



Paper & Paperboard Testing Program

Summary Report #242G-October 2009

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The CTS Paper, Paperboard & Corrugated Fiberboard Program

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

About CTS

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

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

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Key for Web Summary Reports (Page 1 of 2)

WebCode	Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Paper Report published on the CTS Web site. 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.
ΔE	The calculated total color difference between the two samples. For the Hunter L,a,b analyses it is calculated in Hunter units (ΔE). For the L*,a*,b* analyses it is calculated in CIELAB units (ΔE^*).
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:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	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.

Instrument Manufacturer Contacts

If your data results have been flagged with an "X" and you suspect that the problem is with your instrument (and not your testing procedure), CTS urges you to contact the appropriate instrument manufacturer. CTS has asked manufacturers to supply a contact person who is familiar with the Paper, Paperboard & Corrugated Fiberboard Interlaboratory Program. The listed service contact should be able to work with you on evaluating your results and determining possible causes of the problem.

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David Zarrilli, Sales Contact
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Huygen Corporation

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Technidyne Corporation

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Hunter Associates Lab, Inc.

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Emveco Inc.

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Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Web Code	F	Samples	Hunter L, a, b Color Values			Color Difference Values				Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE	
3RNJU3		GA49	90.12	-0.64	3.11	6.72	0.12	0.29	6.73	MK
		GA50	96.84	-0.52	3.40					
4GJR3N		GA49	89.96	-0.86	3.35	6.87	0.10	0.36	6.88	LS
		GA50	96.83	-0.75	3.71					
57CWDU		GA49	90.37	-0.75	3.19	6.79	0.09	0.38	6.80	HV
		GA50	97.17	-0.66	3.56					
7JX1M2	X	GA49	89.49	-0.68	2.95	5.56	0.00	-1.09	5.66	HH
		GA50	95.05	-0.68	1.86					
85UU8X	X	GA49	89.26	-0.73	2.79	5.71	-0.01	-1.20	5.83	HH
		GA50	94.97	-0.74	1.59					
8XDG7C		GA49	90.39	-0.37	3.15	7.12	0.16	0.28	7.13	HV
		GA50	97.51	-0.22	3.43					
A7V5AW		GA49	91.91	-0.80	3.41	5.54	0.10	0.33	5.55	LS
		GA50	97.44	-0.69	3.74					
ARBBWD		GA49	90.32	-0.95	3.58	7.01	0.02	0.43	7.03	HG
		GA50	97.33	-0.92	4.00					
CYDA8Y		GA49	89.76	-0.78	3.28	6.98	0.06	0.42	6.99	LS
		GA50	96.74	-0.72	3.70					
DCBAC2		GA49	92.05	-0.72	3.37	5.46	0.10	0.33	5.48	EH
		GA50	97.52	-0.61	3.71					
DN4Q6J		GA49	93.17	-0.98	2.67	5.55	0.12	0.30	5.56	HE
		GA50	98.71	-0.86	2.97					
DW9TZV		GA49	90.90	-0.84	3.38	6.52	0.10	0.16	6.53	TS
		GA50	97.42	-0.74	3.54					
E5SCCL		GA49	89.19	-0.33	2.81	7.11	0.06	0.20	7.11	TS
		GA50	96.30	-0.27	3.01					
EUP59F		GA49	89.20	-0.49	2.80	7.13	0.04	0.32	7.14	HH
		GA50	96.33	-0.45	3.13					
GCNV43		GA49	90.18	-0.41	2.92	6.72	0.05	0.20	6.72	TS
		GA50	96.89	-0.36	3.11					
JNRN2D		GA49	90.29	-0.74	3.31	7.05	0.06	0.37	7.06	TP
		GA50	97.34	-0.68	3.68					
JXQATX	X	GA49	89.57	-0.33	2.10	6.76	0.06	0.16	6.76	TS
		GA50	96.33	-0.27	2.25					
L1TCA5		GA49	89.73	-0.18	3.19	7.03	0.03	0.31	7.04	TM
		GA50	96.76	-0.15	3.50					

Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Web Code	F	Samples	Hunter L, a, b Color Values			Color Difference Values				Instr Code	
			L	a	b	ΔL	Δa	Δb	ΔE		
MBFACV	X	GA49	91.62	-0.83	3.01	3.44	0.11	-1.31	3.68	X	LA
		GA50	95.06	-0.72	1.70						
PRYZIV		GA49	90.05	-0.41	3.06	6.71	0.03	0.16	6.71		TS
	GA50	96.76	-0.38	3.22							
PYGXTU		GA49	90.03	-0.38	2.95	6.75	-0.06	0.23	6.75		TS
	GA50	96.78	-0.44	3.18							
PYL8XD		GA49	90.78	-0.94	2.96	6.42	0.16	0.32	6.43		HH
	GA50	97.20	-0.78	3.28							
Q5QCFP		GA49	89.67	-0.40	3.11	7.13	0.07	0.34	7.14		TB
	GA50	96.80	-0.32	3.45							
QTK1H3		GA49	90.27	-0.26	2.90	6.71	0.09	0.24	6.72		TS
	GA50	96.98	-0.17	3.14							
QW9H12	X	GA49	80.07	-0.29	3.14	13.07	0.17	0.30	13.07	X	HH
		GA50	93.14	-0.12	3.44						
RHQ3L9		GA49	91.94	-0.81	3.26	5.48	0.12	0.24	5.48		EH
	GA50	97.42	-0.69	3.50							
RZ7V4X		GA49	89.79	-0.51	2.99	6.96	-0.03	0.36	6.97		TM
	GA50	96.74	-0.54	3.35							
UMEFGE		GA49	91.98	-0.77	3.25	5.44	0.16	0.20	5.45		MI
	GA50	97.43	-0.61	3.45							
US6RCD		GA49	89.25	-0.34	2.77	7.30	0.01	0.27	7.30		TS
	GA50	96.55	-0.33	3.04							
VMNFS9		GA49	89.84	-0.84	3.16	6.91	0.10	0.38	6.92		EH
	GA50	96.75	-0.75	3.54							
VWAADQ		GA49	89.99	-0.76	3.22	6.76	0.07	0.42	6.77		TC
	GA50	96.75	-0.70	3.64							
XY56ZR		GA49	89.75	-0.76	3.13	7.01	0.08	0.29	7.02		TC
	GA50	96.76	-0.68	3.42							

Grand Means

	L	a	b	ΔL	Δa	Δb	ΔE
GA49	90.306	-0.614	3.121	6.636	0.075	0.301	6.644
GA50	96.880	-0.542	3.422				

Std Dev Btwn Labs

GA49	0.982	0.236	0.218	0.589	0.052	0.078	0.589
GA50	0.699	0.227	0.256				

Statistics based on 27 of 32 reporting participants

Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Web Code	F	Samples	Hunter L, a, b Color Values			Color Difference Values				Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE	

Comments assigned on Data Flags for Test #350

7JX1M2 (X) - Low b values for Sample GA50; low delta b value.

85UU8X (X) - Low b values for Sample GA50; low delta b value.

JXQATX (X) - Low b values for both samples.

MBFACV (X) - Low b values for Sample GA50; low delta L, delta b and delta E values.

QW9H12 (X) - Low L values; large delta L and delta E values.

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450

(HG) - Hunter ColorQUEST

(HV) - Hunter Ultrascan XE

(LS) - L & W Elrepho SE 070

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(TC) - Technidyne Color Touch Series

(TP) - Technidyne Spectro Plus

(HE) - Hunter LabScan

(HH) - Hunter D25DP - 9000

(LA) - L & W Elrepho AL300

(MI) - Macbeth Color i 5

(TB) - Technidyne Technibrite TB-1C

(TM) - Technidyne Technibrite Micro TB-1C

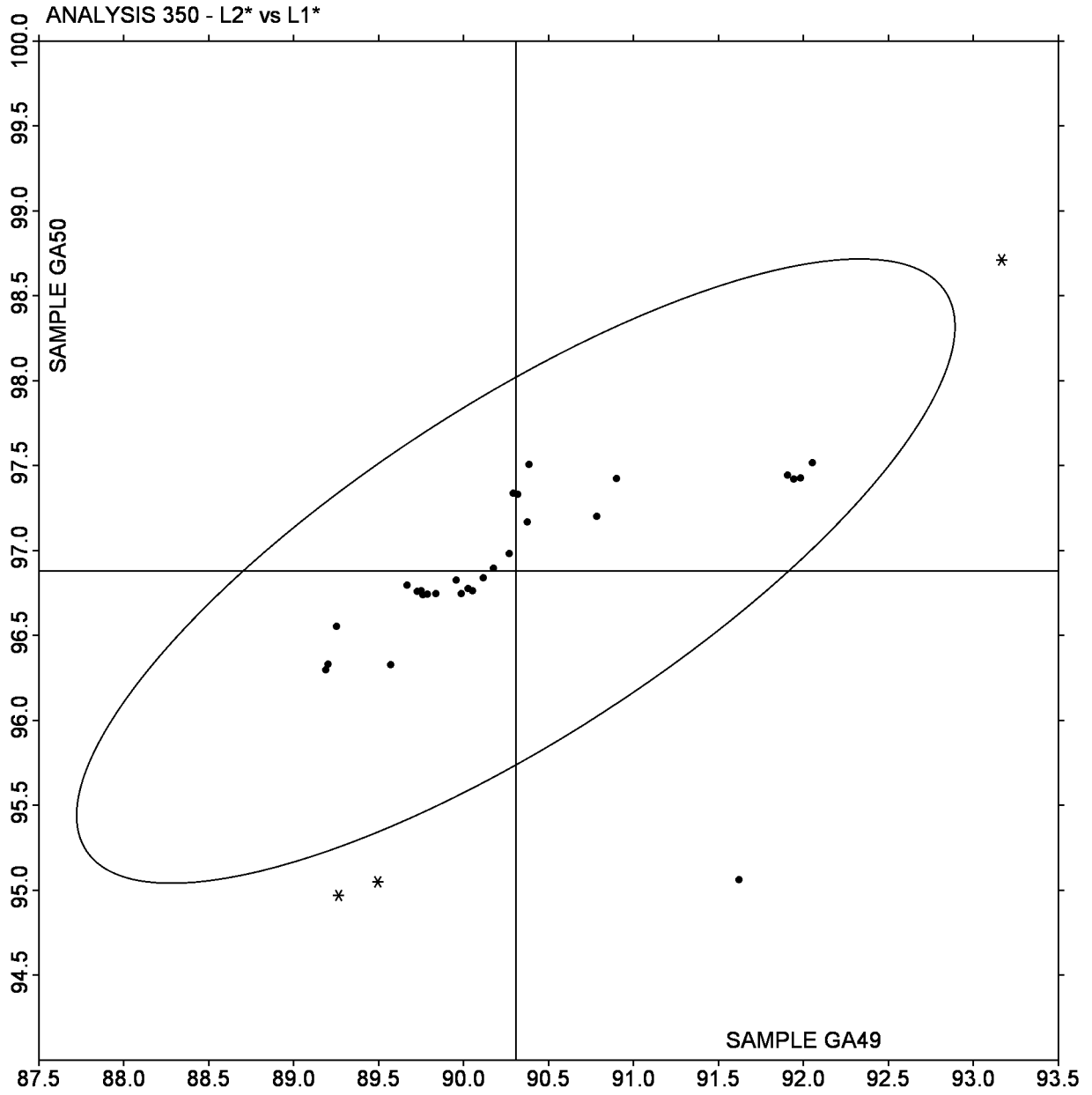
(TS) - Technidyne Brightimeter Micro S-5

Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Plot of L values GA50 v L values GA49

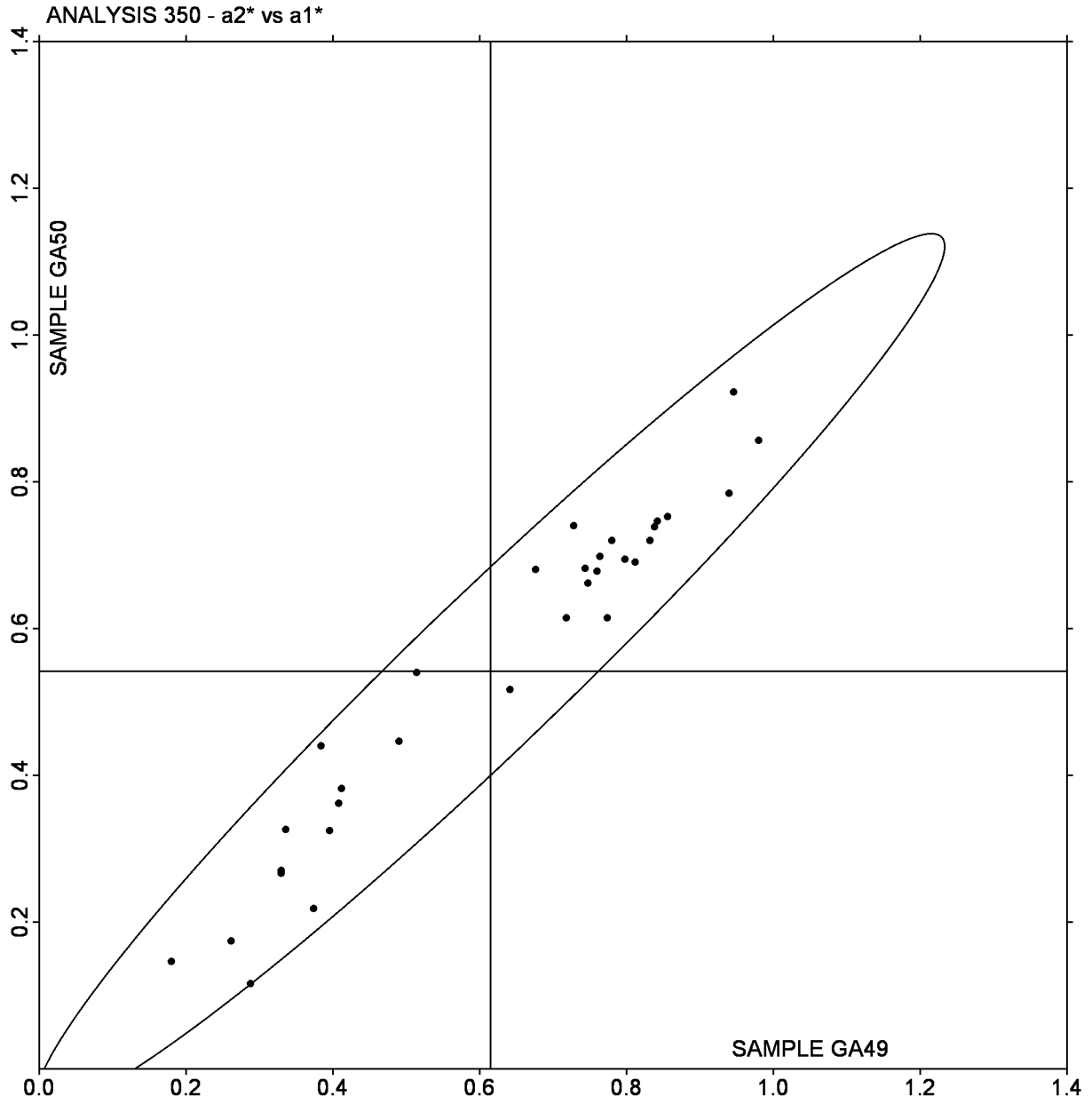


Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Plot of a values GA50 v a values GA49

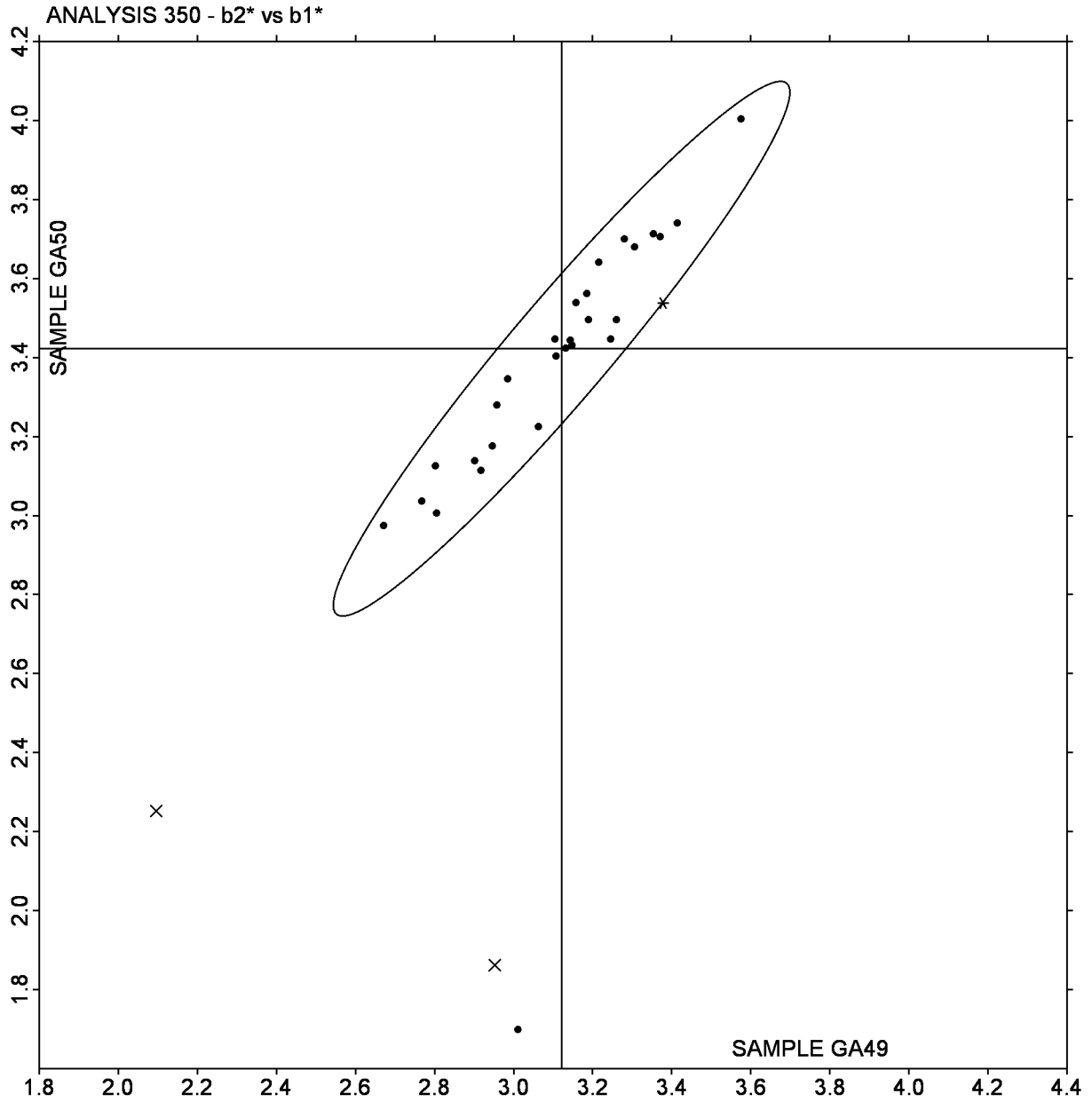


Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Plot of b values GA50 v b values GA49



Analysis 351

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

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

Web Code	F	Samples	Hunter L, a, b Color Values			Color Difference Values				Instr Code	
			L	a	b	ΔL	Δa	Δb	ΔE		
4N26HB		GA49	89.90	-0.48	3.00	6.74	0.25	0.27	6.75	TC	
		GA50	96.64	-0.23	3.27						
55BL4D	X	GA49	91.48	-0.53	2.92	3.69	0.06	-1.32	3.92	X	LS
		GA50	95.17	-0.47	1.60						
58SHGN		GA49	91.88	-0.44	3.30	5.56	0.24	0.22	5.57	EF	
		GA50	97.44	-0.20	3.52						
5YAUN9		GA49	89.12	-0.38	3.00	7.13	0.07	0.31	7.13	TM	
		GA50	96.25	-0.31	3.31						
9LA38T		GA49	91.81	-0.39	3.36	5.61	0.21	0.21	5.62	NF	
		GA50	97.42	-0.18	3.57						
AQ9Y56		GA49	89.88	-0.42	3.04	7.06	0.17	0.23	7.07	HM	
		GA50	96.95	-0.25	3.27						
AR5N1M		GA49	92.34	-0.32	3.33	5.51	0.15	0.14	5.52	XU	
		GA50	97.85	-0.17	3.47						
AZT111		GA49	90.10	-0.61	2.87	6.75	0.15	0.19	6.76	HV	
		GA50	96.85	-0.46	3.07						
BF2N91		GA49	92.25	-0.42	3.45	5.26	0.25	0.20	5.27	XD	
		GA50	97.51	-0.17	3.65						
C2YRF1		GA49	91.62	-0.48	3.40	5.30	0.08	0.09	5.30	HV	
		GA50	96.92	-0.41	3.49						
CZXHRH	X	GA49	92.02	-0.79	3.27	5.31	0.15	0.24	5.32	HV	
		GA50	97.33	-0.64	3.51						
DARPBL		GA49	91.88	-0.37	3.26	5.53	0.19	0.15	5.54	TC	
		GA50	97.41	-0.18	3.41						
F9CA6V		GA49	91.96	-0.48	3.20	5.44	0.22	0.22	5.44	EH	
		GA50	97.40	-0.26	3.42						
G5LNGM		GA49	92.24	-0.34	3.44	5.46	0.21	0.22	5.47	HG	
		GA50	97.70	-0.13	3.66						
GL58CS		GA49	90.17	-0.43	3.06	6.64	0.23	0.33	6.65	HU	
		GA50	96.81	-0.21	3.39						
GZ9ZJB		GA49	92.02	-0.41	3.26	5.41	0.24	0.14	5.41	TC	
		GA50	97.43	-0.17	3.40						
HN4DJX		GA49	88.97	-0.20	2.91	7.30	0.07	0.26	7.31	TM	
		GA50	96.28	-0.14	3.16						
J79C2X		GA49	89.92	-0.37	3.20	6.85	0.19	0.23	6.86	XA	
		GA50	96.78	-0.19	3.43						

Analysis 351

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

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

Web Code	F	Samples	Hunter L, a, b Color Values			Color Difference Values				Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE	
KVGMZC		GA49	92.48	-0.46	3.20	5.52	0.22	0.25	5.53	HV
		GA50	98.00	-0.24	3.45					
LSJWFQ		GA49	90.10	-0.34	2.89	6.94	0.19	0.27	6.95	NF
		GA50	97.04	-0.15	3.15					
MABGV2		GA49	90.64	-0.51	3.41	6.79	0.22	0.22	6.80	MG
		GA50	97.43	-0.29	3.63					
NU5B6B		GA49	91.92	-0.43	3.30	5.54	0.21	0.14	5.54	XX
		GA50	97.46	-0.22	3.44					
Q2L6ZC		GA49	90.39	-0.40	3.00	6.99	0.19	0.29	7.00	HV
		GA50	97.38	-0.20	3.29					
Q2X28X		GA49	90.34	-0.37	3.17	7.12	0.16	0.26	7.13	HV
		GA50	97.47	-0.20	3.43					
RS55LN		GA49	91.94	-0.41	3.50	5.37	0.23	0.22	5.38	NG
		GA50	97.31	-0.19	3.72					
TXXWC9		GA49	90.17	-0.43	3.10	6.77	0.22	0.32	6.78	XX
		GA50	96.94	-0.21	3.42					
YPBC46		GA49	89.83	-0.37	3.15	6.80	0.23	0.24	6.81	NF
		GA50	96.64	-0.14	3.39					
ZGJ7AV		GA49	90.57	-0.44	3.41	6.79	0.20	0.19	6.79	MG
		GA50	97.36	-0.25	3.60					

		Summary Statistics							
Grand Means									
	GA49	90.981	-0.416	3.203	6.238	0.191	0.223	6.245	
	GA50	97.184	-0.230	3.427					
Std Dev Btwn Labs									
	GA49	1.094	0.077	0.184	0.753	0.052	0.059	0.753	
	GA50	0.438	0.089	0.160					
Statistics based on 26 of 28 reporting participants									

Comments assigned on Data Flags for Test #351

55BL4D (X) - Low L, a and b values for Sample GA50. Low delta L, delta b and delta E values.

