Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2951 S - July 2018

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The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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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

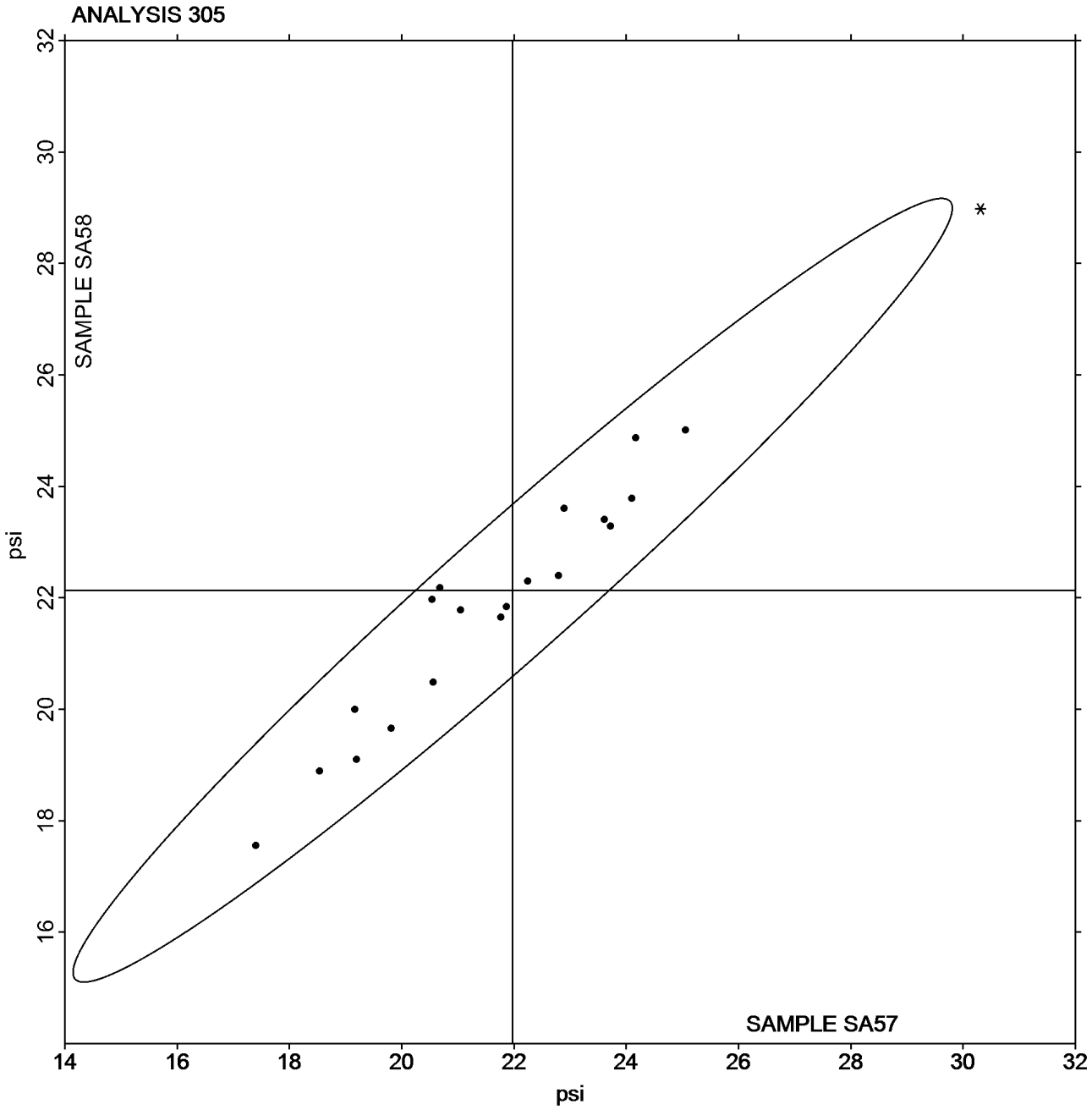
WebCode	Data Flag	Sample SA57 Lab Mean	Sample SA57 Diff from Grand Mean	Sample SA57 CPV	Sample SA58 Lab Mean	Sample SA58 Diff from Grand Mean	Sample SA58 CPV
4JXPUK		23.61	1.63	0.57	23.41	1.27	0.50
7N6UHQ		20.54	-1.44	-0.50	21.97	-0.17	-0.06
7QFEQZ		21.05	-0.93	-0.32	21.78	-0.36	-0.14
94UN7Z		18.54	-3.43	-1.20	18.89	-3.25	-1.27
9N2R9C		24.17	2.19	0.77	24.87	2.73	1.07
A3VXCQ		22.90	0.92	0.32	23.60	1.46	0.57
AQ2M3Y		25.06	3.08	1.08	25.01	2.87	1.12
CGLP67		23.72	1.74	0.61	23.28	1.15	0.45
CLJ27W		24.11	2.13	0.74	23.79	1.65	0.64
GZ48AY		20.68	-1.29	-0.45	22.18	0.04	0.02
JDNA6W		19.81	-2.16	-0.76	19.65	-2.48	-0.97
KF49MJ		19.20	-2.78	-0.97	19.10	-3.04	-1.18
KHAN6M		22.80	0.82	0.29	22.40	0.26	0.10
LMXZ7W		17.40	-4.58	-1.60	17.55	-4.59	-1.79
P7JLPB		21.87	-0.11	-0.04	21.84	-0.30	-0.12
QQK48Q		21.77	-0.21	-0.07	21.65	-0.48	-0.19
UB38LE		20.57	-1.41	-0.49	20.49	-1.65	-0.64
XB3MZM	*	30.31	8.33	2.92	28.98	6.84	2.67
XNU8KJ		22.25	0.27	0.10	22.29	0.16	0.06
Y4JKTK		19.17	-2.81	-0.98	20.00	-2.14	-0.83

Summary Statistics	Sample SA57	Sample SA58
Grand Means	21.98 psi	22.14 psi
Stnd Dev Btwn Labs	2.86 psi	2.57 psi

Statistics based on 20 of 20 reporting participants.

Grand Mean Sample SA57 = 21.976 psi

Grand Mean Sample SA58 = 22.136 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 310
Bursting Strength - Packaging Papers
TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB57 Lab Mean	Sample SB57 Diff from Grand Mean	Sample SB57 CPV	Sample SB58 Lab Mean	Sample SB58 Diff from Grand Mean	Sample SB58 CPV
27GW7M		86.44	5.37	1.08	92.97	2.84	0.50
2F9BEZ		77.10	-3.97	-0.80	88.30	-1.83	-0.32
4YVJPZ		71.24	-9.83	-1.98	82.44	-7.69	-1.35
6NMBC8		81.67	0.60	0.12	88.55	-1.58	-0.28
7RNR92	*	93.41	12.34	2.48	98.29	8.16	1.44
9YHNZW		82.30	1.23	0.25	85.20	-4.93	-0.87
AJJZ8A		87.18	6.11	1.23	102.40	12.27	2.16
BL66F8		78.40	-2.67	-0.54	85.70	-4.43	-0.78
C77KDA		79.23	-1.83	-0.37	84.86	-5.26	-0.93
CGLP67		81.23	0.17	0.03	88.96	-1.17	-0.21
CLJ27W		79.70	-1.37	-0.28	90.45	0.32	0.06
DQQY8N		78.10	-2.97	-0.60	85.90	-4.23	-0.74
DYK2D7		76.98	-4.09	-0.82	81.81	-8.32	-1.46
EX7QJ9		78.28	-2.78	-0.56	87.65	-2.47	-0.43
K4MLDH		82.11	1.04	0.21	89.95	-0.18	-0.03
K924VZ		74.93	-6.14	-1.24	82.81	-7.32	-1.29
KC33AY	*	83.00	1.93	0.39	101.90	11.77	2.07
KF49MJ		84.90	3.83	0.77	92.38	2.25	0.40
KKEJGY		73.90	-7.17	-1.44	85.40	-4.73	-0.83
NEJJ3U		83.00	1.93	0.39	92.96	2.83	0.50
QDHEDC		82.27	1.20	0.24	92.81	2.69	0.47
RGF4HP		87.25	6.18	1.24	94.11	3.98	0.70
RKV2K7		79.20	-1.87	-0.38	85.95	-4.17	-0.73
TYQP9P		80.37	-0.70	-0.14	91.42	1.29	0.23
UGRP3B		90.59	9.52	1.92	101.23	11.10	1.95
X7WPVN	X	74.60	-6.47	-1.30	97.10	6.97	1.23
XB3MZM		81.88	0.81	0.16	92.62	2.49	0.44
XGQ989		84.50	3.43	0.69	94.40	4.27	0.75
YJFUFQ		75.99	-5.08	-1.02	86.02	-4.10	-0.72
ZA33N8		75.85	-5.22	-1.05	86.20	-3.93	-0.69

Summary Statistics	Sample SB57	Sample SB58
Grand Means	81.07 psi	90.13 psi
Stnd Dev Btwn Labs	4.97 psi	5.69 psi

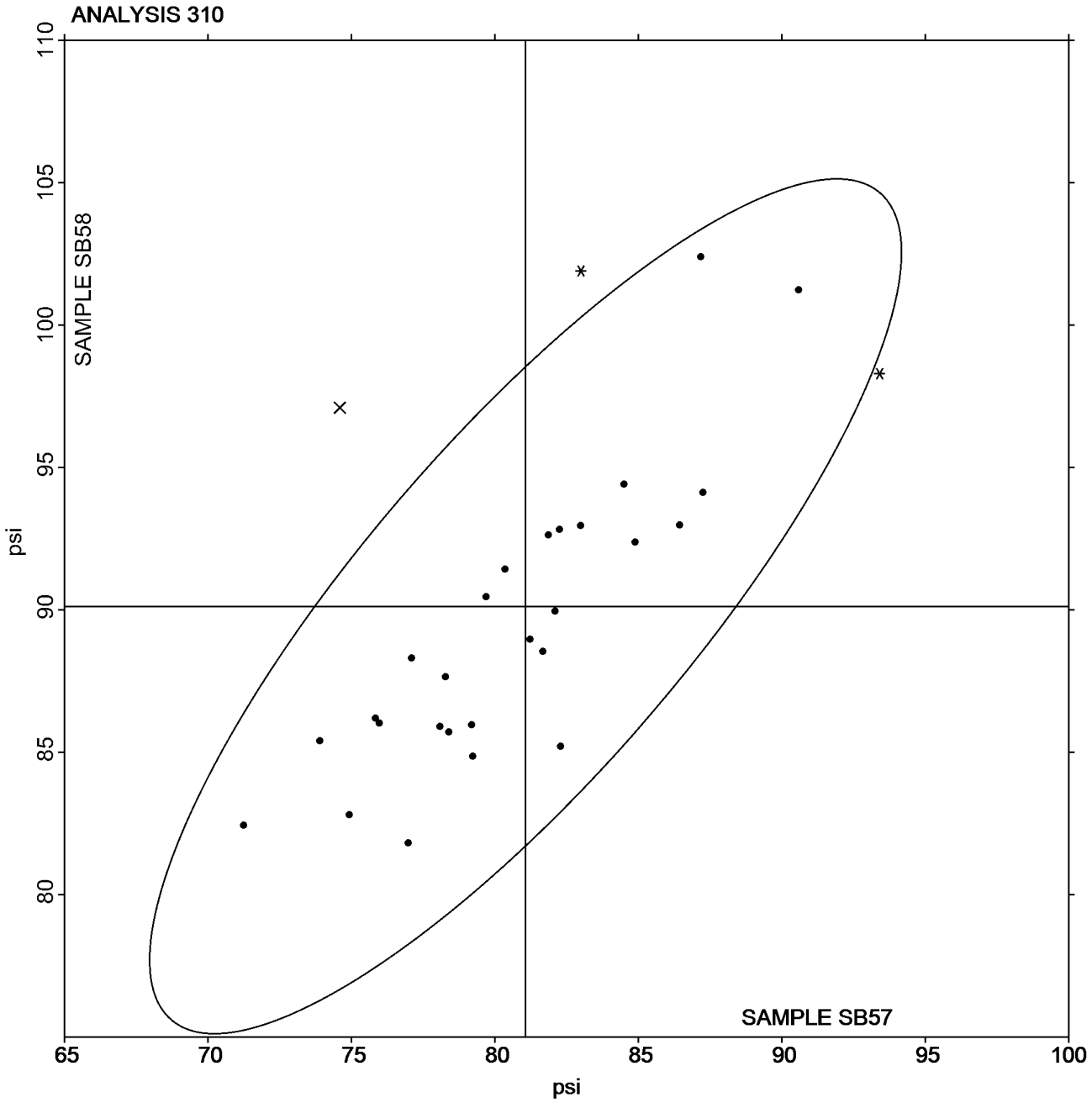
Statistics based on 29 of 30 reporting participants.

Comments on Assigned Data Flags for Test #310

X7WPVN (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

Grand Mean Sample SB57 = 81.069 psi

Grand Mean Sample SB58 = 90.125 psi



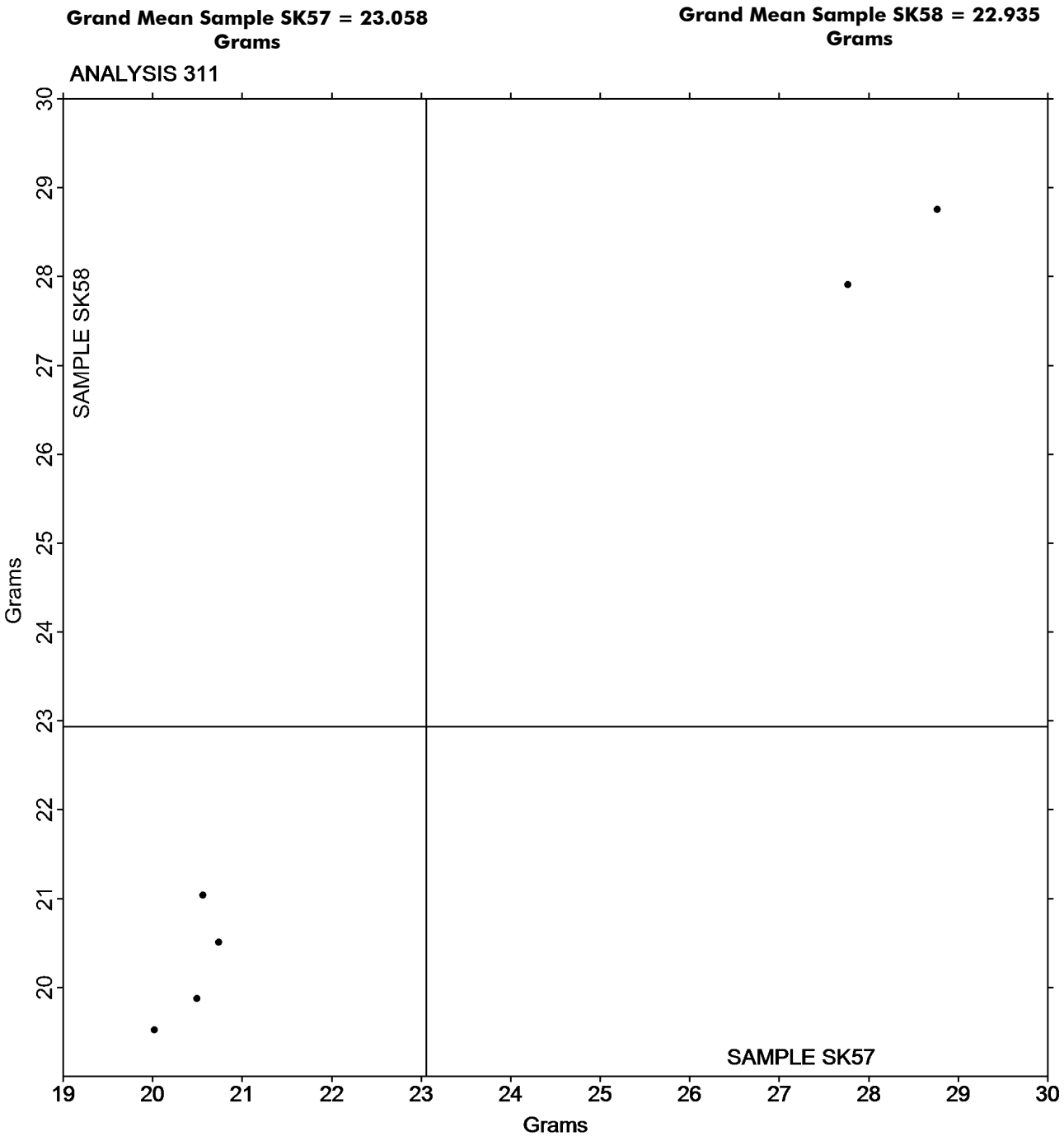
Paper & Paperboard Interlaboratory Testing Program

Analysis 311
Tearing Strength - Newsprint
TAPPI Official Test Method T414

WebCode	Data Flag	Sample SK57 Lab Mean	Sample SK57 Diff from Grand Mean	Sample SK57 CPV	Sample SK58 Lab Mean	Sample SK58 Diff from Grand Mean	Sample SK58 CPV
9N2R9C		20.74	-2.32	-0.57	20.51	-2.43	-0.57
CGLP67		20.50	-2.56	-0.63	19.87	-3.06	-0.72
KRFNFA		20.02	-3.04	-0.75	19.52	-3.42	-0.81
MJGHYE		27.77	4.71	1.16	27.91	4.97	1.18
RPM6CP		20.56	-2.50	-0.62	21.04	-1.90	-0.45
YEKXYC		28.77	5.71	1.41	28.76	5.82	1.38

