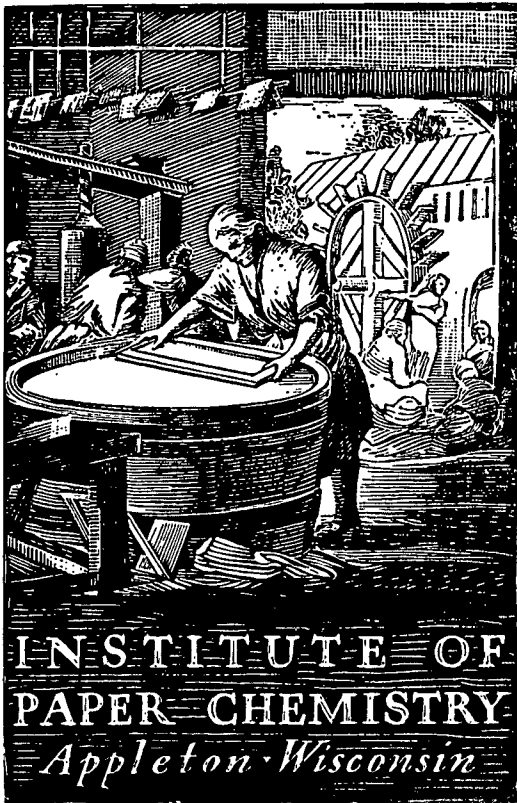


Boren  
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**BASE-LINE**  
(NOVEMBER-DECEMBER, 1971)



**CONTINUOUS EVALUATION OF  
CORRUGATING MEDIUM**

(Data for November and December, 1971)

Project 2694-2

Report Twenty-Nine

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

January 19, 1972

BASE-LINE  
(NOVEMBER-DECEMBER, 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 NOVEMBER AND DECEMBER, 1971)

SUMMARY

PART I. GENERAL

A. Participation Data:

Period	Previous Period	Current Period
	Sept.-Oct., 1971	Nov.-Dec., 1971
Number of machines	32	31
Number of rolls	110	115

B. Distribution of Mediums by Type:

Semichemical	30	31
Bogus	2	0

C. New Participants:

Container Corp. (Fernandina Beach)	None
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D. Nonparticipants:

1. Inland Container (Holton No. 1)	1. Container Corp. (Circleville No. 5)
2. International (Bastrop, No. 1)	2. Crown Zellerbach (Baltimore Nos. 1 & 2, Lebanon No. 2)
3. Mead (Lynchburg No. 2, Sylva Nos. 1 & 2)	3. Inland Container (Holton No. 1)
4. Weyerhaeuser (Longview No. 4)	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.	27.7	25.6	26.4	26.7
	Prev.	27.8	25.3	26.6	26.6
Caliper, pt.	Cur.	10.8	9.1	10.1	10.1
	Prev.	11.2	9.0	10.1	10.1
Concora flat crush, p.s.i.	Cur.	48.0	34.6	41.6	41.7
	Prev.	50.9	34.4	41.2	42.0
Single-face flat crush, p.s.i.	Cur.	35.9	25.7	31.2	31.2
	Prev.	37.2	25.8	31.2	31.3

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.	4	3.6	100.0	15	13.0	100.0
600	Min.	13	11.8	96.4	24	20.9	87.0
600	1/2	19	17.3	84.6	20	17.4	66.1
600	1	23	20.9	67.3	24	20.9	48.7
600	1-1/2	51	46.4	46.4	32	27.8	27.8

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

Physical Tests:

Basis weight: Decreased from 26.6 to 26.4 lb./M ft.<sup>2</sup>  
 Caliper: Same as previous report  
 Concora flat crush: Increased from 41.2 to 41.6 p.s.i.  
 Single-face flat crush: Same as previous report

Runnability:

<600 f.p.m. at minimum tension: Increased from 3.6 to 13.0%  
 600 f.p.m. at minimum tension: Increased from 11.8 to 20.9%  
 600 f.p.m. at 1/2 lb./in. tension: Increased from 17.3 to 17.4%  
 600 f.p.m. at 1 lb./in. tension: Same as previous report  
 600 f.p.m. at 1-1/2 lb./in. tension: Decreased from 46.4 to 27.8%

PART II. QUALITY DATA (Cont'd)

Comments: The current runnability shows a significantly higher number of rolls and a higher percentage which did not run satisfactorily at 600 f.p.m. The same trend may be observed at 600 f.p.m. at minimum tension. The percentage at 600 f.p.m. at 0.5 and 1.0 remained essentially constant, however, the percentage of rolls which ran satisfactorily at 600 f.p.m. at 1.5 was significantly lower than the last period. With the exception of one roll, all the rolls which did not run at 600 f.p.m. were from mills which have frequently had rolls in this category.

PART III. CONCORRA 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	8	29.6	3	9.7
<u>±</u> 2.5	10	37.0	12	38.7
<u>±</u> 5.0	17	63.0	23	74.2
<u>±</u> 10.0	25	92.6	29	93.5
<u>±</u> 15.0	27	100.0 <sup>a</sup>	31	100.0 <sup>b</sup>

B. Significance of Calibration Data

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

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<sup>a</sup>Maximum percentage difference was -12.9.

<sup>b</sup>Maximum percentage difference was +10.9.

