Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2961 S - September 2018

Introduction to the Paper & Paperboard Interlaboratory Program

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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.

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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 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.

Key for Web Summary Reports (Page 2 of 2)

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.

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.

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

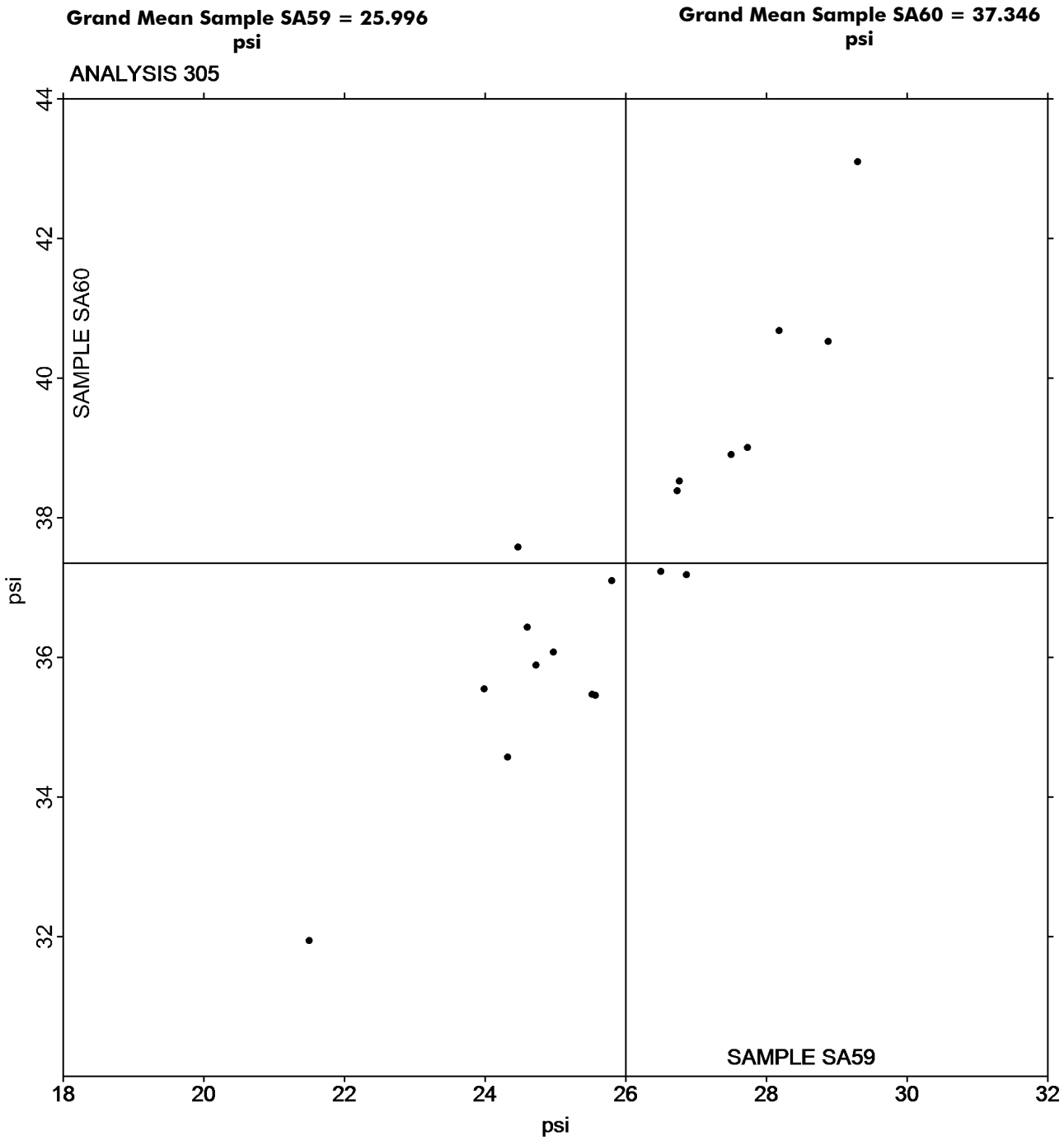
Bursting Strength - Printing Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SA59 Lab Mean	Sample SA59 Diff from Grand Mean	Sample SA59 CPV	Sample SA60 Lab Mean	Sample SA60 Diff from Grand Mean	Sample SA60 CPV
3333AP		26.87	0.87	0.46	37.18	-0.16	-0.07
3BHFWN		28.88	2.88	1.51	40.52	3.18	1.26
472GUU		26.73	0.74	0.38	38.38	1.04	0.41
8P7DNZ		23.99	-2.01	-1.05	35.55	-1.80	-0.71
B67J7L		24.47	-1.53	-0.80	37.58	0.23	0.09
CF3VVK		26.76	0.76	0.40	38.52	1.18	0.47
CMMRZU		21.50	-4.50	-2.35	31.94	-5.40	-2.15
F4W32A		24.32	-1.68	-0.88	34.57	-2.78	-1.10
MG2GD3		24.60	-1.40	-0.73	36.43	-0.91	-0.36
PQHX6Z		29.30	3.30	1.73	43.10	5.75	2.29
QR3KJ8		25.52	-0.48	-0.25	35.47	-1.88	-0.75
TF3NK3		24.98	-1.02	-0.53	36.07	-1.27	-0.51
TU9FQG		28.18	2.19	1.14	40.67	3.33	1.32
VW446U		27.50	1.50	0.79	38.90	1.55	0.62
WEJRRU		27.73	1.74	0.91	39.00	1.66	0.66
WZH3QM		25.80	-0.20	-0.10	37.10	-0.25	-0.10
XXPPNU		26.50	0.50	0.26	37.23	-0.12	-0.05
YNGC7Q		24.73	-1.27	-0.66	35.89	-1.46	-0.58
YVYRQN		25.57	-0.42	-0.22	35.45	-1.89	-0.75

Summary Statistics	Sample SA59	Sample SA60
Grand Means	26.00 psi	37.35 psi
Stnd Dev Btwn Labs	1.91 psi	2.51 psi

Statistics based on 19 of 19 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 310

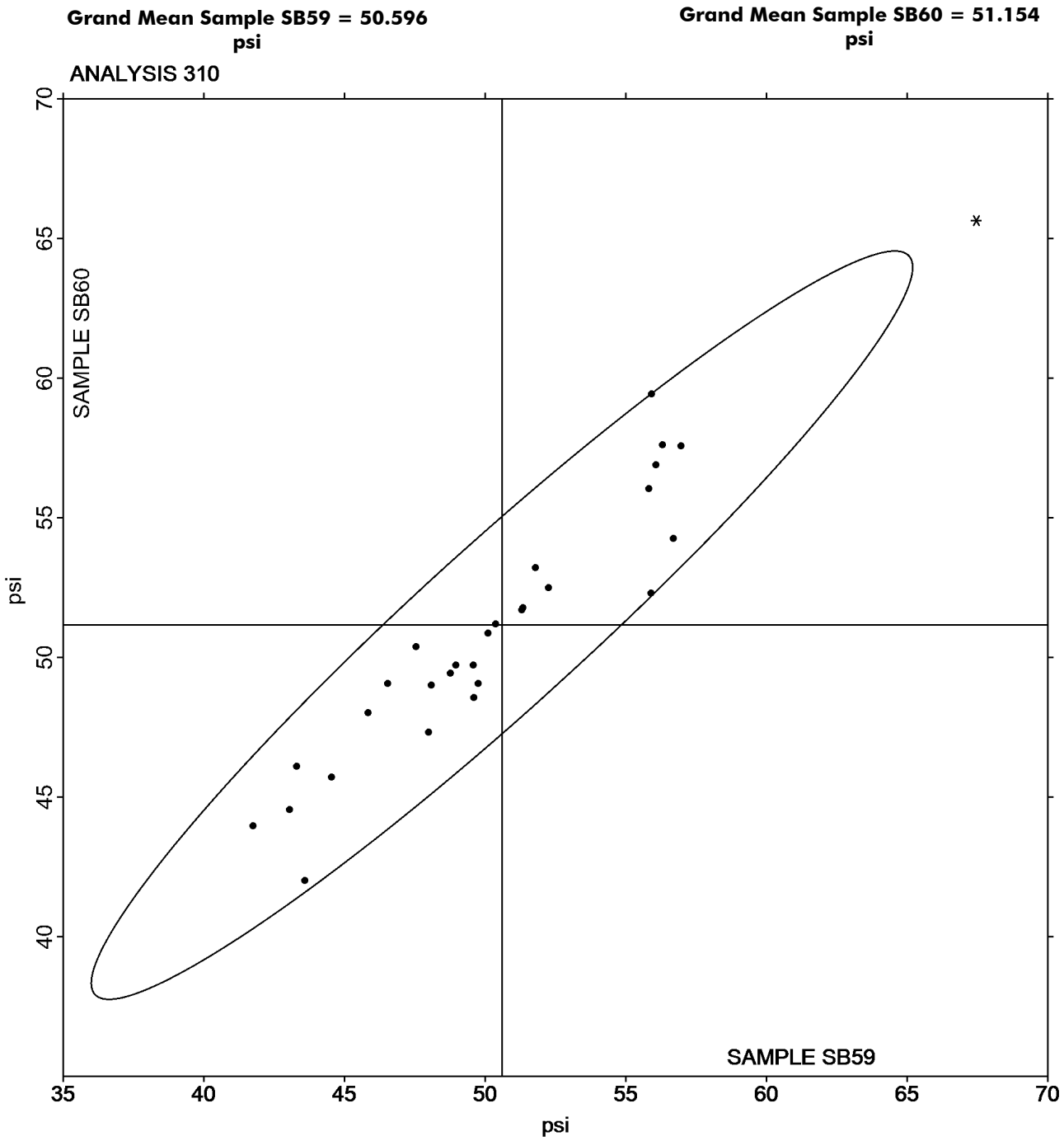
Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB59 Lab Mean	Sample SB59 Diff from Grand Mean	Sample SB59 CPV	Sample SB60 Lab Mean	Sample SB60 Diff from Grand Mean	Sample SB60 CPV
2A7MYF		51.34	0.75	0.14	51.78	0.62	0.12
2JUHXV		56.30	5.70	1.03	57.60	6.45	1.27
2KUGG4		41.76	-8.84	-1.60	43.96	-7.19	-1.42
2QH7UL		56.97	6.38	1.15	57.57	6.41	1.26
472GUU		49.76	-0.84	-0.15	49.06	-2.09	-0.41
4DLUJK	*	67.46	16.86	3.05	65.64	14.49	2.85
666KMB		43.05	-7.55	-1.36	44.54	-6.61	-1.30
7F32TR		47.55	-3.05	-0.55	50.38	-0.78	-0.15
98YKDH		52.25	1.66	0.30	52.49	1.34	0.26
BTBBMJ		49.61	-0.99	-0.18	48.55	-2.60	-0.51
CACLLL		48.00	-2.60	-0.47	47.31	-3.84	-0.76
CMMRZU		56.69	6.09	1.10	54.25	3.10	0.61
E9TA4T		55.92	5.32	0.96	59.43	8.28	1.63
EHG8N7		48.10	-2.50	-0.45	49.00	-2.15	-0.42
EPYJ38		43.30	-7.30	-1.32	46.10	-5.05	-1.00
FPX7WQ		50.37	-0.23	-0.04	51.19	0.04	0.01
J3D6D3		44.55	-6.05	-1.09	45.70	-5.45	-1.07
J86CVB		56.07	5.47	0.99	56.88	5.73	1.13
LXUUD4		49.58	-1.02	-0.18	49.71	-1.44	-0.28
MZTPAC		55.90	5.30	0.96	52.30	1.15	0.23
NAUAC6		51.30	0.70	0.13	51.70	0.55	0.11
QR3KJ8		45.85	-4.75	-0.86	48.02	-3.13	-0.62
QY7HFQ		46.54	-4.05	-0.73	49.07	-2.09	-0.41
RK63VM		55.83	5.23	0.94	56.03	4.87	0.96
WEJRRU		48.78	-1.82	-0.33	49.43	-1.72	-0.34
X94TNY		48.96	-1.64	-0.30	49.72	-1.43	-0.28
XJCX4B		51.80	1.20	0.22	53.20	2.05	0.40
ZF4REE		50.11	-0.48	-0.09	50.87	-0.29	-0.06
ZT94RT		43.60	-7.00	-1.26	42.00	-9.15	-1.80

Summary Statistics	Sample SB59	Sample SB60
Grand Means	50.60 psi	51.15 psi
Stnd Dev Btwn Labs	5.53 psi	5.08 psi

Statistics based on 29 of 29 reporting participants.



Paper & Paperboard Interlaboratory Testing Program

Analysis 311

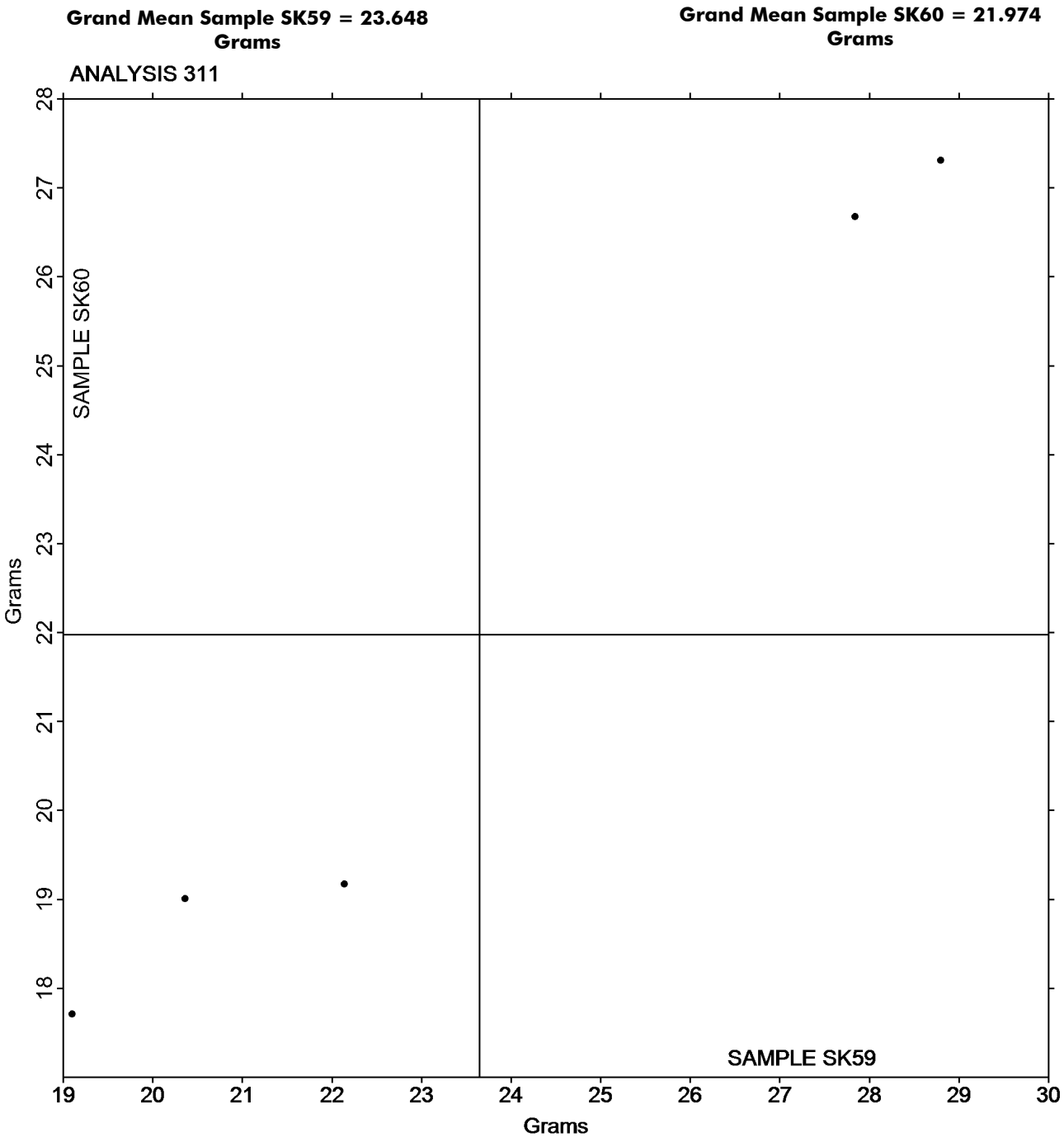
Tearing Strength - Newsprint

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK59 Lab Mean	Sample SK59 Diff from Grand Mean	Sample SK59 CPV	Sample SK60 Lab Mean	Sample SK60 Diff from Grand Mean	Sample SK60 CPV
472GUU		20.36	-3.28	-0.74	19.01	-2.97	-0.64
HHQA8B		28.80	5.15	1.17	27.31	5.33	1.15
KA7VFP		22.14	-1.51	-0.34	19.17	-2.80	-0.61
NLR4T9		19.10	-4.55	-1.03	17.71	-4.26	-0.92
QZ3QU2		27.84	4.19	0.95	26.68	4.70	1.02

Summary Statistics	Sample SK59	Sample SK60
Grand Means	23.65 Grams	21.97 Grams
Stnd Dev Btwn Labs	4.41 Grams	4.62 Grams

