Collaborative Testing Services, Inc.

# Paper & Paperboard Testing Program

## Summary Report #3141 S - September 2021

Introduction to the Paper & Paperboard Interlaboratory Program

Explanation of Tables and Definitions of Terms

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## The CTS Paper & Paperboard Interlaboratory Program

In 1969, the National Bureau of Standards (now designated the National Institute for Standards and Technology) and the Technical Association of the Pulp and Paper Industry (TAPPI) developed an interlaboratory program for paper and paperboard testing. Since 1971, Collaborative Testing Services has operated the Collaborative Reference Program for Paper and Paperboard. With hundreds of organizations from around the world participating in these tests, this program has become one of the largest of its kind. The program allows laboratories to compare the performance of their testing with that of other participating laboratories, and provides a realistic picture of the state of paper testing.

## About CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately - owned company that specializes in interlaboratory tests for a variety of industrial sectors: rubber, plastics, fasteners and metals, CKPG, paper, color and wine, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality assurance objectives. Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

If there are any questions on the report or testing program, please contact:

Collaborative Testing Services, Inc.
21331 Gentry Drive
Sterling, Virginia 20166 USA
+1-571-434-1925
FAX #: +1-571-434-1937
paper@cts-interlab.com

Office Hours: 8:00 a.m. - 4:30 p.m. ET

# Key for Web Summary Reports (Page 1 of 2)

**WebCode** — Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Paper Report published on the CTS Website. The WebCode for each analysis can be found on the datasheets and in the Performance Analysis Report mailed to each participant.

**Lab Mean** — The average of the values obtained for each sample by the participant.

**Grand Mean** — The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.

**Difference from Grand Mean** — The difference of the LAB MEAN from the GRAND MEAN.

**Between-Lab Standard Deviation** — An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).

**Comparative Performance Value** — An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa). The critical value for each CPV will vary depending on the number of labs participating in a test.

**Inst Code** — A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section), if instruments are tracked.

**Data Flag** — DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

| DATA FLAG | STATISTICALLY INCLUDED/EXCLUDED | ACTION REQUIRED |
|---|---|---|
| * | INCLUDED | CAUTION -review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn. |
| X | EXCLUDED | STOP - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse. See specific notes following each table for more information on why the data is excluded. |
| M | EXCLUDED | PROCEED - lab was unable to report data for at least one sample. |

**Graph** - For each laboratory, the LAB MEAN for the first sample (x-axis) is plotted against the LAB MEAN for the second sample (y-axis) with each point representing a laboratory. The horizontal and vertical cross-hairs are the GRAND MEANS for each sample. When 20 or more laboratories are in the statistics, an ellipse is also drawn so that 95% of the time a randomly selected laboratory will be included inside the ellipse. Plotted data flags are explained on the previous page.

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**Common Problems Highlighted in Footnotes**

1. ***Extreme data*** - The laboratory's results for one or both samples are so inconsistent with those of the other participants that the lab mean(s) fall outside the plot. The participant is advised to immediately review his data and/or testing procedure.

2. ***Systematic bias*** - The laboratory's results are either consistently high or low for both samples when compared to the other participants (the plotted point falls near the top or bottom of the ellipse). This indicates that the participant is performing the test with a constant bias. Causes of systematic errors include improper calibration, the particular make/model of equipment or a modification to the testing procedure.

3. ***Inconsistency in testing between samples/sample sets*** - The laboratory's results indicate that there are differences in the way the two samples tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the CPVs for the two samples, such as a +1.5 CPV for sample A and a -2.2 CPV for sample B. CTS also will specify if the laboratory's data for one sample are high/low compared to the other participants. If this inconsistency is slight, the lab's plotted point will be an * that falls on the edge of the ellipse.

4. ***Inconsistency in testing within a sample*** - The laboratory's within-lab standard deviation for a specified sample is high when compared to the other participants, often causing the lab's plotted point to fall outside of the ellipse.

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Labs flagged with an * are not typically included in the footnotes of a data table. These labs may locate their position in the control ellipse and use the definitions above to help identify the type of testing error. An * should serve as a caution flag, a "yellow light", to a lab. If this error is repeated in future rounds, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm. Interlaboratory tests conducted at regular intervals permit a lab to recognize trends in testing.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 305

## Bursting Strength - Printing Papers

## TAPPI Official Test Method T403

| WebCode | Data Flag | Sample SA95 Lab Mean | Sample SA95 Diff from Grand Mean | Sample SA95 CPV | Sample SA96 Lab Mean | Sample SA96 Diff from Grand Mean | Sample SA96 CPV |
|---|---|---|---|---|---|---|---|
| 64N3AC | | 49.40 | 5.96 | 1.92 | 49.60 | 6.35 | 1.88 |
| 72HWAW | | 41.60 | -1.84 | -0.59 | 42.30 | -0.95 | -0.28 |
| 7VC78Q | | 37.78 | -5.66 | -1.82 | 37.90 | -5.35 | -1.59 |
| 8LZ8AA | | 46.23 | 2.79 | 0.90 | 43.88 | 0.63 | 0.19 |
| A8WMKG | | 44.92 | 1.48 | 0.48 | 44.73 | 1.48 | 0.44 |
| ANYJKR | | 44.00 | 0.56 | 0.18 | 45.50 | 2.25 | 0.67 |
| CELA9H | | 48.39 | 4.95 | 1.59 | 49.18 | 5.94 | 1.76 |
| DVQZPE | * | 43.15 | -0.29 | -0.09 | 38.65 | -4.60 | -1.36 |
| E74M9D | | 43.78 | 0.34 | 0.11 | 43.01 | -0.24 | -0.07 |
| FNZAE3 | | 47.60 | 4.16 | 1.34 | 48.00 | 4.75 | 1.41 |
| GGXHKY | | 43.00 | -0.44 | -0.14 | 41.80 | -1.45 | -0.43 |
| GHQD88 | | 40.61 | -2.82 | -0.91 | 41.96 | -1.29 | -0.38 |
| H2DG4Y | * | 50.50 | 7.06 | 2.27 | 52.20 | 8.95 | 2.65 |
| HE3GU2 | | 41.99 | -1.45 | -0.47 | 42.73 | -0.52 | -0.15 |
| K7KPLF | | 40.88 | -2.56 | -0.82 | 42.59 | -0.65 | -0.19 |
| KVKYZ8 | | 42.02 | -1.42 | -0.46 | 43.12 | -0.13 | -0.04 |
| LNMNA9 | | 43.05 | -0.39 | -0.12 | 44.28 | 1.03 | 0.31 |
| RG4EKL | | 45.17 | 1.73 | 0.56 | 42.43 | -0.82 | -0.24 |
| UB7RKW | | 41.24 | -2.19 | -0.70 | 43.98 | 0.73 | 0.22 |
| UKCEUH | | 41.02 | -2.42 | -0.78 | 40.31 | -2.94 | -0.87 |
| V9W78G | | 40.26 | -3.17 | -1.02 | 39.21 | -4.04 | -1.20 |
| VKBYYW | | 43.94 | 0.50 | 0.16 | 43.35 | 0.10 | 0.03 |
| WNM9NK | | 44.21 | 0.77 | 0.25 | 42.31 | -0.94 | -0.28 |
| XAZFCJ | | 44.45 | 1.01 | 0.33 | 44.23 | 0.98 | 0.29 |
| XF8A6U | | 41.99 | -1.45 | -0.47 | 41.31 | -1.94 | -0.58 |
| Y49TW4 | | 44.75 | 1.31 | 0.42 | 43.30 | 0.05 | 0.01 |
| YRX4GM | | 45.12 | 1.68 | 0.54 | 44.04 | 0.79 | 0.24 |
| ZH3HNU | | 37.38 | -6.06 | -1.95 | 36.83 | -6.42 | -1.90 |
| ZKAVA3 | | 39.38 | -4.05 | -1.30 | 39.85 | -3.39 | -1.01 |
| ZTQC4X | | 45.30 | 1.86 | 0.60 | 44.84 | 1.59 | 0.47 |

| Summary Statistics | Sample SA95 | Sample SA96 |
|---|---|---|
| **Grand Means** | 43.44 psi | 43.25 psi |
| **Stnd Dev Btwn Labs** | 3.11 psi | 3.37 psi |

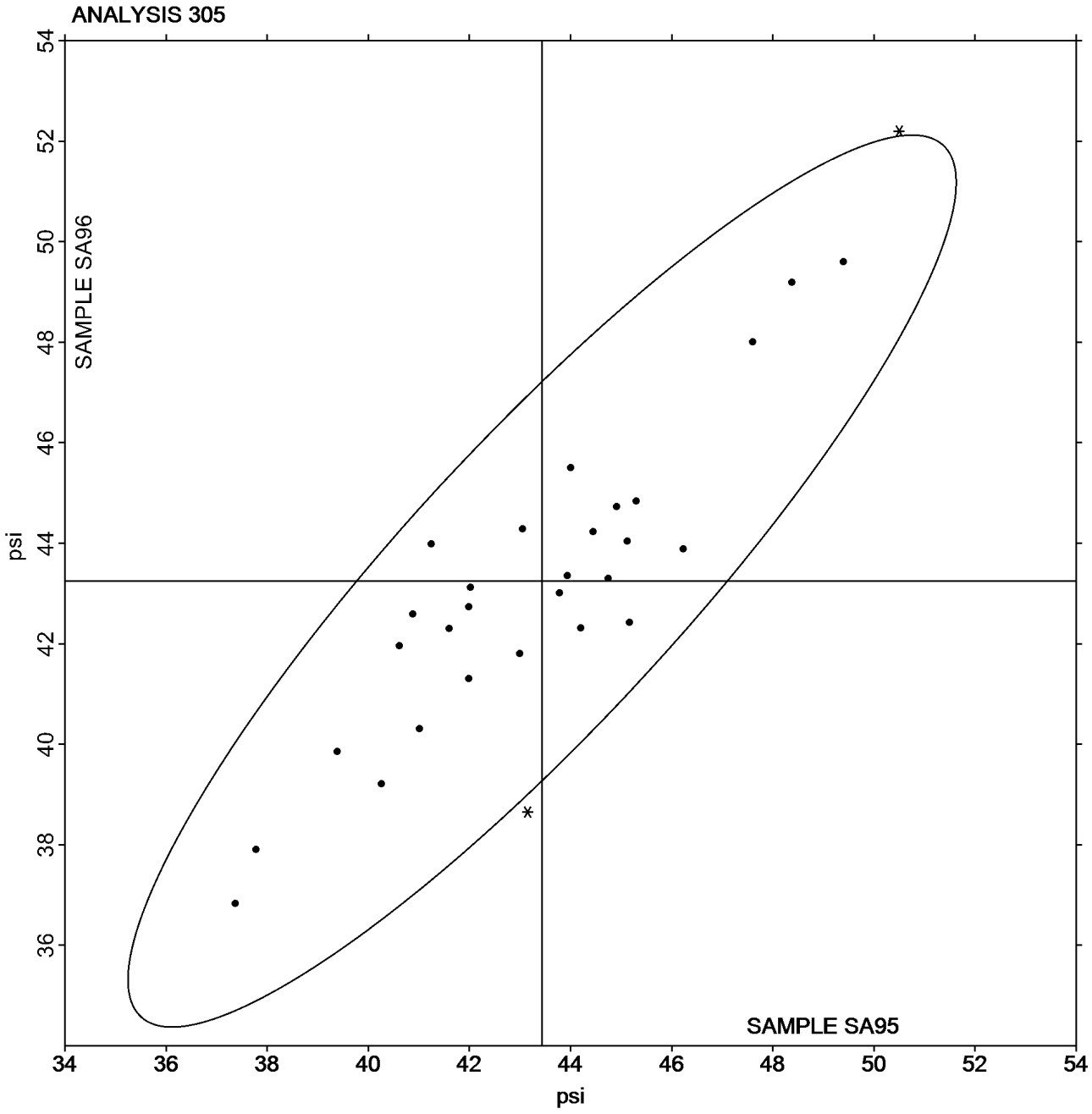
Statistics based on 30 of 30 reporting participants.

**Analysis Notes:**

7VC78Q - One determination removed from the Lab Mean of Sample SA95 per Grubb's Test at 1% risk (TAPPI 1205).

**Grand Mean Sample SA95 = 43.437 psi**

**Grand Mean Sample SA96 = 43.247 psi**



# Paper & Paperboard Interlaboratory Testing Program

**Analysis 310**
**Bursting Strength - Packaging Papers**
**TAPPI Official Test Method T403**

| WebCode | Data Flag | Sample SB95 Lab Mean | Sample SB95 Diff from Grand Mean | Sample SB95 CPV | Sample SB96 Lab Mean | Sample SB96 Diff from Grand Mean | Sample SB96 CPV |
|---|---|---|---|---|---|---|---|
| 2E3QVN | | 45.99 | -1.79 | -0.38 | 46.61 | -2.16 | -0.44 |
| 7VC78Q | | 51.89 | 4.11 | 0.88 | 55.24 | 6.47 | 1.32 |
| A98PBL | | 57.20 | 9.42 | 2.01 | 58.20 | 9.43 | 1.92 |
| DUUM3L | | 47.00 | -0.78 | -0.17 | 49.70 | 0.93 | 0.19 |
| E74M9D | * | 49.52 | 1.74 | 0.37 | 45.35 | -3.42 | -0.70 |
| JPHQZ7 | | 56.29 | 8.51 | 1.82 | 57.26 | 8.49 | 1.73 |
| K8G398 | | 48.55 | 0.77 | 0.17 | 49.93 | 1.17 | 0.24 |
| LAYK2C | | 51.43 | 3.65 | 0.78 | 53.42 | 4.65 | 0.95 |
| NUJ37U | | 47.04 | -0.74 | -0.16 | 48.64 | -0.12 | -0.03 |
| RG2MPY | | 43.13 | -4.65 | -0.99 | 44.30 | -4.47 | -0.91 |
| RM8H9Y | | 47.10 | -0.68 | -0.14 | 49.50 | 0.73 | 0.15 |
| UUK9PB | | 50.91 | 3.13 | 0.67 | 49.78 | 1.01 | 0.21 |
| VYQ2J7 | | 41.47 | -6.31 | -1.35 | 42.45 | -6.31 | -1.29 |
| WA7BHK | | 40.77 | -7.01 | -1.50 | 41.94 | -6.83 | -1.39 |
| WHD863 | | 44.05 | -3.73 | -0.80 | 44.45 | -4.32 | -0.88 |
| WNM9NK | | 45.73 | -2.05 | -0.44 | 47.27 | -1.50 | -0.31 |
| Z2X7YP | | 44.18 | -3.60 | -0.77 | 45.01 | -3.76 | -0.77 |

| Summary Statistics | Sample SB95 | Sample SB96 |
|---|---|---|
| **Grand Means** | 47.78 psi | 48.77 psi |
| **Stnd Dev Btwn Labs** | 4.69 psi | 4.91 psi |

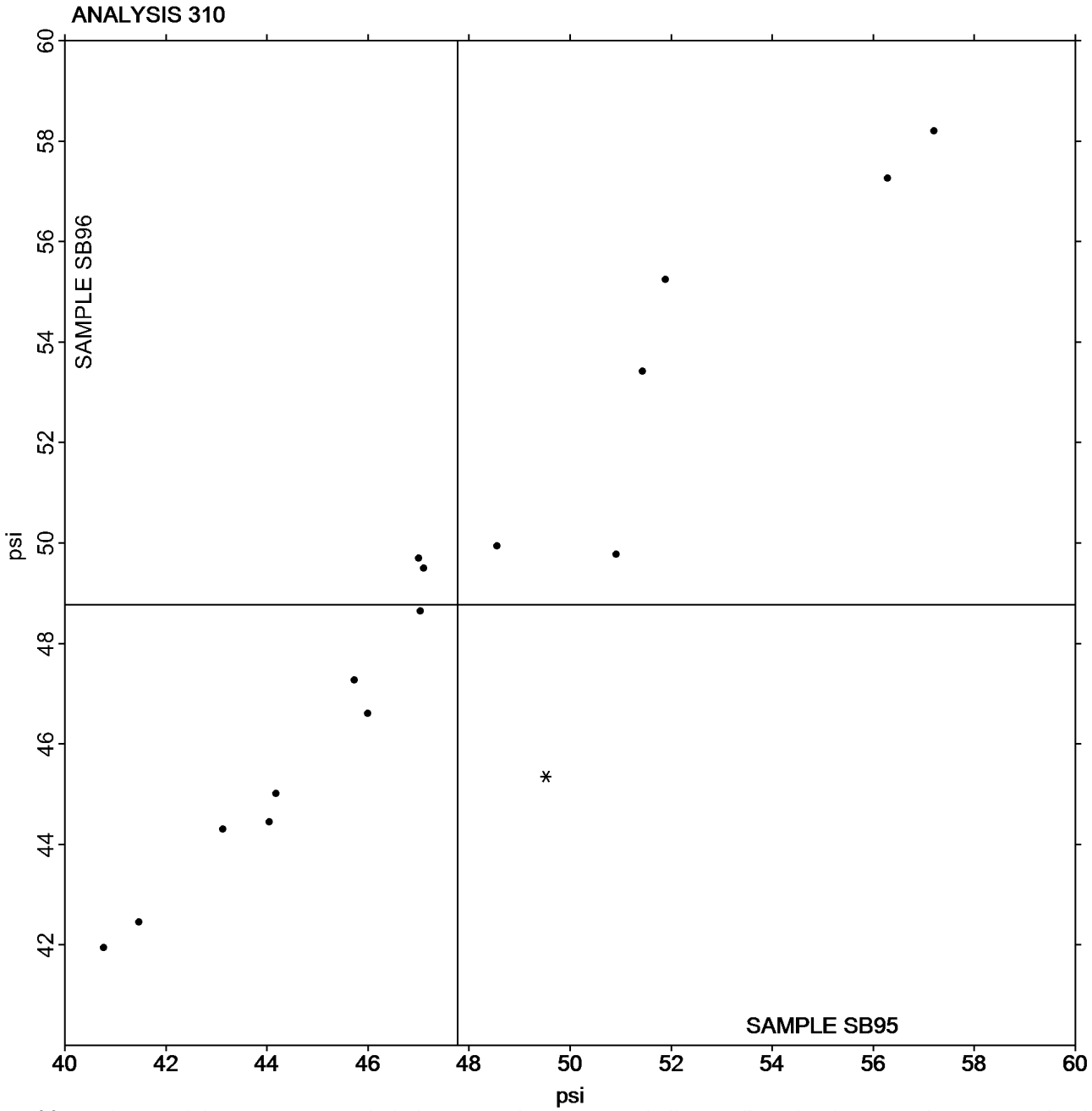
Statistics based on 17 of 17 reporting participants.

## Analysis Notes:

LAYK2C - Data appear to be reported as psi, not kPa as indicated on data entry form. CTS will not correct the Units going forward.

