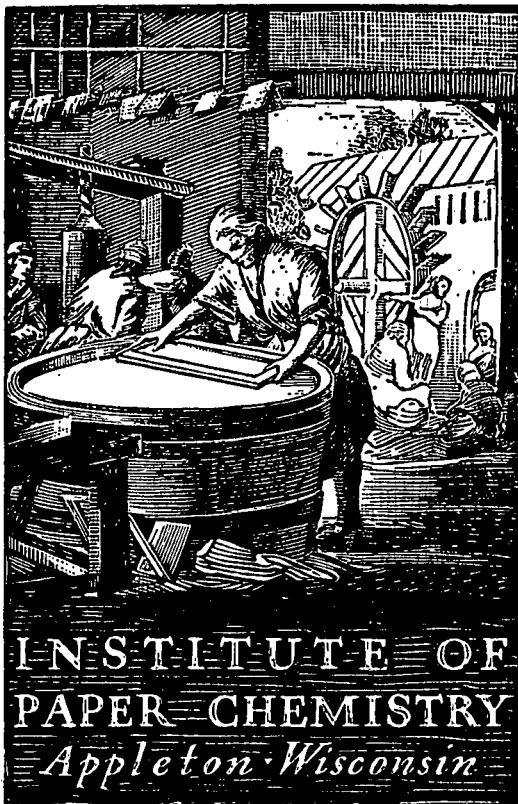


7/26/69

BASE-LINE
(MAY-JUNE, 1969)



**CONTINUOUS EVALUATION
OF CORRUGATING MEDIUM**

(Data for May and June, 1969)

Project 2694-2

Report Fourteen

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

This material is intended only for the internal use of authorized persons within Fourdrinier Kraft Board Institute member companies

July 25, 1969

BASE-LINE
(MAY-JUNE, 1969)

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM
(Data for May and June, 1969)

SUMMARY

PART I. GENERAL

A. Participation Data:

	Current Period	Previous Period
Period	May-June, 1969	March-April, 1969
Number of machines	30	32
Number of rolls	108	116

B. Distribution of Mediums by Type:

Semicchemical	30	30
Bogus	0	2
Kraft	0	0

C. New Participants:

None

None

D. Nonparticipants:

1. Chesapeake (West Point No. 1) 1. Chesapeake (West Point)
2. Continental Can (Hodge No. 1) 2. Continental Can (Hodge No. 1)
3. Crown Zellerbach (Baltimore Nos. 1, 2, & Lebanon No. 2) 3. Olinkraft, Inc. (W. Monroe No. 1, 2, & 3)
4. Olinkraft, Inc. (W. Monroe No. 1 & 3) 4. St. Joe Paper Co. (Port St. Joe No. 1)
5. St. Joe Paper Co. (Port St. Joe No. 1) 5. St. Regis Paper Co. (Coshocton No. 1)
6. St. Regis Paper Co. (Coshocton No. 1) 6. Union Camp Corp. (Monroe No. 2)
7. Union Camp Corp. (Monroe No. 2) 7. Weyerhaeuser (Longview No. 4)
8. Westvaco (Covington No. 7)

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	24.8	26.7	26.9
	Prev.	28.1	25.2	26.7	27.0
Caliper, pt.	Cur.	12.0	9.2	10.3	10.4
	Prev.	11.8	9.2	10.4	10.4
Concora flat crush, p.s.i.	Cur.	52.9	38.4	44.0	42.8
	Prev.	52.0	36.6	42.6	42.9
Single-face flat crush, p.s.i.	Cur.	38.8	28.2	32.6	32.2
	Prev.	38.6	26.4	31.5	32.3

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.	4	3.7	100.0	4	3.4	100.0
600	Min.	4	3.7	96.3	2	1.7	96.6
600	1/2	7	6.5	92.6	12	10.3	94.9
600	1	12	11.1	86.1	9	7.8	84.6
600	1-1/2	81	75.0	75.0	89	76.7	76.7

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

Physical Tests:

Basis weight: Same as previous report.
 Caliper: Decreased from 10.4 to 10.3 pt.
 Concora flat crush: Increased from 42.6 to 44.0 p.s.i.
 Single-face flat crush: Increased from 31.5 to 32.6 p.s.i.

Runnability:

<600 f.p.m. at minimum tension: Increased from 3.4 to 3.7%
 600 f.p.m. at minimum tension: Increased from 1.7 to 3.7%
 600 f.p.m. at 1/2 lb./in. tension: Decreased from 10.3 to 6.5%
 600 f.p.m. at 1 lb./in. tension: Increased from 7.8 to 11.1%
 600 f.p.m. at 1-1/2 lb./in. tension: Decreased from 76.7 to 75.0%

Comment: No significant changes in runnability were noted.

PART III. CONCORA CALIBRATION DATA

A. Summary of Data (Number and Percentage of Machines Included Within the Indicated Ranges)

Range, %	Current Period		Previous Period	
	No. of Machines	% of Total	No. of Machines	% of Total
<u>±</u> 1.0	2	8.7	3	14.3
<u>±</u> 2.5	6	26.1	6	28.6
<u>±</u> 5.0	12	52.2	11	52.4
<u>±</u> 10.0	18	78.3	20	95.2
Max.	23	100.0 ^a	21	100.0 ^b

B. Significance of Calibration Data

The current level of agreement between Institute and mill Concora flat crush data is somewhat lower than the previous report.

^aMaximum percentage difference was -15.0.

^bMaximum percentage difference was -10.1.

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, 1961. The current report summarizes the data obtained during May and June, 1969, on 108 rolls of corrugating medium submitted for evaluation from thirty machines.