Statistics based on 5 of 5 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 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC59 Lab Mean	Sample SC59 Diff from Grand Mean	Sample SC59 CPV	Sample SC60 Lab Mean	Sample SC60 Diff from Grand Mean	Sample SC60 CPV
3BHFWN	X	70.42	-6.08	-0.99	79.44	2.68	0.43
3HJW8U		69.91	-6.59	-1.08	70.00	-6.75	-1.08
3W69J4		79.16	2.66	0.44	78.28	1.52	0.24
472GUU		76.69	0.20	0.03	75.67	-1.08	-0.17
63FE4Z		67.03	-9.47	-1.55	69.41	-7.35	-1.17
666KMB		84.20	7.70	1.26	85.81	9.05	1.44
6HQXYL		74.11	-2.39	-0.39	75.79	-0.97	-0.15
7CKN8J		61.92	-14.58	-2.39	61.70	-15.06	-2.40
7F32TR		78.38	1.88	0.31	80.00	3.24	0.52
8P7DNZ		74.22	-2.28	-0.37	74.50	-2.26	-0.36
B67J7L		74.30	-2.19	-0.36	71.85	-4.90	-0.78
BBPQL6		77.56	1.06	0.17	79.30	2.54	0.41
BKJUXE		71.92	-4.58	-0.75	71.98	-4.78	-0.76
BTBBMJ		81.63	5.13	0.84	79.49	2.73	0.44
CF3VVK		81.04	4.54	0.74	81.13	4.37	0.70
EPYJ38		77.61	1.11	0.18	77.47	0.71	0.11
F4W32A		74.02	-2.48	-0.41	72.82	-3.94	-0.63
FYJAZJ	X	119.80	43.30	7.09	107.80	31.04	4.95
GVFXJA		67.31	-9.18	-1.50	67.09	-9.67	-1.54
J3D6D3		73.76	-2.74	-0.45	74.30	-2.46	-0.39
JFZCB4		79.88	3.38	0.55	81.96	5.20	0.83
JQXCM9		65.52	-10.98	-1.80	64.68	-12.08	-1.92
JUYFEU		75.10	-1.40	-0.23	74.40	-2.36	-0.38
L9THDD	*	80.30	3.80	0.62	75.50	-1.26	-0.20
MG2GD3		80.52	4.02	0.66	79.24	2.48	0.40
MZTPAC		90.80	14.30	2.34	91.20	14.44	2.30
PQHX6Z		77.10	0.60	0.10	76.70	-0.06	-0.01
Q4NBY7		81.97	5.47	0.90	80.37	3.61	0.58
QN8CU6		68.58	-7.92	-1.30	71.07	-5.69	-0.91
QR3KJ8		76.72	0.22	0.04	77.20	0.44	0.07
QY7HFQ		78.18	1.69	0.28	78.47	1.71	0.27
TF3NK3		81.76	5.26	0.86	83.94	7.19	1.15
TU9FQG		77.00	0.50	0.08	79.60	2.84	0.45
VGAJGE		76.72	0.22	0.04	79.16	2.40	0.38
VW446U		85.52	9.02	1.48	88.79	12.03	1.92
VYANRU	X	53.88	-22.62	-3.70	56.33	-20.43	-3.25
WBHQQW		75.55	-0.95	-0.15	75.21	-1.55	-0.25
WBXUEW		83.00	6.50	1.06	82.12	5.36	0.85
WEJRRU		67.31	-9.18	-1.50	68.49	-8.26	-1.32
WL236U		76.18	-0.32	-0.05	76.92	0.16	0.03

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC59 Lab Mean	Sample SC59 Diff from Grand Mean	Sample SC59 CPV	Sample SC60 Lab Mean	Sample SC60 Diff from Grand Mean	Sample SC60 CPV
WZH3QM	*	66.50	-10.00	-1.64	71.40	-5.36	-0.85
X94TNY		81.18	4.68	0.77	82.15	5.39	0.86
XLV9YU		73.73	-2.77	-0.45	74.39	-2.37	-0.38
XXPPNU		84.59	8.09	1.33	85.14	8.38	1.34
YNGC7Q		78.42	1.92	0.31	78.43	1.67	0.27
YVYRQN		81.72	5.22	0.86	81.04	4.28	0.68
ZBNCQ9		84.40	7.90	1.29	84.80	8.04	1.28
ZF4REE	*	69.31	-7.19	-1.18	65.04	-11.72	-1.87

Summary Statistics	Sample SC59	Sample SC60
Grand Means	76.50 Grams	76.76 Grams
Stnd Dev Btwn Labs	6.11 Grams	6.28 Grams

Statistics based on 45 of 48 reporting participants.

Comments on Assigned Data Flags for Test #312

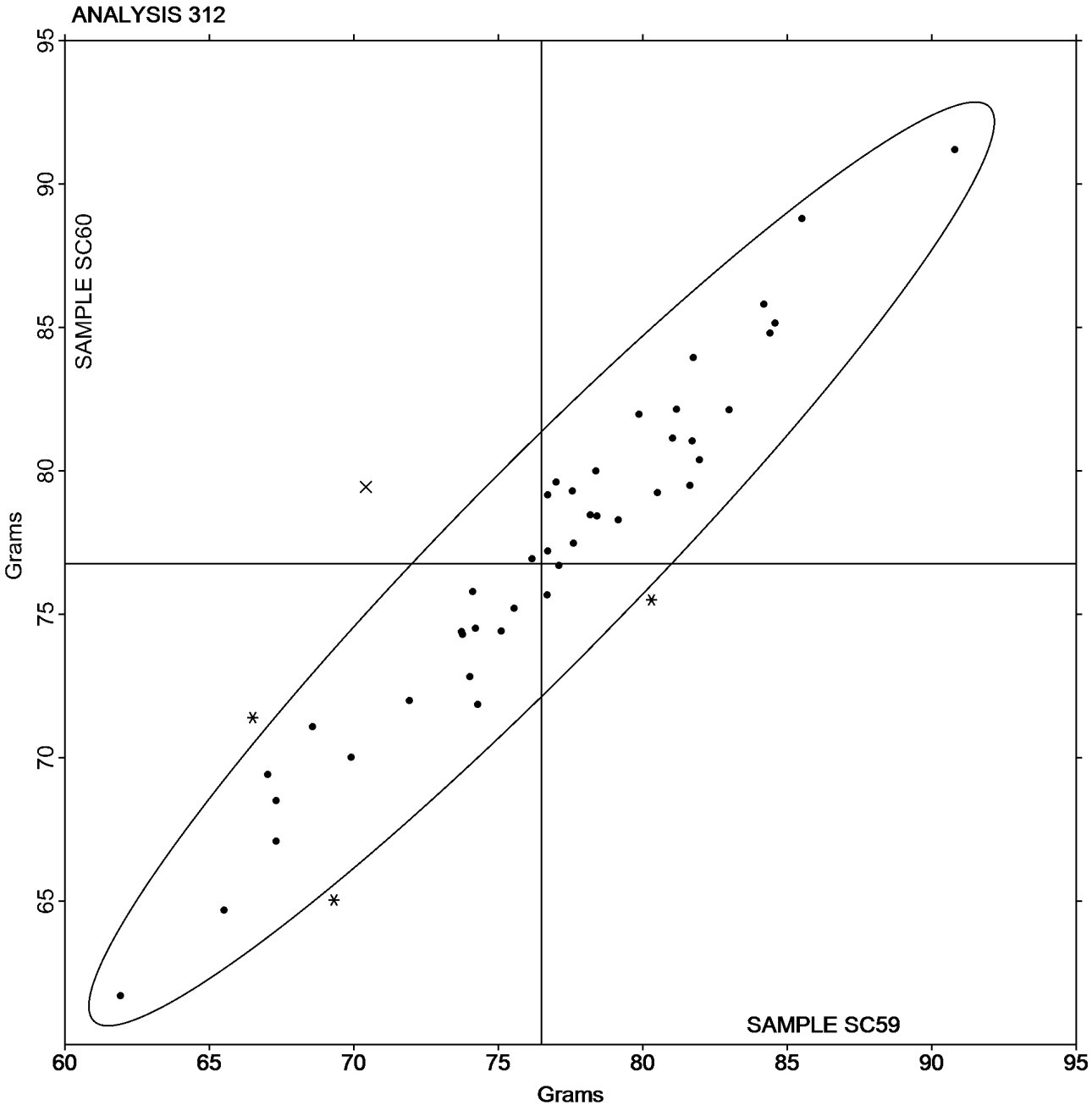
3BHFWN (X) - Inconsistent in testing between samples.

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

FYJAZJ (X) - Extreme Data.

Grand Mean Sample SC59 = 76.496 Grams

Grand Mean Sample SC60 = 76.756 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD59 Lab Mean	Sample SD59 Diff from Grand Mean	Sample SD59 CPV	Sample SD60 Lab Mean	Sample SD60 Diff from Grand Mean	Sample SD60 CPV
2A7MYF		182.0	-2.0	-0.15	142.4	0.1	0.01
2JWBTH		182.0	-1.9	-0.14	131.5	-10.8	-0.94
2KUGG4		183.0	-0.9	-0.07	143.3	1.0	0.09
2QH7UL		204.0	20.1	1.48	160.2	17.9	1.55
472GUU		169.9	-14.1	-1.04	133.8	-8.5	-0.73
48F2M4		170.4	-13.5	-1.00	129.6	-12.7	-1.10
4AMD7Q		176.8	-7.1	-0.52	151.2	9.0	0.78
4DLUJK	X	127.8	-56.1	-4.13	100.8	-41.5	-3.60
68WJ2A	X	49.3	-134.6	-9.92	38.7	-103.6	-8.97
6AWPH2		189.8	5.9	0.44	149.2	6.9	0.60
6JQTQ4		163.2	-20.7	-1.53	123.4	-18.9	-1.64
7FLKYY		187.1	3.2	0.24	147.8	5.5	0.47
9GQYE4		212.2	28.3	2.09	168.0	25.7	2.23
AR2QH4	M	No data reported for this sample			141.9	-0.4	-0.03
B4CHK4	X	736.6	552.6	40.71	548.8	406.5	35.22
BCLZZG		180.5	-3.4	-0.25	132.8	-9.4	-0.82
BLCURJ		186.1	2.1	0.16	138.5	-3.8	-0.33
CACLLL		168.2	-15.7	-1.16	130.6	-11.7	-1.01
CMMRZU		171.2	-12.7	-0.94	141.0	-1.3	-0.11
DPLPKL		175.0	-8.9	-0.66	146.0	3.7	0.32
DW4ZXM		162.3	-21.6	-1.59	131.8	-10.5	-0.91
FGL6GG		182.3	-1.6	-0.12	129.5	-12.8	-1.11
FPX7WQ		184.2	0.3	0.02	146.1	3.8	0.33
GVFXJA		196.0	12.0	0.89	152.1	9.8	0.85
H9HL9H		178.5	-5.5	-0.40	139.2	-3.1	-0.27
J86CVB		189.0	5.0	0.37	146.3	4.0	0.35
JJ2HRV	*	198.2	14.3	1.05	136.0	-6.3	-0.55
LWXCDN		193.0	9.1	0.67	146.3	4.0	0.35
LXUUD4		186.0	2.0	0.15	140.7	-1.6	-0.14
MQ42EA		177.5	-6.5	-0.48	136.9	-5.4	-0.46
MRFTDH		183.7	-0.2	-0.02	143.5	1.2	0.10
MZTPAC		208.0	24.1	1.77	158.8	16.5	1.43
N7HKUG		183.8	-0.1	-0.01	145.1	2.8	0.24
NAUAC6		176.3	-7.6	-0.56	130.5	-11.8	-1.02
NQHMPW		204.1	20.1	1.48	164.7	22.4	1.94
PQHX6Z		173.5	-10.4	-0.77	135.2	-7.1	-0.61
QR3KJ8	*	219.5	35.6	2.62	167.6	25.3	2.19
UJJ28B		184.0	0.0	0.00	147.4	5.1	0.44
VABRFC		166.6	-17.4	-1.28	126.0	-16.2	-1.41
VBJBVY		173.8	-10.1	-0.75	129.4	-12.9	-1.11

Paper & Paperboard Interlaboratory Testing Program

Analysis 314
Tearing Strength - Packaging Papers
TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD59 Lab Mean	Sample SD59 Diff from Grand Mean	Sample SD59 CPV	Sample SD60 Lab Mean	Sample SD60 Diff from Grand Mean	Sample SD60 CPV
ZT94RT	X	125.1	-58.8	-4.33	119.0	-23.3	-2.02

Summary Statistics	Sample SD59	Sample SD60
Grand Means	183.93 Grams	142.29 Grams
Stnd Dev Btwn Labs	13.57 Grams	11.54 Grams

Statistics based on 36 of 41 reporting participants.

Comments on Assigned Data Flags for Test #314

ZT94RT (X) - Data for sample SD59 are low.

4DLUJK (X) - Data for both samples are low. Possible Systematic Error.

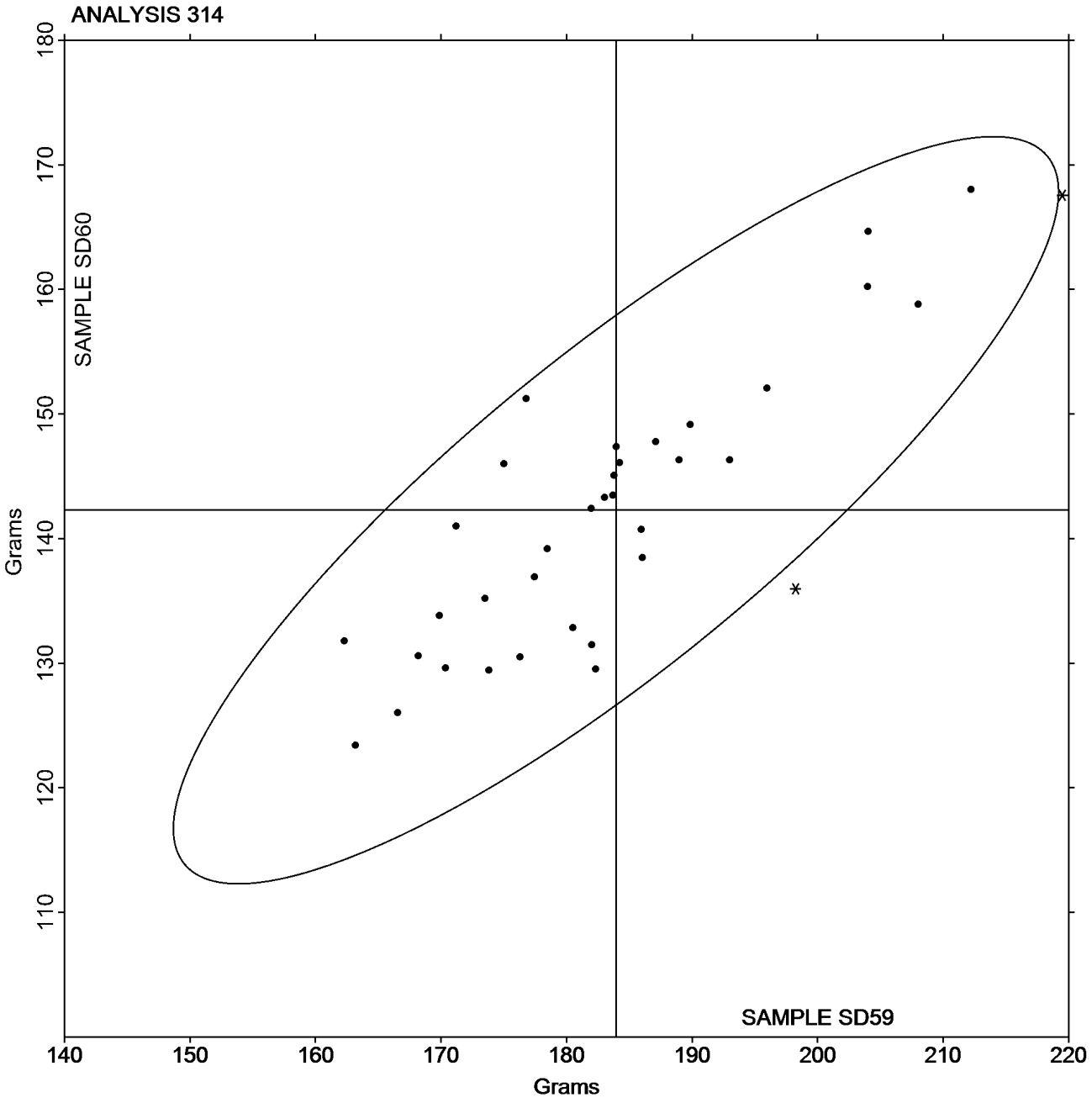
68WJ2A (X) - Extreme Data.

B4CHK4 (X) - Extreme Data.

AR2QH4 (M) - Participant did not submit data for sample SD59.

Grand Mean Sample SD59 = 183.93 Grams

Grand Mean Sample SD60 = 142.29 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

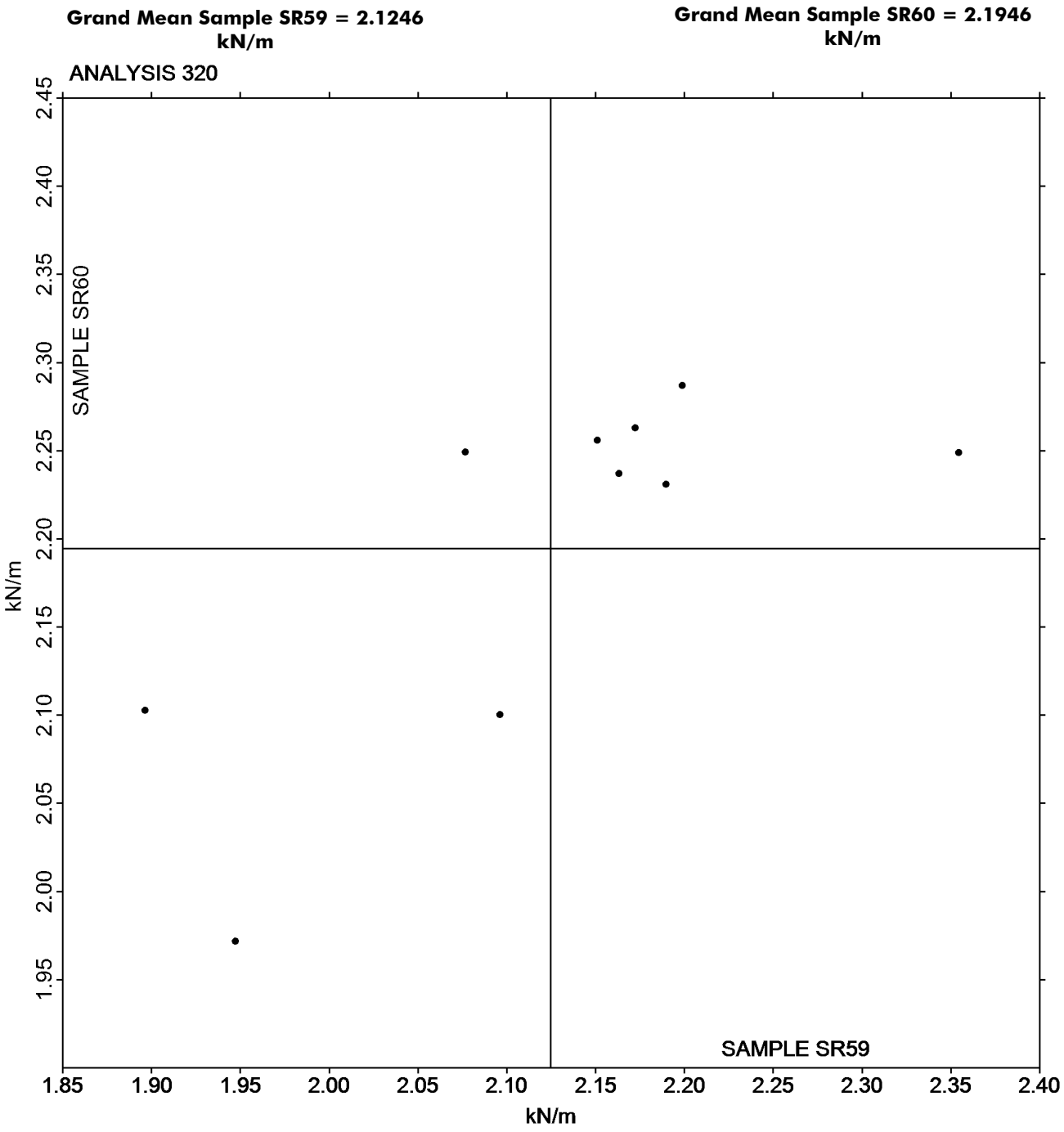
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR59 Lab Mean	Sample SR59 Diff from Grand Mean	Sample SR59 CPV	Sample SR60 Lab Mean	Sample SR60 Diff from Grand Mean	Sample SR60 CPV
2JUHXV		2.190	0.065	0.50	2.231	0.036	0.36
3333AP		2.096	-0.028	-0.22	2.100	-0.095	-0.93
GVFXJA		2.163	0.038	0.29	2.237	0.042	0.42
HHQA8B		2.077	-0.048	-0.37	2.249	0.054	0.54
KA7VFP		1.947	-0.177	-1.36	1.972	-0.223	-2.19
NLR4T9		2.151	0.026	0.20	2.256	0.061	0.60
QZ3QU2		2.199	0.074	0.57	2.287	0.092	0.91
WEJRRU		2.172	0.048	0.36	2.263	0.068	0.67
WZH3QM		2.354	0.230	1.76	2.249	0.054	0.53
YG2HAA		1.896	-0.228	-1.75	2.103	-0.092	-0.91

