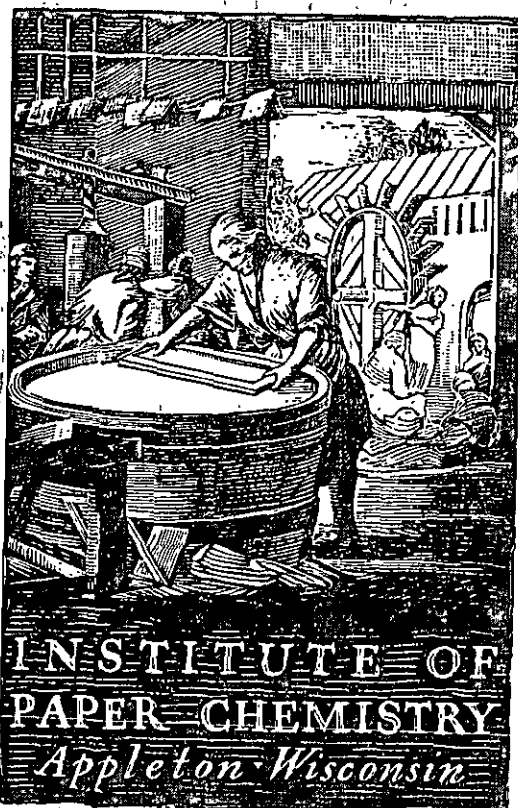


FILED AUG 2 5 1957



Institute of Paper Science and Technology
Central Files

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Progress Report Twenty

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1957

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Progress Report Twenty

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

August 1, 1957

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

The purpose of this study is to provide a continuous evaluation of the quality and runability of corrugating medium produced by members of the Fourdrinier Kraft Board Institute. The study, as it progresses, will accumulate a backlog of data and experience which will provide two important benefits. First, it will enable each participant to evaluate his position in relation to the rest of the industry. Second, it will provide information essential for the interpretation of any proposed specifications on corrugating medium (on either a company or industry basis).

The procedure for participating in this study involves the submission of two rolls of corrugating medium per week from each machine to The Institute of Paper Chemistry. These rolls are taken from regular production runs on different days. Each roll is 10 to 12 inches wide and contains approximately 2,500 lineal feet of medium (approximately 20 inches in diameter). Each roll as it is received by the Institute is assigned a code letter and number. The rolls are numbered in the sequence in which they are received. Code letters are assigned on the basis of machines and a given machine is assigned a different code letter each month in order to mask the identity of the mills. For purposes of reference, a copy of the outline of the program together with the necessary instructions for sampling was appended to Progress Report One in this series.

at 600 f.p.m. with 1/2 lb. per inch tension, further runs were made at higher tensions to determine when cracking occurred. The higher tensions used were 1.0 lb. per inch and 1.5 lb. per inch.

Flat crush was determined on the board obtained at the highest speed using 1/2 lb. per inch tension. These results will provide data which may be useful in studying the relationship between Concora flat crush and combined board flat crush for each participant's medium.

As requested by members of the F.K.B.I., the Concora medium test results are calculated on the basis of pounds of load per unit area rather than on the basis of the formula suggested by the Concora manufacturer and are reported as Concora flat crush test results. In Progress Reports One and Two, the Concora medium test results were reported on the basis of the formula suggested by the Concora manufacturer.

