

SCRAMBLED CODE LETTERS FOR PROGRESS REPORT 87
PROJECT 1103-17

| Company - Mill | Machine No. | Code Letter |
|--|----------------|----------------|
| The Chesapeake Corporation - West Point | 1 | -- |
| Continental Can Company, Inc. - Hopewell | 1 | I |
| Medgo | 1 | N |
| Crown Zellerbach Corporation - Baltinero | 1 | E |
| - Baltinero | 2 | J |
| - Begaluga | 4 | Q |
| - Lebanon | 2 | O |
| International Paper Company - Bastrop | 1 | C |
| - Bastrop | 2 | -- |
| - Coergotown | 1 | L |
| - Coergotown | 2 | -- |
| The Mead Corporation - Harriman | 1 | A |
| - Knarville | 1 | P |
| - Lynchburg | 2 | T |
| - Sylva | 1 | K |
| St. Regis Container Corporation Mill Division - Cochocton | 1 | H |
| North Carolina Pulp Company - Plymouth | 3 | B |
| Olin Mathieson Chemical Corporation - Monroe | 1 | -- |
| - Monroe | 2 | -- |
| Crown-Illinois Glass Company - Temahawk | 1 | O |
| - Temahawk | 2 | S |
| - Temahawk | 3 | M |
| - Big Island | 1 | -- |
| - Big Island | 2 | -- |
| - Big Island | 3 | D |
| St. Joe Paper Company - Port St. Joe | 1 | -- |
| Union Bag-Camp Paper Corporation - Savannah | 2 | P |
| West Virginia Pulp and Paper Company - Covington | 6 | R |
| - Covington | 7 | -- |
| - Charleston | -- | -- |

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

Project 1108-17

Report 87

A Progress Report

to

FOURDRINIER KRAFT BOARD INSTITUTE, INC.

May 1, 1961

TABLE OF CONTENTS

ii

| | Page |
|--|------|
| SUMMARY | 1 |
| PURPOSE OF THIS STUDY | 4 |
| PROCEDURE FOR PARTICIPATING | 4 |
| PRESENTATION AND DISCUSSION OF TEST RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY | 5 |
| Number of Rolls of Corrugating Medium Submitted for Evaluation from Each Machine | 6 |
| Summary of Current Machine Averages for April, 1961 Showing Also the Current and Cumulative F.K.I. Averages | 8 |
| Graphical Presentation of Basis Weight and Caliper Data | 9 |
| Graphical Presentation of Concora Flat Crush Data and Single-Face Flat Crush Data | 10 |
| Summary of Test Results for April, 1961 | |
| Machine A | 14 |
| Machine B | 14 |
| Machine C | 15 |
| Machine D | 15 |
| Machine E | 16 |
| Machine F | 17 |
| Machine G | 17 |
| Machine H | 18 |
| Machine I | 18 |
| Machine J | 19 |
| Machine K | 19 |
| Machine L | 20 |
| Machine M | 20 |
| Machine N | 21 |

| | Page |
|---|------|
| PRESENTATION AND DISCUSSION OF TEST RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY--Continued | |
| Summary of Test Results for April, 1961--Continued | |
| Machine O | 21 |
| Machine P | 22 |
| Machine Q | 22 |
| Machine R | 23 |
| Machine S | 23 |
| Machine T | 24 |
| DISCUSSION OF CONCORA FLAT CRUSH TEST RESULTS OBTAINED AT THE INSTITUTE OF PAPER CHEMISTRY AND THOSE OBTAINED AT THE MILLS | |
| Comparison of Institute and Mill Concora Results on Individual Rolls for April, 1961 | 26 |
| A Comparative Summary for Each Machine of the Concora Flat Crush Averages Based on Institute Data and Those Based on Mill Data | 28 |
| A Tabulation for Each Machine of the Average Difference (per cent) Between the Concora Flat Crush Average Based on Institute Data and That Based on Mill Data (Correspond- ing Data for the Two Previous Periods are Also Shown) | 28 |
| A Comparison by Periods of Agreement Between Institute and Mill Concora Flat Crush Data | 30 |

THE INSTITUTE OF PAPER CHEMISTRY

Appleton, Wisconsin

SUMMARY

The purpose of this study is to provide a continuous evaluation of the quality and runnability of the corrugating mediums manufactured by members of the Fourdrinier Kraft Board Institute. The program is implemented in the following way: Rolls of corrugating medium are submitted on a weekly basis from the production of each machine. Each roll is evaluated for basis weight, caliper, Concora flat crush (conditioned after fluting), and runnability. In addition to the evaluation carried out at the Institute as described above, each participant may, if he so desires, evaluate each roll of corrugating medium for Concora flat crush (conditioned after fluting) and submit the results to The Institute of Paper Chemistry, thus providing an opportunity to include a comparison of Institute and mill Concora flat crush results in the monthly progress reports.

The study, as described in the preceding paragraph, provides several important benefits. For example, it enables each participant to evaluate his quality position in relation to the rest of the industry on a continuing basis. In addition, it provides a basis for comparing Concora flat crush results obtained at the Institute with those obtained at the mills on corresponding rolls of medium.

During the month of April, one hundred and six rolls of corrugating medium were submitted to The Institute of Paper Chemistry from the production of twenty machines.

Shown below are the maximum and minimum current machine averages noted for each test during April (the current machine average is the average of the results obtained on all rolls submitted from a given machine during the current period); also given for each test is the current F.K.I. average which is determined by averaging the current machine averages and is indicative of the test level being maintained by the industry as a whole to the extent that the industry is represented by the participating machines:

| | Maximum Current Machine Average | Minimum Current Machine Average | Current F.K.I. Average |
|---|--|--|------------------------------|
| Basis weight, lb. | 29.0 | 26.3 | 27.4 |
| Caliper, pt. | 12.3 | 9.4 | 10.4 |
| Concora flat crush, p.s.i. (Conditioned after fluting) | 40.0 | 32.3 | 36.9 |
| Single-face flat crush, p.s.i. | 37.3 | 29.1 | 33.3 |

The runnability data for the 106 rolls of medium evaluated during April are summarized as follows:

| Runnability | Number of Rolls | Percentage of Total Rolls |
|--|--------------------|------------------------------|
| Less than 600 f.p.m. with minimum tension | 3 | 2.8 |
| 600 f.p.m. with minimum tension | 10 | 9.4 |
| 600 f.p.m. with tension of 1/2 lb. per in. | 18 | 17.0 |
| 600 f.p.m. with tension of 1 lb. per in. | 25 | 23.6 |
| 600 f.p.m. with tension of 1-1/2 lb. per in. | 50 | 47.2 |

Concora flat crush results obtained on specimens conditioned after fluting were submitted for fourteen of the twenty machines from which rolls were received during the current month. The comparisons of Concora flat crush test results based on the average result obtained at the Institute and at the mill for all rolls compared for each machine are summarized below. Shown in this summary is the number of machines (and the percentage of the total machines which they represent) whose Concora test averages fall within the indicated percentage ranges from the results obtained at the Institute on the same rolls.

| Average Percentage Difference Between Institute and Mill Concora Flat Crush Test Results ^a | Number of Machines | Percentage of All Machines |
|---|-----------------------|-------------------------------|
| <u>±</u> 1.0 | 7 | 50.0 |
| <u>±</u> 2.5 | 10 | 71.4 |
| <u>±</u> 5.0 | 13 | 92.9 |
| <u>±</u> 14.9 | 14 | 100.0 |

^aThe average obtained at the Institute was used as the reference in the calculation of the percentage differences.

It may be noted from the comparison given above that agreement between Institute and mill Concora flat crush results was good.

CONTINUOUS EVALUATION OF CORRUGATING MEDIUM

PURPOSE OF THIS STUDY

The purpose of this study is to provide a continuous evaluation of the quality and runnability of corrugating medium produced by members of the Fourdrinier Kraft Board Institute. The study, as it progresses, is accumulating a backlog of data and experience which provides several important benefits. For example, it enables each participant to evaluate his position in relation to the rest of the industry. In addition, it provides background information essential for the judicious interpretation of any proposed specifications on corrugating medium (on either a company or industry basis). The program also provides a basis for comparing Concora results obtained at the Institute with those obtained at the mills on corresponding rolls of medium. This comparison is a helpful adjunct to conventional calibration procedures.

PROCEDURE FOR PARTICIPATING

The procedure for participating in this study involves the submission of six rolls of corrugating medium per month 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 5,000 lineal feet of medium (approximately 30 inches in diameter). When received by the Institute, each roll is assigned a code identification. In the monthly reports, each machine is identified by a code letter. A different code letter is used each month in order to mask the identity of the machines.

PRESENTATION AND DISCUSSION OF TEST RESULTS OBTAINED AT
THE INSTITUTE OF PAPER CHEMISTRY

During the month of April, one hundred and six rolls of corrugating medium were selected from the production of twenty machines and submitted to The Institute of Paper Chemistry for evaluation. A tabulation of the number of rolls submitted from each machine is given in Table I.

Each sample of corrugating medium was evaluated for basis weight, caliper, Concora flat crush (conditioned after fluting), H. and D. flat crush (single-faced board), and runnability. (Concora flat crush results obtained on specimens tested immediately after fluting were included in Progress Reports 45 through 57). Runnability was measured by corrugating each roll under standardized conditions on the Institute's corrugator into A-flute board at 600 feet per minute with minimum tension. If unsatisfactory runnability occurred at this speed, the corrugator was slowed down in increments of 25 f.p.m. until satisfactory runnability was obtained (no ruptured flutes). If the medium fabricated satisfactorily at 600 f.p.m. with minimum tension, further runs were made at higher tensions to determine when cracking occurred. The higher tensions used were 0.5 lb. per inch, 1.0 lb. per inch, and 1.5 lb. per inch.

