Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3001 S - May 2019

Analysis	Analysis Name
305	Bursting Strength - Printing Papers
310	Bursting Strength - Packaging Papers
311	Tearing Strength - Newsprint
312	Tearing Strength - Printing Papers
314	Tearing Strength - Packaging Papers
320	Tensile Breaking Strength - Newsprint
321	Tensile Energy Absorption - Newsprint
322	Elongation to Break - Newsprint
325	Tensile Breaking Strength - Printing Papers
327	Tensile Energy Absorption - Printing Papers
328	Elongation to Break - Printing Papers
330	Tensile Breaking Strength - Packaging Papers
331	Tensile Energy Absorption - Packaging Papers
332	Elongation to Break - Packaging Papers
334	Folding Endurance (MIT) - Double Folds
336	Bending Resistance, Gurley Type
338	Bending Resistance, Taber Type - 0 to 10 Units
339	Bending Resistance, Taber Type - 10 to 100 Taber Units
340	Bending Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboard
343	Z-Direction Tensile
345	Z-Direction Tensile, Recycled Paperboard
348	Internal Bond Strength - Modified Scott Mechanics
349	Internal Bond Strength - Scott Bond Models

The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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

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

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

Key for Web Summary Reports (Page 1 of 2)

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

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

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

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

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

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

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

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

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

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

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

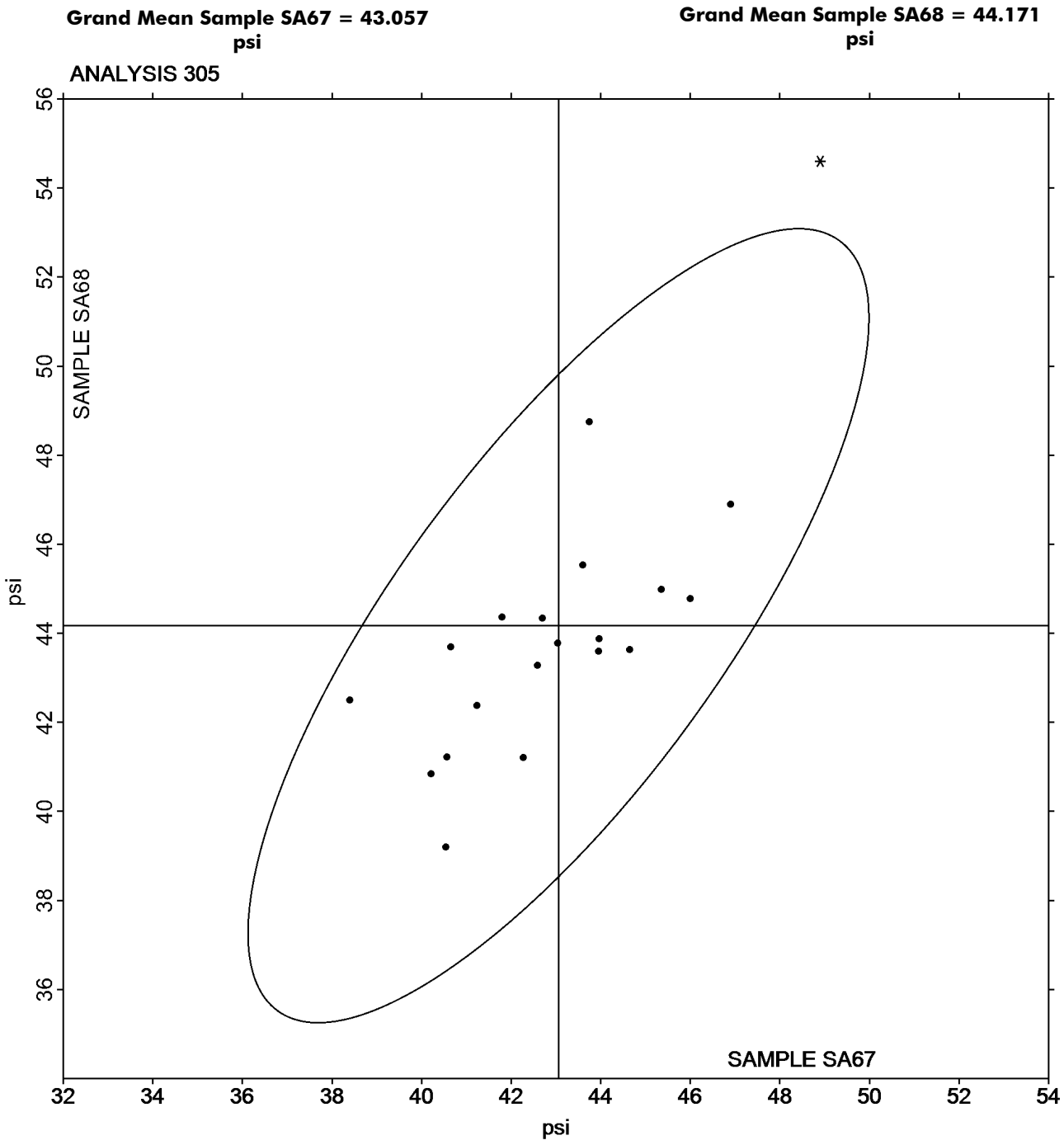
WebCode	Data Flag	Sample SA67 Lab Mean	Sample SA67 Diff from Grand Mean	Sample SA67 CPV	Sample SA68 Lab Mean	Sample SA68 Diff from Grand Mean	Sample SA68 CPV
6LJT47		43.97	0.91	0.36	43.88	-0.29	-0.09
6W8FHG		45.35	2.30	0.91	44.98	0.81	0.25
7XYXWM		43.75	0.69	0.27	48.74	4.57	1.41
8G33X2		43.60	0.54	0.21	45.53	1.36	0.42
8ZFNDH		41.80	-1.26	-0.50	44.36	0.19	0.06
D4FJ68		40.22	-2.84	-1.12	40.84	-3.33	-1.02
DCEAMW		44.65	1.60	0.63	43.63	-0.54	-0.17
EZGWV4		40.55	-2.51	-0.99	39.20	-4.97	-1.53
HV742E		42.70	-0.36	-0.14	44.34	0.17	0.05
JV9VTV		42.60	-0.46	-0.18	43.28	-0.89	-0.27
KQ8D2L		38.40	-4.66	-1.84	42.50	-1.67	-0.51
N79EVX		43.04	-0.02	-0.01	43.77	-0.40	-0.12
P2BD9A		46.00	2.94	1.16	44.77	0.60	0.18
PLGKN9		41.23	-1.82	-0.72	42.38	-1.79	-0.55
QMLHQN		40.66	-2.40	-0.95	43.69	-0.48	-0.15
QUQA28		42.28	-0.78	-0.31	41.20	-2.97	-0.91
TB927N		43.96	0.90	0.36	43.60	-0.57	-0.18
VTF2XN		46.90	3.84	1.52	46.90	2.73	0.84
X2YEPH	*	48.90	5.84	2.31	54.60	10.43	3.20
ZDC6XC		40.57	-2.49	-0.98	41.22	-2.95	-0.91

Summary Statistics	Sample SA67	Sample SA68
Grand Means	43.06 psi	44.17 psi
Stnd Dev Btwn Labs	2.53 psi	3.25 psi

Statistics based on 20 of 20 reporting participants.

Analysis Notes:

7XYXWM - One determination removed from the Lab Mean of Sample SA68 per Grubb's Test at 1% risk (TAPPI 1205).



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB67 Lab Mean	Sample SB67 Diff from Grand Mean	Sample SB67 CPV	Sample SB68 Lab Mean	Sample SB68 Diff from Grand Mean	Sample SB68 CPV
3ZTK2L		89.90	-3.09	-0.47	86.27	-5.65	-0.93
8G33X2		91.87	-1.12	-0.17	90.29	-1.64	-0.27
8ZFNDH		86.27	-6.71	-1.03	88.22	-3.70	-0.61
9EUAG9		106.46	13.47	2.06	104.25	12.33	2.03
A4MWTC		86.18	-6.81	-1.04	89.88	-2.04	-0.34
DZHA37		80.88	-12.11	-1.85	83.37	-8.55	-1.41
EC7PBD		85.25	-7.73	-1.18	84.72	-7.20	-1.19
EF7VWB		87.25	-5.74	-0.88	87.97	-3.95	-0.65
EUNP2A		92.20	-0.79	-0.12	90.27	-1.65	-0.27
GB86TW		103.42	10.44	1.59	105.13	13.21	2.17
JF7LM2		94.57	1.58	0.24	97.82	5.90	0.97
LGVEVP		92.35	-0.64	-0.10	88.80	-3.12	-0.51
LMJC7X		96.90	3.91	0.60	94.40	2.48	0.41
LRJCVV		103.00	10.01	1.53	98.80	6.88	1.13
LU2UFY	X	43.58	-49.40	-7.55	45.47	-46.45	-7.64
NA7VAC		97.55	4.57	0.70	95.57	3.64	0.60
NNPE62		86.55	-6.44	-0.98	89.60	-2.32	-0.38
NPFPVU		93.80	0.81	0.12	90.60	-1.32	-0.22
P8EWUT		96.64	3.65	0.56	90.19	-1.73	-0.28
QAFL8L		96.54	3.55	0.54	94.59	2.67	0.44
QUQA28		88.08	-4.90	-0.75	90.75	-1.17	-0.19
R88WHH		88.35	-4.64	-0.71	83.10	-8.82	-1.45
TL9M4M		88.23	-4.75	-0.73	93.78	1.86	0.31
UKRVLP		101.60	8.61	1.32	99.00	7.08	1.16
VZGFNV		101.50	8.51	1.30	99.50	7.58	1.25
WZVY9T		96.70	3.71	0.57	93.90	1.98	0.33
XL7NQF		92.26	-0.73	-0.11	89.73	-2.19	-0.36
ZUE3LG		86.30	-6.69	-1.02	81.40	-10.52	-1.73

Summary Statistics	Sample SB67	Sample SB68
Grand Means	92.99 psi	91.92 psi
Stnd Dev Btwn Labs	6.55 psi	6.08 psi

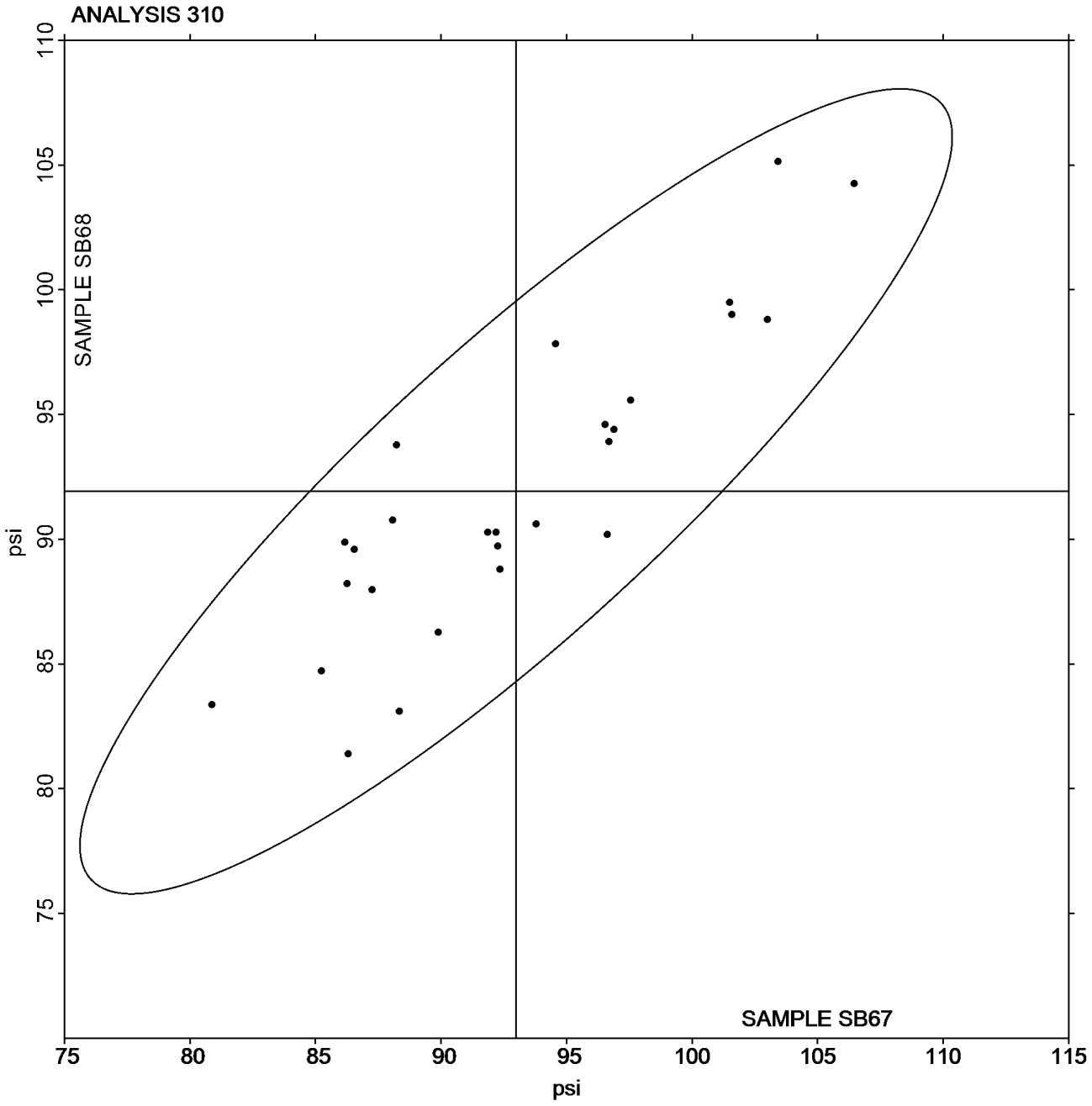
Statistics based on 27 of 28 reporting participants.

Comments on Assigned Data Flags for Test #310

LU2UFY (X) - Extreme Data.

Grand Mean Sample SB67 = 92.985 psi

Grand Mean Sample SB68 = 91.922 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 311

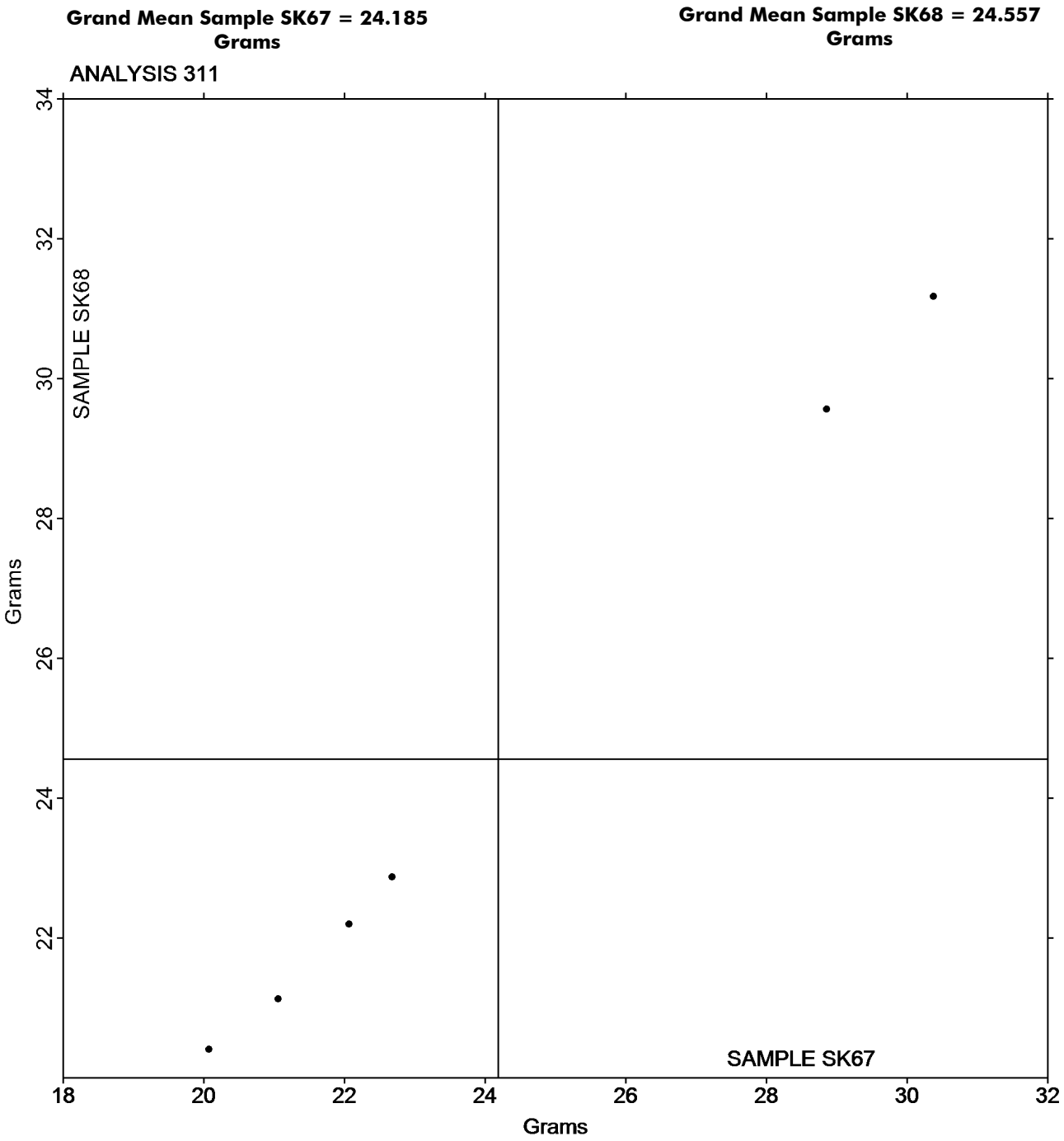
Tearing Strength - Newsprint

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK67 Lab Mean	Sample SK67 Diff from Grand Mean	Sample SK67 CPV	Sample SK68 Lab Mean	Sample SK68 Diff from Grand Mean	Sample SK68 CPV
2CBM4M		20.07	-4.12	-0.95	20.41	-4.15	-0.90
6B26A7		28.86	4.67	1.08	29.56	5.00	1.09
882F76		30.38	6.19	1.43	31.17	6.62	1.44
KQ8D2L		22.68	-1.51	-0.35	22.87	-1.69	-0.37
N79EVX		21.06	-3.13	-0.72	21.13	-3.43	-0.74
QUQA28		22.07	-2.12	-0.49	22.20	-2.36	-0.51

Summary Statistics	Sample SK67	Sample SK68
Grand Means	24.19 Grams	24.56 Grams
Stnd Dev Btwn Labs	4.33 Grams	4.61 Grams

