Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #4372 - August 2025

Analysis	Analysis Name
3501	Thickness (Caliper), Packaging papers
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3513	Tearing Strength - Packaging Papers
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3531	Roughness - Print Surf Method - 0.5 to 4.0 Microns
3545	Directional Brightness
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3553	Specular Gloss at 75 Degrees - High Range
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3601	Folding Endurance (MIT) - Double Folds
3603	Bending Resistance, Gurley Type
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3613	Moisture in Paper
3615	Sizing Test (Hercules Type)

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.

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

Collaborative Testing Services, Inc.
21331 Gentry Drive
Sterling, Virginia 20166 USA
+1-571-434-1925
FAX #: +1-571-434-1937
paper@cts-interlab.com

Office Hours: 8:00 a.m. - 4:30 p.m. ET

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 3501
Thickness (Caliper), Packaging papers
TAPPI Official Test Method T411

WebCode	Data Flag	Sample CK43 Lab Mean	Sample CK43 Diff from Grand Mean	Sample CK43 CPV	Sample CK44 Lab Mean	Sample CK44 Diff from Grand Mean	Sample CK44 CPV	Instr Code
3KYYNQ		9.651	0.025	0.16	7.273	-0.033	-0.26	OK
3TWHAV		9.703	0.077	0.49	7.372	0.065	0.51	LW
77NKVJ		9.766	0.140	0.90	7.441	0.135	1.06	LW
77NMKM		9.599	-0.027	-0.17	7.288	-0.018	-0.14	XX
7KTYZM		9.449	-0.177	-1.13	7.177	-0.129	-1.01	MS
ARYP8H		9.769	0.143	0.92	7.355	0.049	0.38	XX
BGAHP6		9.707	0.081	0.52	7.315	0.009	0.07	EM
C8YDCE		9.768	0.142	0.91	7.444	0.138	1.08	EM
CAPG7L		9.643	0.017	0.11	7.332	0.025	0.20	LW
CE66PH		9.331	-0.295	-1.89	7.020	-0.287	-2.25	LW
CJVJ7C		9.669	0.043	0.28	7.341	0.035	0.27	TA
FDBVXB		9.299	-0.327	-2.09	7.040	-0.266	-2.09	XX
FVDD9F		9.659	0.033	0.21	7.395	0.089	0.70	LW
FWQ6YC		9.840	0.214	1.37	7.420	0.114	0.89	LC
H6CPHF		9.767	0.141	0.90	7.479	0.173	1.35	PP
J6AHQ8		9.520	-0.106	-0.68	7.280	-0.026	-0.21	XX
J9C94E		9.633	0.008	0.05	7.337	0.031	0.24	LW
KWBCAB		9.634	0.008	0.05	7.360	0.054	0.42	LA
L6MQR7		9.640	0.014	0.09	7.420	0.114	0.89	LW
LKVXQ9		9.502	-0.124	-0.79	7.144	-0.162	-1.27	LW
M3BBX7	X	8.970	-0.656	-4.19	6.820	-0.486	-3.82	TA
N9FP48		9.763	0.137	0.88	7.391	0.085	0.66	XX
NUD6HA		9.913	0.287	1.84	7.512	0.206	1.61	PP
P2R943		9.285	-0.341	-2.18	7.030	-0.276	-2.17	OK
QHCFE6		9.575	-0.051	-0.33	7.303	-0.003	-0.03	LW
RM2DG2		9.603	-0.023	-0.15	7.219	-0.087	-0.69	TB
T884G3		9.624	-0.002	-0.01	7.293	-0.013	-0.11	LC
UR8T3V		9.660	0.034	0.22	7.312	0.005	0.04	LW
VLKZQV		9.676	0.050	0.32	7.353	0.047	0.37	LB
VWJXEV		9.831	0.205	1.31	7.444	0.138	1.08	EM
XND49R		9.657	0.031	0.20	7.344	0.038	0.29	EM
YADJ8U		9.315	-0.311	-1.99	7.088	-0.218	-1.71	PP
YF24EG		9.702	0.076	0.49	7.342	0.035	0.28	LC
YXJXBX		9.496	-0.130	-0.83	7.248	-0.058	-0.46	LC

Summary Statistics	Sample CK43	Sample CK44
Grand Means	9.63 mils	7.31 mils
Stnd Dev Btwn Labs	0.16 mils	0.13 mils

Statistics based on 33 of 34 reporting participants.

Comments on Assigned Data Flags for Test #3501

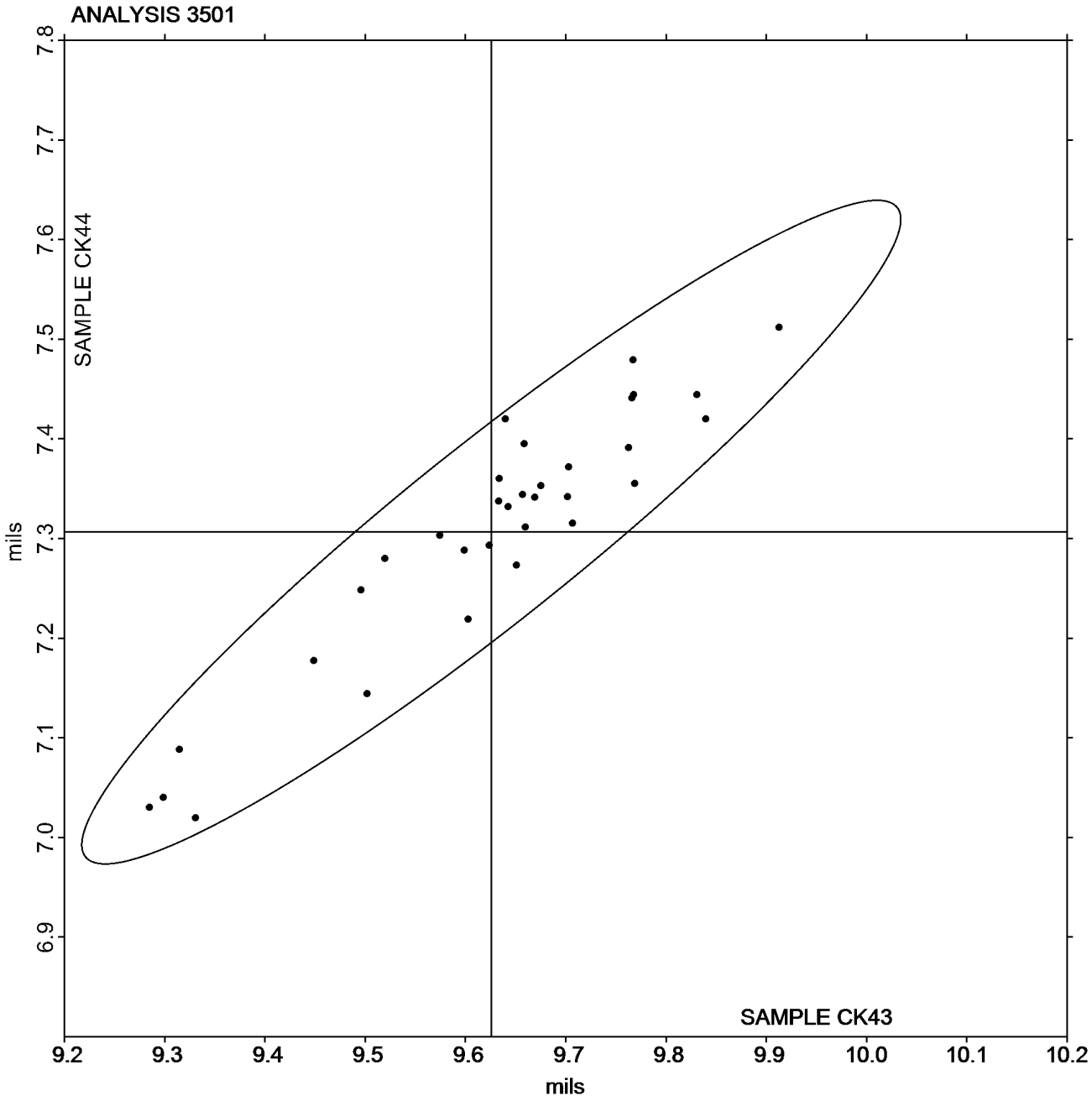
M3BBX7 (X) - Data for both samples are low. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

EM	Emveco	LA	L & W Autoline
LB	L & W Autoline 600	LC	L & W Autoline 400
LW	L & W	MS	Messmer
OK	Oakland	PP	Technidyne Profile/Plus
TA	Thwing-Albert	TB	Thwing-Albert 89-100
XX	Instrument make/model not specified by lab		

Grand Mean Sample CK43 = 9.6257 mils

Grand Mean Sample CK44 = 7.3064 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 3511

Bursting Strength - Packaging Papers

TAPPI Official Test Method T403

WebCode	Data Flag	Sample BK43 Lab Mean	Sample BK43 Diff from Grand Mean	Sample BK43 CPV	Sample BK44 Lab Mean	Sample BK44 Diff from Grand Mean	Sample BK44 CPV	Instr Code
2JRBUV		85.90	-5.93	-0.66	66.40	-3.82	-0.54	ZZ
3TWHAV	X	221.83	130.00	14.49	171.63	101.41	14.31	ZZ
4946QN		96.93	5.10	0.57	69.85	-0.37	-0.05	ZZ
77NKVJ		96.52	4.70	0.52	70.60	0.38	0.05	ZZ
BGAHP6		89.21	-2.61	-0.29	67.90	-2.33	-0.33	ZZ
CAPG7L		86.07	-5.76	-0.64	66.38	-3.84	-0.54	ZZ
F3CXBC		100.70	8.87	0.99	83.00	12.78	1.80	ZZ
J9C94E		83.60	-8.23	-0.92	63.96	-6.26	-0.88	ZZ
QHCFE6		92.94	1.11	0.12	74.16	3.93	0.56	ZZ
RM2DG2		89.30	-2.53	-0.28	66.40	-3.82	-0.54	ZZ
VWEGFW		84.95	-6.88	-0.77	62.07	-8.15	-1.15	ZZ
WZAPYW		82.30	-9.53	-1.06	67.27	-2.96	-0.42	ZZ
YADJ8U		113.50	21.67	2.42	84.70	14.48	2.04	ZZ

Summary Statistics	Sample BK43	Sample BK44
Grand Means	91.83 psi	70.22 psi
Stnd Dev Btwn Labs	8.97 psi	7.09 psi

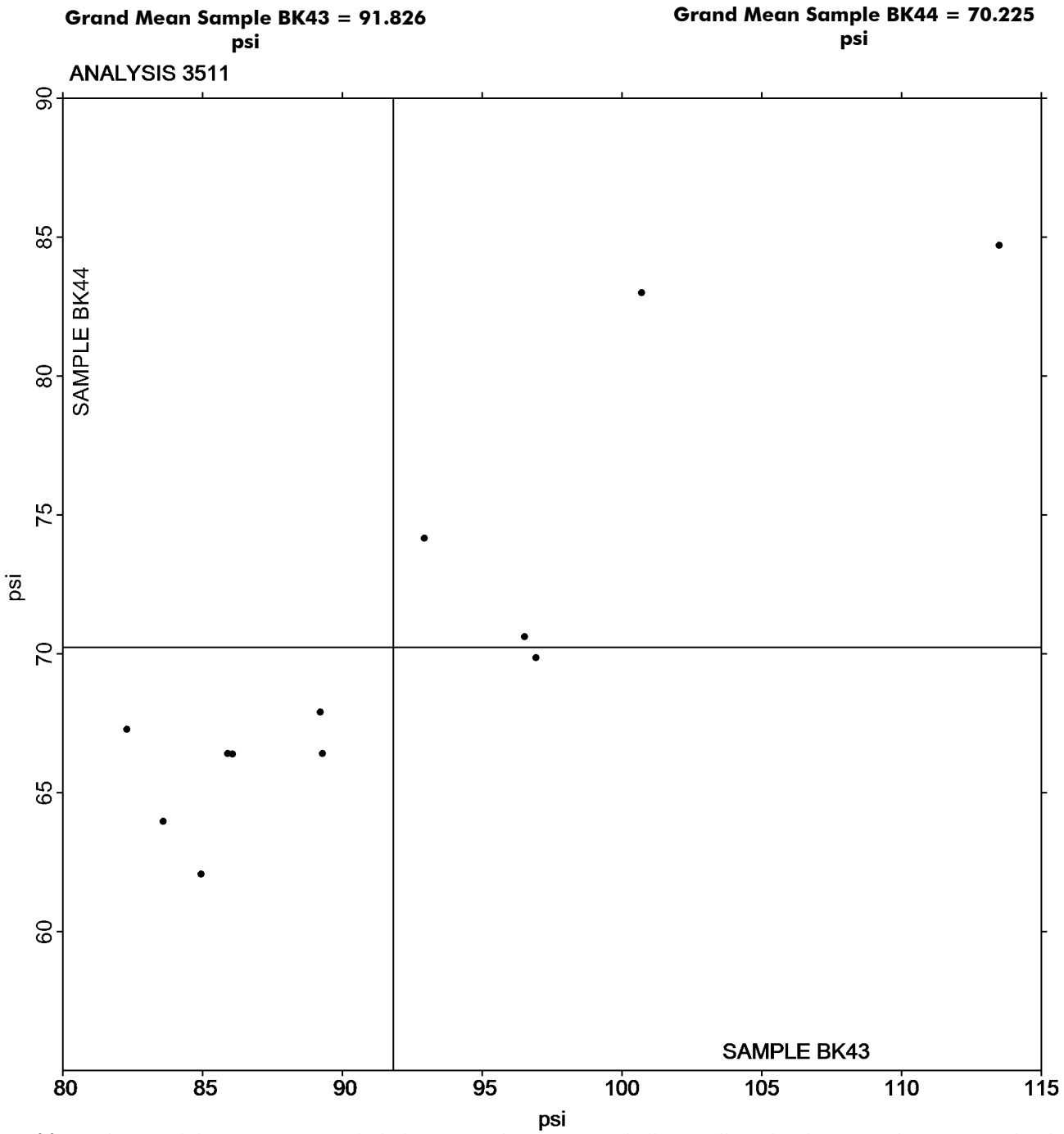
Statistics based on 12 of 13 reporting participants.

Comments on Assigned Data Flags for Test #3511

3TWHAV (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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 3513

Tearing Strength - Packaging Papers

TAPPI Official Test Method T414

WebCode	Data Flag	Sample RK43 Lab Mean	Sample RK43 Diff from Grand Mean	Sample RK43 CPV	Sample RK44 Lab Mean	Sample RK44 Diff from Grand Mean	Sample RK44 CPV	Instr Code
2JRBUV		199.7	-9.6	-0.27	162.1	-7.9	-0.26	ZZ
3TWHAV	*	92.0	-117.3	-3.33	73.3	-96.7	-3.16	ZZ
77NKVJ		227.9	18.6	0.53	186.5	16.5	0.54	ZZ
7EKDCP		223.2	13.8	0.39	177.9	7.9	0.26	ZZ
ARYP8H		230.7	21.4	0.61	202.2	32.2	1.05	ZZ
BJZJRL		186.6	-22.7	-0.64	149.1	-20.9	-0.68	ZZ
C2BT8D		247.4	38.1	1.08	194.7	24.7	0.81	ZZ
CJVJ7C		199.7	-9.6	-0.27	162.7	-7.3	-0.24	ZZ
FVDD9F		199.7	-9.6	-0.27	163.1	-6.9	-0.23	ZZ
H6CPHF		220.6	11.3	0.32	170.4	0.4	0.01	ZZ
J6AHQ8		244.8	35.5	1.01	194.0	24.0	0.78	ZZ
J9C94E		210.8	1.5	0.04	170.1	0.1	0.00	ZZ
JUWBXD		205.4	-4.0	-0.11	160.7	-9.3	-0.31	ZZ
KWBCAB		198.3	-11.0	-0.31	168.5	-1.5	-0.05	ZZ
LKVXQ9		202.3	-7.0	-0.20	162.5	-7.5	-0.24	ZZ
MDFD8A		219.6	10.3	0.29	172.9	2.9	0.09	ZZ
P2R943		171.1	-38.3	-1.09	156.2	-13.9	-0.45	ZZ
UR8T3V	*	296.2	86.9	2.47	260.4	90.3	2.95	ZZ
VWEGFW		213.4	4.1	0.12	164.8	-5.2	-0.17	ZZ
VWJXEV		225.0	15.7	0.45	177.0	7.0	0.23	ZZ
WJMAWZ		216.5	7.2	0.20	172.3	2.3	0.07	ZZ
XND49R		197.7	-11.6	-0.33	151.7	-18.3	-0.60	ZZ
YADJ8U		206.3	-3.1	-0.09	165.4	-4.7	-0.15	ZZ
YXJXBX		188.6	-20.8	-0.59	162.1	-7.9	-0.26	ZZ

Summary Statistics	Sample RK43	Sample RK44
Grand Means	209.31 Grams	170.02 Grams
Stnd Dev Btwn Labs	35.26 Grams	30.59 Grams

