Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3171 S - March 2022

Analysis	Analysis Name
305	Bursting Strength - Printing Papers
310	Bursting Strength - Packaging Papers
312	Tearing Strength - Printing Papers
314	Tearing Strength - Packaging Papers
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
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The CTS Paper & Paperboard Interlaboratory Program

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

About CTS

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

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

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Key for Web Summary Reports (Page 1 of 2)

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

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

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

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

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

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

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

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

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

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

Common Problems Highlighted in Footnotes

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

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

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

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

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

Paper & Paperboard Interlaboratory Testing Program

Analysis 305

Bursting Strength - Printing Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SA03 Lab Mean	Sample SA03 Diff from Grand Mean	Sample SA03 CPV	Sample SA04 Lab Mean	Sample SA04 Diff from Grand Mean	Sample SA04 CPV
2UHP4T		24.41	1.21	0.56	24.06	0.83	0.39
2XDBGU		23.80	0.60	0.28	23.38	0.15	0.07
3A6MHT		20.65	-2.55	-1.18	21.95	-1.28	-0.60
ADYREJ		25.20	2.00	0.92	25.05	1.82	0.86
C84DAE		23.76	0.56	0.26	23.08	-0.15	-0.07
CJGGVC		23.37	0.17	0.08	23.35	0.13	0.06
CP34F3		23.62	0.42	0.19	23.45	0.23	0.11
CQHVGD		24.50	1.30	0.60	24.30	1.07	0.51
DQVM89		22.30	-0.90	-0.42	21.60	-1.63	-0.77
E4F9M8		23.16	-0.04	-0.02	24.00	0.77	0.37
GYF7JB		22.02	-1.18	-0.55	22.51	-0.72	-0.34
J3NQP3		18.72	-4.48	-2.07	18.88	-4.35	-2.06
JAQX7Q	*	29.07	5.87	2.71	29.86	6.63	3.15
JCU287		26.00	2.80	1.29	25.50	2.27	1.08
KUDP42		25.52	2.32	1.07	25.68	2.45	1.16
L6LCHX		22.91	-0.29	-0.13	22.20	-1.03	-0.49
LKKN9A		22.63	-0.57	-0.27	22.50	-0.72	-0.34
MGVEGZ		25.80	2.60	1.20	26.24	3.01	1.43
MM3D2L		21.53	-1.67	-0.77	23.25	0.02	0.01
N6WX66		18.26	-4.94	-2.28	18.97	-4.25	-2.02
QK6ZTQ		24.50	1.30	0.60	23.30	0.07	0.04
RF9VCQ	X	34.33	11.13	5.14	37.90	14.67	6.96
URVC62		23.22	0.02	0.01	22.63	-0.60	-0.28
X26HJM		23.34	0.14	0.06	22.88	-0.34	-0.16
YAWN3T		22.83	-0.37	-0.17	22.63	-0.60	-0.28
YHQTVU		21.54	-1.66	-0.77	21.78	-1.44	-0.68
YM47MN		23.02	-0.18	-0.08	22.04	-1.19	-0.56
Z444CH		22.22	-0.98	-0.45	23.52	0.29	0.14
ZRBHAT		21.70	-1.50	-0.69	21.74	-1.48	-0.70

Summary Statistics	Sample SA03	Sample SA04
Grand Means	23.20 psi	23.23 psi
Stnd Dev Btwn Labs	2.17 psi	2.11 psi

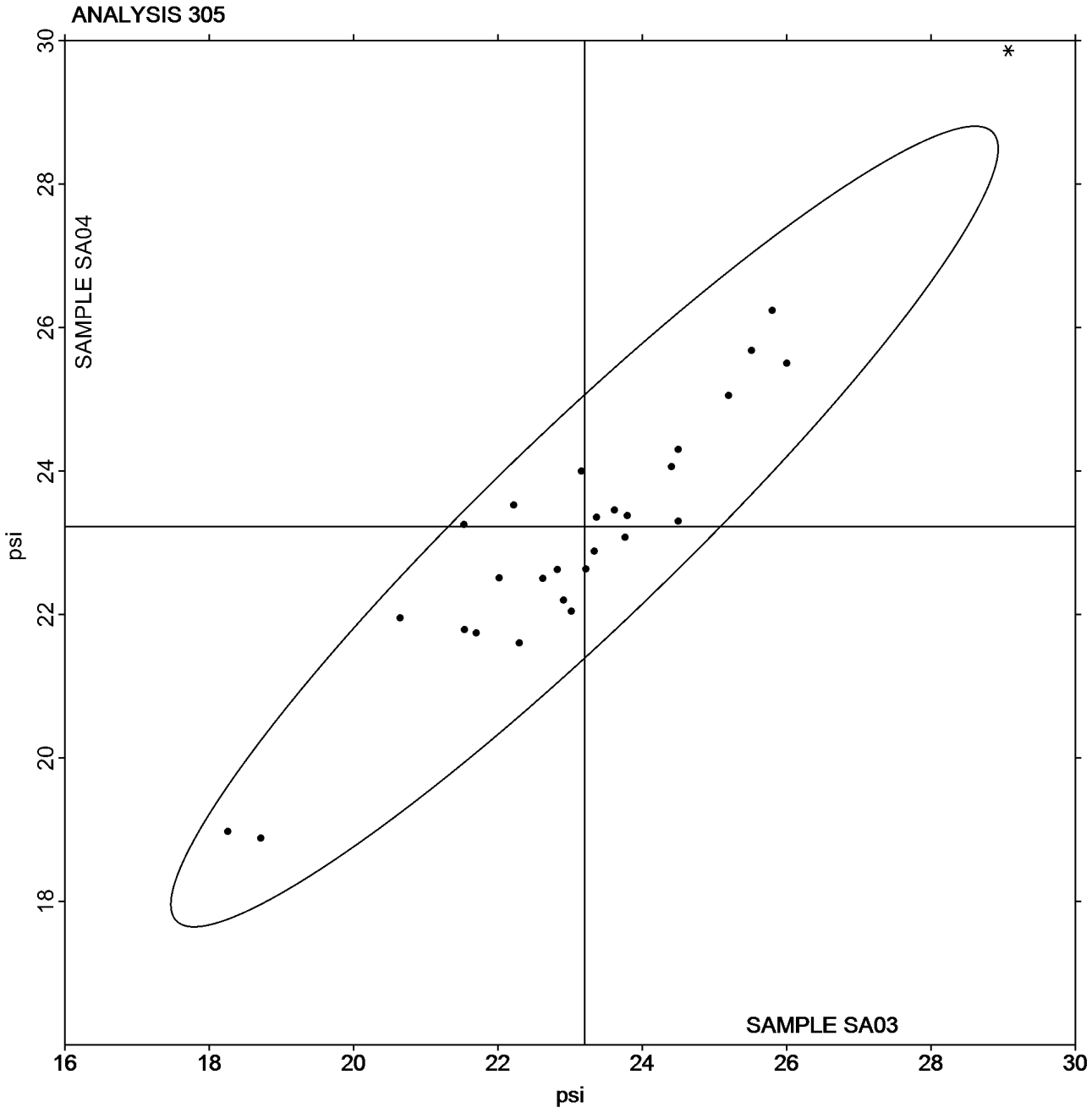
Statistics based on 28 of 29 reporting participants.

Comments on Assigned Data Flags for Test #305

RF9VCQ (X) - Extreme Data.

Grand Mean Sample SA03 = 23.199 psi

Grand Mean Sample SA04 = 23.226 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 310

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample SB03 Lab Mean	Sample SB03 Diff from Grand Mean	Sample SB03 CPV	Sample SB04 Lab Mean	Sample SB04 Diff from Grand Mean	Sample SB04 CPV
2XDBGU		45.38	-2.90	-0.68	47.90	-0.66	-0.15
4PDBDL		47.07	-1.21	-0.28	45.53	-3.03	-0.67
9A3THA		50.48	2.20	0.52	50.88	2.31	0.51
C9YWCF		47.40	-0.88	-0.21	49.20	0.64	0.14
CJGGVC		43.35	-4.93	-1.16	46.37	-2.20	-0.49
DD9ZVA		46.67	-1.61	-0.38	44.31	-4.26	-0.95
EZXP3D	*	60.00	11.72	2.75	59.40	10.84	2.41
JAQX7Q		54.13	5.85	1.37	55.57	7.01	1.56
KBH7X8		49.46	1.18	0.28	49.46	0.89	0.20
MNE6Y9	X	358.49	310.21	72.84	366.31	317.75	70.57
NJ4CJ4		42.95	-5.33	-1.25	43.45	-5.11	-1.14
PDAW82	*	51.80	3.52	0.83	57.85	9.29	2.06
PMTCRV		44.34	-3.94	-0.93	45.09	-3.47	-0.77
Q9PY24		46.37	-1.91	-0.45	44.90	-3.66	-0.81
RKGA33		47.98	-0.31	-0.07	50.00	1.44	0.32
TCJEMW		48.46	0.17	0.04	48.21	-0.36	-0.08
TLDKK4		49.07	0.79	0.18	48.36	-0.21	-0.05
VQWLGY		52.80	4.52	1.06	48.30	-0.26	-0.06
XWAGAX		46.97	-1.31	-0.31	45.99	-2.57	-0.57
Y4TEM8		49.40	1.12	0.26	47.60	-0.96	-0.21
YC472N		41.56	-6.72	-1.58	42.92	-5.65	-1.25

Summary Statistics	Sample SB03	Sample SB04
Grand Means	48.28 psi	48.56 psi
Stnd Dev Btwn Labs	4.26 psi	4.50 psi

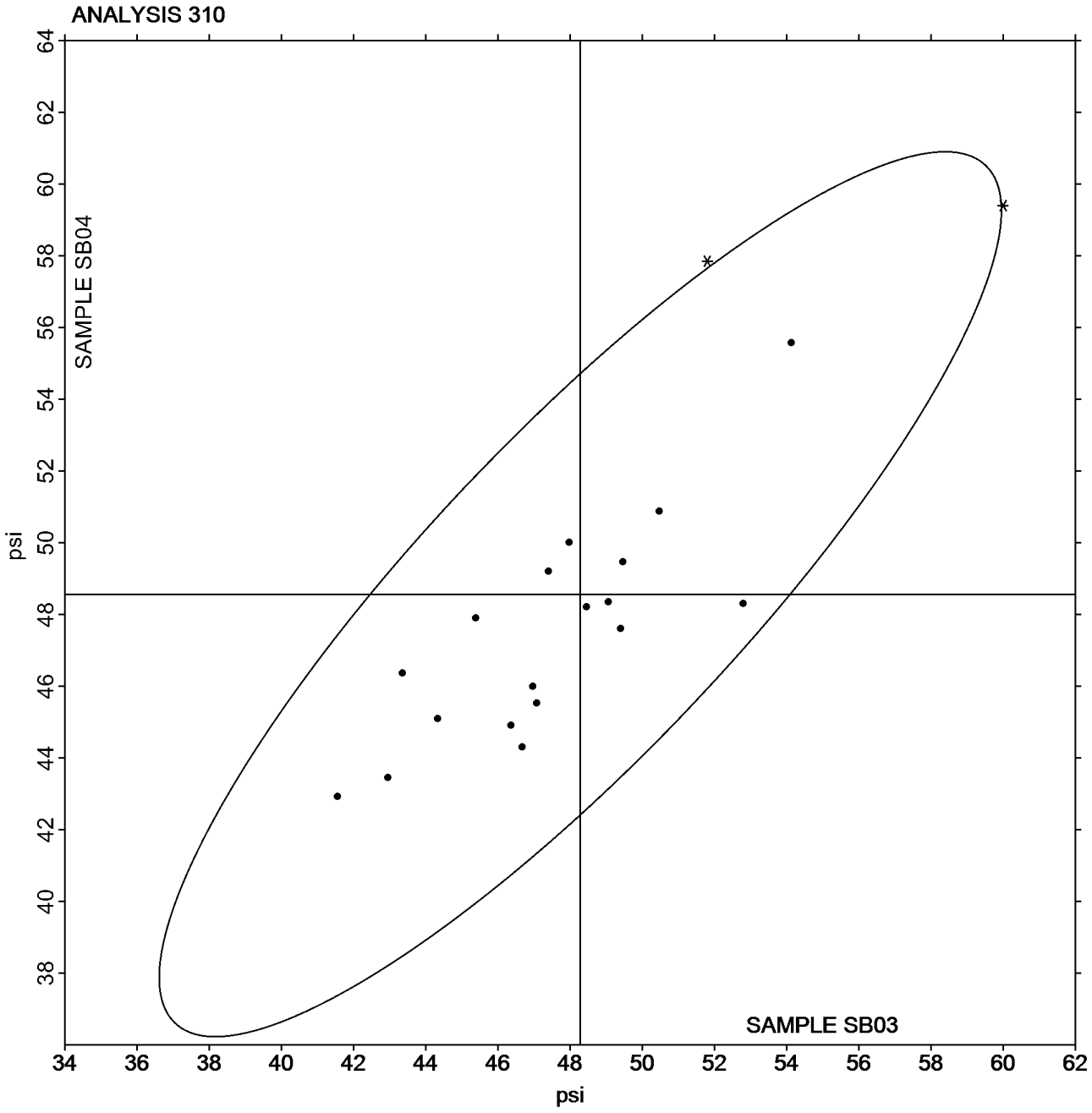
Statistics based on 20 of 21 reporting participants.

Comments on Assigned Data Flags for Test #310

MNE6Y9 (X) - Extreme Data.

Grand Mean Sample SB03 = 48.282 psi

Grand Mean Sample SB04 = 48.565 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC03 Lab Mean	Sample SC03 Diff from Grand Mean	Sample SC03 CPV	Sample SC04 Lab Mean	Sample SC04 Diff from Grand Mean	Sample SC04 CPV
2UHP4T		47.92	1.03	0.27	50.88	3.75	0.96
2XDBGU		47.91	1.02	0.27	47.87	0.74	0.19
2Y94L9		52.55	5.66	1.51	52.91	5.79	1.48
3KM73P		45.76	-1.13	-0.30	45.20	-1.93	-0.49
4HUAVM		40.98	-5.91	-1.57	42.43	-4.70	-1.20
4PDBDL		50.41	3.52	0.94	51.95	4.83	1.24
6964VH		46.88	-0.01	0.00	46.20	-0.93	-0.24
6FJPKR		38.41	-8.48	-2.26	37.65	-9.48	-2.43
8KQW2M		43.62	-3.27	-0.87	41.88	-5.25	-1.34
9A3THA		45.14	-1.75	-0.47	44.64	-2.48	-0.64
ADYREJ		52.00	5.11	1.36	52.60	5.47	1.40
CJGGVC		42.32	-4.57	-1.22	43.15	-3.97	-1.02
CQHVGD		48.44	1.55	0.41	48.70	1.57	0.40
CYUPWF		43.20	-3.69	-0.98	45.20	-1.93	-0.49
DD9ZVA		49.70	2.81	0.75	48.71	1.58	0.41
DUUX49	X	2.53	-44.37	-11.81	2.58	-44.55	-11.41
E4F9M8		47.10	0.21	0.06	48.40	1.27	0.33
FTQC3D	X	27.62	-19.27	-5.13	28.72	-18.41	-4.71
GYF7JB		51.23	4.34	1.16	50.83	3.71	0.95
H7Y63C		39.28	-7.61	-2.03	38.88	-8.25	-2.11
J3NQP3		49.28	2.39	0.64	48.24	1.11	0.28
JCU287		47.30	0.41	0.11	48.20	1.07	0.27
JH3K7Y		40.20	-6.69	-1.78	40.98	-6.15	-1.57
KUDP42		48.15	1.26	0.34	48.00	0.87	0.22
LKKN9A		45.93	-0.96	-0.26	45.42	-1.71	-0.44
MGVEGZ		41.92	-4.97	-1.32	42.44	-4.69	-1.20
MWCAWW		50.00	3.11	0.83	48.72	1.59	0.41
N6WX66		53.27	6.38	1.70	52.94	5.81	1.49
NJ4CJ4		41.33	-5.56	-1.48	41.74	-5.39	-1.38
PDAW82		44.27	-2.62	-0.70	44.77	-2.36	-0.60
PMTCRV		51.75	4.86	1.29	53.05	5.92	1.52
PVR829	X	113.09	66.20	17.62	123.20	76.07	19.48
Q9PY24		48.90	2.01	0.53	48.06	0.93	0.24
QPF7C3		44.85	-2.04	-0.54	47.90	0.77	0.20
RDG6F6		50.21	3.32	0.88	52.10	4.97	1.27
TLDKK4		46.55	-0.34	-0.09	46.59	-0.54	-0.14
URVC62		42.76	-4.13	-1.10	43.94	-3.18	-0.82
VQWLGY		47.80	0.91	0.24	49.00	1.87	0.48
WY3TRR		43.80	-3.09	-0.82	44.40	-2.73	-0.70
X6AJUX		50.30	3.41	0.91	51.19	4.06	1.04

Paper & Paperboard Interlaboratory Testing Program

Analysis 312

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample SC03 Lab Mean	Sample SC03 Diff from Grand Mean	Sample SC03 CPV	Sample SC04 Lab Mean	Sample SC04 Diff from Grand Mean	Sample SC04 CPV
YAWN3T		50.22	3.33	0.89	49.19	2.06	0.53
YJ7PCE		50.27	3.38	0.90	51.02	3.90	1.00
YM47MN		50.20	3.31	0.88	50.60	3.47	0.89
Z2262P		47.52	0.63	0.17	47.90	0.77	0.20
Z444CH		44.24	-2.65	-0.71	44.22	-2.91	-0.74
Z8J789		49.18	2.29	0.61	49.08	1.95	0.50
ZNAG7P		48.30	1.41	0.38	47.90	0.77	0.20
ZRBHAT		51.07	4.18	1.11	50.79	3.66	0.94
ZX3U6P	*	44.54	-2.35	-0.63	41.38	-5.75	-1.47

Summary Statistics	Sample SC03	Sample SC04
Grand Means	46.89 Grams	47.13 Grams
Stnd Dev Btwn Labs	3.76 Grams	3.91 Grams

Statistics based on 46 of 49 reporting participants.

