Paper & Paperboard Testing Program

Summary Report #3101 S - January 2021

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

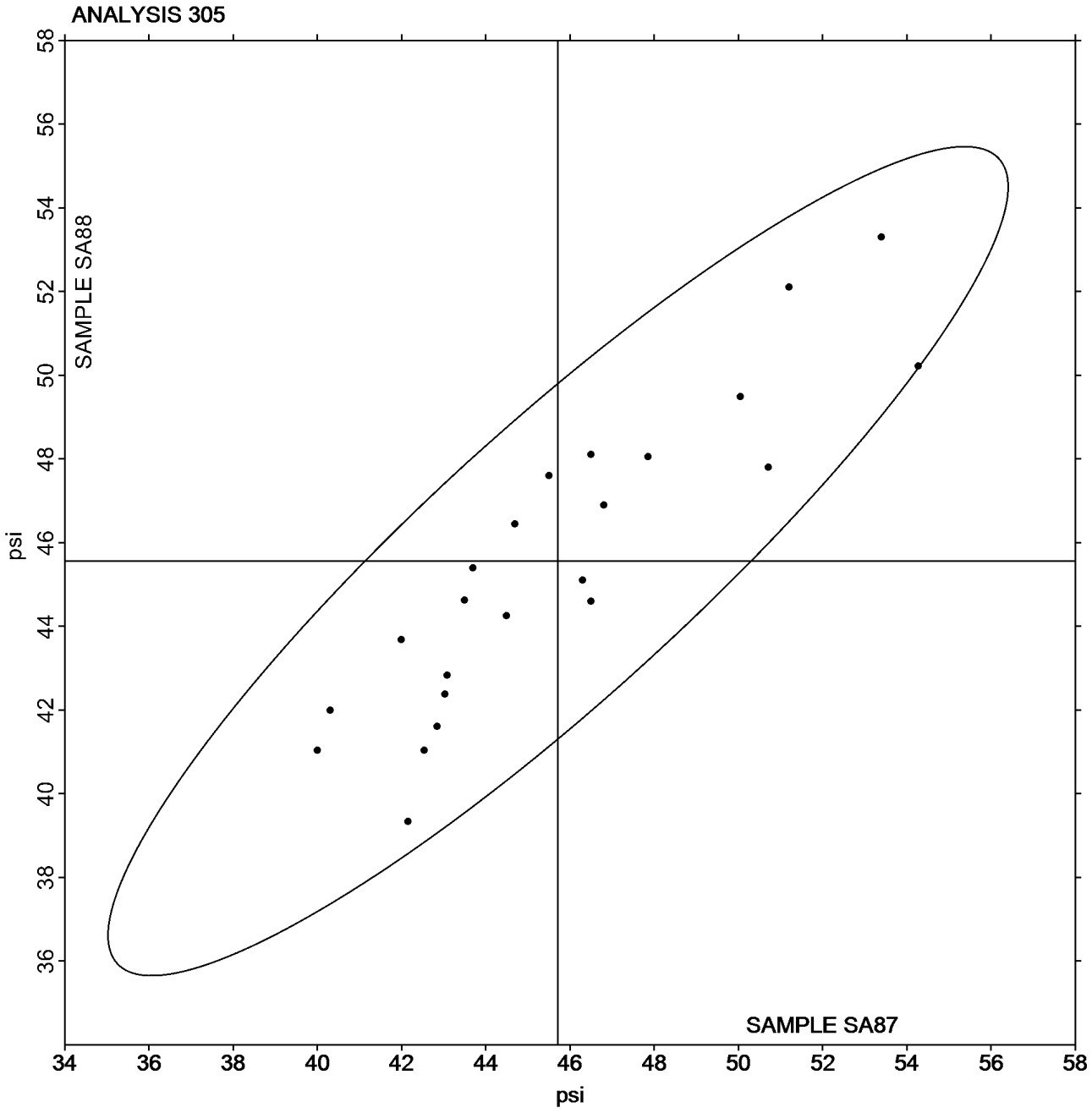
WebCode	Data Flag	Sample SA87 Lab Mean	Sample SA87 Diff from Grand Mean	Sample SA87 CPV	Sample SA88 Lab Mean	Sample SA88 Diff from Grand Mean	Sample SA88 CPV
24JL4F		40.00	-5.71	-1.44	41.03	-4.53	-1.23
2JWYDZ		47.86	2.15	0.54	48.05	2.49	0.68
2RR472		44.50	-1.22	-0.31	44.25	-1.31	-0.36
3R4DFD		43.03	-2.68	-0.68	42.38	-3.18	-0.87
3VKKVZ		42.00	-3.72	-0.94	43.69	-1.87	-0.51
4JM4GJ		46.50	0.79	0.20	44.60	-0.96	-0.26
4PPDNC		54.27	8.55	2.16	50.22	4.65	1.27
8EJ8NU		44.69	-1.02	-0.26	46.45	0.89	0.24
9JNPZR		45.50	-0.21	-0.05	47.60	2.04	0.56
B8MWN7		40.30	-5.41	-1.37	42.00	-3.56	-0.97
BVCCJR		42.84	-2.87	-0.72	41.61	-3.95	-1.07
BXHUHN		53.40	7.69	1.94	53.30	7.74	2.11
CZNJHB		46.80	1.09	0.27	46.90	1.34	0.36
DFAJN2		50.05	4.34	1.09	49.49	3.93	1.07
E77QWL		43.70	-2.01	-0.51	45.40	-0.16	-0.04
J77GQW		50.71	4.99	1.26	47.80	2.24	0.61
JKLFXJ		42.15	-3.56	-0.90	39.33	-6.23	-1.69
LD2YHE		46.50	0.79	0.20	48.10	2.54	0.69
MGVF8D		42.54	-3.17	-0.80	41.03	-4.53	-1.23
UJVWK9		43.08	-2.64	-0.66	42.83	-2.73	-0.74
Y2H3J2		51.20	5.49	1.38	52.10	6.54	1.78
YJXCK3		43.49	-2.22	-0.56	44.62	-0.94	-0.26
Z6YU7N		46.30	0.59	0.15	45.10	-0.46	-0.13

Summary Statistics	Sample SA87	Sample SA88
Grand Means	45.71 psi	45.56 psi
Stnd Dev Btwn Labs	3.97 psi	3.67 psi

Statistics based on 23 of 23 reporting participants.

Grand Mean Sample SA87 = 45.713 psi

Grand Mean Sample SA88 = 45.560 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

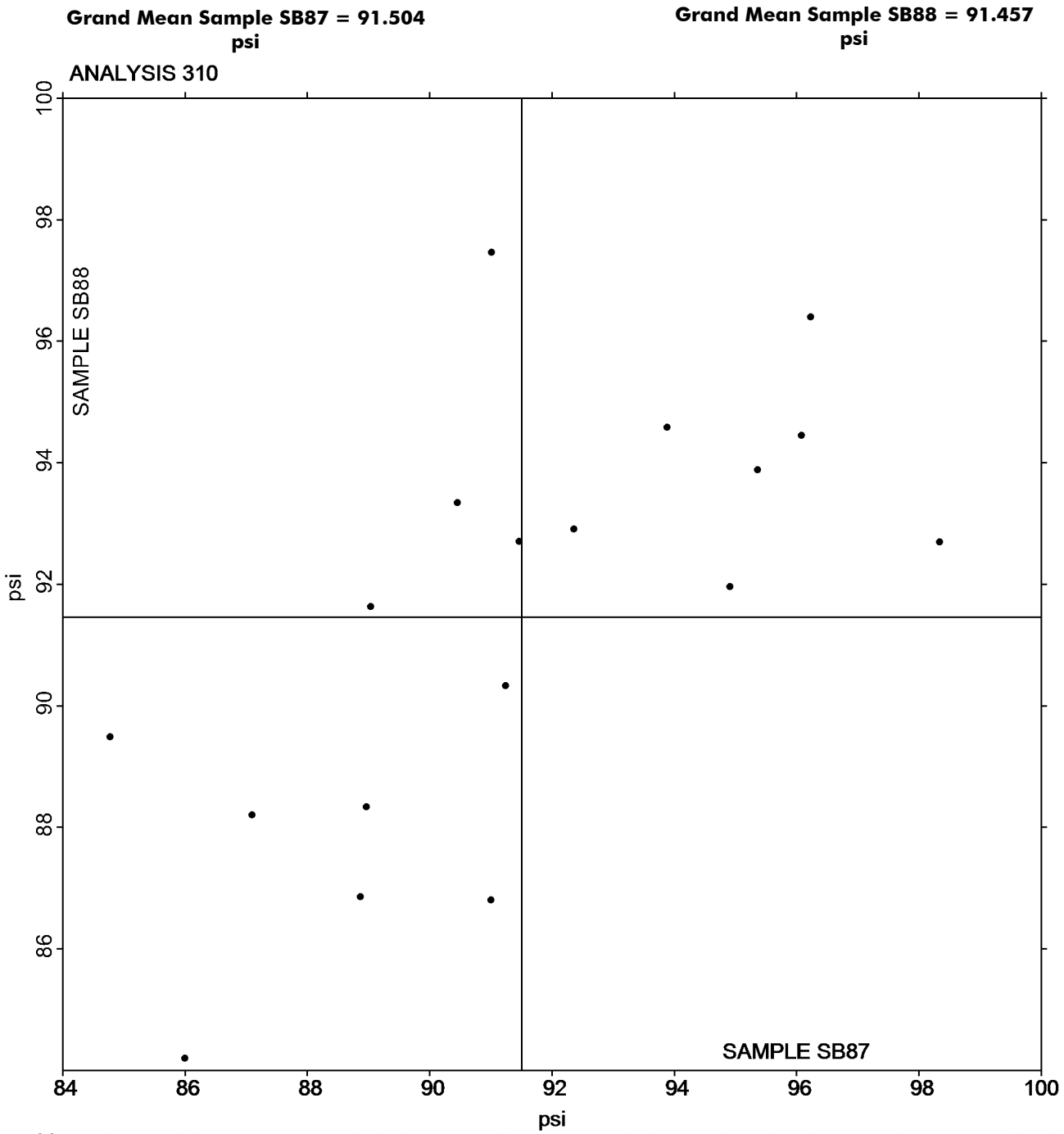
WebCode	Data Flag	Sample SB87 Lab Mean	Sample SB87 Diff from Grand Mean	Sample SB87 CPV	Sample SB88 Lab Mean	Sample SB88 Diff from Grand Mean	Sample SB88 CPV
6VUAAW		98.34	6.83	1.82	92.69	1.24	0.35
6XY22A		95.36	3.86	1.03	93.88	2.43	0.68
97NNMQ		88.96	-2.54	-0.68	88.33	-3.12	-0.88
AC8EK7		89.04	-2.47	-0.66	91.64	0.18	0.05
AF7PG6		86.00	-5.50	-1.47	84.20	-7.26	-2.04
BXG4B6		91.00	-0.50	-0.13	86.80	-4.66	-1.31
DFAJN2		91.01	-0.49	-0.13	97.46	6.00	1.69
H3C2ZX		91.46	-0.04	-0.01	92.70	1.24	0.35
HYDP6X		87.10	-4.40	-1.17	88.20	-3.26	-0.92
J798WF		84.78	-6.73	-1.79	89.49	-1.97	-0.55
JBWRZV		92.36	0.86	0.23	92.91	1.45	0.41
RERDAB		96.23	4.73	1.26	96.40	4.94	1.39
V823N6		94.91	3.41	0.91	91.96	0.51	0.14
VK9TNR		96.08	4.58	1.22	94.45	2.99	0.84
VPGBN7		88.87	-2.64	-0.70	86.86	-4.60	-1.29
WJ8EFQ		93.88	2.38	0.63	94.58	3.12	0.88
XRZ82P		91.24	-0.27	-0.07	90.33	-1.13	-0.32
YJXCK3		90.45	-1.05	-0.28	93.34	1.88	0.53

Summary Statistics	Sample SB87	Sample SB88
Grand Means	91.50 psi	91.46 psi
Stnd Dev Btwn Labs	3.75 psi	3.56 psi

Statistics based on 18 of 18 reporting participants.

Analysis Notes:

VK9TNR - Data appear to be reported as psi, not kPa 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 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC87 Lab Mean	Sample SC87 Diff from Grand Mean	Sample SC87 CPV	Sample SC88 Lab Mean	Sample SC88 Diff from Grand Mean	Sample SC88 CPV
24JL4F		60.12	-1.19	-0.24	61.56	0.70	0.15
2JWYDZ		62.43	1.12	0.23	62.04	1.18	0.25
2RR472		68.45	7.14	1.44	65.72	4.86	1.04
3TFZ7E		55.53	-5.78	-1.16	54.00	-6.86	-1.47
4JM4GJ		66.17	4.86	0.98	66.43	5.57	1.19
4PPDNC		62.12	0.81	0.16	62.80	1.94	0.41
6GBNMH		53.96	-7.35	-1.48	53.90	-6.96	-1.49
6VUAAW		61.39	0.08	0.02	61.26	0.40	0.09
6XY22A		60.13	-1.18	-0.24	60.35	-0.51	-0.11
84ELY7		56.20	-5.11	-1.03	55.42	-5.44	-1.16
8EJ8NU		58.70	-2.61	-0.53	57.50	-3.36	-0.72
8R97FW		61.95	0.64	0.13	61.76	0.90	0.19
97NNMQ		67.30	5.99	1.20	67.50	6.63	1.42
9JNPZR		65.99	4.68	0.94	64.25	3.39	0.72
B8MWN7		66.55	5.24	1.05	66.83	5.97	1.28
BT9FZP	X	49.00	-12.31	-2.48	53.89	-6.97	-1.49
BXHUHN		62.00	0.69	0.14	61.50	0.64	0.14
C42JGN		60.70	-0.61	-0.12	60.80	-0.06	-0.01
EUAK4N		51.00	-10.31	-2.07	50.80	-10.06	-2.15
FQ9VZL		62.44	1.13	0.23	61.76	0.90	0.19
FQJXLK		54.65	-6.66	-1.34	52.94	-7.92	-1.69
H3C2ZX		57.00	-4.31	-0.87	56.58	-4.28	-0.91
HKRA2Y		57.54	-3.77	-0.76	56.96	-3.90	-0.83
HYDP6X		52.34	-8.97	-1.80	53.55	-7.31	-1.56
JKLFXJ		68.23	6.92	1.39	65.45	4.59	0.98
JNNCPY		68.40	7.09	1.43	67.80	6.94	1.48
JRMMKY		55.64	-5.67	-1.14	55.02	-5.84	-1.25
MGVF8D		64.96	3.65	0.73	63.45	2.59	0.55
N37ZFX		62.30	0.99	0.20	63.90	3.04	0.65
PG64LA	X	86.48	25.17	5.06	84.53	23.67	5.06
Q8FQ4P		63.60	2.29	0.46	61.90	1.04	0.22
QC7AYT		67.59	6.28	1.26	65.27	4.41	0.94
RERDAB		57.24	-4.07	-0.82	56.54	-4.32	-0.92
RKHNJA		54.91	-6.40	-1.29	57.12	-3.74	-0.80
RMLFBM		72.16	10.84	2.18	70.55	9.69	2.07
U3B6LA		57.98	-3.33	-0.67	58.58	-2.28	-0.49
UJVWK9		64.93	3.62	0.73	65.43	4.57	0.98
V6A4A8		61.79	0.48	0.10	60.16	-0.70	-0.15
WJ8EFQ		60.55	-0.76	-0.15	60.17	-0.69	-0.15
XM4HKH		57.14	-4.17	-0.84	56.04	-4.82	-1.03

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC87 Lab Mean	Sample SC87 Diff from Grand Mean	Sample SC87 CPV	Sample SC88 Lab Mean	Sample SC88 Diff from Grand Mean	Sample SC88 CPV
Y2H3J2		60.80	-0.51	-0.10	61.30	0.44	0.09
YJXCK3		63.64	2.33	0.47	63.91	3.05	0.65
Z37YJF		68.26	6.94	1.40	66.43	5.57	1.19
Z6YU7N		60.30	-1.01	-0.20	60.90	0.04	0.01

Summary Statistics	Sample SC87	Sample SC88
Grand Means	61.31 Grams	60.86 Grams
Stnd Dev Btwn Labs	4.97 Grams	4.68 Grams

Statistics based on 42 of 44 reporting participants.