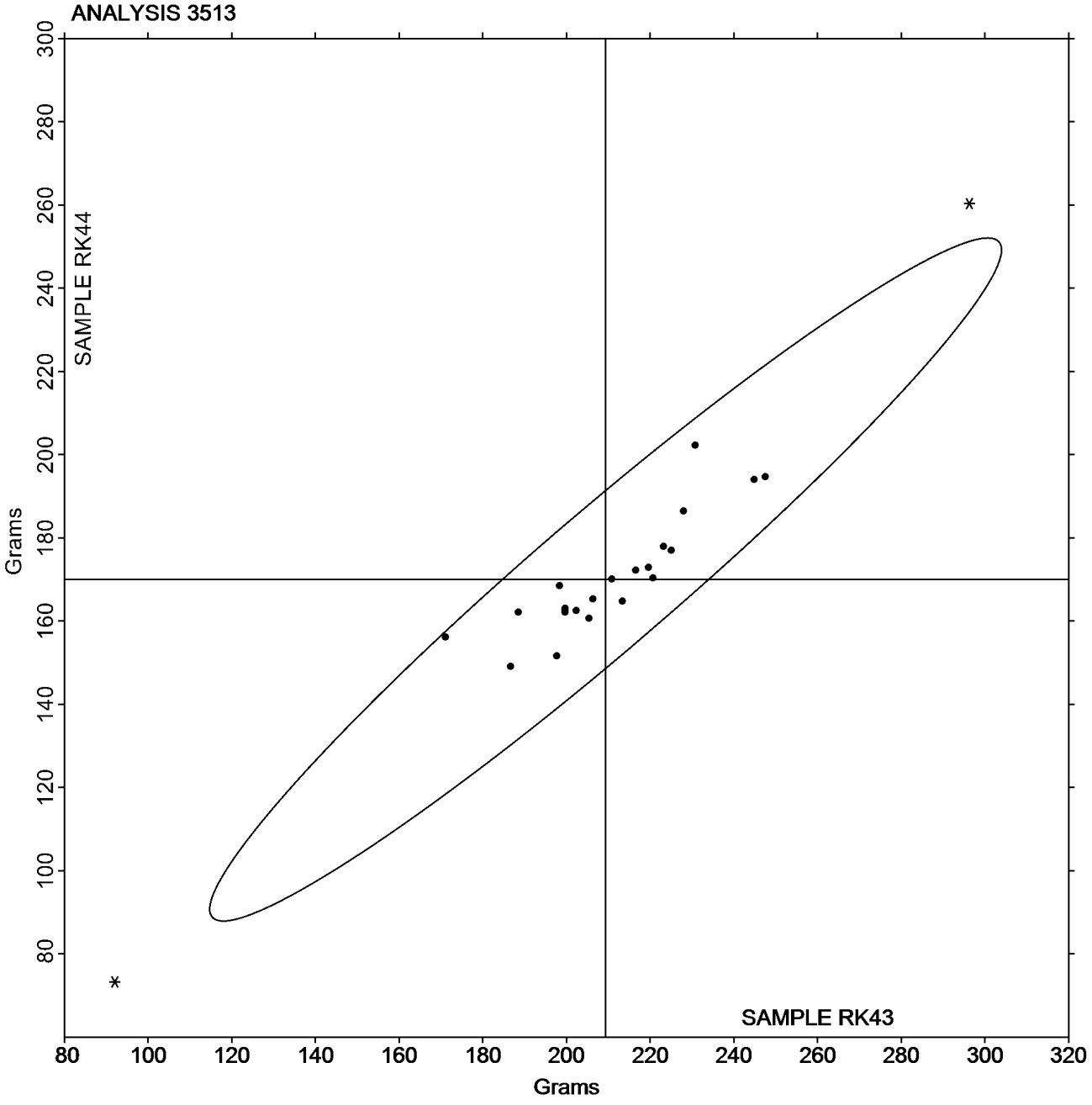
Statistics based on 24 of 24 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample RK43 = 209.31 Grams

Grand Mean Sample RK44 = 170.02 Grams



Paper & Paperboard Interlaboratory Testing Program

Report #4372, August 2025

Analysis 3515

Tensile Breaking Strength - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample NK43 Lab Mean	Sample NK43 Diff from Grand Mean	Sample NK43 CPV	Sample NK44 Lab Mean	Sample NK44 Diff from Grand Mean	Sample NK44 CPV	Instr Code
3TWHAV		14.68	-0.64	-0.49	10.60	0.23	0.25	IM
48RLQQ		13.82	-1.50	-1.15	9.61	-0.75	-0.81	TS
77NKVJ		14.22	-1.10	-0.84	9.74	-0.62	-0.67	LE
77NMKM		14.31	-1.01	-0.77	9.84	-0.52	-0.57	TB
7EKDCP		14.64	-0.68	-0.52	9.82	-0.54	-0.59	TV
9BEU3M		14.34	-0.98	-0.75	9.75	-0.61	-0.66	IM
ARYP8H		14.62	-0.69	-0.53	9.59	-0.77	-0.84	ID
C2BT8D		12.32	-3.00	-2.30	8.39	-1.98	-2.14	LH
C8YDCE		15.93	0.61	0.47	11.08	0.72	0.78	LE
CJVJ7C	*	16.64	1.33	1.02	9.99	-0.37	-0.41	TB
E682QD		15.83	0.52	0.40	10.62	0.26	0.28	DM
FDZTCC		15.83	0.52	0.40	10.71	0.35	0.38	LI
FVDD9F		15.56	0.24	0.19	9.97	-0.39	-0.42	LE
GC28XC		16.46	1.15	0.88	11.38	1.02	1.10	LA
J6AHQ8		15.64	0.32	0.25	10.04	-0.33	-0.35	XX
J9C94E		15.45	0.13	0.10	10.50	0.13	0.14	LW
JUWBXD		14.78	-0.53	-0.41	10.27	-0.10	-0.11	LE
JZFHCC		18.14	2.83	2.17	12.54	2.18	2.36	XX
KWBCAB		15.06	-0.26	-0.20	10.33	-0.03	-0.03	LA
L6MQR7		14.88	-0.44	-0.34	9.30	-1.06	-1.15	TH
LKVXQ9		14.45	-0.87	-0.67	9.78	-0.58	-0.63	LW
M3BBX7		17.21	1.90	1.46	10.89	0.53	0.57	TX
MDFD8A		14.80	-0.52	-0.40	9.85	-0.51	-0.55	LE
RM2DG2		14.91	-0.40	-0.31	10.29	-0.07	-0.08	TV
TPMCH3		15.66	0.34	0.26	10.24	-0.12	-0.13	IR
UR8T3V		15.30	-0.02	-0.01	9.93	-0.43	-0.47	LW
VLKZQV		16.96	1.65	1.26	11.71	1.35	1.46	LC
VWEGFW		14.58	-0.74	-0.57	10.45	0.09	0.10	TX
YADJ8U	*	13.57	-1.74	-1.34	10.49	0.12	0.13	TA
YXJXBX		15.50	0.19	0.14	10.32	-0.04	-0.05	IN
ZFW97V	*	18.69	3.37	2.58	13.21	2.85	3.09	LA

Summary Statistics	Sample NK43	Sample NK44
Grand Means	15.32 kN/m	10.36 kN/m
Stnd Dev Btwn Labs	1.30 kN/m	0.92 kN/m

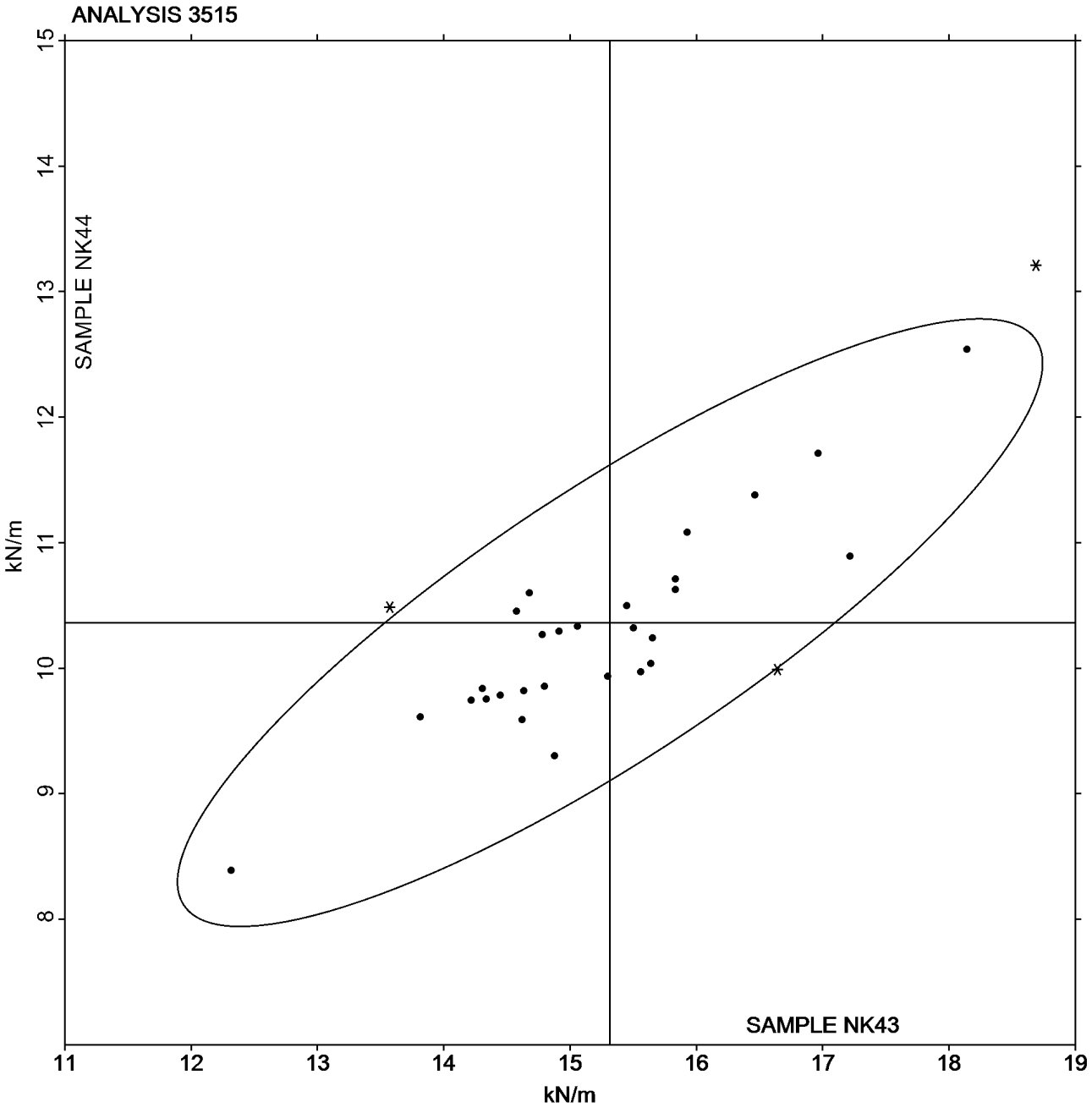
Statistics based on 31 of 31 reporting participants.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	ID	Instron 4200 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	LI	LLoyds Instruments
LW	L & W Tensile Tester SE062	TA	Thwing-Albert Tensile Tester
TB	Thwing-Albert EJA/1000	TH	Thwing-Albert QC-3A
TS	TMI Horizontal Tensile Tester 84-58	TV	Thwing-Albert Vantage NX
TX	Thwing-Albert (model not specified)	XX	Instrument make/model not specified by lab

Grand Mean Sample NK43 = 15.316 kN/m

Grand Mean Sample NK44 = 10.363 kN/m



Paper & Paperboard Interlaboratory Testing Program

Report #4372, August 2025

Analysis 3516

Tensile Energy Absorption - Packaging Papers

TAPPI Official Test Method T494

WebCode	Data Flag	Sample NK43 Lab Mean	Sample NK43 Diff from Grand Mean	Sample NK43 CPV	Sample NK44 Lab Mean	Sample NK44 Diff from Grand Mean	Sample NK44 CPV	Instr Code
3TWHAV		267.9	23.8	0.95	143.0	24.4	1.58	IM
48RLQQ		243.5	-0.6	-0.02	121.5	2.8	0.18	TS
77NKVJ		223.5	-20.6	-0.82	104.8	-13.9	-0.90	LE
77NMKM		273.0	28.9	1.15	110.9	-7.8	-0.51	TB
7EKDCP		264.0	19.9	0.79	121.9	3.2	0.21	TV
9BEU3M		218.6	-25.5	-1.01	107.6	-11.1	-0.72	IM
C2BT8D		200.1	-44.0	-1.75	92.6	-26.1	-1.70	LH
C8YDCE		262.1	18.0	0.72	136.9	18.2	1.18	LE
E682QD		301.5	57.4	2.28	147.5	28.8	1.87	DM
FVDD9F		234.4	-9.7	-0.39	108.5	-10.2	-0.66	LE
GC28XC		258.9	14.8	0.59	129.2	10.5	0.69	LA
J6AHQ8		256.5	12.4	0.49	111.9	-6.7	-0.44	XX
J9C94E		220.0	-24.1	-0.96	108.8	-9.9	-0.64	LE
JUWBXD		224.7	-19.3	-0.77	112.2	-6.4	-0.42	LE
JZFHCC		281.9	37.8	1.50	136.5	17.8	1.16	XX
KWBCAB		246.9	2.8	0.11	149.7	31.1	2.02	LA
L6MQR7		232.4	-11.7	-0.46	109.2	-9.5	-0.61	TH
LKVXQ9		217.0	-27.1	-1.08	100.6	-18.1	-1.18	LW
M3BBX7		252.0	7.9	0.32	109.3	-9.4	-0.61	TX
MDFD8A		234.5	-9.6	-0.38	105.4	-13.2	-0.86	LE
RM2DG2		266.1	22.0	0.87	129.2	10.5	0.68	TV
TPMCH3		252.9	8.8	0.35	105.7	-12.9	-0.84	IR
UR8T3V		226.6	-17.5	-0.70	101.9	-16.8	-1.09	LW
VLKZQV		240.6	-3.5	-0.14	124.7	6.0	0.39	LC
VWEGFW		260.1	16.0	0.64	133.7	15.0	0.97	TX
YADJ8U	*	189.0	-55.1	-2.19	128.9	10.2	0.66	TA
YXJXBX		241.8	-2.3	-0.09	112.1	-6.6	-0.43	IN
ZFW97V	X	1,891.9	1,647.8	65.43	1,186.7	1,068.0	69.40	LX

Summary Statistics	Sample NK43	Sample NK44
Grand Means	244.09 Joules/sq m	118.67 Joules/sq m
Stnd Dev Btwn Labs	25.18 Joules/sq m	15.39 Joules/sq m

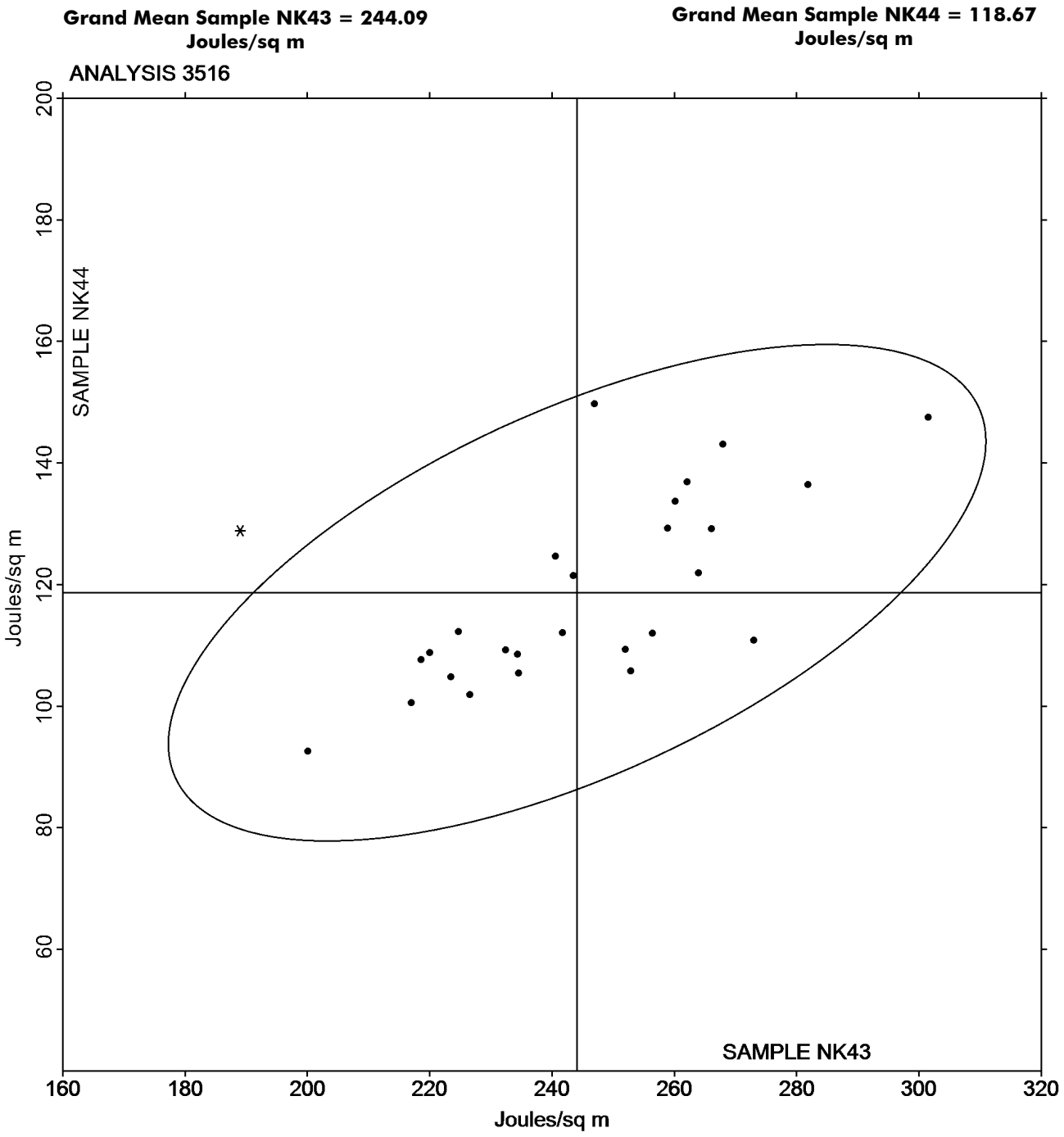
Statistics based on 27 of 28 reporting participants.

