



Paper & Paperboard Interlaboratory Testing Program

Summary Report #243S - November 2009

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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.

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

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

(Toll-free fax within the U.S.: 1-866-fax-2cts)
Office Hours: 8:00 a.m. - 4:30 p.m. ET

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.

Instrument Manufacturer Contacts

If your results have been flagged with an "X" and you suspect that the problem is with your instrument (and not your testing procedure), CTS urges you to contact the appropriate instrument manufacturer. CTS has asked manufacturers to supply a contact person who is familiar with the Paper, Paperboard & Corrugated Fiberboard Interlaboratory Program. The listed service contact should be able to work with you on evaluating your results and determining possible causes of the problem.

Technidyne Corp., Hagerty Div.

George Hagerty
287 Dix Ave. P.O. Box 4741
Queensbury, NY 12804
Phone: (518) 793-2834
FAX #: (518) 792-1796

Technidyne Corporation

Jeff Hobbs / Mike Lankins
100 Quality Avenue
New Albany, IN 47150-2272 USA
Phone: (812) 948-2884
FAX #: (812) 945-6847

Thwing Albert Instrument Co.

Raymond McCart, Service Contact
David Zarrilli, Sales Contact
10960 Dutton Road
Philadelphia, PA 19154
Phone: (215) 637-0100
FAX #: (215) 632-8370

Testing Machines Inc.

Michael Foran, Technical Support Engineer
2910 Expressway Drive South
Islandia, NY 11722
Phone: (631) 439-5400
FAX #: (631) 439-5420

Huygen Corporation

Richard Wade
P.O. Box 316
Waconda, IL 60084
Phone: (815) 455-2200
FAX #: (815) 455-2300

Gurley Precision Instruments

Martin Gordinier, Product Manager
P.O. Box 88
Troy, NY 12181-0088
Phone: (800) 759-1844
FAX #: (518) 274-0336

Lorentzen & Wettre USA Inc.

Bill Crai, Technical Manager
1055 Windward Ridge Pkwy
Suite 160
Alpharetta, GA 30005
Phone: (770) 442-8015
FAX #: (770) 442-6792

Valmet Inc.

Eeva Nettamo, Product Mgr Paper Testing
3100 Medlock Bridge Road - Suite 260
Norcross, GA 30071
Phone: (404) 448-0849
FAX #: (404) 242-8386

Custom Scientific Instruments

DEK-TRON Scientific
Segundo Vargas, Chief Design Engineer
244 East Third Street

Emmerson Apparatus

170 Anderson Street
Portland, ME 04101
Phone: (207) 774-5254

Plainfield, NJ 07060
Phone: (908) 668-1777
FAX #: (908) 668-4794

FAX#: (207) 774-5304

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

WebCode	Data Flag	Sample SA51			Sample SA52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3D67RV		30.45	-1.44	-0.74	35.20	0.96	0.50
4Q9YVR		29.61	-2.28	-1.17	31.33	-2.91	-1.50
4ZWX94		29.50	-2.39	-1.23	31.60	-2.64	-1.36
68ADAC		29.40	-2.49	-1.28	33.30	-0.94	-0.49
6PMANL		31.36	-0.53	-0.27	34.91	0.67	0.35
7DJHGJ		32.20	0.31	0.16	36.05	1.81	0.93
86WGRR		29.50	-2.39	-1.23	32.10	-2.14	-1.11
8YNYE8		32.40	0.51	0.26	35.22	0.98	0.51
B4TVXW		32.60	0.71	0.37	33.80	-0.44	-0.23
BGL7N4		33.67	1.78	0.92	36.15	1.91	0.99
BRCA4N		32.65	0.76	0.39	35.22	0.98	0.50
BXL97T		33.00	1.11	0.57	35.13	0.89	0.46
CP3HV8		34.02	2.13	1.10	37.53	3.29	1.70
CQ9QHR		32.69	0.81	0.41	32.91	-1.33	-0.69
D7RTEU		31.80	-0.09	-0.04	34.10	-0.14	-0.07
DNF2VQ		34.23	2.34	1.21	37.00	2.76	1.43
DTGL3E		31.66	-0.23	-0.12	34.06	-0.18	-0.10
G74LUT		28.80	-3.09	-1.59	30.60	-3.64	-1.88
GB8QZK		30.91	-0.98	-0.50	34.11	-0.13	-0.07
GCCZTW		31.95	0.06	0.03	33.30	-0.94	-0.49
GZBM9X		33.90	2.01	1.04	37.00	2.76	1.43
JVZ4KH		33.16	1.27	0.66	35.31	1.07	0.55
KJB3QC		31.59	-0.29	-0.15	33.49	-0.75	-0.39
KUP2BA		34.87	2.98	1.54	37.04	2.80	1.45
KZRBG2		29.78	-2.11	-1.09	31.31	-2.93	-1.51
L32F8W		34.90	3.01	1.55	36.00	1.76	0.91
L72MGL		28.85	-3.04	-1.56	31.65	-2.59	-1.34
M2MBZC		30.59	-1.30	-0.67	31.78	-2.46	-1.27
NHG892		30.89	-0.99	-0.51	33.50	-0.74	-0.38
RK46W2		32.30	0.41	0.21	34.40	0.16	0.08
RPPMLE		34.03	2.14	1.10	36.33	2.09	1.08
RUDM9L	*	35.64	3.75	1.93	35.09	0.85	0.44
T6LJVV		32.75	0.86	0.44	36.20	1.96	1.01
UKGFPQ		31.04	-0.84	-0.43	33.22	-1.02	-0.53
V4PXD2		30.21	-1.68	-0.86	33.59	-0.65	-0.34
WJJTHK		32.83	0.94	0.49	35.10	0.86	0.44
XF3DKJ		32.26	0.37	0.19	35.29	1.05	0.54
XYLZG7		35.62	3.73	1.92	36.98	2.74	1.42
Y8PNJ3		29.70	-2.19	-1.13	32.30	-1.94	-1.00
ZGVM4D		32.11	0.22	0.11	34.61	0.37	0.19
ZRGVWZ		27.95	-3.94	-2.03	30.05	-4.19	-2.16

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

	Sample SA51	Summary Statistics	Sample SA52
Grand Means	31.887 psi		34.240 psi
SD Btwn Labs	1.941 psi		1.936 psi
Statistics based on 41 of 41 reporting participants			

Notes for Analysis 305

No Data Flags assigned for this analysis.

Analysis Notes:

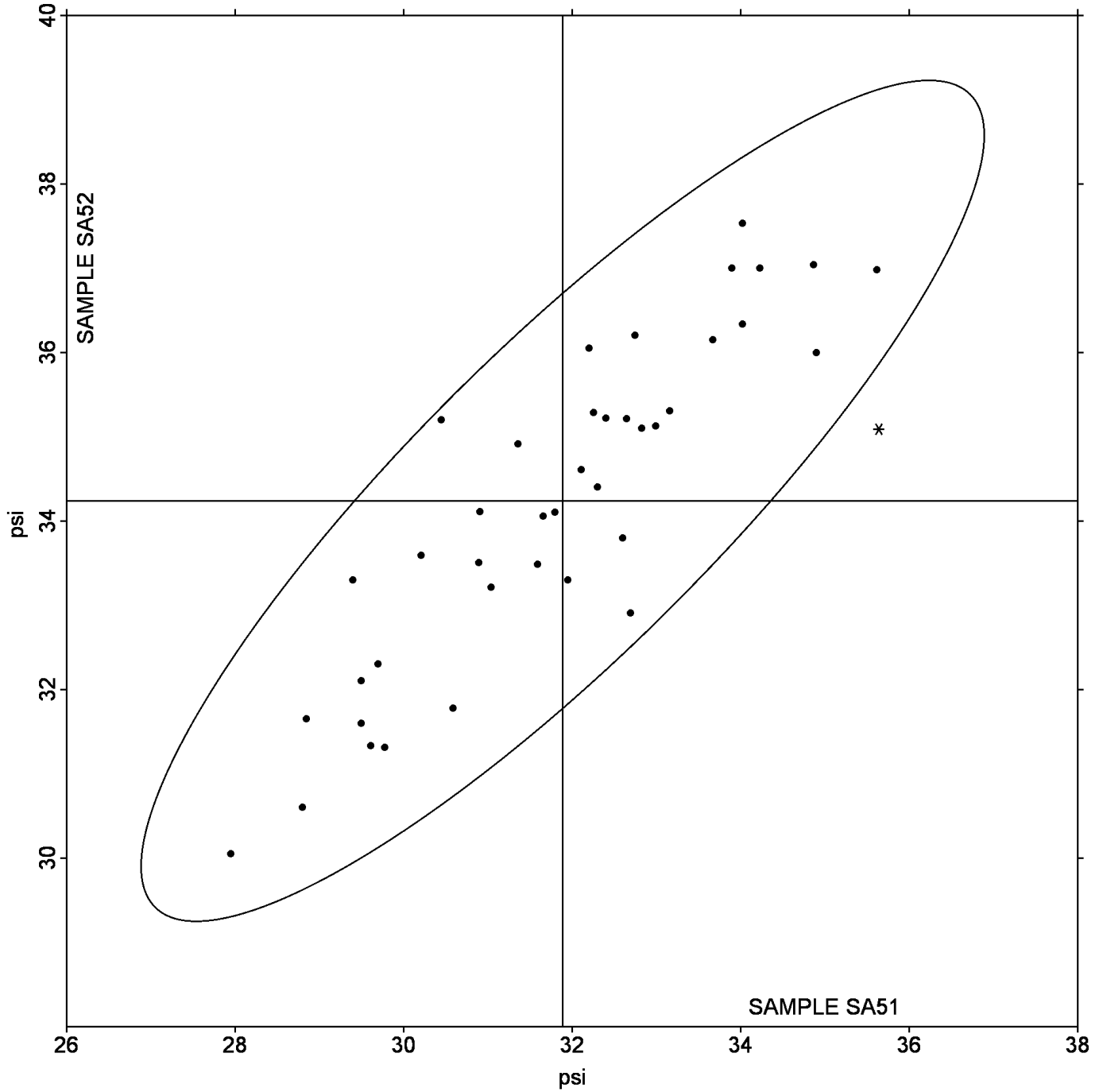
UKGFPQ - One determination removed from the Lab Mean of Sample SA52 per Grubb's Test at 1% risk (TAPPI 1205).

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

Grand Mean Sample SA51 = 31.887 psi

Grand Mean Sample SA52 = 34.240 psi

ANALYSIS 305



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

WebCode	Data Flag	Sample SB51			Sample SB52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
29H3P8		52.46	-1.12	-0.52	66.57	0.02	0.01
3ZF8ZT		51.55	-2.03	-0.95	64.75	-1.80	-0.53
4DNFEA		55.52	1.94	0.91	68.51	1.96	0.57
6VFTA9		56.05	2.47	1.15	69.14	2.59	0.76
8K4EZ6		52.60	-0.98	-0.46	65.00	-1.55	-0.46
9Y76TP		51.45	-2.13	-0.99	68.53	1.98	0.58
B7PKUW	*	48.77	-4.81	-2.24	57.40	-9.15	-2.68
BU483U		52.65	-0.93	-0.43	62.50	-4.05	-1.19
CJ32NL	*	54.00	0.42	0.20	74.00	7.45	2.18
CQ3CZX		52.92	-0.65	-0.31	63.67	-2.88	-0.85
EM9LAB		55.58	2.00	0.93	70.42	3.86	1.13
HWJ46D		53.20	-0.38	-0.18	63.95	-2.60	-0.76
J6GY9G		51.30	-2.28	-1.06	65.50	-1.05	-0.31
MCGBAB		51.87	-1.71	-0.80	65.20	-1.36	-0.40
NH8JAE		51.97	-1.61	-0.75	68.24	1.69	0.49
NUAN4U	*	59.62	6.05	2.82	71.86	5.31	1.56
NYB4UB		54.70	1.12	0.52	67.04	0.48	0.14
NYMBVD		55.52	1.94	0.90	67.19	0.64	0.19
PAR7V3		53.60	0.02	0.01	68.50	1.95	0.57
QVXLLK		55.40	1.82	0.85	68.00	1.45	0.42
QWEAAC		52.32	-1.26	-0.59	64.25	-2.30	-0.67
QWX4YT		56.59	3.02	1.41	72.30	5.75	1.69
R9CDDJ		52.80	-0.78	-0.36	61.00	-5.55	-1.63
R9E4RT		55.80	2.22	1.04	65.86	-0.69	-0.20
UMEZ3C	X	74.40	20.82	9.71	87.00	20.45	6.00
VF33DX		51.60	-1.98	-0.92	65.85	-0.70	-0.21
WYNDK3	M	52.65	-0.93	-0.43	No data reported for this sample		
Z6YTJ3		52.16	-1.42	-0.66	66.57	0.02	0.01
ZCEH6H		54.37	0.79	0.37	67.19	0.63	0.19
ZGDQP6		54.39	0.81	0.38	63.70	-2.85	-0.84
ZUKDAB		53.04	-0.54	-0.25	67.37	0.82	0.24

	Sample SB51	Summary Statistics	Sample SB52
Grand Means	53.579 psi		66.554 psi
SD Btw Labs	2.145 psi		3.410 psi
Statistics based on 29 of 31 reporting participants			

Comments on assigned Data Flags for Test #310

UMEZ3C (X) - Extreme data.

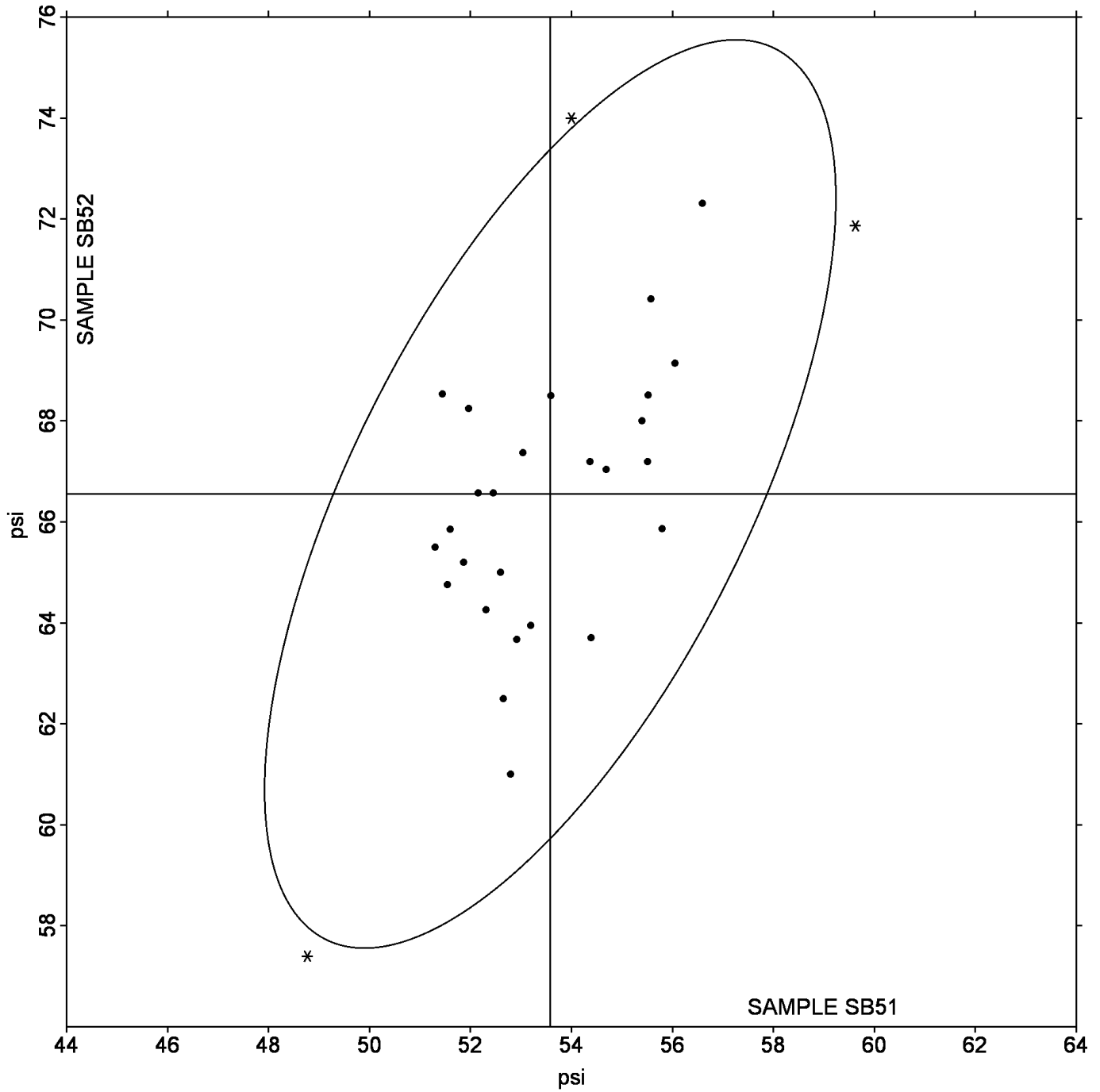
WYNDK3 (M) - No data for Sample SB52.

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

Grand Mean Sample **SB51** = 53.579 psi

Grand Mean Sample **SB52** = 66.554 psi

ANALYSIS 310



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

WebCode	Data Flag	Sample SK51			Sample SK52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3XKPEK		20.72	0.17	0.12	21.30	0.22	0.10
4U8GWD		22.80	2.24	1.58	22.70	1.62	0.73
6G2GXU		19.72	-0.84	-0.59	19.91	-1.17	-0.53
6YF7Q7	X	22.80	2.24	1.58	30.20	9.12	4.12
8UPNH8		21.70	1.14	0.80	20.80	-0.28	-0.13
9D2MB9		22.10	1.54	1.09	23.50	2.42	1.09
ADZB2B		17.69	-2.86	-2.02	17.42	-3.66	-1.65
CXKRHA		20.58	0.02	0.02	21.40	0.32	0.14
G8A96C		19.58	-0.98	-0.69	19.98	-1.10	-0.50
HWF28M		20.51	-0.05	-0.03	20.35	-0.73	-0.33
KEAHEG		20.44	-0.12	-0.09	20.37	-0.71	-0.32
PUTBAV		20.24	-0.32	-0.22	20.89	-0.19	-0.09
QFPBXJ		18.75	-1.81	-1.27	18.35	-2.73	-1.23
RG36DW	*	23.41	2.86	2.01	27.25	6.17	2.78
THX2UJ		20.21	-0.35	-0.24	19.88	-1.20	-0.54
TQXTMR		20.89	0.33	0.23	20.87	-0.21	-0.09
VKRJRG		18.83	-1.73	-1.22	19.06	-2.02	-0.91
WKYHZH		21.51	0.95	0.67	23.54	2.46	1.11
WQMK8H		20.33	-0.22	-0.16	21.87	0.79	0.36

		Summary Statistics	
	Sample SK51		Sample SK52
Grand Means	20.556 Grams		21.080 Grams
SD Btwn Labs	1.421 Grams		2.216 Grams
Statistics based on 18 of 19 reporting participants			

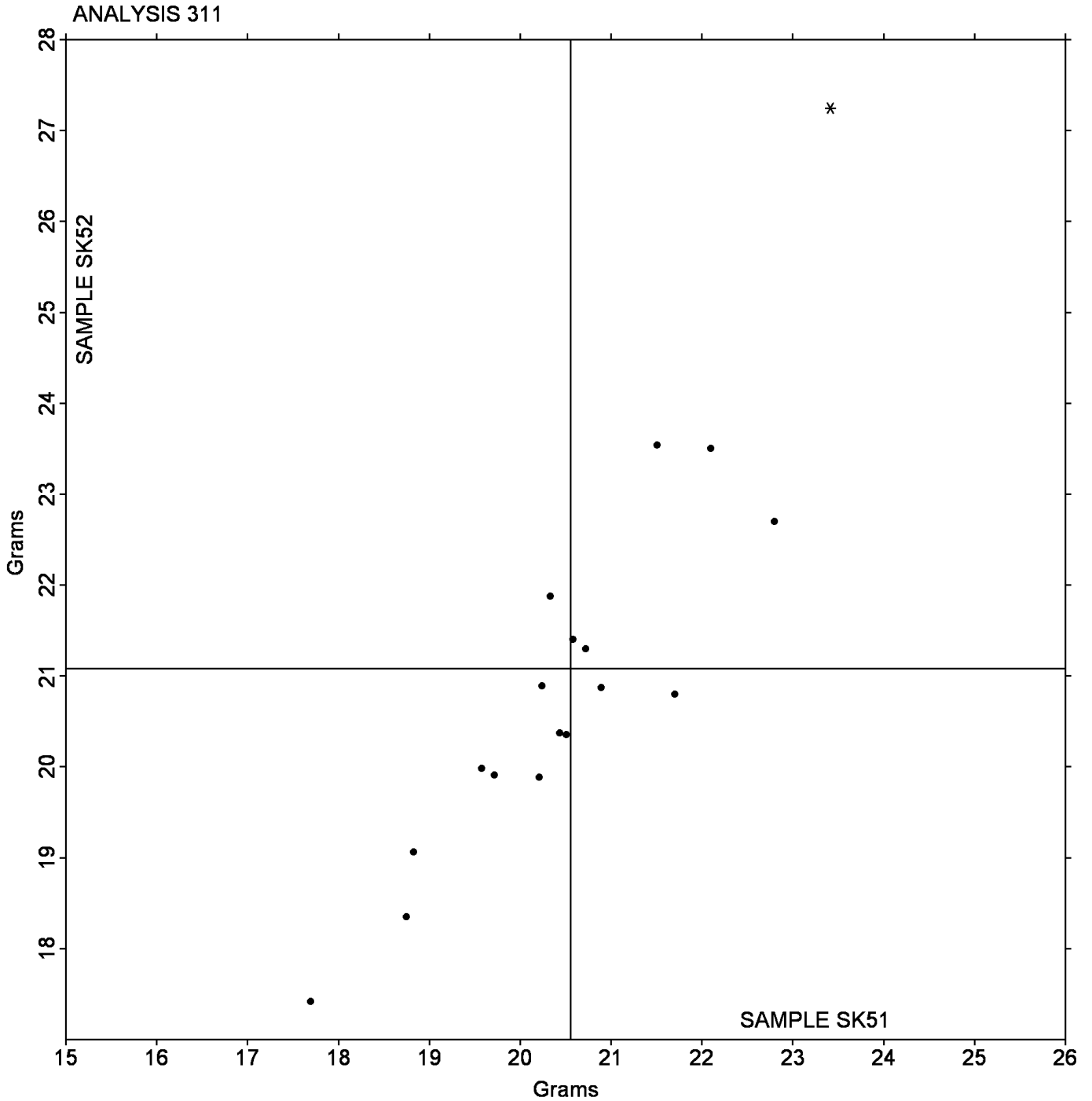
Comments on assigned Data Flags for Test #311

6YF7Q7 (X) - Inconsistent in testing between samples, data for Sample SK52 are high.

