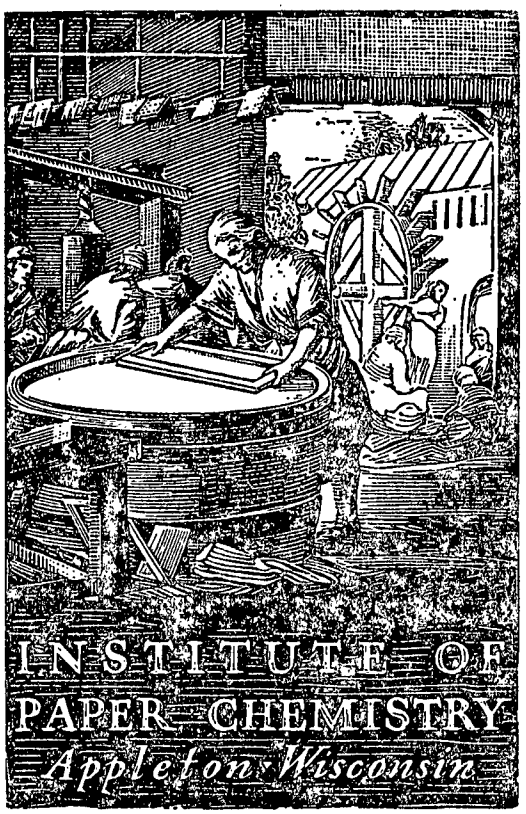

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Report 111

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

February 1, 1965

CODE LETTERS FOR PROJECT 1108-17
Report 111
(Feb. 1, 1965)

Company - Mill	Machine No.	Code Letter
The Chesapeake Corporation - West Point	1	--
Container Corporation of America - Circleville	5	W
Continental Can Company, Inc. - Hopewell	1	Q
- Hodge	1	B
Crown Zellerbach Corporation - Baltimore	1	Z
- Baltimore	2	C
- Bogalusa	4	R
- Lebanon	1	--
- Lebanon	2	J
International Paper Company - Bastrop	1	Y
- Bastrop	2	O
- Georgetown	1	N
The Mead Corporation - Harriman	1	H
- Knoxville	1	A
- Lynchburg	2	AA
- Sylva	1	L
- Sylva	2	U
Olin Mathieson Chemical Corporation - Monroe	1	--
- Monroe	2	--
Owens-Illinois Glass Company - Big Island	3	X
- Tomahawk	1	I
- Tomahawk	2	P
- Tomahawk	3	S
Packaging Corporation of America - Filer City	1	D
- Filer City	2	G
St. Joe Paper Company - Port St. Joe	1	K
St. Regis Container Corporation - Coshocton	1	V
Union Bag-Camp Paper Corporation - Savannah	2	M
- Monroe	2	F
West Virginia Pulp and Paper Company - Covington	6	BB
- Covington	7	--
- Charleston	--	--
- Williamsburg	1	E
- Williamsburg	2	T
Weyerhaeuser Company - Plymouth	3	

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

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to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

February 1, 1965

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THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

INTRODUCTION

As requested by the Technical Division of the Fourdrinier Kraft Board Institute, Inc., the reports pertinent to the continuous evaluation of corrugating medium have been prepared by The Institute of Paper Chemistry on a bimonthly instead of monthly basis since August 1, 1961. The current report presents results obtained during the months of December, 1964 and January, 1965, on 186 rolls of corrugating medium representing the production of twenty-eight machines. Each of these 186 rolls of corrugating medium was evaluated for basis weight, caliper, Concora flat crush (conditioned after fluting), H. and D. flat crush on single-faced board, and runnability. The evaluation of runnability was initiated by corrugating each roll under standardized conditions on the Institute's corrugator into A-flute board at 600 feet per minute with minimum tension and recording the draw factor at this condition if the roll ran satisfactorily. If unsatisfactory runnability occurred at this speed, the corrugator was slowed down in increments of 25 f.p.m. until satisfactory runnability was obtained, i.e., no ruptured flutes. In this latter case the draw factor was recorded for the highest speed below 600 f.p.m. at which the roll ran satisfactorily. If the medium fabricated satisfactorily at 600 f.p.m. with minimum tension, further runs were made at higher tensions to determine when cracking occurred. The higher tensions used were 0.5 lb. per inch, 1.0 lb. per inch, and 1.5 lb. per inch. Flat crush was determined on the single-faced board obtained at a speed of 600 f.p.m. with minimum tension. The flat crush results, in addition to supplying information about quality, provide data which may be used by each participant to evaluate the relationship between Concora flat crush and combined board flat crush.

For each participating machine, test data for the current period are shown in Table I and presented graphically in Fig. 1 to 4. A tabulation of the number of rolls and type of medium evaluated is also given in Table I for each machine. The current machine test averages given in Table I are the means for each test property of the averages obtained on all rolls of corrugating medium evaluated from a given machine during the current period. In addition to the current machine test averages, Table I also presents the current F.K.I. averages, cumulative F.K.I. averages, and the F.K.I. indexes. The current F.K.I. average for each test property is the mean of the current machine averages for all machines participating in the study during a given period (excluding the current machine averages based on the evaluation of fewer than three rolls of corrugating medium as requested by the Technical Division). The cumulative F.K.I. average for each test property is the mean of the current F.K.I. averages for the previous twelve-month period excluding the average for the current period. The F.K.I. index for each test property is obtained as follows:

$$\frac{\text{current F.K.I. average}}{\text{cumulative F.K.I. average}} \times 100 = \text{F.K.I. index (\%)}$$

The F.K.I. index for each test property provides a ready means of comparing the current quality with previous results. An index greater than 100% indicates that current quality is higher than the average result for the previous twelve periods; an index below 100% indicates that current quality is lower than the average result for the previous twelve periods.

The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXIX for Machines A through BB, respectively. The maximum, minimum, and average results obtained on each roll are shown for all test properties except basis weight for

TABLE I

SUMMARY OF CURRENT MACHINE AVERAGES
December, 1964 and January, 1965

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	8	Semichemical	27.0	11.6	35.4	32.7
B	5	Semichemical	26.7	9.6	34.7	30.8
C	8	Bogus	27.3	9.6	36.9	32.8
D	7	Semichemical	26.5	9.9	32.1	28.5
E	8	Semichemical	26.6	10.0	32.9	30.9
F	4	Bogus	28.8	10.5	34.8	30.6
G	7	Semichemical	26.1	9.5	34.1	30.0
H	10	Semichemical	29.0	11.3	34.7	31.2
I	8	Semichemical	26.6	10.4	36.2	32.3
J	4	Semichemical	26.9	10.5	31.5	28.6
K	4	Kraft	28.2	9.5	37.9	35.5
L	9	Semichemical	27.6	10.2	33.4	29.0
M	8	Semichemical	27.0	9.3	39.1	34.3
N	5	Semichemical	28.2	10.8	39.2	34.9
O	3	Semichemical	26.4	10.3	38.7	34.3
P	8	Semichemical	26.5	10.2	36.3	32.1
Q	6	Semichemical	26.9	10.9	34.2	31.6
R	5	Semichemical	27.5	11.2	35.1	31.5
S	8	Semichemical	26.8	10.5	35.6	32.2
T	7	Semichemical	26.2	10.2	37.0	32.8
U	5	Semichemical	27.4	10.5	32.6	29.2
V	6	Bogus	27.7	10.6	35.3	31.6
W	8	Semichemical	26.8	10.8	34.1	30.6
X	8	Semichemical	26.6	10.7	34.3	30.6
Y	3	Semichemical	26.5	10.6	39.8	35.6
Z	9	Bogus	26.9	9.9	34.0	30.0
AA	8	Semichemical	26.6	10.3	32.4	28.9
BB	7	Semichemical	27.1	10.9	34.5	29.7
Total	186					
Current F.K.I. average			27.1	10.4	35.2	31.5
Cumulative F.K.I. average			27.0	10.2	36.1	32.7
F.K.I. index, %			100.3	101.5	97.6	96.5

