



Paper & Paperboard Testing Program

Summary Report #241G-August 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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FAX #: (215) 632-8370

Huygen 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	
28M7WC		GA47	96.56	-0.61	3.24	0.09	0.06	0.01	0.11	TS
		GA48	96.65	-0.55	3.25					
379T83		GA47	94.94	-0.72	1.58	0.04	0.01	-0.01	0.04	HH
		GA48	94.98	-0.71	1.57					
3R3KC9		GA47	97.56	-0.17	3.45	-0.02	0.00	-0.02	0.03	HV
		GA48	97.54	-0.17	3.43					
3YAUD2		GA47	96.40	-0.40	3.14	-0.13	-0.02	0.06	0.14	TS
		GA48	96.27	-0.42	3.20					
4DL5NN		GA47	96.83	-0.32	3.34	-0.05	0.01	0.03	0.06	TB
		GA48	96.78	-0.31	3.36					
5FPK8Y		GA47	98.26	-0.34	3.50	0.00	0.09	-0.09	0.13	TS
		GA48	98.26	-0.25	3.41					
5J5D7Z		GA47	96.83	-0.44	3.11	-0.03	-0.02	0.10	0.10	TS
		GA48	96.80	-0.46	3.21					
6C9BX6		GA47	95.03	-0.74	1.89	0.11	0.03	-0.06	0.13	HH
		GA48	95.14	-0.71	1.83					
6WDUU1		GA47	95.71	-0.97	2.07	0.12	-0.01	-0.06	0.13	HG
		GA48	95.83	-0.98	2.01					
74PKQT		GA47	96.82	-0.66	3.52	-0.06	-0.03	0.10	0.12	TC
		GA48	96.76	-0.70	3.62					
8KU8QH		GA47	97.40	-0.71	3.61	-0.03	0.01	0.03	0.04	XX
		GA48	97.37	-0.70	3.64					
9L4EMJ		GA47	96.74	-0.13	3.26	-0.01	0.01	0.03	0.03	MK
		GA48	96.73	-0.12	3.29					
9N6B2U		GA47	96.88	-0.66	3.42	0.05	0.00	0.02	0.05	TC
		GA48	96.93	-0.66	3.43					
BM4A4Z		GA47	96.81	-0.60	3.42	-0.10	-0.01	0.04	0.11	TM
		GA48	96.71	-0.61	3.46					
ETHCLC		GA47	96.74	-0.72	3.49	0.03	0.02	-0.01	0.04	EH
		GA48	96.77	-0.70	3.47					
FTE832		GA47	96.78	-0.39	3.08	0.03	-0.03	0.04	0.06	TS
		GA48	96.82	-0.41	3.12					
G36PH4		GA47	96.77	-0.75	3.56	0.00	-0.05	0.03	0.06	TS
		GA48	96.78	-0.80	3.59					
GXTX4W		GA47	96.85	-0.37	3.12	0.06	-0.07	0.04	0.10	TS
		GA48	96.91	-0.44	3.15					

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	
HG36UV	X	GA47	96.94	-0.74	1.45	0.03	-0.08	0.11	0.14	HE
		GA48	96.97	-0.82	1.56					
J6TBLN		GA47	96.76	-0.12	3.35	0.01	-0.02	-0.01	0.02	HH
	GA48	96.77	-0.14	3.35						
JQ4HCP		GA47	96.74	-0.52	3.38	-0.04	0.00	0.01	0.04	MK
	GA48	96.70	-0.52	3.39						
K1NTGE		GA47	97.59	-0.63	3.66	-0.03	-0.02	0.06	0.07	EH
	GA48	97.55	-0.65	3.72						
K8HCMA		GA47	97.33	-0.68	3.63	0.05	0.01	0.01	0.05	TP
	GA48	97.38	-0.67	3.64						
MCHF81		GA47	96.44	0.11	3.30	0.03	0.01	-0.02	0.04	TM
	GA48	96.47	0.13	3.27						
MXDBCf		GA47	97.45	-0.63	3.45	0.01	-0.02	0.10	0.10	MI
	GA48	97.46	-0.64	3.55						
NV1LM6		GA47	97.46	-0.67	3.36	0.02	-0.01	0.00	0.02	EH
	GA48	97.48	-0.68	3.36						
Q2TVBU		GA47	96.76	-0.70	3.60	-0.02	-0.02	0.10	0.10	LS
	GA48	96.74	-0.72	3.70						
QM5AGT		GA47	96.88	-0.70	3.61	0.01	-0.01	0.01	0.02	LS
	GA48	96.89	-0.71	3.61						
RQGKZQ		GA47	96.96	-0.65	3.34	-0.01	0.00	-0.01	0.02	TC
	GA48	96.94	-0.65	3.33						
SNKMRG		GA47	97.14	-0.78	3.29	0.02	-0.01	-0.01	0.02	HH
	GA48	97.15	-0.78	3.27						
TYRZ6U		GA47	97.19	-0.64	3.44	0.15	-0.03	0.11	0.19	HV
	GA48	97.34	-0.66	3.55						
ULM1V3		GA47	96.66	-0.29	3.10	-0.09	0.00	-0.01	0.09	TS
	GA48	96.57	-0.29	3.08						
WCVPFY		GA47	96.45	-0.03	3.07	0.01	-0.01	0.00	0.01	HH
	GA48	96.47	-0.04	3.07						
WW4R1Z		GA47	95.20	-0.68	1.57	0.01	-0.01	-0.09	0.09	LA
	GA48	95.21	-0.69	1.48						

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	

			Summary Statistics						
Grand Means									
	GA47		96.755	-0.529	3.179				
	GA48		96.762	-0.536	3.195	0.007	-0.004	0.016	0.072
Std Dev Btwn Labs									
	GA47		0.705	0.251	0.560				
	GA48		0.693	0.252	0.587	0.061	0.028	0.052	0.046
Statistics based on 33 of 34 reporting participants									

Comments assigned on Data Flags for Test #350

HG36UV (X) - Low B values; large delta a value.

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

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

(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

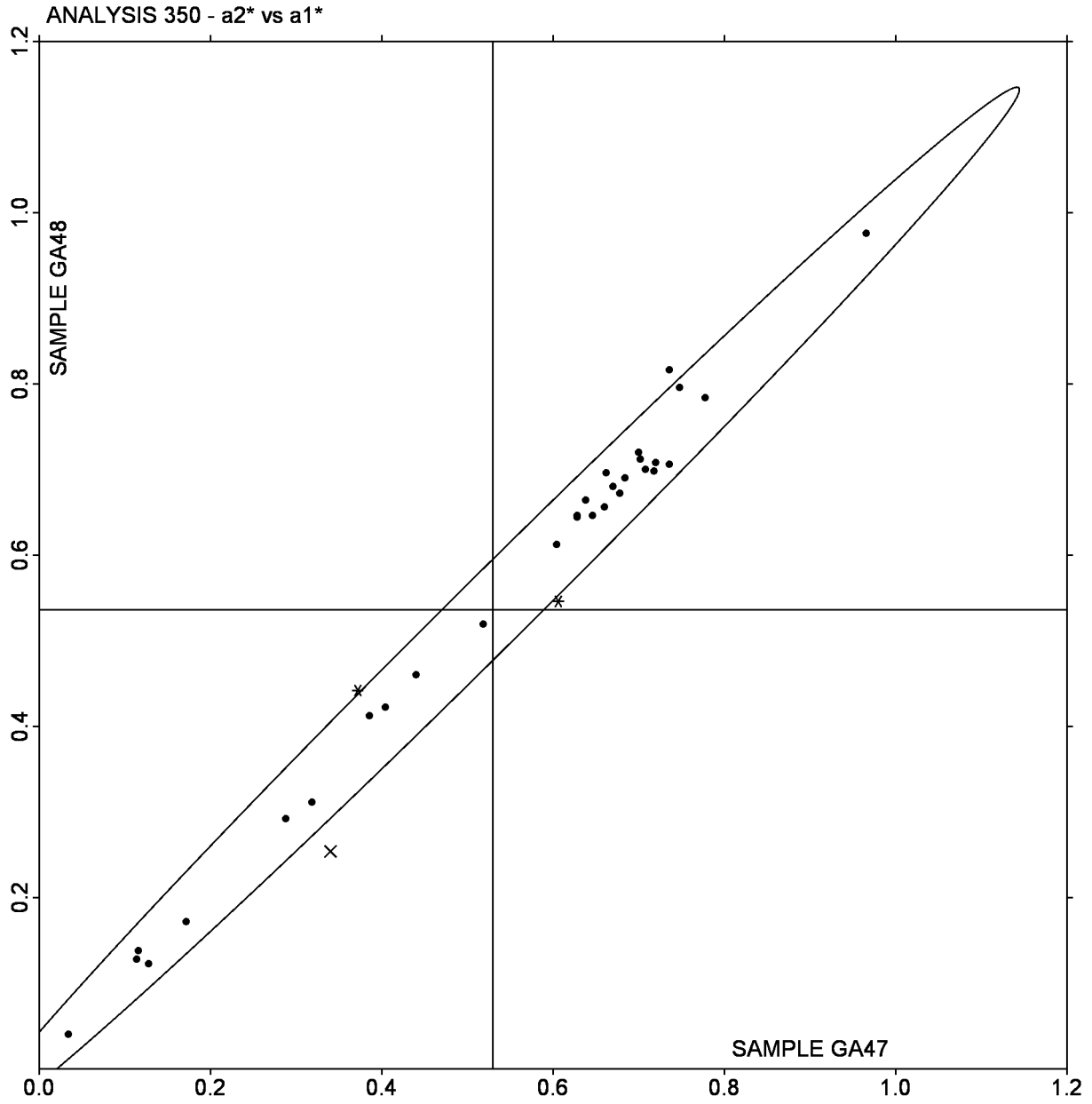
(TS) - Technidyne Brightimeter Micro S-5

Analysis 350

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

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

Plot of a values GA48 v a values GA47

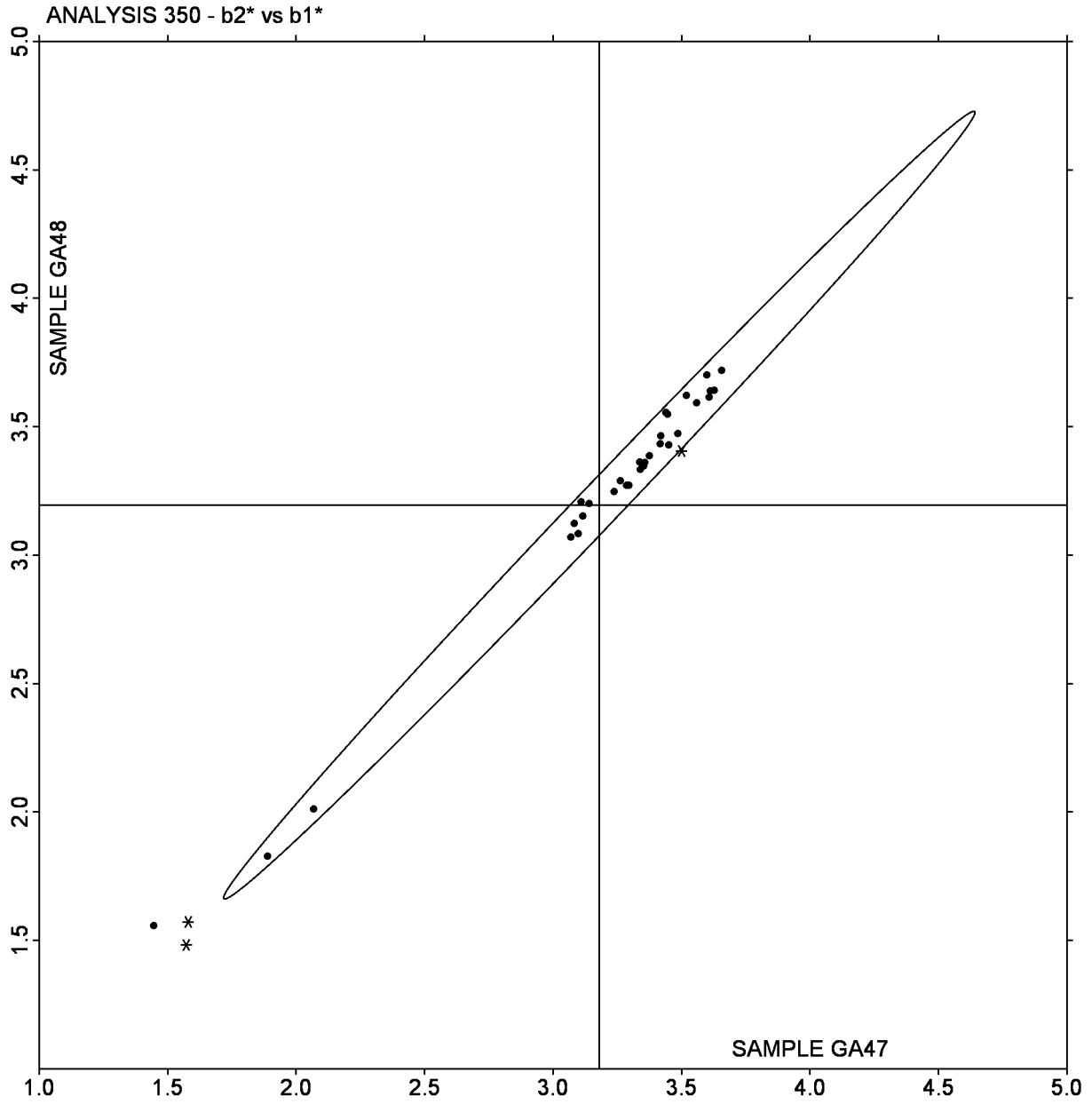


Analysis 350

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

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

Plot of b values GA48 v b values GA47



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	
159YDF		GA47	96.96	-0.26	3.27	0.02	-0.01	-0.05	0.05	HM
		GA48	96.98	-0.28	3.23					
28BNK1		GA47	96.49	-0.32	2.97	-0.01	0.02	-0.03	0.03	TM
		GA48	96.49	-0.31	2.94					
36YWR5		GA47	97.48	-0.26	3.56	0.01	-0.01	-0.03	0.03	TC
		GA48	97.49	-0.27	3.53					
9JUN3J		GA47	97.34	-0.62	3.49	-0.02	0.00	-0.02	0.03	HV
		GA48	97.33	-0.63	3.47					
AF7MZ2		GA47	96.61	-0.02	3.33	-0.02	-0.02	-0.01	0.02	NF
		GA48	96.59	-0.04	3.32					
BBZZ2X		GA47	96.78	-0.15	3.32	-0.01	0.01	0.12	0.12	NF
		GA48	96.78	-0.14	3.45					
BD5FJ1		GA47	97.87	-0.19	3.44	-0.02	0.01	-0.01	0.02	XU
		GA48	97.85	-0.18	3.43					
CDWMTL	X	GA47	96.74	-0.50	2.45	0.02	0.02	-0.08	0.08	EH
		GA48	96.77	-0.48	2.37					
DQGU2Z		GA47	97.42	-0.20	3.54	-0.02	0.00	0.00	0.02	EF
		GA48	97.40	-0.20	3.54					
FK8PMS		GA47	96.80	-0.20	3.36	0.03	0.00	0.05	0.05	HU
		GA48	96.83	-0.20	3.41					
FQKZU7		GA47	96.71	-0.21	3.27	0.03	0.02	-0.05	0.06	TC
		GA48	96.74	-0.19	3.22					
G552TG		GA47	96.69	-0.17	3.32	-0.01	-0.01	0.00	0.02	TC
		GA48	96.68	-0.18	3.32					
LK1HJK	X	GA47	94.36	-0.44	1.22	0.03	0.02	-0.03	0.05	NG
		GA48	94.39	-0.42	1.19					
M96EF4		GA47	97.97	-0.21	3.46	0.00	0.00	-0.02	0.02	HV
		GA48	97.98	-0.22	3.44					
PW8Y5C		GA47	96.79	-0.20	3.36	0.00	0.00	0.06	0.06	XA
		GA48	96.79	-0.20	3.41					
QTHWX5	X	GA47	95.28	-0.70	1.61	-0.09	0.02	-0.05	0.11	LS
		GA48	95.19	-0.68	1.56					
RBU216		GA47	97.37	-0.26	3.57	-0.02	0.01	0.03	0.04	MG
		GA48	97.35	-0.25	3.60					
SFYXRE		GA47	97.53	-0.18	3.64	-0.01	0.01	-0.05	0.05	XD
		GA48	97.52	-0.16	3.58					

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		
STTHKA		GA47	96.35	-0.29	3.04	0.11	-0.01	-0.05	0.12	TM	
		GA48	96.46	-0.30	2.99						
ULBXXW		GA47	96.75	-0.19	3.46	0.03	0.00	-0.01	0.03	XX	
		GA48	96.78	-0.19	3.45						
VFTABC		GA47	97.45	-0.21	3.42	0.03	0.00	-0.02	0.03	XX	
		GA48	97.48	-0.20	3.41						
W4NGR6		GA47	97.37	-0.44	3.21	-0.05	0.00	-0.04	0.07	HV	
		GA48	97.31	-0.44	3.17						
X8W7LY		GA47	97.40	-0.16	3.57	-0.04	0.00	0.05	0.06	NF	
		GA48	97.36	-0.16	3.62						
XG8PCR		GA47	97.35	-0.18	3.64	-0.06	0.04	-0.01	0.08	MG	
		GA48	97.28	-0.14	3.62						
XMQRVG		GA47	97.58	-0.16	3.43	-0.06	0.00	0.00	0.06	HV	
		GA48	97.52	-0.16	3.43						
Y7L139		GA47	97.32	-0.36	3.40	0.01	-0.01	0.05	0.05	HV	
		GA48	97.33	-0.37	3.45						
ZRAQZM	X	GA47	97.68	-0.11	3.84	0.12	0.00	-0.24	0.27	X	HG
		GA48	97.80	-0.11	3.60						

Grand Means		Summary Statistics							
	GA47	97.131	-0.249	3.394					
	GA48	97.129	-0.245	3.393	-0.003	0.003	-0.001	0.050	
Std Dev Btwn Labs									
	GA47	0.445	0.127	0.170					
	GA48	0.428	0.127	0.182	0.037	0.013	0.043	0.029	

Statistics based on 23 of 27 reporting participants

Comments assigned on Data Flags for Test #351

CDWMTL (X) - Low b values.