Comments on Assigned Data Flags for Test #3516

ZFW97V (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	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	LX	L & W (model not specified)
TA	Thwing-Albert Tensile Tester	TB	Thwing-Albert EJA/1000
TH	Thwing-Albert QC-3A	TS	TMI Horizontal Tensile Tester 84-58
TV	Thwing-Albert Vantage NX	TX	Thwing-Albert (model not specified)
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 3517

Elongation to Break - Packaging Papers

TAPPI Official Test Method T494

Report #4372, August 2025

WebCode	Data Flag	Sample NK43 Lab Mean	Sample NK43 Diff from Grand Mean	Sample NK43 CPV	Sample NK44 Lab Mean	Sample NK44 Diff from Grand Mean	Sample NK44 CPV	Instr Code
3TWHAV		2.694	0.282	1.21	2.110	0.320	1.62	IM
48RLQQ		2.647	0.235	1.01	2.011	0.222	1.12	TS
77NKVJ		2.291	-0.121	-0.52	1.645	-0.144	-0.73	LE
77NMKM		2.569	0.157	0.67	1.717	-0.072	-0.36	XX
7EKDCP		2.708	0.296	1.27	1.956	0.167	0.84	TV
9BEU3M		2.588	0.176	0.75	2.027	0.238	1.20	IM
ARYP8H	M	No data reported for this sample			1.748	-0.041	-0.21	XX
C2BT8D		2.363	-0.049	-0.21	1.672	-0.117	-0.59	LH
C8YDCE		2.422	0.010	0.04	1.904	0.115	0.58	LE
CJVJ7C	*	2.780	0.368	1.58	1.670	-0.119	-0.60	TB
E682QD		2.848	0.436	1.87	2.179	0.390	1.97	DM
FVDD9F		2.224	-0.188	-0.81	1.646	-0.143	-0.72	LE
GC28XC		2.224	-0.188	-0.81	1.721	-0.068	-0.34	XX
J6AHQ8		2.288	-0.124	-0.53	1.621	-0.168	-0.85	XX
J9C94E		2.136	-0.276	-1.18	1.640	-0.149	-0.75	LW
JUWBXD		2.250	-0.162	-0.69	1.690	-0.099	-0.50	LE
JZFHCC		2.069	-0.343	-1.47	1.511	-0.278	-1.40	XX
KWBCAB		2.623	0.211	0.90	2.002	0.213	1.07	LX
L6MQR7		2.358	-0.054	-0.23	1.858	0.069	0.35	TH
LKVXQ9		2.180	-0.232	-0.99	1.595	-0.194	-0.98	LW
M3BBX7		2.416	0.004	0.02	1.716	-0.073	-0.37	TX
MDFD8A		2.308	-0.104	-0.45	1.652	-0.137	-0.69	LE
RM2DG2		2.747	0.335	1.43	2.049	0.260	1.31	TV
TPMCH3		2.371	-0.041	-0.18	1.604	-0.185	-0.93	XX
UR8T3V		2.188	-0.224	-0.96	1.590	-0.199	-1.01	LW
VLKZQV		1.964	-0.448	-1.92	1.551	-0.238	-1.20	LC
VWEGFW		2.638	0.226	0.97	1.971	0.182	0.92	TX
YADJ8U	*	2.307	-0.105	-0.45	2.093	0.304	1.53	TA
YXJXBX		2.335	-0.077	-0.33	1.701	-0.088	-0.45	IN
ZFW97V	X	0.076	-2.336	-10.00	0.070	-1.719	-8.67	LX

Summary Statistics	Sample NK43	Sample NK44
Grand Means	2.41 Percent	1.79 Percent
Stnd Dev Btwn Labs	0.23 Percent	0.20 Percent

Statistics based on 28 of 30 reporting participants.

Comments on Assigned Data Flags for Test #3517

ARYP8H (M) - Participant did not submit data for sample NK43.

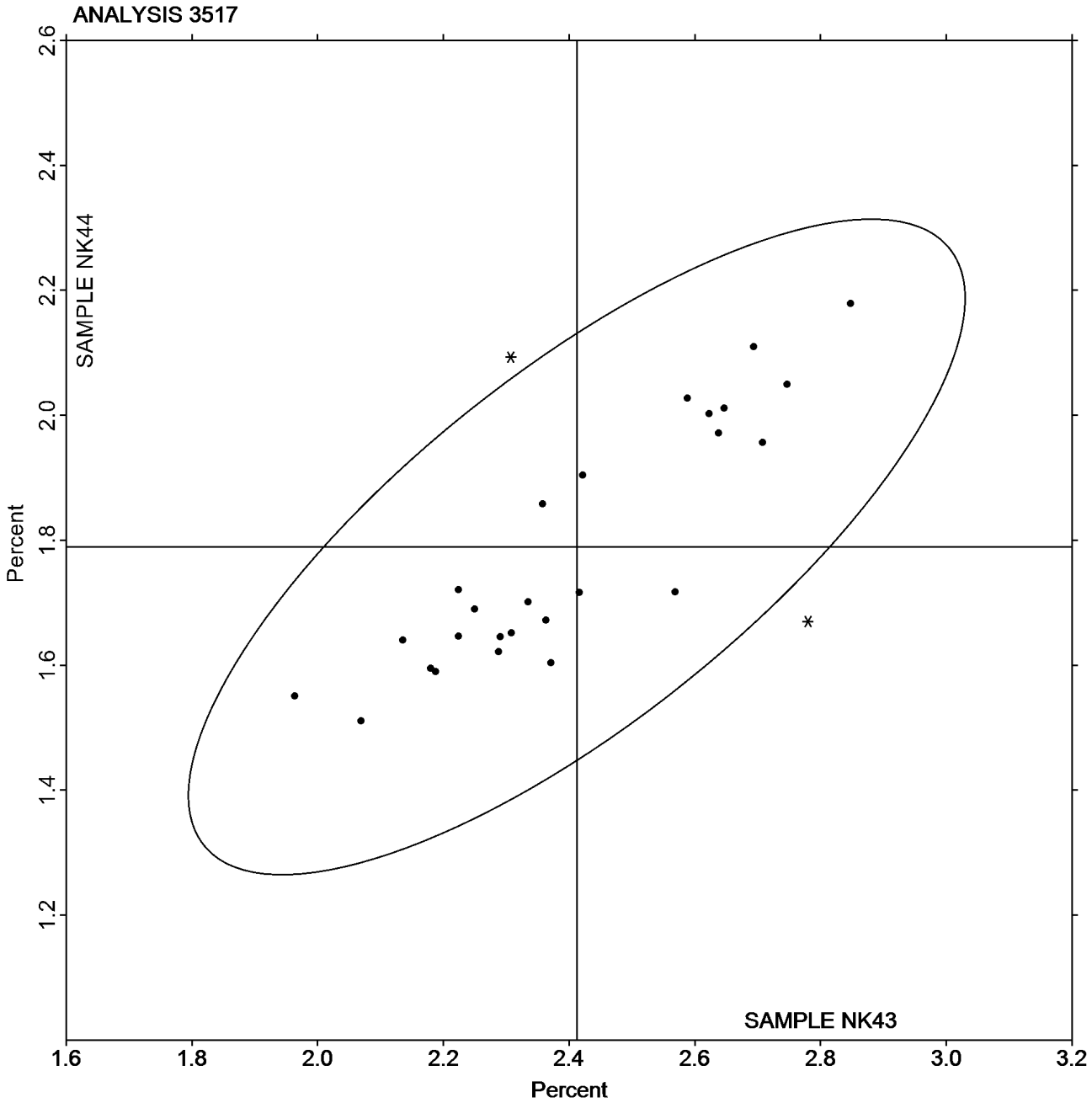
ZFW97V (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

DM	IDM MTC-100 Tensile Tester	IM	Instron 5500 Series
IN	Instron 3360 Series	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	LX	L & W (model not specified)
TA	Thwing-Albert Tensile Tester	TB	Thwing-Albert EJA/1000
TH	Thwing-Albert QC-3A	TS	TMI Horizontal Tensile Tester 84-58
TV	Thwing-Albert Vantage NX	TX	Thwing-Albert (model not specified)
XX	Instrument make/model not specified by lab		

Grand Mean Sample NK43 = 2.4120 Percent

Grand Mean Sample NK44 = 1.7894 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 3531

Roughness - Print Surf Method - 0.5 to 4.0 Microns

TAPPI Official Test Method T555

WebCode	Data Flag	Sample PS43 Lab Mean	Sample PS43 Diff from Grand Mean	Sample PS43 CPV	Sample PS44 Lab Mean	Sample PS44 Diff from Grand Mean	Sample PS44 CPV	Instr Code
3KYYNQ		0.8200	0.0128	0.20	0.8410	0.0330	0.49	ZZ
489MPM		0.6890	-0.1182	-1.81	0.7110	-0.0970	-1.45	ZZ
48RLQQ		0.7750	-0.0322	-0.49	0.7700	-0.0380	-0.57	ZZ
77NMKM	X	0.8180	0.0108	0.17	0.9690	0.1610	2.40	ZZ
BRCT3L		0.9110	0.1038	1.59	0.8840	0.0760	1.13	ZZ
C8YDCE		0.7940	-0.0132	-0.20	0.7920	-0.0160	-0.24	ZZ
FWQ6YC		0.7600	-0.0472	-0.72	0.7560	-0.0520	-0.77	ZZ
GKCAJC		0.8310	0.0238	0.36	0.8520	0.0440	0.66	ZZ
HAQKXC		0.7990	-0.0082	-0.13	0.8200	0.0120	0.18	ZZ
JCCKYD		0.8580	0.0508	0.78	0.8320	0.0240	0.36	ZZ
L6MQR7		0.8000	-0.0072	-0.11	0.7750	-0.0330	-0.49	ZZ
LEBJ44		0.8240	0.0168	0.26	0.8050	-0.0030	-0.04	ZZ
P2R943	*	0.9260	0.1188	1.82	0.9720	0.1640	2.45	ZZ
PEHZP7		0.8420	0.0348	0.53	0.8480	0.0400	0.60	ZZ
PV3QN7		0.8370	0.0298	0.46	0.8280	0.0200	0.30	ZZ
UR8T3V		0.6890	-0.1182	-1.81	0.6740	-0.1340	-2.00	ZZ
VLKZQV		0.7760	-0.0312	-0.48	0.7740	-0.0340	-0.51	ZZ
VWJXEV		0.8470	0.0398	0.61	0.8390	0.0310	0.46	ZZ
W4AZVW		0.8850	0.0778	1.19	0.8860	0.0780	1.16	ZZ
X9NXZY		0.7610	-0.0462	-0.71	0.7580	-0.0500	-0.74	ZZ
XND49R		0.8290	0.0218	0.33	0.8290	0.0210	0.31	ZZ
YXFKJV		0.6990	-0.1082	-1.66	0.7210	-0.0870	-1.30	ZZ

Summary Statistics	Sample PS43	Sample PS44
Grand Means	0.81 Microns	0.81 Microns
Stnd Dev Btwn Labs	0.07 Microns	0.07 Microns

Statistics based on 21 of 22 reporting participants.

Comments on Assigned Data Flags for Test #3531

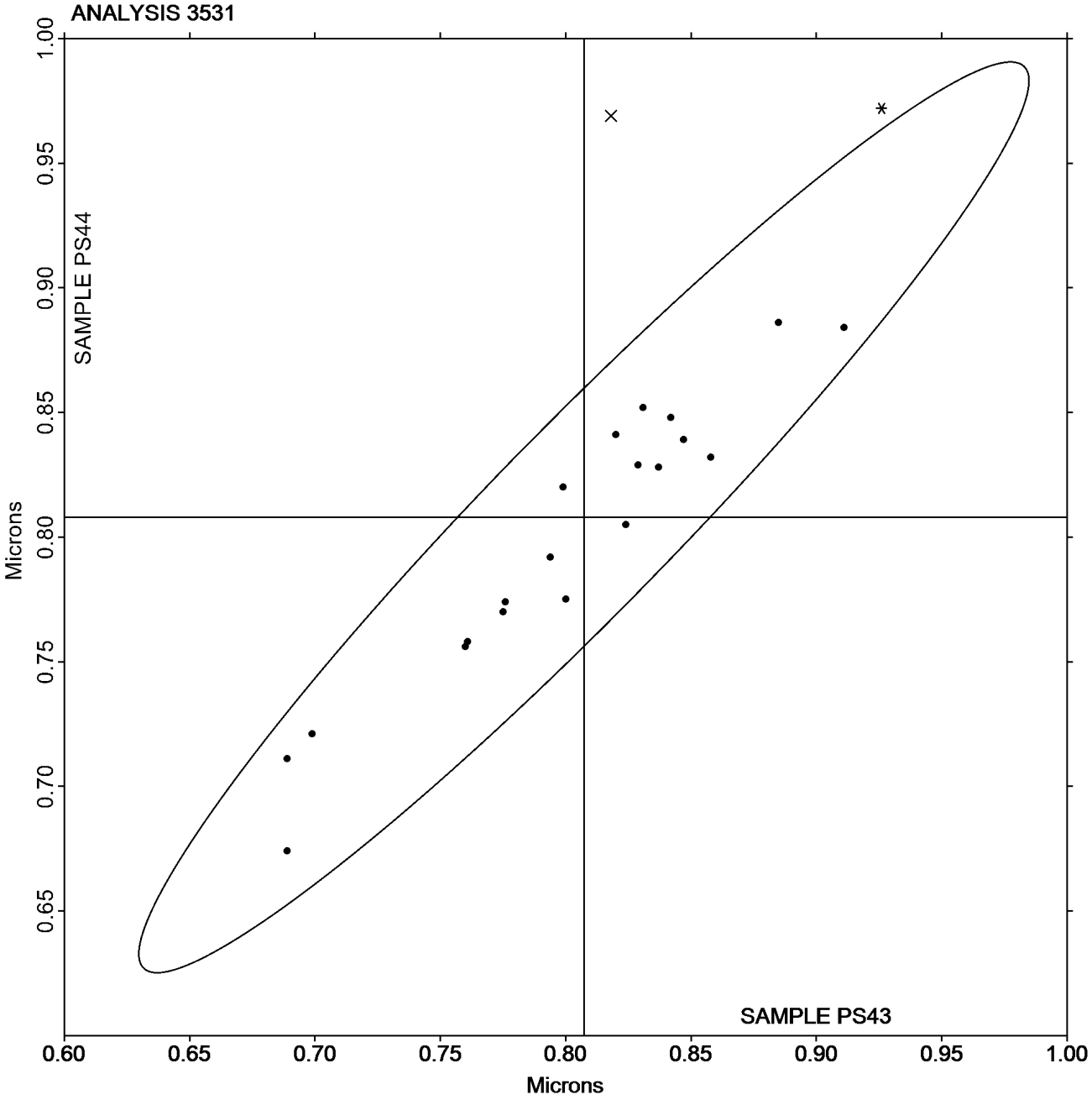
77NMKM (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample PS43 = 0.80724 Microns

Grand Mean Sample PS44 = 0.80795 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 3545
Directional Brightness
TAPPI Official Test Method T452

