



**BASE-LINE**  
(MARCH-APRIL, 1971)

**CONTINUOUS EVALUATION OF  
CORRUGATING MEDIUM**

(Data for March and April, 1971)

Project 2694-2

Report Twenty-Five

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

May 21, 1971

BASE-LINE  
(MARCH-APRIL, 1971)

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 MARCH AND APRIL, 1971)

SUMMARY

PART I. GENERAL

A. Participation Data:

	Previous Period	Current Period
Period	Jan.-Feb., 1971	March-April, 1971
Number of machines	30	32
Number of rolls	113	107

B. Distribution of Mediums by Type:

Semichemical	28	32
Bogus	2	0
Kraft	0	0

C. New Participants:

None

None

D. Nonparticipants:

1. Alton Box (Alton Nos. 3 & 4)	1. Crown Zellerbach (Baltimore Nos. 1 & 2)
2. The Mead Corp. (Lynchburg No. 2)	2. The Mead Corp. (Lynchburg No. 2)
3. Olinkraft (West Monroe No. 2)	3. Westvaco (Covington No. 7)
4. Owens-Illinois (Big Island Nos. 1 & 3)	

PART II. QUALITY DATA

A. Summary of Physical Test Data

Test	Report	Machine Averages		F.K.I. Averages	
		Max.	Min.	Current	Cumulative
Basis weight, lb./1000 ft. <sup>2</sup>	Cur.	28.5	25.6	26.8	26.7
	Prev.	28.6	25.6	26.7	26.7
Caliper, pt.	Cur.	11.0	9.0	10.2	10.1
	Prev.	11.3	8.9	10.1	10.1
Concora flat crush, p.s.i.	Cur.	54.0	36.8	43.2	42.0
	Prev.	51.4	30.0	41.2	42.1
Single-face flat crush, p.s.i.	Cur.	37.8	28.9	31.6	31.2
	Prev.	36.0	24.0	30.4	31.1

B. Summary of Runnability Data

Runnability		Previous Period			Current Period		
Speed, f.p.m.	Tension, lb./in.	No. of Rolls	% of Total	Cum., %	No. of Rolls	% of Total	Cum., %
<600	Min.	12	10.7	100.0	0	0.0	100.0
600	Min.	15	13.4	89.3	14	13.1	100.0
600	1/2	16	14.3	75.9	19	17.8	86.9
600	1	16	14.3	61.6	21	19.6	69.1
600	1-1/2	53	47.3	47.3	53	49.5	49.5

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

Physical Tests:

Basis weight: Increased from 26.7 to 26.8 lb./M ft.<sup>2</sup>  
 Caliper: Increased from 10.1 to 10.2 pt.  
 Concora flat crush: Increased from 41.2 to 43.2 p.s.i.  
 Single-face flat crush: Increased from 30.4 to 31.6 p.s.i.

Runnability:

<600 f.p.m. at minimum tension: Decreased from 10.7 to 0.0%.  
 600 f.p.m. at minimum tension: Decreased from 13.4 to 13.1%.  
 600 f.p.m. at 1/2 lb./in. tension: Increased from 14.3 to 17.8%.  
 600 f.p.m. at 1 lb./in. tension: Increased from 14.3 to 19.6%.  
 600 f.p.m. at 1-1/2 lb./in. tension: Increased from 47.3 to 49.5%.

Comments: The current runnability shows an improvement over that of the previous period.

PART III. CONCORA CALIBRATION DATA

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

Range, %	Previous Period		Current Period	
	No. of Machines	% of Total	No. of Machines	% of Total
<u>+</u> 1.0	4	16.0	6	22.2
<u>+</u> 2.5	7	28.0	12	44.4
<u>+</u> 5.0	19	76.0	18	66.7
<u>+</u> 10.0	25	100.0 <sup>a</sup>	25	92.6
<u>+</u> 12.5	--	--	27	100.0 <sup>b</sup>

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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<sup>a</sup>Maximum percentage difference was +8.4.

<sup>b</sup>Maximum percentage difference was -11.6.

## 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 March and April, 1971, on 107 rolls of corrugating medium submitted for evaluation from thirty-two 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