Flat crush was determined on the single-faced board obtained at a speed of 600 f.p.m. with minimum tension. The flat crush results, in addition to supplying information about quality, 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.

TABLE I
NUMBER OF ROLLS OF CORRUGATING MEDIUM SUBMITTED
FOR EVALUATION FROM EACH MACHINE

| Machine Code | Number of Rolls |
|--------------|-----------------|
| A | 4 |
| B | 7 |
| C | 5 |
| D | 6 |
| E | 12 |
| F | 6 |
| G | 6 |
| H | 4 |
| I | 3 |
| J | 6 |
| K | 4 |
| L | 6 |
| M | 3 |
| N | 3 |
| O | 7 |
| P | 6 |
| Q | 7 |
| R | 5 |
| S | 2 |
| T | 4 |
| Total | <hr/> 106 |

The average test results obtained on the rolls of corrugating medium submitted by each participant (current machine averages) are shown in Table II and graphically presented in Fig. 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 of test results for all machines participating in the study during the current 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:

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

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.

In Table II the current machine averages for the month of April are summarized. It may be noted in Table II and Figure 1 that basis weight varied from a low of 26.3 lb. for Machines I and R to a high of 29.0 lb. for Machine E. The current F.K.I. average for basis weight was 27.4 lb., which was slightly higher than cumulative F.K.I. average of 27.3 lb. Of the current machine averages in Table II none were below the 26-lb. minimum requirement of Rule 41. On the basis of individual rolls, it may be noted that the tabulated data for each machine shown in Tables III through XXII included three basis weight averages which were below 26 lb.

TABLE II
SUMMARY OF CURRENT MACHINE AVERAGES
April, 1961

| Code | Basis Weight, lb. | Caliper, points | Concora Flat Crush, p.s.i. | Single-Face Flat Crush, p.s.i. |
|---------------------------|----------------------|--------------------|-------------------------------|-----------------------------------|
| A | 28.0 | 11.1 | 36.8 | 32.0 |
| B | 26.5 | 9.6 | 36.3 | 34.2 |
| C | 26.5 | 10.9 | 37.4 | 34.1 |
| D | 26.9 | 10.4 | 36.5 | 33.9 |
| E | 29.0 | 10.6 | 32.3 | 29.1 |
| F | 26.9 | 11.1 | 37.8 | 34.8 |
| G | 28.0 | 9.4 | 36.6 | 33.1 |
| H | 28.7 | 10.9 | 37.9 | 33.7 |
| I | 26.3 | 12.3 | 38.6 | 34.8 |
| J | 28.0 | 10.2 | 34.3 | 30.9 |
| K | 28.0 | 10.8 | 38.1 | 34.1 |
| L | 27.0 | 9.9 | 38.8 | 34.8 |
| M | 27.9 | 10.2 | 38.4 | 34.8 |
| N | 27.4 | 10.1 | 40.0 | 37.3 |
| O | 27.2 | 9.9 | 38.7 | 35.1 |
| P | 27.1 | 9.6 | 36.3 | 32.3 |
| Q | 27.4 | 10.6 | 34.1 | 31.6 |
| R | 26.3 | 10.2 | 34.2 | 29.9 |
| S | 26.7 | 9.9 | 39.1 | 35.2 |
| T | 28.1 | 10.2 | 36.3 | 30.6 |
| Current F.K.I. Average | 27.4 | 10.4 | 36.9 | 33.3 |
| Cumulative F.K.I. Average | 27.3 | 10.3 | 36.3 | 33.2 |
| F.K.I. Index, % | 100.3 | 101.0 | 101.6 | 100.3 |