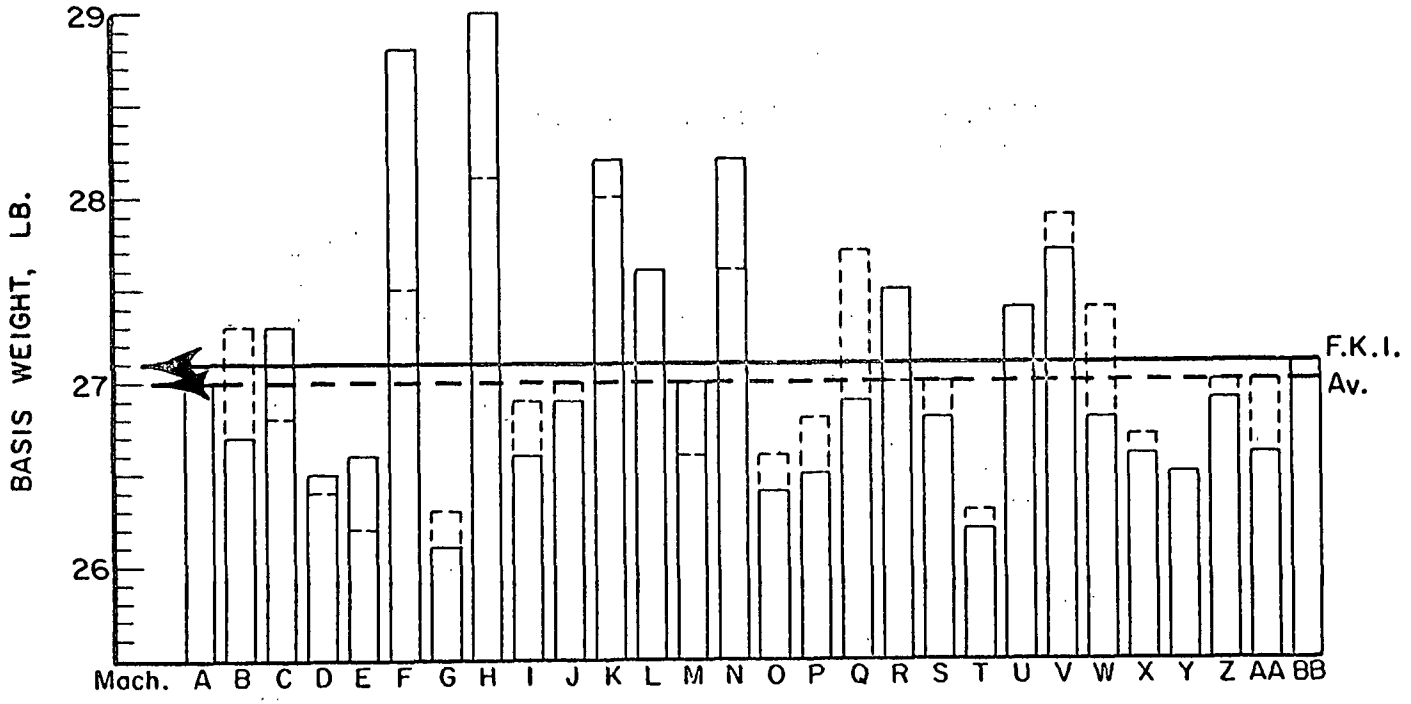

Figure 1. Comparison of Basis Weight Results

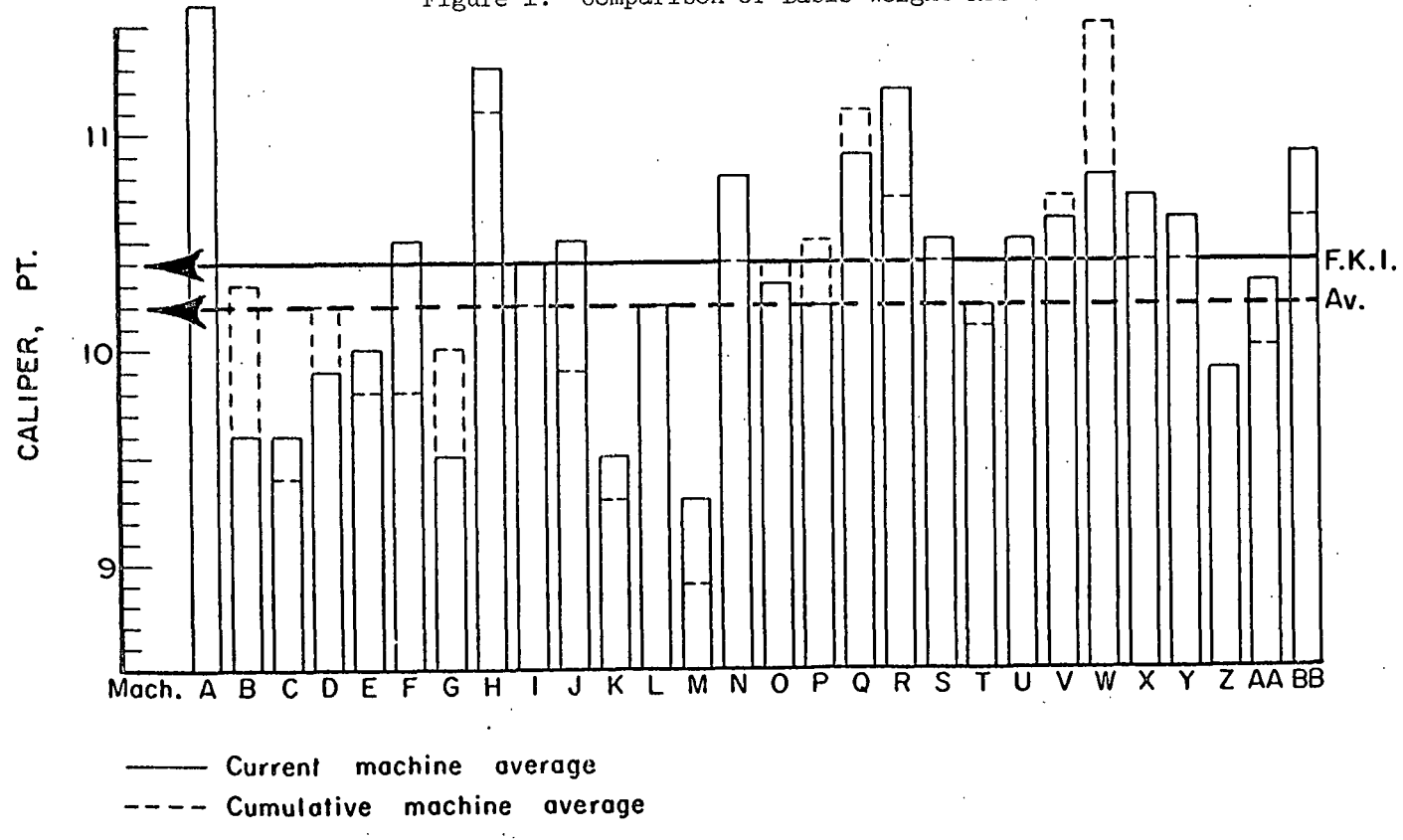

Figure 2. Comparison of Caliper Results

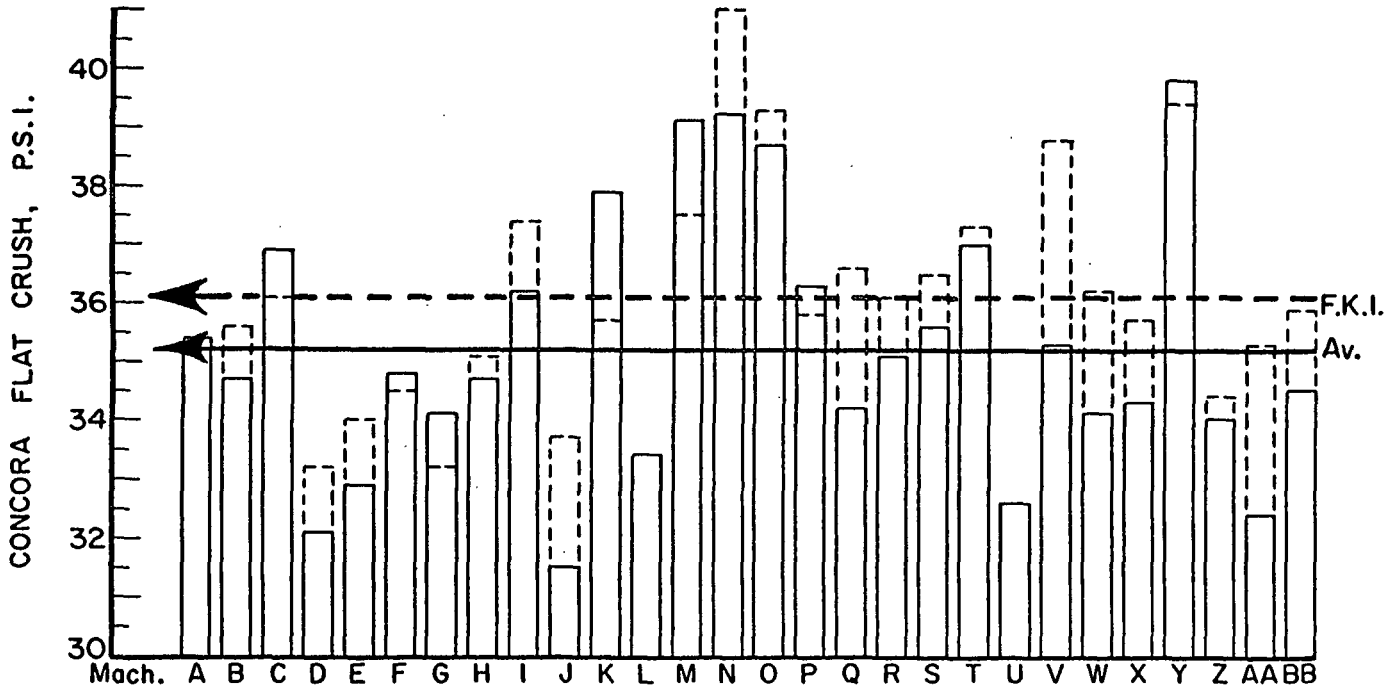

Figure 3. Comparison of Concora Flat Crush Results

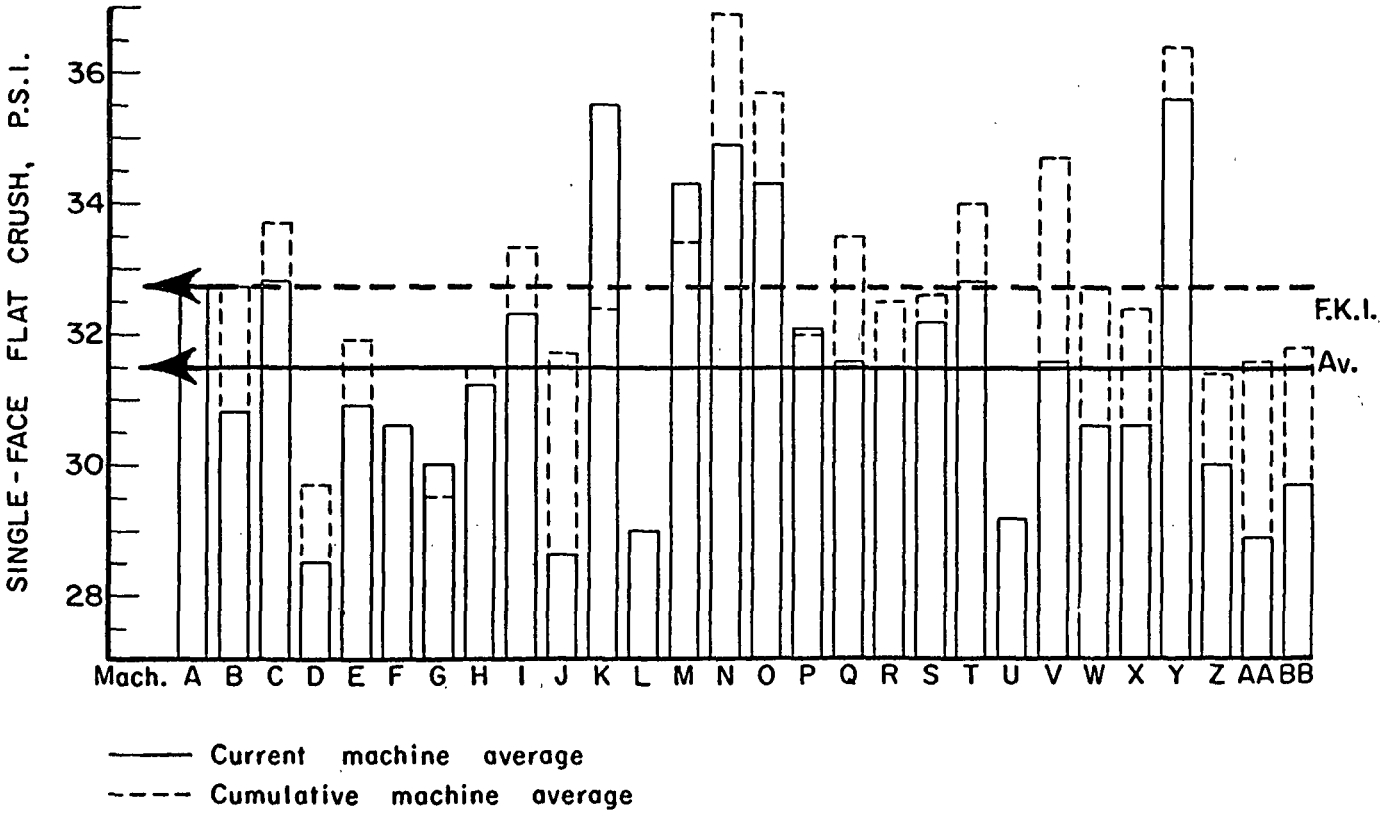

Figure 4. Comparison of Single-Face Flat Crush Results

TABLE II

SUMMARY OF TEST RESULTS FOR MACHINE A
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.			Concora Flat Crush, p.s.i.			Single-Face Flat Crush, p.s.i.			Runnability, lb./in.[a]	draw factor[b]
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.		
A-1	12- 1-64	12- 9-64	1	27.1	11.7	10.9	11.2	37.2	34.8	36.1	35.4	33.8	34.5	1-1/2	1.562
A-2	12- 1-64	12- 9-64	2	27.2	11.5	11.0	11.2	38.4	34.2	36.6	36.4	34.2	35.6	1	1.560
A-3	12-13-64	12-18-64	39	27.6	11.8	10.8	11.3	39.0	36.0	37.9	35.6	32.6	34.2	Min.	1.553
A-4	12-13-64	12-18-64	40	27.1	12.1	11.0	11.5	36.6	33.6	34.9	34.0	30.4	32.6	Min.	1.557
A-5	12-22-64	1- 4-65	47	27.2	11.5	10.6	11.0	37.2	34.8	35.5	35.8	31.8	33.3	Min.	1.555
A-6	12-22-64	1- 4-65	48	26.5	12.7	11.3	12.0	37.8	30.6	33.6	31.8	29.0	29.9	1-1/2	1.563
A-7	1- 9-65	1- 14-65	55	26.5	12.7	11.6	12.0	34.8	31.8	32.9	30.8	29.0	29.8	1	1.565
A-8	1- 11-65	1- 14-65	56	27.1	12.7	11.5	12.1	37.2	33.0	35.4	33.4	29.6	31.8	1-1/2	1.565
Current machine average				27.0			11.6			35.4			32.7		1.560
Cumulative machine average				--			--			--			--		
Machine factor, %				--			--			--			--		
Machine index, %				100.0			113.2			98.0			100.0		

TABLE III

SUMMARY OF TEST RESULTS FOR MACHINE B
December, 1964 and January, 1965

(Type of medium: semichemical)

B-1	11-30-64	12-16-64	124	26.5	9.8	8.9	9.2	36.0	34.2	34.9	32.4	30.6	31.6	1-1/2	1.571
B-2	12- 1-64	12-16-64	125	26.1	10.0	8.7	9.4	34.2	32.4	33.1	31.4	29.6	30.3	1-1/2	1.572
B-3	12- 4-64	12-16-64	126	26.8	10.6	10.0	10.2	37.2	33.6	34.9	30.6	29.4	29.9	1-1/2	1.571
B-4	12- 5-64	12-16-64	127	26.6	9.8	8.9	9.4	34.8	33.0	34.4	32.6	31.4	32.0	1-1/2	1.570
B-5	12- 6-64	12-16-64	128	27.6	10.4	9.5	10.0	37.2	34.8	36.1	31.0	29.4	30.4	1-1/2	1.572
Current machine average				26.7			9.6			34.7			30.8		1.571
Cumulative machine average				27.3			10.3			35.6			32.7		
Machine factor, %				97.9			93.6			97.6			94.2		
Machine index, %				98.9			94.3			96.2			94.4		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE IV

SUMMARY OF TEST RESULTS FOR MACHINE C
December, 1964 and January, 1965

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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]
C-1	11- 9-64	12-14-64	252	26.7	10.7	9.2	9.9	40.8	34.2	37.4	33.8	30.0	32.5	1-1/2	1.562
C-2	11-23-64	12-14-64	253	26.5	10.1	8.9	9.4	39.6	36.6	37.9	37.0	35.2	35.7	1-1/2	1.562
C-3	11-24-64	12-14-64	254	29.0	9.7	8.7	9.3	40.8	36.6	38.4	34.6	32.4	33.6	Min.	1.542
C-4	11-30-64	12-14-64	255	27.6	9.8	9.0	9.4	40.8	36.6	38.6	35.6	34.4	34.8	1-1/2	1.560
C-5	12- 9-64	1 -11-65	256	25.6	10.0	8.0	9.0	36.6	31.8	33.8	32.0	30.6	31.3	1-1/2	1.572
C-6	12-15-64	1 -11-65	257	27.4	10.3	9.1	9.7	40.2	37.2	38.4	34.8	32.2	33.5	1-1/2	1.563
C-7	12-16-64	1 -11-65	258	27.4	10.2	9.0	9.7	37.2	34.2	35.8	30.8	29.6	30.2	1-1/2	1.554
C-8	12-23-64	1 -11-65	259	28.3	11.0	10.2	10.7	36.6	32.4	34.8	32.2	30.6	31.1	1-1/2	1.550
Current machine average				27.3			9.6			26.9			32.8		1.558
