Collaborative Testing Services, Inc.

# Paper & Paperboard Interlaboratory Testing Program

## Summary Report #287S - March 2017



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| 310 | Bursting Strength - Packaging Papers |
| 311 | Tearing Strength - Newsprint |
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| 320 | Tensile Breaking Strength - Newsprint |
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| 330 | Tensile Breaking Strength - Packaging Papers |
| 331 | Tensile Energy Absorption - Packaging Papers |
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| 336 | Bending Resistance, Gurley Type |
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| 339 | Bending Resistance, Taber Type - 10 to 100 Taber Units |
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## The CTS Paper & Paperboard Interlaboratory Fiberboard 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:

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# 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 web site. The WebCode for each analysis can be found in the Performance Analysis Report mailed to each participant. In addition, the WebCodes can be found on the data sheets.

**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 SA41 Lab Mean | Sample SA41 Diff from Grand Mean | Sample SA41 CPV | Sample SA42 Lab Mean | Sample SA42 Diff from Grand Mean | Sample SA42 CPV |
|---|---|---|---|---|---|---|---|
| 2BDNBC | X | 31.00 | 8.18 | 5.17 | 30.30 | 4.26 | 2.35 |
| 7MNM9Z | | 24.02 | 1.20 | 0.76 | 27.00 | 0.96 | 0.53 |
| 7RJKV7 | | 20.90 | -1.92 | -1.21 | 25.10 | -0.94 | -0.52 |
| 832H22 | | 21.00 | -1.82 | -1.15 | 25.19 | -0.86 | -0.47 |
| BKMBEV | | 21.84 | -0.97 | -0.62 | 25.79 | -0.25 | -0.14 |
| EBAD69 | | 23.15 | 0.33 | 0.21 | 25.29 | -0.75 | -0.41 |
| EGW7F9 | | 25.02 | 2.21 | 1.39 | 28.23 | 2.19 | 1.21 |
| EMKNW6 | | 22.03 | -0.78 | -0.50 | 26.85 | 0.81 | 0.44 |
| GEJDE6 | | 23.39 | 0.58 | 0.36 | 26.03 | -0.01 | 0.00 |
| HEJFXH | | 22.18 | -0.64 | -0.41 | 25.11 | -0.94 | -0.52 |
| KTC8EN | | 22.48 | -0.34 | -0.21 | 25.84 | -0.20 | -0.11 |
| L8AFW3 | | 25.94 | 3.13 | 1.98 | 28.42 | 2.38 | 1.31 |
| LTLKCW | | 24.50 | 1.68 | 1.06 | 29.20 | 3.16 | 1.74 |
| MA6NF4 | | 23.10 | 0.28 | 0.18 | 28.90 | 2.86 | 1.58 |
| MB27BD | | 24.89 | 2.07 | 1.31 | 27.25 | 1.21 | 0.67 |
| PYMNZL | | 21.35 | -1.47 | -0.93 | 23.30 | -2.74 | -1.51 |
| T3QQCR | | 20.70 | -2.12 | -1.34 | 22.77 | -3.27 | -1.81 |
| TFWQ3P | | 20.60 | -2.22 | -1.40 | 25.60 | -0.44 | -0.24 |
| UNNMMQ | | 24.16 | 1.34 | 0.85 | 26.07 | 0.02 | 0.01 |
| WRZ7KQ | | 21.36 | -1.46 | -0.92 | 23.95 | -2.09 | -1.15 |
| X6E4UJ | | 21.61 | -1.21 | -0.77 | 23.79 | -2.25 | -1.24 |
| XUGVJT | | 24.40 | 1.58 | 1.00 | 28.30 | 2.26 | 1.25 |
| ZTZM36 | | 23.37 | 0.55 | 0.35 | 24.95 | -1.09 | -0.60 |

### Summary Statistics

| | Sample SA41 | Sample SA42 |
|---|---|---|
| Grand Means | 22.817 psi | 26.042 psi |
| SD Btwn Labs | 1.582 psi | 1.812 psi |

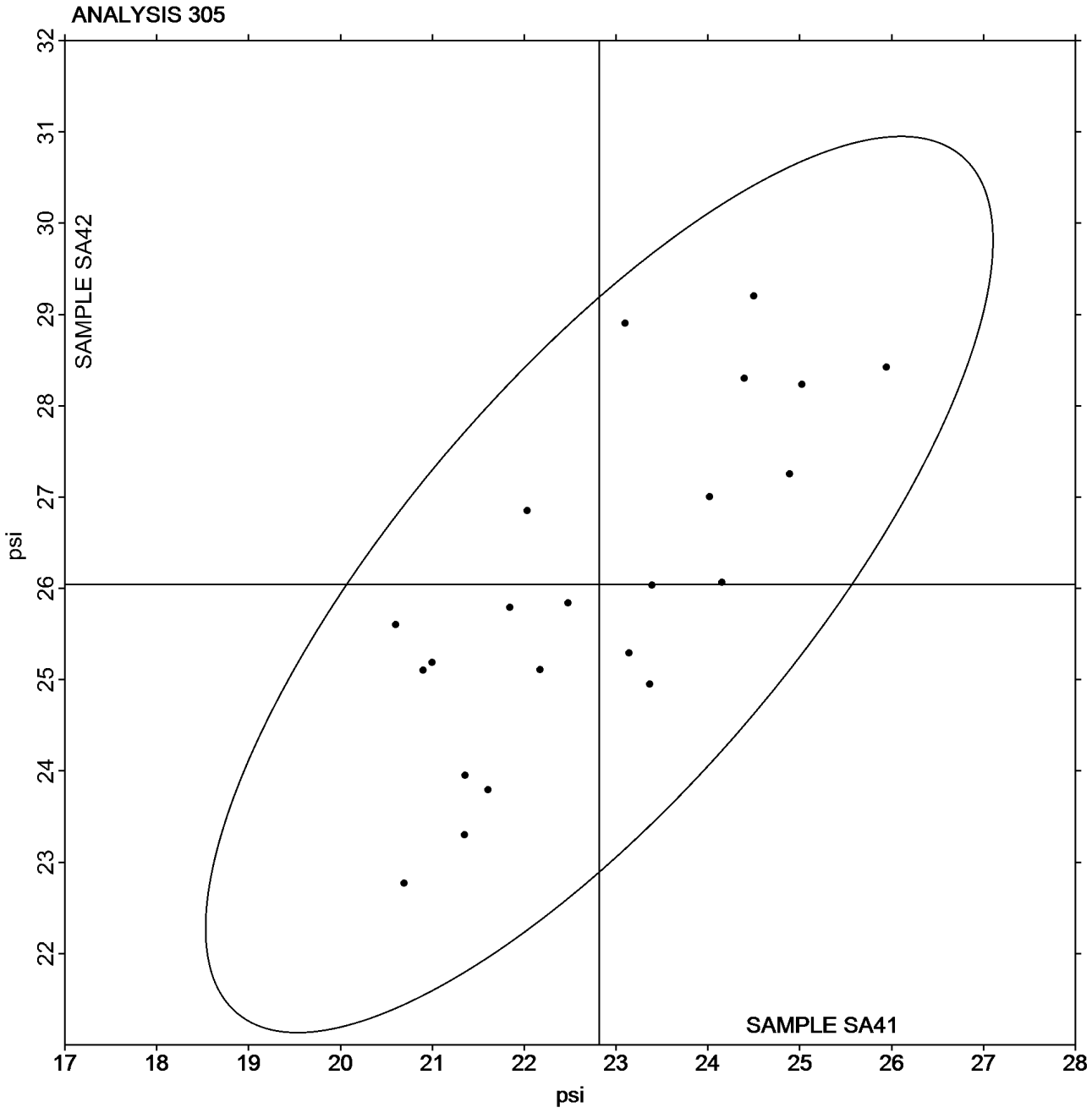
Statistics based on 22 of 23 reporting participants

### Comments on Assigned Data Flags for Test #305

2BDNBC (X) - Data for sample SA41 are high. Inconsistent within the determinations of sample SA41.

Grand Mean Sample **SA41** = 22.817 psi

Grand Mean Sample **SA42** = 26.042 psi



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 310

## Bursting Strength - Packaging Papers

## TAPPI Official Test Method T403

| WebCode | Data Flag | Sample SB41 Lab Mean | Sample SB41 Diff from Grand Mean | Sample SB41 CPV | Sample SB42 Lab Mean | Sample SB42 Diff from Grand Mean | Sample SB42 CPV |
|---|---|---|---|---|---|---|---|
| 2BDNBC | X | 108.10 | 17.94 | 4.48 | 119.40 | 24.77 | 4.88 |
| 4H7FVB | | 91.76 | 1.60 | 0.40 | 94.06 | -0.58 | -0.11 |
| 7MNM9Z | | 91.38 | 1.22 | 0.30 | 97.19 | 2.56 | 0.50 |
| 7RJKV7 | | 92.32 | 2.16 | 0.54 | 99.10 | 4.47 | 0.88 |
| 96LRN8 | | 85.25 | -4.91 | -1.23 | 90.40 | -4.23 | -0.83 |
| A2XDYX | | 88.56 | -1.60 | -0.40 | 87.82 | -6.81 | -1.34 |
| D2REYC | X | 93.11 | 2.94 | 0.73 | 116.24 | 21.60 | 4.26 |
| DJ67T2 | | 84.46 | -5.71 | -1.42 | 94.97 | 0.34 | 0.07 |
| DJ9JK6 | | 96.85 | 6.69 | 1.67 | 100.90 | 6.27 | 1.24 |
| FZ36UZ | | 88.45 | -1.71 | -0.43 | 97.80 | 3.17 | 0.62 |
| JCARWH | | 87.02 | -3.14 | -0.78 | 91.23 | -3.40 | -0.67 |
| JECTVU | | 91.82 | 1.66 | 0.41 | 100.77 | 6.14 | 1.21 |
| KNEMDP | | 87.33 | -2.84 | -0.71 | 91.23 | -3.40 | -0.67 |
| LCG2LK | | 97.12 | 6.96 | 1.74 | 101.47 | 6.83 | 1.35 |
| LWKWAG | | 88.58 | -1.59 | -0.40 | 94.57 | -0.07 | -0.01 |
| NWGTWH | | 91.20 | 1.04 | 0.26 | 101.90 | 7.27 | 1.43 |
| PHDYKY | | 85.95 | -4.21 | -1.05 | 90.10 | -4.54 | -0.89 |
| RQ6ZEH | | 94.41 | 4.25 | 1.06 | 96.83 | 2.20 | 0.43 |
| T7P6ZG | | 98.20 | 8.04 | 2.00 | 105.80 | 11.17 | 2.20 |
| TMVGKE | | 84.79 | -5.37 | -1.34 | 92.11 | -2.52 | -0.50 |
| TPPZVT | | 95.30 | 5.14 | 1.28 | 99.14 | 4.51 | 0.89 |
| UV4ADL | | 92.26 | 2.09 | 0.52 | 95.96 | 1.32 | 0.26 |
| V2MR99 | | 91.60 | 1.44 | 0.36 | 90.20 | -4.43 | -0.87 |
| VC84KL | | 91.10 | 0.94 | 0.23 | 88.40 | -6.23 | -1.23 |
| XABPN8 | | 88.67 | -1.49 | -0.37 | 89.92 | -4.71 | -0.93 |
| XAV9TE | | 87.20 | -2.96 | -0.74 | 87.90 | -6.73 | -1.33 |
| YJE2HF | | 84.09 | -6.07 | -1.51 | 91.10 | -3.53 | -0.70 |
| ZEZNF8 | | 88.60 | -1.56 | -0.39 | 89.60 | -5.03 | -0.99 |

### Summary Statistics

| | Sample SB41 | Sample SB42 |
|---|---|---|
| Grand Means | 90.165 psi | 94.633 psi |
| SD Btwn Labs | 4.008 psi | 5.073 psi |

Statistics based on 26 of 28 reporting participants

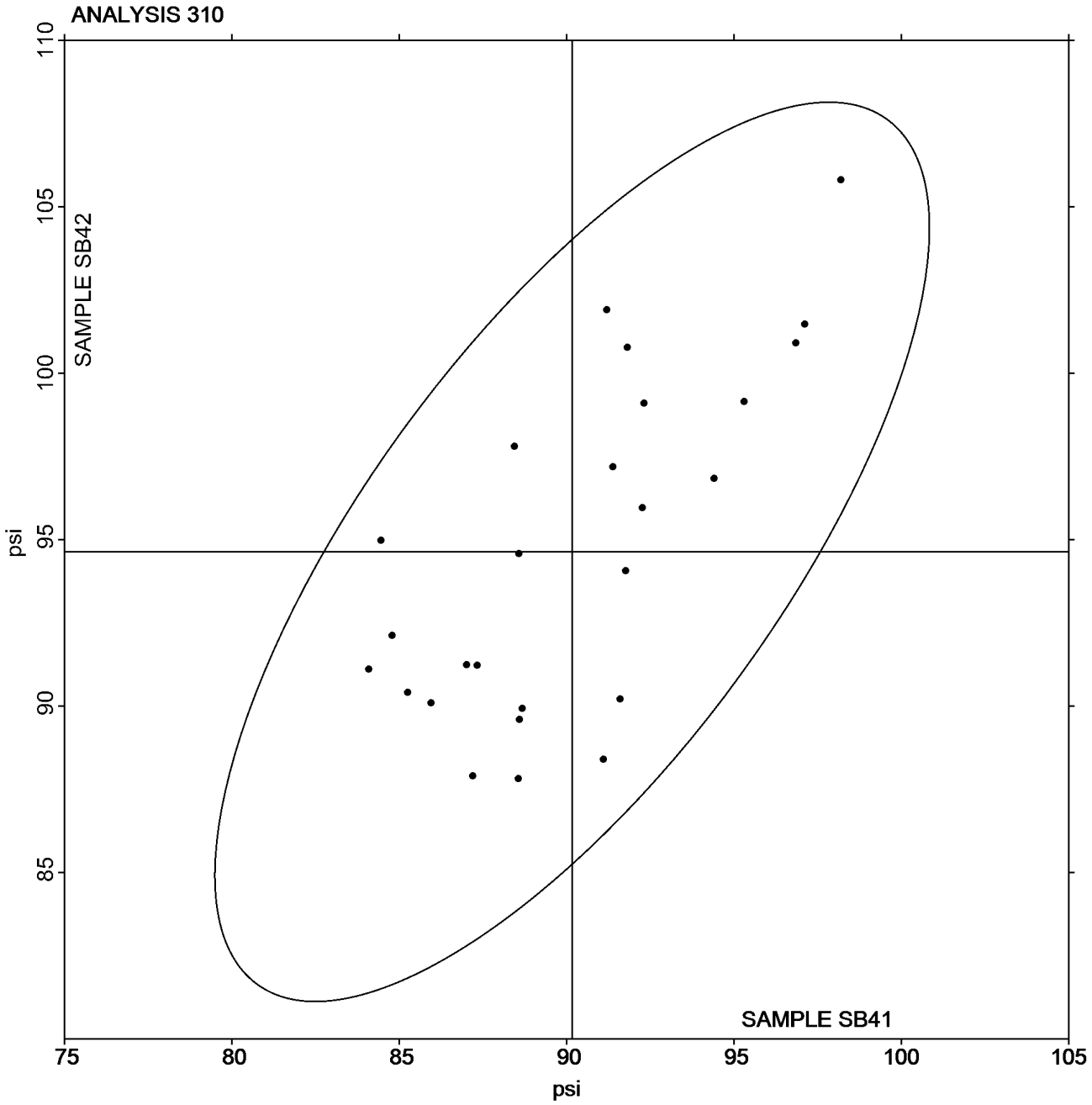
### Comments on Assigned Data Flags for Test #310

D2REYC (X) - Data for sample SB42 are high.

2BDNBC (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

Grand Mean Sample **SB41** = 90.165 psi

Grand Mean Sample **SB42** = 94.633 psi



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 311
## Tearing Strength - Newsprint
## TAPPI Official Test Method T414

| WebCode | Data Flag | Sample SK41 Lab Mean | Sample SK41 Diff from Grand Mean | Sample SK41 CPV | Sample SK42 Lab Mean | Sample SK42 Diff from Grand Mean | Sample SK42 CPV |
|---|---|---|---|---|---|---|---|
| 7MNM9Z | | 25.47 | -3.44 | -0.79 | 19.35 | -2.79 | -0.87 |
| 8DKQ7H | X | 376.65 | 347.74 | 79.28 | 133.57 | 111.43 | 34.63 |
| 97VRTE | | 33.67 | 4.75 | 1.08 | 24.83 | 2.69 | 0.84 |
| HG3PTZ | | 26.18 | -2.74 | -0.62 | 20.36 | -1.78 | -0.55 |
| NV66FQ | | 25.51 | -3.41 | -0.78 | 19.81 | -2.33 | -0.73 |
| ZFRX7N | | 33.75 | 4.84 | 1.10 | 26.36 | 4.22 | 1.31 |

### Summary Statistics

| | Sample SK41 | Sample SK42 |
|---|---|---|
| Grand Means | 28.917 Grams | 22.143 Grams |
| SD Btwn Labs | 4.386 Grams | 3.217 Grams |

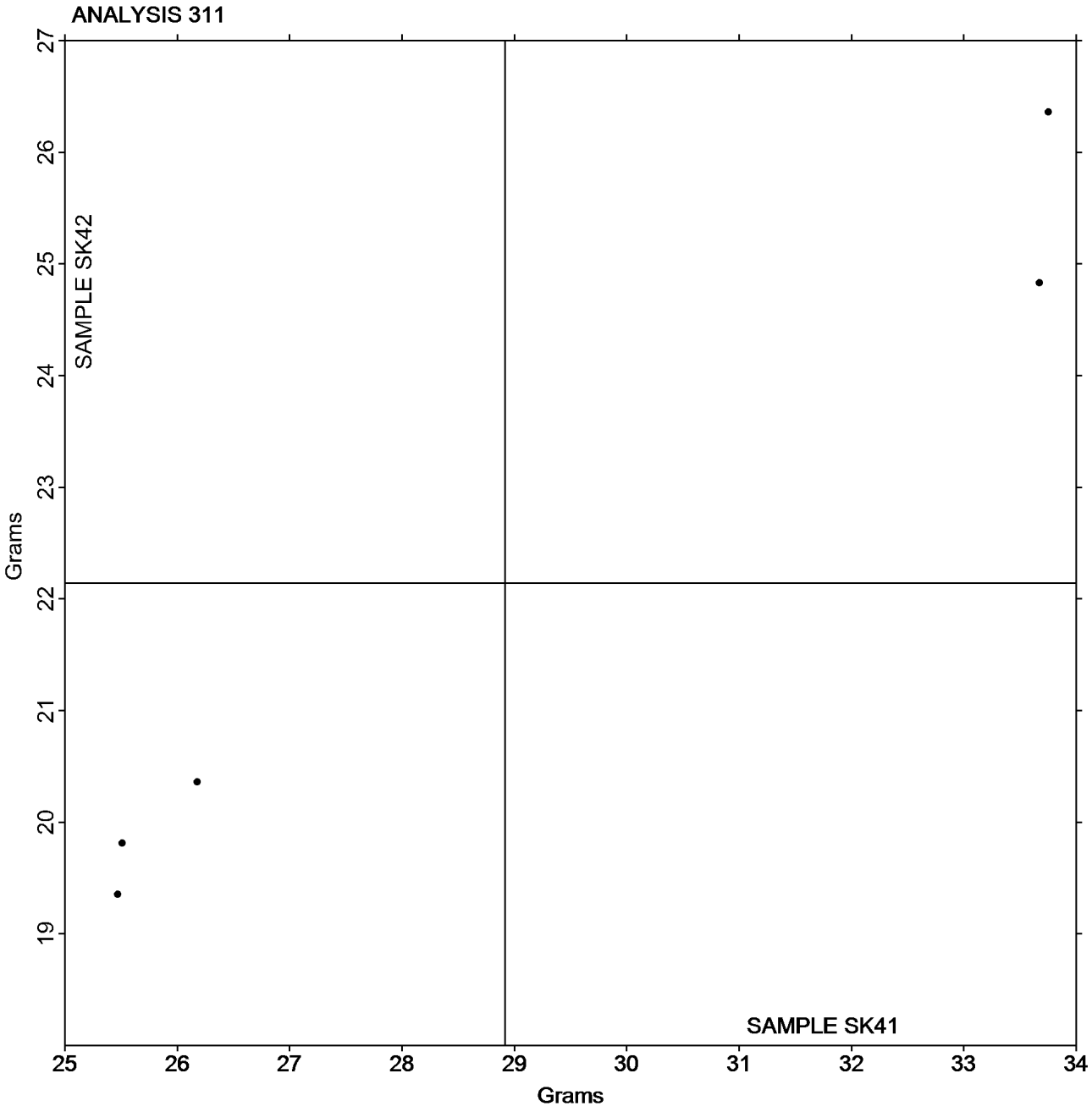
Statistics based on 5 of 6 reporting participants

**Comments on Assigned Data Flags for Test #311**

8DKQ7H (X) - Extreme Data.