Statistics based on 6 of 6 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC67 Lab Mean	Sample SC67 Diff from Grand Mean	Sample SC67 CPV	Sample SC68 Lab Mean	Sample SC68 Diff from Grand Mean	Sample SC68 CPV
2QARBY		59.30	-2.96	-0.73	59.52	-5.20	-1.21
3R28XF		61.80	-0.46	-0.11	64.52	-0.20	-0.05
3ZTK2L		61.14	-1.12	-0.27	65.00	0.28	0.06
6LJT47		64.08	1.82	0.45	65.76	1.04	0.24
7XUHKM		60.41	-1.85	-0.45	59.55	-5.17	-1.21
7XYXWM		57.50	-4.76	-1.17	62.70	-2.02	-0.47
8G33X2		59.73	-2.54	-0.62	61.92	-2.80	-0.65
8URYWE	X	64.17	1.91	0.47	73.18	8.46	1.98
8ZFNDH	X	91.60	29.34	7.20	93.06	28.34	6.62
ARDCC6	*	70.55	8.29	2.03	70.32	5.60	1.31
BMGR7Z		67.44	5.18	1.27	67.40	2.68	0.63
C4Z6WX		68.43	6.17	1.51	73.01	8.29	1.94
CRMZQ2	*	71.27	9.01	2.21	76.32	11.60	2.71
DCEAMW		56.26	-6.00	-1.47	59.04	-5.68	-1.33
DKUWQY		66.34	4.08	1.00	67.70	2.98	0.70
FGVG38		61.55	-0.72	-0.18	64.79	0.06	0.02
GEBZCY		56.45	-5.81	-1.43	57.75	-6.97	-1.63
H3Q4HR		56.22	-6.04	-1.48	59.50	-5.22	-1.22
JF7LM2		60.12	-2.14	-0.53	61.63	-3.09	-0.72
JTWHPY		61.11	-1.15	-0.28	67.00	2.28	0.53
JV9VTV		65.17	2.91	0.71	68.13	3.41	0.80
LGVEVP		57.96	-4.30	-1.06	60.90	-3.82	-0.89
LU2UFY		59.14	-3.12	-0.77	60.63	-4.09	-0.95
M3VAN4		64.20	1.94	0.48	68.70	3.98	0.93
NRRJHL		63.78	1.52	0.37	65.72	1.00	0.23
PLGKN9		62.46	0.19	0.05	67.16	2.44	0.57
Q8DJLQ		61.20	-1.06	-0.26	64.50	-0.22	-0.05
QMLHQN		62.66	0.40	0.10	66.18	1.46	0.34
QUQA28		64.59	2.33	0.57	66.59	1.87	0.44
R88WHH		55.67	-6.59	-1.62	57.70	-7.02	-1.64
TB927N		66.18	3.92	0.96	67.45	2.73	0.64
TL9M4M		66.27	4.01	0.98	68.68	3.96	0.92
UCE2BU		66.58	4.31	1.06	69.04	4.32	1.01
UKRVLP		53.24	-9.02	-2.21	55.80	-8.92	-2.08
VK38MR		62.48	0.22	0.05	64.73	0.01	0.00
VTF2XN		63.12	0.86	0.21	64.33	-0.39	-0.09
VZGFNV		65.60	3.34	0.82	69.40	4.68	1.09
W68AY2		59.67	-2.59	-0.64	62.13	-2.60	-0.61
X2YEPH		61.60	-0.66	-0.16	63.60	-1.12	-0.26
Y4M97J		62.62	0.36	0.09	65.52	0.80	0.19

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC67 Lab Mean	Sample SC67 Diff from Grand Mean	Sample SC67 CPV	Sample SC68 Lab Mean	Sample SC68 Diff from Grand Mean	Sample SC68 CPV
Y9M8VG		65.80	3.54	0.87	65.20	0.48	0.11
ZDC6XC		60.84	-1.42	-0.35	63.36	-1.36	-0.32
ZPH9WR	X	39.04	-23.22	-5.70	37.55	-27.17	-6.35

Summary Statistics	Sample SC67	Sample SC68
Grand Means	62.26 Grams	64.72 Grams
Stnd Dev Btwn Labs	4.08 Grams	4.28 Grams

Statistics based on 40 of 43 reporting participants.

Comments on Assigned Data Flags for Test #312

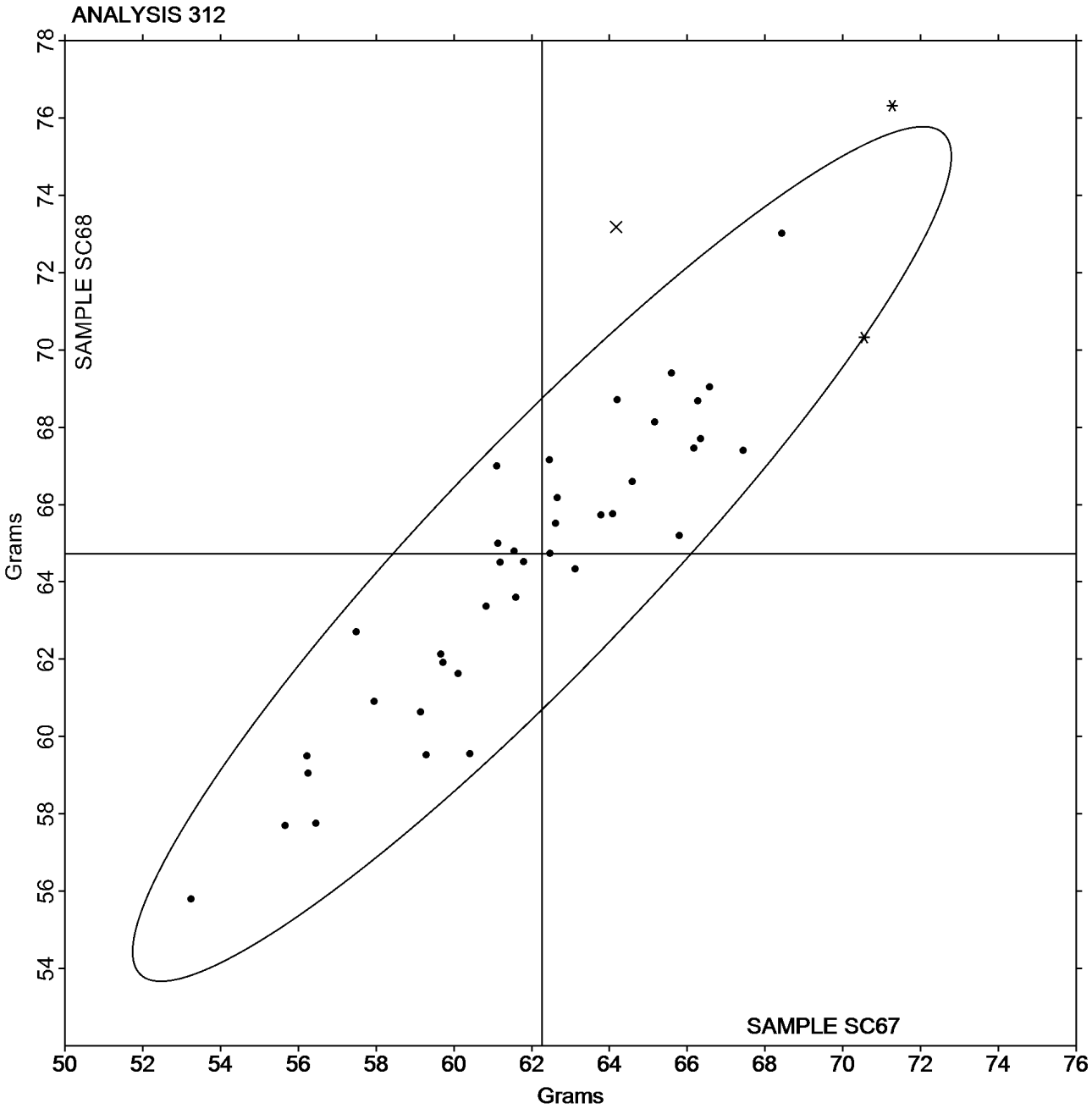
8URYWE (X) - Inconsistent in testing between samples.

ZPH9WR (X) - Extreme Data.

8ZFNDH (X) - Extreme Data.

Grand Mean Sample SC67 = 62.263 Grams

Grand Mean Sample SC68 = 64.722 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD67 Lab Mean	Sample SD67 Diff from Grand Mean	Sample SD67 CPV	Sample SD68 Lab Mean	Sample SD68 Diff from Grand Mean	Sample SD68 CPV
3A22PK		185.3	1.3	0.08	181.2	-1.4	-0.10
3RWUBJ	X	728.1	544.1	34.03	703.4	520.8	37.61
6KUFLM		206.9	22.9	1.43	200.6	18.0	1.30
7V8YG4		169.6	-14.4	-0.90	177.0	-5.6	-0.41
8TGXBF		169.0	-15.0	-0.94	180.7	-1.9	-0.14
8ZFNDH		221.2	37.2	2.33	204.8	22.3	1.61
9G8NF3		153.5	-30.5	-1.91	153.5	-29.1	-2.10
A4MWTC	X	183.9	-0.1	-0.01	215.6	33.0	2.38
AHBU3N		167.5	-16.5	-1.03	172.0	-10.5	-0.76
B9M499		189.3	5.3	0.33	183.3	0.7	0.05
BV98TJ		173.7	-10.3	-0.64	166.1	-16.5	-1.19
BZ9HZ6	*	172.2	-11.8	-0.74	194.5	11.9	0.86
CLKQJA		199.4	15.4	0.96	199.1	16.6	1.20
CTPER3		169.9	-14.1	-0.88	167.1	-15.5	-1.12
DZHA37		187.6	3.6	0.22	178.4	-4.1	-0.30
EF7VWB		178.6	-5.4	-0.34	167.4	-15.2	-1.10
ERYEBG		210.9	26.9	1.68	200.1	17.5	1.27
EUNP2A		195.7	11.7	0.73	193.6	11.0	0.79
EZGWV4		156.8	-27.2	-1.70	154.7	-27.9	-2.01
FNXP8E		179.3	-4.7	-0.29	174.3	-8.3	-0.60
GAQ9PB		164.6	-19.4	-1.22	164.2	-18.4	-1.33
GDPMD2		168.8	-15.2	-0.95	176.5	-6.1	-0.44
LMJC7X		188.6	4.6	0.29	182.5	-0.1	-0.01
LRJCVV		182.3	-1.7	-0.10	174.8	-7.8	-0.56
NA7VAC		175.2	-8.8	-0.55	176.4	-6.2	-0.45
NNPE62		191.4	7.4	0.46	182.0	-0.6	-0.04
P8EWUT		179.5	-4.5	-0.28	176.9	-5.7	-0.41
PNZMM2	*	226.0	42.0	2.63	204.5	21.9	1.58
QAFL8L		210.7	26.7	1.67	210.8	28.2	2.04
QG3CV3		175.0	-9.0	-0.56	172.2	-10.4	-0.75
QUQA28		180.2	-3.8	-0.24	184.4	1.8	0.13
UAQHAW		175.2	-8.8	-0.55	174.4	-8.2	-0.59
UHLM3X		202.9	18.9	1.18	199.4	16.8	1.22
V7KJAM		185.2	1.2	0.08	187.8	5.2	0.37
VZ4REG		196.6	12.6	0.79	205.7	23.1	1.67
VZGFNV		182.8	-1.2	-0.07	184.4	1.8	0.13
WEFQWM		189.1	5.1	0.32	193.6	11.0	0.79
X2AUDK		176.0	-8.0	-0.50	183.0	0.4	0.03
X2YEPH		170.2	-13.8	-0.86	165.7	-16.9	-1.22
XGX9GR		183.3	-0.7	-0.04	183.2	0.7	0.05

Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD67 Lab Mean	Sample SD67 Diff from Grand Mean	Sample SD67 CPV	Sample SD68 Lab Mean	Sample SD68 Diff from Grand Mean	Sample SD68 CPV
XL7NQF		184.3	0.3	0.02	188.5	5.9	0.43
XLVKJJ		190.2	6.2	0.39	192.2	9.6	0.69
Y4M97J		179.2	-4.8	-0.30	174.7	-7.9	-0.57

Summary Statistics	Sample SD67	Sample SD68
Grand Means	183.99 Grams	182.59 Grams
Stnd Dev Btwn Labs	15.99 Grams	13.85 Grams

Statistics based on 41 of 43 reporting participants.

Comments on Assigned Data Flags for Test #314

A4MWTC (X) - Inconsistent in testing between samples.

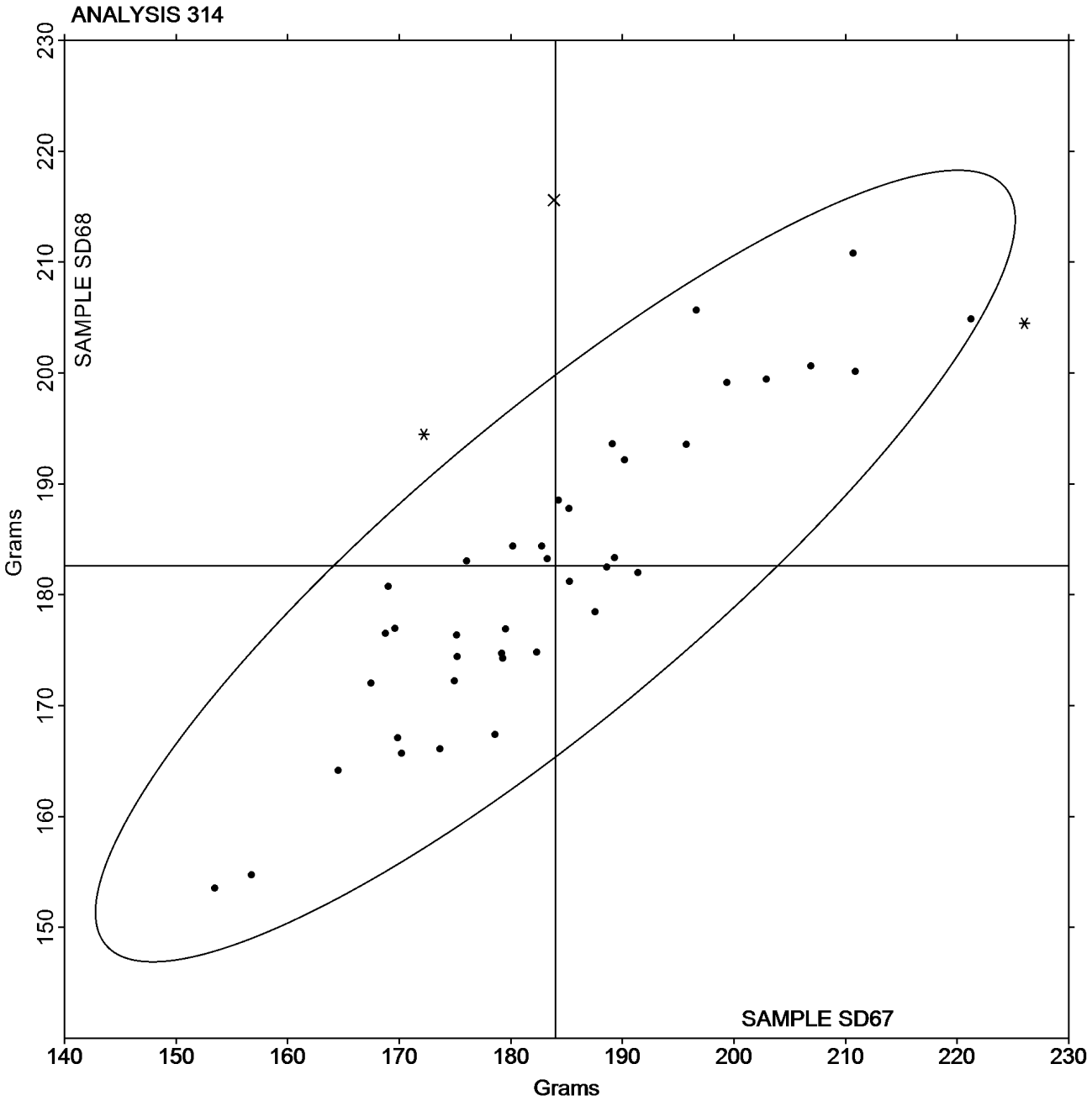
3RWUBJ (X) - Extreme Data.

Analysis Notes:

3RWUBJ - Data possibly off by a factor of 4.