Each roll was evaluated at the Institute for basis weight, caliper, Concora flat crush (tested immediately after fluting), H. and D. flat crush on single-faced board, and runnability. The reader's attention is directed to the fact that the current base-line report is the eighth one in which Concora flat crush results were obtained on specimens tested immediately after fluting. Runnability was evaluated by corrugating each roll under standardized conditions on the Institute's single-facer into A-flute board at 600 feet per minute with minimum tension and recording the draw factor at this speed and tension if the roll ran satisfactorily. If unsatisfactory runnability occurred at this speed and tension, the single-facer was slowed down in increments of 25 f.p.m. using minimum tension until satisfactory runnability was obtained, i.e., until there was no visual evidence of fractured flutes. In this latter case the draw factor was recorded for the highest speed below 600 f.p.m. (with minimum tension) at which the roll ran satisfactorily. On the other hand, if initial fabrication of the roll was satisfactory at 600 f.p.m. with minimum tension, further runs were made at 600 f.p.m. using higher tension to determine the maximum tension at 600 f.p.m. which the medium could sustain without visual evidence of fracturing. The higher tensions used at 600 f.p.m. were 0.5, 1.0, and 1.5 lb./inch. For each roll, flat crush was determined on the single-faced board obtained at a speed of 600 f.p.m. with minimum tension, or if the roll could not be corrugated

satisfactorily at 600 f.p.m. with minimum tension, flat crush was determined on the single-faced board obtained at the highest speed below 600 f.p.m. at which the medium could be corrugated with minimum tension. The flat crush results on the single-faced board, in addition to supplying information about quality, also provide data which may be useful to each participant as a means of evaluating 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. 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 current F.K.I. averages, cumulative F.K.I. averages, and 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. The cumulative F.K.I. average for a given 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 convenient means of comparing current average quality with corresponding average quality for the previous six periods. An index greater than 100% indicates, of course, that current average quality is higher than the corresponding average quality for the previous six periods; similarly an index below 100% indicates that current average quality is lower than the corresponding average quality for the previous six periods.

TABLE I
SUMMARY OF CURRENT MACHINE AVERAGES
MAY AND JUNE, 1969

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.
						CRUSH	FLAT	
A	4	SEMICHEMICAL	28.4	11.4	39.2	29.6		
B	4	SEMICHEMICAL	27.0	11.2	44.5	33.8		
C	1	SEMICHEMICAL	26.2	10.6	47.5	33.6		
D	4	SEMICHEMICAL	26.7	10.2	45.4	32.7		
E	4	SEMICHEMICAL	26.4	10.0	48.4	35.8		
F	4	SEMICHEMICAL	26.8	11.4	38.4	28.2		
G	4	SEMICHEMICAL	26.2	9.6	43.9	32.3		
H	4	SEMICHEMICAL	26.2	10.5	39.4	30.9		
I	4	SEMICHEMICAL	26.4	10.4	44.1	31.0		
J	4	SEMICHEMICAL	26.6	9.8	41.6	31.2		
K	4	SEMICHEMICAL	26.7	9.9	44.0	32.6		
L	4	SEMICHEMICAL	27.0	12.0	41.5	28.6		
M	4	SEMICHEMICAL	27.5	11.4	41.2	30.8		
N	4	SEMICHEMICAL	26.6	10.0	43.0	32.9		
O	4	SEMICHEMICAL	26.1	10.4	43.2	32.4		
P	2	SEMICHEMICAL	25.2	10.1	42.0	30.6		
Q	4	SEMICHEMICAL	27.9	11.2	41.6	29.8		
R	4	SEMICHEMICAL	27.6	10.9	42.1	30.2		
S	4	SEMICHEMICAL	27.0	9.6	44.8	33.6		
T	4	SEMICHEMICAL	27.8	10.4	52.9	38.8		
U	4	SEMICHEMICAL	26.4	9.8	42.6	32.3		
V	4	SEMICHEMICAL	26.8	9.2	44.0	33.5		
W	1	SEMICHEMICAL	24.8	10.2	51.2	36.6		
X	4	SEMICHEMICAL	27.5	10.2	44.7	33.7		
Y	4	SEMICHEMICAL	27.0	9.8	45.6	34.5		
Z	2	SEMICHEMICAL	26.6	9.8	45.6	35.1		
AA	2	SEMICHEMICAL	26.6	10.0	47.6	34.6		
BB	4	SEMICHEMICAL	26.1	9.8	40.8	30.3		
CC	4	SEMICHEMICAL	26.5	10.1	44.6	35.1		
DD	4	SEMICHEMICAL	26.1	9.8	45.3	33.7		
TOTAL	108							
CURRENT F.K.I. AVERAGE			26.7	10.3		44.0		
CUMULATIVE F.K.I. AVERAGE			26.9	10.4		42.8		
F.K.I. INDEX, PERCENT			99.2	99.0		102.8		
						32.6		
						32.2		
						101.2		

The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXXI for Machines A through Z and Machines AA, BB, CC, and DD, respectively. For each machine, 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 six periods (excluding the current period). Also shown for each machine and for each test property in Tables II to XXXI 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 convenient means for comparing the current machine average for each test property with either the previous results obtained on the same machine for the same test property or with the cumulative result for all machines - i.e., the cumulative F.K.I. average for the same test property.

TABLE II

SUMMARY OF TEST RESULTS FOR MACHINE A

MAY AND JUNE, 1969

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
A-1	4-19-69	4711	29.5	12.0	11.0	11.6	42.0	37.2	39.8	32.8	31.2	31.7	1.5	1.568
A-2	4-19-69	4721	27.9	12.0	10.5	11.4	41.4	36.0	38.6	29.4	27.4	28.5	1.5	1.568
A-3	5-23-69	443	28.4	12.1	11.0	11.6	43.2	38.4	40.0	30.8	28.6	29.8	1.5	1.563
A-4	5-30-69	440	27.9	11.7	11.0	11.2	39.0	37.2	38.4	29.2	27.0	28.4	1.5	1.569
CURRENT MACHINE AVERAGE			28.4		11.4			39.2			29.6			1.567
CUMULATIVE MACHINE AVERAGE			28.1		11.2			39.2			29.2			
MACHINE FACTOR, PERCENT			101.1		101.8			100.0			101.4			
MACHINE INDEX, PERCENT			105.6		109.6			91.6			91.9			

A Maximum tension at 600 f.p.m.

