Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #4331 - November 2024

Analysis	Analysis Name
3101	Thickness (Caliper), Printing papers
3111	Bursting Strength - Printing Papers
3113	Tearing Strength - Printing Papers
3115	Tensile Breaking Strength - Printing Papers
3116	Tensile Energy Absorption - Printing Papers
3117	Elongation to Break - Printing Papers
3121	Air Resistance - Gurley Oil Type
3123	Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice
3131	Roughness - Print Surf Method - 2.5 to 6.0 Microns
3133	Roughness - Sheffield Type
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3141	Opacity (89% Reflectance Backing) - Fine Papers
3143	Opacity (Paper Backing) - Fine Papers and Newsprint
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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 industries including color, rubber, plastics, fasteners and metals, containerboard, paper, agriculture, hemp, 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 100 countries, currently participate in the 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.

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 3101

Thickness (Caliper), Printing papers

TAPPI Official Test Method T411

WebCode	Data Flag	Sample CP35 Lab Mean	Sample CP35 Diff from Grand Mean	Sample CP35 CPV	Sample CP36 Lab Mean	Sample CP36 Diff from Grand Mean	Sample CP36 CPV
6VPN7E		3.986	-0.016	-0.24	3.965	-0.038	-0.65
7Y3KBG		4.093	0.091	1.40	4.045	0.042	0.71
8J9FHD		3.999	-0.003	-0.04	4.021	0.018	0.31
9VEQPZ		3.964	-0.038	-0.58	3.987	-0.016	-0.27
AEMDQX	*	4.027	0.025	0.39	3.925	-0.078	-1.33
B4LAYA		3.944	-0.058	-0.88	3.954	-0.049	-0.83
BMDDHV		3.883	-0.119	-1.82	3.896	-0.107	-1.82
BUVNTB		4.085	0.083	1.27	4.106	0.103	1.75
CBGTFV		3.996	-0.006	-0.09	3.985	-0.018	-0.31
DQQWEV		4.028	0.026	0.40	4.038	0.035	0.59
DTTXFR		3.995	-0.007	-0.10	3.980	-0.023	-0.39
F7TDET		4.056	0.054	0.83	4.086	0.083	1.41
FACB7P		4.138	0.136	2.08	4.136	0.133	2.26
FFZXYA		4.012	0.011	0.16	4.018	0.015	0.25
HKMNY2		4.009	0.007	0.11	3.990	-0.013	-0.22
HLJZXP		4.024	0.022	0.34	4.016	0.013	0.21
HN4R78		4.055	0.053	0.82	4.024	0.021	0.36
L9YUCX		4.001	-0.001	-0.01	4.014	0.011	0.19
LZ6J4N		4.016	0.014	0.21	4.029	0.026	0.44
MZ3D3J		3.977	-0.025	-0.38	3.972	-0.031	-0.53
N6BYNV		3.912	-0.090	-1.37	3.943	-0.060	-1.02
NCN8RH		3.965	-0.037	-0.57	4.004	0.001	0.01
PCQWUU		3.995	-0.007	-0.10	4.001	-0.002	-0.04
PJ3D2U		3.921	-0.081	-1.23	3.932	-0.071	-1.21
PWRCRW		4.016	0.014	0.21	3.991	-0.012	-0.21
PZC3FG		4.068	0.066	1.01	4.017	0.014	0.24
Q24H7H		3.972	-0.030	-0.45	3.925	-0.078	-1.33
T7LR7Q		3.971	-0.031	-0.47	3.961	-0.042	-0.71
TNQYKT		4.035	0.033	0.50	4.041	0.038	0.64
TQWKAE		4.030	0.028	0.43	4.010	0.007	0.12
TTYK9P		3.917	-0.084	-1.29	3.953	-0.050	-0.85
TUVV7E		4.010	0.008	0.13	4.032	0.029	0.49
UG3T3C		3.930	-0.072	-1.10	3.970	-0.033	-0.56
UK6RHB		3.894	-0.108	-1.65	3.949	-0.054	-0.92
UQTE9B		3.929	-0.073	-1.11	3.947	-0.056	-0.95
UVLGAP		4.055	0.053	0.82	4.033	0.030	0.51
V2PHGB	*	3.947	-0.055	-0.84	4.053	0.050	0.85
XFZZ2A		4.014	0.012	0.19	4.059	0.056	0.95
XMHDXM		4.074	0.072	1.10	4.066	0.063	1.06
Y9G23N		4.148	0.146	2.24	4.126	0.123	2.09

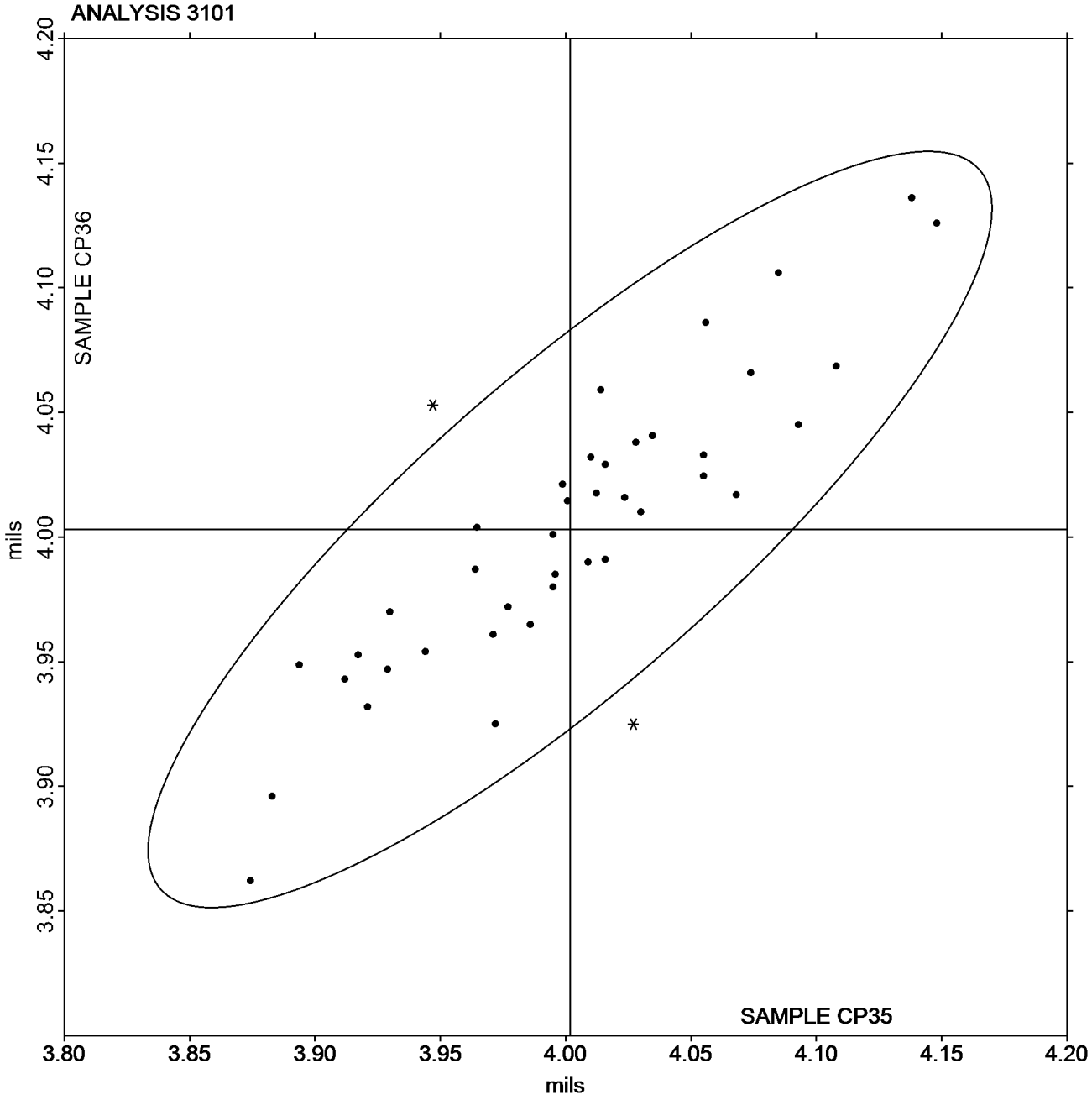
WebCode	Data Flag	Sample CP35 Lab Mean	Sample CP35 Diff from Grand Mean	Sample CP35 CPV	Sample CP36 Lab Mean	Sample CP36 Diff from Grand Mean	Sample CP36 CPV
YDCTD7		3.874	-0.127	-1.95	3.862	-0.141	-2.39
ZHY3XN		4.108	0.106	1.62	4.069	0.065	1.11

Summary Statistics	Sample CP35	Sample CP36
Grand Means	4.00 mils	4.00 mils
Stnd Dev Btwn Labs	0.07 mils	0.06 mils

Statistics based on 42 of 42 reporting participants.

Grand Mean Sample CP35 = 4.0017 mils

Grand Mean Sample CP36 = 4.0031 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 3111

Bursting Strength - Printing Papers

TAPPI Official Test Method T403

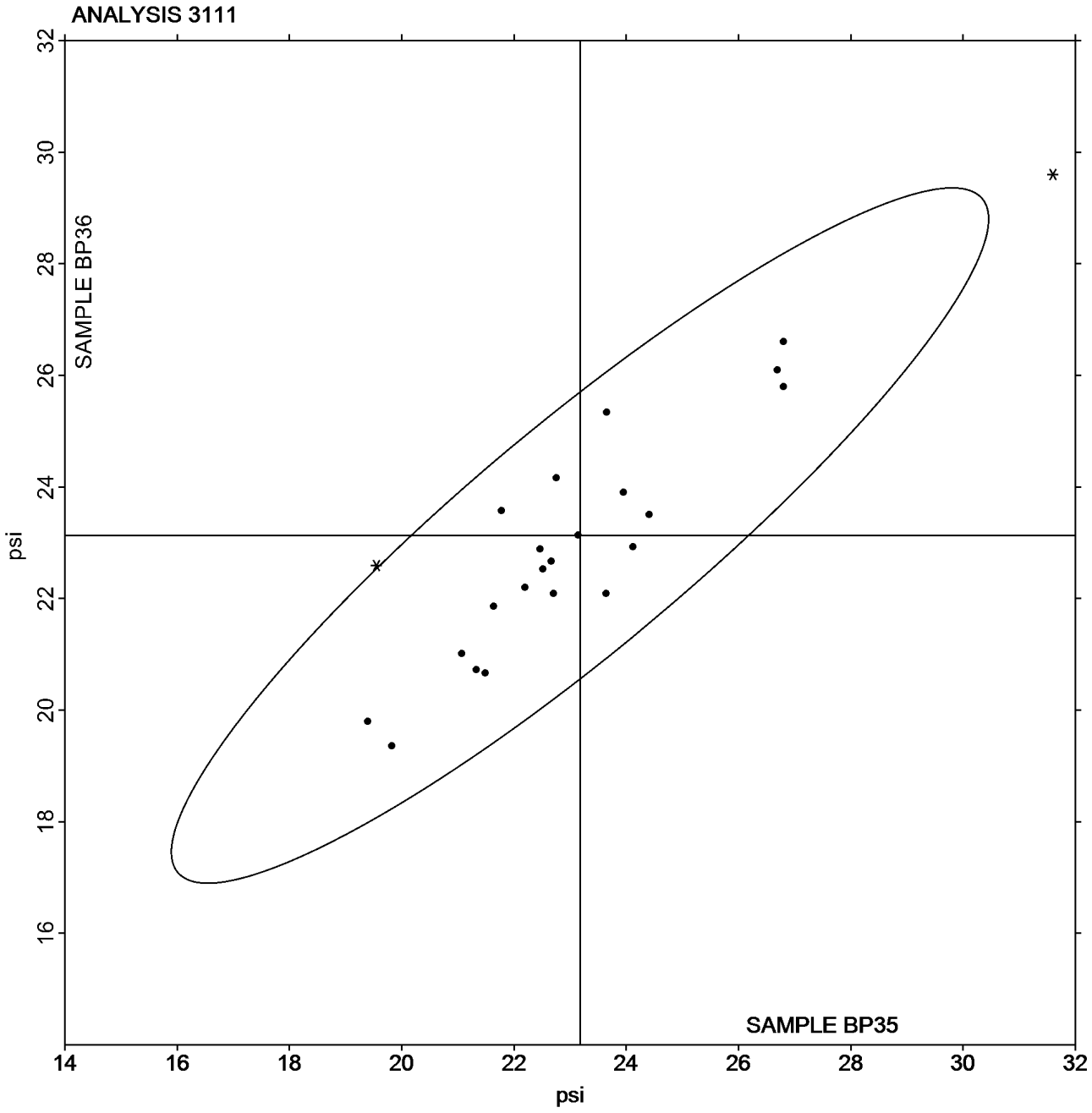
WebCode	Data Flag	Sample BP35 Lab Mean	Sample BP35 Diff from Grand Mean	Sample BP35 CPV	Sample BP36 Lab Mean	Sample BP36 Diff from Grand Mean	Sample BP36 CPV
3QGFR6		24.12	0.94	0.35	22.93	-0.20	-0.09
3X2JY8		23.15	-0.03	-0.01	23.14	0.01	0.00
6CVMG4		23.65	0.47	0.17	25.34	2.21	0.95
6VPN7E		26.80	3.62	1.34	25.80	2.67	1.15
94PCB9		21.78	-1.39	-0.51	23.57	0.44	0.19
AEMDQX	*	19.55	-3.63	-1.34	22.59	-0.54	-0.23
BMDDHV	*	31.60	8.42	3.11	29.60	6.47	2.79
BUVNTB		21.34	-1.84	-0.68	20.73	-2.40	-1.03
DQQWEV		24.41	1.23	0.46	23.50	0.37	0.16
DTTXFR		21.49	-1.69	-0.62	20.66	-2.47	-1.06
HN4R78		22.67	-0.51	-0.19	22.67	-0.46	-0.20
JTCRHN		23.95	0.77	0.29	23.90	0.77	0.33
L9YUCX		22.47	-0.71	-0.26	22.89	-0.24	-0.10
LZ6J4N		22.52	-0.66	-0.24	22.52	-0.61	-0.26
PCQWUU		22.76	-0.42	-0.15	24.16	1.03	0.44
QEC4QW		26.80	3.62	1.34	26.60	3.47	1.50
T7LR7Q		22.70	-0.47	-0.17	22.09	-1.04	-0.45
UEFWYR		23.65	0.47	0.17	22.08	-1.04	-0.45
UG3T3C		19.82	-3.35	-1.24	19.35	-3.78	-1.63
UVLGAP		22.20	-0.98	-0.36	22.20	-0.93	-0.40
V2PHGB		26.69	3.51	1.30	26.09	2.96	1.28
WNWLNB		19.40	-3.78	-1.39	19.80	-3.33	-1.43
XFZZ2A		21.64	-1.54	-0.57	21.86	-1.27	-0.55
ZHY3XN		21.07	-2.10	-0.77	21.02	-2.11	-0.91

Summary Statistics	Sample BP35	Sample BP36
Grand Means	23.18 psi	23.13 psi
Stnd Dev Btwn Labs	2.71 psi	2.32 psi

Statistics based on 24 of 24 reporting participants.

Grand Mean Sample BP35 = 23.176 psi

Grand Mean Sample BP36 = 23.129 psi



Paper & Paperboard Interlaboratory Testing Program

Analysis 3113

Tearing Strength - Printing Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample RP35 Lab Mean	Sample RP35 Diff from Grand Mean	Sample RP35 CPV	Sample RP36 Lab Mean	Sample RP36 Diff from Grand Mean	Sample RP36 CPV
6VPN7E		55.70	-4.54	-0.70	57.40	-3.11	-0.47
7Y3KBG		55.46	-4.78	-0.73	56.64	-3.87	-0.58
AEMDQX	X	64.95	4.71	0.72	75.45	14.94	2.24
B3863W		50.86	-9.38	-1.44	54.26	-6.25	-0.94
B4LAYA		61.70	1.46	0.22	60.70	0.19	0.03
BMDDHV		64.76	4.52	0.69	65.20	4.69	0.70
BRNNEW		65.70	5.46	0.84	62.34	1.83	0.28
BUVNTB		60.18	-0.06	-0.01	61.01	0.50	0.08
CZEB38		53.80	-6.44	-0.99	54.82	-5.69	-0.85
DPULG8		76.95	16.71	2.57	76.24	15.74	2.36
DQQWEV		62.80	2.56	0.39	61.80	1.29	0.19
DTTXFR		58.12	-2.12	-0.33	57.34	-3.17	-0.48
HAPJ9N		57.05	-3.19	-0.49	55.14	-5.37	-0.81
HKMNY2		62.78	2.54	0.39	63.09	2.58	0.39
HLJZXP		72.99	12.75	1.96	73.70	13.19	1.98
HN4R78		59.55	-0.69	-0.11	58.50	-2.00	-0.30
HR6R9P		53.20	-7.04	-1.08	50.21	-10.30	-1.55
JTCRHN		50.30	-9.94	-1.53	47.10	-13.41	-2.01
L9YUCX		56.62	-3.62	-0.56	58.38	-2.13	-0.32
LZ6J4N		59.78	-0.46	-0.07	59.70	-0.81	-0.12
MZ3D3J		61.43	1.19	0.18	58.88	-1.63	-0.24
N6BYNV	*	55.68	-4.56	-0.70	62.40	1.89	0.28
PCQWUU		61.44	1.20	0.18	60.54	0.03	0.01
PWRCRW		63.36	3.12	0.48	61.76	1.25	0.19
PZC3FG		51.18	-9.06	-1.39	51.74	-8.77	-1.32
QEC4QW	*	78.40	18.16	2.79	77.40	16.89	2.54
T7LR7Q		69.04	8.80	1.35	69.26	8.75	1.31
TNQYKT		56.82	-3.42	-0.53	57.07	-3.44	-0.52
TTYK9P	*	67.40	7.16	1.10	73.70	13.19	1.98
TUVV7E		63.80	3.56	0.55	60.41	-0.09	-0.01
UEFWYR		60.08	-0.16	-0.02	62.10	1.59	0.24
UQTE9B		63.52	3.28	0.50	63.10	2.59	0.39
UVLGAP		59.48	-0.76	-0.12	59.73	-0.78	-0.12
V2PHGB		52.87	-7.37	-1.13	54.91	-5.60	-0.84
VX33KN		60.72	0.48	0.07	58.94	-1.57	-0.24
VZVWJD		55.09	-5.15	-0.79	56.77	-3.74	-0.56
XFZZ2A	*	62.16	1.92	0.30	69.50	8.99	1.35
XMHDXM		61.14	0.90	0.14	59.56	-0.95	-0.14
XZ4T2M		49.30	-10.94	-1.68	49.94	-10.57	-1.59
Y9G23N		56.30	-3.94	-0.61	59.90	-0.61	-0.09

WebCode	Data Flag	Sample RP35 Lab Mean	Sample RP35 Diff from Grand Mean	Sample RP35 CPV	Sample RP36 Lab Mean	Sample RP36 Diff from Grand Mean	Sample RP36 CPV
ZEGZQJ		62.79	2.56	0.39	61.17	0.67	0.10
ZHY3XN		59.51	-0.73	-0.11	58.39	-2.12	-0.32

Summary Statistics	Sample RP35	Sample RP36
Grand Means	60.24 Grams	60.51 Grams
Stnd Dev Btwn Labs	6.51 Grams	6.66 Grams

Statistics based on 41 of 42 reporting participants.