Grand Mean Sample SD67 = 183.99 Grams

Grand Mean Sample SD68 = 182.59 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

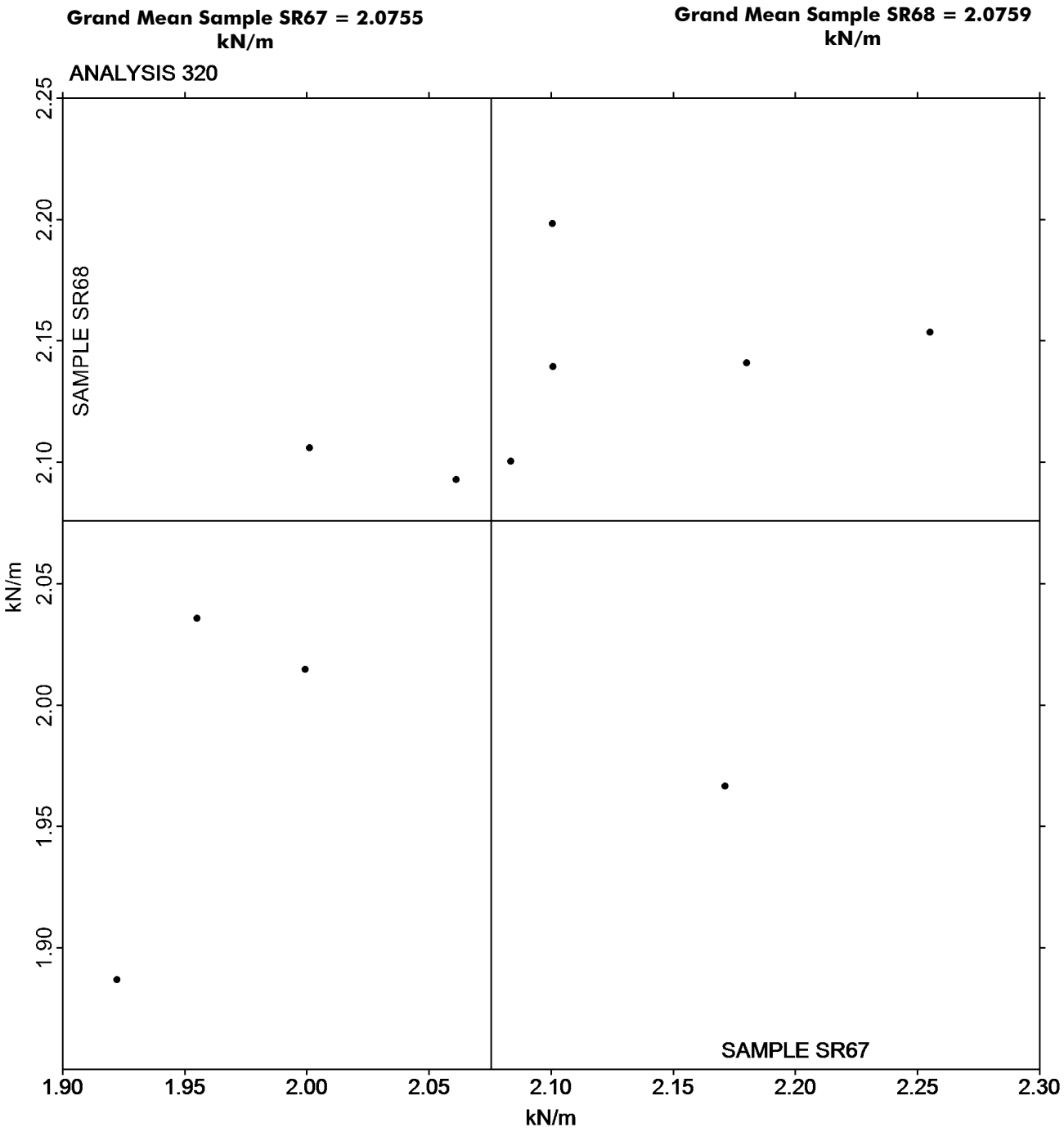
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR67 Lab Mean	Sample SR67 Diff from Grand Mean	Sample SR67 CPV	Sample SR68 Lab Mean	Sample SR68 Diff from Grand Mean	Sample SR68 CPV
2CBM4M		2.001	-0.074	-0.73	2.106	0.030	0.33
6B26A7		2.101	0.025	0.25	2.198	0.122	1.33
6W8FHG		1.955	-0.120	-1.18	2.036	-0.040	-0.44
7XYXWM		2.255	0.180	1.77	2.154	0.078	0.85
882F76		2.083	0.008	0.08	2.100	0.024	0.27
8G33X2		2.180	0.105	1.03	2.141	0.065	0.71
HXVGKX		1.999	-0.076	-0.75	2.015	-0.061	-0.67
KQ8D2L		1.922	-0.153	-1.51	1.887	-0.189	-2.06
N79EVX		2.171	0.096	0.94	1.967	-0.109	-1.19
WZVY9T		2.061	-0.014	-0.14	2.093	0.017	0.18
Y4M97J		2.101	0.025	0.25	2.139	0.063	0.69

Summary Statistics	Sample SR67	Sample SR68
Grand Means	2.08 kN/m	2.08 kN/m
Stnd Dev Btwn Labs	0.10 kN/m	0.09 kN/m

Statistics based on 11 of 11 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

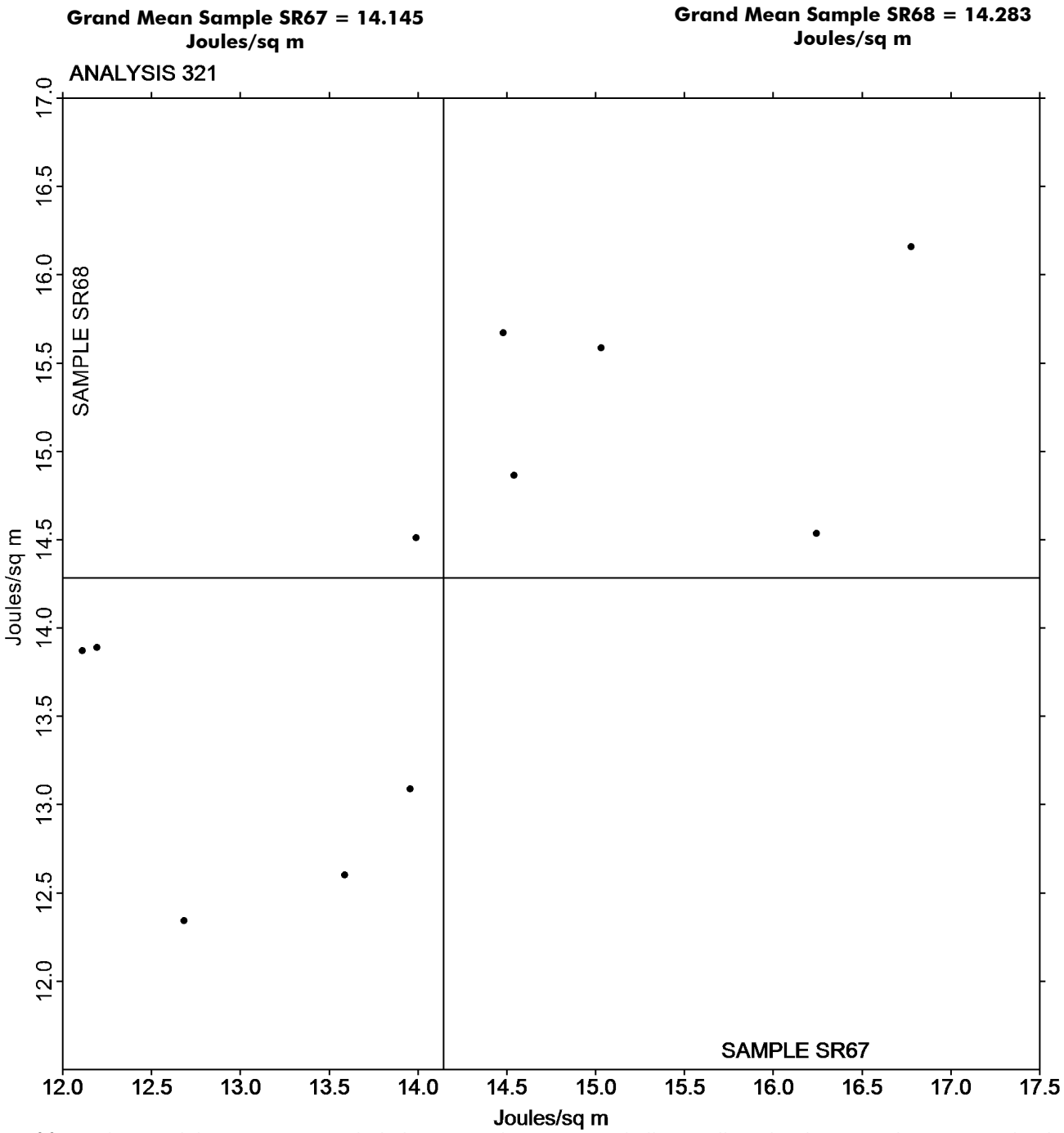
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR67 Lab Mean	Sample SR67 Diff from Grand Mean	Sample SR67 CPV	Sample SR68 Lab Mean	Sample SR68 Diff from Grand Mean	Sample SR68 CPV
2CBM4M		13.99	-0.15	-0.10	14.51	0.23	0.18
6B26A7		12.19	-1.95	-1.29	13.89	-0.39	-0.31
6W8FHG		12.11	-2.03	-1.35	13.87	-0.41	-0.33
7XYXWM		16.24	2.10	1.39	14.54	0.25	0.20
882F76		12.68	-1.46	-0.97	12.34	-1.94	-1.54
8G33X2		13.59	-0.56	-0.37	12.60	-1.68	-1.33
HXVGKX		15.03	0.89	0.59	15.59	1.30	1.03
KQ8D2L		16.78	2.63	1.74	16.16	1.87	1.48
N79EVX		14.54	0.40	0.26	14.86	0.58	0.46
WZVY9T		13.96	-0.19	-0.12	13.09	-1.20	-0.95
Y4M97J		14.48	0.34	0.22	15.67	1.39	1.10

Summary Statistics	Sample SR67	Sample SR68
Grand Means	14.14 Joules/sq m	14.28 Joules/sq m
Stnd Dev Btwn Labs	1.51 Joules/sq m	1.26 Joules/sq m

Statistics based on 11 of 11 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 322

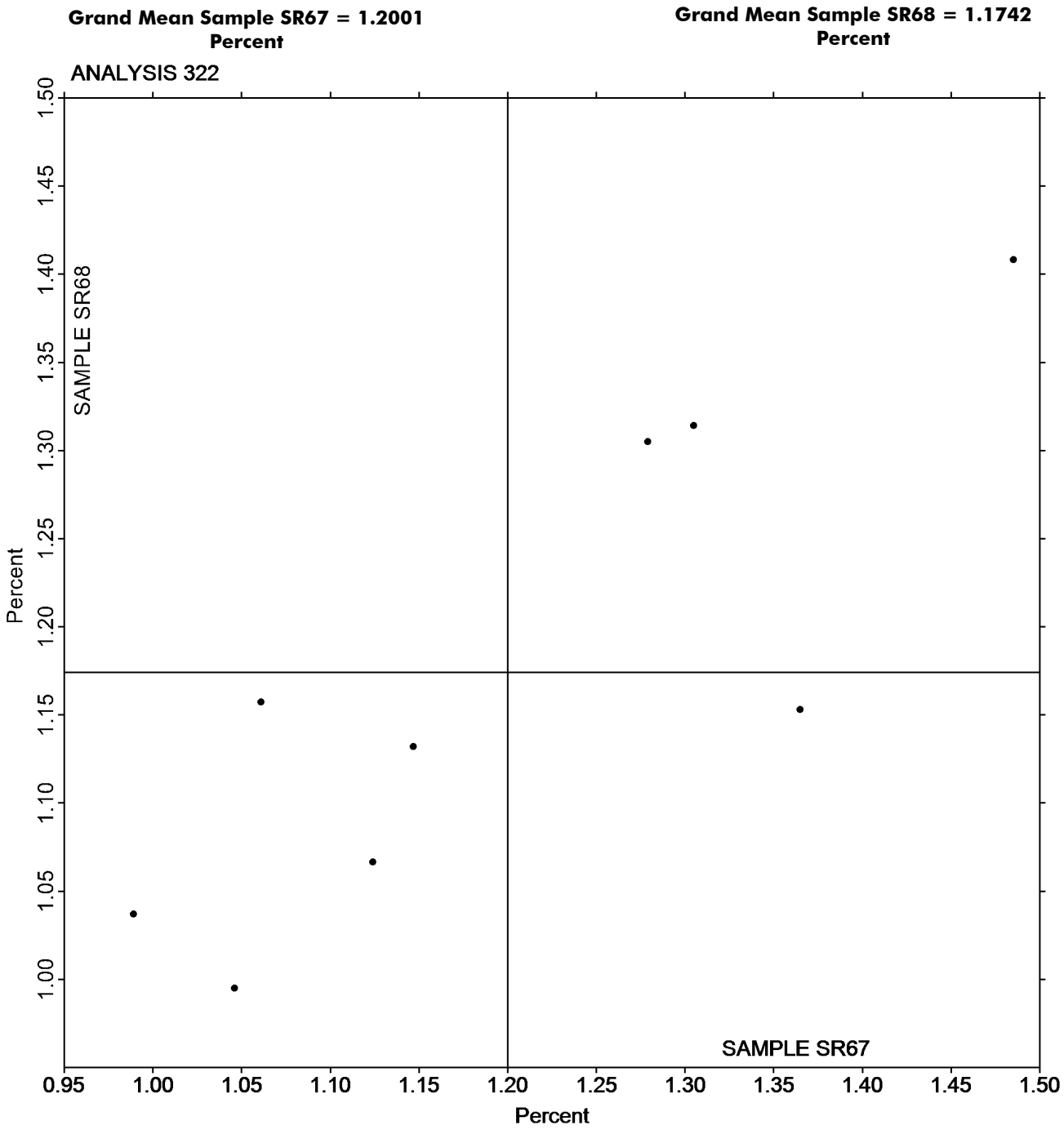
Elongation to Break - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR67 Lab Mean	Sample SR67 Diff from Grand Mean	Sample SR67 CPV	Sample SR68 Lab Mean	Sample SR68 Diff from Grand Mean	Sample SR68 CPV
2CBM4M		1.147	-0.053	-0.32	1.132	-0.042	-0.30
6W8FHG		1.061	-0.139	-0.84	1.157	-0.017	-0.12
7XYXWM		1.279	0.079	0.47	1.305	0.131	0.94
882F76		1.365	0.165	0.99	1.153	-0.021	-0.15
8G33X2		1.046	-0.154	-0.93	0.995	-0.179	-1.28
HXVGKX		1.305	0.105	0.63	1.314	0.140	1.00
KQ8D2L		1.485	0.285	1.71	1.408	0.234	1.67
WZVY9T		1.124	-0.076	-0.46	1.066	-0.108	-0.77
Y4M97J		0.989	-0.211	-1.27	1.037	-0.137	-0.98

Summary Statistics	Sample SR67	Sample SR68
Grand Means	1.20 Percent	1.17 Percent
Stnd Dev Btwn Labs	0.17 Percent	0.14 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 SF67 Lab Mean	Sample SF67 Diff from Grand Mean	Sample SF67 CPV	Sample SF68 Lab Mean	Sample SF68 Diff from Grand Mean	Sample SF68 CPV	Instr Code
3R28XF		6.779	-0.045	-0.10	6.847	0.065	0.16	LE
48AFHF	X	2.507	-4.317	-9.43	2.547	-4.235	-10.46	DL
6LJT47		6.901	0.077	0.17	6.670	-0.113	-0.28	LX
7XUHKM		6.660	-0.164	-0.36	6.382	-0.401	-0.99	TO
8G33X2		7.020	0.196	0.43	6.761	-0.021	-0.05	LH
8URYWE		6.901	0.076	0.17	6.708	-0.074	-0.18	FP
8ZFNDH		6.736	-0.088	-0.19	6.757	-0.025	-0.06	TM
ARDCC6		7.899	1.075	2.35	7.763	0.981	2.42	LA
BMGR7Z		7.505	0.681	1.49	7.462	0.680	1.68	LH
C4Z6WX		6.440	-0.384	-0.84	6.374	-0.408	-1.01	XX
CRMZQ2		6.558	-0.266	-0.58	6.557	-0.226	-0.56	XX
D4FJ68		7.207	0.383	0.84	7.161	0.379	0.94	LH
DCEAMW		7.208	0.384	0.84	7.296	0.513	1.27	TJ
FGVG38		6.314	-0.510	-1.11	6.323	-0.459	-1.13	DM
GEBZCY		7.091	0.267	0.58	7.087	0.305	0.75	LI
H3Q4HR		7.250	0.426	0.93	7.074	0.292	0.72	TC
H6G3XB		6.115	-0.709	-1.55	6.257	-0.526	-1.30	RE
HV742E		6.564	-0.260	-0.57	6.586	-0.196	-0.48	LF
JTWHPY	X	7.522	0.698	1.52	6.707	-0.075	-0.19	VM
JV9VTV		5.839	-0.985	-2.15	6.092	-0.691	-1.71	LA
L4PGTA		7.012	0.188	0.41	7.258	0.476	1.17	FP
LGVEVP		7.128	0.304	0.66	7.076	0.294	0.73	TF
LU2UFY		6.663	-0.161	-0.35	6.848	0.066	0.16	LH
M3VAN4		7.072	0.248	0.54	6.726	-0.056	-0.14	XX
MACVPU		6.792	-0.033	-0.07	6.674	-0.109	-0.27	IN
NRRJHL		6.356	-0.468	-1.02	6.262	-0.521	-1.29	ID
PLGKN9		6.444	-0.380	-0.83	6.512	-0.270	-0.67	LI
Q8DJLQ		6.914	0.090	0.20	6.683	-0.099	-0.24	TO
QMLHQN		6.944	0.120	0.26	6.953	0.171	0.42	TF
QUQA28		6.631	-0.193	-0.42	6.766	-0.016	-0.04	LH
R4PCXN		7.550	0.726	1.59	7.198	0.415	1.03	XX
TB927N		6.839	0.015	0.03	6.887	0.104	0.26	LH
UCE2BU	*	5.531	-1.293	-2.83	5.733	-1.049	-2.59	IM
UKRVLP		6.926	0.102	0.22	6.951	0.168	0.42	TO
VK38MR		6.927	0.103	0.22	7.258	0.476	1.17	LI
VTF2XN		6.588	-0.236	-0.52	6.679	-0.103	-0.26	LH
XH9A3Q	*	7.166	0.341	0.75	6.632	-0.151	-0.37	LX
ZDC6XC		6.725	-0.099	-0.22	6.538	-0.244	-0.60	TB
ZPH9WR		7.299	0.475	1.04	7.157	0.375	0.93	TP

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SF67	Sample SF68
Grand Means	6.82 kN/m	6.78 kN/m
Stnd Dev Btwn Labs	0.46 kN/m	0.40 kN/m

Statistics based on 37 of 39 reporting participants.

Comments on Assigned Data Flags for Test #325

JTWHPY (X) - Inconsistent in testing between samples.

48AFHF (X) - Extreme Data.