Report #4372, August 2025

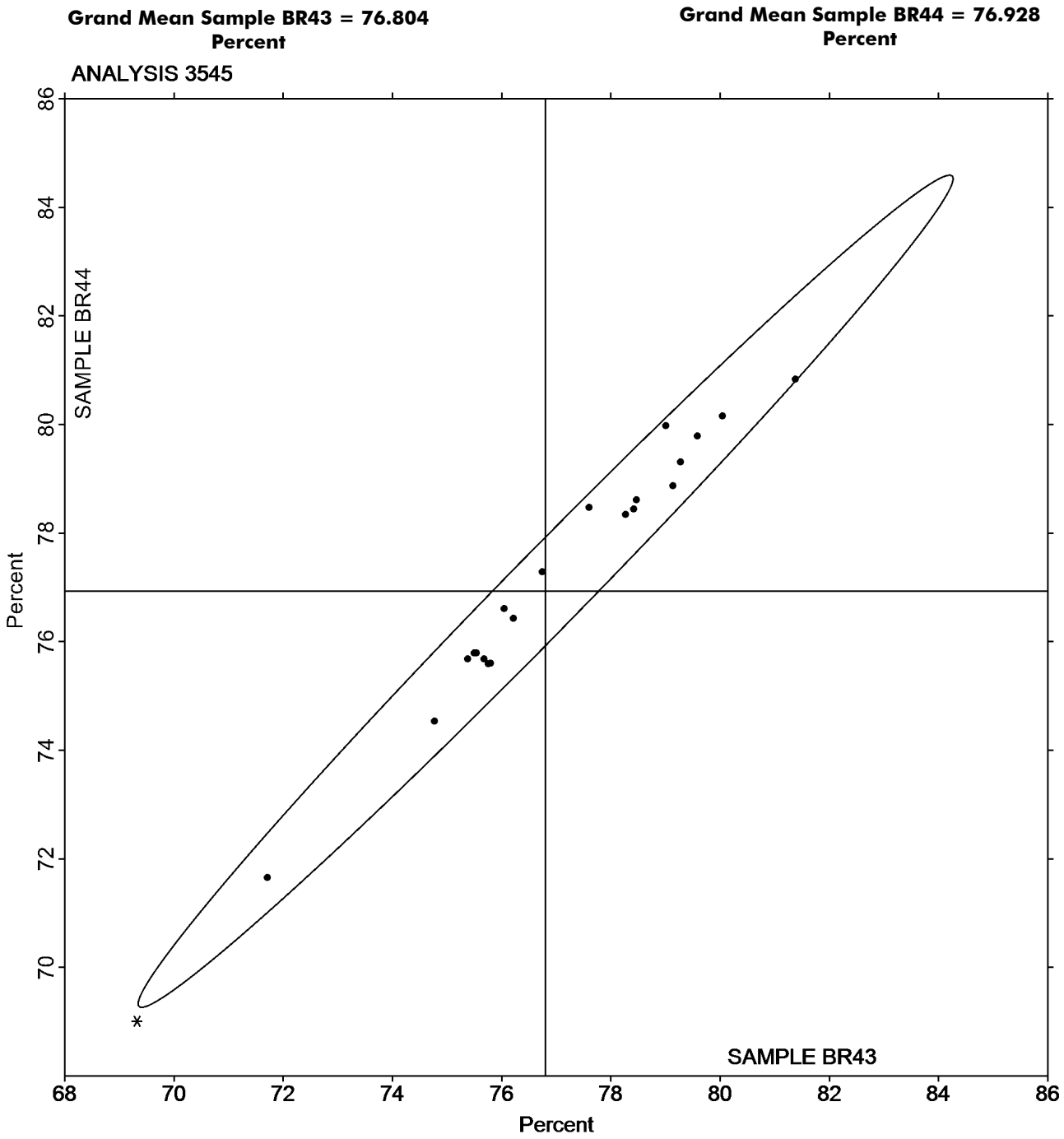
WebCode	Data Flag	Sample BR43 Lab Mean	Sample BR43 Diff from Grand Mean	Sample BR43 CPV	Sample BR44 Lab Mean	Sample BR44 Diff from Grand Mean	Sample BR44 CPV	Instr Code
3KYYNQ		81.38	4.57	1.66	80.83	3.90	1.38	HG
48RLQQ		75.50	-1.30	-0.47	75.79	-1.14	-0.40	TS
ARYP8H		79.28	2.47	0.90	79.31	2.38	0.84	TD
BRCT3L		74.78	-2.03	-0.74	74.53	-2.40	-0.85	PP
C8YDCE		80.04	3.24	1.17	80.16	3.23	1.14	HG
CJVJ7C		76.75	-0.05	-0.02	77.29	0.36	0.13	XD
EV6WKH		75.80	-1.00	-0.36	75.60	-1.33	-0.47	XX
HAQKXC		79.13	2.33	0.85	78.87	1.94	0.69	TD
HH74JW		79.01	2.20	0.80	79.98	3.05	1.08	TP
J6AHQ8		77.61	0.80	0.29	78.48	1.55	0.55	XX
L6MQR7		75.54	-1.27	-0.46	75.79	-1.14	-0.40	TP
LKVXQ9		75.76	-1.04	-0.38	75.59	-1.34	-0.47	TS
P2R943	*	69.32	-7.48	-2.72	69.01	-7.92	-2.80	TD
T884G3		71.72	-5.09	-1.85	71.65	-5.27	-1.86	LA
UPJ8FY		78.28	1.47	0.53	78.34	1.41	0.50	TT
UR8T3V		78.42	1.61	0.59	78.44	1.52	0.54	TP
VLK3FZ		76.05	-0.76	-0.28	76.61	-0.32	-0.11	XX
VWJXEV		79.59	2.78	1.01	79.79	2.86	1.01	HG
WPQBWU		75.68	-1.13	-0.41	75.68	-1.25	-0.44	TS
X9NXZY		76.21	-0.59	-0.21	76.42	-0.50	-0.18	HZ
XND49R		78.48	1.67	0.61	78.61	1.68	0.60	TP
YXFKJV		75.38	-1.42	-0.52	75.68	-1.25	-0.44	TP

Summary Statistics	Sample BR43	Sample BR44
Grand Means	76.80 Percent	76.93 Percent
Stnd Dev Btwn Labs	2.75 Percent	2.83 Percent

Statistics based on 22 of 22 reporting participants.

Key to Instrument Codes Reported by Participants

HG	Hunter Labscan / XE	HZ	Hunter Lab ColorFlex EZ Series
LA	L & W Elrepho - Autoline	PP	Technidyne Profile/Plus
TD	Technidyne Color Touch 45X	TP	Technidyne Test/Plus
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M
XD	X-Rite Color Ci7600	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 3547
Diffuse Brightness
TAPPI Official Test Method T525

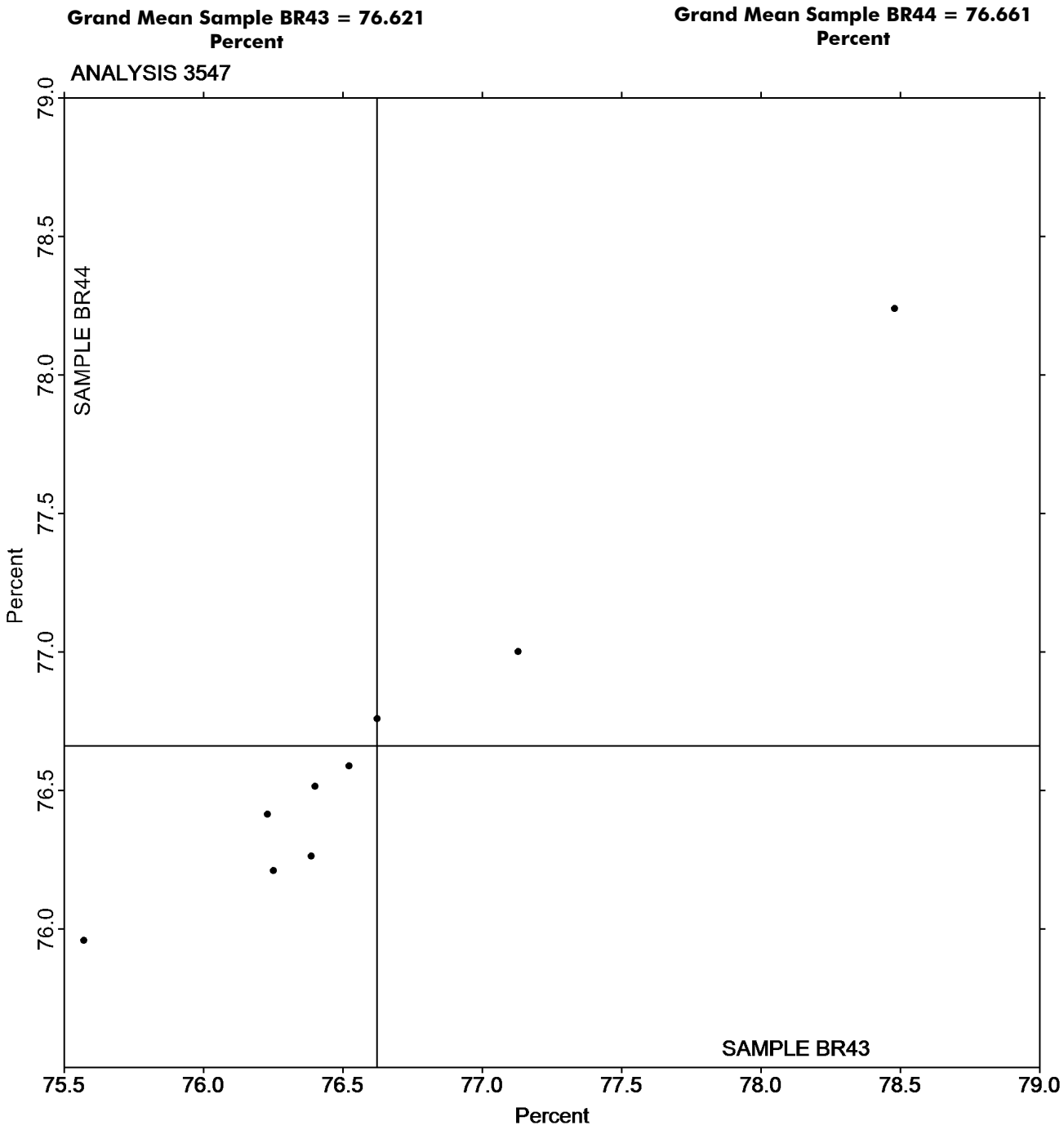
WebCode	Data Flag	Sample BR43 Lab Mean	Sample BR43 Diff from Grand Mean	Sample BR43 CPV	Sample BR44 Lab Mean	Sample BR44 Diff from Grand Mean	Sample BR44 CPV	Instr Code
3KYYNQ		78.48	1.86	2.30	78.24	1.58	2.37	TC
48RLQQ		77.13	0.51	0.63	77.00	0.34	0.51	LT
HAQKXC		76.62	0.00	0.00	76.76	0.10	0.15	TD
J9C94E		75.57	-1.05	-1.30	75.96	-0.70	-1.05	LT
JCCKYD		76.25	-0.37	-0.46	76.21	-0.45	-0.68	LE
L6MQR7		76.39	-0.23	-0.29	76.26	-0.40	-0.60	LT
NMG663		76.52	-0.10	-0.12	76.59	-0.07	-0.11	LA
UR8T3V		76.40	-0.22	-0.27	76.52	-0.15	-0.22	EA
XND49R		76.23	-0.39	-0.48	76.41	-0.25	-0.37	TC

Summary Statistics	Sample BR43	Sample BR44
Grand Means	76.62 Percent	76.66 Percent
Stnd Dev Btwn Labs	0.81 Percent	0.67 Percent

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

EA	Datacolor Elrepho	LA	L & W Elrepho - Autoline
LE	L & W Elrepho	LT	L & W Elrepho SE 071
TC	Technidyne Color Touch Series	TD	Technidyne Color Touch X



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

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a		b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
3KYYNQ		CA43	89.48	-0.01		-0.40	-0.23	0.06	-0.09	0.25	HK
		CA44	89.25	0.05		-0.49					
48RLQQ		CA43	85.67	2.10	*	-1.20	-0.15	0.08	-0.17	0.24	TS
		CA44	85.52	2.17		-1.37					
BGAHP6		CA43	89.58	0.48		-0.36	0.01	-0.05	0.06	0.08	TC
		CA44	89.59	0.43		-0.30					
BRCT3L		CA43	86.87	0.22		-0.16	-0.14	0.05	-0.21	0.26	TC
		CA44	86.73	0.27		-0.37					
C8YDCE		CA43	87.65	0.73		-0.56	-0.17	0.08	-0.28	0.34	HK
		CA44	87.48	0.81		-0.84					
GKCAJC		CA43	89.55	0.25		-0.38	0.03	-0.04	0.01	0.05	TC
		CA44	89.58	0.21		-0.37					
HAQKXC		CA43	86.92	0.23		-0.16	-0.21	0.02	-0.14	0.25	TC
		CA44	86.72	0.25		-0.30					
J6AHQ8		CA43	90.33	0.31		-0.14	-0.16	-0.01	-0.21	0.27	XX
		CA44	90.17	0.30		-0.35					
P2R943		CA43	82.31	0.58		-0.71	-0.25	0.00	-0.04	0.25	TC
		CA44	82.06	0.58		-0.75					
PEHZP7		CA43	88.59	0.90		-1.01	-0.19	-0.03	0.04	0.20	TC
		CA44	88.40	0.87		-0.97					
T4M2QW		CA43	85.75	0.79		-0.09	-0.39	0.12	-0.26	0.48	TS
		CA44	85.36	0.90		-0.35					
T884G3		CA43	86.96	-0.05		0.10	0.01	-0.02	0.05	0.06	XX
		CA44	86.97	-0.07		0.15					
TMF48X		CA43	89.71	-0.39		0.10	-0.14	0.00	-0.14	0.20	NH
		CA44	89.57	-0.40		-0.04					
VWJXEV		CA43	87.02	0.64		-0.49	-0.14	0.03	-0.14	0.21	HK
		CA44	86.88	0.67		-0.64					
XND49R		CA43	86.87	0.20		0.02	-0.01	0.05	-0.16	0.17	TC
		CA44	86.86	0.25		-0.14					

Summary Statistics

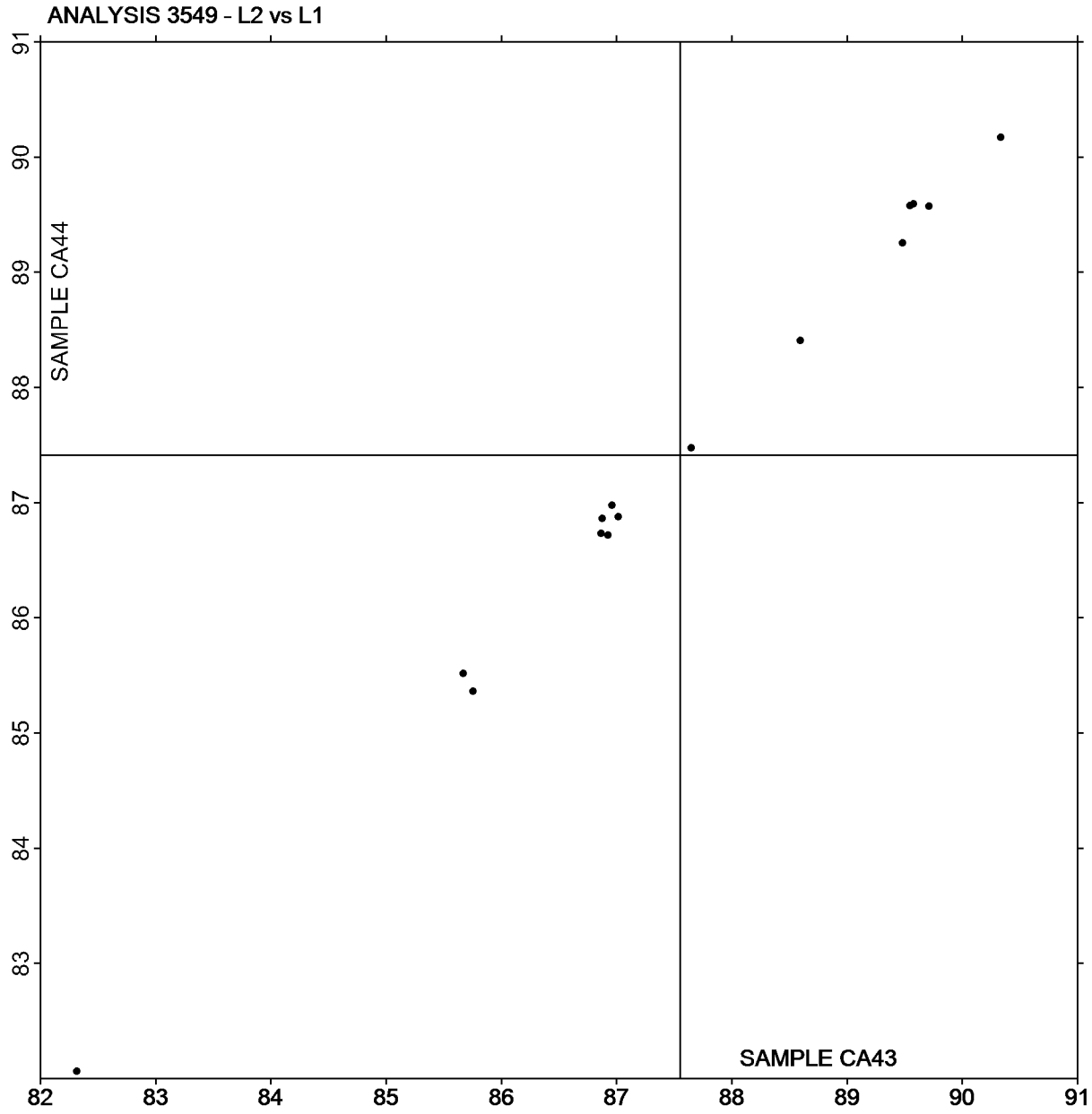
Grand Means							
CA43	87.552	0.465	-0.362	-0.142	0.022	-0.111	0.220
CA44	87.410	0.486	-0.473				
Stnd Dev Btwn Labs							
CA43	2.096	0.570	0.386	0.115	0.049	0.113	0.110
CA44	2.142	0.589	0.387				