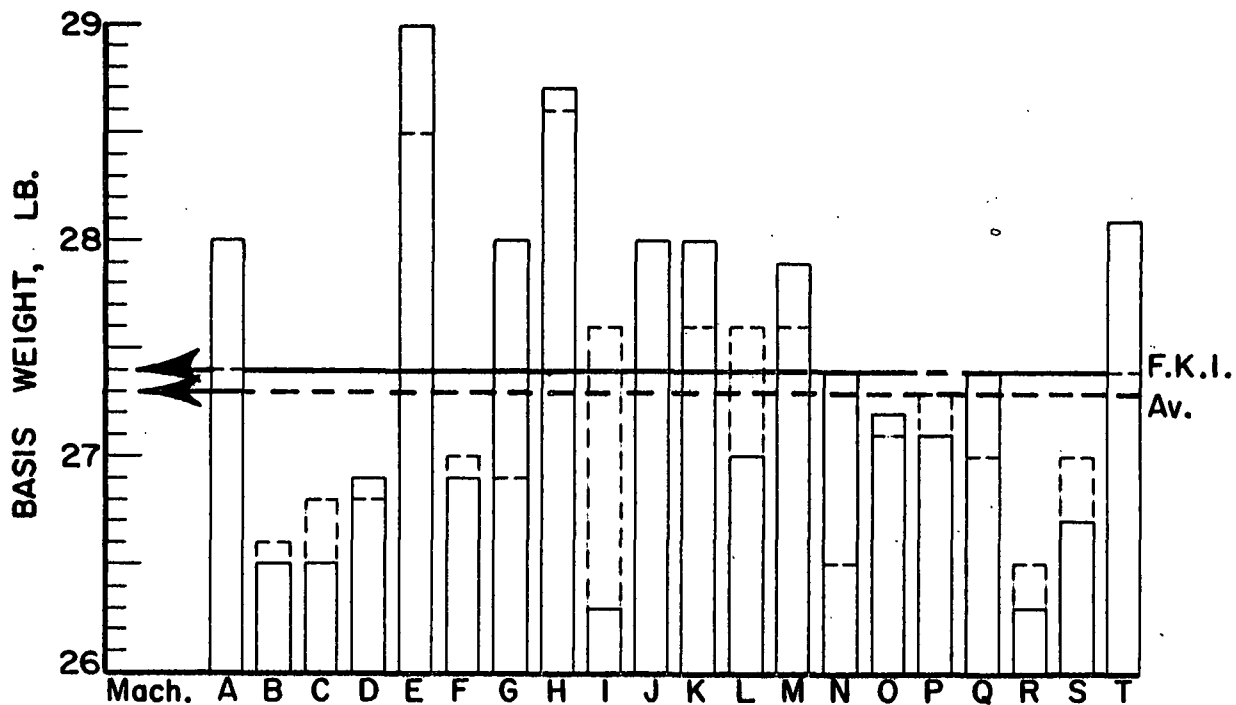


Figure 1. Comparison of Basis Weight Results for April, 1961

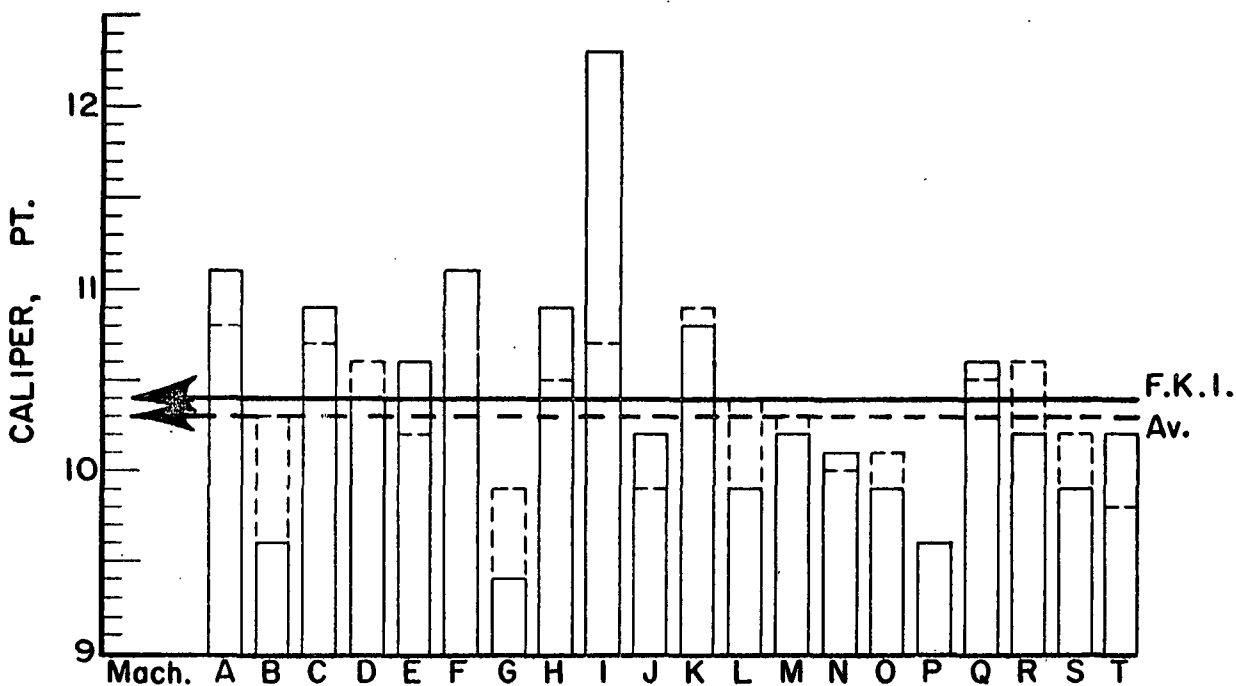


Figure 2. Comparison of Caliper Results for April, 1961

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

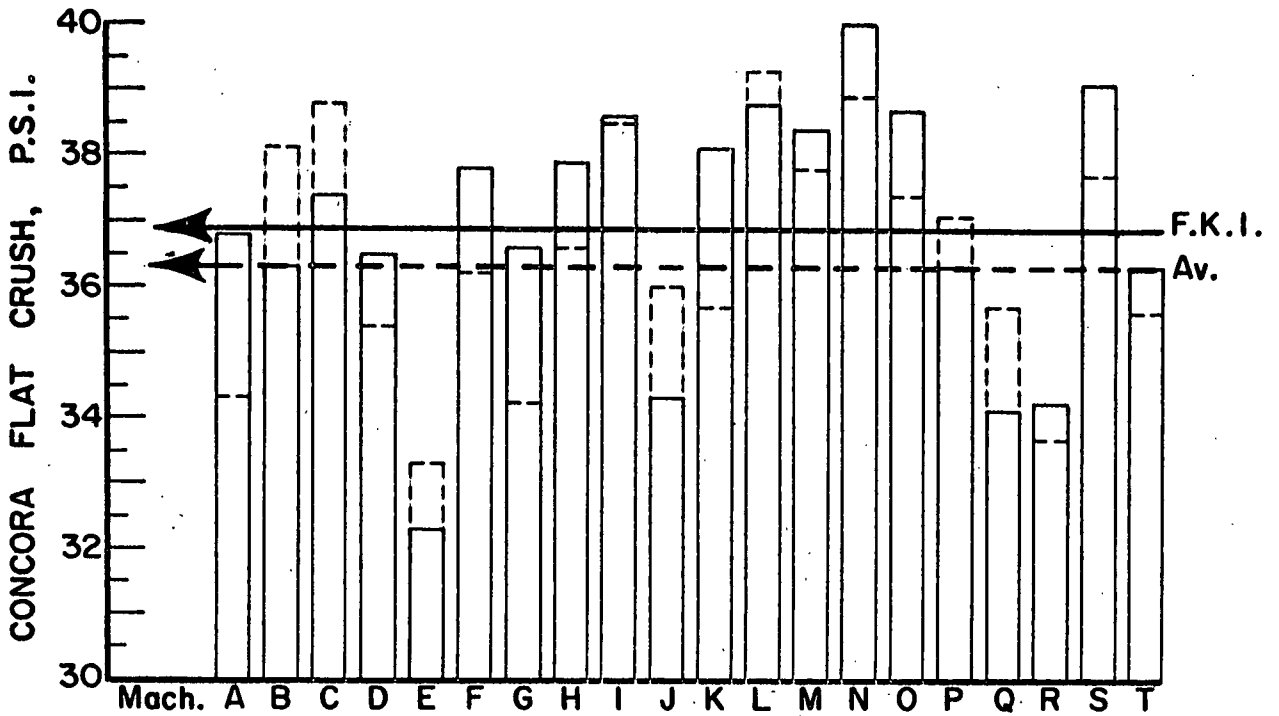


Figure 3. Comparison of Concora Flat Crush Results for April, 1961

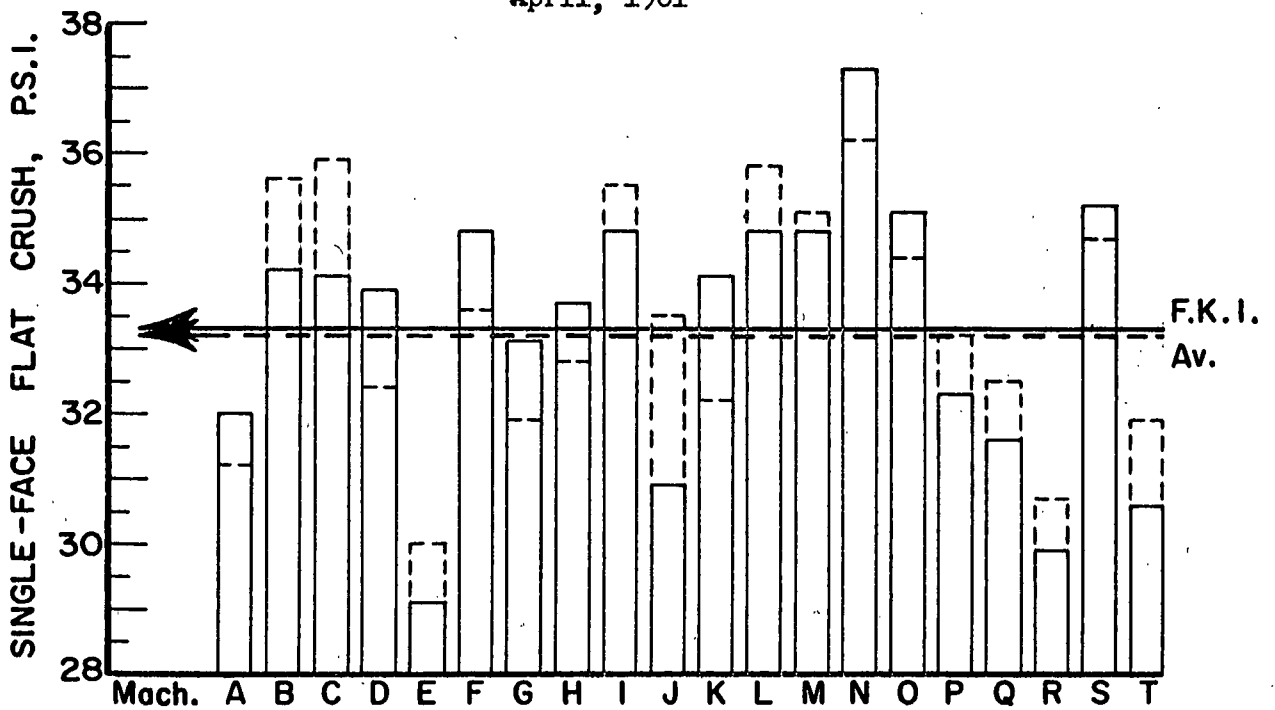


Figure 4. Comparison of Single-Face Flat Crush Results for April, 1961

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

With regard to the caliper results for the current period, it may be seen in Table II and also in Fig. 2 that the lowest current machine average of 9.4 points was associated with Machine G, and the highest average of 12.3 points was associated with Machine I. The current F.K.I. average of 10.4 points was slightly higher than the cumulative F.K.I. average of 10.3 points. The minimum caliper requirement of nine points specified in Rule 41 was met by all participants on the basis of the current machine averages shown in Table II. On the basis of individual rolls, there were also no caliper averages below 9 points.

The Concora flat crush averages are presented graphically in Fig. 3 based on the data given in Table II. 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. An inspection of the Concora flat crush results shown in Table II and Fig. 3 reveals that 40.0 p.s.i. was the highest average and 32.3 p.s.i. the lowest. Machine N had the highest average, whereas Machine E had the lowest average. The current F.K.I. average of 36.9 p.s.i. was slightly higher than the cumulative F.K.I. average of 36.3 p.s.i.

The highest single-face flat crush average of 37.3 p.s.i. was obtained on the medium from Machine N and the lowest of 29.1 p.s.i. on the

medium from Machine E. These data are shown in Table II and are presented graphically in Fig. 4. The current F.K.I. average was 33.3 p.s.i., which was slightly higher than the cumulative F.K.I. average of 33.2 p.s.i.

The runnability data for the 106 rolls of medium evaluated during April are summarized as follows:

| Runnability | Number of Rolls | Percentage of Total Rolls |
|--|--------------------|------------------------------|
| Less than 600 f.p.m. with minimum tension | 3 | 2.8 |
| 600 f.p.m. with minimum tension | 10 | 9.4 |
| 600 f.p.m. with tension of 1/2 lb. per in. | 18 | 17.0 |
| 600 f.p.m. with tension of 1 lb. per in. | 25 | 23.6 |
| 600 f.p.m. with tension of 1-1/2 lb. per in. | 50 | 47.2 |

For the month of April, the current F.K.I. averages for basis weight, caliper, Concora flat crush, and single-face flat crush were all higher than their respective cumulative F.K.I. averages.

The test results obtained on the sample lots submitted from the production of each of the machines are shown in Tables III through XXII for Machines A through T, 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 sample lots submitted from a given 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 XXII 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.