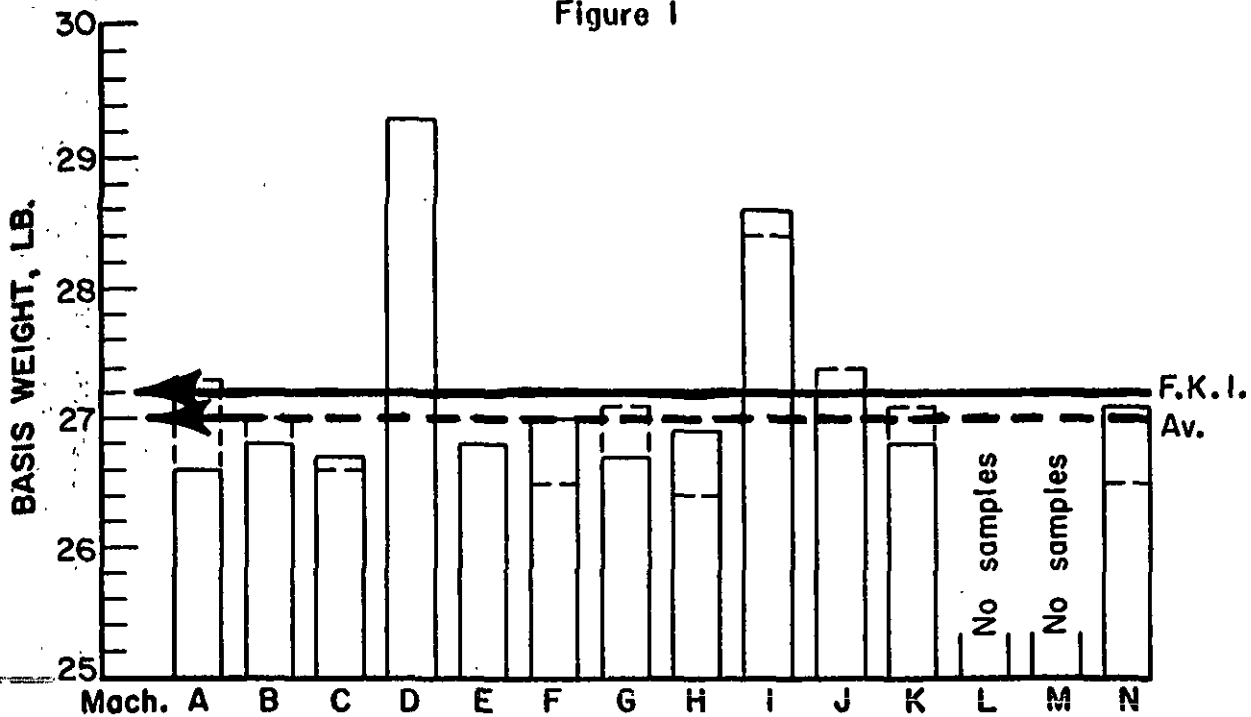
The average test results obtained on the samples of corrugating medium submitted by each participant are shown in Table II and graphically presented in Figures 1 to 4. In addition to a comparison of the test data obtained for the various machines, Table II also presents the current F.K.I. averages, cumulative F.K.I. averages, and the F.K.I. indexes. The current F.K.I. average is the average test results for all machines participating in the study during a given month. The cumulative F.K.I. average is based on the results for the previous twelve-month period excluding the result for the current period. The F.K.I. index is obtained as follows:

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

TABLE II
SUMMARY OF CURRENT MACHINE AVERAGES
July, 1957

Mill Code	Basis Weight, lb.	Caliper, points	Concora Flat Crush, p.s.i.	Single-face Flat Crush, p.s.i.
A	26.6	10.6	37.4	37.8
B	26.8	10.0	40.0	41.5
C	26.7	10.6	40.2	41.7
D	29.3	11.2	34.1	36.3
E	26.8	10.3	37.4	39.3
F	27.0	11.0	41.2	42.2
G	26.7	11.8	32.9	34.8
H	26.9	11.3	30.1	35.3
I	28.6	9.9	34.3	37.8
J	27.2	9.3	31.8	34.2
K	26.8	9.8	36.3	37.7
L	No samples submitted			
M	No samples submitted			
N	27.1	9.4	36.0	36.7
Current F.K.I. Average	27.2	10.4	36.0	37.9
Cumulative F.K.I. Average	27.0	10.3	34.7	35.8
F.K.I. Index, %	100.9	101.1	103.7	105.8

