Collaborative Testing Services, Inc.

Paper & Paperboard Interlaboratory Testing Program

Summary Report #279S - November 2015

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334	Folding Endurance (MIT) - Double Folds
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The CTS Paper & Paperboard Interlaboratory Fiberboard 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 web site. The WebCode for each analysis can be found in the Performance Analysis Report mailed to each participant. In addition, the WebCodes can be found on the data sheets.

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.

TAPPI-CTS Interlaboratory Testing Program
Analysis 305
Bursting Strength - Printing Papers

WebCode	Data Flag	Sample SA25 Lab Mean	Sample SA25 Diff from Grand Mean	Sample SA25 CPV	Sample SA26 Lab Mean	Sample SA26 Diff from Grand Mean	Sample SA26 CPV
2974Z6		27.07	1.24	0.62	30.96	1.52	0.69
3HRJ97		25.44	-0.39	-0.20	28.94	-0.50	-0.23
77PKNP		25.42	-0.41	-0.20	27.57	-1.87	-0.86
7KRTTY		26.14	0.31	0.15	29.49	0.05	0.02
964TQP		22.63	-3.21	-1.60	25.15	-4.29	-1.97
B7UB6V		28.50	2.67	1.33	32.70	3.26	1.49
BMGVJU		25.54	-0.29	-0.15	29.57	0.13	0.06
CFD8LM		26.60	0.76	0.38	31.01	1.57	0.72
CGP22M		26.78	0.95	0.47	27.67	-1.77	-0.81
EFMZAL		29.40	3.57	1.78	32.70	3.26	1.49
FZP93P		24.73	-1.11	-0.55	28.41	-1.03	-0.47
H69AXK		24.23	-1.61	-0.80	31.22	1.78	0.82
HXVGMP		24.35	-1.48	-0.74	27.47	-1.98	-0.90
J8YV4G		23.93	-1.90	-0.95	26.11	-3.34	-1.53
K8T23M		25.16	-0.67	-0.33	29.20	-0.25	-0.11
N422CG		26.30	0.47	0.23	31.70	2.26	1.03
NARDCJ		24.20	-1.64	-0.82	29.57	0.13	0.06
TUYAWB		28.25	2.42	1.20	32.10	2.66	1.22
U6ELND		29.32	3.48	1.74	31.18	1.74	0.80
UK4ULB		24.65	-1.18	-0.59	30.90	1.46	0.67
VTF6D3		23.28	-2.56	-1.27	27.11	-2.34	-1.07
WE9JKC		27.79	1.95	0.97	30.46	1.01	0.46
WQ4RA7		29.17	3.34	1.66	31.64	2.20	1.01
X3U4W4		24.80	-1.03	-0.51	28.79	-0.65	-0.30
XWP3WA		27.25	1.42	0.71	30.65	1.20	0.55
YFHAPX		24.15	-1.68	-0.84	27.70	-1.74	-0.80
YGU8U3		22.45	-3.38	-1.69	25.00	-4.44	-2.04
YQFB33	X	31.75	5.92	2.95	29.60	0.16	0.07

Summary Statistics

	Sample SA25	Sample SA26
Grand Means	25.834 psi	29.443 psi
SD Btwn Labs	2.008 psi	2.183 psi

Statistics based on 27 of 28 reporting participants

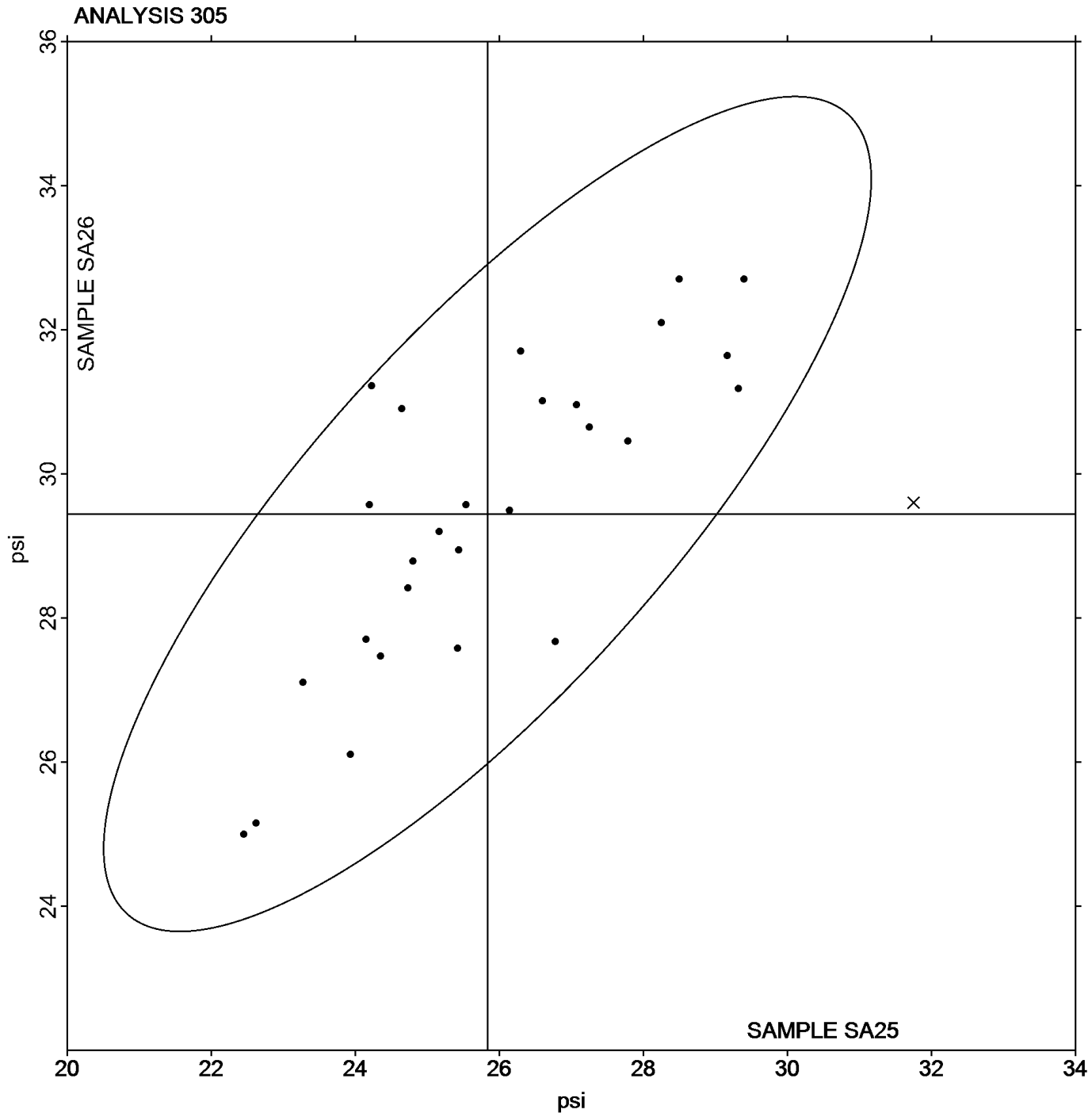
Comments on assigned Data Flags for Test #305

YQFB33 (X) - Inconsistent in testing between samples, data for Sample SA25 are high.

TAPPI-CTS Interlaboratory Testing Program
Analysis 305
Bursting Strength - Printing Papers

Grand Mean Sample **SA25** = 25.834 psi

Grand Mean Sample **SA26** = 29.443 psi



TAPPI-CTS Interlaboratory Testing Program
Analysis 310
Bursting Strength - Packaging Papers

WebCode	Data Flag	Sample SB25 Lab Mean	Sample SB25 Diff from Grand Mean	Sample SB25 CPV	Sample SB26 Lab Mean	Sample SB26 Diff from Grand Mean	Sample SB26 CPV
77PKNP		78.51	7.23	1.23	97.20	8.51	1.54
AFJ2RN	*	60.18	-11.10	-1.89	74.18	-14.51	-2.63
C2W9GL		66.50	-4.78	-0.82	85.85	-2.84	-0.52
CJR22K	*	83.10	11.82	2.02	92.00	3.31	0.60
CL6CEQ		72.96	1.68	0.29	89.76	1.07	0.19
DAKNEN		66.62	-4.67	-0.80	85.12	-3.57	-0.65
DEFHCQ		74.82	3.54	0.60	94.55	5.86	1.06
FCJGRK		74.10	2.82	0.48	89.60	0.91	0.17
G9F79P		67.41	-3.87	-0.66	89.98	1.29	0.23
GGPULN		69.40	-1.88	-0.32	86.60	-2.09	-0.38
KBDPKE		71.94	0.66	0.11	90.77	2.08	0.38
KKZQZN		72.60	1.32	0.22	88.50	-0.19	-0.03
LX23NL		80.46	9.18	1.57	93.55	4.86	0.88
MH3FXK		64.22	-7.06	-1.20	87.81	-0.88	-0.16
MRQBUE		80.93	9.65	1.65	97.76	9.07	1.64
QMLL4H		67.82	-3.46	-0.59	88.37	-0.32	-0.06
R83F89		70.50	-0.78	-0.13	86.95	-1.74	-0.32
RAEV2A		72.90	1.62	0.28	91.30	2.61	0.47
RDTQH8		68.95	-2.33	-0.40	83.15	-5.54	-1.00
T6GQPG		79.06	7.78	1.33	95.06	6.37	1.16
T6XA79		65.62	-5.67	-0.97	83.86	-4.83	-0.88
UY8ZVA		70.76	-0.53	-0.09	89.74	1.05	0.19
W2PUR2		69.95	-1.33	-0.23	84.92	-3.77	-0.68
WE9JKC		68.59	-2.69	-0.46	85.22	-3.46	-0.63
WJJUC7	X	95.15	23.86	4.07	112.65	23.96	4.35
WQ9A86		61.78	-9.50	-1.62	76.43	-12.26	-2.22
X4RER7		65.85	-5.43	-0.93	85.90	-2.79	-0.51
XWP3WA		67.65	-3.64	-0.62	88.73	0.05	0.01
YFHAPX		79.34	8.06	1.37	98.05	9.36	1.70
Z2CTW2		74.64	3.36	0.57	91.08	2.39	0.43

Summary Statistics

	Sample SB25	Sample SB26
Grand Means	71.281 psi	88.690 psi
SD Btwn Labs	5.864 psi	5.513 psi

Statistics based on 29 of 30 reporting participants

Comments on assigned Data Flags for Test #310

WJJUC7 (X) - Systematic error (data for both samples are high).

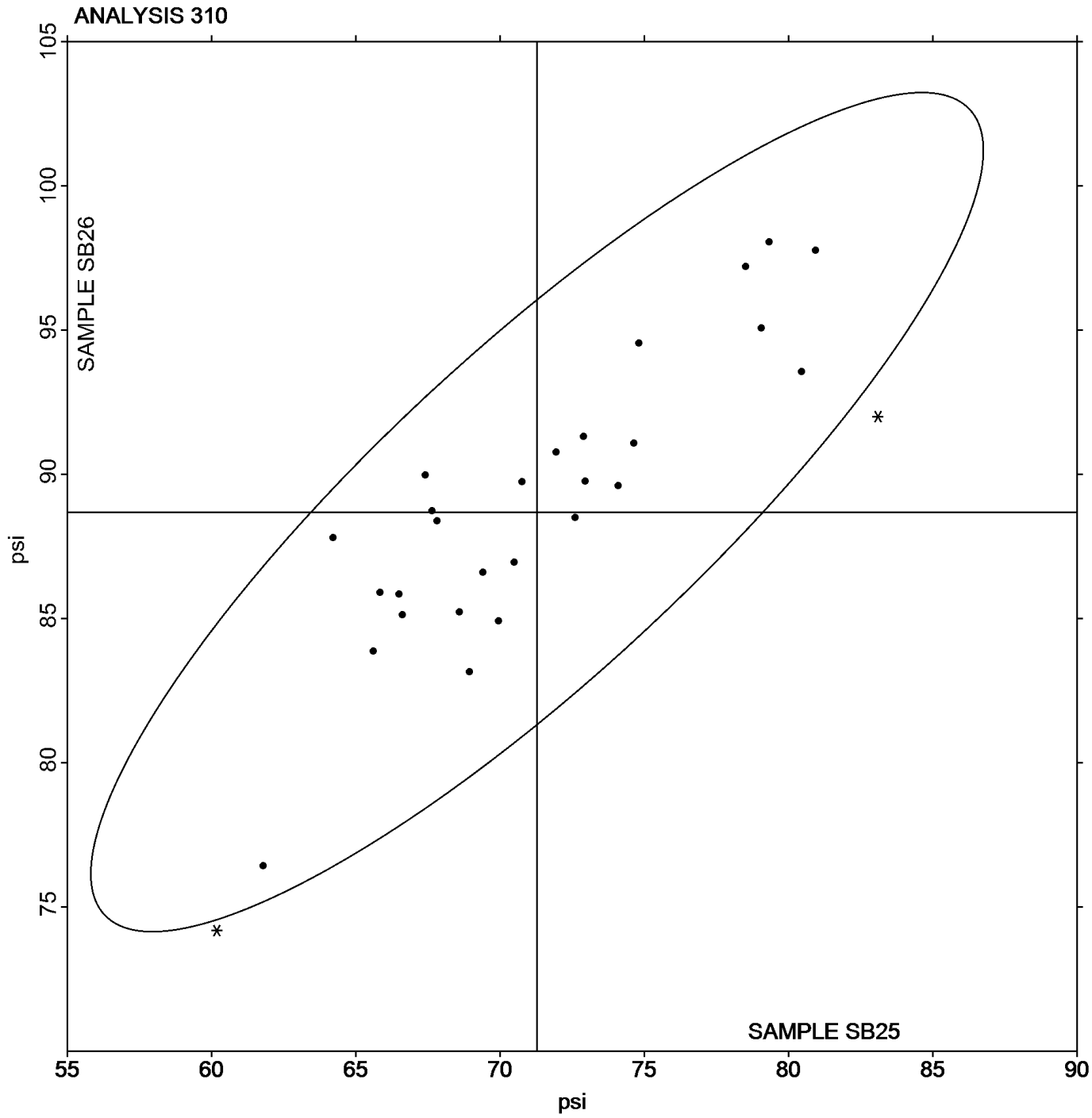
TAPPI-CTS Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

Grand Mean Sample **SB25** = 71.281 psi

Grand Mean Sample **SB26** = 88.690 psi



TAPPI-CTS Interlaboratory Testing Program
Analysis 311
Tearing Strength - Newsprint

WebCode	Data Flag	Sample SK25 Lab Mean	Sample SK25 Diff from Grand Mean	Sample SK25 CPV	Sample SK26 Lab Mean	Sample SK26 Diff from Grand Mean	Sample SK26 CPV
7EZLAQ		25.83	-0.24	-0.28	25.37	-0.53	-0.63
7KRTTY		25.00	-1.07	-1.29	24.75	-1.16	-1.36
EBUTUX		27.51	1.44	1.73	27.15	1.24	1.46
FFYAFR	X	33.84	7.78	9.35	33.41	7.50	8.80
P6RLJD		25.77	-0.30	-0.36	25.82	-0.09	-0.10
RFJRPF	X	33.75	7.68	9.24	34.28	8.38	9.83
WE9JKC		25.95	-0.12	-0.14	25.78	-0.13	-0.15
WQ4RA7		26.35	0.28	0.34	26.57	0.66	0.78

Summary Statistics

	Sample SK25	Sample SK26
Grand Means	26.069 Grams	25.907 Grams
SD Btwn Labs	0.832 Grams	0.852 Grams

Statistics based on 6 of 8 reporting participants

Comments on assigned Data Flags for Test #311

FFYAFR (X) - Extreme data.

RFJRPF (X) - Extreme data.

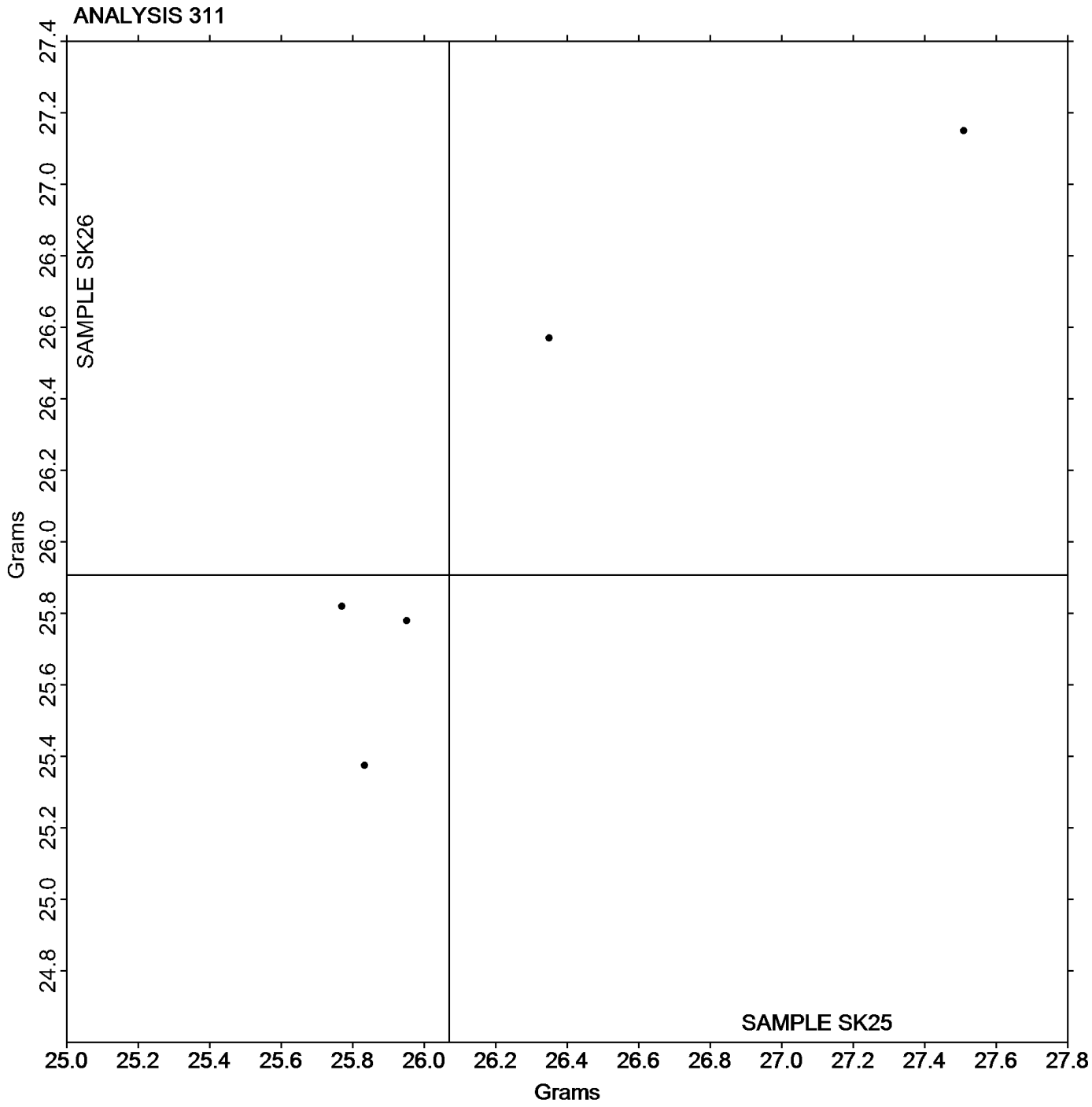
TAPPI-CTS Interlaboratory Testing Program

Analysis 311

Tearing Strength - Newsprint

Grand Mean Sample **SK25** = 26.069 Grams

Grand Mean Sample **SK26** = 25.907 Grams



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 312
Tearing Strength - Printing Papers

