Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3041 S - January 2020

Analysis	Analysis Name
305	Bursting Strength - Printing Papers
310	Bursting Strength - Packaging Papers
311	Tearing Strength - Newsprint
312	Tearing Strength - Printing Papers
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320	Tensile Breaking Strength - Newsprint
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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
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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 SA75 Lab Mean	Sample SA75 Diff from Grand Mean	Sample SA75 CPV	Sample SA76 Lab Mean	Sample SA76 Diff from Grand Mean	Sample SA76 CPV
2YGK2A		24.84	1.86	0.92	24.42	1.32	0.61
3UFHFZ		22.88	-0.11	-0.05	23.29	0.19	0.09
4DAB2X		22.19	-0.79	-0.39	21.29	-1.81	-0.83
4HMKJ9		24.50	1.52	0.75	25.50	2.40	1.10
4JVRNM		20.20	-2.78	-1.38	20.20	-2.90	-1.34
8973HD		22.80	-0.18	-0.09	21.60	-1.50	-0.69
9QLVJL		22.74	-0.24	-0.12	22.44	-0.66	-0.31
BPZ2TV		22.38	-0.60	-0.30	22.39	-0.71	-0.33
CF7FZ3		25.59	2.60	1.29	25.31	2.21	1.02
CM87EL	X	34.64	11.65	5.79	32.42	9.32	4.29
CNYMLT		24.38	1.40	0.69	25.34	2.24	1.03
DNULDZ		23.10	0.12	0.06	23.00	-0.10	-0.05
DTPR2X		22.27	-0.72	-0.36	22.32	-0.78	-0.36
EAQJBJ	*	18.60	-4.38	-2.18	20.00	-3.10	-1.43
EJ3H6U		26.55	3.57	1.77	27.35	4.25	1.96
EUFETR		18.90	-4.08	-2.03	19.10	-4.00	-1.84
FN72JD		23.67	0.68	0.34	23.45	0.35	0.16
JF32UV		23.80	0.82	0.41	22.89	-0.21	-0.09
KB8TPR		26.70	3.72	1.85	28.20	5.10	2.35
KK9T8K		23.52	0.54	0.27	23.30	0.20	0.09
LCY427		22.22	-0.76	-0.38	22.10	-1.00	-0.46
MCDQDT		22.73	-0.25	-0.13	23.18	0.08	0.04
QNVGQT		23.02	0.03	0.02	23.21	0.11	0.05
VRKKH9		20.81	-2.17	-1.08	20.97	-2.13	-0.98
Y3LQT6		23.25	0.27	0.13	23.55	0.45	0.21

Summary Statistics	Sample SA75	Sample SA76
Grand Means	22.98 psi	23.10 psi
Stnd Dev Btwn Labs	2.01 psi	2.17 psi

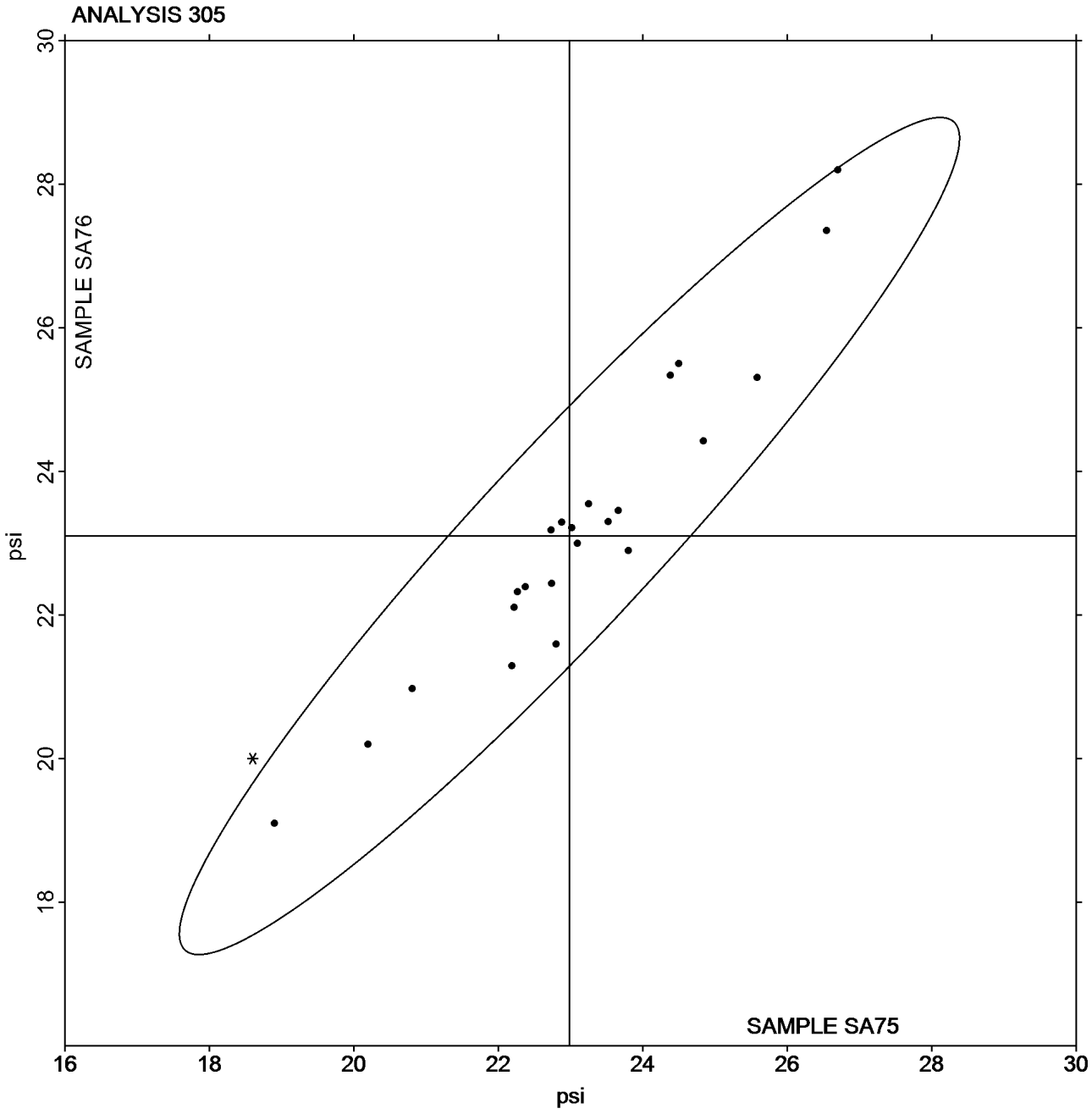
Statistics based on 24 of 25 reporting participants.

Comments on Assigned Data Flags for Test #305

CM87EL (X) - Data for both samples are high. Possible Systematic Error.

Grand Mean Sample SA75 = 22.984 psi

Grand Mean Sample SA76 = 23.100 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

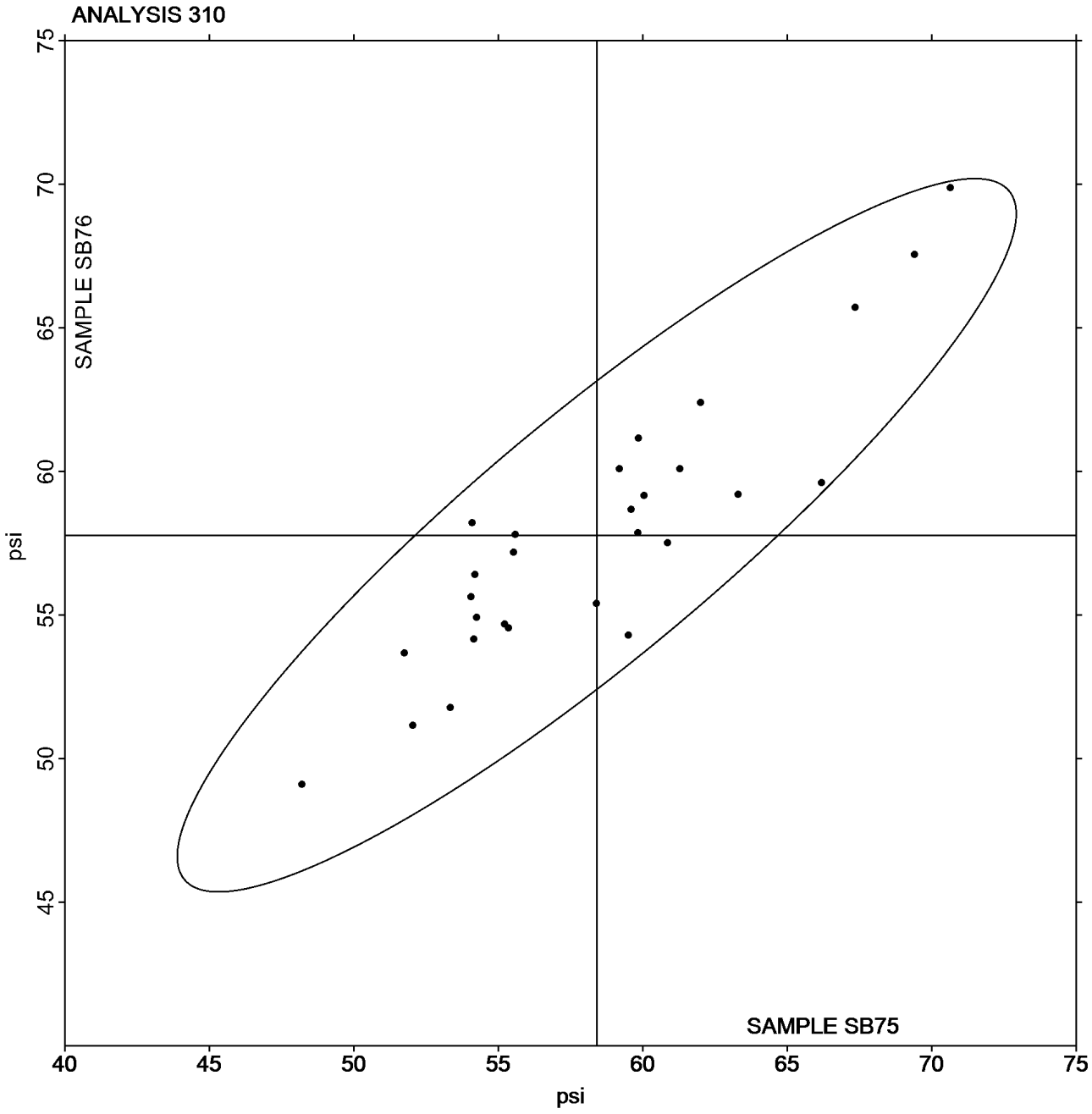
WebCode	Data Flag	Sample SB75 Lab Mean	Sample SB75 Diff from Grand Mean	Sample SB75 CPV	Sample SB76 Lab Mean	Sample SB76 Diff from Grand Mean	Sample SB76 CPV
36KQEQ		62.00	3.60	0.66	62.40	4.62	0.98
4V8TTE		55.36	-3.04	-0.55	54.55	-3.23	-0.69
7QACN4		59.83	1.43	0.26	57.86	0.08	0.02
CM87EL		67.35	8.94	1.63	65.71	7.93	1.69
CNYMLT		54.26	-4.15	-0.76	54.91	-2.87	-0.61
D3BXUV		69.40	11.00	2.00	67.55	9.77	2.08
D92BVJ		61.29	2.89	0.53	60.09	2.31	0.49
DTPR2X		54.19	-4.22	-0.77	56.41	-1.36	-0.29
EUFETR		59.20	0.80	0.15	60.09	2.31	0.49
FN72JD		55.54	-2.86	-0.52	57.19	-0.59	-0.13
GJ9ECP		60.05	1.64	0.30	59.16	1.38	0.29
GV8F7Z		63.30	4.90	0.89	59.20	1.42	0.30
GVN9P4		53.35	-5.06	-0.92	51.78	-6.00	-1.28
GXEBVR		55.60	-2.80	-0.51	57.80	0.02	0.00
H38P4Y		59.85	1.45	0.26	61.15	3.37	0.72
H6NKQ6		54.06	-4.35	-0.79	55.62	-2.16	-0.46
HY6GJ2		66.20	7.80	1.42	59.61	1.83	0.39
KGTYQM		54.10	-4.30	-0.78	58.20	0.42	0.09
KT22RB		59.60	1.20	0.22	58.68	0.90	0.19
LT3LAP		55.23	-3.17	-0.58	54.67	-3.10	-0.66
MTZNHN		58.40	0.00	0.00	55.40	-2.38	-0.51
RWNC2V		59.50	1.10	0.20	54.30	-3.48	-0.74
T6TNTJ		70.65	12.25	2.23	69.88	12.10	2.58
UTD94P		51.75	-6.65	-1.21	53.68	-4.10	-0.87
VHBRVE		52.05	-6.35	-1.16	51.15	-6.63	-1.41
X7U8K3		48.21	-10.19	-1.86	49.10	-8.68	-1.85
ZMPETK		60.87	2.46	0.45	57.50	-0.28	-0.06
ZUQ9R2		54.15	-4.25	-0.78	54.15	-3.63	-0.77

Summary Statistics	Sample SB75	Sample SB76
Grand Means	58.40 psi	57.78 psi
Stnd Dev Btwn Labs	5.49 psi	4.69 psi

Statistics based on 28 of 28 reporting participants.

Grand Mean Sample SB75 = 58.404 psi

Grand Mean Sample SB76 = 57.778 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 311

Tearing Strength - Newsprint

TAPPI Official Test Method T414

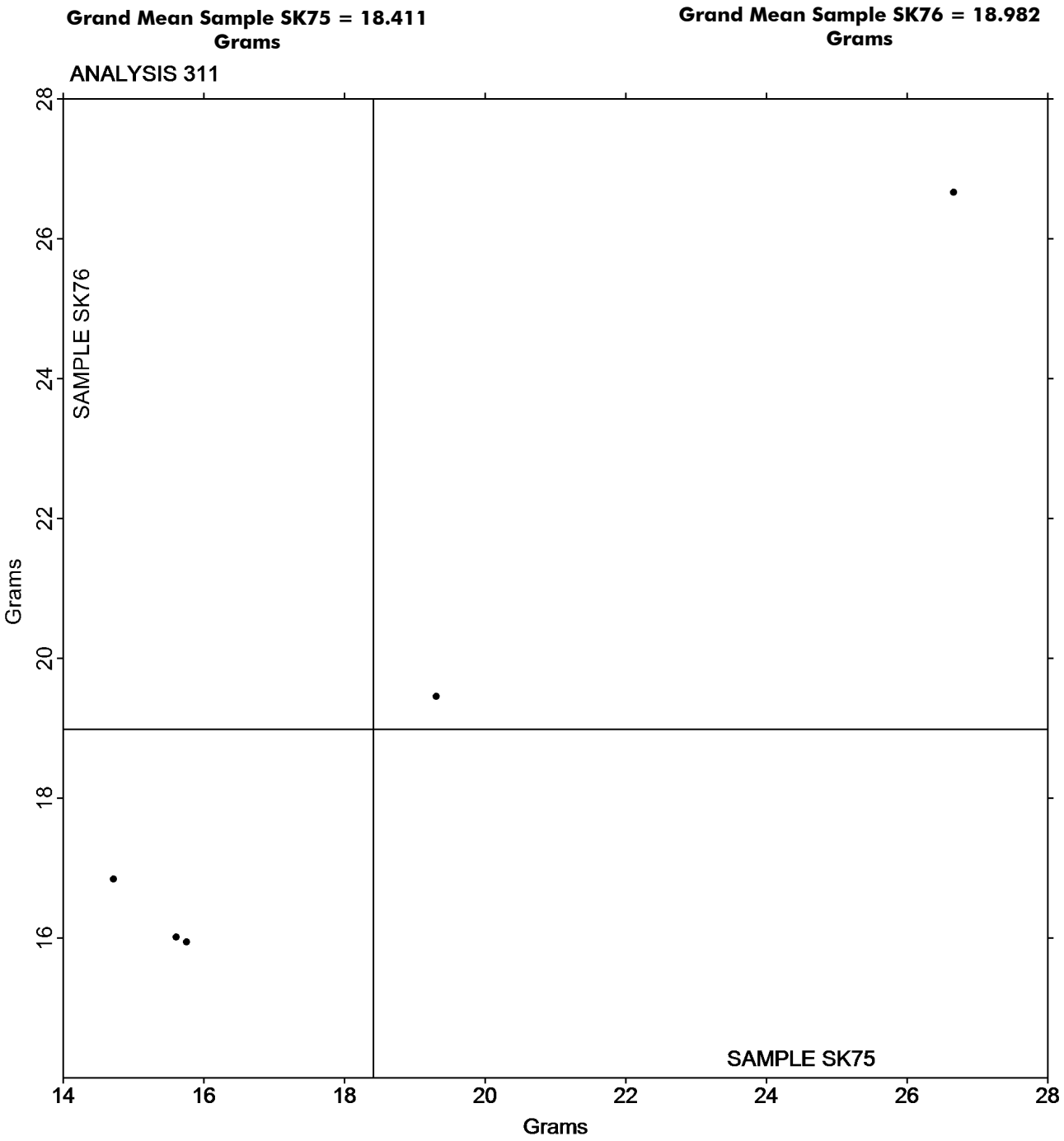
WebCode	Data Flag	Sample SK75 Lab Mean	Sample SK75 Diff from Grand Mean	Sample SK75 CPV	Sample SK76 Lab Mean	Sample SK76 Diff from Grand Mean	Sample SK76 CPV
2YGK2A		26.67	8.25	1.67	26.66	7.68	1.70
4JVRNM		14.72	-3.69	-0.75	16.84	-2.14	-0.47
7BGMN2		15.61	-2.80	-0.57	16.01	-2.97	-0.66
AT2PXX		15.75	-2.66	-0.54	15.94	-3.04	-0.67
EAQJBJ	X	40.07	21.66	4.39	40.93	21.95	4.85
FN72JD		19.30	0.89	0.18	19.46	0.47	0.10

Summary Statistics	Sample SK75	Sample SK76
Grand Means	18.41 Grams	18.98 Grams
Stnd Dev Btwn Labs	4.94 Grams	4.53 Grams

Statistics based on 5 of 6 reporting participants.