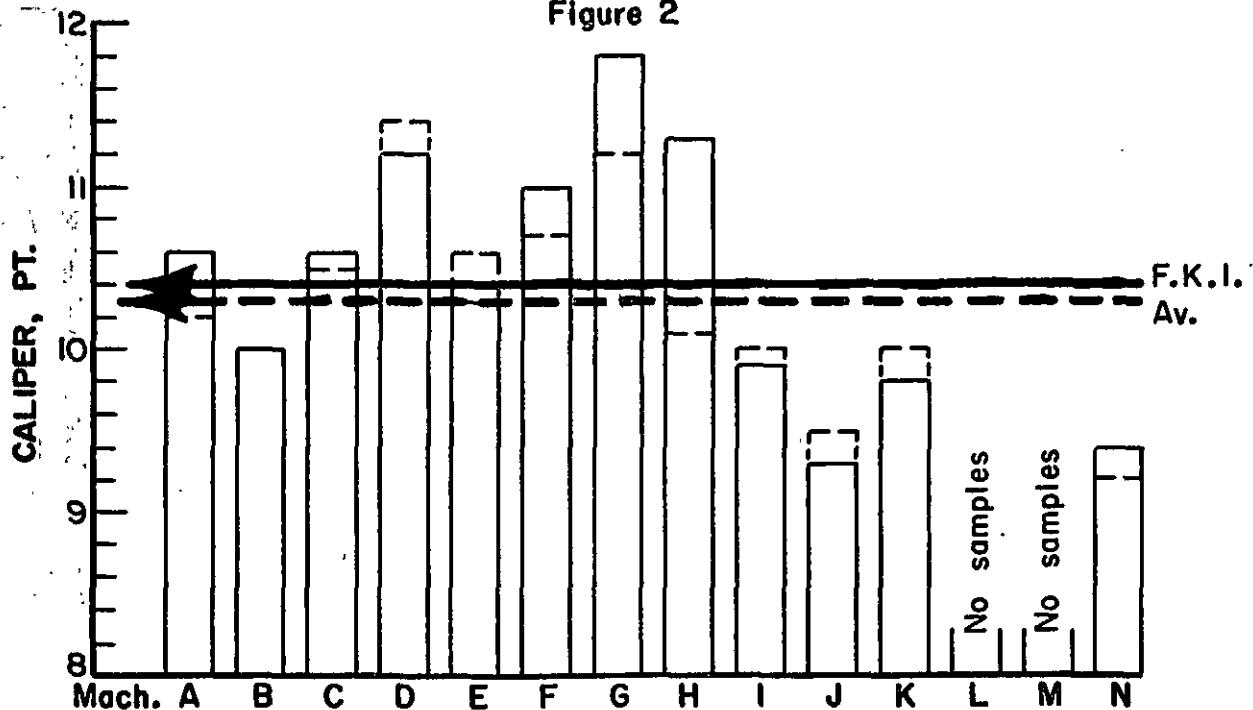
Figure 1



COMPARISON OF BASIS WEIGHT RESULTS

July, 1957

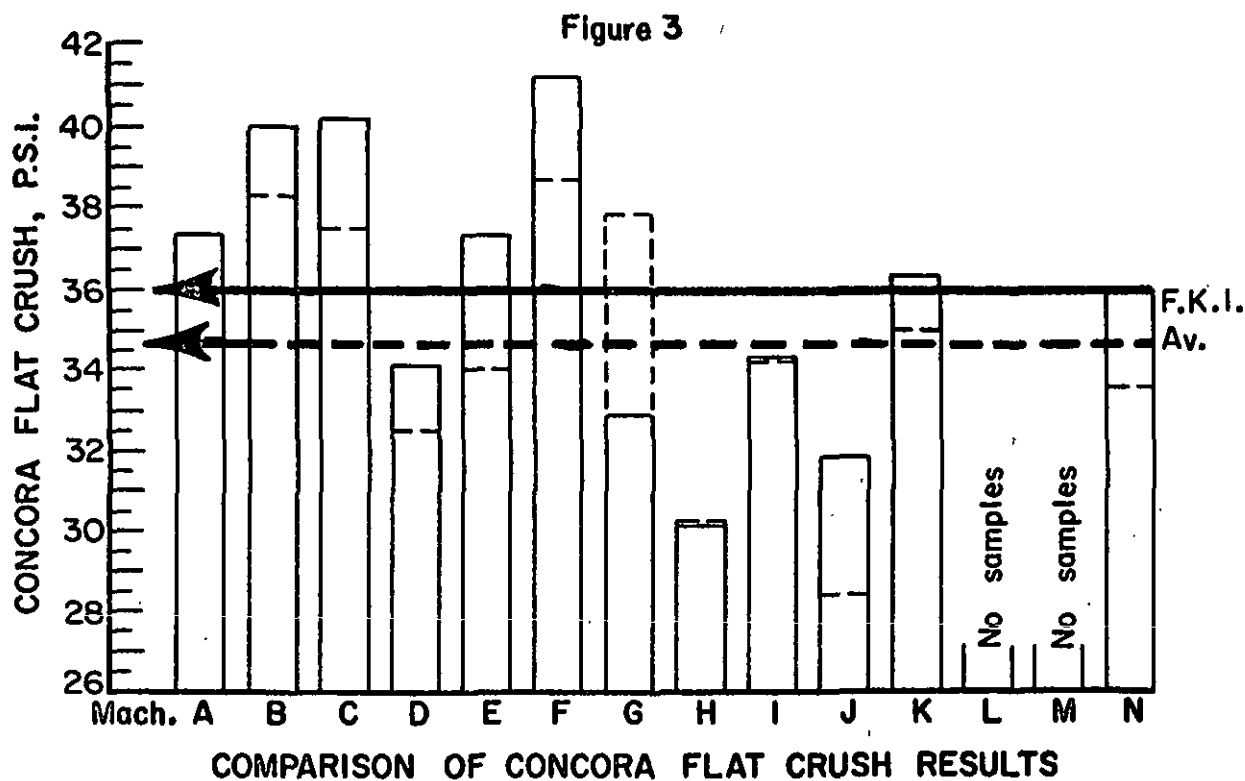
Figure 2



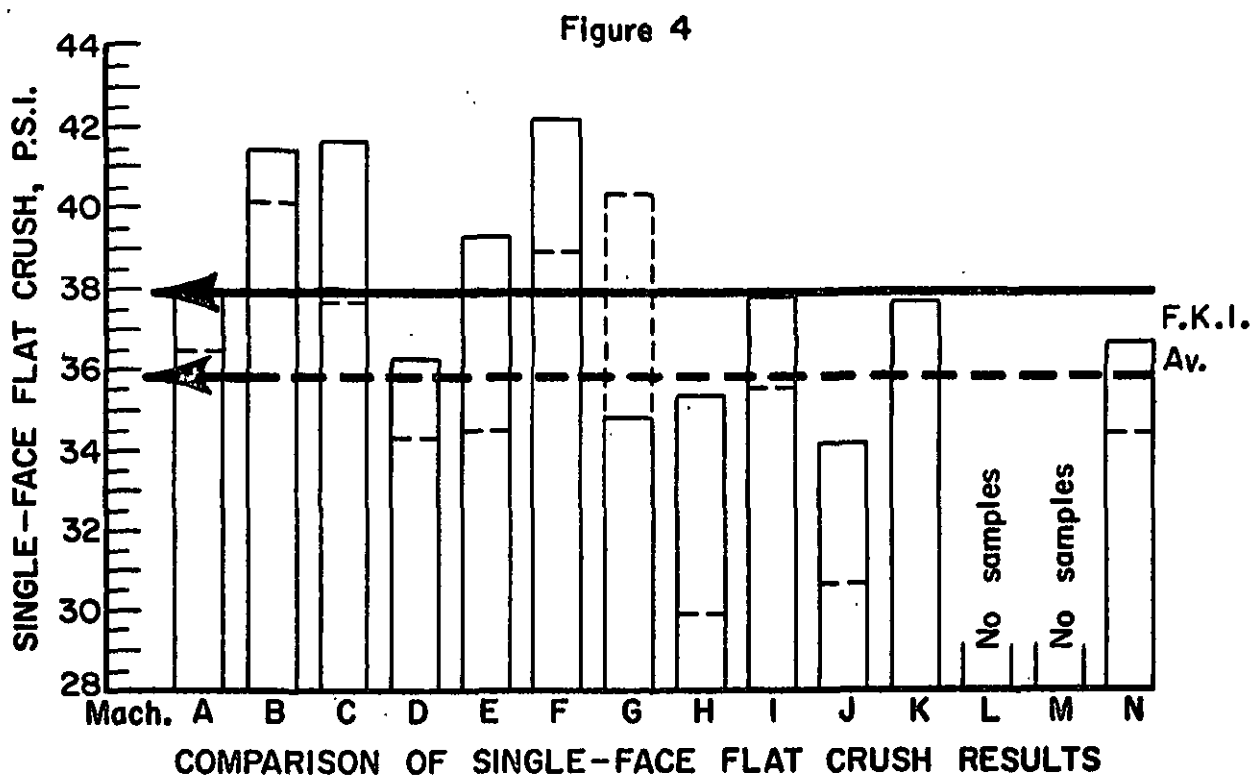
COMPARISON OF CALIPER RESULTS

July, 1957

— Current machine average
- - - Cumulative machine average



July, 1957



July, 1957

———— Current machine average
----- Cumulative machine average

The F.K.I. index 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 sample lots submitted from the production of each of the machines are shown in Tables III through XVI for machines A through N, respectively. The maximum, minimum, and average test results obtained on each sample lot are shown for all tests except basis weight for which only the average is shown; in addition, the over-all average result for all the sample lots submitted for each machine is shown for each test. The latter over-all averages are reported as "current machine averages." A cumulative machine average is also shown and is calculated by averaging the current machine averages for the previous twelve periods (excluding the current period). Also shown for each machine in Tables III to XVI 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 with either the previous results for that particular machine or with the cumulative results for all machines--i.e., the cumulative F.K.I. average.