Summary Statistics	Sample SR59	Sample SR60
Grand Means	2.12 kN/m	2.19 kN/m
Stnd Dev Btwn Labs	0.13 kN/m	0.10 kN/m

Statistics based on 10 of 10 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 SR59 Lab Mean	Sample SR59 Diff from Grand Mean	Sample SR59 CPV	Sample SR60 Lab Mean	Sample SR60 Diff from Grand Mean	Sample SR60 CPV
2JUHXV		14.78	0.51	0.35	15.07	0.21	0.22
3333AP		13.99	-0.28	-0.19	13.39	-1.46	-1.54
GVFXJA		15.81	1.54	1.05	16.70	1.84	1.94
HHQA8B		12.33	-1.94	-1.32	14.53	-0.32	-0.34
KA7VFP	X	1.10	-13.17	-8.93	1.10	-13.76	-14.50
NLR4T9		12.92	-1.35	-0.92	14.42	-0.44	-0.46
QZ3QU2		14.66	0.40	0.27	15.34	0.48	0.50
WEJRRU		13.09	-1.18	-0.80	14.43	-0.43	-0.45
WZH3QM		16.58	2.31	1.57	14.99	0.13	0.14
YG2HAA	X	13.92	-0.35	-0.23	16.77	1.91	2.01

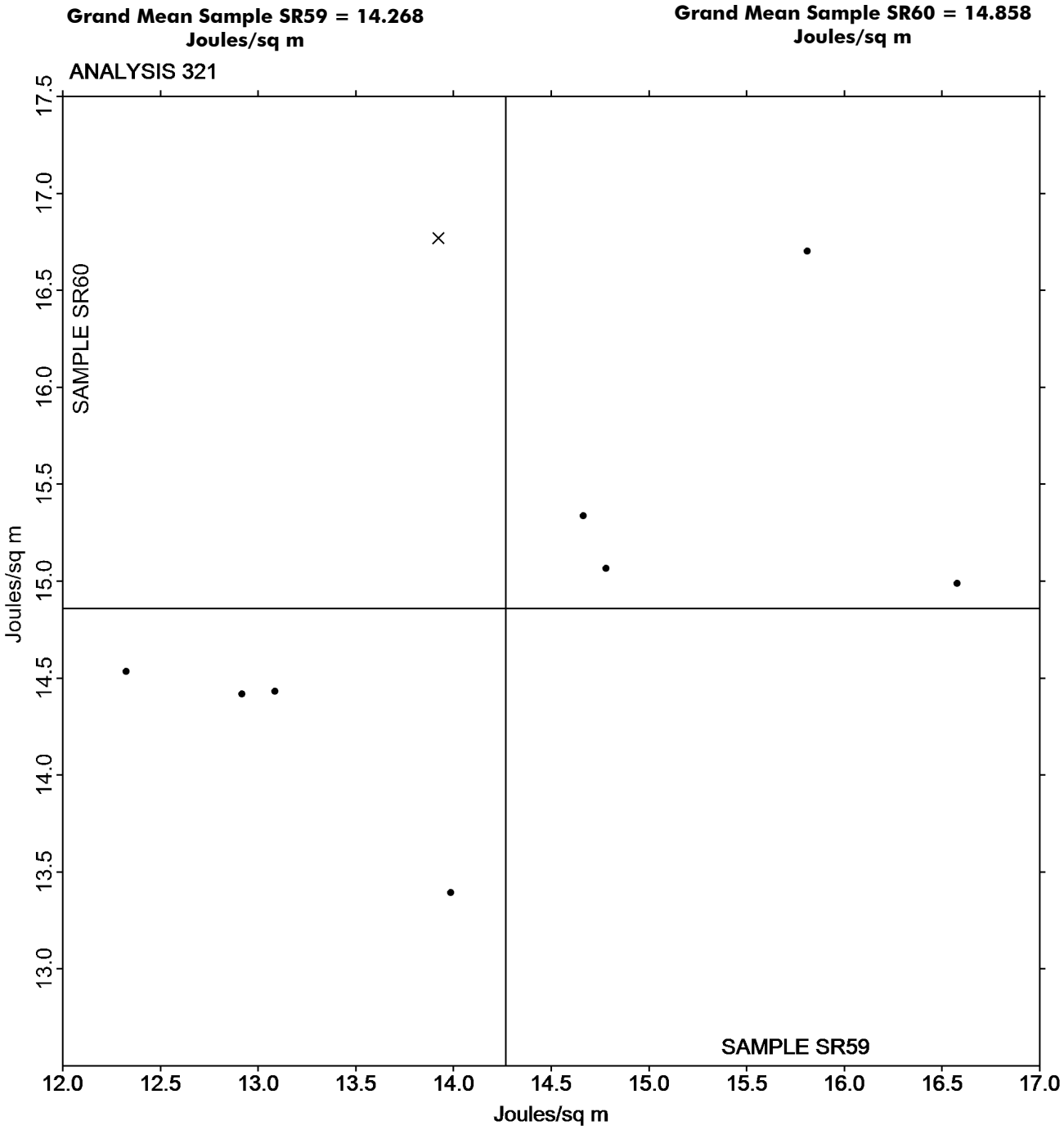
Summary Statistics	Sample SR59	Sample SR60
Grand Means	14.27 Joules/sq m	14.86 Joules/sq m
Stnd Dev Btwn Labs	1.47 Joules/sq m	0.95 Joules/sq m

Statistics based on 8 of 10 reporting participants.

Comments on Assigned Data Flags for Test #321

KA7VFP (X) - Extreme Data.

YG2HAA (X) - Inconsistent in testing between samples.



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

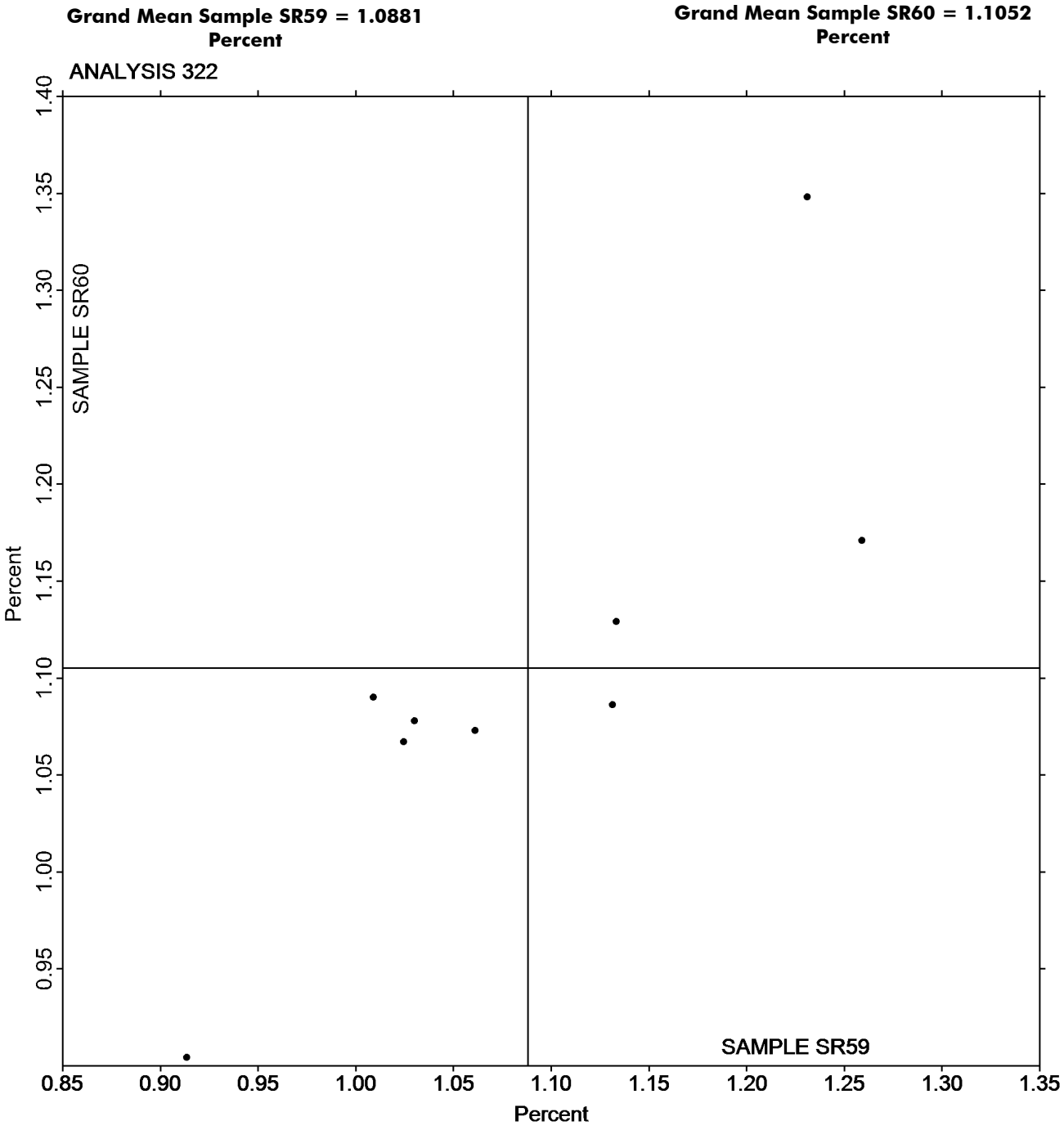
Elongation to Break - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR59 Lab Mean	Sample SR59 Diff from Grand Mean	Sample SR59 CPV	Sample SR60 Lab Mean	Sample SR60 Diff from Grand Mean	Sample SR60 CPV
2JUHXV		1.133	0.045	0.41	1.129	0.024	0.20
3333AP		1.132	0.043	0.39	1.086	-0.019	-0.16
GVFXJA		1.061	-0.027	-0.24	1.073	-0.032	-0.28
HHQA8B		1.009	-0.079	-0.71	1.090	-0.015	-0.13
KA7VFP		0.914	-0.175	-1.57	0.904	-0.201	-1.73
NLR4T9		1.030	-0.058	-0.52	1.078	-0.027	-0.23
WEJRRU		1.024	-0.064	-0.57	1.067	-0.038	-0.33
WZH3QM		1.259	0.171	1.54	1.171	0.066	0.57
YG2HAA		1.231	0.143	1.29	1.348	0.243	2.09

Summary Statistics	Sample SR59	Sample SR60
Grand Means	1.09 Percent	1.11 Percent
Stnd Dev Btwn Labs	0.11 Percent	0.12 Percent

Statistics based on 9 of 9 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 SF59 Lab Mean	Sample SF59 Diff from Grand Mean	Sample SF59 CPV	Sample SF60 Lab Mean	Sample SF60 Diff from Grand Mean	Sample SF60 CPV	Instr Code
2GRH26		7.051	0.302	0.96	6.706	-0.019	-0.06	LA
3BHFWN		7.156	0.407	1.30	7.291	0.566	1.74	TJ
3HJW8U		6.275	-0.474	-1.51	6.095	-0.630	-1.94	XX
472GUU		6.940	0.191	0.61	6.792	0.067	0.21	LH
4DLUJK		6.784	0.036	0.11	6.703	-0.021	-0.07	TB
63FE4Z		6.786	0.038	0.12	7.065	0.340	1.04	LA
666KMB		6.425	-0.323	-1.03	6.373	-0.352	-1.08	LI
6HQXYL		6.859	0.111	0.35	7.209	0.484	1.49	TP
7CKN8J		6.576	-0.172	-0.55	6.696	-0.029	-0.09	TB
8P7DNZ		6.507	-0.242	-0.77	6.714	-0.011	-0.03	TB
B4RYFW		6.564	-0.184	-0.59	6.602	-0.122	-0.38	TP
B67J7L		6.281	-0.468	-1.49	6.197	-0.528	-1.62	LA
BKJUXE		6.873	0.125	0.40	7.011	0.286	0.88	LE
CF3VVK		6.662	-0.086	-0.28	6.612	-0.113	-0.35	LI
F4W32A	*	5.940	-0.808	-2.57	6.241	-0.484	-1.49	LH
FYJAZJ		6.662	-0.086	-0.28	6.786	0.061	0.19	XX
J3D6D3		6.573	-0.176	-0.56	6.362	-0.363	-1.11	TF
JFZCB4		7.346	0.598	1.90	7.219	0.495	1.52	LH
JQXCM9		6.405	-0.343	-1.09	6.461	-0.263	-0.81	TF
L9THDD		6.867	0.118	0.38	6.674	-0.051	-0.16	TO
MG2GD3		6.604	-0.144	-0.46	6.568	-0.157	-0.48	TF
QN8CU6		7.127	0.378	1.20	7.110	0.385	1.18	FP
QR3KJ8		6.661	-0.087	-0.28	6.565	-0.159	-0.49	XX
QY7HFQ		6.971	0.223	0.71	6.900	0.175	0.54	LI
TF3NK3		7.232	0.484	1.54	7.337	0.612	1.88	LI
TU9FQG		6.839	0.091	0.29	6.565	-0.159	-0.49	LH
UHMVKP		6.413	-0.336	-1.07	6.461	-0.264	-0.81	RE
VGAJGE		6.518	-0.230	-0.73	6.490	-0.235	-0.72	TO
VW446U		6.495	-0.254	-0.81	6.444	-0.281	-0.86	LH
VYANRU		7.185	0.437	1.39	7.285	0.561	1.72	VM
WBHQQW		6.889	0.140	0.45	6.837	0.113	0.35	LF
WBXUEW		7.099	0.351	1.12	6.922	0.197	0.61	LI
WEJRRU		7.016	0.268	0.85	6.840	0.115	0.35	LH
WL236U		6.393	-0.356	-1.13	6.303	-0.422	-1.30	ID
WRM62Y		7.366	0.618	1.97	7.299	0.574	1.76	LI
XLV9YU		6.754	0.005	0.02	6.708	-0.017	-0.05	TC
XXPPNU		6.898	0.149	0.48	6.918	0.193	0.59	LH
YNGC7Q		6.634	-0.114	-0.36	6.521	-0.204	-0.63	IM
YVYRQN		6.595	-0.154	-0.49	6.506	-0.218	-0.67	LX
ZF4REE		6.718	-0.030	-0.10	6.603	-0.122	-0.37	LH

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SF59	Sample SF60
Grand Means	6.75 kN/m	6.72 kN/m
Stnd Dev Btwn Labs	0.31 kN/m	0.33 kN/m

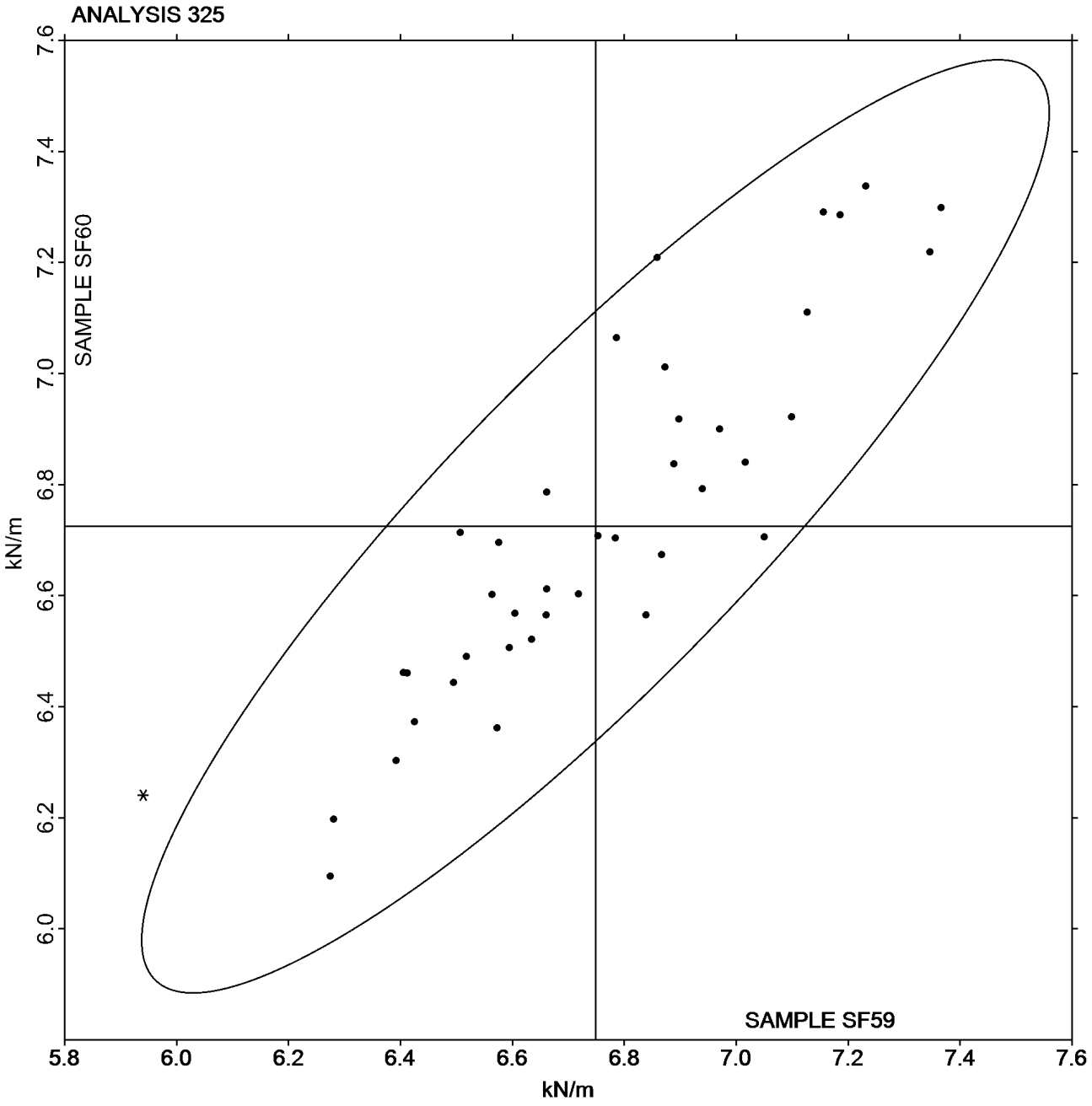
Statistics based on 40 of 40 reporting participants.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	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)	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)
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF59 = 6.7484 kN/m