Comments on Assigned Data Flags for Test #3113

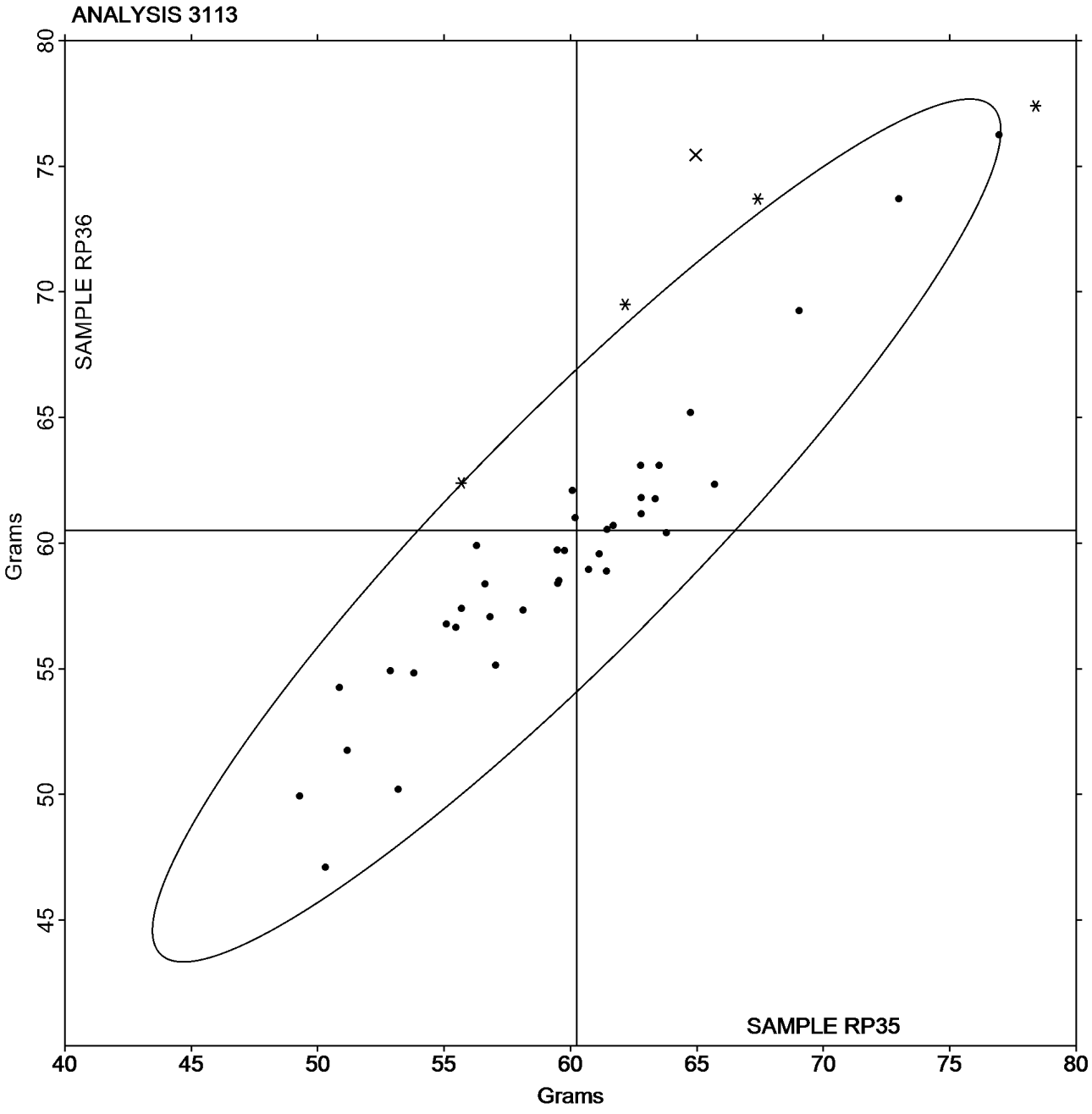
AEMDQX (X) - Inconsistent within the determinations of both samples.

Analysis Notes:

XMHDXM - Data appear to be off by a factor; data converted by CTS (x.5). CTS will not correct the data going forward.

Grand Mean Sample RP35 = 60.239 Grams

Grand Mean Sample RP36 = 60.506 Grams



WebCode	Data Flag	Sample NP35 Lab Mean	Sample NP35 Diff from Grand Mean	Sample NP35 CPV	Sample NP36 Lab Mean	Sample NP36 Diff from Grand Mean	Sample NP36 CPV
4CF4W7		3.523	-0.066	-0.23	3.410	-0.195	-0.70
6VPN7E		3.268	-0.321	-1.13	3.222	-0.383	-1.36
7Y3KBG		3.390	-0.198	-0.70	3.413	-0.193	-0.69
8J9FHD		4.115	0.526	1.86	3.947	0.342	1.21
9VEQPZ	*	3.658	0.070	0.25	4.135	0.529	1.88
A7AJBV		2.931	-0.658	-2.32	3.103	-0.502	-1.79
B3863W		3.450	-0.139	-0.49	3.650	0.045	0.16
BMDDHV	*	4.144	0.555	1.96	4.321	0.716	2.55
BUVNTB		3.546	-0.043	-0.15	3.599	-0.007	-0.02
CZEB38		3.711	0.122	0.43	3.869	0.263	0.94
DPULG8		3.863	0.274	0.97	3.812	0.206	0.73
DQQWEV		4.110	0.522	1.84	3.905	0.300	1.07
DTTXFR		3.734	0.145	0.51	3.701	0.095	0.34
FFZXYA		3.279	-0.310	-1.09	3.149	-0.456	-1.62
HKMNY2		3.461	-0.128	-0.45	3.527	-0.078	-0.28
HLJZXP		3.548	-0.041	-0.14	3.473	-0.133	-0.47
HN4R78		3.696	0.107	0.38	3.460	-0.145	-0.52
L9YUCX		3.629	0.040	0.14	3.785	0.180	0.64
LZ6J4N		3.663	0.074	0.26	3.651	0.045	0.16
MZ3D3J		3.315	-0.274	-0.97	3.643	0.037	0.13
N6BYNV	X	4.770	1.182	4.17	4.489	0.883	3.14
NCN8RH		3.134	-0.455	-1.61	3.221	-0.384	-1.37
PCQWUU		3.981	0.392	1.38	3.686	0.081	0.29
PJ3D2U		3.045	-0.544	-1.92	3.216	-0.390	-1.39
PZC3FG		3.484	-0.105	-0.37	3.273	-0.333	-1.18
T7LR7Q		3.609	0.020	0.07	3.889	0.283	1.01
TNQYKT		3.572	-0.017	-0.06	3.518	-0.087	-0.31
TTYK9P		3.583	-0.006	-0.02	3.615	0.010	0.04
TUVV7E		4.117	0.528	1.86	4.206	0.601	2.14
UBJB8P		3.429	-0.160	-0.56	3.340	-0.266	-0.95
UEFWYR		3.442	-0.147	-0.52	3.538	-0.068	-0.24
UG3T3C		3.712	0.123	0.43	3.715	0.110	0.39
UQTE9B		3.747	0.158	0.56	3.762	0.157	0.56
UVLGAP		3.429	-0.160	-0.56	3.532	-0.073	-0.26
V2PHGB		3.606	0.017	0.06	3.557	-0.048	-0.17
VX33KN		3.157	-0.432	-1.52	3.221	-0.384	-1.37
XC2QQ8		3.674	0.085	0.30	3.679	0.074	0.26
XFZZ2A		3.413	-0.176	-0.62	3.365	-0.241	-0.86
XMHDXM		3.629	0.040	0.14	3.691	0.085	0.30
XZ4T2M		3.961	0.372	1.31	3.946	0.341	1.21

WebCode	Data Flag	Sample NP35 Lab Mean	Sample NP35 Diff from Grand Mean	Sample NP35 CPV	Sample NP36 Lab Mean	Sample NP36 Diff from Grand Mean	Sample NP36 CPV
Y9G23N		3.444	-0.145	-0.51	3.425	-0.180	-0.64
Z9NZCN		3.820	0.231	0.82	3.667	0.062	0.22
ZHY3XN		3.712	0.123	0.43	3.592	-0.013	-0.05

Summary Statistics	Sample NP35	Sample NP36
Grand Means	3.59 kN/m	3.61 kN/m
Stnd Dev Btwn Labs	0.28 kN/m	0.28 kN/m

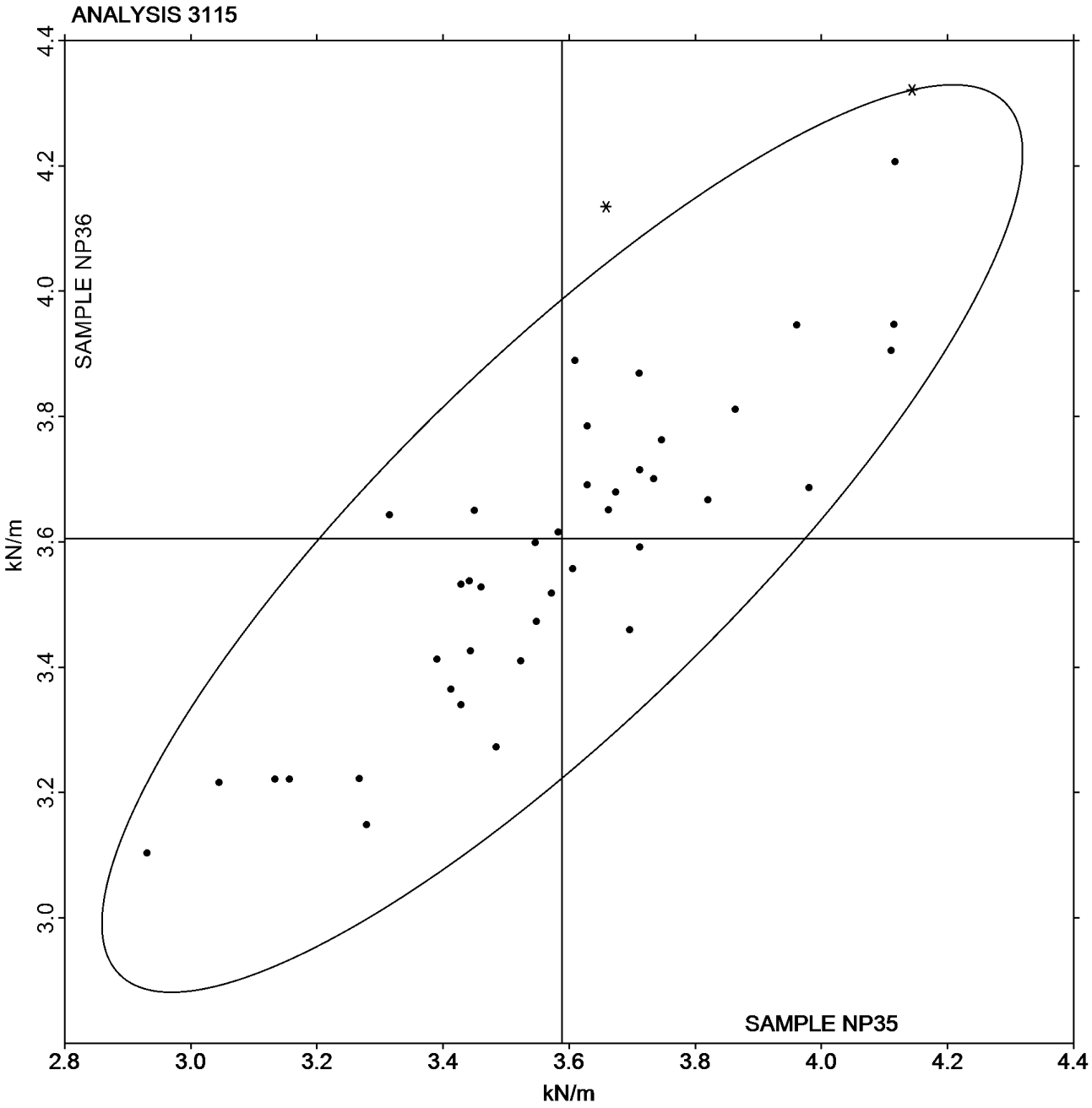
Statistics based on 42 of 43 reporting participants.