B 600 f.p.m. minimum tension.

TABLE III

SUMMARY OF TEST RESULTS FOR MACHINE B

MAY AND JUNE, 1969

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
B-1	5-2-69	254	26.8	11.9	11.1	11.5	46.8	37.2	43.1	35.4	31.0	33.5	0.5	1.556
B-2	5-12-69	2649	26.9	11.6	11.0	11.3	49.2	38.4	43.0	35.6	31.8	33.7	0.5	1.558
B-3	5-30-69	6935	26.8	11.2	10.7	11.0	46.2	42.0	44.3	33.8	31.6	32.8	0.5	1.558
B-4	6-2-69	234	27.4	11.0	10.8	11.0	49.2	45.0	47.6	36.4	33.6	35.4	1.0	1.564
CURRENT MACHINE AVERAGE			27.0		11.2			44.5			33.8			1.559
CUMULATIVE MACHINE AVERAGE			27.1		11.0			46.7			34.1			
MACHINE FACTOR, PERCENT			99.6		101.8			95.3			99.1			
MACHINE INDEX, PERCENT			100.4		107.7			104.0			105.0			

TABLE IV
SUMMARY OF TEST RESULTS FOR MACHINE C
MAY AND JUNE, 1969

TYPE OF MEDIUM- SEMICHEMICAL												
CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX. MIN. AV.	CONCORA FLAT CRUSH, P.S.I. MAX. MIN. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX. MIN. AV.	RUNNABILITY DRAW LB./IN.*A FACTOR*B					
C-1	3-27-69	18	26.2	10.9 10.2 10.6	50.4 43.2 47.5	35.0 32.4 33.6	1.5	1.570				
CURRENT MACHINE AVERAGE			26.2	10.6	47.5	33.6		1.570				
CUMULATIVE MACHINE AVERAGE			27.1	10.7	45.1	32.9						
MACHINE FACTOR, PERCENT			96.7	99.1	105.3	102.1						
MACHINE INDEX, PERCENT			97.4	101.9	111.0	104.3						

TABLE V
SUMMARY OF TEST RESULTS FOR MACHINE D
MAY AND JUNE, 1969

TYPE OF MEDIUM- SEMICHEMICAL												
CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX. MIN. AV.	CONCORA FLAT CRUSH, P.S.I. MAX. MIN. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX. MIN. AV.	RUNNABILITY DRAW LB./IN.*A FACTOR*B					
D-1	5-26-69		26.1	10.2 9.7 10.0	51.0 45.0 47.4	36.0 32.0 34.1	1.5	1.570				
D-2	5-27-69		26.8	10.9 10.0 10.4	48.6 44.4 46.7	33.8 32.6 33.0	1.5	1.567				
D-3	6-10-69		26.5	10.8 9.2 10.0	44.4 39.0 42.5	33.8 30.2 31.2	1.5	1.570				
D-4	6-11-69		27.4	11.0 10.1 10.6	46.8 42.6 44.8	33.0 31.4 32.5	1.5	1.572				
CURRENT MACHINE AVERAGE			26.7	10.2	45.4	32.7		1.570				
CUMULATIVE MACHINE AVERAGE			27.0	10.6	43.7	32.4						
MACHINE FACTOR, PERCENT			98.9	96.2	103.9	100.9						
MACHINE INDEX, PERCENT			99.2	98.1	106.1	101.6						

*See Table II for Notes A and B.

TABLE VI

SUMMARY OF TEST RESULTS FOR MACHINE E

MAY AND JUNE, 1969

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
E-1	4- 8-69	573	25.7	10.1	9.1	9.6	49.2	45.6	47.9	37.2	34.2	35.4	1.0	1.566
E-2	4-14-69	574	26.2	10.3	9.0	9.8	51.6	46.8	48.5	35.8	33.6	34.6	1.5	1.567
E-3	5-22-69	575	26.0	10.9	9.0	10.0	51.0	46.8	48.6	36.8	34.2	35.5	1.5	1.560
E-4	6- 4-69	576	27.6	11.0	10.0	10.6	51.6	43.8	48.7	39.0	35.0	37.7	1.5	1.555
CURRENT MACHINE AVERAGE			26.4			10.0			48.4			35.8		1.562
CUMULATIVE MACHINE AVERAGE			26.1			10.0			45.9			35.1		
MACHINE FACTOR, PERCENT			101.1			100.0			105.4			102.0		
MACHINE INDEX, PERCENT			98.1			96.2			113.1			111.2		

TABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F

MAY AND JUNE, 1969

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
F-1	5-11-69	302	27.1	12.9	11.0	12.0	40.2	35.4	38.4	29.8	25.8	27.7	1.5	1.569
F-2	5-23-69	349	26.8	11.8	10.5	11.1	38.4	31.2	36.1	27.8	26.0	26.7	1.5	1.570
F-3	5-30-69	337	26.3	11.2	10.1	10.9	40.8	37.2	38.8	29.4	27.6	28.7	1.5	1.567
F-4	6- 7-69	377	27.0	11.8	11.0	11.4	42.0	39.0	40.2	30.6	28.2	29.5	1.5	1.565
CURRENT MACHINE AVERAGE			26.8			11.4			38.4			28.2		1.568
CUMULATIVE MACHINE AVERAGE			28.4			11.3			40.6			30.0		
MACHINE FACTOR, PERCENT			94.4			100.9			94.6			94.0		
MACHINE INDEX, PERCENT			99.6			109.6			89.7			87.6		

*See Table II for Notes A and B.

