Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2971 S - November 2018

Introduction to the Paper & Paperboard Interlaboratory Program

Explanation of Tables and Definitions of Terms

Analysis	Analysis Name
305	Bursting Strength - Printing Papers
310	Bursting Strength - Packaging Papers
311	Tearing Strength - Newsprint
312	Tearing Strength - Printing Papers
314	Tearing Strength - Packaging Papers
320	Tensile Breaking Strength - Newsprint
321	Tensile Energy Absorption - Newsprint
322	Elongation to Break - Newsprint
325	Tensile Breaking Strength - Printing Papers
327	Tensile Energy Absorption - Printing Papers
328	Elongation to Break - Printing Papers
330	Tensile Breaking Strength - Packaging Papers
331	Tensile Energy Absorption - Packaging Papers
332	Elongation to Break - Packaging Papers
334	Folding Endurance (MIT) - Double Folds
336	Bending Resistance, Gurley Type
338	Bending Resistance, Taber Type - 0 to 10 Units
339	Bending Resistance, Taber Type - 10 to 100 Taber Units
340	Bending Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboard
343	Z-Direction Tensile
345	Z-Direction Tensile, Recycled Paperboard
348	Internal Bond Strength - Modified Scott Mechanics
349	Internal Bond Strength - Scott Bond Models

The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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Key for Web Summary Reports (Page 1 of 2)

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

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

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

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

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

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

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

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

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

Key for Web Summary Reports (Page 2 of 2)

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

Common Problems Highlighted in Footnotes

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

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

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

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

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

Paper & Paperboard Interlaboratory Testing Program

Analysis 305

Bursting Strength - Printing Papers

TAPPI Official Test Method T403

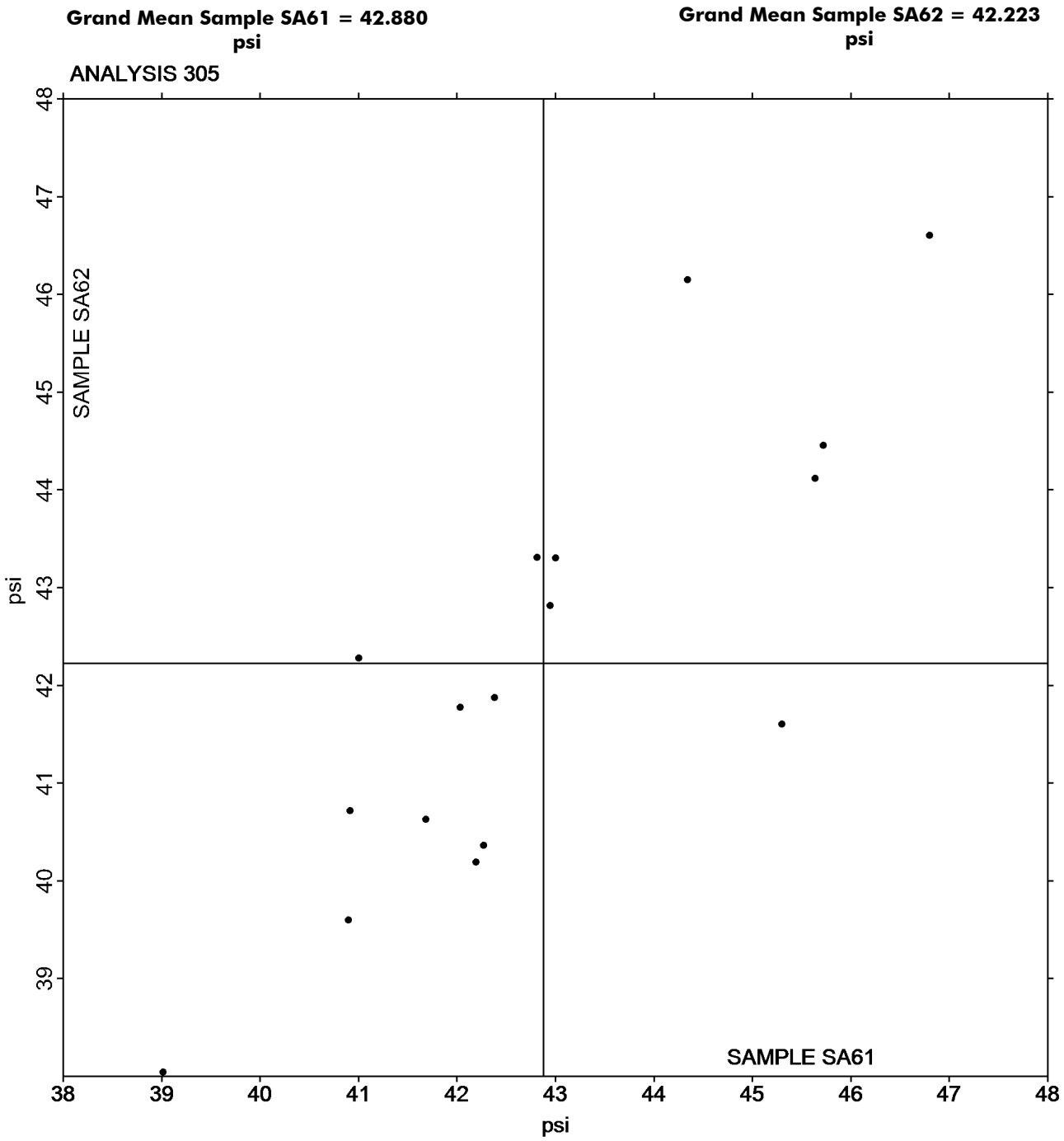
WebCode	Data Flag	Sample SA61 Lab Mean	Sample SA61 Diff from Grand Mean	Sample SA61 CPV	Sample SA62 Lab Mean	Sample SA62 Diff from Grand Mean	Sample SA62 CPV
3R924V		41.68	-1.20	-0.58	40.63	-1.60	-0.70
6DDQ8Z		40.92	-1.96	-0.95	40.72	-1.51	-0.66
6GPTYX		42.27	-0.61	-0.29	40.36	-1.86	-0.82
9EZAYC		43.00	0.12	0.06	43.30	1.08	0.47
ATV94K		39.02	-3.86	-1.87	38.04	-4.18	-1.83
CL3U8N	X	54.55	11.67	5.64	52.77	10.55	4.62
EDMQJM		42.03	-0.85	-0.41	41.77	-0.45	-0.20
EFQL3P		46.80	3.92	1.89	46.60	4.38	1.92
JBN4UE		44.34	1.46	0.71	46.15	3.92	1.72
MJJDNT		45.64	2.76	1.33	44.12	1.89	0.83
MRUJHB		42.82	-0.06	-0.03	43.31	1.08	0.47
TJLXW4		45.30	2.42	1.17	41.60	-0.62	-0.27
WKZWF3		41.01	-1.87	-0.91	42.28	0.05	0.02
X8BAU8		42.19	-0.69	-0.33	40.19	-2.03	-0.89
XLT3KZ		42.38	-0.50	-0.24	41.87	-0.35	-0.15
YCNCF4		45.72	2.84	1.37	44.45	2.23	0.98
Z7VRPT		42.95	0.07	0.03	42.81	0.59	0.26
ZQEPY4		40.90	-1.98	-0.96	39.60	-2.62	-1.15

Summary Statistics	Sample SA61	Sample SA62
Grand Means	42.88 psi	42.22 psi
Stnd Dev Btwn Labs	2.07 psi	2.28 psi

Statistics based on 17 of 18 reporting participants.

Comments on Assigned Data Flags for Test #305

CL3U8N (X) - Data for both samples are high. Possible Systematic Error.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 310

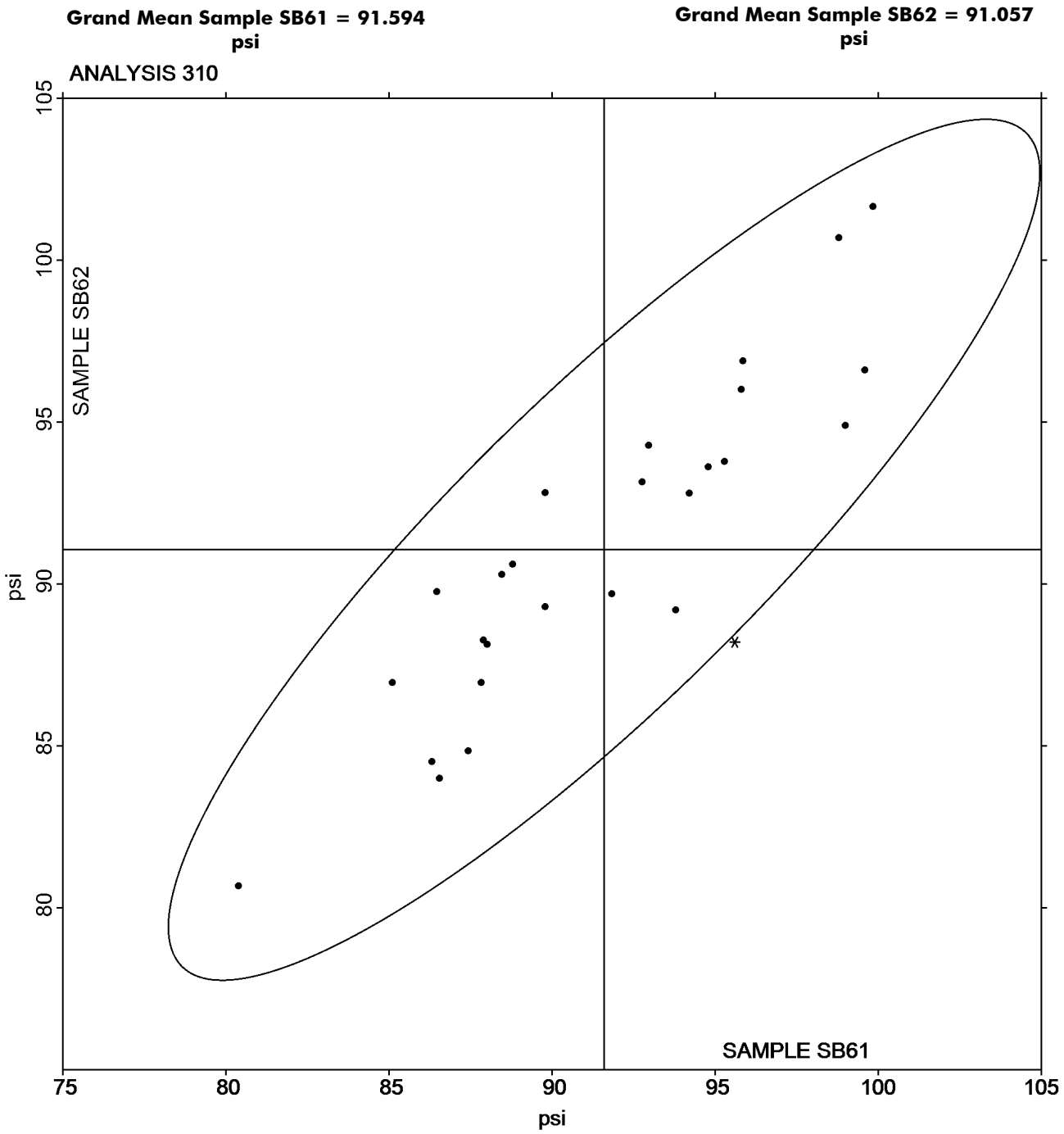
Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB61 Lab Mean	Sample SB61 Diff from Grand Mean	Sample SB61 CPV	Sample SB62 Lab Mean	Sample SB62 Diff from Grand Mean	Sample SB62 CPV
2YPF8Z		88.02	-3.58	-0.71	88.14	-2.92	-0.58
43LNNF		95.80	4.21	0.84	96.00	4.94	0.99
68783F		89.80	-1.79	-0.36	89.30	-1.76	-0.35
6GPTYX		87.43	-4.17	-0.83	84.84	-6.22	-1.24
7MWMNR		87.89	-3.70	-0.74	88.27	-2.79	-0.56
7QDU4E	*	95.60	4.01	0.80	88.20	-2.86	-0.57
86C4KT		88.47	-3.13	-0.62	90.29	-0.76	-0.15
8AQQ34		80.40	-11.20	-2.22	80.67	-10.39	-2.07
8LJDBK		93.80	2.21	0.44	89.20	-1.86	-0.37
9EBD79		88.80	-2.79	-0.56	90.60	-0.46	-0.09
A4Y4MP		99.60	8.01	1.59	96.60	5.54	1.11
CL3U8N		95.29	3.70	0.74	93.78	2.72	0.54
DTKFZT		95.86	4.27	0.85	96.89	5.83	1.16
FFP77H		87.84	-3.75	-0.75	86.96	-4.10	-0.82
JBN4UE		94.78	3.19	0.63	93.61	2.55	0.51
K4ZMUA		92.97	1.38	0.27	94.28	3.22	0.64
L6J9RP		94.22	2.62	0.52	92.80	1.74	0.35
MCZ663		91.83	0.23	0.05	89.69	-1.37	-0.27
MRF8NC		99.00	7.41	1.47	94.90	3.84	0.77
PMW2WV		85.10	-6.49	-1.29	86.95	-4.11	-0.82
R8GD6C		99.84	8.25	1.64	101.66	10.60	2.12
RQMV82		86.31	-5.28	-1.05	84.51	-6.54	-1.31
UDRDDK		98.80	7.20	1.43	100.69	9.63	1.92
UQER88		86.47	-5.12	-1.02	89.76	-1.29	-0.26
UXVFVG		86.56	-5.03	-1.00	83.99	-7.07	-1.41
WWXRMB		89.80	-1.79	-0.36	92.81	1.75	0.35
ZQEPY4		92.77	1.18	0.23	93.15	2.09	0.42

Summary Statistics	Sample SB61	Sample SB62
Grand Means	91.59 psi	91.06 psi
Stnd Dev Btwn Labs	5.03 psi	5.01 psi

Statistics based on 27 of 27 reporting participants.



Paper & Paperboard Interlaboratory Testing Program

Analysis 311

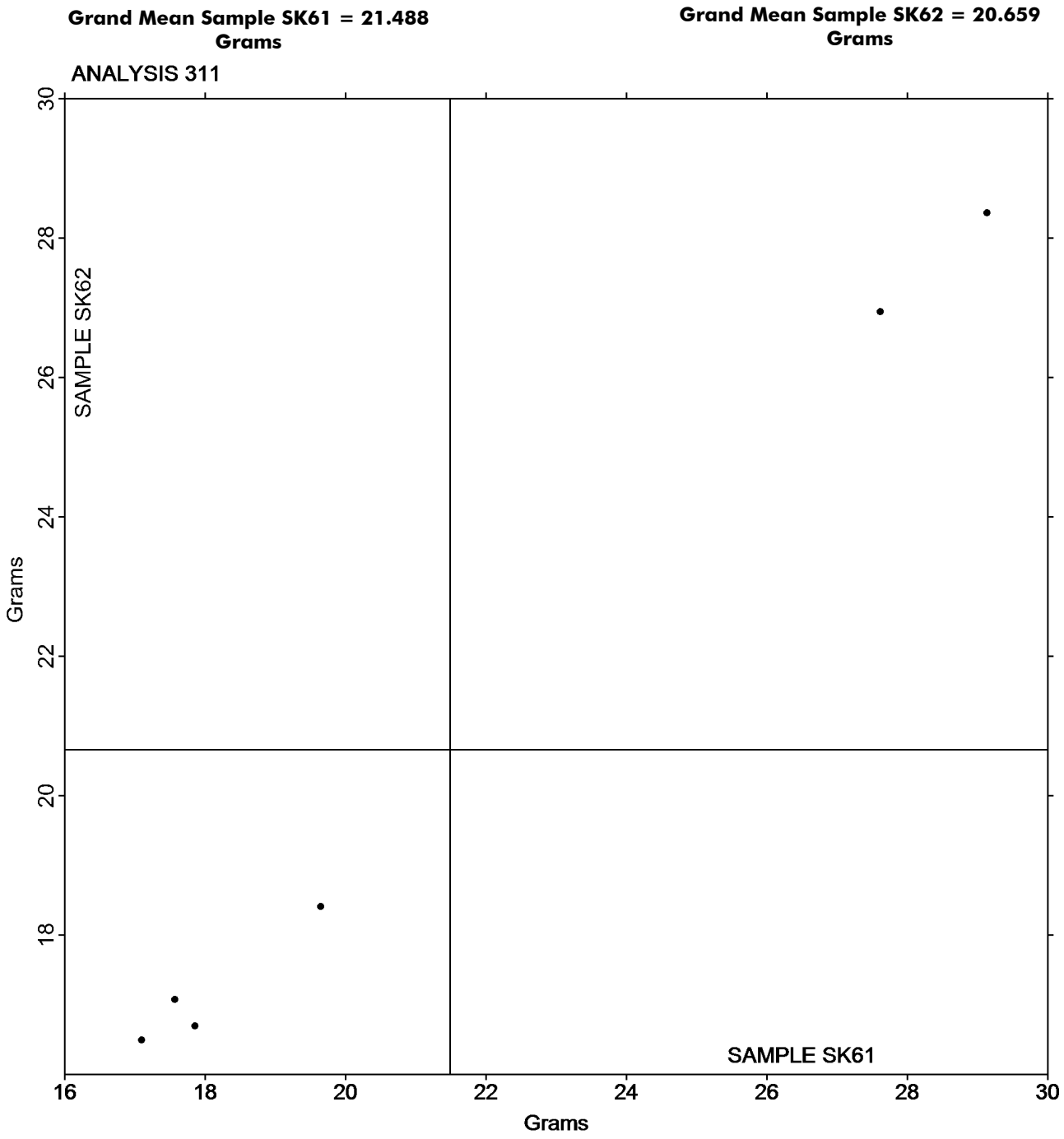
Tearing Strength - Newsprint

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK61 Lab Mean	Sample SK61 Diff from Grand Mean	Sample SK61 CPV	Sample SK62 Lab Mean	Sample SK62 Diff from Grand Mean	Sample SK62 CPV
H79B2Z		29.13	7.65	1.41	28.36	7.70	1.41
JBN4UE		19.65	-1.84	-0.34	18.41	-2.25	-0.41
N6VPUL		17.57	-3.92	-0.72	17.07	-3.59	-0.66
PXDJVT		27.61	6.13	1.13	26.94	6.28	1.15
V9RN8W		17.10	-4.39	-0.81	16.49	-4.17	-0.76
YCNCF4		17.86	-3.63	-0.67	16.69	-3.97	-0.73

Summary Statistics	Sample SK61	Sample SK62
Grand Means	21.49 Grams	20.66 Grams
Stnd Dev Btwn Labs	5.42 Grams	5.47 Grams