Grand Mean Sample **SK41** = 28.917 Grams

Grand Mean Sample **SK42** = 22.143 Grams




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 SC41 Lab Mean | Sample SC41 Diff from Grand Mean | Sample SC41 CPV | Sample SC42 Lab Mean | Sample SC42 Diff from Grand Mean | Sample SC42 CPV |
|---|---|---|---|---|---|---|---|
| 27KHZF | * | 56.46 | 7.26 | 2.13 | 64.76 | 1.84 | 0.50 |
| 2BDNBC | | 47.59 | -1.62 | -0.47 | 61.43 | -1.49 | -0.40 |
| 2THRJH | | 56.40 | 7.20 | 2.11 | 66.78 | 3.87 | 1.04 |
| 4FHZNN | | 42.70 | -6.51 | -1.91 | 58.50 | -4.42 | -1.19 |
| 4XFHF4 | | 52.80 | 3.59 | 1.05 | 69.00 | 6.08 | 1.64 |
| 7BZGJC | | 54.04 | 4.83 | 1.42 | 67.45 | 4.53 | 1.22 |
| 7MNM9Z | | 47.47 | -1.74 | -0.51 | 61.97 | -0.95 | -0.26 |
| 7NMQ7G | | 50.36 | 1.15 | 0.34 | 62.36 | -0.56 | -0.15 |
| 832H22 | | 51.43 | 2.22 | 0.65 | 67.13 | 4.21 | 1.14 |
| 96LRN8 | | 43.68 | -5.53 | -1.62 | 57.50 | -5.42 | -1.46 |
| A2XDYX | | 48.44 | -0.77 | -0.23 | 63.84 | 0.93 | 0.25 |
| AVGXDF | | 47.00 | -2.21 | -0.65 | 60.80 | -2.12 | -0.57 |
| BKMBEV | | 47.99 | -1.22 | -0.36 | 63.12 | 0.20 | 0.05 |
| BVDRDW | | 49.24 | 0.03 | 0.01 | 64.90 | 1.98 | 0.54 |
| CZURX3 | | 47.46 | -1.75 | -0.51 | 60.40 | -2.52 | -0.68 |
| DJ67T2 | | 52.43 | 3.23 | 0.95 | 65.62 | 2.70 | 0.73 |
| DJ9JK6 | | 47.08 | -2.13 | -0.62 | 59.23 | -3.69 | -1.00 |
| EBAD69 | | 46.14 | -3.07 | -0.90 | 61.37 | -1.55 | -0.42 |
| EGW7F9 | | 42.78 | -6.43 | -1.88 | 57.14 | -5.78 | -1.56 |
| EMKNW6 | | 52.93 | 3.73 | 1.09 | 64.97 | 2.05 | 0.55 |
| FELQDU | | 47.80 | -1.41 | -0.41 | 61.80 | -1.12 | -0.30 |
| FZ36UZ | | 43.52 | -5.69 | -1.67 | 56.49 | -6.43 | -1.74 |
| GEJDE6 | | 47.33 | -1.88 | -0.55 | 60.56 | -2.36 | -0.64 |
| GTKUHK | | 50.12 | 0.91 | 0.27 | 63.74 | 0.82 | 0.22 |
| H83ZBY | X | 52.30 | 3.09 | 0.91 | 44.11 | -18.81 | -5.08 |
| HXCL4M | | 49.22 | 0.01 | 0.00 | 59.18 | -3.74 | -1.01 |
| HYP9L2 | | 49.64 | 0.44 | 0.13 | 65.22 | 2.30 | 0.62 |
| JK4ZFN | X | 59.00 | 9.79 | 2.87 | 89.20 | 26.28 | 7.10 |
| JNM8NN | X | 1.11 | -48.09 | -14.10 | 1.24 | -61.68 | -16.66 |
| KTC8EN | | 50.26 | 1.05 | 0.31 | 60.62 | -2.30 | -0.62 |
| L7WQPJ | | 55.33 | 6.12 | 1.80 | 68.55 | 5.63 | 1.52 |
| L8AFW3 | | 48.29 | -0.92 | -0.27 | 64.92 | 2.00 | 0.54 |
| LWKWAG | | 50.86 | 1.66 | 0.49 | 66.32 | 3.40 | 0.92 |
| MA6NF4 | | 50.80 | 1.59 | 0.47 | 65.32 | 2.40 | 0.65 |
| MB27BD | | 49.20 | -0.01 | 0.00 | 63.50 | 0.58 | 0.16 |
| NQC62V | | 48.45 | -0.76 | -0.22 | 65.53 | 2.61 | 0.71 |
| PHDYKY | | 50.98 | 1.77 | 0.52 | 65.26 | 2.34 | 0.63 |
| QB9KEN | | 46.92 | -2.29 | -0.67 | 61.76 | -1.16 | -0.31 |
| QHVB2J | | 42.67 | -6.54 | -1.92 | 56.12 | -6.80 | -1.84 |
| RJHDYJ | | 44.80 | -4.41 | -1.29 | 57.75 | -5.17 | -1.40 |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 312

## Tearing Strength - Printing Papers

## TAPPI Official Test Method T414

| WebCode | Data Flag | Sample SC41 Lab Mean | Sample SC41 Diff from Grand Mean | Sample SC41 CPV | Sample SC42 Lab Mean | Sample SC42 Diff from Grand Mean | Sample SC42 CPV |
|---|---|---|---|---|---|---|---|
| T3QQCR | X | 111.85 | 62.64 | 18.36 | 150.47 | 87.55 | 23.64 |
| TFWQ3P | | 51.20 | 1.99 | 0.58 | 66.44 | 3.52 | 0.95 |
| U2UKMK | | 45.24 | -3.97 | -1.16 | 55.32 | -7.60 | -2.05 |
| UC93B3 | | 45.70 | -3.51 | -1.03 | 58.40 | -4.52 | -1.22 |
| UV4ADL | * | 52.10 | 2.89 | 0.85 | 71.89 | 8.97 | 2.42 |
| W7G6PQ | | 50.01 | 0.80 | 0.24 | 61.74 | -1.18 | -0.32 |
| WRZ7KQ | | 51.66 | 2.45 | 0.72 | 64.36 | 1.44 | 0.39 |
| WYX6Q7 | X | 49.02 | -0.19 | -0.05 | 49.21 | -13.71 | -3.70 |
| X6E4UJ | | 49.92 | 0.71 | 0.21 | 64.88 | 1.96 | 0.53 |
| XABPN8 | | 50.62 | 1.41 | 0.41 | 63.31 | 0.40 | 0.11 |
| XUGVJT | | 54.25 | 5.04 | 1.48 | 66.47 | 3.55 | 0.96 |
| YJE2HF | | 50.36 | 1.16 | 0.34 | 66.13 | 3.21 | 0.87 |
| ZTZM36 | | 50.20 | 0.99 | 0.29 | 60.20 | -2.72 | -0.73 |

### Summary Statistics

| | Sample SC41 | Sample SC42 |
|---|---|---|
| Grand Means | 49.206 Grams | 62.918 Grams |
| SD Btwn Labs | 3.412 Grams | 3.703 Grams |

Statistics based on 48 of 53 reporting participants

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

JNM8NN (X) - Extreme Data.

H83ZBY (X) - Data for sample SC42 are low. Inconsistent within the determinations of sample SC41.

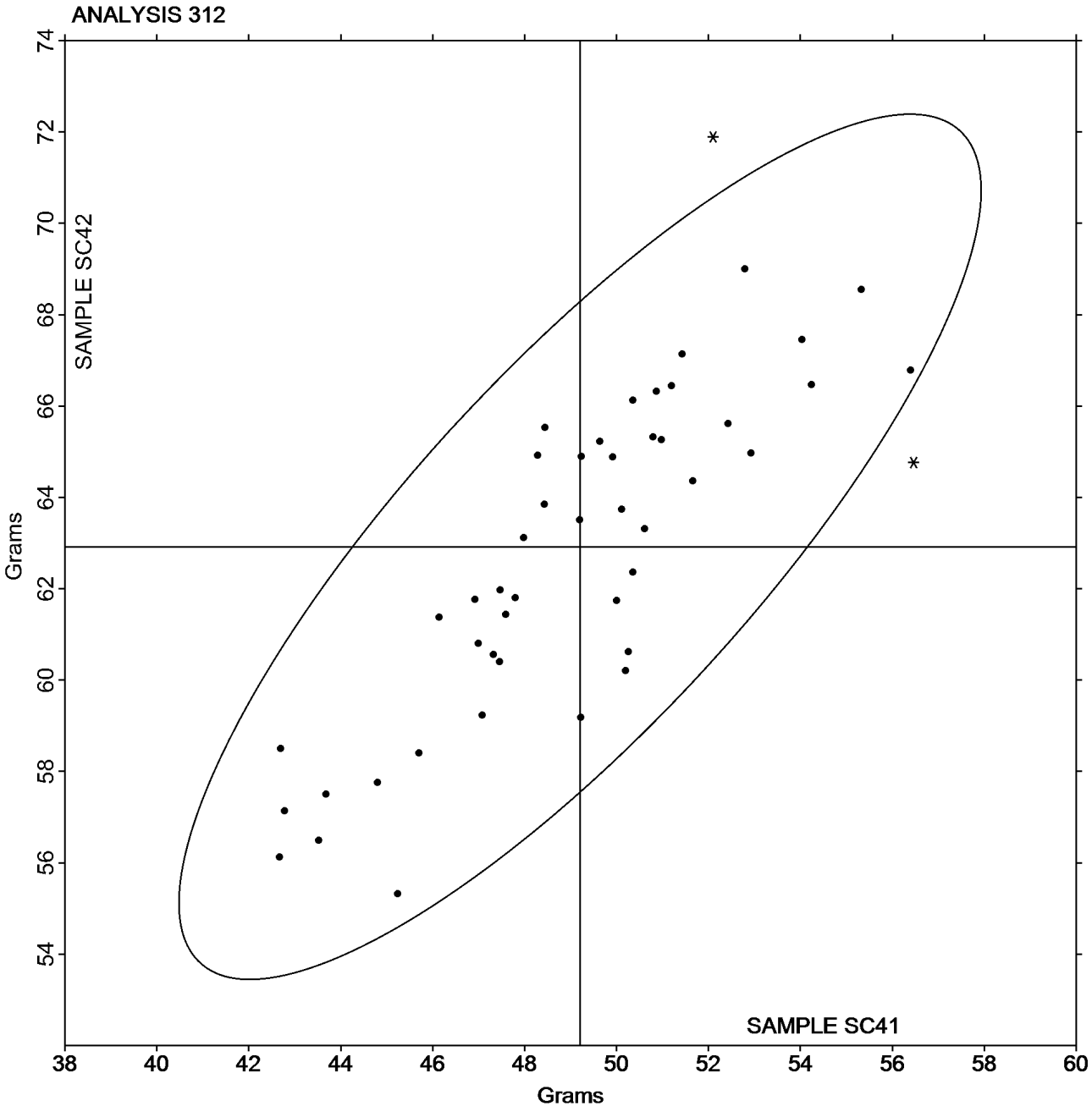
T3QQCR (X) - Extreme Data.

WYX6Q7 (X) - Data for sample SC42 are low. Inconsistent within the determinations of both samples.

JK4ZFN (X) - Extreme Data.

Grand Mean Sample **SC41** = 49.206 Grams

Grand Mean Sample **SC42** = 62.918 Grams



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 314

## Tearing Strength - Packaging Papers

## TAPPI Official Test Method T414

| WebCode | Data Flag | Sample SD41 Lab Mean | Sample SD41 Diff from Grand Mean | Sample SD41 CPV | Sample SD42 Lab Mean | Sample SD42 Diff from Grand Mean | Sample SD42 CPV |
|---|---|---|---|---|---|---|---|
| 37YB84 | | 178.6 | -1.3 | -0.08 | 205.1 | 2.8 | 0.12 |
| 4H7FVB | | 179.9 | 0.0 | 0.00 | 188.0 | -14.4 | -0.63 |
| 7MNM9Z | | 175.6 | -4.2 | -0.25 | 203.6 | 1.3 | 0.06 |
| 7RJKV7 | | 172.0 | -7.8 | -0.47 | 208.8 | 6.5 | 0.29 |
| 8RLL6B | | 169.1 | -10.7 | -0.64 | 202.9 | 0.6 | 0.03 |
| BRNLTZ | | 192.3 | 12.4 | 0.75 | 230.3 | 28.0 | 1.23 |
| BUAA6Z | | 171.6 | -8.2 | -0.49 | 179.6 | -22.7 | -1.00 |
| ECJBRX | | 168.0 | -11.8 | -0.71 | 196.4 | -5.9 | -0.26 |
| HA66HT | | 209.9 | 30.0 | 1.80 | 248.0 | 45.7 | 2.02 |
| HRKBTN | * | 228.9 | 49.1 | 2.95 | 256.2 | 53.9 | 2.38 |
| J7LAGL | X | 177.8 | -2.0 | -0.12 | 214.8 | 12.5 | 0.55 |
| JAZZN2 | | 192.5 | 12.7 | 0.76 | 204.3 | 1.9 | 0.09 |
| JCARWH | | 192.3 | 12.5 | 0.75 | 215.4 | 13.1 | 0.58 |
| JECTVU | | 192.0 | 12.2 | 0.73 | 241.2 | 38.9 | 1.71 |
| KNEMDP | | 177.2 | -2.6 | -0.16 | 222.0 | 19.7 | 0.87 |
| L7WQPJ | | 187.5 | 7.7 | 0.46 | 218.3 | 15.9 | 0.70 |
| LUHTJF | | 201.9 | 22.0 | 1.32 | 191.0 | -11.3 | -0.50 |
| MA6NF4 | | 181.6 | 1.8 | 0.11 | 212.0 | 9.6 | 0.43 |
| MLNZVL | | 172.9 | -6.9 | -0.41 | 200.6 | -1.8 | -0.08 |
| MRQCPX | | 177.2 | -2.6 | -0.16 | 193.3 | -9.0 | -0.40 |
| PYMNZL | | 184.0 | 4.2 | 0.25 | 205.9 | 3.6 | 0.16 |
| R46X3E | | 168.9 | -10.9 | -0.66 | 200.7 | -1.6 | -0.07 |
| RQ6ZEH | * | 155.2 | -24.6 | -1.48 | 137.2 | -65.1 | -2.87 |
| T7P6ZG | | 198.4 | 18.6 | 1.12 | 215.2 | 12.9 | 0.57 |
| TEHHXV | | 172.2 | -7.6 | -0.46 | 190.2 | -12.1 | -0.54 |
| TMVGKE | | 176.4 | -3.4 | -0.21 | 190.4 | -11.9 | -0.53 |
| TPPZVT | | 160.1 | -19.7 | -1.18 | 181.6 | -20.7 | -0.91 |
| UNNN74 | | 190.6 | 10.8 | 0.65 | 182.5 | -19.8 | -0.87 |
| V2MR99 | | 199.2 | 19.4 | 1.16 | 210.6 | 8.3 | 0.37 |
| VC84KL | | 169.2 | -10.6 | -0.64 | 174.0 | -28.3 | -1.25 |
| W3Y6AB | | 157.0 | -22.8 | -1.37 | 193.4 | -8.9 | -0.39 |
| WNDP7C | | 156.3 | -23.5 | -1.41 | 189.6 | -12.7 | -0.56 |
| XAV9TE | | 154.8 | -25.0 | -1.50 | 179.2 | -23.1 | -1.02 |
| ZEZNF8 | | 170.8 | -9.0 | -0.54 | 209.0 | 6.7 | 0.29 |

### Summary Statistics

| | Sample SD41 | Sample SD42 |
|---|---|---|
| Grand Means | 179.82 Grams | 202.31 Grams |
| SD Btwn Labs | 16.65 Grams | 22.67 Grams |

Statistics based on 33 of 34 reporting participants

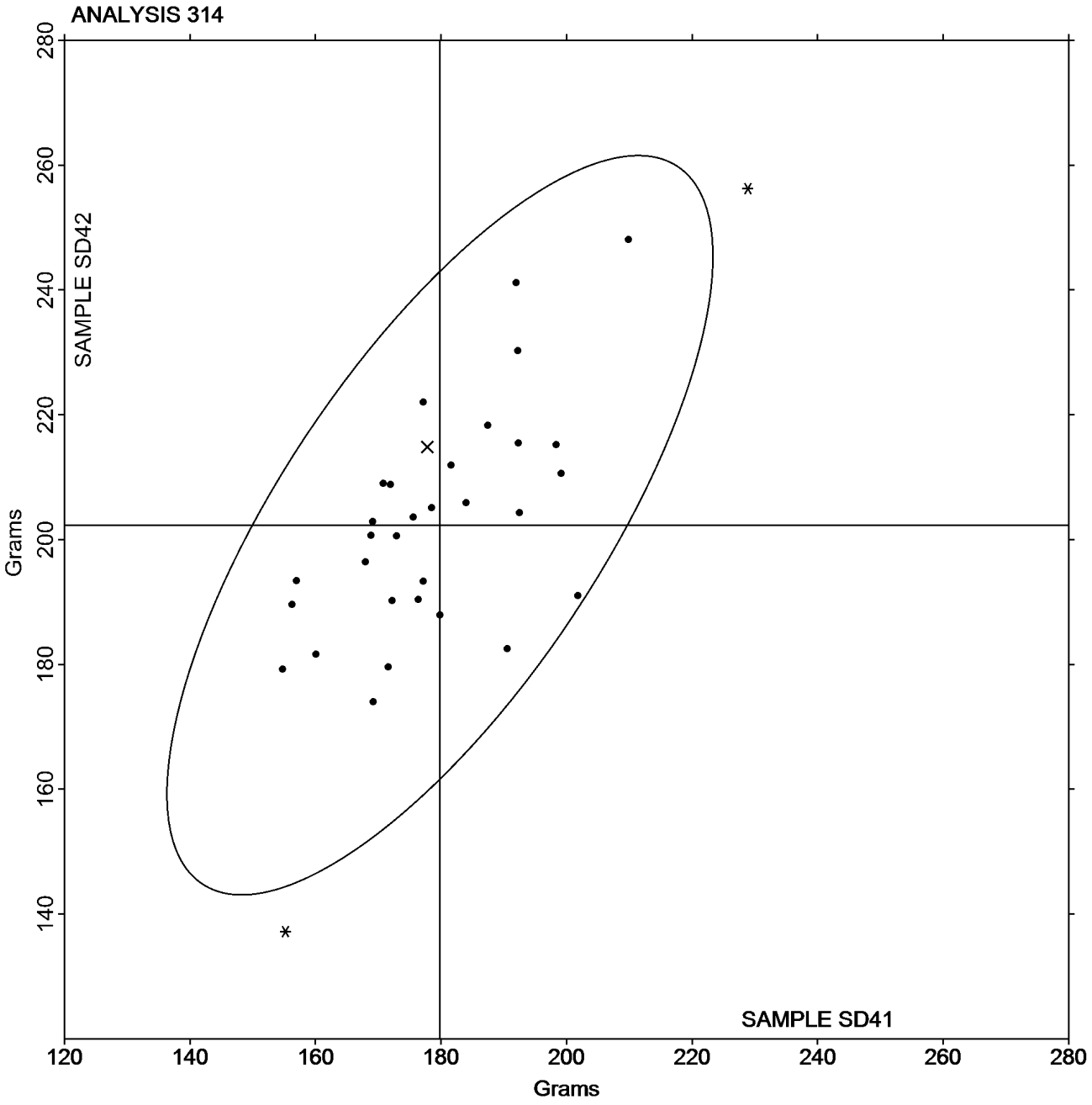
**Comments on Assigned Data Flags for Test #314**

J7LAGL (X) - Data appear to be off by a factor of .25; data converted by CTS (x4).

Grand Mean Sample **SD41** = 179.82 Grams

Grand Mean Sample **SD42** = 202.31 Grams



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 320

## Tensile Breaking Strength - Newsprint

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SR41 Lab Mean | Sample SR41 Diff from Grand Mean | Sample SR41 CPV | Sample SR42 Lab Mean | Sample SR42 Diff from Grand Mean | Sample SR42 CPV |
|---|---|---|---|---|---|---|---|
| 8DKQ7H | | 2.759 | 0.014 | 0.11 | 1.902 | -0.248 | -1.65 |
| 97VRTE | | 2.788 | 0.043 | 0.35 | 2.215 | 0.065 | 0.43 |
| FZKUF2 | | 3.048 | 0.303 | 2.46 | 2.482 | 0.332 | 2.21 |
| HG3PTZ | | 2.841 | 0.096 | 0.78 | 2.190 | 0.040 | 0.26 |
| JC86HP | | 2.642 | -0.103 | -0.84 | 2.019 | -0.131 | -0.87 |
| L7WQPJ | | 2.648 | -0.097 | -0.79 | 2.126 | -0.025 | -0.16 |
| MB27BD | | 2.668 | -0.077 | -0.63 | 2.270 | 0.120 | 0.80 |
| NV66FQ | | 2.642 | -0.103 | -0.84 | 2.158 | 0.008 | 0.05 |
| NWGTWH | | 2.722 | -0.023 | -0.18 | 2.117 | -0.033 | -0.22 |
| UNNMMQ | | 2.649 | -0.096 | -0.78 | 2.026 | -0.124 | -0.82 |
| ZFRX7N | | 2.789 | 0.044 | 0.35 | 2.146 | -0.004 | -0.03 |

