Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3091 S - November 2020

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

The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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

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

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

Key for Web Summary Reports (Page 1 of 2)

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

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

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

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

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

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

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

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

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

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

Common Problems Highlighted in Footnotes

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

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

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

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

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

Paper & Paperboard Interlaboratory Testing Program

Analysis 305

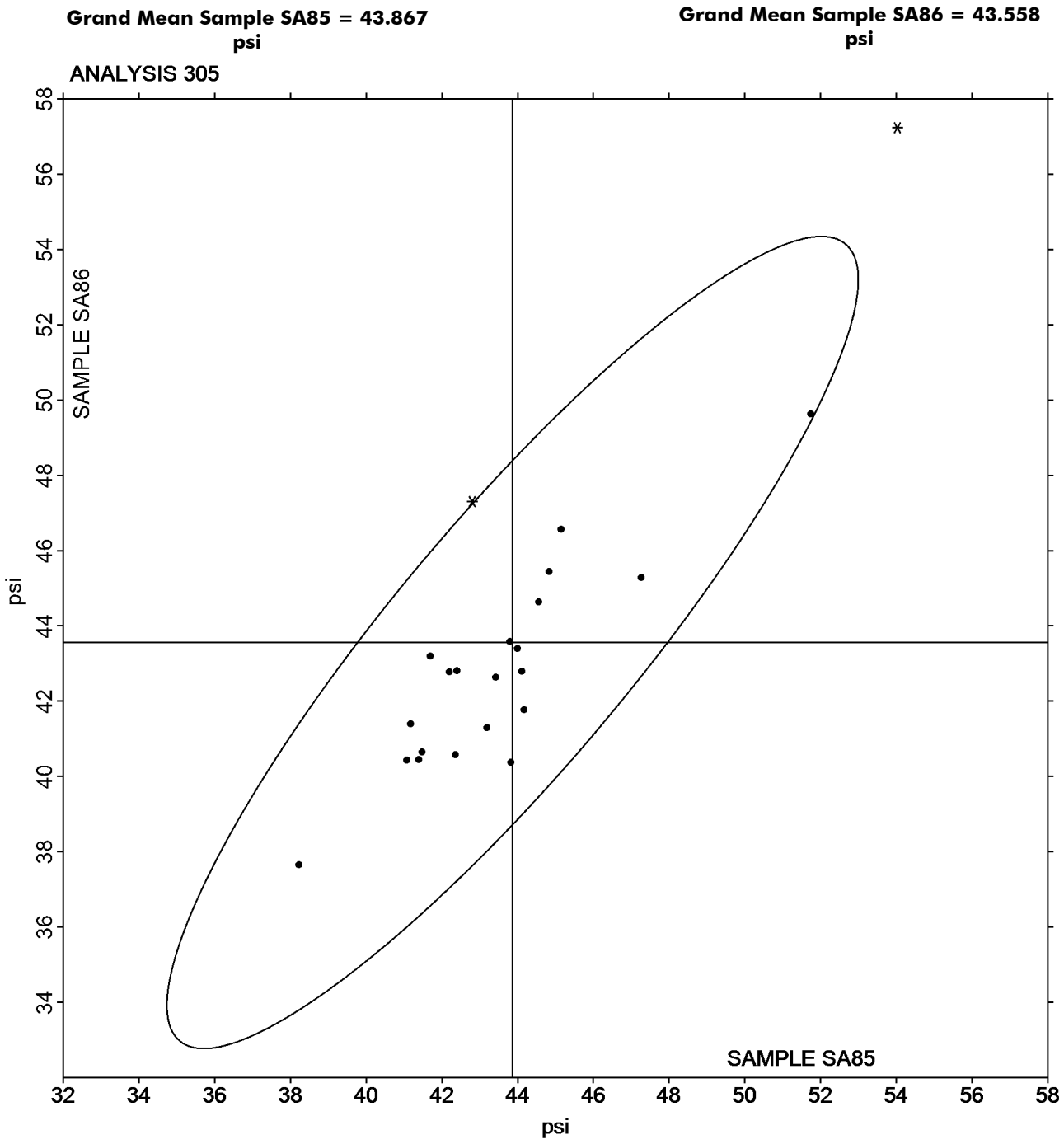
Bursting Strength - Printing Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SA85 Lab Mean	Sample SA85 Diff from Grand Mean	Sample SA85 CPV	Sample SA86 Lab Mean	Sample SA86 Diff from Grand Mean	Sample SA86 CPV
7A6J6X		45.15	1.28	0.38	46.57	3.01	0.75
7XTYYJ		44.00	0.13	0.04	43.40	-0.16	-0.04
86DGWQ		44.56	0.69	0.20	44.63	1.07	0.27
A86JEN		41.08	-2.79	-0.82	40.42	-3.14	-0.78
AAVQUE		38.23	-5.63	-1.66	37.65	-5.91	-1.48
BJ2P8L		51.74	7.87	2.32	49.63	6.07	1.52
BUE6UK	*	42.80	-1.07	-0.32	47.30	3.74	0.94
GGUJCM		42.40	-1.47	-0.43	42.80	-0.76	-0.19
HA6H9E		42.20	-1.67	-0.49	42.78	-0.78	-0.19
HPG22E		41.70	-2.17	-0.64	43.20	-0.36	-0.09
HQBR69		41.48	-2.39	-0.70	40.64	-2.92	-0.73
MRANGY		43.80	-0.07	-0.02	43.59	0.03	0.01
NXUYCE		43.42	-0.44	-0.13	42.63	-0.93	-0.23
NZLXQD		43.20	-0.67	-0.20	41.30	-2.26	-0.56
PUNZC7	*	54.03	10.16	3.00	57.23	13.67	3.42
RFZE3W		41.18	-2.69	-0.79	41.39	-2.16	-0.54
U2BCGA		41.39	-2.48	-0.73	40.44	-3.12	-0.78
UCEC9W		44.84	0.97	0.29	45.45	1.89	0.47
UTH7FV		44.18	0.31	0.09	41.77	-1.79	-0.45
VXBMD8		47.26	3.40	1.00	45.27	1.72	0.43
WC4J8Q		42.36	-1.50	-0.44	40.58	-2.98	-0.74
Y6WRVX		43.83	-0.03	-0.01	40.38	-3.18	-0.79
ZKT2H4		44.12	0.25	0.07	42.79	-0.77	-0.19

Summary Statistics	Sample SA85	Sample SA86
Grand Means	43.87 psi	43.56 psi
Stnd Dev Btwn Labs	3.39 psi	4.00 psi

Statistics based on 23 of 23 reporting participants.



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

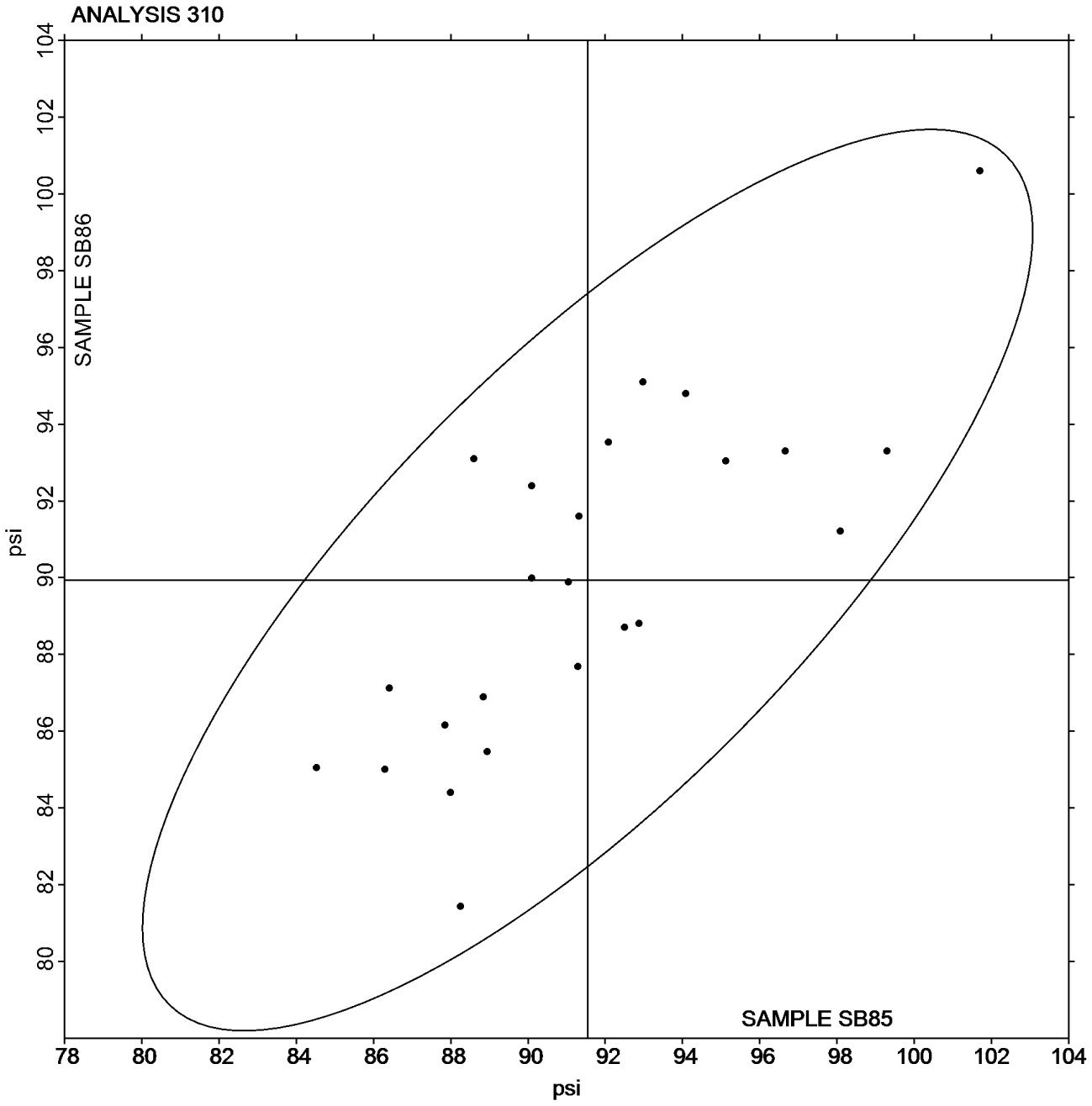
WebCode	Data Flag	Sample SB85 Lab Mean	Sample SB85 Diff from Grand Mean	Sample SB85 CPV	Sample SB86 Lab Mean	Sample SB86 Diff from Grand Mean	Sample SB86 CPV
3BUM3M		84.53	-7.01	-1.63	85.05	-4.89	-1.12
3J6PNN		88.95	-2.59	-0.60	85.47	-4.47	-1.02
6TJLGK		91.06	-0.49	-0.11	89.88	-0.06	-0.01
8QCZQP		86.41	-5.13	-1.20	87.13	-2.81	-0.64
A4QPXQ		88.60	-2.94	-0.69	93.10	3.16	0.72
AFZKWM		88.26	-3.29	-0.77	81.43	-8.51	-1.94
BJ2P8L		95.12	3.58	0.83	93.04	3.10	0.71
BP6WMP		96.67	5.13	1.19	93.30	3.36	0.77
DDK6CK		94.09	2.55	0.59	94.80	4.86	1.11
GUGQ6G		87.85	-3.69	-0.86	86.15	-3.79	-0.87
H42G4E		92.08	0.54	0.13	93.53	3.59	0.82
HFFE9H		98.09	6.55	1.52	91.22	1.28	0.29
L46BCA		86.30	-5.24	-1.22	85.00	-4.94	-1.13
MDN9DY		101.70	10.16	2.37	100.60	10.66	2.44
NKRET3		91.33	-0.21	-0.05	91.59	1.65	0.38
QPD2KD		91.30	-0.25	-0.06	87.68	-2.26	-0.52
RNWCU7		92.88	1.34	0.31	88.81	-1.13	-0.26
UCEC9W		88.85	-2.70	-0.63	86.89	-3.05	-0.70
UCUVTT		92.98	1.44	0.33	95.10	5.16	1.18
V3KL7Z		99.30	7.76	1.81	93.30	3.36	0.77
X7X63Z		92.50	0.96	0.22	88.70	-1.24	-0.28
YP4ZAW		88.00	-3.54	-0.83	84.40	-5.54	-1.27
ZKT2H4		90.10	-1.45	-0.34	89.98	0.04	0.01
ZZMU46		90.09	-1.45	-0.34	92.39	2.45	0.56

Summary Statistics	Sample SB85	Sample SB86
Grand Means	91.54 psi	89.94 psi
Stnd Dev Btwn Labs	4.29 psi	4.37 psi

Statistics based on 24 of 24 reporting participants.

Grand Mean Sample SB85 = 91.543 psi

Grand Mean Sample SB86 = 89.938 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC85 Lab Mean	Sample SC85 Diff from Grand Mean	Sample SC85 CPV	Sample SC86 Lab Mean	Sample SC86 Diff from Grand Mean	Sample SC86 CPV
3J6PNN		63.92	2.29	0.47	64.99	0.30	0.06
4EB3EZ		61.55	-0.07	-0.02	63.62	-1.07	-0.21
6TJLGK		71.00	9.38	1.91	73.54	8.85	1.74
7A6J6X		60.72	-0.90	-0.18	63.26	-1.43	-0.28
7UG9HV		53.56	-8.06	-1.64	57.66	-7.03	-1.38
7XTYYJ		54.60	-7.02	-1.43	54.70	-9.99	-1.96
86DGWQ		62.80	1.18	0.24	65.64	0.95	0.19
8K77WU		64.60	2.98	0.61	71.00	6.31	1.24
AAVQUE		60.65	-0.97	-0.20	64.04	-0.65	-0.13
AFZKWM		66.64	5.01	1.02	69.57	4.88	0.96
B4P8FL		61.24	-0.38	-0.08	63.25	-1.44	-0.28
BPKBWJ	X	285.89	224.27	45.72	346.30	281.61	55.27
BUE6UK		62.66	1.04	0.21	66.18	1.49	0.29
BZKN9D		60.87	-0.75	-0.15	63.43	-1.26	-0.25
DLUTPJ		53.96	-7.66	-1.56	57.42	-7.27	-1.43
EHEFQG		61.92	0.30	0.06	63.70	-0.99	-0.19
EPD8TJ		54.34	-7.28	-1.49	56.56	-8.13	-1.60
FE9JC7	X	77.50	15.88	3.24	76.30	11.61	2.28
GCGX3F	*	59.76	-1.87	-0.38	67.54	2.85	0.56
GUGQ6G		54.52	-7.10	-1.45	60.65	-4.04	-0.79
HA6H9E		57.83	-3.79	-0.77	59.76	-4.93	-0.97
HFFE9H		59.39	-2.24	-0.46	62.71	-1.98	-0.39
HQBR69		63.97	2.34	0.48	68.28	3.59	0.71
HTHA34	*	68.72	7.09	1.45	76.09	11.40	2.24
JQAEW7		60.80	-0.82	-0.17	62.60	-2.09	-0.41
LFYQ2B		58.46	-3.16	-0.65	60.19	-4.50	-0.88
LU6MKD		64.52	2.89	0.59	67.58	2.89	0.57
MDN9DY	X	130.40	68.78	14.02	141.60	76.91	15.09
NKAJ9F		64.96	3.34	0.68	68.14	3.45	0.68
NKRET3		59.22	-2.41	-0.49	64.36	-0.33	-0.06
NXUYCE		68.05	6.43	1.31	69.61	4.92	0.97
P2Q3G7		61.80	0.18	0.04	66.30	1.61	0.32
QF86WA	*	74.16	12.54	2.56	75.22	10.54	2.07
TYRXDA	X	128.20	66.58	13.57	123.50	58.81	11.54
U2BCGA		60.78	-0.84	-0.17	62.48	-2.21	-0.43
UCEC9W		63.38	1.75	0.36	64.61	-0.08	-0.02
UCUVTT		63.00	1.38	0.28	66.43	1.74	0.34
UTH7FV		64.11	2.49	0.51	68.41	3.73	0.73
V3KL7Z		54.66	-6.96	-1.42	57.36	-7.33	-1.44
VXBMD8		56.84	-4.78	-0.98	59.74	-4.95	-0.97

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC85 Lab Mean	Sample SC85 Diff from Grand Mean	Sample SC85 CPV	Sample SC86 Lab Mean	Sample SC86 Diff from Grand Mean	Sample SC86 CPV
W4CWKZ		62.10	0.48	0.10	63.00	-1.69	-0.33
WC4J8Q	*	74.20	12.58	2.56	77.30	12.61	2.48
X7X63Z		55.04	-6.58	-1.34	59.15	-5.54	-1.09
X88EQQ		63.40	1.78	0.36	65.38	0.69	0.14
XFZLT6		55.86	-5.76	-1.18	58.87	-5.82	-1.14
XRT3H7		62.70	1.08	0.22	66.78	2.09	0.41
Y6WRVX		64.84	3.22	0.66	67.36	2.67	0.52
ZH27VV		61.29	-0.33	-0.07	63.30	-1.39	-0.27
ZKT2H4		59.73	-1.90	-0.39	63.19	-1.50	-0.29

Summary Statistics	Sample SC85	Sample SC86
Grand Means	61.62 Grams	64.69 Grams
Stnd Dev Btwn Labs	4.91 Grams	5.10 Grams

Statistics based on 45 of 49 reporting participants.

Comments on Assigned Data Flags for Test #312

TYRXDA (X) - Extreme Data.

BPKBWJ (X) - Extreme Data.

FE9JC7 (X) - Data for sample SC85 are high.

MDN9DY (X) - Extreme Data.

