Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3111 S - March 2021

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310	Bursting Strength - Packaging Papers
312	Tearing Strength - Printing Papers
314	Tearing Strength - Packaging Papers
320	Tensile Breaking Strength - Newsprint
321	Tensile Energy Absorption - Newsprint
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325	Tensile Breaking Strength - Printing Papers
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334	Folding Endurance (MIT) - Double Folds
336	Bending Resistance, Gurley Type
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The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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

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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.

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

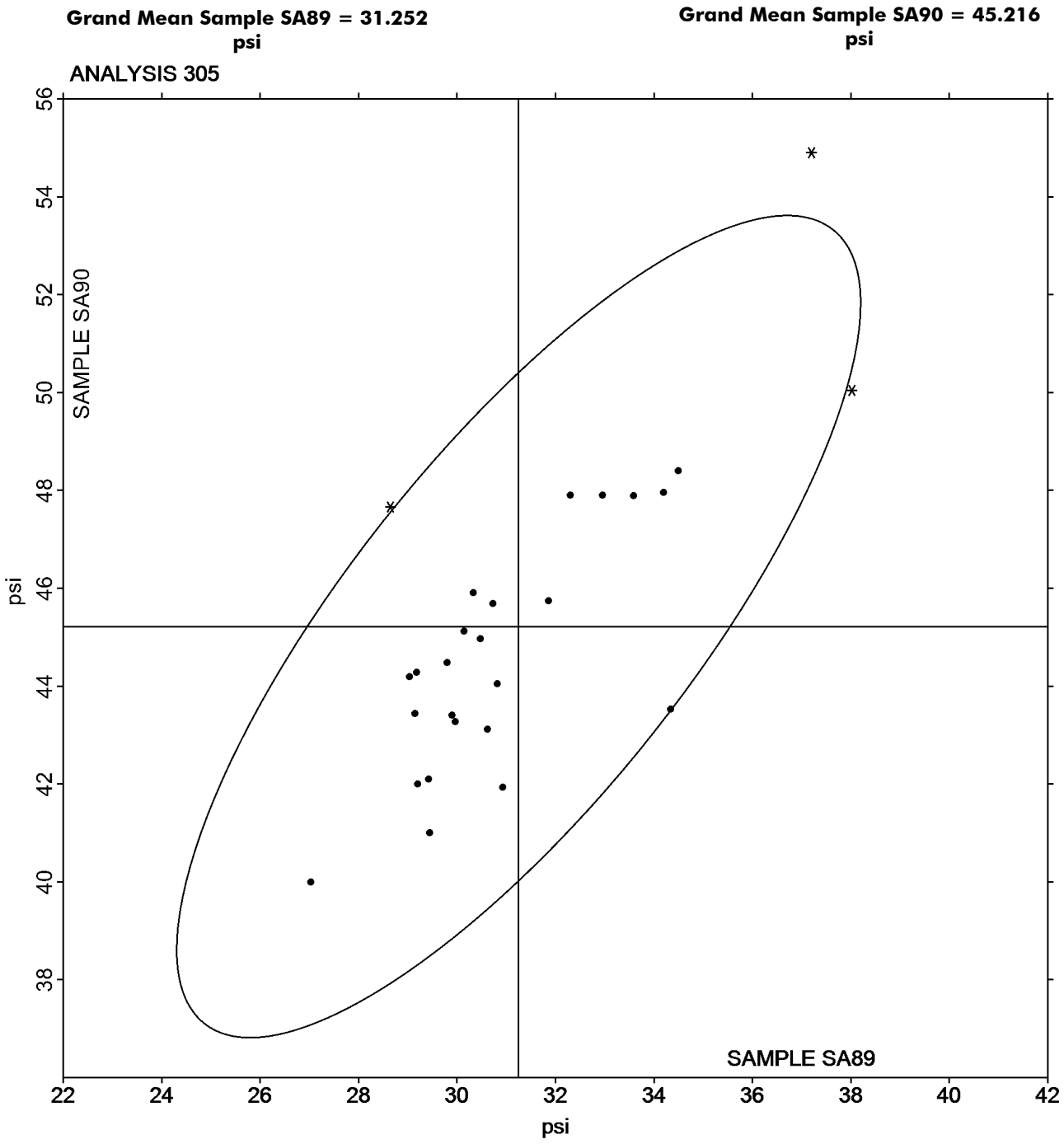
WebCode	Data Flag	Sample SA89 Lab Mean	Sample SA89 Diff from Grand Mean	Sample SA89 CPV	Sample SA90 Lab Mean	Sample SA90 Diff from Grand Mean	Sample SA90 CPV
3PHR3B		29.80	-1.45	-0.56	44.48	-0.74	-0.23
434PGE		29.04	-2.21	-0.85	44.19	-1.02	-0.32
4PC3BJ		31.86	0.61	0.23	45.74	0.53	0.17
64DVHL		30.93	-0.32	-0.12	41.93	-3.29	-1.04
7KWAB4		34.34	3.09	1.18	43.53	-1.69	-0.53
8KQE64		30.47	-0.78	-0.30	44.96	-0.25	-0.08
9WXLJE		32.96	1.71	0.65	47.90	2.68	0.85
AFQU9X		29.42	-1.83	-0.70	42.10	-3.12	-0.98
CU2A8Y		30.82	-0.43	-0.17	44.05	-1.17	-0.37
D9GPRA		30.73	-0.52	-0.20	45.68	0.46	0.15
EB2WRW		33.59	2.34	0.89	47.89	2.67	0.84
ETFDUP		29.90	-1.35	-0.52	43.40	-1.82	-0.57
EV4WVM		30.14	-1.11	-0.42	45.12	-0.09	-0.03
GEPKZY		29.97	-1.29	-0.49	43.27	-1.95	-0.62
GK2BLT		29.15	-2.10	-0.80	43.44	-1.78	-0.56
HHNVWY		29.44	-1.81	-0.69	41.00	-4.21	-1.33
J8MURT		27.04	-4.22	-1.61	40.00	-5.22	-1.65
K9TWV4		34.50	3.25	1.24	48.40	3.18	1.01
KFBCGL		29.20	-2.05	-0.78	42.00	-3.22	-1.02
LNXTLF	*	28.65	-2.61	-1.00	47.66	2.44	0.77
M28J8N	*	37.20	5.95	2.27	54.90	9.68	3.06
QQE7LL		32.30	1.05	0.40	47.90	2.68	0.85
TVJWV6	*	38.02	6.77	2.59	50.04	4.82	1.52
UJGVV7		30.33	-0.92	-0.35	45.91	0.69	0.22
WCT8VL		30.62	-0.63	-0.24	43.12	-2.10	-0.66
Z8AXEY		34.20	2.95	1.13	47.95	2.73	0.86
ZW9NPP		29.18	-2.07	-0.79	44.28	-0.94	-0.30

Summary Statistics	Sample SA89	Sample SA90
Grand Means	31.25 psi	45.22 psi
Stnd Dev Btwn Labs	2.62 psi	3.16 psi

Statistics based on 27 of 27 reporting participants.

Analysis Notes:

D9GPRA - Data appear to be reported as kPa, not psi as indicated on data entry form. CTS will not correct the Units going forward.



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

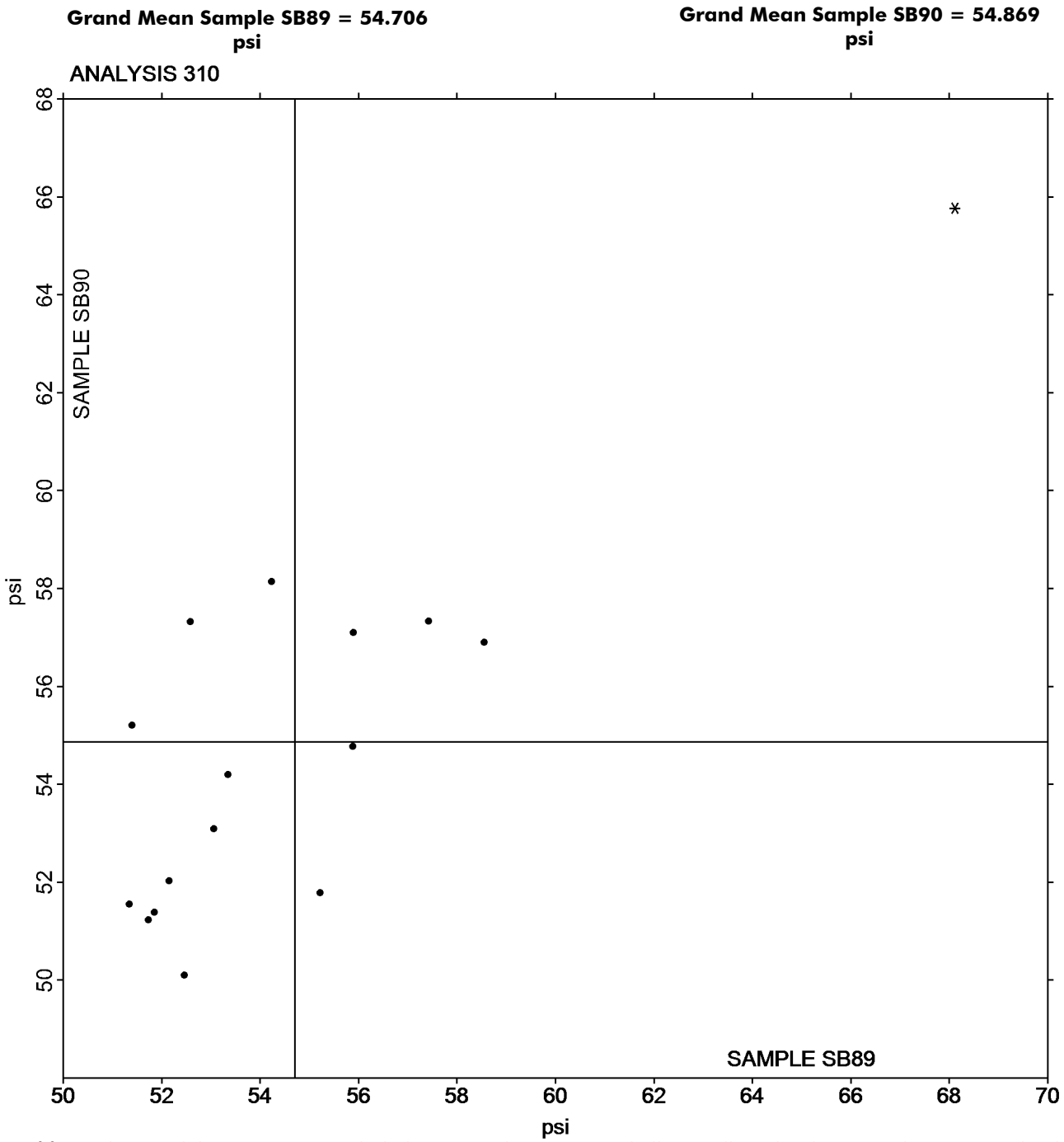
Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB89 Lab Mean	Sample SB89 Diff from Grand Mean	Sample SB89 CPV	Sample SB90 Lab Mean	Sample SB90 Diff from Grand Mean	Sample SB90 CPV
2FX8HM	*	68.11	13.41	3.19	65.77	10.90	2.78
2JCY9F		57.43	2.72	0.65	57.33	2.46	0.63
4PC3BJ		53.06	-1.64	-0.39	53.09	-1.78	-0.45
8KQE64		51.74	-2.97	-0.71	51.23	-3.64	-0.93
F9QHEM		51.35	-3.36	-0.80	51.55	-3.32	-0.85
GEAYQX		55.90	1.19	0.28	57.10	2.23	0.57
KHE3LF		53.35	-1.36	-0.32	54.20	-0.67	-0.17
MX3ZZF		51.40	-3.31	-0.79	55.20	0.33	0.08
MXJ77X		51.85	-2.85	-0.68	51.39	-3.48	-0.89
QA4MMU		52.47	-2.24	-0.53	50.10	-4.77	-1.21
TDG8KU		54.23	-0.48	-0.11	58.14	3.27	0.83
TNXUWF		55.89	1.18	0.28	54.77	-0.10	-0.02
TVJWV6		58.56	3.85	0.92	56.90	2.03	0.52
UJ4EKD		55.22	0.52	0.12	51.78	-3.09	-0.79
UJGVV7		52.15	-2.56	-0.61	52.03	-2.84	-0.72
ZCYNHA		52.58	-2.12	-0.51	57.32	2.45	0.63

Summary Statistics	Sample SB89	Sample SB90
Grand Means	54.71 psi	54.87 psi
Stnd Dev Btwn Labs	4.20 psi	3.93 psi

Statistics based on 16 of 16 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 SC89 Lab Mean	Sample SC89 Diff from Grand Mean	Sample SC89 CPV	Sample SC90 Lab Mean	Sample SC90 Diff from Grand Mean	Sample SC90 CPV
2FX8HM		65.02	1.23	0.28	62.40	-1.15	-0.25
2JCY9F		57.49	-6.29	-1.41	58.34	-5.21	-1.11
434PGE		66.98	3.19	0.72	65.48	1.93	0.41
4FRQXL		56.26	-7.52	-1.69	57.68	-5.87	-1.25
4PC3BJ		67.28	3.50	0.79	66.89	3.35	0.72
64DVHL		61.70	-2.08	-0.47	59.70	-3.85	-0.82
7JHR9Y		71.05	7.27	1.63	72.91	9.36	2.00
7KWAB4		57.62	-6.16	-1.39	56.56	-6.99	-1.49
7QMLB8		62.74	-1.04	-0.23	63.15	-0.40	-0.08
82FM32		69.43	5.65	1.27	67.23	3.68	0.79
87VXF6		64.44	0.66	0.15	65.02	1.47	0.31
8KQE64		62.93	-0.86	-0.19	62.32	-1.23	-0.26
9YZRRT		58.70	-5.08	-1.14	56.34	-7.21	-1.54
D9GPRA		64.20	0.42	0.09	65.08	1.53	0.33
DMBGBP		67.20	3.42	0.77	68.60	5.05	1.08
EB2WRW		67.30	3.52	0.79	68.39	4.84	1.04
ETFDUP		56.43	-7.35	-1.65	54.54	-9.01	-1.93
EV4WVM		62.72	-1.06	-0.24	63.30	-0.25	-0.05
F9QHEM		56.79	-6.99	-1.57	56.45	-7.10	-1.52
FCRJKC		62.22	-1.56	-0.35	61.84	-1.71	-0.37
G7UKJL		61.74	-2.04	-0.46	62.12	-1.43	-0.31
GEAYQX		67.20	3.42	0.77	68.60	5.05	1.08
GEPKZY		62.33	-1.45	-0.33	65.11	1.56	0.33
GK2BLT		68.55	4.77	1.07	68.99	5.44	1.16
HNVM2Q	X	83.29	19.51	4.38	83.58	20.03	4.28
JJDRUR		64.70	0.92	0.21	64.36	0.81	0.17
KHE3LF		55.77	-8.01	-1.80	56.39	-7.16	-1.53
M28J8N		64.40	0.62	0.14	63.80	0.25	0.05
M2L6GQ		59.60	-4.18	-0.94	59.60	-3.95	-0.84
MXJ77X		65.13	1.35	0.30	65.34	1.80	0.38
N7WHYP		65.67	1.89	0.42	63.83	0.28	0.06
N8NJXL		65.50	1.72	0.39	62.30	-1.25	-0.27
PYP98M		61.26	-2.52	-0.57	58.99	-4.56	-0.97
Q38X3J		56.08	-7.70	-1.73	55.72	-7.83	-1.67
QQE7LL		66.13	2.35	0.53	67.54	3.99	0.85
RFP7Z9		71.33	7.54	1.70	69.31	5.77	1.23
RPXGR9		72.16	8.37	1.88	72.05	8.51	1.82
UCHL9E		59.63	-4.15	-0.93	59.69	-3.86	-0.82
UFGKZ7		67.88	4.10	0.92	69.40	5.85	1.25
UJ4EKD		69.90	6.12	1.38	68.65	5.10	1.09

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC89 Lab Mean	Sample SC89 Diff from Grand Mean	Sample SC89 CPV	Sample SC90 Lab Mean	Sample SC90 Diff from Grand Mean	Sample SC90 CPV
WCT8VL		67.04	3.25	0.73	65.57	2.02	0.43
X9QN9D		62.80	-0.98	-0.22	61.40	-2.15	-0.46
YZB6ND		62.42	-1.36	-0.31	64.20	0.65	0.14
Z8AXEY	X	32.00	-31.78	-7.14	39.00	-24.55	-5.25
ZW9NPP		67.00	3.22	0.72	67.36	3.81	0.82

Summary Statistics	Sample SC89	Sample SC90
Grand Means	63.78 Grams	63.55 Grams
Stnd Dev Btwn Labs	4.45 Grams	4.68 Grams

Statistics based on 43 of 45 reporting participants.