CZXHRH (X) - Low a values.

Analysis 351

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

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

Instrument Code List as Reported by the Labs

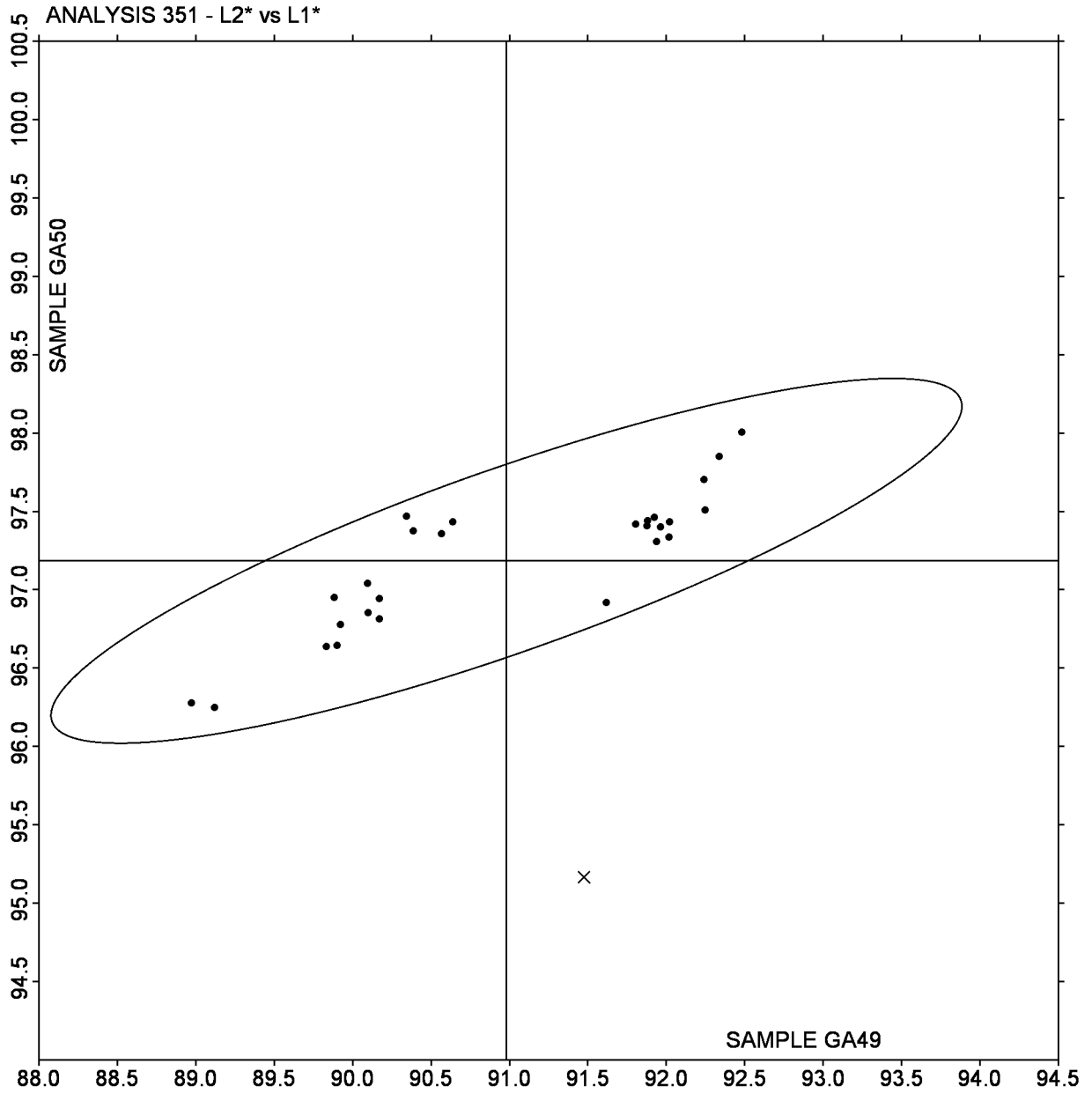
(EF) - Datacolor Elrepho 3000	(EH) - Datacolor Elrepho SF450
(HG) - Hunter ColorQUEST	(HM) - Hunter MiniScan XE Spectrophotometer
(HU) - Hunter UltraScan	(HV) - Hunter Ultrascan XE
(LS) - L & W Elrepho SE 070	(MG) - Macbeth 1500/PLUS - 2025+ Color Eye
(NF) - Minolta CM-3600d Spectrophotometer	(NG) - Minolta CM-3700d Spectrophotometer
(TC) - Technidyne Color Touch Series	(TM) - Technidyne Brightimeter Model Micro S-5
(XA) - X-Rite (model not specified)	(XD) - X-Rite 530 SpectroDensitometer
(XU) - X-Rite 968 Spectrophotometer	(XX) - Instrument make/model not specified by lab

Analysis 351

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

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

Plot of L values GA50 v L values GA49

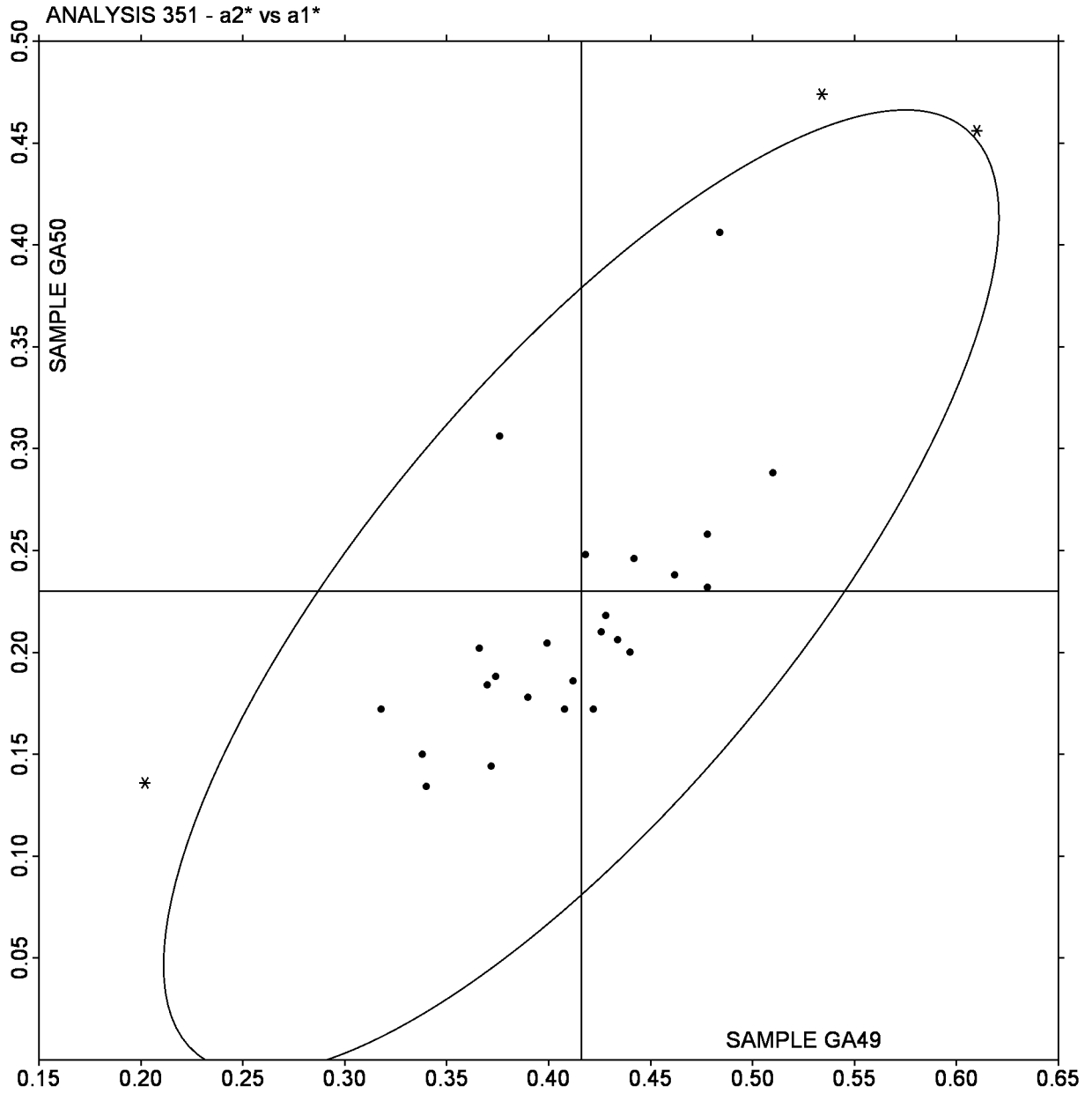


Analysis 351

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

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

Plot of a values GA50 v a values GA49

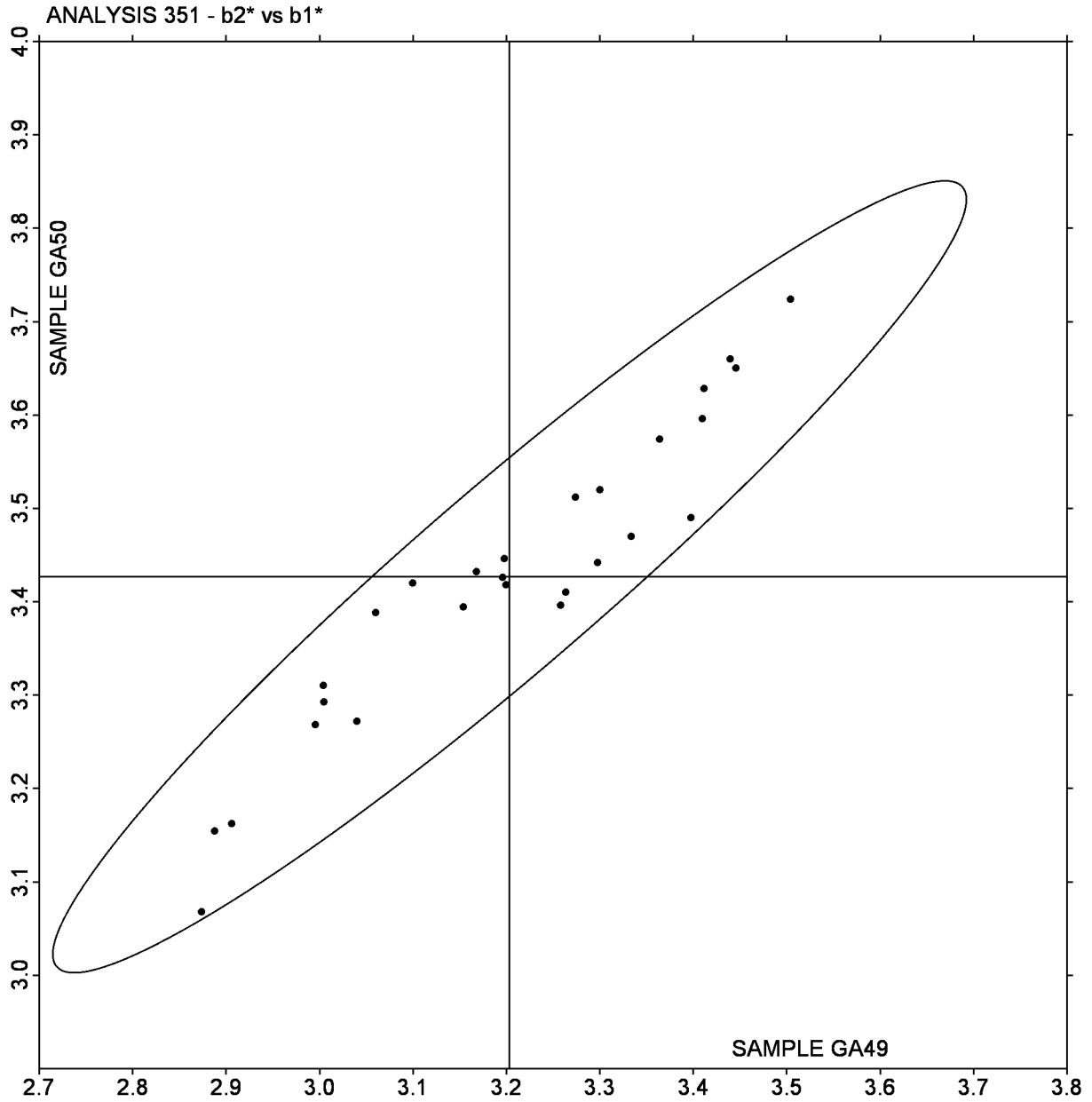


Analysis 351

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

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

Plot of b values GA50 v b values GA49



Paper & Paperboard Interlaboratory Testing Program
Analysis 360
Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV49			Sample GV50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1895PU		4.608	0.054	1.11	5.541	0.047	0.71	LW
1D1ZUF		4.582	0.028	0.58	5.430	-0.064	-0.95	LW
1S38UF		4.548	-0.006	-0.12	5.465	-0.029	-0.43	EM
24MEPW	X	4.724	0.171	3.51	5.709	0.215	3.21	MT
2BDYQY		4.493	-0.061	-1.25	5.401	-0.093	-1.38	TA
2N3LBD		4.506	-0.048	-0.98	5.387	-0.107	-1.59	LA
3RTT1T		4.615	0.061	1.25	5.531	0.037	0.55	EM
3UNBPD		4.599	0.045	0.93	5.537	0.043	0.65	EM
4381LZ		4.645	0.091	1.87	5.551	0.057	0.86	TA
44PJYR		4.593	0.039	0.81	5.557	0.063	0.95	PP
4TN5SZ		4.516	-0.038	-0.78	5.437	-0.057	-0.84	TA
58GAEK		4.662	0.108	2.23	5.570	0.076	1.13	LW
5H827S	*	4.565	0.011	0.23	5.640	0.146	2.18	TM
5HW3RQ		4.531	-0.022	-0.46	5.484	-0.009	-0.14	LW
5UW5EY		4.503	-0.051	-1.04	5.354	-0.140	-2.08	TM
65DQD8		4.521	-0.033	-0.68	5.484	-0.009	-0.14	XX
6DB9XE		4.594	0.040	0.83	5.538	0.044	0.66	LA
6N3JS4		4.563	0.009	0.19	5.520	0.026	0.39	LW
6P6NHL		4.618	0.064	1.32	5.547	0.054	0.80	LW
7S6ZDL		4.595	0.041	0.85	5.552	0.058	0.87	LW
8DU36A		4.535	-0.018	-0.38	5.524	0.030	0.45	FR
9BVW33		4.575	0.021	0.43	5.500	0.006	0.10	LW
B4DGUC		4.571	0.017	0.35	5.464	-0.030	-0.44	TM
B6KBH3		4.513	-0.041	-0.84	5.470	-0.024	-0.35	TM
B8CSQC		4.526	-0.028	-0.57	5.509	0.015	0.23	PP
BNM8JC		4.609	0.055	1.14	5.544	0.050	0.75	EM
BVRER9		4.520	-0.034	-0.69	5.430	-0.064	-0.95	TM
BYERQE		4.646	0.092	1.89	5.575	0.081	1.21	XX
C1G6FH		4.510	-0.044	-0.90	5.460	-0.034	-0.50	TM
CAY1JW		4.495	-0.059	-1.21	5.470	-0.024	-0.35	TA
D7X9Y4		4.560	0.006	0.13	5.470	-0.024	-0.35	TM
DDQ9SQ		4.592	0.038	0.79	5.556	0.062	0.93	TM
DVWR43		4.567	0.013	0.27	5.509	0.015	0.23	PP
E27HLM		4.517	-0.037	-0.75	5.444	-0.049	-0.74	TM
EC1M51	X	4.379	-0.175	-3.59	5.286	-0.208	-3.10	LA
ELWADR		4.560	0.006	0.13	5.516	0.022	0.33	EM
FEB648		4.605	0.051	1.05	5.549	0.055	0.83	EM
FHAX2Z		4.596	0.042	0.87	5.579	0.085	1.27	TA
GYFGEH		4.570	0.016	0.33	5.434	-0.060	-0.89	LW
HA9Q2Y		4.488	-0.066	-1.36	5.447	-0.047	-0.69	TM
HHFQPS		4.563	0.009	0.19	5.481	-0.013	-0.19	PP
HK42NX		4.492	-0.062	-1.27	5.390	-0.104	-1.55	TM
JLEXRP		4.514	-0.040	-0.82	5.550	0.056	0.84	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV49			Sample GV50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
K3FZ68		4.624	0.070	1.44	5.540	0.046	0.69	EM
KQFKGC	X	4.370	-0.184	-3.77	5.303	-0.190	-2.84	TM
KXXK11		4.511	-0.043	-0.88	5.425	-0.069	-1.02	EM
L6C6Z2		4.560	0.006	0.13	5.475	-0.019	-0.28	LA
MV3VYE		4.525	-0.029	-0.59	5.442	-0.052	-0.77	LA
N2GUMJ		4.520	-0.034	-0.70	5.520	0.026	0.39	LW
NF3H1U		4.540	-0.014	-0.28	5.429	-0.065	-0.96	EM
P5ZP4N		4.520	-0.034	-0.69	5.431	-0.063	-0.93	EM
PGKBNV		4.605	0.051	1.05	5.603	0.110	1.63	LW
PGNEFT		4.502	-0.052	-1.07	5.465	-0.029	-0.43	LW
Q7K3WQ		4.515	-0.039	-0.80	5.435	-0.058	-0.87	TM
QEHHUA	X	4.557	0.003	0.07	5.562	0.068	1.02	LW
QKEAX5		4.565	0.011	0.23	5.491	-0.003	-0.04	EM
QVMFVF		4.553	-0.001	-0.02	5.532	0.038	0.57	VM
QWZC1K		4.552	-0.002	-0.03	5.516	0.023	0.34	TM
R5BL LH		4.551	-0.003	-0.06	5.464	-0.030	-0.44	TM
RKK1KM		4.599	0.045	0.93	5.560	0.066	0.99	EM
RP5UQN		4.573	0.019	0.40	5.454	-0.040	-0.59	EM
S81SVD		4.460	-0.094	-1.93	5.390	-0.104	-1.55	TM
SFBKU4		4.644	0.090	1.85	5.655	0.161	2.41	VM
SSPH7K		4.560	0.006	0.13	5.530	0.036	0.54	TM
TR4UXX		4.636	0.082	1.69	5.579	0.085	1.27	EM
U4WNCQ		4.546	-0.008	-0.16	5.514	0.020	0.30	TM
ULL5LZ	*	4.446	-0.108	-2.21	5.312	-0.182	-2.71	TM
UTP1WK		4.550	-0.003	-0.07	5.447	-0.046	-0.69	LW
UYKA2X		4.575	0.021	0.43	5.583	0.089	1.33	LW
V3ZZHE		4.500	-0.054	-1.10	5.350	-0.144	-2.15	TA
VG9GNP	*	4.425	-0.129	-2.65	5.406	-0.088	-1.31	TM
VH9EGH		4.568	0.014	0.29	5.533	0.040	0.59	LW
VLNRYC		4.465	-0.089	-1.82	5.431	-0.063	-0.93	TM
VPSEEN	X	4.582	0.028	0.58	4.698	-0.796	-11.87	EM
VWF95E		4.537	-0.017	-0.34	5.527	0.033	0.50	EM
W6XURF		4.590	0.036	0.74	5.520	0.026	0.39	LW
XGM5JE		4.598	0.045	0.92	5.567	0.073	1.09	LW
XMLWV5		4.525	-0.029	-0.59	5.443	-0.051	-0.76	TA
XRVN6J		4.583	0.029	0.59	5.606	0.113	1.68	LW
YJJCNP		4.492	-0.062	-1.27	5.480	-0.013	-0.20	LW
YLVGLS		4.550	-0.004	-0.08	5.535	0.041	0.62	LA
YPNVL9		4.564	0.010	0.21	5.474	-0.020	-0.29	TM
YUXCB6		4.583	0.030	0.61	5.442	-0.051	-0.77	XX
Z6H6WK	X	4.498	-0.056	-1.14	5.394	-0.100	-1.49	TM

**Paper & Paperboard Interlaboratory Testing Program
Analysis 360
Thickness (Caliper), Printing papers**

	Sample GV49	Summary Statistics	Sample GV50
Grand Means	4.5537 mils		5.4936 mils
SD Btwn Labs	0.0487 mils		0.0670 mils
Statistics based on 78 of 84 reporting participants			

Comments on assigned Data Flags for Test #360

- 24MEPW (X) - Systematic error (data for both samples are high).
- EC1M51 (X) - Systematic error (data for both samples are low).
- KQFKGC (X) - Systematic error (data for both samples are low).
- QEHHUA (X) - Data appear to be off by a factor of 10; data converted by CTS (x10).
- VPSEEN (X) - Extreme data for Sample GV50.
- Z6H6WK (X) - Data appear to be off by a factor of 10; data converted by CTS (/10).

Analysis Notes:

- 24MEPW - Results appear to be reported with inadequate significance (nearest 0.01mm).
- ULL5LZ - Data appear to be reported as mils, not micrometers as indicated on datasheet. Unit changed by CTS.