TABLE VIII
SUMMARY OF TEST RESULTS FOR MACHINE G
MAY AND JUNE, 1969

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
G-1	4-20-69	332	26.8	10.0	9.2	9.6	48.0	41.4	45.6	33.4	31.8	32.8	1.5	1.573
G-2	5-6-69	333	26.5	10.1	9.1	9.7	50.4	41.4	46.1	36.2	31.6	33.9	1.5	1.569
G-3	5-21-69	334	25.4	10.0	9.0	9.4	49.8	39.0	44.6	34.4	32.4	33.4	1.5	1.574
G-4	6-4-69	335	26.3	9.9	9.1	9.5	42.6	36.0	39.2	30.4	26.8	29.2	1.5	1.570
CURRENT MACHINE AVERAGE			26.2			9.6			43.9			32.3		1.572
CUMULATIVE MACHINE AVERAGE			26.5			9.6			41.3			30.4		
MACHINE FACTOR, PERCENT			98.9			100.0			106.3			106.2		
MACHINE INDEX, PERCENT			97.4			92.3			102.6			100.3		

TABLE IX
SUMMARY OF TEST RESULTS FOR MACHINE H
MAY AND JUNE, 1969

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
H-1	4-1-69	130	26.0	11.5	10.8	11.0	41.4	35.4	38.9	31.6	30.0	30.8	1.0	1.569
H-2	4-24-69	131	26.1	10.9	10.1	10.5	39.6	35.4	37.8	30.4	26.2	29.1	0.5	1.566
H-3	4-29-69	132	26.5	11.0	10.0	10.3	45.0	37.2	40.8	33.2	29.2	30.4	1.0	1.569
H-4	4-29-69	133	26.2	11.0	10.0	10.3	43.2	37.2	40.2	34.4	32.2	33.2	1.0	1.567
CURRENT MACHINE AVERAGE			26.2			10.5			39.4			30.9		1.568
CUMULATIVE MACHINE AVERAGE			26.5			11.0			42.0			32.0		
MACHINE FACTOR, PERCENT			98.9			95.4			93.8			96.6		
MACHINE INDEX, PERCENT			97.4			101.0			92.0			96.0		

*See Table II for Notes A and B.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I
MAY AND JUNE, 1969

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
I-1	4- 4-69	2051	26.2	10.4	9.8	10.0	46.2	40.8	43.2	32.6	30.4	31.8	1.0	1.571
I-2	5- 4-69	1721	26.3	11.0	10.1	10.5	46.8	45.0	45.8	32.6	30.0	31.2	1.5	1.576
I-3	5- 4-69	1731	26.7	11.1	10.3	10.8	48.0	37.8	42.8	30.4	28.6	29.8	1.5	1.574
I-4	6- 2-69	851	26.5	11.0	10.0	10.5	45.6	42.6	44.6	31.6	30.0	31.0	1.5	1.574
CURRENT MACHINE AVERAGE			26.4			10.4			44.1			31.0		1.574
CUMULATIVE MACHINE AVERAGE			26.2			10.2			42.0			31.0		
MACHINE FACTOR, PERCENT			100.8			102.0			105.0			100.0		
MACHINE INDEX, PERCENT			98.1			100.0			103.0			96.3		

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J
MAY AND JUNE, 1969

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
J-1	4-11-69	1	26.5	9.8	8.7	9.1	41.4	30.0	37.9	30.6	28.0	28.9	1.5	1.568
J-2	4-24-69	3	27.5	10.0	9.0	9.3	43.8	39.6	42.0	31.4	29.0	30.6	1.5	1.565
J-3	5- 7-69	5	26.0	11.0	10.0	10.6	46.2	39.0	43.2	35.4	31.6	33.6	1.5	1.563
J-4	5-21-69	7	26.3	10.4	10.0	10.2	45.0	39.0	43.2	33.8	29.2	31.8	1.5	1.565
CURRENT MACHINE AVERAGE			26.6			9.8			41.6			31.2		1.565
CUMULATIVE MACHINE AVERAGE			26.4			10.3			40.5			30.4		
MACHINE FACTOR, PERCENT			100.8			95.1			102.7			102.6		
MACHINE INDEX, PERCENT			98.9			94.2			97.2			96.9		

*See Table II for Notes A and B.

TABLE XII
SUMMARY OF TEST RESULTS FOR MACHINE K
MAY AND JUNE, 1969

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.				
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.		
K-1	4- 8-69	239	26.6	10.0	9.1	9.7	43.2	38.4	40.8	32.6	29.6	31.3	1.5	1.574
K-2	4-22-69	242	25.7	10.1	9.8	10.0	43.8	39.6	41.8	30.6	28.0	29.6	1.5	1.572
K-3	5-15-69	243	26.5	10.1	10.0	10.0	44.4	40.2	42.8	32.6	30.4	31.2	1.0	1.560
K-4	5-26-69	245	27.9	10.0	9.1	9.8	52.2	48.0	50.5	38.8	38.0	38.4	1.5	1.566
CURRENT MACHINE AVERAGE			26.7			9.9			44.0			32.6		1.568
CUMULATIVE MACHINE AVERAGE			27.5			9.8			43.3			31.4		
MACHINE FACTOR, PERCENT			97.1			101.0			101.6			103.8		
MACHINE INDEX, PERCENT			99.2			95.2			102.8			101.2		