Comments on Assigned Data Flags for Test #312

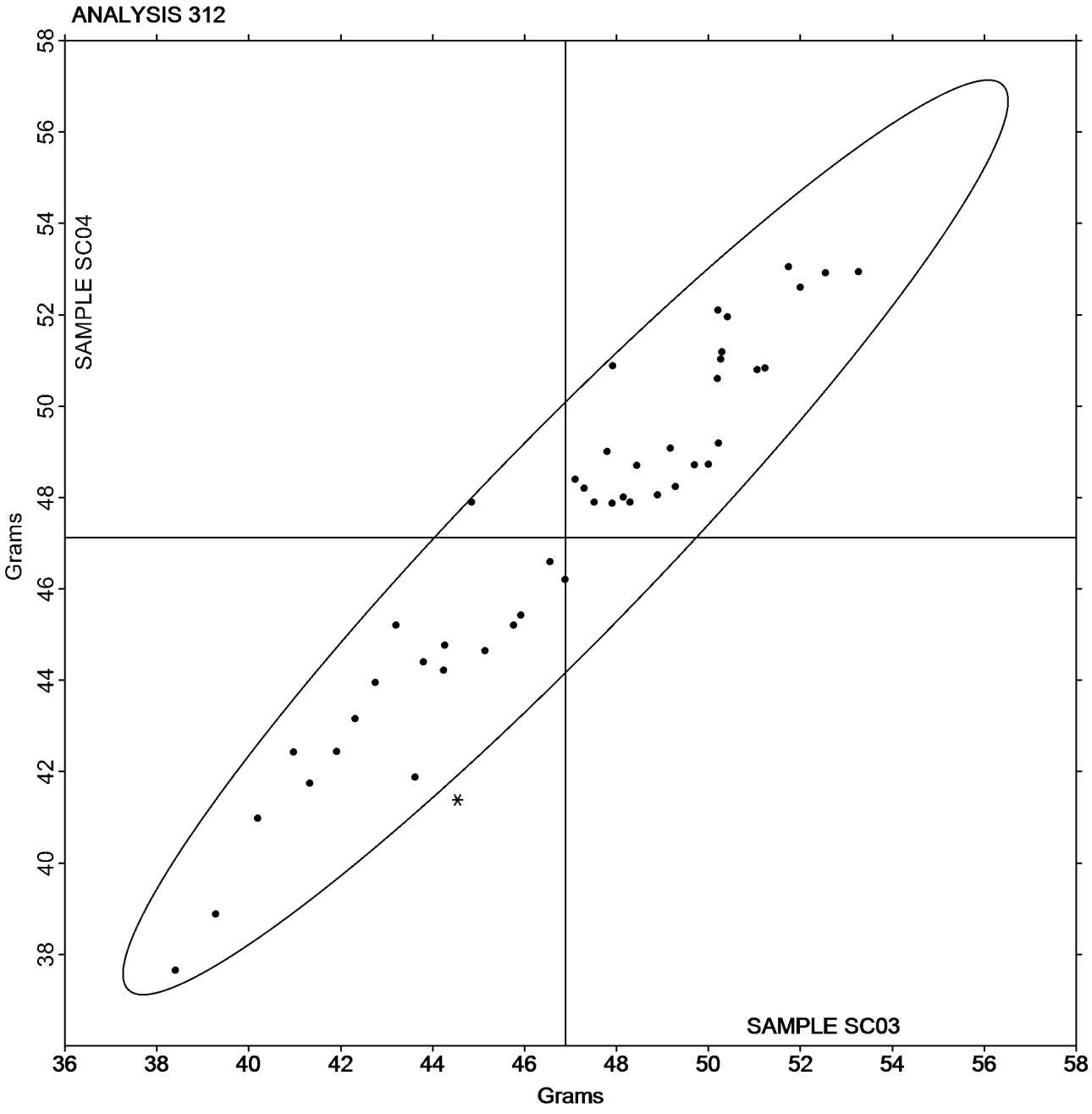
DUUX49 (X) - Extreme Data.

PVR829 (X) - Extreme Data.

FTQC3D (X) - Data for both samples are low. Possible Systematic Error.

Grand Mean Sample SC03 = 46.890 Grams

Grand Mean Sample SC04 = 47.127 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 314

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

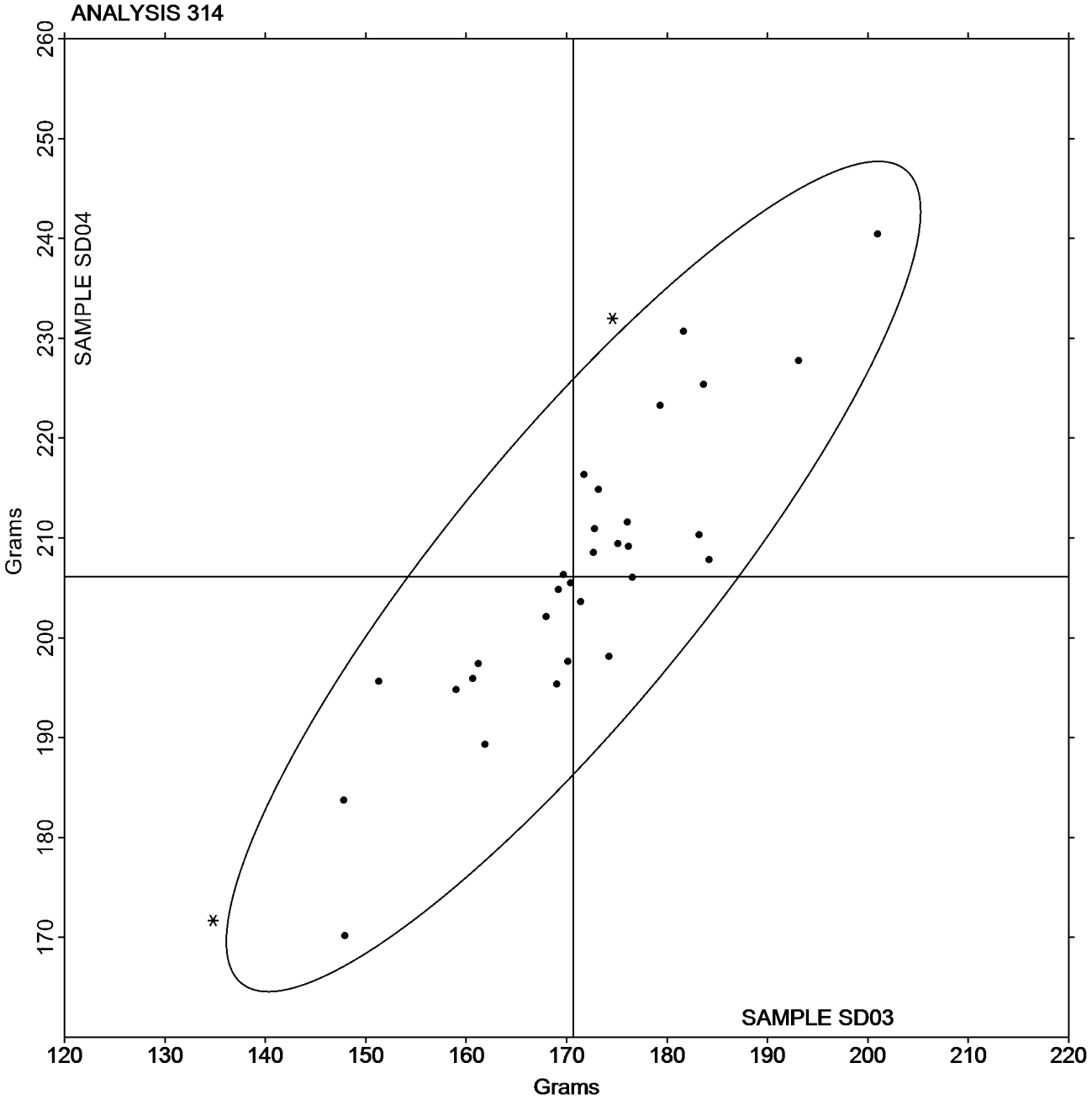
WebCode	Data Flag	Sample SD03 Lab Mean	Sample SD03 Diff from Grand Mean	Sample SD03 CPV	Sample SD04 Lab Mean	Sample SD04 Diff from Grand Mean	Sample SD04 CPV
2XDBGU		176.1	5.5	0.41	209.1	3.0	0.19
4PDBDL		176.6	5.9	0.44	206.1	-0.1	-0.01
6L982P		183.6	12.9	0.98	225.4	19.2	1.21
6X6B6J		147.9	-22.8	-1.72	170.2	-36.0	-2.27
72J8BK		173.2	2.5	0.19	214.8	8.7	0.55
7XJWEK		175.1	4.4	0.34	209.4	3.3	0.21
8FU7VB		147.8	-22.9	-1.73	183.8	-22.4	-1.41
8LHDBH		179.3	8.6	0.65	223.3	17.1	1.08
APYUPL		181.7	11.0	0.83	230.7	24.6	1.55
C84DAE		176.0	5.4	0.41	211.6	5.4	0.34
C9YWCF		193.1	22.4	1.70	227.8	21.6	1.36
CP34F3		171.4	0.7	0.05	203.6	-2.5	-0.16
CXZ2DK		184.2	13.5	1.03	207.8	1.7	0.10
HPL4B9		170.4	-0.2	-0.02	205.5	-0.6	-0.04
JAQX7Q		159.0	-11.7	-0.88	194.8	-11.3	-0.71
L6LCHX		169.0	-1.6	-0.12	195.4	-10.8	-0.68
L9QZZ9	*	134.8	-35.9	-2.72	171.7	-34.4	-2.17
MM3D2L		201.0	30.3	2.30	240.4	34.3	2.16
NZ6QMV		168.0	-2.7	-0.21	202.1	-4.0	-0.25
Q4EQWT		170.1	-0.5	-0.04	197.7	-8.5	-0.53
QK6ZTQ		151.3	-19.4	-1.47	195.6	-10.5	-0.66
RKGA33		183.2	12.5	0.95	210.3	4.2	0.26
RRFCA2		174.2	3.5	0.27	198.1	-8.0	-0.51
RRXREP		171.8	1.1	0.08	216.4	10.2	0.64
TCJEMW		172.8	2.1	0.16	210.9	4.8	0.30
ULPGL2	*	174.6	3.9	0.30	232.0	25.8	1.63
VQWLGY		169.2	-1.5	-0.11	204.8	-1.3	-0.08
WLYV2U		160.7	-10.0	-0.76	195.9	-10.2	-0.64
XWAGAX		161.2	-9.5	-0.72	197.4	-8.7	-0.55
YC472N		172.7	2.0	0.15	208.5	2.4	0.15
YDZGZX		161.9	-8.8	-0.67	189.3	-16.8	-1.06
ZNAG7P		169.7	-1.0	-0.07	206.3	0.2	0.01

Summary Statistics	Sample SD03	Sample SD04
Grand Means	170.68 Grams	206.14 Grams
Stnd Dev Btwn Labs	13.20 Grams	15.88 Grams

Statistics based on 32 of 32 reporting participants.

Grand Mean Sample SD03 = 170.68 Grams

Grand Mean Sample SD04 = 206.14 Grams



Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF03 Lab Mean	Sample SF03 Diff from Grand Mean	Sample SF03 CPV	Sample SF04 Lab Mean	Sample SF04 Diff from Grand Mean	Sample SF04 CPV	Instr Code
2UHP4T		4.337	-0.041	-0.14	4.237	-0.116	-0.37	TF
2XDBGU		4.303	-0.074	-0.25	4.199	-0.154	-0.50	LH
2Y94L9		4.610	0.233	0.79	4.550	0.197	0.63	LA
3EVWTQ		4.440	0.063	0.21	4.488	0.135	0.43	TV
3KM73P		5.035	0.658	2.24	5.091	0.738	2.38	LH
4HUAVM		4.655	0.278	0.95	4.672	0.319	1.03	LI
6FJPKR		4.843	0.466	1.59	4.812	0.459	1.48	LJ
7NU9JH		3.938	-0.439	-1.50	3.832	-0.521	-1.68	ID
8KQW2M		3.979	-0.398	-1.36	4.046	-0.307	-0.99	TF
9A3THA		4.200	-0.177	-0.60	4.150	-0.203	-0.65	LH
A4TUNV		4.893	0.516	1.76	5.011	0.657	2.12	XX
ADYREJ		3.996	-0.381	-1.30	3.879	-0.474	-1.53	IN
C2XKFH		4.189	-0.188	-0.64	4.215	-0.138	-0.44	ID
CJGGVC		4.344	-0.033	-0.11	4.201	-0.152	-0.49	LH
CQHVGD		4.119	-0.258	-0.88	4.302	-0.051	-0.17	LH
CYUPWF		4.459	0.082	0.28	4.531	0.177	0.57	TC
DD9ZVA		4.105	-0.272	-0.93	4.027	-0.326	-1.05	LI
DQVM89		4.284	-0.093	-0.32	4.249	-0.104	-0.34	IN
DUUX49		4.175	-0.202	-0.69	4.249	-0.104	-0.34	TF
E4F9M8		4.541	0.164	0.56	4.417	0.063	0.20	TJ
ECUVWC		4.079	-0.298	-1.02	4.023	-0.330	-1.06	RE
FTQC3D		4.544	0.167	0.57	4.381	0.028	0.09	TP
GYF7JB		4.412	0.035	0.12	4.303	-0.050	-0.16	LF
H7Y63C		4.131	-0.246	-0.84	4.040	-0.314	-1.01	TB
HE8BKD		4.832	0.455	1.55	4.701	0.348	1.12	LC
J3NQP3	X	2.658	-1.719	-5.86	2.865	-1.488	-4.79	VM
JCU287		4.313	-0.065	-0.22	4.311	-0.042	-0.14	TO
JH3K7Y		4.383	0.006	0.02	4.158	-0.196	-0.63	TO
KUDP42		4.057	-0.320	-1.09	4.070	-0.284	-0.91	TR
LKKN9A		4.158	-0.220	-0.75	4.172	-0.181	-0.58	LX
LX76T2		4.678	0.301	1.03	4.710	0.357	1.15	TV
MGVEGZ		4.683	0.306	1.04	4.681	0.328	1.06	TJ
N6WX66		4.113	-0.264	-0.90	4.076	-0.277	-0.89	LX
PDAW82		4.695	0.318	1.08	4.642	0.288	0.93	TF
PVR829		4.131	-0.246	-0.84	4.027	-0.326	-1.05	TJ
QPF7C3		4.520	0.143	0.49	4.326	-0.028	-0.09	TO
RDG6F6		4.096	-0.282	-0.96	3.914	-0.440	-1.42	FP
ULPGL2		4.392	0.015	0.05	4.334	-0.019	-0.06	LI
UR9CDC		4.629	0.252	0.86	4.594	0.240	0.77	LE
URVC62		4.480	0.103	0.35	4.537	0.183	0.59	LB

Paper & Paperboard Interlaboratory Testing Program

Analysis 325

Tensile Breaking Strength - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF03 Lab Mean	Sample SF03 Diff from Grand Mean	Sample SF03 CPV	Sample SF04 Lab Mean	Sample SF04 Diff from Grand Mean	Sample SF04 CPV	Instr Code
WY3TRR		4.893	0.516	1.76	5.001	0.648	2.09	LB
X6AJUX		4.800	0.423	1.44	4.720	0.367	1.18	LB
YAWN3T		4.216	-0.161	-0.55	4.258	-0.095	-0.31	LE
YDZGZX		4.467	0.090	0.31	4.661	0.308	0.99	TO
YHQTVU	X	4.335	-0.042	-0.14	4.732	0.379	1.22	LE
YJ7PCE	*	3.796	-0.581	-1.98	3.958	-0.395	-1.27	TO
YM47MN		4.679	0.302	1.03	4.700	0.346	1.12	TO
Z2262P		3.864	-0.513	-1.75	3.843	-0.510	-1.64	LE
Z444CH		4.162	-0.215	-0.73	4.279	-0.074	-0.24	TB
Z8J789		4.319	-0.058	-0.20	4.358	0.005	0.01	XX
ZJZFPT		4.384	0.007	0.02	4.245	-0.108	-0.35	FP
ZRBHAT		4.507	0.130	0.44	4.484	0.131	0.42	LI
ZX3U6P	X	4.427	0.050	0.17	3.890	-0.464	-1.49	VM

Summary Statistics	Sample SF03	Sample SF04
Grand Means	4.38 kN/m	4.35 kN/m
Stnd Dev Btwn Labs	0.29 kN/m	0.31 kN/m

Statistics based on 50 of 53 reporting participants.