Instrument Code List as Reported by the Labs

- | | |
|---|---|
| (EM) - Emveco | (FR) - Frank Instruments |
| (LA) - L & W Autoline | (LW) - L & W |
| (MT) - Mitutoyo | (PP) - Technidyne Profile/Plus |
| (TA) - Thwing-Albert | (TM) - TMI |
| (VM) - Valmet PaperLab (was Kajaani/Robotest) | (XX) - Instrument make/model not specified by lab |

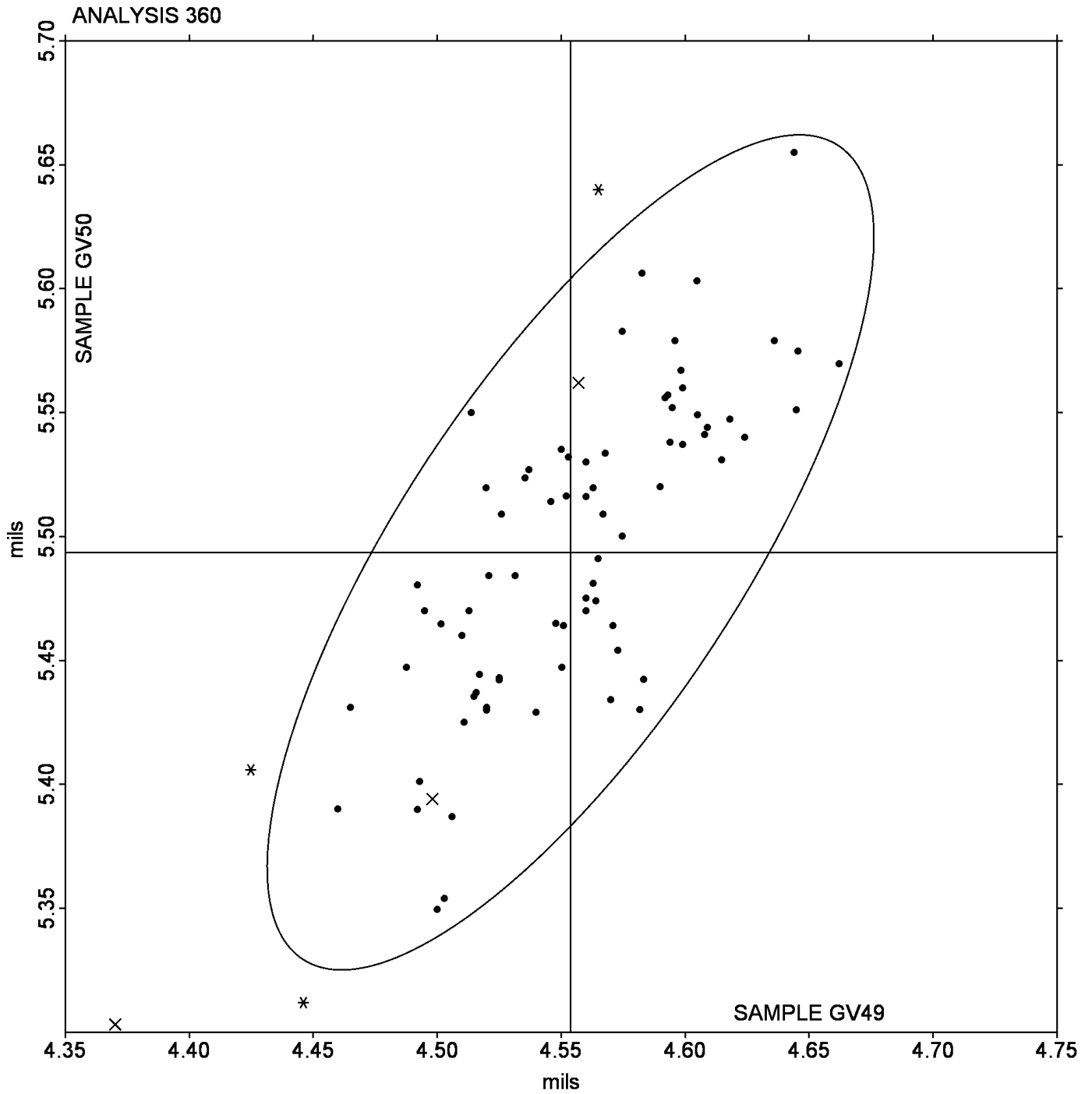
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV49** = 4.5537 mils

Grand Mean Sample **GV50** = 5.4936 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY49			Sample GY50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3RU32K		7.623	0.122	1.29	9.539	0.118	0.99	EM
4Q6WKL	X	3.823	-3.678	-38.92	9.488	0.067	0.56	LA
6BDV54		7.368	-0.133	-1.41	9.329	-0.093	-0.78	TM
6CUAEZ		7.391	-0.110	-1.17	9.264	-0.157	-1.32	TM
6RUZGR		7.516	0.015	0.16	9.539	0.118	0.99	LW
78VBGF		7.590	0.088	0.94	9.393	-0.029	-0.24	LW
8XBF EZ		7.565	0.064	0.67	9.310	-0.111	-0.94	TA
9F7D5Y		7.490	-0.011	-0.12	9.490	0.069	0.58	TM
A2HT8H		7.533	0.032	0.34	9.446	0.025	0.21	EM
ANYPMZ		7.499	-0.002	-0.02	9.410	-0.011	-0.10	TA
CNH5D1		7.575	0.074	0.78	9.453	0.031	0.26	LW
CXD VJ9	*	7.230	-0.271	-2.87	9.172	-0.249	-2.10	EM
EM87JV		7.574	0.073	0.77	9.548	0.127	1.07	TM
F3F2R2		7.370	-0.131	-1.39	9.310	-0.111	-0.94	TM
F52P6H	X	4.041	-3.460	-36.61	3.255	-6.166	-51.87	EM
FDBL2V		7.470	-0.031	-0.33	9.420	-0.001	-0.01	TA
GLAX4Q		7.457	-0.044	-0.47	9.213	-0.208	-1.75	EM
HWZCUJ		7.580	0.079	0.83	9.408	-0.013	-0.11	TA
HZDMS3		7.535	0.034	0.36	9.493	0.072	0.60	EM
JEBGXN		7.392	-0.109	-1.16	9.385	-0.036	-0.31	TM
JJHJWR		7.364	-0.137	-1.45	9.329	-0.092	-0.78	EM
JN43AV		7.417	-0.084	-0.89	9.511	0.090	0.75	TM
L91X97		7.494	-0.007	-0.08	9.391	-0.030	-0.26	EM
LVSCFN		7.508	0.007	0.07	9.413	-0.008	-0.07	XX
M7MCW3	*	7.646	0.144	1.53	9.768	0.346	2.91	LW
PC2UZD		7.616	0.115	1.21	9.639	0.218	1.83	EM
PN5XE8		7.607	0.106	1.12	9.434	0.013	0.11	TA
QYEH2E		7.535	0.034	0.36	9.535	0.114	0.96	LW
R3NALC		7.546	0.045	0.47	9.434	0.013	0.11	TM
R5NAGS		7.632	0.131	1.38	9.449	0.028	0.23	LA
T7Q3F8		7.560	0.059	0.62	9.340	-0.081	-0.68	TM
UN7CQN		7.480	-0.021	-0.22	9.477	0.056	0.47	LA
WU2QD9		7.441	-0.060	-0.64	9.315	-0.106	-0.89	XX
X6VXWJ		7.508	0.007	0.07	9.318	-0.103	-0.87	TM
ZT57H4		7.430	-0.071	-0.75	9.430	0.009	0.07	EM

Sample GY49

Summary Statistics

Sample GY50

Grand Means 7.5013 mils
SD Btwn Labs 0.0945 mils

9.4213 mils
0.1189 mils

Statistics based on 33 of 35 reporting participants

Paper & Paperboard Interlaboratory Testing Program
Analysis 361
Thickness (Caliper), Packaging papers

Comments on assigned Data Flags for Test #361

4Q6WKL (X) - Extreme data for Sample GY49.

F52P6H (X) - Extreme data.

CXDVI9 - Data appear to be reported as mills, not inches as indicated on datasheet. Unit changed by CTS.

JN43AV - Data appear to be off by a factor of 10; data converted by CTS (/10).

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(LW) - L & W

(TA) - Thwing-Albert

(TM) - TMI

(XX) - Instrument make/model not specified by lab

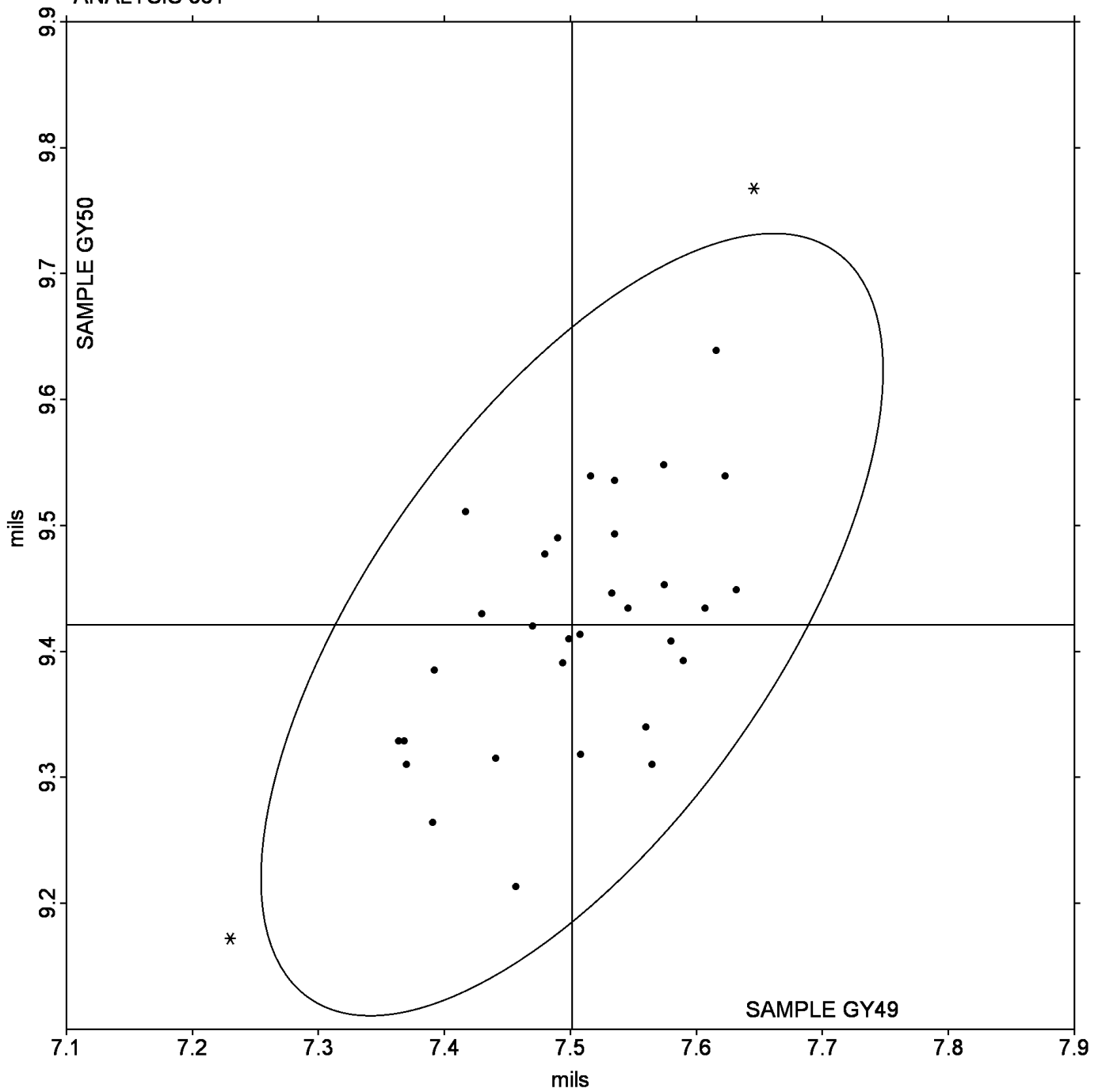
Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample GY49 = 7.5013 mils

Grand Mean Sample GY50 = 9.4213 mils

ANALYSIS 361



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD49			Sample GD50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2XHQXR		0.5712	0.0233	0.39	0.5972	0.0234	0.44	TM
3LC93D		0.5992	0.0513	0.87	0.6080	0.0342	0.65	TM
4KVHN2		0.5260	-0.0219	-0.37	0.5408	-0.0330	-0.62	TM
5573ZN		0.5466	-0.0013	-0.02	0.5408	-0.0330	-0.62	IX
5P4NTC		0.4494	-0.0985	-1.66	0.4820	-0.0918	-1.74	IR
BKNXMC		0.5840	0.0361	0.61	0.6320	0.0582	1.10	TL
G3K134		0.5576	0.0097	0.16	0.5970	0.0232	0.44	XX
H2JZLX		0.5152	-0.0327	-0.55	0.5208	-0.0530	-1.00	TM
H7ZKUX		0.5004	-0.0475	-0.80	0.5374	-0.0364	-0.69	TM
QWJEST		0.5666	0.0187	0.32	0.5796	0.0058	0.11	TM
STEJHV		0.4554	-0.0925	-1.56	0.5402	-0.0336	-0.64	TM
T79P6D		0.6496	0.1017	1.72	0.6728	0.0990	1.87	TM
UBALQB		0.6580	0.1101	1.86	0.6600	0.0862	1.63	TM
VTGY9E		0.5640	0.0161	0.27	0.5978	0.0240	0.45	TM
W2N6AY		0.5006	-0.0473	-0.80	0.5384	-0.0354	-0.67	TM
ZC4MGN		0.5228	-0.0251	-0.42	0.5366	-0.0372	-0.70	TA

Summary Statistics			
	Sample GD49		Sample GD50
Grand Means	0.54791	COF	0.57384
SD Btwn Labs	0.05920	COF	0.05291
Statistics based on 16 of 16 reporting participants			

Notes for Analysis 364

No Data Flags assigned for this analysis.

Instrument Code List as Reported by the Labs

- | | |
|--|---|
| (IR) - IMASS SP-2000 | (IX) - Instron (model not specified) |
| (TA) - Thwing-Albert Friction Tester | (TL) - TMI 32-90 Lab Master/Slip and Friction |
| (TM) - TMI 32-06 Monitor/Slip and Friction | (XX) - Instrument make/model not specified by lab |

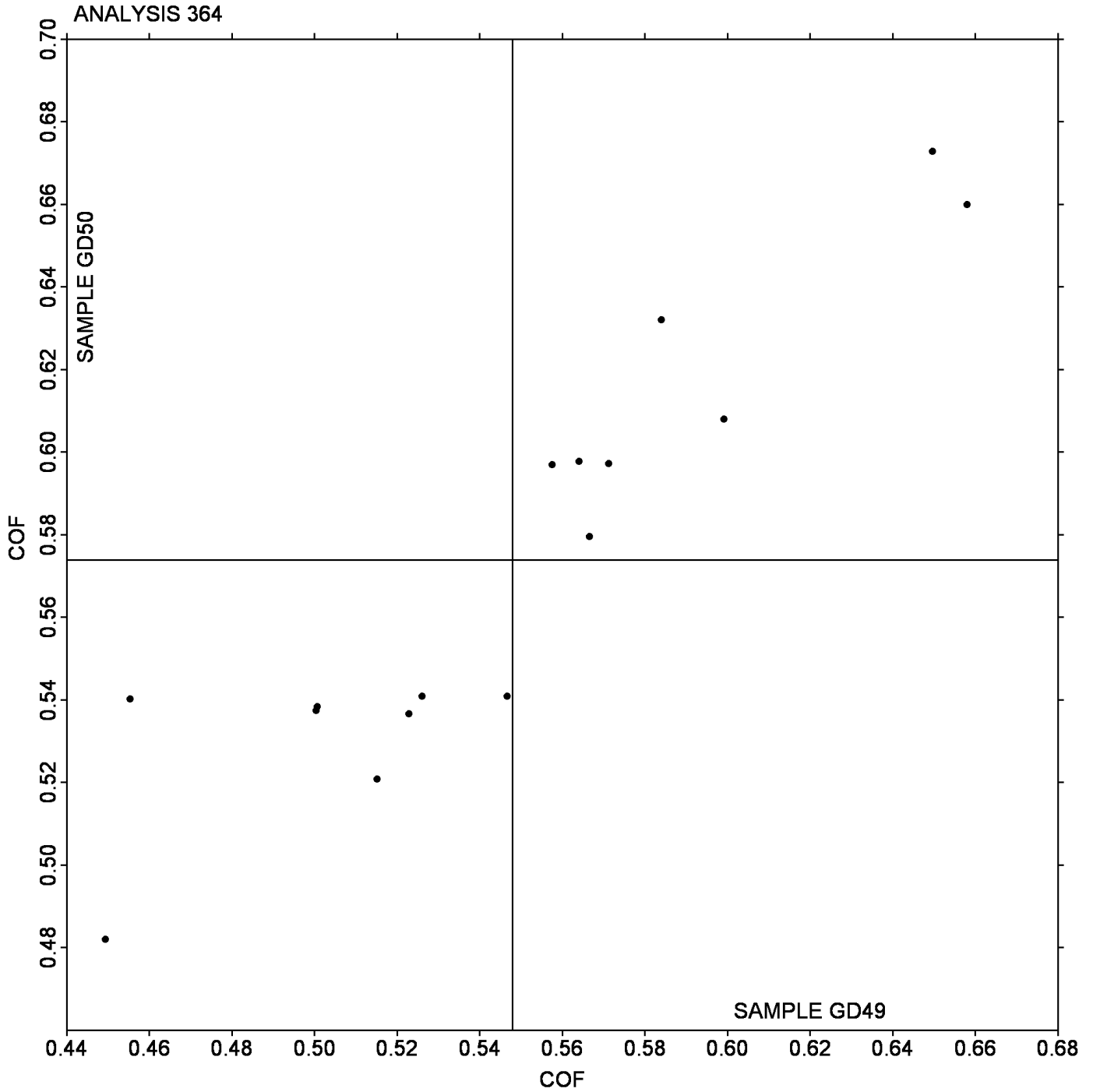
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD49** = 0.54791 COF

Grand Mean Sample **GD50** = 0.57384 COF



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 365**

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD49			Sample GD50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
26KKKF		0.3070	-0.1398	-1.54	0.3208	-0.1461	-1.60	IR
2THD1R		0.5080	0.0612	0.67	0.5250	0.0581	0.64	TM
3X23HN		0.5940	0.1472	1.62	0.6040	0.1371	1.50	TL
5AKF21		0.4480	0.0012	0.01	0.4914	0.0245	0.27	TM
5WX1DM		0.5012	0.0544	0.60	0.4938	0.0269	0.29	IX
71ZSE5		0.2432	-0.2036	-2.24	0.2522	-0.2147	-2.35	TM
ACN5RC		0.4006	-0.0462	-0.51	0.4028	-0.0641	-0.70	TA
G8TETE		0.5086	0.0618	0.68	0.5230	0.0561	0.61	TA
JHSECK		0.5218	0.0750	0.82	0.5478	0.0809	0.89	TN
L6V35P		0.4838	0.0370	0.41	0.5172	0.0503	0.55	TM
P738G2		0.4306	-0.0162	-0.18	0.4686	0.0017	0.02	TM
QN8CJS		0.4804	0.0336	0.37	0.4868	0.0199	0.22	TM
VL69QJ		0.4444	-0.0024	-0.03	0.4400	-0.0269	-0.29	TM
ZDEAEN		0.3836	-0.0632	-0.69	0.4630	-0.0039	-0.04	TM

Summary Statistics			
	Sample GD49		Sample GD50
Grand Means	0.44680 COF		0.46689 COF
SD Btwn Labs	0.09102 COF		0.09132 COF
Statistics based on 14 of 14 reporting participants			

Notes for Analysis 365

No Data Flags assigned for this analysis.

