+4.0							Y-3	738	6-7-67	35.6	36.9	+1.3												
W-4	76	6-11-67	37.1	34.8	-2.3							Y-4	739	6-11-67	37.0	35.8	-1.2												
W-5	77	6-18-67	36.1	33.6	-2.5							Y-5	740	6-15-67	36.4	36.0	-0.4												
W-6	78	7-2-67	38.0	36.5	-1.5							Y-6	741	6-26-67	35.5	36.5	+1.0												
Current machine av.					36.7	-0.2	Current machine av.					35.4	33.7	-1.7	Current machine av.					36.0	36.8	+0.8							
Machine Z										Machine AA										Machine BB									
Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence	Code	Roll No.	Date Made	Insti- tute	P.s.i. Mill	Differ- ence						
Z-1	--	5-14-67	38.4	36.7	-1.7	AA-1	12	5-11-67	34.9	31.2	-3.7	BB-1	793	6-9-67	40.4	38.9	-1.5												
Z-2	--	6-15-67	38.6	37.2	-1.4	AA-2	13	5-20-67	34.4	28.6	-5.8	BB-2	794	6-9-67	40.4	39.4	-1.0												
Z-3	--	6-28-67	40.1	37.3	-2.8	AA-3	14	5-24-67	34.0	28.2	-5.8	BB-3	795	6-23-67	43.2	40.9	-2.3												
Z-4	--	6-29-67	39.1	38.0	-1.1	AA-4	15	5-31-67	34.6	29.8	-4.8	BB-4	796	6-26-67	40.3	38.6	-1.7												
Z-5	--	7-12-67	37.9	36.5	-1.4	AA-5	16	6-9-67	40.7	41.8	+1.1	BB-5	797	7-11-67	38.4	37.8	-0.6												
Z-6	--	7-13-67	38.9	36.2	-2.7	AA-6	17	6-14-67	33.1	28.0	-5.1	BB-6	798	7-12-67	36.7	37.8	+1.1												
Z-7	--	7-14-67	36.6	36.8	+0.2	AA-7	18	6-20-67	39.7	37.7	-2.0																		
Z-8	--	7-16-67	36.8	37.1	+0.3	AA-8	19	6-29-67	37.8	37.4	-0.4																		
Current machine av.					38.3	-1.3	Current machine av.					36.4	33.0	-3.4	Current machine av.					39.9	38.9	-1.0							

^aSee end of table for footnote.

TABLE XXXIV (Continued)
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JUNE AND JULY, 1967

Machine CC				Machine DD				Machine FF			
Concorda Flat Crush,				Concorda Flat Crush,				Concorda Flat Crush,			
Code	Roll No.	Date Made	Liffer- ence ^a	Code	Roll No.	Date Made	Liffer- ence ^a	Code	Roll No.	Date Made	Liffer- ence ^a
CC-1	3883	5-17-67	-3.4	DD-1	1630	5-15-67	-1.1	FF-1	112	4-24-67	-0.6
CC-2	4869	5-22-67	-2.2	DD-2	2570	5-22-67	-0.3	FF-2	113	4-27-67	+1.2
CC-3	5603	5-25-67	-0.2	DD-3	3389	5-29-67	-1.2	FF-3	114	6-17-67	-4.6
CC-4	6744	5-30-67	+0.6	DD-4	474	6-5-67	-0.1	FF-4	115	7-16-67	+1.4
CC-5	851	6-5-67	+0.2	DD-5	1190	6-12-67	-0.7				
CC-6	2332	6-12-67	-2.7	DD-6	2030	6-19-67	-2.4				
CC-7	4527	6-22-67	-1.6	DD-7	2832	6-26-67	-0.4				
CC-8	5315	6-26-67	-3.3	DD-8	281	7-3-67	-1.2				
Current machine av.				Current machine av.				Current machine av.			
39.1				36.4				34.5			
37.5				35.5				33.8			
-1.6				-0.9				-0.7			

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

this kind are a helpful adjunct to other calibration procedures. Shown in Table XXXIV 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 XXXIV are summarized in Part I of Table XXXV 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 difference - 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 XXXV the average differences given in Part I are expressed as percentage differences; corresponding data from the previous two reports are included in Part II of Table XXXV so that the current level of agreement may be interpreted with this additional information at hand.

In Table XXXVI the levels of agreement between Institute and mill Concora flat crush data for the current period, the previous period, and the previous six months (excluding the current period) are summarized and compared. The data shown for the current period (when compared with the prior data) indicate that agreement between Institute and mill Concora data was favorable at ranges of $\pm 5.0\%$ (and higher ranges) but somewhat poorer at the lower ranges of $\pm 1.0\%$ and $\pm 2.5\%$.