LK1HJK (X) - Low L and b values.

QTHWX5 (X) - Low L, a and b values.

ZRAQZM (X) - Large delta L, delta b and delta E 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

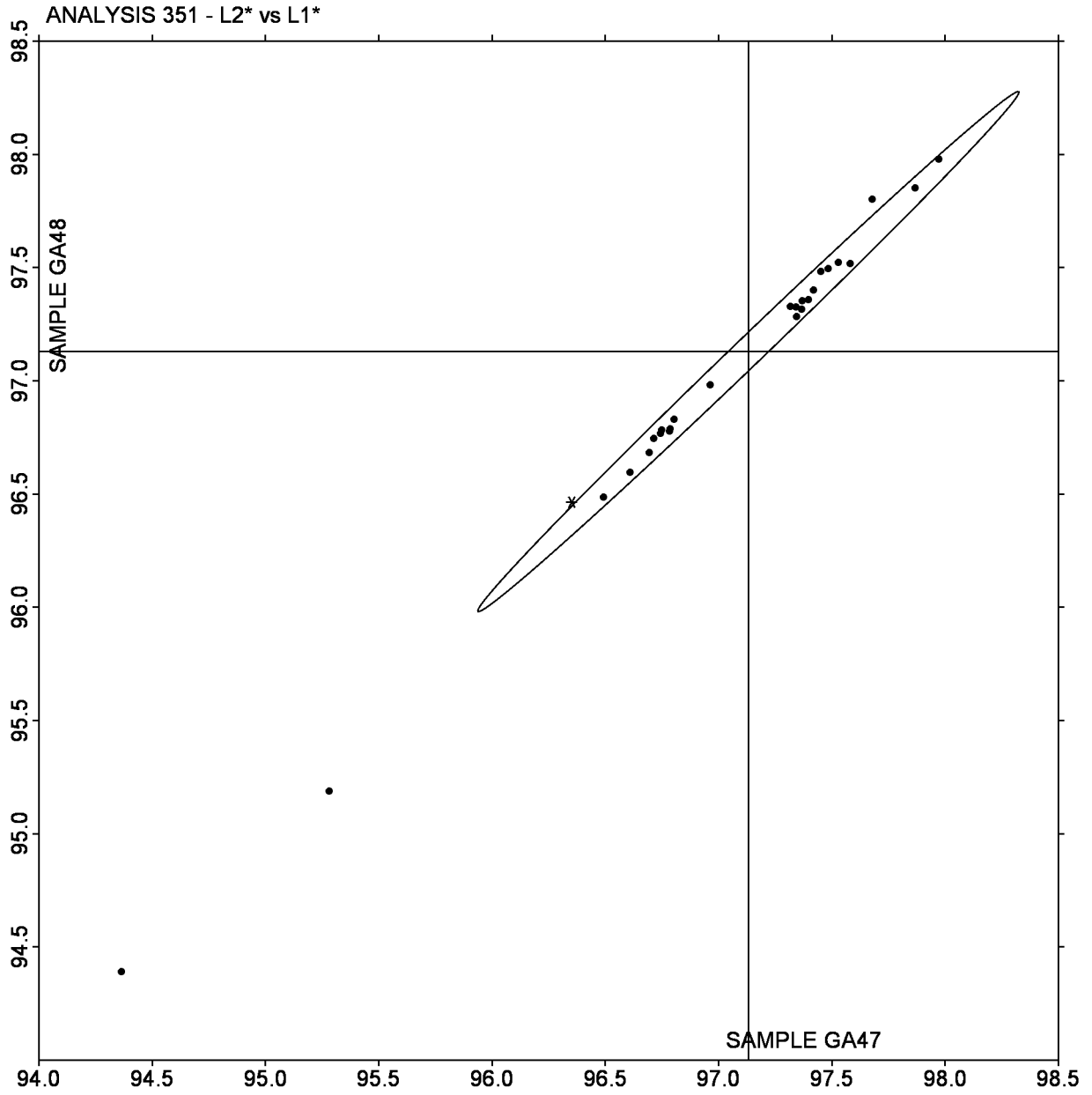
(EF) - Datacolor Elrepho 3000	(EH) - Datacolor Elrepho SF450
(HG) - Hunter ColorQUEST	(HM) - Hunter MiniScan XE Spectrophotometer
(HU) - Hunter UltraScan	(HV) - Hunter Ultrascan XE
(LS) - L & W Elrepho SE 070	(MG) - Macbeth 1500/PLUS - 2025+ Color Eye
(NF) - Minolta CM-3600d Spectrophotometer	(NG) - 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 GA48 v L values GA47

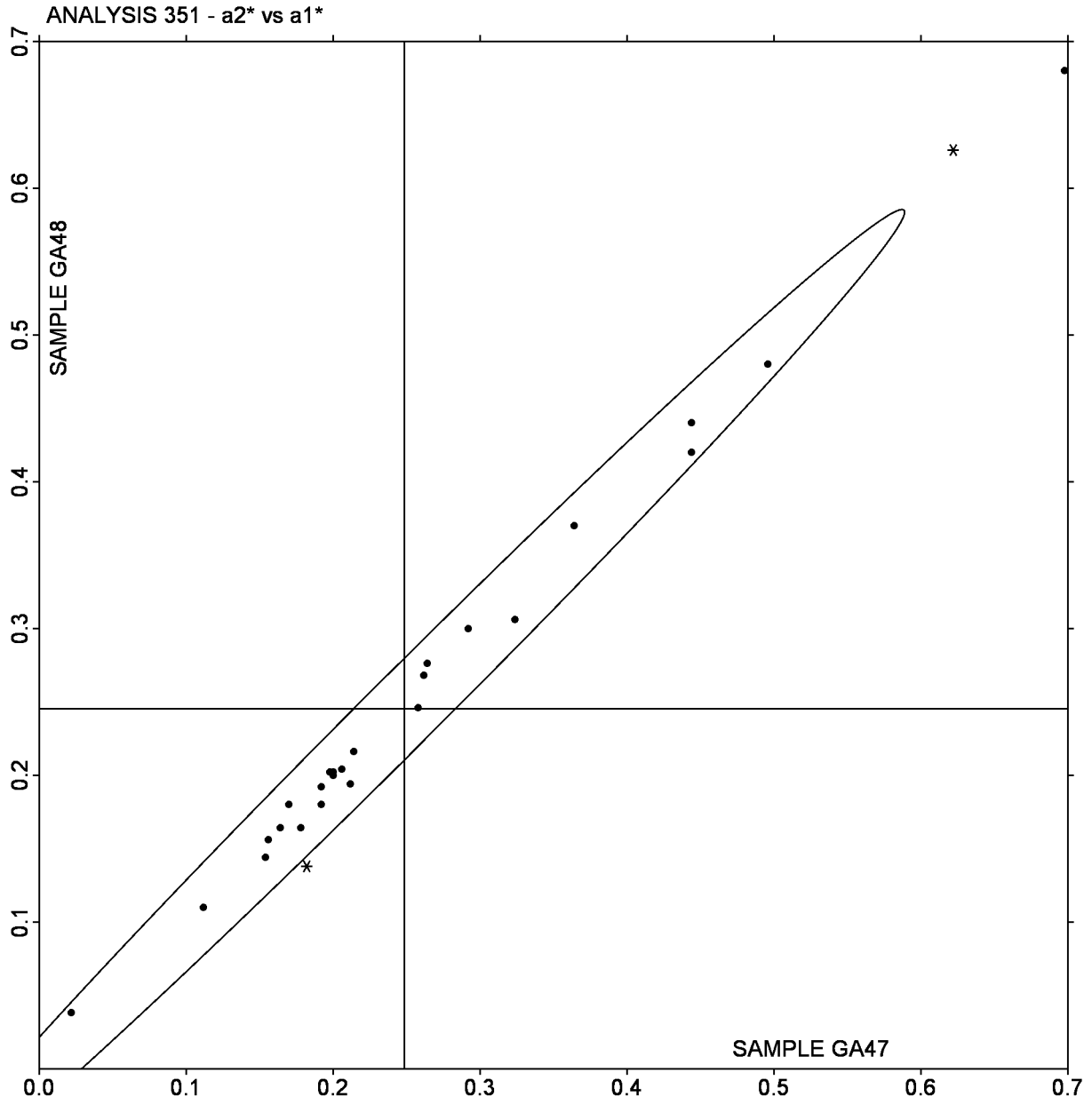


Analysis 351

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

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

Plot of a values GA48 v a values GA47

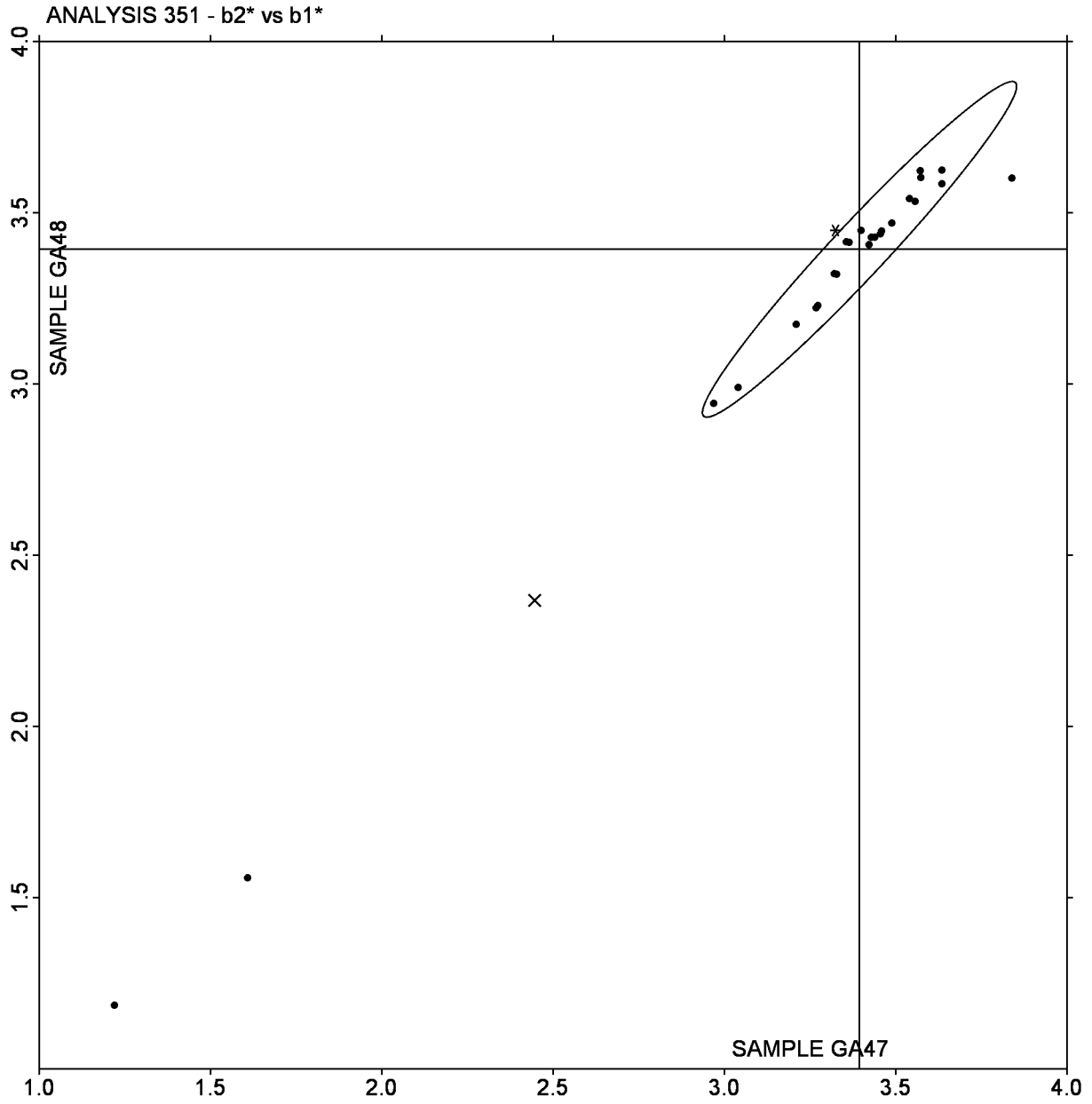


Analysis 351

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

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

Plot of b values GA48 v b values GA47



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

WebCode	Data Flag	Sample GV47			Sample GV48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1LEPEE		4.600	0.046	0.73	4.671	0.032	0.50	LW
1MTWCM	X	4.354	-0.200	-3.23	4.429	-0.211	-3.32	TM
1QR94S		4.616	0.061	0.99	4.664	0.024	0.38	EM
1W8ENZ		4.520	-0.035	-0.56	4.591	-0.049	-0.78	TA
2AGGEU		4.699	0.144	2.33	4.750	0.110	1.74	LW
2C9ZMS		4.585	0.030	0.49	4.643	0.003	0.05	LW
2NUUVN		4.573	0.019	0.30	4.671	0.032	0.50	LW
3BXNKG		4.530	-0.025	-0.40	4.640	0.000	0.00	TM
3CP199		4.427	-0.128	-2.06	4.484	-0.156	-2.46	EM
3VEYXP		4.457	-0.098	-1.58	4.559	-0.081	-1.27	TM
3WP8LE		4.563	0.008	0.14	4.651	0.011	0.17	LW
46ZZ72		4.518	-0.037	-0.59	4.594	-0.046	-0.72	TM
4CXRJB		4.547	-0.008	-0.12	4.610	-0.030	-0.47	EM
4LABQZ		4.563	0.008	0.14	4.591	-0.049	-0.78	TM
51BEFT		4.550	-0.005	-0.07	4.597	-0.043	-0.67	TM
5N912G		4.639	0.084	1.36	4.730	0.090	1.42	PP
6CGFB4		4.507	-0.048	-0.77	4.582	-0.058	-0.91	PP
7U9BVX		4.529	-0.026	-0.41	4.637	-0.003	-0.04	EM
82GGU8		4.505	-0.049	-0.80	4.581	-0.058	-0.92	TM
8HCSSB		4.526	-0.028	-0.45	4.596	-0.044	-0.69	TM
9LJWAZ		4.574	0.019	0.31	4.673	0.033	0.52	TM
9WJ1JK		4.470	-0.085	-1.36	4.530	-0.110	-1.73	TM
AEY5RA		4.515	-0.040	-0.64	4.603	-0.037	-0.58	TA
ARUJ7U		4.504	-0.051	-0.82	4.563	-0.077	-1.21	LW
B2J1T8		4.538	-0.017	-0.27	4.660	0.020	0.32	EM
BC1N5V		4.618	0.063	1.03	4.669	0.029	0.46	EM
C2JWXH		4.485	-0.070	-1.12	4.511	-0.129	-2.03	TM
CJMW3J		4.465	-0.090	-1.45	4.539	-0.101	-1.59	LA
CRMDKG	*	4.400	-0.155	-2.50	4.520	-0.120	-1.89	TM
DEPKY7		4.666	0.111	1.80	4.723	0.083	1.31	LA
DMQHLV		4.543	-0.012	-0.19	4.647	0.007	0.11	TA
DYPNYE		4.493	-0.062	-0.99	4.575	-0.065	-1.02	PP
EA6V31		4.583	0.028	0.46	4.704	0.065	1.02	LW
EJELB5		4.559	0.005	0.07	4.665	0.026	0.40	FR
EKQXYW		4.627	0.072	1.17	4.743	0.103	1.63	EM
ESHN9X		4.504	-0.051	-0.82	4.602	-0.038	-0.59	TM
F8SX13		4.546	-0.008	-0.13	4.588	-0.052	-0.82	XX
FGZN97		4.575	0.020	0.33	4.693	0.053	0.84	LW
FV8757		4.571	0.016	0.26	4.642	0.002	0.03	XX
G2CS7N		4.599	0.044	0.72	4.660	0.020	0.32	EM
G2HM3M		4.559	0.005	0.07	4.610	-0.029	-0.47	LW
GC9RN8		4.616	0.061	0.99	4.698	0.058	0.92	TM
GHT8MB		4.660	0.105	1.70	4.740	0.100	1.58	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV47			Sample GV48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
GQSQ39		4.502	-0.053	-0.85	4.595	-0.045	-0.71	TM
GWFRNF		4.580	0.025	0.41	4.674	0.034	0.54	EM
HEZB7B		4.636	0.081	1.32	4.738	0.098	1.55	LA
HSWRSC		4.457	-0.098	-1.58	4.571	-0.069	-1.09	TA
HVJ6H8		4.550	-0.005	-0.08	4.661	0.022	0.34	LW
K9VVKM	*	4.551	-0.003	-0.05	4.722	0.082	1.30	LW
KGKX9B		4.650	0.095	1.54	4.741	0.101	1.60	EM
L5D14F	X	3.960	-0.595	-9.60	4.000	-0.640	-10.09	TM
L5WHB8		4.458	-0.097	-1.56	4.586	-0.054	-0.85	LW
LGNGZZ		4.524	-0.031	-0.49	4.602	-0.038	-0.59	TM
LQF186		4.532	-0.023	-0.37	4.613	-0.026	-0.42	XX
LXBSL2		4.569	0.015	0.24	4.696	0.056	0.89	EM
ME3AQ9	X	4.654	0.099	1.61	4.416	-0.224	-3.53	VM
MH5812		4.546	-0.008	-0.13	4.667	0.027	0.42	TM
MM8M37		4.571	0.016	0.26	4.618	-0.022	-0.34	LW
QQ6TMT		4.581	0.026	0.43	4.629	-0.011	-0.17	EM
QTAHZN		4.521	-0.034	-0.54	4.602	-0.038	-0.60	TM
RDP1KK		4.583	0.028	0.46	4.666	0.026	0.41	EM
RJ33TF		4.555	0.000	0.01	4.587	-0.053	-0.83	EM
RJJHQ4		4.583	0.028	0.46	4.668	0.028	0.45	TM
SHDJWU		4.551	-0.003	-0.05	4.614	-0.026	-0.40	LW
SKHTRR		4.591	0.036	0.58	4.626	-0.014	-0.22	LW
SMGRKL		4.596	0.041	0.67	4.713	0.073	1.16	EM
SRWKXQ		4.627	0.072	1.17	4.690	0.050	0.79	TM
TRKFKZ	X	4.429	-0.125	-2.02	4.724	0.085	1.33	MT
TXC629		4.440	-0.115	-1.85	4.530	-0.110	-1.73	TM
U8MQTV		4.630	0.075	1.22	4.690	0.050	0.79	TM
UCEUJE		4.526	-0.029	-0.46	4.643	0.003	0.05	PP
UH5R4J		4.553	-0.002	-0.02	4.627	-0.013	-0.20	EM
UNW1DG		4.626	0.071	1.15	4.704	0.064	1.01	LA
V3RGNU		4.572	0.017	0.28	4.626	-0.014	-0.22	EM
VDXUL9		4.535	-0.020	-0.31	4.642	0.002	0.04	TA
WVRR2P		4.480	-0.075	-1.20	4.590	-0.050	-0.78	TM
WXC4FD		4.606	0.051	0.83	4.701	0.061	0.97	TA
WYZBBP	*	4.403	-0.152	-2.45	4.557	-0.083	-1.30	TA
XBHE3S	*	4.630	0.075	1.22	4.780	0.140	2.21	LA
XJCUXL		4.504	-0.051	-0.82	4.594	-0.045	-0.71	LW
XNXC2U		4.531	-0.024	-0.39	4.619	-0.021	-0.33	TM
YBPRQG		4.551	-0.003	-0.05	4.697	0.057	0.90	LW
YHF8UY		4.602	0.047	0.76	4.719	0.079	1.25	LW
ZLQWDU		4.696	0.141	2.29	4.765	0.125	1.97	VM
ZP547F		4.593	0.038	0.62	4.654	0.015	0.23	LW