Statistics based on 6 of 6 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC61 Lab Mean	Sample SC61 Diff from Grand Mean	Sample SC61 CPV	Sample SC62 Lab Mean	Sample SC62 Diff from Grand Mean	Sample SC62 CPV
2KTZ88	X	70.74	6.43	1.92	59.85	-2.03	-0.60
2XF949		65.15	0.84	0.25	62.83	0.95	0.28
2YPF8Z		64.80	0.50	0.15	62.45	0.57	0.17
3R924V		66.25	1.95	0.58	64.78	2.90	0.86
68783F		62.89	-1.42	-0.42	59.82	-2.06	-0.61
6DDQ8Z		63.15	-1.16	-0.34	60.68	-1.20	-0.35
6GPTYX		57.97	-6.34	-1.89	54.48	-7.40	-2.19
7B6V3M		68.32	4.01	1.20	67.42	5.54	1.64
7LN8GL		59.86	-4.45	-1.32	56.74	-5.14	-1.52
7MWMNR		67.07	2.76	0.82	63.52	1.64	0.48
8X97QU	M	70.12	5.81	1.73	No data reported for this sample		
9MQRF6		66.98	2.67	0.80	64.28	2.40	0.71
ATV94K		60.11	-4.19	-1.25	57.95	-3.93	-1.16
CL3U8N		62.20	-2.11	-0.63	61.61	-0.27	-0.08
D2TAUL		69.40	5.09	1.52	66.40	4.52	1.34
D6EUZP		66.97	2.66	0.79	64.04	2.16	0.64
D9E6VP		59.50	-4.81	-1.43	58.10	-3.78	-1.12
DFVG9Q		64.10	-0.21	-0.06	63.00	1.12	0.33
EDMQJM	X	48.74	-15.57	-4.63	47.00	-14.88	-4.40
EFQL3P		70.17	5.86	1.75	66.73	4.85	1.43
EME79Q		64.31	0.00	0.00	59.64	-2.24	-0.66
EUQG6X		65.59	1.28	0.38	63.41	1.53	0.45
FPEWRB		66.01	1.70	0.51	61.09	-0.79	-0.23
GB8CJH		59.92	-4.39	-1.31	56.72	-5.16	-1.52
GH48J2		64.20	-0.11	-0.03	64.00	2.12	0.63
JBN4UE		69.41	5.11	1.52	65.23	3.35	0.99
KPY2E6	*	61.17	-3.14	-0.93	62.25	0.37	0.11
KYKAW8		59.52	-4.79	-1.42	57.50	-4.38	-1.29
L6J9RP		62.88	-1.43	-0.43	59.30	-2.58	-0.76
LLR9T7		66.20	1.89	0.56	66.20	4.32	1.28
LU3LHN		64.30	-0.01	0.00	63.84	1.96	0.58
LZUJKX		63.84	-0.47	-0.14	62.00	0.12	0.04
MJJDNT		60.38	-3.93	-1.17	57.84	-4.04	-1.19
MRF8NC	X	148.80	84.49	25.16	144.00	82.12	24.26
MRUJHB		65.92	1.61	0.48	64.04	2.16	0.64
MU6GXD		62.71	-1.59	-0.47	62.98	1.10	0.33
PMW2WV		60.33	-3.98	-1.18	57.63	-4.25	-1.26
QLGYN2		62.38	-1.93	-0.57	60.86	-1.02	-0.30
RFAQ3Q		63.70	-0.61	-0.18	60.80	-1.08	-0.32
RQMV82		65.90	1.60	0.48	60.99	-0.89	-0.26

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC61 Lab Mean	Sample SC61 Diff from Grand Mean	Sample SC61 CPV	Sample SC62 Lab Mean	Sample SC62 Diff from Grand Mean	Sample SC62 CPV
TJLXW4		67.90	3.59	1.07	63.30	1.42	0.42
UFX2PP		63.40	-0.91	-0.27	58.83	-3.05	-0.90
UQER88		67.87	3.57	1.06	65.33	3.45	1.02
VK7LDL		66.30	1.99	0.59	64.22	2.34	0.69
WKZWF3		65.44	1.13	0.34	62.76	0.88	0.26
WWXRMB		64.96	0.65	0.19	62.14	0.26	0.08
XLT3KZ		57.63	-6.67	-1.99	55.24	-6.64	-1.96
XPPTHY		72.40	8.09	2.41	69.72	7.84	2.32

Summary Statistics	Sample SC61	Sample SC62
Grand Means	64.31 Grams	61.88 Grams
Stnd Dev Btwn Labs	3.36 Grams	3.38 Grams

Statistics based on 44 of 48 reporting participants.

Comments on Assigned Data Flags for Test #312

EDMQJM (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SC62.

2KTZ88 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SC61.

MRF8NC (X) - Extreme Data.

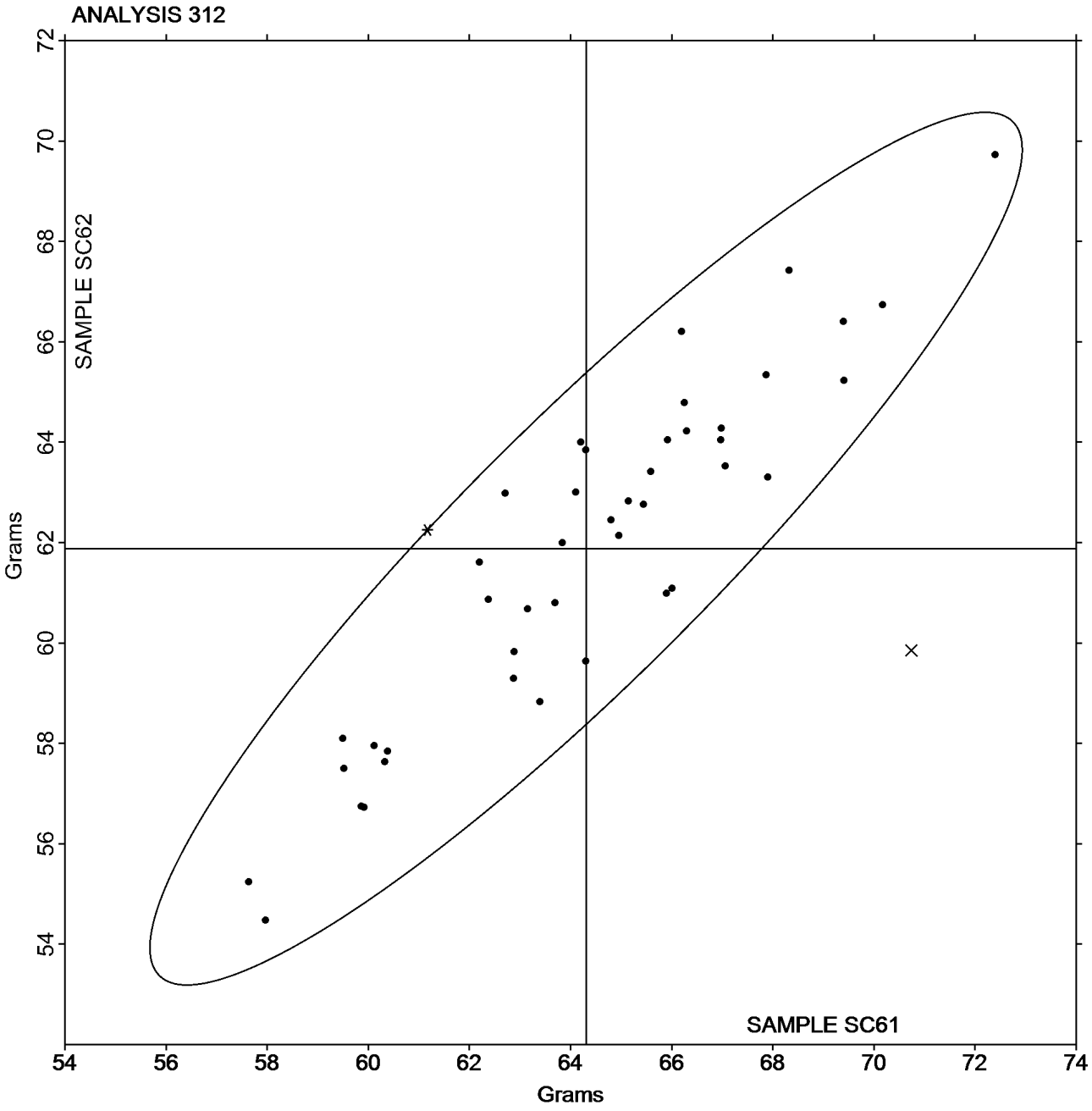
8X97QU (M) - Participant did not submit data for sample SC62.

Analysis Notes:

WKZWF3 - One determination removed from the Lab Mean of Sample SC62 per Grubb's Test at 1% risk (TAPPI 1205).

Grand Mean Sample SC61 = 64.306 Grams

Grand Mean Sample SC62 = 61.879 Grams



WebCode	Data Flag	Sample SD61 Lab Mean	Sample SD61 Diff from Grand Mean	Sample SD61 CPV	Sample SD62 Lab Mean	Sample SD62 Diff from Grand Mean	Sample SD62 CPV
43LNNF		173.6	9.8	0.61	171.6	8.0	0.45
4KKZY3		157.5	-6.3	-0.39	164.5	0.9	0.05
4R2E28		169.3	5.4	0.34	175.0	11.4	0.64
4U68XR		180.2	16.3	1.01	191.7	28.1	1.58
62HHMC		157.7	-6.2	-0.38	164.0	0.4	0.02
6GPTYX		135.5	-28.3	-1.75	128.1	-35.5	-1.99
6XXMTR		170.5	6.6	0.41	157.3	-6.3	-0.36
77TTCL	X	215.6	51.8	3.20	159.5	-4.1	-0.23
77VK99	X	38.6	-125.2	-7.75	37.1	-126.5	-7.10
86C4KT		173.3	9.5	0.59	178.2	14.6	0.82
8AQQ34		174.1	10.3	0.63	171.4	7.8	0.44
8JFEZR		172.0	8.2	0.50	158.8	-4.8	-0.27
8LJDBK		162.8	-1.0	-0.06	161.1	-2.5	-0.14
9EZAYC		147.8	-16.0	-0.99	157.9	-5.7	-0.32
AQ6UVA		158.5	-5.4	-0.33	160.0	-3.6	-0.20
BCP9TV		167.4	3.5	0.22	168.1	4.5	0.25
BNF344		169.6	5.8	0.36	173.4	9.8	0.55
DFVG9Q		167.0	3.2	0.20	162.1	-1.5	-0.09
DTKFZT		150.8	-13.1	-0.81	151.0	-12.6	-0.71
FFP77H		163.4	-0.4	-0.03	160.0	-3.6	-0.20
FK4LXV		191.0	27.2	1.68	185.4	21.8	1.22
FPEWRB		126.2	-37.6	-2.33	126.0	-37.6	-2.11
J38GQC		178.8	15.0	0.93	176.6	13.0	0.73
JBN4UE		185.3	21.5	1.33	181.8	18.2	1.02
K4ZMUA		166.3	2.4	0.15	163.1	-0.5	-0.03
LGLCA7		165.0	1.2	0.07	162.5	-1.1	-0.06
MRF8NC		191.6	27.8	1.72	200.4	36.8	2.06
MT94BK		147.6	-16.3	-1.01	151.1	-12.5	-0.70
NUYMRD		176.7	12.8	0.79	175.4	11.7	0.66
QUNQ6H	X	504.3	340.5	21.07	440.3	276.7	15.52
R8GD6C	*	117.4	-46.4	-2.87	110.7	-52.9	-2.97
TCJXBF		141.3	-22.6	-1.40	131.4	-32.3	-1.81
TGPTVF	X	1,469.4	1,305.6	80.78	1,289.0	1,125.3	63.14
UANWKH		169.2	5.3	0.33	171.2	7.6	0.42
UXVFVG		166.4	2.6	0.16	164.8	1.2	0.07
VNAHXP		172.5	8.7	0.54	171.6	8.0	0.45
VZ32DF		178.2	14.3	0.89	173.5	9.9	0.55
X279VY		154.6	-9.2	-0.57	164.9	1.3	0.07
XAFVDD		169.1	5.2	0.32	177.9	14.3	0.80
ZDC7TX		163.4	-0.4	-0.03	162.6	-1.1	-0.06

WebCode	Data Flag	Sample SD61 Lab Mean	Sample SD61 Diff from Grand Mean	Sample SD61 CPV	Sample SD62 Lab Mean	Sample SD62 Diff from Grand Mean	Sample SD62 CPV
ZQEPY4		150.8	-13.0	-0.81	149.2	-14.4	-0.81

Summary Statistics	Sample SD61	Sample SD62
Grand Means	163.85 Grams	163.63 Grams
Stnd Dev Btwn Labs	16.16 Grams	17.82 Grams

Statistics based on 37 of 41 reporting participants.

Comments on Assigned Data Flags for Test #314

77TTCL (X) - Data for sample SD61 are high.

77VK99 (X) - Extreme Data.

TGPTVF (X) - Extreme Data.

QUNQ6H (X) - Extreme Data.

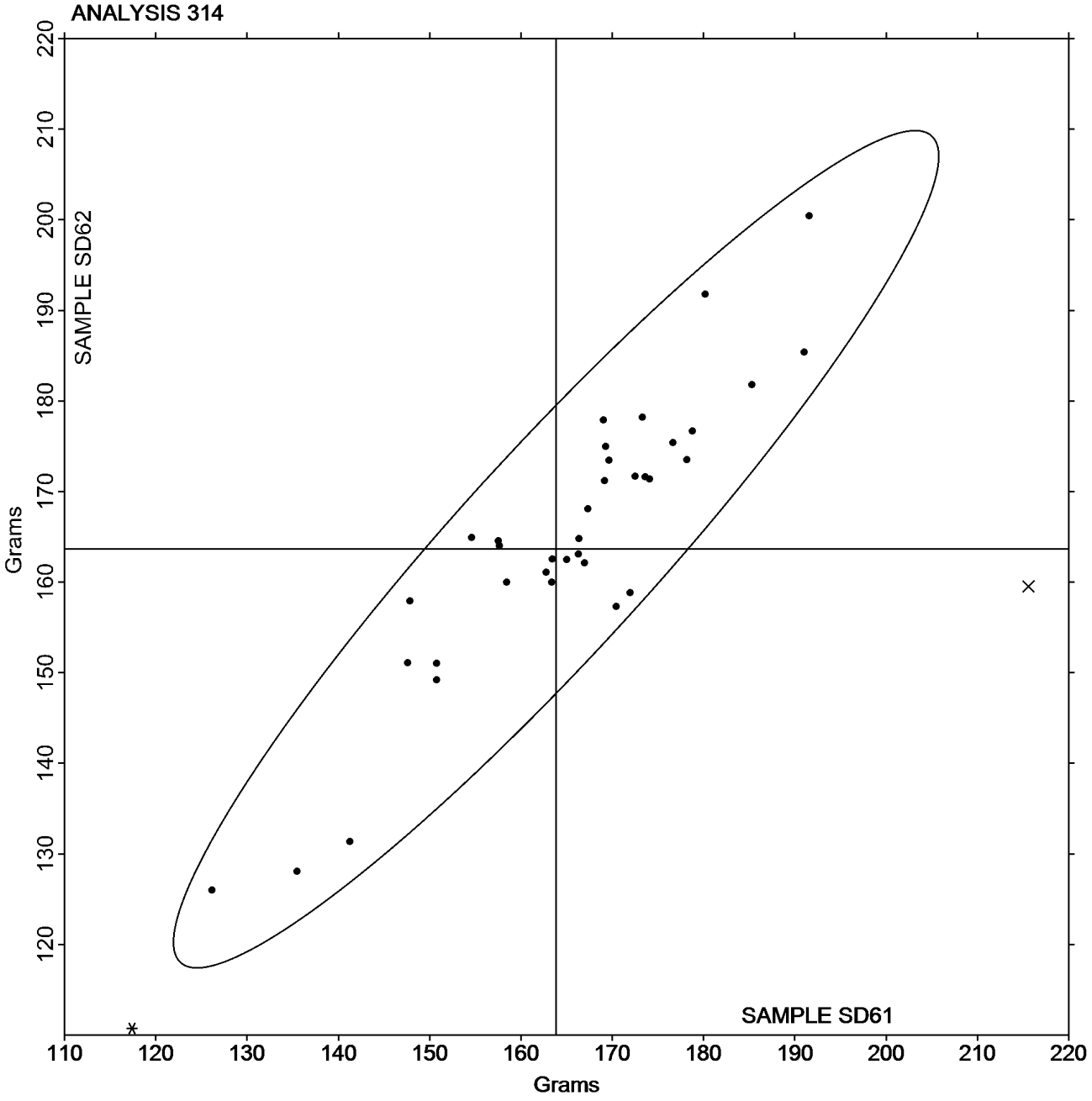
Analysis Notes:

77VK99 - Data appear to possibly be off by a factor of 4.

TGPTVF - Data appear to possibly be reported as mN, not gF as indicated on datasheet.

Grand Mean Sample SD61 = 163.85 Grams

Grand Mean Sample SD62 = 163.63 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

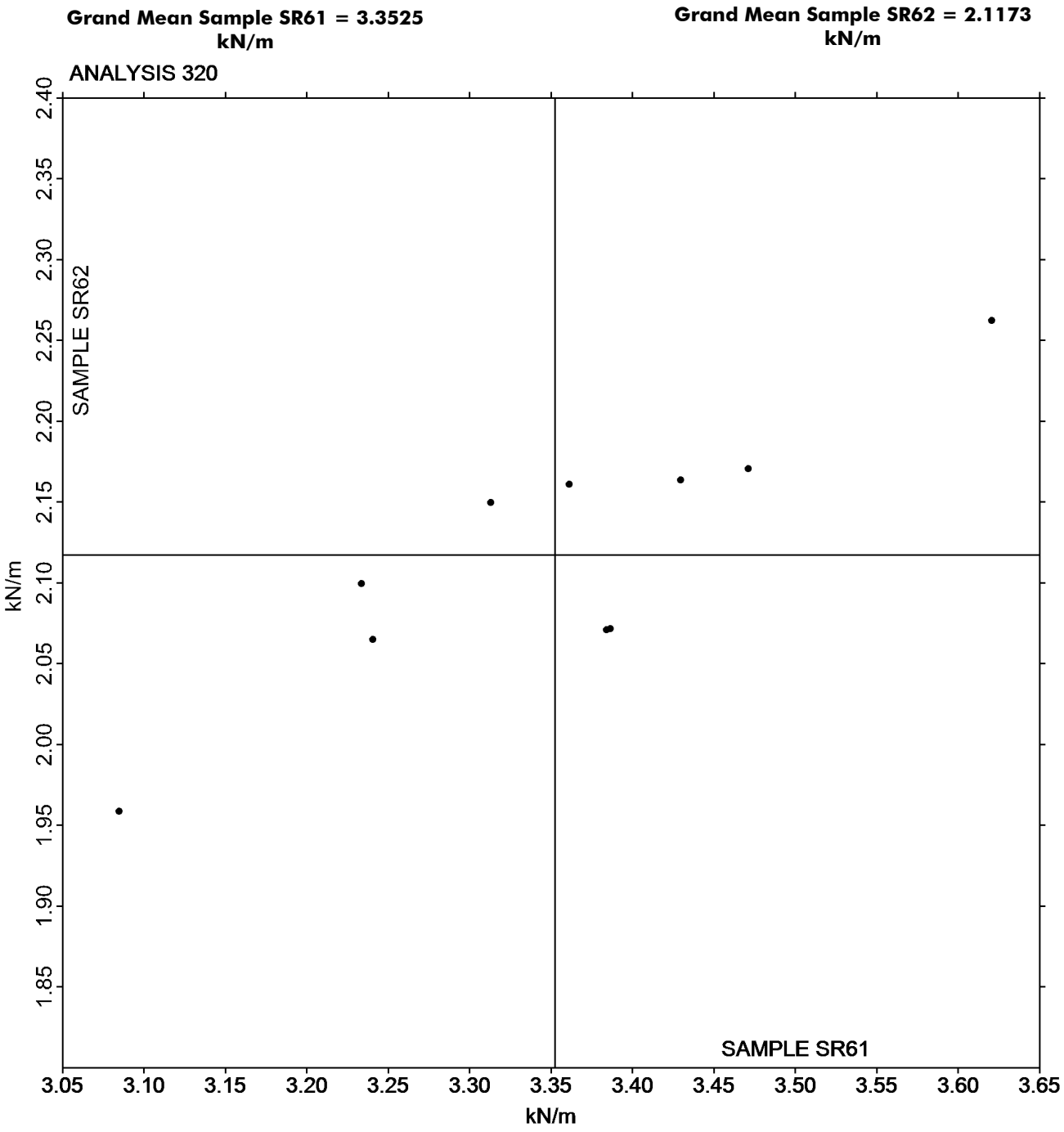
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR61 Lab Mean	Sample SR61 Diff from Grand Mean	Sample SR61 CPV	Sample SR62 Lab Mean	Sample SR62 Diff from Grand Mean	Sample SR62 CPV
A4Y4MP		3.621	0.268	1.83	2.262	0.145	1.76
B8N8M7		3.240	-0.112	-0.76	2.065	-0.052	-0.63
FPEWRB		3.313	-0.039	-0.27	2.150	0.032	0.39
H79B2Z		3.430	0.077	0.52	2.164	0.046	0.56
N6VPUL		3.384	0.032	0.21	2.071	-0.046	-0.56
PXDJVT		3.361	0.009	0.06	2.161	0.044	0.53
TJLXW4		3.471	0.119	0.81	2.171	0.053	0.65
V9RN8W		3.085	-0.268	-1.82	1.959	-0.159	-1.92
YCNCF4		3.386	0.034	0.23	2.072	-0.046	-0.55
Z7VRPT		3.234	-0.119	-0.81	2.099	-0.018	-0.22