TABLE XXXV (Continued)

PART I: A COMPARATIVE SUMMARY FOR EACH MACHINE OF THE CONCORA FLAT CRUSH AVERAGES BASED ON INSTITUTE DATA AND THOSE BASED ON MILL DATA																
Machine code	Q	R	S	T	U	V	W	X	Y	Z	AA	BB	CC	DD	EE	FF
Number of rolls compared	8	6	6	10	8	3	6	2	8	8	9	6	8	8	0	4
Concora Flat crush, p.s.i.																
Current machine av. (Institute) ^a	38.6	37.8	34.7	35.2	32.4	35.8	36.7	35.4	36.0	38.3	36.4	39.9	39.1	36.4	--	34.5
Current machine av. (Mill) ^a	35.0	36.1	35.9	32.5	30.6	37.9	36.5	33.7	36.8	37.0	33.0	38.9	37.5	35.5	--	33.8
Average difference ^b	-3.6	-1.7	+1.2	-2.7	-1.8	+2.1	-0.2	-1.7	+0.8	-1.3	-3.4	-1.0	-1.6	-0.9	--	-0.7
Maximum difference	-5.6	-3.8	+3.3	-4.9	-4.0	+4.1	+4.0	-3.7	+3.3	-2.8	-5.8	-2.3	-3.4	-2.4	--	-4.6
PART II: A TABULATION FOR EACH MACHINE OF THE AVERAGE DIFFERENCE (PERCENT) BETWEEN THE CONCORA FLAT CRUSH BASED ON INSTITUTE DATA AND THAT BASED ON MILL DATA																
Average difference, % ^d																
Current report (June-July)	-9.3	-4.5	+3.5	-7.7	-5.6	+5.9	-0.5	-4.8	+2.2	-3.4	-9.3	-2.5	-4.1	-2.5	--	-2.0
3rd report (April-May)	-7.3	-5.9	+5.3	+4.8	+1.0	-0.6	+0.5	+7.3	+6.0	-2.0	+0.3	+0.3	+2.3	-1.9	--	+3.2
2nd report (Feb.-March)	-4.7	+0.5	+5.8	+3.9	+0.6	-3.0	+5.2	--	+2.9	-0.5	-2.0	+0.8	+6.5	+1.4	--	+7.8

^a Comparisons based on current machine average (CMA) include only those rolls for which mill data were submitted.

^b Average difference is the difference between the CMA based on Institute test results and the CMA based on mill test results with the CMA based on Institute test results used as the reference. See Table XXXIV.

^c Maximum difference is the greatest difference encountered in comparing Institute and mill test averages for individual rolls. See Table XXXIV.

^d Average difference (percent) is computed by dividing the average difference in p.s.i. (shown above in Part I of this table) by the Institute CMA and multiplying the result by 100.

TABLE XXXV

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
Number of rolls compared	12	5	9	2	8	8	0	9	2	9	9	8	8	11	6	10
Concorda flat crush, p.s.i.																
Current machine av. (Institute) ^a	37.2	33.8	36.0	37.5	37.9	36.2	--	36.9	34.0	34.8	39.0	37.7	38.3	40.4	32.5	33.8
Current machine av. (Mill) ^a	37.1	34.1	34.4	38.6	34.4	35.5	--	34.8	34.2	30.9	38.2	36.2	36.1	37.6	37.7	32.1
Average difference ^c	-0.1	+0.3	-1.6	+1.1	-3.5	-0.7	--	-2.1	+0.2	-3.9	-0.8	-1.5	-2.2	-2.8	+5.2	-1.7
Maximum difference	-4.7	+1.7	-2.6	+2.1	-8.1	-2.4	--	-4.1	+1.2	-7.5	-2.2	-2.5	-4.1	-4.0	+7.6	-3.5

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 (June-July)	3rd report (April-May)	2nd report (Feb.-March)
	-0.3	+1.0	-5.8
	+0.9	-0.9	-2.4
	-4.4	0.0	+0.6
	+2.9	+8.0	-1.0
	-9.2	-7.5	-5.1
	-1.9	-0.6	+8.3
	--	--	--
	-5.7	+0.6	+7.1
	+0.6	+2.4	-8.0
	-11.2	-4.0	-6.6
	-2.1	-4.5	-7.2
	-4.0	-1.6	-2.6
	-4.0	-5.7	-6.9
	+0.3	+0.3	-1.8
	0.0	0.0	-0.8
	+16.0	+11.9	+6.8
	-5.0	+7.1	+6.9

^aComparisons based on current machine average (CMA) include only those rolls for which mill data were submitted.

^bAverage difference is the difference between the CMA based on Institute test results and the CMA based on mill test results with the CMA based on Institute test results used as the reference. See Table XXXIV.

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

^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 CMA and multiplying the result by 100.

TABLE XXXVI

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL
CONCORA FLAT CRUSH DATA

Average Percentage Difference Between Institute and Mill Concora Flat Crush Test Results ^a	Number and Percentage of Machines Included Within the Indicated Ranges				
	Previous Period ^b		Current Period ^c		Six-Month Average, % ^d
	Number	Percent	Number	Percent	
+ 1.0	11	34.4	4	13.3	27.8
+ 2.5	18	56.2	10	33.3	46.0
+ 5.0	22	68.8	19	63.3	62.3
+10.0	31	96.9	28	93.3	96.7
Max.	32	100.0 ^e	30	100.0 ^f	100.0 ^g

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

^bApril and May, 1967.

^cJune and July, 1967.

^dExcluding the current period.

^eMaximum percentage difference was + 11.9.

^fMaximum percentage difference was + 16.0.

^gMaximum percentage difference was + 14.9.

THE INSTITUTE OF PAPER CHEMISTRY



W. N. Hubert, Research Fellow



R. C. McKee, Chairman
Container Section

IPST HASELTON LIBRARY



5 0602 01053358 8