In Table II the current machine averages for the period covered by this report are summarized. It may be noted that basis weight varied from a low of 26.6 lb. for Machine A to a high of 29.3 lb. for Machine D. The average basis weight for the twelve participating machines (current F.K.I. average) was 27.2 lb. per 1000 sq. ft., which is slightly higher than the cumulative F.K.I. average of 27.0 lb. as indicated by the F.K.I. index of 100.9%. The average results for all machines satisfy the requirements of Rule 41.

Caliper results varied from a low value of 9.3 for Machine J to a high value of 11.8 for Machine G. The current F.K.I. average for caliper was 10.4 points, slightly higher than the cumulative F.K.I. average of 10.3 points, giving an F.K.I. index for caliper of 101.1%. The average caliper results for all machines meet the Rule 41 specification.

Concora flat crush test results ranged from a minimum of 30.1 p.s.i. for Machine H to a maximum of 41.2 p.s.i. for Machine F. The current F.K.I. average was 36.0 p.s.i., somewhat higher than the cumulative F.K.I. average of 34.7 p.s.i. as indicated by the F.K.I. index of 103.7%.

Machine F also had the highest average single-face flat crush, it being 42.2 p.s.i.; Machine J had the lowest, 34.2 p.s.i. The current F.K.I. average for flat crush was 37.9 p.s.i., whereas the cumulative F.K.I. average was 35.8 p.s.i., giving an F.K.I. index of 105.8%.

For the current period, the current F.K.I. averages for all tests exceeded their respective cumulative averages.