Summary Statistics	Sample SR61	Sample SR62
Grand Means	3.35 kN/m	2.12 kN/m
Stnd Dev Btwn Labs	0.15 kN/m	0.08 kN/m

Statistics based on 10 of 10 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 321

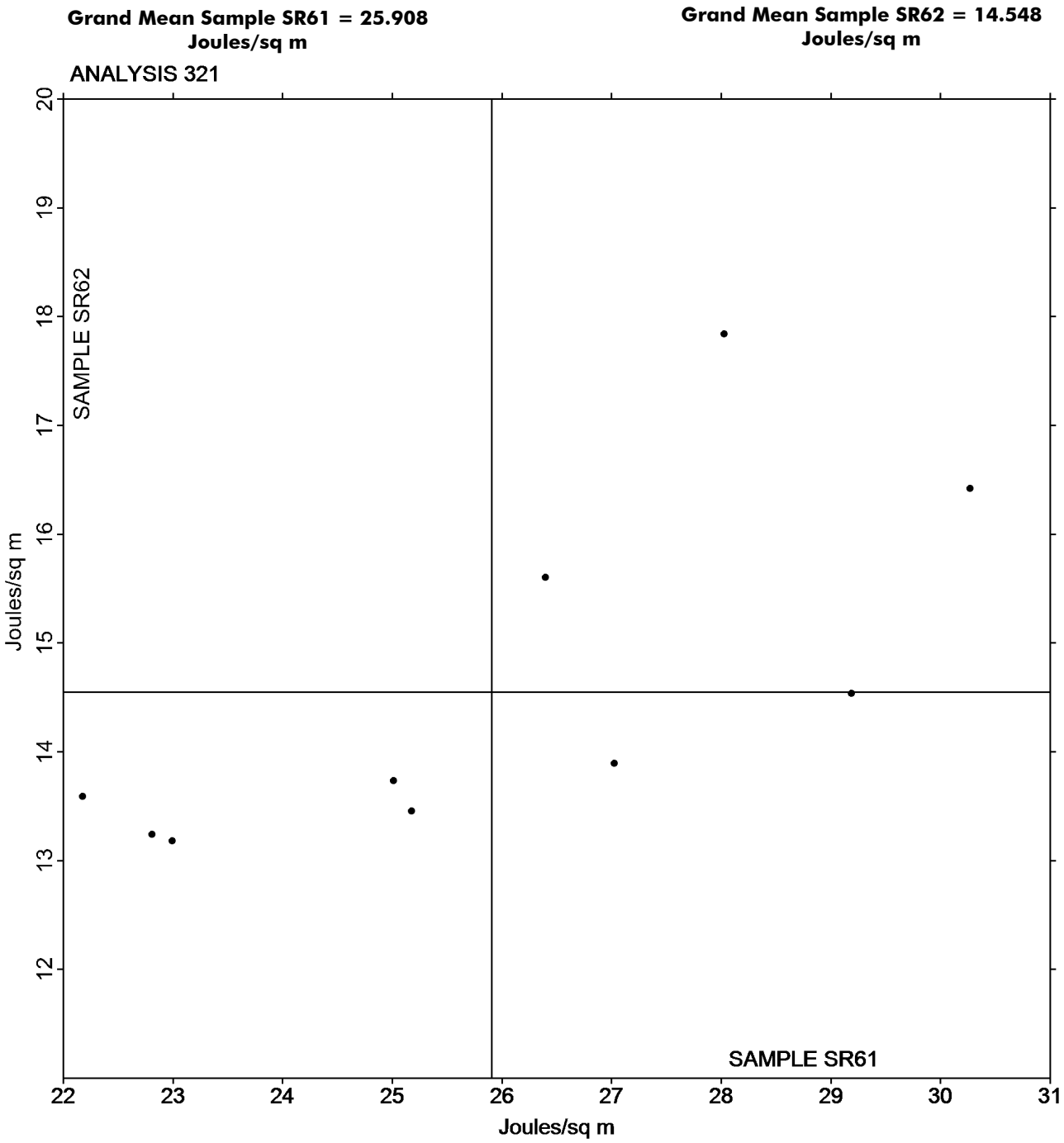
Tensile Energy Absorption - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR61 Lab Mean	Sample SR61 Diff from Grand Mean	Sample SR61 CPV	Sample SR62 Lab Mean	Sample SR62 Diff from Grand Mean	Sample SR62 CPV
A4Y4MP		23.00	-2.91	-1.05	13.18	-1.37	-0.87
B8N8M7		30.27	4.36	1.57	16.42	1.87	1.19
FPEWRB		26.40	0.49	0.18	15.60	1.05	0.67
H79B2Z		25.01	-0.89	-0.32	13.73	-0.82	-0.52
N6VPUL		25.18	-0.73	-0.26	13.45	-1.10	-0.70
PXDJVT		22.81	-3.10	-1.12	13.24	-1.31	-0.83
TJLXW4		29.19	3.28	1.18	14.54	-0.01	-0.01
V9RN8W		28.03	2.12	0.77	17.84	3.29	2.09
YCNCF4		27.03	1.12	0.40	13.89	-0.65	-0.42
Z7VRPT		22.17	-3.73	-1.35	13.59	-0.96	-0.61

Summary Statistics	Sample SR61	Sample SR62
Grand Means	25.91 Joules/sq m	14.55 Joules/sq m
Stnd Dev Btwn Labs	2.77 Joules/sq m	1.57 Joules/sq m

Statistics based on 10 of 10 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 322

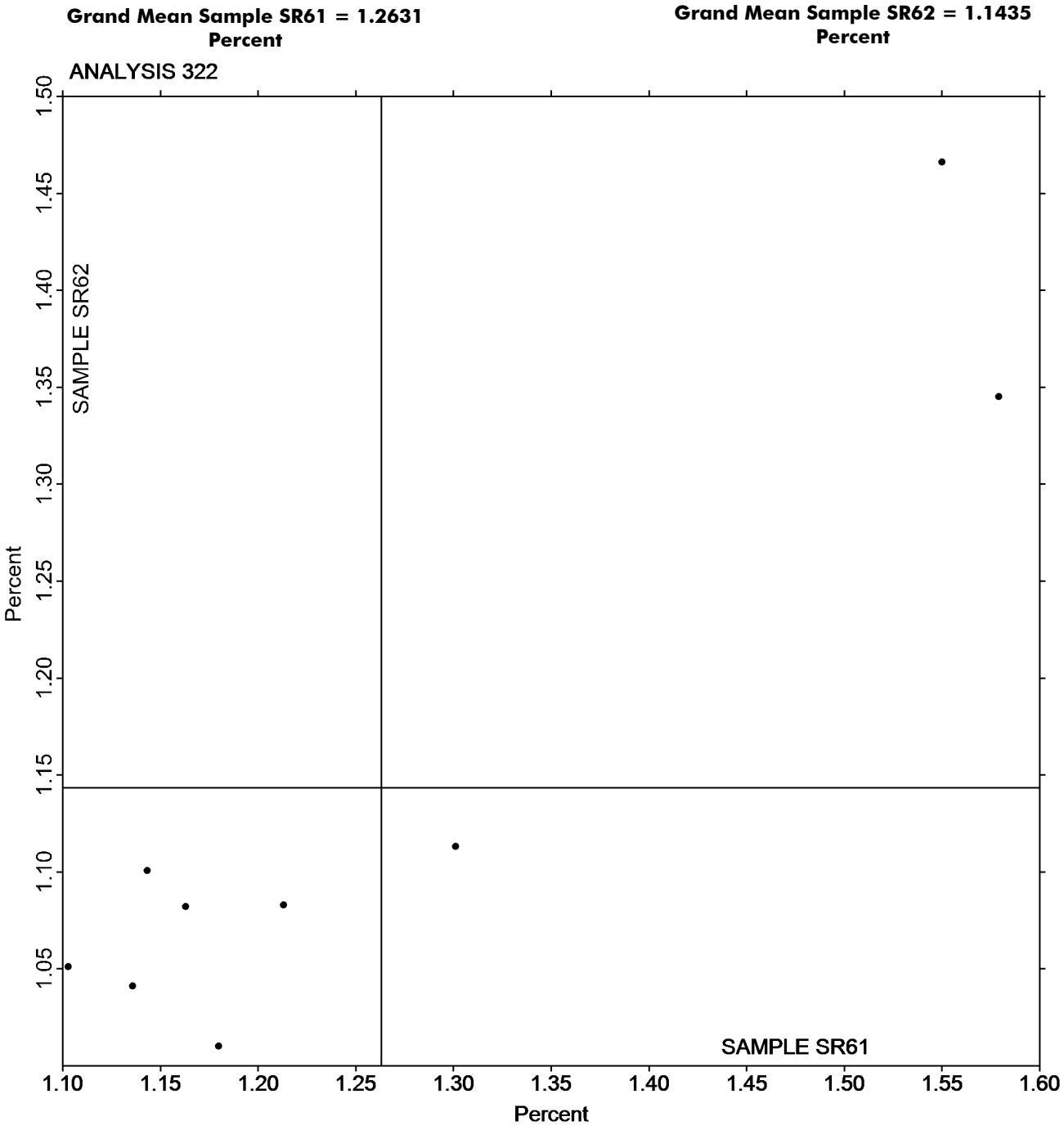
Elongation to Break - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR61 Lab Mean	Sample SR61 Diff from Grand Mean	Sample SR61 CPV	Sample SR62 Lab Mean	Sample SR62 Diff from Grand Mean	Sample SR62 CPV
A4Y4MP		1.136	-0.127	-0.71	1.041	-0.102	-0.66
B8N8M7		1.579	0.316	1.76	1.345	0.201	1.30
FPEWRB		1.103	-0.160	-0.89	1.051	-0.093	-0.60
H79B2Z		1.163	-0.100	-0.56	1.082	-0.062	-0.40
N6VPUL		1.213	-0.050	-0.28	1.083	-0.061	-0.39
TJLXW4		1.180	-0.083	-0.46	1.010	-0.134	-0.86
V9RN8W		1.550	0.287	1.59	1.466	0.322	2.08
YCNCF4		1.301	0.038	0.21	1.113	-0.031	-0.20
Z7VRPT		1.143	-0.120	-0.67	1.101	-0.043	-0.28

Summary Statistics	Sample SR61	Sample SR62
Grand Means	1.26 Percent	1.14 Percent
Stnd Dev Btwn Labs	0.18 Percent	0.15 Percent

Statistics based on 9 of 9 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF61 Lab Mean	Sample SF61 Diff from Grand Mean	Sample SF61 CPV	Sample SF62 Lab Mean	Sample SF62 Diff from Grand Mean	Sample SF62 CPV	Instr Code
2KTZ88		6.328	-0.567	-1.58	6.023	-0.734	-1.97	FP
2XF949		6.219	-0.676	-1.88	5.975	-0.782	-2.10	IM
32MA9A		7.189	0.294	0.82	7.309	0.552	1.48	XX
3R924V		7.345	0.450	1.25	7.211	0.454	1.22	LI
68783F		7.026	0.131	0.36	7.115	0.359	0.96	TF
6DDQ8Z		6.514	-0.381	-1.06	6.153	-0.604	-1.62	IM
6GPTYX		7.027	0.132	0.37	6.737	-0.020	-0.05	XX
7B6V3M		7.137	0.242	0.67	6.915	0.158	0.43	LI
7LN8GL		6.772	-0.123	-0.34	6.490	-0.267	-0.72	TF
8X97QU	M	6.242	-0.654	-1.82	No data reported for this sample			TO
ATV94K		7.537	0.642	1.79	7.105	0.348	0.94	LX
CQVUN6		7.272	0.377	1.05	6.839	0.083	0.22	TP
D2TAUL		7.172	0.277	0.77	6.714	-0.043	-0.11	XX
D6EUZP		7.224	0.329	0.92	7.173	0.416	1.12	LA
D9E6VP		6.854	-0.042	-0.12	6.919	0.162	0.44	TO
EDMQJM		6.421	-0.474	-1.32	6.296	-0.461	-1.24	LA
EFQL3P		6.615	-0.280	-0.78	6.412	-0.345	-0.93	LH
EMBJVJ		7.136	0.241	0.67	6.995	0.238	0.64	FP
EME79Q		6.868	-0.027	-0.07	6.939	0.182	0.49	VM
EUQG6X		7.087	0.192	0.54	6.960	0.203	0.55	LA
GB8CJH		6.602	-0.293	-0.82	6.100	-0.657	-1.77	TB
GH48J2		7.028	0.133	0.37	7.055	0.298	0.80	LH
JBN4UE		6.578	-0.317	-0.88	6.622	-0.135	-0.36	LH
KPY2E6	X	6.188	-0.707	-1.97	6.896	0.139	0.37	TP
KYKAW8		7.333	0.437	1.22	7.054	0.297	0.80	TO
L6J9RP		6.609	-0.286	-0.80	6.504	-0.253	-0.68	LH
LZUJKX		6.653	-0.242	-0.67	6.555	-0.202	-0.54	TO
MJJDNT		7.459	0.563	1.57	7.206	0.450	1.21	TJ
MRUJHB		6.860	-0.035	-0.10	6.713	-0.044	-0.12	LX
MU6GXD		6.369	-0.526	-1.47	6.177	-0.580	-1.56	XX
R8GD6C		7.040	0.145	0.40	6.807	0.050	0.14	TB
RFAQ3Q		7.035	0.139	0.39	7.041	0.284	0.76	TC
RQMV82		6.993	0.098	0.27	6.896	0.139	0.37	LI
UFX2PP		6.903	0.007	0.02	7.079	0.322	0.87	LF
UQER88		6.578	-0.317	-0.88	6.471	-0.286	-0.77	LI
VK7LDL		6.259	-0.636	-1.77	6.325	-0.432	-1.16	ID
WKZWF3		6.599	-0.296	-0.82	6.626	-0.131	-0.35	TF
X8BAU8		7.036	0.140	0.39	7.032	0.276	0.74	LH
XLT3KZ		7.484	0.589	1.64	7.287	0.530	1.43	LF
XPPTHY		7.269	0.374	1.04	7.131	0.374	1.01	LH

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF61 Lab Mean	Sample SF61 Diff from Grand Mean	Sample SF61 CPV	Sample SF62 Lab Mean	Sample SF62 Diff from Grand Mean	Sample SF62 CPV	Instr Code
ZDEVXV		6.374	-0.521	-1.45	6.470	-0.287	-0.77	RE
ZMZ4BQ		7.002	0.106	0.30	6.842	0.085	0.23	XX

Summary Statistics	Sample SF61	Sample SF62
Grand Means	6.90 kN/m	6.76 kN/m
Stnd Dev Btwn Labs	0.36 kN/m	0.37 kN/m

Statistics based on 40 of 42 reporting participants.

Comments on Assigned Data Flags for Test #325

KPY2E6 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SF62.

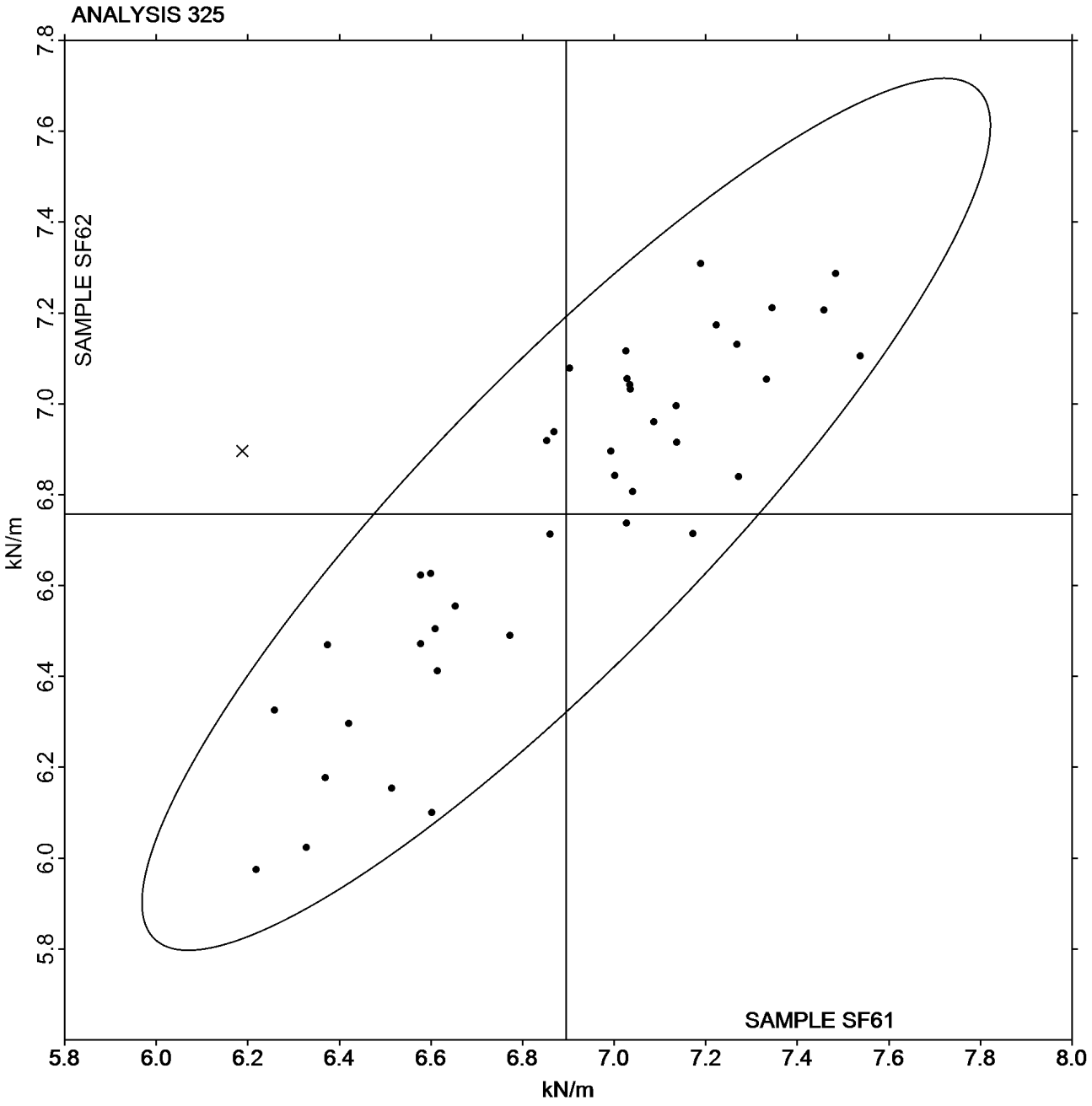
8X97QU (M) - Participant did not submit data for sample SF62.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4201/4202
IM	Instron 5500 Series	LA	L & W Tensile - Autoline 300
LF	L & W Tensile/Fracture Toughness Tester SE 064	LH	L & W Alwetron TH1 (Horizontal) SE 060/065F
LI	L & W Tensile Tester SE 062	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TC	Thwing-Albert Electro-Hydraulic, Model 30LT	TF	Thwing-Albert EJA Vantage-1
TJ	Thwing-Albert QC II-XS	TO	Thwing-Albert QC-1000
TP	TMI Monitor/Tensile 100 (84-21-01)	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF61 = 6.8952 kN/m