Comments on Assigned Data Flags for Test #312

PG64LA (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

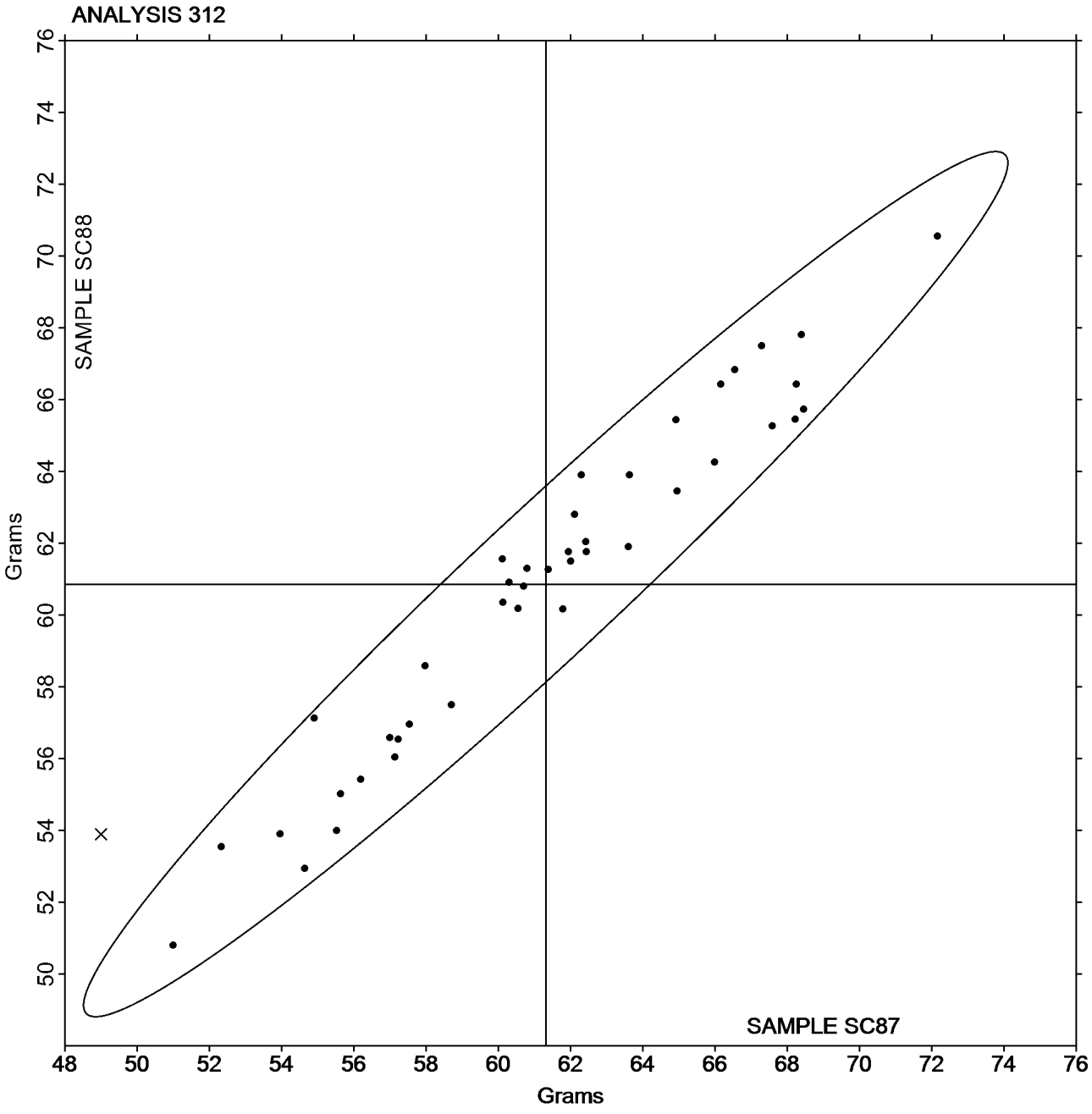
BT9FZP (X) - Inconsistent in testing between samples.

Analysis Notes:

BXHUHN - Data appear to be off by a factor of .5; data converted by CTS (x2). CTS will not correct the data going forward.

Grand Mean Sample SC87 = 61.311 Grams

Grand Mean Sample SC88 = 60.860 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD87 Lab Mean	Sample SD87 Diff from Grand Mean	Sample SD87 CPV	Sample SD88 Lab Mean	Sample SD88 Diff from Grand Mean	Sample SD88 CPV
3A9LVF		172.1	8.0	0.57	222.4	-5.7	-0.19
3KZGLF	M	169.8	5.8	0.41	No data reported for this sample		
3R4DFD		173.6	9.5	0.68	241.1	13.0	0.43
3TFZ7E		137.3	-26.7	-1.90	149.9	-78.2	-2.57
48WAAV		168.6	4.5	0.32	232.8	4.7	0.15
6J6C9Y		161.6	-2.4	-0.17	198.6	-29.6	-0.97
7D7HLG		188.9	24.9	1.77	279.0	50.9	1.67
8R97FW		165.8	1.8	0.13	225.3	-2.9	-0.09
8W4XNT		173.8	9.7	0.69	245.2	17.0	0.56
97NNMQ		175.3	11.3	0.80	240.0	11.9	0.39
AC8EK7		160.1	-3.9	-0.28	227.1	-1.0	-0.03
AF7PG6		160.0	-4.0	-0.29	211.6	-16.5	-0.54
BBT8YN		176.9	12.8	0.91	248.0	19.9	0.65
DFAJN2	X	229.7	65.7	4.66	234.9	6.8	0.22
E77QWL	X	205.0	40.9	2.90	248.8	20.7	0.68
EBFZ74		161.0	-3.1	-0.22	226.4	-1.7	-0.06
J6X6BG	*	137.2	-26.9	-1.91	230.4	2.3	0.07
J798WF		159.4	-4.7	-0.33	234.6	6.5	0.21
JBWRZV		172.5	8.5	0.60	260.8	32.7	1.07
K7ZMKW		147.3	-16.7	-1.19	170.7	-57.4	-1.89
M4CKZU		183.2	19.2	1.36	259.8	31.7	1.04
M8CWWU		178.9	14.9	1.06	225.3	-2.8	-0.09
MTACCG		179.6	15.6	1.10	251.2	23.1	0.76
MXJQUF		167.3	3.2	0.23	210.9	-17.2	-0.57
PGQRPQ		152.5	-11.6	-0.82	209.9	-18.3	-0.60
PK4H8E		174.5	10.4	0.74	266.2	38.1	1.25
QCTFLD		174.9	10.8	0.77	286.5	58.3	1.92
QVHYCQ		162.7	-1.3	-0.09	233.3	5.1	0.17
QVJNJ9		150.7	-13.4	-0.95	228.7	0.5	0.02
TBQP69		148.8	-15.2	-1.08	195.8	-32.3	-1.06
TNAE3Q		130.8	-33.2	-2.36	189.4	-38.8	-1.27
V823N6		164.5	0.5	0.03	246.3	18.2	0.60
VDLZCT		168.5	4.5	0.32	218.6	-9.5	-0.31
VK9TNR		132.9	-31.2	-2.21	166.0	-62.1	-2.04
VPGBN7		152.4	-11.6	-0.83	203.2	-24.9	-0.82
VQELHN		157.9	-6.1	-0.43	204.9	-23.3	-0.77
W9QJLK		167.8	3.7	0.26	253.8	25.6	0.84
X27RNR		184.7	20.7	1.47	258.7	30.6	1.01
XRZ82P		175.0	10.9	0.78	260.8	32.7	1.07
Y2H3J2		162.7	-1.3	-0.10	191.6	-36.5	-1.20

Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD87 Lab Mean	Sample SD87 Diff from Grand Mean	Sample SD87 CPV	Sample SD88 Lab Mean	Sample SD88 Diff from Grand Mean	Sample SD88 CPV
YJXCK3		164.7	0.6	0.04	238.6	10.5	0.34
Z7V2XF		171.4	7.4	0.52	253.9	25.8	0.85

Summary Statistics	Sample SD87	Sample SD88
Grand Means	164.04 Grams	228.13 Grams
Stnd Dev Btwn Labs	14.09 Grams	30.41 Grams

Statistics based on 39 of 42 reporting participants.

Comments on Assigned Data Flags for Test #314

E77QWL (X) - Data for sample SD87 are high.

DFAJN2 (X) - Data for sample SD87 are high. Inconsistent within the determinations of sample SD87.

3KZGLF (M) - Participant did not submit data for sample SD88.

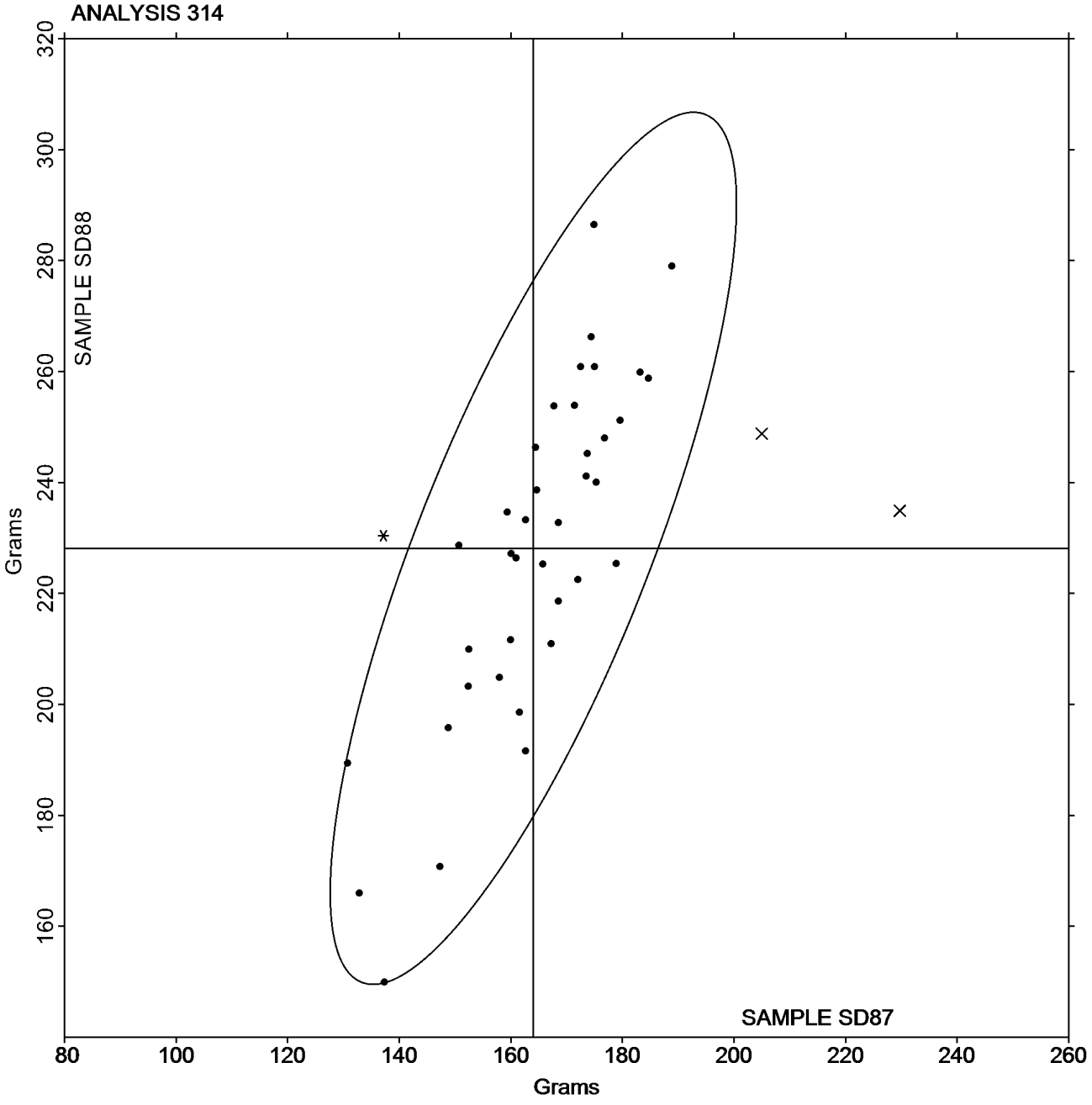
Analysis Notes:

6J6C9Y - Data appear to be transposed between samples. Switched by CTS.

AF7PG6 - Data appear to be off by a factor of .25; data converted by CTS (x4). CTS will not correct the data going forward.

Grand Mean Sample SD87 = 164.04 Grams

Grand Mean Sample SD88 = 228.13 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

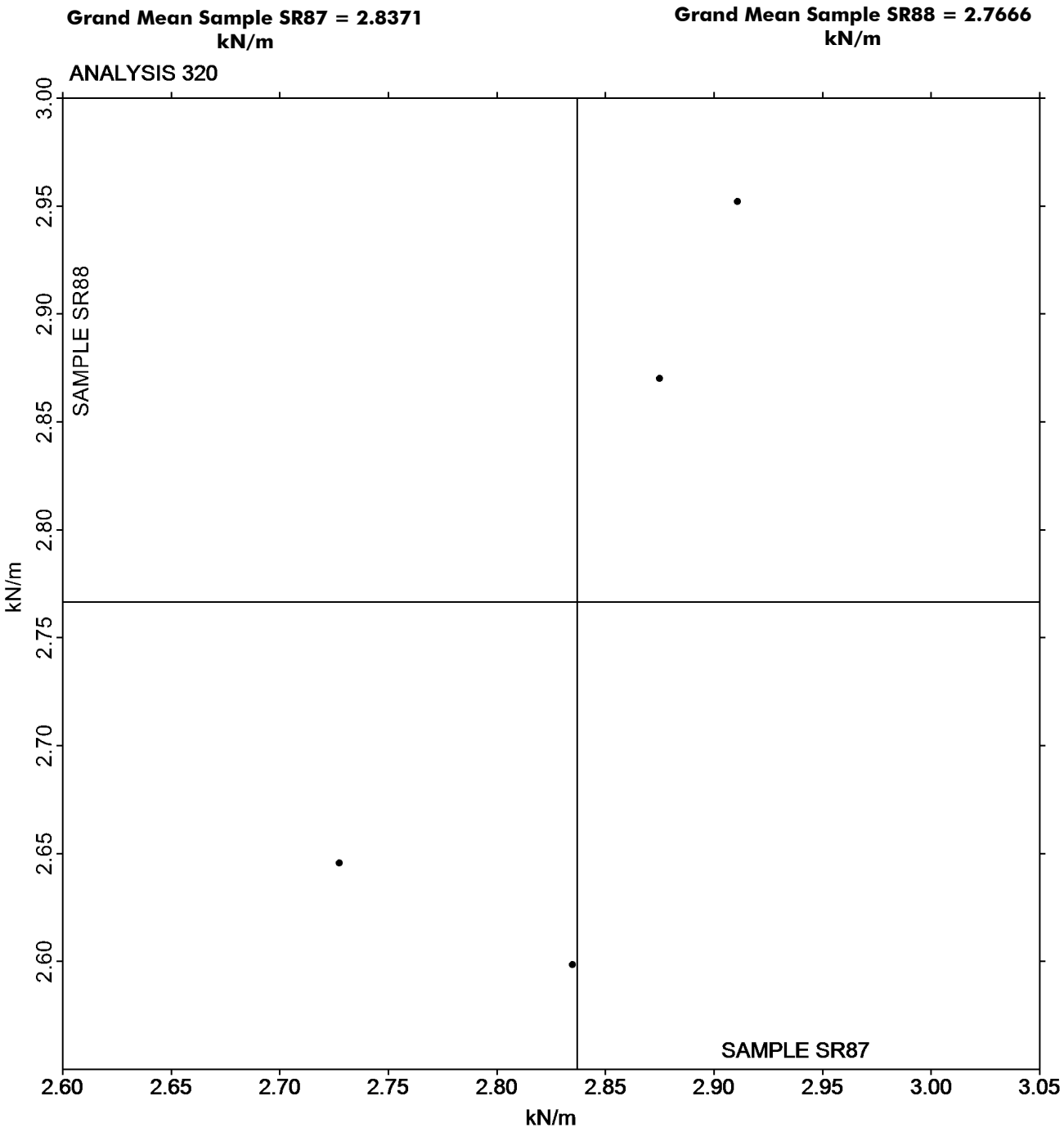
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR87 Lab Mean	Sample SR87 Diff from Grand Mean	Sample SR87 CPV	Sample SR88 Lab Mean	Sample SR88 Diff from Grand Mean	Sample SR88 CPV
3VKKVZ		2.728	-0.110	-1.38	2.646	-0.121	-0.71
8R97FW		2.875	0.038	0.48	2.870	0.103	0.60
TBQP69		2.835	-0.002	-0.03	2.599	-0.168	-0.98
Z6YU7N		2.911	0.074	0.93	2.952	0.186	1.08

Summary Statistics	Sample SR87	Sample SR88
Grand Means	2.84 kN/m	2.77 kN/m
Stnd Dev Btwn Labs	0.08 kN/m	0.17 kN/m

Statistics based on 4 of 4 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

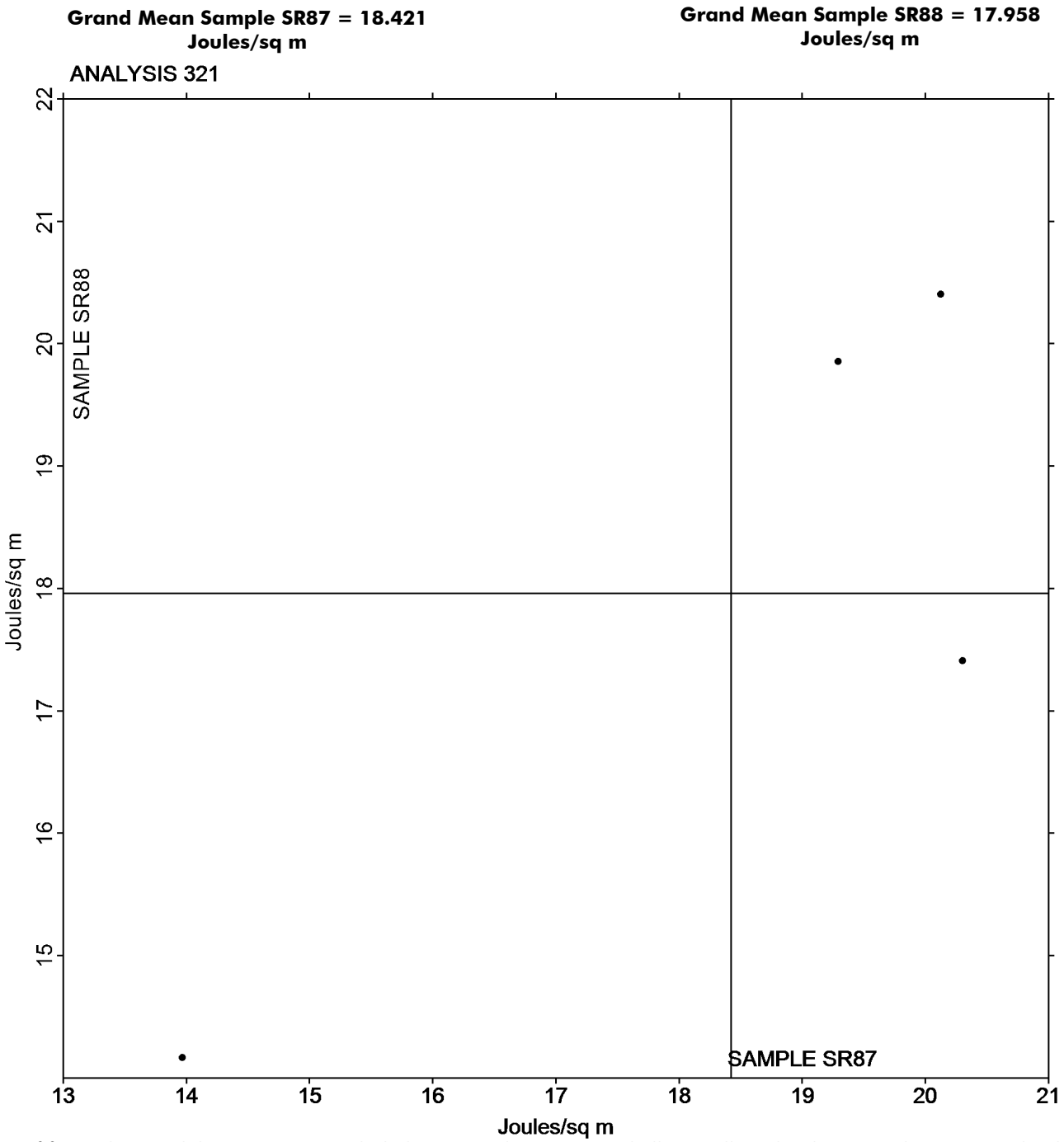
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR87 Lab Mean	Sample SR87 Diff from Grand Mean	Sample SR87 CPV	Sample SR88 Lab Mean	Sample SR88 Diff from Grand Mean	Sample SR88 CPV
3VKKVZ		13.97	-4.45	-1.48	14.17	-3.79	-1.33
8R97FW		19.29	0.87	0.29	19.85	1.89	0.67
TBQP69		20.30	1.88	0.63	17.41	-0.55	-0.19
Z6YU7N		20.12	1.70	0.57	20.40	2.44	0.86