Analysis Notes:

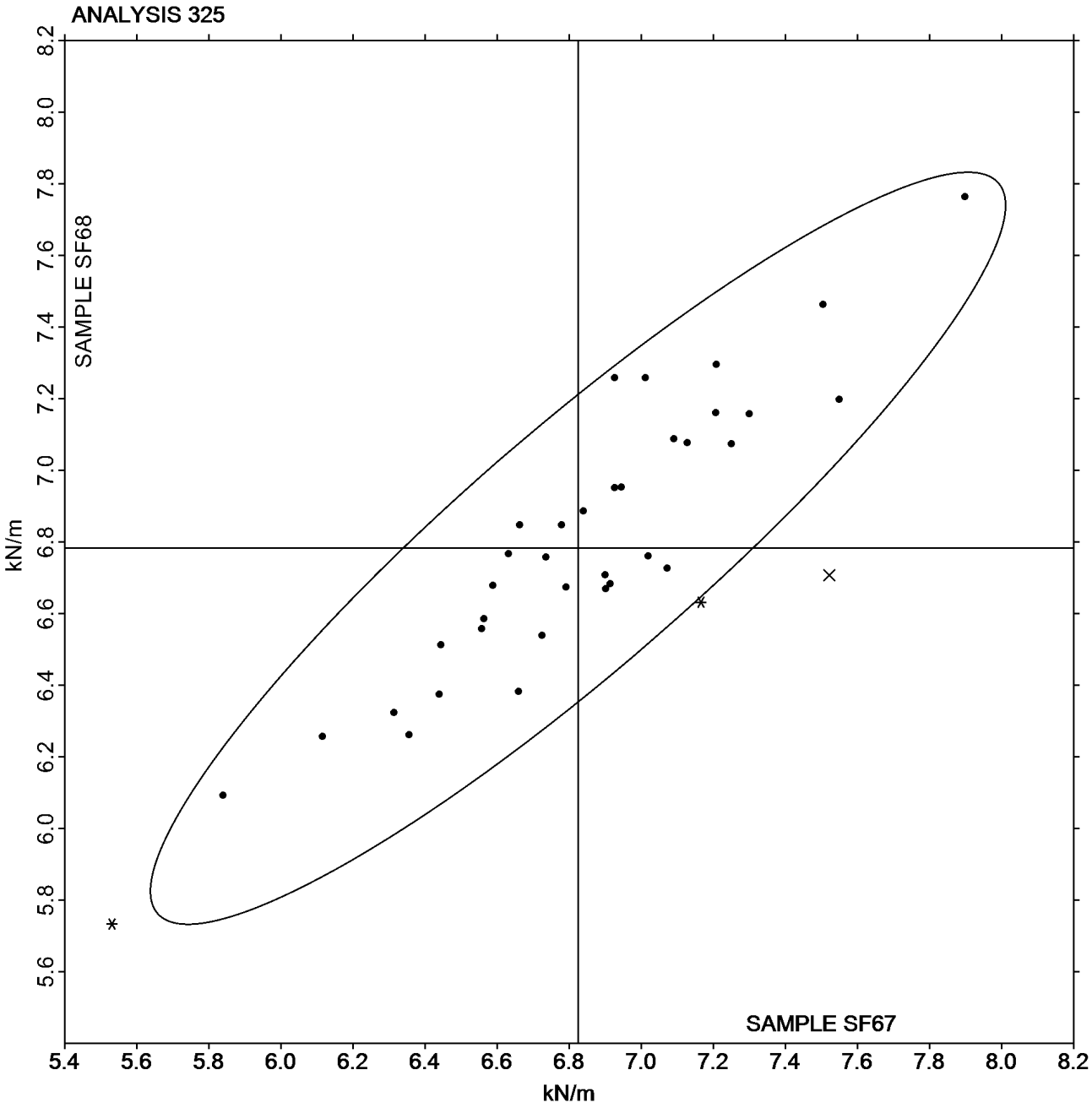
ARDCC6 - Data appear to be reported as kN/m, not lb/inch as indicated on datasheet. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	DM	IDM Horizontal Tensile Tester
FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IM	Instron 5500 Series	IN	Instron 3340 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	TM	TMI Horizontal Tensile Tester
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 SF67 = 6.8242 kN/m

Grand Mean Sample SF68 = 6.7823 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF67 Lab Mean	Sample SF67 Diff from Grand Mean	Sample SF67 CPV	Sample SF68 Lab Mean	Sample SF68 Diff from Grand Mean	Sample SF68 CPV	Instr Code
48AFHF		96.99	4.92	0.33	101.19	6.54	0.50	DL
6LJT47		98.61	6.55	0.44	94.03	-0.62	-0.05	LX
7XUHKM		110.33	18.27	1.22	105.95	11.30	0.86	TO
8G33X2		93.37	1.31	0.09	90.85	-3.81	-0.29	LH
8URYWE		119.68	27.61	1.84	120.66	26.01	1.97	FP
8ZFNDH		91.87	-0.19	-0.01	94.36	-0.29	-0.02	TM
ARDCC6		107.75	15.69	1.04	101.17	6.52	0.49	LA
BMGR7Z		94.74	2.68	0.18	98.09	3.43	0.26	LH
C4Z6WX		84.01	-8.05	-0.54	84.50	-10.16	-0.77	XX
CRMZQ2		73.42	-18.64	-1.24	74.34	-20.31	-1.54	XX
D4FJ68		97.64	5.57	0.37	103.23	8.58	0.65	LH
GEBZCY		77.79	-14.28	-0.95	82.03	-12.62	-0.96	LI
H6G3XB		81.98	-10.09	-0.67	89.02	-5.63	-0.43	RE
HV742E		89.93	-2.14	-0.14	93.93	-0.72	-0.05	LF
JV9VTV		58.57	-33.50	-2.23	68.24	-26.41	-2.00	LA
L4PGTA		108.43	16.37	1.09	117.34	22.69	1.72	FP
LGVEVP		91.67	-0.39	-0.03	94.31	-0.34	-0.03	TF
LU2UFY		91.62	-0.45	-0.03	103.19	8.53	0.65	LH
NRRJHL	X	538.17	446.10	29.71	555.10	460.45	34.95	ID
PLGKN9		70.98	-21.08	-1.40	77.69	-16.96	-1.29	LI
Q8DJLQ		97.65	5.58	0.37	91.64	-3.01	-0.23	TO
QUQA28		92.05	-0.01	0.00	93.37	-1.29	-0.10	LH
TB927N		97.55	5.49	0.37	97.54	2.88	0.22	LH
UCE2BU		64.25	-27.81	-1.85	72.15	-22.50	-1.71	IM
UKRVLP		118.21	26.15	1.74	120.11	25.46	1.93	TO
VK38MR		85.49	-6.57	-0.44	93.43	-1.22	-0.09	LI
VTF2XN		84.00	-8.06	-0.54	91.14	-3.51	-0.27	LH
XH9A3Q	X	5.87	-86.19	-5.74	11.55	-83.10	-6.31	LX
ZDC6XC		107.14	15.08	1.00	102.12	7.46	0.57	TB

Summary Statistics	Sample SF67	Sample SF68
Grand Means	92.06 Joules/sq m	94.65 Joules/sq m
Stnd Dev Btwn Labs	15.01 Joules/sq m	13.17 Joules/sq m

Statistics based on 27 of 29 reporting participants.

Comments on Assigned Data Flags for Test #327

NRRJHL (X) - Extreme Data.

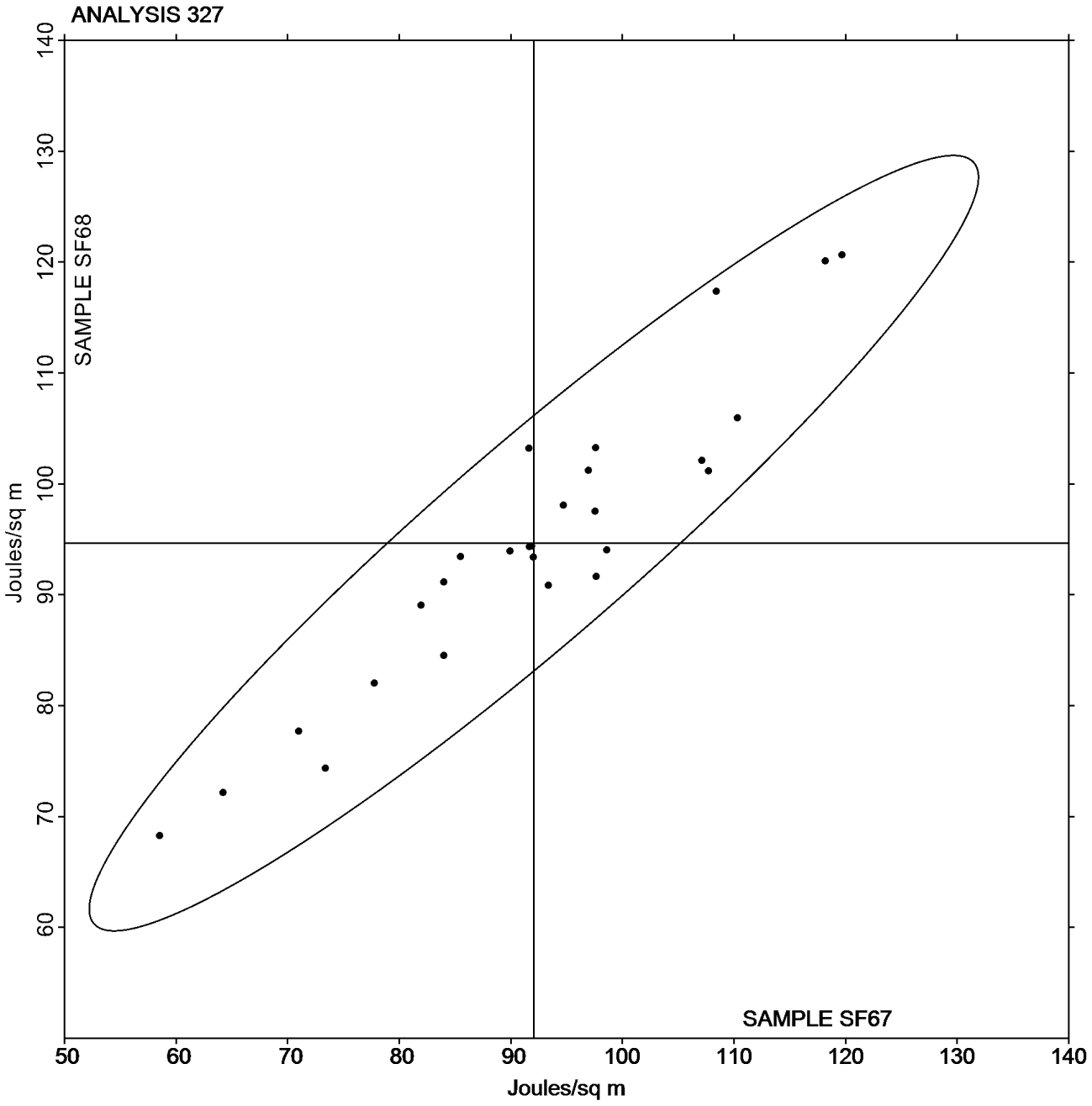
XH9A3Q (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
LA	L & W Tensile - Autoline 300	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	TF	Thwing-Albert EJA Vantage-1
TM	TMI Horizontal Tensile Tester	TO	Thwing-Albert QC-1000
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF67 = 92.064 Joules/sq m

Grand Mean Sample SF68 = 94.652 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF67 Lab Mean	Sample SF67 Diff from Grand Mean	Sample SF67 CPV	Sample SF68 Lab Mean	Sample SF68 Diff from Grand Mean	Sample SF68 CPV	Instr Code
48AFHF		2.523	0.350	1.19	2.600	0.371	1.32	DL
6LJT47		2.170	-0.003	-0.01	2.140	-0.089	-0.32	LX
7XUHKM		2.841	0.668	2.27	2.851	0.622	2.21	TO
8G33X2		2.020	-0.153	-0.52	2.034	-0.195	-0.69	LH
8URYWE		2.713	0.540	1.84	2.787	0.558	1.99	FP
8ZFNDH		2.198	0.026	0.09	2.257	0.028	0.10	TM
ARDCC6		2.051	-0.122	-0.41	1.966	-0.263	-0.93	LA
BMGR7Z		1.931	-0.242	-0.82	2.006	-0.223	-0.79	LH
C4Z6WX		2.075	-0.098	-0.33	2.034	-0.195	-0.69	XX
CRMZQ2		2.080	-0.093	-0.32	2.112	-0.117	-0.41	XX
D4FJ68		2.064	-0.109	-0.37	2.193	-0.036	-0.13	LH
GEBZCY		1.739	-0.434	-1.48	1.824	-0.405	-1.44	LI
H6G3XB		2.184	0.011	0.04	2.275	0.046	0.16	RE
HV742E		2.100	-0.073	-0.25	2.176	-0.053	-0.19	LF
JTWHPY	X	2.000	-0.173	-0.59	2.400	0.171	0.61	VM
JV9VTV		1.830	-0.343	-1.17	2.020	-0.209	-0.74	LA
L4PGTA		2.396	0.223	0.76	2.503	0.274	0.98	FP
LGVEVP		2.103	-0.070	-0.24	2.167	-0.062	-0.22	TF
LU2UFY		2.217	0.044	0.15	2.397	0.168	0.60	LH
MACVPU		2.248	0.075	0.26	2.298	0.069	0.25	IN
NRRJHL		2.247	0.075	0.25	2.352	0.123	0.44	ID
PLGKN9		1.583	-0.590	-2.01	1.686	-0.543	-1.93	LI
Q8DJLQ		2.136	-0.037	-0.13	2.078	-0.151	-0.54	TO
QUQA28		2.083	-0.090	-0.31	2.133	-0.096	-0.34	LH
TB927N		2.161	-0.012	-0.04	2.155	-0.074	-0.26	LH
UCE2BU		1.883	-0.290	-0.99	2.029	-0.200	-0.71	IM
UKRVLP		2.809	0.636	2.17	2.828	0.599	2.13	TO
VK38MR		1.917	-0.256	-0.87	1.997	-0.232	-0.82	LI
VTF2XN		1.948	-0.225	-0.77	2.078	-0.151	-0.54	LH
XH9A3Q		2.453	0.280	0.95	2.460	0.231	0.82	LX
ZDC6XC		2.482	0.309	1.05	2.424	0.195	0.69	TB

Summary Statistics	Sample SF67	Sample SF68
Grand Means	2.17 Percent	2.23 Percent
Stnd Dev Btwn Labs	0.29 Percent	0.28 Percent

Statistics based on 30 of 31 reporting participants.

Comments on Assigned Data Flags for Test #328

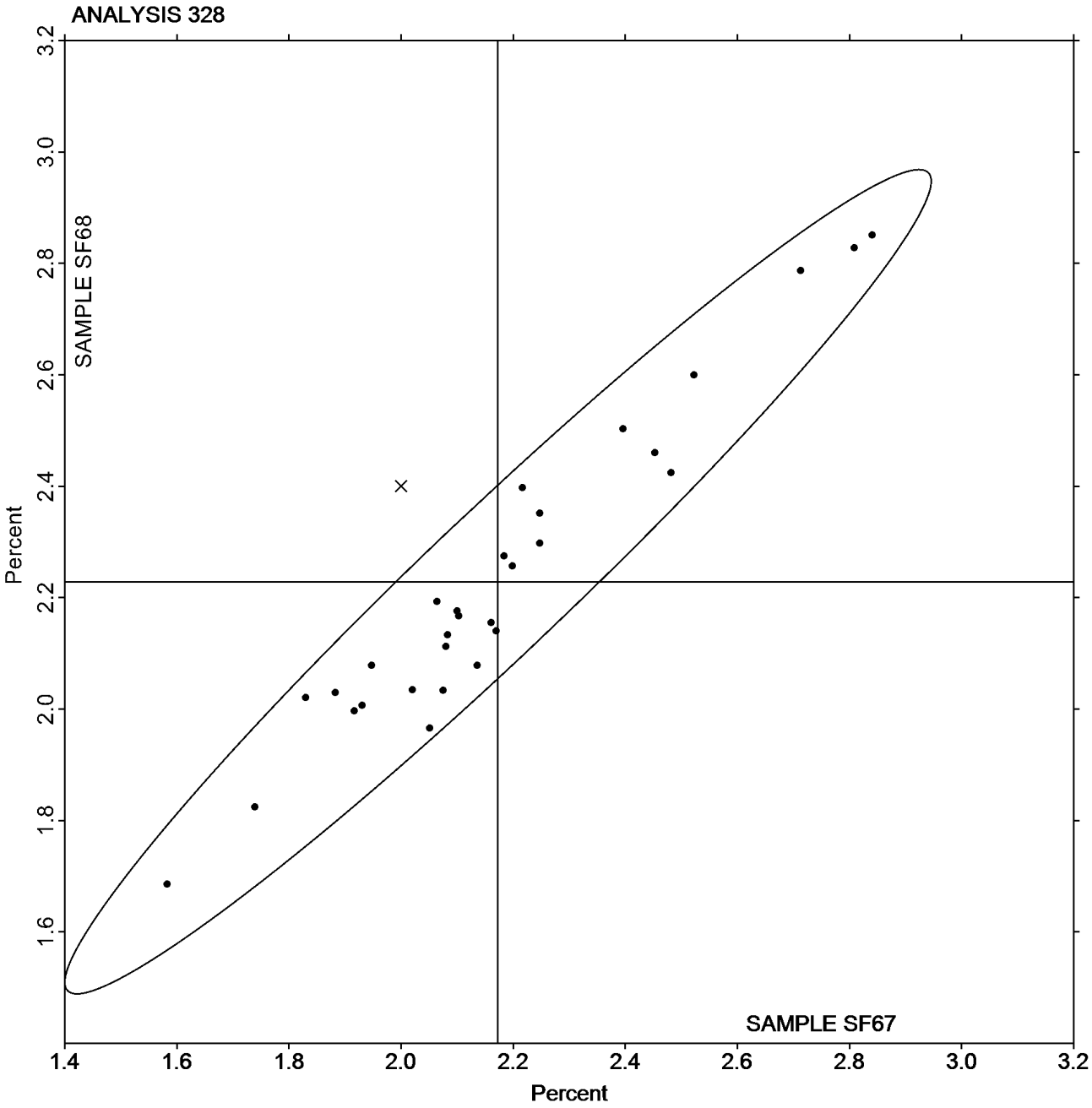
JTWHPY (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
IN	Instron 3340 Series	LA	L & W Tensile - Autoline 300
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
TF	Thwing-Albert EJA Vantage-1	TM	TMI Horizontal Tensile Tester
TO	Thwing-Albert QC-1000	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF67 = 2.1728
Percent