Cumulative machine average				26.8			9.4			36.1			33.7		
Machine factor, %				102.0			102.1			102.3			97.3		
Machine index, %				101.1			94.4			102.2			100.6		

TABLE V

SUMMARY OF TEST RESULTS FOR MACHINE D
December, 1964 and January, 1965

(Type of medium: semichemical)

D-1	11-24-64	11-30-64	140	26.9	10.9	10.0	10.4	35.4	33.0	34.3	29.8	27.6	28.6	1-1/2	1.572
D-2	12- 9-64	12-15-64	141	26.2	10.0	9.4	9.7	33.6	30.6	31.7	28.6	27.6	28.1	1-1/2	1.573
D-3	12-17-64	12-23-64	142	26.7	10.1	9.4	9.9	31.2	28.8	29.8	28.6	27.4	28.3	1-1/2	1.574
D-4	12-21-64	12-28-64	143	26.4	9.7	9.0	9.3	33.6	31.2	32.6	31.2	28.6	29.3	1-1/2	1.578
D-5	12-28-64	1 - 4-65	144	26.0	10.2	9.8	9.9	32.4	30.0	31.1	30.6	27.6	29.4	1-1/2	1.573
D-6	1 - 5-65	1 - 7-65	145	26.8	10.7	10.2	10.4	34.8	30.6	32.2	27.6	25.2	26.7	1-1/2	1.575
D-7	1 -14-65	1 -18-65	146	26.8	10.3	9.7	10.0	34.8	33.0	33.4	29.6	28.6	29.2	1-1/2	1.573
Current machine average				26.5			9.9			32.1			28.5		1.574
Cumulative machine average				26.4			10.2			33.2			29.7		
Machine factor, %				100.4			98.0			96.9			96.0		
Machine index, %				98.3			97.5			89.1			87.3		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE VI

SUMMARY OF TEST RESULTS FOR MACHINE E
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.			Concora Flat Crush, p.s.i.			Single-Face Flat Crush, p.s.i.			Runnability,	
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	lb./in.[a]	draw Factor[b]
E-1	11-16-64	12-10-64	33	26.5	9.9	9.2	9.8	36.0	31.8	33.4	33.6	32.6	33.1	1	1.564
E-2	11-25-64	12-10-64	34	27.0	10.9	9.9	10.2	34.8	31.8	33.1	32.8	30.6	31.8	1-1/2	1.564
E-3	11-27-64	12-10-64	35	26.8	10.1	9.8	10.0	34.2	31.8	33.5	34.0	32.2	33.2	1	1.559
E-4	11-30-64	12-10-64	36	26.2	9.9	9.4	9.8	34.2	29.4	31.8	31.4	30.2	30.7	1-1/2	1.562
E-5	12- 2-64	1- 8-65	37	26.8	10.5	9.9	10.2	34.8	32.4	33.6	30.0	28.8	29.4	1-1/2	1.568
E-6	12- 9-64	1- 8-65	38	26.1	10.2	9.8	10.0	33.6	31.2	32.4	30.4	27.6	28.7	1/2	1.561
E-7	12-12-64	1- 8-65	39	26.3	10.1	9.7	10.0	32.4	31.2	31.8	29.0	28.0	28.4	1/2	1.563
E-8	12-29-64	1- 8-65	40	27.3	10.0	9.7	9.9	34.8	31.8	33.7	32.6	31.2	31.8	1-1/2	1.568
Current machine average				26.6			10.0			32.9			30.9		1.564
Cumulative machine average				26.2			9.8			34.0			31.9		
Machine factor, %				101.5			102.2			96.9			96.7		
Machine index, %				98.6			97.7			91.2			94.5		

TABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F
December, 1964 and January, 1965

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt.			Concora Flat Crush, p.s.i.			Single-Face Flat Crush, p.s.i.			Runnability,	
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	lb./in.[a]	draw Factor[b]
F-1	11-19-64	12-14-64	40	28.4	11.3	10.7	11.0	37.2	31.8	34.2	30.4	27.6	28.8	1-1/2	1.570
F-2	11-20-64	12-14-64	41	28.3	9.8	9.2	9.6	37.2	31.2	34.6	33.0	31.4	31.9	1-1/2	1 564
F-3	11-21-64	12-14-64	42	29.1	10.8	9.9	10.4	36.6	32.4	34.1	32.0	28.4	31.1	1-1/2	1.565
F-4	12- 2-64	12-14-64	43	29.5	11.6	10.0	11.0	38.4	34.2	36.2	31.6	30.0	30.7	1-1/2	1.561
Current machine average				28.8			10.5			34.8			30.6		1.565
Cumulative machine average				27.5			9.8			34.5			30.6		
Machine factor, %				104.9			107.2			100.8			100.0		
Machine index, %				106.7			102.9			96.3			93.8		

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

[b] 600 f.p.m., minimum tension.