WebCode	Data Flag	Sample SC25 Lab Mean	Sample SC25 Diff from Grand Mean	Sample SC25 CPV	Sample SC26 Lab Mean	Sample SC26 Diff from Grand Mean	Sample SC26 CPV
2974Z6		55.60	0.71	0.15	51.30	2.42	0.65
3HRJ97		57.06	2.17	0.46	50.72	1.84	0.50
3U6Q67		59.18	4.29	0.91	53.79	4.91	1.33
4NDWMY		56.62	1.73	0.37	49.79	0.91	0.24
77PKNP		64.00	9.11	1.94	57.00	8.12	2.20
8PGQVU	X	47.28	-7.61	-1.62	58.73	9.85	2.66
964TQP		51.80	-3.09	-0.66	45.38	-3.50	-0.95
9EQRGU		56.02	1.13	0.24	49.60	0.72	0.19
AUM7E3		53.22	-1.67	-0.36	47.70	-1.18	-0.32
BKRMDY		56.86	1.97	0.42	50.16	1.28	0.35
BMGVJU		56.93	2.04	0.43	49.23	0.35	0.09
C2CTZJ		59.76	4.87	1.04	51.62	2.74	0.74
CAL2LQ		51.92	-2.97	-0.63	47.70	-1.18	-0.32
CGP22M		50.40	-4.49	-0.96	44.40	-4.48	-1.21
CJR22K	X	52.60	-2.29	-0.49	46.40	-2.48	-0.67
CL6CEQ		51.24	-3.65	-0.78	46.02	-2.86	-0.77
DAKNEN		57.91	3.02	0.64	51.82	2.94	0.79
FZP93P		56.41	1.52	0.32	49.25	0.37	0.10
H69AXK		57.62	2.73	0.58	51.18	2.30	0.62
HXVGMP		59.02	4.13	0.88	52.47	3.59	0.97
J74C3F		47.20	-7.69	-1.64	42.24	-6.64	-1.80
J8YV4G	X	53.60	-1.29	-0.28	49.20	0.32	0.09
J9TEAN		48.84	-6.05	-1.29	43.69	-5.19	-1.41
JJREMT		57.20	2.31	0.49	52.82	3.94	1.06
K8T23M		59.02	4.13	0.88	51.34	2.46	0.66
KAYJZH		51.98	-2.91	-0.62	49.49	0.61	0.16
LPRDBN		58.60	3.71	0.79	53.40	4.52	1.22
LWMFBE		56.84	1.95	0.41	50.44	1.56	0.42
MH3FXK		53.31	-1.58	-0.34	47.12	-1.76	-0.48
N38H79		47.17	-7.72	-1.64	43.52	-5.36	-1.45
N422CG		54.18	-0.71	-0.15	48.39	-0.49	-0.13
NARDCJ		64.23	9.34	1.99	55.12	6.24	1.69
QMLL4H		58.68	3.78	0.81	50.16	1.28	0.35
QPF92F		48.60	-6.29	-1.34	44.60	-4.28	-1.16
R7WQA7		58.09	3.20	0.68	49.93	1.05	0.28
R83F89	*	42.37	-12.52	-2.67	39.65	-9.23	-2.50
RDTQH8		45.40	-9.49	-2.02	42.19	-6.69	-1.81
T6XA79		60.45	5.55	1.18	51.52	2.63	0.71
T88ZVC		54.32	-0.57	-0.12	47.54	-1.34	-0.36
TUYAWB		58.91	4.02	0.85	50.65	1.77	0.48
TVUTYC		46.20	-8.69	-1.85	40.40	-8.48	-2.30
U6ELND	X	58.82	3.93	0.84	43.68	-5.20	-1.41
VTF6D3		56.62	1.72	0.37	48.44	-0.44	-0.12

TAPPI-CTS Interlaboratory Testing Program
Analysis 312
Tearing Strength - Printing Papers

WebCode	Data Flag	Sample SC25 Lab Mean	Sample SC25 Diff from Grand Mean	Sample SC25 CPV	Sample SC26 Lab Mean	Sample SC26 Diff from Grand Mean	Sample SC26 CPV
W2PUR2		56.22	1.32	0.28	49.65	0.77	0.21
WE9JKC		56.21	1.31	0.28	48.74	-0.14	-0.04
WQ9A86		49.52	-5.37	-1.14	45.04	-3.84	-1.04
X3U4W4		60.53	5.63	1.20	52.43	3.55	0.96
X4RER7		58.70	3.80	0.81	53.33	4.45	1.20
XWP3WA		53.67	-1.23	-0.26	47.76	-1.12	-0.30
YMX7AY		53.80	-1.09	-0.23	48.66	-0.22	-0.06
YQFB33		49.74	-5.15	-1.10	45.82	-3.06	-0.83
YRTZ8Z		54.38	-0.51	-0.11	49.32	0.44	0.12
ZARCF2		58.00	3.11	0.66	50.04	1.16	0.31
ZTJHL7	*	54.20	-0.69	-0.15	51.60	2.72	0.73

Summary Statistics

	Sample SC25	Sample SC26
Grand Means	54.895 Grams	48.884 Grams
SD Btwn Labs	4.700 Grams	3.696 Grams

Statistics based on 50 of 54 reporting participants

Comments on assigned Data Flags for Test #312

8PGQVU (X) - Inconsistent in testing between samples.

CJR22K (X) - Data appear to be off by a factor of 0.5; data converted by CTS (x2).

J8YV4G (X) - Data appear to be off by a factor of 0.5; data converted by CTS (x2).

U6ELND (X) - Inconsistent in testing between samples and within the determinations for Sample SC25.

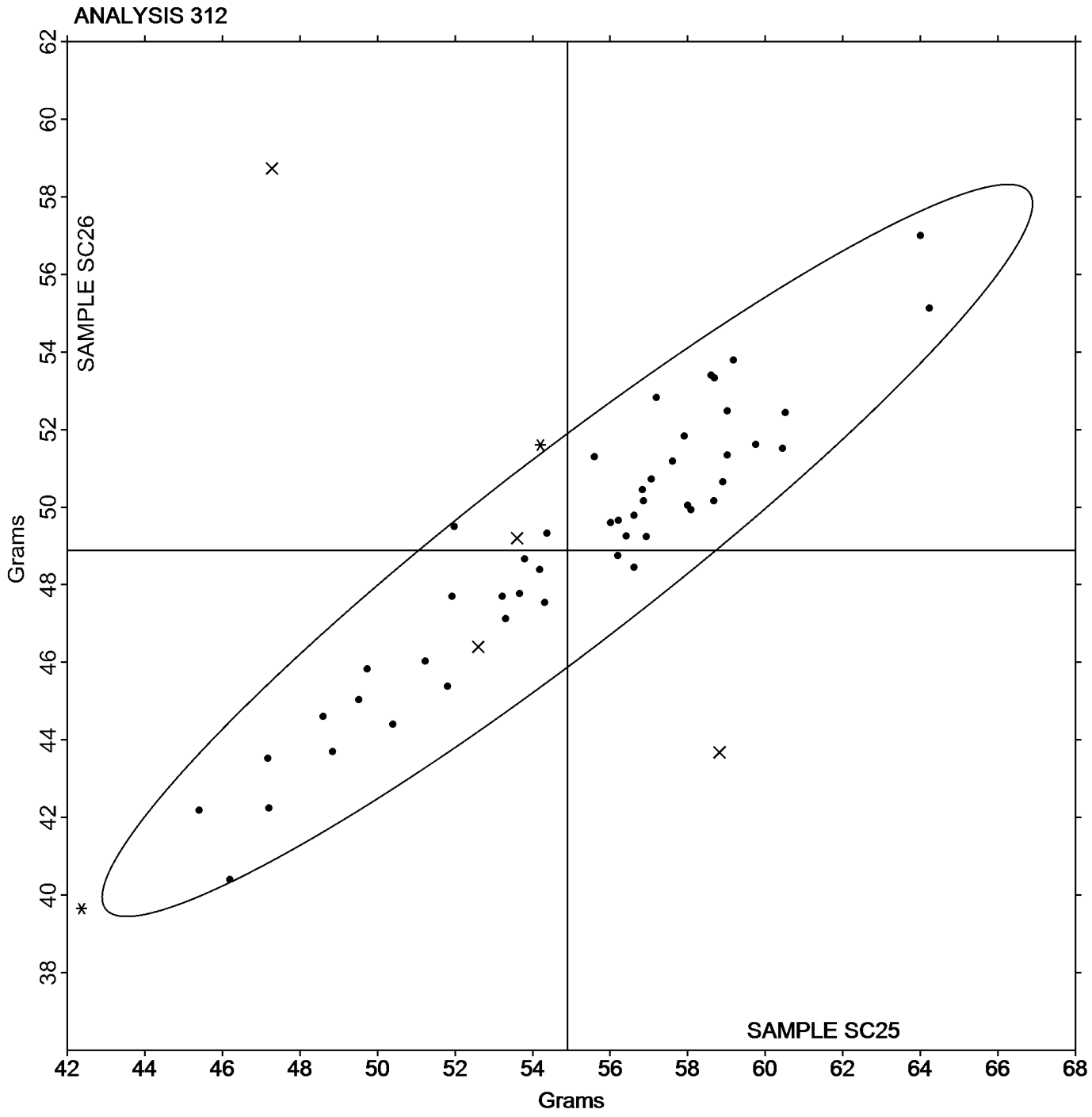
TAPPI-CTS Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

Grand Mean Sample **SC25** = 54.895 Grams

Grand Mean Sample **SC26** = 48.884 Grams



TAPPI-CTS Interlaboratory Testing Program
Analysis 314
Tearing Strength - Packaging Papers

WebCode	Data Flag	Sample SD25 Lab Mean	Sample SD25 Diff from Grand Mean	Sample SD25 CPV	Sample SD26 Lab Mean	Sample SD26 Diff from Grand Mean	Sample SD26 CPV
6YRB6R	*	126.4	22.0	3.23	171.6	26.4	2.95
7EZLAQ		96.7	-7.7	-1.12	138.8	-6.5	-0.72
7QDQEZ		104.4	0.0	0.01	154.1	8.8	0.99
AFJ2RN		100.2	-4.2	-0.61	142.2	-3.0	-0.34
B7UB6V	X	97.9	-6.5	-0.95	112.4	-32.9	-3.68
C2W9GL		107.2	2.8	0.41	145.4	0.2	0.02
CJR22K	X	28.7	-75.7	-11.10	33.1	-112.1	-12.55
CKQA7X		96.9	-7.5	-1.10	130.1	-15.1	-1.69
D8VF9U		104.1	-0.3	-0.05	150.1	4.9	0.55
ED2BRU		107.9	3.5	0.52	149.8	4.6	0.51
F4NJXP		98.0	-6.4	-0.94	136.8	-8.4	-0.94
FCJGRK		104.1	-0.3	-0.04	147.9	2.7	0.30
FYZYWV		99.6	-4.8	-0.71	133.0	-12.2	-1.37
G9F79P		101.2	-3.2	-0.47	138.2	-7.0	-0.79
GGPULN		113.6	9.2	1.35	155.2	10.0	1.12
H6DRWJ		106.2	1.8	0.27	144.3	-0.9	-0.10
H79B3R		98.8	-5.6	-0.82	136.8	-8.4	-0.94
HFVBFF		98.2	-6.2	-0.91	142.1	-3.1	-0.35
HRMVYR		104.5	0.1	0.01	147.2	2.0	0.22
HUC46M		111.2	6.8	1.00	142.9	-2.3	-0.26
J8XV9M		114.5	10.2	1.49	154.6	9.4	1.05
KBDPKE		105.0	0.6	0.09	154.6	9.4	1.05
KN3KZE	X	101.0	-3.3	-0.49	141.2	-4.0	-0.45
KXNTJF		102.3	-2.1	-0.30	141.2	-4.0	-0.45
L9KCDF		115.9	11.5	1.68	155.0	9.7	1.09
LGVH9J		104.3	-0.1	-0.01	143.2	-2.0	-0.23
MRQBUE		113.9	9.5	1.39	156.6	11.3	1.27
N422CG		98.4	-6.0	-0.88	144.8	-0.5	-0.05
PUA2YG		105.9	1.6	0.23	152.6	7.4	0.83
QFPMVG		105.5	1.1	0.16	138.7	-6.5	-0.73
RAEV2A		90.0	-14.4	-2.11	122.4	-22.8	-2.55
RFMCE6		103.1	-1.3	-0.19	144.7	-0.5	-0.06
T6GQPG		109.7	5.3	0.78	150.7	5.5	0.62
T6JJL4		94.7	-9.6	-1.41	138.4	-6.8	-0.76
U7PKK8	X	132.4	28.1	4.12	178.4	33.1	3.71
UK4ULB		107.2	2.8	0.41	146.4	1.2	0.13
WCMU46	X	90.9	-13.5	-1.98	133.5	-11.8	-1.32
WE9JKC		106.3	2.0	0.29	154.2	9.0	1.01
WJJUC7	X	100.5	-3.9	-0.57	119.8	-25.4	-2.84
YBNDZ8		104.5	0.1	0.02	149.5	4.3	0.48
YFHAPX		101.2	-3.2	-0.47	138.4	-6.8	-0.76
Z2CTW2		100.8	-3.5	-0.52	139.3	-5.9	-0.67
Z2VGEW		99.6	-4.8	-0.70	141.6	-3.6	-0.41

TAPPI-CTS Interlaboratory Testing Program
Analysis 314
Tearing Strength - Packaging Papers

Summary Statistics

	Sample SD25	Sample SD26
Grand Means	104.38 Grams	145.23 Grams
SD Btwn Labs	6.82 Grams	8.94 Grams

Statistics based on 37 of 43 reporting participants

Comments on assigned Data Flags for Test #314

B7UB6V (X) - Data for Sample SD26 are low.

CJR22K (X) - Extreme data.

KN3KZE (X) - Data appear to be off by a factor of 0.25; data converted by CTS (x4).

U7PKK8 (X) - Data for both samples are high.

WCMU46 (X) - Data appear to be off by a factor of 0.5; data converted by CTS (x2).

WJJUC7 (X) - Data for Sample SD26 are low.

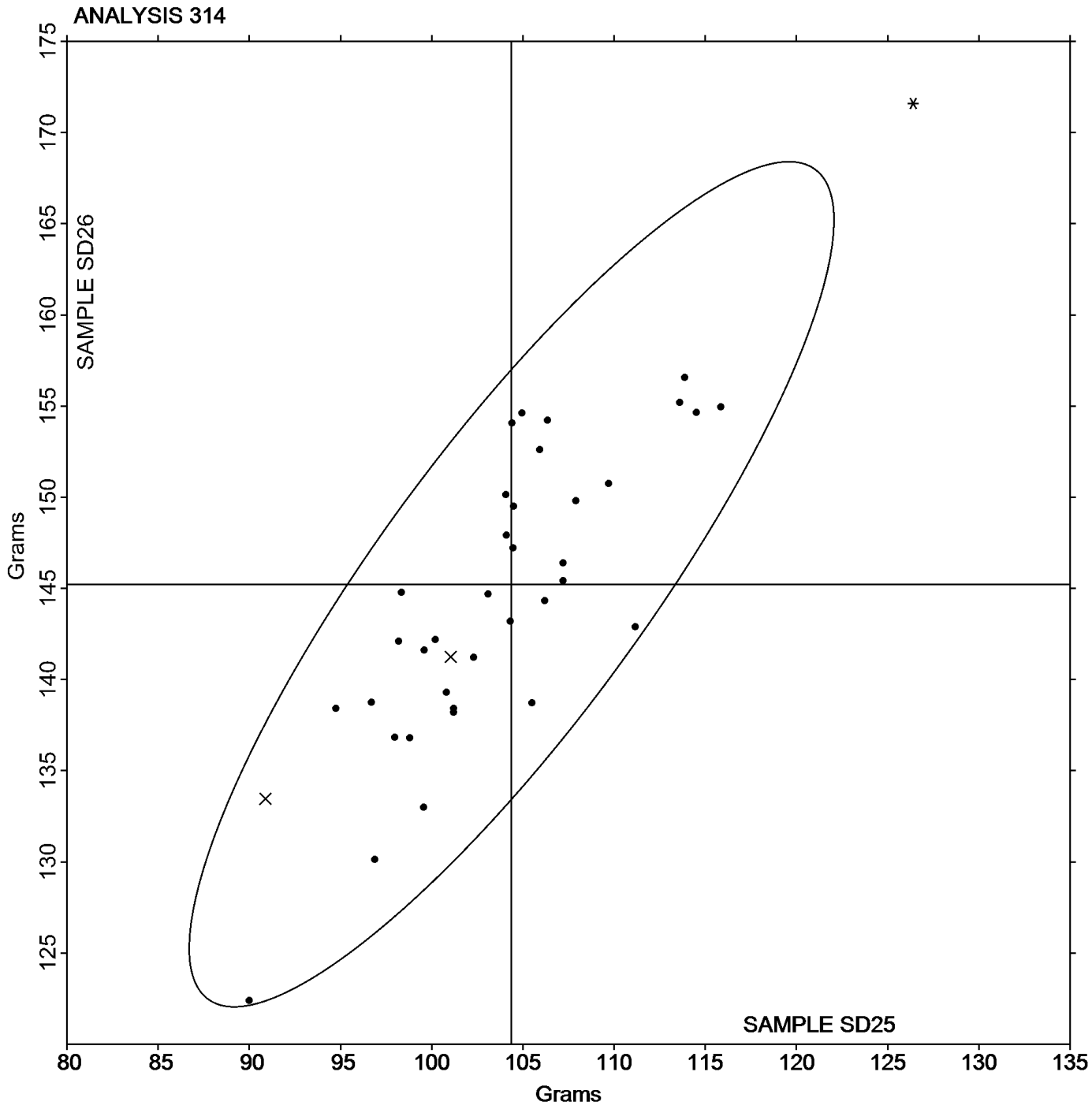
TAPPI-CTS Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

Grand Mean Sample **SD25** = 104.38 Grams

Grand Mean Sample **SD26** = 145.23 Grams



TAPPI-CTS Interlaboratory Testing Program
Analysis 320
Tensile Breaking Strength - Newsprint

WebCode	Data Flag	Sample SR25 Lab Mean	Sample SR25 Diff from Grand Mean	Sample SR25 CPV	Sample SR26 Lab Mean	Sample SR26 Diff from Grand Mean	Sample SR26 CPV
2974Z6		2.744	0.089	0.59	2.917	0.101	0.56
2LD9QX		3.014	0.359	2.36	3.197	0.381	2.13
7EZLAQ		2.671	0.015	0.10	2.961	0.145	0.81
7KRTTY		2.706	0.051	0.34	2.743	-0.074	-0.41
CFD8LM		2.596	-0.059	-0.39	2.779	-0.037	-0.21
CPHGLK		2.557	-0.099	-0.65	2.671	-0.145	-0.81
EBUTUX		2.364	-0.292	-1.92	2.614	-0.203	-1.13
FFYAFR		2.542	-0.113	-0.74	2.627	-0.190	-1.06
KKZQZN		2.702	0.047	0.31	2.860	0.044	0.25
P6RLJD		2.690	0.035	0.23	2.946	0.130	0.72
RFJRPF		2.599	-0.056	-0.37	2.578	-0.238	-1.33
WQ4RA7		2.767	0.112	0.74	2.969	0.152	0.85
XWP3WA		2.566	-0.089	-0.59	2.750	-0.066	-0.37

Summary Statistics

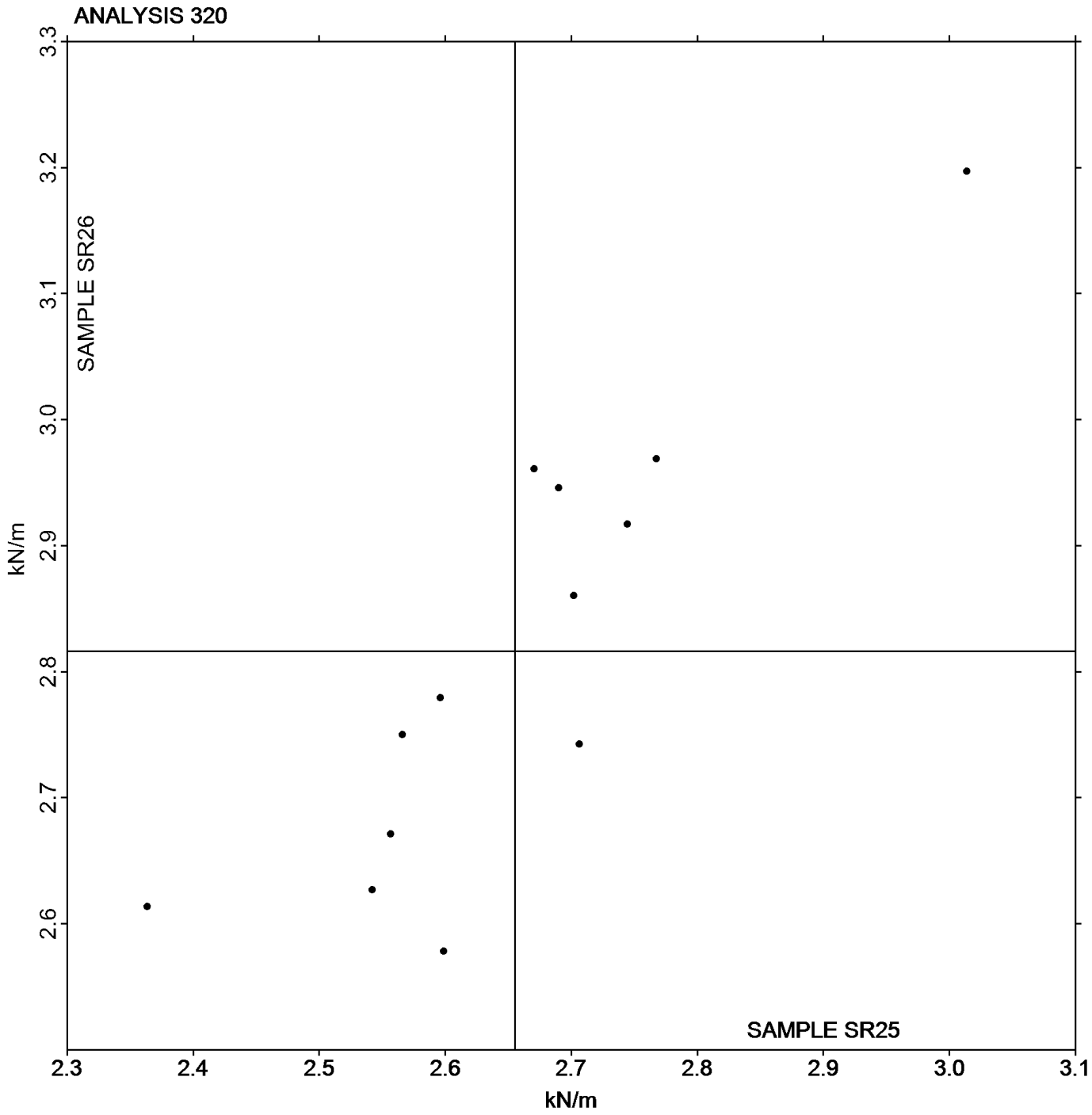
	Sample SR25	Sample SR26
Grand Means	2.6553 kN/m	2.8163 kN/m
SD Btwn Labs	0.1521 kN/m	0.1788 kN/m