Summary Statistics	Sample SK57	Sample SK58
Grand Means	23.06 Grams	22.94 Grams
Stnd Dev Btwn Labs	4.05 Grams	4.22 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 SC57 Lab Mean	Sample SC57 Diff from Grand Mean	Sample SC57 CPV	Sample SC58 Lab Mean	Sample SC58 Diff from Grand Mean	Sample SC58 CPV
22L9LA		53.50	-1.22	-0.42	53.00	-1.07	-0.30
3RCZLZ		49.16	-5.56	-1.93	45.80	-8.27	-2.34
6B7CRZ		55.80	1.08	0.37	54.30	0.23	0.06
7K8FVZ		53.80	-0.92	-0.32	55.70	1.63	0.46
7N6UHQ		54.58	-0.14	-0.05	52.37	-1.70	-0.48
7QFEQZ		51.32	-3.40	-1.18	50.70	-3.37	-0.95
872HNF		53.74	-0.98	-0.34	51.74	-2.33	-0.66
94UN7Z		61.01	6.29	2.18	62.02	7.95	2.25
9EBBE2		55.10	0.38	0.13	54.28	0.21	0.06
A2KWTD	X	47.14	-7.58	-2.63	50.28	-3.79	-1.07
AE6G9Z		51.72	-3.00	-1.04	49.55	-4.52	-1.28
AGELNA		54.48	-0.24	-0.08	55.09	1.02	0.29
AKVQJY		53.50	-1.22	-0.42	53.94	-0.13	-0.04
AQ2M3Y		51.70	-3.02	-1.05	49.08	-4.99	-1.41
BL66F8		55.54	0.82	0.28	55.70	1.63	0.46
BQEB4Q		54.18	-0.54	-0.19	53.50	-0.57	-0.16
C77KDA		55.18	0.45	0.16	55.69	1.61	0.46
CAPPW6		51.48	-3.24	-1.12	51.66	-2.41	-0.68
CGLP67		53.84	-0.88	-0.31	53.55	-0.53	-0.15
CLJ27W		50.69	-4.03	-1.40	49.25	-4.82	-1.36
CPYK67	*	55.82	1.10	0.38	60.12	6.05	1.71
CZWJWC		53.58	-1.14	-0.40	51.82	-2.25	-0.64
FVDFKQ		52.00	-2.72	-0.94	51.00	-3.07	-0.87
G7P9MQ		59.21	4.49	1.56	56.06	1.99	0.56
JDNA6W		57.26	2.53	0.88	57.06	2.98	0.84
KHAN6M		59.99	5.27	1.83	61.35	7.28	2.06
KZW6A6		57.33	2.61	0.90	55.23	1.16	0.33
LMXZ7W		54.84	0.12	0.04	54.98	0.91	0.26
NEJJ3U		54.18	-0.54	-0.19	54.04	-0.03	-0.01
P7JLPB		55.93	1.21	0.42	54.90	0.83	0.23
PGJAJT		52.09	-2.63	-0.91	47.46	-6.61	-1.87
QDHEDC		50.76	-3.96	-1.37	49.47	-4.61	-1.30
QQK48Q		55.13	0.40	0.14	55.77	1.69	0.48
RJHATP		57.20	2.48	0.86	55.40	1.33	0.37
RKV2K7		56.14	1.41	0.49	55.41	1.34	0.38
TYQP9P		54.63	-0.10	-0.03	54.60	0.52	0.15
UB38LE		55.74	1.02	0.35	55.39	1.32	0.37
UNR7F3		56.75	2.03	0.70	52.80	-1.28	-0.36
VBEBRQ	X	211.20	156.48	54.26	223.20	169.13	47.81
X7WPVN		61.90	7.18	2.49	61.60	7.53	2.13

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC57 Lab Mean	Sample SC57 Diff from Grand Mean	Sample SC57 CPV	Sample SC58 Lab Mean	Sample SC58 Diff from Grand Mean	Sample SC58 CPV
XB3MZM		54.32	-0.40	-0.14	53.85	-0.22	-0.06
XNU8KJ		54.38	-0.34	-0.12	54.74	0.66	0.19
Y4JKTK		58.24	3.52	1.22	58.56	4.49	1.27
YJFUFQ		55.09	0.36	0.13	55.10	1.02	0.29
YN6EGK	*	48.06	-6.66	-2.31	49.26	-4.81	-1.36
ZA33N8		56.96	2.24	0.78	56.37	2.30	0.65

Summary Statistics	Sample SC57	Sample SC58
Grand Means	54.72 Grams	54.07 Grams
Stnd Dev Btwn Labs	2.88 Grams	3.54 Grams

Statistics based on 44 of 46 reporting participants.

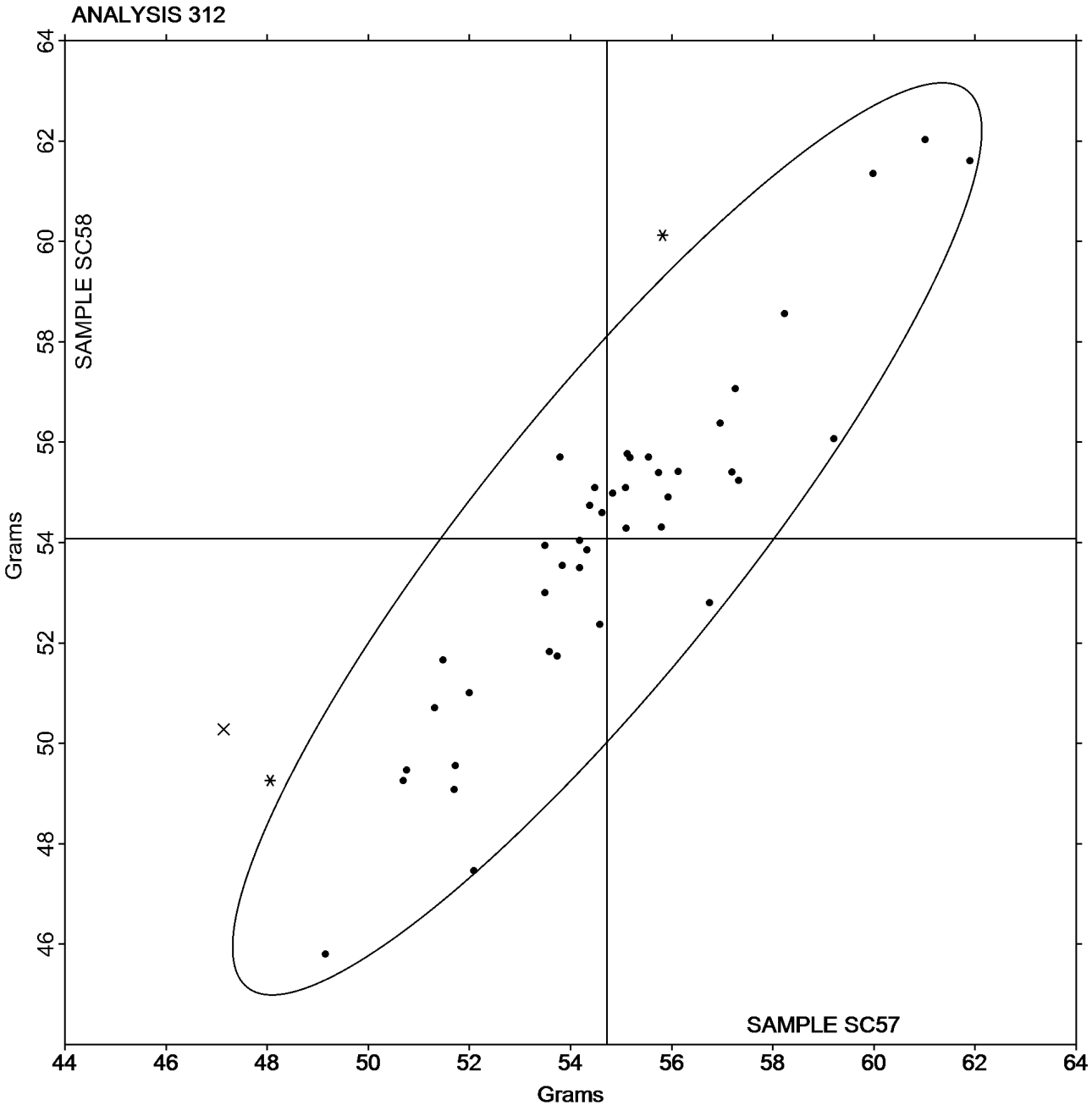
Comments on Assigned Data Flags for Test #312

A2KWTD (X) - Inconsistent in testing between samples.

VBEBRQ (X) - Extreme Data.

Grand Mean Sample SC57 = 54.724 Grams

Grand Mean Sample SC58 = 54.074 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD57 Lab Mean	Sample SD57 Diff from Grand Mean	Sample SD57 CPV	Sample SD58 Lab Mean	Sample SD58 Diff from Grand Mean	Sample SD58 CPV
27GW7M		139.7	-0.7	-0.04	176.5	-3.4	-0.18
2F9BEZ		170.5	30.1	1.95	212.5	32.6	1.70
4YVJPZ		142.0	1.6	0.11	174.8	-5.1	-0.27
6WK4ML		138.0	-2.3	-0.15	183.5	3.7	0.19
74WMG6		145.0	4.6	0.30	204.4	24.5	1.28
7K8FVZ		136.9	-3.5	-0.22	177.0	-2.9	-0.15
7RNR92	*	102.3	-38.1	-2.46	124.0	-55.9	-2.92
872HNF		142.1	1.7	0.11	182.5	2.6	0.13
9DCDWT		136.8	-3.6	-0.23	181.8	2.0	0.10
A3VXCQ		132.2	-8.2	-0.53	180.0	0.1	0.01
AJJZ8A		155.7	15.3	0.99	201.4	21.5	1.12
B9Y36B		142.0	1.7	0.11	175.0	-4.8	-0.25
BAR6KY		121.1	-19.2	-1.25	163.9	-15.9	-0.83
CGLP67		141.1	0.7	0.05	166.1	-13.8	-0.72
DG36VR		136.2	-4.1	-0.27	178.5	-1.4	-0.07
DQQY8N		137.6	-2.8	-0.18	196.8	16.9	0.88
DYK2D7		138.5	-1.9	-0.12	171.2	-8.7	-0.45
E2MEFQ		118.3	-22.1	-1.43	151.9	-27.9	-1.46
EEBJNM		141.0	0.6	0.04	175.2	-4.7	-0.25
ERXQKN		146.7	6.3	0.41	182.8	2.9	0.15
GVVML3		118.3	-22.1	-1.43	152.6	-27.2	-1.42
JMB9V2		132.0	-8.4	-0.54	175.6	-4.3	-0.22
JN4BCP	X	0.3	-140.0	-9.07	0.4	-179.5	-9.37
JWFHXK		135.4	-5.0	-0.32	169.4	-10.5	-0.55
K4MLDH		151.3	11.0	0.71	197.0	17.1	0.89
K924VZ		141.5	1.1	0.07	178.8	-1.1	-0.06
KKEJGY		152.8	12.4	0.81	183.6	3.7	0.19
LBPUHP	X	673.9	533.6	34.54	1,173.8	993.9	51.89
LY989P		165.0	24.7	1.60	200.6	20.8	1.08
NLDXEE		127.2	-13.2	-0.85	165.6	-14.3	-0.74
PQ6FCQ		127.8	-12.6	-0.81	172.7	-7.2	-0.37
QTPLCE		103.7	-36.7	-2.37	133.4	-46.4	-2.42
RGF4HP		142.9	2.5	0.16	179.9	0.1	0.00
RWPYQQ		148.7	8.3	0.54	189.4	9.6	0.50
RZNF2Y		167.4	27.1	1.75	198.5	18.6	0.97
U2QBG8		146.4	6.1	0.39	196.0	16.2	0.84
U4C49G	X	251.7	111.3	7.21	318.2	138.4	7.22
U7NRWM		130.9	-9.4	-0.61	179.7	-0.2	-0.01
V8V728		149.7	9.4	0.61	180.5	0.7	0.04
WMJY3K		132.5	-7.8	-0.51	181.9	2.0	0.10

Paper & Paperboard Interlaboratory Testing Program

Analysis 314
Tearing Strength - Packaging Papers
TAPPI Official Test Method T414

WebCode	Data Flag	Sample SD57 Lab Mean	Sample SD57 Diff from Grand Mean	Sample SD57 CPV	Sample SD58 Lab Mean	Sample SD58 Diff from Grand Mean	Sample SD58 CPV
WWPTA7		173.5	33.1	2.14	219.0	39.2	2.05
X7WPVN		158.4	18.0	1.17	207.6	27.7	1.45
X8M44Y		153.6	13.2	0.86	194.7	14.8	0.77
ZRM7WK		131.8	-8.5	-0.55	158.3	-21.5	-1.12

Summary Statistics	Sample SD57	Sample SD58
Grand Means	140.35 Grams	179.87 Grams
Stnd Dev Btwn Labs	15.45 Grams	19.15 Grams

Statistics based on 41 of 44 reporting participants.

Comments on Assigned Data Flags for Test #314

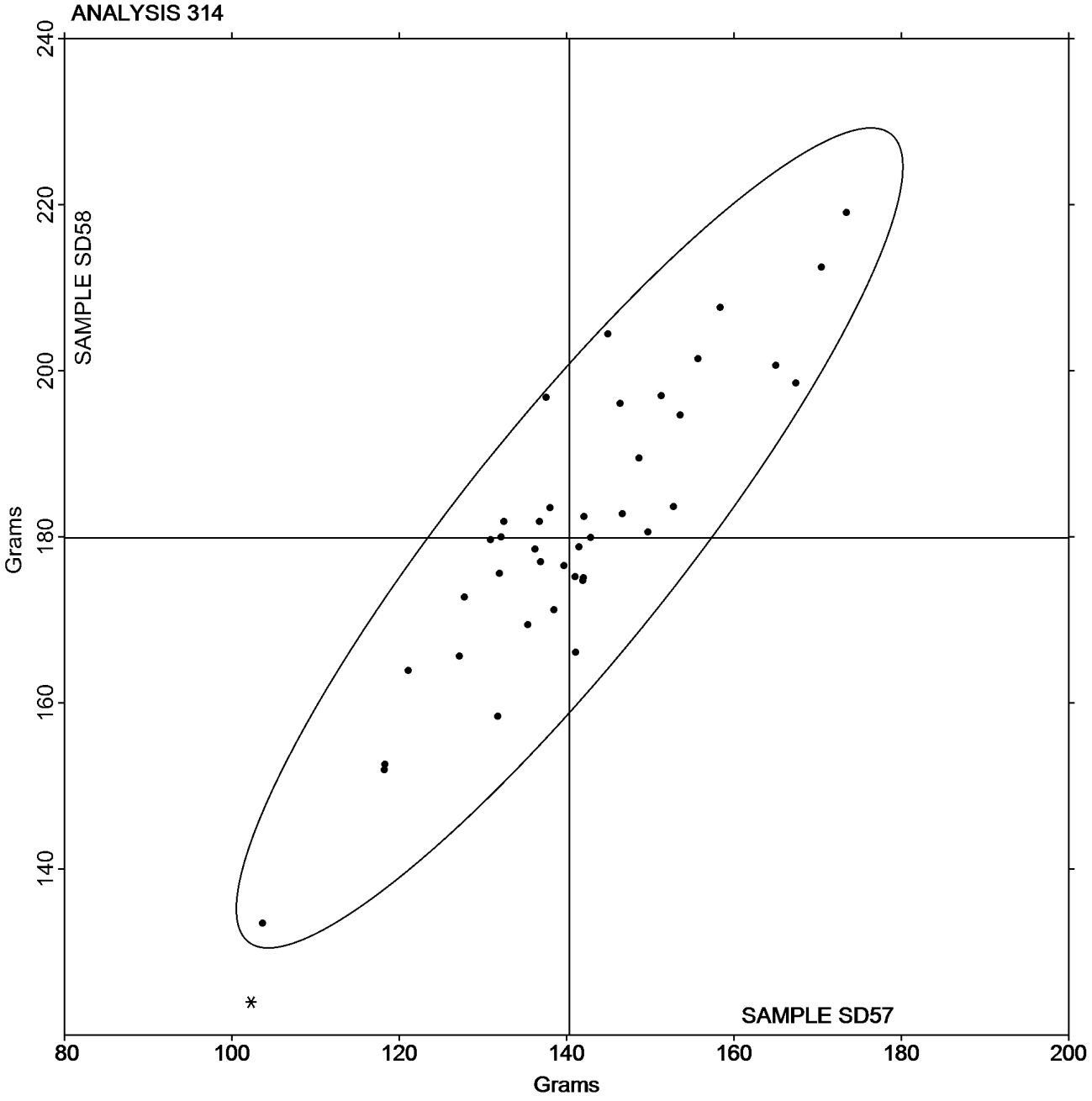
U4C49G (X) - Extreme Data.

LBPUHP (X) - Extreme Data.

JN4BCP (X) - Extreme Data.

Grand Mean Sample SD57 = 140.35 Grams

Grand Mean Sample SD58 = 179.87 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 320

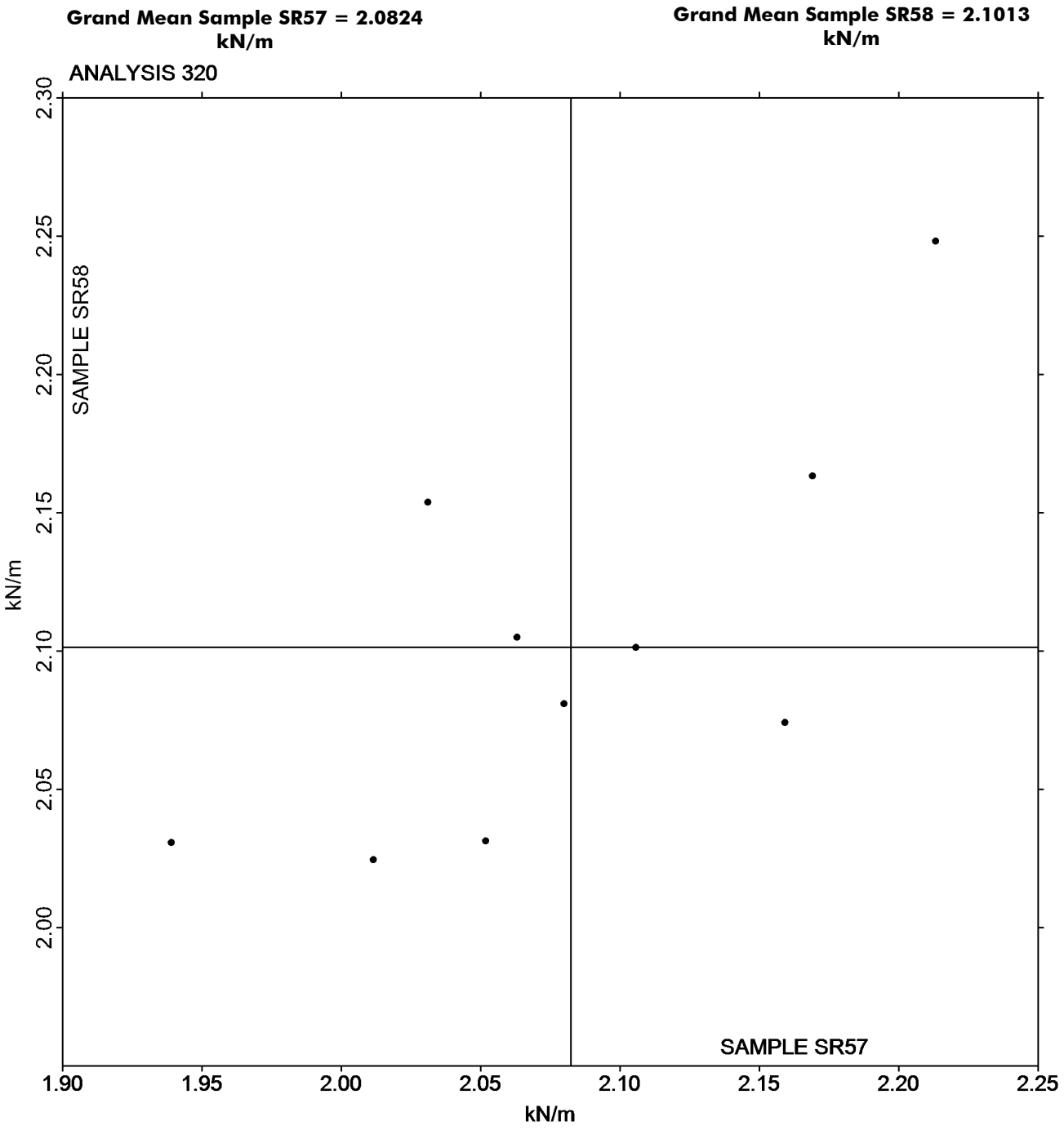
Tensile Breaking Strength - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR57 Lab Mean	Sample SR57 Diff from Grand Mean	Sample SR57 CPV	Sample SR58 Lab Mean	Sample SR58 Diff from Grand Mean	Sample SR58 CPV
28DF74		2.052	-0.030	-0.37	2.031	-0.070	-0.99
4JXPUK		2.159	0.077	0.94	2.074	-0.027	-0.38
872HNF		2.169	0.087	1.06	2.163	0.062	0.88
9N2R9C		1.939	-0.143	-1.75	2.031	-0.071	-1.00
CLJ27W		2.080	-0.002	-0.03	2.081	-0.020	-0.29
KC33AY		2.106	0.023	0.28	2.101	0.000	0.00
KRFNFA		2.063	-0.019	-0.24	2.105	0.004	0.05
MJGHYE		2.213	0.131	1.59	2.248	0.147	2.07
RPM6CP		2.011	-0.071	-0.86	2.025	-0.077	-1.08
YEKXYC		2.031	-0.051	-0.62	2.154	0.052	0.74

