Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2941 S - May 2018

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The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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Key for Web Summary Reports (Page 1 of 2)

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

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

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

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

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

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

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

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

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

Key for Web Summary Reports (Page 2 of 2)

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

Common Problems Highlighted in Footnotes

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

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

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

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

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

Paper & Paperboard Interlaboratory Testing Program

Analysis 305

Bursting Strength - Printing Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SA55 Lab Mean	Sample SA55 Diff from Grand Mean	Sample SA55 CPV	Sample SA56 Lab Mean	Sample SA56 Diff from Grand Mean	Sample SA56 CPV
3RPNKY		27.73	1.25	0.54	25.56	-0.37	-0.15
6RJ7H7		24.40	-2.08	-0.89	23.05	-2.88	-1.13
7H6PHJ		26.70	0.22	0.09	23.10	-2.83	-1.11
9RMZQ2		27.49	1.01	0.43	27.22	1.29	0.51
AJ9HPE		25.11	-1.37	-0.59	25.90	-0.03	-0.01
CEQZJG		23.72	-2.76	-1.19	23.98	-1.95	-0.77
D7BT4P		24.34	-2.14	-0.92	24.32	-1.61	-0.63
DEMQBH		26.41	-0.07	-0.03	25.62	-0.31	-0.12
EV7DMJ		21.38	-5.10	-2.19	21.65	-4.27	-1.68
FC6PWK		25.57	-0.91	-0.39	26.11	0.18	0.07
HGDP93		31.80	5.31	2.28	30.40	4.47	1.76
LDZCZB		25.50	-0.98	-0.42	24.31	-1.62	-0.64
MAHJEB		26.14	-0.34	-0.15	25.10	-0.83	-0.33
NDVE3K		23.23	-3.26	-1.40	21.97	-3.96	-1.56
NNYNAB		25.77	-0.71	-0.30	25.27	-0.66	-0.26
P789JJ		27.95	1.47	0.63	27.56	1.63	0.64
QXBT96		28.50	2.02	0.87	30.60	4.67	1.84
R4GNT6		27.30	0.82	0.35	26.10	0.17	0.07
TKG3HX		29.07	2.58	1.11	30.26	4.33	1.70
UDDHT8		28.40	1.92	0.82	27.35	1.42	0.56
VJDGJN		26.75	0.26	0.11	26.31	0.39	0.15
Z6K9VX		29.37	2.88	1.24	28.72	2.79	1.10

Summary Statistics	Sample SA55	Sample SA56
Grand Means	26.48 psi	25.93 psi
Stnd Dev Btwn Labs	2.33 psi	2.54 psi

Statistics based on 22 of 22 reporting participants.

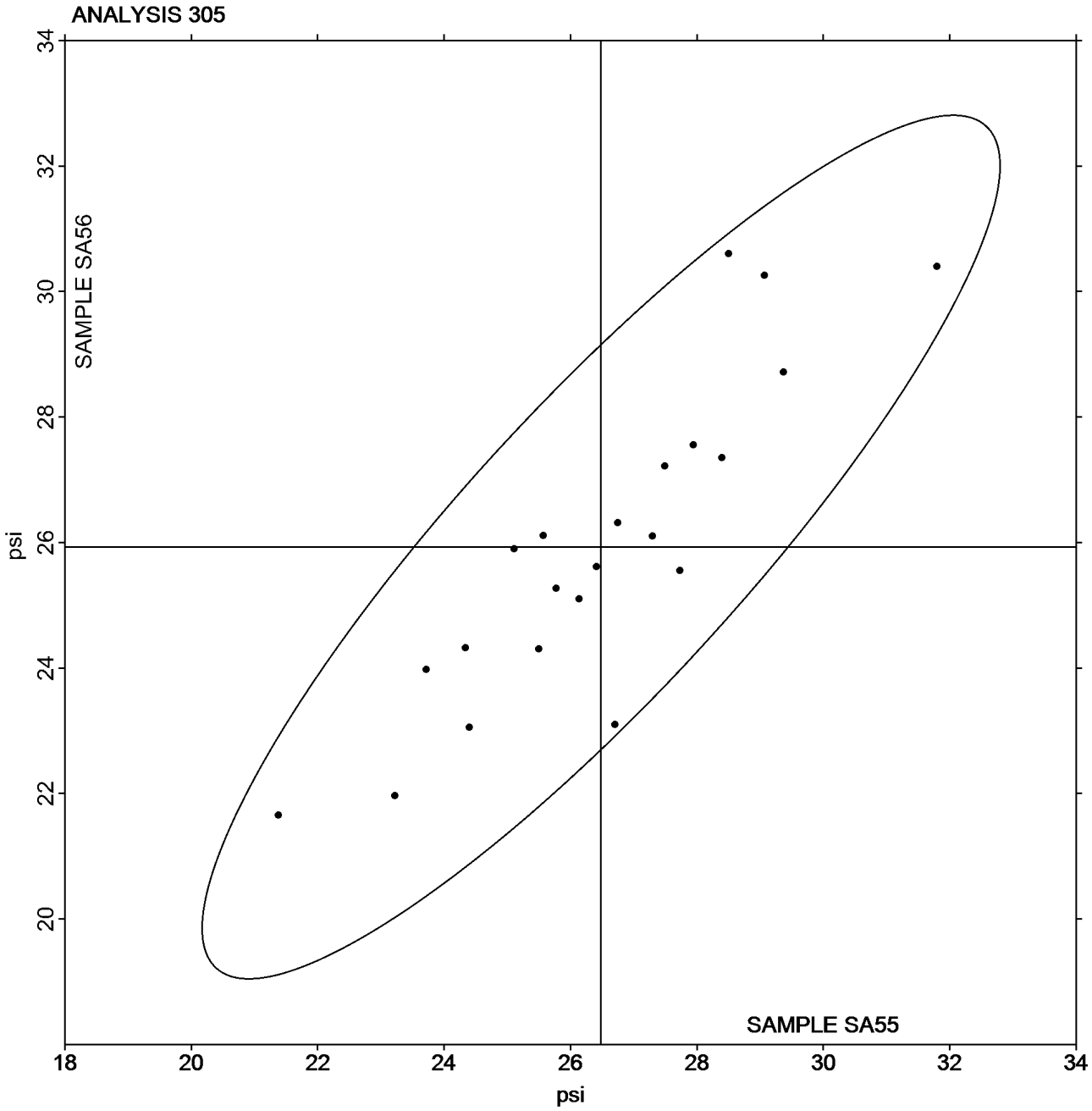
Comments on Assigned Data Flags for Test #305

Analysis Notes:

AJ9HPE - One determination removed from the Lab Mean of Sample SA55 per Grubb's Test at 1% risk (TAPPI 1205).

Grand Mean Sample SA55 = 26.483 psi

Grand Mean Sample SA56 = 25.929 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

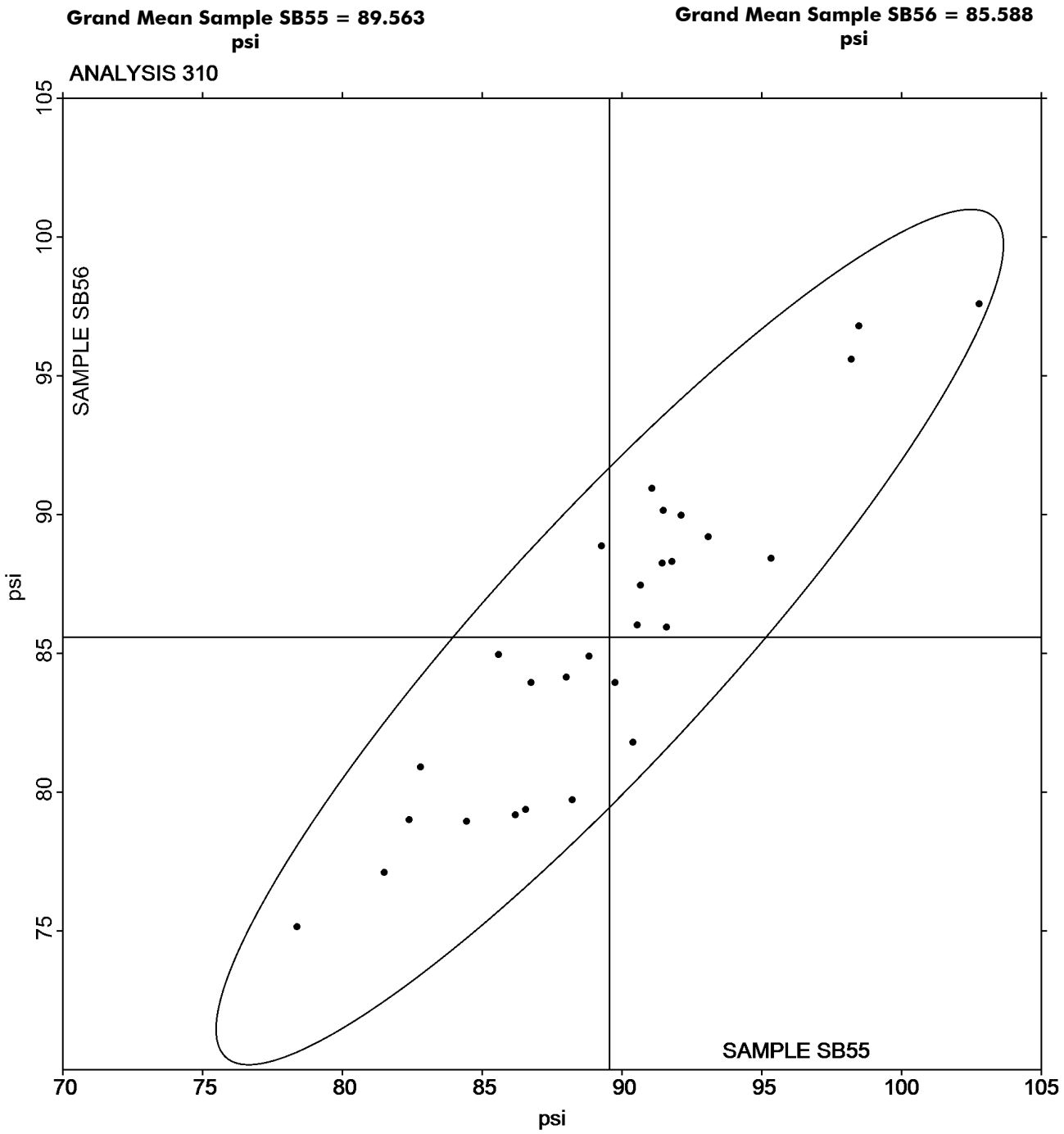
Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB55 Lab Mean	Sample SB55 Diff from Grand Mean	Sample SB55 CPV	Sample SB56 Lab Mean	Sample SB56 Diff from Grand Mean	Sample SB56 CPV
4BX77N		86.75	-2.81	-0.53	83.95	-1.64	-0.28
6AZEDE		90.40	0.84	0.16	81.80	-3.79	-0.65
6GVFR8		89.27	-0.29	-0.05	88.87	3.28	0.56
6LT2GP		98.20	8.64	1.62	95.60	10.01	1.72
7H6PHJ		95.34	5.78	1.09	88.43	2.84	0.49
83CEA8		89.76	0.20	0.04	83.95	-1.64	-0.28
8GQGRV		90.66	1.10	0.21	87.44	1.86	0.32
8WMYJE		88.84	-0.73	-0.14	84.89	-0.70	-0.12
9UBJPD		92.11	2.55	0.48	89.97	4.38	0.75
AYMNYT		91.80	2.24	0.42	88.30	2.71	0.47
C92DWP		91.45	1.89	0.35	88.24	2.65	0.46
D44DVY		78.38	-11.19	-2.10	75.15	-10.44	-1.79
DLLFRL		91.48	1.92	0.36	90.14	4.55	0.78
EPJF6N		98.47	8.91	1.67	96.79	11.20	1.92
F32D3C		82.40	-7.16	-1.35	79.00	-6.59	-1.13
HGDP93		90.55	0.99	0.19	86.01	0.42	0.07
HLAEQV		82.80	-6.76	-1.27	80.90	-4.69	-0.80
LDHA8G		88.23	-1.33	-0.25	79.71	-5.88	-1.01
P789JJ		91.08	1.52	0.29	90.94	5.35	0.92
RJVU46		88.02	-1.55	-0.29	84.13	-1.45	-0.25
U3VYDH		86.18	-3.38	-0.64	79.18	-6.41	-1.10
UDDHT8		91.60	2.03	0.38	85.93	0.34	0.06
VJYTHW		85.60	-3.96	-0.74	84.95	-0.64	-0.11
VLM4G2		93.10	3.54	0.66	89.20	3.61	0.62
VNNAW8		84.45	-5.11	-0.96	78.95	-6.64	-1.14
WMQJ4X		86.56	-3.00	-0.56	79.36	-6.23	-1.07
XUA36D		81.50	-8.06	-1.51	77.10	-8.49	-1.46
XVLWMX		102.78	13.22	2.48	97.58	11.99	2.06

Summary Statistics	Sample SB55	Sample SB56
Grand Means	89.56 psi	85.59 psi
Stnd Dev Btwn Labs	5.32 psi	5.82 psi

Statistics based on 28 of 28 reporting participants.



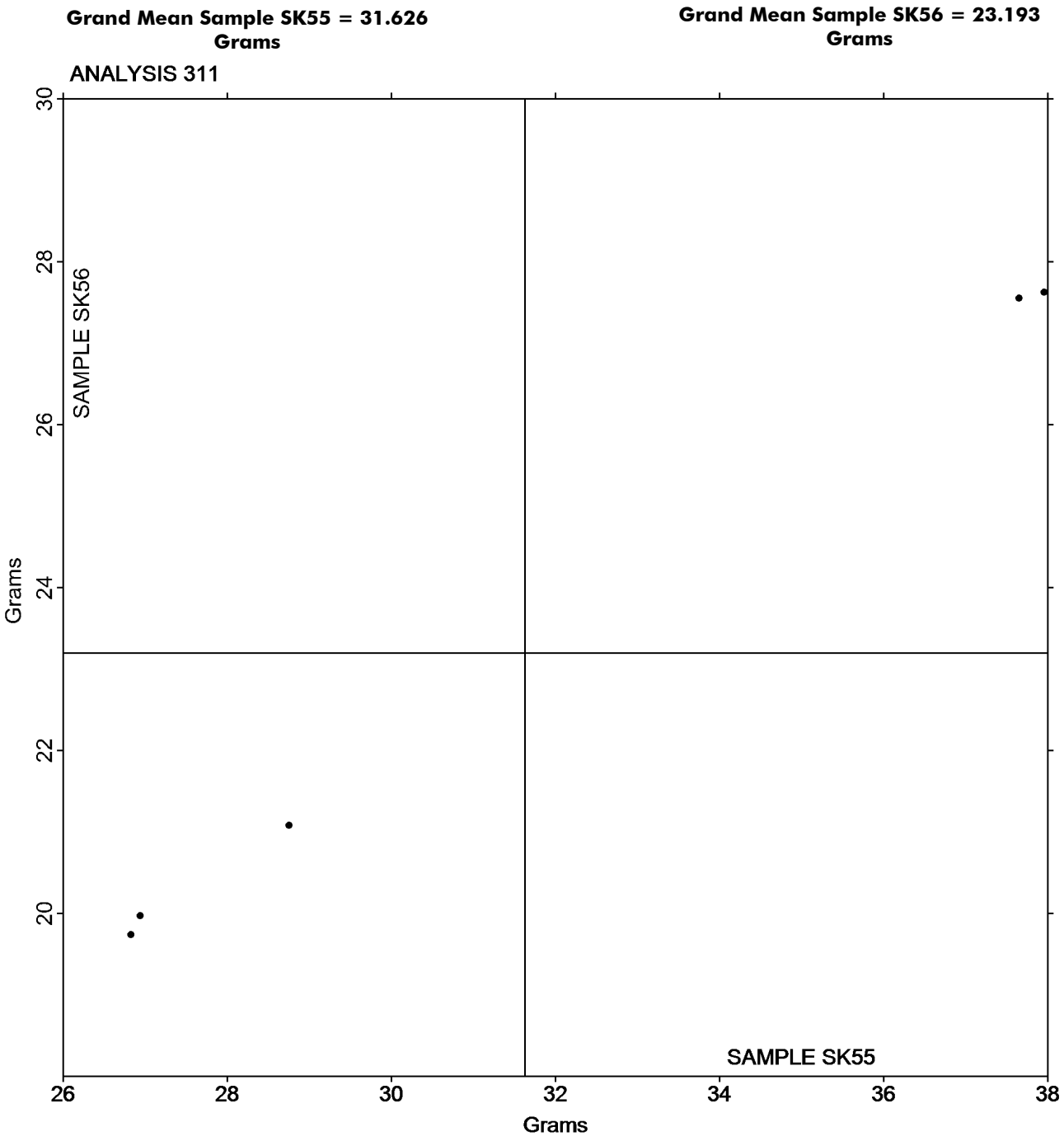
Paper & Paperboard Interlaboratory Testing Program

Analysis 311
Tearing Strength - Newsprint
TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK55 Lab Mean	Sample SK55 Diff from Grand Mean	Sample SK55 CPV	Sample SK56 Lab Mean	Sample SK56 Diff from Grand Mean	Sample SK56 CPV
8UYFK3		37.65	6.02	1.06	27.55	4.36	1.08
9LZDVV		26.83	-4.80	-0.84	19.74	-3.45	-0.85
LEEGWN		37.95	6.33	1.11	27.62	4.43	1.10
RHXJ92		26.94	-4.69	-0.82	19.97	-3.22	-0.80
UDDHT8		28.76	-2.87	-0.50	21.08	-2.12	-0.52

Summary Statistics	Sample SK55	Sample SK56
Grand Means	31.63 Grams	23.19 Grams
Stnd Dev Btwn Labs	5.69 Grams	4.04 Grams