Comments on Assigned Data Flags for Test #325

ZX3U6P (X) - Inconsistent in testing between samples.

YHQTVU (X) - Inconsistent in testing between samples.

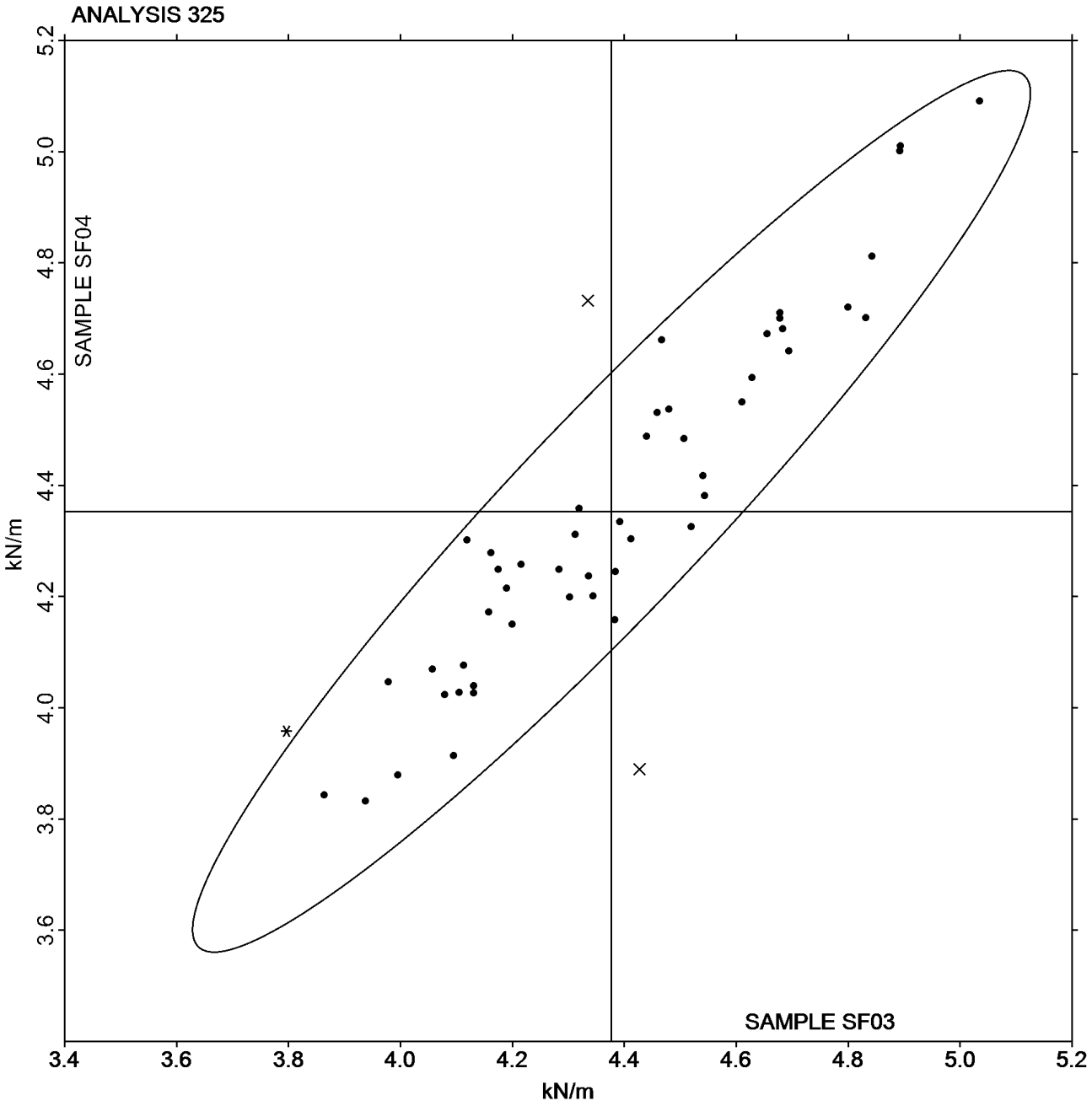
J3NQP3 (X) - Data for both samples are low. Possible Systematic Error. Inconsistent within the determinations of sample SF04.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IN	Instron 3340 series	LA	L & W Tensile - Autoline 300
LB	L & W Tensile - Autoline 400	LC	L & W Tensile - Autoline 600
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
LJ	L & W Tensile Tester SE 063	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)	TR	Testometric 220D
TV	Thwing-Albert Vantage NX	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF03 = 4.3771 kN/m

Grand Mean Sample SF04 = 4.3533 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF03 Lab Mean	Sample SF03 Diff from Grand Mean	Sample SF03 CPV	Sample SF04 Lab Mean	Sample SF04 Diff from Grand Mean	Sample SF04 CPV	Instr Code
2UHP4T		50.66	5.45	0.96	49.19	4.22	0.77	TF
2XDBGU		46.85	1.64	0.29	47.15	2.18	0.40	LH
2Y94L9		53.56	8.35	1.47	50.28	5.31	0.97	LA
3EVWTQ		49.89	4.68	0.82	53.80	8.82	1.61	TV
3KM73P		42.99	-2.22	-0.39	44.67	-0.30	-0.06	LH
4HUAVM		36.76	-8.45	-1.48	37.65	-7.32	-1.33	LX
6FJPKR		41.66	-3.55	-0.62	39.35	-5.62	-1.02	LJ
7NU9JH		48.69	3.47	0.61	44.59	-0.39	-0.07	ID
9A3THA		46.42	1.21	0.21	45.43	0.46	0.08	LH
C2XKFH		47.24	2.02	0.36	47.93	2.96	0.54	ID
CJGGVC		41.60	-3.61	-0.63	39.36	-5.62	-1.02	LH
CQHVGD		39.48	-5.73	-1.01	44.70	-0.27	-0.05	LH
DD9ZVA		42.17	-3.04	-0.53	39.73	-5.25	-0.95	LI
DQVM89		44.43	-0.78	-0.14	41.88	-3.09	-0.56	IN
DUUX49	X	678.81	633.60	111.29	675.41	630.44	114.70	TF
E4F9M8		59.11	13.89	2.44	57.65	12.67	2.31	TQ
ECUVWC		43.63	-1.58	-0.28	41.21	-3.77	-0.69	RE
GYF7JB		52.19	6.98	1.23	51.73	6.76	1.23	LF
HE8BKD		50.74	5.53	0.97	47.65	2.67	0.49	LC
J3NQP3		36.38	-8.83	-1.55	40.84	-4.13	-0.75	VM
JCU287		43.83	-1.38	-0.24	42.89	-2.08	-0.38	TO
JH3K7Y		51.22	6.01	1.06	43.20	-1.78	-0.32	TO
LKKN9A		43.05	-2.16	-0.38	42.47	-2.51	-0.46	LX
LX76T2		44.55	-0.66	-0.12	47.46	2.48	0.45	TV
N6WX66		46.46	1.25	0.22	44.77	-0.21	-0.04	LX
PDAW82		44.31	-0.91	-0.16	41.45	-3.53	-0.64	TF
PVR829		49.84	4.63	0.81	43.26	-1.71	-0.31	TJ
QPF7C3		50.64	5.43	0.95	46.70	1.73	0.31	TO
ULPGL2		45.87	0.66	0.12	44.10	-0.87	-0.16	LI
URVC62		33.45	-11.76	-2.07	32.00	-12.97	-2.36	LB
WY3TRR		44.14	-1.07	-0.19	47.08	2.10	0.38	LB
X6AJUX		33.22	-12.00	-2.11	33.76	-11.22	-2.04	LB
YAWN3T		44.38	-0.83	-0.15	44.81	-0.16	-0.03	LE
YDZGZX	*	47.15	1.94	0.34	56.26	11.28	2.05	TO
YHQTVU		45.63	0.42	0.07	47.30	2.33	0.42	LE
YJ7PCE		36.32	-8.89	-1.56	42.61	-2.36	-0.43	TO
YM47MN		39.97	-5.24	-0.92	39.58	-5.40	-0.98	XX
Z444CH		44.66	-0.55	-0.10	48.51	3.54	0.64	TB
Z8J789		40.25	-4.96	-0.87	41.21	-3.76	-0.68	XX
ZJZFPT		53.45	8.24	1.45	52.45	7.48	1.36	FP

Paper & Paperboard Interlaboratory Testing Program

Analysis 327

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF03 Lab Mean	Sample SF03 Diff from Grand Mean	Sample SF03 CPV	Sample SF04 Lab Mean	Sample SF04 Diff from Grand Mean	Sample SF04 CPV	Instr Code
ZRBHAT		51.60	6.39	1.12	52.34	7.37	1.34	LI

Summary Statistics	Sample SF03	Sample SF04
Grand Means	45.21 Joules/sq m	44.97 Joules/sq m
Stnd Dev Btwn Labs	5.69 Joules/sq m	5.50 Joules/sq m

Statistics based on 40 of 41 reporting participants.

Comments on Assigned Data Flags for Test #327

DUUX49 (X) - Extreme Data.

Analysis Notes:

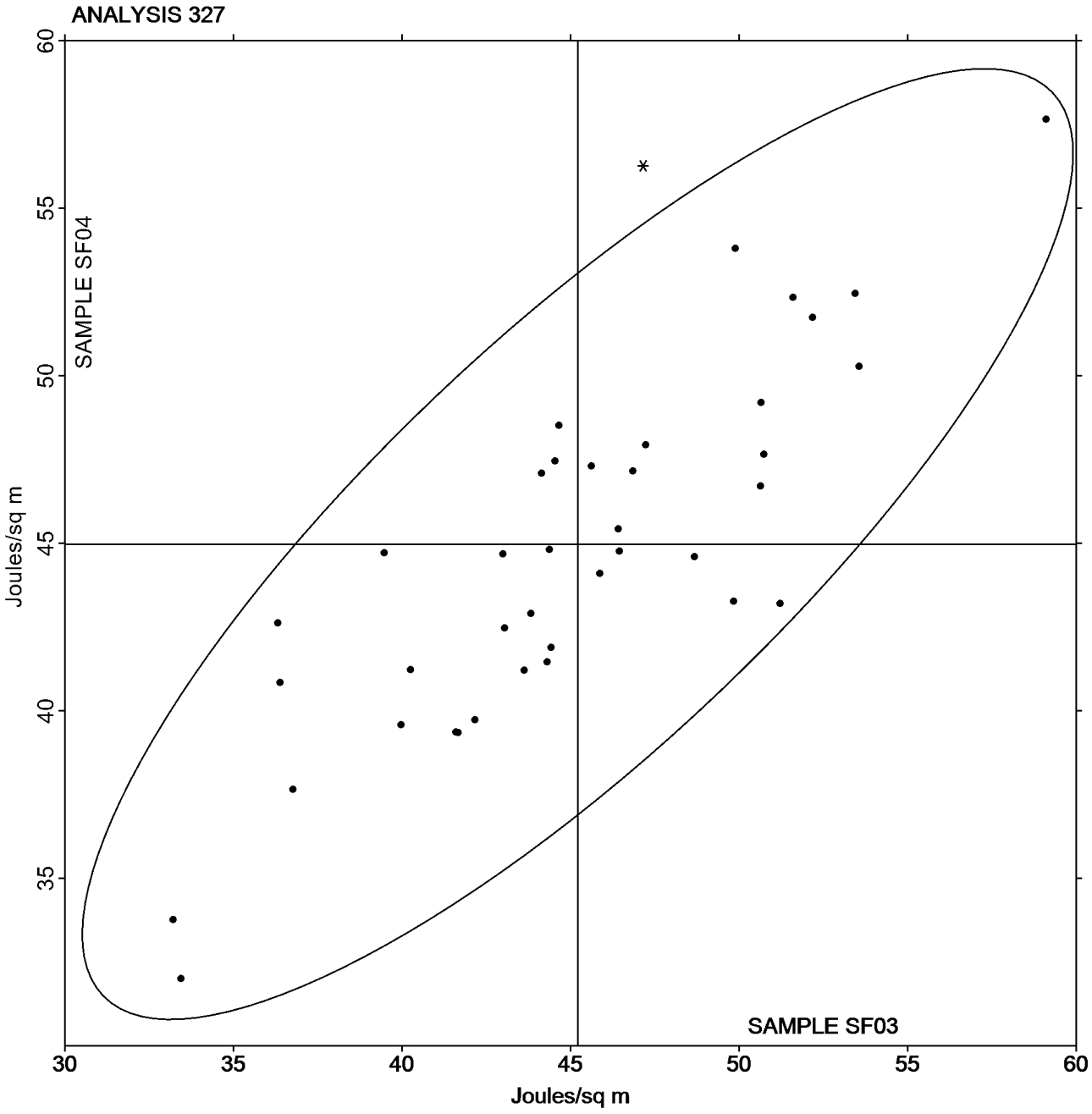
3KM73P - Data appears to be transposed between Analysis 327 (T.E.A.) and Analysis 328 (% Elongation). CTS will not correct going forward.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IN	Instron 3340 series	LA	L & W Tensile - Autoline 300
LB	L & W Tensile - Autoline 400	LC	L & W Tensile - Autoline 600
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
LJ	L & W Tensile Tester SE 063	LX	L & W (model not specified)
RE	Regmed	TB	Thwing-Albert EJA/1000
TF	Thwing-Albert EJA Vantage-1	TJ	Thwing-Albert QC II-XS
TO	Thwing-Albert QC-1000	TQ	Thwing-Albert QC 3A
TV	Thwing-Albert Vantage NX	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab		