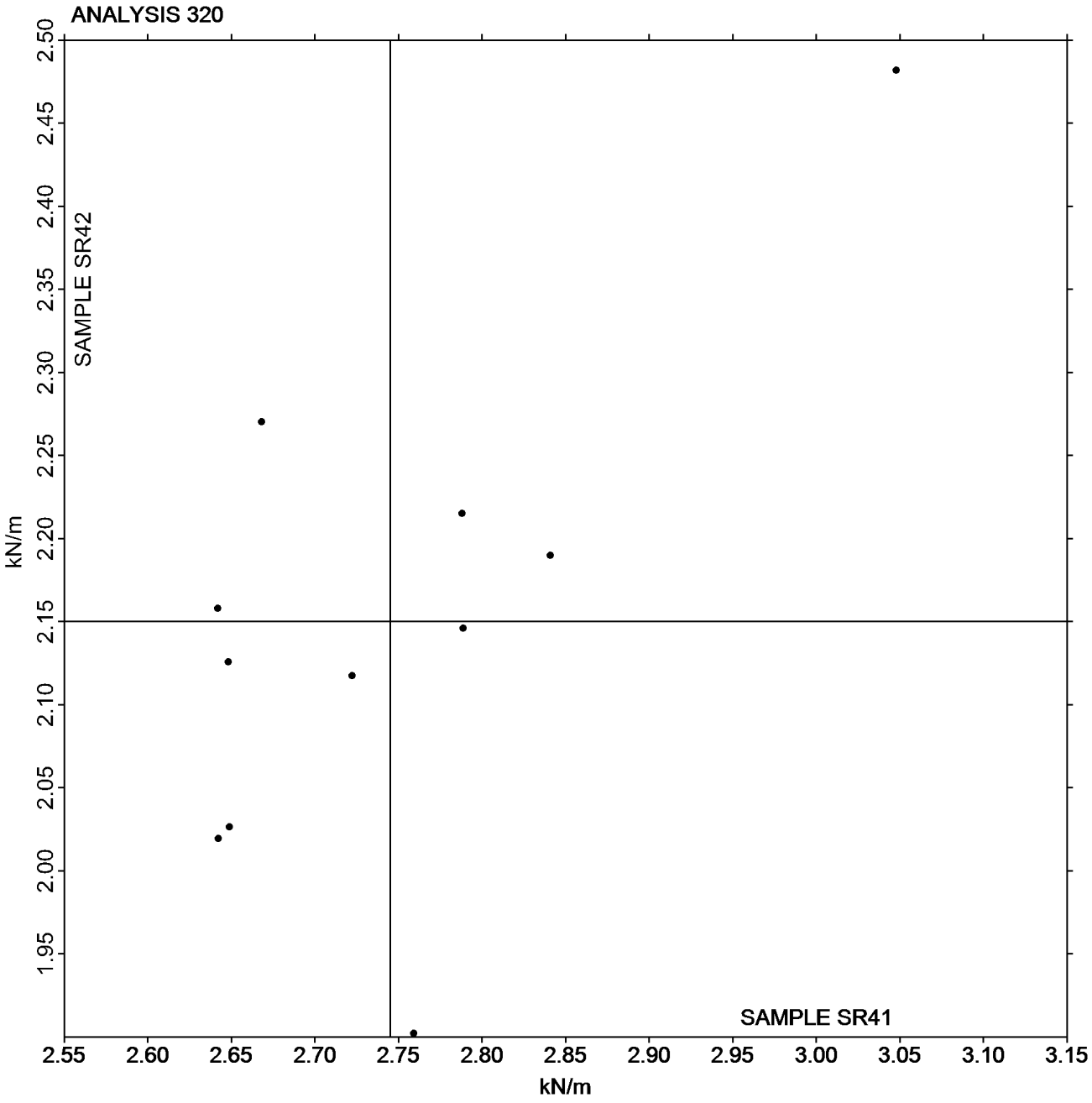
### Summary Statistics

| | Sample SR41 | Sample SR42 |
|---|---|---|
| Grand Means | 2.7451 kN/m | 2.1502 kN/m |
| SD Btwn Labs | 0.1230 kN/m | 0.1504 kN/m |

Statistics based on 11 of 11 reporting participants

Grand Mean Sample **SR41** = 2.7451 kN/m

Grand Mean Sample **SR42** = 2.1502 kN/m




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 SR41 Lab Mean | Sample SR41 Diff from Grand Mean | Sample SR41 CPV | Sample SR42 Lab Mean | Sample SR42 Diff from Grand Mean | Sample SR42 CPV |
|---|---|---|---|---|---|---|---|
| 8DKQ7H | | 22.74 | 3.45 | 1.85 | 14.08 | -0.63 | -0.44 |
| 97VRTE | | 17.12 | -2.17 | -1.17 | 13.72 | -0.99 | -0.70 |
| FZKUF2 | | 19.15 | -0.14 | -0.08 | 17.08 | 2.37 | 1.67 |
| HG3PTZ | | 20.56 | 1.27 | 0.68 | 14.70 | -0.01 | -0.01 |
| JC86HP | | 20.78 | 1.49 | 0.80 | 15.97 | 1.25 | 0.88 |
| L7WQPJ | | 19.85 | 0.56 | 0.30 | 15.67 | 0.96 | 0.67 |
| MB27BD | | 17.15 | -2.14 | -1.15 | 15.98 | 1.27 | 0.89 |
| NWGTWH | | 20.08 | 0.79 | 0.43 | 14.04 | -0.67 | -0.47 |
| UNNMMQ | | 18.14 | -1.15 | -0.62 | 12.51 | -2.20 | -1.55 |
| ZFRX7N | | 17.33 | -1.96 | -1.05 | 13.37 | -1.34 | -0.94 |

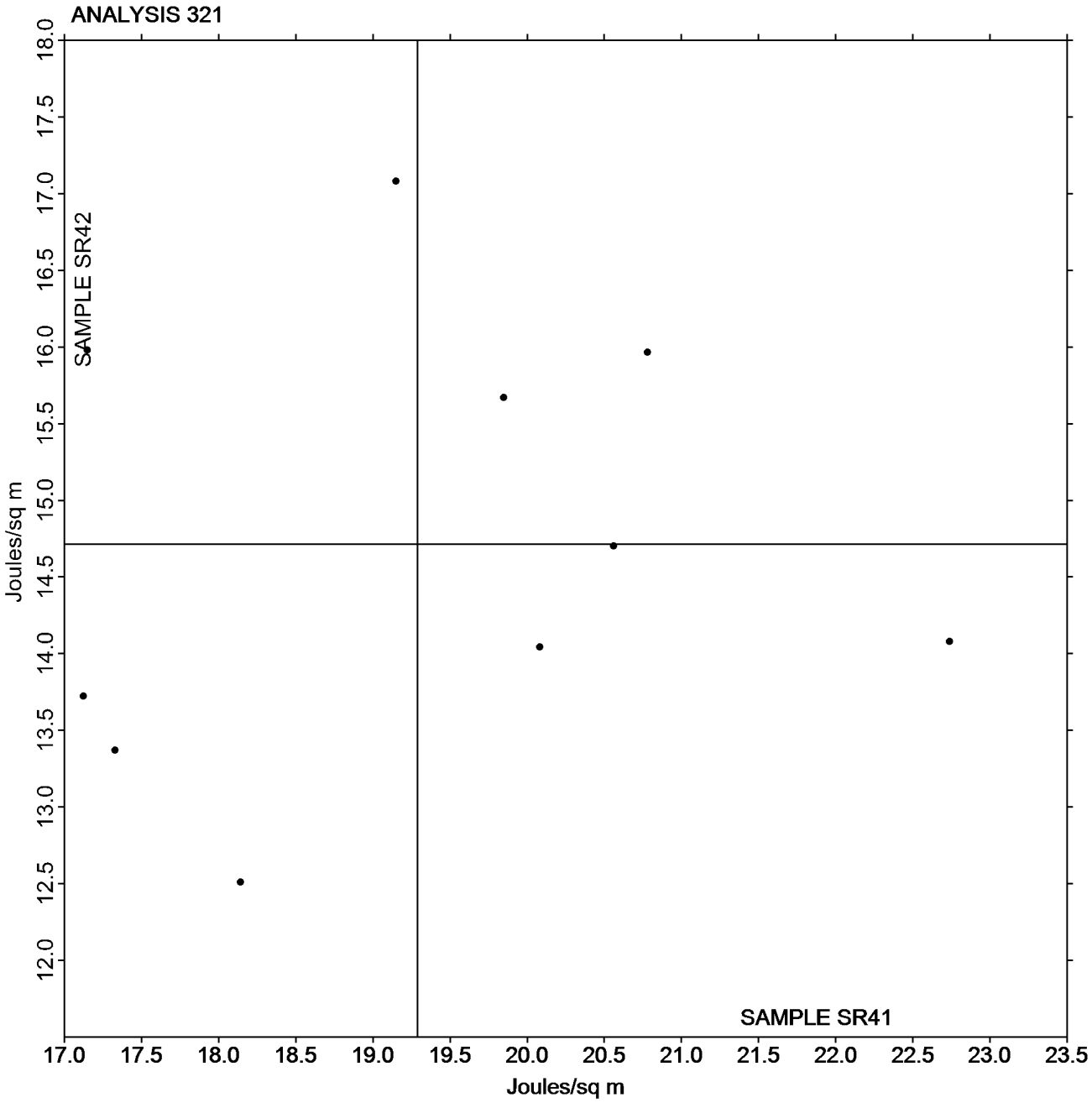
### Summary Statistics

| | Sample SR41 | Sample SR42 |
|---|---|---|
| Grand Means | 19.291 Joules/sq m | 14.712 Joules/sq m |
| SD Btwn Labs | 1.860 Joules/sq m | 1.421 Joules/sq m |

Statistics based on 10 of 10 reporting participants

Grand Mean Sample **SR41** = 19.291 Joules/sq m

Grand Mean Sample **SR42** = 14.712 Joules/sq m




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 SR41 Lab Mean | Sample SR41 Diff from Grand Mean | Sample SR41 CPV | Sample SR42 Lab Mean | Sample SR42 Diff from Grand Mean | Sample SR42 CPV |
|---|---|---|---|---|---|---|---|
| 8DKQ7H | | 1.269 | 0.094 | 0.64 | 1.108 | -0.060 | -0.29 |
| 97VRTE | | 1.043 | -0.132 | -0.89 | 1.067 | -0.101 | -0.49 |
| FZKUF2 | | 1.006 | -0.169 | -1.15 | 1.094 | -0.074 | -0.36 |
| HG3PTZ | | 1.194 | 0.019 | 0.13 | 1.123 | -0.045 | -0.22 |
| JC86HP | | 1.488 | 0.313 | 2.12 | 1.710 | 0.542 | 2.63 |
| L7WQPJ | | 1.054 | -0.121 | -0.82 | 1.060 | -0.108 | -0.52 |
| MB27BD | | 1.118 | -0.057 | -0.39 | 1.167 | -0.001 | 0.00 |
| NWGTWH | | 1.231 | 0.056 | 0.38 | 1.127 | -0.041 | -0.20 |
| UNNMMQ | | 1.172 | -0.003 | -0.02 | 1.055 | -0.113 | -0.55 |

### Summary Statistics

| | Sample SR41 | Sample SR42 |
|---|---|---|
| Grand Means | 1.1750 Percent | 1.1679 Percent |
| SD Btwn Labs | 0.1475 Percent | 0.2065 Percent |

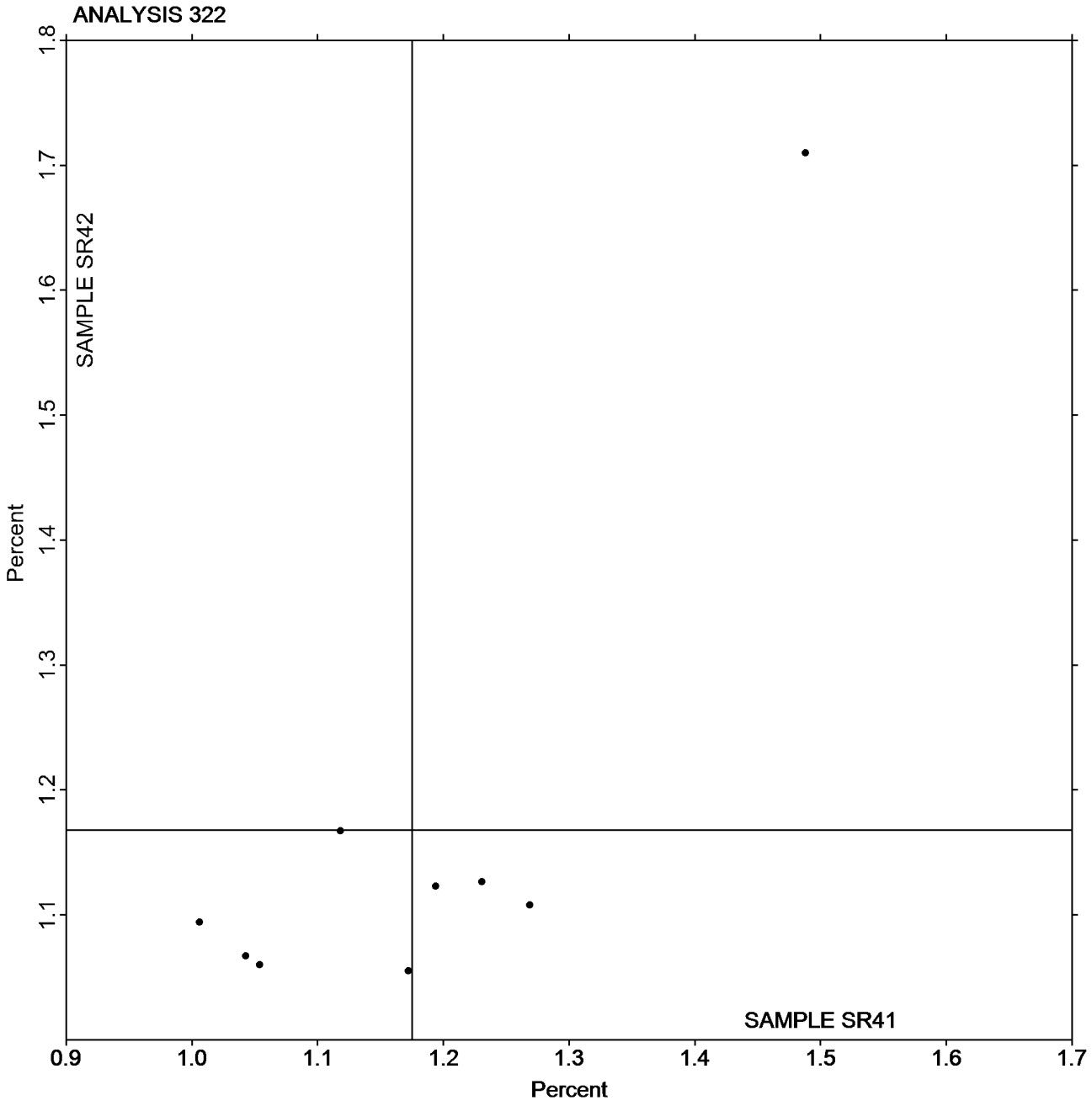
Statistics based on 9 of 9 reporting participants

**Analysis Notes:**

8DKQ7H - One determination removed from the Lab Mean of Sample SR41 per Grubb's Test at 1% risk (TAPPI 1205).

Grand Mean Sample **SR41** = 1.1750 Percent

Grand Mean Sample **SR42** = 1.1679 Percent




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 SF41 Lab Mean | Sample SF41 Diff from Grand Mean | Sample SF41 CPV | Sample SF42 Lab Mean | Sample SF42 Diff from Grand Mean | Sample SF42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2THRJH | | 3.990 | -0.348 | -1.27 | 6.243 | -0.588 | -1.47 | XX |
| 4FHZNN | | 4.500 | 0.162 | 0.59 | 6.940 | 0.110 | 0.27 | TO |
| 7BZGJC | | 4.927 | 0.589 | 2.15 | 7.627 | 0.797 | 1.99 | TJ |
| 7MNM9Z | | 4.395 | 0.057 | 0.21 | 6.756 | -0.075 | -0.19 | LH |
| 7NMQ7G | | 3.966 | -0.372 | -1.36 | 6.503 | -0.327 | -0.82 | LE |
| 832H22 | * | 5.052 | 0.714 | 2.60 | 7.809 | 0.979 | 2.45 | PP |
| 83JAER | | 4.490 | 0.152 | 0.55 | 7.025 | 0.195 | 0.49 | LI |
| 86M6XV | | 3.991 | -0.347 | -1.26 | 6.163 | -0.667 | -1.67 | RE |
| A2XDYX | | 4.178 | -0.160 | -0.58 | 6.585 | -0.245 | -0.61 | LH |
| AVGXDF | | 4.393 | 0.055 | 0.20 | 6.819 | -0.012 | -0.03 | TC |
| BKMBEV | | 4.419 | 0.081 | 0.29 | 7.299 | 0.469 | 1.17 | LI |
| C6BWWW | | 4.615 | 0.277 | 1.01 | 7.295 | 0.464 | 1.16 | XX |
| D2REYC | | 4.309 | -0.029 | -0.11 | 6.809 | -0.021 | -0.05 | TB |
| DJ67T2 | | 4.078 | -0.260 | -0.95 | 6.427 | -0.403 | -1.01 | LI |
| EBAD69 | | 4.308 | -0.030 | -0.11 | 6.777 | -0.053 | -0.13 | IM |
| EGW7F9 | | 4.716 | 0.378 | 1.38 | 7.170 | 0.339 | 0.85 | TJ |
| EMKNW6 | * | 4.201 | -0.137 | -0.50 | 6.084 | -0.747 | -1.87 | LA |
| FELQDU | | 4.678 | 0.340 | 1.24 | 7.268 | 0.438 | 1.09 | LH |
| FZ36UZ | | 4.547 | 0.209 | 0.76 | 6.949 | 0.119 | 0.30 | TF |
| GEJDE6 | | 4.383 | 0.045 | 0.17 | 6.882 | 0.052 | 0.13 | LH |
| GMTPMV | | 4.656 | 0.318 | 1.16 | 7.295 | 0.464 | 1.16 | TN |
| GTKUHK | | 4.619 | 0.281 | 1.02 | 7.108 | 0.278 | 0.69 | TB |
| H83ZBY | X | 4.965 | 0.627 | 2.28 | 4.232 | -2.599 | -6.49 | XX |
| HEJFXH | | 4.704 | 0.366 | 1.33 | 7.291 | 0.461 | 1.15 | LI |
| HXCL4M | | 4.086 | -0.252 | -0.92 | 6.361 | -0.469 | -1.17 | TF |
| HYP9L2 | | 4.408 | 0.070 | 0.26 | 7.233 | 0.403 | 1.01 | CB |
| JK4ZFN | | 4.545 | 0.206 | 0.75 | 6.875 | 0.045 | 0.11 | XX |
| KJ4GQR | | 4.284 | -0.054 | -0.20 | 6.467 | -0.363 | -0.91 | LA |
| KTC8EN | | 4.088 | -0.250 | -0.91 | 6.578 | -0.252 | -0.63 | TB |
| L8AFW3 | | 4.350 | 0.012 | 0.04 | 6.869 | 0.038 | 0.09 | LH |
| LWKWAG | | 4.017 | -0.321 | -1.17 | 6.497 | -0.333 | -0.83 | DL |
| NQC62V | | 4.119 | -0.219 | -0.80 | 6.820 | -0.010 | -0.03 | LI |
| QB9KEN | | 4.301 | -0.037 | -0.13 | 6.895 | 0.064 | 0.16 | TO |
| QHVB2J | | 4.543 | 0.205 | 0.75 | 6.996 | 0.165 | 0.41 | LF |
| RJHDYJ | | 4.452 | 0.114 | 0.41 | 7.205 | 0.374 | 0.93 | LA |
| RQ6ZEH | | 4.198 | -0.140 | -0.51 | 6.774 | -0.056 | -0.14 | IM |
| T3QQCR | | 4.318 | -0.020 | -0.07 | 7.141 | 0.310 | 0.77 | LX |
| TFWQ3P | | 4.023 | -0.315 | -1.15 | 6.432 | -0.398 | -0.99 | LX |
| U2UKMK | | 4.171 | -0.167 | -0.61 | 6.760 | -0.070 | -0.18 | TB |
| UC93B3 | | 4.253 | -0.085 | -0.31 | 6.893 | 0.062 | 0.16 | MR |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 325

## Tensile Breaking Strength - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF41 Lab Mean | Sample SF41 Diff from Grand Mean | Sample SF41 CPV | Sample SF42 Lab Mean | Sample SF42 Diff from Grand Mean | Sample SF42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| W7G6PQ | | 4.557 | 0.219 | 0.80 | 6.821 | -0.009 | -0.02 | TJ |
| WQZDHC | | 4.452 | 0.114 | 0.41 | 7.093 | 0.262 | 0.65 | TP |
| WRZ7KQ | | 3.728 | -0.610 | -2.22 | 6.146 | -0.685 | -1.71 | ID |
| WYX6Q7 | X | 4.963 | 0.625 | 2.28 | 4.112 | -2.719 | -6.79 | TP |
| X6E4UJ | | 3.975 | -0.363 | -1.32 | 5.973 | -0.857 | -2.14 | TF |
| XUGVJT | | 4.082 | -0.256 | -0.93 | 6.603 | -0.228 | -0.57 | LH |
| YJE2HF | | 4.148 | -0.190 | -0.69 | 6.814 | -0.016 | -0.04 | LI |

### Summary Statistics

| | Sample SF41 | Sample SF42 |
|---|---|---|
| Grand Means | 4.3380 kN/m | 6.8305 kN/m |
| SD Btwn Labs | 0.2744 kN/m | 0.4003 kN/m |

Statistics based on 45 of 47 reporting participants

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

H83ZBY (X) - Extreme Data for Sample SF42.