Statistics based on 13 of 13 reporting participants

TAPPI-CTS Interlaboratory Testing Program
Analysis 320
Tensile Breaking Strength - Newsprint

Grand Mean Sample **SR25** = 2.6553 kN/m

Grand Mean Sample **SR26** = 2.8163 kN/m



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

TAPPI-CTS Interlaboratory Testing Program

Analysis 321

Tensile Energy Absorption - Newsprint

WebCode	Data Flag	Sample SR25 Lab Mean	Sample SR25 Diff from Grand Mean	Sample SR25 CPV	Sample SR26 Lab Mean	Sample SR26 Diff from Grand Mean	Sample SR26 CPV
2974Z6		20.62	2.98	1.67	19.69	-1.01	-0.60
2LD9QX		17.25	-0.39	-0.22	21.32	0.63	0.37
7EZLAQ		15.99	-1.65	-0.93	21.54	0.85	0.50
7KRTTY		20.22	2.57	1.44	21.62	0.93	0.55
CFD8LM		16.43	-1.21	-0.68	20.06	-0.64	-0.38
CPHGLK		19.67	2.03	1.14	23.12	2.42	1.44
FFYAFR		15.97	-1.68	-0.94	18.80	-1.89	-1.13
KKZQZN		16.38	-1.27	-0.71	20.40	-0.29	-0.17
P6RLJD		17.83	0.19	0.10	22.97	2.28	1.35
RFJRPF		17.07	-0.58	-0.32	17.31	-3.39	-2.01
WQ4RA7		18.85	1.21	0.68	21.63	0.93	0.56
XWP3WA		15.46	-2.19	-1.23	19.88	-0.82	-0.49

Summary Statistics

	Sample SR25	Sample SR26
Grand Means	17.646 Joules/sq m	20.695 Joules/sq m
SD Btwn Labs	1.783 Joules/sq m	1.682 Joules/sq m

Statistics based on 12 of 12 reporting participants

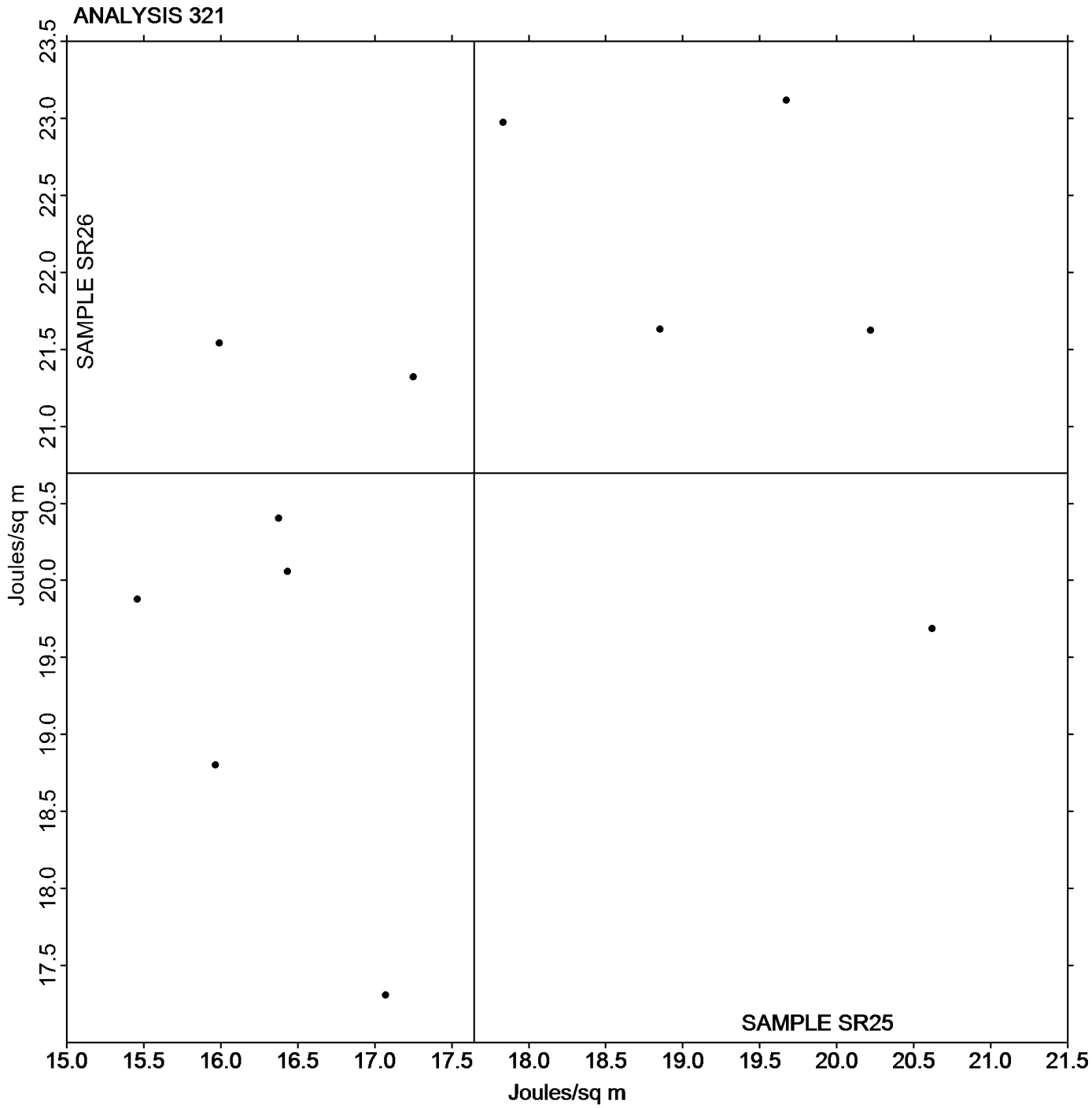
TAPPI-CTS Interlaboratory Testing Program

Analysis 321

Tensile Energy Absorption - Newsprint

Grand Mean Sample **SR25** = 17.646 Joules/sq m

Grand Mean Sample **SR26** = 20.695 Joules/sq m



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 322
Elongation to Break - Newsprint

WebCode	Data Flag	Sample SR25 Lab Mean	Sample SR25 Diff from Grand Mean	Sample SR25 CPV	Sample SR26 Lab Mean	Sample SR26 Diff from Grand Mean	Sample SR26 CPV
2974Z6		1.170	0.041	0.27	1.260	0.008	0.07
2LD9QX		0.911	-0.218	-1.43	1.052	-0.200	-1.66
7EZLAQ		1.025	-0.104	-0.68	1.209	-0.043	-0.35
7KRTTY		1.198	0.069	0.45	1.244	-0.008	-0.06
CFD8LM		1.073	-0.056	-0.37	1.213	-0.039	-0.32
CPHGLK		1.409	0.280	1.83	1.488	0.236	1.96
FFYAFR		1.063	-0.066	-0.43	1.180	-0.072	-0.60
KKZQZN		1.050	-0.079	-0.52	1.205	-0.047	-0.39
P6RLJD		1.109	-0.020	-0.13	1.281	0.029	0.24
WQ4RA7		1.386	0.257	1.68	1.440	0.188	1.56
XWP3WA		1.027	-0.102	-0.67	1.198	-0.054	-0.45

Summary Statistics

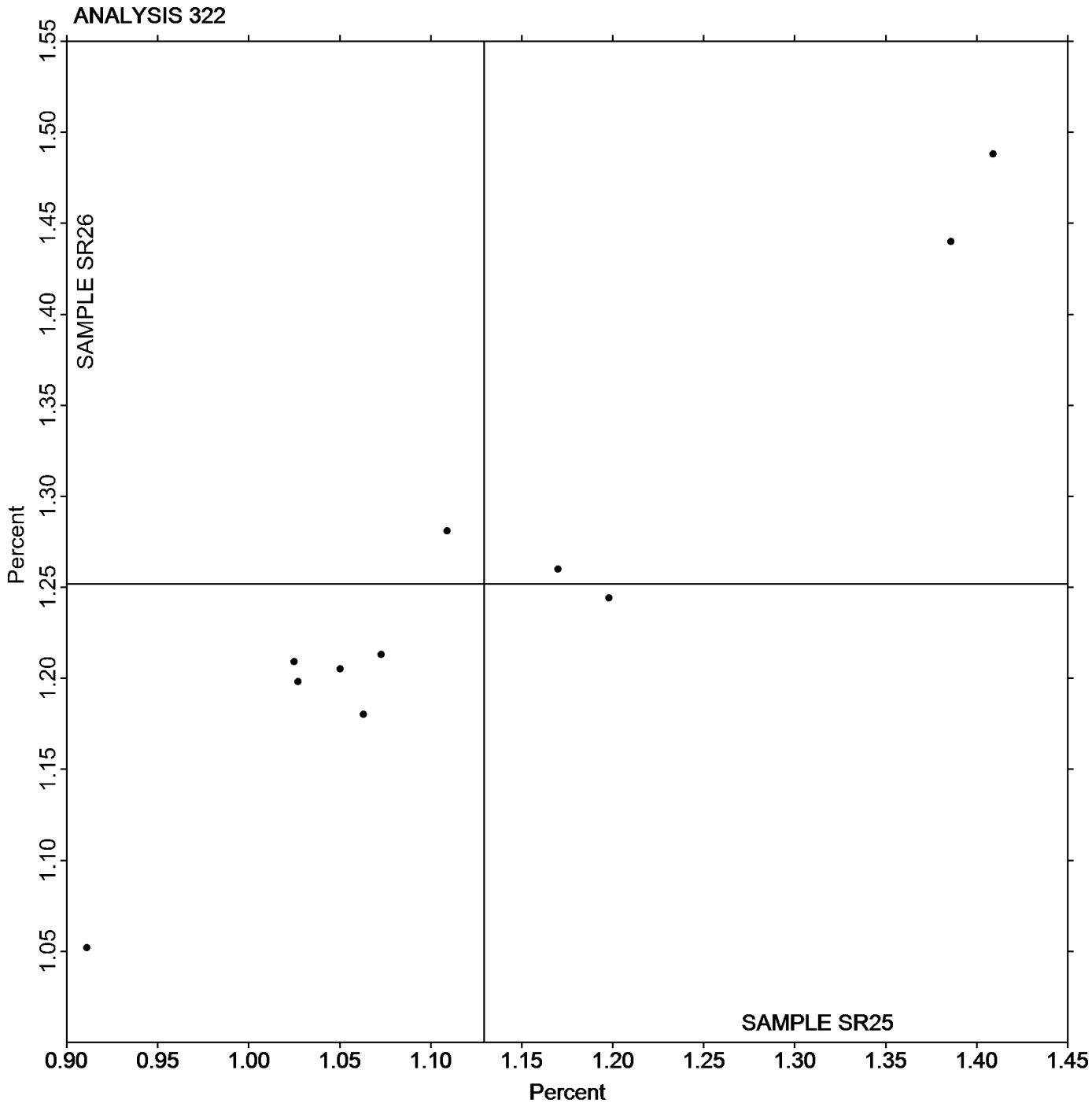
	Sample SR25	Sample SR26
Grand Means	1.1292 Percent	1.2518 Percent
SD Btwn Labs	0.1529 Percent	0.1207 Percent

Statistics based on 11 of 11 reporting participants

TAPPI-CTS Interlaboratory Testing Program
Analysis 322
Elongation to Break - Newsprint

Grand Mean Sample **SR25** = 1.1292 Percent

Grand Mean Sample **SR26** = 1.2518 Percent



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

TAPPI-CTS Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

WebCode	Data Flag	Sample SF25 Lab Mean	Sample SF25 Diff from Grand Mean	Sample SF25 CPV	Sample SF26 Lab Mean	Sample SF26 Diff from Grand Mean	Sample SF26 CPV	Instr Code
3HRJ97		4.751	-0.291	-0.98	4.755	-0.102	-0.35	TB
4NDWMY		4.535	-0.507	-1.70	4.267	-0.589	-2.02	IM
6FHFBZ		5.203	0.161	0.54	4.951	0.094	0.32	TB
77PKNP		4.732	-0.310	-1.04	4.689	-0.168	-0.58	DL
7DRE4Q		5.494	0.452	1.52	5.406	0.550	1.89	LA
8PGQVU		4.681	-0.361	-1.21	4.684	-0.172	-0.59	XX
964TQP		5.440	0.398	1.34	4.996	0.139	0.48	LX
9EQRGU		4.969	-0.073	-0.24	4.776	-0.080	-0.28	LE
AUM7E3		5.177	0.135	0.45	4.925	0.068	0.23	TI
BMGVJU		5.111	0.069	0.23	4.667	-0.189	-0.65	LH
C2CTZJ		5.202	0.160	0.54	5.059	0.203	0.70	TP
CAL2LQ		4.858	-0.184	-0.62	4.668	-0.188	-0.65	TB
DAKNEN		5.067	0.025	0.09	4.832	-0.024	-0.08	LI
FZP93P		4.900	-0.142	-0.48	4.760	-0.096	-0.33	LI
G9F79P		4.917	-0.124	-0.42	4.731	-0.125	-0.43	IM
H69AXK		4.968	-0.074	-0.25	4.765	-0.091	-0.31	TF
HFBR9N		4.541	-0.500	-1.68	4.468	-0.389	-1.33	RE
HXVGMP		4.584	-0.457	-1.54	4.348	-0.509	-1.75	IM
J74C3F		5.500	0.459	1.54	5.318	0.462	1.59	LH
J8YV4G		5.665	0.623	2.09	5.379	0.522	1.79	LH
J9TEAN		5.164	0.122	0.41	4.933	0.076	0.26	LF
JJREMT		5.139	0.097	0.33	4.833	-0.023	-0.08	MR
K8T23M		4.684	-0.358	-1.20	4.642	-0.214	-0.74	ID
KAYJZH	*	4.998	-0.044	-0.15	5.294	0.438	1.50	TJ
LWMFBE		4.999	-0.043	-0.14	4.859	0.002	0.01	LX
MH3FXK		4.901	-0.140	-0.47	4.804	-0.052	-0.18	XX
N38H79		5.208	0.167	0.56	5.145	0.289	0.99	LA
N737MF		4.825	-0.217	-0.73	4.643	-0.213	-0.73	LH
NARDCJ	X	4.139	-0.903	-3.03	4.553	-0.303	-1.04	LH
QPF92F		5.421	0.379	1.27	5.017	0.160	0.55	TO
R7WQA7		4.519	-0.523	-1.76	4.210	-0.646	-2.22	CB
RDTQH8		5.511	0.469	1.58	5.505	0.649	2.23	TX
RT74Y6		5.270	0.228	0.77	4.980	0.124	0.43	XX
T6XA79		4.565	-0.477	-1.60	4.435	-0.421	-1.45	LI
T88ZVC		5.336	0.295	0.99	5.155	0.299	1.02	TB
TUYAWB		4.910	-0.132	-0.44	4.924	0.068	0.23	LH
U6ELND		5.150	0.109	0.37	5.245	0.389	1.33	TJ
UKP884		5.250	0.209	0.70	4.728	-0.128	-0.44	TP
VTF6D3		5.294	0.252	0.85	4.855	-0.002	-0.01	LH
W2PUR2		5.032	-0.009	-0.03	4.966	0.110	0.38	LH
WE9JKC		4.956	-0.086	-0.29	4.717	-0.140	-0.48	LH
WQ9A86		5.068	0.026	0.09	5.072	0.216	0.74	TA
X3U4W4		4.813	-0.229	-0.77	4.610	-0.247	-0.85	LA

TAPPI-CTS Interlaboratory Testing Program
Analysis 325
Tensile Breaking Strength - Printing Papers

WebCode	Data Flag	Sample SF25 Lab Mean	Sample SF25 Diff from Grand Mean	Sample SF25 CPV	Sample SF26 Lab Mean	Sample SF26 Diff from Grand Mean	Sample SF26 CPV	Instr Code
XWP3WA		4.876	-0.166	-0.56	4.694	-0.162	-0.56	LH
YMX7AY		4.933	-0.109	-0.37	4.618	-0.238	-0.82	LI
YQFB33		5.164	0.123	0.41	4.970	0.114	0.39	TO
YRTZ8Z		5.014	-0.027	-0.09	4.596	-0.260	-0.89	TF
ZARCF2		4.945	-0.097	-0.33	4.724	-0.132	-0.45	LH
ZLZZPX		5.372	0.330	1.11	5.099	0.242	0.83	XX
ZTJHL7		4.740	-0.302	-1.01	4.727	-0.130	-0.44	TC
ZY7992		5.733	0.691	2.32	5.377	0.521	1.79	TJ

Summary Statistics

	Sample SF25	Sample SF26
Grand Means	5.0417 kN/m	4.8564 kN/m
SD Btwn Labs	0.2975 kN/m	0.2914 kN/m

Statistics based on 50 of 51 reporting participants

Comments on assigned Data Flags for Test #325

NARDCJ (X) - Inconsistent in testing between samples, data for Sample SF25 are low.