Grand Mean Sample SF62 = 6.7569 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF61 Lab Mean	Sample SF61 Diff from Grand Mean	Sample SF61 CPV	Sample SF62 Lab Mean	Sample SF62 Diff from Grand Mean	Sample SF62 CPV	Instr Code
2KTZ88		119.99	22.37	2.13	110.11	17.10	1.68	FP
2XF949		97.18	-0.44	-0.04	83.70	-9.31	-0.91	IM
32MA9A		97.92	0.30	0.03	97.17	4.16	0.41	LX
3R924V		97.50	-0.12	-0.01	94.62	1.61	0.16	LI
68783F		95.66	-1.96	-0.19	96.03	3.01	0.30	TF
6DDQ8Z		91.34	-6.28	-0.60	98.29	5.28	0.52	IM
6GPTYX		102.36	4.74	0.45	90.17	-2.85	-0.28	XX
7B6V3M		89.68	-7.94	-0.76	85.46	-7.56	-0.74	LI
8X97QU	M	42.61	-55.00	-5.24	No data reported for this sample			TO
ATV94K		104.33	6.71	0.64	93.46	0.45	0.04	LX
D6EUZP		108.25	10.63	1.01	97.81	4.80	0.47	LA
D9E6VP		91.10	-6.52	-0.62	91.49	-1.53	-0.15	TO
EDMQJM	*	70.27	-27.35	-2.60	67.15	-25.87	-2.53	LA
EFQL3P		91.56	-6.06	-0.58	83.71	-9.30	-0.91	LH
EMBJVJ		110.58	12.96	1.23	107.05	14.04	1.38	FP
EUQG6X		103.90	6.28	0.60	101.99	8.98	0.88	LA
JBN4UE		95.34	-2.28	-0.22	94.42	1.41	0.14	LH
KYKAW8		94.42	-3.20	-0.30	86.25	-6.76	-0.66	TO
L6J9RP		98.60	0.98	0.09	94.10	1.08	0.11	LH
LZUJKX		118.50	20.88	1.99	113.98	20.97	2.05	TO
MRUJHB		99.08	1.46	0.14	91.28	-1.73	-0.17	LX
MU6GXD		82.47	-15.15	-1.44	73.29	-19.72	-1.93	XX
R8GD6C		100.65	3.03	0.29	94.62	1.61	0.16	TB
RQMV82		94.05	-3.57	-0.34	89.77	-3.25	-0.32	LI
UFX2PP		80.35	-17.27	-1.64	83.08	-9.93	-0.97	LW
UQER88		90.97	-6.65	-0.63	80.45	-12.57	-1.23	LI
VK7LDL	X	526.99	429.37	40.87	527.20	434.19	42.55	ID
WKZWF3		107.56	9.94	0.95	105.36	12.34	1.21	TF
X8BAU8		101.56	3.94	0.38	98.52	5.50	0.54	LH
XLT3KZ		109.27	11.65	1.11	103.94	10.93	1.07	LI
XPPTHY		95.12	-2.50	-0.24	92.92	-0.09	-0.01	LH
ZDEVXV		89.00	-8.62	-0.82	90.22	-2.79	-0.27	RE

Summary Statistics	Sample SF61	Sample SF62
Grand Means	97.62 Joules/sq m	93.01 Joules/sq m
Stnd Dev Btwn Labs	10.51 Joules/sq m	10.20 Joules/sq m

Statistics based on 30 of 32 reporting participants.

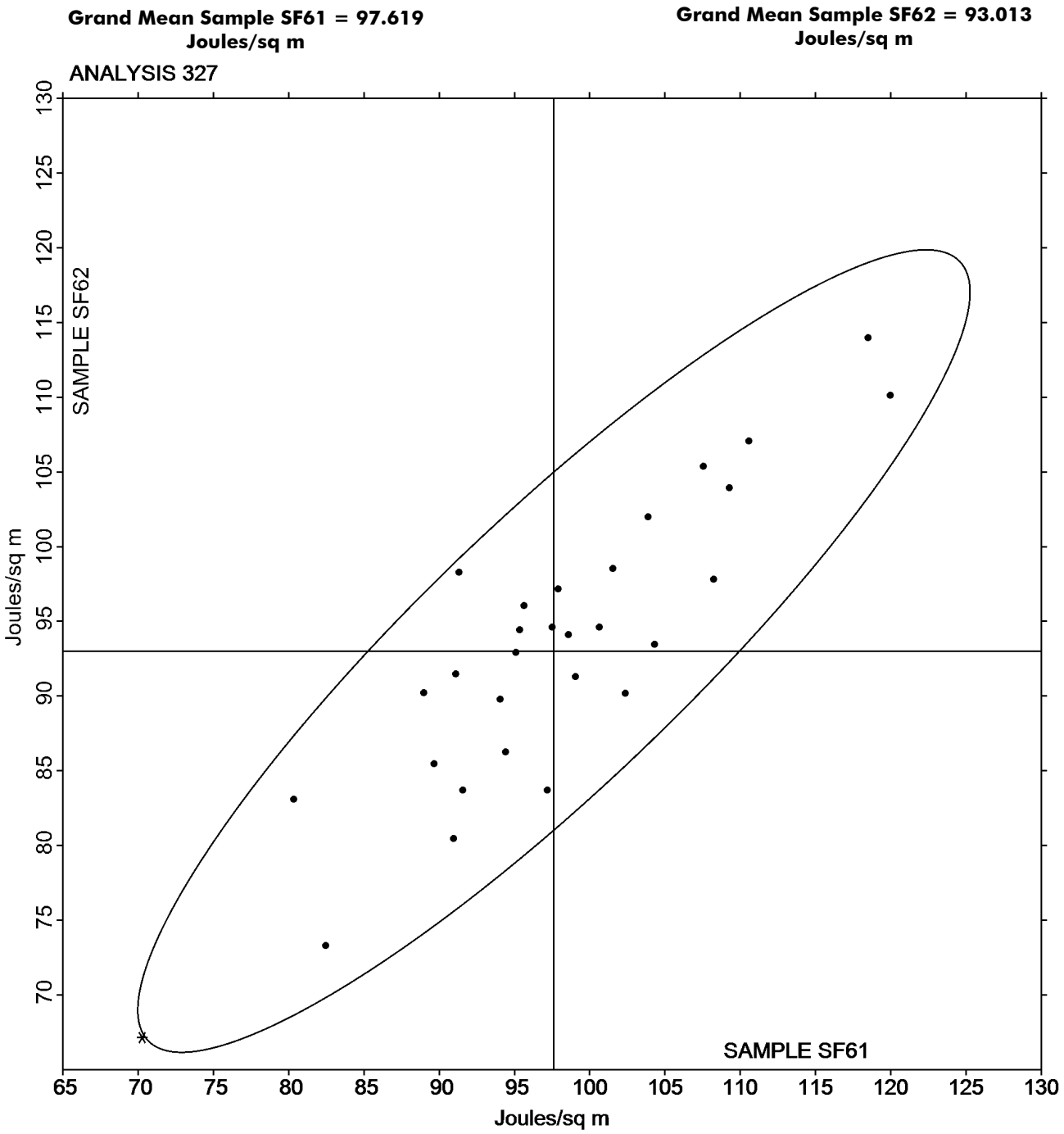
Comments on Assigned Data Flags for Test #327

VK7LDL (X) - Extreme Data.

8X97QU (M) - Participant did not submit data for sample SF62.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	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)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TO	Thwing-Albert QC-1000
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF61 Lab Mean	Sample SF61 Diff from Grand Mean	Sample SF61 CPV	Sample SF62 Lab Mean	Sample SF62 Diff from Grand Mean	Sample SF62 CPV	Instr Code
2KTZ88		2.825	0.632	2.45	2.788	0.669	2.59	FP
2XF949		2.356	0.163	0.63	2.105	-0.014	-0.05	IM
32MA9A		2.354	0.161	0.62	2.266	0.147	0.57	LX
3R924V		1.848	-0.345	-1.33	1.838	-0.281	-1.09	LI
68783F		2.197	0.004	0.02	2.189	0.070	0.27	TF
6DDQ8Z		2.292	0.099	0.38	2.342	0.223	0.86	IM
6GPTYX		2.343	0.150	0.58	2.150	0.031	0.12	XX
7B6V3M		1.928	-0.265	-1.02	1.902	-0.217	-0.84	LI
7LN8GL		2.232	0.039	0.15	2.061	-0.058	-0.22	TF
8X97QU	M	7.400	5.207	20.15	No data reported for this sample			TO
ATV94K		2.106	-0.087	-0.34	1.959	-0.160	-0.62	LX
D6EUZP		2.073	-0.120	-0.46	1.881	-0.238	-0.92	LA
D9E6VP		2.018	-0.175	-0.68	2.007	-0.112	-0.43	TG
EDMQJM		1.993	-0.200	-0.77	1.945	-0.174	-0.67	LA
EFQL3P		2.106	-0.087	-0.34	1.998	-0.121	-0.47	LH
EMBJVJ		2.389	0.196	0.76	2.335	0.216	0.84	FP
EME79Q		1.770	-0.423	-1.64	1.790	-0.329	-1.27	VM
EUQG6X		2.018	-0.175	-0.68	2.005	-0.114	-0.44	XX
GB8CJH		2.127	-0.066	-0.25	1.853	-0.266	-1.03	TF
JBN4UE		2.172	-0.021	-0.08	2.150	0.031	0.12	LH
KYKAW8		1.876	-0.317	-1.23	1.822	-0.297	-1.15	TO
L6J9RP		2.358	0.165	0.64	2.294	0.175	0.68	LH
LZUJKX	*	2.984	0.791	3.06	2.941	0.822	3.19	TO
MRUJHB		2.187	-0.006	-0.02	2.067	-0.052	-0.20	LX
MU6GXD		2.479	0.286	1.11	2.280	0.161	0.63	XX
R8GD6C		2.182	-0.010	-0.04	2.110	-0.009	-0.03	TB
RQMV82		2.041	-0.152	-0.59	1.984	-0.135	-0.52	LI
UFX2PP		1.825	-0.368	-1.42	1.841	-0.278	-1.08	LX
UQER88		2.094	-0.099	-0.38	1.891	-0.228	-0.88	LI
VK7LDL		2.228	0.036	0.14	2.213	0.095	0.37	ID
WKZWF3		2.546	0.353	1.37	2.502	0.383	1.49	TF
X8BAU8		2.182	-0.011	-0.04	2.115	-0.004	-0.01	LH
XLT3KZ		2.237	0.044	0.17	2.172	0.053	0.21	LI
XPPTHY		1.981	-0.212	-0.82	1.985	-0.134	-0.52	LH
ZDEVXV		2.208	0.015	0.06	2.249	0.131	0.51	RE

Summary Statistics	Sample SF61	Sample SF62
Grand Means	2.19 Percent	2.12 Percent
Stnd Dev Btwn Labs	0.26 Percent	0.26 Percent

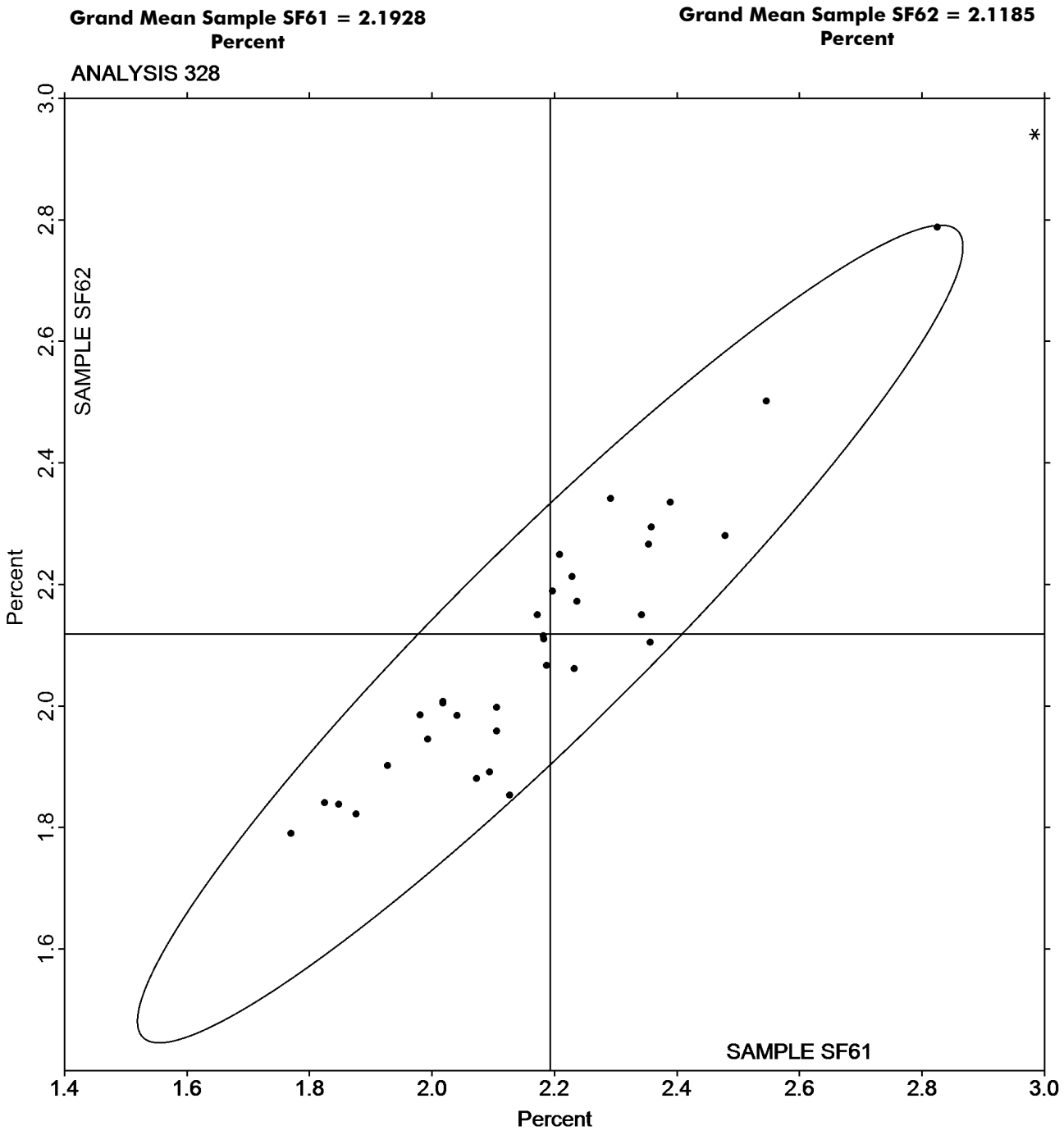
Statistics based on 34 of 35 reporting participants.

Comments on Assigned Data Flags for Test #328

8X97QU (M) - Participant did not submit data for sample SF62.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	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)	RE	Regmed
TB	Thwing-Albert EJA/1000	TF	Thwing-Albert EJA Vantage-1
TG	Thwing-Albert QC	TO	Thwing-Albert QC-1000
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE61 Lab Mean	Sample SE61 Diff from Grand Mean	Sample SE61 CPV	Sample SE62 Lab Mean	Sample SE62 Diff from Grand Mean	Sample SE62 CPV	Instr Code
2YPF8Z		11.65	-0.12	-0.14	11.58	-0.19	-0.23	LE
3GMXUB		11.24	-0.53	-0.58	11.35	-0.42	-0.51	IM
3HXVYR		13.25	1.47	1.62	12.94	1.17	1.42	IM
43LNNF		10.82	-0.95	-1.05	10.85	-0.92	-1.12	LE
4KKZY3		12.07	0.30	0.33	11.87	0.10	0.13	LE
4R2E28		11.49	-0.28	-0.31	11.60	-0.17	-0.20	IM
4U68XR		11.77	0.00	0.00	11.67	-0.10	-0.12	ID
62HHMC		11.74	-0.03	-0.04	11.98	0.21	0.26	LE
68783F		12.21	0.43	0.48	12.43	0.67	0.81	TO
6GPTYX		11.80	0.03	0.03	11.69	-0.07	-0.09	XX
6XXMTR		11.54	-0.23	-0.26	11.72	-0.05	-0.06	IF
77VK99		12.21	0.44	0.48	12.52	0.75	0.92	TO
7QDU4E		12.62	0.85	0.94	12.35	0.58	0.71	IK
8A6AUN		10.98	-0.79	-0.87	11.34	-0.43	-0.53	IK
8AQQ34		11.90	0.13	0.14	11.89	0.13	0.15	LH
8JFEZR		11.24	-0.54	-0.59	11.42	-0.35	-0.43	LX
9G8PAN		13.37	1.60	1.76	13.27	1.50	1.83	DW
9MQRF6		10.96	-0.81	-0.89	11.12	-0.64	-0.78	XX
AQ6UVA		10.78	-0.99	-1.09	10.65	-1.12	-1.36	IN
BNF344		11.23	-0.54	-0.60	11.45	-0.32	-0.39	TR
BTTM7J		13.93	2.15	2.37	13.73	1.97	2.39	LA
CL3U8N	*	12.38	0.61	0.67	11.67	-0.10	-0.12	TR
CZ8THF		13.76	1.98	2.18	13.70	1.93	2.35	LA
D6U36J		12.14	0.37	0.40	11.64	-0.13	-0.15	TX
DFVG9Q		11.31	-0.46	-0.51	11.44	-0.33	-0.40	TA
DTKFZT		13.34	1.56	1.72	13.17	1.40	1.70	IK
FFP77H		11.26	-0.51	-0.56	11.11	-0.65	-0.80	ID
FK4LXV		11.01	-0.76	-0.84	10.96	-0.80	-0.98	LE
GRCJYK		13.38	1.61	1.77	13.30	1.54	1.87	TH
HJDN6E		12.01	0.23	0.26	12.11	0.35	0.42	IK
J38GQC		11.44	-0.33	-0.36	11.27	-0.50	-0.60	IR
JBN4UE		11.50	-0.28	-0.31	11.60	-0.17	-0.21	LH
JEGA4A		11.68	-0.10	-0.11	11.80	0.04	0.04	TH
JTM7MC		10.77	-1.00	-1.10	10.81	-0.96	-1.17	TH
LGLCA7		11.30	-0.48	-0.52	11.21	-0.56	-0.68	LW
MHNRXM		11.21	-0.56	-0.62	11.31	-0.46	-0.56	LA
MRF8NC		12.65	0.88	0.97	12.63	0.87	1.05	IF
NUYMRD		10.99	-0.78	-0.86	11.28	-0.49	-0.59	LH
QUNQ6H		11.44	-0.33	-0.36	11.34	-0.42	-0.52	IN
QZE4XJ		10.99	-0.79	-0.87	11.15	-0.62	-0.76	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE61 Lab Mean	Sample SE61 Diff from Grand Mean	Sample SE61 CPV	Sample SE62 Lab Mean	Sample SE62 Diff from Grand Mean	Sample SE62 CPV	Instr Code
R8GD6C		11.90	0.13	0.14	11.76	-0.01	-0.01	TB
RKJXD4		11.53	-0.25	-0.27	11.59	-0.18	-0.22	IR
TCJXBF		10.97	-0.81	-0.89	11.02	-0.75	-0.91	IM
TGPTVF	*	9.32	-2.46	-2.71	9.84	-1.92	-2.34	IN
UANWKH		10.70	-1.08	-1.18	10.55	-1.21	-1.48	TA
UXVFVG		11.70	-0.07	-0.08	11.81	0.04	0.05	LE
UZ6BNZ	*	12.30	0.53	0.58	11.59	-0.18	-0.22	LI
VNAHXP		11.37	-0.40	-0.44	11.48	-0.29	-0.35	XX
VZ32DF		10.60	-1.17	-1.29	10.66	-1.10	-1.34	TK
WECBB2		10.76	-1.01	-1.12	10.98	-0.79	-0.96	TT
WWXRMB		12.61	0.84	0.92	12.70	0.93	1.13	IF
X279VY		11.69	-0.09	-0.09	12.02	0.26	0.31	IF
XHR42U		12.81	1.04	1.14	12.46	0.69	0.84	CE
ZDC7TX		12.84	1.07	1.17	12.75	0.98	1.19	TO
ZQEPY4		13.08	1.30	1.44	13.06	1.29	1.57	TH