TABLE III
SUMMARY OF TEST RESULTS FOR MACHINE A
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|-------|----------------------------|------|-------|--------------------------------|------|------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| A-1 | 3-24-61 | 3-31-61 | 489 | 27.9 | 11.2 | 10.8 | 11.0 | 37.8 | 35.4 | 36.2 | 33.6 | 31.4 | 32.4 | 1/2 |
| A-2 | 3-24-61 | 3-31-61 | 490 | 28.2 | 11.5 | 10.9 | 11.1 | 39.0 | 35.4 | 37.3 | 34.6 | 30.2 | 33.0 | 1/2 |
| A-3 | 4-5-61 | 4-13-61 | 497 | 27.9 | 11.5 | 11.0 | 11.3 | 38.4 | 33.6 | 36.6 | 32.4 | 30.6 | 31.3 | 1/2 |
| A-4 | 4-5-61 | 4-13-61 | 498 | 27.8 | 11.3 | 10.9 | 11.1 | 38.4 | 35.4 | 36.8 | 32.2 | 31.0 | 31.5 | 1 |
| Current Machine Average | | | | 28.0 | | | 11.1 | | | 36.8 | | | | 32.0 |
| Cumulative Machine Average | | | | 27.4 | | | 10.8 | | | 34.3 | | | | 31.2 |
| Machine Factor, % | | | | 101.8 | | | 102.3 | | | 107.2 | | | | 102.8 |
| Machine Index, % | | | | 102.3 | | | 107.8 | | | 101.1 | | | | 96.4 |

TABLE IV
SUMMARY OF TEST RESULTS FOR MACHINE B
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|------|----------------------------|------|------|--------------------------------|------|------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| B-1 | 3-10-61 | 4-11-61 | 275 | 26.3 | 10.1 | 8.8 | 9.4 | 37.2 | 32.4 | 35.0 | 33.0 | 31.2 | 31.8 | Min. |
| B-2 | 3-13-61 | 4-11-61 | 380 | 27.0 | 10.3 | 9.3 | 9.8 | 42.6 | 36.6 | 39.8 | 39.2 | 36.8 | 38.0 | Note a. |
| B-3 | 3-22-61 | 4-11-61 | 688 | 26.4 | 10.2 | 9.6 | 10.0 | 37.2 | 34.2 | 36.0 | 36.2 | 33.6 | 34.8 | Min. |
| B-4 | 3-28-61 | 4-11-61 | 856 | 26.5 | 10.1 | 9.3 | 9.9 | 39.6 | 36.0 | 37.9 | 34.8 | 34.0 | 34.3 | 1/2 |
| B-5 | 3-29-61 | 4-11-61 | 897 | 25.7 | 9.4 | 8.6 | 9.0 | 35.4 | 32.4 | 33.7 | 34.8 | 33.2 | 34.2 | 1/2 |
| B-6 | 3-30-61 | 4-11-61 | 923 | 26.7 | 9.9 | 9.2 | 9.6 | 36.6 | 31.8 | 34.9 | 34.6 | 31.6 | 33.0 | Note b |
| B-7 | 3-30-61 | 4-11-61 | 924 | 26.5 | 10.2 | 9.3 | 9.8 | 38.4 | 34.2 | 36.6 | 34.4 | 32.0 | 33.0 | Note a |
| Current Machine Average | | | | 26.5 | | | 9.6 | | | 36.3 | | | | 34.2 |
| Cumulative Machine Average | | | | 26.6 | | | 10.3 | | | 38.1 | | | | 35.6 |
| Machine Factor, % | | | | 99.3 | | | 93.9 | | | 95.2 | | | | 96.0 |
| Machine Index, % | | | | 96.9 | | | 93.6 | | | 99.9 | | | | 102.9 |

a Maximum speed at which this roll could be corrugated with minimum tension was 575 f.p.m.
b Maximum speed at which this roll could be corrugated with minimum tension was 375 f.p.m.

TABLE V
 SUMMARY OF TEST RESULTS FOR MACHINE C
 April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|-------|--|------|------|-------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Max. | Min. | Av. | |
| C-1 | 3-28-61 | 4- 3-61 | 618 | 26.3 | 10.8 | 9.8 | 10.5 | 39.6 | 37.2 | 38.4 | 38.4 | 36.4 | 34.4 | 35.6 | 1-1/2 |
| C-2 | 3-29-61 | 4- 4-61 | 619 | 26.8 | 12.1 | 11.1 | 11.6 | 40.2 | 37.2 | 38.8 | 38.8 | 35.4 | 33.8 | 34.3 | 1-1/2 |
| C-3 | 4-11-61 | 4-14-61 | 620 | 26.3 | 11.1 | 10.3 | 10.7 | 39.6 | 34.8 | 36.6 | 36.6 | 34.4 | 31.4 | 33.0 | 1-1/2 |
| C-4 | 4-14-61 | 4-20-61 | 621 | 27.3 | 11.3 | 10.6 | 11.0 | 39.6 | 36.6 | 38.2 | 38.2 | 35.8 | 34.2 | 35.1 | 1-1/2 |
| C-5 | 4-19-61 | 4-24-61 | 622 | 25.9 | 11.3 | 10.2 | 10.7 | 37.2 | 33.6 | 35.3 | 35.3 | 33.4 | 31.2 | 32.6 | 1-1/2 |
| Current Machine Average | | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | | |
| | | | | 26.5 | | | 10.9 | | | 37.4 | | | | 34.1 | |
| | | | | 26.8 | | | 10.7 | | | 38.8 | | | | 35.9 | |
| | | | | 99.1 | | | 102.0 | | | 96.4 | | | | 95.1 | |
| | | | | 97.0 | | | 106.1 | | | 103.0 | | | | 102.7 | |

TABLE VI
 SUMMARY OF TEST RESULTS FOR MACHINE D
 April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|-------|--|------|------|-------|-----|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Max. | Min. | Av. | |
| D-1 | 2-14-61 | 3-14-61 | 1806 | 27.1 | 11.2 | 10.6 | 10.8 | 37.8 | 36.0 | 37.3 | | 34.8 | 33.2 | 33.9 | 1 |
| D-2 | 2-15-61 | 3-29-61 | 2047 | 26.5 | 10.1 | 10.0 | 10.0 | 39.6 | 34.8 | 37.2 | | 35.8 | 34.0 | 35.0 | 1 |
| D-3 | 2-19-61 | 3-29-61 | 2775 | 26.8 | 10.9 | 10.2 | 10.5 | 39.0 | 34.2 | 36.8 | | 34.4 | 30.4 | 32.7 | 1/2 |
| D-4 | 2-20-61 | 3-29-61 | 2918 | 27.1 | 11.0 | 10.0 | 10.6 | 37.2 | 36.0 | 36.6 | | 33.2 | 30.4 | 32.0 | 1 |
| D-5 | 2-25-61 | 3-29-61 | 3865 | 26.6 | 10.8 | 10.0 | 10.2 | 36.6 | 33.0 | 34.8 | | 38.0 | 35.2 | 36.5 | 1/2 |
| D-6 | 3- 2-61 | 3-31-61 | 382 | 27.5 | 10.9 | 10.3 | 10.6 | 37.8 | 35.4 | 36.5 | | 33.8 | 32.4 | 33.2 | 1 |
| Current Machine Average | | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | | |
| | | | | 26.9 | | | 10.4 | | | 36.5 | | | | 33.9 | |
| | | | | 26.8 | | | 10.6 | | | 35.4 | | | | 32.4 | |
| | | | | 100.6 | | | 98.5 | | | 103.4 | | | | 104.5 | |
| | | | | 98.5 | | | 101.5 | | | 100.6 | | | | 102.0 | |

TABLE VII
SUMMARY OF TEST RESULTS FOR MACHINE E
April, 1961

| Code | Date Made | Date Recd. ^a | 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, Maximum Tension at 600 f.p.m., lb./in. | | | |
|----------------------------|-----------|-------------------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|------|--|------|------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Max. | Min. | Av. |
| E-1 | 3-23-61 | 3-29-61 | 62 | 29.8 | 12.0 | 10.8 | 11.2 | 36.6 | 34.2 | 35.5 | 32.8 | 29.6 | 31.0 | 1-1/2 |
| E-2 | 3-23-61 | 3-29-61 | 63 | 29.0 | 12.0 | 10.1 | 11.1 | 36.6 | 32.4 | 33.6 | 32.0 | 30.4 | 31.2 | 1-1/2 |
| E-3 | 3-23-61 | 3-29-61 | 64 | 28.2 | 10.9 | 9.9 | 10.1 | 35.4 | 28.8 | 32.3 | 29.4 | 27.2 | 28.4 | 1-1/2 |
| E-4 | 3-23-61 | 3-29-61 | 65 | 29.0 | 12.0 | 10.0 | 11.2 | 37.2 | 33.6 | 35.0 | 32.6 | 30.4 | 31.4 | 1-1/2 |
| E-5 | 3-23-61 | 3-29-61 | 66 | 27.9 | 10.0 | 9.1 | 9.8 | 32.4 | 30.0 | 31.2 | 29.6 | 27.8 | 29.0 | 1-1/2 |
| E-6 | 3-23-61 | 3-29-61 | 67 | 27.9 | 10.2 | 9.8 | 10.0 | 32.4 | 30.6 | 31.6 | 30.0 | 28.6 | 29.2 | 1-1/2 |
| E-7 | 4-13-61 | 4-24-61 | 68 | 28.7 | 10.7 | 10.0 | 10.3 | 32.4 | 28.8 | 30.2 | 28.4 | 26.4 | 27.2 | 1-1/2 |
| E-8 | 4-13-61 | 4-24-61 | 69 | 28.7 | 10.8 | 9.8 | 10.3 | 31.2 | 29.4 | 30.5 | 30.4 | 26.0 | 27.3 | 1-1/2 |
| E-9 | 4-13-61 | 4-24-61 | 70 | 28.9 | 10.8 | 9.8 | 10.3 | 33.0 | 30.6 | 32.0 | 28.8 | 28.0 | 28.4 | 1-1/2 |
| E-10 | 4-13-61 | 4-24-61 | 71 | 30.3 | 11.8 | 10.7 | 11.0 | 32.4 | 29.4 | 31.2 | 29.4 | 26.4 | 28.3 | 1-1/2 |
| E-11 | 4-13-61 | 4-24-61 | 72 | 29.6 | 11.5 | 10.2 | 10.9 | 36.0 | 31.8 | 33.4 | 29.6 | 26.2 | 27.7 | 1-1/2 |
| E-12 | 4-13-61 | 4-24-61 | 73 | 29.9 | 11.0 | 10.3 | 10.7 | 33.6 | 29.4 | 31.3 | 30.6 | 28.0 | 29.7 | 1-1/2 |
| Current Machine Average | | | | 29.0 | | | 10.6 | | | 32.3 | | | 29.1 | |
| Cumulative Machine Average | | | | 28.5 | | | 10.2 | | | 33.3 | | | 30.0 | |
| Machine Factor, % | | | | 101.8 | | | 104.2 | | | 97.0 | | | 96.8 | |
| Machine Index, % | | | | 106.1 | | | 102.7 | | | 89.0 | | | 87.5 | |

^a Some of these rolls were received too late for inclusion in the previous report.