Instrument Code List

(CB) - Chatillon DFIS 50 (Digital Gauge)/TCD 200
(DL) - EMIC DL500 Universal Testing Machines
(ID) - Instron 4201/4202
(IM) - Instron 5500 Series
(LA) - L & W Tensile - Autoline 300
(LE) - L & W Tensile Tester 066
(LF) - L & W Tensile/Fracture Toughness Tester SE 064
(LH) - L & W Alwetron TH1 (Horizontal) SE 060/065F
(LI) - L & W Tensile Tester SE 062
(LX) - L & W (model not specified)
(MR) - MTS Alliance RT series
(RE) - Regmed
(TA) - Testometric AX
(TB) - Thwing-Albert EJA/1000
(TC) - Thwing-Albert Electro-Hydraulic, Model 30LT
(TF) - Thwing-Albert EJA Vantage-1
(TI) - Thwing-Albert QC II
(TJ) - Thwing-Albert QC II-XS
(TO) - Thwing-Albert QC-1000
(TP) - TMI Monitor/Tensile 100 (84-21-01)
(TX) - Thwing-Albert (model not specified)
(XX) - Instrument make/model not specified by lab

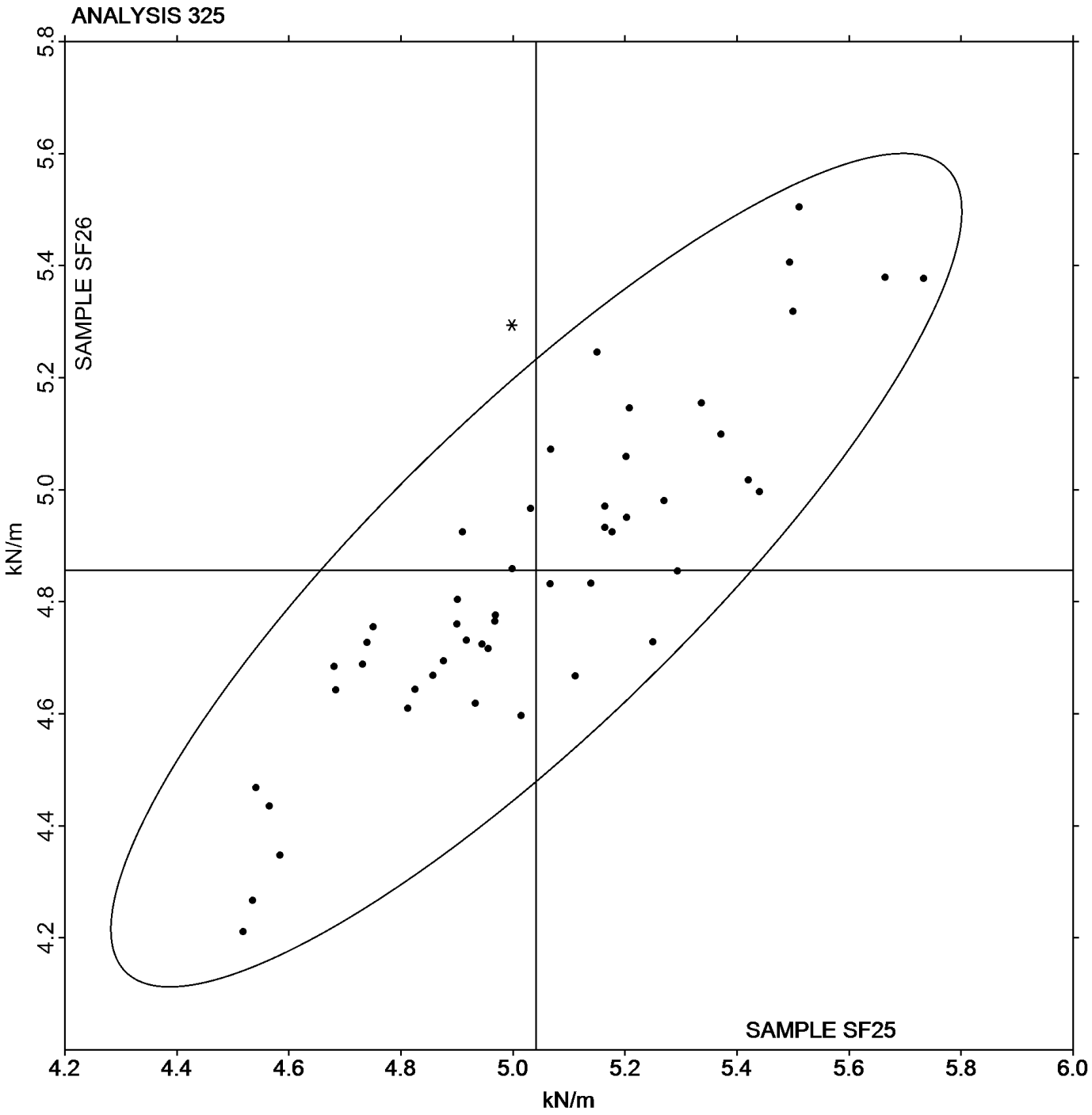
TAPPI-CTS Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

Grand Mean Sample **SF25** = 5.0417 kN/m

Grand Mean Sample **SF26** = 4.8564 kN/m



TAPPI-CTS Interlaboratory Testing Program
Analysis 327
Tensile Energy Absorption - Printing Papers

WebCode	Data Flag	Sample SF25 Lab Mean	Sample SF25 Diff from Grand Mean	Sample SF25 CPV	Sample SF26 Lab Mean	Sample SF26 Diff from Grand Mean	Sample SF26 CPV	Instr Code
3HRJ97		54.81	2.20	0.36	77.34	9.12	1.14	TB
4NDWMY		51.79	-0.83	-0.13	58.54	-9.68	-1.21	IM
77PKNP		51.20	-1.41	-0.23	71.53	3.31	0.41	DL
8PGQVU		63.70	11.08	1.80	87.91	19.69	2.45	XX
964TQP		54.16	1.54	0.25	67.31	-0.91	-0.11	LX
AUM7E3		57.65	5.03	0.81	71.66	3.44	0.43	TI
BMGVJU		49.87	-2.75	-0.45	55.88	-12.33	-1.54	LH
C2CTZJ	X	1.09	-51.53	-8.35	1.40	-66.82	-8.32	TP
DAKNEN		54.83	2.21	0.36	67.22	-1.00	-0.12	LI
FZP93P		52.49	-0.13	-0.02	66.18	-2.03	-0.25	LI
G9F79P		51.76	-0.85	-0.14	67.47	-0.75	-0.09	IM
H69AXK		60.38	7.77	1.26	74.18	5.97	0.74	TF
HFBR9N		44.96	-7.66	-1.24	64.96	-3.25	-0.41	RE
HXVGMP		52.30	-0.32	-0.05	61.48	-6.74	-0.84	IM
J74C3F		49.74	-2.88	-0.47	69.53	1.31	0.16	LH
J9TEAN		41.88	-10.73	-1.74	57.35	-10.86	-1.35	LW
JJREMT		47.39	-5.23	-0.85	57.13	-11.09	-1.38	MR
K8T23M	X	256.46	203.84	33.03	339.80	271.58	33.83	ID
LWMFBE		54.86	2.24	0.36	71.01	2.80	0.35	LX
MH3FXK	M	No data reported for this sample			72.35	4.14	0.52	XX
N38H79		55.12	2.50	0.41	75.50	7.28	0.91	LA
N737MF		53.51	0.89	0.14	65.74	-2.48	-0.31	LH
NARDCJ	*	42.75	-9.87	-1.60	70.59	2.37	0.30	LH
QPF92F		48.87	-3.75	-0.61	60.54	-7.67	-0.96	TO
RDTQH8		44.96	-7.66	-1.24	60.40	-7.81	-0.97	TP
T6XA79		49.00	-3.62	-0.59	65.68	-2.54	-0.32	LI
T88ZVC		60.96	8.34	1.35	81.86	13.65	1.70	TB
TUYAWB		46.22	-6.40	-1.04	67.35	-0.87	-0.11	LH
VTF6D3		58.29	5.67	0.92	73.27	5.06	0.63	LH
W2PUR2		56.01	3.39	0.55	75.17	6.96	0.87	LH
WE9JKC		51.09	-1.53	-0.25	63.80	-4.41	-0.55	LH
X3U4W4		41.68	-10.94	-1.77	53.47	-14.74	-1.84	LA
XWP3WA	X	10.10	-42.52	-6.89	9.64	-58.57	-7.30	LH
YMX7AY		52.81	0.19	0.03	65.49	-2.73	-0.34	LI
YQFB33		66.84	14.22	2.30	82.75	14.53	1.81	TO
ZARCF2		48.09	-4.53	-0.73	61.56	-6.66	-0.83	LH
ZLZZPX		55.95	3.33	0.54	74.15	5.93	0.74	LX
ZY7992		63.12	10.50	1.70	75.35	7.13	0.89	TJ

TAPPI-CTS Interlaboratory Testing Program
Analysis 327
Tensile Energy Absorption - Printing Papers

Summary Statistics

	Sample SF25	Sample SF26
Grand Means	52.618 Joules/sq m	68.217 Joules/sq m
SD Btwn Labs	6.171 Joules/sq m	8.027 Joules/sq m

Statistics based on 34 of 38 reporting participants

Comments on assigned Data Flags for Test #327

C2CTZJ (X) - Extreme data.

K8T23M (X) - Extreme data.

MH3FXK (M) - No data for Sample SF25.

XWP3WA (X) - Extreme data.

Analysis Notes:

HXVGMP - One determination removed from the Lab Mean of Sample SF25 per Grubb's Test at 1% risk (TAPPI 1205).

Instrument Code List

(DL) - EMIC DL500 Universal Testing Machines

(ID) - Instron 4201

(IM) - Instron 5500 Series

(LA) - L & W Tensile - Autoline 300

(LH) - L & W Alwetron TH1 (Horizontal) SE 060

(LI) - L & W Tensile Tester SE 062

(LW) - L & W Tensile Tester SE 064

(LX) - L & W (model not specified)

(MR) - MTS Alliance RT series

(RE) - Regmed

(TB) - Thwing-Albert EJA/1000

(TF) - Thwing-Albert EJA Vantage-1

(TI) - Thwing-Albert QC II

(TJ) - Thwing-Albert QC II-XS

(TO) - Thwing-Albert QC-1000

(TP) - TMI Monitor/Tensile 100 (84-21-01)

(XX) - Instrument make/model not specified by lab

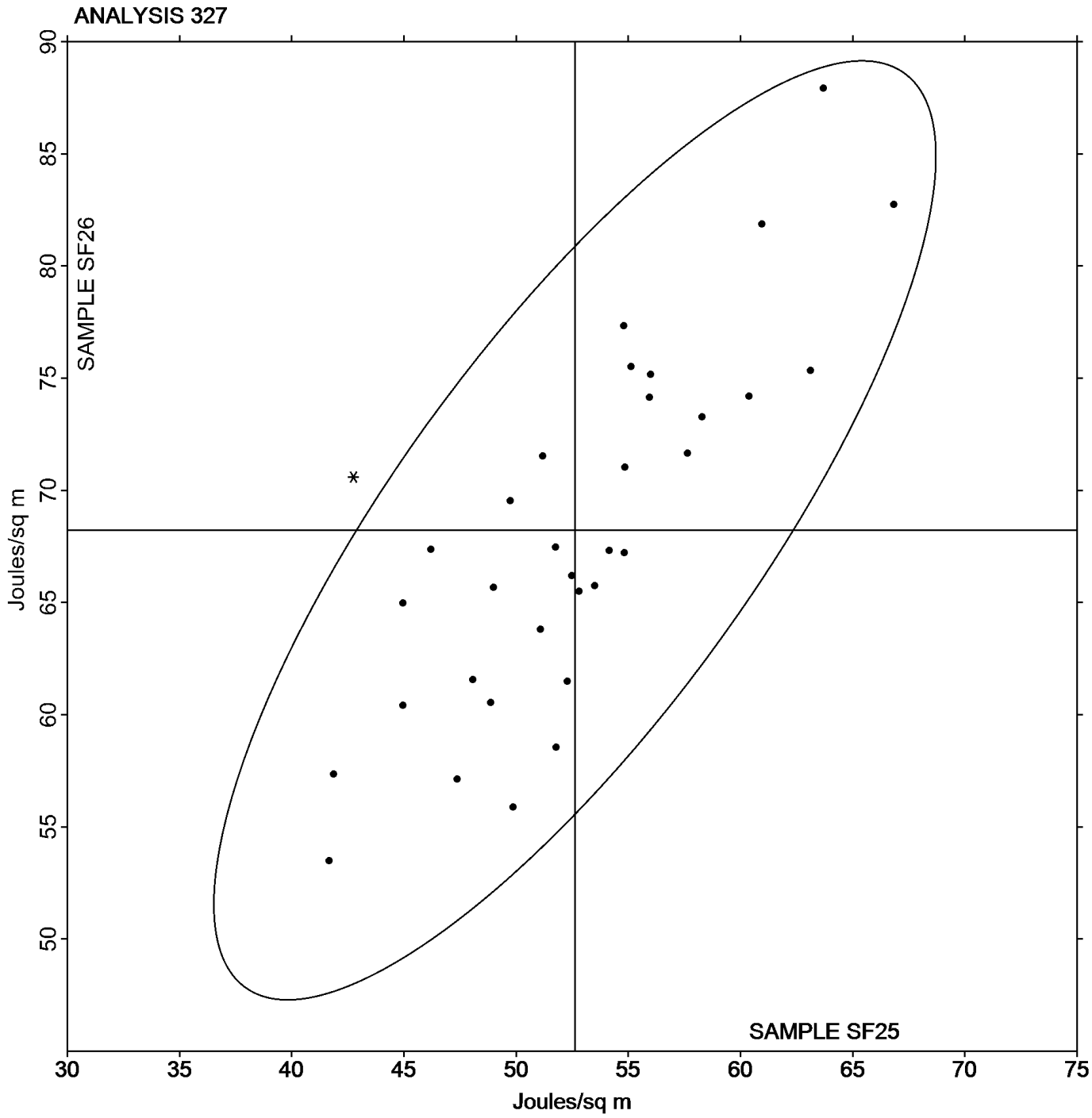
TAPPI-CTS Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

Grand Mean Sample **SF25** = 52.618 Joules/sq m

Grand Mean Sample **SF26** = 68.217 Joules/sq m



TAPPI-CTS Interlaboratory Testing Program
Analysis 328
Elongation to Break - Printing Papers

WebCode	Data Flag	Sample SF25 Lab Mean	Sample SF25 Diff from Grand Mean	Sample SF25 CPV	Sample SF26 Lab Mean	Sample SF26 Diff from Grand Mean	Sample SF26 CPV	Instr Code
3HRJ97		1.865	0.216	1.30	2.490	0.389	1.98	TB
4NDWMY	*	1.993	0.344	2.07	2.275	0.174	0.88	XX
6FHFBZ		1.664	0.016	0.10	2.087	-0.014	-0.07	TB
77PKNP		1.695	0.047	0.28	2.271	0.170	0.86	DL
8PGQVU		2.058	0.410	2.46	2.521	0.420	2.13	XX
964TQP		1.564	-0.084	-0.51	2.044	-0.057	-0.29	LX
AUM7E3		1.748	0.100	0.60	2.180	0.079	0.40	TI
BMGVJU		1.406	-0.242	-1.46	1.679	-0.422	-2.15	LH
C2CTZJ	X	3.904	2.256	13.56	4.552	2.451	12.46	TP
CAL2LQ		1.720	0.072	0.43	2.170	0.069	0.35	TF
DAKNEN		1.661	0.013	0.08	2.053	-0.048	-0.25	LI
FZP93P		1.648	0.000	0.00	2.053	-0.048	-0.25	LI
G9F79P		1.646	-0.002	-0.01	2.130	0.029	0.15	IM
H69AXK		1.939	0.290	1.75	2.358	0.257	1.30	TF
HFBR9N		1.739	0.091	0.55	2.271	0.169	0.86	RE
HXVGMP		1.693	0.045	0.27	2.096	-0.006	-0.03	IM
J74C3F		1.420	-0.228	-1.37	1.933	-0.168	-0.86	LH
J9TEAN		1.323	-0.325	-1.96	1.756	-0.345	-1.76	LX
JJREMT		1.483	-0.165	-0.99	1.791	-0.310	-1.58	MR
K8T23M		1.734	0.085	0.51	2.239	0.137	0.70	ID
KAYJZH	*	1.780	0.132	0.79	1.920	-0.181	-0.92	LH
LWMFBE		1.663	0.015	0.09	2.138	0.037	0.19	LX
MH3FXK		1.755	0.107	0.64	2.230	0.129	0.65	XX
N38H79		1.525	-0.123	-0.74	2.034	-0.067	-0.34	LA
N737MF		1.706	0.058	0.35	2.107	0.006	0.03	LH
NARDCJ	*	1.568	-0.080	-0.48	2.294	0.193	0.98	LH
QPF92F		1.380	-0.268	-1.61	1.755	-0.346	-1.76	TG
RDTQH8		1.366	-0.282	-1.70	1.727	-0.374	-1.90	TX
T6XA79		1.629	-0.019	-0.12	2.178	0.077	0.39	LI
T88ZVC		1.787	0.139	0.83	2.390	0.289	1.47	TB
TUYAWB		1.459	-0.189	-1.14	2.032	-0.069	-0.35	LH
VTF6D3		1.674	0.026	0.15	2.220	0.119	0.60	LH
W2PUR2		1.692	0.044	0.26	2.214	0.113	0.57	LH
WE9JKC		1.589	-0.059	-0.36	2.002	-0.099	-0.51	LH
X3U4W4		1.585	-0.063	-0.38	2.046	-0.055	-0.28	LA
XWP3WA		1.565	-0.083	-0.50	1.987	-0.114	-0.58	LH
YMX7AY		1.655	0.007	0.04	2.110	0.009	0.04	LI
YQFB33	X	2.302	0.654	3.93	2.805	0.704	3.58	TO
YRTZ8Z		1.790	0.142	0.85	2.210	0.109	0.55	TF
ZARCF2		1.445	-0.203	-1.22	1.874	-0.227	-1.16	LH
ZLZZPX		1.529	-0.119	-0.72	2.053	-0.048	-0.25	LX
ZY7992		1.794	0.146	0.88	2.140	0.039	0.20	TJ

TAPPI-CTS Interlaboratory Testing Program
Analysis 328
Elongation to Break - Printing Papers

Summary Statistics

	Sample SF25	Sample SF26
Grand Means	1.6483 Percent	2.1014 Percent
SD Btwn Labs	0.1663 Percent	0.1967 Percent

Statistics based on 40 of 42 reporting participants

Comments on assigned Data Flags for Test #328

C2CTZJ (X) - Extreme data.

YQFB33 (X) - Systematic error (data for both samples are high).

Instrument Code List

(DL) - EMIC DL500 Universal Testing Machines
(ID) - Instron 4201
(IM) - Instron 5500
(LA) - L & W Tensile - Autoline 300
(LH) - L & W Alwetron TH1 (Horizontal) SE 060
(LI) - L & W Tensile Tester SE 062
(LX) - L & W (model not specified)
(MR) - MTS Alliance RT series
(RE) - Regmed
(TB) - Thwing-Albert EJA/1000
(TF) - Thwing-Albert EJA Vantage-1
(TG) - Thwing-Albert QC
(TI) - Thwing-Albert QC II
(TJ) - Thwing-Albert QC II-XS
(TO) - Thwing-Albert QC-1000
(TP) - TMI Monitor/Tensile 100 (84-21-01)
(TX) - Thwing-Albert (model not specified)
(XX) - Instrument make/model not specified by lab

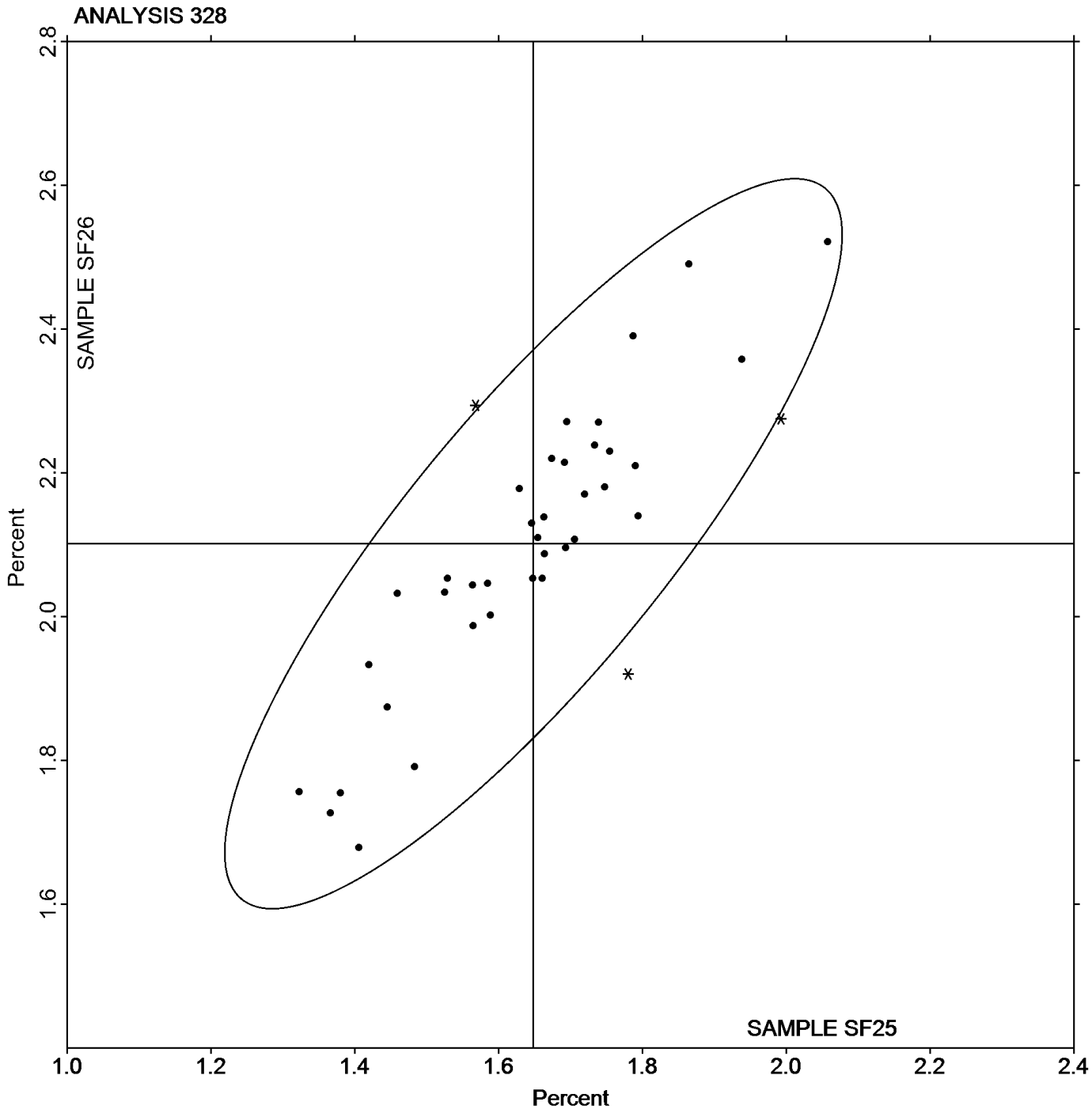
TAPPI-CTS Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

Grand Mean Sample **SF25** = 1.6483 Percent

Grand Mean Sample **SF26** = 2.1014 Percent



TAPPI-CTS Interlaboratory Testing Program
Analysis 330
Tensile Breaking Strength - Packaging Papers