TABLE XIII
SUMMARY OF TEST RESULTS FOR MACHINE L
MAY AND JUNE, 1969

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*8
L-1	3-26-69	11095	26.5	11.2	10.9	11.1	41.4	36.6	39.1	29.0	27.0	28.4	1.5	1.576
L-2	5- 2-69	532	26.8	13.0	11.9	12.3	43.8	37.8	40.4	27.4	25.0	26.4	0.5	1.570
L-3	5- 2-69	542	27.5	13.8	12.0	12.9	45.0	39.0	42.0	28.2	27.0	27.6	1.0	1.571
L-4	5-28-69	11452	27.0	12.0	11.1	11.7	46.8	43.2	44.6	33.0	31.0	32.1	1.5	1.574
CURRENT MACHINE AVERAGE			27.0			12.0			41.5			28.6		1.573
CUMULATIVE MACHINE AVERAGE			27.1			11.1			43.1			30.1		
MACHINE FACTOR, PERCENT			99.6			108.1			96.3			95.0		
MACHINE INDEX, PERCENT			100.4			115.4			97.0			88.8		

*See Table II for Notes A and B.

TABLE XIV
SUMMARY OF TEST RESULTS FOR MACHINE M
MAY AND JUNE, 1969

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*8
M-1	3-11-69	369-2	27.4	12.0	11.4	11.9	41.4	37.8	39.8	31.0	29.4	30.2	1.5	1.567
M-2	3-18-69	369-1	27.6	11.9	11.0	11.2	46.8	43.2	45.1	33.8	32.4	33.2	1.5	1.569
M-3	4-7-69	469-1	27.2	11.9	11.1	11.5	46.8	40.8	43.0	31.4	29.6	30.4	1.5	1.572
M-4	5-27-69	569-1	27.8	11.5	10.8	11.1	43.8	26.4	37.1	31.0	26.4	29.2	1.5	1.570
CURRENT MACHINE AVERAGE			27.5	11.4			41.2			30.8			1.570	
CUMULATIVE MACHINE AVERAGE			26.9	10.8			41.6			33.4				
MACHINE FACTOR, PERCENT			102.2	105.6			99.0			92.2				
MACHINE INDEX, PERCENT			102.2	109.6			96.3			95.6				

TABLE XV
SUMMARY OF TEST RESULTS FOR MACHINE N
MAY AND JUNE, 1969

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*8
N-1	4-16-69	803	26.1	10.3	9.4	9.9	44.4	39.6	42.4	32.0	30.0	31.0	1.5	1.574
N-2	5-2-69	804	27.4	10.5	9.2	10.0	45.0	40.8	43.3	37.4	33.6	35.2	1.5	1.572
N-3	5-18-69	805	26.6	10.6	9.7	10.0	48.6	40.2	44.2	34.6	32.4	33.3	1.5	1.570
N-4	6-2-69	806	26.1	10.3	9.2	9.9	44.4	39.0	41.9	33.0	31.0	32.1	1.5	1.563
CURRENT MACHINE AVERAGE			26.6	10.0			43.0			32.9			1.570	
CUMULATIVE MACHINE AVERAGE			26.4	10.1			41.8			32.1				
MACHINE FACTOR, PERCENT			100.8	99.0			102.9			102.5				
MACHINE INDEX, PERCENT			98.9	96.2			100.5			102.2				

*See Table II for Notes A and B.

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O

MAY AND JUNE, 1969

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	4-15-69	29	26.0	11.0	10.2	10.6	49.2	44.4	46.2	33.0	31.4	32.1	MIN.	1.553
O-2	4-20-69	30	24.9	9.0	8.8	8.9	44.4	40.2	42.4	33.0	31.6	32.4	1.0	1.566
O-3	5-5-69	31	26.8	11.3	11.0	11.1	45.0	36.6	41.3	34.4	31.8	33.0	MIN.	1.552
O-4	5-13-69	32	26.6	11.7	11.0	11.2	46.2	39.6	43.1	33.6	29.4	32.0	MIN.	1.551
CURRENT MACHINE AVERAGE			26.1			10.4			43.2			32.4		1.556
CUMULATIVE MACHINE AVERAGE			25.6			10.7			44.9			34.1		
MACHINE FACTOR, PERCENT			102.0			97.2			96.2			95.0		
MACHINE INDEX, PERCENT			97.0			100.0			100.9			100.6		

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P

MAY AND JUNE, 1969

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
P-1	5-6-69	736	25.6	10.8	10.1	10.2	46.2	40.2	43.3	30.6	30.0	30.3	1.0	1.561
P-2	5-25-69	3063	24.7	10.1	10.0	10.0	44.4	37.8	40.7	32.2	30.2	30.9	1.0	1.557
CURRENT MACHINE AVERAGE			25.2			10.1			42.0			30.6		1.559
CUMULATIVE MACHINE AVERAGE			26.5			10.6			43.6			32.9		
MACHINE FACTOR, PERCENT			95.1			95.3			96.3			93.0		
MACHINE INDEX, PERCENT			93.7			97.1			98.1			95.0		

*See Table II for Notes A and B.

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q

MAY AND JUNE, 1969

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
C-1	4-28-69	189	27.9	12.9	11.6	12.2	30.0	28.2	29.4	23.6	22.0	23.0	NOTE C	1.548
Q-2	5-11-69	190	29.0	12.0	11.1	11.6	49.8	43.8	46.9	31.0	28.4	29.9	NOTE D	1.555
Q-3	6- 2-69	197	27.9	11.0	10.5	10.8	51.6	42.0	47.5	35.4	33.0	34.2	NOTE E	1.557
Q-4	6- 2-69	198	26.8	10.3	10.0	10.2	49.2	37.2	42.8	33.0	30.2	32.2	NOTE E	1.560
CURRENT MACHINE AVERAGE			27.9	11.2			41.6			29.8			1.555	
CUMULATIVE MACHINE AVERAGE			27.5	11.4			40.9			29.9				
MACHINE FACTOR, PERCENT			101.4	98.2			101.7			99.7				
MACHINE INDEX, PERCENT			103.7	107.7			97.2			92.5				

*See Table II for Notes A and B.