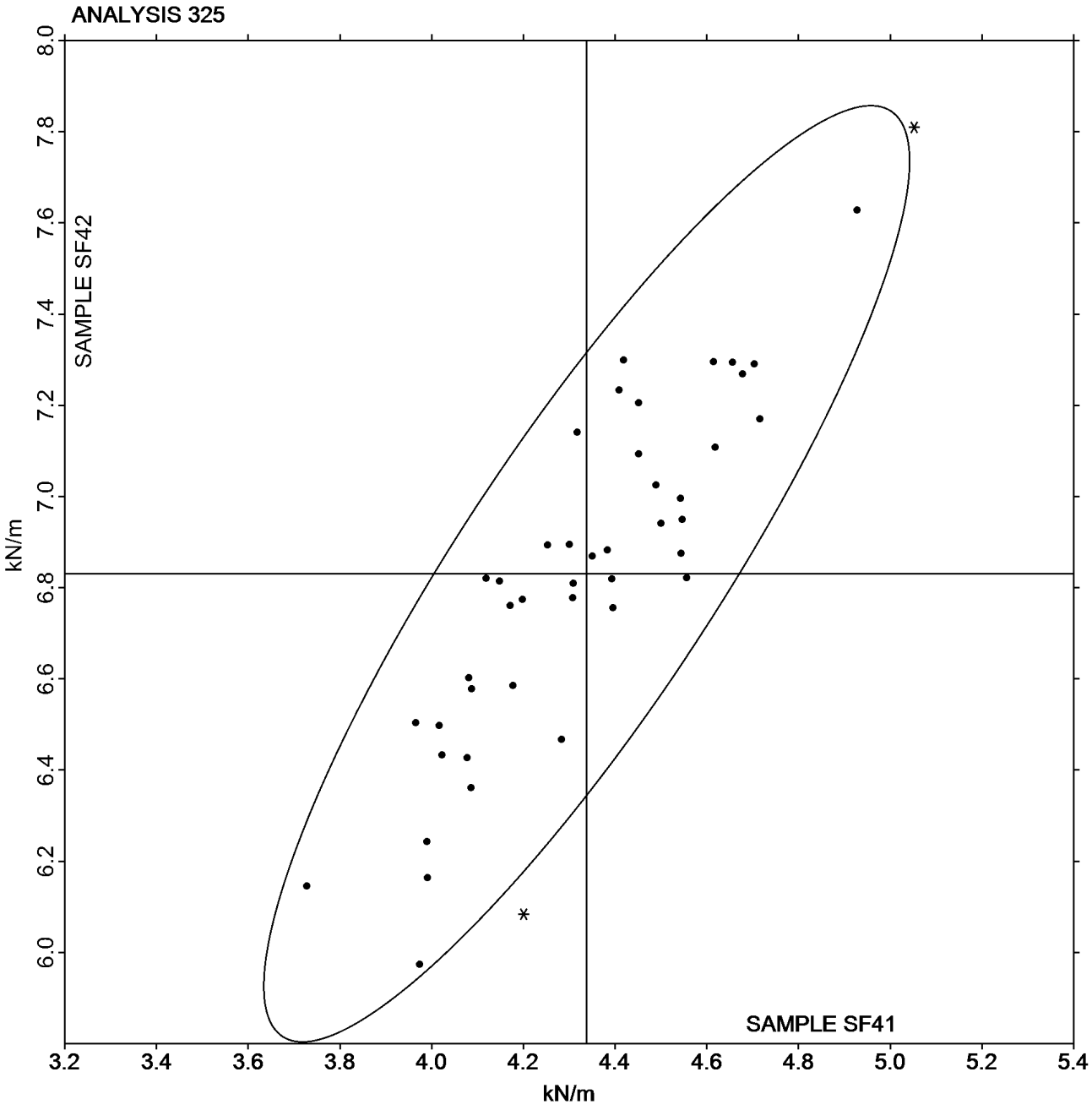
WYX6Q7 (X) - Extreme Data for Sample SF42.

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| CB | Chatillon DFIS 50 (Digital Gauge)/TCD 200 | DL | EMIC DL500 Universal Testing Machines |
| ID | Instron 4201/4202 | IM | Instron 5500 Series |
| LA | L & W Tensile - Autoline 300 | 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 | LX | L & W (model not specified) |
| MR | MTS Alliance RT series | PP | Technidyne Profile/Plus |
| 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 | TN | Testometric M100-1CT |
| TO | Thwing-Albert QC-1000 | TP | TMI Monitor/Tensile 100 (84-21-01) |
| XX | Instrument make/model not specified by lab | | |

Grand Mean Sample **SF41** = 4.3380 kN/m

Grand Mean Sample **SF42** = 6.8305 kN/m



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 327

## Tensile Energy Absorption - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF41 Lab Mean | Sample SF41 Diff from Grand Mean | Sample SF41 CPV | Sample SF42 Lab Mean | Sample SF42 Diff from Grand Mean | Sample SF42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2THRJH | | 33.23 | -7.47 | -2.06 | 78.22 | -16.36 | -1.71 | XX |
| 4FHZNN | | 39.91 | -0.80 | -0.22 | 90.77 | -3.82 | -0.40 | TO |
| 7BZGJC | | 46.20 | 5.50 | 1.52 | 109.76 | 15.17 | 1.58 | TJ |
| 7MNM9Z | | 44.83 | 4.13 | 1.14 | 93.42 | -1.17 | -0.12 | LH |
| 832H22 | | 37.37 | -3.33 | -0.92 | 93.05 | -1.54 | -0.16 | PP |
| 83JAER | | 44.51 | 3.81 | 1.05 | 98.58 | 3.99 | 0.42 | LI |
| 86M6XV | | 40.48 | -0.22 | -0.06 | 89.80 | -4.79 | -0.50 | RE |
| A2XDYX | | 42.81 | 2.10 | 0.58 | 98.14 | 3.56 | 0.37 | LH |
| BKMBEV | | 41.67 | 0.97 | 0.27 | 108.95 | 14.36 | 1.50 | LI |
| C6BWWW | X | 2.90 | -37.81 | -10.44 | 3.38 | -91.21 | -9.52 | XX |
| DJ67T2 | | 38.86 | -1.84 | -0.51 | 91.51 | -3.07 | -0.32 | LI |
| EBAD69 | | 44.80 | 4.09 | 1.13 | 102.12 | 7.53 | 0.79 | IM |
| EMKNW6 | * | 33.14 | -7.56 | -2.09 | 64.97 | -29.62 | -3.09 | LA |
| FZ36UZ | | 43.49 | 2.78 | 0.77 | 94.26 | -0.33 | -0.03 | TF |
| GEJDE6 | | 45.27 | 4.56 | 1.26 | 98.40 | 3.81 | 0.40 | LH |
| GMTPMV | | 39.95 | -0.76 | -0.21 | 97.69 | 3.10 | 0.32 | LX |
| GTKUHK | | 45.76 | 5.06 | 1.40 | 102.53 | 7.94 | 0.83 | TB |
| H83ZBY | X | 90.44 | 49.73 | 13.73 | 101.80 | 7.21 | 0.75 | XX |
| HEJFXH | | 46.26 | 5.55 | 1.53 | 99.10 | 4.51 | 0.47 | LI |
| KTC8EN | | 40.80 | 0.10 | 0.03 | 101.38 | 6.79 | 0.71 | TB |
| L8AFW3 | | 41.91 | 1.20 | 0.33 | 93.76 | -0.82 | -0.09 | LH |
| LWKWAG | | 39.28 | -1.42 | -0.39 | 100.62 | 6.03 | 0.63 | DL |
| NQC62V | | 39.98 | -0.73 | -0.20 | 94.64 | 0.05 | 0.00 | LI |
| QB9KEN | | 40.13 | -0.57 | -0.16 | 100.11 | 5.53 | 0.58 | TO |
| QHVB2J | | 32.91 | -7.80 | -2.15 | 71.33 | -23.25 | -2.43 | LW |
| RJHDYJ | | 42.61 | 1.90 | 0.53 | 99.67 | 5.08 | 0.53 | LA |
| RQ6ZEH | | 40.61 | -0.09 | -0.02 | 99.75 | 5.16 | 0.54 | IM |
| T3QQCR | | 41.00 | 0.30 | 0.08 | 100.14 | 5.56 | 0.58 | LX |
| TFWQ3P | | 37.33 | -3.37 | -0.93 | 89.72 | -4.86 | -0.51 | LX |
| UC93B3 | | 36.66 | -4.04 | -1.12 | 89.10 | -5.49 | -0.57 | MR |
| WRZ7KQ | | 40.45 | -0.25 | -0.07 | 104.80 | 10.21 | 1.07 | ID |
| X6E4UJ | | 42.50 | 1.80 | 0.50 | 84.53 | -10.05 | -1.05 | TF |
| XUGVJT | | 37.77 | -2.94 | -0.81 | 89.80 | -4.79 | -0.50 | LH |
| YJE2HF | | 40.05 | -0.66 | -0.18 | 96.18 | 1.59 | 0.17 | LI |

### Summary Statistics

| | Sample SF41 | Sample SF42 |
|---|---|---|
| Grand Means | 40.705 Joules/sq m | 94.588 Joules/sq m |
| SD Btwn Labs | 3.621 Joules/sq m | 9.584 Joules/sq m |

Statistics based on 32 of 34 reporting participants

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

H83ZBY (X) - Extreme Data for Sample SF41.

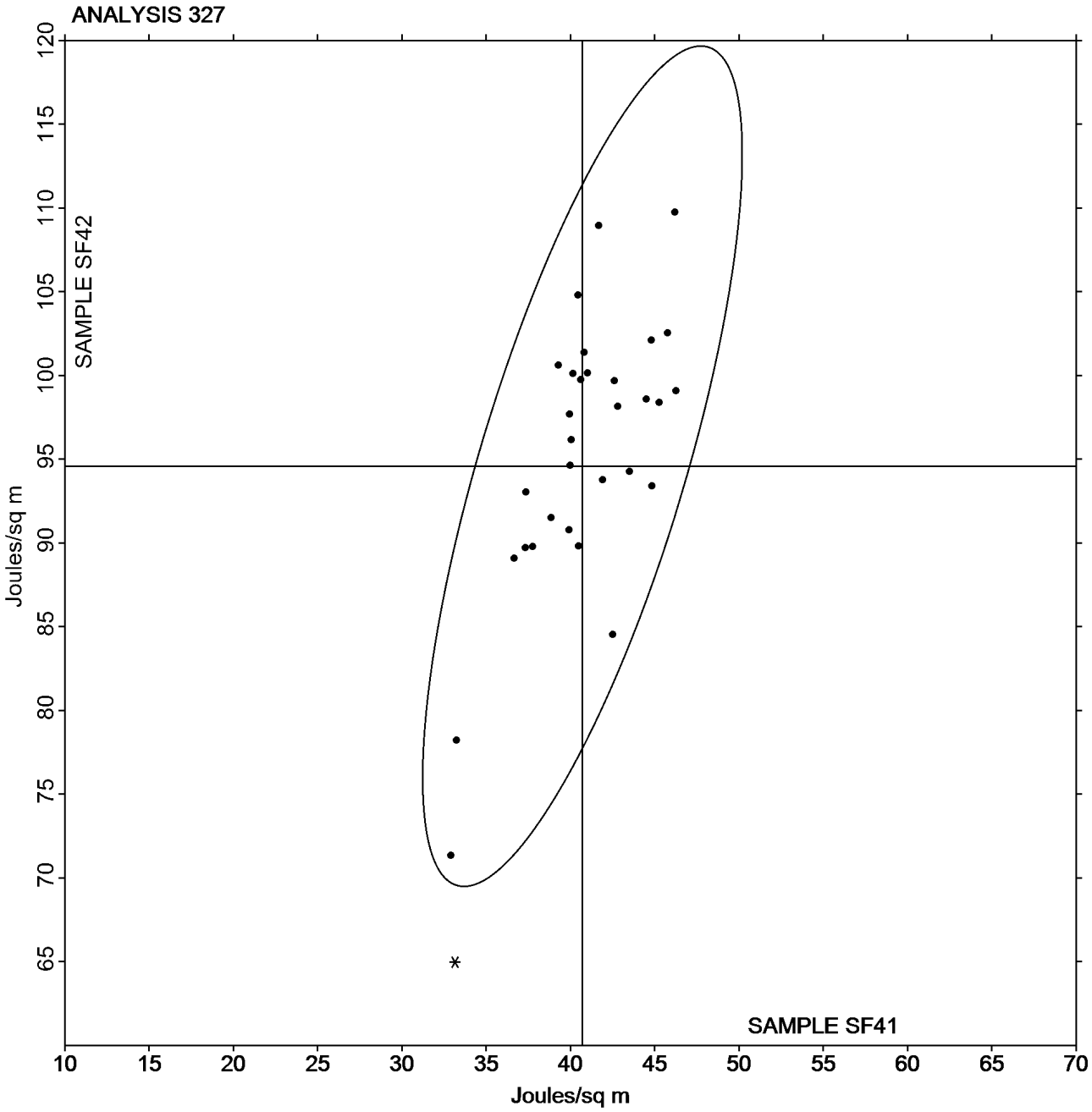
C6BWWW (X) - Extreme Data.

**Key to Instrument Codes Reported by Participants**

| | | | |
|---|---|---|---|
| DL | EMIC DL500 Universal Testing Machines | ID | Instron 4201 |
| IM | Instron 5500 Series | LA | L & W Tensile - Autoline 300 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LI | L & W Tensile Tester SE 062 |
| LW | L & W Tensile Tester SE 064 | LX | L & W (model not specified) |
| MR | MTS Alliance RT series | PP | Technidyne Profile/Plus |
| RE | Regmed | TB | Thwing-Albert EJA/1000 |
| TF | Thwing-Albert EJA Vantage-1 | TJ | Thwing-Albert QC II-XS |
| TO | Thwing-Albert QC-1000 | XX | Instrument make/model not specified by lab |

Grand Mean Sample **SF41** = 40.705 Joules/sq m

Grand Mean Sample **SF42** = 94.588 Joules/sq m



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 328

## Elongation to Break - Printing Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SF41 Lab Mean | Sample SF41 Diff from Grand Mean | Sample SF41 CPV | Sample SF42 Lab Mean | Sample SF42 Diff from Grand Mean | Sample SF42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2THRJH | | 1.656 | 0.151 | 1.35 | 2.390 | 0.215 | 1.04 | XX |
| 4FHZNN | | 1.361 | -0.144 | -1.29 | 1.987 | -0.188 | -0.91 | TG |
| 7BZGJC | | 1.613 | 0.108 | 0.96 | 2.320 | 0.145 | 0.70 | TJ |
| 7MNM9Z | | 1.531 | 0.026 | 0.23 | 2.091 | -0.084 | -0.40 | LH |
| 832H22 | X | 1.012 | -0.493 | -4.42 | 1.690 | -0.485 | -2.34 | PP |
| 83JAER | | 1.545 | 0.040 | 0.35 | 2.167 | -0.008 | -0.04 | LI |
| 86M6XV | | 1.605 | 0.099 | 0.89 | 2.323 | 0.148 | 0.72 | RE |
| A2XDYX | | 1.550 | 0.045 | 0.40 | 2.253 | 0.078 | 0.38 | LH |
| BKMBEV | | 1.455 | -0.050 | -0.45 | 2.274 | 0.099 | 0.48 | LI |
| D2REYC | | 1.492 | -0.014 | -0.12 | 2.149 | -0.026 | -0.13 | TB |
| DJ67T2 | | 1.457 | -0.048 | -0.43 | 2.155 | -0.020 | -0.10 | LI |
| EBAD69 | | 1.625 | 0.120 | 1.07 | 2.336 | 0.161 | 0.78 | IM |
| EMKNW6 | | 1.443 | -0.062 | -0.56 | 1.905 | -0.270 | -1.30 | LA |
| FZ36UZ | | 1.611 | 0.106 | 0.95 | 2.245 | 0.070 | 0.34 | TF |
| GEJDE6 | | 1.581 | 0.076 | 0.68 | 2.210 | 0.035 | 0.17 | LH |
| GMTPMV | X | 1.248 | -0.257 | -2.30 | 2.275 | 0.100 | 0.48 | LX |
| GTKUHK | | 1.549 | 0.044 | 0.39 | 2.234 | 0.059 | 0.29 | TB |
| H83ZBY | X | 3.502 | 1.997 | 17.88 | 2.811 | 0.636 | 3.07 | XX |
| HEJFXH | | 1.427 | -0.078 | -0.70 | 1.928 | -0.247 | -1.19 | LI |
| HXCL4M | | 1.590 | 0.085 | 0.76 | 2.290 | 0.115 | 0.56 | TF |
| KTC8EN | | 1.540 | 0.035 | 0.31 | 2.363 | 0.188 | 0.91 | TB |
| L8AFW3 | | 1.492 | -0.013 | -0.12 | 2.080 | -0.095 | -0.46 | LH |
| LWKWAG | | 1.668 | 0.163 | 1.46 | 2.530 | 0.355 | 1.71 | DL |
| NQC62V | | 1.509 | 0.004 | 0.03 | 2.174 | -0.001 | 0.00 | LI |
| QB9KEN | | 1.454 | -0.051 | -0.46 | 2.219 | 0.044 | 0.21 | TO |
| QHVB2J | * | 1.196 | -0.309 | -2.77 | 1.631 | -0.544 | -2.62 | LX |
| RJHDYJ | | 1.360 | -0.145 | -1.30 | 1.943 | -0.232 | -1.12 | XX |
| RQ6ZEH | | 1.499 | -0.006 | -0.06 | 2.258 | 0.083 | 0.40 | IM |
| T3QQCR | | 1.469 | -0.036 | -0.33 | 2.149 | -0.026 | -0.12 | LX |
| TFWQ3P | | 1.410 | -0.095 | -0.85 | 2.113 | -0.062 | -0.30 | LX |
| U2UKMK | | 1.610 | 0.105 | 0.94 | 2.533 | 0.358 | 1.73 | TF |
| UC93B3 | | 1.393 | -0.112 | -1.00 | 2.017 | -0.158 | -0.76 | MR |
| W7G6PQ | | 1.270 | -0.235 | -2.11 | 1.700 | -0.475 | -2.29 | LH |
| WRZ7KQ | | 1.653 | 0.148 | 1.32 | 2.580 | 0.405 | 1.95 | ID |
| X6E4UJ | * | 1.655 | 0.149 | 1.34 | 2.174 | -0.001 | -0.01 | TF |
| XUGVJT | | 1.429 | -0.076 | -0.68 | 2.075 | -0.100 | -0.48 | LH |
| YJE2HF | | 1.484 | -0.021 | -0.19 | 2.151 | -0.024 | -0.12 | LI |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 328

## Elongation to Break - Printing Papers

## TAPPI Official Test Method T494

### Summary Statistics

| | Sample SF41 | Sample SF42 |
|---|---|---|
| Grand Means | 1.5054 Percent | 2.1749 Percent |
| SD Btwn Labs | 0.1117 Percent | 0.2073 Percent |

Statistics based on 34 of 37 reporting participants

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

H83ZBY (X) - Extreme Data.

832H22 (X) - Data for sample SF41 are low.

GMTPMV (X) - Inconsistent in testing between samples.

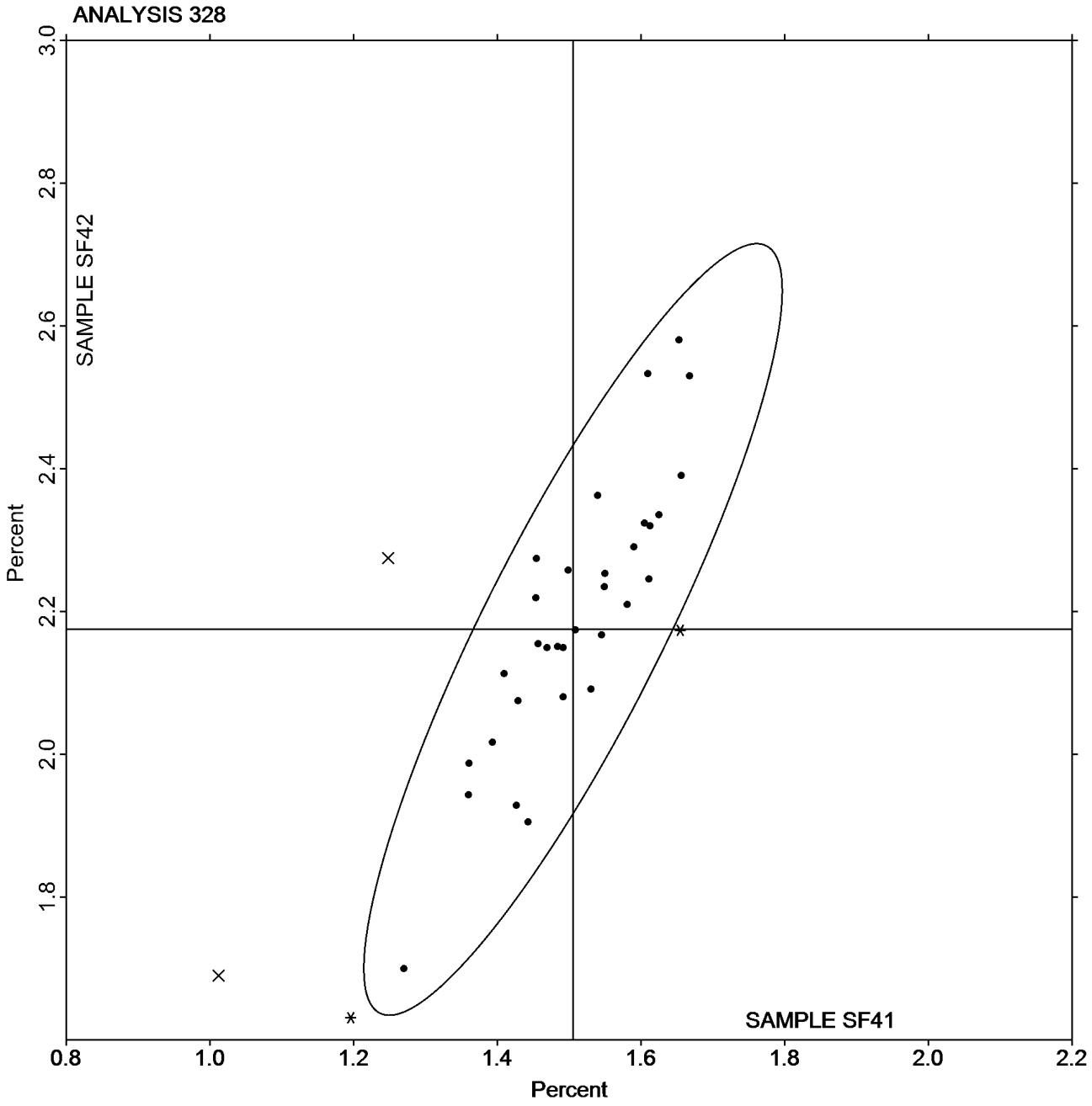
U2UKMK - One determination removed from the Lab Mean of Sample SF42 per Grubb's Test at 1% risk (TAPPI 1205).