Comments on Assigned Data Flags for Test #3115

N6BYNV (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

Grand Mean Sample NP35 = 3.5889 kN/m

Grand Mean Sample NP36 = 3.6054 kN/m



Paper & Paperboard Interlaboratory Testing Program

Analysis 3116

Tensile Energy Absorption - Printing Papers

TAPPI Official Test Method T494

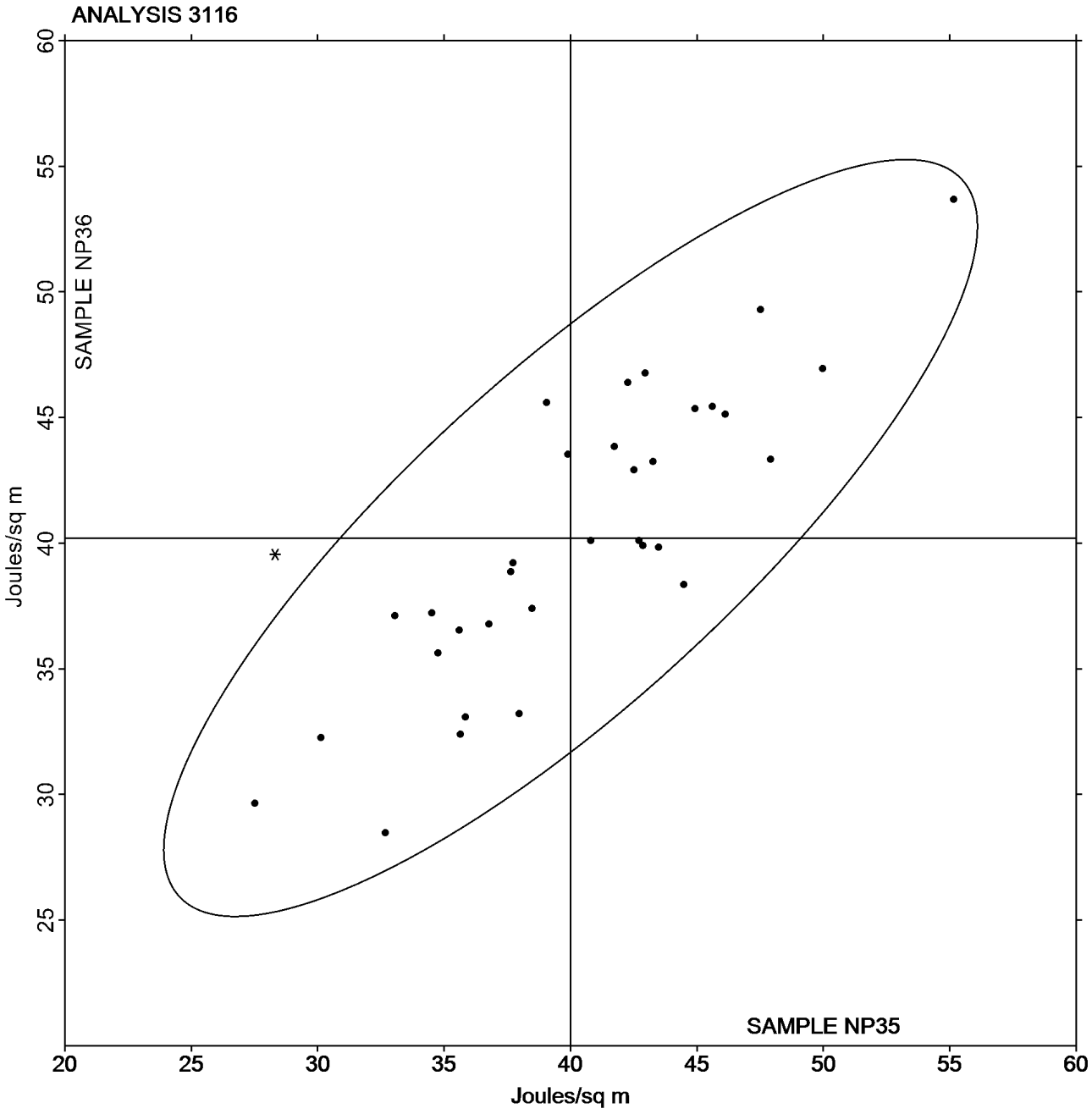
WebCode	Data Flag	Sample NP35 Lab Mean	Sample NP35 Diff from Grand Mean	Sample NP35 CPV	Sample NP36 Lab Mean	Sample NP36 Diff from Grand Mean	Sample NP36 CPV
4CF4W7		42.87	2.87	0.46	39.89	-0.32	-0.05
6VPN7E		34.77	-5.23	-0.85	35.63	-4.58	-0.79
8J9FHD		47.93	7.93	1.28	43.33	3.12	0.54
A7AJBV		33.06	-6.94	-1.12	37.11	-3.10	-0.54
B3863W		41.74	1.74	0.28	43.84	3.63	0.63
BMDDHV		37.64	-2.36	-0.38	38.86	-1.34	-0.23
BUVNTB		42.52	2.52	0.41	42.91	2.70	0.47
CZEB38		30.14	-9.86	-1.60	32.25	-7.95	-1.38
DPULG8		32.69	-7.31	-1.18	28.47	-11.73	-2.03
DQQWEV		38.49	-1.51	-0.24	37.39	-2.81	-0.49
DTTXFR		47.51	7.51	1.22	49.28	9.07	1.57
FFZXYA		35.85	-4.15	-0.67	33.08	-7.13	-1.23
HKMNY2		37.97	-2.03	-0.33	33.22	-6.99	-1.21
HLJZXP		43.49	3.49	0.57	39.84	-0.37	-0.06
HN4R78		44.49	4.49	0.73	38.36	-1.85	-0.32
L9YUCX		42.96	2.96	0.48	46.76	6.55	1.13
MZ3D3J	*	28.31	-11.69	-1.89	39.55	-0.66	-0.11
NCN8RH		55.16	15.16	2.46	53.68	13.47	2.33
PJ3D2U		34.51	-5.49	-0.89	37.23	-2.98	-0.52
T7LR7Q		27.52	-12.48	-2.02	29.64	-10.57	-1.83
TNQYKT		35.64	-4.36	-0.71	32.38	-7.82	-1.35
TUVV7E		39.05	-0.95	-0.15	45.59	5.38	0.93
UBJB8P		36.77	-3.23	-0.52	36.77	-3.44	-0.59
UEFWYR		39.90	-0.10	-0.02	43.54	3.33	0.58
UQTE9B		46.13	6.13	0.99	45.12	4.92	0.85
UVLGAP		37.74	-2.26	-0.37	39.21	-0.99	-0.17
V2PHGB		35.60	-4.40	-0.71	36.53	-3.68	-0.64
XC2QQ8		44.92	4.92	0.80	45.36	5.15	0.89
XFZZ2A		40.80	0.80	0.13	40.10	-0.10	-0.02
XMHDXM		43.27	3.27	0.53	43.24	3.03	0.53
XZ4T2M		42.72	2.72	0.44	40.10	-0.10	-0.02
Y9G23N		42.26	2.26	0.37	46.38	6.17	1.07
Z9NZCN		49.97	9.97	1.62	46.95	6.74	1.17
ZHY3XN		45.61	5.61	0.91	45.43	5.22	0.90

Summary Statistics	Sample NP35	Sample NP36
Grand Means	40.00 Joules/sq m	40.21 Joules/sq m
Stnd Dev Btwn Labs	6.17 Joules/sq m	5.78 Joules/sq m

Statistics based on 34 of 34 reporting participants.

Grand Mean Sample NP35 = 40.001
Joules/sq m

Grand Mean Sample NP36 = 40.207
Joules/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 3117

Elongation to Break - Printing Papers

TAPPI Official Test Method T494

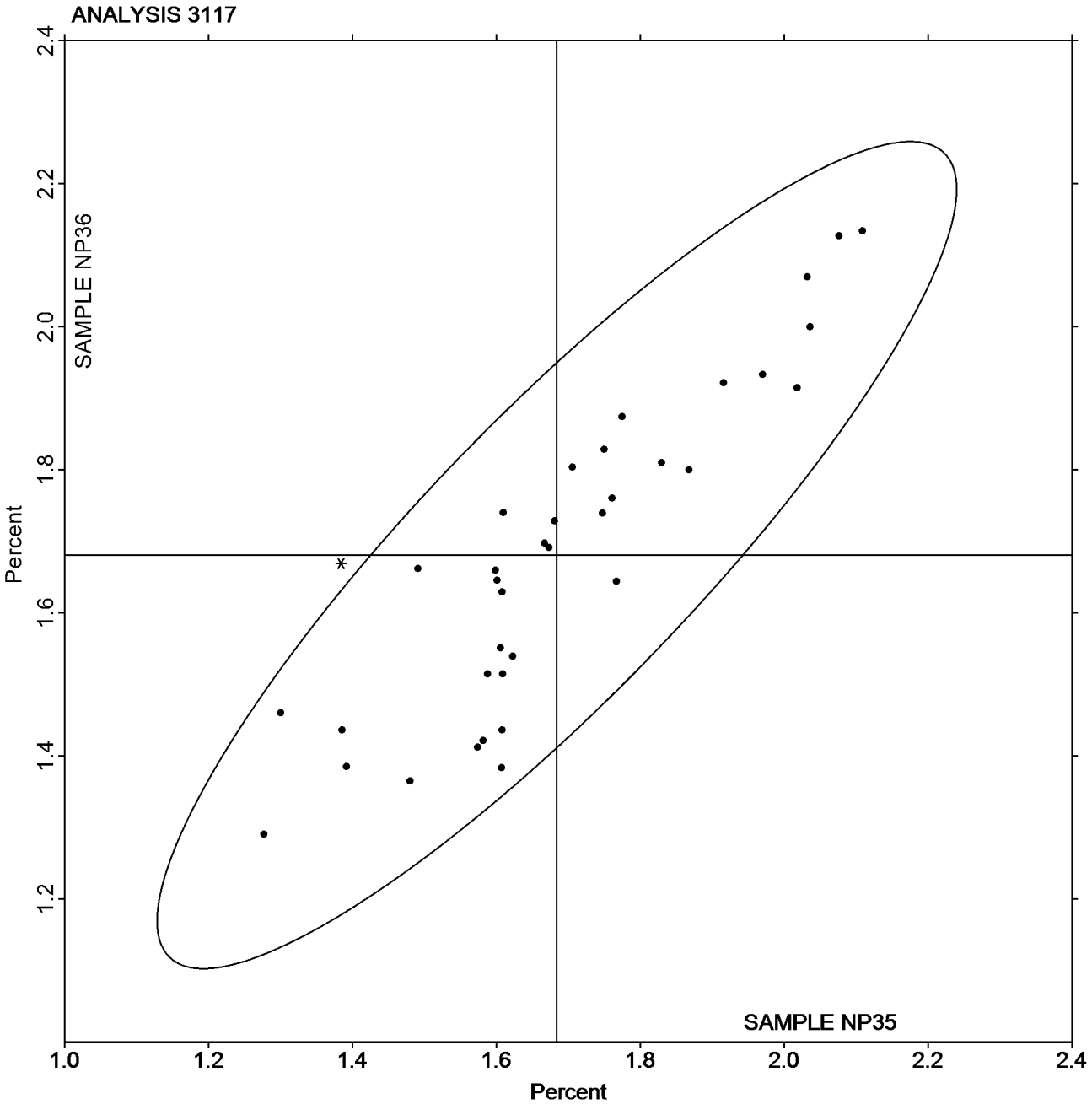
WebCode	Data Flag	Sample NP35 Lab Mean	Sample NP35 Diff from Grand Mean	Sample NP35 CPV	Sample NP36 Lab Mean	Sample NP36 Diff from Grand Mean	Sample NP36 CPV
4CF4W7		1.868	0.184	0.86	1.800	0.119	0.54
6VPN7E		1.599	-0.085	-0.40	1.659	-0.022	-0.10
7Y3KBG		1.574	-0.110	-0.51	1.412	-0.269	-1.20
8J9FHD		1.623	-0.061	-0.28	1.539	-0.142	-0.64
A7AJBV		1.775	0.091	0.42	1.874	0.193	0.87
B3863W		1.830	0.146	0.68	1.810	0.129	0.58
BMDDHV		1.392	-0.292	-1.36	1.385	-0.296	-1.33
BUVNTB		1.748	0.064	0.30	1.739	0.058	0.26
CZEB38		1.277	-0.407	-1.90	1.290	-0.391	-1.75
DPULG8		1.582	-0.102	-0.48	1.421	-0.260	-1.16
DQQWEV		2.032	0.348	1.62	2.069	0.388	1.74
DTTXFR		2.109	0.425	1.98	2.133	0.453	2.03
FFZXYA		1.606	-0.078	-0.36	1.551	-0.130	-0.58
HKMNY2		1.608	-0.076	-0.35	1.436	-0.245	-1.10
HLJZXP		2.018	0.334	1.56	1.914	0.233	1.05
HN4R78		1.767	0.083	0.39	1.644	-0.037	-0.16
L9YUCX		1.750	0.066	0.31	1.828	0.147	0.66
MZ3D3J	*	1.384	-0.300	-1.40	1.669	-0.012	-0.05
N6BYNV		1.300	-0.384	-1.79	1.460	-0.221	-0.99
NCN8RH		1.609	-0.075	-0.35	1.514	-0.167	-0.75
PJ3D2U		1.681	-0.003	-0.01	1.728	0.047	0.21
PZC3FG		1.607	-0.077	-0.36	1.383	-0.298	-1.33
T7LR7Q		1.386	-0.298	-1.39	1.436	-0.245	-1.10
TNQYKT		1.480	-0.204	-0.95	1.365	-0.316	-1.42
TUVV7E		1.491	-0.193	-0.90	1.662	-0.019	-0.08
UBJB8P		1.610	-0.074	-0.35	1.740	0.059	0.27
UEFWYR		1.706	0.022	0.10	1.804	0.123	0.55
UQTE9B		1.667	-0.017	-0.08	1.697	0.016	0.07
UVLGAP		1.608	-0.076	-0.35	1.629	-0.052	-0.23
V2PHGB		1.601	-0.083	-0.39	1.645	-0.036	-0.16
XC2QQ8		1.916	0.232	1.08	1.922	0.241	1.08
XFZZ2A		1.761	0.077	0.36	1.760	0.079	0.36
XMHDXM		2.036	0.352	1.64	2.000	0.319	1.43
XZ4T2M		1.588	-0.096	-0.45	1.514	-0.167	-0.75
Y9G23N		2.076	0.392	1.83	2.127	0.446	2.00
Z9NZCN		1.970	0.286	1.34	1.933	0.252	1.13
ZHY3XN		1.673	-0.011	-0.05	1.691	0.010	0.05

Summary Statistics	Sample NP35	Sample NP36
Grand Means	1.68 Percent	1.68 Percent
Stnd Dev Btwn Labs	0.21 Percent	0.22 Percent

Statistics based on 37 of 37 reporting participants.

Grand Mean Sample NP35 = 1.6840
Percent

Grand Mean Sample NP36 = 1.6806
Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 3121

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample PP35 Lab Mean	Sample PP35 Diff from Grand Mean	Sample PP35 CPV	Sample PP36 Lab Mean	Sample PP36 Diff from Grand Mean	Sample PP36 CPV
3QGFR6		9.460	-0.409	-0.72	9.98	-0.06	-0.12
6CVMG4		10.480	0.611	1.07	10.29	0.25	0.48
6D6W7F		9.914	0.045	0.08	9.50	-0.54	-1.06
6VPN7E		9.410	-0.459	-0.81	10.25	0.21	0.41
7Y3KBG		9.870	0.001	0.00	10.15	0.11	0.21
8A3TCX		10.230	0.361	0.64	10.36	0.32	0.62
94PCB9	X	8.120	-1.749	-3.07	7.57	-2.47	-4.82
B3863W		9.110	-0.759	-1.33	9.16	-0.88	-1.72
B4LAYA		9.630	-0.239	-0.42	10.06	0.02	0.04
DQQWEV		9.416	-0.453	-0.80	9.62	-0.42	-0.83
DTTXFR		9.929	0.060	0.11	10.38	0.33	0.65
FACB7P		9.660	-0.209	-0.37	9.39	-0.65	-1.27
H4Z772		8.800	-1.069	-1.88	8.88	-1.16	-2.27
HLJZXP		10.811	0.942	1.66	10.76	0.71	1.39
HN4R78		10.180	0.311	0.55	9.82	-0.22	-0.43
J6PU4M		9.392	-0.477	-0.84	9.84	-0.20	-0.39
N6BYNV		10.220	0.351	0.62	10.34	0.29	0.57
PCQWUU		9.812	-0.057	-0.10	9.65	-0.39	-0.76
PZC3FG		10.284	0.415	0.73	9.92	-0.12	-0.24
Q24H7H		9.276	-0.593	-1.04	10.08	0.04	0.08
Q3W43F		9.307	-0.562	-0.99	9.84	-0.20	-0.39
QEC4QW		9.700	-0.169	-0.30	10.40	0.36	0.70
T7LR7Q	*	11.544	1.675	2.95	11.50	1.46	2.85
TPYACQ		10.531	0.662	1.16	10.48	0.44	0.86
TTYK9P		9.200	-0.669	-1.18	9.40	-0.64	-1.25
TUVV7E	X	250.700	240.831	423.42	238.40	228.36	445.41
UEFWYR		9.480	-0.389	-0.68	10.03	-0.01	-0.02
V2PHGB		9.372	-0.497	-0.87	9.60	-0.44	-0.85
W6J2R8		10.070	0.201	0.35	10.00	-0.04	-0.08
WNWLNB	X	14.790	4.921	8.65	14.93	4.89	9.53
XC2QQ8		10.245	0.376	0.66	10.09	0.05	0.09
XFZZ2A		10.132	0.263	0.46	10.74	0.70	1.36
Y9G23N		9.735	-0.134	-0.24	10.03	-0.02	-0.03
YK7Y78		10.600	0.731	1.29	10.60	0.56	1.09
ZHY3XN		10.000	0.131	0.23	10.20	0.16	0.31

Summary Statistics	Sample PP35	Sample PP36
Grand Means	9.87 sec/100 cc	10.04 sec/100 cc
Stnd Dev Btwn Labs	0.57 sec/100 cc	0.51 sec/100 cc

Statistics based on 32 of 35 reporting participants.

Comments on Assigned Data Flags for Test #3121

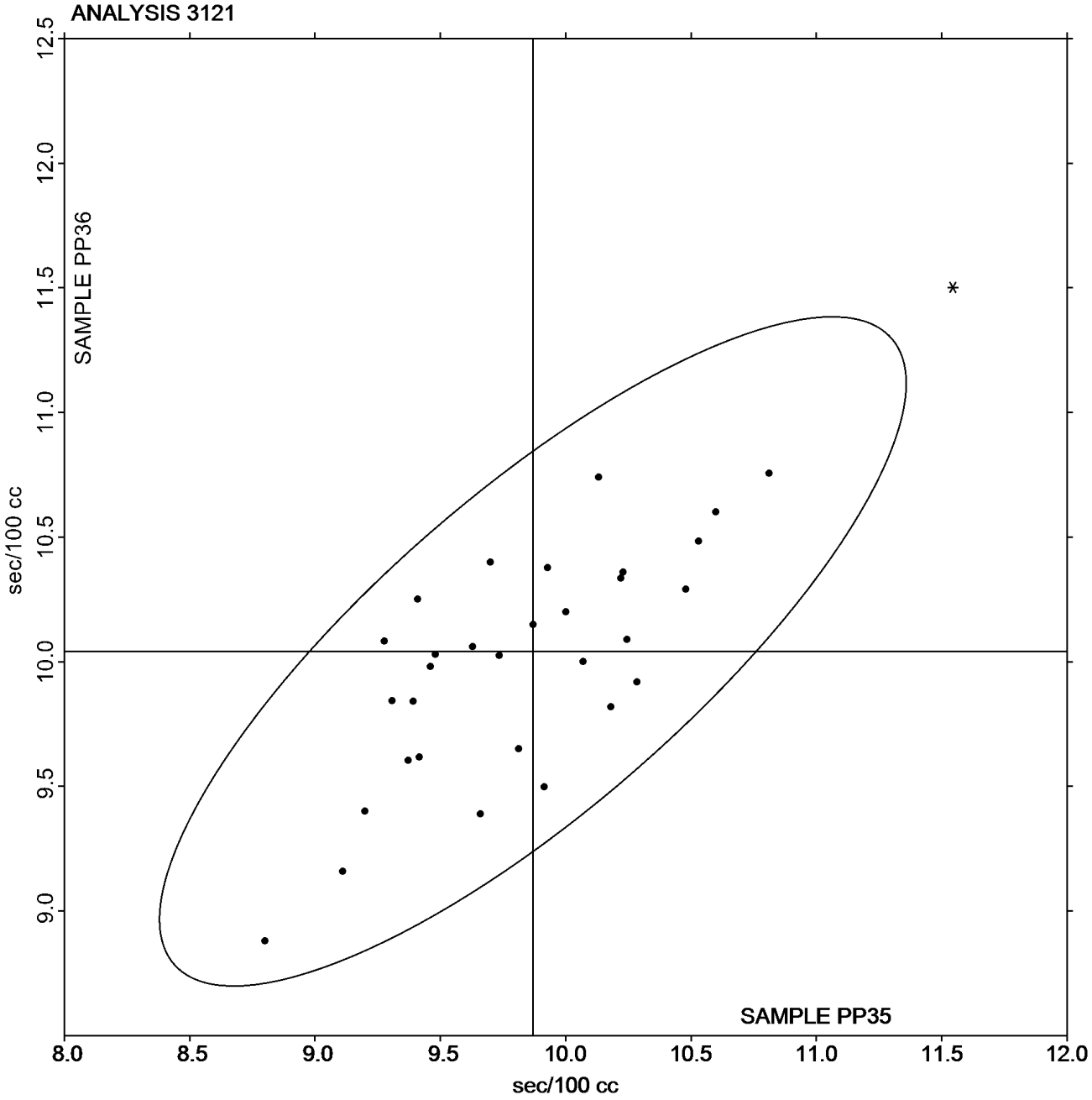
94PCB9 (X) - Data for both samples are low. Possible Systematic Error.