Summary Statistics	Sample SR87	Sample SR88
Grand Means	18.42 Joules/sq m	17.96 Joules/sq m
Stnd Dev Btwn Labs	3.00 Joules/sq m	2.84 Joules/sq m

Statistics based on 4 of 4 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

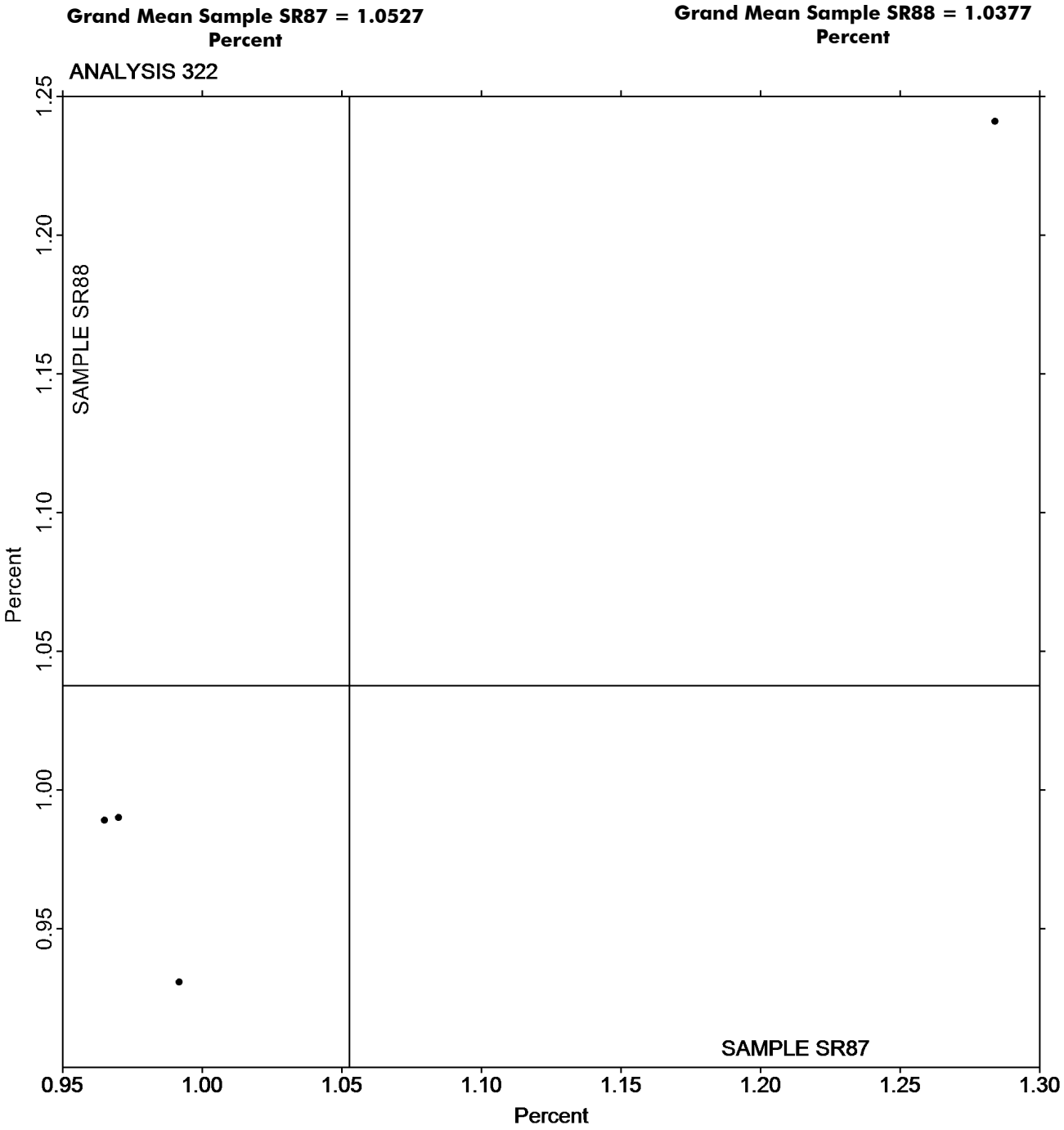
Elongation to Break - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR87 Lab Mean	Sample SR87 Diff from Grand Mean	Sample SR87 CPV	Sample SR88 Lab Mean	Sample SR88 Diff from Grand Mean	Sample SR88 CPV
3VKKVZ		0.992	-0.061	-0.39	0.931	-0.107	-0.77
8R97FW		0.965	-0.088	-0.57	0.989	-0.049	-0.35
TBQP69		1.284	0.231	1.50	1.241	0.203	1.47
Z6YU7N		0.970	-0.083	-0.53	0.990	-0.048	-0.34

Summary Statistics	Sample SR87	Sample SR88
Grand Means	1.05 Percent	1.04 Percent
Stnd Dev Btwn Labs	0.15 Percent	0.14 Percent

Statistics based on 4 of 4 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 SF87 Lab Mean	Sample SF87 Diff from Grand Mean	Sample SF87 CPV	Sample SF88 Lab Mean	Sample SF88 Diff from Grand Mean	Sample SF88 CPV	Instr Code
24JL4F		6.596	-0.270	-0.61	6.751	-0.166	-0.38	TB
2JWYDZ		7.110	0.243	0.55	6.994	0.076	0.17	TP
2RR472		6.503	-0.363	-0.82	6.419	-0.498	-1.13	LF
3TFZ7E		7.293	0.427	0.97	7.047	0.129	0.29	IM
48WAAV		6.662	-0.204	-0.46	6.629	-0.288	-0.65	LI
4JM4GJ		6.798	-0.069	-0.16	6.815	-0.102	-0.23	TV
4PPDNC		6.926	0.060	0.14	6.826	-0.092	-0.21	LX
6GBNMH		6.615	-0.251	-0.57	6.874	-0.043	-0.10	TB
6XL9NV		6.738	-0.128	-0.29	6.747	-0.171	-0.39	LA
6XY22A		6.540	-0.326	-0.74	6.490	-0.427	-0.97	LH
7FXEBB		7.208	0.341	0.77	7.252	0.334	0.76	CS
84ELY7	*	7.797	0.931	2.11	8.073	1.156	2.61	XX
8EJ8NU		7.539	0.673	1.53	7.655	0.737	1.67	TJ
9JNPZR		6.642	-0.225	-0.51	6.566	-0.351	-0.80	LH
B8MWN7		6.249	-0.617	-1.40	6.376	-0.541	-1.23	IN
BGTQWD	*	5.552	-1.314	-2.98	5.745	-1.173	-2.65	RE
BT9FZP		7.239	0.373	0.85	7.259	0.342	0.77	LX
BVCCJR		6.902	0.035	0.08	7.147	0.229	0.52	LH
BXHUHN		6.614	-0.253	-0.57	6.748	-0.169	-0.38	TO
C42JGN	X	6.322	-0.544	-1.23	7.054	0.137	0.31	TC
EUAK4N		6.786	-0.080	-0.18	7.048	0.130	0.29	FP
FQ9VZL		6.407	-0.459	-1.04	6.591	-0.326	-0.74	LE
FQJXLK		7.281	0.415	0.94	7.147	0.229	0.52	LI
H3C2ZX		7.424	0.557	1.26	7.443	0.525	1.19	TF
HKRA2Y		6.907	0.041	0.09	6.925	0.007	0.02	TO
J77GQW		6.514	-0.352	-0.80	6.639	-0.278	-0.63	LH
JKLFXJ		6.600	-0.266	-0.60	6.575	-0.342	-0.77	LI
JRMMKY		7.170	0.303	0.69	7.354	0.436	0.99	TO
KCBDCH		7.016	0.150	0.34	7.147	0.230	0.52	FP
KK2YHF		6.043	-0.824	-1.87	6.153	-0.764	-1.73	ID
MGVF8D		7.030	0.163	0.37	6.895	-0.023	-0.05	LH
PG64LA		7.240	0.373	0.85	7.429	0.511	1.16	LB
QC7AYT		6.390	-0.476	-1.08	6.315	-0.602	-1.36	TO
RKHNJA		7.594	0.727	1.65	7.536	0.618	1.40	VM
RMLFBM		7.189	0.323	0.73	7.299	0.382	0.86	LA
U3B6LA		6.644	-0.223	-0.51	6.812	-0.106	-0.24	TF
UJVWK9		7.119	0.253	0.57	7.039	0.121	0.27	LX
V6A4A8		7.006	0.140	0.32	7.036	0.119	0.27	LI
WJ8EFQ		6.515	-0.351	-0.80	6.472	-0.445	-1.01	LI
XM4HKH		7.419	0.553	1.25	7.510	0.593	1.34	LH

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF87 Lab Mean	Sample SF87 Diff from Grand Mean	Sample SF87 CPV	Sample SF88 Lab Mean	Sample SF88 Diff from Grand Mean	Sample SF88 CPV	Instr Code
YBQHNN		6.934	0.068	0.15	6.962	0.044	0.10	TV
YJXCK3		6.771	-0.096	-0.22	6.881	-0.037	-0.08	LH

Summary Statistics	Sample SF87	Sample SF88
Grand Means	6.87 kN/m	6.92 kN/m
Stnd Dev Btwn Labs	0.44 kN/m	0.44 kN/m

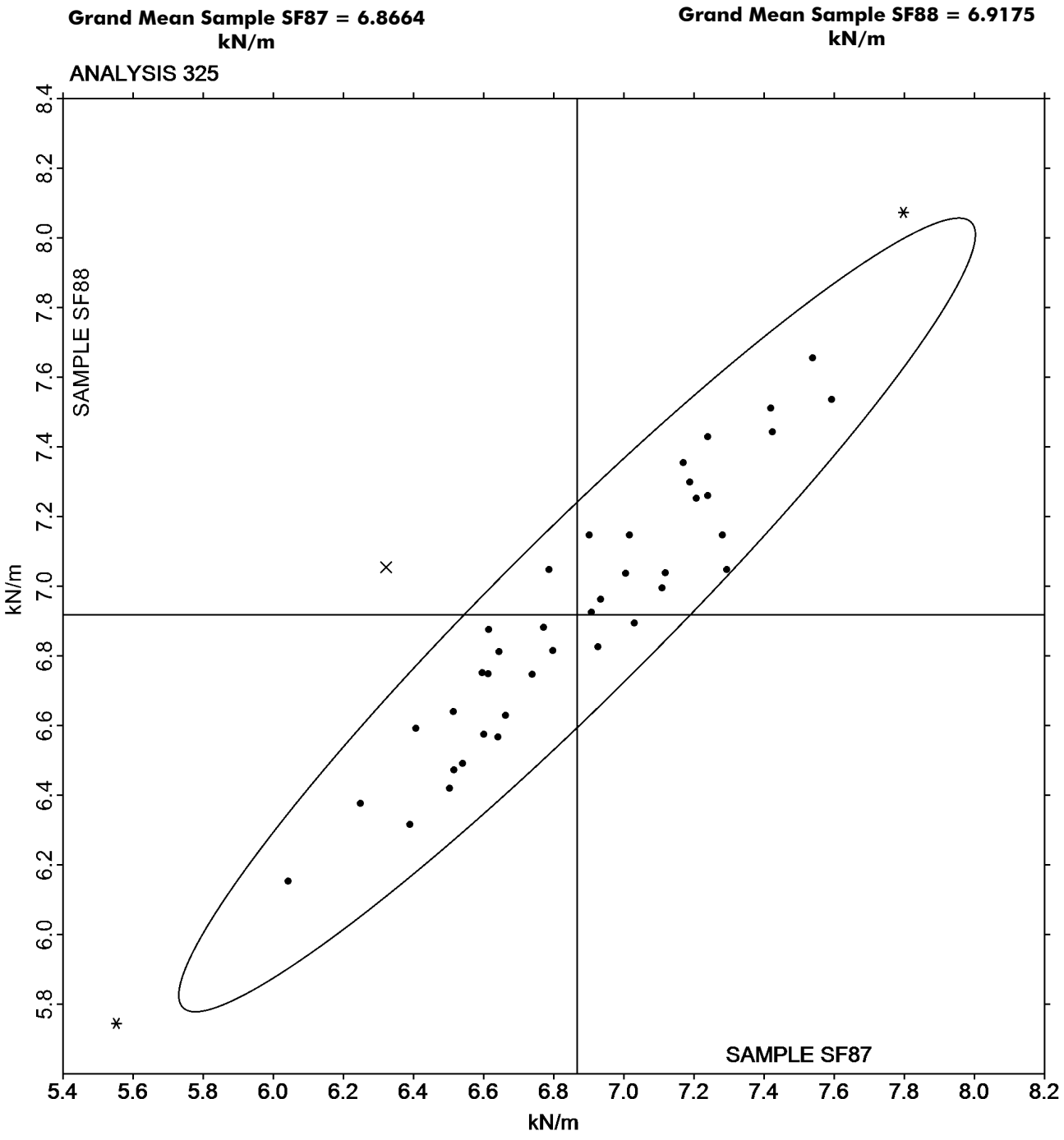
Statistics based on 41 of 42 reporting participants.

Comments on Assigned Data Flags for Test #325

C42JGN (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

CS	Chatillon CS1100 Series Force Tester	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
IN	Instron 3340 series	LA	L & W Tensile - Autoline 300
LB	L & W Tensile - Autoline 400	LE	L & W Tensile Tester 066
LF	L & W Tensile/Fracture Toughness Tester SE 064	LH	L & W Alwetron TH1 (Horizontal) SE 060/065F
LI	L & W Tensile Tester SE 062	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TC	Thwing-Albert Electro-Hydraulic, Model 30LT	TF	Thwing-Albert EJA Vantage-1
TJ	Thwing-Albert QC II-XS	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	TV	Thwing-Albert Vantage NX
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF87 Lab Mean	Sample SF87 Diff from Grand Mean	Sample SF87 CPV	Sample SF88 Lab Mean	Sample SF88 Diff from Grand Mean	Sample SF88 CPV	Instr Code
24JL4F		100.35	6.56	0.73	105.78	10.90	1.08	TB
2JWYDZ		87.01	-6.78	-0.75	88.11	-6.77	-0.67	TP
2RR472		90.48	-3.31	-0.37	86.41	-8.47	-0.84	LF
48WAAV		91.59	-2.19	-0.24	89.40	-5.47	-0.54	LI
4JM4GJ		108.07	14.28	1.58	109.31	14.44	1.43	TV
4PPDNC		92.79	-1.00	-0.11	91.63	-3.25	-0.32	LX
6XL9NV		105.02	11.23	1.24	102.76	7.88	0.78	LA
6XY22A		93.60	-0.19	-0.02	95.22	0.34	0.03	LH
7FXEBB		107.11	13.33	1.48	115.03	20.15	2.00	XX
84ELY7		91.74	-2.05	-0.23	97.79	2.92	0.29	XX
9JNPZR		90.67	-3.11	-0.34	87.14	-7.74	-0.77	LH
B8MWN7		96.55	2.76	0.31	91.32	-3.56	-0.35	IN
BGTQWD		82.01	-11.78	-1.31	89.51	-5.37	-0.53	RE
BT9FZP		97.77	3.99	0.44	93.75	-1.13	-0.11	LX
BVCCJR		93.45	-0.34	-0.04	96.69	1.82	0.18	LH
BXHUHN		95.70	1.91	0.21	98.64	3.76	0.37	TO
FQJXLK		71.85	-21.94	-2.43	69.82	-25.06	-2.49	LX
H3C2ZX		84.70	-9.08	-1.01	83.71	-11.16	-1.11	TF
HKRA2Y		105.22	11.44	1.27	108.43	13.56	1.35	TO
JKLFXJ		84.24	-9.55	-1.06	78.91	-15.97	-1.59	LI
JRMMKY		88.00	-5.78	-0.64	91.50	-3.37	-0.33	TO
KCBDCH		110.80	17.01	1.88	114.34	19.46	1.93	FP
KK2YHF		82.24	-11.55	-1.28	87.06	-7.82	-0.78	ID
MGVF8D		97.64	3.85	0.43	97.82	2.95	0.29	LH
PG64LA		95.43	1.64	0.18	100.16	5.28	0.52	LB
QC7AYT		96.76	2.97	0.33	93.84	-1.04	-0.10	TO
RMLFBM		89.20	-4.59	-0.51	97.87	2.99	0.30	LA
UJVWK9		99.08	5.29	0.59	95.85	0.97	0.10	LX
V6A4A8		84.17	-9.62	-1.07	91.26	-3.61	-0.36	LI
WJ8EFQ		86.07	-7.72	-0.85	82.53	-12.35	-1.23	LI
XM4HKH		87.77	-6.02	-0.67	89.62	-5.26	-0.52	LH
YBQHNN		111.10	17.31	1.92	111.21	16.33	1.62	TV
YJXCK3		96.78	2.99	0.33	98.52	3.64	0.36	LH