Grand Mean Sample SF60 = 6.7247 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF59 Lab Mean	Sample SF59 Diff from Grand Mean	Sample SF59 CPV	Sample SF60 Lab Mean	Sample SF60 Diff from Grand Mean	Sample SF60 CPV	Instr Code
3HJW8U		86.76	-9.70	-1.09	84.45	-10.98	-1.21	XX
472GUU		93.14	-3.32	-0.37	91.10	-4.33	-0.48	LH
4DLUJK		96.88	0.42	0.05	96.56	1.12	0.12	TB
666KMB		92.80	-3.67	-0.41	90.79	-4.65	-0.51	LI
8P7DNZ	*	99.84	3.38	0.38	106.83	11.39	1.25	TB
B67J7L		72.85	-23.61	-2.65	72.55	-22.89	-2.52	LA
CF3VVK		97.94	1.48	0.17	95.50	0.07	0.01	LI
F4W32A	X	78.68	-17.79	-1.99	93.72	-1.72	-0.19	LH
J3D6D3	X	99.44	2.98	0.33	34.41	-61.02	-6.71	TF
JFZCB4		93.20	-3.27	-0.37	93.69	-1.74	-0.19	LH
L9THDD		93.05	-3.42	-0.38	91.98	-3.45	-0.38	TO
MG2GD3		103.50	7.04	0.79	102.73	7.30	0.80	TF
QN8CU6		104.70	8.24	0.92	103.41	7.98	0.88	FP
QR3KJ8		99.05	2.59	0.29	97.25	1.82	0.20	XX
QY7HFQ		94.39	-2.07	-0.23	92.34	-3.09	-0.34	LI
TF3NK3		100.98	4.52	0.51	99.70	4.27	0.47	LI
UHMVKP		92.32	-4.14	-0.46	93.99	-1.44	-0.16	RE
VGAJGE		117.19	20.72	2.32	118.94	23.51	2.59	TO
VW446U		89.99	-6.48	-0.73	90.28	-5.16	-0.57	LH
WBHQQW		80.97	-15.50	-1.74	83.35	-12.09	-1.33	LW
WBXUEW		95.96	-0.50	-0.06	87.51	-7.92	-0.87	LI
WEJRRU		97.15	0.68	0.08	91.53	-3.90	-0.43	LH
WL236U	X	561.39	464.92	52.14	555.40	459.96	50.61	ID
WRM62Y		108.06	11.59	1.30	104.55	9.12	1.00	LI
XXPPNU		95.71	-0.76	-0.09	96.46	1.03	0.11	LH
YNGC7Q		104.04	7.58	0.85	103.13	7.70	0.85	IM
YVYRQN		93.80	-2.66	-0.30	94.42	-1.01	-0.11	LX
ZF4REE		107.34	10.88	1.22	102.79	7.36	0.81	LH

Summary Statistics	Sample SF59	Sample SF60
Grand Means	96.46 Joules/sq m	95.43 Joules/sq m
Stnd Dev Btwn Labs	8.92 Joules/sq m	9.09 Joules/sq m

Statistics based on 25 of 28 reporting participants.

Comments on Assigned Data Flags for Test #327

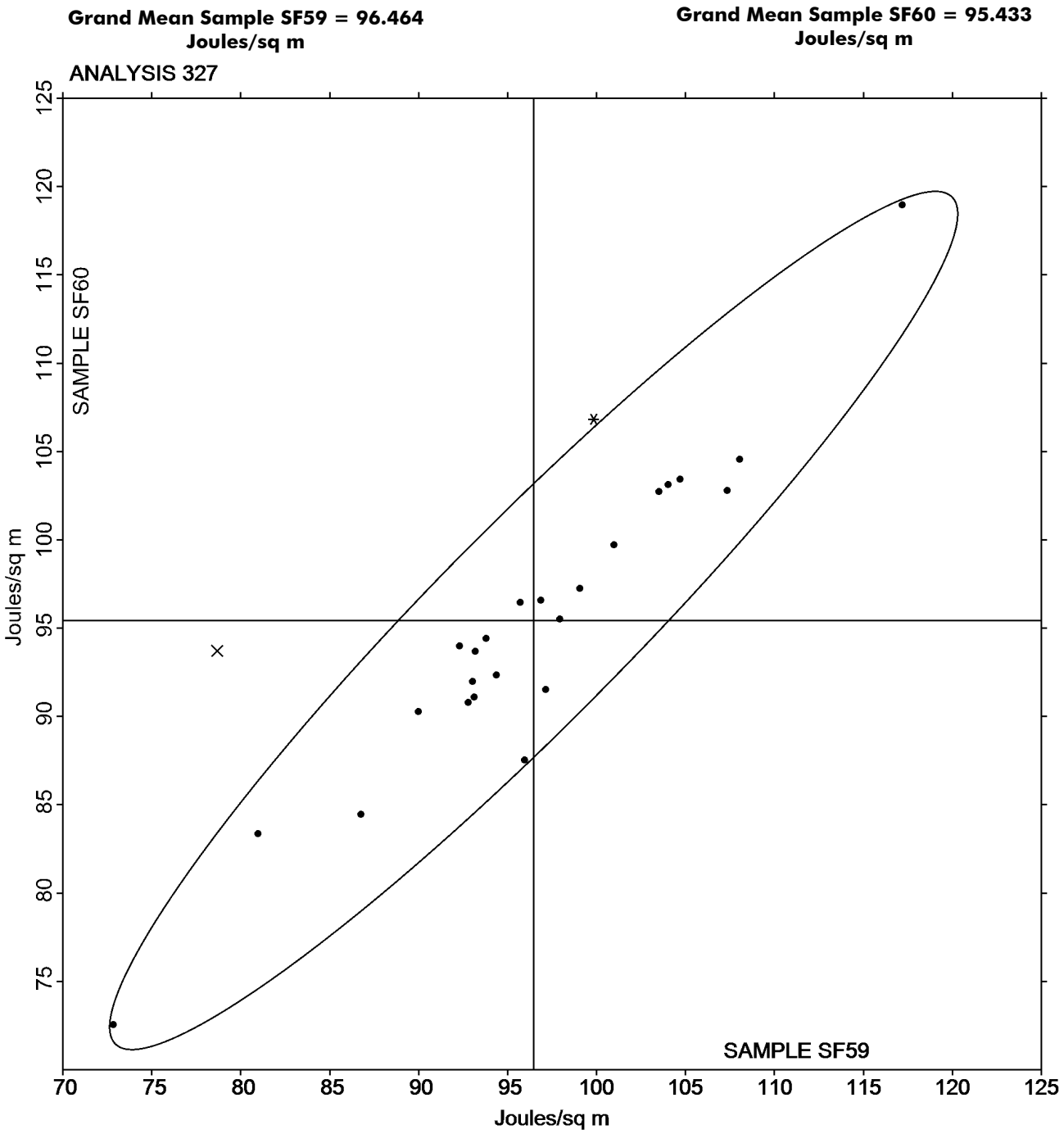
WL236U (X) - Extreme Data.

F4W32A (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SF59.

J3D6D3 (X) - Extreme Data for Sample SF60.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	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)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TO	Thwing-Albert QC-1000
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 SF59 Lab Mean	Sample SF59 Diff from Grand Mean	Sample SF59 CPV	Sample SF60 Lab Mean	Sample SF60 Diff from Grand Mean	Sample SF60 CPV	Instr Code
3HJW8U	X	2.960	0.770	4.46	2.657	0.472	2.70	XX
472GUU		2.077	-0.113	-0.65	2.030	-0.155	-0.89	LH
4DLUJK		2.200	0.010	0.06	2.219	0.034	0.19	TB
666KMB		2.215	0.025	0.15	2.175	-0.010	-0.06	LI
7CKN8J		2.242	0.052	0.30	2.301	0.116	0.66	TF
8P7DNZ		2.402	0.212	1.23	2.490	0.305	1.74	TB
B67J7L		2.127	-0.063	-0.36	2.163	-0.022	-0.13	LA
CF3VVK		2.242	0.052	0.30	2.200	0.015	0.09	LI
F4W32A	X	2.140	-0.050	-0.29	2.412	0.227	1.29	LH
J3D6D3	X	2.484	0.294	1.70	6.098	3.913	22.36	TF
JFZCB4		1.966	-0.224	-1.30	1.998	-0.187	-1.07	LH
JQXCM9		2.289	0.099	0.57	2.256	0.071	0.41	TF
L9THDD		2.053	-0.137	-0.79	2.085	-0.100	-0.57	TG
MG2GD3		2.508	0.318	1.84	2.496	0.311	1.77	TF
QN8CU6		2.247	0.057	0.33	2.306	0.121	0.69	FP
QR3KJ8		2.365	0.176	1.02	2.369	0.183	1.05	XX
QY7HFQ		2.067	-0.123	-0.71	2.039	-0.146	-0.83	LI
TF3NK3		1.953	-0.237	-1.37	1.903	-0.282	-1.61	LI
UHMVKP		2.331	0.141	0.82	2.290	0.105	0.60	RE
VGAJGE	X	2.995	0.805	4.66	3.064	0.879	5.02	TO
VW446U		2.119	-0.071	-0.41	2.134	-0.051	-0.29	LH
VYANRU		1.920	-0.270	-1.56	1.950	-0.235	-1.34	VM
WBHQQW		1.845	-0.345	-2.00	1.907	-0.278	-1.59	LX
WBXUEW		2.076	-0.114	-0.66	1.947	-0.238	-1.36	LI
WEJRRU		2.115	-0.075	-0.43	2.051	-0.134	-0.77	LH
WL236U		2.330	0.141	0.81	2.337	0.152	0.87	ID
WRM62Y		2.245	0.055	0.32	2.197	0.012	0.07	LI
XXPPNU		2.109	-0.081	-0.47	2.114	-0.071	-0.41	LH
YNGC7Q		2.420	0.230	1.33	2.435	0.250	1.43	IM
YVYRQN		2.151	-0.039	-0.23	2.182	-0.003	-0.02	LX
ZF4REE		2.512	0.322	1.86	2.424	0.239	1.37	LH

Summary Statistics	Sample SF59	Sample SF60
Grand Means	2.19 Percent	2.19 Percent
Stnd Dev Btwn Labs	0.17 Percent	0.18 Percent

Statistics based on 27 of 31 reporting participants.

Comments on Assigned Data Flags for Test #328

F4W32A (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SF59.

3HJW8U (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample SF59.

J3D6D3 (X) - Extreme Data for Sample SF60.

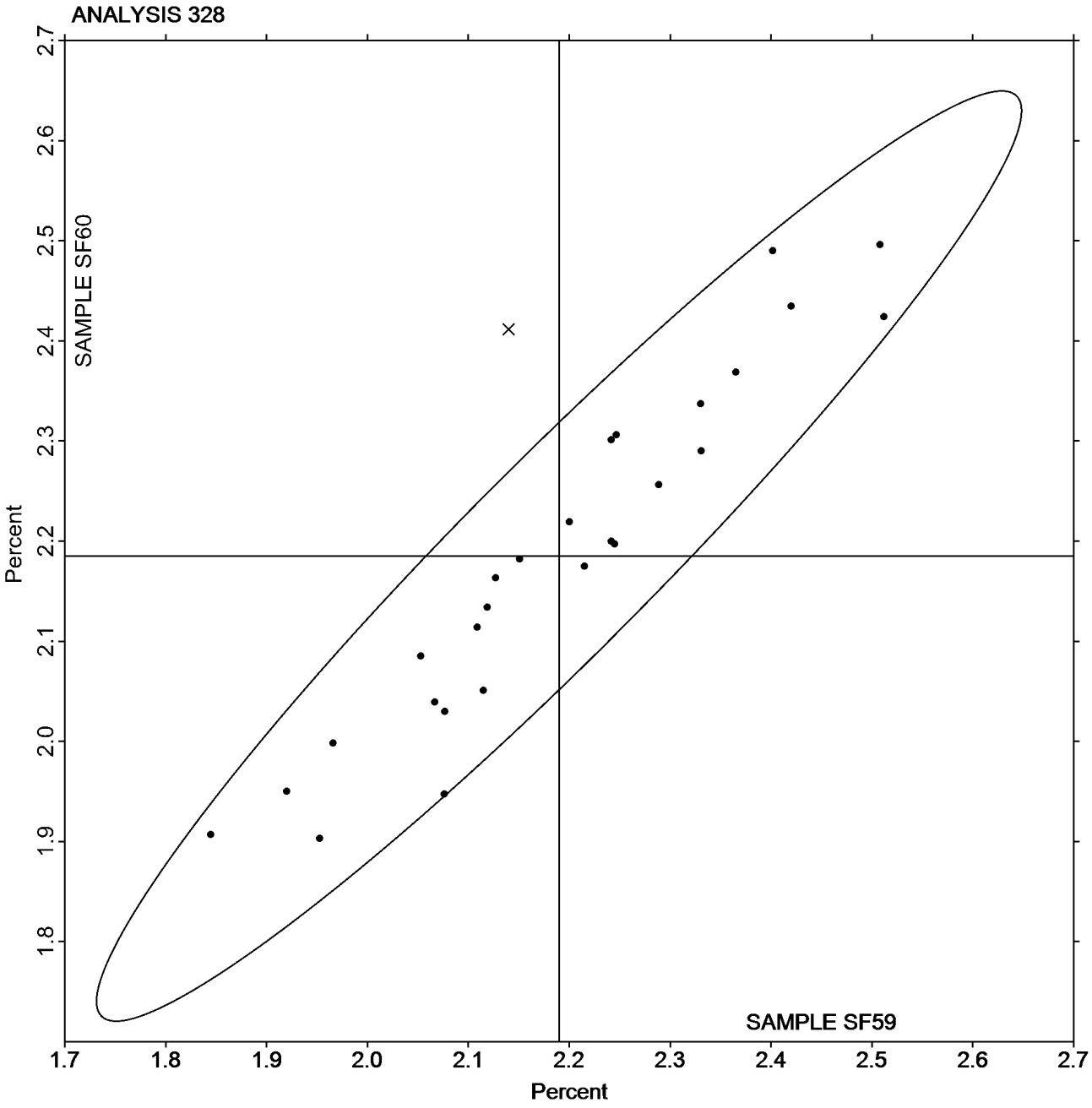
VGAJGE (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample SF59.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	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)	RE	Regmed
TB	Thwing-Albert EJA/1000	TF	Thwing-Albert EJA Vantage-1
TG	Thwing-Albert QC	TO	Thwing-Albert QC-1000
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF59 = 2.1899
Percent

Grand Mean Sample SF60 = 2.1851
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE59 Lab Mean	Sample SE59 Diff from Grand Mean	Sample SE59 CPV	Sample SE60 Lab Mean	Sample SE60 Diff from Grand Mean	Sample SE60 CPV	Instr Code
2JWBTH		15.88	0.13	0.12	11.53	-0.40	-0.45	IF
2KUGG4		16.32	0.57	0.52	12.32	0.39	0.44	LH
3AL7HD		16.19	0.44	0.40	11.96	0.03	0.04	TH
3W69J4		15.04	-0.71	-0.64	11.36	-0.56	-0.63	XX
472GUU		16.64	0.89	0.80	12.53	0.60	0.67	LH
48F2M4		15.77	0.02	0.02	11.93	0.00	0.00	TR
4DLUJK		15.55	-0.20	-0.18	12.23	0.31	0.34	TB
68WJ2A		13.66	-2.09	-1.89	10.32	-1.60	-1.79	IN
6AWPH2		16.67	0.92	0.83	12.70	0.77	0.86	TA
6JQTQ4		16.89	1.14	1.03	12.84	0.91	1.01	LW
7F32TR		15.70	-0.05	-0.05	12.04	0.11	0.13	LE
7FLKYY		15.25	-0.50	-0.45	11.45	-0.48	-0.54	LE
7YB6BA	*	18.54	2.78	2.52	13.56	1.63	1.82	LA
8FGKDP		13.95	-1.80	-1.63	10.39	-1.53	-1.71	LA
94Y8RE		16.67	0.92	0.83	12.72	0.80	0.89	TX
9GQYE4		15.48	-0.27	-0.24	12.10	0.17	0.19	IR
AR2QH4		15.43	-0.32	-0.29	11.73	-0.20	-0.22	IF
B4CHK4	*	12.44	-3.31	-2.99	9.94	-1.99	-2.22	IN
BCLZZG		15.74	-0.01	-0.01	12.37	0.44	0.49	LE
BTBBMJ		15.69	-0.06	-0.05	11.56	-0.37	-0.41	IF
CACLLL		15.36	-0.39	-0.35	11.54	-0.39	-0.43	ID
CMMRZU		17.06	1.31	1.19	12.08	0.16	0.17	TH
DPLPKL		17.73	1.97	1.78	13.54	1.61	1.80	LX
EEHWT7		16.10	0.35	0.31	12.48	0.55	0.62	TB
EHG8N7		15.49	-0.26	-0.24	11.50	-0.43	-0.48	IK
FGL6GG		16.21	0.46	0.42	12.10	0.18	0.20	LH
FMVZLQ		15.59	-0.16	-0.15	11.88	-0.05	-0.06	IM
FPX7WQ	*	18.56	2.81	2.54	14.28	2.35	2.63	LA
G3X6H2		14.65	-1.10	-1.00	11.07	-0.86	-0.96	TH
G7DW9U		15.11	-0.64	-0.58	11.59	-0.34	-0.38	IK
GC3CX2		16.61	0.86	0.77	11.90	-0.02	-0.03	LI
HP63EZ	X	21.29	5.54	5.00	16.46	4.53	5.07	LA
J3D6D3		14.41	-1.34	-1.22	11.83	-0.10	-0.11	TO
J86CVB		15.29	-0.46	-0.41	11.29	-0.63	-0.71	IK
JJ2HRV	X	14.08	-1.67	-1.51	7.79	-4.14	-4.62	IM
LWXCDN		15.45	-0.30	-0.27	11.77	-0.16	-0.17	IN
MQ42EA	*	15.91	0.16	0.14	13.27	1.34	1.50	TO
MRFTDH		15.57	-0.18	-0.16	11.88	-0.05	-0.05	IM
MWU92N		15.55	-0.20	-0.18	12.12	0.19	0.21	IR
MZTPAC		16.86	1.11	1.00	13.22	1.30	1.45	IF

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE59 Lab Mean	Sample SE59 Diff from Grand Mean	Sample SE59 CPV	Sample SE60 Lab Mean	Sample SE60 Diff from Grand Mean	Sample SE60 CPV	Instr Code
N7HKUG		15.83	0.08	0.07	11.86	-0.07	-0.08	XX
NQHMPW		16.75	1.00	0.90	12.84	0.92	1.03	ID
PQHX6Z		15.38	-0.37	-0.34	11.89	-0.04	-0.05	TA
QR3KJ8		16.02	0.27	0.25	12.03	0.11	0.12	XX
RF8JQ4	X	17.41	1.66	1.50	14.53	2.60	2.91	DW
TNYGVG	*	13.96	-1.79	-1.62	9.64	-2.28	-2.55	IK
TZDAR4		14.08	-1.67	-1.51	10.39	-1.54	-1.72	LW
UJJ28B		15.26	-0.49	-0.44	11.42	-0.51	-0.57	TK
VABRFC		16.26	0.51	0.46	12.86	0.93	1.04	TO
VBJBVY		16.51	0.76	0.69	12.19	0.26	0.29	LE
VWJ8TU		16.51	0.76	0.69	12.07	0.14	0.16	TT
VXXT4G		15.46	-0.29	-0.26	11.92	0.00	0.00	IK
Y8QDWJ		14.99	-0.76	-0.69	11.42	-0.51	-0.57	TH
ZT94RT		15.26	-0.49	-0.44	10.85	-1.08	-1.20	LE

Summary Statistics	Sample SE59	Sample SE60
Grand Means	15.75 kN/m	11.93 kN/m
Stnd Dev Btwn Labs	1.11 kN/m	0.89 kN/m

Statistics based on 51 of 54 reporting participants.