Grand Mean Sample SF68 = 2.2286
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE67 Lab Mean	Sample SE67 Diff from Grand Mean	Sample SE67 CPV	Sample SE68 Lab Mean	Sample SE68 Diff from Grand Mean	Sample SE68 CPV	Instr Code
2FAYZL		17.81	1.39	1.27	12.58	0.71	0.85	LA
3RWUBJ		15.19	-1.23	-1.13	11.47	-0.40	-0.48	IN
7V8YG4		16.29	-0.13	-0.12	11.81	-0.06	-0.08	LE
8ZFNDH		16.64	0.22	0.20	11.85	-0.03	-0.03	TR
9EUAG9		15.47	-0.95	-0.87	11.41	-0.46	-0.55	TB
9G8NF3	X	15.07	-1.35	-1.24	12.92	1.05	1.26	TO
9GK9WR		17.73	1.30	1.20	12.53	0.65	0.78	LA
A4MWTC		17.24	0.82	0.75	12.42	0.54	0.65	LE
AHBU3N		16.73	0.31	0.28	12.82	0.94	1.13	TO
B9M499		14.93	-1.50	-1.38	10.85	-1.03	-1.23	TK
BRAWWJ		16.35	-0.07	-0.07	11.48	-0.39	-0.47	IK
BV98TJ		16.50	0.07	0.07	11.37	-0.50	-0.60	IF
CLKQJA		16.22	-0.20	-0.19	11.88	0.01	0.01	LE
CTPER3		16.40	-0.03	-0.02	11.72	-0.16	-0.19	LW
DA4CAF		16.52	0.10	0.09	12.12	0.24	0.29	IK
DKUWQY		15.08	-1.34	-1.23	11.01	-0.86	-1.03	XX
DZHA37		16.49	0.06	0.06	12.06	0.18	0.22	LH
EA4LPH	X	15.33	-1.09	-1.01	13.56	1.69	2.02	DW
EF7VWB		16.29	-0.14	-0.13	11.39	-0.48	-0.58	ID
ER88G6		15.50	-0.92	-0.85	11.36	-0.52	-0.62	IM
ERYEBG		16.98	0.55	0.51	12.27	0.40	0.48	ID
EUNP2A		18.43	2.00	1.84	13.57	1.69	2.03	LA
FNXP8E		16.79	0.36	0.33	12.31	0.44	0.52	IF
GAQ9PB		16.52	0.09	0.09	12.42	0.54	0.65	IR
GDPMD2		15.12	-1.30	-1.20	10.99	-0.88	-1.06	IN
GLLD3H		17.81	1.39	1.27	13.17	1.30	1.55	TH
GXZB8L		16.09	-0.33	-0.30	11.45	-0.42	-0.50	TH
JF7LM2		16.79	0.37	0.34	11.33	-0.54	-0.65	IF
JG9ZP2		16.03	-0.39	-0.36	11.36	-0.51	-0.61	IM
JHJ43Z		16.39	-0.03	-0.03	11.87	0.00	-0.01	TB
LGVEVP	*	14.80	-1.63	-1.49	11.49	-0.39	-0.46	TO
LRCGWG	X	15.32	-1.10	-1.01	1.50	-10.38	-12.44	LA
LRJCVV		16.28	-0.15	-0.14	11.79	-0.08	-0.10	LE
MZ8JYT		15.82	-0.60	-0.55	11.23	-0.65	-0.77	LW
NHZ24D		16.31	-0.11	-0.10	11.28	-0.59	-0.71	TH
NPFPVU		18.63	2.20	2.02	13.69	1.82	2.18	IK
P8EWUT		15.40	-1.02	-0.94	11.47	-0.41	-0.49	IM
PNZMM2	*	16.98	0.56	0.51	11.30	-0.57	-0.68	IK
PQ78B2		16.81	0.39	0.36	12.35	0.48	0.58	IR
QG3EJL		14.24	-2.18	-2.01	9.82	-2.06	-2.47	TT

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE67 Lab Mean	Sample SE67 Diff from Grand Mean	Sample SE67 CPV	Sample SE68 Lab Mean	Sample SE68 Diff from Grand Mean	Sample SE68 CPV	Instr Code
QUQA28		16.15	-0.27	-0.25	11.90	0.02	0.03	LH
TATTP9		18.98	2.56	2.35	13.75	1.87	2.25	CE
TL9M4M		15.67	-0.75	-0.69	11.45	-0.42	-0.51	LE
UAQHAW		17.60	1.17	1.08	12.84	0.97	1.16	LX
VZ4REG		16.07	-0.35	-0.33	11.71	-0.16	-0.20	TR
VZGFNV		17.20	0.78	0.71	12.45	0.57	0.69	IN
W68AY2		18.48	2.05	1.89	13.17	1.30	1.56	TR
WEFQWM		15.14	-1.29	-1.18	10.99	-0.88	-1.06	LE
X2AUDK		16.22	-0.20	-0.18	11.47	-0.40	-0.48	LW
X2YEPH		14.66	-1.77	-1.62	10.79	-1.08	-1.29	TB
X9NUJW	X	17.33	0.91	0.83	11.28	-0.59	-0.71	LI
XGX9GR		17.92	1.49	1.37	13.30	1.43	1.72	TA
XLVKJJ		15.08	-1.34	-1.23	10.70	-1.17	-1.40	LH

Summary Statistics	Sample SE67	Sample SE68
Grand Means	16.42 kN/m	11.87 kN/m
Stnd Dev Btwn Labs	1.09 kN/m	0.83 kN/m

Statistics based on 49 of 53 reporting participants.

Comments on Assigned Data Flags for Test #330

9G8NF3 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE67.

EA4LPH (X) - Inconsistent in testing between samples.

X9NUJW (X) - Inconsistent in testing between samples.

LRCGWG (X) - Extreme Data for Sample SE68.

Analysis Notes:

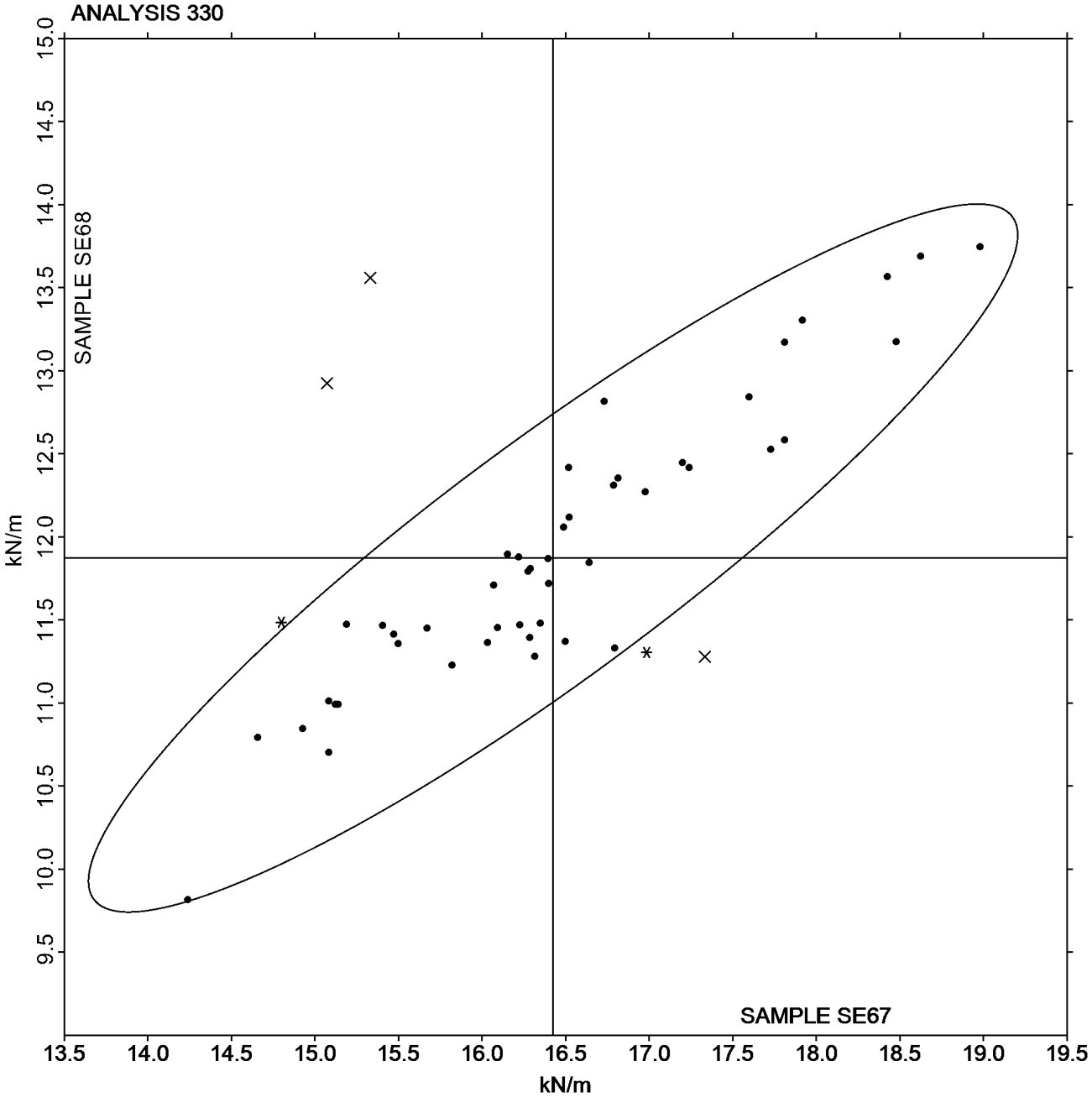
LRCGWG - Data for SE68 appears to be the same data submitted for SE68 for test 331 TEA.

Key to Instrument Codes Reported by Participants

CE	Chatillon Model ET1100	DW	Dongguan Walter W-304 Tester
ID	Instron 4200 Series	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	XX	Instrument make/model not specified by lab

Grand Mean Sample SE67 = 16.424 kN/m

Grand Mean Sample SE68 = 11.873 kN/m



WebCode	Data Flag	Sample SE67 Lab Mean	Sample SE67 Diff from Grand Mean	Sample SE67 CPV	Sample SE68 Lab Mean	Sample SE68 Diff from Grand Mean	Sample SE68 CPV	Instr Code
2FAYZL	X	9,298.5	9,115.1	440.63	6,535.9	6,338.5	346.17	LA
3RWUBJ		206.1	22.7	1.10	217.5	20.1	1.10	IN
7V8YG4		159.5	-23.9	-1.16	181.8	-15.6	-0.85	LE
8ZFNDH		183.4	0.0	0.00	191.0	-6.4	-0.35	TR
9EUAG9		168.4	-15.0	-0.72	197.0	-0.5	-0.02	TB
9G8NF3	X	122.5	-60.9	-2.94	215.6	18.2	0.99	TO
9GK9WR		201.6	18.2	0.88	205.4	8.0	0.43	LA
A4MWTC		172.4	-11.1	-0.53	188.8	-8.6	-0.47	LE
AHBU3N	*	188.8	5.4	0.26	235.1	37.7	2.06	TO
B9M499		172.4	-11.0	-0.53	191.2	-6.3	-0.34	TK
CLKQJA		193.1	9.7	0.47	204.4	7.0	0.38	LE
CTPER3		159.6	-23.8	-1.15	186.4	-11.1	-0.60	LW
DKUWQY		180.5	-2.9	-0.14	191.1	-6.3	-0.35	XX
DZHA37		179.7	-3.8	-0.18	198.7	1.3	0.07	LH
EA4LPH	X	185.4	1.9	0.09	250.4	52.9	2.89	DW
EF7VWB	*	211.6	28.2	1.36	192.0	-5.4	-0.30	ID
ER88G6		177.3	-6.1	-0.30	190.1	-7.3	-0.40	IM
EUNP2A		183.5	0.1	0.00	210.5	13.1	0.71	LA
GDPMD2	X	19.7	-163.7	-7.91	15.6	-181.8	-9.93	IN
GXZB8L		199.6	16.2	0.78	207.1	9.6	0.53	TH
JF7LM2		199.7	16.3	0.79	201.6	4.2	0.23	IF
JG9ZP2		183.4	0.0	0.00	191.6	-5.8	-0.32	IM
JHJ43Z		200.4	17.0	0.82	220.9	23.4	1.28	TB
LGVEVP		184.5	1.1	0.05	206.9	9.5	0.52	TO
LRCGWG	X	142.7	-40.7	-1.97	124.7	-72.7	-3.97	LA
LRJCVV		170.0	-13.4	-0.65	190.2	-7.3	-0.40	LE
MZ8JYT		167.8	-15.6	-0.76	185.3	-12.1	-0.66	LW
NHZ24D	*	238.3	54.9	2.65	235.5	38.0	2.08	TH
NPFPVU		198.2	14.8	0.71	188.7	-8.8	-0.48	IK
P8EWUT		185.1	1.7	0.08	210.1	12.7	0.69	IM
QG3EJL		151.5	-31.9	-1.54	152.3	-45.2	-2.47	TT
QUQA28		177.3	-6.1	-0.29	195.6	-1.9	-0.10	LH
TL9M4M		160.7	-22.7	-1.10	186.2	-11.2	-0.61	LE
UAQHAW		205.6	22.2	1.07	222.9	25.5	1.39	LX
VZ4REG		170.0	-13.4	-0.65	188.2	-9.2	-0.50	TR
VZGFNV		165.8	-17.6	-0.85	178.7	-18.7	-1.02	IN
W68AY2		211.6	28.2	1.36	207.7	10.3	0.56	TR
WEFQWM		153.1	-30.3	-1.47	174.4	-23.0	-1.26	LE
X2AUDK		163.5	-19.9	-0.96	180.6	-16.9	-0.92	LW
XGX9GR		223.5	40.1	1.94	233.6	36.2	1.98	TA

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE67 Lab Mean	Sample SE67 Diff from Grand Mean	Sample SE67 CPV	Sample SE68 Lab Mean	Sample SE68 Diff from Grand Mean	Sample SE68 CPV	Instr Code
XLVKJJ		155.2	-28.2	-1.36	168.6	-28.8	-1.57	LH

Summary Statistics	Sample SE67	Sample SE68
Grand Means	183.41 Joules/sq m	197.44 Joules/sq m
Stnd Dev Btwn Labs	20.69 Joules/sq m	18.31 Joules/sq m

Statistics based on 36 of 41 reporting participants.

Comments on Assigned Data Flags for Test #331

9G8NF3 (X) - Data for sample SE67 are low.

2FAYZL (X) - Extreme Data.

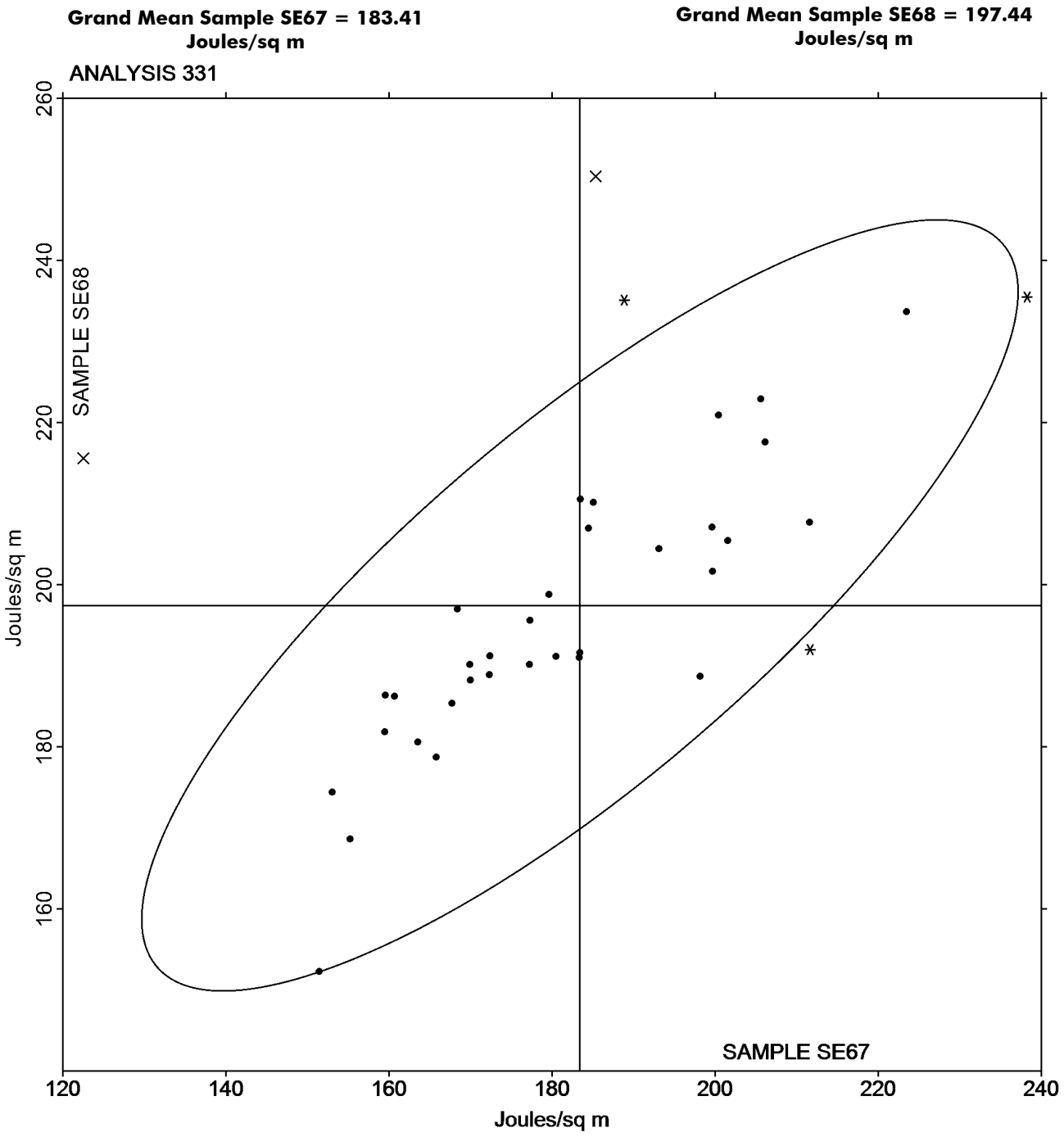
EA4LPH (X) - Data for sample SE68 are high.

LRCGWG (X) - Data for sample SE68 are low.