Instrument Code List as Reported by the Labs

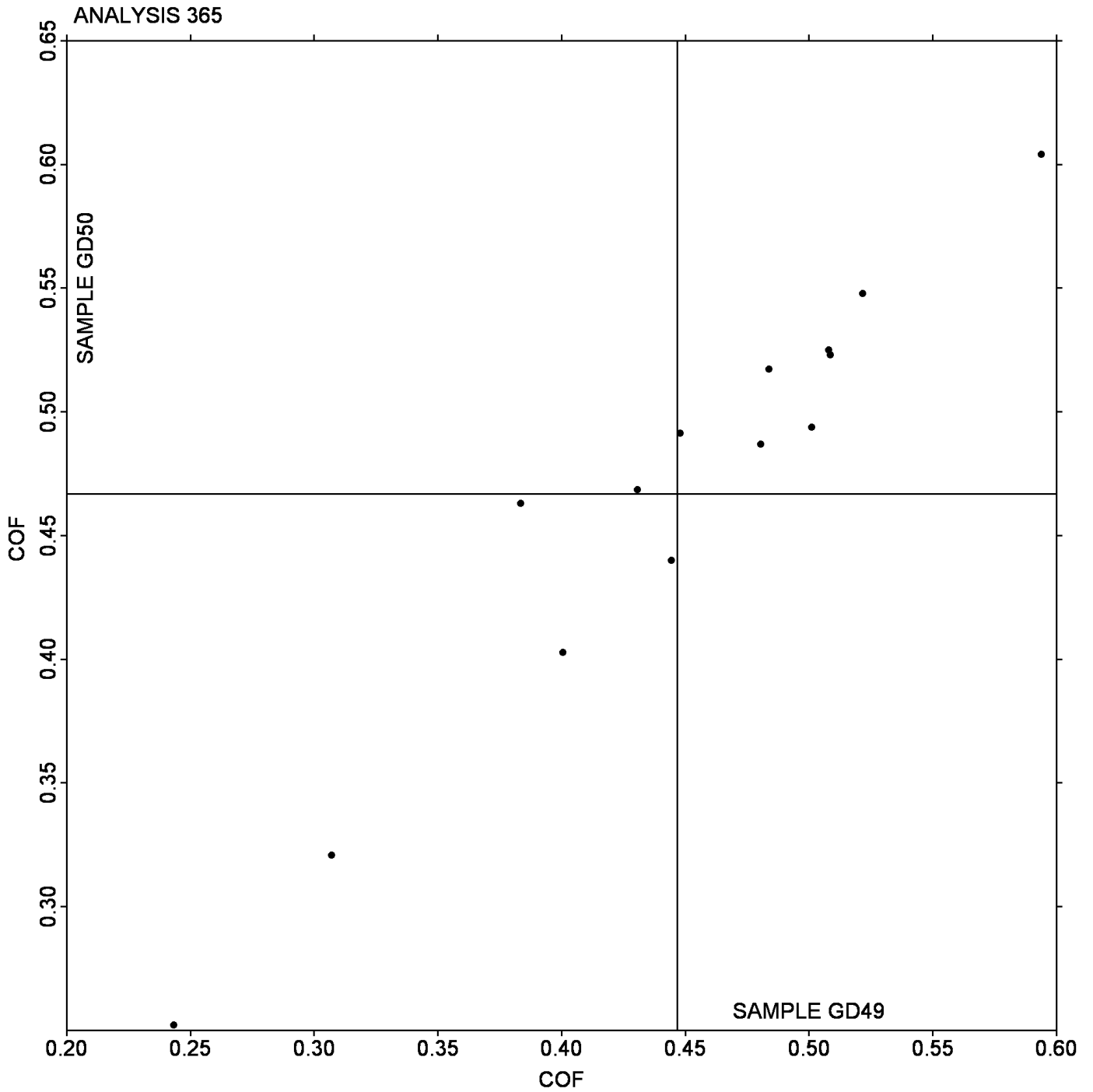
- | | |
|--|---|
| (IR) - IMASS SP-2000 | (IX) - Instron (model not specified) |
| (TA) - Thwing-Albert Friction Tester | (TL) - TMI 32-90 Lab Master/Slip and Friction |
| (TM) - TMI 32-06 Monitor/Slip and Friction | (TN) - TMI 32-07 Monitor/Slip and Friction |

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD49** = 0.44680 COF

Grand Mean Sample **GD50** = 0.46689 COF



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 370

Air Resistance - Gurley Oil Type

WebCode	Data Flag	Sample GE49			Sample GE50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1MKE5J		18.37	1.80	2.22	34.30	3.61	2.36	TL
1RDUF6		15.98	-0.59	-0.73	28.33	-2.36	-1.54	LP
1WDW46		15.90	-0.67	-0.83	31.30	0.61	0.40	LW
2SKR8P	*	16.92	0.35	0.43	34.01	3.32	2.17	XX
31VFFL		16.19	-0.38	-0.47	28.99	-1.70	-1.11	LW
35CHXA		17.33	0.76	0.94	31.09	0.40	0.26	LP
3ZQ61F		16.70	0.13	0.16	31.80	1.11	0.73	WG
45KZAM		16.12	-0.45	-0.56	28.85	-1.84	-1.20	LA
4Y8PQ1		16.33	-0.24	-0.30	31.36	0.67	0.44	HG
5N53SZ		16.21	-0.36	-0.45	30.17	-0.52	-0.34	HG
5QKKNZ		16.79	0.22	0.27	30.61	-0.08	-0.05	XX
6A2PSF		16.96	0.39	0.48	31.11	0.42	0.28	XX
7FR6JK	*	14.02	-2.55	-3.15	27.50	-3.19	-2.08	TN
8PJDZ9		15.33	-1.24	-1.53	27.75	-2.94	-1.92	XX
8WXU5J		16.70	0.13	0.16	30.80	0.11	0.07	WG
94NPU2		16.80	0.23	0.28	29.80	-0.89	-0.58	GL
A9Q5SN		16.42	-0.16	-0.19	29.54	-1.15	-0.75	PP
APD6Q8		17.58	1.01	1.25	32.29	1.60	1.05	TN
BSJ9QF		16.42	-0.15	-0.19	30.41	-0.28	-0.18	LW
CRMPNU		16.16	-0.41	-0.51	30.20	-0.49	-0.32	XX
D3FHG3		16.84	0.27	0.33	32.26	1.57	1.03	PP
EEPY47		16.92	0.35	0.43	31.49	0.80	0.53	LA
F23UR8		15.76	-0.81	-1.00	28.40	-2.29	-1.49	LP
FD53SQ		16.84	0.27	0.33	31.26	0.57	0.38	LW
G9J6JL	X	7.89	-8.69	-10.72	4.46	-26.23	-17.13	LP
J9XFJQ		16.37	-0.20	-0.25	29.16	-1.53	-1.00	LP
JKV74		17.05	0.48	0.59	30.36	-0.33	-0.21	GM
K6K5Q1		16.81	0.24	0.29	31.39	0.70	0.46	TM
KJYHME		16.22	-0.35	-0.43	30.60	-0.09	-0.06	LW
KSDPR6		16.73	0.16	0.20	31.90	1.21	0.79	GL
LXEX1X		16.08	-0.49	-0.61	29.96	-0.73	-0.47	LW
MLYJL3		16.00	-0.57	-0.70	28.40	-2.29	-1.49	LW
NF9BR1		17.36	0.79	0.97	33.10	2.41	1.58	GA
PMCWTJ		15.99	-0.58	-0.72	30.42	-0.27	-0.17	LP
PQJRW1	X	17.70	1.13	1.39	32.06	1.37	0.90	HG
PR1CS3		16.57	0.00	0.00	29.26	-1.43	-0.93	LP
Q98DWV	X	12.50	-4.07	-5.02	22.23	-8.46	-5.52	LW
QVUN7Z		16.74	0.17	0.21	32.61	1.92	1.26	HG
RFL98V		17.80	1.23	1.52	31.70	1.01	0.66	TL
S3ADAD		15.49	-1.08	-1.33	29.84	-0.84	-0.55	VM
SE8W6K		17.62	1.05	1.29	31.50	0.81	0.53	HG
VNULPQ		16.40	-0.17	-0.21	28.50	-2.19	-1.43	LP
VTFP8M		17.72	1.15	1.42	31.77	1.08	0.71	GS

Paper & Paperboard Interlaboratory Testing Program
Analysis 370
Air Resistance - Gurley Oil Type

WebCode	Data Flag	Sample GE49			Sample GE50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XFA2HV		16.00	-0.57	-0.70	30.20	-0.49	-0.32	LA
XRKTTH	*	14.58	-2.00	-2.46	30.24	-0.44	-0.29	RE
XVH6KN		16.86	0.29	0.36	30.60	-0.09	-0.06	TM
YCGHR4		17.68	1.11	1.37	30.97	0.28	0.19	TL
YPJTLX		17.75	1.18	1.45	31.60	0.91	0.60	LA
ZM1YSW		16.38	-0.19	-0.24	32.70	2.01	1.32	HG
ZW1XC4		17.06	0.49	0.60	31.82	1.13	0.74	TL

Summary Statistics			
	Sample GE49		Sample GE50
Grand Means	16.571 sec/100 cc		30.686 sec/100 cc
SD Btwn Labs	0.810 sec/100 cc		1.532 sec/100 cc
Statistics based on 47 of 50 reporting participants			

Comments on assigned Data Flags for Test #370

G9J6JL (X) - Extreme data.

PQJRW1 (X) - Data appears to be transposed between samples. Data switched by CTS.

Q98DWV (X) - Extreme data.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer	(GL) - Gurley #4110
(GM) - Gurley #4140	(GS) - Gurley-Hill S-P-S Tester #4190
(HG) - Technidyne - Hagerty Model #1	(LA) - L & W Autoline
(LP) - L & W Densometer, Air Permeance	(LW) - L & W Type Gurley Densometer, Oil Flotation
(PP) - Technidyne Profile/Plus	(RE) - Regmed Gurley Densometer PGH-T
(TL) - Teledyne Gurley Densometer #4110, Oil Flotation	(TM) - TMI Densometer 58-03
(TN) - Teledyne Gurley S-P-S Tester #4190	(VM) - Valmet PaperLab (was Kajaani/Robotest)
(WG) - W & LE Gurley Tester	(XX) - Instrument make/model not specified by lab

Paper & Paperboard Interlaboratory Testing Program

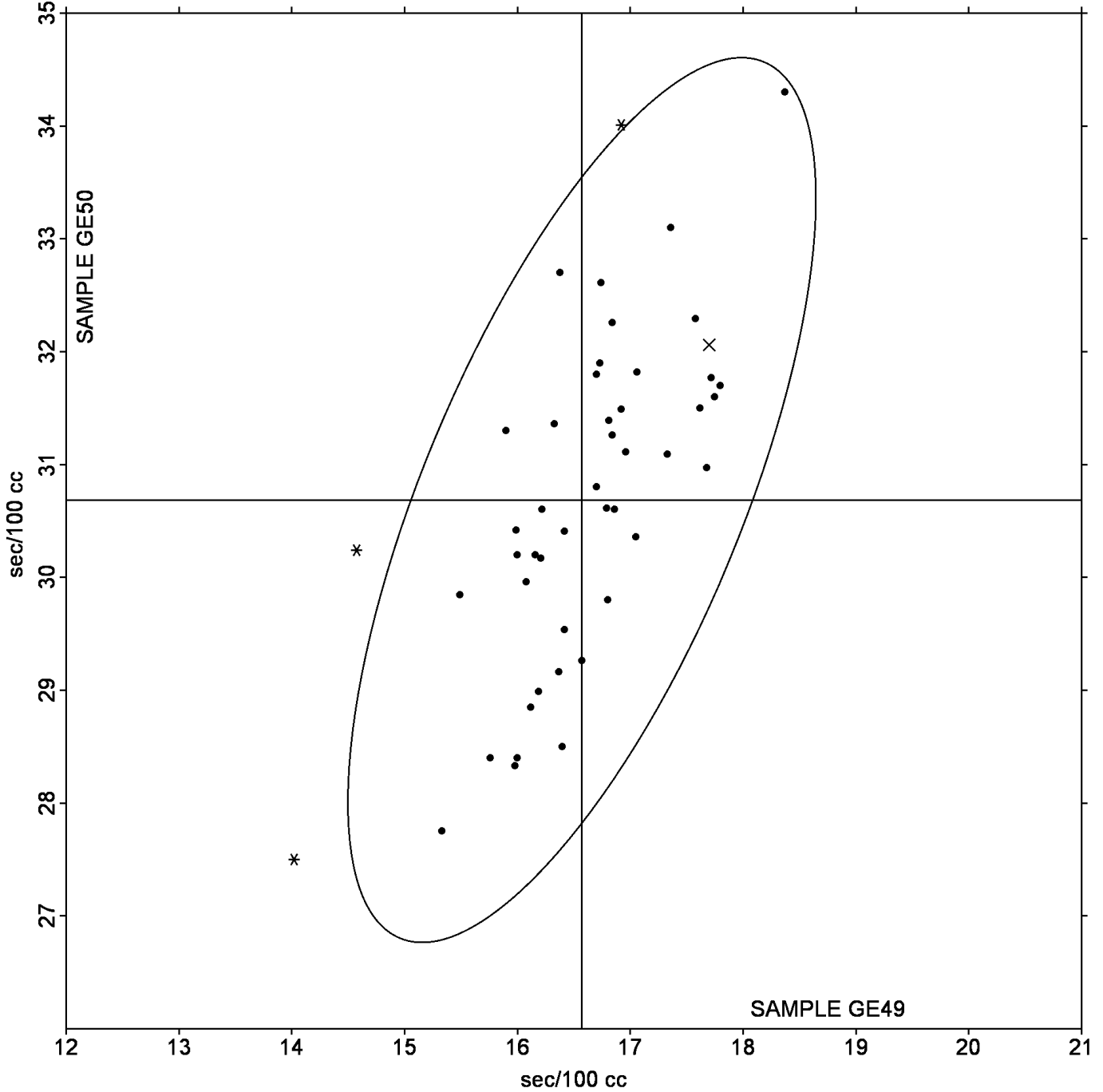
Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE49** = 16.571 sec/100 cc

Grand Mean Sample **GE50** = 30.686 sec/100 cc

ANALYSIS 370



Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

WebCode	Data Flag	Sample GE49			Sample GE50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1EVZYY		155.7	0.1	0.01	94.60	0.16	0.03	GA
1RLSA2	*	140.1	-15.5	-1.77	98.60	4.16	0.72	VM
2G7R67		151.6	-4.0	-0.46	95.01	0.57	0.10	PP
5CFXEN		160.3	4.7	0.54	98.50	4.06	0.71	TT
5YPVGH	X	189.6	34.0	3.90	110.90	16.46	2.86	VM
6EU16Z		166.2	10.6	1.22	100.97	6.53	1.14	HG
6JBTN1		159.5	3.9	0.45	92.00	-2.44	-0.43	HM
7F2P9W		163.9	8.3	0.95	99.10	4.66	0.81	SH
AH4LA2		158.9	3.3	0.38	94.30	-0.14	-0.02	LP
B23UKC		170.7	15.1	1.73	100.08	5.64	0.98	SH
F2CHML		140.1	-15.5	-1.77	80.73	-13.71	-2.39	LP
GDA68T		160.8	5.2	0.60	94.05	-0.39	-0.07	XX
J9S9VA		149.2	-6.4	-0.73	96.00	1.56	0.27	TT
KGA6M9		155.1	-0.5	-0.06	91.93	-2.51	-0.44	TA
MS392M		158.2	2.6	0.30	94.50	0.06	0.01	SH
PLMT4H		159.5	3.9	0.45	89.40	-5.04	-0.88	HM
PWCZRD		152.6	-3.0	-0.34	101.00	6.56	1.14	SH
QDR55H		151.8	-3.8	-0.43	100.70	6.26	1.09	SH
RB9L9K		151.8	-3.8	-0.43	92.30	-2.14	-0.37	TT
RERSQ9	X	17.2	-138.4	-15.86	32.16	-62.28	-10.84	HG
SWFHV9		151.1	-4.5	-0.51	89.60	-4.84	-0.84	HM
VU53DY		148.8	-6.8	-0.78	91.13	-3.31	-0.58	LA
W6SRM3		174.3	18.7	2.14	102.50	8.06	1.40	HM
YL1C65		156.6	1.0	0.12	91.40	-3.04	-0.53	HM
YLGZK7		138.2	-17.4	-1.99	81.00	-13.44	-2.34	TT
YM4L5H		160.5	4.9	0.56	101.00	6.56	1.14	SH
ZG284K		154.1	-1.5	-0.17	90.66	-3.78	-0.66	LP

Summary Statistics

Sample GE49

Sample GE50

Grand Means 155.58 Sheffield Units
SD Btwn Labs 8.73 Sheffield Units

94.443 Sheffield Units
5.744 Sheffield Units

Statistics based on 25 of 27 reporting participants

Comments on assigned Data Flags for Test #372

5YPVGH (X) - Systematic error (data for both samples are high).

RERSQ9 (X) - Extreme data.

KGA6M9 - One determination removed from the Lab Mean of Sample GE50 per Grubb's Test at 1% risk (TAPPI 1205).

**Paper & Paperboard Interlaboratory Testing Program
Analysis 372**

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

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer	(HG) - Technidyne - Hagerty Model #1
(HM) - Technidyne - Hagerty Model #538	(LA) - L & W Roughness Sheffield - Autoline
(LP) - L & W Densometer, Air Permeance	(PP) - Technidyne Profile/Plus
(SH) - Sheffield	(TA) - Twing-Albert Porosity Tester
(TT) - TMI Monitor/Smoothness II, Model 58-24	(VM) - Valmet PaperLab (was Kajaani/Robotest)
(XX) - Instrument make/model not specified by lab	

Paper & Paperboard Interlaboratory Testing Program

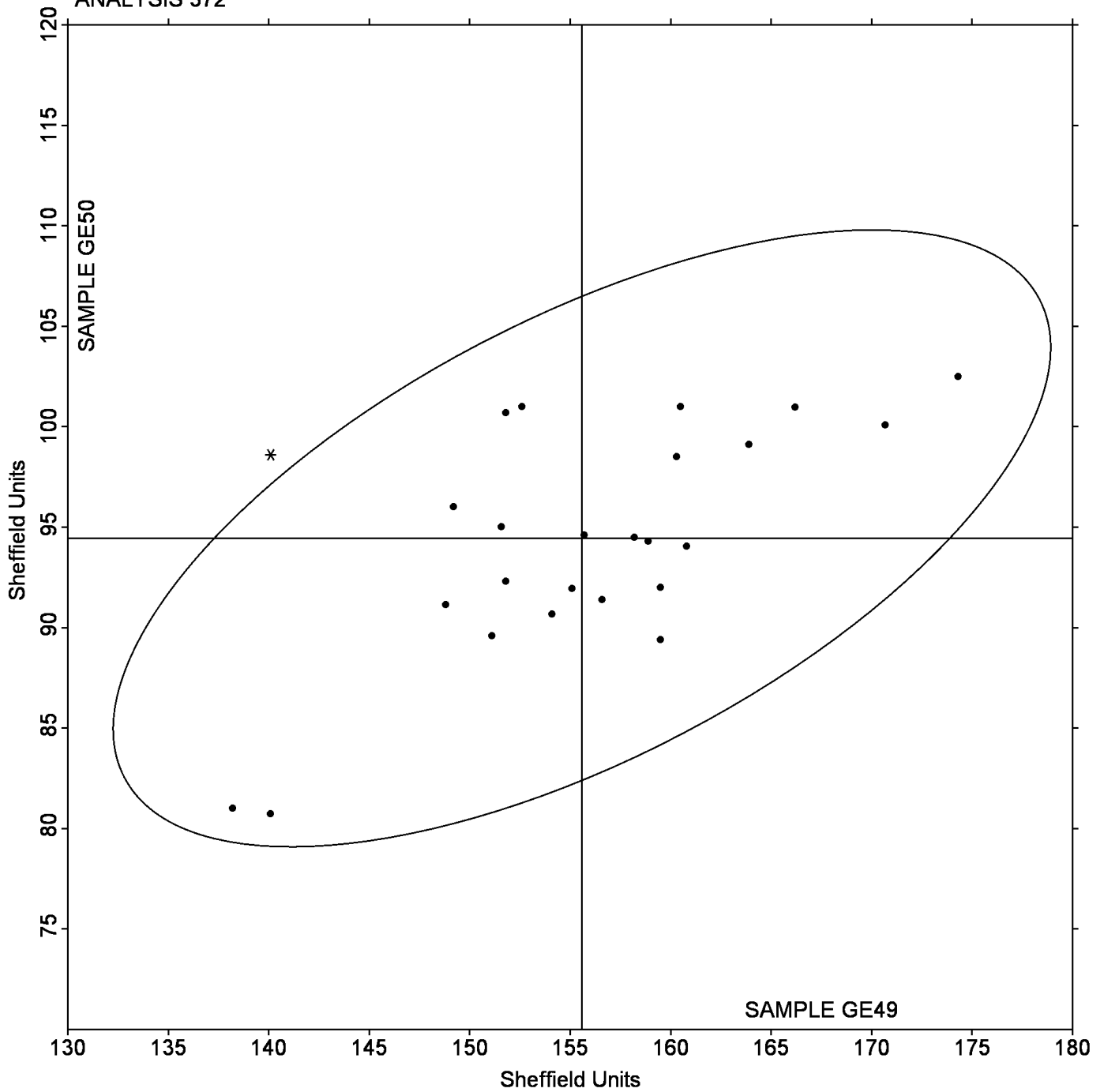
Analysis 372

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

Grand Mean Sample **GE49** = 155.58 Sheffield Units

Grand Mean Sample **GE50** = 94.443 Sheffield Units

ANALYSIS 372



Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

WebCode	Data Flag	Sample GJ49			Sample GJ50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2HSMQM	X	1.594	0.258	2.74	1.970	0.361	3.33
2JGU1J		1.254	-0.082	-0.87	1.431	-0.178	-1.63
3QPX1P		1.230	-0.106	-1.13	1.530	-0.079	-0.72
4SCVZ7		1.482	0.146	1.55	1.728	0.119	1.10
5C7ZQS		1.433	0.097	1.03	1.670	0.061	0.57
5S8TFT		1.291	-0.045	-0.48	1.538	-0.071	-0.65
654YZ5		1.421	0.085	0.90	1.767	0.158	1.46
6B7WGW		1.275	-0.061	-0.65	1.556	-0.053	-0.48
6WHS9S		1.274	-0.062	-0.66	1.547	-0.062	-0.57
85RC47		1.375	0.039	0.41	1.636	0.027	0.25
99LNJ4	X	1.860	0.524	5.57	1.935	0.326	3.01
9T9H6D		1.231	-0.105	-1.12	1.460	-0.149	-1.37
A2GLLB		1.395	0.059	0.63	1.713	0.104	0.96
AQZLLP	*	1.294	-0.042	-0.45	1.704	0.095	0.88
E6JZNH		1.524	0.188	2.00	1.841	0.232	2.14
H4GDD8		1.333	-0.003	-0.03	1.685	0.076	0.70
HPNR5V		1.341	0.005	0.05	1.547	-0.062	-0.57
HWWT5V		1.314	-0.022	-0.24	1.552	-0.057	-0.52
KBQD43		1.237	-0.099	-1.05	1.476	-0.133	-1.22
KQYJNN		1.252	-0.084	-0.90	1.549	-0.060	-0.55
L1FHXQ		1.259	-0.077	-0.82	1.483	-0.126	-1.16
L4243K		1.225	-0.111	-1.18	1.477	-0.132	-1.21
LX4B7W		1.405	0.069	0.73	1.666	0.057	0.53
M1JE7D		1.340	0.004	0.04	1.651	0.042	0.39
N6B965		1.371	0.035	0.37	1.600	-0.009	-0.08
N9S69G		1.495	0.159	1.69	1.775	0.166	1.53
NPX427		1.253	-0.083	-0.88	1.446	-0.163	-1.50
P5S6V5		1.406	0.070	0.74	1.672	0.063	0.58
PJ4CHG		1.373	0.037	0.39	1.711	0.102	0.94
PKV6TL		1.249	-0.087	-0.93	1.532	-0.077	-0.71
QBBRHH		1.263	-0.073	-0.78	1.508	-0.101	-0.93
QDWCTX	*	1.584	0.248	2.63	1.801	0.192	1.77
R57SGX		1.296	-0.040	-0.43	1.588	-0.021	-0.19
RX166V		1.383	0.047	0.50	1.635	0.026	0.24
SAMEAV		1.208	-0.128	-1.36	1.452	-0.157	-1.44
U6KN8T		1.205	-0.131	-1.39	1.475	-0.134	-1.23
W48HRA		1.411	0.075	0.80	1.672	0.063	0.58
YBUUUV		1.400	0.064	0.68	1.680	0.071	0.66
ZAXGNZ		1.241	-0.095	-1.01	1.609	0.000	0.00
ZBN6QM		1.386	0.050	0.53	1.704	0.095	0.88
ZX2HAB		1.403	0.067	0.71	1.668	0.059	0.55

Paper & Paperboard Interlaboratory Testing Program
Analysis 376
Roughness - Print Surf Method - 0.5 to 4.0 Microns

	Sample GJ49	Summary Statistics	Sample GJ50
Grand Means	1.3362 Microns		1.6086 Microns
SD Btwn Labs	0.0941 Microns		0.1086 Microns
Statistics based on 39 of 41 reporting participants			

Comments on assigned Data Flags for Test #376

2HSMQM (X) - Systematic error (data for both samples are high).

99LNJ4 (X) - Extreme data.