## 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 November and December, 1971, on 115 rolls of corrugating medium submitted for evaluation from thirty-one 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

NOV. AND DEC., 1971

HILL 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	3	SEMICHENICAL	25.6	10.1	36.2	27.5
B	4	SEMICHENICAL	26.7	10.6	41.0	30.8
C	4	SEMICHENICAL	26.4	10.0	37.4	28.6
D	4	SEMICHENICAL	27.0	10.4	41.0	30.3
E	4	SEMICHENICAL	25.8	9.8	41.4	32.8
F	3	SEMICHENICAL	26.1	10.0	38.1	28.2
G	4	SEMICHENICAL	26.8	10.3	40.7	25.4
H	4	SEMICHENICAL	25.8	9.4	42.2	30.3
I	4	SEMICHENICAL	26.5	10.6	38.4	28.2
J	4	SEMICHENICAL	26.3	10.2	40.1	31.0
K	4	SEMICHENICAL	26.2	9.8	43.8	30.7
L	4	SEMICHENICAL	26.2	9.9	40.2	30.6
M	7	SEMICHENICAL	26.6	10.7	40.1	30.2
N	4	SEMICHENICAL	25.6	10.0	44.6	33.6
O	2	SEMICHENICAL	25.8	10.2	42.4	33.0
P	4	SEMICHENICAL	26.7	10.4	42.0	31.9
Q	3	SEMICHENICAL	26.0	10.4	34.6	25.7
R	4	SEMICHENICAL	27.1	9.1	44.2	34.2
S	2	SEMICHENICAL	27.2	10.1	45.4	35.9
T	3	SEMICHENICAL	26.4	10.0	39.7	29.5
U	4	SEMICHENICAL	26.3	10.0	45.5	34.4
V	2	SEMICHENICAL	26.8	10.2	43.8	31.1
W	4	SEMICHENICAL	27.7	10.2	38.2	29.2
X	4	SEMICHENICAL	26.2	10.3	44.4	33.9
Y	4	SEMICHENICAL	26.8	9.5	43.0	32.8
Z	4	SEMICHENICAL	26.5	9.9	46.2	35.5
AA	5	SEMICHENICAL	26.7	10.8	37.4	27.6
BB	3	SEMICHENICAL	26.6	10.0	45.3	33.4
CC	3	SEMICHENICAL	26.3	10.6	48.0	35.0
DD	3	SEMICHENICAL	25.8	9.6	39.4	30.5
EE	4	SEMICHENICAL	26.7	10.3	45.7	33.2
TOTAL	115					
		CURRENT P.K.I. AVERAGE	26.4	10.1	41.6	31.2
		CUMULATIVE P.K.I. AVERAGE	26.7	10.1	41.7	31.2
		P.K.I. INDEX, PERCENT	98.9	100.0	99.8	100.0

The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXXII for Machines A through Z and Machines AA, BB, CC, DD, and EE, 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 XXXII 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  
NOV. AND DEC., 1971

		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.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY DRAW LB./IN.*A FACTOR* <sup>B</sup>			
					MAX.	MIN.	AV.	MAX.	MIN.	AV.				
A-1	10-15-71	22	24.7	10.0	9.2	9.7	40.8	30.6	36.7	27.2	25.8	26.6	1.0	1.564
A-2	10-27-71	24	26.8	10.8	10.2	10.4	45.6	34.2	41.3	32.0	31.4	31.7	0.5	1.558
A-3	11-12-71	26	25.4	10.8	10.0	10.3	33.0	27.6	30.7	25.2	23.4	24.3		1.561
CURRENT MACHINE AVERAGE			25.6		10.1		36.2		27.5					1.561
CUMULATIVE MACHINE AVERAGE			26.3		9.9		38.9		29.7					
MACHINE FACTOR, PERCENT			97.3		102.0		93.0		92.6					
MACHINE INDEX, PERCENT			95.9		100.0		86.8		88.1					

<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  
NOV. AND DEC., 1971

		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.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY DRAW LB./IN.*A FACTOR* <sup>B</sup>			
					MAX.	MIN.	AV.	MAX.	MIN.	AV.				
B-1	9-16-71	700-1	26.7	11.3	10.2	11.0	39.0	36.0	37.6	29.4	26.8	28.1	NOTE C	1.555
B-2	9-16-71	700-2	26.8	11.1	10.6	10.9	40.8	36.0	38.5	30.8	29.0	29.8	NOTE D	1.557
B-3	10-21-71	7726-2	26.6	10.2	9.9	10.1	48.0	36.0	41.6	32.0	30.6	31.3	NOTE E	1.556
B-4	10-21-71	7726-5	26.7	11.0	10.0	10.4	48.6	43.2	46.3	35.6	33.4	34.2	MIN.	1.554
CURRENT MACHINE AVERAGE			26.7		10.6		41.0		30.8					1.556
CUMULATIVE MACHINE AVERAGE			26.3		10.6		40.4		31.1					
MACHINE FACTOR, PERCENT			101.5		100.0		101.5		99.0					
MACHINE INDEX, PERCENT			100.0		105.0		98.3		98.7					

\*See Table II for Notes A and B.  
<sup>C</sup>Maximum speed at which this roll could be corrugated with minimum tension was 300 f.p.m.  
<sup>D</sup>Maximum speed at which this roll could be corrugated with minimum tension was 225 f.p.m.  
<sup>E</sup>Maximum speed at which this roll could be corrugated with minimum tension was 325 f.p.m.