TABLE III
SUMMARY OF TEST RESULTS FOR MACHINE A
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points Max. Min. Av.	Concora Flat Crush, p.s.i. Max. Min. Av.	Single-Face Flat Crush, p.s.i. Max. Min. Av.	Runability
A-1	6-13-57	6-24-57	129	26.9	11.3 10.8 11.0	42.0 33.0 37.0	40.8 36.2 38.3	Satisfactory at 600 f.p.m. ^a
A-2	6-14-57	6-24-57	130	25.4	10.5 10.1 10.2	35.4 30.6 32.6	34.5 30.0 33.4	Satisfactory at 600 f.p.m. ^a
A-3	6-20-57	7- 3-57	131	26.5	10.8 9.8 10.3	39.6 35.4 37.6	40.8 34.4 36.6	Satisfactory at 600 f.p.m. ^b
A-4	6-20-57	7- 3-57	132	27.4	11.0 10.2 10.6	40.2 34.2 36.8	41.4 33.0 36.8	Satisfactory at 600 f.p.m. ^a
A-5	6-25-57	7- 8-57	133	27.1	11.5 10.8 11.1	38.4 32.4 36.2	40.6 37.2 39.0	Satisfactory at 600 f.p.m. ^b
A-6	6-29-57	7-15-57	134	26.0	10.5 10.1 10.3	46.8 38.4 41.8	40.8 37.0 39.1	Satisfactory at 600 f.p.m. ^b
A-7	7- 3-57	7-15-57	135	27.1	11.1 10.7 10.9	42.0 36.0 39.7	43.0 38.2 41.0	Satisfactory at 600 f.p.m. ^b
Current Machine Average				26.6	10.6	37.4	37.8	
Cumulative Machine Average				27.3	10.2	34.8	36.5	
Machine Factor, %				97.7	103.7	107.3	103.4	
Machine Index, %				98.7	102.9	107.8	105.3	

^a With 1 lb./in. tension.
^b With 1/2 lb./in. tension.
^c With 1-1/2 lb./in. tension.

TABLE IV
SUMMARY OF TEST RESULTS FOR MACHINE 3
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points			Concora Flat Crush, p.s.i.			Single-Face Flat Crush, p.s.i.			Runability
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	
B-1	6-13-57	6-25-57	141	26.2	10.5	10.0	10.2	37.8	32.4	34.7	39.4	37.0	38.6	Satisfactory at 600 f.p.m. ^a
B-2	6-13-57	6-14-57	142	27.1	10.2	9.9	10.1	38.4	36.0	36.6	40.4	37.4	39.2	Satisfactory at 550 f.p.m. ^a
B-3	7-13-57	7-22-57	143	27.7	10.0	9.9	10.0	46.2	40.8	44.0	45.4	42.8	44.3	Satisfactory at 600 f.p.m. ^a
B-4	7-19-57	7-23-57	144	26.0	9.9	9.5	9.7	43.8	38.4	41.2	45.4	43.0	44.1	Satisfactory at 500 f.p.m.
B-5	7-19-57	7-23-57	145	27.1	10.2	10.0	10.1	45.0	40.8	43.3	44.2	39.2	41.3	Satisfactory at 550 f.p.m.
Current Machine Average:					26.8		10.0			40.0			41.5	
Cumulative Machine Average:					27.0		10.0			38.3			40.1	
Machine Factor, %					99.4		100.0			104.4			103.6	
Machine Index, %					99.4		97.2			115.2			115.8	

^a With 1/2 lb./in. tension.

^b With 1 lb./in. tension.

TABLE V
SUMMARY OF TEST RESULTS FOR MACHINE C
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runability			
					Max.	Min.	Max.	Min.	Max.	Min.				
C-1	6-19-57	6-27-57	284	26.8	10.5	10.0	10.3	44.4	37.2	40.8	45.4	42.0	43.4	Satisfactory at 600 f.p.m. a
C-2	6-21-57	6-26-57	286	26.1	11.5	10.1	10.5	42.0	38.4	40.4	41.6	40.0	40.6	Satisfactory at 600 f.p.m. a
C-3	6-25-57	7- 3-57	288	27.6	11.2	10.9	11.0	42.0	39.0	40.6	44.6	41.2	42.6	Satisfactory at 600 f.p.m. a
C-4	6-28-57	7- 8-57	289	26.8	11.1	10.0	10.7	41.4	34.2	39.2	45.4	40.0	42.3	Satisfactory at 550 f.p.m. a
C-5	7- 3-57	7-15-57	292	26.2	10.6	10.0	10.4	42.6	38.4	39.8	40.8	38.8	39.8	Satisfactory at 600 f.p.m. a
Current Machine Average				26.7			10.6		40.2				41.7	
Cumulative Machine Average				26.6			10.5		37.5				37.7	
Machine Factor, %				100.3			100.6		107.2				110.7	
Machine Index, %				99.1			102.4		115.8				116.5	

^a With 1/2 lb./in. tension.

