Paper & Paperboard Testing Program

Summary Report #2991 S - March 2019

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305	Bursting Strength - Printing Papers
310	Bursting Strength - Packaging Papers
311	Tearing Strength - Newsprint
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
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334	Folding Endurance (MIT) - Double Folds
336	Bending Resistance, Gurley Type
338	Bending Resistance, Taber Type - 0 to 10 Units
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The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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

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Key for Web Summary Reports (Page 1 of 2)

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

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

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

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

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

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

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

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

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

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

Common Problems Highlighted in Footnotes

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

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

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

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

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

Paper & Paperboard Interlaboratory Testing Program

Analysis 305

Bursting Strength - Printing Papers

TAPPI Official Test Method T403

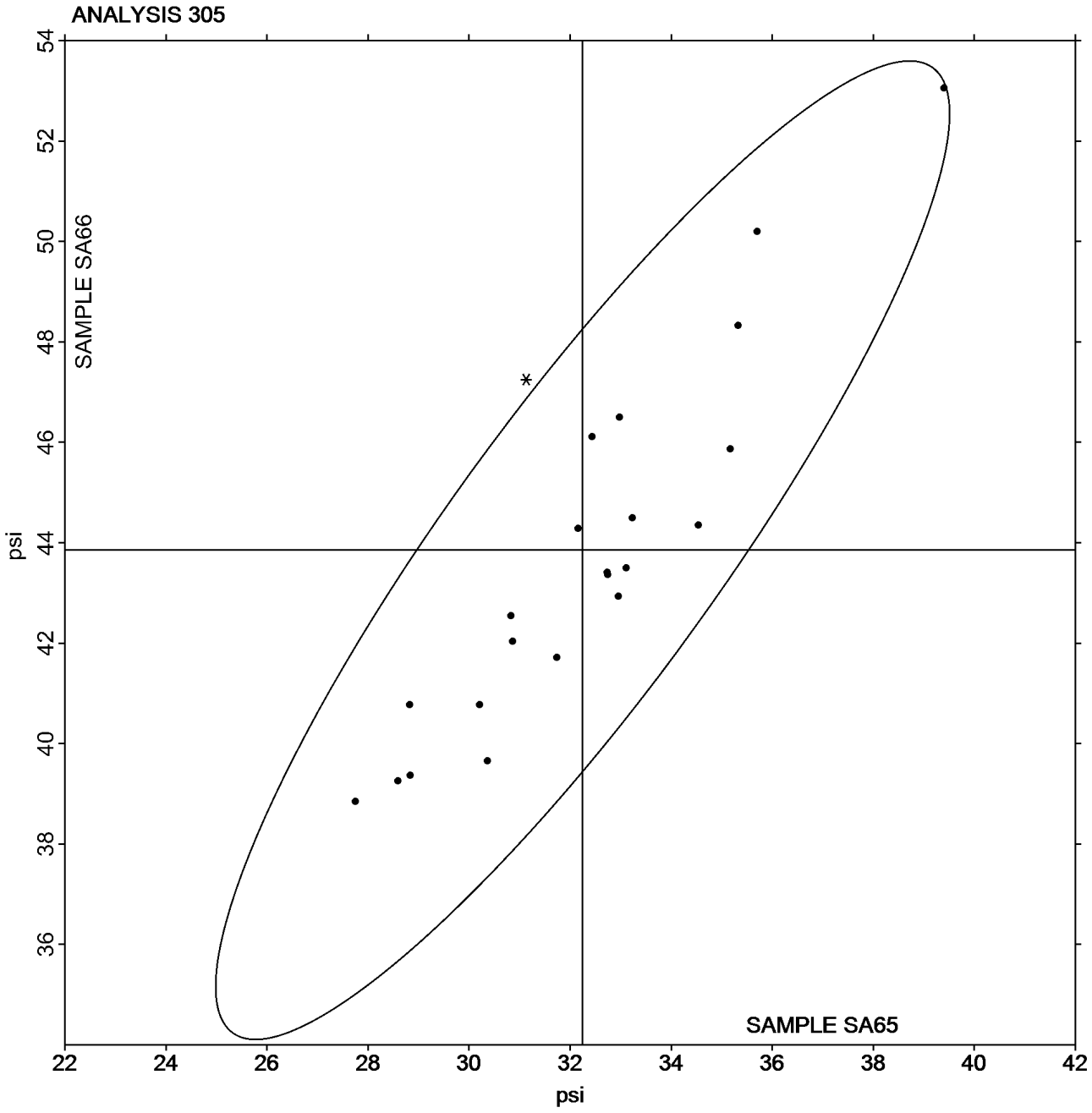
WebCode	Data Flag	Sample SA65 Lab Mean	Sample SA65 Diff from Grand Mean	Sample SA65 CPV	Sample SA66 Lab Mean	Sample SA66 Diff from Grand Mean	Sample SA66 CPV
24C9YZ		30.21	-2.04	-0.76	40.77	-3.08	-0.85
3KF6V4		32.73	0.48	0.18	43.41	-0.44	-0.12
7HY3JF		35.17	2.93	1.09	45.87	2.01	0.56
8V3RW8		33.11	0.87	0.32	43.50	-0.35	-0.10
93ZYU8		32.98	0.73	0.27	46.49	2.64	0.73
AD94CM		30.37	-1.88	-0.70	39.65	-4.20	-1.16
ATKHUK		35.33	3.08	1.14	48.33	4.48	1.24
BKPYTG		27.75	-4.50	-1.67	38.85	-5.00	-1.38
CYPZ84		30.86	-1.38	-0.51	42.03	-1.82	-0.50
E4BLEG		28.84	-3.41	-1.26	39.37	-4.48	-1.24
FN9MEP		33.24	0.99	0.37	44.49	0.64	0.18
FP7ZYW		32.75	0.50	0.19	43.37	-0.48	-0.13
G9G63Z		28.83	-3.42	-1.27	40.77	-3.08	-0.85
GFXP4Q		31.74	-0.50	-0.19	41.72	-2.14	-0.59
GJBLRZ		32.44	0.19	0.07	46.11	2.26	0.62
NN8HGT		39.40	7.16	2.66	53.06	9.21	2.55
NZZWLW		35.70	3.45	1.28	50.20	6.35	1.76
URM4NG		32.16	-0.08	-0.03	44.28	0.43	0.12
UTL4WT		32.95	0.71	0.26	42.93	-0.92	-0.25
VUAW6G	*	31.13	-1.12	-0.41	47.25	3.40	0.94
W7FDPR		30.83	-1.41	-0.52	42.54	-1.31	-0.36
YH7UGP		28.60	-3.65	-1.35	39.25	-4.60	-1.27
ZQWLHN		34.54	2.29	0.85	44.35	0.50	0.14

Summary Statistics	Sample SA65	Sample SA66
Grand Means	32.25 psi	43.85 psi
Stnd Dev Btwn Labs	2.69 psi	3.61 psi

Statistics based on 23 of 23 reporting participants.

Grand Mean Sample SA65 = 32.247 psi

Grand Mean Sample SA66 = 43.851 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

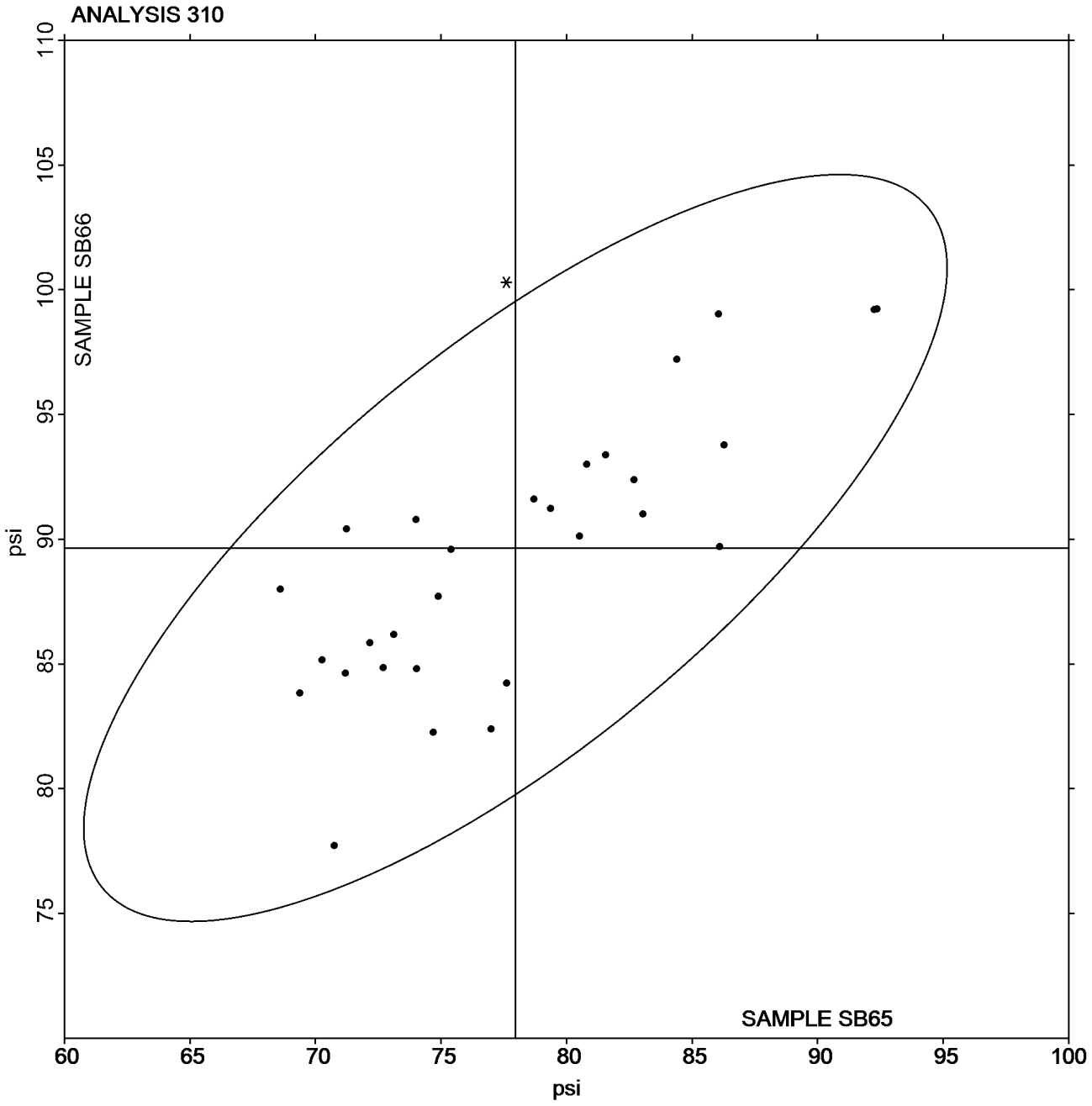
WebCode	Data Flag	Sample SB65 Lab Mean	Sample SB65 Diff from Grand Mean	Sample SB65 CPV	Sample SB66 Lab Mean	Sample SB66 Diff from Grand Mean	Sample SB66 CPV
26QPZK		71.25	-6.71	-1.03	90.42	0.77	0.13
2K2JL3		82.68	4.72	0.72	92.37	2.72	0.48
2X9D6R		86.05	8.09	1.24	99.02	9.37	1.65
48NT6C	*	77.60	-0.36	-0.05	100.30	10.65	1.87
4BLJ3B		78.70	0.74	0.11	91.60	1.95	0.34
7EKCDK		80.51	2.55	0.39	90.12	0.47	0.08
9GYV38		69.39	-8.57	-1.31	83.83	-5.82	-1.02
BKPYTG		79.37	1.41	0.22	91.22	1.57	0.28
C2RYGB		74.90	-3.06	-0.47	87.70	-1.95	-0.34
CHYZCX		75.40	-2.56	-0.39	89.60	-0.05	-0.01
D7HVH8		83.03	5.08	0.78	91.01	1.36	0.24
FABB97		80.80	2.84	0.43	93.00	3.35	0.59
FP7ZYW		72.17	-5.79	-0.89	85.84	-3.82	-0.67
GFXP4Q		70.27	-7.68	-1.18	85.16	-4.49	-0.79
JR4F34		74.70	-3.26	-0.50	82.25	-7.40	-1.30
K49VLE		74.02	-3.94	-0.60	84.82	-4.83	-0.85
K6MHX2		92.25	14.29	2.19	99.20	9.55	1.68
M2W3HQ		72.70	-5.26	-0.80	84.85	-4.80	-0.84
MQVP7W		70.75	-7.21	-1.10	77.73	-11.93	-2.10
MZ3CEW		74.00	-3.96	-0.61	90.79	1.14	0.20
NN8HGT		81.56	3.60	0.55	93.38	3.73	0.66
P73B3R		77.61	-0.35	-0.05	84.23	-5.42	-0.95
RQXVQM		68.60	-9.36	-1.43	88.00	-1.65	-0.29
T4M6WR		92.36	14.40	2.20	99.23	9.58	1.68
UD2NLG		84.40	6.44	0.99	97.20	7.55	1.33
UT2A9C		86.10	8.14	1.25	89.70	0.05	0.01
UTL4WT		73.13	-4.83	-0.74	86.18	-3.47	-0.61
UZZVGY		77.00	-0.96	-0.15	82.40	-7.25	-1.27
YRAZ4C		71.20	-6.76	-1.03	84.63	-5.02	-0.88
ZDMBKZ		86.27	8.31	1.27	93.77	4.12	0.72

Summary Statistics	Sample SB65	Sample SB66
Grand Means	77.96 psi	89.65 psi
Stnd Dev Btwn Labs	6.53 psi	5.69 psi

Statistics based on 30 of 30 reporting participants.

Grand Mean Sample SB65 = 77.959 psi

Grand Mean Sample SB66 = 89.652 psi



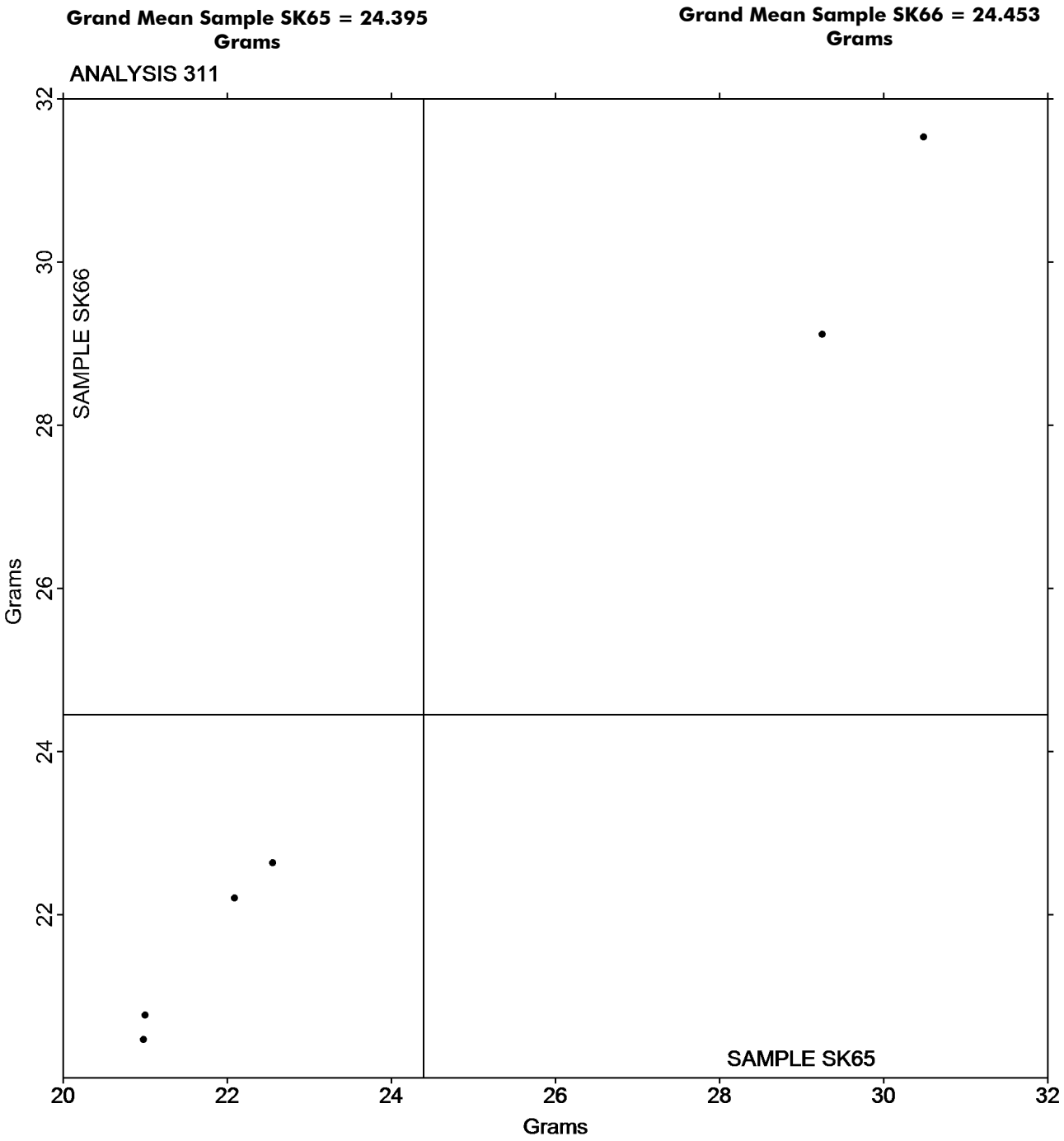
Paper & Paperboard Interlaboratory Testing Program

Analysis 311
Tearing Strength - Newsprint
TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK65 Lab Mean	Sample SK65 Diff from Grand Mean	Sample SK65 CPV	Sample SK66 Lab Mean	Sample SK66 Diff from Grand Mean	Sample SK66 CPV
FN9MEP		21.00	-3.40	-0.79	20.77	-3.68	-0.79
FP7ZYW		22.56	-1.84	-0.43	22.64	-1.82	-0.39
Q9LP47		20.98	-3.42	-0.79	20.47	-3.98	-0.85
XQXYQQ		30.49	6.09	1.42	31.53	7.08	1.51
YH7UGP		22.09	-2.31	-0.54	22.20	-2.25	-0.48
YHMX6P		29.26	4.86	1.13	29.11	4.66	1.00

Summary Statistics	Sample SK65	Sample SK66
Grand Means	24.40 Grams	24.45 Grams
Stnd Dev Btwn Labs	4.30 Grams	4.68 Grams