TABLE IV

SUMMARY OF TEST RESULTS FOR MACHINE C

NOV. AND DEC., 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 LB./IN.*A FACTOR*B	DRAW FACTOR*B		
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.				
C-1	10-17-71	392	26.8	10.3	10.0	10.1	42.6	36.6	38.8	32.2	33.1	1.0	1.558
C-2	11-7-71	393	26.2	10.0	9.0	9.5	41.4	34.2	37.7	28.2	26.4	27.2	1.569
C-3	11-16-71	394	26.3	10.8	10.1	10.4	37.2	34.2	35.8	27.2	26.4	26.8	1.572
C-4	12-5-71	395	26.3	10.2	10.0	10.1	39.6	35.4	37.1	27.8	27.2	27.5	1.570
CURRENT MACHINE AVERAGE													
			26.4			10.0	37.4			28.6			1.567
CUMULATIVE MACHINE AVERAGE			26.4			10.0	38.9			29.3			
MACHINE FACTOR, PERCENT			100.0			100.0	96.1			97.6			
MACHINE INDEX, PERCENT			98.9			99.0	89.7			91.7			

TABLE V

SUMMARY OF TEST RESULTS FOR MACHINE D

NOV. AND DEC., 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 LB./IN.*A FACTOR*B	DRAW FACTOR*B			
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
D-1	10-9-71	4061	26.7	10.0	9.2	9.8	48.6	42.6	45.6	34.2	32.2	32.9	1.5	1.568
D-2	10-16-71	4013	27.2	11.3	8.9	10.3	40.2	39.0	39.6	30.6	29.0	29.9	1.0	1.562
D-3	10-25-71	4603	27.4	11.2	10.8	11.1	40.8	37.8	39.2	29.4	27.8	28.6	0.5	1.562
D-4	11-1-71	4673	26.9	10.8	10.0	10.4	42.0	37.2	39.7	30.6	28.8	29.8	0.5	1.560
CURRENT MACHINE AVERAGE														
			27.0			10.4	41.0			30.3			1.563	
CUMULATIVE MACHINE AVERAGE			27.6			10.3	40.4			30.8				
MACHINE FACTOR, PERCENT			97.8			101.0	101.5			98.4				
MACHINE INDEX, PERCENT			101.1			103.0	98.3			97.1				

\*See Table II for footnotes A and B.



TABLE VIII

SUMMARY OF TEST RESULTS FOR MACHINE G  
NOV. AND DEC., 1971

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
G-1	10-17-71	392	25.7	10.4	9.9	10.1	40.8	34.8	37.9	31.8	29.2	30.1	0.5	1.558
G-2	11-6-71	393	26.8	10.4	9.4	10.0	45.6	39.0	42.5	31.8	29.8	30.8	1.0	1.567
G-3	11-16-71	394	26.6	10.6	9.8	10.1	41.4	36.6	38.2	30.4	27.0	29.0	1.0	1.572
G-4	12-5-71	395	28.2	11.4	10.5	11.0	45.6	42.0	44.3	28.8	26.2	27.6	1.5	1.575
CURRENT MACHINE AVERAGE			26.8			10.3	40.7					29.4		1.568
CUMULATIVE MACHINE AVERAGE			26.4			9.3	39.3					29.6		
MACHINE FACTOR, PERCENT			101.5			105.1						99.3		
MACHINE INDEX, PERCENT			100.4			102.0						94.2		

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE H  
NOV. AND DEC., 1971

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
H-1	10-12-71	8842	25.8	9.2	8.7	9.0	49.8	42.0	46.6	32.4	31.6	32.1	MIN.	1.554
H-2	10-15-71	8908	24.9	9.4	8.8	9.0	44.4	35.4	40.4	31.4	29.4	30.4	MIN.	1.557
H-3	11-14-71	8412	26.0	10.1	9.1	9.6	44.4	36.6	41.0	29.0	27.6	28.4	0.5	1.564
H-4	11-17-71	9292	26.6	10.3	9.8	10.0	42.6	38.4	40.9	30.8	29.6	30.2	0.5	1.562
CURRENT MACHINE AVERAGE			25.8			9.4	42.2					30.3		1.559
CUMULATIVE MACHINE AVERAGE			26.4			9.6	44.6					31.7		
MACHINE FACTOR, PERCENT			97.7			97.9						95.6		
MACHINE INDEX, PERCENT			96.6			93.1						97.1		

\*See Table II for footnotes A and B.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I

NOV. AND DEC., 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				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	LB./IN.*A	DRAG FACTOR*B			
I-1	10-26-71	2220	26.2	11.2	10.2	10.6	40.8	36.0	38.4	30.4	29.4	30.0	MIN.	1.562
I-2	10-27-71	2221	26.8	11.1	10.6	11.0	43.8	37.2	40.4	31.2	29.6	30.4	MIN.	1.550
I-3	11-23-71	2228	26.2	10.8	10.0	10.3	39.0	34.2	37.3	26.8	25.8	26.2	1.0	1.562
I-4	11-23-71	2229	26.8	10.7	10.0	10.4	39.6	35.4	37.7	26.4	25.6	26.0	1.0	1.564
CURRENT MACHINE AVERAGE			26.5			10.6	38.4		38.4			28.2		1.560
CUMULATIVE MACHINE AVERAGE			27.4			10.7	42.4		42.4			30.6		
MACHINE FACTOR, PERCENT			96.7			99.1	90.6		90.6			92.2		
MACHINE INDEX, PERCENT			99.2			105.0	92.1		92.1			90.4		