Comments on Assigned Data Flags for Test #330

RF8JQ4 (X) - Data for sample SE60 are high. Inconsistent within the determinations of sample SE60.

HP63EZ (X) - Data for both samples are high.

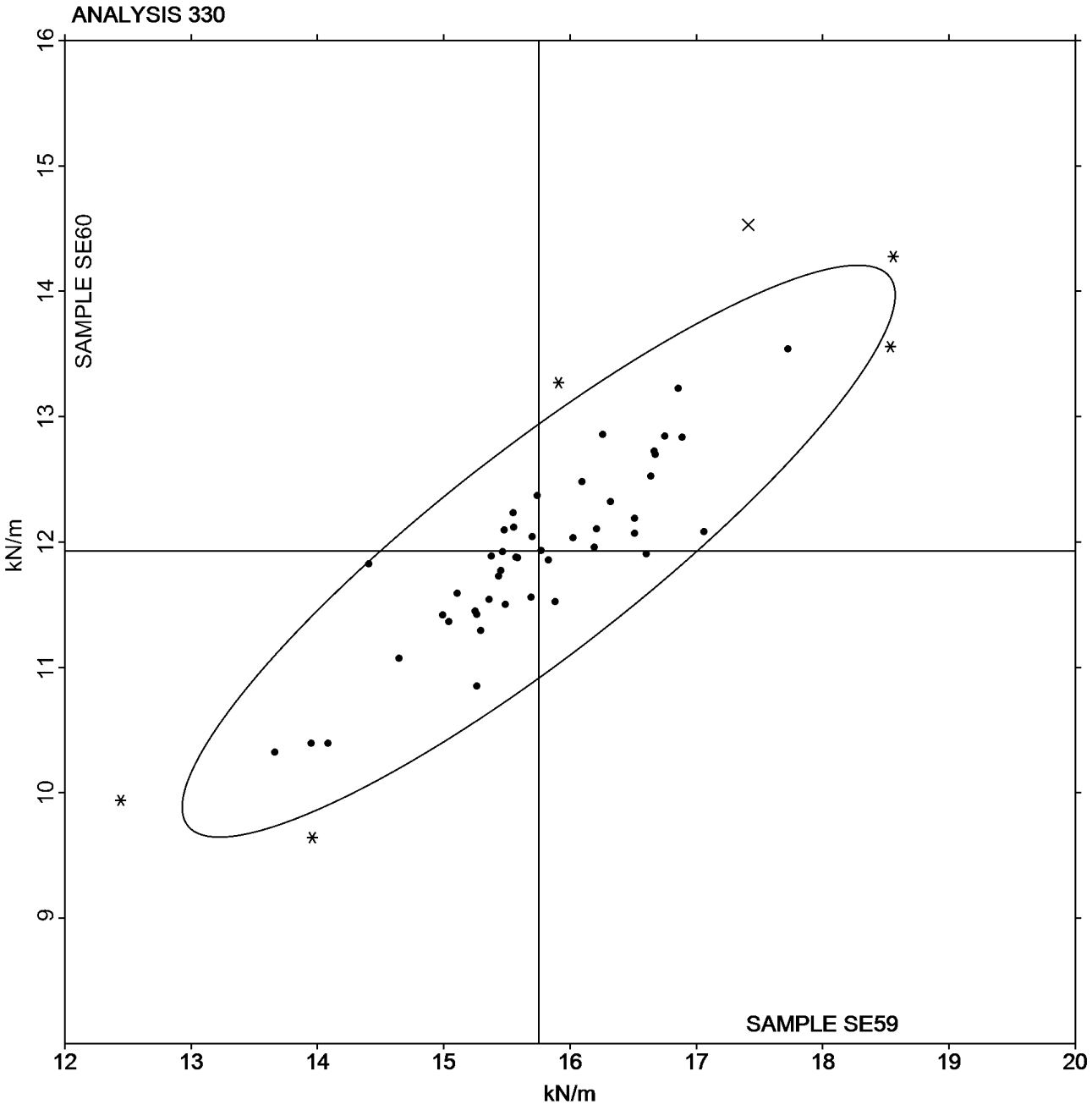
JJ2HRV (X) - Data for sample SE60 are low. Inconsistent within the determinations of sample SE60.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IR	Instron 5900 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
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
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 SE59 = 15.751 kN/m

Grand Mean Sample SE60 = 11.927 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE59 Lab Mean	Sample SE59 Diff from Grand Mean	Sample SE59 CPV	Sample SE60 Lab Mean	Sample SE60 Diff from Grand Mean	Sample SE60 CPV	Instr Code
2KUGG4		170.0	-6.4	-0.28	195.4	-4.6	-0.24	LH
3W69J4		178.3	1.9	0.08	195.0	-5.0	-0.26	XX
472GUU		175.9	-0.5	-0.02	194.8	-5.2	-0.27	LH
48F2M4		171.2	-5.2	-0.23	193.7	-6.3	-0.33	TR
4DLUJK		165.0	-11.5	-0.50	205.3	5.3	0.28	TB
68WJ2A		181.2	4.8	0.21	195.3	-4.7	-0.25	IN
6AWPH2		164.6	-11.8	-0.51	186.7	-13.3	-0.70	TA
6JQTQ4		129.8	-46.7	-2.01	180.4	-19.6	-1.04	LW
7F32TR		160.3	-16.1	-0.70	193.3	-6.7	-0.35	LE
7FLKYY		161.7	-14.8	-0.64	182.0	-18.0	-0.95	LE
7YB6BA		198.2	21.7	0.94	210.1	10.1	0.54	LA
8FGKDP		178.2	1.7	0.08	200.2	0.3	0.01	LA
94Y8RE		204.2	27.7	1.20	224.5	24.6	1.30	XX
AR2QH4	*	146.6	-29.8	-1.29	154.5	-45.5	-2.40	IF
B4CHK4		147.1	-29.4	-1.27	190.3	-9.7	-0.51	IN
BCLZZG		149.5	-26.9	-1.16	191.3	-8.7	-0.46	LE
BTBBMJ		195.7	19.3	0.83	217.2	17.3	0.91	IF
CACLLL		164.0	-12.5	-0.54	185.8	-14.2	-0.75	ID
CMMRZU		210.9	34.5	1.49	225.7	25.7	1.36	TH
DPLPKL		209.8	33.4	1.44	230.7	30.7	1.62	LX
EEHWT7		189.7	13.3	0.57	224.0	24.1	1.27	TB
EHG8N7	X	211.1	34.7	1.50	169.1	-30.9	-1.63	XX
FGL6GG		159.9	-16.5	-0.71	188.3	-11.7	-0.62	LH
FMVZLQ		166.8	-9.6	-0.42	196.3	-3.7	-0.19	IM
FPX7WQ		162.4	-14.0	-0.60	206.1	6.1	0.32	LA
G3X6H2		187.2	10.8	0.47	211.2	11.2	0.59	TH
HP63EZ		199.2	22.7	0.98	206.6	6.6	0.35	LA
J3D6D3		181.3	4.8	0.21	209.3	9.3	0.49	TO
J86CVB		234.3	57.9	2.49	232.5	32.5	1.72	IK
JJ2HRV	X	90.6	-85.8	-3.70	52.5	-147.5	-7.79	IM
LWXCDN	X	237.6	61.2	2.64	201.0	1.1	0.06	IN
MQ42EA	X	159.3	-17.1	-0.74	234.1	34.2	1.81	TO
MRFTDH		172.7	-3.8	-0.16	200.9	0.9	0.05	IM
MZTPAC		167.9	-8.5	-0.37	204.6	4.7	0.25	IN
N7HKUG		161.0	-15.5	-0.67	192.9	-7.1	-0.37	XX
QR3KJ8		183.8	7.4	0.32	200.2	0.2	0.01	XX
RF8JQ4	*	243.2	66.8	2.88	234.2	34.3	1.81	DW
TZDAR4		161.7	-14.8	-0.64	176.1	-23.9	-1.26	LW
UJJ28B		177.5	1.1	0.05	209.0	9.1	0.48	TK
VABRFC		167.6	-8.9	-0.38	221.0	21.0	1.11	TO

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE59 Lab Mean	Sample SE59 Diff from Grand Mean	Sample SE59 CPV	Sample SE60 Lab Mean	Sample SE60 Diff from Grand Mean	Sample SE60 CPV	Instr Code
VBJBVY		194.8	18.4	0.79	214.7	14.7	0.78	LE
VWJ8TU		169.4	-7.1	-0.30	176.0	-23.9	-1.26	TT
Y8QDWJ	*	143.0	-33.4	-1.44	149.3	-50.7	-2.68	TH
ZT94RT		172.4	-4.1	-0.18	193.4	-6.6	-0.35	LE

Summary Statistics	Sample SE59	Sample SE60
Grand Means	176.45 Joules/sq m	199.96 Joules/sq m
Stnd Dev Btwn Labs	23.19 Joules/sq m	18.92 Joules/sq m

Statistics based on 40 of 44 reporting participants.

Comments on Assigned Data Flags for Test #331

JJ2HRV (X) - Extreme Data.

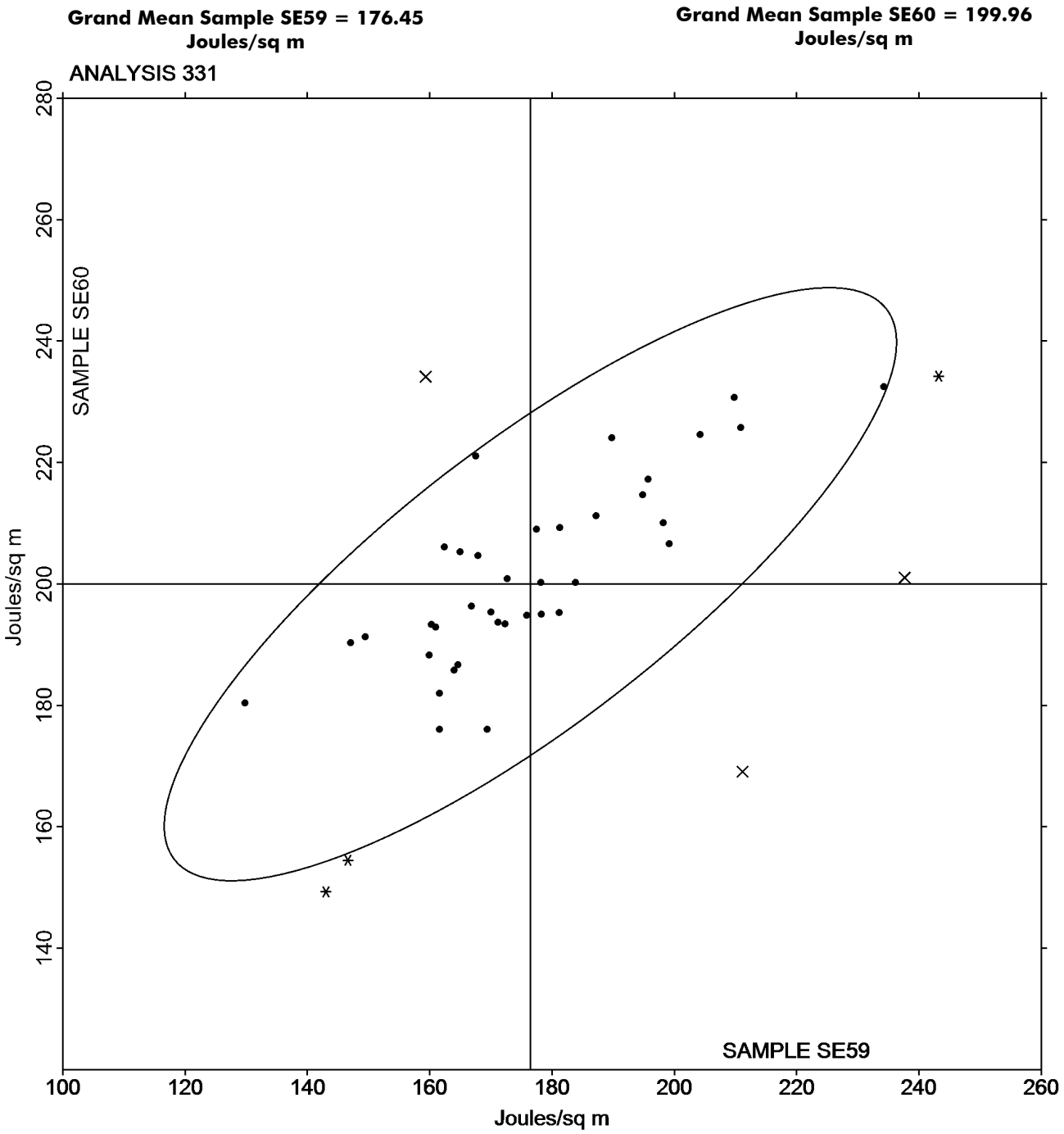
MQ42EA (X) - Inconsistent in testing between samples.

EHG8N7 (X) - Inconsistent in testing between samples.

LWXCDN (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 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
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
TR	TMI Horizontal Tensile Tester	TT	Tinius Olsen Model MHT
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 SE59 Lab Mean	Sample SE59 Diff from Grand Mean	Sample SE59 CPV	Sample SE60 Lab Mean	Sample SE60 Diff from Grand Mean	Sample SE60 CPV	Instr Code
2KUGG4		1.576	-0.109	-0.53	2.346	-0.114	-0.42	LH
3W69J4		1.898	0.213	1.03	2.619	0.159	0.59	XX
472GUU		1.678	-0.007	-0.03	2.365	-0.095	-0.35	LH
48F2M4		1.717	0.032	0.16	2.481	0.021	0.08	TR
4DLUJK		1.634	-0.051	-0.25	2.518	0.058	0.22	TB
68WJ2A		1.743	0.058	0.28	2.382	-0.078	-0.29	IN
6AWPH2		1.531	-0.154	-0.75	2.209	-0.251	-0.93	TA
6JQTQ4	*	1.288	-0.397	-1.93	2.166	-0.294	-1.09	LW
7F32TR		1.546	-0.139	-0.67	2.371	-0.089	-0.33	LE
7FLKYY		1.600	-0.085	-0.41	2.372	-0.088	-0.33	LE
7YB6BA		1.559	-0.126	-0.61	2.278	-0.182	-0.67	LA
8FGKDP		1.594	-0.091	-0.44	2.408	-0.052	-0.19	LA
94Y8RE		1.983	0.298	1.45	2.748	0.288	1.07	XX
9GQYE4		1.820	0.135	0.66	2.640	0.180	0.67	IS
AR2QH4	*	1.249	-0.436	-2.12	1.690	-0.770	-2.85	IF
B4CHK4		1.283	-0.402	-1.95	1.894	-0.566	-2.10	IN
BCLZZG		1.443	-0.242	-1.18	2.292	-0.168	-0.62	LE
BTBBMJ		2.120	0.435	2.11	3.042	0.582	2.15	IF
CACLLL		1.667	-0.018	-0.09	2.435	-0.025	-0.09	ID
CMMRZU		1.924	0.239	1.16	2.779	0.319	1.18	TH
DPLPKL	X	2.081	0.396	1.92	2.495	0.035	0.13	LX
EEHWT7		1.836	0.151	0.73	2.688	0.228	0.84	TB
EHG8N7	X	2.180	0.495	2.40	2.310	-0.150	-0.55	XX
FGL6GG		1.520	-0.165	-0.80	2.320	-0.140	-0.52	LH
FMVZLQ		1.919	0.234	1.14	2.683	0.223	0.83	IM
FPX7WQ		1.375	-0.310	-1.51	2.038	-0.422	-1.56	LA
G3X6H2		2.133	0.448	2.18	3.049	0.589	2.18	TH
HP63EZ		1.589	-0.096	-0.47	2.269	-0.191	-0.71	XX
J3D6D3		1.894	0.209	1.02	2.698	0.238	0.88	TO
J86CVB	X	2.408	0.723	3.51	3.133	0.673	2.49	IK
JJ2HRV	X	1.047	-0.638	-3.10	1.087	-1.373	-5.08	IM
LWXCDN	X	2.480	0.795	3.86	2.760	0.300	1.11	IN
MQ42EA	*	1.644	-0.041	-0.20	2.672	0.212	0.79	TO
MRFTDH		1.671	-0.014	-0.07	2.504	0.044	0.16	IM
MWU92N		1.930	0.245	1.19	2.740	0.280	1.04	IS
MZTPAC		1.572	-0.113	-0.55	2.299	-0.161	-0.59	IN
N7HKUG		1.564	-0.121	-0.59	2.424	-0.036	-0.13	XX
NQHMPW		1.841	0.156	0.76	2.592	0.132	0.49	ID
PQHX6Z		1.600	-0.085	-0.41	2.370	-0.090	-0.33	TB
QR3KJ8		1.833	0.148	0.72	2.587	0.128	0.47	XX

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE59 Lab Mean	Sample SE59 Diff from Grand Mean	Sample SE59 CPV	Sample SE60 Lab Mean	Sample SE60 Diff from Grand Mean	Sample SE60 CPV	Instr Code
RF8JQ4	X	3.553	1.868	9.07	4.038	1.578	5.84	DW
TZDAR4		1.690	0.005	0.02	2.465	0.005	0.02	LW
UJJ28B		1.844	0.159	0.77	2.753	0.293	1.08	TK
VABRFC		1.706	0.021	0.10	2.626	0.166	0.61	TO
VBJBVY		1.811	0.126	0.61	2.596	0.136	0.50	LE
VWJ8TU		1.754	0.069	0.34	2.354	-0.106	-0.39	TT
Y8QDWJ		1.500	-0.185	-0.90	2.060	-0.400	-1.48	TH
ZT94RT		1.690	0.005	0.02	2.492	0.032	0.12	LE

Summary Statistics	Sample SE59	Sample SE60
Grand Means	1.68 Percent	2.46 Percent
Stnd Dev Btwn Labs	0.21 Percent	0.27 Percent

Statistics based on 42 of 48 reporting participants.