Comments on Assigned Data Flags for Test #311

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



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC75 Lab Mean	Sample SC75 Diff from Grand Mean	Sample SC75 CPV	Sample SC76 Lab Mean	Sample SC76 Diff from Grand Mean	Sample SC76 CPV
2YZ9J4		46.10	0.43	0.07	43.50	-1.90	-0.32
3UFHFZ		48.52	2.85	0.46	47.16	1.76	0.30
4DAB2X		49.37	3.71	0.60	49.86	4.46	0.75
4HMKJ9		47.62	1.95	0.31	47.17	1.77	0.30
4P68XB		45.33	-0.34	-0.05	44.32	-1.08	-0.18
4V8TTE		54.10	8.43	1.36	54.41	9.01	1.51
64YWP2		49.38	3.71	0.60	48.54	3.14	0.53
7QACN4	*	47.59	1.92	0.31	44.35	-1.05	-0.18
9QLVJL		55.35	9.68	1.56	54.74	9.34	1.57
9RCWPA		48.06	2.39	0.39	47.46	2.06	0.35
BPZ2TV		50.54	4.87	0.79	50.14	4.74	0.80
CEV942		54.43	8.76	1.41	53.06	7.66	1.29
CF7FZ3		39.86	-5.81	-0.94	40.52	-4.88	-0.82
CM87EL		47.11	1.44	0.23	47.26	1.85	0.31
CNYMLT		43.21	-2.46	-0.40	43.63	-1.77	-0.30
D3BXUV		41.84	-3.83	-0.62	42.56	-2.84	-0.48
DNULDZ		45.28	-0.39	-0.06	44.44	-0.96	-0.16
DTPR2X	*	29.75	-15.92	-2.56	31.16	-14.24	-2.39
DY24BX		40.49	-5.18	-0.83	42.85	-2.55	-0.43
E3WEHH	*	26.60	-19.07	-3.07	27.70	-17.70	-2.98
EACXYW		49.20	3.53	0.57	48.70	3.30	0.55
FJCJAM		43.00	-2.67	-0.43	40.72	-4.68	-0.79
FN72JD		46.15	0.49	0.08	45.70	0.30	0.05
G6X2CX		48.16	2.49	0.40	49.73	4.33	0.73
GJ9ECP		44.20	-1.46	-0.24	43.73	-1.68	-0.28
H6NKQ6		47.23	1.57	0.25	46.44	1.04	0.17
JF32UV		46.59	0.92	0.15	47.86	2.46	0.41
KB8TPR		44.30	-1.37	-0.22	43.50	-1.90	-0.32
KK9T8K		49.68	4.01	0.65	48.50	3.10	0.52
KKRCED		44.34	-1.33	-0.21	44.96	-0.44	-0.07
KQZJNU		48.38	2.71	0.44	46.54	1.14	0.19
L3UZCB		39.54	-6.13	-0.99	39.46	-5.94	-1.00
LCY427		55.33	9.66	1.56	54.74	9.34	1.57
LT3LAP		53.38	7.72	1.24	51.80	6.40	1.08
MCDQDT	*	28.10	-17.57	-2.83	28.35	-17.05	-2.87
MP2X7M	*	48.55	2.88	0.46	51.16	5.76	0.97
PWAB2N		41.68	-3.99	-0.64	41.47	-3.93	-0.66
QXKDMM		45.80	0.13	0.02	45.32	-0.08	-0.01
RK6EZD		40.36	-5.31	-0.85	40.24	-5.16	-0.87
RWNC2V		54.80	9.13	1.47	55.80	10.40	1.75

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC75 Lab Mean	Sample SC75 Diff from Grand Mean	Sample SC75 CPV	Sample SC76 Lab Mean	Sample SC76 Diff from Grand Mean	Sample SC76 CPV
TD8PRT		44.20	-1.47	-0.24	43.40	-2.00	-0.34
TV6P3D		40.61	-5.06	-0.81	41.71	-3.69	-0.62
UBGQCA		50.42	4.75	0.77	49.34	3.94	0.66
VHBRVE		43.66	-2.01	-0.32	42.60	-2.80	-0.47
VRKKH9		45.66	-0.01	0.00	45.70	0.30	0.05
X9EQAL		51.17	5.50	0.89	50.80	5.40	0.91
ZMPETK		45.52	-0.15	-0.02	45.44	0.04	0.01
ZUQ9R2		41.46	-4.21	-0.68	40.79	-4.61	-0.78
ZXRW4N	X	49.12	3.45	0.56	43.13	-2.27	-0.38

Summary Statistics	Sample SC75	Sample SC76
Grand Means	45.67 Grams	45.40 Grams
Stnd Dev Btwn Labs	6.21 Grams	5.95 Grams

Statistics based on 48 of 49 reporting participants.

Comments on Assigned Data Flags for Test #312

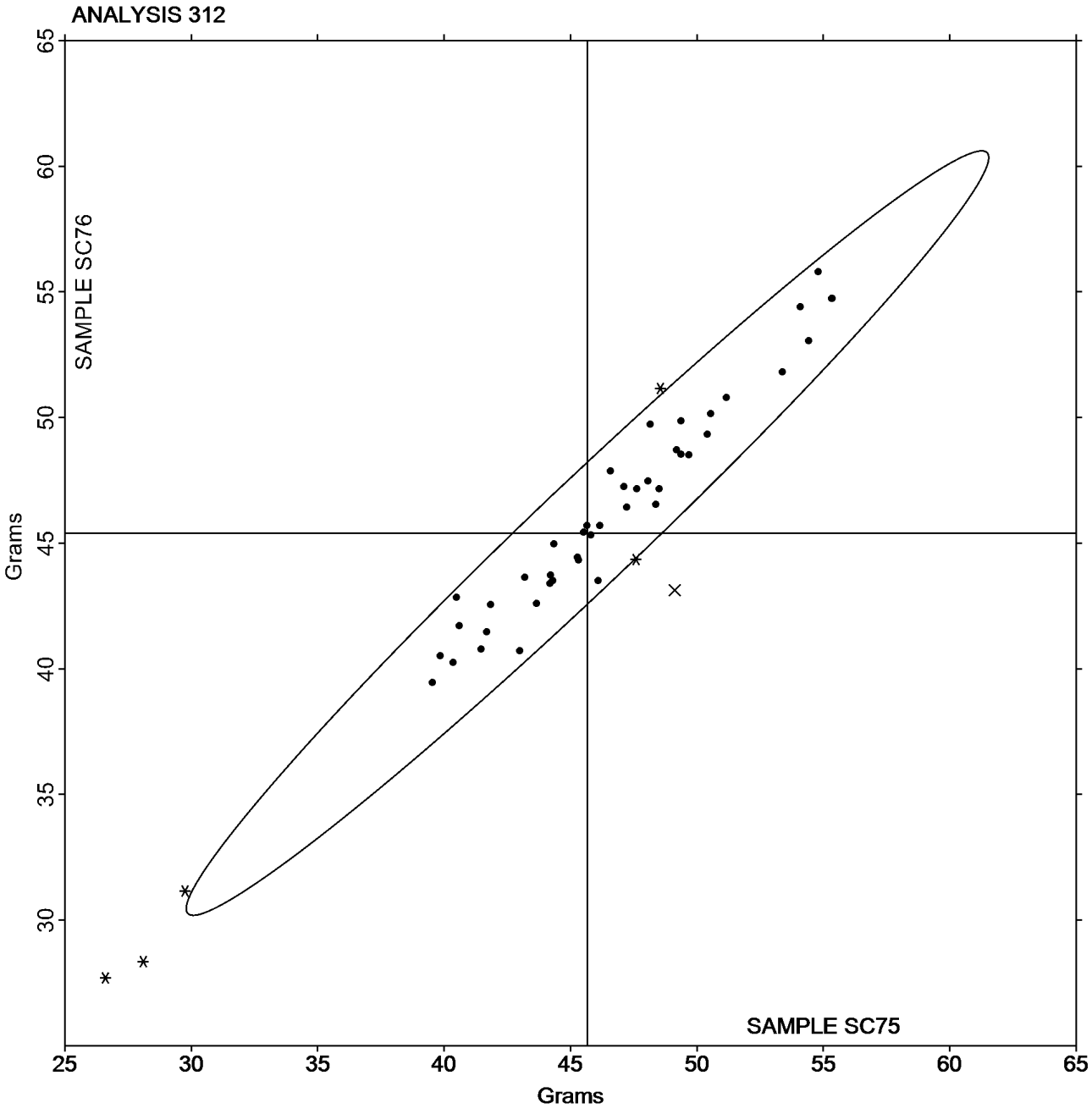
ZXRW4N (X) - Inconsistent in testing between samples.

Analysis Notes:

VHBRVE - Data appear to be reported as gf, not mN as indicated on data entry form. CTS will not correct the Units going forward.

Grand Mean Sample SC75 = 45.667 Grams

Grand Mean Sample SC76 = 45.403 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD75 Lab Mean	Sample SD75 Diff from Grand Mean	Sample SD75 CPV	Sample SD76 Lab Mean	Sample SD76 Diff from Grand Mean	Sample SD76 CPV
2TPVN7		98.3	-18.4	-1.02	100.1	-15.9	-0.82
4VP9DN		117.6	0.9	0.05	118.9	2.9	0.15
6Y7VP8		106.3	-10.4	-0.58	101.7	-14.3	-0.74
7YF263		116.3	-0.5	-0.03	113.8	-2.2	-0.12
868NUM		113.6	-3.1	-0.17	114.2	-1.9	-0.10
8M3WX8	*	127.7	11.0	0.61	138.7	22.7	1.17
947DEB		117.7	1.0	0.05	114.1	-1.9	-0.10
BHGXNE		145.3	28.6	1.59	144.1	28.1	1.45
C3LA32		105.5	-11.2	-0.62	107.4	-8.7	-0.45
CLXWQU		119.3	2.6	0.14	113.2	-2.8	-0.15
CU8L4T		111.8	-4.9	-0.27	104.2	-11.8	-0.61
DTPR2X	*	65.1	-51.6	-2.86	64.4	-51.6	-2.67
DW9ENW		120.2	3.5	0.19	117.9	1.8	0.09
EJ3H6U		102.0	-14.7	-0.82	101.4	-14.6	-0.76
EUFETR		124.8	8.1	0.45	127.6	11.6	0.60
FAA226		104.1	-12.6	-0.70	102.2	-13.9	-0.72
FD9FNV		123.9	7.1	0.40	119.9	3.9	0.20
FN72JD		121.6	4.9	0.27	115.4	-0.7	-0.03
GV8F7Z	*	75.6	-41.1	-2.28	65.6	-50.4	-2.61
GXEBVR		143.7	27.0	1.50	139.4	23.4	1.21
H38P4Y		134.9	18.2	1.01	132.7	16.7	0.86
H3NCMU	*	129.2	12.5	0.69	141.4	25.4	1.31
H8X4KT		124.3	7.6	0.42	125.3	9.2	0.48
HY6GJ2		122.6	5.9	0.33	123.0	7.0	0.36
KB8TPR		109.8	-6.9	-0.38	107.9	-8.1	-0.42
KQZJNU		118.4	1.7	0.10	125.4	9.4	0.49
KT22RB	X	461.6	344.9	19.12	471.2	355.2	18.40
LT3LAP		123.9	7.2	0.40	128.0	12.0	0.62
LVTKNN		134.9	18.2	1.01	126.5	10.5	0.54
ME6PRR		117.9	1.2	0.07	118.3	2.3	0.12
NFUHZF		117.4	0.7	0.04	116.9	0.9	0.05
NUPCFA		134.9	18.2	1.01	134.0	18.0	0.93
PJMYPE		141.8	25.1	1.39	139.4	23.3	1.21
Q2XBUA		122.3	5.6	0.31	122.7	6.6	0.34
QHLN7G		117.0	0.3	0.02	118.4	2.4	0.12
RKBC63		116.9	0.1	0.01	116.5	0.5	0.02
RWNC2V		159.6	42.9	2.38	161.2	45.2	2.34
TLJNL4		117.1	0.3	0.02	120.2	4.1	0.21
UTD94P		115.6	-1.1	-0.06	115.2	-0.8	-0.04
VHQ76A		95.4	-21.3	-1.18	98.6	-17.4	-0.90

Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD75 Lab Mean	Sample SD75 Diff from Grand Mean	Sample SD75 CPV	Sample SD76 Lab Mean	Sample SD76 Diff from Grand Mean	Sample SD76 CPV
VVEEFB		109.7	-7.0	-0.39	102.9	-13.1	-0.68
X7U8K3		120.8	4.1	0.23	122.6	6.5	0.34
YHF2BL		99.5	-17.2	-0.95	97.3	-18.8	-0.97
YTXVWB		74.0	-42.7	-2.37	71.0	-45.0	-2.33

Summary Statistics	Sample SD75	Sample SD76
Grand Means	116.70 Grams	116.04 Grams
Stnd Dev Btwn Labs	18.03 Grams	19.31 Grams

Statistics based on 43 of 44 reporting participants.

Comments on Assigned Data Flags for Test #314

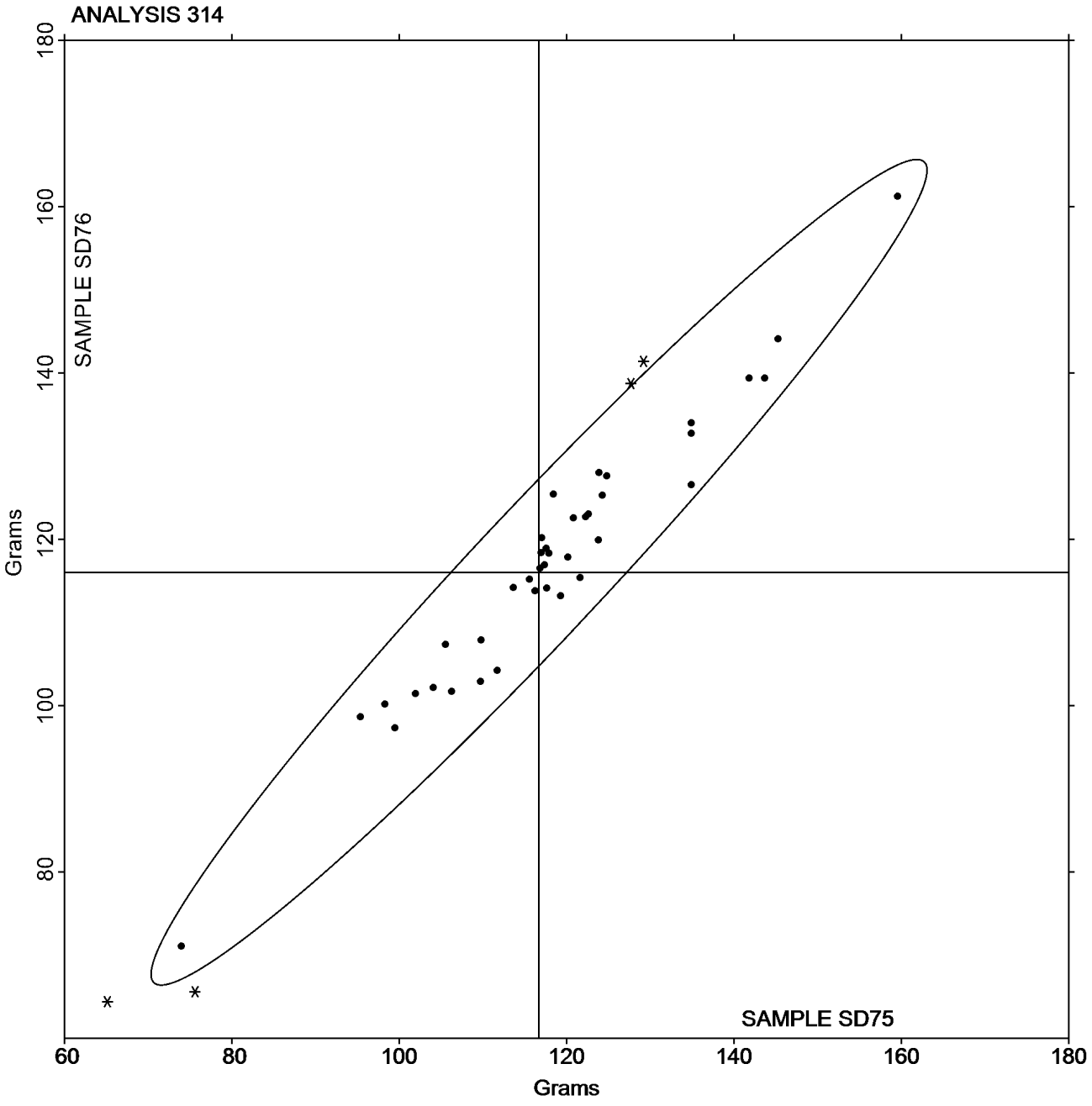
KT22RB (X) - Extreme Data.

Analysis Notes:

H3NCMU - One determination removed from the Lab Mean of Sample SD76 per Grubb's Test at 1% risk (TAPPI 1205).

Grand Mean Sample SD75 = 116.70 Grams

Grand Mean Sample SD76 = 116.04 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

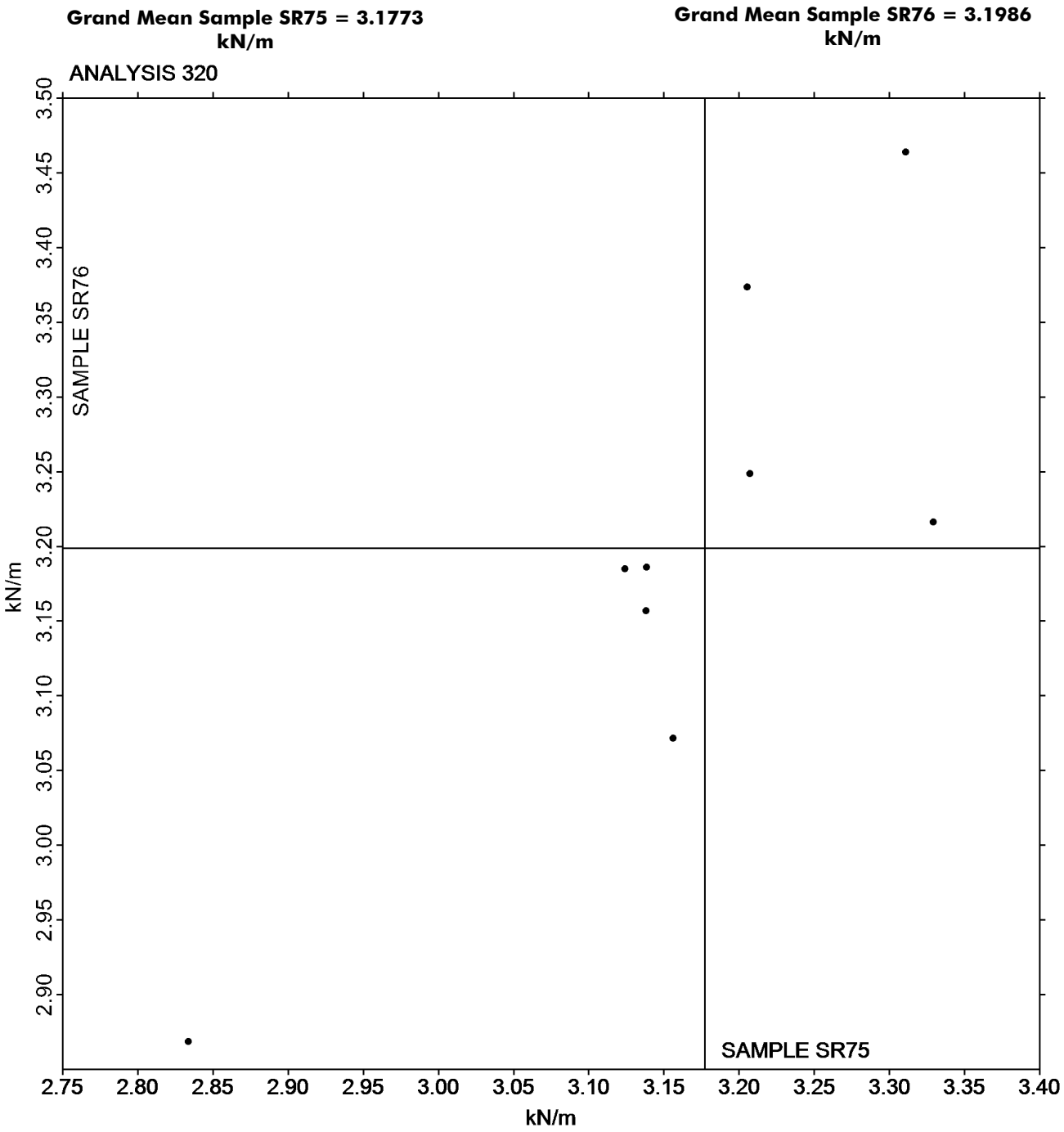
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR75 Lab Mean	Sample SR75 Diff from Grand Mean	Sample SR75 CPV	Sample SR76 Lab Mean	Sample SR76 Diff from Grand Mean	Sample SR76 CPV
2YGK2A		3.205	0.028	0.19	3.373	0.175	1.09
36KQEQ		3.207	0.030	0.21	3.249	0.050	0.31
4JVRNM		3.311	0.134	0.92	3.464	0.265	1.65
7BGMN2		3.329	0.152	1.05	3.216	0.017	0.11
868NUM		2.834	-0.344	-2.36	2.869	-0.330	-2.06
AT2PXX		3.329	0.152	1.05	3.216	0.017	0.11
CNYMLT		3.124	-0.053	-0.37	3.185	-0.014	-0.08
EAQJBJ		3.138	-0.039	-0.27	3.157	-0.042	-0.26
KQZJNU		3.139	-0.039	-0.27	3.186	-0.013	-0.08
QNVGQT		3.156	-0.021	-0.14	3.071	-0.127	-0.79