Grand Mean Sample SF03 = 45.211 Joules/sq m

Grand Mean Sample SF04 = 44.975 Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF03 Lab Mean	Sample SF03 Diff from Grand Mean	Sample SF03 CPV	Sample SF04 Lab Mean	Sample SF04 Diff from Grand Mean	Sample SF04 CPV	Instr Code
2UHP4T		2.019	0.350	1.59	2.024	0.373	1.80	TF
2XDBGU		1.620	-0.048	-0.22	1.611	-0.040	-0.19	LH
2Y94L9		1.590	-0.078	-0.35	1.540	-0.111	-0.54	LA
3EVWTQ		1.996	0.328	1.49	2.054	0.403	1.95	TV
3KM73P		1.371	-0.297	-1.35	1.405	-0.246	-1.19	LH
4HUAVM		1.304	-0.364	-1.65	1.320	-0.331	-1.60	LI
6FJPKR		1.384	-0.284	-1.29	1.326	-0.325	-1.57	LJ
7NU9JH		1.894	0.225	1.02	1.790	0.138	0.67	ID
8KQW2M		1.496	-0.172	-0.78	1.532	-0.119	-0.58	TF
9A3THA		1.660	-0.008	-0.04	1.660	0.009	0.04	LH
ADYREJ		1.753	0.085	0.38	1.672	0.021	0.10	IN
C2XKFH	X	23.923	22.254	100.84	24.069	22.418	108.57	ID
CJGGVC		1.484	-0.184	-0.83	1.456	-0.195	-0.94	LH
CQHVGD		1.484	-0.184	-0.83	1.598	-0.053	-0.26	LH
DD9ZVA		1.571	-0.097	-0.44	1.513	-0.138	-0.67	LI
DQVM89		1.783	0.115	0.52	1.683	0.032	0.15	IN
DUUX49	*	2.121	0.452	2.05	2.177	0.526	2.55	MR
E4F9M8		1.730	0.062	0.28	1.710	0.059	0.29	TJ
ECUVWC		1.751	0.083	0.37	1.696	0.045	0.22	RE
GYF7JB		1.791	0.123	0.56	1.734	0.083	0.40	LF
H7Y63C		1.546	-0.122	-0.55	1.464	-0.187	-0.91	TF
HE8BKD		1.627	-0.041	-0.19	1.598	-0.053	-0.26	LC
J3NQP3		1.430	-0.238	-1.08	1.526	-0.125	-0.61	VM
JCU287		1.583	-0.085	-0.39	1.550	-0.101	-0.49	TO
JH3K7Y		2.049	0.381	1.73	1.926	0.275	1.33	TO
LKKN9A		1.591	-0.077	-0.35	1.567	-0.084	-0.41	LX
LX76T2		1.537	-0.131	-0.59	1.615	-0.036	-0.17	TV
N6WX66		1.719	0.051	0.23	1.637	-0.014	-0.07	LX
PDAW82		1.475	-0.193	-0.88	1.413	-0.238	-1.15	TF
PVR829	*	2.062	0.394	1.78	1.858	0.207	1.00	TJ
QPF7C3		1.813	0.145	0.66	1.757	0.106	0.51	TO
ULPGL2		1.636	-0.032	-0.15	1.597	-0.054	-0.26	LI
URVC62		1.429	-0.239	-1.08	1.371	-0.280	-1.36	LB
WY3TRR		1.369	-0.299	-1.36	1.445	-0.206	-1.00	LB
X6AJUX		1.390	-0.278	-1.26	1.430	-0.221	-1.07	LB
YAWN3T		1.605	-0.063	-0.29	1.607	-0.044	-0.21	LE
YDZGZX		2.115	0.447	2.02	1.960	0.309	1.50	TO
YHQTVU		1.634	-0.034	-0.15	1.564	-0.087	-0.42	LE
YJ7PCE		1.628	-0.040	-0.18	1.803	0.152	0.74	TO
YM47MN		2.061	0.393	1.78	2.063	0.412	1.99	TO

Paper & Paperboard Interlaboratory Testing Program

Analysis 328

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SF03 Lab Mean	Sample SF03 Diff from Grand Mean	Sample SF03 CPV	Sample SF04 Lab Mean	Sample SF04 Diff from Grand Mean	Sample SF04 CPV	Instr Code
Z444CH		1.708	0.040	0.18	1.806	0.155	0.75	TB
Z8J789		1.638	-0.030	-0.14	1.482	-0.169	-0.82	XX
ZJZFPT		1.867	0.199	0.90	1.898	0.247	1.20	FP
ZRBHAT		1.648	-0.020	-0.09	1.682	0.031	0.15	LI
ZX3U6P		1.440	-0.228	-1.03	1.530	-0.121	-0.59	VM

Summary Statistics	Sample SF03	Sample SF04
Grand Means	1.67 Percent	1.65 Percent
Stnd Dev Btwn Labs	0.22 Percent	0.21 Percent

Statistics based on 44 of 45 reporting participants.

Comments on Assigned Data Flags for Test #328

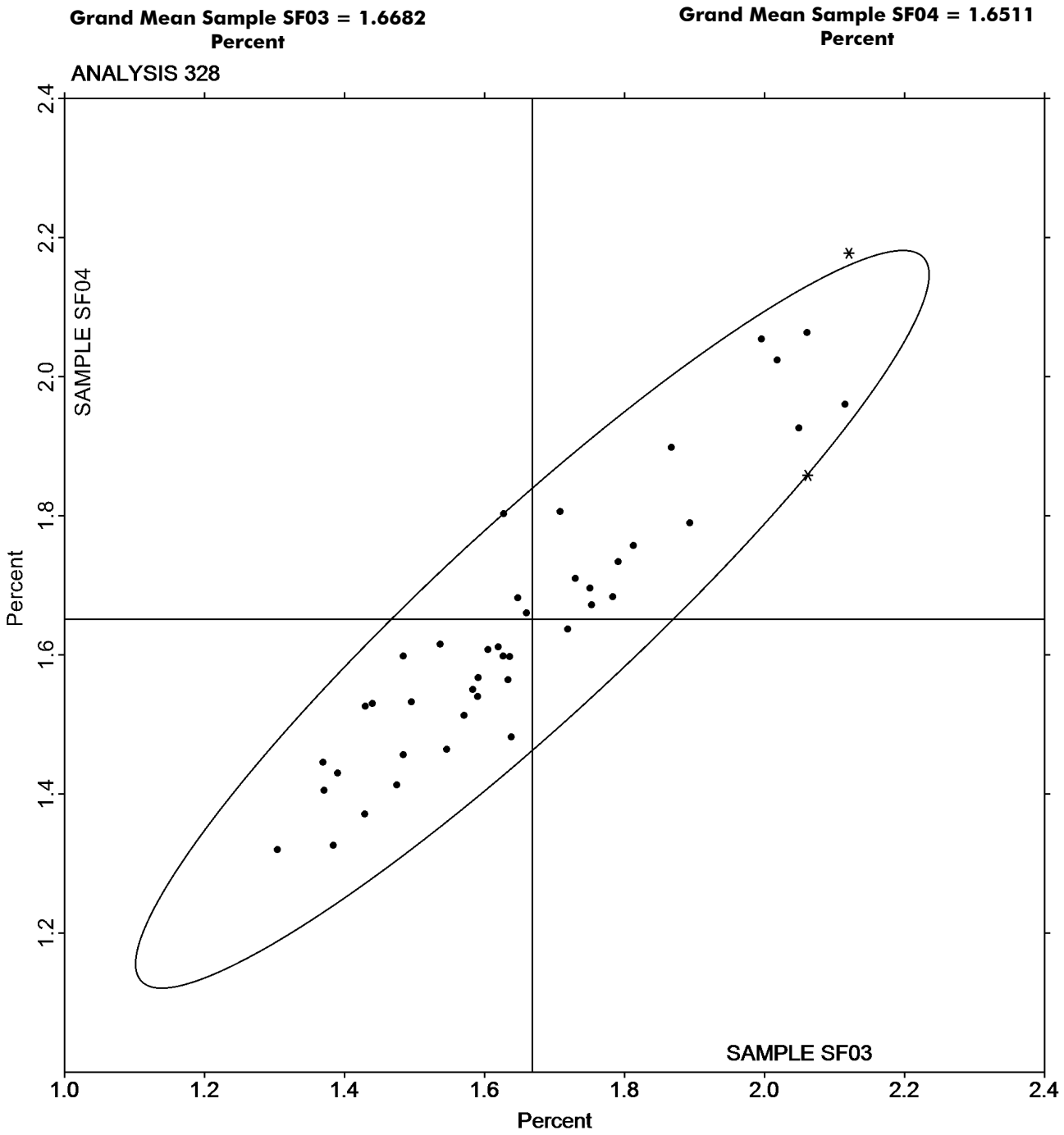
C2XKFH (X) - Extreme Data.

Analysis Notes:

3KM73P - Data appears to be transposed between Analysis 327 (T.E.A.) and Analysis 328 (% Elongation). CTS will not correct going forward.

Key to Instrument Codes Reported by Participants

FP	Frank PTI Universal Tester TS	ID	Instron 4200 Series
IN	Instron 3340 Series	LA	L & W Tensile - Autoline 300
LB	L & W Tensile - Autoline 400	LC	L & W Tensile - Autoline 600
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
LJ	L & W Tensile Tester SE 063	LX	L & W (model not specified)
MR	MTS Alliance RT series	RE	Regmed
TB	Thwing-Albert EJA/1000	TF	Thwing-Albert EJA Vantage-1
TJ	Thwing-Albert QC II-XS	TO	Thwing-Albert QC-1000
TV	Thwing-Albert Vantage NX	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 SE03 Lab Mean	Sample SE03 Diff from Grand Mean	Sample SE03 CPV	Sample SE04 Lab Mean	Sample SE04 Diff from Grand Mean	Sample SE04 CPV	Instr Code
2XDBGU		7.813	-0.106	-0.17	14.28	-0.34	-0.36	LH
4PDBDL		7.645	-0.274	-0.44	14.17	-0.45	-0.48	LE
6Q296N		8.656	0.737	1.19	15.75	1.13	1.20	LE
6X6B6J		8.797	0.878	1.42	15.72	1.10	1.17	LE
72J8BK		7.119	-0.799	-1.29	13.67	-0.95	-1.01	TK
7XJWEK		7.590	-0.329	-0.53	14.19	-0.43	-0.46	LE
82Y9QE		8.236	0.318	0.51	14.59	-0.03	-0.03	TH
8LHDBH		7.879	-0.040	-0.06	14.42	-0.20	-0.21	ID
92CXBJ	*	8.136	0.217	0.35	15.86	1.24	1.32	DM
9RN86E	X	10.070	2.151	3.48	15.49	0.87	0.93	LA
AVHMUD		8.719	0.800	1.30	16.05	1.43	1.52	LI
C84DAE		7.744	-0.174	-0.28	14.25	-0.36	-0.39	IF
C9YWCF		6.537	-1.381	-2.24	12.66	-1.96	-2.09	LE
CP34F3		7.346	-0.572	-0.93	13.15	-1.47	-1.56	LA
CXYXD2	X	6.959	-0.960	-1.55	11.87	-2.75	-2.92	MA
CXZ2DK		7.156	-0.763	-1.24	13.76	-0.86	-0.92	LH
EZXP3D	X	7.723	-0.196	-0.32	15.80	1.18	1.25	IK
HE8BKD		8.733	0.814	1.32	16.02	1.40	1.49	LC
HPL4B9		7.625	-0.294	-0.48	14.01	-0.61	-0.65	LE
J2VN69		7.544	-0.374	-0.61	14.25	-0.37	-0.39	TB
JAQX7Q		8.475	0.557	0.90	15.66	1.04	1.11	TH
JDR7NZ		7.252	-0.667	-1.08	13.64	-0.98	-1.04	IM
L6LCHX		7.933	0.015	0.02	14.52	-0.10	-0.11	TO
L7K8Y3		9.463	1.544	2.50	16.79	2.17	2.31	LA
LX9QR2		8.984	1.065	1.73	15.90	1.28	1.37	TH
MKFNNZ		8.511	0.593	0.96	15.13	0.51	0.54	TH
MM3D2L		8.459	0.540	0.87	16.06	1.44	1.53	LA
MWCAWW		7.503	-0.416	-0.67	13.79	-0.83	-0.88	XX
N2D6U3		7.848	-0.070	-0.11	14.05	-0.57	-0.61	IR
NZ6QMV		7.734	-0.185	-0.30	14.21	-0.41	-0.44	TR
PDAW82		8.058	0.139	0.23	15.00	0.38	0.40	TO
PMTCRV		8.154	0.235	0.38	15.01	0.39	0.42	LW
Q4EQWT		7.658	-0.261	-0.42	14.10	-0.52	-0.55	LW
Q9PY24		7.919	0.000	0.00	14.35	-0.27	-0.29	XX
QK6ZTQ		8.000	0.081	0.13	15.60	0.98	1.04	LE
RWBQR4		7.410	-0.509	-0.82	14.14	-0.48	-0.51	TT
ULPGL2		8.115	0.196	0.32	15.10	0.48	0.52	LW
VQWLGY		8.844	0.926	1.50	15.37	0.76	0.80	IF
WLYV2U		6.979	-0.940	-1.52	13.31	-1.31	-1.40	IF
WYPLLX		7.908	-0.011	-0.02	14.20	-0.42	-0.45	TB

Paper & Paperboard Interlaboratory Testing Program

Analysis 330

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE03 Lab Mean	Sample SE03 Diff from Grand Mean	Sample SE03 CPV	Sample SE04 Lab Mean	Sample SE04 Diff from Grand Mean	Sample SE04 CPV	Instr Code
XWAGAX		7.372	-0.547	-0.89	13.93	-0.69	-0.73	TX
YC472N		7.702	-0.217	-0.35	14.10	-0.52	-0.56	IM
ZNAG7P		7.190	-0.729	-1.18	14.02	-0.60	-0.64	TB

Summary Statistics	Sample SE03	Sample SE04
Grand Means	7.92 kN/m	14.62 kN/m
Stnd Dev Btwn Labs	0.62 kN/m	0.94 kN/m

Statistics based on 40 of 43 reporting participants.

Comments on Assigned Data Flags for Test #330

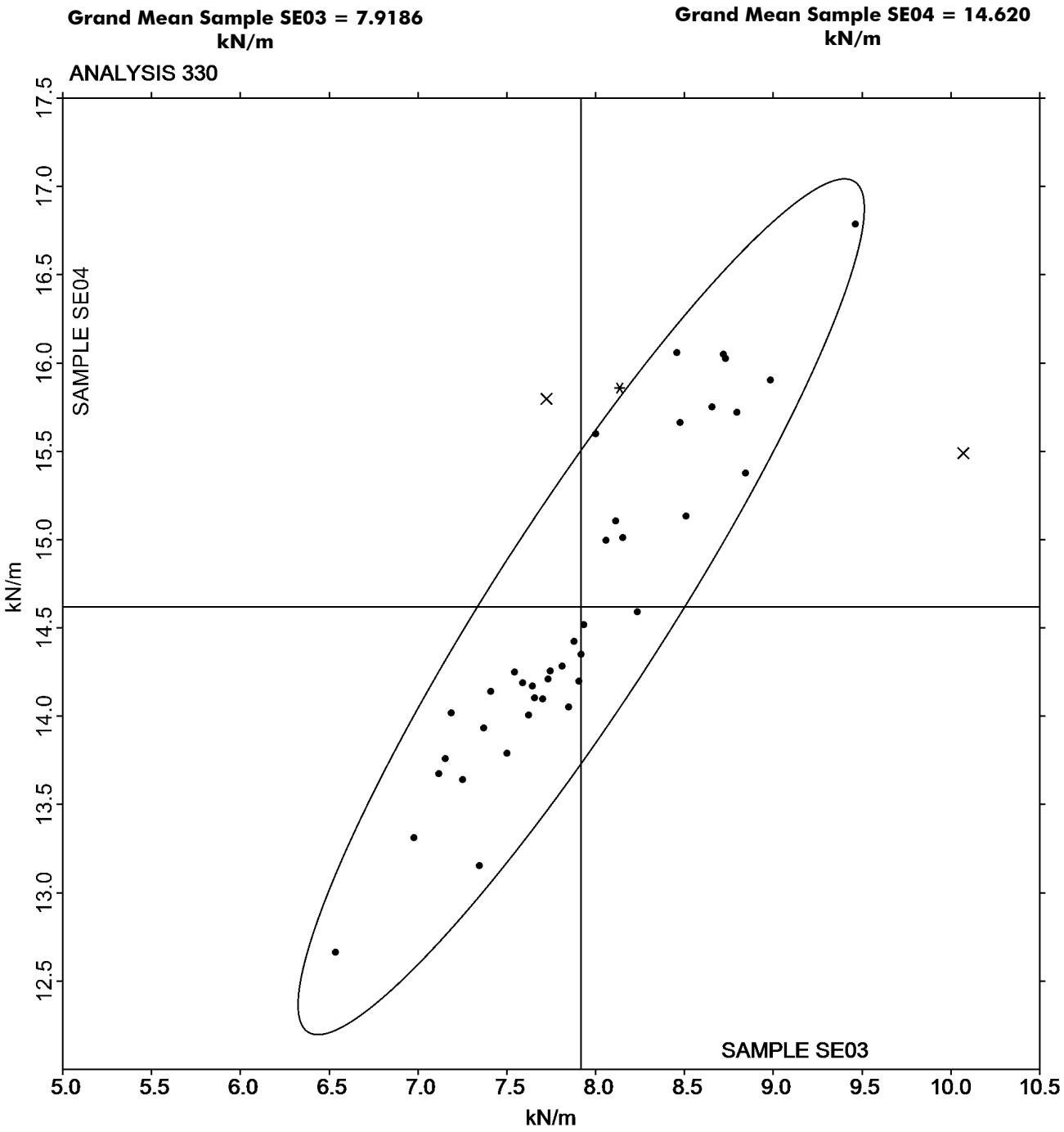
9RN86E (X) - Data for sample SE03 are high.

EZXP3D (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample SE03.