TABLE VIII
SUMMARY OF TEST RESULTS FOR MACHINE F
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|------|--|------|------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Av. | Av. | |
| F-1 | 3-23-61 | 3-30-61 | 491 | 27.1 | 11.1 | 10.0 | 10.8 | 42.0 | 36.6 | 38.4 | 36.2 | 34.4 | 35.4 | 1-1/2 |
| F-2 | 3-23-61 | 3-30-61 | 492 | 27.1 | 11.8 | 10.0 | 11.0 | 42.6 | 34.2 | 37.6 | 37.8 | 33.6 | 35.6 | 1-1/2 |
| F-3 | 4- 5-61 | 4-12-61 | 499 | 26.5 | 12.0 | 10.4 | 11.2 | 39.0 | 35.4 | 36.8 | 34.6 | 32.6 | 33.6 | 1-1/2 |
| F-4 | 4- 5-61 | 4-12-61 | 500 | 27.1 | 12.2 | 10.2 | 11.4 | 38.4 | 34.8 | 36.8 | 32.6 | 31.2 | 32.0 | 1-1/2 |
| F-5 | 4-18-61 | 4-25-61 | 507 | 26.8 | 11.9 | 10.0 | 10.9 | 39.0 | 34.2 | 37.8 | 36.6 | 34.6 | 35.6 | 1 |
| F-6 | 4-18-61 | 4-25-61 | 508 | 26.8 | 12.3 | 10.3 | 11.2 | 40.8 | 38.4 | 39.6 | 37.6 | 36.4 | 36.8 | 1 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| 11.1 | | | | | | | | | | | | | | |
| 11.1 | | | | | | | | | | | | | | |
| 100.0 | | | | | | | | | | | | | | |
| 107.7 | | | | | | | | | | | | | | |
| 37.8 | | | | | | | | | | | | | | |
| 36.2 | | | | | | | | | | | | | | |
| 104.6 | | | | | | | | | | | | | | |
| 104.1 | | | | | | | | | | | | | | |
| 34.8 | | | | | | | | | | | | | | |
| 33.6 | | | | | | | | | | | | | | |
| 103.6 | | | | | | | | | | | | | | |
| 104.9 | | | | | | | | | | | | | | |

TABLE IX
SUMMARY OF TEST RESULTS FOR MACHINE G
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|------|--|------|------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Av. | Av. | |
| G-1 | 3-10-61 | 4-11-61 | C-119 | 28.2 | 9.9 | 9.0 | 9.4 | 37.8 | 36.0 | 37.3 | 35.0 | 31.6 | 33.1 | 1-1/2 |
| G-2 | 3-10-61 | 4-11-61 | C-120 | 28.2 | 10.0 | 9.0 | 9.5 | 37.2 | 33.6 | 35.6 | 34.6 | 32.2 | 33.5 | 1-1/2 |
| G-3 | 3-10-61 | 4-11-61 | C-121 | 28.4 | 9.8 | 9.0 | 9.3 | 37.2 | 35.4 | 36.5 | 34.0 | 32.2 | 33.2 | 1-1/2 |
| G-4 | 3-10-61 | 4-11-61 | C-122 | 28.2 | 9.9 | 9.0 | 9.4 | 37.2 | 34.8 | 36.1 | 36.6 | 31.8 | 33.5 | 1-1/2 |
| G-5 | 3-10-61 | 4-11-61 | C-123 | 27.6 | 9.7 | 9.0 | 9.2 | 40.2 | 34.2 | 36.7 | 32.0 | 30.4 | 31.2 | 1-1/2 |
| G-6 | 3-10-61 | 4-11-61 | C-124 | 27.6 | 10.0 | 9.0 | 9.5 | 38.4 | 34.8 | 37.1 | 34.6 | 32.4 | 33.9 | 1-1/2 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| 9.4 | | | | | | | | | | | | | | |
| 9.9 | | | | | | | | | | | | | | |
| 34.2 | | | | | | | | | | | | | | |
| 106.9 | | | | | | | | | | | | | | |
| 103.8 | | | | | | | | | | | | | | |
| 99.6 | | | | | | | | | | | | | | |
| 36.6 | | | | | | | | | | | | | | |
| 34.2 | | | | | | | | | | | | | | |
| 106.9 | | | | | | | | | | | | | | |
| 100.6 | | | | | | | | | | | | | | |
| 33.1 | | | | | | | | | | | | | | |
| 31.9 | | | | | | | | | | | | | | |
| 103.8 | | | | | | | | | | | | | | |
| 99.6 | | | | | | | | | | | | | | |

TABLE X
SUMMARY OF TEST RESULTS FOR MACHINE H
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|-------|----------------------------|------|-------|--------------------------------|------|------|--|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | | |
| H-1 | 4-7-61 | 4-18-61 | 372 | 28.9 | 11.5 | 10.8 | 11.2 | 36.0 | 33.6 | 34.7 | 33.2 | 28.8 | 30.2 | 1-1/2 | |
| H-2 | 4-11-61 | 4-18-61 | 373 | 28.7 | 11.1 | 9.7 | 10.4 | 43.2 | 38.4 | 40.3 | 37.8 | 35.2 | 36.2 | 1/2 | |
| H-3 | 4-12-61 | 4-25-61 | 374 | 27.9 | 11.2 | 10.0 | 10.4 | 40.8 | 36.6 | 38.9 | 36.4 | 34.0 | 34.8 | Min. | |
| H-4 | 4-19-61 | 4-25-61 | 375 | 29.3 | 12.0 | 10.8 | 11.4 | 40.8 | 36.0 | 37.6 | Note a | | | 1-1/2 | |
| Current Machine Average | | | | 28.7 | | | 10.9 | | | 37.9 | | | | 33.7 | |
| Cumulative Machine Average | | | | 28.6 | | | 10.5 | | | 36.6 | | | | 32.8 | |
| Machine Factor, % | | | | 100.3 | | | 103.5 | | | 103.4 | | | | 102.8 | |
| Machine Index, % | | | | 105.1 | | | 105.4 | | | 104.2 | | | | 101.5 | |

TABLE XI
SUMMARY OF TEST RESULTS FOR MACHINE I
April, 1961

| | | | | | | | | | | | | | | | |
|----------------------------|---------|---------|-----|------|------|------|-------|------|------|-------|------|------|------|-------|--|
| I-1 | 3-12-61 | 3-27-61 | 308 | 26.5 | 12.9 | 11.9 | 12.2 | 40.2 | 36.6 | 37.9 | 37.0 | 33.8 | 35.8 | 1/2 | |
| I-2 | 3-20-61 | 3-27-61 | 309 | 26.3 | 12.9 | 11.9 | 12.3 | 42.6 | 36.0 | 39.6 | 35.8 | 31.4 | 33.8 | 1/2 | |
| I-3 | 4-3-61 | 4-18-61 | 310 | 26.3 | 13.0 | 12.0 | 12.5 | 40.8 | 36.0 | 38.3 | 35.6 | 33.4 | 34.7 | 1 | |
| Current Machine Average | | | | 26.3 | | | 12.3 | | | 38.6 | | | | 34.8 | |
| Cumulative Machine Average | | | | 27.6 | | | 10.7 | | | 38.5 | | | | 35.5 | |
| Machine Factor, % | | | | 95.4 | | | 114.9 | | | 100.2 | | | | 98.0 | |
| Machine Index, % | | | | 96.4 | | | 119.6 | | | 106.2 | | | | 104.6 | |

a Sample was inadvertently destroyed.