C Maximum speed at which this roll could be corrugated at minimum tension was 100 f.p.m.

D Maximum speed at which this roll could be corrugated at minimum tension was 350 f.p.m.

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

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R

MAY AND JUNE, 1969

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
R-1	4-21-69	1999	27.5	10.9	10.1	10.6	43.8	39.6	41.5	33.8	30.0	31.9	1.5	1.560
R-2	4-21-69	2000	27.4	11.2	10.2	10.9	46.8	40.8	43.4	33.6	29.8	31.6	1.5	1.561
R-3	5- 9-69	2007	27.8	11.9	11.0	11.2	46.2	40.2	42.5	29.2	28.0	28.8	0.5	1.558
R-4	5- 9-69	2008	27.5	11.0	10.3	10.8	45.6	38.4	41.0	31.4	26.6	28.7	MIN.	1.556
CURRENT MACHINE AVERAGE			27.6	10.9			42.1			30.2			1.559	
CUMULATIVE MACHINE AVERAGE			27.4	10.8			42.8			30.1				
MACHINE FACTOR, PERCENT			100.7	100.9			98.4			100.3				
MACHINE INDEX, PERCENT			102.6	104.8			98.4			93.8				

TABLE XX
SUMMARY OF TEST RESULTS FOR MACHINE S
MAY AND JUNE, 1969

TYPE OF MEDIUM- SEMICHEMICAL														
CODE	DATE MACE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.				
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.		
S-1	5-18-69		27.1	10.0	9.1	9.7	48.0	43.8	45.6	33.8	31.6	32.8	1.5	1.569
S-2	5-19-69		27.4	10.0	9.9	9.9	49.8	43.8	47.0	36.8	32.8	35.6	1.5	1.567
S-3	6-10-69		26.7	9.8	9.1	9.4	42.6	40.8	41.6	34.8	31.0	33.0	1.5	1.574
S-4	6-11-69		26.9	9.7	9.0	9.3	46.8	40.8	44.9	34.4	31.4	33.0	1.5	1.571
CURRENT MACHINE AVERAGE			27.0	9.6			44.8			33.6			1.570	
CUMULATIVE MACHINE AVERAGE			26.7	9.6			44.7			33.4				
MACHINE FACTOR, PERCENT			101.1	100.0			100.2			100.6				
MACHINE INDEX, PERCENT			100.4	92.3			104.7			104.3				

TABLE XXI
SUMMARY OF TEST RESULTS FOR MACHINE T
MAY AND JUNE, 1969

TYPE OF MEDIUM- SEMICHEMICAL														
CODE	DATE MACE	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
T-1	3-8-69	702	26.9	10.8	10.0	10.2	52.8	48.0	50.6	38.8	36.6	37.6	1.5	1.574
T-2	3-18-69	703	27.9	10.5	10.0	10.2	60.6	51.6	56.2	43.2	39.4	41.4	1.5	1.570
T-3	4-8-69	704	28.2	11.1	10.0	10.6	55.2	49.2	52.2	40.2	37.0	38.4	1.5	1.574
T-4	4-14-69	705	28.1	11.1	10.0	10.6	54.0	51.0	52.7	39.2	36.8	37.6	1.5	1.574
CURRENT MACHINE AVERAGE			27.8	10.4			52.9			38.8			1.573	
CUMULATIVE MACHINE AVERAGE			28.1	10.2			49.8			37.9				
MACHINE FACTOR, PERCENT			98.9	102.0			106.2			102.4				
MACHINE INDEX, PERCENT			103.3	100.0			123.6			120.5				

*See Table II for Notes A and B.

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U
MAY AND JUNE, 1969

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
U-1	4-19-69	332	26.8	10.0	9.2	9.7	50.4	43.2	45.7	35.4	30.4	33.4	1.5	1.572
U-2	5- 5-69	333	26.6	10.0	9.9	10.0	42.0	34.8	39.7	33.0	29.8	31.4	1.5	1.569
U-3	5-21-69	334	25.4	10.2	9.8	10.0	42.0	40.2	41.5	32.0	30.6	31.2	1.5	1.571
U-4	6- 3-69	335	26.6	10.0	9.3	9.7	45.6	40.8	43.4	33.8	32.2	33.2	1.5	1.575
CURRENT MACHINE AVERAGE			26.4			9.8			42.6			32.3		1.572
CUMULATIVE MACHINE AVERAGE			26.9			9.6			41.6			31.0		
MACHINE FACTOR, PERCENT			98.1			102.1			102.4			104.2		
MACHINE INDEX, PERCENT			98.1			94.2			99.5			100.3		

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V
MAY AND JUNE, 1969

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
V-1	3-24-69	5	26.3	9.8	8.2	9.0	48.0	40.2	43.8	34.4	32.0	33.3	1.5	1.569
V-2	4-14-69	6	26.3	9.8	9.0	9.1	46.2	42.6	44.8	31.8	29.4	30.7	1.5	1.575
V-3	4-21-69	7	28.0	10.1	9.0	9.8	47.4	40.2	43.9	38.6	36.4	37.6	1.5	1.563
V-4	5- 7-69	8	26.4	9.1	8.7	8.9	45.6	40.2	43.7	35.0	31.2	32.4	1.5	1.570
CURRENT MACHINE AVERAGE			26.8			9.2			44.0			33.5		1.569
CUMULATIVE MACHINE AVERAGE			27.6			10.0			41.2			31.8		
MACHINE FACTOR, PERCENT			97.1			92.0			106.8			105.3		
MACHINE INDEX, PERCENT			99.6			88.5			102.8			104.0		

*See Table II for Notes A and B.

