Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2931 S - March 2018

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325	Tensile Breaking Strength - Printing Papers
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334	Folding Endurance (MIT) - Double Folds
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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.

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

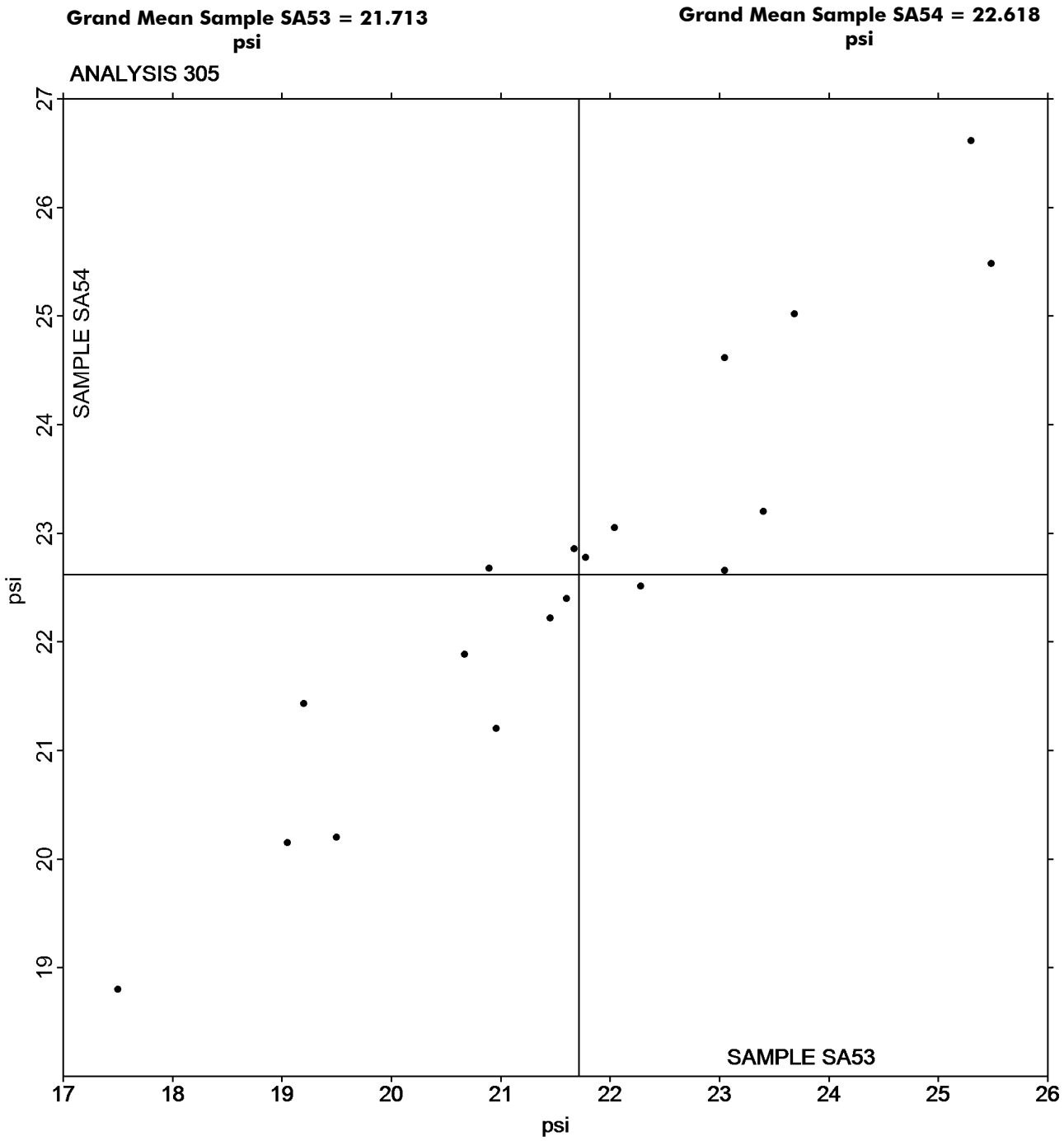
Bursting Strength - Printing Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SA53 Lab Mean	Sample SA53 Diff from Grand Mean	Sample SA53 CPV	Sample SA54 Lab Mean	Sample SA54 Diff from Grand Mean	Sample SA54 CPV
6TCJ4P		19.05	-2.66	-1.29	20.15	-2.47	-1.30
9PXDUK		20.90	-0.82	-0.40	22.68	0.06	0.03
9YJECF		20.96	-0.75	-0.37	21.20	-1.42	-0.74
C2FWRR		23.40	1.69	0.82	23.20	0.58	0.31
FTED8Z		21.78	0.06	0.03	22.78	0.16	0.08
G4TRM8		17.50	-4.21	-2.05	18.80	-3.82	-2.01
GNDW6Q		21.67	-0.04	-0.02	22.86	0.24	0.12
H6ZJ6M		21.60	-0.11	-0.06	22.40	-0.22	-0.11
L9PBQ2		25.48	3.77	1.83	25.48	2.87	1.51
LC6DK6		19.20	-2.52	-1.22	21.43	-1.19	-0.62
MBAJBL		21.45	-0.26	-0.13	22.22	-0.40	-0.21
NNBDKA		19.50	-2.21	-1.08	20.20	-2.42	-1.27
REXKKP		25.30	3.59	1.74	26.61	4.00	2.10
VA9LRW		23.05	1.33	0.65	24.61	2.00	1.05
VGPTGV		22.28	0.56	0.27	22.51	-0.11	-0.06
WM6H3U		23.69	1.97	0.96	25.02	2.40	1.26
XDENH4		23.05	1.33	0.65	22.66	0.04	0.02
XYKZNT		20.67	-1.05	-0.51	21.89	-0.73	-0.38
ZVAYFR		22.04	0.33	0.16	23.05	0.43	0.23

Summary Statistics	Sample SA53	Sample SA54
Grand Means	21.71 psi	22.62 psi
Stnd Dev Btwn Labs	2.06 psi	1.90 psi

Statistics based on 19 of 19 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 310

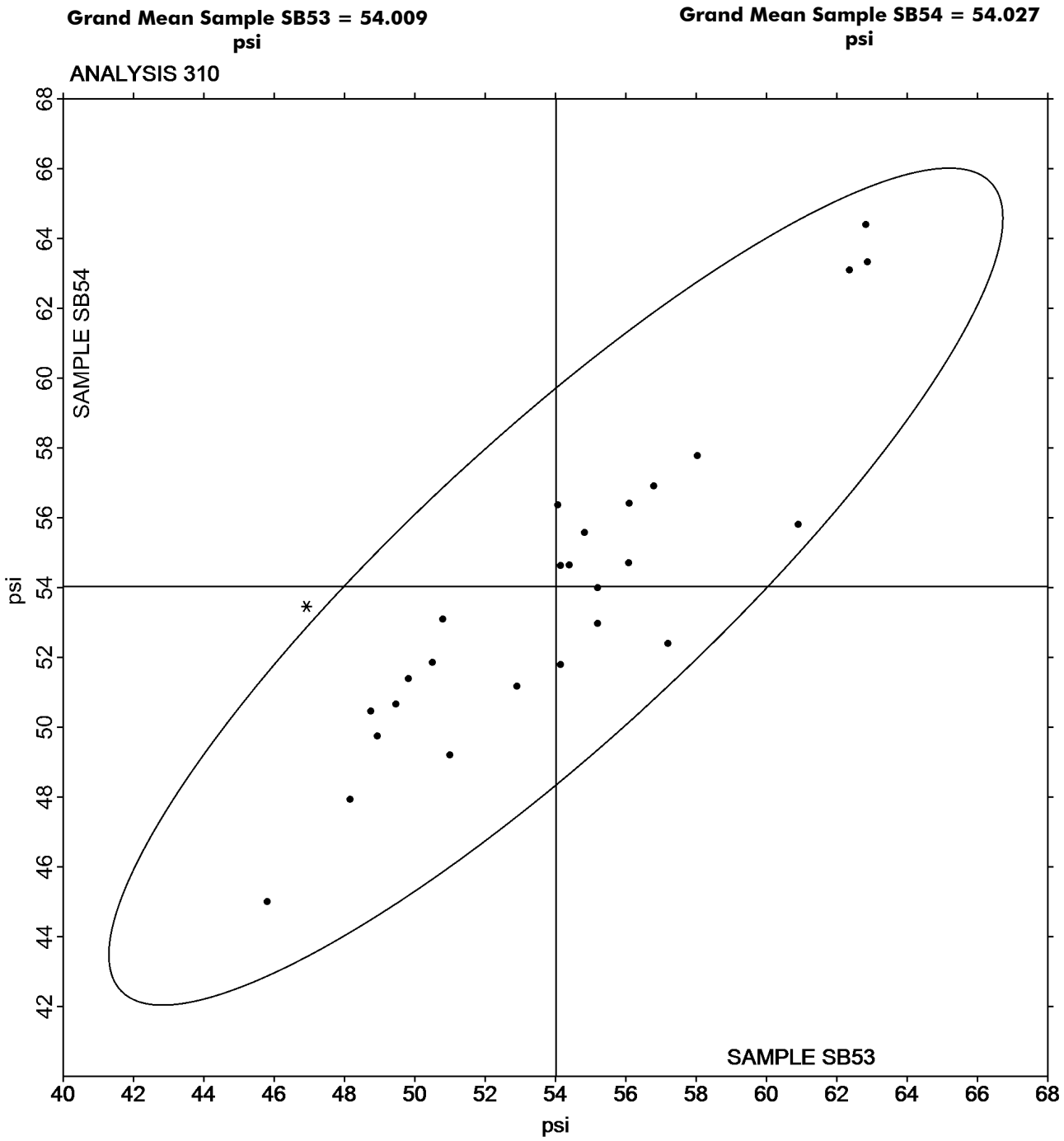
Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB53 Lab Mean	Sample SB53 Diff from Grand Mean	Sample SB53 CPV	Sample SB54 Lab Mean	Sample SB54 Diff from Grand Mean	Sample SB54 CPV
2E4Y63		54.14	0.13	0.03	51.79	-2.24	-0.50
6EC8ND	*	46.92	-7.09	-1.48	53.46	-0.57	-0.13
7DCPYG		50.50	-3.51	-0.73	51.85	-2.18	-0.48
9ZB3JW		55.20	1.19	0.25	52.97	-1.06	-0.23
BUGWTY		62.37	8.36	1.74	63.09	9.06	2.01
EURTWU		62.83	8.82	1.84	64.39	10.36	2.29
G7WM7B		60.90	6.89	1.44	55.80	1.77	0.39
G923RV		54.07	0.06	0.01	56.36	2.33	0.52
GDB4M4		48.17	-5.84	-1.22	47.93	-6.09	-1.35
GDEYKC		54.39	0.38	0.08	54.65	0.62	0.14
H6ZJ6M		56.09	2.08	0.43	54.71	0.68	0.15
JHM2LX		50.80	-3.21	-0.67	53.10	-0.93	-0.21
K9UAAP		49.82	-4.19	-0.87	51.38	-2.65	-0.59
KRLL94		58.04	4.03	0.84	57.78	3.75	0.83
MAC9FJ		57.20	3.19	0.67	52.40	-1.63	-0.36
MHNVD7		45.80	-8.21	-1.71	45.00	-9.03	-2.00
N8QJXR		62.87	8.86	1.85	63.32	9.30	2.06
PNMFLE		54.83	0.82	0.17	55.57	1.54	0.34
QB2EQU		49.47	-4.54	-0.95	50.66	-3.37	-0.75
QG2XQ4		56.80	2.79	0.58	56.90	2.87	0.64
REXKKP		56.10	2.09	0.44	56.41	2.38	0.53
RY3Z43		48.94	-5.07	-1.06	49.75	-4.28	-0.95
VA9LRW		52.91	-1.10	-0.23	51.17	-2.86	-0.63
VXC9KR		55.20	1.19	0.25	54.00	-0.03	-0.01
WQ67M6		51.00	-3.01	-0.63	49.20	-4.83	-1.07
WWZTQQ		48.75	-5.26	-1.10	50.45	-3.58	-0.79
ZVAYFR		54.14	0.13	0.03	54.63	0.60	0.13

Summary Statistics	Sample SB53	Sample SB54
Grand Means	54.01 psi	54.03 psi
Stnd Dev Btwn Labs	4.79 psi	4.52 psi

Statistics based on 27 of 27 reporting participants.



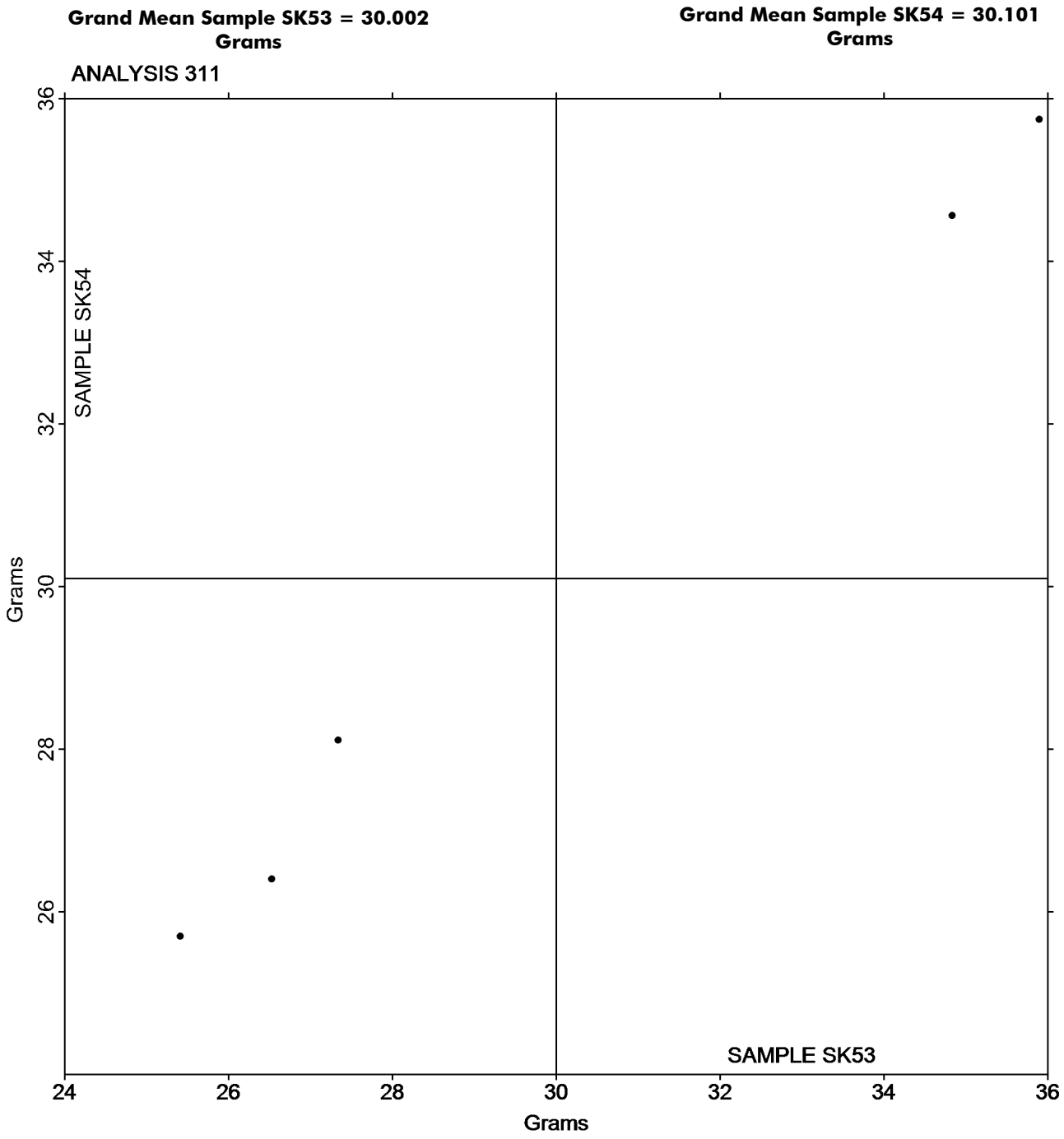
Paper & Paperboard Interlaboratory Testing Program

Analysis 311
Tearing Strength - Newsprint
TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK53 Lab Mean	Sample SK53 Diff from Grand Mean	Sample SK53 CPV	Sample SK54 Lab Mean	Sample SK54 Diff from Grand Mean	Sample SK54 CPV
2RMAFR		35.89	5.89	1.19	35.74	5.64	1.20
C48ZVD		26.53	-3.47	-0.70	26.40	-3.70	-0.79
M7D3A7		34.83	4.83	0.97	34.56	4.46	0.95
VDQEU7		27.34	-2.66	-0.54	28.11	-1.99	-0.42
ZVAYFR		25.41	-4.59	-0.93	25.70	-4.40	-0.94

Summary Statistics	Sample SK53	Sample SK54
Grand Means	30.00 Grams	30.10 Grams
Stnd Dev Btwn Labs	4.96 Grams	4.71 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 SC53 Lab Mean	Sample SC53 Diff from Grand Mean	Sample SC53 CPV	Sample SC54 Lab Mean	Sample SC54 Diff from Grand Mean	Sample SC54 CPV
2E4Y63		82.33	7.71	1.60	82.12	7.59	1.65
2EKD97		76.89	2.27	0.47	76.26	1.73	0.38
2K9VP3		68.20	-6.42	-1.33	67.70	-6.83	-1.48
3YJVYX		77.45	2.83	0.59	80.67	6.14	1.33
6EC8ND		75.84	1.21	0.25	77.73	3.21	0.70
7DCPYG		64.41	-10.21	-2.11	64.90	-9.63	-2.09
8JFVCY	X	93.92	19.29	3.99	93.93	19.40	4.21
8L33LF		76.06	1.44	0.30	77.40	2.87	0.62
97LW39		73.12	-1.50	-0.31	73.02	-1.51	-0.33
9JPG2R	X	80.38	5.76	1.19	68.74	-5.79	-1.26
9PXDUK		78.40	3.78	0.78	78.88	4.35	0.95
9YJECF		74.82	0.20	0.04	74.80	0.27	0.06
ABU7FF		71.00	-3.62	-0.75	70.70	-3.83	-0.83
C2FWRR		82.09	7.47	1.55	81.35	6.82	1.48
CP282F		73.39	-1.23	-0.25	72.25	-2.28	-0.49
DBD4ZW		71.20	-3.42	-0.71	71.10	-3.43	-0.74
DMFMWC		79.80	5.18	1.07	78.80	4.27	0.93
EKPBLR		73.88	-0.74	-0.15	74.66	0.13	0.03
FTED8Z		66.54	-8.08	-1.67	67.44	-7.09	-1.54
FXMNBN		83.81	9.19	1.90	81.04	6.51	1.42
G4TRM8		79.32	4.70	0.97	79.87	5.34	1.16
G923RV		74.44	-0.18	-0.04	75.97	1.44	0.31
GDEYKC		74.54	-0.08	-0.02	74.04	-0.48	-0.11
K9UAAP		74.50	-0.12	-0.03	71.14	-3.39	-0.74
KHH2WG		77.01	2.39	0.49	74.09	-0.44	-0.10
KZVKTK		70.54	-4.08	-0.84	69.48	-5.05	-1.10
L9PBQ2		73.00	-1.62	-0.34	73.20	-1.33	-0.29
LC6DK6		75.77	1.15	0.24	75.18	0.65	0.14
M66K3G		78.50	3.88	0.80	78.00	3.47	0.75
MLUQCW		74.14	-0.48	-0.10	73.86	-0.67	-0.14
NNBDKA		74.60	-0.02	0.00	71.30	-3.23	-0.70
PCTM83		78.66	4.04	0.84	80.46	5.93	1.29
QB2EQU		79.50	4.88	1.01	80.85	6.33	1.37
QG2XQ4	X	40.30	-34.32	-7.10	40.80	-33.73	-7.33
REXKKP		74.67	0.05	0.01	72.21	-2.32	-0.50
TJMUE2		66.25	-8.37	-1.73	65.73	-8.80	-1.91
UXXUNW		75.18	0.56	0.12	77.12	2.59	0.56
VA9LRW		74.08	-0.54	-0.11	73.41	-1.12	-0.24
VGPTGV		80.82	6.20	1.28	77.34	2.81	0.61
VJX3AT		76.98	2.36	0.49	74.02	-0.51	-0.11

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC53 Lab Mean	Sample SC53 Diff from Grand Mean	Sample SC53 CPV	Sample SC54 Lab Mean	Sample SC54 Diff from Grand Mean	Sample SC54 CPV
WAHB7T		73.34	-1.28	-0.27	77.16	2.63	0.57
WM6H3U	*	63.74	-10.88	-2.25	68.10	-6.43	-1.40
WWZTQQ		63.27	-11.35	-2.35	64.92	-9.61	-2.09
XDENH4		74.34	-0.28	-0.06	73.81	-0.71	-0.16
XYKZNT		78.49	3.87	0.80	78.39	3.86	0.84
ZVAYFR		73.83	-0.79	-0.16	74.18	-0.34	-0.07

Summary Statistics	Sample SC53	Sample SC54
Grand Means	74.62 Grams	74.53 Grams
Stnd Dev Btwn Labs	4.83 Grams	4.60 Grams

Statistics based on 43 of 46 reporting participants.