TABLE VI
SUMMARY OF TEST RESULTS FOR MACHINE D
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runability			
					Max.	Min.	Av.	Max.	Min.	Av.		Max.	Min.	Av.
D-1	6-18-57	6-24-57	106	29.8	11.8	11.2	11.5	36.0	33.0	34.1	38.8	35.0	37.1	Satisfactory at 600 f.p.m. ^a
D-2	6-20-57	6-28-57	107	28.5	11.1	10.8	10.9	37.2	31.8	34.0	38.2	33.8	36.4	Satisfactory at 600 f.p.m. ^a
D-3	6-25-57	7-3-57	108	28.7	11.5	10.8	11.1	36.0	33.0	34.6	39.0	36.8	37.9	Satisfactory at 600 f.p.m. ^b
D-4	6-27-57	7-2-57	109	29.8	11.7	11.0	11.2	37.2	31.2	33.7	39.6	36.8	38.0	Satisfactory at 600 f.p.m. ^b
D-5	7-9-57	7-15-57	110	30.0	11.9	11.4	11.6	37.2	34.2	35.8	34.6	32.6	33.7	Satisfactory at 600 f.p.m. ^b
D-6	7-11-57	7-17-57	111	29.8	11.8	11.0	11.4	37.2	33.6	35.0	35.8	34.4	36.0	Satisfactory at 600 f.p.m. ^b
D-7	7-16-57	7-22-57	112	29.2	11.6	11.2	11.3	33.6	28.8	31.2	35.4	32.0	33.4	Satisfactory at 600 f.p.m. ^b
D-8	7-18-57	7-23-57	113	28.9	11.1	10.9	10.9	37.8	33.0	34.7	39.6	36.6	37.8	Satisfactory at 600 f.p.m. ^b
Current Machine Average:				29.3			11.2			34.1			36.3	
Cumulative Machine Average				29.3			11.4			32.5			34.3	
Machine Factor, %				100.0			98.6			105.0			105.8	
Machine Index, %				108.8			109.0			98.4			101.3	

^a With 1/2 lb./in. tension
^b With 1 lb./in. tension

TABLE VII
SUMMARY OF TEST RESULTS FOR MACHINE E
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points Max. Min. Av.	Concora Flat Crush, p.s.i. Max. Min. Av.	Single-Face Flat Crush, p.s.i. Max. Min. Av.	Runability
E-1	6-11-57	6-24-57	--	26.6	10.2 10.0 10.1	42.0 33.0 37.1	39.8 36.2 38.2	Satisfactory at 600 f.p.m. ^a
E-2	6-18-57	6-25-57	120	26.0	10.3 10.0 10.2	37.2 33.0 34.8	37.8 35.6 36.8	Satisfactory at 600 f.p.m. ^a
E-3	6-20-57	6-27-57	121	26.9	10.6 10.1 10.4	39.0 36.6 37.4	40.6 37.4 39.5	Satisfactory at 600 f.p.m. ^a
E-4	6-27-57	7- 5-57	122	27.2	11.0 10.0 10.6	40.8 34.8 38.4	44.8 42.0 43.2	Satisfactory at 600 f.p.m. ^a
E-5	7- 4-57	7- 9-57	123	26.4	10.1 9.9 10.0	37.8 35.4 36.2	37.4 35.0 36.2	Satisfactory at 600 f.p.m. ^a
E-6	7- 9-57	7-15-57	125	27.4	10.8 10.4 10.6	42.6 36.0 39.2	41.4 39.0 40.0	Satisfactory at 550 f.p.m. ^a
E-7	7-11-57	7-16-57	126	27.1	10.5 10.1 10.2	40.2 37.8 38.9	42.8 38.6 41.4	Satisfactory at 600 f.p.m. ^a
Current Machine Average				26.8	10.3	37.4	39.3	
Cumulative Machine Average				26.8	10.6	34.0	34.5	
Machine Factor, %				100.0	97.3	110.2	114.2	
Machine Index, %				99.4	99.8	108.0	109.8	