Summary Statistics	Sample SE61	Sample SE62
Grand Means	11.77 kN/m	11.77 kN/m
Stnd Dev Btwn Labs	0.91 kN/m	0.82 kN/m

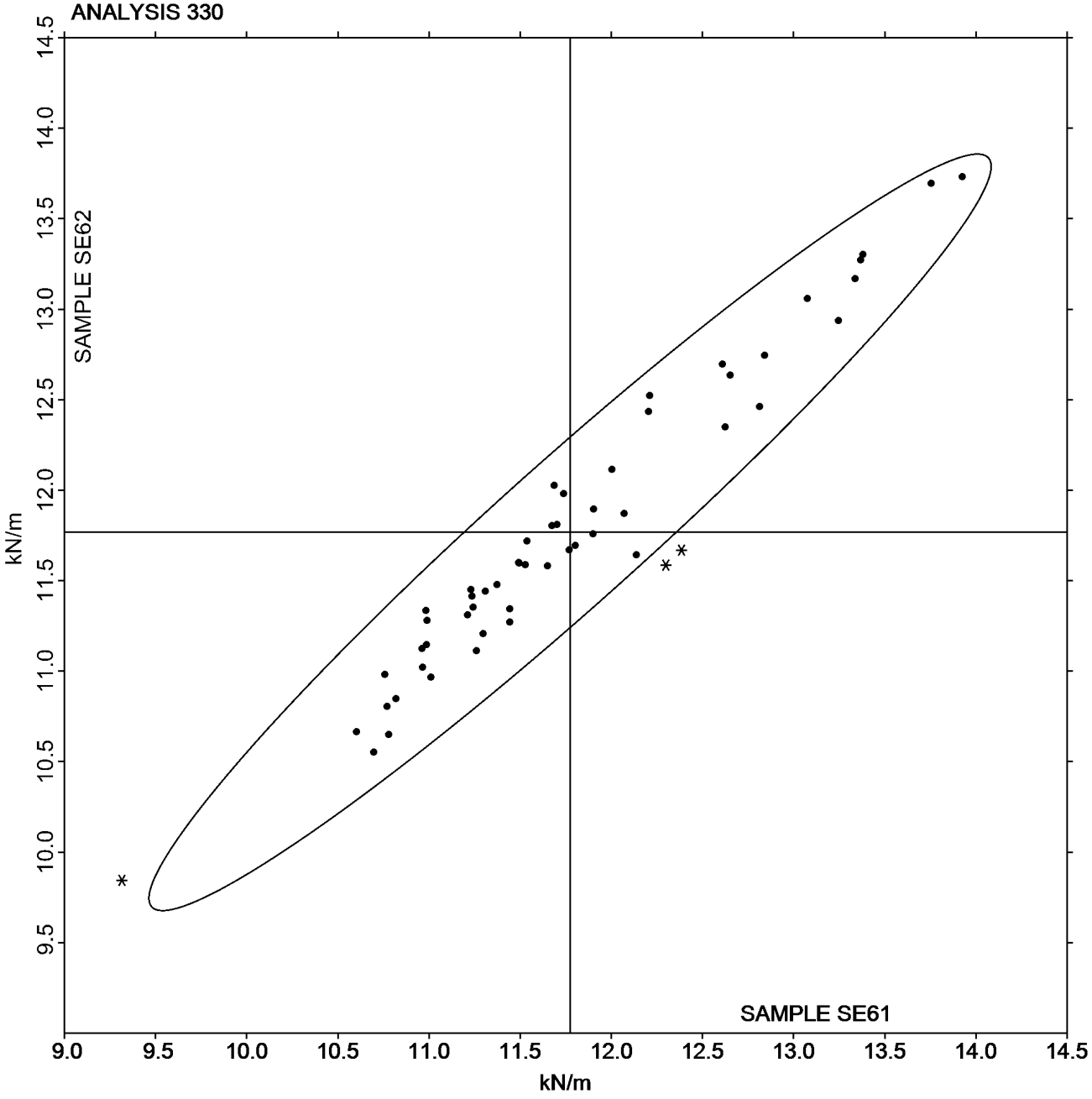
Statistics based on 55 of 55 reporting participants.

Key to Instrument Codes Reported by Participants

CE	Chatillon Model ET1100	DW	Dongguan Walter W-304 Tester
ID	Instron 4201	IF	Instron 3340 Series
IK	Instron 4400 Series	IM	Instron 5500 Series
IN	Instron 3360 Series	IR	Instron 5900 Series
LA	L & W Autoline	LE	L & W Tensile Tester 066
LH	L & W Alwetron TH1 (Horizontal) SE 060	LI	LLoyds Instruments
LW	L & W Tensile Tester SE062	LX	L & W (model not specified)
TA	Thwing-Albert Tensile Tester	TB	Thwing-Albert EJA/1000
TH	Thwing-Albert QC-3A	TK	Thwing-Albert Model 37-4
TO	Thwing-Albert QC-1000	TR	TMI Horizontal Tensile Tester
TT	Tinius Olsen Model MHT	TX	Thwing-Albert (model not specified)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SE61 = 11.774 kN/m

Grand Mean Sample SE62 = 11.767 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE61 Lab Mean	Sample SE61 Diff from Grand Mean	Sample SE61 CPV	Sample SE62 Lab Mean	Sample SE62 Diff from Grand Mean	Sample SE62 CPV	Instr Code
2YPF8Z		187.8	-8.6	-0.48	185.6	-11.1	-0.66	LE
3GMXUB		183.9	-12.5	-0.69	187.1	-9.6	-0.57	IM
43LNNF		181.3	-15.1	-0.84	184.0	-12.7	-0.76	LE
4KKZY3		203.1	6.7	0.37	191.9	-4.8	-0.29	LE
4R2E28		183.9	-12.5	-0.69	191.0	-5.7	-0.34	IM
62HHMC		183.4	-13.0	-0.72	187.4	-9.3	-0.56	LE
68783F		206.9	10.6	0.59	200.1	3.4	0.20	TO
6GPTYX		189.5	-6.9	-0.39	185.7	-11.0	-0.66	XX
6XXMTR		194.4	-2.0	-0.11	205.4	8.7	0.52	IF
77VK99		198.3	1.9	0.11	212.4	15.7	0.94	TO
7QDU4E		185.1	-11.3	-0.63	179.1	-17.6	-1.05	XX
8AQQ34		191.5	-4.9	-0.27	192.6	-4.1	-0.25	LH
8JFEZR		184.2	-12.2	-0.68	189.5	-7.2	-0.43	LX
9G8PAN		202.8	6.5	0.36	198.2	1.5	0.09	DW
9MQRF6		188.0	-8.4	-0.46	198.0	1.3	0.08	XX
AQ6UVA		205.6	9.2	0.51	211.4	14.7	0.88	IN
BNF344		178.9	-17.5	-0.97	187.0	-9.7	-0.58	TR
BTTM7J		207.4	11.0	0.61	198.7	2.0	0.12	LA
CL3U8N	X	208.9	12.5	0.70	180.7	-16.0	-0.96	TR
CZ8THF		204.3	7.9	0.44	206.9	10.2	0.61	LA
D6U36J		213.5	17.2	0.95	198.7	2.0	0.12	XX
DTKFZT	*	242.8	46.4	2.58	241.0	44.3	2.65	IK
FFP77H	*	199.5	3.1	0.17	181.0	-15.7	-0.94	ID
FK4LXV		177.8	-18.6	-1.03	178.6	-18.1	-1.08	LE
JBN4UE		195.3	-1.1	-0.06	193.5	-3.2	-0.19	LH
JEGA4A		223.4	27.0	1.50	227.6	30.9	1.85	TH
JTM7MC		212.0	15.7	0.87	207.2	10.5	0.63	TH
LGLCA7		179.3	-17.1	-0.95	177.6	-19.1	-1.14	LW
MHNRXM		206.8	10.4	0.58	206.8	10.1	0.60	LA
MRF8NC		194.5	-1.9	-0.11	191.7	-5.0	-0.30	IN
NUYMRD		160.2	-36.1	-2.01	177.2	-19.5	-1.17	LH
QUNQ6H	*	232.6	36.2	2.01	240.5	43.8	2.62	IN
QZE4XJ		183.8	-12.6	-0.70	176.0	-20.7	-1.24	LW
R8GD6C		196.7	0.3	0.02	192.7	-4.0	-0.24	TB
TCJXBF	X	62.5	-133.9	-7.44	70.0	-126.7	-7.57	IM
TGPTVF	X	119.1	-77.3	-4.29	130.6	-66.1	-3.95	IN
UANWKH	X	105.6	-90.8	-5.04	105.7	-91.0	-5.44	TA
UXVFVG		180.4	-16.0	-0.89	187.7	-9.0	-0.54	LE
VNAHXP		178.2	-18.1	-1.01	183.8	-12.9	-0.77	XX
VZ32DF		185.5	-10.9	-0.60	182.5	-14.2	-0.85	TK

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE61 Lab Mean	Sample SE61 Diff from Grand Mean	Sample SE61 CPV	Sample SE62 Lab Mean	Sample SE62 Diff from Grand Mean	Sample SE62 CPV	Instr Code
WECBB2		177.5	-18.8	-1.05	187.4	-9.3	-0.55	TT
WWXRMB		190.5	-5.8	-0.32	192.3	-4.4	-0.26	IF
ZDC7TX		230.1	33.7	1.87	223.2	26.5	1.58	TO
ZQEPY4		234.7	38.3	2.13	228.9	32.2	1.92	TH

Summary Statistics	Sample SE61	Sample SE62
Grand Means	196.38 Joules/sq m	196.69 Joules/sq m
Stnd Dev Btwn Labs	18.00 Joules/sq m	16.73 Joules/sq m

Statistics based on 40 of 44 reporting participants.

Comments on Assigned Data Flags for Test #331

CL3U8N (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE62.

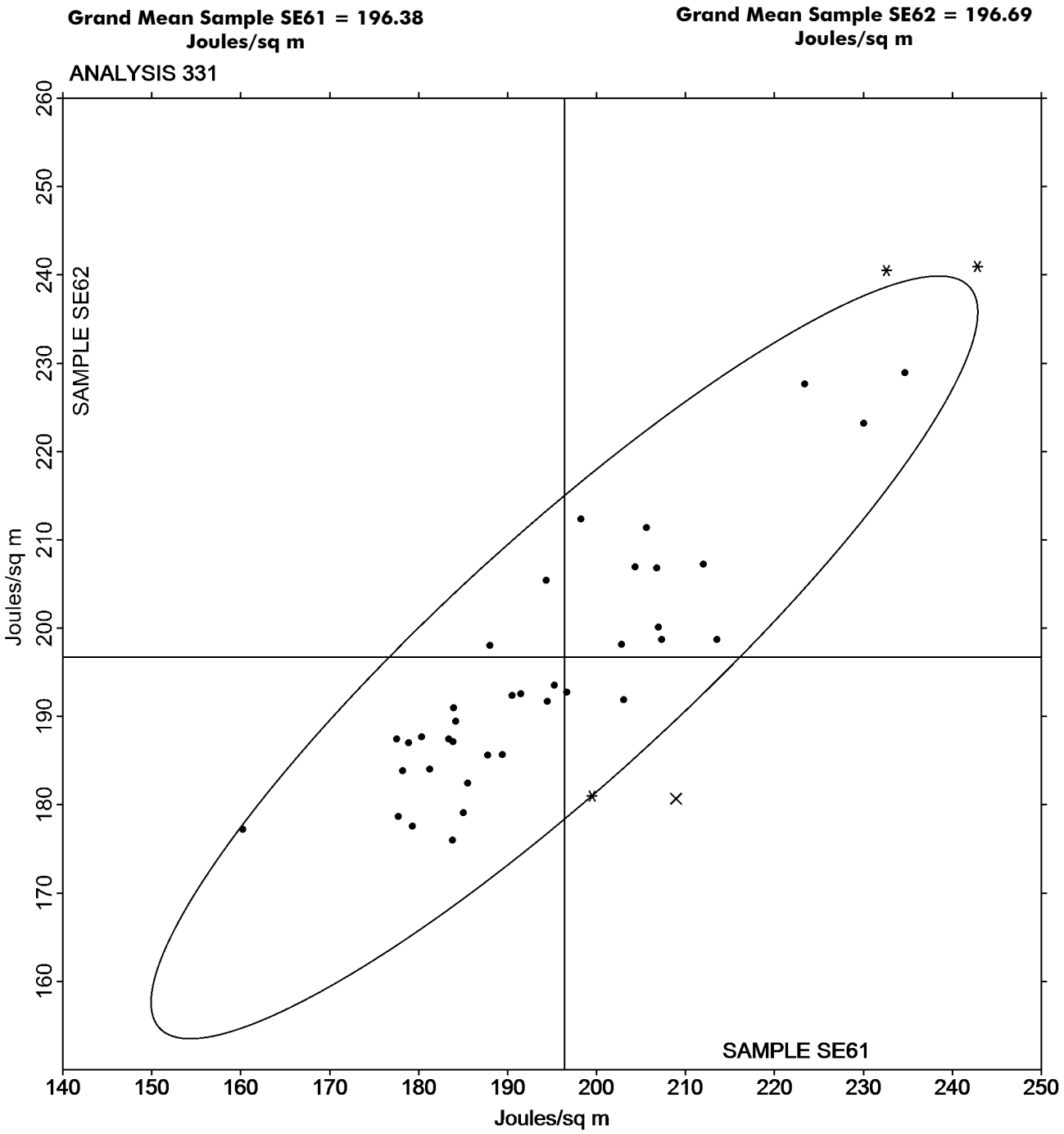
UANWKH (X) - Data for both samples are low. Possible Systematic Error.

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

TCJXBF (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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



Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE61 Lab Mean	Sample SE61 Diff from Grand Mean	Sample SE61 CPV	Sample SE62 Lab Mean	Sample SE62 Diff from Grand Mean	Sample SE62 CPV	Instr Code
2YPF8Z		2.378	-0.152	-0.63	2.363	-0.158	-0.66	LE
3GMXUB		2.664	0.134	0.56	2.690	0.169	0.71	IM
3HXVYR		2.671	0.141	0.59	2.577	0.056	0.24	IM
43LNNF		2.450	-0.080	-0.33	2.501	-0.020	-0.08	LE
4KKZY3		2.504	-0.026	-0.11	2.409	-0.112	-0.47	LE
4R2E28		2.386	-0.144	-0.60	2.462	-0.059	-0.25	IM
4U68XR		2.516	-0.014	-0.06	2.509	-0.012	-0.05	ID
62HHMC		2.269	-0.261	-1.08	2.306	-0.215	-0.90	LE
68783F		2.568	0.038	0.16	2.487	-0.034	-0.14	TO
6GPTYX		2.513	-0.017	-0.07	2.485	-0.036	-0.15	XX
6XXMTR	X	2.066	-0.464	-1.92	2.591	0.070	0.29	IF
77VK99		2.567	0.037	0.15	2.671	0.150	0.63	TO
7QDU4E	*	2.310	-0.220	-0.91	2.090	-0.431	-1.80	XX
8AQQ34		2.370	-0.160	-0.66	2.386	-0.135	-0.56	LH
8JFEZR		2.403	-0.127	-0.53	2.430	-0.091	-0.38	LX
9G8PAN	X	3.619	1.089	4.51	3.616	1.095	4.58	DW
9MQRF6		2.612	0.082	0.34	2.703	0.182	0.76	XX
AQ6UVA	*	3.170	0.640	2.65	3.240	0.719	3.01	IN
BNF344		2.416	-0.114	-0.47	2.469	-0.052	-0.22	TR
BTTM7J		3.007	0.477	1.98	2.950	0.429	1.80	XX
CL3U8N		2.635	0.105	0.44	2.441	-0.080	-0.34	TR
CZ8THF		2.162	-0.368	-1.53	2.199	-0.322	-1.35	LA
D6U36J		2.631	0.101	0.42	2.732	0.211	0.88	XX
DFVG9Q		2.470	-0.060	-0.25	2.470	-0.051	-0.21	TB
DTKFZT		2.701	0.171	0.71	2.730	0.209	0.88	IK
FFP77H		2.663	0.133	0.55	2.472	-0.049	-0.20	ID
FK4LXV		2.392	-0.138	-0.57	2.409	-0.112	-0.47	LE
J38GQC		2.710	0.180	0.75	2.650	0.129	0.54	IS
JBN4UE		2.522	-0.008	-0.03	2.465	-0.056	-0.23	LH
JEGA4A		3.108	0.578	2.40	3.113	0.592	2.48	TH
JTM7MC		2.940	0.410	1.70	2.850	0.329	1.38	TH
LGLCA7		2.367	-0.163	-0.68	2.361	-0.160	-0.67	LW
MHNRXM		2.320	-0.210	-0.87	2.321	-0.200	-0.84	LA
MRF8NC		2.277	-0.253	-1.05	2.277	-0.244	-1.02	IN
NUYMRD		2.180	-0.350	-1.45	2.350	-0.171	-0.72	LH
QUNQ6H		1.957	-0.573	-2.38	1.980	-0.541	-2.26	IN
QZE4XJ		2.433	-0.097	-0.40	2.310	-0.211	-0.88	LW
R8GD6C		2.458	-0.072	-0.30	2.449	-0.072	-0.30	TB
RKJXD4		2.660	0.130	0.54	2.710	0.189	0.79	IS
TCJXBF	X	1.167	-1.363	-5.65	1.664	-0.857	-3.59	IM

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE61 Lab Mean	Sample SE61 Diff from Grand Mean	Sample SE61 CPV	Sample SE62 Lab Mean	Sample SE62 Diff from Grand Mean	Sample SE62 CPV	Instr Code
TGPTVF	X	4.230	1.700	7.05	3.282	0.761	3.19	IN
UANWKH	X	1.509	-1.021	-4.23	1.525	-0.996	-4.17	TA
UXVFVG		2.295	-0.235	-0.97	2.332	-0.189	-0.79	LE
VNAHXP		2.331	-0.199	-0.83	2.386	-0.135	-0.56	XX
VZ32DF		2.639	0.109	0.45	2.603	0.082	0.34	TK
WECBB2		2.665	0.135	0.56	2.706	0.185	0.77	TT
WWXRMB		2.554	0.024	0.10	2.564	0.043	0.18	IF
ZDC7TX		2.687	0.157	0.65	2.642	0.121	0.51	TO
ZQEPY4		2.789	0.259	1.07	2.669	0.148	0.62	TH

Summary Statistics	Sample SE61	Sample SE62
Grand Means	2.53 Percent	2.52 Percent
Stnd Dev Btwn Labs	0.24 Percent	0.24 Percent

Statistics based on 44 of 49 reporting participants.