Statistics based on 5 of 5 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC55 Lab Mean	Sample SC55 Diff from Grand Mean	Sample SC55 CPV	Sample SC56 Lab Mean	Sample SC56 Diff from Grand Mean	Sample SC56 CPV
2UZAVU		61.14	-1.02	-0.30	59.84	-2.75	-0.77
2XE4BR		67.08	4.92	1.44	66.74	4.15	1.17
34LKRR	X	64.55	2.39	0.70	60.58	-2.01	-0.56
3RPNKY	X	127.60	65.44	19.10	127.62	65.03	18.31
3XVBHU		62.90	0.74	0.22	64.10	1.51	0.43
4BX77N		60.95	-1.21	-0.35	62.76	0.17	0.05
6GVFR8		61.93	-0.23	-0.07	64.43	1.84	0.52
6LT2GP	X	142.80	80.64	23.54	148.40	85.81	24.16
7LABEW		60.72	-1.44	-0.42	62.21	-0.38	-0.11
7T78V8		62.35	0.19	0.06	63.84	1.25	0.35
8GQGRV		63.07	0.91	0.27	63.09	0.50	0.14
8HHTB2		62.43	0.27	0.08	61.18	-1.41	-0.40
8WMYJE		61.83	-0.33	-0.10	62.38	-0.21	-0.06
9BJQLV		64.40	2.24	0.65	66.80	4.21	1.19
9RMZQ2		65.25	3.09	0.90	67.36	4.77	1.34
AJ9HPE		56.40	-5.76	-1.68	56.60	-5.99	-1.69
C92DWP		60.09	-2.07	-0.60	59.84	-2.75	-0.77
CEQZJG		65.12	2.96	0.86	64.96	2.37	0.67
D7BT4P		58.96	-3.20	-0.93	59.46	-3.13	-0.88
D9UV3H		58.02	-4.14	-1.21	57.42	-5.17	-1.45
DEMQBH		62.16	0.00	0.00	61.21	-1.38	-0.39
DRCP3K		58.68	-3.48	-1.02	57.54	-5.05	-1.42
EFE7YY		66.34	4.18	1.22	66.04	3.45	0.97
EV7DMJ		64.52	2.37	0.69	66.32	3.74	1.05
FC6PWK	X	128.75	66.59	19.44	128.03	65.44	18.43
GZCMV4		61.50	-0.66	-0.19	62.06	-0.53	-0.15
H9YWYR		56.94	-5.22	-1.52	57.94	-4.65	-1.31
HGDP93		58.32	-3.84	-1.12	58.84	-3.75	-1.05
JBKZ8P		61.36	-0.80	-0.23	61.38	-1.21	-0.34
LDZCZB		61.73	-0.43	-0.13	62.44	-0.15	-0.04
LF8CEQ		59.50	-2.66	-0.78	59.60	-2.99	-0.84
M3JPQB	X	49.95	-12.21	-3.56	51.50	-11.09	-3.12
M97GUX		59.04	-3.12	-0.91	58.22	-4.37	-1.23
N89TN8	*	71.30	9.14	2.67	72.12	9.54	2.69
NDVE3K		69.67	7.51	2.19	69.23	6.64	1.87
P789JJ		59.35	-2.81	-0.82	60.42	-2.17	-0.61
QXBT96	X	96.60	34.44	10.05	99.80	37.21	10.48
R4GNT6		68.03	5.87	1.71	68.30	5.71	1.61
RBF9U2		64.77	2.61	0.76	63.47	0.88	0.25
RJVU46		63.04	0.88	0.26	64.29	1.71	0.48

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC55 Lab Mean	Sample SC55 Diff from Grand Mean	Sample SC55 CPV	Sample SC56 Lab Mean	Sample SC56 Diff from Grand Mean	Sample SC56 CPV
RLW6P7		64.25	2.09	0.61	64.80	2.21	0.62
TKG3HX		59.20	-2.96	-0.86	60.40	-2.19	-0.62
UDDHT8		64.69	2.53	0.74	64.86	2.28	0.64
VJDGJN		64.58	2.42	0.71	63.98	1.39	0.39
VJYTHW		58.44	-3.72	-1.09	58.29	-4.30	-1.21
YCKHG4		61.40	-0.76	-0.22	62.40	-0.19	-0.05
Z6K9VX		57.08	-5.08	-1.48	58.86	-3.73	-1.05

Summary Statistics	Sample SC55	Sample SC56
Grand Means	62.16 Grams	62.59 Grams
Stnd Dev Btwn Labs	3.43 Grams	3.55 Grams

Statistics based on 41 of 47 reporting participants.

Comments on Assigned Data Flags for Test #312

M3JPQB (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SC56.

QXBT96 (X) - Extreme Data.

34LKRR (X) - Inconsistent in testing between samples.

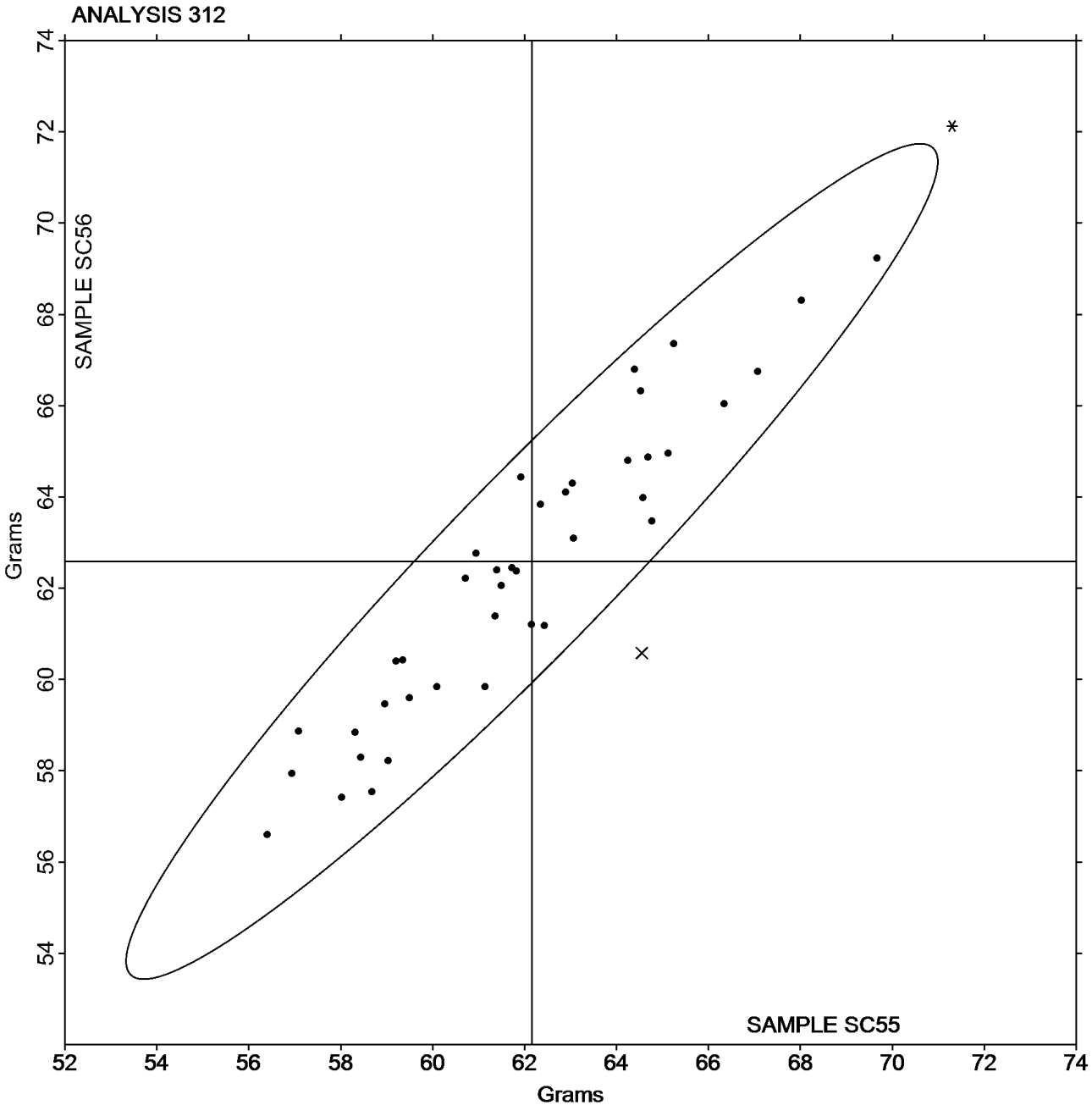
6LT2GP (X) - Extreme Data.

3RPNKY (X) - Extreme Data.

FC6PWK (X) - Extreme Data.

Grand Mean Sample SC55 = 62.159 Grams

Grand Mean Sample SC56 = 62.586 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD55 Lab Mean	Sample SD55 Diff from Grand Mean	Sample SD55 CPV	Sample SD56 Lab Mean	Sample SD56 Diff from Grand Mean	Sample SD56 CPV
3P4XGA		186.6	2.8	0.16	197.8	8.4	0.40
4XA4NW		181.5	-2.2	-0.12	183.2	-6.2	-0.29
6AZEDE		188.3	4.6	0.26	196.4	7.0	0.33
6LT2GP		208.0	24.3	1.35	219.2	29.8	1.40
6RJ7H7		179.5	-4.2	-0.23	170.2	-19.1	-0.90
7H6PHJ		172.4	-11.3	-0.63	163.6	-25.8	-1.21
82HJR6		191.0	7.3	0.41	187.3	-2.1	-0.10
83CEA8		207.7	24.0	1.33	213.0	23.7	1.11
8A9996		175.7	-8.0	-0.45	188.0	-1.4	-0.06
8EKA93		190.4	6.7	0.37	202.8	13.4	0.63
8P6G9R		187.8	4.0	0.23	188.3	-1.0	-0.05
9UBJPD		183.9	0.2	0.01	192.5	3.2	0.15
BJ4KRN		210.4	26.7	1.48	210.9	21.5	1.01
D44DVY		187.5	3.8	0.21	198.5	9.1	0.43
DLLFRL		189.8	6.1	0.34	198.8	9.4	0.44
F769LE		175.6	-8.2	-0.45	182.9	-6.5	-0.30
HHBT7J		174.3	-9.5	-0.53	182.0	-7.3	-0.34
HLAEQV		184.0	0.3	0.02	176.0	-13.4	-0.63
JFFU7C		174.1	-9.7	-0.54	180.0	-9.3	-0.44
JNAYXR		193.3	9.6	0.53	203.3	13.9	0.65
JP3VGU		196.6	12.8	0.71	199.1	9.8	0.46
LDHA8G	X	52.3	-131.4	-7.31	49.1	-140.3	-6.59
MLTQEG		160.2	-23.5	-1.31	157.9	-31.5	-1.48
N634TP		152.3	-31.4	-1.75	147.2	-42.2	-1.98
N89TN8		181.0	-2.7	-0.15	192.3	2.9	0.14
NQMZ9F		166.9	-16.8	-0.94	169.6	-19.8	-0.93
NX4LA8		211.2	27.5	1.53	224.6	35.2	1.66
PBZGK6		176.0	-7.7	-0.43	183.2	-6.2	-0.29
QXBT96	X	259.0	75.3	4.19	259.4	70.0	3.29
RCBTJL		158.6	-25.1	-1.40	169.8	-19.5	-0.92
U4PFW7	X	348.9	165.2	9.19	351.4	162.0	7.61
UB8X68		182.1	-1.6	-0.09	202.1	12.8	0.60
UDDHT8		191.0	7.3	0.41	190.2	0.8	0.04
VLM4G2		192.6	8.9	0.49	190.8	1.4	0.07
VNNAW8		195.0	11.3	0.63	206.6	17.2	0.81
WW2JYU		175.5	-8.2	-0.46	188.5	-0.8	-0.04
XUA36D	*	230.6	46.8	2.61	249.0	59.6	2.80
XVLWMX	*	130.1	-53.6	-2.98	136.9	-52.4	-2.46
YK2MX6		185.4	1.7	0.10	197.5	8.2	0.38
ZQJFMA		170.6	-13.1	-0.73	166.1	-23.2	-1.09

Summary Statistics	Sample SD55	Sample SD56
Grand Means	183.71 Grams	189.36 Grams
Stnd Dev Btwn Labs	17.98 Grams	21.29 Grams

Statistics based on 37 of 40 reporting participants.

Comments on Assigned Data Flags for Test #314

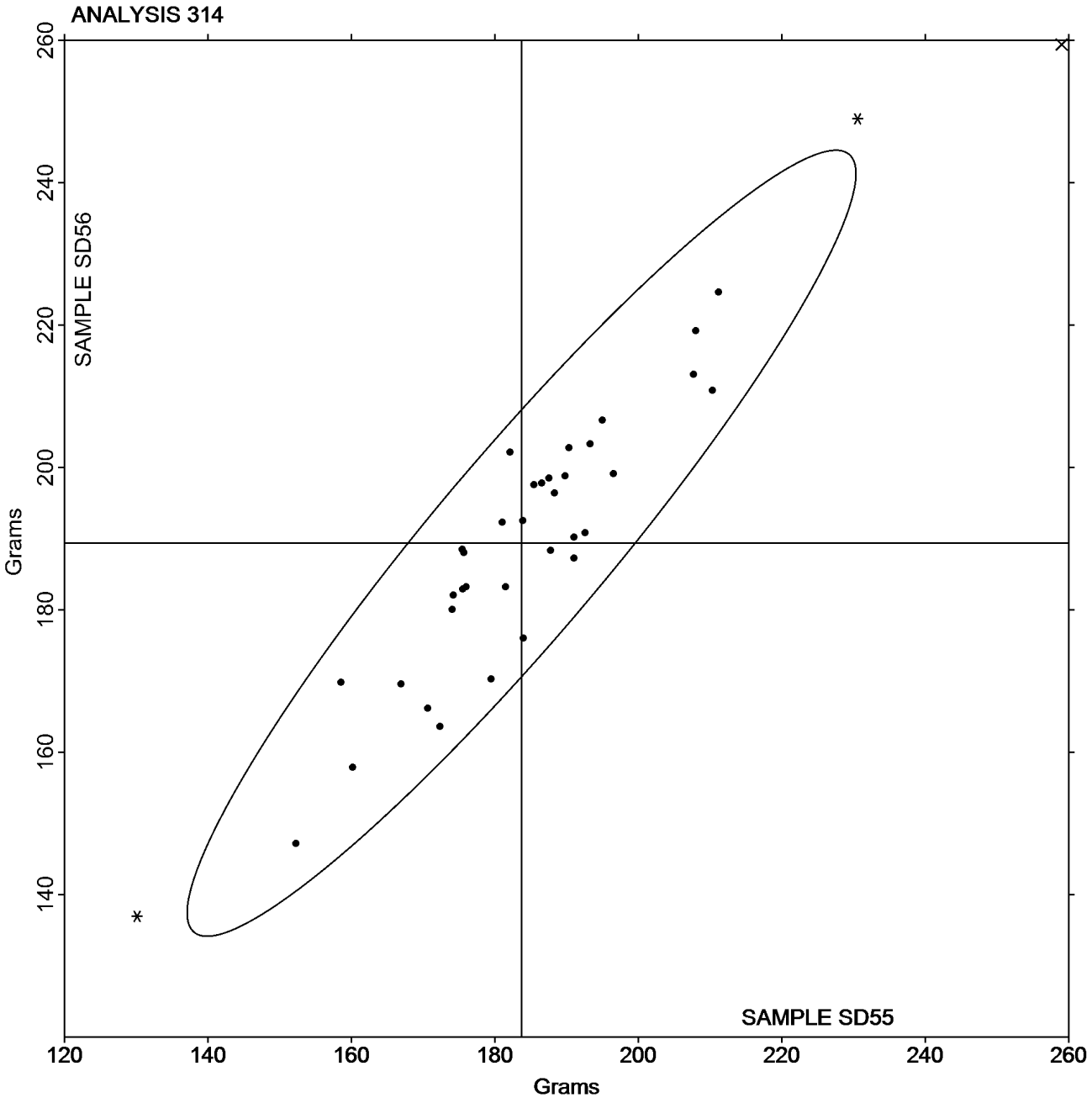
QXBT96 (X) - Data for both samples are high.

U4PFW7 (X) - Extreme Data.

LDHA8G (X) - Extreme Data.

Grand Mean Sample SD55 = 183.71 Grams

Grand Mean Sample SD56 = 189.36 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

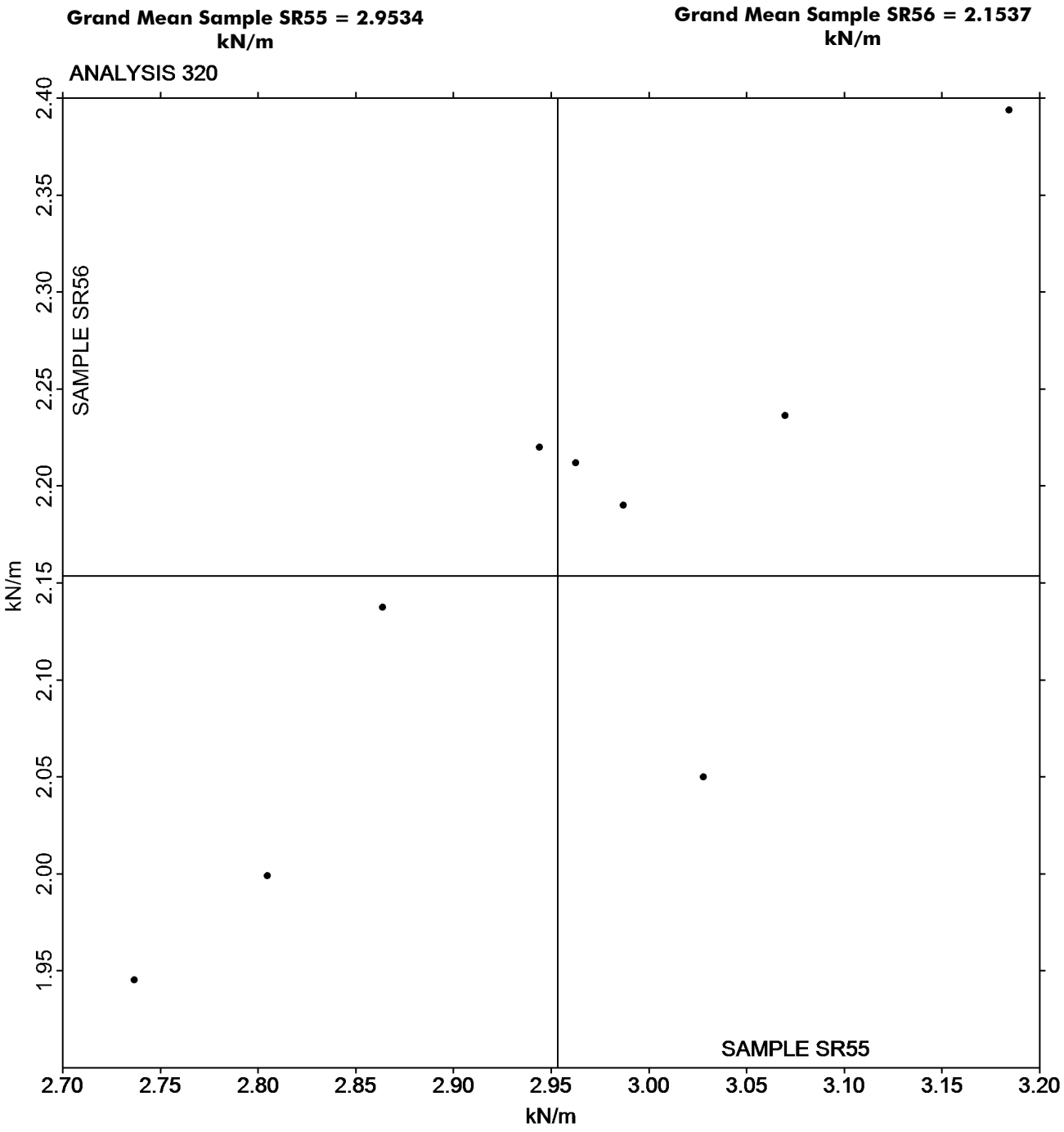
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR55 Lab Mean	Sample SR55 Diff from Grand Mean	Sample SR55 CPV	Sample SR56 Lab Mean	Sample SR56 Diff from Grand Mean	Sample SR56 CPV
8UYFK3		2.963	0.009	0.07	2.212	0.058	0.42
9LZDVV		2.737	-0.217	-1.58	1.945	-0.208	-1.51
AJ9HPE		3.184	0.231	1.68	2.394	0.240	1.74
AYMNYT		3.070	0.116	0.85	2.236	0.082	0.60
LEEGWN		2.944	-0.009	-0.07	2.220	0.066	0.48
MAHJEB		2.805	-0.149	-1.08	1.999	-0.155	-1.12
N89TN8		2.864	-0.090	-0.65	2.137	-0.016	-0.12
P789JJ		2.987	0.034	0.24	2.190	0.036	0.26
RHXJ92		3.028	0.075	0.54	2.050	-0.104	-0.75