**Grand Mean Sample SB95 = 47.779 psi**

**Grand Mean Sample SB96 = 48.768 psi**




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 312

## Tearing Strength - Printing Papers

## TAPPI Official Test Method T414

| WebCode | Data Flag | Sample SC95 Lab Mean | Sample SC95 Diff from Grand Mean | Sample SC95 CPV | Sample SC96 Lab Mean | Sample SC96 Diff from Grand Mean | Sample SC96 CPV |
|---|---|---|---|---|---|---|---|
| 39TR3U | | 58.60 | -5.40 | -0.99 | 59.05 | -5.11 | -0.94 |
| 3CTZ6J | | 61.42 | -2.58 | -0.47 | 60.39 | -3.77 | -0.69 |
| 3GMXUB | | 64.82 | 0.82 | 0.15 | 63.74 | -0.42 | -0.08 |
| 64N3AC | | 63.60 | -0.40 | -0.07 | 63.20 | -0.96 | -0.18 |
| 6AVAAP | | 56.96 | -7.04 | -1.29 | 57.92 | -6.24 | -1.14 |
| 7ABA8B | X | 62.89 | -1.11 | -0.20 | 69.43 | 5.27 | 0.96 |
| 7QJ7PP | | 70.18 | 6.18 | 1.13 | 72.53 | 8.37 | 1.53 |
| 7VAGYM | | 61.02 | -2.98 | -0.55 | 62.80 | -1.36 | -0.25 |
| 8LZ8AA | | 59.30 | -4.70 | -0.86 | 60.88 | -3.28 | -0.60 |
| 98EGMC | | 56.47 | -7.53 | -1.38 | 55.28 | -8.88 | -1.63 |
| A8WMKG | | 61.17 | -2.83 | -0.52 | 60.85 | -3.31 | -0.61 |
| ANYJKR | | 64.70 | 0.70 | 0.13 | 65.00 | 0.84 | 0.15 |
| BGU6BA | X | 65.14 | 1.14 | 0.21 | 56.55 | -7.61 | -1.39 |
| DUUM3L | | 64.27 | 0.27 | 0.05 | 63.69 | -0.47 | -0.09 |
| E74M9D | | 64.61 | 0.61 | 0.11 | 63.92 | -0.25 | -0.04 |
| EUPMHC | | 58.44 | -5.56 | -1.02 | 58.12 | -6.04 | -1.11 |
| EYKGFD | | 52.32 | -11.68 | -2.14 | 51.64 | -12.52 | -2.29 |
| FNZAE3 | | 68.15 | 4.15 | 0.76 | 65.03 | 0.87 | 0.16 |
| FZULQF | | 58.10 | -5.90 | -1.08 | 58.20 | -5.96 | -1.09 |
| G8MFZY | | 59.24 | -4.76 | -0.87 | 62.93 | -1.23 | -0.23 |
| GHQD88 | | 68.63 | 4.62 | 0.85 | 68.04 | 3.88 | 0.71 |
| H2DG4Y | | 60.30 | -3.70 | -0.68 | 59.60 | -4.56 | -0.84 |
| HB46Y2 | * | 59.80 | -4.20 | -0.77 | 63.90 | -0.26 | -0.05 |
| HE3GU2 | | 65.29 | 1.29 | 0.24 | 65.36 | 1.20 | 0.22 |
| JPHQZ7 | * | 79.00 | 15.00 | 2.74 | 80.89 | 16.73 | 3.06 |
| K78XTX | | 59.70 | -4.30 | -0.79 | 60.16 | -4.00 | -0.73 |
| K7KPLF | | 63.84 | -0.16 | -0.03 | 65.76 | 1.60 | 0.29 |
| KVKYZ8 | | 68.12 | 4.11 | 0.75 | 66.40 | 2.24 | 0.41 |
| LNMNA9 | | 57.88 | -6.12 | -1.12 | 58.52 | -5.64 | -1.03 |
| MKTH3G | | 69.80 | 5.80 | 1.06 | 70.75 | 6.59 | 1.21 |
| NUJ37U | | 63.67 | -0.33 | -0.06 | 64.01 | -0.15 | -0.03 |
| QW22E9 | | 70.27 | 6.27 | 1.15 | 69.02 | 4.86 | 0.89 |
| RM8H9Y | | 69.40 | 5.40 | 0.99 | 68.40 | 4.24 | 0.78 |
| TQKFH8 | X | 80.72 | 16.72 | 3.06 | 83.84 | 19.68 | 3.60 |
| U3CNCU | | 74.60 | 10.60 | 1.94 | 72.66 | 8.50 | 1.56 |
| UB7RKW | | 62.46 | -1.54 | -0.28 | 63.72 | -0.44 | -0.08 |
| UKCEUH | | 60.48 | -3.52 | -0.64 | 60.56 | -3.60 | -0.66 |
| ULNDPR | | 67.88 | 3.87 | 0.71 | 68.46 | 4.30 | 0.79 |
| UUK9PB | | 59.93 | -4.07 | -0.74 | 59.30 | -4.86 | -0.89 |
| UW6XAN | X | 17.40 | -46.60 | -8.52 | 12.70 | -51.46 | -9.42 |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 312

## Tearing Strength - Printing Papers

## TAPPI Official Test Method T414

| WebCode | Data Flag | Sample SC95 Lab Mean | Sample SC95 Diff from Grand Mean | Sample SC95 CPV | Sample SC96 Lab Mean | Sample SC96 Diff from Grand Mean | Sample SC96 CPV |
|---|---|---|---|---|---|---|---|
| VCF2A9 | | 71.93 | 7.93 | 1.45 | 73.16 | 9.00 | 1.65 |
| VYQ2J7 | | 74.60 | 10.60 | 1.94 | 73.25 | 9.09 | 1.66 |
| WHD863 | | 60.54 | -3.46 | -0.63 | 60.31 | -3.85 | -0.71 |
| WNM9NK | | 59.51 | -4.49 | -0.82 | 59.24 | -4.93 | -0.90 |
| XAZFCJ | | 70.36 | 6.36 | 1.16 | 71.24 | 7.08 | 1.30 |
| XF8A6U | | 68.11 | 4.10 | 0.75 | 66.41 | 2.25 | 0.41 |
| YRX4GM | | 64.78 | 0.78 | 0.14 | 66.42 | 2.26 | 0.41 |
| Z2X7YP | | 64.59 | 0.59 | 0.11 | 65.78 | 1.62 | 0.30 |
| ZE47RU | | 62.28 | -1.72 | -0.32 | 63.03 | -1.13 | -0.21 |
| ZH3HNU | | 63.03 | -0.98 | -0.18 | 61.89 | -2.28 | -0.42 |

| Summary Statistics | Sample SC95 | Sample SC96 |
|---|---|---|
| **Grand Means** | 64.00 Grams | 64.16 Grams |
| **Stnd Dev Btwn Labs** | 5.47 Grams | 5.46 Grams |

Statistics based on 46 of 50 reporting participants.

### Comments on Assigned Data Flags for Test #312

7ABA8B (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SC96.

UW6XAN (X) - Extreme Data.

BGU6BA (X) - Inconsistent in testing between samples.

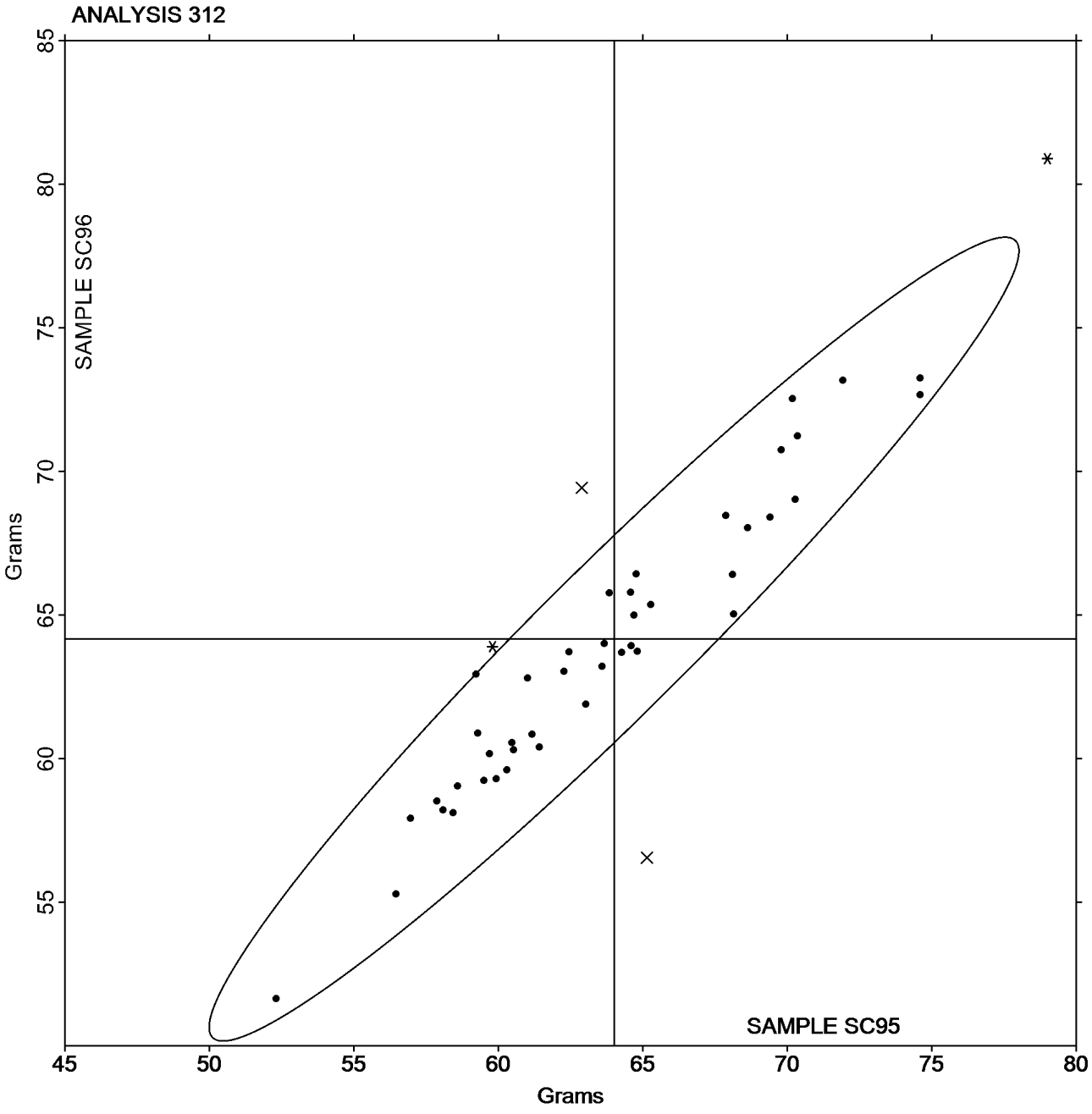
TQKFH8 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

### Analysis Notes:

ULNDPR - Data appear to be off by a factor; data converted by CTS (x2). CTS will not correct the data going forward.

**Grand Mean Sample SC95 = 64.003 Grams**

**Grand Mean Sample SC96 = 64.161 Grams**



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 314

## Tearing Strength - Packaging Papers

## TAPPI Official Test Method T414

| WebCode | Data Flag | Sample SD95 Lab Mean | Sample SD95 Diff from Grand Mean | Sample SD95 CPV | Sample SD96 Lab Mean | Sample SD96 Diff from Grand Mean | Sample SD96 CPV |
|---|---|---|---|---|---|---|---|
| 2E3QVN | | 167.9 | 0.7 | 0.05 | 164.7 | -2.9 | -0.21 |
| 37MAZT | | 187.6 | 20.4 | 1.39 | 184.9 | 17.4 | 1.26 |
| 39TPDQ | | 169.6 | 2.4 | 0.17 | 165.8 | -1.8 | -0.13 |
| 3FQJ8H | | 159.1 | -8.1 | -0.55 | 157.2 | -10.3 | -0.75 |
| 3V6PHG | | 170.2 | 3.0 | 0.20 | 172.6 | 5.0 | 0.36 |
| 6RVLJQ | | 175.0 | 7.8 | 0.53 | 171.4 | 3.8 | 0.28 |
| 6YDRHH | | 169.8 | 2.6 | 0.18 | 170.0 | 2.4 | 0.18 |
| 72HWAW | | 199.8 | 32.6 | 2.22 | 198.8 | 31.2 | 2.26 |
| 7VC78Q | | 156.4 | -10.8 | -0.73 | 162.4 | -5.2 | -0.37 |
| 8UUGGJ | | 182.4 | 15.2 | 1.03 | 181.8 | 14.3 | 1.03 |
| ATC8GH | | 180.0 | 12.8 | 0.87 | 176.4 | 8.8 | 0.64 |
| AV47VF | | 185.2 | 18.0 | 1.22 | 188.6 | 21.1 | 1.53 |
| E74M9D | | 160.4 | -6.8 | -0.46 | 170.2 | 2.6 | 0.19 |
| EHFRL2 | | 138.0 | -29.2 | -1.99 | 138.5 | -29.0 | -2.11 |
| EXVTF7 | | 154.0 | -13.2 | -0.90 | 155.5 | -12.1 | -0.88 |
| H2DG4Y | | 155.2 | -12.0 | -0.81 | 153.9 | -13.7 | -0.99 |
| K8G398 | | 163.1 | -4.1 | -0.28 | 163.4 | -4.1 | -0.30 |
| LAYK2C | | 159.5 | -7.7 | -0.52 | 165.1 | -2.4 | -0.18 |
| MQ4D67 | | 162.4 | -4.8 | -0.33 | 159.1 | -8.5 | -0.61 |
| N3VJDU | | 172.4 | 5.2 | 0.35 | 168.1 | 0.6 | 0.04 |
| NUJ37U | | 169.4 | 2.2 | 0.15 | 167.9 | 0.3 | 0.02 |
| P4JB37 | | 176.6 | 9.4 | 0.64 | 174.9 | 7.3 | 0.53 |
| PPYXLP | | 156.8 | -10.4 | -0.71 | 155.2 | -12.4 | -0.90 |
| Q82UKE | | 176.8 | 9.6 | 0.65 | 183.9 | 16.4 | 1.19 |
| RG2MPY | | 151.4 | -15.8 | -1.07 | 152.6 | -15.0 | -1.08 |
| RG4EKL | | 158.2 | -9.0 | -0.61 | 159.4 | -8.2 | -0.59 |
| RM8H9Y | | 170.8 | 3.6 | 0.25 | 166.8 | -0.8 | -0.06 |
| TDWFMY | X | 96.0 | -71.2 | -4.83 | 94.8 | -72.8 | -5.28 |
| UBPF2R | | 137.6 | -29.6 | -2.01 | 147.0 | -20.5 | -1.49 |
| V42CAF | | 176.1 | 8.9 | 0.61 | 178.1 | 10.5 | 0.76 |
| V9W78G | | 164.6 | -2.6 | -0.17 | 159.0 | -8.6 | -0.62 |
| WA7BHK | | 160.4 | -6.8 | -0.46 | 167.8 | 0.2 | 0.02 |
| WZW4KV | | 190.1 | 22.9 | 1.55 | 191.0 | 23.4 | 1.70 |
| Y49TW4 | X | 127.7 | -39.5 | -2.68 | 158.3 | -9.2 | -0.67 |
| ZAQJV4 | | 139.9 | -27.3 | -1.86 | 142.1 | -25.5 | -1.85 |
| ZTQC4X | | 187.9 | 20.7 | 1.40 | 183.2 | 15.6 | 1.13 |

| Summary Statistics | Sample SD95 | Sample SD96 |
|---|---|---|
| Grand Means | 167.19 Grams | 167.57 Grams |
| Stnd Dev Btwn Labs | 14.72 Grams | 13.80 Grams |

Statistics based on 34 of 36 reporting participants.

## Comments on Assigned Data Flags for Test #314

TDWFMY (X) - Data for both samples are low. Possible Systematic Error.

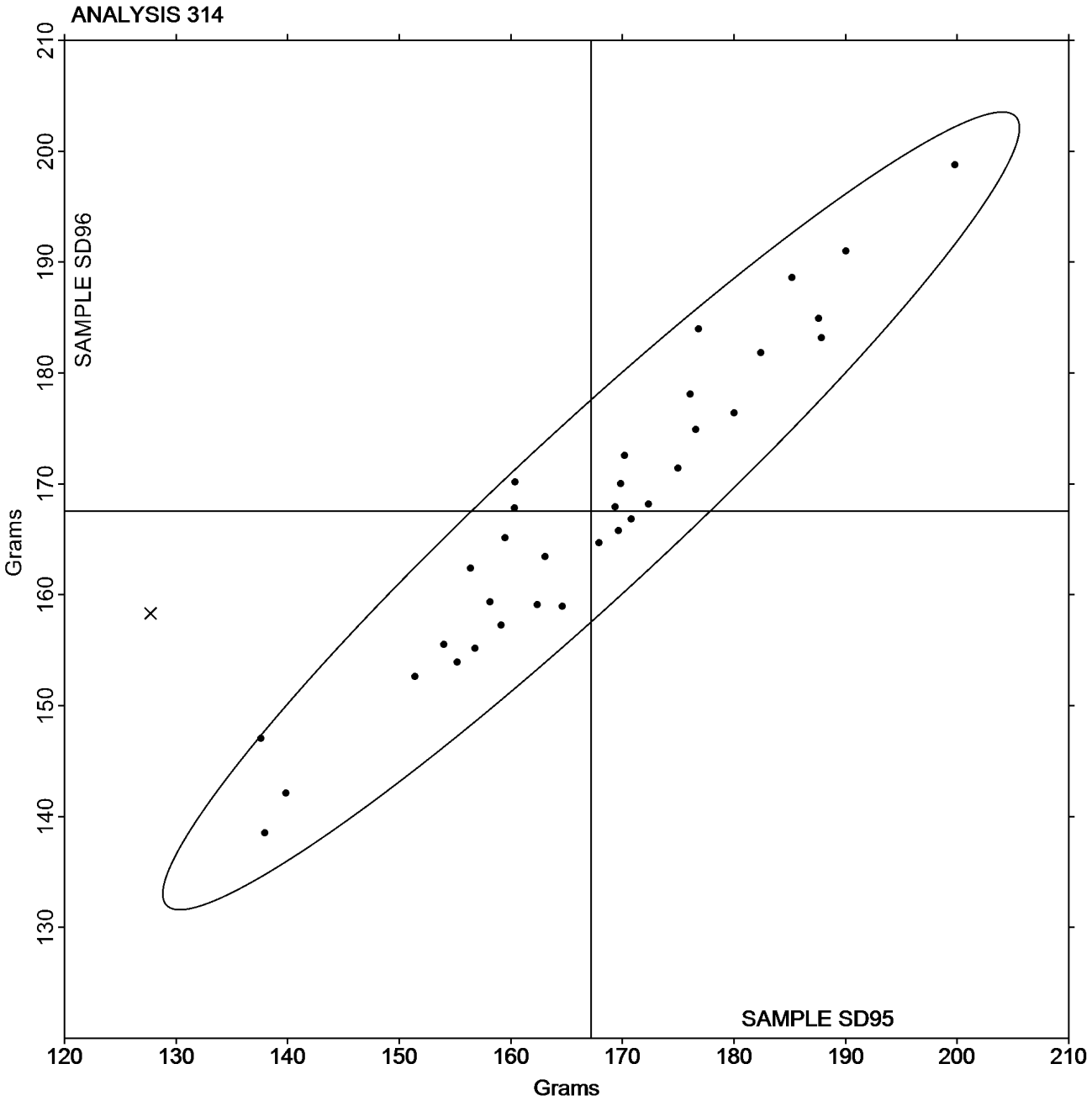
Y49TW4 (X) - Data for sample SD95 are low.

## Analysis Notes:

LAYK2C - Data appear to be off by a factor; data converted by CTS (x4). CTS will not correct the data going forward.

**Grand Mean Sample SD95 = 167.19 Grams**

**Grand Mean Sample SD96 = 167.57 Grams**



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 320

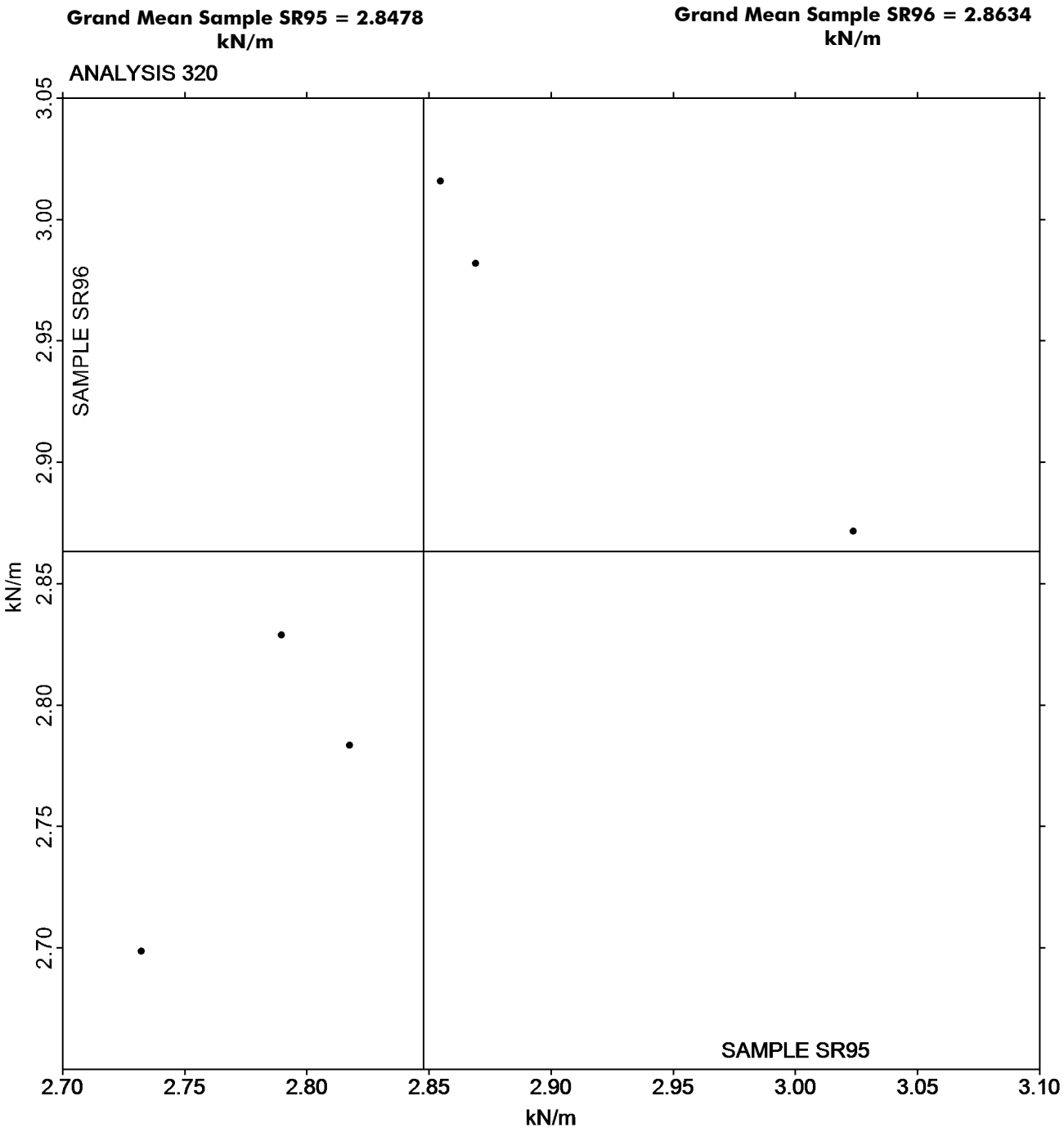
## Tensile Breaking Strength - Newsprint

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SR95 Lab Mean | Sample SR95 Diff from Grand Mean | Sample SR95 CPV | Sample SR96 Lab Mean | Sample SR96 Diff from Grand Mean | Sample SR96 CPV |
|---|---|---|---|---|---|---|---|
| 7VAGYM | | 2.732 | -0.116 | -1.17 | 2.699 | -0.165 | -1.37 |
| LNMNA9 | | 3.024 | 0.176 | 1.78 | 2.872 | 0.008 | 0.07 |
| MQ4D67 | | 2.855 | 0.007 | 0.07 | 3.016 | 0.152 | 1.27 |
| V2VUAY | | 2.818 | -0.030 | -0.31 | 2.784 | -0.080 | -0.66 |
| WNM9NK | | 2.869 | 0.021 | 0.21 | 2.982 | 0.119 | 0.99 |
| YRX4GM | | 2.790 | -0.058 | -0.59 | 2.829 | -0.034 | -0.29 |

| Summary Statistics | Sample SR95 | Sample SR96 |
|---|---|---|
| **Grand Means** | 2.85 kN/m | 2.86 kN/m |
| **Stnd Dev Btwn Labs** | 0.10 kN/m | 0.12 kN/m |