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 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC65 Lab Mean	Sample SC65 Diff from Grand Mean	Sample SC65 CPV	Sample SC66 Lab Mean	Sample SC66 Diff from Grand Mean	Sample SC66 CPV
28DCQM	X	45.72	-0.23	-0.06	40.44	-5.51	-1.35
2K2JL3		43.15	-2.80	-0.68	43.94	-2.01	-0.49
2XQ4GX		45.80	-0.15	-0.04	46.60	0.65	0.16
3LBPH4		41.78	-4.17	-1.02	41.48	-4.47	-1.09
3QKW7M		42.23	-3.72	-0.91	40.72	-5.23	-1.28
4BM99T		50.23	4.28	1.05	49.33	3.38	0.82
4NWPHJ		53.56	7.61	1.86	51.58	5.63	1.37
6DB8ZW	X	0.62	-45.33	-11.07	0.60	-45.36	-11.07
7HY3JF		40.78	-5.17	-1.26	42.88	-3.07	-0.75
93ZYU8		50.41	4.46	1.09	49.07	3.12	0.76
AD94CM		47.60	1.65	0.40	46.79	0.84	0.20
ATKHUK		50.40	4.45	1.09	50.80	4.85	1.18
C2RYGB		40.67	-5.28	-1.29	40.10	-5.85	-1.43
CARAYM		43.10	-2.85	-0.69	43.56	-2.39	-0.58
CYPZ84		48.00	2.05	0.50	47.48	1.53	0.37
DYHD4V		44.22	-1.73	-0.42	42.48	-3.47	-0.85
DZGEC8		43.32	-2.63	-0.64	42.27	-3.68	-0.90
E4BLEG		45.24	-0.71	-0.17	46.18	0.23	0.06
FP7ZYW		48.29	2.35	0.57	47.52	1.57	0.38
G9G63Z		47.66	1.71	0.42	47.62	1.67	0.41
GFXP4Q		52.98	7.03	1.72	54.24	8.29	2.02
HXCCD6		51.43	5.48	1.34	49.26	3.31	0.81
JR4F34		39.73	-6.22	-1.52	38.65	-7.30	-1.78
JTDPQV		45.60	-0.35	-0.08	46.60	0.65	0.16
K49VLE		48.33	2.39	0.58	48.59	2.64	0.64
K6MHX2	*	35.36	-10.59	-2.58	36.20	-9.75	-2.38
KC32FF		46.10	0.15	0.04	44.80	-1.15	-0.28
MFV3EZ		45.88	-0.07	-0.02	46.74	0.79	0.19
MZ3CEW		50.84	4.90	1.20	51.24	5.29	1.29
NN8HGT		44.62	-1.33	-0.32	44.34	-1.62	-0.39
NZZWLW		48.40	2.45	0.60	47.20	1.25	0.30
PKZM9A		46.20	0.25	0.06	46.80	0.85	0.21
PLWZUG		42.93	-3.02	-0.74	43.12	-2.83	-0.69
RBKMPJ		47.41	1.46	0.36	47.43	1.48	0.36
RBTD83		48.56	2.61	0.64	50.72	4.77	1.16
RQXVQM		55.00	9.05	2.21	56.00	10.05	2.45
TAAZUP		43.44	-2.51	-0.61	43.60	-2.35	-0.57
UTL4WT		43.54	-2.40	-0.59	42.07	-3.88	-0.95
V2PJEL		40.88	-5.07	-1.24	42.40	-3.55	-0.87
VD3XZK		41.79	-4.16	-1.01	41.93	-4.02	-0.98

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC65 Lab Mean	Sample SC65 Diff from Grand Mean	Sample SC65 CPV	Sample SC66 Lab Mean	Sample SC66 Diff from Grand Mean	Sample SC66 CPV
VU4M9B		45.68	-0.26	-0.06	46.92	0.96	0.24
VUAW6G	X	41.00	-4.95	-1.21	53.00	7.05	1.72
W7FDPR		49.12	3.17	0.77	49.20	3.25	0.79
WLQ4JJ		49.95	4.00	0.98	50.54	4.59	1.12
YDR8F7		41.42	-4.53	-1.11	42.38	-3.57	-0.87
YRAZ4C		46.76	0.82	0.20	47.61	1.66	0.40
ZQWLHN		43.22	-2.73	-0.67	42.95	-3.00	-0.73

Summary Statistics	Sample SC65	Sample SC66
Grand Means	45.95 Grams	45.95 Grams
Stnd Dev Btwn Labs	4.10 Grams	4.10 Grams

Statistics based on 44 of 47 reporting participants.

Comments on Assigned Data Flags for Test #312

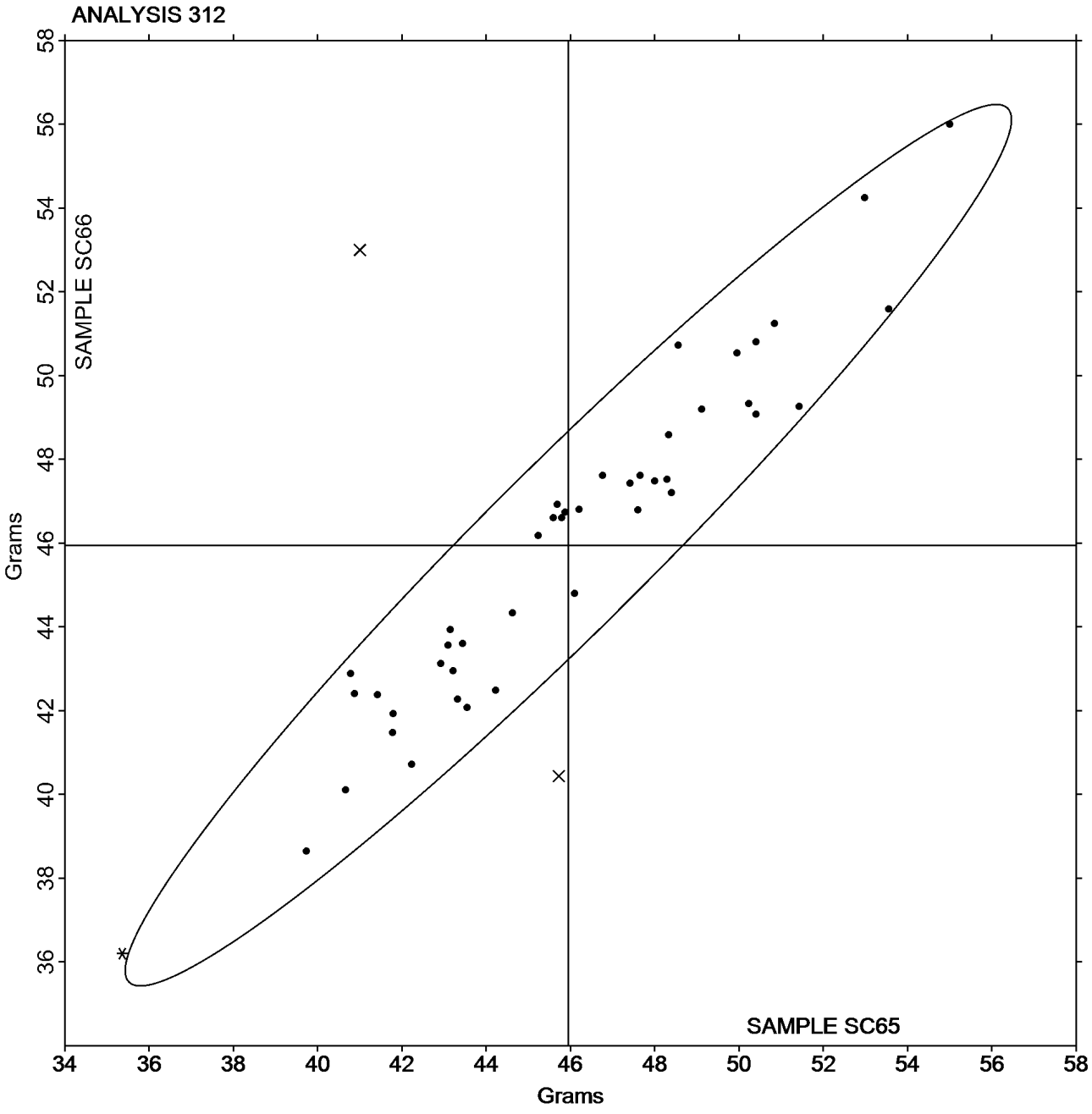
6DB8ZW (X) - Extreme Data.

VUAW6G (X) - Inconsistent in testing between samples.

28DCQM (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SC65.

Grand Mean Sample SC65 = 45.946 Grams

Grand Mean Sample SC66 = 45.953 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD65 Lab Mean	Sample SD65 Diff from Grand Mean	Sample SD65 CPV	Sample SD66 Lab Mean	Sample SD66 Diff from Grand Mean	Sample SD66 CPV
22NUGG		189.3	27.1	1.74	142.7	6.2	0.43
26QPZK		170.9	8.6	0.55	137.5	0.9	0.07
2B988Z		138.4	-23.9	-1.53	118.4	-18.1	-1.26
2R3JBW		152.5	-9.8	-0.63	126.2	-10.3	-0.72
48NT6C		169.9	7.7	0.49	129.4	-7.1	-0.50
4BLJ3B		151.8	-10.4	-0.67	120.0	-16.5	-1.15
6KAPE9		152.0	-10.3	-0.66	128.7	-7.8	-0.54
7EKCDK		180.1	17.8	1.14	152.2	15.7	1.10
9XL7XM		143.6	-18.6	-1.20	123.0	-13.6	-0.95
ADBRX8		168.0	5.8	0.37	148.6	12.1	0.85
BKPYTG		134.8	-27.4	-1.76	113.6	-22.9	-1.60
BZYREY	X	0.4	-161.9	-10.38	0.3	-136.2	-9.50
CHYZCX		171.5	9.3	0.59	147.3	10.8	0.75
D72EPY		185.1	22.9	1.47	159.9	23.3	1.63
D7HVH8		175.6	13.4	0.86	144.4	7.8	0.55
DD23XQ		146.8	-15.4	-0.99	132.4	-4.1	-0.29
EPPGGK		169.7	7.5	0.48	139.2	2.6	0.18
FP7ZYW		171.6	9.4	0.60	144.8	8.3	0.58
GA8FTT		146.3	-15.9	-1.02	121.3	-15.2	-1.06
GFXP4Q		176.4	14.2	0.91	145.6	9.1	0.63
JT8D6J	X	573.6	411.4	26.38	493.1	356.6	24.88
K3WJHH		173.7	11.4	0.73	129.2	-7.3	-0.51
K677FW		157.2	-5.0	-0.32	133.6	-2.9	-0.20
KKGVKA		160.6	-1.6	-0.10	136.2	-0.4	-0.02
KMNAXG		145.5	-16.7	-1.07	115.9	-20.6	-1.44
LRXTQ9	*	185.1	22.8	1.46	172.6	36.0	2.51
M2W3HQ		172.2	10.0	0.64	138.4	1.9	0.13
MH2KCV		170.2	8.0	0.51	154.7	18.2	1.27
MQVP7W		176.0	13.8	0.88	141.6	5.1	0.35
N2TVT3		170.2	8.0	0.51	143.7	7.2	0.50
P73B3R		167.9	5.7	0.36	137.7	1.2	0.08
PKZM9A		159.7	-2.5	-0.16	141.8	5.3	0.37
QJ3R6X		156.4	-5.8	-0.38	122.7	-13.8	-0.96
RQXVQM	*	184.4	22.2	1.42	171.2	34.7	2.42
UT2A9C		145.6	-16.6	-1.07	122.0	-14.5	-1.01
VPGN83		147.8	-14.4	-0.93	123.7	-12.8	-0.89
VU4M9B	*	126.2	-36.0	-2.31	119.0	-17.5	-1.22
XMFRG6	X	811.5	649.3	41.64	875.5	739.0	51.56
YCH7U8		148.1	-14.2	-0.91	137.4	0.9	0.06
YDPK2D		161.8	-0.5	-0.03	134.4	-2.1	-0.15

Summary Statistics	Sample SD65	Sample SD66
Grand Means	162.24 Grams	136.51 Grams
Stnd Dev Btwn Labs	15.59 Grams	14.33 Grams

Statistics based on 37 of 40 reporting participants.

Comments on Assigned Data Flags for Test #314

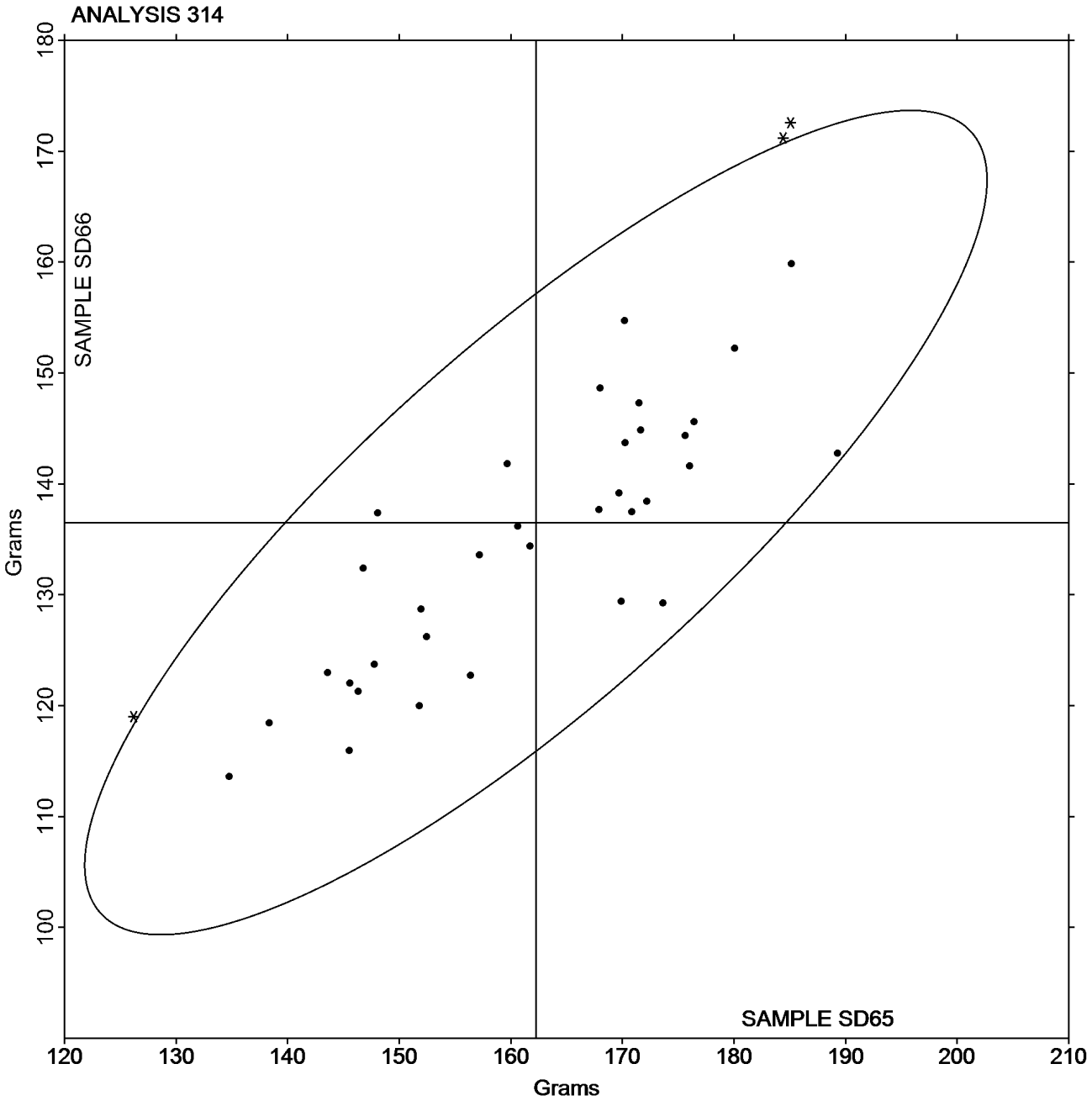
XMFRG6 (X) - Extreme Data.

JT8D6J (X) - Extreme Data.

BZYREY (X) - Extreme Data.

Grand Mean Sample SD65 = 162.24 Grams

Grand Mean Sample SD66 = 136.51 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

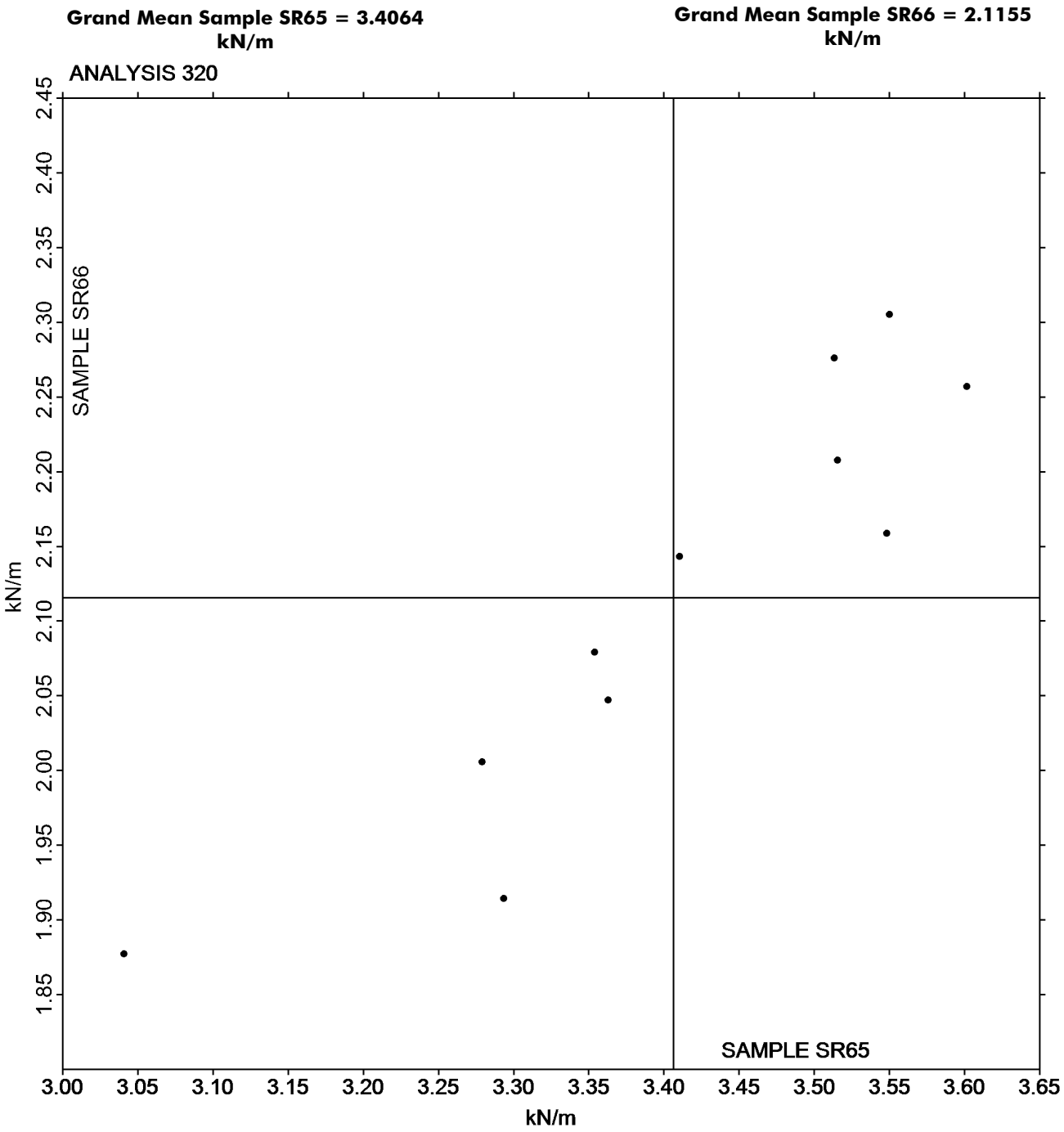
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR65 Lab Mean	Sample SR65 Diff from Grand Mean	Sample SR65 CPV	Sample SR66 Lab Mean	Sample SR66 Diff from Grand Mean	Sample SR66 CPV
FN9MEP		3.602	0.195	1.19	2.257	0.141	0.98
Q9LP47		3.363	-0.043	-0.26	2.047	-0.069	-0.47
UD2NLG		3.513	0.107	0.65	2.276	0.161	1.11
URM4NG		3.041	-0.366	-2.23	1.877	-0.238	-1.65
UTL4WT		3.354	-0.052	-0.32	2.079	-0.037	-0.25
VU4M9B		3.411	0.004	0.03	2.143	0.028	0.19
VUAW6G		3.550	0.144	0.88	2.305	0.190	1.31
XQXYQQ		3.549	0.142	0.87	2.159	0.043	0.30
YH7UGP		3.293	-0.113	-0.69	1.914	-0.201	-1.40
YHMX6P		3.516	0.109	0.67	2.208	0.092	0.64
Z3LPKT		3.279	-0.127	-0.77	2.006	-0.110	-0.76