Statistics based on 15 of 15 reporting participants

Key to Instrument Codes Reported by Participants

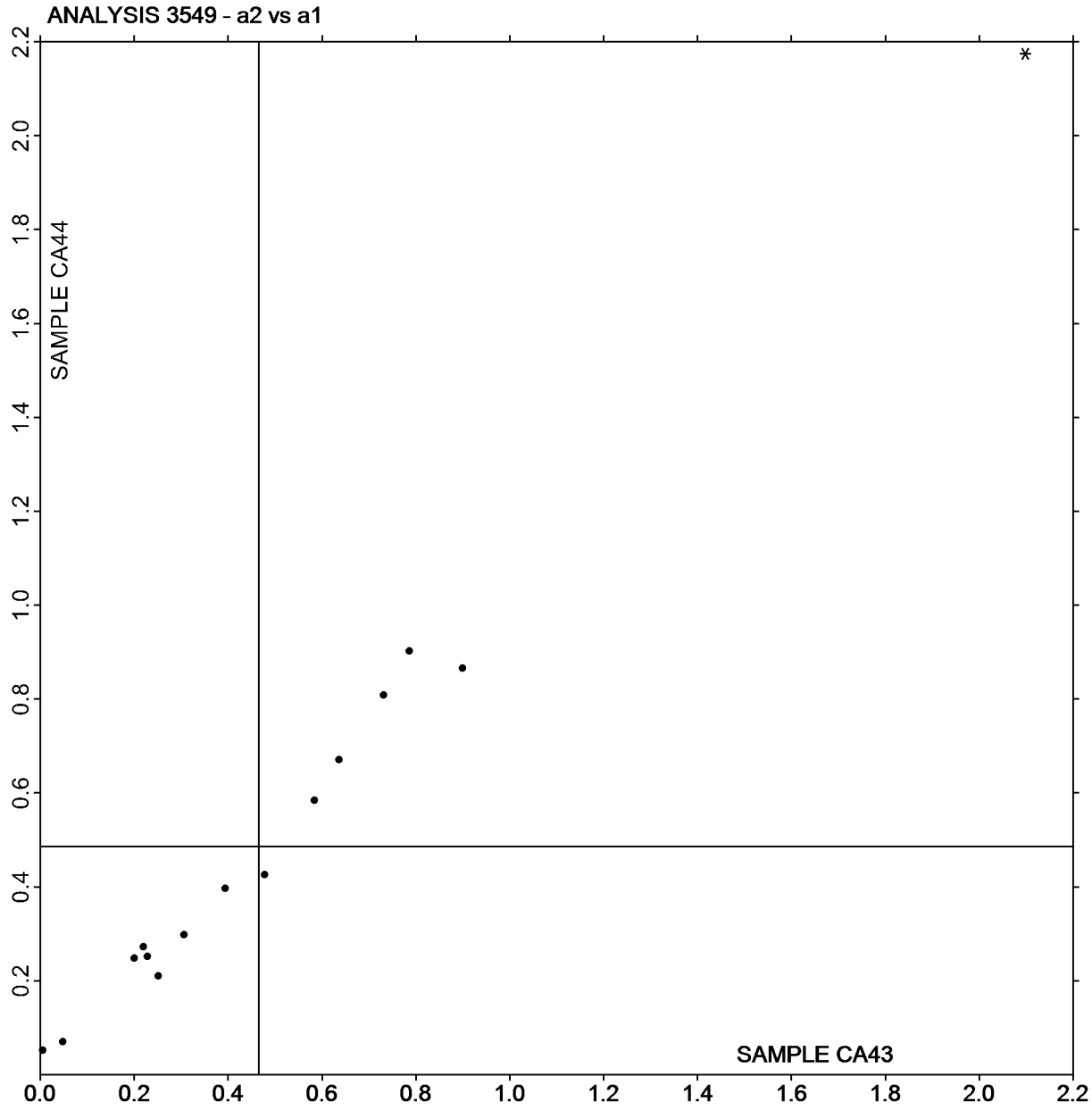
HK	Hunter LabScan XE	NH	Minolta CM-3700A Spectrophotometer
TC	Technidyne Color Touch Series	TS	Technidyne Brightimeter Micro S-5
XX	Instrument make/model not specified by lab		

Plot of L values CA44 vs L values CA43



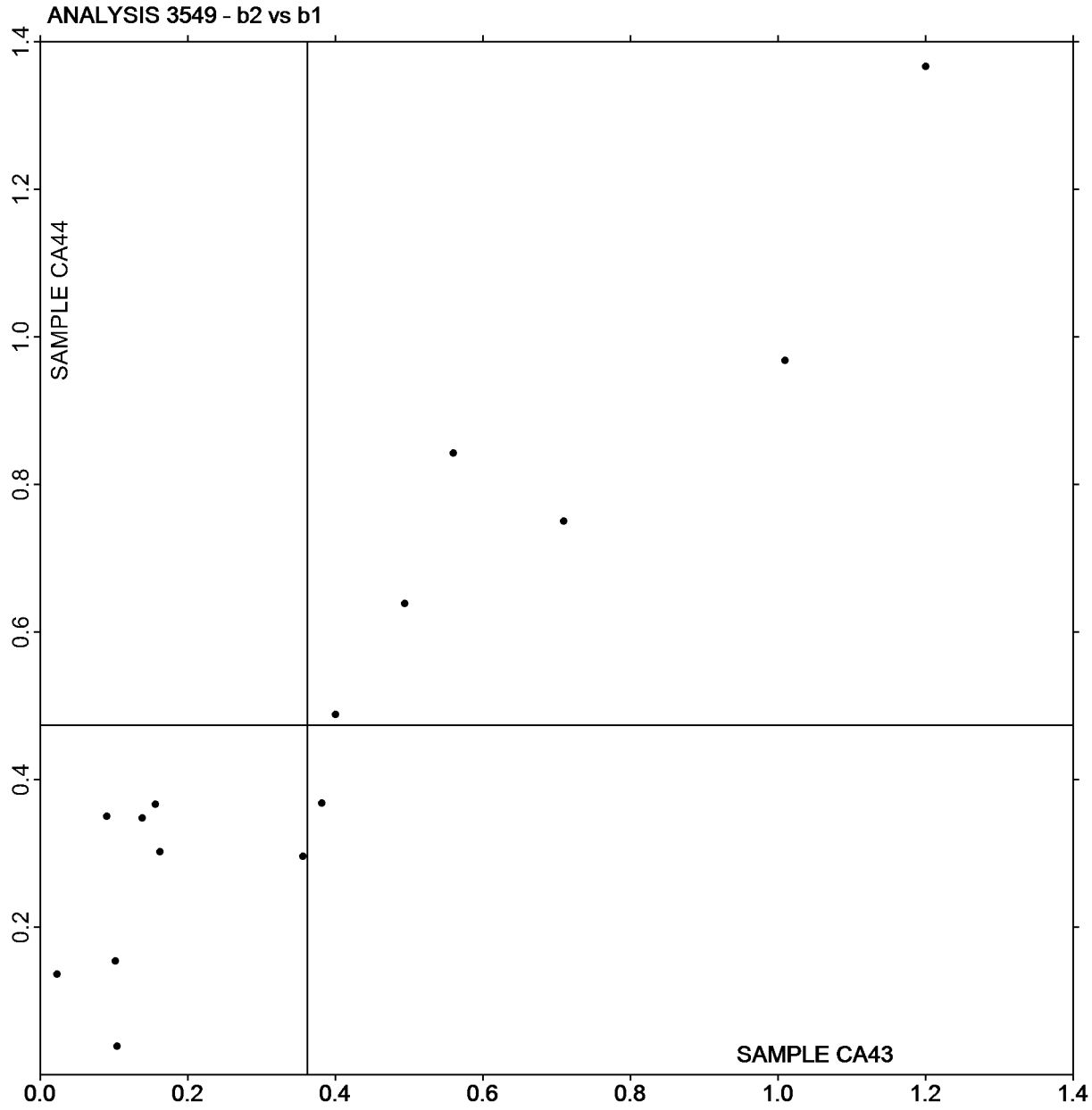
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values CA44 vs a values CA43



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

Plot of b values CA44 vs b values CA43



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 3551

Color & Color Difference - Near White Papers - D65/10deg obs

Hunter L,a,b - Illuminant D65 - 10 Degree Observer

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
3KYYNQ		CA43	86.94	-0.24	0.80	0.02	0.03	-0.09	0.09	TC
		CA44	86.96	-0.21	0.71					
F3CXBC	M	CA43	90.19	-0.33	-0.43					NF
		CA44								
J9C94E		CA43	89.37	0.29	-0.34	0.05	0.07	0.82 X	0.83	LS
		CA44	89.43	0.37	0.48					
L6MQR7		CA43	89.53	-0.48	0.02	-0.05	0.03	-0.06	0.09	LT
		CA44	89.47	-0.45	-0.04					
M48TZ8		CA43	89.99	-0.56	0.34	-0.17	0.02	-0.31	0.35	XX
		CA44	89.81	-0.54	0.03					
TP69Z6		CA43	89.93	-0.51	0.06	-0.15	0.18 X	-0.50	0.56	TC
		CA44	89.78	-0.33	-0.44					
TUEQYW		CA43	89.71	-0.58	0.11	0.11	0.04	-0.06	0.13	XX
		CA44	89.82	-0.54	0.05					
UPJ8FY		CA43	89.99	-0.21	1.03	0.09	0.03	0.03	0.10	XB
		CA44	90.08	-0.18	1.06					
UR8T3V		CA43	89.69	-0.56	0.18	-0.14	0.00	-0.16	0.21	EG
		CA44	89.55	-0.56	0.03					
VLK3FZ		CA43	89.71	-0.46	0.32	0.07	0.03	-0.06	0.10	XX
		CA44	89.77	-0.43	0.25					
YXFKJV		CA43	87.87	-0.50	-0.03	-0.15	-0.02	0.03	0.15	HL
		CA44	87.72	-0.52	0.01					

Summary Statistics

Grand Means							
CA43	89.272	-0.381	0.249	-0.033	0.042	-0.035	0.261
CA44	89.239	-0.339	0.214				
Stnd Dev Btwn Labs							
CA43	1.027	0.270	0.401	0.113	0.056	0.342	0.248
CA44	1.036	0.285	0.431				

Statistics based on 10 of 11 reporting participants

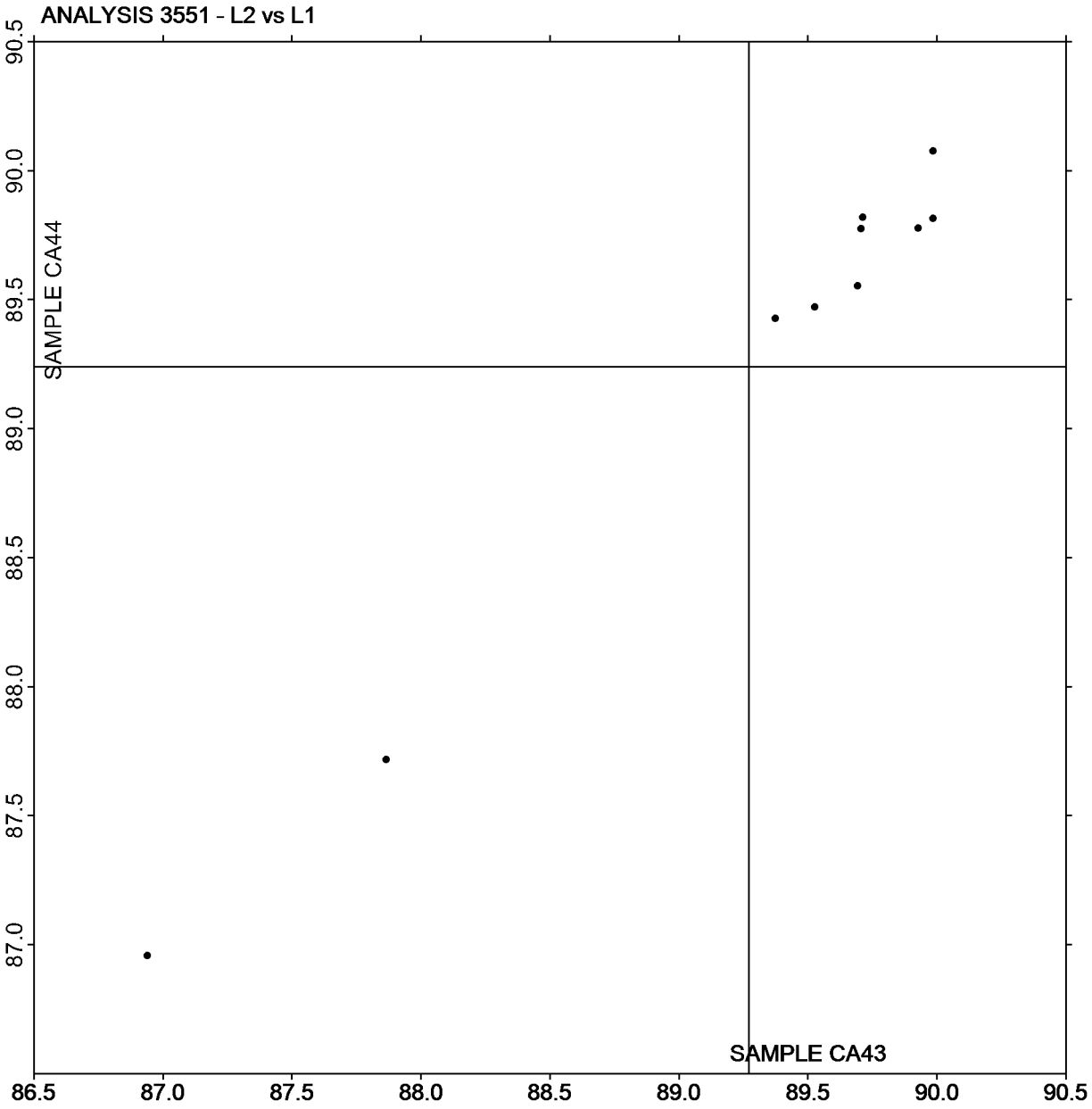
Comments on Assigned Data Flags for Test #3551

F3CXBC (M) - Participant did not submit data for sample CA44.