Summary Statistics	Sample SR75	Sample SR76
Grand Means	3.18 kN/m	3.20 kN/m
Stnd Dev Btwn Labs	0.15 kN/m	0.16 kN/m

Statistics based on 10 of 10 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 321

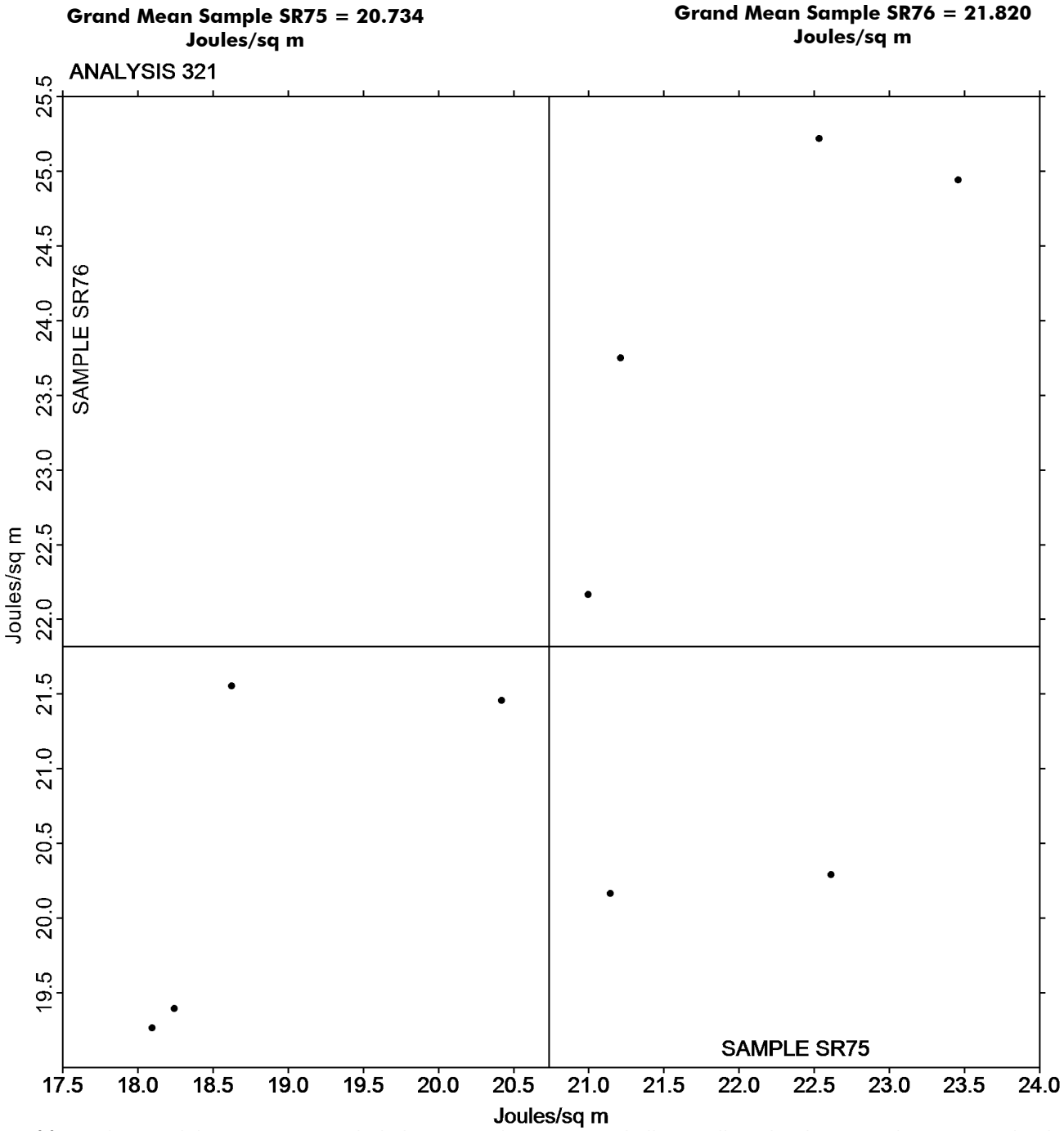
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR75 Lab Mean	Sample SR75 Diff from Grand Mean	Sample SR75 CPV	Sample SR76 Lab Mean	Sample SR76 Diff from Grand Mean	Sample SR76 CPV
2YGK2A		21.21	0.48	0.25	23.75	1.93	0.88
36KQEQ		20.42	-0.31	-0.17	21.46	-0.36	-0.17
4JVRNM		22.53	1.80	0.95	25.22	3.40	1.56
7BGMN2		18.62	-2.11	-1.11	21.55	-0.27	-0.12
868NUM		18.10	-2.64	-1.39	19.26	-2.56	-1.17
AT2PXX		22.61	1.88	0.99	20.29	-1.53	-0.70
CNYMLT		18.24	-2.49	-1.31	19.39	-2.43	-1.11
EAQJBJ		21.00	0.26	0.14	22.17	0.35	0.16
KQZJNU		23.46	2.73	1.44	24.94	3.12	1.43
QNVGQT		21.14	0.41	0.22	20.16	-1.66	-0.76

Summary Statistics	Sample SR75	Sample SR76
Grand Means	20.73 Joules/sq m	21.82 Joules/sq m
Stnd Dev Btwn Labs	1.90 Joules/sq m	2.18 Joules/sq m

Statistics based on 10 of 10 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 322

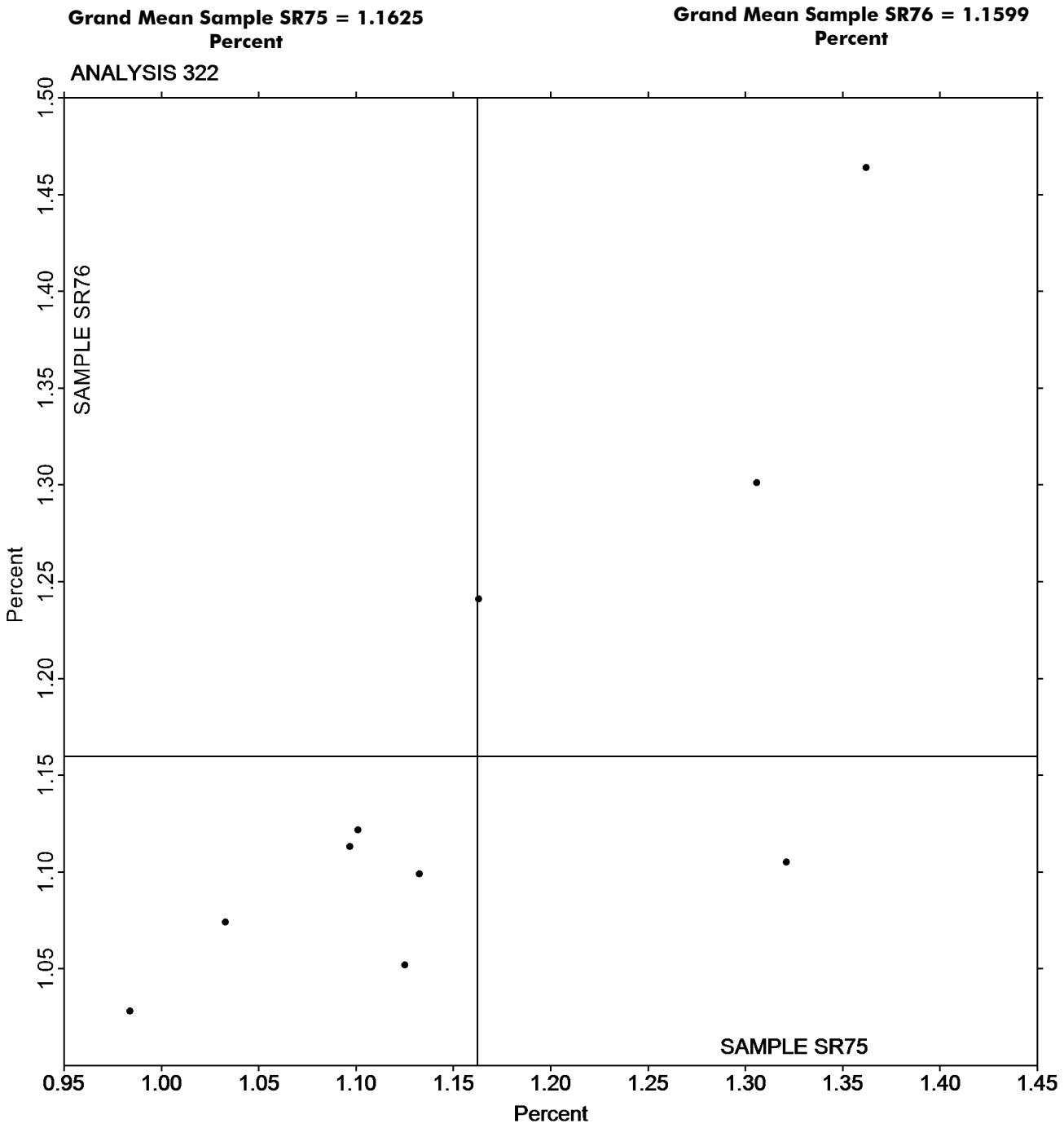
Elongation to Break - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR75 Lab Mean	Sample SR75 Diff from Grand Mean	Sample SR75 CPV	Sample SR76 Lab Mean	Sample SR76 Diff from Grand Mean	Sample SR76 CPV
2YGK2A		1.362	0.200	1.57	1.464	0.304	2.24
36KQEQ		1.101	-0.062	-0.49	1.122	-0.038	-0.28
4JVRNM		1.163	0.001	0.00	1.241	0.081	0.60
7BGMN2		1.321	0.159	1.25	1.105	-0.055	-0.40
868NUM		1.097	-0.065	-0.52	1.113	-0.047	-0.35
AT2PXX		1.125	-0.037	-0.30	1.052	-0.108	-0.79
CNYMLT		0.984	-0.178	-1.41	1.028	-0.132	-0.97
EAQJBJ		1.306	0.144	1.13	1.301	0.141	1.04
KQZJNU		1.033	-0.129	-1.02	1.074	-0.086	-0.63
QNVGQT		1.133	-0.030	-0.24	1.099	-0.061	-0.45

Summary Statistics	Sample SR75	Sample SR76
Grand Means	1.16 Percent	1.16 Percent
Stnd Dev Btwn Labs	0.13 Percent	0.14 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 SF75 Lab Mean	Sample SF75 Diff from Grand Mean	Sample SF75 CPV	Sample SF76 Lab Mean	Sample SF76 Diff from Grand Mean	Sample SF76 CPV	Instr Code
2YZ9J4		7.420	0.572	1.44	7.159	0.299	0.72	TC
3UFHFZ		6.746	-0.102	-0.26	6.849	-0.010	-0.02	LX
4DAB2X		6.565	-0.284	-0.72	6.544	-0.315	-0.75	XX
4HMKJ9		6.685	-0.163	-0.41	6.697	-0.163	-0.39	LH
4P68XB		6.647	-0.201	-0.51	6.725	-0.134	-0.32	TF
64YWP2		6.244	-0.605	-1.52	6.103	-0.757	-1.81	ID
6Y7VP8		6.254	-0.595	-1.50	6.191	-0.669	-1.60	LI
8973HD		7.217	0.368	0.93	7.111	0.251	0.60	LH
9JZEVW		7.077	0.229	0.58	6.971	0.112	0.27	TF
9QLVJL		7.189	0.341	0.86	7.296	0.437	1.04	LF
9RCWPA		6.777	-0.071	-0.18	6.947	0.088	0.21	LI
ACFYZJ		7.299	0.451	1.14	7.207	0.348	0.83	FP
BPZ2TV		6.992	0.144	0.36	6.849	-0.010	-0.02	LH
CEV942		6.603	-0.245	-0.62	6.778	-0.081	-0.19	IM
CF7FZ3	*	7.187	0.339	0.85	7.669	0.809	1.94	TJ
CNYMLT		6.965	0.117	0.29	6.843	-0.016	-0.04	LH
D3BXUV		7.061	0.213	0.54	7.016	0.156	0.37	TO
DNULDZ		6.407	-0.441	-1.11	6.432	-0.428	-1.02	LA
DTPR2X		6.713	-0.135	-0.34	6.761	-0.098	-0.23	TM
DY24BX	*	6.598	-0.250	-0.63	7.153	0.293	0.70	FP
EACXYW		6.454	-0.394	-0.99	6.412	-0.448	-1.07	TO
EMJHAV		7.765	0.917	2.31	7.721	0.861	2.06	LX
EREWPB		6.367	-0.481	-1.21	6.518	-0.342	-0.82	RE
FJCJAM		7.457	0.608	1.53	7.517	0.658	1.57	LH
FN72JD		6.693	-0.156	-0.39	6.713	-0.147	-0.35	LH
G6X2CX		6.836	-0.012	-0.03	6.784	-0.075	-0.18	XX
GJ9ECP		6.787	-0.061	-0.15	6.549	-0.310	-0.74	LH
H6NKQ6		6.627	-0.221	-0.56	6.886	0.026	0.06	LH
JF32UV		7.267	0.418	1.06	7.143	0.283	0.68	TP
KK9T8K		6.994	0.146	0.37	7.070	0.210	0.50	TF
L3UZCB		7.280	0.432	1.09	7.305	0.445	1.06	TO
LCY427		7.286	0.438	1.10	7.222	0.363	0.87	LI
MCDQDT		6.132	-0.716	-1.81	6.327	-0.532	-1.27	DL
MP2X7M		7.483	0.635	1.60	7.494	0.634	1.52	LB
PWAB2N		7.425	0.577	1.46	7.115	0.256	0.61	VM
QHLN7G		6.471	-0.378	-0.95	6.656	-0.203	-0.49	IM
QXKDMM		6.842	-0.006	-0.02	6.875	0.016	0.04	LE
RE436F		6.836	-0.013	-0.03	6.807	-0.053	-0.13	IN
RK6EZD		6.687	-0.161	-0.41	6.684	-0.176	-0.42	TB
TD8PRT		7.143	0.295	0.74	7.143	0.284	0.68	XX

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF75 Lab Mean	Sample SF75 Diff from Grand Mean	Sample SF75 CPV	Sample SF76 Lab Mean	Sample SF76 Diff from Grand Mean	Sample SF76 CPV	Instr Code
TV6P3D		7.040	0.192	0.48	7.064	0.204	0.49	LI
VGZ99H		6.249	-0.599	-1.51	6.407	-0.452	-1.08	LA
VRKKH9		6.562	-0.286	-0.72	6.660	-0.200	-0.48	TB
X2W6M9		6.914	0.066	0.17	7.150	0.291	0.70	XX
X9EQAL	*	6.308	-0.540	-1.36	5.860	-1.000	-2.39	TO
ZUQ9R2		7.097	0.249	0.63	7.152	0.293	0.70	TF
ZXRW4N	*	6.219	-0.629	-1.59	5.862	-0.997	-2.39	TP

Summary Statistics	Sample SF75	Sample SF76
Grand Means	6.85 kN/m	6.86 kN/m
Stnd Dev Btwn Labs	0.40 kN/m	0.42 kN/m

Statistics based on 47 of 47 reporting participants.

Analysis Notes:

EMJHAV - One determination removed from the Lab Mean of Sample SF75 per Grubb's Test at 1% risk (TAPPI 1205).