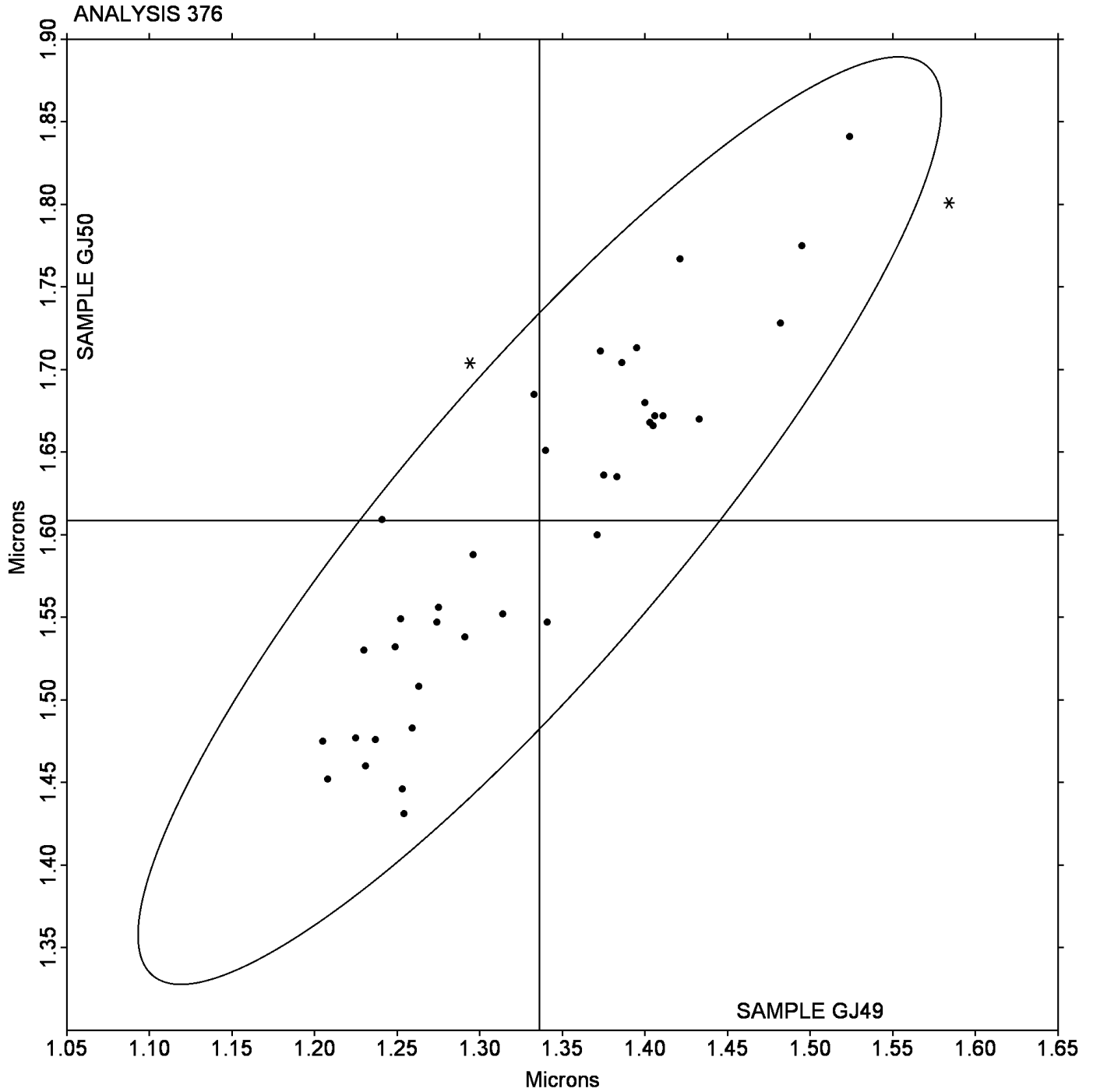
654YZ5 - One determination removed from the Lab Mean of Sample GJ49 per Grubb's Test at 1% risk (TAPPI 1205).

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample GJ49 = 1.3362 Microns

Grand Mean Sample GJ50 = 1.6086 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK49			Sample GK50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24QFSN		6.997	0.515	0.99	9.237	0.779	0.70
2DCYBH		5.986	-0.496	-0.95	6.906	-1.552	-1.39
5646GG		6.466	-0.016	-0.03	8.737	0.279	0.25
5GNF9G		6.689	0.207	0.40	8.857	0.399	0.36
BUNEA9		6.712	0.230	0.44	9.490	1.032	0.93
C35S1S		5.466	-1.016	-1.95	6.728	-1.730	-1.55
F8E1Z7	X	4.813	-1.669	-3.20	6.059	-2.399	-2.15
G28G36		6.228	-0.254	-0.49	7.250	-1.208	-1.08
H1VLGM		5.683	-0.799	-1.53	7.388	-1.070	-0.96
JLWJ7Y		6.647	0.165	0.32	8.803	0.345	0.31
M3CWP1		6.559	0.077	0.15	7.983	-0.475	-0.43
NAJP99		7.073	0.591	1.13	10.263	1.805	1.62
TFM7S3		6.141	-0.341	-0.66	7.097	-1.361	-1.22
U6N6CJ		6.519	0.037	0.07	8.824	0.366	0.33
VBNL4X		6.972	0.490	0.94	9.609	1.151	1.03
WL6EUK		7.478	0.996	1.91	9.875	1.417	1.27
XML1GR		5.980	-0.502	-0.96	7.650	-0.808	-0.72
Y58471		6.605	0.123	0.24	9.097	0.639	0.57

		Summary Statistics	
	Sample GK49		Sample GK50
Grand Means	6.4824 Microns		8.4585 Microns
SD Btwn Labs	0.5209 Microns		1.1152 Microns
Statistics based on 17 of 18 reporting participants			

Comments on assigned Data Flags for Test #377

F8E1Z7 (X) - Systematic error (data for both samples are low).

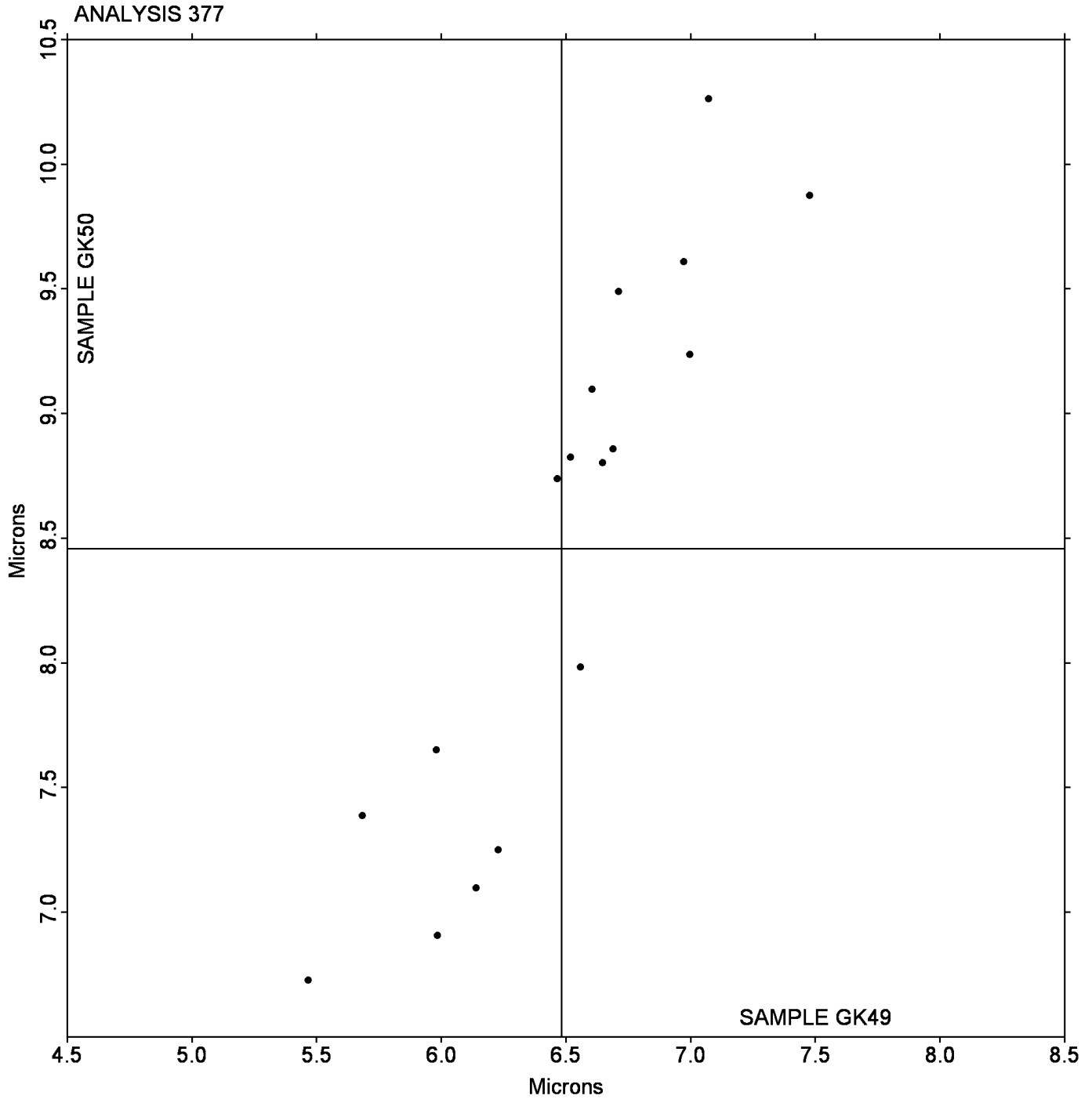
Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK49** = 6.4824 Microns

Grand Mean Sample **GK50** = 8.4585 Microns



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 378
Roughness - Sheffield Type

WebCode	Data Flag	Sample GL49			Sample GL50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1BVP3Y	*	160.9	5.7	0.46	225.9	-51.5	-2.66	GA
1Z1XET		144.7	-10.5	-0.86	276.6	-0.8	-0.04	HM
2F7GTB		157.0	1.7	0.14	268.2	-9.2	-0.47	VM
2W7Q1W		160.9	5.7	0.46	285.7	8.3	0.43	LA
3327SD	X	6.3	-149.0	-12.21	8.6	-268.8	-13.88	TS
37C8NR		151.3	-3.9	-0.32	265.1	-12.3	-0.64	LW
3HRXC3		160.0	4.8	0.39	282.5	5.1	0.26	XX
4BB1FE		147.6	-7.6	-0.63	262.5	-14.9	-0.77	PP
5GHC55		153.8	-1.4	-0.12	270.4	-7.0	-0.36	SH
5TE7RE		134.6	-20.6	-1.69	260.0	-17.4	-0.90	VM
695YEU	*	152.5	-2.7	-0.22	327.0	49.6	2.56	XX
6BS83T		144.2	-11.0	-0.91	262.9	-14.5	-0.75	SH
6FP51E		161.0	5.8	0.47	292.5	15.1	0.78	PG
6MFBU7		158.5	3.3	0.27	270.0	-7.4	-0.38	SH
6PDLBG		167.5	12.3	1.00	288.3	10.9	0.56	SH
75PZCZ		146.2	-9.0	-0.74	250.7	-26.7	-1.38	HM
7NRF26	X	150.4	-4.9	-0.40	190.6	-86.8	-4.48	LA
87G4XJ	*	168.3	13.1	1.07	328.4	51.0	2.63	TS
8S7QYF		141.8	-13.4	-1.10	280.3	2.9	0.15	HM
9SG5FL		180.5	25.3	2.07	281.0	3.6	0.19	TT
A6V5XR		178.5	23.3	1.91	307.0	29.6	1.53	GL
A7XBJX		168.7	13.5	1.11	248.1	-29.3	-1.51	GA
B8L7GR	X	112.1	-43.1	-3.54	250.5	-26.9	-1.39	TT
BB2MY5		174.5	19.3	1.58	287.0	9.6	0.50	SH
BU6ZPZ		139.5	-15.7	-1.29	278.6	1.2	0.06	HM
CEE9RA		141.6	-13.6	-1.12	283.0	5.6	0.29	HM
DAFNNR		163.2	8.0	0.65	261.1	-16.3	-0.84	TU
DN6JYQ	X	413.2	258.0	21.14	424.9	147.5	7.62	PP
DPKMCW		160.9	5.7	0.46	301.6	24.2	1.25	HM
ET5FV2	X	306.6	151.3	12.40	308.5	31.1	1.61	PP
GJML5J		148.4	-6.8	-0.56	278.4	1.0	0.05	HM
GTTMZX		172.5	17.3	1.41	315.0	37.6	1.94	SH
GUJYCJ		159.5	4.3	0.35	298.0	20.6	1.06	SH
GVATK7		150.2	-5.0	-0.41	278.3	0.9	0.05	HM
HQLU5Z		151.3	-3.9	-0.32	266.9	-10.5	-0.54	MP
HXB7DR		168.1	12.9	1.05	263.5	-13.9	-0.72	LW
J332KB		149.5	-5.7	-0.47	258.5	-18.9	-0.98	SH
J3WMHN		147.7	-7.5	-0.62	286.6	9.2	0.47	HM
K2BT31		151.8	-3.4	-0.28	271.2	-6.2	-0.32	SH
KF43DE		147.1	-8.2	-0.67	288.2	10.8	0.56	PP
KYGPZM		153.5	-1.7	-0.14	270.4	-7.0	-0.36	SH
L42L2V		153.6	-1.6	-0.13	285.8	8.4	0.43	HM
L8XJGD		144.1	-11.1	-0.91	281.4	4.0	0.21	HM

Paper & Paperboard Interlaboratory Testing Program
Analysis 378
Roughness - Sheffield Type

WebCode	Data Flag	Sample GL49			Sample GL50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
NADL5X		136.9	-18.3	-1.50	255.0	-22.4	-1.16	LW
P82RZ4		167.2	11.9	0.98	270.1	-7.3	-0.38	XX
PJRAMP		133.4	-21.8	-1.79	275.5	-1.9	-0.10	TT
PX17K5		147.9	-7.3	-0.60	241.8	-35.6	-1.84	TT
Q1KSAB		149.4	-5.8	-0.48	271.5	-5.9	-0.31	HM
R4CLZY		166.1	10.9	0.89	319.5	42.1	2.17	SH
RGE4PE		157.8	2.6	0.21	281.7	4.3	0.22	TT
RMAYJZ		141.5	-13.7	-1.13	268.5	-8.9	-0.46	GA
RYKG8H		140.6	-14.6	-1.20	276.0	-1.4	-0.07	HM
SRYXF2		160.0	4.8	0.39	265.5	-11.9	-0.61	LA
SSJE37		145.0	-10.2	-0.84	252.6	-24.8	-1.28	HM
TDMC97		143.9	-11.3	-0.93	297.3	19.9	1.03	HM
TPCGU1		154.0	-1.2	-0.10	289.0	11.6	0.60	GL
U6R5VC		152.4	-2.8	-0.23	299.0	21.6	1.11	HM
UL98FV		178.5	23.3	1.91	271.5	-5.9	-0.31	TS
UNL3FU		150.0	-5.2	-0.43	252.0	-25.4	-1.31	GL
VA6NEE		152.0	-3.2	-0.27	289.2	11.8	0.61	HM
VCMP8S	*	186.1	30.9	2.53	269.7	-7.7	-0.40	PP
VRHXNV		152.8	-2.4	-0.20	300.7	23.3	1.20	PP
W3GWJZ		154.6	-0.6	-0.05	290.3	12.9	0.67	HM
WT2916		182.7	27.5	2.25	270.2	-7.2	-0.37	TT
WW7A4U		167.5	12.3	1.00	289.0	11.6	0.60	SH
WZUUHY		171.0	15.8	1.29	302.7	25.3	1.31	HM
XKCCWP		144.4	-10.8	-0.89	266.7	-10.7	-0.55	TS
XRH49T		166.0	10.8	0.88	270.1	-7.3	-0.38	HM
Y2JS8V		138.0	-17.2	-1.41	261.8	-15.6	-0.81	PP
Y75USS		152.8	-2.4	-0.20	286.7	9.3	0.48	HM
YA37JY		142.8	-12.4	-1.02	263.8	-13.6	-0.70	HM
YG9E2V		150.6	-4.6	-0.38	252.3	-25.1	-1.30	LA

Summary Statistics

Sample GL49

Grand Means 155.24 Sheffield
SD Btwn Labs 12.20 Sheffield

Sample GL50

277.41 Sheffield
19.37 Sheffield

Statistics based on 67 of 72 reporting participants

Paper & Paperboard Interlaboratory Testing Program
Analysis 378
Roughness - Sheffield Type

Comments on assigned Data Flags for Test #378

3327SD (X) - Extreme data.

7NRF26 (X) - Inconsistent in testing between samples, data for Sample GL50 are low.

B8L7GR (X) - Inconsistent in testing between samples, data for Sample GL49 are low.

DN6JYQ (X) - Extreme data.

ET5FV2 (X) - Extreme data for Sample GL49.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer

(HM) - Technidyne - Hagerty Model #538

(LW) - L & W Roughness Tester

(PG) - Precision Gage Smoothcheck

(SH) - Sheffield (Bendix Precisionaire)

(TT) - TMI Monitor/Smoothness II, Model 58-24

(VM) - Valmet PaperLab (was Kajaani\Robotest)

(GL) - Giddings and Lewis Sheffield

(LA) - L & W Roughness Sheffield - Autoline

(MP) - Metso Paperlab

(PP) - Technidyne Profile/Plus

(TS) - TMI Monitor/Smoothness, Model 58-02

(TU) - TMI Universal Crush Tester (TMI K440)

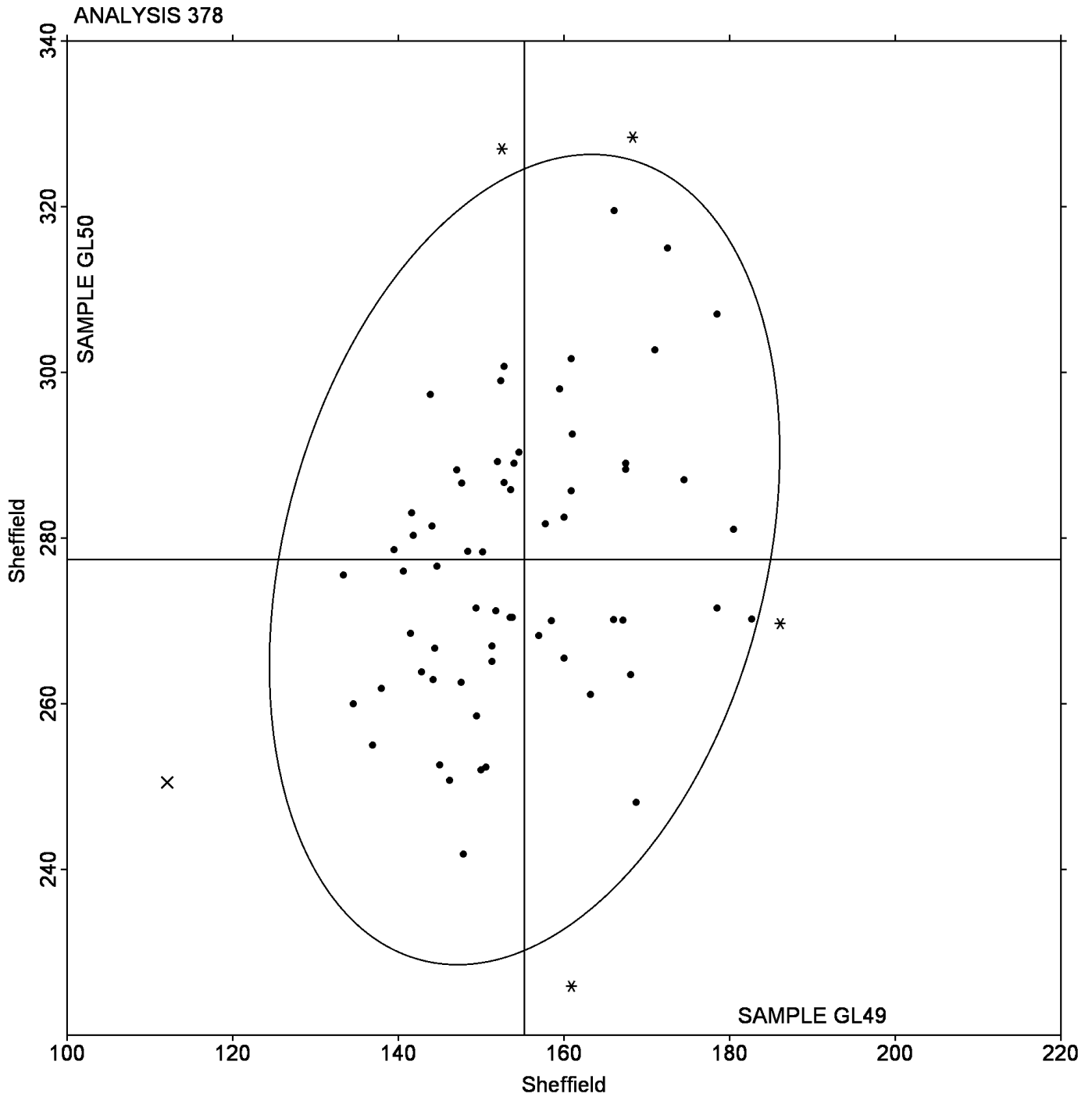
(XX) - Instrument make/model not specified by lab

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL49** = 155.24 Sheffield

Grand Mean Sample **GL50** = 277.41 Sheffield



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM49			Sample GM50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
4W2U1A		4.973	0.092	0.28	4.624	0.102	0.43
5H7PLD		4.843	-0.038	-0.11	4.465	-0.058	-0.24
8K1PBL		4.860	-0.021	-0.06	4.442	-0.080	-0.34
9FN2J2		5.067	0.186	0.56	4.587	0.065	0.27
9G6LKX	X	5.200	0.320	0.95	2.406	-2.116	-8.86
BD1JTZ		4.775	-0.106	-0.32	4.455	-0.067	-0.28
BEQYYA		5.122	0.241	0.72	4.726	0.204	0.85
HE1HW7		4.418	-0.463	-1.38	4.144	-0.378	-1.58
UJRL8M		4.270	-0.611	-1.82	4.180	-0.342	-1.43
XX71DP		5.080	0.199	0.59	4.680	0.158	0.66
YAY4EL		5.400	0.519	1.55	4.920	0.398	1.66

Summary Statistics			
	Sample GM49		Sample GM50
Grand Means	4.8808	Percent	4.5223
SD Btwn Labs	0.3351	Percent	0.2389
Statistics based on 10 of 11 reporting participants			