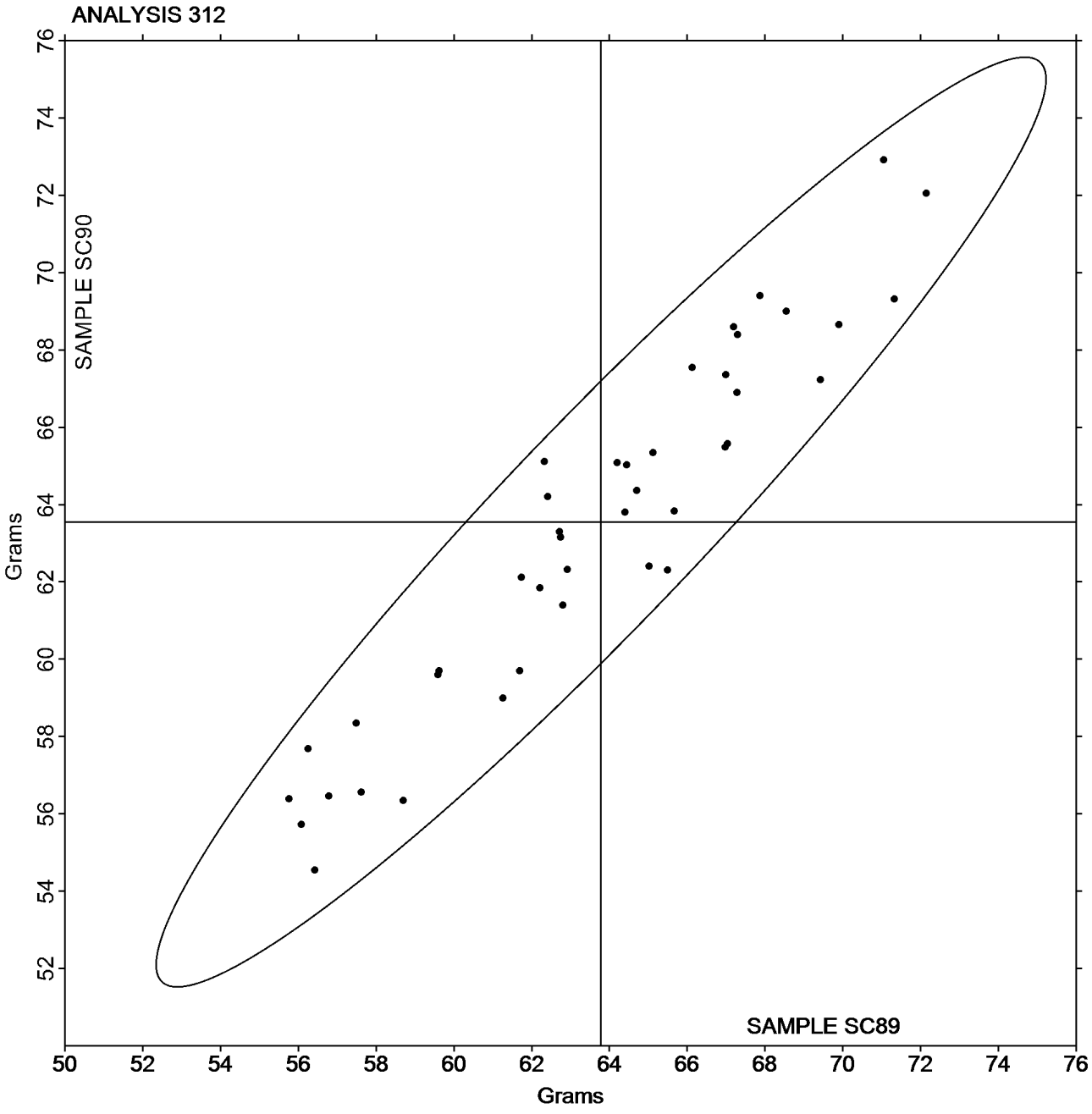
Comments on Assigned Data Flags for Test #312

HNVM2Q (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

Z8AXEY (X) - Extreme Data.

Grand Mean Sample SC89 = 63.784 Grams

Grand Mean Sample SC90 = 63.547 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD89 Lab Mean	Sample SD89 Diff from Grand Mean	Sample SD89 CPV	Sample SD90 Lab Mean	Sample SD90 Diff from Grand Mean	Sample SD90 CPV
3QAT38		168.6	-0.6	-0.04	165.7	-3.5	-0.24
4PC3BJ		175.5	6.4	0.46	176.8	7.7	0.53
6C6CAB		146.5	-22.6	-1.63	144.7	-24.5	-1.70
7FHGCY		151.3	-17.8	-1.28	146.4	-22.8	-1.57
7QMLB8		168.8	-0.4	-0.03	167.8	-1.4	-0.10
8CZVPA	*	188.4	19.3	1.39	200.1	30.9	2.14
8YAYMC		164.5	-4.6	-0.33	166.4	-2.8	-0.20
9PYW2B		187.4	18.3	1.32	187.4	18.2	1.26
AFQU9X		145.7	-23.4	-1.69	146.3	-22.8	-1.58
BZUYBW		175.8	6.6	0.48	175.2	6.0	0.41
CU2A8Y		157.8	-11.3	-0.81	156.2	-13.0	-0.90
CZRJGW		186.5	17.3	1.25	184.6	15.4	1.06
DR82GU		173.1	3.9	0.28	176.6	7.5	0.52
FM8DUJ	X	162.4	-6.8	-0.49	144.3	-24.9	-1.72
G7YW6W	*	126.7	-42.4	-3.06	130.0	-39.1	-2.71
GEAYQX		167.2	-2.0	-0.14	166.4	-2.8	-0.19
J8MURT		173.1	3.9	0.28	169.0	-0.2	-0.01
JATDUV		173.3	4.1	0.30	181.4	12.2	0.84
KFBCGL		162.8	-6.4	-0.46	162.6	-6.6	-0.46
NHQYNQ		180.5	11.4	0.82	176.4	7.2	0.50
PH4PAF		170.0	0.8	0.06	168.7	-0.5	-0.03
PWKKRX		154.2	-15.0	-1.08	151.4	-17.8	-1.23
QA4MMU		154.6	-14.6	-1.05	154.8	-14.4	-0.99
QMAQ6H	X	162.1	-7.1	-0.51	198.7	29.5	2.04
QV7FRD		172.5	3.4	0.24	166.0	-3.2	-0.22
TDG8KU		175.8	6.7	0.48	173.9	4.7	0.33
TKYHZF		174.1	5.0	0.36	171.0	1.8	0.12
TNXUWF		169.0	-0.1	-0.01	169.0	-0.2	-0.01
TVJWV6		170.8	1.6	0.12	178.8	9.6	0.67
UJ4EKD		177.2	8.0	0.58	179.9	10.7	0.74
UJGVV7		188.8	19.6	1.41	191.5	22.3	1.54
UPNJDE		172.4	3.3	0.23	175.0	5.8	0.40
UYQ2NG		183.0	13.9	1.00	182.7	13.6	0.94
VKPKDA		141.5	-27.7	-1.99	147.0	-22.2	-1.53
WYQENH		179.2	10.0	0.72	180.0	10.8	0.75
X9QN9D		175.3	6.1	0.44	171.6	2.4	0.17
XYH2C7		183.8	14.7	1.06	179.7	10.5	0.73
YWEHXB		170.6	1.5	0.11	172.8	3.6	0.25
ZCYNHA		172.2	3.0	0.22	166.1	-3.1	-0.22

Summary Statistics	Sample SD89	Sample SD90
Grand Means	169.15 Grams	169.18 Grams
Stnd Dev Btwn Labs	13.89 Grams	14.45 Grams

Statistics based on 37 of 39 reporting participants.

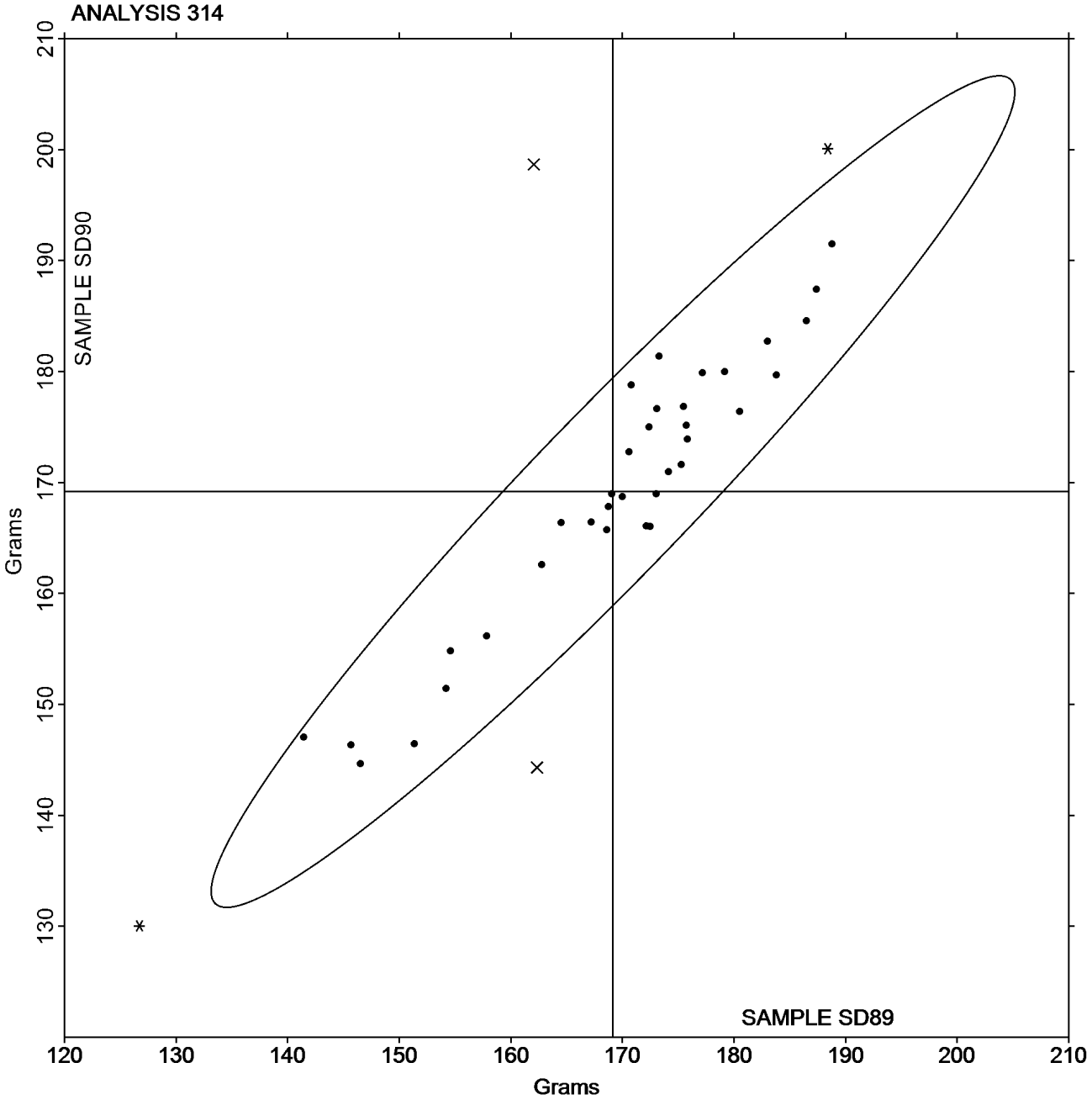
Comments on Assigned Data Flags for Test #314

FM8DUJ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

QMAQ6H (X) - Inconsistent in testing between samples.

Grand Mean Sample SD89 = 169.15 Grams

Grand Mean Sample SD90 = 169.18 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

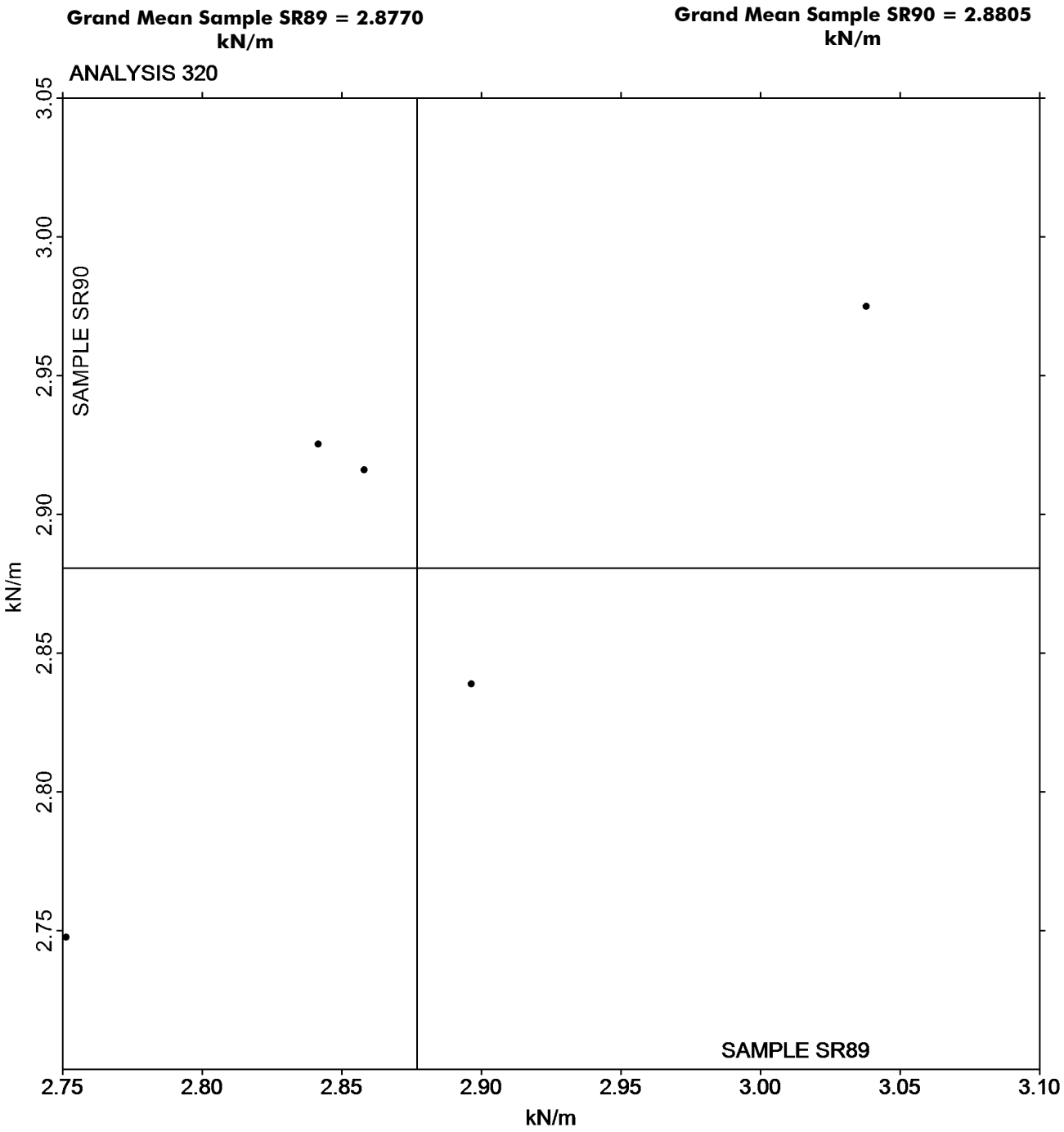
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR89 Lab Mean	Sample SR89 Diff from Grand Mean	Sample SR89 CPV	Sample SR90 Lab Mean	Sample SR90 Diff from Grand Mean	Sample SR90 CPV
3PHR3B		2.751	-0.126	-1.20	2.748	-0.133	-1.50
64DVHL		2.842	-0.035	-0.34	2.925	0.045	0.50
7QMLB8		2.896	0.019	0.19	2.839	-0.042	-0.47
8KQE64		2.858	-0.019	-0.18	2.916	0.035	0.40
PWKKRX		3.038	0.161	1.54	2.975	0.094	1.06

Summary Statistics	Sample SR89	Sample SR90
Grand Means	2.88 kN/m	2.88 kN/m
Stnd Dev Btwn Labs	0.10 kN/m	0.09 kN/m

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 321

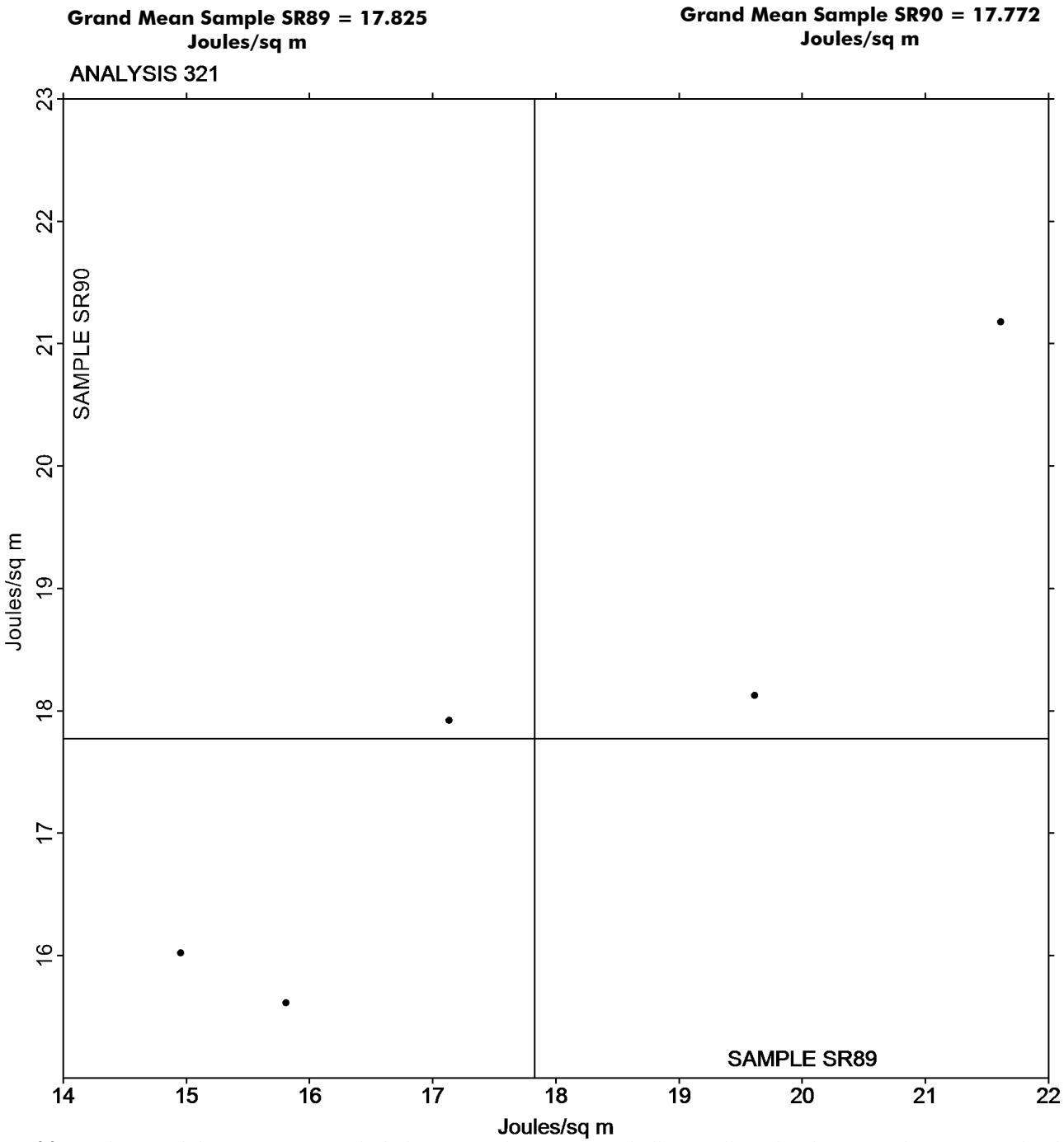
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR89 Lab Mean	Sample SR89 Diff from Grand Mean	Sample SR89 CPV	Sample SR90 Lab Mean	Sample SR90 Diff from Grand Mean	Sample SR90 CPV
3PHR3B		15.81	-2.01	-0.73	15.61	-2.16	-0.98
64DVHL		17.13	-0.69	-0.25	17.92	0.15	0.07
7QMLB8		19.61	1.79	0.65	18.13	0.35	0.16
8KQE64		14.96	-2.87	-1.04	16.02	-1.75	-0.79
PWKKRX		21.61	3.79	1.38	21.18	3.40	1.54

Summary Statistics	Sample SR89	Sample SR90
Grand Means	17.83 Joules/sq m	17.77 Joules/sq m
Stnd Dev Btwn Labs	2.75 Joules/sq m	2.21 Joules/sq m

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.