WNWLNB (X) - Extreme Data.

TUVV7E (X) - Extreme Data.

Grand Mean Sample PP35 = 9.8688 sec/100 cc

Grand Mean Sample PP36 = 10.042 sec/100 cc



Paper & Paperboard Interlaboratory Testing Program

Analysis 3123

Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice

TAPPI Official Test Method T547

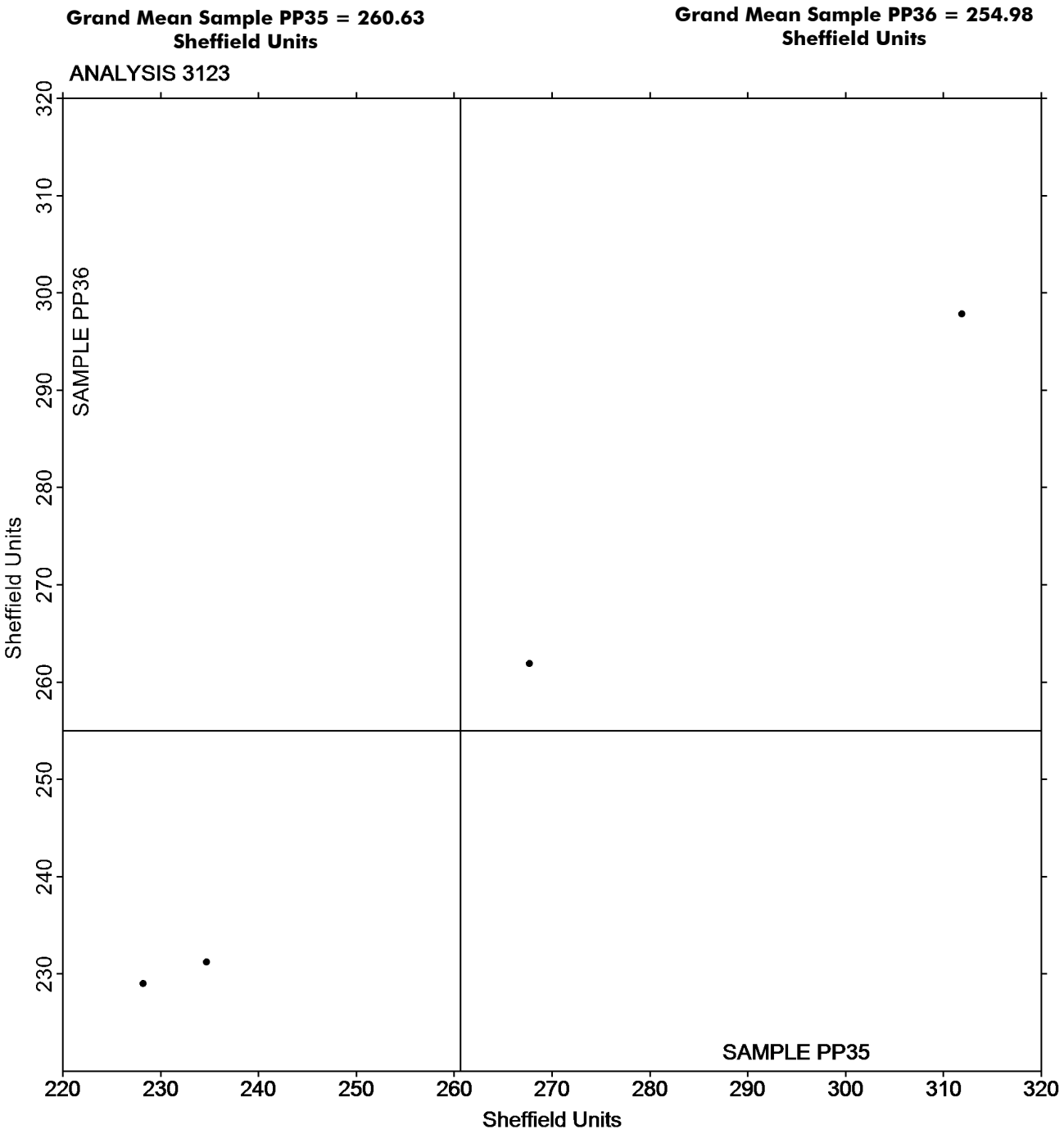
WebCode	Data Flag	Sample PP35 Lab Mean	Sample PP35 Diff from Grand Mean	Sample PP35 CPV	Sample PP36 Lab Mean	Sample PP36 Diff from Grand Mean	Sample PP36 CPV
3X2JY8	X	18.5	-242.1	-6.32	21.0	-234.0	-7.25
B4LAYA		228.2	-32.4	-0.85	229.0	-26.0	-0.81
HKMNY2		267.7	7.1	0.18	261.9	6.9	0.21
QEC4QW		234.7	-25.9	-0.68	231.2	-23.8	-0.74
UG3T3C		311.9	51.3	1.34	297.8	42.8	1.33

Summary Statistics	Sample PP35	Sample PP36
Grand Means	260.63 Sheffield Units	254.98 Sheffield Units
Stnd Dev Btwn Labs	38.31 Sheffield Units	32.26 Sheffield Units

Statistics based on 4 of 5 reporting participants.

Comments on Assigned Data Flags for Test #3123

3X2JY8 (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 3131

Roughness - Print Surf Method - 2.5 to 6.0 Microns

TAPPI Official Test Method T555

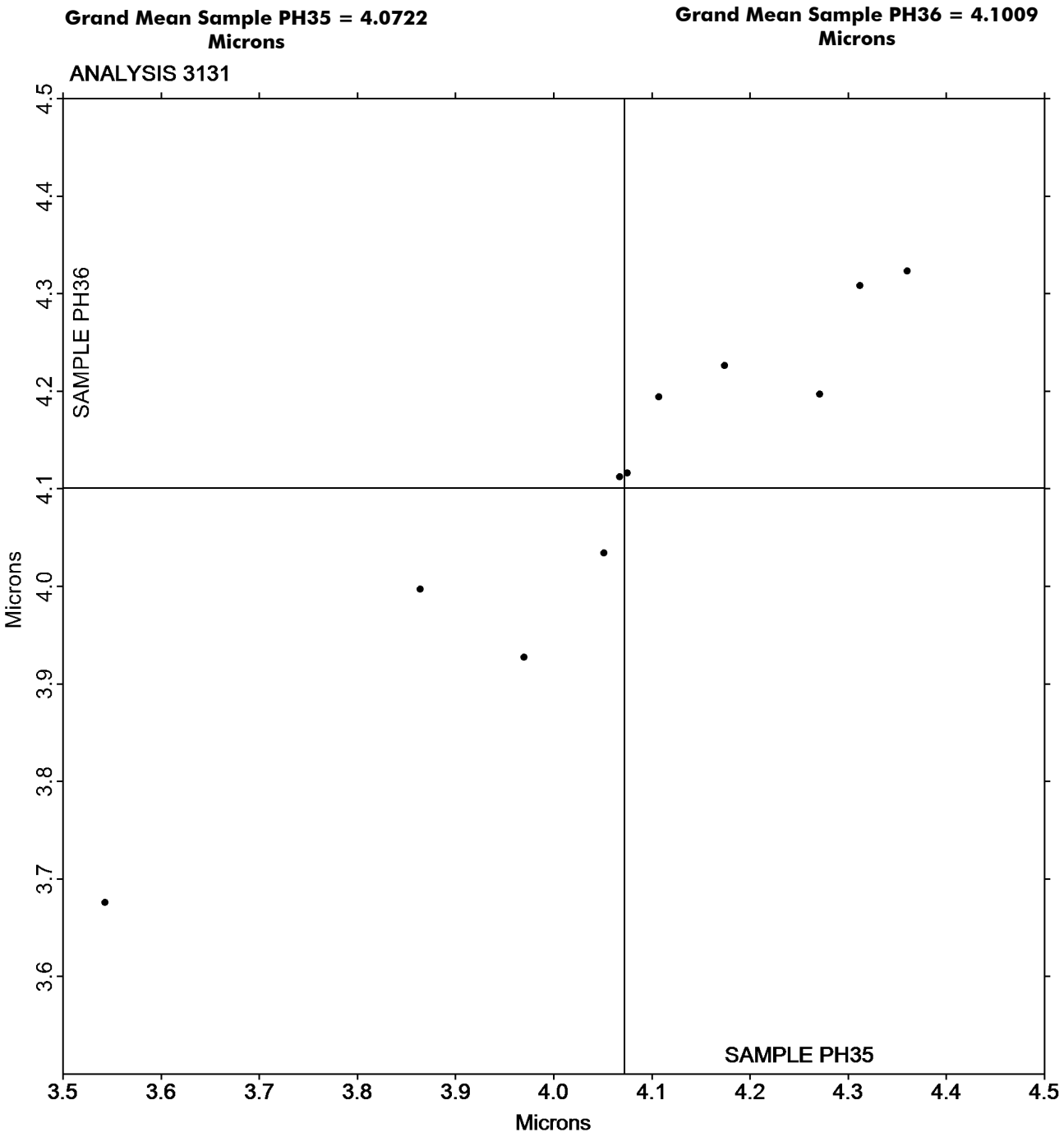
WebCode	Data Flag	Sample PH35 Lab Mean	Sample PH35 Diff from Grand Mean	Sample PH35 CPV	Sample PH36 Lab Mean	Sample PH36 Diff from Grand Mean	Sample PH36 CPV
3VD8XG		4.051	-0.021	-0.09	4.034	-0.067	-0.36
8J9FHD		4.067	-0.005	-0.02	4.112	0.011	0.06
CBGTFV		4.312	0.240	1.05	4.308	0.207	1.10
DQQWEV	X	12.425	8.353	36.43	13.284	9.183	48.93
J6PU4M		3.543	-0.529	-2.31	3.676	-0.425	-2.26
LAV6AL		4.075	0.003	0.01	4.116	0.015	0.08
PJ3D2U		3.864	-0.208	-0.91	3.997	-0.104	-0.55
PWRCRW		4.174	0.102	0.44	4.226	0.125	0.67
Q3W43F		4.107	0.035	0.15	4.194	0.093	0.50
UEFWYR		3.970	-0.102	-0.45	3.927	-0.174	-0.93
UVLGAP		4.360	0.288	1.26	4.323	0.222	1.18
XFZZ2A		4.271	0.199	0.87	4.197	0.096	0.51

Summary Statistics	Sample PH35	Sample PH36
Grand Means	4.07 Microns	4.10 Microns
Stnd Dev Btwn Labs	0.23 Microns	0.19 Microns

Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #3131

DQQWEV (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 3133

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample SR35 Lab Mean	Sample SR35 Diff from Grand Mean	Sample SR35 CPV	Sample SR36 Lab Mean	Sample SR36 Diff from Grand Mean	Sample SR36 CPV
2PC9C8		190.8	-0.8	-0.06	200.2	8.4	0.63
3DV9TJ		211.4	19.9	1.49	216.8	25.0	1.87
3QGFR6		197.5	5.9	0.44	193.2	1.4	0.10
3X2JY8		180.9	-10.7	-0.80	189.4	-2.4	-0.18
6CVMG4		187.3	-4.3	-0.32	183.0	-8.8	-0.66
6VPN7E		185.8	-5.8	-0.43	189.3	-2.5	-0.19
7BWYDX		198.6	7.0	0.53	202.8	11.0	0.82
7Y3KBG		195.1	3.5	0.26	180.6	-11.2	-0.84
8J9FHD		185.5	-6.1	-0.45	189.4	-2.4	-0.18
9M3W8C		171.3	-20.3	-1.52	171.5	-20.3	-1.52
9VEQPZ		198.9	7.3	0.55	188.5	-3.4	-0.25
B4LAYA		178.5	-13.1	-0.98	171.3	-20.5	-1.54
BRNNEW		197.3	5.7	0.43	192.0	0.2	0.01
DPULG8		168.9	-22.7	-1.70	169.3	-22.5	-1.69
DQQWEV	X	1.5	-190.1	-14.22	0.9	-190.9	-14.29
DTTXFR		189.0	-2.6	-0.20	191.3	-0.5	-0.04
FACB7P		202.5	10.9	0.82	195.1	3.3	0.25
FZLPZQ		178.2	-13.4	-1.00	183.4	-8.4	-0.63
HEZWPM		202.7	11.1	0.83	203.2	11.3	0.85
HKMNY2	X	62.0	-129.6	-9.69	85.9	-105.9	-7.93
HLJZXP		170.9	-20.7	-1.55	166.5	-25.3	-1.89
HN4R78	X	243.9	52.3	3.91	261.6	69.8	5.22
J6PU4M		196.7	5.1	0.38	192.3	0.5	0.04
LAV6AL		201.0	9.4	0.70	188.4	-3.4	-0.26
LHLT33	X	241.4	49.9	3.73	223.9	32.1	2.40
MZ3D3J		185.7	-5.9	-0.44	192.0	0.1	0.01
N6BYNV	X	190.6	-0.9	-0.07	233.0	41.2	3.08
PCQWUU		206.3	14.8	1.10	195.9	4.1	0.31
PF8LTX		193.5	1.9	0.14	195.0	3.2	0.24
PJ3D2U		197.2	5.6	0.42	199.0	7.2	0.54
PZC3FG		181.6	-10.0	-0.75	183.4	-8.4	-0.63
Q24H7H		210.0	18.4	1.38	210.5	18.7	1.40
Q3W43F		214.9	23.3	1.74	217.6	25.7	1.93
QEC4QW		172.2	-19.4	-1.45	176.8	-15.0	-1.12
T7LR7Q		168.5	-23.1	-1.73	173.4	-18.4	-1.38
TPYACQ		181.0	-10.6	-0.79	183.1	-8.7	-0.65
TTYK9P		181.3	-10.3	-0.77	185.6	-6.2	-0.47
TUVV7E		193.3	1.7	0.13	200.3	8.5	0.64
UEFWYR		210.0	18.4	1.38	216.0	24.2	1.81
UVLGAP		191.6	0.0	0.00	192.7	0.8	0.06

Paper & Paperboard Interlaboratory Testing Program

Analysis 3133

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample SR35 Lab Mean	Sample SR35 Diff from Grand Mean	Sample SR35 CPV	Sample SR36 Lab Mean	Sample SR36 Diff from Grand Mean	Sample SR36 CPV
V2PHGB		217.7	26.2	1.96	214.3	22.5	1.69
X6XMYN		209.5	17.9	1.34	209.0	17.2	1.29
XC2QQ8		186.4	-5.2	-0.39	188.4	-3.5	-0.26
XFZZ2A		194.8	3.2	0.24	191.6	-0.2	-0.02
XMHDXM		171.6	-20.0	-1.50	169.9	-22.0	-1.64
Y9G23N		183.7	-7.9	-0.59	197.4	5.6	0.42
YEMVY6		206.8	15.2	1.14	207.2	15.4	1.15

Summary Statistics	Sample SR35	Sample SR36
Grand Means	191.58 Sheffield	191.82 Sheffield
Stnd Dev Btwn Labs	13.37 Sheffield	13.36 Sheffield

Statistics based on 42 of 47 reporting participants.

Comments on Assigned Data Flags for Test #3133

N6BYNV (X) - Data for sample SR36 are high. Inconsistent within the determinations of sample SR36.

HKMNY2 (X) - Extreme Data.