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

Grand Mean Sample **SK51** = 20.556 Grams

Grand Mean Sample **SK52** = 21.080 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 SC51			Sample SC52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2QEEWV		55.20	-2.98	-0.78	55.44	-3.11	-0.76
2V3C84		58.40	0.22	0.06	55.50	-3.05	-0.74
2WMXC2		57.61	-0.57	-0.15	59.64	1.09	0.27
3AETB7		57.46	-0.72	-0.19	55.92	-2.63	-0.64
3PYJZE	*	49.17	-9.01	-2.36	48.40	-10.15	-2.47
3RC3AC		57.87	-0.31	-0.08	58.49	-0.06	-0.02
3TKERE		55.68	-2.50	-0.65	53.22	-5.33	-1.30
4EVP2M		58.49	0.31	0.08	60.22	1.67	0.41
4VQJ9E		52.36	-5.82	-1.52	56.24	-2.31	-0.56
6FC83K		58.34	0.16	0.04	59.64	1.09	0.27
6HF2Q6		62.68	4.50	1.18	60.56	2.01	0.49
6UU8RY		55.90	-2.28	-0.60	54.50	-4.05	-0.99
6VMVEZ	X	51.83	-6.35	-1.66	61.83	3.27	0.80
7UN6LQ		61.35	3.17	0.83	61.95	3.40	0.83
84LF7T		62.47	4.29	1.12	61.70	3.15	0.77
8FHFU4	*	64.73	6.55	1.71	58.71	0.16	0.04
8LLHTP		54.00	-4.18	-1.09	54.04	-4.51	-1.10
92BXDZ		58.21	0.03	0.01	60.49	1.94	0.47
9NB76H		58.42	0.24	0.06	59.13	0.58	0.14
A4HKLD	*	48.80	-9.38	-2.45	53.20	-5.35	-1.30
ADLT4J		58.98	0.80	0.21	60.34	1.79	0.44
AMHGHF		60.91	2.73	0.71	61.90	3.35	0.81
B96M6N	X	60.46	2.28	0.60	62.86	4.31	1.05
C3V46M		60.40	2.22	0.58	55.90	-2.65	-0.65
C63BL9		58.20	0.02	0.01	58.10	-0.45	-0.11
C6KBLD		59.06	0.88	0.23	60.76	2.21	0.54
CHJCY2		58.80	0.62	0.16	57.20	-1.35	-0.33
CJYFTT		57.76	-0.42	-0.11	55.66	-2.89	-0.70
CMVQL2		57.03	-1.15	-0.30	59.49	0.94	0.23
D9ZZQ8	X	57.99	-0.19	-0.05	78.71	20.15	4.91
DJHLUG		57.41	-0.77	-0.20	59.96	1.41	0.34
DJNP3F		58.65	0.47	0.12	59.59	1.04	0.25
DVH9BT		58.40	0.22	0.06	57.31	-1.24	-0.30
DXC86Q		67.41	9.23	2.42	68.34	9.79	2.38
FGFLPN		61.77	3.59	0.94	60.34	1.78	0.43
FPHN32		49.80	-8.38	-2.19	49.50	-9.05	-2.20
G2DVP4		62.40	4.22	1.10	63.20	4.65	1.13
K4V2P3		61.69	3.51	0.92	61.28	2.73	0.66
KMQGJY		56.02	-2.16	-0.57	60.32	1.77	0.43
L8F78B		56.30	-1.88	-0.49	55.18	-3.37	-0.82
LHYQF2		56.82	-1.36	-0.36	59.10	0.55	0.13
LJU4CE		56.10	-2.08	-0.54	56.00	-2.55	-0.62
LN6BPR		60.06	1.88	0.49	59.86	1.31	0.32

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

WebCode	Data Flag	Sample SC51			Sample SC52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
M7FFQU		65.80	7.62	1.99	67.40	8.85	2.15
M8BXZX		53.35	-4.83	-1.26	57.16	-1.40	-0.34
MFXQLN		53.40	-4.78	-1.25	50.20	-8.35	-2.03
MK8XXL		54.22	-3.96	-1.04	57.81	-0.74	-0.18
N8JMAZ		55.29	-2.89	-0.76	53.28	-5.27	-1.28
NBCFVX		59.02	0.84	0.22	56.84	-1.71	-0.42
NJKVCQ		59.89	1.71	0.45	64.87	6.32	1.54
P4EJTX		57.60	-0.58	-0.15	56.12	-2.43	-0.59
PNNVRU		57.00	-1.18	-0.31	57.80	-0.75	-0.18
QAB9GA		54.10	-4.08	-1.07	52.80	-5.75	-1.40
QDVMBG	X	55.21	-2.97	-0.78	52.28	-6.27	-1.53
QKMRJD		65.45	7.27	1.90	67.00	8.45	2.06
QR2JW6		64.73	6.55	1.71	64.43	5.88	1.43
RUJZP9		58.63	0.45	0.12	59.45	0.90	0.22
TNXJPW		55.96	-2.22	-0.58	53.57	-4.98	-1.21
TPT9WJ		65.50	7.32	1.92	66.70	8.15	1.98
TUM3V7		60.36	2.18	0.57	65.28	6.73	1.64
TUNRFH		59.93	1.75	0.46	59.80	1.24	0.30
UKMLG3		53.70	-4.48	-1.17	56.20	-2.35	-0.57
URBMZ7		60.77	2.59	0.68	61.06	2.51	0.61
V3BEFC		54.62	-3.56	-0.93	53.94	-4.61	-1.12
VJUCEJ		58.06	-0.12	-0.03	58.86	0.31	0.07
VKD32A		57.24	-0.94	-0.25	58.92	0.37	0.09
VMQAEA		54.32	-3.86	-1.01	57.04	-1.51	-0.37
WPLXY4		58.60	0.42	0.11	61.30	2.75	0.67
WTK8BQ		64.88	6.70	1.75	60.56	2.01	0.49
X2HVPU	X	57.25	-0.93	-0.24	69.86	11.31	2.75
XB3LBF		56.65	-1.53	-0.40	58.60	0.05	0.01
XMALKL	X	51.36	-6.82	-1.78	64.21	5.66	1.38
XWGD2G		56.76	-1.42	-0.37	54.70	-3.85	-0.94
Y2KVD2		54.74	-3.44	-0.90	54.45	-4.10	-1.00
YA8FDL	X	52.59	-5.59	-1.46	64.24	5.69	1.38
YNZ3EU		61.26	3.08	0.81	62.65	4.10	1.00
ZMMPCJ		59.64	1.46	0.38	63.56	5.01	1.22

Sample SC51		Summary Statistics	Sample SC52	
Grand Means	58.180 Grams		58.553 Grams	
SD Btwn Labs	3.821 Grams		4.108 Grams	
Statistics based on 70 of 77 reporting participants				

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

Comments on assigned Data Flags for Test #312

6VMVEZ (X) - Inconsistent in testing between samples.

B96M6N (X) - Data appear to be off by a factor of 1/2; data converted by CTS (x2).

D9ZZQ8 (X) - Inconsistent in testing between samples, data for Sample SC52 are high, and inconsistent within the determinations for Sample SC51.

QDVMBG (X) - Data appear to be off by a factor of 2; data converted by CTS (/2).

X2HVPU (X) - Inconsistent in testing between samples, data for Sample SC52 are high.

XMALKL (X) - Inconsistent in testing between samples.

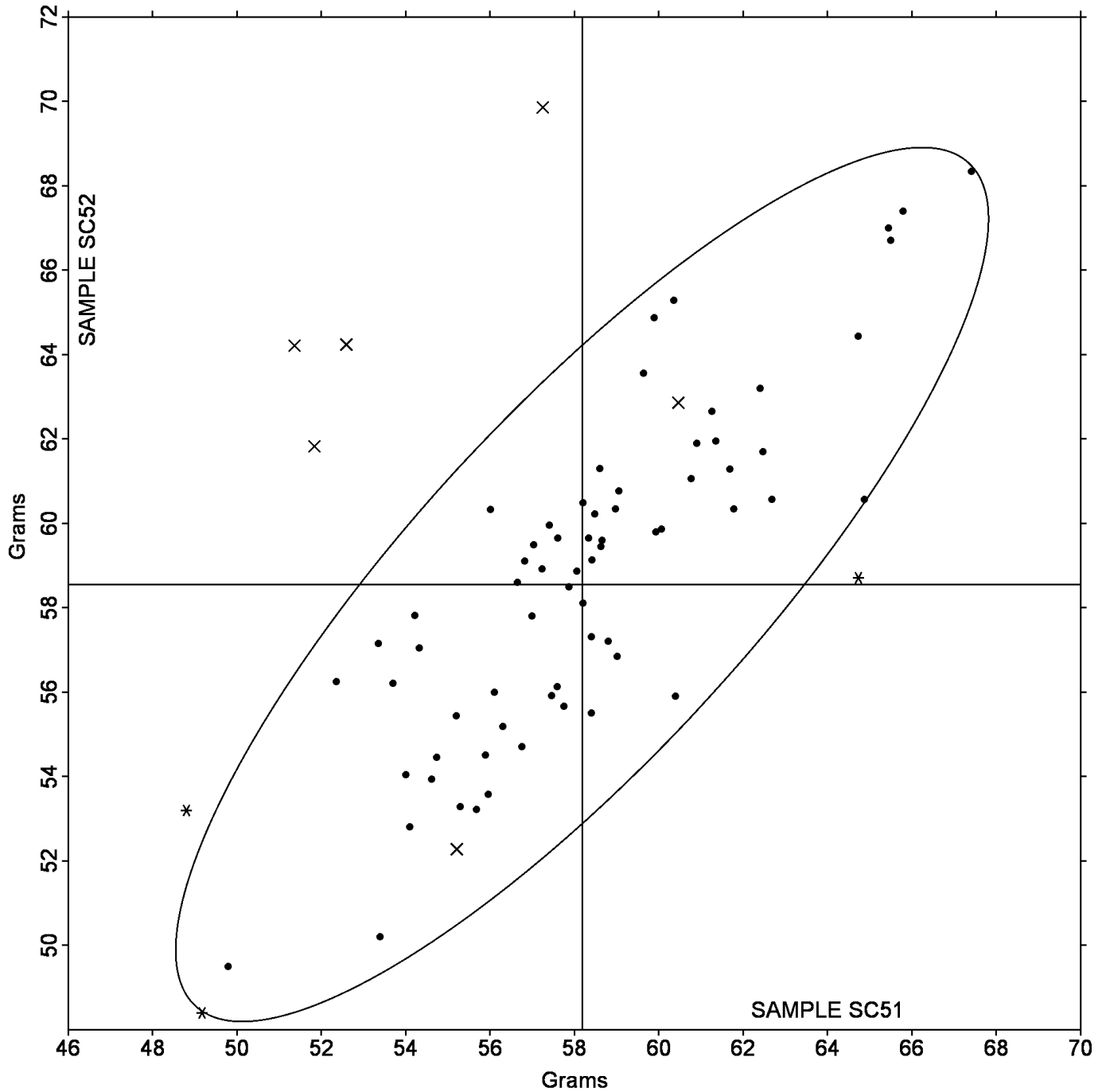
YA8FDL (X) - Inconsistent in testing between samples.

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

Grand Mean Sample **SC51** = 58.180 Grams

Grand Mean Sample **SC52** = 58.553 Grams

ANALYSIS 312



TAPPI-CTS Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

WebCode	Data Flag	Sample SD51			Sample SD52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2ACN6R		200.0	1.8	0.19	258.0	-2.0	-0.12
2DR7FU		199.8	1.7	0.18	268.4	8.4	0.49
2MDEXW		196.5	-1.6	-0.17	250.8	-9.2	-0.53
2ZVUFH	X	41.5	-156.7	-16.62	48.7	-211.3	-12.28
3496RD		186.8	-11.4	-1.21	224.0	-36.0	-2.09
36GDL6		180.6	-17.6	-1.86	260.0	0.0	0.00
3FGQXY		199.9	1.7	0.18	273.4	13.4	0.78
3W64A7		181.3	-16.9	-1.79	240.0	-20.0	-1.16
4T6WHC		192.6	-5.5	-0.59	257.6	-2.4	-0.14
6VPDKC		190.5	-7.7	-0.82	252.0	-8.0	-0.46
7QHVMX		199.3	1.1	0.12	272.8	12.8	0.74
7YBY9X		196.4	-1.8	-0.19	263.4	3.4	0.20
89HYLJ		200.8	2.6	0.28	252.5	-7.5	-0.44
8DR48Q		181.6	-16.6	-1.76	252.0	-8.0	-0.46
ALRPPN		193.3	-4.9	-0.52	259.4	-0.6	-0.03
BU2D23		215.7	17.5	1.86	303.5	43.5	2.53
CPGCC3		195.8	-2.4	-0.25	275.1	15.1	0.87
E272AZ		205.2	7.1	0.75	271.9	11.9	0.69
ENFGLW		211.0	12.8	1.36	268.0	8.0	0.46
FD94X2		216.1	18.0	1.91	275.3	15.3	0.89
FF2RK3		197.6	-0.6	-0.06	264.6	4.6	0.27
FN3NNQ		195.1	-3.0	-0.32	270.4	10.4	0.60
FT7NHF		200.6	2.5	0.26	249.8	-10.2	-0.59
GVXNTX		196.4	-1.8	-0.19	261.8	1.8	0.10
J2UXPV		209.7	11.5	1.22	260.5	0.5	0.03
KET9N2		210.1	11.9	1.26	267.0	7.0	0.41
KWZR2B		183.9	-14.2	-1.51	245.2	-14.8	-0.86
MMZMK		188.1	-10.1	-1.07	247.2	-12.8	-0.74
MP9J6A		175.9	-22.2	-2.36	244.8	-15.2	-0.89
MWCF2U		206.8	8.6	0.92	276.0	16.0	0.93
MX776M		206.9	8.8	0.93	290.0	30.0	1.74
PWJCFJ	X	198.6	0.5	0.05	267.7	7.7	0.45
Q3Q3KN		208.0	9.8	1.04	272.7	12.7	0.74
Q9LQW3		191.8	-6.3	-0.67	243.8	-16.2	-0.94
QM9E6L	X	202.2	4.0	0.43	260.0	0.0	0.00
R7KHQB		202.0	3.8	0.41	266.0	6.0	0.35
R9Q4Z9		198.2	0.0	0.00	248.5	-11.5	-0.67
RC4UEB	*	198.1	-0.1	-0.01	215.8	-44.2	-2.57
RKCYUV		203.2	5.0	0.53	273.5	13.5	0.78
RX9EGH	X	190.9	-7.3	-0.77	247.5	-12.5	-0.73
U2MNKK		206.1	8.0	0.85	265.9	5.9	0.35
ULB7TK		207.7	9.5	1.01	270.6	10.6	0.62
W7H2WF		196.0	-2.2	-0.23	247.0	-13.0	-0.76

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

WebCode	Data Flag	Sample SD51			Sample SD52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XB74GR		202.3	4.1	0.44	265.3	5.3	0.31
XUZYUE		189.1	-9.1	-0.96	254.9	-5.1	-0.30
YDC9M7		205.5	7.3	0.77	292.7	32.7	1.90
YTVTR7		191.2	-7.0	-0.74	224.0	-36.0	-2.09
YW9VD2		205.6	7.4	0.79	244.0	-16.0	-0.93

		Summary Statistics	
	Sample SD51		Sample SD52
Grand Means	198.16 Grams		260.00 Grams
SD Btwn Labs	9.43 Grams		17.21 Grams
Statistics based on 44 of 48 reporting participants			

Comments on assigned Data Flags for Test #314

2ZVUFH (X) - Extreme data.

PWJCFJ (X) - Data appear to be off by a factor of 1/8; data converted by CTS (x8).

QM9E6L (X) - Data appear to be off by a factor of 1/4; data converted by CTS (x4).

RX9EGH (X) - Data appears to be transposed between samples. Data switched by CTS.