TABLE XXIV
SUMMARY OF TEST RESULTS FOR MACHINE W
MAY AND JUNE, 1969

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.		
W-1	4- 2-69	828	24.8	10.8	9.9	10.2	53.4	49.2	51.2	37.0	35.8	36.6	0.5	1.560
CURRENT MACHINE AVERAGE			24.8				10.2			51.2			36.6	
CUMULATIVE MACHINE AVERAGE			26.6				10.3			46.8			36.5	
MACHINE FACTOR, PERCENT			93.2				99.0			109.4			100.3	
MACHINE INDEX, PERCENT			92.2				98.1			119.6			113.7	

TABLE XXV
SUMMARY OF TEST RESULTS FOR MACHINE X
MAY AND JUNE, 1969

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.		
X-1	3-12-69	662	26.3	10.0	9.2	9.9	47.4	40.8	43.3	34.2	32.4	33.4	1.5	1.566
X-2	3-26-69	663	28.2	10.9	10.1	10.7	51.6	42.6	46.2	36.0	33.0	33.9	1.5	1.566
X-3	4- 9-69	664	27.0	9.9	9.0	9.6	48.6	41.4	44.5	34.8	31.0	33.3	1.5	1.566
X-4	4-23-69	665	28.4	10.9	10.0	10.5	46.8	43.2	44.9	34.6	32.8	34.2	1.5	1.567
CURRENT MACHINE AVERAGE			27.5				10.2			44.7			33.7	
CUMULATIVE MACHINE AVERAGE			27.4				10.3			45.0			33.4	
MACHINE FACTOR, PERCENT			100.4				99.0			99.3			100.9	
MACHINE INDEX, PERCENT			102.2				98.1			104.4			104.6	

* See Table II for Notes A and B.

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y
MAY AND JUNE, 1969

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
Y-1	4-11-69	240	27.0	10.1	10.0	10.0	44.4	39.6	41.2	32.4	28.8	30.7	1.5	1.567
Y-2	4-18-69	241	26.2	10.1	9.4	9.9	46.2	42.0	44.0	32.6	30.8	31.9	1.5	1.569
Y-3	5-26-69	244	27.1	9.2	9.0	9.1	51.6	45.0	48.6	38.8	38.2	38.4	1.0	1.563
Y-4	5-30-69	246	27.8	10.6	10.0	10.1	52.2	44.4	48.4	38.4	35.6	37.1	1.5	1.572
CURRENT MACHINE AVERAGE			27.0		9.8			45.6			34.5			1.568
CUMULATIVE MACHINE AVERAGE			27.2		10.2			43.0			31.5			
MACHINE FACTOR, PERCENT			99.3		96.1			106.0			109.5			
MACHINE INDEX, PERCENT			100.4		94.2			106.5			107.1			

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z
MAY AND JUNE, 1969

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
Z-1	4-30-69	195	26.8	10.0	9.1	9.6	48.6	43.8	46.7	36.4	34.4	35.1	1.5	1.570
Z-2	4-30-69	196	26.5	10.1	9.7	9.9	47.4	40.2	44.5	36.2	34.0	35.1	1.5	1.574
CURRENT MACHINE AVERAGE			26.6		9.8			45.6			35.1			1.572
CUMULATIVE MACHINE AVERAGE			26.2		10.1			40.1			30.4			
MACHINE FACTOR, PERCENT			101.5		97.0			113.7			115.5			
MACHINE INDEX, PERCENT			98.9		94.2			106.5			109.0			

*See Table II for Notes A and B.

TABLE XXVIII
SUMMARY OF TEST RESULTS FOR MACHINE AA
MAY AND JUNE, 1969

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
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A FACTOR*B
AA-1	5- 3-69	7259	26.5	10.2	9.9	10.1	46.8	43.8	45.8	34.0	32.6	33.1	1.5
AA-2	5- 7-69	7388	26.7	10.5	9.9	10.0	51.6	47.4	49.4	37.6	34.6	36.1	1.5
CURRENT MACHINE AVERAGE			26.6			10.0			47.6			34.6	1.573
CUMULATIVE MACHINE AVERAGE			26.8			9.7			41.4			31.3	
MACHINE FACTOR, PERCENT			99.2			103.1			115.0			110.5	
MACHINE INDEX, PERCENT			98.9			96.2			111.2			107.4	

TABLE XXIX
SUMMARY OF TEST RESULTS FOR MACHINE BB
MAY AND JUNE, 1969

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
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A FACTOR*B
BB-1	4-11-69	2	26.8	10.9	10.0	10.4	47.4	40.2	44.0	33.6	30.6	32.8	1.5
BB-2	4-24-69	4	26.2	10.0	9.5	9.9	43.2	36.6	40.0	30.4	27.0	28.9	1.5
BB-3	5- 7-69	6	25.3	9.1	8.5	9.0	43.2	33.0	39.8	31.4	26.6	29.6	1.5
BB-4	5-19-69	8	26.2	10.0	9.1	9.9	42.0	34.8	39.2	30.2	29.0	29.8	1.5
CURRENT MACHINE AVERAGE			26.1			9.8			40.8			30.3	1.566
CUMULATIVE MACHINE AVERAGE			26.2			10.2			40.9			31.0	
MACHINE FACTOR, PERCENT			99.6			96.1			99.8			97.7	
MACHINE INDEX, PERCENT			97.0			94.2			95.3			94.1	

*See Table II for Notes A and B.

