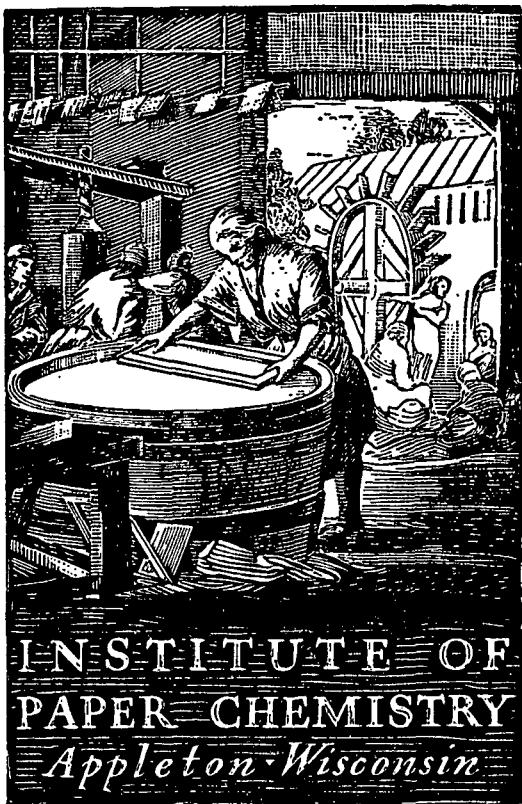


*Mr. Greene*

# BASE-LINE

(July-August, 1968)



INSTITUTE OF  
PAPER CHEMISTRY  
*Appleton - Wisconsin*

## CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

(Data for July and August, 1968)

Project 2694-2

Report 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

September 20, 1968

Project 2694-2: Code Letters--Report 9

	<u>Code</u>
1) Alton Box Board Co.	- Alton No. 3 Y
	- Alton No. 4 U
2) Container Corp. of America	- Circleville No. 5 X
3) Continental Can Co., Inc.	- Hodge No. 1 E
	- Hopewell No. 1 CC
4) Crown Zellerbach Corp.	- Baltimore No. 1 EE
	- Baltimore No. 2 J
	- Bogalusa No. 4 L
	- Lebanon No. 2 N
	- Cedar Springs No. 3 D
5) Great No. Paper Co.	- Ontonagon No. 1 H
6) Hoerner Waldorf Corp.	- Bastrop No. 1 T
7) International Paper Co.	- Bastrop No. 2 A
	- Georgetown No. 1 BB
8) The Mead Corp.	- Harriman No. 1 F
	- Knoxville No. 1 S
	- Lynchburg No. 2 K
	- Sylva No. 1 V
	- Sylva No. 2 I
	- West Monroe No. 2 G
9) Olinkraft, Inc.	- Big Island No. 1 FF
10) Owens-Illinois, Inc.	- Tomahawk No. 1 Q
	- Tomahawk No. 2 W
	- Tomahawk No. 3 AA
11) Pkg. Corp. of America	- Filer City No. 1 M
	- Filer City No. 2 R
12) St. Joe Paper Co.	- Port St. Joe No. 1 GG
13) Union Camp Corp.	- Savannah No. 2 DD
14) West Va. Pulp & Paper Co.	- Covington No. 6 B
	- Williamsburg No. 1 O
	- Williamsburg No. 2 C
	- Longview No. 4 Z
15) Weyerhaeuser Co.	- Plymouth No. 3 P
<u>Inactive Machines:</u>	
1) The Chesapeake Corp.	- West Point No. 1 --
2) Hoerner Waldorf Corp.	- St. Paul No. 4 --
	- St. Paul No. 5 --
3) Olinkraft, Inc.	- West Monroe No. 1 --
	- West Monroe No. 3 --
4) Owens-Illinois, Inc.	- Big Island No. 3 --
5) St. Regis Paper Co.	- Coshocton No. 1 --
6) Union Camp Corp.	- Monroe No. 2 --
7) West Va. P & P Co.	- Covington No. 7 --

BASE-LINE  
(JULY-AUGUST, 1968)

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

(Data for July and August, 1968)

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Report Nine

A Progress Report

to

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September 20, 1968

## TABLE OF CONTENTS

	Page
SUMMARY	1
INTRODUCTION	3
SUMMARY OF CURRENT MACHINE AVERAGES	5
GRAPHICAL PRESENTATIONS	6
SUMMARY OF TEST RESULTS FOR INDIVIDUAL MACHINES	9
DISCUSSION OF RESULTS	27

## THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM  
(Data for July and August, 1968)

## SUMMARY

## PART I. GENERAL

## A. Participation Data:

	Previous Period	Current Period
Period	May-June, 1968	July-August, 1968
Number of machines	32	33
Number of rolls	104	108

## B. Distribution of Mediums by Type:

Semichemical	30	30
Bogus	2	2
Kraft	0	1

## C. New Participants:

1. Weyerhaeuser  
(Longview No. 4). None

## D. Nonparticipants:

1. Chesapeake (West Point).
2. Crown Zellerbach (Lebanon No. 2).
3. Mead (Knoxville No. 1 and Lynchburg No. 2).
4. Olinkraft (W. Monroe No. 1 and 3).
5. St. Joe (Port St. Joe No. 1).
6. St. Regis (Coshocton No. 1).
7. Union Camp (Monroe No. 2).
8. West Virginia (Covington No. 7).
1. Chesapeake (West Point).
2. Hoerner-Waldorf (St. Paul No. 4 and 5).
3. Olinkraft (W. Monroe No. 1 and 3).
4. Owens-Ill., Inc. (Big Island No. 3).
5. St. Regis (Coshocton No. 1).
6. Union Camp (Monroe No. 2).
7. West Virginia (Covington No. 7).

PART II. QUALITY DATA

A. Summary of Physical Test Data

Test	Report	Current Machine Averages			F.K.I. Averages	
		Max.	Min.	Current	Cumulative	
Basis weight, lb./1000 ft. <sup>2</sup>	Cur. Prev.	28.9 28.9	25.8 25.8	26.9 27.0	27.0 27.1	
Caliper, pt.	Cur. Prev.	11.3 11.5	9.0 9.3	10.2 10.4	10.4 10.4	
Concora flat crush, p.s.i.	Cur. Prev.	51.3 50.6	28.9 40.1	42.5 43.6	43.3 43.0	
Single-face flat crush, p.s.i.	Cur. Prev.	41.4 38.7	26.4 30.2	32.7 33.2	33.1 32.9	

B. Summary of Runnability Data

Speed, f.p.m.	Tension, lb./in.	Previous Period			Current Period		
		No. of Rolls	% of Total	Cum., %	No. of Rolls	% of Total	Cum., %
<600	Min.	9	8.7	100.0	19	17.6	100.0
600	Min.	10	9.6	91.3	10	9.3	82.4
600	1/2	18	17.3	81.7	11	10.2	73.1
600	1	21	20.2	64.4	10	9.3	62.9
600	1-1/2	46	44.2	44.2	58	53.7	53.7

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

Physical Tests:

Basis weight: Decreased from 27.0 to 26.9 lb./M. ft.<sup>2</sup>  
 Caliper: Decreased from 10.4 to 10.2 pt.  
 Concora flat crush: Decreased from 43.6 to 42.5 p.s.i.  
 Single-face flat crush: Decreased from 33.2 to 32.7 p.s.i.

Comment: It may be noted that only minor quality changes are indicated for all four physical tests.

Runnability:

<600 f.p.m. at minimum tension: Increased from 8.7 to 17.6%.  
 600 f.p.m. at minimum tension: Decreased from 9.6 to 9.3%.  
 600 f.p.m. at 1/2 lb./in. tension: Decreased from 17.3 to 10.2%.  
 600 f.p.m. at 1 lb./in. tension: Decreased from 20.2 to 9.3%.  
 600 f.p.m. at 1-1/2 lb./in. tension: Increased from 44.2 to 53.7%.

Comment: Significant changes in runnability were noted at the following levels:

Level	Change
<600 f.p.m. at minimum tension	Significant increase
600 f.p.m. at 1/2 lb./in. tension	Significant decrease
600 f.p.m. at 1 lb./in. tension	Significant decrease
600 f.p.m. at 1-1/2 lb./in. tension	Significant increase

## 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. Report Five, however, covered a period of three months - Aug., Sept., and Oct., 1967. This adjustment was requested by the Technical Division in order to have future bimonthly base-line reports on corrugating medium correspond, in terms of the period covered, to the bimonthly base-line reports on linerboard. It should also be noted, with regard to the periods covered by these reports, that the base-line study on corrugating medium was temporarily discontinued during the months of November and December, 1967, in accordance with instructions from the Technical Division. Hence, no report is available for these two months. The study was resumed on January 1, 1968, and the current report summarizes the data obtained during July and August, 1968, on 108 rolls of corrugating medium submitted for evaluation from thirty-three 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. The reader's attention is directed to the fact that the current base-line report is the third one in which Concora flat crush results were obtained on specimens tested immediately after fluting. 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. per 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 and presented graphically in Fig. 1 and 2. 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