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| DL | EMIC DL500 Universal Testing Machines | ID | Instron 4201 |
| IM | Instron 5500 | LA | L & W Tensile - Autoline 300 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LI | L & W Tensile Tester SE 062 |
| LX | L & W (model not specified) | MR | MTS Alliance RT series |
| PP | Technidyne Profile/Plus | RE | Regmed |
| TB | Thwing-Albert EJA/1000 | TF | Thwing-Albert EJA Vantage-1 |
| TG | Thwing-Albert QC | TJ | Thwing-Albert QC II-XS |
| TO | Thwing-Albert QC-1000 | XX | Instrument make/model not specified by lab |

Grand Mean Sample **SF41** = 1.5054 Percent

Grand Mean Sample **SF42** = 2.1749 Percent



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 330

## Tensile Breaking Strength - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE41 Lab Mean | Sample SE41 Diff from Grand Mean | Sample SE41 CPV | Sample SE42 Lab Mean | Sample SE42 Diff from Grand Mean | Sample SE42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2BDNBC | | 10.340 | 1.259 | 1.96 | 14.77 | 1.89 | 2.14 | TR |
| 37YB84 | | 9.164 | 0.084 | 0.13 | 13.28 | 0.40 | 0.45 | TO |
| 4NAKLA | | 9.293 | 0.212 | 0.33 | 12.52 | -0.36 | -0.41 | XX |
| 4Z6T7W | | 8.984 | -0.097 | -0.15 | 12.71 | -0.17 | -0.19 | TH |
| 7MNM9Z | | 9.000 | -0.081 | -0.13 | 13.47 | 0.59 | 0.67 | LH |
| 7RJKV7 | | 9.954 | 0.874 | 1.36 | 13.70 | 0.82 | 0.93 | TH |
| 7ZX77U | | 8.336 | -0.745 | -1.16 | 11.44 | -1.44 | -1.64 | TO |
| 9PRZ6R | | 9.914 | 0.833 | 1.30 | 14.00 | 1.12 | 1.27 | LI |
| AWLRQQ | X | 8.261 | -0.820 | -1.28 | 10.57 | -2.31 | -2.63 | LA |
| BRNLTZ | | 8.305 | -0.776 | -1.21 | 12.96 | 0.08 | 0.09 | LE |
| BVDRDW | | 8.380 | -0.700 | -1.09 | 12.13 | -0.75 | -0.85 | XX |
| D2REYC | | 8.918 | -0.162 | -0.25 | 12.50 | -0.38 | -0.43 | TB |
| DJ9JK6 | | 8.914 | -0.167 | -0.26 | 12.94 | 0.06 | 0.07 | IF |
| ECJBRX | | 9.955 | 0.874 | 1.36 | 14.44 | 1.56 | 1.77 | TH |
| FZ36UZ | | 9.012 | -0.069 | -0.11 | 12.67 | -0.21 | -0.24 | TO |
| GRTRXQ | | 8.618 | -0.463 | -0.72 | 11.99 | -0.89 | -1.02 | IM |
| HA66HT | | 9.734 | 0.654 | 1.02 | 14.25 | 1.37 | 1.56 | TA |
| JECTVU | * | 10.478 | 1.397 | 2.18 | 15.27 | 2.39 | 2.71 | LA |
| KNEMDP | | 8.674 | -0.407 | -0.63 | 12.47 | -0.41 | -0.47 | LH |
| LUHTJF | | 8.835 | -0.246 | -0.38 | 12.27 | -0.61 | -0.69 | ID |
| M6WAPR | | 10.177 | 1.096 | 1.71 | 13.86 | 0.98 | 1.11 | LA |
| MA6NF4 | | 8.493 | -0.588 | -0.92 | 12.59 | -0.29 | -0.33 | TB |
| MLNZVL | | 8.729 | -0.352 | -0.55 | 12.80 | -0.08 | -0.10 | XX |
| MRQCPX | X | 1,133.000 | 1,123.919 | 1,750.15 | 1,340.00 | 1,327.12 | 1,506.90 | LE |
| ND8WDL | | 8.408 | -0.672 | -1.05 | 12.36 | -0.52 | -0.59 | TB |
| NHYZ7Q | | 10.189 | 1.108 | 1.73 | 13.85 | 0.97 | 1.10 | TH |
| PDJ3XU | | 8.735 | -0.346 | -0.54 | 12.44 | -0.44 | -0.50 | LA |
| PHDYKY | | 8.609 | -0.472 | -0.73 | 12.66 | -0.22 | -0.25 | LE |
| R46X3E | | 9.460 | 0.380 | 0.59 | 12.91 | 0.03 | 0.04 | TO |
| R8PMMR | | 8.679 | -0.401 | -0.62 | 12.61 | -0.27 | -0.30 | LW |
| T7P6ZG | | 8.269 | -0.811 | -1.26 | 11.84 | -1.04 | -1.18 | LE |
| TEHHXV | | 8.928 | -0.153 | -0.24 | 12.63 | -0.25 | -0.28 | LE |
| TMVGKE | X | 6.030 | -3.051 | -4.75 | 10.34 | -2.54 | -2.88 | ID |
| TPPZVT | | 8.485 | -0.596 | -0.93 | 12.27 | -0.61 | -0.69 | IK |
| UNNN74 | * | 9.574 | 0.494 | 0.77 | 11.80 | -1.08 | -1.22 | IF |
| VC84KL | * | 9.486 | 0.405 | 0.63 | 11.74 | -1.14 | -1.30 | IK |
| W3Y6AB | | 8.625 | -0.456 | -0.71 | 12.73 | -0.15 | -0.17 | LW |
| WNDP7C | | 9.015 | -0.066 | -0.10 | 12.26 | -0.62 | -0.70 | SA |
| XAV9TE | | 9.122 | 0.042 | 0.06 | 13.26 | 0.38 | 0.43 | XX |
| Z3P8RB | | 8.192 | -0.888 | -1.38 | 12.18 | -0.70 | -0.79 | IM |

# Paper & Paperboard Interlaboratory Testing Program

**Analysis 330**
**Tensile Breaking Strength - Packaging Papers**
**TAPPI Official Test Method T494**

| WebCode | Data Flag | Sample SE41 Lab Mean | Sample SE41 Diff from Grand Mean | Sample SE41 CPV | Sample SE42 Lab Mean | Sample SE42 Diff from Grand Mean | Sample SE42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|

## Summary Statistics

| | Sample SE41 | Sample SE42 |
|---|---|---|
| Grand Means | 9.0806 kN/m | 12.880 kN/m |
| SD Btwn Labs | 0.6422 kN/m | 0.881 kN/m |

Statistics based on 37 of 40 reporting participants

## Comments on Assigned Data Flags for Test #330

MRQCPX (X) - Extreme Data.

TMVGKE (X) - Data for both samples are low.

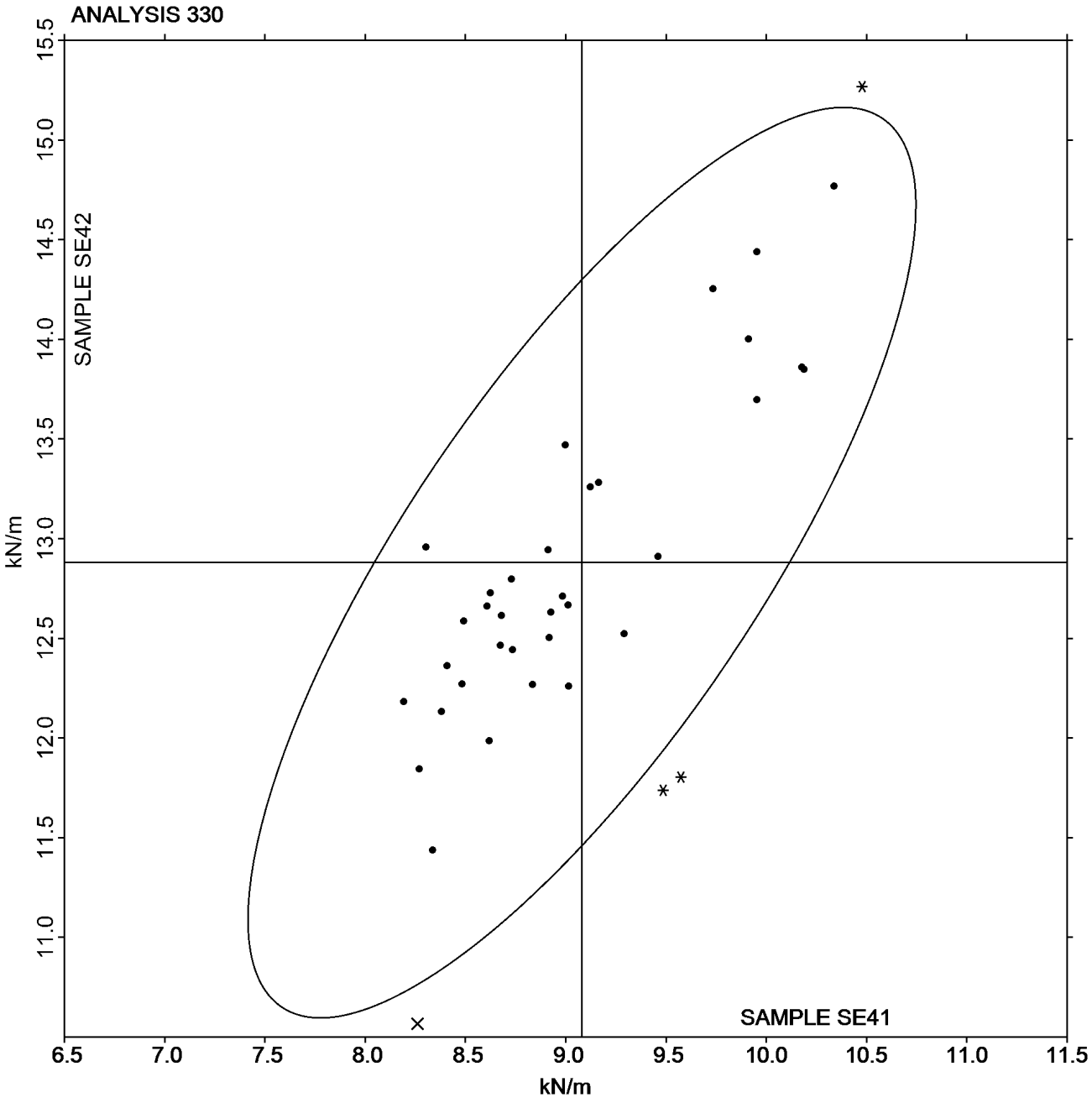
AWLRQQ (X) - Data appear to be off by a factor of 2. Corrected by CTS (x.5).

## Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| ID | Instron 4201 | IF | Instron 3340 Series |
| IK | Instron 4400 Series | IM | Instron 5500 Series |
| LA | L & W Autoline | LE | L & W Tensile Tester 066 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LI | LLoyds Instruments |
| LW | L & W Tensile Tester SE062 | SA | Shimadzu Autograph AG 2000 A |
| TA | Thwing-Albert Tensile Tester | TB | Thwing-Albert EJA/1000 |
| TH | Thwing-Albert QC-3A | TO | Thwing-Albert QC-1000 |
| TR | TMI Horizontal Tensile Tester | XX | Instrument make/model not specified by lab |

Grand Mean Sample **SE41** = 9.0806 kN/m

Grand Mean Sample **SE42** = 12.880 kN/m



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 331

## Tensile Energy Absorption - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE41 Lab Mean | Sample SE41 Diff from Grand Mean | Sample SE41 CPV | Sample SE42 Lab Mean | Sample SE42 Diff from Grand Mean | Sample SE42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2BDNBC | | 110.22 | 16.83 | 1.84 | 188.2 | 27.2 | 1.68 | TR |
| 37YB84 | | 96.32 | 2.93 | 0.32 | 178.0 | 17.1 | 1.05 | TO |
| 4NAKLA | | 93.93 | 0.54 | 0.06 | 154.3 | -6.6 | -0.41 | XX |
| 4Z6T7W | | 104.99 | 11.60 | 1.27 | 184.7 | 23.8 | 1.47 | TH |
| 7MNM9Z | | 88.89 | -4.50 | -0.49 | 158.1 | -2.9 | -0.18 | LH |
| 7RJKV7 | | 100.71 | 7.32 | 0.80 | 165.4 | 4.5 | 0.27 | TH |
| 7ZX77U | | 99.82 | 6.43 | 0.70 | 159.2 | -1.7 | -0.11 | TO |
| AWLRQQ | | 97.57 | 4.18 | 0.46 | 157.9 | -3.1 | -0.19 | LA |
| BRNLTZ | | 83.36 | -10.03 | -1.10 | 163.5 | 2.5 | 0.15 | LE |
| BVDRDW | | 92.91 | -0.48 | -0.05 | 166.1 | 5.1 | 0.32 | XX |
| DJ9JK6 | | 101.82 | 8.42 | 0.92 | 174.6 | 13.7 | 0.84 | IF |
| ECJBRX | | 108.74 | 15.35 | 1.68 | 190.0 | 29.1 | 1.79 | TH |
| FZ36UZ | | 94.13 | 0.74 | 0.08 | 160.1 | -0.8 | -0.05 | TO |
| GRTRXQ | | 88.18 | -5.21 | -0.57 | 138.7 | -22.2 | -1.37 | IM |
| HA66HT | | 75.61 | -17.78 | -1.95 | 146.7 | -14.2 | -0.88 | TA |
| JECTVU | | 99.56 | 6.17 | 0.68 | 173.0 | 12.0 | 0.74 | LA |
| KNEMDP | | 91.36 | -2.04 | -0.22 | 155.5 | -5.4 | -0.33 | LH |
| M6WAPR | | 99.84 | 6.44 | 0.71 | 166.7 | 5.7 | 0.35 | LA |
| MLNZVL | | 89.15 | -4.24 | -0.46 | 152.3 | -8.7 | -0.53 | XX |
| MRQCPX | | 102.12 | 8.73 | 0.96 | 178.8 | 17.9 | 1.10 | LE |
| ND8WDL | | 91.21 | -2.18 | -0.24 | 171.6 | 10.7 | 0.66 | TB |
| PDJ3XU | | 108.20 | 14.80 | 1.62 | 172.0 | 11.1 | 0.68 | LA |
| PHDYKY | | 84.02 | -9.37 | -1.03 | 150.0 | -10.9 | -0.67 | LE |
| R46X3E | | 94.74 | 1.35 | 0.15 | 156.7 | -4.2 | -0.26 | TO |
| R8PMMR | | 88.80 | -4.59 | -0.50 | 149.5 | -11.4 | -0.71 | LW |
| T7P6ZG | | 82.72 | -10.68 | -1.17 | 136.5 | -24.4 | -1.51 | LE |
| TEHHXV | | 80.14 | -13.25 | -1.45 | 137.6 | -23.3 | -1.44 | LE |
| TMVGKE | X | 61.57 | -31.82 | -3.48 | 145.5 | -15.4 | -0.95 | ID |
| TPPZVT | | 104.62 | 11.23 | 1.23 | 193.4 | 32.4 | 2.00 | IK |
| VC84KL | | 91.13 | -2.26 | -0.25 | 136.6 | -24.4 | -1.50 | XX |
| W3Y6AB | | 80.37 | -13.02 | -1.43 | 145.3 | -15.6 | -0.96 | LW |
| WNDP7C | | 82.73 | -10.66 | -1.17 | 133.1 | -27.8 | -1.72 | SA |
| XAV9TE | | 92.53 | -0.87 | -0.10 | 163.0 | 2.1 | 0.13 | XX |
| Z3P8RB | | 81.52 | -11.87 | -1.30 | 153.8 | -7.1 | -0.44 | IM |

### Summary Statistics

| | Sample SE41 | Sample SE42 |
|---|---|---|
| Grand Means | 93.393 Joules/sq m | 160.94 Joules/sq m |
| SD Btwn Labs | 9.132 Joules/sq m | 16.22 Joules/sq m |

Statistics based on 33 of 34 reporting participants

TMVGKE (X) - Data for sample SE41 are low.

**Analysis Notes:**

4NAKLA - Data appear to be reported as J/sq m, not ft-lb/sq ft as indicated on datasheet. Units corrected by CTS.

R46X3E - Data appear to be reported as inch-lb/sq inch, not ft-lb/sq ft inch as indicated on datasheet. Units corrected by CTS.

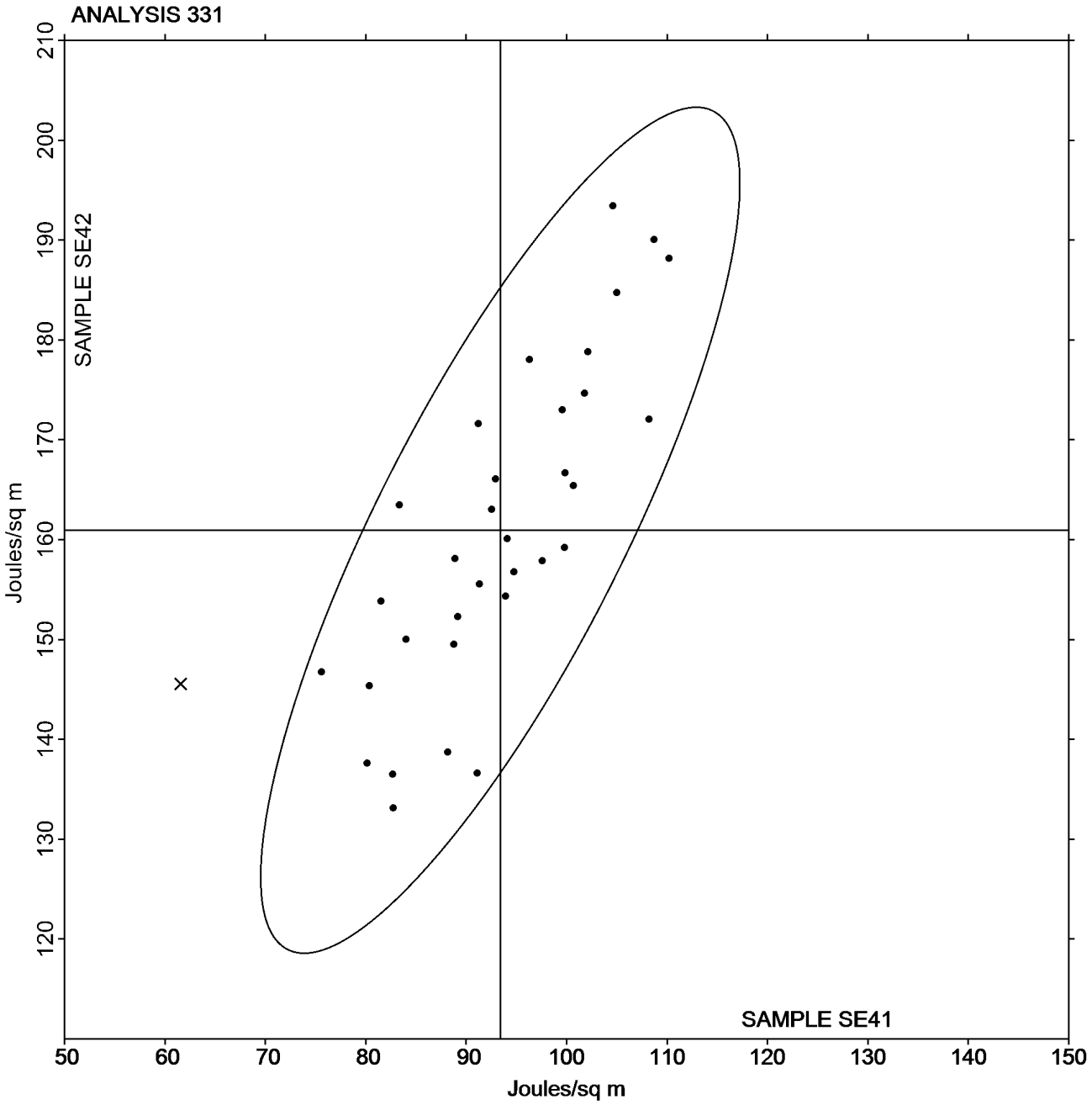
XAV9TE - Data appear to be reported as ft-lb/sq ft, not J/sq m as indicated on datasheet. Units corrected by CTS.