Summary Statistics	Sample SR57	Sample SR58
Grand Means	2.08 kN/m	2.10 kN/m
Stnd Dev Btwn Labs	0.08 kN/m	0.07 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

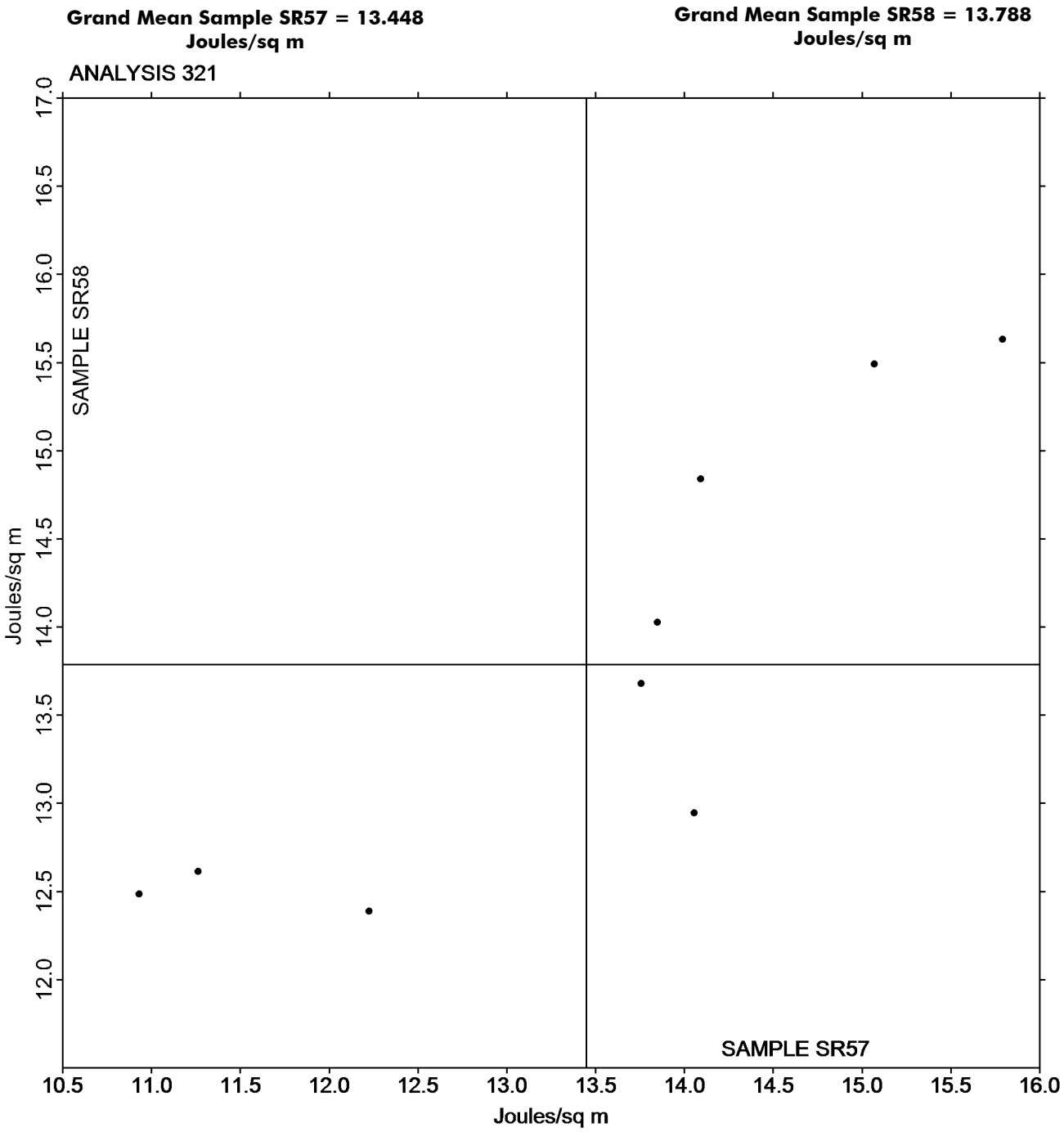
WebCode	Data Flag	Sample SR57 Lab Mean	Sample SR57 Diff from Grand Mean	Sample SR57 CPV	Sample SR58 Lab Mean	Sample SR58 Diff from Grand Mean	Sample SR58 CPV
28DF74		15.79	2.34	1.42	15.63	1.84	1.43
4JXPUK		14.06	0.61	0.37	12.94	-0.84	-0.66
872HNF		15.07	1.62	0.98	15.49	1.70	1.32
9N2R9C		11.26	-2.18	-1.32	12.61	-1.18	-0.91
CLJ27W		12.23	-1.22	-0.74	12.39	-1.40	-1.09
KC33AY		13.76	0.31	0.19	13.68	-0.11	-0.08
KRFNFA		14.09	0.64	0.39	14.84	1.05	0.82
MJGHYE		13.85	0.40	0.24	14.03	0.24	0.19
RPM6CP	X	1.08	-12.36	-7.50	1.08	-12.71	-9.89
YEKXYC		10.93	-2.52	-1.53	12.49	-1.30	-1.01

Summary Statistics	Sample SR57	Sample SR58
Grand Means	13.45 Joules/sq m	13.79 Joules/sq m
Stnd Dev Btwn Labs	1.65 Joules/sq m	1.29 Joules/sq m

Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #321

RPM6CP (X) - Extreme Data.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 322

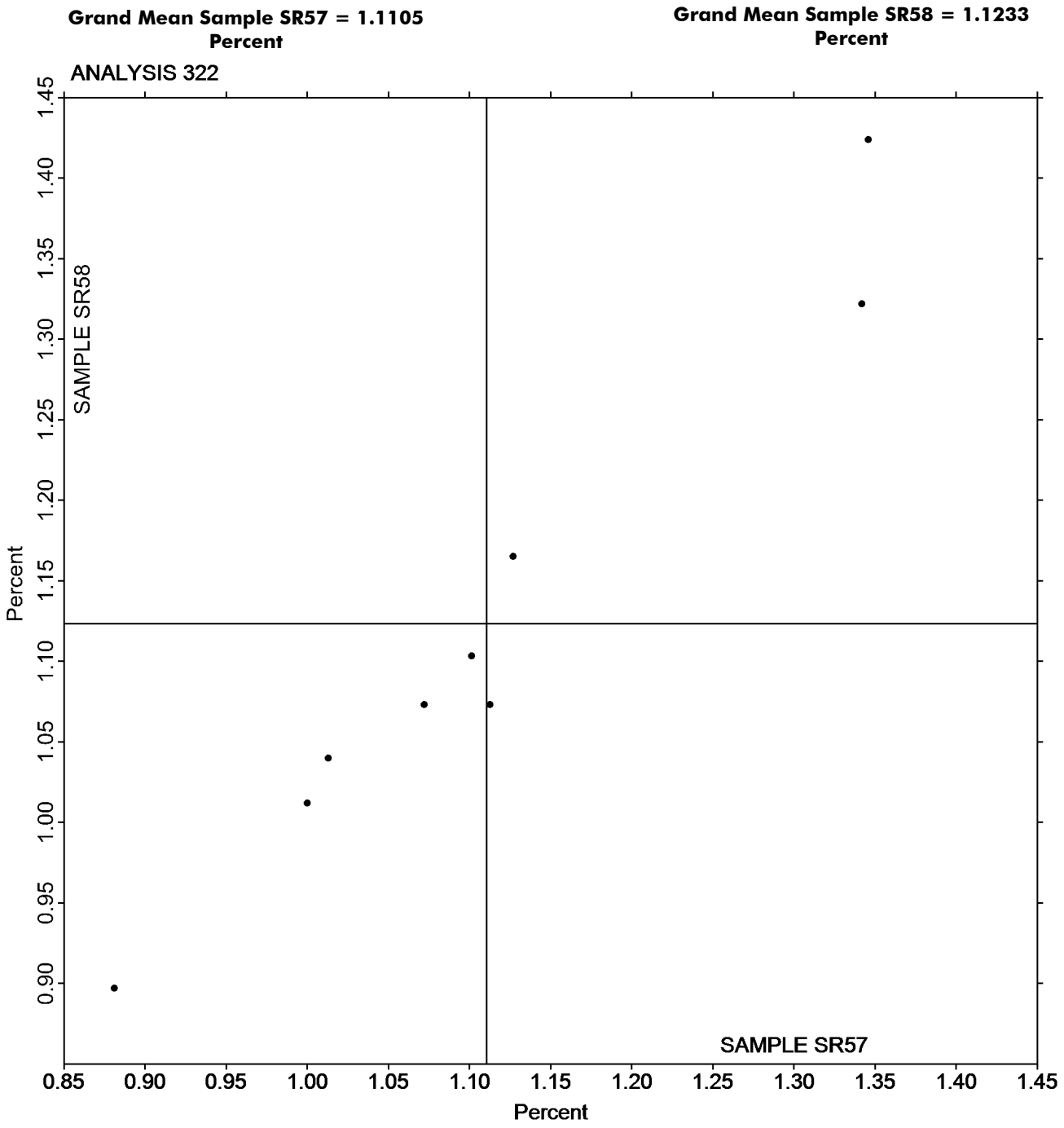
Elongation to Break - Newsprint

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SR57 Lab Mean	Sample SR57 Diff from Grand Mean	Sample SR57 CPV	Sample SR58 Lab Mean	Sample SR58 Diff from Grand Mean	Sample SR58 CPV
28DF74		1.346	0.235	1.55	1.424	0.301	1.87
4JXPUK		1.113	0.002	0.01	1.073	-0.050	-0.31
872HNF		1.013	-0.098	-0.64	1.040	-0.083	-0.52
9N2R9C		1.342	0.231	1.52	1.322	0.199	1.23
CLJ27W		1.000	-0.111	-0.73	1.012	-0.111	-0.69
KC33AY		1.101	-0.009	-0.06	1.103	-0.020	-0.12
KRFNFA		1.127	0.016	0.11	1.165	0.042	0.26
MJGHYE		1.072	-0.039	-0.25	1.073	-0.050	-0.31
RPM6CP		0.881	-0.230	-1.51	0.897	-0.226	-1.40

Summary Statistics	Sample SR57	Sample SR58
Grand Means	1.11 Percent	1.12 Percent
Stnd Dev Btwn Labs	0.15 Percent	0.16 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 SF57 Lab Mean	Sample SF57 Diff from Grand Mean	Sample SF57 CPV	Sample SF58 Lab Mean	Sample SF58 Diff from Grand Mean	Sample SF58 CPV	Instr Code
228JM4		4.377	0.235	0.92	4.481	0.343	1.39	TP
3RCZLZ		4.620	0.478	1.88	4.576	0.437	1.77	LA
7N6UHQ		3.856	-0.286	-1.12	3.868	-0.271	-1.10	LA
7QFEQZ		4.160	0.018	0.07	4.140	0.001	0.01	TB
7RNR92		4.096	-0.046	-0.18	4.185	0.046	0.19	TB
94UN7Z		3.611	-0.531	-2.08	3.591	-0.548	-2.22	LH
9EBBE2		3.761	-0.381	-1.49	3.876	-0.263	-1.07	ID
A2KWTD		4.121	-0.021	-0.08	4.051	-0.087	-0.35	TF
AE6G9Z		3.910	-0.232	-0.91	3.936	-0.203	-0.82	TC
AGELNA		3.639	-0.503	-1.98	3.592	-0.547	-2.21	IM
AKVQJY		4.129	-0.013	-0.05	4.104	-0.035	-0.14	LE
AQ2M3Y		4.525	0.383	1.51	4.446	0.308	1.25	TJ
BL66F8		4.037	-0.105	-0.41	4.052	-0.087	-0.35	TF
BQEB4Q		4.131	-0.011	-0.04	4.114	-0.025	-0.10	LF
C77KDA		4.217	0.075	0.29	4.216	0.077	0.31	LI
CAPPW6		4.108	-0.033	-0.13	4.075	-0.064	-0.26	TO
CCN9PQ	*	4.622	0.480	1.88	4.459	0.320	1.30	XX
CGLP67		4.336	0.194	0.76	4.221	0.082	0.33	LH
CLJ27W		4.127	-0.015	-0.06	4.097	-0.042	-0.17	LH
CPYK67		4.579	0.437	1.72	4.581	0.443	1.79	LH
CYLG9R		4.399	0.257	1.01	4.403	0.264	1.07	LA
FVDFKQ		4.310	0.168	0.66	4.279	0.140	0.57	TO
G7P9MQ		4.035	-0.107	-0.42	4.187	0.049	0.20	VM
GZ48AY		4.402	0.260	1.02	4.397	0.258	1.05	LH
J9P3D8		3.954	-0.188	-0.74	3.990	-0.149	-0.60	RE
JDNA6W		4.243	0.101	0.40	4.329	0.191	0.77	LX
KHAN6M		4.069	-0.073	-0.29	4.067	-0.071	-0.29	LH
KJG9LV		4.185	0.043	0.17	4.095	-0.044	-0.18	LI
KZW6A6		4.282	0.140	0.55	4.242	0.103	0.42	LI
LMXZ7W		4.150	0.008	0.03	4.201	0.063	0.25	TO
P7JLPB		4.296	0.154	0.61	4.387	0.248	1.01	LH
PGJAJT	X	4.274	0.132	0.52	4.528	0.389	1.58	FP
QDHEDC		4.138	-0.004	-0.02	4.115	-0.024	-0.10	XX
QQK48Q		4.255	0.113	0.44	4.296	0.157	0.64	LI
UB38LE		4.029	-0.113	-0.44	4.112	-0.027	-0.11	IM
UNR7F3		3.709	-0.433	-1.70	3.659	-0.480	-1.94	XX
VBEBRQ		4.236	0.095	0.37	4.112	-0.027	-0.11	XX
XNU8KJ		4.074	-0.068	-0.27	4.040	-0.099	-0.40	LI
Y4JKTK		3.626	-0.516	-2.03	3.671	-0.468	-1.90	LX
YJFUFQ		4.302	0.160	0.63	4.338	0.199	0.81	LI

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

		Sample SF57			Sample SF58			
WebCode	Data Flag	Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	Instr Code
YN6EGK		4.021	-0.121	-0.47	3.966	-0.172	-0.70	TB

Summary Statistics	Sample SF57	Sample SF58
Grand Means	4.14 kN/m	4.14 kN/m
Stnd Dev Btwn Labs	0.25 kN/m	0.25 kN/m

Statistics based on 40 of 41 reporting participants.