Comments on Assigned Data Flags for Test #312

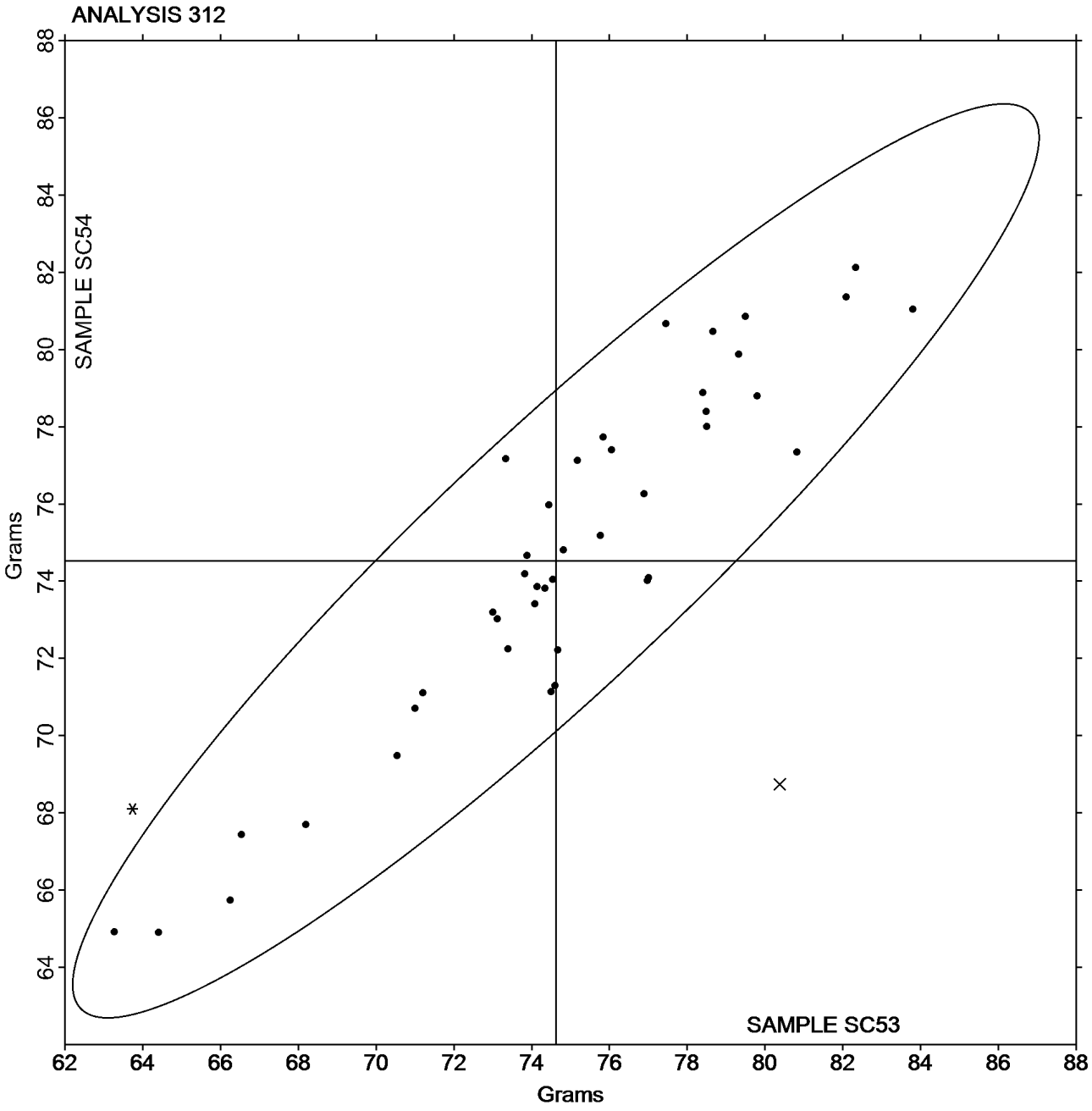
9JPG2R (X) - Inconsistent in testing between samples.

8JFVCY (X) - Data for both samples are high. Possible Systematic Error.

QG2XQ4 (X) - Extreme Data. Data appear to be off by a factor of 2.

Grand Mean Sample SC53 = 74.622 Grams

Grand Mean Sample SC54 = 74.527 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD53 Lab Mean	Sample SD53 Diff from Grand Mean	Sample SD53 CPV	Sample SD54 Lab Mean	Sample SD54 Diff from Grand Mean	Sample SD54 CPV
26DDZ6		218.8	-11.7	-0.38	281.4	-0.7	-0.02
4DXLCQ		227.2	-3.2	-0.11	278.8	-3.4	-0.09
6TCJ4P		254.6	24.1	0.79	325.8	43.6	1.14
8CU88V		194.7	-35.7	-1.18	244.3	-37.8	-0.99
8JFVCY		239.2	8.7	0.29	307.7	25.5	0.67
8TZURN		253.1	22.7	0.75	340.2	58.0	1.51
9BZ2LF		192.7	-37.7	-1.24	259.1	-23.1	-0.60
BRDMVG		198.1	-32.3	-1.06	247.2	-34.9	-0.91
DEY73G		277.9	47.5	1.56	330.4	48.2	1.26
EEUBVF	X	254.5	24.1	0.79	228.8	-53.4	-1.39
EURTWU		207.3	-23.2	-0.76	254.6	-27.5	-0.72
G3EXU7		188.6	-41.8	-1.38	225.5	-56.6	-1.48
GDB4M4		241.8	11.4	0.38	315.7	33.5	0.87
HUWGQG		224.5	-6.0	-0.20	299.2	17.0	0.44
JHM2LX		250.1	19.7	0.65	259.2	-23.0	-0.60
KTYN7H		237.0	6.5	0.22	294.8	12.6	0.33
M66K3G		279.2	48.8	1.61	324.4	42.2	1.10
MAC9FJ		177.0	-53.4	-1.76	197.5	-84.7	-2.21
MENPYZ		190.6	-39.9	-1.31	241.8	-40.3	-1.05
MHNVD7		246.2	15.8	0.52	335.2	53.0	1.38
MPPGGM		214.1	-16.4	-0.54	282.4	0.2	0.01
MVW9NY		248.0	17.6	0.58	315.5	33.4	0.87
N6HJPD		240.5	10.0	0.33	288.6	6.4	0.17
N8QJXR		217.1	-13.3	-0.44	230.6	-51.6	-1.34
PNMFLE		277.6	47.2	1.55	317.6	35.5	0.92
QG2XQ4	X	63.4	-167.0	-5.50	62.8	-219.4	-5.72
R69WN3		158.9	-71.5	-2.36	199.1	-83.1	-2.17
RJ7DMT		260.6	30.2	0.99	315.5	33.4	0.87
RY3Z43		235.8	5.4	0.18	258.8	-23.4	-0.61
T3VJJ7		275.9	45.4	1.50	314.0	31.8	0.83
WKLVJ3		210.8	-19.7	-0.65	254.6	-27.6	-0.72
WQ67M6		234.0	3.6	0.12	280.0	-2.2	-0.06
XPAZQB		248.1	17.6	0.58	296.2	14.0	0.37
Z8PTU6		239.8	9.3	0.31	291.3	9.2	0.24
ZVAYFR		245.0	14.6	0.48	304.2	22.0	0.57

Summary Statistics	Sample SD53	Sample SD54
Grand Means	230.45 Grams	282.15 Grams
Stnd Dev Btwn Labs	30.35 Grams	38.35 Grams

Statistics based on 33 of 35 reporting participants.

Comments on Assigned Data Flags for Test #314

EEUBVF (X) - Inconsistent in testing between samples.

QG2XQ4 (X) - Data for both samples are low. Data appear to be off by a factor of 4.

Analysis Notes:

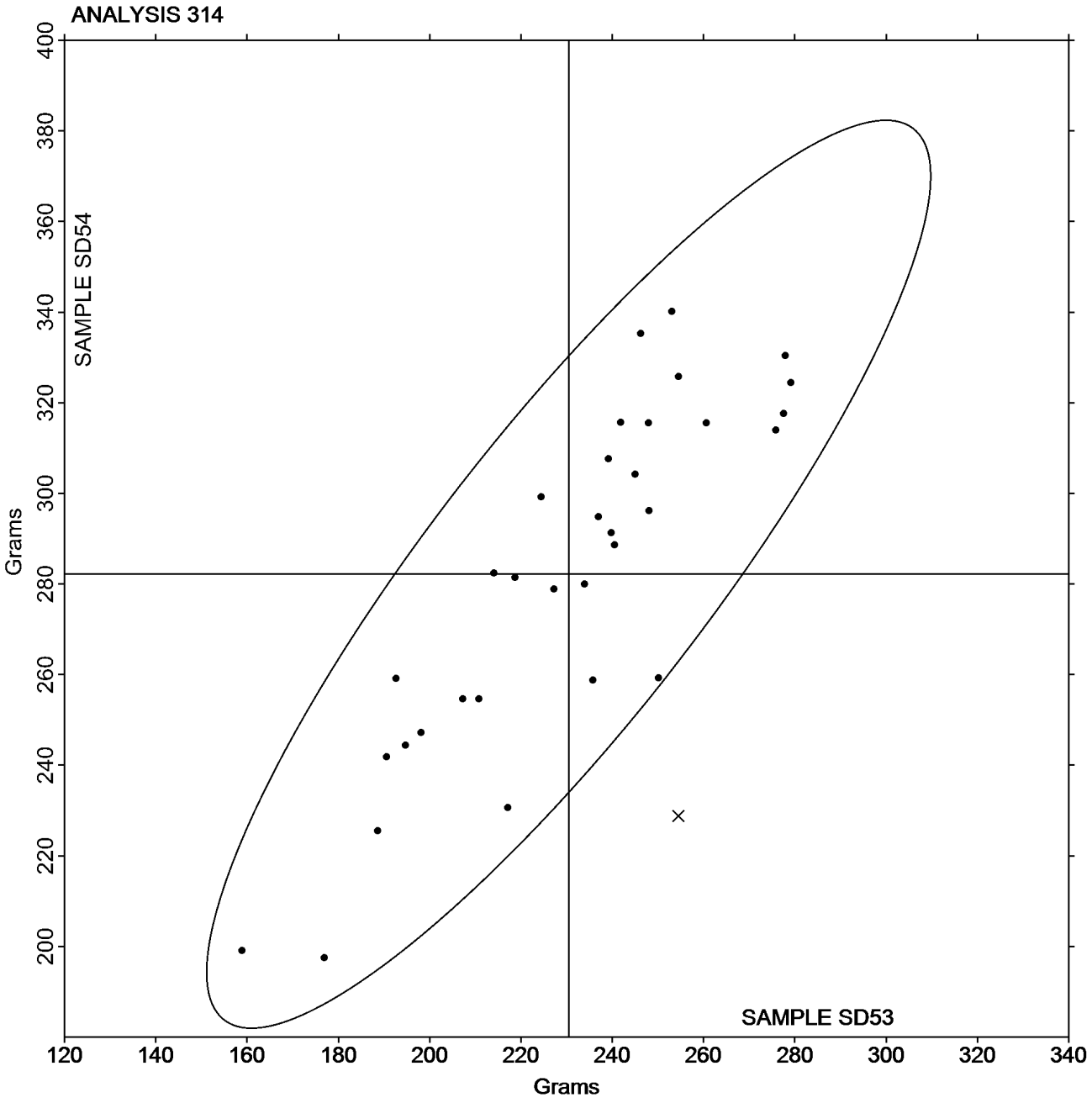
6TCJ4P - Data appear to be off by a factor of 4; data converted by CTS (x.25).

PNMFLE - One determination removed from the Lab Mean of Sample SD54 per Grubb's Test at 1% risk (TAPPI 1205).

R69WN3 - One determination removed from the Lab Mean of Sample SD54 per Grubb's Test at 1% risk (TAPPI 1205).

Grand Mean Sample SD53 = 230.45 Grams

Grand Mean Sample SD54 = 282.15 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

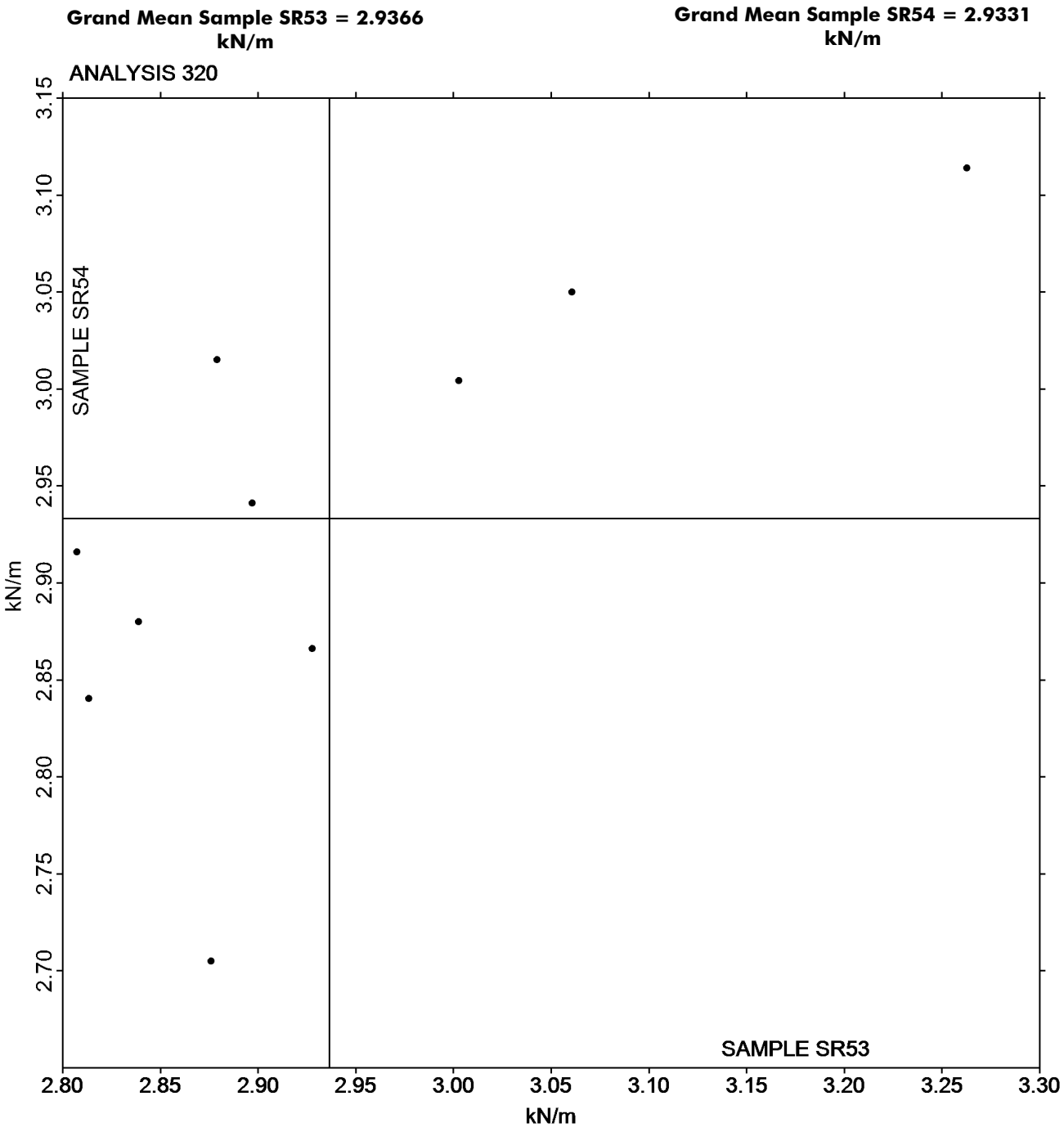
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR53 Lab Mean	Sample SR53 Diff from Grand Mean	Sample SR53 CPV	Sample SR54 Lab Mean	Sample SR54 Diff from Grand Mean	Sample SR54 CPV
2RMAFR		3.061	0.124	0.89	3.050	0.117	0.99
8JFVCY		2.928	-0.009	-0.06	2.866	-0.067	-0.57
C48ZVD		2.813	-0.123	-0.88	2.840	-0.093	-0.78
G7WM7B		3.003	0.066	0.47	3.004	0.071	0.60
GNDW6Q		2.807	-0.129	-0.92	2.916	-0.017	-0.15
HHZHQY		2.876	-0.061	-0.43	2.705	-0.228	-1.93
M7D3A7		2.897	-0.039	-0.28	2.941	0.008	0.07
NNBDKA		3.263	0.326	2.33	3.114	0.181	1.52
VA9LRW		2.879	-0.058	-0.41	3.015	0.082	0.69
VDQEU7		2.839	-0.098	-0.70	2.880	-0.053	-0.45