Summary Statistics	Sample SF87	Sample SF88
Grand Means	93.79 Joules/sq m	94.88 Joules/sq m
Stnd Dev Btwn Labs	9.03 Joules/sq m	10.07 Joules/sq m

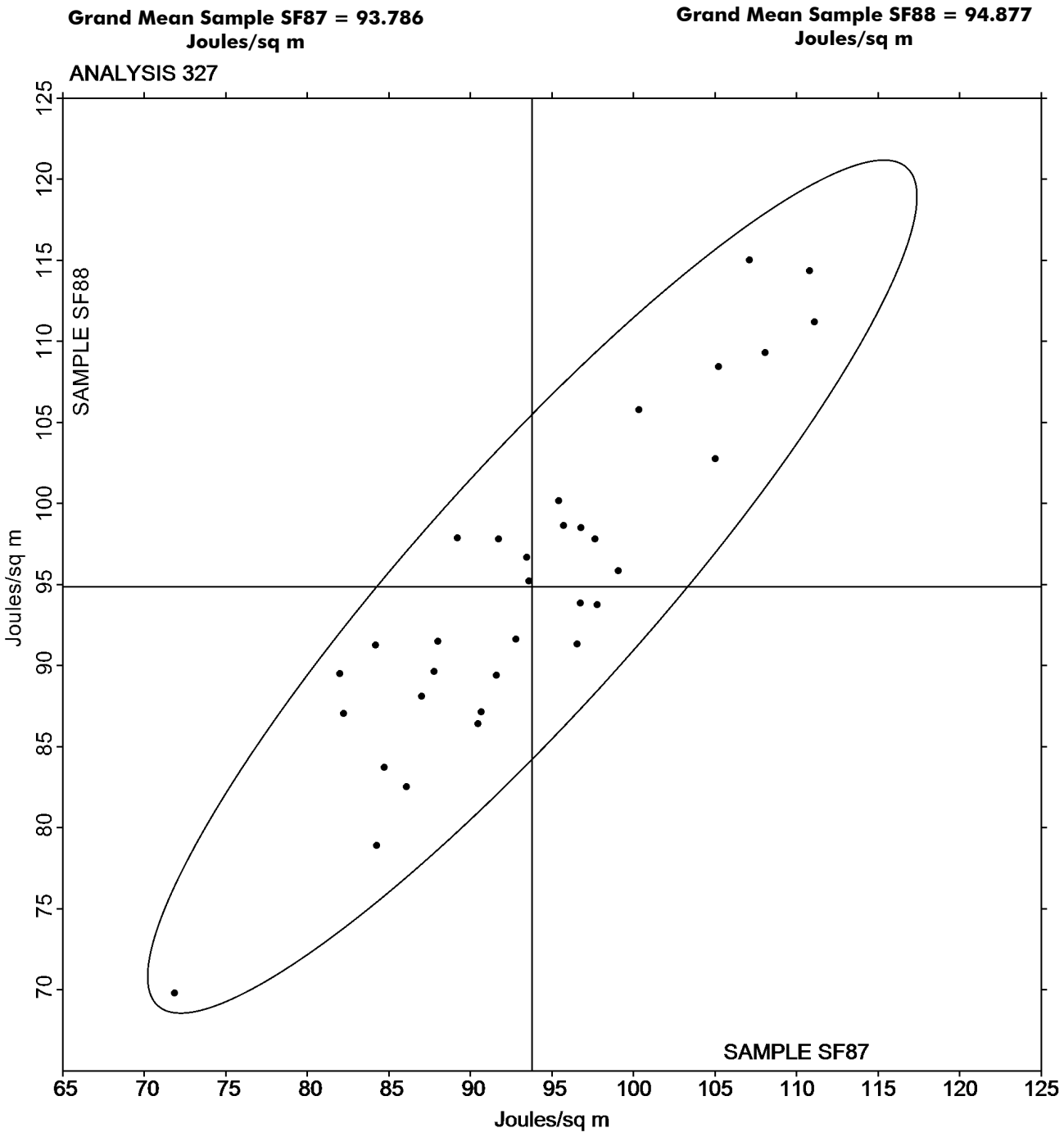
Statistics based on 33 of 33 reporting participants.

Analysis Notes:

BT9FZP - Data appear to be reported as kg-m/sq m, not J/sq m as indicated on data entry form. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IN	Instron 3340 series	LA	L & W Tensile - Autoline 300
LB	L & W Tensile - Autoline 400	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
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



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF87 Lab Mean	Sample SF87 Diff from Grand Mean	Sample SF87 CPV	Sample SF88 Lab Mean	Sample SF88 Diff from Grand Mean	Sample SF88 CPV	Instr Code
24JL4F		2.381	0.264	0.89	2.463	0.335	1.13	TB
2JWYDZ		2.112	-0.005	-0.02	2.235	0.107	0.36	TP
2RR472		2.138	0.021	0.07	2.058	-0.070	-0.23	LF
3TFZ7E	X	5.082	2.965	9.97	4.899	2.771	9.31	IM
48WAAV		2.126	0.009	0.03	2.080	-0.048	-0.16	LI
4JM4GJ		2.663	0.546	1.84	2.679	0.551	1.85	TV
4PPDNC		2.032	-0.085	-0.28	2.040	-0.088	-0.30	LX
6GBNMH		2.161	0.044	0.15	2.233	0.105	0.35	TF
6XL9NV		2.015	-0.102	-0.34	1.966	-0.162	-0.54	LA
6XY22A		2.230	0.113	0.38	2.220	0.092	0.31	LH
7FXEBB		2.480	0.364	1.22	2.558	0.431	1.45	CS
84ELY7		1.911	-0.206	-0.69	1.916	-0.212	-0.71	XX
9JNPZR		2.080	-0.037	-0.12	2.027	-0.101	-0.34	LH
B8MWN7	*	2.619	0.502	1.69	2.452	0.324	1.09	IN
BGTQWD		2.457	0.340	1.14	2.526	0.398	1.34	RE
BT9FZP		1.572	-0.545	-1.83	1.514	-0.614	-2.06	LX
BVCCJR		2.052	-0.065	-0.22	2.045	-0.083	-0.28	LH
BXHUHN		2.165	0.048	0.16	2.266	0.138	0.46	TX
FQJXLK		1.589	-0.528	-1.77	1.567	-0.561	-1.88	LI
H3C2ZX		1.907	-0.210	-0.70	1.889	-0.239	-0.80	TF
HKRA2Y		2.426	0.309	1.04	2.489	0.361	1.21	TO
JKLFXJ		1.818	-0.299	-1.00	1.707	-0.421	-1.41	LI
JRMMKY		1.756	-0.361	-1.21	1.809	-0.319	-1.07	TO
KCBDCH		2.457	0.340	1.14	2.462	0.334	1.12	FP
KK2YHF		2.092	-0.024	-0.08	2.169	0.041	0.14	ID
MGVF8D		2.105	-0.012	-0.04	2.150	0.022	0.07	LH
PG64LA		1.943	-0.174	-0.58	1.996	-0.132	-0.44	LB
QC7AYT		2.669	0.552	1.86	2.527	0.399	1.34	TO
RKHNJA		1.860	-0.257	-0.86	1.830	-0.298	-1.00	VM
RMLFBM		1.739	-0.378	-1.27	1.869	-0.259	-0.87	LA
U3B6LA		1.952	-0.165	-0.55	2.087	-0.041	-0.14	TF
UJVWK9		2.119	0.002	0.01	2.079	-0.049	-0.16	LX
V6A4A8		1.863	-0.254	-0.85	2.028	-0.100	-0.34	LI
WJ8EFQ		2.010	-0.107	-0.36	1.945	-0.183	-0.61	LI
XM4HKH		1.803	-0.314	-1.05	1.815	-0.313	-1.05	LH
YBQHNN		2.704	0.587	1.97	2.700	0.572	1.92	TV
YJXCK3		2.189	0.072	0.24	2.208	0.080	0.27	LH

Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SF87	Sample SF88
Grand Means	2.12 Percent	2.13 Percent
Stnd Dev Btwn Labs	0.30 Percent	0.30 Percent

Statistics based on 36 of 37 reporting participants.

Comments on Assigned Data Flags for Test #328

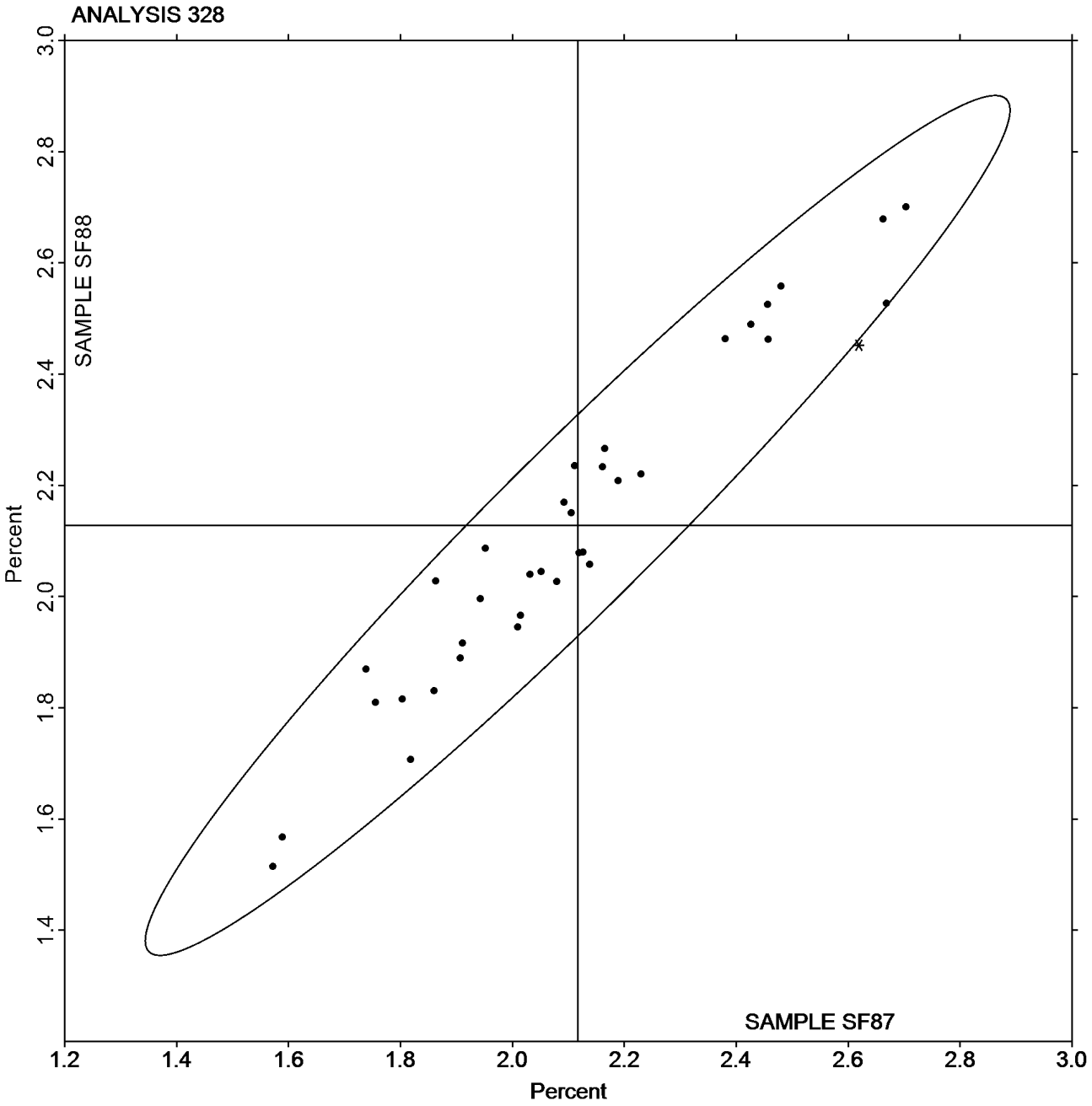
3TFZ7E (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

CS	Chatillon CS1100 Series Force Tester	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
IN	Instron 3340 Series	LA	L & W Tensile - Autoline 300
LB	L & W Tensile - Autoline 400	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
TO	Thwing-Albert QC-1000	TP	TMI Monitor/Tensile 100 (84-21-01)
TV	Thwing-Albert Vantage NX	TX	Thwing-Albert (model not specified)
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF87 = 2.1165
Percent

Grand Mean Sample SF88 = 2.1279
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE87 Lab Mean	Sample SE87 Diff from Grand Mean	Sample SE87 CPV	Sample SE88 Lab Mean	Sample SE88 Diff from Grand Mean	Sample SE88 CPV	Instr Code
3A9LVF		14.18	0.44	0.43	15.12	0.03	0.03	LW
3KZGLF		14.52	0.78	0.77	16.61	1.53	1.29	IF
3R4DFD		13.82	0.09	0.09	14.83	-0.25	-0.21	IF
3TFZ7E		13.93	0.19	0.19	15.66	0.58	0.49	IM
48WAAV		12.09	-1.65	-1.61	13.69	-1.39	-1.17	LW
4UK8LD	X	9.59	-4.14	-4.05	11.65	-3.43	-2.90	LE
6XL9NV		13.00	-0.74	-0.72	14.33	-0.76	-0.64	LA
7D7HLG		13.93	0.20	0.19	15.04	-0.04	-0.03	ID
8W4XNT		12.29	-1.44	-1.41	14.23	-0.85	-0.72	LE
97NNMQ		12.91	-0.82	-0.81	14.02	-1.06	-0.90	LE
9LYA8G		13.71	-0.02	-0.02	16.27	1.19	1.00	TH
AC8EK7		12.34	-1.39	-1.36	14.06	-1.02	-0.87	LA
AF7PG6		13.84	0.11	0.10	15.53	0.45	0.38	LE
BBT8YN		13.01	-0.72	-0.70	14.26	-0.82	-0.70	LH
BXG4B6	*	15.42	1.68	1.65	17.99	2.91	2.46	IK
C9X8VA	X	12.23	-1.50	-1.47	11.38	-3.71	-3.13	CE
DFAJN2	X	9.45	-4.28	-4.19	14.35	-0.73	-0.62	TH
ELC7Z2		14.13	0.40	0.39	14.98	-0.11	-0.09	IM
F4RNL8		15.08	1.35	1.32	15.91	0.83	0.70	TH
H3C2ZX		13.89	0.15	0.15	14.40	-0.68	-0.57	TO
HGQA22		14.85	1.11	1.09	16.78	1.70	1.43	IR
JBWRZV		15.99	2.26	2.21	17.25	2.17	1.83	LA
K28DKV		12.77	-0.96	-0.94	14.46	-0.62	-0.53	IM
M4CKZU		12.48	-1.26	-1.23	13.30	-1.78	-1.51	LE
M8CWWU		12.58	-1.16	-1.13	13.07	-2.01	-1.70	TK
MTACCG		14.48	0.74	0.73	15.60	0.52	0.44	LX
NAD7GV		15.47	1.74	1.70	17.12	2.04	1.72	IM
PGQRPQ		14.25	0.52	0.51	15.56	0.48	0.41	TO
PH3EFR		13.37	-0.36	-0.36	15.26	0.18	0.15	TB
Q8FQ4P		12.60	-1.13	-1.11	14.37	-0.72	-0.61	XX
Q8XLNC	X	4.21	-9.52	-9.31	4.35	-10.73	-9.07	DM
QEULXX		14.48	0.75	0.73	15.04	-0.05	-0.04	TH
QVHYCQ	*	11.43	-2.30	-2.25	11.86	-3.22	-2.72	IM
R7JJCX	*	15.78	2.04	2.00	15.83	0.75	0.64	LA
RBR3DB		14.80	1.07	1.04	16.14	1.06	0.89	LE
RERDAB		14.13	0.40	0.39	16.02	0.94	0.80	IF
TNAE3Q		14.44	0.70	0.69	16.12	1.04	0.88	IR
UTJUAT		13.35	-0.38	-0.37	14.64	-0.44	-0.37	TT
V823N6		12.87	-0.86	-0.84	14.35	-0.73	-0.62	IM
VDLZCT		13.28	-0.45	-0.44	14.14	-0.95	-0.80	IF

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE87 Lab Mean	Sample SE87 Diff from Grand Mean	Sample SE87 CPV	Sample SE88 Lab Mean	Sample SE88 Diff from Grand Mean	Sample SE88 CPV	Instr Code
VK9TNR		13.28	-0.45	-0.44	14.41	-0.67	-0.57	TP
VPGBN7		13.39	-0.34	-0.34	14.43	-0.65	-0.55	ID
VW29DT		14.72	0.98	0.96	16.55	1.47	1.24	LI
W9QJLK		13.08	-0.65	-0.64	14.66	-0.42	-0.36	LW
WM7QCQ		14.23	0.49	0.48	15.69	0.61	0.51	LA
Y2H3J2		13.44	-0.30	-0.29	14.54	-0.54	-0.46	TA
YJXCK3		13.26	-0.48	-0.47	14.77	-0.32	-0.27	LH
Z7V2XF		13.41	-0.32	-0.32	14.75	-0.33	-0.28	TR

Summary Statistics	Sample SE87	Sample SE88
Grand Means	13.73 kN/m	15.08 kN/m
Stnd Dev Btwn Labs	1.02 kN/m	1.18 kN/m

Statistics based on 44 of 48 reporting participants.