**Key to Instrument Codes Reported by Participants**

| | | | |
|---|---|---|---|
| ID | Instron 4201 | IF | Instron 3340 Series |
| IK | Instron 4400 Series | IM | Instron 5500 Series |
| LA | L & W Autoline | LE | L & W Tensile Tester 066 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LW | L & W Tensile Tester SE062 |
| SA | Shimadzu Autograph AG 2000 A | TA | Thwing-Albert Tensile Tester |
| TB | Thwing-Albert EJA/1000 | TH | Thwing-Albert QC-3A |
| TO | Thwing-Albert QC-1000 | TR | TMI Horizontal Tensile Tester |
| XX | Instrument make/model not specified by lab | | |

Grand Mean Sample **SE41** = 93.393 Joules/sq m

Grand Mean Sample **SE42** = 160.94 Joules/sq m



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 332

## Elongation to Break - Packaging Papers

## TAPPI Official Test Method T494

| WebCode | Data Flag | Sample SE41 Lab Mean | Sample SE41 Diff from Grand Mean | Sample SE41 CPV | Sample SE42 Lab Mean | Sample SE42 Diff from Grand Mean | Sample SE42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 2BDNBC | | 1.710 | 0.064 | 0.32 | 2.099 | 0.088 | 0.33 | TR |
| 37YB84 | | 1.663 | 0.017 | 0.08 | 2.131 | 0.120 | 0.46 | TO |
| 4NAKLA | | 1.946 | 0.300 | 1.48 | 2.395 | 0.384 | 1.46 | XX |
| 4Z6T7W | | 2.062 | 0.416 | 2.05 | 2.561 | 0.550 | 2.10 | TH |
| 7MNM9Z | | 1.590 | -0.056 | -0.28 | 1.879 | -0.132 | -0.50 | LH |
| 7RJKV7 | * | 1.947 | 0.300 | 1.48 | 2.131 | 0.120 | 0.46 | TH |
| 7ZX77U | | 1.970 | 0.324 | 1.60 | 2.360 | 0.349 | 1.33 | TO |
| AWLRQQ | * | 1.135 | -0.511 | -2.52 | 1.314 | -0.697 | -2.66 | XX |
| BRNLTZ | | 1.529 | -0.117 | -0.58 | 1.951 | -0.060 | -0.23 | LE |
| BVDRDW | | 1.756 | 0.110 | 0.54 | 2.164 | 0.153 | 0.58 | XX |
| D2REYC | | 1.549 | -0.097 | -0.48 | 1.796 | -0.215 | -0.82 | TB |
| DJ9JK6 | | 1.984 | 0.338 | 1.67 | 2.424 | 0.413 | 1.57 | IF |
| ECJBRX | | 1.912 | 0.266 | 1.31 | 2.289 | 0.278 | 1.06 | TH |
| FZ36UZ | | 1.705 | 0.059 | 0.29 | 2.078 | 0.067 | 0.26 | TO |
| GRTRXQ | | 1.869 | 0.223 | 1.10 | 2.162 | 0.151 | 0.58 | IM |
| HA66HT | | 1.318 | -0.328 | -1.62 | 1.626 | -0.385 | -1.47 | TA |
| JECTVU | | 1.476 | -0.170 | -0.84 | 1.728 | -0.283 | -1.08 | LA |
| KNEMDP | | 1.591 | -0.055 | -0.27 | 1.922 | -0.089 | -0.34 | LH |
| LUHTJF | | 1.634 | -0.012 | -0.06 | 1.987 | -0.024 | -0.09 | ID |
| M6WAPR | | 1.472 | -0.174 | -0.86 | 1.816 | -0.195 | -0.74 | LA |
| MA6NF4 | | 1.678 | 0.032 | 0.16 | 2.090 | 0.079 | 0.30 | TB |
| MLNZVL | | 1.564 | -0.082 | -0.41 | 1.875 | -0.136 | -0.52 | XX |
| MRQCPX | | 1.660 | 0.014 | 0.07 | 2.029 | 0.018 | 0.07 | LE |
| ND8WDL | | 1.676 | 0.030 | 0.15 | 2.187 | 0.176 | 0.67 | TB |
| PDJ3XU | | 1.569 | -0.077 | -0.38 | 1.806 | -0.205 | -0.78 | LA |
| PHDYKY | | 1.487 | -0.159 | -0.79 | 1.840 | -0.171 | -0.65 | LE |
| R46X3E | | 1.576 | -0.070 | -0.35 | 1.935 | -0.076 | -0.29 | TO |
| R8PMMR | | 1.561 | -0.085 | -0.42 | 1.853 | -0.158 | -0.60 | LW |
| T7P6ZG | | 1.529 | -0.117 | -0.58 | 1.810 | -0.201 | -0.77 | LE |
| TEHHXV | | 1.408 | -0.238 | -1.18 | 1.712 | -0.299 | -1.14 | LE |
| TMVGKE | * | 1.601 | -0.046 | -0.22 | 2.225 | 0.214 | 0.81 | ID |
| TPPZVT | | 1.959 | 0.312 | 1.54 | 2.559 | 0.548 | 2.09 | IK |
| VC84KL | | 1.622 | -0.024 | -0.12 | 2.029 | 0.018 | 0.07 | XX |
| W3Y6AB | | 1.452 | -0.194 | -0.96 | 1.802 | -0.209 | -0.80 | LW |
| WNDP7C | | 1.490 | -0.156 | -0.77 | 1.774 | -0.237 | -0.90 | SA |
| XAV9TE | | 1.742 | 0.096 | 0.47 | 2.106 | 0.095 | 0.36 | XX |
| Z3P8RB | | 1.521 | -0.125 | -0.62 | 1.961 | -0.050 | -0.19 | IM |

# Paper & Paperboard Interlaboratory Testing Program

## Analysis 332

## Elongation to Break - Packaging Papers

## TAPPI Official Test Method T494

### Summary Statistics

| | Sample SE41 | Sample SE42 |
|---|---|---|
| Grand Means | 1.6463 Percent | 2.0110 Percent |
| SD Btwn Labs | 0.2028 Percent | 0.2625 Percent |

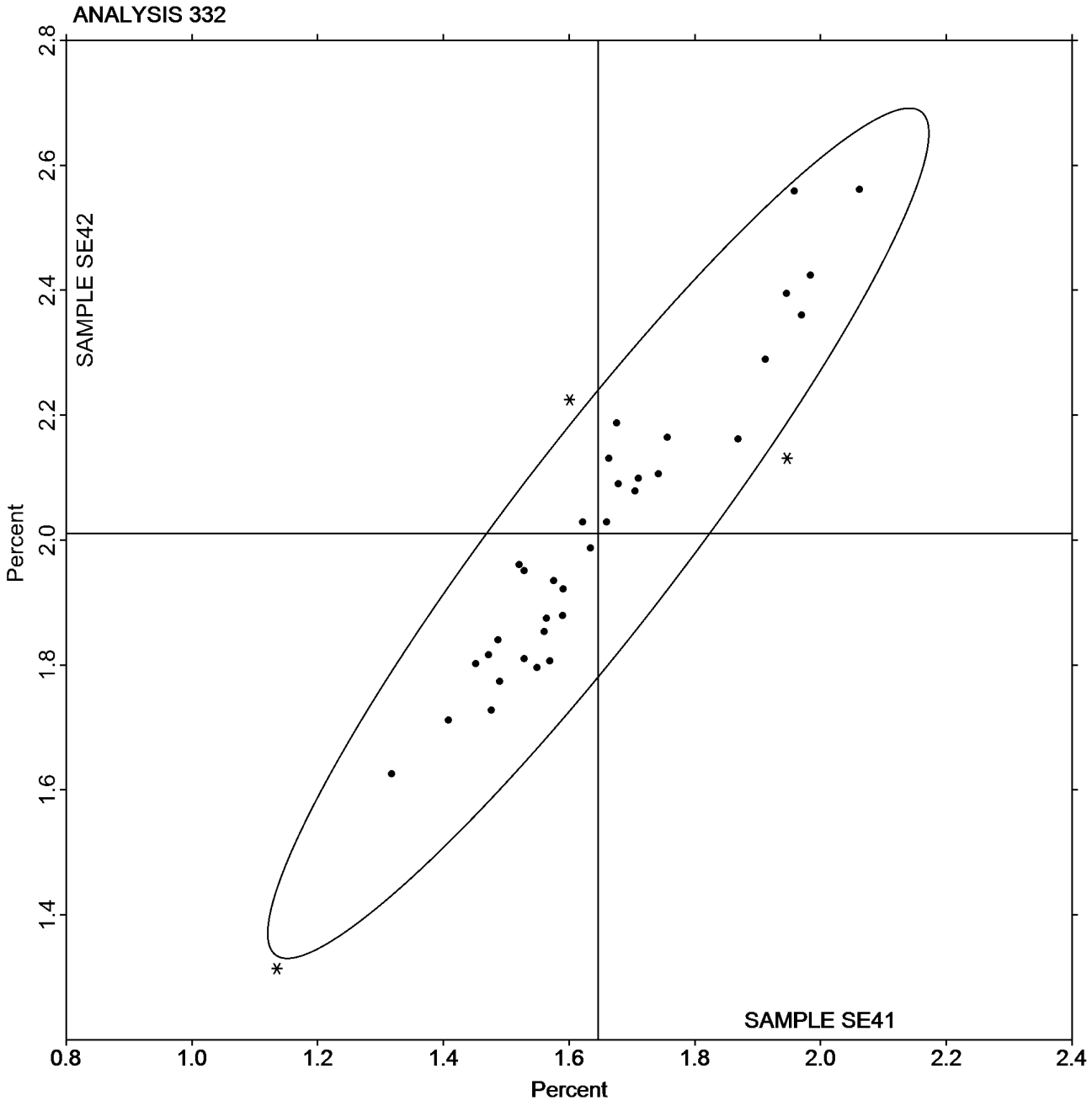
Statistics based on 37 of 37 reporting participants

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| ID | Instron 4201 | IF | Instron 3340 Series |
| IK | Instron 4400 Series | IM | Instron 5500 Series |
| LA | L & W Autoline 300 | LE | L & W Tensile Tester 066 |
| LH | L & W Alwetron TH1 (Horizontal) SE 060 | LW | L & W Tensile Tester SE062 |
| SA | Shimadzu Autograph AG 2000 A | TA | Thwing-Albert Tensile Tester |
| TB | Thwing-Albert EJA/1000 | TH | Thwing-Albert QC-3A |
| TO | Thwing-Albert QC-1000 | TR | TMI Horizontal Tensile Tester |
| XX | Instrument make/model not specified by lab | | |

Grand Mean Sample **SE41** = 1.6463 Percent

Grand Mean Sample **SE42** = 2.0110 Percent



# Paper & Paperboard Interlaboratory Testing Program

## Analysis 334

## Folding Endurance (MIT) - Double Folds

## TAPPI Official Test Method T511

| WebCode | Data Flag | Sample SG41 Lab Mean | Sample SG41 Diff from Grand Mean | Sample SG41 CPV | Sample SG42 Lab Mean | Sample SG42 Diff from Grand Mean | Sample SG42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 4Z6T7W | | 141.8 | -108.8 | -1.01 | 158.4 | -55.3 | -0.75 | MT |
| 7NMQ7G | | 440.6 | 190.0 | 1.76 | 369.8 | 156.2 | 2.12 | MT |
| BVDRDW | | 335.4 | 84.8 | 0.79 | 285.1 | 71.5 | 0.97 | MT |
| EBAD69 | | 365.9 | 115.3 | 1.07 | 249.7 | 36.1 | 0.49 | MT |
| EGW7F9 | | 161.3 | -89.3 | -0.83 | 190.0 | -23.7 | -0.32 | MT |
| HXCL4M | | 243.2 | -7.4 | -0.07 | 261.3 | 47.7 | 0.65 | MT |
| LTLKCW | | 232.1 | -18.5 | -0.17 | 154.9 | -58.8 | -0.80 | MT |
| MA6NF4 | | 293.5 | 42.9 | 0.40 | 253.5 | 39.9 | 0.54 | MT |
| NQC62V | | 353.4 | 102.8 | 0.95 | 280.6 | 67.0 | 0.91 | MT |
| NV66FQ | | 154.8 | -95.8 | -0.89 | 192.8 | -20.9 | -0.28 | XX |
| PLRGYA | | 288.5 | 37.9 | 0.35 | 117.5 | -96.2 | -1.30 | MT |
| R8PMMR | | 239.2 | -11.4 | -0.11 | 158.8 | -54.9 | -0.74 | MT |
| W7G6PQ | | 25.8 | -224.8 | -2.09 | 104.7 | -109.0 | -1.48 | MT |
| WRZ7KQ | | 232.8 | -17.8 | -0.17 | 214.0 | 0.4 | 0.00 | MT |

### Summary Statistics

| | Sample SG41 | Sample SG42 |
|---|---|---|
| Grand Means | 250.59 Double Folds | 213.65 Double Folds |
| SD Btwn Labs | 107.70 Double Folds | 73.77 Double Folds |

Statistics based on 14 of 14 reporting participants

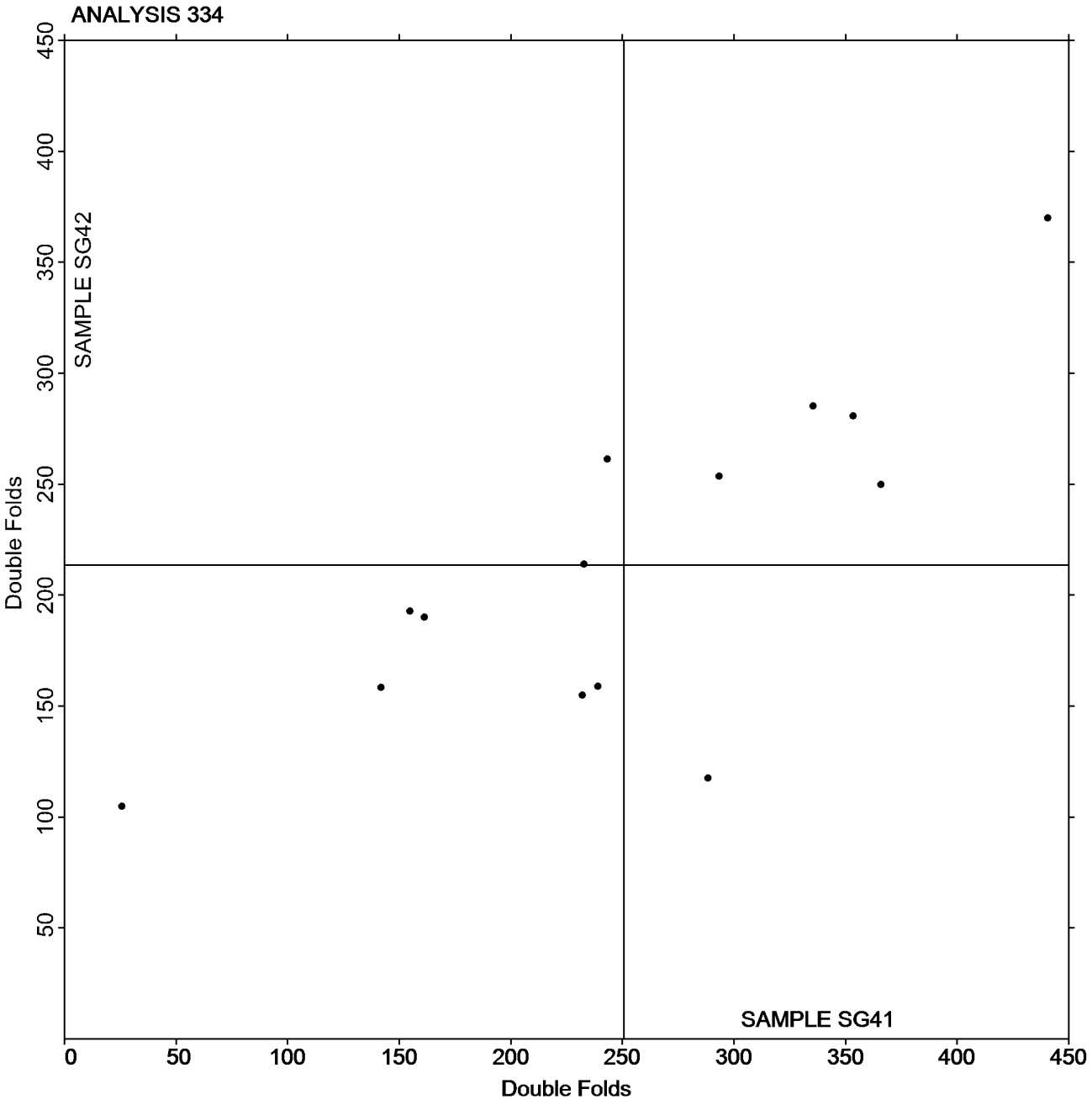
### Key to Instrument Codes Reported by Participants

MT MIT - Tinius Olsen

XX Instrument make/model not specified by lab

Grand Mean Sample **SG41** = 250.59 Double Folds

Grand Mean Sample **SG42** = 213.65 Double Folds




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 SH41 Lab Mean | Sample SH41 Diff from Grand Mean | Sample SH41 CPV | Sample SH42 Lab Mean | Sample SH42 Diff from Grand Mean | Sample SH42 CPV |
|---|---|---|---|---|---|---|---|
| 4XFHF4 | | 331.0 | -28.1 | -1.02 | 280.8 | -11.9 | -0.42 |
| AVGXDF | | 361.6 | 2.5 | 0.09 | 297.7 | 5.1 | 0.18 |
| BVDRDW | | 373.4 | 14.3 | 0.52 | 315.6 | 23.0 | 0.82 |
| D2REYC | | 347.2 | -12.0 | -0.43 | 252.6 | -40.0 | -1.43 |
| DJ9JK6 | | 374.1 | 14.9 | 0.54 | 309.7 | 17.0 | 0.61 |
| EBAD69 | | 345.6 | -13.5 | -0.49 | 274.7 | -17.9 | -0.64 |
| EMKNW6 | | 394.6 | 35.5 | 1.29 | 333.0 | 40.3 | 1.44 |
| FELQDU | | 382.0 | 22.9 | 0.83 | 326.8 | 34.2 | 1.22 |
| KTC8EN | | 349.4 | -9.7 | -0.35 | 275.6 | -17.1 | -0.61 |
| L8AFW3 | | 405.4 | 46.3 | 1.68 | 315.6 | 23.0 | 0.82 |
| MA6NF4 | | 358.7 | -0.4 | -0.02 | 291.1 | -1.5 | -0.05 |
| NV66FQ | | 347.6 | -11.5 | -0.42 | 268.9 | -23.7 | -0.85 |
| PYMNZL | * | 314.5 | -44.6 | -1.62 | 287.5 | -5.1 | -0.18 |
| QB9KEN | | 321.6 | -37.5 | -1.36 | 263.3 | -29.3 | -1.05 |
| TFWQ3P | X | 149.6 | -209.6 | -7.61 | 137.9 | -154.8 | -5.53 |
| UC93B3 | | 319.7 | -39.4 | -1.43 | 245.3 | -47.3 | -1.69 |
| UNNMMQ | | 361.4 | 2.3 | 0.08 | 291.1 | -1.5 | -0.05 |
| W7G6PQ | | 399.2 | 40.1 | 1.46 | 345.4 | 52.8 | 1.89 |
| X6E4UJ | | 343.6 | -15.5 | -0.56 | 269.4 | -23.3 | -0.83 |
| ZEZNF8 | | 392.9 | 33.8 | 1.23 | 316.0 | 23.4 | 0.84 |

### Summary Statistics

| | Sample SH41 | Sample SH42 |
|---|---|---|
| Grand Means | 359.12 Gurley Units | 292.64 Gurley Units |
| SD Btwn Labs | 27.53 Gurley Units | 27.97 Gurley Units |

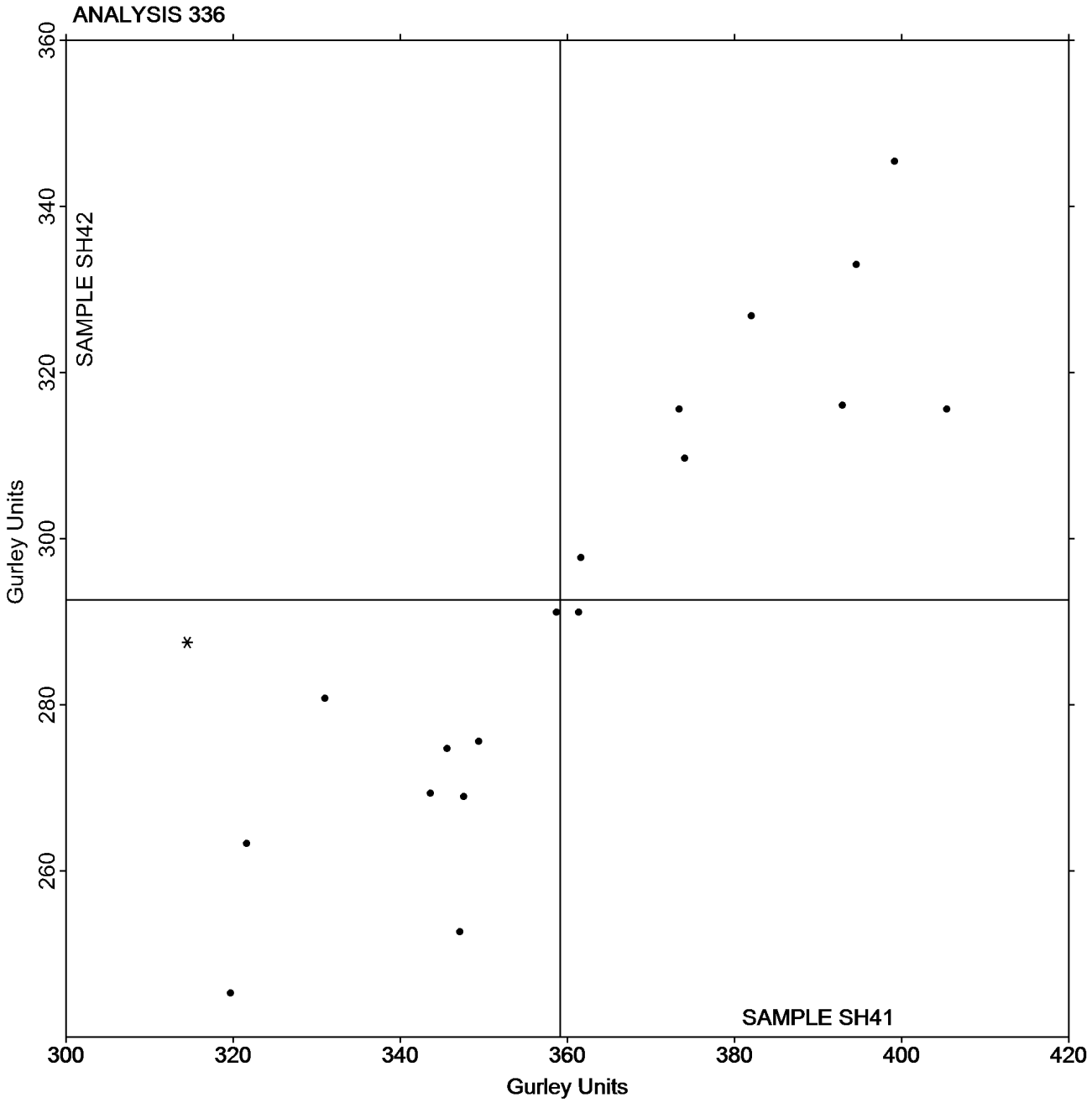
Statistics based on 19 of 20 reporting participants

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

TFWQ3P (X) - Extreme Data.