Summary Statistics	Sample SR55	Sample SR56
Grand Means	2.95 kN/m	2.15 kN/m
Stnd Dev Btwn Labs	0.14 kN/m	0.14 kN/m

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 321

Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

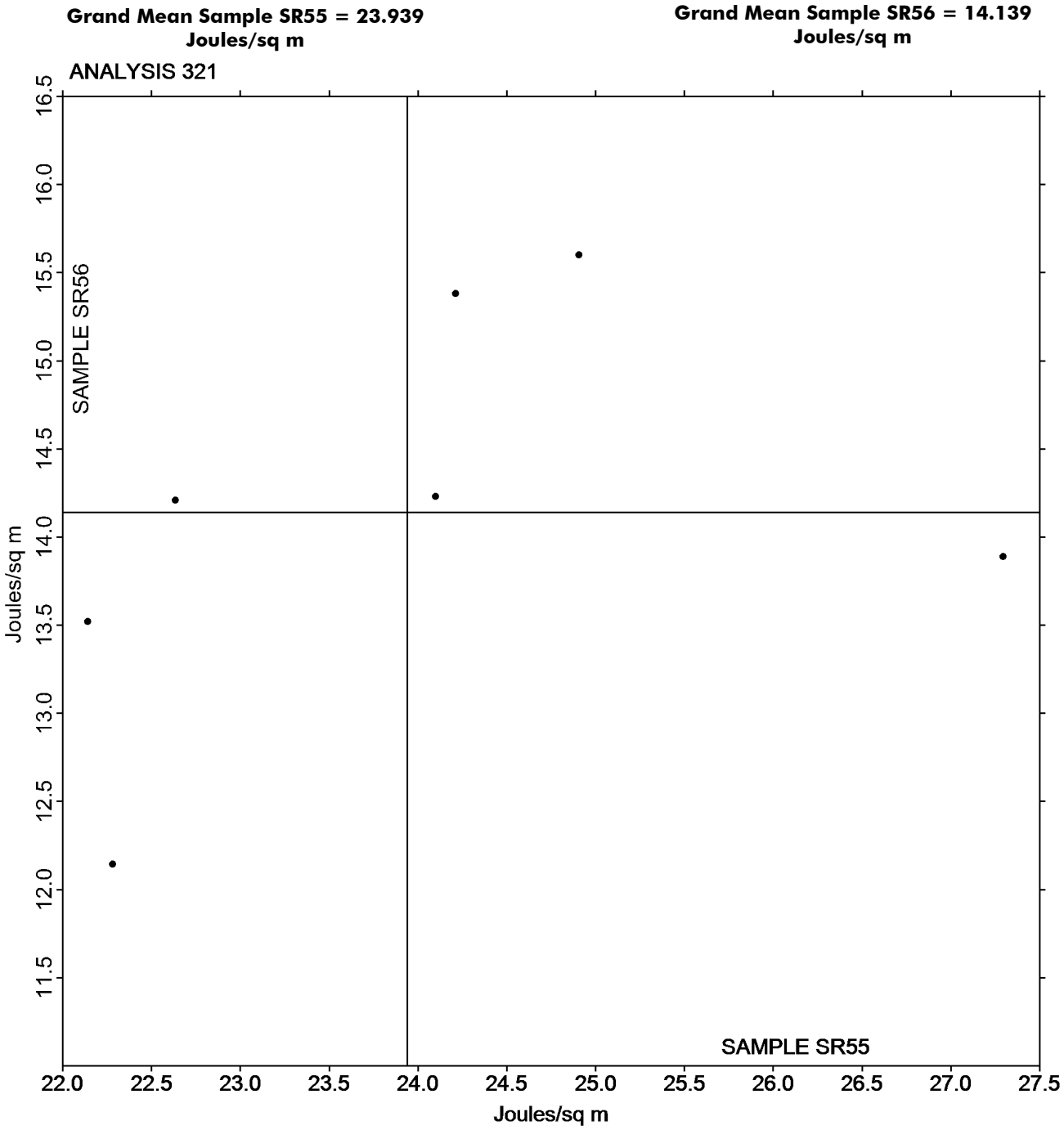
WebCode	Data Flag	Sample SR55 Lab Mean	Sample SR55 Diff from Grand Mean	Sample SR55 CPV	Sample SR56 Lab Mean	Sample SR56 Diff from Grand Mean	Sample SR56 CPV
8UYFK3		22.14	-1.80	-0.98	13.52	-0.62	-0.53
9LZDVV	X	1.62	-22.32	-12.23	0.97	-13.17	-11.32
AJ9HPE		24.21	0.27	0.15	15.38	1.24	1.07
AYMNYT		24.91	0.97	0.53	15.60	1.46	1.26
MAHJEB		22.28	-1.66	-0.91	12.14	-2.00	-1.72
N89TN8		24.10	0.16	0.09	14.23	0.09	0.08
P789JJ		22.64	-1.30	-0.71	14.21	0.07	0.06
RHXJ92		27.30	3.36	1.84	13.89	-0.25	-0.21

Summary Statistics	Sample SR55	Sample SR56
Grand Means	23.94 Joules/sq m	14.14 Joules/sq m
Stnd Dev Btwn Labs	1.82 Joules/sq m	1.16 Joules/sq m

Statistics based on 7 of 8 reporting participants.

Comments on Assigned Data Flags for Test #321

9LZDVV (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.

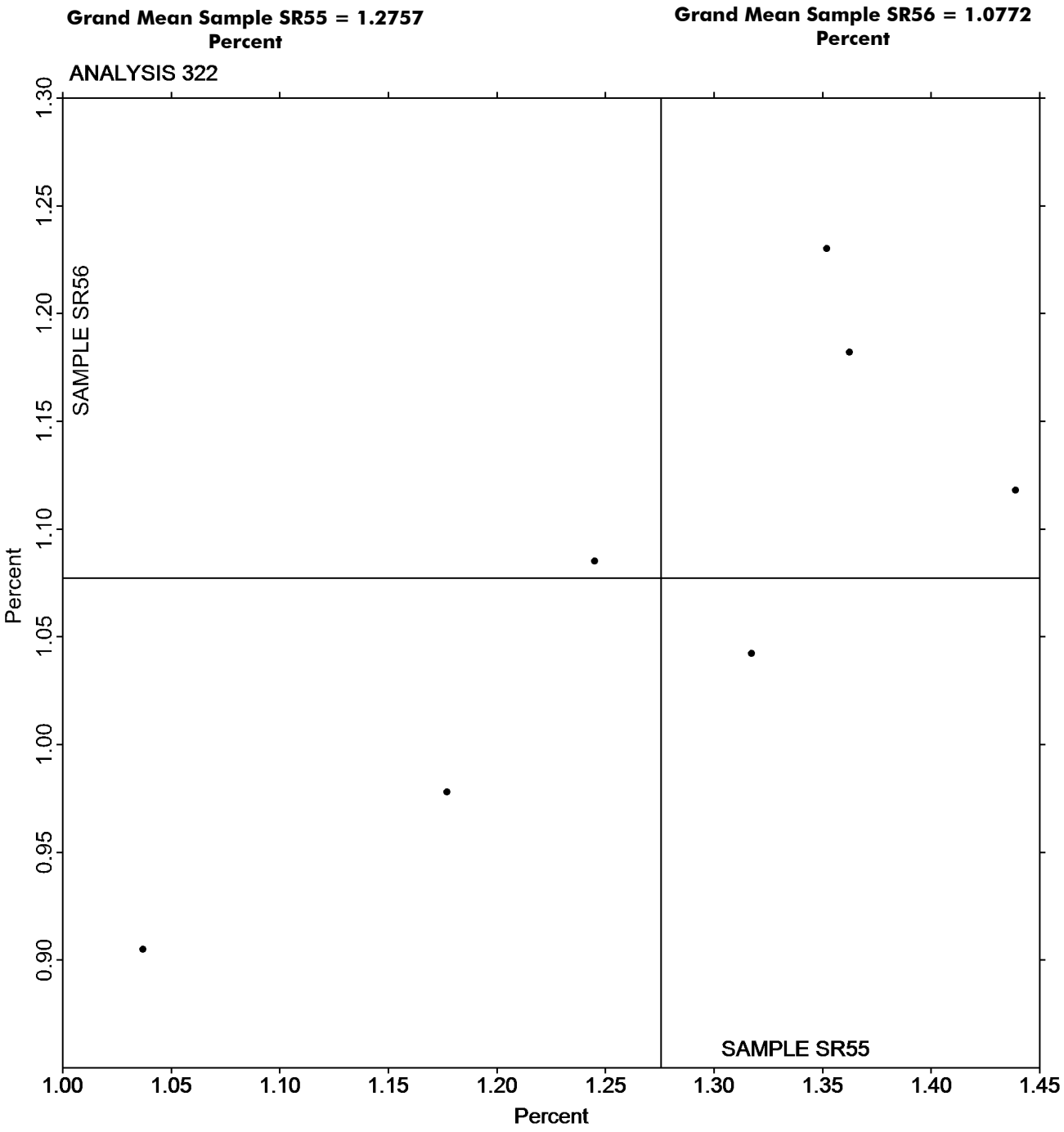
Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample SR55 Lab Mean	Sample SR55 Diff from Grand Mean	Sample SR55 CPV	Sample SR56 Lab Mean	Sample SR56 Diff from Grand Mean	Sample SR56 CPV
9LZDVV		1.037	-0.239	-1.77	0.905	-0.172	-1.52
AJ9HPE		1.352	0.076	0.57	1.230	0.153	1.35
AYMNYT		1.362	0.087	0.64	1.182	0.105	0.93
MAHJEB		1.317	0.042	0.31	1.042	-0.035	-0.31
N89TN8		1.177	-0.099	-0.73	0.978	-0.099	-0.88
P789JJ		1.245	-0.031	-0.23	1.085	0.008	0.07
RHXJ92		1.439	0.163	1.21	1.118	0.041	0.36

Summary Statistics	Sample SR55	Sample SR56
Grand Means	1.28 Percent	1.08 Percent
Stnd Dev Btwn Labs	0.14 Percent	0.11 Percent

Statistics based on 7 of 7 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 SF55 Lab Mean	Sample SF55 Diff from Grand Mean	Sample SF55 CPV	Sample SF56 Lab Mean	Sample SF56 Diff from Grand Mean	Sample SF56 CPV	Instr Code
2UZAVU		2.264	0.030	0.24	4.536	0.062	0.25	TP
2XE4BR		2.417	0.183	1.45	4.869	0.394	1.62	LH
34LKRR		2.197	-0.036	-0.29	4.375	-0.099	-0.41	XX
3F92BX		2.131	-0.102	-0.81	4.290	-0.184	-0.76	LI
3RPNKY		2.135	-0.098	-0.78	4.262	-0.212	-0.87	LI
3XVBHU		2.245	0.012	0.10	4.494	0.020	0.08	TO
4BX77N		2.391	0.157	1.25	4.811	0.337	1.39	TF
6GVFR8		2.034	-0.199	-1.58	4.228	-0.246	-1.01	XX
74MU49		2.392	0.158	1.26	4.747	0.273	1.12	TN
7LABEW		2.039	-0.195	-1.54	3.981	-0.494	-2.03	FP
7NAK2J		2.533	0.300	2.38	5.028	0.554	2.28	XX
7T78V8		2.338	0.105	0.83	4.613	0.139	0.57	LA
8HHTB2		2.354	0.120	0.95	4.668	0.194	0.80	TC
8WMYJE		2.320	0.087	0.69	4.655	0.181	0.74	LI
9RMZQ2		2.336	0.103	0.82	4.692	0.218	0.90	LH
CEQZJG		2.059	-0.174	-1.38	4.333	-0.141	-0.58	LX
D7BT4P		2.176	-0.057	-0.46	4.345	-0.129	-0.53	TB
D9UV3H		2.137	-0.097	-0.77	4.294	-0.180	-0.74	TF
DEMQBH		2.264	0.030	0.24	4.395	-0.079	-0.33	LA
DRCP3K		2.222	-0.011	-0.09	4.444	-0.030	-0.12	LE
EV7DMJ		2.271	0.037	0.30	4.501	0.027	0.11	LX
EVM42B	*	2.102	-0.131	-1.04	3.992	-0.482	-1.98	RE
FC6PWK		2.233	0.000	0.00	4.457	-0.017	-0.07	LI
H9YWYR		2.410	0.177	1.40	4.684	0.210	0.86	LF
JBKZ8P		2.100	-0.134	-1.06	4.180	-0.294	-1.21	ID
LDZCZB		2.225	-0.008	-0.07	4.310	-0.165	-0.68	IM
M3JPQB	X	2.658	0.425	3.37	5.065	0.591	2.43	VM
M97GUX		2.025	-0.208	-1.65	4.151	-0.323	-1.33	TB
NDVE3K	X	3.189	0.955	7.58	5.973	1.499	6.16	LH
NNYNAB		2.332	0.098	0.78	4.767	0.293	1.21	LH
P789JJ		2.153	-0.080	-0.64	4.482	0.008	0.03	LH
R4GNT6		2.125	-0.109	-0.86	4.336	-0.139	-0.57	LH
R97BFX		2.292	0.059	0.47	4.653	0.179	0.74	TP
RBF9U2		2.057	-0.176	-1.40	4.256	-0.218	-0.90	IM
RLW6P7		2.226	-0.007	-0.06	4.498	0.024	0.10	LI
TKG3HX		2.236	0.003	0.02	4.479	0.005	0.02	LH
UDDHT8		2.218	-0.015	-0.12	4.498	0.023	0.10	LH
UM37QV		2.203	-0.030	-0.24	4.522	0.048	0.20	LA
VJDGJN		2.208	-0.026	-0.20	4.345	-0.129	-0.53	TF
XVLWMX		2.211	-0.023	-0.18	4.333	-0.142	-0.58	TB

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF55 Lab Mean	Sample SF55 Diff from Grand Mean	Sample SF55 CPV	Sample SF56 Lab Mean	Sample SF56 Diff from Grand Mean	Sample SF56 CPV	Instr Code
YCKHG4	X	2.850	0.617	4.90	4.786	0.311	1.28	XX
Z6K9VX		2.492	0.259	2.05	4.989	0.515	2.12	TJ

Summary Statistics	Sample SF55	Sample SF56
Grand Means	2.23 kN/m	4.47 kN/m
Stnd Dev Btwn Labs	0.13 kN/m	0.24 kN/m

Statistics based on 39 of 42 reporting participants.

Comments on Assigned Data Flags for Test #325

NDVE3K (X) - Extreme Data.

M3JPQB (X) - Data for sample SF55 are high.

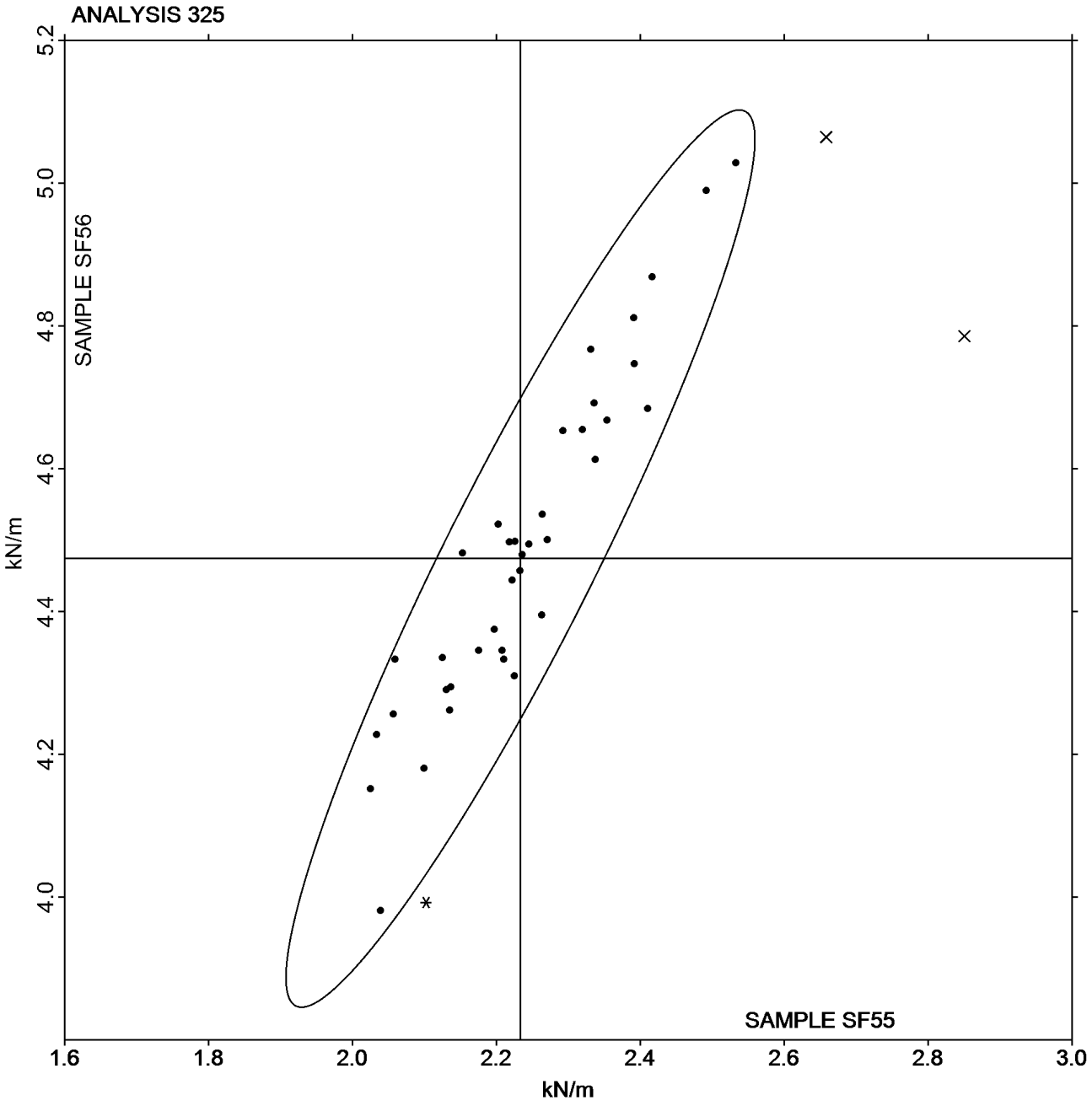
YCKHG4 (X) - Data for sample SF55 are high.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4201/4202
IM	Instron 5500 Series	LA	L & W Tensile - Autoline 300
LE	L & W Tensile Tester 066	LF	L & W Tensile/Fracture Toughness Tester SE 064
LH	L & W Alwetron TH1 (Horizontal) SE 060/065F	LI	L & W Tensile Tester SE 062
LX	L & W (model not specified)	RE	Regmed
TB	Thwing-Albert EJA/1000	TC	Thwing-Albert Electro-Hydraulic, Model 30LT
TF	Thwing-Albert EJA Vantage-1	TJ	Thwing-Albert QC II-XS
TN	Testometric M100-1CT	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 SF55 = 2.2334 kN/m