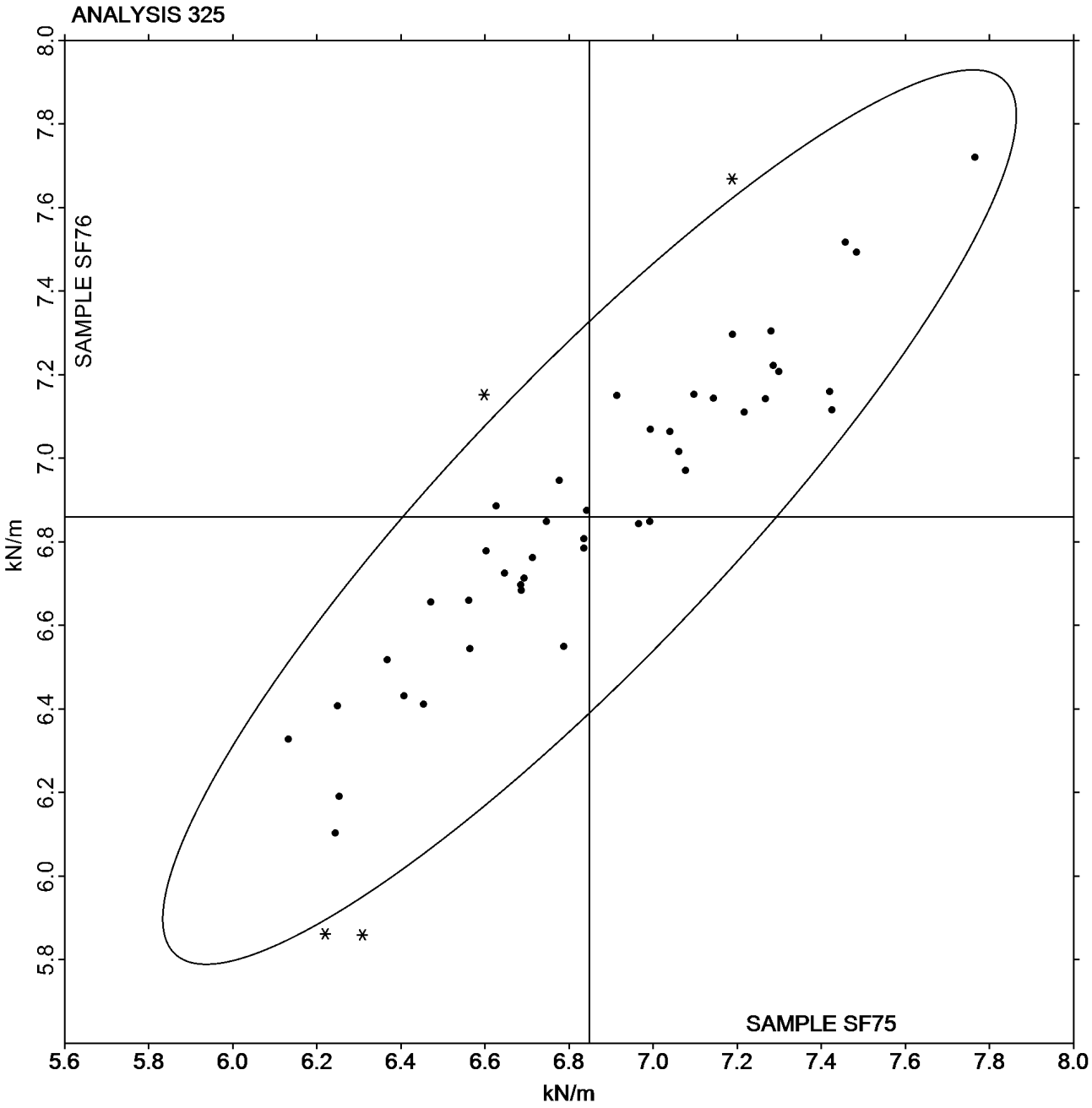
TD8PRT - Data appear to be reported as lb/in, not kg/15 mm as indicated on data entry form. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
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	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 SF75 = 6.8482 kN/m

Grand Mean Sample SF76 = 6.8595 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF75 Lab Mean	Sample SF75 Diff from Grand Mean	Sample SF75 CPV	Sample SF76 Lab Mean	Sample SF76 Diff from Grand Mean	Sample SF76 CPV	Instr Code
3UFHFZ		91.80	-2.52	-0.22	90.83	-4.19	-0.37	LX
4DAB2X		88.34	-5.97	-0.52	88.55	-6.47	-0.57	XX
4HMKJ9		89.08	-5.23	-0.46	89.42	-5.61	-0.49	LH
64YWP2		90.45	-3.86	-0.34	85.64	-9.39	-0.83	ID
6Y7VP8		84.32	-9.99	-0.88	88.42	-6.60	-0.58	LI
8973HD		97.41	3.10	0.27	98.54	3.51	0.31	LH
9JZEVW		112.68	18.37	1.61	112.90	17.88	1.57	TF
9QLVJL		99.93	5.62	0.49	102.33	7.30	0.64	LF
9RCWPA		84.52	-9.80	-0.86	88.94	-6.08	-0.54	LI
ACFYZJ		112.86	18.55	1.63	113.25	18.22	1.60	FP
BPZ2TV		100.05	5.73	0.50	94.12	-0.91	-0.08	LH
CEV942		89.97	-4.34	-0.38	94.60	-0.43	-0.04	IM
CNYMLT		87.36	-6.95	-0.61	85.26	-9.76	-0.86	LH
D3BXUV		113.10	18.79	1.65	110.77	15.74	1.39	TO
DNULDZ		70.30	-24.01	-2.11	70.27	-24.76	-2.18	LA
DTPR2X		88.30	-6.01	-0.53	91.32	-3.71	-0.33	TM
DY24BX	*	124.34	30.03	2.64	121.71	26.68	2.35	FP
EACXYW		94.90	0.59	0.05	89.94	-5.08	-0.45	TO
EMJHAV		84.43	-9.88	-0.87	87.44	-7.59	-0.67	LX
EREWPB		92.30	-2.01	-0.18	96.12	1.10	0.10	RE
FJCJAM		92.55	-1.76	-0.15	94.73	-0.30	-0.03	LH
FN72JD		92.34	-1.98	-0.17	92.39	-2.64	-0.23	LH
G6X2CX		71.73	-22.58	-1.98	68.78	-26.24	-2.31	XX
GJ9ECP		98.76	4.45	0.39	90.77	-4.26	-0.37	LH
H6NKQ6		88.82	-5.49	-0.48	96.19	1.16	0.10	LH
JF32UV		89.22	-5.09	-0.45	89.66	-5.37	-0.47	TP
KK9T8K		110.68	16.37	1.44	115.44	20.42	1.80	TF
L3UZCB		95.44	1.13	0.10	94.57	-0.46	-0.04	TO
LCY427		96.69	2.38	0.21	97.51	2.48	0.22	LI
MCDQDT		89.42	-4.89	-0.43	94.72	-0.31	-0.03	DL
MP2X7M		106.68	12.37	1.09	107.04	12.01	1.06	LA
QHLN7G		94.12	-0.20	-0.02	97.88	2.86	0.25	IM
TV6P3D		76.78	-17.53	-1.54	76.69	-18.33	-1.61	LX
VGZ99H		107.56	13.25	1.16	106.83	11.80	1.04	LA
VRKKH9		100.70	6.39	0.56	104.20	9.18	0.81	TB
X9EQAL	X	105.81	11.49	1.01	86.83	-8.19	-0.72	TO
ZUQ9R2		89.44	-4.87	-0.43	91.24	-3.78	-0.33	TF
ZXRW4N		92.15	-2.17	-0.19	96.93	1.91	0.17	TP

Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SF75	Sample SF76
Grand Means	94.31 Joules/sq m	95.03 Joules/sq m
Stnd Dev Btwn Labs	11.39 Joules/sq m	11.36 Joules/sq m

Statistics based on 37 of 38 reporting participants.

Comments on Assigned Data Flags for Test #327

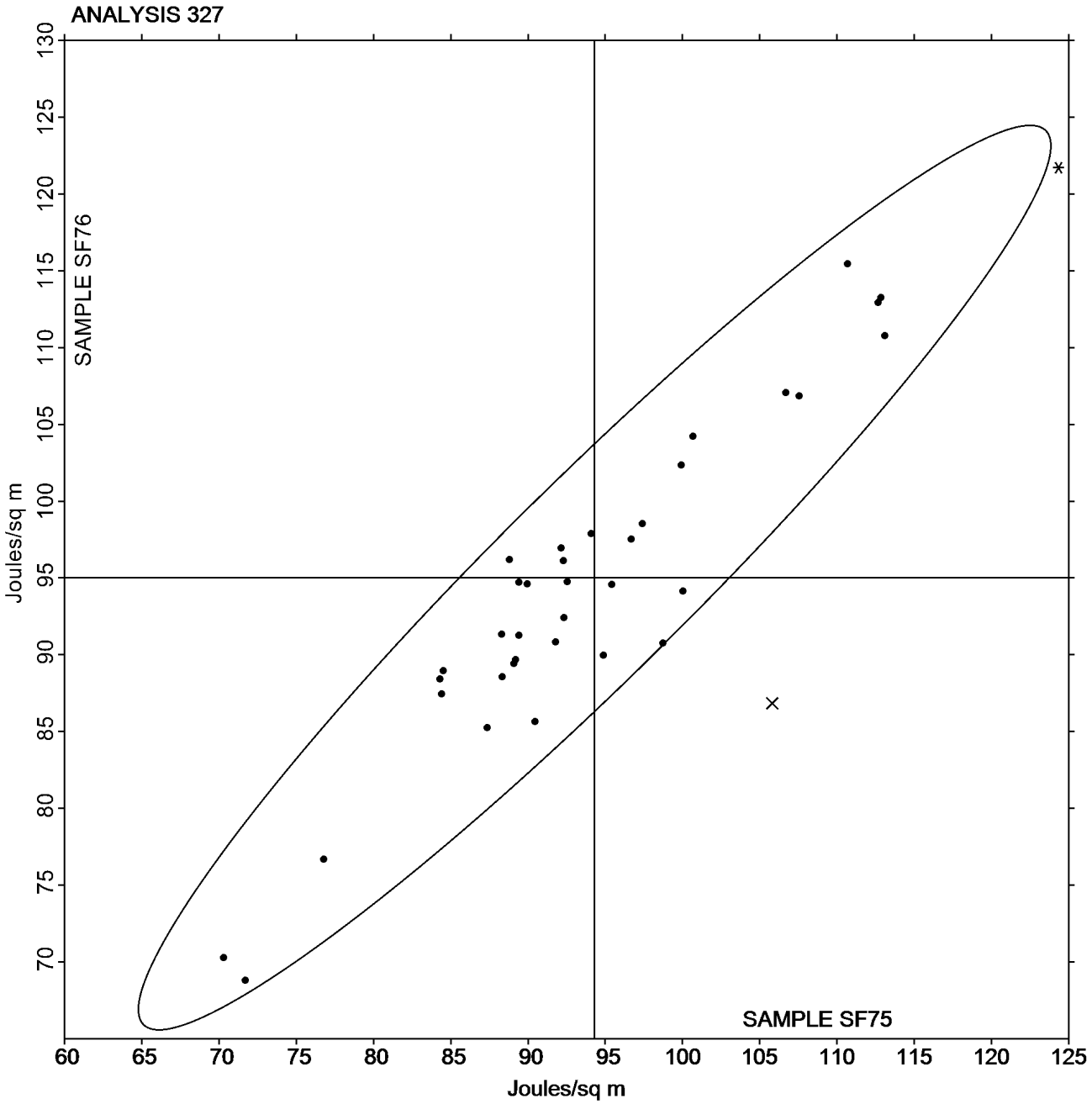
X9EQAL (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample SF75 = 94.311 Joules/sq m

Grand Mean Sample SF76 = 95.025 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF75 Lab Mean	Sample SF75 Diff from Grand Mean	Sample SF75 CPV	Sample SF76 Lab Mean	Sample SF76 Diff from Grand Mean	Sample SF76 CPV	Instr Code
3UFHFZ		2.067	-0.058	-0.26	2.010	-0.131	-0.59	LX
4DAB2X		2.052	-0.072	-0.33	2.076	-0.065	-0.29	XX
4HMKJ9		2.041	-0.084	-0.38	2.041	-0.100	-0.45	LH
4P68XB		2.076	-0.049	-0.22	2.149	0.008	0.04	TF
64YWP2		2.263	0.138	0.63	2.188	0.047	0.21	ID
6Y7VP8		2.069	-0.056	-0.26	2.126	-0.015	-0.07	LI
8973HD		2.063	-0.062	-0.28	2.124	-0.016	-0.07	LH
9JZEVW		2.648	0.523	2.40	2.696	0.555	2.49	TF
9QLVJL		2.125	0.000	0.00	2.136	-0.005	-0.02	LF
9RCWPA		1.888	-0.237	-1.08	1.998	-0.143	-0.64	LI
ACFYZJ		2.406	0.281	1.29	2.436	0.295	1.32	FP
BPZ2TV		2.173	0.048	0.22	2.089	-0.052	-0.23	LH
CEV942		2.109	-0.016	-0.07	2.160	0.019	0.09	IM
CNYMLT		1.914	-0.211	-0.97	1.900	-0.241	-1.08	LH
D3BXUV		2.534	0.409	1.87	2.509	0.368	1.65	TO
DNULDZ		1.992	-0.133	-0.61	1.978	-0.163	-0.73	LA
DTPR2X		2.120	-0.005	-0.02	2.142	0.001	0.00	TM
DY24BX	X	2.994	0.869	3.98	2.655	0.514	2.30	FP
EACXYW		2.290	0.165	0.76	2.199	0.058	0.26	TX
EMJHAV		1.782	-0.343	-1.57	1.863	-0.278	-1.24	LX
EREWPB		2.288	0.163	0.75	2.322	0.181	0.81	RE
FJCJAM		1.892	-0.233	-1.07	1.905	-0.236	-1.06	LH
FN72JD		1.953	-0.172	-0.79	2.018	-0.123	-0.55	LH
G6X2CX		1.996	-0.129	-0.59	1.923	-0.218	-0.98	XX
GJ9ECP		2.304	0.179	0.82	2.190	0.049	0.22	LH
H6NKQ6		2.037	-0.088	-0.40	2.126	-0.015	-0.07	LH
JF32UV		2.287	0.162	0.74	2.397	0.256	1.15	TP
KK9T8K		2.538	0.413	1.89	2.625	0.484	2.17	TF
L3UZCB		1.903	-0.222	-1.02	1.886	-0.255	-1.14	TO
LCY427		1.851	-0.274	-1.25	1.885	-0.256	-1.15	LI
MCDQDT		2.411	0.286	1.31	2.488	0.347	1.56	DL
PWAB2N		1.790	-0.335	-1.53	1.840	-0.301	-1.35	VM
QHLN7G		2.242	0.117	0.54	2.268	0.127	0.57	IM
RE436F		2.155	0.030	0.14	2.170	0.029	0.13	IN
RK6EZD		2.158	0.033	0.15	2.116	-0.025	-0.11	TF
TV6P3D		1.734	-0.391	-1.79	1.718	-0.423	-1.89	LI
VGZ99H		2.128	0.003	0.01	2.127	-0.014	-0.06	LA
VRKKH9		2.404	0.279	1.28	2.447	0.306	1.37	TB
X9EQAL	X	2.667	0.542	2.48	2.433	0.292	1.31	TO
ZUQ9R2		2.059	-0.066	-0.30	2.079	-0.062	-0.28	TF

Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF75 Lab Mean	Sample SF75 Diff from Grand Mean	Sample SF75 CPV	Sample SF76 Lab Mean	Sample SF76 Diff from Grand Mean	Sample SF76 CPV	Instr Code
ZXRW4N	X	2.430	0.305	1.40	2.667	0.526	2.36	TP

Summary Statistics	Sample SF75	Sample SF76
Grand Means	2.12 Percent	2.14 Percent
Stnd Dev Btwn Labs	0.22 Percent	0.22 Percent

Statistics based on 38 of 41 reporting participants.

Comments on Assigned Data Flags for Test #328

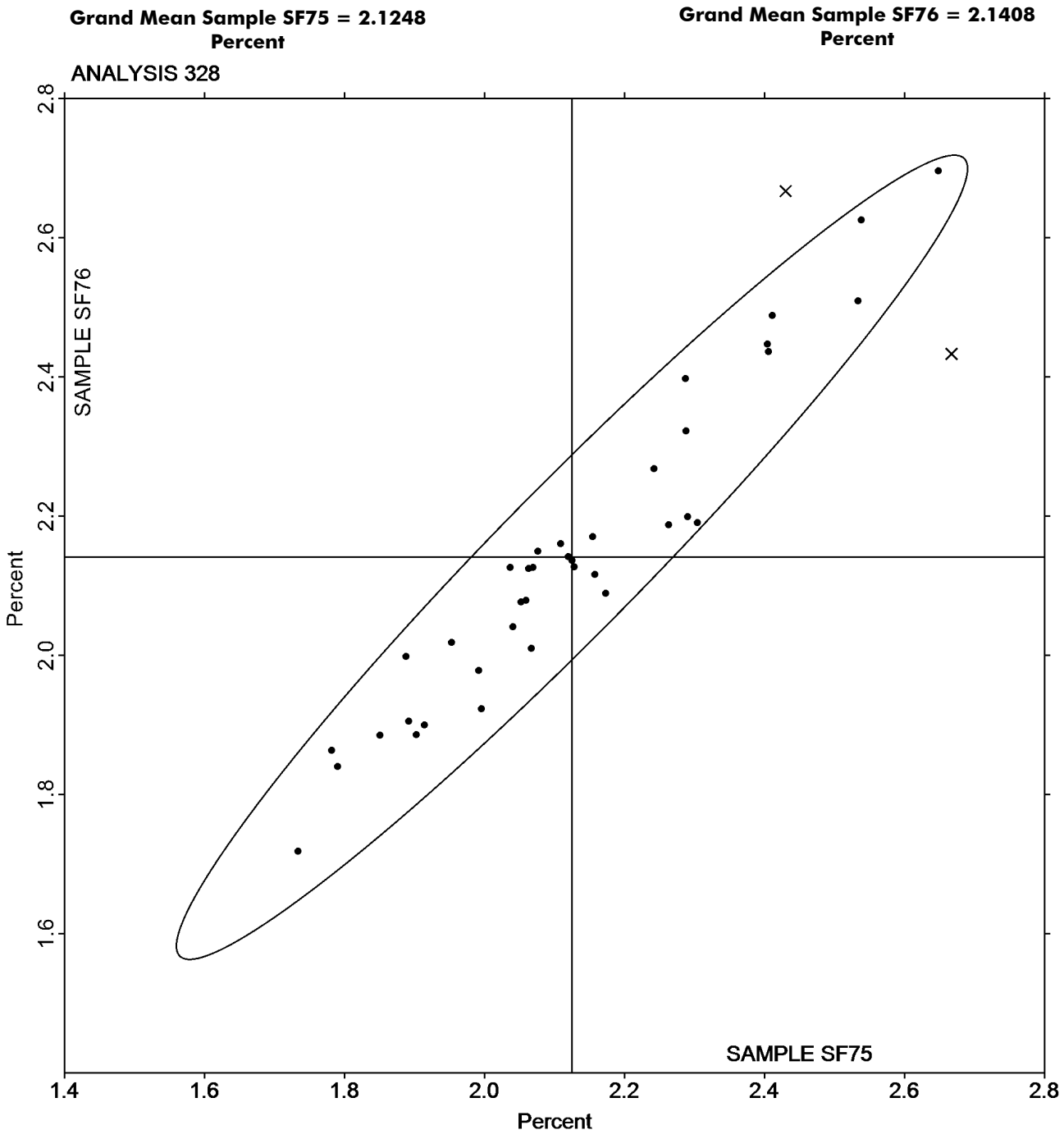
DY24BX (X) - Data for sample SF75 are high.

ZXRW4N (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SF75.

X9EQAL (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SF76.