TABLE VIII

SUMMARY OF TEST RESULTS FOR MACHINE G
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	11-24-64	11-30-64	140	26.1	10.0	9.2	9.7	34.8	28.8	31.6	29.8	24.8	27.7	1-1/2	1.571
G-2	12- 8-64	12-15-64	141	26.2	9.7	9.0	9.2	40.2	34.2	36.4	33.4	30.2	31.8	1-1/2	1.573
G-3	12-17-64	12-23-64	142	26.2	9.8	8.9	9.3	37.2	32.4	34.4	31.0	29.2	30.3	1-1/2	1.577
G-4	12-21-64	12-28-64	143	26.1	9.4	9.0	9.2	36.0	32.4	33.7	31.2	29.2	30.3	1-1/2	1.577
G-5	12-29-64	1 - 4-65	144	26.3	9.9	9.2	9.6	37.8	34.2	36.1	34.6	31.8	33.2	1-1/2	1.578
G-6	1 - 4-65	1 - 7-65	145	25.9	10.0	9.3	9.7	32.4	31.8	32.3	30.2	26.0	28.4	1-1/2	1.575
G-7	1 -13-65	1 -18-65	146	25.8	10.2	9.0	9.5	35.4	31.8	34.0	28.6	27.6	28.0	1-1/2	1.573
Current machine average				26.1			9.5			34.1			30.0		1.575
Cumulative machine average				26.3			10.0			33.2			29.5		
Machine factor, %				99.0			94.5			102.6			101.7		
Machine index, %				96.5			92.7			94.4			91.7		

TABLE IX

SUMMARY OF TEST RESULTS FOR MACHINE H
December, 1964 and January, 1965

(Type of medium: semichemical)

H-1	11- 6-64	12- 1-64	1250	34.7	14.0	13.6	13.9	45.0	42.0	43.2	41.6	37.8	39.3	Min.	1.549
H-2	11- 6-64	12- 1-64	1251	34.7	14.0	13.7	13.9	44.4	42.6	43.3	39.6	36.8	38.4	Min.	1.542
H-3	12-11-64	12-22-64	1258	26.3	10.5	10.0	10.1	34.2	26.4	30.5	30.6	28.0	29.0	1	1.571
H-4	12-11-64	12-22-64	1259	26.8	10.3	10.0	10.1	34.8	31.8	33.5	31.0	28.4	29.6	1	1.568
H-5	12-22-64	1 - 4-65	1266	27.4	11.2	10.6	11.0	34.8	29.4	32.4	31.0	29.2	30.4	1/2	1.567
H-6	12-22-64	1 - 4-65	1267	28.5	11.4	10.8	11.0	39.0	33.0	35.5	33.4	31.2	32.4	1/2	1.567
H-7	1 - 2-65	1 -14-65	1274	28.2	10.8	10.2	10.5	33.6	28.8	31.8	30.4	27.0	28.4	1/2	1.566
H-8	1 - 2-65	1 -14-65	1275	28.0	10.8	10.2	10.5	33.6	30.6	32.2	28.0	26.4	27.4	1/2	1.565
H-9	1 -15-65	1 -25-65	1282	27.9	11.2	10.7	11.0	33.6	30.6	32.2	28.8	27.8	28.3	1	1.563
H-10	1 -15-65	1 -25-65	1283	27.9	11.4	10.8	11.1	35.4	30.0	32.9	29.4	27.4	28.5	1	1.566
Current machine average				29.0			11.3			34.7			31.2		1.562
Cumulative machine average				28.1			11.1			35.1			31.5		
Machine factor, %				103.4			101.7			98.9			95.5		
Machine index, %				107.5			110.8			96.3					

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	12- 8-64	12-23-64	--	26.3	10.0	9.7	9.8	39.0	34.2	36.7	36.0	34.6	35.4	1-1/2	1.571
I-2	12- 9-64	12-23-64	--	27.2	10.2	10.0	10.1	39.6	35.4	37.1	34.0	33.2	33.4	1-1/2	1.569
I-3	12-10-64	12-23-64	--	26.8	10.0	9.6	9.9	39.6	34.8	37.4	34.2	32.2	33.3	1-1/2	1.565
I-4	12-15-64	12-23-64	--	26.8	10.8	10.3	10.5	38.4	34.2	36.2	33.0	31.0	31.9	1-1/2	1.573
I-5	1 -13-65	1 -22-65	--	26.1	10.7	10.1	10.3	37.2	35.4	36.6	32.6	31.6	32.1	1-1/2	1.566
I-6	1 -14-65	1 -22-65	--	26.5	11.0	10.7	10.9	36.6	34.8	35.8	30.8	29.0	29.7	1-1/2	1.572
I-7	1 -16-65	1 -22-65	--	26.6	10.9	10.3	10.7	36.6	33.0	34.0	32.4	29.6	30.6	1-1/2	1.569
I-8	1 -18-65	1 -22-65	--	26.4	10.7	10.3	10.6	37.2	34.2	35.6	33.2	31.4	31.8	1-1/2	1.573
Current machine average				26.6			10.4			36.2			32.3		1.570
Cumulative machine average				26.9			10.2			37.4			33.3		
Machine factor, %				98.9			101.3			96.9			97.0		
Machine index, %				98.5			101.4			100.2			98.8		

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J
December, 1964 and January, 1965

(Type of medium: semichemical)

J-1	12- 3-64	12-22-64	L-24	27.3	11.0	10.1	10.5	32.4	28.2	30.5	29.4	26.6	27.6	Min.	1.565
J-2	12- 4-64	12-22-64	L-25	26.8	11.1	10.2	10.7	34.2	31.2	32.2	28.2	25.8	26.9	Note c	1.556
J-3	12- 7-64	12-22-64	L-26	26.8	11.4	9.5	10.6	32.4	28.8	30.2	29.2	26.6	28.2	Note d	1.550
J-4	12- 8-64	12-22-64	L-27	26.8	10.9	9.7	10.4	34.8	31.2	33.1	33.2	30.4	31.4	Note e	1.559
Current machine average				26.9			10.5			31.5			28.6		1.558
Cumulative machine average				27.0			9.9			33.7			31.7		
Machine factor, %				99.9			106.6			93.5			89.9		
Machine index, %				99.7			103.3			87.3			87.4		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.
[c] Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.
[d] Maximum speed at which this roll could be corrugated with minimum tension was 200 f.p.m.
[e] Maximum speed at which this roll could be corrugated with minimum tension was 450 f.p.m.

TABLE XII

SUMMARY OF TEST RESULTS FOR MACHINE K
December, 1964 and January, 1965

(Type of medium: kraft)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	11-19-64	12-16-64	33	27.8	9.9	8.8	9.3	40.8	34.8	37.4	36.2	33.6	35.0	Note c	1.550
K-2	11-19-64	12-16-64	34	27.6	9.7	8.9	9.3	40.8	34.2	38.3	36.6	36.2	36.4	Min.	1.553
K-3	11-19-64	12-16-64	35	28.9	9.9	9.2	9.7	40.8	36.0	38.3	38.2	36.0	37.1	Min.	1.563
K-4	11-19-64	12-16-64	36	28.6	10.0	9.0	9.7	39.0	35.4	37.4	34.4	32.6	33.4	Min.	1.566
Current machine average				28.2			9.5			37.9			35.5		1.558
Cumulative machine average				28.0			9.3			35.7			32.4		
Machine factor, %				100.9			101.8			106.2			109.4		
Machine index, %				104.5			93.1			104.9			108.6		

TABLE XIII

SUMMARY OF TEST RESULTS FOR MACHINE L
December, 1964 and January, 1965

(Type of medium: semichemical)

L-1	11-30-64	12-10-64	1	27.8	11.0	10.2	10.5	34.8	31.8	33.4	32.8	28.8	30.8	1	1.569
L-2	11-30-64	12-10-64	2	27.9	11.1	10.3	10.8	37.2	31.2	33.2	28.4	26.2	27.3	1	1.571
L-3	12-15-64	12-30-64	3	28.2	10.2	9.9	10.0	36.0	32.4	35.3	32.0	28.6	29.5	1-1/2	1.576
L-4	12-15-64	12-30-64	4	27.1	10.0	9.3	9.7	36.6	31.8	34.2	30.6	28.6	29.8	1-1/2	1.572
L-5	12-22-64	1- 4-65	5	26.8	10.3	10.0	10.1	33.6	29.4	32.3	28.8	26.8	27.8	1-1/2	1.572
L-6	12-22-64	1- 4-65	6	28.3	10.3	10.0	10.1	37.2	31.8	34.0	30.2	27.2	28.7	1-1/2	1.575
L-7	12-29-64	1- 6-65	7	27.4	10.8	10.0	10.5	33.0	27.6	30.8	30.6	29.0	29.6	1/2	1.568
L-8	12-29-64	1- 6-65	8	28.5	10.7	10.2	10.5	38.4	32.4	35.2	31.6	29.6	30.8	1/2	1.567
L-9	1- 9-65	1-19-65	9	26.3	9.9	9.2	9.6	36.6	28.2	32.4	27.6	26.4	26.8	1-1/2	1.574
Current machine average				27.6			10.2			33.4			29.0		1.572
Cumulative machine average				--			--			--			--		
Machine factor, %				--			--			--			--		
Machine index, %				102.1			100.0			92.6			88.9		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.
[c] Maximum speed at which this roll could be corrugated with minimum tension was 525 f.p.m.

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE M
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	11-14-64	11-25-64	615	27.5	9.7	9.0	9.3	42.6	34.8	38.9	36.4	33.2	34.8	1-1/2	1.566
M-2	11-26-64	12- 3-64	617	26.7	9.9	9.2	9.5	42.6	35.4	39.5	34.8	31.2	33.6	1-1/2	1.570
M-3	12- 9-64	12-22-64	618	27.1	9.2	8.9	9.0	43.2	37.8	40.8	37.0	35.6	36.5	1-1/2	1.571
M-4	12-15-64	12-28-64	619	26.9	9.9	9.3	9.6	40.2	36.6	37.6	36.2	33.0	34.4	1-1/2	1.575
M-5	12-16-64	12-28-64	620	26.8	10.0	9.0	9.3	42.6	37.8	39.8	37.6	34.8	35.9	1-1/2	1.571
M-6	1- 7-65	1-13-65	621	27.6	9.7	9.1	9.5	40.2	36.0	37.7	33.4	31.4	32.6	1-1/2	1.569
M-7	1- 9-65	1-19-65	622	26.3	9.8	8.8	9.2	39.6	35.4	38.3	33.4	31.2	32.1	1-1/2	1.575
M-8	1-14-65	1-22-65	623	27.0	9.2	8.9	9.0	42.6	39.0	40.0	36.0	33.6	34.8	1-1/2	1.569
Current machine average				27.0			9.3			39.1			34.3		1.571
Cumulative machine average				26.6			8.9			37.5			33.4		
Machine factor, %				101.4			104.2			104.2			102.9		
Machine index, %				100.0			91.1			108.2			105.1		

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE N
December, 1964 and January, 1965

(Type of medium: semichemical)

N-1	10- 9-64	12-15-64	582	28.7	11.0	10.0	10.6	40.8	37.8	39.4	38.4	32.4	35.7	Min.	1.558
N-2	10-14-64	12-15-64	583	27.6	11.0	10.2	10.5	39.0	34.8	36.4	34.8	31.6	33.0	Min.	1.553
N-3	11-12-64	12-22-64	584	28.0	11.1	10.7	11.0	45.0	39.0	41.2	37.6	32.8	35.8	Min.	1.544
N-4	11-14-64	12-22-64	585	28.2	11.2	10.9	11.1	40.8	37.8	39.4	38.6	35.6	37.6	Min.	1.552
N-5	12-21-64	1- 6-65	586	28.6	11.4	10.8	11.1	40.8	37.8	39.7	33.8	30.6	32.2	Min.	1.536
Current machine average				28.2			10.8			39.2			34.9		1.549
Cumulative machine average				27.6			10.4			41.0			36.9		
Machine factor, %				102.3			104.7			95.6			94.5		
Machine index, %				104.5			106.2			108.6			106.7		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE XVI