MILL	CODE	ROLLS	NO. OF	TYPE OF	WEIGHT,	CALIPER,	CONCREA FLAT	CRUSH, P.S.I.	FLAT CRUSH, P.S.I.
A	B	C	D	E	F	G	H	I	J
3	SEMICHEMICAL	26.3	10.0	45.4	42.2	42.0	42.5	36.7	32.8
4	SEMICHEMICAL	26.4	10.6	45.4	42.2	42.0	42.5	36.7	32.8
5	SEMICHEMICAL	26.7	11.2	45.4	42.2	42.0	42.5	36.7	32.8
6	SEMICHEMICAL	25.9	10.6	47.6	42.5	42.0	42.5	35.6	32.3
7	SEMICHEMICAL	26.6	10.6	47.6	42.5	42.0	42.5	35.6	32.3
8	SEMICHEMICAL	27.3	10.5	46.4	40.4	40.0	40.4	32.0	32.0
9	SEMICHEMICAL	26.2	10.4	46.4	40.4	40.0	40.4	32.0	32.0
10	SEMICHEMICAL	28.8	9.4	45.8	43.4	43.4	43.4	32.0	32.0
11	SEMICHEMICAL	26.1	11.1	45.7	42.1	42.1	42.1	31.2	31.2
12	SEMICHEMICAL	27.1	10.3	45.8	43.4	43.4	43.4	31.4	31.4
13	SEMICHEMICAL	26.8	10.4	45.8	43.4	43.4	43.4	30.4	30.4
14	SEMICHEMICAL	26.8	10.5	45.8	43.4	43.4	43.4	31.6	31.6
15	SEMICHEMICAL	26.3	10.0	40.0	40.0	40.0	40.0	30.0	30.0
16	SEMICHEMICAL	27.0	10.5	42.5	40.2	40.2	40.2	32.0	32.0
17	SEMICHEMICAL	27.7	9.9	51.3	51.3	51.3	51.3	39.0	39.0
18	SEMICHEMICAL	27.0	10.5	42.5	40.2	40.2	40.2	32.0	32.0
19	SEMICHEMICAL	26.6	10.0	40.0	40.0	40.0	40.0	32.1	32.1
20	SEMICHEMICAL	25.9	10.2	49.7	49.7	49.7	49.7	37.0	37.0
21	SEMICHEMICAL	26.3	10.0	40.0	40.0	40.0	40.0	32.0	32.0
22	SEMICHEMICAL	26.6	10.0	40.0	40.0	40.0	40.0	32.0	32.0
23	SEMICHEMICAL	26.3	10.2	49.7	49.7	49.7	49.7	37.0	37.0
24	SEMICHEMICAL	26.6	10.0	40.0	40.0	40.0	40.0	32.0	32.0
25	SEMICHEMICAL	25.8	10.6	42.1	42.1	42.1	42.1	31.9	31.9
26	SEMICHEMICAL	27.0	9.7	35.7	35.7	35.7	35.7	30.3	30.3
27	SEMICHEMICAL	27.2	9.5	43.7	43.7	43.7	43.7	32.5	32.5
28	SEMICHEMICAL	27.0	9.6	43.7	43.7	43.7	43.7	32.0	32.0
29	SEMICHEMICAL	27.1	11.1	40.0	40.0	40.0	40.0	31.2	31.2
30	SEMICHEMICAL	26.8	10.0	40.0	40.0	40.0	40.0	31.2	31.2
31	SEMICHEMICAL	26.8	10.3	43.4	43.4	43.4	43.4	32.9	32.9
32	SEMICHEMICAL	26.2	10.4	43.4	43.4	43.4	43.4	30.4	30.4
33	SEMICHEMICAL	26.8	9.4	45.8	45.8	45.8	45.8	34.5	34.5
34	SEMICHEMICAL	27.1	10.0	50.3	50.3	50.3	50.3	31.2	31.2
35	SEMICHEMICAL	26.8	10.3	43.4	43.4	43.4	43.4	31.2	31.2
36	SEMICHEMICAL	27.0	9.8	45.7	45.7	45.7	45.7	32.4	32.4
37	SEMICHEMICAL	26.8	10.6	43.2	43.2	43.2	43.2	31.9	31.9
38	SEMICHEMICAL	27.0	9.7	43.2	43.2	43.2	43.2	31.9	31.9
39	SEMICHEMICAL	27.2	9.5	43.7	43.7	43.7	43.7	32.5	32.5
40	SEMICHEMICAL	27.0	9.6	43.7	43.7	43.7	43.7	32.0	32.0
41	SEMICHEMICAL	27.1	11.0	40.4	40.4	40.4	40.4	31.2	31.2
42	SEMICHEMICAL	26.1	10.0	43.4	43.4	43.4	43.4	32.8	32.8
43	SEMICHEMICAL	26.3	9.4	42.7	42.7	42.7	42.7	33.8	33.8
44	SEMICHEMICAL	26.8	10.3	42.7	42.7	42.7	42.7	32.6	32.6
45	SEMICHEMICAL	27.4	11.2	43.2	43.2	43.2	43.2	32.8	32.8
46	SEMICHEMICAL	26.2	10.4	41.0	41.0	41.0	41.0	32.4	32.4
47	SEMICHEMICAL	27.3	10.5	40.4	40.4	40.4	40.4	32.2	32.2
48	SEMICHEMICAL	27.0	9.6	40.4	40.4	40.4	40.4	32.0	32.0
49	SEMICHEMICAL	27.3	10.5	40.4	40.4	40.4	40.4	32.2	32.2
50	SEMICHEMICAL	27.0	9.6	40.4	40.4	40.4	40.4	32.0	32.0
51	SEMICHEMICAL	27.1	11.1	40.4	40.4	40.4	40.4	32.0	32.0
52	SEMICHEMICAL	26.8	10.0	40.4	40.4	40.4	40.4	32.0	32.0
53	SEMICHEMICAL	27.0	9.7	35.7	35.7	35.7	35.7	30.3	30.3
54	SEMICHEMICAL	27.2	9.5	43.7	43.7	43.7	43.7	32.5	32.5
55	SEMICHEMICAL	27.0	9.6	43.7	43.7	43.7	43.7	32.0	32.0
56	SEMICHEMICAL	27.1	11.1	40.4	40.4	40.4	40.4	32.0	32.0
57	SEMICHEMICAL	26.8	10.0	40.4	40.4	40.4	40.4	32.0	32.0
58	SEMICHEMICAL	27.0	9.7	35.7	35.7	35.7	35.7	30.3	30.3
59	SEMICHEMICAL	27.2	9.5	43.7	43.7	43.7	43.7	32.5	32.5
60	SEMICHEMICAL	27.0	9.6	43.7	43.7	43.7	43.7	32.0	32.0
61	SEMICHEMICAL	27.1	11.1	40.4	40.4	40.4	40.4	32.0	32.0
62	SEMICHEMICAL	26.8	10.0	40.4	40.4	40.4	40.4	32.0	32.0
63	SEMICHEMICAL	27.0	9.7	35.7	35.7	35.7	35.7	30.3	30.3
64	SEMICHEMICAL	27.2	9.5	43.7	43.7	43.7	43.7	32.5	32.5
65	SEMICHEMICAL	27.0	9.6	43.7	43.7	43.7	43.7	32.0	32.0
66	KRAFT	2	2	26.4	9.0	28.9	28.9	26.4	26.4
67	SEMICHEMICAL	4	4	25.5	10.2	25.9	25.9	32.0	32.0
68	SEMICHEMICAL	4	4	26.0	10.0	27.7	27.7	29.9	29.9
69	SEMICHEMICAL	4	4	26.6	10.3	27.0	27.0	30.0	30.0
70	SEMICHEMICAL	4	4	26.3	10.2	27.7	27.7	30.0	30.0
71	SEMICHEMICAL	4	4	26.0	10.0	27.4	27.4	30.0	30.0
72	SEMICHEMICAL	4	4	26.8	10.3	27.0	27.0	30.0	30.0
73	SEMICHEMICAL	4	4	26.5	10.2	27.3	27.3	30.0	30.0
74	SEMICHEMICAL	4	4	26.2	10.4	27.0	27.0	30.0	30.0
75	SEMICHEMICAL	4	4	26.8	9.4	28.4	28.4	30.6	30.6
76	SEMICHEMICAL	4	4	26.5	10.0	27.1	27.1	30.6	30.6
77	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
78	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
79	SEMICHEMICAL	4	4	26.8	9.8	27.7	27.7	30.6	30.6
80	SEMICHEMICAL	4	4	26.5	10.0	27.4	27.4	30.6	30.6
81	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
82	SEMICHEMICAL	4	4	26.8	9.4	28.4	28.4	30.6	30.6
83	SEMICHEMICAL	4	4	26.5	10.0	27.1	27.1	30.6	30.6
84	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
85	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
86	SEMICHEMICAL	4	4	26.8	9.8	27.7	27.7	30.6	30.6
87	SEMICHEMICAL	4	4	26.5	10.0	27.4	27.4	30.6	30.6
88	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
89	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
90	SEMICHEMICAL	4	4	26.8	9.8	28.4	28.4	30.6	30.6
91	SEMICHEMICAL	4	4	26.5	10.0	27.1	27.1	30.6	30.6
92	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
93	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
94	SEMICHEMICAL	4	4	26.8	9.8	27.7	27.7	30.6	30.6
95	SEMICHEMICAL	4	4	26.5	10.0	27.4	27.4	30.6	30.6
96	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
97	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
98	SEMICHEMICAL	4	4	26.8	9.8	28.4	28.4	30.6	30.6
99	SEMICHEMICAL	4	4	26.5	10.0	27.1	27.1	30.6	30.6
100	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
101	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
102	SEMICHEMICAL	4	4	26.8	9.8	27.7	27.7	30.6	30.6
103	SEMICHEMICAL	4	4	26.5	10.0	27.4	27.4	30.6	30.6
104	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
105	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
106	SEMICHEMICAL	4	4	26.8	9.8	28.4	28.4	30.6	30.6
107	SEMICHEMICAL	4	4	26.5	10.0	27.1	27.1	30.6	30.6
108	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
109	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
110	SEMICHEMICAL	4	4	26.8	9.8	27.7	27.7	30.6	30.6
111	SEMICHEMICAL	4	4	26.5	10.0	27.4	27.4	30.6	30.6
112	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
113	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
114	SEMICHEMICAL	4	4	26.8	9.8	28.4	28.4	30.6	30.6
115	SEMICHEMICAL	4	4	26.5	10.0	27.1	27.1	30.6	30.6
116	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
117	SEMICHEMICAL	4	4	26.0	10.2	27.3	27.3	30.6	30.6
118	SEMICHEMICAL	4	4	26.8	9.8	27.7	27.7	30.6	30.6
119	SEMICHEMICAL	4	4	26.5	10.0	27.4	27.4	30.6	30.6
120	SEMICHEMICAL	4	4	26.2	10.3	27.0	27.0	30.6	30.6
121	SEMICHEMICAL	4	4						