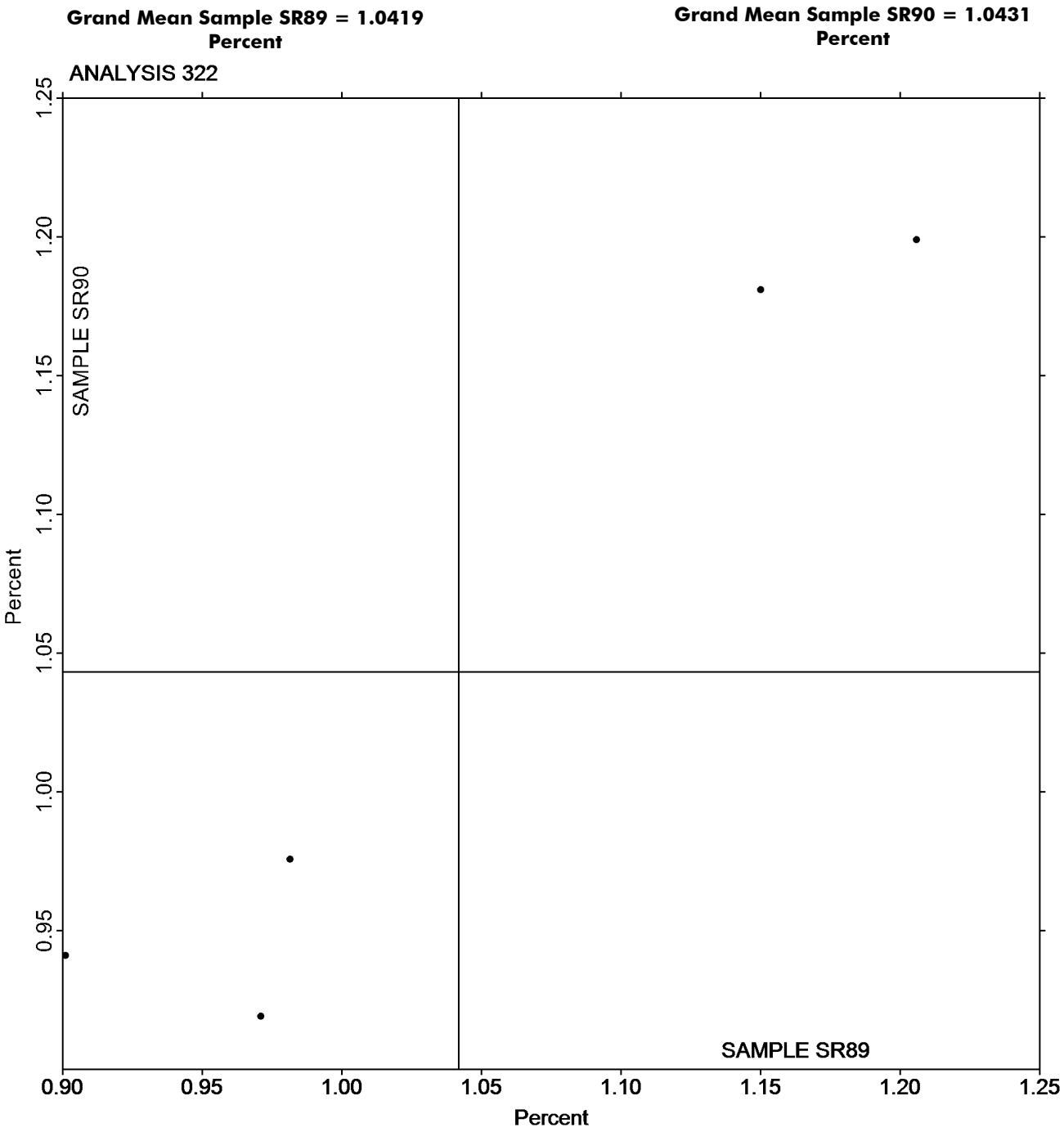
Paper & Paperboard Interlaboratory Testing Program

Analysis 322
Elongation to Break - Newsprint
TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR89 Lab Mean	Sample SR89 Diff from Grand Mean	Sample SR89 CPV	Sample SR90 Lab Mean	Sample SR90 Diff from Grand Mean	Sample SR90 CPV
3PHR3B		0.981	-0.060	-0.47	0.976	-0.068	-0.50
64DVHL		1.150	0.108	0.83	1.181	0.138	1.02
7QMLB8		0.971	-0.071	-0.55	0.919	-0.124	-0.91
8KQE64		0.901	-0.141	-1.09	0.941	-0.102	-0.75
PWKKRX		1.206	0.164	1.27	1.199	0.156	1.15

Summary Statistics	Sample SR89	Sample SR90
Grand Means	1.04 Percent	1.04 Percent
Stnd Dev Btwn Labs	0.13 Percent	0.14 Percent

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 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF89 Lab Mean	Sample SF89 Diff from Grand Mean	Sample SF89 CPV	Sample SF90 Lab Mean	Sample SF90 Diff from Grand Mean	Sample SF90 CPV	Instr Code
434PGE		7.362	0.460	1.26	7.371	0.453	1.29	LI
4FRQXL	X	3.342	-3.559	-9.71	3.170	-3.748	-10.66	TB
4PC3BJ		6.748	-0.153	-0.42	6.860	-0.058	-0.16	LH
73W7QT		7.334	0.433	1.18	7.453	0.536	1.52	LE
7JHR9Y	X	5.986	-0.916	-2.50	6.583	-0.335	-0.95	TO
7KWAB4	*	6.790	-0.112	-0.31	7.222	0.304	0.87	TJ
82FM32		6.102	-0.800	-2.18	6.097	-0.820	-2.33	IM
87VXF6		6.753	-0.149	-0.41	6.555	-0.363	-1.03	LE
8KQE64		6.747	-0.155	-0.42	6.829	-0.089	-0.25	LH
9YZRRT		6.825	-0.077	-0.21	7.082	0.164	0.47	TO
EB2WRW		7.179	0.277	0.76	7.204	0.286	0.81	TP
EKL6D6		6.412	-0.490	-1.34	6.646	-0.272	-0.77	RE
EMQ3FK		6.374	-0.528	-1.44	6.366	-0.552	-1.57	XX
ETFDUP		6.828	-0.074	-0.20	6.869	-0.049	-0.14	IN
EV4WVM		6.792	-0.110	-0.30	6.885	-0.033	-0.09	LX
G7UKJL		6.996	0.095	0.26	6.995	0.077	0.22	TO
GEPKZY		7.337	0.436	1.19	7.358	0.440	1.25	LX
GK2BLT		7.041	0.140	0.38	6.982	0.065	0.18	LH
HHNVWY		7.114	0.212	0.58	7.162	0.244	0.69	LH
HNVM2Q		7.637	0.736	2.01	7.537	0.619	1.76	LB
KHE3LF		7.274	0.373	1.02	7.402	0.485	1.38	TF
LFUD4N		6.088	-0.814	-2.22	6.214	-0.704	-2.00	ID
LNXTLF		7.277	0.376	1.02	7.059	0.141	0.40	LH
M28J8N		6.375	-0.526	-1.43	6.388	-0.529	-1.51	TO
M2L6GQ		6.871	-0.030	-0.08	6.747	-0.171	-0.49	FP
MU82UX		7.184	0.282	0.77	7.091	0.173	0.49	FP
MXJ77X		6.723	-0.179	-0.49	6.698	-0.220	-0.63	LH
N7WHYP		7.145	0.243	0.66	6.996	0.078	0.22	LI
N8NJXL		6.989	0.087	0.24	7.139	0.221	0.63	TC
PYP98M		6.809	-0.093	-0.25	6.830	-0.088	-0.25	VM
Q38X3J		7.158	0.257	0.70	7.115	0.197	0.56	LI
QBERYX		6.786	-0.115	-0.31	6.763	-0.155	-0.44	TV
QQE7LL		6.755	-0.147	-0.40	6.848	-0.070	-0.20	LH
RPXGR9		7.284	0.382	1.04	7.279	0.361	1.03	LA
UCHL9E		7.096	0.194	0.53	7.025	0.107	0.30	LX
UFGKZ7		7.563	0.662	1.80	7.369	0.451	1.28	XX
WCT8VL		7.178	0.276	0.75	7.309	0.391	1.11	LF
WH2BZ2		6.982	0.081	0.22	6.970	0.052	0.15	XX
YWEHXB		6.784	-0.118	-0.32	6.555	-0.363	-1.03	LI
YZB6ND		6.498	-0.404	-1.10	6.680	-0.238	-0.68	TF

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF89 Lab Mean	Sample SF89 Diff from Grand Mean	Sample SF89 CPV	Sample SF90 Lab Mean	Sample SF90 Diff from Grand Mean	Sample SF90 CPV	Instr Code
Z8AXEY		6.908	0.007	0.02	6.770	-0.148	-0.42	IN
ZKE839		6.488	-0.414	-1.13	6.443	-0.475	-1.35	LA
ZW9NPP		6.378	-0.524	-1.43	6.468	-0.450	-1.28	TF

Summary Statistics	Sample SF89	Sample SF90
Grand Means	6.90 kN/m	6.92 kN/m
Stnd Dev Btwn Labs	0.37 kN/m	0.35 kN/m

Statistics based on 41 of 43 reporting participants.

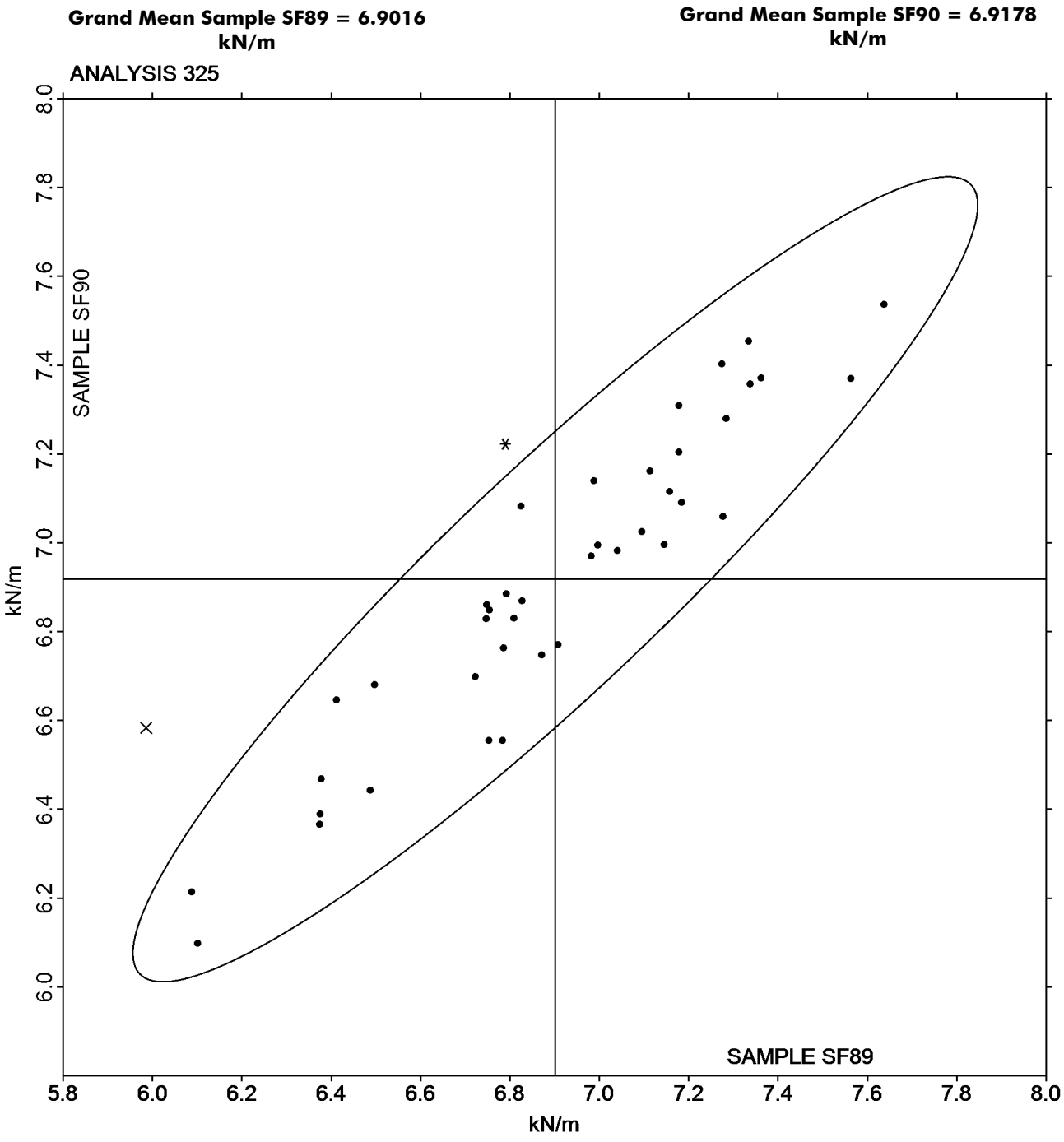
Comments on Assigned Data Flags for Test #325

4FRQXL (X) - Extreme Data.

7JHR9Y (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IM	Instron 5500 Series	IN	Instron 3340 series
LA	L & W Tensile - Autoline 300	LB	L & W Tensile - Autoline 400
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)
TV	Thwing-Albert Vantage NX	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF89 Lab Mean	Sample SF89 Diff from Grand Mean	Sample SF89 CPV	Sample SF90 Lab Mean	Sample SF90 Diff from Grand Mean	Sample SF90 CPV	Instr Code
434PGE		97.72	-1.38	-0.16	106.29	7.76	0.82	LI
4PC3BJ		92.87	-6.23	-0.74	91.82	-6.70	-0.71	LH
73W7QT		93.84	-5.27	-0.63	94.42	-4.10	-0.43	LE
7JHR9Y	X	80.12	-18.98	-2.26	102.89	4.36	0.46	TO
82FM32		89.44	-9.67	-1.15	89.80	-8.73	-0.92	IM
8KQE64		91.45	-7.65	-0.91	92.16	-6.36	-0.67	LH
9YZRRT		100.26	1.16	0.14	109.31	10.78	1.14	TO
EB2WRW		92.50	-6.61	-0.79	92.83	-5.70	-0.60	TP
EKL6D6		94.30	-4.80	-0.57	94.60	-3.93	-0.41	RE
ETFDUP		112.58	13.48	1.61	111.64	13.11	1.38	IN
EV4WVM		94.98	-4.13	-0.49	99.57	1.05	0.11	LX
G7UKJL		105.22	6.12	0.73	102.30	3.78	0.40	TO
GEPKZY		103.07	3.96	0.47	100.88	2.35	0.25	LX
GK2BLT		104.06	4.95	0.59	99.00	0.47	0.05	LH
HHNVWY		101.12	2.01	0.24	99.16	0.63	0.07	LH
HNVM2Q		104.01	4.91	0.58	105.10	6.57	0.69	LB
KHE3LF		91.71	-7.40	-0.88	96.25	-2.28	-0.24	TF
LFUD4N		83.78	-15.32	-1.83	86.57	-11.96	-1.26	ID
M28J8N		98.16	-0.94	-0.11	93.12	-5.40	-0.57	TO
M2L6GQ		105.03	5.93	0.71	101.20	2.68	0.28	XX
MU82UX		112.14	13.04	1.55	110.04	11.51	1.21	FP
MXJ77X		101.05	1.95	0.23	96.22	-2.31	-0.24	LH
N7WHYP		93.16	-5.95	-0.71	88.10	-10.43	-1.10	LI
Q38X3J		80.72	-18.38	-2.19	75.03	-23.50	-2.48	LX
QBERYX		113.04	13.94	1.66	117.34	18.81	1.98	TV
QQE7LL		95.63	-3.47	-0.41	99.30	0.77	0.08	LH
UCHL9E		117.39	18.28	2.18	118.37	19.84	2.09	LX
UFGKZ7		95.98	-3.12	-0.37	87.18	-11.34	-1.20	XX
WCT8VL		107.22	8.12	0.97	107.17	8.64	0.91	LF
YWEHXB		95.78	-3.32	-0.40	88.41	-10.12	-1.07	LI
ZKE839		103.14	4.03	0.48	98.35	-0.18	-0.02	LA
ZW9NPP		100.89	1.79	0.21	102.82	4.29	0.45	TF

Summary Statistics	Sample SF89	Sample SF90
Grand Means	99.10 Joules/sq m	98.53 Joules/sq m
Stnd Dev Btwn Labs	8.39 Joules/sq m	9.48 Joules/sq m

Statistics based on 31 of 32 reporting participants.