Grand Mean Sample SF56 = 4.4742 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF55 Lab Mean	Sample SF55 Diff from Grand Mean	Sample SF55 CPV	Sample SF56 Lab Mean	Sample SF56 Diff from Grand Mean	Sample SF56 CPV	Instr Code
2UZAVU		67.74	-5.03	-0.79	51.17	-3.73	-0.78	TP
2XE4BR		78.24	5.46	0.86	61.15	6.25	1.31	LH
34LKRR		61.57	-11.21	-1.76	47.62	-7.28	-1.53	XX
3F92BX		70.16	-2.62	-0.41	54.08	-0.81	-0.17	LI
3RPNKY		65.82	-6.96	-1.09	49.77	-5.13	-1.08	LI
3XVBHU		67.07	-5.71	-0.90	51.21	-3.69	-0.77	TO
4BX77N		78.75	5.97	0.94	63.73	8.83	1.85	TF
6GVFR8		70.05	-2.73	-0.43	53.81	-1.09	-0.23	XX
74MU49		77.15	4.37	0.69	58.18	3.28	0.69	LX
7LABEW		80.12	7.34	1.15	57.17	2.28	0.48	XX
7T78V8		84.33	11.55	1.81	57.71	2.81	0.59	LA
8WMYJE		76.37	3.59	0.56	56.36	1.46	0.31	LI
9RMZQ2		76.34	3.56	0.56	60.59	5.69	1.19	LH
CEQZJG		71.07	-1.71	-0.27	57.23	2.33	0.49	LX
D7BT4P		78.56	5.78	0.91	57.91	3.02	0.63	TB
DEMQBH	*	55.41	-17.37	-2.73	44.10	-10.79	-2.26	LA
EV7DMJ		72.21	-0.57	-0.09	55.72	0.82	0.17	LX
EVM42B		77.19	4.41	0.69	49.57	-5.32	-1.12	RE
FC6PWK		73.36	0.58	0.09	47.24	-7.66	-1.61	LI
H9YWYR		71.00	-1.78	-0.28	48.16	-6.74	-1.41	LW
JBKZ8P	X	44.66	-28.12	-4.42	30.86	-24.04	-5.04	ID
LDZCZB		76.65	3.87	0.61	56.93	2.03	0.43	IM
NDVE3K	X	112.80	40.02	6.29	79.88	24.99	5.24	LH
NNYNAB		78.39	5.61	0.88	60.61	5.71	1.20	LH
P789JJ		68.41	-4.37	-0.69	55.38	0.48	0.10	LH
R4GNT6		73.10	0.32	0.05	55.18	0.28	0.06	LH
RBF9U2		63.34	-9.44	-1.48	54.70	-0.20	-0.04	IM
RLW6P7		72.11	-0.67	-0.11	51.75	-3.15	-0.66	LI
UDDHT8		69.75	-3.03	-0.48	58.04	3.14	0.66	LH
VJDGJN		80.17	7.39	1.16	60.10	5.21	1.09	TF
XVLWMX		76.19	3.41	0.54	56.85	1.95	0.41	TB

Summary Statistics	Sample SF55	Sample SF56
Grand Means	72.78 Joules/sq m	54.90 Joules/sq m
Stnd Dev Btwn Labs	6.37 Joules/sq m	4.77 Joules/sq m

Statistics based on 29 of 31 reporting participants.

Comments on Assigned Data Flags for Test #327

JBKZ8P (X) - Data for both samples are low.

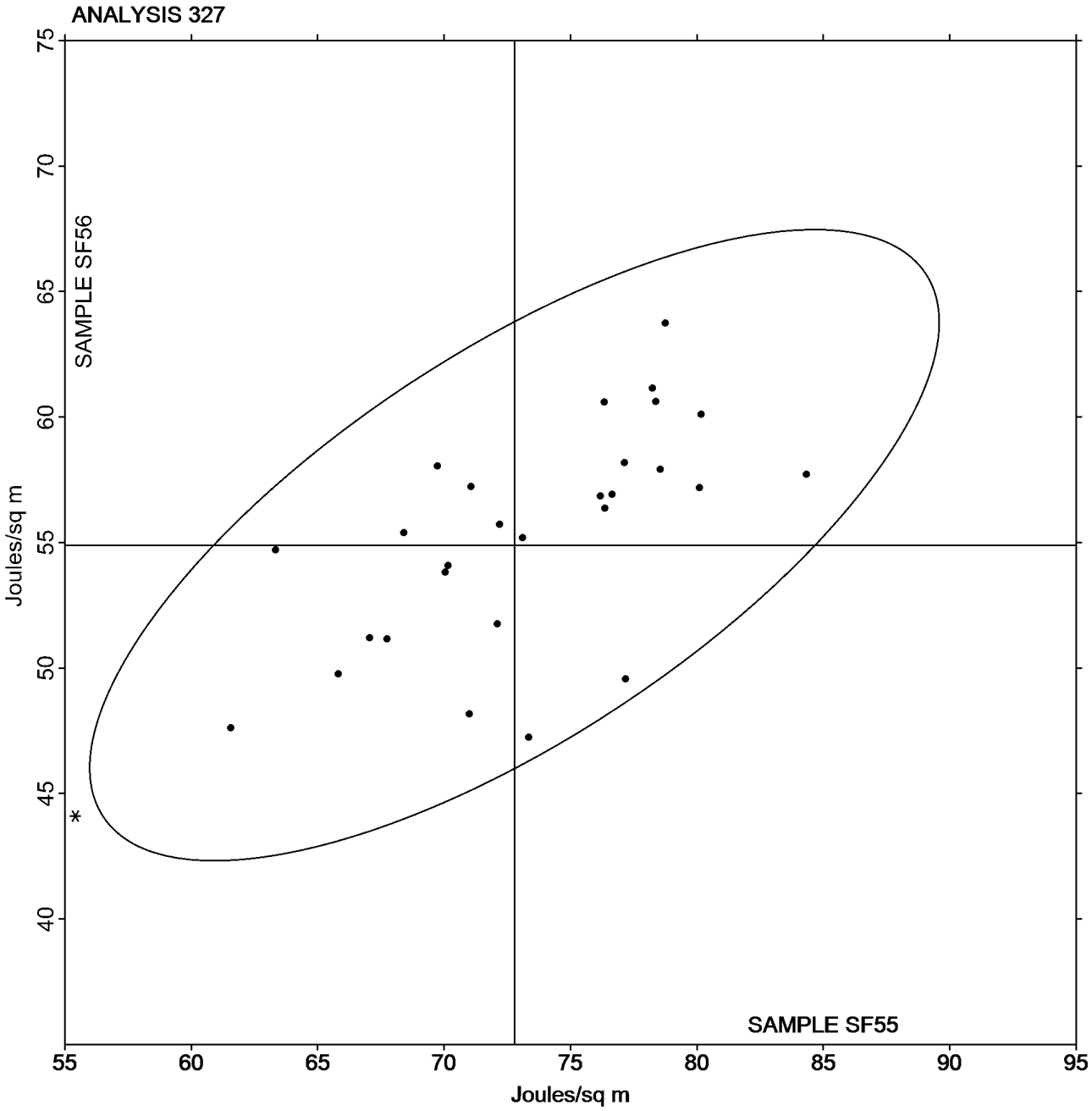
NDVE3K (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ID	Instron 4201	IM	Instron 5500 Series
LA	L & W Tensile - Autoline 300	LH	L & W Alwetron TH1 (Horizontal) SE 060
LI	L & W Tensile Tester SE 062	LW	L & W Tensile Tester SE 064
LX	L & W (model not specified)	RE	Regmed
TB	Thwing-Albert EJA/1000	TF	Thwing-Albert EJA Vantage-1
TO	Thwing-Albert QC-1000	TP	TMI Monitor/Tensile 100 (84-21-01)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF55 = 72.779 Joules/sq m

Grand Mean Sample SF56 = 54.897 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF55 Lab Mean	Sample SF55 Diff from Grand Mean	Sample SF55 CPV	Sample SF56 Lab Mean	Sample SF56 Diff from Grand Mean	Sample SF56 CPV	Instr Code
2UZAVU		4.780	0.366	0.96	2.190	0.304	1.88	TP
2XE4BR		4.354	-0.060	-0.16	1.887	0.001	0.01	LH
34LKRR		4.896	0.482	1.27	2.129	0.243	1.50	XX
3F92BX		4.461	0.047	0.12	1.904	0.018	0.11	LI
3RPNKY		4.105	-0.309	-0.81	1.795	-0.091	-0.56	LI
3XVBHU		3.702	-0.712	-1.87	1.672	-0.214	-1.32	TG
4BX77N		4.365	-0.049	-0.13	2.109	0.223	1.38	TF
6GVFR8		4.568	0.154	0.40	1.937	0.051	0.32	XX
74MU49		4.045	-0.369	-0.97	1.707	-0.179	-1.10	LX
7LABEW		5.248	0.834	2.19	2.106	0.220	1.36	FP
7T78V8		4.219	-0.195	-0.51	1.709	-0.177	-1.09	XX
8WMYJE		4.384	-0.030	-0.08	1.828	-0.058	-0.36	LI
9RMZQ2		4.486	0.072	0.19	1.934	0.048	0.30	LH
CEQZJG		4.548	0.134	0.35	1.950	0.064	0.40	LX
D7BT4P		4.791	0.376	0.99	2.049	0.163	1.01	TB
D9UV3H		4.350	-0.064	-0.17	1.758	-0.128	-0.79	TF
DEMQBH		4.098	-0.316	-0.83	1.829	-0.057	-0.35	LA
EV7DMJ		4.250	-0.164	-0.43	1.844	-0.042	-0.26	LX
EVM42B		5.049	0.635	1.67	2.086	0.200	1.24	RE
FC6PWK	*	4.293	-0.121	-0.32	1.536	-0.350	-2.16	LI
H9YWYR		3.873	-0.541	-1.42	1.603	-0.283	-1.75	LX
JBKZ8P		4.931	0.516	1.36	1.924	0.038	0.24	ID
LDZCZB		4.604	0.190	0.50	2.001	0.115	0.71	IM
M3JPQB	*	3.370	-1.044	-2.74	1.610	-0.276	-1.70	VM
M97GUX		4.174	-0.240	-0.63	1.768	-0.118	-0.73	TF
NDVE3K		4.761	0.347	0.91	1.867	-0.019	-0.12	LH
NNYNAB		4.468	0.054	0.14	1.903	0.017	0.11	LH
P789JJ		4.236	-0.178	-0.47	1.854	-0.032	-0.20	LH
R4GNT6		4.553	0.139	0.36	1.902	0.016	0.10	LH
RBF9U2		4.113	-0.301	-0.79	1.946	0.060	0.37	XX
RLW6P7		4.341	-0.073	-0.19	1.757	-0.129	-0.80	LI
UDDHT8		4.323	-0.091	-0.24	1.944	0.058	0.36	LH
VJDGJN		4.810	0.395	1.04	2.133	0.247	1.52	TF
XVLWMX		4.541	0.126	0.33	1.948	0.062	0.38	TB

Summary Statistics	Sample SF55	Sample SF56
Grand Means	4.41 Percent	1.89 Percent
Stnd Dev Btwn Labs	0.38 Percent	0.16 Percent

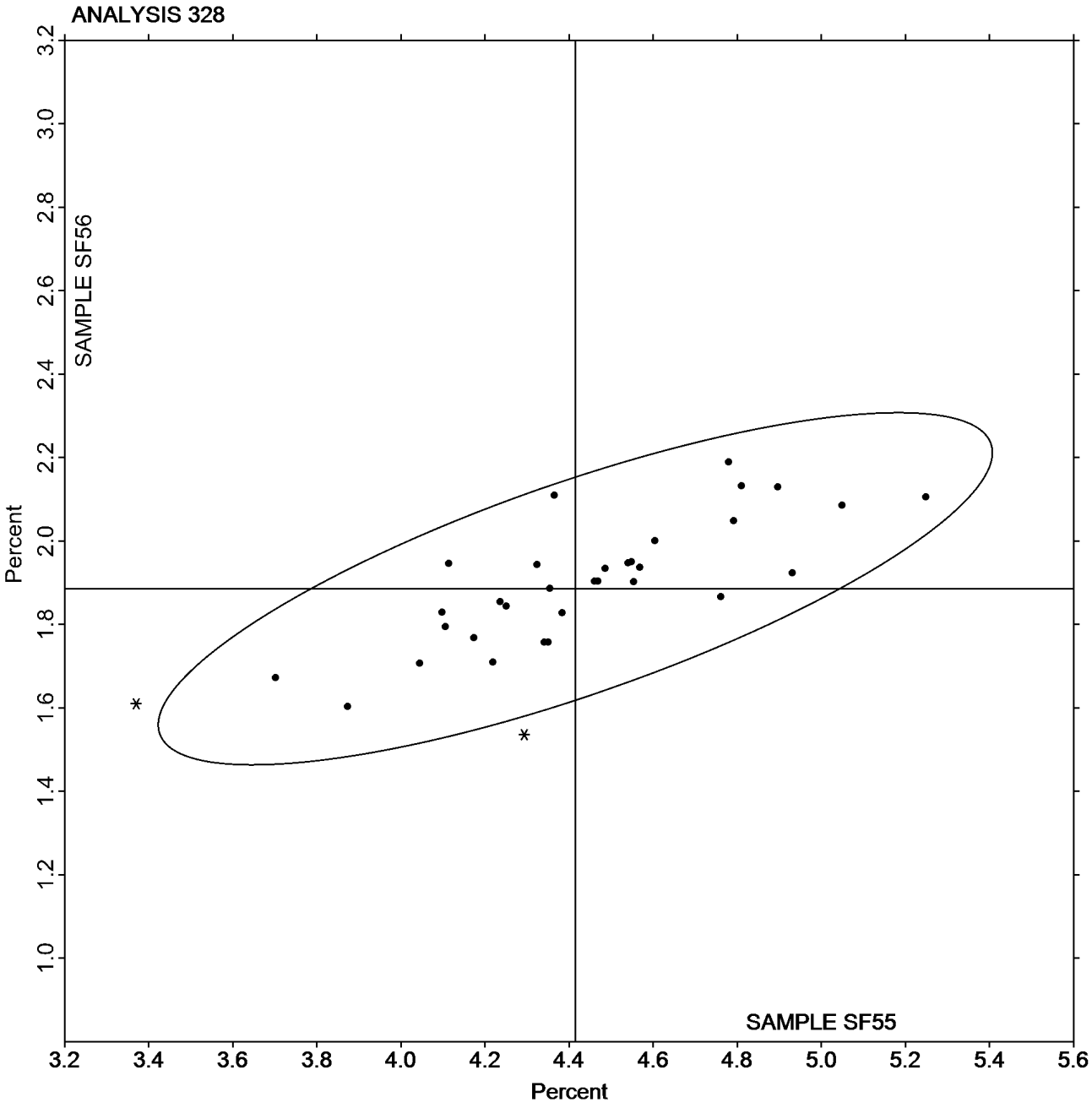
Statistics based on 34 of 34 reporting participants.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4201
IM	Instron 5500	LA	L & W Tensile - Autoline 300
LH	L & W Alwetron TH1 (Horizontal) SE 060	LI	L & W Tensile Tester SE 062
LX	L & W (model not specified)	RE	Regmed
TB	Thwing-Albert EJA/1000	TF	Thwing-Albert EJA Vantage-1
TG	Thwing-Albert QC	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 SF55 = 4.4144 Percent

Grand Mean Sample SF56 = 1.8858 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE55 Lab Mean	Sample SE55 Diff from Grand Mean	Sample SE55 CPV	Sample SE56 Lab Mean	Sample SE56 Diff from Grand Mean	Sample SE56 CPV	Instr Code
23TFK2		8.199	-0.826	-1.47	12.09	-0.85	-1.14	IK
2KBFKH	*	7.890	-1.135	-2.02	12.55	-0.39	-0.53	TT
3P4XGA		8.606	-0.419	-0.75	11.78	-1.17	-1.56	TK
43FZ8W		9.650	0.625	1.11	13.85	0.91	1.21	DW
4BX77N		9.485	0.460	0.82	13.22	0.28	0.37	TO
4XA4NW		8.600	-0.425	-0.75	12.57	-0.37	-0.50	IF
6LT2GP		9.276	0.251	0.45	13.01	0.07	0.09	IF
7H6PHJ		9.903	0.877	1.56	13.38	0.44	0.59	TH
82HJR6		8.797	-0.228	-0.41	12.59	-0.36	-0.48	IM
83CEA8		10.147	1.122	1.99	14.55	1.61	2.15	LA
8EKA93		8.941	-0.084	-0.15	12.97	0.02	0.03	XX
98DA8C		10.245	1.219	2.17	14.32	1.38	1.84	LA
A4XZNT		8.612	-0.413	-0.73	12.76	-0.19	-0.25	IN
A7HLQ3		9.186	0.161	0.29	12.71	-0.23	-0.31	IN
A9RWGE		9.356	0.331	0.59	13.41	0.46	0.62	LI
AXR66T		9.206	0.181	0.32	12.66	-0.28	-0.38	IF
BJ4KRN		9.399	0.373	0.66	12.78	-0.17	-0.22	ID
C92DWP		8.651	-0.374	-0.66	12.45	-0.49	-0.66	IF
D44DVY		9.067	0.042	0.07	12.79	-0.16	-0.21	LH
DLLFRL		8.691	-0.334	-0.59	11.96	-0.99	-1.32	IK
DPKWQN		8.929	-0.097	-0.17	12.33	-0.61	-0.82	XX
EFE7YY		8.516	-0.509	-0.90	12.32	-0.63	-0.84	XX
F32D3C	*	9.781	0.755	1.34	14.78	1.83	2.45	IK
F3M4VW		8.910	-0.115	-0.20	12.71	-0.24	-0.32	IM
FNZVR4		8.525	-0.500	-0.89	13.06	0.11	0.15	TH
HGDP93		9.699	0.674	1.20	14.23	1.29	1.72	TR
HLAEQV		8.840	-0.185	-0.33	13.03	0.08	0.11	XX
J4LDGB		8.791	-0.234	-0.42	12.42	-0.52	-0.70	LW
JFFU7C		9.160	0.135	0.24	13.91	0.96	1.29	LH
JNAYXR		8.399	-0.626	-1.11	11.97	-0.98	-1.30	LE
JP3VGU		9.855	0.830	1.47	13.90	0.96	1.28	TA
K9TAMJ		8.084	-0.941	-1.67	11.77	-1.17	-1.57	IF
KT37A9		9.939	0.914	1.62	14.66	1.71	2.29	TX
LDHA8G		9.009	-0.016	-0.03	13.10	0.15	0.20	ID
LYNKD7		9.396	0.370	0.66	13.16	0.22	0.29	TB
MZRWFE		9.024	-0.002	0.00	12.80	-0.15	-0.20	XX
NHQAJY		8.231	-0.794	-1.41	12.21	-0.73	-0.98	TH
NQMZ9F		9.236	0.211	0.37	13.31	0.37	0.49	LW
PBZGK6		9.936	0.911	1.62	14.04	1.09	1.46	LX
QXBT96		8.406	-0.619	-1.10	11.89	-1.06	-1.41	TA