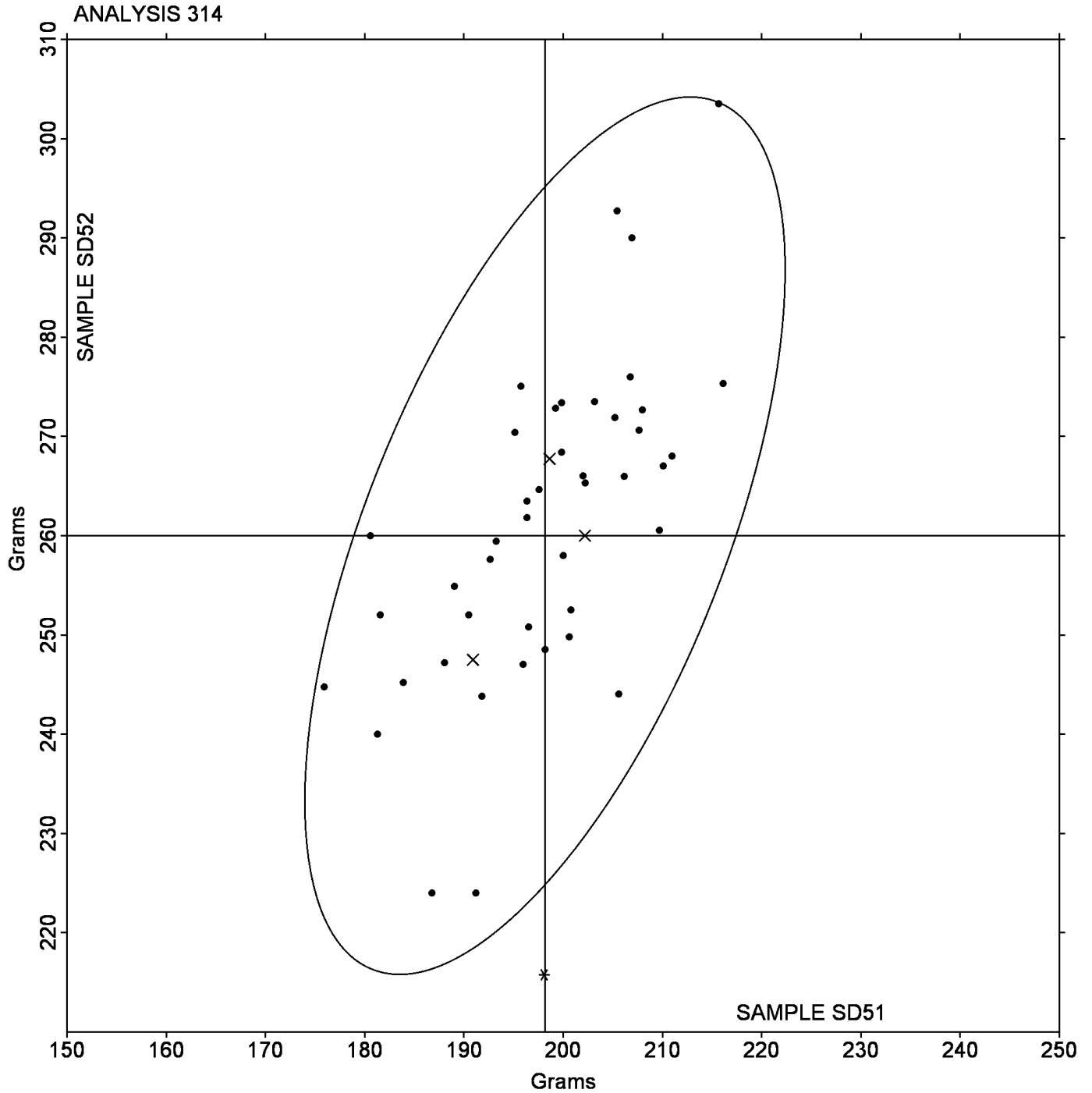
TAPPI-CTS Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

Grand Mean Sample **SD51** = 198.16 Grams

Grand Mean Sample **SD52** = 260.00 Grams



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

WebCode	Data Flag	Sample SR51			Sample SR52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
39TBRE		1.939	-0.028	-0.22	1.735	-0.195	-1.30
3XVFQB		1.850	-0.118	-0.93	1.792	-0.139	-0.93
4MQPPZ		1.961	-0.006	-0.05	2.006	0.075	0.50
6UNVTG		2.086	0.119	0.94	1.991	0.061	0.40
8HL8XP		2.051	0.084	0.66	2.008	0.077	0.51
8PKPE8		1.960	-0.008	-0.06	2.077	0.146	0.98
ADND2K		2.074	0.106	0.84	2.139	0.208	1.39
AKNP9Q	*	2.322	0.355	2.81	2.185	0.254	1.70
AKRDK3		1.918	-0.049	-0.39	1.968	0.038	0.25
DHKGB2		2.075	0.107	0.85	2.079	0.148	0.99
FW3YBN	X	2.042	0.075	0.59	1.475	-0.455	-3.04
FWN9QK		1.966	-0.001	-0.01	1.935	0.004	0.03
M2CFTQ		2.021	0.053	0.42	1.976	0.045	0.30
M46Q4Y		2.085	0.118	0.94	2.075	0.144	0.96
MZTJ2Y		1.824	-0.143	-1.14	1.759	-0.172	-1.15
NVDDYX		1.906	-0.061	-0.49	1.851	-0.080	-0.53
PK2W7P		1.901	-0.067	-0.53	1.831	-0.100	-0.67
PKPZ2K		1.969	0.002	0.01	1.856	-0.075	-0.50
UB87YD		1.700	-0.268	-2.12	1.549	-0.381	-2.54
UCBZBP		1.931	-0.036	-0.29	1.927	-0.004	-0.03
VPETDL		1.893	-0.074	-0.59	1.867	-0.064	-0.43
ZUR3NE		1.882	-0.085	-0.68	1.940	0.009	0.06

	Sample SR51	Summary Statistics	Sample SR52
Grand Means	1.9673 kN/m		1.9307 kN/m
SD Btwn Labs	0.1262 kN/m		0.1499 kN/m
Statistics based on 21 of 22 reporting participants			

Comments on assigned Data Flags for Test #320

FW3YBN (X) - Inconsistent in testing between samples, data for Sample SR52 are low and inconsistent within the determinations for Sample SR52.

Analysis Notes:

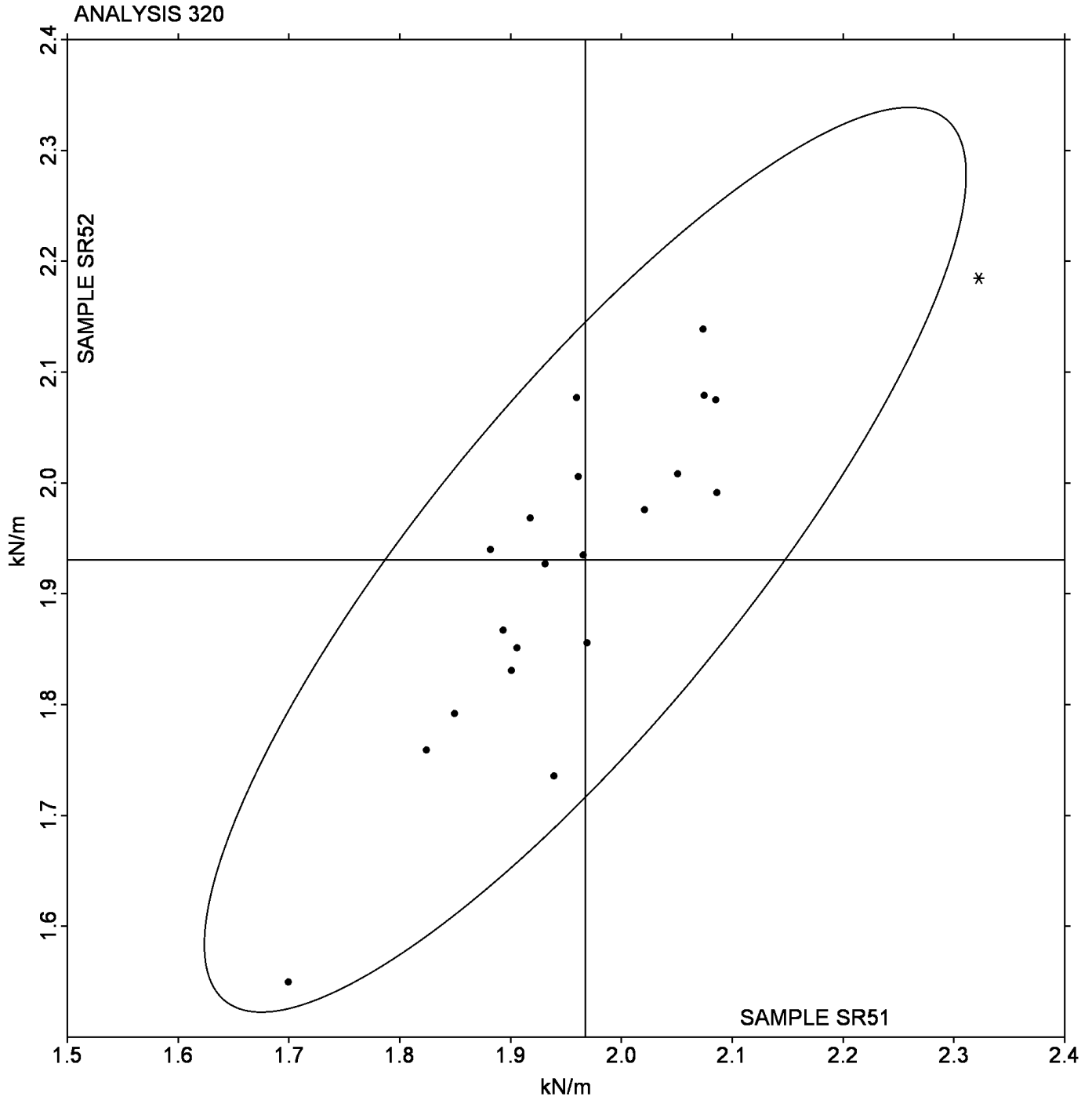
39TBRE - One determination removed from the Lab Mean of Sample SR51 per Grubb's Test at 1% risk (TAPPI 1205).

M46Q4Y - Data appear to be off by a factor of 10; data converted by CTS (/10).

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

Grand Mean Sample **SR51** = 1.9673 kN/m

Grand Mean Sample **SR52** = 1.9307 kN/m



TAPPI-CTS Interlaboratory Testing Program
Analysis 321
Tensile Energy Absorption - Newsprint

WebCode	Data Flag	Sample SR51			Sample SR52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2HPL4W		11.10	0.11	0.09	10.97	0.29	0.17
499RPR		12.19	1.20	0.95	13.51	2.82	1.64
4G6WDZ		9.84	-1.15	-0.91	8.95	-1.74	-1.01
7P9PPF		10.16	-0.83	-0.66	9.40	-1.29	-0.75
96UYLF		13.72	2.73	2.15	12.85	2.16	1.26
BW6AK6		11.08	0.09	0.07	10.10	-0.59	-0.34
C26MAT		11.32	0.33	0.26	12.03	1.35	0.78
CMK6E4		9.42	-1.57	-1.24	11.37	0.68	0.40
HQWDK4		11.29	0.30	0.23	10.66	-0.02	-0.01
JXNMJU		9.55	-1.45	-1.14	9.98	-0.71	-0.41
L7VE3U		10.55	-0.44	-0.35	12.25	1.57	0.91
PAPFZQ		10.98	-0.01	-0.01	11.07	0.39	0.22
PPG8KU		10.40	-0.59	-0.47	10.28	-0.41	-0.24
Q2A7QQ		8.59	-2.40	-1.89	7.24	-3.45	-2.01
UJJ9CT		13.20	2.21	1.74	14.20	3.51	2.04
VFC9DE		11.38	0.38	0.30	9.90	-0.78	-0.45
WK7K84		12.90	1.91	1.51	11.21	0.53	0.31
XAWY2H		10.39	-0.60	-0.47	10.15	-0.54	-0.31
YFWBEB		10.16	-0.83	-0.65	10.48	-0.21	-0.12
YQXA27	*	11.62	0.63	0.49	7.49	-3.20	-1.86
Z9RK6Y		10.98	-0.02	-0.01	10.32	-0.37	-0.22

		Summary Statistics			
		Sample SR51		Sample SR52	
Grand Means		10.991	Joules/sq m	10.686	Joules/sq m
SD Btwn Labs		1.266	Joules/sq m	1.719	Joules/sq m
Statistics based on 21 of 21 reporting participants					

Notes for Analysis 321

No Data Flags assigned for this analysis.

Analysis Notes:

Q2A7QQ - One determination removed from the Lab Mean of Sample SR51 per Grubb's Test at 5% risk (TAPPI 1205).

TAPPI-CTS Interlaboratory Testing Program

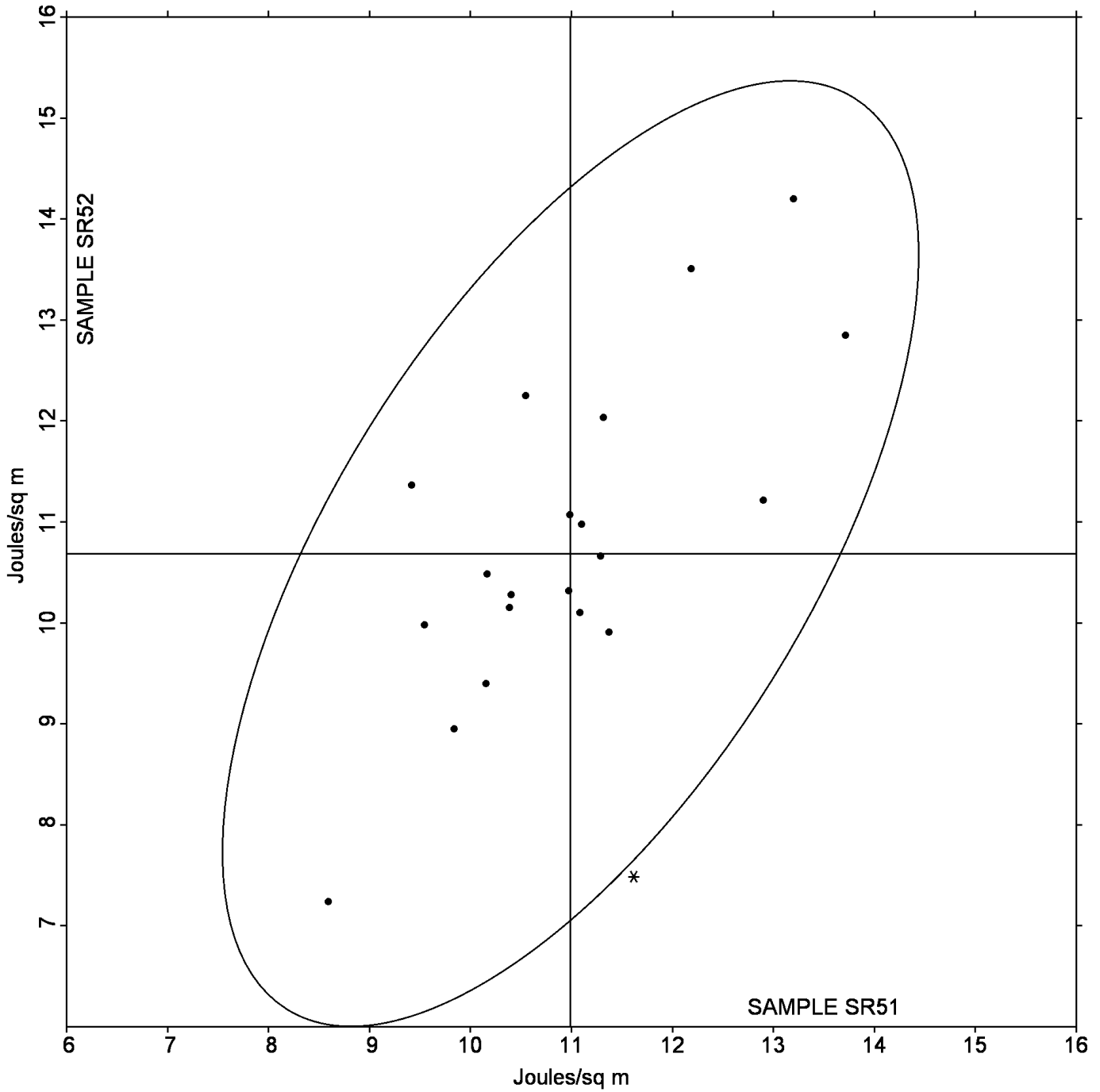
Analysis 321

Tensile Energy Absorption - Newsprint

Grand Mean Sample **SR51** = 10.991 Joules/sq m

Grand Mean Sample **SR52** = 10.686 Joules/sq m

ANALYSIS 321



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

WebCode	Data Flag	Sample SR51			Sample SR52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
389FMD		1.1300	0.1538	1.38	1.1200	0.1435	1.18
38QPTD		0.8140	-0.1622	-1.46	0.8960	-0.0805	-0.66
394HNF		0.9492	-0.0270	-0.24	0.9501	-0.0264	-0.22
88XJG3		1.0089	0.0327	0.29	0.9444	-0.0321	-0.26
9WTQR9		0.8822	-0.0940	-0.84	0.8130	-0.1635	-1.35
ABG33V		0.9640	-0.0122	-0.11	0.9010	-0.0755	-0.62
CFMMXL		0.9562	-0.0200	-0.18	0.9720	-0.0045	-0.04
CNXRWH		1.1263	0.1501	1.35	1.1686	0.1921	1.58
CPPTUU		1.0630	0.0868	0.78	1.0980	0.1215	1.00
D37BZ3		0.8250	-0.1512	-1.36	0.9380	-0.0385	-0.32
E9FPE8		0.9070	-0.0692	-0.62	0.8690	-0.1075	-0.88
EUUELB		1.1337	0.1575	1.41	1.1355	0.1590	1.31
HAMWVJ		0.9405	-0.0357	-0.32	0.9216	-0.0548	-0.45
LKJJFV		0.9130	-0.0632	-0.57	0.9190	-0.0575	-0.47
MGE7CP		0.8960	-0.0802	-0.72	0.9400	-0.0365	-0.30
N2AXLF		0.8320	-0.1442	-1.30	0.8560	-0.1205	-0.99
RD9YE9		0.9530	-0.0232	-0.21	0.8900	-0.0865	-0.71
TV8ZYP		0.9762	0.0000	0.00	0.9055	-0.0710	-0.58
UBLKAU		1.1680	0.1918	1.72	1.2460	0.2695	2.22
UMUEER		0.9120	-0.0642	-0.58	0.8800	-0.0965	-0.79
XUXY79		1.1500	0.1738	1.56	1.1420	0.1655	1.36

Sample SR51		Summary Statistics	Sample SR52	
Grand Means	0.97620 Percent		0.97646 Percent	
SD Btw Labs	0.11131 Percent		0.12150 Percent	
Statistics based on 21 of 21 reporting participants				

Notes for Analysis 322

No Data Flags assigned for this analysis.

Analysis Notes:

9WTQR9 - One determination removed from the Lab Mean of Sample SR51 per Grubb's Test at 5% risk (TAPPI 1205).