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

WebCode	Data Flag	Sample GV47			Sample GV48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZTC4GF	X	4.402	-0.153	-2.47	4.646	0.006	0.09	LW

		Summary Statistics			
		Sample GV47		Sample GV48	
Grand Means		4.5545 mils		4.6397 mils	
SD Btwn Labs		0.0619 mils		0.0634 mils	
Statistics based on 81 of 86 reporting participants					

Comments on assigned Data Flags for Test #360

1MTWCM (X) - Systematic error (data for both samples are low).

L5D14F (X) - Extreme data.

ME3AQ9 (X) - Inconsistent in testing between samples, data for Sample GV48 are low.

TRKFKZ (X) - Inconsistent in testing between samples and within the determinations for Sample GV47.

ZTC4GF (X) - Inconsistent in testing between samples.

TXC629 - 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

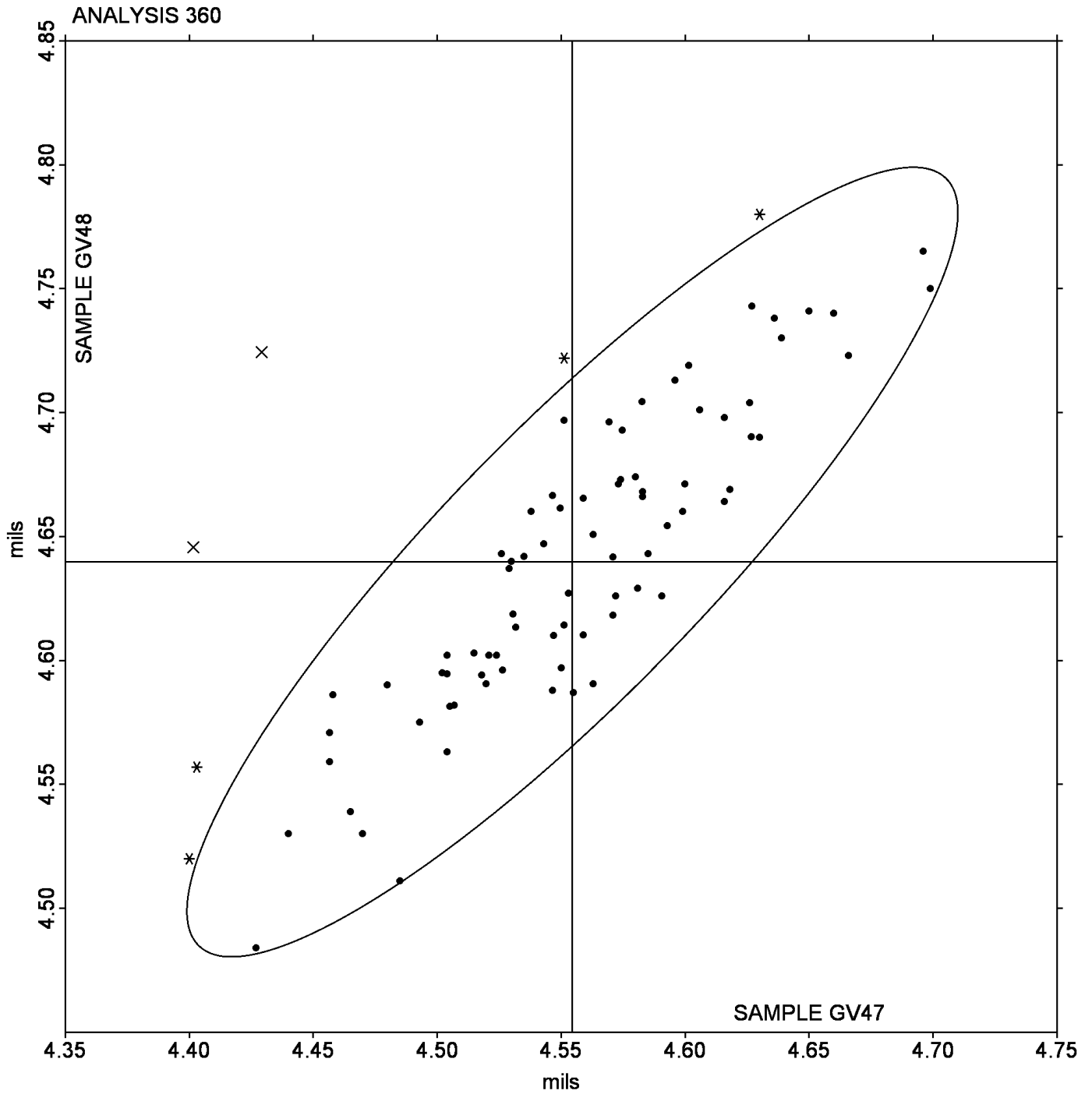
- | | |
|---|---|
| (EM) - Erveco | (FR) - Frank Instruments |
| (LA) - L & W Autoline | (LW) - L & W |
| (MT) - Mitutoyo | (PP) - Technidyne Profile/Plus |
| (TA) - Thwing-Albert | (TM) - TMI |
| (VM) - Valmet PaperLab (was Kajaani/Robotest) | (XX) - Instrument make/model not specified by lab |

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV47** = 4.5545 mils

Grand Mean Sample **GV48** = 4.6397 mils



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

WebCode	Data Flag	Sample GY47			Sample GY48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1N35M2		9.330	-0.088	-0.80	9.370	-0.049	-0.47	TA
3B39JR	X	9.090	-0.328	-2.97	9.240	-0.179	-1.70	TM
4DKZX1		9.335	-0.083	-0.75	9.362	-0.057	-0.54	TM
5428G8		9.413	-0.005	-0.05	9.455	0.036	0.34	EM
5JTN9F		9.336	-0.082	-0.74	9.323	-0.096	-0.91	LA
7FMUFU	X	8.790	-0.628	-5.69	8.790	-0.629	-5.99	TM
A859PC		9.555	0.137	1.24	9.626	0.207	1.97	XX
B5P1DK		9.602	0.184	1.67	9.654	0.235	2.24	LW
B9C8EZ		9.465	0.047	0.43	9.436	0.017	0.16	TA
BBJURD		9.326	-0.092	-0.83	9.298	-0.121	-1.15	EM
BNNFWJ		9.340	-0.078	-0.71	9.403	-0.016	-0.15	LW
CGGQ2X		9.239	-0.179	-1.62	9.304	-0.115	-1.09	EM
D3F8VW		9.401	-0.017	-0.15	9.381	-0.038	-0.36	EM
D5ZJBM		9.197	-0.221	-2.00	9.169	-0.250	-2.38	LA
DJF4P8	*	9.567	0.149	1.35	9.378	-0.040	-0.39	TM
EQGNF6		9.578	0.160	1.45	9.549	0.130	1.24	LA
G5FHFP		9.410	-0.008	-0.07	9.490	0.071	0.68	TM
JSHJJ3		9.295	-0.123	-1.11	9.405	-0.014	-0.13	TA
KGNK6B		9.578	0.160	1.45	9.551	0.132	1.26	TA
L1QT5M		9.320	-0.098	-0.89	9.270	-0.149	-1.42	TM
LNSKYY		9.409	-0.009	-0.08	9.446	0.027	0.26	LW
N9F7N4		9.496	0.078	0.71	9.394	-0.025	-0.24	LW
PB8FUC		9.429	0.011	0.10	9.427	0.008	0.08	TA
PW6LPQ		9.508	0.090	0.81	9.480	0.061	0.59	LW
R4AFJG		9.555	0.137	1.24	9.524	0.105	1.00	EM
RCAQBT		9.426	0.008	0.07	9.454	0.035	0.33	TM
RQCTG1		9.433	0.015	0.14	9.350	-0.068	-0.65	XX
S3MHFF		9.362	-0.056	-0.51	9.376	-0.043	-0.41	XX
SXKDXW		9.620	0.202	1.83	9.610	0.191	1.82	EM
TS2PNJ		9.257	-0.161	-1.46	9.309	-0.110	-1.05	EM
UC7DQF		9.306	-0.112	-1.01	9.320	-0.099	-0.94	EM
UV9M7Z		9.417	-0.001	-0.01	9.407	-0.011	-0.11	TM
UY2UZV		9.507	0.089	0.81	9.434	0.015	0.14	TM
XJUPZ2		9.468	0.050	0.45	9.499	0.080	0.76	EM
YRM8UZ		9.362	-0.056	-0.51	9.353	-0.066	-0.63	TM
ZJMLLK		9.370	-0.048	-0.44	9.434	0.015	0.14	TM

Sample GY47		Summary Statistics	Sample GY48	
Grand Means	9.4180 mils		9.4189 mils	
SD Btwn Labs	0.1104 mils		0.1049 mils	
Statistics based on 34 of 36 reporting participants				

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

Comments on assigned Data Flags for Test #361

3B39JR (X) - Inconsistent in testing between samples, data for Sample GY47 are low.

7FMUFU (X) - Extreme data.

D5ZJBM - Data appear to be reported as micrometers, not mm as indicated on datasheet. Unit changed by CTS.

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LW) - L & W

(TM) - TMI

(LA) - L & W Autoline

(TA) - Thwing-Albert

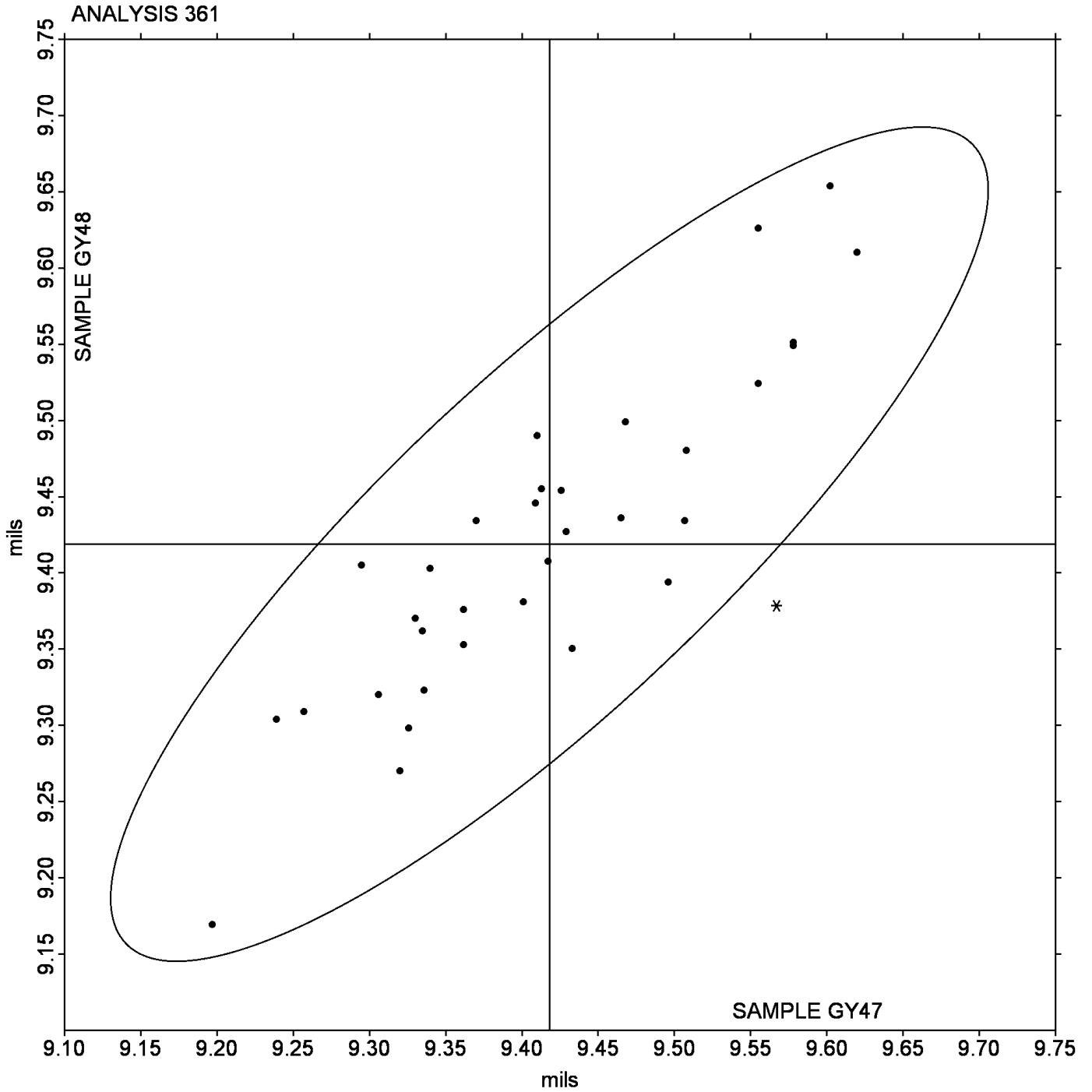
(XX) - Instrument make/model not specified by lab

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample GY47 = 9.4180 mils

Grand Mean Sample GY48 = 9.4189 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD47			Sample GD48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
AWF9BG		0.6140	-0.0054	-0.12	0.5334	-0.0272	-0.54	TM
B61RER		0.6280	0.0086	0.20	0.5280	-0.0326	-0.65	IX
BYR38V		0.6136	-0.0058	-0.13	0.5984	0.0378	0.75	TM
CU8EZH		0.6404	0.0210	0.48	0.6118	0.0512	1.02	TM
FZHWJ4		0.6724	0.0530	1.21	0.5686	0.0080	0.16	TM
N3MWX7		0.5124	-0.1070	-2.45	0.4414	-0.1192	-2.37	TL
TVH33C		0.5986	-0.0208	-0.48	0.5412	-0.0194	-0.38	TM
UJJPJ72		0.6642	0.0448	1.02	0.6344	0.0738	1.47	TM
V76F8G		0.6234	0.0040	0.09	0.5716	0.0110	0.22	TA
VTK779		0.5984	-0.0210	-0.48	0.5398	-0.0208	-0.41	XX
XA2RE1		0.6720	0.0526	1.20	0.5980	0.0374	0.74	TL
XA4GH3		0.5958	-0.0236	-0.54	0.5604	-0.0002	0.00	TM

Summary Statistics			
	Sample GD47		Sample GD48
Grand Means	0.61943 COF		0.56058 COF
SD Btwn Labs	0.04375 COF		0.05036 COF
Statistics based on 12 of 12 reporting participants			

Notes for Analysis 364

No Data Flags assigned for this analysis.

