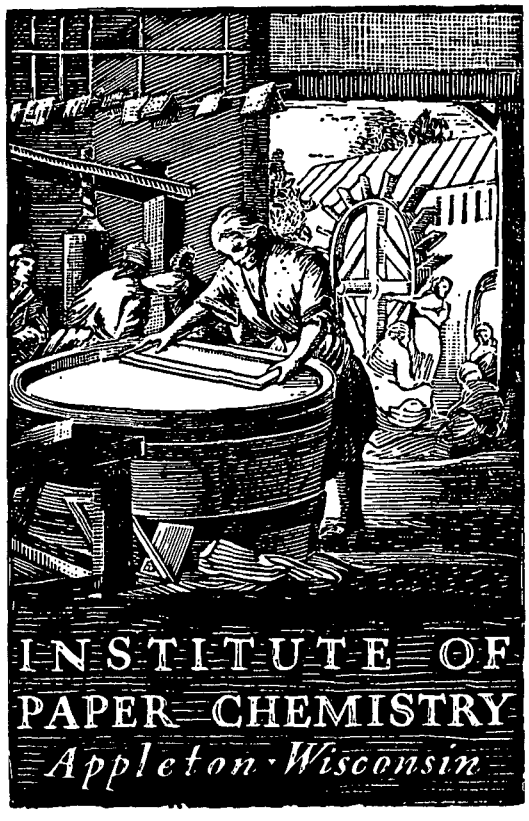

BASE-LINE

(SEPTEMBER-OCTOBER, 1970)

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

(Data for September and October, 1970)

Project 2694-2

Report Twenty-Two

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

November 20, 1970

BASE-LINE
(SEPTEMBER-OCTOBER, 1970)

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 September and October, 1970)

SUMMARY

PART I. GENERAL

A. Participation Data:

	Current Period	Previous Period
Period	Sept.-Oct., 1970	July-August, 1970
Number of machines	27	30
Number of rolls	91	102

B. Distribution of Mediums by Type:

Semichemical	27	28
Bogus	0	2
Kraft	0	0

C. New Participants: None None

D. Nonparticipants:

	Current Period	Previous Period
1.	Alton Box (Alton Nos. 3 & 4)	Chesapeake (West Point)
2.	Chesapeake (West Point)	Continental Can (Hopewell No. 1)
3.	Container Corp. (Circleville No. 5)	The Mead Corp. (Lynchburg No. 2)
4.	Continental Can (Hodge No. 1 & Hopewell No. 1)	Olinkraft (West Monroe Nos. 1 & 3)
5.	Crown Zellerbach (Baltimore Nos. 1 & 2)	Owens-Illinois (Tomahawk No. 1)
6.	Olinkraft (West Monroe Nos. 1, 2, & 3)	St. Joe Paper Co. (Port St. Joe No. 1)
7.	St. Joe (Port St. Joe No. 1)	St. Regis Paper Co. (Coshocton No. 1)
8.	St. Regis (Coshocton No. 1)	Union Camp Corp. (Monroe No. 2)
9.	Union Camp (Monroe No. 2)	Westvaco (Covington Nos. 6 & 7)
10.	Westvaco (Covington No. 6)	Weyerhaeuser (Longview No. 4)

PART II. QUALITY DATA

A. Summary of Physical Test Data

Test	Report	Machine Averages Max.	Machine Averages Min.	F.K.I. Averages Current	F.K.I. Averages Cumulative
Basis weight, lb./1000 ft.^{2}	Cur.	28.0	25.4	26.5	26.7
	Prev.	27.9	25.4	26.7	26.8
Caliper, pt.	Cur.	11.5	9.1	10.0	10.2
	Prev.	12.1	9.1	10.1	10.2
Concora flat crush, p.s.i.	Cur.	48.9	33.4	43.3	41.9
	Prev.	50.1	32.0	42.2	42.0
Single-face flat crush, p.s.i.	Cur.	36.2	24.5	31.7	31.1
	Prev.	38.2	22.9	31.4	31.4

B. Summary of Runnability Data

Runnability Speed, f.p.m.	Runnability Tension, lb./in.	Current Period No. of Rolls	Current Period % of Total	Current Period Cum., %	Previous Period No. of Rolls	Previous Period % of Total	Previous Period Cum., %
<600	Min.	7	7.7	100.0	6	5.9	100.0
600	Min.	18	19.8	92.3	19	18.6	94.1
600	1/2	12	13.2	72.5	16	15.7	75.5
600	1	14	15.4	59.3	20	19.6	59.8
600	1-1/2	40	43.9	43.9	41	40.2	40.2

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

Physical Tests:

Basis weight:	Decreased from 26.7 to 26.5 lb./M ft.^{2}
Caliper:	Decreased from 10.1 to 10.0 pt.
Concora flat crush:	Increased from 42.2 to 43.3 p.s.i.
Single-face flat crush:	Increased from 31.4 to 31.7 p.s.i.