Comments on Assigned Data Flags for Test #325

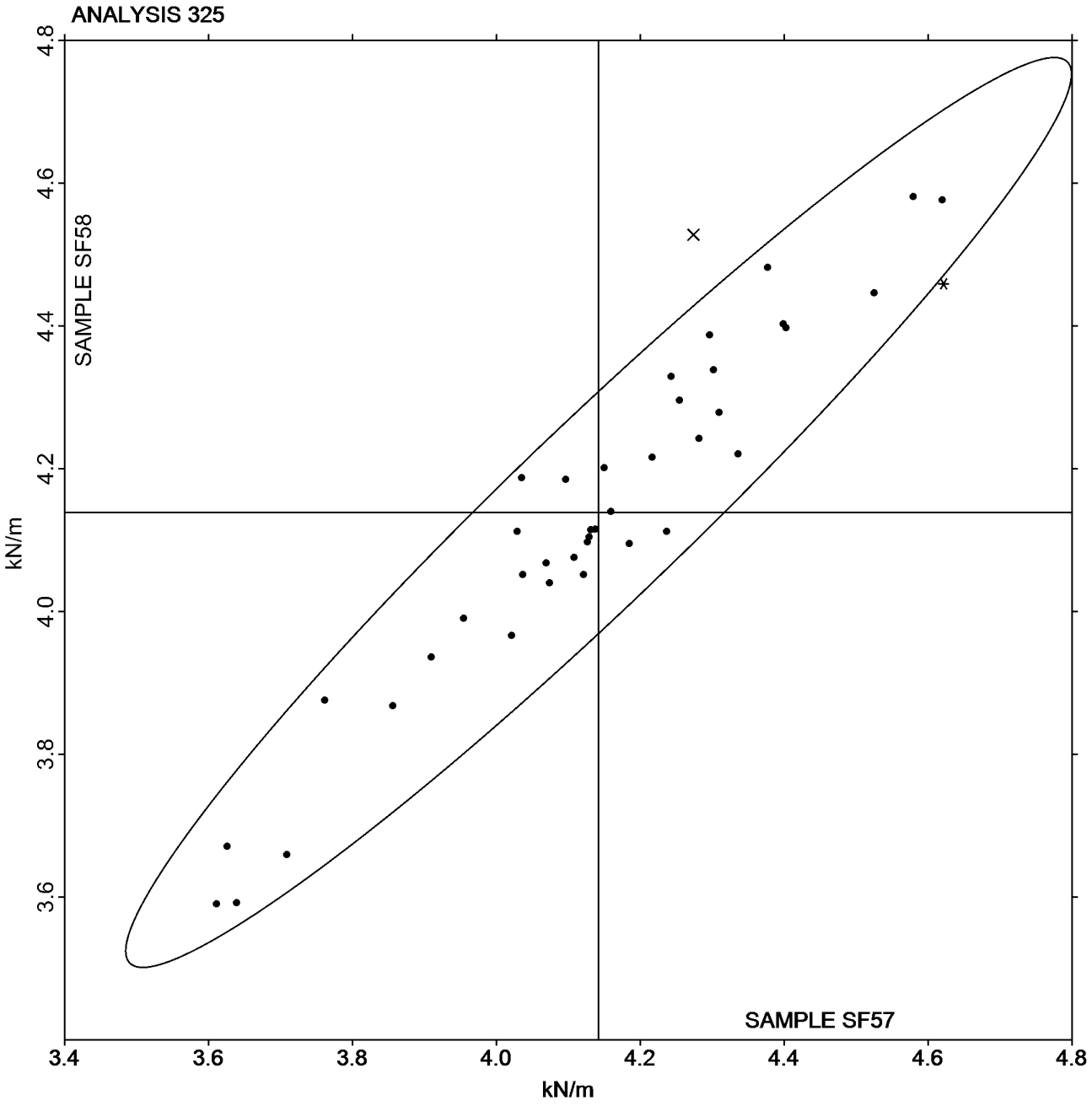
PGJAJT (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

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
LE	L & W Tensile Tester 066	LF	L & W Tensile/Fracture Toughness Tester SE 064
LH	L & W Alwetron TH1 (Horizontal) SE 060/065F	LI	L & W Tensile Tester SE 062
LX	L & W (model not specified)	RE	Regmed
TB	Thwing-Albert EJA/1000	TC	Thwing-Albert Electro-Hydraulic, Model 30LT
TF	Thwing-Albert EJA Vantage-1	TJ	Thwing-Albert QC II-XS
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 SF57 = 4.1420 kN/m

Grand Mean Sample SF58 = 4.1388 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF57 Lab Mean	Sample SF57 Diff from Grand Mean	Sample SF57 CPV	Sample SF58 Lab Mean	Sample SF58 Diff from Grand Mean	Sample SF58 CPV	Instr Code
3RCZLZ		49.53	7.46	1.97	48.29	5.31	1.23	LA
7N6UHQ		34.05	-8.03	-2.12	35.51	-7.47	-1.74	LA
7QFEQZ		46.11	4.04	1.06	46.02	3.04	0.71	TB
7RNR92		41.71	-0.37	-0.10	45.61	2.63	0.61	TB
94UN7Z		43.22	1.14	0.30	41.60	-1.38	-0.32	LH
9EBBE2	X	17.56	-24.51	-6.46	19.77	-23.21	-5.40	ID
AGELNA		32.66	-9.42	-2.48	31.87	-11.11	-2.58	IM
BL66F8		42.40	0.32	0.08	43.78	0.80	0.19	TF
BQEB4Q		38.56	-3.52	-0.93	37.49	-5.49	-1.28	LW
C77KDA		40.15	-1.93	-0.51	42.67	-0.31	-0.07	LI
CAPPW6		39.40	-2.67	-0.70	42.91	-0.07	-0.02	TO
CCN9PQ	X	674.69	632.62	166.79	672.75	629.77	146.48	LX
CGLP67		43.67	1.59	0.42	42.92	-0.06	-0.01	LH
CLJ27W		42.55	0.48	0.13	42.76	-0.22	-0.05	LH
CPYK67		45.05	2.98	0.78	46.06	3.08	0.72	LH
FVDFKQ		41.50	-0.58	-0.15	39.45	-3.53	-0.82	TO
GZ48AY		47.73	5.65	1.49	46.14	3.15	0.73	LH
J9P3D8		43.80	1.72	0.45	44.73	1.75	0.41	RE
JDNA6W		41.22	-0.86	-0.23	42.63	-0.35	-0.08	LX
KHAN6M		41.10	-0.98	-0.26	43.59	0.61	0.14	LH
KJG9LV		43.50	1.43	0.38	41.38	-1.60	-0.37	LI
KZW6A6		39.71	-2.36	-0.62	40.01	-2.98	-0.69	LI
P7JLPB		44.00	1.92	0.51	46.41	3.43	0.80	LH
PGJAJT	*	47.52	5.45	1.44	52.94	9.96	2.32	XX
QDHEDC		45.64	3.56	0.94	46.52	3.53	0.82	XX
QQK48Q		39.20	-2.88	-0.76	39.11	-3.87	-0.90	LI
UB38LE		43.16	1.09	0.29	46.38	3.40	0.79	IM
UNR7F3		36.13	-5.94	-1.57	36.32	-6.66	-1.55	XX
XNU8KJ		40.52	-1.55	-0.41	41.53	-1.45	-0.34	LI
Y4JKTK		43.94	1.87	0.49	45.21	2.23	0.52	LX
YJFUFQ		42.45	0.38	0.10	46.58	3.60	0.84	LI

Summary Statistics	Sample SF57	Sample SF58
Grand Means	42.07 Joules/sq m	42.98 Joules/sq m
Stnd Dev Btwn Labs	3.79 Joules/sq m	4.30 Joules/sq m

Statistics based on 29 of 31 reporting participants.

Comments on Assigned Data Flags for Test #327

9EBBE2 (X) - Extreme Data.

CCN9PQ (X) - Extreme Data.

Analysis Notes:

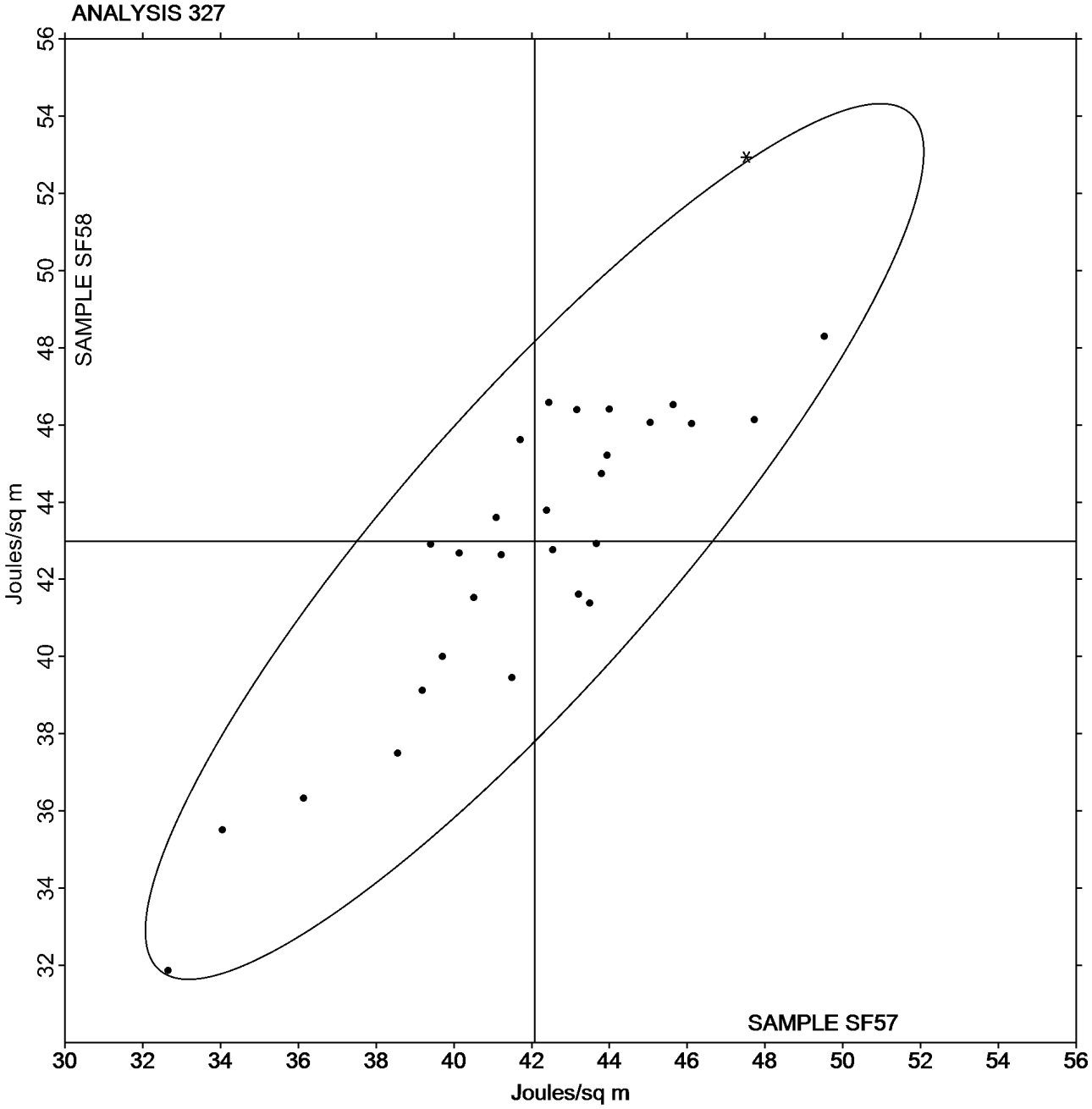
CCN9PQ - Possible units error. Data appear to be reported as J/sq m, not ft-lb/sq ft as indicated on datasheet.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample SF57 = 42.074 Joules/sq m

Grand Mean Sample SF58 = 42.980 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF57 Lab Mean	Sample SF57 Diff from Grand Mean	Sample SF57 CPV	Sample SF58 Lab Mean	Sample SF58 Diff from Grand Mean	Sample SF58 CPV	Instr Code
3RCZLZ		1.492	-0.081	-0.60	1.470	-0.136	-0.99	XX
7N6UHQ		1.658	0.085	0.64	1.717	0.111	0.81	LA
7QFEQZ		1.741	0.168	1.25	1.753	0.147	1.07	TB
7RNR92		1.550	-0.023	-0.17	1.654	0.048	0.35	TB
94UN7Z	X	2.038	0.466	3.47	1.802	0.197	1.43	LH
9EBBE2		1.511	-0.061	-0.46	1.636	0.030	0.22	ID
A2KWTD		1.591	0.018	0.14	1.510	-0.096	-0.70	TF
AGELNA		1.477	-0.096	-0.71	1.469	-0.137	-1.00	IM
BL66F8		1.704	0.131	0.98	1.752	0.146	1.07	TF
BQEB4Q		1.463	-0.110	-0.81	1.438	-0.168	-1.22	LX
C77KDA		1.463	-0.110	-0.81	1.551	-0.055	-0.40	LI
CAPPW6		1.362	-0.211	-1.57	1.489	-0.117	-0.85	TO
CCN9PQ		1.430	-0.143	-1.06	1.469	-0.137	-1.00	LX
CGLP67		1.570	-0.003	-0.02	1.586	-0.020	-0.14	LH
CLJ27W		1.574	0.001	0.01	1.591	-0.015	-0.11	LH
CPYK67		1.516	-0.057	-0.42	1.549	-0.057	-0.41	LH
FVDFKQ		1.454	-0.119	-0.88	1.453	-0.153	-1.11	TG
G7P9MQ	X	1.430	-0.143	-1.06	1.120	-0.486	-3.54	VM
GZ48AY		1.649	0.076	0.57	1.604	-0.002	-0.01	LH
J9P3D8		1.787	0.214	1.60	1.789	0.183	1.33	RE
JDNA6W		1.505	-0.068	-0.50	1.529	-0.077	-0.56	LX
KHAN6M		1.546	-0.027	-0.20	1.639	0.033	0.24	LH
KJG9LV		1.595	0.022	0.17	1.576	-0.030	-0.22	LI
KZW6A6		1.440	-0.133	-0.99	1.465	-0.141	-1.02	LI
P7JLPB		1.574	0.001	0.01	1.623	0.017	0.13	LH
PGJAJT		1.754	0.181	1.35	1.820	0.214	1.56	XX
QDHEDC		1.739	0.166	1.24	1.765	0.159	1.16	XX
QQK48Q		1.334	-0.239	-1.77	1.341	-0.265	-1.93	LI
UNR7F3		1.912	0.339	2.53	1.946	0.340	2.48	XX
XNU8KJ		1.523	-0.050	-0.37	1.574	-0.032	-0.23	LI
Y4JKTK		1.790	0.217	1.62	1.819	0.213	1.55	LX
YJFUFQ		1.530	-0.043	-0.32	1.650	0.044	0.32	LI
YN6EGK		1.515	-0.058	-0.43	1.551	-0.055	-0.40	TF

Summary Statistics	Sample SF57	Sample SF58
Grand Means	1.57 Percent	1.61 Percent
Stnd Dev Btwn Labs	0.13 Percent	0.14 Percent

Statistics based on 31 of 33 reporting participants.

Comments on Assigned Data Flags for Test #328

94UN7Z (X) - Data for sample SF57 are high. Inconsistent within the determinations of sample SF57.

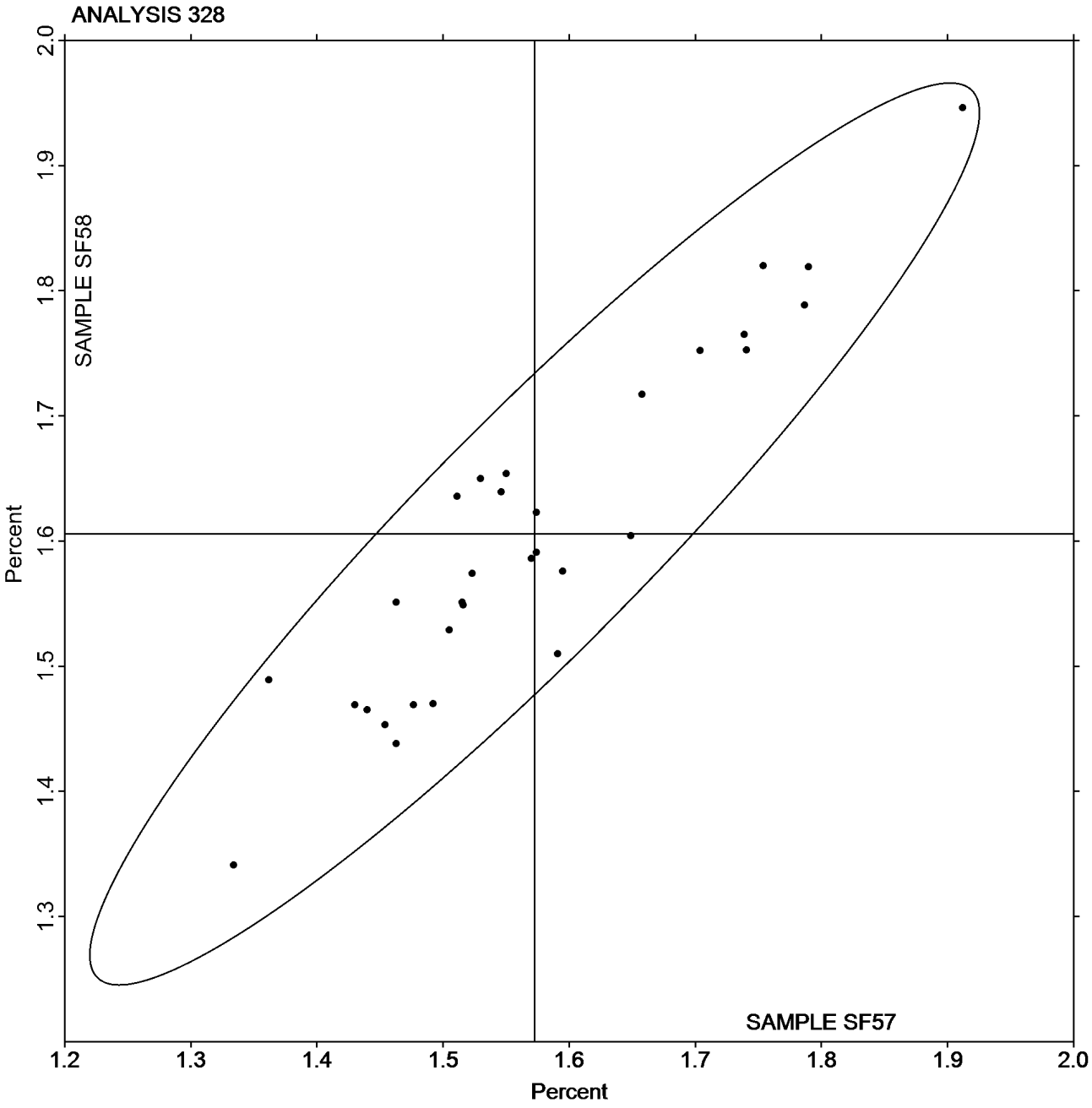
G7P9MQ (X) - Data for sample SF58 are low.