Summary Statistics	Sample SR65	Sample SR66
Grand Means	3.41 kN/m	2.12 kN/m
Stnd Dev Btwn Labs	0.16 kN/m	0.14 kN/m

Statistics based on 11 of 11 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

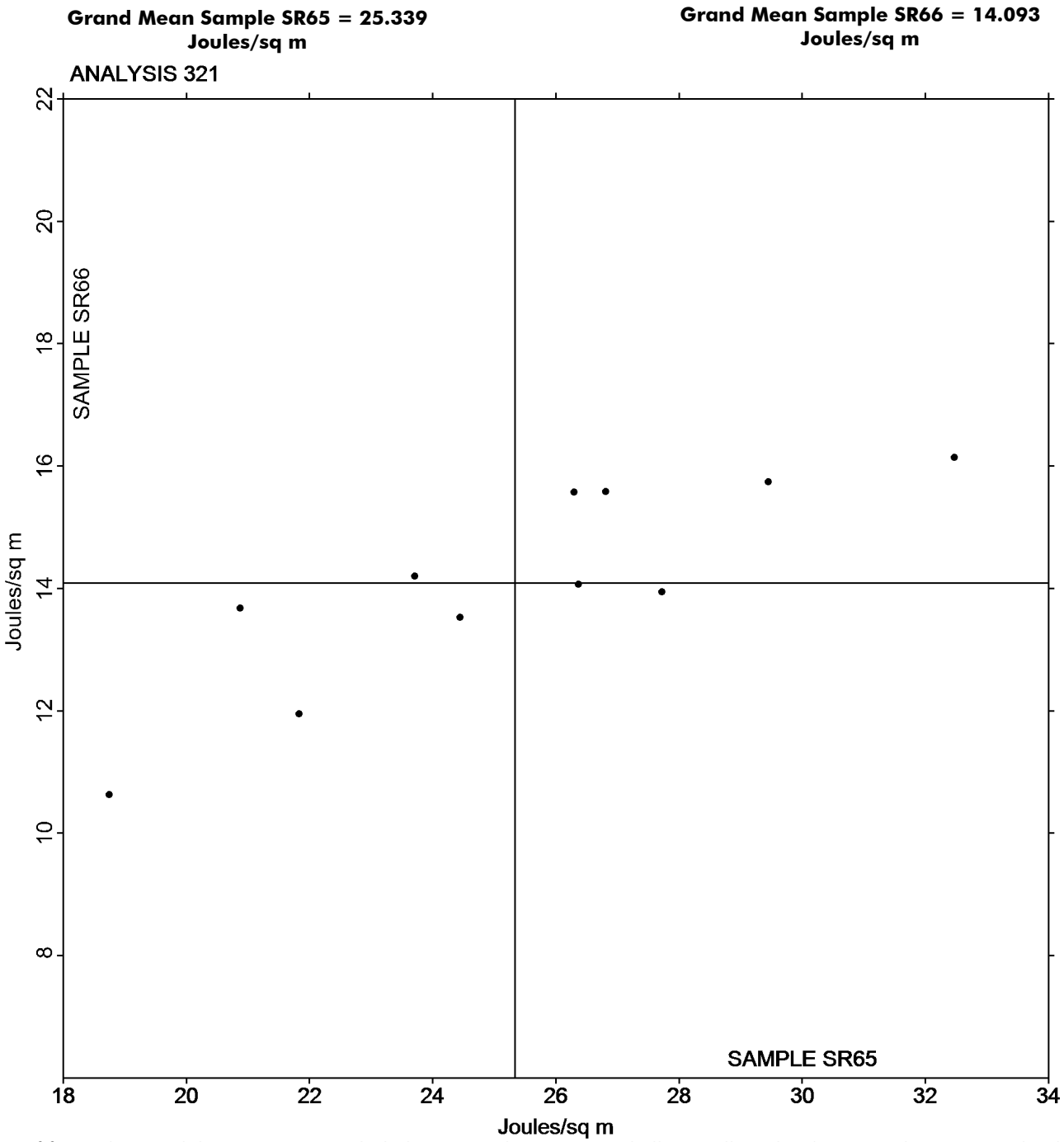
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR65 Lab Mean	Sample SR65 Diff from Grand Mean	Sample SR65 CPV	Sample SR66 Lab Mean	Sample SR66 Diff from Grand Mean	Sample SR66 CPV
FN9MEP		26.81	1.47	0.37	15.58	1.49	0.88
Q9LP47		24.45	-0.89	-0.23	13.53	-0.56	-0.34
UD2NLG		20.88	-4.46	-1.13	13.68	-0.42	-0.25
URM4NG		18.75	-6.59	-1.67	10.62	-3.47	-2.06
UTL4WT		21.83	-3.51	-0.89	11.95	-2.14	-1.27
VU4M9B		27.72	2.38	0.60	13.94	-0.15	-0.09
VUAW6G		26.30	0.96	0.24	15.57	1.48	0.88
XQXYQQ		26.37	1.03	0.26	14.07	-0.02	-0.01
YH7UGP		29.45	4.11	1.04	15.74	1.65	0.98
YHMX6P		23.71	-1.63	-0.41	14.20	0.10	0.06
Z3LPKT		32.47	7.13	1.80	16.14	2.05	1.21

Summary Statistics	Sample SR65	Sample SR66
Grand Means	25.34 Joules/sq m	14.09 Joules/sq m
Stnd Dev Btwn Labs	3.96 Joules/sq m	1.69 Joules/sq m

Statistics based on 11 of 11 reporting participants.



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

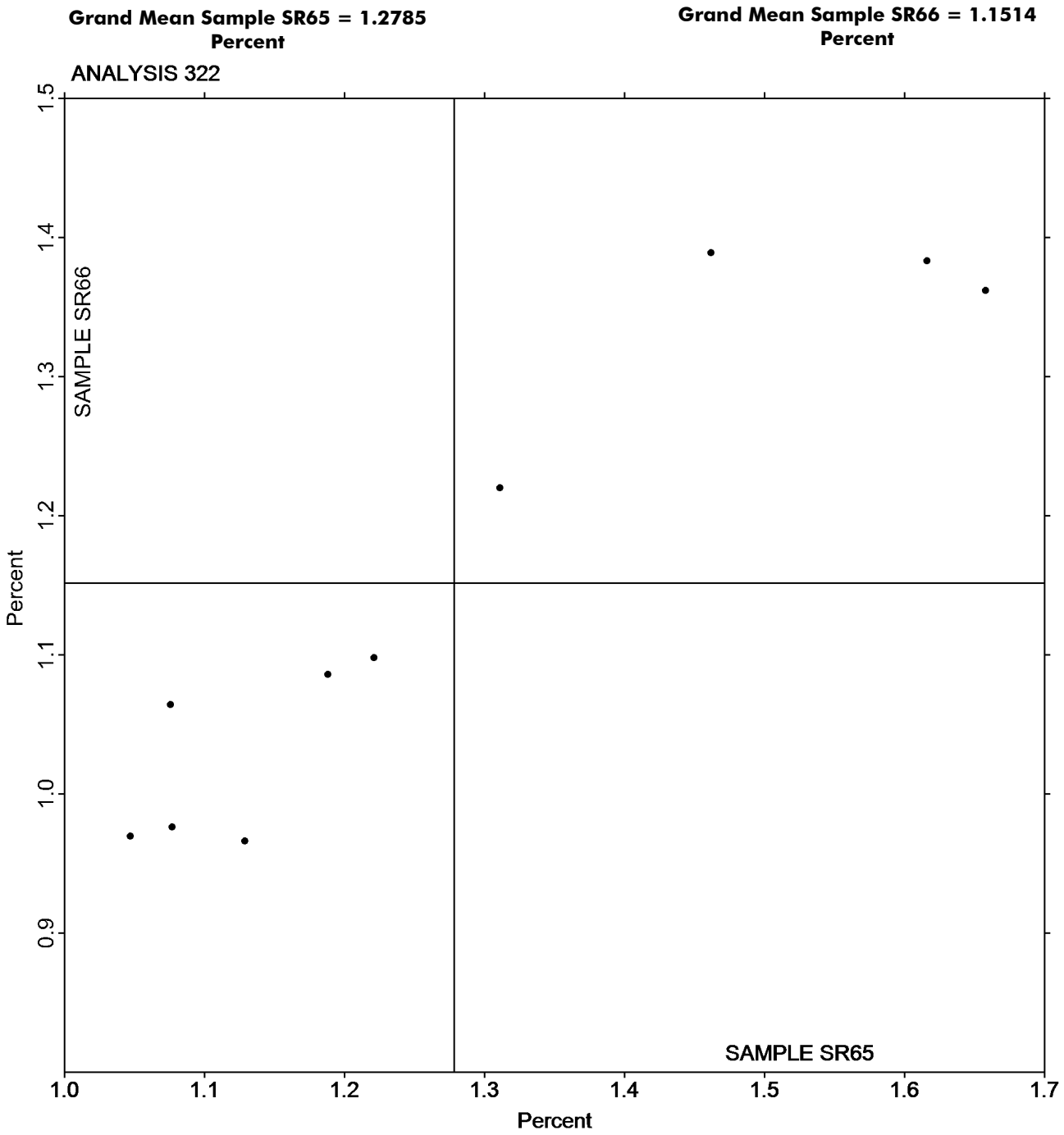
Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample SR65 Lab Mean	Sample SR65 Diff from Grand Mean	Sample SR65 CPV	Sample SR66 Lab Mean	Sample SR66 Diff from Grand Mean	Sample SR66 CPV
FN9MEP		1.462	0.184	0.81	1.389	0.238	1.37
Q9LP47		1.188	-0.090	-0.40	1.086	-0.065	-0.38
UD2NLG		1.076	-0.203	-0.89	1.064	-0.087	-0.50
URM4NG		1.047	-0.231	-1.02	0.970	-0.182	-1.04
UTL4WT		1.077	-0.201	-0.89	0.976	-0.175	-1.01
VU4M9B		1.129	-0.149	-0.66	0.966	-0.185	-1.07
VUAW6G		1.311	0.033	0.14	1.220	0.069	0.39
XQXYQQ		1.221	-0.057	-0.25	1.098	-0.053	-0.31
YH7UGP		1.616	0.338	1.49	1.383	0.232	1.33
Z3LPKT		1.658	0.380	1.68	1.362	0.211	1.21

Summary Statistics	Sample SR65	Sample SR66
Grand Means	1.28 Percent	1.15 Percent
Stnd Dev Btwn Labs	0.23 Percent	0.17 Percent

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 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF65 Lab Mean	Sample SF65 Diff from Grand Mean	Sample SF65 CPV	Sample SF66 Lab Mean	Sample SF66 Diff from Grand Mean	Sample SF66 CPV	Instr Code
24C9YZ		4.403	0.149	0.55	4.427	0.166	0.55	LH
28DCQM		4.570	0.315	1.16	4.628	0.366	1.22	LH
3KF6V4		4.076	-0.178	-0.66	4.138	-0.123	-0.41	DL
3LBPH4		4.606	0.351	1.29	4.517	0.255	0.85	LA
3QKW7M		4.485	0.230	0.85	4.622	0.361	1.21	TC
4BM99T		4.492	0.237	0.87	4.448	0.187	0.62	XX
4NWPHJ		4.067	-0.188	-0.69	4.124	-0.137	-0.46	XX
6DB8ZW	X	295.527	291.272	1,069.52	300.829	296.568	991.25	DM
7HY3JF	X	4.763	0.509	1.87	4.091	-0.170	-0.57	TJ
82T377		3.992	-0.263	-0.97	3.917	-0.344	-1.15	RE
8V3RW8		4.493	0.239	0.88	4.707	0.446	1.49	LF
93ZYU8		4.248	-0.007	-0.03	4.265	0.004	0.01	LH
AD94CM		3.981	-0.273	-1.00	3.895	-0.366	-1.22	LA
ATKHUK		4.032	-0.223	-0.82	4.018	-0.243	-0.81	LH
BZ2F26		4.569	0.315	1.15	4.394	0.133	0.44	FP
C2RYGB		4.629	0.375	1.38	4.626	0.365	1.22	TF
CARAYM		4.348	0.094	0.34	4.399	0.138	0.46	TO
CYPZ84		4.597	0.343	1.26	4.672	0.411	1.37	LI
DYHD4V		4.009	-0.246	-0.90	3.985	-0.276	-0.92	TF
DZGEC8		4.282	0.027	0.10	4.264	0.003	0.01	VM
E4BLEG		4.064	-0.190	-0.70	4.079	-0.182	-0.61	TB
FP7ZYW	*	3.585	-0.670	-2.46	3.439	-0.822	-2.75	LH
G9G63Z		4.263	0.008	0.03	4.265	0.003	0.01	TF
GFXP4Q		4.198	-0.056	-0.21	4.152	-0.109	-0.36	TM
HNLVHA		4.161	-0.093	-0.34	4.096	-0.165	-0.55	XX
HXCCD6		3.846	-0.409	-1.50	3.797	-0.464	-1.55	ID
JTDPQV		4.341	0.087	0.32	4.601	0.339	1.13	XX
K6MHX2		4.438	0.183	0.67	4.322	0.061	0.20	TO
KC32FF		4.085	-0.169	-0.62	3.934	-0.327	-1.09	TO
MFV3EZ		4.129	-0.125	-0.46	4.085	-0.176	-0.59	LE
MZ3CEW		4.040	-0.214	-0.79	4.018	-0.243	-0.81	LI
NZZWLW		4.227	-0.027	-0.10	4.369	0.108	0.36	LH
P34WE2		4.649	0.395	1.45	4.601	0.340	1.13	LX
PLWZUG	*	4.610	0.356	1.31	4.306	0.045	0.15	TP
RBKMPJ		4.223	-0.031	-0.12	4.279	0.018	0.06	LI
UTL4WT		4.104	-0.150	-0.55	4.139	-0.122	-0.41	LH
V2PJEL		3.917	-0.337	-1.24	4.121	-0.140	-0.47	TB
VD3XZK		4.420	0.165	0.61	4.472	0.211	0.70	LF
W7FDPR		4.186	-0.068	-0.25	4.241	-0.020	-0.07	LX
WLQ4JJ		3.788	-0.466	-1.71	3.751	-0.510	-1.70	TO

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF65 Lab Mean	Sample SF65 Diff from Grand Mean	Sample SF65 CPV	Sample SF66 Lab Mean	Sample SF66 Diff from Grand Mean	Sample SF66 CPV	Instr Code
YDR8F7		4.200	-0.054	-0.20	4.490	0.229	0.77	FP
ZQWLHN		4.826	0.571	2.10	4.843	0.582	1.95	TP

Summary Statistics	Sample SF65	Sample SF66
Grand Means	4.25 kN/m	4.26 kN/m
Stnd Dev Btwn Labs	0.27 kN/m	0.30 kN/m

Statistics based on 40 of 42 reporting participants.

Comments on Assigned Data Flags for Test #325

7HY3JF (X) - Inconsistent in testing between samples.

6DB8ZW (X) - Extreme Data.