Runnability:

<600 f.p.m. at minimum tension:	Increased from 5.9 to 7.7%.
600 f.p.m. at minimum tension:	Increased from 18.6 to 19.8%.
600 f.p.m. at 1/2 lb./in. tension:	Decreased from 15.7 to 13.2%.
600 f.p.m. at 1 lb./in. tension:	Decreased from 19.6 to 15.4%.
600 f.p.m. at 1-1/2 lb./in. tension:	Increased from 40.2 to 44.0%.

Comments: The current runnability compares favorably with that of the previous report.

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
± 1.0	3	13.6	1	4.2
± 2.5	7	31.8	9	37.5
± 5.0	14	63.6	17	70.8
±10.0	21	95.5	23	95.8
±15.0	22	100.0[a]	24	100.0[b]

B. Significance of Calibration Data

The current level of agreement between Institute and mill Concora flat crush data compares favorably with that of the previous report.

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[a] Maximum percentage difference was -12.2.

[b] Maximum percentage difference was -11.9.

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, 1961. The current report summarizes the data obtained during September and October, 1970, on 91 rolls of corrugating medium submitted for evaluation from twenty-seven 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. 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

SEPT. AND OCT., 1970

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	4	SEMICHEMICAL	27.6	10.2	42.7	30.4
B	4	SEMICHEMICAL	26.4	10.1	46.0	33.4
C	4	SEMICHEMICAL	26.5	9.9	39.1	28.9
D	4	SEMICHEMICAL	26.8	9.1	43.4	31.6
E	4	SEMICHEMICAL	27.1	9.8	44.6	33.6
F	3	SEMICHEMICAL	27.3	9.9	44.8	33.1
G	1	SEMICHEMICAL	26.7	10.0	41.3	30.9
H	4	SEMICHEMICAL	25.4	10.1	48.4	35.5
I	4	SEMICHEMICAL	27.3	10.3	46.0	33.9
J	2	SEMICHEMICAL	25.4	10.4	40.1	28.4
K	1	SEMICHEMICAL	26.5	10.1	42.4	30.2
L	4	SEMICHEMICAL	26.6	10.4	43.4	30.2
M	4	SEMICHEMICAL	28.0	9.5	48.2	36.2
N	4	SEMICHEMICAL	25.9	9.4	38.6	28.5
O	2	SEMICHEMICAL	26.0	9.7	33.4	24.5
P	4	SEMICHEMICAL	26.8	10.1	39.0	27.2
Q	4	SEMICHEMICAL	26.4	9.7	43.2	31.8
R	4	SEMICHEMICAL	25.8	10.2	47.9	35.1
S	4	SEMICHEMICAL	25.7	9.5	36.8	27.3
T	1	SEMICHEMICAL	26.7	10.0	43.4	31.0
U	3	SEMICHEMICAL	26.1	10.4	43.7	32.6
V	2	SEMICHEMICAL	27.0	9.5	48.9	36.0
W	4	SEMICHEMICAL	26.4	10.4	42.8	32.0
X	4	SEMICHEMICAL	25.6	10.1	45.5	35.6
Y	4	SEMICHEMICAL	26.6	9.7	43.6	32.0
Z	4	SEMICHEMICAL	26.9	10.7	47.6	34.0
AA	4	SEMICHEMICAL	26.9	11.5	45.1	32.2
TOTAL	91					
CURRENT F.K.I. AVERAGE			26.5	10.0	43.3	31.7
CUMULATIVE F.K.I. AVERAGE			26.7	10.2	41.9	31.1
F.K.I. INDEX, PERCENT			99.2	98.0	103.3	101.9

The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXVIII for Machines A through Z and Machine AA, 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 XXVIII 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

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
A-1	8-10-70	2120	27.4	10.2	10.0	10.1	46.2	42.0	44.3	31.6	30.0	30.8	0.5	1.553
A-2	8-25-70	2126	27.9	10.5	10.0	10.1	44.4	39.6	42.7	31.2	29.2	30.0	MIN.	1.548
A-3	9- 7-70	2127	27.9	10.9	10.0	10.4	45.6	38.4	41.8	31.2	29.0	30.5	0.5	1.551
A-4	9-22-70	2134	27.1	10.3	10.0	10.0	43.8	39.0	41.9	30.6	29.2	30.1	0.5	1.558
CURRENT MACHINE AVERAGE			27.6			10.2			42.7			30.4		1.553
CUMULATIVE MACHINE AVERAGE			27.1			10.4			40.8			29.3		
MACHINE FACTOR, PERCENT			101.8			98.1			104.6			103.8		
MACHINE INDEX, PERCENT			103.4			100.0			101.9			97.7		

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

[B] 600 f.p.m. minimum tension.