Key to Instrument Codes Reported by Participants

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		

Grand Mean Sample SF57 = 1.5725 Percent

Grand Mean Sample SF58 = 1.6057 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE57 Lab Mean	Sample SE57 Diff from Grand Mean	Sample SE57 CPV	Sample SE58 Lab Mean	Sample SE58 Diff from Grand Mean	Sample SE58 CPV	Instr Code
2F9BEZ		11.18	-0.79	-0.84	7.811	-0.173	-0.24	LE
2NX2TF		12.26	0.29	0.31	8.500	0.517	0.73	DW
2TBPP6		12.72	0.75	0.80	8.193	0.210	0.30	TB
4T4JZ7		11.67	-0.30	-0.32	7.513	-0.470	-0.67	IK
4YVJPZ		12.41	0.45	0.48	8.251	0.268	0.38	LH
6B7CRZ		11.57	-0.40	-0.43	7.442	-0.541	-0.77	XX
6WK4ML		11.49	-0.48	-0.51	7.735	-0.248	-0.35	IF
74WMG6		10.77	-1.20	-1.28	6.951	-1.032	-1.46	IN
7K8FVZ		11.84	-0.12	-0.13	7.871	-0.112	-0.16	TA
7RNR92		12.10	0.13	0.14	8.031	0.047	0.07	TB
8VZ2TJ		11.96	0.00	0.00	8.556	0.573	0.81	LI
A7BFJA		11.73	-0.24	-0.25	7.979	-0.005	-0.01	TH
B8LHAF		11.33	-0.64	-0.68	7.601	-0.383	-0.54	TH
BAR6KY		10.98	-0.99	-1.06	6.796	-1.187	-1.68	IR
BL66F8		11.78	-0.18	-0.19	7.623	-0.360	-0.51	TO
CGLP67		12.55	0.59	0.62	8.405	0.421	0.60	LH
DF7MVC		12.07	0.10	0.11	8.114	0.130	0.18	TH
DG36VR	*	10.04	-1.92	-2.05	7.059	-0.924	-1.31	IN
DQQY8N		12.71	0.74	0.79	8.296	0.312	0.44	LE
DYHEU8		13.87	1.90	2.03	9.431	1.448	2.05	LA
DYK2D7		11.61	-0.36	-0.38	7.585	-0.399	-0.57	ID
E2MEFQ		11.96	-0.01	-0.01	8.006	0.023	0.03	TR
EEBJNM		12.41	0.44	0.47	8.340	0.356	0.51	XX
ERXQKN		11.79	-0.18	-0.19	7.683	-0.300	-0.43	TK
EYYTYW		12.16	0.19	0.21	7.527	-0.456	-0.65	IK
JFLYXP	X	8.46	-3.51	-3.74	7.696	-0.287	-0.41	IM
JMB9V2		13.44	1.47	1.57	9.183	1.200	1.70	LX
JN4BCP		9.98	-1.98	-2.11	6.624	-1.359	-1.93	IK
JWFHXK		12.96	1.00	1.06	8.694	0.710	1.01	TO
K4MLDH		13.64	1.68	1.79	9.557	1.573	2.23	LA
KFM6YJ		11.61	-0.36	-0.38	7.858	-0.125	-0.18	IM
LBPUHP	X	200.69	188.73	201.22	172.101	164.118	232.85	IN
LY989P		9.86	-2.10	-2.24	6.389	-1.594	-2.26	IF
M9DENP	X	153.60	141.63	151.01	134.412	126.429	179.37	IM
NEJJ3U		12.07	0.10	0.11	8.143	0.160	0.23	IF
NZHWML		11.00	-0.96	-1.03	7.266	-0.717	-1.02	IR
PQ6FCQ		12.46	0.49	0.52	8.356	0.373	0.53	LW
Q72UE7		11.37	-0.59	-0.63	7.483	-0.500	-0.71	LW
RGF4HP		11.28	-0.68	-0.73	7.680	-0.303	-0.43	IK
RKV2K7		12.06	0.09	0.10	8.129	0.146	0.21	LE

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE57 Lab Mean	Sample SE57 Diff from Grand Mean	Sample SE57 CPV	Sample SE58 Lab Mean	Sample SE58 Diff from Grand Mean	Sample SE58 CPV	Instr Code
RT9RB4		10.80	-1.16	-1.24	7.127	-0.857	-1.22	LA
RWPYQQ		12.52	0.56	0.59	8.384	0.401	0.57	TO
RZNF2Y		12.72	0.75	0.80	8.800	0.817	1.16	ID
U2QBG8		11.46	-0.50	-0.54	7.623	-0.360	-0.51	LE
U7NRWM		12.20	0.23	0.25	8.115	0.132	0.19	LE
V8V728		11.82	-0.15	-0.16	7.950	-0.033	-0.05	IM
WWPTA7		12.96	0.99	1.06	8.777	0.794	1.13	TA
X7WPVN		12.98	1.02	1.08	8.602	0.619	0.88	IF
X8M44Y		11.14	-0.83	-0.88	7.334	-0.650	-0.92	LH
XB3MZM		13.33	1.37	1.46	8.508	0.524	0.74	TR
XGQ989		14.05	2.08	2.22	9.171	1.187	1.68	IK
XJYHXK		10.91	-1.06	-1.13	7.127	-0.856	-1.21	TT
YT3XJJ		12.72	0.76	0.81	8.986	1.002	1.42	TX

Summary Statistics	Sample SE57	Sample SE58
Grand Means	11.97 kN/m	7.98 kN/m
Stnd Dev Btwn Labs	0.94 kN/m	0.70 kN/m

Statistics based on 50 of 53 reporting participants.

Comments on Assigned Data Flags for Test #330

M9DENP (X) - Extreme Data.

LBPUHP (X) - Extreme Data.

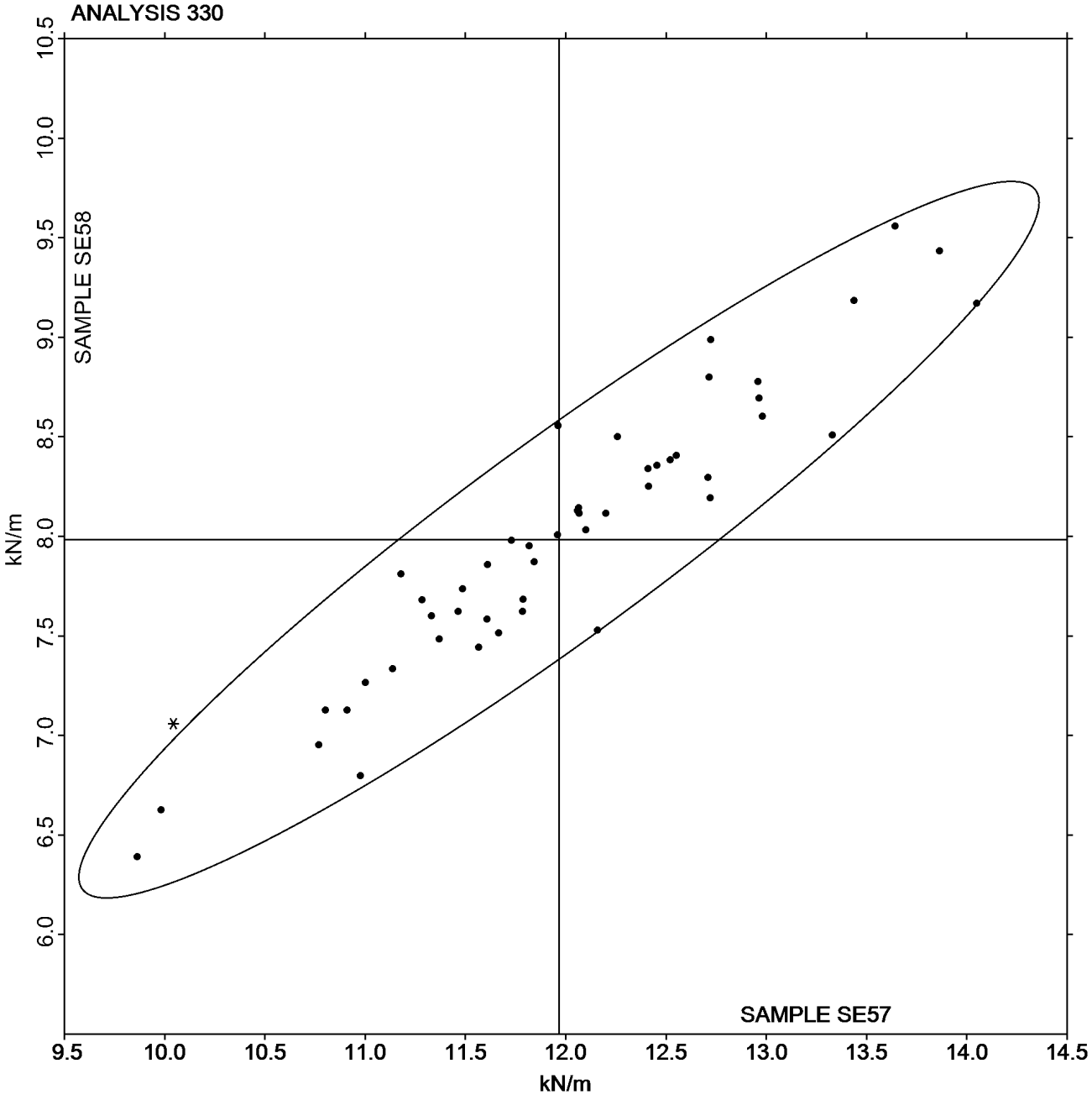
JFLYXP (X) - Data for sample SE57 are low. Inconsistent within the determinations of sample SE57.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample SE57 = 11.966 kN/m

Grand Mean Sample SE58 = 7.9833 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE57 Lab Mean	Sample SE57 Diff from Grand Mean	Sample SE57 CPV	Sample SE58 Lab Mean	Sample SE58 Diff from Grand Mean	Sample SE58 CPV	Instr Code
2F9BEZ		175.9	-24.9	-1.26	99.8	-2.5	-0.21	LE
2NX2TF	*	156.0	-44.8	-2.26	69.3	-33.0	-2.72	DW
2TBPP6	*	233.8	32.9	1.66	106.1	3.9	0.32	TB
4YVJPZ		203.5	2.7	0.14	100.6	-1.6	-0.13	LH
6B7CRZ		204.6	3.8	0.19	95.5	-6.7	-0.56	XX
74WMG6		229.5	28.7	1.45	114.7	12.4	1.03	IN
7RNR92		202.9	2.1	0.10	98.9	-3.4	-0.28	TB
B8LHAF		211.9	11.1	0.56	117.6	15.4	1.27	TH
BL66F8		207.8	7.0	0.35	97.0	-5.2	-0.43	TO
CGLP67		193.2	-7.6	-0.38	99.0	-3.3	-0.27	LH
DF7MVC		236.7	35.9	1.81	121.8	19.6	1.62	TH
DG36VR		159.5	-41.3	-2.08	84.2	-18.0	-1.49	IN
DQQY8N		199.6	-1.2	-0.06	91.5	-10.8	-0.89	LE
DYHEU8		210.3	9.5	0.48	116.1	13.9	1.15	LA
DYK2D7		199.7	-1.1	-0.06	95.6	-6.6	-0.55	ID
E2MEFQ		186.4	-14.5	-0.73	95.3	-7.0	-0.58	TR
EEBJNM		195.1	-5.7	-0.29	98.1	-4.1	-0.34	XX
ERXQKN		196.1	-4.7	-0.24	100.0	-2.3	-0.19	TK
JMB9V2		223.0	22.2	1.12	115.9	13.7	1.13	LX
JWFHXK		218.6	17.8	0.90	111.0	8.8	0.72	TO
K4MLDH		213.5	12.7	0.64	121.9	19.7	1.63	LA
KFM6YJ		189.8	-11.0	-0.56	103.7	1.5	0.12	IM
LBPUHP	X	96.0	-104.8	-5.29	70.5	-31.7	-2.62	IN
LY989P		183.4	-17.4	-0.88	95.7	-6.5	-0.54	IF
M9DENP	X	72.4	-128.4	-6.48	69.3	-33.0	-2.73	IM
NEJJ3U		214.5	13.7	0.69	110.5	8.2	0.68	IF
PQ6FCQ		175.9	-24.9	-1.26	95.2	-7.0	-0.58	LW
Q72UE7		185.5	-15.3	-0.77	91.5	-10.7	-0.89	LW
RGF4HP		221.1	20.3	1.03	116.4	14.1	1.17	IK
RKV2K7		192.0	-8.8	-0.44	96.9	-5.4	-0.45	LE
RT9RB4		197.7	-3.1	-0.16	105.9	3.7	0.30	LA
RWPYQQ		236.3	35.5	1.79	119.7	17.4	1.44	TO
U2QBG8		185.9	-14.9	-0.75	95.7	-6.6	-0.54	LE
U7NRWM		206.5	5.7	0.29	104.5	2.2	0.18	LE
V8V728		195.6	-5.2	-0.26	103.6	1.4	0.11	IM
WWPTA7		183.4	-17.4	-0.88	91.4	-10.8	-0.89	TA
X7WPVN		196.3	-4.5	-0.23	94.9	-7.3	-0.61	IN
X8M44Y		168.0	-32.8	-1.66	77.1	-25.1	-2.08	LH
XB3MZM		218.0	17.2	0.87	107.4	5.1	0.42	TR
XGQ989		215.1	14.3	0.72	107.5	5.2	0.43	XX

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE57 Lab Mean	Sample SE57 Diff from Grand Mean	Sample SE57 CPV	Sample SE58 Lab Mean	Sample SE58 Diff from Grand Mean	Sample SE58 CPV	Instr Code
XJYHXK		185.3	-15.5	-0.78	96.4	-5.8	-0.48	TT
YT3XJJ		224.4	23.5	1.19	126.1	23.8	1.97	XX

Summary Statistics	Sample SE57	Sample SE58
Grand Means	200.80 Joules/sq m	102.26 Joules/sq m
Stnd Dev Btwn Labs	19.81 Joules/sq m	12.10 Joules/sq m

Statistics based on 40 of 42 reporting participants.

Comments on Assigned Data Flags for Test #331

M9DENP (X) - Extreme Data.

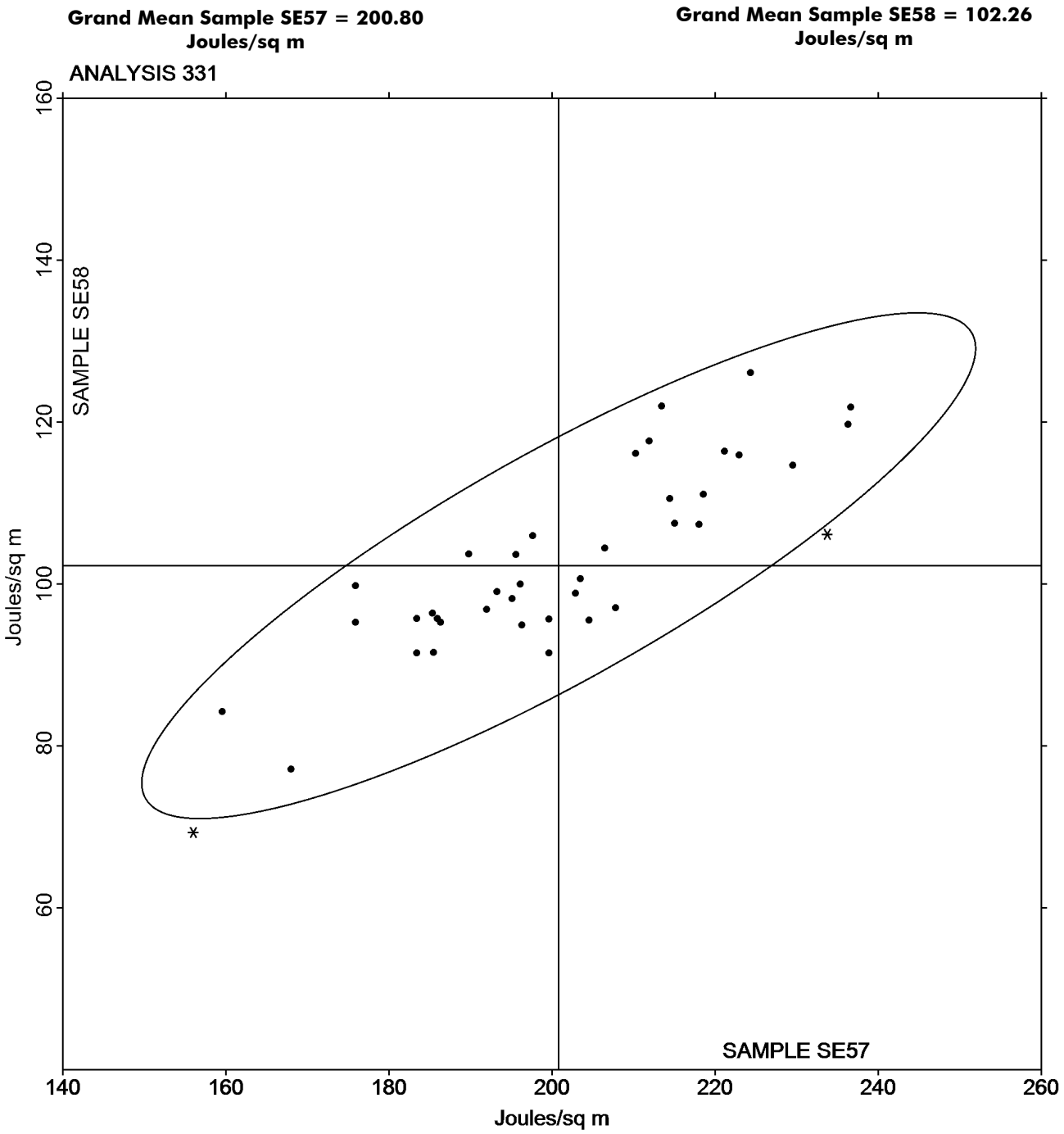
LBPUHP (X) - Data for sample SE57 are low. Inconsistent within the determinations of sample SE57.

Analysis Notes:

74WMG6 - Data appear to be reported as ft-lb/sq ft, not J/sq m in as indicated on datasheet. Units changed by CTS.

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		



WebCode	Data Flag	Sample SE57 Lab Mean	Sample SE57 Diff from Grand Mean	Sample SE57 CPV	Sample SE58 Lab Mean	Sample SE58 Diff from Grand Mean	Sample SE58 CPV	Instr Code
2F9BEZ		2.304	-0.241	-0.91	1.863	-0.090	-0.41	LE
2NX2TF		3.207	0.662	2.50	2.492	0.539	2.44	DW
2TBPP6		2.751	0.206	0.78	1.941	-0.012	-0.05	TB
4YVJPZ		2.412	-0.133	-0.50	1.796	-0.157	-0.71	LH
6B7CRZ		2.733	0.188	0.71	2.040	0.087	0.39	XX
74WMG6		2.662	0.117	0.44	2.137	0.184	0.83	IN
7K8FVZ		2.375	-0.170	-0.64	1.839	-0.114	-0.52	TB
7RNR92		2.482	-0.063	-0.24	1.816	-0.137	-0.62	TB
B8LHAF		2.830	0.285	1.08	2.300	0.347	1.57	TH
BAR6KY		2.900	0.355	1.34	2.170	0.217	0.98	IS
BL66F8		2.701	0.156	0.59	1.975	0.022	0.10	TO
CGLP67		2.276	-0.269	-1.02	1.778	-0.175	-0.79	LH
DF7MVC		3.166	0.621	2.35	2.449	0.496	2.24	TH
DG36VR		2.560	0.015	0.05	1.950	-0.003	-0.01	IN
DQQY8N		2.326	-0.219	-0.83	1.636	-0.317	-1.43	LE
DYHEU8		2.212	-0.333	-1.26	1.786	-0.167	-0.76	LA
DYK2D7		2.592	0.047	0.18	1.919	-0.034	-0.15	ID
E2MEFQ		2.391	-0.154	-0.58	1.818	-0.135	-0.61	TR
EEBJNM		2.350	-0.195	-0.74	1.768	-0.185	-0.84	XX
ERXQKN		2.554	0.009	0.03	2.008	0.055	0.25	TK
JFLYXP	X	1.957	-0.588	-2.23	2.183	0.230	1.04	IM
JMB9V2		2.456	-0.089	-0.34	1.859	-0.094	-0.43	LX
JWFHXK		2.521	-0.024	-0.09	1.919	-0.034	-0.15	TO
K4MLDH		2.171	-0.374	-1.42	1.814	-0.139	-0.63	LA
KFM6YJ		2.708	0.163	0.61	2.211	0.258	1.17	IM
LBPUHP	X	1.736	-0.809	-3.06	1.562	-0.391	-1.77	IN
LY989P		2.346	-0.200	-0.76	1.853	-0.100	-0.45	IF
M9DENP	X	1.142	-1.403	-5.31	1.133	-0.820	-3.71	IM
NEJJ3U		2.941	0.396	1.50	2.341	0.388	1.76	IF
NZHWML		2.850	0.305	1.15	2.300	0.347	1.57	IS
PQ6FCQ		2.184	-0.361	-1.37	1.739	-0.214	-0.97	LW
Q72UE7		2.416	-0.129	-0.49	1.817	-0.136	-0.62	LW
RGF4HP		2.989	0.444	1.68	2.217	0.264	1.20	IK
RKV2K7		2.347	-0.198	-0.75	1.763	-0.190	-0.86	LE
RT9RB4		2.292	-0.253	-0.96	1.805	-0.148	-0.67	LA
RWPYQQ		2.915	0.370	1.40	2.247	0.294	1.33	TO
RZNF2Y		2.579	0.034	0.13	1.939	-0.014	-0.06	ID
U2QBG8		2.411	-0.134	-0.51	1.849	-0.104	-0.47	LE
U7NRWM		2.525	-0.020	-0.08	1.917	-0.036	-0.16	LE
V8V728		2.462	-0.083	-0.32	1.936	-0.017	-0.08	IM

Paper & Paperboard Interlaboratory Testing Program

Analysis 332

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE57 Lab Mean	Sample SE57 Diff from Grand Mean	Sample SE57 CPV	Sample SE58 Lab Mean	Sample SE58 Diff from Grand Mean	Sample SE58 CPV	Instr Code
WWPTA7		2.207	-0.338	-1.28	1.684	-0.269	-1.22	TA
X7WPVN		2.227	-0.318	-1.20	1.605	-0.348	-1.57	IN
X8M44Y		2.196	-0.349	-1.32	1.559	-0.394	-1.78	LH
XB3MZM		2.546	0.000	0.00	1.939	-0.014	-0.06	TR
XGQ989		2.563	0.018	0.07	1.904	-0.049	-0.22	XX
XJYHXK		2.730	0.185	0.70	2.151	0.198	0.90	TT
YT3XJJ		2.635	0.090	0.34	2.081	0.128	0.58	XX

Summary Statistics	Sample SE57	Sample SE58
Grand Means	2.55 Percent	1.95 Percent
Stnd Dev Btwn Labs	0.26 Percent	0.22 Percent

Statistics based on 44 of 47 reporting participants.