Statistics based on 6 of 6 reporting participants.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 321

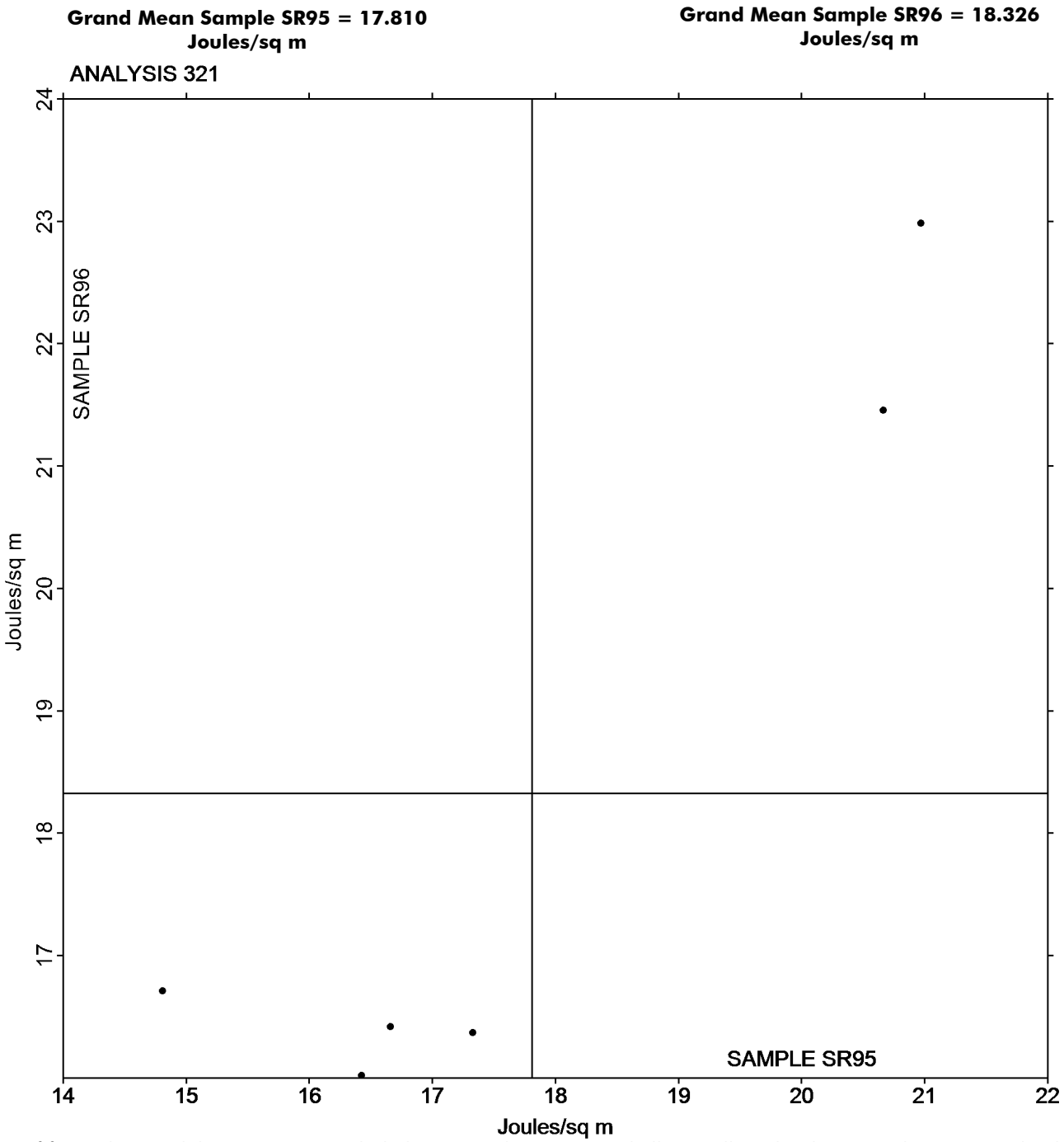
## Tensile Energy Absorption - Newsprint

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SR95 Lab Mean | Sample SR95 Diff from Grand Mean | Sample SR95 CPV | Sample SR96 Lab Mean | Sample SR96 Diff from Grand Mean | Sample SR96 CPV |
|---|---|---|---|---|---|---|---|
| 7VAGYM | | 17.33 | -0.48 | -0.19 | 16.37 | -1.96 | -0.64 |
| LNMNA9 | | 20.66 | 2.86 | 1.15 | 21.45 | 3.13 | 1.02 |
| MQ4D67 | | 20.97 | 3.16 | 1.28 | 22.99 | 4.66 | 1.52 |
| V2VUAY | | 16.43 | -1.38 | -0.56 | 16.02 | -2.31 | -0.75 |
| WNM9NK | | 14.81 | -3.00 | -1.21 | 16.71 | -1.62 | -0.53 |
| YRX4GM | | 16.66 | -1.15 | -0.47 | 16.42 | -1.91 | -0.62 |

| Summary Statistics | Sample SR95 | Sample SR96 |
|---|---|---|
| **Grand Means** | 17.81 Joules/sq m | 18.33 Joules/sq m |
| **Stnd Dev Btwn Labs** | 2.48 Joules/sq m | 3.06 Joules/sq m |

Statistics based on 6 of 6 reporting participants.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 322

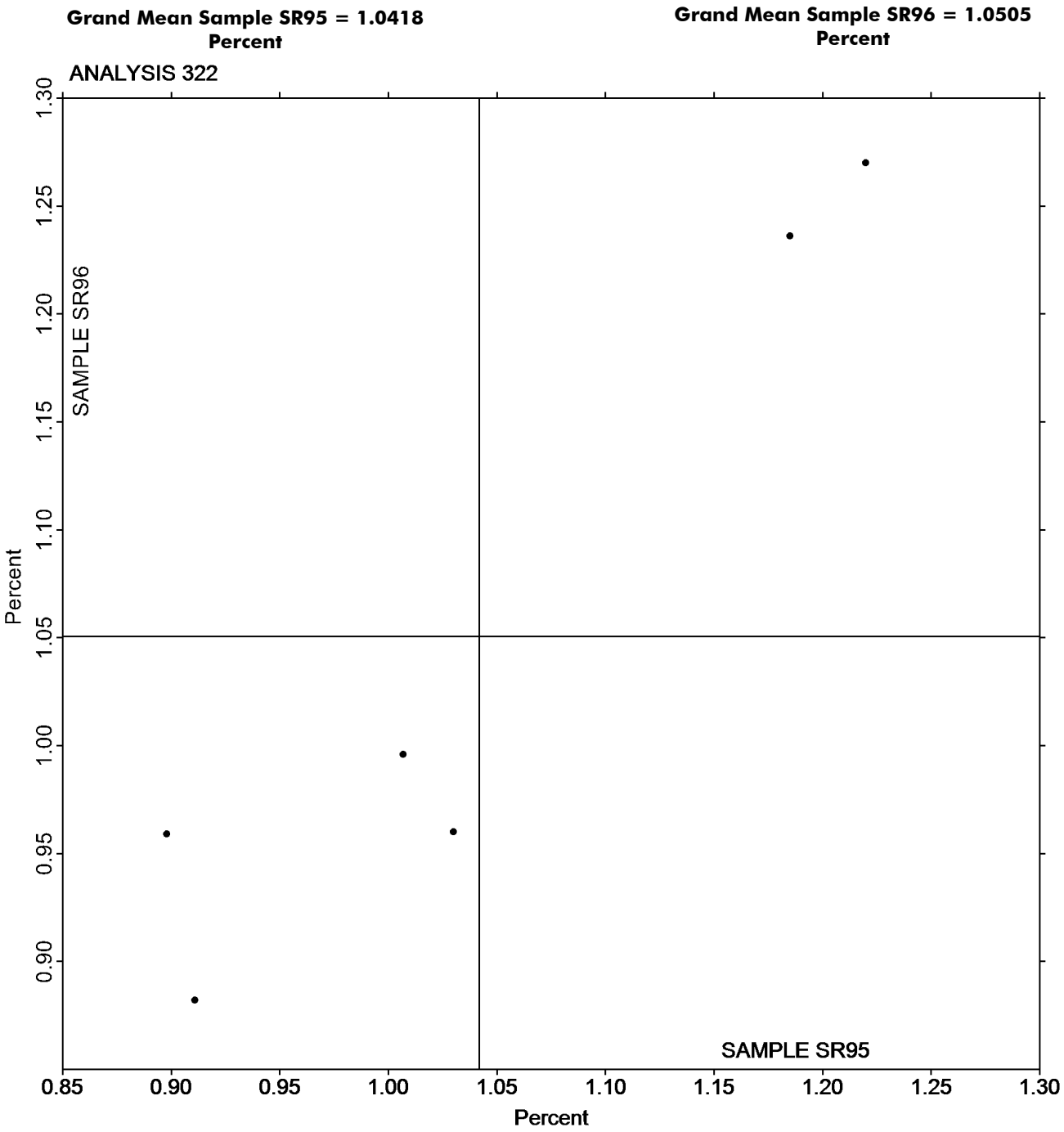
## Elongation to Break - Newsprint

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SR95 Lab Mean | Sample SR95 Diff from Grand Mean | Sample SR95 CPV | Sample SR96 Lab Mean | Sample SR96 Diff from Grand Mean | Sample SR96 CPV |
|---|---|---|---|---|---|---|---|
| 7VAGYM | | 0.911 | -0.131 | -0.97 | 0.882 | -0.169 | -1.04 |
| LNMNA9 | | 1.030 | -0.012 | -0.09 | 0.960 | -0.090 | -0.56 |
| MQ4D67 | | 1.220 | 0.178 | 1.32 | 1.270 | 0.220 | 1.36 |
| V2VUAY | | 1.007 | -0.035 | -0.26 | 0.996 | -0.055 | -0.34 |
| WNM9NK | | 0.898 | -0.144 | -1.06 | 0.959 | -0.092 | -0.57 |
| YRX4GM | | 1.185 | 0.143 | 1.06 | 1.236 | 0.186 | 1.15 |

| Summary Statistics | Sample SR95 | Sample SR96 |
|---|---|---|
| **Grand Means** | 1.04 Percent | 1.05 Percent |
| **Stnd Dev Btwn Labs** | 0.14 Percent | 0.16 Percent |

Statistics based on 6 of 6 reporting participants.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 325

## Tensile Breaking Strength - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF95 Lab Mean | Sample SF95 Diff from Grand Mean | Sample SF95 CPV | Sample SF96 Lab Mean | Sample SF96 Diff from Grand Mean | Sample SF96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 39TR3U | | 7.019 | 0.245 | 0.65 | 6.956 | 0.237 | 0.64 | XX |
| 3CTZ6J | | 6.528 | -0.246 | -0.66 | 6.235 | -0.484 | -1.32 | LJ |
| 3NAMJQ | | 6.668 | -0.106 | -0.28 | 6.694 | -0.025 | -0.07 | FP |
| 64N3AC | | 6.597 | -0.177 | -0.47 | 6.679 | -0.040 | -0.11 | TO |
| 6AVAAP | | 6.348 | -0.426 | -1.14 | 6.524 | -0.195 | -0.53 | TF |
| 7ABA8B | * | 7.277 | 0.502 | 1.34 | 6.700 | -0.018 | -0.05 | VM |
| 7QJ7PP | * | 7.771 | 0.997 | 2.66 | 7.625 | 0.907 | 2.46 | TP |
| 8LZ8AA | | 7.424 | 0.650 | 1.73 | 7.047 | 0.328 | 0.89 | TJ |
| 8UUGGJ | | 6.551 | -0.223 | -0.60 | 6.511 | -0.208 | -0.57 | LI |
| 96AL7U | | 7.106 | 0.332 | 0.89 | 6.708 | -0.011 | -0.03 | TV |
| 98EGMC | | 7.011 | 0.237 | 0.63 | 7.073 | 0.355 | 0.96 | LI |
| ANYJKR | | 6.904 | 0.130 | 0.35 | 6.602 | -0.117 | -0.32 | TO |
| APU6EH | * | 5.812 | -0.963 | -2.57 | 5.871 | -0.848 | -2.31 | RE |
| BGU6BA | | 6.503 | -0.271 | -0.72 | 6.296 | -0.423 | -1.15 | FP |
| C623BE | | 6.916 | 0.142 | 0.38 | 6.984 | 0.265 | 0.72 | TV |
| CELA9H | | 6.911 | 0.137 | 0.37 | 6.896 | 0.177 | 0.48 | LH |
| DUUM3L | | 6.776 | 0.001 | 0.00 | 7.046 | 0.327 | 0.89 | TF |
| DZ3NL4 | | 6.085 | -0.690 | -1.84 | 6.036 | -0.683 | -1.86 | ID |
| E74M9D | | 6.748 | -0.026 | -0.07 | 6.648 | -0.071 | -0.19 | LH |
| EYKGFD | | 6.524 | -0.250 | -0.67 | 6.677 | -0.042 | -0.11 | TB |
| FNZAE3 | | 6.666 | -0.108 | -0.29 | 6.586 | -0.133 | -0.36 | LH |
| FZULQF | | 6.819 | 0.045 | 0.12 | 6.830 | 0.111 | 0.30 | TO |
| G8MFZY | | 6.798 | 0.024 | 0.06 | 6.723 | 0.004 | 0.01 | TO |
| GGXHKY | | 6.931 | 0.157 | 0.42 | 6.862 | 0.143 | 0.39 | IN |
| GHQD88 | | 5.984 | -0.790 | -2.11 | 6.010 | -0.709 | -1.93 | LB |
| HB46Y2 | | 6.708 | -0.066 | -0.18 | 6.740 | 0.022 | 0.06 | TC |
| HE3GU2 | | 6.997 | 0.223 | 0.60 | 6.877 | 0.158 | 0.43 | LH |
| K78XTX | | 6.621 | -0.153 | -0.41 | 6.557 | -0.162 | -0.44 | LE |
| K7KPLF | | 6.593 | -0.181 | -0.48 | 6.591 | -0.128 | -0.35 | LX |
| KG3926 | | 7.054 | 0.280 | 0.75 | 7.235 | 0.516 | 1.40 | LC |
| KVKYZ8 | | 6.907 | 0.133 | 0.35 | 7.033 | 0.314 | 0.85 | LF |
| MKTH3G | | 6.552 | -0.223 | -0.59 | 6.368 | -0.351 | -0.95 | TO |
| TQKFH8 | | 7.313 | 0.538 | 1.44 | 7.524 | 0.805 | 2.19 | LH |
| U3CNCU | | 6.544 | -0.230 | -0.61 | 6.258 | -0.461 | -1.25 | LB |
| UB7RKW | | 6.696 | -0.078 | -0.21 | 6.668 | -0.051 | -0.14 | TF |
| UKCEUH | | 6.459 | -0.315 | -0.84 | 6.606 | -0.113 | -0.31 | TB |
| ULNDPR | | 6.409 | -0.365 | -0.97 | 6.399 | -0.319 | -0.87 | IM |
| UUK9PB | | 6.540 | -0.234 | -0.62 | 6.450 | -0.269 | -0.73 | LH |
| UW6XAN | X | 2.224 | -4.550 | -12.14 | 2.242 | -4.477 | -12.17 | LB |
| V9FPEA | | 6.829 | 0.055 | 0.15 | 6.631 | -0.088 | -0.24 | LY |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 325

## Tensile Breaking Strength - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF95 Lab Mean | Sample SF95 Diff from Grand Mean | Sample SF95 CPV | Sample SF96 Lab Mean | Sample SF96 Diff from Grand Mean | Sample SF96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| VCF2A9 | | 7.302 | 0.528 | 1.41 | 7.122 | 0.403 | 1.10 | LA |
| WNM9NK | | 6.783 | 0.009 | 0.02 | 6.827 | 0.108 | 0.29 | LH |
| XAZFCJ | | 6.418 | -0.356 | -0.95 | 6.300 | -0.419 | -1.14 | TP |
| XF8A6U | | 7.112 | 0.338 | 0.90 | 7.006 | 0.287 | 0.78 | LI |
| YAHP3Y | | 6.802 | 0.028 | 0.07 | 6.912 | 0.193 | 0.53 | XX |
| Z2X7YP | | 6.524 | -0.250 | -0.67 | 6.440 | -0.279 | -0.76 | LI |
| ZE47RU | | 7.301 | 0.527 | 1.41 | 7.183 | 0.464 | 1.26 | LI |
| ZH3HNU | | 7.245 | 0.471 | 1.26 | 7.240 | 0.521 | 1.42 | LX |

| Summary Statistics | Sample SF95 | Sample SF96 |
|---|---|---|
| **Grand Means** | 6.77 kN/m | 6.72 kN/m |
| **Stnd Dev Btwn Labs** | 0.37 kN/m | 0.37 kN/m |

Statistics based on 47 of 48 reporting participants.

### Comments on Assigned Data Flags for Test #325

UW6XAN (X) - Extreme Data.

### Analysis Notes:

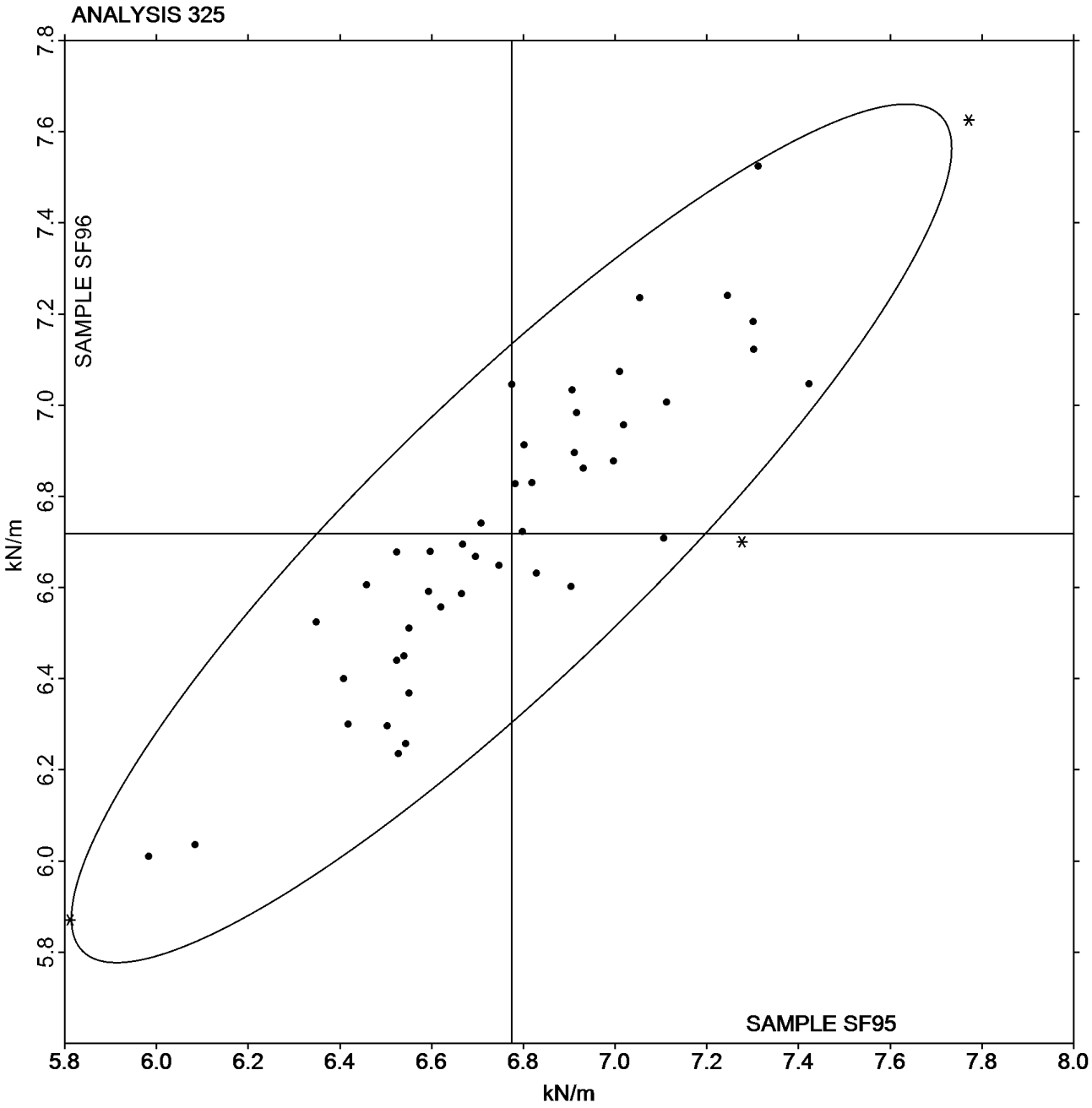
V9FPEA - Data appear to be reported as kN/m, not N/15mm as indicated on data entry form. CTS will not correct the Units going forward.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| FP | Frank PTI Universal Tester TS | ID | Instron 4200 Series |
| IM | Instron 5500 Series | IN | Instron 3340 series |
| LA | L & W Tensile - Autoline 300 | LB | L & W Tensile - Autoline 400 |
| LC | L & W Tensile - Autoline 600 | LE | L & W Tensile Tester 066 |
| LF | L & W Tensile/Fracture Toughness Tester SE 064 | LH | L & W Alwetron TH1 (Horizontal) SE 060/065F |
| LI | L & W Tensile Tester SE 062 | LJ | L & W Tensile Tester SE 063 |
| LX | L & W (model not specified) | LY | Lloyd TCD500 |
| RE | Regmed | TB | Thwing-Albert EJA/1000 |
| TC | Thwing-Albert Electro-Hydraulic, Model 30LT | TF | Thwing-Albert EJA Vantage-1 |
| TJ | Thwing-Albert QC II-XS | TO | Thwing-Albert QC-1000 |
| TP | TMI Monitor/Tensile 100 (84-21-01) | TV | Thwing-Albert Vantage NX |
| VM | Valmet PaperLab (was Kajaani/Robotest) | XX | Instrument make/model not specified by lab |