Comments on Assigned Data Flags for Test #332

J86CVB (X) - Data for sample SE59 are high.

DPLPKL (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE59.

RF8JQ4 (X) - Extreme Data.

EHG8N7 (X) - Inconsistent in testing between samples.

LWXCDN (X) - Data for sample SE59 are high. Inconsistent within the determinations of sample SE59.

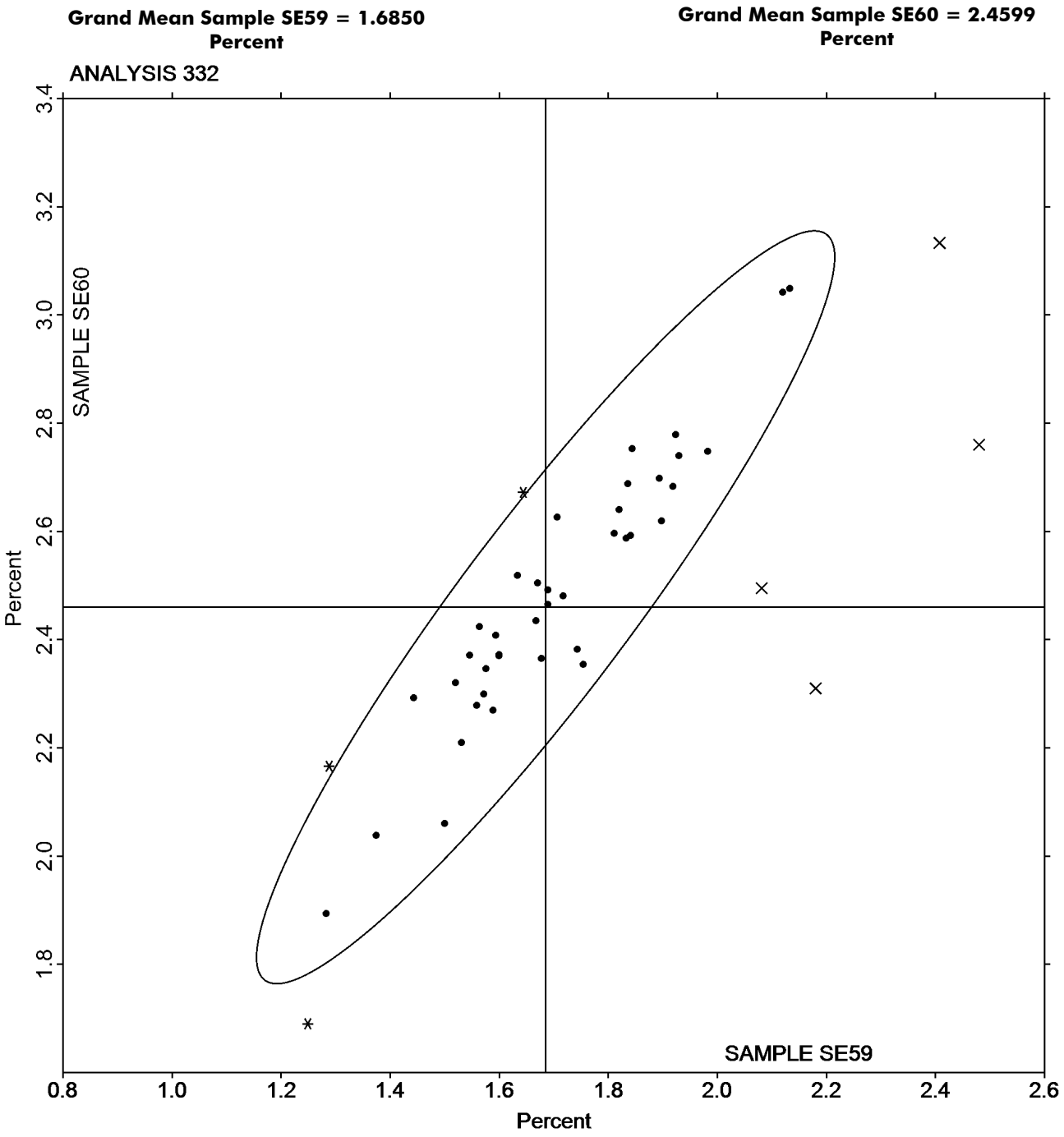
JJ2HRV (X) - Data for both samples are low.

Analysis Notes:

CMMRZU - One determination removed from the Lab Mean of Sample SE60 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IS	Instron 5965	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	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	TR	TMI Horizontal Tensile Tester
TT	Tinius Olsen Model MHT	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

WebCode	Data Flag	Sample SG59 Lab Mean	Sample SG59 Diff from Grand Mean	Sample SG59 CPV	Sample SG60 Lab Mean	Sample SG60 Diff from Grand Mean	Sample SG60 CPV	Instr Code
3BHFWN		189.1	-45.0	-0.65	182.8	-48.2	-1.07	MT
3W69J4		222.7	-11.4	-0.16	242.3	11.3	0.25	MT
98YKDH		332.2	98.1	1.41	250.4	19.4	0.43	MT
BKJUXE		289.1	55.0	0.79	301.0	70.0	1.56	MT
FQTNW7	X	389.7	155.6	2.24	153.1	-77.9	-1.73	XX
G3X6H2	X	282.5	48.4	0.70	421.6	190.6	4.23	MT
JQXCM9		290.9	56.8	0.82	222.0	-9.0	-0.20	MT
JUJZJ2		195.7	-38.4	-0.55	259.3	28.3	0.63	MT
KA7VFP		131.5	-102.6	-1.48	210.9	-20.1	-0.45	MT
PQHX6Z		180.9	-53.2	-0.77	157.7	-73.3	-1.63	MT
TZDAR4		204.3	-29.8	-0.43	237.5	6.5	0.15	MT
VYANRU		149.6	-84.5	-1.22	164.0	-67.0	-1.49	MT
WBXUEW		317.7	83.6	1.20	277.7	46.7	1.04	MT
YNGC7Q		305.7	71.6	1.03	265.9	34.9	0.78	MT

Summary Statistics	Sample SG59	Sample SG60
Grand Means	234.12 Double Folds	230.96 Double Folds
Stnd Dev Btwn Labs	69.42 Double Folds	45.04 Double Folds

Statistics based on 12 of 14 reporting participants.

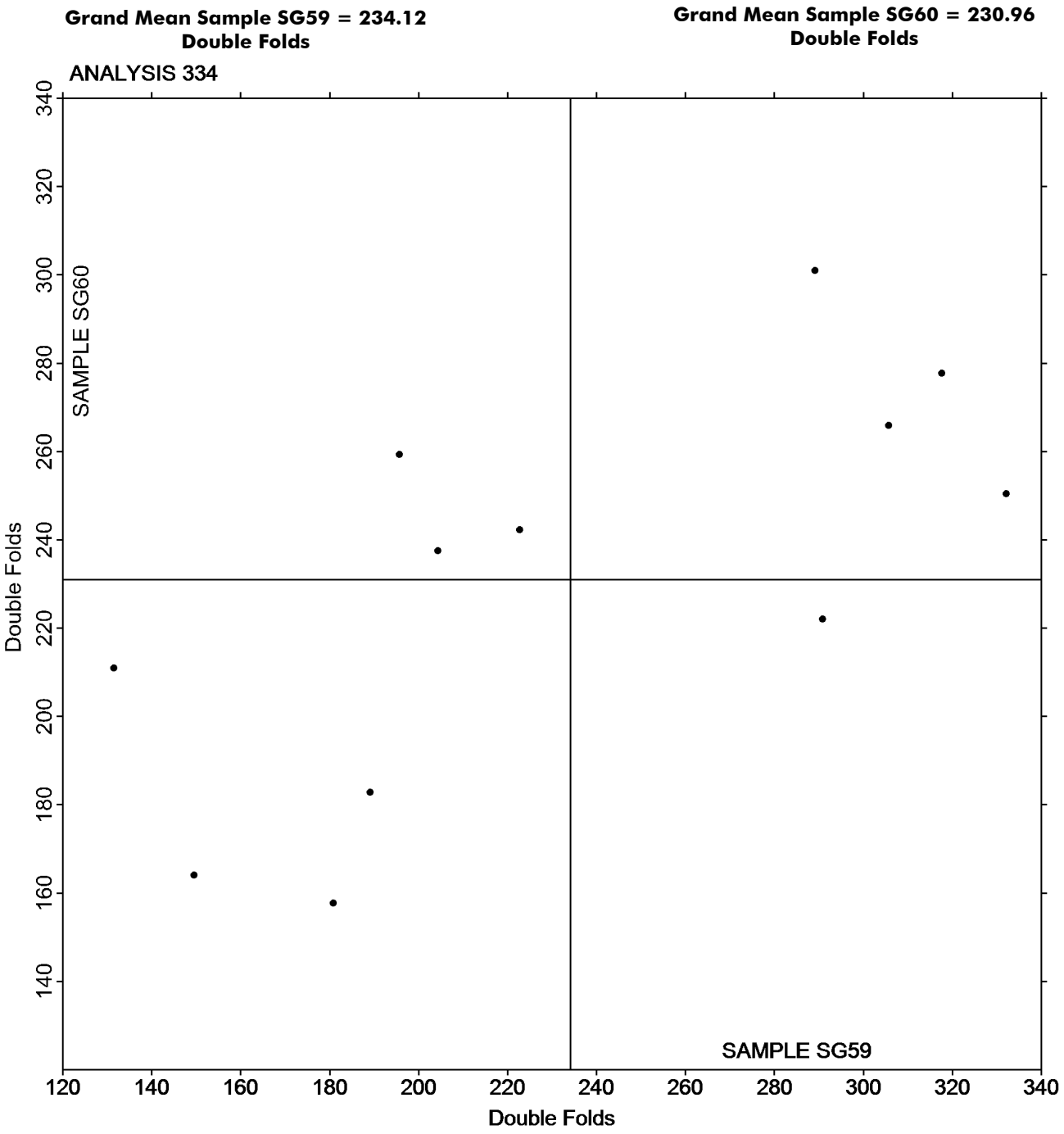
Comments on Assigned Data Flags for Test #334

G3X6H2 (X) - Data for sample SG60 are high. Inconsistent within the determinations of sample SG60.

FQTNW7 (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

MT	MIT - Tinius Olsen	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 336

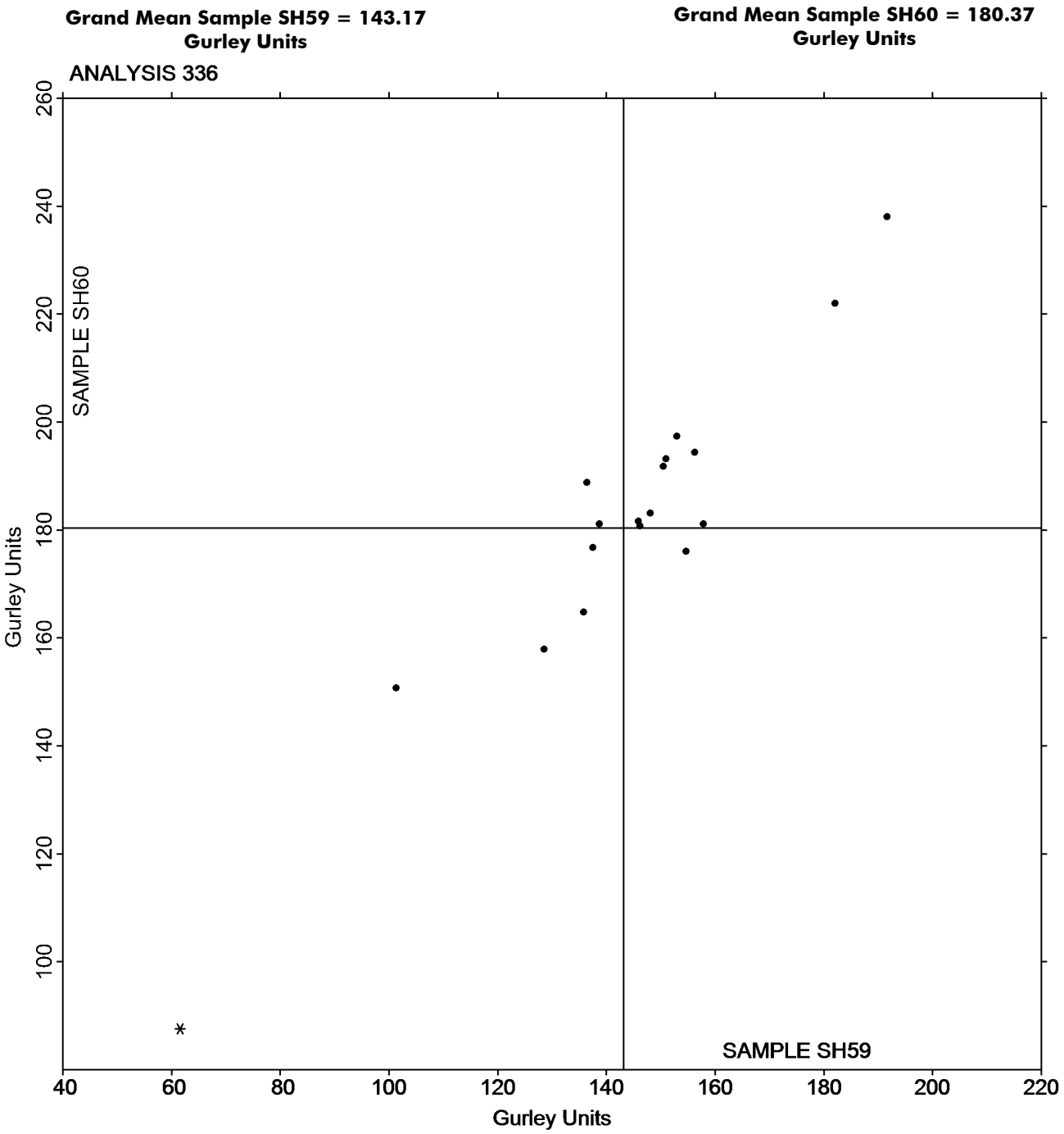
Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH59 Lab Mean	Sample SH59 Diff from Grand Mean	Sample SH59 CPV	Sample SH60 Lab Mean	Sample SH60 Diff from Grand Mean	Sample SH60 CPV
3333AP		138.8	-4.4	-0.16	181.2	0.8	0.03
3W69J4		153.0	9.8	0.35	197.4	17.0	0.55
4DLUJK		101.3	-41.8	-1.49	150.7	-29.7	-0.96
8P7DNZ		150.5	7.3	0.26	191.8	11.4	0.37
B67J7L		156.2	13.1	0.47	194.3	14.0	0.45
BTBBMJ		182.0	38.9	1.38	222.0	41.6	1.35
F4W32A		128.5	-14.6	-0.52	157.8	-22.5	-0.73
JFZCB4		151.0	7.8	0.28	193.1	12.8	0.41
KA7VFP		154.7	11.5	0.41	176.0	-4.3	-0.14
MG2GD3		135.9	-7.3	-0.26	164.7	-15.6	-0.51
PQHX6Z		136.4	-6.8	-0.24	188.8	8.4	0.27
VGAJGE		137.5	-5.7	-0.20	176.7	-3.7	-0.12
VKARNA	*	61.6	-81.6	-2.91	87.6	-92.8	-3.01
VYANRU		191.6	48.4	1.73	238.0	57.6	1.87
XLV9YU		157.9	14.7	0.52	181.1	0.7	0.02
XXPPNU		145.9	2.7	0.10	181.6	1.2	0.04
YNGC7Q		148.1	4.9	0.18	183.2	2.8	0.09
ZBNCQ9		146.2	3.1	0.11	180.7	0.3	0.01

Summary Statistics	Sample SH59	Sample SH60
Grand Means	143.17 Gurley Units	180.37 Gurley Units
Stnd Dev Btwn Labs	28.08 Gurley Units	30.86 Gurley Units

Statistics based on 18 of 18 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 338