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE55 Lab Mean	Sample SE55 Diff from Grand Mean	Sample SE55 CPV	Sample SE56 Lab Mean	Sample SE56 Diff from Grand Mean	Sample SE56 CPV	Instr Code
R2PVHA		8.461	-0.565	-1.00	12.50	-0.44	-0.59	IK
RCBTJL		9.933	0.908	1.61	13.73	0.79	1.06	TO
RJVU46		9.059	0.034	0.06	12.68	-0.26	-0.35	LE
U4PFW7		9.639	0.614	1.09	13.81	0.87	1.16	LE
UB8X68		9.078	0.053	0.09	12.89	-0.05	-0.07	TO
UDDHT8		8.873	-0.153	-0.27	12.75	-0.20	-0.27	LH
WUC6JX		8.136	-0.889	-1.58	12.19	-0.75	-1.01	LA
WW2JYU		8.525	-0.500	-0.89	12.37	-0.58	-0.77	IP
X33HMP		9.142	0.116	0.21	13.36	0.42	0.56	TO
XQ9Y46		8.622	-0.403	-0.72	12.56	-0.38	-0.51	IK
XUA36D		8.622	-0.404	-0.72	12.53	-0.41	-0.55	LE
XVLWMX		8.895	-0.131	-0.23	12.70	-0.25	-0.33	TB
YK2MX6		8.788	-0.237	-0.42	12.30	-0.64	-0.86	TR
ZQJFMA		9.019	-0.006	-0.01	12.67	-0.27	-0.37	LE

Summary Statistics	Sample SE55	Sample SE56
Grand Means	9.03 kN/m	12.94 kN/m
Stnd Dev Btwn Labs	0.56 kN/m	0.75 kN/m

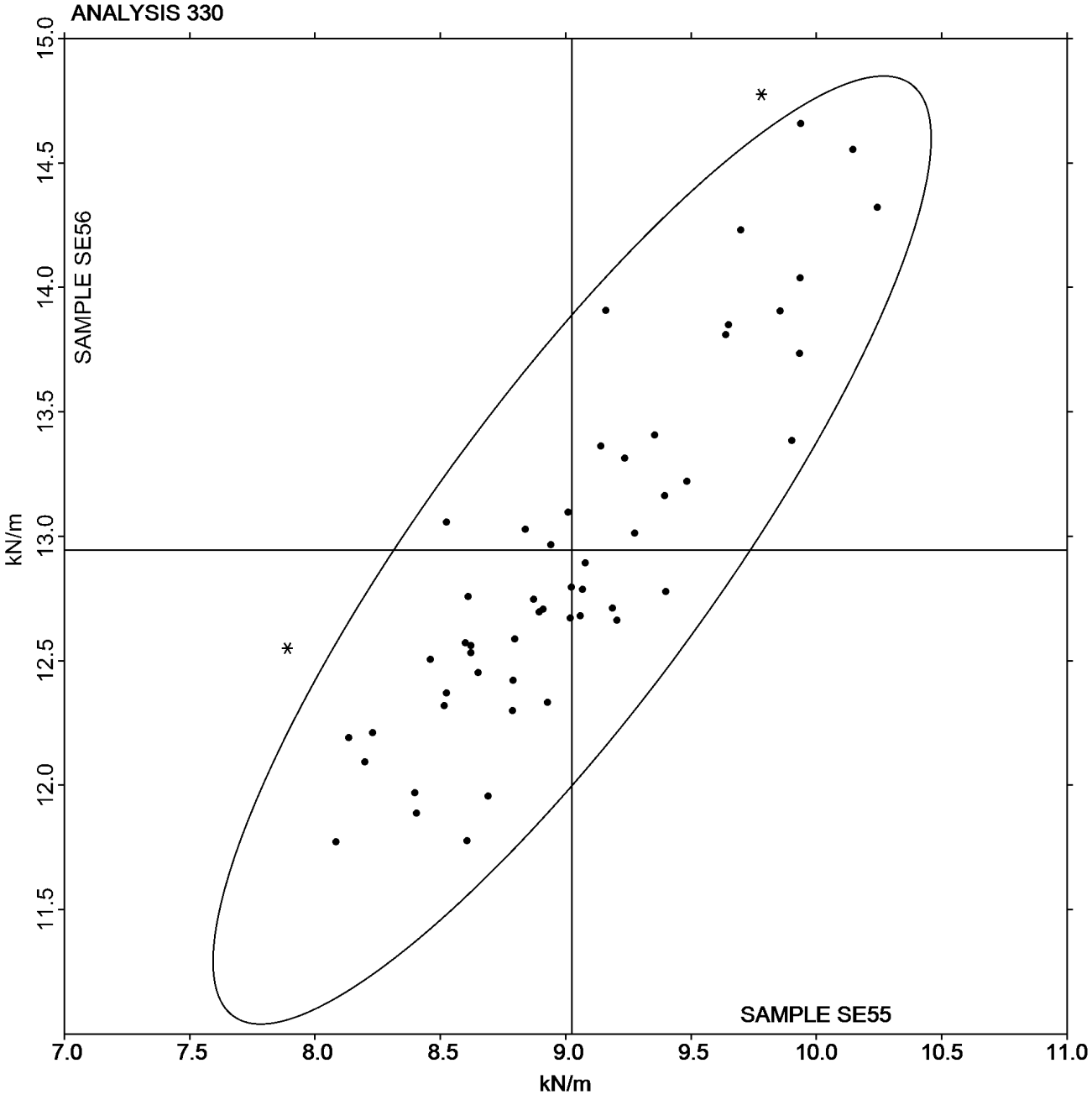
Statistics based on 54 of 54 reporting participants.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IP	Instron 4206	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 SE55 = 9.0252 kN/m

Grand Mean Sample SE56 = 12.945 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE55 Lab Mean	Sample SE55 Diff from Grand Mean	Sample SE55 CPV	Sample SE56 Lab Mean	Sample SE56 Diff from Grand Mean	Sample SE56 CPV	Instr Code
2KBFKH	X	109,590.0	109,481.4	7,629.32	163,100.0	162,930.2	7,353.43	TT
3P4XGA		109.4	0.7	0.05	154.9	-14.8	-0.67	TK
43FZ8W	*	77.5	-31.1	-2.17	154.5	-15.3	-0.69	DW
4BX77N		121.3	12.6	0.88	180.8	11.1	0.50	TO
6LT2GP		100.3	-8.3	-0.58	153.9	-15.9	-0.72	IN
7H6PHJ		128.7	20.0	1.40	179.7	10.0	0.45	TH
82HJR6		104.0	-4.6	-0.32	168.6	-1.1	-0.05	IM
83CEA8		122.7	14.0	0.98	180.6	10.9	0.49	LA
8EKA93		105.4	-3.2	-0.22	160.5	-9.3	-0.42	XX
98DA8C		131.6	22.9	1.60	193.4	23.6	1.06	LA
A4XZNT	*	81.4	-27.3	-1.90	113.1	-56.7	-2.56	IN
A7HLQ3	X	10.4	-98.3	-6.85	12.7	-157.1	-7.09	IN
AXR66T		116.8	8.2	0.57	166.0	-3.7	-0.17	IF
C92DWP		107.1	-1.6	-0.11	175.7	5.9	0.27	IF
D44DVY		105.0	-3.7	-0.26	164.5	-5.3	-0.24	LH
DLLFRL		133.0	24.4	1.70	207.0	37.2	1.68	IK
EFE7YY		108.9	0.2	0.02	167.2	-2.6	-0.12	XX
F32D3C	X	81.7	-26.9	-1.88	173.9	4.1	0.19	XX
F3M4VW		114.2	5.6	0.39	173.3	3.5	0.16	IM
HGDP93		109.4	0.8	0.06	189.9	20.1	0.91	TR
HLAEQV		93.1	-15.5	-1.08	160.7	-9.1	-0.41	XX
J4LDGB		103.6	-5.0	-0.35	149.2	-20.6	-0.93	LW
JFFU7C		95.2	-13.4	-0.93	165.4	-4.4	-0.20	LH
JNAYXR		97.8	-10.8	-0.75	147.1	-22.6	-1.02	LE
JP3VGU		113.0	4.4	0.31	181.3	11.5	0.52	TA
K9TAMJ		77.8	-30.8	-2.15	114.6	-55.1	-2.49	IF
KT37A9	*	134.3	25.7	1.79	224.9	55.2	2.49	XX
LDHA8G		109.5	0.8	0.06	169.6	-0.1	-0.01	ID
LYNKD7		119.8	11.2	0.78	186.8	17.0	0.77	TB
NHQAJY		121.6	13.0	0.91	197.7	27.9	1.26	TH
NQMZ9F		98.0	-10.6	-0.74	159.2	-10.6	-0.48	LW
PBZGK6		113.2	4.6	0.32	182.0	12.2	0.55	LX
RCBTJL		115.6	7.0	0.48	170.9	1.2	0.05	TO
RJVU46		108.1	-0.5	-0.04	155.3	-14.5	-0.65	LE
U4PFW7		121.9	13.3	0.92	190.1	20.3	0.92	LE
UB8X68		125.9	17.2	1.20	201.7	32.0	1.44	TO
UDDHT8		92.2	-16.4	-1.14	161.2	-8.5	-0.39	LH
WUC6JX		105.8	-2.8	-0.20	178.4	8.6	0.39	LA
WW2JYU		86.0	-22.6	-1.58	141.2	-28.6	-1.29	IP
X33HMP		125.7	17.0	1.19	202.6	32.8	1.48	TO

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE55 Lab Mean	Sample SE55 Diff from Grand Mean	Sample SE55 CPV	Sample SE56 Lab Mean	Sample SE56 Diff from Grand Mean	Sample SE56 CPV	Instr Code
XUA36D		103.9	-4.8	-0.33	158.5	-11.3	-0.51	LE
XVLWMX		108.7	0.1	0.01	160.3	-9.5	-0.43	TB
YK2MX6		111.0	2.4	0.17	167.3	-2.4	-0.11	TR
ZQJFMA		95.3	-13.3	-0.93	150.8	-19.0	-0.86	LE

Summary Statistics	Sample SE55	Sample SE56
Grand Means	108.63 Joules/sq m	169.77 Joules/sq m
Stnd Dev Btwn Labs	14.35 Joules/sq m	22.16 Joules/sq m

Statistics based on 41 of 44 reporting participants.

Comments on Assigned Data Flags for Test #331

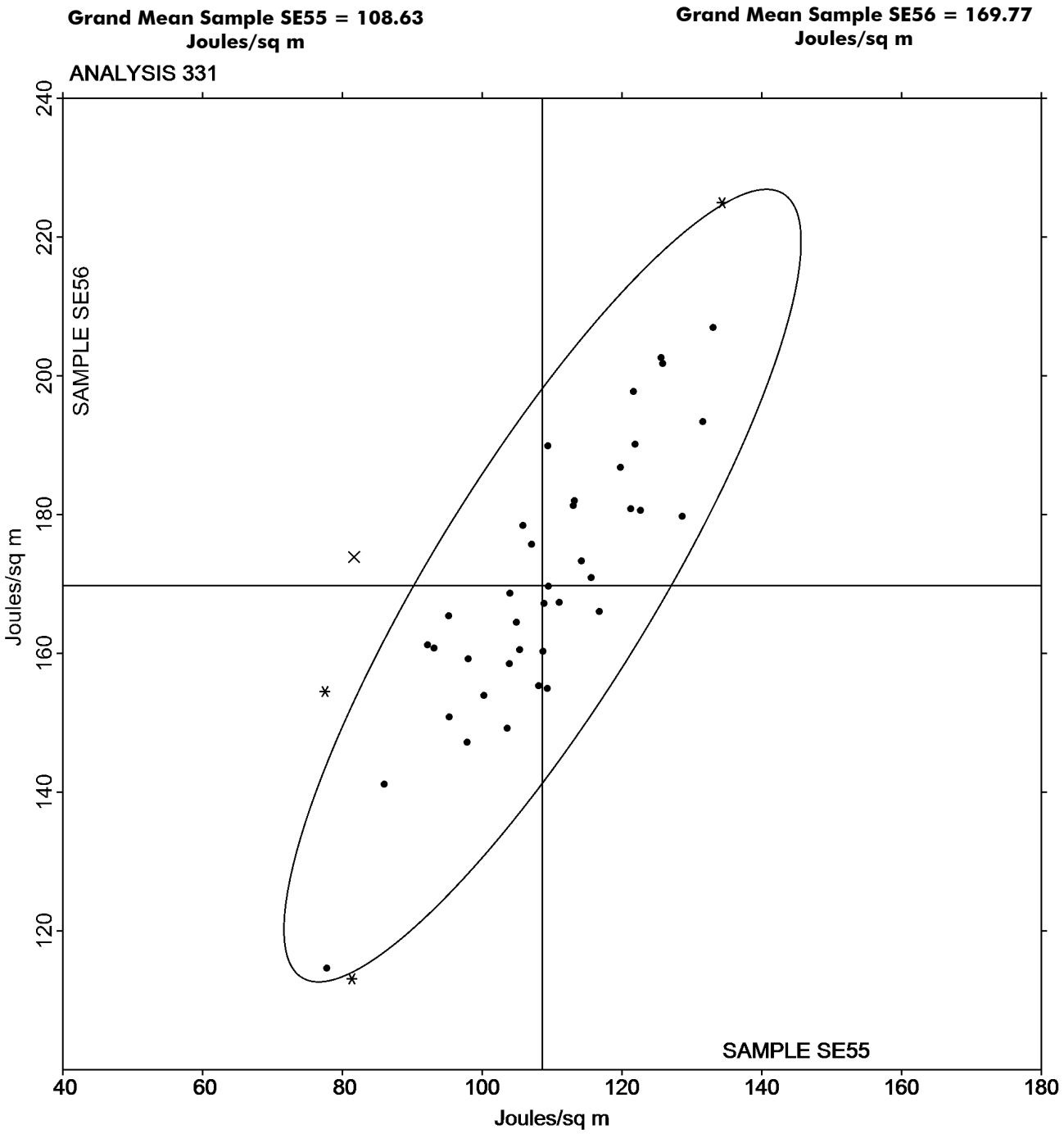
2KBFKH (X) - Extreme Data.

F32D3C (X) - Inconsistent in testing between samples.

A7HLQ3 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IP	Instron 4206	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



WebCode	Data Flag	Sample SE55 Lab Mean	Sample SE55 Diff from Grand Mean	Sample SE55 CPV	Sample SE56 Lab Mean	Sample SE56 Diff from Grand Mean	Sample SE56 CPV	Instr Code
2KBFKH		2.095	0.233	0.97	2.214	0.145	0.51	TT
3P4XGA		1.984	0.122	0.51	2.092	0.023	0.08	TK
43FZ8W	X	2.506	0.644	2.68	3.020	0.951	3.32	DW
4BX77N		2.040	0.178	0.74	2.208	0.139	0.48	TO
6LT2GP		1.605	-0.257	-1.07	1.838	-0.231	-0.81	IN
7H6PHJ	X	2.257	0.395	1.64	2.193	0.124	0.43	TH
82HJR6		1.789	-0.073	-0.30	2.058	-0.011	-0.04	IM
83CEA8		1.747	-0.115	-0.48	1.827	-0.242	-0.85	LA
8EKA93		1.790	-0.072	-0.30	1.946	-0.123	-0.43	XX
98DA8C		1.885	0.023	0.09	2.021	-0.048	-0.17	LA
A4XZNT		1.397	-0.465	-1.94	1.415	-0.654	-2.29	IN
A7HLQ3		2.177	0.315	1.31	2.430	0.361	1.26	IN
AXR66T		1.651	-0.212	-0.88	1.745	-0.325	-1.13	IF
BJ4KRN		1.834	-0.028	-0.12	1.963	-0.106	-0.37	ID
C92DWP		2.230	0.368	1.53	2.466	0.397	1.39	IF
D44DVY		1.721	-0.141	-0.59	1.962	-0.107	-0.37	LH
DLLFRL	*	2.355	0.493	2.05	2.784	0.714	2.50	IK
DPKWQN		2.070	0.208	0.86	2.310	0.241	0.84	IS
EFE7YY		2.025	0.163	0.68	2.190	0.121	0.42	XX
F32D3C	X	1.521	-0.341	-1.42	2.110	0.041	0.14	XX
F3M4VW		2.173	0.311	1.29	2.377	0.308	1.08	IM
HGDP93		1.778	-0.084	-0.35	2.148	0.079	0.28	TR
HLAEQV		1.591	-0.271	-1.13	1.880	-0.189	-0.66	XX
J4LDGB		1.768	-0.094	-0.39	1.843	-0.226	-0.79	LW
JFFU7C		1.597	-0.265	-1.10	1.856	-0.213	-0.75	LH
JNAYXR		1.744	-0.118	-0.49	1.884	-0.185	-0.65	LE
JP3VGU		1.764	-0.098	-0.41	1.978	-0.091	-0.32	TA
K9TAMJ		1.325	-0.537	-2.23	1.418	-0.652	-2.28	IF
KT37A9		2.207	0.345	1.43	2.526	0.457	1.60	XX
LDHA8G		1.865	0.003	0.01	2.030	-0.039	-0.14	ID
LYNKD7		1.965	0.103	0.43	2.223	0.154	0.54	TB
MZRWFE		1.900	0.038	0.16	2.190	0.121	0.42	IS
NHQAJY		2.446	0.584	2.43	2.732	0.663	2.32	TH
NQMZ9F		1.648	-0.214	-0.89	1.867	-0.202	-0.71	LW
PBZGK6		1.700	-0.162	-0.67	1.963	-0.106	-0.37	LX
QXBT96		1.793	-0.069	-0.29	2.001	-0.068	-0.24	TB
RCBTJL		1.803	-0.059	-0.25	1.984	-0.085	-0.30	TO
RJVU46		1.800	-0.062	-0.26	1.885	-0.184	-0.64	LE
U4PFW7		1.917	0.055	0.23	2.136	0.067	0.23	LE
UB8X68		2.121	0.259	1.08	2.444	0.375	1.31	TO

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE55 Lab Mean	Sample SE55 Diff from Grand Mean	Sample SE55 CPV	Sample SE56 Lab Mean	Sample SE56 Diff from Grand Mean	Sample SE56 CPV	Instr Code
UDDHT8		1.634	-0.228	-0.95	1.954	-0.115	-0.40	LH
WUC6JX		1.648	-0.214	-0.89	1.893	-0.176	-0.62	LA
WW2JYU		1.746	-0.116	-0.48	2.004	-0.065	-0.23	IP
X33HMP		2.230	0.368	1.53	2.540	0.471	1.64	TO
XUA36D		1.774	-0.088	-0.37	1.897	-0.172	-0.60	LE
XVLWMX		1.865	0.003	0.01	1.972	-0.097	-0.34	TB
YK2MX6		1.982	0.120	0.50	2.185	0.116	0.40	TR
ZQJFMA		1.618	-0.244	-1.02	1.839	-0.230	-0.80	LE

Summary Statistics	Sample SE55	Sample SE56
Grand Means	1.86 Percent	2.07 Percent
Stnd Dev Btwn Labs	0.24 Percent	0.29 Percent

Statistics based on 45 of 48 reporting participants.