Summary Statistics	Sample SR53	Sample SR54
Grand Means	2.94 kN/m	2.93 kN/m
Stnd Dev Btwn Labs	0.14 kN/m	0.12 kN/m

Statistics based on 10 of 10 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 321

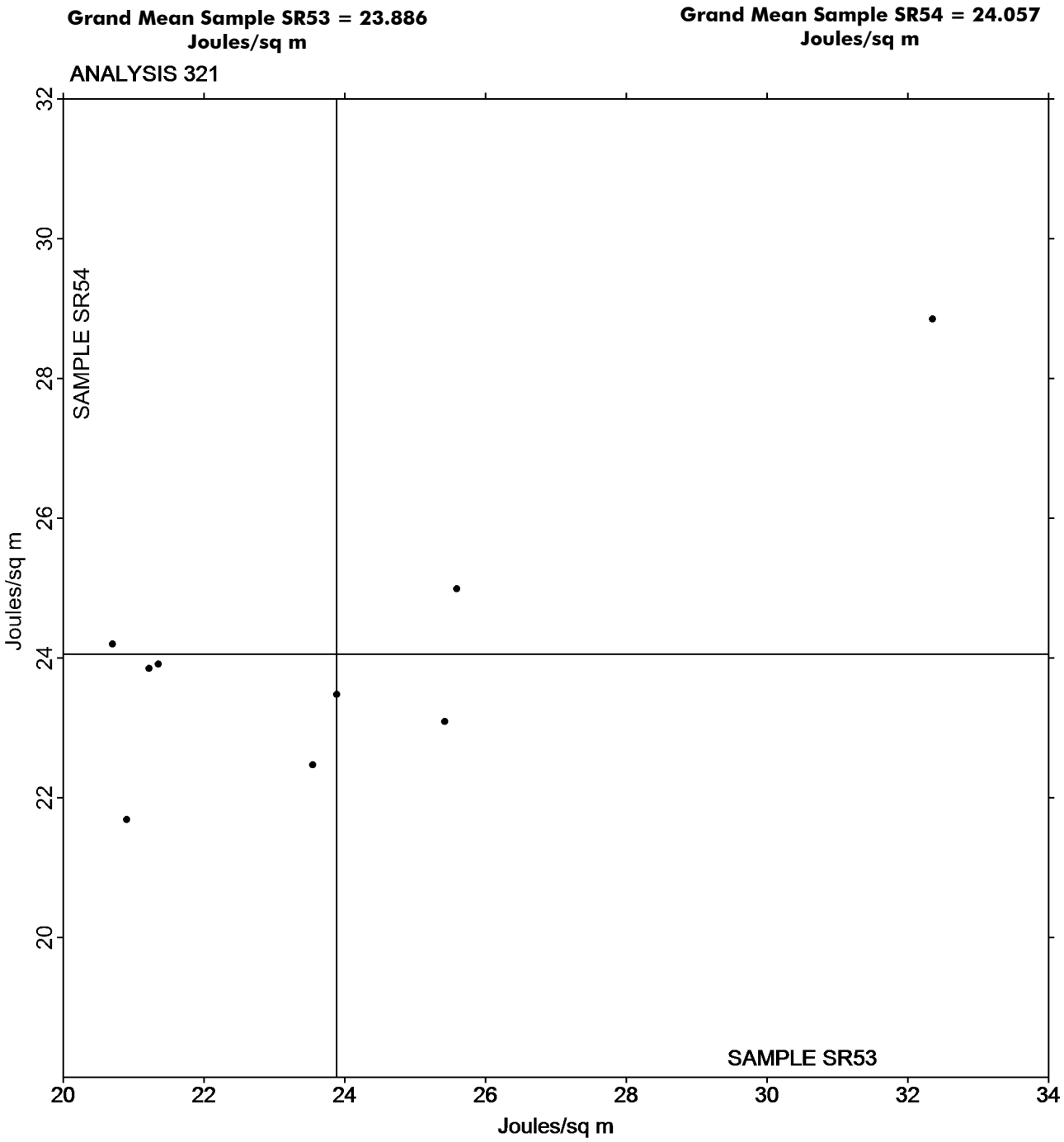
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR53 Lab Mean	Sample SR53 Diff from Grand Mean	Sample SR53 CPV	Sample SR54 Lab Mean	Sample SR54 Diff from Grand Mean	Sample SR54 CPV
2RMAFR		23.89	0.00	0.00	23.48	-0.58	-0.28
8JFVCY		25.59	1.70	0.46	24.99	0.93	0.46
G7WM7B		23.55	-0.34	-0.09	22.47	-1.59	-0.78
GNDW6Q		21.35	-2.53	-0.68	23.91	-0.15	-0.07
HHZHQY		32.35	8.47	2.29	28.85	4.80	2.35
M7D3A7		20.90	-2.99	-0.81	21.68	-2.37	-1.16
NNBDKA		25.42	1.54	0.41	23.09	-0.97	-0.47
VA9LRW		20.70	-3.19	-0.86	24.19	0.14	0.07
VDQEU7		21.22	-2.67	-0.72	23.85	-0.21	-0.10

Summary Statistics	Sample SR53	Sample SR54
Grand Means	23.89 Joules/sq m	24.06 Joules/sq m
Stnd Dev Btwn Labs	3.70 Joules/sq m	2.04 Joules/sq 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.

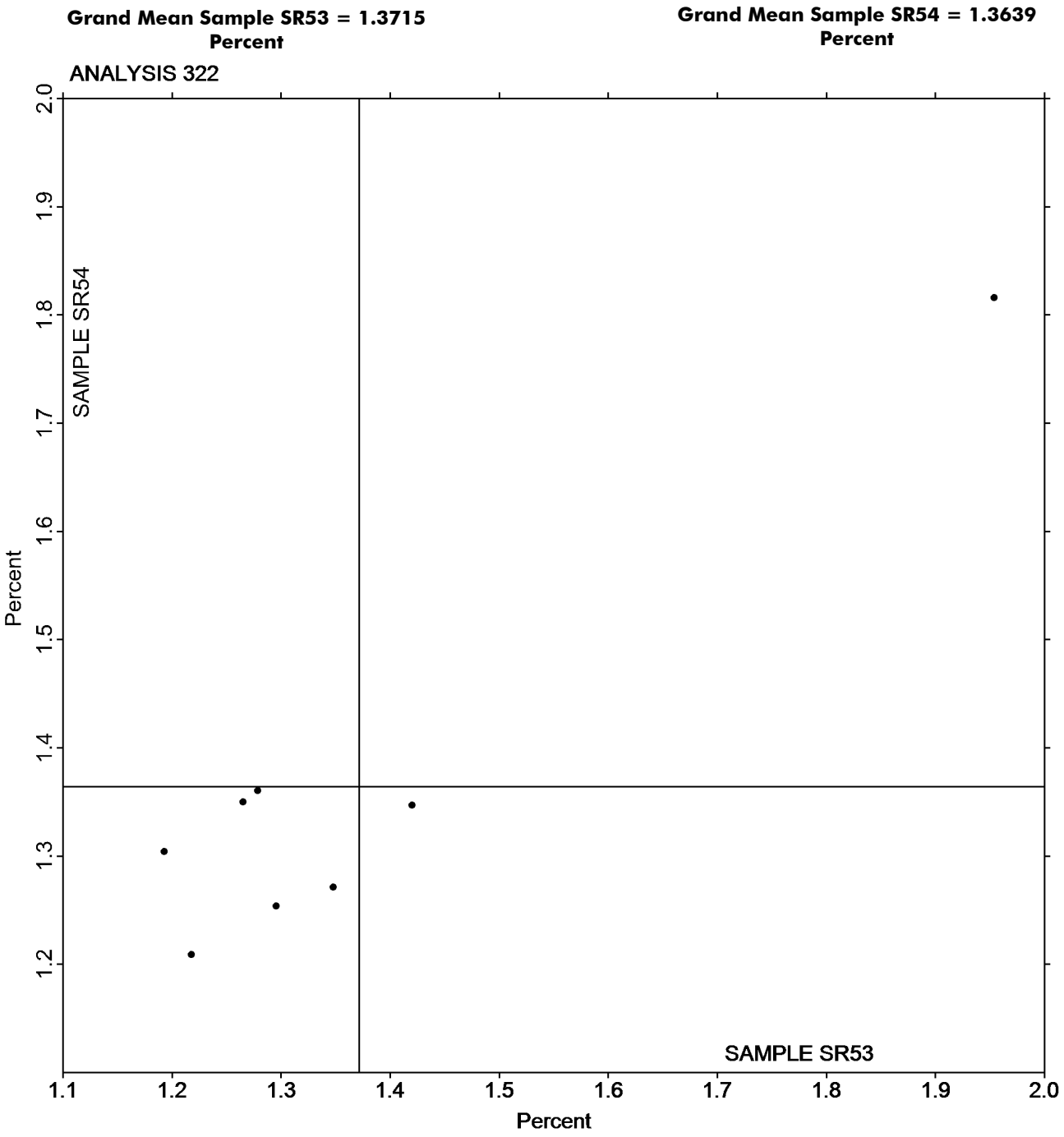
Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample SR53 Lab Mean	Sample SR53 Diff from Grand Mean	Sample SR53 CPV	Sample SR54 Lab Mean	Sample SR54 Diff from Grand Mean	Sample SR54 CPV
2RMAFR		1.348	-0.024	-0.10	1.271	-0.093	-0.49
8JFVCY		1.218	-0.154	-0.62	1.209	-0.155	-0.81
G7WM7B		1.296	-0.076	-0.31	1.254	-0.110	-0.58
GNDW6Q		1.279	-0.093	-0.38	1.360	-0.004	-0.02
HHZHQY		1.954	0.582	2.37	1.816	0.452	2.38
NNBDKA		1.420	0.048	0.20	1.347	-0.017	-0.09
VA9LRW		1.193	-0.179	-0.73	1.304	-0.060	-0.31
VDQEU7		1.265	-0.107	-0.43	1.350	-0.014	-0.07

Summary Statistics	Sample SR53	Sample SR54
Grand Means	1.37 Percent	1.36 Percent
Stnd Dev Btwn Labs	0.25 Percent	0.19 Percent

Statistics based on 8 of 8 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 SF53 Lab Mean	Sample SF53 Diff from Grand Mean	Sample SF53 CPV	Sample SF54 Lab Mean	Sample SF54 Diff from Grand Mean	Sample SF54 CPV	Instr Code
27MFNN		4.020	-0.146	-0.54	3.977	-0.192	-0.88	LI
2EKD97		4.257	0.091	0.34	4.240	0.071	0.32	LI
2K9VP3		4.608	0.442	1.64	4.435	0.266	1.22	TO
3YJVYX		4.005	-0.161	-0.60	3.971	-0.198	-0.91	IM
44ARZU		3.884	-0.282	-1.04	3.862	-0.307	-1.41	RE
6EC8ND		3.929	-0.237	-0.88	3.928	-0.241	-1.10	LI
7DCPYG		4.638	0.472	1.75	4.600	0.431	1.97	TF
97LW39	*	3.564	-0.602	-2.23	3.887	-0.283	-1.29	TB
9JPG2R	X	3.527	-0.639	-2.37	4.052	-0.118	-0.54	XX
9PXDUK		4.182	0.016	0.06	4.234	0.065	0.30	LH
9YJECF		4.099	-0.067	-0.25	4.090	-0.079	-0.36	TB
ABU7FF		4.221	0.054	0.20	4.266	0.097	0.44	TO
C2FWRR		4.039	-0.128	-0.47	4.088	-0.081	-0.37	LH
CP282F		4.053	-0.113	-0.42	4.080	-0.090	-0.41	TC
EKPBLR	X	4.132	-0.034	-0.13	3.615	-0.554	-2.53	TF
FTED8Z		4.241	0.075	0.28	4.396	0.227	1.04	TF
FXMNBN		4.334	0.168	0.62	4.296	0.127	0.58	LA
G4TRM8		4.090	-0.076	-0.28	4.197	0.028	0.13	LX
G923RV		3.968	-0.199	-0.74	4.025	-0.144	-0.66	XX
KHH2WG		4.210	0.044	0.16	4.167	-0.002	-0.01	XX
KZVKTK		3.952	-0.214	-0.79	3.864	-0.305	-1.40	TP
LC6DK6		4.070	-0.096	-0.35	4.112	-0.057	-0.26	IM
LNWGTJ		4.665	0.499	1.85	4.560	0.391	1.79	XX
MBAJBL		4.403	0.237	0.88	4.385	0.216	0.99	LH
MQ32GJ		3.970	-0.196	-0.73	4.007	-0.162	-0.74	TP
PCTM83		3.736	-0.430	-1.59	3.684	-0.486	-2.22	ID
QB2EQU		4.119	-0.047	-0.17	4.135	-0.034	-0.16	LI
TJMUE2		4.529	0.363	1.34	4.482	0.312	1.43	LF
U6E88B		4.087	-0.079	-0.29	4.035	-0.134	-0.61	LA
UXXUNW		4.041	-0.125	-0.46	4.067	-0.102	-0.47	LE
VA9LRW		3.886	-0.280	-1.04	4.035	-0.134	-0.61	LH
VGPTGV		3.914	-0.252	-0.93	4.022	-0.147	-0.67	LI
VJX3AT		4.461	0.295	1.09	4.504	0.334	1.53	LH
WAHB7T		4.432	0.266	0.99	4.373	0.204	0.93	VM
WM6H3U	*	4.770	0.604	2.24	4.441	0.272	1.24	TJ
XDENH4		4.387	0.221	0.82	4.289	0.120	0.55	LA
XYKZNT		4.077	-0.089	-0.33	4.101	-0.068	-0.31	LI
ZVAYFR		4.138	-0.028	-0.10	4.258	0.089	0.41	LH

Paper & Paperboard Interlaboratory Testing Program

Analysis 325
Tensile Breaking Strength - Printing Papers
TAPPI Official Test Method T494

Summary Statistics	Sample SF53	Sample SF54
Grand Means	4.17 kN/m	4.17 kN/m
Stnd Dev Btwn Labs	0.27 kN/m	0.22 kN/m

Statistics based on 36 of 38 reporting participants.

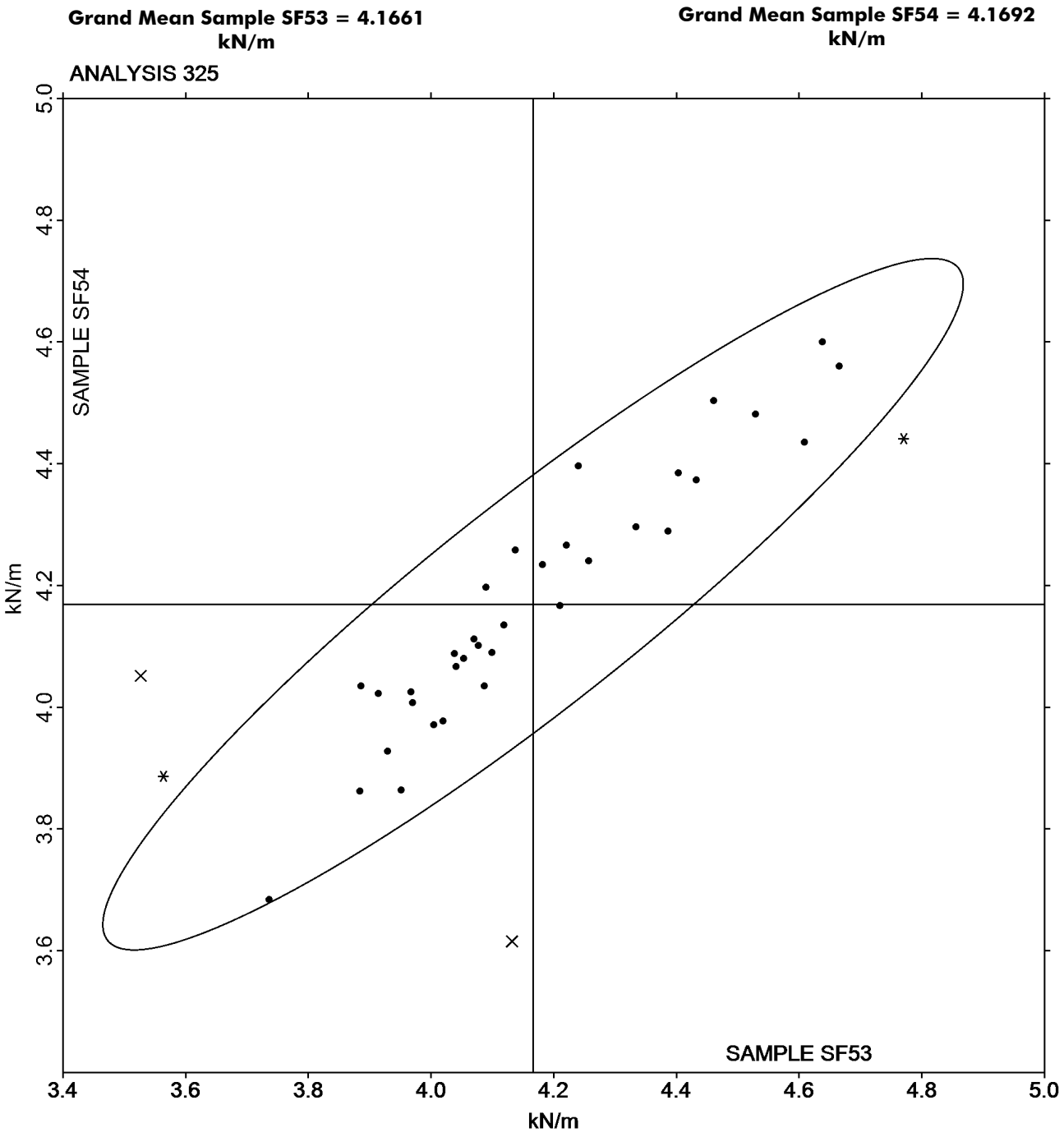
Comments on Assigned Data Flags for Test #325