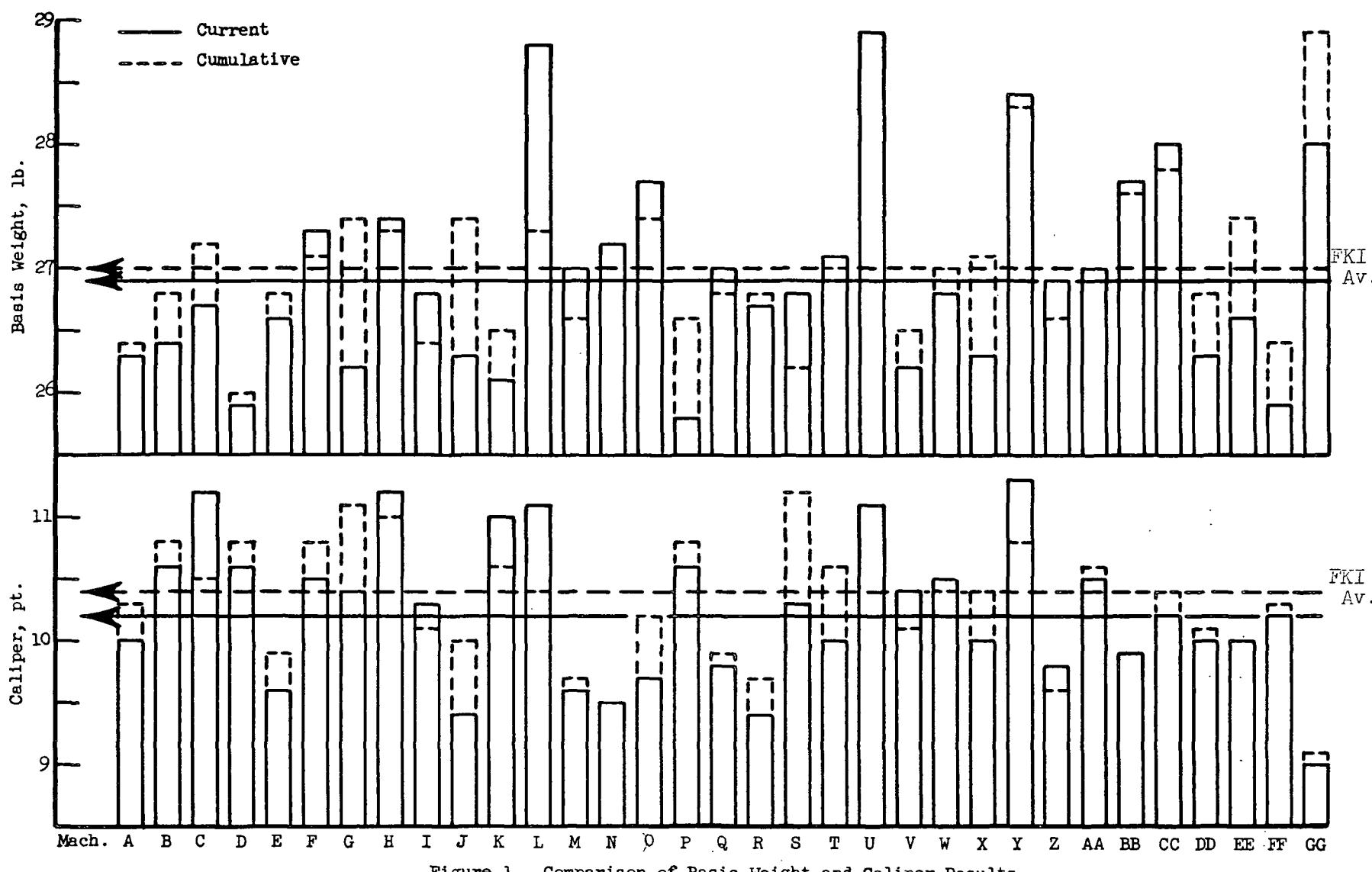


Figure 1. Comparison of Basis Weight and Caliper Results

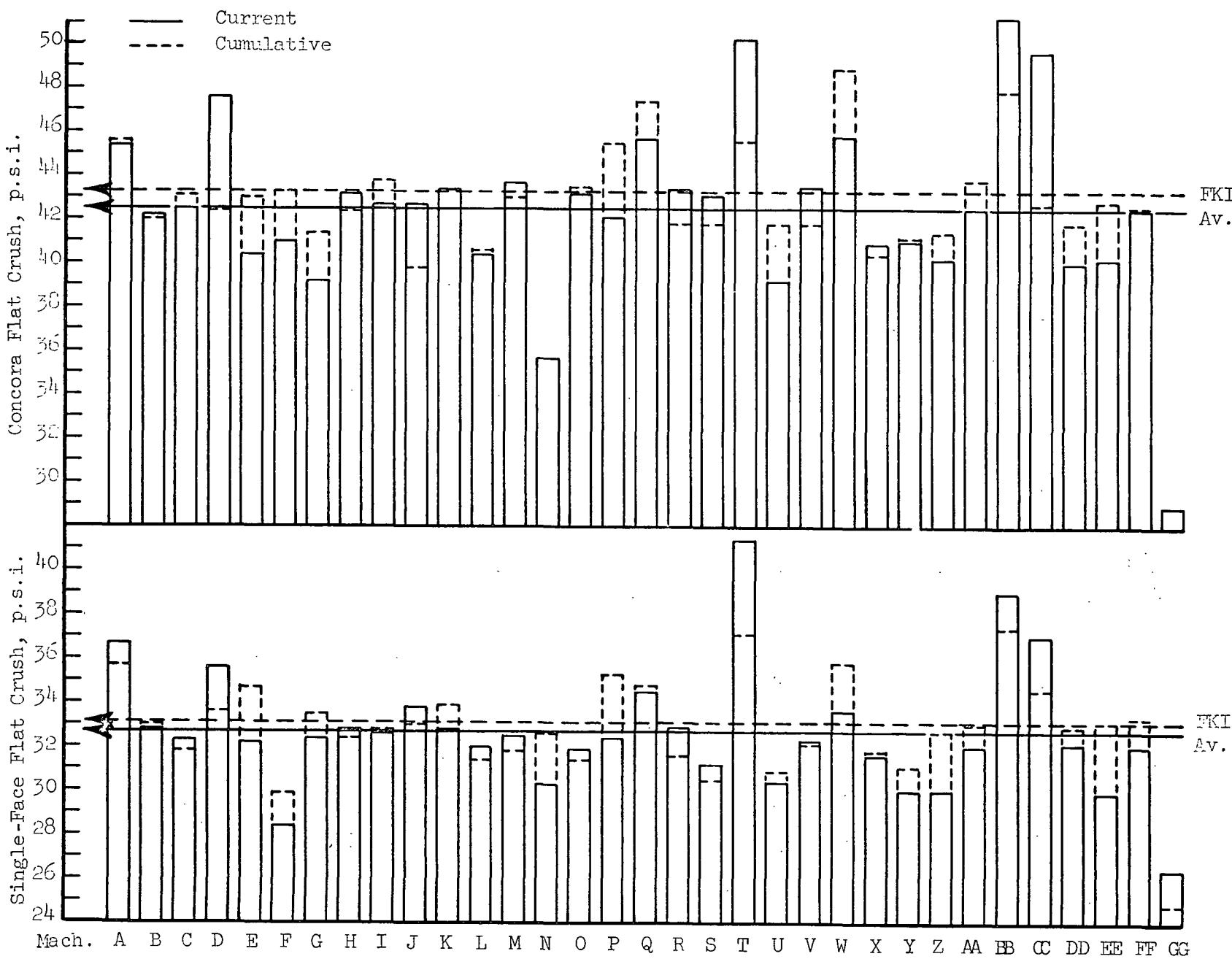


Figure 2. Comparison of Concora and Single-Face Flat Crush Results

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.

The test results obtained on the rolls submitted from the production of individual machines during the current period are shown in Tables II through XXXIV. for Machines A through Z and Machines AA, BB, CC, DD, EE, FF, and GG, 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 XXXIV are a machine factor and machine index which are defined as follows:

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

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

TABLE II

SUMMARY OF TEST RESULTS FOR MACHINE A  
JULY AND AUGUST, 1968

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY	
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*B
A-1	6- 7-68	553	25.3	10.8	9.1	9.9	46.8	42.0	44.8	36.2	33.2	35.0	1.0	1.544
A-2	7- 8-68	554	26.3	10.1	9.8	10.0	47.4	43.2	45.4	37.8	37.0	37.3	1.5	1.565
A-3	7-29-68	555	27.2	11.0	9.1	10.2	49.8	42.6	46.1	38.8	36.6	37.8	1.5	1.555
CURRENT MACHINE AVERAGE			26.3				10.0			45.4			36.7	
CUMULATIVE MACHINE AVERAGE			26.4				10.3			45.6			35.7	
MACHINE FACTOR, PERCENT			99.6				97.1			99.6			102.8	
MACHINE INDEX, PERCENT			97.4				96.2			104.8			110.9	

A Maximum tension at 600 f.p.m.

B 600 f.p.m. minimum tension.

TABLE III

SUMMARY OF TEST RESULTS FOR MACHINE B  
JULY AND AUGUST, 1968

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY	
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*B
B-1	5-28-68	101	26.1	10.7	10.0	10.4	45.0	39.0	42.7	34.0	31.8	33.1	MIN.	1.546
B-2	5-30-68	102	26.1	10.9	10.3	10.5	43.2	40.2	41.9	33.2	30.6	32.0	MIN.	1.548
B-3	6- 2-68	103	26.5	10.9	10.2	10.6	43.8	37.8	40.7	33.4	32.2	32.8	MIN.	1.546
B-4	6-27-68	104	26.8	11.4	10.5	11.1	44.4	42.6	43.4	34.4	31.6	33.4	1.0	1.555
CURRENT MACHINE AVERAGE			26.4				10.6			42.2			32.8	
CUMULATIVE MACHINE AVERAGE			26.8				10.8			42.0			33.0	
MACHINE FACTOR, PERCENT			98.5				98.1			100.5			99.4	
MACHINE INDEX, PERCENT			97.8				101.9			97.4			99.1	

\* See Table II for Notes A and B.

TYPE OF MEDIUM - SEMICRSTALLINE

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE C

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TYPE OF MEDIUM - SEMI CHEMICAL  
JULY AND AUGUST, 1968  
SUMMARY OF TEST RESULTS FOR MACHINE #

TABLE V

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

\* See Table III for Notes A and B.

CODE	MADE	DATE	ROLL	BASIS WT./	MILL	CONC'D. FLAT CRUSH',	SINGLE-FACE FLAT	RUNNARLLITY	DRAW	FACTOR-R	AV.	MIN.	MAX.	P.S.I.	CRUSH', P.S.I.	AV.	MIN.	MAX.	AV.	IN. x A	LBS./IN.	FT.	NO.	MADE	
0-1	5-14-68	9	25.7	11.2	10.0	10.4	51.6	45.0	47.3	36.8	34.2	35.9	0.5	1.548	0.5	1.525	0.5	1.540	0.5	1.535	0.5	1.535	0-2	7-26-68	10
0-2	5-15-68	10	25.4	11.0	9.1	10.2	44.4	43.2	43.8	34.6	31.6	32.9	0.5	1.528	0.5	1.528	0.5	1.528	0.5	1.528	0.5	1.528	0-3	7-27-68	13
0-3	7-26-68	10	26.2	11.0	10.0	10.5	52.8	47.4	50.8	37.6	35.0	36.6	0.5	1.535	0.5	1.535	0.5	1.535	0.5	1.535	0.5	1.535	0-4	7-27-68	14
0-4	7-27-68	14	26.3	11.9	10.9	11.2	51.6	45.6	48.6	38.2	35.8	36.9	0.5	1.540	0.5	1.540	0.5	1.540	0.5	1.540	0.5	1.540	0-5	CURRENT MACHINE AVERAGE	25.9
0-5	CUMULATIVE MACHINE AVERAGE	26.0	10.8	10.6	10.6	47.6	42.4	42.4	35.6	33.6	33.6	0.5	1.536	0.5	1.536	0.5	1.536	0.5	1.536	0.5	1.536	0-6	MACMINE FACTOR, PERCENT	99.6	
0-6	MACMINE INDEX, PERCENT	95.9	109.9	101.9	101.9	112.3	112.3	112.3	106.0	106.0	106.0	0.5	1.536	0.5	1.536	0.5	1.536	0.5	1.536	0.5	1.536	0-7	1.536		

TYPE OF MEDIUM - SEMICHEMICAL  
JULY AND AUGUST, 1968  
MARY DE TEST RESULTS FOR MACHINE I

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SUMMARY OF TEST RESULTS FOR MACHINE F  
JULY AND AUGUST, 1968  
TYPE OF MEDIUM - SEMICHEMICAL