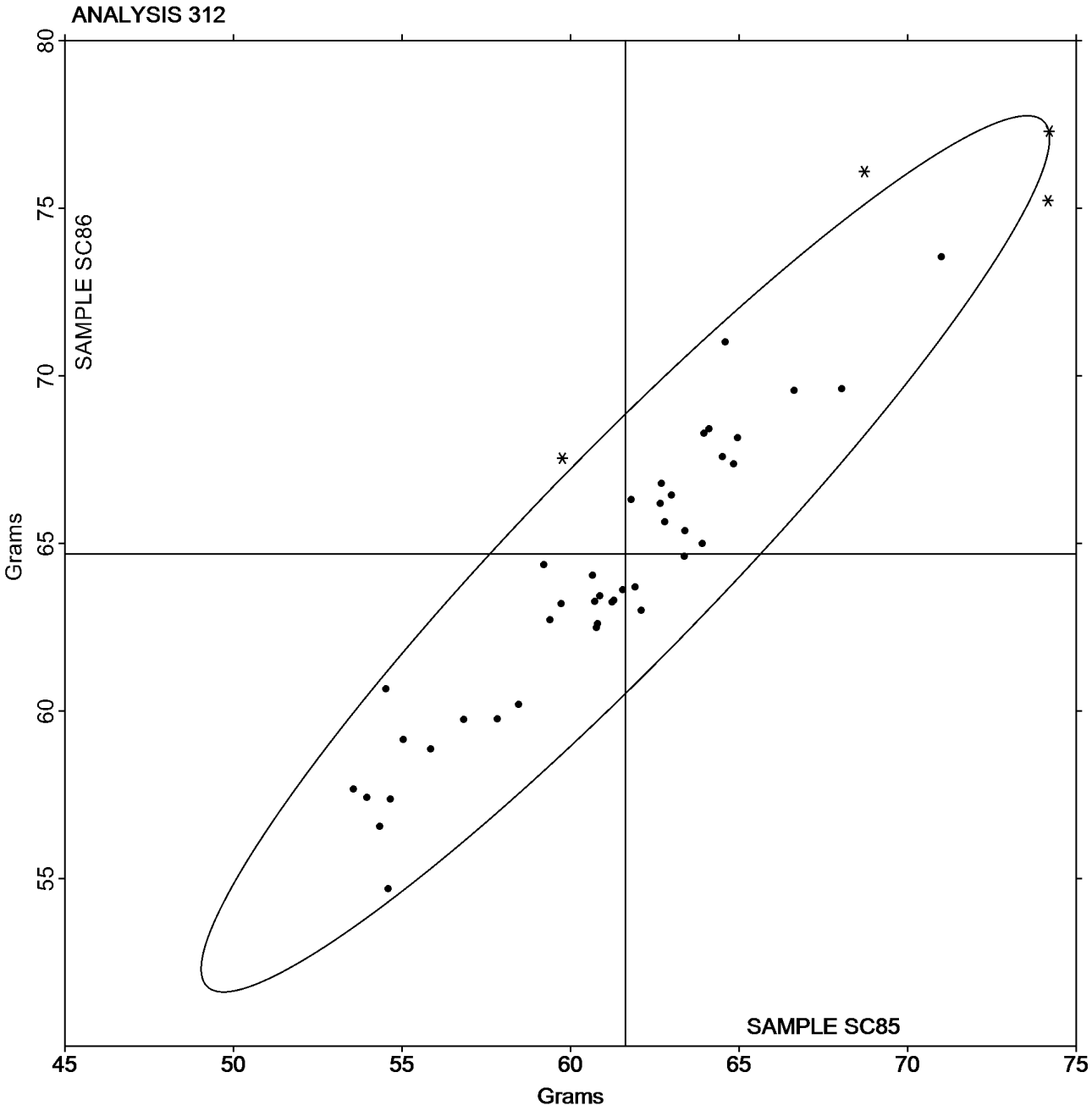
Analysis Notes:

MDN9DY - Data possibly off by a factor of 2.

TYRXDA - Data possibly off by a factor of 2.

Grand Mean Sample SC85 = 61.625 Grams

Grand Mean Sample SC86 = 64.688 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD85 Lab Mean	Sample SD85 Diff from Grand Mean	Sample SD85 CPV	Sample SD86 Lab Mean	Sample SD86 Diff from Grand Mean	Sample SD86 CPV
2D67QY		192.6	-20.8	-1.24	150.9	-17.6	-1.08
3BUM3M		209.4	-3.9	-0.23	164.6	-3.9	-0.24
3C4N8U		218.4	5.0	0.30	165.5	-3.0	-0.18
3JL27T		200.6	-12.7	-0.76	153.5	-15.0	-0.92
42L4MX		194.8	-18.5	-1.10	159.5	-8.9	-0.55
6MKRRY		220.4	7.1	0.42	171.4	3.0	0.18
6WPY8Y		232.3	19.0	1.14	178.5	10.0	0.62
8QCZQP		222.0	8.6	0.52	168.3	-0.2	-0.01
9RVFBG		199.1	-14.2	-0.85	153.8	-14.7	-0.90
A4QPXQ		209.1	-4.2	-0.25	189.6	21.1	1.30
AFZKWM		224.6	11.2	0.67	174.3	5.8	0.36
BF2LEE		211.7	-1.6	-0.10	192.1	23.6	1.45
BGBRTN		200.3	-13.1	-0.78	135.8	-32.7	-2.01
BJ2P8L	X	225.2	11.9	0.71	227.7	59.2	3.64
BKT2ML		211.0	-2.3	-0.14	175.2	6.7	0.41
BP6WMP		201.1	-12.2	-0.73	162.7	-5.8	-0.35
DDK6CK	*	179.7	-33.6	-2.01	126.3	-42.2	-2.59
E4T7XK		230.4	17.1	1.02	180.9	12.4	0.76
EQ3DAA		221.3	8.0	0.48	164.0	-4.4	-0.27
FZM698		230.2	16.8	1.01	187.4	19.0	1.16
GGUJCM		221.4	8.1	0.49	192.5	24.0	1.47
H42G4E	*	261.5	48.2	2.88	189.2	20.7	1.27
HTHA34		218.4	5.1	0.31	175.6	7.1	0.44
HYL47C		227.0	13.7	0.82	167.7	-0.8	-0.05
JK739L		231.6	18.3	1.09	180.1	11.7	0.72
LP9ZN4		234.2	20.8	1.25	187.7	19.2	1.18
MDN9DY	X	94.6	-118.7	-7.09	127.8	-40.7	-2.50
NMTFTY		191.8	-21.5	-1.28	173.0	4.5	0.28
NXT94B	X	11.4	-201.9	-12.06	8.0	-160.5	-9.86
PFTBKF		234.3	21.0	1.25	181.9	13.5	0.83
QPD2KD		213.6	0.2	0.01	168.9	0.5	0.03
QZ8MHV		227.7	14.4	0.86	179.7	11.2	0.69
RNWCU7		220.0	6.7	0.40	172.3	3.8	0.24
RU4YMA		194.0	-19.4	-1.16	145.4	-23.0	-1.42
UCEC9W		213.3	0.0	0.00	167.5	-0.9	-0.06
UXC2LA		207.8	-5.6	-0.33	191.7	23.3	1.43
W4CWKZ		221.5	8.2	0.49	166.0	-2.5	-0.15
W8FVT8		192.0	-21.4	-1.28	150.3	-18.2	-1.12
XDG9A3		183.8	-29.5	-1.76	142.2	-26.3	-1.61
XQJ64N		208.4	-4.9	-0.29	171.2	2.7	0.17

WebCode	Data Flag	Sample SD85 Lab Mean	Sample SD85 Diff from Grand Mean	Sample SD85 CPV	Sample SD86 Lab Mean	Sample SD86 Diff from Grand Mean	Sample SD86 CPV
Y7QHYR		193.7	-19.6	-1.17	144.1	-24.4	-1.50
ZZMU46		214.5	1.2	0.07	169.1	0.6	0.04

Summary Statistics	Sample SD85	Sample SD86
Grand Means	213.31 Grams	168.48 Grams
Stnd Dev Btwn Labs	16.73 Grams	16.28 Grams

Statistics based on 39 of 42 reporting participants.

Comments on Assigned Data Flags for Test #314

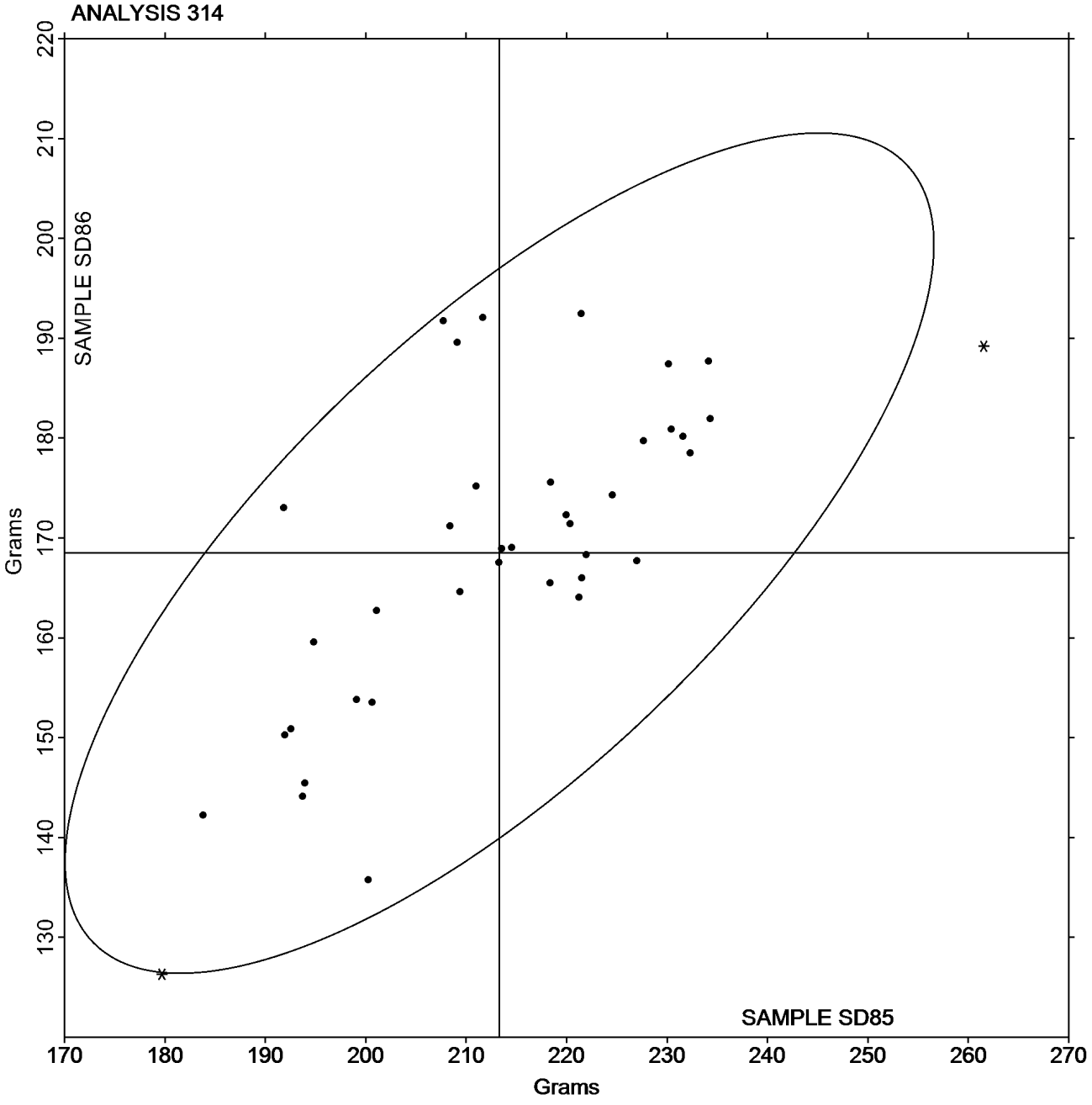
MDN9DY (X) - Extreme Data for Sample SD85.

BJ2P8L (X) - Data for sample SD86 are high.

NXT94B (X) - Extreme Data.

Grand Mean Sample SD85 = 213.31 Grams

Grand Mean Sample SD86 = 168.48 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

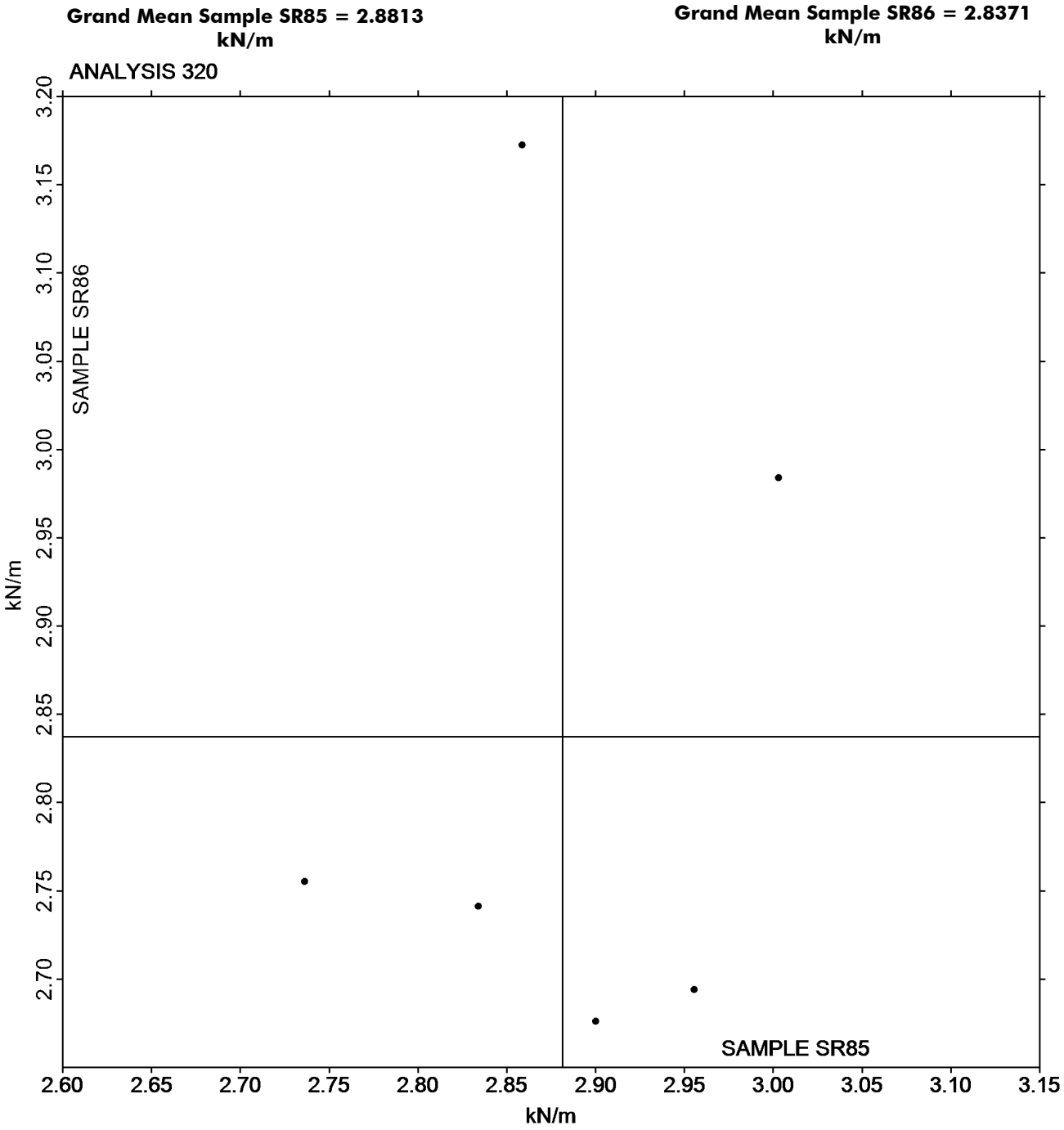
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR85 Lab Mean	Sample SR85 Diff from Grand Mean	Sample SR85 CPV	Sample SR86 Lab Mean	Sample SR86 Diff from Grand Mean	Sample SR86 CPV
7XTYYJ		2.859	-0.023	-0.24	3.172	0.335	1.69
EHEFQG		3.003	0.122	1.29	2.984	0.147	0.74
HTHA34		2.736	-0.145	-1.54	2.755	-0.082	-0.41
MRANGY		2.834	-0.047	-0.50	2.741	-0.096	-0.48
Y7QHYR		2.956	0.074	0.79	2.694	-0.143	-0.72
ZKT2H4		2.900	0.019	0.20	2.676	-0.161	-0.81

Summary Statistics	Sample SR85	Sample SR86
Grand Means	2.88 kN/m	2.84 kN/m
Stnd Dev Btwn Labs	0.09 kN/m	0.20 kN/m

Statistics based on 6 of 6 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 321

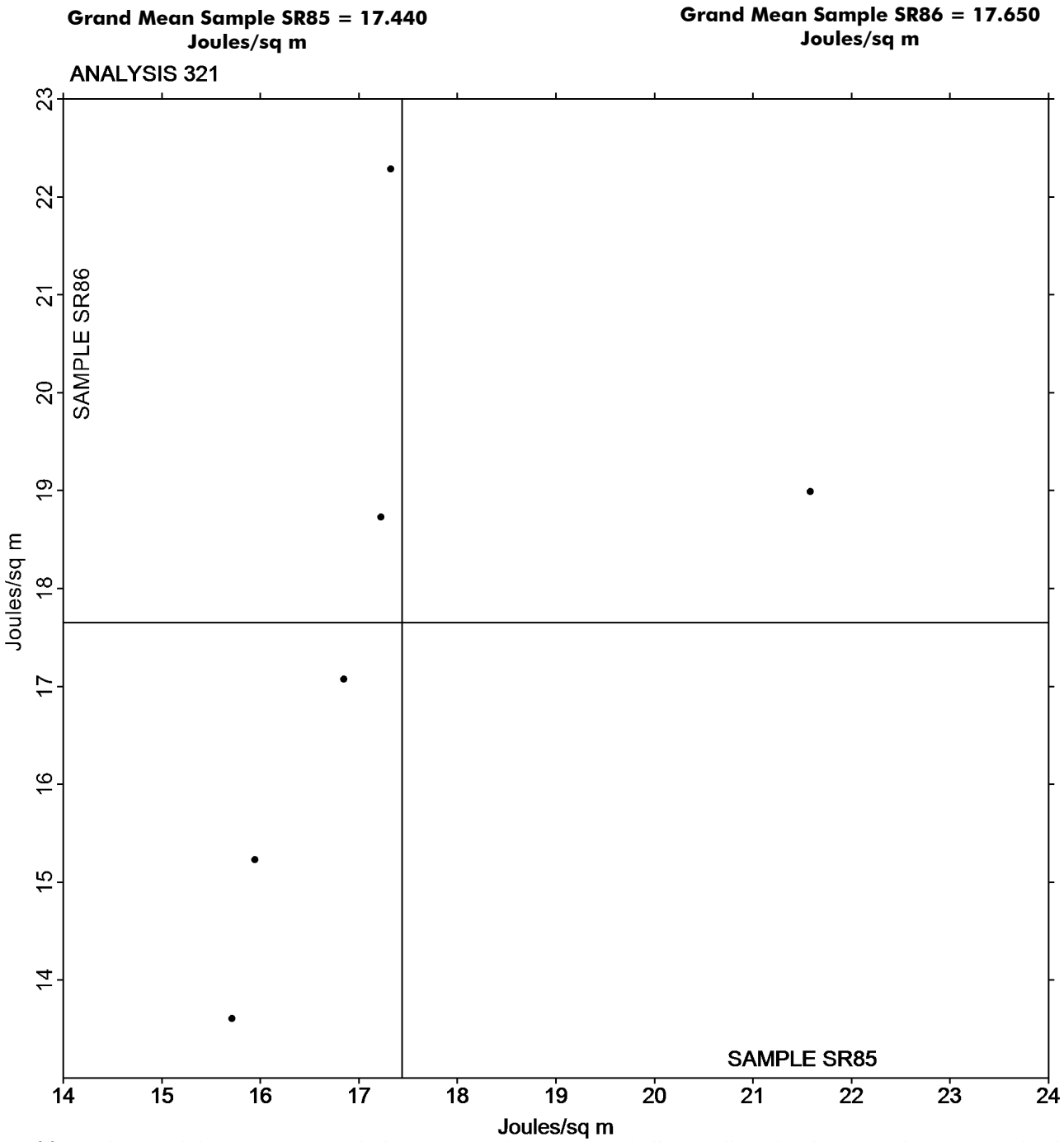
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR85 Lab Mean	Sample SR85 Diff from Grand Mean	Sample SR85 CPV	Sample SR86 Lab Mean	Sample SR86 Diff from Grand Mean	Sample SR86 CPV
7XTYYJ		17.32	-0.12	-0.05	22.28	4.63	1.51
EHEFQG		17.23	-0.22	-0.10	18.73	1.08	0.35
HTHA34		16.85	-0.59	-0.28	17.07	-0.58	-0.19
MRANGY		15.95	-1.49	-0.70	15.23	-2.42	-0.79
Y7QHYR		21.58	4.14	1.94	18.99	1.34	0.44
ZKT2H4		15.71	-1.73	-0.81	13.61	-4.04	-1.32

Summary Statistics	Sample SR85	Sample SR86
Grand Means	17.44 Joules/sq m	17.65 Joules/sq m
Stnd Dev Btwn Labs	2.14 Joules/sq m	3.07 Joules/sq m

Statistics based on 6 of 6 reporting participants.