9JPG2R (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

EKPBLR (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

ID	Instron 4201/4202	IM	Instron 5500 Series
LA	L & W Tensile - Autoline 300	LE	L & W Tensile Tester 066
LF	L & W Tensile/Fracture Toughness Tester SE 064	LH	L & W Alwetron TH1 (Horizontal) SE 060/065F
LI	L & W Tensile Tester SE 062	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TC	Thwing-Albert Electro-Hydraulic, Model 30LT	TF	Thwing-Albert EJA Vantage-1
TJ	Thwing-Albert QC II-XS	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF53 Lab Mean	Sample SF53 Diff from Grand Mean	Sample SF53 CPV	Sample SF54 Lab Mean	Sample SF54 Diff from Grand Mean	Sample SF54 CPV	Instr Code
27MFNN		32.73	-0.51	-0.12	33.12	-0.43	-0.08	LI
2EKD97		32.87	-0.37	-0.08	34.24	0.70	0.14	LI
2K9VP3		37.28	4.04	0.91	33.18	-0.36	-0.07	TO
3YJVYX		32.08	-1.17	-0.26	32.88	-0.66	-0.13	IM
44ARZU		33.07	-0.17	-0.04	30.10	-3.44	-0.69	RE
6EC8ND		30.94	-2.30	-0.52	31.14	-2.40	-0.48	LI
7DCPYG		34.22	0.98	0.22	34.31	0.77	0.15	TF
9JPG2R		33.47	0.23	0.05	36.90	3.35	0.67	XX
9PXDUK		34.22	0.98	0.22	34.62	1.08	0.21	LH
9YJECF		37.16	3.92	0.89	38.06	4.51	0.90	TB
ABU7FF		33.86	0.62	0.14	34.15	0.61	0.12	TO
C2FWRR		32.84	-0.41	-0.09	34.08	0.54	0.11	LH
FTED8Z	*	42.63	9.38	2.12	46.46	12.92	2.58	TF
FXMNBN		37.89	4.65	1.05	35.95	2.41	0.48	LA
G4TRM8		32.18	-1.06	-0.24	34.35	0.81	0.16	LX
G923RV		34.84	1.60	0.36	37.19	3.65	0.73	XX
KHH2WG		27.39	-5.85	-1.32	26.84	-6.70	-1.34	XX
LC6DK6		37.66	4.41	1.00	37.47	3.93	0.78	IM
MBAJBL		36.97	3.73	0.84	35.97	2.43	0.48	LH
PCTM83	*	19.98	-13.26	-3.00	18.70	-14.84	-2.96	ID
QB2EQU		35.79	2.55	0.58	35.71	2.16	0.43	LI
TJMUE2		30.30	-2.95	-0.67	29.68	-3.86	-0.77	LW
VA9LRW		29.33	-3.91	-0.88	32.69	-0.85	-0.17	LH
VGPTGV		31.23	-2.02	-0.46	33.74	0.20	0.04	LI
VJX3AT		38.16	4.92	1.11	35.75	2.21	0.44	LH
XDENH4		25.55	-7.69	-1.74	23.92	-9.62	-1.92	LA
XYKZNT		30.69	-2.55	-0.58	29.81	-3.74	-0.74	LI
ZVAYFR		35.45	2.21	0.50	38.15	4.61	0.92	LH

Summary Statistics	Sample SF53	Sample SF54
Grand Means	33.24 Joules/sq m	33.54 Joules/sq m
Stnd Dev Btwn Labs	4.42 Joules/sq m	5.01 Joules/sq m

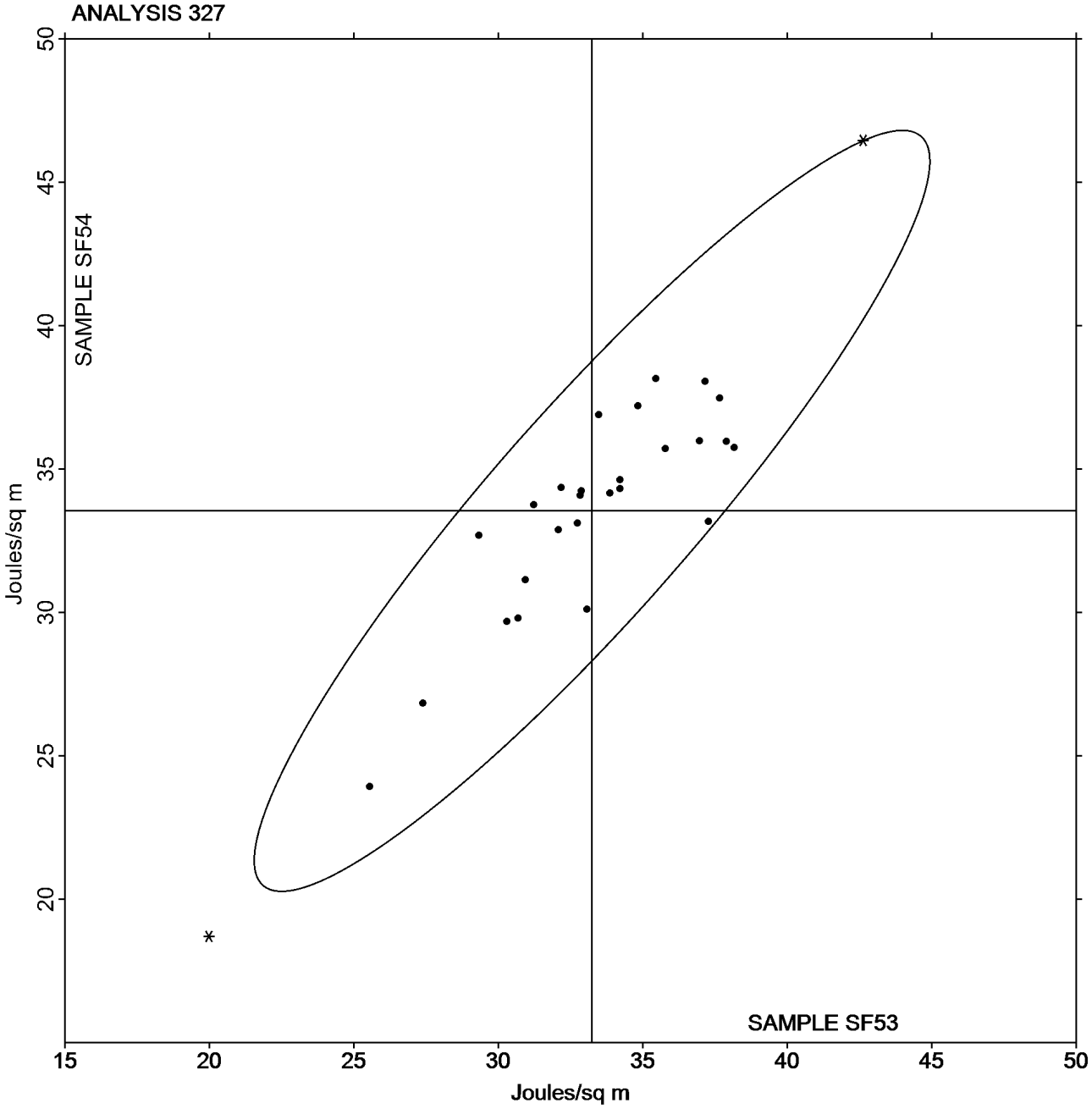
Statistics based on 28 of 28 reporting participants.

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	XX	Instrument make/model not specified by lab

Grand Mean Sample SF53 = 33.242 Joules/sq m

Grand Mean Sample SF54 = 33.541 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF53 Lab Mean	Sample SF53 Diff from Grand Mean	Sample SF53 CPV	Sample SF54 Lab Mean	Sample SF54 Diff from Grand Mean	Sample SF54 CPV	Instr Code
27MFNN		1.287	-0.004	-0.03	1.311	0.016	0.11	LI
2EKD97		1.238	-0.053	-0.40	1.279	-0.016	-0.11	LI
2K9VP3		1.229	-0.062	-0.47	1.106	-0.189	-1.29	TG
3YJVYX		1.304	0.013	0.10	1.335	0.040	0.27	XX
44ARZU		1.456	0.165	1.26	1.372	0.076	0.52	RE
6EC8ND		1.215	-0.076	-0.58	1.229	-0.066	-0.45	LI
7DCPYG		1.320	0.029	0.22	1.318	0.023	0.16	TF
97LW39		1.122	-0.169	-1.29	1.246	-0.049	-0.34	TF
9JPG2R		1.492	0.201	1.54	1.540	0.245	1.67	XX
9PXDUK		1.277	-0.014	-0.10	1.284	-0.011	-0.08	LH
9YJECF		1.463	0.172	1.31	1.488	0.193	1.32	TB
ABU7FF		1.141	-0.150	-1.14	1.154	-0.141	-0.96	TO
C2FWRR		1.268	-0.023	-0.17	1.293	-0.002	-0.01	LH
EKPBLR	X	6.330	5.039	38.45	5.400	4.105	28.00	TF
FTED8Z	*	1.643	0.353	2.69	1.708	0.413	2.82	TF
FXMNBN		1.236	-0.055	-0.42	1.193	-0.102	-0.69	XX
G4TRM8		1.233	-0.058	-0.44	1.368	0.073	0.50	LX
G923RV		1.429	0.138	1.06	1.495	0.200	1.36	XX
KHH2WG		1.335	0.044	0.34	1.307	0.012	0.08	XX
LC6DK6		1.445	0.155	1.18	1.430	0.135	0.92	IM
MBAJBL		1.298	0.007	0.06	1.272	-0.023	-0.16	LH
PCTM83		1.431	0.140	1.07	1.371	0.075	0.51	ID
QB2EQU		1.336	0.045	0.35	1.338	0.043	0.29	LI
TJMUE2		1.142	-0.149	-1.13	1.112	-0.183	-1.25	LX
VA9LRW		1.177	-0.114	-0.87	1.251	-0.044	-0.30	LH
VGPTGV		1.234	-0.057	-0.43	1.289	-0.006	-0.04	LI
VJX3AT		1.333	0.042	0.32	1.252	-0.043	-0.29	LH
WAHB7T		1.090	-0.201	-1.53	1.030	-0.265	-1.81	VM
XDENH4		1.133	-0.158	-1.20	1.096	-0.199	-1.36	LA
XYKZNT		1.109	-0.182	-1.39	1.063	-0.232	-1.58	LI
ZVAYFR		1.303	0.012	0.09	1.323	0.028	0.19	LH

Summary Statistics	Sample SF53	Sample SF54
Grand Means	1.29 Percent	1.30 Percent
Stnd Dev Btwn Labs	0.13 Percent	0.15 Percent

Statistics based on 30 of 31 reporting participants.

Comments on Assigned Data Flags for Test #328

EKPBLR (X) - Extreme Data.

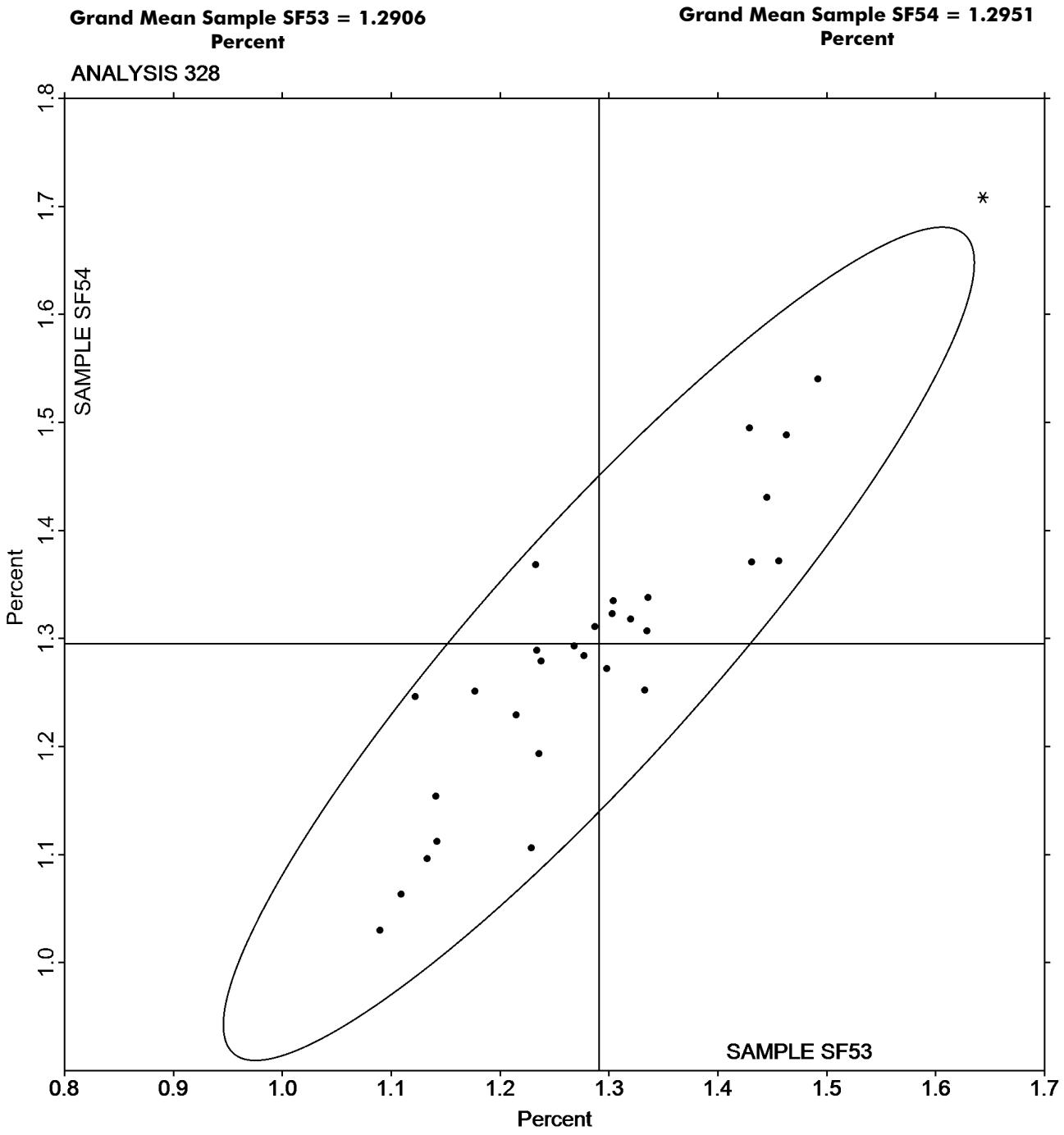
Analysis Notes:

9JPG2R - One determination removed from the Lab Mean of Sample SF54 per Grubb's Test at 1% risk (TAPPI 1205).

FXMNBN - One determination removed from the Lab Mean of Sample SF54 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

ID	Instron 4201	IM	Instron 5500
LA	L & W Tensile - Autoline 300	LH	L & W Alwetron TH1 (Horizontal) SE 060
LI	L & W Tensile Tester SE 062	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TG	Thwing-Albert QC
TO	Thwing-Albert QC-1000	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		



WebCode	Data Flag	Sample SE53 Lab Mean	Sample SE53 Diff from Grand Mean	Sample SE53 CPV	Sample SE54 Lab Mean	Sample SE54 Diff from Grand Mean	Sample SE54 CPV	Instr Code
2E4Y63		14.04	-0.86	-0.72	14.38	-0.64	-0.50	LE
2XCGUD		13.20	-1.70	-1.43	13.02	-2.00	-1.57	TT
3K4V4T		15.07	0.17	0.15	14.89	-0.13	-0.10	TH
423JM4		14.86	-0.04	-0.03	15.54	0.52	0.41	IK
4DXLCQ		16.36	1.46	1.23	16.41	1.39	1.09	LX
7DCPYG		15.13	0.24	0.20	15.54	0.52	0.41	TO
7H3YAF		12.62	-2.28	-1.92	12.96	-2.06	-1.61	IM
7NRJDV		13.98	-0.92	-0.77	13.69	-1.33	-1.04	LA
834NQ2		15.14	0.25	0.21	15.80	0.78	0.61	IN
84ZRTP		15.45	0.55	0.46	15.85	0.83	0.65	TB
8CU88V		16.95	2.05	1.73	17.33	2.31	1.81	TA
8FXT8E		13.13	-1.77	-1.49	12.86	-2.16	-1.69	IP
8L33LF		14.25	-0.64	-0.54	14.34	-0.68	-0.53	XX
8TZURN		14.17	-0.73	-0.62	13.94	-1.08	-0.85	TK
9BZ2LF		16.15	1.25	1.05	16.15	1.13	0.88	LW
9Q66RM	X	1.37	-13.53	-11.39	1.38	-13.64	-10.68	IX
AFMPLY		14.96	0.06	0.05	15.21	0.19	0.15	IF
BRDMVG		14.94	0.04	0.04	14.92	-0.10	-0.08	LE
D6GU47		16.13	1.23	1.04	16.31	1.29	1.01	LA
DEY73G		14.37	-0.53	-0.44	14.32	-0.70	-0.54	XX
DXD3MV		13.53	-1.37	-1.15	13.00	-2.02	-1.59	IN
EEUBVF		13.62	-1.27	-1.07	13.57	-1.45	-1.14	LE
EURTWU		16.21	1.31	1.10	16.30	1.28	1.00	IK
F3KTZ7		14.19	-0.71	-0.60	14.31	-0.71	-0.55	IM
G3EXU7		15.20	0.30	0.25	15.43	0.41	0.32	TO
GDB4M4		14.50	-0.39	-0.33	14.67	-0.35	-0.28	LH
H6ZJ6M		17.44	2.54	2.14	17.44	2.42	1.90	TH
JXU6YC		14.02	-0.88	-0.74	14.79	-0.23	-0.18	IK
K9UAAP		14.83	-0.06	-0.05	14.96	-0.06	-0.05	IF
KGZY4M		14.64	-0.26	-0.22	14.53	-0.49	-0.39	IF
KTYN7H		14.20	-0.70	-0.59	14.83	-0.19	-0.15	LH
KY4P7C	X	12.91	-1.98	-1.67	14.83	-0.19	-0.15	LI
L6PYTF		13.49	-1.40	-1.18	13.38	-1.64	-1.29	LW
M66K3G		14.07	-0.82	-0.69	14.04	-0.98	-0.77	TA
MENPYZ		15.60	0.70	0.59	15.74	0.72	0.56	TR
MHNVD7		14.20	-0.70	-0.59	14.13	-0.89	-0.69	LE
MHQ2M9	X	1.20	-13.70	-11.53	1.20	-13.82	-10.82	IX
MPPGGM		15.60	0.70	0.59	15.22	0.20	0.16	LE
MVW9NY		13.79	-1.11	-0.93	13.96	-1.06	-0.83	IN
N8QJXR		13.68	-1.22	-1.02	13.43	-1.59	-1.25	TP

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE53 Lab Mean	Sample SE53 Diff from Grand Mean	Sample SE53 CPV	Sample SE54 Lab Mean	Sample SE54 Diff from Grand Mean	Sample SE54 CPV	Instr Code
NPKKM3		16.67	1.77	1.49	16.73	1.71	1.34	TO
NW88KT		15.69	0.79	0.67	15.29	0.27	0.21	TH
PNMFLE		16.75	1.86	1.56	16.88	1.86	1.45	LA
QG2XQ4		16.43	1.53	1.29	16.46	1.44	1.12	IF
REXKKP		16.28	1.38	1.16	16.17	1.15	0.90	TR
RJ7DMT		13.86	-1.04	-0.88	14.12	-0.90	-0.70	IM
RPBKFX		14.74	-0.16	-0.13	15.60	0.58	0.45	DW
RY3Z43		14.31	-0.58	-0.49	14.29	-0.73	-0.57	ID
T3VJJ7		14.81	-0.09	-0.07	15.31	0.29	0.23	ID
TQ2E6D	*	14.55	-0.35	-0.29	15.78	0.76	0.60	IK
TRXLXQ		15.62	0.73	0.61	16.50	1.48	1.16	CE
TVWYJV		16.15	1.26	1.06	16.37	1.35	1.06	TX
VXC9KR	*	18.06	3.17	2.66	18.31	3.29	2.58	IK
W9LAAW		14.36	-0.54	-0.46	13.87	-1.15	-0.90	IF
WKLVJ3		13.60	-1.30	-1.09	13.19	-1.83	-1.44	IF
WQ67M6		15.61	0.71	0.60	15.74	0.72	0.56	XX
Y6KXCN		12.91	-1.99	-1.67	13.27	-1.75	-1.37	TB
ZVAYFR		15.24	0.34	0.28	15.04	0.02	0.02	LH

Summary Statistics	Sample SE53	Sample SE54
Grand Means	14.90 kN/m	15.02 kN/m
Stnd Dev Btwn Labs	1.19 kN/m	1.28 kN/m

Statistics based on 55 of 58 reporting participants.