GDPMD2 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4200 series
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 SE67 Lab Mean	Sample SE67 Diff from Grand Mean	Sample SE67 CPV	Sample SE68 Lab Mean	Sample SE68 Diff from Grand Mean	Sample SE68 CPV	Instr Code
3RWUBJ		1.789	0.028	0.15	2.494	-0.015	-0.07	IN
7V8YG4		1.501	-0.261	-1.37	2.308	-0.202	-0.99	LE
8ZFNDH		1.837	0.075	0.40	2.520	0.011	0.05	TR
9EUAG9		1.669	-0.093	-0.49	2.554	0.045	0.22	TB
9G8NF3	*	1.562	-0.200	-1.05	2.761	0.251	1.24	TO
9GK9WR		1.651	-0.111	-0.58	2.384	-0.126	-0.62	LA
A4MWTC		1.846	0.084	0.45	2.268	-0.242	-1.19	LE
AHBU3N		1.850	0.088	0.47	2.765	0.255	1.26	TO
B9M499		1.819	0.057	0.30	2.665	0.155	0.77	TK
CLKQJA		1.826	0.064	0.34	2.555	0.045	0.22	LE
CTPER3		1.524	-0.238	-1.25	2.378	-0.132	-0.65	LW
DKUWQY		1.942	0.180	0.95	2.634	0.124	0.61	XX
DZHA37		1.649	-0.113	-0.59	2.429	-0.081	-0.40	LH
EA4LPH		1.880	0.118	0.62	2.678	0.168	0.83	DW
EF7VWB		2.013	0.251	1.32	2.529	0.019	0.09	ID
ER88G6		1.765	0.003	0.02	2.502	-0.008	-0.04	IM
ERYEBG		1.776	0.014	0.08	2.489	-0.021	-0.10	ID
EUNP2A		1.509	-0.253	-1.33	2.161	-0.349	-1.72	LA
GDPMD2	X	2.580	0.818	4.31	2.690	0.180	0.89	IN
GXZB8L		1.960	0.198	1.05	2.760	0.250	1.23	TH
JF7LM2		2.063	0.301	1.59	2.893	0.383	1.89	IF
JG9ZP2		2.037	0.275	1.45	2.759	0.249	1.23	IM
JHJ43Z		1.922	0.160	0.85	2.800	0.290	1.43	TB
LGVEVP		1.912	0.150	0.79	2.770	0.260	1.28	TO
LRCGWG	*	2.354	0.592	3.12	2.837	0.327	1.61	LA
LRJCVV		1.566	-0.196	-1.03	2.343	-0.167	-0.82	LE
MZ8JYT		1.609	-0.153	-0.80	2.433	-0.077	-0.38	LW
NHZ24D	X	2.484	0.722	3.81	3.630	1.120	5.52	TH
NPFPVU	*	1.840	0.078	0.41	2.130	-0.380	-1.87	IK
P8EWUT		1.893	0.132	0.69	2.747	0.237	1.17	IM
QG3EJL		1.724	-0.038	-0.20	2.413	-0.097	-0.48	TT
QUQA28		1.651	-0.111	-0.58	2.437	-0.073	-0.36	LH
TL9M4M		1.554	-0.208	-1.09	2.398	-0.112	-0.55	LE
UAQHAW		1.753	-0.009	-0.05	2.551	0.041	0.20	LX
VZ4REG		1.700	-0.062	-0.32	2.445	-0.065	-0.32	TR
VZGFNV		1.544	-0.217	-1.15	2.161	-0.349	-1.72	IN
W68AY2		1.842	0.080	0.42	2.455	-0.054	-0.27	TR
WEFQWM		1.530	-0.232	-1.22	2.374	-0.136	-0.67	LE
X2AUDK		1.555	-0.207	-1.09	2.330	-0.180	-0.89	LW
X2YEPH		1.570	-0.192	-1.01	2.210	-0.300	-1.48	TB

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE67 Lab Mean	Sample SE67 Diff from Grand Mean	Sample SE67 CPV	Sample SE68 Lab Mean	Sample SE68 Diff from Grand Mean	Sample SE68 CPV	Instr Code
XGX9GR		1.919	0.157	0.83	2.734	0.224	1.11	TA
XLVKJJ		1.557	-0.205	-1.08	2.333	-0.177	-0.87	LH

Summary Statistics	Sample SE67	Sample SE68
Grand Means	1.76 Percent	2.51 Percent
Stnd Dev Btwn Labs	0.19 Percent	0.20 Percent

Statistics based on 40 of 42 reporting participants.

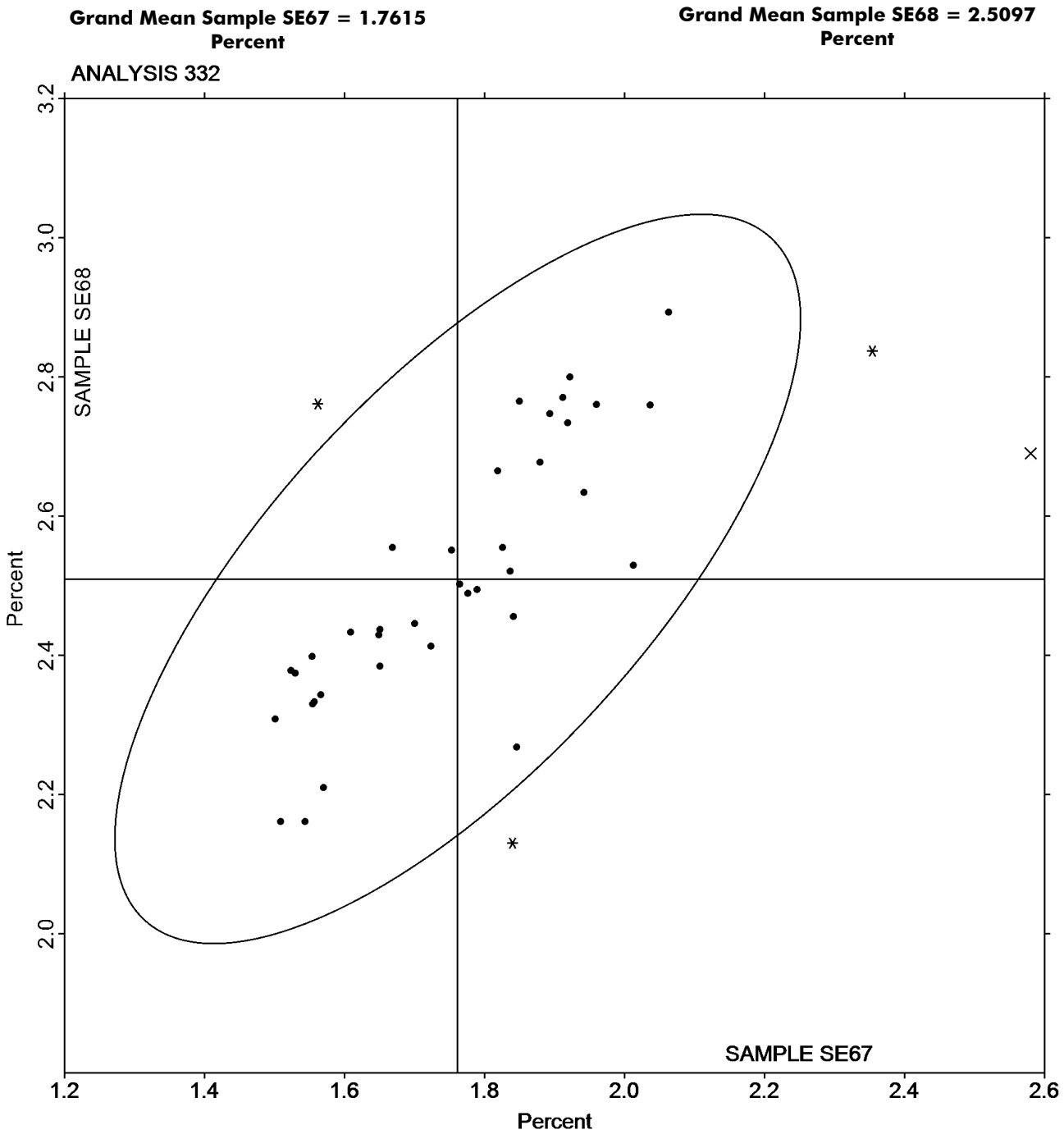
Comments on Assigned Data Flags for Test #332

NHZ24D (X) - Data for both samples are high. Inconsistent within the determinations of sample SE68.

GDPMD2 (X) - Data for sample SE67 are high. Inconsistent within the determinations of sample SE68.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4200 Series
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 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
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

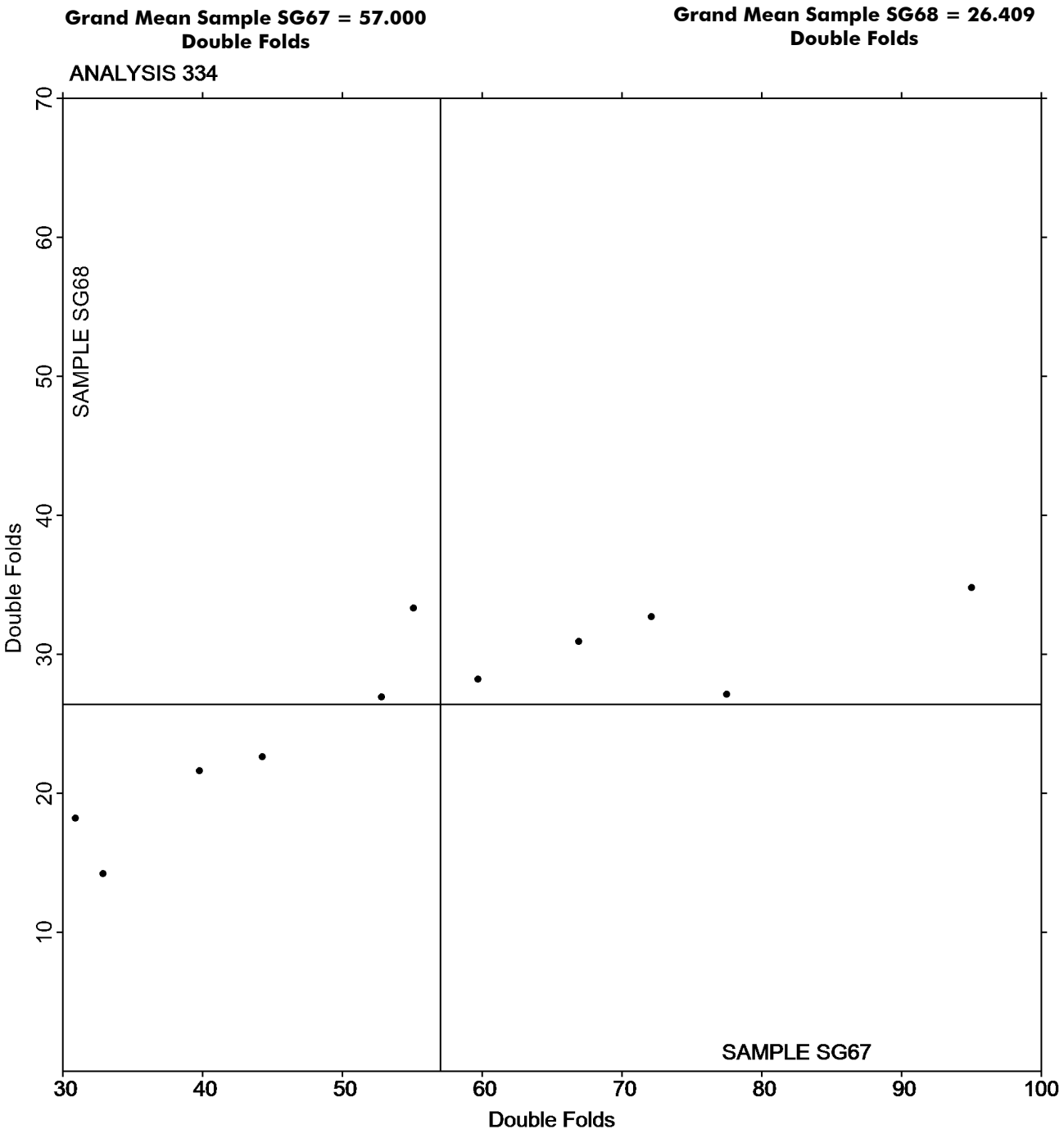
WebCode	Data Flag	Sample SG67 Lab Mean	Sample SG67 Diff from Grand Mean	Sample SG67 CPV	Sample SG68 Lab Mean	Sample SG68 Diff from Grand Mean	Sample SG68 CPV	Instr Code
3R28XF		77.50	20.50	1.03	27.10	0.69	0.10	MT
DCEAMW		44.30	-12.70	-0.64	22.60	-3.81	-0.58	MT
DKUWQY		72.10	15.10	0.76	32.70	6.29	0.95	MT
JTWHPY		39.80	-17.20	-0.87	21.60	-4.81	-0.73	MT
KQ8D2L		52.80	-4.20	-0.21	26.90	0.49	0.07	MT
MZ8JYT		95.00	38.00	1.91	34.80	8.39	1.27	MT
NHZ24D		30.90	-26.10	-1.32	18.20	-8.21	-1.24	MT
P8EWUT		66.90	9.90	0.50	30.90	4.49	0.68	MT
VK38MR		55.10	-1.90	-0.10	33.30	6.89	1.04	MT
X2YEPH		32.90	-24.10	-1.21	14.20	-12.21	-1.85	MT
XU4EFW		59.70	2.70	0.14	28.20	1.79	0.27	MT

Summary Statistics	Sample SG67	Sample SG68
Grand Means	57.00 Double Folds	26.41 Double Folds
Stnd Dev Btwn Labs	19.84 Double Folds	6.60 Double Folds

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

MT MIT - Tinius Olsen



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 336

Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH67 Lab Mean	Sample SH67 Diff from Grand Mean	Sample SH67 CPV	Sample SH68 Lab Mean	Sample SH68 Diff from Grand Mean	Sample SH68 CPV
6W8FHG		124.8	-19.9	-1.84	134.5	-12.4	-0.92
9EUAG9		125.2	-19.4	-1.80	124.5	-22.4	-1.66
BMGR7Z		151.0	6.4	0.59	170.9	24.0	1.77
DKUWQY		145.9	1.2	0.11	142.5	-4.4	-0.32
EZGWV4	X	283.0	138.4	12.79	285.0	138.1	10.22
H3Q4HR		141.8	-2.9	-0.27	141.8	-5.2	-0.38
JF7LM2		158.7	14.1	1.30	158.7	11.8	0.87
JTWHPY		160.1	15.5	1.43	172.9	26.0	1.92
JV9VTV		152.2	7.6	0.70	149.7	2.8	0.21
KQ8D2L		148.9	4.3	0.39	138.7	-8.2	-0.61
NNPE62		150.7	6.1	0.56	156.5	9.6	0.71
P8EWUT		141.0	-3.7	-0.34	145.0	-1.9	-0.14
QMLHQN	X	230.6	85.9	7.94	202.0	55.0	4.07
TB927N		154.5	9.9	0.91	150.3	3.4	0.25
UKRVLP		137.3	-7.3	-0.68	137.4	-9.5	-0.70
X2YEPH		151.5	6.9	0.63	156.9	10.0	0.74
Y9M8VG		135.4	-9.3	-0.86	135.1	-11.8	-0.87
ZDC6XC		135.4	-9.2	-0.85	135.2	-11.7	-0.87

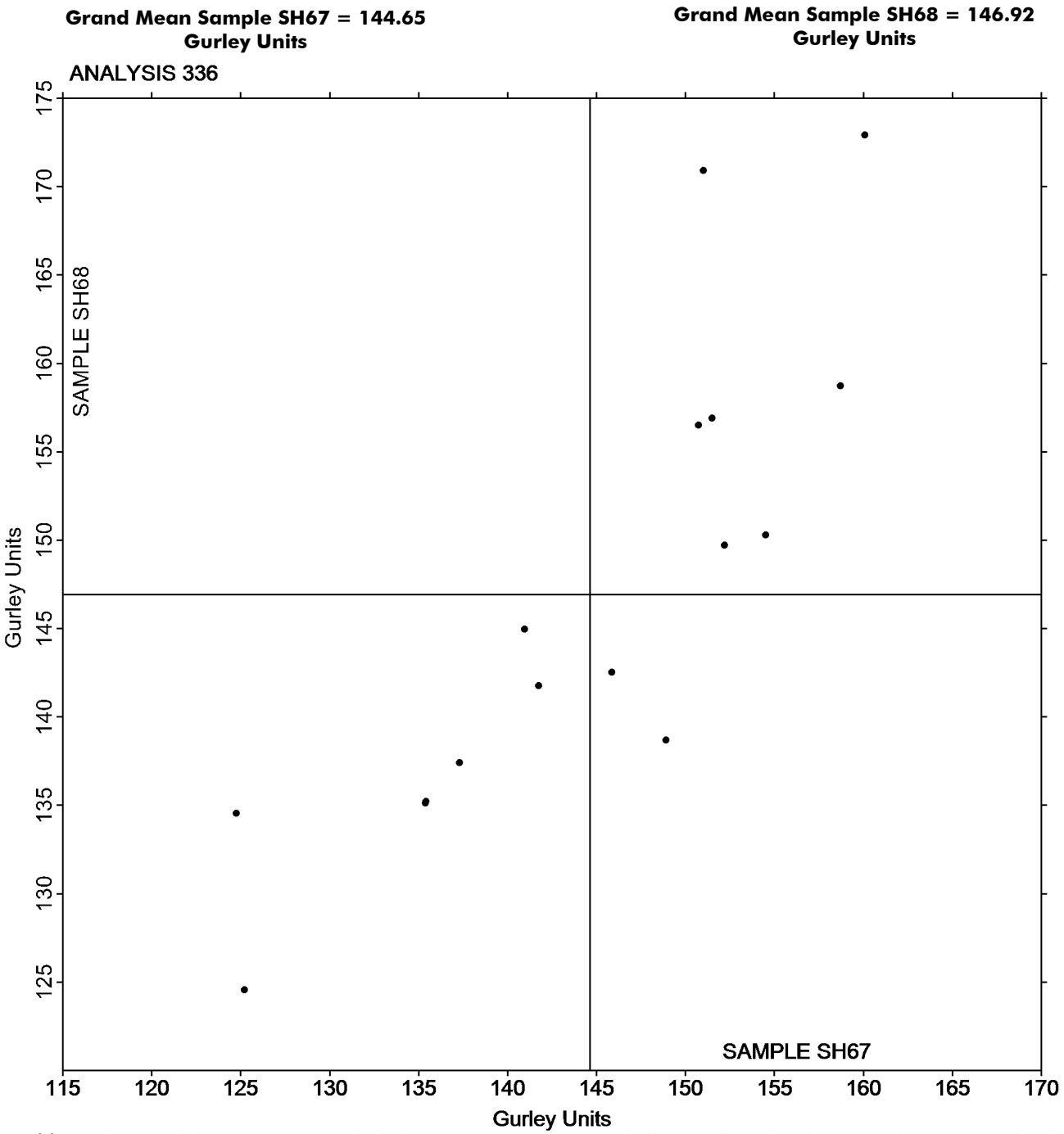
Summary Statistics	Sample SH67	Sample SH68
Grand Means	144.65 Gurley Units	146.92 Gurley Units
Stnd Dev Btwn Labs	10.82 Gurley Units	13.51 Gurley Units

Statistics based on 16 of 18 reporting participants.

Comments on Assigned Data Flags for Test #336

EZGWV4 (X) - Extreme Data.