Comments on Assigned Data Flags for Test #327

7JHR9Y (X) - Inconsistent in testing between samples.

Analysis Notes:

M2L6GQ - Data appear to be reported as kg-m/sq m, not J/sq m as indicated on data entry form. CTS will not correct the Units going forward.

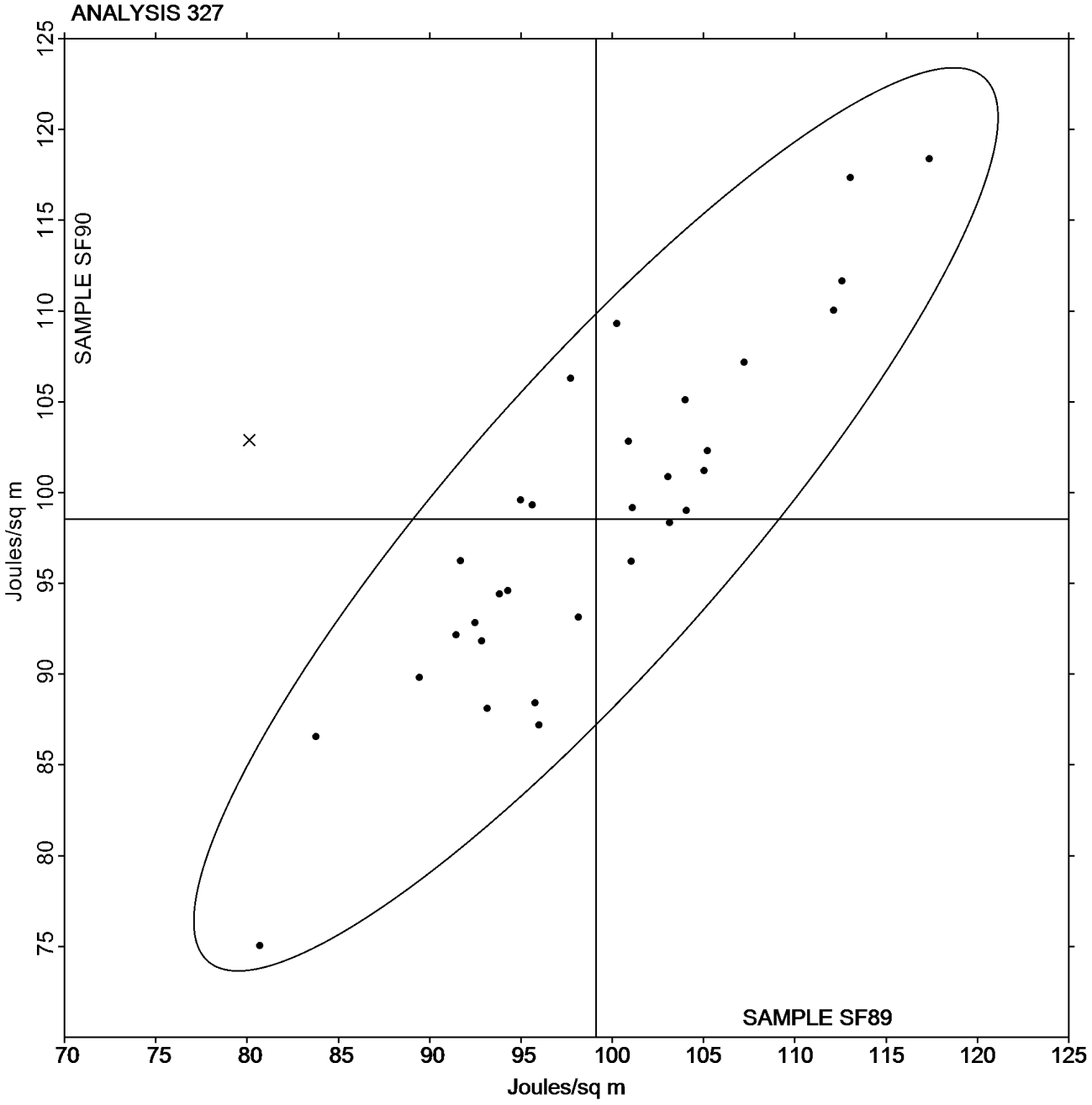
UCHL9E - Data appear to be reported as kg-m/sq m, not J/sq m as indicated on data entry form. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IM	Instron 5500 Series	IN	Instron 3340 series
LA	L & W Tensile - Autoline 300	LB	L & W Tensile - Autoline 400
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
TF	Thwing-Albert EJA Vantage-1	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	TV	Thwing-Albert Vantage NX
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF89 = 99.104 Joules/sq m

Grand Mean Sample SF90 = 98.527 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF89 Lab Mean	Sample SF89 Diff from Grand Mean	Sample SF89 CPV	Sample SF90 Lab Mean	Sample SF90 Diff from Grand Mean	Sample SF90 CPV	Instr Code
434PGE		1.890	-0.285	-1.00	1.980	-0.178	-0.63	LI
4FRQXL	*	1.318	-0.857	-3.01	1.340	-0.818	-2.88	TF
4PC3BJ		2.248	0.073	0.26	2.134	-0.024	-0.09	LH
73W7QT		2.011	-0.164	-0.58	1.958	-0.200	-0.71	LE
7JHR9Y	X	2.282	0.107	0.37	2.790	0.632	2.23	TO
82FM32		2.314	0.139	0.49	2.311	0.152	0.54	IM
8KQE64		2.061	-0.114	-0.40	2.050	-0.108	-0.38	LH
9YZRRT		2.379	0.204	0.72	2.462	0.304	1.07	TO
EB2WRW		2.064	-0.112	-0.39	2.060	-0.099	-0.35	TP
EKL6D6		2.340	0.165	0.58	2.286	0.127	0.45	RE
ETFDUP		2.699	0.524	1.84	2.649	0.491	1.73	IN
EV4WVM		2.117	-0.058	-0.20	2.195	0.037	0.13	LX
G7UKJL		2.171	-0.004	-0.01	2.126	-0.032	-0.11	TO
GEPKZY		2.148	-0.027	-0.10	2.105	-0.053	-0.19	LX
GK2BLT		2.232	0.057	0.20	2.144	-0.014	-0.05	LH
HHNVWY		2.149	-0.026	-0.09	2.095	-0.063	-0.22	LH
HNVM2Q		2.106	-0.069	-0.24	2.146	-0.012	-0.04	LB
KHE3LF		2.046	-0.129	-0.45	2.112	-0.046	-0.16	TF
LFUD4N		2.110	-0.065	-0.23	2.130	-0.028	-0.10	ID
M28J8N		2.383	0.208	0.73	2.243	0.085	0.30	TX
MU82UX		2.417	0.242	0.85	2.425	0.267	0.94	FP
MXJ77X		2.300	0.125	0.44	2.184	0.026	0.09	LH
N7WHYP		2.017	-0.158	-0.55	1.945	-0.213	-0.75	LI
PYP98M		1.810	-0.365	-1.28	1.930	-0.228	-0.80	VM
Q38X3J		1.784	-0.391	-1.37	1.682	-0.476	-1.68	LI
QBERYX	*	2.893	0.718	2.52	2.963	0.805	2.84	TV
QQE7LL		2.161	-0.014	-0.05	2.211	0.053	0.19	LH
UCHL9E		1.905	-0.270	-0.95	1.924	-0.234	-0.83	LX
UFGKZ7		2.069	-0.106	-0.37	2.009	-0.149	-0.53	XX
WCT8VL		2.242	0.067	0.23	2.174	0.016	0.06	LF
YWEHXB		2.159	-0.016	-0.06	2.067	-0.091	-0.32	LI
YZB6ND		2.208	0.033	0.12	2.278	0.120	0.42	TF
Z8AXEY		2.371	0.196	0.69	2.367	0.209	0.74	IN
ZKE839		2.081	-0.094	-0.33	2.006	-0.152	-0.54	LA
ZW9NPP		2.751	0.576	2.02	2.693	0.535	1.88	TF

Paper & Paperboard Interlaboratory Testing Program

Analysis 328
Elongation to Break - Printing Papers
TAPPI Official Test Method T494

Summary Statistics	Sample SF89	Sample SF90
Grand Means	2.18 Percent	2.16 Percent
Stnd Dev Btwn Labs	0.29 Percent	0.28 Percent

Statistics based on 34 of 35 reporting participants.

Comments on Assigned Data Flags for Test #328

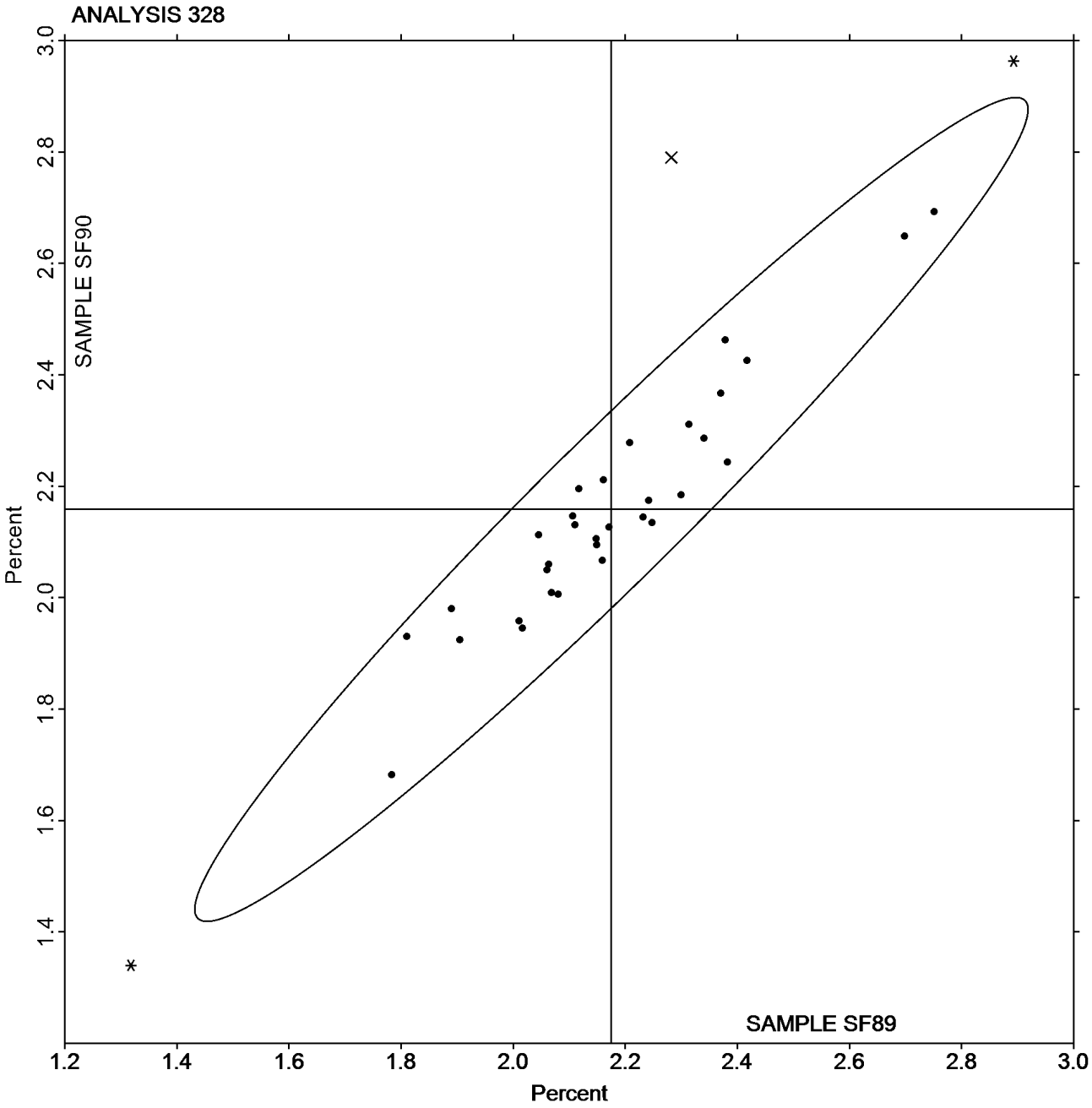
7JHR9Y (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SF89.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IM	Instron 5500 Series	IN	Instron 3340 Series
LA	L & W Tensile - Autoline 300	LB	L & W Tensile - Autoline 400
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
TF	Thwing-Albert EJA Vantage-1	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	TV	Thwing-Albert Vantage NX
TX	Thwing-Albert (model not specified)	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF89 = 2.1751
Percent

Grand Mean Sample SF90 = 2.1583
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE89 Lab Mean	Sample SE89 Diff from Grand Mean	Sample SE89 CPV	Sample SE90 Lab Mean	Sample SE90 Diff from Grand Mean	Sample SE90 CPV	Instr Code
2FX8HM		8.433	0.509	0.89	8.239	0.297	0.51	TR
2JCY9F		8.406	0.482	0.84	8.371	0.429	0.74	IF
3QAT38		8.034	0.110	0.19	8.055	0.113	0.20	LE
4NYD4Z		8.805	0.881	1.54	8.631	0.689	1.19	LE
4PC3BJ		7.975	0.051	0.09	7.968	0.026	0.05	LH
8YAYMC		7.653	-0.271	-0.47	7.625	-0.317	-0.55	IF
98HV33		7.098	-0.826	-1.44	7.338	-0.604	-1.04	IM
9PYW2B		7.853	-0.071	-0.12	7.752	-0.190	-0.33	ID
AFQU9X		8.250	0.326	0.57	7.924	-0.017	-0.03	LE
AVZTYF		8.178	0.255	0.44	8.003	0.061	0.11	TH
CU2A8Y		8.154	0.230	0.40	8.296	0.354	0.61	TO
CZRJGW		7.268	-0.656	-1.14	7.271	-0.671	-1.16	LE
DR82GU		7.536	-0.388	-0.68	7.578	-0.364	-0.63	LH
E8WDKN		7.421	-0.503	-0.88	7.476	-0.466	-0.81	TB
FM8DUJ		7.259	-0.665	-1.16	7.432	-0.510	-0.88	IM
GEAYQX		8.368	0.445	0.77	8.621	0.679	1.17	IF
GLBF23		8.550	0.627	1.09	8.563	0.621	1.07	DM
J8MURT		7.601	-0.323	-0.56	7.531	-0.411	-0.71	IF
JJDRUR		7.622	-0.302	-0.53	7.611	-0.331	-0.57	XX
JJUZK8		8.511	0.587	1.02	8.292	0.350	0.60	LA
K3PT66		7.403	-0.521	-0.91	7.299	-0.643	-1.11	TH
KFBCGL		8.424	0.501	0.87	8.536	0.594	1.03	LA
KHE3LF		8.819	0.896	1.56	8.572	0.631	1.09	TO
KYQGA6	X	10.283	2.359	4.11	10.273	2.331	4.03	LA
MNVDU2		7.170	-0.754	-1.31	7.612	-0.330	-0.57	TT
MX3ZZF	X	6.880	-1.043	-1.82	6.293	-1.649	-2.85	IK
PH4PAF		7.048	-0.876	-1.53	7.180	-0.762	-1.32	LW
QA4MMU		7.605	-0.319	-0.56	7.516	-0.426	-0.74	TX
QV7FRD		7.614	-0.310	-0.54	7.602	-0.340	-0.59	TR
TNXUWF		7.020	-0.904	-1.57	7.188	-0.754	-1.30	XX
TVJWV6		7.826	-0.098	-0.17	7.476	-0.466	-0.80	TH
U924AH		7.796	-0.128	-0.22	7.639	-0.303	-0.52	IM
UJ4EKD		7.600	-0.324	-0.56	7.607	-0.335	-0.58	LE
UJGVV7		8.686	0.763	1.33	9.054	1.112	1.92	LA
UPNJDE		7.891	-0.033	-0.06	7.550	-0.392	-0.68	LE
UYQ2NG		7.064	-0.860	-1.50	7.130	-0.812	-1.40	TK
V9ZLPR		8.488	0.565	0.98	8.874	0.932	1.61	TH
VGQ46L		8.519	0.595	1.04	8.528	0.586	1.01	LE
WN9YJV		9.343	1.419	2.47	9.266	1.324	2.29	CE
WYQENH		8.516	0.592	1.03	8.832	0.890	1.54	LX

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE89 Lab Mean	Sample SE89 Diff from Grand Mean	Sample SE89 CPV	Sample SE90 Lab Mean	Sample SE90 Diff from Grand Mean	Sample SE90 CPV	Instr Code
X2R2ER		8.616	0.692	1.21	8.926	0.984	1.70	LI
X9QN9D		7.503	-0.420	-0.73	7.658	-0.284	-0.49	TA
YWEHXB		7.664	-0.260	-0.45	7.816	-0.125	-0.22	LW
ZCYNHA		7.470	-0.454	-0.79	7.457	-0.485	-0.84	IM
ZKE839		7.663	-0.261	-0.45	7.605	-0.337	-0.58	LA

Summary Statistics	Sample SE89	Sample SE90
Grand Means	7.92 kN/m	7.94 kN/m
Stnd Dev Btwn Labs	0.57 kN/m	0.58 kN/m

Statistics based on 43 of 45 reporting participants.