TYPE OF MEDIUM - SEMICHEMICAL

ABLE VII

SUMMARY OF TEST RESULTS FOR MACHINE F

JULY AND AUGUST, 1968

*See Table II for Notes A and B.*

JULY AND AUGUST, 1968  
SUMMARY OF TEST RESULTS FOR MACHINE 6  
TABLE VIII

CODE	DATE	MILL	ROLL	NO.	SOS. FT.	LB./M.	CALIPER, PT.	P.S.I.	CRUSH, P.S.I.	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.*A	DRAW	TYPE OF MEDIUM - SEMICHEMICAL		
															TYPE OF MEDIUM - SEMICHEMICAL		
6-17-68	163763	167845	27.0.3	10.0.9	10.0.2	10.0.6	46.0.2	39.0.6	43.0.1	35.0.6	34.0.9	0.0.5	1.0.0	1.0.559			
6-27-68	167845	25.0.2	10.0.4	9.0.7	10.0.1	36.0.0	33.0.6	35.0.2	31.0.2	29.0.2	29.0.8	0.0.5	1.0.0	1.0.559			
CURRENT MACHINE AVERAGE	26.0.2	10.0.4	10.0.4	39.0.2	39.0.2	32.0.4											
CUMULATIVE MACHINE AVERAGE	27.0.4	11.0.1	11.0.1	41.0.4	41.0.4	33.0.5											
MACHINE FACTOR, PERCENT	95.6	93.7	93.7	94.7	94.7	96.7											
MACHINE INDEX, PERCENT	97.0	100.0	100.0	90.5	90.5	97.9											

JULY AND AUGUST, 1968  
SUMMARY OF TEST RESULTS FOR MACHINE 6

TABLE VIII

CODE	DATE	MILL	ROLL	NO.	SOS. FT.	LB./M.	CALIPER, PT.	P.S.I.	CRUSH, P.S.I.	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.*A	DRAW	TYPE OF MEDIUM - SEMICHEMICAL	
															TYPE OF MEDIUM - SEMICHEMICAL	
H-1	5-8-68	158	26.0.8	11.4	10.9	11.2	43.0.2	37.0.8	40.0.4	33.0.0	31.0.4	32.0.1	NOTE C	1.0.542		
H-2	6-14-68	159	27.0.6	12.0	10.8	11.3	45.0.6	39.0.6	43.0.6	35.0.6	32.0.2	33.0.5	NOTE C	1.0.546		
H-3	6-24-68	160	27.0.9	11.8	10.6	11.1	47.0.4	42.0.6	45.0.8	36.0.4	33.0.8	35.0.0	NOTE C	1.0.552		
H-4	7-22-68	162	27.0.4	11.5	11.0	11.2	46.0.8	39.0.0	43.0.2	33.0.6	29.0.4	30.0.8	NOTE D	1.0.550		
CURRENT MACHINE AVERAGE	27.0.4	11.2	11.2	43.0.2	37.0.8	40.0.4	33.0.0	31.0.4	32.0.1	NOTE C	1.0.547					
CUMULATIVE MACHINE AVERAGE	27.0.3	11.0	10.8	42.0.4	37.0.8	40.0.2	33.0.0	31.0.4	32.0.1	NOTE C	1.0.542					
MACHINE FACTOR, PERCENT	100.4	101.0	101.0	101.9	101.9	101.2	101.5	101.5	101.5	NOTE B						
MACHINE INDEX, PERCENT	101.5	107.7	99.8	99.1												
*See Table II for Notes A and B.																
Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.																
Maximum speed at which this roll could be corrugated with minimum tension was 500 f.p.m.																

Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.

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

\*See Table II for Notes A and B.

\* See Table II for Notes A and B.

TABLE X

SUMMARY OF TEST RESULTS FOR MACHINE I

JULY AND AUGUST, 1968

TYPE OF MEDIUM - SEMICHEMICAL

CODE DATE MILL BASIS WT., S.O. FT., CALIPER, PT., CONGORA FLAT CRUSH, SINGLE-FACE FLAT CRUSH, RUNNABILITY DRAM

I-1 6-20-68 12 25.4 10.1 9.2 9.8 44.4 39.0 41.9 31.8 28.0 30.3 1.5 1.563

I-2 7-4-68 14 27.9 11.2 10.4 10.8 45.6 41.4 43.4 36.4 34.0 35.2 1.5 1.562

I-3 7-10-68 16 27.3 11.0 9.6 10.3 45.6 41.4 43.4 36.4 34.0 35.2 1.5 1.562

I-4 7-24-68 18 26.7 11.0 9.6 10.3 46.8 43.8 45.1 34.2 30.6 33.0 1.0 1.559

CURRENT MACHINE AVERAGE 26.8 10.1 9.2 9.8 44.4 39.0 41.9 31.8 28.0 30.3 1.5 1.564

CUMULATIVE MACHINE AVERAGE 26.4 10.3 9.2 10.3 45.0 34.2 40.4 32.4 30.8 31.7 1.5 1.562

MACHINE INDEX, PERCENT 101.5 102.0 99.2 99.0 98.6 98.5

TABLE XI

SUMMARY OF TEST RESULTS FOR MACHINE J

JULY AND AUGUST, 1968

TYPE OF MEDIUM - BUGS

CODE DATE MILL BASIS WT., S.O. FT., CALIPER, PT., CONGORA FLAT CRUSH, SINGLE-FACE FLAT CRUSH, RUNNABILITY DRAM

J-1 6-13-68 508 26.8 10.0 8.0 9.2 44.4 39.0 41.8 34.2 31.8 33.2 1.5 1.558

J-2 6-20-68 509 26.7 10.7 9.0 9.8 43.8 40.8 42.2 35.6 34.2 34.8 1.5 1.560

J-3 7-15-68 510 25.4 10.8 9.8 9.0 45.6 43.2 44.5 34.8 32.2 34.8 1.5 1.566

J-4 7-18-68 511 26.2 10.9 9.2 10.0 43.8 40.8 42.4 34.4 33.4 33.9 1.5 1.558

CURRENT MACHINE AVERAGE 26.3 9.4 9.2 10.0 42.7 33.8 33.2 1.5 1.560

CUMULATIVE MACHINE AVERAGE 27.4 10.0 10.2 10.0 39.8 33.0 33.0 1.5 1.560

MACHINE FACTOR, PERCENT 96.0 94.0 107.3 102.4

MACHINE INDEX, PERCENT 97.4 90.4 98.6 102.1

CURRENT MACHINE AVERAGE 26.3 9.4 9.2 10.0 42.7 33.8 33.2 1.5 1.558

CUMULATIVE MACHINE AVERAGE 27.4 10.0 10.2 10.0 39.8 33.0 33.0 1.5 1.560

MACHINE FACTOR, PERCENT 96.0 94.0 107.3 102.4

#### TYPE OF HEDGING - SEMI-CHARTICAL

JULY AND AUGUST, 1968

## K SUMMARY OF TEST RESULTS FOR MACHINE

TABLE XI

CODE	MADE NO.	50. FT.	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN. A FACTOR B
DATE ROLL	L8./M.	CALIPER, PT.	P.S.I.	CRUSH, P.S.I.	P.S.I.	DRAM
MILL BASIS WT.,	CONCORA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY			

MILL	BASIS WT.,	LBS./H.	CALIPER, PT.	SO. FT.	MAX. MIN. AV.	MAX.
CONCOR						

TABLE XIII

## SUMMARY OF TEST RESULTS FOR MACHINE L

JULY AND AUGUST, 1968

**TYPE OF MEDIUM - SEMICHEMICAL**

DATE MILE BASIS WT. CONGORA FLAT CRUSH, SINGLE-FACE FLAT RUNNABILITY DRAM

<sup>a</sup> See Table II for Notes A and B.

TABLE XIV

OLYMPIA AND AUGUSTI, 1981

## SUMMARY OF TEST RESULTS FOR MACHINE H

#### TYPE OF MEDIUM - SEMICHEM

TYPE OF MEDIUM - SEMICHEMICAL

CODE	DATE	MATERIAL	ROLL SIZES MM.	CALIPER, PT.	CONCORA P.S.I.	SINGLE-FACE FLAT RUNNABILITY	DRAM	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN. A	FACCTOR+B	
M-1	6-17-68	312	27.1	9.1	8.9	51.0	43.8	47.3	36.2	33.4	35.0	1.5	1.571
M-2	7- 9-68	313	27.4	10.0	9.7	46.8	42.0	44.4	34.2	32.6	33.5	1.5	1.567
M-3	7-23-68	314	26.3	10.0	9.9	46.8	42.0	44.4	34.2	32.6	33.5	1.5	1.572
M-4	8- 6-68	315	27.1	10.0	9.4	47.4	42.0	43.6	32.0	30.6	31.2	1.5	1.569
M-5	CURRENT MACHINE AVERAGE		27.0	9.6	9.7	43.7	32.5	43.0	43.0	40.6	40.6	1.569	1.569
M-6	CUMULATIVE MACHINE AVERAGE		26.6	9.6	9.7	43.7	32.5	43.0	43.0	40.6	40.6	1.569	1.569
M-7	MACHINE FACTOR, PERCENT		101.5	99.0	99.0	101.6	101.6	101.6	101.6	101.6	101.6	102.2	102.2
M-8	MACHINE INDEX		100.0	92.3	92.3	100.9	100.9	100.9	100.9	100.9	100.9	98.2	98.2

TABLE XV

## SUMMARY OF TEST RESULTS FOR MACHINE N

WOLLY AND AUGUST, 1968

## TYPE OF MEDIUM - SEMICHEMICAL

\* See Table II for Notes A and B.

TYPE OF MEDIUM - SEMICHEMICAL

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE 0

TABLE XVI

CODE	MADE	DATE	ROLL	BASIS WT., <sup>a</sup>	LB./M.	CALIPER, PT.	P.S.I.	CONCORA FLAT CRUSH, CRUSH, P.S.I.	SINGLE-FACE FLAT RUNNABILITY	RUNNABILITY	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.+A FACTOR+B
0-1	5-23-68	7-31-68	203	28.0	9.5	9.1	9.3	44.4	40.8	42.7	33.8	30.8	32.1	1.560
0-2	5-23-68	7-31-68	206	27.4	10.3	9.9	10.1	47.4	41.4	43.7	32.4	30.8	31.7	1.569

TYPE OF MEDIUM - SEMICHEMICAL

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE P

TABLE XVII

CODE	MADE	DATE	ROLL	BASIS WT., <sup>a</sup>	LB./M.	CALIPER, PT.	P.S.I.	CONCORA FLAT CRUSH, CRUSH, P.S.I.	SINGLE-FACE FLAT RUNNABILITY	RUNNABILITY	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.+A FACTOR+B
0-1	5-23-68	7-31-68	203	28.0	9.5	9.1	9.3	44.4	40.8	42.7	33.8	30.8	32.1	1.560
0-2	5-23-68	7-31-68	206	27.4	10.3	9.9	10.1	47.4	41.4	43.7	32.4	30.8	31.7	1.569

TYPE OF MEDIUM - SEMICHEMICAL

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE P

TABLE XVII

CODE	MADE	DATE	ROLL	BASIS WT., <sup>a</sup>	LB./M.	CALIPER, PT.	P.S.I.	CONCORA FLAT CRUSH, CRUSH, P.S.I.	SINGLE-FACE FLAT RUNNABILITY	RUNNABILITY	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.+A FACTOR+B
P-1	5-3-68	6-17-68	6739	25.2	11.5	10.5	10.9	43.2	39.0	40.9	33.4	30.6	32.0	1.537
P-2	5-16-68	7-17	25.7	11.0	9.9	10.5	46.2	42.0	43.0	34.8	31.2	33.0	1.542	
P-3	6-7-68	7894	26.2	11.0	10.0	10.0	40.6	44.4	40.8	33.0	32.0	32.5	1.536	
P-4	6-17-68	8271	26.0	10.8	10.0	10.3	44.4	37.8	41.8	32.4	31.4	32.0	1.541	

CODE	MADE	DATE	ROLL	BASIS WT., <sup>a</sup>	LB./M.	CALIPER, PT.	P.S.I.	CONCORA FLAT CRUSH, CRUSH, P.S.I.	SINGLE-FACE FLAT RUNNABILITY	RUNNABILITY	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.+A FACTOR+B
CURRENT MACHINE AVERAGE		25.8	10.6	42.1	32.4	32.0	32.0	97.2	97.9	97.9	1.539			
CUMULATIVE MACHINE AVERAGE		26.6	10.8	45.6	35.3	35.3	35.3	92.3	91.8	91.8				
MACHINE FACTOR, PERCENT		97.0	98.1	40.9	32.5	32.5	32.5	95.6	95.3	95.3				
MACHINE INDEX, PERCENT		95.6	101.9	42.1	32.0	32.0	32.0	97.2	97.9	97.9				

Maximum speed at which this roll could be corrugated with minimum tension was 175 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 500 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 550 f.p.m.