Key to Instrument Codes Reported by Participants

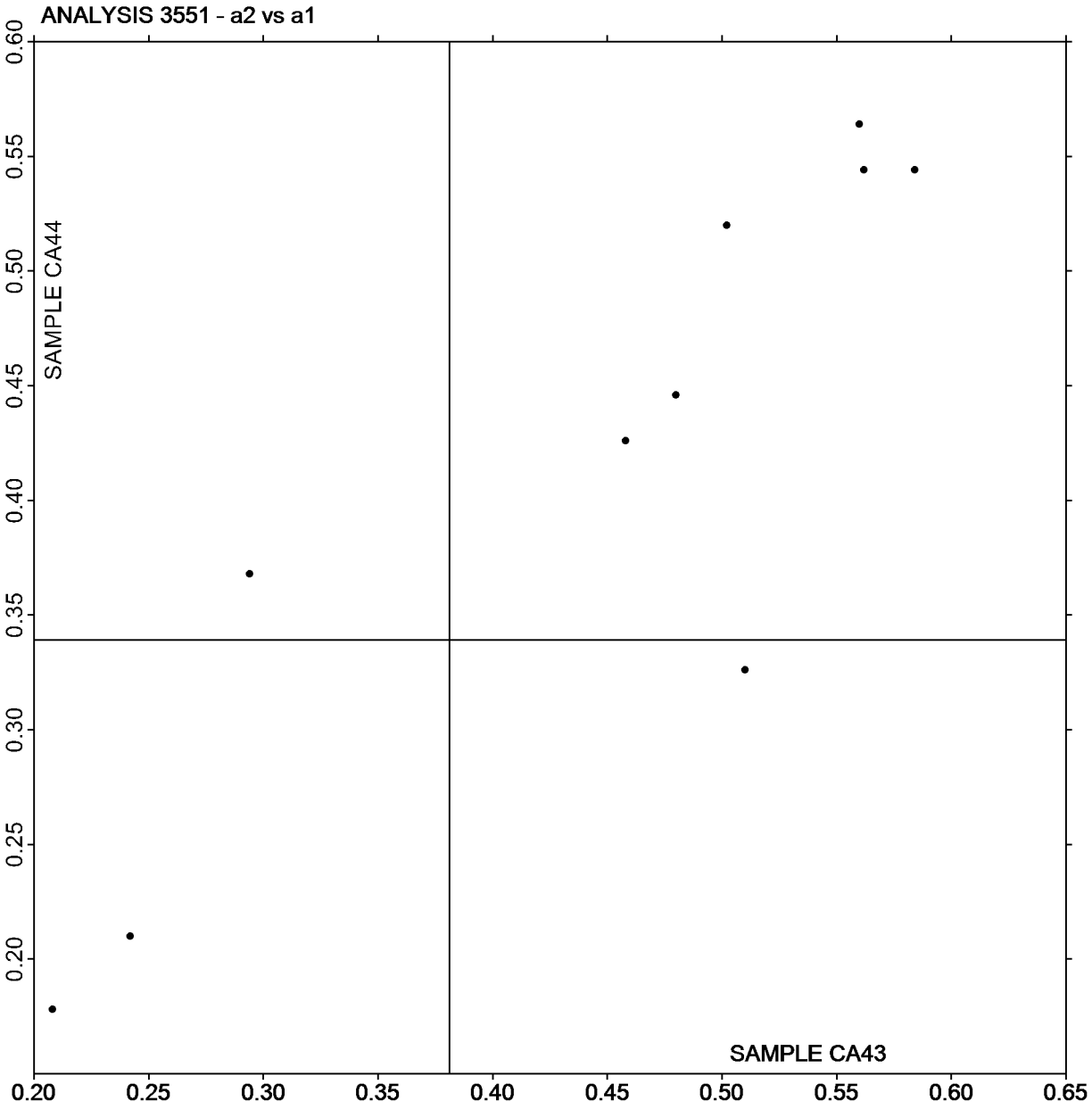
EG	Datacolor Elrepho	HL	Hunter Agera
LS	L & W Elrepho SE 070	LT	L & W Elrepho SE 071
NF	Minolta CM-3600d Spectrophotometer	TC	Technidyne Color Touch Series
XB	X-Rite Ci7	XX	Instrument make/model not specified by lab

Plot of L values CA44 vs L values CA43



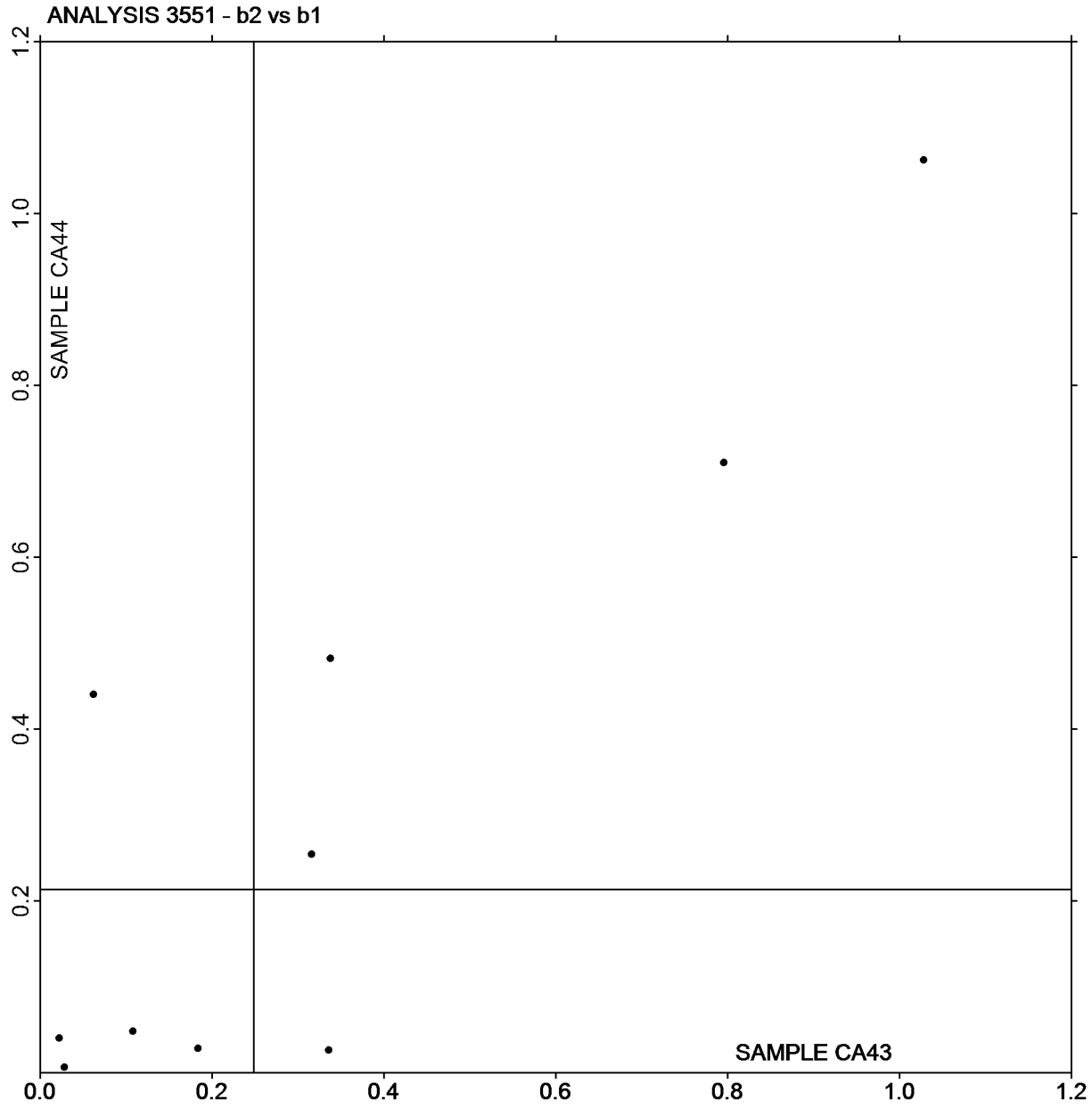
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values CA44 vs a values CA43



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

Plot of b values CA44 vs b values CA43



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 3553

Specular Gloss at 75 Degrees - High Range

TAPPI Official Test Method T480

Report #4372, August 2025

WebCode	Data Flag	Sample GH43 Lab Mean	Sample GH43 Diff from Grand Mean	Sample GH43 CPV	Sample GH44 Lab Mean	Sample GH44 Diff from Grand Mean	Sample GH44 CPV	Instr Code
8ECX8N		62.07	-0.13	-0.11	62.11	-0.08	-0.10	GM
BRCT3L		62.12	-0.08	-0.07	62.16	-0.03	-0.04	PP
C8YDCE		60.91	-1.29	-1.12	61.36	-0.83	-1.00	PP
FWQ6YC		64.29	2.09	1.82	62.27	0.08	0.10	LF
GKCAJC		62.12	-0.08	-0.07	62.22	0.03	0.04	LF
HAQKXC		60.91	-1.29	-1.12	61.13	-1.06	-1.28	TA
L6MQR7	M	61.22	-0.98	-0.85	No data reported for this sample			GA
LEBJ44		63.57	1.37	1.19	63.52	1.33	1.61	VM
UR8T3V		62.48	0.28	0.24	63.04	0.85	1.03	TH
VLKZQV		63.05	0.85	0.74	63.15	0.96	1.16	LG
VWJXEV		60.54	-1.66	-1.45	60.93	-1.26	-1.52	TP
XND49R		62.13	-0.07	-0.06	62.20	0.01	0.01	GM

Summary Statistics	Sample GH43	Sample GH44
Grand Means	62.20 Gloss Units	62.19 Gloss Units
Stnd Dev Btwn Labs	1.15 Gloss Units	0.83 Gloss Units

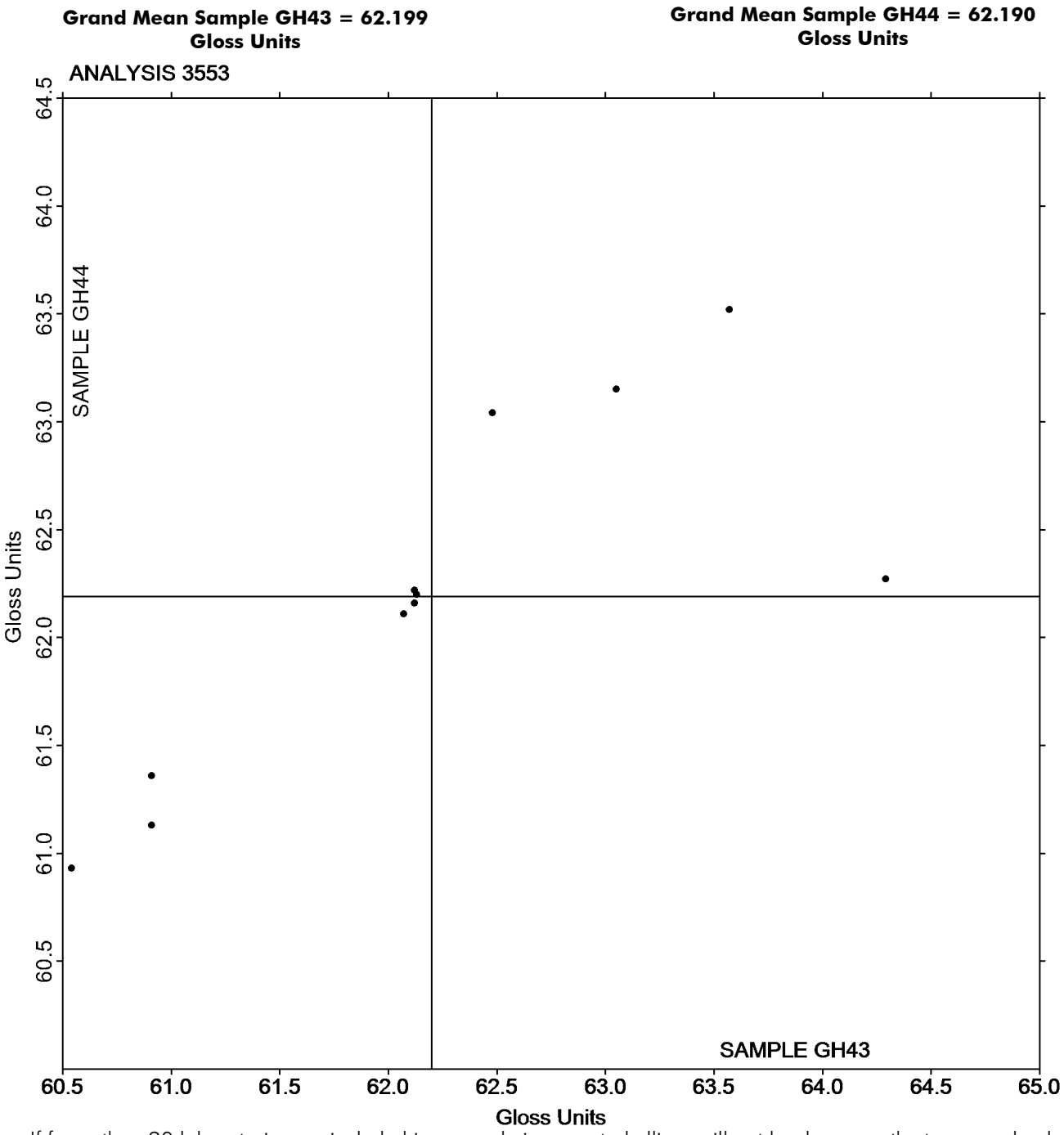
Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #3553

L6MQR7 (M) - Participant did not submit data for sample GH44.

Key to Instrument Codes Reported by Participants

GA	BYK-Gardner (model not specified)	GM	BYK-Gardner micro-gloss
LF	L & W Autoline 400	LG	L & W Autoline 600
PP	Technidyne Profile/Plus	TA	Technidyne Test Plus Gloss 75 degree
TH	Technidyne T480A	TP	Technidyne Profile Plus
VM	Valmet PaperLab (was Kajaani/Robotest)		



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 3555

Specular Gloss at 75 Degrees - Low Range

TAPPI Official Test Method T480

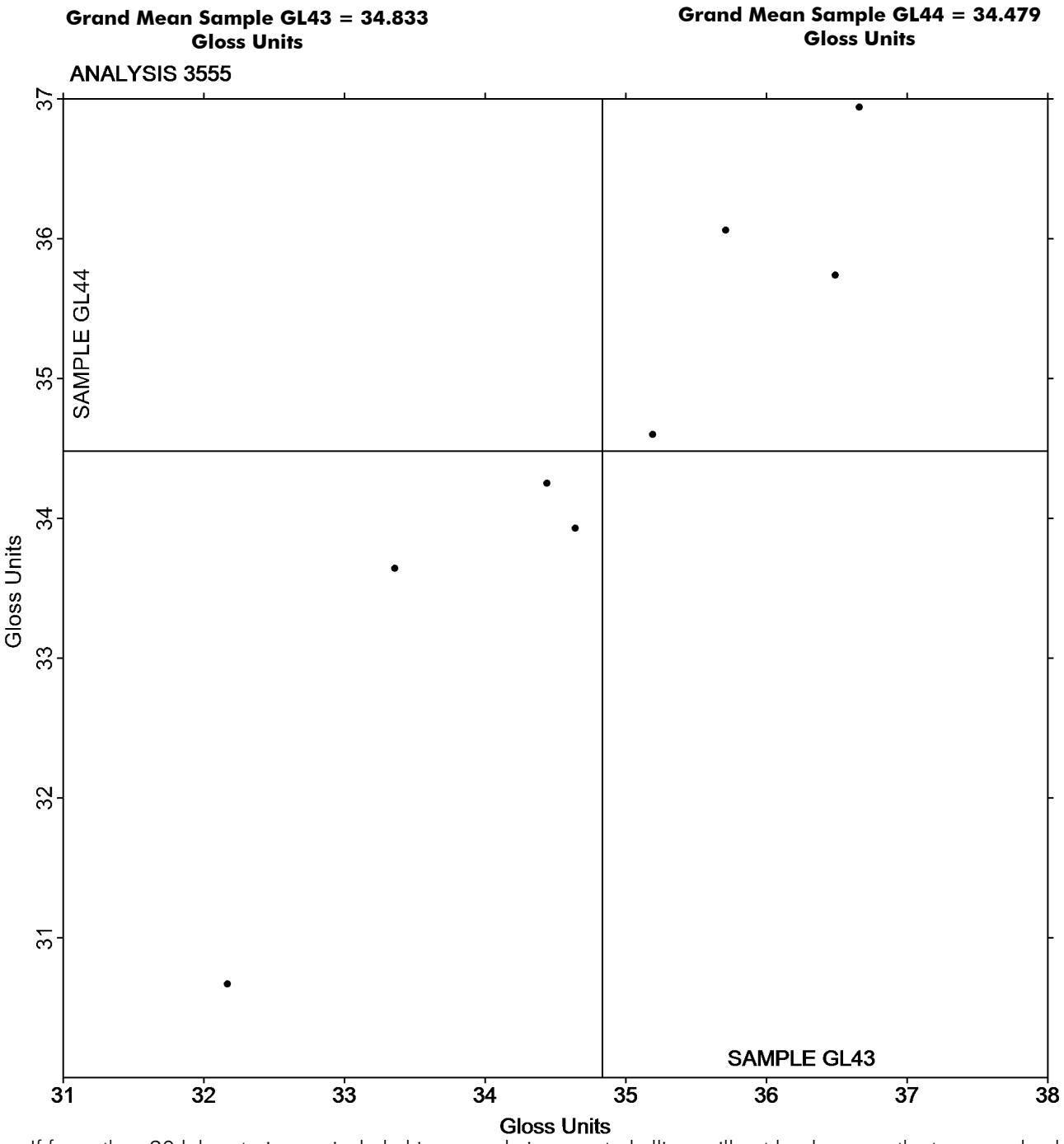
WebCode	Data Flag	Sample GL43 Lab Mean	Sample GL43 Diff from Grand Mean	Sample GL43 CPV	Sample GL44 Lab Mean	Sample GL44 Diff from Grand Mean	Sample GL44 CPV	Instr Code
3KYYNQ		36.66	1.83	1.19	36.94	2.46	1.28	PP
4946QN		35.71	0.88	0.57	36.06	1.58	0.82	WJ
CJVJ7C		33.36	-1.47	-0.96	33.64	-0.84	-0.44	TH
FVDD9F		35.19	0.36	0.23	34.60	0.12	0.06	GM
HAQKXC		34.64	-0.19	-0.13	33.93	-0.55	-0.29	TA
T4M2QW		34.44	-0.39	-0.26	34.25	-0.23	-0.12	TP
UPJ8FY		32.17	-2.66	-1.74	30.67	-3.81	-1.99	TH
X9NXZY		36.49	1.66	1.08	35.74	1.26	0.66	GS

Summary Statistics	Sample GL43	Sample GL44
Grand Means	34.83 Gloss Units	34.48 Gloss Units
Stnd Dev Btwn Labs	1.53 Gloss Units	1.92 Gloss Units

Statistics based on 8 of 8 reporting participants.