Comments on Assigned Data Flags for Test #330

KY4P7C (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE53.

MHQ2M9 (X) - Extreme Data.

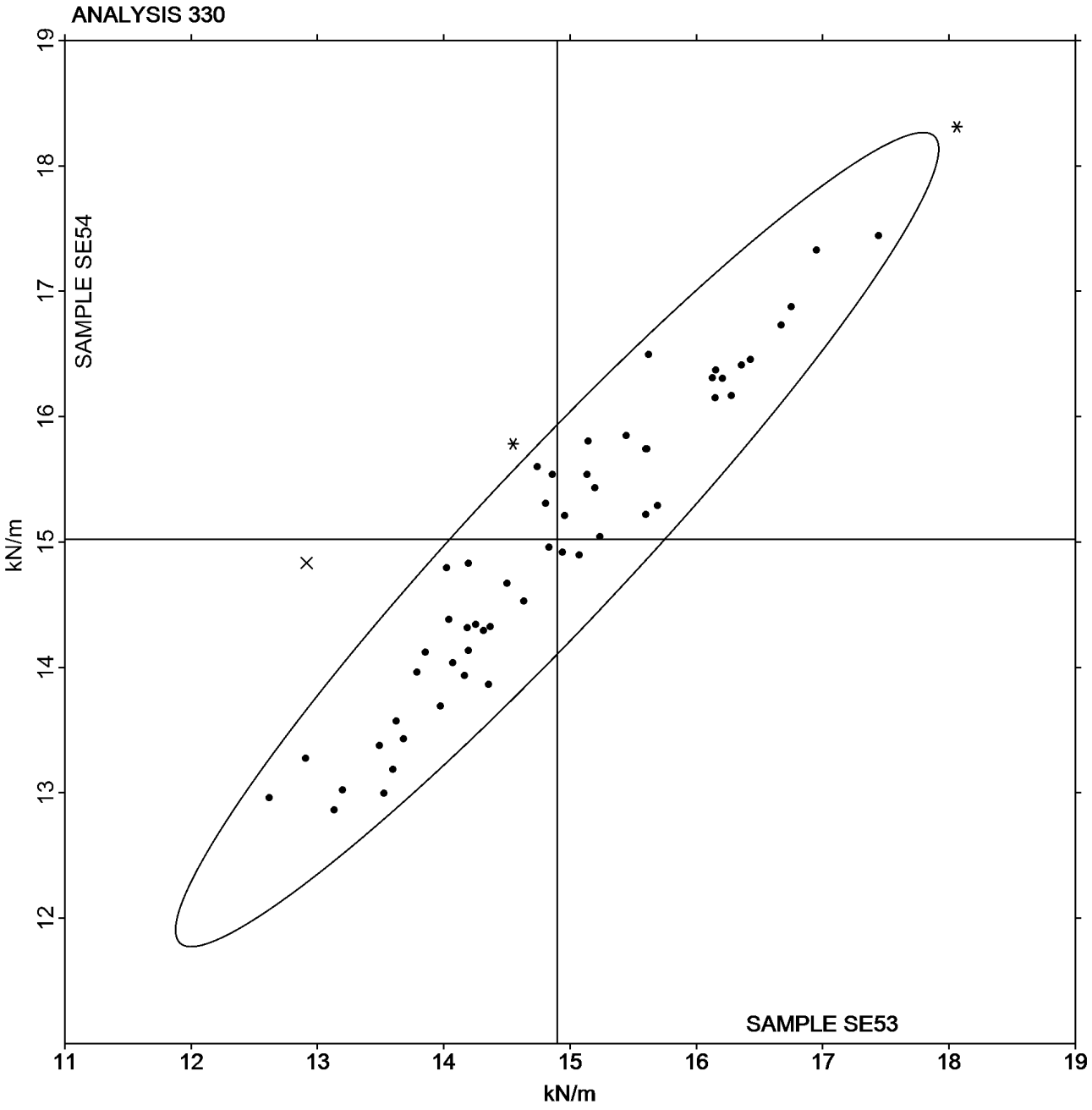
9Q66RM (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

CE	Chatillon Model ET1100	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
IX	Instron (model not specified)	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
TP	TMI Monitor/Tensile 100 (84-21-01)	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 SE53 = 14.897 kN/m

Grand Mean Sample SE54 = 15.020 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE53 Lab Mean	Sample SE53 Diff from Grand Mean	Sample SE53 CPV	Sample SE54 Lab Mean	Sample SE54 Diff from Grand Mean	Sample SE54 CPV	Instr Code
2E4Y63		202.6	-26.1	-0.91	220.1	-9.3	-0.34	LE
2XCGUD		205.2	-23.5	-0.82	209.0	-20.4	-0.74	TT
3K4V4T		268.0	39.3	1.37	264.2	34.9	1.26	TH
4DXLCQ		260.0	31.3	1.09	263.2	33.9	1.23	LX
7DCPYG		231.3	2.6	0.09	235.7	6.3	0.23	TO
7H3YAF	X	243.6	14.9	0.52	286.8	57.5	2.08	IM
7NRJDV		231.5	2.8	0.10	226.8	-2.5	-0.09	LA
834NQ2		231.3	2.6	0.09	251.5	22.1	0.80	IN
84ZRTP		164.0	-64.7	-2.25	170.3	-59.0	-2.14	TB
8CU88V		226.7	-2.0	-0.07	232.2	2.8	0.10	TA
8FXT8E	*	183.7	-45.0	-1.57	164.8	-64.6	-2.34	IP
8L33LF		225.2	-3.6	-0.12	233.5	4.1	0.15	XX
8TZURN		230.8	2.1	0.07	226.6	-2.7	-0.10	TK
9BZ2LF		222.4	-6.3	-0.22	217.4	-11.9	-0.43	LW
AFMPLY		237.7	8.9	0.31	249.5	20.1	0.73	IF
BRDMVG		218.3	-10.4	-0.36	222.2	-7.2	-0.26	LE
D6GU47		236.3	7.6	0.27	254.7	25.4	0.92	LA
DEY73G		216.6	-12.1	-0.42	213.9	-15.5	-0.56	XX
DXD3MV		220.6	-8.1	-0.28	201.0	-28.4	-1.03	IN
EEUBVF		205.9	-22.8	-0.79	205.0	-24.3	-0.88	LE
EURTWU		269.0	40.3	1.41	267.2	37.9	1.37	IK
F3KTZ7		220.9	-7.8	-0.27	217.0	-12.4	-0.45	IM
G3EXU7		216.5	-12.3	-0.43	236.2	6.9	0.25	TO
GDB4M4		220.3	-8.4	-0.29	224.6	-4.7	-0.17	LH
H6ZJ6M		257.4	28.7	1.00	261.3	32.0	1.16	TH
K9UAAP		246.3	17.6	0.61	247.6	18.3	0.66	IF
KGZY4M		222.8	-5.9	-0.20	207.2	-22.1	-0.80	IF
KTYN7H		183.2	-45.5	-1.58	195.0	-34.3	-1.24	LH
L6PYTF		204.2	-24.5	-0.85	198.7	-30.7	-1.11	LW
MENPYZ		223.7	-5.1	-0.18	232.5	3.1	0.11	TR
MHNVD7		217.3	-11.4	-0.40	211.8	-17.6	-0.64	LE
MPPGGM		242.6	13.9	0.48	240.4	11.0	0.40	LE
MVW9NY		231.7	3.0	0.10	222.6	-6.8	-0.25	IN
N8QJXR	*	303.9	75.2	2.62	290.1	60.7	2.20	TP
NPKKM3		248.0	19.3	0.67	252.9	23.5	0.85	TO
PNMFLE		236.9	8.2	0.28	247.4	18.0	0.65	LA
PXRQQJ	X	113.0	-115.7	-4.03	116.3	-113.0	-4.09	XX
QG2XQ4		217.3	-11.4	-0.40	210.3	-19.1	-0.69	IN
REXKKP		251.9	23.2	0.81	233.4	4.1	0.15	TR
RJ7DMT		218.9	-9.8	-0.34	226.6	-2.7	-0.10	IM

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE53 Lab Mean	Sample SE53 Diff from Grand Mean	Sample SE53 CPV	Sample SE54 Lab Mean	Sample SE54 Diff from Grand Mean	Sample SE54 CPV	Instr Code
RPBKFX		181.0	-47.7	-1.66	205.8	-23.6	-0.85	DW
RY3Z43		232.1	3.3	0.12	220.7	-8.7	-0.31	ID
TVWYJV		275.9	47.2	1.64	281.4	52.0	1.88	XX
VXC9KR		267.9	39.2	1.37	254.5	25.2	0.91	XX
W9LAAW		294.1	65.4	2.28	278.5	49.2	1.78	IF
WQ67M6		211.0	-17.7	-0.62	219.9	-9.4	-0.34	XX
Y6KXCN		179.2	-49.5	-1.72	176.1	-53.2	-1.93	TB
ZVAYFR		228.5	-0.2	-0.01	228.9	-0.5	-0.02	LH

Summary Statistics	Sample SE53	Sample SE54
Grand Means	228.71 Joules/sq m	229.36 Joules/sq m
Stnd Dev Btwn Labs	28.70 Joules/sq m	27.63 Joules/sq m

Statistics based on 46 of 48 reporting participants.

Comments on Assigned Data Flags for Test #331

7H3YAF (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

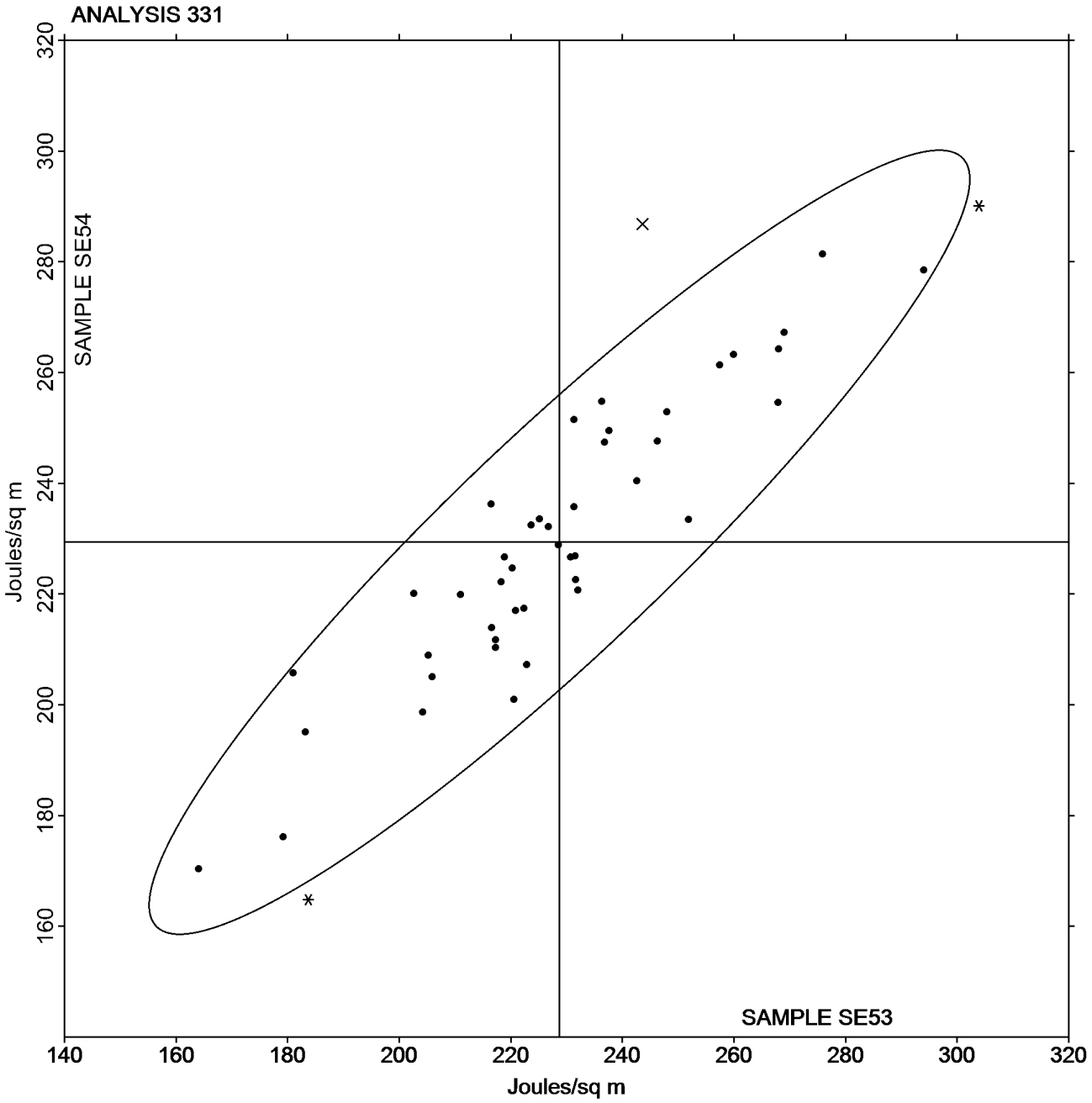
PXRQQJ (X) - Data for both samples are low. Possible Systematic Error.

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	TP	TMI Monitor/Tensile 100 (84-21-01)
TR	TMI Horizontal Tensile Tester	TT	Tinius Olsen Model MHT
XX	Instrument make/model not specified by lab		

Grand Mean Sample SE53 = 228.71 Joules/sq m

Grand Mean Sample SE54 = 229.36 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE53 Lab Mean	Sample SE53 Diff from Grand Mean	Sample SE53 CPV	Sample SE54 Lab Mean	Sample SE54 Diff from Grand Mean	Sample SE54 CPV	Instr Code
2E4Y63		2.107	-0.141	-0.59	2.232	-0.022	-0.09	LE
2XCGUD		2.516	0.268	1.11	2.578	0.324	1.36	TT
3K4V4T		2.854	0.606	2.51	2.835	0.581	2.43	TH
4DXLCQ		2.298	0.050	0.21	2.316	0.062	0.26	LX
7DCPYG		2.296	0.048	0.20	2.309	0.055	0.23	TO
7H3YAF	X	2.762	0.514	2.13	3.094	0.840	3.51	IM
7NRJDV		2.042	-0.206	-0.86	2.042	-0.212	-0.88	LA
834NQ2		2.032	-0.216	-0.90	2.131	-0.123	-0.51	IN
84ZRTP		2.050	-0.198	-0.82	2.050	-0.204	-0.85	TB
8CU88V		2.007	-0.241	-1.00	2.051	-0.203	-0.85	TA
8FXT8E		2.272	0.024	0.10	2.092	-0.162	-0.68	IP
8L33LF		2.419	0.171	0.71	2.479	0.225	0.94	XX
8TZURN		2.476	0.228	0.94	2.466	0.212	0.89	TK
9BZ2LF		2.063	-0.185	-0.77	2.030	-0.224	-0.93	LW
9Q66RM	X	0.023	-2.225	-9.23	0.023	-2.230	-9.32	IX
AFMPLY		1.816	-0.433	-1.79	1.825	-0.428	-1.79	IF
BRDMVG		2.167	-0.081	-0.34	2.206	-0.048	-0.20	LE
D6GU47		2.107	-0.141	-0.59	2.230	-0.024	-0.10	LA
DEY73G		2.228	-0.020	-0.08	2.211	-0.043	-0.18	XX
DXD3MV		1.891	-0.357	-1.48	1.791	-0.462	-1.93	IN
EEUBVF		2.219	-0.029	-0.12	2.212	-0.042	-0.17	LE
EURTWU		2.666	0.417	1.73	2.662	0.408	1.71	IK
F3KTZ7		2.616	0.368	1.53	2.569	0.315	1.32	IM
G3EXU7		2.118	-0.130	-0.54	2.264	0.010	0.04	TO
GDB4M4		2.233	-0.015	-0.06	2.247	-0.007	-0.03	LH
H6ZJ6M		2.333	0.085	0.35	2.340	0.086	0.36	TH
K9UAAP		2.681	0.433	1.80	2.686	0.432	1.81	IF
KGZY4M		1.856	-0.392	-1.63	1.747	-0.507	-2.12	IF
KTYN7H		1.926	-0.322	-1.34	1.969	-0.285	-1.19	LH
L6PYTF		2.216	-0.032	-0.13	2.177	-0.077	-0.32	LW
M66K3G		2.202	-0.046	-0.19	2.245	-0.009	-0.04	TB
MENPYZ		2.241	-0.007	-0.03	2.312	0.058	0.24	TR
MHNVD7		2.153	-0.095	-0.40	2.213	-0.041	-0.17	LE
MHQ2M9	X	0.029	-2.220	-9.21	0.029	-2.224	-9.30	IX
MPPGGM		2.334	0.086	0.36	2.355	0.101	0.42	LE
MVW9NY		2.670	0.422	1.75	2.550	0.296	1.24	IN
N8QJXR	X	3.848	1.600	6.64	3.676	1.422	5.95	TP
NPKKM3		2.471	0.223	0.92	2.473	0.219	0.92	TO
PNMFLE		1.967	-0.281	-1.17	2.019	-0.235	-0.98	LA
PXRQQJ	X	0.782	-1.466	-6.08	0.888	-1.366	-5.71	IS

Paper & Paperboard Interlaboratory Testing Program

Analysis 332
Elongation to Break - Packaging Papers
TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE53 Lab Mean	Sample SE53 Diff from Grand Mean	Sample SE53 CPV	Sample SE54 Lab Mean	Sample SE54 Diff from Grand Mean	Sample SE54 CPV	Instr Code
QG2XQ4		2.061	-0.188	-0.78	1.983	-0.271	-1.13	IN
REXKKP		2.160	-0.089	-0.37	2.249	-0.005	-0.02	TR
RJ7DMT		2.336	0.088	0.36	2.378	0.124	0.52	IM
RPBKFX	X	2.837	0.589	2.44	3.149	0.895	3.74	DW
RY3Z43		2.419	0.171	0.71	2.305	0.051	0.21	ID
T3VJJ7		2.196	-0.052	-0.22	2.356	0.102	0.43	ID
TVWYJV		2.722	0.474	1.97	2.697	0.443	1.85	XX
VXC9KR		2.194	-0.054	-0.23	2.104	-0.150	-0.63	XX
W9LAAW		2.375	0.127	0.53	2.330	0.077	0.32	IF
WQ67M6		1.990	-0.258	-1.07	2.070	-0.184	-0.77	XX
Y6KXCN		2.157	-0.091	-0.38	2.071	-0.183	-0.76	TB
ZVAYFR		2.267	0.019	0.08	2.210	-0.044	-0.18	LH

Summary Statistics	Sample SE53	Sample SE54
Grand Means	2.25 Percent	2.25 Percent
Stnd Dev Btwn Labs	0.24 Percent	0.24 Percent

Statistics based on 46 of 52 reporting participants.