See Table II for Notes A and B.

TABLE XVIII

SUMMARY OF TEST RESULTS FOR MACHINE Q

JULY AND AUGUST, 1968

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY	
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*B
Q-1	7-18-68		27.3	10.0	9.7	9.9	52.8	42.6	46.7	36.0	34.6	35.4	1.5	1.570
Q-2	7-19-68		26.8	9.8	9.5	9.7	48.0	47.4	47.6	37.0	34.8	35.8	1.5	1.573
Q-3	7-23-68		26.8	10.2	9.5	9.9	45.0	42.0	43.7	37.0	32.6	34.8	1.5	1.572
Q-4	7-24-68		27.0	9.9	9.7	9.8	48.0	41.4	44.8	34.4	30.8	32.0	1.5	1.570
CURRENT MACHINE AVERAGE			27.0				9.8			45.7			34.5	
CUMULATIVE MACHINE AVERAGE			26.8				9.9			47.4			34.8	
MACHINE FACTOR, PERCENT			100.7				99.0			96.4			99.1	
MACHINE INDEX, PERCENT			100.0				94.2			105.5			104.2	

TABLE XIX

SUMMARY OF TEST RESULTS FOR MACHINE R

JULY AND AUGUST, 1968

TYPE OF MEDIUM- SEMICHEMICAL

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY	
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*B
R-1	6-16-68	312	26.7	9.9	9.0	9.4	46.2	40.8	43.9	35.6	32.6	33.9	1.5	1.571
R-2	7- 9-68	313	27.3	9.8	9.0	9.5	45.6	41.4	43.6	34.6	31.4	32.9	1.5	1.562
R-3	7-23-68	314	26.2	9.0	8.9	9.0	46.2	40.8	43.6	34.0	32.6	33.1	1.5	1.567
R-4	8- 6-68	315	26.7	10.0	9.4	9.8	43.8	41.4	42.6	33.4	30.2	31.7	1.5	1.572
CURRENT MACHINE AVERAGE			26.7				9.4			43.4			32.9	
CUMULATIVE MACHINE AVERAGE			26.8				9.7			41.8			31.6	
MACHINE FACTOR, PERCENT			99.6				96.9			103.8			104.1	
MACHINE INDEX, PERCENT			98.9				90.4			100.2			99.4	

\* See Table II for Notes A and B.

SUMMARY OF TEST RESULTS FOR MACHINE S											
TABLE XX											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	DATE	MILL	ROLL	BASES WT.	SQ. FT.	CALIPER, PT.	CONCORA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM	
S-1	7-30-68	37	27.8	10.8	10.1	10.4	45.6	41.4	43.4	31.4	30.9
S-2	7-30-68	38	27.8	10.9	10.0	10.5	45.6	40.8	43.8	35.0	31.2
S-3	8-14-68	39	25.8	10.3	9.9	10.1	47.4	36.0	42.0	32.0	27.8
S-4	8-14-68	40	26.0	10.9	10.0	10.3	46.2	40.2	43.1	32.2	29.4
											NOTE D
											1.540

SUMMARY OF TEST RESULTS FOR MACHINE T											
TABLE XXI											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	DATE	MILL	ROLL	BASES WT.	SQ. FT.	CALIPER, PT.	CONCORA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM	
T-1	7-8-68	811	27.1	10.5	9.8	10.0	54.0	45.6	50.3	42.6	39.2
											1.566

CURRENT MACHINE AVERAGE											
CODE	DATE	MILL	ROLL	BASES WT.	SQ. FT.	CALIPER, PT.	CONCORA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM	
T-1	7-8-68	811	27.1	10.5	9.8	10.0	54.0	45.6	50.3	42.6	39.2
											1.566

Maximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.  
See Table II for Notes A and B.

CURRENT MACHINE AVERAGE											
CODE	DATE	MILL	ROLL	BASES WT.	SQ. FT.	CALIPER, PT.	CONCORA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM	
S-1	7-30-68	37	27.8	10.8	10.1	10.4	45.6	41.4	43.4	31.4	30.9
S-2	7-30-68	38	27.8	10.9	10.0	10.5	45.6	40.8	43.8	35.0	31.2
S-3	8-14-68	39	25.8	10.3	9.9	10.1	47.4	36.0	42.0	32.0	29.7
S-4	8-14-68	40	26.0	10.9	10.0	10.3	46.2	40.2	43.1	32.2	29.4
											NOTE D
											1.545

Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.  
See Table II for Notes A and B.

Maximum speed at which this roll could be corrugated with minimum tension was 400 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.  
Maximum speed at which this roll could be corrugated with minimum tension was 425 f.p.m.  
See Table II for Notes A and B.

\* See Table II for Notes A and B.

SUMMARY OF TEST RESULTS FOR MACHINE U											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT., LB./M.	CALIPER, PT.	P.S.I.	CRUSH, P.S.I.	SINGL-E-FACE FLAT	RUNNABILITY	MAX. MIN. AV.	LB./IN.*A FACTOR*B
U-1	6-14-68	4908	28.9	11.8 10.9 11.1	43.2 36.0 39.2	31.4 29.2 30.4	0.5	1.561			
U-2	7-4-68	13	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0 38.0	1.5	1.560			
U-3	7-10-68	15	26.0	10.8 10.2 10.5	43.2 38.4 40.7	33.4 30.8 32.5	0.5	1.557			
U-4	7-24-68	17	25.7	10.2 9.1 9.7	41.4 36.0 39.6	30.4 28.4 29.0	0.5	1.552			
U-5	7-20-68	11	27.1	11.1 10.7 10.9	55.8 49.2	40.4 34.0	1.5	1.556			
U-6	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-7	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-8	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-9	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-10	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-11	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-12	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-13	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-14	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-15	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-16	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-17	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-18	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-19	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-20	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-21	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-22	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-23	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-24	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-25	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-26	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-27	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-28	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-29	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-30	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-31	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-32	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-33	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-34	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-35	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-36	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-37	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-38	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-39	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-40	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-41	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-42	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-43	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-44	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-45	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-46	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-47	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-48	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-49	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-50	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-51	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-52	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-53	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-54	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-55	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-56	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-57	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-58	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-59	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-60	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-61	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-62	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-63	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-64	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-65	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-66	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-67	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-68	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-69	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-70	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-71	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-72	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-73	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-74	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-75	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-76	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-77	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-78	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-79	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-80	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-81	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-82	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-83	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-84	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-85	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-86	7-20-68	11	26.2	11.1 10.7 10.9	49.2 52.3	40.4 34.0	1.5	1.560			
U-87	7-20-68	11	26.2	11							

TYPE OF MEDIUM - SEMICHEMICAL

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE M

TABLE XXXIV

CODE	MADE	DATE	ROLL	BASIS WT., LB./M.	SD. FT.	CALIPER, PT.	CONCORA FLAT CRUSH, P.S.I.	SINGLE-FACE FLAT CRUSH, P.S.I.	RUNNABILITY DRAW	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.*A	FACTOR*B
M-1	7-24-68	8-7-68	26.9	10.9	9.8	10.3	51.6	43.2	46.8	34.4	33.2	33.8	1.5	1.572
M-2	7-25-68	8-6-68	27.1	10.8	10.8	10.0	51.6	43.2	46.8	34.4	33.2	33.8	1.5	1.573
M-3	8-25-68	8-6-68	26.4	10.8	10.3	10.4	49.8	45.6	47.8	35.2	33.2	34.4	1.5	1.563
M-4	8-7-68		26.6	11.2	9.8	10.6	48.0	41.4	43.9	34.2	32.0	33.2	1.5	1.564
CURRENT MACHINE AVERAGE			26.8	10.5			45.8			33.6				1.568
CUMULATIVE MACHINE AVERAGE			27.0	10.4			48.9			35.8				1.569
MAchine INDEX, PERCENT			99.2	101.0			93.7			93.8				
MAchine FACTOR, PERCENT			99.2	101.0			93.7			93.8				
MAchine INDEX, PERCENT			99.2	101.0			93.7			93.8				
CURRENT MACHINE AVERAGE			26.3	10.0			40.9			31.6				1.562
CUMULATIVE MACHINE AVERAGE			27.1	10.4			40.4			31.8				1.563
MAchine INDEX, PERCENT			97.0	101.2			99.4			99.4				
MAchine FACTOR, PERCENT			97.0	101.2			99.4			99.4				
MAchine INDEX, PERCENT			97.4	96.2			94.4			95.5				
See TABLE II for Notes A and B.														

TYPE OF MEDIUM - SEMICHEMICAL

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE X

TABLE XXXV

CODE	MADE	DATE	ROLL	BASIS WT., LB./M.	SD. FT.	CALIPER, PT.	CONCORA FLAT CRUSH, P.S.I.	SINGLE-FACE FLAT CRUSH, P.S.I.	RUNNABILITY DRAW	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.*A	FACTOR*B
M-1	7-24-68	8-7-68	26.9	10.9	9.8	10.3	51.6	43.2	46.8	34.4	33.2	33.8	1.5	1.572
M-2	7-25-68	8-6-68	27.1	10.8	10.3	10.4	49.8	45.6	47.8	35.2	33.2	34.4	1.5	1.573
M-3	8-25-68	8-6-68	26.4	10.8	10.3	10.6	52.2	41.4	44.6	33.6	32.2	32.8	1.5	1.563
M-4	8-7-68		26.6	11.2	9.8	10.6	48.0	41.4	43.9	34.2	32.0	33.2	1.5	1.564
CURRENT MACHINE AVERAGE			26.8	10.5			45.8			33.6				1.568
CUMULATIVE MACHINE AVERAGE			27.0	10.4			48.9			35.8				1.569
MAchine INDEX, PERCENT			99.2	101.0			93.7			93.8				
MAchine FACTOR, PERCENT			99.2	101.0			93.7			93.8				
MAchine INDEX, PERCENT			99.2	101.0			93.7			93.8				
CURRENT MACHINE AVERAGE			26.3	10.0			40.9			31.6				1.562
CUMULATIVE MACHINE AVERAGE			27.1	10.4			40.4			31.8				1.563
MAchine INDEX, PERCENT			97.0	101.2			99.4			99.4				
MAchine FACTOR, PERCENT			97.0	101.2			99.4			99.4				
MAchine INDEX, PERCENT			97.4	96.2			94.4			95.5				
See TABLE II for Notes A and B.														