TAPPI-CTS Interlaboratory Testing Program

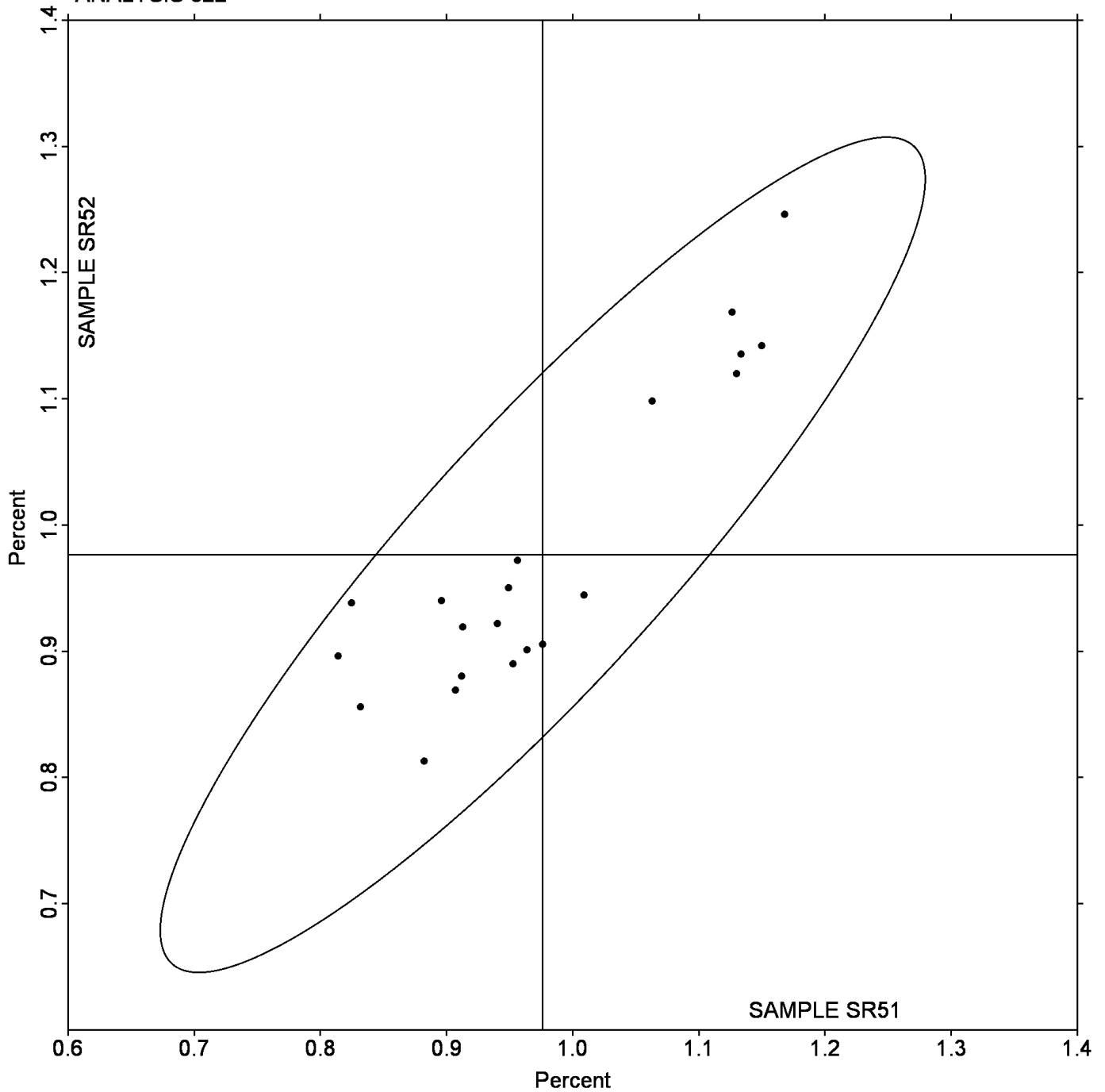
Analysis 322

Elongation to Break - Newsprint

Grand Mean Sample **SR51** = 0.97620 Percent

Grand Mean Sample **SR52** = 0.97646 Percent

ANALYSIS 322



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

WebCode	Data Flag	Sample SF51			Sample SF52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2RQEUN		5.294	-0.298	-1.05	5.231	-0.447	-1.34	TX
2VLM3K		5.570	-0.022	-0.08	5.626	-0.052	-0.16	TP
34FK96		5.767	0.175	0.62	5.767	0.089	0.27	LH
37ZJDM		5.707	0.115	0.41	5.789	0.111	0.33	LH
4W642N		5.807	0.215	0.76	5.909	0.231	0.69	SP
4Z6NXF		5.510	-0.082	-0.29	5.315	-0.363	-1.09	DL
7FRTCM		5.571	-0.021	-0.07	5.612	-0.066	-0.20	LH
8JM4J7		5.650	0.058	0.21	5.683	0.005	0.01	LH
8RWD8Y		5.287	-0.305	-1.07	5.323	-0.355	-1.07	XX
978D93		5.908	0.316	1.11	6.026	0.348	1.04	XX
9DJPZV		5.739	0.147	0.52	5.662	-0.016	-0.05	LH
9M4AUR		5.939	0.347	1.22	5.940	0.262	0.79	LH
9YDRKA		5.158	-0.434	-1.53	4.995	-0.683	-2.05	TF
9ZZWQ2		5.616	0.024	0.09	5.649	-0.029	-0.09	TC
B2LKZ8		5.236	-0.356	-1.26	5.403	-0.275	-0.82	TI
BFMCHH		5.340	-0.252	-0.89	5.294	-0.384	-1.15	IM
CJXRG9		5.221	-0.371	-1.31	5.420	-0.259	-0.78	TB
CQPK7V		5.811	0.219	0.77	5.954	0.276	0.83	TO
DRLFL6		5.507	-0.085	-0.30	5.644	-0.034	-0.10	LH
E24J4N		5.682	0.090	0.32	6.010	0.332	1.00	VM
E4J2ND		6.080	0.488	1.72	6.144	0.466	1.40	LH
E7R4UX		5.563	-0.029	-0.10	5.610	-0.068	-0.20	LI
ELTC9X		6.109	0.517	1.82	6.236	0.558	1.68	TJ
EQ8TV9		5.780	0.188	0.66	5.928	0.250	0.75	XX
EUXWRL		6.103	0.512	1.80	6.223	0.545	1.64	IA
F7DJT6		5.275	-0.317	-1.12	5.372	-0.306	-0.92	TO
FYVMXQ		5.757	0.165	0.58	5.827	0.149	0.45	LH
G23L93		5.867	0.275	0.97	5.913	0.235	0.71	LH
G39MUH	X	4.677	-0.915	-3.22	4.705	-0.973	-2.92	IN
GDXT69		6.042	0.450	1.59	6.164	0.486	1.46	LH
GMLN6N		5.882	0.290	1.02	6.111	0.433	1.30	LH
GNH233		5.529	-0.062	-0.22	5.642	-0.036	-0.11	LH
H643B4		5.932	0.340	1.20	6.056	0.378	1.14	TB
HGDNF6		5.388	-0.204	-0.72	5.567	-0.111	-0.33	LH
HVVJPA		5.493	-0.099	-0.35	5.579	-0.099	-0.30	LH
JVET83		5.260	-0.332	-1.17	5.201	-0.477	-1.43	LX
JWLXY6		5.436	-0.156	-0.55	5.587	-0.091	-0.27	TJ
K9N7GL		5.850	0.258	0.91	5.787	0.109	0.33	LI
LCQ7QH		5.099	-0.493	-1.74	5.122	-0.556	-1.67	LH
MUZHMD		5.175	-0.417	-1.47	5.465	-0.213	-0.64	TI
MVHM7B		5.706	0.114	0.40	5.804	0.126	0.38	TI
N2DYP8		5.919	0.327	1.15	6.242	0.564	1.69	LH
N7QYMY		5.851	0.259	0.91	6.084	0.406	1.22	LX

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

WebCode	Data Flag	Sample SF51			Sample SF52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
NRFUYK		5.839	0.247	0.87	6.142	0.464	1.39	LX
P6EFFZ		6.222	0.630	2.22	6.297	0.619	1.86	TJ
P9WE4F		5.545	-0.047	-0.17	5.704	0.026	0.08	IM
PLU86T		5.482	-0.110	-0.39	5.535	-0.143	-0.43	LH
PP6FTB		5.231	-0.361	-1.27	5.350	-0.328	-0.98	IK
QT6XYH		5.310	-0.282	-0.99	5.269	-0.409	-1.23	MN
QXEDZE	*	5.491	-0.101	-0.36	5.887	0.209	0.63	TB
RN9MEJ		5.667	0.075	0.27	5.741	0.063	0.19	LI
RWDVDV		5.498	-0.094	-0.33	5.570	-0.108	-0.32	TB
TNKX89		5.874	0.283	1.00	5.964	0.286	0.86	IM
TP66ZP		5.270	-0.321	-1.13	5.300	-0.378	-1.13	ID
TWCAK9		5.462	-0.130	-0.46	5.675	-0.003	-0.01	KA
U4ABDM		5.821	0.229	0.81	5.780	0.102	0.31	TO
U9ZYJT		5.210	-0.382	-1.35	5.070	-0.609	-1.83	LH
UDXATK		5.094	-0.498	-1.75	4.974	-0.704	-2.12	MR
UKCZA6		5.084	-0.508	-1.79	5.167	-0.511	-1.53	ID
VETY8E		5.760	0.168	0.59	5.897	0.219	0.66	XX
VG2Z8R		5.303	-0.289	-1.02	5.148	-0.530	-1.59	TO
VTA47U		5.471	-0.120	-0.42	5.480	-0.198	-0.59	LH
VV3RTW		5.390	-0.202	-0.71	5.584	-0.094	-0.28	LH
VZ2KAP		5.695	0.103	0.36	5.552	-0.127	-0.38	LA
WMXEZQ		5.440	-0.152	-0.53	5.402	-0.276	-0.83	TB
X66E7J		5.642	0.051	0.18	5.988	0.310	0.93	IX
XCA4V6		5.457	-0.135	-0.48	5.620	-0.058	-0.17	IK
XF8J89		5.976	0.384	1.35	6.144	0.466	1.40	TO
XHDUEA		5.457	-0.135	-0.48	5.837	0.159	0.48	TJ
Y2ZY68		5.245	-0.347	-1.22	5.354	-0.324	-0.97	TO
YNCXMF		5.727	0.135	0.48	5.849	0.171	0.51	TP
YUF4ZW		5.943	0.351	1.24	5.949	0.271	0.81	TA

	Sample SF51	Summary Statistics	Sample SF52
Grand Means	5.5918 kN/m		5.6781 kN/m
SD Btw Labs	0.2837 kN/m		0.3330 kN/m
Statistics based on 71 of 72 reporting participants			

Comments on assigned Data Flags for Test #325

B2LKZ8 () - Data appear to be off by a factor of 1000; data converted by CTS (/1000).

G39MUH (X) - Systematic error (data for both samples are low), and inconsistent within the determinations for Sample SF51.

HVVJPA () - Data appear to be off by a factor of 1000; data converted by CTS (/1000).

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

Analysis Notes:

QXEDZE - Data appear to be reported as kN/m, not Kg-inch as indicated on datasheet. Unit changed by CTS.

Instrument Code List

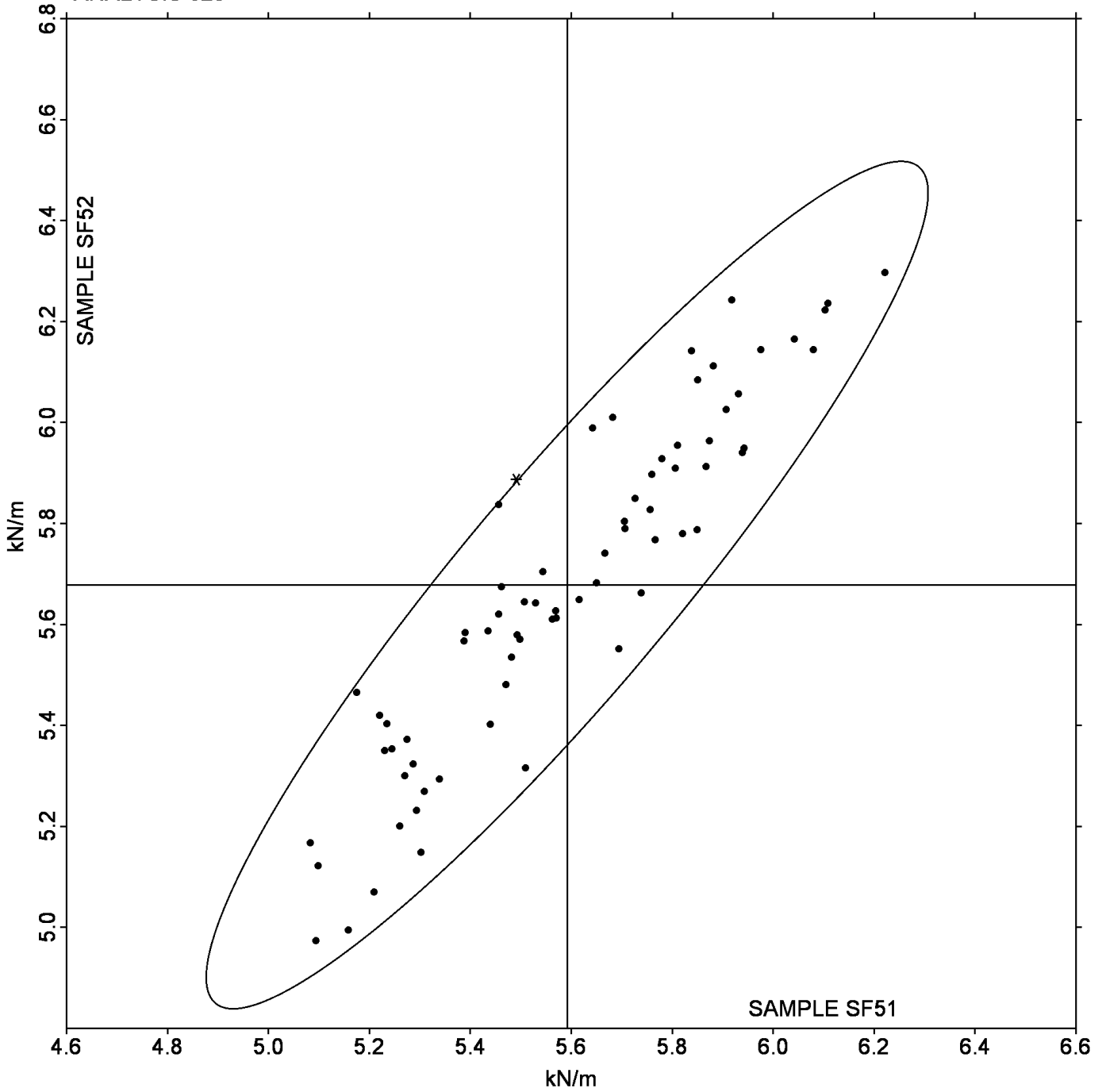
(DL) - EMIC DL500 Universal Testing Machines	(IA) - Instron 1011
(ID) - Instron 4201/4202	(IK) - Instron 4400 Series
(IM) - Instron 5500 Series	(IN) - Instron 3340 series
(IX) - Instron (model not specified)	(KA) - Zwick Model 1425
(LA) - L & W Tensile - Autoline 300	(LH) - L & W Alwetron TH1 (Horizontal) SE 060/065F
(LI) - L & W Tensile Tester SE 062	(LX) - L & W (model not specified)
(MN) - Minebea	(MR) - MTS Alliance RT series
(SP) - Schopper Type Tensile Tester (TMI)	(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)
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab

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

Grand Mean Sample SF51 = 5.5918 kN/m

Grand Mean Sample SF52 = 5.6781 kN/m

ANALYSIS 325



TAPPI-CTS Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

WebCode	Data Flag	Sample SF51			Sample SF52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KAWLL		85.37	7.88	1.41	84.80	6.73	1.03	TB
2PWNMB		69.30	-8.19	-1.46	66.53	-11.54	-1.77	TJ
337JL7		75.25	-2.24	-0.40	75.44	-2.63	-0.40	LH
3AJG86		80.10	2.61	0.47	75.20	-2.87	-0.44	LH
3XYVA4	X	60.20	-17.29	-3.09	78.38	0.31	0.05	TB
43PPMV		78.66	1.17	0.21	82.02	3.95	0.61	TI
4BBVBL		76.92	-0.58	-0.10	76.08	-2.00	-0.31	TA
4W7D3F		80.21	2.72	0.49	79.52	1.45	0.22	DL
6KHY2W		72.88	-4.61	-0.82	70.98	-7.09	-1.09	IM
6KRHGP		71.91	-5.58	-1.00	73.40	-4.67	-0.72	LH
6YCZBE		73.25	-4.24	-0.76	79.10	1.03	0.16	LI
7DPEXF	X	7.07	-70.43	-12.60	8.41	-69.66	-10.70	IM
7Y8X67	X	1.97	-75.52	-13.51	2.03	-76.04	-11.68	TP
8VVM7F		78.10	0.61	0.11	75.41	-2.66	-0.41	LX
ANHYWH		70.09	-7.40	-1.32	69.04	-9.03	-1.39	LH
AUQAAX		84.83	7.34	1.31	88.26	10.19	1.57	TO
CLLAU		88.15	10.66	1.91	89.17	11.10	1.70	XX
CMUGK9		78.92	1.43	0.26	83.97	5.90	0.91	TO
CNVAQ8		82.01	4.52	0.81	80.59	2.52	0.39	LH
DA3ZGU		83.50	6.01	1.07	78.20	0.13	0.02	LI
DGYL62		80.21	2.72	0.49	79.44	1.36	0.21	LH
DPUN8D		71.41	-6.08	-1.09	74.97	-3.10	-0.48	LH
F8CKEP		78.00	0.51	0.09	78.01	-0.06	-0.01	LH
FNX4YP		66.76	-10.73	-1.92	70.20	-7.87	-1.21	LH
FV4V9L		75.98	-1.51	-0.27	84.64	6.57	1.01	KA
GB64H8		81.34	3.84	0.69	81.71	3.64	0.56	LX
GZGWFQ		85.01	7.52	1.35	81.61	3.54	0.54	XX
JQB668		83.16	5.67	1.01	83.35	5.28	0.81	LH
KLMRBP		82.75	5.25	0.94	80.91	2.84	0.44	LI
LZK6FC	X	58.71	-18.78	-3.36	57.50	-20.58	-3.16	IN
N8LDGG		84.40	6.91	1.24	90.82	12.75	1.96	IM
NE4NQC		73.50	-3.99	-0.71	76.55	-1.52	-0.23	ID
P2DA2U		86.98	9.49	1.70	90.81	12.74	1.96	LH
PCT622		78.32	0.83	0.15	78.91	0.84	0.13	LI
QPHH2V		74.60	-2.89	-0.52	70.75	-7.32	-1.12	LA
QXW82P	*	64.32	-13.18	-2.36	59.05	-19.02	-2.92	MR
T3VUYV		74.49	-3.00	-0.54	74.49	-3.58	-0.55	LH
TKPT8A	X	80.85	3.36	0.60	98.51	20.44	3.14	VM
TNU3DQ		71.92	-5.57	-1.00	72.33	-5.74	-0.88	ID
TUH4KQ		75.12	-2.37	-0.42	78.09	0.02	0.00	LH
UP3EU7		80.41	2.92	0.52	83.10	5.03	0.77	IK
UU3KLLK		73.25	-4.24	-0.76	76.60	-1.47	-0.23	XX
UX3VGK		71.50	-5.99	-1.07	70.94	-7.13	-1.09	LH

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

WebCode	Data Flag	Sample SF51			Sample SF52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VXU7UY		84.56	7.06	1.26	86.00	7.93	1.22	IM
XEXPFF		74.36	-3.13	-0.56	74.52	-3.55	-0.55	LH
XRQYN8		79.45	1.96	0.35	76.34	-1.73	-0.27	XX
XUBNVE		74.55	-2.95	-0.53	75.33	-2.74	-0.42	LI
XUF3LL		76.32	-1.17	-0.21	79.86	1.78	0.27	LH

Sample SF51		Summary Statistics	Sample SF52	
Grand Means	77.491 Joules/sq m		78.070 Joules/sq m	
SD Btwn Labs	5.591 Joules/sq m		6.510 Joules/sq m	
Statistics based on 43 of 48 reporting participants				

Comments on assigned Data Flags for Test #327

3XYVA4 (X) - Inconsistent in testing between samples, data for Sample SF51 are low, and inconsistent within the determinations for both samples.

7DPEXF (X) - Extreme data.

7Y8X67 (X) - Extreme data.

AUQAAX () - Data appear to be reported as Kg-m/sq m , not inch-lb/sq inch as indicated on datasheet. Unit changed by CTS.

LZK6FC (X) - Systematic error (data for both samples are low), and inconsistent within the determinations for Sample SF51.

TKPT8A (X) - Inconsistent in testing between samples, data for Sample SF52 are high.

Analysis Notes:

2PWNMB - Data appear to be reported as Kg-m/sq m, not ft-lb/sq ft as indicated on datasheet. Unit changed by CTS.

P2DA2U - Data appear to be reported as Kg-m/sq m, not ft-lb/sq ft as indicated on datasheet. Unit changed by CTS.

VXU7UY - Data appear to be reported as ft-lb/sq ft, not inch-lb/sq-in as indicated on datasheet. Unit changed by CTS.

Instrument Code List

- | | |
|---------------------------------------------------|-----------------------------------------------|
| (DL) - EMIC DL500 Universal Testing Machines | (ID) - Instron 4201 |
| (IK) - Instron 4400 Series | (IM) - Instron 5500 Series |
| (IN) - Instron 3340 series | (KA) - Zwick Model 1425 |
| (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 | (TA) - Thwing-Albert |
| (TB) - Thwing-Albert EJA/1000 | (TI) - Thwing-Albert QC II |
| (TJ) - Thwing-Albert QC II-XS | (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 | |