Comments on Assigned Data Flags for Test #332

RPBKFX (X) - Data for sample SE54 are high.

N8QJXR (X) - Extreme Data.

7H3YAF (X) - Data for sample SE54 are high. Inconsistent within the determinations of both samples.

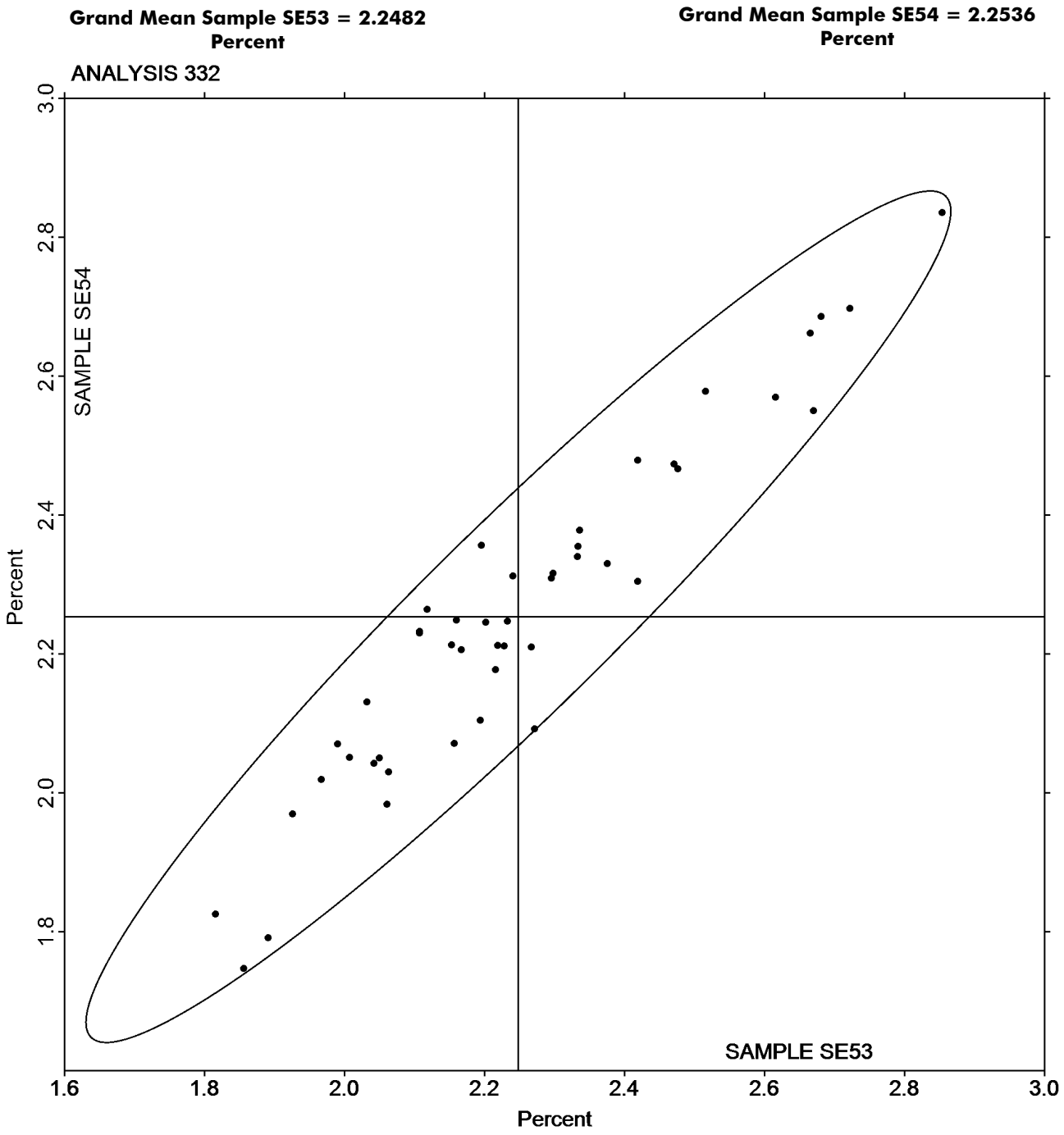
PXRQQJ (X) - Extreme Data.

MHQ2M9 (X) - Extreme Data.

9Q66RM (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	IS	Instron 5965
IX	Instron (model not specified)	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	TP	TMI Monitor/Tensile 100 (84-21-01)
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

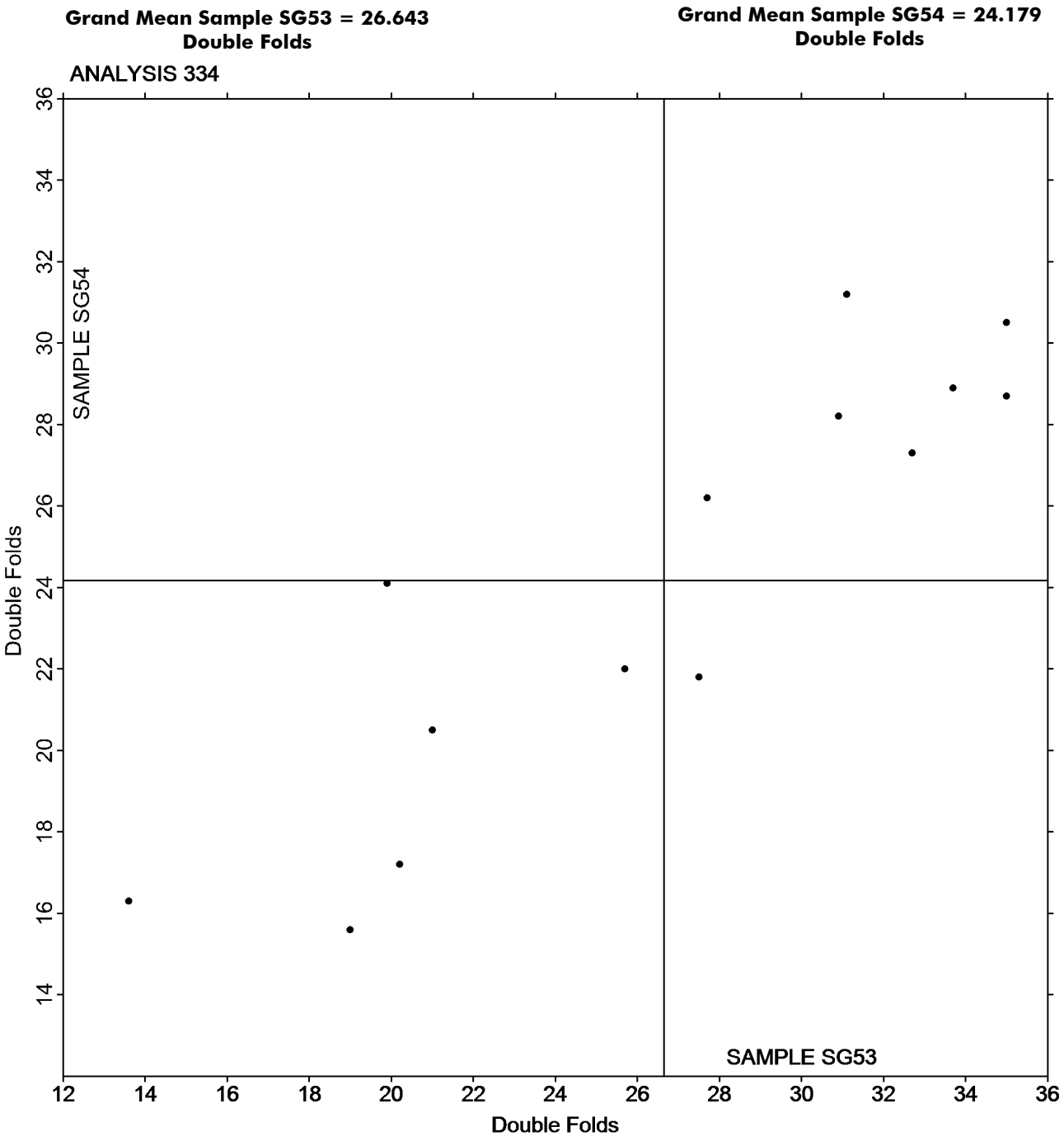
WebCode	Data Flag	Sample SG53 Lab Mean	Sample SG53 Diff from Grand Mean	Sample SG53 CPV	Sample SG54 Lab Mean	Sample SG54 Diff from Grand Mean	Sample SG54 CPV	Instr Code
2EKD97		31.10	4.46	0.65	31.20	7.02	1.32	MT
3K4V4T		27.50	0.86	0.12	21.80	-2.38	-0.45	MT
8L33LF		30.90	4.26	0.62	28.20	4.02	0.75	MT
9ZB3JW		35.00	8.36	1.22	30.50	6.32	1.18	XX
AKZJMP		25.70	-0.94	-0.14	22.00	-2.18	-0.41	MT
C48ZVD		19.90	-6.74	-0.98	24.10	-0.08	-0.01	XX
EKPBLR		27.70	1.06	0.15	26.20	2.02	0.38	MT
L6PYTF		32.70	6.06	0.88	27.30	3.12	0.58	MT
LC6DK6		33.70	7.06	1.03	28.90	4.72	0.88	MT
M66K3G		19.00	-7.64	-1.11	15.60	-8.58	-1.61	MT
UXXUNW		35.00	8.36	1.22	28.70	4.52	0.85	MT
VDR7QT		21.00	-5.64	-0.82	20.50	-3.68	-0.69	XX
WAHB7T		13.60	-13.04	-1.90	16.30	-7.88	-1.48	MT
WM6H3U		20.20	-6.44	-0.94	17.20	-6.98	-1.31	MT

Summary Statistics	Sample SG53	Sample SG54
Grand Means	26.64 Double Folds	24.18 Double Folds
Stnd Dev Btwn Labs	6.87 Double Folds	5.34 Double Folds

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

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



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 SH53 Lab Mean	Sample SH53 Diff from Grand Mean	Sample SH53 CPV	Sample SH54 Lab Mean	Sample SH54 Diff from Grand Mean	Sample SH54 CPV
6TCJ4P		231.5	23.7	1.26	226.0	17.8	0.97
8L33LF		214.5	6.6	0.35	218.9	10.7	0.58
9PXDUK		222.9	15.1	0.80	222.4	14.2	0.78
9YJECF		196.6	-11.2	-0.59	199.1	-9.2	-0.50
ABU7FF		193.2	-14.6	-0.78	194.6	-13.6	-0.74
C48ZVD		201.4	-6.5	-0.34	190.7	-17.5	-0.96
CP282F		199.6	-8.2	-0.44	199.9	-8.3	-0.45
DMFMWC		189.3	-18.5	-0.98	190.4	-17.8	-0.97
FTED8Z		172.1	-35.8	-1.90	177.4	-30.9	-1.68
GNDW6Q		201.6	-6.2	-0.33	204.9	-3.3	-0.18
K9UAAP		213.1	5.3	0.28	218.7	10.4	0.57
LC6DK6		202.9	-4.9	-0.26	202.5	-5.8	-0.31
M66K3G	X	117.0	-90.8	-4.82	121.8	-86.4	-4.72
VJX3AT	X	139.8	-68.0	-3.61	151.0	-57.3	-3.12
WAHB7T		242.5	34.7	1.84	246.0	37.8	2.06
XDENH4		228.2	20.4	1.08	223.8	15.6	0.85

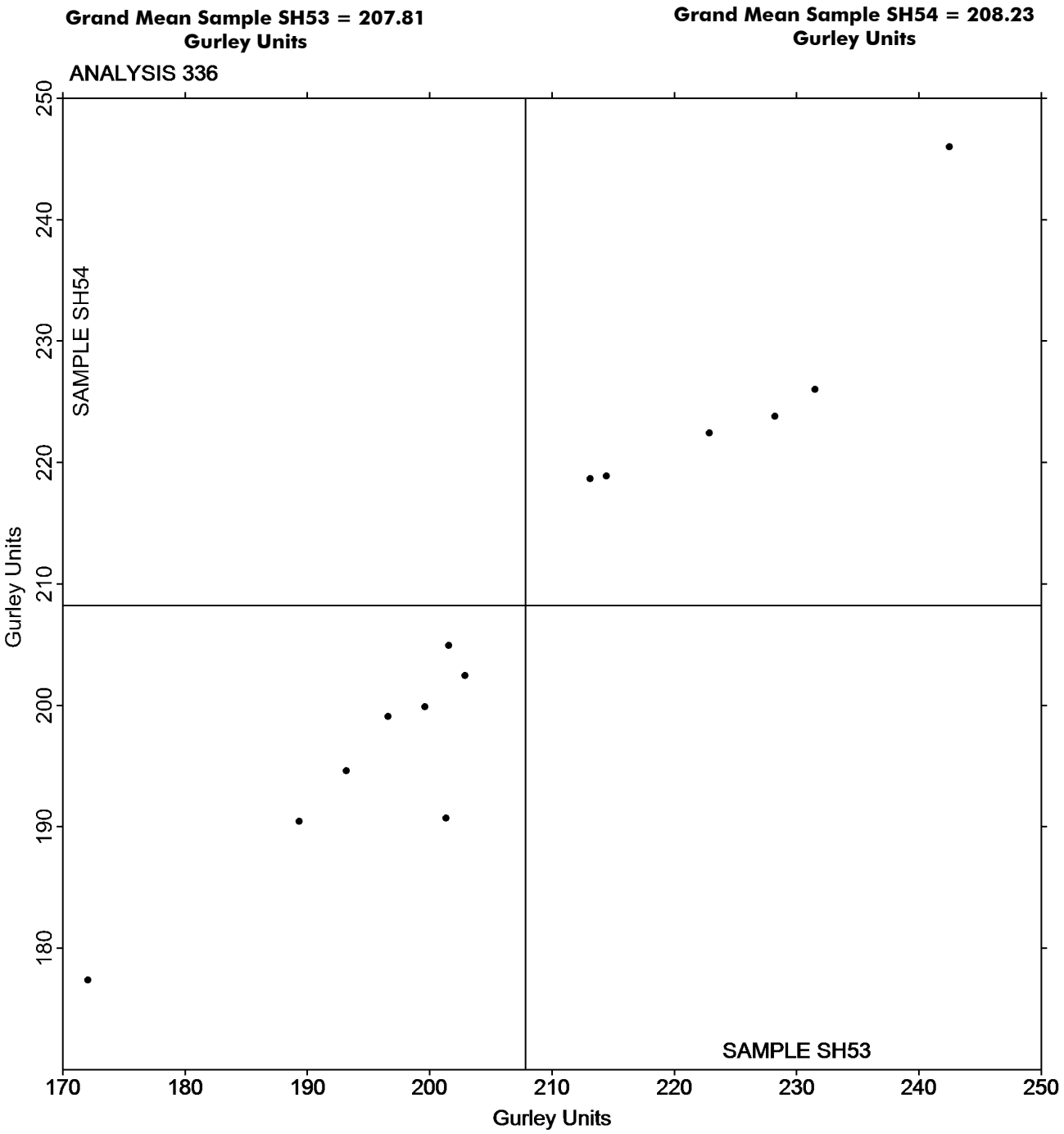
Summary Statistics	Sample SH53	Sample SH54
Grand Means	207.81 Gurley Units	208.23 Gurley Units
Stnd Dev Btwn Labs	18.84 Gurley Units	18.33 Gurley Units

Statistics based on 14 of 16 reporting participants.

Comments on Assigned Data Flags for Test #336

M66K3G (X) - Data for both samples are low. Possible Systematic Error.

VJX3AT (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SH54.