Key to Instrument Codes Reported by Participants

GM	BYK-Gardner micro-gloss
GS	BYK-Gardner Glossgard II
PP	Technidyne Profile/Plus
TA	Technidyne Test Plus Gloss 75 degree
TH	Technidyne T480A
TP	Technidyne Profile Plus
WJ	Zehntner ZLR 1020



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 3601

Folding Endurance (MIT) - Double Folds

TAPPI Official Test Method T511

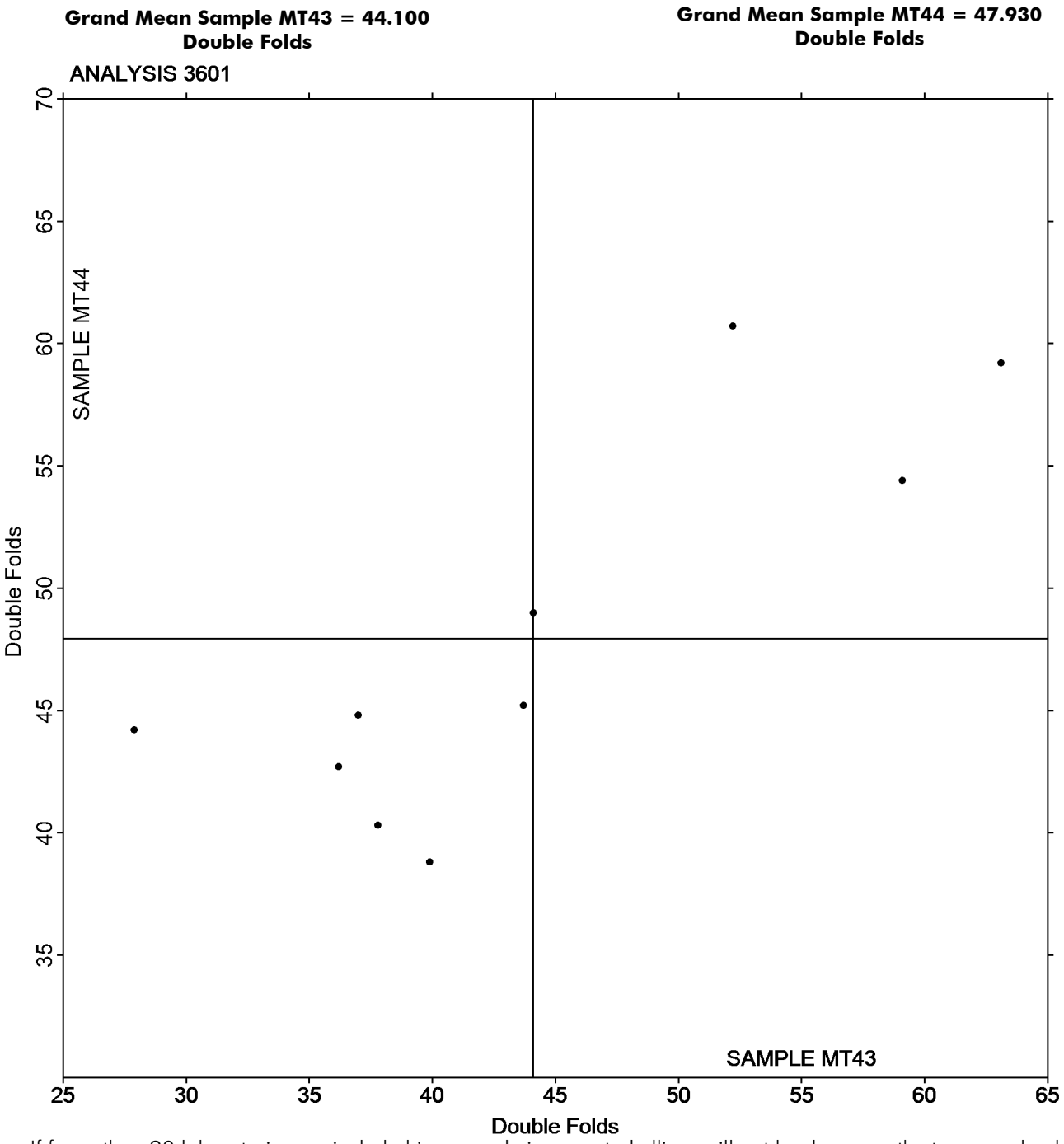
WebCode	Data Flag	Sample MT43 Lab Mean	Sample MT43 Diff from Grand Mean	Sample MT43 CPV	Sample MT44 Lab Mean	Sample MT44 Diff from Grand Mean	Sample MT44 CPV	Instr Code
3TWHAV		52.20	8.10	0.74	60.70	12.77	1.66	MT
7W3GNJ		27.90	-16.20	-1.48	44.20	-3.73	-0.48	MT
CJVJ7C		39.90	-4.20	-0.38	38.80	-9.13	-1.19	MT
L6MQR7		37.80	-6.30	-0.57	40.30	-7.63	-0.99	MT
LEBJ44		44.10	0.00	0.00	49.00	1.07	0.14	MT
LGG3BC		37.00	-7.10	-0.65	44.80	-3.13	-0.41	MT
TUEQYW		43.70	-0.40	-0.04	45.20	-2.73	-0.35	XX
UPJ8FY		36.20	-7.90	-0.72	42.70	-5.23	-0.68	MT
UR8T3V		63.10	19.00	1.73	59.20	11.27	1.46	MT
YMYVKP		59.10	15.00	1.37	54.40	6.47	0.84	MT

Summary Statistics	Sample MT43	Sample MT44
Grand Means	44.10 Double Folds	47.93 Double Folds
Stnd Dev Btwn Labs	10.98 Double Folds	7.70 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

Report #4372, August 2025

Analysis 3603

Bending Resistance, Gurley Type

TAPPI Official Test Method T543

WebCode	Data Flag	Sample BG43 Lab Mean	Sample BG43 Diff from Grand Mean	Sample BG43 CPV	Sample BG44 Lab Mean	Sample BG44 Diff from Grand Mean	Sample BG44 CPV	Instr Code
2URN7N		139.2	12.6	1.05	160.3	31.8	2.19	ZZ
489MPM		127.1	0.5	0.04	135.2	6.8	0.47	ZZ
AJMJFL		122.1	-4.5	-0.37	138.5	10.1	0.70	ZZ
CJVJ7C		146.7	20.1	1.67	132.1	3.7	0.25	ZZ
EV6WKH		140.4	13.8	1.15	133.2	4.7	0.33	ZZ
JCCKYD		123.0	-3.6	-0.30	123.0	-5.5	-0.38	ZZ
LEBJ44	X	64.9	-61.6	-5.11	69.4	-59.1	-4.07	ZZ
MUKRHC		116.5	-10.1	-0.84	114.3	-14.2	-0.98	ZZ
NUD6HA		117.4	-9.1	-0.76	121.4	-7.0	-0.49	ZZ
TMF48X	X	4.3	-122.2	-10.13	4.1	-124.3	-8.56	ZZ
UPJ8FY		127.9	1.3	0.11	125.7	-2.8	-0.19	ZZ
YMYVKP		127.2	0.6	0.05	125.5	-2.9	-0.20	ZZ
YXFKJV		104.7	-21.9	-1.81	103.7	-24.8	-1.71	ZZ

Summary Statistics	Sample BG43	Sample BG44
Grand Means	126.56 Gurley Units	128.43 Gurley Units
Stnd Dev Btwn Labs	12.06 Gurley Units	14.52 Gurley Units

Statistics based on 11 of 13 reporting participants.

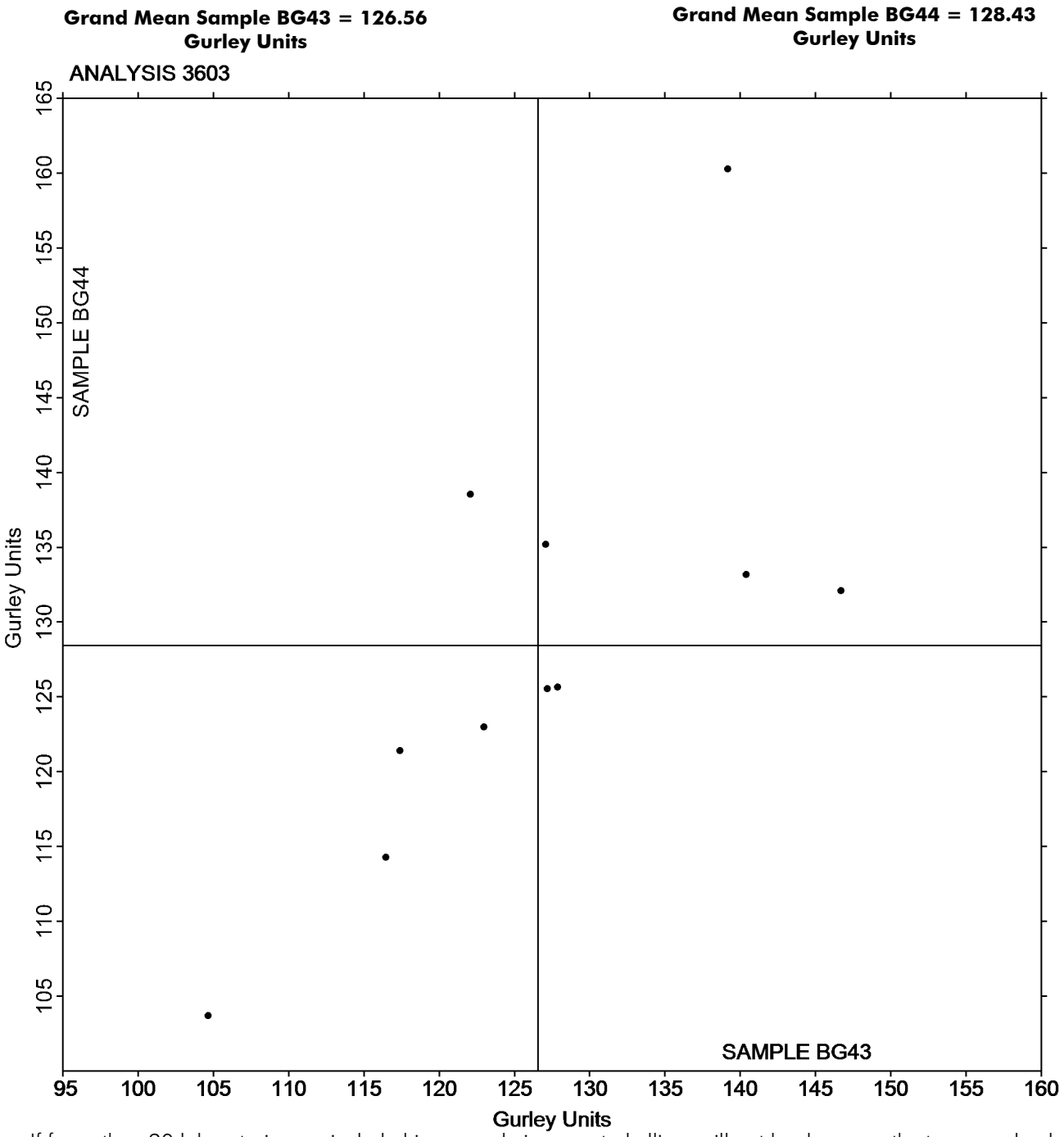
Comments on Assigned Data Flags for Test #3603

LEBJ44 (X) - Data for both samples are low.

TMF48X (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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 3611

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

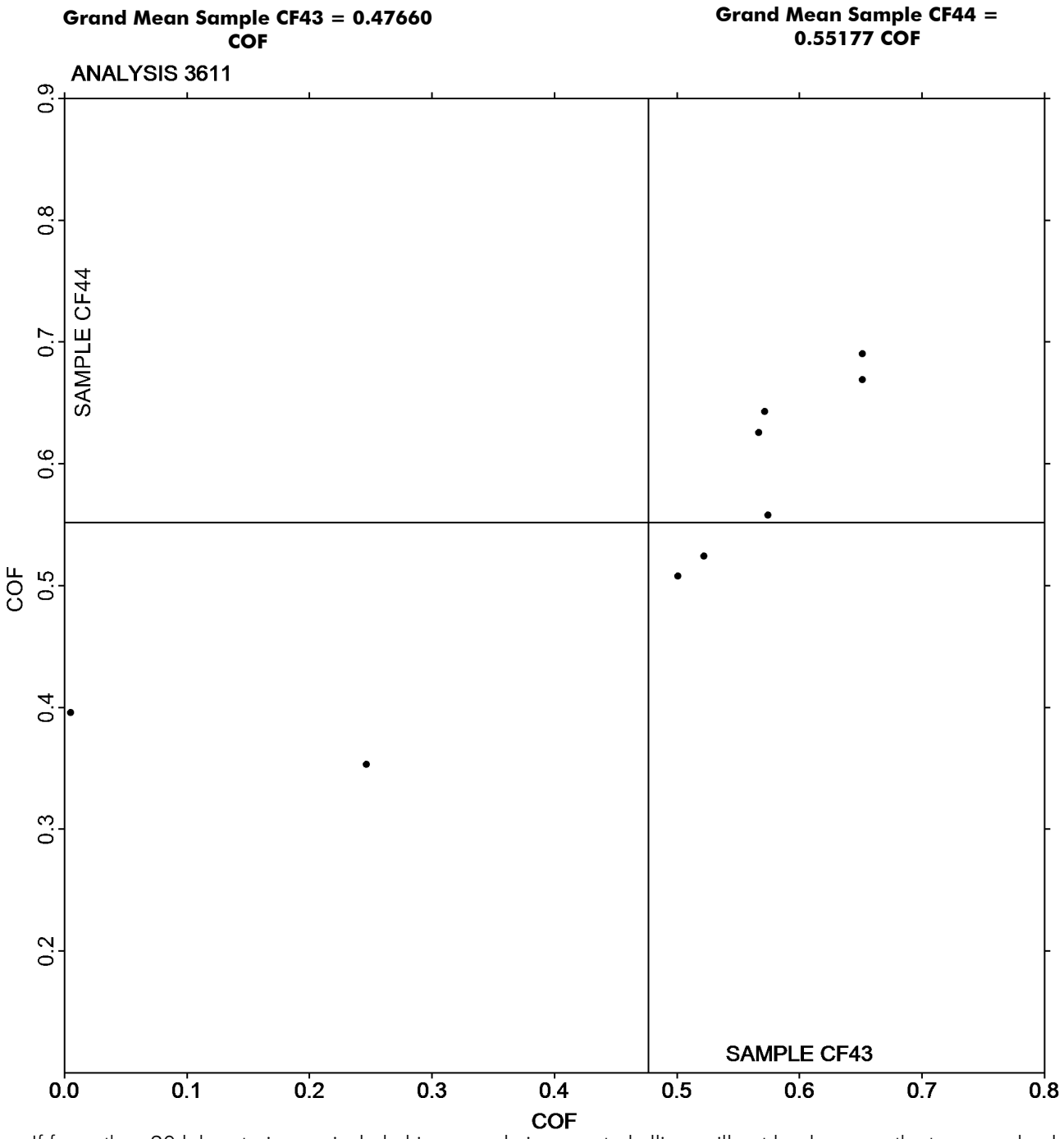
WebCode	Data Flag	Sample CF43 Lab Mean	Sample CF43 Diff from Grand Mean	Sample CF43 CPV	Sample CF44 Lab Mean	Sample CF44 Diff from Grand Mean	Sample CF44 CPV	Instr Code
3TWHAV		0.2464	-0.2302	-1.08	0.3530	-0.1988	-1.67	TM
489MPM		0.6514	0.1748	0.82	0.6690	0.1172	0.98	TA
48RLQQ		0.5744	0.0978	0.46	0.5578	0.0060	0.05	TA
AJMJFL		0.5220	0.0454	0.21	0.5240	-0.0278	-0.23	TA
DTG6PF		0.5718	0.0952	0.45	0.6429	0.0912	0.77	TN
J6AHQ8		0.5006	0.0240	0.11	0.5076	-0.0442	-0.37	XX
T4M2QW		0.5666	0.0900	0.42	0.6256	0.0738	0.62	TA
TMF48X		0.0050	-0.4716	-2.21	0.3956	-0.1562	-1.31	TX
ZFW97V		0.6512	0.1746	0.82	0.6904	0.1386	1.16	TA

Summary Statistics	Sample CF43	Sample CF44
Grand Means	0.48 COF	0.55 COF
Stnd Dev Btwn Labs	0.21 COF	0.12 COF