QMLHQN (X) - Extreme Data.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 338

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

WebCode	Data Flag	Sample SJ67 Lab Mean	Sample SJ67 Diff from Grand Mean	Sample SJ67 CPV	Sample SJ68 Lab Mean	Sample SJ68 Diff from Grand Mean	Sample SJ68 CPV
7XUHKM	X	43.889	39.817	65.19	44.949	40.959	69.33
CTPER3		2.970	-1.102	-1.80	2.980	-1.010	-1.71
DCEAMW		4.326	0.254	0.42	4.184	0.194	0.33
JF7LM2		3.756	-0.316	-0.52	3.912	-0.078	-0.13
M3VAN4		4.219	0.147	0.24	4.533	0.543	0.92
P8EWUT		4.679	0.607	0.99	4.204	0.214	0.36
R4PCXN		4.282	0.210	0.34	4.617	0.627	1.06
TB927N		3.704	-0.368	-0.60	3.362	-0.628	-1.06
VZGFNV		5.140	1.068	1.75	4.730	0.740	1.25
XH9A3Q		3.554	-0.518	-0.85	3.357	-0.633	-1.07
ZDC6XC		4.086	0.014	0.02	4.021	0.031	0.05

Summary Statistics	Sample SJ67	Sample SJ68
Grand Means	4.07 Taber Units	3.99 Taber Units
Stnd Dev Btwn Labs	0.61 Taber Units	0.59 Taber Units

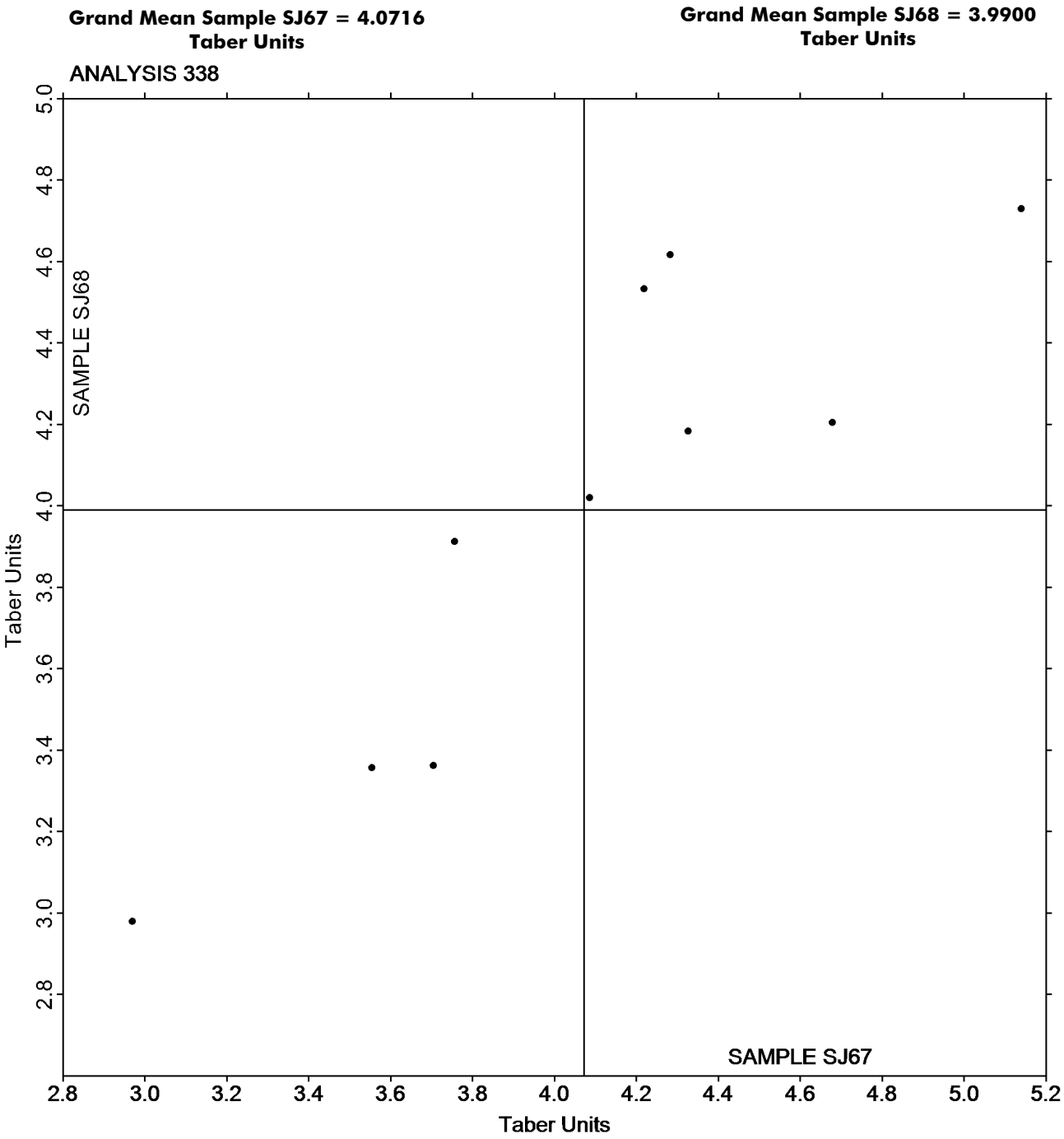
Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #338

7XUHKM (X) - Extreme Data.

Analysis Notes:

7XUHKM - 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 339

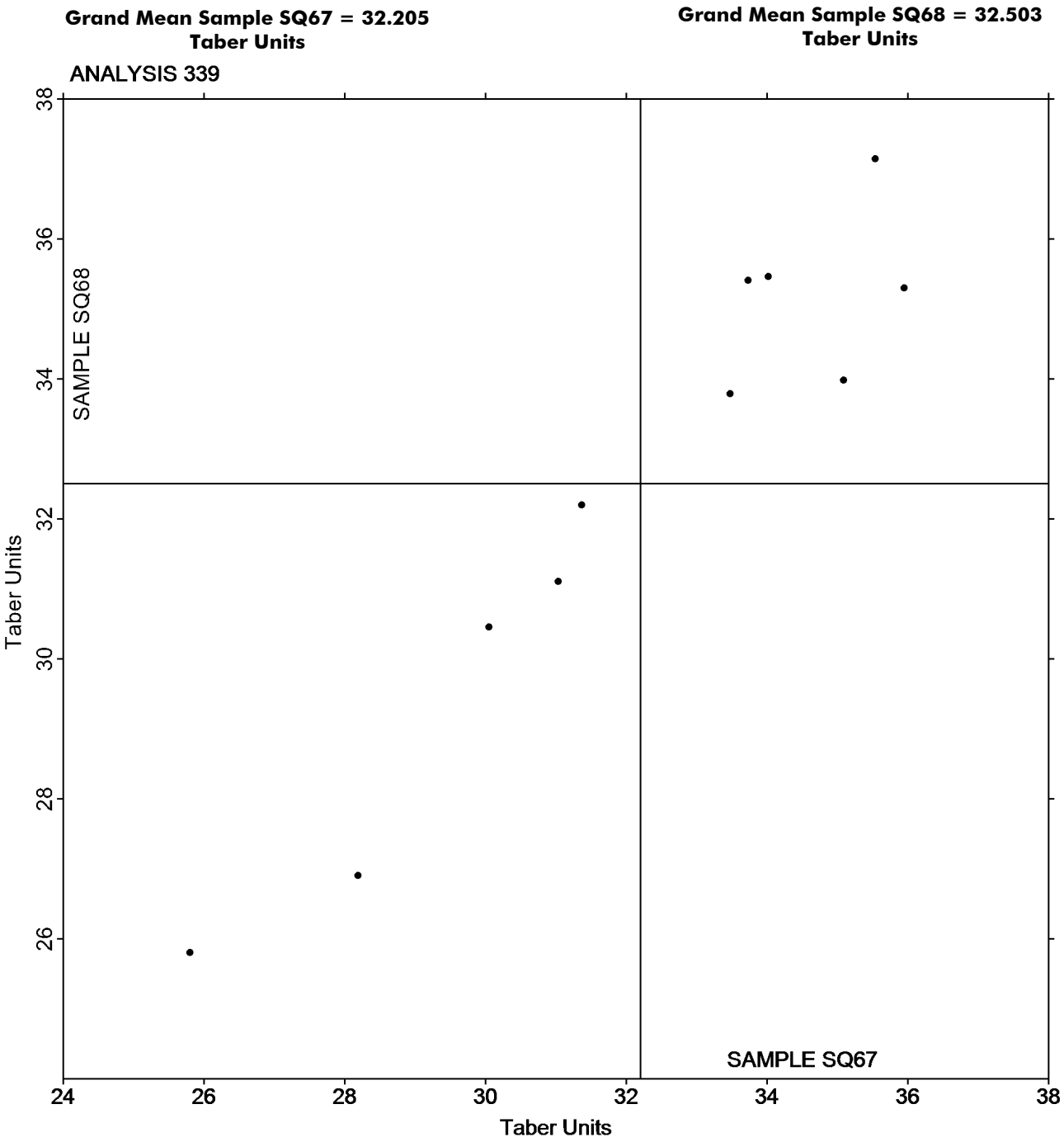
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ67 Lab Mean	Sample SQ67 Diff from Grand Mean	Sample SQ67 CPV	Sample SQ68 Lab Mean	Sample SQ68 Diff from Grand Mean	Sample SQ68 CPV
6W8FHG		33.48	1.27	0.39	33.79	1.28	0.35
8URYWE		31.04	-1.17	-0.36	31.11	-1.40	-0.38
8ZFNDH		25.80	-6.40	-1.98	25.80	-6.70	-1.84
CLKQJA		35.54	3.34	1.03	37.15	4.64	1.27
CTPER3		30.05	-2.15	-0.67	30.45	-2.05	-0.56
JHJ43Z		34.02	1.82	0.56	35.46	2.96	0.81
MZ8JYT		33.73	1.53	0.47	35.41	2.91	0.80
NNPE62		31.37	-0.83	-0.26	32.20	-0.30	-0.08
P8EWUT		35.09	2.89	0.89	33.98	1.48	0.40
Q8DJLQ		35.95	3.75	1.16	35.30	2.80	0.77
ZPH9WR		28.19	-4.01	-1.24	26.90	-5.60	-1.54

Summary Statistics	Sample SQ67	Sample SQ68
Grand Means	32.20 Taber Units	32.50 Taber Units
Stnd Dev Btwn Labs	3.23 Taber Units	3.65 Taber Units

Statistics based on 11 of 11 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 340

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

TAPPI Official Test Method T489

WebCode	Data Flag	Sample ST67 Lab Mean	Sample ST67 Diff from Grand Mean	Sample ST67 CPV	Sample ST68 Lab Mean	Sample ST68 Diff from Grand Mean	Sample ST68 CPV
328WVJ		164.1	0.9	0.06	167.6	4.3	0.34
6W8FHG		164.3	1.1	0.07	163.9	0.6	0.05
8TGXBF		169.8	6.6	0.44	166.9	3.6	0.29
8ZFNDH		150.5	-12.7	-0.85	151.8	-11.5	-0.93
CTPER3	X	290.0	126.8	8.51	148.5	-14.8	-1.19
DKUWQY		172.0	8.7	0.59	169.7	6.4	0.51
FNXP8E		166.8	3.6	0.24	173.0	9.7	0.78
GLLD3H		201.4	38.2	2.56	191.2	27.9	2.24
LMJC7X		161.0	-2.2	-0.15	163.6	0.3	0.02
MZ8JYT	X	30.3	-133.0	-8.92	29.4	-133.9	-10.78
NHZ24D		159.5	-3.7	-0.25	164.6	1.3	0.10
QAFL8L		154.6	-8.6	-0.58	155.6	-7.7	-0.62
TATTP9		166.1	2.9	0.19	166.0	2.7	0.22
VZ4REG		131.3	-31.9	-2.14	136.9	-26.5	-2.13
XKGDYM		164.3	1.1	0.07	165.0	1.7	0.14
XL7NQF		159.5	-3.7	-0.25	150.7	-12.6	-1.02

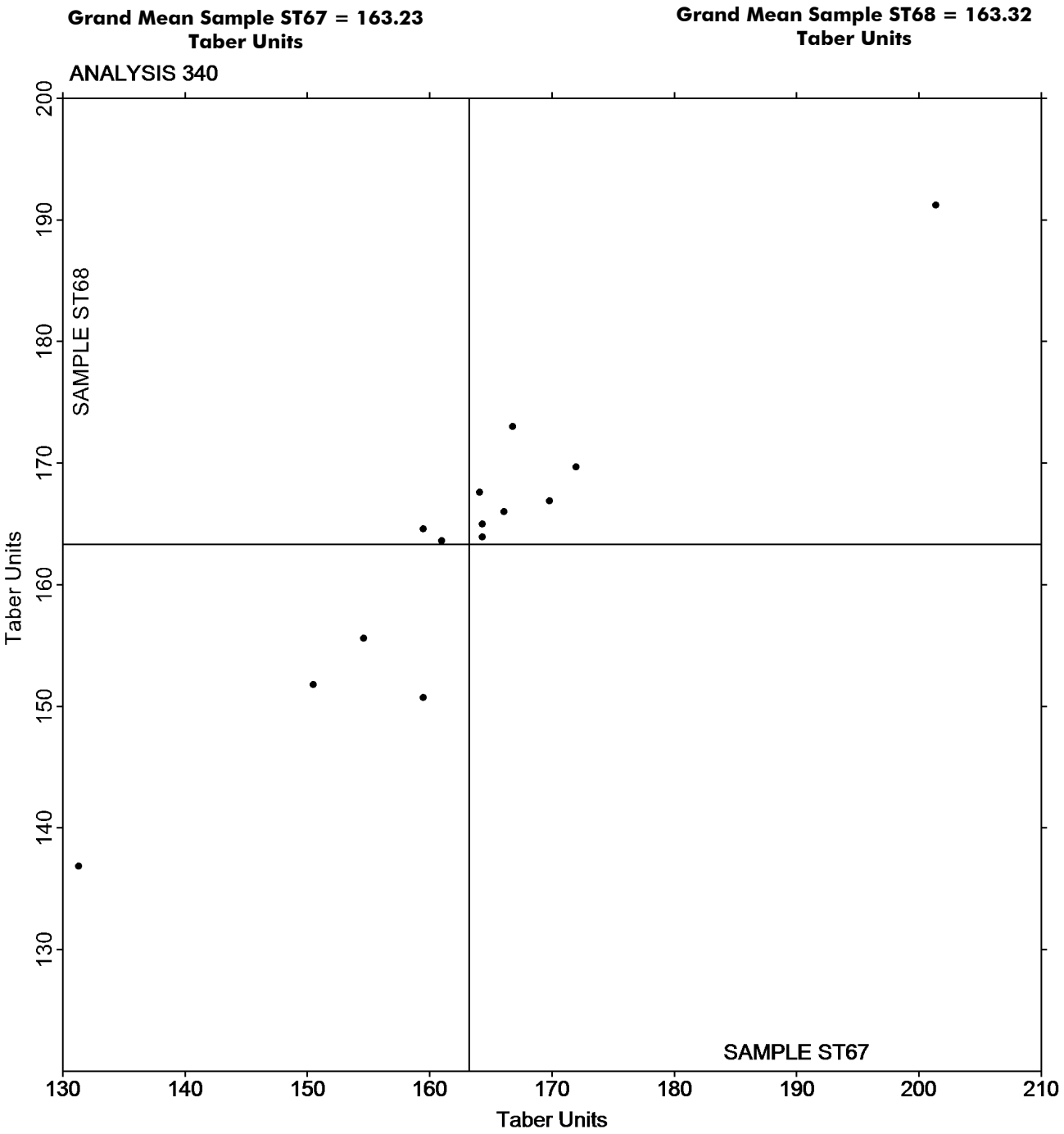
Summary Statistics	Sample ST67	Sample ST68
Grand Means	163.23 Taber Units	163.32 Taber Units
Stnd Dev Btwn Labs	14.91 Taber Units	12.42 Taber Units

Statistics based on 14 of 16 reporting participants.

Comments on Assigned Data Flags for Test #340

CTPER3 (X) - Extreme Data for Sample ST67.

MZ8JYT (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 343
Z-Direction Tensile
TAPPI Official Test Method T541

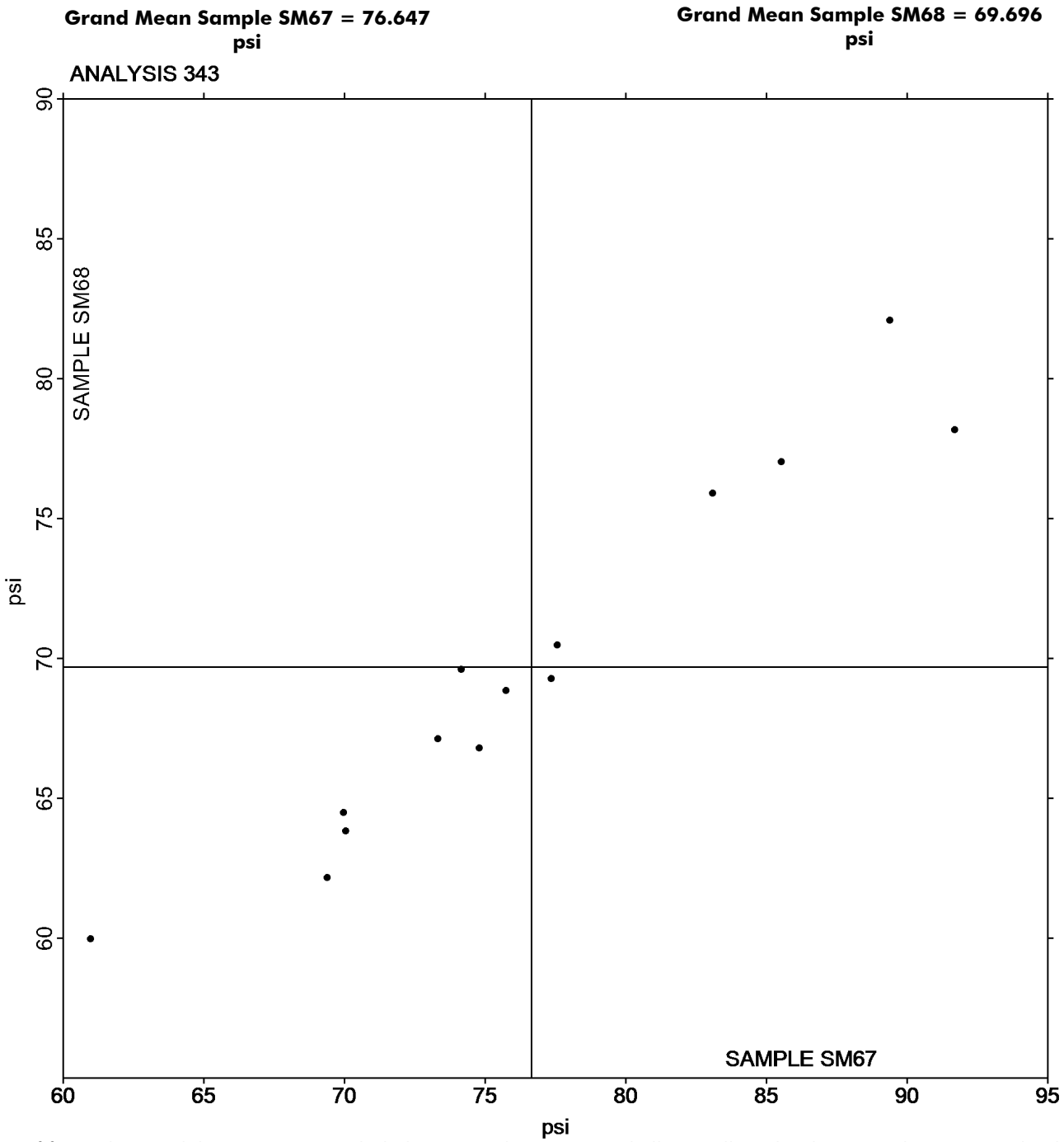
WebCode	Data Flag	Sample SM67 Lab Mean	Sample SM67 Diff from Grand Mean	Sample SM67 CPV	Sample SM68 Lab Mean	Sample SM68 Diff from Grand Mean	Sample SM68 CPV	Instr Code
8URYWE		75.74	-0.91	-0.11	68.85	-0.84	-0.13	LW
CLKQJA		70.04	-6.61	-0.79	63.82	-5.88	-0.91	TA
GXZB8L		74.80	-1.85	-0.22	66.80	-2.90	-0.45	TA
HV742E		73.33	-3.32	-0.39	67.12	-2.57	-0.40	LW
JF7LM2		89.38	12.74	1.52	82.08	12.39	1.91	TL
JHJ43Z		85.54	8.89	1.06	77.02	7.32	1.13	TA
K9P9N2		91.70	15.05	1.79	78.16	8.46	1.31	DX
MZ8JYT		77.56	0.91	0.11	70.48	0.78	0.12	LW
NHZ24D		60.98	-15.67	-1.86	59.98	-9.72	-1.50	LW
P8EWUT		74.16	-2.49	-0.30	69.60	-0.10	-0.01	CD
Q2RNPT		83.10	6.45	0.77	75.90	6.20	0.96	DX
QAFL8L		69.39	-7.26	-0.86	62.16	-7.53	-1.16	LW
V7KJAM		69.98	-6.67	-0.79	64.48	-5.22	-0.80	TA
Y4M97J		77.36	0.71	0.08	69.28	-0.42	-0.06	CD