TAPPI-CTS Interlaboratory Testing Program

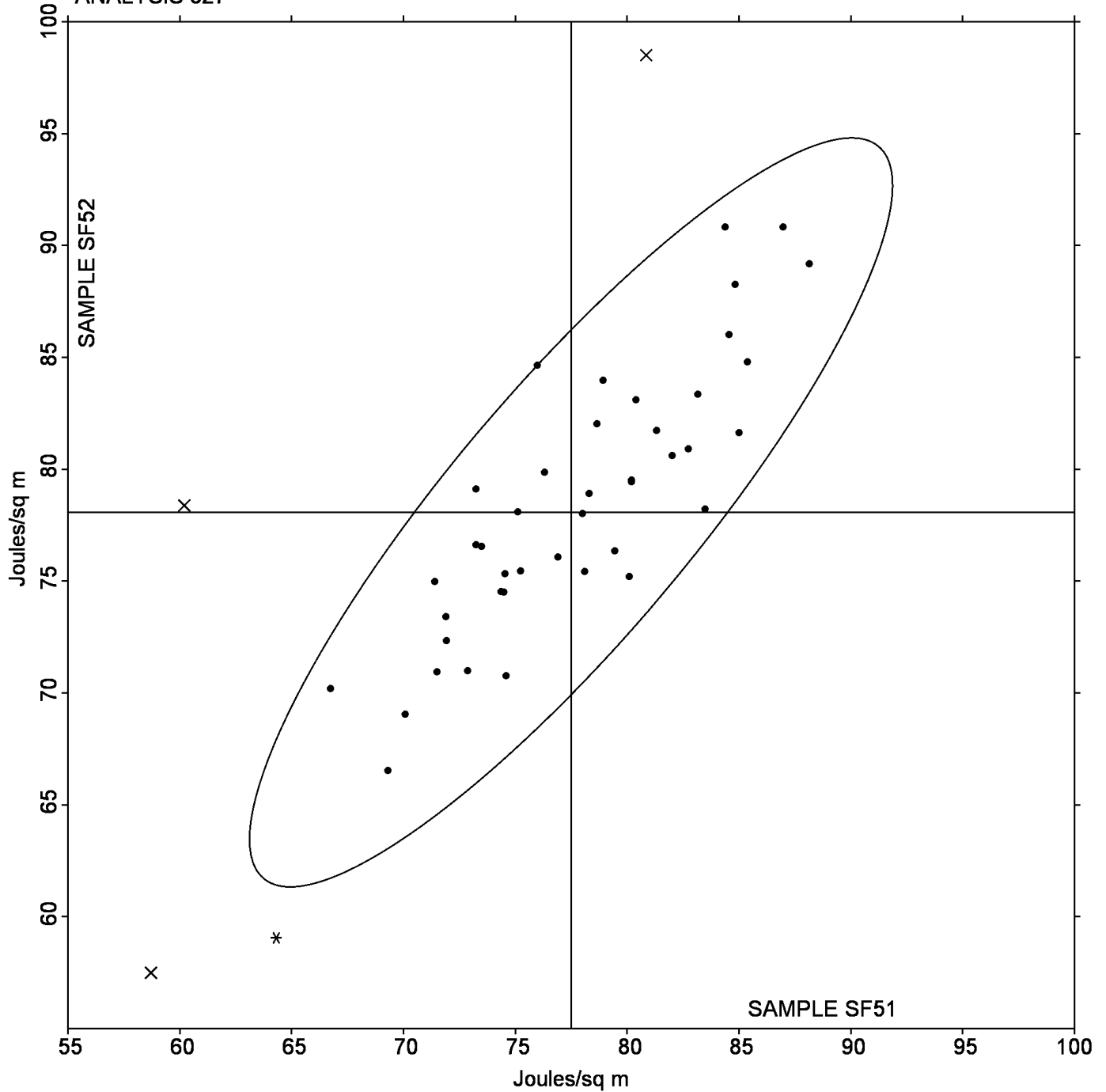
Analysis 327

Tensile Energy Absorption - Printing Papers

Grand Mean Sample **SF51** = 77.491 Joules/sq m

Grand Mean Sample **SF52** = 78.070 Joules/sq m

ANALYSIS 327



TAPPI-CTS Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

WebCode	Data Flag	Sample SF51			Sample SF52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2GAKPM		2.357	0.259	1.13	2.421	0.282	1.26	TB
2Y8UJQ		1.709	-0.389	-1.70	1.714	-0.425	-1.90	LH
3PEWD4		2.250	0.152	0.67	2.360	0.221	0.99	IM
47LALZ		2.284	0.186	0.81	2.386	0.247	1.10	IK
4EY98X		2.160	0.062	0.27	2.310	0.171	0.77	IA
6E73Q3		2.050	-0.048	-0.21	1.980	-0.159	-0.71	LI
6TEM2U		2.070	-0.028	-0.12	2.165	0.026	0.12	TI
6YECAL		2.091	-0.007	-0.03	2.126	-0.012	-0.06	TX
7MZFNV		2.327	0.229	1.00	2.389	0.250	1.12	IK
8UC9UX		1.609	-0.489	-2.14	1.667	-0.472	-2.11	LH
9HWEJ6	*	2.661	0.563	2.46	2.576	0.437	1.95	TJ
9RGZ9Z		1.918	-0.180	-0.79	2.028	-0.111	-0.49	LH
9UFR38		1.934	-0.164	-0.72	1.884	-0.255	-1.14	MR
9YJW8Y		2.020	-0.078	-0.34	1.980	-0.159	-0.71	LH
A92VFF		1.824	-0.274	-1.20	1.823	-0.316	-1.41	LH
AMK6YU	X	2.459	0.361	1.58	2.702	0.563	2.52	VM
ARD4FB		1.968	-0.130	-0.57	2.097	-0.042	-0.19	LH
BQA2Y6		2.060	-0.038	-0.17	2.086	-0.053	-0.24	LH
CL7YPT		2.211	0.113	0.49	2.265	0.126	0.56	LH
CWUJJ7		2.367	0.269	1.18	2.353	0.214	0.96	TO
D4N9BU	X	3.200	1.102	4.82	3.391	1.252	5.59	TO
DZ39BE		1.840	-0.258	-1.13	1.870	-0.269	-1.20	TJ
E7LZY7		2.034	-0.064	-0.28	2.039	-0.100	-0.45	LH
EKKZMF		2.381	0.283	1.24	2.492	0.353	1.58	IM
FCNLA7		1.944	-0.154	-0.67	2.107	-0.032	-0.14	LA
HA8BX8		2.006	-0.092	-0.40	2.041	-0.098	-0.44	LI
HJFLQW		1.981	-0.117	-0.51	2.049	-0.090	-0.40	LH
JBWKAF		1.772	-0.326	-1.43	1.813	-0.326	-1.46	IN
KQU8RZ		1.929	-0.169	-0.74	2.016	-0.123	-0.55	LH
KZ3KZG		2.101	0.004	0.02	2.195	0.056	0.25	ID
LFY3QE		2.099	0.001	0.01	2.099	-0.040	-0.18	LI
LMDBRG		1.900	-0.198	-0.86	1.850	-0.289	-1.29	IM
LRZYCZ	X	1.976	-0.121	-0.53	2.259	0.120	0.54	TB
MU7YRR		2.015	-0.083	-0.36	2.010	-0.129	-0.58	LH
MXRD2L		2.338	0.240	1.05	2.300	0.161	0.72	XX
N8RMDN		2.030	-0.068	-0.30	2.070	-0.069	-0.31	XX
NHTVFE		2.050	-0.048	-0.21	2.244	0.105	0.47	KA
P86MWQ		1.973	-0.125	-0.55	2.062	-0.077	-0.34	XX
PJ3FQ2		1.910	-0.188	-0.82	2.040	-0.099	-0.44	LH
QRX2PT		2.550	0.452	1.98	2.540	0.401	1.79	TF
QT9F7U		1.947	-0.151	-0.66	2.022	-0.117	-0.52	LH
QWBR4Z	X	1.660	-0.438	-1.91	1.970	-0.169	-0.75	TJ
RDDV2W		2.051	-0.047	-0.20	2.036	-0.103	-0.46	LX

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

WebCode	Data Flag	Sample SF51			Sample SF52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
TZNT4J	X	4.185	2.087	9.12	4.402	2.263	10.11	TP
UACJHU		2.190	0.092	0.40	2.160	0.021	0.09	TF
UMGLZD	*	2.808	0.710	3.10	2.771	0.632	2.82	XX
WH7DZD		2.382	0.284	1.24	2.334	0.195	0.87	MN
WTZP26		1.956	-0.142	-0.62	1.994	-0.145	-0.65	LI
WW9R9M		2.235	0.137	0.60	2.317	0.178	0.80	DL
WWQMT		2.004	-0.094	-0.41	1.969	-0.170	-0.76	XX
X4TNRA		2.148	0.050	0.22	2.158	0.019	0.09	XX
XLFT2A	X	45.029	42.931	187.67	53.076	50.937	227.56	TB
Y2AT3N		2.196	0.098	0.43	2.206	0.067	0.30	LX
Y84P6L		2.017	-0.081	-0.35	2.132	-0.007	-0.03	LH
Y9BUWN		2.095	-0.002	-0.01	2.124	-0.015	-0.06	TB
YEJ6WV		1.888	-0.210	-0.92	1.963	-0.176	-0.79	LH
YTM39M		2.485	0.387	1.69	2.561	0.422	1.89	TO
ZE6JZK		2.030	-0.068	-0.30	2.075	-0.064	-0.29	ID
ZWH7LR		2.027	-0.071	-0.31	2.085	-0.054	-0.24	LH

Sample SF51		Summary Statistics	Sample SF52	
Grand Means	2.0978 Percent		2.1387 Percent	
SD Btwn Labs	0.2288 Percent		0.2238 Percent	
Statistics based on 53 of 59 reporting participants				

Comments on assigned Data Flags for Test #328

- AMK6YU (X) - Inconsistent in testing between samples.
- D4N9BU (X) - Extreme data.
- LRZYCZ (X) - Inconsistent in testing between samples.
- QWBR4Z (X) - Inconsistent in testing between samples.
- TZNT4J (X) - Extreme data.
- XLFT2A (X) - Extreme data.

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

Instrument Code List

(DL) - EMIC DL500 Universal Testing Machines	(IA) - Instron 1011
(ID) - Instron 4201	(IK) - Instron 4400 Series
(IM) - Instron 5500	(IN) - Instron 3340 Series
(KA) - Zwick Model 1425	(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)	(MN) - Minebea
(MR) - MTS Alliance RT series	(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)	(TX) - Thwing-Albert (model not specified)
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab

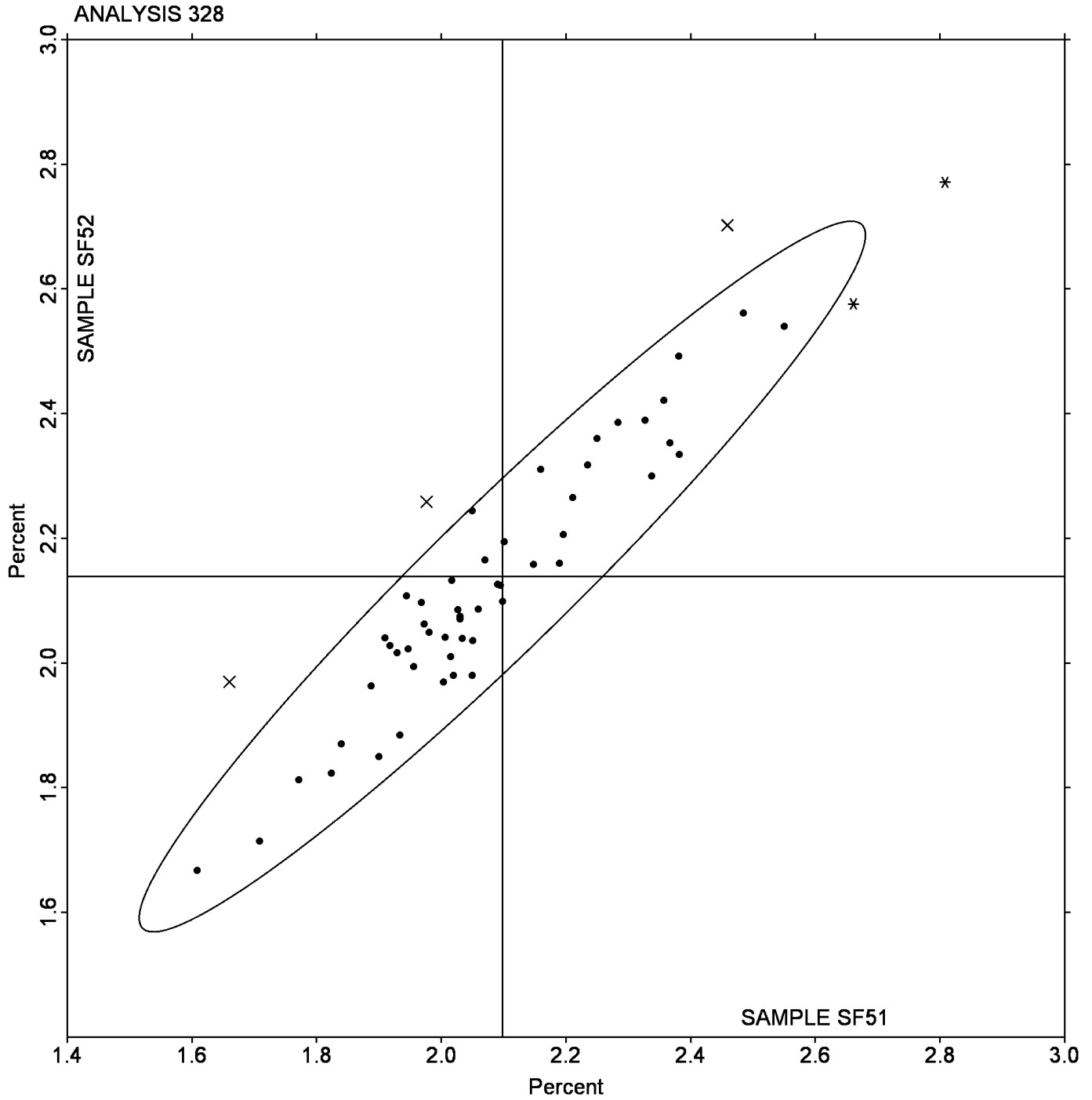
TAPPI-CTS Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

Grand Mean Sample **SF51** = 2.0978 Percent

Grand Mean Sample **SF52** = 2.1387 Percent



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

WebCode	Data Flag	Sample SE51			Sample SE52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
37ZW76	*	3.757	-0.664	-2.12	4.365	-0.584	-1.57	IF
3EPXWE		4.256	-0.164	-0.53	4.852	-0.097	-0.26	TP
3GGPB7		4.473	0.052	0.17	5.208	0.260	0.70	IM
42M4PU		4.620	0.199	0.64	5.184	0.235	0.63	TO
4JPLVT		4.854	0.433	1.38	5.628	0.680	1.83	TK
622V9X		4.115	-0.305	-0.98	4.806	-0.143	-0.38	TO
64G3QE		4.255	-0.166	-0.53	4.758	-0.191	-0.51	ID
68LJEA		4.531	0.110	0.35	5.137	0.188	0.51	SP
8B9ZT8		4.373	-0.048	-0.15	4.902	-0.047	-0.13	ID
8QPV94		4.061	-0.360	-1.15	4.570	-0.378	-1.02	SB
9HTWCT		4.472	0.051	0.16	4.864	-0.084	-0.23	LH
9UV7AG	*	3.918	-0.503	-1.61	4.076	-0.873	-2.35	SA
9WR6U8		4.110	-0.311	-0.99	4.698	-0.250	-0.67	IN
C9JN93		4.548	0.127	0.41	4.964	0.015	0.04	LH
CMHBXJ		4.594	0.173	0.55	5.181	0.233	0.63	XX
DXFVE2		4.334	-0.087	-0.28	4.874	-0.075	-0.20	XX
E2WF2G		4.139	-0.282	-0.90	4.649	-0.299	-0.81	TE
EY9XXQ		4.643	0.222	0.71	5.241	0.292	0.79	TA
FHXMR4		4.191	-0.230	-0.74	4.717	-0.231	-0.62	IM
GYVEQW		4.409	-0.012	-0.04	4.903	-0.046	-0.12	TB
HMMV79		4.384	-0.037	-0.12	4.782	-0.166	-0.45	IX
HUF86H		4.498	0.077	0.25	5.121	0.173	0.47	LH
HWCJ2C		4.825	0.404	1.29	5.522	0.573	1.54	TH
JR6TRA		4.149	-0.272	-0.87	4.508	-0.441	-1.19	XX
JT8EXF		4.483	0.062	0.20	5.154	0.205	0.55	TO
KRPNBN	*	5.310	0.890	2.85	5.951	1.003	2.70	LA
KRPWYM		4.386	-0.035	-0.11	4.913	-0.036	-0.10	TB
M82ZW8		4.467	0.046	0.15	4.876	-0.072	-0.19	LH
PHWCEJ		5.062	0.641	2.05	5.566	0.617	1.66	LA
PXAHWA		4.492	0.071	0.23	5.052	0.104	0.28	LH
Q6Z7MR		4.538	0.117	0.37	5.036	0.088	0.24	TO
RJ2X9W		4.656	0.235	0.75	5.148	0.200	0.54	TB
TPXCVG		4.500	0.079	0.25	4.970	0.021	0.06	TP
ULTA9X		4.292	-0.129	-0.41	4.653	-0.296	-0.80	LW
UP7X2G		4.233	-0.188	-0.60	4.560	-0.389	-1.05	LW
VXTKVX		4.415	-0.006	-0.02	4.967	0.019	0.05	TE
W4CJXK		3.745	-0.676	-2.16	4.239	-0.709	-1.91	IF
WXBQZ3		4.693	0.272	0.87	5.266	0.318	0.86	TK
ZCEHUW		4.634	0.213	0.68	5.131	0.182	0.49	IK

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

	Sample SE51	Summary Statistics	Sample SE52
Grand Means	4.4209 kN/m		4.9485 kN/m
SD Btwn Labs	0.3125 kN/m		0.3715 kN/m
Statistics based on 39 of 39 reporting participants			

Notes for Analysis 330

No Data Flags assigned for this analysis.

Analysis Notes:

KRPNBN - Data appear to be reported as lb/inch , not kN/m as indicated on datasheet. Unit changed by CTS.

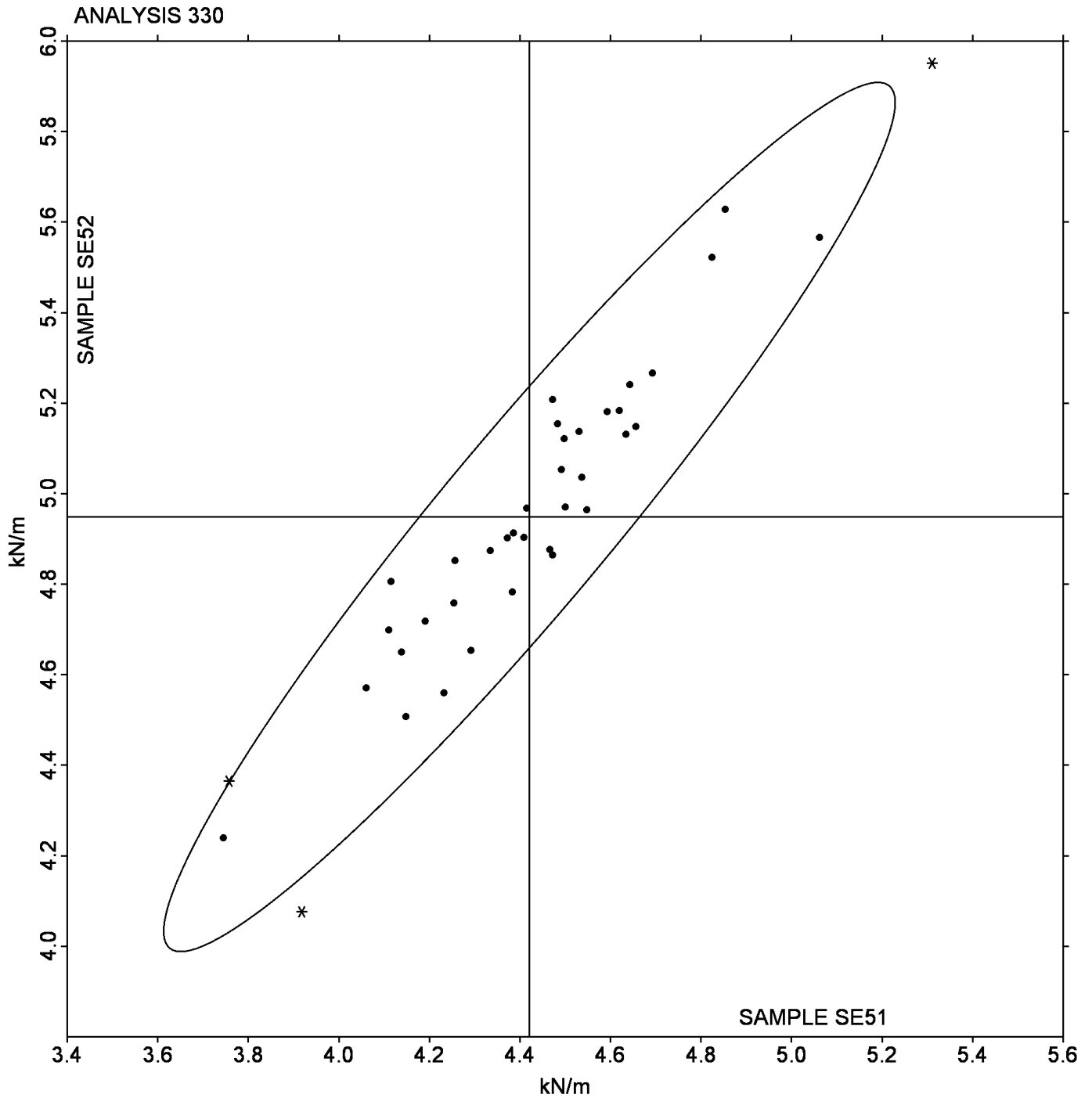
Instrument Code List

(ID) - Instron 4201	(IF) - Instron 3340 Series
(IK) - Instron 4400 Series	(IM) - Instron 5500 Series
(IN) - Instron 3360 Series	(IX) - Instron (model not specified)
(LA) - L & W Autoline	(LH) - L & W Alwetron TH1 (Horizontal) SE 060
(LW) - L & W Tensile Tester SE062	(SA) - Shimadzu Autograph AG 2000 A
(SB) - Shimadzu Autograph DSS 500	(SP) - Schopper Type Tensile Tester (TMI)
(TA) - Thwing-Albert Tensile Tester	(TB) - Thwing-Albert EJA/1000
(TE) - Thwing-Albert Intelect II	(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 330
Tensile Breaking Strength - Packaging Papers

Grand Mean Sample **SE51** = 4.4209 kN/m

Grand Mean Sample **SE52** = 4.9485 kN/m



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

WebCode	Data Flag	Sample SE51			Sample SE52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4JC32M	*	159.2	-7.6	-0.62	138.5	-38.0	-2.64	SA
6CMRHC		181.5	14.7	1.21	174.4	-2.2	-0.15	LH
7CDE62		155.4	-11.5	-0.94	171.0	-5.6	-0.39	IN
7RHMAN		182.1	15.3	1.25	194.0	17.4	1.21	TH
AJY23M		186.5	19.7	1.61	190.8	14.3	0.99	IK
B23TT9		166.7	-0.1	-0.01	187.0	10.5	0.73	IM
BU2L6T		163.6	-3.2	-0.26	200.7	24.1	1.67	TO
EBQL6W		175.4	8.6	0.70	171.1	-5.5	-0.38	SB
EHQWHF		165.5	-1.4	-0.11	176.7	0.1	0.01	LH
GFFVCZ		151.9	-14.9	-1.22	175.3	-1.2	-0.09	IA
GRMKAB		181.8	15.0	1.23	180.0	3.4	0.24	IX
HJ6JAD		169.0	2.2	0.18	172.9	-3.6	-0.25	XX
HJKVXA		163.8	-3.0	-0.25	165.3	-11.2	-0.78	LW
HL9ETF		172.1	5.2	0.43	179.5	3.0	0.21	TO
JT2BTN		159.9	-6.9	-0.56	168.1	-8.4	-0.59	TB
LCTUZU		162.4	-4.4	-0.36	176.6	0.0	0.00	XX
LRRU4W		171.8	4.9	0.41	184.6	8.1	0.56	TO
NWUM9C		162.3	-4.5	-0.37	186.1	9.5	0.66	XX
PUA8ZA		159.4	-7.5	-0.61	151.0	-25.5	-1.77	LH
TDEU7Q		162.9	-4.0	-0.32	181.7	5.1	0.36	TE
UGVVFG		160.3	-6.5	-0.53	162.7	-13.8	-0.96	LW
UZ97JF		187.5	20.6	1.69	185.5	8.9	0.62	LA
V74BCC	*	134.1	-32.7	-2.68	151.3	-25.3	-1.75	IF
VMN7JT		187.6	20.8	1.70	202.1	25.5	1.77	TB
W9K4GB		159.5	-7.3	-0.60	183.2	6.7	0.46	IM
WXVCWE		161.4	-5.4	-0.44	176.0	-0.5	-0.04	TP
Z8P2PV		160.6	-6.2	-0.51	181.0	4.4	0.31	TE

Sample SE51		Summary Statistics	Sample SE52	
Grand Means	166.82 Joules/sq m		176.55 Joules/sq m	
SD Btwn Labs	12.21 Joules/sq m		14.41 Joules/sq m	
Statistics based on 27 of 27 reporting participants				

Notes for Analysis 331

No Data Flags assigned for this analysis.