WebCode	Data Flag	Sample SE25 Lab Mean	Sample SE25 Diff from Grand Mean	Sample SE25 CPV	Sample SE26 Lab Mean	Sample SE26 Diff from Grand Mean	Sample SE26 CPV	Instr Code
2ZV2E6		8.114	-1.048	-1.61	10.03	-0.85	-1.04	LI
68LK9V		8.512	-0.649	-1.00	10.20	-0.68	-0.83	IM
6YRB6R		9.205	0.043	0.07	10.80	-0.08	-0.09	SP
7JUJXV		8.632	-0.529	-0.81	9.83	-1.05	-1.28	LA
7MUUTV		8.672	-0.489	-0.75	10.35	-0.53	-0.65	LW
7QDQEZ		8.992	-0.169	-0.26	10.45	-0.42	-0.52	TP
7TK9DW		8.979	-0.182	-0.28	10.72	-0.15	-0.18	TH
84VXRR		9.438	0.276	0.42	11.34	0.46	0.57	TX
AH8H2V		9.334	0.173	0.27	11.03	0.16	0.19	TO
B7UB6V		9.334	0.173	0.27	10.65	-0.22	-0.27	TO
BKRMDY		8.782	-0.379	-0.58	10.21	-0.67	-0.82	XX
BRAV2W		10.611	1.450	2.23	12.39	1.51	1.86	LA
CJR22K		9.561	0.399	0.61	11.38	0.51	0.62	IF
CKQA7X		8.802	-0.359	-0.55	10.39	-0.48	-0.59	TK
CL6CEQ	*	8.669	-0.493	-0.76	10.84	-0.03	-0.04	IF
D8VF9U		9.988	0.826	1.27	12.10	1.23	1.51	TP
DEFHCQ		9.424	0.262	0.40	11.19	0.32	0.39	XX
ED2BRU		8.709	-0.452	-0.70	10.16	-0.72	-0.88	SA
F4NJXP		9.942	0.780	1.20	11.62	0.75	0.92	TO
FYZYWV		9.787	0.626	0.96	11.46	0.59	0.72	TO
GE6QAJ		7.642	-1.519	-2.34	8.84	-2.03	-2.49	ID
H6DRWJ		9.869	0.708	1.09	11.90	1.03	1.26	LA
H79B3R		9.221	0.060	0.09	10.89	0.02	0.02	LE
HFVBFF		9.541	0.379	0.58	11.32	0.44	0.54	TA
HRMVYR		9.349	0.187	0.29	10.97	0.10	0.12	IM
HUC46M		8.912	-0.250	-0.38	10.48	-0.39	-0.48	ID
J8XV9M		8.131	-1.031	-1.59	9.64	-1.23	-1.51	LW
JLC46K		10.038	0.877	1.35	11.96	1.08	1.33	TA
KBDPKE		10.341	1.180	1.82	12.65	1.77	2.17	LA
KXNTJF		7.856	-1.305	-2.01	9.22	-1.66	-2.03	IN
L2HA9F		8.443	-0.719	-1.11	10.23	-0.65	-0.79	TB
L9KCDF		8.571	-0.591	-0.91	10.40	-0.47	-0.58	LH
LGVH9J	*	9.135	-0.027	-0.04	10.22	-0.65	-0.80	IF
N422CG		9.181	0.020	0.03	10.73	-0.14	-0.17	TB
PUA2YG		8.396	-0.766	-1.18	10.16	-0.71	-0.87	XX
QFPMVG		8.993	-0.168	-0.26	10.73	-0.14	-0.18	LE
RAEV2A		9.584	0.423	0.65	11.60	0.73	0.89	IK
RDTQH8		9.530	0.369	0.57	11.37	0.50	0.61	TO
T6GQPG		9.232	0.071	0.11	11.03	0.16	0.19	LH
UEZM79		10.009	0.848	1.30	11.64	0.76	0.93	LE
UK4ULB		9.098	-0.064	-0.10	11.19	0.32	0.39	TK
UY8ZVA		9.368	0.207	0.32	11.17	0.29	0.36	TT
WE9JKC		9.103	-0.058	-0.09	10.96	0.09	0.11	LH

TAPPI-CTS Interlaboratory Testing Program
Analysis 330
Tensile Breaking Strength - Packaging Papers

WebCode	Data Flag	Sample SE25 Lab Mean	Sample SE25 Diff from Grand Mean	Sample SE25 CPV	Sample SE26 Lab Mean	Sample SE26 Diff from Grand Mean	Sample SE26 CPV	Instr Code
WJJUC7		8.870	-0.291	-0.45	10.29	-0.58	-0.72	TP
X4RER7		8.840	-0.321	-0.49	10.32	-0.55	-0.68	LE
YBNDZ8		10.091	0.929	1.43	12.00	1.13	1.38	LA
YFHAPX		9.949	0.788	1.21	12.19	1.32	1.61	TH
YJJ93C		8.795	-0.367	-0.56	10.49	-0.39	-0.47	IM
Z2CTW2		8.427	-0.735	-1.13	9.94	-0.93	-1.14	IK
Z2VGEW		10.069	0.908	1.40	12.04	1.17	1.43	TH

Summary Statistics

	Sample SE25	Sample SE26
Grand Means	9.1614 kN/m	10.874 kN/m
SD Btwn Labs	0.6498 kN/m	0.816 kN/m

Statistics based on 50 of 50 reporting participants

Instrument Code List

(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
(LI) - LLoyds Instruments
(LW) - L & W Tensile Tester SE062
(SA) - Shimadzu Autograph AG 2000 A
(SP) - Schopper Type Tensile Tester (TMI)
(TA) - Thwing-Albert Tensile Tester
(TB) - Thwing-Albert EJA/1000
(TH) - Thwing-Albert QC-3A
(TK) - Thwing-Albert Model 37-4
(TO) - Thwing-Albert QC-1000
(TP) - TMI Monitor/Tensile 100 (84-21-01)
(TT) - Tinius Olsen Model MHT
(TX) - Thwing-Albert (model not specified)
(XX) - Instrument make/model not specified by lab

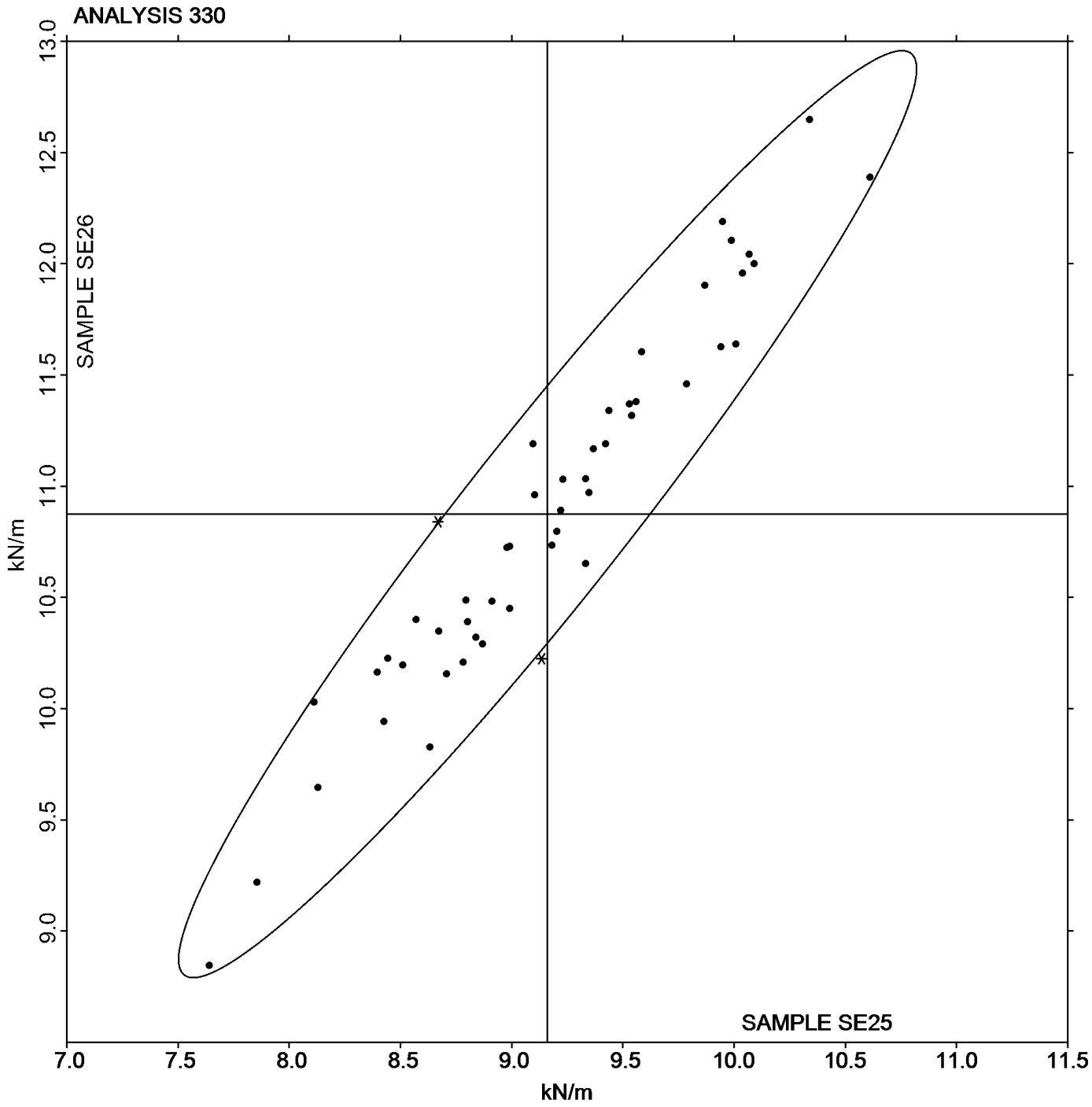
TAPPI-CTS Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

Grand Mean Sample **SE25** = 9.1614 kN/m

Grand Mean Sample **SE26** = 10.874 kN/m



TAPPI-CTS Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

WebCode	Data Flag	Sample SE25 Lab Mean	Sample SE25 Diff from Grand Mean	Sample SE25 CPV	Sample SE26 Lab Mean	Sample SE26 Diff from Grand Mean	Sample SE26 CPV	Instr Code
68LK9V		129.5	-14.3	-1.08	179.4	-18.5	-1.00	IM
7JUJXV		147.5	3.7	0.28	193.7	-4.1	-0.22	LA
7MUUTV		134.2	-9.6	-0.73	185.3	-12.6	-0.68	LW
7TK9DW		135.5	-8.3	-0.63	193.4	-4.4	-0.24	TH
84VXRR		157.5	13.7	1.04	225.1	27.2	1.48	XX
AH8H2V		150.9	7.1	0.54	203.9	6.0	0.33	XX
B7UB6V		152.7	8.9	0.67	201.4	3.5	0.19	TO
BKRMDY		148.3	4.4	0.34	189.3	-8.5	-0.46	XX
BRAV2W		148.1	4.3	0.33	196.8	-1.1	-0.06	LA
CJR22K		145.7	1.9	0.14	192.9	-5.0	-0.27	IN
CKQA7X		146.3	2.5	0.19	197.6	-0.3	-0.01	TK
CL6CEQ	*	138.5	-5.3	-0.40	217.9	20.1	1.09	IF
D8VF9U	X	78.1	-65.7	-4.98	119.1	-78.7	-4.27	TP
DEFHCQ	X	205.9	62.1	4.70	289.2	91.3	4.96	XX
ED2BRU		134.6	-9.2	-0.70	178.7	-19.2	-1.04	SA
F4NJXP		174.7	30.9	2.34	238.2	40.4	2.19	TO
FYZYWV		148.5	4.7	0.36	206.3	8.4	0.46	TO
GE6QAJ	X	90.0	-53.8	-4.07	114.2	-83.7	-4.54	ID
H6DRWJ		144.0	0.2	0.02	202.4	4.5	0.25	LA
H79B3R		138.1	-5.7	-0.43	185.6	-12.3	-0.67	LE
HFVBFF		157.4	13.6	1.03	227.9	30.0	1.63	TA
HRMVYR		145.2	1.4	0.11	193.8	-4.0	-0.22	IM
J8XV9M		125.2	-18.6	-1.41	171.4	-26.5	-1.44	LW
KBDPKE		153.8	10.0	0.76	214.2	16.3	0.89	LA
KXNTJF	X	91.1	-52.7	-3.99	123.8	-74.0	-4.02	IN
L2HA9F		143.0	-0.8	-0.06	197.9	0.0	0.00	TB
L9KCDF		129.9	-13.9	-1.05	175.6	-22.3	-1.21	LH
PUA2YG		125.4	-18.4	-1.40	177.6	-20.3	-1.10	XX
QFPMVG		137.2	-6.6	-0.50	189.0	-8.9	-0.48	LE
RAEV2A		117.3	-26.5	-2.01	176.8	-21.1	-1.14	XX
RDTQH8		157.5	13.7	1.04	210.2	12.3	0.67	TO
T6GQPG		143.0	-0.8	-0.06	199.4	1.6	0.09	LH
UEZM79	X	245.4	101.6	7.70	308.4	110.5	6.00	LE
UY8ZVA	X	231.3	87.5	6.63	320.1	122.2	6.63	TT
WE9JKC		133.4	-10.4	-0.79	195.9	-1.9	-0.11	LH
WJJUC7		130.8	-13.0	-0.98	175.3	-22.6	-1.22	TP
X4RER7		134.0	-9.8	-0.74	174.7	-23.2	-1.26	LE
YBNDZ8		145.0	1.2	0.09	189.9	-8.0	-0.43	LA
YFHAPX		163.8	20.0	1.52	237.7	39.8	2.16	TH
YJJ93C		132.4	-11.4	-0.86	186.1	-11.8	-0.64	IM
Z2CTW2		149.5	5.7	0.43	206.0	8.2	0.44	IK
Z2VGEW	*	178.5	34.7	2.63	235.7	37.9	2.06	TH

TAPPI-CTS Interlaboratory Testing Program
Analysis 331
Tensile Energy Absorption - Packaging Papers

Summary Statistics

	Sample SE25	Sample SE26
Grand Means	143.80 Joules/sq m	197.86 Joules/sq m
SD Btwn Labs	13.20 Joules/sq m	18.42 Joules/sq m

Statistics based on 36 of 42 reporting participants

Comments on assigned Data Flags for Test #331

D8VF9U (X) - Systematic error (data for both samples are low).

DEFHCQ (X) - Systematic error (data for both samples are high).

GE6QAJ (X) - Systematic error (data for both samples are low). Inconsistent in testing within the determinations for both samples.

KXNTJF (X) - Systematic error (data for both samples are low).

UEZM79 (X) - Extreme data.

UY8ZVA (X) - Extreme data.

Instrument Code List

(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
(SA) - Shimadzu Autograph AG 2000 A
(TA) - Thwing-Albert Tensile Tester
(TB) - Thwing-Albert EJA/1000
(TH) - Thwing-Albert QC-3A
(TK) - Thwing-Albert Model 37-4
(TO) - Thwing-Albert QC-1000
(TP) - TMI Monitor/Tensile 100 (84-21-01)
(TT) - Tinius Olsen Model MHT
(XX) - Instrument make/model not specified by lab

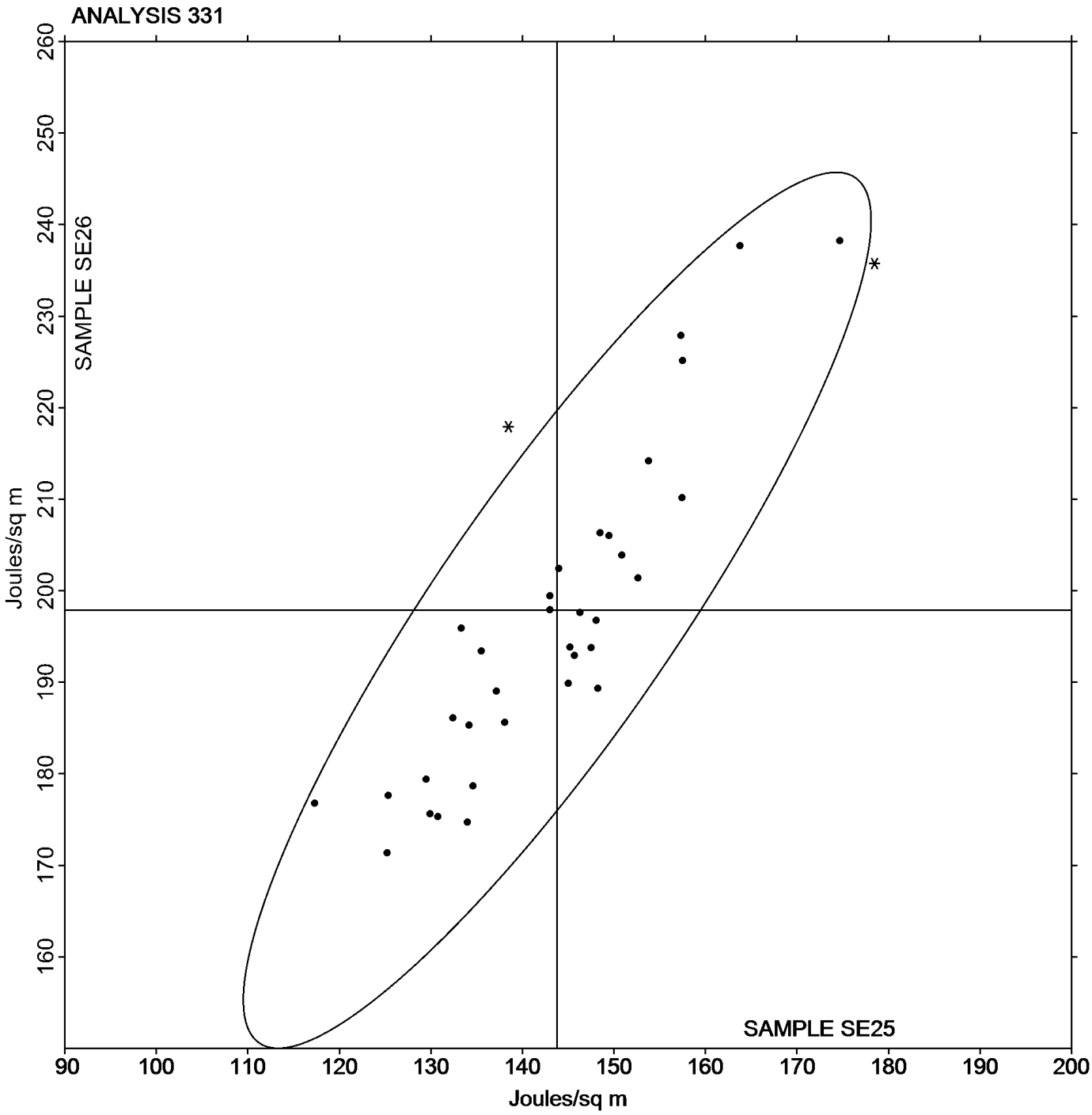
TAPPI-CTS Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

Grand Mean Sample **SE25** = 143.80 Joules/sq m

Grand Mean Sample **SE26** = 197.86 Joules/sq m



TAPPI-CTS Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

WebCode	Data Flag	Sample SE25 Lab Mean	Sample SE25 Diff from Grand Mean	Sample SE25 CPV	Sample SE26 Lab Mean	Sample SE26 Diff from Grand Mean	Sample SE26 CPV	Instr Code
68LK9V		2.361	-0.014	-0.06	2.712	0.024	0.09	IM
7JUJXV		2.162	-0.213	-0.96	2.455	-0.233	-0.88	LA
7MUUTV		2.271	-0.104	-0.47	2.595	-0.093	-0.35	LW
7TK9DW		2.506	0.131	0.59	2.885	0.197	0.74	TH
84VXRR		2.674	0.299	1.34	3.043	0.355	1.34	XX
AH8H2V		2.600	0.225	1.01	2.910	0.222	0.84	XX
B7UB6V	X	3.294	0.919	4.11	3.654	0.966	3.65	TO
BKRMDY		2.551	0.176	0.79	2.780	0.092	0.35	XX
BRAV2W		2.061	-0.314	-1.41	2.321	-0.367	-1.39	XX
CJR22K		2.294	-0.081	-0.36	2.533	-0.156	-0.59	IN
CKQA7X		2.506	0.130	0.58	2.852	0.163	0.62	TK
CL6CEQ		2.592	0.217	0.97	3.083	0.395	1.49	IF
D8VF9U		2.641	0.266	1.19	3.138	0.450	1.70	TP
DEFHCQ	X	3.268	0.892	4.00	3.823	1.135	4.29	XX
ED2BRU		2.348	-0.027	-0.12	2.653	-0.035	-0.13	SA
F4NJXP		2.766	0.391	1.75	3.151	0.463	1.75	TO
FYZYWV		2.280	-0.095	-0.43	2.638	-0.050	-0.19	TO
GE6QAJ		1.916	-0.459	-2.06	2.141	-0.547	-2.07	ID
H6DRWJ		2.092	-0.283	-1.27	2.418	-0.270	-1.02	LA
H79B3R		2.215	-0.160	-0.72	2.507	-0.181	-0.69	LE
HFVBFF		2.442	0.067	0.30	2.906	0.218	0.82	TA
HRMVYR		2.352	-0.023	-0.10	2.628	-0.060	-0.23	IM
HUC46M		2.321	-0.054	-0.24	2.642	-0.046	-0.18	ID
J8XV9M		2.287	-0.088	-0.40	2.615	-0.073	-0.28	LW
KBDPKE		2.151	-0.224	-1.00	2.370	-0.318	-1.20	LA
KXNTJF		1.950	-0.425	-1.90	2.220	-0.468	-1.77	IN
L2HA9F		2.610	0.235	1.05	2.860	0.172	0.65	TB
L9KCDF		2.241	-0.134	-0.60	2.459	-0.229	-0.87	LH
N422CG		2.422	0.047	0.21	2.751	0.063	0.24	TB
PUA2YG		2.208	-0.167	-0.75	2.564	-0.124	-0.47	XX
QFPMVG		2.271	-0.104	-0.47	2.589	-0.099	-0.38	LE
RAEV2A	X	1.584	-0.791	-3.54	1.994	-0.694	-2.63	XX
RDTQH8		2.540	0.165	0.74	2.799	0.111	0.42	TO
T6GQPG		2.301	-0.074	-0.33	2.618	-0.070	-0.27	LH
UEZM79		2.363	-0.012	-0.06	2.546	-0.142	-0.54	LE
UY8ZVA		2.277	-0.099	-0.44	2.587	-0.102	-0.38	XX
WE9JKC		2.186	-0.189	-0.85	2.587	-0.101	-0.38	LH
WJJUC7	*	2.783	0.408	1.83	2.982	0.294	1.11	TP
X4RER7		2.220	-0.155	-0.70	2.466	-0.222	-0.84	LE
YBNDZ8		2.087	-0.288	-1.29	2.288	-0.400	-1.51	LA
YFHAPX		2.517	0.142	0.63	2.708	0.020	0.07	TH
YJJ93C		2.539	0.164	0.73	2.898	0.210	0.79	IM
Z2CTW2		2.720	0.344	1.54	3.171	0.482	1.83	IK

TAPPI-CTS Interlaboratory Testing Program
Analysis 332
Elongation to Break - Packaging Papers

WebCode	Data Flag	Sample SE25 Lab Mean	Sample SE25 Diff from Grand Mean	Sample SE25 CPV	Sample SE26 Lab Mean	Sample SE26 Diff from Grand Mean	Sample SE26 CPV	Instr Code
Z2VGEW		2.766	0.391	1.75	3.158	0.470	1.78	TH

Summary Statistics

	Sample SE25	Sample SE26
Grand Means	2.3753 Percent	2.6885 Percent
SD Btwn Labs	0.2233 Percent	0.2643 Percent

Statistics based on 41 of 44 reporting participants

Comments on assigned Data Flags for Test #332

B7UB6V (X) - Systematic error (data for both samples are high).