Key to Instrument Codes Reported by Participants

DL	EMIC DL500 Universal Testing Machines	FP	Frank PTI Universal Tester TS
ID	Instron 4200 Series	IM	Instron 5500 Series
IN	Instron 3340 Series	LA	L & W Tensile - Autoline 300
LF	L & W Tensile/Fracture Toughness Tester SE 064	LH	L & W Alwetron TH1 (Horizontal) SE 060/065F
LI	L & W Tensile Tester SE 062	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TM	TMI Horizontal Tensile Tester
TO	Thwing-Albert QC-1000	TP	TMI Monitor/Tensile 100 (84-21-01)
TX	Thwing-Albert (model not specified)	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE75 Lab Mean	Sample SE75 Diff from Grand Mean	Sample SE75 CPV	Sample SE76 Lab Mean	Sample SE76 Diff from Grand Mean	Sample SE76 CPV	Instr Code
2RFNLD		10.75	-0.38	-0.45	10.98	-0.17	-0.20	IR
2TPVN7	*	10.58	-0.55	-0.67	10.19	-0.95	-1.16	IN
42GRMT		12.55	1.42	1.72	12.56	1.42	1.72	TH
4V8TTE		11.65	0.52	0.63	11.65	0.50	0.61	LW
4VP9DN		10.47	-0.66	-0.79	10.45	-0.70	-0.85	IF
6Y7VP8		10.30	-0.83	-1.00	10.27	-0.88	-1.07	LW
7QACN4		10.51	-0.62	-0.75	10.77	-0.38	-0.46	IF
7YF263	X	8.73	-2.40	-2.90	9.21	-1.94	-2.35	IM
847P68		11.97	0.84	1.02	11.85	0.70	0.85	IK
8M3WX8		11.08	-0.05	-0.06	11.09	-0.06	-0.07	IK
BHGXNE		11.23	0.10	0.12	11.20	0.05	0.06	ID
BZL63F		12.06	0.92	1.12	12.10	0.95	1.15	XX
C29Q34	X	18.15	7.02	8.47	18.66	7.51	9.12	LA
C3LA32		10.51	-0.62	-0.75	10.58	-0.57	-0.69	IR
CLXWQU		10.71	-0.42	-0.51	10.61	-0.53	-0.65	IF
CM87EL		11.71	0.58	0.70	11.59	0.44	0.53	TR
CU8L4T	X	11.50	0.37	0.45	10.69	-0.46	-0.55	IM
D92BVJ		11.35	0.22	0.26	11.53	0.38	0.46	TB
DTPR2X		10.78	-0.35	-0.43	10.98	-0.17	-0.21	XX
DW9ENW		10.60	-0.53	-0.64	10.65	-0.50	-0.60	LW
EUFETR		12.38	1.24	1.50	12.14	0.99	1.20	TH
FD9FNV		13.06	1.93	2.32	13.03	1.88	2.28	TA
FN72JD		11.38	0.25	0.30	11.45	0.30	0.37	LH
FNCLM4		10.04	-1.09	-1.31	10.22	-0.93	-1.13	TH
GXEBVR		11.39	0.26	0.31	11.31	0.17	0.20	LE
HY6GJ2		10.97	-0.16	-0.19	11.01	-0.14	-0.17	ID
JF8DHR		12.45	1.32	1.59	12.53	1.38	1.68	LE
KB8TPR		10.57	-0.57	-0.68	10.62	-0.53	-0.64	TA
LT3LAP		10.71	-0.42	-0.51	10.68	-0.47	-0.57	LE
LVTKNN		10.22	-0.91	-1.10	10.34	-0.81	-0.98	LE
ME6PRR		10.82	-0.31	-0.37	10.91	-0.24	-0.29	LH
MTZNHN	*	12.88	1.75	2.12	13.10	1.96	2.37	IK
NFUHZF		11.57	0.44	0.53	11.57	0.43	0.52	TO
NGL2WU		12.55	1.42	1.72	12.27	1.12	1.36	LI
NUPCFA		12.04	0.91	1.09	12.11	0.96	1.17	LA
PJMYPE		10.50	-0.63	-0.76	10.57	-0.58	-0.70	TR
PYZC8C		10.50	-0.63	-0.76	10.56	-0.59	-0.72	IM
Q2XBUA	X	10.24	-0.89	-1.08	9.68	-1.47	-1.78	TK
QHLN7G		10.75	-0.39	-0.46	10.95	-0.20	-0.24	IM
RKBC63		10.81	-0.32	-0.38	10.73	-0.42	-0.50	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE75 Lab Mean	Sample SE75 Diff from Grand Mean	Sample SE75 CPV	Sample SE76 Lab Mean	Sample SE76 Diff from Grand Mean	Sample SE76 CPV	Instr Code
RWNC2V		11.99	0.86	1.04	11.85	0.70	0.85	IF
T6TNTJ		10.53	-0.60	-0.73	10.40	-0.75	-0.90	TB
UBGQCA		10.45	-0.68	-0.82	10.51	-0.64	-0.77	XX
VF7MD6		10.57	-0.56	-0.68	10.61	-0.54	-0.65	IM
VGZ99H		9.95	-1.18	-1.42	9.95	-1.20	-1.46	LA
VHQ76A		10.19	-0.94	-1.13	9.99	-1.16	-1.41	IN
VVEEFB		10.88	-0.25	-0.30	11.08	-0.07	-0.08	LE
X7U8K3		11.21	0.08	0.09	11.19	0.04	0.05	LH
ZAKVZE	*	11.43	0.30	0.36	11.86	0.71	0.86	IK
ZBUTFH		11.00	-0.13	-0.16	11.16	0.01	0.01	TH
ZNZXH4		9.48	-1.65	-1.99	9.35	-1.80	-2.18	TT
ZUQ9R2		12.19	1.06	1.28	12.01	0.87	1.05	TO

Summary Statistics	Sample SE75	Sample SE76
Grand Means	11.13 kN/m	11.15 kN/m
Stnd Dev Btwn Labs	0.83 kN/m	0.82 kN/m

Statistics based on 48 of 52 reporting participants.

Comments on Assigned Data Flags for Test #330

Q2XBUA (X) - Inconsistent in testing between samples.

C29Q34 (X) - Extreme Data.

7YF263 (X) - Data for sample SE75 are low. Inconsistent within the determinations of both samples.

CU8L4T (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

Analysis Notes:

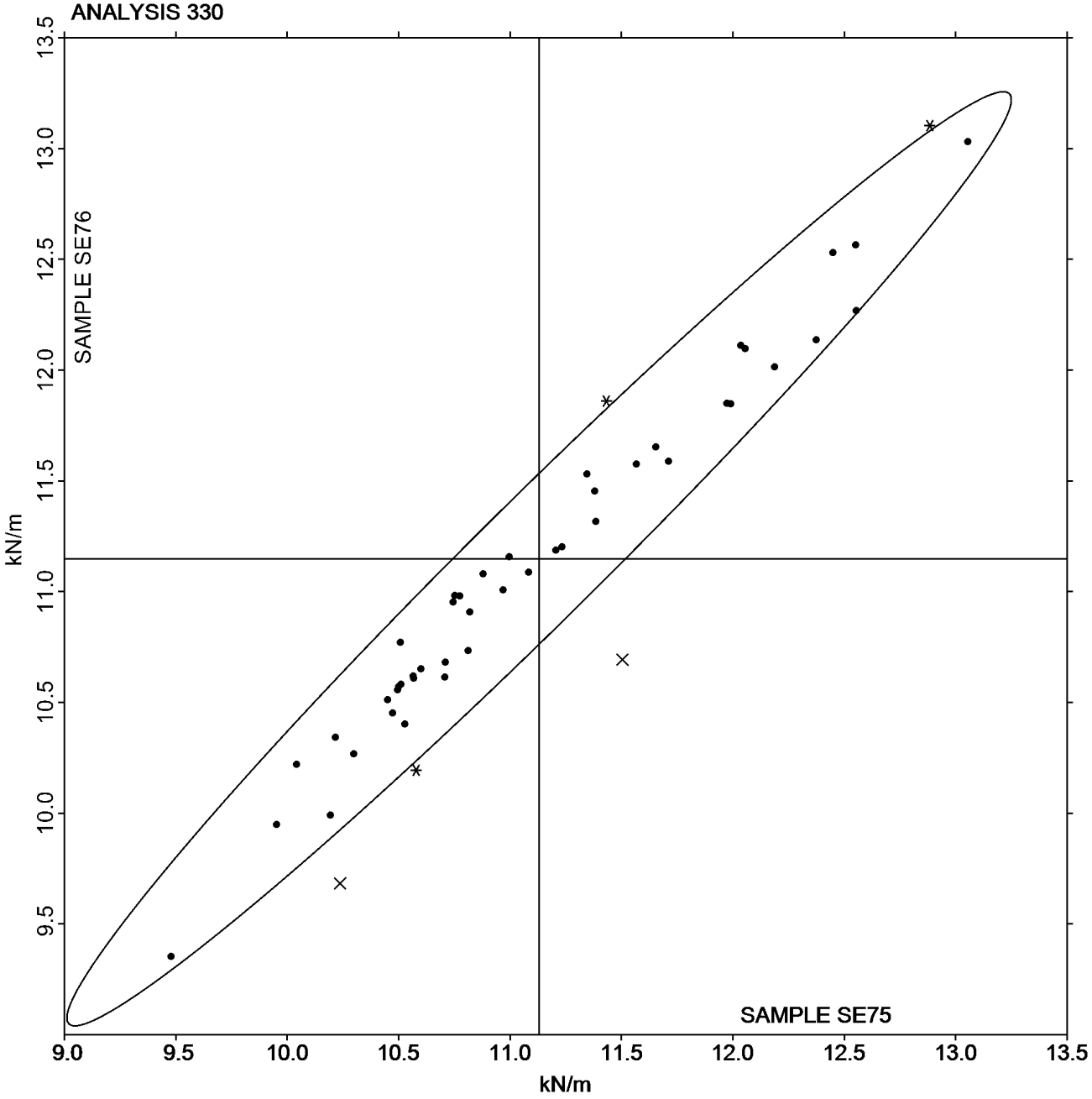
C3LA32 - One determination removed from the Lab Mean of Sample SE75 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

ID	Instron 4200 Series	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	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 SE75 = 11.130 kN/m

Grand Mean Sample SE76 = 11.148 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE75 Lab Mean	Sample SE75 Diff from Grand Mean	Sample SE75 CPV	Sample SE76 Lab Mean	Sample SE76 Diff from Grand Mean	Sample SE76 CPV	Instr Code
2TPVN7	*	168.3	-17.0	-0.65	150.3	-34.9	-1.33	IN
4V8TTE		171.9	-13.3	-0.51	177.5	-7.7	-0.30	LW
6Y7VP8		172.3	-12.9	-0.50	175.3	-10.0	-0.38	LW
7QACN4		209.6	24.4	0.94	216.2	31.0	1.18	IF
7YF263	*	117.1	-68.2	-2.62	127.5	-57.8	-2.21	IM
BZL63F	*	264.9	79.6	3.06	263.9	78.6	3.00	XX
C29Q34		175.1	-10.1	-0.39	176.9	-8.4	-0.32	LA
CLXWQU		181.7	-3.6	-0.14	185.3	0.0	0.00	IF
CM87EL		193.2	8.0	0.31	189.2	3.9	0.15	TR
CU8L4T	X	85.4	-99.8	-3.83	79.4	-105.9	-4.05	IM
D92BVJ		197.9	12.7	0.49	204.8	19.6	0.75	TB
DTPR2X		172.7	-12.6	-0.48	177.6	-7.7	-0.29	XX
DW9ENW		174.4	-10.8	-0.42	178.4	-6.9	-0.26	LW
EUFETR	*	214.9	29.6	1.14	196.7	11.5	0.44	TH
FD9FNV		222.4	37.2	1.43	219.2	34.0	1.30	TA
FN72JD		194.9	9.7	0.37	196.0	10.7	0.41	LH
FNCLM4		222.9	37.7	1.45	233.2	47.9	1.83	TH
GXEBVR		182.3	-3.0	-0.11	176.4	-8.8	-0.34	LE
HY6GJ2		183.0	-2.3	-0.09	185.1	-0.1	-0.01	ID
JF8DHR		207.1	21.8	0.84	209.0	23.7	0.91	LE
LT3LAP		181.3	-4.0	-0.15	177.3	-8.0	-0.30	LE
LVTKNN		166.0	-19.3	-0.74	170.2	-15.1	-0.58	LE
ME6PRR		170.4	-14.8	-0.57	167.3	-17.9	-0.69	LH
MTZNHN		169.5	-15.8	-0.61	181.0	-4.3	-0.16	XX
NFUHZF		236.1	50.8	1.95	231.3	46.1	1.76	TO
NUPCFA		198.5	13.2	0.51	198.5	13.2	0.51	LA
PJMYPE		168.0	-17.2	-0.66	171.6	-13.7	-0.52	TR
PYZC8C		181.1	-4.2	-0.16	179.0	-6.3	-0.24	IM
Q2XBUA		188.0	2.7	0.10	178.4	-6.9	-0.26	TK
QHLN7G		196.1	10.9	0.42	206.0	20.7	0.79	IM
RKBC63		172.9	-12.4	-0.48	171.6	-13.7	-0.52	LW
RWNC2V		191.1	5.8	0.22	184.8	-0.4	-0.02	IN
T6TNTJ		180.8	-4.4	-0.17	182.7	-2.6	-0.10	TB
UBGQCA		189.4	4.1	0.16	187.1	1.8	0.07	XX
VF7MD6		178.8	-6.4	-0.25	177.4	-7.8	-0.30	IM
VGZ99H		185.8	0.5	0.02	184.9	-0.4	-0.01	LA
VHQ76A	*	117.0	-68.2	-2.62	113.4	-71.8	-2.74	IN
VVEEFB		174.4	-10.9	-0.42	176.7	-8.6	-0.33	LE
X7U8K3		184.2	-1.1	-0.04	184.8	-0.5	-0.02	LH
ZBUTFH		193.1	7.8	0.30	200.8	15.6	0.59	TH

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE75 Lab Mean	Sample SE75 Diff from Grand Mean	Sample SE75 CPV	Sample SE76 Lab Mean	Sample SE76 Diff from Grand Mean	Sample SE76 CPV	Instr Code
ZNZXH4		156.0	-29.3	-1.12	149.5	-35.7	-1.36	TT
ZUQ9R2		190.3	5.1	0.19	182.7	-2.5	-0.10	TO

Summary Statistics	Sample SE75	Sample SE76
Grand Means	185.25 Joules/sq m	185.26 Joules/sq m
Stnd Dev Btwn Labs	26.04 Joules/sq m	26.18 Joules/sq m

Statistics based on 41 of 42 reporting participants.

Comments on Assigned Data Flags for Test #331

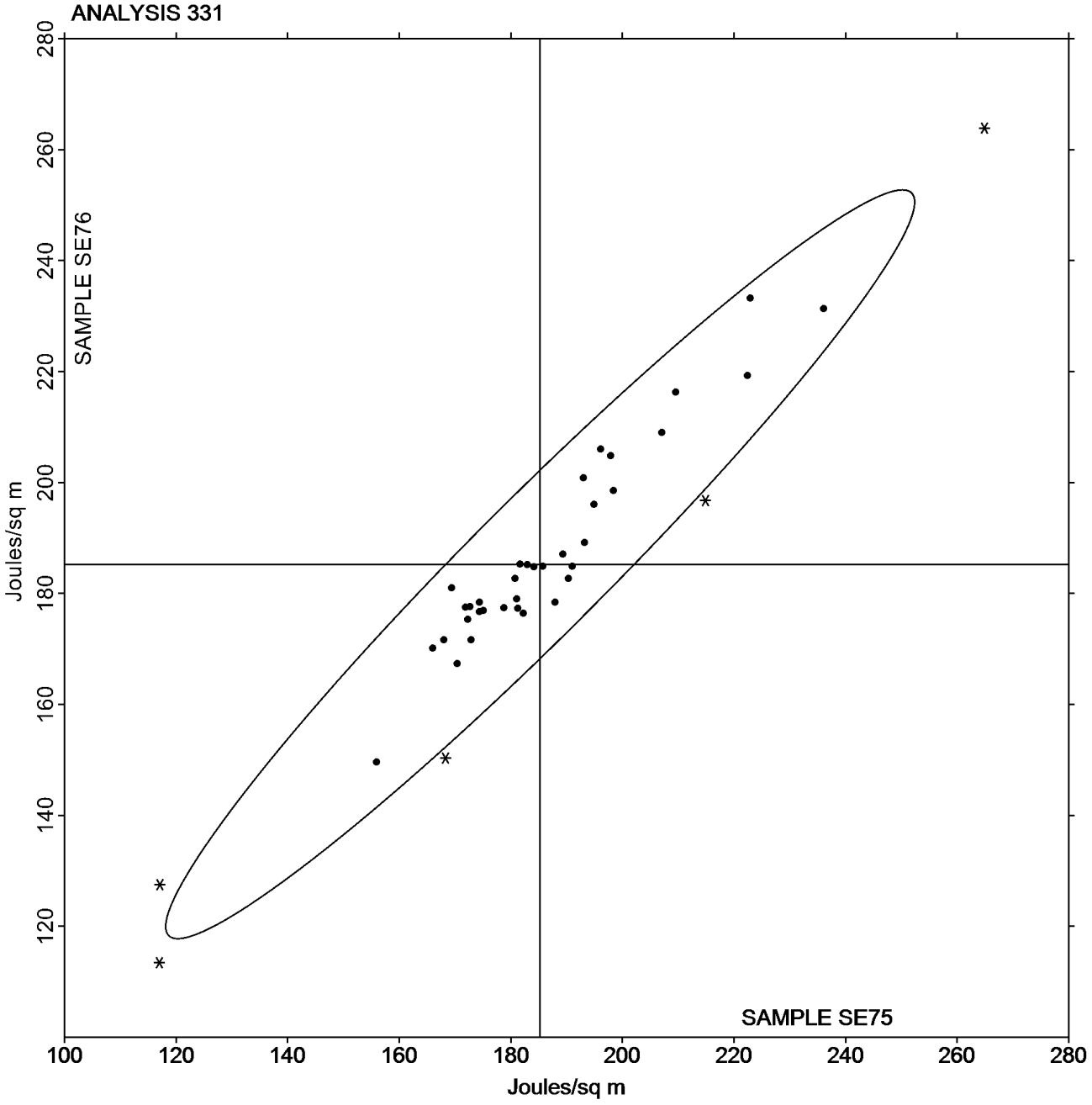
CU8L4T (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SE76.