Analysis Notes:

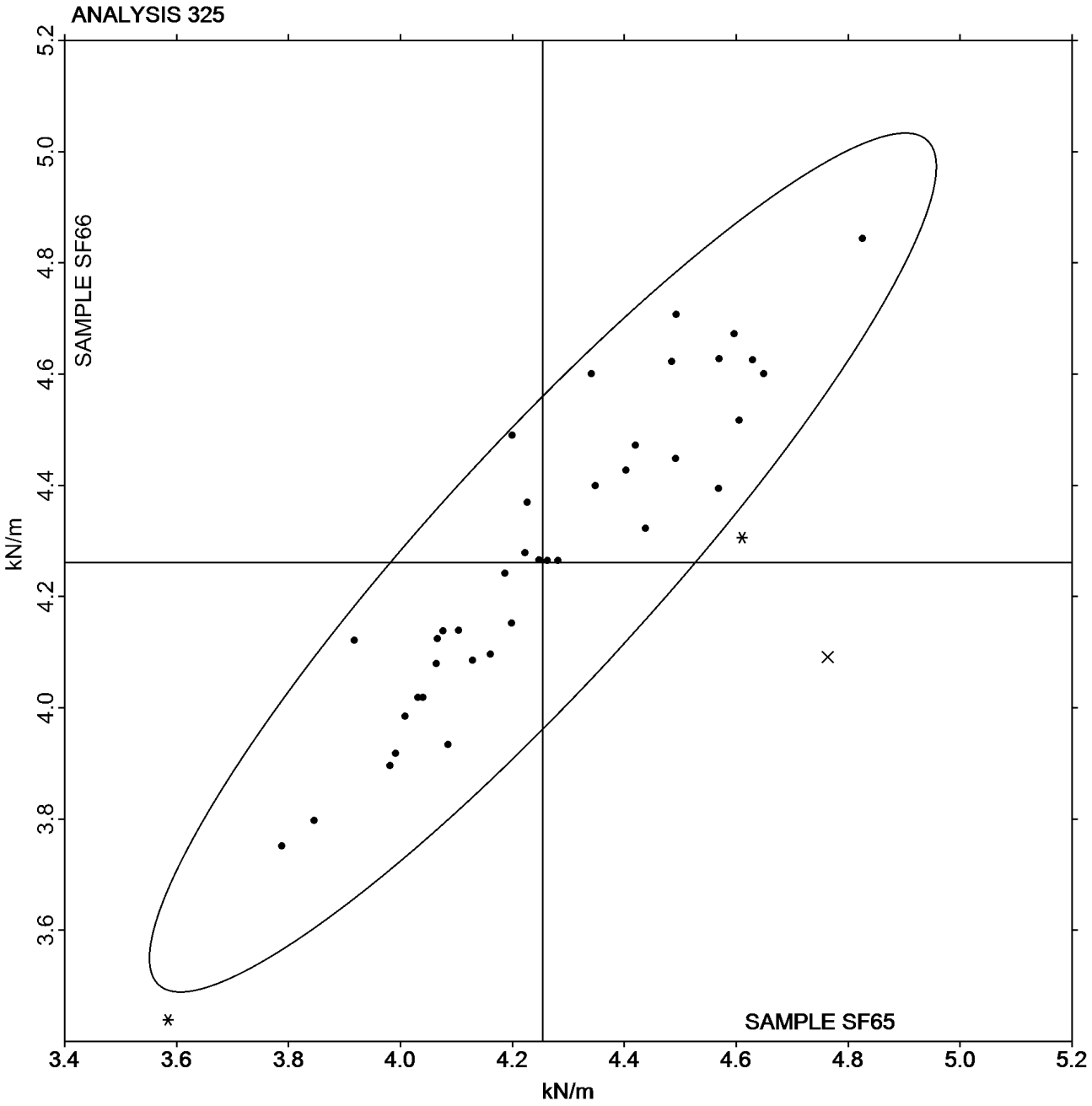
JTDPQV - Data appear to be reported as lb/in, not kg/15 mm as indicated on datasheet. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	DM	IDM Horizontal Tensile Tester
FP	Frank PTI Universal Tester TS	ID	Instron 4201/4202
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	TM	TMI Horizontal Tensile Tester
TO	Thwing-Albert QC-1000	TP	TMI Monitor/Tensile 100 (84-21-01)
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF65 = 4.2545 kN/m

Grand Mean Sample SF66 = 4.2612 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF65 Lab Mean	Sample SF65 Diff from Grand Mean	Sample SF65 CPV	Sample SF66 Lab Mean	Sample SF66 Diff from Grand Mean	Sample SF66 CPV	Instr Code
24C9YZ		46.48	4.32	0.54	46.04	3.06	0.37	LH
3KF6V4		43.41	1.25	0.16	47.11	4.13	0.49	DL
3LBPH4		50.36	8.20	1.03	49.79	6.81	0.81	LA
4BM99T		34.97	-7.19	-0.90	35.29	-7.69	-0.92	XX
4NWPHJ		40.29	-1.87	-0.23	38.98	-4.00	-0.48	XX
82T377		43.41	1.25	0.16	43.76	0.78	0.09	RE
8V3RW8		47.45	5.29	0.66	53.28	10.30	1.23	LW
93ZYU8		45.31	3.15	0.39	46.74	3.76	0.45	LH
AD94CM		31.00	-11.16	-1.40	31.93	-11.05	-1.32	LA
BZ2F26	*	55.17	13.01	1.63	49.66	6.68	0.80	FP
C2RYGB		43.58	1.42	0.18	44.05	1.07	0.13	TF
CARAYM	*	20.96	-21.20	-2.66	21.76	-21.22	-2.54	TO
CYPZ84		48.05	5.89	0.74	49.71	6.73	0.80	LI
E4BLEG		45.01	2.85	0.36	47.18	4.20	0.50	TB
FP7ZYW		43.32	1.16	0.15	42.16	-0.82	-0.10	LH
G9G63Z		50.31	8.16	1.02	53.08	10.10	1.21	TF
GFXP4Q		44.81	2.66	0.33	46.77	3.79	0.45	XX
HXCCD6	X	243.57	201.41	25.22	235.07	192.09	22.97	ID
K6MHX2		54.87	12.71	1.59	52.54	9.56	1.14	TO
KC32FF		41.58	-0.58	-0.07	39.57	-3.41	-0.41	TO
MZ3CEW		41.01	-1.15	-0.14	41.53	-1.45	-0.17	LI
NZZWLW		38.73	-3.43	-0.43	42.41	-0.57	-0.07	LH
P34WE2		47.40	5.25	0.66	47.67	4.69	0.56	LX
PLWZUG		35.36	-6.80	-0.85	34.86	-8.12	-0.97	TP
RBKMPJ		41.52	-0.64	-0.08	44.63	1.65	0.20	LI
UTL4WT		38.57	-3.59	-0.45	40.20	-2.78	-0.33	LH
VD3XZK		37.51	-4.65	-0.58	40.31	-2.67	-0.32	LW
W7FDPR		23.63	-18.53	-2.32	23.83	-19.15	-2.29	LX
WLQ4JJ		34.47	-7.69	-0.96	31.98	-11.01	-1.32	TO
YDR8F7		52.95	10.79	1.35	59.18	16.20	1.94	FP
ZQWLHN		43.27	1.11	0.14	43.41	0.43	0.05	TP

Summary Statistics	Sample SF65	Sample SF66
Grand Means	42.16 Joules/sq m	42.98 Joules/sq m
Stnd Dev Btwn Labs	7.99 Joules/sq m	8.36 Joules/sq m

Statistics based on 30 of 31 reporting participants.

Comments on Assigned Data Flags for Test #327

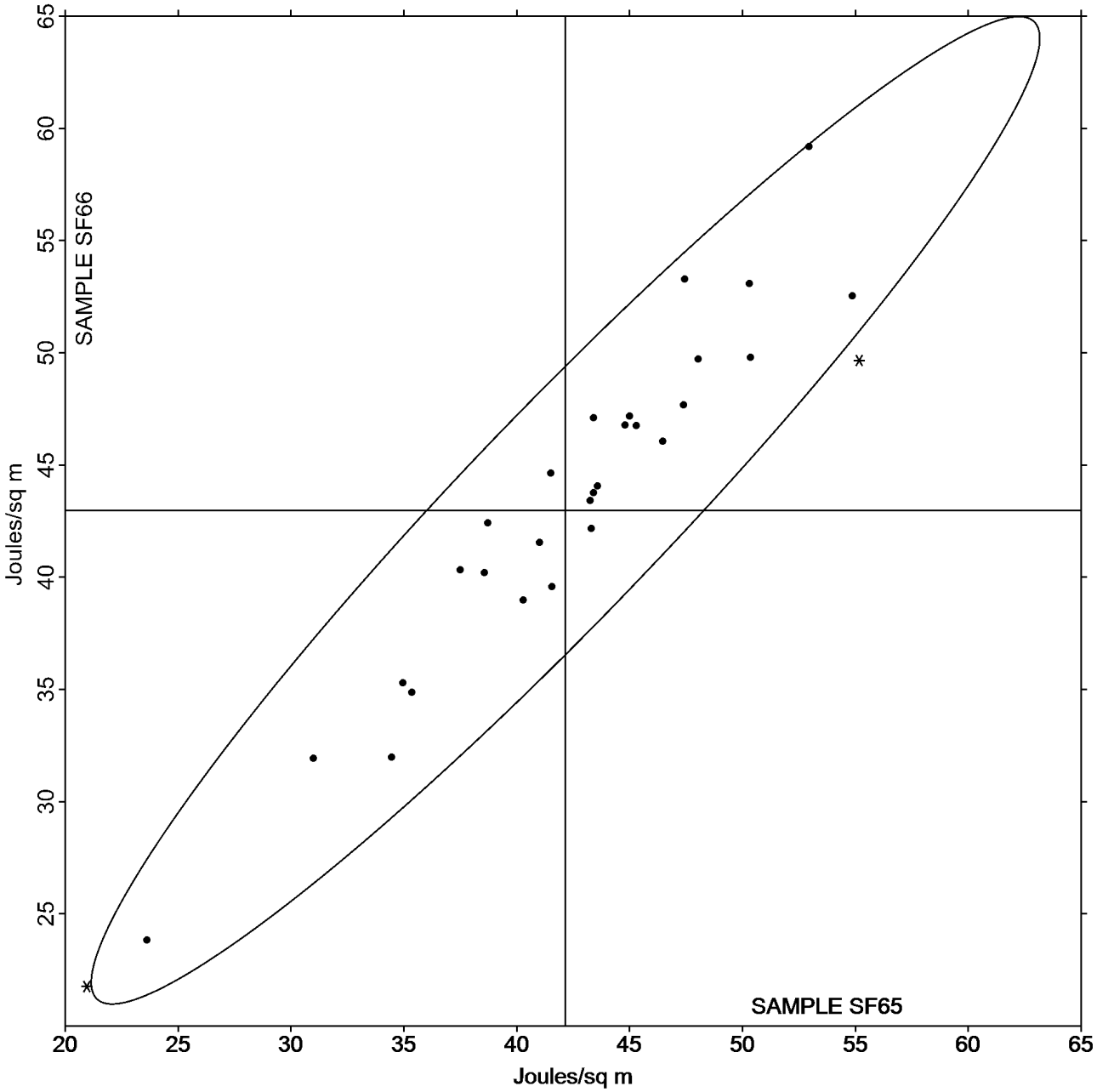
HXCCD6 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4201	LA	L & W Tensile - Autoline 300
LH	L & W Alwetron TH1 (Horizontal) SE 060	LI	L & W Tensile Tester SE 062
LW	L & W Tensile Tester SE 064	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF65 = 42.159 Joules/sq m

Grand Mean Sample SF66 = 42.980 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF65 Lab Mean	Sample SF65 Diff from Grand Mean	Sample SF65 CPV	Sample SF66 Lab Mean	Sample SF66 Diff from Grand Mean	Sample SF66 CPV	Instr Code
24C9YZ		1.606	-0.022	-0.11	1.588	-0.063	-0.31	LH
3KF6V4		1.849	0.221	1.16	1.950	0.299	1.46	DL
3LBPH4		1.538	-0.090	-0.47	1.552	-0.099	-0.48	XX
4BM99T		1.546	-0.082	-0.43	1.576	-0.075	-0.36	XX
4NWPHJ		1.536	-0.091	-0.48	1.482	-0.169	-0.83	XX
82T377		1.783	0.156	0.81	1.807	0.156	0.76	RE
8V3RW8		1.632	0.004	0.02	1.739	0.088	0.43	LW
93ZYU8		1.629	0.001	0.01	1.678	0.027	0.13	LH
AD94CM		1.485	-0.143	-0.75	1.560	-0.091	-0.44	LA
BZ2F26	*	1.869	0.241	1.26	1.729	0.078	0.38	FP
C2RYGB		1.597	-0.031	-0.16	1.616	-0.035	-0.17	TF
CARAYM	X	3.040	1.412	7.38	3.170	1.519	7.43	TO
CYPZ84		1.516	-0.112	-0.58	1.546	-0.105	-0.51	LI
DYHD4V		1.533	-0.095	-0.49	1.440	-0.211	-1.03	TF
DZGEC8	*	1.310	-0.318	-1.66	1.150	-0.501	-2.45	VM
E4BLEG		1.764	0.137	0.71	1.839	0.189	0.92	TB
FP7ZYW		1.893	0.265	1.39	1.943	0.292	1.43	LH
G9G63Z		1.915	0.287	1.50	1.935	0.284	1.39	TF
GFXP4Q		1.721	0.093	0.49	1.777	0.126	0.62	XX
HXCCD6		1.678	0.050	0.26	1.650	-0.001	0.00	ID
K6MHX2	*	2.148	0.520	2.72	2.136	0.485	2.37	TO
KC32FF		1.574	-0.054	-0.28	1.573	-0.078	-0.38	TG
MZ3CEW		1.548	-0.080	-0.42	1.570	-0.081	-0.39	LI
NZZWLW		1.438	-0.190	-0.99	1.515	-0.136	-0.66	LH
P34WE2		1.477	-0.151	-0.79	1.489	-0.162	-0.79	LX
PLWZUG		1.517	-0.111	-0.58	1.485	-0.166	-0.81	TP
RBKMPJ		1.524	-0.104	-0.54	1.589	-0.062	-0.30	LI
UTL4WT		1.452	-0.176	-0.92	1.502	-0.149	-0.73	LH
V2PJEL		1.445	-0.183	-0.95	1.566	-0.085	-0.41	TF
VD3XZK		1.378	-0.250	-1.30	1.451	-0.200	-0.98	LX
W7FDPR	X	3.066	1.438	7.52	3.120	1.469	7.19	LX
WLQ4JJ	X	3.260	1.632	8.53	3.100	1.449	7.09	TO
YDR8F7		1.983	0.355	1.86	2.036	0.386	1.89	FP
ZQWLHN		1.573	-0.055	-0.29	1.701	0.050	0.24	TP

Summary Statistics	Sample SF65	Sample SF66
Grand Means	1.63 Percent	1.65 Percent
Stnd Dev Btwn Labs	0.19 Percent	0.20 Percent

Statistics based on 31 of 34 reporting participants.

Comments on Assigned Data Flags for Test #328

CARAYM (X) - Extreme Data.

W7FDPR (X) - Extreme Data.

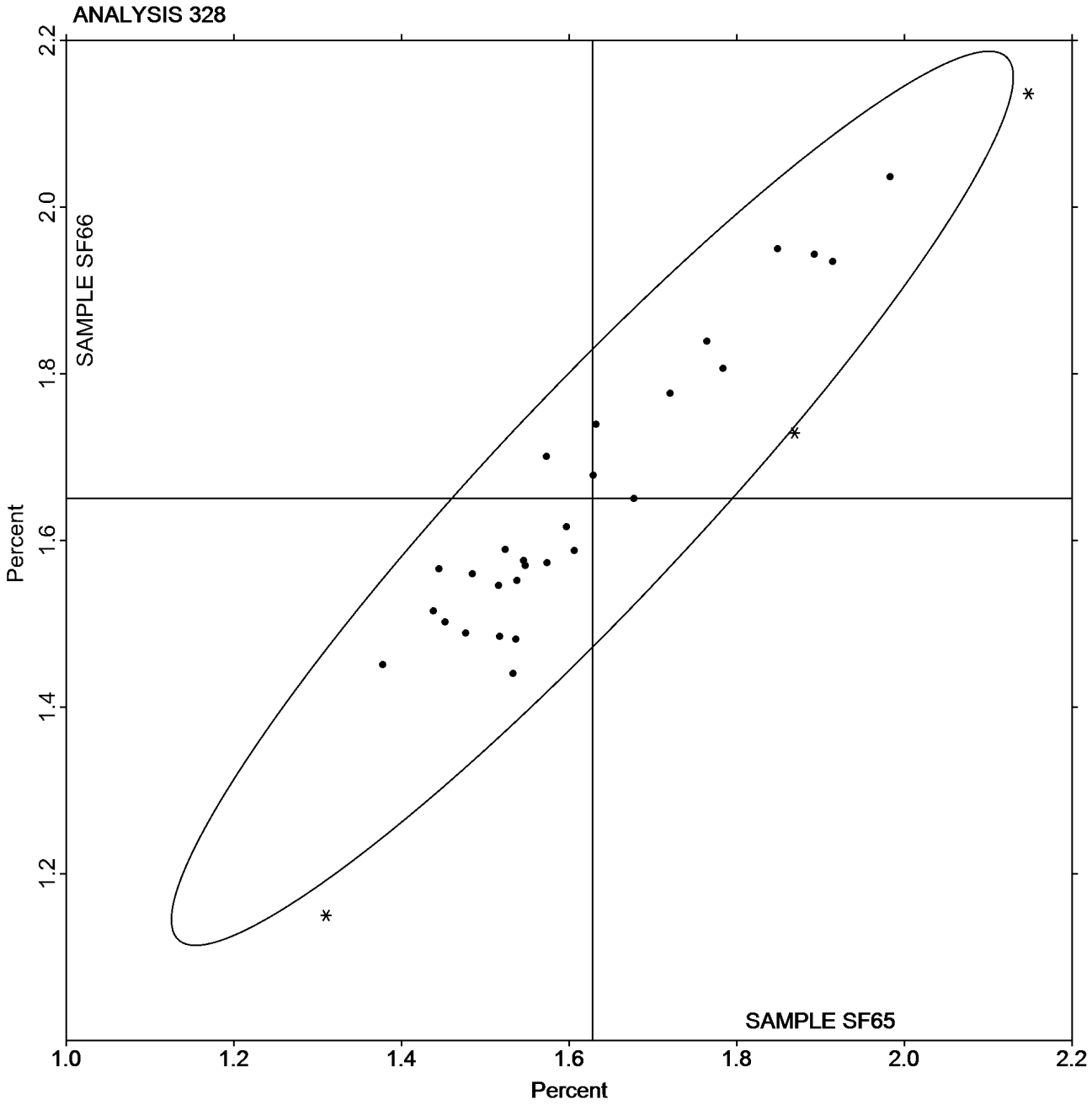
WLQ4JJ (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4201	LA	L & W Tensile - Autoline 300
LH	L & W Alwetron TH1 (Horizontal) SE 060	LI	L & W Tensile Tester SE 062
LW	L & W Tensile Tester SE 064	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TG	Thwing-Albert QC
TO	Thwing-Albert QC-1000	TP	TMI Monitor/Tensile 100 (84-21-01)
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample SF65 = 1.6276
Percent