Instrument Code List as Reported by the Labs

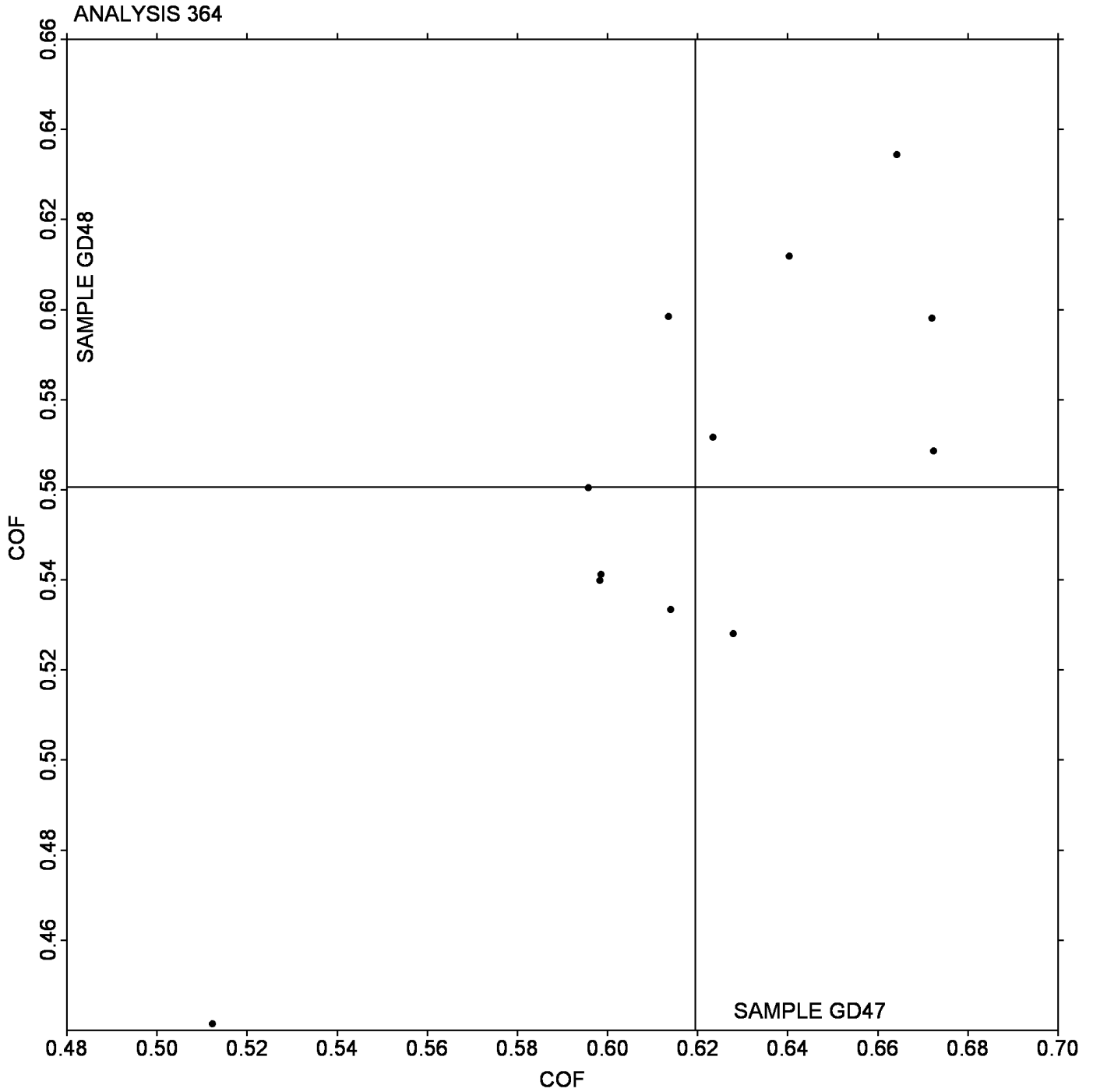
- (IX) - Instron (model not specified)
- (TA) - Thwing-Albert Friction Tester
- (TL) - TMI 32-90 Lab Master/Slip and Friction
- (TM) - TMI 32-06 Monitor/Slip and Friction
- (XX) - Instrument make/model not specified by lab

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD47** = 0.61943 COF

Grand Mean Sample **GD48** = 0.56058 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 GD47			Sample GD48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
23P4W7		0.5524	0.0057	0.09	0.4900	0.0019	0.03	TA
2FJUZ5		0.5146	-0.0321	-0.53	0.4474	-0.0407	-0.72	TM
79AFMP		0.5832	0.0365	0.60	0.5154	0.0273	0.48	TA
7RY5RC		0.4648	-0.0819	-1.34	0.3956	-0.0925	-1.63	KY
F9LDSL		0.5904	0.0437	0.72	0.5304	0.0423	0.74	TN
KBST5L		0.5190	-0.0277	-0.45	0.4880	-0.0001	0.00	TM
N19HYD		0.5860	0.0393	0.64	0.4820	-0.0061	-0.11	IX
UDY9X3		0.5802	0.0335	0.55	0.5233	0.0352	0.62	TM
XL7TEA		0.4778	-0.0689	-1.13	0.4732	-0.0149	-0.26	TM
YVEX4Y		0.6640	0.1173	1.92	0.6040	0.1159	2.04	TL
ZXVPGV		0.4814	-0.0653	-1.07	0.4198	-0.0683	-1.20	TL

Summary Statistics

Sample GD47

Sample GD48

Grand Means 0.54671 COF
SD Btwn Labs 0.06101 COF

0.48810 COF
0.05687 COF

Statistics based on 11 of 11 reporting participants

Notes for Analysis 365

No Data Flags assigned for this analysis.

Analysis Notes:

UDY9X3 - One determination removed from the Lab Mean of Sample GD48 per Grubb's Test at 1% risk (TAPPI 1205).

Instrument Code List as Reported by the Labs

(IX) - Instron (model not specified)

(KY) - Kayeness COF Tester D1055D

(TA) - Thwing-Albert Friction Tester

(TL) - TMI 32-90 Lab Master/Slip and Friction

(TM) - TMI 32-06 Monitor/Slip and Friction

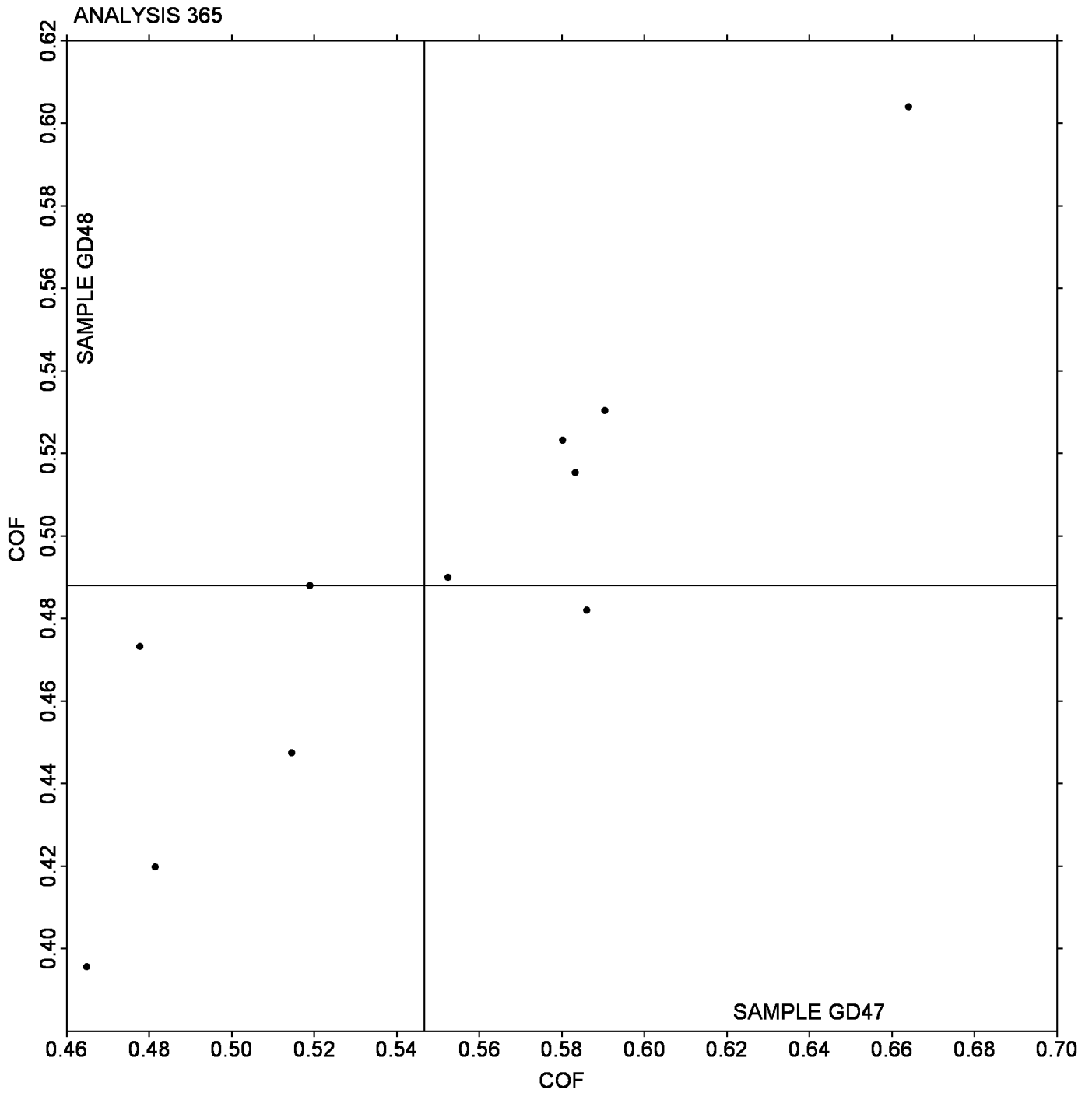
(TN) - TMI 32-07 Monitor/Slip and Friction

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD47** = 0.54671 COF

Grand Mean Sample **GD48** = 0.48810 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 GE47			Sample GE48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
12UVTA		33.39	-0.42	-0.29	15.97	-0.36	-0.57	HG
17CE9K		36.03	2.22	1.52	17.21	0.88	1.37	HG
1PNEUF		33.28	-0.53	-0.36	16.88	0.55	0.86	LP
3A5HB3		35.90	2.09	1.43	16.82	0.49	0.76	GA
3UJW9Q		33.71	-0.10	-0.07	16.72	0.38	0.60	LA
4Z8SE3		32.87	-0.94	-0.65	16.50	0.17	0.26	TL
524CMD		34.53	0.72	0.49	15.88	-0.45	-0.71	GL
58QJUL		34.76	0.95	0.65	16.04	-0.29	-0.46	LW
5AHV2C		32.90	-0.91	-0.62	15.29	-1.04	-1.64	RE
5EXW35		34.53	0.72	0.49	16.00	-0.33	-0.53	XX
5QWFSB		31.32	-2.49	-1.71	15.50	-0.83	-1.31	LP
5WQVUB		33.68	-0.13	-0.09	15.98	-0.35	-0.56	LW
64AKJH		33.00	-0.81	-0.56	16.70	0.37	0.57	HG
6FMFQN		33.03	-0.78	-0.54	17.31	0.98	1.53	TN
7YV2MF		35.97	2.16	1.48	17.55	1.22	1.91	TN
88FP1P		35.32	1.51	1.03	16.82	0.49	0.76	HG
9BEC3H		33.79	-0.02	-0.02	16.34	0.01	0.01	LP
9PZ97F		33.94	0.13	0.09	16.35	0.02	0.02	PP
BP83WC		32.11	-1.70	-1.17	15.74	-0.59	-0.93	XX
CGCYQ2		34.57	0.76	0.52	16.49	0.16	0.24	LA
D3W6Q2		33.00	-0.81	-0.56	15.86	-0.47	-0.74	LW
DF9AKP		32.10	-1.71	-1.17	16.20	-0.13	-0.21	LW
DFS64B		33.80	-0.01	-0.01	16.40	0.07	0.10	LW
E7Z59L	X	16.46	-17.35	-11.88	7.64	-8.69	-13.64	WG
EE7CJM		33.61	-0.20	-0.14	15.88	-0.45	-0.71	GS
HVZH1D		36.00	2.19	1.50	16.70	0.37	0.57	TL
HW3TC9		32.20	-1.62	-1.11	15.66	-0.67	-1.05	VM
JXZGRR		36.21	2.40	1.64	17.05	0.72	1.12	TL
KFT8W3		35.81	2.00	1.37	16.49	0.16	0.24	LW
LYTDFH		32.36	-1.45	-0.99	15.06	-1.27	-2.00	GS
MMSMGB		32.70	-1.11	-0.76	15.50	-0.83	-1.31	GL
PLBSMZ		32.63	-1.18	-0.81	15.66	-0.67	-1.05	LA
PTL5MQ		34.95	1.14	0.78	16.25	-0.08	-0.13	LP
QCC6YS	X	29.39	-4.42	-3.03	17.11	0.78	1.22	XX
QCLECS		33.40	-0.41	-0.28	16.98	0.65	1.01	HG
R4HTNB		33.60	-0.21	-0.15	16.60	0.27	0.42	XX
R7CD7G		33.06	-0.75	-0.51	16.13	-0.20	-0.32	HG
REAY2W		32.33	-1.48	-1.01	15.64	-0.69	-1.09	LP
RZ6C7F		31.84	-1.97	-1.35	16.38	0.05	0.07	LP
SQXNZF		34.10	0.29	0.20	16.64	0.31	0.48	HG
TBEQLL		35.60	1.79	1.22	17.10	0.77	1.20	WG
TH12WM	X	26.06	-7.75	-5.31	13.15	-3.18	-5.00	LW
UABY1B	X	35.73	1.92	1.32	32.57	16.23	25.46	PP

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

WebCode	Data Flag	Sample GE47			Sample GE48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
V7DTCB	*	37.47	3.66	2.50	18.13	1.80	2.82	TL
VKP6SR		31.05	-2.76	-1.89	15.64	-0.69	-1.09	LP
VRK8GV		35.16	1.35	0.92	16.25	-0.08	-0.13	TM
X7XH54		31.83	-1.98	-1.36	16.46	0.13	0.20	LW
XA89P4		35.00	1.19	0.81	16.41	0.08	0.12	XX
YR98XC		32.80	-1.01	-0.69	15.45	-0.88	-1.39	LP
YWSEGC		34.53	0.72	0.49	15.88	-0.45	-0.71	XX
Z7GU9S		33.40	-0.41	-0.28	17.24	0.91	1.42	TM

Summary Statistics			
	Sample GE47		Sample GE48
Grand Means	33.812 sec/100 cc		16.335 sec/100 cc
SD Btwn Labs	1.461 sec/100 cc		0.637 sec/100 cc
Statistics based on 47 of 51 reporting participants			

Comments on assigned Data Flags for Test #370

E7Z59L (X) - Extreme data.

QCC6YS (X) - Inconsistent in testing between samples, data for Sample GE47 are low.

TH12WM (X) - Extreme data.

UABY1B (X) - Extreme data.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer	(GL) - Gurley #4110
(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	

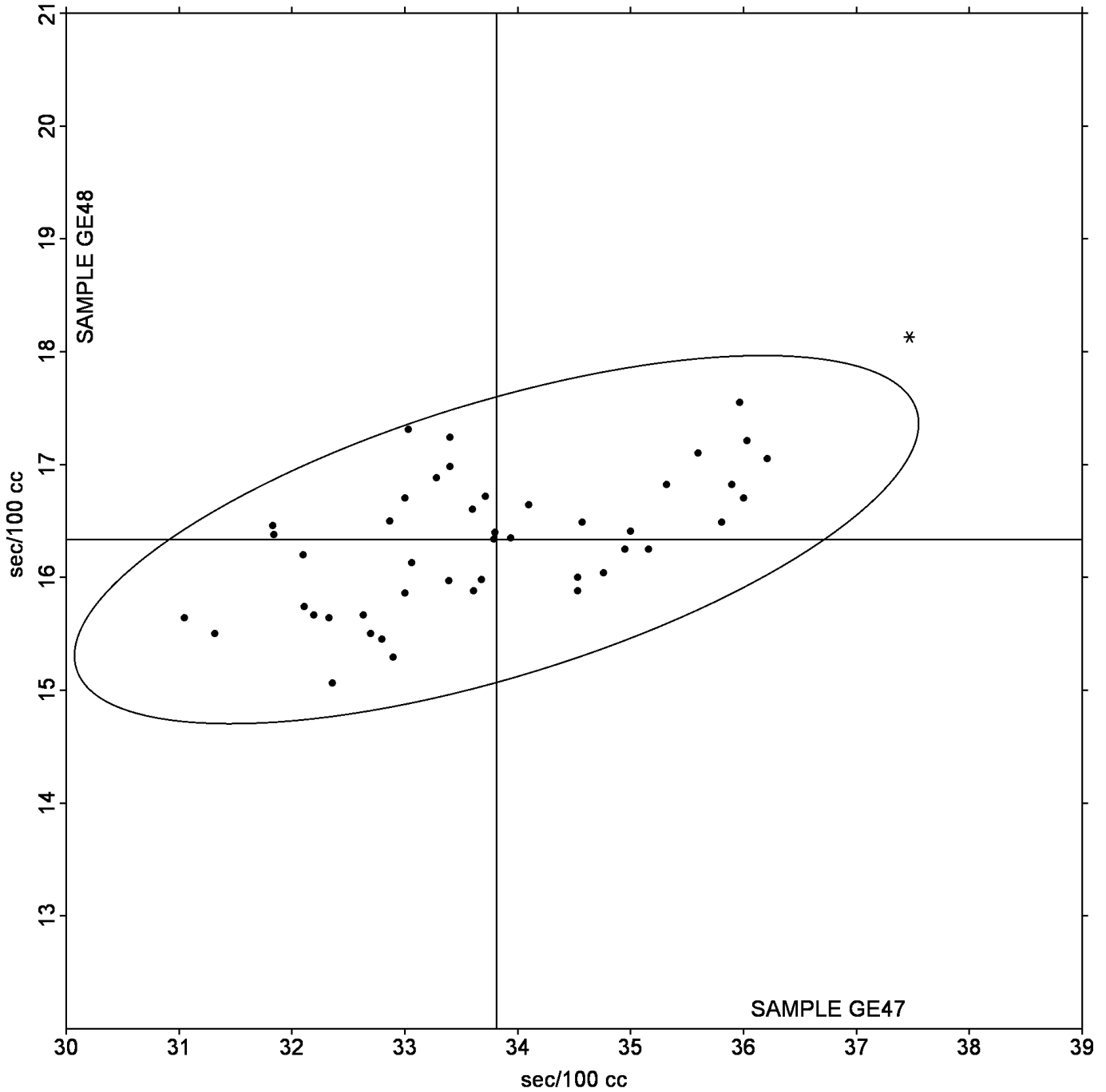
Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE47** = 33.812 sec/100 cc