Comments on assigned Data Flags for Test #382

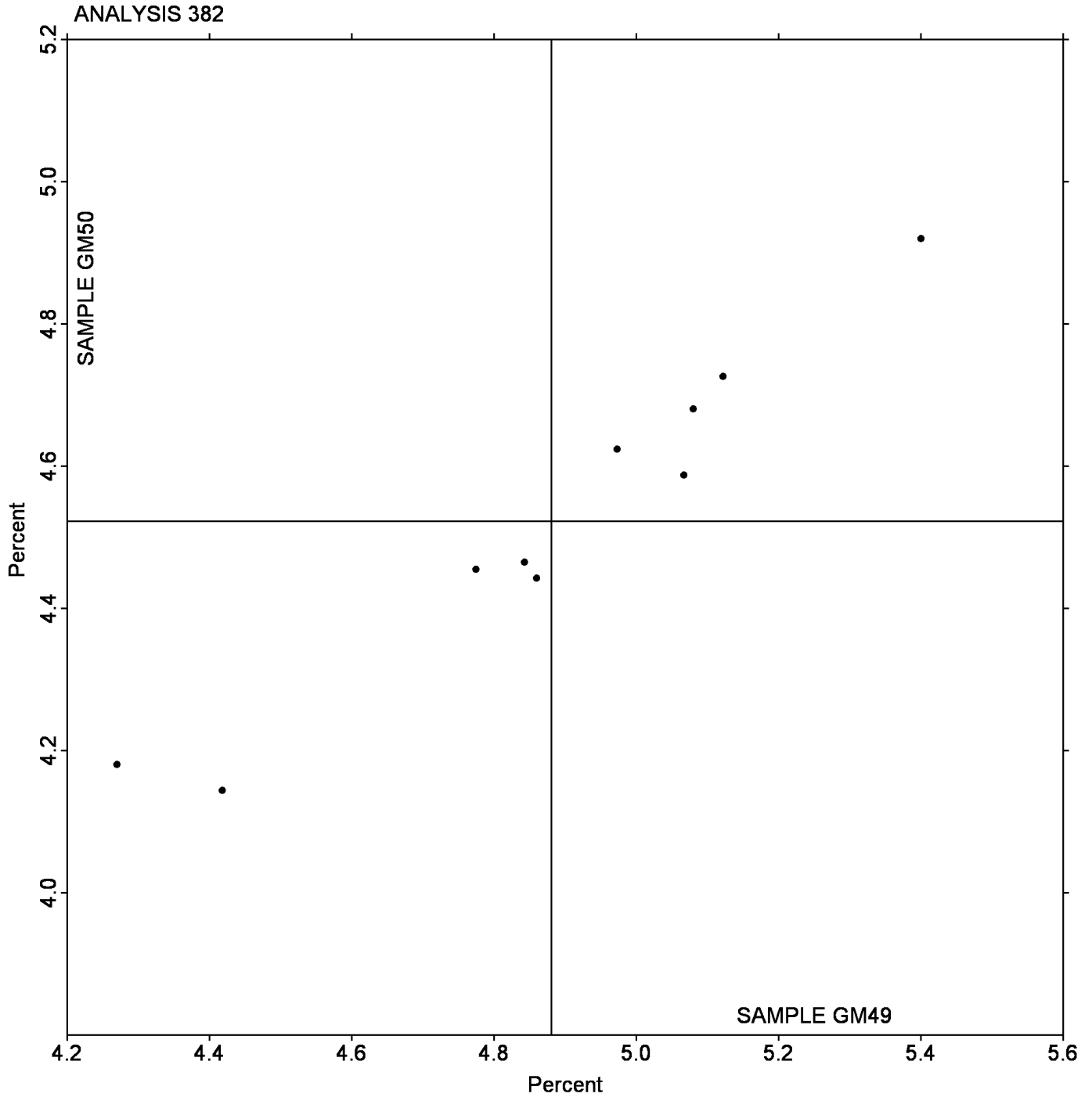
9G6LKX (X) - Extreme data for Sample GM50.

Paper & Paperboard Interlaboratory Testing Program

Analysis 382 Moisture in Paper

Grand Mean Sample **GM49** = 4.8808 Percent

Grand Mean Sample **GM50** = 4.5223 Percent



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 384

Opacity (89% Reflectance Backing) - Fine Papers

WebCode	Data Flag	Sample GN49			Sample GN50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1B7JBJ		91.86	-0.35	-0.91	89.56	-0.52	-1.15
1S16KX		92.21	0.00	0.01	90.54	0.46	1.02
51836J		91.42	-0.79	-2.07	89.28	-0.80	-1.77
5F8RRK		92.18	-0.02	-0.06	89.79	-0.29	-0.63
5XYTP1		92.84	0.63	1.67	90.33	0.25	0.56
7RXA5N		92.01	-0.20	-0.51	89.92	-0.16	-0.35
89FFDR		92.20	-0.01	-0.01	89.90	-0.18	-0.39
9B3VLJ		92.30	0.09	0.25	89.83	-0.25	-0.55
9TQUNJ		92.18	-0.03	-0.07	89.61	-0.47	-1.04
9W8UZR		92.39	0.18	0.49	90.35	0.27	0.60
ABVQ7N	*	93.10	0.89	2.35	91.35	1.27	2.82
AGD9XF		91.43	-0.78	-2.05	89.58	-0.50	-1.10
ALMYDY		92.30	0.09	0.25	90.04	-0.04	-0.08
BW3MQP		92.86	0.65	1.72	91.04	0.96	2.13
CFANG7		91.98	-0.23	-0.59	89.64	-0.44	-0.97
DE2HQB		92.02	-0.19	-0.49	90.17	0.09	0.20
DEK7DY		92.35	0.15	0.39	90.18	0.10	0.22
DU2M9N		91.64	-0.57	-1.49	89.49	-0.59	-1.30
FFE6M2		92.02	-0.19	-0.49	90.25	0.17	0.38
FKRV5B		92.23	0.02	0.06	90.35	0.27	0.60
HHC8K2		92.46	0.25	0.67	90.32	0.24	0.54
KGNG2M		92.38	0.18	0.47	89.82	-0.25	-0.56
KULKWM		92.07	-0.14	-0.36	89.49	-0.59	-1.30
KZZ4NV		92.05	-0.16	-0.41	89.98	-0.10	-0.22
L86W84		91.90	-0.31	-0.80	90.16	0.08	0.18
MGE6A8	*	93.25	1.04	2.75	90.87	0.79	1.76
MLE6Z5		92.39	0.18	0.48	89.73	-0.35	-0.77
N1T8ED		91.82	-0.38	-1.01	89.82	-0.26	-0.58
NMA24T		92.48	0.27	0.72	90.53	0.46	1.01
NQEK8		92.14	-0.07	-0.17	89.70	-0.38	-0.84
NZ85DL		92.47	0.26	0.70	90.27	0.19	0.43
P4FJB5		92.67	0.46	1.22	90.96	0.88	1.95
PEZ3GN	X	94.34	2.13	5.61	91.83	1.75	3.89
PF52MG		91.83	-0.38	-0.99	89.64	-0.44	-0.97
PFBKUZ		91.92	-0.29	-0.76	89.58	-0.50	-1.11
PH6UUF		92.21	0.01	0.02	90.31	0.23	0.51
PYUJ2H		91.81	-0.40	-1.04	90.04	-0.04	-0.08
QFK7DZ		92.32	0.11	0.30	90.39	0.31	0.69
QU3HX1		92.13	-0.07	-0.19	89.76	-0.32	-0.70
RA48B5		92.07	-0.14	-0.36	89.72	-0.36	-0.79
RL31QX		92.47	0.26	0.70	90.34	0.26	0.58
TQJL4V		92.20	-0.01	-0.02	90.14	0.06	0.14
TX58KK		92.19	-0.02	-0.04	90.43	0.35	0.78

**Paper & Paperboard Interlaboratory Testing Program
Analysis 384
Opacity (89% Reflectance Backing) - Fine Papers**

WebCode	Data Flag	Sample GN49			Sample GN50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
U9FJML		92.17	-0.04	-0.09	89.90	-0.18	-0.39
VJVQSC		92.04	-0.17	-0.43	89.63	-0.45	-0.99
VYDXYG		91.95	-0.26	-0.67	90.08	0.00	0.00
WEC1V6		93.08	0.87	2.30	91.04	0.96	2.13
YJ88SB		92.11	-0.09	-0.24	89.98	-0.10	-0.22
YJK73M		92.31	0.10	0.27	90.34	0.26	0.57
ZNPXRE		91.65	-0.56	-1.46	89.73	-0.35	-0.77
ZT26EB		92.20	-0.01	-0.01	89.99	-0.09	-0.19

Summary Statistics			
	Sample GN49		Sample GN50
Grand Means	92.205 Percent		90.078 Percent
SD Btwn Labs	0.380 Percent		0.451 Percent
Statistics based on 50 of 51 reporting participants			

Comments on assigned Data Flags for Test #384

PEZ3GN (X) - Extreme data.

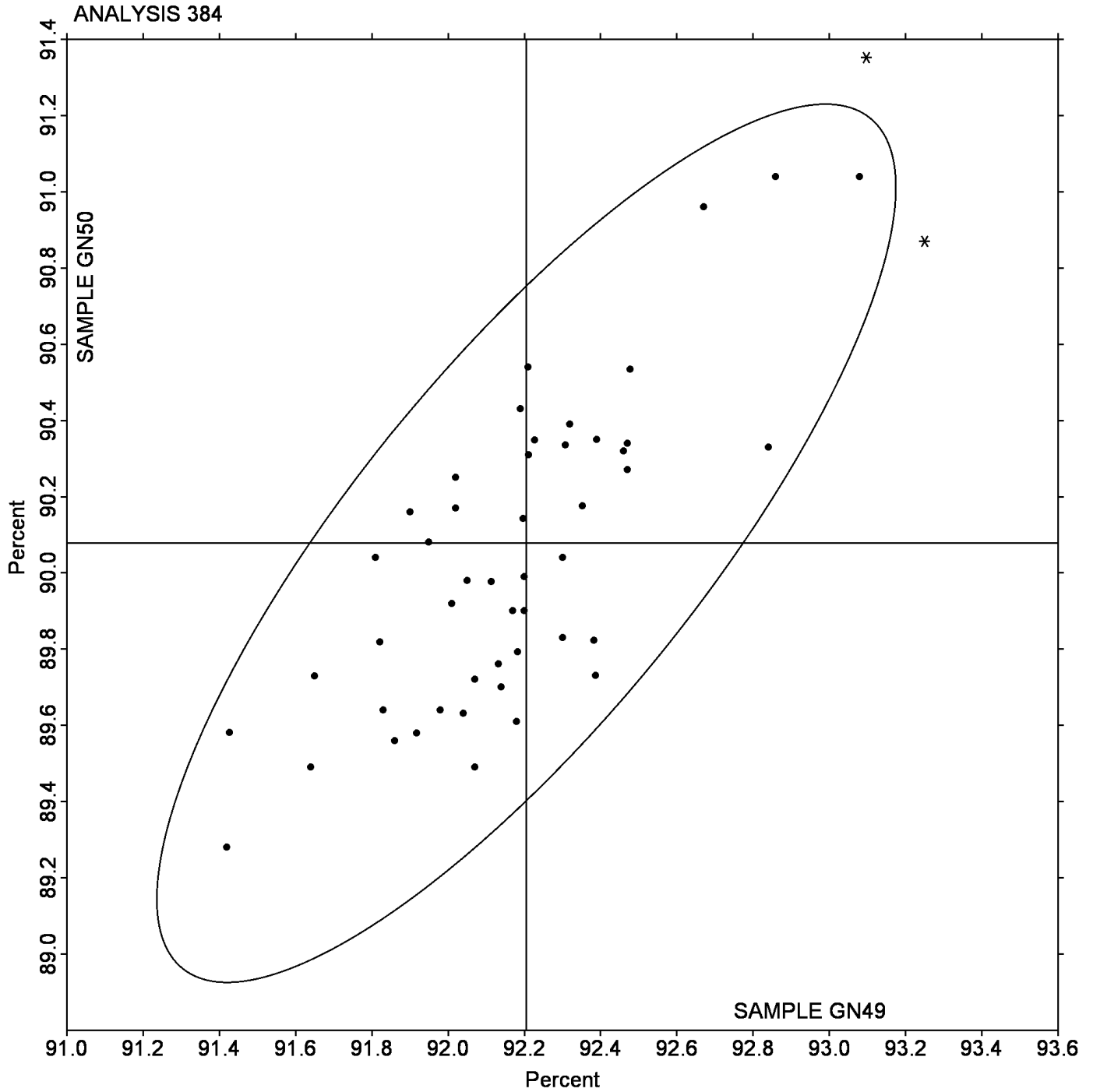
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN49** = 92.205 Percent

Grand Mean Sample **GN50** = 90.078 Percent



**Paper & Paperboard Interlaboratory Testing Program
Analysis 386
Opacity (Paper Backing) - Fine Papers and Newsprint**

WebCode	Data Flag	Sample GP49			Sample GP50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
17K4BZ	X	92.98	-0.75	-9.00	91.29	-0.89	-6.02
2MPHLL	X	92.87	-0.87	-10.38	90.74	-1.44	-9.73
3RRKXU		93.77	0.03	0.39	92.56	0.37	2.50
53WE5Q		93.81	0.07	0.87	92.15	-0.04	-0.25
6HSETP	X	100.06	6.32	75.63	100.09	7.91	53.30
6JQT8U		93.73	0.00	-0.04	92.23	0.05	0.31
71GLEE		93.67	-0.07	-0.80	92.17	-0.02	-0.12
8JSXHQ		93.85	0.12	1.39	92.38	0.20	1.32
9HM3YH		93.62	-0.11	-1.32	92.22	0.04	0.24
9XEGX5		93.64	-0.10	-1.14	91.88	-0.30	-2.03
BA7H6C		93.88	0.14	1.71	92.05	-0.14	-0.92
BT7ZJ8		93.75	0.02	0.20	92.10	-0.08	-0.56
DBVNLU		93.82	0.08	1.00	92.14	-0.04	-0.29
FZDQSA		93.70	-0.04	-0.43	92.21	0.02	0.14
HM6VVW		93.71	-0.02	-0.27	92.20	0.02	0.12
J1EQK6		93.69	-0.04	-0.47	92.18	0.00	0.00
J1YD31		93.68	-0.05	-0.64	91.96	-0.22	-1.51
JP5F8V		93.63	-0.10	-1.19	92.02	-0.16	-1.10
NHTCLM		93.79	0.06	0.71	92.37	0.19	1.26
PYASUL		93.81	0.07	0.85	91.99	-0.20	-1.32
Q2TJ47		93.71	-0.02	-0.30	92.27	0.08	0.56
QE7AT7		93.58	-0.15	-1.83	92.32	0.13	0.90
QMMP1J		93.84	0.11	1.32	92.22	0.03	0.21
RE4TPG		93.70	-0.03	-0.40	92.07	-0.12	-0.79
RZ8X5J		93.75	0.02	0.22	92.10	-0.09	-0.58
S4Y9H7		93.91	0.18	2.12	92.37	0.19	1.25
UES7LX		93.79	0.06	0.72	92.30	0.12	0.81
UKYK2P		93.67	-0.06	-0.76	92.35	0.17	1.12
UWD1ZT	X	93.01	-0.72	-8.66	91.50	-0.68	-4.60
W1K6S4		93.62	-0.11	-1.32	92.14	-0.05	-0.32
XT5N85		93.70	-0.04	-0.46	92.17	-0.01	-0.06
YXLPBB		93.73	-0.01	-0.10	92.05	-0.13	-0.87

Sample GP49		Summary Statistics	Sample GP50	
Grand Means	93.734 Percent		92.184 Percent	
SD Btw Labs	0.084 Percent		0.148 Percent	
Statistics based on 28 of 32 reporting participants				

Paper & Paperboard Interlaboratory Testing Program
Analysis 386
Opacity (Paper Backing) - Fine Papers and Newsprint

Comments on assigned Data Flags for Test #386

17K4BZ (X) - Extreme data.

2MPHLL (X) - Extreme data.

6HSETP (X) - Extreme data.

UWD1ZT (X) - Extreme data.

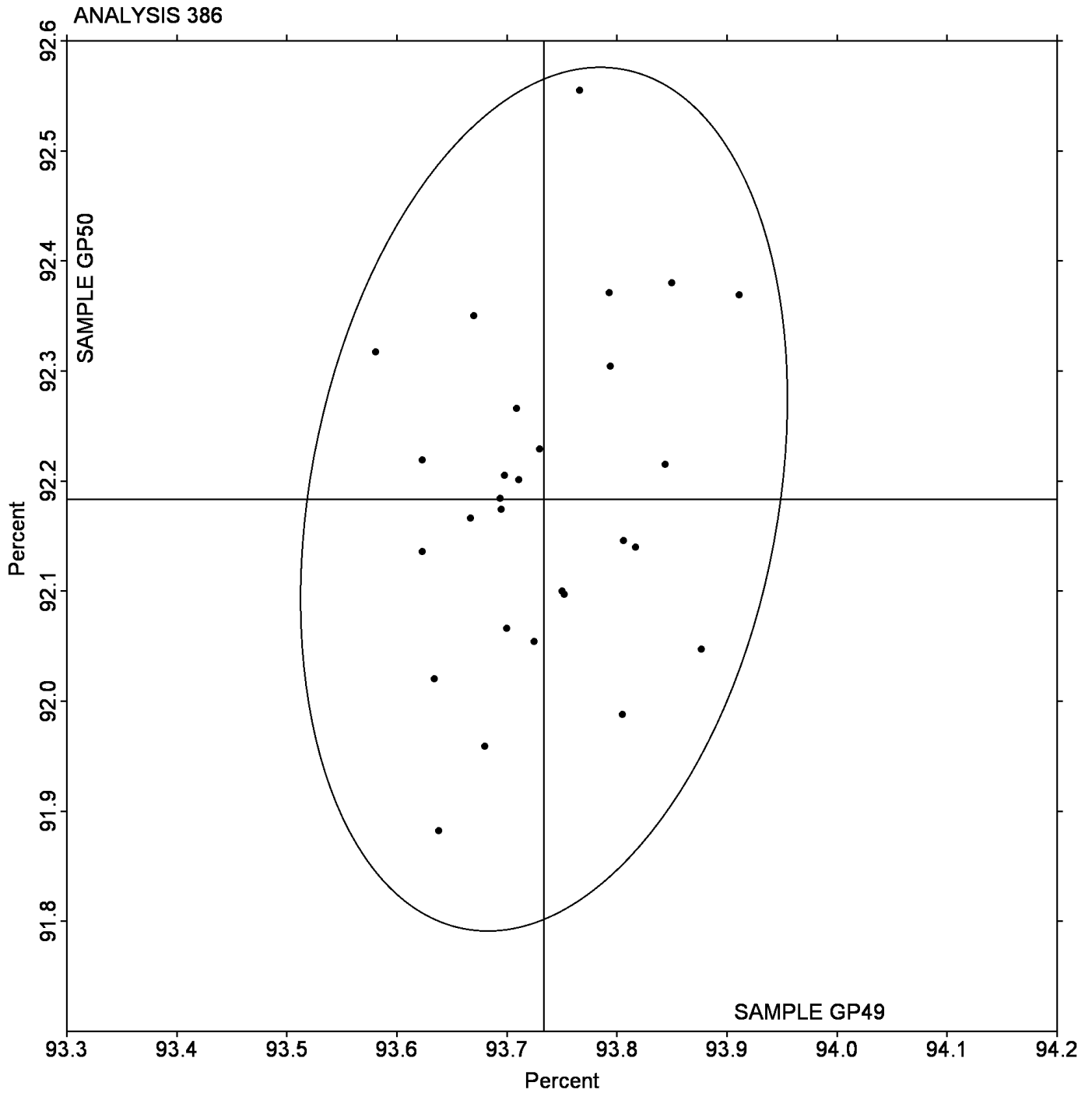
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP49** = 93.734 Percent

Grand Mean Sample **GP50** = 92.184 Percent



Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

WebCode	Data Flag	Sample GR49			Sample GR50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2KDBWT		78.64	1.19	1.55	90.66	0.84	1.25	TS
39G1HQ		77.58	0.13	0.17	90.45	0.63	0.94	HD
3QAW93	*	79.38	1.92	2.51	92.03	2.21	3.28	TS
4U65XA		77.84	0.38	0.50	89.80	-0.02	-0.03	TS
4VTMUB		77.31	-0.14	-0.18	89.63	-0.19	-0.29	PE
58VILD		77.91	0.46	0.60	90.11	0.29	0.44	TT
5HZKVF		78.59	1.13	1.48	90.55	0.73	1.09	TS
7DY5QQ		76.65	-0.80	-1.05	89.53	-0.29	-0.44	TT
878VEA		76.25	-1.21	-1.58	88.96	-0.86	-1.28	TS
97V96M	X	77.89	0.43	0.57	88.28	-1.54	-2.30	TT
9A9EFW		77.23	-0.23	-0.30	89.85	0.03	0.05	TT
BHM1NP		76.93	-0.53	-0.69	88.86	-0.96	-1.42	TA
D5ND4Z		76.92	-0.53	-0.69	89.26	-0.56	-0.84	TS
DE5G85		76.35	-1.10	-1.44	88.94	-0.88	-1.31	TS
DR8YB2		76.65	-0.80	-1.05	88.71	-1.11	-1.65	XX
GUXKP8		78.38	0.92	1.20	90.30	0.48	0.71	TT
H47K68		78.06	0.61	0.80	90.25	0.43	0.64	TT
KJTSAJ	X	86.65	9.20	12.01	76.36	-13.46	-20.03	TS
L767VM		77.05	-0.40	-0.53	89.72	-0.10	-0.15	TS
M3W7SM		77.10	-0.35	-0.46	89.78	-0.04	-0.06	TS
MU37WG		77.91	0.46	0.60	89.76	-0.06	-0.09	HG
MV98G9		76.64	-0.82	-1.07	89.47	-0.35	-0.52	PP
NBMCYT		76.75	-0.70	-0.92	89.69	-0.13	-0.20	TS
NZ7RQK		77.27	-0.18	-0.24	88.84	-0.98	-1.46	GM
PTQ4MF		76.56	-0.89	-1.16	89.45	-0.37	-0.55	TS
RAM6E4		78.45	1.00	1.30	90.11	0.29	0.44	TT
RP8T8G		76.50	-0.95	-1.24	89.50	-0.32	-0.48	TA
SLYVQE	X	78.89	1.44	1.88	88.48	-1.34	-2.00	HD
T3WYZ9		77.72	0.26	0.35	90.30	0.48	0.71	XX
TA8LPY		76.80	-0.65	-0.85	89.25	-0.57	-0.86	TS
V76A2M		76.94	-0.52	-0.67	89.41	-0.41	-0.61	TS
VDBX33		77.41	-0.04	-0.05	90.18	0.36	0.53	TA
VJE55Z		78.08	0.62	0.81	90.16	0.34	0.51	TT
WLMQF6		78.09	0.63	0.83	89.40	-0.42	-0.62	HD
WUJZ5P		77.49	0.03	0.05	89.87	0.05	0.08	MG
XWWGRT		78.30	0.85	1.11	90.44	0.62	0.92	TS
XYFMUW	X	77.01	-0.44	-0.58	86.68	-3.14	-4.68	XX
YM7PNV		78.45	1.00	1.30	90.93	1.11	1.65	PE
Z9T3M8		77.10	-0.35	-0.46	89.21	-0.61	-0.90	TS
ZJZP6U		77.05	-0.40	-0.53	90.18	0.36	0.53	TT

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

	Sample GR49	Summary Statistics	Sample GR50
Grand Means	77.453 Percent		89.820 Percent
SD Btwn Labs	0.766 Percent		0.672 Percent
Statistics based on 36 of 40 reporting participants			

Comments on assigned Data Flags for Test #390

97V96M (X) - Inconsistent in testing between samples.