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

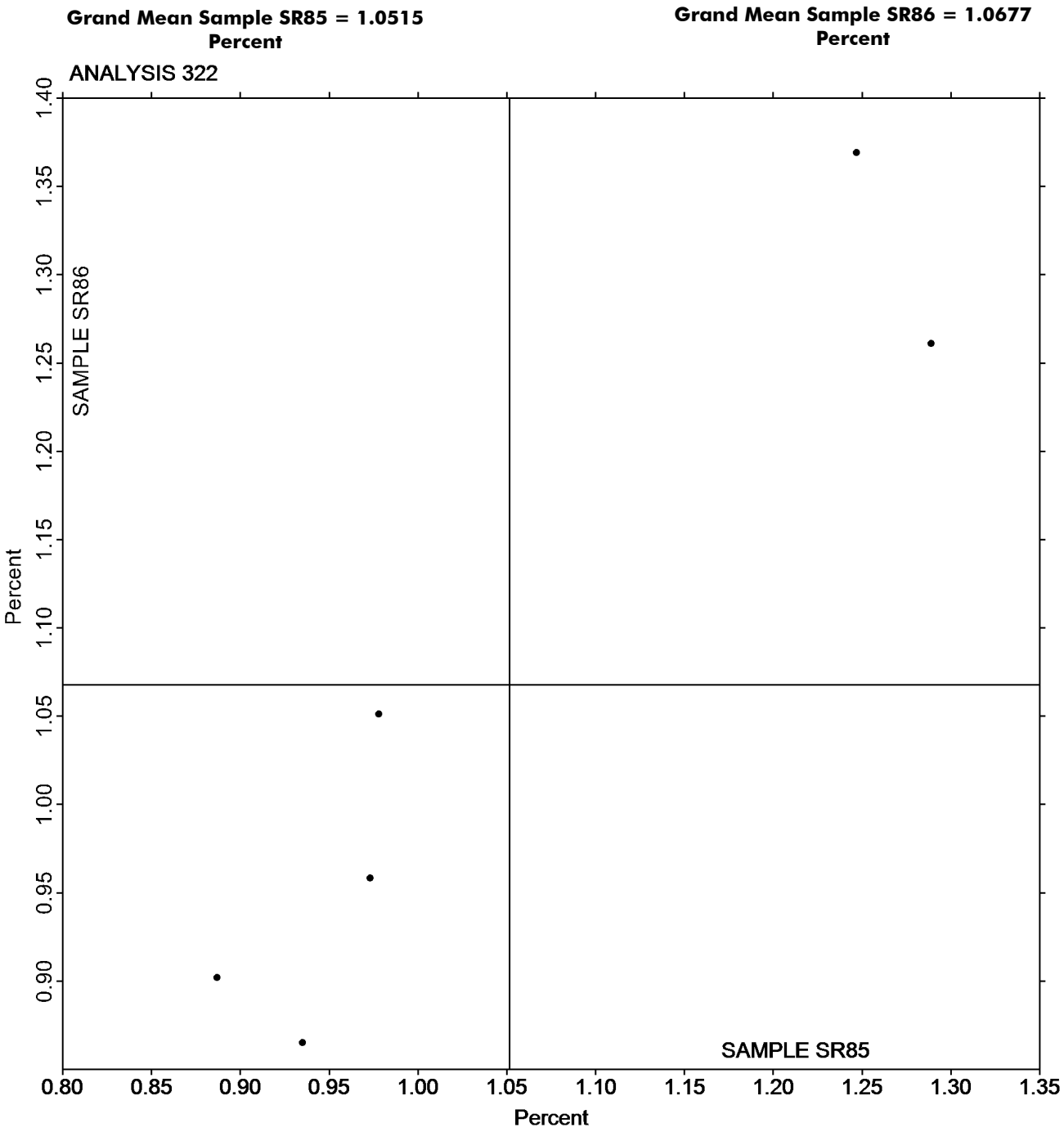
Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample SR85 Lab Mean	Sample SR85 Diff from Grand Mean	Sample SR85 CPV	Sample SR86 Lab Mean	Sample SR86 Diff from Grand Mean	Sample SR86 CPV
7XTYYJ		1.247	0.195	1.14	1.369	0.301	1.47
EHEFQG		0.978	-0.074	-0.43	1.051	-0.017	-0.08
HTHA34		0.887	-0.165	-0.96	0.902	-0.166	-0.81
MRANGY		0.973	-0.078	-0.46	0.958	-0.109	-0.53
Y7QHYR		1.289	0.237	1.39	1.261	0.193	0.95
ZKT2H4		0.935	-0.117	-0.68	0.865	-0.203	-0.99

Summary Statistics	Sample SR85	Sample SR86
Grand Means	1.05 Percent	1.07 Percent
Stnd Dev Btwn Labs	0.17 Percent	0.20 Percent

Statistics based on 6 of 6 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF85 Lab Mean	Sample SF85 Diff from Grand Mean	Sample SF85 CPV	Sample SF86 Lab Mean	Sample SF86 Diff from Grand Mean	Sample SF86 CPV	Instr Code
2EUC7P		7.228	0.313	0.84	7.019	0.149	0.42	FP
3J6PNN		6.657	-0.258	-0.69	6.736	-0.134	-0.38	LH
4EB3EZ		6.713	-0.202	-0.54	6.721	-0.149	-0.42	LE
6RETRR		7.166	0.251	0.67	7.317	0.447	1.27	XX
6TJLGK		6.490	-0.425	-1.14	6.476	-0.394	-1.12	LI
7A6J6X		7.487	0.571	1.53	7.468	0.598	1.70	TP
7UG9HV		7.376	0.461	1.24	7.313	0.444	1.26	TO
86DGWQ		6.765	-0.150	-0.40	6.802	-0.067	-0.19	LX
AAVQUE		7.178	0.263	0.71	7.036	0.166	0.47	LX
B4P8FL		6.697	-0.218	-0.59	6.648	-0.222	-0.63	TP
BPKBWJ		7.401	0.485	1.30	7.468	0.599	1.70	TJ
BUE6UK		6.775	-0.140	-0.38	6.892	0.023	0.06	LH
BZKN9D		7.130	0.215	0.58	7.091	0.221	0.63	LI
DLUTPJ		7.773	0.858	2.30	7.526	0.657	1.87	XX
E94E6F		6.521	-0.394	-1.06	6.747	-0.123	-0.35	IM
EPD8TJ		7.392	0.477	1.28	7.467	0.598	1.70	LH
FE9JC7		6.610	-0.306	-0.82	6.747	-0.123	-0.35	TF
FYXXTG		7.467	0.552	1.48	7.620	0.750	2.13	LE
GCGX3F		7.015	0.100	0.27	6.793	-0.076	-0.22	XX
GYR4MF		6.817	-0.098	-0.26	6.703	-0.166	-0.47	TV
HA6H9E		6.852	-0.063	-0.17	6.582	-0.287	-0.82	LA
HFFE9H		6.530	-0.385	-1.03	6.480	-0.390	-1.11	LH
HQBR69		7.162	0.247	0.66	7.137	0.267	0.76	LI
HYL47C		6.608	-0.307	-0.82	6.594	-0.276	-0.78	LI
JQAEW7		6.682	-0.234	-0.63	6.669	-0.201	-0.57	FP
LFYQ2B		6.537	-0.378	-1.01	6.606	-0.263	-0.75	TB
LU6MKD		6.615	-0.301	-0.81	6.497	-0.372	-1.06	TO
M6YM82		6.057	-0.858	-2.30	6.270	-0.600	-1.70	RE
NKAJ9F		6.196	-0.719	-1.93	6.150	-0.719	-2.04	ID
NXUYCE		6.950	0.035	0.09	6.901	0.032	0.09	LH
NZLXQD		6.738	-0.177	-0.48	6.434	-0.436	-1.24	IX
P2Q3G7		6.653	-0.262	-0.70	6.374	-0.496	-1.41	TO
PUNZC7		7.186	0.271	0.73	6.855	-0.015	-0.04	LH
QF86WA		6.989	0.074	0.20	7.037	0.167	0.48	LA
RFZE3W		7.107	0.192	0.51	7.211	0.342	0.97	LH
TYRXDA		7.113	0.198	0.53	6.943	0.074	0.21	TC
U2BCGA		6.902	-0.013	-0.04	6.666	-0.204	-0.58	TB
UCEC9W		6.833	-0.082	-0.22	6.837	-0.033	-0.09	LH
UTH7FV		7.289	0.374	1.00	7.160	0.290	0.83	LF
V3KL7Z		6.921	0.006	0.02	6.925	0.055	0.16	TO

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF85 Lab Mean	Sample SF85 Diff from Grand Mean	Sample SF85 CPV	Sample SF86 Lab Mean	Sample SF86 Diff from Grand Mean	Sample SF86 CPV	Instr Code
VNJ6YY		6.680	-0.235	-0.63	6.790	-0.080	-0.23	LA
VXBMD8	*	7.671	0.755	2.03	7.257	0.388	1.10	TJ
WC4J8Q		6.396	-0.519	-1.39	6.293	-0.577	-1.64	DL
X7X63Z		7.347	0.432	1.16	7.350	0.480	1.36	TF
XFZLT6		7.263	0.348	0.93	6.913	0.043	0.12	LI
Y6WRVX		6.570	-0.345	-0.93	6.599	-0.271	-0.77	TF
ZH27VV		6.782	-0.133	-0.36	6.995	0.126	0.36	FP
ZKT2H4		6.585	-0.330	-0.89	6.785	-0.085	-0.24	LH
ZR7HLX		6.973	0.058	0.16	6.708	-0.162	-0.46	CS

Summary Statistics	Sample SF85	Sample SF86
Grand Means	6.92 kN/m	6.87 kN/m
Stnd Dev Btwn Labs	0.37 kN/m	0.35 kN/m

Statistics based on 49 of 49 reporting participants.

Analysis Notes:

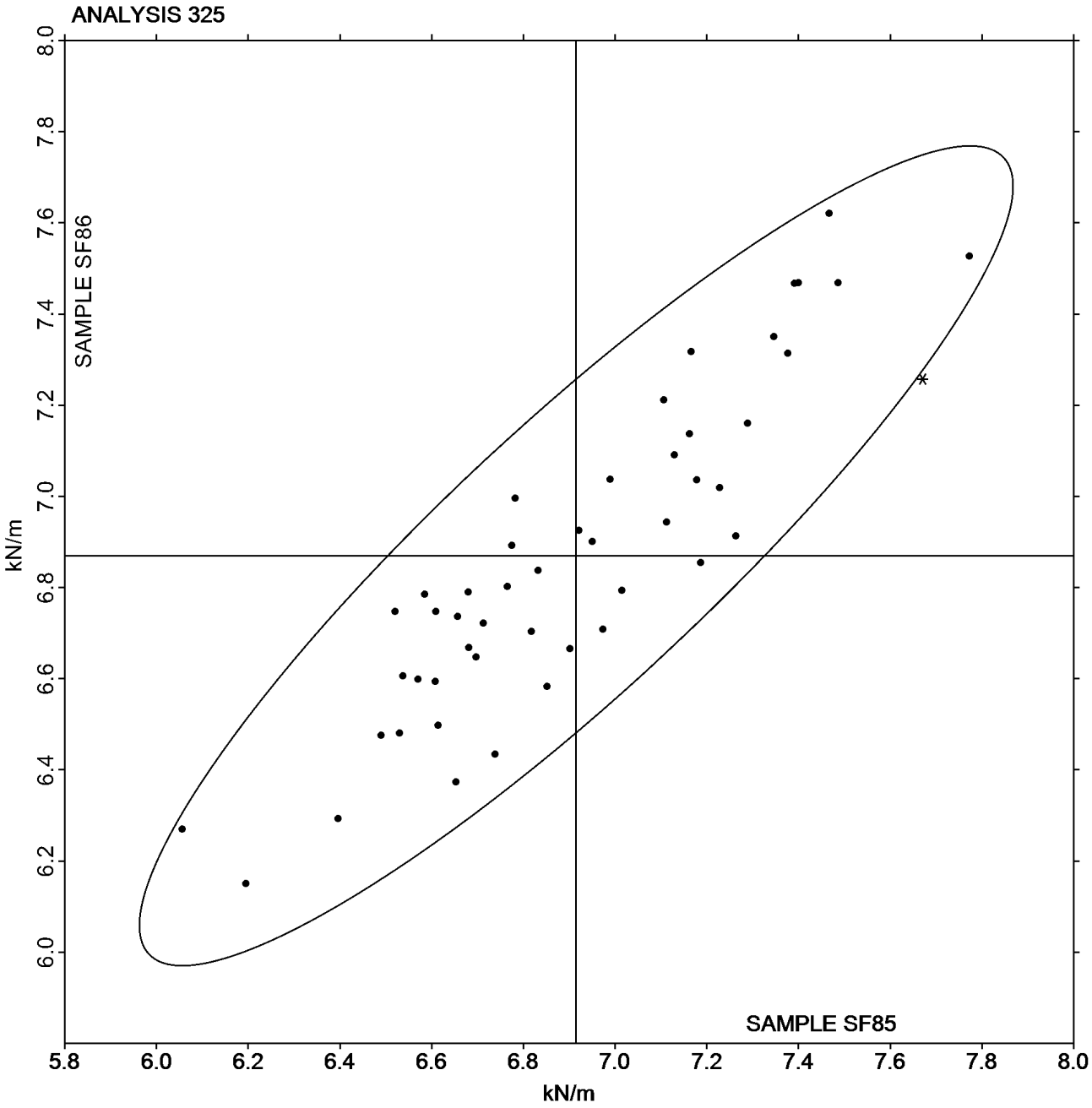
FYXXTG - One determination removed from the Lab Mean of Sample SF86 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

CS	Chatillon CS1100 Series Force Tester	DL	EMIC DL500 Universal Testing Machines
FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IM	Instron 5500 Series	IX	Instron (model not specified)
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)	TV	Thwing-Albert Vantage NX
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF85 = 6.9152 kN/m

Grand Mean Sample SF86 = 6.8696 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF85 Lab Mean	Sample SF85 Diff from Grand Mean	Sample SF85 CPV	Sample SF86 Lab Mean	Sample SF86 Diff from Grand Mean	Sample SF86 CPV	Instr Code
2EUC7P		120.79	25.25	2.03	111.02	15.12	1.33	FP
3J6PNN		100.88	5.34	0.43	102.86	6.96	0.61	LH
6TJLGK		86.58	-8.96	-0.72	87.80	-8.10	-0.71	LI
7A6J6X		84.74	-10.79	-0.87	90.64	-5.26	-0.46	TP
7UG9HV		93.26	-2.28	-0.18	95.01	-0.89	-0.08	TO
86DGWQ		89.88	-5.65	-0.46	92.61	-3.29	-0.29	LX
AAVQUE		98.83	3.29	0.27	100.66	4.76	0.42	LX
BPKBWJ	X	158.91	63.38	5.10	153.88	57.98	5.10	TJ
BUE6UK		87.27	-8.26	-0.67	91.90	-4.00	-0.35	LH
BZKN9D		90.12	-5.41	-0.44	85.33	-10.57	-0.93	LI
DLUTPJ		92.61	-2.92	-0.24	89.78	-6.12	-0.54	XX
E94E6F		78.71	-16.82	-1.35	83.52	-12.38	-1.09	IM
EPD8TJ		82.57	-12.96	-1.04	88.99	-6.90	-0.61	LH
GCGX3F	*	70.07	-25.47	-2.05	66.29	-29.61	-2.60	XX
GYR4MF		108.33	12.80	1.03	106.18	10.28	0.90	TV
HA6H9E	*	68.30	-27.24	-2.19	66.52	-29.38	-2.58	LA
HFFE9H		96.51	0.97	0.08	97.46	1.56	0.14	LH
HQBR69		98.11	2.57	0.21	99.86	3.96	0.35	LI
HYL47C		92.72	-2.82	-0.23	94.44	-1.46	-0.13	LI
LU6MKD		103.76	8.23	0.66	100.99	5.09	0.45	TO
M6YM82		84.22	-11.31	-0.91	92.34	-3.56	-0.31	RE
NKAJ9F		85.93	-9.60	-0.77	86.81	-9.09	-0.80	ID
NXUYCE		98.92	3.39	0.27	98.14	2.24	0.20	LH
NZLXQD		107.34	11.80	0.95	97.01	1.11	0.10	IX
P2Q3G7		98.31	2.77	0.22	89.72	-6.18	-0.54	TO
QF86WA		94.47	-1.07	-0.09	98.93	3.03	0.27	LA
RFZE3W		96.13	0.59	0.05	96.83	0.93	0.08	LH
U2BCGA		111.03	15.50	1.25	106.83	10.93	0.96	TB
UCEC9W		97.17	1.63	0.13	97.87	1.97	0.17	LH
UTH7FV		110.64	15.10	1.22	110.38	14.48	1.27	LF
V3KL7Z		102.45	6.91	0.56	108.29	12.39	1.09	TO
VNJ6YY		106.20	10.67	0.86	110.66	14.76	1.30	LA
WC4J8Q		97.48	1.95	0.16	97.16	1.26	0.11	DL
X7X63Z		89.18	-6.36	-0.51	89.65	-6.25	-0.55	TF
XFZLT6		80.51	-15.02	-1.21	79.64	-16.26	-1.43	LX
Y6WRVX		104.01	8.47	0.68	105.32	9.42	0.83	TF
ZH27VV		126.99	31.46	2.53	123.38	27.48	2.42	FP
ZKT2H4		86.53	-9.01	-0.73	96.35	0.45	0.04	LH
ZR7HLX		108.77	13.24	1.07	107.00	11.10	0.98	XX

Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SF85	Sample SF86
Grand Means	95.54 Joules/sq m	95.90 Joules/sq m
Stnd Dev Btwn Labs	12.42 Joules/sq m	11.38 Joules/sq m

Statistics based on 38 of 39 reporting participants.