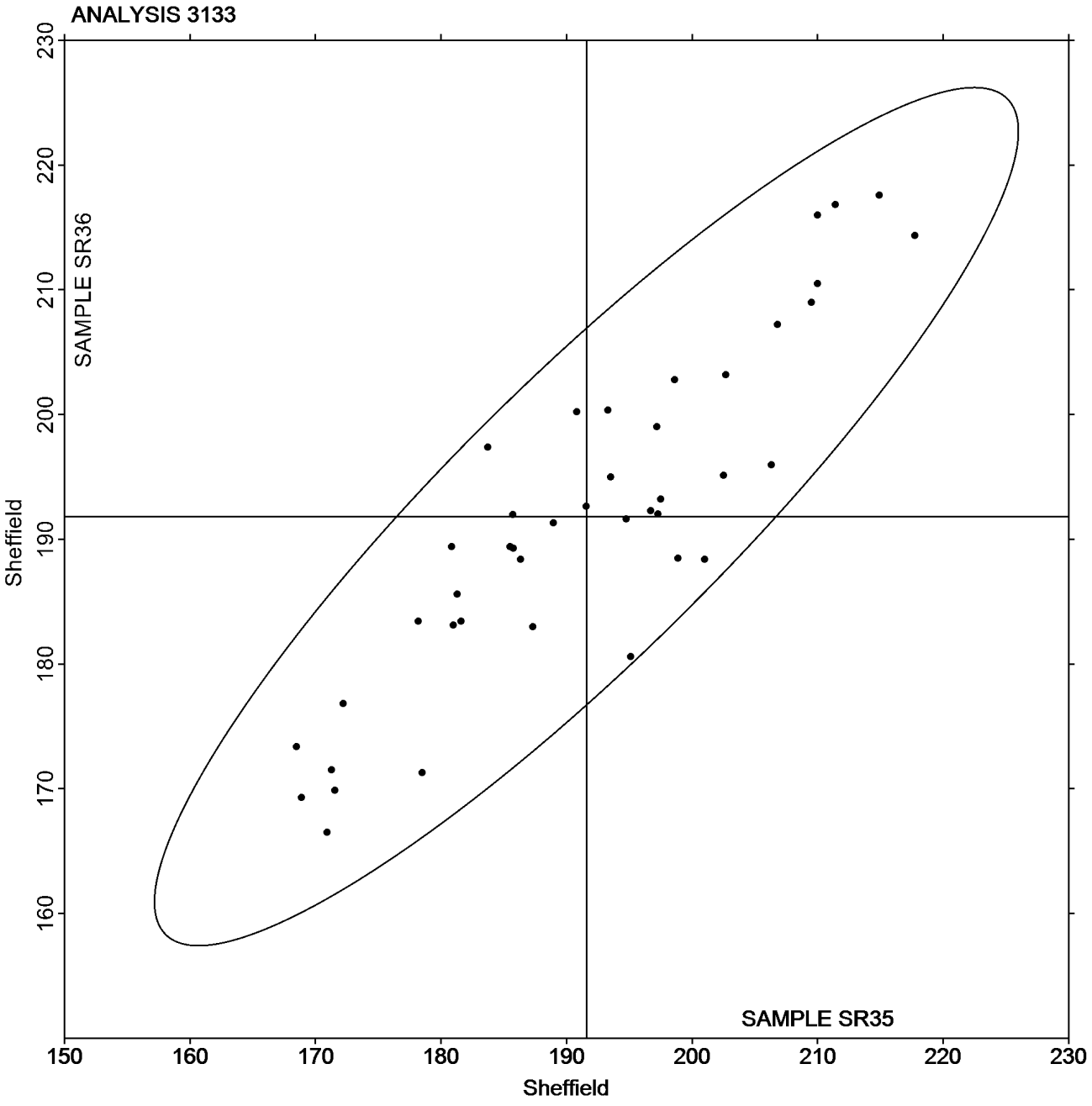
HN4R78 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample SR35.

LHLT33 (X) - Data for sample SR35 are high.

DQQWEV (X) - Extreme Data.

Grand Mean Sample SR35 = 191.58
Sheffield

Grand Mean Sample SR36 = 191.82
Sheffield



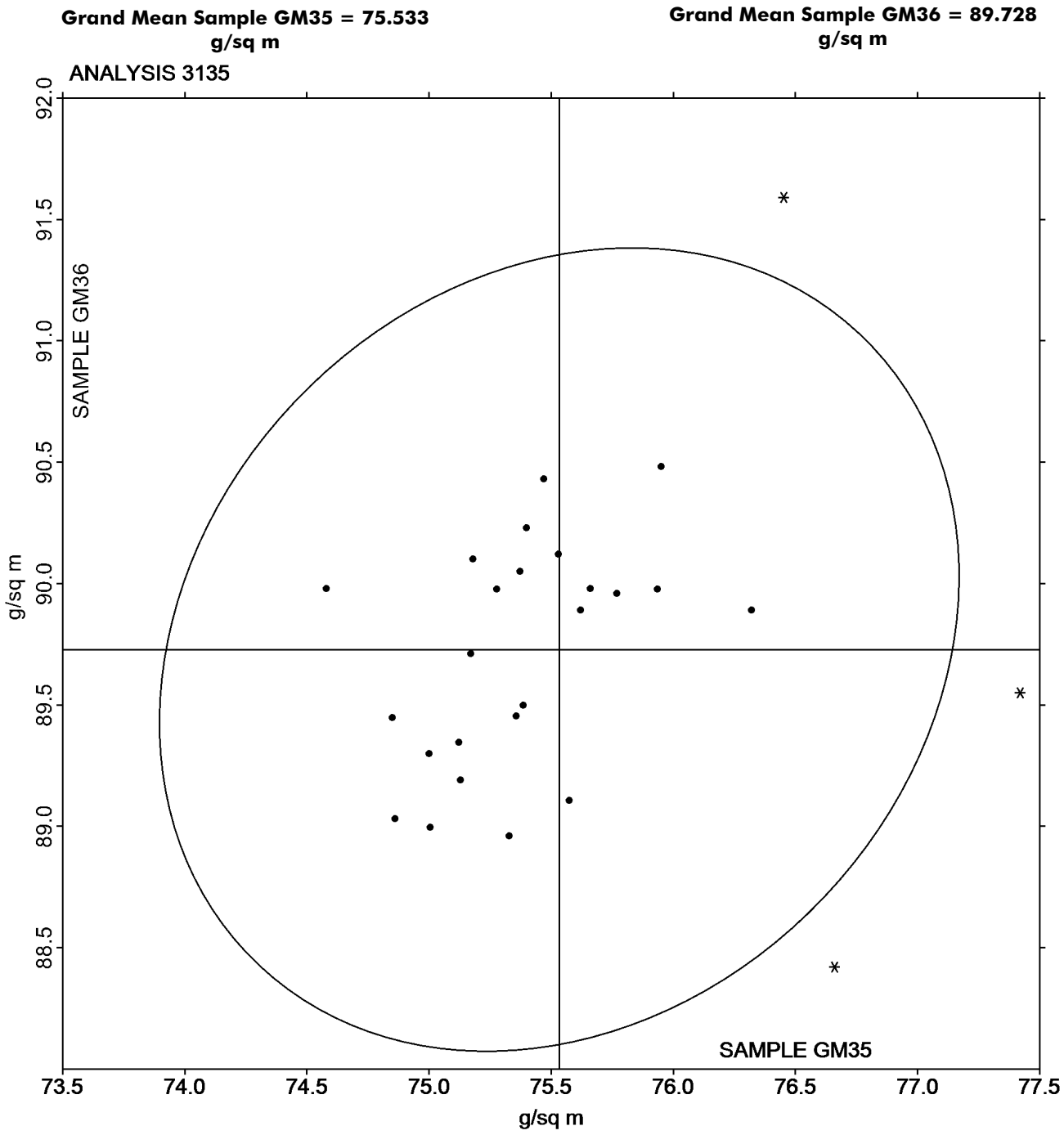
Paper & Paperboard Interlaboratory Testing Program

Analysis 3135
Grammage (Mass per Unit Area)
TAPPI Official Test Method T410

WebCode	Data Flag	Sample GM35 Lab Mean	Sample GM35 Diff from Grand Mean	Sample GM35 CPV	Sample GM36 Lab Mean	Sample GM36 Diff from Grand Mean	Sample GM36 CPV
3EQML3		75.77	0.24	0.38	89.96	0.23	0.37
6VPN7E		75.18	-0.35	-0.57	90.10	0.37	0.60
7Y3KBG		75.66	0.13	0.21	89.98	0.25	0.40
9VEQPZ		74.86	-0.67	-1.09	89.03	-0.70	-1.12
A7AJBV	*	76.45	0.92	1.49	91.59	1.86	2.99
AEMDQX		75.47	-0.06	-0.10	90.43	0.70	1.13
B3863W	*	77.42	1.89	3.06	89.55	-0.18	-0.29
B4LAYA		75.40	-0.13	-0.22	90.23	0.50	0.80
C2NFEA		75.36	-0.18	-0.29	89.46	-0.27	-0.44
DRKHCR	*	76.66	1.13	1.83	88.42	-1.31	-2.10
F4LZWQ		75.33	-0.20	-0.33	88.96	-0.77	-1.23
FFZXYA		75.37	-0.16	-0.26	90.05	0.32	0.52
HKMNY2		75.17	-0.36	-0.59	89.71	-0.02	-0.03
HN4R78		76.32	0.79	1.28	89.89	0.16	0.26
LZ6J4N		75.39	-0.15	-0.24	89.50	-0.23	-0.37
NCN8RH		75.01	-0.53	-0.86	89.00	-0.73	-1.18
PWRCRW		75.28	-0.25	-0.41	89.98	0.25	0.40
PZC3FG		74.58	-0.95	-1.54	89.98	0.25	0.40
TTYK9P		75.13	-0.40	-0.65	89.19	-0.54	-0.86
UBJB8P		75.93	0.40	0.65	89.98	0.25	0.40
UK6RHB		75.00	-0.53	-0.86	89.30	-0.43	-0.69
V2PHGB		75.95	0.42	0.68	90.48	0.75	1.21
VGFMHC		75.57	0.04	0.07	89.11	-0.62	-1.00
VHB7KD		75.62	0.09	0.14	89.89	0.16	0.26
W3DF2M		75.53	0.00	0.00	90.12	0.39	0.63
W9HCM8		74.85	-0.68	-1.11	89.45	-0.28	-0.45
WP6X4R		75.12	-0.41	-0.66	89.35	-0.38	-0.61

Summary Statistics	Sample GM35	Sample GM36
Grand Means	75.53 g/sq m	89.73 g/sq m
Stnd Dev Btwn Labs	0.62 g/sq m	0.62 g/sq m

Statistics based on 27 of 27 reporting participants.



Paper & Paperboard Interlaboratory Testing Program

Analysis 3141

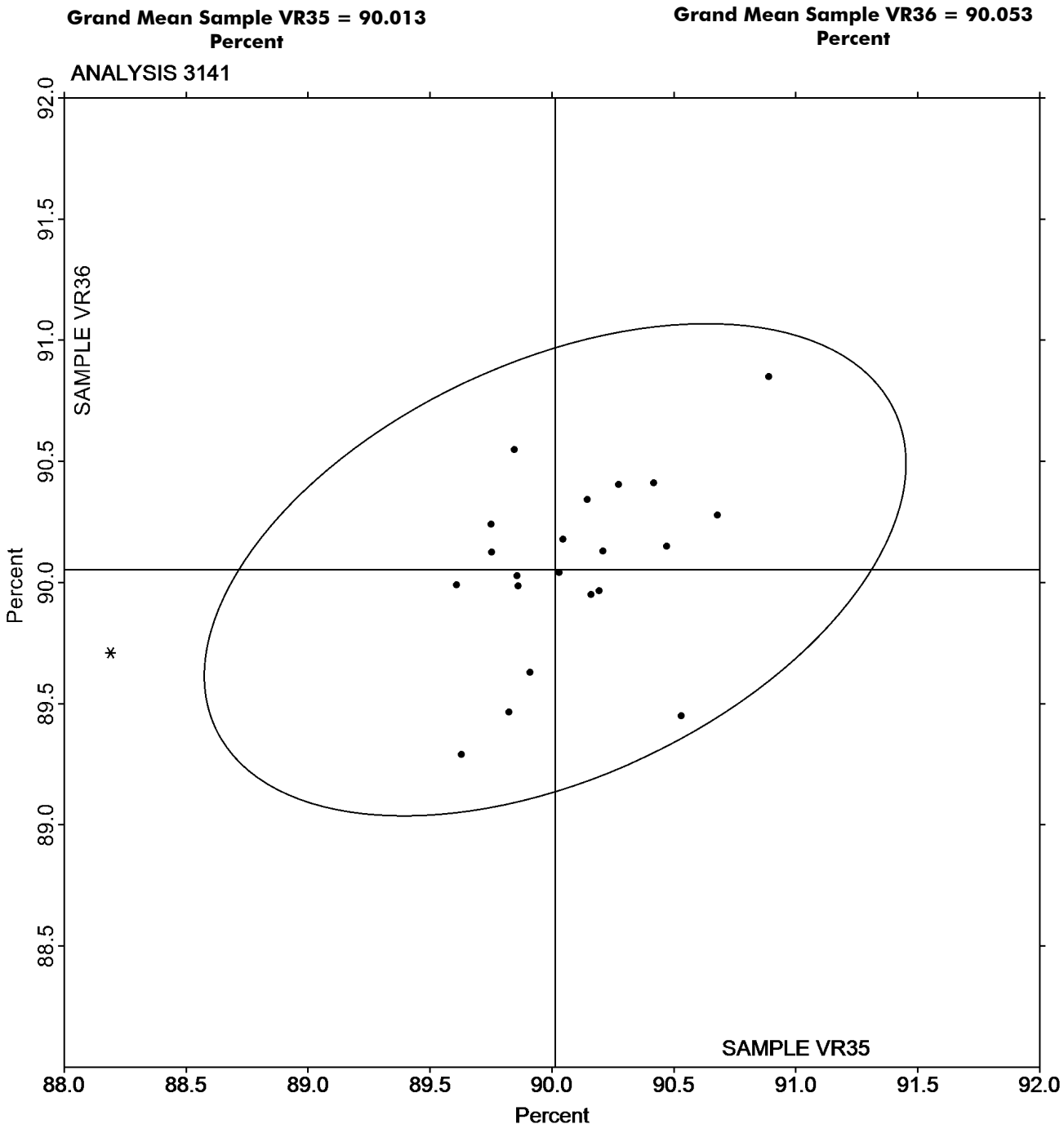
Opacity (89% Reflectance Backing) - Fine Papers

TAPPI Official Test Method T425

WebCode	Data Flag	Sample VR35 Lab Mean	Sample VR35 Diff from Grand Mean	Sample VR35 CPV	Sample VR36 Lab Mean	Sample VR36 Diff from Grand Mean	Sample VR36 CPV
6VPN7E		90.21	0.20	0.37	90.13	0.08	0.21
7Y3KBG		90.16	0.15	0.28	89.95	-0.10	-0.27
9VEQPZ		89.91	-0.10	-0.19	89.63	-0.42	-1.13
B4LAYA		90.53	0.52	0.97	89.45	-0.60	-1.61
BRNNEW		89.75	-0.26	-0.49	90.24	0.19	0.50
C2NFEA		89.86	-0.15	-0.29	90.03	-0.03	-0.07
CZEB38		90.68	0.67	1.25	90.28	0.22	0.60
DQQWEV		89.82	-0.19	-0.36	89.47	-0.59	-1.56
DTTXFR		89.85	-0.17	-0.31	90.55	0.50	1.32
HKMNY2		89.61	-0.40	-0.76	89.99	-0.06	-0.17
HLJZXP		90.42	0.41	0.76	90.41	0.36	0.96
LAV6AL		90.05	0.03	0.06	90.18	0.13	0.33
PCQWUU		89.86	-0.15	-0.28	89.99	-0.07	-0.18
PZC3FG		90.03	0.02	0.03	90.04	-0.01	-0.03
Q24H7H		89.63	-0.38	-0.72	89.29	-0.76	-2.03
QEC4QW		90.19	0.18	0.34	89.97	-0.09	-0.23
TTYK9P	*	88.19	-1.82	-3.43	89.71	-0.34	-0.91
UG3T3C		90.89	0.88	1.65	90.85	0.80	2.13
UQTE9B		90.27	0.26	0.49	90.41	0.35	0.94
UVLGAP		89.75	-0.26	-0.49	90.13	0.07	0.19
V2PHGB		90.47	0.46	0.86	90.15	0.10	0.26
XFZZ2A		90.15	0.13	0.25	90.34	0.29	0.77

Summary Statistics	Sample VR35	Sample VR36
Grand Means	90.01 Percent	90.05 Percent
Stnd Dev Btwn Labs	0.53 Percent	0.37 Percent

Statistics based on 22 of 22 reporting participants.