Comments on Assigned Data Flags for Test #330

Q8XLNC (X) - Extreme Data.

C9X8VA (X) - Data for sample SE88 are low.

DFAJN2 (X) - Data for sample SE87 are low.

4UK8LD (X) - Data for both samples are low. Possible Systematic Error.

Analysis Notes:

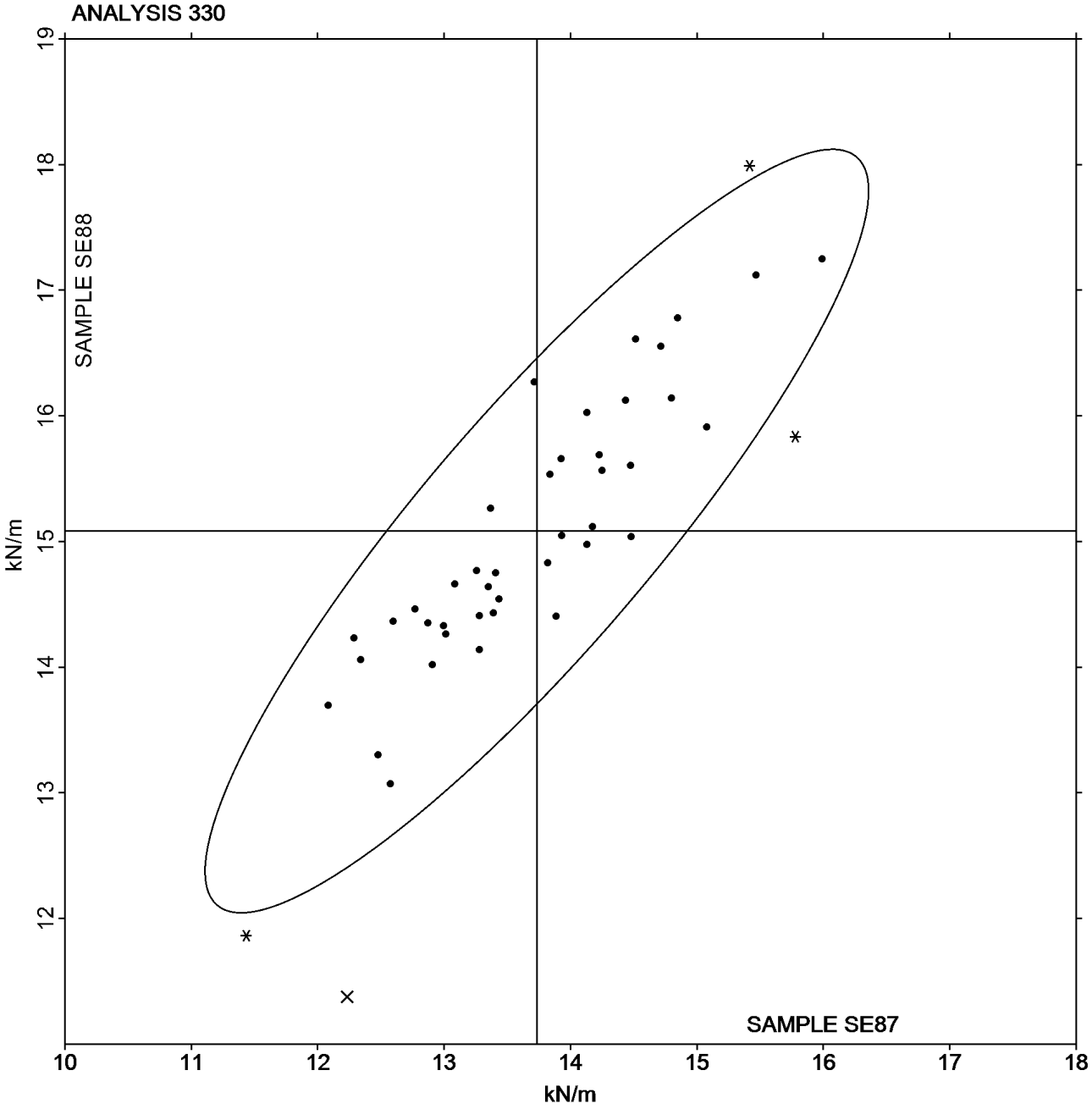
JBWRZV - Data appear to be reported as lb/inch, not kN/m as indicated on data entry form. CTS will not correct the Units going forward.

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
IR	Instron 5900 Series	LA	L & W Autoline
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LI	LLoyds Instruments	LW	L & W Tensile Tester SE062
LX	L & W (model not specified)	TA	Thwing-Albert Tensile Tester
TB	Thwing-Albert EJA/1000	TH	Thwing-Albert QC-3A
TK	Thwing-Albert Model 37-4	TO	Thwing-Albert QC-1000
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 SE87 = 13.733 kN/m

Grand Mean Sample SE88 = 15.083 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE87 Lab Mean	Sample SE87 Diff from Grand Mean	Sample SE87 CPV	Sample SE88 Lab Mean	Sample SE88 Diff from Grand Mean	Sample SE88 CPV	Instr Code
3A9LVF		151.8	-24.2	-1.15	190.5	-47.3	-1.64	LW
3KZGLF		169.9	-6.1	-0.29	235.1	-2.6	-0.09	IF
3R4DFD		197.0	21.1	1.00	256.0	18.2	0.63	IF
48WAAV		144.0	-32.0	-1.53	207.8	-29.9	-1.04	LW
6XL9NV		181.1	5.1	0.24	237.5	-0.3	-0.01	LA
8W4XNT		142.9	-33.1	-1.58	221.2	-16.5	-0.58	LE
97NNMQ		162.7	-13.3	-0.63	219.5	-18.2	-0.63	LE
9LYA8G		171.3	-4.6	-0.22	267.1	29.3	1.02	TH
AC8EK7		183.6	7.6	0.36	250.7	13.0	0.45	LA
AF7PG6		164.3	-11.6	-0.55	228.4	-9.3	-0.33	LE
BBT8YN		161.6	-14.4	-0.69	215.8	-21.9	-0.76	LH
BXG4B6		174.2	-1.8	-0.09	268.8	31.1	1.08	XX
DFAJN2	X	120.9	-55.1	-2.62	269.4	31.7	1.10	TH
ELC7Z2		189.2	13.2	0.63	243.9	6.1	0.21	IM
H3C2ZX		183.0	7.0	0.33	229.3	-8.5	-0.29	TO
JBWRZV		179.9	3.9	0.19	235.2	-2.5	-0.09	LA
K28DKV		172.6	-3.4	-0.16	245.1	7.4	0.26	IM
M4CKZU		157.1	-18.9	-0.90	207.2	-30.5	-1.06	LE
M8CWWU		174.0	-2.0	-0.09	221.2	-16.6	-0.58	TK
MTACCG		201.7	25.7	1.22	262.1	24.3	0.85	LX
PGQRPQ		195.7	19.7	0.94	247.3	9.6	0.33	TO
PH3EFR		187.1	11.1	0.53	265.7	28.0	0.97	TB
Q8FQ4P		167.2	-8.8	-0.42	248.3	10.6	0.37	XX
Q8XLNC	X	53.8	-122.1	-5.82	58.5	-179.2	-6.23	DM
QEULXX	*	238.4	62.5	2.97	310.3	72.5	2.52	TH
QVHYCQ	X	30.6	-145.4	-6.92	32.9	-204.8	-7.13	IM
R7JJCX	*	172.8	-3.2	-0.15	186.9	-50.9	-1.77	LA
RBR3DB		212.0	36.0	1.72	278.9	41.2	1.43	LE
RERDAB		171.1	-4.9	-0.23	239.2	1.5	0.05	IF
UTJUAT		153.3	-22.7	-1.08	211.1	-26.6	-0.93	TT
V823N6		191.0	15.0	0.72	257.8	20.1	0.70	IM
VK9TNR		137.4	-38.6	-1.84	168.9	-68.9	-2.40	TP
VPGBN7		202.8	26.8	1.28	268.8	31.0	1.08	ID
W9QJLK		165.9	-10.1	-0.48	231.9	-5.8	-0.20	LW
WM7QCQ		184.2	8.3	0.39	257.8	20.0	0.70	LA
YJXCK3	X	220.6	44.6	2.12	227.7	-10.0	-0.35	LH
Z7V2XF		166.6	-9.4	-0.45	230.1	-7.6	-0.26	TR

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SE87	Sample SE88
Grand Means	175.98 Joules/sq m	237.74 Joules/sq m
Stnd Dev Btwn Labs	21.00 Joules/sq m	28.75 Joules/sq m

Statistics based on 33 of 37 reporting participants.

Comments on Assigned Data Flags for Test #331

YJXCK3 (X) - Inconsistent in testing between samples.

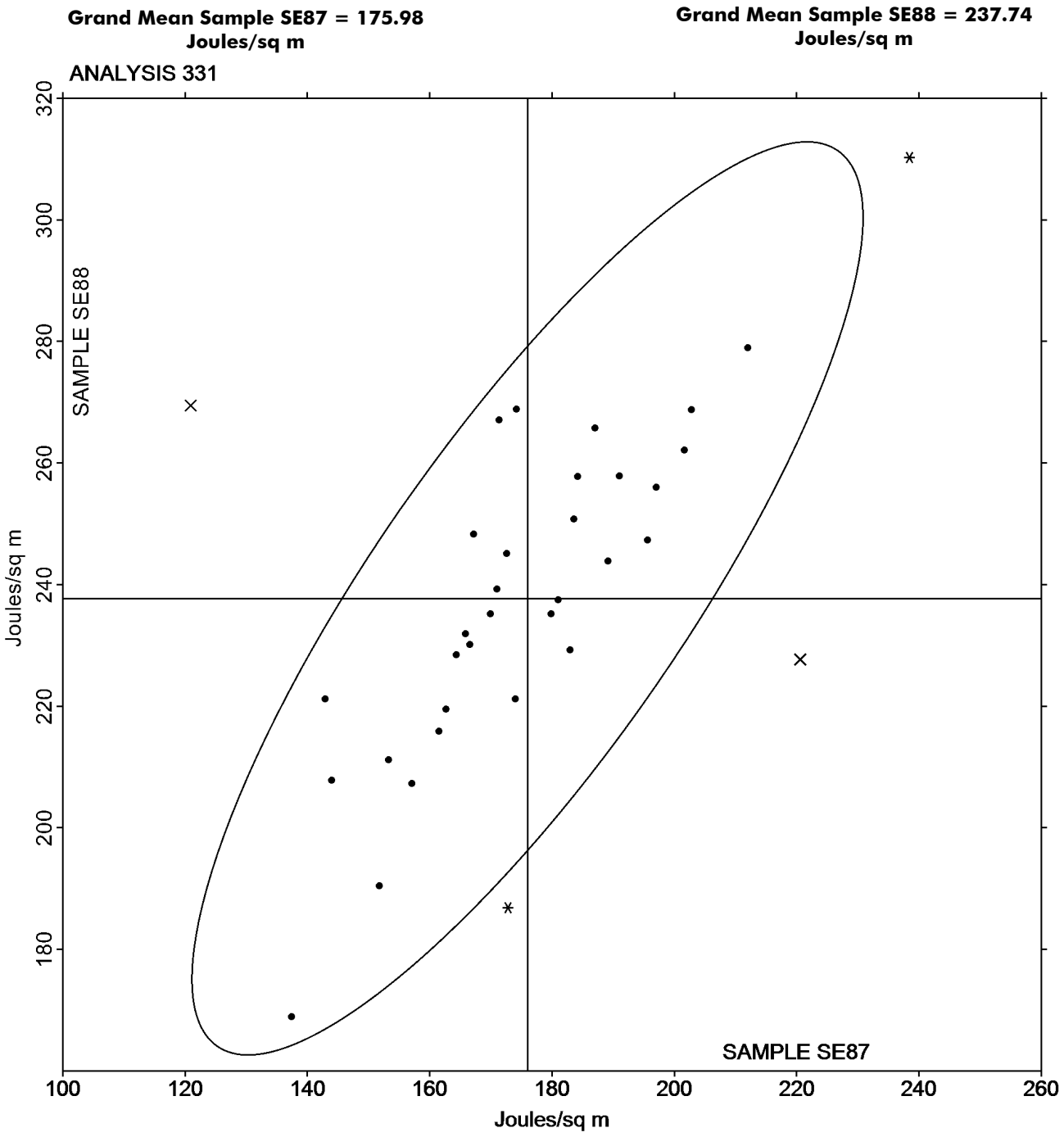
Q8XLNC (X) - Extreme Data.

QVHYCQ (X) - Extreme Data.

DFAJN2 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE88.

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
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	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 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE87 Lab Mean	Sample SE87 Diff from Grand Mean	Sample SE87 CPV	Sample SE88 Lab Mean	Sample SE88 Diff from Grand Mean	Sample SE88 CPV	Instr Code
3A9LVF		1.783	-0.269	-1.04	1.941	-0.447	-1.45	LW
3KZGLF		1.497	-0.555	-2.15	1.729	-0.660	-2.14	IF
3R4DFD		2.240	0.188	0.73	2.565	0.177	0.57	IF
3TFZ7E	X	4.769	2.716	10.53	5.746	3.358	10.91	IM
48WAAV		1.854	-0.198	-0.77	2.223	-0.165	-0.54	LW
6XL9NV		1.808	-0.244	-0.95	2.024	-0.364	-1.18	LA
7D7HLG		2.005	-0.047	-0.18	2.433	0.045	0.14	ID
8W4XNT		1.823	-0.229	-0.89	2.281	-0.107	-0.35	LE
97NNMQ		1.926	-0.126	-0.49	2.268	-0.120	-0.39	LE
9LYA8G		2.030	-0.022	-0.09	2.490	0.102	0.33	TH
AC8EK7		2.129	0.077	0.30	2.629	0.241	0.78	LA
AF7PG6		1.854	-0.198	-0.77	2.127	-0.261	-0.85	LE
BBT8YN		1.920	-0.132	-0.51	2.250	-0.138	-0.45	LH
BXG4B6		1.890	-0.162	-0.63	2.301	-0.087	-0.28	XX
DFAJN2		2.611	0.559	2.17	3.134	0.746	2.42	TH
ELC7Z2		2.086	0.034	0.13	2.394	0.006	0.02	IM
H3C2ZX		2.104	0.052	0.20	2.344	-0.044	-0.14	TO
HGQA22		1.840	-0.212	-0.82	2.200	-0.188	-0.61	IR
JBWRZV		1.735	-0.317	-1.23	1.917	-0.471	-1.53	LA
K28DKV		2.395	0.343	1.33	2.786	0.398	1.29	IM
M4CKZU		1.947	-0.105	-0.41	2.263	-0.125	-0.41	LE
M8CWWU		2.185	0.133	0.51	2.518	0.130	0.42	TK
MTACCG		2.112	0.060	0.23	2.408	0.020	0.06	LX
NAD7GV	X	0.020	-2.033	-7.88	0.022	-2.366	-7.69	IM
PGQRPQ		2.247	0.195	0.75	2.511	0.123	0.40	TO
PH3EFR		2.183	0.131	0.51	2.613	0.225	0.73	TB
Q8FQ4P		2.151	0.099	0.38	2.621	0.233	0.76	XX
Q8XLNC		1.811	-0.242	-0.94	1.940	-0.449	-1.46	DM
QEULXX	*	2.858	0.806	3.12	3.235	0.847	2.75	TH
QVHYCQ	X	10.083	8.031	31.14	11.706	9.318	30.29	IM
R7JJCX	X	2.688	0.636	2.47	2.687	0.299	0.97	LA
RBR3DB		2.227	0.175	0.68	2.532	0.144	0.47	LE
RERDAB		2.186	0.134	0.52	2.482	0.094	0.30	IF
TNAE3Q		1.770	-0.282	-1.09	2.060	-0.328	-1.07	IR
UTJUAT		2.012	-0.040	-0.16	2.354	-0.034	-0.11	TT
V823N6		2.333	0.281	1.09	2.670	0.282	0.92	IM
VK9TNR	X	0.191	-1.861	-7.22	0.207	-2.181	-7.09	TP
VPGBN7		2.385	0.333	1.29	2.731	0.343	1.11	ID
W9QJLK		1.964	-0.088	-0.34	2.317	-0.071	-0.23	LW
WM7QCQ		1.973	-0.079	-0.31	2.321	-0.067	-0.22	LA

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE87 Lab Mean	Sample SE87 Diff from Grand Mean	Sample SE87 CPV	Sample SE88 Lab Mean	Sample SE88 Diff from Grand Mean	Sample SE88 CPV	Instr Code
Y2H3J2		2.049	-0.003	-0.01	2.395	0.007	0.02	TB
YJXCK3	X	2.439	0.387	1.50	2.341	-0.047	-0.15	LH
Z7V2XF		2.013	-0.039	-0.15	2.364	-0.024	-0.08	TR

Summary Statistics	Sample SE87	Sample SE88
Grand Means	2.05 Percent	2.39 Percent
Stnd Dev Btwn Labs	0.26 Percent	0.31 Percent

Statistics based on 37 of 43 reporting participants.

Comments on Assigned Data Flags for Test #332

YJXCK3 (X) - Inconsistent in testing between samples.

R7JJCX (X) - Inconsistent in testing between samples.

VK9TNR (X) - Extreme Data.

QVHYCQ (X) - Extreme Data.

NAD7GV (X) - Extreme Data.