**Grand Mean Sample SF95 = 6.7741 kN/m**

**Grand Mean Sample SF96 = 6.7188 kN/m**



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 327

## Tensile Energy Absorption - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF95 Lab Mean | Sample SF95 Diff from Grand Mean | Sample SF95 CPV | Sample SF96 Lab Mean | Sample SF96 Diff from Grand Mean | Sample SF96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 39TR3U | X | 145.36 | 52.15 | 4.62 | 136.39 | 45.74 | 4.07 | XX |
| 3CTZ6J | X | 13.50 | -79.71 | -7.07 | 12.92 | -77.74 | -6.91 | LJ |
| 3NAMJQ | | 106.51 | 13.30 | 1.18 | 106.21 | 15.55 | 1.38 | FP |
| 64N3AC | | 92.25 | -0.96 | -0.08 | 92.81 | 2.15 | 0.19 | TO |
| 8UUGGJ | | 88.26 | -4.95 | -0.44 | 84.44 | -6.22 | -0.55 | LI |
| 96AL7U | * | 115.36 | 22.15 | 1.96 | 99.20 | 8.54 | 0.76 | TV |
| 98EGMC | | 77.65 | -15.56 | -1.38 | 82.16 | -8.50 | -0.76 | LX |
| ANYJKR | | 82.70 | -10.51 | -0.93 | 72.57 | -18.09 | -1.61 | XX |
| APU6EH | | 72.96 | -20.25 | -1.80 | 73.31 | -17.35 | -1.54 | RE |
| C623BE | | 112.26 | 19.05 | 1.69 | 111.80 | 21.14 | 1.88 | TV |
| DUUM3L | | 85.79 | -7.42 | -0.66 | 93.56 | 2.91 | 0.26 | TF |
| DZ3NL4 | | 99.47 | 6.26 | 0.56 | 96.32 | 5.66 | 0.50 | ID |
| E74M9D | | 92.98 | -0.23 | -0.02 | 91.83 | 1.17 | 0.10 | LH |
| FNZAE3 | | 88.12 | -5.09 | -0.45 | 86.00 | -4.66 | -0.41 | LH |
| FZULQF | X | 37.20 | -56.01 | -4.97 | 35.27 | -55.39 | -4.93 | TO |
| GGXHKY | | 103.27 | 10.06 | 0.89 | 99.79 | 9.13 | 0.81 | IN |
| GHQD88 | | 70.26 | -22.95 | -2.04 | 66.71 | -23.95 | -2.13 | LB |
| HE3GU2 | | 97.87 | 4.66 | 0.41 | 88.89 | -1.77 | -0.16 | LH |
| K7KPLF | | 90.77 | -2.44 | -0.22 | 88.41 | -2.25 | -0.20 | LX |
| KG3926 | | 100.67 | 7.46 | 0.66 | 101.22 | 10.56 | 0.94 | LC |
| KVKYZ8 | | 103.51 | 10.30 | 0.91 | 106.47 | 15.81 | 1.41 | LF |
| MKTH3G | | 103.03 | 9.82 | 0.87 | 93.69 | 3.03 | 0.27 | TO |
| TQKFH8 | | 90.45 | -2.76 | -0.24 | 91.49 | 0.83 | 0.07 | LH |
| U3CNCU | | 76.79 | -16.42 | -1.46 | 69.61 | -21.05 | -1.87 | LB |
| UB7RKW | | 104.74 | 11.53 | 1.02 | 102.34 | 11.69 | 1.04 | TF |
| UKCEUH | | 90.19 | -3.02 | -0.27 | 95.62 | 4.96 | 0.44 | TB |
| ULNDPR | | 72.42 | -20.79 | -1.84 | 64.50 | -26.16 | -2.33 | IM |
| UUK9PB | | 88.76 | -4.45 | -0.39 | 86.37 | -4.29 | -0.38 | LH |
| UW6XAN | | 104.67 | 11.46 | 1.02 | 100.46 | 9.80 | 0.87 | LB |
| V9FPEA | | 100.66 | 7.45 | 0.66 | 97.28 | 6.62 | 0.59 | LY |
| VCF2A9 | | 94.63 | 1.42 | 0.13 | 92.87 | 2.21 | 0.20 | LA |
| WNM9NK | | 83.88 | -9.33 | -0.83 | 85.98 | -4.68 | -0.42 | LH |
| XAZFCJ | | 91.63 | -1.58 | -0.14 | 90.37 | -0.29 | -0.03 | TP |
| XF8A6U | | 105.28 | 12.07 | 1.07 | 97.88 | 7.22 | 0.64 | LI |
| Z2X7YP | | 88.59 | -4.62 | -0.41 | 85.99 | -4.67 | -0.42 | LI |
| ZE47RU | | 94.64 | 1.43 | 0.13 | 91.37 | 0.71 | 0.06 | LI |
| ZH3HNU | | 98.11 | 4.90 | 0.43 | 94.87 | 4.21 | 0.37 | LX |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 327

## Tensile Energy Absorption - Printing Papers

## TAPPI Official Test Method T494

| Summary Statistics | Sample SF95 | Sample SF96 |
|---|---|---|
| Grand Means | 93.21 Joules/sq m | 90.66 Joules/sq m |
| Stnd Dev Btwn Labs | 11.28 Joules/sq m | 11.24 Joules/sq m |

Statistics based on 34 of 37 reporting participants.

### Comments on Assigned Data Flags for Test #327

3CTZ6J (X) - Extreme Data.

FZULQF (X) - Data for both samples are low. Possible Systematic Error.

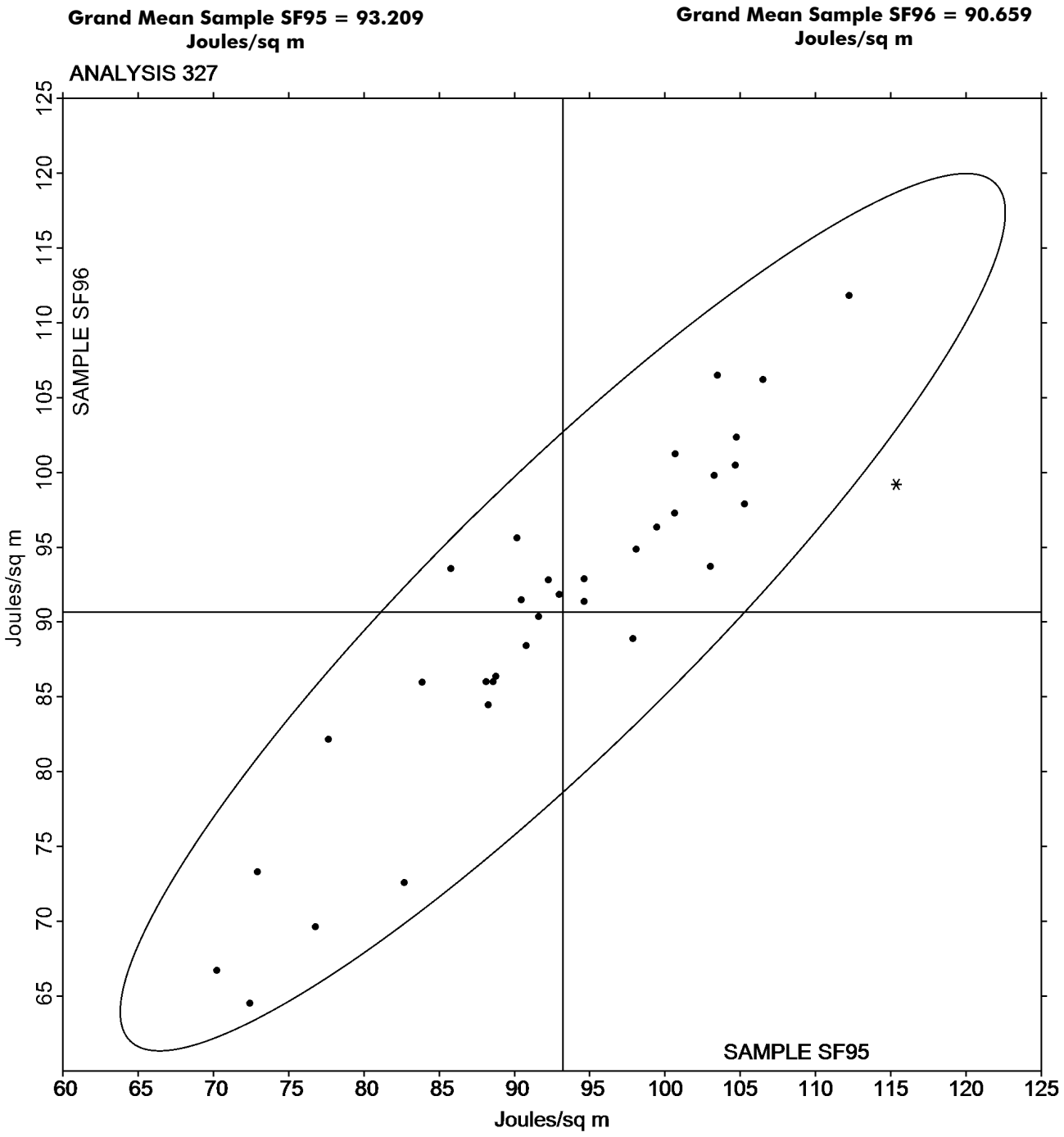
39TR3U (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample SF96.

### Analysis Notes:

ANYJKR - Data appear to be reported as kg-m/sq m, not J/sq m as indicated on data entry form. CTS will not correct the Units going forward.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| FP | Frank PTI Universal Tester TS | ID | Instron 4200 Series |
| IM | Instron 5500 Series | IN | Instron 3340 series |
| LA | L & W Tensile - Autoline 300 | LB | L & W Tensile - Autoline 400 |
| LC | L & W Tensile - Autoline 600 | LF | L & W Tensile/Fracture Toughness Tester SE 064 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060/065F | LI | L & W Tensile Tester SE 062 |
| LJ | L & W Tensile Tester SE 063 | LX | L & W (model not specified) |
| LY | Lloyd TCD500 | RE | Regmed |
| TB | Thwing-Albert EJA/1000 | TF | Thwing-Albert EJA Vantage-1 |
| TO | Thwing-Albert QC-1000 | TP | TMI Monitor/Tensile 100 (84-21-01) |
| TV | Thwing-Albert Vantage NX | XX | Instrument make/model not specified by lab |



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 328

## Elongation to Break - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF95 Lab Mean | Sample SF95 Diff from Grand Mean | Sample SF95 CPV | Sample SF96 Lab Mean | Sample SF96 Diff from Grand Mean | Sample SF96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 39TR3U | * | 3.089 | 0.892 | 3.06 | 2.937 | 0.789 | 2.92 | XX |
| 3CTZ6J | | 2.168 | -0.029 | -0.10 | 2.077 | -0.071 | -0.26 | LJ |
| 3NAMJQ | | 2.463 | 0.266 | 0.91 | 2.474 | 0.326 | 1.21 | FP |
| 64N3AC | | 2.079 | -0.118 | -0.41 | 2.065 | -0.083 | -0.31 | TX |
| 6AVAAP | | 2.039 | -0.158 | -0.54 | 2.166 | 0.018 | 0.07 | TF |
| 7ABA8B | | 2.140 | -0.057 | -0.20 | 2.050 | -0.098 | -0.36 | VM |
| 8UUGGJ | | 2.109 | -0.088 | -0.30 | 2.033 | -0.115 | -0.43 | LI |
| 96AL7U | | 2.508 | 0.311 | 1.07 | 2.337 | 0.189 | 0.70 | TV |
| 98EGMC | | 1.754 | -0.443 | -1.52 | 1.829 | -0.319 | -1.18 | LI |
| ANYJKR | | 2.830 | 0.633 | 2.17 | 2.624 | 0.476 | 1.76 | XX |
| APU6EH | | 2.003 | -0.194 | -0.67 | 1.965 | -0.183 | -0.68 | RE |
| C623BE | | 2.661 | 0.463 | 1.59 | 2.663 | 0.515 | 1.91 | TV |
| DUUM3L | | 2.085 | -0.112 | -0.38 | 2.177 | 0.029 | 0.11 | TF |
| DZ3NL4 | | 2.596 | 0.399 | 1.37 | 2.537 | 0.389 | 1.44 | ID |
| E74M9D | | 2.079 | -0.118 | -0.41 | 2.048 | -0.100 | -0.37 | LH |
| EYKGFD | | 2.079 | -0.118 | -0.41 | 1.982 | -0.166 | -0.61 | TF |
| FNZAE3 | | 2.020 | -0.177 | -0.61 | 1.987 | -0.161 | -0.60 | LH |
| FZULQF | X | 7.510 | 5.313 | 18.24 | 7.300 | 5.152 | 19.07 | TO |
| GGXHKY | | 2.432 | 0.235 | 0.81 | 2.380 | 0.232 | 0.86 | IN |
| GHQD88 | | 2.118 | -0.079 | -0.27 | 1.998 | -0.150 | -0.55 | LB |
| HE3GU2 | | 2.117 | -0.080 | -0.27 | 1.981 | -0.167 | -0.62 | LH |
| K7KPLF | | 2.094 | -0.103 | -0.35 | 2.040 | -0.108 | -0.40 | LX |
| KG3926 | | 2.182 | -0.015 | -0.05 | 2.160 | 0.012 | 0.04 | LC |
| KVKYZ8 | | 2.269 | 0.072 | 0.25 | 2.306 | 0.158 | 0.59 | LF |
| MKTH3G | | 2.634 | 0.437 | 1.50 | 2.469 | 0.321 | 1.19 | TO |
| TQKFH8 | | 1.818 | -0.379 | -1.30 | 1.878 | -0.270 | -1.00 | LH |
| U3CNCU | | 2.225 | 0.028 | 0.10 | 2.117 | -0.031 | -0.11 | LB |
| UB7RKW | | 2.503 | 0.306 | 1.05 | 2.499 | 0.351 | 1.30 | TF |
| UKCEUH | | 2.188 | -0.009 | -0.03 | 2.251 | 0.103 | 0.38 | TB |
| ULNDPR | * | 1.741 | -0.456 | -1.57 | 1.587 | -0.561 | -2.08 | IM |
| UUK9PB | | 2.150 | -0.047 | -0.16 | 2.070 | -0.078 | -0.29 | LH |
| UW6XAN | | 2.130 | -0.067 | -0.23 | 1.989 | -0.159 | -0.59 | LB |
| V9FPEA | | 2.246 | 0.049 | 0.17 | 2.228 | 0.080 | 0.30 | LY |
| VCF2A9 | | 1.826 | -0.371 | -1.27 | 1.819 | -0.329 | -1.22 | LA |
| WNM9NK | | 1.894 | -0.303 | -1.04 | 1.929 | -0.219 | -0.81 | LH |
| XAZFCJ | X | 2.837 | 0.640 | 2.20 | 2.988 | 0.841 | 3.11 | TP |
| XF8A6U | | 2.090 | -0.107 | -0.37 | 1.969 | -0.179 | -0.66 | LI |
| Z2X7YP | | 2.059 | -0.138 | -0.47 | 2.021 | -0.127 | -0.47 | LI |
| ZE47RU | | 2.010 | -0.187 | -0.64 | 1.968 | -0.180 | -0.67 | LI |
| ZH3HNU | | 2.060 | -0.137 | -0.47 | 2.009 | -0.139 | -0.51 | LX |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 328

## Elongation to Break - Printing Papers

## TAPPI Official Test Method T494

| Summary Statistics | Sample SF95 | Sample SF96 |
|---|---|---|
| Grand Means | 2.20 Percent | 2.15 Percent |
| Stnd Dev Btwn Labs | 0.29 Percent | 0.27 Percent |

Statistics based on 38 of 40 reporting participants.

### Comments on Assigned Data Flags for Test #328

XAZFCJ (X) - Data for sample SF96 are high. Inconsistent within the determinations of sample SF96.

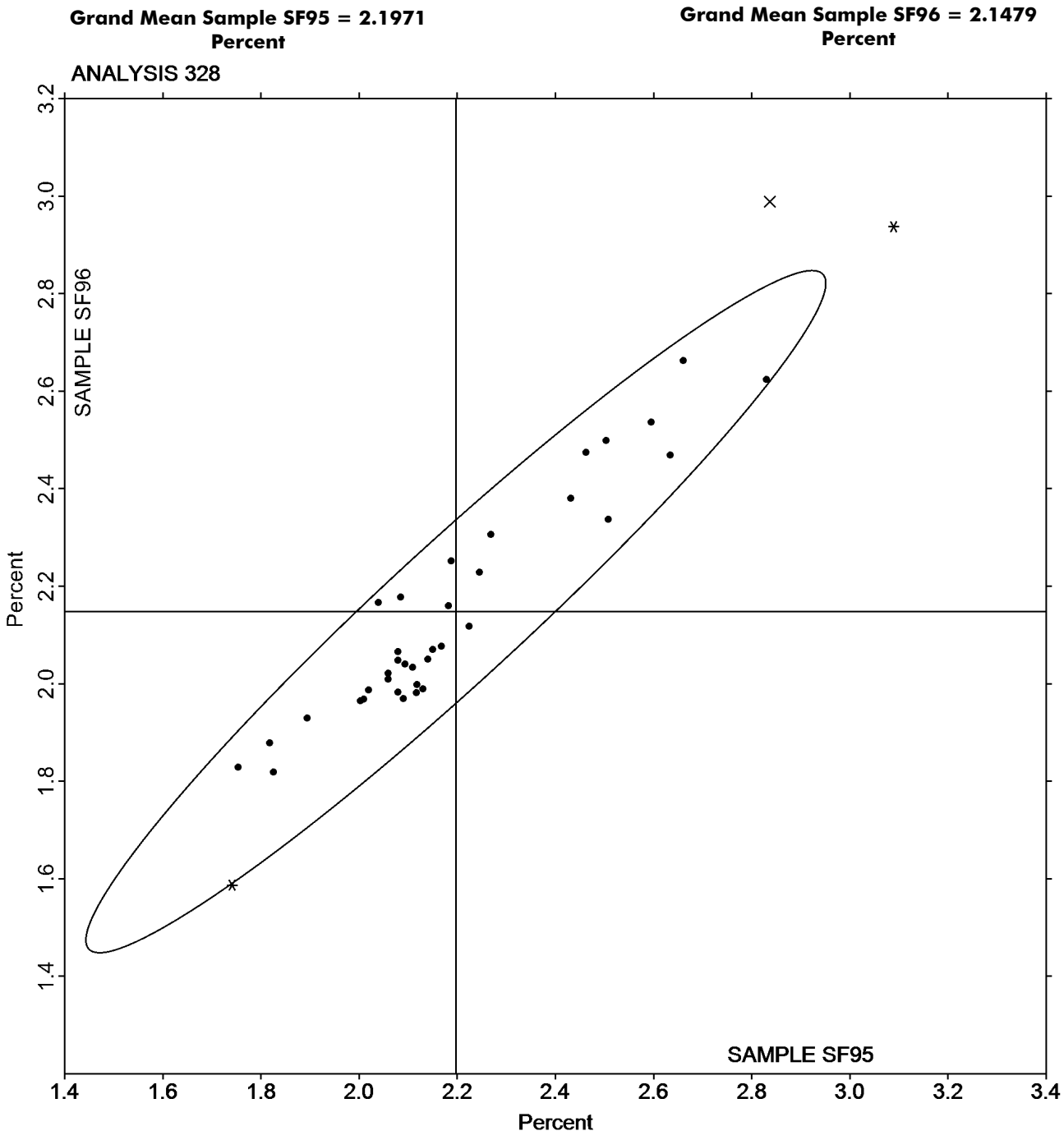
FZULQF (X) - Extreme Data.