Grand Mean Sample **GE48** = 16.335 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 GE47			Sample GE48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3KMFQL		88.70	0.32	0.05	154.9	-4.2	-0.36	LP
4K3S7R		92.10	3.72	0.56	144.5	-14.6	-1.23	VM
5UMLYD	X	184.50	96.12	14.38	123.5	-35.6	-3.00	SH
7LZ7H7		95.42	7.04	1.05	171.7	12.6	1.06	SH
8L21CY		86.00	-2.38	-0.36	160.8	1.7	0.14	SH
AEULR1		86.20	-2.18	-0.33	156.8	-2.3	-0.20	HM
DC9FUU		92.33	3.95	0.59	163.0	3.9	0.33	HG
DU7WGD	X	65.60	-22.78	-3.41	107.5	-51.6	-4.35	TS
EGABG8		88.30	-0.08	-0.01	152.9	-6.2	-0.52	TT
FZ5CZH		86.60	-1.78	-0.27	161.5	2.4	0.20	HM
GEAD2S		84.04	-4.34	-0.65	154.2	-4.9	-0.41	LA
GL4SJD		81.30	-7.08	-1.06	158.0	-1.1	-0.09	HM
H9P6PJ		82.00	-6.38	-0.95	148.0	-11.1	-0.94	SH
HA EJYQ		73.49	-14.89	-2.23	139.1	-20.0	-1.69	LP
KPAKPV		84.70	-3.68	-0.55	164.5	5.4	0.45	GA
NRGMXQ		85.09	-3.29	-0.49	152.5	-6.6	-0.56	LP
P3XD9B		87.66	-0.72	-0.11	166.2	7.1	0.60	XX
QL68CW		100.00	11.62	1.74	181.0	21.9	1.84	HM
R332L2	X	35.03	-53.35	-7.98	16.8	-142.4	-11.99	HG
RAZSXB		91.00	2.62	0.39	161.7	2.6	0.22	SH
SC4XWH		85.65	-2.73	-0.41	154.5	-4.6	-0.39	TA
SJBA52		88.40	0.02	0.00	163.7	4.6	0.39	HM
TD9NJY		81.60	-6.78	-1.01	142.4	-16.7	-1.41	TT
TSLHFG		88.06	-0.32	-0.05	169.1	10.0	0.84	HG
UZV6GA	*	107.20	18.82	2.82	191.4	32.3	2.72	VM
VSK53C		90.30	1.92	0.29	166.5	7.4	0.62	TT
ZC1B8V	*	96.60	8.22	1.23	143.7	-15.4	-1.30	SH
ZK9C15		86.76	-1.62	-0.24	155.3	-3.8	-0.32	PP

Summary Statistics			
	Sample GE47		Sample GE48
Grand Means	88.380 Sheffield Units		159.12 Sheffield Units
SD Btwn Labs	6.685 Sheffield Units		11.88 Sheffield Units
Statistics based on 25 of 28 reporting participants			

Comments on assigned Data Flags for Test #372

5UMLYD (X) - Extreme data.

DU7WGD (X) - Systematic error (data for both samples are low).

R332L2 (X) - Extreme data.

**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
(TS) - TMI Monitor/Smoothness, Model 58-02	(TT) - TMI Monitor/Smoothness II, Model 58-24
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab

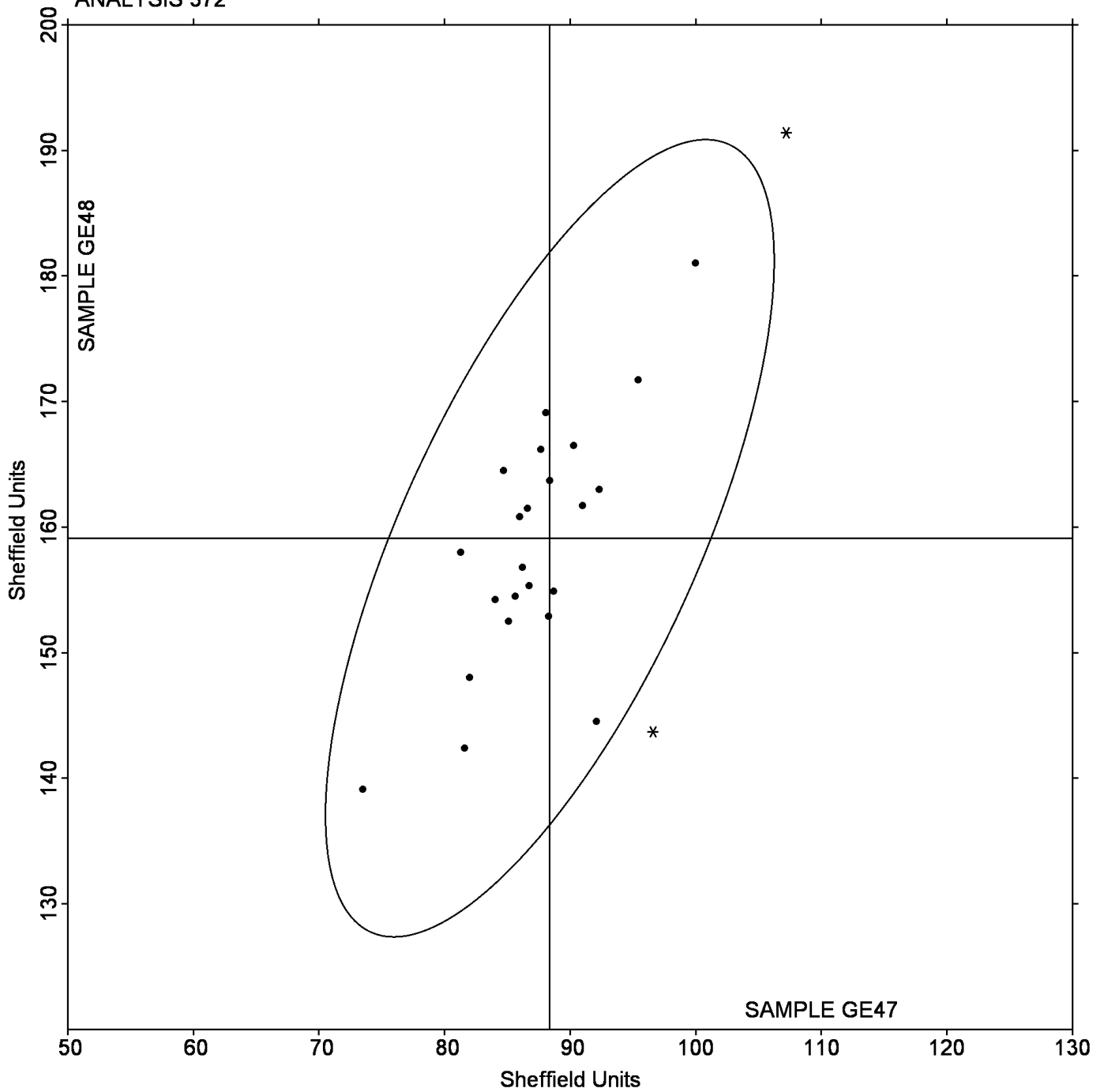
Analysis 372

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

Grand Mean Sample **GE47** = 88.380 Sheffield Units

Grand Mean Sample **GE48** = 159.12 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 GJ47			Sample GJ48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
23ZBF2		1.0200	0.0288	0.29	1.683	0.076	0.72
2FALJK		0.9720	-0.0192	-0.19	1.638	0.031	0.29
2UHVC6		1.0160	0.0248	0.25	1.504	-0.103	-0.97
3AE6BP		0.8940	-0.0972	-0.99	1.424	-0.183	-1.72
3NX4V5		1.0160	0.0248	0.25	1.502	-0.105	-0.99
5LF2ZB		0.8500	-0.1412	-1.43	1.581	-0.026	-0.24
6CHF3P		1.0190	0.0278	0.28	1.737	0.130	1.23
6EWQN1		0.9150	-0.0762	-0.77	1.542	-0.065	-0.61
8MS5NT		1.0700	0.0788	0.80	1.705	0.098	0.92
91M7MB		1.0220	0.0308	0.31	1.516	-0.091	-0.85
9Q3515		0.9100	-0.0812	-0.82	1.602	-0.005	-0.04
9YUTQF		0.9290	-0.0622	-0.63	1.625	0.018	0.17
CDW1GK		0.9300	-0.0612	-0.62	1.507	-0.100	-0.94
DB2RWG		1.0070	0.0158	0.16	1.552	-0.055	-0.52
DS639E		0.9510	-0.0402	-0.41	1.560	-0.047	-0.44
E17NGU		0.8700	-0.1212	-1.23	1.595	-0.012	-0.11
F8VQ74		1.1080	0.1168	1.18	1.646	0.039	0.37
GEJVD4		0.8870	-0.1042	-1.06	1.477	-0.130	-1.22
H8J39L		0.9640	-0.0272	-0.28	1.612	0.005	0.05
HMAPU8		1.0260	0.0348	0.35	1.716	0.109	1.03
J2J8F1		0.9030	-0.0882	-0.89	1.509	-0.098	-0.92
K36XT5		0.9340	-0.0572	-0.58	1.523	-0.084	-0.79
L436HN		1.0010	0.0098	0.10	1.653	0.046	0.43
LJPC97		1.0080	0.0168	0.17	1.703	0.096	0.91
LUCQMS	X	0.8950	-0.0962	-0.97	1.903	0.296	2.79
M7R9CL		0.9650	-0.0262	-0.27	1.605	-0.002	-0.02
MCZ2RW		1.0260	0.0348	0.35	1.560	-0.047	-0.44
P8SK1F		1.2020	0.2108	2.14	1.761	0.154	1.45
PAUHB8		0.9770	-0.0142	-0.14	1.625	0.018	0.17
PBC1EZ		1.0340	0.0428	0.43	1.580	-0.027	-0.25
QK2UMQ		0.8640	-0.1272	-1.29	1.488	-0.119	-1.12
QXJJPT	X	1.3160	0.3248	3.29	1.651	0.044	0.42
R3MQ4W		1.0660	0.0748	0.76	1.734	0.127	1.20
RF9DZA		0.8310	-0.1602	-1.62	1.432	-0.175	-1.64
RGZ8AC		0.9360	-0.0552	-0.56	1.533	-0.074	-0.69
RJQ1BU		0.8080	-0.1832	-1.86	1.401	-0.206	-1.94
RUUFAT		1.1095	0.1183	1.20	1.631	0.024	0.23
SFANED	*	1.1950	0.2038	2.07	1.890	0.283	2.67
U8869B		1.0870	0.0958	0.97	1.735	0.128	1.21
UW9UPC		0.9650	-0.0262	-0.27	1.616	0.009	0.09
VQG5LE		1.1850	0.1938	1.96	1.707	0.100	0.94
VU4NZJ		0.9760	-0.0152	-0.15	1.714	0.107	1.01
Y5AMBP		1.1900	0.1988	2.02	1.754	0.147	1.39

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

	Sample GJ47	Summary Statistics	Sample GJ48
Grand Means	0.99118 Microns		1.6068 Microns
SD Btwn Labs	0.09866 Microns		0.1063 Microns
Statistics based on 41 of 43 reporting participants			

Comments on assigned Data Flags for Test #376

LUCQMS (X) - Inconsistent in testing between samples, data for Sample GJ48 are high.

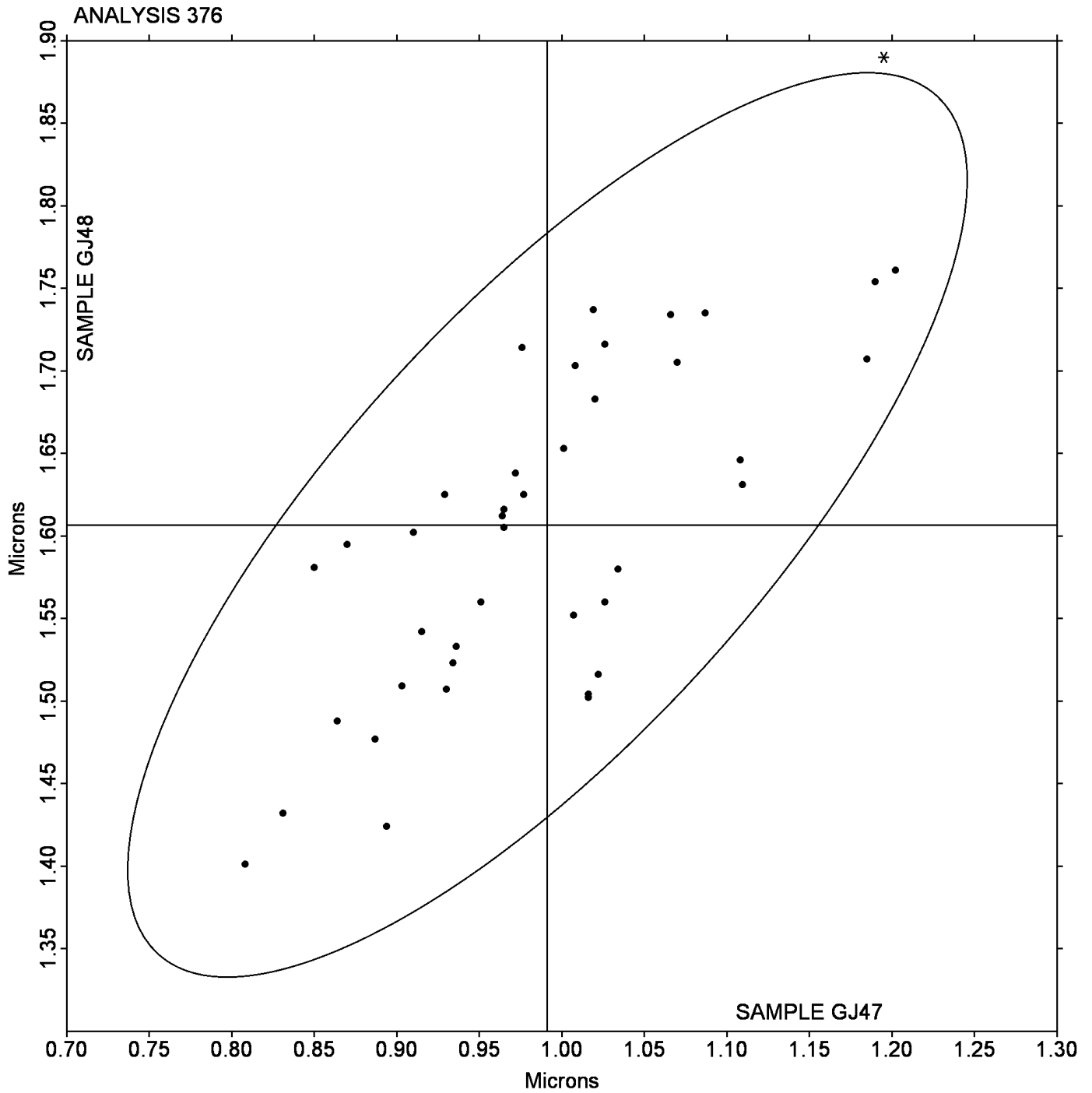
QXJJPT (X) - Inconsistent in testing between samples, data for Sample GJ47 are high.