MARCH AND APRIL, 1971

MILL CODE	NO. OF ROLLS	TYPE OF MEDIUM	BASIS WEIGHT, LB.	CALIPER, POINTS	CONCORA FLAT CRUSH, P.S.I.	SINGLE-FACE FLAT CRUSH, P.S.I.
A	2	SEMICHEMICAL	26.0	10.2	43.1	32.0
B	2	SEMICHEMICAL	27.4	10.4	43.1	33.0
C	4	SEMICHEMICAL	26.4	10.5	40.0	30.7
D	4	SEMICHEMICAL	26.6	10.8	45.6	33.2
E	4	SEMICHEMICAL	26.7	9.3	47.0	36.0
F	4	SEMICHEMICAL	26.6	10.4	43.0	31.9
G	4	SEMICHEMICAL	27.4	9.6	36.8	31.5
H	4	SEMICHEMICAL	26.4	10.3	44.5	31.8
I	4	SEMICHEMICAL	25.6	10.1	46.0	33.4
J	4	SEMICHEMICAL	26.4	10.2	40.4	29.6
K	3	SEMICHEMICAL	27.0	10.7	43.3	31.2
L	3	SEMICHEMICAL	26.2	10.9	41.9	29.9
M	4	SEMICHEMICAL	27.0	10.8	42.7	31.1
N	4	SEMICHEMICAL	27.4	9.1	45.4	31.8
O	2	SEMICHEMICAL	26.2	9.9	46.0	31.8
P	4	SEMICHEMICAL	25.9	10.8	39.2	29.1
Q	1	SEMICHEMICAL	26.6	10.0	40.8	31.1
R	4	SEMICHEMICAL	26.8	10.4	44.7	32.1
S	3	SEMICHEMICAL	26.1	10.0	39.4	30.7
T	3	SEMICHEMICAL	27.7	11.0	44.2	29.3
U	1	SEMICHEMICAL	28.5	10.5	42.2	29.5
V	4	SEMICHEMICAL	27.8	10.6	43.7	32.4
W	4	SEMICHEMICAL	26.4	9.6	44.2	32.1
X	4	SEMICHEMICAL	27.2	9.0	43.2	32.3
Y	4	SEMICHEMICAL	26.7	9.8	41.8	28.9
Z	4	SEMICHEMICAL	28.5	10.7	43.6	31.6
AA	4	SEMICHEMICAL	26.6	10.1	45.3	33.2
BB	1	SEMICHEMICAL	26.1	9.8	54.0	37.8
CC	4	SEMICHEMICAL	26.7	11.0	44.3	31.9
DD	4	SEMICHEMICAL	26.0	9.7	39.5	30.4
EE	2	SEMICHEMICAL	27.0	10.3	42.6	31.1
FF	4	SEMICHEMICAL	26.4	10.0	40.2	30.6
TOTAL	107					
CURRENT F.K.I. AVERAGE			26.8	10.2	43.2	31.6
CUMULATIVE F.K.I. AVERAGE			26.7	10.1	42.0	31.2
F.K.I. INDEX, PERCENT			100.4	101.0	102.8	101.3

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. 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 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 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  
MARCH AND APRIL, 1971

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	3- 1-71	72	25.8	10.1	9.3	9.9	46.2	43.2	44.4	33.6	32.2	32.8	1.0	1.570
A-2	3-24-71	73	26.3	11.0	10.0	10.6	42.6	40.8	41.8	32.4	29.6	31.2	1.5	1.574
CURRENT MACHINE AVERAGE			26.0	10.2			43.1			32.0			1.572	
CUMULATIVE MACHINE AVERAGE			26.2	9.7			39.8			30.6				
MACHINE FACTOR, PERCENT			99.2	105.2			108.3			104.6				
MACHINE INDEX, PERCENT			97.4	101.0			102.6			102.6				

<sup>A</sup>Maximum tension at 600 f.p.m.

<sup>B</sup>600 f.p.m. minimum tension.

TABLE III

SUMMARY OF TEST RESULTS FOR MACHINE B  
MARCH AND APRIL, 1971

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	3-27-71	237	27.6	11.3	10.0	10.6	46.2	42.6	44.6	33.8	31.4	32.3	1.5	1.573
B-2	3-27-71	238	27.3	10.9	10.0	10.2	46.2	39.0	41.6	35.4	32.0	33.7	1.5	1.576
CURRENT MACHINE AVERAGE			27.4	10.4			43.1			33.0			1.575	
CUMULATIVE MACHINE AVERAGE			26.8	10.3			42.0			31.8				
MACHINE FACTOR, PERCENT			102.2	101.0			102.6			103.8				
MACHINE INDEX, PERCENT			102.6	103.0			102.6			105.8				

TABLE IV

SUMMARY OF TEST RESULTS FOR MACHINE C

MARCH AND APRIL, 1971

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
C-1	3-16-71	3283-2	26.3	11.0	10.0	10.4	42.6	37.8	40.9	31.8	30.4	31.0	MIN.	1.564
C-2	3-16-71	3283-5	27.4	11.0	10.7	10.9	40.8	36.6	38.8	32.6	29.8	31.2	MIN.	1.568
C-3	3-31-71	3593-2	25.4	10.8	10.2	10.3	40.8	37.2	38.9	29.2	27.4	28.0	0.5	1.579
C-4	3-31-71	3593-5	26.3	11.0	10.1	10.5	43.8	39.6	41.4	33.4	32.2	32.7	0.5	1.562
CURRENT MACHINE AVERAGE			26.4	10.5			40.0			30.7			1.568	
CUMULATIVE MACHINE AVERAGE			25.7	10.2			39.8			29.8				
MACHINE FACTOR, PERCENT			102.7	102.9			100.5			103.0				
MACHINE INDEX, PERCENT			98.9	104.0			95.2			98.4				

TABLE V

SUMMARY OF TEST RESULTS FOR MACHINE D

MARCH AND APRIL, 1971

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
D-1	3-15-71		26.5	11.0	10.0	10.5	50.4	42.0	46.9	35.8	32.6	34.6	1.0	1.566
D-2	3-16-71		26.5	11.0	10.1	10.6	48.0	42.6	45.0	33.0	30.6	31.6	1.0	1.566
D-3	3-28-71		26.8	11.1	10.8	11.0	47.4	39.6	44.5	31.6	29.8	31.0	1.5	1.572
D-4	4- 1-71		26.5	11.3	10.7	11.0	49.2	41.4	46.1	36.0	35.0	35.4	1.5	1.570
CURRENT MACHINE AVERAGE			26.6	10.8			45.6			33.2			1.569	
CUMULATIVE MACHINE AVERAGE			26.8	10.3			46.0			34.0				
MACHINE FACTOR, PERCENT			99.2	104.8			99.1			97.6				
MACHINE INDEX, PERCENT			99.6	106.9			108.6			106.4				

\*See Table II for Notes A and B.