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

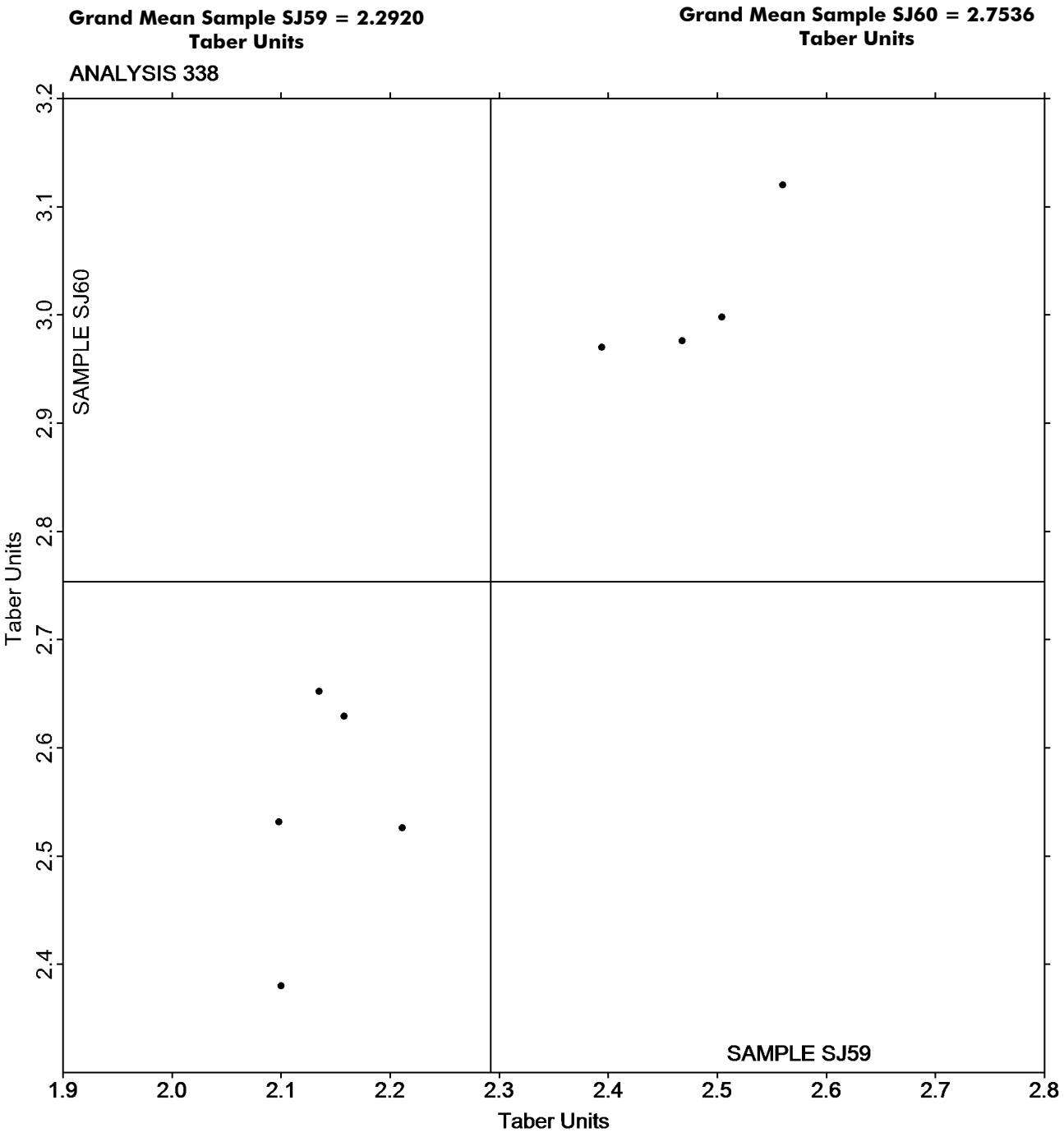
WebCode	Data Flag	Sample SJ59 Lab Mean	Sample SJ59 Diff from Grand Mean	Sample SJ59 CPV	Sample SJ60 Lab Mean	Sample SJ60 Diff from Grand Mean	Sample SJ60 CPV
3BHFWN		2.394	0.102	0.54	2.970	0.216	0.82
6JQTQ4		2.100	-0.192	-1.02	2.380	-0.374	-1.42
8P7DNZ		2.098	-0.194	-1.03	2.532	-0.222	-0.84
B4RYFW		2.468	0.176	0.94	2.976	0.222	0.84
BTBBMJ		2.211	-0.081	-0.43	2.526	-0.228	-0.86
FYJAZJ		2.158	-0.134	-0.71	2.629	-0.125	-0.47
KA7VFP	X	0.440	-1.852	-9.87	0.435	-2.319	-8.79
MZTPAC		2.560	0.268	1.43	3.120	0.366	1.39
XXPPNU		2.504	0.212	1.13	2.998	0.244	0.93
YNGC7Q		2.135	-0.157	-0.84	2.652	-0.102	-0.39

Summary Statistics	Sample SJ59	Sample SJ60
Grand Means	2.29 Taber Units	2.75 Taber Units
Stnd Dev Btwn Labs	0.19 Taber Units	0.26 Taber Units

Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #338

KA7VFP (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 339

Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ59 Lab Mean	Sample SQ59 Diff from Grand Mean	Sample SQ59 CPV	Sample SQ60 Lab Mean	Sample SQ60 Diff from Grand Mean	Sample SQ60 CPV
3333AP		39.81	2.98	0.64	39.30	2.53	0.57
6HQXYL		29.26	-7.57	-1.63	28.33	-8.43	-1.91
6JQTQ4		36.75	-0.08	-0.02	37.30	0.54	0.12
98YKDH		37.15	0.32	0.07	36.84	0.08	0.02
EEHWT7		44.94	8.11	1.74	43.05	6.29	1.42
L9THDD		35.50	-1.33	-0.29	35.35	-1.41	-0.32
QN8CU6		35.59	-1.24	-0.27	35.91	-0.85	-0.19
QR3KJ8		30.20	-6.63	-1.43	31.10	-5.66	-1.28
TZDAR4		39.23	2.40	0.52	39.91	3.15	0.71
VBJBVY	X	446.54	409.70	88.16	443.17	406.41	91.82
YNGC7Q		39.88	3.05	0.66	40.54	3.78	0.85

Summary Statistics	Sample SQ59	Sample SQ60
Grand Means	36.83 Taber Units	36.76 Taber Units
Stnd Dev Btwn Labs	4.65 Taber Units	4.43 Taber Units

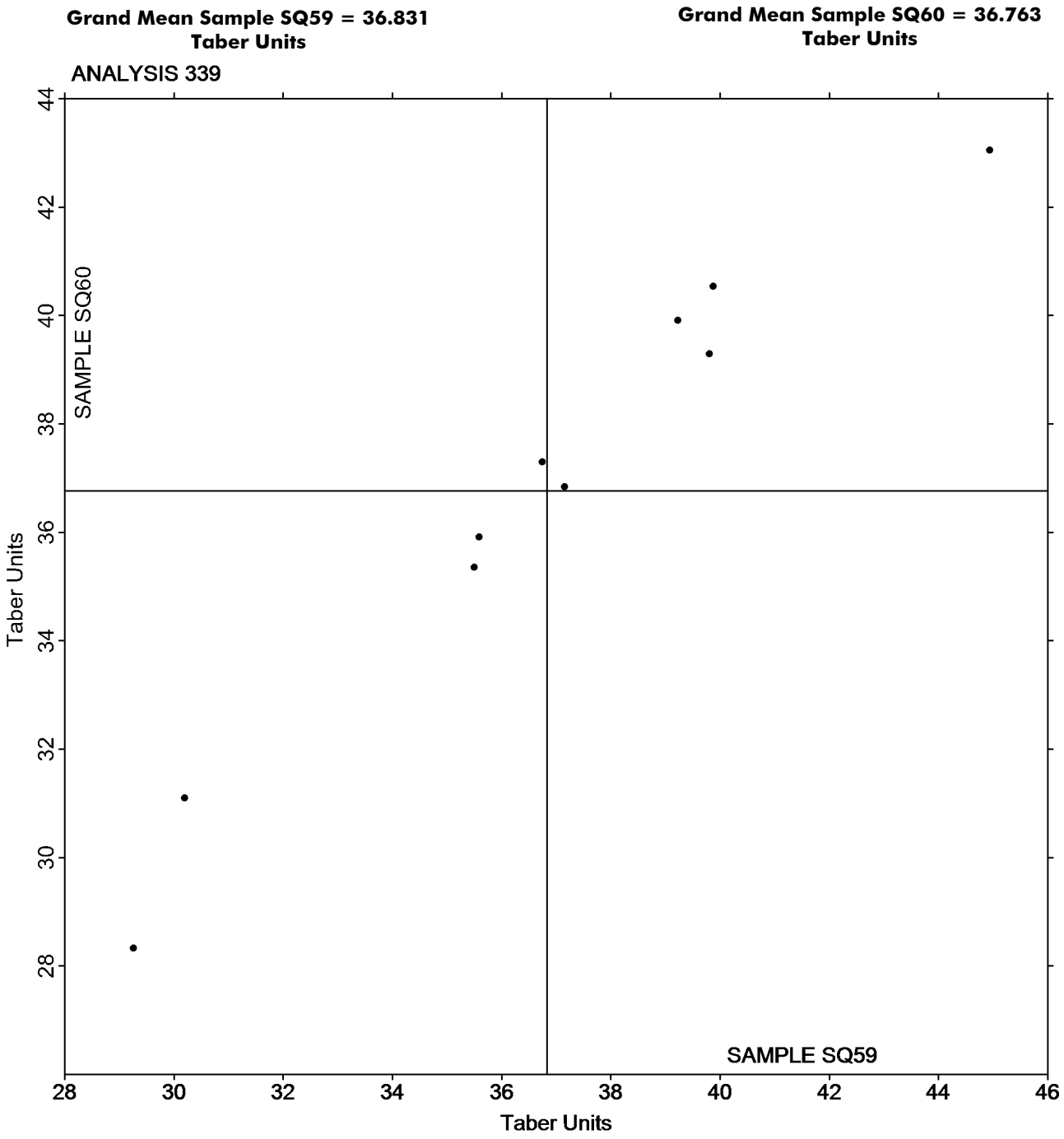
Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #339

VBJBVY (X) - Extreme Data.

Analysis Notes:

VBJBVY - Data appear to be reported as g-cm, not mN-m as indicated on datasheet.



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 ST59 Lab Mean	Sample ST59 Diff from Grand Mean	Sample ST59 CPV	Sample ST60 Lab Mean	Sample ST60 Diff from Grand Mean	Sample ST60 CPV
2JWBTH		290.6	5.5	0.64	293.2	10.6	1.10
2QH7UL		283.2	-2.0	-0.23	279.3	-3.3	-0.35
3333AP		282.4	-2.7	-0.32	277.0	-5.6	-0.58
3AL7HD	X	328.5	43.4	5.07	259.0	-23.6	-2.45
3W69J4		278.3	-6.8	-0.80	273.6	-9.0	-0.94
48F2M4		292.9	7.7	0.91	285.4	2.8	0.29
4AMD7Q	X	2,933.7	2,648.6	309.55	2,705.3	2,422.7	251.61
6JQTQ4		269.8	-15.4	-1.80	274.8	-7.9	-0.82
FQTNW7		279.5	-5.6	-0.66	279.5	-3.1	-0.32
G3X6H2		281.8	-3.3	-0.39	274.0	-8.6	-0.90
LXUUD4		284.8	-0.4	-0.04	278.0	-4.6	-0.48
NAUAC6		282.5	-2.6	-0.31	293.2	10.6	1.10
QR3KJ8	*	308.7	23.6	2.75	307.7	25.1	2.60
TZDAR4		287.4	2.2	0.26	283.1	0.5	0.05
U9ZWTK		289.6	4.5	0.52	271.8	-10.8	-1.12
WQCZQV		282.9	-2.2	-0.26	287.8	5.2	0.54
X9RUUP		282.9	-2.2	-0.26	281.0	-1.6	-0.17

Summary Statistics	Sample ST59	Sample ST60
Grand Means	285.14 Taber Units	282.63 Taber Units
Stnd Dev Btwn Labs	8.56 Taber Units	9.63 Taber Units

Statistics based on 15 of 17 reporting participants.

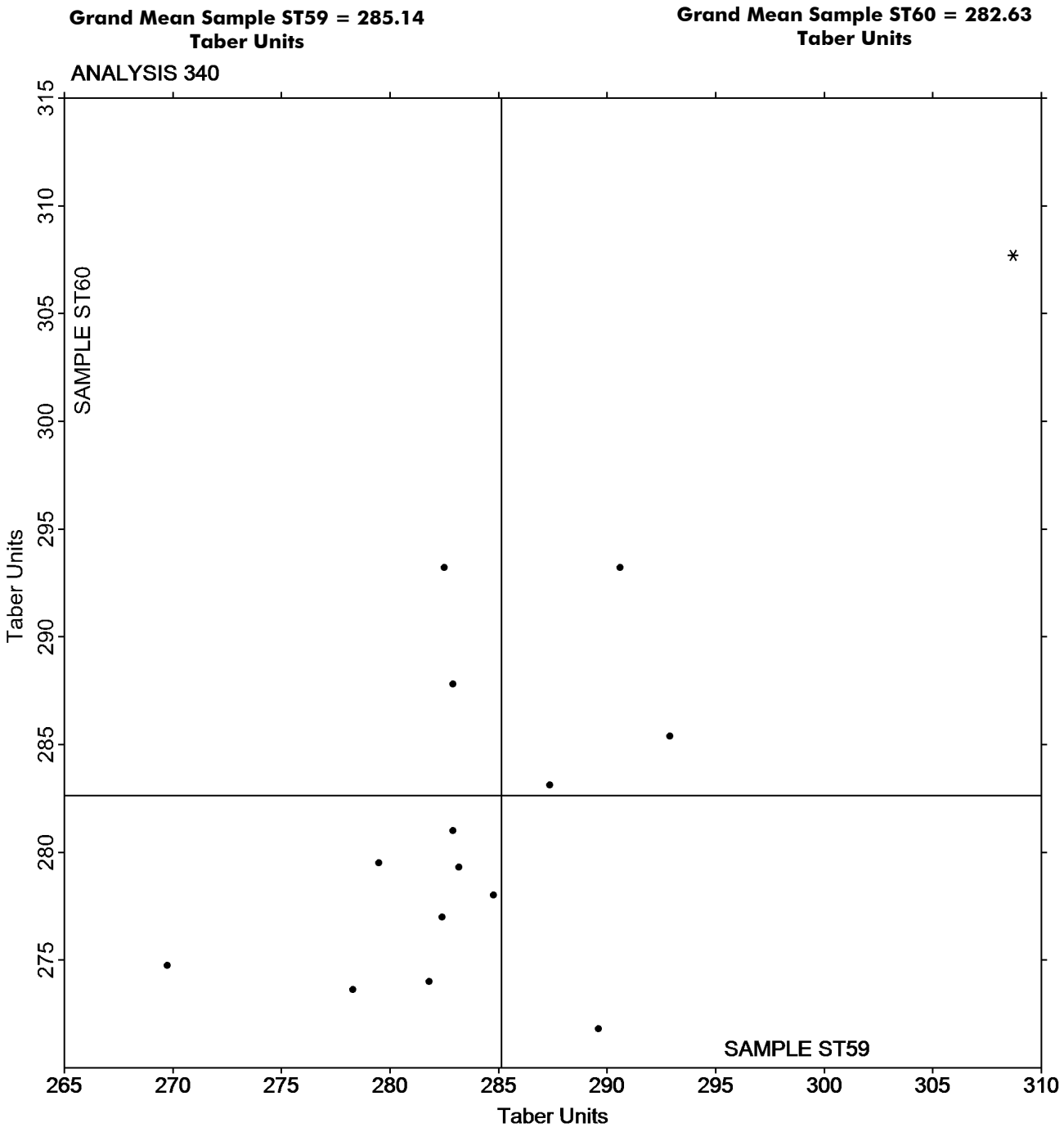
Comments on Assigned Data Flags for Test #340

4AMD7Q (X) - Extreme Data.

3AL7HD (X) - Data for sample ST59 are high. Inconsistent within the determinations of sample ST59.

Analysis Notes:

4AMD7Q - Data appear to be reported as g-cm, not mN-m as indicated on datasheet.



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

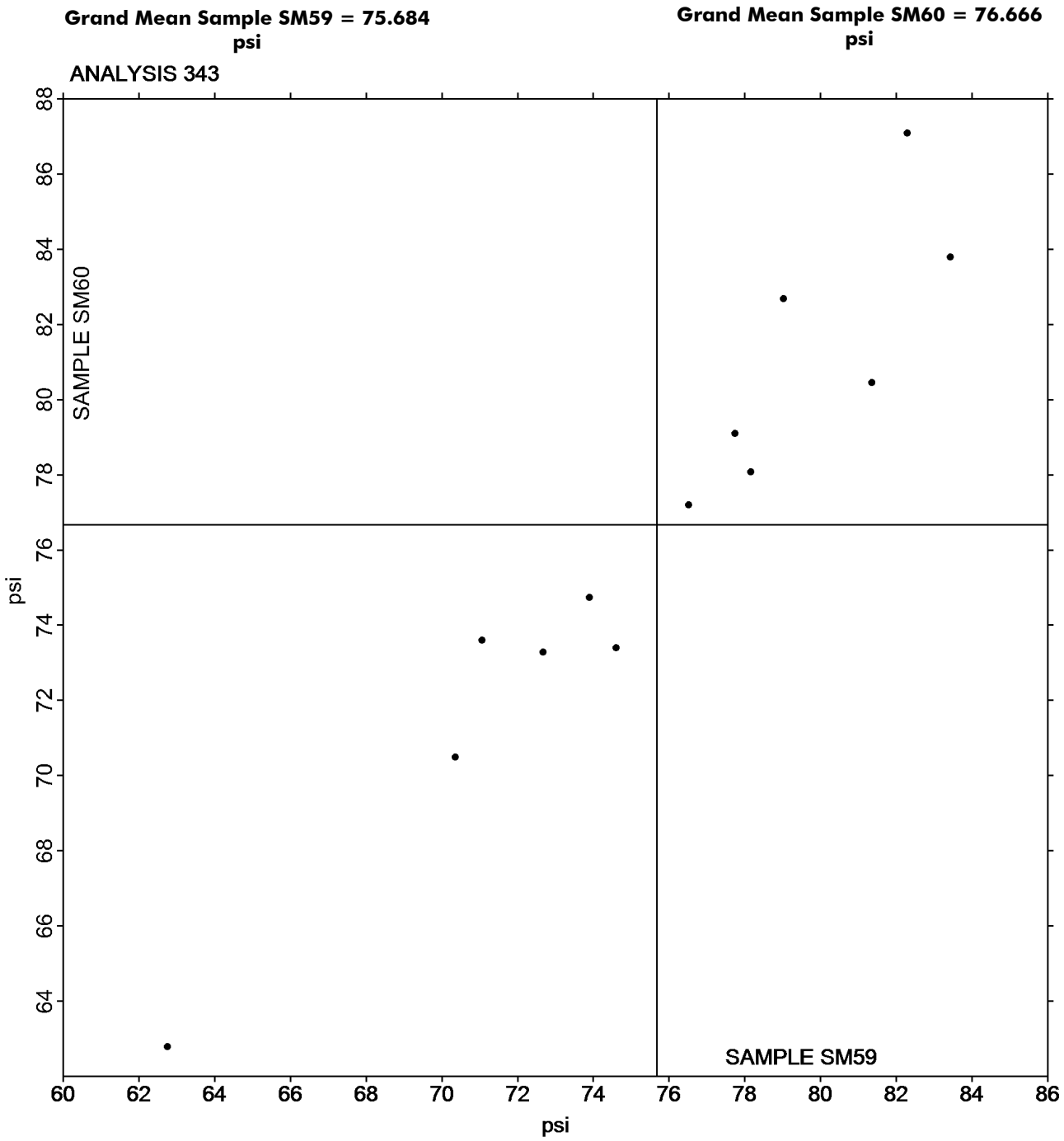
WebCode	Data Flag	Sample SM59 Lab Mean	Sample SM59 Diff from Grand Mean	Sample SM59 CPV	Sample SM60 Lab Mean	Sample SM60 Diff from Grand Mean	Sample SM60 CPV	Instr Code
2QH7UL		71.07	-4.61	-0.81	73.59	-3.07	-0.48	LX
BLCURJ		79.02	3.34	0.59	82.68	6.01	0.95	TA
BTBBMJ		83.42	7.74	1.36	83.79	7.13	1.12	TL
CF3VVK		70.35	-5.33	-0.94	70.49	-6.18	-0.97	LW
DCGCQF		82.30	6.62	1.16	87.08	10.41	1.64	DX
EEHWT7		76.52	0.84	0.15	77.20	0.53	0.08	TA
G3X6H2		62.76	-12.92	-2.27	62.78	-13.89	-2.19	LW
GVFXJA		78.16	2.48	0.44	78.08	1.41	0.22	CD
QN8CU6		81.36	5.68	1.00	80.45	3.78	0.60	LW
TZDAR4		72.68	-3.00	-0.53	73.28	-3.39	-0.53	LW
VBJBVY		77.74	2.06	0.36	79.10	2.43	0.38	TA
XQ87KV		73.90	-1.78	-0.31	74.74	-1.93	-0.30	DX
Y8QDWJ		74.60	-1.08	-0.19	73.40	-3.27	-0.51	TA