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

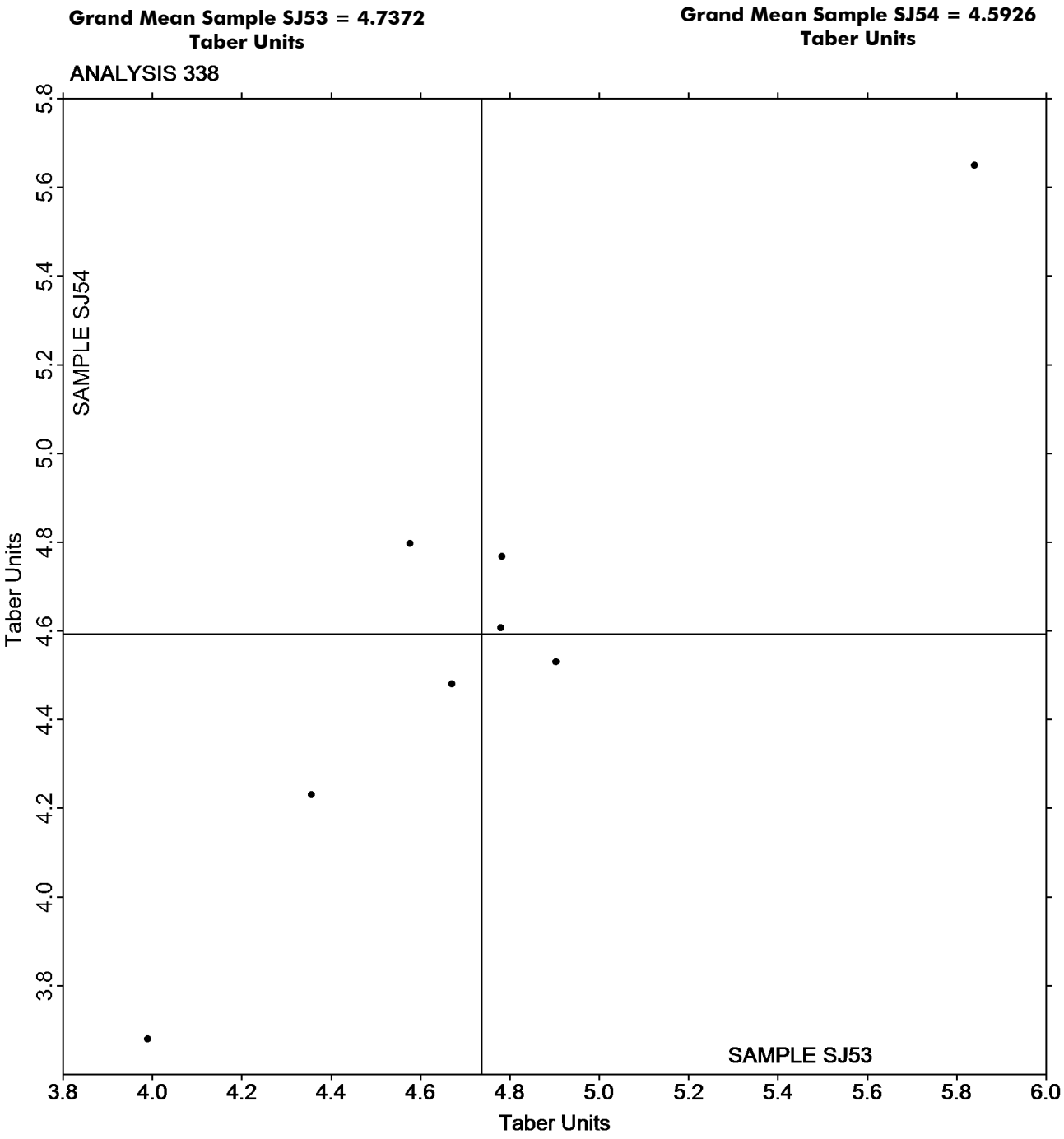
WebCode	Data Flag	Sample SJ53 Lab Mean	Sample SJ53 Diff from Grand Mean	Sample SJ53 CPV	Sample SJ54 Lab Mean	Sample SJ54 Diff from Grand Mean	Sample SJ54 CPV
9BZ2LF		3.990	-0.747	-1.40	3.680	-0.913	-1.64
9PXDUK		4.670	-0.067	-0.13	4.480	-0.113	-0.20
9YJECF		4.780	0.042	0.08	4.607	0.014	0.03
C48ZVD	X	0.560	-4.177	-7.85	0.545	-4.048	-7.27
K9UAAP		4.903	0.166	0.31	4.530	-0.063	-0.11
LNWGTJ		4.356	-0.381	-0.72	4.230	-0.363	-0.65
MQ32GJ		4.783	0.046	0.09	4.767	0.174	0.31
QG2XQ4		5.840	1.103	2.07	5.650	1.057	1.90
WM6H3U		4.576	-0.161	-0.30	4.797	0.204	0.37

Summary Statistics	Sample SJ53	Sample SJ54
Grand Means	4.74 Taber Units	4.59 Taber Units
Stnd Dev Btwn Labs	0.53 Taber Units	0.56 Taber Units

Statistics based on 8 of 9 reporting participants.

Comments on Assigned Data Flags for Test #338

C48ZVD (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

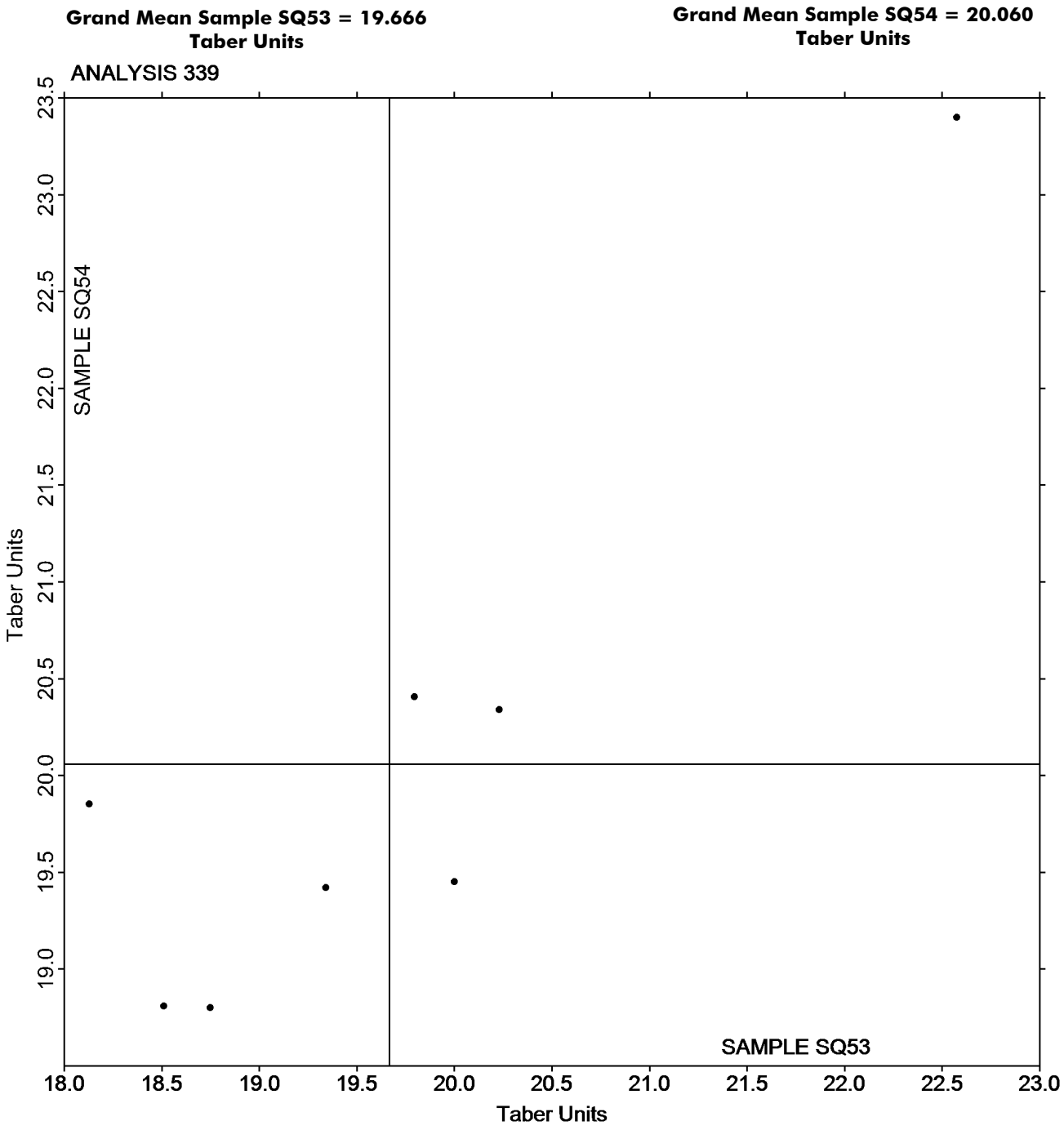
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ53 Lab Mean	Sample SQ53 Diff from Grand Mean	Sample SQ53 CPV	Sample SQ54 Lab Mean	Sample SQ54 Diff from Grand Mean	Sample SQ54 CPV
2K9VP3		20.00	0.33	0.24	19.45	-0.61	-0.41
9BZ2LF		18.75	-0.92	-0.66	18.80	-1.26	-0.85
9JPG2R		18.13	-1.54	-1.10	19.85	-0.21	-0.14
9ZB3JW		18.51	-1.16	-0.83	18.81	-1.25	-0.84
GNDW6Q		19.80	0.13	0.09	20.41	0.35	0.23
L6PYTF		20.23	0.56	0.41	20.34	0.28	0.19
MPPGGM		22.58	2.91	2.09	23.40	3.34	2.26
Y6KXCN		19.34	-0.33	-0.23	19.42	-0.64	-0.43

Summary Statistics	Sample SQ53	Sample SQ54
Grand Means	19.67 Taber Units	20.06 Taber Units
Stnd Dev Btwn Labs	1.39 Taber Units	1.48 Taber Units

Statistics based on 8 of 8 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 340

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

TAPPI Official Test Method T489

WebCode	Data Flag	Sample ST53 Lab Mean	Sample ST53 Diff from Grand Mean	Sample ST53 CPV	Sample ST54 Lab Mean	Sample ST54 Diff from Grand Mean	Sample ST54 CPV
3K4V4T		296.1	9.4	0.69	304.2	9.4	0.68
69HBW2		282.7	-4.0	-0.29	287.7	-7.1	-0.52
8L33LF		276.0	-10.7	-0.79	283.1	-11.8	-0.86
9BZ2LF		270.3	-16.4	-1.21	274.3	-20.6	-1.49
GNDW6Q		283.8	-2.9	-0.22	291.8	-3.0	-0.22
HUWGQG		285.2	-1.5	-0.11	295.1	0.3	0.02
JHM2LX		283.5	-3.2	-0.24	284.7	-10.1	-0.74
L6PYTF		278.0	-8.7	-0.64	292.5	-2.3	-0.17
MAC9FJ		305.5	18.8	1.39	313.4	18.6	1.35
MENPYZ	X	315.6	28.9	2.13	286.7	-8.2	-0.59
N8QJXR		277.5	-9.2	-0.68	278.0	-16.9	-1.22
R69WN3		312.4	25.7	1.89	304.5	9.6	0.70
TRXLXQ		308.9	22.2	1.64	326.1	31.3	2.27
VDR7QT	X	113.0	-173.7	-12.82	114.3	-180.6	-13.10
VN7DEF		285.3	-1.4	-0.10	288.5	-6.3	-0.46
WKLVJ3		288.4	1.7	0.13	293.9	-0.9	-0.07
XDGGDQ	*	267.0	-19.7	-1.45	305.0	10.2	0.74

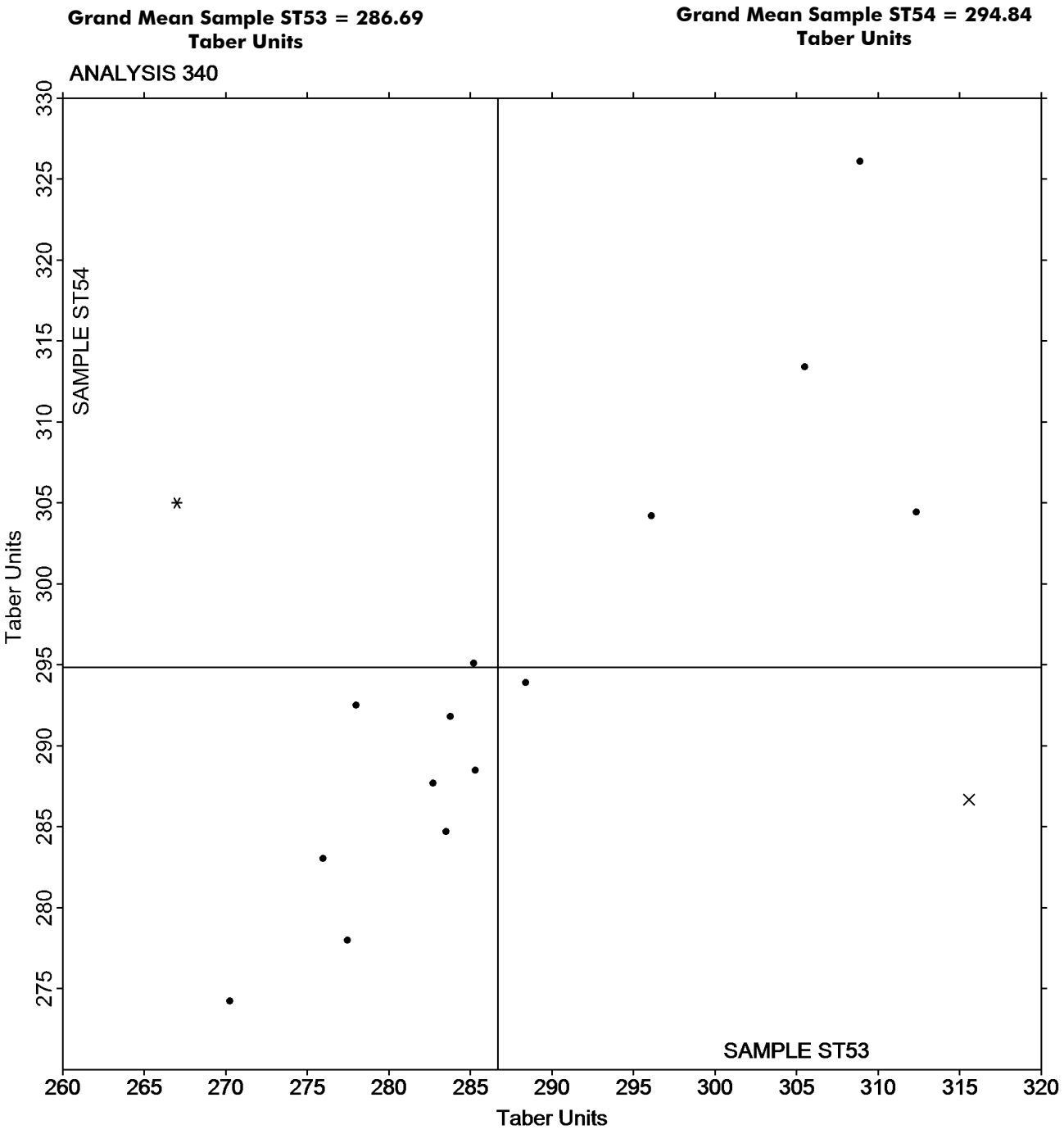
Summary Statistics	Sample ST53	Sample ST54
Grand Means	286.69 Taber Units	294.84 Taber Units
Stnd Dev Btwn Labs	13.55 Taber Units	13.79 Taber Units

Statistics based on 15 of 17 reporting participants.

Comments on Assigned Data Flags for Test #340

MENPYZ (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample ST53.

VDR7QT (X) - Extreme Data.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 343
Z-Direction Tensile
TAPPI Official Test Method T541

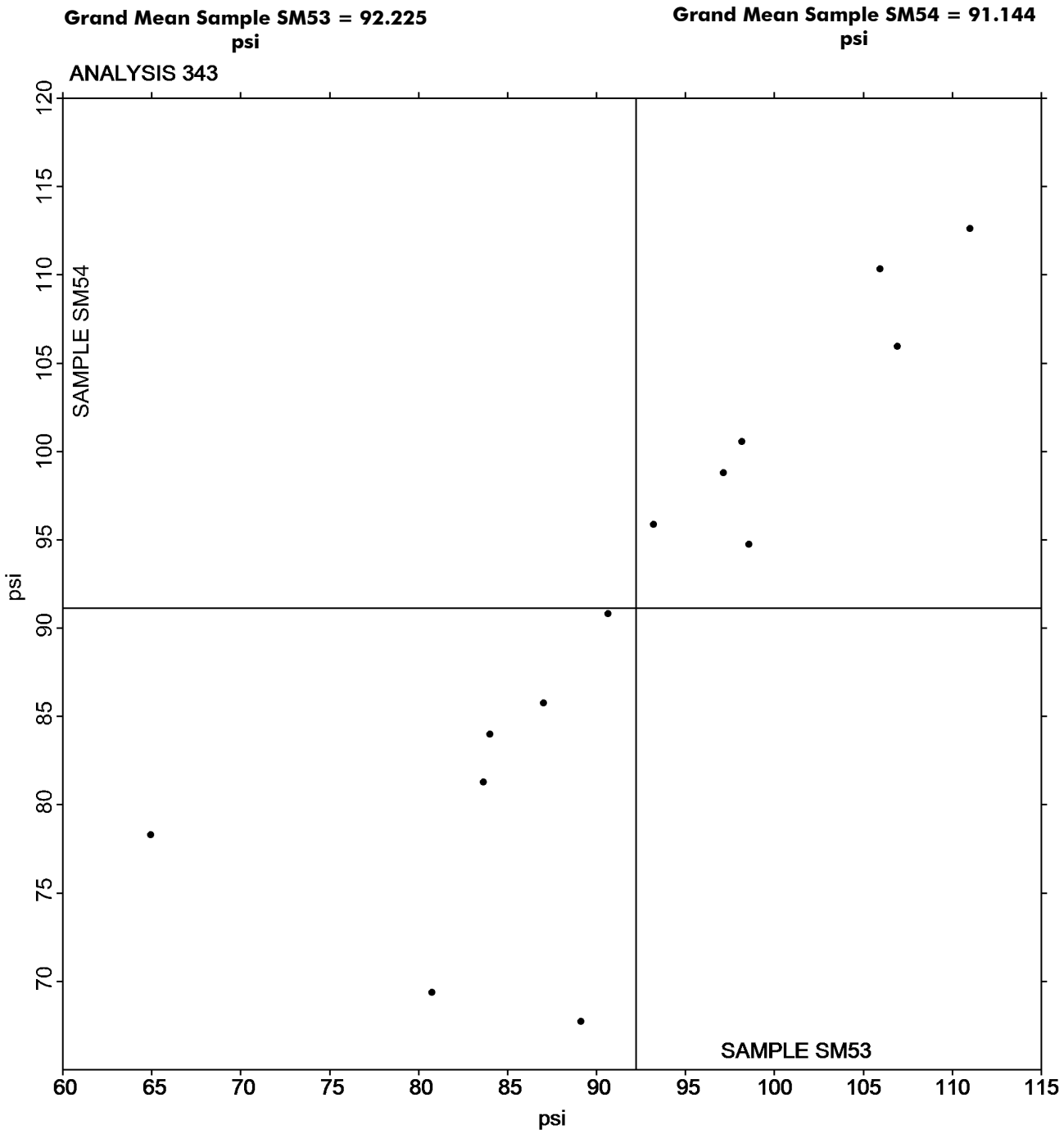
WebCode	Data Flag	Sample SM53 Lab Mean	Sample SM53 Diff from Grand Mean	Sample SM53 CPV	Sample SM54 Lab Mean	Sample SM54 Diff from Grand Mean	Sample SM54 CPV	Instr Code
3K4V4T		97.14	4.92	0.41	98.78	7.64	0.54	LW
84ZRTP		84.00	-8.22	-0.68	84.00	-7.14	-0.51	TA
8JFVCY		111.00	18.78	1.55	112.60	21.46	1.52	XX
9JPG2R		98.18	5.96	0.49	100.54	9.40	0.67	LW
K9UAAP		90.66	-1.56	-0.13	90.80	-0.34	-0.02	TL
L6PYTF		105.94	13.72	1.13	110.32	19.18	1.36	LW
LC6DK6		64.96	-27.26	-2.25	78.30	-12.84	-0.91	TZ
MPPGGM		80.76	-11.46	-0.95	69.38	-21.76	-1.54	TA
N8QJXR		87.02	-5.20	-0.43	85.75	-5.40	-0.38	LX
PA7EAH		106.90	14.68	1.21	105.94	14.80	1.05	DX
RLQUQE		93.22	1.00	0.08	95.86	4.72	0.33	DX
VGPTGV		83.64	-8.58	-0.71	81.29	-9.86	-0.70	LW
XPAZQB		89.14	-3.08	-0.25	67.72	-23.42	-1.66	TA
Y6KXCN		98.58	6.36	0.52	94.74	3.60	0.25	TA