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample GJ47 = 0.99118 Microns

Grand Mean Sample GJ48 = 1.6068 Microns



Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK47			Sample GK48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1KY6WM		5.913	0.459	1.09	6.276	0.564	1.26
1M4UDX		5.583	0.129	0.31	6.144	0.432	0.97
2JV2LH		5.319	-0.135	-0.32	5.643	-0.069	-0.16
4QGDAW		5.750	0.296	0.70	5.920	0.208	0.46
6MM4YF		5.005	-0.449	-1.07	5.253	-0.459	-1.03
7PMLM9		5.730	0.276	0.66	5.825	0.113	0.25
88DGRP		5.548	0.094	0.22	5.825	0.113	0.25
8Z12SL		6.023	0.569	1.35	6.213	0.501	1.12
9VQ2GF		6.287	0.833	1.98	6.561	0.849	1.90
BA62WB		5.344	-0.110	-0.26	5.773	0.061	0.14
DMUEA4		5.296	-0.158	-0.38	5.606	-0.106	-0.24
H135H1		4.573	-0.881	-2.10	4.959	-0.753	-1.69
J7AA7K		5.461	0.007	0.02	5.759	0.047	0.10
LBQT35		5.637	0.183	0.44	5.931	0.219	0.49
PU4KZE		4.795	-0.659	-1.57	4.805	-0.907	-2.03
WQ63RY		5.153	-0.301	-0.72	5.340	-0.372	-0.83
X9Y4M1		5.087	-0.367	-0.87	5.234	-0.478	-1.07
Z39VCZ		5.615	0.161	0.38	5.811	0.099	0.22
ZVDV52		5.512	0.058	0.14	5.658	-0.054	-0.12

Summary Statistics

Sample GK47

Sample GK48

Grand Means 5.4543 Microns
SD Btwn Labs 0.4199 Microns

5.7124 Microns
0.4469 Microns

Statistics based on 19 of 19 reporting participants

Notes for Analysis 377

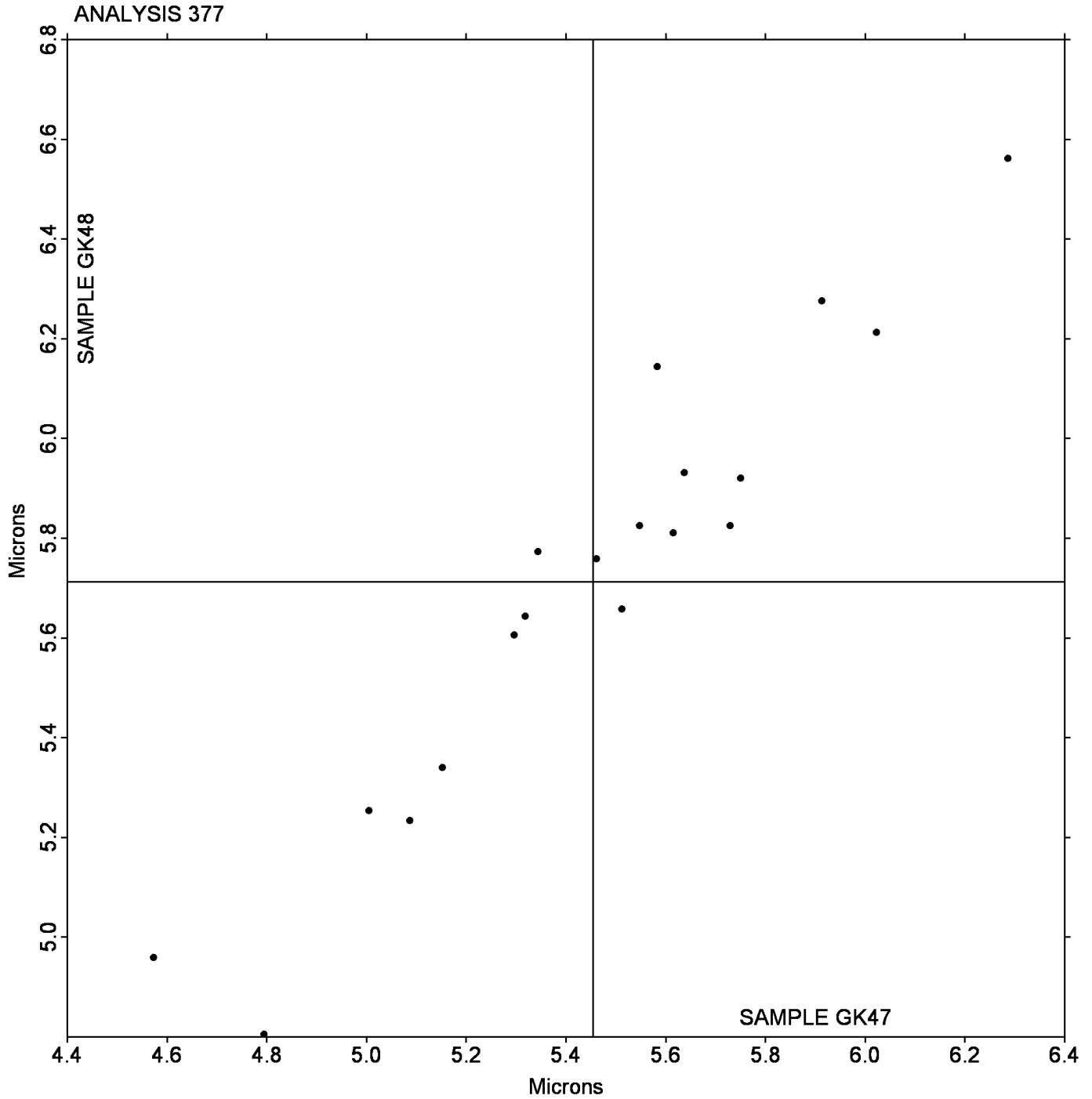
No Data Flags assigned for this analysis.

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK47** = 5.4543 Microns

Grand Mean Sample **GK48** = 5.7124 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 GL47			Sample GL48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1P7QJT		89.3	-10.8	-0.84	125.6	-8.9	-0.85	HM
2KBLY9		90.2	-9.9	-0.77	127.9	-6.6	-0.63	HM
2Z8QGD		91.7	-8.4	-0.65	125.9	-8.6	-0.82	HM
33N4BJ		99.3	-0.8	-0.06	139.0	4.5	0.43	HM
3AMLVX		96.0	-4.1	-0.32	135.5	1.0	0.09	SH
3SSJ6T		106.0	5.9	0.46	136.5	2.0	0.19	GL
4RWJ27		128.5	28.4	2.23	157.0	22.5	2.15	TS
58GKDP		105.3	5.2	0.41	143.1	8.6	0.82	LA
5D69S7		121.1	21.0	1.65	145.3	10.8	1.03	SH
6DSQ9N		89.3	-10.8	-0.84	129.5	-5.0	-0.48	HM
6GUDJR		123.7	23.6	1.85	146.9	12.4	1.18	XX
6UBRMC		83.7	-16.4	-1.28	127.3	-7.2	-0.69	PP
753VWW		93.1	-7.0	-0.54	130.2	-4.3	-0.41	HM
7V3BKW		103.0	2.9	0.23	135.0	0.5	0.05	SH
7VXKAM		84.9	-15.2	-1.19	123.0	-11.5	-1.10	HM
7XMUH2	*	130.5	30.4	2.38	164.0	29.5	2.82	XX
8F8X89		91.7	-8.4	-0.65	129.5	-5.0	-0.48	PP
8M7RZF	X	134.0	33.9	2.66	181.7	47.2	4.51	TS
8NFBK4		79.6	-20.5	-1.60	119.7	-14.8	-1.41	LA
ATABFA		90.5	-9.6	-0.75	126.2	-8.3	-0.79	HM
ATSXY5		80.3	-19.8	-1.55	116.6	-17.9	-1.71	VM
BH8AFA		92.2	-7.9	-0.62	126.8	-7.7	-0.73	PP
CMNCP7		105.9	5.8	0.46	138.1	3.6	0.34	SH
CPJXNS		96.7	-3.4	-0.27	135.7	1.2	0.11	GA
D5R67S		120.7	20.6	1.62	156.1	21.6	2.06	HM
DPGHWC		90.7	-9.4	-0.73	120.1	-14.4	-1.38	TT
EP5RA1		101.2	1.1	0.09	134.9	0.4	0.04	LA
ERU5Q3		89.9	-10.2	-0.80	122.9	-11.6	-1.11	HM
F7Y381		97.4	-2.7	-0.21	127.4	-7.1	-0.68	HM
FE82MP	*	93.7	-6.4	-0.50	141.4	6.9	0.66	PP
FFEW1V		90.2	-9.9	-0.77	125.7	-8.8	-0.84	TT
FQ7UX3		102.1	2.0	0.16	134.4	-0.1	-0.01	SH
GVGCQ2		94.9	-5.2	-0.40	125.0	-9.5	-0.91	SH
HETQ74		98.4	-1.7	-0.13	132.5	-2.0	-0.19	MP
HJN6TA		113.0	12.9	1.01	143.0	8.5	0.81	SH
HRHFK7		118.8	18.7	1.47	147.6	13.1	1.25	LW
HZH352		97.0	-3.1	-0.24	129.5	-5.0	-0.48	GA
JBFGGQ	X	93.4	-6.7	-0.53	91.9	-42.6	-4.07	HM
JTKDV3		88.1	-12.0	-0.94	121.8	-12.7	-1.21	HM
K5ZM96		87.3	-12.8	-1.00	126.5	-8.0	-0.76	HM
L3C7WG		82.4	-17.7	-1.38	127.4	-7.1	-0.68	HM
LGNLLN	*	109.7	9.6	0.75	153.1	18.6	1.78	HM
MQWCQB		95.5	-4.6	-0.36	128.0	-6.5	-0.62	LA

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

WebCode	Data Flag	Sample GL47			Sample GL48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
MYUJM5	*	113.1	13.0	1.02	156.2	21.7	2.07	VM
MZT4PJ		87.3	-12.8	-1.00	120.5	-14.0	-1.34	TT
N62KAC		102.8	2.7	0.21	136.7	2.2	0.21	HM
PFHA2N		83.5	-16.6	-1.30	124.2	-10.3	-0.98	LW
PHSC4E		118.1	18.0	1.41	149.9	15.4	1.47	XX
PJ272Z		116.4	16.3	1.28	144.8	10.3	0.98	TT
PJTG78		87.8	-12.3	-0.96	128.1	-6.4	-0.61	HM
PZWHZ4		127.5	27.4	2.15	154.5	20.0	1.91	SH
R5TP5B		110.2	10.1	0.79	145.9	11.4	1.09	PG
RMZQBH		98.5	-1.6	-0.12	138.1	3.6	0.34	TU
SA4Y64	X	90.6	-9.5	-0.74	145.3	10.8	1.03	HM
SC48X8		99.5	-0.6	-0.04	132.7	-1.8	-0.17	TS
SKWBE4		91.6	-8.5	-0.66	125.7	-8.8	-0.84	HM
T1AALL	X	82.5	-17.6	-1.37	138.3	3.8	0.36	GA
TEAGR X		93.4	-6.7	-0.52	128.6	-5.9	-0.56	TS
TQ271Q	X	1.0	-99.0	-7.75	1.5	-133.0	-12.70	TS
TT8PBS		86.7	-13.4	-1.05	128.1	-6.4	-0.61	HM
ULBGJR	*	125.4	25.3	1.98	145.7	11.2	1.07	XX
VAAFVD		93.7	-6.4	-0.50	130.8	-3.7	-0.35	HM
VHVFAR		109.6	9.5	0.75	138.2	3.7	0.35	SH
VN5HP7		86.5	-13.5	-1.06	122.4	-12.2	-1.16	PP
WFVVNS		115.0	14.9	1.17	144.5	10.0	0.95	GL
WSNJCX		96.2	-3.9	-0.30	126.9	-7.6	-0.73	HM
WZS8HA	*	114.9	14.8	1.16	132.5	-2.0	-0.19	TS
X4243T		109.6	9.5	0.75	148.3	13.8	1.32	GL
XBF2PR		99.9	-0.2	-0.01	141.2	6.7	0.64	HM
XYUCKZ		98.0	-2.1	-0.16	129.5	-5.0	-0.48	HM
Y1SL2A		95.7	-4.4	-0.34	133.0	-1.5	-0.14	SH
Y1VHVZ		107.4	7.3	0.57	137.8	3.3	0.31	PP
ZD6BW4		115.4	15.3	1.20	136.7	2.2	0.21	TT
ZHZCWX		89.4	-10.7	-0.83	126.7	-7.8	-0.75	HM
ZMZJU2		96.1	-4.0	-0.31	137.0	2.5	0.24	SH
ZUWBSA		91.8	-8.3	-0.65	123.5	-11.0	-1.05	TT

Sample GL47		Summary Statistics	Sample GL48	
Grand Means	100.06 Sheffield		134.51 Sheffield	
SD Btwn Labs	12.78 Sheffield		10.47 Sheffield	
Statistics based on 71 of 76 reporting participants				

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

Comments on assigned Data Flags for Test #378

8M7RZF (X) - Inconsistent in testing between samples, data for Sample GL48 are high.

JBFGGQ (X) - Inconsistent in testing between samples, data for Sample GL48 are low.

SA4Y64 (X) - Inconsistent in testing between samples.

T1AALL (X) - Inconsistent in testing between samples and within the determinations for Sample GL47.

TQ271Q (X) - Extreme data. Results do not appear to be Sheffield Roughness.

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

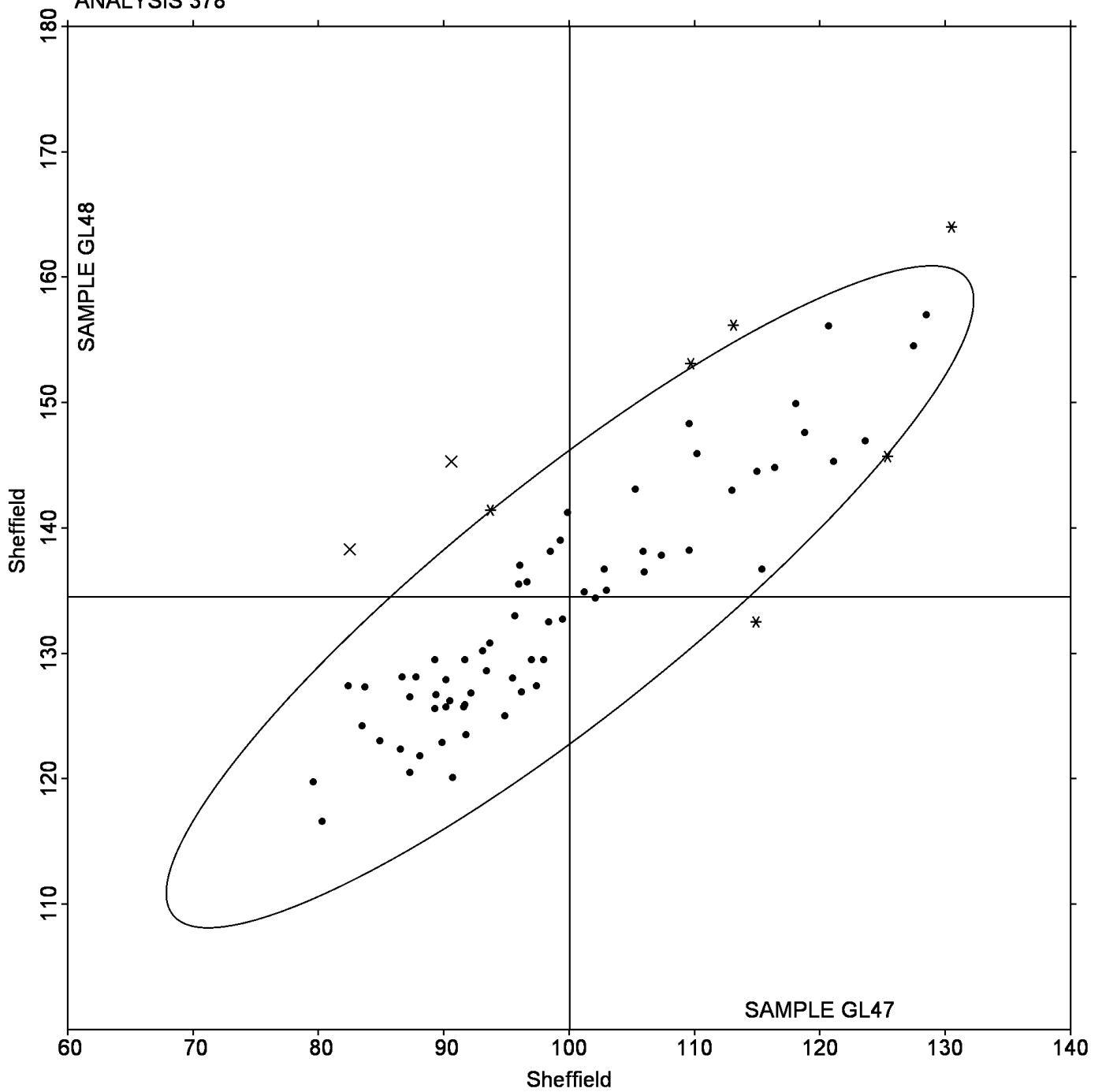
Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL47** = 100.06 Sheffield

Grand Mean Sample **GL48** = 134.51 Sheffield

ANALYSIS 378



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM47			Sample GM48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1ZXZYF		4.832	-0.063	-0.21	5.076	0.165	0.63
7X7LET		4.711	-0.184	-0.63	4.767	-0.144	-0.55
ATGRFA		5.100	0.205	0.70	5.090	0.179	0.68
CBJXC2		5.160	0.265	0.90	5.010	0.099	0.38
EUJEXJ		4.405	-0.490	-1.66	4.492	-0.419	-1.59
GRMY66		4.675	-0.220	-0.75	4.720	-0.191	-0.72
P8JBKU		5.067	0.172	0.58	4.920	0.009	0.03
PJJ24F		5.408	0.513	1.74	5.487	0.576	2.19
S5TFYH		4.796	-0.099	-0.34	4.774	-0.137	-0.52
WBZH4U		5.091	0.196	0.67	4.962	0.051	0.20
X4C6BK		4.600	-0.295	-1.00	4.720	-0.191	-0.72

Summary Statistics			
	Sample GM47		Sample GM48
Grand Means	4.8949	Percent	4.9107
SD Btwn Labs	0.2944	Percent	0.2630
Statistics based on 11 of 11 reporting participants			