TABLE VI

SUMMARY OF TEST RESULTS FOR MACHINE E

MARCH AND APRIL, 1971

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
E-1	2-12-71	748	26.8	10.0	9.1	9.6	52.8	48.6	50.4	37.8	35.6	36.6	0.5	1.564
E-2	2-27-71	749	26.3	9.3	9.0	9.1	47.4	45.0	45.7	35.4	33.4	34.5	1.5	1.575
E-3	3- 4-71	750	26.7	9.8	9.0	9.3	49.8	40.8	45.6	37.8	36.0	37.0	1.0	1.570
E-4	3-12-71	751	26.9	9.9	9.0	9.3	48.6	43.8	46.1	36.8	34.6	36.0	1.5	1.567
CURRENT MACHINE AVERAGE			26.7	9.3			47.0			36.0			1.569	
CUMULATIVE MACHINE AVERAGE			26.9	9.7			48.6			36.2				
MACHINE FACTOR, PERCENT			99.2	95.9			96.7			99.4				
MACHINE INDEX, PERCENT			100.0	92.1			111.9			115.4				

TABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F

MARCH AND APRIL, 1971

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
F-1	2- 8-71	846	26.8	10.8	9.8	10.1	42.0	36.0	40.1	33.4	30.6	32.1	1.5	1.570
F-2	2-18-71	847	26.3	12.1	10.0	11.1	47.4	37.8	43.1	30.6	28.6	29.8	1.5	1.562
F-3	3- 3-71	848	26.0	10.9	9.8	10.2	45.0	40.2	42.8	30.6	29.4	30.1	1.5	1.567
F-4	3-14-71	849	27.5	10.9	9.8	10.4	48.6	44.4	46.1	36.2	34.8	35.6	1.5	1.569
CURRENT MACHINE AVERAGE			26.6	10.4			43.0			31.9			1.567	
CUMULATIVE MACHINE AVERAGE			26.3	10.1			42.0			31.4				
MACHINE FACTOR, PERCENT			101.1	103.0			102.4			101.6				
MACHINE INDEX, PERCENT			99.6	103.0			102.4			102.2				

\*See Table II for Notes A and B.

TABLE VIII

SUMMARY OF TEST RESULTS FOR MACHINE G

MARCH AND APRIL, 1971

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	2-27-71	B-1	27.6	10.0	9.0	9.6	37.8	31.8	34.8	31.4	30.6	31.0	MIN.	1.558
G-2	2-27-71	B-2	27.4	10.1	9.1	9.7	37.2	33.6	34.8	32.6	28.4	31.0	MIN.	1.558
G-3	3-12-71	C-1	26.9	9.9	8.9	9.4	36.6	34.8	35.4	30.8	29.6	30.4	MIN.	1.560
G-4	3-12-71	C-2	27.9	10.1	9.2	9.8	45.0	37.8	42.0	34.6	32.2	33.6	MIN.	1.562
CURRENT MACHINE AVERAGE			27.4	9.6			36.8			31.5			1.560	
CUMULATIVE MACHINE AVERAGE			26.9	9.8			32.3			25.0				
MACHINE FACTOR, PERCENT			101.8	98.0			113.9			126.0				
MACHINE INDEX, PERCENT			102.6	95.0			87.6			101.0				

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE H

MARCH AND APRIL, 1971

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	3-12-71	6153	26.7	10.9	10.0	10.2	49.2	40.2	44.8	31.2	28.8	30.1	1.5	1.572
H-2	3-12-71	6193	26.8	10.2	9.3	10.0	48.0	42.6	44.9	31.4	30.2	30.8	1.5	1.575
H-3	4-19-71	4092	24.9	10.5	10.0	10.1	44.4	38.4	41.3	33.8	31.8	33.4	1.5	1.574
H-4	4-19-71	4102	27.3	11.1	10.8	10.9	50.4	43.8	47.0	34.2	32.2	33.0	1.5	1.577
CURRENT MACHINE AVERAGE			26.4	10.3			44.5			31.8			1.575	
CUMULATIVE MACHINE AVERAGE			26.5	10.6			40.4			29.8				
MACHINE FACTOR, PERCENT			99.6	97.2			110.1			106.7				
MACHINE INDEX, PERCENT			98.9	102.0			106.0			101.9				

\*See Table II for Notes A and B.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I  
MARCH AND APRIL, 1971