Comments on Assigned Data Flags for Test #330

KYQGA6 (X) - Data for both samples are high. Possible Systematic Error.

MX3ZZF (X) - Data for sample SE90 are low.

Analysis Notes:

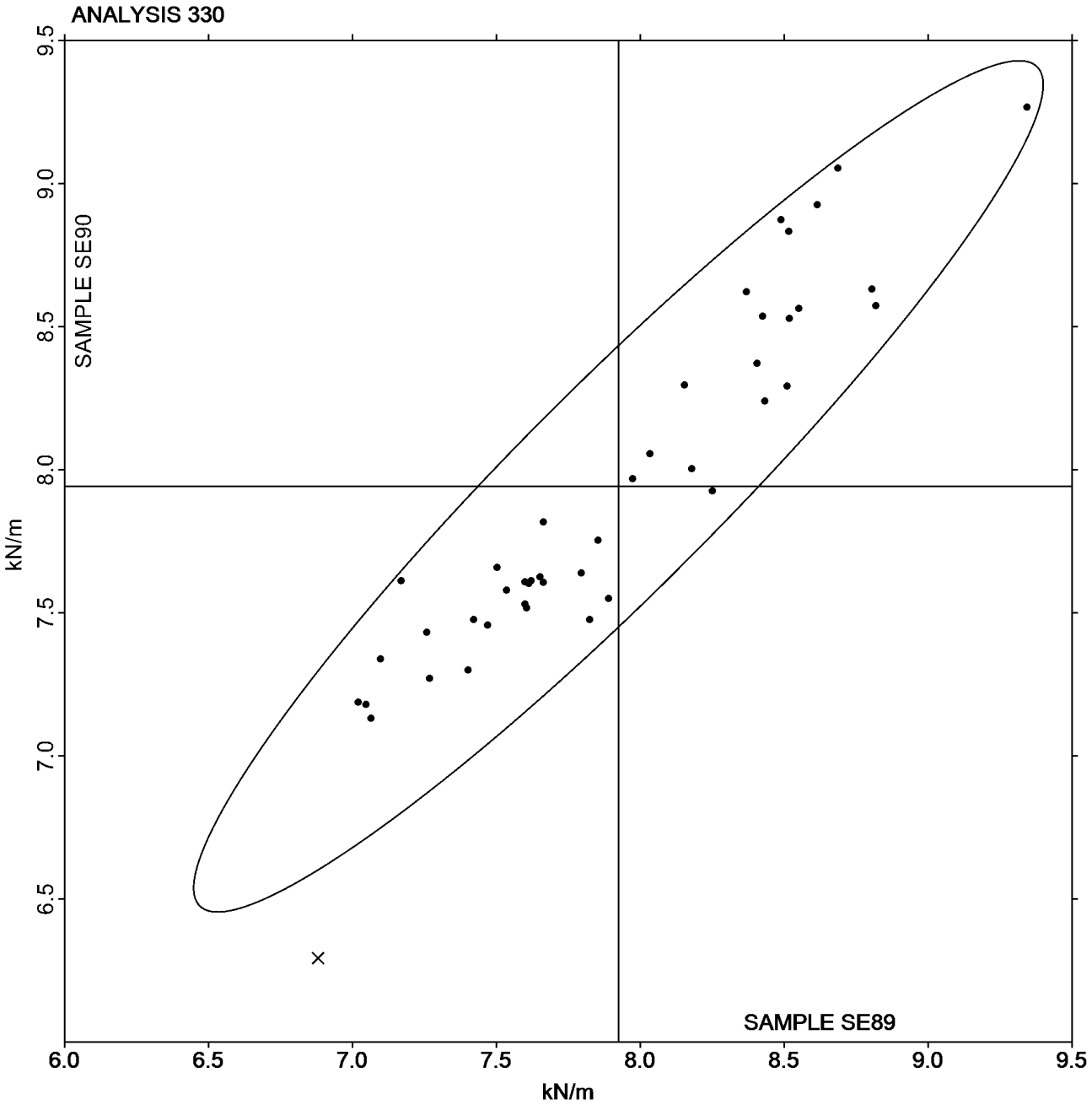
TNXUWF - Data appear to be reported as lb/inch, not kN/m as indicated on data entry form. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

CE	Chatillon Model ET1100	DM	IDM MTC-100 Tensile Tester
ID	Instron 4200 Series	IF	Instron 3340 Series
IK	Instron 4400 Series	IM	Instron 5500 Series
LA	L & W Autoline	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 SE89 = 7.9238 kN/m

Grand Mean Sample SE90 = 7.9419 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE89 Lab Mean	Sample SE89 Diff from Grand Mean	Sample SE89 CPV	Sample SE90 Lab Mean	Sample SE90 Diff from Grand Mean	Sample SE90 CPV	Instr Code
2FX8HM		86.11	6.23	0.65	81.52	1.61	0.16	TR
2JCY9F		73.70	-6.18	-0.64	78.54	-1.36	-0.14	IF
3QAT38		72.00	-7.88	-0.82	71.02	-8.89	-0.89	LE
4NYD4Z		82.48	2.60	0.27	84.71	4.80	0.48	LE
4PC3BJ		78.14	-1.74	-0.18	76.07	-3.84	-0.38	LH
98HV33		78.37	-1.51	-0.16	81.11	1.20	0.12	IM
AFQU9X		75.89	-3.99	-0.42	74.31	-5.60	-0.56	LE
AVZTYF		92.38	12.50	1.30	89.31	9.41	0.94	TH
CU2A8Y		80.40	0.52	0.05	85.65	5.75	0.57	TO
CZRJGW		70.77	-9.11	-0.95	70.90	-9.01	-0.90	LE
DR82GU		70.20	-9.68	-1.01	70.49	-9.42	-0.94	LH
E8WDKN		83.80	3.92	0.41	84.35	4.44	0.44	TB
FM8DUJ		77.73	-2.15	-0.22	83.51	3.60	0.36	IM
GEAYQX	X	114.14	34.26	3.56	152.01	72.10	7.19	IN
GLBF23	*	107.44	27.56	2.87	110.77	30.86	3.08	DM
J8MURT		76.92	-2.95	-0.31	74.21	-5.70	-0.57	IF
JJDRUR		81.17	1.29	0.13	80.06	0.15	0.01	XX
JJUZK8		97.97	18.09	1.88	87.55	7.64	0.76	LA
K3PT66		90.53	10.65	1.11	84.63	4.72	0.47	TH
KFBCGL		78.89	-0.98	-0.10	85.11	5.20	0.52	LA
KHE3LF		80.41	0.53	0.06	74.72	-5.19	-0.52	TO
KYQGA6		84.50	4.62	0.48	88.41	8.50	0.85	LA
MNVDU2		67.43	-12.45	-1.30	76.62	-3.28	-0.33	TT
MX3ZZF		63.54	-16.34	-1.70	57.00	-22.90	-2.29	XX
PH4PAF		68.47	-11.40	-1.19	70.25	-9.66	-0.96	LW
QA4MMU		87.86	7.98	0.83	84.96	5.05	0.50	TX
QV7FRD		74.79	-5.09	-0.53	72.33	-7.58	-0.76	TR
TNXUWF		61.32	-18.56	-1.93	65.40	-14.51	-1.45	XX
TVJWV6		95.11	15.23	1.58	99.01	19.10	1.91	TH
U924AH		77.36	-2.52	-0.26	72.15	-7.76	-0.77	IM
UJ4EKD		72.56	-7.32	-0.76	71.62	-8.29	-0.83	LE
UJGVV7		81.30	1.42	0.15	88.76	8.85	0.88	LA
UPNJDE		77.62	-2.25	-0.23	70.36	-9.55	-0.95	LE
UYQ2NG		71.13	-8.75	-0.91	74.34	-5.57	-0.56	TK
VGQ46L		90.73	10.85	1.13	90.75	10.84	1.08	LE
WYQENH		80.41	0.53	0.06	92.92	13.01	1.30	LX
YWEHXB		74.57	-5.30	-0.55	68.74	-11.17	-1.11	LW
ZCYNHA		79.05	-0.83	-0.09	80.17	0.26	0.03	IM
ZKE839		92.33	12.45	1.30	84.20	4.29	0.43	LA

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SE89	Sample SE90
Grand Means	79.88 Joules/sq m	79.91 Joules/sq m
Stnd Dev Btwn Labs	9.61 Joules/sq m	10.02 Joules/sq m

Statistics based on 38 of 39 reporting participants.

Comments on Assigned Data Flags for Test #331

GEAYQX (X) - Extreme Data.

Analysis Notes:

DR82GU - Data appears to be transposed between Analysis 331 (TEA) and Analysis 332 (% elongation). Data Switched by CTS.

MX3ZZF - Data appear to be reported as ft-lb/sq ft, not kg-m/sq m as indicated on data entry form. CTS will not correct the Units going forward.

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

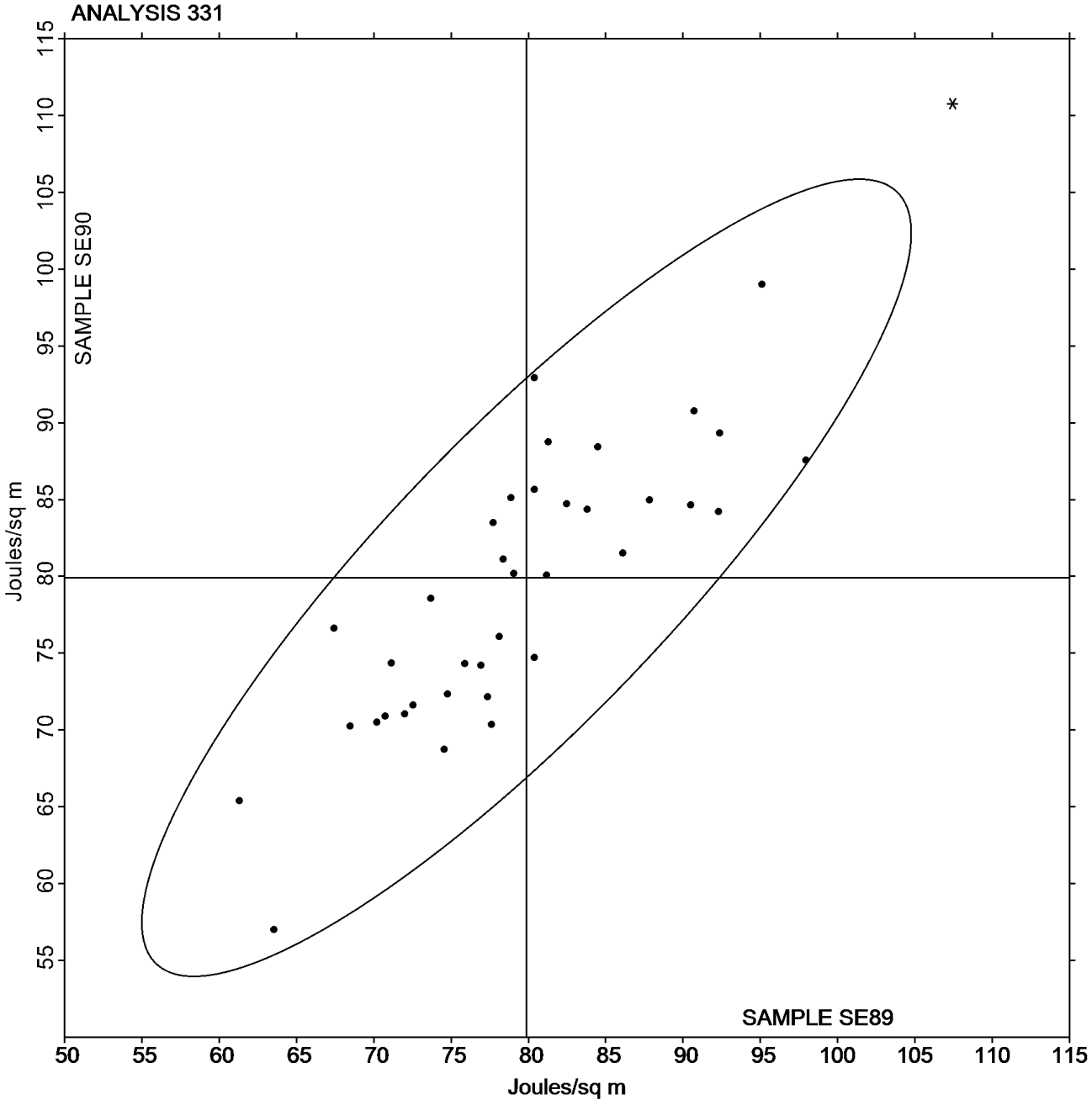
TVJWV6 - Data appears to be transposed between Analysis 331 (TEA) and Analysis 332 (% elongation). Data Switched by CTS.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	IF	Instron 3340 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
LA	L & W Autoline	LE	L & W Tensile Tester 066
LH	L & W Alwetron TH1 (Horizontal) SE 060	LW	L & W Tensile Tester SE062
LX	L & W (model not specified)	TB	Thwing-Albert EJA/1000
TH	Thwing-Albert QC-3A	TK	Thwing-Albert Model 37-4
TO	Thwing-Albert QC-1000	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 SE89 = 79.878
Joules/sq m

Grand Mean Sample SE90 = 79.909
Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE89 Lab Mean	Sample SE89 Diff from Grand Mean	Sample SE89 CPV	Sample SE90 Lab Mean	Sample SE90 Diff from Grand Mean	Sample SE90 CPV	Instr Code
2FX8HM		1.615	0.034	0.18	1.584	-0.001	0.00	TR
2JCY9F		1.581	0.000	0.00	1.637	0.052	0.27	IF
3QAT38		1.378	-0.203	-1.10	1.375	-0.210	-1.09	LE
4NYD4Z		1.470	-0.111	-0.60	1.506	-0.079	-0.41	LE
4PC3BJ		1.472	-0.109	-0.59	1.494	-0.091	-0.47	LH
98HV33		1.899	0.318	1.72	1.931	0.346	1.81	IM
9PYW2B		1.560	-0.021	-0.11	1.523	-0.062	-0.32	ID
AFQU9X		1.426	-0.155	-0.84	1.450	-0.135	-0.70	LE
AVZTYF		1.810	0.229	1.24	1.760	0.175	0.91	TH
CU2A8Y		1.682	0.101	0.55	1.734	0.149	0.78	TO
CZRJGW		1.485	-0.096	-0.52	1.471	-0.114	-0.59	LE
DR82GU		1.450	-0.131	-0.71	1.430	-0.155	-0.81	LH
E8WDKN		1.773	0.192	1.04	1.802	0.217	1.13	TB
FM8DUJ		1.665	0.084	0.45	1.748	0.163	0.85	IM
GEAYQX	X	1.388	-0.193	-1.04	2.400	0.815	4.25	IN
GLBF23	*	1.966	0.385	2.08	2.057	0.472	2.46	DM
J8MURT		1.566	-0.015	-0.08	1.530	-0.055	-0.29	IF
JJDRUR		1.705	0.124	0.67	1.685	0.100	0.52	XX
JJUZK8		1.685	0.104	0.56	1.566	-0.019	-0.10	LA
K3PT66	*	2.024	0.443	2.39	1.944	0.359	1.87	TH
KFBCGL		1.451	-0.130	-0.70	1.533	-0.052	-0.27	LA
KHE3LF		1.519	-0.062	-0.33	1.451	-0.134	-0.70	TO
KYQGA6	X	2.343	0.762	4.12	2.329	0.744	3.88	LA
MNVDU2		1.571	-0.010	-0.05	1.654	0.069	0.36	TT
MX3ZZF		1.169	-0.412	-2.23	1.175	-0.410	-2.14	XX
PH4PAF		1.501	-0.080	-0.43	1.507	-0.078	-0.41	LW
QA4MMU		1.823	0.242	1.31	1.790	0.205	1.07	TX
QV7FRD		1.571	-0.010	-0.05	1.524	-0.061	-0.32	TR
TNXUWF		1.271	-0.310	-1.67	1.318	-0.267	-1.39	XX
TVJWV6		1.962	0.381	2.06	2.024	0.439	2.29	TH
U924AH		1.517	-0.064	-0.35	1.457	-0.128	-0.67	IM
UJ4EKD		1.446	-0.135	-0.73	1.424	-0.161	-0.84	LE
UJGVV7		1.442	-0.139	-0.75	1.497	-0.088	-0.46	LA
UPNJDE		1.494	-0.087	-0.47	1.421	-0.164	-0.85	LE
UYQ2NG		1.567	-0.014	-0.08	1.619	0.034	0.18	TK
VGQ46L		1.628	0.047	0.25	1.632	0.047	0.25	LE
WYQENH		1.452	-0.129	-0.70	1.594	0.009	0.05	LX
X9QN9D		1.431	-0.150	-0.81	1.455	-0.130	-0.68	TA
YWEHXB		1.481	-0.100	-0.54	1.440	-0.145	-0.76	LW
ZCYNHA		1.639	0.058	0.31	1.655	0.070	0.37	IM

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE89 Lab Mean	Sample SE89 Diff from Grand Mean	Sample SE89 CPV	Sample SE90 Lab Mean	Sample SE90 Diff from Grand Mean	Sample SE90 CPV	Instr Code
ZKE839		1.509	-0.072	-0.39	1.408	-0.177	-0.92	LA

Summary Statistics	Sample SE89	Sample SE90
Grand Means	1.58 Percent	1.58 Percent
Stnd Dev Btwn Labs	0.19 Percent	0.19 Percent

Statistics based on 39 of 41 reporting participants.

Comments on Assigned Data Flags for Test #332

GEAYQX (X) - Data for sample SE90 are high.

KYQGA6 (X) - Data for both samples are high. Possible Systematic Error.