TYPE OF MEDIUM - SEMICHEMICAL

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE M

TABLE XXXVI

CODE	MADE	DATE	ROLL	BASIS WT., LB./M.	SD. FT.	CALIPER, PT.	CONCORA FLAT CRUSH, P.S.I.	SINGLE-FACE FLAT CRUSH, P.S.I.	RUNNABILITY DRAW	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.*A	FACTOR*B
X-1	7-8-68	177	26.3	10.2	9.7	10.0	40.8	38.4	40.0	31.0	29.4	30.2	1.0	1.557
X-2	7-10-68	178	26.6	10.0	10.0	10.0	42.6	37.8	40.4	33.4	30.6	32.0	0.5	1.564
X-3	7-15-68	179	26.4	10.5	9.5	10.0	42.6	37.8	40.4	33.4	30.6	32.0	1.0	1.562
X-4	7-23-68	180	26.0	10.5	9.4	9.8	45.6	38.4	42.7	33.2	30.8	31.9	1.0	1.566
CURRENT MACHINE AVERAGE			26.3	10.0			40.9			31.6				1.562
CUMULATIVE MACHINE AVERAGE			27.1	10.4			40.4			31.8				1.563
MAchine INDEX, PERCENT			97.0	101.2			99.4			99.4				
MAchine FACTOR, PERCENT			97.0	101.2			99.4			99.4				
MAchine INDEX, PERCENT			97.4	96.2			94.4			95.5				
See TABLE II for Notes A and B.														

\*See TABLE II for Notes A and B.

Maximum speed at which this roll could be corrugated with minimum tension was 525 f.p.m.  
See Table II for Notes A and B.

CODE	DATE	MILL	ROLL NO.	BASIS WT., LB./M.	CALIPER, PT.	P.S.I.	CRUSH, P.S.I.	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN.+A FACTOR+B	
Z-1	6-13-68	6872	26.9	10.5	9.8	10.2	41.4	35.4	38.0	31.6	28.6	30.6
Z-2	6-28-68	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-3	7-14-68	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-4	7-22-68	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-5	7-28-68	7319	26.9	10.5	9.8	10.2	41.4	35.4	38.0	31.6	28.6	30.6
Z-6	8-1-68	6872	26.9	10.5	9.8	10.2	41.4	35.4	38.0	31.6	28.6	30.6
Z-7	8-13-68	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-8	8-28-68	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-9	9-1-68	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-10	9-13-68	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-11	9-28-68	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-12	10-1-68	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-13	10-13-68	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-14	10-28-68	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-15	11-1-68	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-16	11-13-68	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-17	11-28-68	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-18	12-1-68	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-19	12-13-68	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-20	12-28-68	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-21	1-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-22	1-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-23	1-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-24	2-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-25	2-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-26	2-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-27	3-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-28	3-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-29	3-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-30	4-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-31	4-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-32	4-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-33	5-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-34	5-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-35	5-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-36	6-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-37	6-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-38	6-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-39	7-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-40	7-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-41	7-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-42	8-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-43	8-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-44	8-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-45	9-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-46	9-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-47	9-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-48	10-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-49	10-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-50	10-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-51	11-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-52	11-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-53	11-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-54	12-1-69	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-55	12-13-69	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-56	12-28-69	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-57	1-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-58	1-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-59	1-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-60	2-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-61	2-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-62	2-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-63	3-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-64	3-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-65	3-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-66	4-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-67	4-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-68	4-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-69	5-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-70	5-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-71	5-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-72	6-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-73	6-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-74	6-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-75	7-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-76	7-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-77	7-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-78	8-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-79	8-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-80	8-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-81	9-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-82	9-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-83	9-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-84	10-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-85	10-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-86	10-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0	40.1	28.4	26.6	27.6
Z-87	11-1-70	7991	26.2	10.0	9.8	10.4	45.0	40.2	43.0	36.4	29.8	32.6
Z-88	11-13-70	7319	27.6	9.8	9.0	9.2	40.8	37.8	39.6	30.6	28.0	29.4
Z-89	11-28-70	7759	27.0	10.0	9.3	9.6	43.2	36.0				

SUMMARY OF TEST RESULTS FOR MACHINE AA											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
AA-1	7-26-68	26.7	10.3	10.0	10.2	45.0	40.8	42.8	32.4	30.4	31.2
AA-2	7-27-68	26.7	10.7	9.8	10.1	45.6	40.8	43.6	32.4	31.2	1.5
AA-3	7-29-68	27.9	12.0	10.2	11.0	45.0	39.6	41.9	33.6	32.0	32.3
AA-4	8-7-68	26.6	11.2	10.1	10.6	45.0	39.0	41.8	32.6	30.8	31.3
CURRENT MACHINE AVERAGE											
		27.0	10.5	42.5	32.0	32.0	43.8	43.8	33.0	33.0	1.568
											97.0
											96.7
CUMULATIVE MACHINE AVERAGE											
		27.0	10.6	42.5	32.0	32.0	43.8	43.8	33.0	33.0	1.568
											97.0
											96.7
MACHINE INDEX, PERCENT											
		100.0	99.0	100.0	99.0	100.0	99.0	100.0	99.0	99.0	97.0
MACHINE FACTOR, PERCENT											
		100.0	99.0	100.0	99.0	100.0	99.0	100.0	99.0	99.0	97.0
SUMMARY OF TEST RESULTS FOR MACHINE BB											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
BB-1	5-29-68	683	27.8	10.3	9.9	10.0	51.6	46.8	48.0	39.0	36.4
BB-2	6-13-68	684	27.6	10.3	9.9	10.0	51.6	46.8	48.0	39.0	36.4
BB-3	6-22-68	685	27.6	10.0	9.4	9.8	56.8	48.6	52.8	41.8	38.8
CURRENT MACHINE AVERAGE											
		27.7	9.9	51.3	47.9	102.6	107.1	107.4	104.3	104.3	1.563
CUMULATIVE MACHINE AVERAGE											
		27.6	9.9	51.3	47.9	100.0	107.1	107.4	104.3	104.3	1.563
MACHINE INDEX, PERCENT											
		100.4	99.9	100.0	99.9	100.0	99.9	100.0	99.9	99.9	97.0
MACHINE FACTOR, PERCENT											
		100.4	99.9	100.0	99.9	100.0	99.9	100.0	99.9	99.9	97.0
SUMMARY OF TEST RESULTS FOR MACHINE BB											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
BB-1	5-29-68	683	27.8	10.3	9.9	10.0	51.6	46.8	48.0	39.0	36.4
BB-2	6-13-68	684	27.6	10.0	9.4	9.8	56.8	48.6	52.8	41.8	38.8
BB-3	6-22-68	685	27.6	10.0	9.4	9.8	56.8	48.6	52.8	40.2	37.8
CURRENT MACHINE AVERAGE											
		27.7	9.9	51.3	47.9	102.6	107.1	107.4	104.3	104.3	1.563
CUMULATIVE MACHINE AVERAGE											
		27.6	9.9	51.3	47.9	100.0	107.1	107.4	104.3	104.3	1.563
MACHINE INDEX, PERCENT											
		100.4	99.9	100.0	99.9	100.0	99.9	100.0	99.9	99.9	97.0
MACHINE FACTOR, PERCENT											
		100.4	99.9	100.0	99.9	100.0	99.9	100.0	99.9	99.9	97.0
SUMMARY OF TEST RESULTS FOR MACHINE BB											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
BB-1	5-29-68	683	27.8	10.3	9.9	10.0	51.6	46.8	48.0	39.0	36.4
BB-2	6-13-68	684	27.6	10.0	9.4	9.8	56.8	48.6	52.8	41.8	38.8
BB-3	6-22-68	685	27.6	10.0	9.4	9.8	56.8	48.6	52.8	40.2	37.8
CURRENT MACHINE AVERAGE											
		27.7	9.9	51.3	47.9	102.6	107.1	107.4	104.3	104.3	1.563
CUMULATIVE MACHINE AVERAGE											
		27.6	9.9	51.3	47.9	100.0	107.1	107.4	104.3	104.3	1.563
MACHINE INDEX, PERCENT											
		100.4	99.9	100.0	99.9	100.0	99.9	100.0	99.9	99.9	97.0
MACHINE FACTOR, PERCENT											
		100.4	99.9	100.0	99.9	100.0	99.9	100.0	99.9	99.9	97.0
SUMMARY OF TEST RESULTS FOR MACHINE BB											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
AA-1	7-26-68	26.7	10.3	10.0	10.2	45.0	40.8	42.8	32.4	30.4	31.2
AA-2	7-27-68	26.7	10.7	9.8	10.1	45.6	40.8	43.6	33.4	31.2	32.3
AA-3	7-29-68	27.9	12.0	10.2	11.0	45.0	39.6	41.9	33.6	32.0	33.0
CURRENT MACHINE AVERAGE											
		27.0	10.5	42.5	32.0	32.0	43.8	43.8	33.0	33.0	1.568
CUMULATIVE MACHINE AVERAGE											
		27.0	10.6	42.5	32.0	32.0	43.8	43.8	33.0	33.0	1.568
MACHINE INDEX, PERCENT											
		100.0	99.0	100.0	99.0	100.0	99.0	100.0	99.0	99.0	97.0
MACHINE FACTOR, PERCENT											
		100.0	99.0	100.0	99.0	100.0	99.0	100.0	99.0	99.0	97.0
SUMMARY OF TEST RESULTS FOR MACHINE AA											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
AA-1	7-26-68	26.7	10.3	10.0	10.2	45.0	40.8	42.8	32.4	30.4	31.2
AA-2	7-27-68	26.7	10.7	9.8	10.1	45.6	40.8	43.6	33.4	31.2	32.3
AA-3	7-29-68	27.9	12.0	10.2	11.0	45.0	39.6	41.9	33.6	32.0	33.0
CURRENT MACHINE AVERAGE											
		27.0	10.5	42.5	32.0	32.0	43.8	43.8	33.0	33.0	1.568
CUMULATIVE MACHINE AVERAGE											
		27.0	10.6	42.5	32.0	32.0	43.8	43.8	33.0	33.0	1.568
MACHINE INDEX, PERCENT											
		100.0	99.0	100.0	99.0	100.0	99.0	100.0	99.0	99.0	97.0
MACHINE FACTOR, PERCENT											
		100.0	99.0	100.0	99.0	100.0	99.0	100.0	99.0	99.0	97.0
SUMMARY OF TEST RESULTS FOR MACHINE AA											
JULY AND AUGUST, 1968											
TYPE OF MEDIUM - SEMICHEMICAL											
CODE	MADE	DATE	ROLL	BASIS WT.,	LB./M.	SQ. FT.	CALIPER, PT.	CONCOKA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	DRAM
AA-1	7-26-68	26.									