Comments on Assigned Data Flags for Test #332

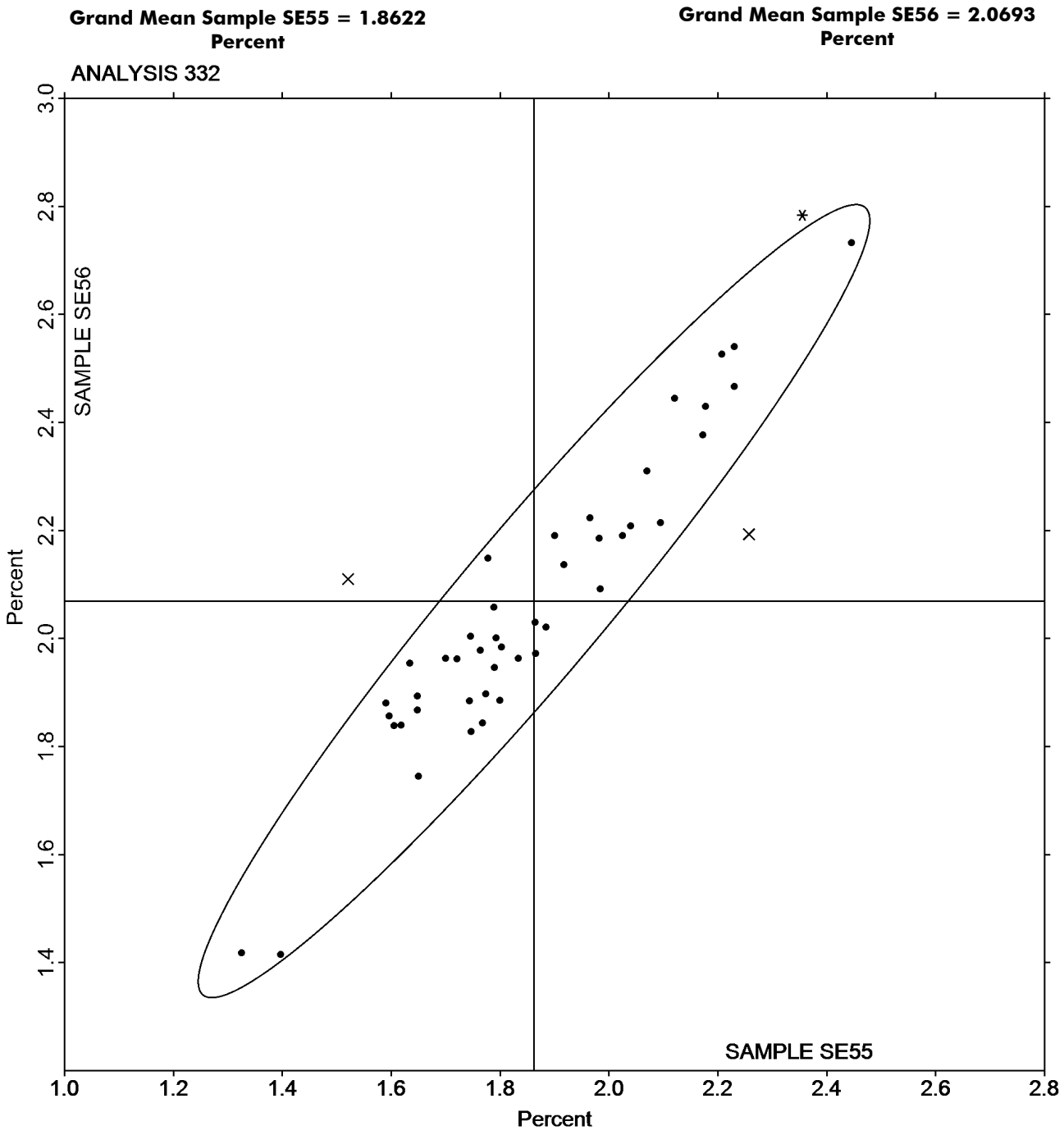
43FZ8W (X) - Data for sample SE56 are high.

F32D3C (X) - Inconsistent in testing between samples.

7H6PHJ (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IP	Instron 4206	IS	Instron 5965
LA	L & W Autoline 300	LE	L & W Tensile Tester 066
LH	L & W Alwetron TH1 (Horizontal) SE 060	LW	L & W Tensile Tester SE062
LX	L & W (model not specified)	TA	Thwing-Albert Tensile Tester
TB	Thwing-Albert EJA/1000	TH	Thwing-Albert QC-3A
TK	Thwing-Albert Model 37-4	TO	Thwing-Albert QC-1000
TR	TMI Horizontal Tensile Tester	TT	Tinius Olsen Model MHT
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

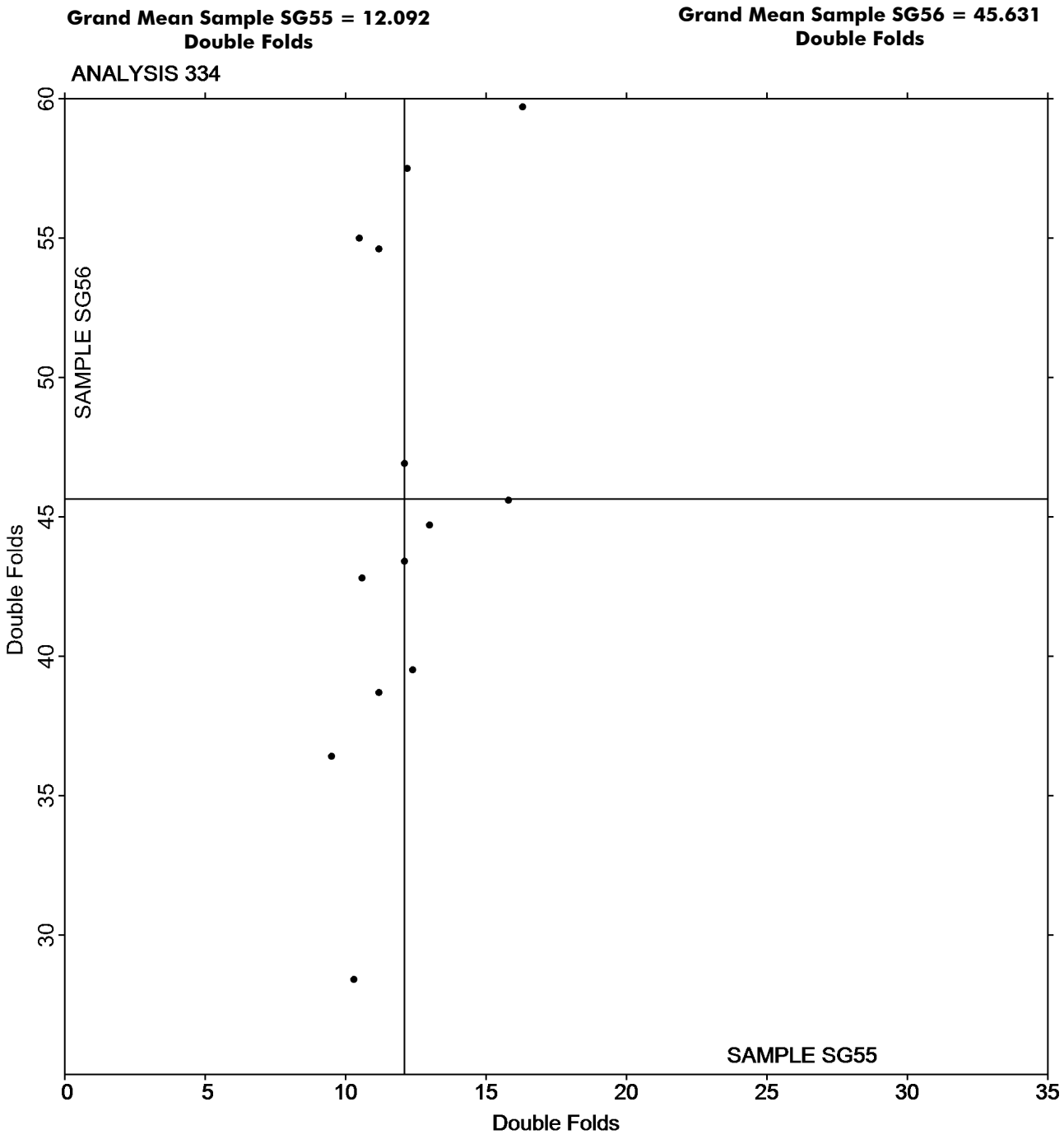
WebCode	Data Flag	Sample SG55 Lab Mean	Sample SG55 Diff from Grand Mean	Sample SG55 CPV	Sample SG56 Lab Mean	Sample SG56 Diff from Grand Mean	Sample SG56 CPV	Instr Code
8RNH8K		16.30	4.21	2.09	59.70	14.07	1.55	XX
9LZDVV		10.60	-1.49	-0.74	42.80	-2.83	-0.31	MT
D9UV3H		9.50	-2.59	-1.29	36.40	-9.23	-1.02	MT
DRCP3K		12.10	0.01	0.00	46.90	1.27	0.14	MT
EFE7YY		12.20	0.11	0.05	57.50	11.87	1.31	MT
J4LDGB		10.50	-1.59	-0.79	55.00	9.37	1.03	MT
LDZCZB		12.10	0.01	0.00	43.40	-2.23	-0.25	MT
M3JPQB		13.00	0.91	0.45	44.70	-0.93	-0.10	MT
NHQAJY		15.80	3.71	1.84	45.60	-0.03	0.00	MT
QXBT96		11.20	-0.89	-0.44	38.70	-6.93	-0.76	MT
RLW6P7		12.40	0.31	0.15	39.50	-6.13	-0.67	MT
WMQJ4X		11.20	-0.89	-0.44	54.60	8.97	0.99	MT
Z6K9VX		10.30	-1.79	-0.89	28.40	-17.23	-1.90	MT

Summary Statistics	Sample SG55	Sample SG56
Grand Means	12.09 Double Folds	45.63 Double Folds
Stnd Dev Btwn Labs	2.01 Double Folds	9.08 Double Folds

Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

MT	MIT - Tinius Olsen	XX	Instrument make/model not specified by lab



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 336
Bending Resistance, Gurley Type
TAPPI Official Test Method T543

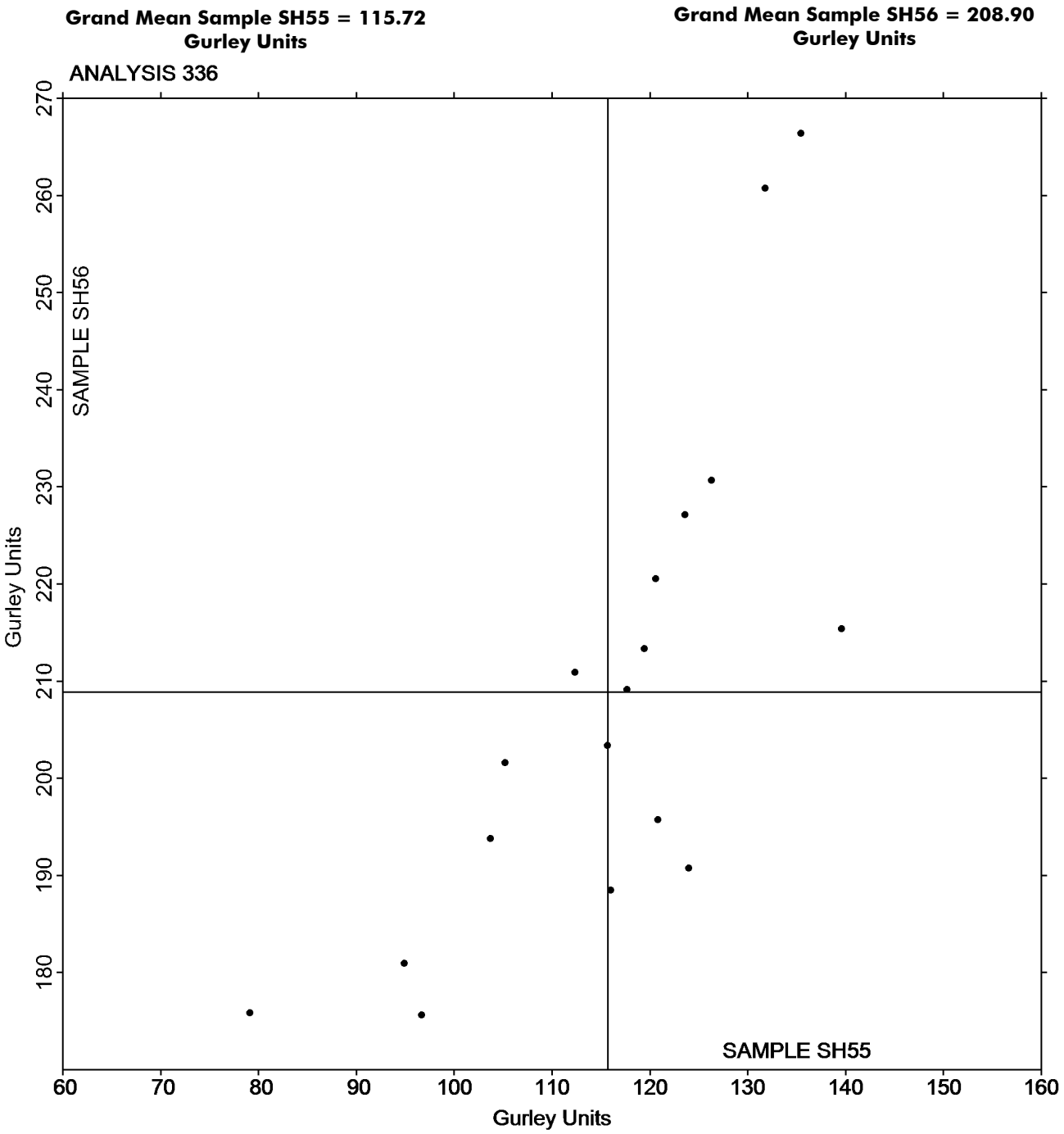
WebCode	Data Flag	Sample SH55 Lab Mean	Sample SH55 Diff from Grand Mean	Sample SH55 CPV	Sample SH56 Lab Mean	Sample SH56 Diff from Grand Mean	Sample SH56 CPV
2XE4BR		139.6	23.9	1.57	215.4	6.5	0.25
6RJ7H7		124.0	8.3	0.55	190.8	-18.1	-0.71
8HHTB2		120.8	5.1	0.33	195.7	-13.2	-0.51
9BJQLV		103.7	-12.0	-0.79	193.8	-15.1	-0.59
9LZDVV		116.0	0.3	0.02	188.5	-20.4	-0.80
9RMZQ2		117.7	1.9	0.13	209.1	0.2	0.01
C92DWP		135.4	19.7	1.30	266.4	57.5	2.24
D7BT4P		115.7	-0.1	0.00	203.4	-5.5	-0.22
DEMQBH		123.6	7.9	0.52	227.1	18.2	0.71
EFE7YY		126.3	10.6	0.70	230.7	21.8	0.85
LDZCZB		112.3	-3.4	-0.22	210.9	2.0	0.08
M3JPQB		131.8	16.1	1.06	260.7	51.8	2.02
MAHJEB		105.2	-10.5	-0.69	201.6	-7.3	-0.29
NDVE3K		96.7	-19.0	-1.25	175.6	-33.3	-1.30
QXBT96		120.6	4.9	0.32	220.5	11.6	0.45
TKG3HX	X	224.3	108.6	7.14	417.2	208.3	8.11
VJDGJN		94.9	-20.8	-1.37	180.9	-28.0	-1.09
VNNAW8		119.4	3.7	0.24	213.3	4.4	0.17
XVLWMX		79.1	-36.6	-2.41	175.8	-33.1	-1.29

Summary Statistics	Sample SH55	Sample SH56
Grand Means	115.72 Gurley Units	208.90 Gurley Units
Stnd Dev Btwn Labs	15.20 Gurley Units	25.68 Gurley Units

Statistics based on 18 of 19 reporting participants.