DEFHCQ (X) - Systematic error (data for both samples are high).

RAEV2A (X) - Inconsistent in testing between samples, data for Sample SE25 are low.

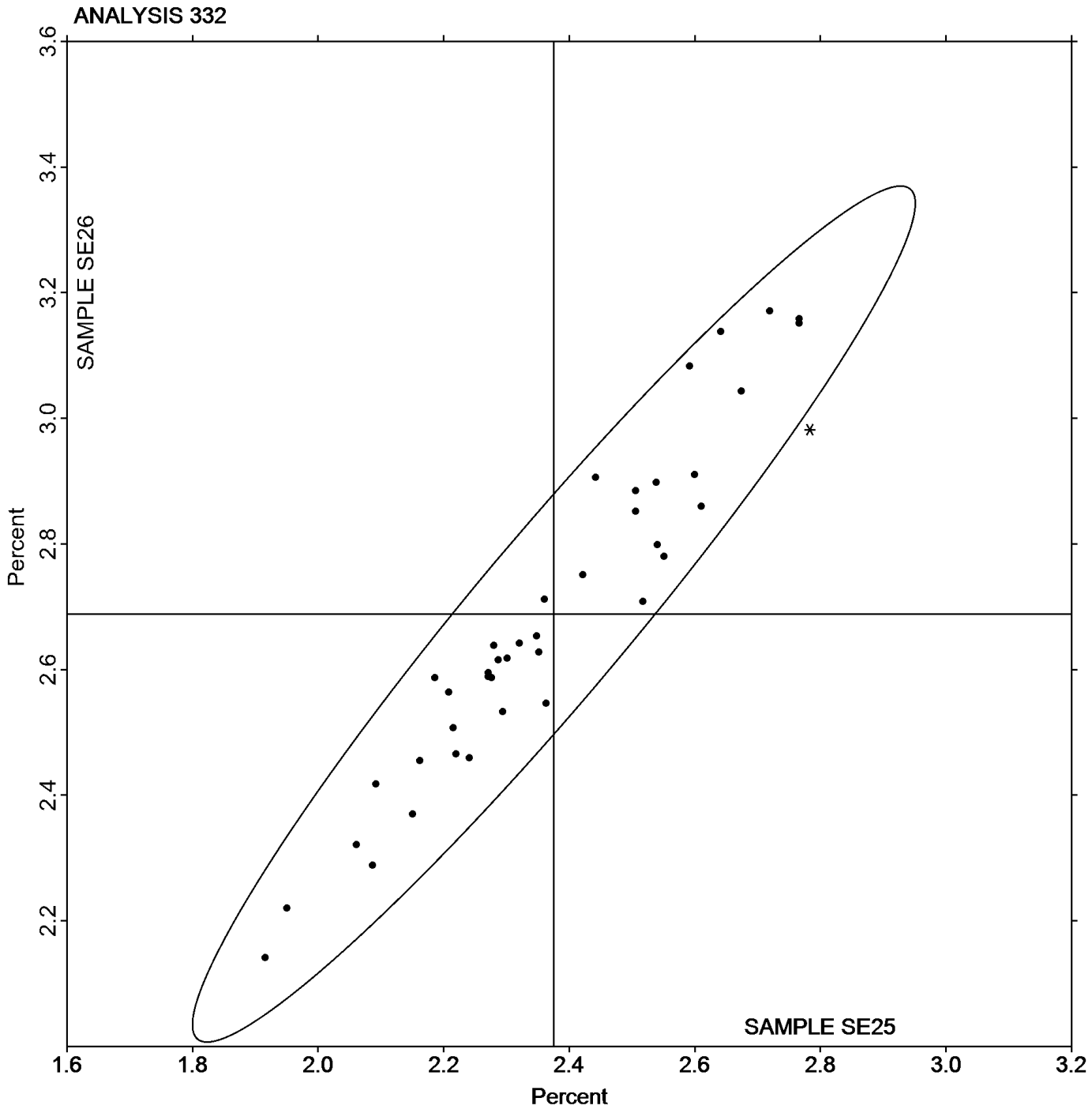
Instrument Code List

(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
(SA) - Shimadzu Autograph AG 2000 A
(TA) - Thwing-Albert Tensile Tester
(TB) - Thwing-Albert EJA/1000
(TH) - Thwing-Albert QC-3A
(TK) - Thwing-Albert Model 37-4
(TO) - Thwing-Albert QC-1000
(TP) - TMI Monitor/Tensile 100 (84-21-01)
(XX) - Instrument make/model not specified by lab

TAPPI-CTS Interlaboratory Testing Program
Analysis 332
Elongation to Break - Packaging Papers

Grand Mean Sample **SE25** = 2.3753 Percent

Grand Mean Sample **SE26** = 2.6885 Percent



TAPPI-CTS Interlaboratory Testing Program
Analysis 334
Folding Endurance (MIT) - Double Folds

WebCode	Data Flag	Sample SG25 Lab Mean	Sample SG25 Diff from Grand Mean	Sample SG25 CPV	Sample SG26 Lab Mean	Sample SG26 Diff from Grand Mean	Sample SG26 CPV	Instr Code
4NDWMY		39.60	-2.79	-0.19	59.80	10.72	1.10	MT
7MUUTV		32.20	-10.19	-0.68	35.90	-13.18	-1.35	MT
7QDQEZ		12.60	-29.79	-1.99	40.10	-8.98	-0.92	MT
9EQRGU		49.40	7.01	0.47	60.30	11.22	1.15	MT
BKRMDY		44.20	1.81	0.12	44.90	-4.18	-0.43	MT
EFMZAL		64.30	21.91	1.47	61.00	11.92	1.22	MT
HXVGMP		55.80	13.41	0.90	59.80	10.72	1.10	MT
JVHBKK		49.30	6.91	0.46	41.90	-7.18	-0.74	XX
K8T23M		36.60	-5.79	-0.39	45.60	-3.48	-0.36	MT
KAYJZH		57.60	15.21	1.02	52.60	3.52	0.36	MT
N422CG		31.50	-10.89	-0.73	46.30	-2.78	-0.28	MT
U6ELND		17.80	-24.59	-1.64	46.70	-2.38	-0.24	XX
UK4ULB		31.60	-10.79	-0.72	30.40	-18.68	-1.92	MT
YBNDZ8		42.90	0.51	0.03	48.80	-0.28	-0.03	XX
YMX7AY		65.00	22.61	1.51	53.80	4.72	0.48	MT
YRTZ8Z		35.50	-6.89	-0.46	41.90	-7.18	-0.74	MT
ZV684X		54.80	12.41	0.83	64.50	15.42	1.58	MT

Summary Statistics

	Sample SG25	Sample SG26
Grand Means	42.394 Double Folds	49.076 Double Folds
SD Btwn Labs	14.951 Double Folds	9.746 Double Folds

Statistics based on 17 of 17 reporting participants

Instrument Code List

(MT) - MIT - Tinius Olsen

(XX) - Instrument make/model not specified by lab

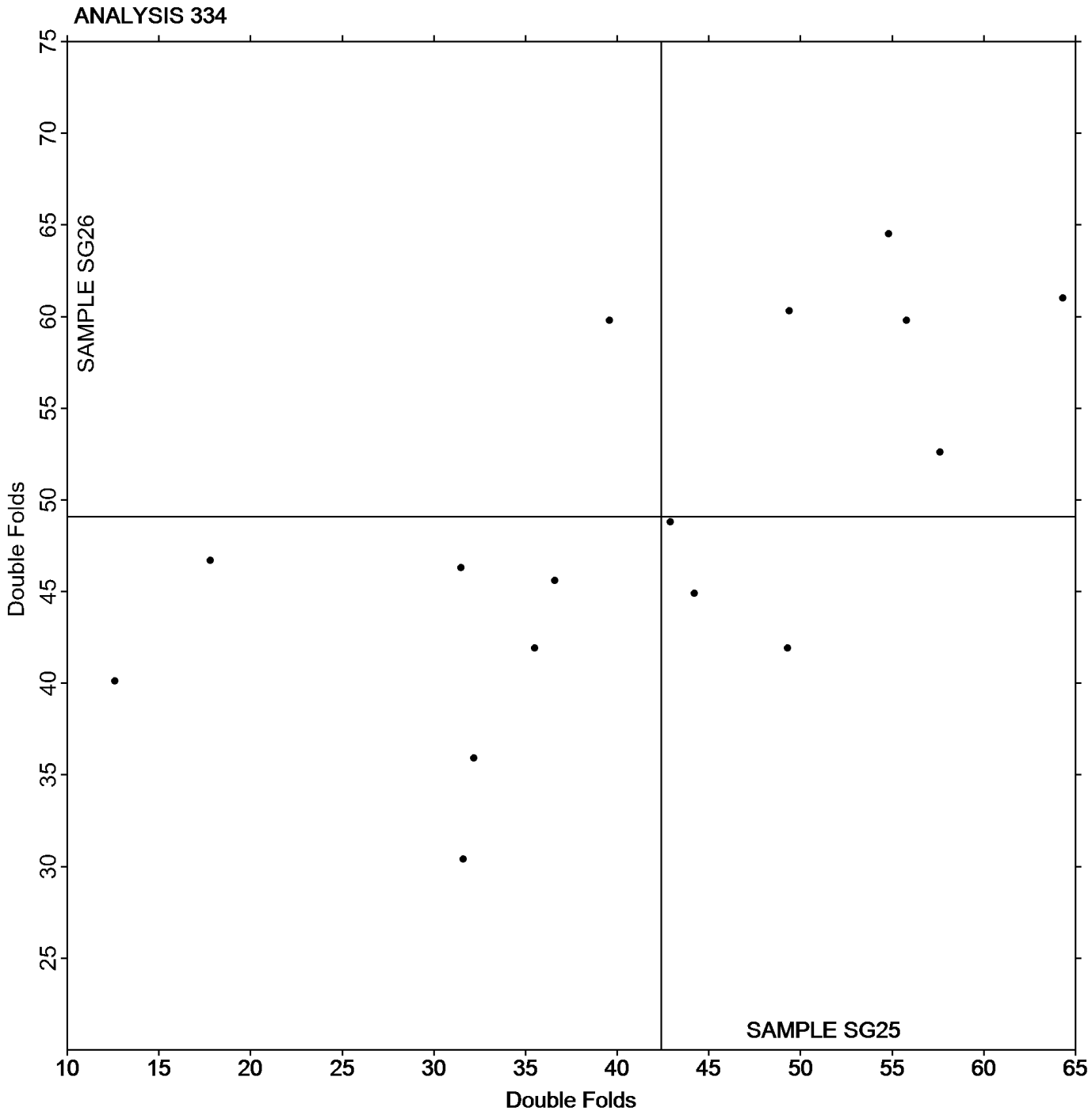
TAPPI-CTS Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

Grand Mean Sample **SG25** = 42.394 Double Folds

Grand Mean Sample **SG26** = 49.076 Double Folds



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 336
Bending Resistance, Gurley Type

WebCode	Data Flag	Sample SH25 Lab Mean	Sample SH25 Diff from Grand Mean	Sample SH25 CPV	Sample SH26 Lab Mean	Sample SH26 Diff from Grand Mean	Sample SH26 CPV
3U6Q67	X	70.6	-279.2	-7.66	117.9	-447.4	-8.23
6FHFBZ		374.7	25.0	0.68	601.6	36.3	0.67
AUM7E3		326.5	-23.3	-0.64	513.4	-51.9	-0.95
B7UB6V		383.7	33.9	0.93	623.4	58.1	1.07
BKRMDY		367.2	17.4	0.48	572.8	7.5	0.14
C2W9GL		375.6	25.8	0.71	595.6	30.4	0.56
CL6CEQ		412.9	63.2	1.73	641.6	76.3	1.40
EBUTUX		335.6	-14.2	-0.39	547.2	-18.1	-0.33
HXVGMP		342.3	-7.5	-0.21	555.3	-9.9	-0.18
J74C3F		384.0	34.3	0.94	607.2	41.9	0.77
J8YV4G		256.1	-93.7	-2.57	425.1	-140.2	-2.58
JJREMT		327.5	-22.3	-0.61	515.0	-50.2	-0.92
KAYJZH		349.3	-0.4	-0.01	547.4	-17.9	-0.33
LPRDBN		341.8	-7.9	-0.22	562.8	-2.5	-0.05
N422CG		359.6	9.8	0.27	620.5	55.2	1.02
NARDCJ	X	42.8	-307.0	-8.42	70.6	-494.7	-9.10
X3U4W4		377.4	27.6	0.76	619.4	54.1	1.00
YQFB33		310.8	-39.0	-1.07	536.7	-28.6	-0.53
ZTJHL7		320.9	-28.9	-0.79	524.5	-40.8	-0.75

Summary Statistics

	Sample SH25	Sample SH26
Grand Means	349.76 Gurley Units	565.26 Gurley Units
SD Btwn Labs	36.45 Gurley Units	54.39 Gurley Units

Statistics based on 17 of 19 reporting participants

Comments on assigned Data Flags for Test #336

3U6Q67 (X) - Extreme data.

NARDCJ (X) - Extreme data.

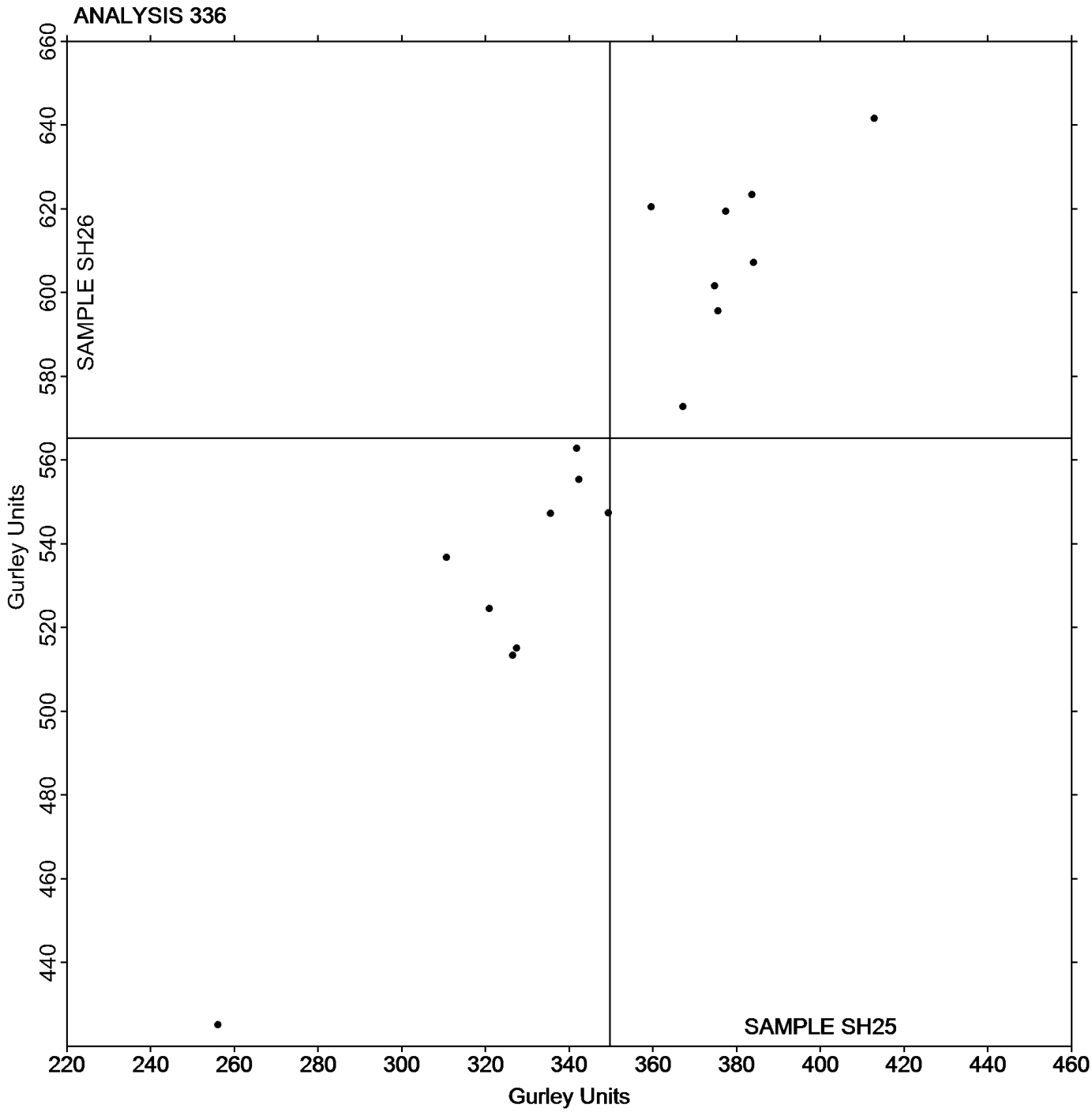
TAPPI-CTS Interlaboratory Testing Program

Analysis 336

Bending Resistance, Gurley Type

Grand Mean Sample **SH25** = 349.76 Gurley Units

Grand Mean Sample **SH26** = 565.26 Gurley Units



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 338
Bending Resistance, Taber Type - 0 to 10 Units

WebCode	Data Flag	Sample SJ25 Lab Mean	Sample SJ25 Diff from Grand Mean	Sample SJ25 CPV	Sample SJ26 Lab Mean	Sample SJ26 Diff from Grand Mean	Sample SJ26 CPV
3HRJ97		4.631	-0.057	-0.13	3.810	-0.030	-0.09
6FHFBZ		4.607	-0.081	-0.19	3.590	-0.251	-0.74
CJR22K		5.280	0.592	1.38	4.400	0.560	1.66
CL6CEQ	X	24.120	19.432	45.23	20.632	16.792	49.86
H79B3R		3.930	-0.758	-1.76	3.320	-0.520	-1.55
HXVGMP		4.586	-0.102	-0.24	3.844	0.004	0.01
JJREMT		4.776	0.088	0.21	3.885	0.045	0.13
K8T23M		4.964	0.276	0.64	4.189	0.349	1.04
RT74Y6		4.538	-0.150	-0.35	3.630	-0.210	-0.62
U6ELND		5.434	0.746	1.74	4.461	0.621	1.84
UKP884		4.828	0.140	0.33	3.898	0.058	0.17
ZLZZPX		3.957	-0.731	-1.70	3.498	-0.343	-1.02
ZV684X		4.545	-0.143	-0.33	3.701	-0.140	-0.42
ZY7992		4.867	0.179	0.42	3.700	-0.140	-0.42

Summary Statistics

	Sample SJ25	Sample SJ26
Grand Means	4.6878 Taber Units	3.8404 Taber Units
SD Btwn Labs	0.4297 Taber Units	0.3368 Taber Units

Statistics based on 13 of 14 reporting participants

Comments on assigned Data Flags for Test #338

CL6CEQ (X) - Extreme data.