Comments on Assigned Data Flags for Test #332

9G8PAN (X) - Data for both samples are high. Possible Systematic Error.

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

TGPTVF (X) - Extreme Data.

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

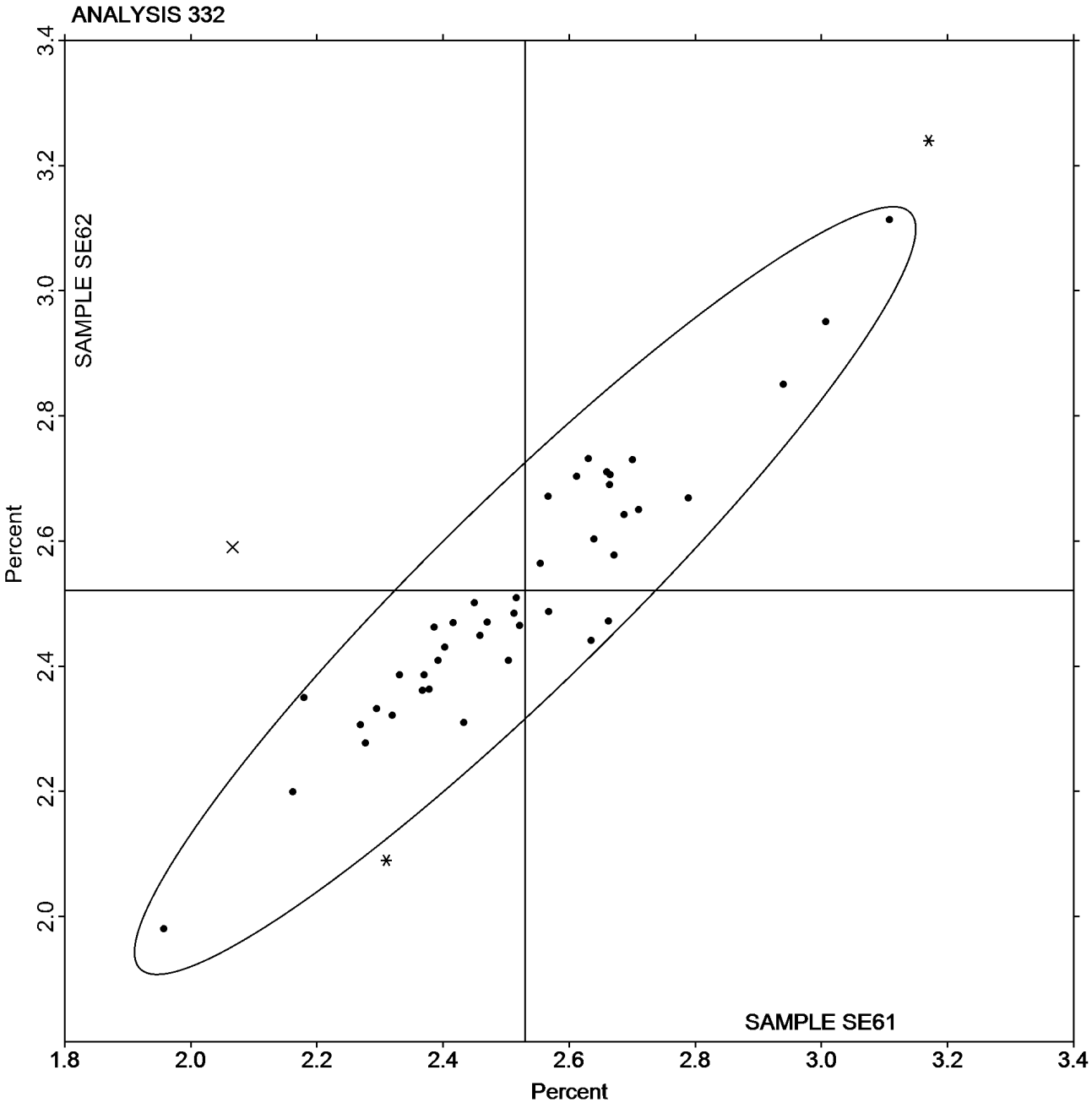
6XXMTR (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE62.

Key to Instrument Codes Reported by Participants

DW	Dongguan Walter W-304 Tester	ID	Instron 4201
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IS	Instron 5965	LA	L & W Autoline 300
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LW	L & W Tensile Tester SE062	LX	L & W (model not specified)
TA	Thwing-Albert Tensile Tester	TB	Thwing-Albert EJA/1000
TH	Thwing-Albert QC-3A	TK	Thwing-Albert Model 37-4
TO	Thwing-Albert QC-1000	TR	TMI Horizontal Tensile Tester
TT	Tinius Olsen Model MHT	XX	Instrument make/model not specified by lab

Grand Mean Sample SE61 = 2.5300 Percent

Grand Mean Sample SE62 = 2.5209 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

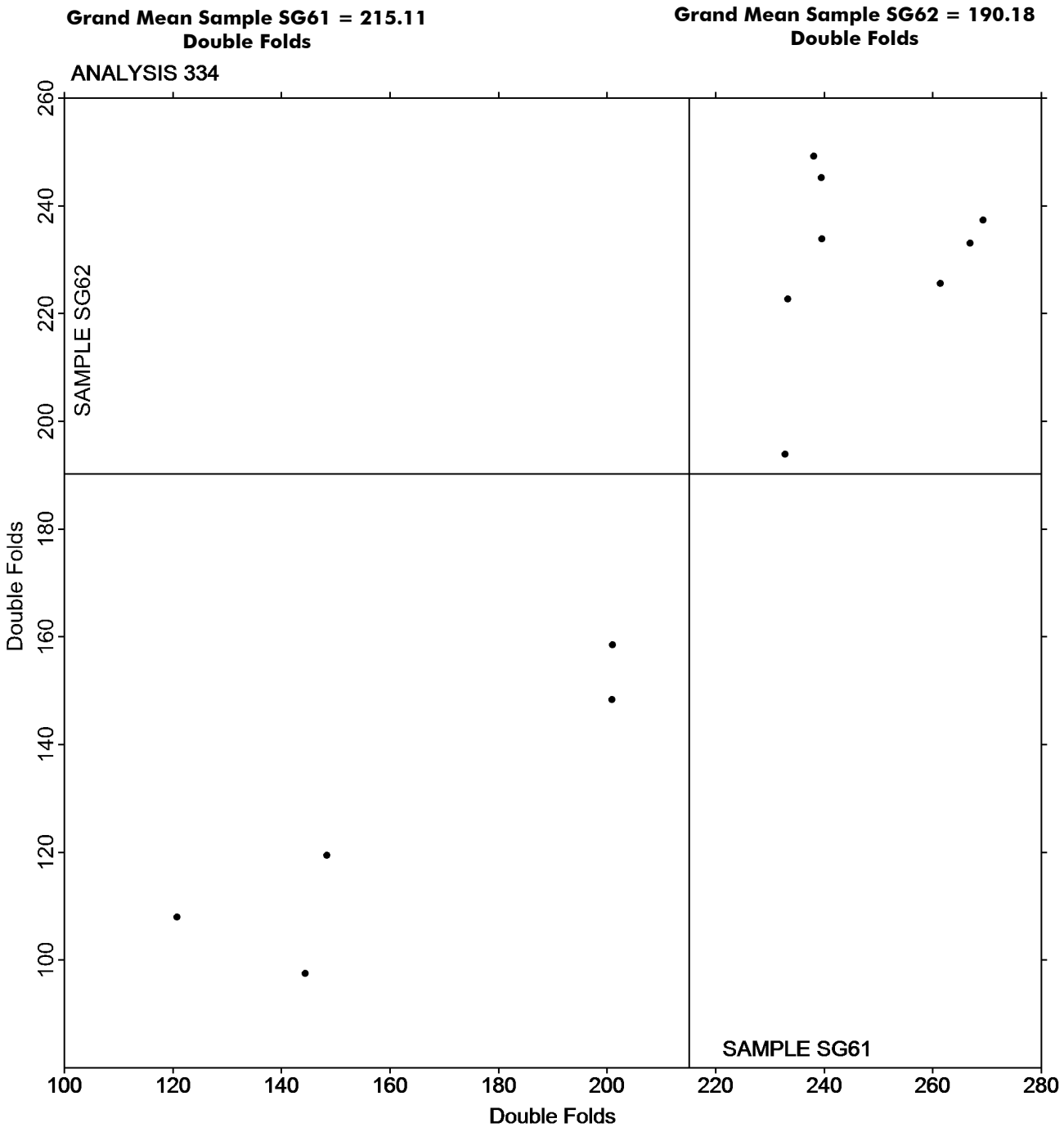
WebCode	Data Flag	Sample SG61 Lab Mean	Sample SG61 Diff from Grand Mean	Sample SG61 CPV	Sample SG62 Lab Mean	Sample SG62 Diff from Grand Mean	Sample SG62 CPV	Instr Code
6DDQ8Z		238.1	23.0	0.47	249.2	59.0	1.05	MT
7B6V3M		233.3	18.2	0.37	222.7	32.5	0.58	MT
7LN8GL		232.8	17.7	0.36	193.9	3.7	0.07	MT
9MQRF6		261.4	46.3	0.94	225.6	35.4	0.63	MT
DFVG9Q		120.8	-94.3	-1.92	108.0	-82.2	-1.46	MT
EME79Q		148.4	-66.7	-1.36	119.4	-70.8	-1.26	MT
JEGA4A		144.4	-70.7	-1.44	97.5	-92.7	-1.65	MT
MCZ663		266.9	51.8	1.06	233.0	42.8	0.76	MT
MJJDNT		200.9	-14.2	-0.29	148.3	-41.9	-0.75	MT
PLNHG8		239.6	24.5	0.50	233.8	43.6	0.78	MT
QZE4XJ		269.3	54.2	1.10	237.3	47.1	0.84	MT
V9RN8W		239.5	24.4	0.50	245.2	55.0	0.98	MT
Z4LRKL		201.0	-14.1	-0.29	158.5	-31.7	-0.56	XX

Summary Statistics	Sample SG61	Sample SG62
Grand Means	215.11 Double Folds	190.18 Double Folds
Stnd Dev Btwn Labs	49.05 Double Folds	56.20 Double Folds

Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

MT	MIT - Tinius Olsen	XX	Instrument make/model not specified by lab



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 336

Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH61 Lab Mean	Sample SH61 Diff from Grand Mean	Sample SH61 CPV	Sample SH62 Lab Mean	Sample SH62 Diff from Grand Mean	Sample SH62 CPV
6DDQ8Z		139.0	-9.9	-0.81	140.0	-7.4	-0.67
9EZAYC		144.0	-4.9	-0.40	147.8	0.4	0.03
9MQRF6		159.8	11.0	0.89	158.5	11.1	1.00
DFVG9Q		151.2	2.3	0.19	144.0	-3.4	-0.30
EDMQJM		160.4	11.5	0.94	157.3	10.0	0.90
EME79Q		167.6	18.7	1.52	160.0	12.6	1.14
GH48J2	X	155.4	6.5	0.53	195.4	48.0	4.32
KYKAW8		142.8	-6.1	-0.50	139.6	-7.8	-0.70
LLR9T7		141.8	-7.1	-0.58	142.6	-4.8	-0.43
LZUJKX		140.2	-8.7	-0.71	140.9	-6.5	-0.59
R8GD6C		123.9	-25.0	-2.03	124.8	-22.6	-2.03
RFAQ3Q		157.8	8.9	0.73	154.8	7.4	0.67
V9RN8W		138.7	-10.2	-0.83	140.0	-7.4	-0.66
WKZWF3	X	226.4	77.6	6.31	231.8	84.4	7.59
WQ8ACF		142.6	-6.3	-0.51	135.2	-12.1	-1.09
WWXRMB		169.8	21.0	1.71	166.5	19.1	1.72
XPPTHY		157.2	8.3	0.68	159.4	12.0	1.08
Z7VRPT		145.2	-3.7	-0.30	146.7	-0.6	-0.06

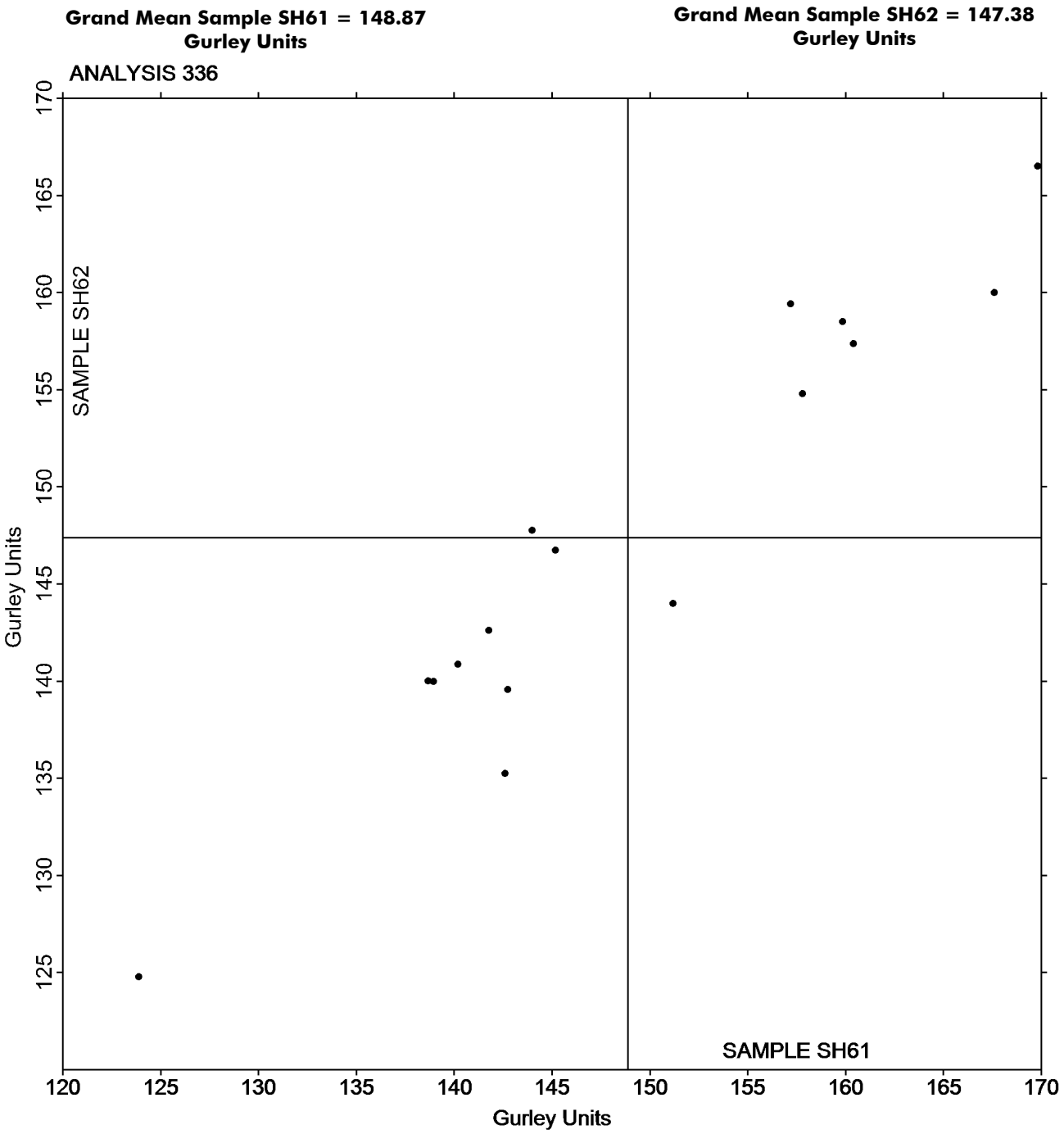
Summary Statistics	Sample SH61	Sample SH62
Grand Means	148.87 Gurley Units	147.38 Gurley Units
Stnd Dev Btwn Labs	12.29 Gurley Units	11.12 Gurley Units

Statistics based on 16 of 18 reporting participants.

Comments on Assigned Data Flags for Test #336

WKZWF3 (X) - Extreme Data.

GH48J2 (X) - Data for sample SH62 are high. Inconsistent within the determinations of both samples.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 338

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

WebCode	Data Flag	Sample SJ61 Lab Mean	Sample SJ61 Diff from Grand Mean	Sample SJ61 CPV	Sample SJ62 Lab Mean	Sample SJ62 Diff from Grand Mean	Sample SJ62 CPV
32MA9A		1.559	-0.635	-1.44	1.713	-0.450	-1.21
6DDQ8Z		2.356	0.162	0.37	2.241	0.078	0.21
8X97QU	M	2.257	0.063	0.14	No data reported for this sample		
CQVUN6		2.635	0.441	1.00	2.461	0.298	0.80
D2TAUL		2.100	-0.094	-0.21	2.120	-0.043	-0.12
LGLCA7		1.540	-0.654	-1.49	1.590	-0.573	-1.54
MJJDNT		2.350	0.156	0.36	2.337	0.174	0.47
MRF8NC		2.870	0.676	1.54	2.820	0.657	1.77
WWXRMB		2.217	0.023	0.05	2.136	-0.026	-0.07
ZMZ4BQ		2.116	-0.078	-0.18	2.047	-0.116	-0.31

Summary Statistics	Sample SJ61	Sample SJ62
Grand Means	2.19 Taber Units	2.16 Taber Units
Stnd Dev Btwn Labs	0.44 Taber Units	0.37 Taber Units

Statistics based on 9 of 10 reporting participants.