Grand Mean Sample SF66 = 1.6506
Percent



WebCode	Data Flag	Sample SE65 Lab Mean	Sample SE65 Diff from Grand Mean	Sample SE65 CPV	Sample SE66 Lab Mean	Sample SE66 Diff from Grand Mean	Sample SE66 CPV	Instr Code
22NUGG		14.19	-1.55	-1.23	14.33	-1.41	-1.14	LE
26QPZK		15.05	-0.68	-0.54	14.96	-0.78	-0.63	IM
2B988Z		16.65	0.91	0.72	16.92	1.18	0.95	IF
2D6JBF		17.72	1.98	1.57	17.78	2.04	1.64	TH
2K2JL3		15.11	-0.62	-0.49	14.89	-0.86	-0.69	IF
48NT6C		13.59	-2.15	-1.70	14.07	-1.68	-1.35	LE
4BLJ3B		15.01	-0.73	-0.58	14.76	-0.98	-0.79	ID
4T4KT7		16.55	0.81	0.64	17.10	1.35	1.09	IK
6KAPE9		16.30	0.57	0.45	16.17	0.42	0.34	IF
7EKCDK		17.85	2.11	1.67	18.09	2.34	1.89	LA
7UBC87		14.54	-1.20	-0.95	14.73	-1.01	-0.82	TH
9LTMJG		15.26	-0.48	-0.38	14.98	-0.76	-0.61	TT
9XL7XM		12.86	-2.88	-2.28	13.04	-2.70	-2.18	IM
A3EPEB		15.35	-0.38	-0.30	15.56	-0.19	-0.15	TB
ADBRX8		15.51	-0.23	-0.18	15.63	-0.11	-0.09	LW
BKPYTG		18.68	2.94	2.33	18.57	2.83	2.28	TH
BZYREY		14.60	-1.14	-0.90	14.61	-1.13	-0.91	IK
C2RYGB		15.51	-0.23	-0.18	15.53	-0.22	-0.17	TO
CN7L62	*	17.03	1.29	1.03	16.37	0.63	0.50	DW
D72EPY		16.03	0.30	0.24	16.10	0.36	0.29	ID
DEB44X		15.30	-0.44	-0.35	15.15	-0.59	-0.48	TH
DJ8RHJ		13.79	-1.95	-1.54	14.23	-1.52	-1.22	LW
EPPGGK		14.72	-1.01	-0.80	14.67	-1.07	-0.87	LH
FABB97		18.17	2.43	1.93	17.83	2.09	1.68	IK
FP7ZYW		13.36	-2.37	-1.88	13.13	-2.61	-2.10	LH
GA8FTT	*	17.04	1.31	1.04	17.59	1.85	1.49	IR
GFXP4Q		14.74	-1.00	-0.79	14.81	-0.94	-0.75	XX
HCPUWT		16.35	0.61	0.49	16.53	0.78	0.63	IK
JT8D6J		15.22	-0.52	-0.41	15.34	-0.40	-0.32	IN
K49VLE		15.08	-0.66	-0.52	15.15	-0.59	-0.48	LE
K677FW		17.14	1.40	1.11	17.13	1.38	1.11	LX
K7EGCZ		17.08	1.35	1.07	16.93	1.19	0.96	LA
KKGVKA		16.56	0.83	0.66	16.28	0.54	0.43	TO
KMNAXG	X	14.28	-1.46	-1.16	13.41	-2.33	-1.88	IM
LDUN6N		17.30	1.56	1.24	17.28	1.53	1.23	IR
LRXTQ9		15.49	-0.25	-0.20	15.41	-0.33	-0.27	TR
MH2KCV		14.94	-0.80	-0.63	15.40	-0.34	-0.28	TK
MQVP7W		16.03	0.29	0.23	15.63	-0.11	-0.09	LH
MUXGMA		15.02	-0.72	-0.57	14.85	-0.90	-0.72	IM
N2TVT3		18.21	2.48	1.96	18.10	2.36	1.90	TA

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE65 Lab Mean	Sample SE65 Diff from Grand Mean	Sample SE65 CPV	Sample SE66 Lab Mean	Sample SE66 Diff from Grand Mean	Sample SE66 CPV	Instr Code
NN8HGT		17.06	1.32	1.05	16.74	0.99	0.80	TR
PKZM9A		14.96	-0.78	-0.62	14.93	-0.81	-0.65	TA
QJ3R6X		15.85	0.11	0.09	15.78	0.04	0.03	LE
RBTD83		14.77	-0.97	-0.77	14.71	-1.03	-0.83	XX
RQXVQM		15.26	-0.47	-0.38	15.26	-0.48	-0.39	IF
T4M6WR		15.33	-0.41	-0.32	15.09	-0.65	-0.52	TB
TYAAB4		13.79	-1.94	-1.54	13.93	-1.81	-1.46	LA
UHX77N		14.85	-0.89	-0.70	14.85	-0.89	-0.72	IM
UT2A9C		16.35	0.61	0.49	16.28	0.54	0.43	LE
VMQUXE		15.60	-0.13	-0.11	15.88	0.14	0.11	LI
VPGN83		16.09	0.35	0.28	16.22	0.48	0.38	LW
XDW96L		16.62	0.88	0.70	17.04	1.30	1.05	LA
XMFRG6		15.48	-0.25	-0.20	15.12	-0.62	-0.50	IN
YDPK2D		16.76	1.02	0.81	16.80	1.06	0.85	TO
ZDMBKZ		16.09	0.36	0.28	16.08	0.33	0.27	IK
ZLGFD2		15.73	-0.01	-0.01	15.52	-0.22	-0.18	LE

Summary Statistics	Sample SE65	Sample SE66
Grand Means	15.74 kN/m	15.74 kN/m
Stnd Dev Btwn Labs	1.26 kN/m	1.24 kN/m

Statistics based on 55 of 56 reporting participants.

Comments on Assigned Data Flags for Test #330

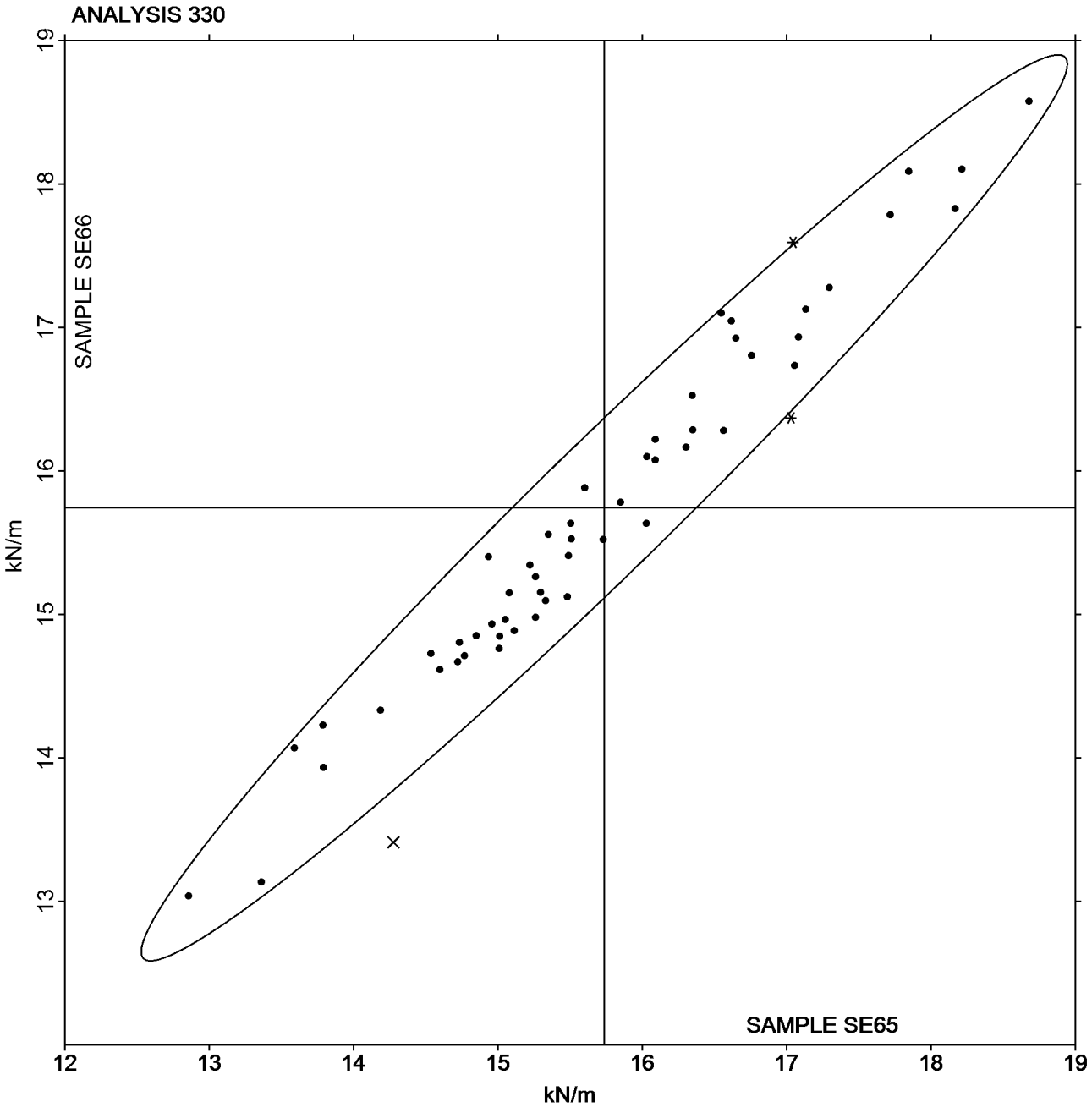
KMNAXG (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
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
TR	TMI Horizontal Tensile Tester	TT	Tinius Olsen Model MHT
XX	Instrument make/model not specified by lab		

Grand Mean Sample SE65 = 15.737 kN/m

Grand Mean Sample SE66 = 15.743 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE65 Lab Mean	Sample SE65 Diff from Grand Mean	Sample SE65 CPV	Sample SE66 Lab Mean	Sample SE66 Diff from Grand Mean	Sample SE66 CPV	Instr Code
22NUGG		236.6	-38.7	-1.62	246.8	-26.8	-1.15	LE
26QPZK		298.0	22.7	0.95	299.4	25.8	1.11	IM
2B988Z		263.1	-12.1	-0.51	273.8	0.2	0.01	IF
2K2JL3		273.1	-2.2	-0.09	262.3	-11.3	-0.48	IF
4BLJ3B		299.5	24.2	1.01	298.6	25.0	1.07	ID
7EKCDK		262.3	-12.9	-0.54	266.2	-7.5	-0.32	LA
7UBC87		292.0	16.8	0.70	298.6	25.0	1.07	TH
9LTMJG		275.6	0.4	0.01	258.1	-15.5	-0.67	TT
9XL7XM	*	211.9	-63.4	-2.65	220.7	-52.9	-2.27	IM
A3EPEB		298.0	22.8	0.95	301.0	27.4	1.18	TB
ADBRX8		262.6	-12.7	-0.53	259.9	-13.8	-0.59	LW
BKPYTG		321.4	46.1	1.93	313.5	39.9	1.71	TH
C2RYGB		284.6	9.3	0.39	284.4	10.8	0.46	TO
CN7L62		259.8	-15.5	-0.65	238.5	-35.1	-1.51	DW
DEB44X	X	54.3	-221.0	-9.26	53.8	-219.8	-9.43	TH
DJ8RHJ		249.2	-26.0	-1.09	252.6	-21.0	-0.90	LW
EPPGGK		248.4	-26.8	-1.12	232.5	-41.1	-1.76	LH
FABB97	*	331.6	56.3	2.36	299.5	25.9	1.11	XX
FP7ZYW		252.0	-23.2	-0.97	245.6	-28.0	-1.20	LH
GFXP4Q		250.5	-24.7	-1.04	256.6	-17.1	-0.73	XX
JT8D6J		293.7	18.4	0.77	312.4	38.7	1.66	IN
K49VLE		255.6	-19.7	-0.82	255.4	-18.2	-0.78	LE
K677FW		300.9	25.7	1.08	307.9	34.3	1.47	LX
K7EGCZ	X	43.7	-231.5	-9.70	43.0	-230.6	-9.89	LA
KKGVKA		290.7	15.5	0.65	273.2	-0.4	-0.02	TO
KMNAXG	X	108.8	-166.4	-6.97	98.4	-175.2	-7.51	IM
LRXTQ9		272.2	-3.1	-0.13	267.8	-5.9	-0.25	TR
MH2KCV		277.3	2.0	0.08	291.6	18.0	0.77	TK
MQVP7W		277.8	2.5	0.11	268.6	-5.0	-0.21	LH
MUXGMA		267.7	-7.6	-0.32	262.2	-11.4	-0.49	IM
N2TVT3		276.7	1.4	0.06	279.5	5.9	0.25	TA
NN8HGT		293.6	18.4	0.77	282.9	9.3	0.40	TR
QJ3R6X		259.0	-16.3	-0.68	252.1	-21.5	-0.92	LE
RBTD83		284.2	8.9	0.37	277.7	4.0	0.17	XX
RQXVQM		259.8	-15.4	-0.65	257.8	-15.8	-0.68	IN
T4M6WR		279.7	4.4	0.19	268.3	-5.3	-0.23	TB
TYAAB4		271.7	-3.5	-0.15	265.6	-8.0	-0.34	LA
UHX77N		253.8	-21.5	-0.90	271.9	-1.7	-0.07	IM
UT2A9C		247.8	-27.5	-1.15	255.5	-18.1	-0.77	LE
VPGN83		258.8	-16.5	-0.69	268.4	-5.2	-0.22	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE65 Lab Mean	Sample SE65 Diff from Grand Mean	Sample SE65 CPV	Sample SE66 Lab Mean	Sample SE66 Diff from Grand Mean	Sample SE66 CPV	Instr Code
XDW96L	M	283.0	7.8	0.32	No data reported for this sample			LA
XMFRG6		297.5	22.2	0.93	282.2	8.6	0.37	IN
YDPK2D		311.5	36.2	1.52	319.0	45.4	1.95	TO
ZDMBKZ		302.0	26.8	1.12	306.9	33.3	1.43	IK
ZLGFD2		283.5	8.2	0.35	282.5	8.9	0.38	LE

Summary Statistics	Sample SE65	Sample SE66
Grand Means	275.26 Joules/sq m	273.61 Joules/sq m
Stnd Dev Btwn Labs	23.88 Joules/sq m	23.32 Joules/sq m

Statistics based on 41 of 45 reporting participants.

Comments on Assigned Data Flags for Test #331

DEB44X (X) - Extreme Data.

K7EGCZ (X) - Extreme Data.

XDW96L (M) - Participant did not submit data for sample SE66.

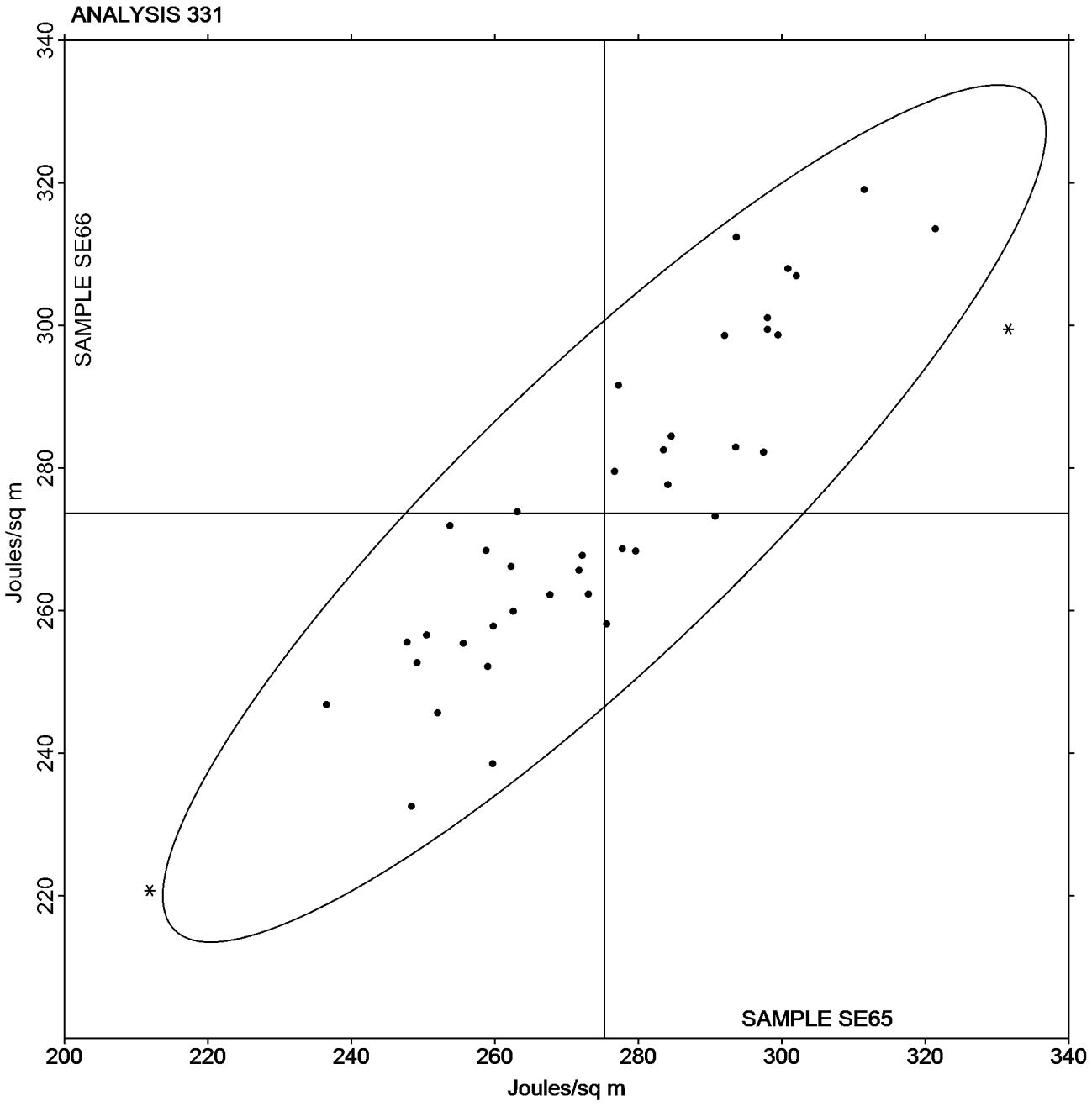
KMNAXG (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample SE65 = 275.26 Joules/sq m