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	2- 1-71	615	26.2	11.3	9.8	10.6	50.4	42.6	45.7	35.6	33.6	34.2	0.5	1.559
I-2	2- 9-71	616	25.4	12.0	9.2	10.4	49.2	42.0	44.6	34.4	32.2	33.2	0.5	1.559
I-3	3- 4-71	617	25.8	11.0	9.1	10.1	49.2	45.0	46.7	36.0	33.4	34.5	0.5	1.571
I-4	3-11-71	618	24.9	9.9	8.9	9.4	49.2	44.4	46.9	32.6	31.0	31.9	1.5	1.575
CURRENT MACHINE AVERAGE			25.6	10.1			46.0			33.4			1.566	
CUMULATIVE MACHINE AVERAGE			26.0	9.9			47.7			35.5				
MACHINE FACTOR, PERCENT			98.5	102.0			96.4			94.1				
MACHINE INDEX, PERCENT			95.9	100.0			109.5			107.0				

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J  
MARCH AND APRIL, 1971

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	1-27-71	4	26.2	11.0	10.0	10.8	37.2	34.2	35.9	27.0	24.0	26.1	0.5	1.560
J-2	2-12-71	6	26.8	10.8	10.0	10.2	43.2	39.6	41.8	31.4	30.0	30.6	1.0	1.559
J-3	2-26-71	8	26.3	9.9	8.9	9.3	42.0	37.2	40.3	30.0	25.6	28.2	1.5	1.561
J-4	3-11-71	10	26.5	10.9	10.0	10.4	45.0	42.0	43.4	34.0	32.4	33.4	1.0	1.565
CURRENT MACHINE AVERAGE			26.4	10.2			40.4			29.6			1.561	
CUMULATIVE MACHINE AVERAGE			26.5	10.0			38.2			28.8				
MACHINE FACTOR, PERCENT			99.6	102.0			105.8			102.8				
MACHINE INDEX, PERCENT			98.9	101.0			96.2			94.9				

\*See Table II for Notes A and B.

TABLE XII

SUMMARY OF TEST RESULTS FOR MACHINE K  
MARCH AND APRIL, 1971

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
K-1	2-23-71	2165	27.3	11.1	10.8	11.0	43.2	39.0	40.6	31.4	28.6	29.9	0.5	1.555
K-2	3-11-71	2172	26.9	11.0	10.1	10.6	48.0	42.0	44.8	32.4	31.0	31.8	MIN.	1.551
K-3	3-29-71	2173	26.7	10.9	10.3	10.6	48.0	40.2	44.5	32.2	31.2	31.8	0.5	1.559
CURRENT MACHINE AVERAGE			27.0	10.7			43.3			31.2			1.555	
CUMULATIVE MACHINE AVERAGE			27.2	10.4			41.0			29.4				
MACHINE FACTOR, PERCENT			99.3	102.9			105.6			106.1				
MACHINE INDEX, PERCENT			101.1	105.9			103.1			100.0				

TABLE XIII

SUMMARY OF TEST RESULTS FOR MACHINE L  
MARCH AND APRIL, 1971

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
L-1	1-23-71	4597	26.2	11.1	10.5	10.9	43.8	39.0	41.5	30.6	28.6	29.6	0.5	1.558
L-2	1-29-71	5810	26.0	11.0	10.7	10.9	43.8	39.6	41.8	30.8	28.8	29.7	0.5	1.557
L-3	2-15-71	2949	26.3	11.0	10.7	10.9	45.0	39.0	42.4	31.6	29.4	30.4	0.5	1.558
CURRENT MACHINE AVERAGE			26.2	10.9			41.9			29.9			1.558	
CUMULATIVE MACHINE AVERAGE			26.5	10.1			42.0			30.8				
MACHINE FACTOR, PERCENT			98.9	107.9			99.8			97.1				
MACHINE INDEX, PERCENT			98.1	107.9			99.8			95.8				

\*See Table II for Notes A and B.

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE M

MARCH AND APRIL, 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. 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
M-1	2-3-71	679	28.0	11.3	10.8	11.0	45.6	37.8	41.9	34.8	29.6	32.6	1.0	1.559
M-2	2-17-71	680	27.4	11.2	11.0	11.0	47.4	44.4	45.4	33.0	31.4	32.1	1.0	1.562
M-3	3-2-71	681	27.1	11.0	10.5	10.9	46.8	42.6	44.6	33.6	31.0	31.8	1.0	1.562
M-4	3-22-71	682	25.7	11.0	10.0	10.4	42.0	36.6	39.0	28.4	26.8	27.8	0.5	1.572
CURRENT MACHINE AVERAGE			27.0	10.8			42.7			31.1			1.564	
CUMULATIVE MACHINE AVERAGE			26.6	9.5			39.9			29.6				
MACHINE FACTOR, PERCENT			101.5	113.7			107.0			105.1				
MACHINE INDEX, PERCENT			101.1	106.9			101.7			99.7				

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE N

MARCH AND APRIL, 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. 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
N-1	2-15-71	329	28.2	9.5	9.0	9.1	46.2	43.2	44.5	33.0	31.4	32.0	1.0	1.562
N-2	2-17-71	331	27.2	9.4	9.0	9.1	44.4	40.2	42.8	28.8	27.4	28.1	1.0	1.570
N-3	3-15-71	332	27.4	9.0	8.9	9.0	49.2	46.8	48.2	35.0	33.4	34.3	0.5	1.559
N-4	3-17-71	333	26.7	9.2	8.9	9.1	50.4	42.0	46.1	34.4	31.6	32.6	1.5	1.568
CURRENT MACHINE AVERAGE			27.4	9.1			45.4			31.8			1.565	
CUMULATIVE MACHINE AVERAGE			27.1	9.1			43.5			33.0				
MACHINE FACTOR, PERCENT			101.1	100.0			104.4			96.4				
MACHINE INDEX, PERCENT			102.6	90.1			108.1			101.9				

\*See Table II for Notes A and B.