TABLE XII
SUMMARY OF TEST RESULTS FOR MACHINE J
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|------|--|------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Av. | Av. |
| J-1 | 4-17-61 | 4-24-61 | 71 | 29.5 | 11.0 | 9.7 | 10.4 | 37.8 | 32.4 | 35.8 | 32.2 | 32.9 | 1-1/2 |
| J-2 | 4-17-61 | 4-24-61 | 72 | 27.5 | 10.5 | 9.3 | 10.1 | 36.0 | 30.6 | 32.8 | 30.2 | 30.9 | 1-1/2 |
| J-3 | 4-17-61 | 4-24-61 | 73 | 27.6 | 11.5 | 9.7 | 10.4 | 36.0 | 33.0 | 34.2 | 30.8 | 31.6 | 1-1/2 |
| J-4 | 4-15-61 | 4-24-61 | 74 | 27.6 | 11.0 | 9.8 | 10.3 | 33.0 | 31.2 | 32.0 | 29.4 | 28.4 | 1-1/2 |
| J-5 | 4-15-61 | 4-24-61 | 75 | 27.3 | 10.9 | 9.8 | 10.3 | 37.8 | 34.2 | 35.4 | 30.2 | 29.6 | 1-1/2 |
| J-6 | 4-15-61 | 4-24-61 | 76 | 28.4 | 10.8 | 9.5 | 10.0 | 39.0 | 32.4 | 35.5 | 32.4 | 31.9 | 1-1/2 |
| Current Machine Average | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | |
| | | | | 28.0 | | | 10.2 | | | 34.3 | | 30.9 | |
| | | | | 28.0 | | | 9.9 | | | 36.0 | | 33.5 | |
| | | | | 100.0 | | | 104.0 | | | 95.1 | | 92.2 | |
| | | | | 102.5 | | | 99.5 | | | 94.3 | | 93.0 | |

TABLE XIII
SUMMARY OF TEST RESULTS FOR MACHINE K
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|-------|--|-------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Av. | Av. |
| K-1 | 3-30-61 | 4- 4-61 | 495 | 27.9 | 11.3 | 10.8 | 11.0 | 40.2 | 37.8 | 38.9 | 36.2 | 35.4 | 1-1/2 |
| K-2 | 3-30-61 | 4- 4-61 | 496 | 28.0 | 11.8 | 10.7 | 11.1 | 40.2 | 36.6 | 38.6 | 37.6 | 34.9 | 1-1/2 |
| K-3 | 4-14-61 | 4-17-61 | 503 | 28.2 | 11.2 | 10.4 | 10.9 | 40.8 | 34.2 | 37.6 | 33.0 | 32.3 | 1 |
| K-4 | 4-14-61 | 4-17-61 | 504 | 27.9 | 10.9 | 9.3 | 10.2 | 39.0 | 36.0 | 37.4 | 34.6 | 33.9 | 1-1/2 |
| Current Machine Average | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | |
| | | | | 28.0 | | | 10.8 | | | 38.1 | | 34.1 | |
| | | | | 27.6 | | | 10.9 | | | 35.7 | | 32.2 | |
| | | | | 101.4 | | | 98.7 | | | 106.7 | | 105.9 | |
| | | | | 102.5 | | | 104.7 | | | 104.9 | | 102.7 | |

TABLE XIV
SUMMARY OF TEST RESULTS FOR MACHINE L
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|------|--------------------------------|-------|--|------|-------|-------|
| | | | | | Max. | Min. | Max. | Min. | Max. | Min. | | Av. | Av. | |
| L-1 | 3-13-61 | 3-30-61 | 435 | 27.0 | 11.2 | 10.0 | 10.6 | 43.2 | 37.8 | 40.6 | 38.4 | 35.2 | 36.6 | 1 |
| L-2 | 3-16-61 | 4- 5-61 | 436 | 26.7 | 9.9 | 9.2 | 9.6 | 40.8 | 36.6 | 38.9 | 35.0 | 33.2 | 33.9 | 1 |
| L-3 | 3-21-61 | 4- 5-61 | 437 | 26.9 | 10.1 | 9.7 | 9.9 | 39.6 | 35.4 | 37.8 | 36.0 | 32.6 | 34.5 | 1 |
| L-4 | 3-23-61 | 4- 3-61 | 438 | 27.6 | 10.1 | 9.7 | 9.9 | 42.0 | 37.8 | 39.6 | 37.0 | 33.6 | 34.6 | 1-1/2 |
| L-5 | 4- 3-61 | 4-18-61 | 440 | 26.6 | 10.2 | 9.2 | 9.8 | 39.6 | 36.0 | 37.4 | 36.8 | 32.2 | 35.1 | 1/2 |
| L-6 | 4-11-61 | 4-21-61 | 441 | 27.1 | 10.0 | 9.4 | 9.7 | 40.8 | 36.0 | 38.3 | 34.8 | 32.6 | 34.0 | 1 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| | | | | 27.0 | | | 9.9 | | | 38.8 | | | 34.8 | |
| | | | | 27.6 | | | 10.4 | | | 39.3 | | | 35.8 | |
| | | | | 97.8 | | | 95.1 | | | 98.7 | | | 97.1 | |
| | | | | 98.7 | | | 96.2 | | | 106.7 | | | 104.8 | |

TABLE XV
SUMMARY OF TEST RESULTS FOR MACHINE M
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. | | | | | |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|----------------------------|--------------------------------|--|-------|------|------|-------|-----|
| | | | | | Max. | Min. | | | | | | | | |
| M-1 | 3-16-61 | 3-28-61 | -- | 27.5 | 10.7 | 10.1 | 10.4 | 38.4 | 33.0 | 36.6 | 34.8 | 31.6 | 33.4 | 1 |
| M-2 | 3-18-61 | 4-14-61 | -- | 27.7 | 10.0 | 9.5 | 9.8 | 38.4 | 36.6 | 37.9 | 35.6 | 33.6 | 34.4 | 1/2 |
| M-3 | 4- 7-61 | 4-14-61 | -- | 28.4 | 10.6 | 9.8 | 10.2 | 42.6 | 39.0 | 40.8 | 38.0 | 35.6 | 36.7 | 1/2 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| | | | | 27.9 | | | 10.2 | | | 38.4 | | | 34.8 | |
| | | | | 27.6 | | | 10.3 | | | 37.8 | | | 35.1 | |
| | | | | 101.0 | | | 98.2 | | | 101.7 | | | 99.4 | |
| | | | | 102.0 | | | 98.7 | | | 105.8 | | | 104.9 | |

TABLE XVI
SUMMARY OF TEST RESULTS FOR MACHINE N
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|-------|----------------------------|------|-------|--------------------------------|------|-------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| N-1 | 3-23-61 | 4-10-61 | 20 | 27.4 | 10.2 | 9.2 | 9.8 | 41.4 | 38.4 | 40.3 | 39.4 | 38.0 | 38.8 | 1-1/2 |
| N-2 | -- | 4-14-61 | 21 | 27.6 | 10.4 | 9.8 | 10.1 | 40.8 | 36.6 | 39.6 | 37.6 | 35.8 | 36.9 | 1 |
| N-3 | -- | 4-14-61 | 22 | 27.4 | 10.8 | 10.1 | 10.4 | 41.4 | 38.4 | 40.1 | 37.2 | 34.8 | 36.2 | 1 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| | | | | 27.4 | | | 10.1 | | | 40.0 | | | 37.3 | |
| | | | | 26.5 | | | 10.0 | | | 38.9 | | | 36.2 | |
| | | | | 103.7 | | | 101.1 | | | 102.7 | | | 103.0 | |
| | | | | 100.4 | | | 98.2 | | | 110.1 | | | 112.2 | |

TABLE XVII
SUMMARY OF TEST RESULTS FOR MACHINE O
April, 1961

| | | | | | | | | | | | | | | |
|----------------------------|---------|---------|----|-------|------|------|------|------|------|-------|------|------|-------|-------|
| 0-1 | 3-16-61 | 3-28-61 | -- | 26.8 | 10.1 | 9.8 | 10.0 | 39.0 | 33.6 | 37.1 | 35.0 | 33.4 | 34.3 | 1-1/2 |
| 0-2 | 3-17-61 | 3-28-61 | -- | 27.2 | 10.2 | 10.0 | 10.0 | 42.6 | 39.0 | 40.6 | 36.6 | 34.0 | 34.8 | 1-1/2 |
| 0-3 | 3-18-61 | 3-28-61 | -- | 27.6 | 10.5 | 10.0 | 10.2 | 42.6 | 36.6 | 39.7 | 38.0 | 35.2 | 36.2 | 1 |
| 0-4 | 3-24-61 | 3-28-61 | -- | 27.3 | 10.1 | 10.0 | 10.0 | 42.0 | 37.2 | 39.6 | 37.8 | 35.2 | 36.6 | 1 |
| 0-5 | 4- 5-61 | 4-14-61 | -- | 26.8 | 10.1 | 9.2 | 9.6 | 40.8 | 38.4 | 39.7 | 36.0 | 34.0 | 34.8 | 1-1/2 |
| 0-6 | 4- 6-61 | 4-14-61 | -- | 27.1 | 10.2 | 9.4 | 9.7 | 39.6 | 34.2 | 36.6 | 34.0 | 32.8 | 33.4 | 1 |
| 0-7 | 4- 7-61 | 4-14-61 | -- | 27.4 | 10.0 | 9.2 | 9.7 | 39.6 | 34.2 | 37.4 | 36.4 | 34.2 | 35.3 | 1-1/2 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| | | | | 27.2 | | | 9.9 | | | 38.7 | | | 35.1 | |
| | | | | 27.1 | | | 10.1 | | | 37.4 | | | 34.4 | |
| | | | | 100.4 | | | 97.9 | | | 103.5 | | | 101.8 | |
| | | | | 99.4 | | | 96.0 | | | 106.4 | | | 105.5 | |