Grand Mean Sample **SH41** = 359.12 Gurley Units

Grand Mean Sample **SH42** = 292.64 Gurley Units




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 SJ41 Lab Mean | Sample SJ41 Diff from Grand Mean | Sample SJ41 CPV | Sample SJ42 Lab Mean | Sample SJ42 Diff from Grand Mean | Sample SJ42 CPV |
|---|---|---|---|---|---|---|---|
| 4NAKLA | | 2.366 | -0.649 | -1.13 | 2.863 | -0.903 | -1.19 |
| 7BZGJC | | 1.779 | -1.235 | -2.16 | 1.893 | -1.873 | -2.46 |
| DJ9JK6 | | 3.359 | 0.345 | 0.60 | 3.886 | 0.120 | 0.16 |
| EBAD69 | | 3.120 | 0.106 | 0.18 | 3.838 | 0.072 | 0.10 |
| EGW7F9 | | 3.239 | 0.225 | 0.39 | 4.187 | 0.421 | 0.55 |
| GMTPMV | * | 2.480 | -0.534 | -0.93 | 4.358 | 0.592 | 0.78 |
| JK4ZFN | | 3.142 | 0.128 | 0.22 | 3.801 | 0.035 | 0.05 |
| KTC8EN | | 3.346 | 0.331 | 0.58 | 3.983 | 0.217 | 0.29 |
| L8AFW3 | | 3.235 | 0.221 | 0.39 | 3.860 | 0.094 | 0.12 |
| NV66FQ | | 3.940 | 0.926 | 1.62 | 4.900 | 1.134 | 1.49 |
| W3Y6AB | | 2.560 | -0.454 | -0.79 | 3.250 | -0.516 | -0.68 |
| WQZDHC | | 3.089 | 0.075 | 0.13 | 3.696 | -0.070 | -0.09 |
| WRZ7KQ | | 3.532 | 0.517 | 0.90 | 4.440 | 0.674 | 0.89 |

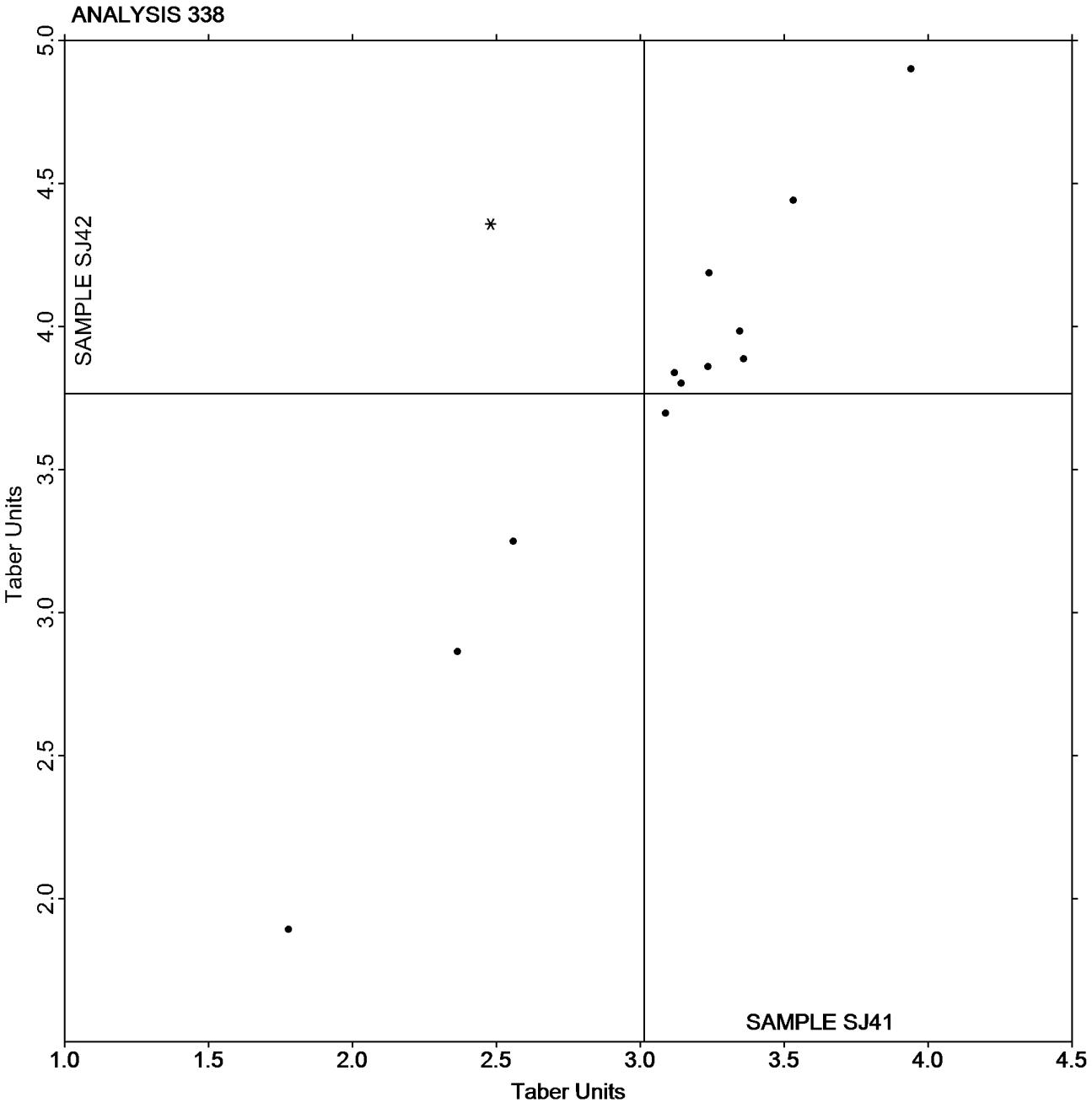
### Summary Statistics

| | Sample SJ41 | Sample SJ42 |
|---|---|---|
| Grand Means | 3.0143 Taber Units | 3.7657 Taber Units |
| SD Btwn Labs | 0.5718 Taber Units | 0.7605 Taber Units |

Statistics based on 13 of 13 reporting participants

Grand Mean Sample **SJ41** = 3.0143 Taber Units

Grand Mean Sample **SJ42** = 3.7657 Taber Units




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 SQ41 Lab Mean | Sample SQ41 Diff from Grand Mean | Sample SQ41 CPV | Sample SQ42 Lab Mean | Sample SQ42 Diff from Grand Mean | Sample SQ42 CPV |
|---|---|---|---|---|---|---|---|
| 4FHZNN | | 19.25 | -1.13 | -0.57 | 33.95 | -1.38 | -0.45 |
| 8DKQ7H | | 19.76 | -0.62 | -0.31 | 33.73 | -1.60 | -0.53 |
| D2REYC | | 19.52 | -0.86 | -0.44 | 32.91 | -2.43 | -0.80 |
| EBAD69 | | 18.99 | -1.39 | -0.70 | 34.22 | -1.11 | -0.36 |
| H83ZBY | | 19.51 | -0.87 | -0.44 | 33.35 | -1.99 | -0.65 |
| LWKWAG | | 18.41 | -1.97 | -1.00 | 32.80 | -2.53 | -0.83 |
| MRQCPX | X | 241.50 | 221.12 | 112.16 | 411.50 | 376.17 | 123.42 |
| ND8WDL | | 21.97 | 1.59 | 0.81 | 38.70 | 3.37 | 1.11 |
| PDJ3XU | | 23.84 | 3.46 | 1.76 | 37.16 | 1.83 | 0.60 |
| R8PMMR | | 20.45 | 0.07 | 0.04 | 37.29 | 1.96 | 0.64 |
| RQ6ZEH | | 24.15 | 3.77 | 1.91 | 42.95 | 7.62 | 2.50 |
| UNNMMQ | | 19.45 | -0.93 | -0.47 | 35.02 | -0.32 | -0.10 |
| W3Y6AB | | 21.75 | 1.37 | 0.70 | 35.50 | 0.17 | 0.06 |
| WYX6Q7 | X | 32.87 | 12.49 | 6.34 | 25.12 | -10.21 | -3.35 |
| ZEZNF8 | | 17.89 | -2.49 | -1.26 | 31.75 | -3.58 | -1.18 |

### Summary Statistics

| | Sample SQ41 | Sample SQ42 |
|---|---|---|
| Grand Means | 20.379 Taber Units | 35.332 Taber Units |
| SD Btwn Labs | 1.972 Taber Units | 3.048 Taber Units |

Statistics based on 13 of 15 reporting participants

MRQCPX (X) - Extreme Data.

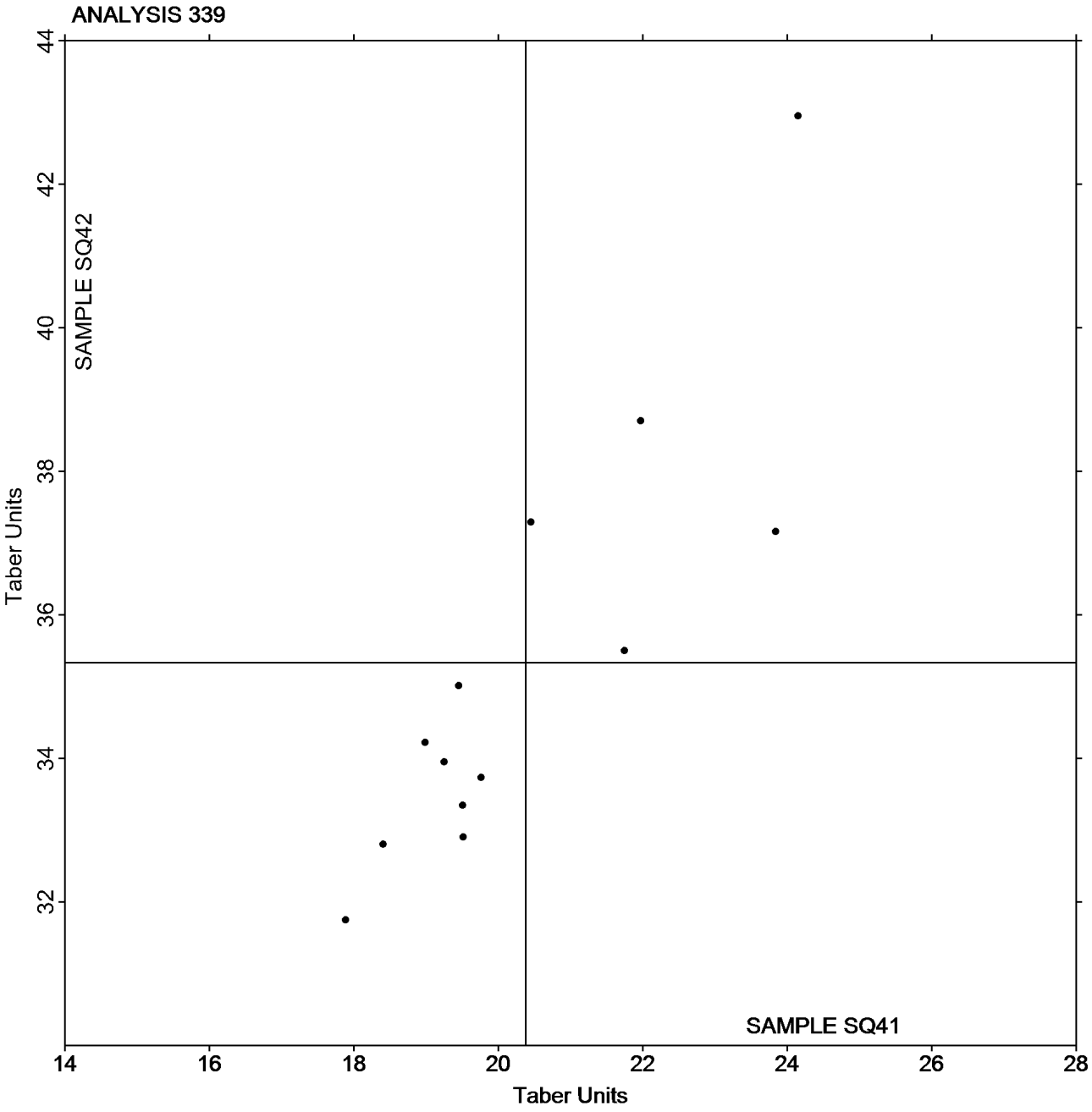
WYX6Q7 (X) - Extreme Data.

**Analysis Notes:**

H83ZBY - Data appear to be transposed between samples. Switched by CTS.

Grand Mean Sample **SQ41** = 20.379 Taber Units

Grand Mean Sample **SQ42** = 35.332 Taber Units




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

## nding Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboc

## TAPPI Official Test Method T489

| WebCode | Data Flag | Sample ST41 Lab Mean | Sample ST41 Diff from Grand Mean | Sample ST41 CPV | Sample ST42 Lab Mean | Sample ST42 Diff from Grand Mean | Sample ST42 CPV |
|---|---|---|---|---|---|---|---|
| 4H7FVB | | 293.9 | 3.9 | 0.34 | 288.2 | 3.7 | 0.42 |
| 4Z6T7W | | 289.1 | -0.9 | -0.08 | 283.7 | -0.8 | -0.09 |
| 7DM6VC | | 299.8 | 9.8 | 0.87 | 291.5 | 7.0 | 0.79 |
| 8RLL6B | | 279.6 | -10.4 | -0.92 | 274.6 | -9.9 | -1.12 |
| BVDRDW | | 279.0 | -11.0 | -0.98 | 280.2 | -4.4 | -0.49 |
| HRKBTN | | 292.2 | 2.2 | 0.20 | 288.7 | 4.2 | 0.47 |
| J7LAGL | | 296.7 | 6.7 | 0.60 | 296.3 | 11.8 | 1.33 |
| JNM8NN | | 305.9 | 16.0 | 1.42 | 295.9 | 11.4 | 1.29 |
| NHYZ7Q | X | 352.0 | 62.0 | 5.52 | 349.5 | 65.0 | 7.35 |
| R8PMMR | | 301.6 | 11.6 | 1.03 | 296.0 | 11.5 | 1.30 |
| UNNMMQ | | 284.1 | -5.9 | -0.53 | 275.7 | -8.8 | -0.99 |
| UNNN74 | | 298.3 | 8.3 | 0.74 | 281.9 | -2.6 | -0.30 |
| V2MR99 | | 299.2 | 9.2 | 0.82 | 290.0 | 5.5 | 0.62 |
| W3Y6AB | | 275.8 | -14.2 | -1.27 | 272.8 | -11.8 | -1.33 |
| WM2YX8 | | 289.2 | -0.8 | -0.07 | 283.1 | -1.4 | -0.16 |
| WNDP7C | | 265.6 | -24.4 | -2.17 | 269.1 | -15.5 | -1.75 |

### Summary Statistics

| | Sample ST41 | Sample ST42 |
|---|---|---|
| Grand Means | 289.99 Taber Units | 284.51 Taber Units |
| SD Btwn Labs | 11.24 Taber Units | 8.84 Taber Units |

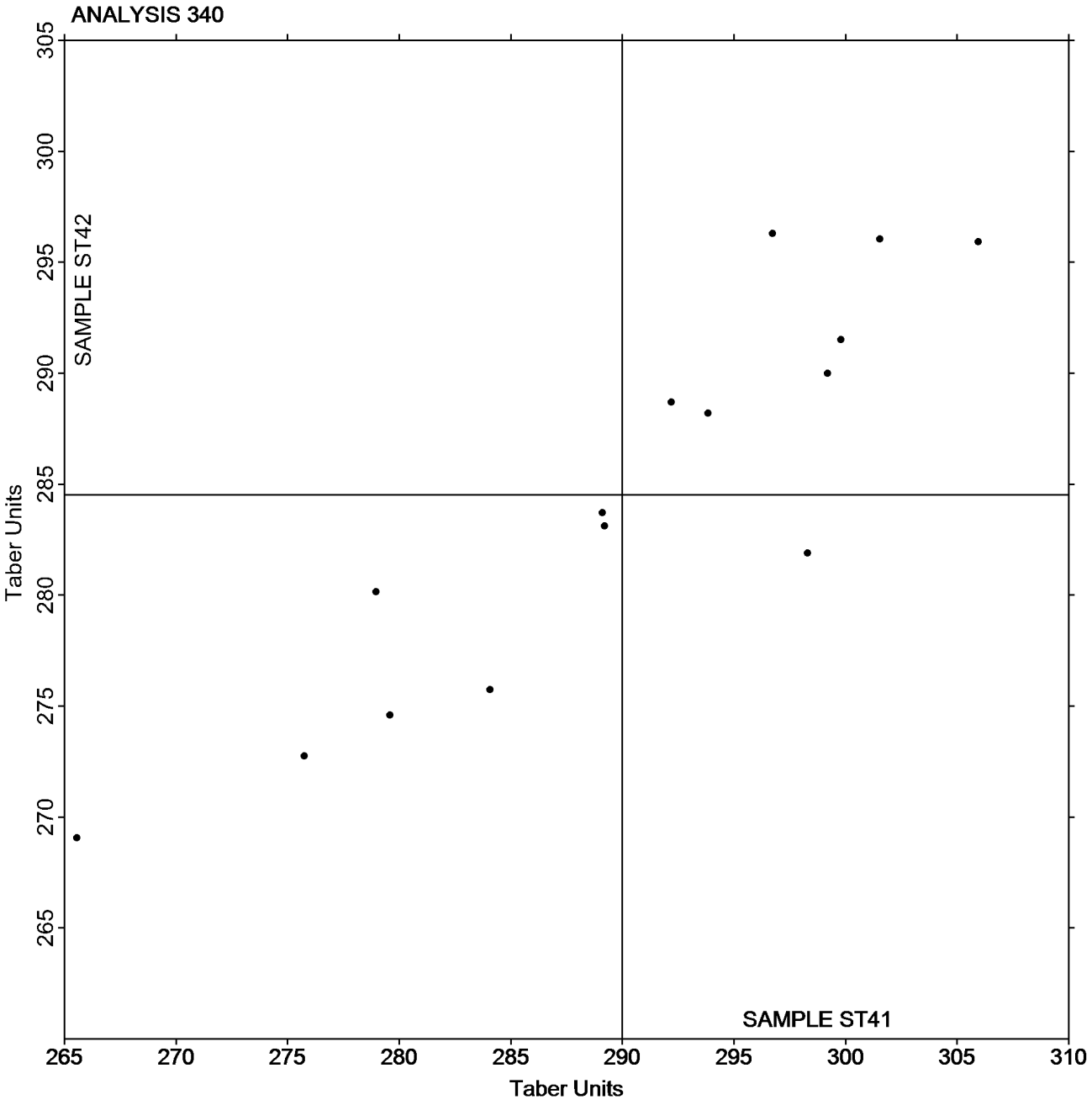
Statistics based on 15 of 16 reporting participants

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

NHYZ7Q (X) - Extreme Data.

Grand Mean Sample **ST41** = 289.99 Taber Units

Grand Mean Sample **ST42** = 284.51 Taber Units




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 SM41 Lab Mean | Sample SM41 Diff from Grand Mean | Sample SM41 CPV | Sample SM42 Lab Mean | Sample SM42 Diff from Grand Mean | Sample SM42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 4NAKLA | | 121.24 | 26.26 | 2.05 | 82.16 | 11.10 | 1.39 | DT |
| 4Z6T7W | | 86.90 | -8.08 | -0.63 | 69.20 | -1.86 | -0.23 | LW |
| 7ZX77U | | 92.00 | -2.98 | -0.23 | 70.20 | -0.86 | -0.11 | TA |
| 8DKQ7H | | 76.73 | -18.25 | -1.42 | 63.49 | -7.57 | -0.95 | TZ |
| BKMBEV | | 85.98 | -9.00 | -0.70 | 63.62 | -7.44 | -0.93 | LW |
| BRCNLA | | 101.10 | 6.12 | 0.48 | 72.82 | 1.76 | 0.22 | DT |
| DJ9JK6 | | 101.89 | 6.91 | 0.54 | 79.98 | 8.92 | 1.12 | TL |
| EBAD69 | | 83.13 | -11.85 | -0.92 | 61.52 | -9.55 | -1.20 | TZ |
| H83ZBY | | 75.46 | -19.52 | -1.52 | 56.29 | -14.77 | -1.86 | LW |
| JAZZN2 | | 111.14 | 16.16 | 1.26 | 80.96 | 9.90 | 1.24 | TA |
| L7WQPJ | | 100.00 | 5.02 | 0.39 | 74.40 | 3.34 | 0.42 | XX |
| MRQCPX | | 95.46 | 0.48 | 0.04 | 71.78 | 0.72 | 0.09 | TA |
| ND8WDL | | 104.34 | 9.36 | 0.73 | 80.33 | 9.26 | 1.16 | TA |
| R8PMMR | | 103.30 | 8.32 | 0.65 | 74.86 | 3.80 | 0.48 | LW |
| YLLATL | | 86.04 | -8.94 | -0.70 | 64.32 | -6.74 | -0.85 | DT |

### Summary Statistics

| | Sample SM41 | Sample SM42 |
|---|---|---|
| Grand Means | 94.980 psi | 71.061 psi |
| SD Btwn Labs | 12.840 psi | 7.962 psi |

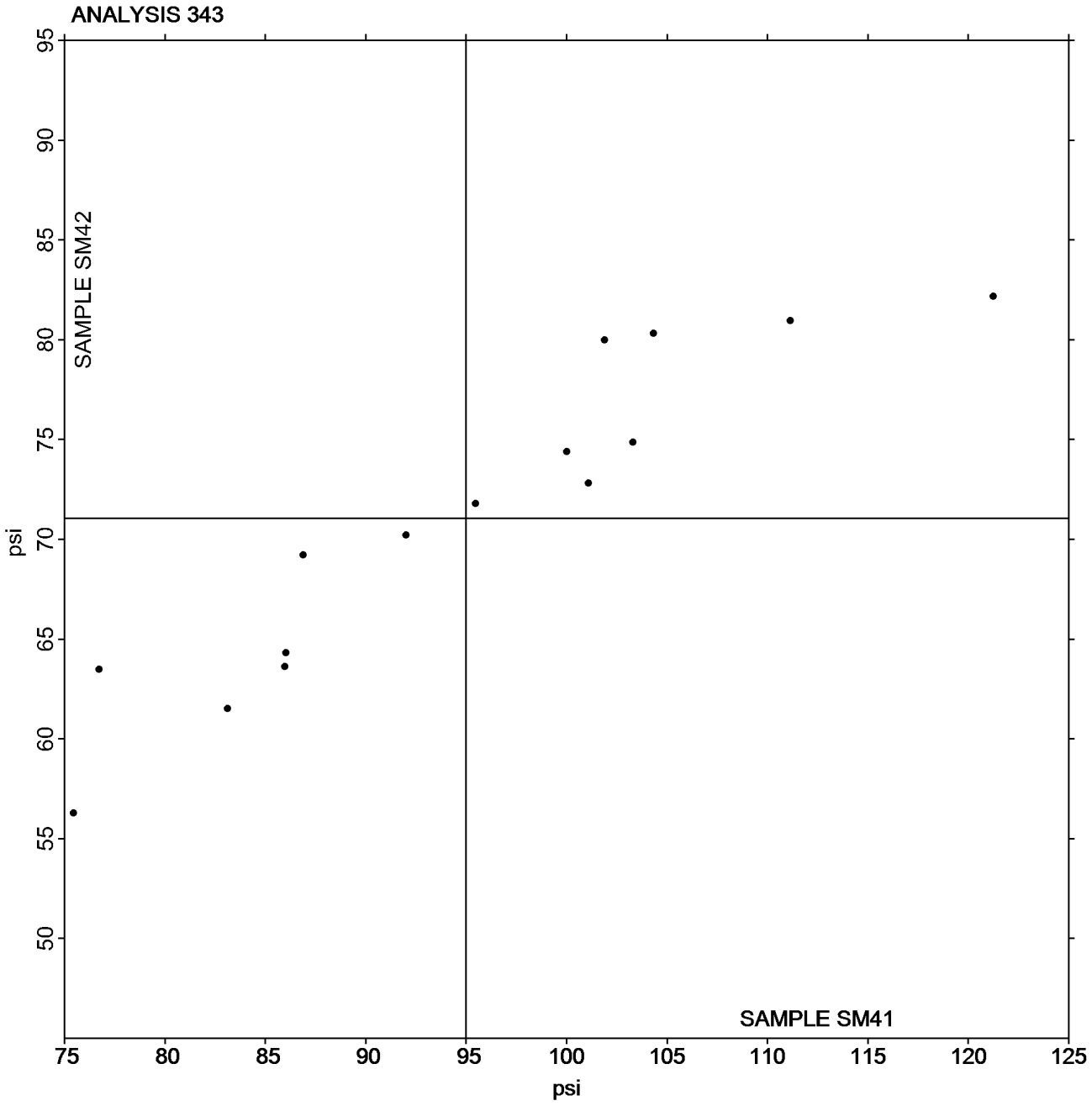
Statistics based on 15 of 15 reporting participants