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O  
MARCH AND APRIL, 1971

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
O-1	2- 3-71	4799	26.3	10.9	9.3	10.0	52.2	41.4	47.9	34.4	33.2	33.8	MIN.	1.550
O-2	2-18-71	5193	26.0	10.0	9.2	9.8	47.4	39.0	44.2	31.8	28.2	29.9	MIN.	1.561
CURRENT MACHINE AVERAGE			26.2	9.9			46.0			31.8			1.556	
CUMULATIVE MACHINE AVERAGE			26.9	9.7			44.8			33.3				
MACHINE FACTOR, PERCENT			97.4	102.1			102.7			95.5				
MACHINE INDEX, PERCENT			98.1	98.0			109.5			101.9				

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P  
MARCH AND APRIL, 1971

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
P-1	2- 1-71	19	26.2	11.5	10.8	11.1	40.8	34.8	37.6	30.6	29.2	30.0	MIN.	1.561
P-2	2-13-71	20	25.4	10.9	10.2	10.6	43.8	39.0	40.6	30.8	29.2	30.1	0.5	1.556
P-3	3- 9-71	21	25.7	11.0	10.1	10.8	42.0	36.0	39.1	30.6	26.4	28.4	0.5	1.560
P-4	3-10-71	22	26.3	11.2	10.2	10.9	42.0	35.4	39.4	29.0	26.8	28.0	1.0	1.567
CURRENT MACHINE AVERAGE			25.9	10.8			39.2			29.1			1.561	
CUMULATIVE MACHINE AVERAGE			26.7	11.2			39.6			30.0				
MACHINE FACTOR, PERCENT			97.0	96.4			99.0			97.0				
MACHINE INDEX, PERCENT			97.0	106.9			93.3			93.3				

\*See Table II for Notes A and B.

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q  
MARCH AND APRIL, 1971

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
Q-1	4- 3-71		26.6	10.0	9.8	10.0	44.4	36.6	40.8	32.2	29.8	31.1	1.5	1.564
CURRENT MACHINE AVERAGE			26.6	10.0			40.8			31.1			1.564	
CUMULATIVE MACHINE AVERAGE			27.4	10.8			43.0			33.1				
MACHINE FACTOR, PERCENT			97.1	92.6			94.9			94.0				
MACHINE INDEX, PERCENT			99.6	99.0			97.1			99.7				

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R  
MARCH AND APRIL, 1971

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
R-1	3-27-71		26.7	11.0	10.0	10.4	45.6	40.8	43.2	32.8	30.2	31.3	1.5	1.575
R-2	4- 4-71		26.3	11.0	10.1	10.8	45.0	42.6	44.0	32.4	31.2	31.8	1.5	1.572
R-3	4-14-71		27.1	10.8	10.0	10.2	51.0	41.4	46.7	33.8	31.4	32.5	1.5	1.567
R-4	4-15-71		27.1	10.5	10.0	10.1	48.0	41.4	44.9	34.2	30.4	32.8	1.5	1.570
CURRENT MACHINE AVERAGE			26.8	10.4			44.7			32.1			1.571	
CUMULATIVE MACHINE AVERAGE			26.6	10.2			43.6			31.6				
MACHINE FACTOR, PERCENT			100.8	102.0			102.5			101.6				
MACHINE INDEX, PERCENT			100.4	103.0			106.4			102.9				

\*See Table II for Notes A and B.

TABLE XX

SUMMARY OF TEST RESULTS FOR MACHINE S  
MARCH AND APRIL, 1971

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
S-1	2-14-71	376	25.8	10.3	9.8	10.1	40.2	36.6	37.9	31.4	30.0	30.6	1.5	1.572
S-2	2-28-71	377	26.1	10.1	9.9	10.0	42.0	37.8	39.2	30.8	29.4	30.2	1.5	1.572
S-3	3-14-71	378	26.3	10.0	9.5	9.8	42.0	40.2	41.2	32.4	30.4	31.4	1.5	1.575
CURRENT MACHINE AVERAGE			26.1	10.0			39.4			30.7			1.573	
CUMULATIVE MACHINE AVERAGE			26.7	10.0			39.2			28.8				
MACHINE FACTOR, PERCENT			97.8	100.0			100.5			106.6				
MACHINE INDEX, PERCENT			97.8	99.0			93.8			98.4				

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T  
MARCH AND APRIL, 1971

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
T-1	3- 6-71	2207	26.3	11.2	10.0	10.8	46.8	39.6	42.6	29.0	27.0	28.2	0.5	1.570
T-2	3-11-71	4773	28.2	11.9	10.2	11.1	46.8	40.2	44.4	30.0	29.0	29.6	1.5	1.578
T-3	3-11-71	4783	28.5	11.2	10.9	11.0	49.8	42.0	45.6	31.6	28.6	30.1	1.5	1.575
CURRENT MACHINE AVERAGE			27.7	11.0			44.2			29.3			1.575	
CUMULATIVE MACHINE AVERAGE			27.0	11.6			40.7			28.5				
MACHINE FACTOR, PERCENT			102.6	94.8			108.6			102.8				
MACHINE INDEX, PERCENT			103.7	108.9			105.2			93.9				

\*See Table II for Notes A and B.