Summary Statistics	Sample SM59	Sample SM60
Grand Means	75.68 psi	76.67 psi
Stnd Dev Btwn Labs	5.69 psi	6.35 psi

Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

CD	CSI CS-163D	DX	Dek-Tron XP2 Series
LW	L & W ZD Tensile Tester	LX	L & W (model not specified)
TA	Thwing-Albert Tensile Tester	TL	TMI Lab Master



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 SZ59 Lab Mean	Sample SZ59 Diff from Grand Mean	Sample SZ59 CPV	Sample SZ60 Lab Mean	Sample SZ60 Diff from Grand Mean	Sample SZ60 CPV	Instr Code
3333AP		29.54	-5.46	-1.72	33.24	-1.86	-0.70	CA
3W69J4		33.80	-1.20	-0.38	32.40	-2.70	-1.02	CA
4AMD7Q		35.56	0.56	0.18	36.16	1.06	0.40	CD
7YB6BA		35.25	0.25	0.08	35.78	0.67	0.25	TA
E9TA4T		33.98	-1.02	-0.32	33.50	-1.60	-0.60	LW
GC3CX2	X	70.47	35.47	11.21	68.13	33.03	12.42	CH
J86CVB		40.59	5.59	1.77	39.85	4.75	1.78	PG
LXUUD4		36.18	1.18	0.37	36.04	0.94	0.35	TA
NAUAC6		37.60	2.60	0.82	37.20	2.10	0.79	LW
U4QCBE		34.06	-0.94	-0.30	34.14	-0.96	-0.36	XX
U9ZWTK		35.34	0.34	0.11	34.15	-0.96	-0.36	TZ
WQCZQV		35.40	0.40	0.13	34.80	-0.30	-0.11	CA
X9RUUP		38.00	3.00	0.95	38.20	3.10	1.16	TA
XMUF38		28.22	-6.78	-2.14	29.20	-5.90	-2.22	LW
ZRX27U		36.44	1.44	0.46	36.80	1.70	0.64	CD

Summary Statistics	Sample SZ59	Sample SZ60
Grand Means	35.00 psi	35.10 psi
Stnd Dev Btwn Labs	3.17 psi	2.66 psi

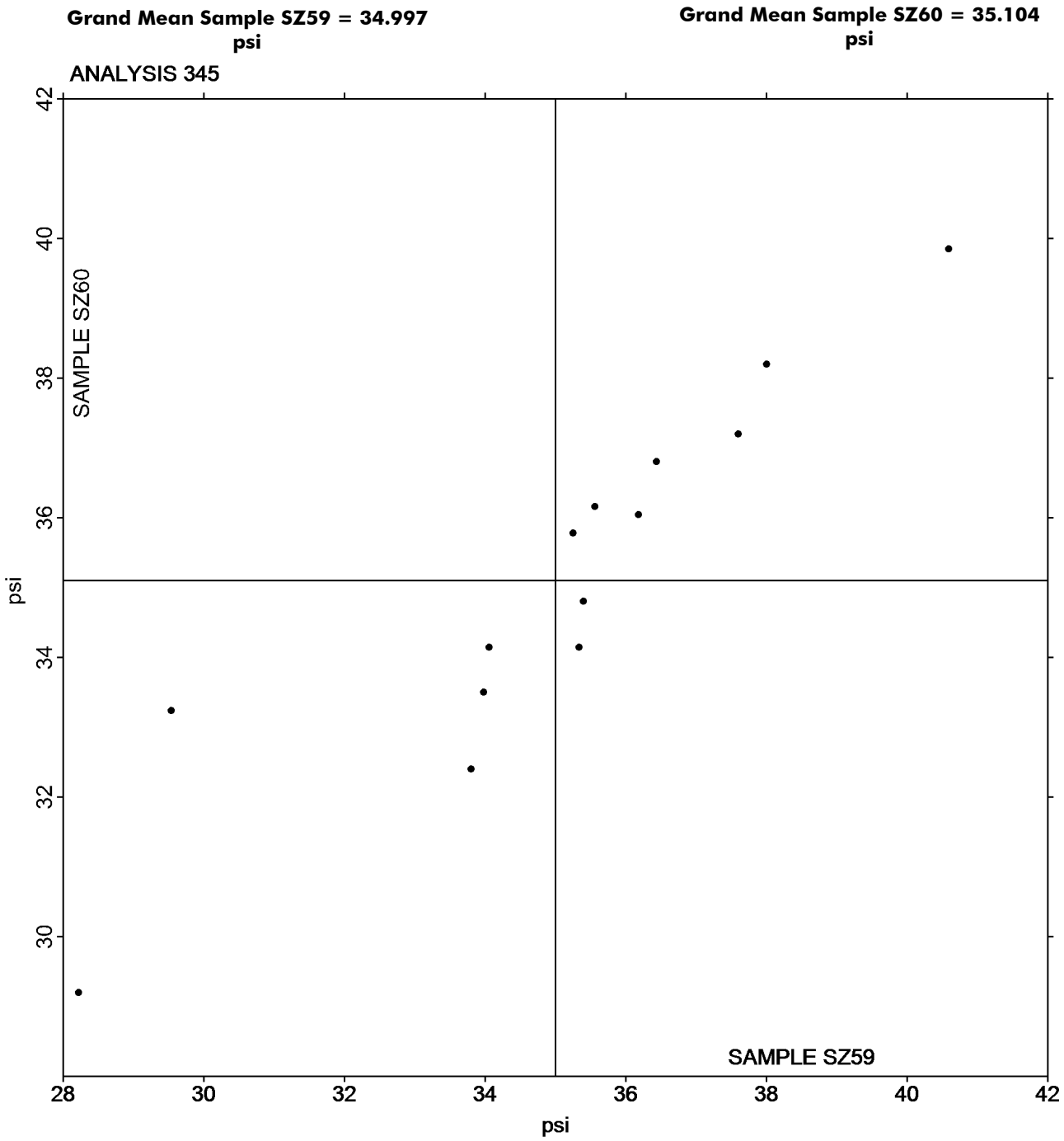
Statistics based on 14 of 15 reporting participants.

Comments on Assigned Data Flags for Test #345

GC3CX2 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
CH	Chatillon Ametek	LW	L & W ZD Tensile Tester
PG	Perkins Model A Mullen Tester	TA	Thwing-Albert Tensile Tester
TZ	TMI Monitor/ZDT 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 SN59 Lab Mean	Sample SN59 Diff from Grand Mean	Sample SN59 CPV	Sample SN60 Lab Mean	Sample SN60 Diff from Grand Mean	Sample SN60 CPV	Instr Code
3W69J4		104.80	6.61	1.27	132.0	9.7	1.54	HZ
4DLUJK		101.20	3.01	0.58	120.8	-1.5	-0.24	HY
BLCURJ		100.60	2.41	0.46	126.2	3.9	0.62	HY
EEHWT7		94.00	-4.19	-0.80	121.4	-0.9	-0.14	HZ
G3X6H2		101.20	3.01	0.58	128.8	6.5	1.03	HZ
H3XGKN		89.00	-9.19	-1.76	124.4	2.1	0.33	XX
JFZCB4		99.80	1.61	0.31	123.2	0.9	0.14	HZ
LXUUD4		101.00	2.81	0.54	126.6	4.3	0.68	HY
MG2GD3		87.40	-10.79	-2.07	110.6	-11.7	-1.86	HY
MQ42EA		102.20	4.01	0.77	116.0	-6.3	-1.00	HZ
TZDAR4		92.80	-5.39	-1.03	116.6	-5.7	-0.91	HY
UHMVKP		107.45	9.26	1.78	135.1	12.8	2.05	HY
VABRFC		98.80	0.61	0.12	120.6	-1.7	-0.27	HY
VBJBVY		97.40	-0.79	-0.15	127.8	5.5	0.88	HY
VGAJGE		99.40	1.21	0.23	114.0	-8.3	-1.32	HY
VYANRU		90.80	-7.39	-1.42	117.2	-5.1	-0.81	HY
XXPPNU		98.32	0.13	0.03	124.0	1.7	0.28	KR
YNGC7Q		99.20	1.01	0.19	121.0	-1.3	-0.21	HY
YVYRQN		100.20	2.01	0.39	117.4	-4.9	-0.78	HY

Summary Statistics	Sample SN59	Sample SN60
Grand Means	98.19 1000th ft-lbs	122.30 1000th ft-lbs
Stnd Dev Btwn Labs	5.21 1000th ft-lbs	6.28 1000th ft-lbs

Statistics based on 19 of 19 reporting participants.

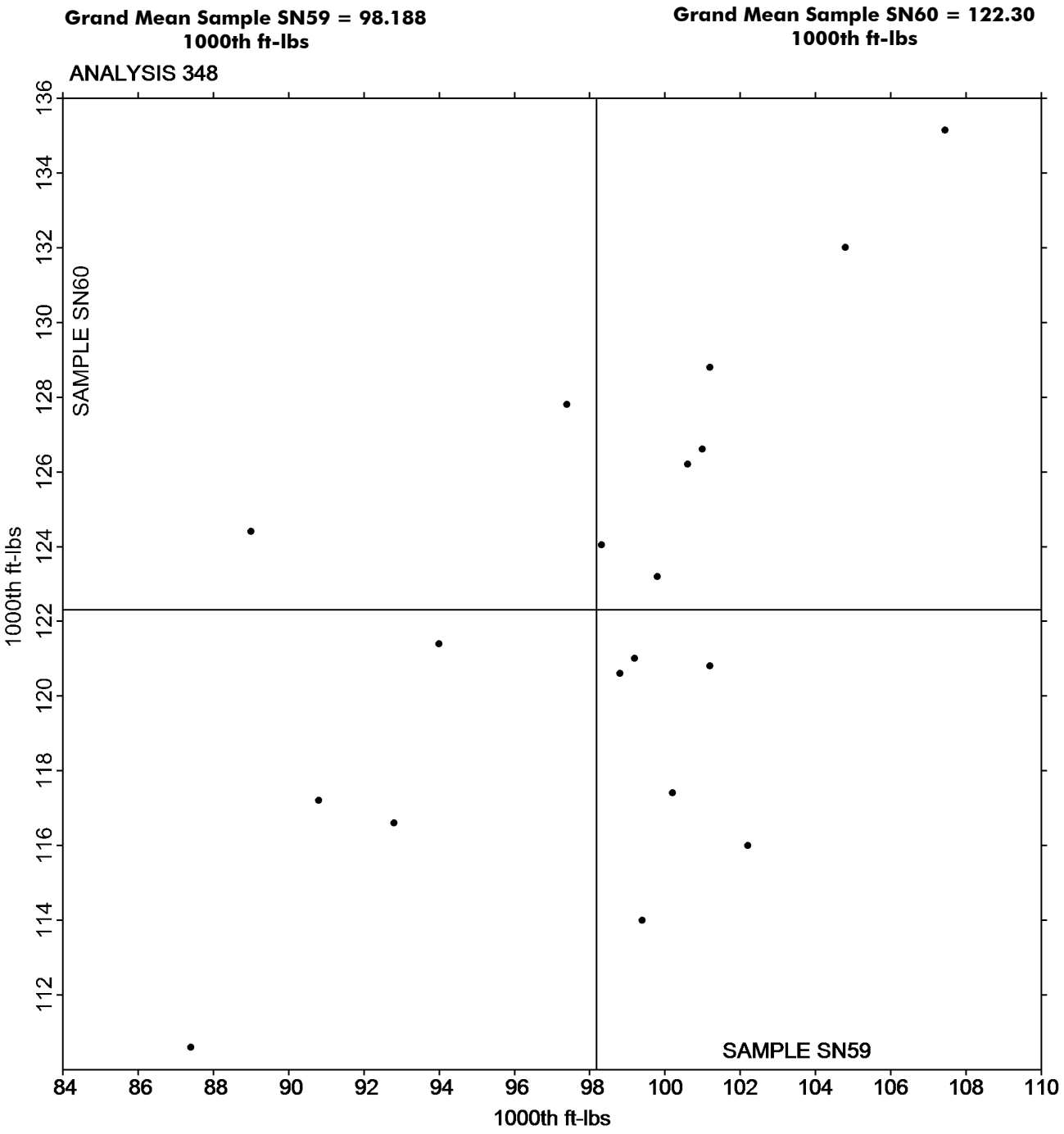
Comments on Assigned Data Flags for Test #348

Analysis Notes:

YNGC7Q - One determination removed from the Lab Mean of Sample SN60 per Grubb's Test at 1% risk (TAPPI 1205).

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	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 SP59 Lab Mean	Sample SP59 Diff from Grand Mean	Sample SP59 CPV	Sample SP60 Lab Mean	Sample SP60 Diff from Grand Mean	Sample SP60 CPV	Instr Code
2JWBTH		113.0	-3.6	-0.29	112.6	-2.1	-0.15	TM
2QH7UL		101.4	-15.3	-1.21	95.0	-19.8	-1.39	TM
472GUU		125.3	8.7	0.69	121.2	6.4	0.45	TM
63FE4Z		130.4	13.8	1.09	127.6	12.9	0.91	SC
6JQTQ4		131.0	14.4	1.14	135.6	20.9	1.47	XX
98YKDH		115.6	-1.0	-0.08	105.8	-8.9	-0.63	TM
E9TA4T		116.8	0.2	0.01	116.4	1.7	0.12	XX
GC3CX2		118.4	1.8	0.14	114.8	0.1	0.00	TM
J86CVB		123.4	6.8	0.54	127.0	12.3	0.86	TM
WEJRRU		91.0	-25.6	-2.04	91.5	-23.3	-1.64	XX

Summary Statistics	Sample SP59	Sample SP60
Grand Means	116.63 1000th ft-lbs	114.74 1000th ft-lbs
Stnd Dev Btwn Labs	12.59 1000th ft-lbs	14.19 1000th ft-lbs

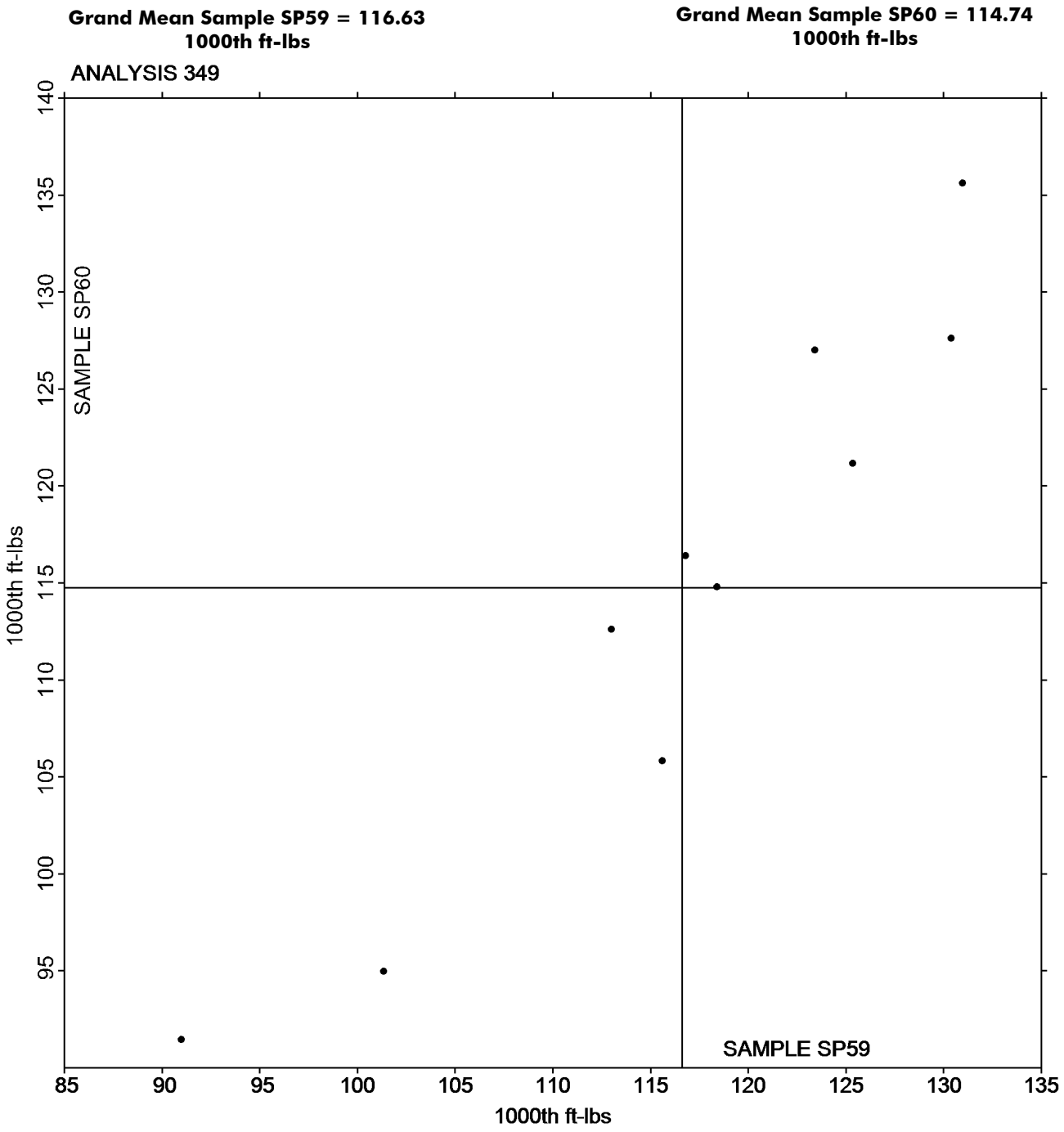
Statistics based on 10 of 10 reporting participants.

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



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