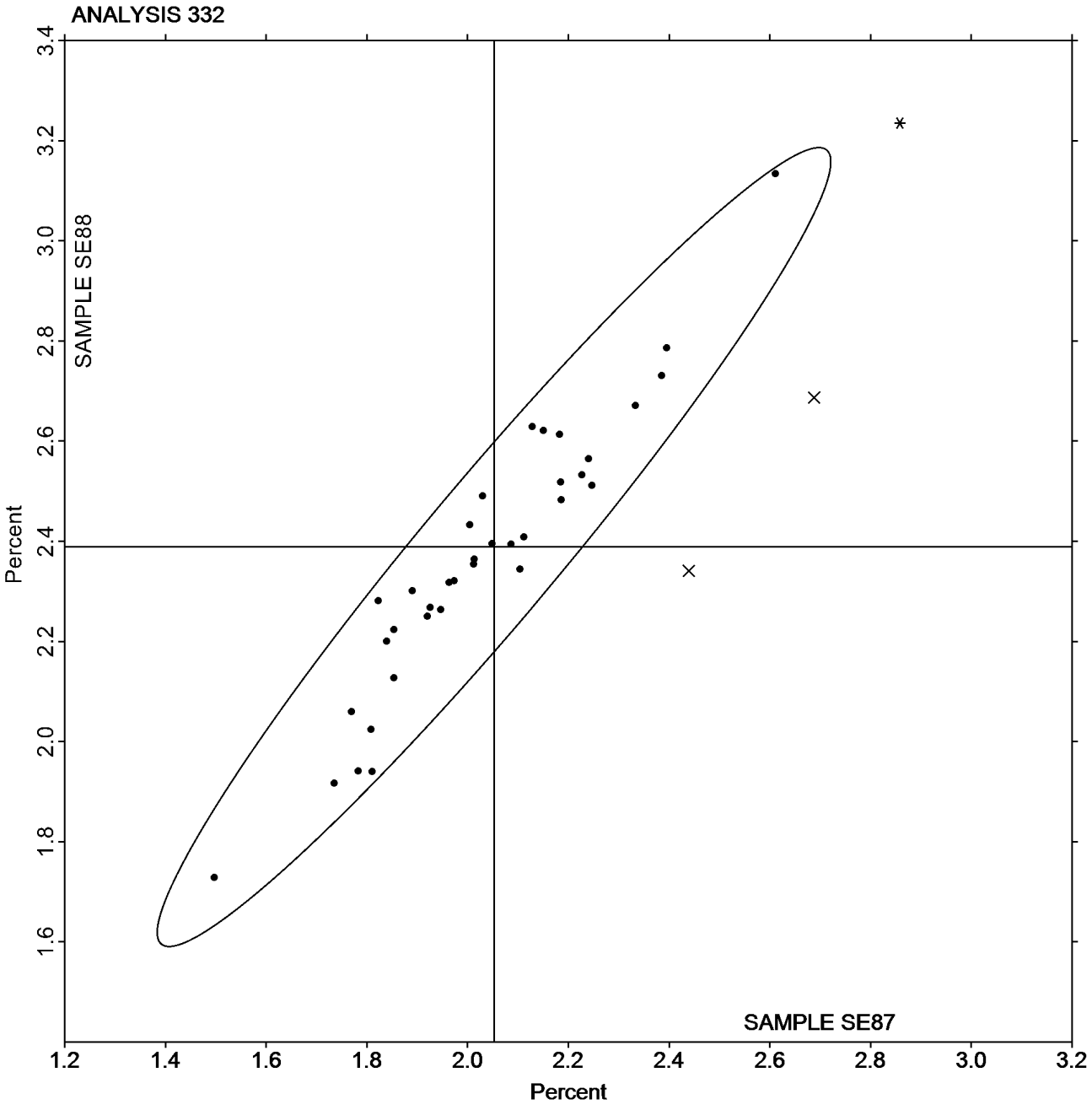
3TFZ7E (X) - Extreme Data.

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
IR	Instron 5900 Series	LA	L & W Autoline 300
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LW	L & W Tensile Tester SE062	LX	L & W (model not specified)
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 SE87 = 2.0523 Percent

Grand Mean Sample SE88 = 2.3884 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

WebCode	Data Flag	Sample SG87 Lab Mean	Sample SG87 Diff from Grand Mean	Sample SG87 CPV	Sample SG88 Lab Mean	Sample SG88 Diff from Grand Mean	Sample SG88 CPV	Instr Code
48WAAV		254.7	31.6	1.30	288.5	43.6	1.08	MT
B8MWN7		219.7	-3.4	-0.14	261.6	16.7	0.41	MT
FQ9VZL		233.7	10.6	0.44	313.4	68.5	1.70	MT
Q8FQ4P		205.7	-17.4	-0.72	223.4	-21.5	-0.53	MT
QEULXX		238.5	15.4	0.63	226.5	-18.4	-0.46	MT
RKHNJA	X	99.3	-123.8	-5.11	93.1	-151.8	-3.76	MT
U3B6LA		181.2	-41.9	-1.73	178.2	-66.7	-1.65	MT
V6A4A8		228.8	5.7	0.23	255.9	11.0	0.27	MT
V823N6		248.0	24.9	1.03	238.7	-6.2	-0.15	MT
Y2H3J2		197.9	-25.2	-1.04	217.7	-27.2	-0.67	MT

Summary Statistics	Sample SG87	Sample SG88
Grand Means	223.13 Double Folds	244.88 Double Folds
Stnd Dev Btwn Labs	24.25 Double Folds	40.34 Double Folds

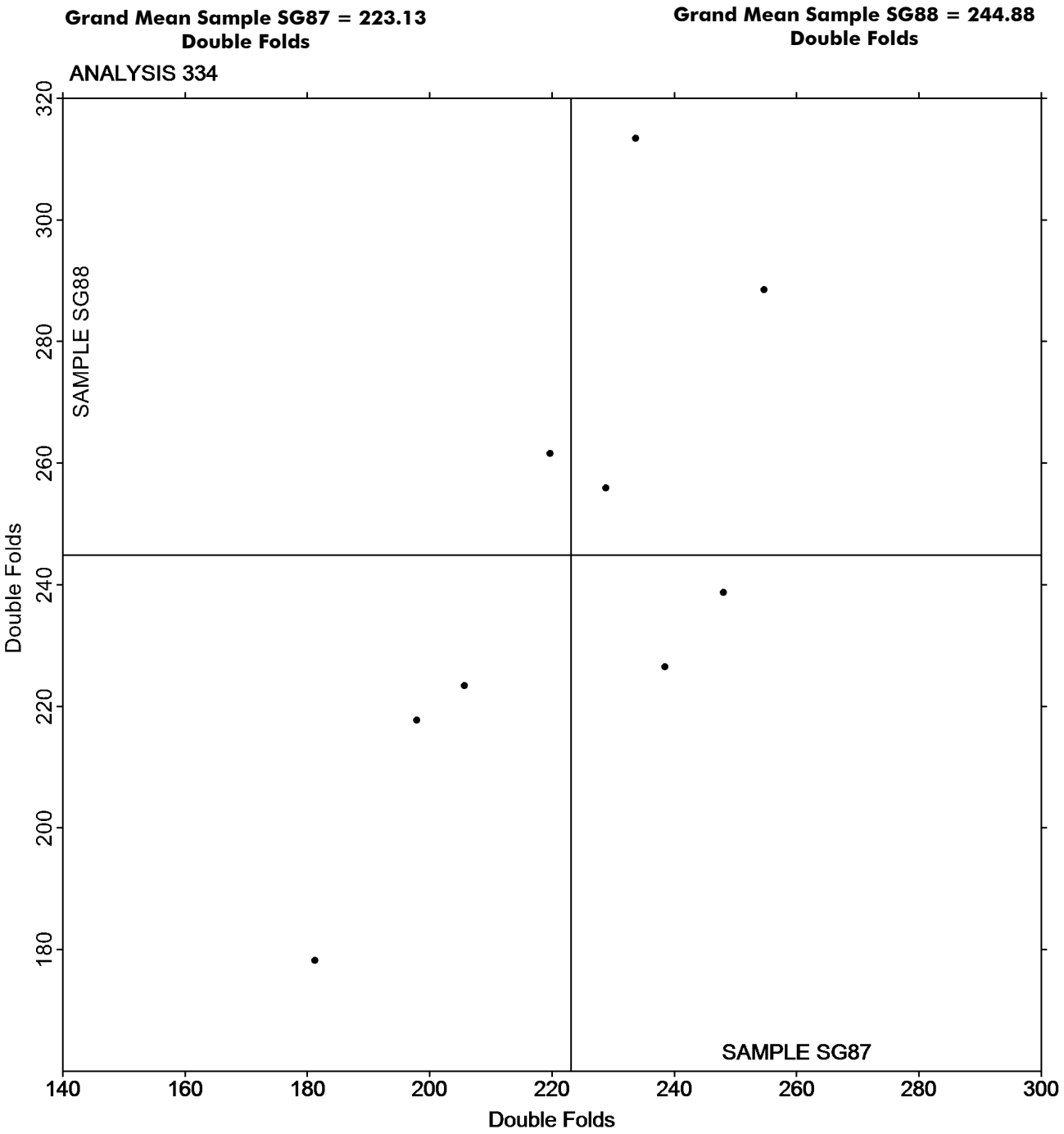
Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #334

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

Key to Instrument Codes Reported by Participants

MT MIT - Tinius Olsen



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 336

Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH87 Lab Mean	Sample SH87 Diff from Grand Mean	Sample SH87 CPV	Sample SH88 Lab Mean	Sample SH88 Diff from Grand Mean	Sample SH88 CPV
24JL4F		303.1	0.4	0.01	309.8	14.3	0.45
2JWYDZ		320.5	17.8	0.58	308.5	12.9	0.41
3VKKVZ		288.5	-14.2	-0.46	283.3	-12.2	-0.38
4JM4GJ		295.1	-7.6	-0.25	285.2	-10.3	-0.32
8EJ8NU		332.6	29.9	0.97	300.2	4.7	0.15
B8MWN7		265.4	-37.3	-1.21	272.5	-23.1	-0.72
C42JGN		313.3	10.6	0.34	294.1	-1.4	-0.05
E77QWL		322.3	19.6	0.63	332.5	37.0	1.16
HKRA2Y		298.7	-4.0	-0.13	274.7	-20.8	-0.65
J77GQW		294.2	-8.6	-0.28	295.3	-0.3	-0.01
JNNCPY		291.2	-11.5	-0.37	286.3	-9.2	-0.29
JRMMKY		262.4	-40.3	-1.30	255.5	-40.1	-1.26
MGVF8D		307.6	4.9	0.16	279.1	-16.4	-0.51
Q8FQ4P		316.0	13.3	0.43	305.8	10.3	0.32
RKHNJA	*	381.6	78.9	2.55	389.0	93.5	2.93
V823N6	X	3.5	-299.2	-9.69	3.2	-292.4	-9.16
XM4HKH	X	0.6	-302.1	-9.78	0.6	-294.9	-9.24
Y2H3J2		250.9	-51.8	-1.68	256.9	-38.6	-1.21

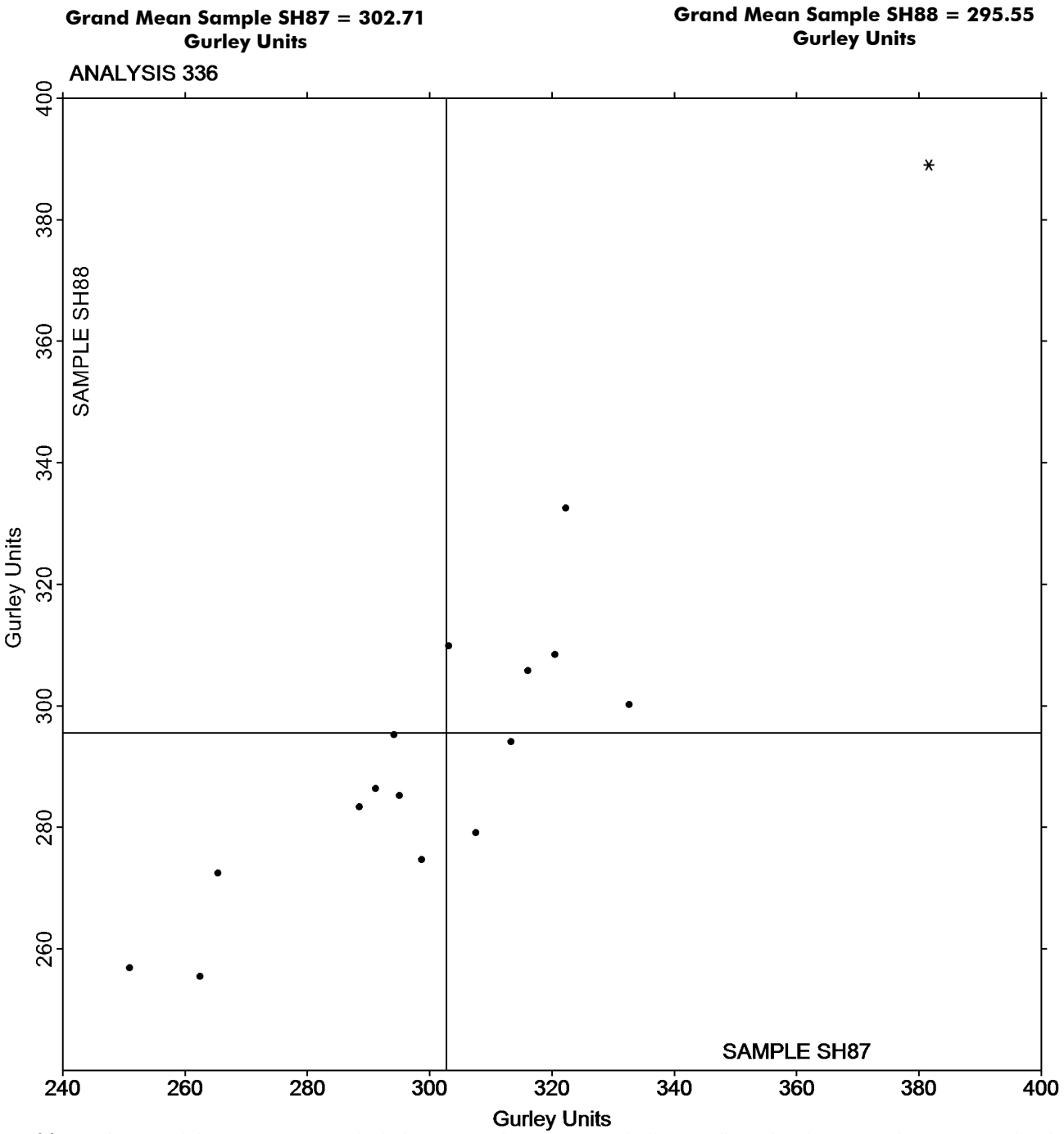
Summary Statistics	Sample SH87	Sample SH88
Grand Means	302.71 Gurley Units	295.55 Gurley Units
Stnd Dev Btwn Labs	30.89 Gurley Units	31.91 Gurley Units

Statistics based on 16 of 18 reporting participants.

Comments on Assigned Data Flags for Test #336

V823N6 (X) - Extreme Data.

XM4HKH (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 SJ87 Lab Mean	Sample SJ87 Diff from Grand Mean	Sample SJ87 CPV	Sample SJ88 Lab Mean	Sample SJ88 Diff from Grand Mean	Sample SJ88 CPV
24JL4F		4.176	-0.034	-0.06	4.144	0.066	0.11
8EJ8NU		4.576	0.366	0.64	4.050	-0.028	-0.05
8W4XNT		3.090	-1.119	-1.95	3.260	-0.818	-1.36
EUAK4N		3.919	-0.290	-0.51	3.697	-0.381	-0.63
MGVF8D		4.307	0.098	0.17	4.103	0.025	0.04
PG64LA		4.800	0.591	1.03	5.240	1.162	1.93
QC7AYT	X	41.360	37.151	64.64	40.962	36.884	61.32
RERDAB	X	0.400	-3.809	-6.63	0.367	-3.711	-6.17
V823N6		4.598	0.389	0.68	4.052	-0.026	-0.04

Summary Statistics	Sample SJ87	Sample SJ88
Grand Means	4.21 Taber Units	4.08 Taber Units
Stnd Dev Btwn Labs	0.57 Taber Units	0.60 Taber Units

Statistics based on 7 of 9 reporting participants.