CXYXD2 (X) - Data for sample SE04 are low.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	ID	Instron 4200 Series
IF	Instron 3340 Series	IK	Instron 4400 Series
IM	Instron 5500 Series	IR	Instron 5900 Series
LA	L & W Autoline	LC	L & W Tensile - Autoline 600
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LI	LLoyds Instruments	LW	L & W Tensile Tester SE062
MA	Mark-10 ESM301L	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		



Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample SE03 Lab Mean	Sample SE03 Diff from Grand Mean	Sample SE03 CPV	Sample SE04 Lab Mean	Sample SE04 Diff from Grand Mean	Sample SE04 CPV	Instr Code
2XDBGU		79.67	0.52	0.07	201.9	1.5	0.10	LH
4PDBDL		71.13	-8.02	-1.04	192.5	-7.8	-0.53	LE
6Q296N		96.78	17.63	2.30	233.8	33.5	2.28	LE
6X6B6J		73.93	-5.22	-0.68	183.3	-17.0	-1.16	LE
72J8BK		75.63	-3.53	-0.46	212.3	11.9	0.81	TK
7XJWEK		75.58	-3.57	-0.47	194.5	-5.8	-0.39	LE
82Y9QE		86.67	7.52	0.98	208.7	8.4	0.57	TH
92CXBJ	X	92.27	13.12	1.71	271.4	71.1	4.84	DM
9RN86E		77.92	-1.24	-0.16	193.7	-6.6	-0.45	LA
C84DAE		78.12	-1.03	-0.13	207.2	6.9	0.47	IF
C9YWCF		71.87	-7.28	-0.95	196.7	-3.6	-0.25	LE
CP34F3	*	92.38	13.23	1.72	191.0	-9.3	-0.63	LA
CXZ2DK		74.14	-5.02	-0.65	183.2	-17.2	-1.17	LH
EZXP3D	*	57.62	-21.53	-2.80	184.5	-15.8	-1.08	IF
HE8BKD		90.58	11.43	1.49	212.7	12.4	0.84	LC
HPL4B9		73.06	-6.10	-0.79	188.8	-11.5	-0.78	LE
J2VN69		82.31	3.16	0.41	223.0	22.7	1.54	TB
JAQX7Q		80.95	1.80	0.23	214.5	14.2	0.96	TH
JDR7NZ		78.05	-1.10	-0.14	200.1	-0.2	-0.02	IM
L6LCHX		76.18	-2.97	-0.39	200.9	0.5	0.04	TO
L7K8Y3		93.66	14.51	1.89	206.1	5.7	0.39	LA
MKFNNZ		80.12	0.97	0.13	198.2	-2.1	-0.15	TH
MM3D2L		86.38	7.22	0.94	214.5	14.2	0.97	LA
MWCAWW		78.08	-1.07	-0.14	203.5	3.1	0.21	XX
N2D6U3		79.87	0.72	0.09	194.0	-6.3	-0.43	IR
NZ6QMV		79.72	0.57	0.07	185.8	-14.6	-0.99	TR
PDAW82		77.49	-1.66	-0.22	213.7	13.3	0.91	TO
PMTCRV		71.53	-7.62	-0.99	188.4	-12.0	-0.81	LW
Q4EQWT		69.80	-9.36	-1.22	183.7	-16.7	-1.13	LW
Q9PY24		84.33	5.18	0.67	199.0	-1.3	-0.09	XX
QK6ZTQ		75.49	-3.66	-0.48	199.1	-1.3	-0.09	LE
RWBQR4		70.41	-8.75	-1.14	166.8	-33.5	-2.28	TT
ULPGL2		79.65	0.50	0.07	188.9	-11.4	-0.78	LW
VQWLGY		83.36	4.21	0.55	195.8	-4.5	-0.31	IN
WYPLLX		75.53	-3.62	-0.47	192.9	-7.4	-0.51	TB
XWAGAX		88.93	9.77	1.27	228.4	28.1	1.91	TX
YC472N		82.58	3.43	0.45	230.0	29.7	2.02	IM

Paper & Paperboard Interlaboratory Testing Program

Analysis 331

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

Summary Statistics	Sample SE03	Sample SE04
Grand Means	79.15 Joules/sq m	200.33 Joules/sq m
Stnd Dev Btwn Labs	7.68 Joules/sq m	14.70 Joules/sq m

Statistics based on 36 of 37 reporting participants.

Comments on Assigned Data Flags for Test #331

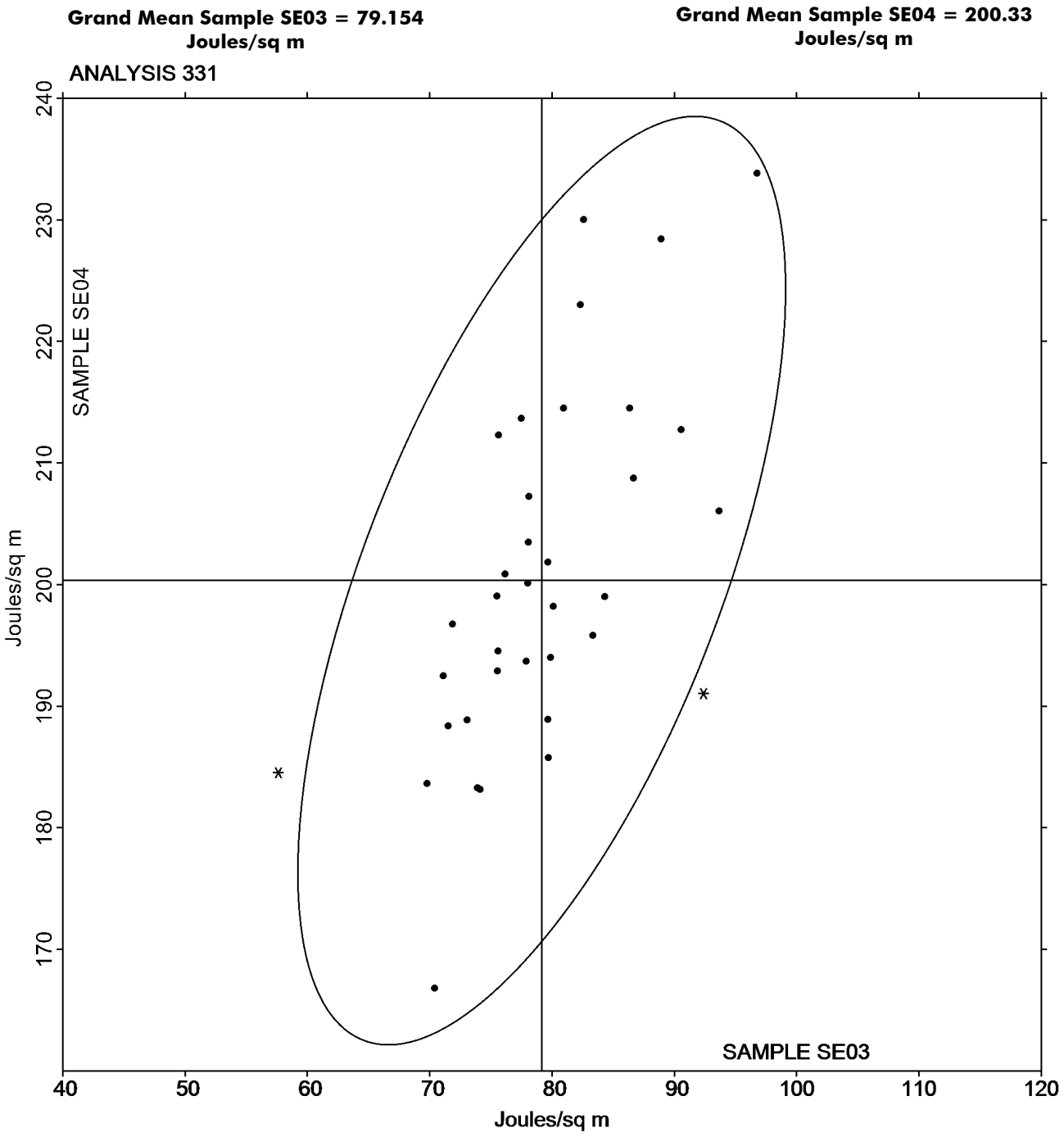
92CXBJ (X) - Data for sample SE04 are high.

Analysis Notes:

WYPLLX - Data appear to be reported as J/sq m, not ft-lb/sq ft as indicated on data entry form. CTS will not correct the Units going forward.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	IF	Instron 3340 Series
IM	Instron 5500 Series	IN	Instron 3360 Series
IR	Instron 5900 Series	LA	L & W Autoline
LC	L & W Tensile - Autoline 600	LE	L & W Tensile Tester 066
LH	L & W Alwetron TH1 (Horizontal) SE 060	LW	L & W Tensile Tester SE062
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



WebCode	Data Flag	Sample SE03 Lab Mean	Sample SE03 Diff from Grand Mean	Sample SE03 CPV	Sample SE04 Lab Mean	Sample SE04 Diff from Grand Mean	Sample SE04 CPV	Instr Code
2XDBGU		1.590	-0.006	-0.05	2.191	-0.005	-0.02	LH
4PDBDL		1.416	-0.180	-1.37	2.062	-0.134	-0.61	LE
6Q296N		1.702	0.106	0.80	2.281	0.085	0.39	LE
6X6B6J		1.342	-0.254	-1.94	1.826	-0.370	-1.69	LE
72J8BK		1.641	0.045	0.34	2.392	0.196	0.90	TK
7XJWEK		1.521	-0.075	-0.57	2.086	-0.110	-0.50	LE
82Y9QE		1.689	0.093	0.70	2.244	0.048	0.22	TH
8LHDBH		1.567	-0.029	-0.22	2.252	0.056	0.26	ID
92CXBJ		1.790	0.194	1.47	2.694	0.498	2.28	DM
9RN86E	X	2.559	0.963	7.32	3.167	0.971	4.44	LA
C84DAE		1.561	-0.035	-0.27	2.242	0.046	0.21	IF
C9YWCF		1.638	0.042	0.32	2.328	0.132	0.61	LE
CP34F3	X	2.022	0.426	3.24	2.487	0.291	1.33	LA
CXZ2DK		1.560	-0.036	-0.28	2.050	-0.146	-0.67	LH
EZXP3D		1.685	0.089	0.67	2.311	0.115	0.53	XX
HE8BKD		1.560	-0.036	-0.28	2.021	-0.175	-0.80	LC
HPL4B9		1.466	-0.130	-0.99	2.052	-0.144	-0.66	LE
J2VN69		1.704	0.108	0.82	2.434	0.238	1.09	TB
JAQX7Q		1.589	-0.007	-0.06	2.237	0.041	0.19	TH
JDR7NZ	*	1.933	0.337	2.56	2.598	0.402	1.84	IM
L6LCHX		1.623	0.027	0.20	2.265	0.069	0.32	TO
L7K8Y3		1.496	-0.100	-0.76	1.857	-0.339	-1.55	LA
MKFNNZ		1.540	-0.056	-0.43	2.150	-0.046	-0.21	TH
MM3D2L		1.514	-0.082	-0.63	1.926	-0.270	-1.23	LA
MWCAWW		1.673	0.077	0.58	2.344	0.148	0.68	XX
N2D6U3		1.559	-0.037	-0.28	2.109	-0.087	-0.40	IR
NZ6QMV		1.655	0.059	0.45	2.092	-0.104	-0.47	TR
PDAW82		1.783	0.187	1.42	2.296	0.100	0.46	TO
PMTCRV		1.416	-0.180	-1.37	2.006	-0.190	-0.87	LW
Q4EQWT		1.406	-0.190	-1.45	1.998	-0.198	-0.90	LW
Q9PY24		1.597	0.001	0.00	2.105	-0.091	-0.41	XX
QK6ZTQ		1.466	-0.130	-0.99	1.970	-0.226	-1.03	LE
RWBQR4		1.609	0.013	0.10	2.013	-0.183	-0.83	TT
ULPGL2		1.523	-0.073	-0.56	1.951	-0.245	-1.12	LW
VQWLGY		1.411	-0.186	-1.41	1.905	-0.290	-1.33	IN
WYPLLX		1.803	0.206	1.57	2.572	0.377	1.72	TB
XWAGAX		1.840	0.244	1.85	2.529	0.333	1.52	TX
YC472N		1.668	0.072	0.55	2.516	0.320	1.46	IM
ZNAG7P		1.532	-0.064	-0.49	2.331	0.135	0.62	TB

Paper & Paperboard Interlaboratory Testing Program

Analysis 332
Elongation to Break - Packaging Papers
TAPPI Official Test Method T494

Summary Statistics	Sample SE03	Sample SE04
Grand Means	1.60 Percent	2.20 Percent
Stnd Dev Btwn Labs	0.13 Percent	0.22 Percent

Statistics based on 37 of 39 reporting participants.

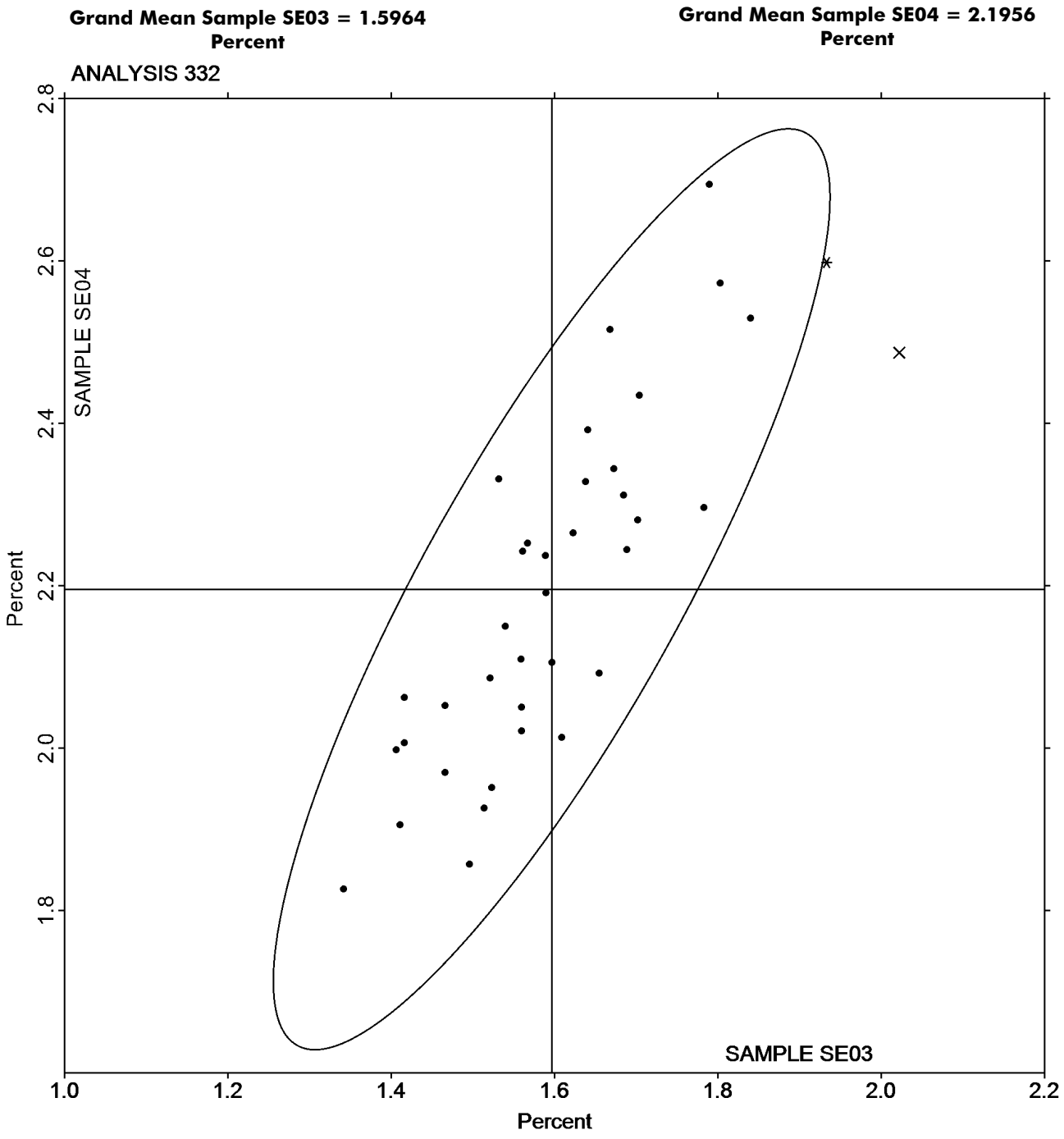
Comments on Assigned Data Flags for Test #332

9RN86E (X) - Extreme Data.