SUMMARY OF TEST RESULTS FOR MACHINE O
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt. Max.	Min.	Av.	Concora Flat Crush, p.s.i. Max.	Min.	Av.	Single-Face Flat Crush, p.s.i. Max.	Min.	Av.	Runnability, lb./in.[a]	draw factor[b]
O-1	11-19-64	12- 1-64	400	26.6	10.8	10.0	10.4	40.2	36.6	38.4	36.2	33.8	34.7	1	1.565
O-2	11-23-64	12- 1-64	401	26.6	11.0	9.8	10.6	40.8	36.0	39.6	36.0	32.8	33.9	1-1/2	1.562
O-3	12- 2-64	12-17-64	402	26.0	10.3	8.6	9.9	39.6	36.0	38.2	35.8	33.4	34.4	1-1/2	1.564
Current machine average				26.4			10.3			38.7			34.3		1.564
Cumulative machine average				26.6			10.4			39.3			35.7		
Machine factor, %				99.2			99.0			98.5			96.3		
Machine index, %				97.6			100.7			107.3			105.1		

TABLE XVII

SUMMARY OF TEST RESULTS FOR MACHINE P
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, lb./M sq. ft.	Caliper, pt. Max.	Min.	Av.	Concora Flat Crush, p.s.i. Max.	Min.	Av.	Single-Face Flat Crush, p.s.i. Max.	Min.	Av.	Runnability, lb./in.[a]	draw factor[b]
P-1	12- 4-64	12-23-64	--	26.3	10.6	10.2	10.3	37.8	35.4	36.1	33.6	31.8	32.5	1	1.565
P-2	12- 8-64	12-23-64	--	26.3	10.7	10.0	10.3	38.4	34.8	36.7	34.0	31.4	32.6	1-1/2	1.566
P-3	12-10-64	12-23-64	--	26.6	10.3	9.8	10.0	37.8	34.8	36.0	34.2	33.0	33.5	1	1.562
P-4	12-18-64	12-28-64	--	26.8	10.3	9.5	10.0	39.0	31.2	36.4	32.6	30.8	31.5	1-1/2	1.566
P-5	1-13-65	1-22-65	--	26.3	10.5	10.0	10.2	39.0	35.4	37.2	32.6	30.4	31.8	1-1/2	1.571
P-6	1-14-65	1-22-65	--	26.7	10.9	10.2	10.4	37.8	33.0	35.5	32.0	30.8	31.4	1-1/2	1.571
P-7	1-15-65	1-22-65	--	26.4	10.3	9.8	10.1	37.8	34.2	35.9	32.4	30.8	31.6	1-1/2	1.569
P-8	1-18-65	1-22-65	--	26.5	10.7	10.3	10.5	37.8	36.0	36.5	33.4	30.8	31.9	1-1/2	1.570
Current machine average				26.5			10.2			36.3			32.1		1.568
Cumulative machine average				26.8			10.5			35.8			32.0		
Machine factor, %				98.7			97.7			101.2			100.4		
Machine index, %				98.0			100.0			100.5			98.2		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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]
Q-1	11-17-64	12-22-64	482	26.0	11.0	10.3	10.6	33.6	31.2	32.3	33.0	31.2	31.8	1-1/2	1.572
Q-2	11-26-64	12-22-64	483	26.8	11.0	10.4	10.7	34.8	30.6	33.2	32.6	29.6	31.2	1	1.567
Q-3	12- 2-64	12-22-64	484	28.4	11.4	10.8	11.1	39.0	34.8	36.7	32.4	30.2	31.2	1	1.568
Q-4	12- 8-64	12-22-64	485	27.1	11.4	10.9	11.1	39.6	33.0	34.9	33.6	31.0	32.4	1-1/2	1.570
Q-5	12-15-64	12-31-64	486	26.8	11.2	10.7	11.0	39.0	31.8	36.1	32.8	30.6	31.9	1/2	1.567
Q-6	12-21-64	12-31-64	487	26.5	11.0	10.3	10.6	36.0	30.0	32.2	32.8	29.2	31.2	1/2	1.567
Current machine average				26.9			10.9			34.2			31.6		1.568
Cumulative machine average				27.7			11.1			36.6			33.5		
Machine factor, %				97.0			98.0			93.5			94.4		
Machine index, %				99.6			106.3			94.9			96.8		

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R
December, 1964 and January, 1965

(Type of medium: semichemical)

R-1	11-18-64	11-27-64	30	26.8	10.2	9.0	9.7	38.4	34.2	36.5	32.0	29.6	30.6	1-1/2	1.571
R-2	11-21-64	12- 4-64	31	27.6	12.0	10.8	11.5	35.4	33.6	34.8	33.6	30.6	32.3	1/2	1.559
R-3	11-30-64	12-14-64	32	27.4	12.0	10.8	11.4	37.2	33.0	35.0	31.6	29.0	30.4	Note c	1.537
R-4	12-17-64	1 - 4-65	33	28.1	12.0	11.0	11.5	37.8	33.0	35.3	34.4	30.2	32.3	Min.	1.546
R-5	12-27-64	1 -13-65	34	27.8	12.2	11.0	11.7	34.8	33.0	33.8	32.6	31.2	31.7	Note d	1.545
Current machine average				27.5			11.2			35.1			31.5		1.552
Cumulative machine average				27.0			10.7			36.1			32.5		
Machine factor, %				101.9			104.6			97.2			96.9		
Machine index, %				101.9			109.4			97.2			96.3		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.
[c] Maximum speed at which this roll could be corrugated with minimum tension was 150 f.p.m.
[d] Maximum speed at which this roll could be corrugated with minimum tension was 350 f.p.m.

TABLE XX

SUMMARY OF TEST RESULTS FOR MACHINE S
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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]
S-1	12- 4-64	12-23-64	--	27.0	10.7	10.2	10.5	37.8	33.0	35.5	33.4	32.4	33.0	1/2	1.562
S-2	12- 9-64	12-23-64	--	27.0	11.0	10.6	10.8	37.8	33.0	35.6	34.2	31.8	33.0	1	1.566
S-3	12-10-64	12-23-64	--	27.6	10.8	10.3	10.6	37.8	36.0	37.3	35.2	33.8	34.7	1/2	1.561
S-4	12-15-64	12-23-64	--	26.9	10.9	10.2	10.6	38.4	33.0	34.6	34.0	31.2	32.8	1/2	1.562
S-5	1-12-65	1-22-65	--	26.0	10.4	10.0	10.2	37.2	34.8	35.8	32.0	29.0	30.6	1-1/2	1.569
S-6	1-13-65	1-22-65	--	26.7	10.5	10.0	10.3	37.8	34.8	36.5	32.8	31.6	32.3	1-1/2	1.568
S-7	1-19-65	1-22-65	--	26.8	11.0	10.3	10.6	36.0	34.2	34.8	32.4	29.6	30.7	1-1/2	1.571
S-8	1-20-65	1-22-65	--	26.6	11.4	10.4	10.7	35.4	33.6	34.3	31.4	29.4	30.7	1-1/2	1.567
Current machine average				26.8			10.5			35.6			32.2		1.566
Cumulative machine average				27.0			10.4			36.5			32.6		
Machine factor, %				99.3			101.4			97.3			98.9		
Machine index, %				99.3			103.1			98.5			98.7		

TABLE XXI

SUMMARY OF TEST RESULTS FOR MACHINE T
December, 1964 and January, 1965

(Type of medium: semichemical)

T-1	11-27-64	12-14-64	817	25.7	11.0	9.8	10.5	37.8	33.6	35.3	31.6	29.6	30.5	1-1/2	1.569
T-2	11-30-64	12-14-64	918	27.3	11.0	10.2	10.6	42.0	36.6	39.2	35.2	32.0	34.3	1-1/2	1.569
T-3	12-14-64	1- 7-65	403	26.3	10.4	9.8	10.1	40.8	38.4	39.8	38.4	36.8	37.4	1-1/2	1.570
T-4	12-18-64	1- 7-65	541	25.1	10.6	9.7	10.0	39.6	32.4	34.6	30.6	28.4	29.2	1-1/2	1.572
T-5	12-22-64	1- 7-65	677	26.3	10.8	9.7	10.3	39.6	36.6	37.7	35.4	33.2	34.4	1/2	1.568
T-6	12-29-64	1-15-65	756	26.9	10.8	10.0	10.5	40.2	34.8	37.6	34.4	32.6	33.5	Min.	1.569
T-7	1- 5-65	1-15-65	121	25.6	10.0	8.6	9.2	36.6	33.0	34.8	31.2	29.4	30.2	Min.	1.568
Current machine average				26.2			10.2			37.0			32.8		1.569
Cumulative machine average				26.3			10.1			37.3			34.0		
Machine factor, %				99.6			100.8			99.1			96.3		
Machine index, %				96.8			100.0			102.5			100.4		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE XXII

SUMMARY OF TEST RESULTS FOR MACHINE U
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	12- 4-64	12-14-64	1	27.1	10.9	10.0	10.4	33.0	31.8	32.4	27.8	26.4	27.3	1	1.574
U-2	12- 4-64	12-14-64	2	27.1	11.0	10.2	10.7	33.0	27.0	30.1	30.4	25.8	27.5	1	1.573
U-3	12-20-64	1- 4-65	3	27.6	10.3	10.0	10.1	38.4	30.6	35.2	32.0	29.4	30.8	1-1/2	1.570
U-4	12-20-64	1- 4-65	4	28.1	11.0	10.4	10.7	34.8	30.6	33.4	33.4	30.2	31.4	1	1.570
U-5	1- 7-65	1-19-65	5	27.2	11.0	10.3	10.7	33.6	29.4	31.9	31.0	28.0	29.2	1/2	1.570
Current machine average				27.4			10.5			32.6			29.2		1.571
Cumulative machine average				--			--			--			--		
Machine factor, %				--			--			--			--		
Machine index, %				101.5			103.1			90.3			89.5		

TABLE XXIII

SUMMARY OF TEST RESULTS FOR MACHINE V
December, 1964 and January, 1965

(Type of medium: bogus)