Notes for Analysis 382

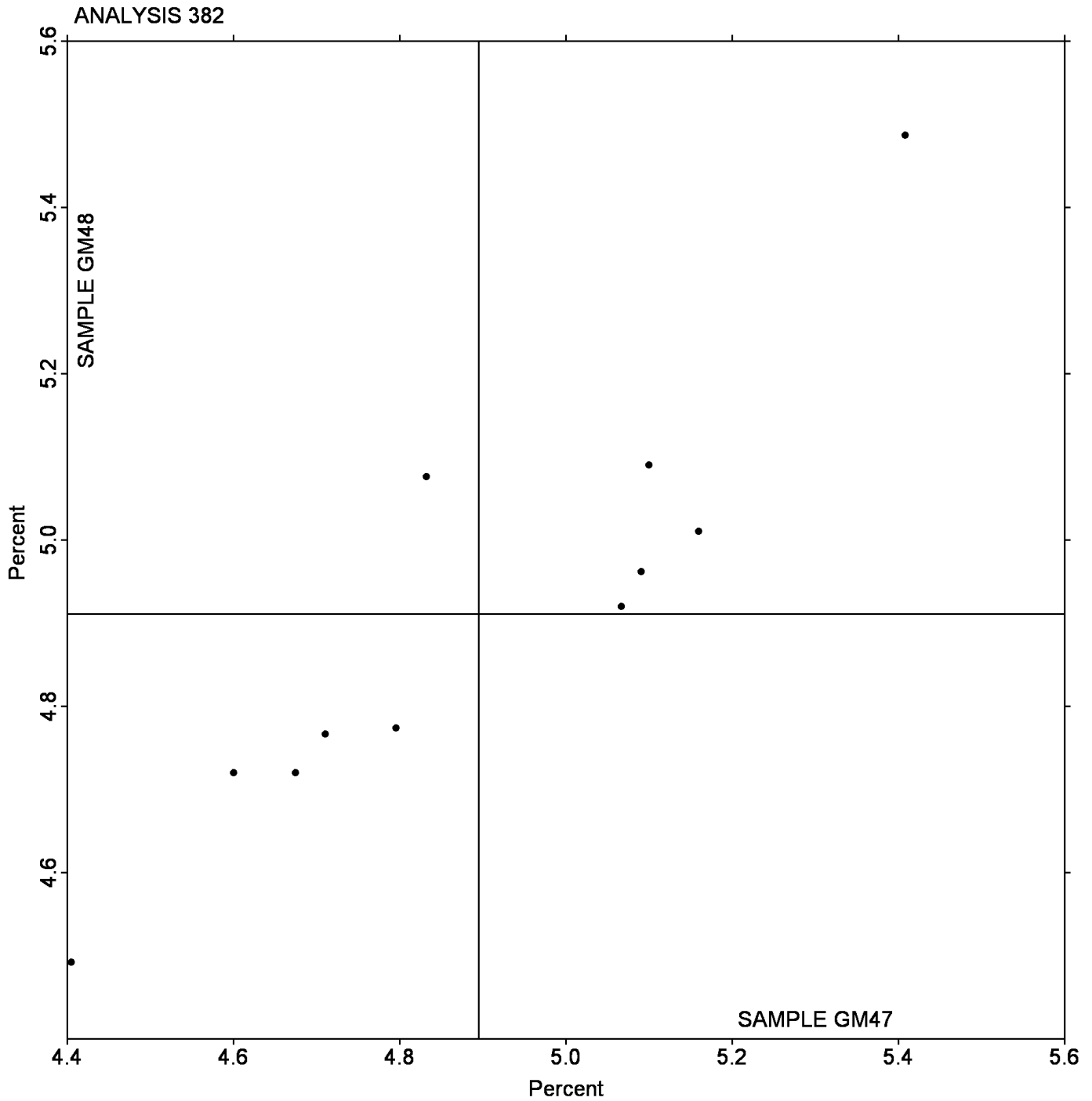
No Data Flags assigned for this analysis.

Paper & Paperboard Interlaboratory Testing Program

Analysis 382 Moisture in Paper

Grand Mean Sample **GM47** = 4.8949 Percent

Grand Mean Sample **GM48** = 4.9107 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 GN47			Sample GN48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1B5K2P	*	92.84	0.81	2.19	93.03	0.88	2.67
22GDU4		92.47	0.44	1.19	92.00	-0.15	-0.44
32MYDR		92.07	0.04	0.12	92.47	0.32	0.97
3MZGYM		91.98	-0.05	-0.13	92.34	0.19	0.59
3XBS96		91.39	-0.64	-1.73	91.53	-0.62	-1.86
4YA948		91.91	-0.12	-0.32	91.96	-0.19	-0.56
53GNDW		91.61	-0.42	-1.13	91.81	-0.34	-1.02
55FJB7	*	92.75	0.72	1.93	93.02	0.87	2.64
59ZYAM		91.97	-0.06	-0.16	92.21	0.06	0.19
5LFKWS		91.96	-0.07	-0.19	91.94	-0.21	-0.62
722KNX		91.76	-0.27	-0.73	91.95	-0.19	-0.58
7QL16F		92.31	0.28	0.76	92.57	0.42	1.28
8U68ES		91.97	-0.06	-0.16	92.30	0.15	0.47
9VQJUI		92.37	0.34	0.92	92.24	0.09	0.28
A1UJ91	X	93.08	1.05	2.84	93.50	1.35	4.09
BKVQ76	X	93.38	1.35	3.65	93.69	1.54	4.65
C6QL44		91.91	-0.12	-0.32	91.95	-0.20	-0.59
D655N2		92.20	0.17	0.46	91.91	-0.24	-0.71
DAUCMV		91.67	-0.36	-0.97	91.62	-0.53	-1.59
DVGREY		91.75	-0.28	-0.75	91.82	-0.33	-0.98
EGUHX6	*	91.00	-1.03	-2.78	91.62	-0.53	-1.59
FVFM3M	X	93.96	1.93	5.21	94.10	1.95	5.91
GQT21K		92.61	0.58	1.57	92.48	0.33	1.01
GZT1PC		91.80	-0.23	-0.62	91.86	-0.29	-0.86
HE3V7L		92.16	0.13	0.35	92.17	0.02	0.06
HQCGBM		92.18	0.15	0.41	91.89	-0.26	-0.77
J6TBJ1	X	93.69	1.66	4.48	91.55	-0.60	-1.80
JQ42YL		92.40	0.37	1.00	92.05	-0.10	-0.29
JTQ55C		92.53	0.50	1.35	92.28	0.13	0.40
JTZXC		91.93	-0.10	-0.27	92.02	-0.13	-0.38
JXKP2L		92.12	0.09	0.23	92.14	-0.01	-0.03
K999YX		92.07	0.04	0.11	92.14	-0.01	-0.02
KDDC6J		91.82	-0.21	-0.57	92.39	0.24	0.73
LHQNWS		92.16	0.13	0.35	91.82	-0.33	-0.99
LMUAR9		92.19	0.16	0.43	92.24	0.09	0.28
LR9AA1		91.83	-0.20	-0.53	92.17	0.02	0.07
MV8T68		92.34	0.31	0.84	92.14	-0.01	-0.03
NKK8BB		91.99	-0.04	-0.11	92.08	-0.07	-0.20
NQ66XB		92.31	0.28	0.74	92.44	0.29	0.89
QBKDJU		91.63	-0.40	-1.08	91.93	-0.22	-0.65
QCM8CL		92.25	0.22	0.60	92.66	0.51	1.55
S9GT6C		92.21	0.18	0.49	92.24	0.09	0.28
SUD1WW		91.85	-0.18	-0.50	92.16	0.01	0.03

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

WebCode	Data Flag	Sample GN47			Sample GN48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
T1NXTG		91.41	-0.62	-1.67	91.63	-0.52	-1.56
V43M8R		91.76	-0.27	-0.73	91.92	-0.23	-0.68
V8L6NX		92.29	0.26	0.70	92.53	0.38	1.16
V9R5EM		92.01	-0.02	-0.06	92.25	0.11	0.32
VWHKXE		92.68	0.65	1.75	92.77	0.62	1.88
VWP46X		91.27	-0.76	-2.05	91.80	-0.35	-1.06
X2YU8V		91.87	-0.16	-0.43	91.92	-0.23	-0.70
YLZXYR		91.95	-0.08	-0.21	92.32	0.17	0.53
YTWNN8		92.16	0.13	0.35	92.19	0.04	0.13
ZP3ASG		91.80	-0.23	-0.62	92.26	0.11	0.34

		Summary Statistics	
	Sample GN47		Sample GN48
Grand Means	92.030 Percent		92.146 Percent
SD Btwn Labs	0.370 Percent		0.331 Percent
Statistics based on 49 of 53 reporting participants			

Comments on assigned Data Flags for Test #384

A1UJ91 (X) - Systematic error (data for both samples are high).

BKVQ76 (X) - Systematic error (data for both samples are high).

FVFM3M (X) - Extreme data.

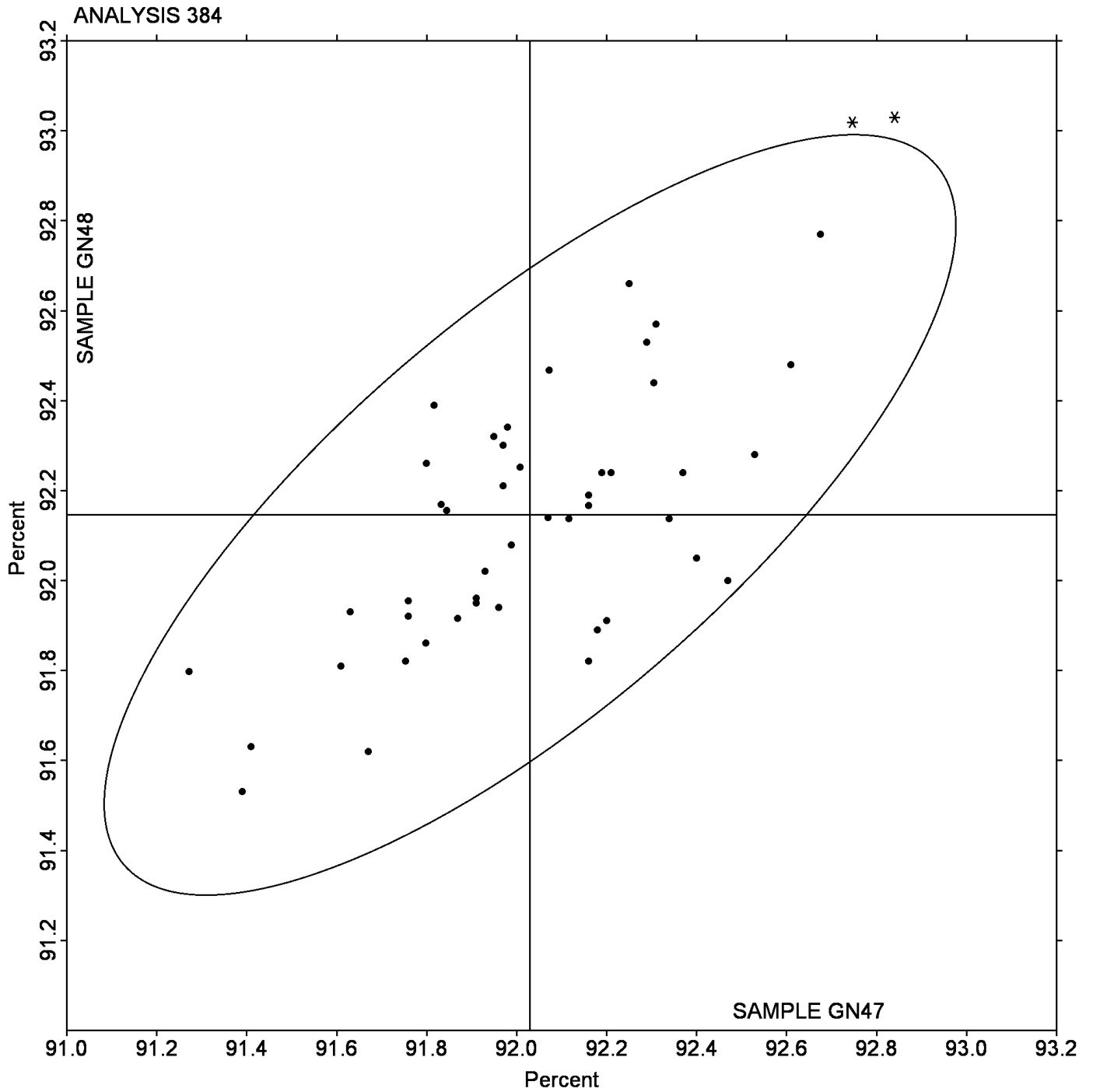
J6TBJ1 (X) - Inconsistent in testing between samples, data for Sample GN47 are high.

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample GN47 = 92.030 Percent

Grand Mean Sample GN48 = 92.146 Percent



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

WebCode	Data Flag	Sample GP47			Sample GP48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
41TH1M		93.24	0.00	0.01	93.61	0.02	0.10
55KLBH		93.52	0.28	1.57	93.66	0.07	0.34
6DZAZH		93.29	0.05	0.26	93.75	0.15	0.76
7JWLC1		93.64	0.40	2.29	93.69	0.10	0.48
7VWJR9		92.93	-0.31	-1.79	93.54	-0.06	-0.29
8ZNDP8	X	91.44	-1.80	-10.30	92.46	-1.13	-5.66
9E2SUD		92.85	-0.39	-2.24	93.49	-0.11	-0.54
ASFY2A		93.41	0.17	0.96	93.79	0.19	0.95
AVU4E6		93.12	-0.12	-0.69	93.68	0.08	0.40
B8B2EL		93.28	0.04	0.23	93.62	0.02	0.12
CFU4GM		93.36	0.12	0.66	93.64	0.05	0.24
CXC1XF		93.28	0.04	0.21	93.79	0.20	0.98
F95V7L	*	93.20	-0.04	-0.25	93.08	-0.51	-2.57
FQH XV9		93.17	-0.07	-0.41	93.77	0.18	0.88
G SXNLB		93.46	0.22	1.26	93.57	-0.02	-0.11
HZWDYZ		93.18	-0.07	-0.37	93.63	0.03	0.16
J6F15Q		93.25	0.01	0.03	93.58	-0.02	-0.09
LD1384		93.21	-0.03	-0.19	93.74	0.14	0.71
P1PF5Q		93.26	0.02	0.09	93.65	0.05	0.25
P8CQKK		93.20	-0.04	-0.23	93.72	0.13	0.62
RS177V		93.32	0.08	0.45	93.53	-0.06	-0.30
SN58GM		93.31	0.07	0.40	93.58	-0.01	-0.07
TWN9XU		93.19	-0.05	-0.29	93.82	0.23	1.12
UQLALX	*	93.61	0.37	2.09	93.44	-0.15	-0.77
VABM5F		93.30	0.06	0.33	93.66	0.07	0.32
VKS5C6	*	92.98	-0.26	-1.49	93.01	-0.59	-2.94
VQ9FRN		93.11	-0.13	-0.75	93.55	-0.04	-0.20
VXAH41		93.33	0.09	0.50	93.70	0.10	0.51
W3PSEP		93.18	-0.06	-0.36	93.71	0.12	0.59
WN7K8Y		93.22	-0.02	-0.10	93.74	0.14	0.72
WNBQ3E		93.03	-0.21	-1.21	93.12	-0.48	-2.38
YAM26S		93.04	-0.21	-1.17	93.42	-0.18	-0.89
YTPBFV		93.27	0.03	0.18	93.78	0.18	0.90

Sample GP47		Summary Statistics	Sample GP48	
Grand Means	93.240 Percent		93.595 Percent	
SD Btw Labs	0.175 Percent		0.200 Percent	
Statistics based on 32 of 33 reporting participants				

Comments on assigned Data Flags for Test #386

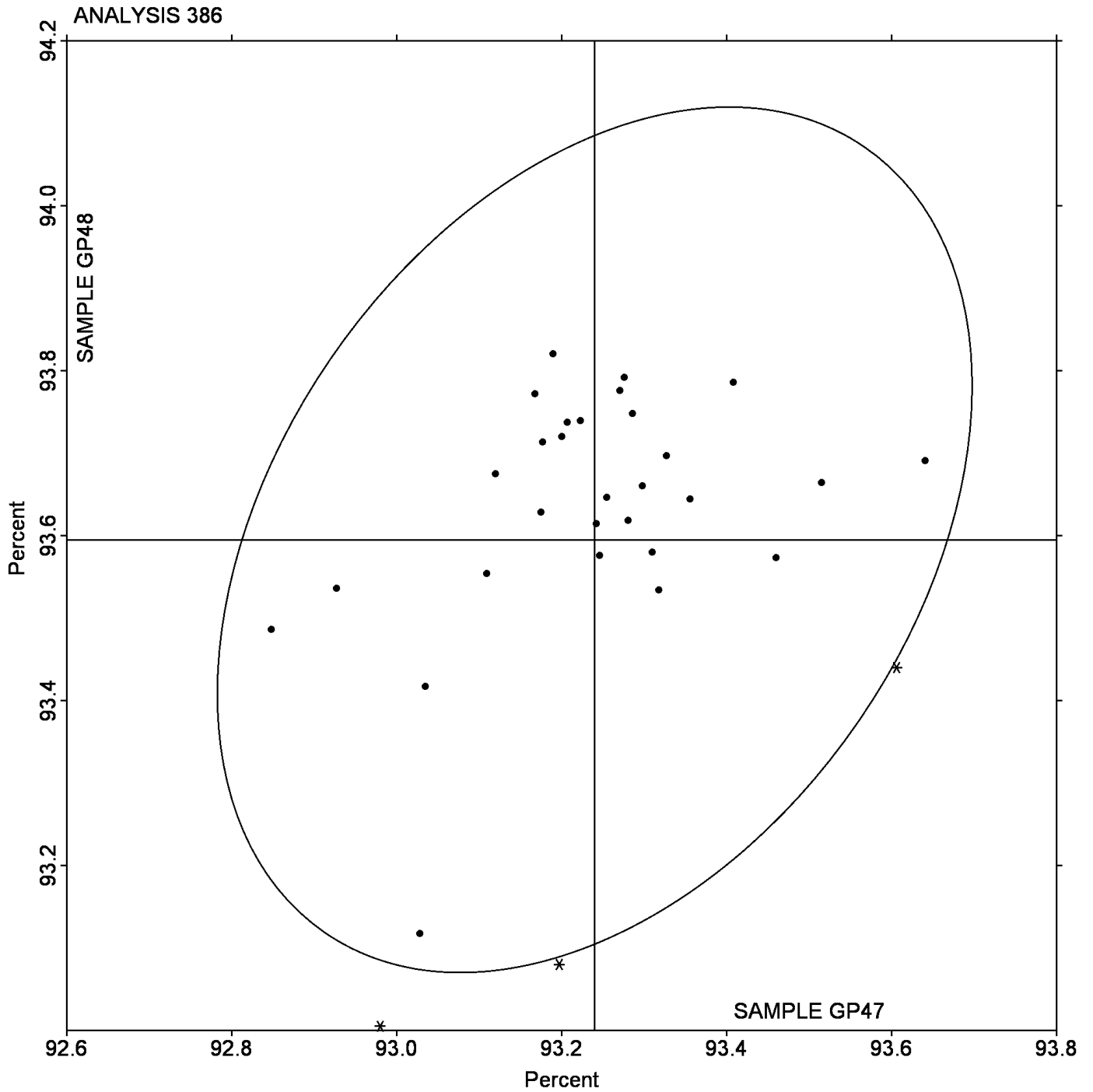
8ZNDP8 (X) - Extreme data.