Comments on Assigned Data Flags for Test #327

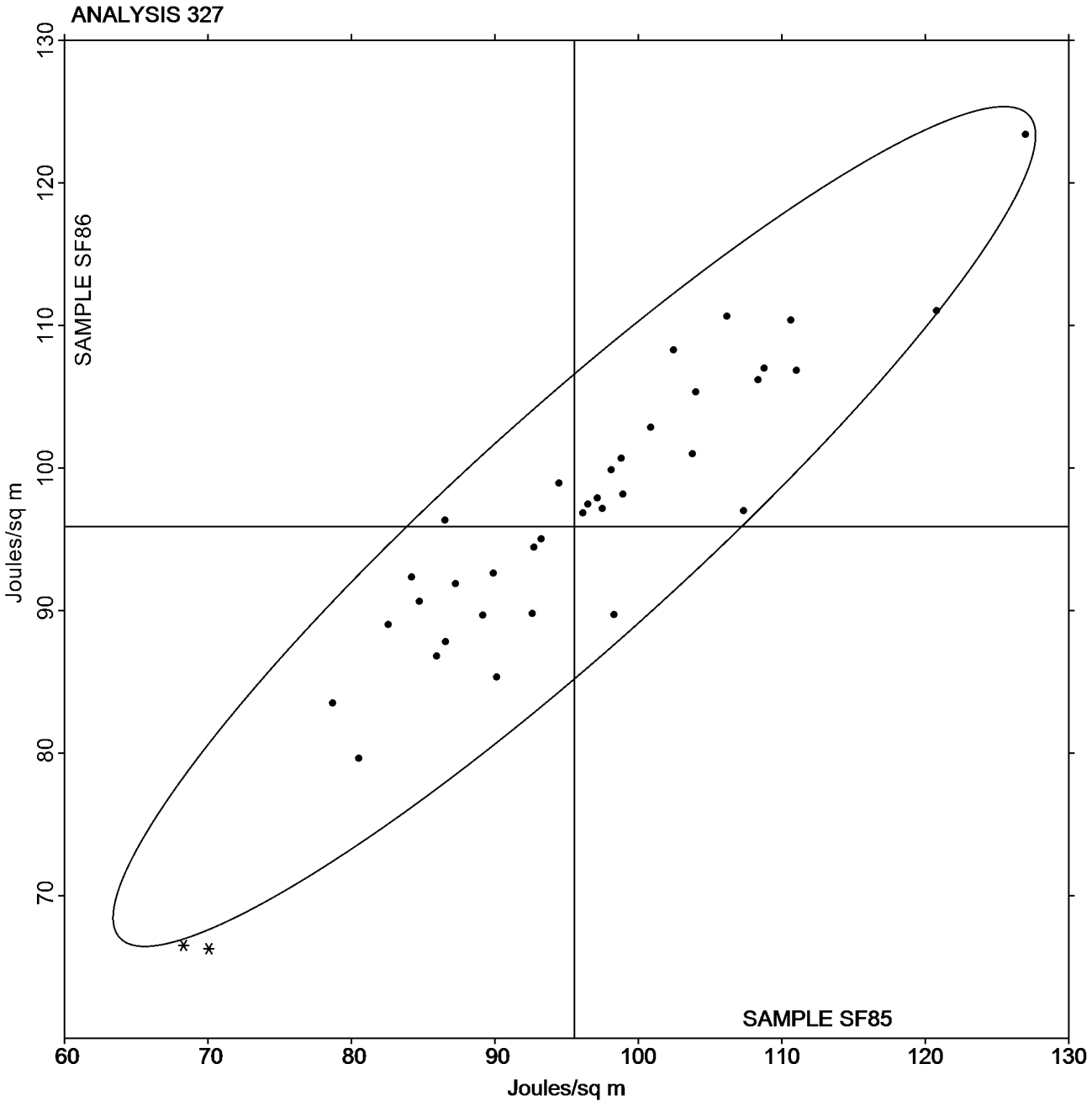
BPKBWJ (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
IX	Instron (model not specified)	LA	L & W Tensile - Autoline 300
LF	L & W Tensile/Fracture Toughness Tester SE 064	LH	L & W Alwetron TH1 (Horizontal) SE 060/065F
LI	L & W Tensile Tester SE 062	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TJ	Thwing-Albert QC II-XS
TO	Thwing-Albert QC-1000	TP	TMI Monitor/Tensile 100 (84-21-01)
TV	Thwing-Albert Vantage NX	XX	Instrument make/model not specified by lab

Grand Mean Sample SF85 = 95.535 Joules/sq m

Grand Mean Sample SF86 = 95.898 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF85 Lab Mean	Sample SF85 Diff from Grand Mean	Sample SF85 CPV	Sample SF86 Lab Mean	Sample SF86 Diff from Grand Mean	Sample SF86 CPV	Instr Code
2EUC7P		2.583	0.396	1.35	2.472	0.258	0.95	FP
3J6PNN		2.303	0.116	0.40	2.314	0.100	0.37	LH
6TJLGK		2.032	-0.155	-0.53	2.054	-0.160	-0.59	LI
7A6J6X	X	2.008	-0.179	-0.61	2.343	0.129	0.47	TP
7UG9HV		1.827	-0.360	-1.23	1.881	-0.333	-1.23	TO
86DGWQ		2.010	-0.177	-0.61	2.054	-0.160	-0.59	LX
AAVQUE		2.088	-0.099	-0.34	2.183	-0.031	-0.11	LX
B4P8FL		2.393	0.206	0.71	2.502	0.287	1.06	TP
BPKBWJ	X	3.298	1.111	3.80	3.156	0.942	3.47	TJ
BUE6UK		1.972	-0.215	-0.74	2.033	-0.181	-0.67	LH
BZKN9D		1.977	-0.210	-0.72	1.856	-0.358	-1.32	LI
DLUTPJ		1.996	-0.191	-0.65	1.989	-0.225	-0.83	XX
E94E6F		1.874	-0.313	-1.07	1.943	-0.271	-1.00	IM
EPD8TJ		1.714	-0.473	-1.62	1.813	-0.401	-1.48	LH
FE9JC7		2.090	-0.097	-0.33	2.250	0.036	0.13	TF
GCGX3F		1.861	-0.326	-1.12	1.840	-0.374	-1.38	XX
GYR4MF		2.710	0.523	1.79	2.665	0.451	1.66	TV
HA6H9E		1.795	-0.392	-1.34	1.817	-0.397	-1.46	LA
HFFE9H		2.310	0.123	0.42	2.320	0.106	0.39	LH
HQBR69		1.914	-0.273	-0.93	1.959	-0.255	-0.94	LI
HYL47C		2.150	-0.037	-0.13	2.194	-0.020	-0.07	LI
LFYQ2B		2.217	0.030	0.10	2.309	0.095	0.35	TF
LU6MKD		2.759	0.572	1.96	2.711	0.497	1.83	TO
M6YM82		2.215	0.028	0.09	2.359	0.144	0.53	RE
NKAJ9F		2.129	-0.058	-0.20	2.163	-0.051	-0.19	ID
NXUYCE		2.173	-0.014	-0.05	2.167	-0.047	-0.17	LH
NZLXQD		2.603	0.416	1.42	2.467	0.253	0.93	IX
P2Q3G7		2.277	0.090	0.31	2.187	-0.027	-0.10	TX
QF86WA		1.866	-0.321	-1.10	1.940	-0.274	-1.01	LA
RFZE3W		2.045	-0.142	-0.49	2.034	-0.180	-0.66	LH
U2BCGA		2.517	0.330	1.13	2.527	0.313	1.15	TB
UCEC9W		2.179	-0.008	-0.03	2.168	-0.046	-0.17	LH
UTH7FV		2.312	0.125	0.43	2.341	0.127	0.47	LF
V3KL7Z		2.340	0.153	0.52	2.462	0.248	0.91	TO
VNJ6YY		2.086	-0.101	-0.35	2.136	-0.078	-0.29	LA
WC4J8Q		2.519	0.332	1.14	2.558	0.344	1.27	DL
X7X63Z		1.990	-0.197	-0.67	2.002	-0.212	-0.78	TF
XFZLT6		1.749	-0.438	-1.50	1.807	-0.407	-1.50	LI
Y6WRVX		2.572	0.385	1.32	2.616	0.402	1.48	TF
ZH27VV	*	2.843	0.656	2.24	2.683	0.469	1.73	FP

Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF85 Lab Mean	Sample SF85 Diff from Grand Mean	Sample SF85 CPV	Sample SF86 Lab Mean	Sample SF86 Diff from Grand Mean	Sample SF86 CPV	Instr Code
ZKT2H4		1.998	-0.189	-0.65	2.155	-0.059	-0.22	LH
ZR7HLX		2.495	0.308	1.05	2.632	0.418	1.54	CS

Summary Statistics	Sample SF85	Sample SF86
Grand Means	2.19 Percent	2.21 Percent
Stnd Dev Btwn Labs	0.29 Percent	0.27 Percent

Statistics based on 40 of 42 reporting participants.

Comments on Assigned Data Flags for Test #328

7A6J6X (X) - Inconsistent in testing between samples.

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

Analysis Notes:

BZKN9D - One determination removed from the Lab Mean of Sample SF85 per Grubb's Test at 1% risk (TAPPI 1205).

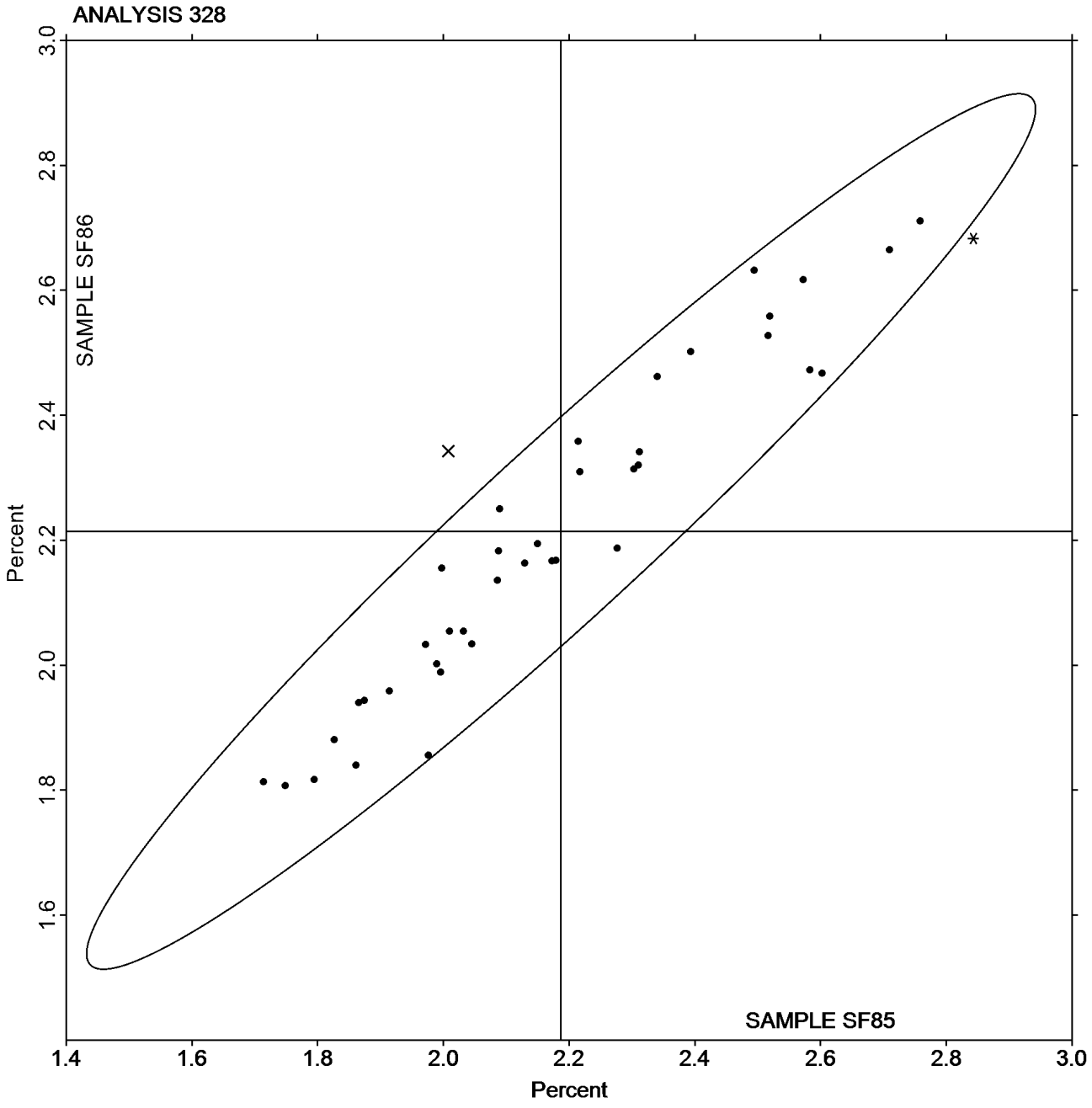
GCGX3F - One determination removed from the Lab Mean of Sample SF86 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

CS	Chatillon CS1100 Series Force Tester	DL	EMIC DL500 Universal Testing Machines
FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IM	Instron 5500 Series	IX	Instron (model not specified)
LA	L & W Tensile - Autoline 300	LF	L & W Tensile/Fracture Toughness Tester SE 064
LH	L & W Alwetron TH1 (Horizontal) SE 060/065F	LI	L & W Tensile Tester SE 062
LX	L & W (model not specified)	RE	Regmed
TB	Thwing-Albert EJA/1000	TF	Thwing-Albert EJA Vantage-1
TJ	Thwing-Albert QC II-XS	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	TV	Thwing-Albert Vantage NX
TX	Thwing-Albert (model not specified)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF85 = 2.1871
Percent

Grand Mean Sample SF86 = 2.2141
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE85 Lab Mean	Sample SE85 Diff from Grand Mean	Sample SE85 CPV	Sample SE86 Lab Mean	Sample SE86 Diff from Grand Mean	Sample SE86 CPV	Instr Code
2D67QY	*	10.176	1.425	2.08	16.36	2.74	2.52	IF
37YT6L		8.161	-0.591	-0.86	12.84	-0.78	-0.71	TH
3BUM3M		8.683	-0.069	-0.10	13.45	-0.16	-0.15	ID
3JL27T	*	8.179	-0.573	-0.84	11.84	-1.77	-1.62	IM
3KFRAM	X	14.044	5.293	7.72	14.35	0.73	0.67	CE
3VFAT3		8.208	-0.543	-0.79	13.24	-0.37	-0.34	IM
4Z9JVM		9.655	0.904	1.32	14.43	0.82	0.75	DM
69D7ZT	X	8.840	0.089	0.13	12.17	-1.44	-1.33	LE
6MKRRY		8.331	-0.421	-0.61	13.09	-0.53	-0.48	LW
6WPY8Y		7.618	-1.133	-1.65	12.02	-1.59	-1.46	LE
7FEHWQ		8.872	0.120	0.18	13.56	-0.05	-0.05	TB
7PHWDH		9.131	0.379	0.55	14.73	1.11	1.02	LI
8EXT7H		8.956	0.205	0.30	14.27	0.66	0.60	TH
9RVFBG		8.497	-0.254	-0.37	12.92	-0.69	-0.63	IF
A4QPXQ		9.326	0.574	0.84	14.18	0.57	0.52	LE
AFZKWM		8.058	-0.693	-1.01	12.68	-0.93	-0.86	LE
BF2LEE		9.271	0.520	0.76	13.90	0.29	0.27	ID
BJ2P8L		9.257	0.505	0.74	14.13	0.51	0.47	TH
BKT2ML		8.429	-0.323	-0.47	12.58	-1.03	-0.95	LH
BP6WMP		8.795	0.043	0.06	13.44	-0.18	-0.16	LA
CQTPVD		9.823	1.071	1.56	15.37	1.75	1.61	LA
DDK6CK	X	82.400	73.649	107.47	129.45	115.84	106.33	TP
ELDWXJ		9.428	0.676	0.99	14.69	1.08	0.99	TX
H42G4E		10.443	1.691	2.47	16.35	2.74	2.51	LA
HTG6UM		8.500	-0.251	-0.37	13.33	-0.29	-0.26	IM
HYL47C		7.981	-0.770	-1.12	12.09	-1.52	-1.40	LW
JK739L		7.952	-0.800	-1.17	12.25	-1.37	-1.25	TK
JYZY34		9.327	0.576	0.84	14.62	1.01	0.92	LE
LVUTZ4		8.805	0.054	0.08	13.72	0.11	0.10	LA
MDN9DY	X	8.922	0.171	0.25	10.53	-3.08	-2.83	IF
NK4AC9		7.312	-1.439	-2.10	11.88	-1.73	-1.59	TT
NXT94B		7.949	-0.803	-1.17	11.89	-1.72	-1.58	IN
PFTBKF		8.012	-0.739	-1.08	12.52	-1.09	-1.00	LE
QPD2KD		8.096	-0.656	-0.96	13.01	-0.60	-0.55	IM
RU4YMA		8.847	0.096	0.14	13.98	0.36	0.33	LW
RYFN4X	X	11.539	2.787	4.07	15.39	1.77	1.63	TH
UCEC9W		8.761	0.009	0.01	13.74	0.12	0.11	LH
UCUVTT		9.352	0.600	0.88	14.57	0.96	0.88	IF
UXC2LA		8.413	-0.338	-0.49	13.67	0.06	0.05	TR
VNJ6YY		8.374	-0.377	-0.55	13.09	-0.52	-0.48	LA

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE85 Lab Mean	Sample SE85 Diff from Grand Mean	Sample SE85 CPV	Sample SE86 Lab Mean	Sample SE86 Diff from Grand Mean	Sample SE86 CPV	Instr Code
W4CWKZ		8.242	-0.509	-0.74	12.84	-0.78	-0.71	TA
W8FVT8		9.257	0.506	0.74	14.14	0.53	0.49	TO
X7X63Z		9.462	0.711	1.04	14.50	0.89	0.82	TO
XDG9A3		8.796	0.044	0.06	13.53	-0.08	-0.08	IM
XQJ64N		9.364	0.613	0.89	14.59	0.97	0.89	LX
XRT3H7		8.355	-0.397	-0.58	13.34	-0.27	-0.25	XX
YP4ZAW		9.682	0.931	1.36	15.11	1.50	1.37	IK
YW77PZ		8.148	-0.604	-0.88	12.91	-0.70	-0.64	LI
ZZMU46		8.784	0.033	0.05	13.61	0.00	0.00	LH

Summary Statistics	Sample SE85	Sample SE86
Grand Means	8.75 kN/m	13.61 kN/m
Stnd Dev Btwn Labs	0.69 kN/m	1.09 kN/m

Statistics based on 44 of 49 reporting participants.