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J

NOV. AND DEC., 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				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	LB./IN.*A	DRAG FACTOR*B			
J-1	10-20-71	862	26.8	11.0	9.9	10.4	42.0	36.6	39.6	33.0	31.6	32.4	1.5	1.563
J-2	10-26-71	863	27.1	10.8	9.9	10.2	43.8	39.0	42.0	32.4	31.4	31.8	1.5	1.564
J-3	11-8-71	864	26.3	11.0	10.0	10.3	44.4	35.4	39.2	31.2	28.6	29.9	1.5	1.563
J-4	11-17-71	865	24.9	10.0	9.2	9.7	43.2	37.2	39.5	30.6	29.2	30.1	1.5	1.567
CURRENT MACHINE AVERAGE			26.3			10.2	40.1		40.1			31.0		1.564
CUMULATIVE MACHINE AVERAGE			26.4			10.2	41.3		41.3			31.6		
MACHINE FACTOR, PERCENT			99.6			100.0	97.1		97.1			98.1		
MACHINE INDEX, PERCENT			98.5			101.0	96.2		96.2			99.4		

\*See Table II for footnotes A and B.

TABLE XII

SUMMARY OF TEST RESULTS FOR MACHINE K

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMI-CHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./78. SQ. FT.	CALIPER, PT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		SUBBABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN. AV.	MAX.	MIN. AV.	MAX.	MIN. AV.					
K-1	11- 1-71	232	26.3	10.0	9.0	9.6	51.0	42.0	46.2	33.4	31.8	32.7	1.5	1.569
K-2	11- 1-71	252	26.0	10.0	9.0	9.5	49.2	38.4	43.3	32.6	31.0	31.9	1.5	1.569
K-3	12- 4-71	1492	26.5	10.2	10.0	10.0	48.0	41.4	43.9	31.0	29.2	30.3	1.5	1.575
K-4	12- 4-71	1502	26.2	10.7	10.0	10.2	43.8	39.6	41.6	29.0	27.2	28.0	1.5	1.576
CURRENT MACHINE AVERAGE			26.2			9.8		43.8			30.7			1.572
CUMULATIVE MACHINE AVERAGE			27.2			11.0		42.6			29.3			
MACHINE FACTOR, PERCENT			96.3			89.1		102.6			104.8			
MACHINE INDEX, PERCENT			98.1			97.0		105.0			98.4			

TABLE XIII

SUMMARY OF TEST RESULTS FOR MACHINE L

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMI-CHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./78. SQ. FT.	CALIPER, PT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		SUBBABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN. AV.	MAX.	MIN. AV.	MAX.	MIN. AV.					
L-1	10-14-71	241	27.3	11.0	9.9	10.4	42.6	36.6	39.6	31.0	28.8	29.6	1.0	1.566
L-2	10-18-71	243	25.7	10.3	9.0	9.7	44.4	39.0	42.0	31.6	30.8	31.3	0.5	1.557
L-3	10-18-71	244	26.3	10.6	9.0	9.9	42.6	38.4	40.3	31.6	30.0	31.2	1.0	1.563
L-4	10-18-71	245	25.3	10.1	9.0	9.5	40.2	37.2	38.8	31.0	29.0	30.2	1.0	1.568
CURRENT MACHINE AVERAGE			26.2			9.9		40.2			30.6			1.564
CUMULATIVE MACHINE AVERAGE			27.3			10.4		40.9			31.3			
MACHINE FACTOR, PERCENT			96.0			95.2		98.3			97.8			
MACHINE INDEX, PERCENT			98.1			98.0		96.4			98.1			

\*See Table II for footnotes A and B.



TABLE IV  
SUMMARY OF TEST RESULTS FOR MACHINE H  
NOV. AND DEC., 1971

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.	CALIPER, PT.		CONCORDA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
B-1	9- 1-71	1	26.8	10.5	10.0	10.2	47.4	39.0	43.3	33.6	31.2	32.3	NOTE C	1.546
B-2	9- 1-71	2	26.6	10.8	10.0	10.3	48.0	42.6	44.0	33.0	31.6	32.2	NOTE D	1.546
B-3	11-10-71	36	26.5	11.3	10.5	11.0	42.0	38.8	38.2	30.2	29.4	29.8	0.5	1.563
B-4	11-11-71	37	26.9	11.3	10.9	11.1	41.4	33.0	36.5	29.4	27.6	28.6	HIN.	1.563
B-5	11-15-71	39	26.3	11.2	10.4	10.8	43.2	37.2	40.3	30.0	29.0	29.4	0.5	1.563
B-6	11-15-71	40	26.6	11.2	10.3	10.7	40.8	40.2	40.6	29.6	28.0	29.1	0.5	1.565
B-7	11-15-71	41	26.5	11.1	10.0	10.7	40.2	36.0	38.0	31.6	28.6	30.3	0.5	1.565
CURRENT MACHINE AVERAGE											30.2	1.559		
CUMULATIVE MACHINE AVERAGE											29.6			
MACHINE FACTOR, PERCENT											102.0			
MACHINE INDEX, PERCENT											96.8			

\*See Table II for footnotes A and B.  
C Maximum speed at which this roll could be corrugated with minimum tension was 500 f.p.m.  
D Maximum speed at which this roll could be corrugated with minimum tension was 475 f.p.m.