TABLE XXX

SUMMARY OF TEST RESULTS FOR MACHINE CC

MAY AND JUNE, 1969

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CONCORA FLAT CRUSH, P.S.I.						SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY		
				CALIPER, PT.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*8
CC-1	5-18-69		26.8	10.3	9.9	10.1		50.4	44.4	46.7	39.6	35.8	37.0	1.5	1.567
CC-2	5-19-69		27.1	10.8	10.0	10.2		49.8	45.6	47.0	37.4	36.6	37.1	1.5	1.568
CC-3	6-10-69		26.3	10.3	9.3	10.0		47.4	40.2	43.9	34.6	33.0	34.0	1.5	1.568
CC-4	6-11-69		25.7	10.2	9.8	10.0		45.0	37.8	40.8	33.8	31.0	32.2	1.5	1.569
CURRENT MACHINE AVERAGE			26.5			10.1							35.1		1.568
CUMULATIVE MACHINE AVERAGE			27.0			10.6							34.2		
MACHINE FACTOR, PERCENT			98.1			95.3							102.6		
MACHINE INDEX, PERCENT			98.5			97.1							109.0		

TABLE XXXI

SUMMARY OF TEST RESULTS FOR MACHINE DD

MAY AND JUNE, 1969

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CONCORA FLAT CRUSH, P.S.I.						SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY		
				CALIPER, PT.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*8
DD-1	3-27-69	7197	25.4	10.0	9.0	9.3		48.0	41.4	44.9	34.4	32.0	33.4	1.5	1.571
DD-2	3-31-69	7323	26.3	10.2	9.8	10.0		46.2	44.4	45.2	34.4	33.2	34.0	1.5	1.572
DD-3	4-9-69	7600	26.5	10.0	9.3	9.8		52.2	46.8	48.1	34.8	31.6	34.0	1.5	1.574
DD-4	4-14-69	7807	26.3	10.1	10.0	10.0		45.6	40.8	43.0	34.8	31.2	33.4	1.5	1.571
CURRENT MACHINE AVERAGE			26.1			9.8							33.7		1.572
CUMULATIVE MACHINE AVERAGE			26.5			10.6							34.0		
MACHINE FACTOR, PERCENT			98.5			92.4							99.1		
MACHINE INDEX, PERCENT			97.0			94.2							104.6		

*See Table II for Notes A and B.

DISCUSSION OF RESULTS

Shown on page 2, Part II, Section "A" of the Summary are the maximum and minimum current machine averages obtained for each test property during the current period and the previous period. 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 for each test property 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 six periods.

The runnability data for the 108 rolls evaluated during the current period and the 116 rolls evaluated during the previous period are summarized on page 2, Part II, Section "B" of the Summary.

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 XXXI for Machines A through Z and Machines AA, BB, CC, and DD, respectively.

In Table XXXII, an effort has been made to compare Institute and mill Concora flat crush test results for each machine for the current period. The following information is presented in this table: (1) Current machine averages 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 the current machine average based on mill data, and (4) the average differences expressed as percentage differences, along with the percent differences of the previous two-month period. In those cases where mill Concora flat crush data

TABLE XXXII

A COMPARATIVE SUMMARY FOR EACH MACHINE OF THE CONCORA
FLAT CRUSH AVERAGES BASED ON INSTITUTE DATA AND MILL DATA

Machine Code	No. of Rolls Compared	Concora Flat Crush, p.s.i.			<u>Av. Diff., %^c</u>	
		I.P.C. ^a Av.	Mill ^a Av.	Av. Diff. ^b	Current	Previous
A	3	38.9	34.6	-4.3	-11.1	-8.9
B	4	44.5	47.9	+3.4	+7.6	+6.2
C	0	47.5	40.2 ^d	--	--	--
D	4	45.4	44.5	-0.9	-2.0	+2.6
E	0	48.4	36.2 ^d	--	--	--
F	4	38.4	34.8	-3.6	-9.4	--
G	4	43.9	37.3	-6.6	-15.0	-5.8
H	3	39.6	41.1	+1.5	+3.8	-0.3
I	4	44.1	38.6 ^d	-5.5	-12.5	-6.8
J	0	41.6	34.4 ^d	--	--	--
K	4	44.0	42.6	-1.4	-3.2	-2.8
L	4	41.5	37.3	-4.2	-10.1	-10.1
M	4	41.2	44.6	+3.4	+8.3	--
N	4	43.0	39.8	-3.2	-7.4	-3.8
O	4	43.2	41.3	-1.9	-4.4	--
P	2	42.0	41.8	-0.2	-0.5	-1.9
Q	1	46.9	45.4 ^d	-1.5	-3.2	-1.1
R	0	42.1	32.6 ^d	--	--	--
S	4	44.8	44.3 ^d	-0.5	-1.1	+1.9
T	0	52.9	41.7 ^d	--	--	--
U	4	42.6	36.9	-5.7	-13.4	-7.4
V	4	44.0	41.2 ^d	-2.8	-6.4	-2.7
W	0	51.2	39.8 ^d	--	--	--
X	4	44.7	43.2	-1.5	-3.4	-5.4
Y	4	45.6	43.4	-2.2	-4.8	-2.7
Z	2	45.6	45.2	-0.4	-0.9	-1.0
AA	2	47.6	47.0 ^d	-0.6	-1.3	--
BB	0	40.8	31.0 ^d	--	--	--
CC	4	44.6	45.1	+0.5	+1.1	0.0
DD	4	45.3	42.4	-2.9	-6.4	-6.5

^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.

^cAverage difference (percent) is computed by dividing the average difference in p.s.i. by the Institute current machine average and multiplying by 100.

^dMill data were not obtained on specimens tested immediately after fluting.

are still obtained on specimens conditioned after fluting, no average differences between current machine averages based on Institute and mill data are shown. 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 an 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.

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