^a With 1/2 lb./in. tension

TABLE VIII
SUMMARY OF TEST RESULTS FOR MACHINE F
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points			Concora Flat Crush, p.s.i.			Single-Face Flat Crush, p.s.i.			Runability
					Max.	Min.	Av.	Max.	Min.	Av.	Max.	Min.	Av.	
F-1	6-19-57	6-26-57	283	27.6	11.5	10.3	11.0	46.2	40.2	42.2	45.2	43.4	44.4	Satisfactory at 600 f.p.m. ^a
F-2	6-21-57	6-26-57	285	26.4	11.8	10.9	11.3	45.6	40.2	42.4	43.8	41.0	42.6	Satisfactory at 600 f.p.m. ^a
F-3	6-25-57	7-3-57	287	27.0	11.2	10.8	11.0	42.0	38.4	40.8	43.6	39.8	41.7	Satisfactory at 475 f.p.m.
F-4	6-28-57	7-8-57	290	27.6	11.1	10.5	10.9	45.0	40.8	43.8	44.8	43.0	43.4	Satisfactory at 550 f.p.m. ^a
F-5	7-3-57	7-15-57	291	27.4	12.0	10.8	11.4	40.8	37.8	39.0	41.6	37.0	39.6	Satisfactory at 600 f.p.m. ^a
F-6	7-19-57	7-23-57	293	26.9	10.9	10.2	10.6	41.4	39.0	40.2	43.4	40.8	42.2	Satisfactory at 600 f.p.m. ^a
F-7	7-19-57	7-23-57	294	26.3	10.9	10.2	10.6	42.6	39.0	40.3	42.8	40.4	41.3	Satisfactory at 600 f.p.m. ^a
Current Machine Average				27.0	11.0			41.2			42.2			
Cumulative Machine Average				26.5	10.7			38.7			38.9			
Machine Factor, %				101.9	102.4			106.6			108.3			
Machine Index, %				100.2	106.4			118.9			117.6			

^a With 1/2 lb./in. tension

TABLE IX
SUMMARY OF TEST RESULTS FOR MACHINE G
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points	Concora Flat Crush, p.s.i.	Single-Face Flat Crush, p.s.i.	Runability
					Max. Min. Av.	Max. Min. Av.	Max. Min. Av.	
G-1	6-18-57	7-5-57	543	27.1	12.1 11.2	38.4 33.6	38.0 33.6	Satisfactory at 600 f.p.m. ^a
G-2	7-16-57	7-22-57	--	26.2	12.1 11.2	30.6 27.6	33.6 32.6	Satisfactory at 600 f.p.m. ^a
Current Machine Average:				26.7	11.8	32.9	34.8	
Cumulative Machine Average:				27.1	11.2	37.8	40.3	
Machine Factor, %				98.6	104.7	86.9	86.3	
Machine Index, %				98.9	114.0	94.8	97.0	

TABLE X
SUMMARY OF TEST RESULTS FOR MACHINE H
July, 1957

H-1	6-24-57	7-25-57	20	26.9	11.9 10.6	31.8 27.6	30.1 35.8	34.0 35.3	Satisfactory at 350 f.p.m.
Current Machine Average				26.9	11.3	30.1	35.3		
Cumulative Machine Average:				26.4	10.1	30.2	29.9		
Machine Factor, %				101.8	112.2	99.9	118.0		
Machine Index, %				99.6	109.4	86.8	98.5		

^a With 1/2 lb./in. tension.

TABLE XI
SUMMARY OF TEST RESULTS FOR MACHINE I
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runability
					Max.	Min.	Max.	Min.	Max.	Min.	
I-1	6-13-57	6-21-57	103	30.1	10.6	10.0	10.2	37.8	39.8	36.8	38.2
I-2	6-14-57	6-21-57	104	30.8	10.8	10.1	10.3	39.0	40.6	37.6	39.1
I-3	6-25-57	7-3-57	105	28.4	10.5	9.5	10.0	40.8	41.2	35.8	37.8
I-4	--	7-2-57	106	28.7	10.4	10.0	10.1	40.8	46.0	38.0	42.4
I-5	--	7-24-57	107	24.8	9.1	8.8	8.9	27.0	33.4	30.8	31.6
Current Machine Average							9.9		34.3		37.8
Cumulative Machine Average							10.0		34.2		35.5
Machine Factor, %							99.3		100.3		106.5
Machine Index, %							96.1		98.9		105.5

Satisfactory at 350 f.p.m.
Satisfactory at 425 f.p.m.
Satisfactory at 300 f.p.m.
Satisfactory at 400 f.p.m.
Satisfactory at 425 f.p.m.

TABLE XII
SUMMARY OF TEST RESULTS FOR MACHINE J
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runability			
					Max.	Min.	Av.	Max.	Min.	Av.		Max.	Min.	Av.
J-1	6-25-57	7-2-57	16	27.4	9.9	9.0	9.3	33.0	30.0	30.8	36.2	32.4	33.7	Satisfactory at 600 f.p.m. ^a
J-2	6-25-57	7-2-57	17	27.4	10.0	9.0	9.3	33.6	28.8	31.2	35.0	33.0	33.7	Satisfactory at 600 f.p.m. ^a
J-3	6-25-57	7-2-57	18	27.4	10.0	9.0	9.4	33.0	31.8	32.3	36.0	32.6	34.6	Satisfactory at 600 f.p.m. ^a
J-4	6-25-57	7-2-57	19	27.1	9.8	8.9	9.4	34.8	29.4	32.9	35.4	31.4	34.2	Satisfactory at 600 f.p.m. ^a
J-5	6-25-57	7-2-57	20	26.9	9.9	9.0	9.2	34.2	30.0	31.9	35.6	34.0	34.6	Satisfactory at 600 f.p.m. ^a
J-6	6-25-57	7-2-57	21	27.1	9.2	9.0	9.1	33.0	30.6	31.7	35.4	33.8	34.6	Satisfactory at 600 f.p.m. ^a
Current Machine Average				27.2			9.3			31.8			34.2	
Cumulative Machine Average				27.4			9.5			28.4			30.6	
Machine Factor, %				99.2			97.7			112.1			111.7	
Machine Index, %				100.8			90.0			91.7			95.5	

^a With 1/2 lb./in. tension.