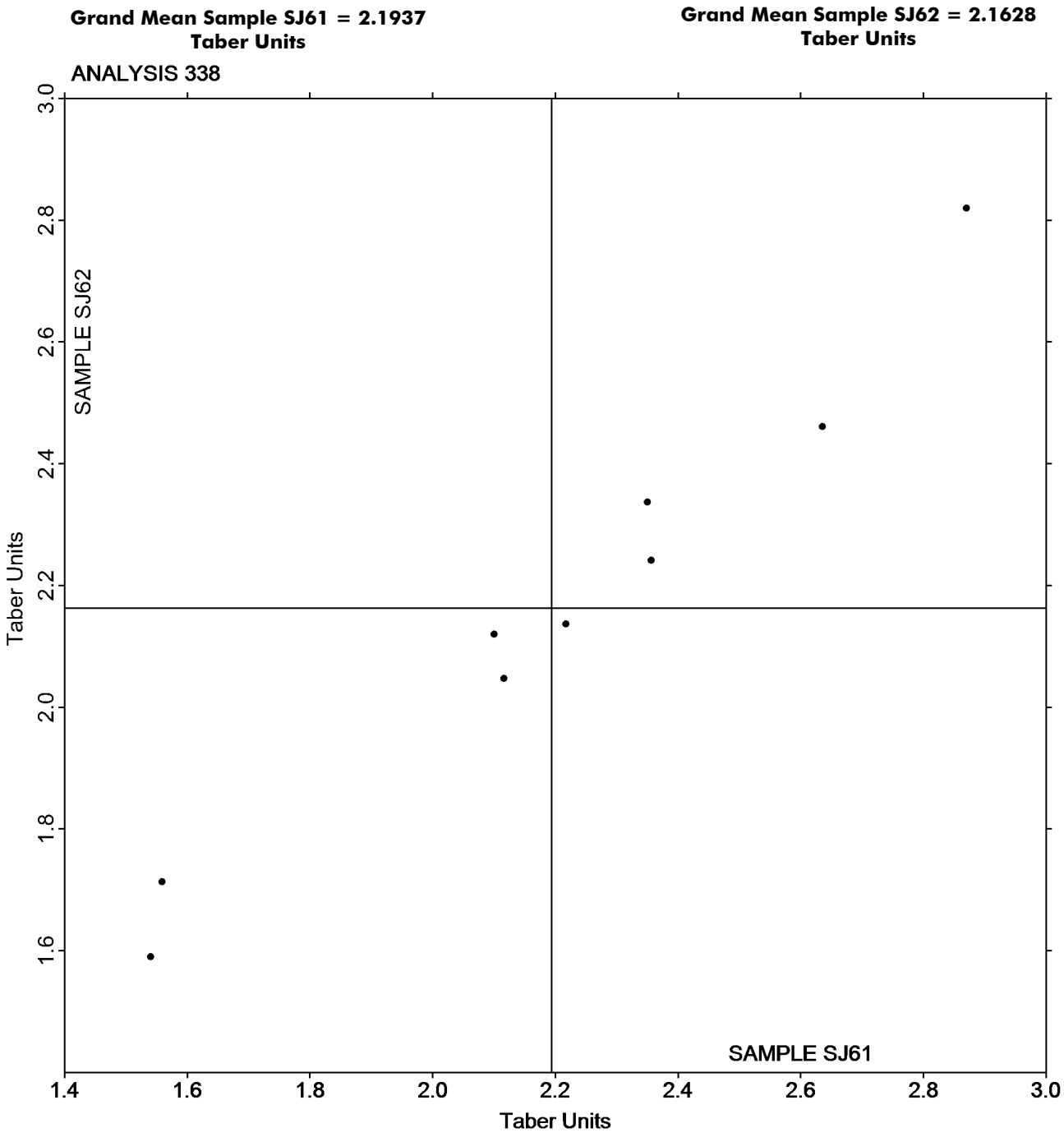
Comments on Assigned Data Flags for Test #338

8X97QU (M) - Participant did not submit data for sample SJ62.

Analysis Notes:

8X97QU - Data appear to be reported as g-cm, not mN-m as indicated on datasheet. Units corrected by CTS.

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



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 339

Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ61 Lab Mean	Sample SQ61 Diff from Grand Mean	Sample SQ61 CPV	Sample SQ62 Lab Mean	Sample SQ62 Diff from Grand Mean	Sample SQ62 CPV
2KTZ88		17.75	-2.55	-1.32	32.23	-3.83	-1.09
4KKZY3	X	45.97	25.66	13.24	81.98	45.92	13.05
6DDQ8Z		22.07	1.76	0.91	39.44	3.38	0.96
6GPTYX	X	10.00	-10.31	-5.32	28.20	-7.86	-2.23
D9E6VP		19.50	-0.81	-0.42	36.30	0.24	0.07
KPY2E6		19.74	-0.57	-0.29	29.73	-6.33	-1.80
LGLCA7		19.70	-0.61	-0.31	35.05	-1.01	-0.29
MCZ663		18.83	-1.48	-0.76	35.44	-0.62	-0.18
QZE4XJ		20.63	0.32	0.17	37.84	1.78	0.51
YCNCF4		20.15	-0.16	-0.08	37.26	1.20	0.34
Z7VRPT		24.40	4.09	2.11	41.24	5.18	1.47

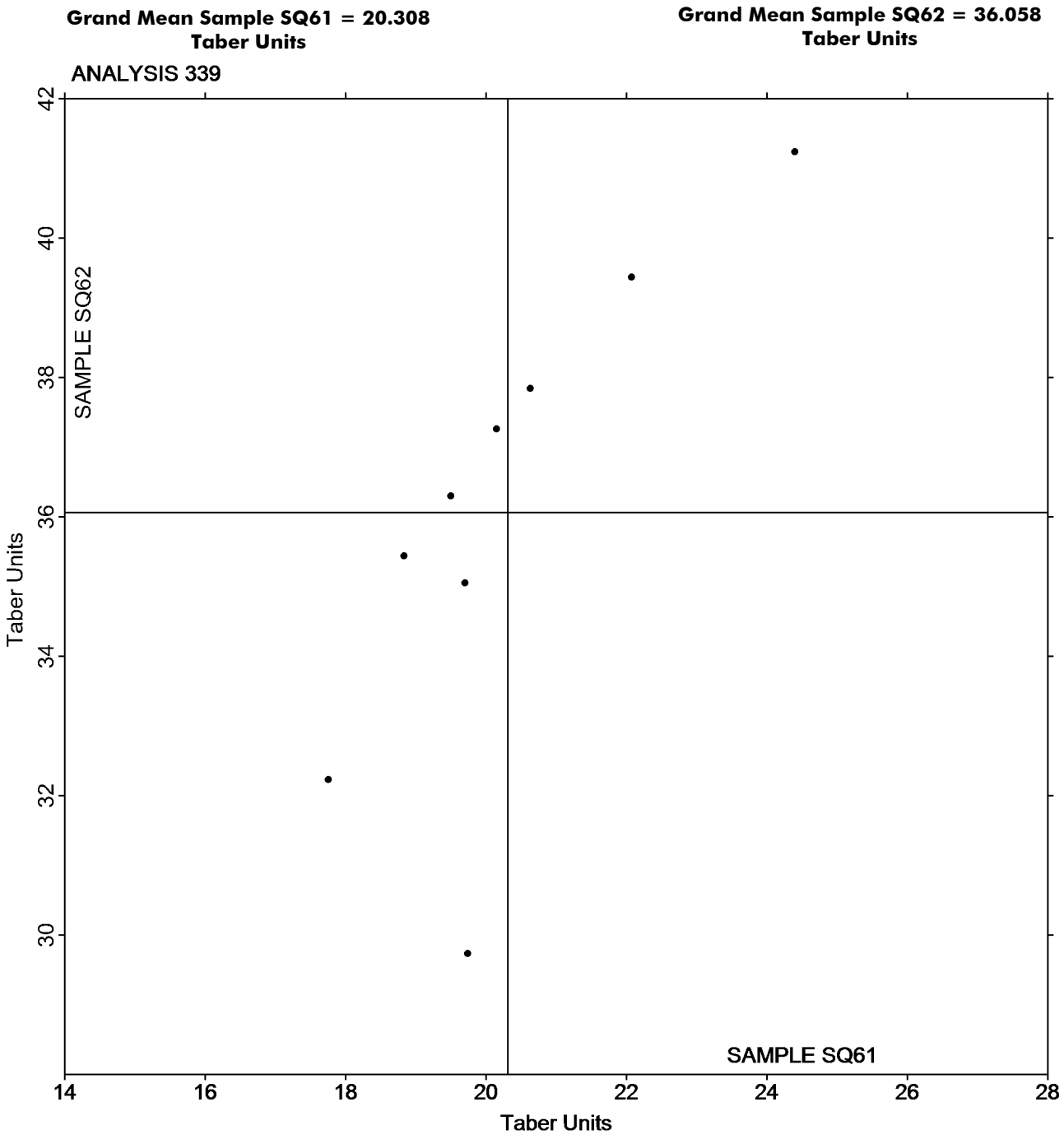
Summary Statistics	Sample SQ61	Sample SQ62
Grand Means	20.31 Taber Units	36.06 Taber Units
Stnd Dev Btwn Labs	1.94 Taber Units	3.52 Taber Units

Statistics based on 9 of 11 reporting participants.

Comments on Assigned Data Flags for Test #339

4KKZY3 (X) - Extreme Data.

6GPTYX (X) - Data for both samples are low.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 340

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

TAPPI Official Test Method T489

WebCode	Data Flag	Sample ST61 Lab Mean	Sample ST61 Diff from Grand Mean	Sample ST61 CPV	Sample ST62 Lab Mean	Sample ST62 Diff from Grand Mean	Sample ST62 CPV
6GPTYX		253.2	-23.2	-2.08	260.1	-23.5	-1.80
86C4KT		274.3	-2.1	-0.19	281.6	-2.0	-0.15
8LJDBK		289.0	12.6	1.13	305.4	21.8	1.67
9MQRF6		277.8	1.4	0.13	278.3	-5.3	-0.41
BNF344		273.6	-2.8	-0.25	278.9	-4.7	-0.36
BX4URG		282.2	5.8	0.52	286.6	3.0	0.23
CJVLUX		284.8	8.4	0.76	293.7	10.1	0.78
GRCJYK	X	348.1	71.7	6.44	375.5	91.9	7.05
JEGA4A		279.5	3.1	0.28	289.8	6.2	0.48
LGLCA7		261.3	-15.1	-1.36	264.5	-19.1	-1.46
MT94BK	X	2,881.7	2,605.3	233.90	2,954.1	2,670.6	204.73
QZE4XJ		289.9	13.5	1.22	292.3	8.8	0.67
X279VY		287.4	11.0	0.99	298.0	14.4	1.11
XHR42U		266.0	-10.4	-0.93	273.4	-10.2	-0.78
Z4LRKL		266.8	-9.6	-0.86	273.0	-10.6	-0.81
Z7VRPT		283.7	7.3	0.65	294.4	10.8	0.83

Summary Statistics	Sample ST61	Sample ST62
Grand Means	276.38 Taber Units	283.57 Taber Units
Stnd Dev Btwn Labs	11.14 Taber Units	13.04 Taber Units

Statistics based on 14 of 16 reporting participants.

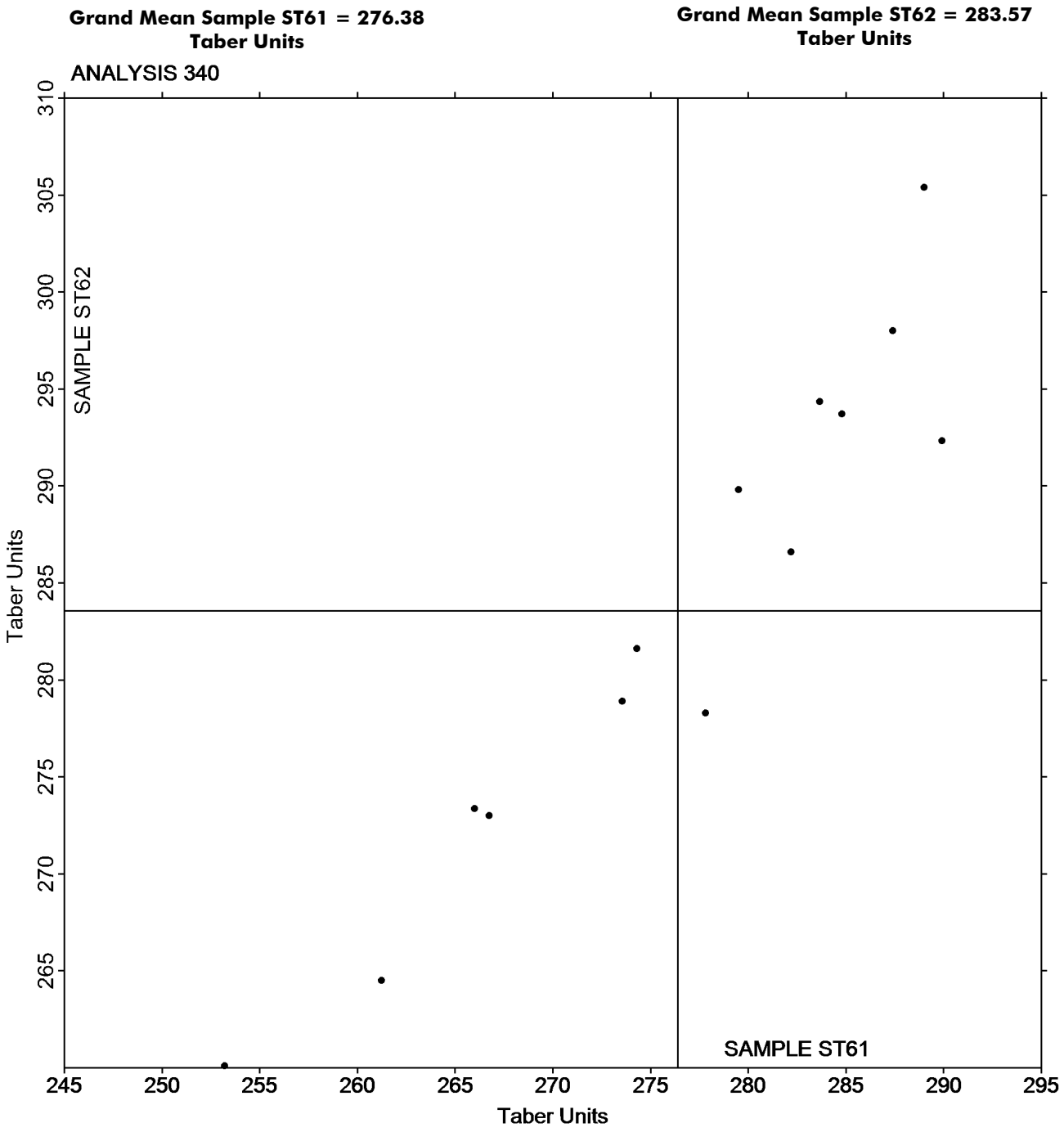
Comments on Assigned Data Flags for Test #340

MT94BK (X) - Extreme Data.

GRCJYK (X) - Extreme Data.

Analysis Notes:

MT94BK - Data appear to possibly be reported as g-cm, not mN-m as indicated on datasheet.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 343
Z-Direction Tensile
TAPPI Official Test Method T541

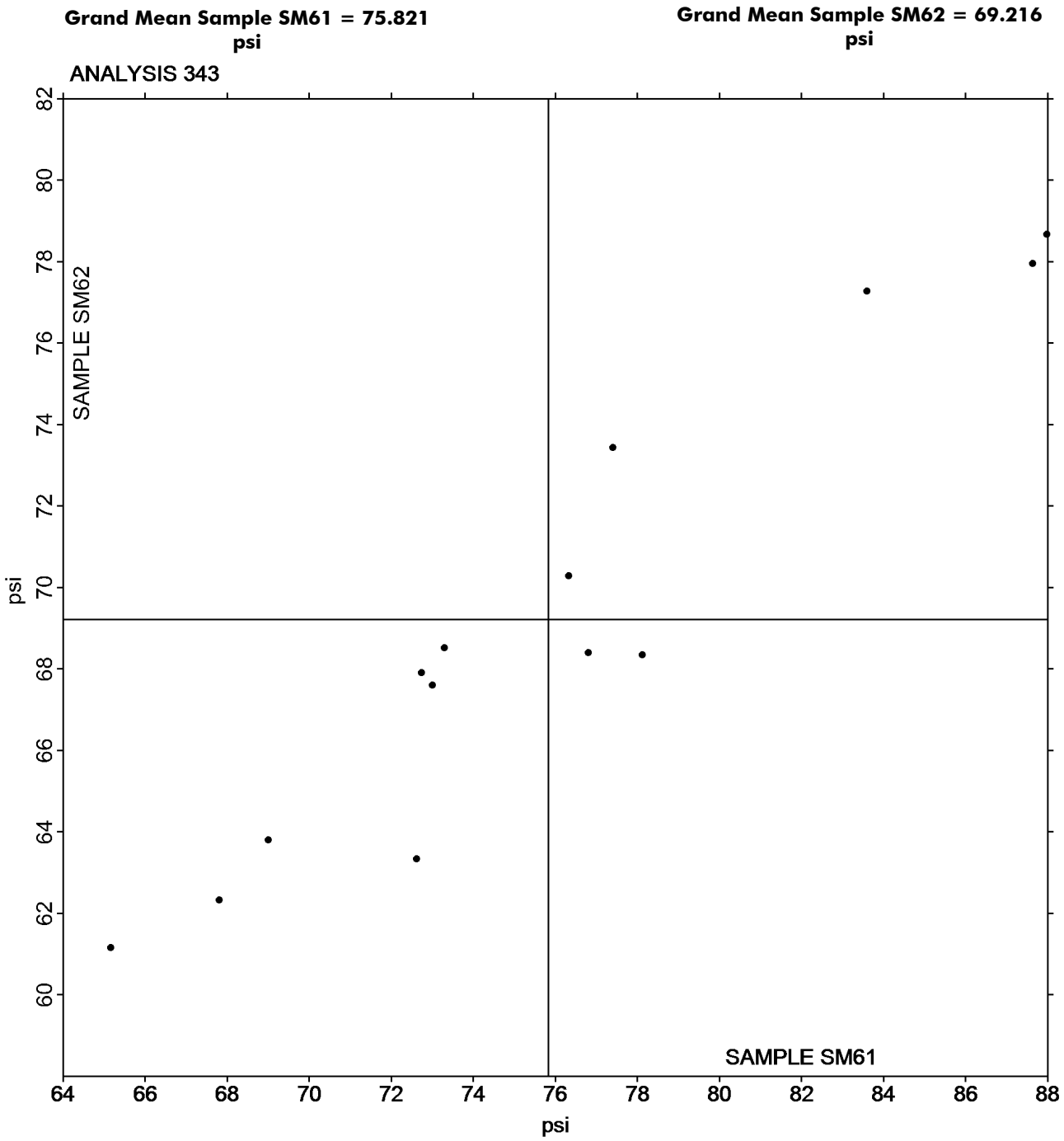
WebCode	Data Flag	Sample SM61 Lab Mean	Sample SM61 Diff from Grand Mean	Sample SM61 CPV	Sample SM62 Lab Mean	Sample SM62 Diff from Grand Mean	Sample SM62 CPV	Instr Code
2KTZ88		72.74	-3.08	-0.45	67.90	-1.31	-0.23	LW
4KKZY3		78.12	2.30	0.33	68.34	-0.88	-0.15	TA
6DDQ8Z		69.00	-6.82	-0.99	63.80	-5.42	-0.94	TZ
BCP9TV		73.30	-2.52	-0.37	68.52	-0.70	-0.12	TA
DBL8XN		87.64	11.82	1.72	77.96	8.74	1.52	DX
FPEWRB		76.80	0.98	0.14	68.40	-0.82	-0.14	CD
JEGA4A		65.16	-10.66	-1.55	61.16	-8.06	-1.40	LW
JTM7MC		73.00	-2.82	-0.41	67.60	-1.62	-0.28	TA
KQWCA9		77.40	1.58	0.23	73.44	4.22	0.73	DX
QZE4XJ		76.32	0.50	0.07	70.28	1.06	0.18	LW
WWXRMB		87.98	12.16	1.77	78.68	9.46	1.64	TL
XLT3KZ		72.62	-3.20	-0.46	63.34	-5.87	-1.02	LW
YCNCF4		67.81	-8.01	-1.16	62.33	-6.89	-1.19	TZ
ZZPV7T		83.60	7.78	1.13	77.28	8.06	1.40	DX