Analysis Notes:

ZLZZPX - Data appear to be reported as mN-m, not g-cm as indicated on datasheet. Units corrected by CTS.

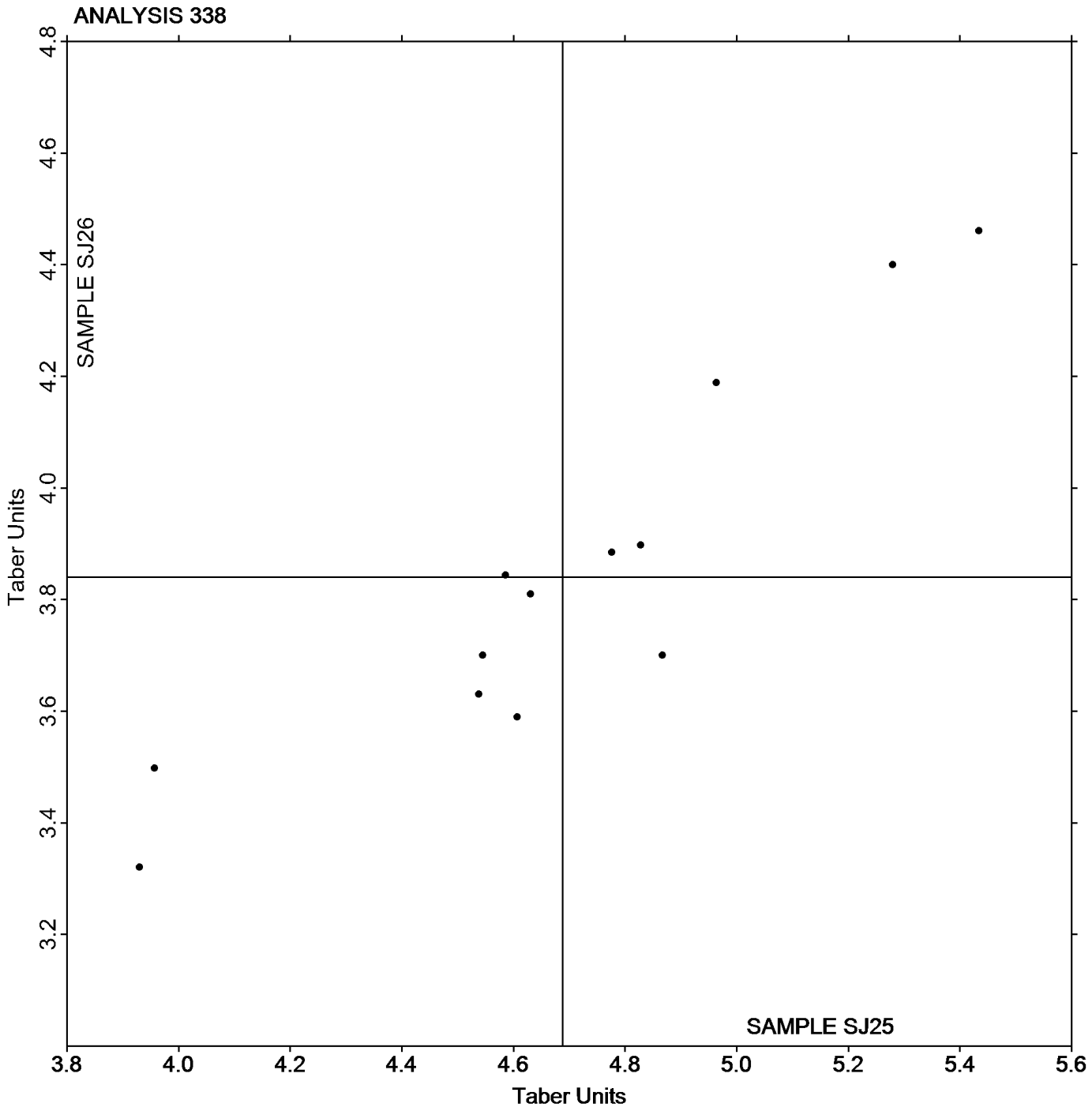
TAPPI-CTS Interlaboratory Testing Program

Analysis 338

Bending Resistance, Taber Type - 0 to 10 Units

Grand Mean Sample **SJ25** = 4.6878 Taber Units

Grand Mean Sample **SJ26** = 3.8404 Taber Units



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 339
Bending Resistance, Taber Type - 10 to 100 Taber Units

WebCode	Data Flag	Sample SQ25 Lab Mean	Sample SQ25 Diff from Grand Mean	Sample SQ25 CPV	Sample SQ26 Lab Mean	Sample SQ26 Diff from Grand Mean	Sample SQ26 CPV
77PKNP		21.53	-0.57	-0.35	32.52	-0.17	-0.06
7JUJXV	X	34.78	12.68	7.80	39.91	7.22	2.78
7KRTTY		24.78	2.68	1.65	35.61	2.92	1.13
7MUUTV		22.29	0.19	0.12	33.50	0.81	0.31
8PGQVU		18.98	-3.12	-1.92	26.94	-5.74	-2.22
C2CTZJ		20.26	-1.84	-1.13	29.25	-3.44	-1.33
C2W9GL		20.81	-1.29	-0.79	31.46	-1.23	-0.47
G9F79P		22.80	0.70	0.43	35.00	2.31	0.89
H79B3R		23.10	1.00	0.62	33.10	0.41	0.16
HXVGMP		23.34	1.24	0.76	35.22	2.53	0.98
L2HA9F		21.19	-0.91	-0.56	31.39	-1.30	-0.50
QPF92F		23.80	1.70	1.05	34.70	2.01	0.78
UEZM79	X	37.70	15.60	9.59	55.70	23.01	8.87
YBNDZ8		22.28	0.18	0.11	33.56	0.87	0.34

Summary Statistics

	Sample SQ25	Sample SQ26
Grand Means	22.097 Taber Units	32.688 Taber Units
SD Btwn Labs	1.627 Taber Units	2.593 Taber Units

Statistics based on 12 of 14 reporting participants

Comments on assigned Data Flags for Test #339

7JUJXV (X) - Extreme data.

UEZM79 (X) - Extreme data.

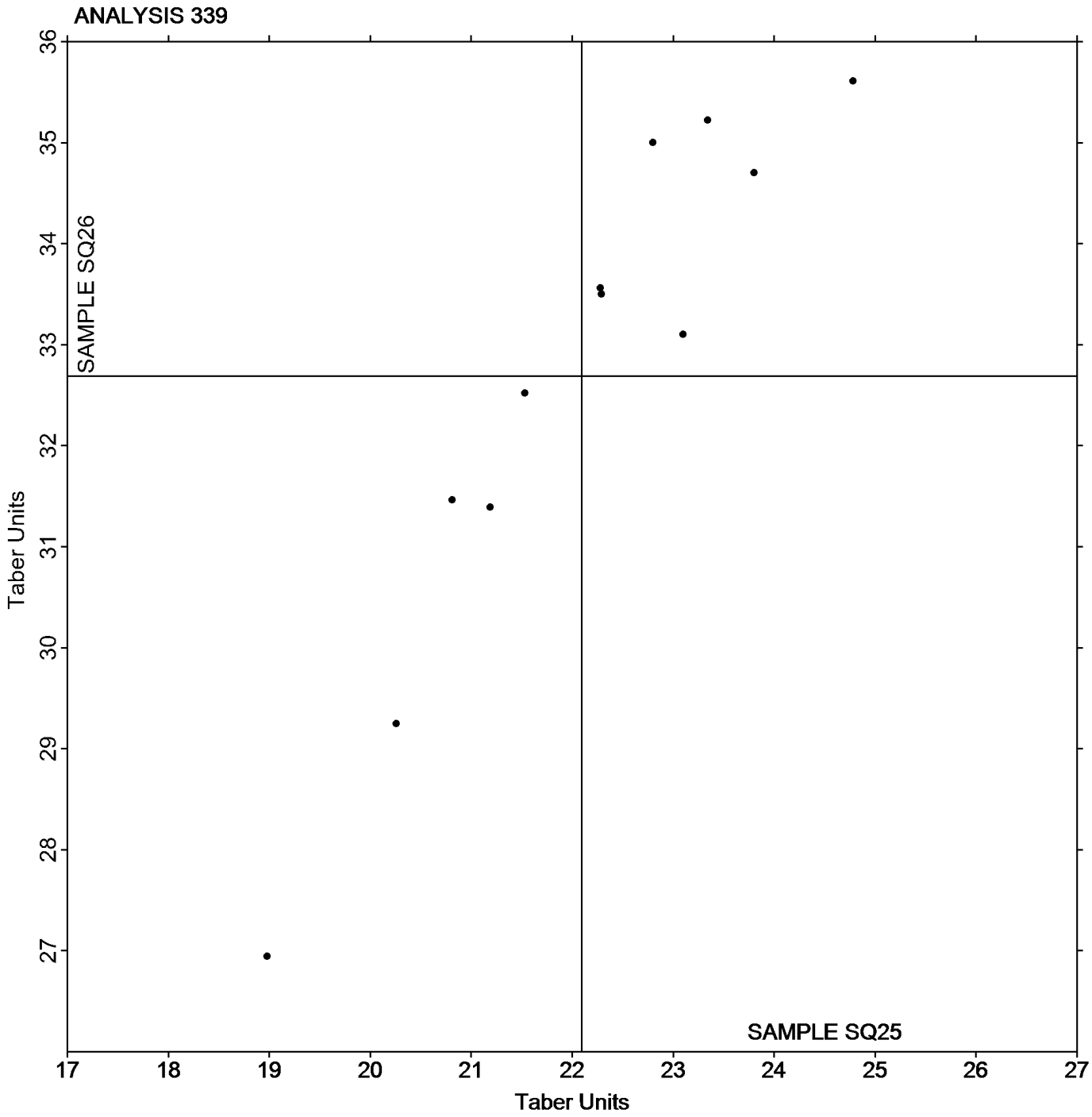
TAPPI-CTS Interlaboratory Testing Program

Analysis 339

Bending Resistance, Taber Type - 10 to 100 Taber Units

Grand Mean Sample **SQ25** = 22.097 Taber Units

Grand Mean Sample **SQ26** = 32.688 Taber Units



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

TAPPI-CTS Interlaboratory Testing Program

Analysis 340

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

WebCode	Data Flag	Sample ST25 Lab Mean	Sample ST25 Diff from Grand Mean	Sample ST25 CPV	Sample ST26 Lab Mean	Sample ST26 Diff from Grand Mean	Sample ST26 CPV
6ZPLZU		288.5	-3.1	-0.25	243.4	-6.0	-0.51
7EZLAQ		288.7	-2.9	-0.23	236.3	-13.1	-1.11
7MUUTV		282.3	-9.3	-0.74	237.4	-12.0	-1.02
7TK9DW		292.6	1.0	0.08	262.5	13.1	1.11
BJW48R		290.1	-1.5	-0.12	241.2	-8.2	-0.70
BKRMDY		277.5	-14.1	-1.13	237.8	-11.6	-0.98
ED2BRU		287.8	-3.7	-0.30	237.4	-12.0	-1.02
FCJGRK		279.4	-12.2	-0.98	252.1	2.7	0.23
H79B3R		277.0	-14.6	-1.17	241.5	-7.9	-0.67
HUC46M		303.5	11.9	0.96	258.0	8.6	0.73
JLC46K		288.0	-3.6	-0.29	257.5	8.1	0.69
KN3KZE		308.3	16.7	1.34	262.9	13.5	1.14
KW8WQG		311.8	20.2	1.62	272.0	22.6	1.92
LE7A4N	X	117.0	-174.6	-14.00	122.5	-126.9	-10.77
LGVH9J		300.6	9.0	0.72	250.0	0.6	0.05
LZMQ7D		317.2	25.6	2.05	254.9	5.5	0.46
WCMU46		277.5	-14.1	-1.13	262.0	12.6	1.07
WJJUC7		286.0	-5.5	-0.44	233.2	-16.2	-1.38

Summary Statistics

	Sample ST25	Sample ST26
Grand Means	291.58 Taber Units	249.42 Taber Units
SD Btwn Labs	12.47 Taber Units	11.78 Taber Units

Statistics based on 17 of 18 reporting participants

Comments on assigned Data Flags for Test #340

LE7A4N (X) - Extreme data.

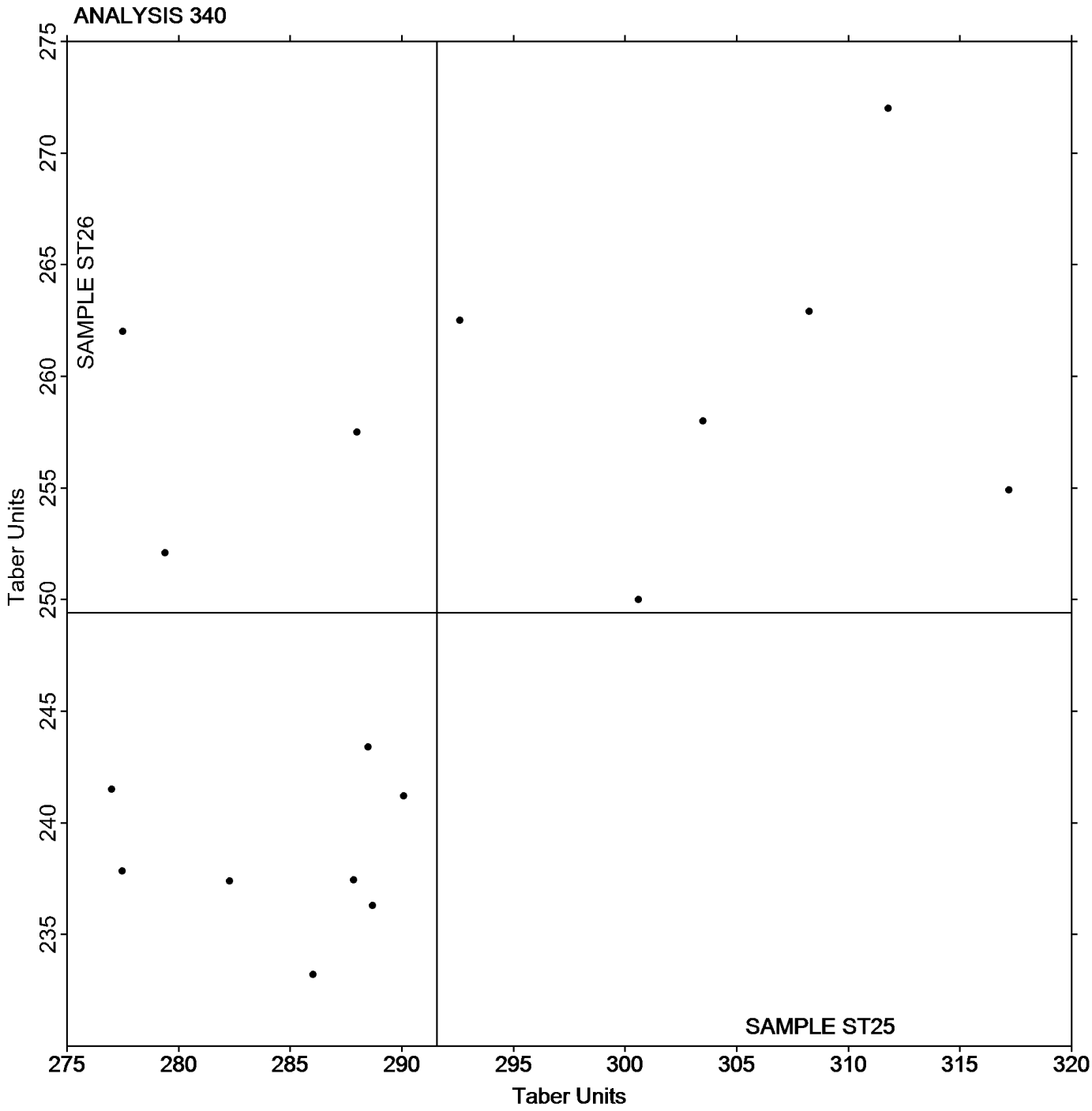
TAPPI-CTS Interlaboratory Testing Program

Analysis 340

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

Grand Mean Sample **ST25** = 291.58 Taber Units

Grand Mean Sample **ST26** = 249.42 Taber Units



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 343
Z-Direction Tensile

WebCode	Data Flag	Sample SM25 Lab Mean	Sample SM25 Diff from Grand Mean	Sample SM25 CPV	Sample SM26 Lab Mean	Sample SM26 Diff from Grand Mean	Sample SM26 CPV	Instr Code
7KRTTY		50.54	-3.69	-0.62	78.08	-12.42	-0.66	TZ
7MUUTV		57.68	3.46	0.58	101.37	10.87	0.58	LW
7TK9DW		48.32	-5.90	-0.99	90.20	-0.30	-0.02	LW
8PGQVU		47.57	-6.65	-1.12	108.84	18.34	0.98	LW
9NJ3RP		55.28	1.06	0.18	86.72	-3.78	-0.20	XX
AH8H2V		55.20	0.98	0.16	89.00	-1.50	-0.08	TA
CL6CEQ		59.76	5.54	0.93	105.72	15.22	0.81	TL
DEFHCQ		45.10	-9.12	-1.53	89.14	-1.36	-0.07	DT
FZP93P		41.77	-12.45	-2.09	85.49	-5.01	-0.27	LW
HXVGMP		54.39	0.17	0.03	69.20	-21.30	-1.14	TZ
K8T23M		54.70	0.48	0.08	53.86	-36.64	-1.96	CD
L2HA9F		58.90	4.67	0.79	96.48	5.98	0.32	TA
LE7A4N		65.14	10.92	1.84	119.52	29.02	1.55	CA
PZYGP9		52.40	-1.82	-0.31	64.20	-26.30	-1.41	DT
TVUTYC		55.48	1.26	0.21	104.70	14.20	0.76	LW
U7PKK8		59.22	5.00	0.84	108.12	17.62	0.94	TA
UEZM79		57.82	3.60	0.60	100.10	9.60	0.51	TA
WJJUC7		49.43	-4.79	-0.81	58.25	-32.25	-1.72	LX
YBNDZ8		61.54	7.32	1.23	110.44	19.94	1.07	LW

Summary Statistics

	Sample SM25	Sample SM26
Grand Means	54.223 psi	90.495 psi
SD Btwn Labs	5.945 psi	18.696 psi

Statistics based on 19 of 19 reporting participants

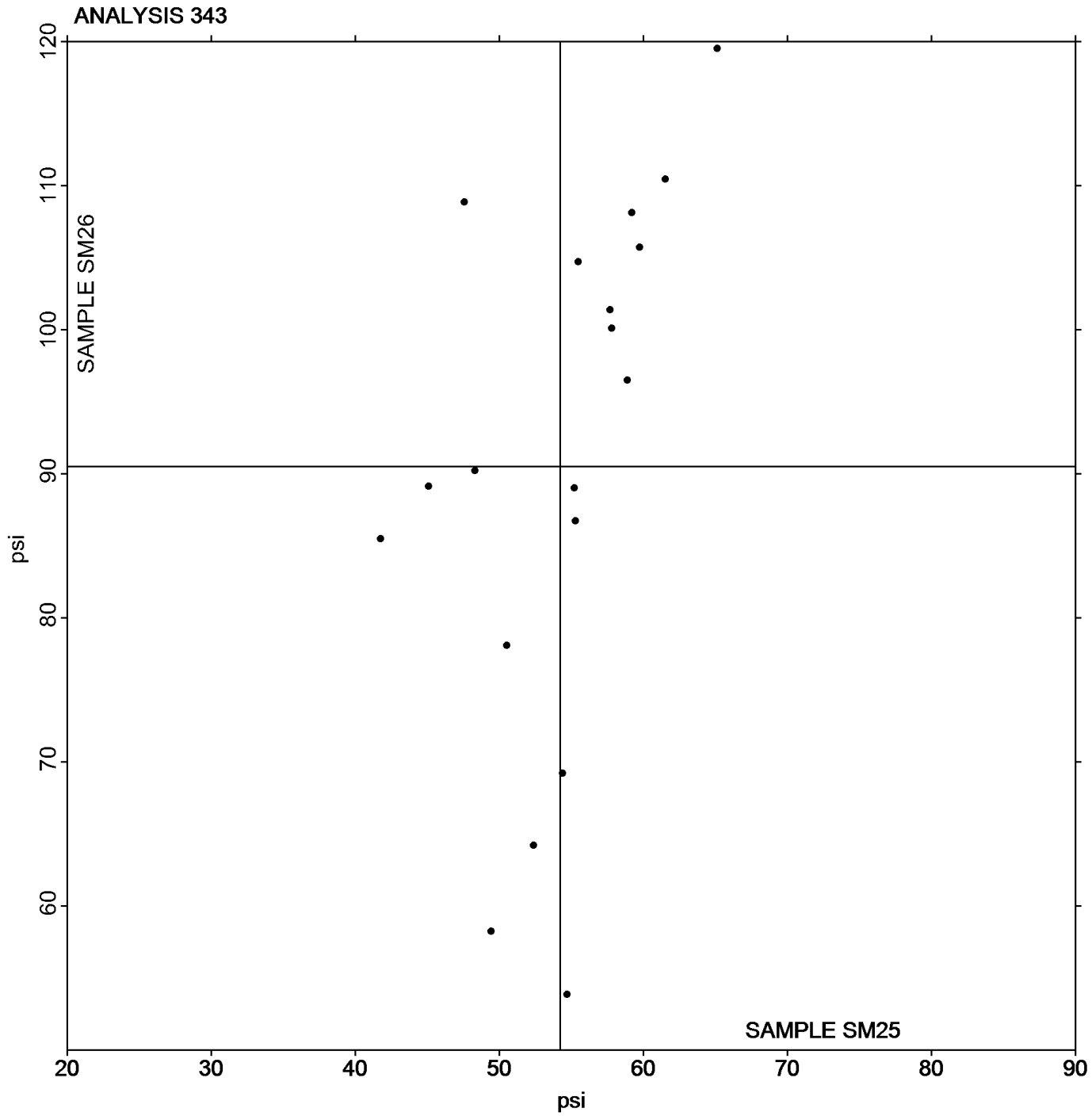
Instrument Code List

(CA) - CSI CS-163
(CD) - CSI CS-163D
(DT) - Dek-Tron DCS-163A ZDT Tester
(LW) - L & W ZD Tensile Tester
(LX) - L & W (model not specified)
(TA) - Thwing-Albert Tensile Tester
(TL) - TMI Lab Master
(TZ) - TMI Monitor/ZDT Tester
(XX) - Instrument make/model not specified by lab