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

TA	Thwing-Albert Friction Tester	TM	TMI 32-06 Monitor/Slip and Friction
TN	TMI 32-07 Monitor/Slip and Friction	TX	TMI (model not specified)
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 3612

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

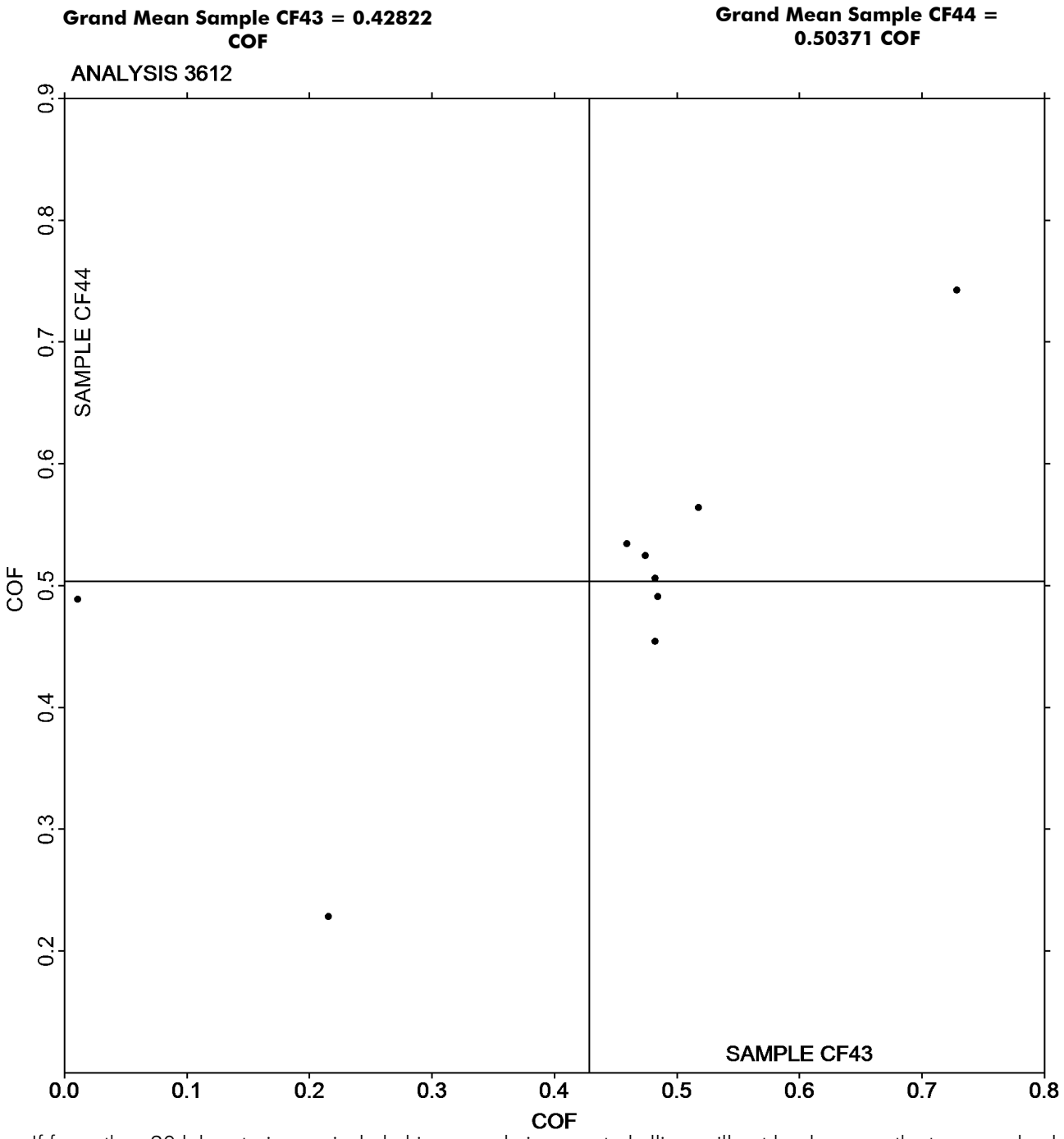
WebCode	Data Flag	Sample CF43 Lab Mean	Sample CF43 Diff from Grand Mean	Sample CF43 CPV	Sample CF44 Lab Mean	Sample CF44 Diff from Grand Mean	Sample CF44 CPV	Instr Code
3TWHAV		0.2154	-0.2128	-1.05	0.2284	-0.2753	-2.08	TM
489MPM		0.5176	0.0894	0.44	0.5640	0.0603	0.45	TA
48RLQQ		0.4820	0.0538	0.26	0.4542	-0.0495	-0.37	TA
AJMJFL		0.4820	0.0538	0.26	0.5060	0.0023	0.02	TA
DTG6PF		0.4740	0.0458	0.23	0.5246	0.0209	0.16	TN
J6AHQ8		0.4844	0.0562	0.28	0.4910	-0.0127	-0.10	XX
T4M2QW		0.4590	0.0308	0.15	0.5342	0.0305	0.23	TA
TMF48X		0.0110	-0.4172	-2.06	0.4886	-0.0151	-0.11	TX
ZFW97V		0.7286	0.3004	1.48	0.7424	0.2387	1.80	TA

Summary Statistics	Sample CF43	Sample CF44
Grand Means	0.43 COF	0.50 COF
Stnd Dev Btwn Labs	0.20 COF	0.13 COF

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

TA	Thwing-Albert Friction Tester	TM	TMI 32-06 Monitor/Slip and Friction
TN	TMI 32-07 Monitor/Slip and Friction	TX	TMI (model not specified)
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 3613
Moisture in Paper
TAPPI Official Test Method T412

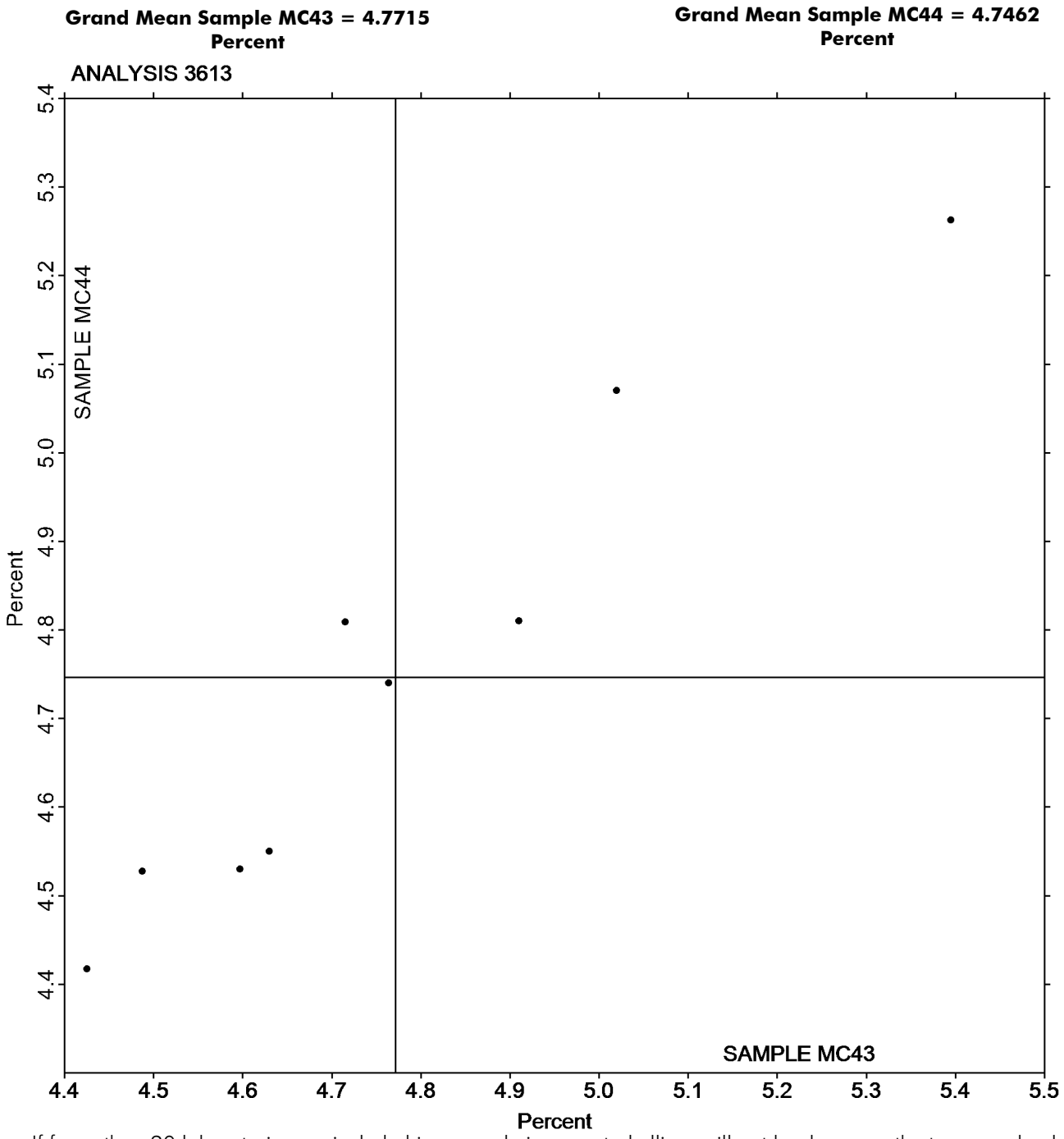
WebCode	Data Flag	Sample MC43 Lab Mean	Sample MC43 Diff from Grand Mean	Sample MC43 CPV	Sample MC44 Lab Mean	Sample MC44 Diff from Grand Mean	Sample MC44 CPV	Instr Code
4946QN		4.425	-0.347	-1.15	4.418	-0.329	-1.18	ZZ
AJMJFL		4.764	-0.007	-0.02	4.740	-0.006	-0.02	ZZ
ARYP8H		4.597	-0.175	-0.58	4.530	-0.216	-0.78	ZZ
DNKLMG		4.715	-0.057	-0.19	4.809	0.063	0.23	ZZ
F3CXBC		4.910	0.138	0.46	4.810	0.064	0.23	ZZ
JUWBXD		5.020	0.248	0.83	5.070	0.324	1.16	ZZ
MUKRHC		4.488	-0.284	-0.94	4.527	-0.219	-0.79	ZZ
YGXMEW		4.630	-0.142	-0.47	4.550	-0.196	-0.70	ZZ
YMYVKP		5.395	0.623	2.07	5.263	0.516	1.85	ZZ

Summary Statistics	Sample MC43	Sample MC44
Grand Means	4.77 Percent	4.75 Percent
Stnd Dev Btwn Labs	0.30 Percent	0.28 Percent

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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 3615
Sizing Test (Hercules Type)
TAPPI Official Test Method T530

WebCode	Data Flag	Sample HS43 Lab Mean	Sample HS43 Diff from Grand Mean	Sample HS43 CPV	Sample HS44 Lab Mean	Sample HS44 Diff from Grand Mean	Sample HS44 CPV	Instr Code
2JRBUV		31.22	1.93	0.11	33.59	4.15	0.22	HE
48RLQQ		17.21	-12.08	-0.69	16.58	-12.86	-0.69	HE
6FYMGJ		31.50	2.21	0.13	31.80	2.36	0.13	HE
AJMJFL		41.25	11.96	0.68	43.67	14.23	0.76	HE
BGAHP6		8.95	-20.34	-1.15	8.67	-20.77	-1.11	HE
E9K2LJ		20.30	-8.99	-0.51	22.20	-7.24	-0.39	XX
EV6WKH	X	227.27	197.98	11.24	318.52	289.08	15.51	XX
FVDD9F		17.00	-12.29	-0.70	18.80	-10.64	-0.57	HE
GKCAJC		20.05	-9.24	-0.52	21.43	-8.01	-0.43	HE
J6AHQ8		62.60	33.31	1.89	64.03	34.59	1.86	XX
JCCKYD		39.05	9.76	0.55	32.32	2.88	0.15	HE
KWBCAB		19.30	-9.99	-0.57	18.20	-11.24	-0.60	HE
LEBJ44		15.26	-14.03	-0.80	14.05	-15.39	-0.83	HE
NUD6HA		19.90	-9.39	-0.53	20.80	-8.64	-0.46	HE
T4M2QW	X	93.07	63.78	3.62	136.18	106.74	5.73	HE
TMF48X		24.71	-4.58	-0.26	22.60	-6.84	-0.37	HE
TP69Z6		19.20	-10.09	-0.57	21.92	-7.52	-0.40	HE
VLK3FZ		19.49	-9.80	-0.56	17.63	-11.81	-0.63	XX
WPQBWU	*	59.75	30.46	1.73	46.51	17.07	0.92	HE
YXFKJV	*	70.75	41.46	2.35	83.76	54.32	2.91	HE
YXJXBX		19.09	-10.20	-0.58	20.87	-8.57	-0.46	HE

Summary Statistics	Sample HS43	Sample HS44
Grand Means	29.29 Seconds	29.44 Seconds
Stnd Dev Btwn Labs	17.62 Seconds	18.64 Seconds

Statistics based on 19 of 21 reporting participants.

Comments on Assigned Data Flags for Test #3615

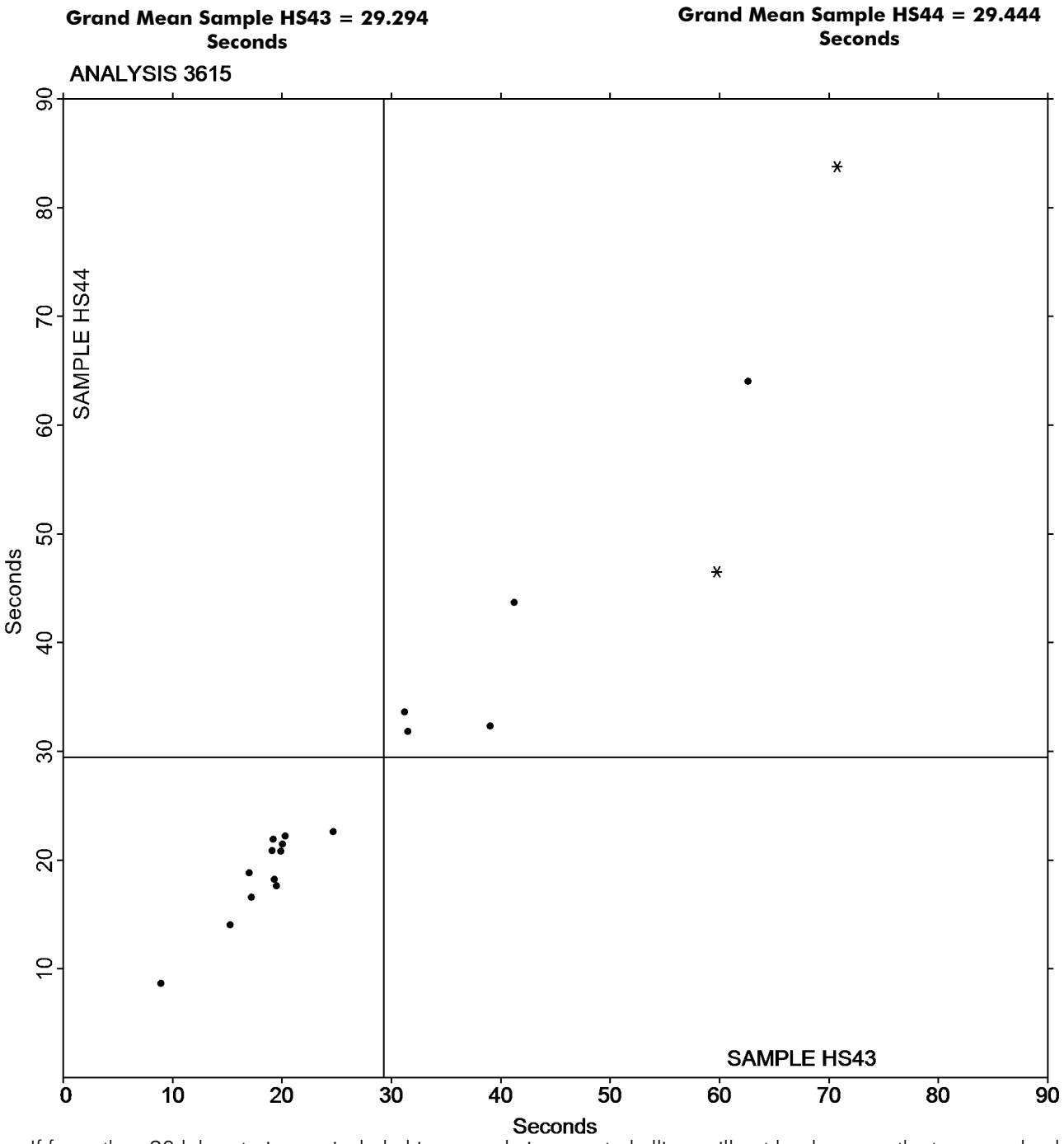
EV6WKH (X) - Extreme Data.

T4M2QW (X) - Data for both samples are high. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

HE Hercules Sizing 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-