TABLE IV  
SUMMARY OF TEST RESULTS FOR MACHINE H  
NOV. AND DEC., 1971

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.	CALIPER, PT.		CONCORDA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
B-1	11- 4-71		26.0	10.1	9.5	9.9	51.6	43.2	47.4	34.0	32.0	33.4	1.5	1.567
B-2	11- 5-71		25.8	10.3	9.9	10.0	48.0	46.2	47.0	36.2	33.8	35.1	1.5	1.564
B-3	11- 6-71		25.4	10.4	10.0	10.1	48.4	39.0	41.8	34.6	32.0	33.0	1.0	1.563
B-4	11- 7-71		25.4	10.3	9.7	10.0	45.0	40.2	42.2	34.4	32.2	32.9	1.5	1.566
CURRENT MACHINE AVERAGE											33.6	1.565		
CUMULATIVE MACHINE AVERAGE											32.3			
MACHINE FACTOR, PERCENT											104.0			
MACHINE INDEX, PERCENT											107.7			

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE D

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE PLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
0-1	11-16-71	628	25.7	10.5	10.0	10.1	47.4	37.8	42.5	34.8	32.6	33.4	0.5	1.556
0-2	11-22-71	629	26.0	10.6	9.9	10.2	44.4	38.4	42.2	34.6	31.0	32.5	0.5	1.561
CURRENT MACHINE AVERAGE			25.8			10.2	42.4					33.0		1.559
CUMULATIVE MACHINE AVERAGE			25.7			10.1	45.4					33.6		
MACHINE FACTOR, PERCENT			100.4			101.0	93.8					98.2		
MACHINE INDEX, PERCENT			96.6			101.0	101.7					105.8		

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE F

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE PLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
P-1	10-31-71		26.0	11.0	10.0	10.4	41.4	35.4	38.6	31.4	30.0	30.6		1.557
P-2	11- 3-71		26.5	11.0	10.0	10.4	43.8	38.4	42.1	31.0	29.8	30.3		1.562
P-3	11- 4-71		26.5	10.9	9.9	10.2	45.6	40.2	43.3	34.0	32.0	33.1		1.562
P-4	11- 8-71		27.9	11.0	10.2	10.8	46.2	42.6	44.2	34.8	32.4	33.5		1.558
CURRENT MACHINE AVERAGE			26.7			10.4	42.0					31.9		1.560
CUMULATIVE MACHINE AVERAGE			26.7			10.3	42.3					30.8		
MACHINE FACTOR, PERCENT			100.0			101.0	99.3					103.6		
MACHINE INDEX, PERCENT			100.0			103.0	100.7					102.2		

\*See Table II for footnotes A and B.

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q

NOV. AND DEC., 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 DRAB LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
Q-1	10-19-71	2929	26.0	10.5	10.0	10.2	34.2	31.2	32.4	24.8	23.6	24.2	MIN.	1.550
Q-2	10-27-71	2926	25.6	10.6	9.9	10.3	34.2	31.2	32.4	24.2	23.2	23.8	MIN.	1.550
Q-3	11-16-71	5307	26.3	11.1	10.3	10.8	40.2	37.8	38.9	29.8	28.6	29.1	MIN.	1.558
CURRENT MACHINE AVERAGE			26.0		10.4		34.6			25.7				1.553
CUMULATIVE MACHINE AVERAGE			26.2		10.8		34.8			26.2				
MACHINE FACTOR, PERCENT			99.2		96.3		99.4			98.1				
MACHINE INDEX, PERCENT			97.4		103.0		83.0			82.4				

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R

NOV. AND DEC., 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 DRAB LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
R-1	10-20-71	360	27.3	9.4	9.0	9.2	43.2	40.8	42.0	35.0	33.4	34.2	NOTE C	1.582
R-2	11-1-71	361	26.8	9.2	8.9	9.0	47.4	42.6	45.2	34.6	31.8	33.5	MIN.	1.557
R-3	11-17-71	364	27.3	9.6	9.0	9.3	49.2	44.4	46.9	38.2	35.6	36.9	NOTE D	1.563
R-4	11-19-71	365	26.9	9.1	9.0	9.0	45.0	38.4	42.8	33.4	31.6	32.4	MIN.	1.561
CURRENT MACHINE AVERAGE			27.1		9.1		44.2			34.2				1.556
CUMULATIVE MACHINE AVERAGE			27.3		9.0		43.9			33.4				
MACHINE FACTOR, PERCENT			99.3		101.1		100.7			102.4				
MACHINE INDEX, PERCENT			101.5		90.1		106.0			109.6				

\*See Table II for footnotes A and B.