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U  
MARCH AND APRIL, 1971

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
U-1	2-10-71	3	28.5	11.1	10.0	10.5	46.2	39.6	42.2	30.6	27.6	29.5	MIN.	1.558
CURRENT MACHINE AVERAGE			28.5	10.5			42.2			29.5			1.558	
CUMULATIVE MACHINE AVERAGE			26.7	9.8			40.8			30.5				
MACHINE FACTOR, PERCENT			106.7	107.1			103.4			96.7				
MACHINE INDEX, PERCENT			106.7	104.0			100.5			94.6				

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V  
MARCH AND APRIL, 1971

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
V-1	3-7-71	410-3	29.8	12.0	10.9	11.6	54.0	47.4	49.7	36.6	34.6	35.8	1.5	1.560
V-2	3-12-71	457-3	27.8	11.1	10.2	10.8	46.8	43.2	45.1	33.6	32.0	32.5	1.0	1.564
V-3	4-9-71	501-3	27.7	10.1	9.4	9.8	44.4	40.2	42.4	35.2	33.0	34.2	1.5	1.564
V-4	4-10-71	484-3	26.0	10.5	10.0	10.1	39.6	33.6	37.6	28.0	26.6	27.1	1.5	1.569
CURRENT MACHINE AVERAGE			27.8	10.6			43.7			32.4			1.564	
CUMULATIVE MACHINE AVERAGE			27.1	10.3			40.1			30.1				
MACHINE FACTOR, PERCENT			102.6	102.9			109.0			107.6				
MACHINE INDEX, PERCENT			104.1	105.0			104.0			103.8				

\*See Table II for Notes A and B.

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W  
MARCH AND APRIL, 1971

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
W-1	3-14-71		26.6	10.0	9.2	9.8	49.8	43.8	46.9	33.2	31.6	32.6	1.5	1.576
W-2	3-15-71		26.5	10.0	9.1	9.6	48.6	43.2	45.8	34.2	32.0	32.8	1.5	1.574
W-3	4- 1-71		26.1	9.5	9.0	9.2	44.4	40.2	42.5	32.0	30.2	31.1	1.5	1.577
W-4	4- 4-71		26.5	10.0	9.2	9.8	46.2	37.8	41.5	32.8	29.6	31.8	1.5	1.572
CURRENT MACHINE AVERAGE			26.4	9.6			44.2			32.1			1.575	
CUMULATIVE MACHINE AVERAGE			26.7	9.7			44.6			32.7				
MACHINE FACTOR, PERCENT			98.9	99.0			99.1			98.2				
MACHINE INDEX, PERCENT			98.9	95.0			105.2			102.9				

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE X  
MARCH AND APRIL, 1971

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
X-1	2-11-71	328	27.4	9.1	8.8	9.0	49.8	40.2	43.7	34.2	32.0	33.2	MIN.	1.550
X-2	2-17-71	330	26.3	9.8	8.8	9.1	43.8	36.6	39.7	31.4	28.8	29.8	1.0	1.565
X-3	3-22-71	334	27.7	9.0	8.8	8.9	49.8	43.8	45.8	35.2	32.0	33.4	1.5	1.569
X-4	3-22-71	335	27.6	9.0	8.2	8.9	49.2	40.2	43.8	34.2	32.4	32.9	1.5	1.567
CURRENT MACHINE AVERAGE			27.2	9.0			43.2			32.3			1.563	
CUMULATIVE MACHINE AVERAGE			27.5	9.4			44.7			33.8				
MACHINE FACTOR, PERCENT			98.9	95.7			96.6			95.6				
MACHINE INDEX, PERCENT			101.9	89.1			102.8			103.5				

\*See Table II for Notes A and B.

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y  
MARCH AND APRIL, 1971

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	3-11-71	221	26.8	10.0	9.1	9.7	46.2	40.8	42.8	30.8	28.0	29.3	1.5	1.585
Y-2	3-17-71	222	26.3	10.1	9.2	9.7	42.0	39.0	40.8	30.0	28.4	29.3	1.5	1.580
Y-3	4- 2-71	223	26.8	10.1	9.7	9.9	44.4	39.0	42.1	30.0	27.6	28.6	1.5	1.587
Y-4	4- 6-71	224	27.0	10.1	9.2	9.8	45.6	39.0	41.4	29.2	28.0	28.5	1.5	1.591
CURRENT MACHINE AVERAGE			26.7	9.8			41.8			28.9			1.586	
CUMULATIVE MACHINE AVERAGE			26.8	10.0			42.4			30.7				
MACHINE FACTOR, PERCENT			99.6	98.0			98.6			94.1				
MACHINE INDEX, PERCENT			100.0	97.0			99.5			92.6				