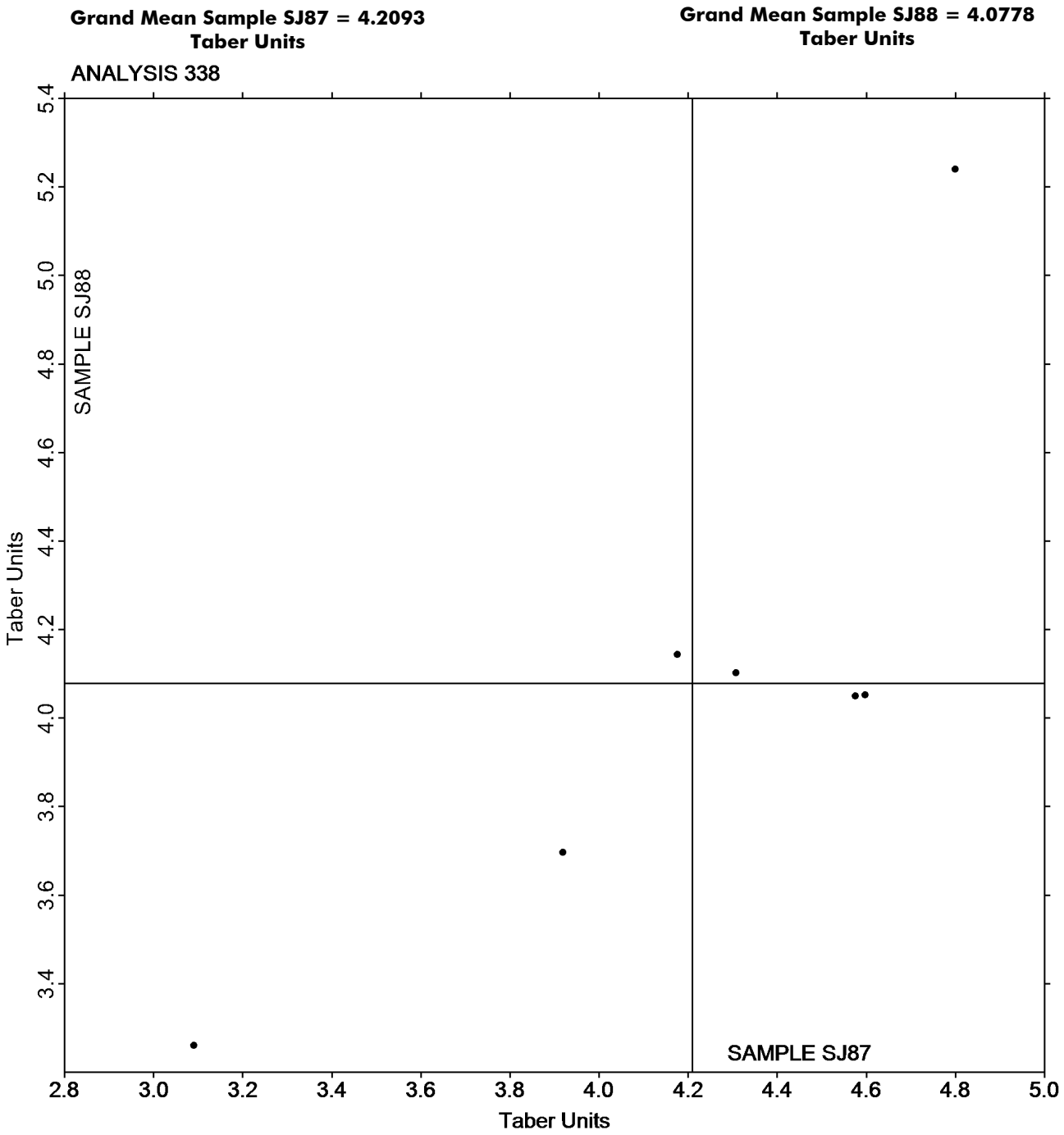
Comments on Assigned Data Flags for Test #338

RERDAB (X) - Extreme Data.

QC7AYT (X) - Extreme Data.

Analysis Notes:

QC7AYT - Possible unit error.



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

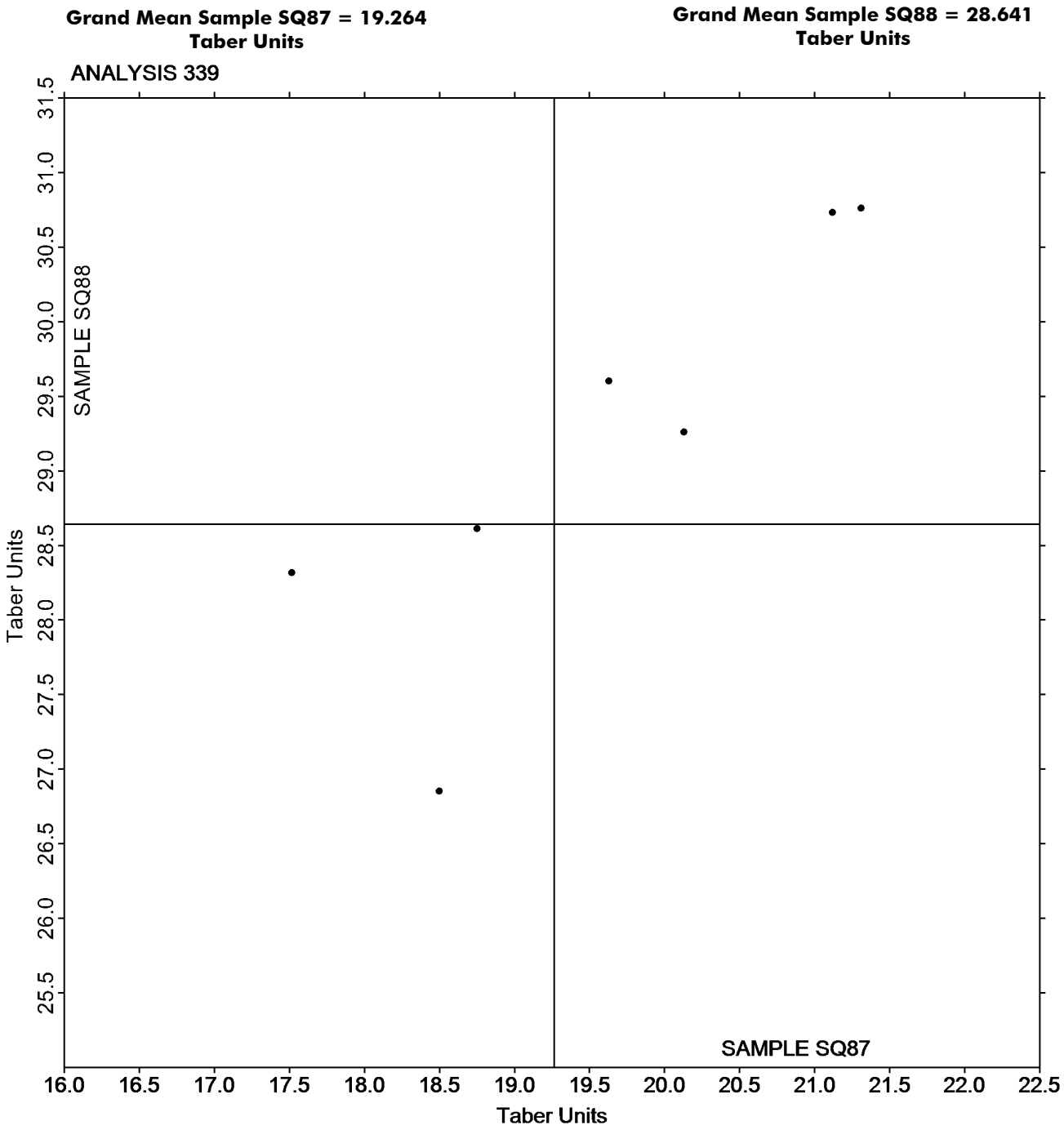
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ87 Lab Mean	Sample SQ87 Diff from Grand Mean	Sample SQ87 CPV	Sample SQ88 Lab Mean	Sample SQ88 Diff from Grand Mean	Sample SQ88 CPV
3A9LVF		17.15	-2.11	-1.36	25.00	-3.64	-1.86
3VKKVZ		19.63	0.37	0.24	29.60	0.96	0.49
48WAAV		18.75	-0.51	-0.33	28.61	-0.03	-0.02
BXHUHN		18.50	-0.76	-0.49	26.85	-1.79	-0.92
MXJQUF		21.31	2.05	1.32	30.76	2.12	1.08
PH3EFR		20.13	0.87	0.56	29.26	0.62	0.32
RBR3DB		21.12	1.86	1.20	30.73	2.09	1.07
Z37YJF		17.52	-1.74	-1.12	28.32	-0.32	-0.17

Summary Statistics	Sample SQ87	Sample SQ88
Grand Means	19.26 Taber Units	28.64 Taber Units
Stnd Dev Btwn Labs	1.55 Taber Units	1.95 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

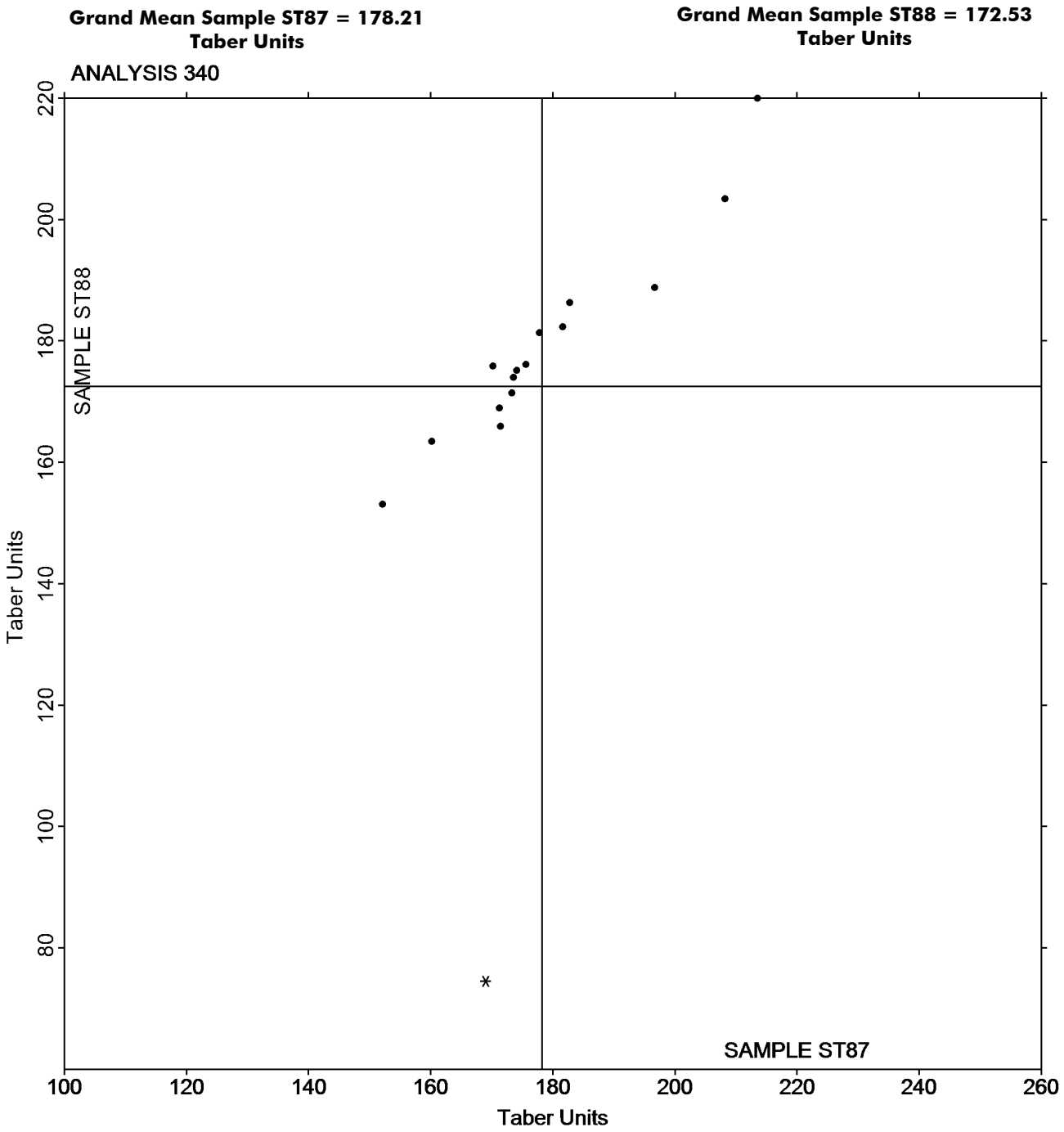
Bending Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboard

TAPPI Official Test Method T489

WebCode	Data Flag	Sample ST87 Lab Mean	Sample ST87 Diff from Grand Mean	Sample ST87 CPV	Sample ST88 Lab Mean	Sample ST88 Diff from Grand Mean	Sample ST88 CPV
3VKKVZ		174.1	-4.1	-0.26	175.2	2.6	0.09
48WAAV		160.2	-18.0	-1.12	163.5	-9.1	-0.30
6J6C9Y		182.8	4.5	0.28	186.3	13.8	0.45
C9X8VA		196.7	18.5	1.16	188.8	16.3	0.53
D7AVW4		208.2	30.0	1.88	203.4	30.9	1.01
F4RNL8		213.5	35.3	2.21	220.0	47.5	1.55
FW9HPZ	*	169.0	-9.2	-0.58	74.5	-98.0	-3.21
J6X6BG		181.6	3.4	0.21	182.3	9.8	0.32
Q8FQ4P		171.4	-6.8	-0.42	165.9	-6.6	-0.22
QEULXX		175.6	-2.6	-0.16	176.1	3.6	0.12
TWRMQM		170.2	-8.0	-0.50	175.8	3.3	0.11
VDLZCT		177.8	-0.4	-0.03	181.3	8.8	0.29
VK9TNR		173.3	-4.9	-0.31	171.5	-1.1	-0.04
XRZ82P		171.2	-7.0	-0.44	168.9	-3.6	-0.12
YB9QE4		173.6	-4.6	-0.29	174.0	1.5	0.05
Z7V2XF		152.1	-26.1	-1.63	153.1	-19.5	-0.64

Summary Statistics	Sample ST87	Sample ST88
Grand Means	178.21 Taber Units	172.53 Taber Units
Stnd Dev Btwn Labs	15.99 Taber Units	30.55 Taber Units

Statistics based on 16 of 16 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 343
Z-Direction Tensile
TAPPI Official Test Method T541

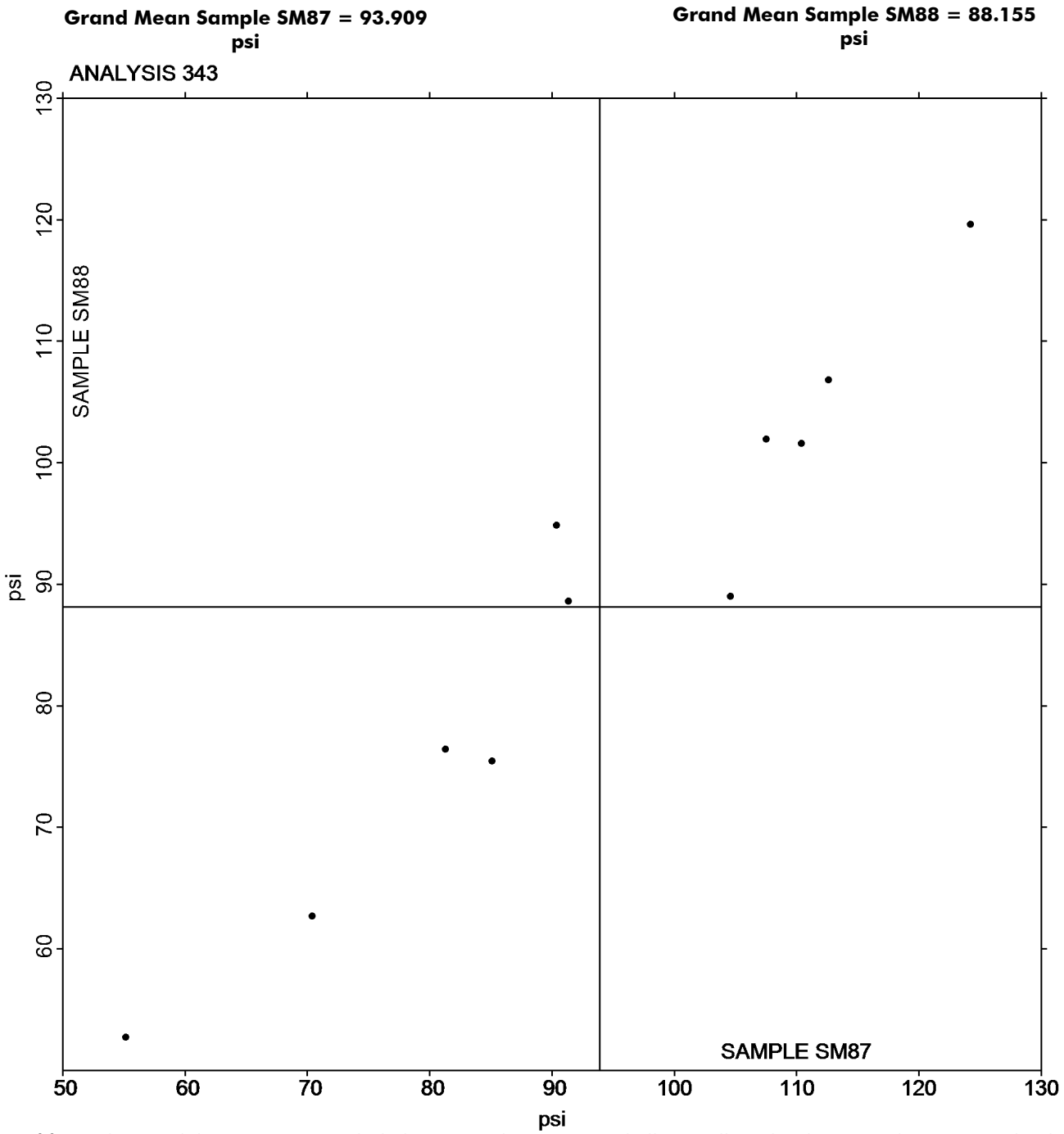
WebCode	Data Flag	Sample SM87 Lab Mean	Sample SM87 Diff from Grand Mean	Sample SM87 CPV	Sample SM88 Lab Mean	Sample SM88 Diff from Grand Mean	Sample SM88 CPV	Instr Code
2RR472		85.11	-8.80	-0.43	75.45	-12.71	-0.64	LW
48WAAV		107.52	13.61	0.67	101.92	13.76	0.69	LW
8R97FW		124.20	30.29	1.49	119.60	31.44	1.58	DT
9LYA8G		104.60	10.69	0.52	89.00	0.84	0.04	TA
MXJQUF		112.60	18.69	0.92	106.80	18.64	0.94	CD
PH3EFR		91.34	-2.57	-0.13	88.62	0.46	0.02	TA
QEULXX		70.40	-23.51	-1.15	62.70	-25.46	-1.28	LW
RBR3DB		110.40	16.49	0.81	101.60	13.44	0.68	CD
RERDAB		90.39	-3.52	-0.17	94.85	6.70	0.34	TL
V823N6		81.28	-12.63	-0.62	76.44	-11.72	-0.59	CD
VK9TNR		55.17	-38.74	-1.90	52.73	-35.43	-1.78	LW