### Key to Instrument Codes Reported by Participants

| | | | |
|---|---|---|---|
| DT | Dek-Tron DCS-163A ZDT Tester | LW | L & W ZD Tensile Tester |
| TA | Thwing-Albert Tensile Tester | TL | TMI Lab Master |
| TZ | TMI Monitor/ZDT Tester | XX | Instrument make/model not specified by lab |

Grand Mean Sample **SM41** = 94.980 psi

Grand Mean Sample **SM42** = 71.061 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 345
## Z-Direction Tensile, Recycled Paperboard
## TAPPI Official Test Method T541

| WebCode | Data Flag | Sample SZ41 Lab Mean | Sample SZ41 Diff from Grand Mean | Sample SZ41 CPV | Sample SZ42 Lab Mean | Sample SZ42 Diff from Grand Mean | Sample SZ42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 4H7FVB | | 34.90 | -1.30 | -0.47 | 34.36 | -1.60 | -0.69 | TA |
| 7DM6VC | | 38.56 | 2.36 | 0.86 | 38.02 | 2.06 | 0.89 | TA |
| 89PWB3 | | 34.70 | -1.50 | -0.55 | 34.64 | -1.32 | -0.57 | LW |
| 8RLL6B | | 37.32 | 1.12 | 0.41 | 36.40 | 0.44 | 0.19 | CD |
| 9PRZ6R | | 40.90 | 4.70 | 1.72 | 40.19 | 4.23 | 1.83 | CH |
| BVDRDW | | 33.64 | -2.56 | -0.93 | 32.72 | -3.24 | -1.40 | CA |
| HRKBTN | | 35.00 | -1.20 | -0.44 | 34.48 | -1.48 | -0.64 | TL |
| JNM8NN | | 38.00 | 1.80 | 0.66 | 38.40 | 2.44 | 1.05 | CA |
| KRWMT7 | | 34.72 | -1.48 | -0.54 | 35.74 | -0.22 | -0.09 | DP |
| LCG2LK | | 32.66 | -3.54 | -1.29 | 33.30 | -2.66 | -1.15 | LW |
| M6WAPR | | 35.57 | -0.63 | -0.23 | 36.19 | 0.23 | 0.10 | TA |
| PC844K | X | 69.80 | 33.60 | 12.27 | 65.80 | 29.84 | 12.87 | LW |
| TPPZVT | * | 42.59 | 6.40 | 2.34 | 39.99 | 4.03 | 1.74 | PG |
| UNNMMQ | | 32.50 | -3.70 | -1.35 | 32.64 | -3.32 | -1.43 | CA |
| UY83A7 | | 38.00 | 1.80 | 0.66 | 37.60 | 1.64 | 0.71 | CA |
| V2MR99 | | 35.20 | -1.00 | -0.36 | 34.40 | -1.56 | -0.67 | CA |
| WM2YX8 | | 34.80 | -1.40 | -0.51 | 35.40 | -0.56 | -0.24 | CA |
| XB9QWK | | 36.28 | 0.08 | 0.03 | 36.84 | 0.88 | 0.38 | CD |

### Summary Statistics

| | Sample SZ41 | Sample SZ42 |
|---|---|---|
| Grand Means | 36.197 psi | 35.960 psi |
| SD Btwn Labs | 2.738 psi | 2.318 psi |

Statistics based on 17 of 18 reporting participants

**Comments on Assigned Data Flags for Test #345**

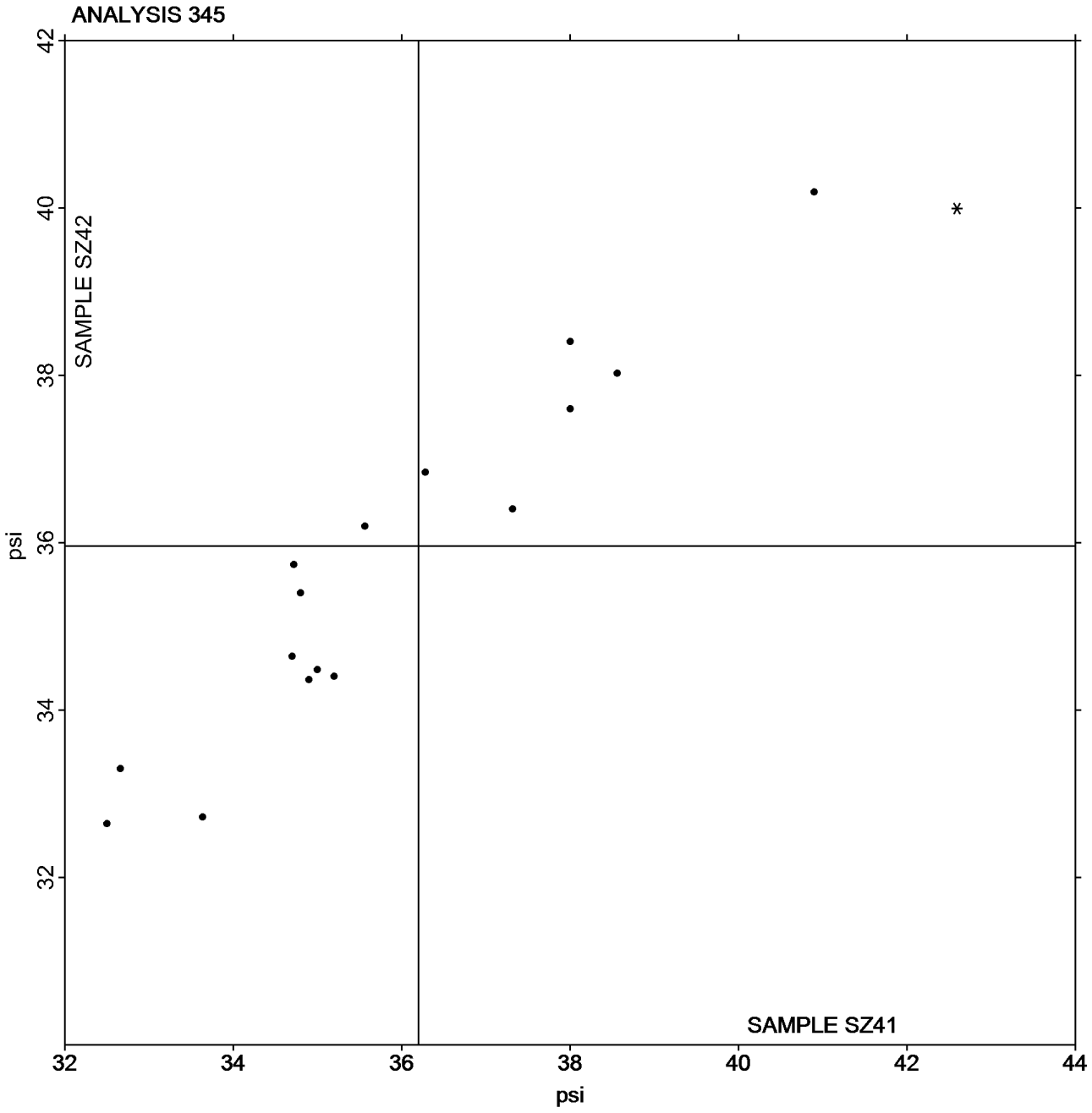
PC844K (X) - Extreme Data.

### 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 | PG | Perkins Model A Mullen Tester |
| TA | Thwing-Albert Tensile Tester | TL | TMI Lab Master |

Grand Mean Sample **SZ41** = 36.197 psi

Grand Mean Sample **SZ42** = 35.960 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 348

## Internal Bond Strength - Modified Scott Mechanics

## TAPPI Provisional Test Method T569

| WebCode | Data Flag | Sample SN41 Lab Mean | Sample SN41 Diff from Grand Mean | Sample SN41 CPV | Sample SN42 Lab Mean | Sample SN42 Diff from Grand Mean | Sample SN42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 37YB84 | | 134.0 | -17.0 | -1.47 | 73.20 | -10.58 | -1.09 | HZ |
| 4H7FVB | | 172.2 | 21.2 | 1.83 | 92.20 | 8.42 | 0.86 | HZ |
| 4Z6T7W | | 141.6 | -9.4 | -0.81 | 79.80 | -3.98 | -0.41 | HZ |
| 86M6XV | | 150.7 | -0.3 | -0.03 | 90.30 | 6.52 | 0.67 | HY |
| BVDRDW | | 136.3 | -14.7 | -1.27 | 86.92 | 3.14 | 0.32 | HZ |
| D2REYC | | 152.9 | 1.9 | 0.16 | 79.10 | -4.68 | -0.48 | HY |
| EBAD69 | | 151.6 | 0.6 | 0.05 | 83.80 | 0.02 | 0.00 | HY |
| JAZZN2 | | 157.2 | 6.2 | 0.54 | 84.20 | 0.42 | 0.04 | HY |
| JNM8NN | | 146.2 | -4.8 | -0.41 | 71.80 | -11.98 | -1.23 | HY |
| L8AFW3 | | 135.2 | -15.8 | -1.37 | 74.68 | -9.10 | -0.93 | KR |
| MRQCPX | | 159.6 | 8.6 | 0.74 | 86.60 | 2.82 | 0.29 | HY |
| ND8WDL | | 167.2 | 16.2 | 1.40 | 80.64 | -3.14 | -0.32 | HZ |
| R46X3E | | 152.0 | 1.0 | 0.09 | 83.00 | -0.78 | -0.08 | HY |
| R8PMMR | | 152.6 | 1.6 | 0.14 | 83.20 | -0.58 | -0.06 | HY |
| TFWQ3P | * | 163.2 | 12.2 | 1.05 | 110.00 | 26.22 | 2.69 | HY |
| W7G6PQ | | 133.6 | -17.4 | -1.50 | 70.40 | -13.38 | -1.37 | HY |
| WRZ7KQ | | 162.4 | 11.4 | 0.98 | 98.40 | 14.62 | 1.50 | HY |
| X6E4UJ | | 149.6 | -1.4 | -0.12 | 79.80 | -3.98 | -0.41 | HY |

### Summary Statistics

| | Sample SN41 | Sample SN42 |
|---|---|---|
| Grand Means | 151.00 1000th ft-lbs | 83.780 1000th ft-lbs |
| SD Btwn Labs | 11.58 1000th ft-lbs | 9.745 1000th ft-lbs |

Statistics based on 18 of 18 reporting participants

### Key to Instrument Codes Reported by Participants

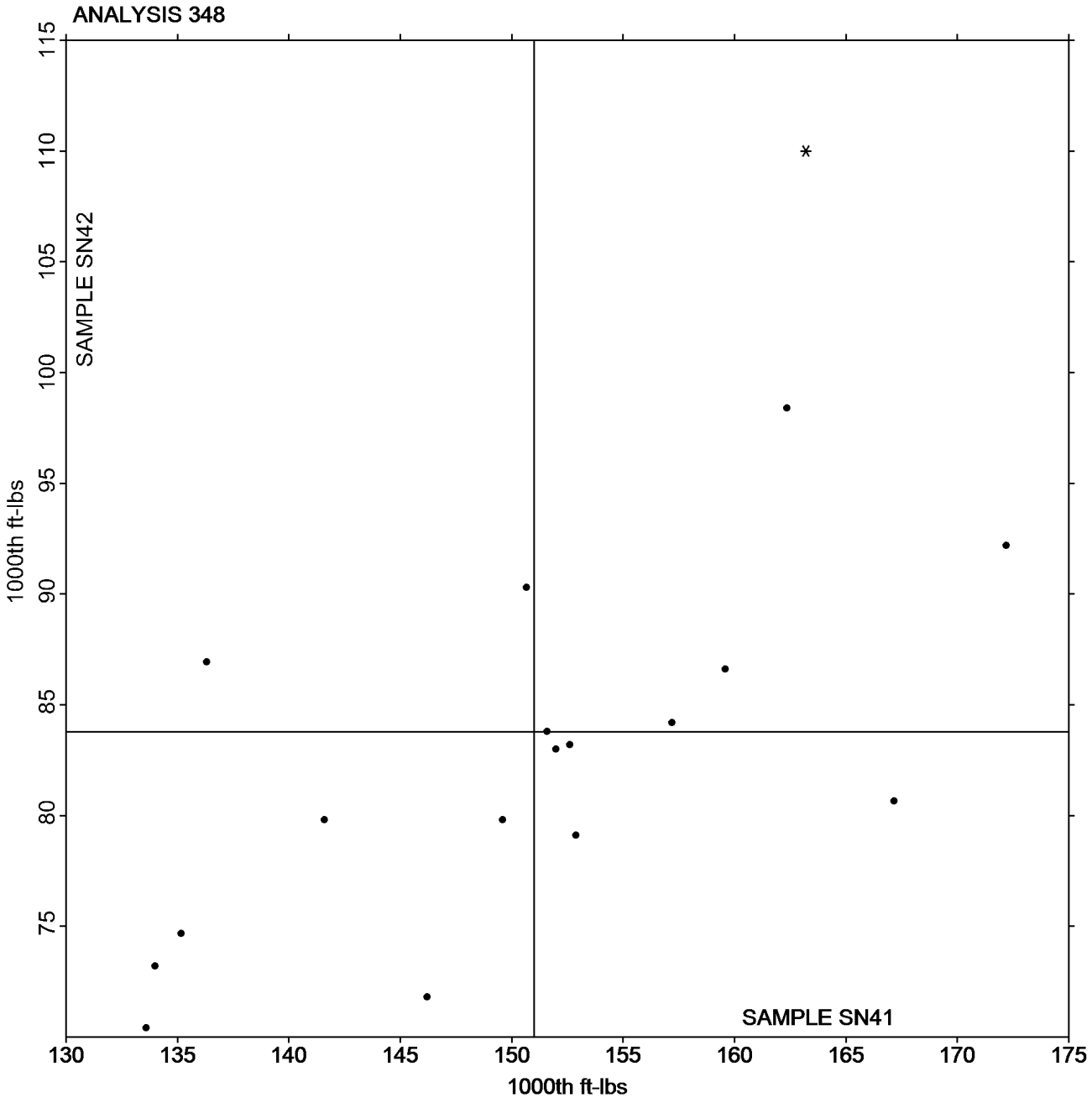
HY Huygen Digitized Scott Internal Bond Tester

HZ Huygen Internal Bond Tester with AccuPress

KR Kumagai Riki Kogyo Internal Bond Tester

Grand Mean Sample **SN41** = 151.00 1000th ft-lbs

Grand Mean Sample **SN42** = 83.780 1000th ft-lbs




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 SP41 Lab Mean | Sample SP41 Diff from Grand Mean | Sample SP41 CPV | Sample SP42 Lab Mean | Sample SP42 Diff from Grand Mean | Sample SP42 CPV | Instr Code |
|---|---|---|---|---|---|---|---|---|
| 7MNM9Z | | 125.6 | -23.4 | -1.37 | 89.6 | -10.7 | -1.26 | TM |
| 9PRZ6R | | 121.2 | -27.8 | -1.63 | 91.0 | -9.3 | -1.09 | TM |
| BUAA6Z | | 158.4 | 9.4 | 0.55 | 96.8 | -3.5 | -0.41 | XX |
| CZURX3 | | 172.2 | 23.2 | 1.36 | 108.8 | 8.5 | 1.00 | SC |
| LCG2LK | | 145.2 | -3.8 | -0.22 | 100.6 | 0.3 | 0.04 | XX |
| RJHDYJ | | 155.2 | 6.2 | 0.36 | 100.2 | -0.1 | -0.01 | SC |
| TPPZVT | | 144.8 | -4.2 | -0.25 | 94.0 | -6.3 | -0.74 | TM |
| W3Y6AB | | 166.4 | 17.4 | 1.02 | 106.4 | 6.1 | 0.72 | XX |
| XAV9TE | | 152.0 | 3.0 | 0.18 | 115.0 | 14.7 | 1.73 | XX |

### Summary Statistics

| | Sample SP41 | Sample SP42 |
|---|---|---|
| Grand Means | 149.00 1000th ft-lbs | 100.26 1000th ft-lbs |
| SD Btwn Labs | 17.05 1000th ft-lbs | 8.51 1000th ft-lbs |

Statistics based on 9 of 9 reporting participants

### Key to Instrument Codes Reported by Participants

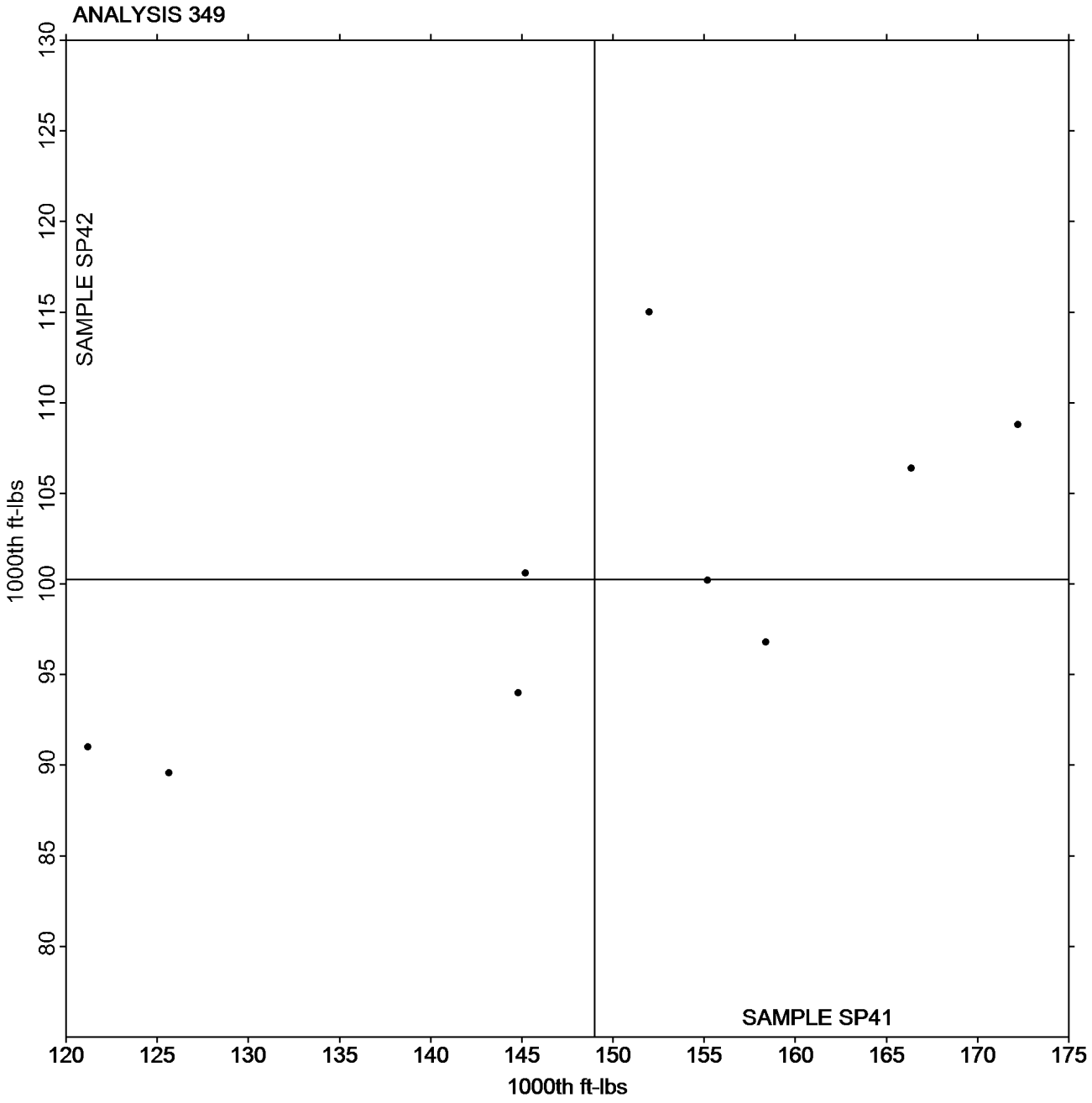
SC Scott Internal Bond Tester (Manual)

TM TMI Monitor/Internal Bond Tester

XX Instrument make/model not specified by lab

Grand Mean Sample **SP41** = 149.00 1000th ft-lbs

Grand Mean Sample **SP42** = 100.26 1000th ft-lbs




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