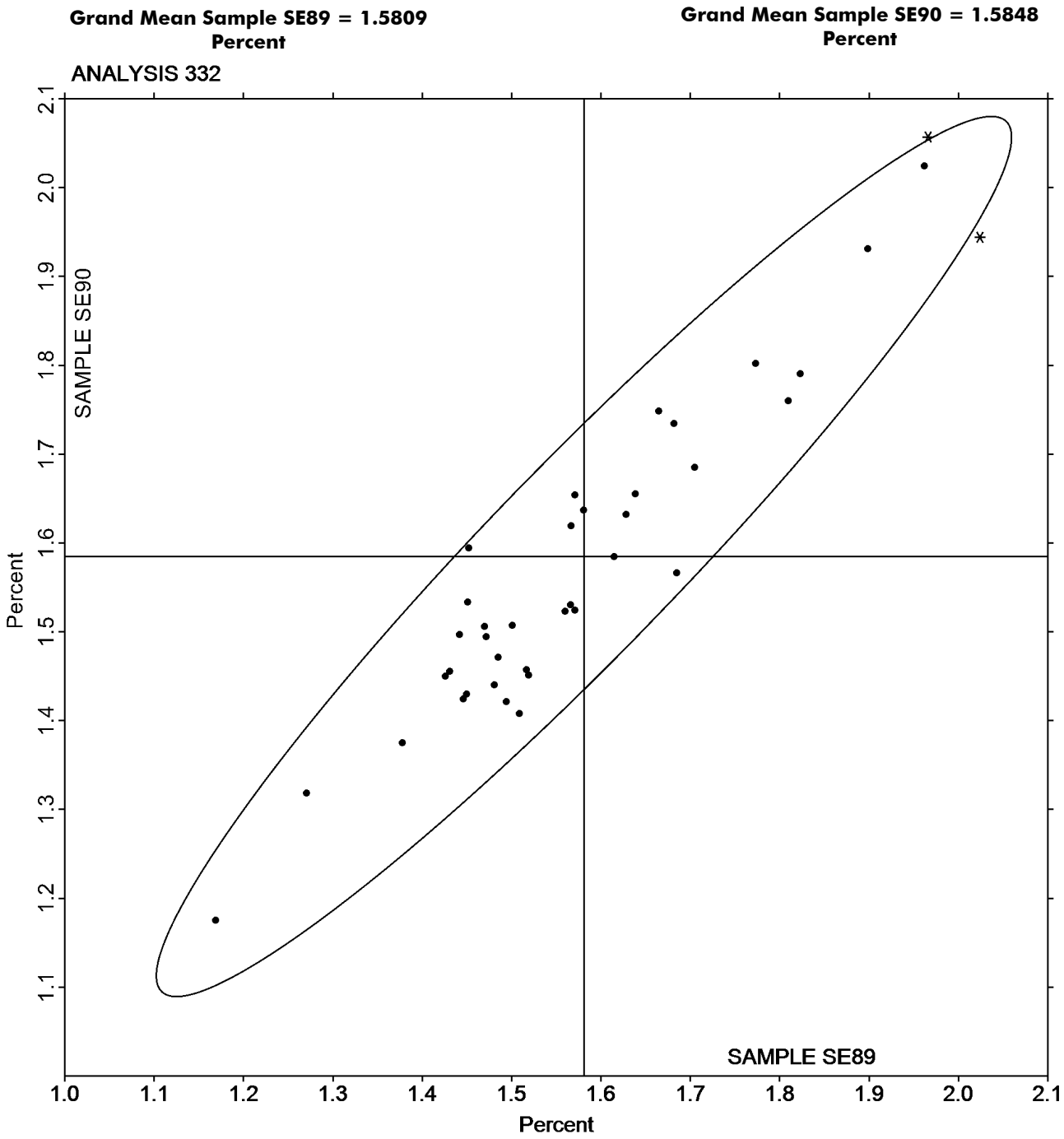
Analysis Notes:

DR82GU - Data appears to be transposed between Analysis 331 (TEA) and Analysis 332 (% elongation). Data Switched by CTS.

TVJWV6 - Data appears to be transposed between Analysis 331 (TEA) and Analysis 332 (% elongation). Data Switched by CTS.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	ID	Instron 4200 Series
IF	Instron 3340 Series	IM	Instron 5500 Series
IN	Instron 3360 Series	LA	L & W Autoline 300
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	TX	Thwing-Albert (model not specified)
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 SG89 Lab Mean	Sample SG89 Diff from Grand Mean	Sample SG89 CPV	Sample SG90 Lab Mean	Sample SG90 Diff from Grand Mean	Sample SG90 CPV	Instr Code
87VXF6		244.7	14.4	0.35	263.6	44.2	0.88	MT
ETFDUP		173.7	-56.6	-1.35	173.7	-45.7	-0.91	MT
JJDRUR		232.0	1.7	0.04	293.6	74.2	1.47	MT
K3PT66		229.3	-1.0	-0.02	191.2	-28.2	-0.56	MT
N7WHYP		241.4	11.1	0.27	184.3	-35.1	-0.70	MT
PYP98M	X	95.1	-135.2	-3.24	82.7	-136.7	-2.71	MT
WXWQ7M		177.1	-53.2	-1.27	143.1	-76.3	-1.51	MT
X9QN9D		264.2	33.9	0.81	290.5	71.1	1.41	MT
YWEHXB		315.3	85.0	2.04	230.7	11.3	0.22	MT
YZB6ND		199.9	-30.4	-0.73	200.9	-18.5	-0.37	MT
ZCYNHA		225.2	-5.1	-0.12	222.5	3.1	0.06	MT

Summary Statistics	Sample SG89	Sample SG90
Grand Means	230.28 Double Folds	219.41 Double Folds
Stnd Dev Btwn Labs	41.76 Double Folds	50.48 Double Folds

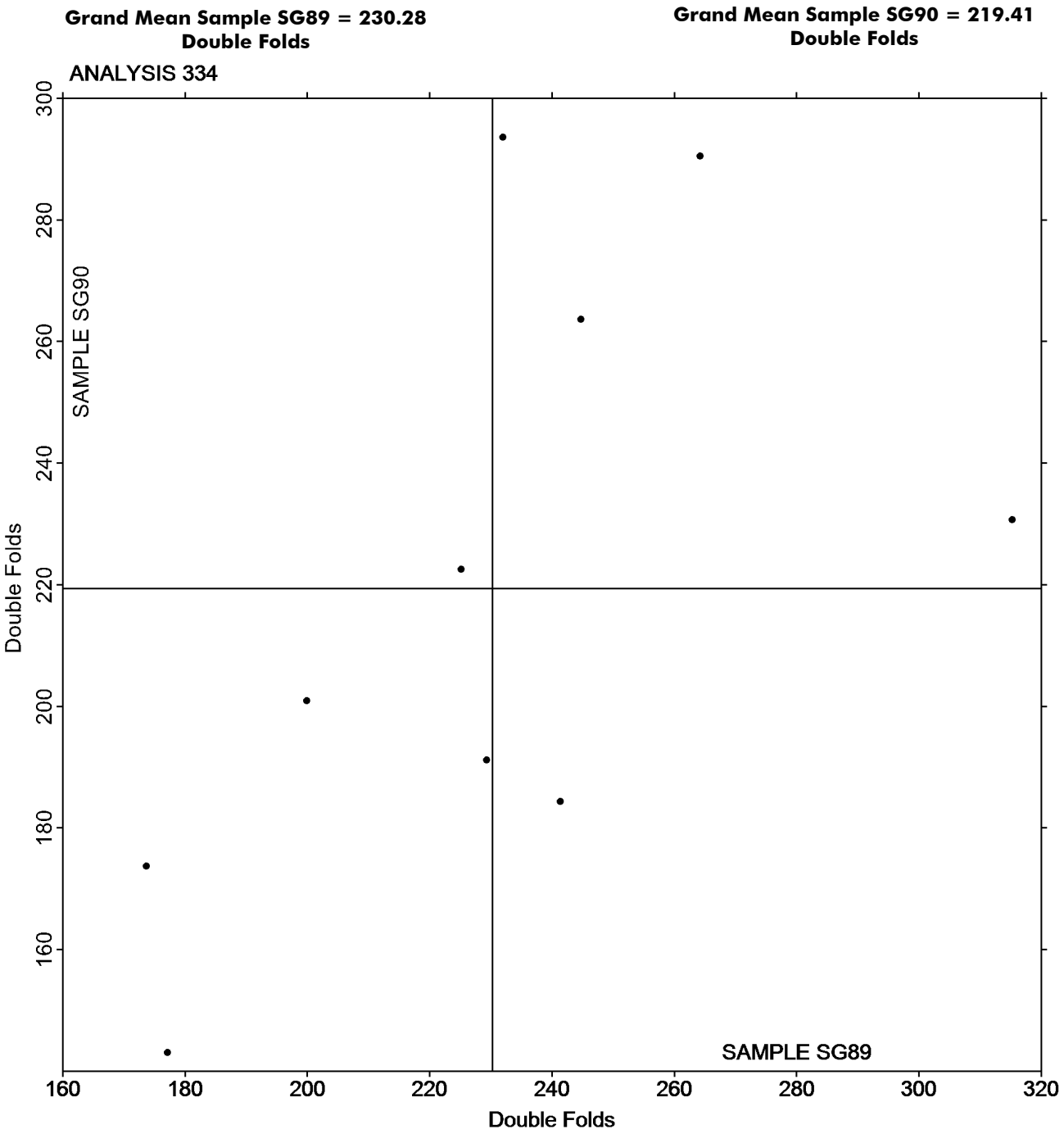
Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #334

PYP98M (X) - Data for both samples are low.

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

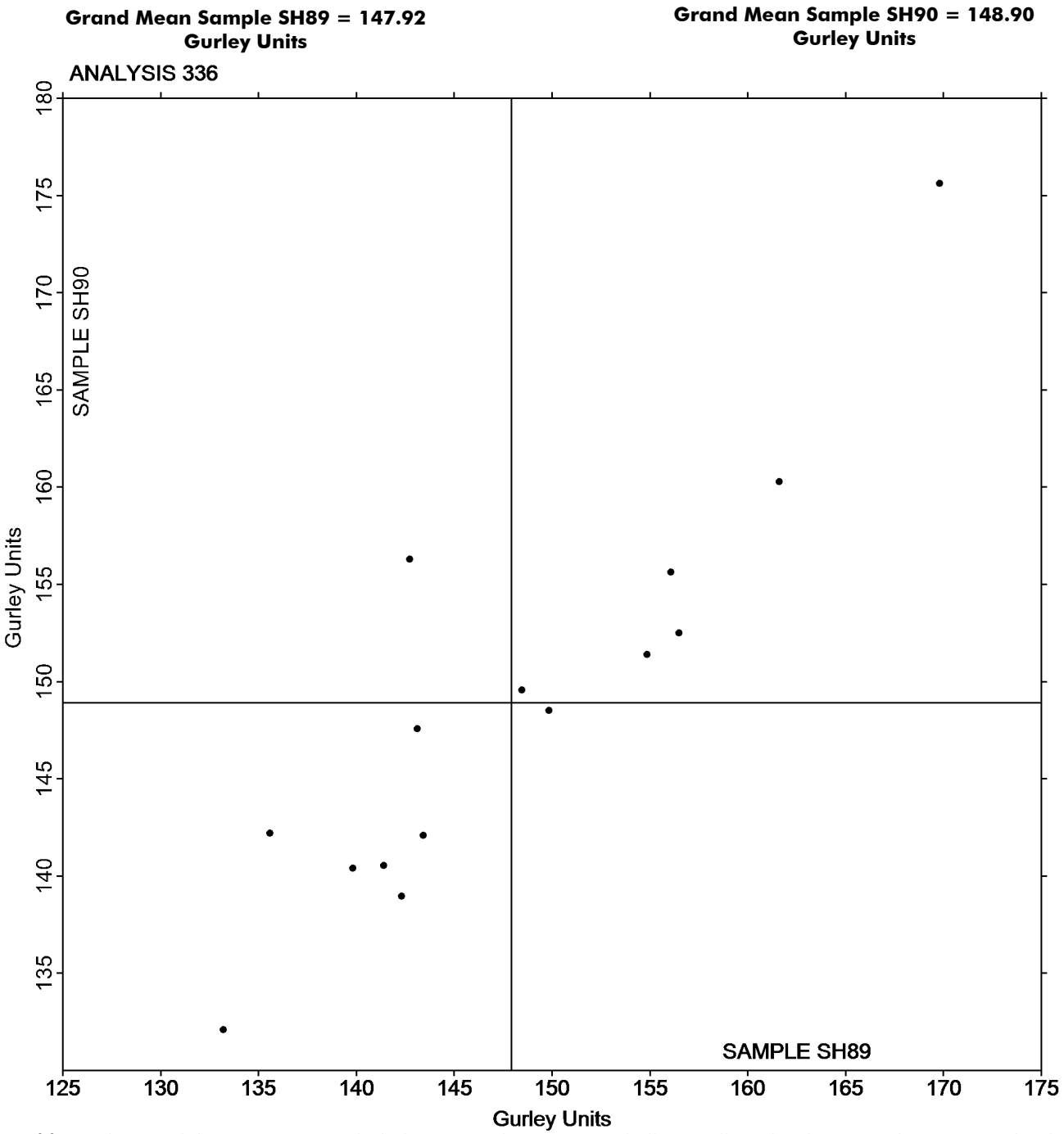
Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH89 Lab Mean	Sample SH89 Diff from Grand Mean	Sample SH89 CPV	Sample SH90 Lab Mean	Sample SH90 Diff from Grand Mean	Sample SH90 CPV
3PHR3B		133.2	-14.7	-1.45	132.1	-16.8	-1.58
7KWAB4		154.9	6.9	0.68	151.4	2.5	0.23
9YZRRT		141.4	-6.5	-0.64	140.5	-8.4	-0.79
DMBGBP		139.8	-8.1	-0.80	140.4	-8.5	-0.80
EB2WRW		143.1	-4.8	-0.47	147.6	-1.3	-0.13
ETFDUP		142.7	-5.2	-0.51	156.3	7.4	0.70
G7UKJL		148.5	0.5	0.05	149.6	0.7	0.06
GK2BLT		161.6	13.7	1.35	160.3	11.4	1.07
JJDRUR		156.1	8.1	0.80	155.6	6.7	0.63
LNXTLF		149.9	1.9	0.19	148.5	-0.4	-0.04
N8NJXL		156.5	8.6	0.85	152.5	3.6	0.34
PYP98M		169.8	21.9	2.16	175.6	26.7	2.51
X9QN9D		135.6	-12.3	-1.22	142.2	-6.7	-0.63
ZCYNHA		142.3	-5.6	-0.55	139.0	-9.9	-0.94
ZW9NPP		143.4	-4.5	-0.44	142.1	-6.8	-0.64

Summary Statistics	Sample SH89	Sample SH90
Grand Means	147.92 Gurley Units	148.90 Gurley Units
Stnd Dev Btwn Labs	10.13 Gurley Units	10.62 Gurley Units

Statistics based on 15 of 15 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

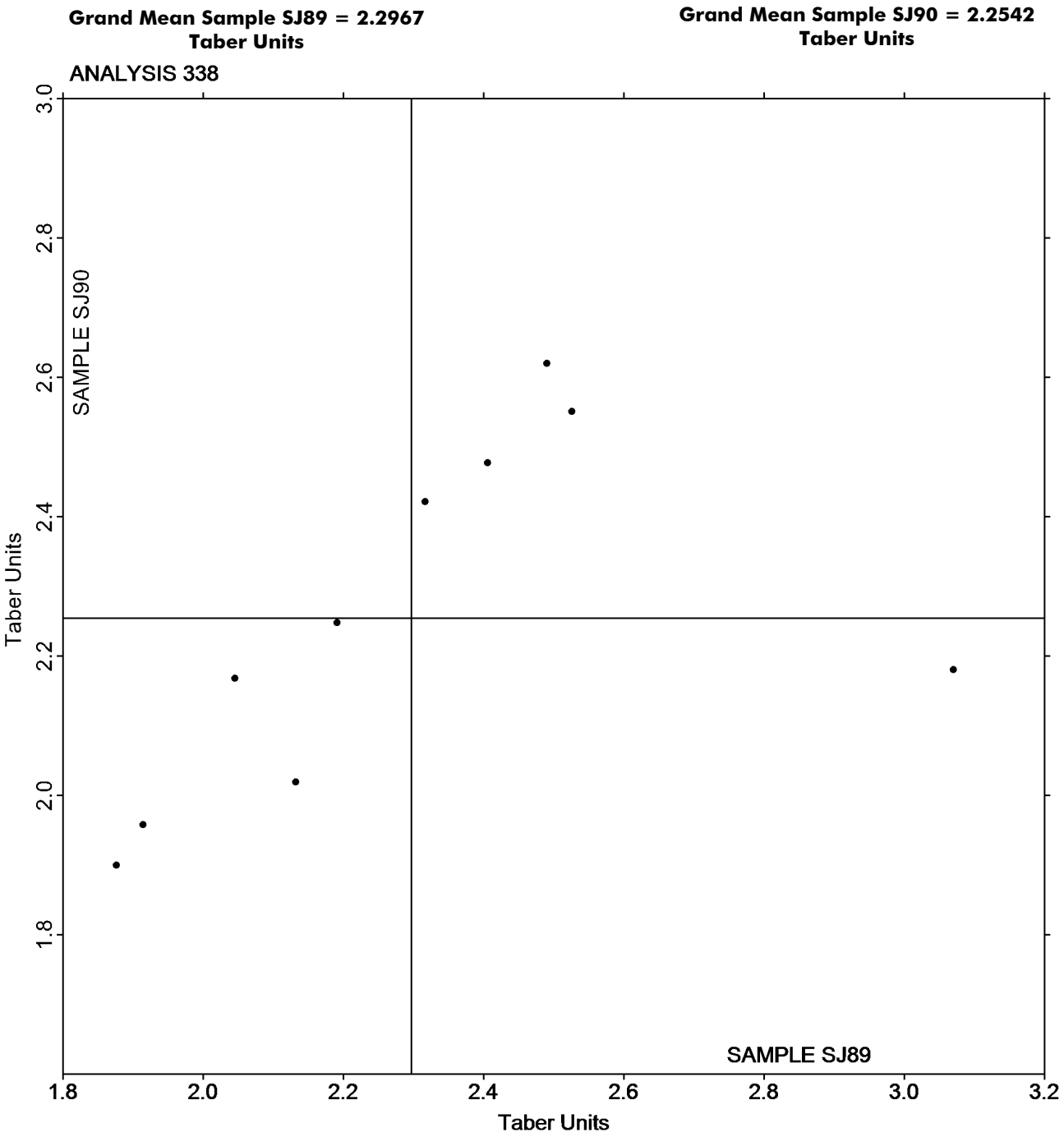
WebCode	Data Flag	Sample SJ89 Lab Mean	Sample SJ89 Diff from Grand Mean	Sample SJ89 CPV	Sample SJ90 Lab Mean	Sample SJ90 Diff from Grand Mean	Sample SJ90 CPV
2JCY9F		2.191	-0.106	-0.30	2.248	-0.006	-0.02
3QAT38	X	12.200	9.903	28.01	12.250	9.996	39.35
73W7QT		2.406	0.109	0.31	2.477	0.223	0.88
7JHR9Y		2.132	-0.165	-0.47	2.019	-0.235	-0.93
7KWAB4		1.914	-0.383	-1.08	1.958	-0.296	-1.17
GEAYQX		2.490	0.193	0.55	2.620	0.366	1.44
GK2BLT		2.526	0.229	0.65	2.551	0.297	1.17
HNVM2Q		3.070	0.773	2.19	2.180	-0.074	-0.29
M2L6GQ		1.876	-0.421	-1.19	1.900	-0.354	-1.39
WH2BZ2		2.045	-0.252	-0.71	2.168	-0.086	-0.34
ZCYNHA		2.317	0.020	0.06	2.421	0.167	0.66