Comments on Assigned Data Flags for Test #336

TKG3HX (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

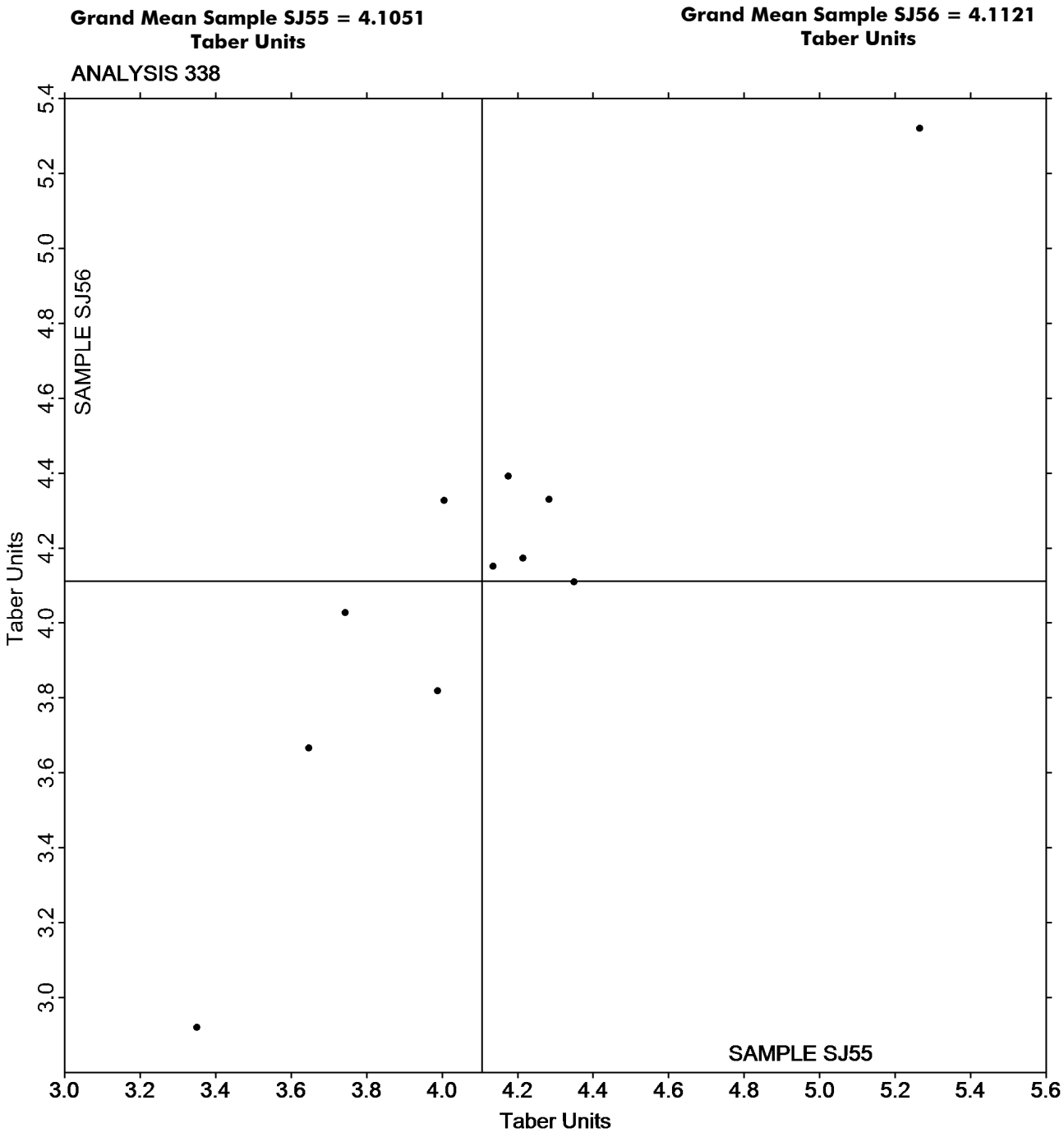
WebCode	Data Flag	Sample SJ55 Lab Mean	Sample SJ55 Diff from Grand Mean	Sample SJ55 CPV	Sample SJ56 Lab Mean	Sample SJ56 Diff from Grand Mean	Sample SJ56 CPV
6LT2GP		5.265	1.160	2.37	5.320	1.208	2.09
74MU49		3.647	-0.458	-0.94	3.666	-0.446	-0.77
7NAK2J		3.989	-0.116	-0.24	3.818	-0.294	-0.51
9LZDVV	X	0.545	-3.560	-7.28	0.510	-3.602	-6.22
9RMZQ2		4.214	0.109	0.22	4.173	0.061	0.11
C92DWP		4.283	0.178	0.36	4.330	0.218	0.38
D7BT4P		4.136	0.030	0.06	4.151	0.039	0.07
LDZCZB		4.175	0.070	0.14	4.392	0.280	0.48
NQMZ9F		3.350	-0.755	-1.55	2.920	-1.192	-2.06
R97BFX		4.349	0.244	0.50	4.109	-0.003	-0.01
YCKHG4		3.743	-0.362	-0.74	4.027	-0.085	-0.15
Z6K9VX		4.006	-0.099	-0.20	4.327	0.215	0.37

Summary Statistics	Sample SJ55	Sample SJ56
Grand Means	4.11 Taber Units	4.11 Taber Units
Stnd Dev Btwn Labs	0.49 Taber Units	0.58 Taber Units

Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #338

9LZDVV (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

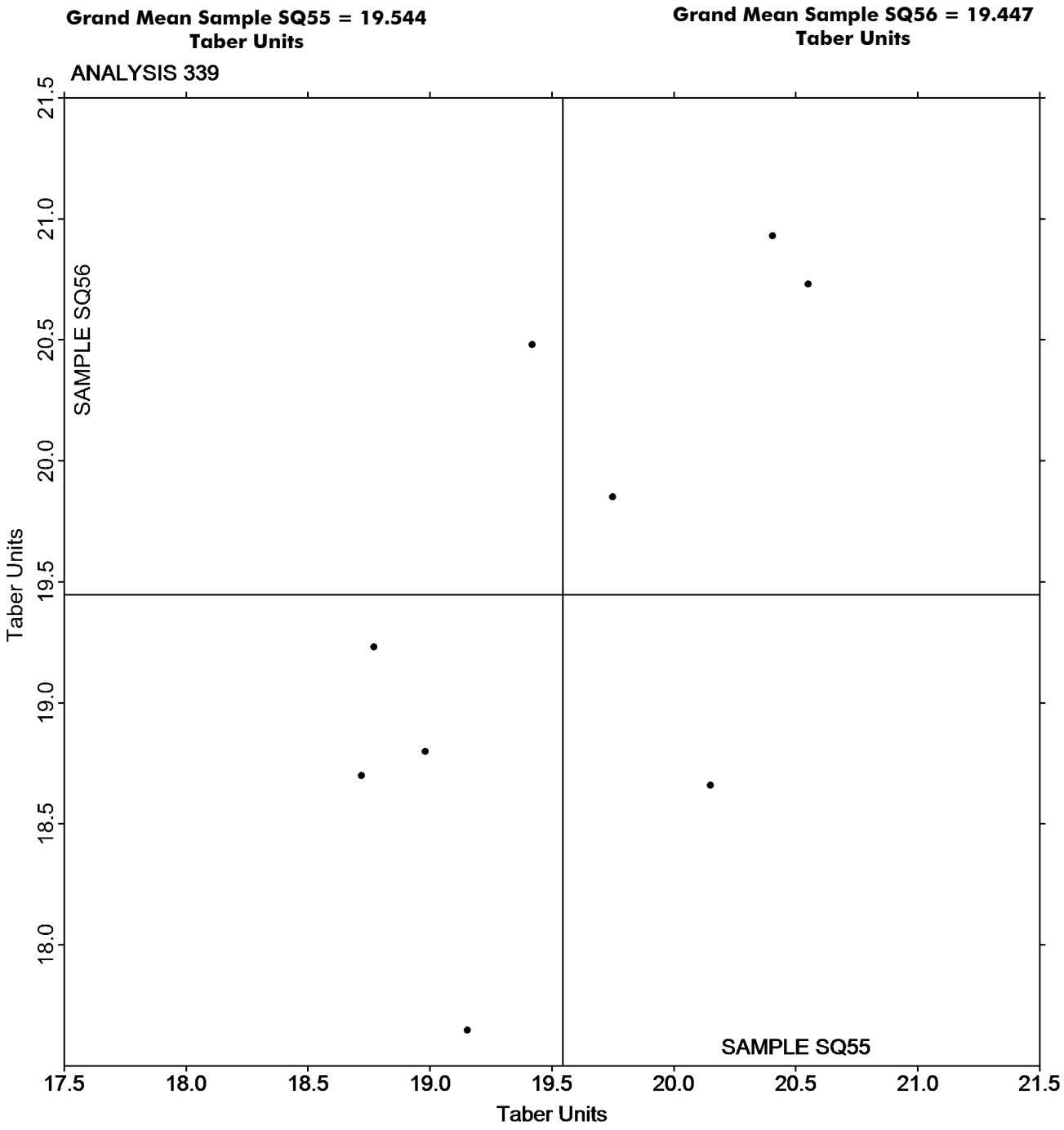
WebCode	Data Flag	Sample SQ55 Lab Mean	Sample SQ55 Diff from Grand Mean	Sample SQ55 CPV	Sample SQ56 Lab Mean	Sample SQ56 Diff from Grand Mean	Sample SQ56 CPV
2UZAVU		20.15	0.61	0.86	18.66	-0.79	-0.71
3XVBHU		19.75	0.21	0.29	19.85	0.40	0.36
7LABEW		19.15	-0.39	-0.56	17.65	-1.80	-1.61
J4LDGB		19.42	-0.12	-0.18	20.48	1.03	0.93
LDZCZB		20.55	1.01	1.44	20.73	1.28	1.15
LYNKD7		18.72	-0.82	-1.18	18.70	-0.75	-0.67
MAHJEB		20.41	0.86	1.23	20.93	1.48	1.33
U4PFW7	X	23.21	3.67	5.23	23.61	4.16	3.73
VNNAW8		18.98	-0.56	-0.81	18.80	-0.65	-0.58
WMQJ4X		18.77	-0.77	-1.10	19.23	-0.22	-0.19

Summary Statistics	Sample SQ55	Sample SQ56
Grand Means	19.54 Taber Units	19.45 Taber Units
Stnd Dev Btwn Labs	0.70 Taber Units	1.12 Taber Units

Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #339

U4PFW7 (X) - Data for both samples are high.



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

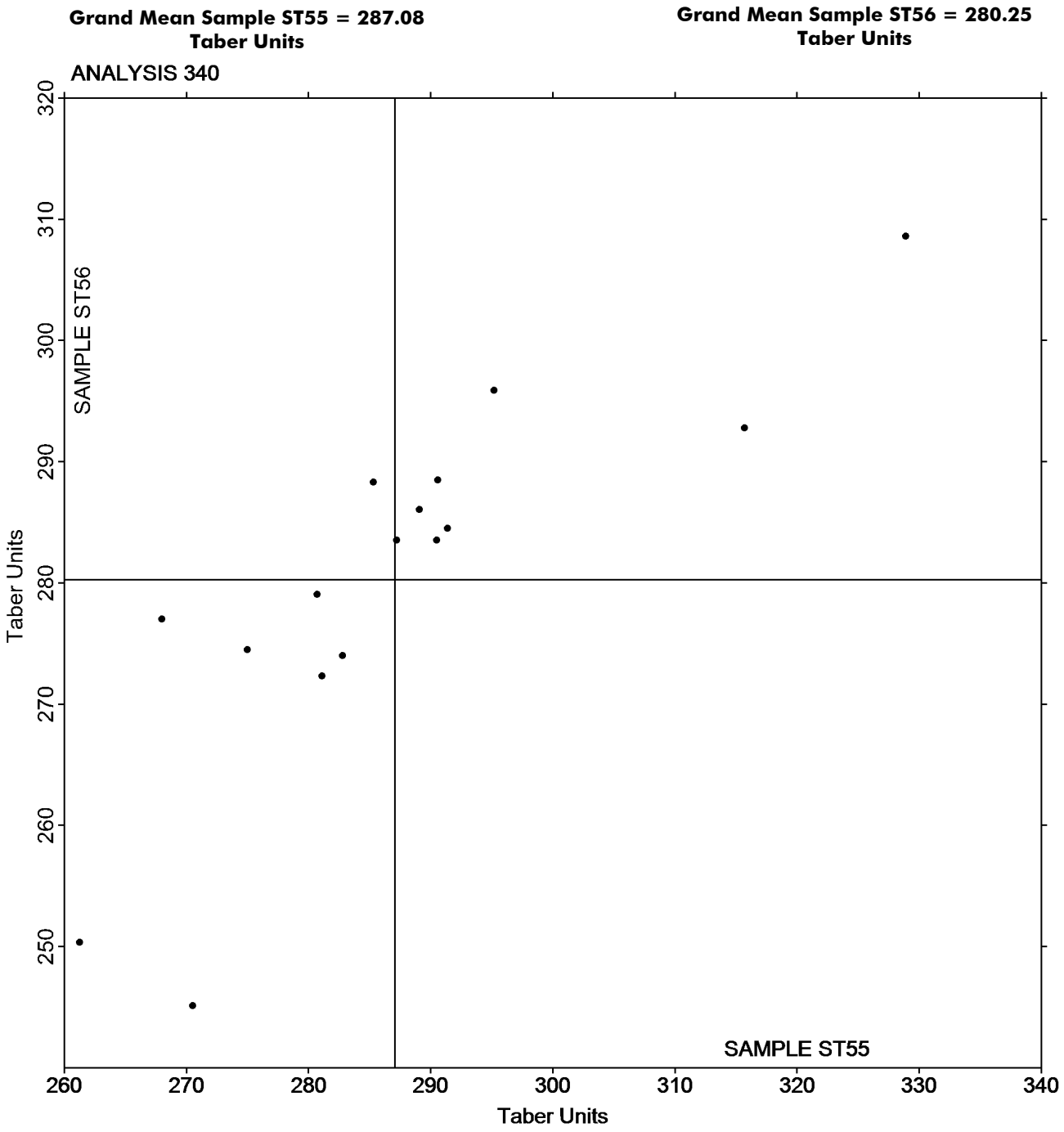
WebCode	Data Flag	Sample ST55 Lab Mean	Sample ST55 Diff from Grand Mean	Sample ST55 CPV	Sample ST56 Lab Mean	Sample ST56 Diff from Grand Mean	Sample ST56 CPV
4XA4NW		328.9	41.8	2.49	308.6	28.4	1.81
6AZEDE		282.8	-4.3	-0.25	274.0	-6.2	-0.40
8RNH8K		275.0	-12.1	-0.72	274.5	-5.7	-0.37
9TFV94		290.6	3.5	0.21	288.5	8.3	0.53
BRYNWK		285.3	-1.8	-0.11	288.3	8.1	0.51
EFE7YY		280.7	-6.4	-0.38	279.1	-1.2	-0.08
FNZVR4		268.0	-19.1	-1.14	277.0	-3.2	-0.21
HHBT7J		281.1	-6.0	-0.36	272.3	-7.9	-0.51
J4LDGB		291.4	4.3	0.26	284.5	4.2	0.27
MAHJEB		289.1	2.0	0.12	286.1	5.8	0.37
MLTQEG		287.2	0.1	0.01	283.5	3.3	0.21
N634TP		295.2	8.1	0.48	295.9	15.7	1.00
NHQAJY		270.5	-16.6	-0.99	245.1	-35.1	-2.24
NQMZ9F		290.5	3.4	0.20	283.5	3.3	0.21
QYZ7P3	X	292.9	5.8	0.35	327.0	46.8	2.98
VLM4G2		315.7	28.6	1.70	292.8	12.6	0.80
YK2MX6		261.3	-25.8	-1.54	250.4	-29.9	-1.91

Summary Statistics	Sample ST55	Sample ST56
Grand Means	287.08 Taber Units	280.25 Taber Units
Stnd Dev Btwn Labs	16.79 Taber Units	15.68 Taber Units

Statistics based on 16 of 17 reporting participants.

Comments on Assigned Data Flags for Test #340

QYZ7P3 (X) - Data for sample ST56 are high. Inconsistent within the determinations of both samples.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 343
Z-Direction Tensile
TAPPI Official Test Method T541

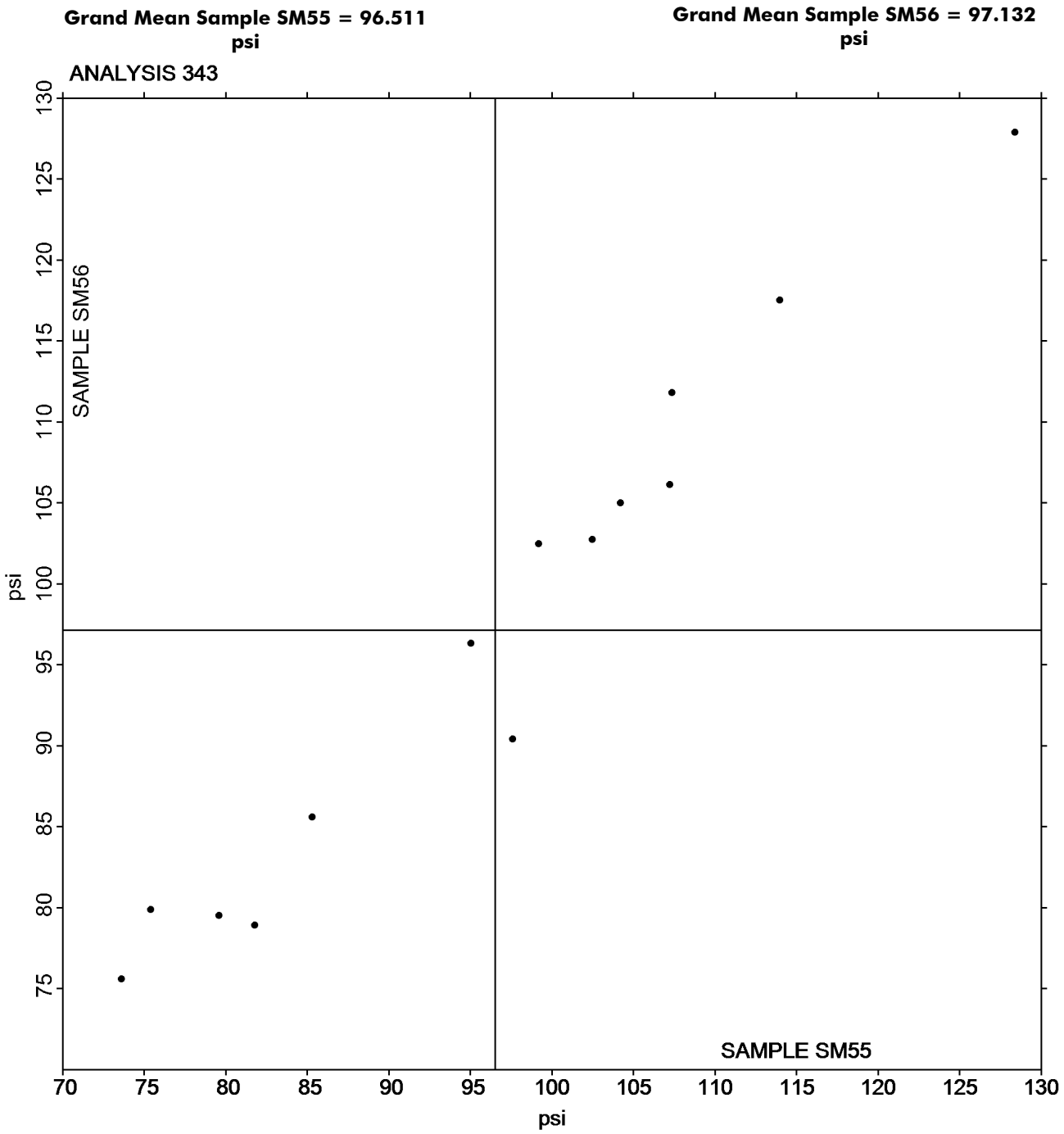
WebCode	Data Flag	Sample SM55 Lab Mean	Sample SM55 Diff from Grand Mean	Sample SM55 CPV	Sample SM56 Lab Mean	Sample SM56 Diff from Grand Mean	Sample SM56 CPV	Instr Code
3RPNKY		81.79	-14.72	-0.93	78.93	-18.20	-1.13	LW
7LABEW		95.02	-1.49	-0.09	96.34	-0.79	-0.05	LW
8P6G9R		113.98	17.47	1.10	117.54	20.41	1.27	TA
C92DWP		102.49	5.98	0.38	102.74	5.60	0.35	TL
J4LDGB		107.24	10.73	0.68	106.12	8.99	0.56	LW
JZLC9Z		128.38	31.87	2.01	127.90	30.77	1.91	DX
LDZCZB		75.40	-21.11	-1.33	79.88	-17.25	-1.07	TZ
LYNKD7		99.20	2.69	0.17	102.46	5.33	0.33	TA
N2Z8ZA		85.30	-11.21	-0.71	85.60	-11.53	-0.72	CA
N634TP		73.60	-22.91	-1.45	75.60	-21.53	-1.34	CA
N89TN8		104.20	7.69	0.49	105.00	7.87	0.49	XX
NHQAJY		79.60	-16.91	-1.07	79.52	-17.61	-1.09	LW
U4PFW7		107.36	10.85	0.69	111.82	14.69	0.91	TA
X33HMP		97.60	1.09	0.07	90.40	-6.73	-0.42	LW