Paper & Paperboard Interlaboratory Testing Program

Analysis 3143

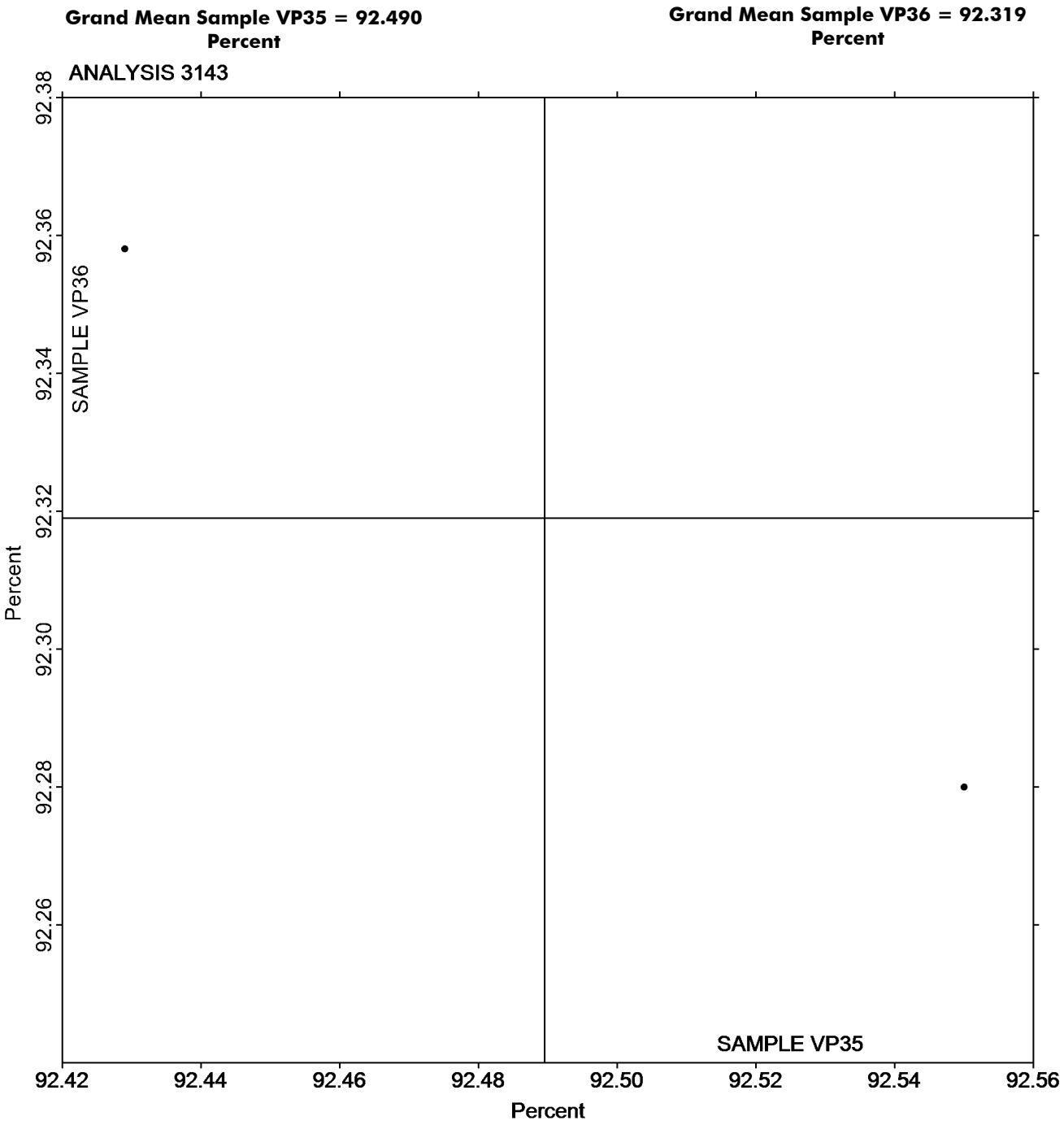
Opacity (Paper Backing) - Fine Papers and Newsprint

TAPPI Official Test Method T519

WebCode	Data Flag	Sample VP35 Lab Mean	Sample VP35 Diff from Grand Mean	Sample VP35 CPV	Sample VP36 Lab Mean	Sample VP36 Diff from Grand Mean	Sample VP36 CPV
B3863W		92.55	0.06	0.71	92.28	-0.04	-0.71
HN4R78		92.43	-0.06	-0.71	92.36	0.04	0.71

Summary Statistics	Sample VP35	Sample VP36
Grand Means	92.49 Percent	92.32 Percent
Stnd Dev Btwn Labs	0.09 Percent	0.06 Percent

Statistics based on 2 of 2 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 3145

Directional Brightness of Fluorescent Samples

TAPPI Official Test Method T452

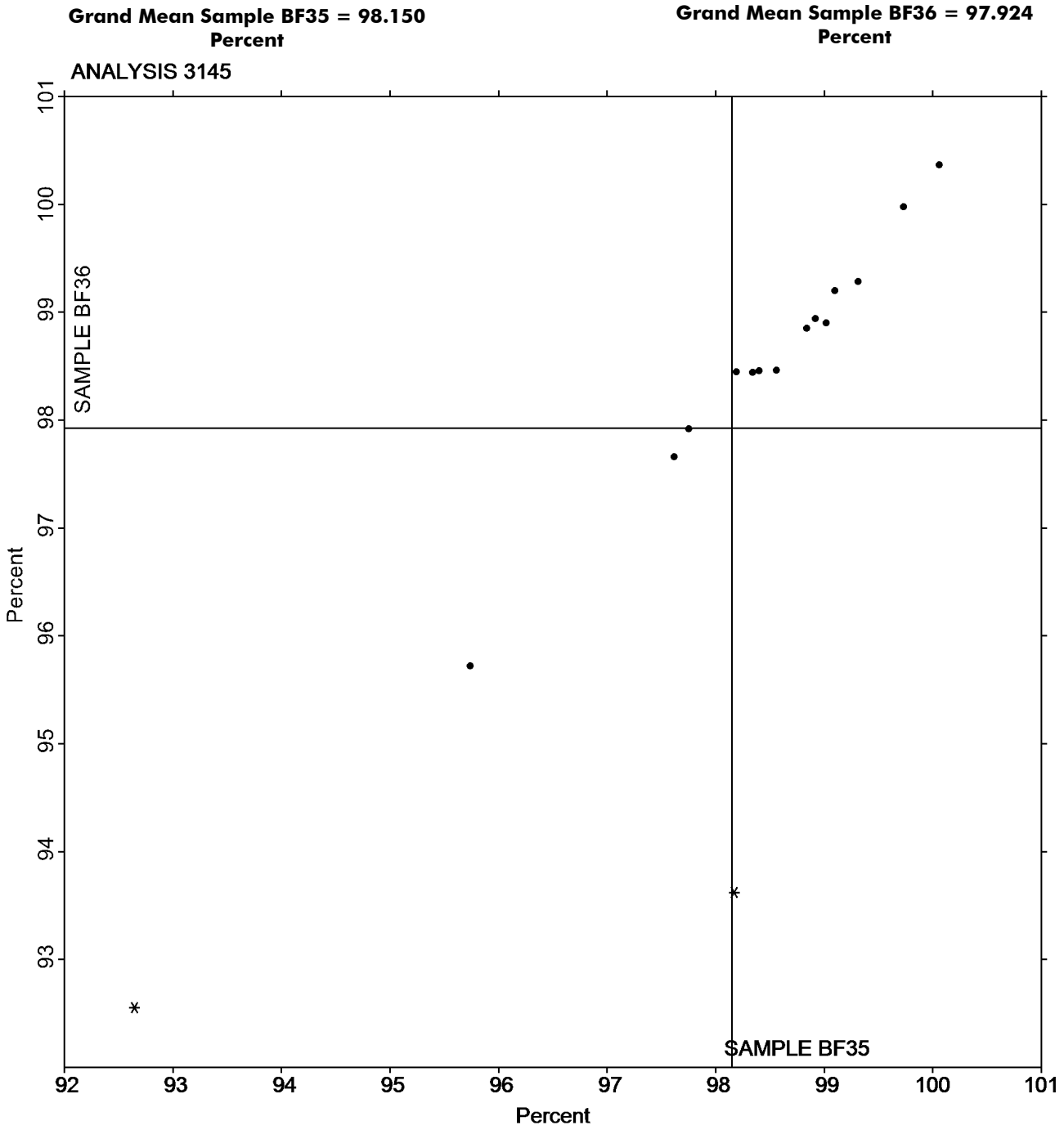
WebCode	Data Flag	Sample BF35 Lab Mean	Sample BF35 Diff from Grand Mean	Sample BF35 CPV	Sample BF36 Lab Mean	Sample BF36 Diff from Grand Mean	Sample BF36 CPV
6VPN7E		99.31	1.16	0.66	99.28	1.36	0.63
BMDDHV		99.02	0.87	0.49	98.90	0.98	0.45
C2NFEA		98.19	0.04	0.02	98.44	0.52	0.24
CZEB38		97.75	-0.40	-0.22	97.92	-0.01	0.00
DQQWEV		97.62	-0.53	-0.30	97.66	-0.26	-0.12
FACB7P		98.34	0.19	0.11	98.44	0.52	0.24
HLJZXP		99.10	0.95	0.54	99.20	1.27	0.59
LAV6AL		100.06	1.91	1.08	100.37	2.44	1.13
PCQWUU	*	98.17	0.02	0.01	93.62	-4.30	-1.99
T7LR7Q		99.73	1.58	0.89	99.98	2.05	0.95
TQWKAE		98.92	0.77	0.43	98.94	1.02	0.47
TTYK9P		95.74	-2.41	-1.36	95.72	-2.20	-1.02
UG3T3C		98.56	0.41	0.23	98.46	0.54	0.25
UQTE9B		98.84	0.69	0.39	98.85	0.92	0.43
XFZZ2A		98.40	0.25	0.14	98.46	0.53	0.25
XMHDXM	*	92.65	-5.50	-3.11	92.55	-5.37	-2.49

Summary Statistics	Sample BF35	Sample BF36
Grand Means	98.15 Percent	97.92 Percent
Stnd Dev Btwn Labs	1.77 Percent	2.16 Percent

Statistics based on 16 of 16 reporting participants.

Analysis Notes:

DQQWEV - Data appears to be transposed between Analysis 3145 (Directional Brightness) and Analysis 3146 (Fluorescent Component). CTS will not correct 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 3146

Fluorescent Component of Directional Brightness

TAPPI Official Test Method T452

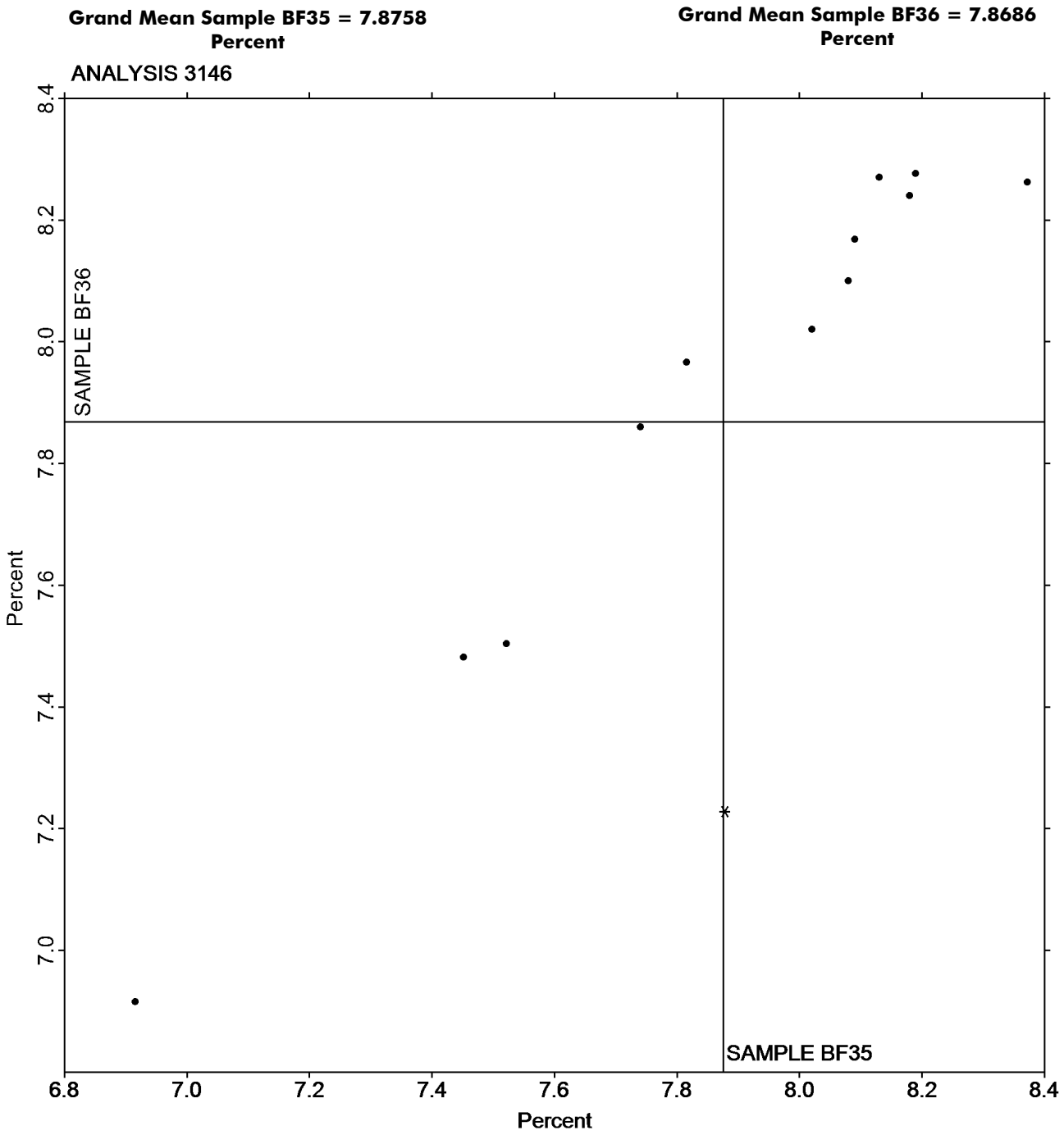
WebCode	Data Flag	Sample BF35 Lab Mean	Sample BF35 Diff from Grand Mean	Sample BF35 CPV	Sample BF36 Lab Mean	Sample BF36 Diff from Grand Mean	Sample BF36 CPV
6VPN7E		8.372	0.496	1.26	8.262	0.393	0.88
BMDDHV		7.740	-0.136	-0.35	7.860	-0.009	-0.02
CZEB38		7.522	-0.354	-0.90	7.504	-0.365	-0.82
DQQWEV		8.080	0.204	0.52	8.100	0.231	0.52
FACB7P		8.020	0.144	0.37	8.020	0.151	0.34
HLJZXP		8.130	0.254	0.65	8.270	0.401	0.90
LAV6AL		8.190	0.314	0.80	8.276	0.407	0.91
PCQWUU	*	7.878	0.002	0.01	7.228	-0.641	-1.43
T7LR7Q		7.816	-0.060	-0.15	7.966	0.097	0.22
TQWKAE		8.180	0.304	0.77	8.240	0.371	0.83
UQTE9B		7.452	-0.424	-1.08	7.482	-0.387	-0.87
XFZZ2A		8.090	0.214	0.54	8.168	0.299	0.67
XMHDXM		6.916	-0.960	-2.44	6.916	-0.953	-2.13

Summary Statistics	Sample BF35	Sample BF36
Grand Means	7.88 Percent	7.87 Percent
Stnd Dev Btwn Labs	0.39 Percent	0.45 Percent

Statistics based on 13 of 13 reporting participants.

Analysis Notes:

DQQWEV - Data appears to be transposed between Analysis 3145 (Directional Brightness) and Analysis 3146 (Fluorescent Component). CTS will not correct 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 3201

Bending Resistance, Taber Type - 0 to 10 Units

TAPPI Official Test Method T566

WebCode	Data Flag	Sample TP35 Lab Mean	Sample TP35 Diff from Grand Mean	Sample TP35 CPV	Sample TP36 Lab Mean	Sample TP36 Diff from Grand Mean	Sample TP36 CPV
3X2JY8	X	1,504.087	1,502.115	5,862.68	1,532.639	1,530.639	7,760.11
9VEQPZ		2.089	0.117	0.46	2.171	0.171	0.87
DQQWEV		1.965	-0.007	-0.03	1.945	-0.055	-0.28
HKMNY2		2.152	0.180	0.70	2.133	0.133	0.68
HLJZXP		1.891	-0.081	-0.32	1.810	-0.190	-0.96
L9YUCX		1.940	-0.032	-0.13	1.953	-0.047	-0.24
PCQWUU		1.914	-0.059	-0.23	1.894	-0.106	-0.54
QEC4QW		2.430	0.458	1.79	2.400	0.400	2.03
TPYACQ		1.469	-0.503	-1.96	1.799	-0.201	-1.02
XFZZ2A		1.900	-0.073	-0.28	1.894	-0.106	-0.54

Summary Statistics	Sample TP35	Sample TP36
Grand Means	1.97 Taber Units	2.00 Taber Units
Stnd Dev Btwn Labs	0.26 Taber Units	0.20 Taber Units