V-1	12- 3-64	12-18-64	466	27.6	11.2	10.1	10.7	36.6	31.8	34.8	33.6	31.6	32.4	1	1.566
V-2	12- 9-64	12-18-64	467	27.6	11.2	10.0	10.5	35.4	33.0	34.4	32.6	30.4	31.0	1-1/2	1.566
V-3	12-12-64	12-18-64	468	27.6	10.8	9.3	10.2	37.2	33.0	34.6	34.2	32.0	33.0	Min.	1.554
V-4	1- 6-65	1-20-65	469	27.6	11.4	10.2	10.9	39.6	34.8	36.6	32.2	29.8	30.7	1-1/2	1.575
V-5	1- 8-65	1-20-65	470	28.2	10.9	10.0	10.4	40.2	34.2	36.8	33.0	30.4	31.2	1-1/2	1.569
V-6	1-13-65	1-20-65	471	27.4	11.5	10.2	10.8	36.6	33.6	34.7	32.4	29.6	31.1	1-1/2	1.577
Current machine average				27.7			10.6			35.3			31.6		1.568
Cumulative machine average				27.9			10.7			38.8			34.7		
Machine factor, %				99.2			98.8			91.0			91.0		
Machine index, %				102.4			103.8			97.9			96.6		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE XXIV

SUMMARY OF TEST RESULTS FOR MACHINE W
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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]	draw factor[b]
W-1	11-27-64	12-16-64	63	27.1	11.3	10.5	11.0	37.2	34.2	35.6	30.4	27.0	29.3	1	1.568
W-2	11-27-64	12-16-64	64	27.0	11.5	10.8	11.2	36.6	31.2	34.0	29.2	26.8	28.1	1/2	1.565
W-3	12- 2-64	12-16-64	65	26.5	11.0	10.4	10.7	35.4	32.4	33.8	31.6	29.4	30.4	1-1/2	1.567
W-4	12- 2-64	12-16-64	66	26.8	11.0	10.2	10.6	36.6	33.6	34.8	33.0	30.6	31.8	1-1/2	1.566
W-5	12-17-64	1-11-65	67	26.7	11.2	10.4	10.9	37.2	31.2	33.7	31.4	28.8	29.8	1	1.565
W-6	12-17-64	1-11-65	68	27.4	11.0	10.2	10.8	36.0	32.4	34.1	33.4	30.6	32.0	1-1/2	1.567
W-7	12-28-64	1-11-65	69	26.5	11.0	9.9	10.6	34.2	31.2	33.4	31.4	29.6	30.3	1-1/2	1.569
W-8	12-28-64	1-11-65	70	26.6	10.6	9.9	10.2	34.8	31.8	33.2	34.2	32.0	32.9	1-1/2	1.569
Current machine average				26.8			10.8			34.1			30.6		1.567
Cumulative machine average				27.4			11.5			36.2			32.7		
Machine factor, %				97.9			93.3			94.2			93.6		
Machine index, %				99.3			105.3			94.4			93.6		

TABLE XXV
SUMMARY OF TEST RESULTS FOR MACHINE X
December, 1964 and January, 1965

(Type of medium: semichemical)

X-1	11-18-64	12-23-64	4073	26.3	10.7	10.2	10.5	34.8	30.6	32.0	30.0	27.4	28.5	1	1.565
X-2	11-28-64	12-23-64	6395	26.3	10.9	10.2	10.6	34.8	31.8	33.5	30.8	28.8	29.9	1-1/2	1.569
X-3	12- 2-64	12-23-64	330	26.3	10.9	10.3	10.7	34.2	31.8	32.8	30.4	29.8	30.0	1	1.569
X-4	12-10-64	12-23-64	2259	26.3	10.7	10.3	10.5	36.0	32.4	34.2	31.6	30.2	30.9	1-1/2	1.566
X-5	12-17-64	1-18-65	3994	27.1	11.2	10.4	10.8	40.8	34.2	38.0	35.6	34.2	34.8	1	1.568
X-6	12-30-64	1-18-65	6484	27.1	11.2	10.5	10.9	41.4	36.0	38.6	34.2	33.4	33.8	1	1.568
X-7	1- 2-65	1-18-65	342	26.8	10.9	10.3	10.7	33.6	31.2	32.2	29.6	27.6	28.6	1	1.566
X-8	1- 6-65	1-18-65	1220	26.7	11.0	10.7	10.8	34.2	32.4	33.1	29.4	27.6	28.2	1/2	1.567
Current machine average				26.6			10.7			34.3			30.6		1.567
Cumulative machine average				26.7			10.4			35.7			32.4		
Machine factor, %				99.8			103.0			96.0			94.4		
Machine index, %				98.5			104.6			95.0			93.7		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE XXVI

SUMMARY OF TEST RESULTS FOR MACHINE Y
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	11-23-64	12- 1-64	725	26.7	11.6	10.4	11.0	42.6	36.6	39.7	36.6	33.6	35.4	1-1/2	1.555
Y-2	11-26-64	12-14-64	726	26.5	11.0	10.0	10.5	40.8	37.8	39.7	37.2	34.2	35.1	1/2	1.551
Y-3	12- 2-64	12-14-64	727	26.4	10.7	9.3	10.2	43.2	37.2	40.0	37.0	35.0	36.2	1	1.556
Current machine average				26.5			10.6			39.8			35.6		1.554
Cumulative machine average				26.5			10.4			39.4			36.4		
Machine factor, %				100.0			101.5			101.1			97.8		
Machine index, %				98.2			103.4			110.3			108.9		

TABLE XXVII

SUMMARY OF TEST RESULTS FOR MACHINE Z
December, 1964 and January, 1965

(Type of medium: bogus)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	11-10-64	12-14-64	152	25.7	10.2	9.3	9.6	33.0	28.2	30.0	30.8	26.8	29.2	1-1/2	1.571
Z-2	11-12-64	12-14-64	153	26.9	10.3	9.1	9.7	38.4	28.8	34.1	32.4	30.4	31.6	1-1/2	1.575
Z-3	11-23-64	12-14-64	154	26.4	10.7	9.4	10.0	38.4	30.6	35.3	31.0	29.4	30.0	1-1/2	1.571
Z-4	11-24-64	12-14-64	155	28.3	10.8	10.2	10.5	36.6	31.8	33.7	32.6	30.6	31.4	1-1/2	1.568
Z-5	11-31-64	1-11-65	156	26.8	9.8	8.9	9.4	41.4	37.2	39.6	34.4	33.0	33.9	1-1/2	1.576
Z-6	12- 4-64	12-14-64	157	26.0	10.0	8.7	9.4	37.2	28.8	33.1	30.0	26.6	29.0	1-1/2	1.569
Z-7	12- 8-64	1-11-65	158	28.2	10.8	10.0	10.5	36.6	33.0	34.4	31.6	29.6	30.6	1-1/2	1.568
Z-8	12- 9-64	1-11-65	159	26.7	10.3	9.7	10.0	36.0	33.0	34.3	30.2	28.4	29.4	1-1/2	1.571
Z-9	1- 5-65	1-11-65	160	27.5	10.9	9.7	10.5	32.4	30.0	31.2	26.8	24.2	25.2	1-1/2	1.577
Current machine average				26.9			9.9			34.0			30.0		1.572
Cumulative machine average				27.0			9.9			34.4			31.4		
Machine factor, %				99.7			100.0			98.7			95.5		
Machine index, %				99.8			97.4			94.1			91.9		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

TABLE XXVIII

SUMMARY OF TEST RESULTS FOR MACHINE AA
December, 1964 and January, 1965

(Type of medium: semichemical)

Code	Date Made	Date Received	Mill Roll No.	Basis Weight, 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	11-20-64	11-30-64	25	26.8	10.9	9.9	10.1	37.2	32.4	35.0	31.4	29.2	29.9	1-1/2	1.571
AA-2	11-20-64	11-30-64	26	26.7	10.3	9.8	10.0	36.6	31.8	34.2	33.0	28.2	30.7	1-1/2	1.572
AA-3	12- 5-64	12-14-64	33	26.1	10.9	10.3	10.6	33.6	30.0	32.2	31.8	27.6	29.8	1-1/2	1.569
AA-4	12- 5-64	12-14-64	34	26.4	11.2	10.6	10.9	36.6	30.0	32.6	31.8	26.8	28.6	1	1.571
AA-5	12-22-64	12-31-64	41	26.5	9.9	9.0	9.4	33.0	30.0	31.3	30.8	27.6	29.0	1-1/2	1.571
AA-6	12-22-64	12-31-64	42	26.3	10.0	9.0	9.7	33.0	28.8	31.2	31.0	28.4	29.9	1-1/2	1.571
AA-7	1-11-65	1-19-65	49	27.1	10.9	10.2	10.7	33.0	28.2	31.6	28.4	25.4	26.6	1-1/2	1.570
AA-8	1-11-65	1-19-65	50	27.0	11.1	10.2	10.7	33.0	28.2	31.3	28.0	24.4	26.4	1-1/2	1.570
Current machine average				26.6			10.3			32.4			28.9		1.571
Cumulative machine average				27.0			10.0			35.3			31.6		
Machine factor, %				98.6			102.7			91.9			91.3		
Machine index, %				98.5			100.5			89.9			88.4		

TABLE XXIX

SUMMARY OF TEST RESULTS FOR MACHINE BB
December, 1964 and January, 1965

(Type of medium: semichemical)

BB-1	10-19-64	11-27-64	290	27.4	11.4	11.0	11.1	36.6	32.4	34.2	29.8	28.8	29.3	1-1/2	1.570
BB-2	10-23-64	11-27-64	291	27.0	11.2	10.5	10.8	37.2	33.0	35.2	30.2	28.8	29.4	1-1/2	1.569
BB-3	11- 3-64	11-27-64	292	27.5	11.8	11.0	11.2	34.2	32.4	33.5	29.6	27.8	28.2	1-1/2	1.569
BB-4	11-10-64	12-17-64	293	27.0	11.1	10.5	10.9	35.4	32.4	34.1	31.6	29.2	30.5	1	1.568
BB-5	11-25-64	12-17-64	294	26.9	10.9	10.2	10.6	38.4	34.2	36.0	32.4	29.4	31.2	1	1.569
BB-6	12- 6-64	12-17-64	295	27.2	11.3	10.6	10.9	36.0	31.2	33.7	30.4	29.4	30.0	1	1.568
BB-7	12-16-64	1-14-65	296	26.9	10.9	10.3	10.6	37.2	33.0	34.6	30.2	27.6	29.2	1-1/2	1.568
Current machine average				27.1			10.9			34.5			29.7		1.569
Cumulative machine average				27.1			10.6			35.9			31.8		
Machine factor, %				100.0			102.2			96.0			93.3		
Machine index, %				100.5			106.5			95.5			90.9		

[a] Maximum tension at 600 f.p.m.
[b] 600 f.p.m., minimum tension.

which only the average is shown; in addition, the over-all average result for all rolls submitted for a given machine is shown for each test property. The latter over-all 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 previous twelve periods (excluding the current period). Also shown for each machine and for each test property in Tables II to XXIX are the machine factor and machine index which are defined as follows:

$$\frac{\text{current machine average}}{\text{cumulative machine average}} \times 100 = \text{machine factor (\%)}$$

$$\frac{\text{current machine average}}{\text{cumulative F.K.I. average}} \times 100 = \text{machine index (\%)}$$

The machine factor and machine index provide a means for comparing the current machine average for each test property with either the previous results for the particular machine or with the cumulative results for all machines, i.e., the cumulative F.K.I. average.