Summary Statistics	Sample SJ89	Sample SJ90
Grand Means	2.30 Taber Units	2.25 Taber Units
Stnd Dev Btwn Labs	0.35 Taber Units	0.25 Taber Units

Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #338

3QAT38 (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

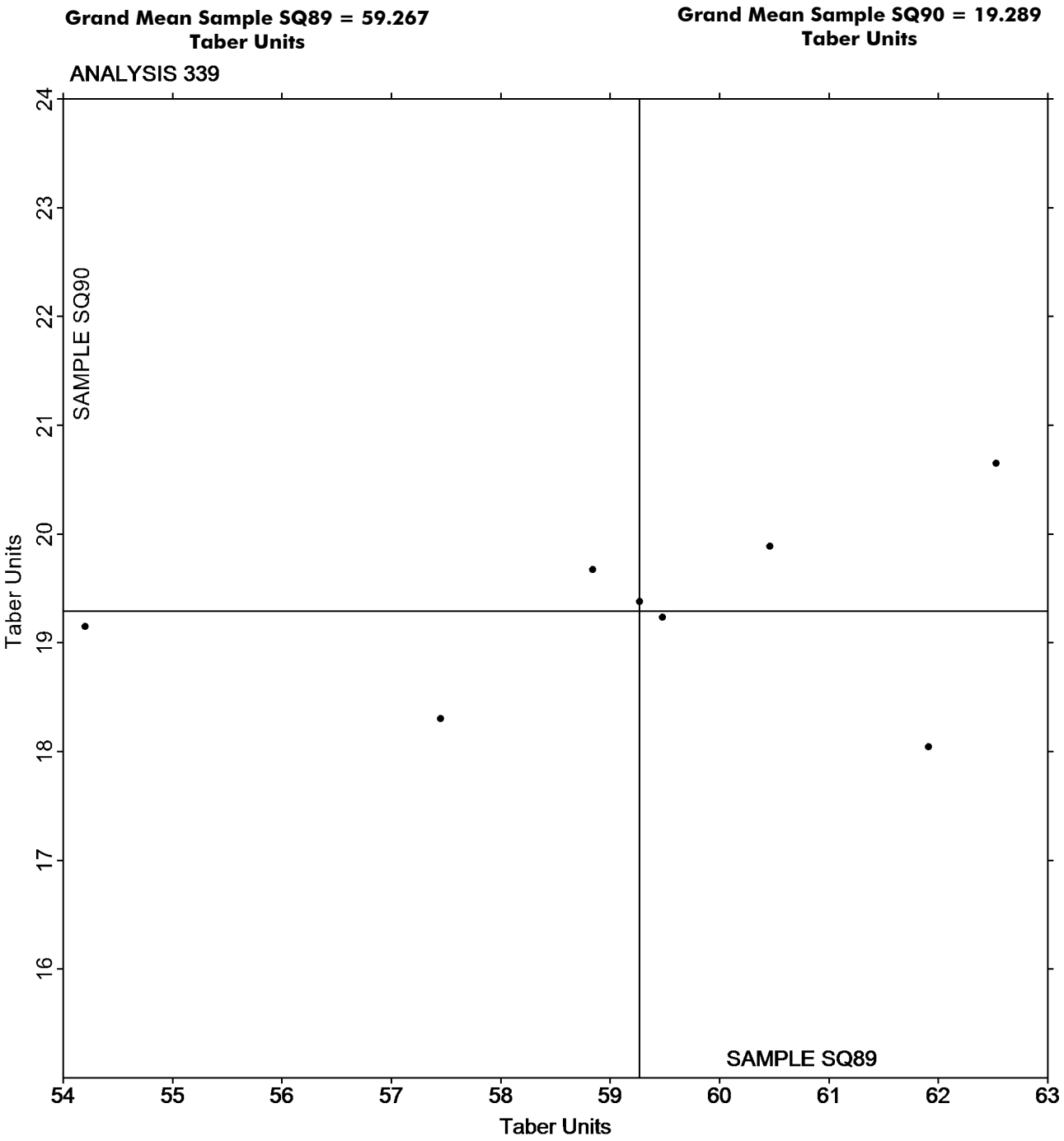
WebCode	Data Flag	Sample SQ89 Lab Mean	Sample SQ89 Diff from Grand Mean	Sample SQ89 CPV	Sample SQ90 Lab Mean	Sample SQ90 Diff from Grand Mean	Sample SQ90 CPV
3PHR3B		59.48	0.21	0.08	19.24	-0.05	-0.06
8CZVPA	X	30.92	-28.35	-10.80	19.72	0.43	0.51
E8WDKN		61.91	2.64	1.01	18.04	-1.25	-1.49
M28J8N		57.45	-1.82	-0.69	18.30	-0.99	-1.18
PH4PAF		54.20	-5.07	-1.93	19.15	-0.14	-0.17
RFP7Z9		60.46	1.19	0.45	19.88	0.60	0.71
VGQ46L		62.53	3.26	1.24	20.65	1.36	1.62
YWEHXB		59.27	0.00	0.00	19.38	0.09	0.11
Z8AXEY		58.84	-0.43	-0.16	19.67	0.38	0.45

Summary Statistics	Sample SQ89	Sample SQ90
Grand Means	59.27 Taber Units	19.29 Taber Units
Stnd Dev Btwn Labs	2.63 Taber Units	0.84 Taber Units

Statistics based on 8 of 9 reporting participants.

Comments on Assigned Data Flags for Test #339

8CZVPA (X) - Extreme Data for Sample SQ89.



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

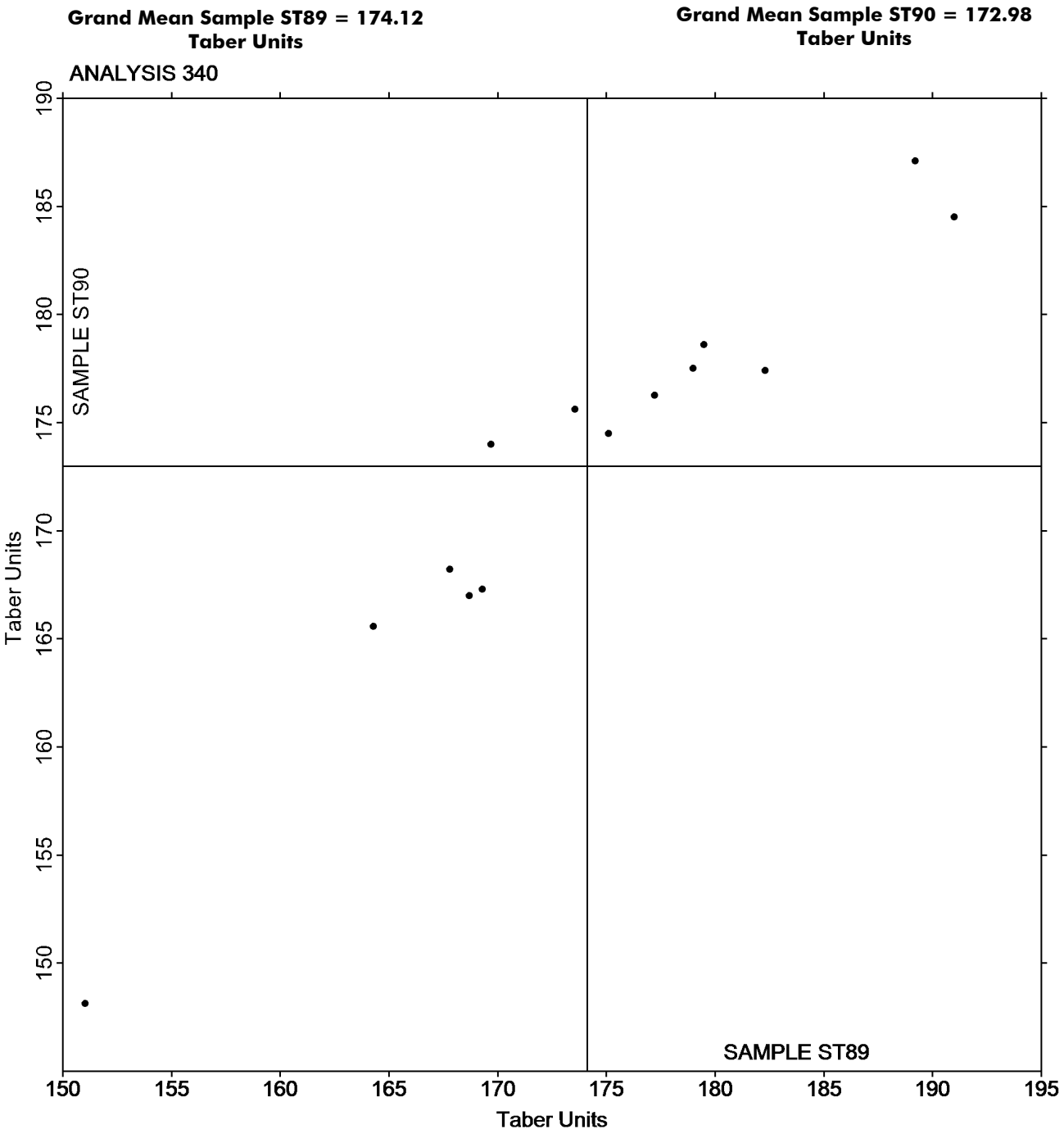
WebCode	Data Flag	Sample ST89 Lab Mean	Sample ST89 Diff from Grand Mean	Sample ST89 CPV	Sample ST90 Lab Mean	Sample ST90 Diff from Grand Mean	Sample ST90 CPV
3PHR3B		173.6	-0.6	-0.06	175.6	2.6	0.27
4F9RY3		169.7	-4.4	-0.43	174.0	1.0	0.11
6C6CAB		182.3	8.2	0.79	177.4	4.4	0.46
8YAYMC		179.5	5.4	0.52	178.6	5.6	0.59
G7YW6W		179.0	4.9	0.47	177.5	4.5	0.47
GMMZ4L	X	176.5	2.4	0.23	79.0	-94.0	-9.83
JFF8MM		167.8	-6.3	-0.61	168.2	-4.8	-0.50
JJDRUR		164.3	-9.8	-0.95	165.6	-7.4	-0.77
K3PT66		168.7	-5.4	-0.53	167.0	-6.0	-0.63
QV7FRD		151.0	-23.1	-2.24	148.1	-24.8	-2.60
TDG8KU		169.3	-4.8	-0.47	167.3	-5.7	-0.59
V9ZLPR		191.0	16.9	1.64	184.5	11.5	1.21
VR9NPH		175.1	1.0	0.09	174.5	1.5	0.16
WN9YJV		189.2	15.1	1.46	187.1	14.1	1.48
YWEHXB		177.2	3.1	0.30	176.3	3.3	0.34

Summary Statistics	Sample ST89	Sample ST90
Grand Means	174.12 Taber Units	172.98 Taber Units
Stnd Dev Btwn Labs	10.32 Taber Units	9.56 Taber Units

Statistics based on 14 of 15 reporting participants.

Comments on Assigned Data Flags for Test #340

GMMZ4L (X) - Extreme Data for Sample ST90.



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

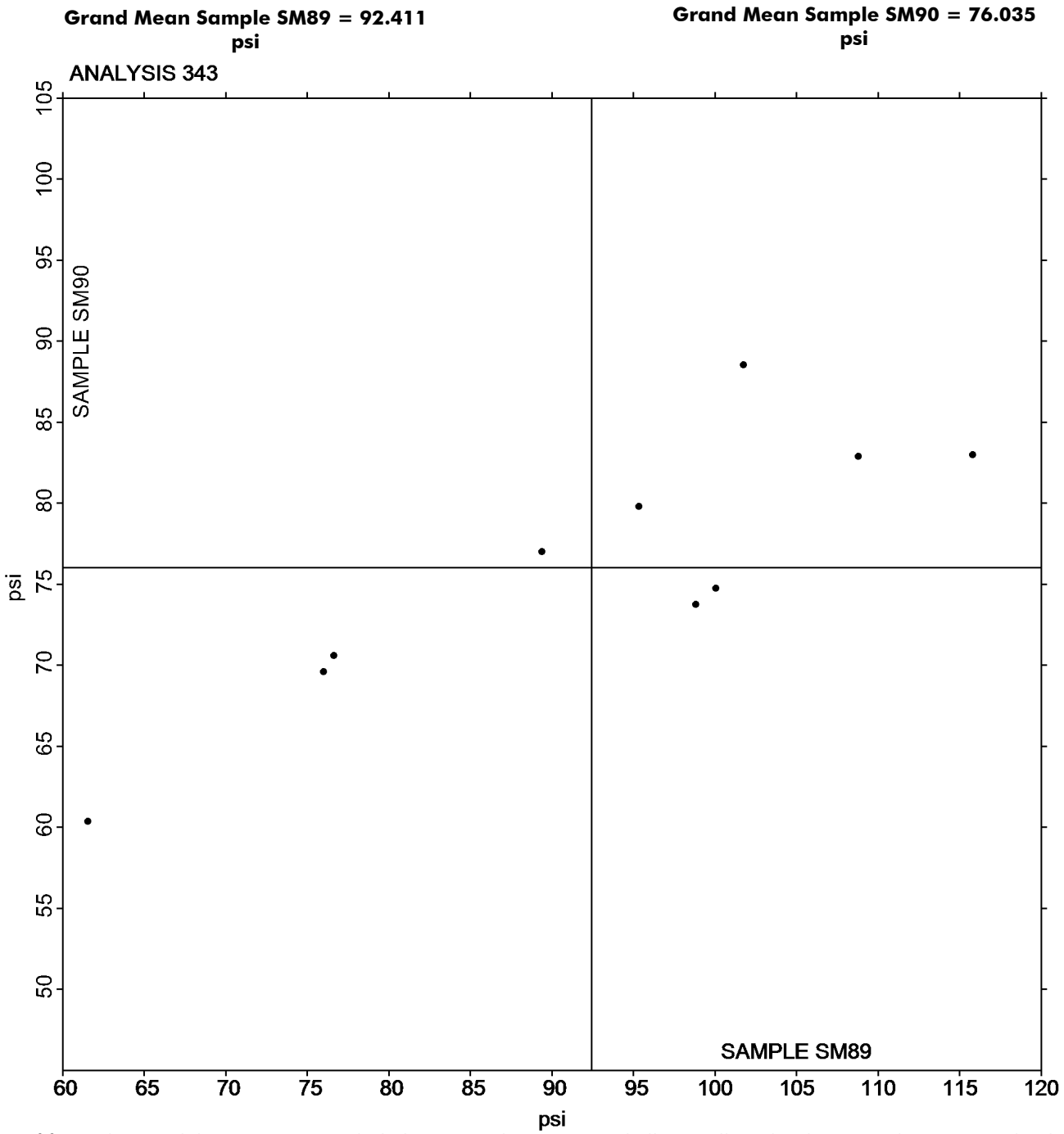
WebCode	Data Flag	Sample SM89 Lab Mean	Sample SM89 Diff from Grand Mean	Sample SM89 CPV	Sample SM90 Lab Mean	Sample SM90 Diff from Grand Mean	Sample SM90 CPV	Instr Code
2JCY9F		101.76	9.34	0.56	88.55	12.51	1.55	TL
7QMLB8		115.80	23.39	1.41	83.00	6.96	0.86	DT
8CZVPA		98.82	6.41	0.39	73.76	-2.28	-0.28	CD
AVZTYF		89.40	-3.01	-0.18	77.00	0.96	0.12	TA
E8WDKN		95.32	2.91	0.17	79.80	3.76	0.46	TA
K3PT66		61.56	-30.85	-1.86	60.38	-15.66	-1.93	LW
VGQ46L		100.04	7.63	0.46	74.76	-1.28	-0.16	CD
WCT8VL		76.64	-15.77	-0.95	70.60	-5.43	-0.67	LW
YWEHXB		108.78	16.37	0.98	82.90	6.86	0.85	LW
ZCYNHA		76.00	-16.41	-0.99	69.60	-6.44	-0.79	CD

Summary Statistics	Sample SM89	Sample SM90
Grand Means	92.41 psi	76.04 psi
Stnd Dev Btwn Labs	16.63 psi	8.10 psi

Statistics based on 10 of 10 reporting participants.