Summary Statistics	Sample SM53	Sample SM54
Grand Means	92.22 psi	91.14 psi
Stnd Dev Btwn Labs	12.13 psi	14.12 psi

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

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

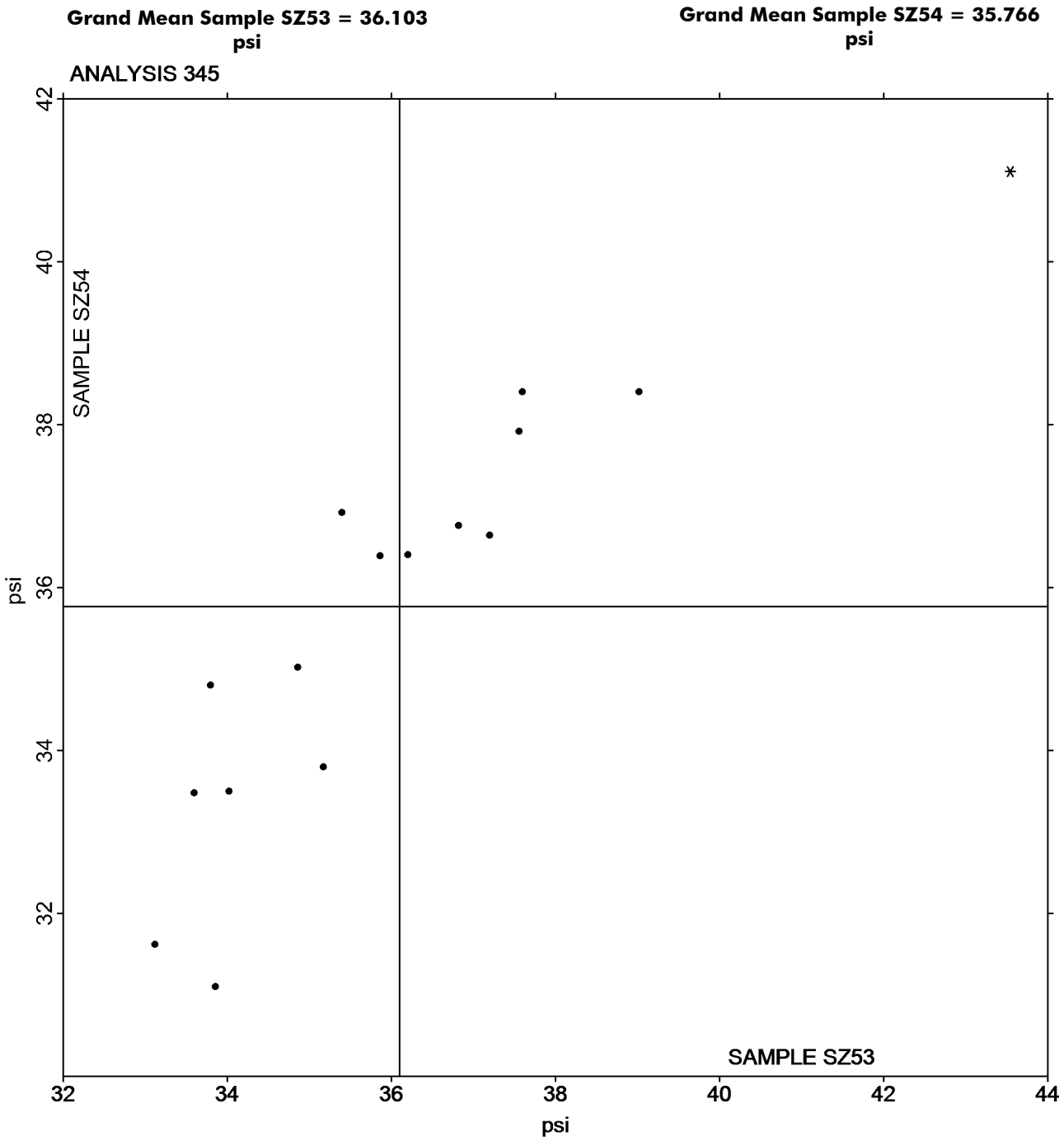
WebCode	Data Flag	Sample SZ53 Lab Mean	Sample SZ53 Diff from Grand Mean	Sample SZ53 CPV	Sample SZ54 Lab Mean	Sample SZ54 Diff from Grand Mean	Sample SZ54 CPV	Instr Code
69HBW2		36.20	0.10	0.04	36.40	0.63	0.24	CA
8L33LF		33.60	-2.50	-0.96	33.48	-2.29	-0.86	CA
D6GU47		35.87	-0.24	-0.09	36.39	0.62	0.23	TA
EURTWU	*	43.54	7.44	2.84	41.11	5.34	2.01	PG
GNDW6Q		33.86	-2.24	-0.86	31.10	-4.67	-1.76	CA
HUWGQG		37.20	1.10	0.42	36.64	0.87	0.33	CD
JHM2LX		33.80	-2.30	-0.88	34.80	-0.97	-0.36	TA
KRLL94		33.12	-2.98	-1.14	31.62	-4.15	-1.56	LW
KY4P7C		39.02	2.92	1.11	38.40	2.63	0.99	CH
MAC9FJ		37.60	1.50	0.57	38.40	2.63	0.99	LW
MVVDZM		35.40	-0.70	-0.27	36.92	1.15	0.43	CD
R69WN3		34.02	-2.08	-0.80	33.50	-2.27	-0.85	TL
R7K4X3		34.86	-1.24	-0.47	35.02	-0.75	-0.28	LW
TRXLXQ		35.17	-0.93	-0.36	33.80	-1.97	-0.74	CH
VN7DEF		36.82	0.72	0.27	36.76	0.99	0.37	TZ
XDGGDQ		37.56	1.46	0.56	37.92	2.15	0.81	TA

Summary Statistics	Sample SZ53	Sample SZ54
Grand Means	36.10 psi	35.77 psi
Stnd Dev Btwn Labs	2.62 psi	2.65 psi

Statistics based on 16 of 16 reporting participants.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
CH	Chatillon Ametek	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 SN53 Lab Mean	Sample SN53 Diff from Grand Mean	Sample SN53 CPV	Sample SN54 Lab Mean	Sample SN54 Diff from Grand Mean	Sample SN54 CPV	Instr Code
3K4V4T		103.2	-3.5	-0.67	90.60	-2.43	-0.62	HZ
44ARZU		114.7	8.0	1.52	100.12	7.08	1.82	HY
8L33LF		108.8	2.1	0.40	97.00	3.97	1.02	HZ
9PXDUK		101.2	-5.5	-1.05	89.80	-3.23	-0.83	KR
FTED8Z		110.4	3.7	0.71	94.00	0.97	0.25	HY
G3EXU7		109.0	2.3	0.44	90.60	-2.43	-0.62	HY
G4TRM8		113.6	6.9	1.32	96.76	3.73	0.96	HY
JHM2LX		114.2	7.5	1.43	92.20	-0.83	-0.21	HY
L6PYTF		107.0	0.3	0.06	95.00	1.97	0.50	HY
LC6DK6		104.8	-1.9	-0.36	95.60	2.57	0.66	HY
MPPGGM	X	186.2	79.5	15.14	188.00	94.97	24.38	HY
NPKKM3		104.0	-2.7	-0.51	93.80	0.77	0.20	HZ
VJX3AT		101.8	-4.9	-0.93	89.20	-3.83	-0.98	HZ
WAHB7T		98.0	-8.7	-1.66	84.80	-8.23	-2.11	HY
XPAZQB	X	181.6	74.9	14.27	178.00	84.97	21.81	HY
Y6KXCN		103.0	-3.7	-0.70	93.00	-0.03	-0.01	HZ

Summary Statistics	Sample SN53	Sample SN54
Grand Means	106.69 1000th ft-lbs	93.03 1000th ft-lbs
Stnd Dev Btwn Labs	5.25 1000th ft-lbs	3.90 1000th ft-lbs

Statistics based on 14 of 16 reporting participants.

Comments on Assigned Data Flags for Test #348

MPPGGM (X) - Extreme Data.

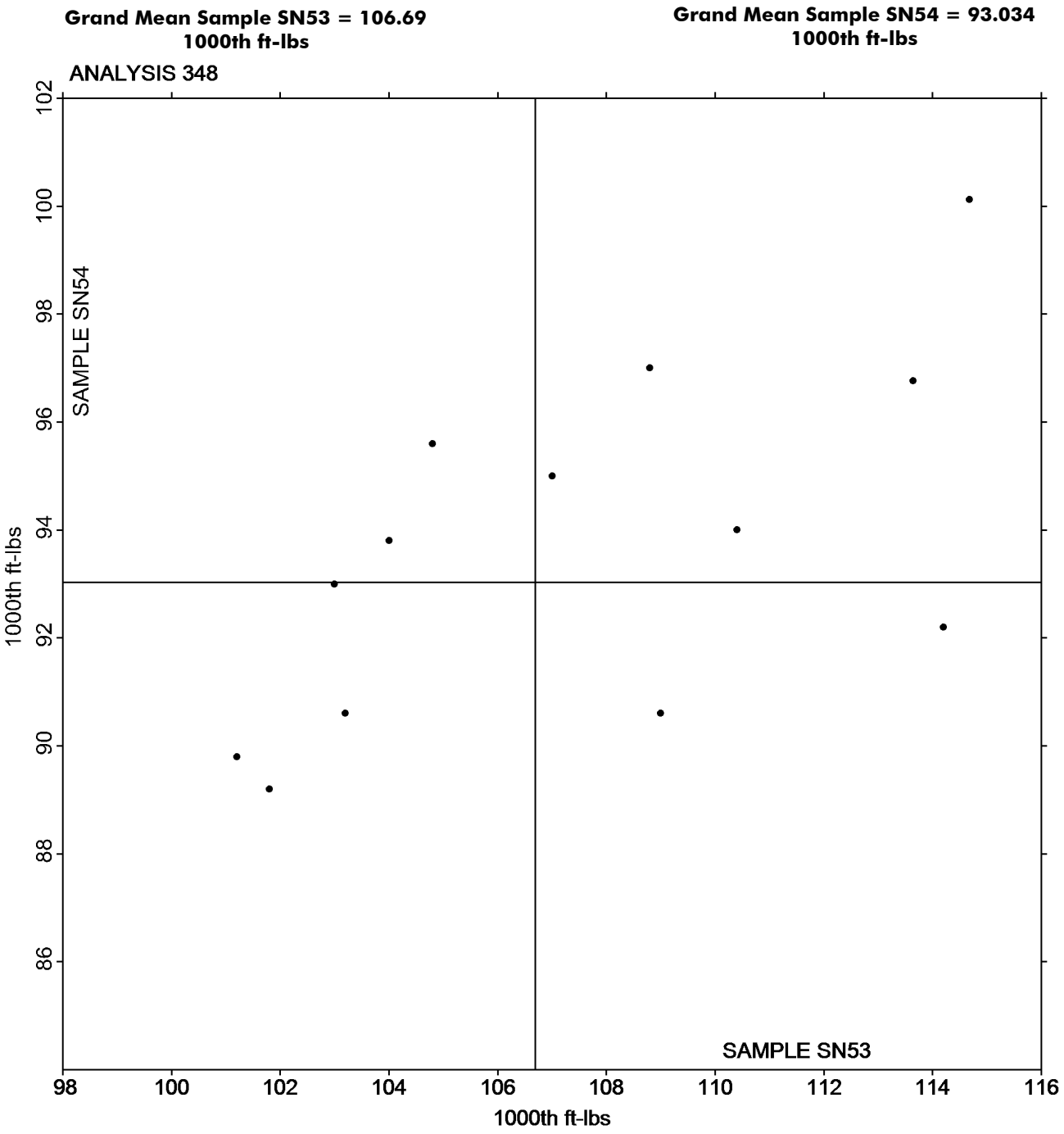
XPAZQB (X) - Extreme Data.

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 SP53 Lab Mean	Sample SP53 Diff from Grand Mean	Sample SP53 CPV	Sample SP54 Lab Mean	Sample SP54 Diff from Grand Mean	Sample SP54 CPV	Instr Code
9BZ2LF		148.0	4.6	0.18	156.2	-1.7	-0.05	XX
EURTWU		137.2	-6.3	-0.24	153.8	-4.1	-0.12	TM
FXMNBN		155.2	11.7	0.46	172.8	14.9	0.43	TA
KRLL94		132.2	-11.3	-0.44	129.6	-28.3	-0.82	XX
KY4P7C		144.6	1.1	0.04	150.2	-7.7	-0.22	TM
N6HJPD		175.8	32.3	1.26	225.0	67.1	1.94	XX
N8QJXR		104.0	-39.5	-1.54	109.8	-48.1	-1.39	TM
VA9LRW		122.4	-21.1	-0.82	136.0	-21.9	-0.63	XX
WKLVJ3		154.6	11.1	0.43	188.0	30.1	0.87	TM
WQ67M6		192.0	48.5	1.89	202.0	44.1	1.27	XX
YXKG2H		106.6	-36.9	-1.44	113.8	-44.1	-1.27	TM
ZVAYFR		149.0	5.6	0.22	157.6	-0.3	-0.01	TM

Summary Statistics	Sample SP53	Sample SP54
Grand Means	143.47 1000th ft-lbs	157.91 1000th ft-lbs
Stnd Dev Btwn Labs	25.66 1000th ft-lbs	34.63 1000th ft-lbs

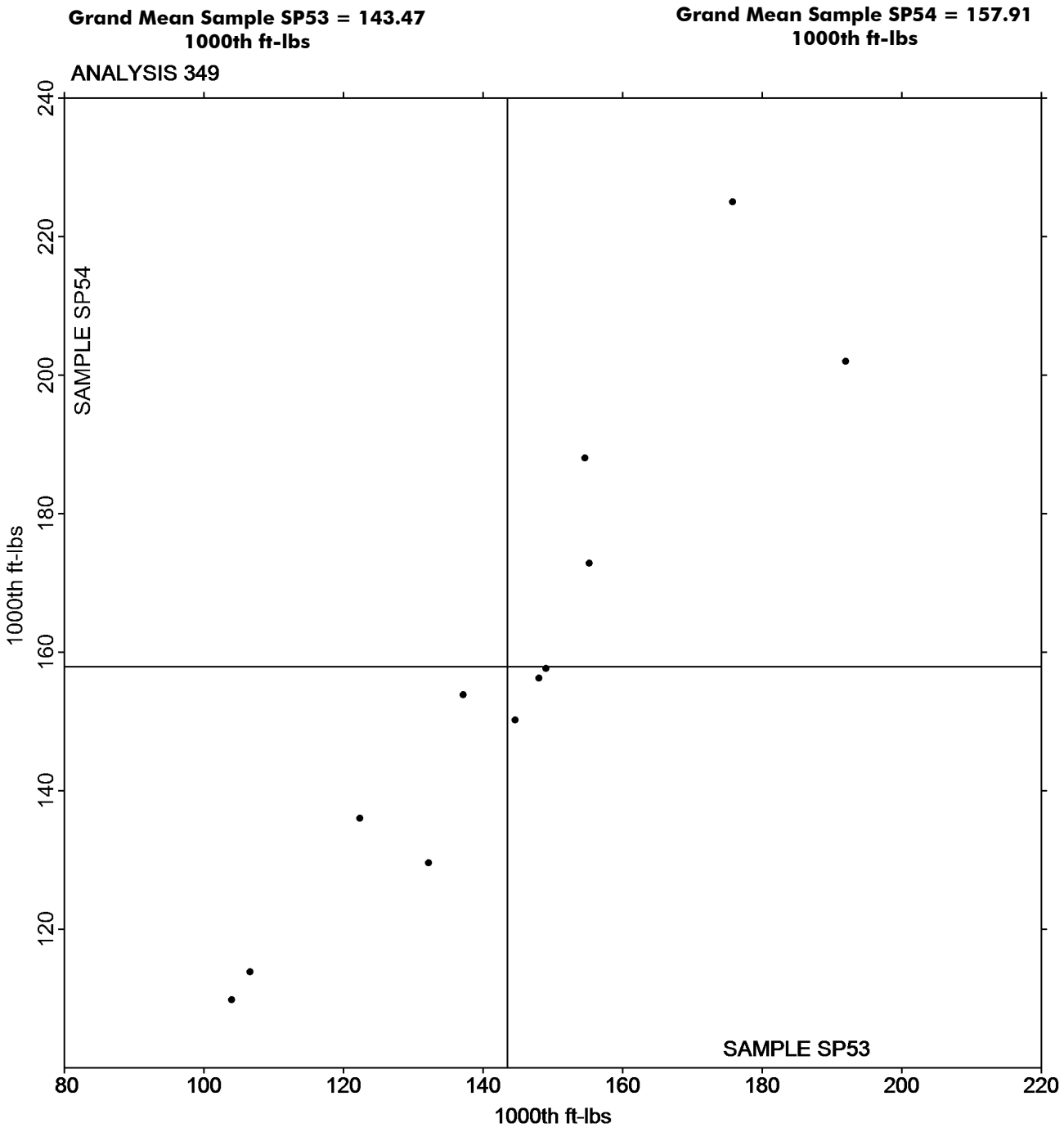
Statistics based on 12 of 12 reporting participants.

Key to Instrument Codes Reported by Participants

TA TA Huygen Internal Tester

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.