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

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

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE S

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE PLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
S-1	10-20-71	760	27.1	10.3	9.9	10.1	48.0	42.0	37.0	33.4	35.0	MIN.	1.556	
S-2	10-28-71	761	27.2	10.4	10.0	10.1	49.2	42.0	38.0	35.2	36.8	0.5	1.556	
CURRENT MACHINE AVERAGE														
				27.2	10.1		45.4	35.9				1.556		
CUMULATIVE MACHINE AVERAGE				27.1	9.4		47.7	36.1						
MACHINE FACTOR, PERCENT				100.4	107.4		95.2	99.4						
MACHINE INDEX, PERCENT				101.9	100.0		108.9	115.1						

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE PLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
T-1	11-24-71	45	26.4	10.1	9.7	9.9	40.8	35.4	31.8	27.2	29.4	1.0	1.569	
T-2	11-24-71	46	26.5	10.3	9.9	10.0	40.4	37.8	30.8	28.2	29.6	1.0	1.566	
T-3	11-24-71	47	26.3	10.4	9.9	10.0	43.8	37.8	30.2	28.8	29.6	1.0	1.563	
CURRENT MACHINE AVERAGE														
				26.4	9.8		39.7	29.5				1.566		
CUMULATIVE MACHINE AVERAGE				26.2	9.8		38.2	28.8						
MACHINE FACTOR, PERCENT				100.8	102.0		103.9	102.4						
MACHINE INDEX, PERCENT				98.9	99.0		95.2	94.6						

\*See Table II for Footnotes A and B.

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

MILL ROLL NO.	DATE MADE	BASIS WT., LB./M. SQ. FT.	CALIPER, FT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE PLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8				
			MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
0-1	10-30-71	26.3	10.3	9.8	10.0	46.0	43.2	45.5	35.4	34.0	34.7	1.0	1.562
0-2	10-31-71	26.3	10.3	9.7	10.0	48.6	45.0	47.0	35.4	33.2	34.4	1.0	1.564
0-3	11-3-71	26.3	10.7	9.8	10.1	46.2	42.0	43.8	35.4	33.4	34.5	1.5	1.565
0-4	11-4-71	26.4	10.1	9.8	10.0	46.0	44.4	45.8	35.2	33.6	34.2	1.5	1.564
CURRENT MACHINE AVERAGE		26.3			10.0		45.5				34.4		1.564
CUMULATIVE MACHINE AVERAGE		26.4			10.3		44.8				33.3		
MACHINE FACTOR, PERCENT		99.6			97.1		101.6				103.3		
MACHINE INDEX, PERCENT		98.5			99.0		109.1				110.2		

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

MILL ROLL NO.	DATE MADE	BASIS WT., LB./M. SQ. FT.	CALIPER, FT.		CONCORA PLAT CRUSH, P.S.I.		SINGLE-FACE PLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*8				
			MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
V-1	11-2-71	27.0	10.5	9.9	10.2	45.0	40.8	43.6	32.0	29.8	31.2	1.5	1.577
V-2	11-5-71	26.5	10.3	10.0	10.1	46.0	39.0	43.9	32.0	30.0	31.0	1.5	1.571
CURRENT MACHINE AVERAGE		26.8			10.2		43.8				31.1		1.574
CUMULATIVE MACHINE AVERAGE		27.2			10.4		45.7				33.3		
MACHINE FACTOR, PERCENT		98.5			98.1		95.8				93.4		
MACHINE INDEX, PERCENT		100.4			101.0		105.0				99.7		

\*See Table IV for Footnotes A and B.

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W  
NOV. AND DEC., 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 LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
W-1	10-8-71	3521	27.9	10.6	10.0	10.2	42.0	36.6	39.0	30.8	29.2	30.1	1.5	1.567
W-2	10-15-71	3632	27.9	10.1	9.9	10.0	39.0	35.4	37.2	29.0	28.0	28.5	1.5	1.569
W-3	10-25-71	3502	27.8	10.3	10.0	10.1	39.0	37.2	37.8	30.0	28.2	28.9	1.5	1.569
W-4	11-2-71	3402	27.5	10.8	10.1	10.4	39.6	36.4	39.0	29.8	28.8	29.5	1.5	1.566
CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														
CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														

TABLE XXV

SUMMARY OF TEST RESULTS FOR MACHINE X

NOV. AND DEC., 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 LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
X-1	10-19-71	334	27.4	10.3	9.5	10.0	55.2	51.6	53.5	40.2	37.6	39.3	HIN.	1.586
X-2	10-28-71	468	25.2	10.0	9.3	9.8	46.8	39.0	43.1	36.2	32.0	33.2	HIN.	1.536
X-3	11-22-71	404	25.7	11.0	9.9	10.5	44.4	39.6	41.8	33.2	32.0	32.6	HIN.	1.552
X-4	12-6-71	107	26.5	11.3	10.2	10.8	43.8	36.0	39.0	32.4	29.6	30.6	NOTE C	1.551
CURRENT MACHINE AVERAGE														
CUMULATIVE MACHINE AVERAGE														
MACHINE FACTOR, PERCENT														
MACHINE INDEX, PERCENT														

\*See Table II for footnotes A and B.