TABLE XVIII
SUMMARY OF TEST RESULTS FOR MACHINE P
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|-----|----------------------------|------|------|--------------------------------|------|------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| P-1 | 3-22-61 | 4-14-61 | 431 | 28.1 | 10.5 | 9.2 | 9.6 | 42.0 | 37.8 | 40.1 | 36.6 | 35.0 | 35.7 | Min. |
| P-2 | 3-26-61 | 4-14-61 | 432 | 27.1 | 10.0 | 9.4 | 9.7 | 39.6 | 33.0 | 35.5 | 31.0 | 28.2 | 29.4 | Min. |
| P-3 | 4-8-61 | 4-21-61 | 433 | 27.6 | 10.2 | 9.0 | 9.5 | 39.0 | 34.2 | 36.5 | 35.2 | 31.8 | 34.0 | 1/2 |
| P-4 | 4-9-61 | 4-21-61 | 434 | 26.0 | 9.9 | 9.2 | 9.5 | 36.0 | 29.4 | 32.4 | 27.8 | 25.8 | 26.6 | Min. |
| P-5 | 4-10-61 | 4-21-61 | 435 | 27.4 | 10.4 | 9.3 | 9.8 | 36.0 | 34.8 | 35.5 | 35.2 | 32.8 | 34.1 | 1/2 |
| P-6 | 4-14-61 | 4-21-61 | 436 | 26.5 | 10.5 | 9.0 | 9.4 | 39.0 | 35.4 | 37.7 | 35.6 | 32.6 | 34.0 | 1/2 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |

TABLE XIX
SUMMARY OF TEST RESULTS FOR MACHINE Q
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|------|----------------------------|------|------|--------------------------------|------|------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| Q-1 | 3-7-61 | 4-24-61 | 10 | 29.0 | 11.7 | 10.8 | 11.2 | 39.0 | 35.4 | 36.7 | 35.6 | 32.6 | 34.0 | Min. |
| Q-2 | 2-18-61 | 4-6-61 | 11 | 26.0 | 10.2 | 9.9 | 10.1 | 31.8 | 28.2 | 29.9 | 31.6 | 26.6 | 29.8 | 1-1/2 |
| Q-3 | 2-23-61 | 4-6-61 | 12 | 28.0 | 10.6 | 9.8 | 10.3 | 34.2 | 31.8 | 32.6 | 32.8 | 28.0 | 29.7 | 1-1/2 |
| Q-4 | 3-24-61 | 4-6-61 | 13 | 26.8 | 11.3 | 10.2 | 10.7 | 37.2 | 34.2 | 35.8 | 33.8 | 32.4 | 33.0 | 1 |
| Q-5 | 3-26-61 | 4-6-61 | 14 | 27.9 | 11.3 | 10.5 | 10.9 | 36.0 | 30.0 | 33.8 | 32.4 | 29.8 | 31.3 | 1/2 |
| Q-6 | 3-30-61 | 4-12-61 | 15 | 25.7 | 10.2 | 9.3 | 9.9 | 36.6 | 32.4 | 34.0 | 30.6 | 28.4 | 29.7 | 1-1/2 |
| Q-7 | 4-5-61 | 4-24-61 | 16 | 28.3 | 11.8 | 10.8 | 11.2 | 39.0 | 33.6 | 36.1 | 37.0 | 31.4 | 33.7 | 1/2 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |

TABLE XX
 SUMMARY OF TEST RESULTS FOR MACHINE R
 April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|----------------------------|-----------|------------|---------------|------------------------------------|-----------------|------|------|----------------------------|------|-------|--------------------------------|------|------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| R-1 | 3-10-61 | 4-19-61 | 146 | 26.6 | 10.5 | 9.4 | 9.9 | 34.8 | 31.2 | 33.5 | 32.0 | 25.4 | 29.1 | Min. |
| R-2 | 3-21-61 | 4-19-61 | 147 | 26.0 | 10.9 | 10.0 | 10.4 | 37.2 | 34.8 | 35.6 | 32.0 | 29.6 | 30.4 | Min. |
| R-3 | 4-1-61 | 4-19-61 | 148 | 26.2 | 11.0 | 10.1 | 10.4 | 34.2 | 27.6 | 31.3 | 30.0 | 26.6 | 28.5 | Min. |
| R-4 | 4-7-61 | 4-19-61 | 149 | 26.0 | 10.7 | 10.0 | 10.2 | 36.0 | 33.0 | 34.0 | 30.6 | 29.2 | 30.1 | 1 |
| R-5 | 4-9-61 | 4-19-61 | 150 | 26.5 | 10.4 | 9.9 | 10.1 | 38.4 | 34.8 | 36.5 | 32.4 | 29.8 | 31.2 | 1 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| | | | | 26.3 | | | 10.2 | | | 34.2 | | | 29.9 | |
| | | | | 26.5 | | | 10.6 | | | 33.7 | | | 30.7 | |
| | | | | 99.3 | | | 96.5 | | | 101.4 | | | 97.4 | |
| | | | | 96.1 | | | 99.2 | | | 94.1 | | | 89.9 | |

TABLE XXI
 SUMMARY OF TEST RESULTS FOR MACHINE S
 April, 1961

| | | | | | | | | | | | | | | |
|----------------------------|---------|---------|----|------|------|-----|------|------|------|-------|------|------|-------|---|
| S-1 | 3-24-61 | 3-28-61 | -- | 27.2 | 10.0 | 9.9 | 10.0 | 42.6 | 37.8 | 40.2 | 35.4 | 34.6 | 35.0 | 1 |
| S-2 | 3-28-61 | 3-30-61 | -- | 26.3 | 10.0 | 9.5 | 9.9 | 39.6 | 37.2 | 38.0 | 36.0 | 34.8 | 35.4 | 1 |
| Current Machine Average | | | | | | | | | | | | | | |
| Cumulative Machine Average | | | | | | | | | | | | | | |
| Machine Factor, % | | | | | | | | | | | | | | |
| Machine Index, % | | | | | | | | | | | | | | |
| | | | | 26.7 | | | 9.9 | | | 39.1 | | | 35.2 | |
| | | | | 27.0 | | | 10.2 | | | 37.7 | | | 34.7 | |
| | | | | 99.0 | | | 97.9 | | | 103.7 | | | 101.3 | |
| | | | | 97.9 | | | 96.6 | | | 107.7 | | | 105.9 | |

TABLE XXII
SUMMARY OF TEST RESULTS FOR MACHINE T
April, 1961

| 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, Maximum Tension at 600 f.p.m., lb./in. |
|------|-----------|------------|---------------|-------------------------------------|-----------------|------|-------|----------------------------|------|-------|--------------------------------|------|------|--|
| | | | | | Max. | Min. | Av. | Max. | Min. | Av. | Max. | Min. | Av. | |
| T-1 | 4-5-61 | 4-11-61 | 493 | 28.4 | 10.2 | 10.0 | 10.0 | 36.0 | 34.2 | 35.2 | 30.4 | 28.4 | 29.2 | 1-1/2 |
| T-2 | 4-5-61 | 4-11-61 | 494 | 28.5 | 9.7 | 8.5 | 9.2 | 41.4 | 34.8 | 38.9 | 34.4 | 32.4 | 33.2 | 1-1/2 |
| T-3 | 4-11-61 | 4-17-61 | 501 | 27.9 | 11.3 | 10.3 | 10.9 | 40.8 | 31.8 | 35.3 | 30.8 | 28.0 | 29.4 | 1 |
| T-4 | 4-11-61 | 4-17-61 | 502 | 27.7 | 11.1 | 10.2 | 10.6 | 39.6 | 31.8 | 36.0 | 30.8 | 29.6 | 30.5 | 1-1/2 |
| | | | | Current Machine Average | 28.1 | | 10.2 | | | 36.3 | | | 30.6 | |
| | | | | Cumulative Machine Average | 27.4 | | 9.8 | | | 35.6 | | | 31.9 | |
| | | | | Machine Factor, % | 102.7 | | 104.1 | | | 102.0 | | | 95.8 | |
| | | | | Machine Index, % | 103.0 | | 98.9 | | | 100.0 | | | 92.0 | |

DISCUSSION OF CONCORA FLAT CRUSH TEST RESULTS OBTAINED AT THE
INSTITUTE OF PAPER CHEMISTRY AND THOSE OBTAINED AT THE MILLS

In Table XXIII a comparison of Institute and Mill Concora flat crush test results obtained on conditioned specimens is given for the month of April. These comparisons were initiated in Progress Report 30 and permit interested participants to submit their Concora flat crush test results to The Institute of Paper Chemistry so that comparative results may be included in the monthly reports. Data sheets for supplying this information may be obtained from the Institute. Comparisons of this kind are a helpful adjunct to other calibration procedures. It may be noted in Table XXIII that fourteen of the twenty participating machines are included in this comparison of Concora flat crush data. Shown in Table XXIII are the Institute and mill Concora averages for each roll included in this comparison, the difference between the roll average based on Institute data and that based on mill data, the Institute and mill averages based on all rolls included in the comparison, and the difference between these over-all averages.