KJTSAJ (X) - Extreme data.

SLYVQE (X) - Inconsistent in testing between samples.

XYFMUW (X) - Inconsistent in testing between samples, data for Sample GR50 are low.

Instrument Code List as Reported by the Labs

(GM) - Gretag Macbeth Color i5

(HD) - Hunter D25DP - 9000

(HG) - Hunter Labscan / XE

(MG) - Macbeth 1500/PLUS - 2025+ Color Eye

(PE) - Photovolt 577

(PP) - Technidyne Profile/Plus

(TA) - Technidyne, Diano, M.S. S-4

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

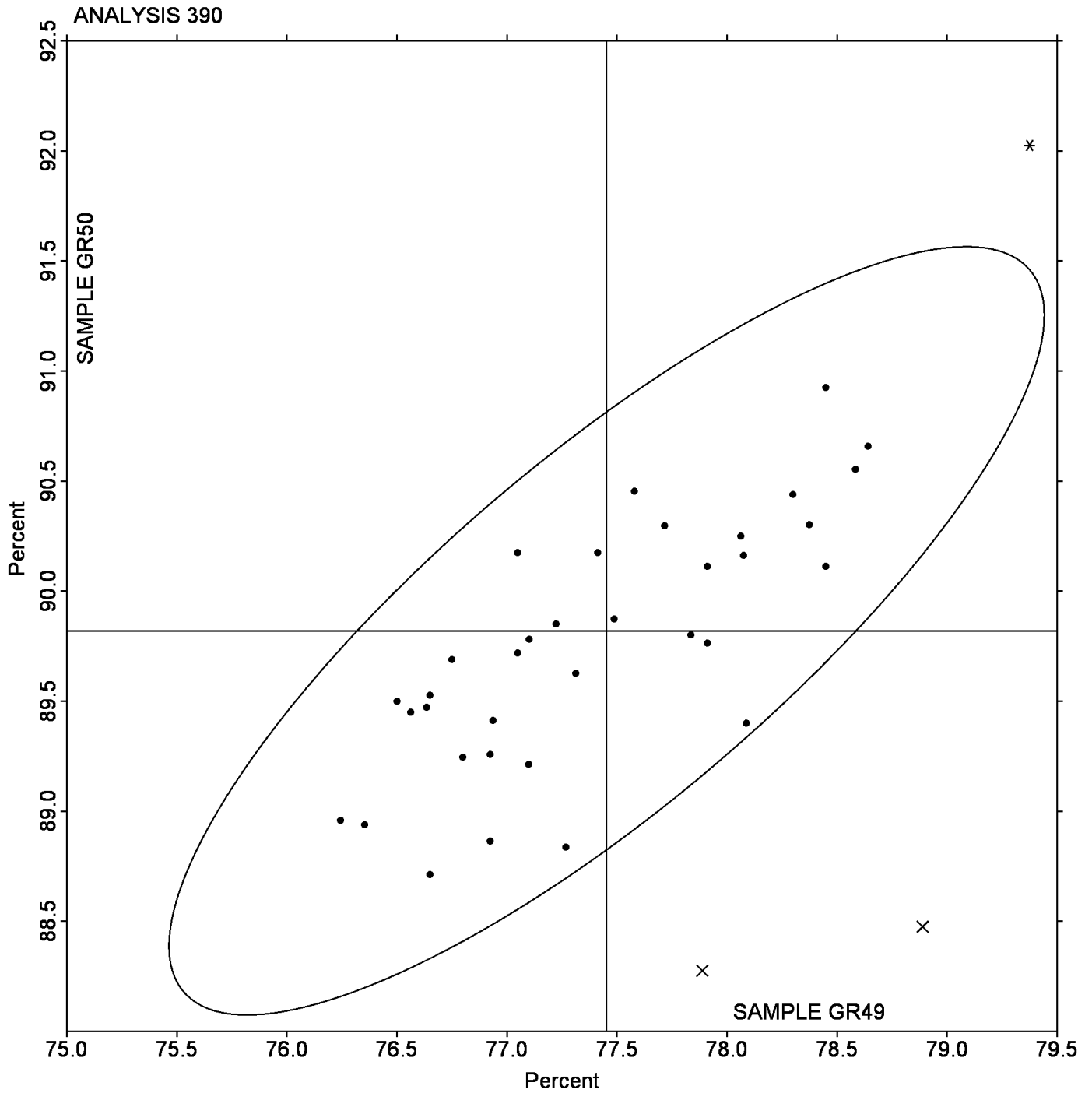
(XX) - Instrument make/model not specified by lab

Analysis 390

Directional Brightness

Grand Mean Sample GR49 = 77.453 Percent

Grand Mean Sample GR50 = 89.820 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ49			Sample GZ50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2HYKGB		91.60	-0.15	-0.12	83.54	1.33	1.50	TT
2QQPY6		91.17	-0.57	-0.49	82.70	0.49	0.55	TS
5T32G2		88.77	-2.97	-2.54	81.41	-0.80	-0.91	GM
6FB5ZJ		92.48	0.73	0.63	82.42	0.21	0.23	TS
6HBVU6		89.30	-2.44	-2.08	80.66	-1.55	-1.75	TS
78M33C		92.06	0.31	0.27	81.79	-0.42	-0.47	TS
7PKYUB		90.76	-0.99	-0.84	82.06	-0.15	-0.17	TS
8CKJCM		92.48	0.73	0.63	82.38	0.17	0.19	TT
9ZPKSG	X	104.94	13.19	11.25	86.17	3.96	4.47	HV
EM5EWG		92.40	0.65	0.56	82.18	-0.03	-0.03	TT
K3WP3L		93.06	1.31	1.12	82.23	0.02	0.02	PP
KH7L86		91.24	-0.51	-0.44	83.35	1.14	1.28	TS
MEET83		92.72	0.97	0.83	82.04	-0.17	-0.19	TS
PFNF57		93.01	1.26	1.08	82.22	0.01	0.01	PP
Q2GDUV		91.90	0.16	0.13	81.65	-0.57	-0.64	TS
R6GBAM	X	97.64	5.89	5.02	84.04	1.83	2.06	MK
SLCVJV		91.41	-0.34	-0.29	82.71	0.50	0.56	MG
TL3GBM		90.68	-1.07	-0.91	80.38	-1.84	-2.07	EF
ULJ1RH		92.16	0.41	0.35	81.60	-0.61	-0.69	XX
VWAJV3		92.56	0.81	0.69	82.15	-0.07	-0.07	TS
W9Z94S		93.00	1.26	1.07	82.59	0.38	0.43	TS
WWJ2RT		92.16	0.42	0.36	84.17	1.96	2.21	TS
YZSNNA	X	84.38	-7.37	-6.28	94.06	11.85	13.37	HV

		Summary Statistics	
	Sample GZ49		Sample GZ50
Grand Means	91.747 Percent		82.211 Percent
SD Btwn Labs	1.173 Percent		0.886 Percent
Statistics based on 20 of 23 reporting participants			

Comments on assigned Data Flags for Test #391

9ZPKSG (X) - Extreme data.

R6GBAM (X) - Extreme data for Sample GZ49.

YZSNNA (X) - Extreme data.

Paper & Paperboard Interlaboratory Testing Program
Analysis 391
Directional Brightness of Fluorescent Samples

Instrument Code List as Reported by the Labs

(EF) - L & W Datacolor Elrepho

(GM) - Gretag Macbeth Color i5

(HV) - Hunter Ultrascan XE

(MG) - Macbeth 1500/Plus - 2025+ Color Eye

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

(XX) - Instrument make/model not specified by lab

Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

WebCode	Data Flag	Sample GR49			Sample GR50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1XCLFN		76.87	-0.03	-0.11	89.30	0.35	1.24	LS
32TZLD		76.69	-0.21	-0.84	88.73	-0.22	-0.79	TC
32X1P6		76.83	-0.07	-0.27	89.00	0.05	0.17	TM
35DP7C		77.14	0.24	0.95	89.27	0.32	1.13	TM
3P67GH		76.77	-0.13	-0.53	88.87	-0.07	-0.26	TC
4GVN7S		76.83	-0.07	-0.28	88.84	-0.11	-0.38	LS
5FB8VA	X	76.07	-0.83	-3.28	85.97	-2.98	-10.51	LA
5THQV5		77.07	0.17	0.66	89.09	0.14	0.48	TC
87CTTZ		76.79	-0.11	-0.43	88.73	-0.22	-0.77	XX
8N4HBB		77.13	0.23	0.92	88.96	0.02	0.05	TC
91EP5V		76.70	-0.20	-0.79	88.70	-0.25	-0.87	TC
9XHZ2V	*	76.28	-0.62	-2.45	88.26	-0.69	-2.43	LT
AFCGQH		77.44	0.54	2.12	89.54	0.59	2.08	TM
BWZ5LY		76.91	0.01	0.05	89.05	0.10	0.35	TM
BYBFLW		77.17	0.27	1.06	89.29	0.34	1.19	EF
CKWVB9		77.33	0.43	1.68	89.30	0.35	1.23	TC
D2PV65		77.01	0.11	0.43	88.99	0.04	0.15	TC
E2KL1T		76.95	0.05	0.19	88.76	-0.18	-0.65	TM
EE2RL2		76.76	-0.15	-0.58	88.83	-0.12	-0.43	TC
F342DF		77.06	0.16	0.64	89.49	0.54	1.90	TL
FQ3DDZ		76.42	-0.48	-1.90	88.71	-0.24	-0.84	FR
G3XBHG		76.99	0.09	0.36	89.04	0.10	0.34	TC
JLYJLY		76.89	-0.01	-0.05	88.96	0.01	0.04	TC
JQD62R		77.14	0.24	0.93	89.05	0.10	0.37	TM
L2HK79		76.73	-0.17	-0.68	88.72	-0.23	-0.82	LS
LB8Q8U		76.87	-0.03	-0.13	88.48	-0.47	-1.65	XX
LKLVPC		76.74	-0.16	-0.65	89.05	0.10	0.37	TC
NT3WND	X	77.24	0.34	1.33	90.05	1.10	3.89	TM
PPY4UK		76.79	-0.11	-0.44	88.96	0.01	0.02	TC
QCU6V4		76.86	-0.05	-0.18	89.31	0.36	1.28	TM
QQWPHX		76.62	-0.28	-1.11	88.84	-0.11	-0.39	EG
RNQLA7		77.15	0.25	1.00	89.18	0.23	0.81	TM
RQCMB2		77.05	0.15	0.60	88.87	-0.08	-0.29	TC
T9UAGT		76.84	-0.06	-0.25	88.76	-0.19	-0.66	TC
UPCCY9	*	77.02	0.12	0.48	88.52	-0.43	-1.52	LA
V5ZDKK	*	76.24	-0.66	-2.61	88.44	-0.51	-1.80	LS
V6YXS1		76.96	0.06	0.23	88.90	-0.05	-0.17	TC
VLFA2S		76.75	-0.15	-0.61	88.92	-0.02	-0.09	TM
WCABWQ		76.91	0.01	0.05	88.98	0.03	0.09	LS
WCWLRW		76.90	0.00	0.00	88.83	-0.12	-0.43	EF
WZ111M		77.38	0.47	1.87	89.51	0.56	1.99	TM
XR2AP5		77.16	0.26	1.01	88.97	0.02	0.08	TC
YD92Q3		76.81	-0.09	-0.36	88.91	-0.04	-0.13	XX

**Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness**

WebCode	Data Flag	Sample GR49			Sample GR50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZAEFWR	X	68.28	-8.62	-34.05	86.87	-2.08	-7.35	LA

		Summary Statistics			
		Sample GR49		Sample GR50	
Grand Means		76.901	Percent	88.948	Percent
SD Btwn Labs		0.253	Percent	0.283	Percent
Statistics based on 41 of 44 reporting participants					

Comments on assigned Data Flags for Test #392

5FB8VA (X) - Extreme data.

NT3WND (X) - Inconsistent in testing between samples, data for Sample GR50 are high.

ZAEFWR (X) - Extreme data.

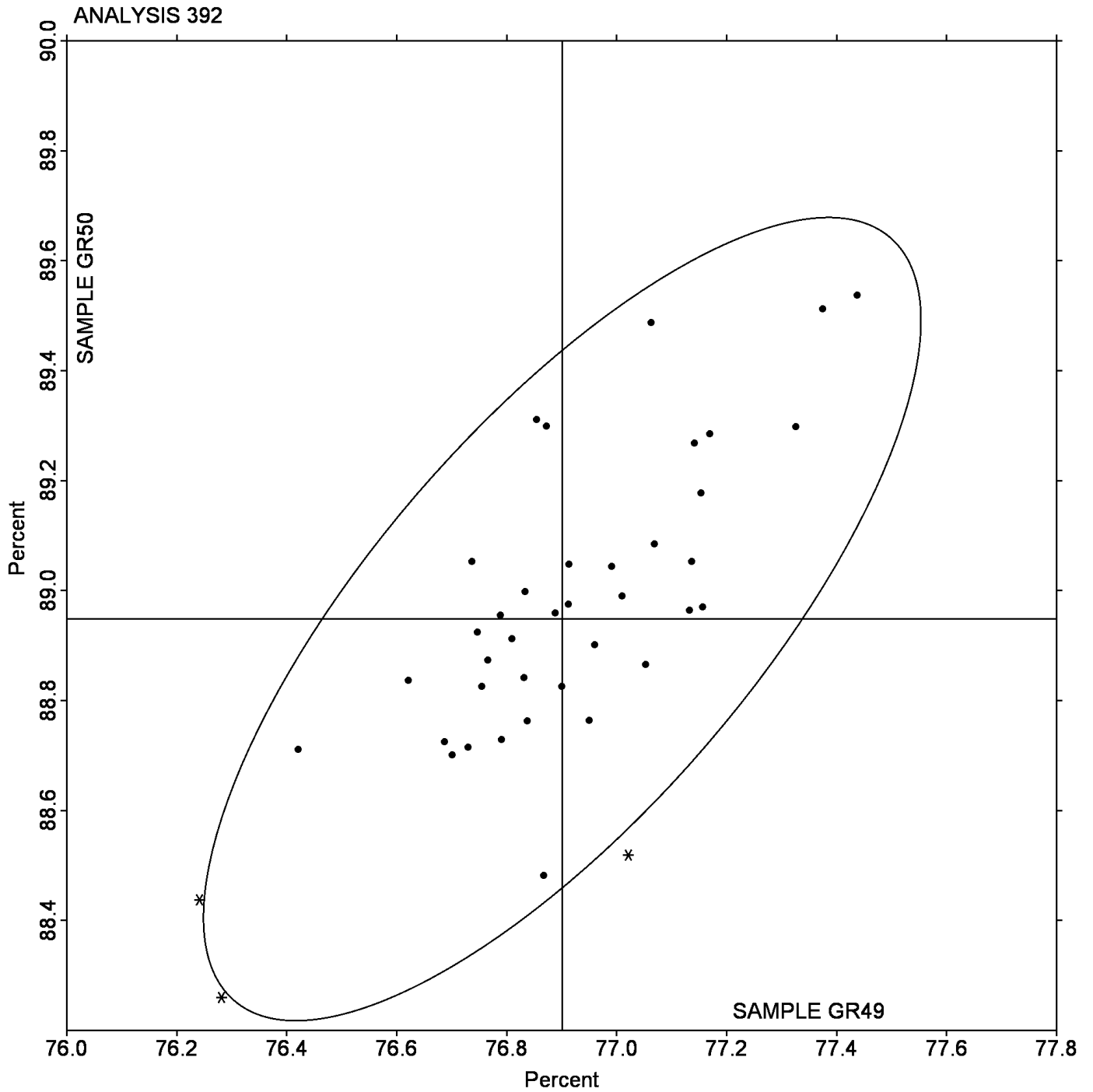
Instrument Code List as Reported by the Labs

- | | |
|---|---|
| (EF) - Datacolor Elrepho 3000 | (EG) - Datacolor Elrepho 450X |
| (FR) - Frank Instruments | (LA) - L & W Elrepho - Autoline |
| (LS) - L & W Elrepho SE 070 | (LT) - L & W Elrepho SE 071 |
| (TC) - Technidyne Color Touch Series | (TL) - Technidyne Technibrite TB-1 |
| (TM) - Technidyne Technibrite Micro TB-1C | (XX) - Instrument make/model not specified by lab |

Analysis 392
Diffuse Brightness

Grand Mean Sample **GR49** = 76.901 Percent

Grand Mean Sample **GR50** = 88.948 Percent



**Paper & Paperboard Interlaboratory Testing Program
Analysis 394
Fluorescent Component of Directional Brightness**

WebCode	Data Flag	Sample GZ49			Sample GZ50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1GQMP9	X	4.536	-2.534	-2.92	11.498	9.556	33.51	HV
28NHWB		6.680	-0.390	-0.45	1.820	-0.122	-0.43	TT
2ML1GV		6.508	-0.562	-0.65	1.704	-0.238	-0.83	TS
4KBS9N		6.462	-0.608	-0.70	1.718	-0.224	-0.79	TS
8NVN6H		7.238	0.168	0.19	2.106	0.164	0.58	TS
8RSUAG		6.818	-0.252	-0.29	1.858	-0.084	-0.29	TS
AEY1LG		6.430	-0.640	-0.74	1.564	-0.378	-1.33	TS
DEVFF5		6.744	-0.326	-0.38	1.982	0.040	0.14	TS
E59XZY	*	9.520	2.450	2.82	2.700	0.758	2.66	MK
FQEAJ4		7.056	-0.014	-0.02	1.772	-0.170	-0.60	TS
HSEN8L		6.612	-0.458	-0.53	1.692	-0.250	-0.88	TS
K8LEB3		7.378	0.308	0.36	2.364	0.422	1.48	TS
KAWFWU	X	16.858	9.788	11.28	4.598	2.656	9.32	GM
LRURTR		7.082	0.012	0.01	1.980	0.038	0.13	PP
P7T2S6		6.660	-0.410	-0.47	1.860	-0.082	-0.29	TT
QYXUZ7		6.734	-0.336	-0.39	1.750	-0.192	-0.67	XX
R182TS		6.360	-0.710	-0.82	1.820	-0.122	-0.43	XX
RRGFTV		8.940	1.870	2.16	2.182	0.240	0.84	EF
SB3FR4		6.960	-0.110	-0.13	2.140	0.198	0.69	TT
V5GY3G	X	89.304	82.234	94.77	80.664	78.722	276.08	TS
YS5ERS	X	19.612	12.542	14.45	5.670	3.728	13.07	HV

Summary Statistics			
	Sample GZ49		Sample GZ50
Grand Means	7.0695 Percent		1.9419 Percent
SD Btw Labs	0.8677 Percent		0.2851 Percent
Statistics based on 17 of 21 reporting participants			

Comments on assigned Data Flags for Test #394

1GQMP9 (X) - Extreme data.

KAWFWU (X) - Extreme data.

V5GY3G (X) - Extreme data.

YS5ERS (X) - Extreme data.