Analysis Notes:

HJ6JAD - Data appear to be reported as ft.-lb/sq ft , not inch-lb/sq in as indicated on datasheet. Unit changed by CTS.

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

Instrument Code List

(IA) - Instron 1011	(IF) - Instron 3340 Series
(IK) - Instron 4400 Series	(IM) - Instron 5500 Series
(IN) - Instron 3360 Series	(IX) - Instron (model not specified)
(LA) - L & W Autoline	(LH) - L & W Alwetron TH1 (Horizontal) SE 060
(LW) - L & W Tensile Tester SE062	(SA) - Shimadzu Autograph AG 2000 A
(SB) - Shimadzu Autograph DSS 500	(TB) - Thwing-Albert EJA/1000
(TE) - Thwing-Albert Intelect II	(TH) - Thwing-Albert QC-3A
(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

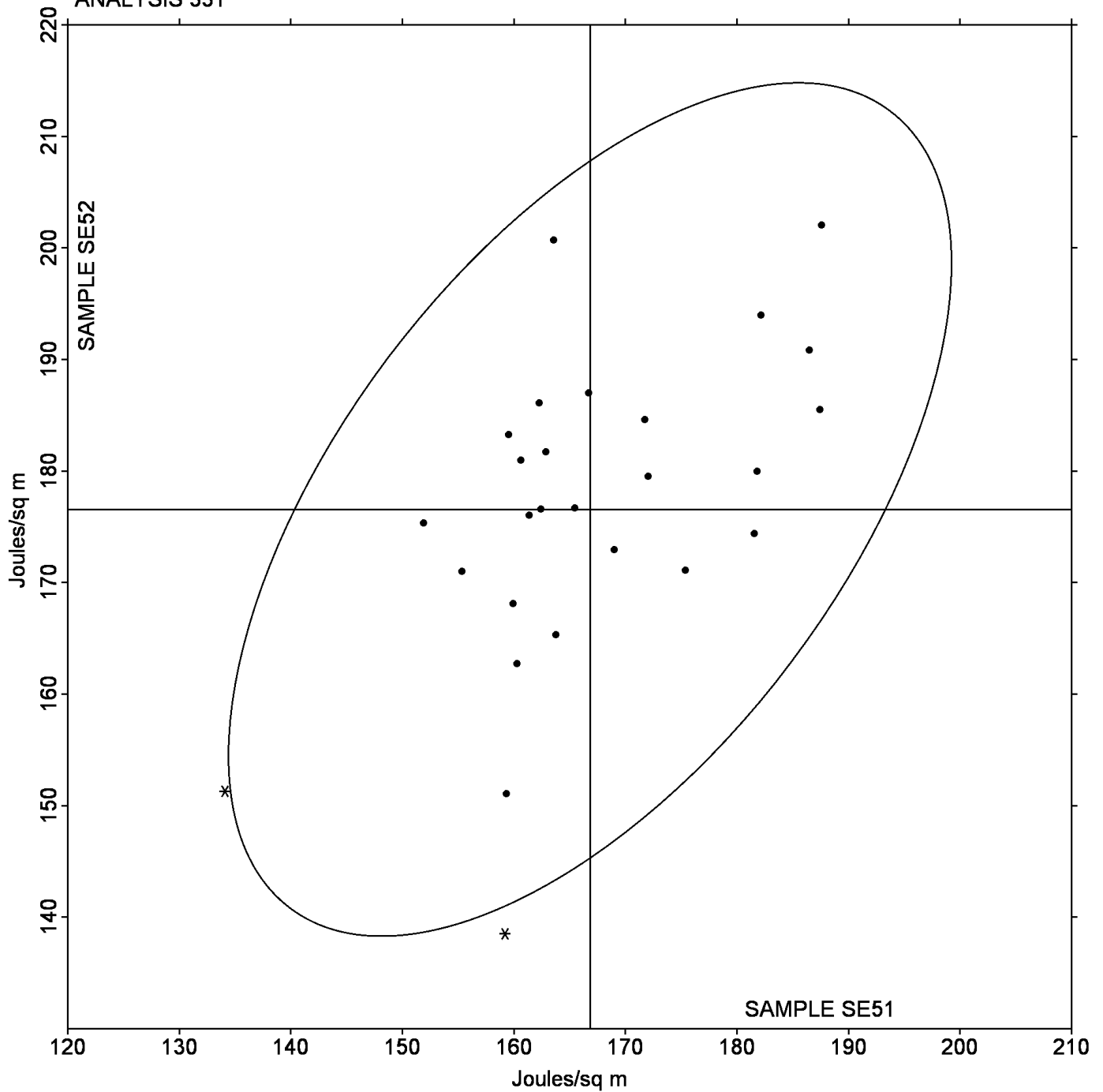
Analysis 331

Tensile Energy Absorption - Packaging Papers

Grand Mean Sample **SE51** = 166.82 Joules/sq m

Grand Mean Sample **SE52** = 176.55 Joules/sq m

ANALYSIS 331



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

WebCode	Data Flag	Sample SE51			Sample SE52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3JA667		4.790	-0.338	-1.10	4.646	-0.321	-0.93	TB
84V7HC		5.213	0.085	0.27	5.284	0.317	0.92	TO
9394VF		4.944	-0.184	-0.60	4.791	-0.176	-0.51	TO
94Y724		5.002	-0.126	-0.41	4.926	-0.041	-0.12	LW
97RDZL		5.197	0.069	0.22	4.987	0.020	0.06	TH
9BE9LB		5.481	0.353	1.14	5.320	0.353	1.02	IM
AP8NX7		5.110	-0.018	-0.06	4.941	-0.026	-0.07	XX
CK22YY		5.550	0.422	1.37	5.032	0.065	0.19	SB
CKCZL3		5.005	-0.123	-0.40	4.843	-0.124	-0.36	TB
CL9NY6		4.930	-0.198	-0.64	4.900	-0.067	-0.19	XX
CXBH8P		4.740	-0.388	-1.26	4.986	0.019	0.05	XX
D44FHH		4.924	-0.204	-0.66	4.671	-0.296	-0.86	XX
DHGTRP		5.567	0.439	1.42	5.101	0.134	0.39	LH
GPZ8LR		4.804	-0.324	-1.05	5.007	0.040	0.12	IM
HUDL7H		4.670	-0.458	-1.49	4.400	-0.567	-1.64	LH
J3VD9T		5.765	0.637	2.06	5.451	0.484	1.40	TP
J4WW2N		4.748	-0.380	-1.23	4.653	-0.314	-0.91	IF
JD8NKB	*	5.462	0.334	1.08	5.834	0.867	2.52	TO
KJTY3Y		5.000	-0.128	-0.42	5.157	0.190	0.55	TE
LAUAT3		5.372	0.244	0.79	5.400	0.433	1.26	TB
MMARL6		5.384	0.256	0.83	4.928	-0.039	-0.11	IX
NQBEQ8		4.841	-0.287	-0.93	4.595	-0.372	-1.08	LH
P7AV44		4.993	-0.135	-0.44	4.595	-0.372	-1.08	LW
PWGUA9		5.311	0.183	0.59	5.124	0.157	0.46	IK
QJTXYZ		5.568	0.440	1.43	4.812	-0.155	-0.45	SA
TZBKDN		5.250	0.122	0.39	4.957	-0.010	-0.03	XX
U648M3		5.143	0.015	0.05	5.211	0.244	0.71	TE
Z4GTB7		5.075	-0.053	-0.17	4.971	0.004	0.01	IN
Z4YFDG		5.420	0.292	0.95	5.490	0.523	1.52	IA
ZPZTMT		5.206	0.078	0.25	4.873	-0.094	-0.27	XX
ZXKN6B		4.510	-0.618	-2.00	4.089	-0.878	-2.55	LA

Sample SE51		Summary Statistics	Sample SE52	
Grand Means	5.1282 Percent		4.9670 Percent	
SD Btw Labs	0.3085 Percent		0.3447 Percent	
Statistics based on 31 of 31 reporting participants				

Notes for Analysis 332

No Data Flags assigned for this analysis.

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

Instrument Code List

(IA) - Instron 1011	(IF) - Instron 3340 Series
(IK) - Instron 4400 Series	(IM) - Instron 5500 Series
(IN) - Instron 3360 Series	(IX) - Instron (model not specified)
(LA) - L & W Autoline 300	(LH) - L & W Alwetron TH1 (Horizontal) SE 060
(LW) - L & W Tensile Tester SE062	(SA) - Shimadzu Autograph AG 2000 A
(SB) - Shimadzu Autograph DSS 500	(TB) - Thwing-Albert EJA/1000
(TE) - Thwing-Albert Intelect II	(TH) - Thwing-Albert QC-3A
(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 334
Folding Endurance (MIT) - Double Folds

WebCode	Data Flag	Sample SG51			Sample SG52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2U7T9H		49.50	-14.35	-0.97	57.20	-6.95	-0.55	MT
4JLBGN		66.20	2.35	0.16	50.90	-13.25	-1.05	MT
4YXRNQ		89.80	25.95	1.75	80.20	16.05	1.28	MT
6Y477K		75.90	12.05	0.81	60.80	-3.35	-0.27	MT
9H3R7E		51.90	-11.95	-0.81	47.70	-16.45	-1.31	MT
ARDH2N		42.70	-21.15	-1.43	45.30	-18.85	-1.50	MT
B4Q7NK		84.80	20.95	1.42	67.50	3.35	0.27	MT
CM3BP3		62.20	-1.65	-0.11	62.40	-1.75	-0.14	MT
DUGGYE		66.00	2.15	0.15	82.70	18.55	1.47	MT
DWGQW		68.10	4.25	0.29	63.20	-0.95	-0.08	MT
GWEV82	X	1,050.60	986.75	66.65	931.70	867.55	68.97	MT
J3KKDX		66.20	2.35	0.16	80.80	16.65	1.32	MT
JDRC3K		73.60	9.75	0.66	71.40	7.25	0.58	MT
MPDM69		44.30	-19.55	-1.32	49.80	-14.35	-1.14	MT
MT9M24		81.00	17.15	1.16	72.00	7.85	0.62	XX
NF873U		47.50	-16.35	-1.10	61.70	-2.45	-0.19	MT
PWMWB		86.50	22.65	1.53	89.50	25.35	2.02	MT
UGQBNU		57.30	-6.55	-0.44	71.30	7.15	0.57	MT
UNXPRW		42.50	-21.35	-1.44	54.20	-9.95	-0.79	MT
XQ4P28		59.70	-4.15	-0.28	53.00	-11.15	-0.89	XX
Z6PMU8		61.30	-2.55	-0.17	61.40	-2.75	-0.22	MT

Sample SG51		Summary Statistics	Sample SG52	
Grand Means	63.850 Double Folds		64.150 Double Folds	
SD Btwn Labs	14.804 Double Folds		12.578 Double Folds	
Statistics based on 20 of 21 reporting participants				

Comments on assigned Data Flags for Test #334

GWEV82 (X) - Extreme data.

Instrument Code List

(MT) - MIT - Tinius Olsen

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

TAPPI-CTS Interlaboratory Testing Program

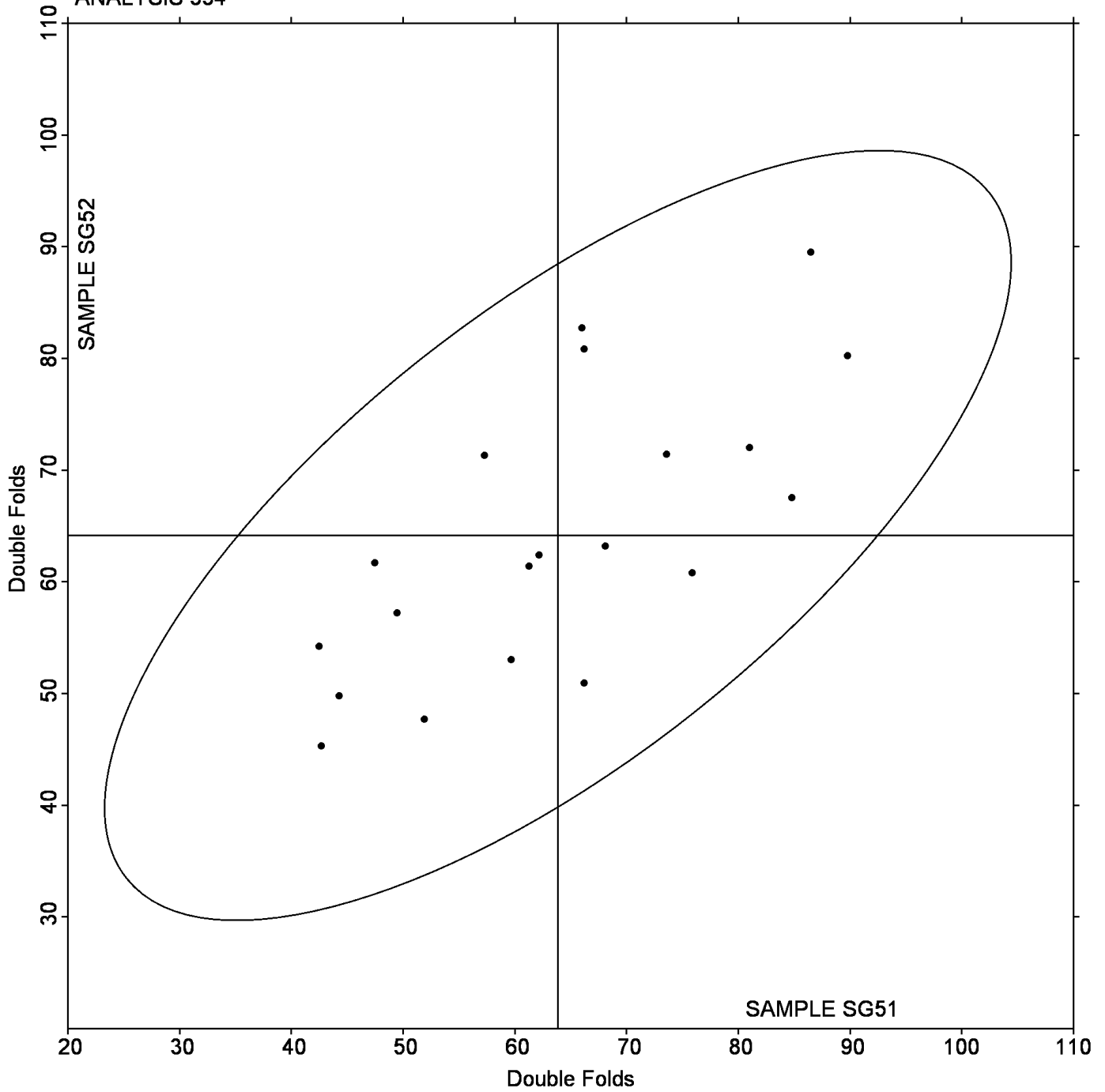
Analysis 334

Folding Endurance (MIT) - Double Folds

Grand Mean Sample **SG51** = 63.850 Double Folds

Grand Mean Sample **SG52** = 64.150 Double Folds

ANALYSIS 334



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

WebCode	Data Flag	Sample SH51			Sample SH52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24CAQV		254.7	-13.5	-0.73	253.1	-6.9	-0.36
3ZCUY6		267.5	-0.7	-0.04	260.6	0.6	0.03
6VJBGK		268.5	0.2	0.01	280.0	20.0	1.05
7Y6C86		275.6	7.4	0.40	267.6	7.6	0.40
97R7YE		312.6	44.3	2.38	291.7	31.7	1.66
BZQVTK		265.8	-2.4	-0.13	255.1	-4.8	-0.25
D8YC2G		270.8	2.6	0.14	244.4	-15.6	-0.82
ELJ6DU	X	135.1	-133.1	-7.16	129.6	-130.4	-6.84
HGHXMG		272.0	3.8	0.20	262.3	2.3	0.12
HHT27M		279.1	10.9	0.59	275.6	15.6	0.82
HZFDXL		289.2	21.0	1.13	292.6	32.6	1.71
K6CZEL		244.2	-24.0	-1.29	234.4	-25.6	-1.34
KNNJLV		240.0	-28.3	-1.52	232.9	-27.1	-1.42
L23D3Z		274.2	5.9	0.32	253.1	-6.9	-0.36
LEG8V7		252.9	-15.3	-0.82	241.4	-18.6	-0.98
MGW7HZ		264.0	-4.2	-0.23	256.0	-4.0	-0.21
P2UKMF	X	1,301.0	1,032.8	55.55	1,261.0	1,001.0	52.49
Q4CXUW		279.6	11.3	0.61	267.6	7.6	0.40
TYGX2K		247.6	-20.7	-1.11	239.6	-20.4	-1.07
VCFMPV		277.6	9.4	0.51	268.2	8.2	0.43
W423Z6		265.8	-2.4	-0.13	265.8	5.8	0.31
WVM86W		274.7	6.5	0.35	281.9	21.9	1.15
XD3VW3		263.3	-5.0	-0.27	258.8	-1.2	-0.06
XMXT26		243.3	-24.9	-1.34	245.1	-14.9	-0.78
Y3P2KP		238.0	-30.3	-1.63	221.3	-38.7	-2.03
YBPPNT		278.0	9.8	0.53	258.0	-2.0	-0.10
ZFVQFB		306.9	38.6	2.08	292.6	32.6	1.71

		Summary Statistics			
	Sample SH51			Sample SH52	
Grand Means	268.24 Gurley Units			259.99 Gurley Units	
SD Btwn Labs	18.59 Gurley Units			19.07 Gurley Units	
Statistics based on 25 of 27 reporting participants					

Comments on assigned Data Flags for Test #336

ELJ6DU (X) - Extreme data.

P2UKMF (X) - Extreme data.

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

WebCode	Data Flag	Sample SJ51			Sample SJ52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
6CPLZW		3.880	0.143	0.30	3.806	0.193	0.36
7MW4M8		4.536	0.799	1.70	4.484	0.871	1.61
7RJKV7		3.487	-0.250	-0.53	3.396	-0.217	-0.40
8DBZPJ		3.727	-0.010	-0.02	3.779	0.166	0.31
99D4BC		2.661	-1.076	-2.28	2.304	-1.309	-2.42
AQ6DND		4.200	0.463	0.98	4.135	0.522	0.96
CB4HZX		3.861	0.124	0.26	3.770	0.157	0.29
F7468J		3.752	0.015	0.03	3.519	-0.094	-0.17
FBVTEM	X	1.803	-1.934	-4.10	3.486	-0.127	-0.23
G4WA2L	X	7.850	4.113	8.73	7.920	4.307	7.95
MRR8BP	X	20.810	17.073	36.24	18.130	14.517	26.81
P6YUH6		3.450	-0.287	-0.61	3.160	-0.453	-0.84
P78B73		3.792	0.055	0.12	3.614	0.001	0.00
RAH6WJ		3.850	0.113	0.24	3.860	0.247	0.46
WPGNQQ		3.661	-0.076	-0.16	3.579	-0.034	-0.06
WTXV7D		4.435	0.698	1.48	4.226	0.613	1.13
XJL9MB		3.740	0.003	0.01	3.710	0.097	0.18
Y27CTG		2.947	-0.790	-1.68	2.699	-0.914	-1.69
ZMHEH7		3.807	0.070	0.15	3.762	0.149	0.28

	Sample SJ51	Summary Statistics	Sample SJ52
Grand Means	3.7365 Taber Units		3.6127 Taber Units
SD Btwn Labs	0.4711 Taber Units		0.5416 Taber Units
Statistics based on 16 of 19 reporting participants			

Comments on assigned Data Flags for Test #338

FBVTEM (X) - Inconsistent in testing between samples, data for Sample SJ51 are low.