Key to Instrument Codes Reported by Participants

ID	Instron 4200 series	IF	Instron 3340 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
LA	L & W Autoline	LE	L & W Tensile Tester 066
LH	L & W Alwetron TH1 (Horizontal) SE 060	LW	L & W Tensile Tester SE062
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 SE75 = 185.25 Joules/sq m

Grand Mean Sample SE76 = 185.26 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE75 Lab Mean	Sample SE75 Diff from Grand Mean	Sample SE75 CPV	Sample SE76 Lab Mean	Sample SE76 Diff from Grand Mean	Sample SE76 CPV	Instr Code
2RFNLD		2.660	0.152	0.43	2.670	0.164	0.45	IR
2TPVN7	X	1.843	-0.665	-1.88	1.560	-0.945	-2.56	IN
4V8TTE		2.244	-0.264	-0.75	2.276	-0.230	-0.62	LW
6Y7VP8		2.454	-0.054	-0.15	2.486	-0.020	-0.05	LW
7QACN4		3.231	0.723	2.05	3.256	0.750	2.03	IF
7YF263		2.206	-0.302	-0.85	2.248	-0.258	-0.70	IM
BHGXNE		2.630	0.122	0.35	2.630	0.124	0.34	ID
BZL63F		3.151	0.643	1.82	3.192	0.686	1.86	XX
C29Q34		1.630	-0.878	-2.49	1.565	-0.941	-2.55	XX
C3LA32		2.610	0.102	0.29	2.570	0.064	0.17	IR
CLXWQU		2.068	-0.440	-1.25	2.100	-0.405	-1.10	IF
CM87EL		2.535	0.028	0.08	2.505	-0.001	0.00	TR
CU8L4T	*	1.500	-1.008	-2.86	1.390	-1.116	-3.02	IM
D92BVJ		3.159	0.651	1.84	3.209	0.703	1.90	TB
DTPR2X		2.500	-0.007	-0.02	2.522	0.016	0.04	XX
DW9ENW		2.444	-0.064	-0.18	2.479	-0.027	-0.07	LW
EUFETR	*	2.655	0.147	0.42	2.530	0.024	0.07	TH
FD9FNV		2.686	0.178	0.51	2.636	0.130	0.35	TA
FN72JD		2.483	-0.025	-0.07	2.521	0.015	0.04	LH
FNCLM4	*	3.536	1.028	2.91	3.596	1.090	2.95	TH
GXEBVR		2.344	-0.164	-0.46	2.303	-0.203	-0.55	LE
HY6GJ2		2.508	0.000	0.00	2.523	0.018	0.05	ID
JF8DHR		2.501	-0.007	-0.02	2.504	-0.002	0.00	LE
KB8TPR		2.200	-0.308	-0.87	2.270	-0.236	-0.64	TB
LT3LAP		2.476	-0.032	-0.09	2.426	-0.080	-0.22	LE
LVTKNN		2.392	-0.116	-0.33	2.416	-0.090	-0.24	LE
ME6PRR		2.342	-0.166	-0.47	2.290	-0.216	-0.58	LH
MTZNHN		2.171	-0.337	-0.95	2.241	-0.265	-0.72	XX
NFUHZF		2.582	0.074	0.21	2.517	0.011	0.03	TO
NUPCFA		2.390	-0.118	-0.33	2.385	-0.121	-0.33	LA
PJMYPE		2.429	-0.079	-0.22	2.459	-0.047	-0.13	TR
PYZC8C		2.775	0.267	0.76	2.753	0.247	0.67	IM
Q2XBUA		2.740	0.232	0.66	2.743	0.237	0.64	TK
QHLN7G		2.714	0.206	0.58	2.787	0.281	0.76	IM
RKBC63		2.389	-0.119	-0.34	2.389	-0.117	-0.32	LW
RWNC2V		2.366	-0.141	-0.40	2.344	-0.162	-0.44	IN
T6TNTJ		2.567	0.059	0.17	2.616	0.110	0.30	TB
UBGQCA		2.759	0.251	0.71	2.696	0.190	0.52	XX
VF7MD6		2.493	-0.015	-0.04	2.484	-0.022	-0.06	IM
VGZ99H		2.343	-0.165	-0.47	2.370	-0.136	-0.37	LA

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE75 Lab Mean	Sample SE75 Diff from Grand Mean	Sample SE75 CPV	Sample SE76 Lab Mean	Sample SE76 Diff from Grand Mean	Sample SE76 CPV	Instr Code
VHQ76A	X	1.334	-1.174	-3.33	1.384	-1.122	-3.04	IN
VVEEFB		2.347	-0.161	-0.46	2.323	-0.183	-0.49	LE
X7U8K3		2.411	-0.097	-0.27	2.427	-0.079	-0.21	LH
ZBUTFH		2.680	0.172	0.49	2.730	0.224	0.61	TH
ZNZXH4		2.623	0.115	0.33	2.530	0.024	0.07	TT
ZUQ9R2		2.413	-0.095	-0.27	2.342	-0.164	-0.44	TO

Summary Statistics	Sample SE75	Sample SE76
Grand Means	2.51 Percent	2.51 Percent
Stnd Dev Btwn Labs	0.35 Percent	0.37 Percent

Statistics based on 44 of 46 reporting participants.

Comments on Assigned Data Flags for Test #332

2TPVN7 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

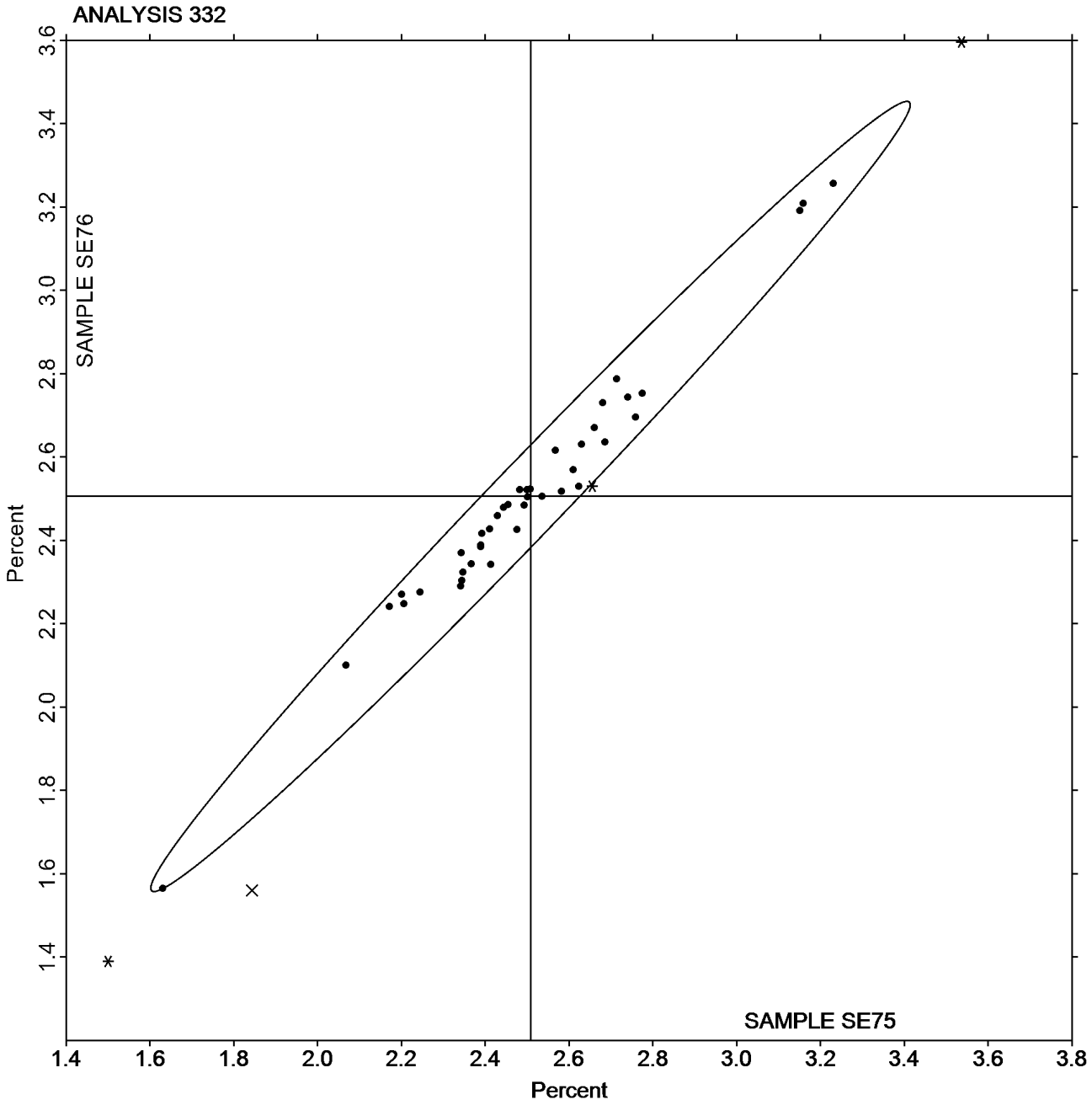
VHQ76A (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SE75.

Key to Instrument Codes Reported by Participants

ID	Instron 4200 Series	IF	Instron 3340 Series
IM	Instron 5500 Series	IN	Instron 3360 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	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 SE75 = 2.5077
Percent

Grand Mean Sample SE76 = 2.5056
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

WebCode	Data Flag	Sample SG75 Lab Mean	Sample SG75 Diff from Grand Mean	Sample SG75 CPV	Sample SG76 Lab Mean	Sample SG76 Diff from Grand Mean	Sample SG76 CPV	Instr Code
4P68XB		47.50	-1.03	-0.08	47.90	-2.28	-0.16	MT
6Y7VP8		47.90	-0.63	-0.05	60.00	9.82	0.68	MT
9RCWPA		48.70	0.17	0.01	54.10	3.92	0.27	MT
CM87EL	X	489.10	440.57	32.53	471.30	421.12	29.20	MI
EAQJBJ		38.00	-10.53	-0.78	42.10	-8.08	-0.56	MT
FNCLM4		45.00	-3.53	-0.26	43.20	-6.98	-0.48	MT
KB8TPR		79.00	30.47	2.25	82.60	32.42	2.25	MT
NNJ7W4		26.40	-22.13	-1.63	39.50	-10.68	-0.74	MT
PWAB2N		43.30	-5.23	-0.39	29.00	-21.18	-1.47	MT
QXKDMM		53.50	4.97	0.37	48.30	-1.88	-0.13	MT
UBGQCA		56.00	7.47	0.55	55.10	4.92	0.34	MT

Summary Statistics	Sample SG75	Sample SG76
Grand Means	48.53 Double Folds	50.18 Double Folds
Stnd Dev Btwn Labs	13.54 Double Folds	14.42 Double Folds

Statistics based on 10 of 11 reporting participants.

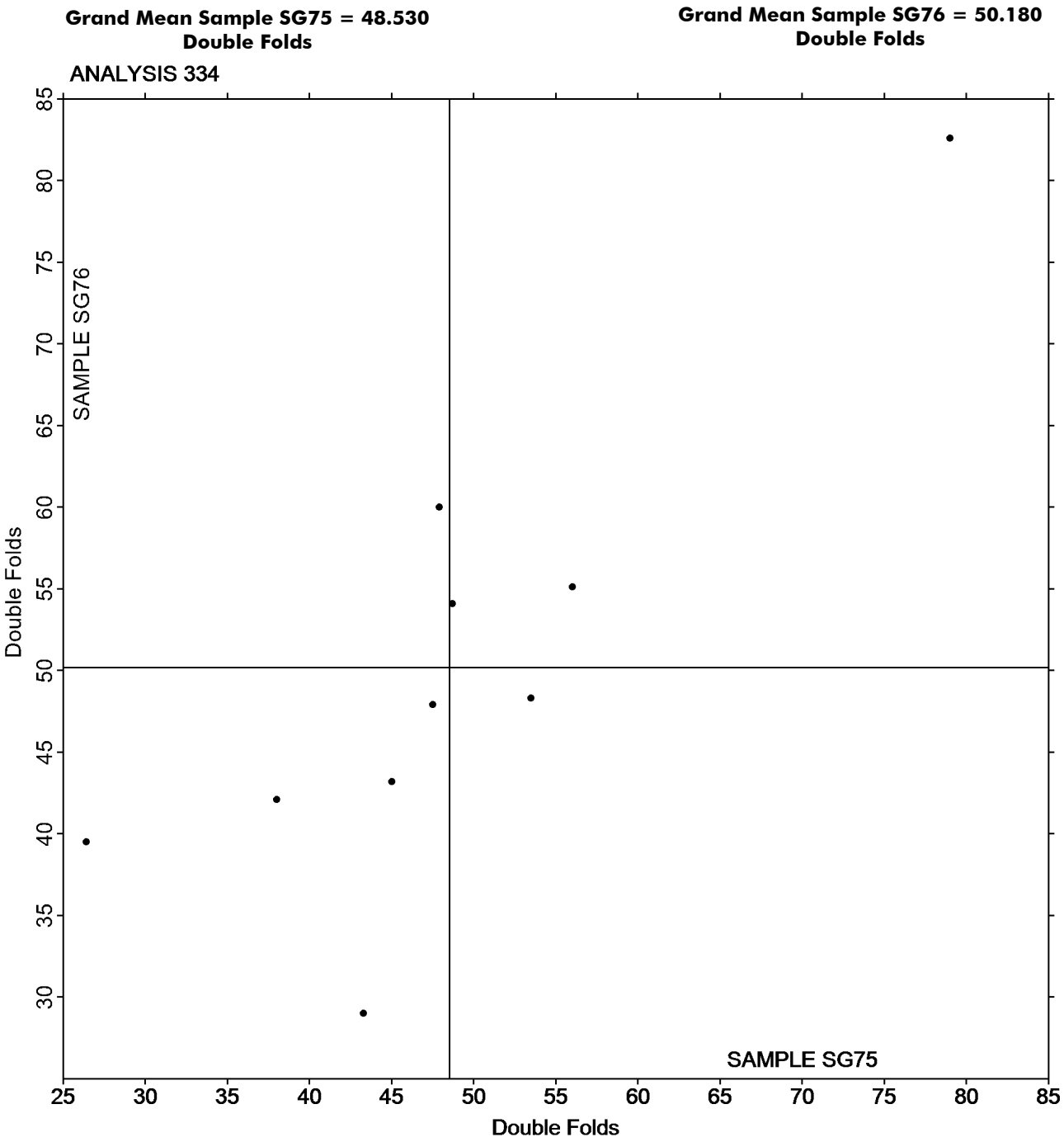
Comments on Assigned Data Flags for Test #334

CM87EL (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

MI MIT Flex Tester – Folding Endurance Tester

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

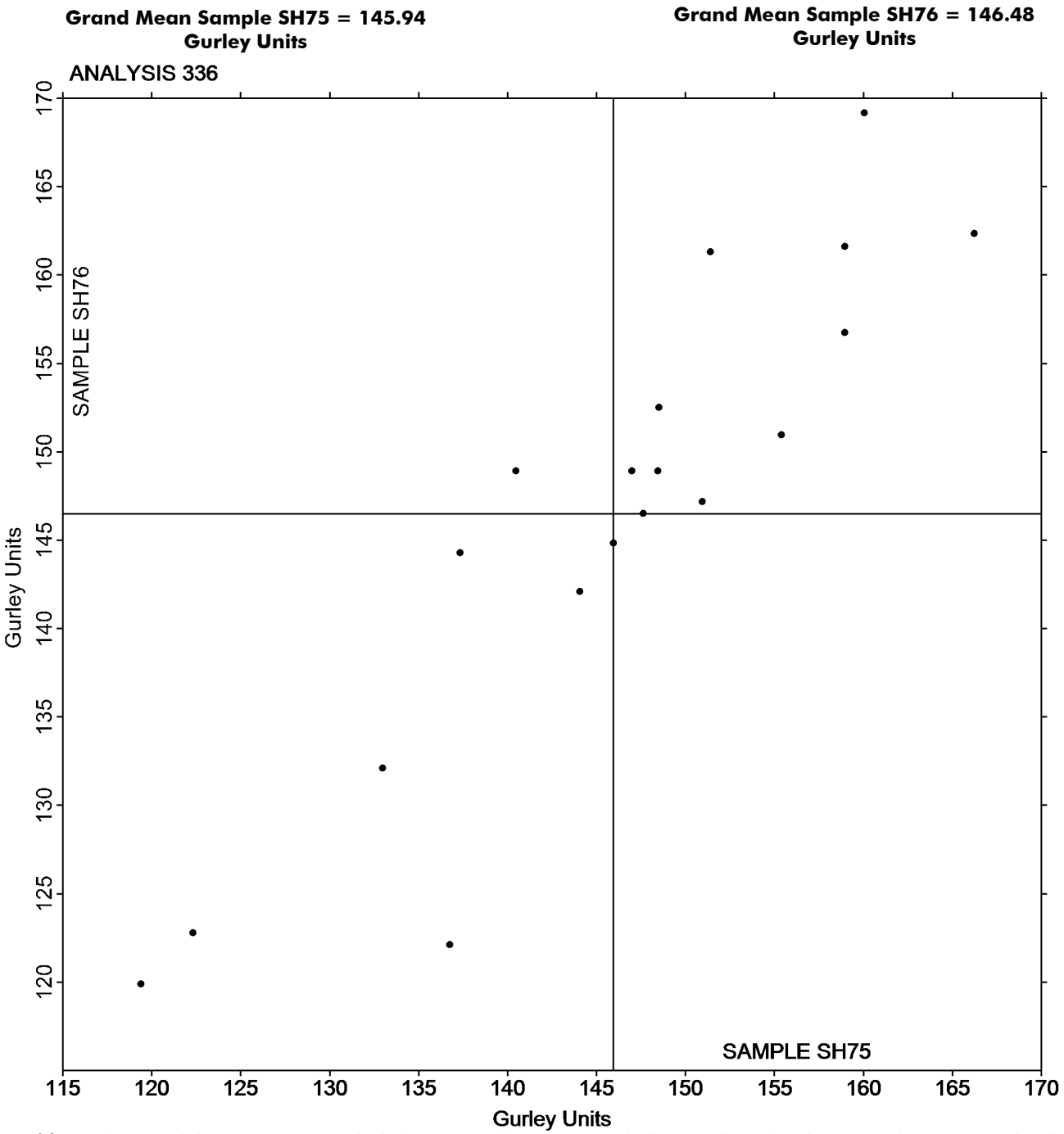
Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH75 Lab Mean	Sample SH75 Diff from Grand Mean	Sample SH75 CPV	Sample SH76 Lab Mean	Sample SH76 Diff from Grand Mean	Sample SH76 CPV
2YZ9J4		146.0	0.0	0.00	144.8	-1.6	-0.12
7QACN4		155.4	9.5	0.77	151.0	4.5	0.32
BPZ2TV		159.0	13.0	1.06	156.7	10.3	0.74
D3BXUV		133.0	-13.0	-1.05	132.1	-14.4	-1.03
DNULDZ		166.2	20.3	1.65	162.4	15.9	1.14
E3WEHH		137.3	-8.6	-0.70	144.3	-2.2	-0.16
EAQJBJ		140.5	-5.5	-0.44	148.9	2.4	0.17
EJ3H6U		159.0	13.0	1.06	161.6	15.1	1.09
FJCJAM		119.4	-26.5	-2.15	119.9	-26.6	-1.91
JF32UV		148.5	2.5	0.20	148.9	2.4	0.17
KB8TPR		147.0	1.1	0.09	148.9	2.4	0.17
KK9T8K		144.1	-1.9	-0.15	142.1	-4.4	-0.32
L3UZCB		147.6	1.7	0.14	146.5	0.0	0.00
PWAB2N		151.4	5.5	0.44	161.3	14.8	1.06
QNVGQT		136.8	-9.2	-0.75	122.1	-24.4	-1.75
T6TNTJ		122.3	-23.6	-1.92	122.8	-23.7	-1.70
UBGQCA		151.0	5.0	0.41	147.2	0.7	0.05
UTD94P		160.1	14.1	1.15	169.2	22.7	1.63
VRKKH9		148.5	2.6	0.21	152.5	6.0	0.43

Summary Statistics	Sample SH75	Sample SH76
Grand Means	145.94 Gurley Units	146.48 Gurley Units
Stnd Dev Btwn Labs	12.32 Gurley Units	13.93 Gurley Units

Statistics based on 19 of 19 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 338

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

WebCode	Data Flag	Sample SJ75 Lab Mean	Sample SJ75 Diff from Grand Mean	Sample SJ75 CPV	Sample SJ76 Lab Mean	Sample SJ76 Diff from Grand Mean	Sample SJ76 CPV
7QACN4		7.075	0.649	1.21	4.331	0.146	0.31
BPZ2TV		5.965	-0.461	-0.86	3.895	-0.290	-0.61
CF7FZ3		6.252	-0.174	-0.32	3.992	-0.193	-0.40
EMJHAV		6.150	-0.276	-0.52	4.317	0.132	0.28
MP2X7M		6.980	0.554	1.04	3.550	-0.635	-1.33
RWNC2V		6.970	0.544	1.02	4.840	0.655	1.37
TD8PRT	X	3.200	-3.226	-6.03	3.200	-0.985	-2.06
VRKKH9		6.518	0.092	0.17	3.906	-0.279	-0.58
X2W6M9		5.460	-0.966	-1.81	4.986	0.801	1.68
X9EQAL		6.462	0.036	0.07	3.844	-0.341	-0.71