Summary Statistics	Sample SM61	Sample SM62
Grand Means	75.82 psi	69.22 psi
Stnd Dev Btwn Labs	6.88 psi	5.77 psi

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

CD	CSI CS-163D	DX	Dek-Tron XP2 Series
LW	L & W ZD Tensile Tester	TA	Thwing-Albert Tensile Tester
TL	TMI Lab Master	TZ	TMI Monitor/ZDT Tester



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

Paper & Paperboard Interlaboratory Testing Program

Report #2971S, November 2018

Analysis 345

Z-Direction Tensile, Recycled Paperboard

TAPPI Official Test Method T541

WebCode	Data Flag	Sample SZ61 Lab Mean	Sample SZ61 Diff from Grand Mean	Sample SZ61 CPV	Sample SZ62 Lab Mean	Sample SZ62 Diff from Grand Mean	Sample SZ62 CPV	Instr Code
86C4KT		67.80	3.60	0.91	70.40	5.92	1.27	TA
8LJDBK		72.20	8.00	2.01	73.20	8.72	1.88	LW
9MQRF6		64.60	0.40	0.10	64.20	-0.28	-0.06	CA
BX4URG		63.20	-1.00	-0.25	65.00	0.52	0.11	CA
CJVLUX		60.46	-3.74	-0.94	61.22	-3.26	-0.70	TZ
CZ8THF		65.30	1.10	0.28	64.88	0.40	0.09	TA
D8KGDU		59.16	-5.04	-1.27	57.88	-6.60	-1.42	CD
DTKFZT		61.53	-2.67	-0.67	61.62	-2.85	-0.61	PG
MT94BK		58.80	-5.40	-1.36	58.04	-6.44	-1.39	CD
U23GD8		64.76	0.56	0.14	64.48	0.00	0.00	DP
UDRDDK		62.44	-1.76	-0.44	63.20	-1.28	-0.28	LW
UZ6BNZ		70.88	6.68	1.68	72.07	7.59	1.63	CH
VUX33Q	X	33.44	-30.76	-7.74	33.46	-31.02	-6.68	LW
XHR42U		64.80	0.60	0.15	64.43	-0.05	-0.01	CH
Z7VRPT		62.86	-1.34	-0.34	62.08	-2.40	-0.52	CA

Summary Statistics	Sample SZ61	Sample SZ62
Grand Means	64.20 psi	64.48 psi
Stnd Dev Btwn Labs	3.97 psi	4.64 psi

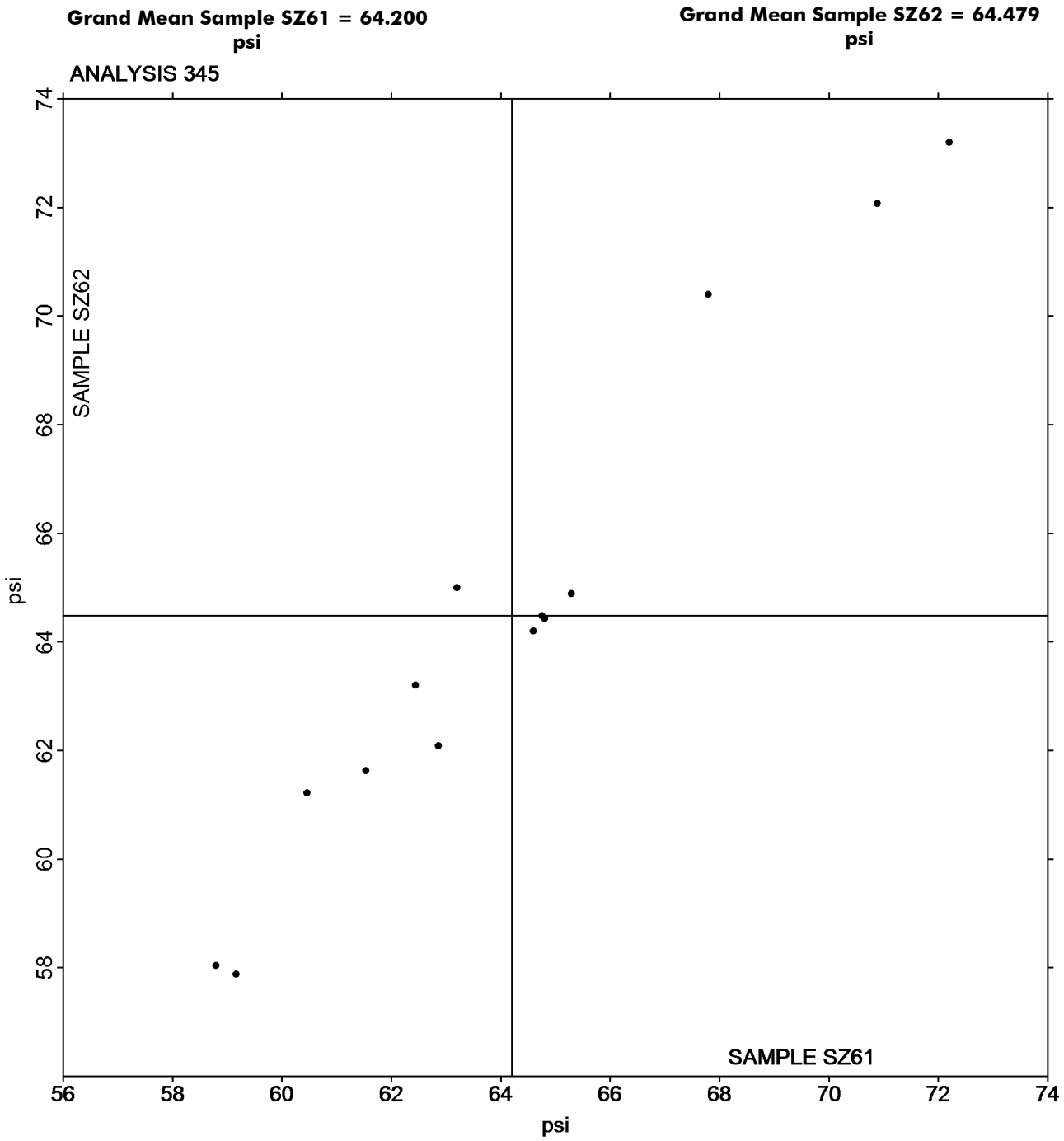
Statistics based on 14 of 15 reporting participants.

Comments on Assigned Data Flags for Test #345

VUX33Q (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
CH	Chatillon Ametek	DP	Dek-Tron XP Series
LW	L & W ZD Tensile Tester	PG	Perkins Model A Mullen Tester
TA	Thwing-Albert Tensile Tester	TZ	TMI Monitor/ZDT Tester



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SN61 Lab Mean	Sample SN61 Diff from Grand Mean	Sample SN61 CPV	Sample SN62 Lab Mean	Sample SN62 Diff from Grand Mean	Sample SN62 CPV	Instr Code
4KKZY3		110.0	6.6	0.69	103.20	7.74	1.45	HY
6DDQ8Z		97.6	-5.8	-0.60	92.20	-3.26	-0.61	HY
77VK99		95.6	-7.8	-0.81	89.20	-6.26	-1.17	HY
86C4KT		100.8	-2.6	-0.27	93.80	-1.66	-0.31	HY
9MQRF6		104.2	0.8	0.09	97.80	2.34	0.44	HZ
BCP9TV		99.8	-3.6	-0.37	95.40	-0.06	-0.01	HY
EME79Q		98.8	-4.6	-0.48	89.40	-6.06	-1.14	HY
JEGA4A		95.2	-8.2	-0.85	93.20	-2.26	-0.42	HZ
LZUJKX		102.8	-0.6	-0.06	92.60	-2.86	-0.54	HY
MRUJHB		95.9	-7.5	-0.78	97.68	2.22	0.42	HY
QZE4XJ		95.8	-7.6	-0.79	90.20	-5.26	-0.99	HY
R8GD6C		100.8	-2.6	-0.27	91.88	-3.58	-0.67	HY
V37MY8	X	79.7	-23.7	-2.48	58.15	-37.31	-6.99	TM
WKZWF3		104.8	1.4	0.15	93.00	-2.46	-0.46	HY
XPPTHY	*	136.0	32.6	3.41	109.20	13.74	2.58	HZ
YCNCF4		107.5	4.1	0.43	94.92	-0.54	-0.10	HY
ZDC7TX		104.8	1.4	0.15	97.00	1.54	0.29	HZ
ZDEVXV		107.0	3.6	0.38	102.12	6.66	1.25	HY

Summary Statistics	Sample SN61	Sample SN62
Grand Means	103.37 1000th ft-lbs	95.46 1000th ft-lbs
Stnd Dev Btwn Labs	9.57 1000th ft-lbs	5.33 1000th ft-lbs

Statistics based on 17 of 18 reporting participants.

Comments on Assigned Data Flags for Test #348

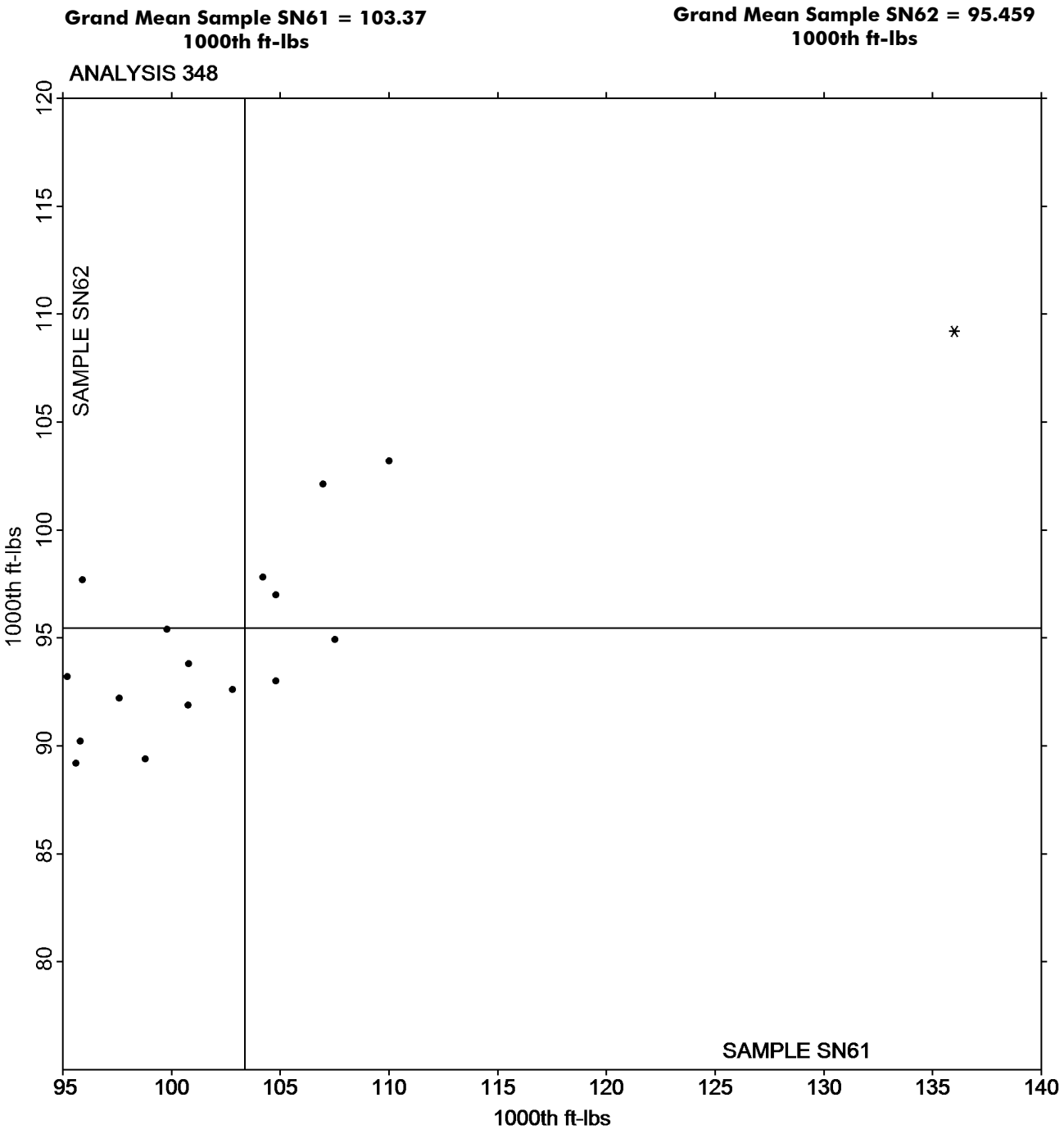
V37MY8 (X) - Extreme Data for Sample SN62.

Key to Instrument Codes Reported by Participants

HY Huygen Digitized Scott Internal Bond Tester

HZ Huygen Internal Bond Tester with AccuPress

TM TMI Internal Bond Tester



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 349

Internal Bond Strength - Scott Bond Models

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SP61 Lab Mean	Sample SP61 Diff from Grand Mean	Sample SP61 CPV	Sample SP62 Lab Mean	Sample SP62 Diff from Grand Mean	Sample SP62 CPV	Instr Code
8X97QU	M	86.80	-7.85	-0.67	No data reported for this sample			SC
ATV94K	X	0.06	-94.59	-8.04	0.05	-88.87	-9.32	TM
DBL8XN		67.80	-26.85	-2.28	70.60	-18.32	-1.92	TM
DTKFZT		94.20	-0.45	-0.04	90.00	1.08	0.11	TM
EUQG6X		101.60	6.95	0.59	92.60	3.68	0.39	SC
JBN4UE		101.17	6.52	0.55	95.36	6.44	0.68	TM
LGLCA7		105.34	10.69	0.91	96.46	7.54	0.79	XX
MCZ663		77.99	-16.65	-1.42	72.00	-16.92	-1.77	TM
UDRDDK		98.20	3.55	0.30	90.40	1.48	0.16	XX
UXVFVG		107.00	12.35	1.05	98.00	9.08	0.95	SC
UZ6BNZ		93.20	-1.45	-0.12	94.00	5.08	0.53	TM
X279VY		97.20	2.55	0.22	95.00	6.08	0.64	TM
XAFVDD		97.40	2.75	0.23	83.68	-5.24	-0.55	SC

Summary Statistics	Sample SP61	Sample SP62
Grand Means	94.65 1000th ft-lbs	88.92 1000th ft-lbs
Stnd Dev Btwn Labs	11.77 1000th ft-lbs	9.54 1000th ft-lbs

Statistics based on 11 of 13 reporting participants.

Comments on Assigned Data Flags for Test #349

ATV94K (X) - Extreme Data.

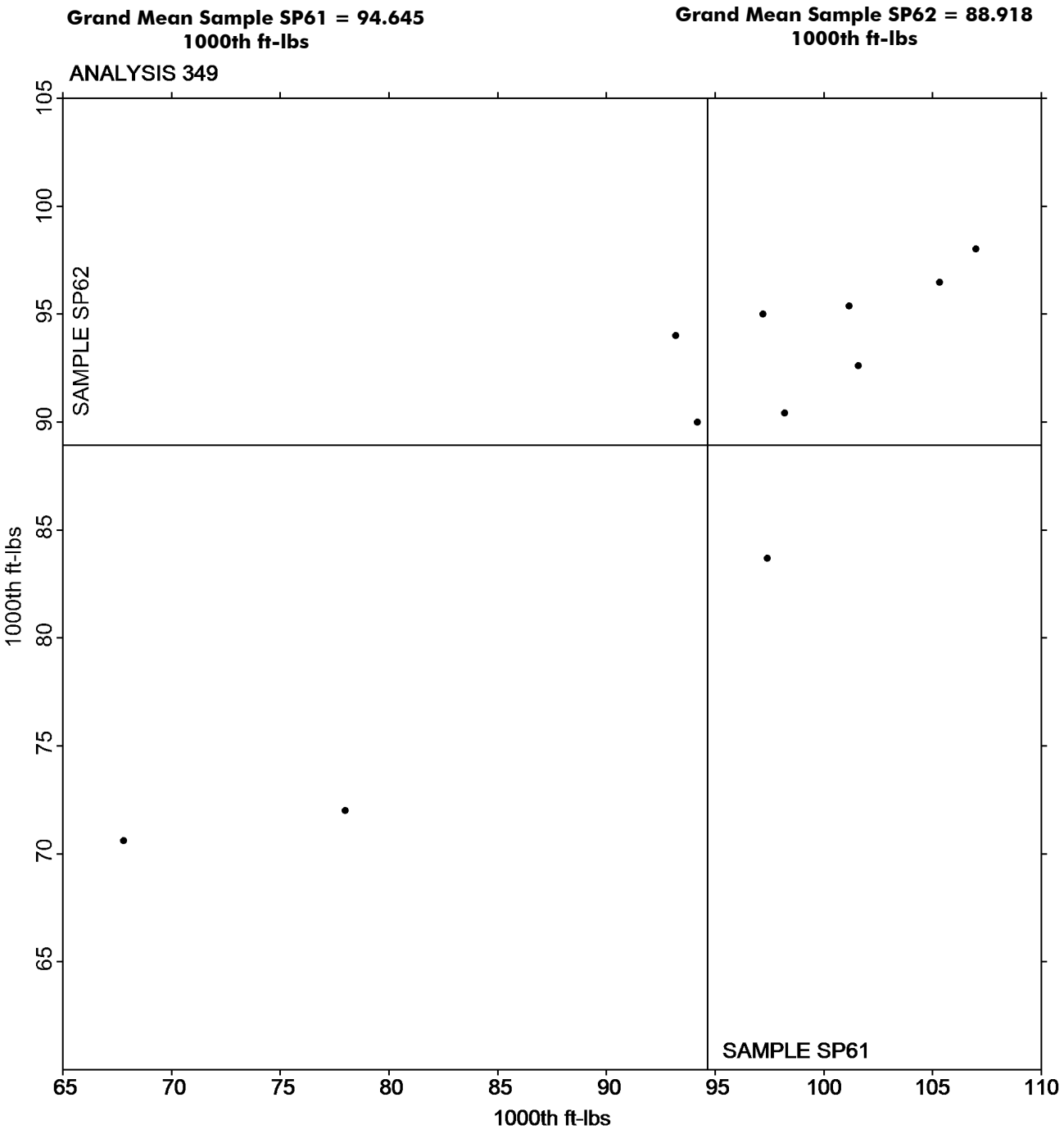
8X97QU (M) - Participant did not submit data for sample SP62.

Key to Instrument Codes Reported by Participants

SC Scott Internal Bond Tester (Manual)

TM TMI Monitor/Internal Bond Tester

XX Instrument make/model not specified by lab



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