TABLE III

SUMMARY OF TEST RESULTS FOR MACHINE B

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
B-1	8-14-70		25.8	10.2	9.8	10.0	46.8	39.6	44.0	32.2	30.2	31.4	1.0	1.560
B-2	8-15-70		26.5	10.6	10.0	10.2	46.8	41.4	44.0	34.0	31.6	33.0	0.5	1.557
B-3	8-16-70		26.8	10.8	9.9	10.2	54.0	46.2	49.1	36.0	34.0	35.2	MIN.	1.551
B-4	8-17-70		26.6	10.1	9.9	10.0	49.2	43.2	46.9	35.0	33.2	34.2	MIN.	1.546
CURRENT MACHINE AVERAGE			26.4			10.1			46.0			33.4		1.554
CUMULATIVE MACHINE AVERAGE			26.6			9.5			44.0			33.1		
MACHINE FACTOR, PERCENT			99.2			106.3			104.5			100.9		
MACHINE INDEX, PERCENT			98.9			99.0			109.8			107.4		

TABLE IV

SUMMARY OF TEST RESULTS FOR MACHINE C

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY DRAW LB./IN.*A	RUNNABILITY DRAW FACTOR*B
C-1	8-20-70	364	26.0	10.0	9.4	9.9	46.2	37.8	40.9	31.8	30.0	30.9	1.5	1.573
C-2	9- 5-70	365	26.8	10.1	9.2	9.9	42.6	38.4	40.6	30.0	27.4	28.8	1.5	1.569
C-3	9-22-70	366	26.8	10.2	9.9	10.0	40.2	31.2	37.1	28.4	26.8	27.6	1.5	1.579
C-4	10- 5-70	367	26.5	10.1	9.6	9.8	42.6	33.0	37.7	28.8	27.6	28.3	1.5	1.570
CURRENT MACHINE AVERAGE			26.5			9.9			39.1			28.9		1.573
CUMULATIVE MACHINE AVERAGE			26.7			9.8			39.3			29.0		
MACHINE FACTOR, PERCENT			99.2			101.0			99.5			99.6		
MACHINE INDEX, PERCENT			99.2			97.0			93.3			92.9		

TABLE V

SUMMARY OF TEST RESULTS FOR MACHINE D

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY DRAW LB./IN.*A	RUNNABILITY DRAW FACTOR*B
D-1	8- 3-70	302	26.8	9.2	8.8	9.0	46.8	40.8	44.2	33.4	29.4	31.2	NOTE C	1.543
D-2	8- 8-70	303	26.8	9.3	8.9	9.0	46.2	39.6	43.8	32.8	31.4	32.2	MIN.	1.537
D-3	9-15-70	307	26.0	10.0	9.2	9.7	42.0	36.0	39.4	30.6	27.4	28.8	NOTE D	1.558
D-4	9-23-70	308	27.6	9.1	8.1	8.8	48.0	45.0	46.2	34.6	33.4	34.0	NOTE E	1.548
CURRENT MACHINE AVERAGE			26.8			9.1			43.4			31.6		1.547
CUMULATIVE MACHINE AVERAGE			27.4			9.2			44.4			33.4		
MACHINE FACTOR, PERCENT			97.8			98.9			97.7			94.6		
MACHINE INDEX, PERCENT			100.4			89.2			103.6			101.6		

*See Table II for Notes A and B.

[C]Maximum speed at which this roll could be corrugated with minimum tension was 450 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 250 f.p.m.

TABLE VI

SUMMARY OF TEST RESULTS FOR MACHINE E

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
E-1	7-30-70	15	26.5	10.5	9.9	10.1	41.4	37.2	39.5	31.0	26.2	28.6	MIN.	1.555
E-2	8- 8-70	16	26.9	9.1	8.3	8.9	54.6	48.0	52.6	43.8	39.0	42.0	1.5	1.568
E-3	8-28-70	17	27.2	9.5	9.0	9.2	43.8	37.8	40.7	30.6	28.8	29.8	MIN.	1.551
E-4	9-23-70	18	27.9	11.1	10.1	10.8	46.8	44.4	45.5	36.4	31.6	34.1	0.5	1.561
CURRENT MACHINE AVERAGE			27.1			9.8			44.6			33.6		1.559
CUMULATIVE MACHINE AVERAGE			27.2			10.1			42.3			31.7		
MACHINE FACTOR, PERCENT			99.6			97.0			105.4			106.0		
MACHINE INDEX, PERCENT			101.5			96.1			106.4			108.0		

TABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
F-1	8-16-70	306-1	26.7	10.0	9.1	9.6	49.8	42.0	45.1	37.6	30.8	33.8	MIN.	1.557
F-2	9- 7-70	732-1	27.8	10.1	9.8	10.0	45.6	40.8	43.6	33.0	31.6	32.4	1.5	1.578
F-3	9- 8-70	779-2	27.4	10.8	9.9	10.1	49.8	40.8	45.6	33.6	31.8	33.1	0.5	1.573
CURRENT MACHINE AVERAGE			27.3			9.9			44.8			33.1		1.570
CUMULATIVE MACHINE AVERAGE			26.8			9.8			45.5			34.2		
MACHINE FACTOR, PERCENT			101.9			101.0			98.5			96.8		
MACHINE INDEX, PERCENT			102.2			97.0			106.9			106.4		

*See Table II for Notes A and B.

TABLE VIII

SUMMARY OF TEST RESULTS FOR MACHINE G

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
G-1	9- 4-70	113	26.7	10.1	9.9	10.0	44.4	39.0	41.3	32.0	30.0	30.9	1.5	1.568
CURRENT MACHINE AVERAGE			26.7			10.0			41.3			30.9		1.568
CUMULATIVE MACHINE AVERAGE			26.1			10.3			39.6			29.6		
MACHINE FACTOR, PERCENT			102.3			97.1			104.3			104.4		
MACHINE INDEX, PERCENT			100.0			98.0			98.6			99.4		

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE H

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
H-1	8-20-70	843	25.5	10.9	9.8	10.3	49.2	46.8	48.7	36.2	34.6	35.3	1.5	1.567
H-2	8-22-70	844	24.9	10.8	9.8	10.1	48.0	42.6	45.7	34.2	31.8	33.0	1.0	1.557
H-3	9-26-70	845	25.4	10.0	9.1	9.9	51.6	48.0	49.9	37.8	36.0	37.0	1.5	1.567
H-4	9-30-70	846	26.0	10.8	9.2	10.0	52.2	46.2	49.2	37.4	35.6	36.6	1.5	1.567
CURRENT MACHINE AVERAGE			25.4			10.1			48.4			35.5		1.565
CUMULATIVE MACHINE AVERAGE			25.7			10.2			47.2			35.2		
MACHINE FACTOR, PERCENT			98.8			99.0			102.5			100.8		
MACHINE INDEX, PERCENT			95.1			99.0			115.5			114.1		

*See Table II for Notes A and B.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
I-1	8-27-70	4	25.5	10.1	9.9	10.0	41.4	37.8	40.0	31.2	28.4	30.0	1.5	1.567
I-2	8-31-70	5	28.1	11.0	10.8	10.9	51.0	42.0	45.6	34.8	31.0	33.2	1.5	1.565
I-3	10- 3-70	6	27.7	10.3	9.9	10.1	52.8	43.8	48.5	35.6	33.8	35.0	1.5	1.570
I-4	10- 3-70	7	27.8	10.3	9.9	10.1	52.8	46.2	49.8	38.0	36.6	37.4	1.5	1.572
CURRENT MACHINE AVERAGE			27.3			10.3			46.0			33.9		1.569
CUMULATIVE MACHINE AVERAGE			26.6			9.8			47.4			35.0		
MACHINE FACTOR, PERCENT			102.6			105.1			97.0			96.8		
MACHINE INDEX, PERCENT			102.2			101.0			109.8			109.0		

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
J-1	8-11-70	7415	24.9	10.1	9.1	9.9	45.6	37.8	41.9	31.0	28.8	29.8	MIN.	1.565
J-2	9- 3-70	9844	25.8	11.0	10.3	10.8	39.0	36.6	38.3	28.8	26.2	27.1	MIN.	1.569
CURRENT MACHINE AVERAGE			25.4			10.4			40.1			28.4		1.567
CUMULATIVE MACHINE AVERAGE			25.9			10.0			39.2			30.0		
MACHINE FACTOR, PERCENT			98.1			104.0			102.3			94.7		
MACHINE INDEX, PERCENT			95.1			102.0			95.7			91.3		

* See Table II for Notes A and B.