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z  
MARCH AND APRIL, 1971

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	3- 6-71	353-2	27.2	11.0	10.2	10.7	39.6	36.0	38.0	27.0	25.4	26.2	1.5	1.571
Z-2	3-12-71	351-2	29.3	10.9	10.0	10.5	46.8	44.4	45.8	34.4	32.4	33.0	1.0	1.565
Z-3	4- 9-71	507-1	28.2	11.0	10.0	10.6	47.4	42.6	45.2	38.2	35.4	36.4	1.0	1.559
Z-4	4-10-71	338-2	29.3	11.1	10.8	11.0	49.8	39.6	45.4	32.0	29.8	30.7	1.5	1.573
CURRENT MACHINE AVERAGE			28.5	10.7			43.6			31.6			1.567	
CUMULATIVE MACHINE AVERAGE			27.4	10.2			41.9			30.5				
MACHINE FACTOR, PERCENT			104.0	104.9			104.0			103.6				
MACHINE INDEX, PERCENT			106.7	105.9			103.8			101.3				

\*See Table II for Notes A and B.

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA  
MARCH AND APRIL, 1971

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	1-26-71	7838	26.6	11.0	10.1	10.5	46.8	39.6	43.8	34.6	32.4	33.5	1.5	1.569
AA-2	2- 2-71	8108	26.0	11.0	10.0	10.3	45.0	41.4	43.2	31.4	29.8	30.5	MIN.	1.557
AA-3	2- 5-71	8193	26.8	10.9	9.3	9.9	48.0	43.8	46.2	34.8	32.0	33.8	0.5	1.563
AA-4	2- 8-71	8269	27.1	10.0	9.3	9.8	49.8	46.8	48.1	37.0	33.4	35.0	1.0	1.563
CURRENT MACHINE AVERAGE			26.6	10.1			45.3			33.2			1.563	
CUMULATIVE MACHINE AVERAGE			25.9	10.1			44.2			34.0				
MACHINE FACTOR, PERCENT			102.7	100.0			102.5			97.6				
MACHINE INDEX, PERCENT			99.6	100.0			107.8			106.4				

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB  
MARCH AND APRIL, 1971

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	3-29-71	851	26.1	10.5	9.2	9.8	57.0	48.6	54.0	40.4	36.2	37.8	1.5	1.574
CURRENT MACHINE AVERAGE			26.1	9.8			54.0			37.8			1.574	
CUMULATIVE MACHINE AVERAGE			25.7	10.1			48.5			35.8				
MACHINE FACTOR, PERCENT			101.6	97.0			111.3			105.6				
MACHINE INDEX, PERCENT			97.8	97.0			128.6			121.2				

\*See Table II for Notes A and B.

TABLE XXX

SUMMARY OF TEST RESULTS FOR MACHINE CC

MARCH AND APRIL, 1971

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
CC-1	1-21-71	2215	26.3	11.1	10.5	11.0	45.6	40.8	43.1	32.4	30.4	31.4	1.0	1.566
CC-2	1-26-71	2868	26.9	11.6	11.0	11.1	47.4	43.2	45.1	33.4	32.2	32.8	1.0	1.564
CC-3	2- 4-71	1250	26.8	11.2	10.9	11.0	46.8	44.4	45.6	33.4	31.4	32.3	1.5	1.561
CC-4	2-16-71	1711	26.8	11.4	11.0	11.1	45.6	40.2	43.4	32.0	30.0	31.2	1.5	1.563
CURRENT MACHINE AVERAGE			26.7	11.0			44.3			31.9			1.564	
CUMULATIVE MACHINE AVERAGE			26.6	10.0			41.3			31.2				
MACHINE FACTOR, PERCENT			100.4	110.0			107.3			102.2				
MACHINE INDEX, PERCENT			100.0	108.9			105.5			102.2				

TABLE XXXI

SUMMARY OF TEST RESULTS FOR MACHINE DD

MARCH AND APRIL, 1971

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
DD-1	1-27-71	3	24.1	10.1	9.7	9.9	39.0	30.0	34.0	28.8	23.0	26.3	1.0	1.565
DD-2	2-10-71	5	26.3	10.0	8.8	9.2	42.6	36.6	39.8	32.0	29.4	31.0	1.5	1.565
DD-3	2-26-71	7	26.8	10.2	9.0	9.8	45.6	34.8	41.2	35.0	28.8	31.3	1.5	1.559
DD-4	3-14-71	9	27.0	10.2	9.2	9.9	48.6	34.2	43.1	34.6	31.8	32.9	1.5	1.569
CURRENT MACHINE AVERAGE			26.0	9.7			39.5			30.4			1.565	
CUMULATIVE MACHINE AVERAGE			26.2	10.0			38.1			28.5				
MACHINE FACTOR, PERCENT			99.2	97.0			103.7			106.7				
MACHINE INDEX, PERCENT			97.4	96.0			94.0			97.4				

\*See Table II for Notes A and B.