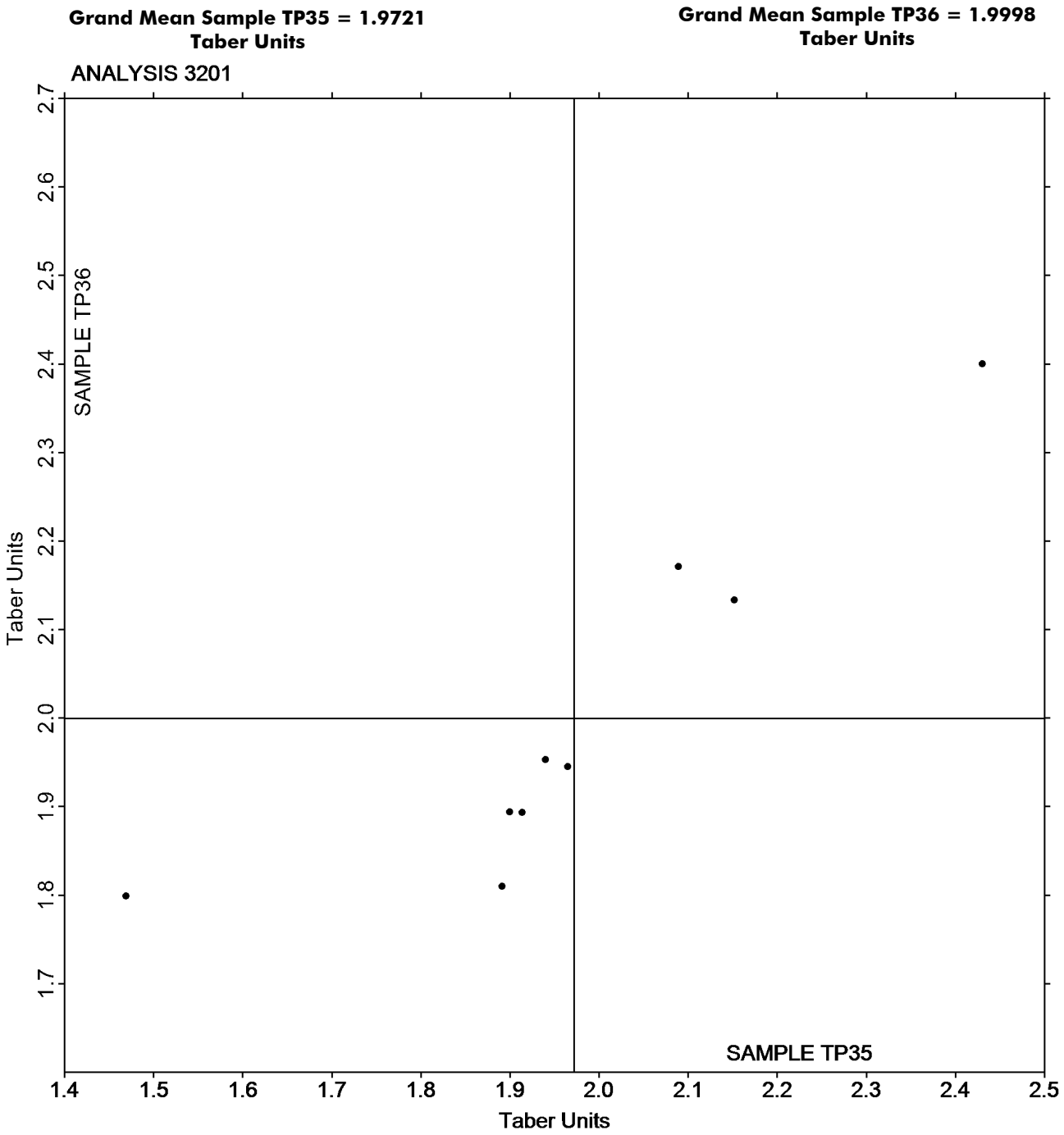
Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #3201

3X2JY8 (X) - Extreme Data.

Analysis Notes:

DQQWEV - Data appear to be reported as mN-m, not g-cm 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 3203

Bending Resistance, Taber Type - 10 to 100 Taber Units

TAPPI Official Test Method T489

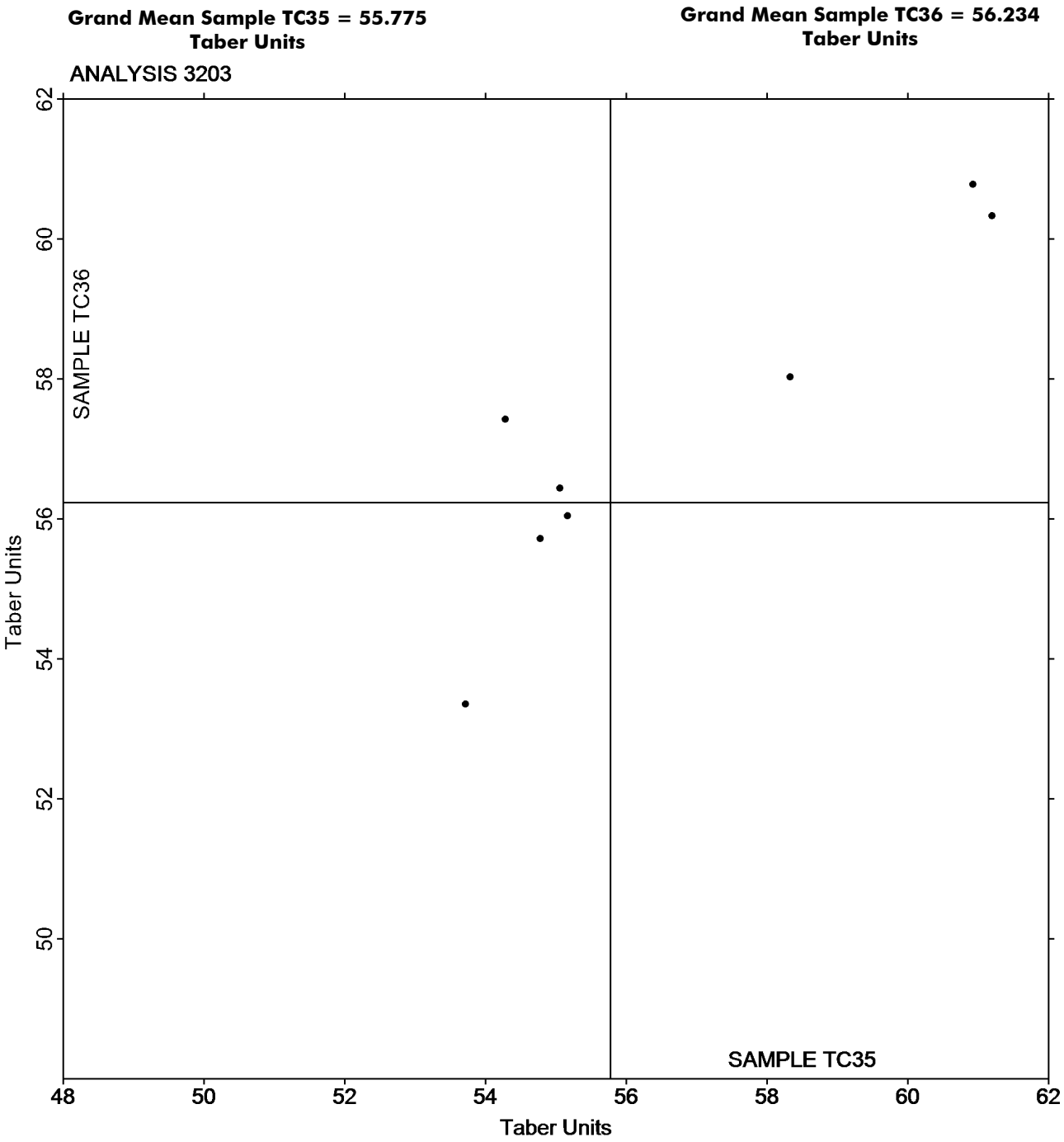
WebCode	Data Flag	Sample TC35 Lab Mean	Sample TC35 Diff from Grand Mean	Sample TC35 CPV	Sample TC36 Lab Mean	Sample TC36 Diff from Grand Mean	Sample TC36 CPV
3DV9TJ		61.20	5.43	1.38	60.33	4.10	1.06
3VD8XG		54.78	-0.99	-0.25	55.72	-0.51	-0.13
6VPN7E		53.72	-2.05	-0.52	53.35	-2.88	-0.75
8J9FHD		58.33	2.56	0.65	58.03	1.79	0.47
DQQWEV		55.17	-0.60	-0.15	56.04	-0.19	-0.05
PJ3D2U		54.28	-1.49	-0.38	57.42	1.19	0.31
Q3W43F		48.50	-7.27	-1.85	48.00	-8.23	-2.14
UEFWYR		55.06	-0.71	-0.18	56.44	0.21	0.05
X6XMYN		60.93	5.16	1.31	60.78	4.55	1.18
XCWATA	X	28.03	-27.74	-7.05	28.26	-27.97	-7.27

Summary Statistics	Sample TC35	Sample TC36
Grand Means	55.77 Taber Units	56.23 Taber Units
Stnd Dev Btwn Labs	3.93 Taber Units	3.85 Taber Units

Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #3203

XCWATA (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 3205

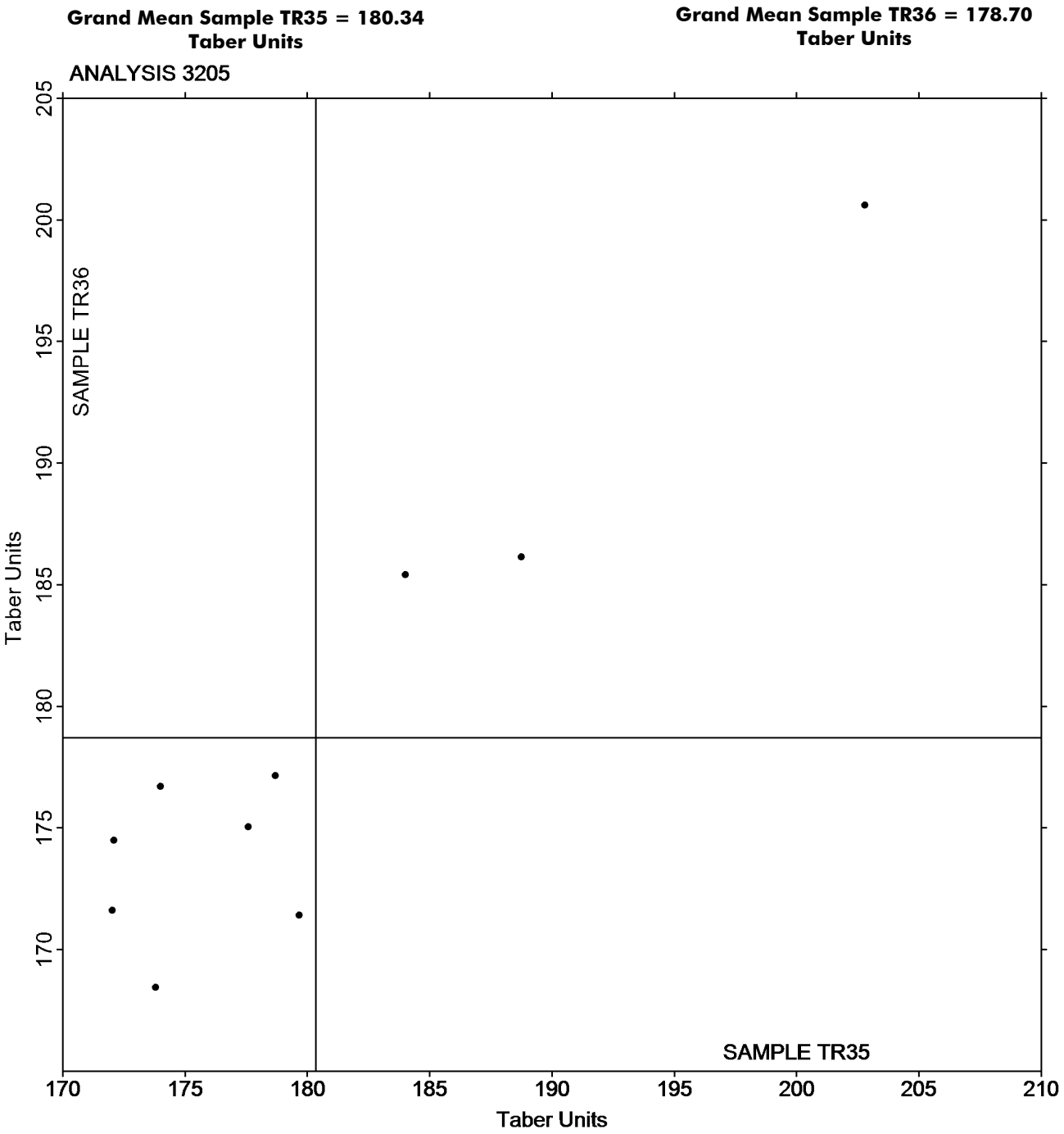
Bending Resistance, Taber Type - 50 to 500 Taber Units - Recycled Paperboard

TAPPI Official Test Method T489

WebCode	Data Flag	Sample TR35 Lab Mean	Sample TR35 Diff from Grand Mean	Sample TR35 CPV	Sample TR36 Lab Mean	Sample TR36 Diff from Grand Mean	Sample TR36 CPV
2PC9C8		172.1	-8.2	-0.86	174.5	-4.2	-0.44
63MBYZ		188.8	8.4	0.88	186.2	7.5	0.78
7BWYDX		202.8	22.5	2.35	200.6	21.9	2.29
8J9FHD		177.6	-2.8	-0.29	175.0	-3.7	-0.38
9M3W8C		184.0	3.7	0.38	185.4	6.7	0.70
BRNNEW		173.8	-6.6	-0.69	168.4	-10.3	-1.07
J6PU4M		172.0	-8.3	-0.87	171.6	-7.1	-0.74
PJ3D2U		179.7	-0.7	-0.07	171.4	-7.3	-0.76
UEFWYR		178.7	-1.6	-0.17	177.2	-1.5	-0.16
XNDWZP		174.0	-6.3	-0.66	176.7	-2.0	-0.21

Summary Statistics	Sample TR35	Sample TR36
Grand Means	180.34 Taber Units	178.70 Taber Units
Stnd Dev Btwn Labs	9.54 Taber Units	9.58 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.

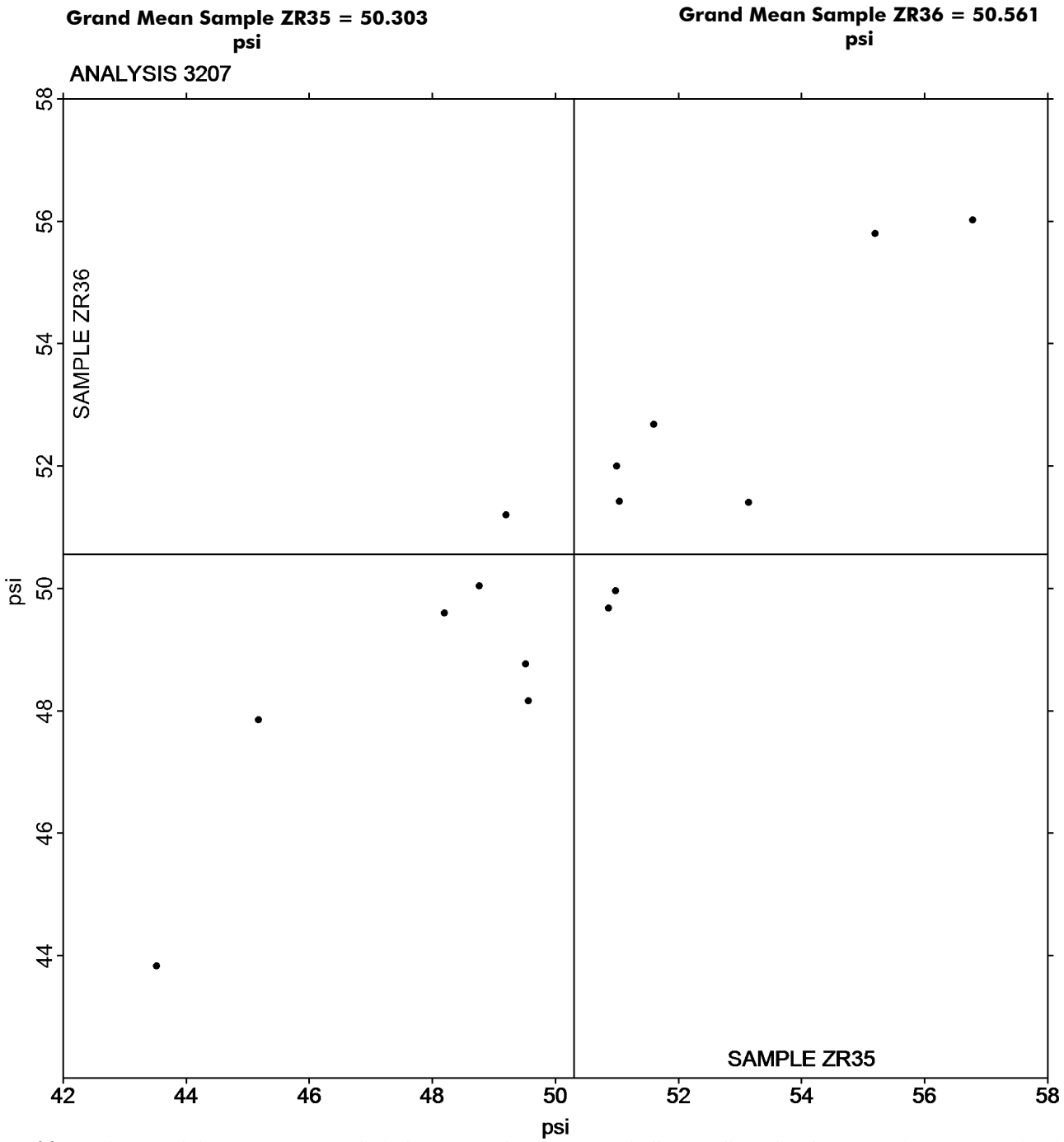
Paper & Paperboard Interlaboratory Testing Program

Analysis 3207
Z-Direction Tensile, Recycled Paperboard
TAPPI Official Test Method T541

WebCode	Data Flag	Sample ZR35 Lab Mean	Sample ZR35 Diff from Grand Mean	Sample ZR35 CPV	Sample ZR36 Lab Mean	Sample ZR36 Diff from Grand Mean	Sample ZR36 CPV
2PC9C8		51.04	0.74	0.22	51.42	0.86	0.28
63MBYZ		45.18	-5.12	-1.52	47.85	-2.71	-0.89
8A3TCX		56.78	6.48	1.92	56.02	5.46	1.79
BNNCHW		48.20	-2.10	-0.62	49.60	-0.96	-0.32
BRNNEW		49.52	-0.78	-0.23	48.76	-1.80	-0.59
FZLPZQ		55.20	4.90	1.45	55.80	5.24	1.72
J6PU4M		49.20	-1.10	-0.33	51.20	0.64	0.21
JAF724		51.60	1.30	0.39	52.68	2.12	0.70
LMK4ZN		43.52	-6.78	-2.01	43.83	-6.73	-2.21
PHWTFF		50.86	0.56	0.17	49.68	-0.88	-0.29
PJ3D2U		53.14	2.84	0.84	51.40	0.84	0.28
W6J2R8		50.98	0.68	0.20	49.96	-0.60	-0.20
WM6MAD		48.76	-1.54	-0.46	50.04	-0.52	-0.17
WU3EFL		49.56	-0.74	-0.22	48.16	-2.40	-0.79
XNDWZP		51.00	0.70	0.21	52.00	1.44	0.47

Summary Statistics	Sample ZR35	Sample ZR36
Grand Means	50.30 psi	50.56 psi
Stnd Dev Btwn Labs	3.37 psi	3.04 psi

Statistics based on 15 of 15 reporting participants.