TABLE XII

SUMMARY OF TEST RESULTS FOR MACHINE K

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
K-1	8-12-70	168	26.5	10.5	9.9	10.1	44.4	40.8	42.4	31.2	29.4	30.2	0.5	1.559
CURRENT MACHINE AVERAGE			26.5			10.1			42.4			30.2		1.559
CUMULATIVE MACHINE AVERAGE			26.4			10.0			41.4			31.8		
MACHINE FACTOR, PERCENT			100.4			101.0			102.4			95.0		
MACHINE INDEX, PERCENT			99.2			99.0			101.2			97.1		

TABLE XIII

SUMMARY OF TEST RESULTS FOR MACHINE L

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
L-1	10- 7-70		27.0	10.9	10.1	10.7	47.4	41.4	44.8	30.8	29.6	30.2	1.0	1.565
L-2	10- 8-70		26.9	11.0	10.0	10.5	51.6	42.0	47.2	35.6	33.6	34.6	1.0	1.562
L-3	10-13-70		26.0	10.1	9.9	10.0	45.0	36.6	40.7	27.8	27.2	27.6	1.5	1.574
L-4	10-14-70		26.3	10.8	10.0	10.3	43.2	39.0	40.8	29.8	27.0	28.2	1.5	1.577
CURRENT MACHINE AVERAGE			26.6			10.4			43.4			30.2		1.570
CUMULATIVE MACHINE AVERAGE			26.8			10.3			44.0			32.1		
MACHINE FACTOR, PERCENT			99.2			101.0			98.6			94.1		
MACHINE INDEX, PERCENT			99.6			102.0			103.6			97.1		

*See Table II for Notes A and B.

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE M

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
M-1	8-11-70	304	27.9	10.0	9.0	9.7	49.2	44.4	46.2	36.6	33.0	34.6	1.5	1.567
M-2	8-25-70	305	28.0	10.0	9.1	9.8	49.2	42.0	45.0	36.4	33.8	34.7	1.5	1.569
M-3	9- 6-70	306	27.9	9.2	8.4	9.0	51.0	48.0	49.8	36.8	36.2	36.6	MIN.	1.552
M-4	10- 2-70	309	28.3	10.0	9.1	9.6	53.4	48.0	52.0	39.6	38.0	39.0	NOTE C	1.550
CURRENT MACHINE AVERAGE			28.0			9.5			48.2			36.2		1.560
CUMULATIVE MACHINE AVERAGE			27.5			9.4			44.2			33.5		
MACHINE FACTOR, PERCENT			101.8			101.1			109.0			108.0		
MACHINE INDEX, PERCENT			104.9			93.1			115.0			116.4		

*See Table II for Notes A and B.

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

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE N

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
N-1	7-31-70	25	25.7	10.0	9.0	9.3	44.4	32.4	37.7	28.8	26.6	27.8	1.5	1.558
N-2	8-13-70	27	25.2	9.9	9.1	9.5	43.2	36.0	40.0	30.4	27.4	29.0	0.5	1.559
N-3	8-26-70	29	27.0	10.0	8.2	8.8	47.4	30.6	40.0	31.0	29.6	30.4	1.0	1.551
N-4	9-11-70	31	25.7	10.9	9.9	10.2	38.4	33.6	36.6	27.6	26.2	26.8	1.0	1.550
CURRENT MACHINE AVERAGE			25.9			9.4			38.6			28.5		1.555
CUMULATIVE MACHINE AVERAGE			26.6			10.4			38.4			28.8		
MACHINE FACTOR, PERCENT			97.4			90.4			100.5			99.0		
MACHINE INDEX, PERCENT			97.0			92.2			92.1			91.6		

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
O-1	9-11-70	I-1	26.0	10.0	9.0	9.6	36.6	30.6	32.8	25.6	23.6	24.4	NOTE C	1.556
O-2	9-11-70	I-2	26.0	10.1	9.2	9.8	36.6	31.8	34.0	25.2	24.2	24.6	NOTE C	1.557
CURRENT MACHINE AVERAGE			26.0			9.7			33.4			24.5		1.557
CUMULATIVE MACHINE AVERAGE			26.4			9.6			33.1			25.2		
MACHINE FACTOR, PERCENT			98.5			101.0			100.9			97.2		
MACHINE INDEX, PERCENT			97.4			95.1			79.7			78.8		

*See Table II for Notes A and B.