Comments on Assigned Data Flags for Test #332

M9DENP (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SE57.

LBPUHP (X) - Data for sample SE57 are low.

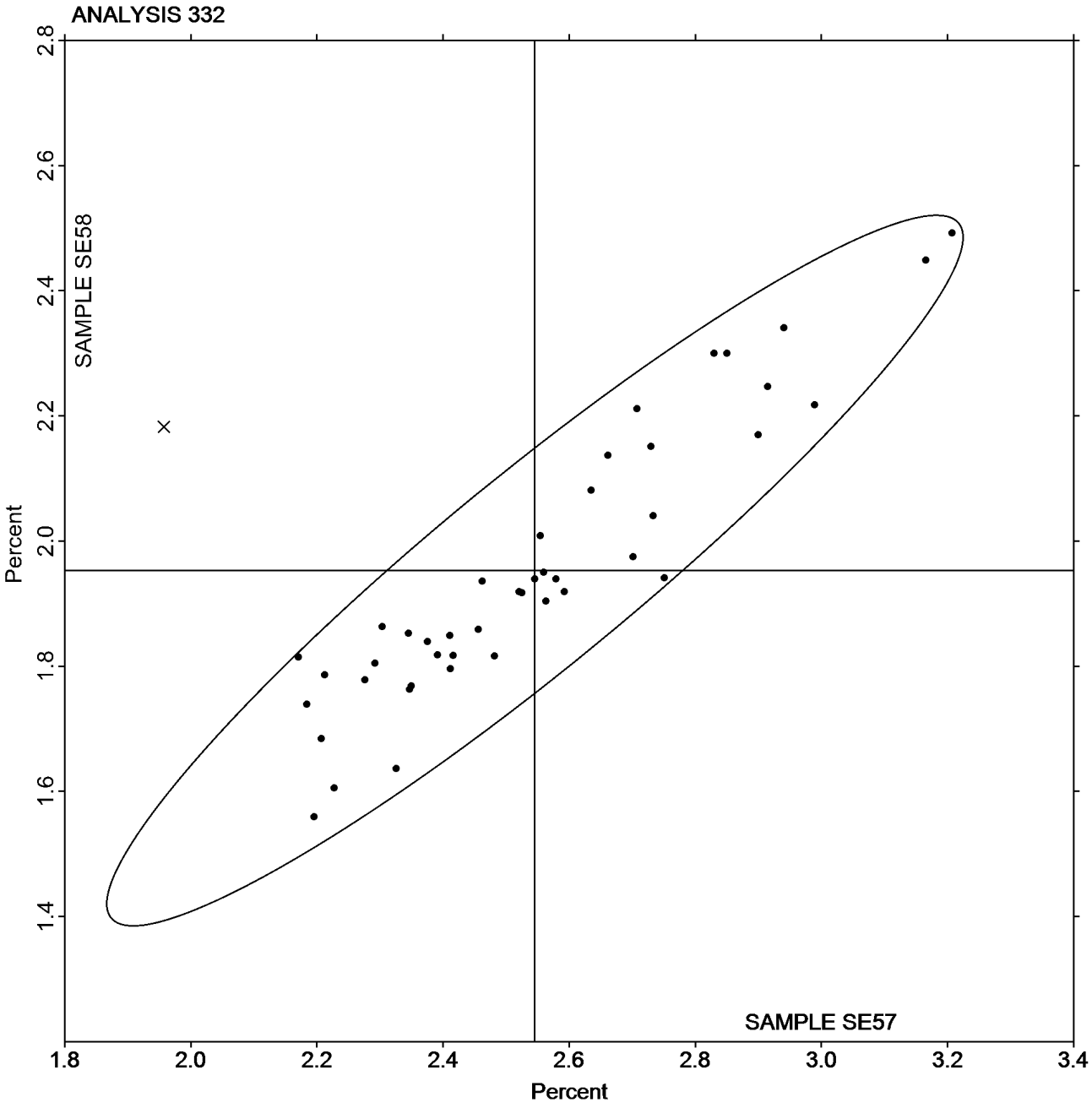
JFLYXP (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE57.

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 SE57 = 2.5455 Percent

Grand Mean Sample SE58 = 1.9530 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

WebCode	Data Flag	Sample SG57 Lab Mean	Sample SG57 Diff from Grand Mean	Sample SG57 CPV	Sample SG58 Lab Mean	Sample SG58 Diff from Grand Mean	Sample SG58 CPV	Instr Code
6B7CRZ		351.8	71.0	0.69	303.2	42.1	0.44	MT
7K8FVZ		151.3	-129.5	-1.25	99.7	-161.4	-1.70	MT
A2KWTD		276.7	-4.1	-0.04	247.3	-13.8	-0.14	MT
AKVQJY	X	34.9	-245.9	-2.37	33.3	-227.8	-2.40	MT
AQ2M3Y		239.4	-41.4	-0.40	213.6	-47.5	-0.50	MT
DF7MVC		111.7	-169.1	-1.63	122.1	-139.0	-1.46	MT
EX7QJ9		317.9	37.1	0.36	218.0	-43.1	-0.45	MT
G7P9MQ	X	56.0	-224.8	-2.17	47.1	-214.0	-2.25	MT
KZW6A6		394.3	113.5	1.10	352.5	91.4	0.96	MT
Q72UE7		397.1	116.3	1.12	335.6	74.5	0.78	MT
RPM6CP		125.5	-155.3	-1.50	198.7	-62.4	-0.66	MT
UB38LE		289.4	8.6	0.08	323.5	62.4	0.66	MT
ZFAVFG		390.0	109.2	1.05	417.8	156.7	1.65	XX
ZQAGMF		324.2	43.4	0.42	300.8	39.7	0.42	MT

Summary Statistics	Sample SG57	Sample SG58
Grand Means	280.78 Double Folds	261.07 Double Folds
Stnd Dev Btwn Labs	103.54 Double Folds	95.00 Double Folds

Statistics based on 12 of 14 reporting participants.

Comments on Assigned Data Flags for Test #334

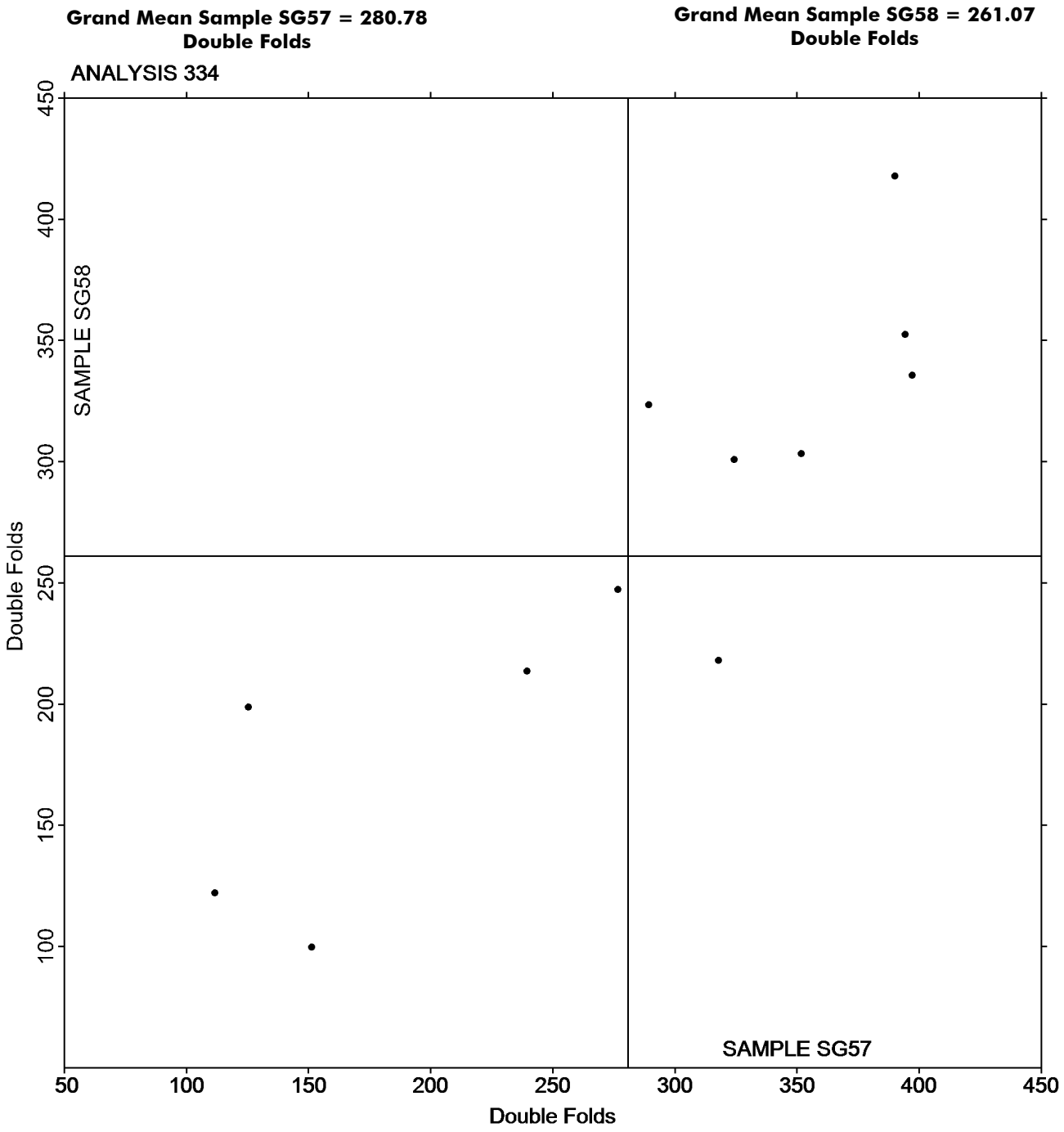
AKVQJY (X) - Data for sample SG58 are low.

G7P9MQ (X) - Inconsistent in testing between samples.

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

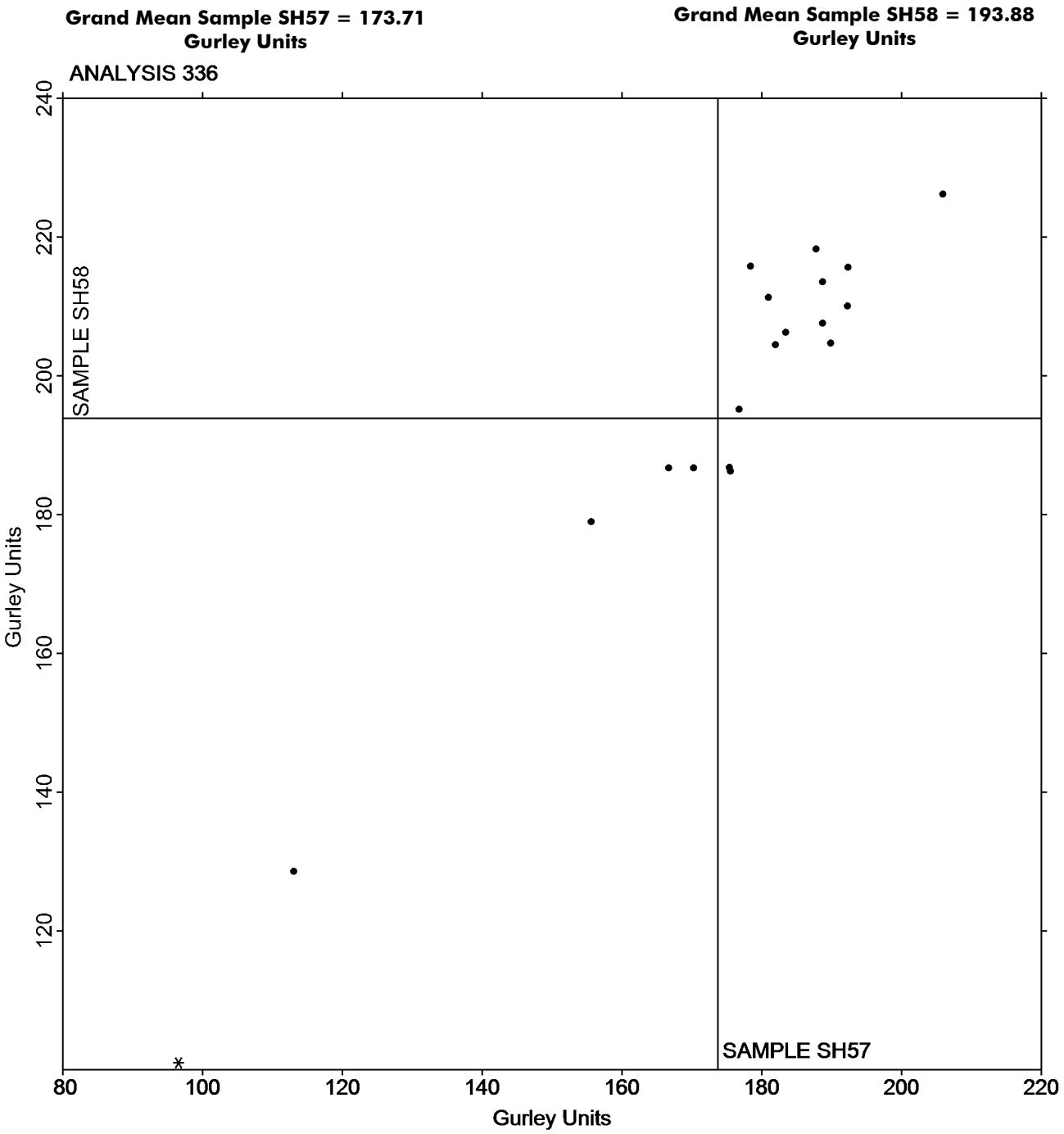
Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample SH57 Lab Mean	Sample SH57 Diff from Grand Mean	Sample SH57 CPV	Sample SH58 Lab Mean	Sample SH58 Diff from Grand Mean	Sample SH58 CPV
4JXPUK		187.8	14.1	0.53	218.2	24.3	0.78
6B7CRZ		188.7	15.0	0.56	213.6	19.7	0.63
7K8FVZ		189.9	16.2	0.60	204.7	10.8	0.35
7N6UHQ		181.0	7.3	0.27	211.3	17.4	0.56
7QFEQZ		188.7	15.0	0.56	207.6	13.7	0.44
7RNR92		155.6	-18.1	-0.68	178.9	-14.9	-0.48
94UN7Z		170.2	-3.5	-0.13	186.7	-7.2	-0.23
A3VXCQ		175.6	1.9	0.07	186.2	-7.7	-0.25
AE6G9Z		192.4	18.7	0.70	215.6	21.7	0.70
CAPPW6		175.4	1.7	0.06	186.8	-7.1	-0.23
CPYK67		113.1	-60.6	-2.26	128.6	-65.3	-2.10
G7P9MQ		205.9	32.2	1.20	226.2	32.3	1.04
KKEJGY		192.3	18.5	0.69	210.0	16.1	0.52
LMXZ7W		182.0	8.3	0.31	204.5	10.6	0.34
NEJJ3U	*	96.6	-77.2	-2.88	101.0	-92.9	-2.98
P7JLPB		178.4	4.7	0.18	215.8	21.9	0.70
RJHATP		176.8	3.1	0.12	195.2	1.3	0.04
RPM6CP		166.7	-7.0	-0.26	186.7	-7.2	-0.23
UB38LE		183.5	9.8	0.36	206.2	12.4	0.40

Summary Statistics	Sample SH57	Sample SH58
Grand Means	173.71 Gurley Units	193.88 Gurley Units
Stnd Dev Btwn Labs	26.78 Gurley Units	31.12 Gurley Units

Statistics based on 19 of 19 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 338

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

WebCode	Data Flag	Sample SJ57 Lab Mean	Sample SJ57 Diff from Grand Mean	Sample SJ57 CPV	Sample SJ58 Lab Mean	Sample SJ58 Diff from Grand Mean	Sample SJ58 CPV
228JM4		2.964	0.359	0.73	3.174	0.340	0.66
7QFEQZ		2.507	-0.098	-0.20	2.851	0.017	0.03
AQ2M3Y		2.798	0.193	0.39	3.078	0.244	0.47
CCN9PQ		2.374	-0.231	-0.47	2.594	-0.240	-0.46
NEJJ3U		2.548	-0.057	-0.11	2.761	-0.073	-0.14
P7JLPB		2.795	0.190	0.39	3.185	0.351	0.68
PQ6FCQ		2.390	-0.215	-0.43	2.220	-0.614	-1.19
RPM6CP	X	0.340	-2.265	-4.59	0.370	-2.464	-4.76
UB38LE		2.725	0.120	0.24	2.969	0.135	0.26
VBEBRQ		1.517	-1.088	-2.20	1.849	-0.985	-1.90
X7WPVN		3.430	0.825	1.67	3.660	0.826	1.60

Summary Statistics	Sample SJ57	Sample SJ58
Grand Means	2.60 Taber Units	2.83 Taber Units
Stnd Dev Btwn Labs	0.49 Taber Units	0.52 Taber Units