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

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMI-CHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.		CALLIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		ROUNDBILITY LB./IN.*A FACTOR*8		
			MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.			
Y-1	11-2-71	362	27.1	10.5	10.0	10.2	45.6	43.2	44.5	34.8	32.4	33.5	MIN. 1.552
Y-2	11-10-71	363	27.4	9.5	9.0	9.3	48.6	43.2	45.4	34.8	33.0	33.8	1.5
Y-3	11-30-71	366	26.5	9.4	9.1	9.2	42.0	37.8	39.4	33.0	30.2	31.5	NOTE C
Y-8	12-4-71	367	26.2	9.6	9.0	9.2	45.0	37.8	42.8	33.8	32.0	32.4	NOTE D 1.553
CURRENT MACHINE AVERAGE			26.8		9.5		43.0		43.0	32.8		32.8	1.558
CUMULATIVE MACHINE AVERAGE			27.2		9.0		43.6		43.6	33.2		33.2	
MACHINE FACTOR, PERCENT			98.5		105.6		98.6		98.6	98.8		98.8	
MACHINE INDEX, PERCENT			100.4		94.0		103.1		103.1	105.1		105.1	

\*See Table II for footnotes A and B.

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

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

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMI-CHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.		CALLIPER, PT.		CONCORA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		ROUNDBILITY LB./IN.*A FACTOR*8		
			MAX.	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.	MIN.			
Z-1	9-21-71	4743	26.5	10.2	9.2	9.8	48.6	39.6	44.3	35.0	32.4	34.1	MIN. 1.550
Z-2	9-26-71	4912	26.9	10.2	10.0	10.1	51.6	43.8	48.4	38.2	35.6	36.9	NOTE C 1.549
Z-3	10-5-71	5141	26.5	10.2	10.0	10.1	51.0	46.2	48.7	37.0	35.6	36.3	NOTE D 1.545
Z-4	10-11-71	5301	26.0	9.9	9.2	9.6	45.0	40.8	43.2	36.0	33.4	34.6	MIN. 1.550
CURRENT MACHINE AVERAGE			26.5		9.9		46.2		46.2	35.5		35.5	1.549
CUMULATIVE MACHINE AVERAGE			26.2		10.3		48.0		48.0	33.8		33.8	
MACHINE FACTOR, PERCENT			101.1		96.1		105.0		105.0	105.0		105.0	
MACHINE INDEX, PERCENT			99.2		98.0		110.8		110.8	113.8		113.8	

\*See Table II for footnotes A and B.

C Maximum speed at which this roll could be corrugated with minimum tension was 300 f.p.m.

D Maximum speed at which this roll could be corrugated with minimum tension was 225 f.p.m.

TABLE XXVIII  
SUMMARY OF TEST RESULTS FOR MACHINE AA  
NOV. AND DEC., 1971

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.	CALIPER, PT.		CONCORDA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RELIABILITY DRAW LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
AA-1	9-30-71	691	26.8	11.0	10.0	10.7	42.0	33.0	37.0	28.8	27.2	27.8	1.0	1.573
AA-2	10-15-71	692	26.9	11.0	10.3	10.7	42.6	37.2	39.8	29.4	28.0	28.6	0.5	1.563
AA-3	10-29-71	693	26.6	11.0	10.5	10.8	38.4	35.4	37.4	28.6	26.6	27.5	1.0	1.571
AA-4	11-12-71	694	26.5	11.0	10.2	10.8	40.2	36.0	37.6	28.8	24.4	26.7	1.5	1.573
AA-5	11-26-71	695	26.8	11.1	10.5	10.9	37.8	33.0	35.2	29.2	26.4	27.6	1.5	1.572
CURRENT MACHINE AVERAGE											27.6	1.571		
CUMULATIVE MACHINE AVERAGE											30.4			
MACHINE FACTOR, PERCENT											93.0			
MACHINE INDEX, PERCENT											89.7			

TABLE XXIX  
SUMMARY OF TEST RESULTS FOR MACHINE BB  
NOV. AND DEC., 1971

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.	CALIPER, PT.		CONCORDA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RELIABILITY DRAW LB./IN.*A FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
BB-1	10-29-71	288	26.8	10.4	10.0	10.1	52.2	43.8	47.9	35.2	33.8	34.6		NOTE C
BB-2	10-30-71	289	26.8	10.3	9.8	10.1	49.2	38.4	44.0	34.8	32.2	33.7		NOTE D
BB-3	11-10-71	290	26.3	10.0	9.4	9.8	46.2	39.6	43.9	33.4	30.8	31.8		NIB.
CURRENT MACHINE AVERAGE											45.3	1.554		
CUMULATIVE MACHINE AVERAGE											30.6			
MACHINE FACTOR, PERCENT											109.2			
MACHINE INDEX, PERCENT											107.0			

\*See Table II for footnotes A and B.  
C. Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.  
D. Maximum speed at which this roll could be corrugated with minimum tension was 475 f.p.m.



TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE CC

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.	CALIPER, PT.		CONCORDA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
CC-1	10-26-71	855	26.0	11.0	10.4	10.9	47.4	43.2	45.6	34.2	31.6	32.8	1.0	1.557
CC-2	10-28-71	856	25.7	11.0	10.0	10.4	50.4	43.2	46.3	35.6	33.6	34.7	1.5	1.557
CC-3	11-21-71	857	27.1	11.0	10.0	10.5	54.0	49.8	52.0	39.0	35.2	37.5	0.5	1.564
CURRENT MACHINE AVERAGE			26.3			10.6			48.0			35.0		1.560
CUMULATIVE MACHINE AVERAGE			26.0			10.2			51.3			36.8		
MACHINE FACTOR, PERCENT			101.2			103.9			93.6			95.1		
MACHINE INDEX, PERCENT			98.5			105.0			115.1			112.2		

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE DD

NOV. AND DEC., 1971

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./H. SQ. FT.	CALIPER, PT.		CONCORDA FLAT CRUSH, P.S.I.		SINGLE-FACE FLAT CRUSH, P.S.I.		RUNNABILITY DRAW LB./IN.*A FACTOR*B				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
DD-1	10-18-71		27.0	9.9	9.2	9.6	39.6	37.2	38.4	30.4	29.4	29.9		1.566
DD-2	11-3-71		25.1	9.7	9.0	9.2	45.0	36.6	40.7	33.4	31.0	32.3		1.568
DD-3	11-25-71		25.4	10.2	9.6	10.0	43.2	36.0	39.2	30.6	28.6	29.4		1.568
CURRENT MACHINE AVERAGE			25.8			9.6			39.4			30.5		1.566
CUMULATIVE MACHINE AVERAGE			27.0			9.7			40.3			30.2		
MACHINE FACTOR, PERCENT			95.6			99.0			97.8			101.0		
MACHINE INDEX, PERCENT			96.6			95.0			94.5			97.8		

\*See Table II for footnotes A and B.

TABLE XXXII

SUMMARY OF TEST RESULTS FOR MACHINE EE

NOV. AND DEC., 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.		ROBBABILITY DRAW LB./IN.* FACTOR*8				
				MAX.	MIN.	MAX.	MIN.	MAX.	MIN.					
EE-1	11- 3-71	462	27.1	10.9	10.1	10.6	49.8	42.6	45.5	34.4	33.2	33.8	0.5	1.567
EE-2	11- 3-71	472	27.4	10.8	10.0	10.4	49.2	45.0	47.4	34.2	33.0	33.6	0.5	1.566
EE-3	12- 5-71	2622	26.0	10.3	9.8	10.1	49.8	42.0	45.8	35.4	32.0	33.5	1.5	1.569
EE-4	12- 5-71	2632	26.2	10.3	9.9	10.0	47.4	42.0	44.0	33.4	30.2	31.9	1.5	1.573
CURRENT MACHINE AVERAGE			26.7			10.3		45.7				33.2		1.569
CUMULATIVE MACHINE AVERAGE			26.4			10.6		42.6				31.1		
MACHINE FACTOR, PERCENT			101.1			97.2		107.3				106.8		
MACHINE INDEX, PERCENT			100.0			102.0		109.6				106.4		

\*See Table II for footnotes 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 115 rolls evaluated during the current period and the 110 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 XXXII for Machines A through Z and Machines AA, BB, CC, DD, and EE, respectively.

In Table XXXIII, 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 XXXIII

A COMPARATIVE SUMMARY FOR EACH MACHINE OF THE CONCORA  
FLAT CRUSH AVERAGES BASED ON INSTITUTE DATA AND MILL DATA  
NOVEMBER AND DECEMBER, 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	3	36.2	33.7	-2.5	-6.9	--
B	4	41.0	37.2	-3.8	-9.3	--
C	4	37.4	38.6	+1.2	+3.2	0.0
D	3	39.5	40.4	+0.9	+2.3	-4.9
E	4	41.4	42.2	+0.8	+1.9	0.0
F	3	38.1	35.4	-2.7	-7.1	--
G	4	40.7	40.9	+0.2	+0.5	+0.3
H	4	42.2	43.2	+1.0	+2.4	--
I	4	38.4	42.6	+4.2	+10.9	+5.9
J	4	40.1	37.3	-2.8	-7.0	-4.6
K	4	43.8	40.9	-2.9	-6.6	-9.7
L	4	40.2	42.0	+1.8	+4.5	--
M	5	38.7	39.1	+0.4	+1.0	--
N	4	44.6	45.2	+0.6	+1.3	+0.2
O	2	42.4	44.4	+2.0	+4.7	--
P	4	42.0	43.3	+1.3	+3.1	-1.0
Q	2	32.4	31.8	-0.6	-1.9	-7.6
R	4	44.2	42.0	-2.2	-5.0	-3.8
S	2	45.4	45.0	-0.4	-0.9	--
T	3	39.7	40.4	+0.7	+1.8	+0.5
U	4	45.5	44.5	-1.0	-2.2	-0.2
V	2	43.8	41.4	-2.4	-5.5	--
W	3	38.0	39.5	+1.5	+3.9	-12.9
X	4	44.4	45.4	+1.0	+2.3	+11.3
Y	4	43.0	41.4	-1.6	-3.7	-3.9
Z	4	46.2	44.6	-1.6	-3.5	-3.7
AA	5	37.4	38.4	+1.0	+2.7	+8.2
BB	2	46.0	44.8	-1.2	-2.6	-2.3
CC	3	48.0	46.9	-1.1	-2.3	--
DD	3	39.4	40.9	+1.5	+3.8	+6.8
EE	4	45.7	41.0	-4.7	-10.3	-9.3

<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.

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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