Comments on Assigned Data Flags for Test #330

69D7ZT (X) - Inconsistent in testing between samples.

MDN9DY (X) - Data for sample SE86 are low.

RYFN4X (X) - Data for sample SE85 are high.

3KFRAM (X) - Extreme Data for Sample SE85.

DDK6CK (X) - Extreme Data.

Analysis Notes:

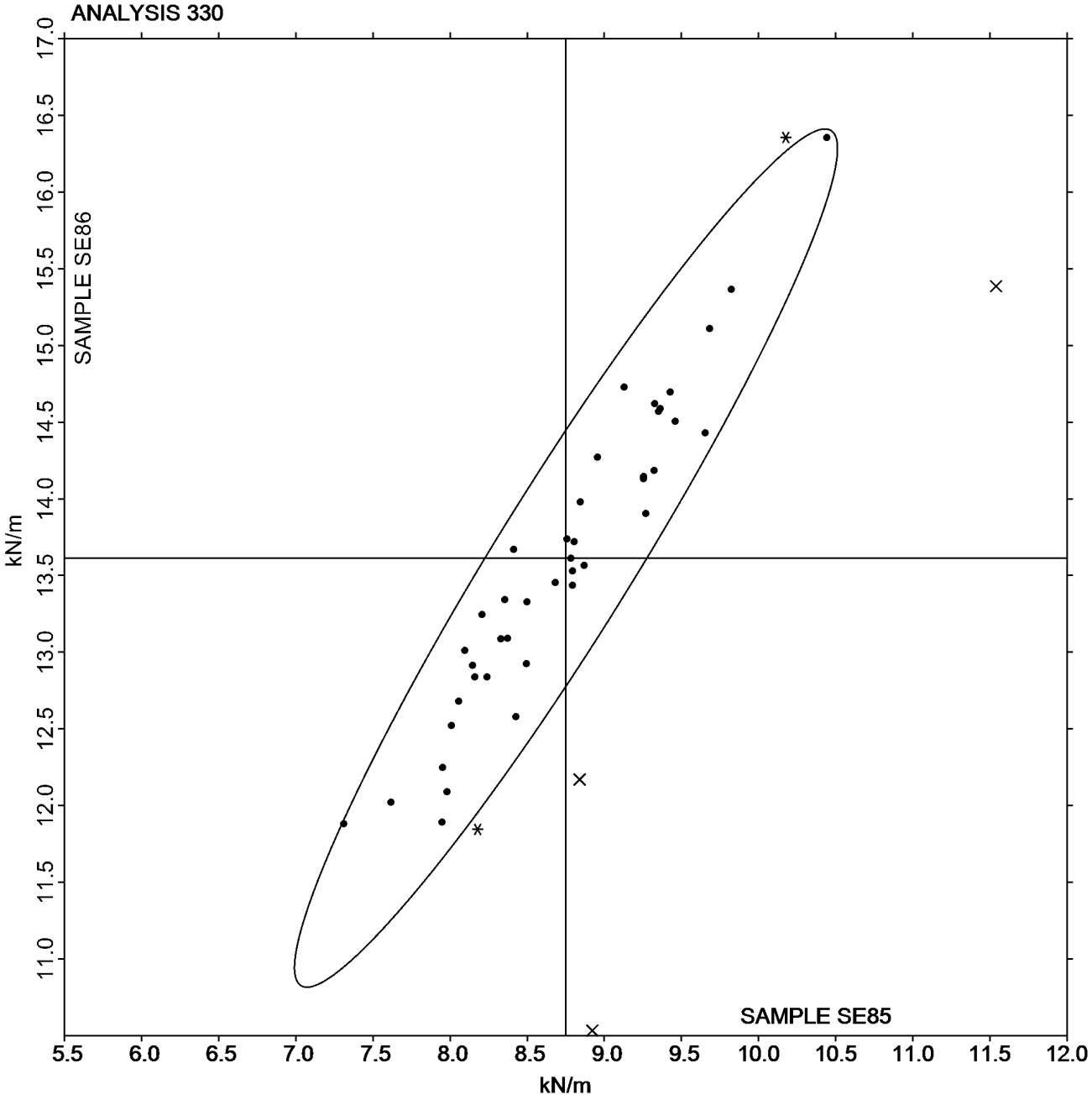
H42G4E - Data appear to be reported as lb/inch, not kN/m as indicated on data entry form. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

CE	Chatillon Model ET1100	DM	IDM MTC-100 Tensile Tester
ID	Instron 4200 Series	IF	Instron 3340 Series
IK	Instron 4400 Series	IM	Instron 5500 Series
IN	Instron 3360 Series	LA	L & W Autoline
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LI	LLoyds Instruments	LW	L & W Tensile Tester SE062
LX	L & W (model not specified)	TA	Thwing-Albert Tensile Tester
TB	Thwing-Albert EJA/1000	TH	Thwing-Albert QC-3A
TK	Thwing-Albert Model 37-4	TO	Thwing-Albert QC-1000
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 SE85 = 8.7515 kN/m

Grand Mean Sample SE86 = 13.614 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE85 Lab Mean	Sample SE85 Diff from Grand Mean	Sample SE85 CPV	Sample SE86 Lab Mean	Sample SE86 Diff from Grand Mean	Sample SE86 CPV	Instr Code
2D67QY		80.1	-21.1	-1.67	193.8	-34.8	-1.17	IF
37YT6L		107.1	5.9	0.46	247.4	18.8	0.63	TH
3BUM3M		103.4	2.2	0.17	232.1	3.6	0.12	ID
3JL27T		101.7	0.5	0.04	185.7	-42.9	-1.44	IM
3VFAT3		98.1	-3.1	-0.25	231.8	3.2	0.11	IM
4Z9JVM	*	141.0	39.7	3.14	306.8	78.2	2.62	DM
69D7ZT	*	102.6	1.4	0.11	170.5	-58.1	-1.95	LE
6MKRRY		91.4	-9.8	-0.78	211.9	-16.7	-0.56	LW
6WPY8Y		89.9	-11.3	-0.89	209.6	-19.0	-0.64	LE
7FEHWQ		114.7	13.5	1.06	250.8	22.2	0.74	TB
A4QPXQ		98.2	-3.0	-0.24	221.7	-6.9	-0.23	LE
AFZKWM		83.6	-17.6	-1.39	206.9	-21.7	-0.73	LE
BJ2P8L		116.7	15.5	1.22	257.3	28.7	0.96	TH
BKT2ML		87.4	-13.8	-1.09	178.2	-50.4	-1.69	LH
BP6WMP		127.6	26.3	2.08	248.5	19.9	0.67	LA
CQTPVD		117.0	15.8	1.25	255.6	27.0	0.91	LA
ELDWXJ		111.5	10.2	0.81	250.8	22.2	0.74	XX
H42G4E		108.0	6.8	0.53	250.4	21.8	0.73	LA
HTG6UM		96.4	-4.8	-0.38	244.1	15.5	0.52	IM
HYL47C		89.2	-12.1	-0.95	200.9	-27.7	-0.93	LW
JK739L		97.3	-3.9	-0.31	215.9	-12.7	-0.43	TK
JYZY34		112.9	11.7	0.92	262.6	34.0	1.14	LE
LVUTZ4		113.3	12.1	0.96	270.8	42.2	1.41	LA
MDN9DY		95.1	-6.2	-0.49	176.1	-52.5	-1.76	IN
NK4AC9		76.4	-24.9	-1.97	184.4	-44.2	-1.48	TT
NXT94B		99.0	-2.3	-0.18	221.2	-7.4	-0.25	IN
PFTBKF		89.3	-11.9	-0.94	198.5	-30.1	-1.01	LE
QPD2KD		98.0	-3.3	-0.26	249.7	21.1	0.71	IM
RU4YMA		91.1	-10.1	-0.80	211.8	-16.8	-0.56	LW
RYFN4X		106.3	5.1	0.40	201.3	-27.3	-0.91	TH
UCEC9W		99.3	-1.9	-0.15	229.9	1.3	0.04	LH
UXC2LA		91.7	-9.6	-0.76	229.5	0.9	0.03	TR
VNJ6YY		112.2	11.0	0.87	243.3	14.7	0.49	LA
W8FVT8		98.9	-2.3	-0.18	234.1	5.6	0.19	TO
X7X63Z		98.1	-3.2	-0.25	235.3	6.7	0.22	TO
XDG9A3	X	48.2	-53.0	-4.19	108.3	-120.3	-4.03	IM
XQJ64N		107.7	6.4	0.51	264.7	36.1	1.21	LX
XRT3H7		103.9	2.6	0.21	248.7	20.1	0.67	XX
YP4ZAW		92.8	-8.5	-0.67	252.1	23.5	0.79	XX
ZZMU46		99.6	-1.7	-0.13	230.4	1.8	0.06	LH

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SE85	Sample SE86
Grand Means	101.24 Joules/sq m	228.59 Joules/sq m
Stnd Dev Btwn Labs	12.66 Joules/sq m	29.84 Joules/sq m

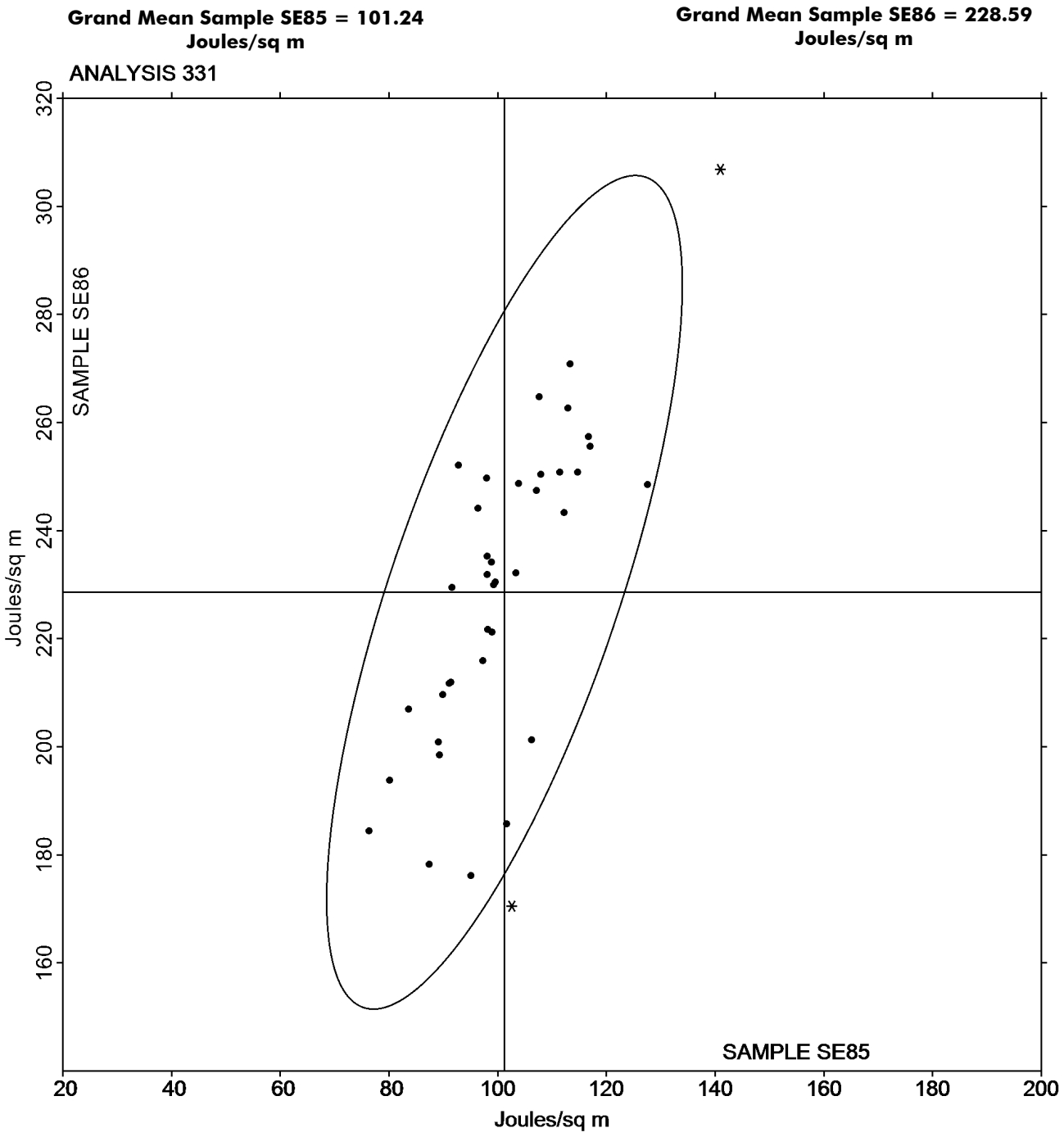
Statistics based on 39 of 40 reporting participants.

Comments on Assigned Data Flags for Test #331

XDG9A3 (X) - Data for both samples are low.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	ID	Instron 4200 series
IF	Instron 3340 Series	IM	Instron 5500 Series
IN	Instron 3360 Series	LA	L & W Autoline
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LW	L & W Tensile Tester SE062	LX	L & W (model not specified)
TB	Thwing-Albert EJA/1000	TH	Thwing-Albert QC-3A
TK	Thwing-Albert Model 37-4	TO	Thwing-Albert QC-1000
TR	TMI Horizontal Tensile Tester	TT	Tinius Olsen Model MHT
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE85 Lab Mean	Sample SE85 Diff from Grand Mean	Sample SE85 CPV	Sample SE86 Lab Mean	Sample SE86 Diff from Grand Mean	Sample SE86 CPV	Instr Code
2D67QY	*	1.108	-0.694	-2.52	1.484	-1.061	-2.56	IF
37YT6L		2.060	0.258	0.94	2.940	0.395	0.95	TH
3BUM3M		1.893	0.091	0.33	2.626	0.081	0.20	ID
3JL27T		2.010	0.208	0.75	2.503	-0.042	-0.10	IM
3VFAT3		2.106	0.304	1.10	2.903	0.358	0.86	IM
4Z9JVM		2.184	0.382	1.38	3.146	0.601	1.45	DM
69D7ZT	*	1.718	-0.084	-0.31	2.020	-0.525	-1.27	LE
6MKRRY		1.681	-0.121	-0.44	2.412	-0.133	-0.32	LW
6WPY8Y		1.821	0.019	0.07	2.640	0.095	0.23	LE
7FEHWQ		1.993	0.191	0.69	2.755	0.210	0.51	TB
A4QPXQ		2.302	0.500	1.81	3.216	0.671	1.62	LE
AFZKWM		1.574	-0.228	-0.83	2.392	-0.153	-0.37	LE
BF2LEE		1.779	-0.023	-0.08	2.529	-0.016	-0.04	ID
BJ2P8L		2.242	0.440	1.60	3.059	0.514	1.24	TH
BKT2ML		1.620	-0.182	-0.66	2.130	-0.415	-1.00	LH
BP6WMP		2.302	0.500	1.81	3.216	0.671	1.62	LA
CQTPVD		1.776	-0.026	-0.09	2.389	-0.156	-0.38	LA
DDK6CK		2.112	0.310	1.12	3.222	0.677	1.63	TP
ELDWXJ		1.885	0.083	0.30	2.604	0.059	0.14	XX
H42G4E		1.597	-0.205	-0.74	2.142	-0.403	-0.97	LA
HTG6UM		1.727	-0.075	-0.27	2.704	0.159	0.38	IM
HYL47C		1.694	-0.108	-0.39	2.457	-0.088	-0.21	LW
JK739L		1.889	0.087	0.32	2.624	0.079	0.19	TK
JYZY34		1.848	0.046	0.17	2.667	0.122	0.29	LE
LVUTZ4		2.213	0.411	1.49	3.157	0.612	1.48	LA
MDN9DY		1.572	-0.230	-0.83	2.277	-0.268	-0.65	IN
NK4AC9		1.761	-0.041	-0.15	2.482	-0.063	-0.15	TT
NXT94B		1.327	-0.475	-1.72	1.799	-0.746	-1.80	IN
PFTBKF		1.695	-0.107	-0.39	2.348	-0.197	-0.48	LE
QPD2KD		1.871	0.069	0.25	2.878	0.333	0.80	IM
RU4YMA		1.594	-0.208	-0.75	2.247	-0.298	-0.72	LW
RYFN4X	X	2.364	0.562	2.04	2.800	0.255	0.62	TH
UCEC9W		1.929	0.127	0.46	2.432	-0.113	-0.27	LH
UXC2LA		1.770	-0.032	-0.12	2.573	0.028	0.07	TR
VNJ6YY		1.703	-0.099	-0.36	2.335	-0.210	-0.51	LA
W4CWKZ		1.792	-0.010	-0.04	2.465	-0.080	-0.19	TB
W8FVT8		1.716	-0.086	-0.31	2.547	0.002	0.00	TO
X7X63Z		1.686	-0.116	-0.42	2.503	-0.042	-0.10	TO
XDG9A3	*	1.027	-0.775	-2.81	1.359	-1.186	-2.86	IM
XQJ64N		1.675	-0.127	-0.46	2.647	0.102	0.25	LX

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE85 Lab Mean	Sample SE85 Diff from Grand Mean	Sample SE85 CPV	Sample SE86 Lab Mean	Sample SE86 Diff from Grand Mean	Sample SE86 CPV	Instr Code
XRT3H7		1.956	0.154	0.56	2.835	0.290	0.70	XX
YP4ZAW		1.519	-0.283	-1.03	2.338	-0.207	-0.50	XX
YW77PZ		2.051	0.248	0.90	2.950	0.405	0.98	LI
ZZMU46		1.713	-0.089	-0.32	2.484	-0.061	-0.15	LH

Summary Statistics	Sample SE85	Sample SE86
Grand Means	1.80 Percent	2.54 Percent
Stnd Dev Btwn Labs	0.28 Percent	0.41 Percent

Statistics based on 43 of 44 reporting participants.