The Concora flat crush data shown in Table XXIII are summarized in Part I of Table XXIV where for each machine the following information is given: (1) Current machine average based on Institute data, (2) current machine average based on mill data, (3) the average difference--that is, the difference between the current machine average based on Institute data and that based on mill data and (4) the maximum difference encountered in comparing Institute and mill test averages for individual rolls. In Part II of Table XXIV the average difference of Part I has been converted

TABLE XXIII
INSTITUTE AND MILL CONCORDA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR APRIL, 1961

| Machine A | | | | Machine B | | | | Machine C | | | | |
|---------------------|--------------|--|-------------------------|---------------------|-------------|--|-------------------------|---------------------|-------------|--|-------------------------|------|
| Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | |
| A-1 | 489 3-21-61 | 36.2 | -4.2 | B-1 | 275 3-10-61 | 35.0 | +0.2 | C-1 | 618 3-28-61 | 38.4 | 40.4 | +2.0 |
| A-2 | 490 3-21-61 | 37.3 | -4.9 | B-2 | 380 3-13-61 | 39.8 | 37.9 | C-2 | 619 3-29-61 | 38.8 | 39.2 | +0.4 |
| A-3 | 497 4-5-61 | 36.6 | -7.3 | B-3 | 688 3-22-61 | 36.0 | 37.8 | C-3 | 620 4-11-61 | 36.6 | 37.3 | +0.7 |
| A-4 | 498 4-5-61 | 36.8 | -5.2 | B-4 | 856 3-28-61 | 37.9 | 38.0 | C-4 | 621 4-14-61 | 38.2 | 40.4 | +2.2 |
| | | | | B-5 | 897 3-29-61 | 33.7 | 35.8 | C-5 | 622 4-19-61 | 35.3 | 36.5 | +1.2 |
| | | | | B-6 | 923 3-30-61 | 34.9 | 37.8 | | | | | |
| | | | | B-7 | 924 3-30-61 | 36.6 | 38.0 | | | | | |
| Current Machine Av. | | 36.8 | -5.5 | Current Machine Av. | | 36.3 | 37.2 | Current Machine Av. | | 37.4 | 38.8 | +1.4 |
| Machine D | | | | Machine E | | | | Machine F | | | | |
| Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | |
| D-1 | 1806 2-14-61 | 37.3 | -1.4 | F-1 | 491 3-23-61 | 38.4 | 37.9 | I-1 | 308 3-12-61 | 37.9 | 34.7 | -3.2 |
| D-2 | 2047 2-15-61 | 37.2 | -2.3 | F-2 | 492 3-23-61 | 37.6 | 40.3 | I-2 | 309 3-20-61 | 39.6 | 37.9 | -1.7 |
| D-3 | 2775 2-19-61 | 36.8 | -1.7 | F-3 | 499 4-5-61 | 36.8 | 38.6 | I-3 | 310 4-3-61 | 38.3 | 39.4 | +1.1 |
| D-4 | 2918 2-20-61 | 36.6 | +1.1 | F-4 | 500 4-5-61 | 36.8 | 35.8 | | | | | |
| D-5 | 3865 2-25-61 | 34.8 | 36.8 | F-5 | 507 4-18-61 | 37.8 | 39.4 | | | | | |
| D-6 | 382 3-2-61 | 36.5 | 39.4 | F-6 | 508 4-18-61 | 39.6 | 37.8 | | | | | |
| Current Machine Av. | | 36.5 | +0.1 | Current Machine Av. | | 37.8 | 38.3 | Current Machine Av. | | 38.6 | 37.3 | -1.3 |
| Machine K | | | | Machine L | | | | Machine M | | | | |
| Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | Mill Roll No. | Date Made | Concorda Flat Crush, p.s.i. - Institute | Difference ^a | |
| K-1 | 495 3-30-61 | 38.9 | -0.5 | L-1 | 435 3-19-61 | 40.6 | 40.2 | M-1 | -- 3-16-61 | 36.6 | 37.6 | +1.0 |
| K-2 | 496 3-30-61 | 38.6 | +0.8 | L-2 | 436 3-16-61 | 38.9 | 38.6 | M-2 | -- 3-18-61 | 37.9 | 37.3 | -0.6 |
| K-3 | 503 4-14-61 | 37.6 | -1.6 | L-3 | 437 3-21-61 | 37.8 | 39.1 | M-3 | -- 4-7-61 | 40.8 | 39.6 | -1.2 |
| K-4 | 504 4-14-61 | 37.4 | +0.2 | L-4 | 438 3-23-61 | 39.6 | 39.0 | | | | | |
| | | | | L-5 | 440 4-3-61 | 37.4 | 38.4 | | | | | |
| | | | | L-6 | 441 4-11-61 | 38.3 | 39.8 | | | | | |
| Current Machine Av. | | 38.1 | -0.3 | Current Machine Av. | | 38.8 | 39.2 | Current Machine Av. | | 38.4 | 38.2 | -0.2 |

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

TABLE XXIII (Continued)
INSTITUTE AND MILL CONCORA FLAT CRUSH TEST RESULTS ON INDIVIDUAL ROLLS FOR APRIL, 1961

| Machine O | | | | Machine P | | | | Machine R | | | | |
|---------------------|-----------|---------------------------------------|------|---------------------|-----------|---------------------------------------|------|-------------------------|-----------|---------------------------------------|------|-------------------------|
| Mill Roll Code No. | Date Made | Concora Flat Crush, p.s.i. Insti-tute | Mill | Mill Roll Code No. | Date Made | Concora Flat Crush, p.s.i. Insti-tute | Mill | Mill Roll Code No. | Date Made | Concora Flat Crush, p.s.i. Insti-tute | Mill | Difference ^a |
| 0-1 | 3-16-61 | 37.1 | 37.9 | P-1 | 3-22-61 | 40.1 | 37.0 | R-1 | 3-10-61 | 33.5 | 36.1 | +2.6 |
| 0-2 | 3-17-61 | 40.6 | 37.9 | P-2 | 3-26-61 | 33.5 | 33.4 | R-2 | 3-21-61 | 35.6 | 33.7 | -1.9 |
| 0-3 | 3-18-61 | 39.7 | 41.0 | P-3 | 4-8-61 | 36.5 | 36.1 | R-3 | 4-1-61 | 31.3 | 33.7 | +2.4 |
| 0-4 | 3-24-61 | 39.6 | 38.8 | P-4 | 4-9-61 | 32.4 | 33.5 | R-4 | 4-7-61 | 34.0 | 35.5 | +1.5 |
| 0-5 | 4-5-61 | 39.7 | 39.1 | P-5 | 4-10-61 | 35.5 | 37.5 | R-5 | 4-9-61 | 36.5 | 35.3 | -1.2 |
| 0-6 | 4-6-61 | 36.6 | 37.4 | P-6 | 4-14-61 | 37.7 | 39.2 | | | | | |
| 0-7 | 4-7-61 | 37.4 | 36.6 | | | | | | | | | |
| Current Machine Av. | | 38.7 | 38.4 | Current Machine Av. | | 36.3 | 36.1 | Current Machine Av. | | 34.2 | 34.9 | +0.7 |
| Machine S | | | | Machine T | | | | | | | | |
| Mill Roll Code No. | Date Made | Concora Flat Crush, p.s.i. Insti-tute | Mill | Mill Roll Code No. | Date Made | Concora Flat Crush, p.s.i. Insti-tute | Mill | Difference ^a | | | | |
| S-1 | 3-24-61 | 40.2 | 40.8 | T-1 | 4-5-61 | 35.2 | 35.6 | +0.4 | | | | |
| S-2 | 3-28-61 | 38.0 | 40.9 | T-2 | 4-5-61 | 38.9 | 38.6 | -0.3 | | | | |
| | | | | T-3 | 4-11-61 | 35.3 | 35.2 | -0.1 | | | | |
| | | | | T-4 | 4-11-61 | 36.0 | 36.2 | +0.2 | | | | |
| Current Machine Av. | | 39.1 | 40.8 | Current Machine Av. | | 36.3 | 36.4 | +0.1 | | | | |

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

to per cent by dividing it by the Institute average and multiplying the result by 100. The average differences in per cent for the current report and the two preceding reports are shown. It may be seen that, for the current period, the highest average difference of 14.9% was associated with Machine A and the lowest of 0.3% with Machines D and T. An average difference in excess of five per cent was noted only for Machine A.

In Table XXV a comparison of the agreement between Institute and mill Concora flat crush data is given for the months of February, March, and April, 1961. An inspection of the percentages shown in Table XXV indicates that agreement between Institute and mill Concora flat crush data for the current period is, on the whole, better than for the previous two periods. Specifically, it may be seen that the percentage of machines for which Concora flat crush data were in the range of $\pm 1.0\%$ has increased from a low of 6.7% for March to a high of 50.0% for April whereas the percentage of machines included in the range of $\pm 2.5\%$ from the results obtained at the Institute has increased from 46.7% for February and March to 71.4% for the current period. Similarly, the percentage of machines for which Concora flat crush data were in the range of $\pm 5.0\%$ from the results obtained at the Institute has increased from 73.3% for February to 92.9% for the current period. For the current period, only one machine of the fourteen included in this comparison was associated with a percentage difference in excess of five per cent. Agreement between Institute and mill results was in most instances very good.

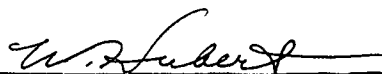
TABLE XXV
COMPARISON BY PERIODS OF AGREEMENT BETWEEN
INSTITUTE AND MILL CONCORA FLAT
CRUSH DATA

| Average Percentage Difference Between Institute and Mill Concora Flat Crush Test Results ^a | Percentage of All Machines Included Within the Indicated Range | | |
|--|---|--------------------|-------|
| | February | March | April |
| <u>+ 1.0</u> | 13.3 | 6.7 | 50.0 |
| <u>+ 2.5</u> | 46.7 | 46.7 | 71.4 |
| <u>+ 5.0</u> | 73.3 | 80.0 | 92.9 |
| <u>+10.0</u> | 100.0 ^a | 93.3 | 92.9 |
| <u>+14.9</u> | | 100.0 ^b | 100.0 |

^a Maximum percentage difference was 6.8.

^b Maximum percentage difference was 11.9.

THE INSTITUTE OF PAPER CHEMISTRY



W. N. Hubert, Research Aide
Container Section



R. C. McKee, Chief
Container Section