Grand Mean Sample SE66 = 273.61 Joules/sq m



WebCode	Data Flag	Sample SE65 Lab Mean	Sample SE65 Diff from Grand Mean	Sample SE65 CPV	Sample SE66 Lab Mean	Sample SE66 Diff from Grand Mean	Sample SE66 CPV	Instr Code
22NUGG		2.436	-0.176	-0.59	2.507	-0.095	-0.32	LE
26QPZK		2.944	0.331	1.11	2.978	0.377	1.29	IM
2B988Z		2.054	-0.558	-1.87	2.033	-0.569	-1.95	IF
2K2JL3		2.976	0.364	1.22	2.923	0.321	1.10	IF
4BLJ3B	X	0.207	-2.406	-8.05	0.209	-2.393	-8.20	ID
7EKCDK		2.038	-0.574	-1.92	2.043	-0.559	-1.91	LA
7UBC87		3.170	0.558	1.87	3.180	0.578	1.98	TH
9LTMJG		2.811	0.199	0.67	2.688	0.086	0.30	TT
9XL7XM		2.520	-0.092	-0.31	2.551	-0.051	-0.17	IN
A3EPEB		2.876	0.264	0.88	2.875	0.273	0.94	TB
ADBRX8		2.491	-0.121	-0.41	2.451	-0.151	-0.52	LW
BKPYTG		2.591	-0.021	-0.07	2.525	-0.077	-0.26	TH
C2RYGB		2.610	-0.002	-0.01	2.607	0.005	0.02	TO
CN7L62	*	3.413	0.801	2.68	3.384	0.782	2.68	DW
D72EPY		2.653	0.041	0.14	2.676	0.074	0.25	ID
DEB44X	X	24.806	22.194	74.28	24.310	21.708	74.41	TH
DJ8RHJ		2.593	-0.019	-0.06	2.546	-0.056	-0.19	LW
EPPGGK		2.482	-0.130	-0.44	2.342	-0.260	-0.89	LH
FABB97	*	2.860	0.248	0.83	2.630	0.028	0.10	XX
FP7ZYW		2.852	0.240	0.80	2.828	0.226	0.78	LH
GFXP4Q		2.648	0.036	0.12	2.696	0.095	0.32	XX
JT8D6J	*	1.897	-0.715	-2.39	2.003	-0.599	-2.05	IN
K49VLE		2.471	-0.141	-0.47	2.452	-0.150	-0.51	LE
K677FW		2.574	-0.038	-0.13	2.605	0.003	0.01	LX
K7EGCZ	X	17.858	15.246	51.03	17.541	14.939	51.21	XX
KKGVKA		2.808	0.196	0.66	2.713	0.111	0.38	TO
KMNAXG	X	1.348	-1.265	-4.23	1.316	-1.286	-4.41	IM
LRXTQ9		2.682	0.070	0.23	2.666	0.064	0.22	TR
MH2KCV		2.757	0.145	0.48	2.804	0.202	0.69	TK
MQVP7W		2.537	-0.075	-0.25	2.521	-0.081	-0.28	LH
MUXGMA		2.923	0.311	1.04	2.890	0.288	0.99	IM
N2TVT3		2.268	-0.344	-1.15	2.332	-0.270	-0.92	TA
NN8HGT	X	1.617	-0.996	-3.33	2.353	-0.249	-0.85	TR
PKZM9A		2.770	0.158	0.53	2.710	0.108	0.37	TB
QJ3R6X		2.390	-0.222	-0.74	2.351	-0.251	-0.86	LE
RBTD83		2.876	0.264	0.88	2.832	0.230	0.79	XX
RQXVQM		2.511	-0.102	-0.34	2.489	-0.113	-0.39	IN
T4M6WR		2.665	0.053	0.18	2.608	0.006	0.02	TB
TYAAB4		2.410	-0.202	-0.68	2.342	-0.260	-0.89	LA
UHX77N		2.539	-0.073	-0.25	2.711	0.109	0.37	IM

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE65 Lab Mean	Sample SE65 Diff from Grand Mean	Sample SE65 CPV	Sample SE66 Lab Mean	Sample SE66 Diff from Grand Mean	Sample SE66 CPV	Instr Code
UT2A9C		2.218	-0.394	-1.32	2.300	-0.302	-1.03	LE
VPGN83		2.393	-0.219	-0.73	2.457	-0.145	-0.50	LW
XDW96L		2.409	-0.203	-0.68	2.351	-0.251	-0.86	LA
XMFRG6		2.246	-0.366	-1.22	2.154	-0.447	-1.53	IN
YDPK2D		2.779	0.167	0.56	2.855	0.253	0.87	TO
ZDMBKZ		2.916	0.303	1.02	2.969	0.367	1.26	IK
ZLGFD2		2.656	0.044	0.15	2.691	0.089	0.31	LE

Summary Statistics	Sample SE65	Sample SE66
Grand Means	2.61 Percent	2.60 Percent
Stnd Dev Btwn Labs	0.30 Percent	0.29 Percent

Statistics based on 42 of 47 reporting participants.

Comments on Assigned Data Flags for Test #332

4BLJ3B (X) - Extreme Data.

DEB44X (X) - Extreme Data.

K7EGCZ (X) - Extreme Data.

NN8HGT (X) - Data for sample SE65 are low. Inconsistent within the determinations of both samples.

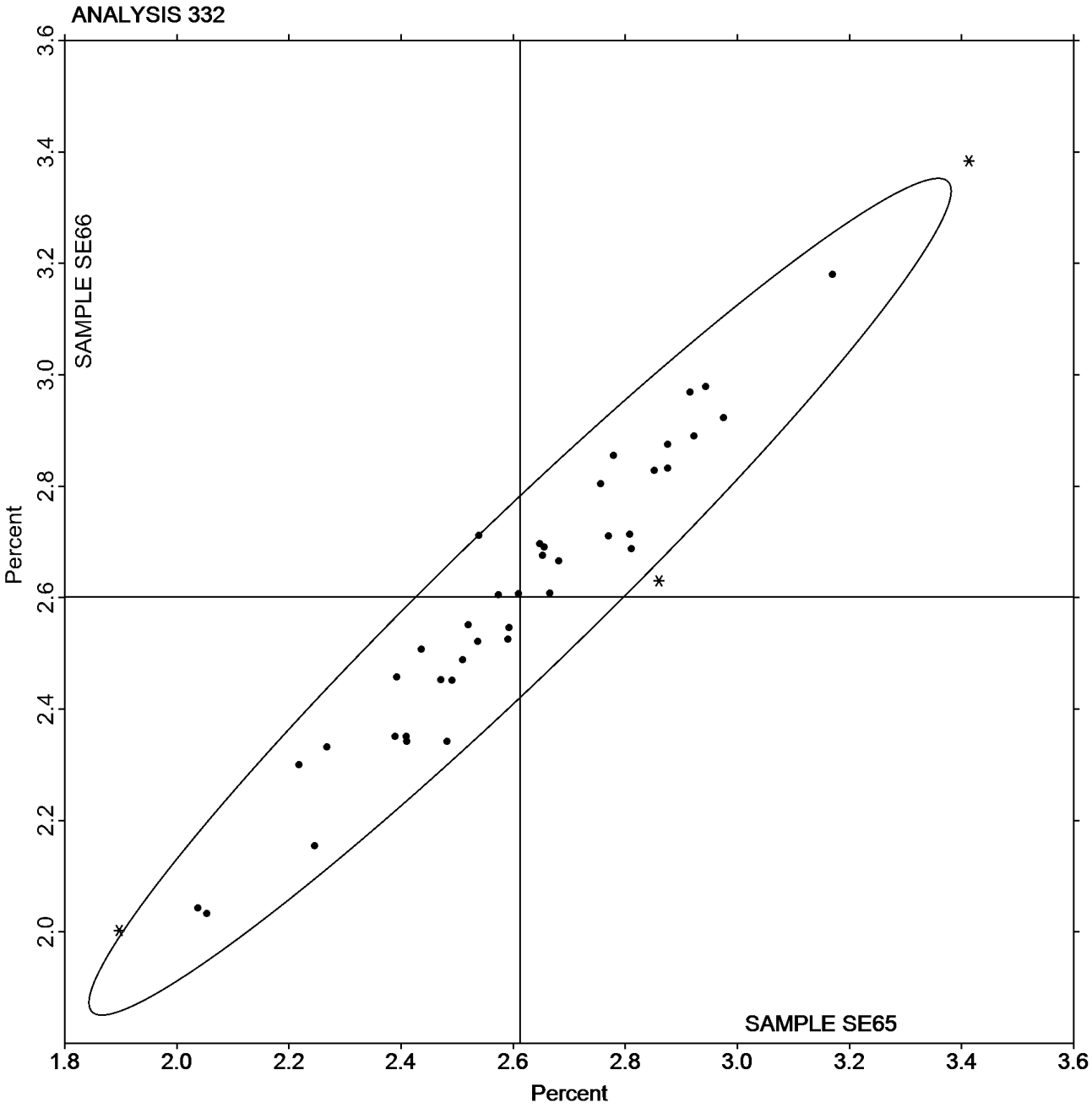
KMNAXG (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample SE65 = 2.6122
Percent

Grand Mean Sample SE66 = 2.6016
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

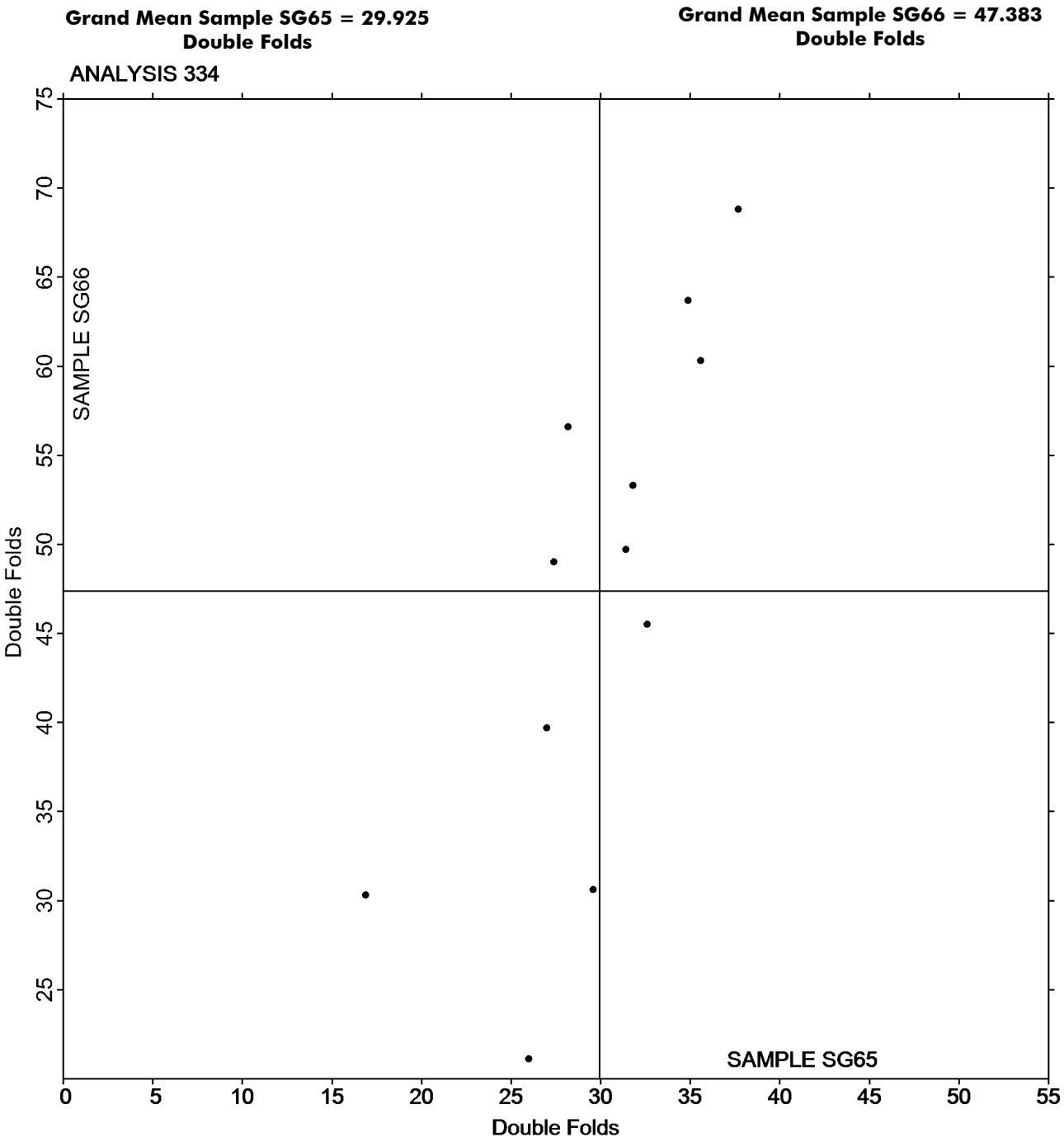
WebCode	Data Flag	Sample SG65 Lab Mean	Sample SG65 Diff from Grand Mean	Sample SG65 CPV	Sample SG66 Lab Mean	Sample SG66 Diff from Grand Mean	Sample SG66 CPV	Instr Code
26QPZK		31.80	1.88	0.34	53.30	5.92	0.41	MT
7HY3JF		29.60	-0.33	-0.06	30.60	-16.78	-1.15	MT
DEB44X		27.40	-2.53	-0.46	49.00	1.62	0.11	MT
DJ8RHJ		34.90	4.98	0.90	63.70	16.32	1.12	MT
DYHD4V		32.60	2.68	0.49	45.50	-1.88	-0.13	MT
DZGEC8		27.00	-2.93	-0.53	39.70	-7.68	-0.53	MT
MFV3EZ		35.60	5.68	1.03	60.30	12.92	0.88	MT
MQEDNQ		26.00	-3.93	-0.71	21.10	-26.28	-1.80	MT
PKZM9A		16.90	-13.03	-2.37	30.30	-17.08	-1.17	MT
RBKMPJ		31.40	1.48	0.27	49.70	2.32	0.16	MT
RBTD83		37.70	7.78	1.41	68.80	21.42	1.47	MT
YH7UGP		28.20	-1.73	-0.31	56.60	9.22	0.63	MT

Summary Statistics	Sample SG65	Sample SG66
Grand Means	29.93 Double Folds	47.38 Double Folds
Stnd Dev Btwn Labs	5.50 Double Folds	14.61 Double Folds

Statistics based on 12 of 12 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 SH65 Lab Mean	Sample SH65 Diff from Grand Mean	Sample SH65 CPV	Sample SH66 Lab Mean	Sample SH66 Diff from Grand Mean	Sample SH66 CPV
26QPZK		143.9	-3.2	-0.29	142.3	-4.1	-0.34
28DCQM		150.7	3.6	0.33	148.6	2.2	0.19
2K2JL3		157.6	10.5	0.95	166.5	20.1	1.66
2XQ4GX		134.6	-12.5	-1.13	134.5	-11.9	-0.98
3QKW7M		147.9	0.8	0.07	145.8	-0.6	-0.05
93ZYU8		163.8	16.7	1.51	157.6	11.3	0.93
AD94CM		162.4	15.3	1.38	161.8	15.4	1.27
ATKHUK		146.5	-0.6	-0.05	138.8	-7.6	-0.63
CARAYM		138.6	-8.5	-0.77	136.9	-9.4	-0.78
DZGEC8		166.1	19.0	1.72	172.8	26.4	2.18
E4BLEG		134.1	-13.0	-1.17	132.3	-14.0	-1.16
G9G63Z		138.1	-9.0	-0.81	138.1	-8.3	-0.68
K6MHX2	X	641.6	494.5	44.65	660.5	514.1	42.47
M2W3HQ		148.7	1.7	0.15	145.9	-0.5	-0.04
PKZM9A		152.6	5.5	0.50	142.5	-3.9	-0.32
RBTD83		149.9	2.8	0.25	149.2	2.8	0.23
T4M6WR		128.8	-18.3	-1.65	126.5	-19.8	-1.64
URM4NG		132.8	-14.3	-1.29	143.4	-2.9	-0.24
YH7UGP	X	73.0	-74.0	-6.69	72.6	-73.8	-6.09
ZQWLHN		150.7	3.6	0.32	151.0	4.7	0.39

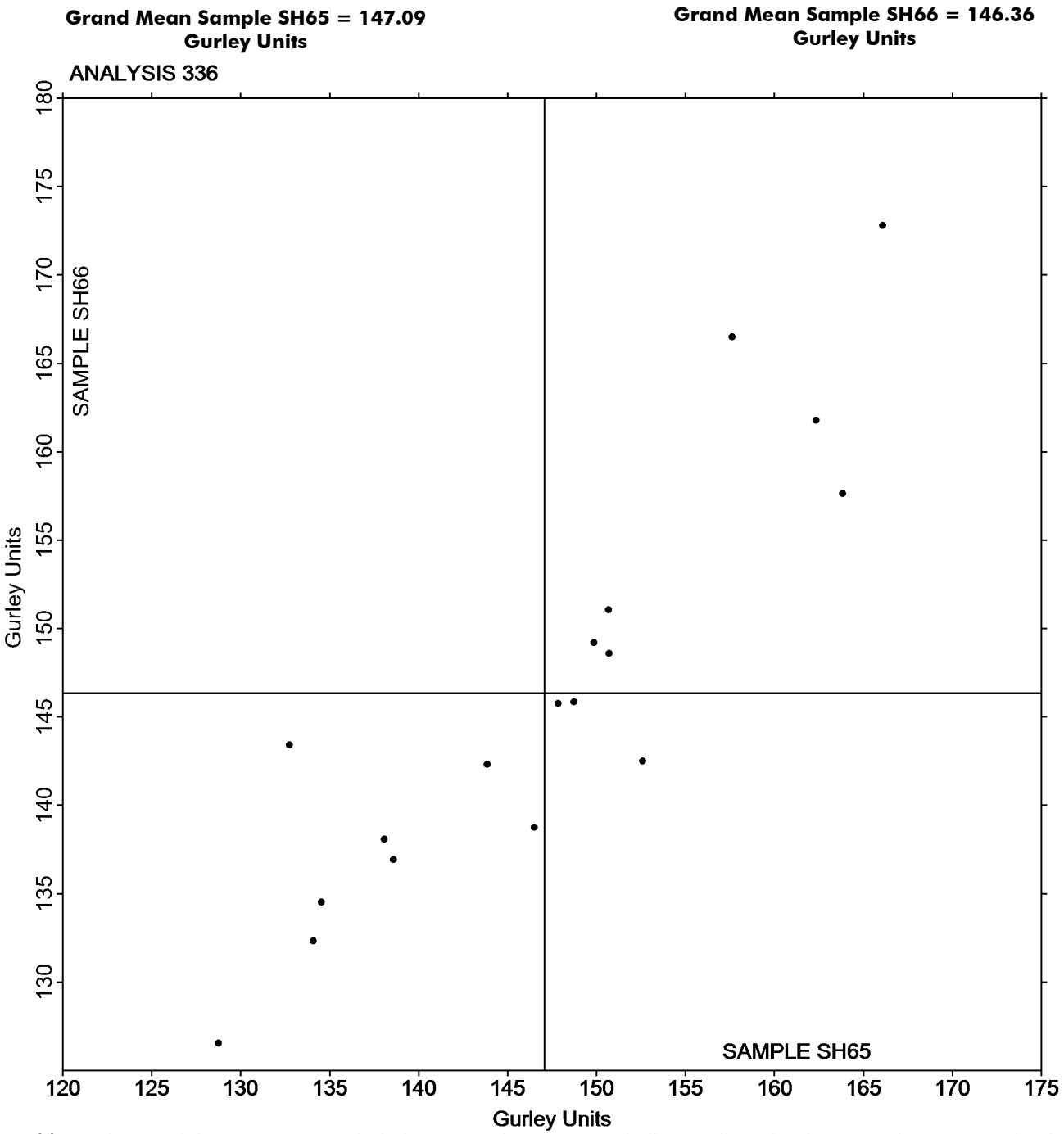
Summary Statistics	Sample SH65	Sample SH66
Grand Means	147.09 Gurley Units	146.36 Gurley Units
Stnd Dev Btwn Labs	11.07 Gurley Units	12.11 Gurley Units

Statistics based on 18 of 20 reporting participants.

Comments on Assigned Data Flags for Test #336

YH7UGP (X) - Extreme Data.