### Analysis Notes:

EYKGFD - Data appears to be transposed between Analysis 327 (T.E.A.) and Analysis 328 (% Elongation). CTS will not correct going forward.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| FP | Frank PTI Universal Tester TS | ID | Instron 4200 Series |
| IM | Instron 5500 Series | IN | Instron 3340 Series |
| LA | L & W Tensile - Autoline 300 | LB | L & W Tensile - Autoline 400 |
| LC | L & W Tensile - Autoline 600 | LF | L & W Tensile/Fracture Toughness Tester SE 064 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060/065F | LI | L & W Tensile Tester SE 062 |
| LJ | L & W Tensile Tester SE 063 | LX | L & W (model not specified) |
| LY | Lloyd TCD500 | RE | Regmed |
| TB | Thwing-Albert EJA/1000 | TF | Thwing-Albert EJA Vantage-1 |
| TO | Thwing-Albert QC-1000 | TP | TMI Monitor/Tensile 100 (84-21-01) |
| TV | Thwing-Albert Vantage NX | TX | Thwing-Albert (model not specified) |
| VM | Valmet PaperLab (was Kajaani/Robotest) | XX | Instrument make/model not specified by lab |



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 330

## Tensile Breaking Strength - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE95 Lab Mean | Sample SE95 Diff from Grand Mean | Sample SE95 CPV | Sample SE96 Lab Mean | Sample SE96 Diff from Grand Mean | Sample SE96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 39TPDQ | | 9.46 | -1.33 | -2.09 | 11.26 | -1.35 | -1.58 | IF |
| 3FQJ8H | | 10.74 | -0.05 | -0.08 | 12.57 | -0.04 | -0.05 | LE |
| 3GMXUB | | 9.97 | -0.83 | -1.30 | 11.56 | -1.06 | -1.24 | XX |
| 3V6PHG | | 10.28 | -0.51 | -0.81 | 11.93 | -0.69 | -0.81 | TK |
| 49MU8P | | 11.50 | 0.71 | 1.11 | 13.85 | 1.23 | 1.44 | DM |
| 4LZZHR | | 11.27 | 0.47 | 0.74 | 13.46 | 0.84 | 0.98 | LI |
| 72HWAW | | 10.87 | 0.07 | 0.12 | 12.48 | -0.14 | -0.16 | LE |
| 7VC78Q | | 10.65 | -0.15 | -0.24 | 13.21 | 0.60 | 0.70 | TH |
| 8UUGGJ | | 10.73 | -0.07 | -0.11 | 12.42 | -0.20 | -0.23 | LW |
| A8YEG4 | | 10.29 | -0.51 | -0.80 | 12.34 | -0.28 | -0.32 | IM |
| A98PBL | | 12.24 | 1.45 | 2.27 | 14.74 | 2.12 | 2.48 | IK |
| AGM9UL | | 10.03 | -0.76 | -1.20 | 12.35 | -0.27 | -0.32 | TH |
| ATC8GH | | 11.76 | 0.96 | 1.51 | 13.44 | 0.82 | 0.96 | LX |
| AV47VF | | 9.18 | -1.62 | -2.54 | 10.61 | -2.00 | -2.34 | LH |
| DUUM3L | | 10.57 | -0.22 | -0.35 | 12.04 | -0.58 | -0.67 | TO |
| E74M9D | | 10.74 | -0.06 | -0.09 | 12.38 | -0.24 | -0.28 | LH |
| EHFRL2 | | 11.18 | 0.39 | 0.61 | 12.91 | 0.29 | 0.34 | LW |
| EXVTF7 | | 11.14 | 0.34 | 0.54 | 12.93 | 0.31 | 0.37 | LE |
| GYH7WF | | 11.11 | 0.31 | 0.49 | 12.86 | 0.25 | 0.29 | TB |
| H2DG4Y | | 10.80 | 0.01 | 0.01 | 12.34 | -0.28 | -0.33 | TA |
| J4LUML | X | 9.38 | -1.42 | -2.22 | 8.97 | -3.65 | -4.26 | MA |
| JPHQZ7 | * | 10.27 | -0.53 | -0.83 | 10.87 | -1.74 | -2.04 | TR |
| K2AERZ | | 10.82 | 0.03 | 0.05 | 12.54 | -0.07 | -0.09 | IM |
| KEZ7FA | | 10.42 | -0.37 | -0.59 | 11.33 | -1.28 | -1.50 | LA |
| KG3926 | | 11.75 | 0.96 | 1.50 | 13.99 | 1.38 | 1.61 | LC |
| KG6X73 | | 10.96 | 0.16 | 0.26 | 13.15 | 0.53 | 0.62 | LE |
| KVMLJ7 | | 11.64 | 0.84 | 1.32 | 13.92 | 1.30 | 1.52 | LA |
| LAYK2C | | 10.96 | 0.16 | 0.25 | 12.54 | -0.08 | -0.09 | TP |
| N3VJDU | | 10.31 | -0.48 | -0.76 | 12.00 | -0.61 | -0.72 | LE |
| NUJ37U | | 10.59 | -0.21 | -0.32 | 12.31 | -0.31 | -0.36 | LE |
| P4JB37 | X | 8.49 | -2.30 | -3.61 | 10.58 | -2.03 | -2.38 | IM |
| RG2MPY | | 10.77 | -0.03 | -0.05 | 12.36 | -0.26 | -0.30 | TX |
| RG4EKL | | 11.26 | 0.46 | 0.72 | 13.30 | 0.68 | 0.80 | TO |
| RM8H9Y | | 11.59 | 0.80 | 1.25 | 13.39 | 0.77 | 0.90 | IF |
| RMK6M8 | | 9.68 | -1.12 | -1.75 | 11.82 | -0.79 | -0.93 | TX |
| V42CAF | | 10.51 | -0.29 | -0.45 | 12.30 | -0.32 | -0.37 | TR |
| V9W78G | | 10.80 | 0.01 | 0.01 | 12.51 | -0.11 | -0.12 | IF |
| VP29AV | | 10.82 | 0.02 | 0.04 | 12.45 | -0.17 | -0.19 | TH |
| VVTFR4 | | 10.85 | 0.05 | 0.08 | 12.30 | -0.32 | -0.37 | TT |
| VYQ2J7 | | 10.77 | -0.03 | -0.05 | 12.88 | 0.26 | 0.31 | LW |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 330

## Tensile Breaking Strength - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE95 Lab Mean | Sample SE95 Diff from Grand Mean | Sample SE95 CPV | Sample SE96 Lab Mean | Sample SE96 Diff from Grand Mean | Sample SE96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| WA7BHK | | 10.38 | -0.42 | -0.66 | 12.13 | -0.49 | -0.57 | IM |
| WZW4KV | | 10.82 | 0.02 | 0.03 | 12.62 | 0.00 | 0.01 | ID |
| XA44UW | | 10.63 | -0.16 | -0.26 | 12.59 | -0.02 | -0.03 | TH |
| Y49TW4 | | 10.95 | 0.16 | 0.24 | 13.18 | 0.56 | 0.66 | LA |
| ZTQC4X | | 12.17 | 1.38 | 2.16 | 14.34 | 1.73 | 2.02 | LA |

| Summary Statistics | Sample SE95 | Sample SE96 |
|---|---|---|
| **Grand Means** | 10.80 kN/m | 12.62 kN/m |
| **Stnd Dev Btwn Labs** | 0.64 kN/m | 0.86 kN/m |

Statistics based on 43 of 45 reporting participants.

### Comments on Assigned Data Flags for Test #330

P4JB37 (X) - Data for sample SE95 are low. Inconsistent within the determinations of both samples.

J4LUML (X) - Data for sample SE96 are low. Inconsistent within the determinations of sample SE95.

### Analysis Notes:

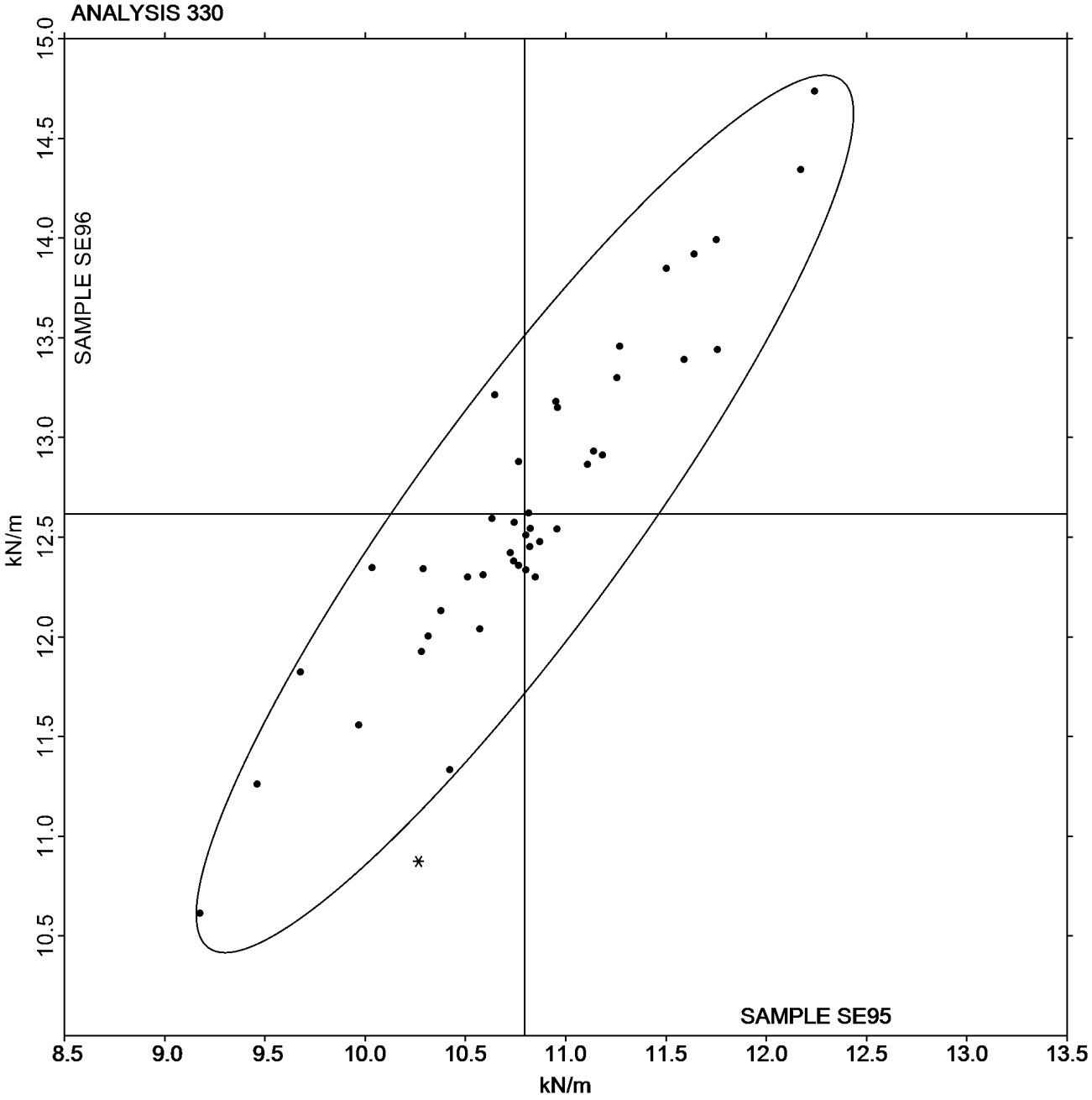
KEZ7FA - Data appear to be off by a factor; data converted by CTS (x.5). CTS will not correct the data going forward.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| DM | IDM MTC-100 Tensile Tester | ID | Instron 4200 Series |
| IF | Instron 3340 Series | IK | Instron 4400 Series |
| IM | Instron 5500 Series | LA | L & W Autoline |
| LC | L & W Tensile - Autoline 600 | LE | L & W Tensile Tester 066 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LI | LLoyds Instruments |
| LW | L & W Tensile Tester SE062 | LX | L & W (model not specified) |
| MA | Mark-10 ESM301L | TA | Thwing-Albert Tensile Tester |
| TB | Thwing-Albert EJA/1000 | TH | Thwing-Albert QC-3A |
| TK | Thwing-Albert Model 37-4 | TO | Thwing-Albert QC-1000 |
| TP | TMI Monitor/Tensile 100 (84-21-01) | TR | TMI Horizontal Tensile Tester |
| TT | Tinius Olsen Model MHT | TX | Thwing-Albert (model not specified) |
| XX | Instrument make/model not specified by lab | | |

**Grand Mean Sample SE95 = 10.796 kN/m**

**Grand Mean Sample SE96 = 12.617 kN/m**



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 331

## Tensile Energy Absorption - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE95 Lab Mean | Sample SE95 Diff from Grand Mean | Sample SE95 CPV | Sample SE96 Lab Mean | Sample SE96 Diff from Grand Mean | Sample SE96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 3FQJ8H | | 180.7 | -4.2 | -0.20 | 223.4 | -3.0 | -0.13 | LE |
| 3GMXUB | | 183.4 | -1.5 | -0.07 | 223.6 | -2.9 | -0.13 | XX |
| 3V6PHG | | 194.9 | 10.0 | 0.48 | 220.6 | -5.8 | -0.26 | TK |
| 49MU8P | * | 247.8 | 62.9 | 3.01 | 299.0 | 72.6 | 3.23 | DM |
| 72HWAW | | 184.9 | 0.0 | 0.00 | 211.9 | -14.5 | -0.65 | LE |
| 7VC78Q | * | 176.6 | -8.3 | -0.40 | 253.2 | 26.8 | 1.19 | TH |
| 8UUGGJ | | 183.8 | -1.1 | -0.05 | 213.9 | -12.5 | -0.56 | LW |
| A8YEG4 | | 169.3 | -15.6 | -0.75 | 219.9 | -6.5 | -0.29 | IM |
| A98PBL | | 166.3 | -18.6 | -0.89 | 211.4 | -15.0 | -0.67 | IF |
| AGM9UL | | 150.9 | -34.0 | -1.63 | 217.0 | -9.4 | -0.42 | TH |
| ATC8GH | | 211.3 | 26.4 | 1.26 | 245.2 | 18.8 | 0.84 | LX |
| AV47VF | | 163.5 | -21.4 | -1.02 | 196.1 | -30.3 | -1.35 | LH |
| DUUM3L | | 197.9 | 13.0 | 0.62 | 229.9 | 3.4 | 0.15 | TO |
| E74M9D | | 184.2 | -0.7 | -0.04 | 220.4 | -6.0 | -0.27 | LH |
| EHFRL2 | | 173.2 | -11.7 | -0.56 | 200.7 | -25.8 | -1.15 | LW |
| EXVTF7 | | 181.1 | -3.8 | -0.18 | 213.6 | -12.8 | -0.57 | LE |
| GYH7WF | | 201.8 | 16.9 | 0.81 | 247.0 | 20.6 | 0.92 | TB |
| JPHQZ7 | X | 170.1 | -14.8 | -0.71 | 153.4 | -73.0 | -3.25 | TR |
| K2AERZ | | 188.6 | 3.7 | 0.18 | 224.9 | -1.5 | -0.07 | IM |
| KEZ7FA | | 166.7 | -18.2 | -0.87 | 201.2 | -25.2 | -1.12 | LA |
| KG3926 | | 200.4 | 15.5 | 0.74 | 241.5 | 15.1 | 0.67 | LC |
| KG6X73 | | 199.0 | 14.1 | 0.67 | 250.9 | 24.5 | 1.09 | LE |
| KVMLJ7 | | 187.2 | 2.3 | 0.11 | 235.5 | 9.1 | 0.40 | LA |
| LAYK2C | | 196.1 | 11.2 | 0.53 | 239.0 | 12.5 | 0.56 | TP |
| N3VJDU | | 174.1 | -10.8 | -0.52 | 209.0 | -17.4 | -0.78 | LE |
| NUJ37U | | 182.1 | -2.8 | -0.13 | 213.4 | -13.0 | -0.58 | LE |
| P4JB37 | * | 120.1 | -64.8 | -3.10 | 174.7 | -51.8 | -2.30 | IM |
| RG2MPY | | 212.7 | 27.8 | 1.33 | 251.0 | 24.6 | 1.09 | TX |
| RG4EKL | X | 23.2 | -161.7 | -7.73 | 29.2 | -197.2 | -8.77 | TO |
| RM8H9Y | | 191.9 | 7.0 | 0.33 | 221.1 | -5.3 | -0.24 | IN |
| RMK6M8 | | 169.4 | -15.5 | -0.74 | 236.9 | 10.5 | 0.47 | XX |
| V42CAF | | 175.1 | -9.8 | -0.47 | 207.0 | -19.5 | -0.87 | TR |
| V9W78G | | 191.2 | 6.3 | 0.30 | 233.3 | 6.9 | 0.31 | IF |
| VVTFR4 | | 179.1 | -5.8 | -0.28 | 213.0 | -13.4 | -0.60 | TT |
| VYQ2J7 | | 158.6 | -26.3 | -1.26 | 200.7 | -25.7 | -1.14 | LW |
| WA7BHK | | 197.7 | 12.8 | 0.61 | 240.3 | 13.9 | 0.62 | IM |
| XA44UW | | 206.3 | 21.4 | 1.02 | 266.6 | 40.2 | 1.79 | TH |
| Y49TW4 | | 201.1 | 16.2 | 0.77 | 238.5 | 12.0 | 0.54 | LA |
| ZTQC4X | | 192.4 | 7.5 | 0.36 | 232.4 | 6.0 | 0.27 | LA |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 331

## Tensile Energy Absorption - Packaging Papers

## TAPPI Official Test Method T494

| Summary Statistics | Sample SE95 | Sample SE96 |
|---|---|---|
| Grand Means | 184.90 Joules/sq m | 226.43 Joules/sq m |
| Stnd Dev Btwn Labs | 20.92 Joules/sq m | 22.48 Joules/sq m |

Statistics based on 37 of 39 reporting participants.

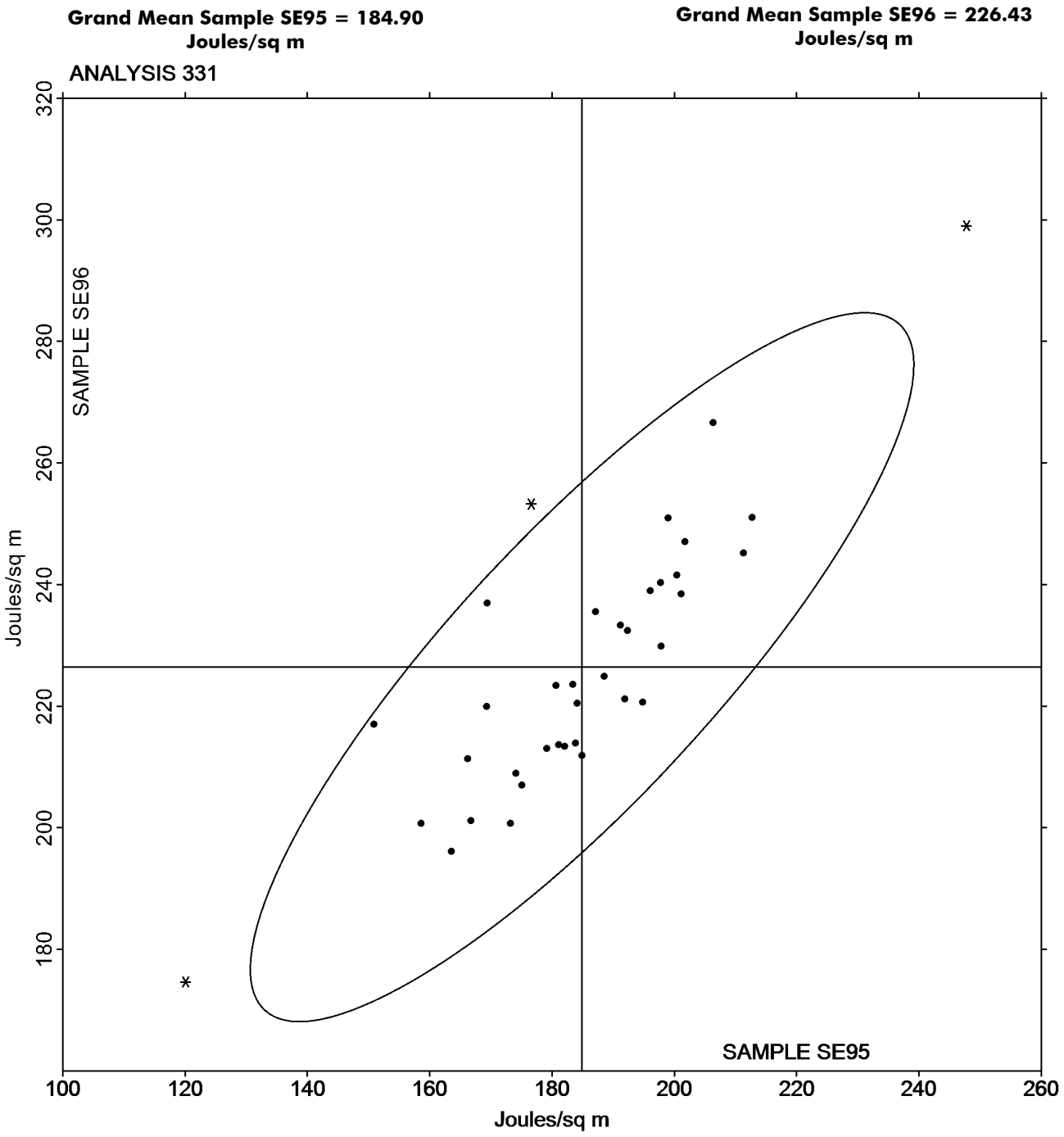
### Comments on Assigned Data Flags for Test #331

RG4EKL (X) - Extreme Data.