TAPPI-CTS Interlaboratory Testing Program
Analysis 343
Z-Direction Tensile

Grand Mean Sample **SM25** = 54.223 psi

Grand Mean Sample **SM26** = 90.495 psi



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 345
Z-Direction Tensile, Recycled Paperboard

WebCode	Data Flag	Sample SZ25 Lab Mean	Sample SZ25 Diff from Grand Mean	Sample SZ25 CPV	Sample SZ26 Lab Mean	Sample SZ26 Diff from Grand Mean	Sample SZ26 CPV	Instr Code
2ZV2E6		31.98	-2.16	-1.10	32.47	-5.31	-2.04	CH
6ZPLZU		33.60	-0.55	-0.28	38.40	0.62	0.24	CA
7EZLAQ		34.20	0.05	0.03	39.20	1.42	0.54	CA
7YP623		34.98	0.83	0.42	40.36	2.58	0.99	LW
BKRMDY		33.20	-0.95	-0.48	39.00	1.22	0.47	CA
CFD8LM		31.44	-2.71	-1.37	34.52	-3.27	-1.25	CA
FCJGRK		36.80	2.65	1.34	41.00	3.22	1.23	CA
H6DRWJ		35.64	1.50	0.76	40.35	2.56	0.98	TA
JXMUMM		32.84	-1.31	-0.66	39.20	1.42	0.54	LW
KJP67F		34.32	0.17	0.09	36.58	-1.21	-0.46	DP
KW8WQG		33.66	-0.48	-0.25	36.33	-1.46	-0.56	TZ
LX23NL		33.18	-0.97	-0.49	35.50	-2.29	-0.88	LW
LZMQ7D		32.90	-1.25	-0.63	36.78	-1.01	-0.39	TL
R4Q9BB		33.16	-0.99	-0.50	35.30	-2.49	-0.95	TL
WCMU46		34.90	0.75	0.38	37.58	-0.21	-0.08	TL
Z2CTW2	*	39.56	5.41	2.74	41.99	4.21	1.61	PG

Summary Statistics

	Sample SZ25	Sample SZ26
Grand Means	34.148 psi	37.785 psi
SD Btwn Labs	1.974 psi	2.608 psi

Statistics based on 16 of 16 reporting participants

Instrument Code List

(CA) - CSI CS-163
(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
(TL) - TMI Lab Master
(TZ) - TMI Monitor/ZDT Tester

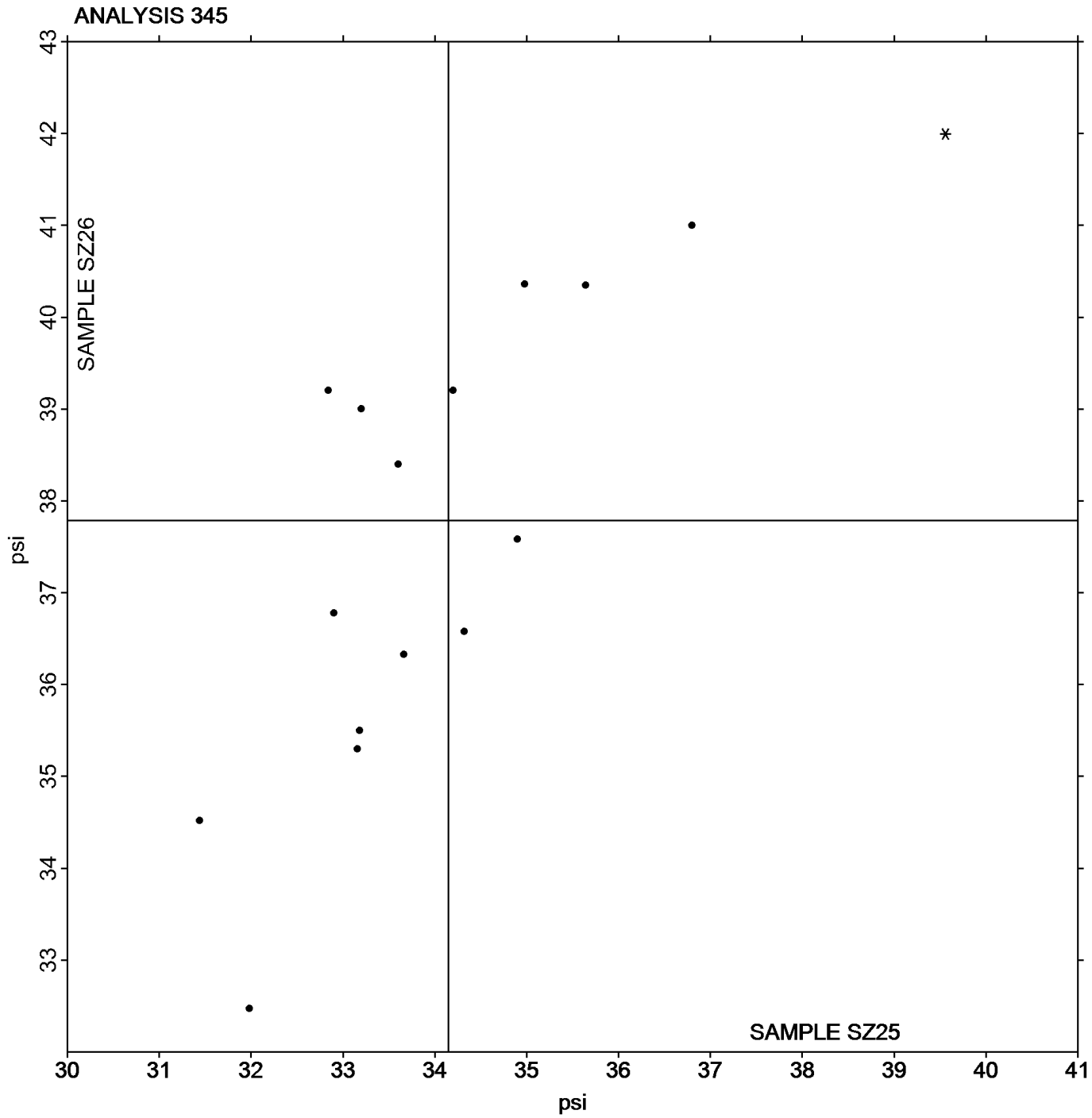
TAPPI-CTS Interlaboratory Testing Program

Analysis 345

Z-Direction Tensile, Recycled Paperboard

Grand Mean Sample **SZ25** = 34.148 psi

Grand Mean Sample **SZ26** = 37.785 psi



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 348
Internal Bond Strength - Modified Scott Mechanics

WebCode	Data Flag	Sample SN25 Lab Mean	Sample SN25 Diff from Grand Mean	Sample SN25 CPV	Sample SN26 Lab Mean	Sample SN26 Diff from Grand Mean	Sample SN26 CPV	Instr Code
6FHFBZ		73.22	-0.13	-0.02	147.5	-7.3	-0.38	HY
7KRTTY		64.40	-8.95	-1.55	127.0	-27.7	-1.47	HY
7MUUTV		73.20	-0.15	-0.03	158.4	3.7	0.19	HY
7TK9DW		63.40	-9.95	-1.73	119.2	-35.5	-1.88	HZ
BKRMDY		74.80	1.45	0.25	148.0	-6.7	-0.36	HZ
F4NJXP		77.40	4.05	0.70	145.8	-8.9	-0.47	HZ
FYZYWV		72.80	-0.55	-0.09	145.4	-9.3	-0.49	HY
H69AXK		69.00	-4.35	-0.76	147.8	-6.9	-0.37	HY
H84T4T	*	71.80	-1.55	-0.27	198.4	43.7	2.31	XX
HXVGMP		74.80	1.45	0.25	165.2	10.5	0.55	HY
J74C3F		76.28	2.93	0.51	158.3	3.6	0.19	HZ
K8T23M	X	73.40	0.05	0.01	75.0	-79.7	-4.22	HY
KAYJZH		65.60	-7.75	-1.35	136.0	-18.7	-0.99	HY
L2HA9F		70.00	-3.35	-0.58	171.6	16.9	0.89	HZ
LWMFBE		73.32	-0.03	0.00	151.9	-2.9	-0.15	HY
U7PKK8		79.00	5.65	0.98	169.0	14.3	0.75	HY
UEZM79		85.20	11.85	2.06	175.6	20.9	1.10	HY
YBNDZ8		82.80	9.45	1.64	173.2	18.5	0.98	XX
YQFB33		73.20	-0.15	-0.03	147.2	-7.5	-0.40	HY

Summary Statistics

	Sample SN25	Sample SN26
Grand Means	73.346 1000th ft-lbs	154.75 1000th ft-lbs
SD Btwn Labs	5.754 1000th ft-lbs	18.89 1000th ft-lbs

Statistics based on 18 of 19 reporting participants

Comments on assigned Data Flags for Test #348

K8T23M (X) - Data for Sample SN26 are low.

Instrument Code List

(HY) - Huygen Digitized Scott Internal Bond Tester

(HZ) - Huygen Internal Bond Tester with AccuPress

(XX) - Instrument make/model not specified by lab

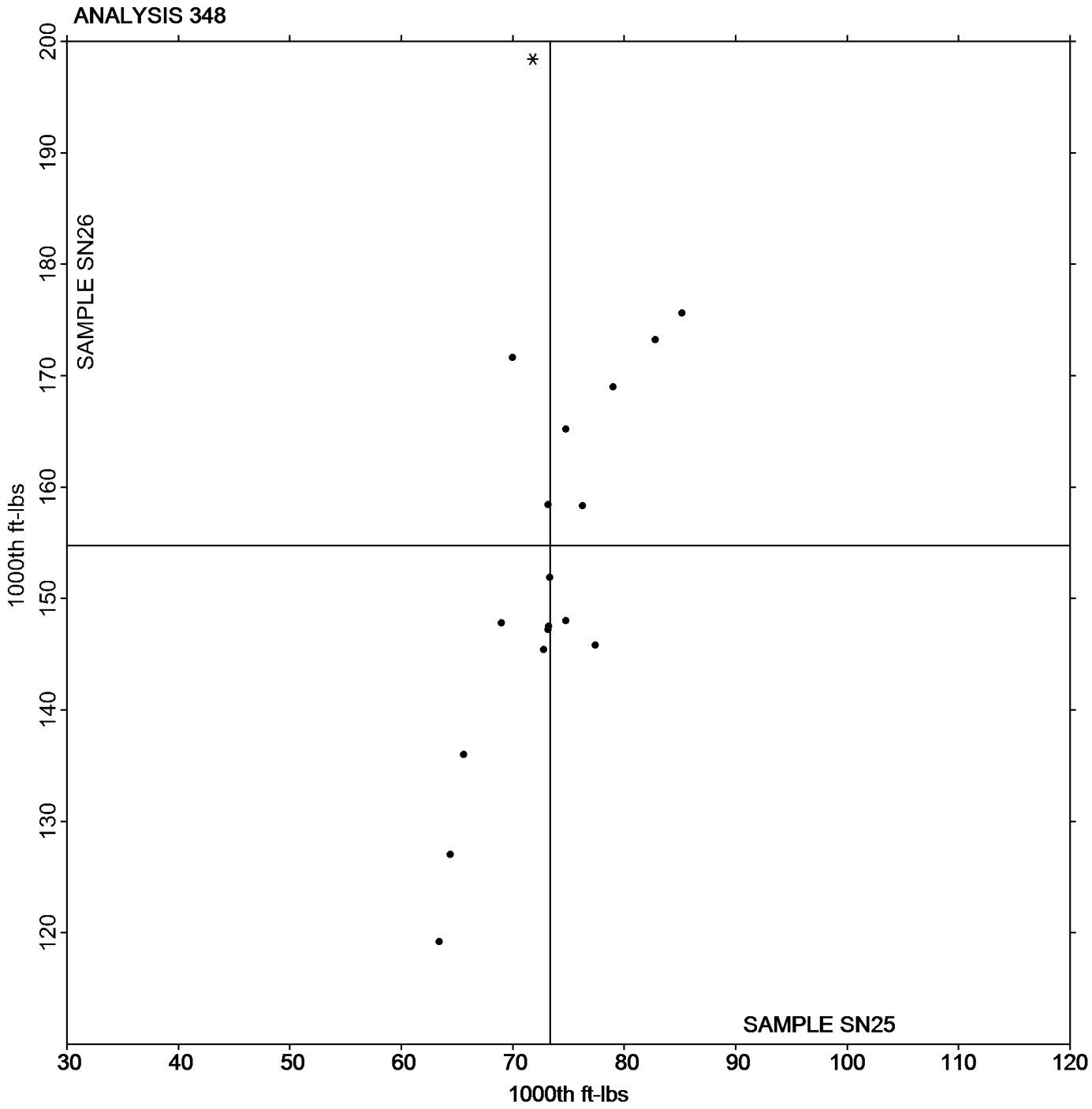
TAPPI-CTS Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

Grand Mean Sample **SN25** = 73.346 1000th ft-lbs

Grand Mean Sample **SN26** = 154.75 1000th ft-lbs



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

TAPPI-CTS Interlaboratory Testing Program
Analysis 349
Internal Bond Strength - Scott Bond Models

WebCode	Data Flag	Sample SP25 Lab Mean	Sample SP25 Diff from Grand Mean	Sample SP25 CPV	Sample SP26 Lab Mean	Sample SP26 Diff from Grand Mean	Sample SP26 CPV	Instr Code
2ZV2E6		138.2	4.8	0.16	139.4	4.8	0.16	TM
H79B3R		152.4	19.0	0.64	153.8	19.2	0.64	XX
HTW8CM		137.4	4.0	0.14	131.8	-2.8	-0.09	SC
LX23NL		160.6	27.2	0.92	159.6	25.0	0.84	XX
N38H79		67.5	-65.9	-2.23	68.0	-66.6	-2.23	SC
PWBZJG		112.4	-21.0	-0.71	109.4	-25.2	-0.84	SC
Q3DJ7D		156.4	23.0	0.78	158.0	23.4	0.78	XX
QRFJT9		134.2	0.8	0.03	137.4	2.8	0.10	TM
U6ELND		136.8	3.4	0.12	138.4	3.8	0.13	TM
WE9JKC		115.7	-17.7	-0.60	117.2	-17.4	-0.58	TM
WJJUC7		96.9	-36.5	-1.23	102.6	-32.0	-1.07	TM
XWP3WA		133.0	-0.3	-0.01	134.4	-0.2	-0.01	XX
YGU8U3		190.4	57.0	1.93	194.4	59.8	2.00	SC
Z2CTW2		135.6	2.2	0.07	139.6	5.0	0.17	TM

Summary Statistics

	Sample SP25	Sample SP26
Grand Means	133.39 1000th ft-lbs	134.56 1000th ft-lbs
SD Btwn Labs	29.58 1000th ft-lbs	29.87 1000th ft-lbs

Statistics based on 14 of 14 reporting participants

Instrument Code List

(SC) - Scott Internal Bond Tester (Manual)

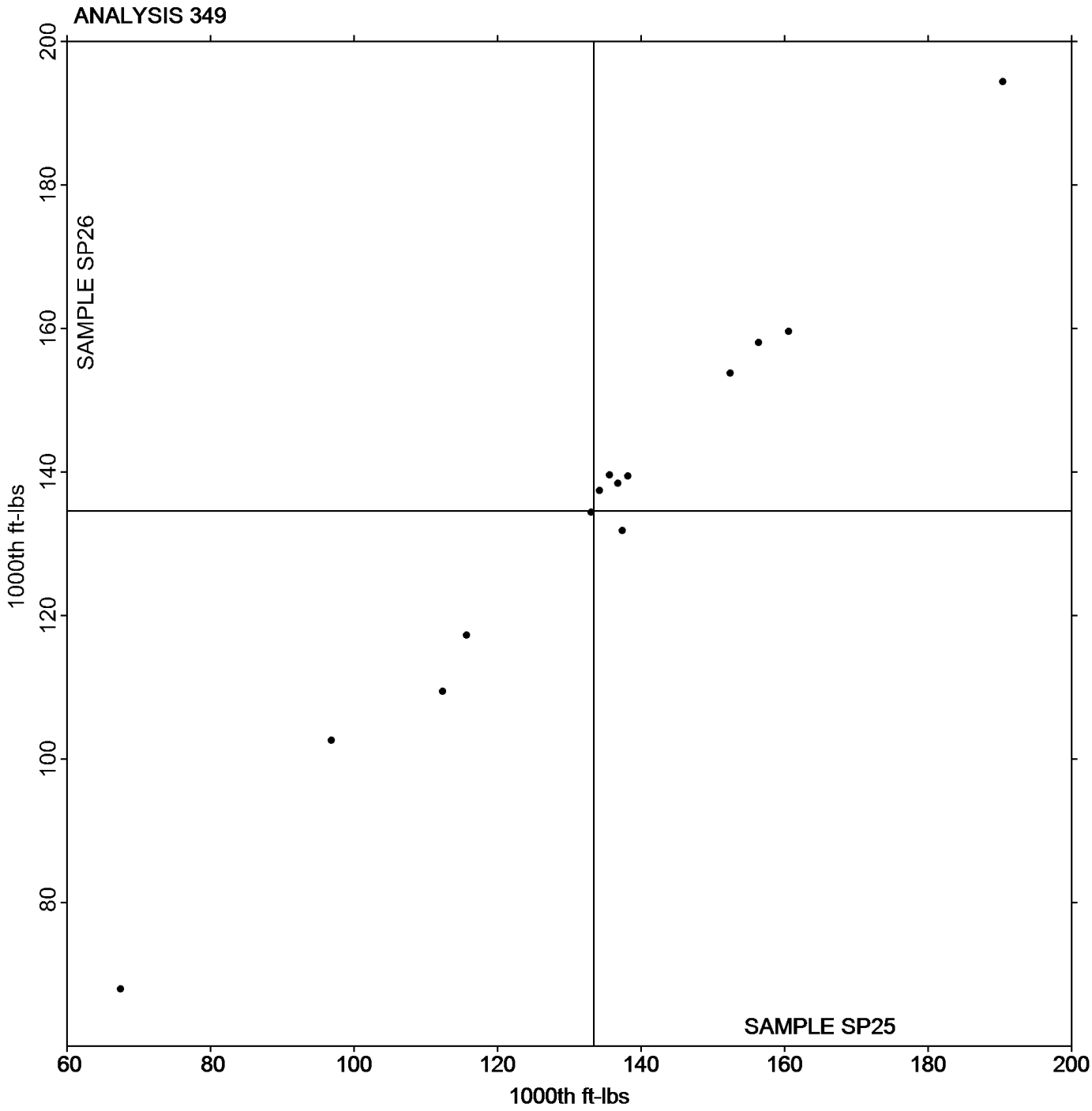
(TM) - TMI Monitor/Internal Bond Tester

(XX) - Instrument make/model not specified by lab

TAPPI-CTS Interlaboratory Testing Program
Analysis 349
Internal Bond Strength - Scott Bond Models

Grand Mean Sample **SP25** = 133.39 1000th ft-lbs

Grand Mean Sample **SP26** = 134.56 1000th ft-lbs



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