TABLE XXX

JULY AND AUGUST, 1968

SUMMARY OF TEST RESULTS FOR MACHINE CC

**TYPE OF MEDIUM - SEMICHEMICAL**

TYPE OF HEODIUM - SEMICHEMICAL

CODE	MADE	DATE	ROLL	MILL	BASIS WT.	CONGORA FLAT CRUSH,	SINGLE-FACE FLAT	KUNNABILITY	DRAW	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN. <sup>a</sup>	LB./IN.	
COODE	NO.	50. FT.	LB./M.	CALIPER, PT.	LB./M.	CONGORA FLAT CRUSH,	SINGLE-FACE FLAT	KUNNABILITY	DRAW	50. FT.	MAX. MIN. AV.	MAX. MIN. AV.	MAX. MIN. AV.	LB./IN. <sup>a</sup>	LB./IN.

TABLE XXXI

## SUMMARY OF TEST RESULTS FOR MACHINE DD

JULY AND AUGUST, 1968

TYPE OF MEDIUM - SEMICHEMICAL

45.6 3

DD-2 7-8-68 776 26.4 10.6 9.3 9.8 42.6 38.4 40.8 34.0 31.0 32.2 1.5  
 DD-3 7-18-68 777 25.5 10.3 9.8 40.2 35.6 37.7 32.0 27.8 29.9 1.5  
 DD-4 8-1-68 780 25.8 11.2 9.5 10.2 40.2 35.8 38.4 40.1 31.0 31.6 1.5  
 DD-5 1.568 1.561 1.568 1.561 1.568 1.561 1.568 1.561 1.568 1.568 1.568 1.568

\* See Table II for Notes A and B.

CUMULATIVE MACHINE WORKAGE	26.8	10.1	41.8	32.9	98.1	99.0	95.7	97.6	MACHINE FACTOR, PERCENT	98.1	99.0	97.6	MACHINE INDEX, PERCENT	97.4	96.2	97.4	97.0
WORKING HOURS	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	WORKING HOURS	10.0	10.0	10.0	WORKING HOURS	10.0	10.0	10.0	10.0
NUMBER OF MACHINES	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	NUMBER OF MACHINES	2.0	2.0	2.0	NUMBER OF MACHINES	2.0	2.0	2.0	2.0
NUMBER OF WORKERS	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	NUMBER OF WORKERS	1.0	1.0	1.0	NUMBER OF WORKERS	1.0	1.0	1.0	1.0
NUMBER OF MACHINES WORKED	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	NUMBER OF MACHINES WORKED	2.0	2.0	2.0	NUMBER OF MACHINES WORKED	2.0	2.0	2.0	2.0

TABLE XXXII

TYPE OF MEDIUM - BOGUS

## SUMMARY OF TEST RESULTS FOR MACHINING EE

PE OF MEDIUM- BOGUS

MILL BASIS WT., CONCREA FLAT CRUSH, SINGLE-FACE FLAT RUNNABILITY DATE ROLL LB./M. CALIFER, PT. MAX. MIN. AV. MAX. MIN. AV. LB./IN.+A FACTOR+B CODE

MAX. MIN.  
AV.

TABLE XXXII

SUMMARY OF TEST RESULTS FOR MACHINE FF

JULY AND AUGUST, 1968

TYPE OF MEDIUM - SEMICHEMICAL

DATE	MILL	BASIS MT.	CONCORA FLAT CRUSH,	SINGLE-FACE FLAT	RUNNABILITY	ODDE	MADE	ROLL	LB./M.	CALIPER, PT.	MAX. MIN.	AV.	MAX. MIN.	AV.	LB./IN. <sup>a</sup>	FACTOR-B	
F-1	6-7-68	649	26.0	10.3	10.0	10.1	44.4	38.4	41.2	33.8	30.2	32.0	33.6	30.0	31.7	1.0	1.556
F-2	6-19-68	1652	25.7	10.5	9.9	10.1	48.6	37.8	43.3	33.6	30.0	31.7	33.6	30.0	31.7	1.5	1.561

See Table II for Notes A and B.

TABLE XXXIV  
SUMMARY OF TEST RESULTS FOR MACHINE GG  
JULY AND AUGUST, 1968

TYPE OF MEDIUM- KRAFT

CODE	DATE MADE	MILL ROLL NO.	BASIS WT., LB./M. SQ. FT.	CALIPER, PT.			CONCORA FLAT CRUSH, P.S.I.			SINGLE-FACE FLAT CRUSH, P.S.I.			RUNNABILITY	
				MAX.	MIN.	AV.	MAX.	MIN.	AV.	MAX.	MIN.	AV.	LB./IN.*A	DRAW FACTOR*B
GG-1	8- 5-68	3	28.0	9.1	8.8	9.0	29.4	27.0	28.0	26.2	24.8	25.2	NOTE C	1.543
GG-2	8- 5-68	5	28.0	9.1	8.8	9.0	32.4	27.6	29.8	28.4	26.0	27.6	0.5	1.563
CURRENT MACHINE AVERAGE			28.0			9.0			28.9			26.4		1.553
CUMULATIVE MACHINE AVERAGE			28.9			9.1						24.8		
MACHINE FACTOR, PERCENT			96.9			98.9						106.4		
MACHINE INDEX, PERCENT			103.7			86.5			66.7			79.8		

\* See Table II for Notes A and B.

C Maximum speed at which this roll could be corrugated with minimum tension was 550 f.p.m.

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.

#### DISCUSSION OF RESULTS

Shown below from Table I 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.

	Period	Current Machine Averages		F.K.I. Averages	
		Maximum	Minimum	Current	Cumulative
Basis wt., lb./1000 ft. <sup>2</sup>	Cur. <sup>a</sup>	28.9	25.8	26.9	27.0
	Prev. <sup>b</sup>	28.9	25.8	27.0	27.1
Caliper, pt.	Cur. <sup>a</sup>	11.3	9.0	10.2	10.4
	Prev. <sup>b</sup>	11.5	9.3	10.4	10.4
Concora flat crush, p.s.i.	Cur. <sup>a</sup>	51.3	28.9	42.5	43.3
	Prev. <sup>b</sup>	50.6	40.1	43.6	43.0
Single-face flat crush, p.s.i.	Cur. <sup>a</sup>	41.4	26.4	32.7	33.1
	Prev. <sup>b</sup>	38.7	30.2	33.2	32.9

The quality data summarized above for the current and previous periods reflect only minor changes for all four test properties.

The runnability data for the 108 rolls evaluated during the current period and the 104 rolls evaluated during the previous period are summarized on the next page:

<sup>a</sup>July and August, 1968.

<sup>b</sup>May and June, 1968.

Runnability	Previous Period			Current Period		
	No. of Rolls	% of Total	Cum., %	No. of Rolls	% of Total	Cum., %
Less than 600 f.p.m. with minimum tension	9	8.7	100.0	19	17.6	100.0
600 f.p.m. - minimum tension	10	9.6	91.3	10	9.3	82.4
600 f.p.m. - 1/2 lb. per in. tension	18	17.3	81.7	11	10.2	73.1
600 f.p.m. - 1 lb. per in. tension	21	20.2	64.4	10	9.3	62.9
600 f.p.m. - 1-1/2 lb. per in. tension	46	44.2	44.2	58	53.7	53.7

Significant changes in runnability were noted at all levels except the 600 f.p.m. - minimum tension level. Significant increases were noted at the following levels: <600 f.p.m. with minimum tension and 600 f.p.m. with 1.5 lb. per inch tension, whereas significant decreases were noted at the following levels: 600 f.p.m. with 0.5 lb. per inch tension and 600 f.p.m. with 1.0 lb. per inch tension.

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 XXXIV for Machines A to Z and Machines AA, BB, CC, DD, EE, FF, and GG, respectively.

In Table XXXV, an effort has been made to compare Institute and mill Concora flat crush test results for each machine for the current period. The comparisons shown in Table XXXV are somewhat fragmentary because the participating mills are currently changing from submission of Concora flat crush data on conditioned specimens to submission of Concora flat crush data on specimens tested immediately after fluting. In those cases where mill Concora flat crush data are still obtained on specimens conditioned after fluting, no differences between Institute and mill averages for individual rolls are shown, no current machine averages based on mill data are shown, and no average differences between current

TABLE XXXV

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JULY AND AUGUST, 1968

Machine A				Machine B				Machine C									
Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i.			Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i.			Code	Mill Roll No.	Date Made	Concora Flat Crush, p.s.i.		
			Insti-tute	Mill	Differ-ence <sup>a</sup>				Insti-tute	Mill	Differ-ence <sup>a</sup>				Insti-tute	Mill	Differ-ence <sup>a</sup>
A-1	553	6- 7-68	44.8	37.2	--	B-1	101	5-28-68	42.7	35.6	--	C-1	205	7-31-68	42.5	41.5	-1.0
A-2	554	7- 8-68	45.4	38.9	--	B-2	102	5-30-68	41.9	38.3	--						
A-3	555	7-29-68	46.1	38.4	--	B-3	103	6- 2-68	40.7	34.9	--						
						B-4	104	6-27-68	43.4	34.8	--						
Current machine av.			45.4			Current machine av.			42.2			Current machine av.			42.5	41.5	-1.0
Machine D								Machine F								Machine G	
D-1	9	5-14-68	47.3	46.2	-1.1	F-1	1916	6-12-68	39.4	30.0	--	G-1	163763	6-17-68	43.1	45.0	+1.9
D-2	10	5-15-68	43.8	46.7	+2.9	F-2	1917	6-12-68	40.1	27.2	--	G-2	167845	6-27-68	35.2	36.7	+1.5
D-3	13	7-26-68	50.8	48.0	-2.8	F-3	1924	7-12-68	43.1	31.3	--						
D-4	14	7-27-68	48.6	46.6	-2.0	F-4	1925	7-12-68	41.2	31.3	--						
Current machine av.			47.6			Current machine av.			41.0			Current machine av.			39.2	40.8	+1.6
Machine H								Machine I								Machine J	
H-1	158	5- 8-68	40.4	39.6	-0.8	I-1	12	6-20-68	41.9	25.7	--	J-1	508	6-13-68	41.8	39.2	-2.6
H-2	159	6-14-68	43.6	40.2	-3.4	I-2	14	7- 4-68	43.4	31.3	--	J-2	509	6-20-68	42.2	38.8	-3.4
H-3	160	6-24-68	45.8	48.0	+2.2	I-3	16	7-10-68	45.1	35.5	--	J-3	510	7-15-68	44.5	42.0	-2.5
H-4	162	7-22-68	43.2	37.8	-5.4	I-4	18	7-24-68	40.4	32.8	--	J-4	511	7-18-68	42.4	39.0	-3.4
Current machine av.			43.2			Current machine av.			42.7			Current machine av.			42.7	39.8	-2.9
Machine K								Machine L								Machine M	
K-1	1	7-29-68	43.3	41.0	-2.3	L-1	8	5-26-68	42.4	35.6	-6.8	M-1	312	6-17-68	47.3	41.8	-5.5
K-2	2	7-29-68	43.6	35.1	-8.5	L-2	9	6- 4-68	38.2	36.2	-2.0	M-2	313	7- 9-68	44.4	38.4	-6.0
						L-3	10	6-19-68	41.5	37.4	-4.1	M-3	314	7-23-68	43.6	38.5	-5.1
						L-4	11	7- 3-68	39.5	36.5	-3.0	M-4	315	8- 6-68	39.5	37.0	-2.5
Current machine av.			43.4			Current machine av.			40.4			Current machine av.			43.7	38.9	-4.8

<sup>a</sup>Please see end of table for footnote.