CP34F3 (X) - Data for sample SE03 are high. Inconsistent within the determinations of sample SE03.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	ID	Instron 4200 Series
IF	Instron 3340 Series	IM	Instron 5500 Series
IN	Instron 3360 Series	IR	Instron 5900 Series
LA	L & W Autoline 300	LC	L & W Tensile - Autoline 600
LE	L & W Tensile Tester 066	LH	L & W Alwetron TH1 (Horizontal) SE 060
LW	L & W Tensile Tester SE062	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		



Paper & Paperboard Interlaboratory Testing Program

Analysis 334

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

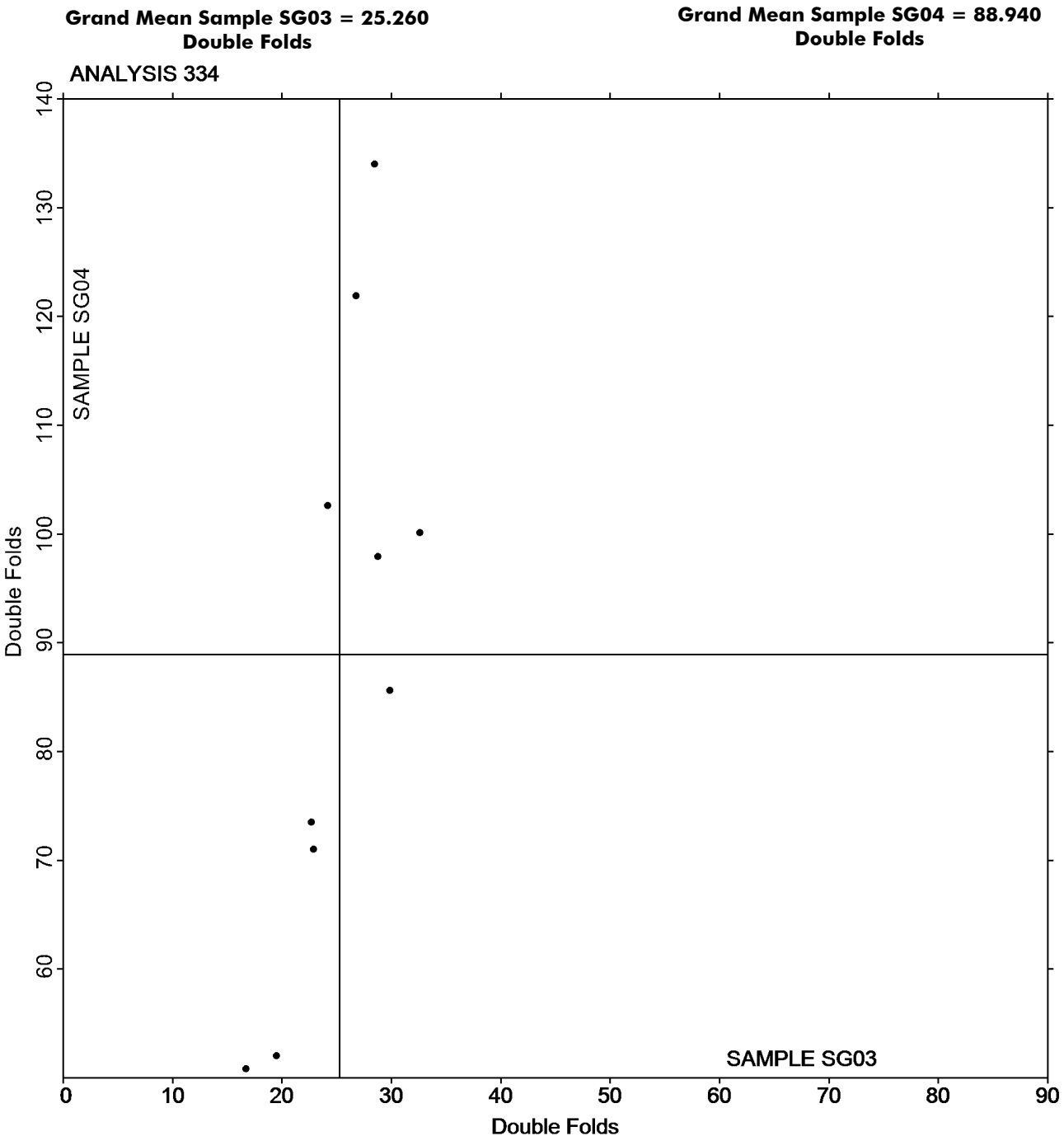
WebCode	Data Flag	Sample SG03 Lab Mean	Sample SG03 Diff from Grand Mean	Sample SG03 CPV	Sample SG04 Lab Mean	Sample SG04 Diff from Grand Mean	Sample SG04 CPV	Instr Code
82Y9QE		32.60	7.34	1.48	100.10	11.16	0.40	MT
8KQW2M		22.70	-2.56	-0.52	73.50	-15.44	-0.56	MT
C2XKFH		26.80	1.54	0.31	121.90	32.96	1.19	MT
DQVM89		22.90	-2.36	-0.48	71.00	-17.94	-0.65	MT
KBH7X8		28.50	3.24	0.65	134.00	45.06	1.63	XX
ULPGL2		24.20	-1.06	-0.21	102.60	13.66	0.49	MT
YC472N		28.80	3.54	0.72	97.90	8.96	0.32	MT
Z2262P		29.90	4.64	0.94	85.60	-3.34	-0.12	MT
ZNAG7P		16.70	-8.56	-1.73	50.80	-38.14	-1.38	MT
ZX3U6P		19.50	-5.76	-1.16	52.00	-36.94	-1.33	MT

Summary Statistics	Sample SG03	Sample SG04
Grand Means	25.26 Double Folds	88.94 Double Folds
Stnd Dev Btwn Labs	4.95 Double Folds	27.69 Double Folds

Statistics based on 10 of 10 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 SH03 Lab Mean	Sample SH03 Diff from Grand Mean	Sample SH03 CPV	Sample SH04 Lab Mean	Sample SH04 Diff from Grand Mean	Sample SH04 CPV
2UHP4T		145.2	-2.8	-0.25	133.8	-12.6	-0.98
3KM73P		166.5	18.5	1.67	168.9	22.5	1.75
C2XKFH		135.2	-12.8	-1.15	135.6	-10.7	-0.83
CYUPWF		152.1	4.1	0.37	153.7	7.3	0.57
DQVM89		150.5	2.5	0.23	146.1	-0.3	-0.02
DUUX49	X	610.5	462.5	41.57	612.7	466.4	36.18
JH3K7Y		135.0	-13.0	-1.17	125.0	-21.4	-1.66
MGVEGZ		146.5	-1.5	-0.13	145.9	-0.4	-0.03
MWCAWW		149.6	1.7	0.15	148.3	1.9	0.15
URVC62	X	59.4	-88.6	-7.96	60.3	-86.1	-6.68
YAWN3T		153.6	5.7	0.51	147.0	0.6	0.05
YC472N		150.1	2.1	0.19	155.0	8.6	0.67
YM47MN		129.4	-18.5	-1.67	137.9	-8.5	-0.66
Z444CH		144.1	-3.9	-0.35	141.2	-5.2	-0.40
ZNAG7P		143.8	-4.2	-0.37	139.1	-7.3	-0.56
ZX3U6P		170.0	22.0	1.98	171.6	25.2	1.96

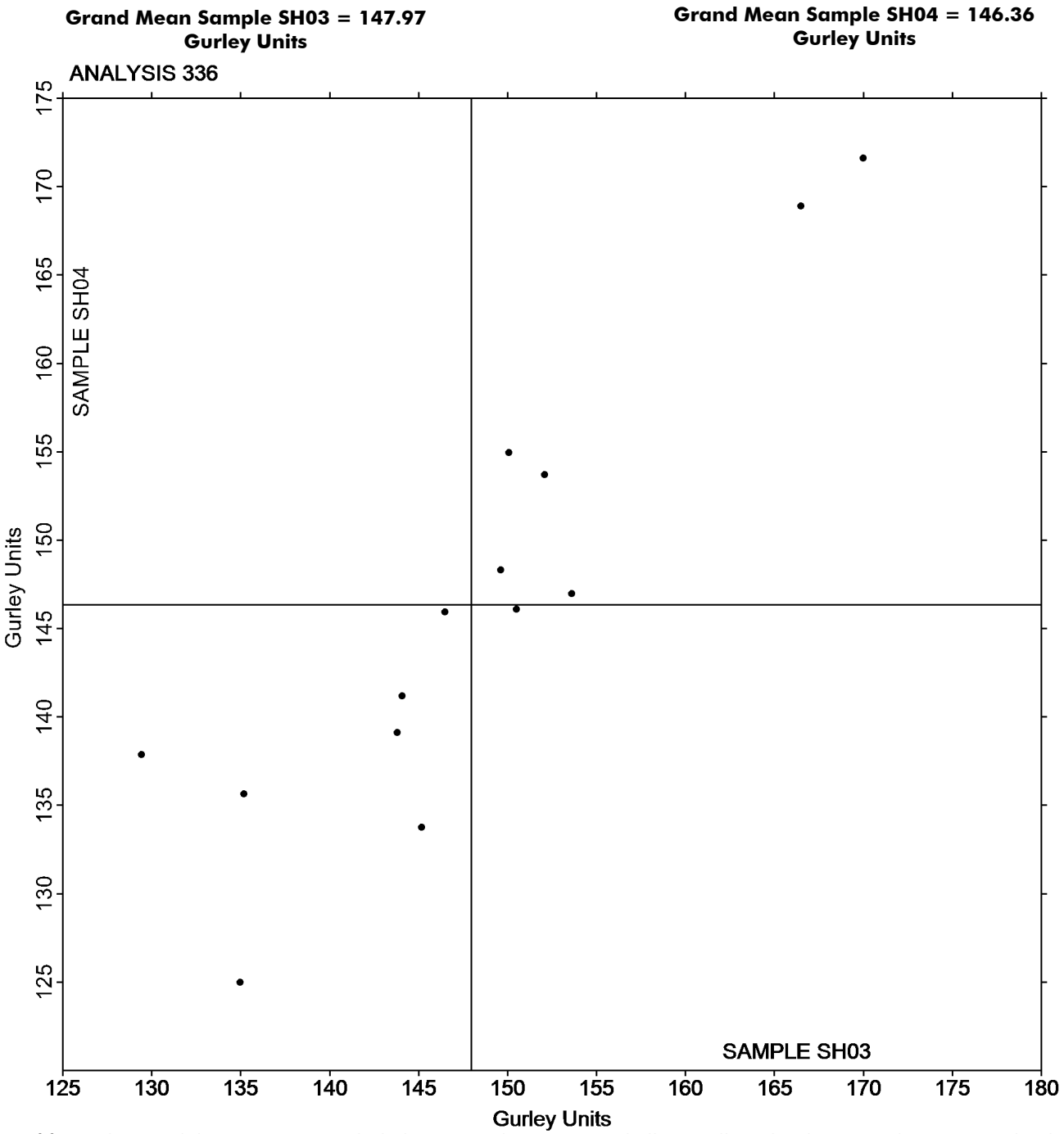
Summary Statistics	Sample SH03	Sample SH04
Grand Means	147.97 Gurley Units	146.36 Gurley Units
Stnd Dev Btwn Labs	11.13 Gurley Units	12.89 Gurley Units

Statistics based on 14 of 16 reporting participants.

Comments on Assigned Data Flags for Test #336

DUUX49 (X) - Extreme Data.

URVC62 (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 338

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

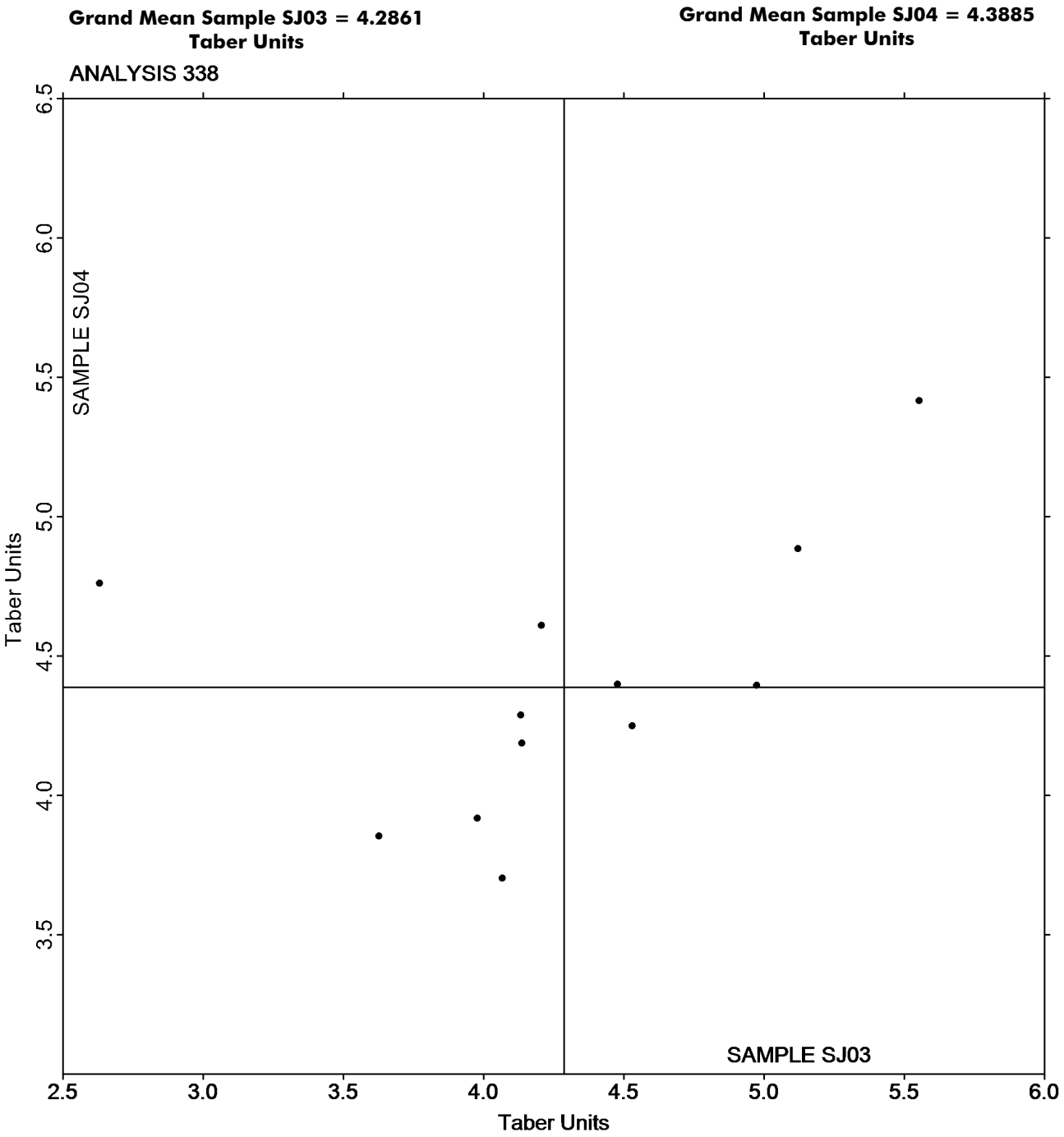
WebCode	Data Flag	Sample SJ03 Lab Mean	Sample SJ03 Diff from Grand Mean	Sample SJ03 CPV	Sample SJ04 Lab Mean	Sample SJ04 Diff from Grand Mean	Sample SJ04 CPV
6X6B6J		4.530	0.244	0.32	4.250	-0.139	-0.29
A4TUNV		4.206	-0.080	-0.11	4.610	0.221	0.46
J3NQP3		5.122	0.836	1.11	4.884	0.495	1.03
MGVEGZ		4.068	-0.219	-0.29	3.703	-0.686	-1.43
UR9CDC		4.974	0.688	0.91	4.395	0.006	0.01
VQWLGY		2.630	-1.656	-2.20	4.760	0.371	0.77
WY3TRR		5.553	1.267	1.68	5.416	1.027	2.14
YAWN3T		3.978	-0.308	-0.41	3.918	-0.471	-0.98
YC472N		3.627	-0.659	-0.87	3.854	-0.535	-1.11
YJ7PCE		4.132	-0.154	-0.20	4.287	-0.102	-0.21
YM47MN		4.478	0.192	0.25	4.398	0.009	0.02
Z444CH		4.136	-0.150	-0.20	4.188	-0.201	-0.42

Summary Statistics	Sample SJ03	Sample SJ04
Grand Means	4.29 Taber Units	4.39 Taber Units
Stnd Dev Btwn Labs	0.75 Taber Units	0.48 Taber Units

Statistics based on 12 of 12 reporting participants.

Analysis Notes:

YJ7PCE - Data appear to be reported as g-cm, not mN-m as indicated on data entry form. CTS will not correct the Units going forward.