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

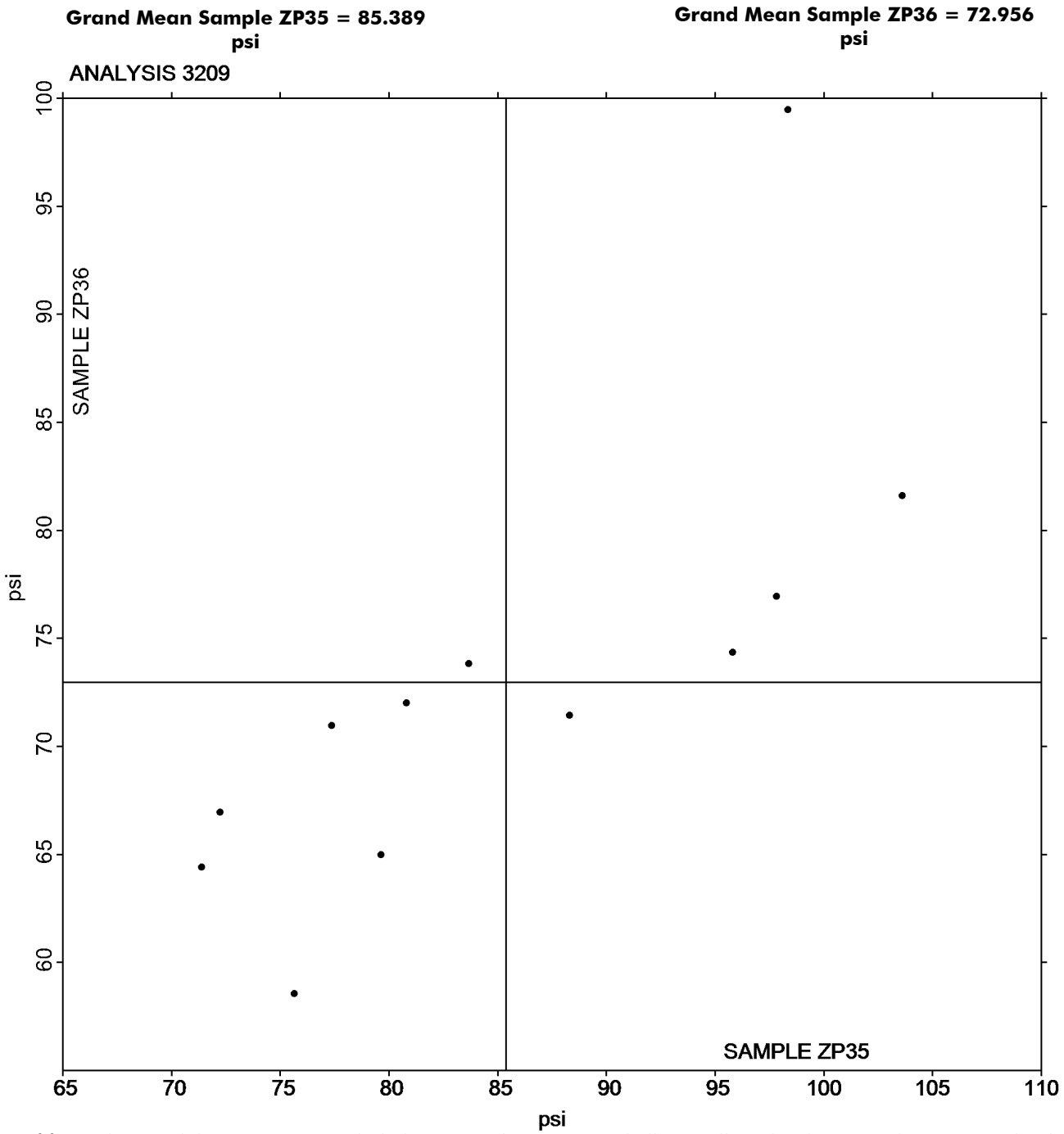
Paper & Paperboard Interlaboratory Testing Program

Analysis 3209
Z-Direction Tensile
TAPPI Official Test Method T541

WebCode	Data Flag	Sample ZP35 Lab Mean	Sample ZP35 Diff from Grand Mean	Sample ZP35 CPV	Sample ZP36 Lab Mean	Sample ZP36 Diff from Grand Mean	Sample ZP36 CPV
267X6H		75.64	-9.75	-0.88	58.56	-14.40	-1.39
3DV9TJ		88.32	2.93	0.26	71.44	-1.52	-0.15
3VD8XG		72.24	-13.15	-1.18	66.96	-6.00	-0.58
7BWYDX		98.36	12.97	1.17	99.46	26.50	2.56
9M3W8C		80.80	-4.59	-0.41	72.00	-0.96	-0.09
FCEDU6		77.36	-8.03	-0.72	70.96	-2.00	-0.19
HN4R78		71.39	-14.00	-1.26	64.40	-8.56	-0.83
PJ3D2U		97.84	12.45	1.12	76.94	3.98	0.38
RRBP9C		79.64	-5.75	-0.52	64.98	-7.98	-0.77
VERBGL		103.60	18.21	1.64	81.60	8.64	0.83
X6XMYN		95.80	10.41	0.94	74.36	1.40	0.14
XCWATA		83.68	-1.71	-0.15	73.82	0.86	0.08

Summary Statistics	Sample ZP35	Sample ZP36
Grand Means	85.39 psi	72.96 psi
Stnd Dev Btwn Labs	11.11 psi	10.37 psi

Statistics based on 12 of 12 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 3211

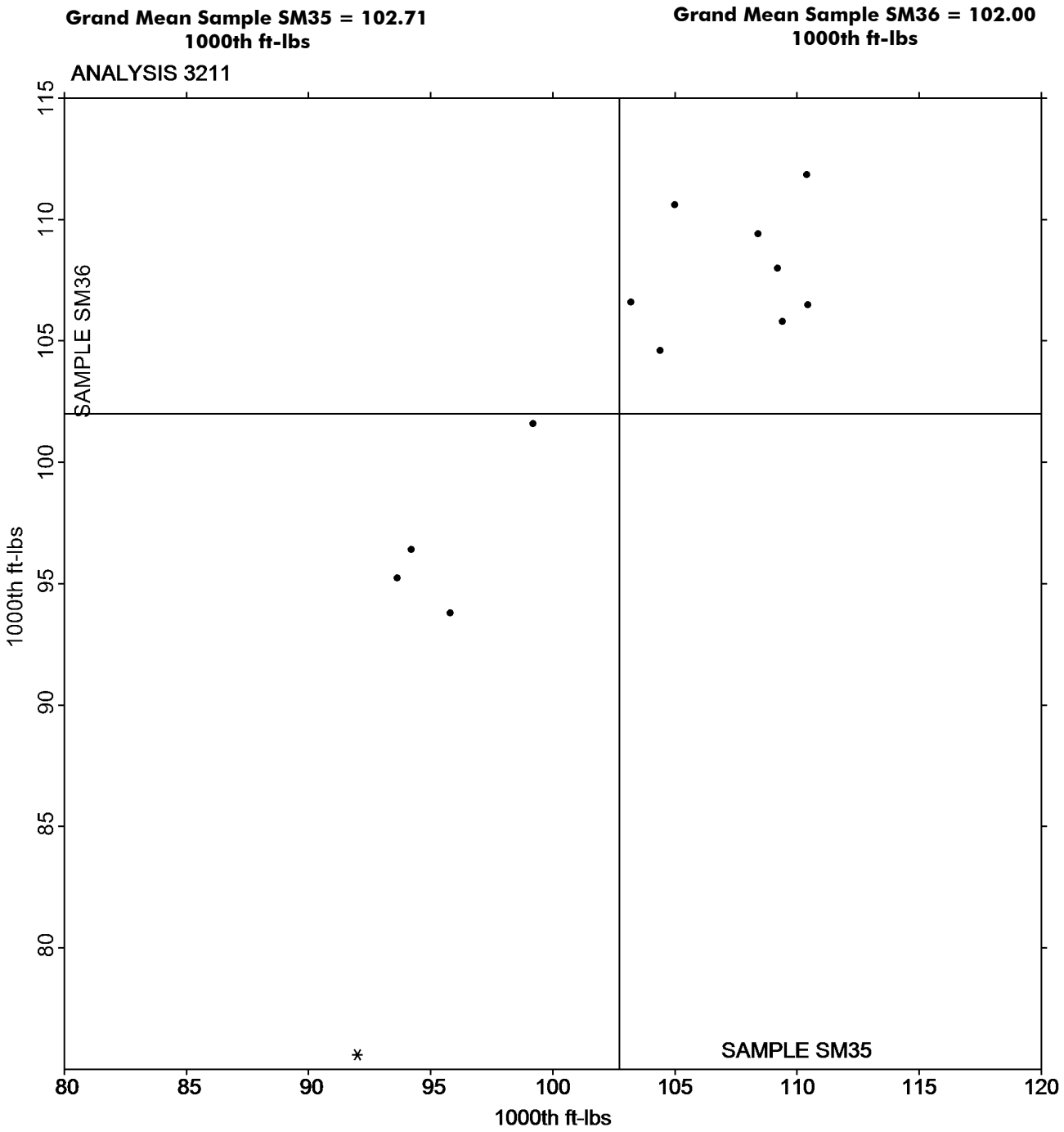
Internal Bond Strength - Modified Scott Mechanics

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SM35 Lab Mean	Sample SM35 Diff from Grand Mean	Sample SM35 CPV	Sample SM36 Lab Mean	Sample SM36 Diff from Grand Mean	Sample SM36 CPV
3DV9TJ		108.4	5.7	0.82	109.4	7.4	0.75
3X2JY8		95.8	-6.9	-1.00	93.8	-8.2	-0.83
7BWYDX	*	92.0	-10.7	-1.55	75.6	-26.4	-2.68
BRNNEW		110.4	7.7	1.12	106.5	4.5	0.45
DTTXFR		99.2	-3.5	-0.51	101.6	-0.4	-0.04
J6PU4M		105.0	2.3	0.33	110.6	8.6	0.87
L9YUCX		93.6	-9.1	-1.31	95.2	-6.8	-0.69
N6BYNV		110.4	7.7	1.11	111.8	9.8	1.00
PJ3D2U		109.2	6.5	0.94	108.0	6.0	0.61
VERBGL		94.2	-8.5	-1.23	96.4	-5.6	-0.57
X6XMYN		109.4	6.7	0.97	105.8	3.8	0.39
XCWATA		103.2	0.5	0.07	106.6	4.6	0.47
Y9G23N		104.4	1.7	0.24	104.6	2.6	0.26

Summary Statistics	Sample SM35	Sample SM36
Grand Means	102.71 1000th ft-lbs	102.00 1000th ft-lbs
Stnd Dev Btwn Labs	6.93 1000th ft-lbs	9.85 1000th ft-lbs

Statistics based on 13 of 13 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 3213

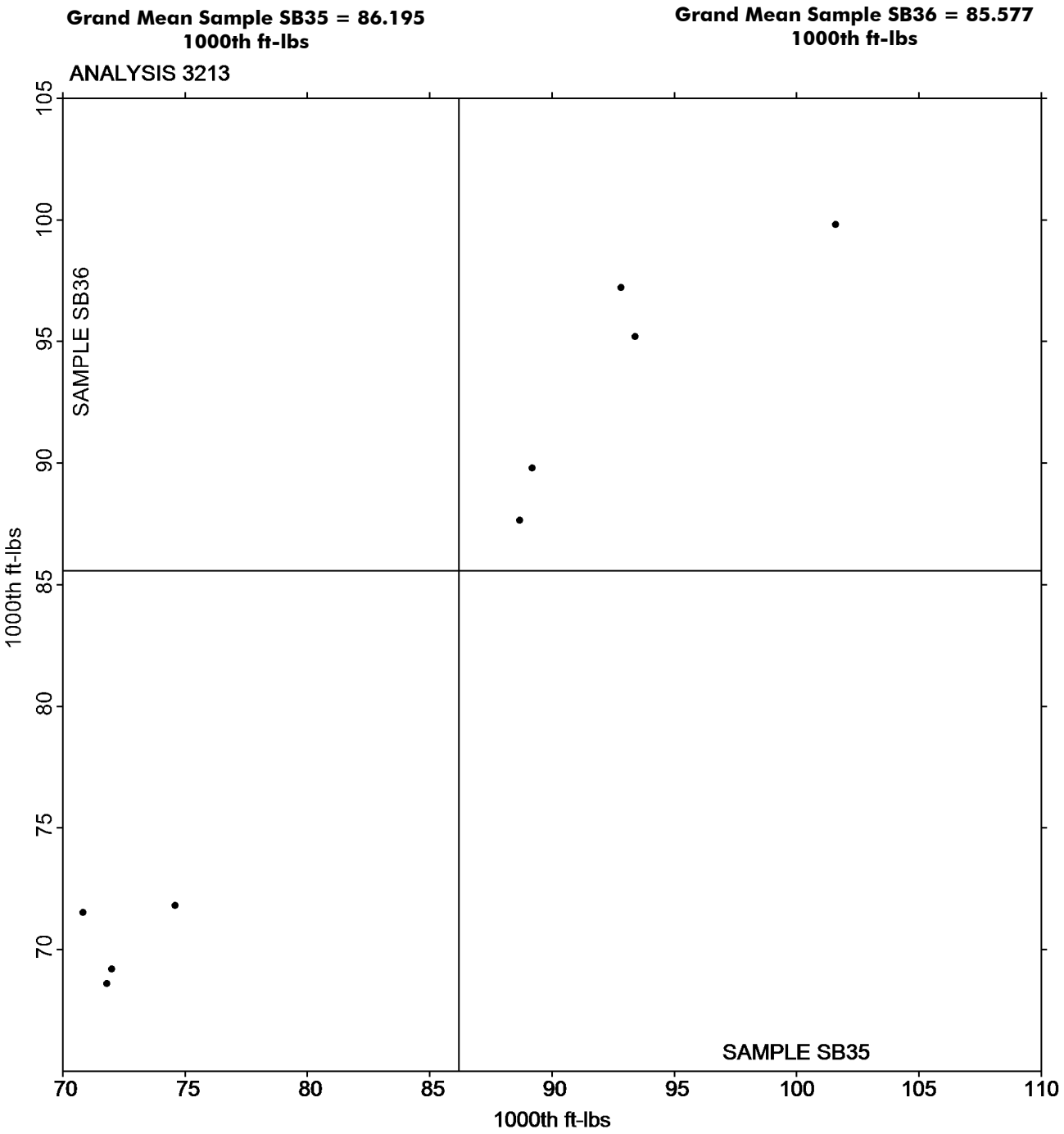
Internal Bond Strength - Scott Bond Models

TAPPI Provisional Test Method T569

WebCode	Data Flag	Sample SB35 Lab Mean	Sample SB35 Diff from Grand Mean	Sample SB35 CPV	Sample SB36 Lab Mean	Sample SB36 Diff from Grand Mean	Sample SB36 CPV
3QGFR6		89.20	3.00	0.23	89.80	4.22	0.30
6CVMG4		72.00	-14.20	-1.08	69.20	-16.38	-1.17
DQQWEV		107.00	20.80	1.58	105.00	19.42	1.38
DTTXFR		71.80	-14.40	-1.09	68.60	-16.98	-1.21
HEZWPM		70.84	-15.36	-1.17	71.52	-14.06	-1.00
HLJZXP		101.60	15.40	1.17	99.80	14.22	1.01
Q3W43F		92.83	6.64	0.50	97.21	11.63	0.83
VM48LT		88.68	2.48	0.19	87.64	2.06	0.15
W6J2R8		93.40	7.20	0.55	95.20	9.62	0.69
XFZZ2A		74.60	-11.60	-0.88	71.80	-13.78	-0.98

Summary Statistics	Sample SB35	Sample SB36
Grand Means	86.20 1000th ft-lbs	85.58 1000th ft-lbs
Stnd Dev Btwn Labs	13.17 1000th ft-lbs	14.04 1000th ft-lbs

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.

-End of Report-