TABLE XIII
SUMMARY OF TEST RESULTS FOR MACHINE K
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runability			
					Max.	Min.	Av.	Max.	Min.	Av.				
K-1	6-14-57	6-24-57	7	27.5	9.9	9.5	9.8	40.2	34.8	37.8	40.8	39.0	39.8	Satisfactory at 550 f.p.m.
K-2	6-15-57	6-24-57	8	26.9	10.7	10.2	10.4	39.6	35.4	37.6	40.4	34.8	37.7	Satisfactory at 600 f.p.m. ^a
K-3	6-18-57	6-27-57	9	26.6	9.8	9.2	9.6	40.2	38.4	39.0	41.6	36.0	38.4	Satisfactory at 600 f.p.m. ^a
K-4	6-19-57	6-27-57	10	26.3	9.7	9.2	9.4	36.6	33.0	34.9	39.4	34.4	37.3	Satisfactory at 600 f.p.m. ^a
K-5	6-27-57	7-8-57	11	26.8	10.0	9.9	10.0	34.8	29.4	31.3	39.4	35.6	37.4	Satisfactory at 400 f.p.m.
K-6	6-28-57	7-8-57	12	26.5	9.9	9.1	9.6	37.8	35.4	36.2	37.6	33.0	35.4	Satisfactory at 500 f.p.m. ^a
K-7	7-11-57	7-18-57	13	27.1	9.9	9.4	9.6	38.4	35.4	37.2	40.0	36.6	38.8	Satisfactory at 600 f.p.m. ^a
K-8	7-12-57	7-18-57	14	26.7	10.1	9.9	10.0	39.6	35.4	36.5	37.8	33.8	36.4	Satisfactory at 600 f.p.m. ^a
Current Machine Average				26.8			9.8			36.3			37.7	
Cumulative Machine Average				27.1			10.0			35.0			37.7	
Machine Factor, %				99.1			97.8			103.8			100.0	
Machine Index, %				99.5			95.1			104.7			105.1	

^a With 1/2 lb./in. tension.

TABLE XIV

SUMMARY OF TEST RESULTS FOR MACHINE L
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points	Concora Flat Crush, p.s.i.	Single-Face Flat Crush, p.s.i.	Runability
					Max. Min.	Max. Min.	Max. Min.	

No samples submitted.

TABLE XV

SUMMARY OF TEST RESULTS FOR MACHINE M
July, 1957

No samples submitted.

TABLE XVI
SUMMARY OF TEST RESULTS FOR MACHINE N
July, 1957

Code	Date Made	Date Recd.	Mill Roll No.	Basis Weight, lb. per 1000 sq. ft.	Caliper, points		Concora Flat Crush, p.s.i.		Single-Face Flat Crush, p.s.i.		Runability
					Max.	Min.	Max.	Min.	Max.	Min.	
N-1	6-11-57	6-25-57	123	26.9	9.2	8.8	9.0	39.6	33.0	36.6	36.7
N-2	6-16-57	6-25-57	124	25.6	8.8	8.3	8.6	35.4	32.4	33.6	35.1
N-3	6-24-57	7-2-57	—	27.5	9.2	8.5	9.0	35.4	31.2	33.8	33.4
N-4	6-26-57	7-15-57	126	27.1	9.2	8.7	9.0	38.4	32.4	34.6	36.8
N-5	6-27-57	7-15-57	127	27.6	9.1	8.7	8.9	38.4	32.4	36.2	37.3
N-6	7-9-57	7-18-57	128	26.9	8.9	8.7	8.8	40.8	38.4	39.7	39.6
N-7	7-14-57	7-22-57	129	27.4	9.2	8.8	9.0	40.8	32.4	37.6	36.8
N-8	7-14-57	7-22-57	130	26.6	9.1	8.9	9.0	34.8	33.0	33.8	34.8
N-9	7-17-57	7-23-57	131	28.0	9.1	8.7	8.9	39.6	37.2	38.3	39.4
Current Machine Average:				27.1	9.4					36.0	36.7
Cumulative Machine Average:				26.5	9.2					33.5	34.9
Machine Factor, %				102.0	102.0					107.4	105.1
Machine Index, %				100.3	90.7					103.9	102.3

a With 1/2 lb./in. tension
b With 1 lb./in. tension