G4WA2L (X) - Extreme data.

MRR8BP (X) - Extreme data.

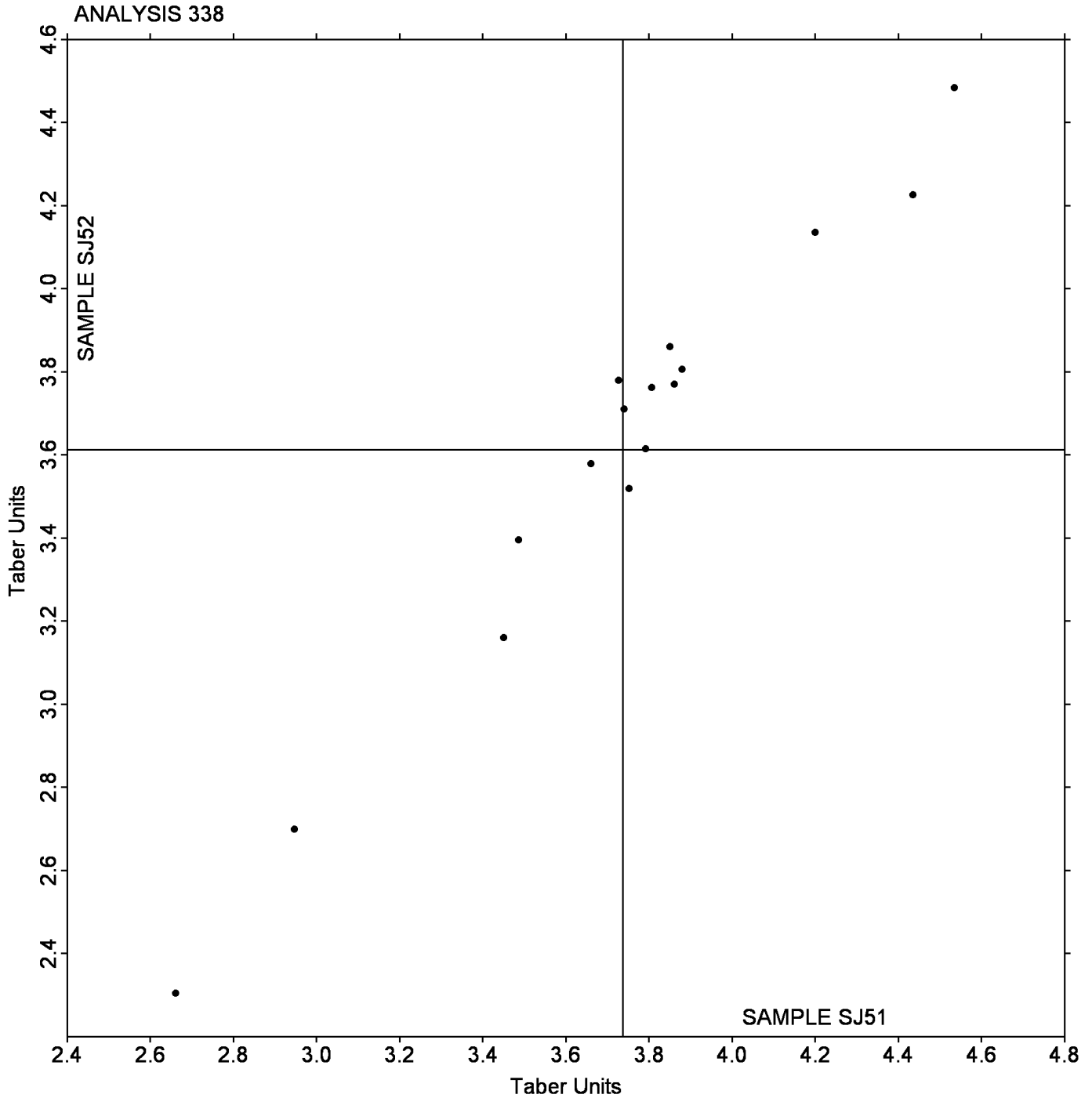
Analysis Notes:

CB4HZX - Data appear to be reported as mN-m , not g-cm as indicated on datasheet. Unit changed by CTS.

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

Grand Mean Sample **SJ51** = 3.7365 Taber Units

Grand Mean Sample **SJ52** = 3.6127 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 SQ51			Sample SQ52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
283TBM		8.000	-0.773	-1.30	14.20	-1.05	-1.25
8RL3E8	X	38.000	29.227	49.06	30.20	14.95	17.79
9U7T3C		8.826	0.053	0.09	14.80	-0.45	-0.53
B9HAGY		8.410	-0.363	-0.61	15.54	0.30	0.35
CG7R7Q		8.925	0.152	0.25	14.83	-0.42	-0.49
CMFYWV		9.450	0.677	1.14	15.70	0.45	0.54
DEZKJH		9.860	1.087	1.82	16.60	1.35	1.61
NRPLCN		7.920	-0.853	-1.43	13.74	-1.51	-1.80
Q6QDC6		9.260	0.487	0.82	15.57	0.32	0.38
RDK2ME		9.100	0.327	0.55	16.57	1.32	1.58
V3Q2D7		8.890	0.117	0.20	15.20	-0.05	-0.06
VVAB4X		8.400	-0.373	-0.63	15.05	-0.20	-0.23
XB2VW6		8.240	-0.533	-0.90	15.16	-0.08	-0.10

		Summary Statistics	
	Sample SQ51		Sample SQ52
Grand Means	8.7734 Taber Units		15.247 Taber Units
SD Btwn Labs	0.5957 Taber Units		0.841 Taber Units
Statistics based on 12 of 13 reporting participants			

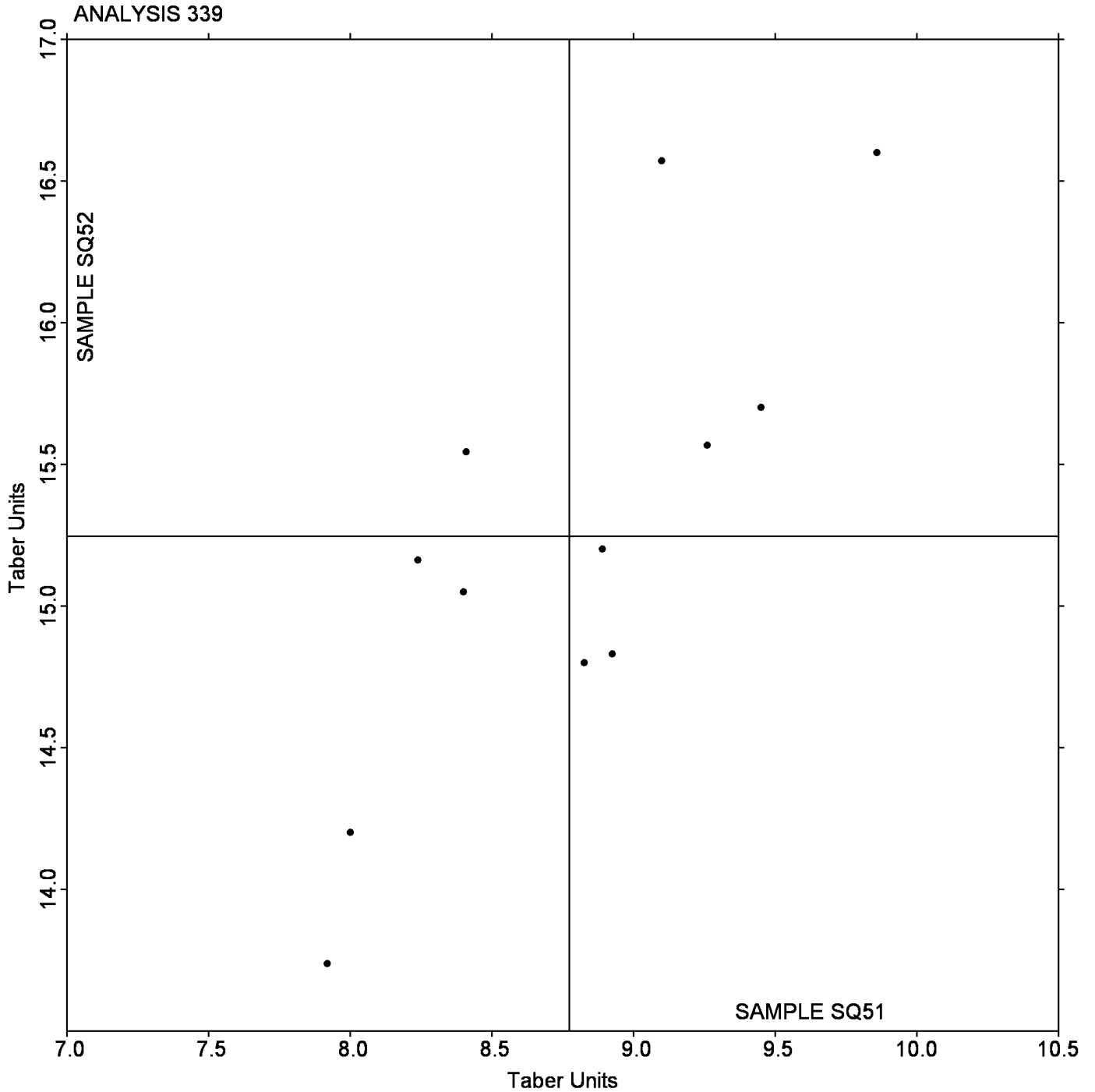
Comments on assigned Data Flags for Test #339

8RL3E8 (X) - Extreme data.

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

Grand Mean Sample **SQ51** = 8.7734 Taber Units

Grand Mean Sample **SQ52** = 15.247 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 ST51			Sample ST52		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2P4T9R		245.8	-7.4	-0.73	201.8	-10.0	-1.32
2XEXAC		246.3	-6.8	-0.67	208.5	-3.3	-0.43
3K8BML	X	87.0	-166.1	-16.41	86.7	-125.0	-16.44
3NA28U		246.5	-6.6	-0.65	206.8	-5.0	-0.66
3QJ2C2		268.1	15.0	1.48	217.5	5.7	0.76
8AK686		258.1	5.0	0.49	215.4	3.6	0.48
8DGFZD		258.6	5.5	0.54	214.3	2.5	0.34
9G4QW3		262.3	9.2	0.91	210.6	-1.2	-0.15
9T3DAJ		241.9	-11.2	-1.11	202.9	-8.9	-1.17
BALVM6		257.3	4.1	0.41	216.3	4.5	0.59
EYDCMX		247.0	-6.1	-0.60	214.1	2.3	0.31
FEB8TH		267.5	14.4	1.42	225.5	13.7	1.81
LBWC77		231.8	-21.3	-2.10	205.4	-6.3	-0.83
LKGPYB		254.6	1.5	0.15	212.5	0.7	0.10
N6QH9V		269.5	16.4	1.62	228.8	17.0	2.24
QQMCBM		249.1	-4.0	-0.40	199.9	-11.9	-1.56
TXW2PT		245.6	-7.5	-0.74	205.1	-6.7	-0.88
UQTAZV		245.7	-7.4	-0.73	209.5	-2.3	-0.30
WZUZPG		262.7	9.6	0.95	217.7	5.9	0.78
Z7Q8R9		250.7	-2.5	-0.24	211.0	-0.8	-0.11

Sample ST51		Summary Statistics	Sample ST52	
Grand Means	253.10 Taber Units		211.75 Taber Units	
SD Btw Labs	10.13 Taber Units		7.60 Taber Units	
Statistics based on 19 of 20 reporting participants				

Comments on assigned Data Flags for Test #340

3K8BML (X) - Extreme data.

Analysis Notes:

LKGPYB - Data appear to be reported as g-cm , not mN-m as indicated on datasheet. Unit changed by CTS.

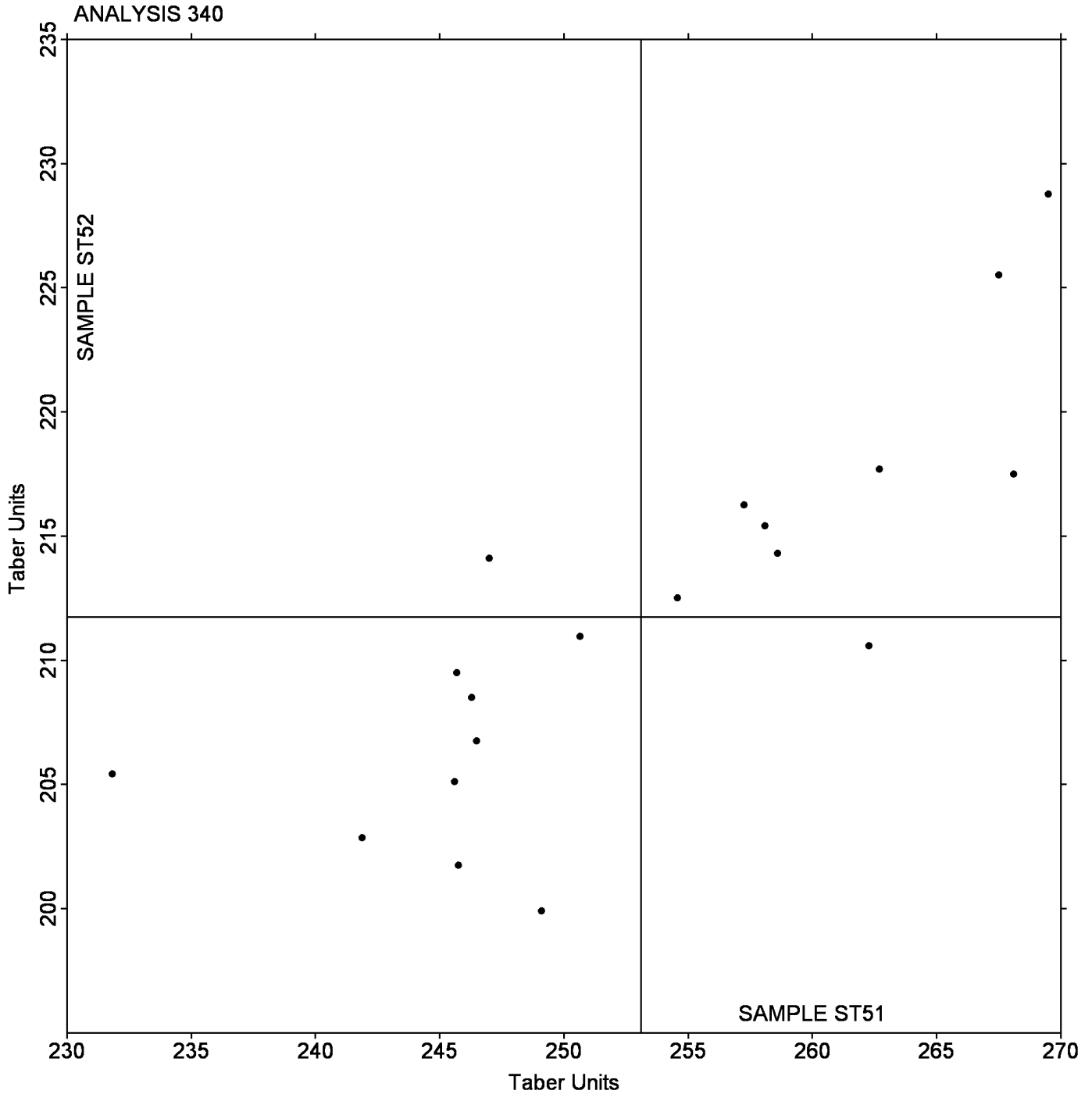
N6QH9V - Data appear to be reported as mN-m , not g-cm as indicated on datasheet. Unit changed by CTS.

TAPPI-CTS Interlaboratory Testing Program Analysis 340

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

Grand Mean Sample **ST51** = 253.10 Taber Units

Grand Mean Sample **ST52** = 211.75 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 SM51			Sample SM52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3R3HZY		57.60	-26.85	-1.83	53.20	-14.23	-2.24	CA
43PM4X		89.56	5.11	0.35	66.78	-0.65	-0.10	LW
6HCHJT		106.60	22.15	1.51	75.24	7.81	1.23	CD
7WE7QE	*	62.08	-22.38	-1.52	72.14	4.71	0.74	LW
82AYDM		92.80	8.35	0.57	71.20	3.77	0.59	CA
FA6CG9		75.60	-8.85	-0.60	68.00	0.57	0.09	CA
G9FYLT		98.34	13.89	0.94	80.26	12.83	2.02	TL
GKTZHM		83.86	-0.60	-0.04	65.19	-2.24	-0.35	TA
KMWMY		81.16	-3.29	-0.22	61.46	-5.97	-0.94	TZ
L77Y6H		90.50	6.05	0.41	67.68	0.25	0.04	XX
MELEYX		102.62	18.17	1.23	69.52	2.09	0.33	XX
N4FFMW		69.74	-14.71	-1.00	62.04	-5.39	-0.85	LW
NH7PTU		98.38	13.93	0.95	71.08	3.65	0.57	CD
QPLYB3		76.49	-7.96	-0.54	63.84	-3.59	-0.57	TZ
RAGCXD		102.92	18.46	1.26	74.92	7.49	1.18	TA
T3DQQ9		90.02	5.57	0.38	66.82	-0.61	-0.10	CD
YHMHU2		68.55	-15.90	-1.08	64.22	-3.21	-0.51	TZ
YQ4XXX		73.36	-11.10	-0.75	60.16	-7.27	-1.15	TZ

Sample SM51		Summary Statistics	Sample SM52	
Grand Means	84.454 psi		67.431 psi	
SD Btwn Labs	14.710 psi		6.348 psi	
Statistics based on 18 of 18 reporting participants				

Notes for Analysis 343

No Data Flags assigned for this analysis.