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

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
P-1	9- 9-70	258	26.4	9.9	9.0	9.4	41.4	37.8	40.0	29.4	27.8	28.5	MIN.	1.557
P-2	9-20-70	259	26.9	10.8	10.0	10.2	38.4	34.8	36.7	27.6	25.2	26.6	MIN.	1.555
P-3	9-26-70	260	27.1	10.9	9.9	10.3	42.0	36.6	40.3	28.8	27.4	28.1	NOTE C	1.558
P-4	10- 4-70	261	26.8	11.0	10.0	10.6	41.4	36.6	38.9	27.0	24.8	25.7	MIN.	1.560
CURRENT MACHINE AVERAGE			26.8			10.1			39.0			27.2		1.558
CUMULATIVE MACHINE AVERAGE			27.3			10.8			39.5			29.1		
MACHINE FACTOR, PERCENT			98.2			93.5			98.7			93.5		
MACHINE INDEX, PERCENT			100.4			99.0			93.1			87.4		

*See Table II for Notes A and B.

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

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
Q-1	8-20-70	55	26.0	10.1	10.0	10.0	42.0	39.0	40.7	31.4	28.4	30.2	MIN.	1.557
Q-2	8-21-70	56	26.6	10.0	9.2	9.8	45.0	40.8	42.7	34.6	31.2	33.0	MIN.	1.559
Q-3	9-18-70	57	26.5	10.1	9.8	9.9	43.8	40.2	42.1	31.0	28.8	30.4	0.5	1.568
Q-4	9-19-70	58	26.5	9.9	8.2	9.0	54.0	43.8	47.2	34.6	32.6	33.4	1.0	1.570
CURRENT MACHINE AVERAGE			26.4			9.7			43.2			31.8		1.564
CUMULATIVE MACHINE AVERAGE			26.2			10.0			39.1			30.1		
MACHINE FACTOR, PERCENT			100.8			97.0			110.5			105.6		
MACHINE INDEX, PERCENT			98.9			95.1			103.1			102.2		

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
R-1	8-18-70	603	25.7	11.1	10.0	10.4	45.0	41.4	43.0	33.6	30.6	31.9	1.5	1.566
R-2	8-30-70	604	25.5	10.9	8.8	9.6	52.8	48.0	50.8	37.2	36.4	36.8	1.5	1.565
R-3	9- 4-70	605	25.9	11.1	9.1	10.3	52.8	46.8	48.8	36.0	34.2	35.3	1.5	1.566
R-4	9-11-70	606	26.1	11.8	9.8	10.5	51.0	46.8	49.1	37.4	35.8	36.5	1.5	1.570
CURRENT MACHINE AVERAGE			25.8			10.2			47.9			35.1		1.567
CUMULATIVE MACHINE AVERAGE			25.8			9.9			46.2			34.9		
MACHINE FACTOR, PERCENT			100.0			103.0			103.7			100.6		
MACHINE INDEX, PERCENT			96.6			100.0			114.3			112.9		

*See Table II for Notes A and B.

TABLE XX

SUMMARY OF TEST RESULTS FOR MACHINE S

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
S-1	7-31-70	26	25.2	10.0	9.0	9.7	35.4	32.4	33.5	25.6	23.2	24.8	MIN.	1.547
S-2	8-15-70	28	25.7	9.9	9.3	9.6	41.4	34.8	37.3	28.2	26.0	27.1	MIN.	1.560
S-3	8-29-70	30	25.7	9.5	8.1	9.0	37.8	34.2	35.8	27.4	25.4	26.6	1.0	1.555
S-4	9-11-70	32	26.1	10.0	9.0	9.8	44.4	39.0	40.8	31.0	30.0	30.6	1.0	1.559
CURRENT MACHINE AVERAGE			25.7			9.5			36.8			27.3		1.555
CUMULATIVE MACHINE AVERAGE			27.0			10.5			39.5			29.4		
MACHINE FACTOR, PERCENT			95.2			90.5			93.2			92.8		
MACHINE INDEX, PERCENT			96.2			93.1			87.8			87.8		

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
T-1	8-25-70	304	26.7	10.0	9.8	10.0	45.0	40.8	43.4	31.4	30.6	31.0	1.5	1.563
CURRENT MACHINE AVERAGE			26.7			10.0			43.4			31.0		1.563
CUMULATIVE MACHINE AVERAGE			26.6			10.2			42.2			30.8		
MACHINE FACTOR, PERCENT			100.4			98.0			102.8			100.6		
MACHINE INDEX, PERCENT			100.0			98.0			103.6			99.7		

*See Table II for Notes A and B.