Summary Statistics	Sample SM87	Sample SM88
Grand Means	93.91 psi	88.16 psi
Stnd Dev Btwn Labs	20.37 psi	19.89 psi

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

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



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

Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample SZ87 Lab Mean	Sample SZ87 Diff from Grand Mean	Sample SZ87 CPV	Sample SZ88 Lab Mean	Sample SZ88 Diff from Grand Mean	Sample SZ88 CPV	Instr Code
3VKKVZ		59.38	-3.93	-0.63	58.28	-5.01	-0.71	CA
48WAAV		52.34	-10.97	-1.75	48.84	-14.45	-2.05	LW
6J6C9Y		61.20	-2.11	-0.34	58.96	-4.33	-0.62	CD
C9X8VA		69.78	6.48	1.03	64.85	1.56	0.22	CH
D7AVW4		56.58	-6.73	-1.07	60.42	-2.87	-0.41	TA
EBFZ74		63.18	-0.13	-0.02	71.74	8.45	1.20	LW
FW9HPZ		71.20	7.89	1.26	70.20	6.91	0.98	TA
HP69GX	*	59.30	-4.01	-0.64	48.94	-14.35	-2.04	LW
J6X6BG		65.80	2.49	0.40	66.20	2.91	0.41	CA
K28DKV		54.80	-8.51	-1.36	57.20	-6.09	-0.87	CA
LXR7WW		74.53	11.22	1.79	71.93	8.64	1.23	LW
Q8FQ4P		64.56	1.25	0.20	64.76	1.47	0.21	CA
TWRMQM		53.62	-9.69	-1.54	54.78	-8.51	-1.21	TA
UE86GL		73.53	10.22	1.63	71.25	7.96	1.13	LW
VDLZCT		63.52	0.21	0.03	63.17	-0.12	-0.02	LW
VPGBN7		63.82	0.51	0.08	66.42	3.13	0.44	XX
VW29DT		70.49	7.18	1.14	74.76	11.47	1.63	CH
VY7WU4		60.20	-3.11	-0.50	64.00	0.71	0.10	CA
WM7QCQ		60.84	-2.47	-0.39	63.48	0.19	0.03	TA
XRZ82P		66.20	2.89	0.46	65.00	1.71	0.24	CA
YB9QE4		64.60	1.29	0.21	64.00	0.71	0.10	TA

Summary Statistics	Sample SZ87	Sample SZ88
Grand Means	63.31 psi	63.29 psi
Stnd Dev Btwn Labs	6.28 psi	7.04 psi

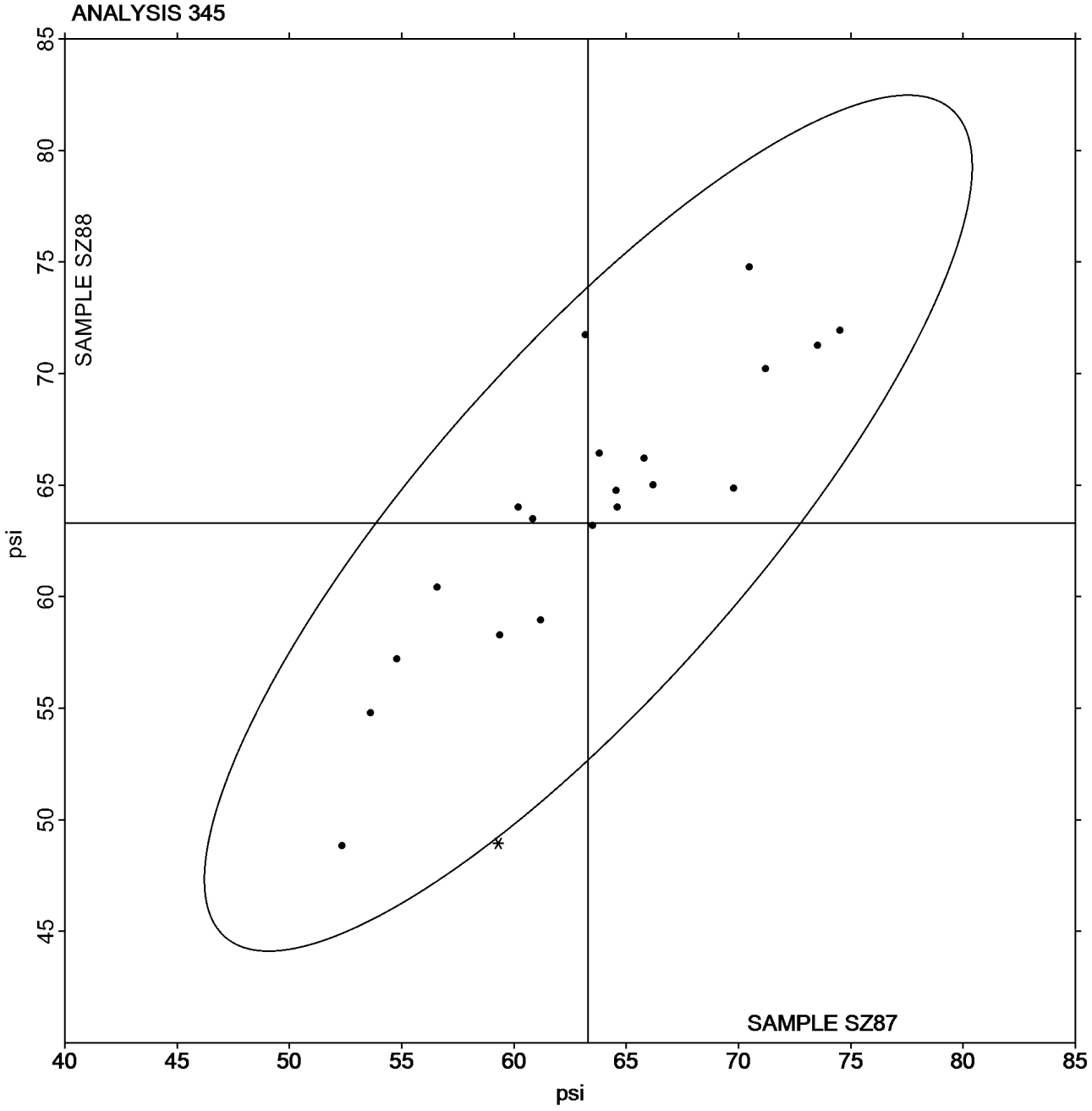
Statistics based on 21 of 21 reporting participants.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample SZ87 = 63.309 psi

Grand Mean Sample SZ88 = 63.295 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

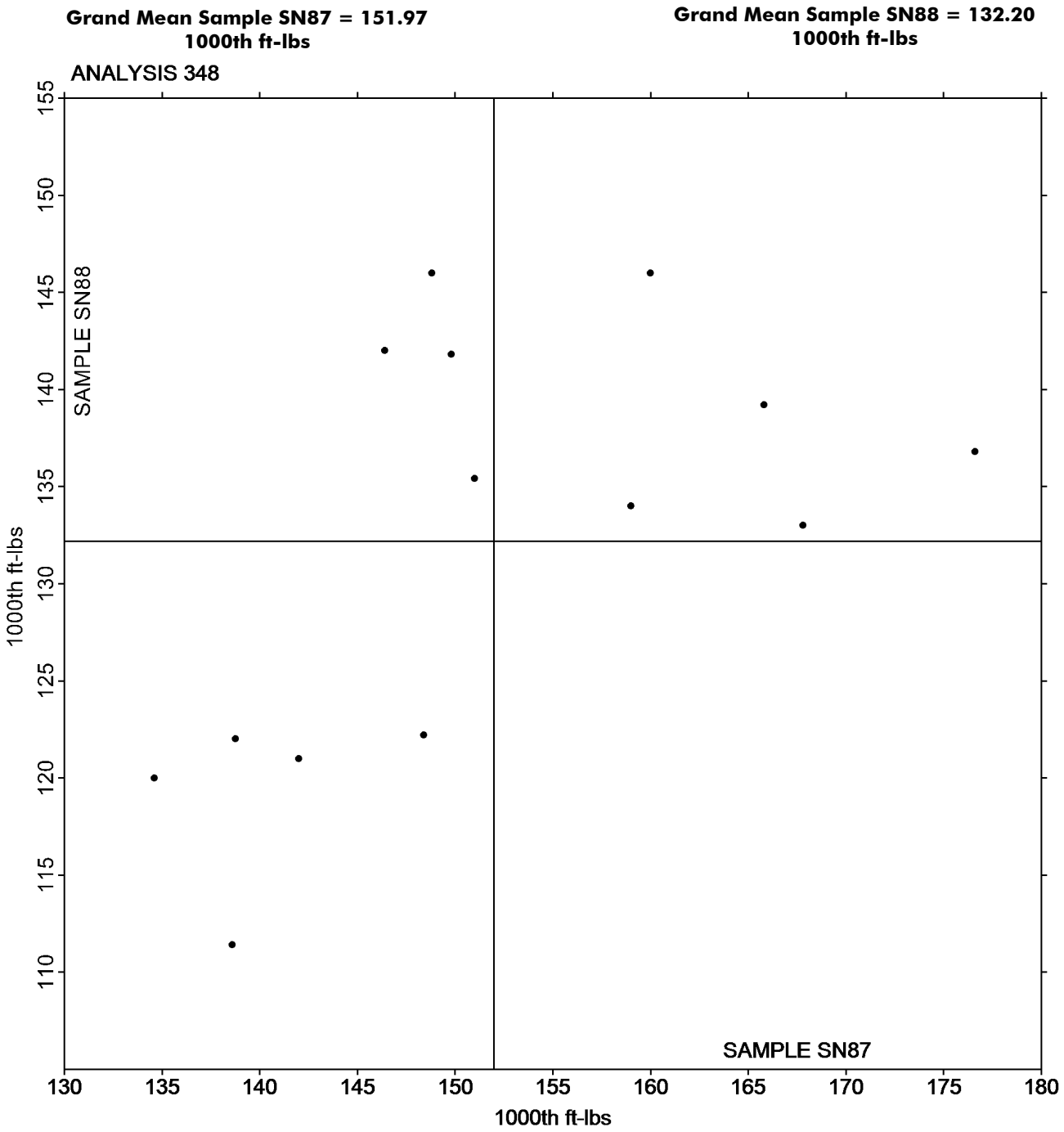
WebCode	Data Flag	Sample SN87 Lab Mean	Sample SN87 Diff from Grand Mean	Sample SN87 CPV	Sample SN88 Lab Mean	Sample SN88 Diff from Grand Mean	Sample SN88 CPV	Instr Code
48WAAV		160.0	8.0	0.65	146.0	13.8	1.26	HY
4JM4GJ		146.4	-5.6	-0.45	142.0	9.8	0.89	HY
4PPDNC		138.6	-13.4	-1.08	111.4	-20.8	-1.90	XX
HKRA2Y		167.8	15.8	1.28	133.0	0.8	0.07	HY
MGVF8D		138.8	-13.2	-1.07	122.0	-10.2	-0.93	KR
MXJQUF		148.8	-3.2	-0.26	146.0	13.8	1.26	HY
PGQRPQ		142.0	-10.0	-0.81	121.0	-11.2	-1.02	HY
PH3EFR		165.8	13.8	1.12	139.2	7.0	0.64	HZ
Q8FQ4P		151.0	-1.0	-0.08	135.4	3.2	0.29	HZ
QEULXX		134.6	-17.4	-1.41	120.0	-12.2	-1.11	HZ
RBR3DB		149.8	-2.2	-0.18	141.8	9.6	0.88	HY
RKHNJA		148.4	-3.6	-0.29	122.2	-10.0	-0.91	HY
TBQP69		159.0	7.0	0.57	134.0	1.8	0.16	HZ
XM4HKH		176.6	24.6	2.00	136.8	4.6	0.42	HZ

Summary Statistics	Sample SN87	Sample SN88
Grand Means	151.97 1000th ft-lbs	132.20 1000th ft-lbs
Stnd Dev Btwn Labs	12.33 1000th ft-lbs	10.97 1000th ft-lbs

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

HY	Huygen Digitized Scott Internal Bond Tester	HZ	Huygen Internal Bond Tester with AccuPress
KR	Kumagai Riki Kogyo Internal Bond Tester	XX	Instrument make/model not specified by lab



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 349

Internal Bond Strength - Scott Bond Models

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SP87 Lab Mean	Sample SP87 Diff from Grand Mean	Sample SP87 CPV	Sample SP88 Lab Mean	Sample SP88 Diff from Grand Mean	Sample SP88 CPV	Instr Code
24JL4F		161.4	5.9	0.16	130.0	6.2	0.28	TM
3A9LVF		208.2	52.7	1.40	176.4	52.6	2.35	XX
AC8EK7		131.6	-23.9	-0.64	105.4	-18.4	-0.82	TM
AF7PG6		233.2	77.7	2.07	146.2	22.4	1.00	SC
N3U4CE		138.8	-16.7	-0.44	109.8	-14.0	-0.62	XX
QC7AYT		135.8	-19.7	-0.52	113.8	-10.0	-0.45	SC
RMLFBM		181.6	26.1	0.69	135.4	11.6	0.52	SC
UXXF4L		152.4	-3.1	-0.08	122.8	-1.0	-0.04	XX
VK9TNR		116.4	-39.1	-1.04	99.9	-23.9	-1.06	TM
VW29DT		122.6	-32.9	-0.88	105.8	-18.0	-0.80	TM
WM7QCQ	X	59.3	-96.2	-2.56	44.3	-79.5	-3.54	SC
YJXCK3		128.4	-27.1	-0.72	116.2	-7.6	-0.34	TM

Summary Statistics	Sample SP87	Sample SP88
Grand Means	155.49 1000th ft-lbs	123.79 1000th ft-lbs
Stnd Dev Btwn Labs	37.59 1000th ft-lbs	22.42 1000th ft-lbs

Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #349

WM7QCQ (X) Data for both samples are low.

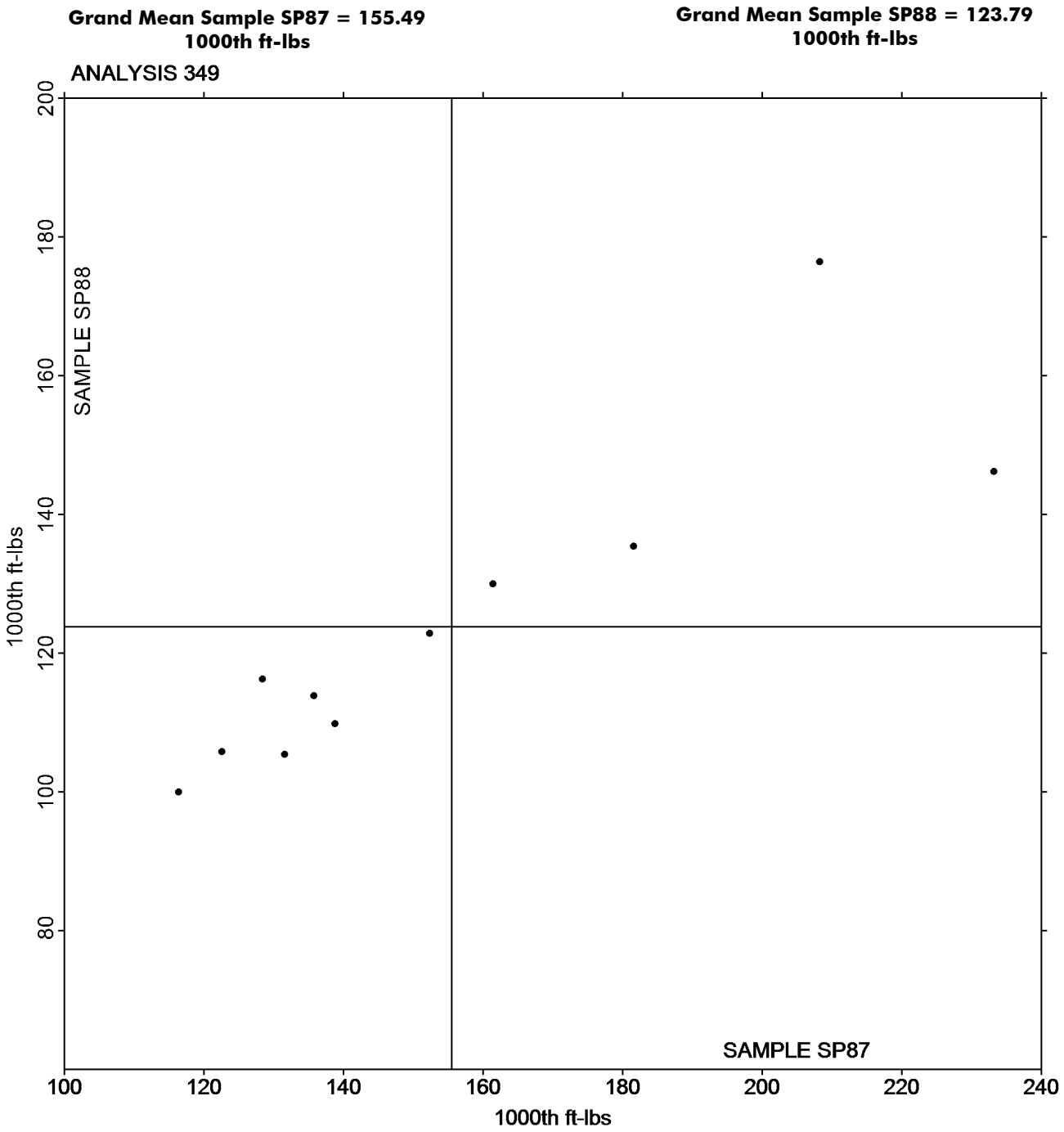
-

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-