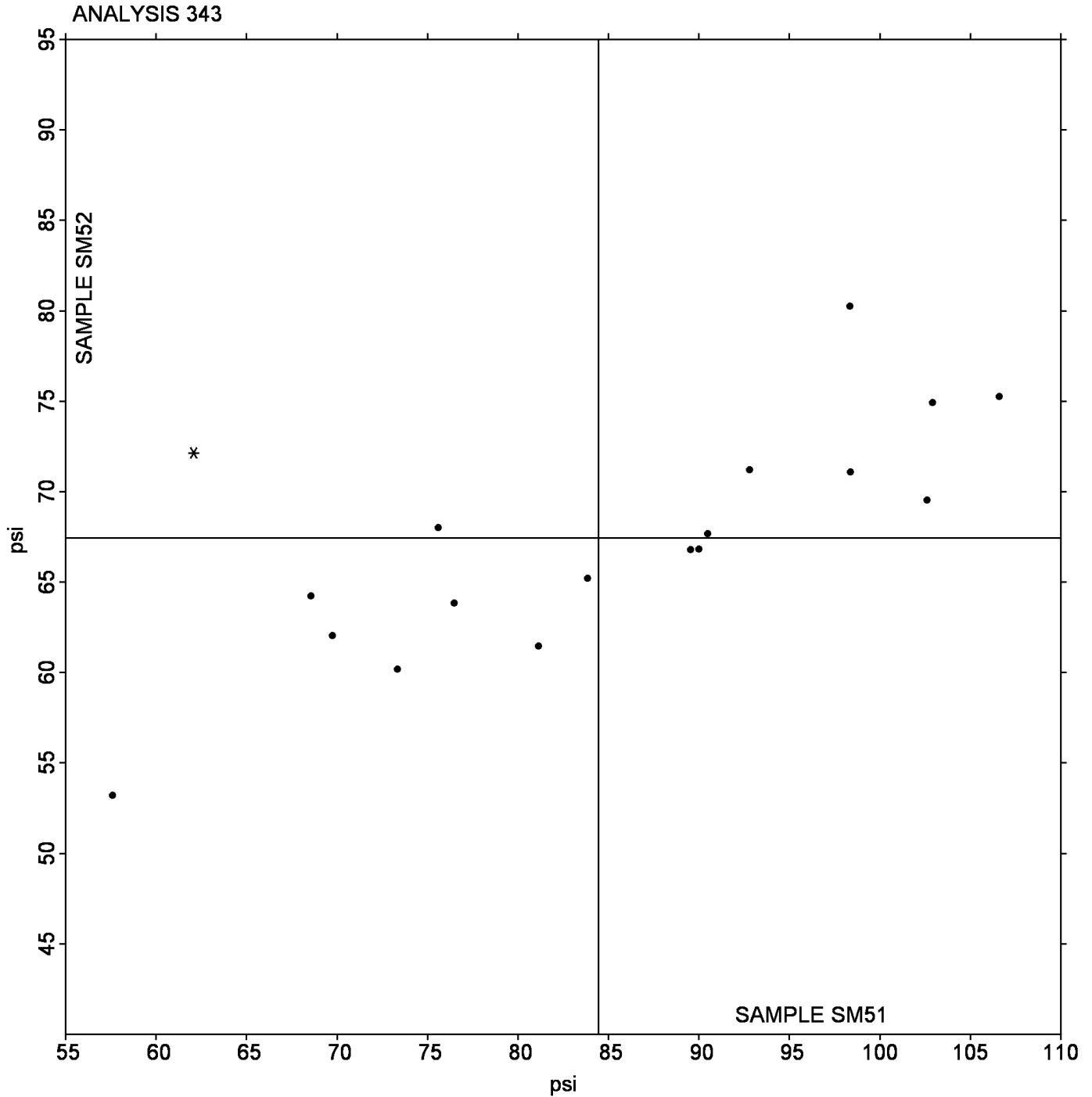
Instrument Code List

- | | |
|---------------------------------------------------|-------------------------------------|
| (CA) - CSI CS-163 | (CD) - CSI CS-163D |
| (LW) - L & W ZD Tensile Tester | (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 **SM51** = 84.454 psi

Grand Mean Sample **SM52** = 67.431 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 SZ51			Sample SZ52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2ZDGRC		44.54	2.04	0.65	66.10	6.51	1.34	TL
3XUKAQ		41.20	-1.30	-0.41	62.00	2.41	0.50	CA
9JMGQZ		36.94	-5.56	-1.77	48.90	-10.69	-2.20	TZ
AFT7RD		44.60	2.10	0.67	61.20	1.61	0.33	DP
DTMPTZ		38.26	-4.24	-1.35	52.82	-6.76	-1.39	LW
GH3T2W		39.00	-3.50	-1.11	56.80	-2.79	-0.57	CA
HTKWJF		44.37	1.86	0.59	61.77	2.18	0.45	PG
KFCMJA		40.07	-2.43	-0.77	56.08	-3.51	-0.72	LW
L3B7LZ		45.30	2.80	0.89	66.50	6.91	1.42	CD
MV8EW4		41.80	-0.70	-0.22	57.80	-1.79	-0.37	CA
NKMGGX		41.48	-1.02	-0.33	62.58	2.99	0.62	TZ
PQ2WBE	*	49.08	6.58	2.09	59.36	-0.22	-0.05	TZ
RTTYJL		44.08	1.58	0.50	65.28	5.69	1.17	TL
WNXUW		44.00	1.50	0.48	58.00	-1.59	-0.33	CA
XFQGHX		42.80	0.30	0.10	58.60	-0.99	-0.20	CA

Summary Statistics		
	Sample SZ51	Sample SZ52
Grand Means	42.501 psi	59.586 psi
SD Btwn Labs	3.143 psi	4.866 psi
Statistics based on 15 of 15 reporting participants		

Notes for Analysis 345

No Data Flags assigned for this analysis.

Instrument Code List

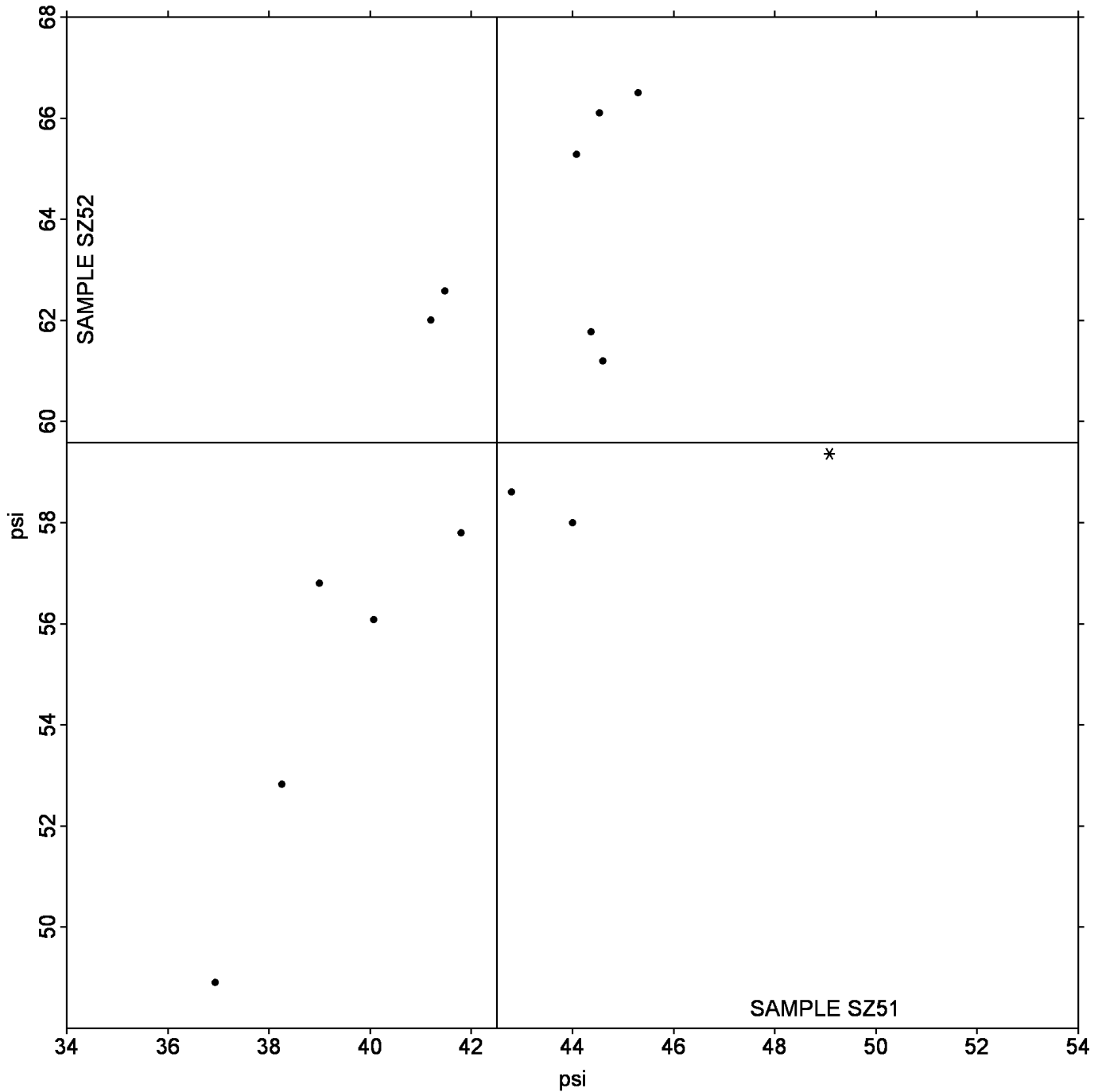
- | | |
|--------------------------------------|--------------------------------|
| (CA) - CSI CS-163 | (CD) - CSI CS-163D |
| (DP) - Dek-Tron XP Series | (LW) - L & W ZD Tensile Tester |
| (PG) - Perkins Model A Mullen Tester | (TL) - TMI Lab Master |
| (TZ) - TMI Monitor/ZDT Tester | |

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

Grand Mean Sample **SZ51** = 42.501 psi

Grand Mean Sample **SZ52** = 59.586 psi

ANALYSIS 345



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 SN51			Sample SN52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3FQ428		150.6	15.0	2.39	100.80	9.39	2.11	HY
3JVQUQ		146.2	10.6	1.69	94.80	3.39	0.76	HZ
6AGFMJ		132.7	-2.9	-0.46	87.88	-3.53	-0.79	HY
6VE298	X	121.0	-14.6	-2.31	86.40	-5.01	-1.12	HY
78X4QX		138.8	3.2	0.52	95.20	3.79	0.85	HY
7B93EQ		131.2	-4.4	-0.69	90.40	-1.01	-0.23	XX
7K6F67		135.5	0.0	-0.01	92.41	1.00	0.22	HY
82X3AG		136.2	0.6	0.10	89.00	-2.41	-0.54	HY
8B8EPY		142.0	6.4	1.02	94.41	3.00	0.67	HY
9Q8Z4T		127.2	-8.4	-1.33	85.00	-6.41	-1.44	HY
A77YC9		135.2	-0.4	-0.06	89.80	-1.61	-0.36	HY
CGFEXJ		133.4	-2.2	-0.34	88.40	-3.01	-0.68	HY
DF9FPB		132.4	-3.2	-0.50	91.20	-0.21	-0.05	HZ
DMAP2V		133.2	-2.4	-0.37	98.60	7.19	1.61	HZ
EF6WHZ		148.0	12.4	1.98	95.60	4.19	0.94	HY
EURLY9		127.2	-8.4	-1.33	84.76	-6.65	-1.49	KR
HEMHYE		131.0	-4.6	-0.72	91.20	-0.21	-0.05	HY
KVHQXB		130.8	-4.8	-0.76	90.00	-1.41	-0.32	XX
M8DLAA	X	116.4	-19.2	-3.04	72.20	-19.21	-4.31	HY
MVWZXF		135.8	0.2	0.04	96.00	4.59	1.03	HY
QDG22F		134.4	-1.2	-0.18	94.60	3.19	0.72	HY
QDN7KB		128.8	-6.8	-1.07	88.00	-3.41	-0.77	HY
T4X22P		134.0	-1.6	-0.25	83.80	-7.61	-1.71	HY
VUQX9P	X	80.4	-55.2	-8.77	70.88	-20.53	-4.61	HZ
WV9Q7W		137.6	2.0	0.33	89.20	-2.21	-0.50	XX

Sample SN51		Summary Statistics	Sample SN52	
Grand Means	135.55 1000th ft-lbs		91.412 1000th ft-lbs	
SD Btwn Labs	6.29 1000th ft-lbs		4.458 1000th ft-lbs	
Statistics based on 22 of 25 reporting participants				

Comments on assigned Data Flags for Test #348

6VE298 (X) - Data appears to be transposed between samples. Data Switched by CTS.

M8DLAA (X) - Systematic error (data for both samples are low).

VUQX9P (X) - Extreme data.

Instrument Code List

(HY) - Huygen Digitized Scott Internal Bond Tester

(HZ) - Huygen Internal Bond Tester with AccuPress

(KR) - Kumagai Riki Kogyo Internal Bond Tester

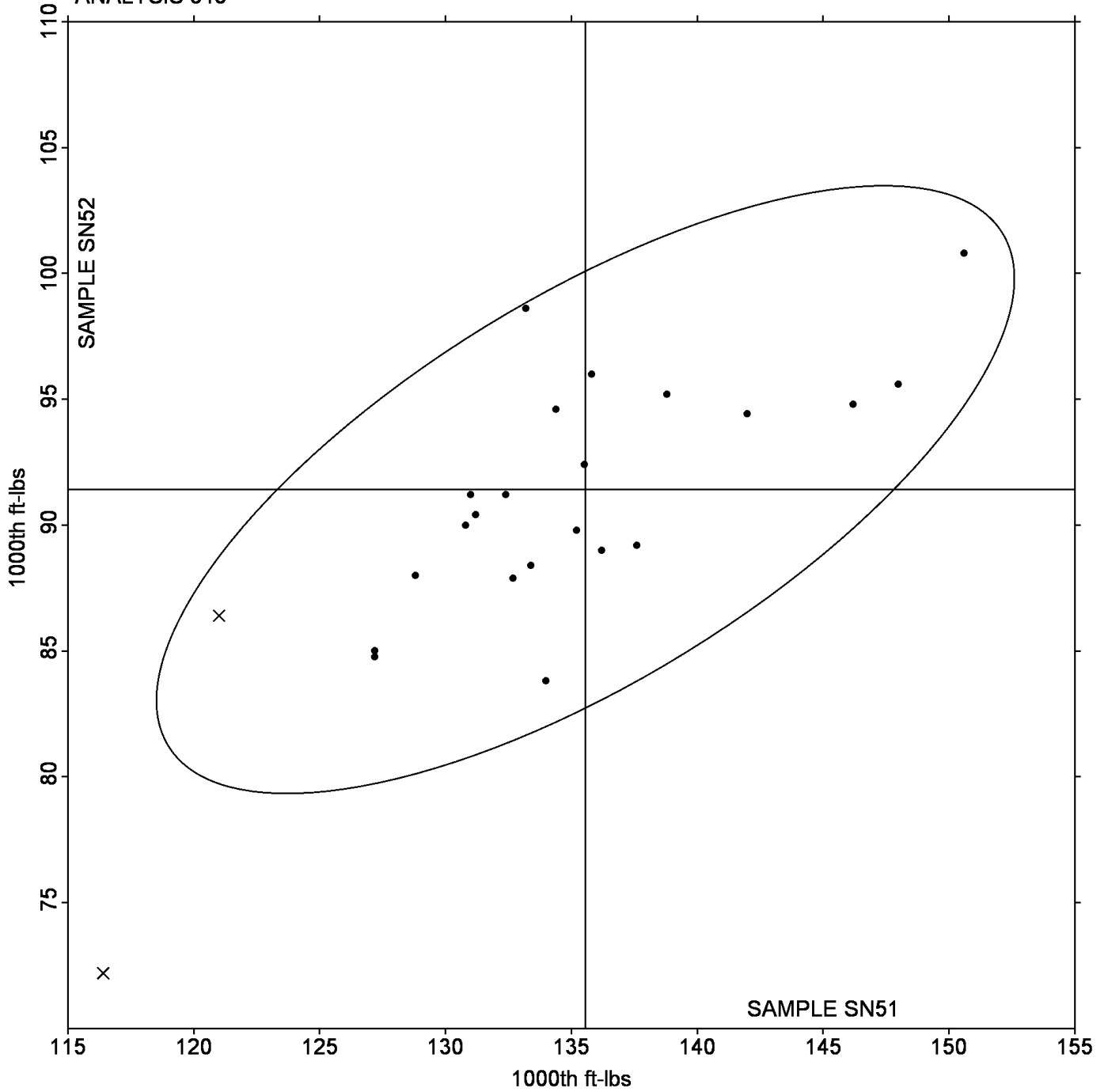
(XX) - Instrument make/model not specified by lab

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

Grand Mean Sample **SN51** = 135.55 1000th ft-lbs

Grand Mean Sample **SN52** = 91.412 1000th ft-lbs

ANALYSIS 348



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

WebCode	Data Flag	Sample SP51			Sample SP52			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
28P67F		116.9	-4.4	-0.46	74.33	-2.34	-0.36	XX
3KPAXD		123.7	2.5	0.26	80.57	3.91	0.60	TM
6XQQMQ		138.4	17.1	1.80	84.20	7.54	1.15	SC
6ZQRTF		132.8	11.5	1.21	85.40	8.74	1.34	SC
8KJXHG		113.4	-7.9	-0.83	72.40	-4.26	-0.65	TM
GNVUGH		113.2	-8.1	-0.85	78.40	1.74	0.27	TM
JQY8EV		109.8	-11.4	-1.20	69.19	-7.47	-1.14	TM
MKQZMA		111.2	-10.1	-1.06	71.80	-4.86	-0.74	SC
QZY8QF	X	150.8	29.5	3.11	110.20	33.54	5.13	TM
U969Q7		123.2	1.9	0.20	76.00	-0.66	-0.10	TM
UPHXD6		122.0	0.7	0.08	69.80	-6.86	-1.05	TM
VHDXCW		133.8	12.5	1.32	87.80	11.14	1.70	SC
WBB7MY		116.8	-4.5	-0.47	70.07	-6.59	-1.01	TM
YRGNXE	X	80.4	-40.9	-4.30	66.80	-9.87	-1.51	SC

		Summary Statistics			
		Sample SP51		Sample SP52	
Grand Means		121.27	1000th ft-lbs	76.663	1000th ft-lbs
SD Btwn Labs		9.50	1000th ft-lbs	6.534	1000th ft-lbs
Statistics based on 12 of 14 reporting participants					

Comments on assigned Data Flags for Test #349

QZY8QF (X) - Extreme data.

YRGNXE (X) - Inconsistent in testing between samples, data for Sample SP51 are low, and inconsistent within the determinations for Sample SP51.

Instrument Code List

(SC) - Scott Internal Bond Tester (Manual)

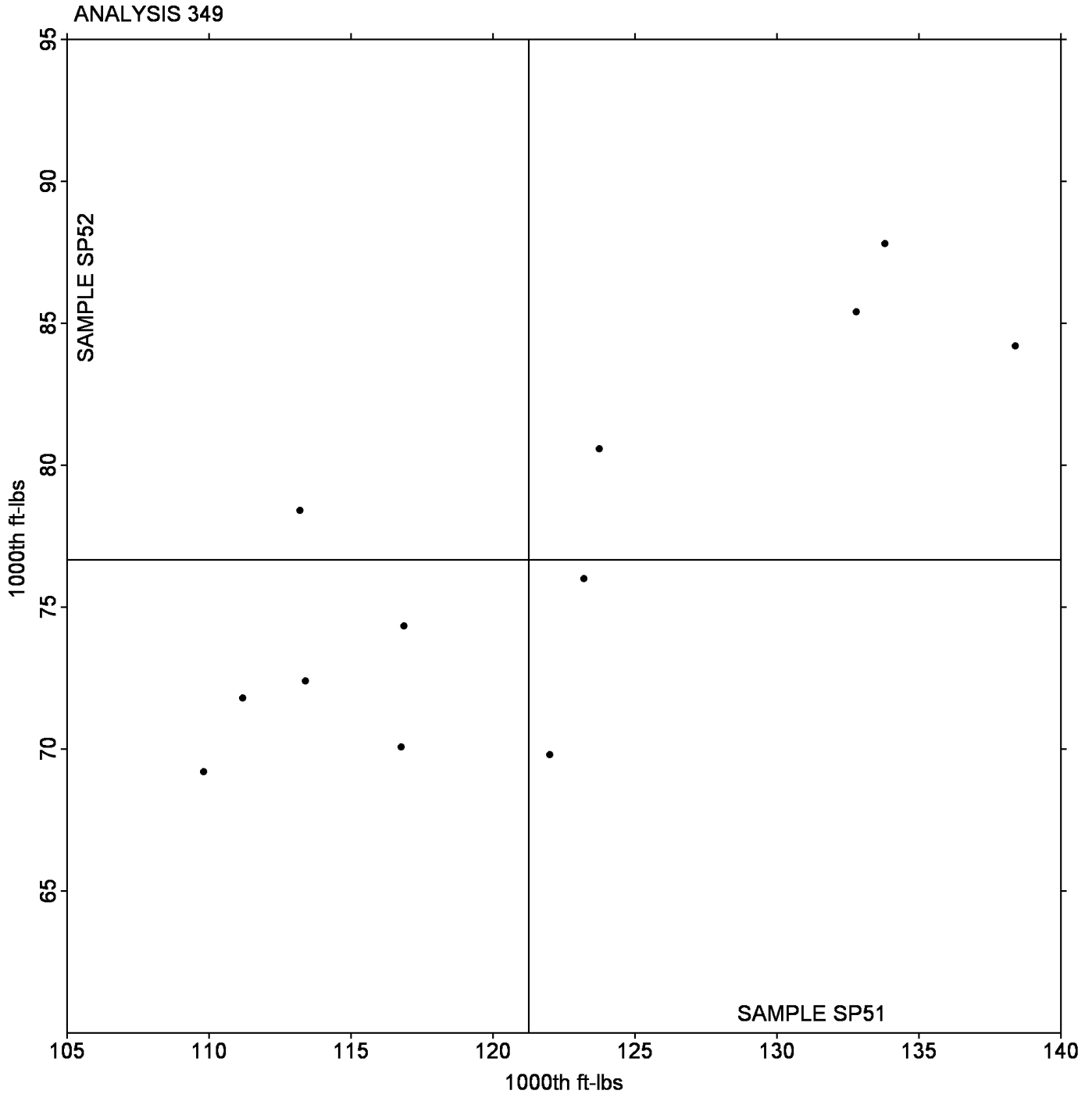
(TM) - TMI Monitor/Internal Bond Tester

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

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

Grand Mean Sample **SP51** = 121.27 1000th ft-lbs

Grand Mean Sample **SP52** = 76.663 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.