Summary Statistics	Sample SM67	Sample SM68
Grand Means	76.65 psi	69.70 psi
Stnd Dev Btwn Labs	8.41 psi	6.48 psi

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

CD	CSI CS-163D	DX	Dek-Tron XP2 Series
LW	L & W ZD Tensile Tester	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

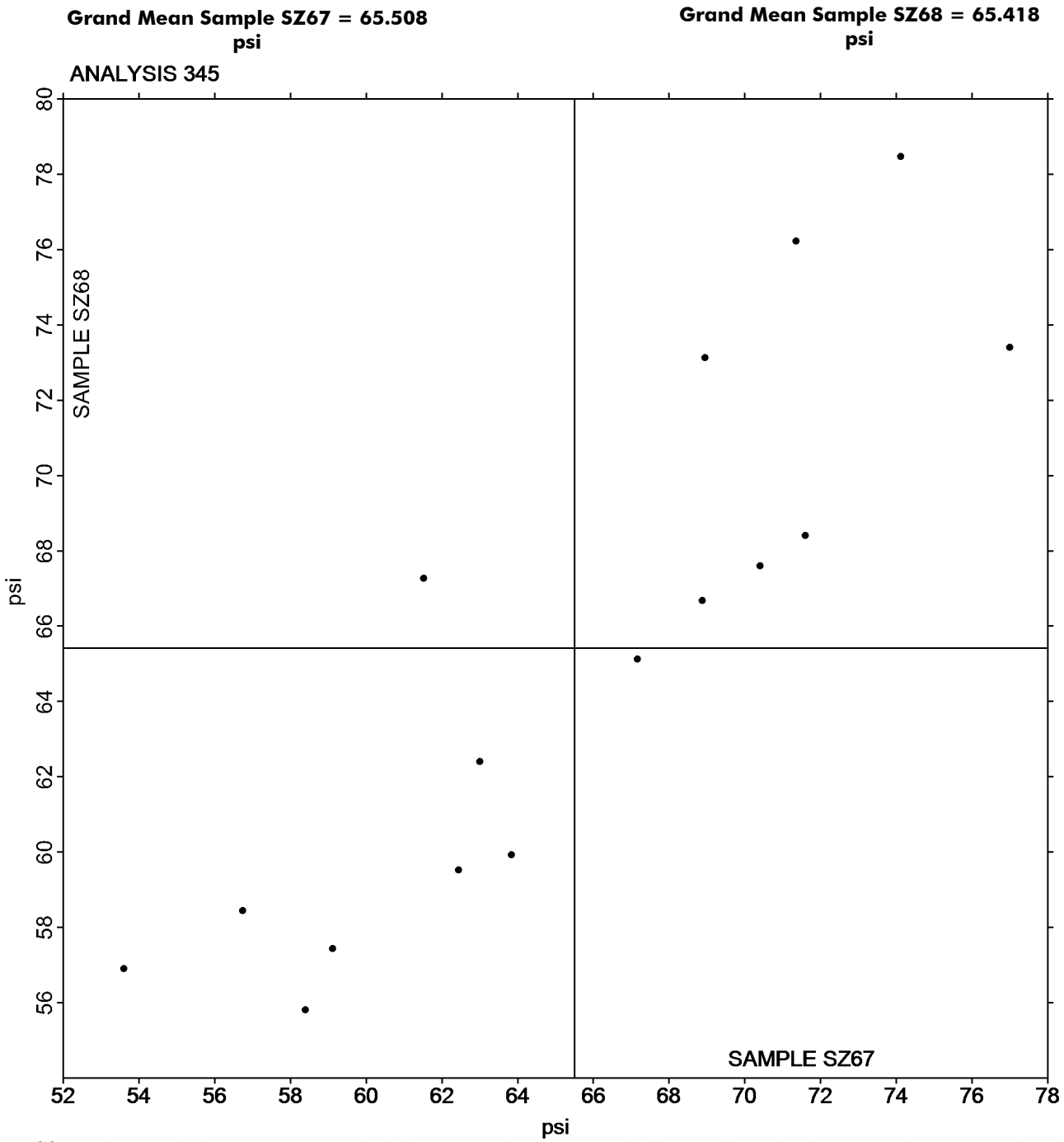
WebCode	Data Flag	Sample SZ67 Lab Mean	Sample SZ67 Diff from Grand Mean	Sample SZ67 CPV	Sample SZ68 Lab Mean	Sample SZ68 Diff from Grand Mean	Sample SZ68 CPV	Instr Code
328WVJ		67.16	1.65	0.25	65.12	-0.30	-0.04	TZ
6W8FHG		63.84	-1.67	-0.25	59.92	-5.50	-0.76	CA
8TGXBF		59.12	-6.39	-0.95	57.44	-7.98	-1.11	CD
9GK9WR		56.74	-8.77	-1.31	58.45	-6.97	-0.97	TA
DKUWQY		62.44	-3.07	-0.46	59.52	-5.90	-0.82	CA
GB86TW		61.52	-3.99	-0.60	67.26	1.84	0.26	LW
KEU7TZ		58.40	-7.11	-1.06	55.80	-9.62	-1.33	CA
L2AX2T		71.36	5.85	0.87	76.22	10.80	1.50	LW
LMJC7X		77.00	11.49	1.72	73.40	7.98	1.11	LW
TATTP9		70.40	4.89	0.73	67.60	2.18	0.30	CH
TCXLHL		68.88	3.37	0.50	66.68	1.26	0.17	DP
TLANXL		74.12	8.61	1.29	78.46	13.04	1.81	LW
X8WMPK		53.60	-11.91	-1.78	56.90	-8.52	-1.18	LW
X9NUJW		68.96	3.45	0.52	73.12	7.71	1.07	CH
XKGDYM		63.00	-2.51	-0.37	62.40	-3.02	-0.42	CA
XL7NQF		71.60	6.09	0.91	68.40	2.98	0.41	TA

Summary Statistics	Sample SZ67	Sample SZ68
Grand Means	65.51 psi	65.42 psi
Stnd Dev Btwn Labs	6.69 psi	7.21 psi

Statistics based on 16 of 16 reporting participants.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
CH	Chatillon Ametek	DP	Dek-Tron XP Series
LW	L & W ZD Tensile Tester	TA	Thwing-Albert Tensile Tester
TZ	TMI Monitor/ZDT Tester		



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SN67 Lab Mean	Sample SN67 Diff from Grand Mean	Sample SN67 CPV	Sample SN68 Lab Mean	Sample SN68 Diff from Grand Mean	Sample SN68 CPV	Instr Code
6LJT47		166.1	-0.2	-0.02	133.2	5.2	0.69	HY
9EUAG9		161.5	-4.8	-0.39	124.0	-4.0	-0.54	HY
9G8NF3		150.8	-15.5	-1.27	116.4	-11.6	-1.56	HY
AHBU3N		164.8	-1.5	-0.12	125.0	-3.0	-0.41	HZ
BMGR7Z		177.6	11.3	0.92	130.6	2.6	0.34	HZ
CLKQJA		194.2	27.9	2.29	147.6	19.6	2.63	HY
DKUWQY		162.8	-3.5	-0.29	130.6	2.6	0.34	HZ
H6G3XB		159.4	-6.9	-0.57	136.6	8.5	1.14	HY
JHJ43Z		179.2	12.9	1.06	131.4	3.4	0.45	HZ
JTWHPY		169.2	2.9	0.24	125.8	-2.2	-0.30	HY
MZ8JYT		167.4	1.1	0.09	122.6	-5.4	-0.73	HY
NHZ24D		149.6	-16.7	-1.37	120.6	-7.4	-1.00	HZ
QMLHQN		172.6	6.3	0.51	124.0	-4.0	-0.54	HY
TB927N		157.2	-9.1	-0.75	120.0	-8.0	-1.08	KR
UKRVLP		147.6	-18.7	-1.53	124.2	-3.8	-0.52	HY
V7KJAM		181.2	14.9	1.22	133.0	5.0	0.67	HY
XL7NQF		166.2	-0.1	-0.01	131.2	3.2	0.42	HY

Summary Statistics	Sample SN67	Sample SN68
Grand Means	166.32 1000th ft-lbs	128.05 1000th ft-lbs
Stnd Dev Btwn Labs	12.20 1000th ft-lbs	7.45 1000th ft-lbs

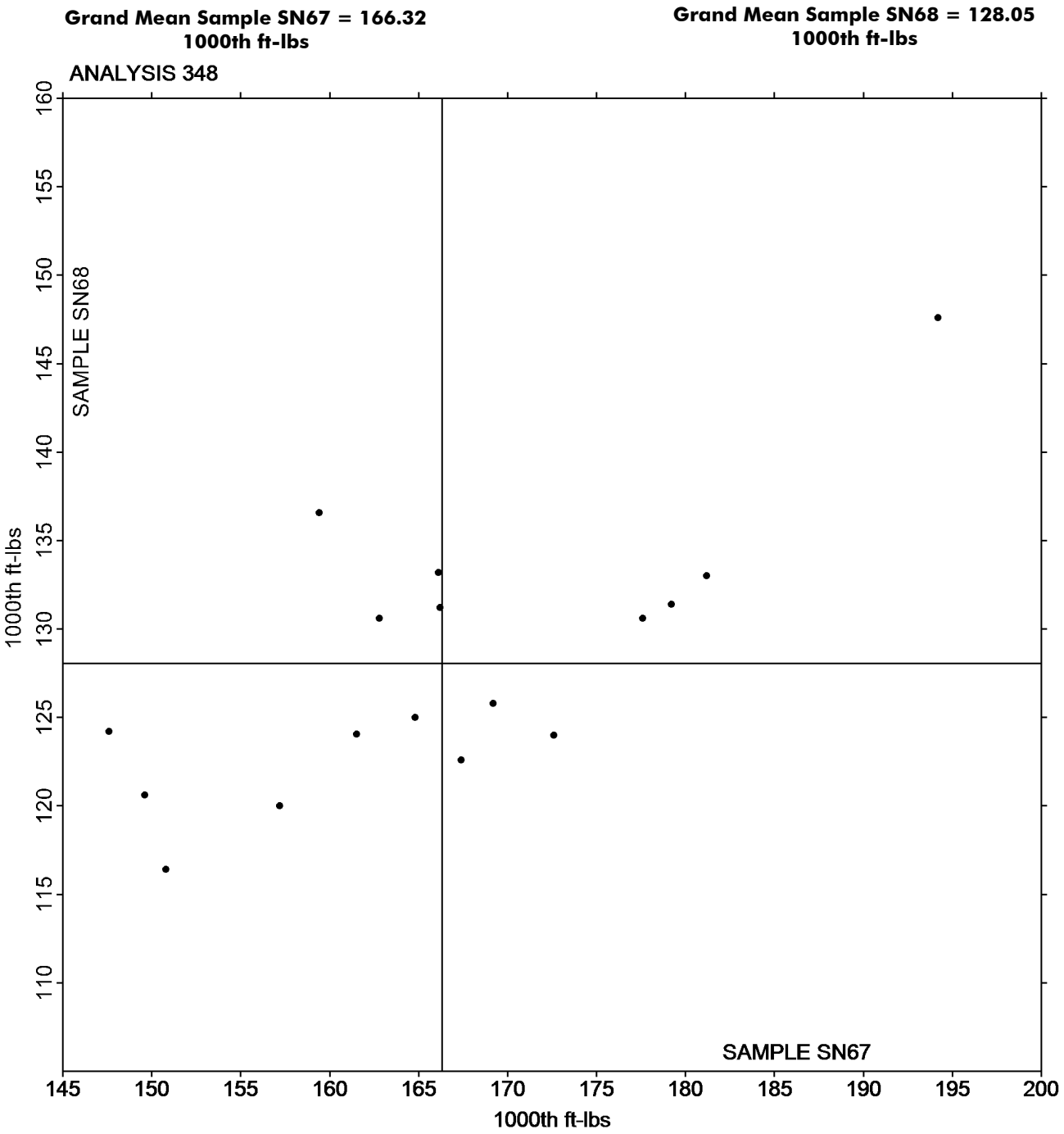
Statistics based on 17 of 17 reporting participants.

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



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 SP67 Lab Mean	Sample SP67 Diff from Grand Mean	Sample SP67 CPV	Sample SP68 Lab Mean	Sample SP68 Diff from Grand Mean	Sample SP68 CPV	Instr Code
3A22PK		216.0	49.9	1.43	197.0	34.4	1.11	SC
7XUHKM		164.8	-1.3	-0.04	163.2	0.6	0.02	SC
8G33X2		130.7	-35.4	-1.01	132.9	-29.7	-0.96	XX
A4MWTC		213.0	46.9	1.34	204.0	41.4	1.34	SC
CTPER3		202.2	36.2	1.04	198.1	35.5	1.15	XX
GB86TW		145.2	-20.9	-0.60	151.4	-11.2	-0.36	XX
PXUQV4		152.4	-13.7	-0.39	151.3	-11.3	-0.37	TM
QAFL8L		111.0	-55.1	-1.58	105.8	-56.8	-1.84	TM
QUQA28		167.1	1.0	0.03	165.9	3.3	0.11	TM
X9NUJW		158.4	-7.7	-0.22	156.4	-6.2	-0.20	TM

Summary Statistics	Sample SP67	Sample SP68
Grand Means	166.08 1000th ft-lbs	162.60 1000th ft-lbs
Stnd Dev Btwn Labs	34.93 1000th ft-lbs	30.86 1000th ft-lbs

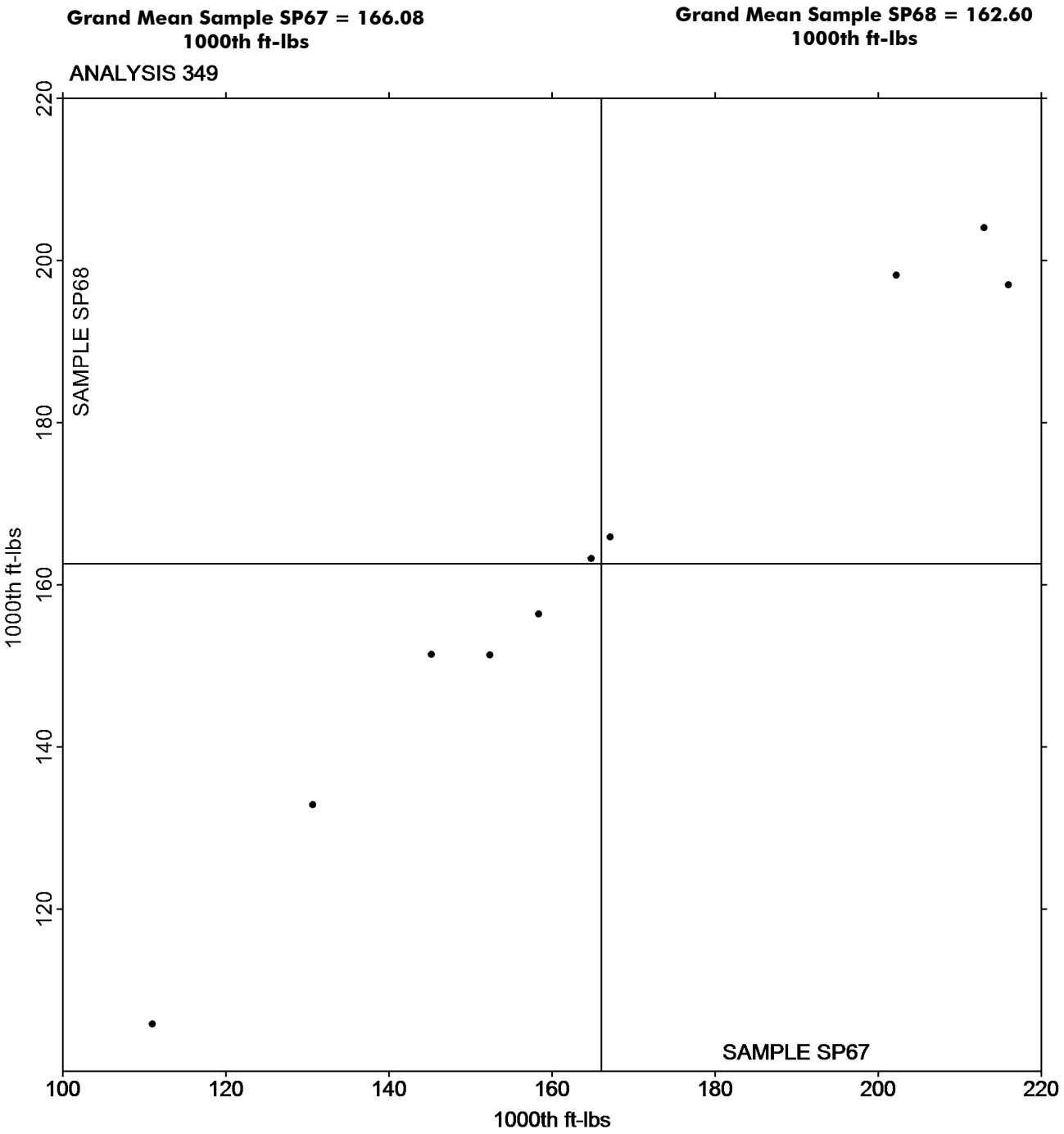
Statistics based on 10 of 10 reporting participants.

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.

-End of Report-