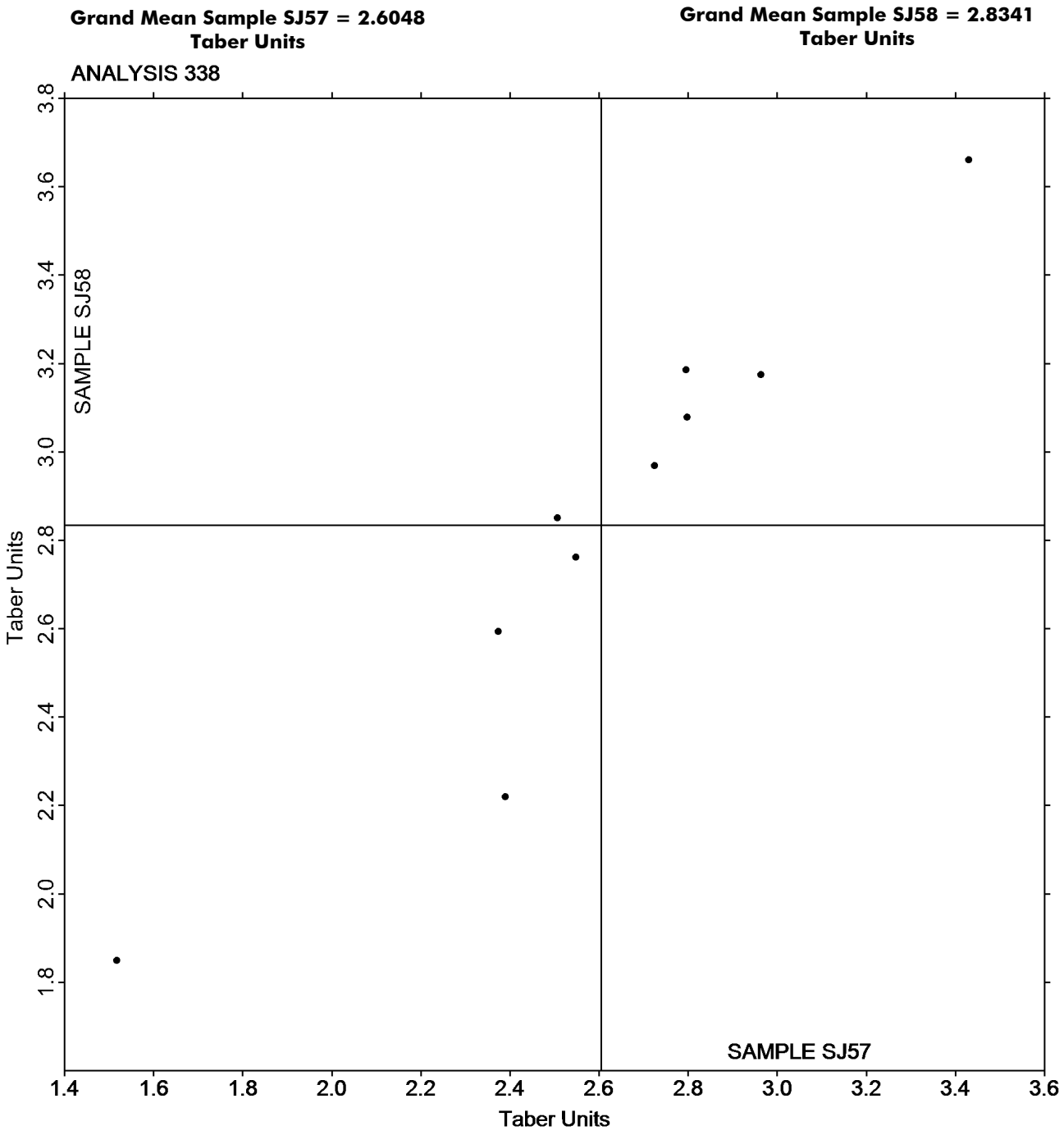
Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #338

RPM6CP (X) - Data for both samples are low. Possible Systematic Error.

Analysis Notes:

RPM6CP - Data appears to be off by a factor of 10.



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

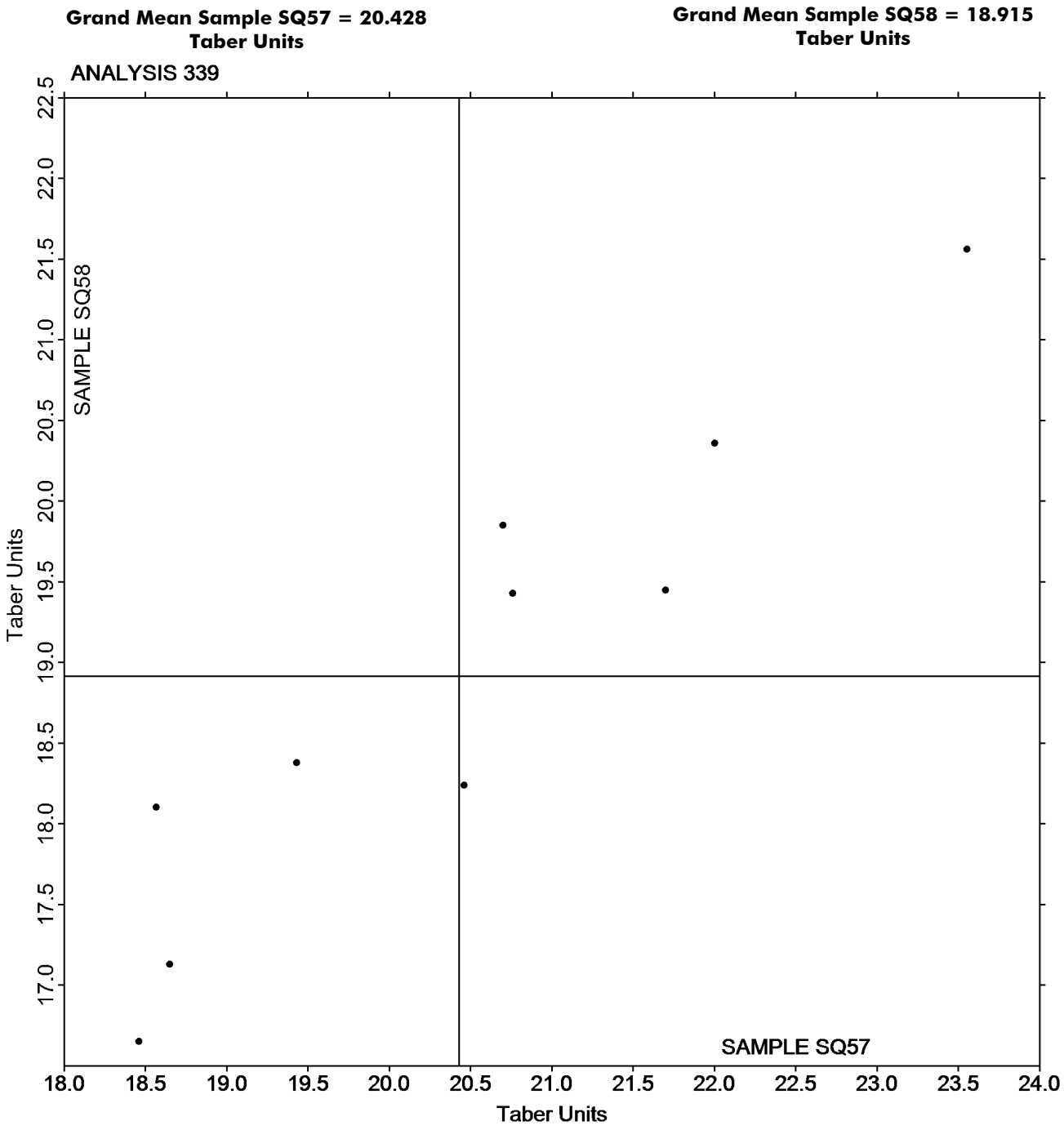
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ57 Lab Mean	Sample SQ57 Diff from Grand Mean	Sample SQ57 CPV	Sample SQ58 Lab Mean	Sample SQ58 Diff from Grand Mean	Sample SQ58 CPV
2TBPP6		20.76	0.33	0.20	19.43	0.51	0.34
4JXPUK		20.46	0.03	0.02	18.24	-0.68	-0.45
EX7QJ9		18.46	-1.97	-1.17	16.65	-2.27	-1.51
FVDFKQ		21.70	1.27	0.76	19.45	0.53	0.36
KKEJGY		18.65	-1.78	-1.06	17.13	-1.79	-1.19
PGJAJT		18.57	-1.86	-1.11	18.10	-0.81	-0.54
PQ6FCQ		20.70	0.27	0.16	19.85	0.93	0.62
Q72UE7		19.43	-1.00	-0.59	18.38	-0.54	-0.36
U7NRWM		23.55	3.13	1.86	21.56	2.65	1.76
UB38LE		22.00	1.57	0.93	20.36	1.44	0.96

Summary Statistics	Sample SQ57	Sample SQ58
Grand Means	20.43 Taber Units	18.92 Taber Units
Stnd Dev Btwn Labs	1.68 Taber Units	1.50 Taber Units

Statistics based on 10 of 10 reporting participants.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 340

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

TAPPI Official Test Method T489

WebCode	Data Flag	Sample ST57 Lab Mean	Sample ST57 Diff from Grand Mean	Sample ST57 CPV	Sample ST58 Lab Mean	Sample ST58 Diff from Grand Mean	Sample ST58 CPV
2ZC2MM	X	197.5	-83.4	-10.37	201.7	-84.5	-13.54
4JXPUK		284.8	3.8	0.48	288.4	2.2	0.36
6B7CRZ		277.4	-3.6	-0.44	277.3	-8.8	-1.41
6WK4ML		292.1	11.2	1.39	294.8	8.6	1.38
99387E		283.1	2.2	0.27	280.6	-5.6	-0.89
A7BFJA		284.0	3.1	0.38	287.0	0.8	0.13
AJJZ8A		284.8	3.9	0.48	295.7	9.6	1.53
DF7MVC		271.2	-9.7	-1.21	287.7	1.5	0.25
GVVML3		270.9	-10.0	-1.25	288.4	2.2	0.36
K924VZ		289.1	8.2	1.01	278.7	-7.5	-1.20
PQ6FCQ		264.5	-16.4	-2.04	276.0	-10.2	-1.63
Q72UE7		287.7	6.8	0.84	288.7	2.5	0.41
QTPLCE	X	317.9	37.0	4.60	333.0	46.8	7.50
ZFAVFG		278.3	-2.7	-0.33	287.1	1.0	0.15
ZNPCBC		284.2	3.3	0.41	289.7	3.5	0.57

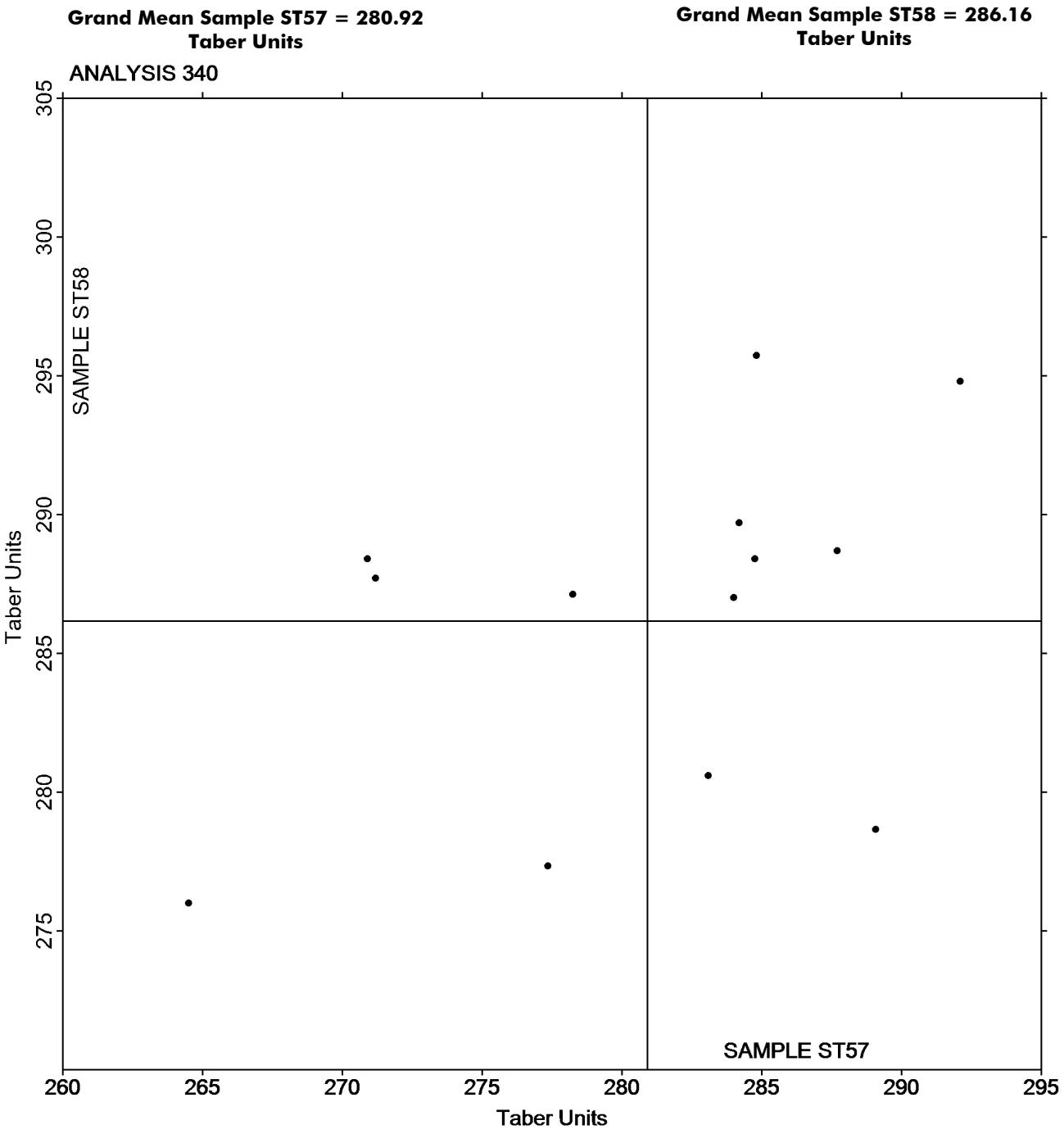
Summary Statistics	Sample ST57	Sample ST58
Grand Means	280.92 Taber Units	286.16 Taber Units
Stnd Dev Btwn Labs	8.04 Taber Units	6.24 Taber Units

Statistics based on 13 of 15 reporting participants.

Comments on Assigned Data Flags for Test #340

QTPLCE (X) - Extreme Data.

2ZC2MM (X) - Extreme Data.



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 343
Z-Direction Tensile
TAPPI Official Test Method T541

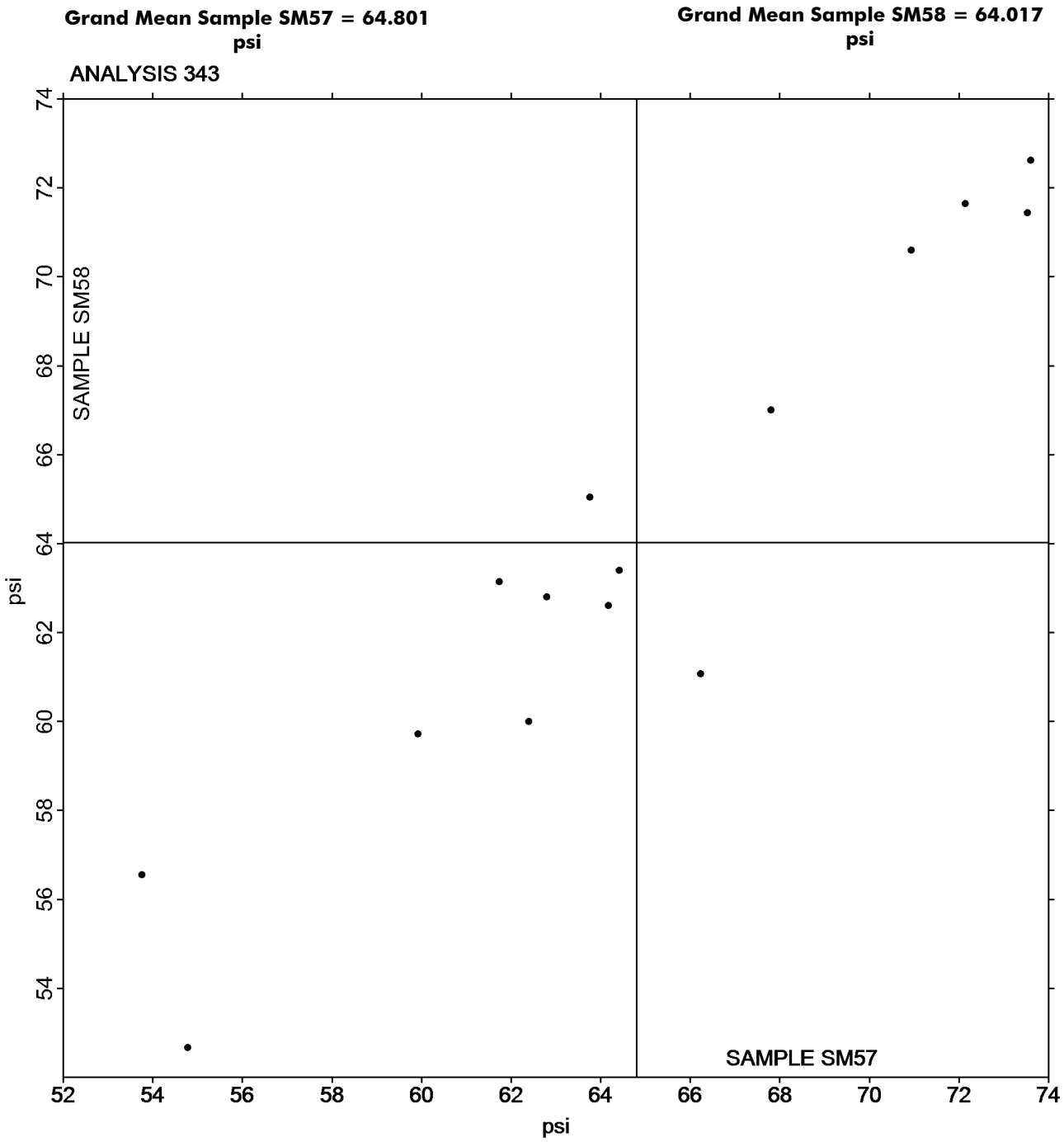
WebCode	Data Flag	Sample SM57 Lab Mean	Sample SM57 Diff from Grand Mean	Sample SM57 CPV	Sample SM58 Lab Mean	Sample SM58 Diff from Grand Mean	Sample SM58 CPV	Instr Code
2TBPP6		70.94	6.14	1.00	70.60	6.58	1.13	TA
872HNF		62.80	-2.00	-0.33	62.80	-1.22	-0.21	CD
AJJZ8A		63.76	-1.04	-0.17	65.04	1.02	0.18	LX
B8LHAF		62.40	-2.40	-0.39	60.00	-4.02	-0.69	TA
BXU47A		73.60	8.80	1.44	72.62	8.60	1.48	DX
DF7MVC		54.78	-10.02	-1.64	52.66	-11.36	-1.95	LW
NEJJ3U		73.53	8.73	1.43	71.43	7.41	1.28	TL
PGJAJT		66.24	1.44	0.24	61.07	-2.95	-0.51	LW
Q72UE7		64.18	-0.62	-0.10	62.60	-1.42	-0.24	LW
QTPLCE		67.80	3.00	0.49	67.00	2.98	0.51	CA
T9WKBV		72.14	7.34	1.20	71.64	7.62	1.31	DX
U7NRWM		61.74	-3.06	-0.50	63.14	-0.88	-0.15	TA
UB38LE		59.92	-4.88	-0.80	59.72	-4.30	-0.74	TZ
WMJY3K		64.42	-0.38	-0.06	63.40	-0.62	-0.11	TA
XNU8KJ		53.76	-11.04	-1.81	56.54	-7.47	-1.29	LW

Summary Statistics	Sample SM57	Sample SM58
Grand Means	64.80 psi	64.02 psi
Stnd Dev Btwn Labs	6.11 psi	5.81 psi

Statistics based on 15 of 15 reporting participants.