DISCUSSION OF RESULTS

Shown below from Table I are the maximum and minimum current machine averages noted for each test property during the current period (December, 1964 and January, 1965). Also shown below for each test property is the current F.K.I. average which represents the mean of the current machine averages for the current period and, hence, is indicative of the test level being maintained by the industry as a whole to the extent that the industry is represented by the participating machines. Also given below for each test property is the cumulative F.K.I. average which represents the mean of the current F.K.I. averages for the previous twelve months.

	Max. Current Machine Av.	Min. Current Machine Av.	Current F.K.I. Average	Cum. F.K.I. Average
Basis wt., lb.	29.0	26.1	27.1	27.0
Caliper, pt.	11.6	9.3	10.4	10.2
Concora flat crush, p.s.i.	39.8	31.5	35.2	36.1
Single-face flat crush, p.s.i.	35.6	28.5	31.5	32.7

The runnability data for the 186 rolls evaluated during the current period are summarized as follows:

Runnability	Number of Rolls	Percentage of Total Rolls	Cumulative Percentage
Less than 600 f.p.m. with minimum tension	6	3.2	100.0
600 f.p.m. – minimum tension	19	10.2	96.8
600 f.p.m. – 1/2 lb. per in. tension	19	10.2	86.6
600 f.p.m. – 1 lb. per in. tension	32	17.2	76.4
600 f.p.m. – 1-1/2 lb. per in. tension	110	59.1	59.1

Supplementary to the runnability data described above, 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 XXIX for Machines A to BB, respectively.

In Table XXX a comparison of Institute and mill Concora flat crush test results obtained on conditioned specimens is given for each machine for the current period. The inclusion of these comparisons is made possible by the fact that interested participants submit their Concora flat crush test results to The Institute of Paper Chemistry (on data sheets obtainable from the Institute). This affords each participant the opportunity to review the level of agreement noted for his data with the levels noted for the other participants. Comparisons of this kind are a helpful adjunct to other calibration procedures. Shown in Table XXX are (1) the Institute and mill Concora averages for each roll included in these comparisons, (2) the difference between the roll average based on Institute data and that based on mill data, (3) the Institute and mill averages based on all rolls included in the comparison, and (4) the difference between these over-all averages.

The Concora flat crush data shown in Table XXX are summarized in Part I of Table XXXI where for each machine the following information is given: (1) Current machine average based on Institute data, (2) current machine average based on mill data, (3) the average differences – that is, the difference between the current machine average based on Institute data and that based on mill data, and (4) the maximum difference encountered in comparing Institute and mill test averages for individual rolls. In Part II of Table XXXI the average differences given in Part I have been converted to per cent. Comparative data from the previous two reports are also included in Part II of Table XXXI.

TABLE XXX

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR DECEMBER, 1964 AND JANUARY, 1965

Machine A						Machine C						Machine D					
			Concora Flat Crush, p.s.i.						Concora Flat Crush, p.s.i.						Concora Flat Crush, p.s.i.		
Code	Mill Roll No.	Date Made	Institute	Mill	Difference[a]	Code	Mill Roll No.	Date Made	Institute	Mill	Difference[a]	Code	Mill Roll No.	Date Made	Institute	Mill	Difference[a]
A-1	1	12- 1-64	36.1	43.1	+7.0	C-1	252	11- 9-64	37.4	32.3	-5.1	D-1	140	11-24-64	34.3	32.3	-2.0
A-2	2	12- 1-64	36.6	43.0	+6.4	C-2	253	11-23-64	37.9	32.8	-5.1	D-2	141	12- 9-64	31.7	31.2	-0.5
A-3	39	12-13-64	37.9	43.3	+5.4	C-3	254	11-24-64	38.4	31.6	-6.8	D-3	142	12-17-64	29.8	31.1	+1.3
A-4	40	12-13-64	34.9	42.5	+7.6	C-4	255	11-30-64	38.6	32.8	-5.8	D-4	143	12-21-64	32.6	33.1	+0.5
A-5	47	12-22-64	35.5	42.6	+7.1	C-5	256	12- 9-64	33.8	34.4	+0.6	D-5	144	12-28-64	31.1	32.0	+0.9
A-6	48	12-22-64	33.6	37.0	+3.4	C-6	257	12-15-64	38.4	35.3	-3.1	D-6	145	1- 5-65	32.2	31.7	-0.5
A-7	55	1- 9-65	32.9	40.6	+7.7	C-7	258	12-16-64	35.8	31.9	-3.9	D-7	146	1-14-65	33.4	34.1	+0.7
A-8	56	1-11-65	35.4	44.8	+9.4	C-8	259	12-23-64	34.8	30.4	-4.4						
Current machine av.			35.4	42.1	+6.7	Current machine av.			36.9	32.7	-4.2	Current machine av.			32.1	32.2	+0.1

Machine E						Machine F						Machine G					
E-1	33	11-16-64	33.4	34.4	+1.0	F-1	40	11-19-64	34.2	33.2	-1.0	G-1	140	11-24-64	31.6	33.8	+2.2
E-2	34	11-25-64	33.1	32.8	-0.3	F-2	41	11-20-64	34.6	35.6	+1.0	G-2	141	12- 8-64	36.4	35.2	-1.2
E-3	35	11-27-64	33.5	34.1	+0.6	F-3	42	11-21-64	34.1	32.7	-1.4	G-3	142	12-17-64	34.4	32.4	-2.0
E-4	36	11-30-64	31.8	32.0	+0.2	F-4	43	12- 2-64	36.2	34.1	-2.1	G-4	143	12-21-64	33.7	34.2	+0.5
E-5	37	12- 2-64	33.6	30.6	-3.0							G-5	144	12-29-64	36.1	35.5	-0.6
E-6	38	12- 9-64	32.4	30.0	-2.4							G-6	145	1- 4-65	32.3	34.4	+2.1
E-7	39	12-12-64	31.8	30.4	-1.4							G-7	146	1-13-65	34.0	34.0	0.0
E-8	40	12-29-64	33.7	33.0	-0.7												
Current machine av.			32.9	32.2	-0.7	Current machine av.			34.8	33.9	-0.9	Current machine av.			34.1	34.2	+0.1

Machine H						Machine I						Machine J					
H-1	1250	11- 6-64	43.2	42.1	-1.1	I-1	--	12- 8-64	36.7	37.2	+0.5	J-1	L-24	12- 3-64	30.5	31.2	+0.7
H-2	1251	11- 6-64	43.3	40.1	-3.2	I-2	--	12- 9-64	37.1	37.2	+0.1	J-2	L-25	12- 4-64	32.2	31.6	-0.6
H-3	1258	12-11-64	30.5	33.8	+3.3	I-3	--	12-10-64	37.4	36.6	-0.8	J-3	L-26	12- 7-64	30.2	30.0	-0.2
H-4	1259	12-11-64	33.5	34.6	+1.1	I-4	--	12-15-64	36.2	36.4	+0.2	J-4	L-27	12- 8-64	33.1	34.2	-1.1
H-5	1266	12-22-64	32.4	32.5	+0.1	I-5	--	1-13-65	36.6	37.9	+1.3						
H-6	1267	12-22-64	35.5	34.8	-0.7	I-6	--	1-14-65	35.8	35.6	-0.2						
H-7	1274	1- 2-65	31.8	34.4	+2.6	I-7	--	1-16-65	34.0	35.9	+1.9						
H-8	1275	1- 2-65	32.2	33.5	+1.3	I-8	--	1-18-65	35.6	36.7	+1.1						
H-9	1282	1-15-65	32.2	34.4	+2.2												
H-10	1283	I-15-65	32.9	34.4	+1.5												
Current machine av.			34.7	35.5	+0.8	Current machine av.			36.2	36.7	+0.5	Current machine av.			31.5	31.8	+0.3

Please see end of table for footnote.

TABLE XXX (Continued)

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR DECEMBER, 1964 AND JANUARY, 1965

Machine K						Machine L						Machine M					
			Concora Flat Crush, p.s.i.						Concora Flat Crush, p.s.i.						Concora Flat Crush, p.s.i.		
Code	Mill Roll No.	Date Made	Institute	Mill	Difference[a]	Code	Mill Roll No.	Date Made	Institute	Mill	Difference[a]	Code	Mill Roll No.	Date Made	Institute	Mill	Difference[a]
K-1	33	11-19-64	37.4	39.8	+2.4	L-1	1	11-30-64	33.4	36.6	+3.2	M-1	615	11-14-64	38.9	41.1	+2.2
K-2	34	11-19-64	38.3	37.9	-0.4	L-2	2	11-30-64	33.2	36.4	+3.2	M-2	617	11-26-64	39.5	42.2	+2.7
K-3	35	11-19-64	38.3	38.3	0.0	L-3	3	12-15-64	35.3	39.2	+3.9	M-3	618	12- 9-64	40.8	41.9	+1.1
K-4	36	11-19-64	37.4	39.1	+1.7	L-4	4	12-15-64	34.2	35.4	+1.2	M-4	619	12-15-64	37.6	39.5	+1.9
						L-5	5	12-22-64	32.3	30.4	-1.9	M-5	620	12-16-64	39.8	39.1	-0.7
						L-6	6	12-22-64	34.0	33.5	-0.5	M-6	621	1- 7-65	37.7	39.9	+2.2
						L-7	7	12-29-64	30.8	37.6	+6.8	M-7	622	1- 9-65	38.3	41.0	+2.7
						L-8	8	12-29-64	35.2	38.2	+3.0	M-8	623	1-14-65	40.0	41.1	+1.1
						L-9	9	1- 9-65	32.4	35.5	+3.1						
Current machine av.			37.9	38.8	+0.9	Current machine av.			33.4	35.9	+2.5	Current machine av.			39.1	40.7	+1.6