Comments on Assigned Data Flags for Test #332

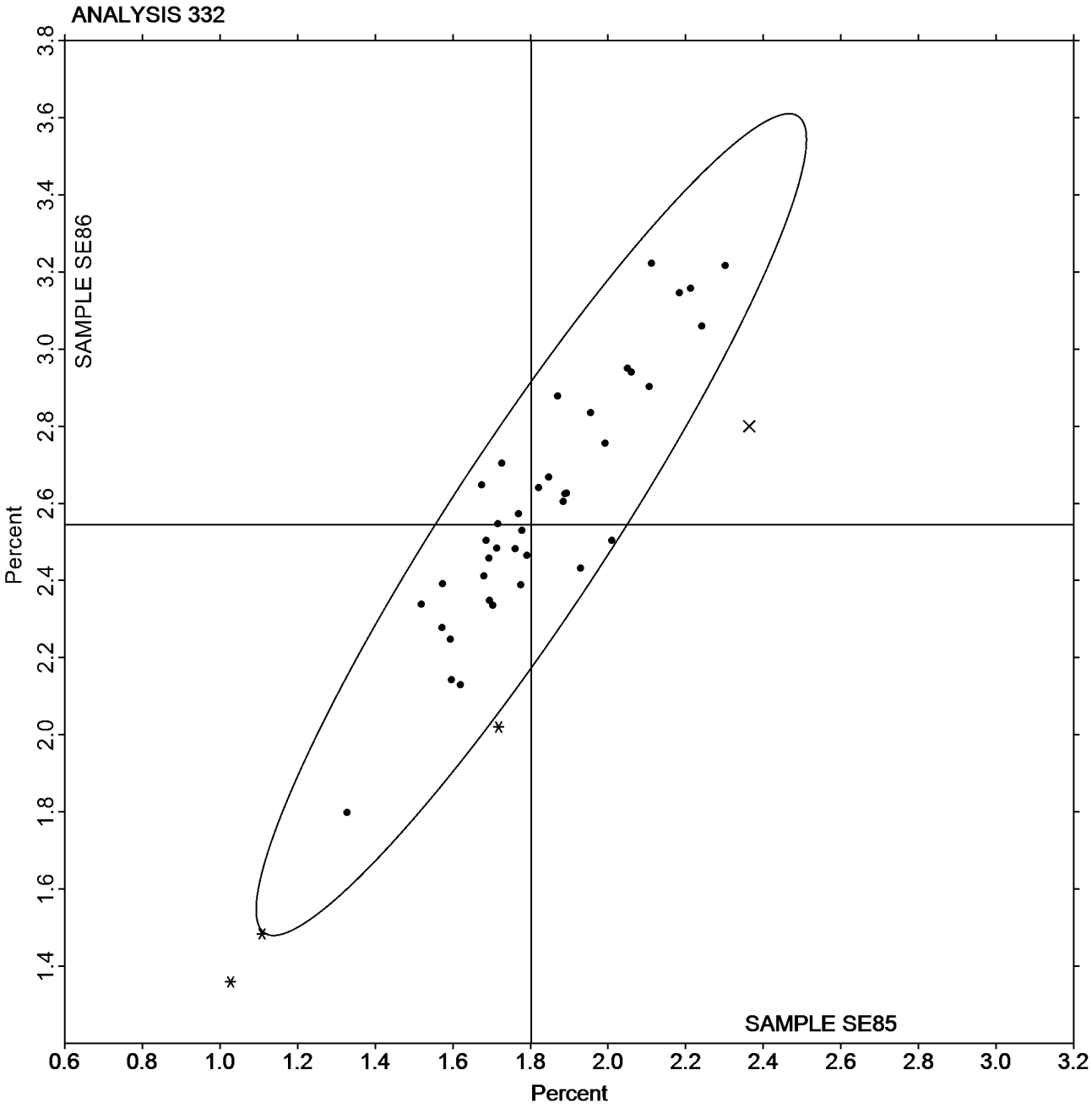
RYFN4X (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	ID	Instron 4200 Series
IF	Instron 3340 Series	IM	Instron 5500 Series
IN	Instron 3360 Series	LA	L & W Autoline 300
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LI	LLoyds Instruments	LW	L & W Tensile Tester SE062
LX	L & W (model not specified)	TB	Thwing-Albert EJA/1000
TH	Thwing-Albert QC-3A	TK	Thwing-Albert Model 37-4
TO	Thwing-Albert QC-1000	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 SE85 = 1.8021 Percent

Grand Mean Sample SE86 = 2.5450 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

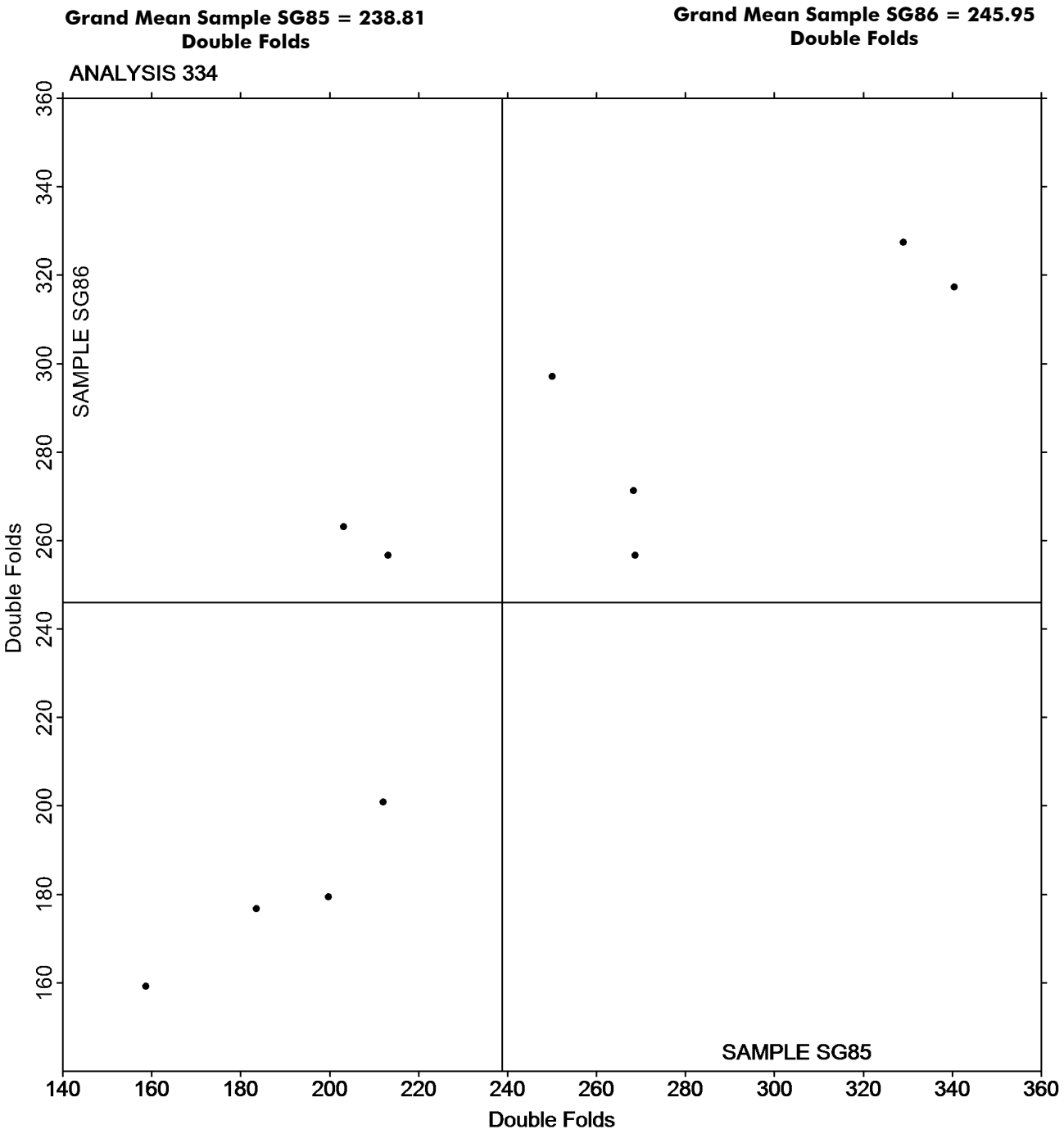
WebCode	Data Flag	Sample SG85 Lab Mean	Sample SG85 Diff from Grand Mean	Sample SG85 CPV	Sample SG86 Lab Mean	Sample SG86 Diff from Grand Mean	Sample SG86 CPV	Instr Code
4EB3EZ		340.5	101.7	1.74	317.3	71.3	1.22	MT
AQJ2GG		199.7	-39.1	-0.67	179.4	-66.6	-1.14	MT
B4P8FL		183.5	-55.3	-0.95	176.7	-69.3	-1.18	MT
BZKN9D		213.1	-25.7	-0.44	256.6	10.6	0.18	MT
FE9JC7		212.1	-26.7	-0.46	200.9	-45.1	-0.77	MT
HYL47C		329.0	90.2	1.55	327.4	81.4	1.39	MT
NZLXQD		268.3	29.5	0.51	271.2	25.2	0.43	MT
QPD2KD		268.7	29.9	0.51	256.6	10.6	0.18	MT
RYFN4X		158.7	-80.1	-1.37	159.2	-86.8	-1.48	MT
W4CWKZ		250.1	11.3	0.19	297.1	51.1	0.87	MT
XRT3H7		203.2	-35.6	-0.61	263.1	17.1	0.29	MT

Summary Statistics	Sample SG85	Sample SG86
Grand Means	238.81 Double Folds	245.95 Double Folds
Stnd Dev Btwn Labs	58.32 Double Folds	58.55 Double Folds

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

MT MIT - Tinius Olsen



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 336

Bending Resistance, Gurley Type

TAPPI Official Test Method T543

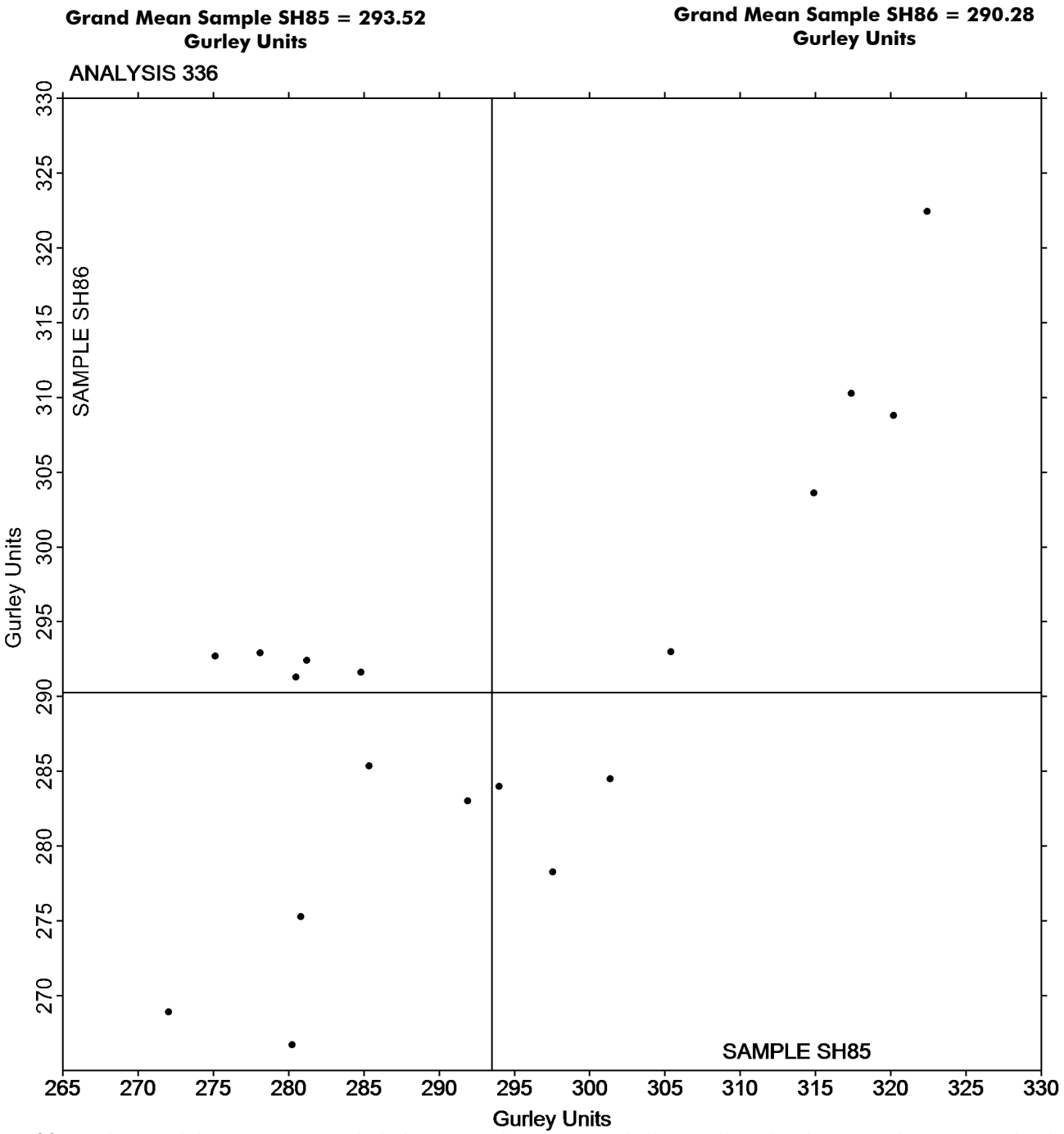
WebCode	Data Flag	Sample SH85 Lab Mean	Sample SH85 Diff from Grand Mean	Sample SH85 CPV	Sample SH86 Lab Mean	Sample SH86 Diff from Grand Mean	Sample SH86 CPV
7A6J6X		275.1	-18.4	-1.11	292.7	2.4	0.17
7UG9HV	X	135.2	-158.3	-9.59	125.7	-164.6	-11.45
8K77WU		291.9	-1.6	-0.10	283.0	-7.2	-0.50
B4P8FL		320.2	26.7	1.62	308.8	18.5	1.29
BPKBWJ		284.8	-8.7	-0.53	291.6	1.3	0.09
EPD8TJ		281.2	-12.3	-0.75	292.4	2.1	0.15
GGUJCM		294.0	0.5	0.03	284.0	-6.3	-0.44
HA6H9E		322.4	28.9	1.75	322.4	32.2	2.24
MRANGY		280.2	-13.3	-0.81	266.7	-23.6	-1.64
NXUYCE		317.4	23.9	1.44	310.3	20.0	1.39
NZLXQD		272.0	-21.5	-1.30	268.9	-21.4	-1.49
PUNZC7		280.8	-12.7	-0.77	275.3	-15.0	-1.04
QPD2KD		278.1	-15.4	-0.93	292.9	2.6	0.18
TYRXDA		280.5	-13.0	-0.79	291.3	1.0	0.07
U2BCGA		301.4	7.9	0.48	284.5	-5.8	-0.40
V3KL7Z		297.6	4.0	0.24	278.3	-12.0	-0.84
W4CWKZ		305.4	11.9	0.72	293.0	2.7	0.19
XRT3H7		314.9	21.4	1.29	303.6	13.3	0.93
Y6WRVX		285.4	-8.2	-0.49	285.4	-4.9	-0.34

Summary Statistics	Sample SH85	Sample SH86
Grand Means	293.52 Gurley Units	290.28 Gurley Units
Stnd Dev Btwn Labs	16.51 Gurley Units	14.37 Gurley Units

Statistics based on 18 of 19 reporting participants.