Key to Instrument Codes Reported by Participants

CA	CSI CS-163	CD	CSI CS-163D
DX	Dek-Tron XP2 Series	LW	L & W ZD Tensile Tester
LX	L & W (model not specified)	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

Analysis 345
Z-Direction Tensile, Recycled Paperboard
TAPPI Official Test Method T541

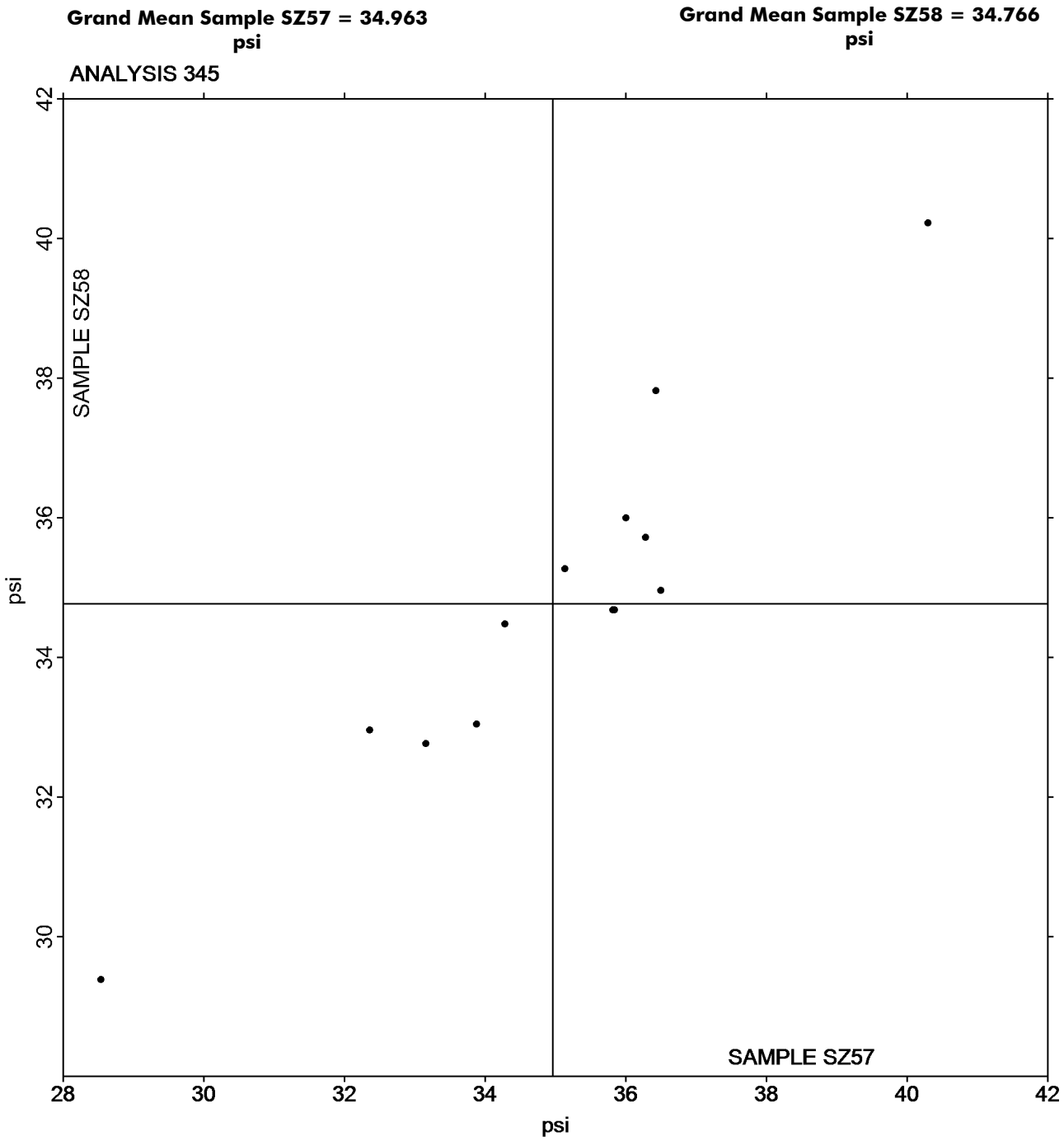
WebCode	Data Flag	Sample SZ57 Lab Mean	Sample SZ57 Diff from Grand Mean	Sample SZ57 CPV	Sample SZ58 Lab Mean	Sample SZ58 Diff from Grand Mean	Sample SZ58 CPV	Instr Code
2ZC2MM		34.28	-0.68	-0.25	34.48	-0.29	-0.11	CH
4JXPUK		33.16	-1.80	-0.66	32.76	-2.01	-0.77	CA
6B7CRZ		32.36	-2.60	-0.95	32.96	-1.81	-0.69	CA
8VZ2TJ		36.43	1.46	0.53	37.82	3.05	1.17	CH
99387E		36.00	1.04	0.38	36.00	1.23	0.47	CA
C3P47Q		28.54	-6.42	-2.34	29.38	-5.39	-2.07	LW
DYHEU8		35.14	0.18	0.06	35.27	0.50	0.19	TA
GVVML3		35.84	0.88	0.32	34.68	-0.09	-0.03	CD
K924VZ		33.88	-1.08	-0.40	33.04	-1.73	-0.66	TA
RGF4HP		40.29	5.33	1.94	40.22	5.45	2.10	PG
YATNRY		35.82	0.86	0.31	34.68	-0.09	-0.03	DP
ZK9XVJ		36.28	1.32	0.48	35.72	0.95	0.37	CD
ZNPCBC		36.50	1.54	0.56	34.96	0.19	0.07	TZ

Summary Statistics	Sample SZ57	Sample SZ58
Grand Means	34.96 psi	34.77 psi
Stnd Dev Btwn Labs	2.74 psi	2.60 psi

Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

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



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SN57 Lab Mean	Sample SN57 Diff from Grand Mean	Sample SN57 CPV	Sample SN58 Lab Mean	Sample SN58 Diff from Grand Mean	Sample SN58 CPV	Instr Code
2TBPP6		180.2	17.8	1.25	119.2	-7.4	-0.67	HZ
3BC7X2	X	245.4	83.0	5.82	135.8	9.2	0.84	XX
6B7CRZ		158.4	-4.0	-0.28	123.2	-3.4	-0.31	HZ
7RNR92		165.7	3.3	0.23	123.4	-3.2	-0.29	HY
CPYK67	*	194.2	31.8	2.23	164.6	38.0	3.47	HZ
DF7MVC	*	126.6	-35.8	-2.51	124.8	-1.8	-0.16	HZ
G7P9MQ		153.0	-9.4	-0.66	115.6	-11.0	-1.00	HY
J9P3D8		158.1	-4.3	-0.30	129.2	2.7	0.24	HY
JWFHXK		159.6	-2.8	-0.20	117.8	-8.8	-0.80	HY
K924VZ		170.8	8.4	0.59	126.7	0.1	0.01	HY
LMXZ7W		160.6	-1.8	-0.13	119.6	-7.0	-0.64	HY
P7JLPB		149.8	-12.6	-0.88	123.2	-3.3	-0.31	KR
Q72UE7		150.4	-12.0	-0.84	119.6	-7.0	-0.64	HY
RWPYQQ		163.0	0.6	0.04	125.0	-1.6	-0.14	HZ
U7NRWM		169.2	6.8	0.48	132.0	5.4	0.49	HY
UB38LE		168.6	6.2	0.44	129.8	3.2	0.29	HY
WMJY3K		163.4	1.0	0.07	133.0	6.4	0.58	HY
Y4JKTK		169.0	6.7	0.47	125.2	-1.4	-0.13	HY

Summary Statistics	Sample SN57	Sample SN58
Grand Means	162.39 1000th ft-lbs	126.59 1000th ft-lbs
Stnd Dev Btwn Labs	14.27 1000th ft-lbs	10.96 1000th ft-lbs

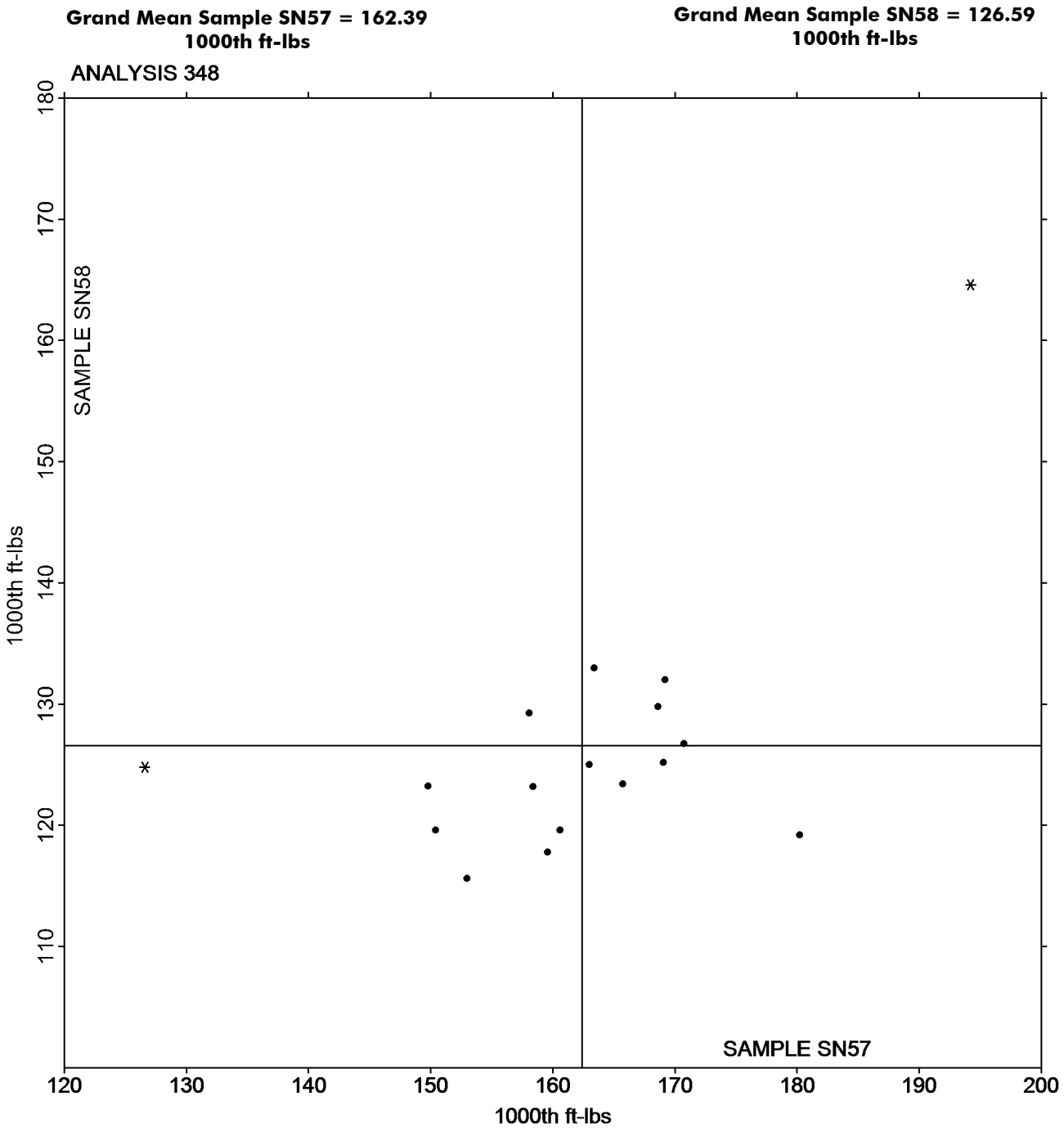
Statistics based on 17 of 18 reporting participants.

Comments on Assigned Data Flags for Test #348

3BC7X2 (X) - Data for sample SN57 are high. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

HY	Huygen Digitized Scott Internal Bond Tester	HZ	Huygen Internal Bond Tester with AccuPress
KR	Kumagai Riki Kogyo Internal Bond Tester	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 349

Internal Bond Strength - Scott Bond Models

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SP57 Lab Mean	Sample SP57 Diff from Grand Mean	Sample SP57 CPV	Sample SP58 Lab Mean	Sample SP58 Diff from Grand Mean	Sample SP58 CPV	Instr Code
3RCZLZ		104.80	11.81	0.95	87.20	4.46	0.42	SC
6WK4ML		98.80	5.81	0.47	89.00	6.26	0.59	TM
9DCDWT		103.20	10.21	0.82	94.00	11.26	1.05	SC
AJJZ8A		78.42	-14.57	-1.17	71.66	-11.07	-1.04	TM
BXU47A		66.60	-26.39	-2.12	60.20	-22.54	-2.11	TM
CGLP67		103.92	10.94	0.88	94.88	12.15	1.14	TM
CLJ27W		87.56	-5.43	-0.44	77.56	-5.17	-0.48	XX
DQQY8N		102.00	9.01	0.73	84.00	1.26	0.12	SC
EX7QJ9		79.59	-13.40	-1.08	73.39	-9.34	-0.88	TM
PQ6FCQ		91.16	-1.83	-0.15	78.14	-4.60	-0.43	XX
RGF4HP		99.00	6.01	0.48	92.60	9.86	0.92	TM
UGRP3B		100.80	7.81	0.63	90.20	7.46	0.70	XX

Summary Statistics	Sample SP57	Sample SP58
Grand Means	92.99 1000th ft-lbs	82.74 1000th ft-lbs
Stnd Dev Btwn Labs	12.42 1000th ft-lbs	10.68 1000th ft-lbs

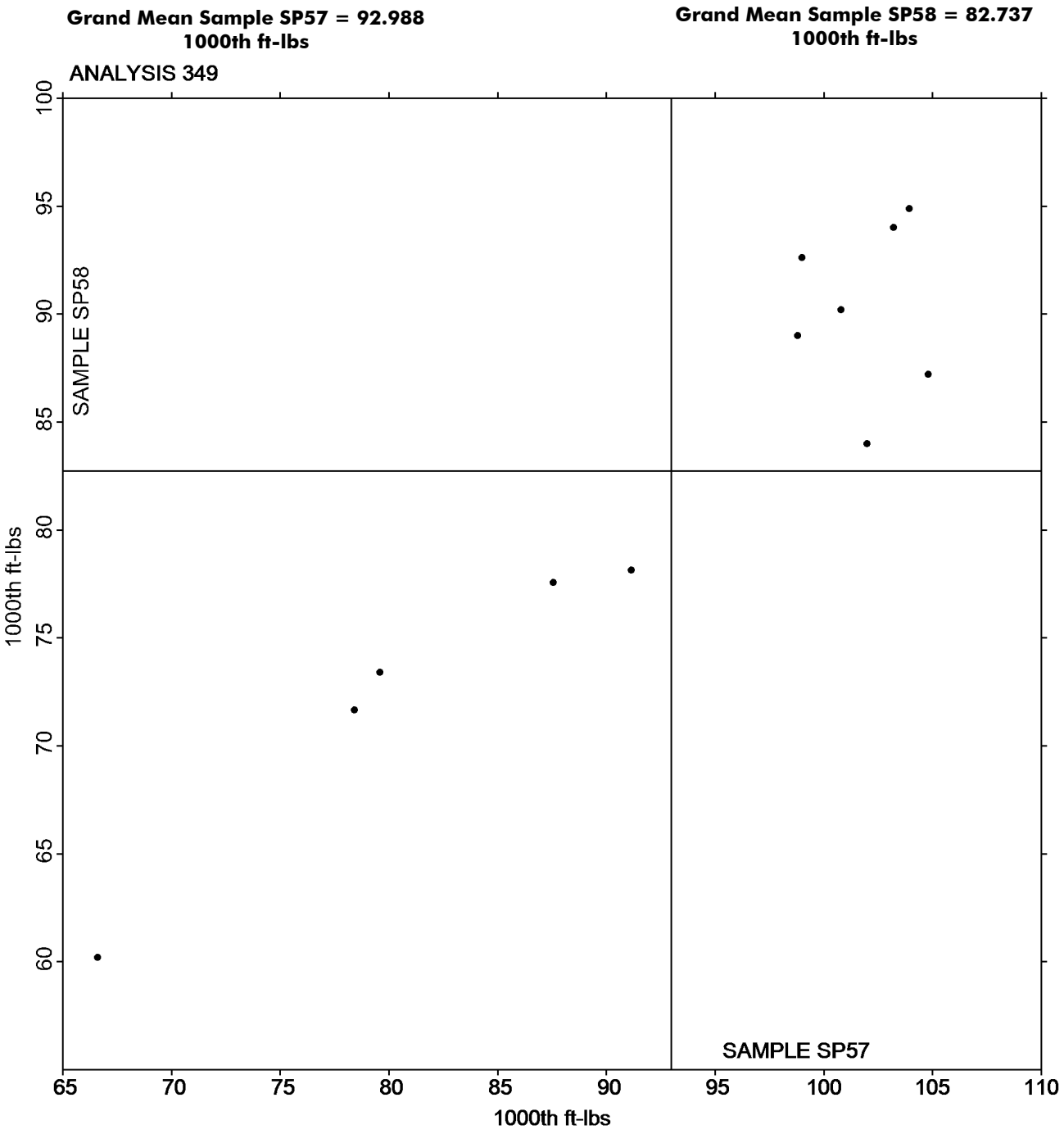
Statistics based on 12 of 12 reporting participants.

Key to Instrument Codes Reported by Participants

SC Scott Internal Bond Tester (Manual)

TM TMI Monitor/Internal Bond Tester

XX Instrument make/model not specified by lab



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