Key to Instrument Codes Reported by Participants

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

Report #3111S, March 2021

Analysis 345

Z-Direction Tensile, Recycled Paperboard

TAPPI Official Test Method T541

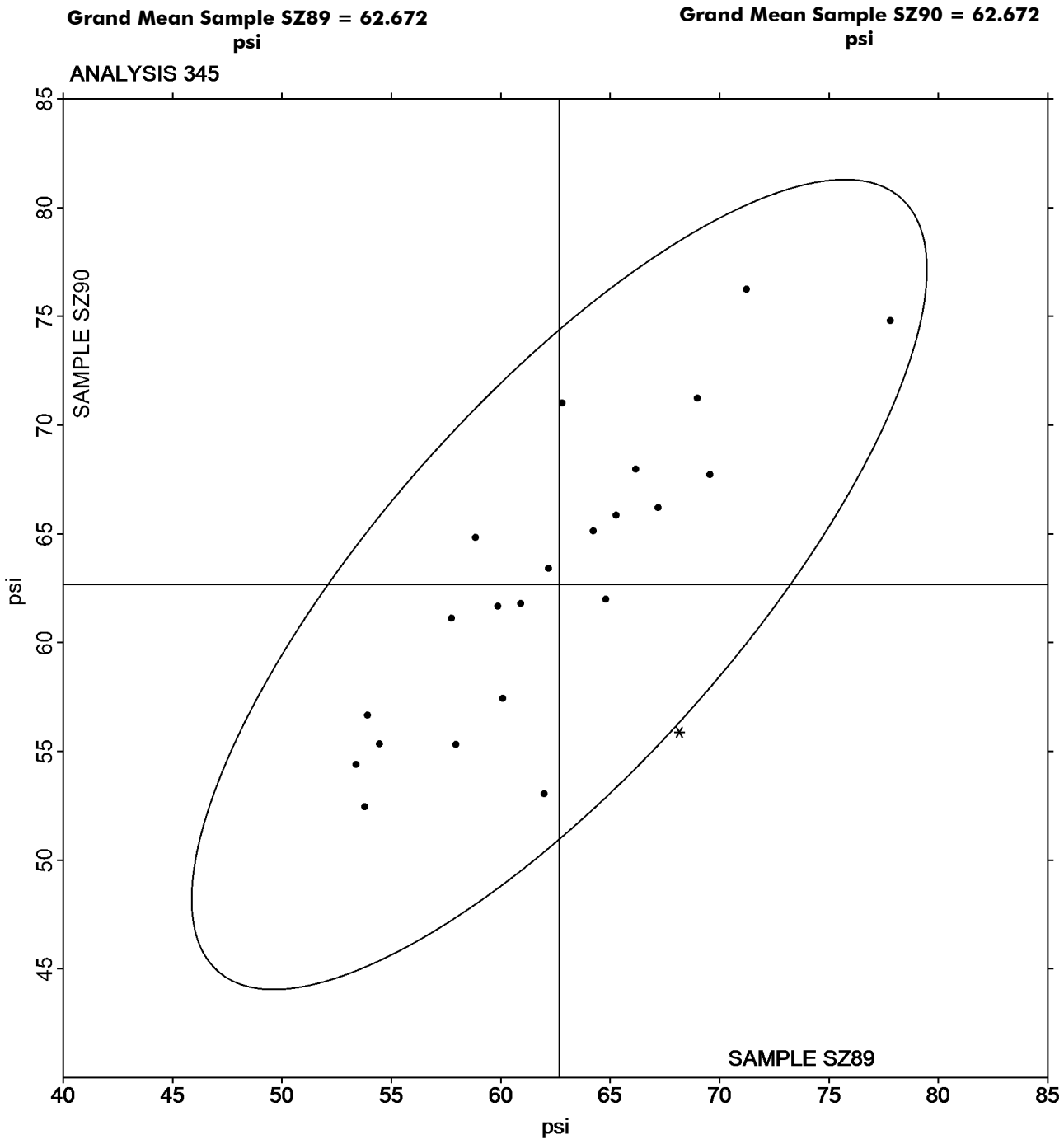
WebCode	Data Flag	Sample SZ89 Lab Mean	Sample SZ89 Diff from Grand Mean	Sample SZ89 CPV	Sample SZ90 Lab Mean	Sample SZ90 Diff from Grand Mean	Sample SZ90 CPV	Instr Code
2CDGU4		68.98	6.31	1.01	71.23	8.55	1.24	LW
3PHR3B		58.86	-3.81	-0.61	64.84	2.17	0.31	CA
4F9RY3		57.96	-4.71	-0.76	55.30	-7.37	-1.07	TA
6C6CAB		64.80	2.13	0.34	62.00	-0.67	-0.10	CA
8YAYMC		60.10	-2.57	-0.41	57.44	-5.23	-0.76	LW
98HV33		53.40	-9.27	-1.49	54.40	-8.27	-1.20	CA
CJ2G2T		69.57	6.90	1.11	67.72	5.05	0.73	LW
G7YW6W		60.92	-1.75	-0.28	61.80	-0.87	-0.13	CD
GMMZ4L		77.80	15.13	2.43	74.80	12.13	1.76	TA
JFF8MM		53.78	-8.89	-1.43	52.44	-10.23	-1.48	TA
JJDRUR		64.24	1.57	0.25	65.12	2.45	0.35	CA
JJUZK8		59.86	-2.81	-0.45	61.66	-1.01	-0.15	TA
QA4MMU	*	68.16	5.49	0.88	55.88	-6.79	-0.98	XX
QUEFRH		62.00	-0.67	-0.11	53.04	-9.63	-1.39	DP
TDG8KU		62.80	0.13	0.02	71.00	8.33	1.21	CA
UXJG6M		67.20	4.53	0.73	66.20	3.53	0.51	CA
VKPKDA		66.18	3.51	0.56	67.98	5.31	0.77	LW
VR9NPH		62.20	-0.47	-0.08	63.40	0.73	0.11	TA
W4JHDF		65.28	2.61	0.42	65.86	3.19	0.46	DP
WN9YJV		54.45	-8.22	-1.32	55.33	-7.35	-1.06	XA
X2R2ER		71.23	8.56	1.37	76.24	13.57	1.96	CH
YWEHXB		57.76	-4.91	-0.79	61.12	-1.55	-0.22	LW
ZRAEG9		53.92	-8.75	-1.40	56.66	-6.01	-0.87	LW

Summary Statistics	Sample SZ89	Sample SZ90
Grand Means	62.67 psi	62.67 psi
Stnd Dev Btwn Labs	6.23 psi	6.91 psi

Statistics based on 23 of 23 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
XA	Special In-House Instrument	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

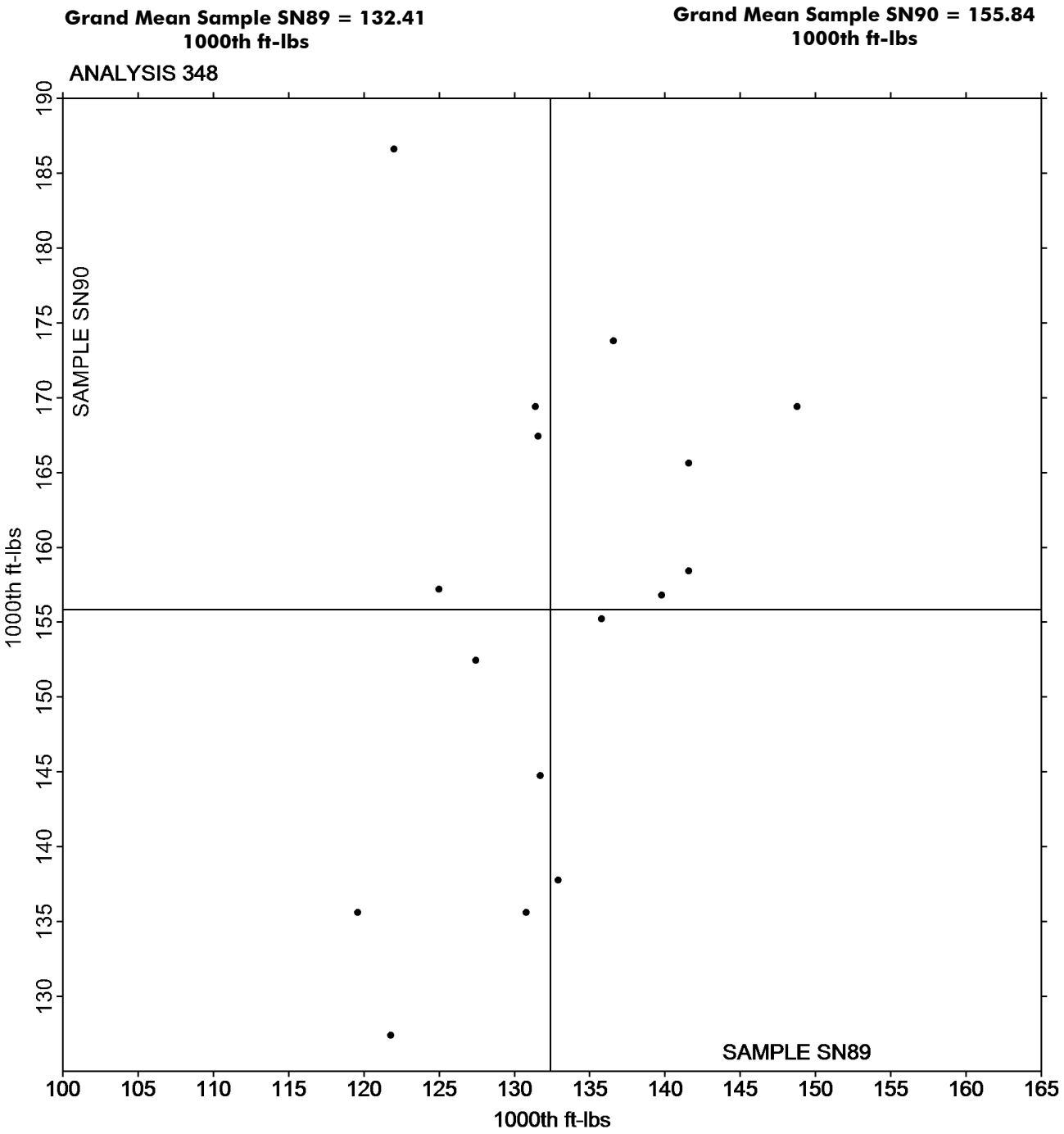
WebCode	Data Flag	Sample SN89 Lab Mean	Sample SN89 Diff from Grand Mean	Sample SN89 CPV	Sample SN90 Lab Mean	Sample SN90 Diff from Grand Mean	Sample SN90 CPV	Instr Code
8CZVPA		135.8	3.4	0.42	155.2	-0.6	-0.04	HY
9YZRRT		141.6	9.2	1.13	158.4	2.6	0.16	HY
CU2A8Y		119.6	-12.8	-1.58	135.6	-20.2	-1.24	HY
E8WDKN		131.4	-1.0	-0.12	169.4	13.6	0.83	HZ
EB2WRW		131.6	-0.8	-0.10	167.4	11.6	0.71	HZ
EKL6D6		131.7	-0.7	-0.09	144.8	-11.1	-0.68	HY
GK2BLT		132.9	0.5	0.06	137.8	-18.1	-1.11	KR
JJDRUR		130.8	-1.6	-0.20	135.6	-20.2	-1.24	HZ
K3PT66		121.8	-10.6	-1.31	127.4	-28.4	-1.75	HZ
PWKKRX		136.6	4.2	0.52	173.8	18.0	1.10	HZ
PYP98M		125.0	-7.4	-0.91	157.2	1.4	0.08	HY
TDG8KU		127.5	-4.9	-0.61	152.5	-3.4	-0.21	HY
VGQ46L		148.8	16.4	2.02	169.4	13.6	0.83	HY
W4JHDF		122.0	-10.4	-1.28	186.6	30.8	1.89	XX
YWEHXB		139.8	7.4	0.91	156.8	1.0	0.06	HY
ZW9NPP		141.6	9.2	1.13	165.6	9.8	0.60	HY

Summary Statistics	Sample SN89	Sample SN90
Grand Means	132.41 1000th ft-lbs	155.84 1000th ft-lbs
Stnd Dev Btwn Labs	8.13 1000th ft-lbs	16.26 1000th ft-lbs

Statistics based on 16 of 16 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	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 SP89 Lab Mean	Sample SP89 Diff from Grand Mean	Sample SP89 CPV	Sample SP90 Lab Mean	Sample SP90 Diff from Grand Mean	Sample SP90 CPV	Instr Code
4PC3BJ		116.2	-3.5	-0.32	129.0	-13.3	-0.80	TM
7JHR9Y		102.2	-17.5	-1.59	142.2	-0.1	-0.01	SC
8KQE64		106.1	-13.6	-1.23	112.5	-29.8	-1.80	XX
AFQU9X		129.0	9.3	0.85	158.0	15.7	0.95	SC
G7UKJL	X	0.2	-119.5	-10.85	0.2	-142.1	-8.57	TM
JPJFBY		110.4	-9.3	-0.85	148.4	6.0	0.36	SC
KFBCGL		132.4	12.7	1.15	128.4	-13.9	-0.84	TM
PH4PAF		131.8	12.1	1.10	167.7	25.4	1.53	XX
PXF97L		123.8	4.1	0.37	139.8	-2.5	-0.15	XX
RPXGR9		128.6	8.9	0.81	158.6	16.3	0.98	SC
X2R2ER		116.4	-3.3	-0.30	138.6	-3.7	-0.22	TM

Summary Statistics	Sample SP89	Sample SP90
Grand Means	119.69 1000th ft-lbs	142.32 1000th ft-lbs
Stnd Dev Btwn Labs	11.01 1000th ft-lbs	16.58 1000th ft-lbs

Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #349

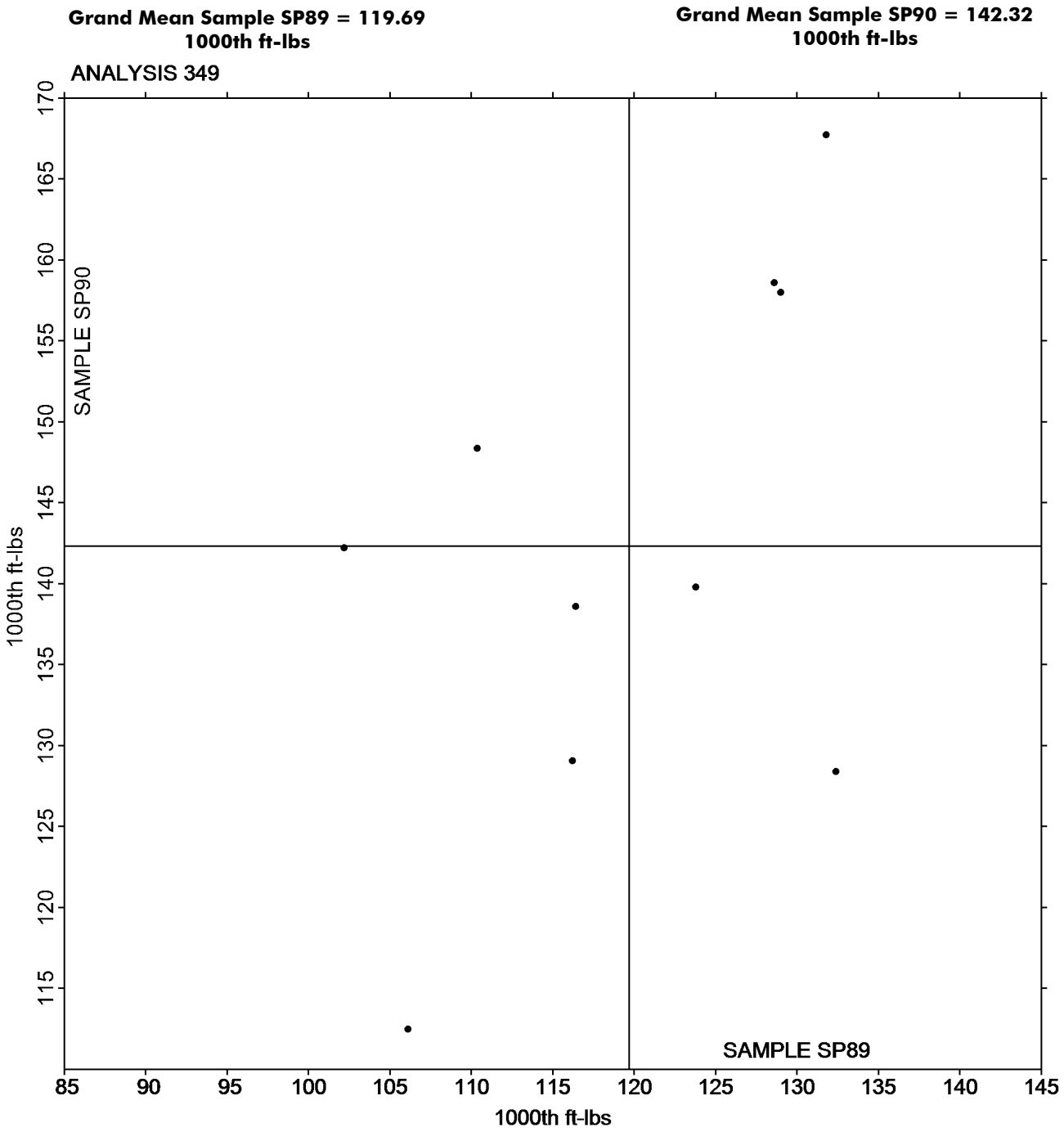
G7UKJL (X) - Extreme Data.

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-