Summary Statistics	Sample SM55	Sample SM56
Grand Means	96.51 psi	97.13 psi
Stnd Dev Btwn Labs	15.83 psi	16.08 psi

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	DX	Dek-Tron XP2 Series
LW	L & W ZD Tensile Tester	TA	Thwing-Albert Tensile Tester
TL	TMI Lab Master	TZ	TMI Monitor/ZDT Tester
XX	Instrument make/model not specified by lab		



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 SZ55 Lab Mean	Sample SZ55 Diff from Grand Mean	Sample SZ55 CPV	Sample SZ56 Lab Mean	Sample SZ56 Diff from Grand Mean	Sample SZ56 CPV	Instr Code
6AZEDE		34.80	-1.01	-0.33	35.20	-0.21	-0.07	TA
98DA8C		33.11	-2.70	-0.88	34.38	-1.03	-0.35	TA
9TFV94		36.78	0.97	0.32	36.98	1.57	0.54	TZ
A9RWGE		38.51	2.70	0.88	36.47	1.06	0.37	CH
BRYNWK		35.40	-0.41	-0.13	35.40	-0.01	0.00	CA
DLLFRL		41.18	5.37	1.75	40.74	5.33	1.83	PG
EFE7YY		33.56	-2.25	-0.73	32.84	-2.57	-0.88	CA
HHBT7J		38.44	2.63	0.86	37.08	1.67	0.58	CD
LPDA6F		36.96	1.15	0.37	37.12	1.71	0.59	CD
MAHJEB		31.30	-4.51	-1.46	30.52	-4.89	-1.68	CA
MLTQEG		34.23	-1.58	-0.51	33.06	-2.35	-0.81	TL
QYZ7P3		39.94	4.13	1.34	38.52	3.11	1.07	TA
TYGYMH		30.88	-4.93	-1.60	30.58	-4.83	-1.66	LW
VLM4G2		36.20	0.39	0.13	36.80	1.39	0.48	LW

Summary Statistics	Sample SZ55	Sample SZ56
Grand Means	35.81 psi	35.41 psi
Stnd Dev Btwn Labs	3.08 psi	2.91 psi

Statistics based on 14 of 14 reporting participants.

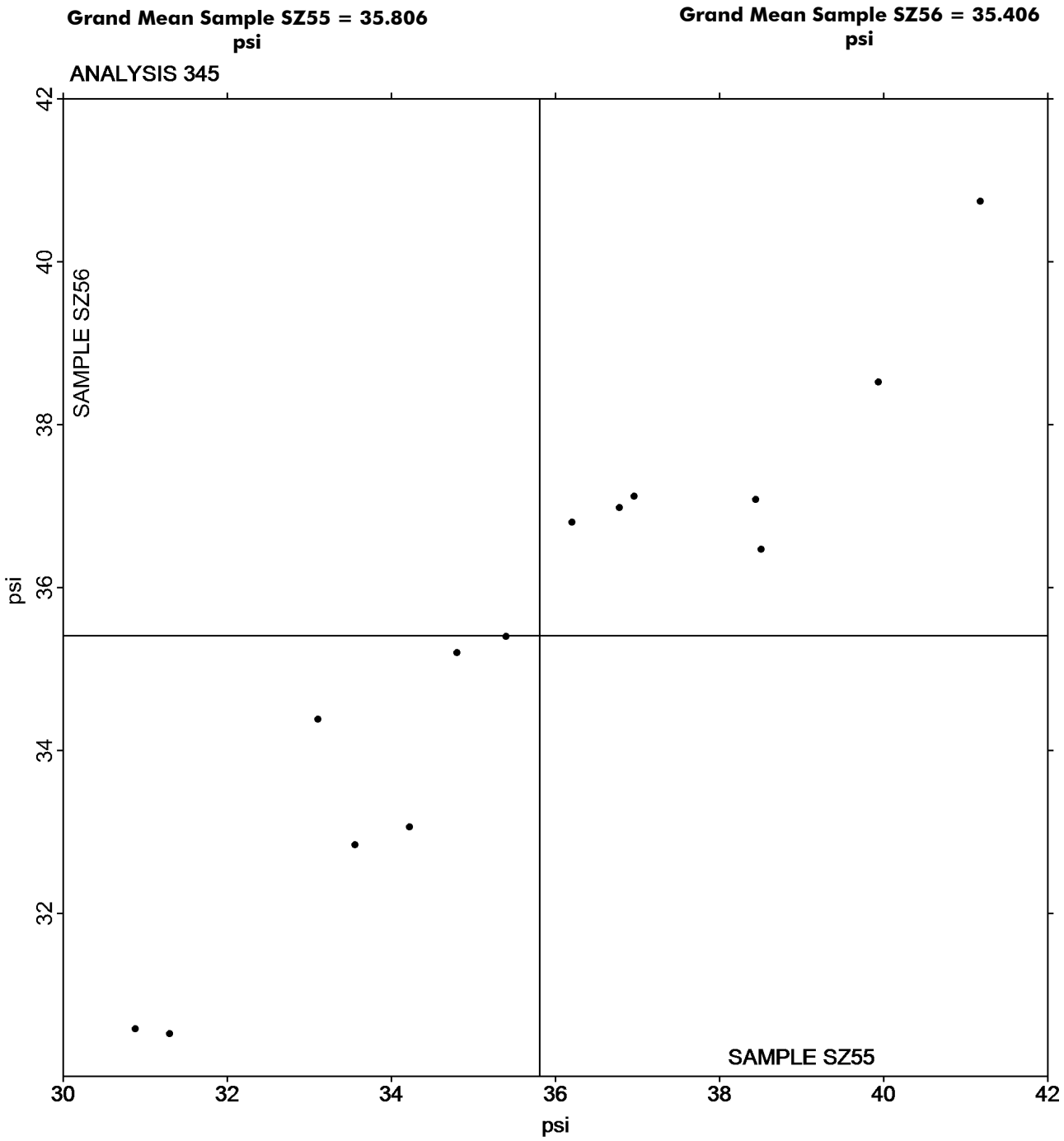
Comments on Assigned Data Flags for Test #345

Analysis Notes:

MLTQEG - One determination removed from the Lab Mean of Sample SZ55 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
CH	Chatillon Ametek	LW	L & W ZD Tensile Tester
PG	Perkins Model A Mullen Tester	TA	Thwing-Albert Tensile Tester
TL	TMI Lab Master	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 SN55 Lab Mean	Sample SN55 Diff from Grand Mean	Sample SN55 CPV	Sample SN56 Lab Mean	Sample SN56 Diff from Grand Mean	Sample SN56 CPV	Instr Code
2XE4BR		172.6	5.5	0.37	176.6	10.1	0.76	HZ
6AZEDE		167.4	0.3	0.02	171.4	4.9	0.37	HY
8P6G9R		195.8	28.7	1.94	189.8	23.3	1.75	HY
9RMZQ2		146.3	-20.8	-1.41	152.9	-13.6	-1.02	KR
CEQZJG		179.4	12.3	0.83	166.4	-0.1	-0.01	HY
EFE7YY		156.4	-10.7	-0.72	154.2	-12.3	-0.92	HZ
EVM42B		154.7	-12.4	-0.84	158.9	-7.6	-0.57	HY
J4LDGB		157.8	-9.3	-0.63	163.4	-3.1	-0.23	HY
LDZCZB		162.8	-4.3	-0.29	170.0	3.5	0.26	HY
LYNKD7		184.2	17.1	1.16	180.8	14.3	1.07	HZ
M3JPQB		149.6	-17.5	-1.18	146.8	-19.7	-1.48	HY
NHQAJY		180.0	12.9	0.87	177.4	10.9	0.82	HZ
RCBTJL		166.0	-1.1	-0.07	165.8	-0.7	-0.05	HY
U4PFW7		186.4	19.3	1.30	185.4	18.9	1.42	HY
UB8X68		149.0	-18.1	-1.22	145.0	-21.5	-1.61	HZ
VJDGJN		165.2	-1.9	-0.13	159.2	-7.3	-0.55	HY

Summary Statistics	Sample SN55	Sample SN56
Grand Means	167.10 1000th ft-lbs	166.50 1000th ft-lbs
Stnd Dev Btwn Labs	14.79 1000th ft-lbs	13.34 1000th ft-lbs

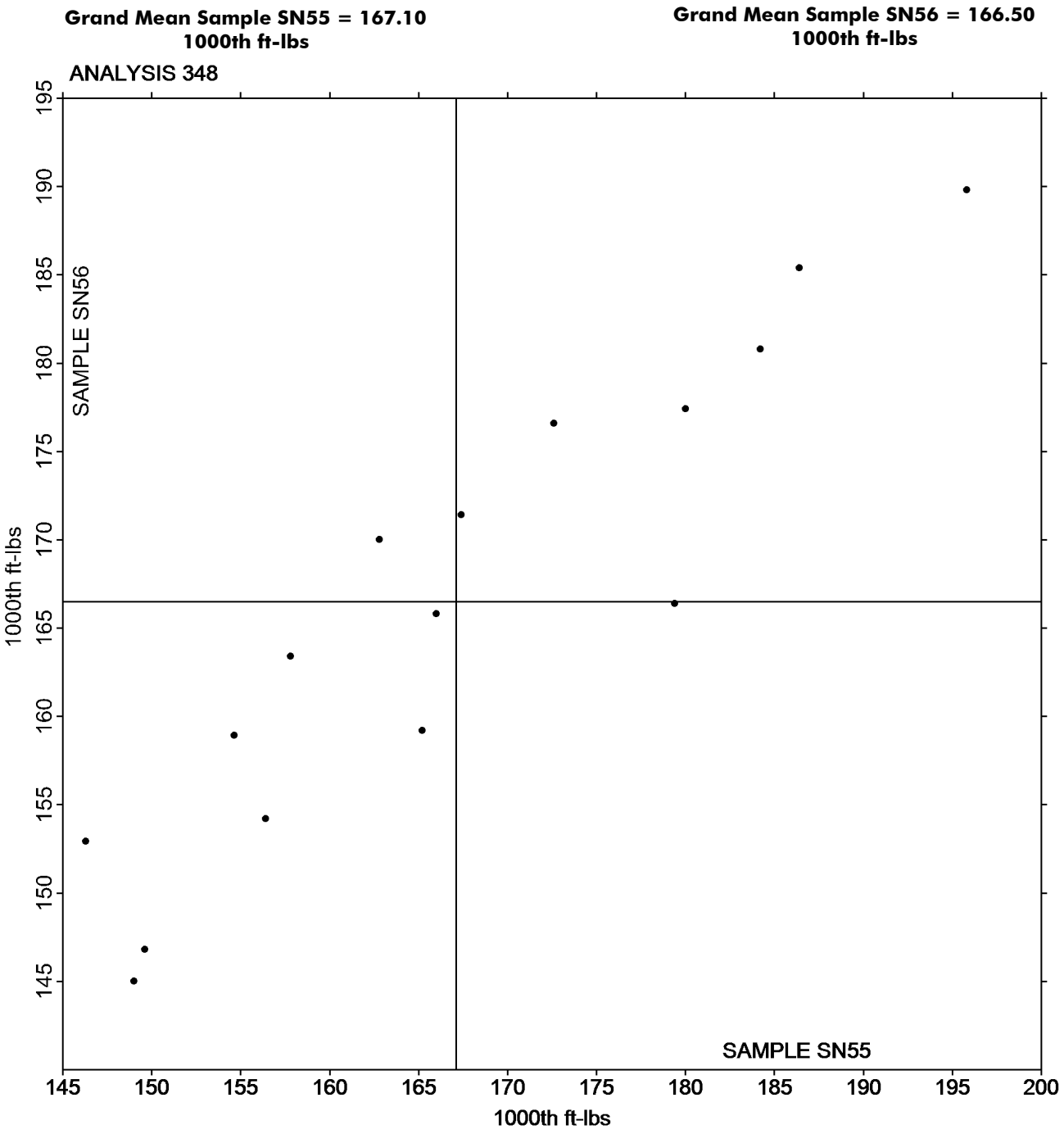
Statistics based on 16 of 16 reporting participants.

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



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 SP55 Lab Mean	Sample SP55 Diff from Grand Mean	Sample SP55 CPV	Sample SP56 Lab Mean	Sample SP56 Diff from Grand Mean	Sample SP56 CPV	Instr Code
4XA4NW		192.2	39.1	1.59	176.2	27.8	1.24	TM
7T78V8		174.8	21.7	0.88	172.0	23.6	1.05	SC
8A9996	X	240.0	86.9	3.54	258.0	109.6	4.87	XX
A9RWGE	X	239.2	86.1	3.51	174.8	26.4	1.17	TM
DLLFRL		148.6	-4.5	-0.18	144.8	-3.6	-0.16	TM
EPJF6N		149.6	-3.5	-0.14	142.4	-6.0	-0.26	XX
JZLC9Z		118.2	-34.9	-1.42	113.4	-35.0	-1.55	TM
LZU3C2		161.0	7.9	0.32	146.0	-2.4	-0.10	SC
NQMZ9F		179.0	25.9	1.05	181.4	33.0	1.46	XX
P789JJ		126.7	-26.4	-1.08	124.0	-24.4	-1.08	XX
UDDHT8		154.9	1.9	0.08	151.4	3.1	0.14	TM
WMQJ4X		125.8	-27.3	-1.11	132.0	-16.4	-0.73	TM

Summary Statistics	Sample SP55	Sample SP56
Grand Means	153.08 1000th ft-lbs	148.36 1000th ft-lbs
Stnd Dev Btwn Labs	24.56 1000th ft-lbs	22.53 1000th ft-lbs

Statistics based on 10 of 12 reporting participants.

Comments on Assigned Data Flags for Test #349

A9RWGE (X) - Data for sample SP55 are high. Inconsistent within the determinations of both samples.

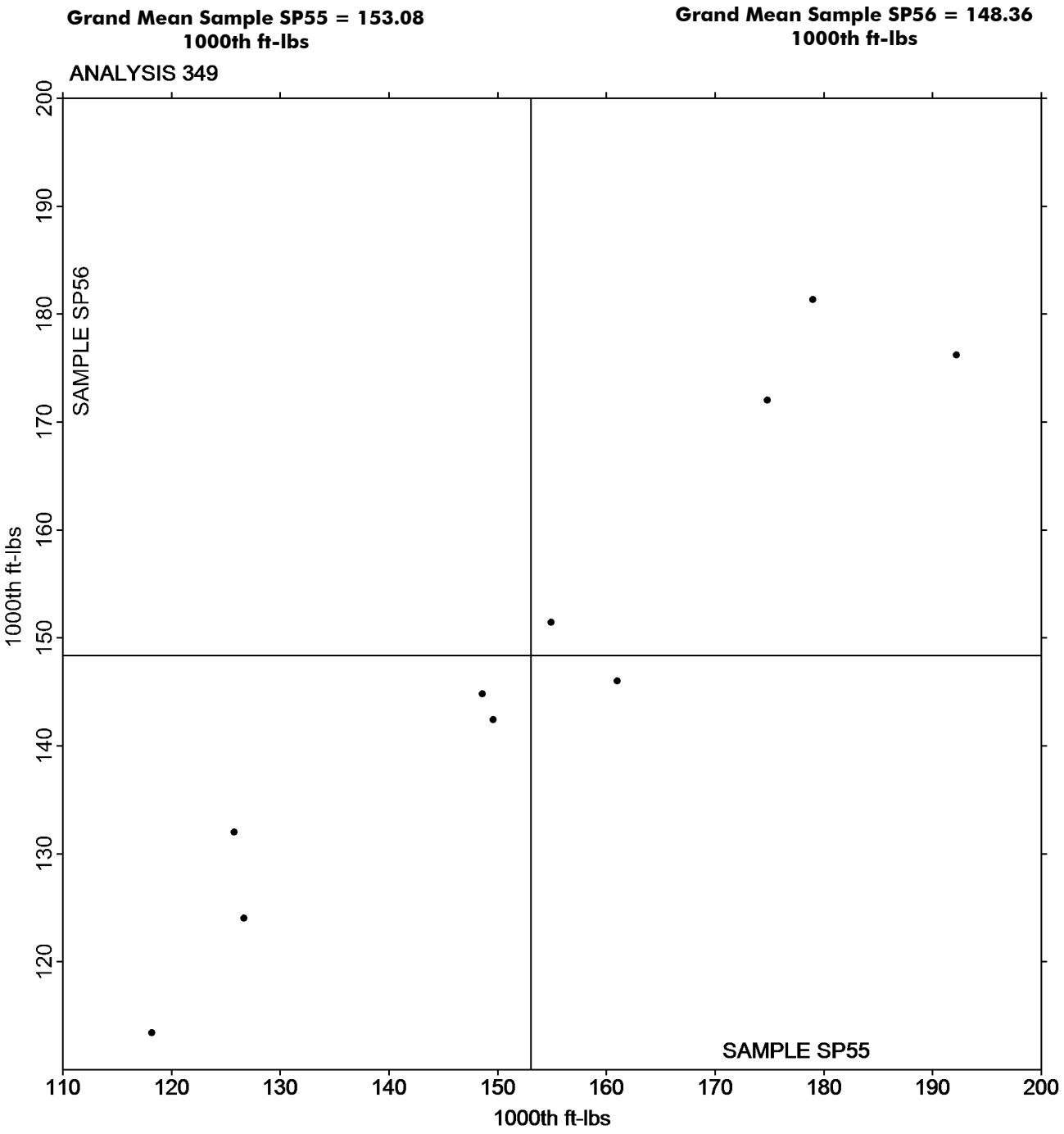
8A9996 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample SP56.

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.