JPHQZ7 (X) - Data for sample SE96 are low.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| DM | IDM MTC-100 Tensile Tester | IF | Instron 3340 Series |
| IM | Instron 5500 Series | IN | Instron 3360 Series |
| LA | L & W Autoline | LC | L & W Tensile - Autoline 600 |
| LE | L & W Tensile Tester 066 | LH | L & W Alwetron TH1 (Horizontal) SE 060 |
| LW | L & W Tensile Tester SE062 | LX | L & W (model not specified) |
| TB | Thwing-Albert EJA/1000 | TH | Thwing-Albert QC-3A |
| TK | Thwing-Albert Model 37-4 | TO | Thwing-Albert QC-1000 |
| TP | TMI Monitor/Tensile 100 (84-21-01) | TR | TMI Horizontal Tensile Tester |
| TT | Tinius Olsen Model MHT | TX | Thwing-Albert (model not specified) |
| XX | Instrument make/model not specified by lab | | |



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 332

## Elongation to Break - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE95 Lab Mean | Sample SE95 Diff from Grand Mean | Sample SE95 CPV | Sample SE96 Lab Mean | Sample SE96 Diff from Grand Mean | Sample SE96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 3FQJ8H | | 2.456 | -0.127 | -0.52 | 2.610 | -0.092 | -0.37 | LE |
| 3GMXUB | | 2.763 | 0.180 | 0.74 | 2.911 | 0.209 | 0.86 | XX |
| 3V6PHG | | 2.803 | 0.220 | 0.91 | 2.770 | 0.068 | 0.28 | TK |
| 49MU8P | * | 3.260 | 0.677 | 2.79 | 3.278 | 0.576 | 2.36 | DM |
| 72HWAW | | 2.487 | -0.096 | -0.40 | 2.514 | -0.188 | -0.77 | LE |
| 7VC78Q | | 2.717 | 0.134 | 0.55 | 3.019 | 0.317 | 1.30 | TH |
| 8UUGGJ | | 2.544 | -0.039 | -0.16 | 2.560 | -0.142 | -0.58 | LW |
| A8YEG4 | | 2.689 | 0.106 | 0.44 | 2.912 | 0.210 | 0.86 | IM |
| A98PBL | | 2.226 | -0.357 | -1.47 | 2.441 | -0.261 | -1.07 | XX |
| AGM9UL | * | 2.240 | -0.343 | -1.41 | 2.610 | -0.092 | -0.37 | TH |
| ATC8GH | | 2.612 | 0.029 | 0.12 | 2.669 | -0.033 | -0.13 | LX |
| AV47VF | | 2.583 | 0.000 | 0.00 | 2.692 | -0.010 | -0.04 | LH |
| DUUM3L | | 2.815 | 0.232 | 0.96 | 2.906 | 0.204 | 0.84 | TO |
| E74M9D | | 2.591 | 0.008 | 0.03 | 2.579 | -0.123 | -0.50 | LH |
| EHFRL2 | | 2.271 | -0.312 | -1.29 | 2.293 | -0.409 | -1.67 | LW |
| EXVTF7 | | 2.384 | -0.199 | -0.82 | 2.438 | -0.264 | -1.08 | LE |
| GYH7WF | | 2.708 | 0.125 | 0.52 | 2.865 | 0.163 | 0.67 | TB |
| H2DG4Y | | 2.622 | 0.039 | 0.16 | 2.677 | -0.025 | -0.10 | TA |
| JPHQZ7 | X | 2.524 | -0.059 | -0.25 | 2.175 | -0.527 | -2.15 | TR |
| K2AERZ | | 2.535 | -0.048 | -0.20 | 2.634 | -0.068 | -0.28 | IM |
| KEZ7FA | X | 1.285 | -1.298 | -5.35 | 1.365 | -1.337 | -5.47 | LA |
| KG3926 | | 2.478 | -0.105 | -0.43 | 2.523 | -0.179 | -0.73 | LC |
| KG6X73 | | 2.648 | 0.065 | 0.27 | 2.802 | 0.100 | 0.41 | LE |
| KVMLJ7 | | 2.312 | -0.271 | -1.12 | 2.440 | -0.262 | -1.07 | LA |
| LAYK2C | X | 3.615 | 1.032 | 4.26 | 3.859 | 1.157 | 4.73 | TP |
| N3VJDU | | 2.472 | -0.111 | -0.46 | 2.557 | -0.145 | -0.59 | LE |
| NUJ37U | | 2.485 | -0.098 | -0.40 | 2.518 | -0.184 | -0.75 | LE |
| P4JB37 | * | 2.235 | -0.348 | -1.43 | 2.617 | -0.085 | -0.35 | IM |
| RG2MPY | | 2.965 | 0.382 | 1.58 | 3.051 | 0.349 | 1.43 | TX |
| RG4EKL | | 2.603 | 0.020 | 0.08 | 2.796 | 0.094 | 0.39 | TO |
| RM8H9Y | | 2.407 | -0.176 | -0.72 | 2.461 | -0.241 | -0.99 | IN |
| RMK6M8 | | 2.694 | 0.111 | 0.46 | 3.034 | 0.332 | 1.36 | XX |
| V42CAF | | 2.535 | -0.048 | -0.20 | 2.579 | -0.123 | -0.50 | TR |
| V9W78G | | 2.607 | 0.024 | 0.10 | 2.775 | 0.073 | 0.30 | IF |
| VVTFR4 | | 2.603 | 0.020 | 0.08 | 2.730 | 0.028 | 0.12 | TT |
| VYQ2J7 | | 2.223 | -0.360 | -1.48 | 2.371 | -0.331 | -1.35 | LW |
| WA7BHK | | 2.827 | 0.244 | 1.01 | 2.953 | 0.251 | 1.03 | IM |
| WZW4KV | | 2.682 | 0.099 | 0.41 | 2.704 | 0.002 | 0.01 | ID |
| XA44UW | | 2.955 | 0.372 | 1.53 | 3.131 | 0.429 | 1.76 | TH |
| Y49TW4 | | 2.982 | 0.399 | 1.65 | 3.045 | 0.343 | 1.40 | LA |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 332

## Elongation to Break - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE95 Lab Mean | Sample SE95 Diff from Grand Mean | Sample SE95 CPV | Sample SE96 Lab Mean | Sample SE96 Diff from Grand Mean | Sample SE96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| ZTQC4X | | 2.132 | -0.451 | -1.86 | 2.199 | -0.503 | -2.06 | LA |

| Summary Statistics | Sample SE95 | Sample SE96 |
|---|---|---|
| **Grand Means** | 2.58 Percent | 2.70 Percent |
| **Stnd Dev Btwn Labs** | 0.24 Percent | 0.24 Percent |

Statistics based on 38 of 41 reporting participants.

### Comments on Assigned Data Flags for Test #332

KEZ7FA (X) - Data for both samples are low. Possible Systematic Error.

JPHQZ7 (X) - Inconsistent in testing between samples.

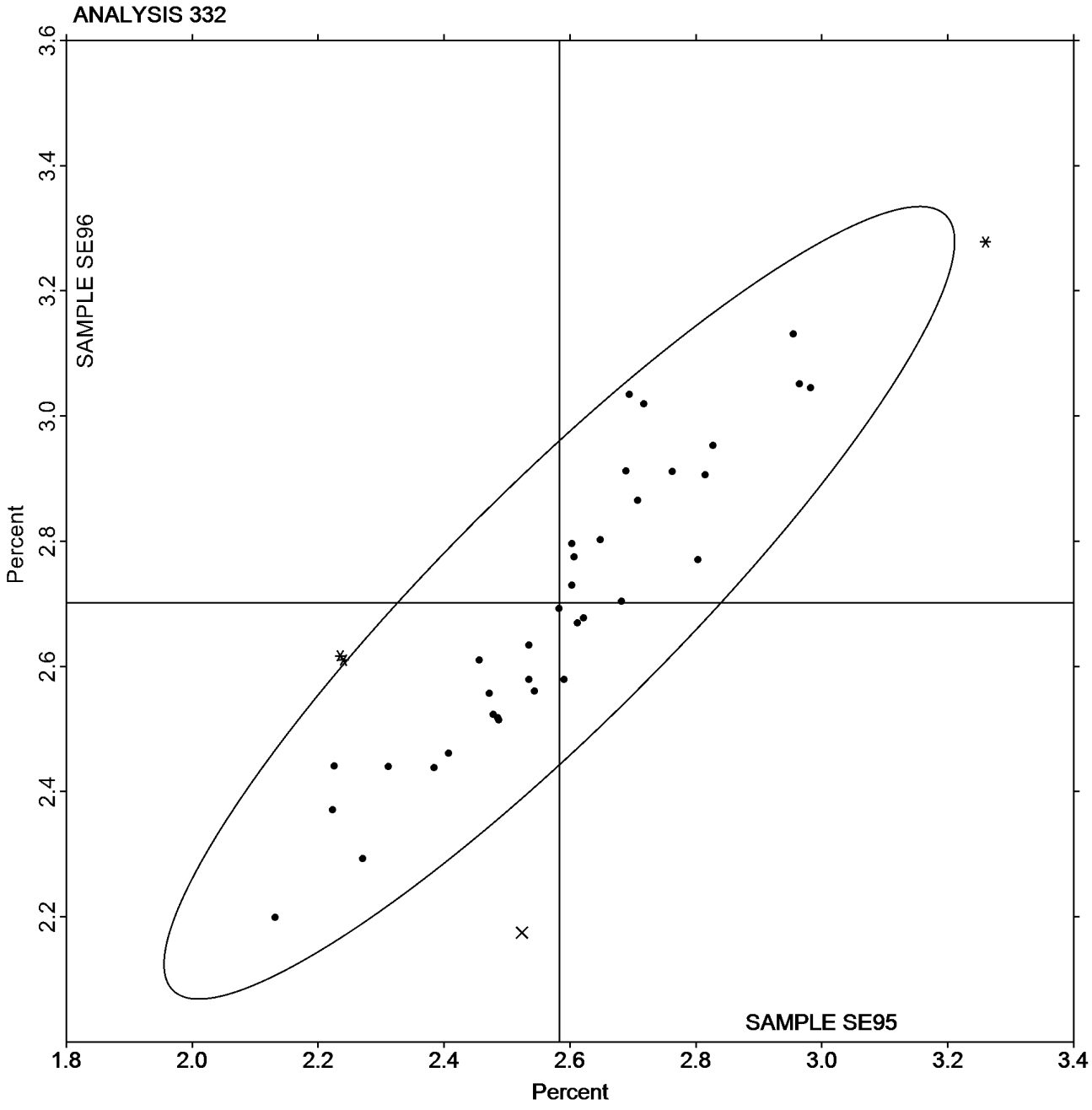
LAYK2C (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample SE95.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| DM | IDM MTC-100 Tensile Tester | ID | Instron 4200 Series |
| IF | Instron 3340 Series | IM | Instron 5500 Series |
| IN | Instron 3360 Series | LA | L & W Autoline 300 |
| LC | L & W Tensile - Autoline 600 | LE | L & W Tensile Tester 066 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LW | L & W Tensile Tester SE062 |
| LX | L & W (model not specified) | TA | Thwing-Albert Tensile Tester |
| TB | Thwing-Albert EJA/1000 | TH | Thwing-Albert QC-3A |
| TK | Thwing-Albert Model 37-4 | TO | Thwing-Albert QC-1000 |
| TP | TMI Monitor/Tensile 100 (84-21-01) | TR | TMI Horizontal Tensile Tester |
| TT | Tinius Olsen Model MHT | TX | Thwing-Albert (model not specified) |
| XX | Instrument make/model not specified by lab | | |

**Grand Mean Sample SE95 = 2.5829 Percent**

**Grand Mean Sample SE96 = 2.7017 Percent**



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 334

## Folding Endurance (MIT) - Double Folds

## TAPPI Official Test Method T511

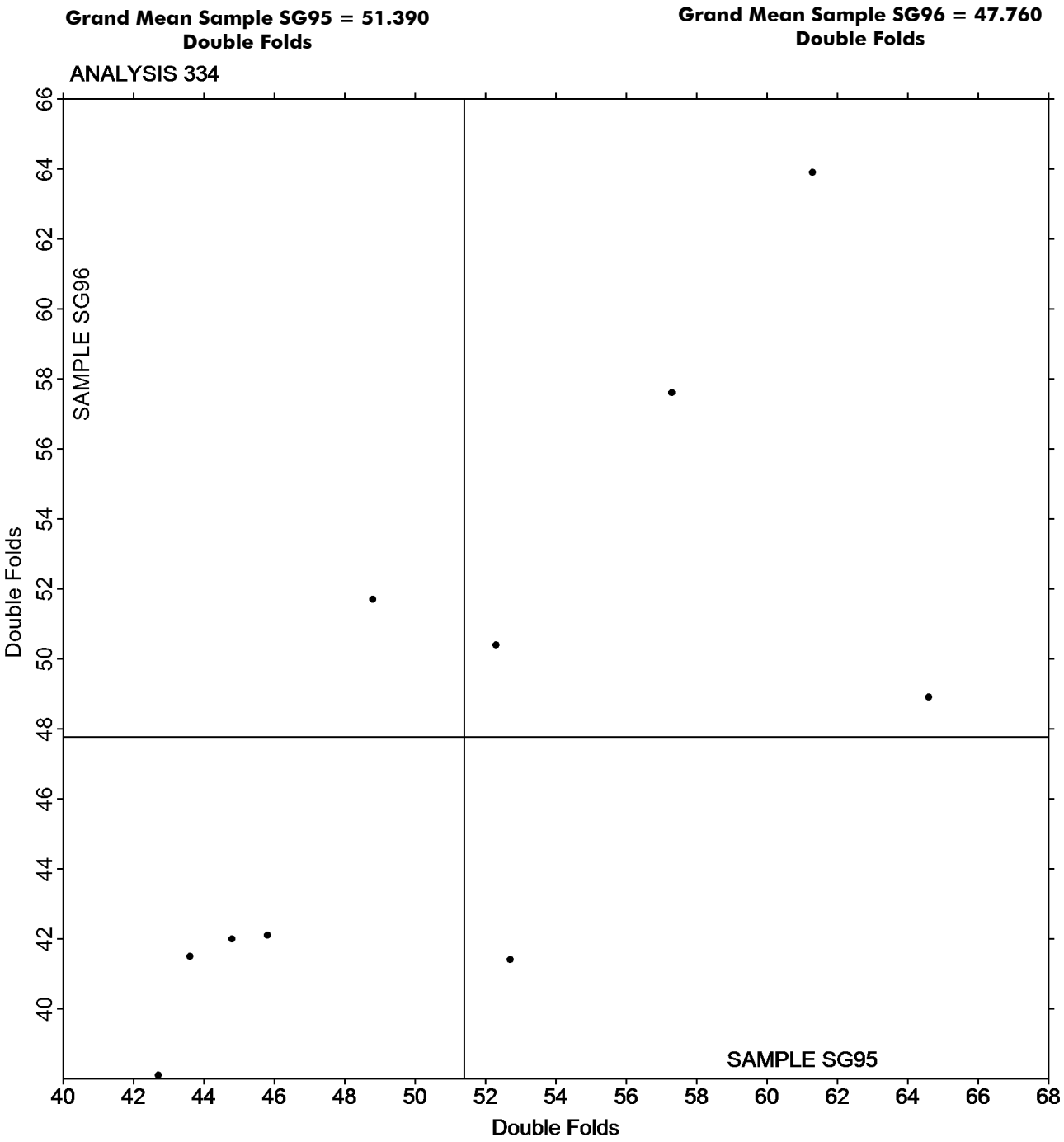
| WebCode | Data Flag | Sample SG95 Lab Mean | Sample SG95 Diff from Grand Mean | Sample SG95 CPV | Sample SG96 Lab Mean | Sample SG96 Diff from Grand Mean | Sample SG96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 3GMXUB | | 52.30 | 0.91 | 0.12 | 50.40 | 2.64 | 0.32 | MT |
| 6AVAAP | | 42.70 | -8.69 | -1.13 | 38.10 | -9.66 | -1.16 | MT |
| 7ABA8B | | 44.80 | -6.59 | -0.86 | 42.00 | -5.76 | -0.69 | MT |
| 8UUGGJ | | 57.30 | 5.91 | 0.77 | 57.60 | 9.84 | 1.19 | MT |
| GGXHKY | | 45.80 | -5.59 | -0.73 | 42.10 | -5.66 | -0.68 | MT |
| H2DG4Y | | 43.60 | -7.79 | -1.02 | 41.50 | -6.26 | -0.75 | MT |
| K78XTX | | 64.60 | 13.21 | 1.73 | 48.90 | 1.14 | 0.14 | MT |
| WA7BHK | | 52.70 | 1.31 | 0.17 | 41.40 | -6.36 | -0.77 | MT |
| XA44UW | | 48.80 | -2.59 | -0.34 | 51.70 | 3.94 | 0.47 | MT |
| ZE47RU | | 61.30 | 9.91 | 1.29 | 63.90 | 16.14 | 1.95 | MT |

| Summary Statistics | Sample SG95 | Sample SG96 |
|---|---|---|
| **Grand Means** | 51.39 Double Folds | 47.76 Double Folds |
| **Stnd Dev Btwn Labs** | 7.66 Double Folds | 8.30 Double Folds |

Statistics based on 10 of 10 reporting participants.

**Key to Instrument Codes Reported by Participants**

MT MIT - Tinius Olsen




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 336

## Bending Resistance, Gurley Type

## TAPPI Official Test Method T543

| WebCode | Data Flag | Sample SH95 Lab Mean | Sample SH95 Diff from Grand Mean | Sample SH95 CPV | Sample SH96 Lab Mean | Sample SH96 Diff from Grand Mean | Sample SH96 CPV |
|---|---|---|---|---|---|---|---|
| 3GMXUB | | 147.4 | -6.1 | -0.21 | 147.0 | -1.8 | -0.09 |
| 7ABA8B | * | 196.4 | 42.9 | 1.50 | 214.1 | 65.4 | 3.26 |
| 8LZ8AA | | 151.5 | -2.0 | -0.07 | 148.7 | 0.0 | 0.00 |
| ANYJKR | | 127.9 | -25.6 | -0.89 | 126.8 | -22.0 | -1.10 |
| CELA9H | | 135.6 | -17.9 | -0.63 | 137.4 | -11.3 | -0.57 |
| G8MFZY | X | 3.1 | -150.3 | -5.25 | 3.7 | -145.1 | -7.25 |
| GGXHKY | X | 381.3 | 227.8 | 7.96 | 385.2 | 236.4 | 11.81 |
| GHQD88 | | 150.5 | -3.0 | -0.10 | 152.7 | 4.0 | 0.20 |
| H2DG4Y | | 136.9 | -16.6 | -0.58 | 132.8 | -15.9 | -0.80 |
| HB46Y2 | | 151.0 | -2.5 | -0.09 | 155.0 | 6.3 | 0.31 |
| HE3GU2 | | 173.6 | 20.1 | 0.70 | 157.6 | 8.9 | 0.44 |
| TQKFH8 | * | 235.3 | 81.8 | 2.86 | 141.9 | -6.8 | -0.34 |
| UB7RKW | | 127.1 | -26.4 | -0.92 | 135.9 | -12.9 | -0.64 |
| UKCEUH | | 145.2 | -8.3 | -0.29 | 149.6 | 0.9 | 0.04 |
| V2VUAY | | 139.2 | -14.3 | -0.50 | 139.0 | -9.8 | -0.49 |
| WA7BHK | | 141.6 | -11.9 | -0.42 | 143.4 | -5.3 | -0.27 |
| XAZFCJ | | 143.1 | -10.4 | -0.36 | 149.4 | 0.6 | 0.03 |

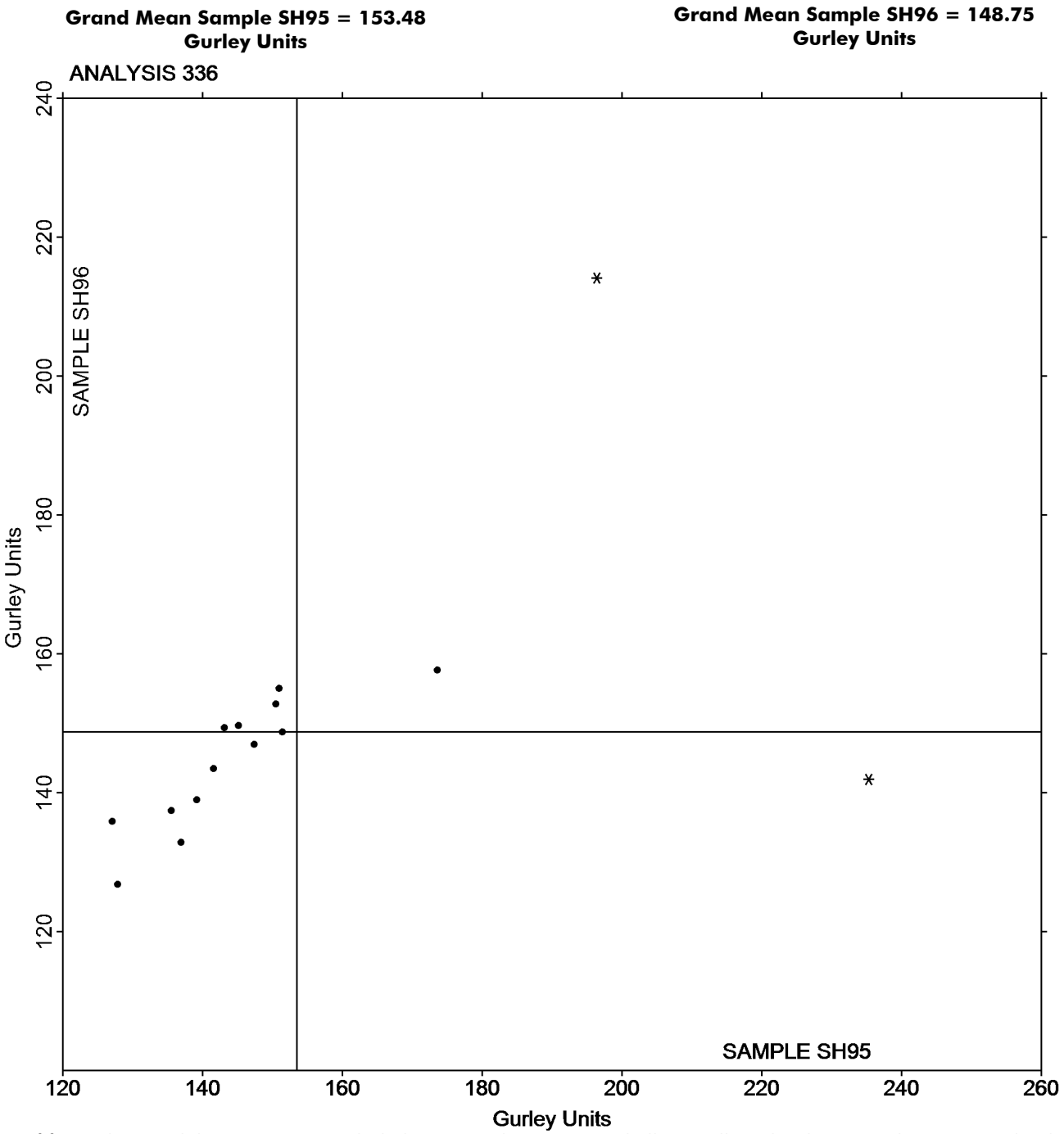
| Summary Statistics | Sample SH95 | Sample SH96 |
|---|---|---|
| **Grand Means** | 153.48 Gurley Units | 148.75 Gurley Units |
| **Stnd Dev Btwn Labs** | 28.62 Gurley Units | 20.02 Gurley Units |

Statistics based on 15 of 17 reporting participants.

**Comments on Assigned Data Flags for Test #336**

GGXHKY (X) - Extreme Data.