Comments on Assigned Data Flags for Test #336

7UG9HV (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

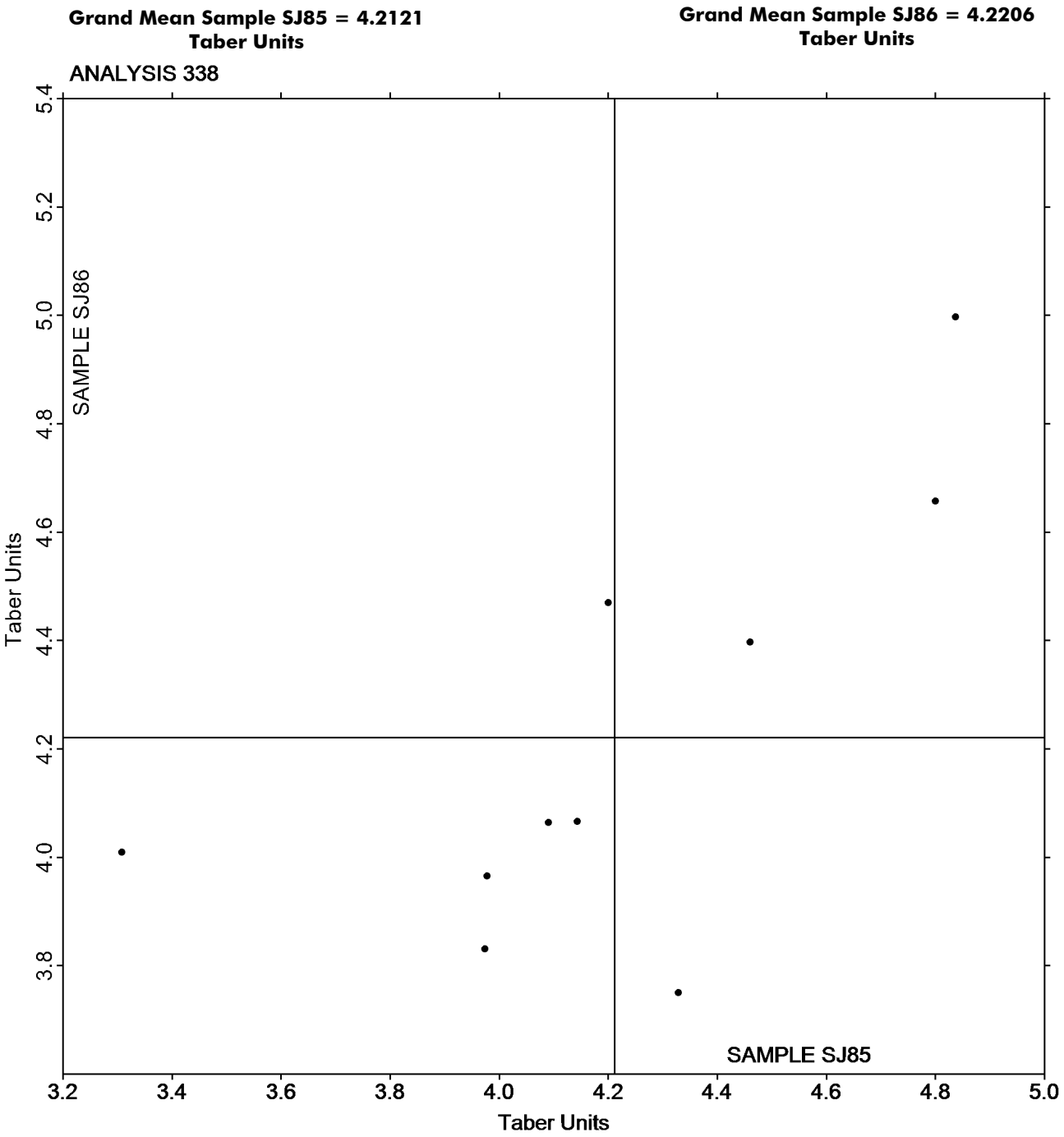
WebCode	Data Flag	Sample SJ85 Lab Mean	Sample SJ85 Diff from Grand Mean	Sample SJ85 CPV	Sample SJ86 Lab Mean	Sample SJ86 Diff from Grand Mean	Sample SJ86 CPV
6RETRR		4.329	0.117	0.26	3.750	-0.471	-1.19
FYXXTG		4.837	0.625	1.41	4.997	0.776	1.96
JQAEW7		4.800	0.588	1.33	4.657	0.436	1.10
LU6MKD		3.974	-0.238	-0.54	3.831	-0.390	-0.98
MDN9DY		4.200	-0.012	-0.03	4.470	0.249	0.63
NXUYCE		4.091	-0.121	-0.27	4.064	-0.157	-0.39
QPD2KD		4.460	0.248	0.56	4.397	0.176	0.44
U2BCGA		4.144	-0.069	-0.16	4.066	-0.155	-0.39
UCUVTT		3.308	-0.904	-2.04	4.009	-0.212	-0.53
VXBMD8		3.978	-0.234	-0.53	3.965	-0.256	-0.64

Summary Statistics	Sample SJ85	Sample SJ86
Grand Means	4.21 Taber Units	4.22 Taber Units
Stnd Dev Btwn Labs	0.44 Taber Units	0.40 Taber Units

Statistics based on 10 of 10 reporting participants.

Analysis Notes:

LU6MKD - Data appear to be reported as g-cm, not mN-m as indicated on data entry form. CTS will not correct the Units going forward.



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

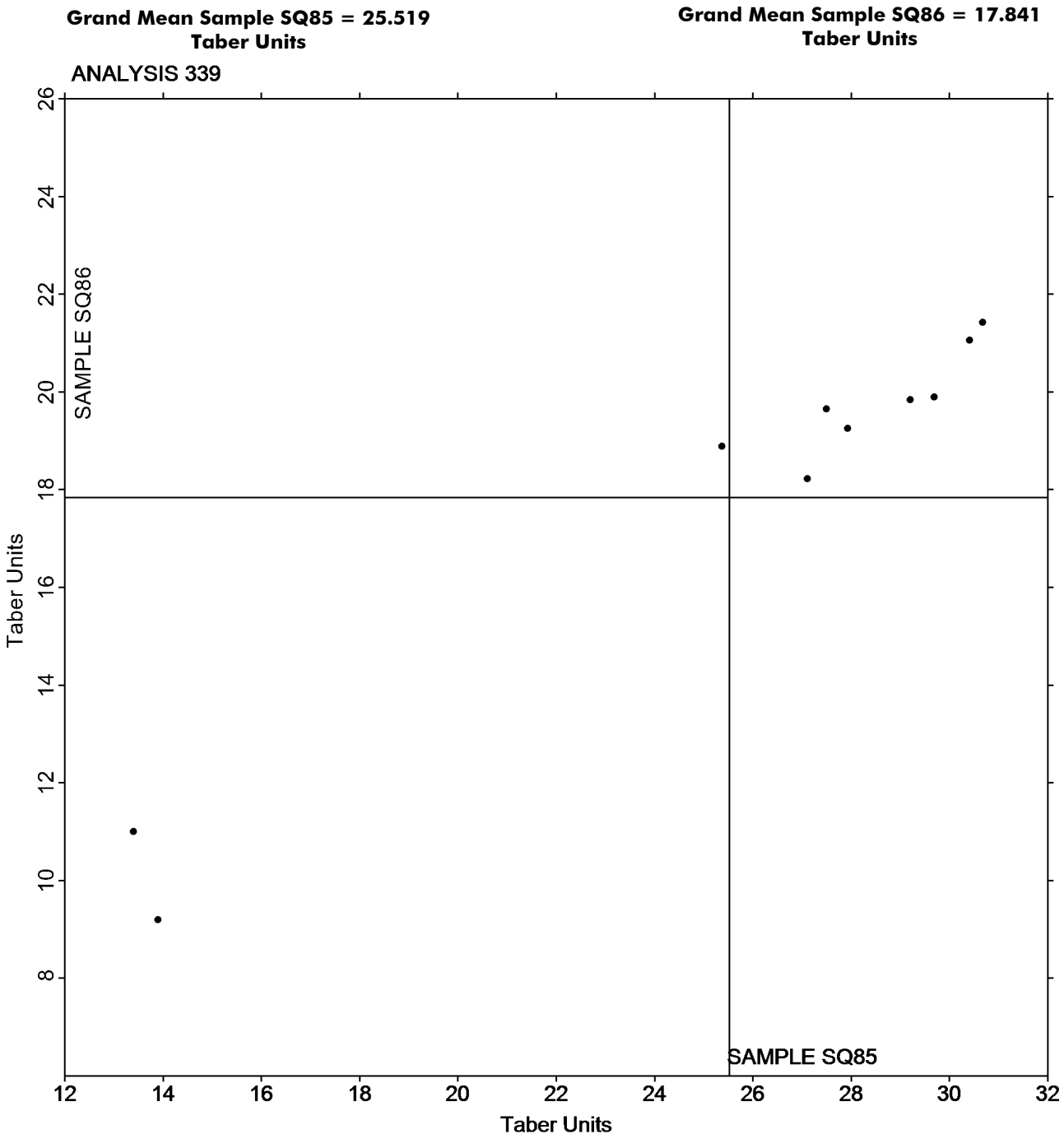
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ85 Lab Mean	Sample SQ85 Diff from Grand Mean	Sample SQ85 CPV	Sample SQ86 Lab Mean	Sample SQ86 Diff from Grand Mean	Sample SQ86 CPV
6WPY8Y		13.40	-12.12	-1.88	11.00	-6.84	-1.63
7FEHWQ		27.93	2.41	0.37	19.25	1.41	0.33
EQ3DAA		30.68	5.16	0.80	21.42	3.58	0.85
HYL47C		29.69	4.17	0.65	19.89	2.05	0.49
JYZY34		30.41	4.89	0.76	21.05	3.21	0.76
MRANGY		29.20	3.68	0.57	19.84	2.00	0.48
P2Q3G7		13.90	-11.62	-1.80	9.20	-8.64	-2.05
RU4YMA		27.50	1.98	0.31	19.65	1.81	0.43
WC4J8Q		27.11	1.59	0.25	18.22	0.38	0.09
ZH27VV		25.37	-0.15	-0.02	18.89	1.05	0.25

Summary Statistics	Sample SQ85	Sample SQ86
Grand Means	25.52 Taber Units	17.84 Taber Units
Stnd Dev Btwn Labs	6.46 Taber Units	4.21 Taber Units

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 340

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

TAPPI Official Test Method T489

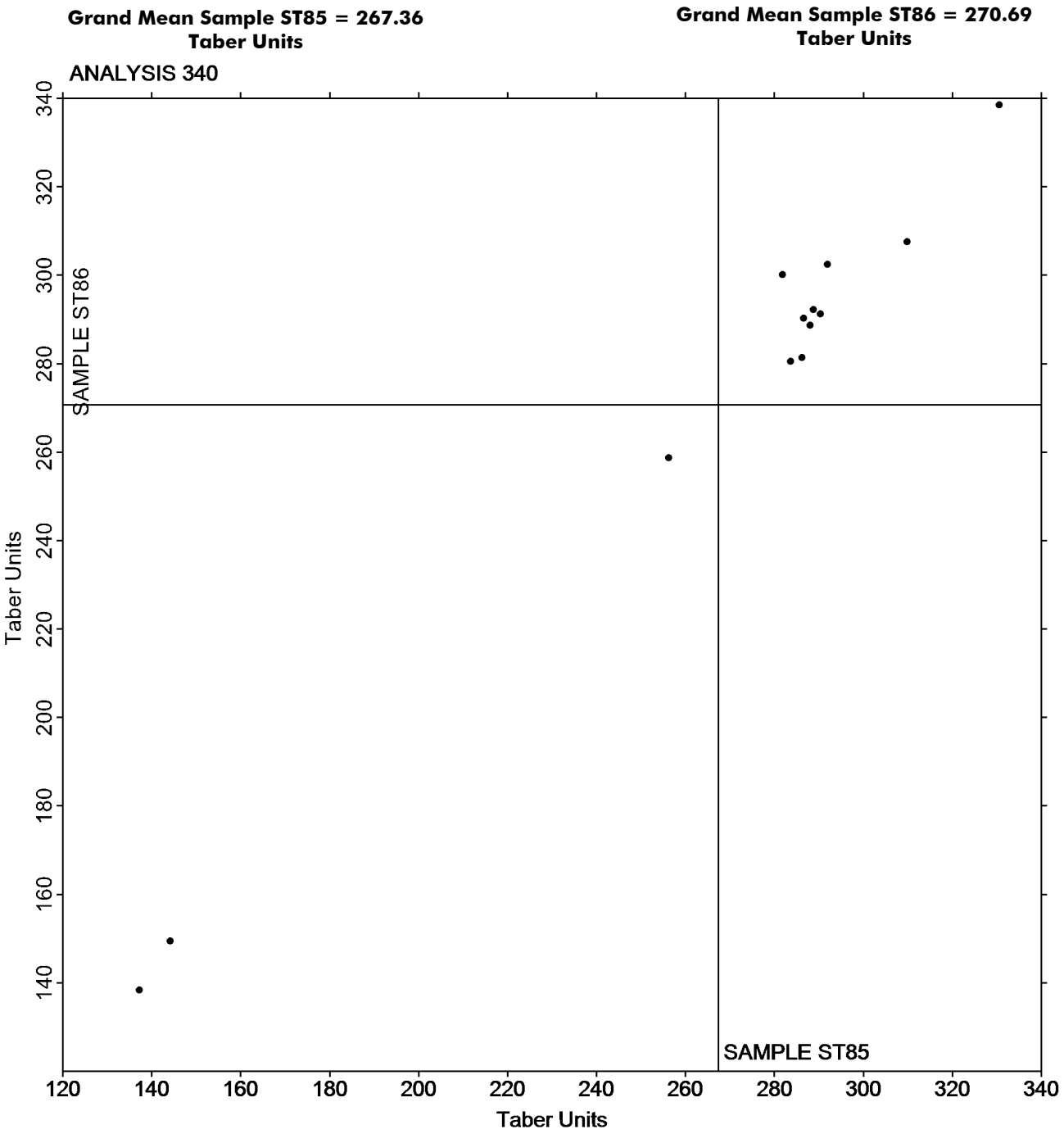
WebCode	Data Flag	Sample ST85 Lab Mean	Sample ST85 Diff from Grand Mean	Sample ST85 CPV	Sample ST86 Lab Mean	Sample ST86 Diff from Grand Mean	Sample ST86 CPV
3KFRAM		144.2	-123.2	-2.10	149.4	-121.3	-2.05
83LHHT		286.6	19.2	0.33	290.2	19.5	0.33
8EXT7H		330.5	63.1	1.08	338.5	67.8	1.15
9RVFBG		309.9	42.5	0.73	307.5	36.8	0.62
DDK6CK		286.2	18.8	0.32	281.4	10.7	0.18
HYL47C		292.0	24.6	0.42	302.4	31.7	0.54
MRANGY		288.8	21.5	0.37	292.2	21.5	0.36
NMTFTY		288.0	20.6	0.35	288.7	18.0	0.30
PWD7TW		290.4	23.0	0.39	291.2	20.5	0.35
RNWCU7		283.7	16.3	0.28	280.5	9.8	0.17
RYFN4X		281.8	14.4	0.25	300.1	29.4	0.50
UA4PD4	X	127.3	-140.1	-2.39	30.3	-240.4	-4.06
UXC2LA		256.3	-11.1	-0.19	258.7	-12.0	-0.20
XRT3H7		137.3	-130.1	-2.22	138.3	-132.4	-2.24

Summary Statistics	Sample ST85	Sample ST86
Grand Means	267.36 Taber Units	270.69 Taber Units
Stnd Dev Btwn Labs	58.62 Taber Units	59.17 Taber Units

Statistics based on 13 of 14 reporting participants.

Comments on Assigned Data Flags for Test #340

UA4PD4 (X) - Data for sample ST86 are low.



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 SM85 Lab Mean	Sample SM85 Diff from Grand Mean	Sample SM85 CPV	Sample SM86 Lab Mean	Sample SM86 Diff from Grand Mean	Sample SM86 CPV	Instr Code
37YT6L		75.80	1.70	0.17	84.60	-8.36	-0.55	TA
7FEHWQ		78.28	4.18	0.43	94.04	1.08	0.07	TA
CKQHFA		76.80	2.70	0.28	99.20	6.24	0.41	DX
DDK6CK	*	44.47	-29.63	-3.01	56.79	-36.18	-2.38	LW
EQ3DAA		77.80	3.70	0.38	110.76	17.80	1.17	CD
HTHA34		86.40	12.30	1.25	122.40	29.44	1.94	DT
HYL47C		74.84	0.74	0.08	102.26	9.30	0.61	LW
JYZY34		76.90	2.80	0.29	98.16	5.20	0.34	TA
QPD2KD		73.92	-0.18	-0.02	84.32	-8.64	-0.57	CD
RYFN4X		69.48	-4.62	-0.47	79.68	-13.28	-0.88	LW
UCUVTT		82.92	8.83	0.90	93.25	0.29	0.02	TL
UTH7FV		69.50	-4.59	-0.47	88.27	-4.69	-0.31	LW
W3YCRQ		69.92	-4.18	-0.43	92.38	-0.58	-0.04	DX
ZH27VV		80.33	6.23	0.63	95.35	2.38	0.16	LW

Summary Statistics	Sample SM85	Sample SM86
Grand Means	74.10 psi	92.96 psi
Stnd Dev Btwn Labs	9.83 psi	15.18 psi

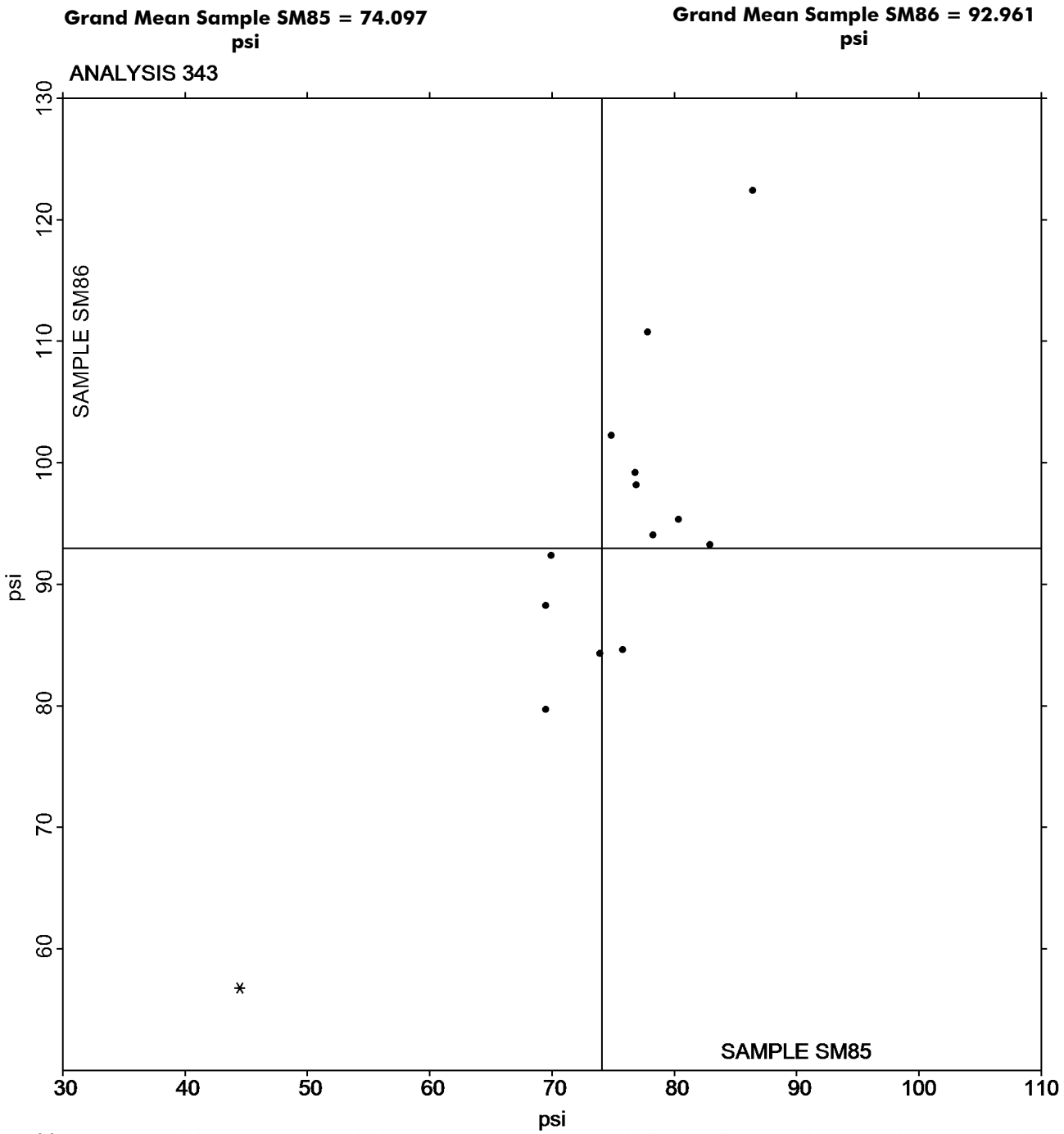
Statistics based on 14 of 14 reporting participants.