K6MHX2 (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 SJ65 Lab Mean	Sample SJ65 Diff from Grand Mean	Sample SJ65 CPV	Sample SJ66 Lab Mean	Sample SJ66 Diff from Grand Mean	Sample SJ66 CPV
26QPZK		3.841	0.305	0.61	3.810	0.221	0.45
2K2JL3		3.612	0.075	0.15	3.683	0.094	0.19
7HY3JF		3.704	0.168	0.33	3.819	0.230	0.47
93ZYU8		3.667	0.131	0.26	3.740	0.151	0.31
E4BLEG		3.542	0.006	0.01	3.646	0.056	0.11
HNLVHA		3.530	-0.006	-0.01	3.720	0.131	0.27
JTDPQV		3.505	-0.031	-0.06	3.656	0.067	0.14
P34WE2		2.421	-1.115	-2.22	2.455	-1.134	-2.30
RQXVQM		4.420	0.884	1.76	4.340	0.751	1.53
VPGN83		2.960	-0.576	-1.15	2.950	-0.639	-1.30
WLQ4JJ		3.698	0.162	0.32	3.662	0.073	0.15

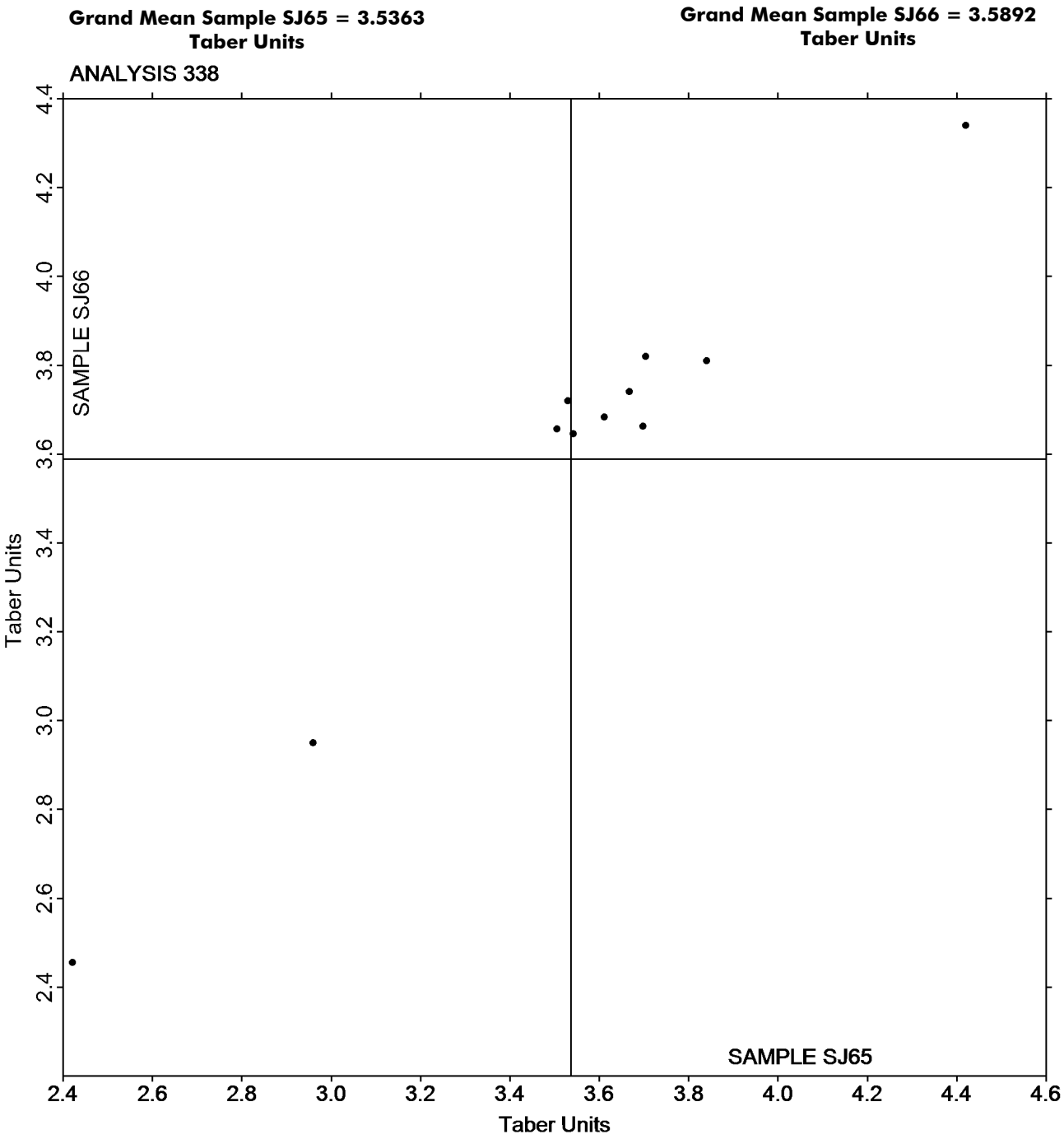
Summary Statistics	Sample SJ65	Sample SJ66
Grand Means	3.54 Taber Units	3.59 Taber Units
Stnd Dev Btwn Labs	0.50 Taber Units	0.49 Taber Units

Statistics based on 11 of 11 reporting participants.

Analysis Notes:

2K2JL3 - Data appear to be reported as mN-m, not g-cm as indicated on datasheet. CTS will not correct the Units going forward.

WLQ4JJ - Data appear to be reported as g-cm, not mN-m as indicated on datasheet. 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

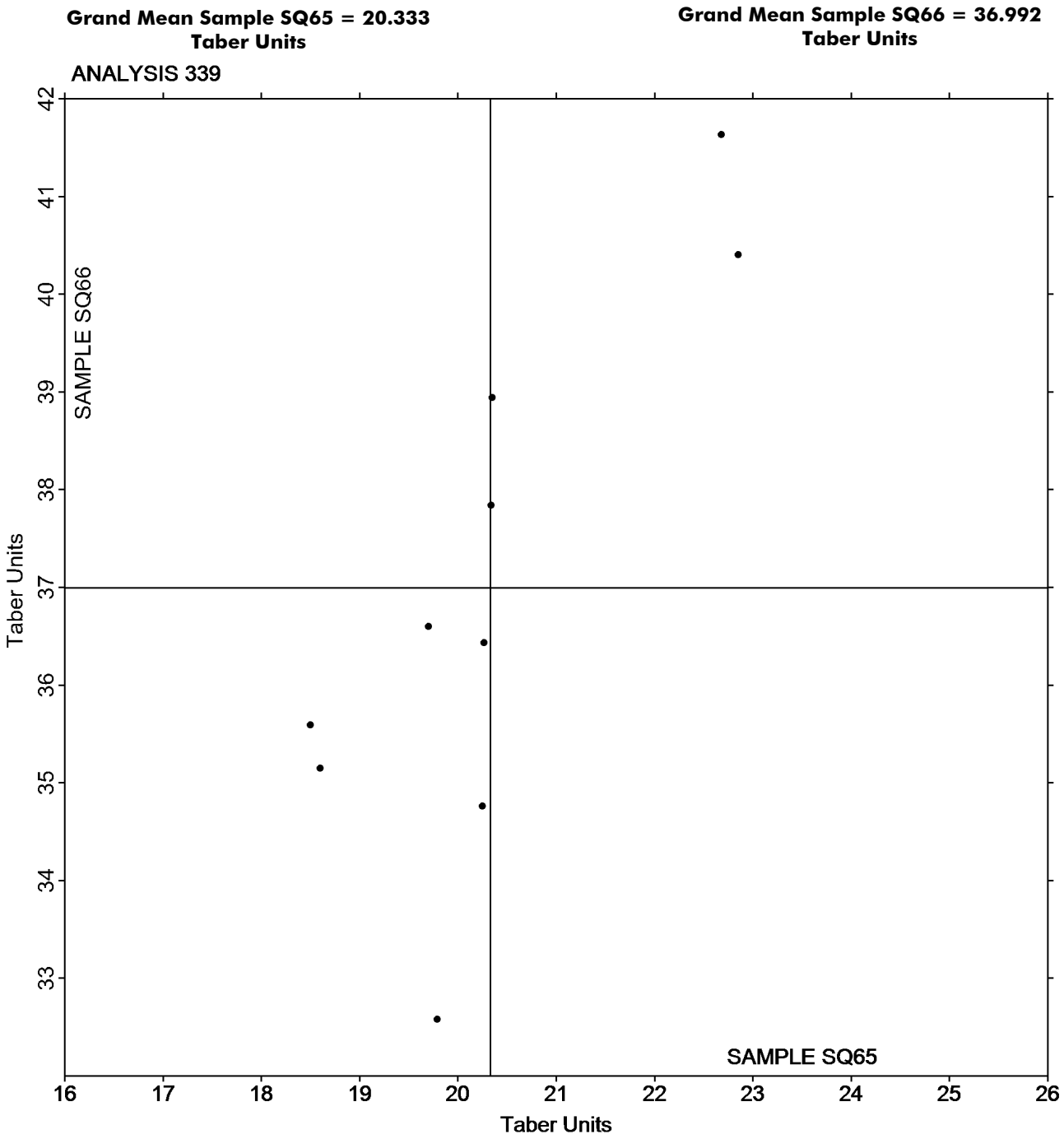
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ65 Lab Mean	Sample SQ65 Diff from Grand Mean	Sample SQ65 CPV	Sample SQ66 Lab Mean	Sample SQ66 Diff from Grand Mean	Sample SQ66 CPV
26QPZK		20.34	0.01	0.01	37.84	0.85	0.31
A3EPEB		22.85	2.52	1.74	40.40	3.41	1.24
DJ8RHJ		20.35	0.02	0.01	38.94	1.95	0.71
KC32FF		18.60	-1.73	-1.20	35.15	-1.84	-0.67
M2W3HQ		18.50	-1.83	-1.26	35.59	-1.40	-0.51
PLWZUG		19.79	-0.54	-0.37	32.58	-4.41	-1.61
URM4NG		20.27	-0.07	-0.05	36.43	-0.56	-0.20
VPGN83		19.70	-0.63	-0.44	36.60	-0.39	-0.14
YDR8F7		20.25	-0.08	-0.06	34.76	-2.23	-0.81
ZLGFD2		22.68	2.35	1.62	41.63	4.64	1.69

Summary Statistics	Sample SQ65	Sample SQ66
Grand Means	20.33 Taber Units	36.99 Taber Units
Stnd Dev Btwn Labs	1.45 Taber Units	2.75 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

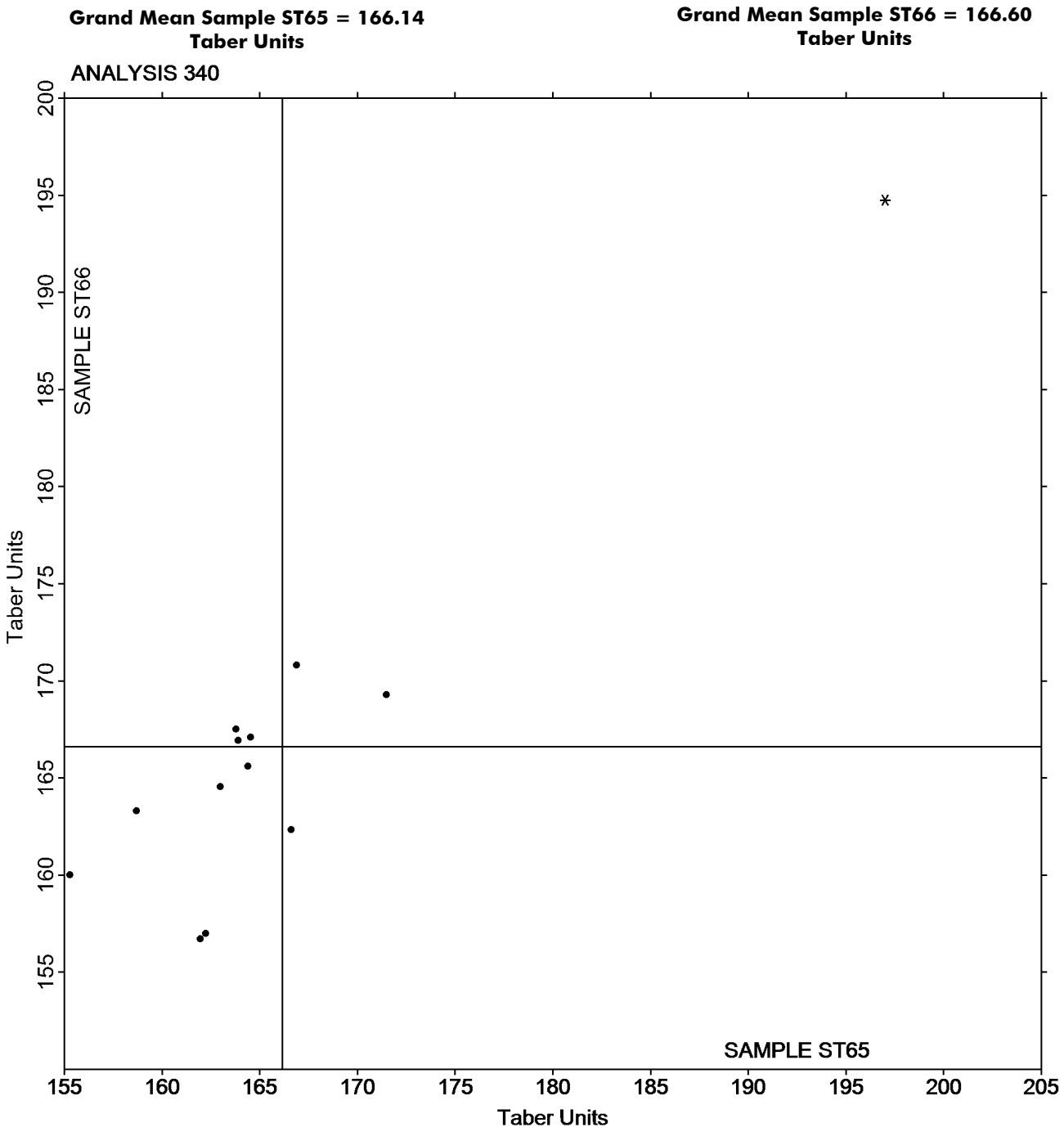
WebCode	Data Flag	Sample ST65 Lab Mean	Sample ST65 Diff from Grand Mean	Sample ST65 CPV	Sample ST66 Lab Mean	Sample ST66 Diff from Grand Mean	Sample ST66 CPV
2D6JBF	*	197.0	30.9	3.07	194.8	28.1	2.96
6KAPE9		166.9	0.8	0.08	170.8	4.2	0.44
CHYZCX		155.3	-10.8	-1.08	160.0	-6.6	-0.69
DEB44X		158.7	-7.4	-0.74	163.3	-3.3	-0.35
DJ8RHJ		171.5	5.3	0.53	169.3	2.7	0.28
LRXTQ9		163.9	-2.3	-0.22	166.9	0.3	0.03
P73B3R		162.0	-4.2	-0.42	156.7	-9.9	-1.04
RBTD83		163.0	-3.1	-0.31	164.5	-2.1	-0.22
UBW3TB		164.6	-1.6	-0.16	167.1	0.5	0.05
URM4NG		166.6	0.5	0.05	162.3	-4.3	-0.45
VPGN83		162.3	-3.9	-0.39	157.0	-9.6	-1.01
WXM2CB		164.4	-1.7	-0.17	165.6	-1.0	-0.11
YCH7U8		163.8	-2.3	-0.23	167.5	0.9	0.09

Summary Statistics	Sample ST65	Sample ST66
Grand Means	166.14 Taber Units	166.60 Taber Units
Stnd Dev Btwn Labs	10.05 Taber Units	9.52 Taber Units

Statistics based on 13 of 13 reporting participants.

Analysis Notes:

YCH7U8 - Data appear to be reported as g-cm, not mN-m as indicated on datasheet. 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 343
Z-Direction Tensile
TAPPI Official Test Method T541

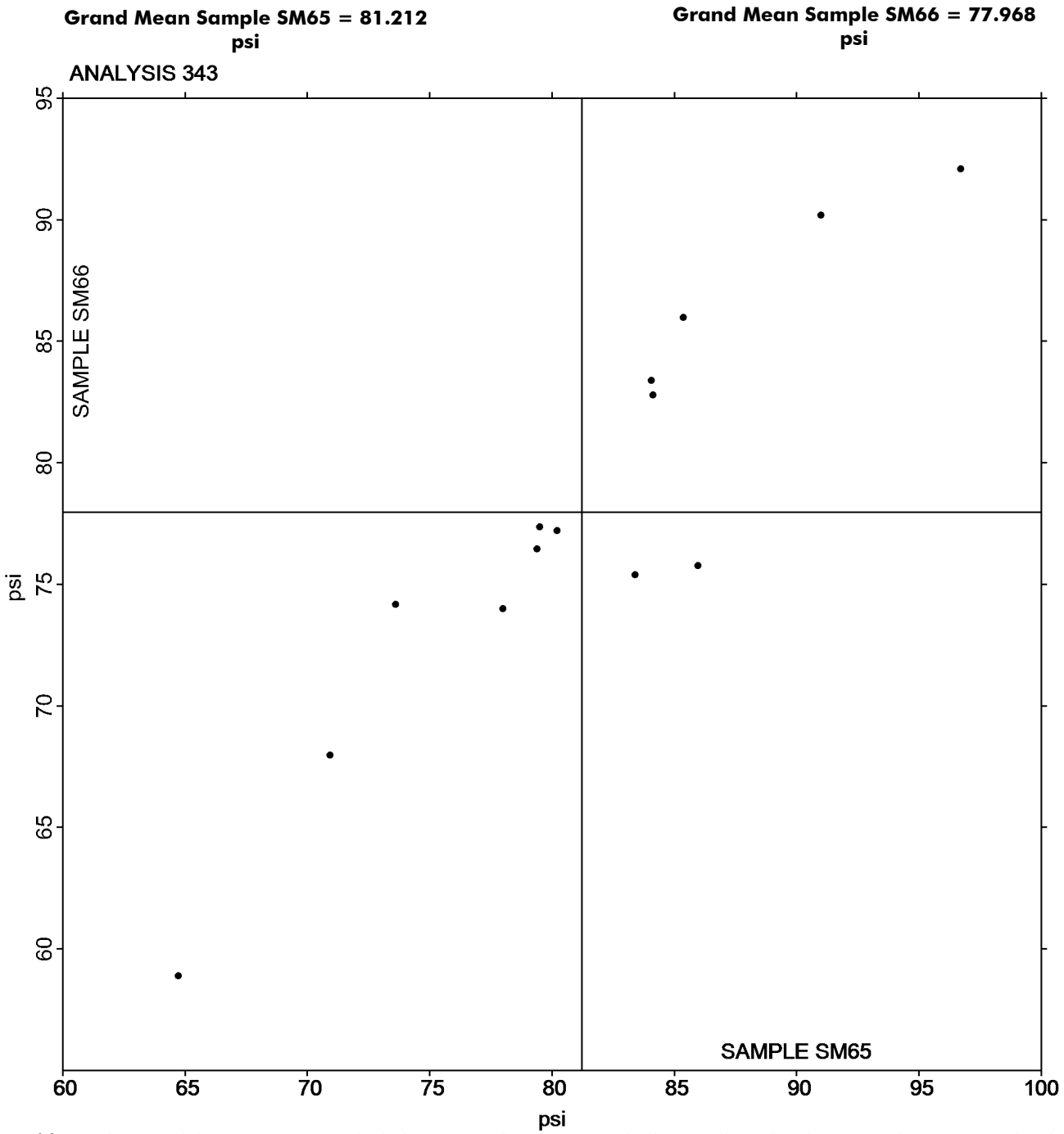
WebCode	Data Flag	Sample SM65 Lab Mean	Sample SM65 Diff from Grand Mean	Sample SM65 CPV	Sample SM66 Lab Mean	Sample SM66 Diff from Grand Mean	Sample SM66 CPV	Instr Code
26QPZK		73.60	-7.61	-0.94	74.16	-3.81	-0.44	CD
2K2JL3		85.36	4.15	0.51	85.96	8.00	0.92	TL
34FYXV		96.72	15.51	1.92	92.08	14.11	1.63	CA
7G22B3		84.06	2.85	0.35	83.38	5.41	0.63	DX
7UBC87		78.00	-3.21	-0.40	74.00	-3.97	-0.46	TA
8V3RW8		70.92	-10.29	-1.27	67.97	-10.00	-1.16	LW
A3EPEB		84.12	2.91	0.36	82.78	4.81	0.56	TA
DEB44X		64.72	-16.49	-2.04	58.88	-19.09	-2.21	LW
DJ8RHJ		79.50	-1.71	-0.21	77.36	-0.61	-0.07	LW
HLVW2Q		91.00	9.79	1.21	90.18	12.21	1.41	DX
K3WJHH		83.40	2.19	0.27	75.38	-2.59	-0.30	TA
VU4M9B		80.20	-1.01	-0.13	77.20	-0.77	-0.09	CD
YDR8F7		85.98	4.77	0.59	75.76	-2.21	-0.26	LW
ZLGFD2		79.38	-1.83	-0.23	76.46	-1.51	-0.17	TA