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
U-1	8-10-70	3271	27.0	11.1	10.2	10.7	48.6	43.2	45.8	37.0	34.2	36.0	1.0	1.569
U-2	9-22-70	6581	26.2	10.0	9.2	9.8	43.8	39.6	42.2	31.8	30.6	31.4	1.5	1.576
U-3	10- 6-70	2752	25.2	11.2	10.0	10.6	45.0	37.2	43.1	31.2	29.4	30.4	1.5	1.573
CURRENT MACHINE AVERAGE			26.1			10.4			43.7			32.6		1.573
CUMULATIVE MACHINE AVERAGE			26.8			10.6			39.9			29.3		
MACHINE FACTOR, PERCENT			97.4			98.1			109.5			111.3		
MACHINE INDEX, PERCENT			97.8			102.0			104.3			104.8		

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
V-1	9- 8-70	737	27.1	9.9	9.1	9.3	53.4	46.2	50.2	37.8	36.2	37.3	1.0	1.568
V-2	9-21-70	738	26.8	10.0	9.1	9.7	51.6	45.0	47.6	35.4	33.8	34.6	1.5	1.576
CURRENT MACHINE AVERAGE			27.0			9.5			48.9			36.0		1.572
CUMULATIVE MACHINE AVERAGE			26.8			9.9			48.1			35.7		
MACHINE FACTOR, PERCENT			100.7			96.0			101.7			100.8		
MACHINE INDEX, PERCENT			101.1			93.1			116.7			115.8		

*See Table II for Notes A and B.

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY DRAW LB./IN.*A	RUNNABILITY DRAW FACTOR*B
W-1	8- 4-70	834	26.2	11.1	10.0	10.4	43.8	40.8	42.2	33.2	30.4	31.5	1.5	1.566
W-2	8-16-70	835	26.8	11.8	9.9	10.6	51.6	42.6	46.3	35.4	32.6	34.2	1.0	1.569
W-3	9- 1-70	836	26.2	10.6	9.3	9.9	46.8	41.4	44.5	34.8	32.2	33.7	1.5	1.570
W-4	9-16-70	837	26.3	11.8	9.8	10.6	40.2	36.6	38.0	29.4	27.4	28.6	1.5	1.573
CURRENT MACHINE AVERAGE			26.4			10.4			42.8			32.0		1.570
CUMULATIVE MACHINE AVERAGE			26.4			10.0			42.6			31.6		
MACHINE FACTOR, PERCENT			100.0			104.0			100.5			101.3		
MACHINE INDEX, PERCENT			98.9			102.0			102.1			102.9		

TABLE XXV

SUMMARY OF TEST RESULTS FOR MACHINE X

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY DRAW LB./IN.*A	RUNNABILITY DRAW FACTOR*B
X-1	7-21-70	1946	26.6	10.9	10.0	10.3	48.6	42.0	46.2	39.0	34.6	36.9	MIN.	1.546
X-2	7-27-70	2130	24.9	10.2	10.0	10.1	48.6	43.2	46.2	36.4	35.2	35.8	1.5	1.565
X-3	8- 3-70	2376	25.7	10.0	9.8	9.9	47.4	43.2	45.0	36.6	33.4	34.8	0.5	1.556
X-4	8-13-70	2707	25.3	10.8	10.0	10.2	46.8	42.0	44.5	36.2	33.4	34.7	0.5	1.564
CURRENT MACHINE AVERAGE			25.6			10.1			45.5			35.6		1.558
CUMULATIVE MACHINE AVERAGE			26.1			9.8			45.3			34.2		
MACHINE FACTOR, PERCENT			98.1			103.1			100.4			104.1		
MACHINE INDEX, PERCENT			95.9			99.0			108.6			114.5		

*See Table II for Notes A and B.

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
Y-1	8-20-70	364	25.4	9.9	9.0	9.2	46.2	39.0	43.7	32.2	30.0	31.2	1.5	1.573
Y-2	9- 5-70	365	26.0	10.1	9.9	10.0	40.8	37.2	38.5	30.8	27.0	29.0	0.5	1.571
Y-3	9-22-70	366	26.3	10.8	10.0	10.2	39.6	34.2	37.7	27.8	26.0	26.8	1.0	1.572
Y-4	10- 9-70	367	28.7	10.0	9.0	9.3	60.6	51.6	54.4	43.0	39.4	41.1	1.5	1.590
CURRENT MACHINE AVERAGE			26.6			9.7			43.6			32.0		1.577
CUMULATIVE MACHINE AVERAGE			26.6			9.9			40.6			29.6		
MACHINE FACTOR, PERCENT			100.0			98.0			107.4			108.1		
MACHINE INDEX, PERCENT			99.6			95.1			104.0			102.9		

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
Z-1	10- 9-70		26.8	11.2	10.1	10.8	52.2	46.2	49.7	36.0	34.4	34.9	1.5	1.569
Z-2	10-10-70		26.8	10.9	10.1	10.6	51.0	46.2	47.9	36.0	34.6	35.4	1.5	1.567
Z-3	10-14-70		26.9	11.0	10.1	10.5	50.4	39.0	45.7	32.2	30.4	31.7	1.5	1.578
Z-4	10-15-70		27.1	11.0	10.2	10.8	48.6	44.4	47.2	34.8	33.2	34.1	1.5	1.589
CURRENT MACHINE AVERAGE			26.9			10.7			47.6			34.0		1.576
CUMULATIVE MACHINE AVERAGE			26.8			10.4			45.8			33.9		
MACHINE FACTOR, PERCENT			100.4			102.9			103.9			100.3		
MACHINE INDEX, PERCENT			100.7			104.9			113.6			109.3		

*See Table II for Notes A and B.