G8MFZY (X) - Extreme Data.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 338

## Bending Resistance, Taber Type - 0 to 10 Units

## TAPPI Official Test Method T566

| WebCode | Data Flag | Sample SJ95 Lab Mean | Sample SJ95 Diff from Grand Mean | Sample SJ95 CPV | Sample SJ96 Lab Mean | Sample SJ96 Diff from Grand Mean | Sample SJ96 CPV |
|---|---|---|---|---|---|---|---|
| 8LZ8AA | | 2.855 | -0.202 | -0.16 | 3.178 | 0.063 | 0.05 |
| ANYJKR | | 2.963 | -0.094 | -0.08 | 2.860 | -0.254 | -0.20 |
| EXVTF7 | | 5.690 | 2.633 | 2.10 | 5.890 | 2.776 | 2.15 |
| HE3GU2 | | 2.770 | -0.287 | -0.23 | 2.730 | -0.384 | -0.30 |
| MKTH3G | X | 32.478 | 29.421 | 23.51 | 32.866 | 29.751 | 23.08 |
| RM8H9Y | | 3.420 | 0.363 | 0.29 | 3.460 | 0.346 | 0.27 |
| UKCEUH | | 2.999 | -0.059 | -0.05 | 2.916 | -0.198 | -0.15 |
| UW6XAN | | 1.174 | -1.883 | -1.50 | 1.310 | -1.805 | -1.40 |
| YAHP3Y | | 2.587 | -0.470 | -0.38 | 2.570 | -0.544 | -0.42 |

| Summary Statistics | Sample SJ95 | Sample SJ96 |
|---|---|---|
| Grand Means | 3.06 Taber Units | 3.11 Taber Units |
| Stnd Dev Btwn Labs | 1.25 Taber Units | 1.29 Taber Units |

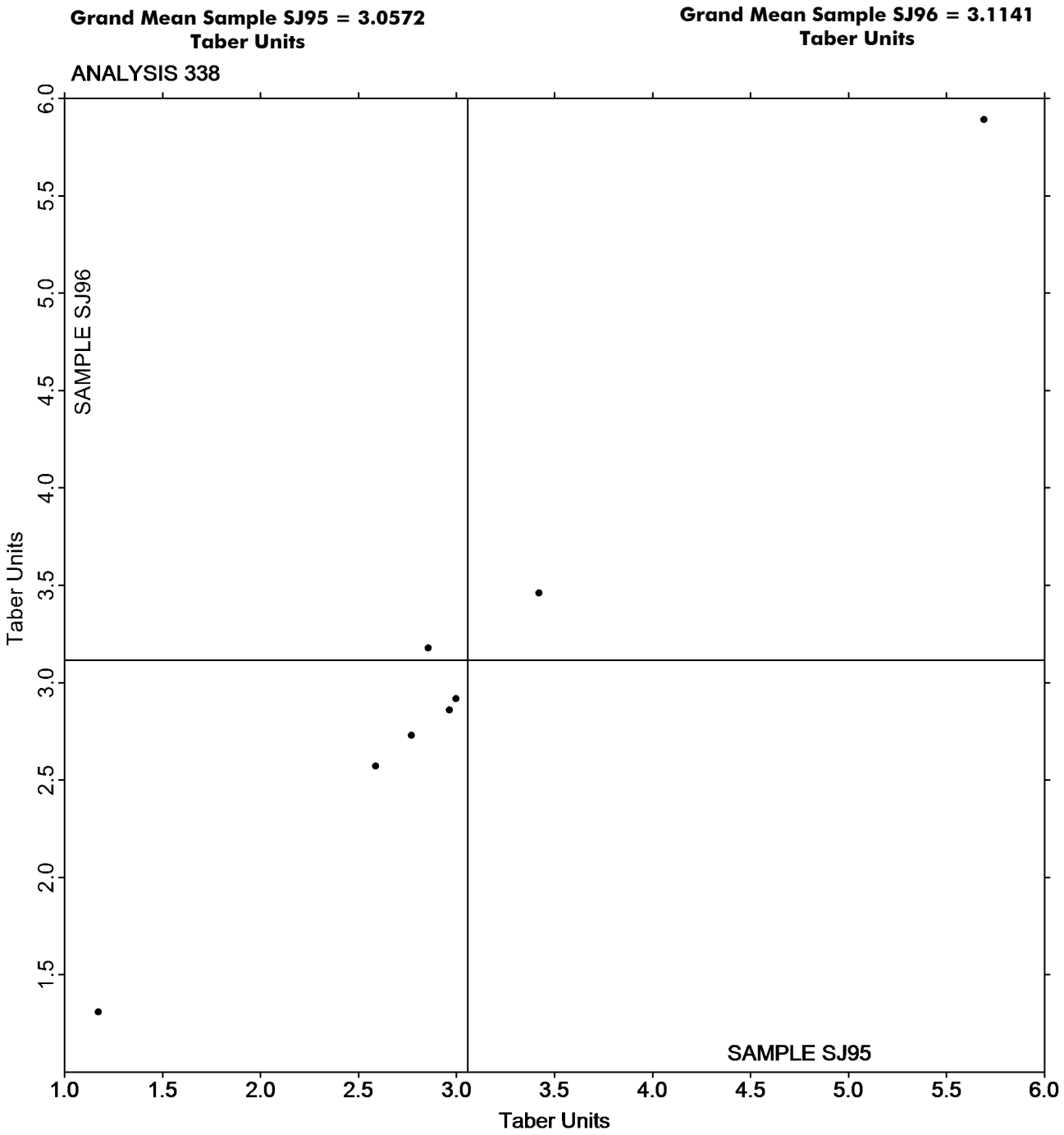
Statistics based on 8 of 9 reporting participants.

### Comments on Assigned Data Flags for Test #338

MKTH3G (X) - Extreme Data.

### Analysis Notes:

MKTH3G - Possible unit error.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 339

## Bending Resistance, Taber Type - 10 to 100 Taber Units

## TAPPI Official Test Method T489

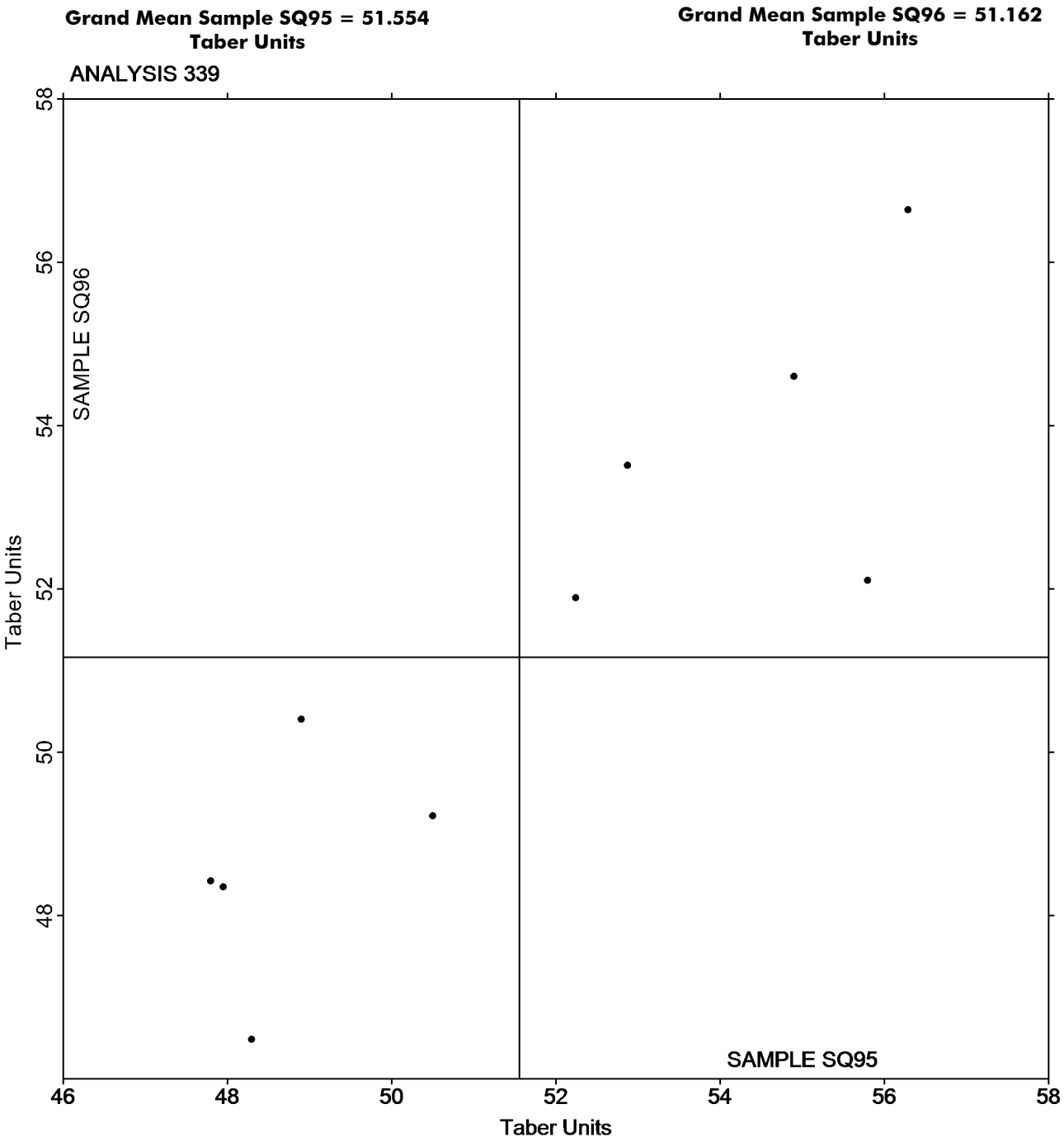
| WebCode | Data Flag | Sample SQ95 Lab Mean | Sample SQ95 Diff from Grand Mean | Sample SQ95 CPV | Sample SQ96 Lab Mean | Sample SQ96 Diff from Grand Mean | Sample SQ96 CPV |
|---|---|---|---|---|---|---|---|
| 2UDAVZ | X | 189.16 | 137.60 | 41.34 | 171.31 | 120.15 | 37.90 |
| 64N3AC | | 55.80 | 4.25 | 1.28 | 52.10 | 0.94 | 0.30 |
| 6YDRHH | | 56.29 | 4.74 | 1.42 | 56.64 | 5.48 | 1.73 |
| 7QJ7PP | | 47.80 | -3.75 | -1.13 | 48.42 | -2.74 | -0.86 |
| 8UUGGJ | | 50.50 | -1.05 | -0.32 | 49.22 | -1.94 | -0.61 |
| BGU6BA | | 48.29 | -3.26 | -0.98 | 46.48 | -4.68 | -1.48 |
| EHFRL2 | | 47.95 | -3.60 | -1.08 | 48.35 | -2.81 | -0.89 |
| GYH7WF | | 48.90 | -2.65 | -0.80 | 50.40 | -0.76 | -0.24 |
| KG6X73 | | 54.90 | 3.35 | 1.00 | 54.60 | 3.44 | 1.08 |
| QW22E9 | | 52.87 | 1.32 | 0.40 | 53.51 | 2.35 | 0.74 |
| V2VUAY | | 52.24 | 0.69 | 0.21 | 51.89 | 0.73 | 0.23 |

| Summary Statistics | Sample SQ95 | Sample SQ96 |
|---|---|---|
| **Grand Means** | 51.55 Taber Units | 51.16 Taber Units |
| **Stnd Dev Btwn Labs** | 3.33 Taber Units | 3.17 Taber Units |

Statistics based on 10 of 11 reporting participants.

**Comments on Assigned Data Flags for Test #339**

2UDAVZ (X) - Extreme Data.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 340

## Bending Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboard

## TAPPI Official Test Method T489

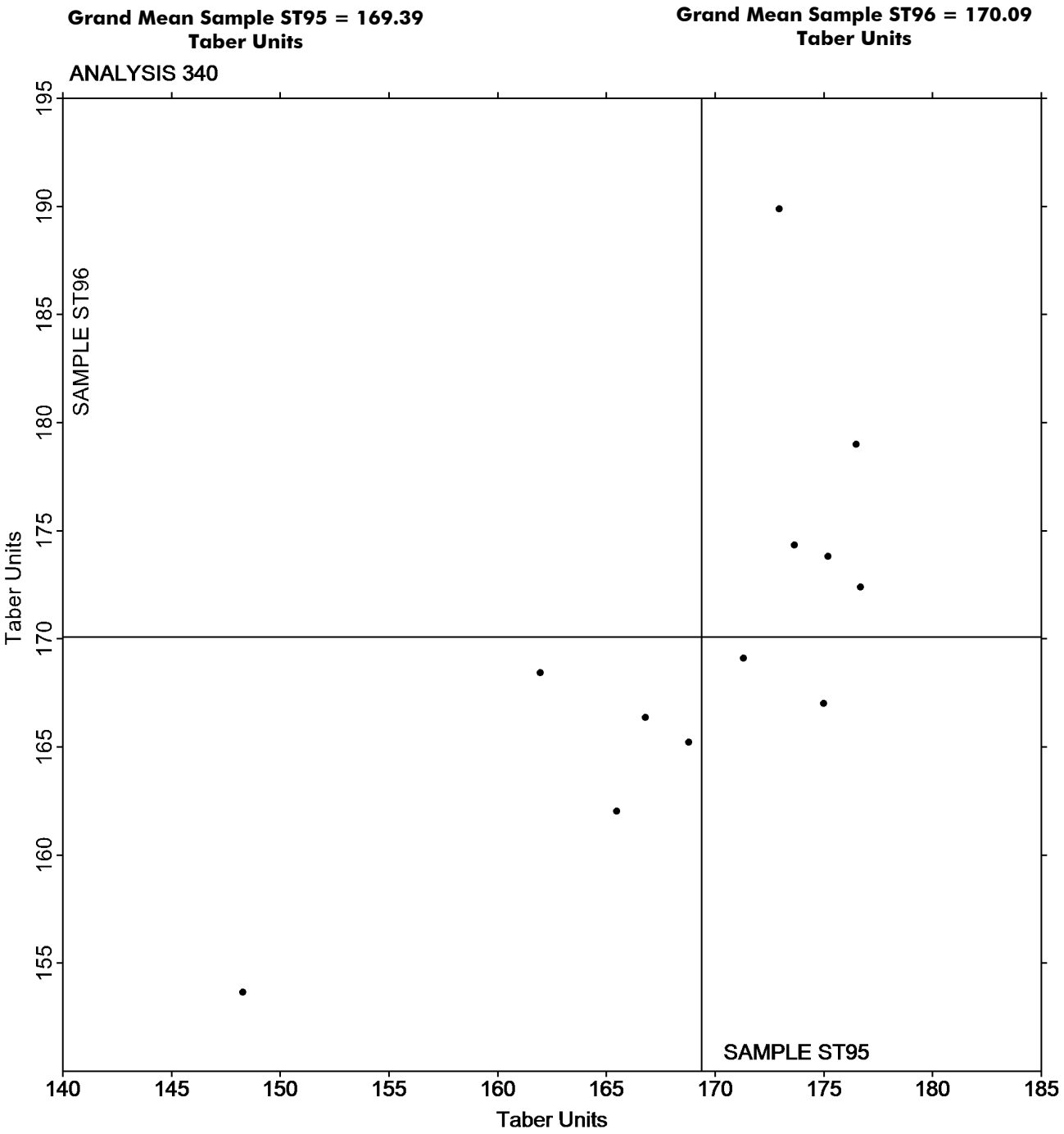
| WebCode | Data Flag | Sample ST95 Lab Mean | Sample ST95 Diff from Grand Mean | Sample ST95 CPV | Sample ST96 Lab Mean | Sample ST96 Diff from Grand Mean | Sample ST96 CPV |
|---|---|---|---|---|---|---|---|
| 2JVQB4 | | 171.3 | 1.9 | 0.24 | 169.1 | -1.0 | -0.11 |
| 39TPDQ | | 176.7 | 7.3 | 0.90 | 172.4 | 2.3 | 0.26 |
| 3GMXUB | | 166.8 | -2.6 | -0.32 | 166.4 | -3.7 | -0.42 |
| 8UUGGJ | | 165.5 | -3.9 | -0.48 | 162.0 | -8.1 | -0.90 |
| F8DPXH | | 175.0 | 5.6 | 0.69 | 167.0 | -3.1 | -0.34 |
| K8G398 | | 162.0 | -7.4 | -0.91 | 168.4 | -1.7 | -0.18 |
| LAYK2C | | 172.9 | 3.6 | 0.44 | 189.9 | 19.8 | 2.19 |
| TDWFMY | | 176.5 | 7.1 | 0.88 | 179.0 | 8.9 | 0.99 |
| UBPF2R | | 175.2 | 5.8 | 0.72 | 173.8 | 3.7 | 0.41 |
| V2VUAY | | 173.7 | 4.3 | 0.52 | 174.3 | 4.2 | 0.47 |
| V42CAF | | 148.3 | -21.1 | -2.60 | 153.7 | -16.4 | -1.82 |
| VP29AV | X | 214.0 | 44.6 | 5.49 | 219.8 | 49.7 | 5.51 |
| XA44UW | | 168.8 | -0.6 | -0.07 | 165.2 | -4.9 | -0.54 |

| Summary Statistics | Sample ST95 | Sample ST96 |
|---|---|---|
| **Grand Means** | 169.39 Taber Units | 170.09 Taber Units |
| **Stnd Dev Btwn Labs** | 8.13 Taber Units | 9.02 Taber Units |

Statistics based on 12 of 13 reporting participants.

**Comments on Assigned Data Flags for Test #340**

VP29AV (X) - Data for both samples are high. Inconsistent within the determinations of sample ST95.




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 343
## Z-Direction Tensile
## TAPPI Official Test Method T541

| WebCode | Data Flag | Sample SM95 Lab Mean | Sample SM95 Diff from Grand Mean | Sample SM95 CPV | Sample SM96 Lab Mean | Sample SM96 Diff from Grand Mean | Sample SM96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 6YDRHH | | 79.64 | 1.32 | 0.20 | 83.40 | 4.99 | 0.76 | CD |
| 7VAGYM | | 86.02 | 7.70 | 1.16 | 86.32 | 7.91 | 1.21 | DT |
| 8UUGGJ | | 78.94 | 0.62 | 0.09 | 80.24 | 1.83 | 0.28 | LW |
| AGM9UL | | 76.60 | -1.72 | -0.26 | 76.60 | -1.81 | -0.28 | TA |
| BGU6BA | | 70.91 | -7.42 | -1.12 | 71.22 | -7.19 | -1.10 | LW |
| GYH7WF | | 86.14 | 7.82 | 1.18 | 85.00 | 6.59 | 1.00 | TA |
| KG6X73 | | 77.60 | -0.72 | -0.11 | 78.12 | -0.29 | -0.04 | CD |
| KVKYZ8 | | 67.94 | -10.39 | -1.57 | 66.86 | -11.55 | -1.76 | LW |
| LAYK2C | X | 47.20 | -31.12 | -4.69 | 49.15 | -29.26 | -4.46 | LW |
| WA7BHK | | 72.56 | -5.76 | -0.87 | 72.48 | -5.93 | -0.90 | CD |
| XA44UW | | 86.90 | 8.58 | 1.29 | 83.86 | 5.45 | 0.83 | LW |

| Summary Statistics | Sample SM95 | Sample SM96 |
|---|---|---|
| **Grand Means** | 78.32 psi | 78.41 psi |
| **Stnd Dev Btwn Labs** | 6.63 psi | 6.56 psi |

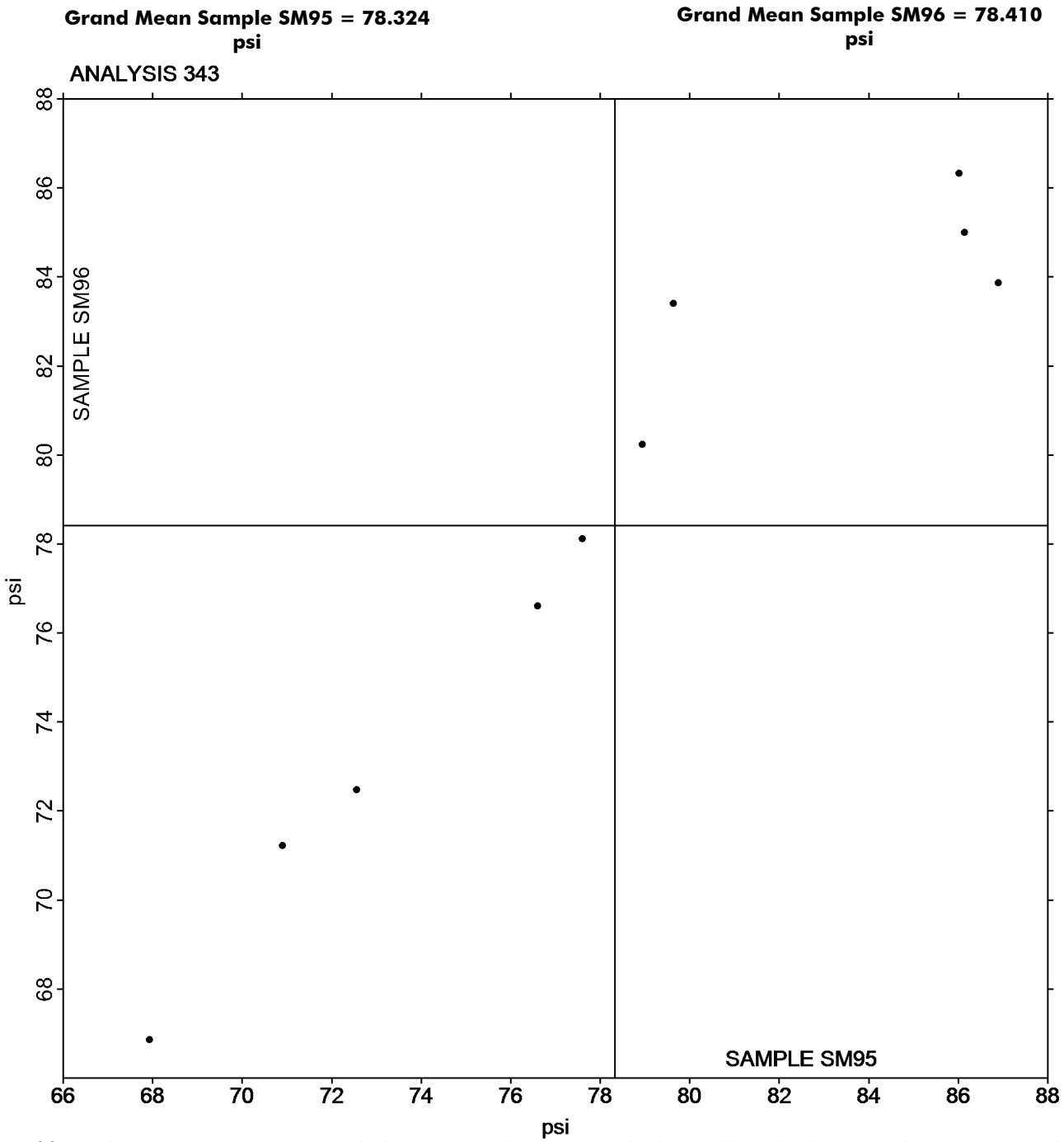
Statistics based on 10 of 11 reporting participants.