Instrument Code List as Reported by the Labs

(EF) - Daticolor Elrepho 3000

(GM) - Gretag Macbeth Color i5

(HV) - Hunter Ultrascan XE

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

(XX) - Instrument make/model not specified by lab

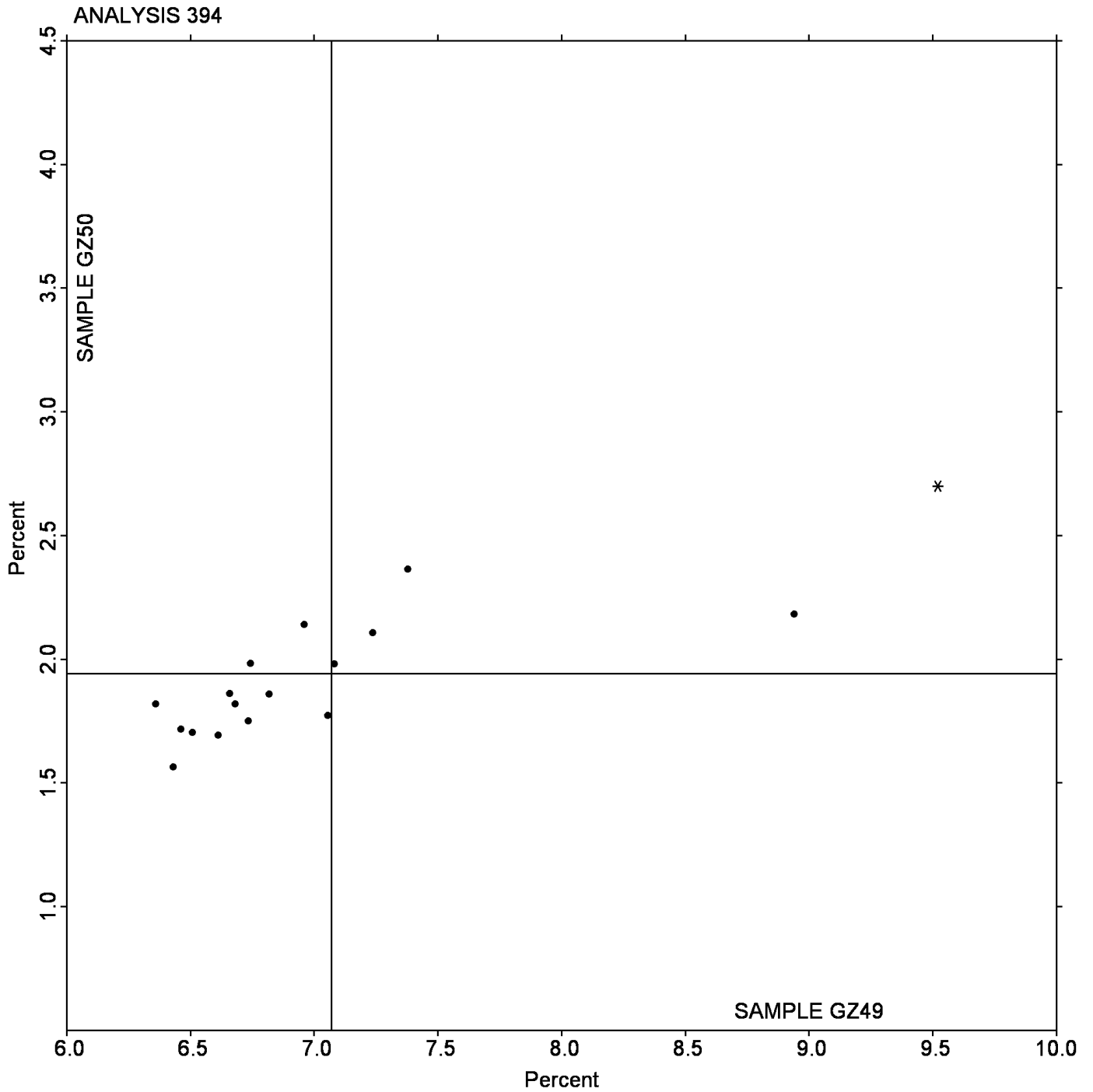
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ49** = 7.0695 Percent

Grand Mean Sample **GZ50** = 1.9419 Percent



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 395

Specular Gloss at 75 Degrees - High Range

WebCode	Data Flag	Sample GT49			Sample GT50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1JCNSR		74.12	-1.23	-0.77	67.53	-0.88	-0.55	XX
3S62YE		72.39	-2.96	-1.86	67.42	-0.99	-0.61	TH
4D8PJP		75.50	0.15	0.10	68.31	-0.10	-0.06	GM
4FDBU8		74.32	-1.03	-0.65	68.13	-0.28	-0.17	PP
4VW8MA		75.11	-0.24	-0.15	68.09	-0.32	-0.20	PP
5AWWK2		76.50	1.15	0.72	69.21	0.80	0.50	HN
6CV1N3		76.22	0.87	0.54	68.60	0.19	0.12	TH
6DKESE		74.83	-0.52	-0.33	67.24	-1.17	-0.73	TH
76W9E4		74.34	-1.01	-0.63	66.26	-2.15	-1.34	LB
7T5YRR		77.28	1.94	1.22	69.99	1.59	0.99	TG
95657N		75.10	-0.25	-0.16	68.60	0.19	0.12	GA
9FGKUU		74.82	-0.53	-0.33	69.22	0.81	0.51	TG
9FKJEB		76.28	0.93	0.59	69.11	0.70	0.44	TH
A581KS		76.92	1.57	0.99	70.04	1.63	1.02	TH
BKW1TY		76.70	1.35	0.85	69.29	0.88	0.55	TG
BWD6E7		75.83	0.48	0.30	67.59	-0.82	-0.51	ZH
D555DK		75.68	0.33	0.21	68.64	0.23	0.15	TG
DPUM8C		73.33	-2.02	-1.27	68.28	-0.13	-0.08	XX
E1VT6G		77.85	2.50	1.57	70.64	2.23	1.39	TH
FX7RSF		77.75	2.40	1.51	70.61	2.20	1.37	TG
J9KTDH		72.54	-2.81	-1.77	64.83	-3.58	-2.23	GM
LXBSPP	*	73.76	-1.59	-1.00	64.90	-3.51	-2.19	TH
MRMQ25		73.10	-2.25	-1.41	67.00	-1.41	-0.88	GS
NNR8P3		73.97	-1.38	-0.87	66.67	-1.74	-1.08	XX
NW2AA4		76.99	1.64	1.03	69.50	1.09	0.68	HN
Q16B6A		74.64	-0.71	-0.44	67.76	-0.65	-0.40	GM
QYHZ65		76.63	1.28	0.81	69.48	1.07	0.67	TH
SVWDVG	X	73.78	-1.57	-0.98	71.11	2.70	1.69	XX
TJYXHK		74.49	-0.86	-0.54	68.89	0.48	0.30	VM
TLM9HR		78.10	2.75	1.73	71.96	3.55	2.22	HG

Sample GT49		Summary Statistics	Sample GT50	
Grand Means	75.348 Gloss Units		68.406 Gloss Units	
SD Btwn Labs	1.592 Gloss Units		1.604 Gloss Units	
Statistics based on 29 of 30 reporting participants				

Comments on assigned Data Flags for Test #395

SVWDVG (X) - Inconsistent in testing between samples.

Paper & Paperboard Interlaboratory Testing Program
Analysis 395
Specular Gloss at 75 Degrees - High Range

Instrument Code List as Reported by the Labs

(GA) - BYK-Gardner (model not specified)	(GM) - BYK-Gardner micro-gloss
(GS) - BYK-Gardner Glossgard II	(HG) - Hunter ProGloss 75
(HN) - Hunter D-48	(LB) - L & W Gloss Tester Code 224
(PP) - Technidyne Profile/Plus	(TG) - Technidyne T480
(TH) - Technidyne T480A	(VM) - Valmet PaperLab (was Kajaani/Robotest)
(XX) - Instrument make/model not specified by lab	(ZH) - Zehntner ZLR 1050

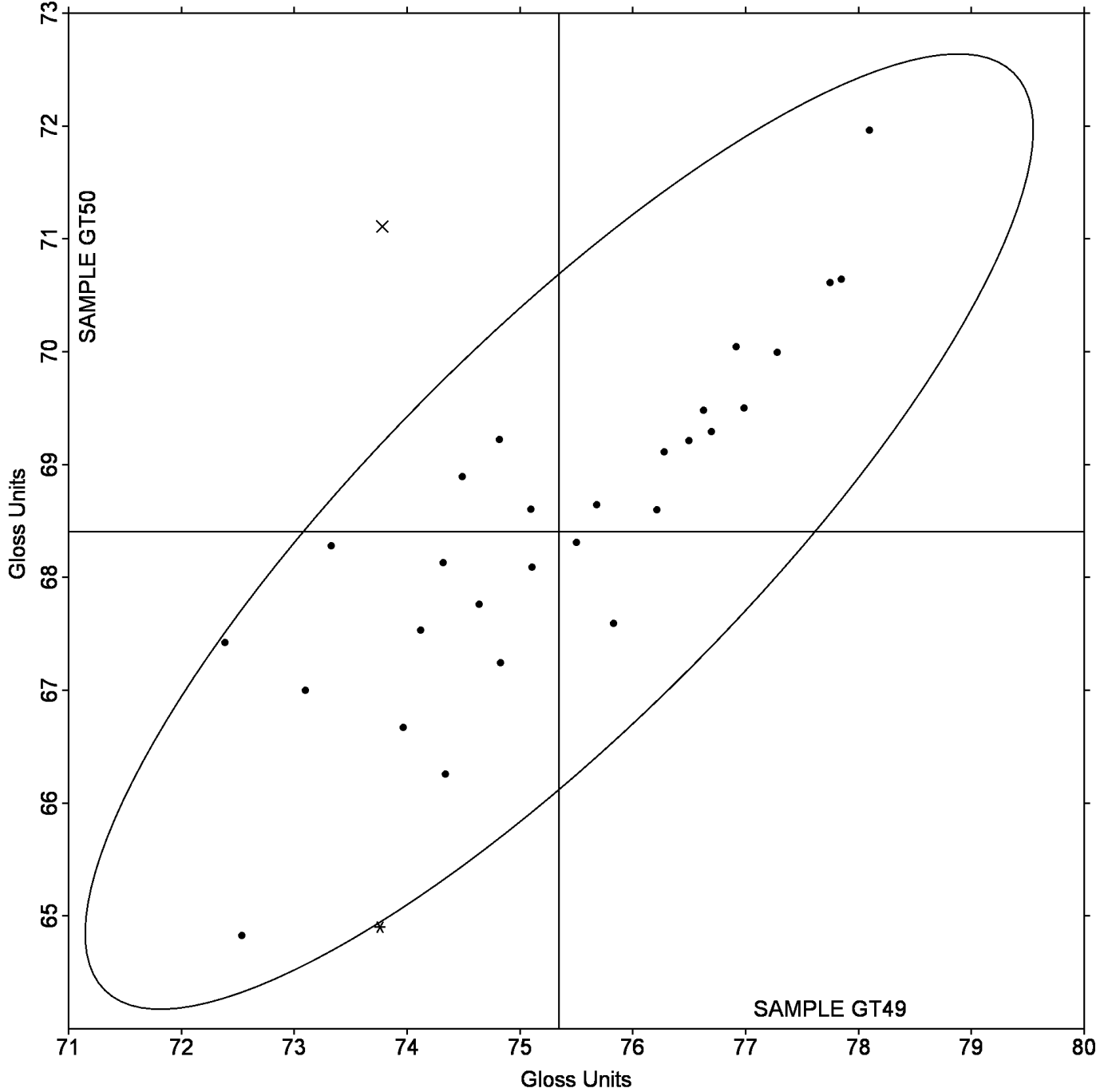
Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT49** = 75.348 Gloss Units

Grand Mean Sample **GT50** = 68.406 Gloss Units

ANALYSIS 395



Paper & Paperboard Interlaboratory Testing Program
Analysis 396
Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU49			Sample GU50			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
5D8CNR		36.50	1.04	1.38	26.50	0.12	0.15	TH
5X5QJX		34.17	-1.29	-1.71	25.21	-1.17	-1.40	HN
6VGEKR		36.22	0.76	1.01	27.21	0.83	1.00	TG
74GJMD		34.14	-1.32	-1.75	24.41	-1.97	-2.36	TH
C5A8HW		36.37	0.91	1.21	27.52	1.14	1.37	XX
J7W7U7		35.27	-0.19	-0.25	26.24	-0.14	-0.16	GM
KR187C		36.23	0.77	1.02	27.09	0.71	0.85	PP
M5HK9Y		34.85	-0.61	-0.81	26.30	-0.08	-0.09	TH
MHEV45		35.18	-0.28	-0.37	27.01	0.63	0.76	TG
MHJYSV		35.39	-0.07	-0.09	25.81	-0.57	-0.68	PP
N8N13T		35.03	-0.43	-0.57	26.03	-0.35	-0.42	TG
NWFHV5		35.66	0.20	0.26	26.27	-0.11	-0.13	GM
QNH4XV		35.59	0.13	0.17	26.81	0.43	0.52	TG
SND3LM		35.86	0.40	0.53	26.87	0.49	0.59	PP
TSVXLY	X	51.22	15.76	20.91	25.42	-0.96	-1.15	TH
YEMTHK	X	32.40	-3.06	-4.06	22.92	-3.46	-4.14	XX

Summary Statistics			
	Sample GU49		Sample GU50
Grand Means	35.462 Gloss Units		26.377 Gloss Units
SD Btw Labs	0.754 Gloss Units		0.835 Gloss Units
Statistics based on 14 of 16 reporting participants			

Comments on assigned Data Flags for Test #396

TSVXLY (X) - Extreme data for Sample GU49.

YEMTHK (X) - Systematic error (data for both samples are low).

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss
 (PP) - Technidyne Profile/Plus
 (TH) - Technidyne T480A

(HN) - Hunter D-48
 (TG) - Technidyne T480
 (XX) - Instrument make/model not specified by lab

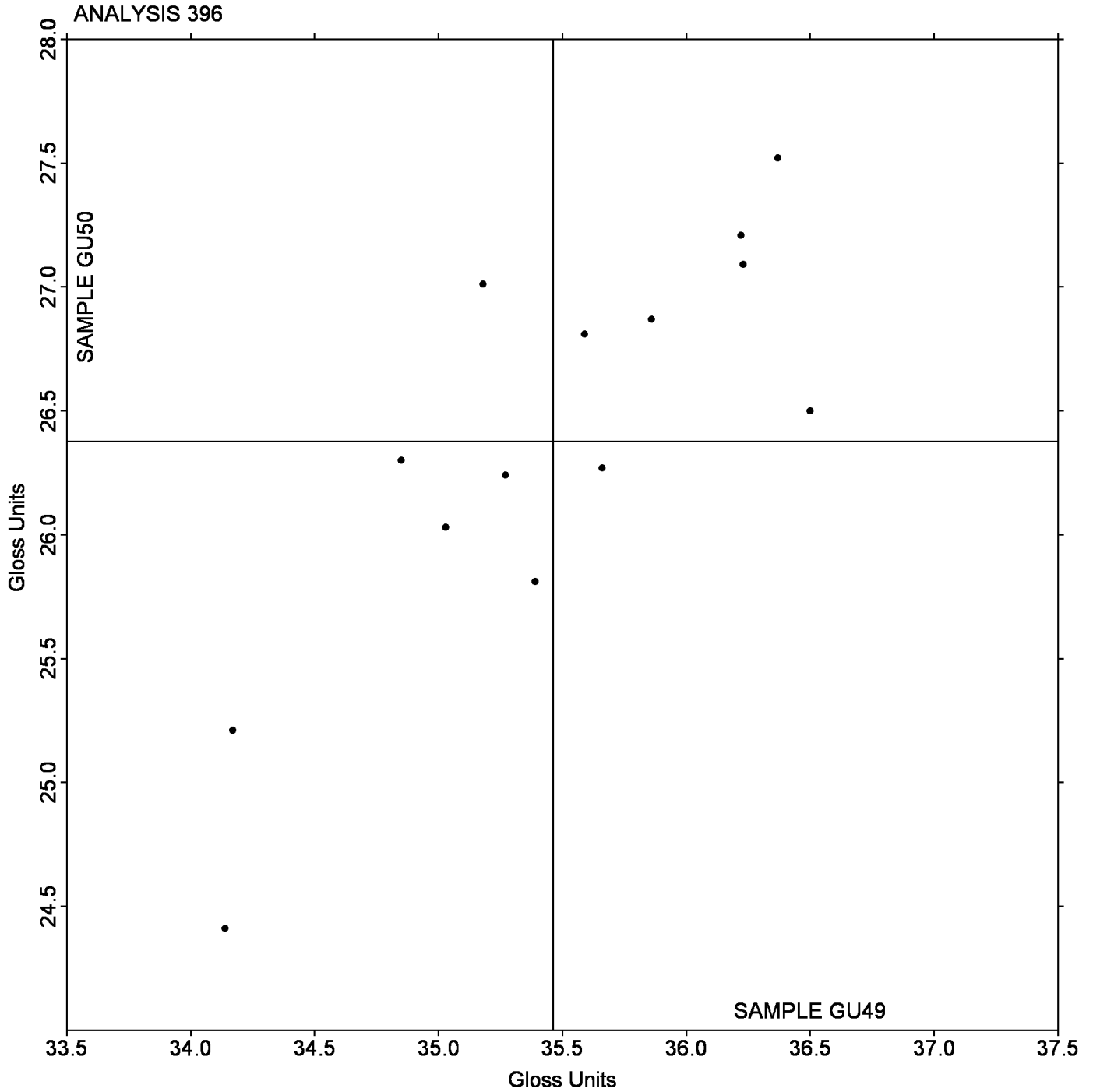
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU49** = 35.462 Gloss Units

Grand Mean Sample **GU50** = 26.377 Gloss Units



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 398
Grammage (Mass per Unit Area)

WebCode	Data Flag	Sample GW49			Sample GW50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1PXFBW		73.80	-0.21	-0.39	75.45	-0.19	-0.39
21MLWD		74.22	0.21	0.39	76.26	0.62	1.23
2CLWJ1		73.38	-0.63	-1.17	75.28	-0.37	-0.73
66SYFE		72.94	-1.07	-1.99	74.58	-1.07	-2.13
8RNJ6X		74.48	0.47	0.88	76.08	0.44	0.88
8YL64P		73.62	-0.39	-0.73	74.82	-0.82	-1.65
9DF9KD		74.16	0.16	0.29	75.59	-0.06	-0.11
AAZTS7		74.44	0.43	0.81	76.14	0.49	0.99
BBV3RN		73.22	-0.79	-1.47	75.32	-0.32	-0.64
BCSXCR		74.33	0.32	0.60	75.93	0.29	0.57
C8YKG2		73.98	-0.03	-0.05	75.60	-0.04	-0.08
D21RGD		73.04	-0.97	-1.81	74.81	-0.83	-1.67
D3GTDD		74.69	0.68	1.27	75.78	0.13	0.27
DKD6NM		73.94	-0.07	-0.13	75.64	0.00	-0.01
DSE3LW		74.04	0.03	0.05	75.89	0.24	0.49
ELTT91		74.21	0.20	0.38	75.36	-0.28	-0.57
EW2S52		74.19	0.18	0.34	75.46	-0.18	-0.37
FCF46L		73.35	-0.66	-1.23	75.01	-0.64	-1.27
G1W9T6		74.88	0.87	1.63	75.73	0.09	0.17
H6LCRG		73.89	-0.12	-0.22	75.73	0.09	0.17
J1PMPX		73.94	-0.06	-0.12	76.29	0.65	1.30
JR3GYK		73.94	-0.07	-0.13	75.43	-0.21	-0.42
LESQJ2	X	68.07	-5.94	-11.11	69.55	-6.09	-12.18
M64MEK		75.13	1.12	2.10	76.62	0.97	1.95
NVDPQT		74.20	0.19	0.36	75.47	-0.17	-0.35
NYKJUB	X	12.34	-61.67	-115.27	12.63	-63.01	-126.00
Q221FJ		73.81	-0.20	-0.37	75.61	-0.03	-0.07
Q6JP8P	*	72.49	-1.52	-2.83	74.63	-1.01	-2.02
Q91YE3		74.31	0.30	0.57	75.88	0.23	0.46
R4WRXK	*	73.77	-0.24	-0.44	74.45	-1.19	-2.39
R9AXGH		74.08	0.07	0.13	75.85	0.21	0.42
RK6KFL		74.36	0.35	0.66	76.36	0.72	1.43
S6YQ9J		74.54	0.53	0.99	76.06	0.42	0.84
T51RG3		74.05	0.04	0.08	75.79	0.15	0.29
T65V15		74.17	0.16	0.31	75.91	0.27	0.53
U1DGW2		74.30	0.29	0.55	75.60	-0.04	-0.09
WXHDS		73.37	-0.64	-1.20	75.63	-0.01	-0.02
Y6UDXM		74.08	0.07	0.13	75.63	-0.01	-0.02
YM3DHB		74.39	0.38	0.71	76.25	0.61	1.21
ZAZGXV		73.69	-0.32	-0.59	76.07	0.43	0.86
ZQZCEL		74.15	0.14	0.27	75.77	0.13	0.26
ZWQHDH		74.75	0.74	1.39	75.97	0.33	0.66
ZYEUDN	X	76.02	2.01	3.76	74.31	-1.33	-2.66

Paper & Paperboard Interlaboratory Testing Program
Analysis 398
Grammage (Mass per Unit Area)

	Sample GW49	Summary Statistics	Sample GW50
Grand Means	74.008 g/sq m		75.643 g/sq m
SD Btwn Labs	0.535 g/sq m		0.500 g/sq m
Statistics based on 40 of 43 reporting participants			

Comments on assigned Data Flags for Test #398

LESQJ2 (X) - Extreme data.

NYKJUB (X) - Extreme data.

ZYEUDN (X) - Systematic error (data for both samples are high).

**Paper & Paperboard Interlaboratory Testing Program
Analysis 399
Sizing Test (Hercules Type)**

WebCode	Data Flag	Sample GX49			Sample GX50		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1LTNGX		52.90	0.40	0.02	42.20	-4.49	-0.28
2FAZX2	X	99.97	47.47	2.71	42.58	-4.11	-0.26
2H8DPB	X	109.50	57.00	3.26	68.90	22.21	1.39
37XR2Y		41.87	-10.64	-0.61	40.54	-6.15	-0.38
3CVQR1		77.81	25.31	1.45	69.81	23.12	1.45
421KQF	X	123.86	71.36	4.08	78.03	31.34	1.96
43MHMK	X	97.00	44.50	2.54	60.66	13.97	0.87
4GNPEQ		41.93	-10.58	-0.60	36.45	-10.24	-0.64
4HJNN3		41.48	-11.03	-0.63	43.54	-3.15	-0.20
4NQAF		63.69	11.19	0.64	60.85	14.16	0.89
5EJCM8		67.22	14.72	0.84	64.81	18.12	1.13
66U9DR	*	89.58	37.08	2.12	88.75	42.06	2.63
7UTKXW		30.60	-21.91	-1.25	34.60	-12.09	-0.76
8PQW7S		41.00	-11.51	-0.66	41.90	-4.79	-0.30
9QN1L6		37.30	-15.21	-0.87	35.00	-11.69	-0.73
9UUN3Q		44.25	-8.26	-0.47	41.80	-4.89	-0.31
BUU6DG		47.13	-5.38	-0.31	40.49	-6.20	-0.39
C1DPBS		44.11	-8.40	-0.48	34.39	-12.30	-0.77
E8FPBR		57.70	5.20	0.30	48.43	1.74	0.11
EPXNRH		58.40	5.90	0.34	60.90	14.21	0.89
FRB1SK		21.16	-31.35	-1.79	14.01	-32.68	-2.04
HYJDP6		44.50	-8.01	-0.46	38.32	-8.37	-0.52
JA7CY3		50.82	-1.69	-0.10	50.00	3.31	0.21
N367ZT	*	98.60	46.10	2.64	76.90	30.21	1.89
N64UAB		34.47	-18.04	-1.03	33.49	-13.20	-0.82
PPSN71		66.01	13.51	0.77	56.81	10.12	0.63
QQYWSZ		80.10	27.60	1.58	65.30	18.61	1.16
RV4LQ4		57.80	5.30	0.30	51.83	5.14	0.32
TVV826		31.91	-20.60	-1.18	28.43	-18.26	-1.14
UPPH6Z		53.63	1.13	0.06	49.31	2.62	0.16
UPRT3A		41.70	-10.81	-0.62	23.03	-23.66	-1.48
V3K8HQ		58.38	5.88	0.34	37.89	-8.80	-0.55
YACD8U		53.07	0.57	0.03	45.75	-0.94	-0.06
Z64CY2		46.03	-6.48	-0.37	45.05	-1.64	-0.10

		Summary Statistics	
	Sample GX49		Sample GX50
Grand Means	52.505 Seconds		46.686 Seconds
SD Btwn Labs	17.485 Seconds		15.998 Seconds
Statistics based on 30 of 34 reporting participants			

Paper & Paperboard Interlaboratory Testing Program
Analysis 399
Sizing Test (Hercules Type)

Comments on assigned Data Flags for Test #399

2FAZX2 (X) - Inconsistent in testing between samples, data for Sample GX49 are high.

2H8DPB (X) - Inconsistent in testing between samples (data for Sample GX49 are high) and inconsistent within the replicate measurements for both samples.

421KQF (X) - Inconsistent in testing between samples (data for Sample GX49 are high) and inconsistent within the replicate measurements for both samples.

43MHMK (X) - Inconsistent in testing between samples and within the determinations for Sample GX49.

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX49** = 52.505 Seconds

Grand Mean Sample **GX50** = 46.686 Seconds