TABLE XXXII

SUMMARY OF TEST RESULTS FOR MACHINE EE  
MARCH AND APRIL, 1971

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
EE-1	3- 8-71	277	26.5	10.3	9.9	10.0	43.8	39.0	42.0	32.0	30.6	31.0	0.5	1.570
EE-2	4- 5-71	278	27.5	11.0	10.2	10.6	45.6	39.6	43.3	32.2	30.4	31.2	MIN.	1.566
CURRENT MACHINE AVERAGE			27.0	10.3			42.6			31.1			1.568	
CUMULATIVE MACHINE AVERAGE			26.9	10.5			38.2			28.0				
MACHINE FACTOR, PERCENT			100.4	98.1			111.5			111.1				
MACHINE INDEX, PERCENT			101.1	102.0			101.4			99.7				

TABLE XXXIII

SUMMARY OF TEST RESULTS FOR MACHINE PF  
MARCH AND APRIL, 1971

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
PF-1	2-14-71	376	25.8	10.0	9.3	9.8	43.8	36.0	38.9	32.2	30.2	31.3	1.5	1.567
PF-2	3- 1-71	377	26.8	10.8	10.0	10.2	43.2	36.6	40.3	31.6	29.4	30.4	1.0	1.568
PF-3	3-14-71	378	26.3	10.3	9.5	9.9	43.8	39.0	40.9	33.2	29.4	31.6	1.5	1.575
PF-4	4- 5-71	379	26.6	10.2	9.9	10.0	43.2	36.6	40.6	29.6	28.6	29.0	1.5	1.581
CURRENT MACHINE AVERAGE			26.4	10.0			40.2			30.6			1.573	
CUMULATIVE MACHINE AVERAGE			26.6	9.8			41.0			30.2				
MACHINE FACTOR, PERCENT			99.2	102.0			98.0			101.3				
MACHINE INDEX, PERCENT			98.9	99.0			95.7			98.1				

\*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 107 rolls evaluated during the current period and the 113 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 XXXIII for Machines A through Z and Machines AA, BB, CC, DD, EE, and FF, respectively.

In Table XXXIV, 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 percentage differences of the previous two-month period. In those cases where mill Concora flat crush data

TABLE XXXIV

A COMPARATIVE SUMMARY FOR EACH MACHINE OF THE CONCORA  
FLAT CRUSH AVERAGES BASED ON INSTITUTE DATA AND MILL DATA  
MARCH AND APRIL, 1971

Machine Code	No. of Rolls Compared	Concora Flat Crush, p.s.i.			Av. Diff., % <sup>c</sup>	
		I.P.C. Av. <sup>a</sup>	Mill Av. <sup>a</sup>	Av. Diff. <sup>b</sup>	Current	Previous
A	2	43.1	44.0	+0.9	+2.1	+6.9
B	0	43.1	-- <sup>e</sup>	--	--	--
C	2	39.8	38.7	-1.1	-2.8	+0.5
D	4	45.6	44.4 <sup>d</sup>	-1.2	-2.6	-4.8
E	0	47.0	40.0 <sup>d</sup>	--	--	--
F	4	43.0	40.1	-2.9	-6.7	-6.3
G	4	36.8	33.4	-3.4	-9.2	+3.3
H	4	44.5	42.4 <sup>d</sup>	-2.1	-4.7	+5.6
I	0	46.0	35.4 <sup>d</sup>	--	--	--
J	4	40.4	39.4	-1.0	-2.5	-3.1
K	3	43.3	45.7	+2.4	+5.5	+4.7
L	3	41.9	42.4	+0.5	+1.2	--
M	4	42.7	42.4	+0.3	-0.7	--
N	4	45.4	43.0	-2.4	-5.3	-2.5
O	2	46.0	41.7	-4.3	-9.3	-3.8
P	4	39.2	39.3	+0.1	+0.3	+3.1
Q	0	40.8	-- <sup>e</sup>	--	--	--
R	4	44.7	44.5	-0.2	-0.4	-0.5
S	3	39.4	39.3	-0.1	-0.3	+1.0
T	3	44.2	42.6	-1.6	-3.6	+5.0
U	1	42.2	39.0	-3.2	-7.6	+8.4
V	2	41.4	37.1	-4.3	-10.4	--
W	4	44.2	43.8	-0.4	-0.9	+2.9
X	4	43.2	42.3	-0.9	-2.1	-4.0
Y	4	41.8	42.5	+0.7	+1.7	+5.6
Z	3	43.1	38.1	-5.0	-11.6	--
AA	4	45.3	43.5 <sup>d</sup>	-1.8	-4.0	+1.2
BB	0	54.0	39.1 <sup>d</sup>	--	--	--
CC	4	44.3	42.7	-1.6	-3.6	--
DD	4	39.5	40.0	+0.5	+1.3	-4.5
EE	2	42.6	39.1	-3.5	-8.2	-2.9
FF	4	40.2	40.6	+0.4	+1.0	+1.5

<sup>a</sup>Comparisons based on current machine average include only those rolls for which mill data were submitted.

<sup>b</sup>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.

<sup>c</sup>Average difference (percent) is computed by dividing the average difference in p.s.i. by the Institute current machine average and multiplying by 100.

<sup>d</sup>Mill data were not obtained on specimens tested immediately after fluting.

<sup>e</sup>No mill data available.

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.

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R. C. McKee, Chairman  
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