### Comments on Assigned Data Flags for Test #343

LAYK2C (X) - Data for both samples are low. Possible Systematic Error.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| CD | CSI CS-163D | DT | Dek-Tron DCS-163A ZDT Tester |
| LW | L & W ZD Tensile Tester | TA | Thwing-Albert Tensile Tester |




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 345
## Z-Direction Tensile, Recycled Paperboard
## TAPPI Official Test Method T541

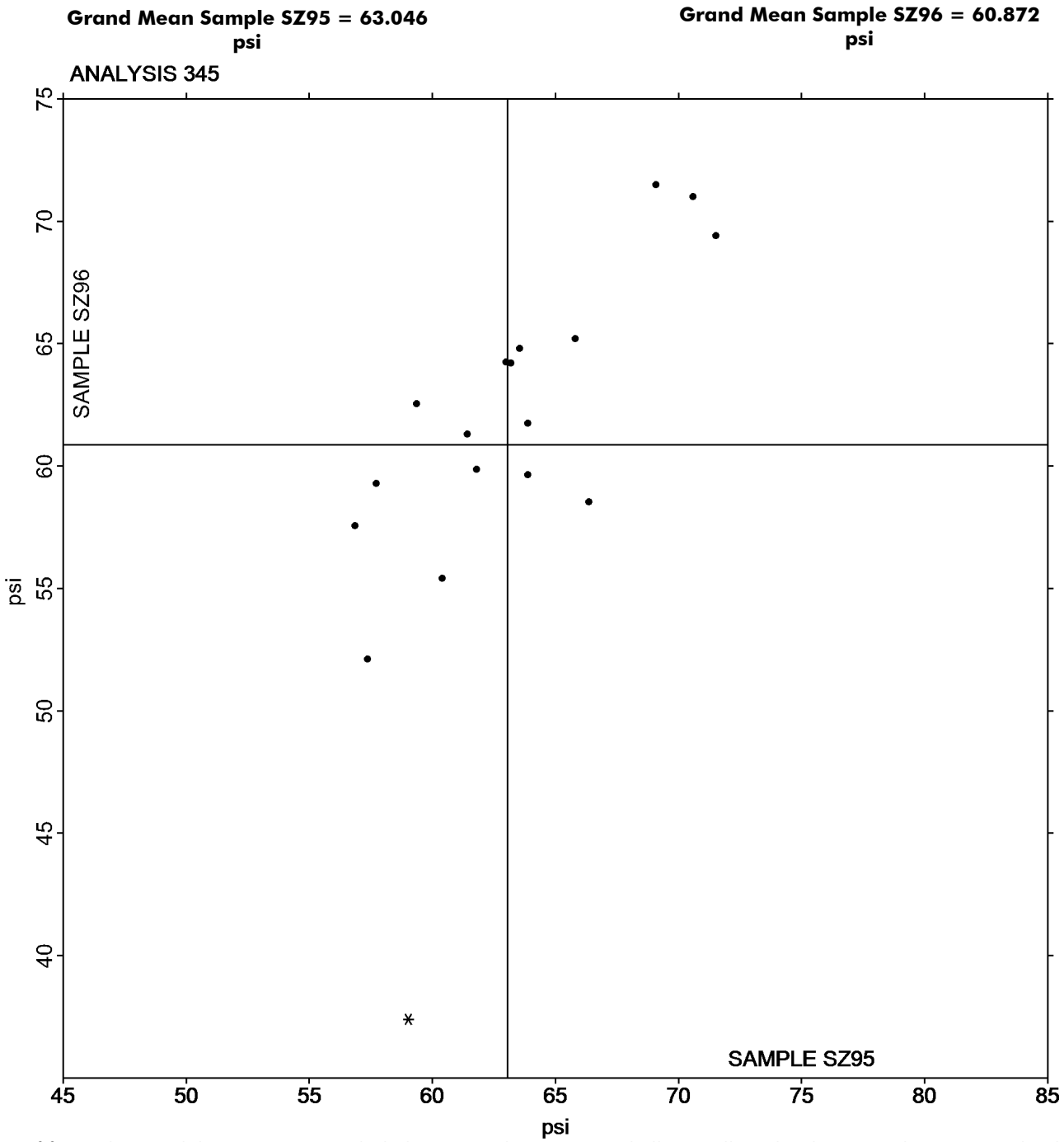
| WebCode | Data Flag | Sample SZ95 Lab Mean | Sample SZ95 Diff from Grand Mean | Sample SZ95 CPV | Sample SZ96 Lab Mean | Sample SZ96 Diff from Grand Mean | Sample SZ96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2GTRZB | | 63.54 | 0.49 | 0.11 | 64.80 | 3.93 | 0.51 | DP |
| 2JVQB4 | | 57.72 | -5.33 | -1.22 | 59.28 | -1.59 | -0.20 | TA |
| 39TPDQ | | 56.86 | -6.19 | -1.41 | 57.56 | -3.31 | -0.43 | LW |
| 3GMXUB | | 63.88 | 0.83 | 0.19 | 59.64 | -1.23 | -0.16 | CA |
| 4LZZHR | | 71.53 | 8.49 | 1.94 | 69.41 | 8.54 | 1.10 | CH |
| 8UUGGJ | | 57.38 | -5.67 | -1.30 | 52.10 | -8.77 | -1.13 | LW |
| A8YEG4 | | 60.40 | -2.65 | -0.60 | 55.40 | -5.47 | -0.70 | CA |
| F8DPXH | | 70.60 | 7.55 | 1.73 | 71.00 | 10.13 | 1.30 | TA |
| JD9TC7 | | 61.42 | -1.63 | -0.37 | 61.30 | 0.43 | 0.06 | DP |
| K8G398 | | 65.80 | 2.75 | 0.63 | 65.20 | 4.33 | 0.56 | CA |
| KJCG4X | | 66.36 | 3.31 | 0.76 | 58.54 | -2.33 | -0.30 | LW |
| KVMLJ7 | | 63.88 | 0.83 | 0.19 | 61.74 | 0.87 | 0.11 | TA |
| N7DLKZ | | 63.20 | 0.15 | 0.04 | 64.20 | 3.33 | 0.43 | CA |
| PPYXLP | | 69.08 | 6.03 | 1.38 | 71.48 | 10.61 | 1.36 | LW |
| RG2MPY | * | 59.02 | -4.03 | -0.92 | 37.40 | -23.47 | -3.02 | XX |
| TDWFMY | | 61.80 | -1.25 | -0.28 | 59.86 | -1.01 | -0.13 | CD |
| UBPF2R | | 63.00 | -0.05 | -0.01 | 64.24 | 3.37 | 0.43 | CD |
| V2VUAY | | 59.36 | -3.69 | -0.84 | 62.54 | 1.67 | 0.21 | CA |

| Summary Statistics | Sample SZ95 | Sample SZ96 |
|---|---|---|
| **Grand Means** | 63.05 psi | 60.87 psi |
| **Stnd Dev Btwn Labs** | 4.38 psi | 7.77 psi |

Statistics based on 18 of 18 reporting participants.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| CA | CSI CS-163 | CD | CSI CS-163D |
| CH | Chatillon Ametek | DP | Dek-Tron XP Series |
| LW | L & W ZD Tensile Tester | TA | Thwing-Albert Tensile Tester |
| XX | Instrument make/model not specified by lab | | |




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 348

## Internal Bond Strength - Modified Scott Mechanics

## TAPPI Provisional Test Method T569

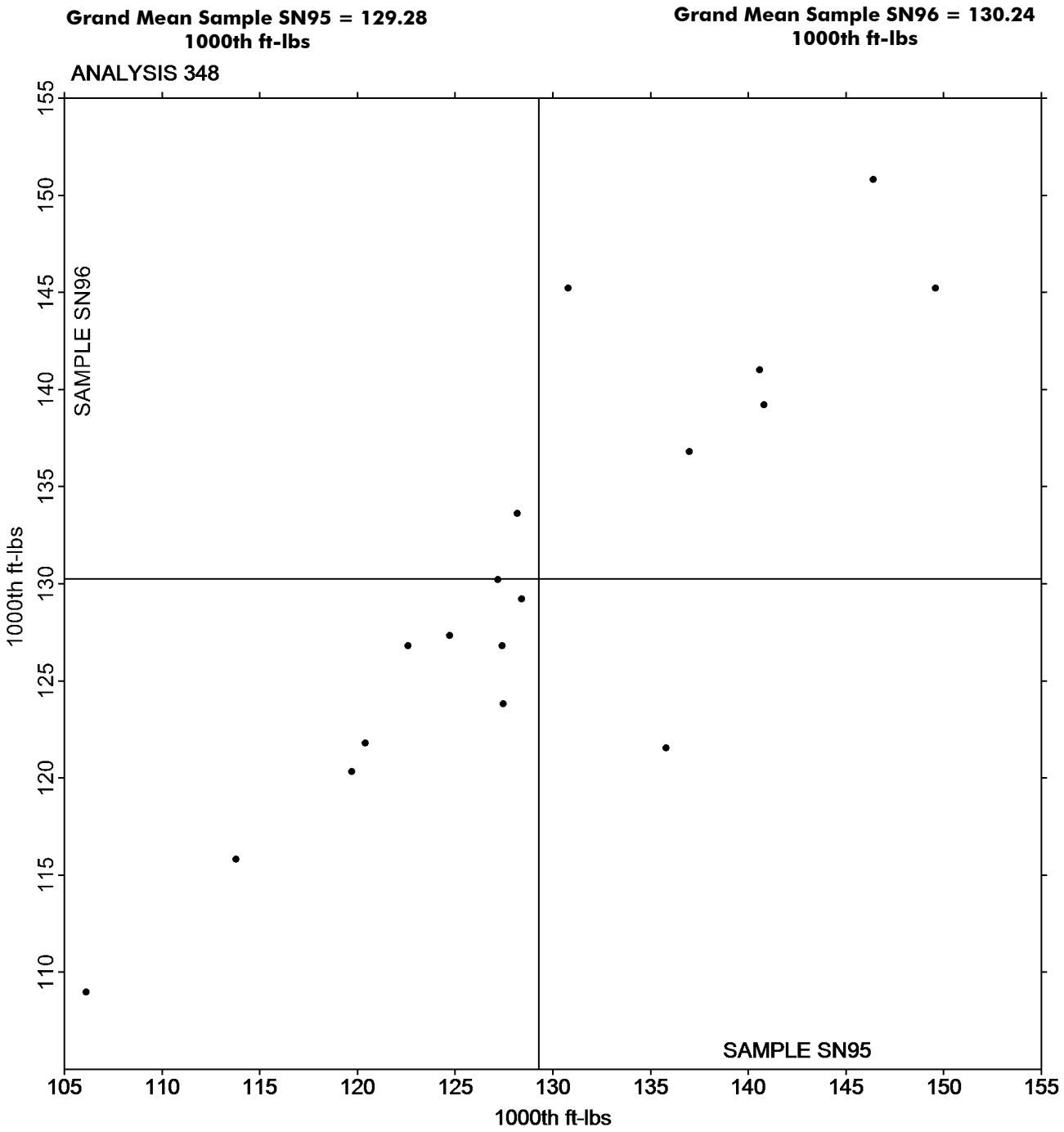
| WebCode | Data Flag | Sample SN95 Lab Mean | Sample SN95 Diff from Grand Mean | Sample SN95 CPV | Sample SN96 Lab Mean | Sample SN96 Diff from Grand Mean | Sample SN96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2GTRZB | | 130.8 | 1.5 | 0.14 | 145.2 | 15.0 | 1.35 | XX |
| 3GMXUB | | 127.5 | -1.8 | -0.16 | 123.8 | -6.4 | -0.58 | HZ |
| 6YDRHH | | 137.0 | 7.7 | 0.70 | 136.8 | 6.6 | 0.59 | HY |
| 7ABA8B | | 113.8 | -15.5 | -1.39 | 115.8 | -14.4 | -1.30 | HY |
| 8UUGGJ | | 140.6 | 11.3 | 1.02 | 141.0 | 10.8 | 0.97 | HY |
| APU6EH | | 135.8 | 6.5 | 0.59 | 121.5 | -8.7 | -0.78 | HY |
| FZULQF | | 140.8 | 11.5 | 1.04 | 139.2 | 9.0 | 0.81 | HY |
| GYH7WF | | 149.6 | 20.3 | 1.83 | 145.2 | 15.0 | 1.35 | HZ |
| HE3GU2 | | 106.1 | -23.2 | -2.09 | 109.0 | -21.3 | -1.91 | KR |
| K7KPLF | | 124.7 | -4.6 | -0.41 | 127.3 | -2.9 | -0.26 | XX |
| K8G398 | | 119.7 | -9.6 | -0.86 | 120.3 | -9.9 | -0.89 | HY |
| KG6X73 | | 127.4 | -1.9 | -0.17 | 126.8 | -3.4 | -0.31 | HY |
| MQ4D67 | | 127.2 | -2.1 | -0.19 | 130.2 | 0.0 | 0.00 | HZ |
| RG4EKL | | 120.4 | -8.9 | -0.80 | 121.8 | -8.4 | -0.76 | HY |
| TQKFH8 | | 146.4 | 17.1 | 1.54 | 150.8 | 20.6 | 1.85 | HZ |
| UB7RKW | | 122.6 | -6.7 | -0.60 | 126.8 | -3.4 | -0.31 | HY |
| XA44UW | | 128.4 | -0.9 | -0.08 | 129.2 | -1.0 | -0.09 | HZ |
| XAZFCJ | | 128.2 | -1.1 | -0.10 | 133.6 | 3.4 | 0.30 | HZ |

| Summary Statistics | Sample SN95 | Sample SN96 |
|---|---|---|
| **Grand Means** | 129.28 1000th ft-lbs | 130.24 1000th ft-lbs |
| **Stnd Dev Btwn Labs** | 11.10 1000th ft-lbs | 11.12 1000th ft-lbs |

Statistics based on 18 of 18 reporting participants.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| HY | Huygen Digitized Internal Scott Bond Tester | HZ | Huygen Internal Bond Tester with AccuPress |
| KR | Kumagai Riki Kogyo Internal Bond Tester | XX | Instrument make/model not specified by lab |




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 349

## Internal Bond Strength - Scott Bond Models

## TAPPI Provisional Test Method T569

| WebCode | Data Flag | Sample SP95 Lab Mean | Sample SP95 Diff from Grand Mean | Sample SP95 CPV | Sample SP96 Lab Mean | Sample SP96 Diff from Grand Mean | Sample SP96 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 4LZZHR | | 100.4 | -14.5 | -0.73 | 96.4 | -18.6 | -0.80 | TM |
| 72HWAW | | 139.8 | 24.9 | 1.25 | 160.0 | 45.0 | 1.94 | SC |
| ANYJKR | | 110.0 | -4.9 | -0.24 | 107.6 | -7.4 | -0.32 | XX |
| E74M9D | | 102.7 | -12.2 | -0.61 | 101.8 | -13.2 | -0.57 | TM |
| EHFRL2 | | 90.4 | -24.5 | -1.23 | 95.1 | -19.9 | -0.86 | XX |
| G8MFZY | X | 0.1 | -114.8 | -5.76 | 0.1 | -114.9 | -4.97 | TM |
| LAYK2C | | 84.8 | -30.1 | -1.51 | 78.4 | -36.6 | -1.58 | TM |
| MKTH3G | | 119.4 | 4.5 | 0.23 | 120.4 | 5.4 | 0.23 | SC |
| MM6397 | | 96.5 | -18.4 | -0.92 | 96.1 | -18.9 | -0.82 | SC |
| RQTZQK | | 120.4 | 5.5 | 0.28 | 123.0 | 8.0 | 0.35 | SC |
| TGWM7B | | 145.8 | 30.9 | 1.55 | 154.6 | 39.6 | 1.71 | XX |
| UKCEUH | | 138.6 | 23.7 | 1.19 | 121.0 | 6.0 | 0.26 | TM |
| VCF2A9 | | 138.8 | 23.9 | 1.20 | 135.6 | 20.6 | 0.89 | SC |
| WNM9NK | | 101.9 | -13.0 | -0.65 | 103.1 | -11.9 | -0.52 | XX |
| Y49TW4 | | 118.8 | 3.9 | 0.20 | 117.0 | 2.0 | 0.09 | TM |

| Summary Statistics | Sample SP95 | Sample SP96 |
|---|---|---|
| **Grand Means** | 114.88 1000th ft-lbs | 115.01 1000th ft-lbs |
| **Stnd Dev Btwn Labs** | 19.94 1000th ft-lbs | 23.14 1000th ft-lbs |

Statistics based on 14 of 15 reporting participants.

**Comments on Assigned Data Flags for Test #349**

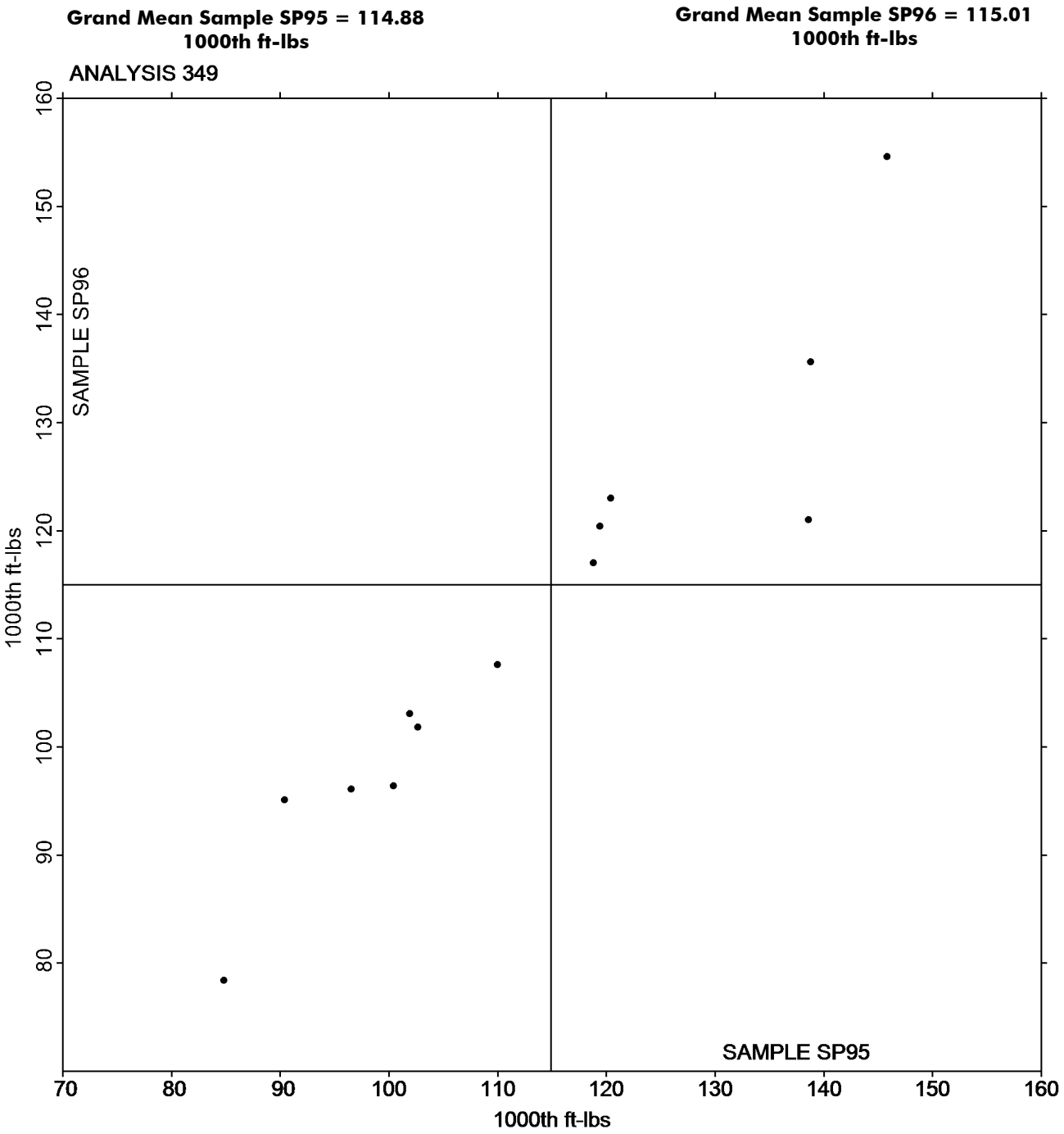
G8MFZY (X) - Data for both samples are low. Possible Systematic Error.

**Key to Instrument Codes Reported by Participants**

SC Scott Internal Bond Tester (Manual)

TM TMI Monitor/Internal Bond Tester

XX Instrument make/model not specified by lab




If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

-End of Report-