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

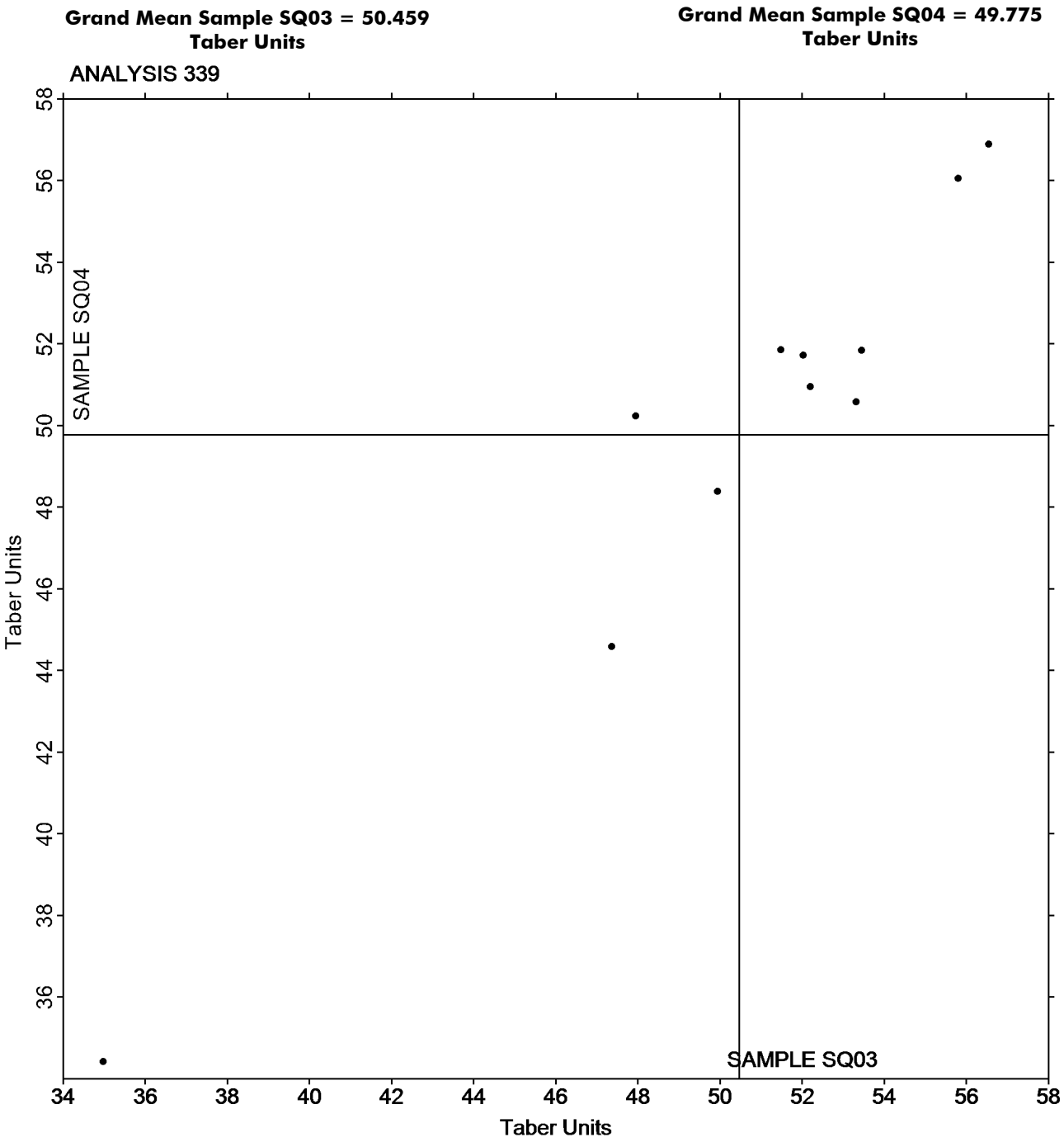
Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

WebCode	Data Flag	Sample SQ03 Lab Mean	Sample SQ03 Diff from Grand Mean	Sample SQ03 CPV	Sample SQ04 Lab Mean	Sample SQ04 Diff from Grand Mean	Sample SQ04 CPV
6Q296N		56.55	6.09	1.04	56.89	7.12	1.17
ADYREJ		53.32	2.86	0.49	50.58	0.81	0.13
C2XKFH		53.45	2.99	0.51	51.85	2.07	0.34
FTQC3D		47.95	-2.51	-0.43	50.23	0.46	0.07
J2VN69		49.94	-0.52	-0.09	48.39	-1.38	-0.23
JCU287		52.03	1.57	0.27	51.73	1.95	0.32
Q4EQWT		52.20	1.74	0.30	50.95	1.18	0.19
RDG6F6		47.37	-3.09	-0.53	44.59	-5.19	-0.85
RRFCA2		55.80	5.34	0.91	56.05	6.28	1.03
ULPGL2		51.48	1.02	0.17	51.86	2.09	0.34
YYT3PL		34.98	-15.48	-2.64	34.42	-15.36	-2.53

Summary Statistics	Sample SQ03	Sample SQ04
Grand Means	50.46 Taber Units	49.77 Taber Units
Stnd Dev Btwn Labs	5.87 Taber Units	6.08 Taber Units

Statistics based on 11 of 11 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

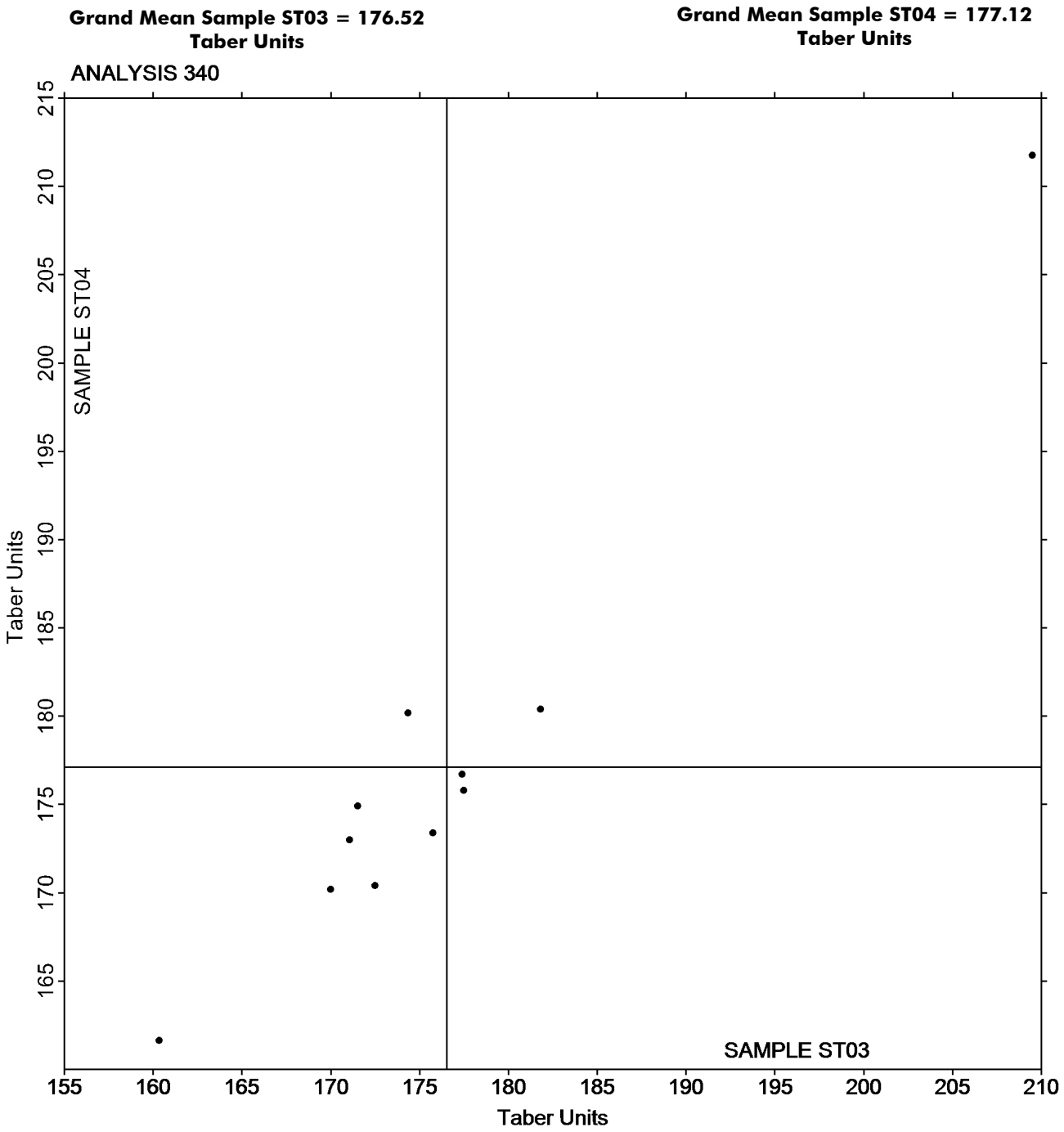
WebCode	Data Flag	Sample ST03 Lab Mean	Sample ST03 Diff from Grand Mean	Sample ST03 CPV	Sample ST04 Lab Mean	Sample ST04 Diff from Grand Mean	Sample ST04 CPV
82Y9QE	X	85.3	-91.2	-7.45	84.5	-92.6	-7.34
C2XKFH		174.4	-2.2	-0.18	180.2	3.1	0.24
L9QZZ9		177.4	0.9	0.07	176.7	-0.4	-0.03
LX9QR2		209.5	33.0	2.69	211.8	34.6	2.75
MWCAWW		171.5	-5.0	-0.41	174.9	-2.2	-0.18
MZATWA		181.8	5.3	0.43	180.4	3.3	0.26
NZ6QMV		160.4	-16.2	-1.32	161.6	-15.5	-1.23
RKGA33		170.0	-6.5	-0.53	170.2	-6.9	-0.55
RVX4AP		171.1	-5.5	-0.45	173.0	-4.1	-0.33
ULPGL2		175.7	-0.8	-0.06	173.4	-3.7	-0.30
WLYV2U		172.5	-4.0	-0.33	170.4	-6.7	-0.53
Y62WUV		177.5	1.0	0.08	175.8	-1.3	-0.10

Summary Statistics	Sample ST03	Sample ST04
Grand Means	176.52 Taber Units	177.12 Taber Units
Stnd Dev Btwn Labs	12.24 Taber Units	12.61 Taber Units

Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #340

82Y9QE (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

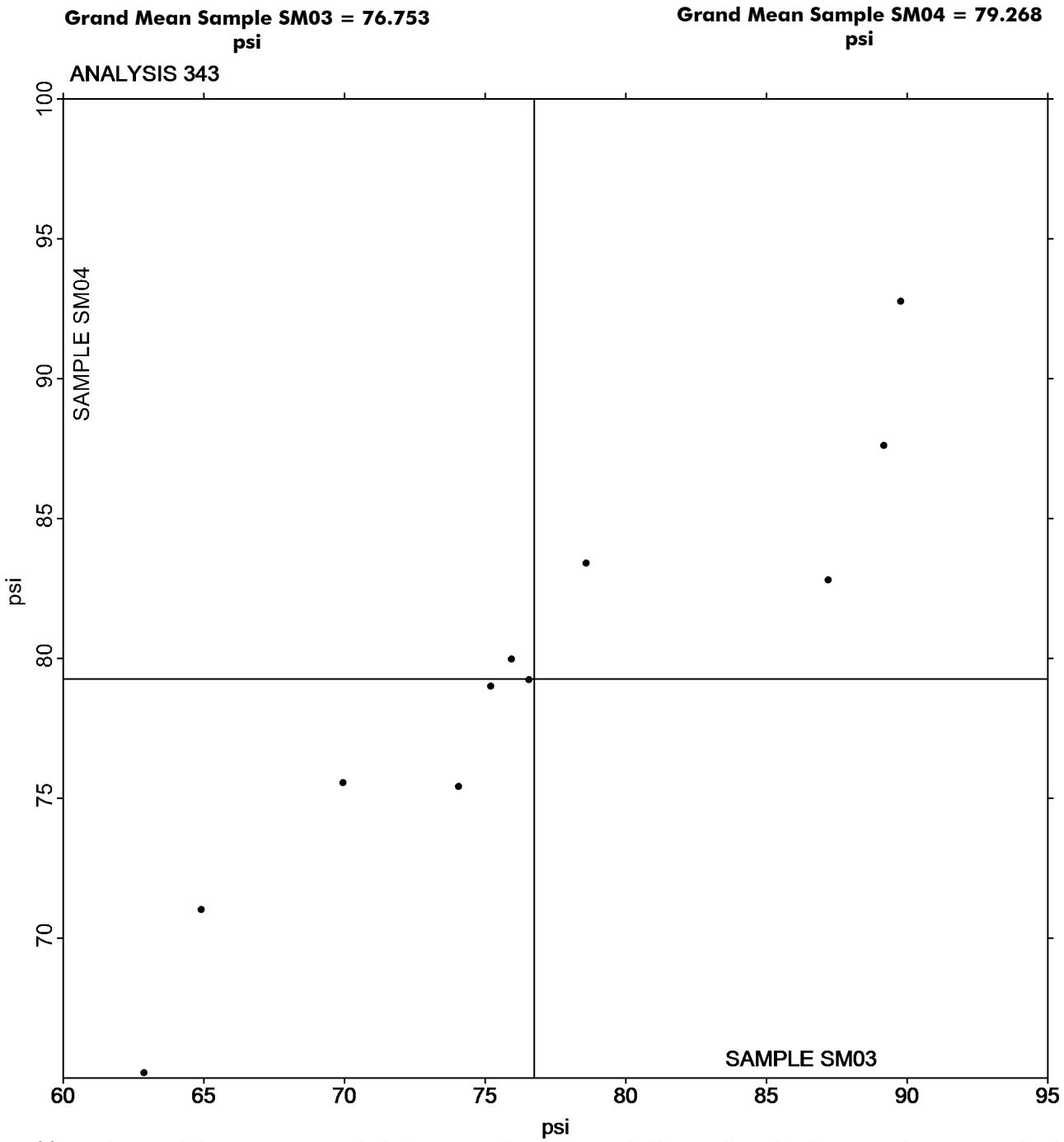
WebCode	Data Flag	Sample SM03 Lab Mean	Sample SM03 Diff from Grand Mean	Sample SM03 CPV	Sample SM04 Lab Mean	Sample SM04 Diff from Grand Mean	Sample SM04 CPV	Instr Code
6Q296N		76.56	-0.19	-0.02	79.24	-0.03	0.00	CD
82Y9QE		89.18	12.43	1.37	87.60	8.33	1.10	LW
GYF7JB		64.92	-11.83	-1.30	71.01	-8.26	-1.09	LW
HAP9D8		74.06	-2.69	-0.30	75.42	-3.85	-0.51	DX
J2VN69		89.78	13.03	1.43	92.76	13.49	1.78	TA
MKFNNZ		78.60	1.85	0.20	83.40	4.13	0.54	TA
RDG6F6		75.20	-1.55	-0.17	79.00	-0.27	-0.04	LW
RRFCA2		87.20	10.45	1.15	82.80	3.53	0.47	CD
ULPGL2		75.94	-0.81	-0.09	79.98	0.71	0.09	LW
Y93ZKX		62.88	-13.87	-1.53	65.18	-14.09	-1.86	XX
YC472N		69.96	-6.79	-0.75	75.56	-3.71	-0.49	CD

Summary Statistics	Sample SM03	Sample SM04
Grand Means	76.75 psi	79.27 psi
Stnd Dev Btwn Labs	9.09 psi	7.59 psi

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

CD	CSI CS-163D	DX	Dek-Tron XP2 Series
LW	L & W ZD Tensile Tester	TA	Thwing-Albert Tensile Tester
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 345
Z-Direction Tensile, Recycled Paperboard
TAPPI Official Test Method T541