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA

SEPT. AND OCT., 1970

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT. MAX.	CALIPER, PT. MIN.	CALIPER, PT. AV.	CONCORA FLAT CRUSH, P.S.I. MAX.	CONCORA FLAT CRUSH, P.S.I. MIN.	CONCORA FLAT CRUSH, P.S.I. AV.	SINGLE-FACE FLAT CRUSH, P.S.I. MAX.	SINGLE-FACE FLAT CRUSH, P.S.I. MIN.	SINGLE-FACE FLAT CRUSH, P.S.I. AV.	RUNNABILITY LB./IN.*A	RUNNABILITY DRAW FACTOR*B
AA-1	8-25-70	11142	26.2	12.0	11.0	11.4	49.2	42.6	45.6	33.6	31.0	32.4	1.0	1.559
AA-2	8-25-70	11132	26.0	11.3	10.7	11.0	48.0	41.4	45.4	33.4	30.8	31.8	1.5	1.571
AA-3	9-13-70	2912	27.9	12.1	11.0	11.8	48.0	42.6	45.1	34.6	31.6	33.0	1.5	1.564
AA-4	9-13-70	2922	27.6	12.2	11.0	11.7	49.2	40.2	44.2	32.2	30.8	31.6	1.5	1.570
CURRENT MACHINE AVERAGE			26.9			11.5			45.1			32.2		1.566
CUMULATIVE MACHINE AVERAGE			26.6			11.6			39.3			26.9		
MACHINE FACTOR, PERCENT			101.1			99.1			114.8			119.7		
MACHINE INDEX, PERCENT			100.7			112.7			107.6			103.5		

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 91 rolls evaluated during the current period and the 102 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 XXVIII for Machines A through Z and Machine AA, respectively.

In Table XXIX, 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 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 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 XXIX

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. I.P.C. Av.[a]	Mill Av.[a]	Av. Diff.[b]	Av. Diff., %[c] Current	Previous
A	3	42.9	45.0	+2.1	+4.9	+5.8
B	4	46.0	46.9	+0.9	+2.0	--
C	4	39.1	38.6	-0.5	-1.3	+2.0
D	4	43.4	41.8	-1.6	-3.7	-6.3
E	3	46.3	45.9	-0.4	-0.9	+1.7
F	3	44.8	41.1	-3.7	-8.3	--
G	1	41.3	41.0[d]	-0.3	-0.7	+3.3
H	0	48.4	38.0[d]	--	--	--
I	4	46.0	43.1	-2.9	-6.3	--
J	2	40.1	35.2	-4.9	-12.2	-2.4
K	1	42.4	40.2	-2.2	-5.2	--
L	4	43.4	42.2	-1.2	-2.8	-1.3
M	4	48.2	45.2[d]	-3.0	-6.2	-4.8
N	0	38.6	30.3[d]	--	--	--
O	2	33.4	36.3	+2.9	+8.7	+4.4
P	4	39.0	38.7	-0.3	-0.8	-4.5
Q	4	43.2	42.1[d]	-1.1	-2.5	+3.0
R	0	47.9	36.6[d]	--	--	--
S	0	36.8	30.3[d]	--	--	--
T	1	43.4	47.5	+4.1	+9.4	+3.3
U	3	43.7	42.3[d]	-1.4	-3.2	-2.3
V	0	48.9	39.8[d]	--	--	--
W	4	42.8	42.1	-0.7	-1.6	-1.5
X	4	45.5	44.0	-1.5	-3.3	-2.2
Y	4	43.6	41.3	-2.3	-5.3	-3.8
Z	4	47.6	46.2	-1.4	-2.9	-0.2
AA	2	44.6	43.0	-1.6	-3.6	-5.4

[a] Comparisons based on current machine average include only those rolls for which mill data were submitted.

[b] Average difference is the difference between the current machine average based on Institute test results and that based on mill test results with the Institute test results used as the reference.

[c] Average difference (percent) is computed by dividing the average difference in p.s.i. by the Institute current machine average and multiplying by 100.

[d] Mill 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 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.

THE INSTITUTE OF PAPER CHEMISTRY

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