Summary Statistics	Sample SM65	Sample SM66
Grand Means	81.21 psi	77.97 psi
Stnd Dev Btwn Labs	8.09 psi	8.66 psi

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
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

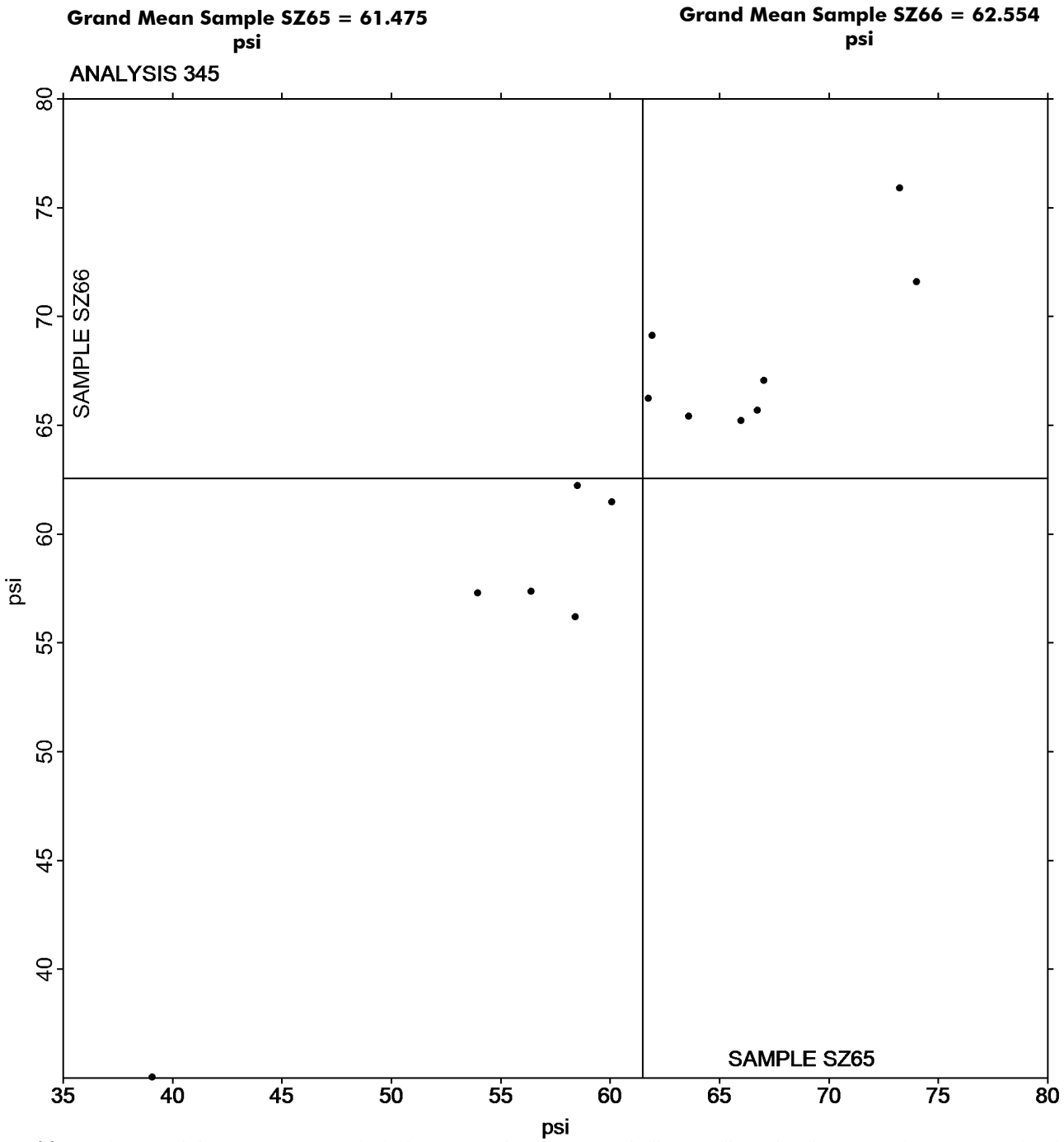
WebCode	Data Flag	Sample SZ65 Lab Mean	Sample SZ65 Diff from Grand Mean	Sample SZ65 CPV	Sample SZ66 Lab Mean	Sample SZ66 Diff from Grand Mean	Sample SZ66 CPV	Instr Code
2X9D6R		67.04	5.56	0.64	67.06	4.51	0.47	LW
2ZFHYF		53.94	-7.54	-0.87	57.28	-5.27	-0.55	LW
CHYZCX		74.00	12.52	1.44	71.60	9.05	0.94	LW
CXVECR		58.40	-3.08	-0.35	56.20	-6.35	-0.66	CA
KVXUZD		65.98	4.50	0.52	65.20	2.65	0.27	DP
P73B3R		61.92	0.44	0.05	69.12	6.57	0.68	TA
RBTD83		66.72	5.24	0.60	65.68	3.13	0.32	CA
UBW3TB		39.08	-22.40	-2.58	35.04	-27.51	-2.85	TZ
URM4NG		61.76	0.28	0.03	66.24	3.69	0.38	CA
VMQUXE		73.23	11.75	1.35	75.89	13.34	1.38	CH
WXM2CB		63.60	2.12	0.24	65.40	2.85	0.29	CA
XDW96L		58.51	-2.96	-0.34	62.21	-0.34	-0.04	TA
YCH7U8		56.40	-5.08	-0.58	57.36	-5.19	-0.54	CD
ZDMBKZ		60.07	-1.40	-0.16	61.48	-1.08	-0.11	PG

Summary Statistics	Sample SZ65	Sample SZ66
Grand Means	61.48 psi	62.55 psi
Stnd Dev Btwn Labs	8.69 psi	9.67 psi

Statistics based on 14 of 14 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	PG	Perkins Model A Mullen Tester
TA	Thwing-Albert Tensile Tester	TZ	TMI Monitor/ZDT Tester



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SN65 Lab Mean	Sample SN65 Diff from Grand Mean	Sample SN65 CPV	Sample SN66 Lab Mean	Sample SN66 Diff from Grand Mean	Sample SN66 CPV	Instr Code
28DCQM		126.2	1.9	0.31	102.8	2.4	0.44	HZ
82T377		136.8	12.5	2.02	109.2	8.8	1.59	HY
93ZYU8		119.4	-4.9	-0.79	88.6	-11.8	-2.14	KR
A3EPEB		118.2	-6.1	-0.98	96.8	-3.6	-0.65	HZ
DEB44X		113.0	-11.2	-1.82	94.8	-5.6	-1.02	HZ
DJ8RHJ		125.0	0.7	0.12	95.0	-5.4	-0.98	HY
DZGEC8		123.6	-0.7	-0.11	97.8	-2.6	-0.47	HY
G9G63Z		126.8	2.5	0.41	95.4	-5.0	-0.91	HY
K3WJHH		129.6	5.3	0.86	100.6	0.2	0.04	HY
K6MHX2		118.2	-6.1	-0.98	102.0	1.6	0.29	HY
KKGVKA		122.0	-2.3	-0.37	99.4	-1.0	-0.18	HY
P73B3R		126.9	2.6	0.43	102.3	1.9	0.35	HY
RBTD83		124.2	-0.1	-0.01	100.2	-0.2	-0.03	HZ
T4M6WR		120.7	-3.6	-0.58	100.2	-0.2	-0.03	HY
W7FDPR		129.0	4.7	0.76	106.4	6.0	1.09	HY
YDPK2D		118.4	-5.9	-0.95	105.4	5.0	0.91	HZ
ZLGFD2		134.8	10.5	1.70	109.8	9.4	1.71	HY

Summary Statistics	Sample SN65	Sample SN66
Grand Means	124.28 1000th ft-lbs	100.39 1000th ft-lbs
Stnd Dev Btwn Labs	6.18 1000th ft-lbs	5.50 1000th ft-lbs

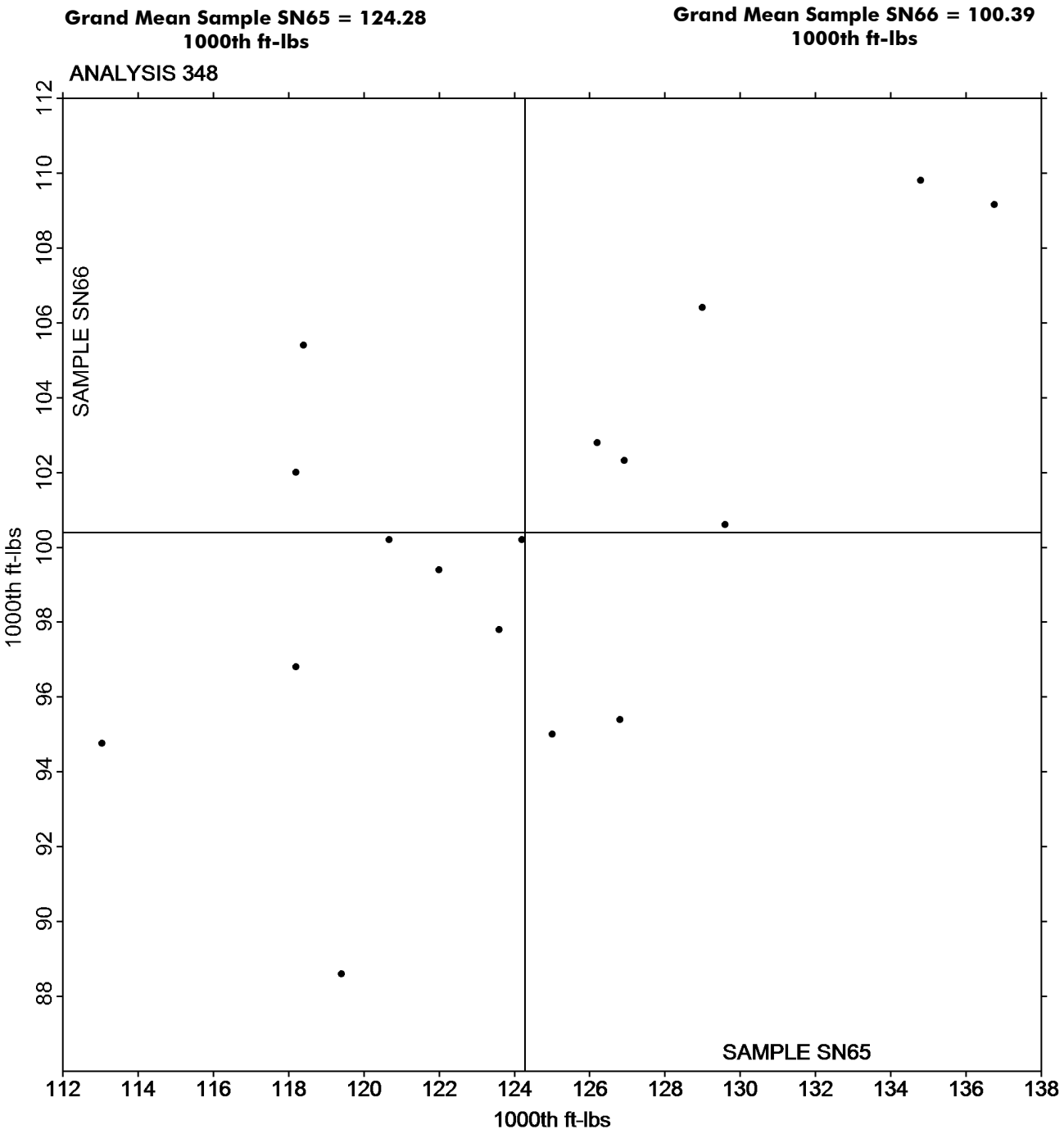
Statistics based on 17 of 17 reporting participants.

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 SP65 Lab Mean	Sample SP65 Diff from Grand Mean	Sample SP65 CPV	Sample SP66 Lab Mean	Sample SP66 Diff from Grand Mean	Sample SP66 CPV	Instr Code
2X9D6R		81.00	-3.12	-0.19	84.40	3.64	0.17	XX
3LBPH4		91.20	7.08	0.43	90.80	10.04	0.47	SC
DD23XQ		51.80	-32.32	-1.94	30.20	-50.56	-2.35	SC
FP7ZYW		105.54	21.43	1.29	101.74	20.98	0.98	TM
UT2A9C		100.00	15.88	0.96	92.00	11.24	0.52	SC
UTL4WT		77.18	-6.93	-0.42	76.61	-4.15	-0.19	XX
VMQUXE		85.00	0.88	0.05	82.20	1.44	0.07	TM
VPGN83		95.72	11.60	0.70	98.66	17.90	0.83	XX
WLQ4JJ		69.60	-14.52	-0.87	70.20	-10.56	-0.49	SC

Summary Statistics	Sample SP65	Sample SP66
Grand Means	84.12 1000th ft-lbs	80.76 1000th ft-lbs
Stnd Dev Btwn Labs	16.62 1000th ft-lbs	21.47 1000th ft-lbs

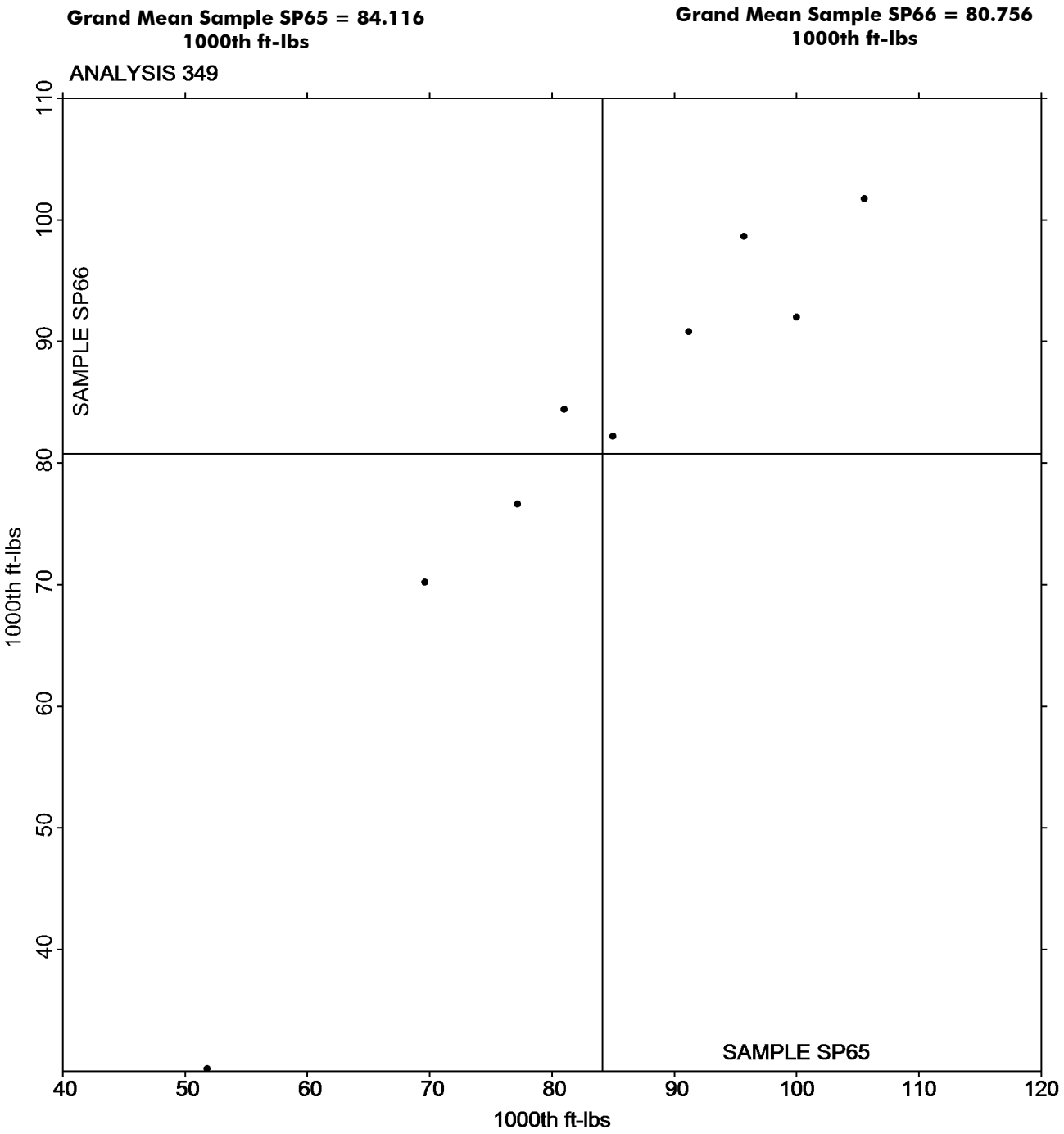
Statistics based on 9 of 9 reporting participants.

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-