Analysis Notes:

UCUVTT - One determination removed from the Lab Mean of Sample SM86 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

CD	CSI CS-163D	DT	Dek-Tron DCS-163A ZDT Tester
DX	Dek-Tron XP2 Series	LW	L & W ZD Tensile Tester
TA	Thwing-Albert Tensile Tester	TL	TMI Lab Master



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 345
Z-Direction Tensile, Recycled Paperboard
TAPPI Official Test Method T541

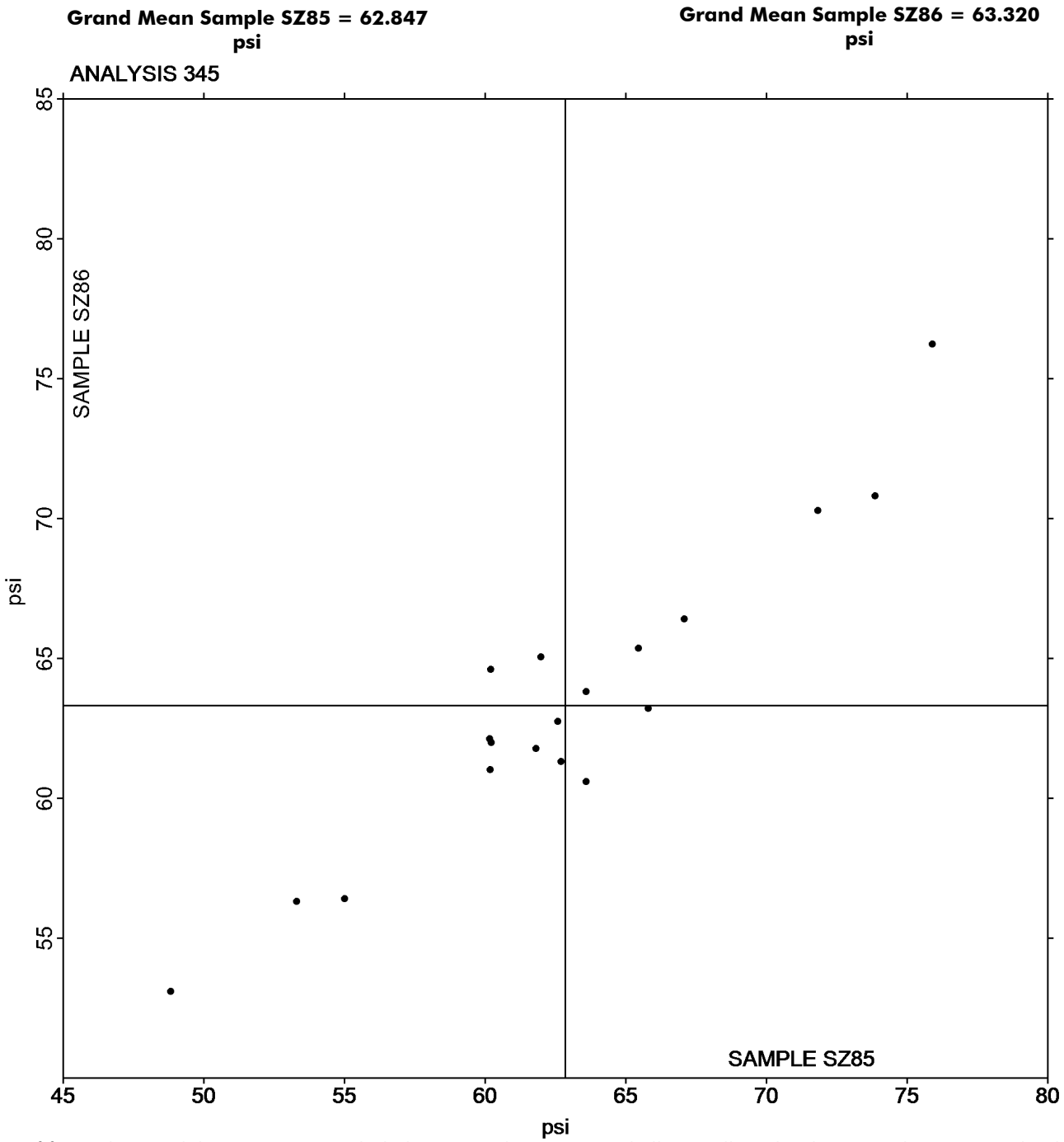
WebCode	Data Flag	Sample SZ85 Lab Mean	Sample SZ85 Diff from Grand Mean	Sample SZ85 CPV	Sample SZ86 Lab Mean	Sample SZ86 Diff from Grand Mean	Sample SZ86 CPV	Instr Code
3BUM3M		62.58	-0.27	-0.04	62.74	-0.58	-0.11	XX
3KFRAM		65.45	2.60	0.39	65.37	2.05	0.38	CH
3VFAT3		55.00	-7.85	-1.19	56.40	-6.92	-1.29	CA
42L4MX		73.86	11.01	1.67	70.80	7.48	1.40	LW
7PHWDH		71.84	8.99	1.36	70.29	6.97	1.30	CH
83LHHT		48.82	-14.03	-2.12	53.10	-10.22	-1.91	TA
CQTPVD		61.82	-1.03	-0.16	61.78	-1.54	-0.29	TA
HYL47C		53.30	-9.55	-1.44	56.30	-7.02	-1.31	LW
K4CXFH		60.22	-2.63	-0.40	61.98	-1.34	-0.25	LW
LRH4JF		67.09	4.24	0.64	66.40	3.08	0.58	LW
MLJD8Z		63.60	0.75	0.11	60.60	-2.72	-0.51	CA
MRANGY		60.18	-2.67	-0.40	61.02	-2.30	-0.43	CA
NMTFTY		60.16	-2.69	-0.41	62.12	-1.20	-0.22	CD
PWD7TW		63.60	0.75	0.11	63.80	0.48	0.09	TA
QBWAW7		62.70	-0.15	-0.02	61.30	-2.02	-0.38	DP
RJLE3D		61.98	-0.87	-0.13	65.04	1.72	0.32	DP
RNWCU7		60.20	-2.65	-0.40	64.60	1.28	0.24	CA
UA4PD4		75.90	13.05	1.97	76.24	12.92	2.42	TA
XRT3H7		65.80	2.95	0.45	63.20	-0.12	-0.02	CA

Summary Statistics	Sample SZ85	Sample SZ86
Grand Means	62.85 psi	63.32 psi
Stnd Dev Btwn Labs	6.61 psi	5.35 psi

Statistics based on 19 of 19 reporting participants.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
CH	Chatillon Ametek	DP	Dek-Tron XP Series
LW	L & W ZD Tensile Tester	TA	Thwing-Albert Tensile Tester
XX	Instrument make/model not specified by lab		



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SN85 Lab Mean	Sample SN85 Diff from Grand Mean	Sample SN85 CPV	Sample SN86 Lab Mean	Sample SN86 Diff from Grand Mean	Sample SN86 CPV	Instr Code
7FEHWQ		134.4	1.9	0.18	167.0	11.2	0.80	HZ
B4P8FL		125.0	-7.5	-0.74	165.4	9.6	0.69	HY
EPD8TJ		142.6	10.1	0.99	167.4	11.6	0.83	HZ
EQ3DAA		145.8	13.3	1.31	153.6	-2.2	-0.16	HY
HYL47C		136.4	3.9	0.38	157.2	1.4	0.10	HY
JYZY34		135.4	2.9	0.28	166.6	10.8	0.77	HY
NXUYCE		143.2	10.6	1.05	148.9	-6.9	-0.50	KR
RYFN4X	*	106.0	-26.5	-2.62	116.8	-39.0	-2.79	HZ
V3KL7Z		131.8	-0.7	-0.07	153.4	-2.4	-0.17	HY
W8FVT8		126.6	-5.9	-0.59	156.2	0.4	0.03	HY
XRT3H7		129.6	-2.9	-0.29	147.6	-8.2	-0.59	HZ
Y6WRVX		131.2	-1.3	-0.13	154.8	-1.0	-0.07	HY
Y7QHYR		135.0	2.5	0.24	170.6	14.8	1.06	HZ

Summary Statistics	Sample SN85	Sample SN86
Grand Means	132.54 1000th ft-lbs	155.81 1000th ft-lbs
Stnd Dev Btwn Labs	10.12 1000th ft-lbs	13.96 1000th ft-lbs

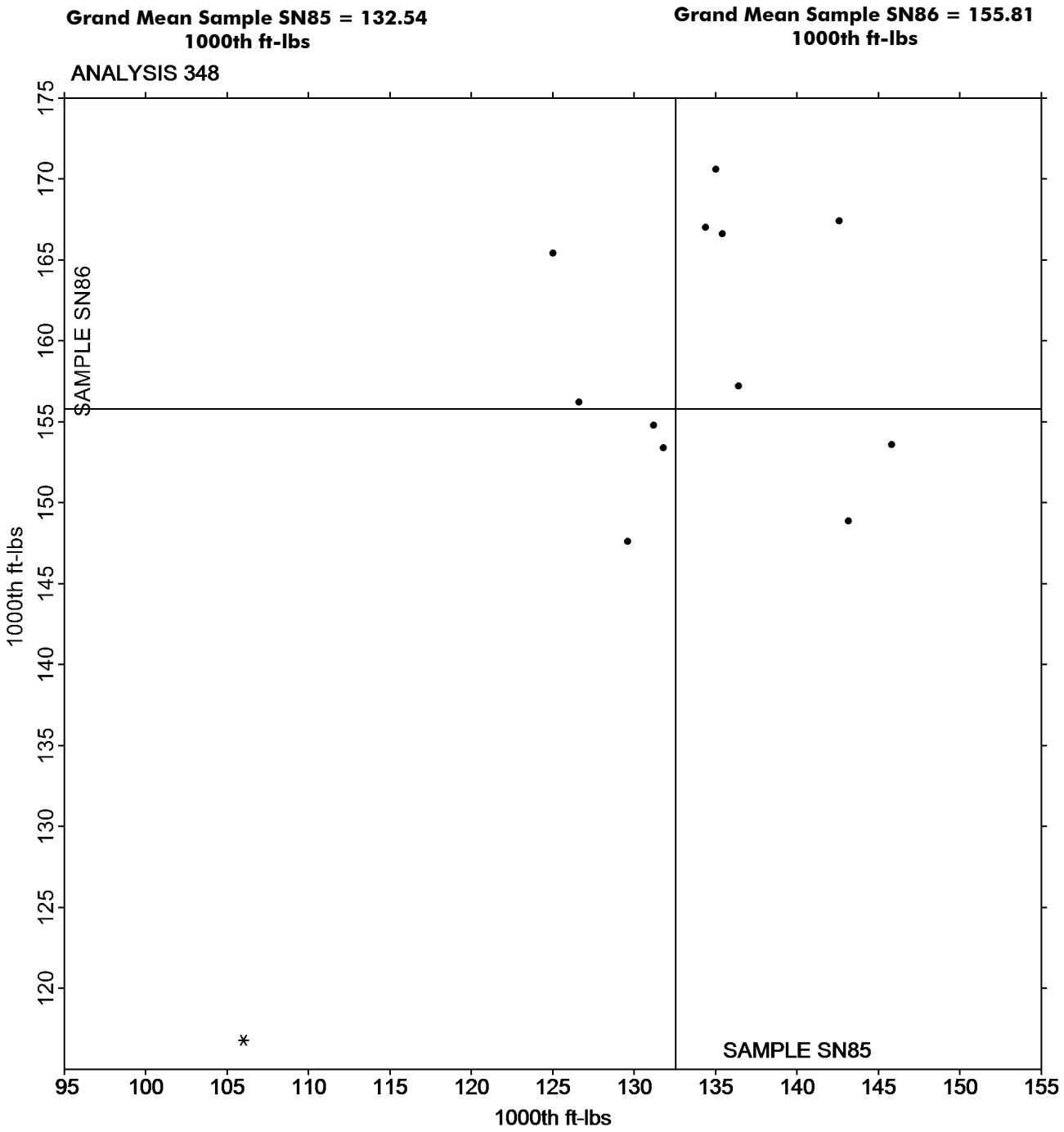
Statistics based on 13 of 13 reporting participants.

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 SP85 Lab Mean	Sample SP85 Diff from Grand Mean	Sample SP85 CPV	Sample SP86 Lab Mean	Sample SP86 Diff from Grand Mean	Sample SP86 CPV	Instr Code
7PHWDH		105.0	-16.3	-1.23	125.2	-24.8	-0.64	TM
A4QPXQ		130.4	9.1	0.68	172.0	22.0	0.57	SC
A86JEN		127.1	5.8	0.44	120.6	-29.4	-0.76	TM
BP6WMP	*	125.6	4.3	0.32	249.6	99.6	2.57	SC
CQTPVD		107.0	-14.3	-1.08	117.0	-33.0	-0.85	SC
DDK6CK		105.0	-16.3	-1.22	115.1	-34.9	-0.90	TM
LU6MKD		114.0	-7.3	-0.55	134.0	-16.0	-0.41	SC
PK4N3E		122.8	1.5	0.11	144.6	-5.4	-0.14	XX
QF86WA		138.4	17.1	1.28	188.8	38.8	1.00	SC
RU4YMA		145.6	24.3	1.83	167.8	17.9	0.46	XX
U2BCGA		132.1	10.8	0.81	165.2	15.2	0.39	TM
UCEC9W		115.5	-5.8	-0.44	134.2	-15.8	-0.41	TM
ZKT2H4		108.6	-12.7	-0.96	115.5	-34.4	-0.89	XX

Summary Statistics	Sample SP85	Sample SP86
Grand Means	121.32 1000th ft-lbs	149.97 1000th ft-lbs
Stnd Dev Btwn Labs	13.30 1000th ft-lbs	38.70 1000th ft-lbs

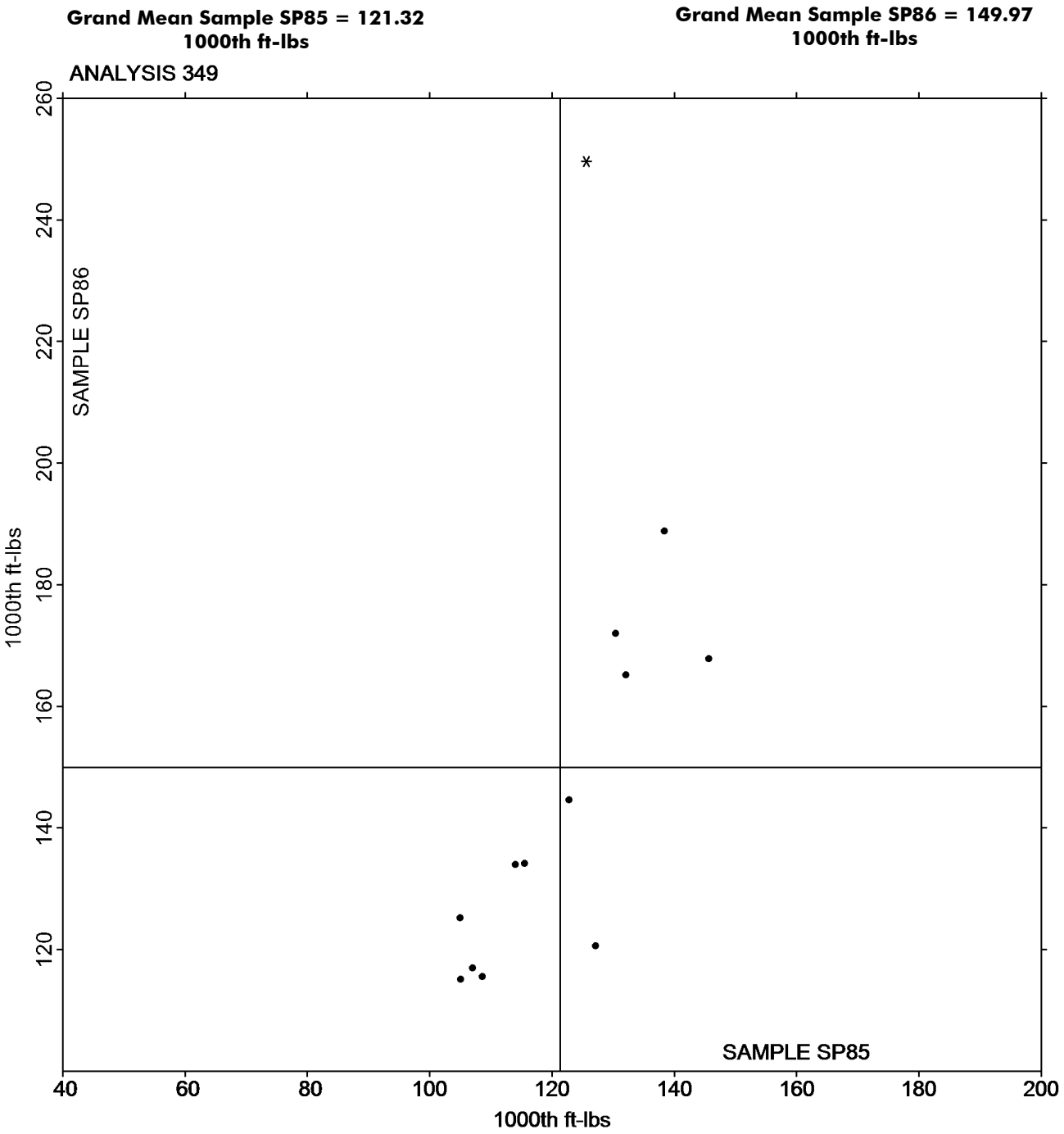
Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

SC Scott Internal Bond Tester (Manual)

TM TMI Monitor/Internal Bond Tester

XX Instrument make/model not specified by lab



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

-End of Report-