Summary Statistics	Sample SJ75	Sample SJ76
Grand Means	6.43 Taber Units	4.18 Taber Units
Stnd Dev Btwn Labs	0.53 Taber Units	0.48 Taber Units

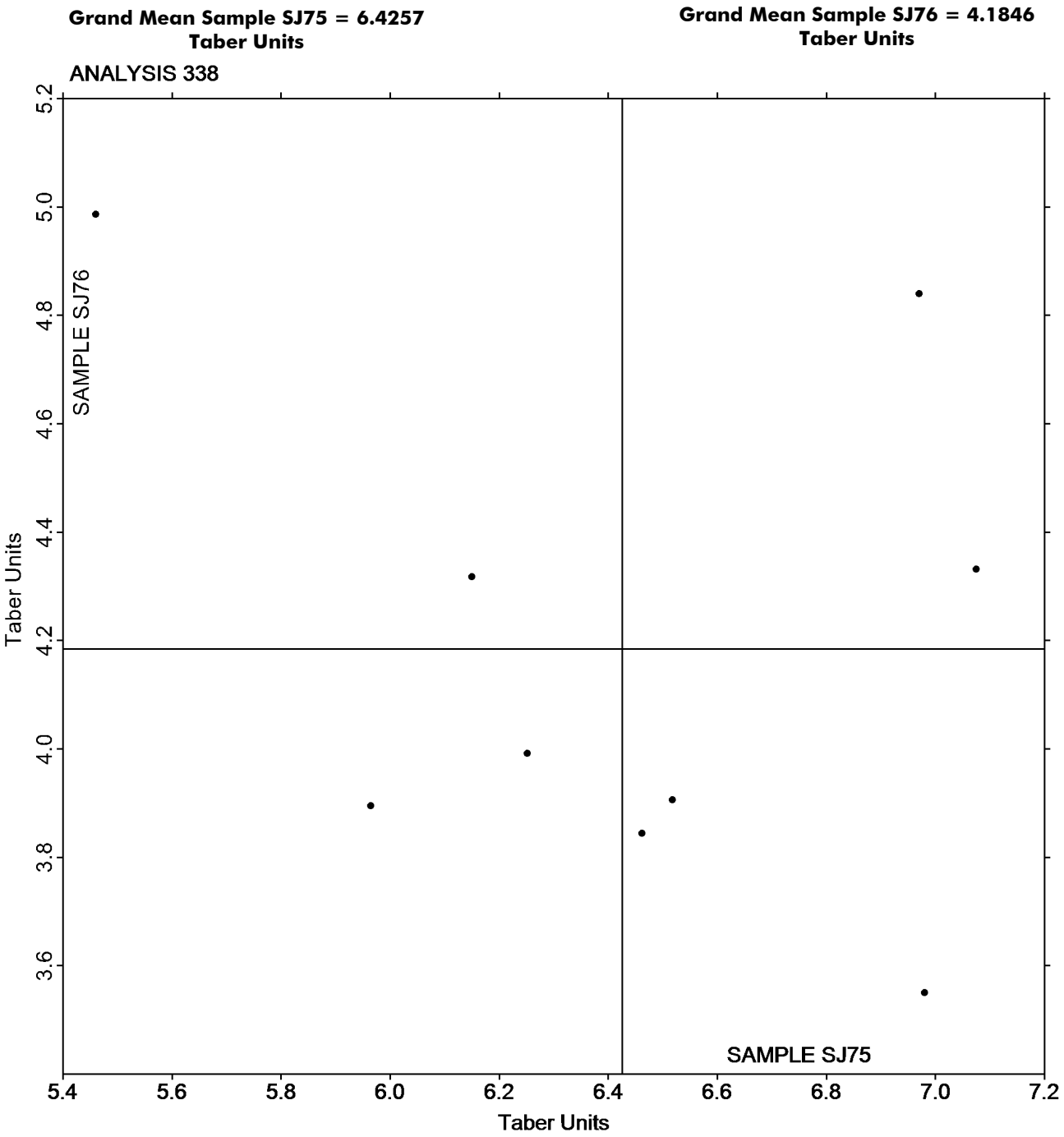
Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #338

TD8PRT (X) - Extreme Data for Sample SJ75.

Analysis Notes:

7QACN4 - Data appears to be transposed between samples. Data Switched by CTS.



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

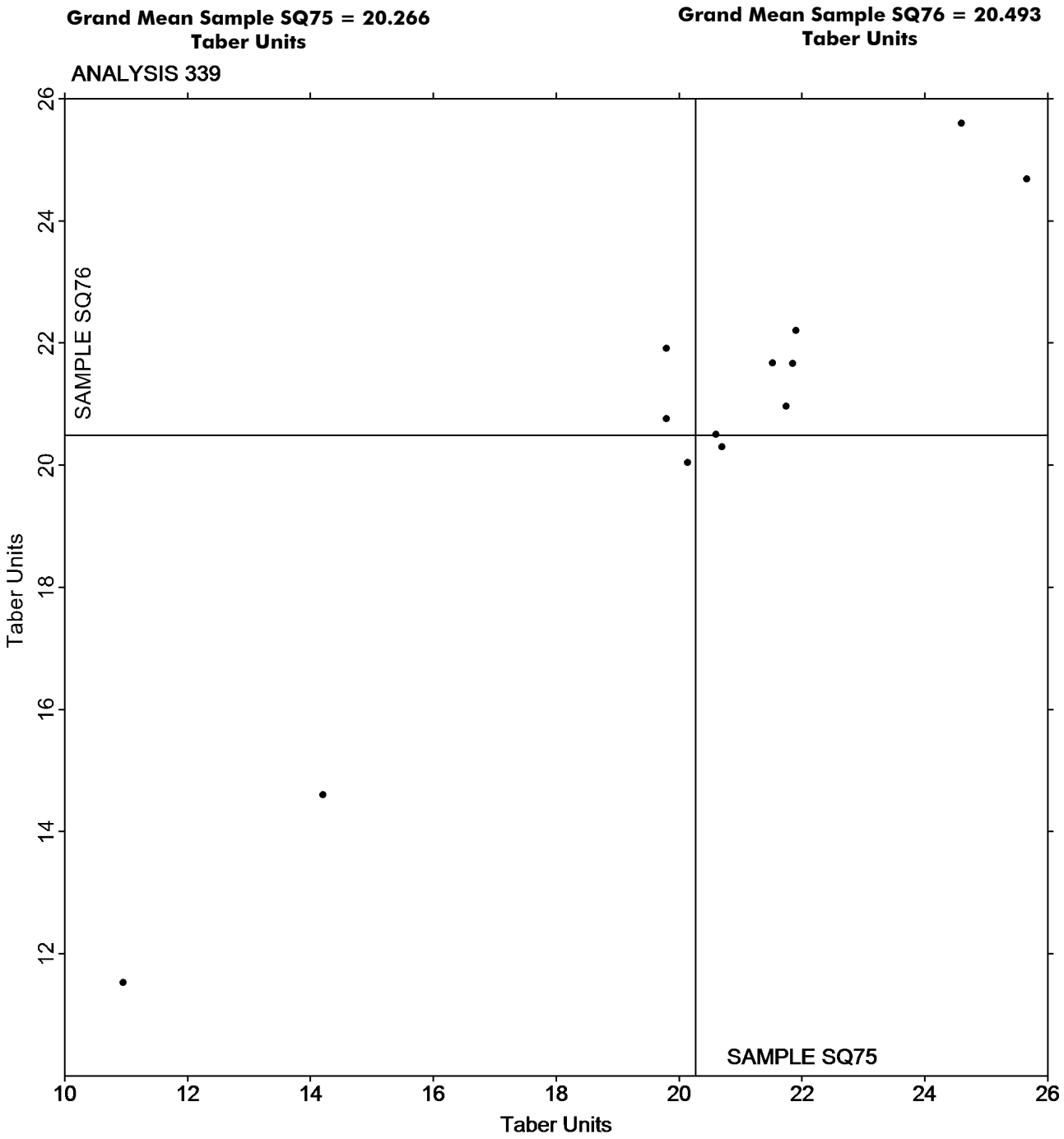
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ75 Lab Mean	Sample SQ75 Diff from Grand Mean	Sample SQ75 CPV	Sample SQ76 Lab Mean	Sample SQ76 Diff from Grand Mean	Sample SQ76 CPV
6Y7VP8		10.95	-9.31	-2.40	11.53	-8.96	-2.40
947DEB		24.60	4.33	1.12	25.60	5.11	1.37
D92BVJ		21.53	1.26	0.32	21.67	1.18	0.32
DTPR2X		14.20	-6.07	-1.56	14.60	-5.89	-1.58
DY24BX		21.85	1.59	0.41	21.66	1.17	0.31
EACXYW		20.60	0.33	0.09	20.50	0.01	0.00
JF8DHR		25.66	5.39	1.39	24.68	4.19	1.12
MCDQDT		19.79	-0.48	-0.12	20.76	0.27	0.07
QHLN7G		21.90	1.63	0.42	22.20	1.71	0.46
QNVGQT		21.74	1.47	0.38	20.96	0.47	0.13
RKBC63		20.70	0.43	0.11	20.30	-0.19	-0.05
UTD94P		20.14	-0.13	-0.03	20.04	-0.45	-0.12
ZXRW4N		19.79	-0.48	-0.12	21.91	1.42	0.38

Summary Statistics	Sample SQ75	Sample SQ76
Grand Means	20.27 Taber Units	20.49 Taber Units
Stnd Dev Btwn Labs	3.88 Taber Units	3.73 Taber Units

Statistics based on 13 of 13 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

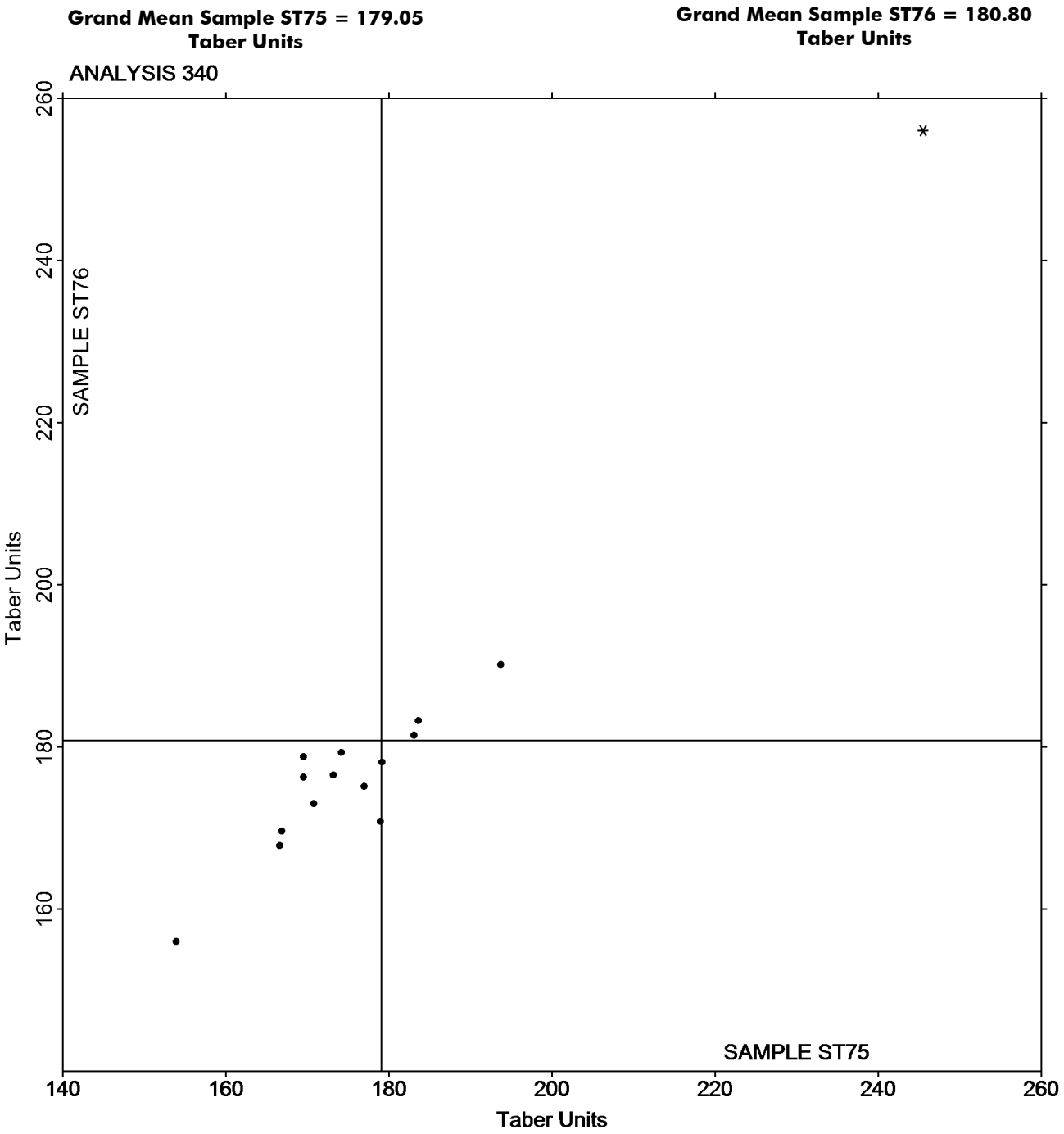
Bending Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboard

TAPPI Official Test Method T489

WebCode	Data Flag	Sample ST75 Lab Mean	Sample ST75 Diff from Grand Mean	Sample ST75 CPV	Sample ST76 Lab Mean	Sample ST76 Diff from Grand Mean	Sample ST76 CPV
42GRMT	*	245.5	66.5	3.23	256.0	75.2	3.39
4VP9DN		183.1	4.1	0.20	181.4	0.6	0.03
6Y7VP8		169.5	-9.5	-0.46	178.8	-2.0	-0.09
AVBVC8		179.2	0.2	0.01	178.1	-2.7	-0.12
BPZDJR		193.7	14.7	0.71	190.1	9.3	0.42
DTPR2X		166.9	-12.1	-0.59	169.6	-11.2	-0.50
FNCLM4		153.9	-25.1	-1.22	156.0	-24.8	-1.12
GV8F7Z		183.6	4.6	0.22	183.2	2.4	0.11
H3NCMU		179.0	0.0	0.00	170.8	-10.0	-0.45
KT22RB		177.0	-2.1	-0.10	175.1	-5.7	-0.26
PJMYPE		169.5	-9.5	-0.46	176.2	-4.6	-0.21
QNVGQT		174.2	-4.9	-0.24	179.3	-1.5	-0.07
UBGQCA		166.6	-12.4	-0.60	167.8	-13.0	-0.58
YHEGT9		173.2	-5.8	-0.28	176.5	-4.3	-0.19
YHF2BL		170.8	-8.2	-0.40	173.0	-7.8	-0.35

Summary Statistics	Sample ST75	Sample ST76
Grand Means	179.05 Taber Units	180.80 Taber Units
Stnd Dev Btwn Labs	20.55 Taber Units	22.20 Taber Units

Statistics based on 15 of 15 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

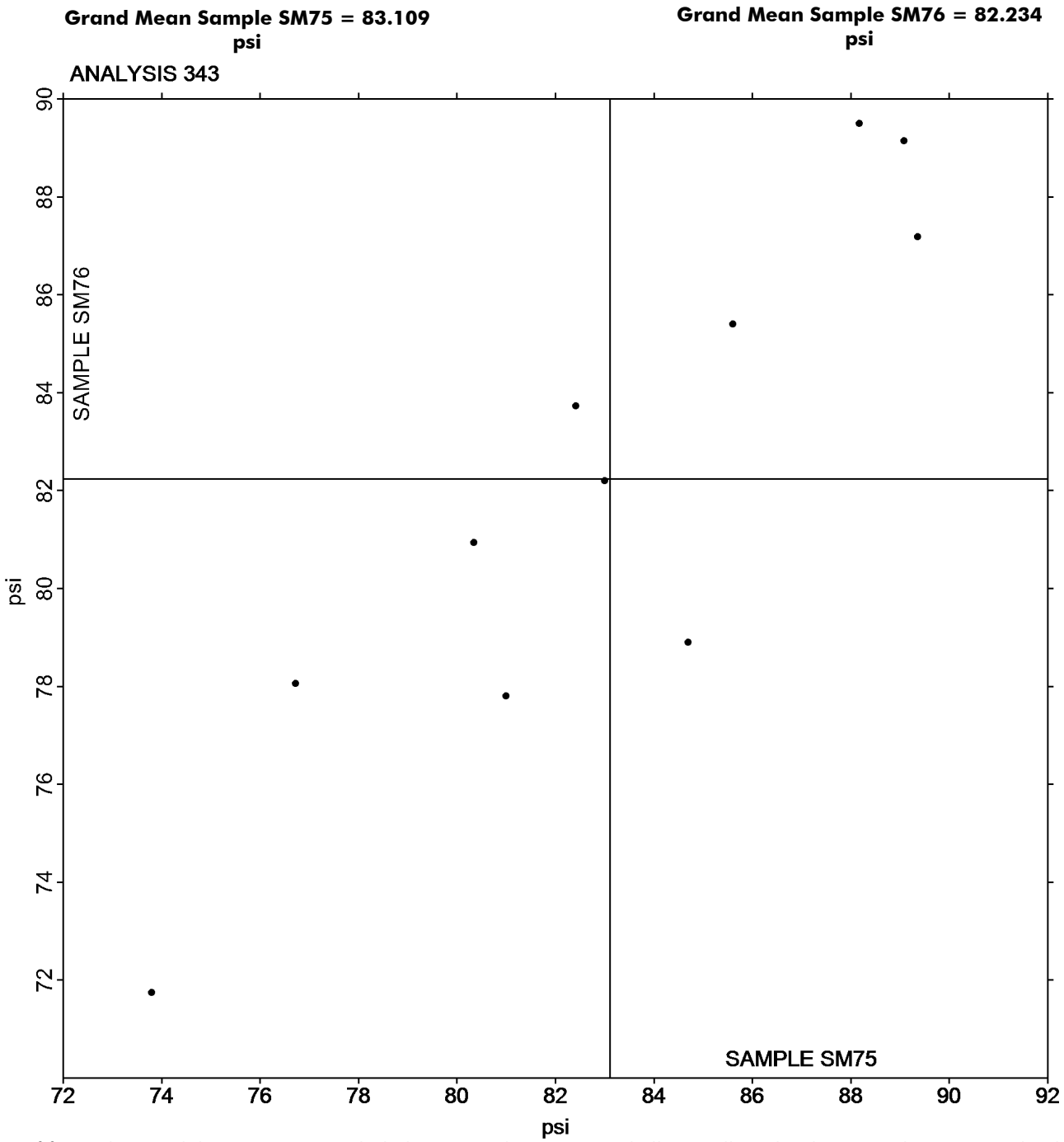
WebCode	Data Flag	Sample SM75 Lab Mean	Sample SM75 Diff from Grand Mean	Sample SM75 CPV	Sample SM76 Lab Mean	Sample SM76 Diff from Grand Mean	Sample SM76 CPV	Instr Code
3J6AAF		89.36	6.25	1.25	87.18	4.95	0.91	DX
6Y7VP8		80.34	-2.77	-0.55	80.94	-1.29	-0.24	LW
7QACN4		88.17	5.06	1.01	89.50	7.26	1.33	TL
947DEB		85.60	2.49	0.50	85.40	3.17	0.58	TA
9QLVJL		76.73	-6.38	-1.28	78.06	-4.17	-0.77	LW
DY24BX		82.42	-0.69	-0.14	83.72	1.49	0.27	LW
FNCLM4		73.80	-9.31	-1.87	71.74	-10.49	-1.93	LW
GY7R3Z		84.70	1.59	0.32	78.90	-3.33	-0.61	DX
JF8DHR		89.08	5.97	1.20	89.14	6.91	1.27	TA
KQZJNU		83.00	-0.11	-0.02	82.20	-0.03	-0.01	CD
ZBUTFH		81.00	-2.11	-0.42	77.80	-4.43	-0.81	TA