TABLE XXXV (Continued)

## INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JULY AND AUGUST, 1968

Machine N				Machine O				Machine P									
Mill	Roll No.	Date Made	Concora Flat Crush, p.s.i.	Mill	Roll No.	Date Made	Concora Flat Crush, p.s.i.	Mill	Roll No.	Date Made	Concora Flat Crush, p.s.i.						
Code			Insti-tute Mill Difference <sup>a</sup>	Code			Insti-tute Mill Difference <sup>a</sup>	Code			Insti-tute Mill Difference <sup>a</sup>						
N-1	F-1	6- 6-68	39.4	36.4	-3.0	0-1	203	5-23-68	42.7	33.0	-9.7	P-1	6739	5- 3-68	40.9	39.6	-1.3
N-2	F-2	6- 6-68	34.6	37.6	+3.0	0-2	206	7-31-68	43.7	44.8	+1.1	P-2	7177	5-16-68	43.9	43.9	0.0
N-3	G-1	7-10-68	34.4	32.2	-2.2							P-3	7894	6- 7-68	42.5	43.9	+1.4
N-4	G-2	7-10-68	34.3	32.6	-1.7							P-4	8271	6-17-68	41.8	38.9	-2.9
Current machine av.			35.7	34.7	-1.0	Current machine av.			43.2	38.9	-4.3	Current machine av.			42.1	41.6	-0.5
Machine Q				Machine R				Machine S									
Q-1	--	7-18-68	46.7	47.0	+0.3	R-1	312	6-16-68	43.9	40.6	-3.3	S-1	37	7-30-68	43.4	33.0	--
Q-2	--	7-19-68	47.6	46.1	-1.5	R-2	313	7- 9-68	43.6	38.4	-5.2	S-2	38	7-30-68	43.8	33.5	--
Q-3	--	7-23-68	43.7	45.6	-0.1	R-3	314	7-23-68	43.6	37.8	-5.8	S-3	39	8-14-68	42.0	36.8	--
Q-4	--	7-24-68	44.8	43.0	-1.8	R-4	315	8- 6-68	42.6	36.8	-5.8	S-4	40	8-14-68	43.1	36.4	--
Current machine av.			45.7	44.9	-0.8	Current machine av.			43.4	38.4	-5.0	Current machine av.			43.1		
Machine T				Machine U				Machine V									
T-1	811	7- 8-68	50.3	38.9	--	U-1	4908	6-14-68	39.2	35.0	--	V-1	11	6-20-68	52.3	37.8	--
Current machine av.			50.3			Current machine av.			39.2			V-2	13	7- 4-68	40.7	26.8	--
												V-3	15	7-10-68	40.8	29.8	--
												V-4	17	7-24-68	39.6	28.0	--
												Current machine av.			43.4		
Machine W				Machine X				Machine Y									
W-1	--	7-24-68	46.8	45.5	-1.3	X-1	177	7- 8-68	40.0	41.5	+1.5	Y-1	557	6-13-68	42.7	34.6	--
W-2	--	7-25-68	47.8	47.3	-0.5	X-2	178	7-10-68	40.4	38.5	-1.9	Y-2	1516	6-26-68	37.2	36.5	--
W-3	--	8- 6-68	44.6	45.0	+0.4	X-3	179	7-15-68	40.4	43.9	+3.5	Y-3	2503	7- 9-68	41.9	37.8	--
W-4	--	8- 7-68	43.9	43.6	-0.3	X-4	180	7-23-68	42.7	43.9	+1.2	Y-4	4078	7-30-68	42.0	37.4	--
Current machine av.			45.8	45.4	-0.4	Current machine av.			40.9	42.0	+1.1	Current machine av.			41.0		
Machine Z				Machine AA				Machine BB									
Z-1	6872	6-13-68	38.0	42.4	+4.4	AA-1	--	7-26-68	42.8	44.0	+1.2	BB-1	683	5-29-68	48.0	38.3	--
Z-2	7319	6-28-68	39.6	43.7	+4.1	AA-2	--	7-27-68	43.6	44.3	+0.7	BB-2	684	6-13-68	52.8	41.0	--
Z-3	7759	7-14-68	40.1	43.8	+3.7	AA-3	--	7-29-68	41.9	44.8	+2.9	BB-3	685	6-22-68	53.2	39.2	--
Z-4	7991	7-22-68	43.0	46.3	+3.3	AA-4	--	8- 7-68	41.8	43.2	+1.4	Current machine av.			51.3		
Current machine av.			40.2	44.0	+3.8	Current machine av.			42.5	44.1	+1.6						

<sup>a</sup>Please see end of table for footnote.

TABLE XXXV (Continued)

INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR JULY AND AUGUST, 1968

Machine CC				Machine DD				Machine EE									
Mill	Concora Flat Crush, p.s.i.			Mill	Concora Flat Crush, p.s.i.			Mill	Concora Flat Crush, p.s.i.								
Code	Roll No.	Date Made	Insti-tute Mill Difference <sup>a</sup>	Code	Roll No.	Date Made	Insti-tute Mill Difference <sup>a</sup>	Code	Roll No.	Date Made	Insti-tute Mill Difference <sup>a</sup>						
CC-1	650	5-22-68	49.7 47.6 -2.1	DD-1	775	6-20-68	41.6 46.0 +4.4	EE-1	408	6-13-68	45.4 40.2 -5.2						
				DD-2	776	7-8-68	40.8 40.0 -0.8	EE-2	409	6-20-68	42.4 41.1 -1.3						
				DD-3	777	7-18-68	37.7 35.7 -2.0	EE-3	410	7-12-68	37.9 33.0 -4.9						
				DD-4	780	8-1-68	40.1 39.0 -1.1	EE-4	411	7-15-68	35.2 33.6 -1.6						
Current machine av.			49.7 47.6 -2.1	Current machine av.			40.0 40.2 +0.2	Current machine av.			40.2 37.0 -3.2						
<hr/>																	
Machine FF																	
FF-1	649	6-7-68	41.2 43.2 +2.0														
FF-2	1652	6-19-68	43.3 43.3 0.0														
FF-3	633	7-12-68	43.7 44.6 +0.9														
FF-4	2519	7-29-68	41.8 44.5 +2.7														
Current machine av.			42.5 43.9 +1.4														

<sup>a</sup>This difference is the amount in p.s.i. units by which the mill results are higher or lower than the Institute results. If no difference is given, mill data were not obtained on specimens tested immediately after fluting.

machine averages based on Institute and mill data are shown. It is anticipated that more meaningful comparisons will be available for future reports as more mills complete this changeover. 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 an opportunity to review the level of agreement noted for his data with the levels noted for the other participants. Comparisons of this kind are a helpful adjunct to other calibration procedures.

The Institute and mill Concora flat crush data obtained on specimens tested immediately after fluting (see Table XXXV) are summarized in Part I of Table XXXVI where the following information is given: (1) Current machine averages 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 maximum difference encountered in comparing Institute and mill test averages for individual rolls. In Part II of Table XXXVI the average differences given in Part I are expressed as percentage differences. In the future, corresponding data (as it becomes available) from the previous two reports will be included so that the current levels of agreement may be interpreted with this additional information at hand.

In Table XXXVII a summary of agreement between Institute and mill Concora flat crush data is given; this summary shows the number and percentage of machines for which the average percentage differences between Institute and mill Concora flat crush data were included within ranges of  $\pm 1.0$ ,  $\pm 2.5$ ,  $\pm 5.0$ , and  $\pm 10.0$  percent (the number and percentage of machines with differences greater than  $\pm 10.0$  percent is also given in Table XXXVII). In future reports, data for the previous period will be included to facilitate comparing the current level of agreement with that for the previous period.

TABLE XXXVI

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	CC	DD	EE	FF	GG
Number of Rolls Compared	0	0	1	4	0	0	2	4	0	4	2	4	4	4	2	4	4	4	0	0	0	0	4	4	0	4	4	0	1	4	4	4	0
Concora Flat Crush, p.s.i.																																	
Current machine av. (Institute) <sup>a</sup>	--	--	42.5	47.6	--	--	39.2	43.2	--	42.7	43.4	40.4	43.7	35.7	43.2	42.1	45.7	43.4	--	--	--	45.8	40.9	--	40.2	42.5	--	49.7	40.0	40.2	42.5	--	
Current machine av. (Mill) <sup>a</sup>	--	--	41.5	46.9	--	--	40.8	41.4	--	39.8	38.0	36.4	38.9	34.7	38.9	41.6	44.9	38.4	--	--	--	45.4	42.0	--	44.0	41.1	--	47.6	40.2	37.0	43.9	--	
Average difference <sup>b</sup>	--	--	-1.0	-0.7	--	--	+1.6	-1.8	--	-2.9	-5.4	-4.0	-4.8	-1.0	-4.3	-0.5	-0.8	-5.0	--	--	--	-0.4	+1.1	--	+3.8	+1.6	--	-2.1	+0.2	-3.2	+1.4	--	
Maximum difference <sup>c</sup>	--	--	-1.0	+2.9	--	--	+1.9	-5.4	--	-3.4	-8.5	-6.8	-6.0	-5.0	-9.7	-2.9	-1.8	-5.8	--	--	--	-1.3	+3.5	--	+4.4	+2.9	--	-2.1	+4.4	-5.2	+2.7	--	

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

Average Difference, % <sup>d</sup>	--	-2.4	-1.5	--	--	+4.1	-4.2	--	-6.8	-12.4	-9.9	-11.0	-2.8	-10.0	-1.2	-1.8	-11.5	--	--	--	-0.9	+2.7	--	+9.5	+3.8	--	-4.2	+0.5	-8.0	+3.3	--
9th Current report (July-Aug.)	--	--	--	-2.4	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
8th Report (May-June)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	
7th Report (March-April)	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	

<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. See Table XXXV.

<sup>c</sup>Maximum difference is the greatest difference encountered in comparing Institute and mill test averages for individual rolls. See Table XXXV.

<sup>d</sup>Average difference (percent) 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.

TABLE XXXVII

SUMMARY OF AGREEMENT BETWEEN INSTITUTE AND MILL CONCORA FLAT CRUSH DATA

Average Percentage Difference  
Between Institute and Mill  
Concora Flat Crush Test Results<sup>b</sup>

Number and Percentage of Machines  
Included Within the Indicated Ranges  
Current Period<sup>a</sup>

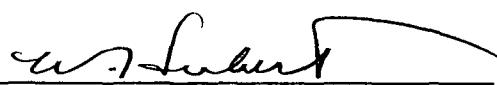
	Number	Percent
$\pm 1.0$	2	9.5
$\pm 2.5$	6	28.6
$\pm 5.0$	13	61.9
$\pm 10.0$	18	85.7
Max.	21	100.0 <sup>c</sup>

<sup>a</sup>July and August, 1968.

<sup>b</sup>The average obtained at the Institute was used as the reference in calculating the percentage differences.

<sup>c</sup>Maximum percentage difference was -12.4.

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