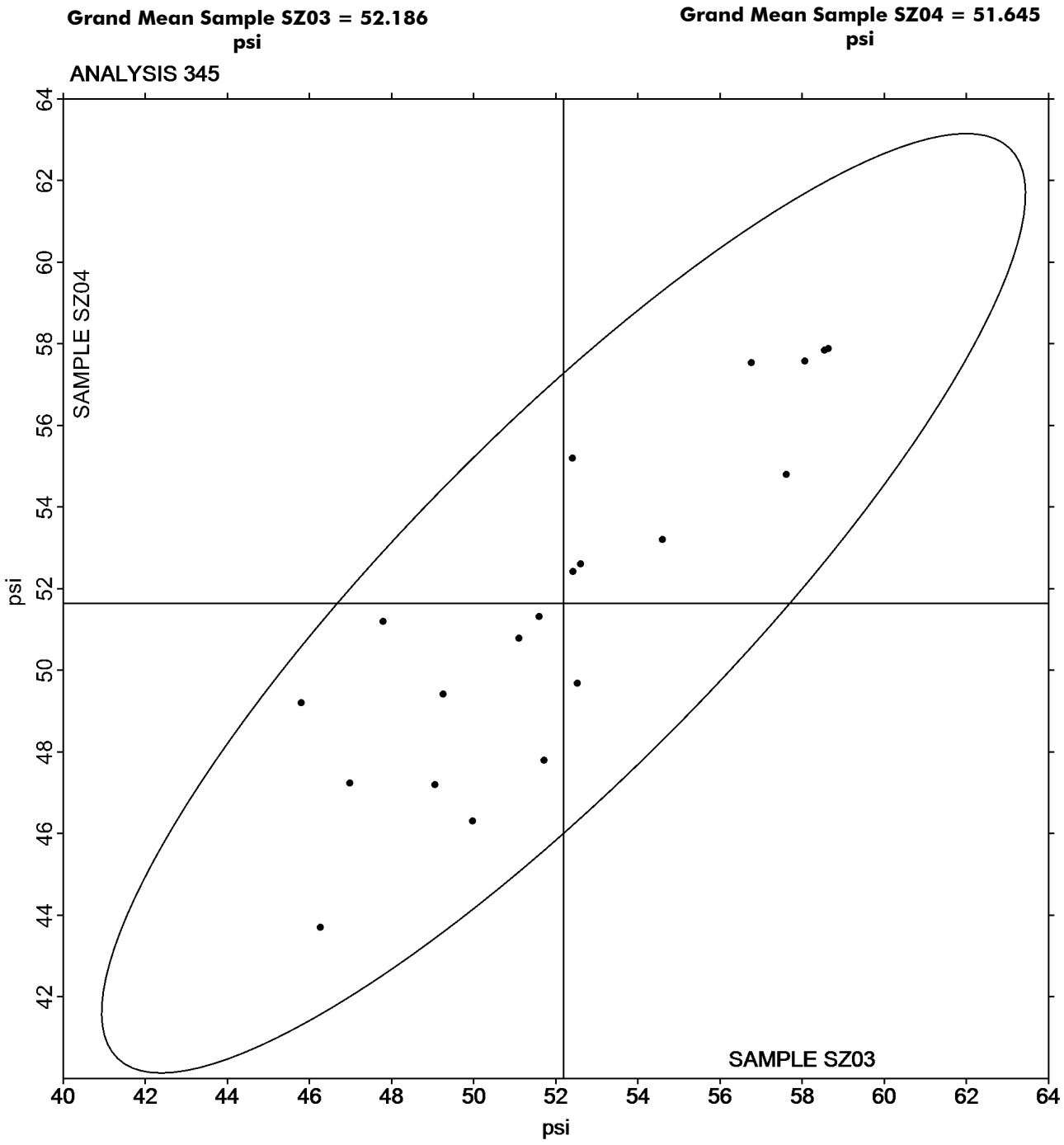
WebCode	Data Flag	Sample SZ03 Lab Mean	Sample SZ03 Diff from Grand Mean	Sample SZ03 CPV	Sample SZ04 Lab Mean	Sample SZ04 Diff from Grand Mean	Sample SZ04 CPV	Instr Code
23RNHG		58.54	6.35	1.55	57.84	6.20	1.47	LW
2JZ9BL		46.98	-5.21	-1.27	47.24	-4.40	-1.05	TA
47ZT7L		49.98	-2.21	-0.54	46.30	-5.34	-1.27	LW
8FU7VB		56.76	4.57	1.11	57.54	5.90	1.40	LW
AVHMUD		58.06	5.87	1.43	57.58	5.93	1.41	CH
C2XKFH		49.06	-3.13	-0.76	47.20	-4.44	-1.06	CA
JDR7NZ		45.80	-6.39	-1.56	49.20	-2.44	-0.58	CA
L3GN48		52.40	0.21	0.05	55.20	3.56	0.85	CD
L7K8Y3		52.42	0.23	0.06	52.42	0.78	0.18	TA
L9QZZ9		52.52	0.33	0.08	49.68	-1.96	-0.47	CD
MWCAWW		51.60	-0.59	-0.14	51.32	-0.32	-0.08	CA
MZATWA		54.60	2.41	0.59	53.20	1.56	0.37	CD
RKGA33		47.80	-4.39	-1.07	51.20	-0.44	-0.11	CA
RVX4AP		51.10	-1.09	-0.26	50.78	-0.86	-0.21	TA
UCG7VN		58.64	6.45	1.57	57.88	6.24	1.48	LW
ULPGL2		49.26	-2.93	-0.71	49.42	-2.22	-0.53	LW
WLYV2U		46.26	-5.93	-1.44	43.70	-7.94	-1.89	LW
WYPLLX		57.62	5.43	1.32	54.80	3.16	0.75	DP
XWAGAX		51.72	-0.47	-0.11	47.80	-3.84	-0.92	XX
Y62WUV		52.60	0.41	0.10	52.60	0.96	0.23	TA

Summary Statistics	Sample SZ03	Sample SZ04
Grand Means	52.19 psi	51.64 psi
Stnd Dev Btwn Labs	4.11 psi	4.20 psi

Statistics based on 20 of 20 reporting participants.

Key to Instrument Codes Reported by Participants

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



Paper & Paperboard Interlaboratory Testing Program

Analysis 348

Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

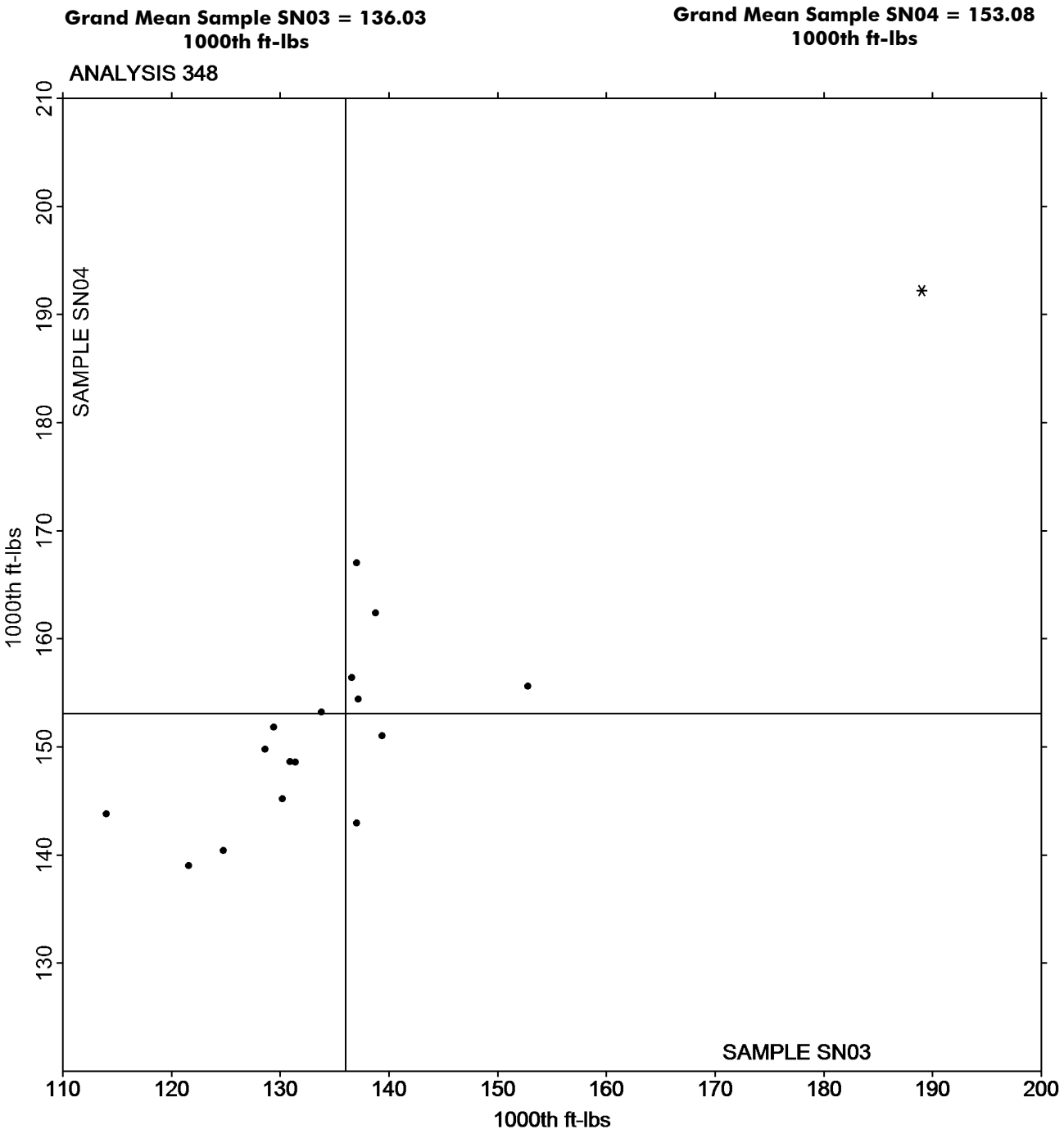
WebCode	Data Flag	Sample SN03 Lab Mean	Sample SN03 Diff from Grand Mean	Sample SN03 CPV	Sample SN04 Lab Mean	Sample SN04 Diff from Grand Mean	Sample SN04 CPV	Instr Code
2UHP4T		133.8	-2.2	-0.14	153.2	0.1	0.01	HY
3KM73P	*	189.0	53.0	3.30	192.2	39.1	3.13	HZ
6Q296N		137.2	1.2	0.07	154.4	1.3	0.11	HY
82Y9QE		121.6	-14.4	-0.90	139.0	-14.1	-1.13	HZ
ECUVWC		138.8	2.7	0.17	162.4	9.3	0.74	HY
HAP9D8		114.0	-22.0	-1.37	143.8	-9.3	-0.74	XX
J2VN69		136.6	0.6	0.04	156.4	3.3	0.27	HZ
L6LCHX		129.4	-6.6	-0.41	151.8	-1.3	-0.10	HY
LKKN9A		131.4	-4.6	-0.29	148.6	-4.5	-0.36	HX
MWCAWW		130.9	-5.1	-0.32	148.6	-4.4	-0.36	HZ
QPF7C3		139.4	3.4	0.21	151.0	-2.1	-0.17	HY
RKGA33		137.0	1.0	0.06	167.0	14.0	1.12	XX
RRFCA2		152.8	16.8	1.05	155.6	2.5	0.20	HY
ULPGL2		130.2	-5.8	-0.36	145.2	-7.9	-0.63	HY
YAWN3T		137.0	1.0	0.06	143.0	-10.1	-0.81	KR
YDZGZX		128.6	-7.4	-0.46	149.8	-3.3	-0.26	HZ
ZX3U6P		124.8	-11.2	-0.70	140.4	-12.7	-1.02	HY

Summary Statistics	Sample SN03	Sample SN04
Grand Means	136.03 1000th ft-lbs	153.08 1000th ft-lbs
Stnd Dev Btwn Labs	16.04 1000th ft-lbs	12.49 1000th ft-lbs

Statistics based on 17 of 17 reporting participants.

Key to Instrument Codes Reported by Participants

HX	Huygen Internal Scott Bond Tester	HY	Huygen Digitized Internal Scott 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 SP03 Lab Mean	Sample SP03 Diff from Grand Mean	Sample SP03 CPV	Sample SP04 Lab Mean	Sample SP04 Diff from Grand Mean	Sample SP04 CPV	Instr Code
2XDBGU		121.0	0.4	0.02	127.2	-4.8	-0.30	TM
2Y94L9		144.8	24.2	1.42	152.8	20.8	1.27	SC
AGKL9Y		149.0	28.4	1.66	151.2	19.2	1.18	XX
AVHMUD		109.8	-10.8	-0.63	127.8	-4.2	-0.26	TM
CJGGVC		112.3	-8.3	-0.48	130.6	-1.5	-0.09	XX
CP34F3		112.6	-8.0	-0.47	116.2	-15.8	-0.97	TM
JH3K7Y		120.6	0.0	0.00	142.6	10.6	0.65	TM
Q4EQWT		132.6	12.1	0.71	164.1	32.0	1.97	XX
QK6ZTQ		98.8	-21.8	-1.27	110.0	-22.0	-1.35	TM
T64V83		101.6	-19.0	-1.11	114.6	-17.4	-1.07	SC
WYPLLX		97.6	-23.0	-1.34	112.8	-19.2	-1.18	TM
YJ7PCE		145.8	25.2	1.48	131.2	-0.8	-0.05	SC
YM47MN		119.0	-1.6	-0.09	139.0	7.0	0.43	SC
Z444CH		122.4	1.8	0.11	128.6	-3.4	-0.21	TM

Summary Statistics	Sample SP03	Sample SP04
Grand Means	120.56 1000th ft-lbs	132.05 1000th ft-lbs
Stnd Dev Btwn Labs	17.08 1000th ft-lbs	16.29 1000th ft-lbs

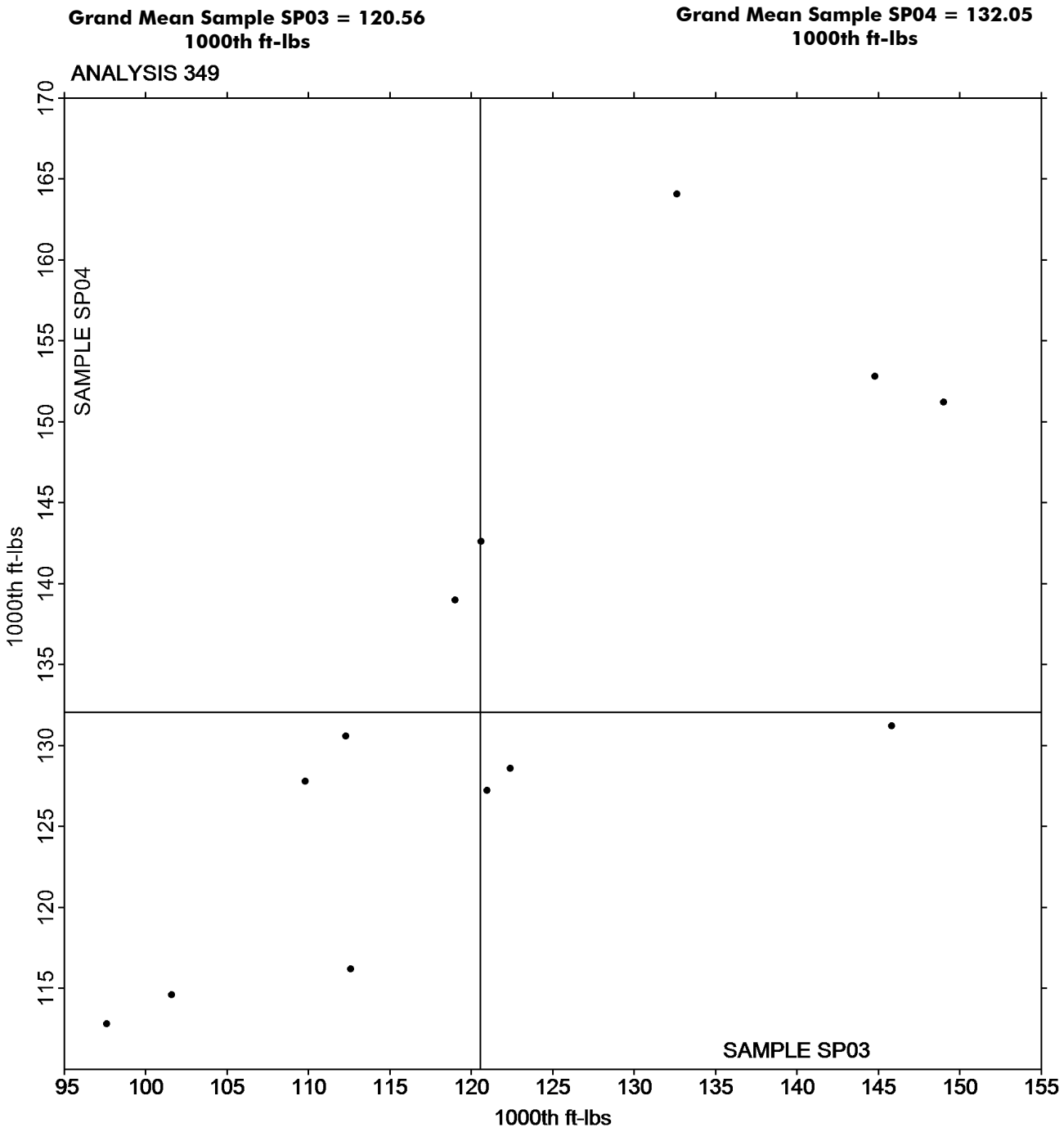
Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

SC Scott Internal Bond Tester (Manual)

TM TMI Monitor/Internal Bond Tester

XX Instrument make/model not specified by lab



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

-End of Report-