Machine N						Machine O						Machine P					
N-1	582	10- 9-64	39.4	39.4	0.0	O-1	400	11-19-64	38.4	37.8	-0.6	P-1	--	12- 4-64	36.1	35.5	-0.6
N-2	583	10-14-64	36.4	37.9	+1.5	O-2	401	11-23-64	39.6	37.2	-2.4	P-2	--	12- 8-64	36.7	36.7	0.0
N-3	584	11-12-64	41.2	41.6	+0.4	O-3	402	12- 2-64	38.2	37.8	-0.4	P-3	--	12-10-64	36.0	35.9	-0.1
N-4	585	11-14-64	39.4	40.3	+0.9							P-4	--	12-18-64	36.4	35.9	-0.5
N-5	586	12-21-64	39.7	41.0	+1.3							P-5	--	1-13-65	37.2	36.2	-1.0
												P-6	--	1-14-65	35.5	35.5	0.0
												P-7	--	1-15-65	35.9	37.4	+1.5
												P-8	--	1-18-65	36.5	37.1	+0.6
Current machine av.			39.2	40.0	+0.8	Current machine av.			38.7	37.6	-1.1	Current machine av.			36.3	36.3	0.0

Machine Q						Machine R						Machine S					
Q-1	482	11-17-64	32.3	36.6	+4.3	R-1	30	11-18-64	36.5	34.9	-1.6	S-1	--	12- 4-64	35.5	35.9	+0.4
Q-2	483	11-26-64	33.2	35.6	+2.4	R-2	31	11-21-64	34.8	34.7	-0.1	S-2	--	12- 9-64	35.6	37.0	+1.4
Q-3	484	12- 2-64	36.7	37.7	+1.0	R-3	32	11-30-64	35.0	34.5	-0.5	S-3	--	12-10-64	37.3	36.7	-0.6
Q-4	485	12- 8-64	34.9	39.4	+4.5	R-4	33	12-17-64	35.3	34.1	-1.2	S-4	--	12-15-64	34.6	35.4	+0.8
Q-5	486	12-15-64	36.1	35.6	-0.5	R-5	34	12-27-64	33.8	34.4	+0.6	S-5	--	1-12-65	35.8	37.1	+1.3
Q-6	487	12-21-64	32.2	35.5	3.3							S-6	--	1-13-65	36.5	35.5	-1.0
												S-7	--	1-19-65	34.8	36.6	+1.8
												S-8	--	1-20-65	34.3	35.6	+1.3
Current machine av.			34.2	36.7	+2.5	Current machine av.			35.1	34.5	-0.6	Current machine av.			35.6	36.2	+0.6

Please see end of table for footnote.

TABLE XXX (Continued)

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR DECEMBER, 1964 AND JANUARY, 1965

Machine T

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
T-1	817	11-27-64	35.3	35.4	+0.1
T-2	918	11-30-64	39.2	37.8	-1.4
T-3	403	12-14-64	39.8	40.0	+0.2
T-4	541	12-18-64	34.6	37.9	+3.3
T-5	677	12-22-64	37.7	40.3	+2.6
T-6	756	12-29-64	37.6	37.4	-0.2
T-7	121	1-5-65	34.8	34.3	-0.5
Current machine av.			37.0	37.6	+0.6

Machine U

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
U-1	1	12- 4-64	32.4	28.0	-4.4
U-2	2	12- 4-64	30.1	31.4	+1.3
U-3	3	12-20-64	35.2	35.8	+0.6
U-4	4	12-20-64	33.4	35.9	+2.5
U-5	5	1- 7-65	31.9	35.9	+4.0
Current machine av.			32.6	33.4	+0.8

Machine W

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
W-1	63	11-27-64	35.6	36.4	+0.8
W-2	64	11-27-64	34.0	34.8	+0.8
W-3	65	12- 2-64	33.8	34.0	+0.2
W-4	66	12- 2-64	34.8	36.7	+1.9
W-5	67	12-17-64	33.7	34.9	+1.2
W-6	68	12-17-64	34.1	38.2	+4.1
W-7	69	12-28-64	33.4	34.3	+0.9
W-8	70	12-28-64	33.2	35.8	+2.6
Current machine av.			34.1	35.6	+1.5

Machine X

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
X-1	4073	11-18-64	32.0	34.9	+2.9
X-2	6395	11-28-64	33.5	34.6	+1.1
X-3	330	12- 2-64	32.8	35.8	+3.0
X-4	2259	12-10-64	34.2	35.1	+0.9
X-5	3994	12-17-64	38.0	37.7	-0.3
X-6	6484	12-30-64	38.6	40.4	+1.8
X-7	342	1- 2-65	32.2	35.5	+3.3
X-8	1220	1- 6-65	33.1	34.6	+1.5
Current machine av.			34.3	36.1	+1.8

Machine Y

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
Y-1	725	11-23-64	39.7	37.6	-2.1
Y-2	726	11-26-64	39.7	38.5	-1.2
Y-3	727	12- 2-64	40.0	38.9	-1.1
Current machine av.			39.8	38.3	-1.5

Machine Z

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
Z-1	152	11-10-64	30.0	29.8	-0.2
Z-2	153	11-12-64	34.1	31.9	-2.2
Z-3	154	11-23-64	35.3	31.2	-4.1
Z-4	155	11-24-64	33.7	29.9	-3.8
Z-5	156	11-31-64	39.6	37.7	-1.9
Z-6	157	12- 4-64	33.1	31.2	-1.9
Z-7	158	12- 8-64	34.4	31.1	-3.3
Z-8	159	12- 9-64	34.3	37.0	+2.7
Current machine av.			34.3	32.5	-1.8

Machine AA

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
AA-1	25	11-20-64	35.0	37.9	+2.9
AA-2	26	11-20-64	34.2	35.4	+1.2
AA-3	33	12- 5-64	32.2	37.0	+4.8
AA-4	34	12- 5-64	32.6	35.7	+3.1
AA-5	41	12-22-64	31.3	32.6	+1.3
AA-6	42	12-22-64	31.2	31.7	+0.5
AA-7	49	1-11-65	31.6	33.1	+1.5
AA-8	50	1-11-65	31.3	37.9	+6.6
Current machine av.			32.4	35.2	+2.8

Machine BB

Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i. Institute	Mill	Difference[a]
BB-1	290	10-19-64	34.2	38.9	+4.7
BB-2	291	10-23-64	35.2	38.9	+3.7
BB-3	292	11- 3-64	33.5	37.8	+4.3
BB-4	293	11-10-64	34.1	37.2	+3.1
BB-5	294	11-25-64	36.0	43.9	+7.9
BB-6	295	12- 6-64	33.7	37.3	+3.6
BB-7	296	12-16-64	34.6	36.0	+1.4
Current machine av.			34.5	38.6	+4.1

[a]This difference is the amount in p.s.i. units by which the mill result is higher or lower than the Institute result.

TABLE XXXI

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

Machine code	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z	AA	BB
Number of rolls compared	8	0	8	7	8	4	7	10	8	4	4	9	8	5	3	8	6	5	8	7	5	0	8	8	3	8	8	7
Concora flat crush, p.s.i.																												
Current machine av.(Institute)[a]	35.4	--	36.9	32.1	32.9	34.8	34.1	34.7	36.2	31.5	37.9	33.4	39.1	39.2	38.7	36.3	34.2	35.1	35.6	37.0	32.6	--	34.1	34.3	39.8	34.3	32.4	34.5
Current machine av. (Mill)[a]	42.1	--	32.7	32.2	32.2	33.9	34.2	35.5	36.7	31.8	38.8	35.9	40.7	40.0	37.6	36.3	36.7	34.5	36.2	37.6	33.4	--	35.6	36.1	38.3	32.5	35.2	38.6
Average difference[b]	+6.7	--	-4.2	+0.1	-0.7	-0.9	+0.1	+0.8	+0.5	+0.3	+0.9	+2.5	+1.6	+0.8	-1.1	0.0	+2.5	-0.6	+0.6	+0.6	+0.8	--	+1.5	+1.8	-1.5	-1.8	+2.8	+4.1
Maximum difference[c]	+9.4	--	-6.8	-2.0	-3.0	-2.1	+2.2	+3.3	+1.9	-1.1	+2.4	+6.8	+2.7	+1.5	-2.4	+1.5	+4.5	-1.6	+1.8	+3.3	-4.4	--	+4.1	+3.3	-2.1	-4.1	+6.6	+7.9

PART II: A TABULATION FOR EACH MACHINE OF THE AVERAGE DIFFERENCE (PER CENT) BETWEEN THE CONCORA FLAT CRUSH BASED ON INSTITUTE DATA AND THAT BASED ON MILL DATA

Average difference, %[d]																												
Current report (Dec.-Jan.)	+18.9	---	-11.4	+0.3	-2.1	-2.6	+0.3	+2.3	+1.4	+1.0	+2.4	+7.5	+4.1	+2.0	-2.8	0.0	+7.3	-1.7	+1.7	+1.6	+2.5	--	+4.4	+5.2	-3.8	-5.2	+8.6	+11.9
110th Report (Oct.-Nov.)	--	---	-13.7	+2.1	-11.3	+2.0	+2.4	0.0	-1.1	+9.3	-2.7	--	+4.7	-2.2	+1.0	+2.0	+2.6	+1.2	+0.8	-3.7	--	--	-3.6	+6.6	-2.6	-1.2	+2.1	+11.5
109th Report (Aug.-Sept.)	--	--	-4.9	-0.3	--	+1.2	+1.2	-3.8	+2.1	+2.7	+7.5	--	+3.7	-2.7	-2.2	+5.3	-6.3	-4.3	+4.7	-8.4	--	--	-3.9	+1.1	-1.8	-2.4	+4.2	+6.7

[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. See Table XXX.

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

[d] Average difference (per cent) is computed by dividing the average difference in p.s.i. (shown above in Part I of this table) by the Institute current machine average and multiplying the result by 100.

In Table XXXII a summary of the agreement between Institute and mill Concora flat crush data is given for the current period, and comparative data from the previous bimonthly period are also included. The data shown for the current period compare favorably with corresponding data for the previous period and indicate that agreement between Institute and mill Concora data was good. For example, it may be seen in Table XXXII that, for the current period, 15.4% of the comparisons of Institute and mill data differed by 1% or less, 50.0% of the comparisons differed by 2.5% or less, and 69.2% of the comparisons differed by 5% or less. The maximum difference of 18.9% for the current period was somewhat higher than the maximum difference of 13.7% for the previous period. An explanation for this large difference may be found in the observation that this mill resumed participation during the current period after a long absence.

TABLE XXXII

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL
CONCORA FLAT CRUSH DATA

Average Percentage Difference Between Institute and Mill Concora Flat Crush Test Results[a]	Percentage of All Machines Included Within the Indicated Range	
	Previous Period[b]	Current Period[c]
± 1.0	13.0	15.4
± 2.5	52.2	50.0
± 5.0	78.3	69.2
± 10.0	87.0	88.5
± 18.9	100.0[d]	100.0

[a] The average obtained at the Institute was used as the reference in the calculation of the percentage differences.

[b] October and November, 1964.

[c] December and January, 1964-65.

[d] Maximum percentage difference was 13.7.

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W. N. Hubert, Research Aide

R. C. McKee, Chairman
Container Section