Summary Statistics	Sample SM75	Sample SM76
Grand Means	83.11 psi	82.23 psi
Stnd Dev Btwn Labs	4.99 psi	5.45 psi

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

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

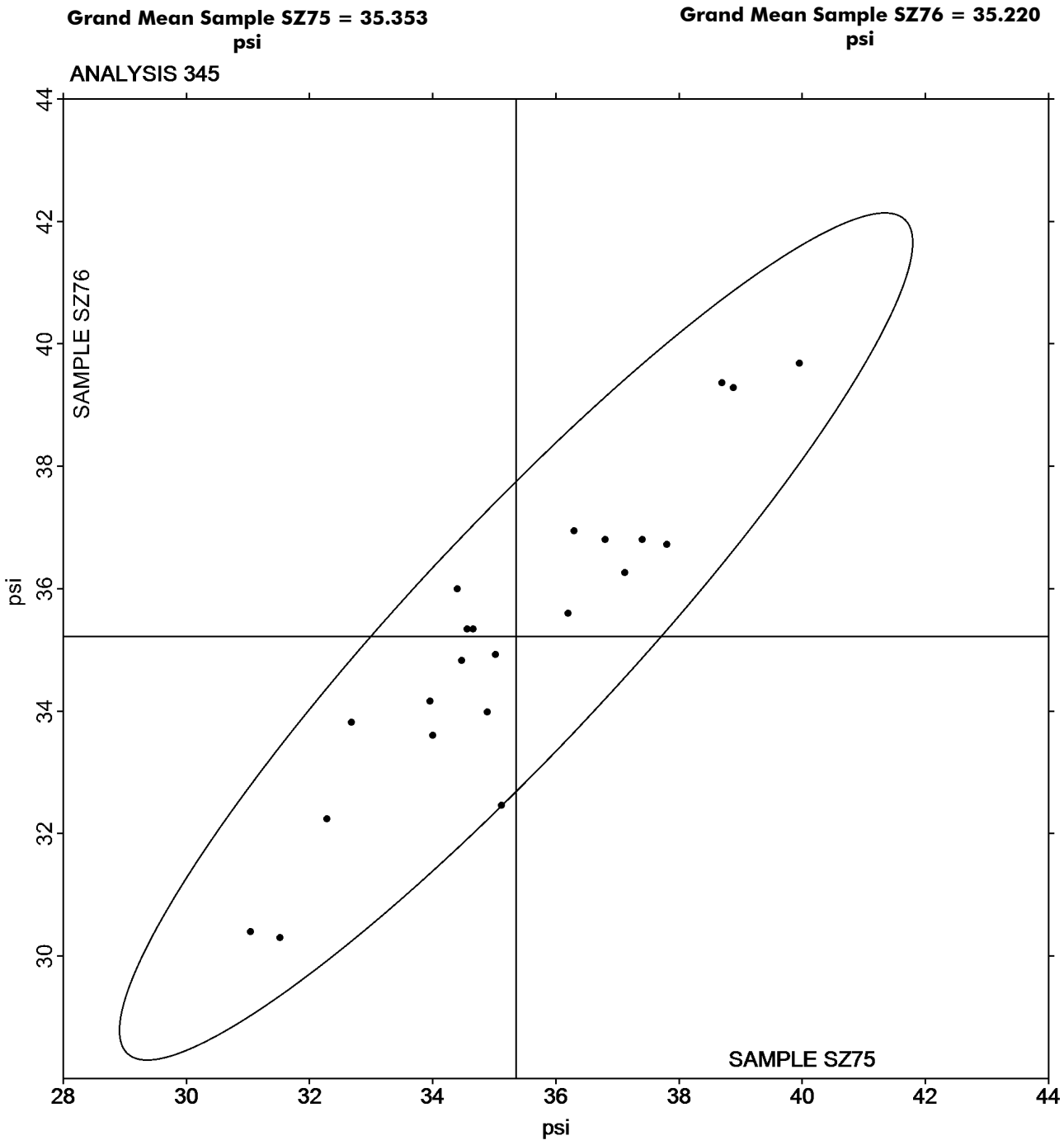
WebCode	Data Flag	Sample SZ75 Lab Mean	Sample SZ75 Diff from Grand Mean	Sample SZ75 CPV	Sample SZ76 Lab Mean	Sample SZ76 Diff from Grand Mean	Sample SZ76 CPV	Instr Code
6JD6P6		31.52	-3.83	-1.61	30.30	-4.92	-1.93	LW
6Y7VP8		31.04	-4.31	-1.81	30.40	-4.82	-1.89	LW
AH87HR		35.12	-0.23	-0.10	32.46	-2.76	-1.08	DP
AVBVC8		36.20	0.85	0.36	35.60	0.38	0.15	CA
BPZDJR		35.02	-0.33	-0.14	34.92	-0.30	-0.12	TA
D92BVJ		36.30	0.95	0.40	36.94	1.72	0.67	DP
DKV8RW		36.80	1.45	0.61	36.80	1.58	0.62	CA
GV8F7Z		37.40	2.05	0.86	36.80	1.58	0.62	LW
H3NCMU		38.88	3.53	1.48	39.28	4.06	1.59	CD
HY6GJ2		37.12	1.77	0.74	36.26	1.04	0.41	XX
KT22RB		34.40	-0.95	-0.40	36.00	0.78	0.31	CA
NGL2WU		34.88	-0.47	-0.20	33.99	-1.23	-0.48	CH
NUPCFA		34.47	-0.88	-0.37	34.83	-0.39	-0.15	TA
PYZC8C		34.00	-1.35	-0.57	33.60	-1.62	-0.63	CA
QNVGQT		32.68	-2.67	-1.12	33.82	-1.40	-0.55	CA
RJZAH4		38.70	3.35	1.41	39.36	4.14	1.62	LW
UBGQCA		32.28	-3.07	-1.29	32.24	-2.98	-1.17	CA
XLNUTF		34.66	-0.69	-0.29	35.34	0.12	0.05	DP
Y9BR6W		39.96	4.61	1.94	39.68	4.46	1.75	LW
YHEGT9		33.96	-1.39	-0.59	34.16	-1.06	-0.41	TZ
YHF2BL		37.80	2.45	1.03	36.72	1.50	0.59	CD
ZLWQ94		34.56	-0.79	-0.33	35.34	0.12	0.05	LW

Summary Statistics	Sample SZ75	Sample SZ76
Grand Means	35.35 psi	35.22 psi
Stnd Dev Btwn Labs	2.38 psi	2.55 psi

Statistics based on 22 of 22 reporting participants.

Key to Instrument Codes Reported by Participants

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



Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SN75 Lab Mean	Sample SN75 Diff from Grand Mean	Sample SN75 CPV	Sample SN76 Lab Mean	Sample SN76 Diff from Grand Mean	Sample SN76 CPV	Instr Code
3UFHFZ		193.1	26.2	1.54	190.8	24.9	1.72	HY
6Y7VP8		154.8	-12.1	-0.71	152.8	-13.1	-0.90	HY
868NUM		181.4	14.5	0.85	180.6	14.7	1.02	HZ
947DEB		171.6	4.7	0.28	168.0	2.1	0.15	HY
BPZ2TV		146.2	-20.7	-1.22	144.9	-20.9	-1.45	KR
D3BXUV		170.8	3.9	0.23	167.8	1.9	0.13	HY
EREWPB		162.9	-4.0	-0.23	166.1	0.2	0.01	HY
FJCJAM		194.8	27.9	1.64	182.4	16.5	1.14	HZ
FNCLM4		133.8	-33.1	-1.95	145.0	-20.9	-1.44	HZ
JF8DHR		189.6	22.7	1.34	188.8	22.9	1.58	HY
KK9T8K		161.0	-5.9	-0.35	163.6	-2.3	-0.16	HY
KT22RB		152.6	-14.3	-0.84	149.8	-16.1	-1.11	HY
NFUHZF		165.4	-1.5	-0.09	167.4	1.5	0.11	HY
PWAB2N		173.2	6.3	0.37	170.6	4.7	0.33	HY
T6TNTJ		162.2	-4.7	-0.28	161.2	-4.7	-0.32	HY
UBGQCA		157.0	-9.9	-0.58	154.0	-11.9	-0.82	HZ

Summary Statistics	Sample SN75	Sample SN76
Grand Means	166.90 1000th ft-lbs	165.86 1000th ft-lbs
Stnd Dev Btwn Labs	16.96 1000th ft-lbs	14.47 1000th ft-lbs

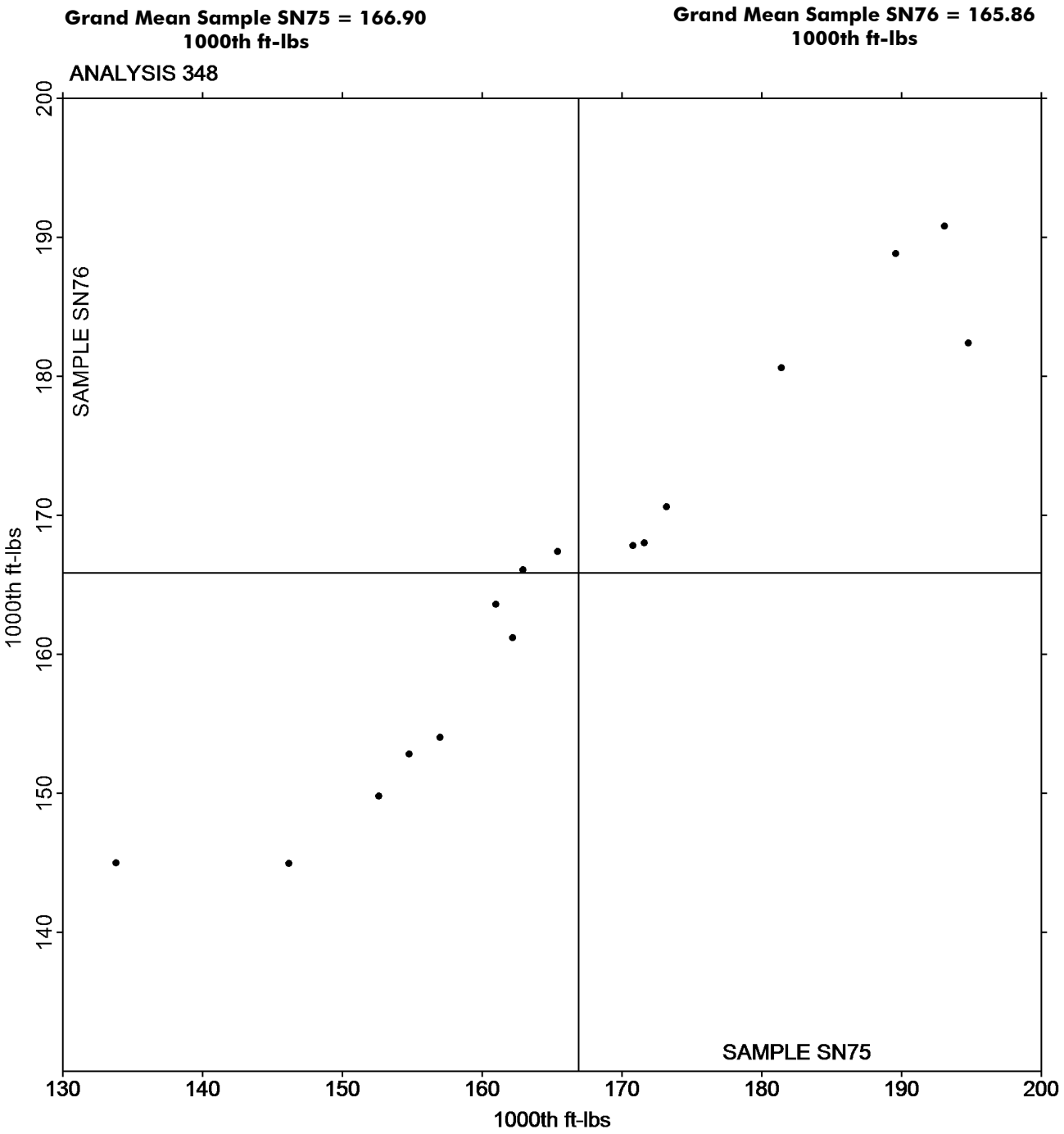
Statistics based on 16 of 16 reporting participants.

Key to Instrument Codes Reported by Participants

HY Huygen Digitized Scott Internal Bond Tester

HZ Huygen Internal Bond Tester with AccuPress

KR Kumagai Riki Kogyo Internal Bond Tester



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 349

Internal Bond Strength - Scott Bond Models

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SP75 Lab Mean	Sample SP75 Diff from Grand Mean	Sample SP75 CPV	Sample SP76 Lab Mean	Sample SP76 Diff from Grand Mean	Sample SP76 CPV	Instr Code
4DAB2X		186.7	21.0	0.63	163.2	-1.0	-0.03	TM
CNYMLT		130.4	-35.3	-1.05	127.8	-36.4	-1.10	XX
DTPR2X		170.4	4.7	0.14	175.6	11.4	0.35	TM
FN72JD		150.8	-14.8	-0.44	147.9	-16.3	-0.49	TM
GXEBVR		219.0	53.3	1.59	222.0	57.8	1.75	SC
NGL2WU		131.2	-34.5	-1.03	135.6	-28.6	-0.86	TM
NUPCFA		117.0	-48.7	-1.45	120.7	-43.5	-1.31	XX
RKBC63		174.3	8.6	0.26	174.0	9.8	0.30	XX
VRKKH9		137.4	-28.3	-0.84	137.3	-26.9	-0.81	XX
X9EQAL		175.0	9.3	0.28	173.0	8.8	0.27	SC
YTXVWB		220.0	54.3	1.62	222.0	57.8	1.75	SC
ZLWQ94		176.0	10.3	0.31	171.0	6.8	0.21	XX

Summary Statistics	Sample SP75	Sample SP76
Grand Means	165.69 1000th ft-lbs	164.17 1000th ft-lbs
Stnd Dev Btwn Labs	33.51 1000th ft-lbs	33.11 1000th ft-lbs

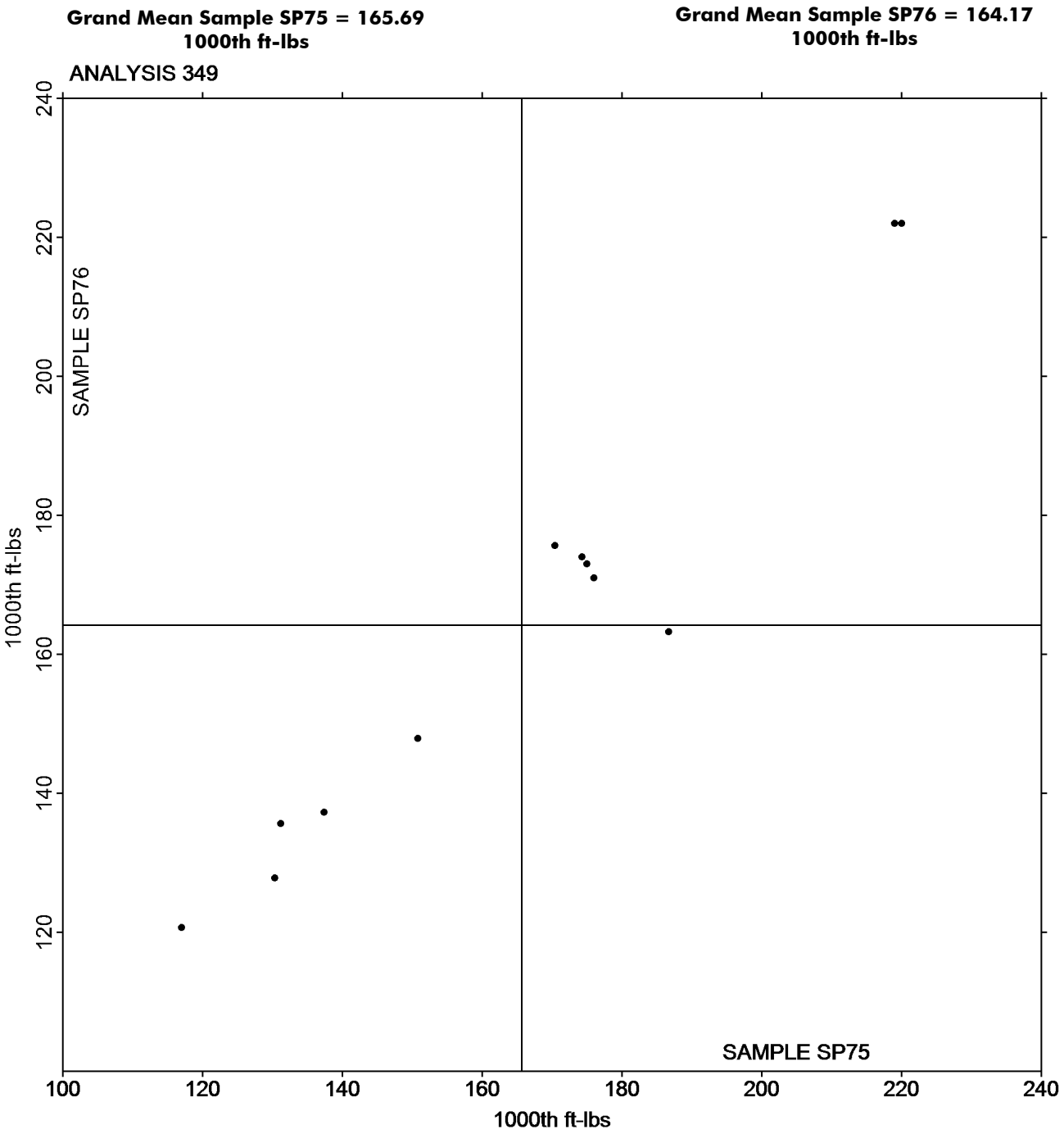
Statistics based on 12 of 12 reporting participants.

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-