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample GP47 = 93.240 Percent

Grand Mean Sample GP48 = 93.595 Percent



Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

WebCode	Data Flag	Sample GR47			Sample GR48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
14W9A4		89.23	-0.09	-0.11	89.34	0.04	0.04	HD
15NVL1		89.18	-0.14	-0.17	89.25	-0.05	-0.06	TS
2NK2LZ		89.11	-0.21	-0.26	89.16	-0.15	-0.18	GM
4KLEA1		88.93	-0.39	-0.49	88.78	-0.53	-0.63	XX
4LVQDC		89.88	0.56	0.70	89.89	0.59	0.70	MG
7DHJ2K	X	89.98	0.66	0.82	88.71	-0.59	-0.71	TT
7L5P9Z		89.46	0.14	0.18	89.65	0.35	0.42	PP
86CQ34		90.51	1.19	1.49	90.46	1.16	1.39	TT
8B1VHK		89.69	0.37	0.46	89.46	0.16	0.19	TA
APTJBF		89.40	0.08	0.10	89.52	0.21	0.26	TS
BTHS99	*	87.13	-2.19	-2.74	87.25	-2.05	-2.47	TS
ETHMM4		89.73	0.42	0.52	89.72	0.42	0.50	TS
G9MCWD		90.04	0.72	0.90	89.86	0.56	0.67	HG
GU7QM3		90.58	1.26	1.57	90.68	1.37	1.65	TS
GWC9G4		89.99	0.67	0.84	89.65	0.35	0.42	PE
H1JBUJ		89.71	0.40	0.49	89.74	0.43	0.52	TS
JPGCZR		88.46	-0.86	-1.07	88.47	-0.84	-1.01	HD
JPSRHM		87.98	-1.34	-1.68	87.93	-1.38	-1.66	TS
JRXZ57		89.46	0.14	0.18	89.53	0.22	0.27	TT
JZG2ZZ		89.01	-0.31	-0.38	88.84	-0.47	-0.56	TS
K45L83	X	89.91	0.59	0.74	88.51	-0.79	-0.95	TT
K4QMKR		88.30	-1.02	-1.27	88.10	-1.20	-1.45	TT
L64BU8		90.05	0.73	0.92	89.68	0.37	0.45	TS
LEWHJF		89.44	0.12	0.15	89.54	0.24	0.29	TS
MG7KK7	*	86.96	-2.36	-2.94	86.71	-2.59	-3.11	TT
P7VSW1		89.15	-0.17	-0.21	88.78	-0.53	-0.63	TA
PF63FD		89.04	-0.28	-0.35	89.43	0.13	0.16	TS
PNPDNM		89.28	-0.03	-0.04	89.80	0.49	0.59	TS
PVRMM7	X	86.14	-3.18	-3.98	86.05	-3.25	-3.91	TA
PZGSTB		89.66	0.34	0.43	89.65	0.35	0.42	TS
Q21392		89.49	0.17	0.21	89.26	-0.04	-0.05	TT
Q6GF23		89.16	-0.16	-0.19	89.33	0.02	0.03	TS
SMY8TD		88.67	-0.64	-0.81	88.57	-0.73	-0.88	XX
TBDE1G		90.14	0.82	1.02	90.20	0.90	1.08	TS
TYES7D	X	88.06	-1.26	-1.57	89.63	0.32	0.39	TT
U9KZZK		90.27	0.96	1.19	90.22	0.92	1.10	HD
UH6WU8		90.24	0.92	1.16	90.29	0.98	1.18	TS
VTWUGJ		89.67	0.35	0.43	89.69	0.39	0.46	TS
VZRKFT		89.34	0.02	0.02	88.85	-0.45	-0.54	TT
WE3FEM		88.58	-0.74	-0.93	88.63	-0.68	-0.82	XX
WNYD6V		89.84	0.52	0.65	90.13	0.82	0.99	PE
X47YN5		89.33	0.01	0.01	89.55	0.25	0.30	TT

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

	Sample GR47	Summary Statistics	Sample GR48
Grand Means	89.318 Percent		89.304 Percent
SD Btwn Labs	0.800 Percent		0.833 Percent
Statistics based on 38 of 42 reporting participants			

Comments on assigned Data Flags for Test #390

7DHJ2K (X) - Inconsistent in testing between samples.

K45L83 (X) - Inconsistent in testing between samples.

PVRMM7 (X) - Systematic error (data for both samples are low).

TYES7D (X) - Inconsistent in testing between samples.

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

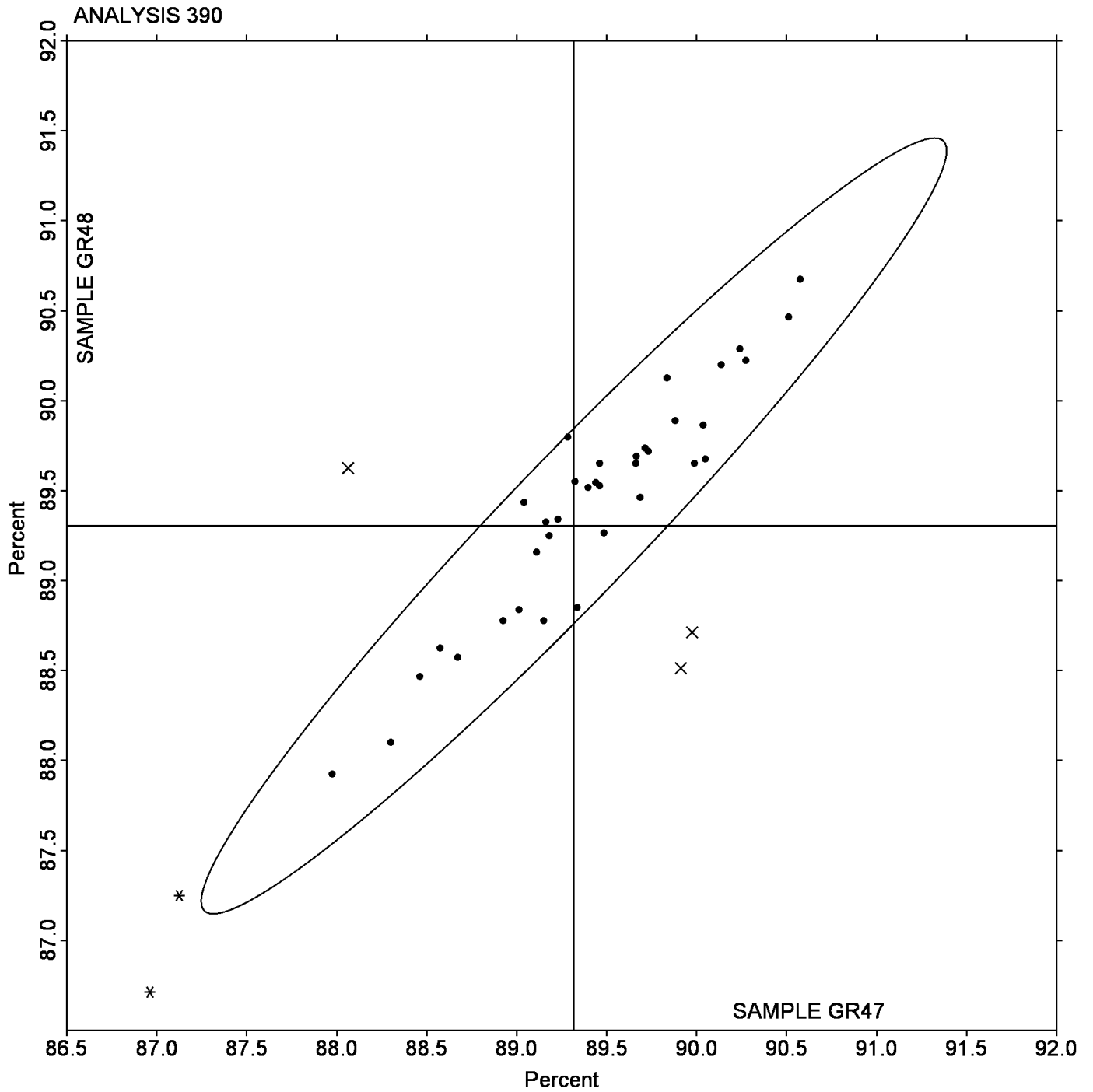
(TT) - Technidyne Brightimeter Micro S4-M

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

Analysis 390
Directional Brightness

Grand Mean Sample GR47 = 89.318 Percent

Grand Mean Sample GR48 = 89.304 Percent



Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ47			Sample GZ48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
13EFXM		92.06	-0.96	-0.77	80.73	-1.70	-1.77	XX
1L8P4C		92.80	-0.22	-0.18	81.72	-0.71	-0.74	TT
2EGSN1		92.93	-0.09	-0.07	81.98	-0.45	-0.47	TS
4EF1Y3		90.55	-2.47	-1.98	81.88	-0.55	-0.57	XX
5HZQ3V		92.86	-0.16	-0.13	81.82	-0.61	-0.63	XX
6MD4MZ		94.74	1.72	1.37	82.97	0.54	0.56	HV
76WDKY	*	96.58	3.57	2.85	83.89	1.46	1.51	MK
7ASD8M		92.98	-0.04	-0.03	82.43	0.00	0.00	TS
8HDML4		92.92	-0.10	-0.08	81.78	-0.65	-0.68	TT
8UT2NQ		93.34	0.32	0.26	83.32	0.89	0.92	TS
BRG6TB		93.01	-0.01	-0.01	82.30	-0.13	-0.14	TS
BZBNDS		93.13	0.11	0.09	82.01	-0.42	-0.44	TS
C9WF8N		93.52	0.50	0.40	82.24	-0.19	-0.20	TT
D98XPU	X	91.22	-1.80	-1.44	80.29	-2.14	-2.22	EF
DX12UQ	*	94.32	1.30	1.04	85.37	2.94	3.05	TS
F68AG9		90.48	-2.54	-2.03	82.36	-0.07	-0.07	GM
GLTBFJ		93.01	-0.01	-0.01	82.33	-0.11	-0.11	TS
KJU8E8		93.17	0.15	0.12	81.50	-0.93	-0.97	PP
N6M52G		93.01	-0.01	-0.01	82.04	-0.39	-0.41	TS
P5NGZX		92.33	-0.69	-0.55	82.91	0.47	0.49	MG
UQLXTH	X	101.87	8.85	7.09	85.81	3.37	3.50	HV
UU29QY		93.06	0.04	0.03	81.94	-0.49	-0.51	TT
UWEAYX		93.50	0.48	0.38	82.44	0.01	0.01	TS
V62W77		92.13	-0.89	-0.71	83.54	1.10	1.15	TS

Summary Statistics			
	Sample GZ47		Sample GZ48
Grand Means	93.019 Percent		82.431 Percent
SD Btw Labs	1.249 Percent		0.964 Percent
Statistics based on 22 of 24 reporting participants			

Comments on assigned Data Flags for Test #391

D98XPU (X) - Results excluded for using a nonconforming instrument.

UQLXTH (X) - Extreme data.

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

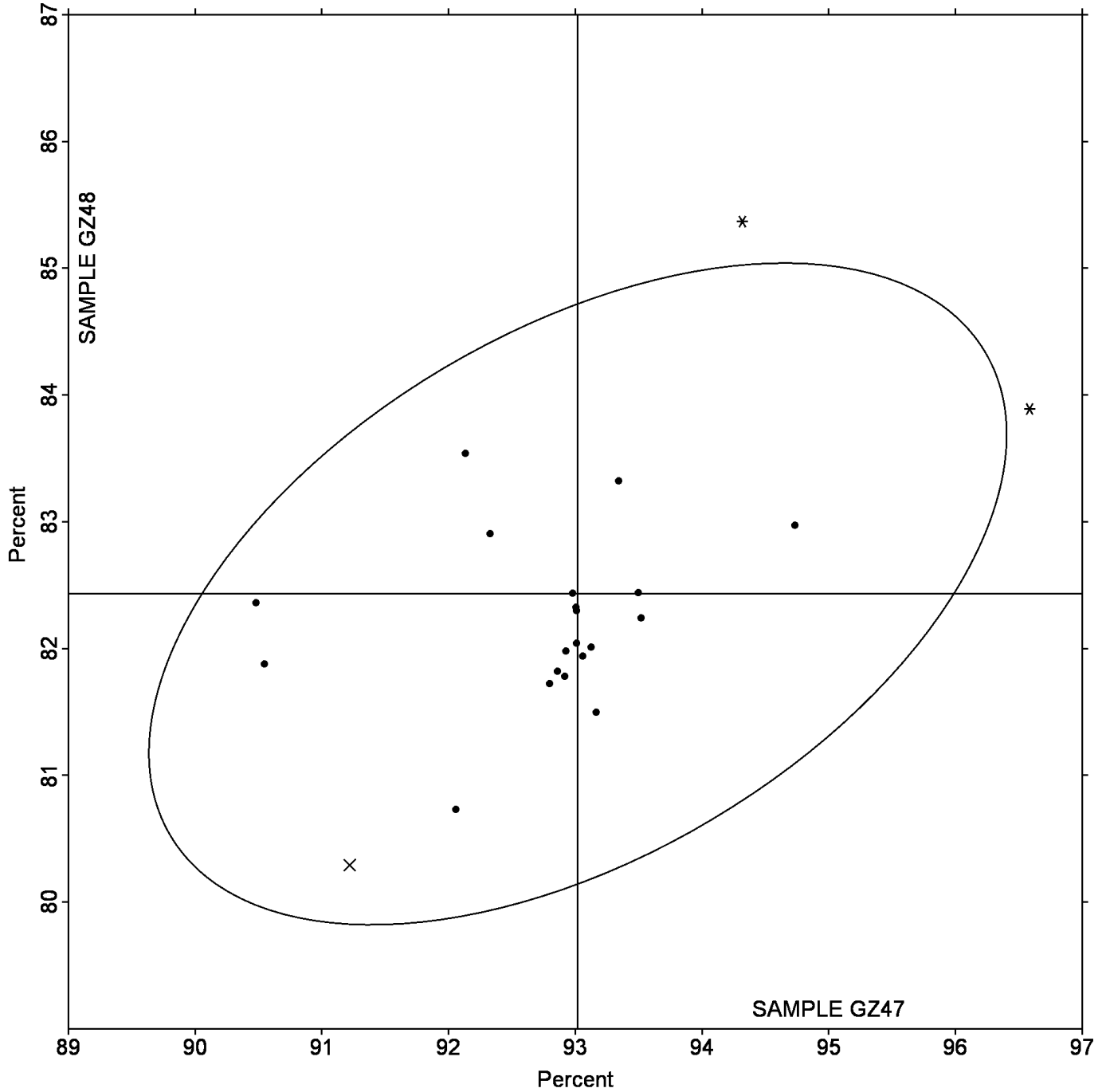
Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample GZ47 = 93.019 Percent

Grand Mean Sample GZ48 = 82.431 Percent

ANALYSIS 391



Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

WebCode	Data Flag	Sample GR47			Sample GR48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
19JMSC		89.12	0.10	0.33	88.98	-0.04	-0.12	TM
1ADXDK		89.20	0.18	0.57	89.22	0.20	0.66	TC
238FML		89.06	0.04	0.12	89.15	0.13	0.44	TM
34LDH8		88.87	-0.15	-0.47	88.80	-0.22	-0.74	LA
3WT2ME		89.33	0.30	0.97	89.34	0.32	1.04	TM
473UGD		88.93	-0.09	-0.30	88.81	-0.21	-0.68	TC
5296ND		88.81	-0.21	-0.67	88.62	-0.40	-1.31	EG
5LLYG8		89.20	0.18	0.58	89.27	0.25	0.83	TC
5PKT8C	X	88.51	-0.51	-1.65	89.01	-0.01	-0.04	TC
69HQYH		88.91	-0.11	-0.35	88.96	-0.06	-0.20	TC
6UKRW7		89.41	0.39	1.24	89.41	0.39	1.28	XX
8KVMZR		88.91	-0.11	-0.35	88.82	-0.20	-0.65	TC
97K9KB		88.74	-0.28	-0.89	88.90	-0.12	-0.40	XX
AGZJ84		88.64	-0.38	-1.23	88.64	-0.38	-1.26	LS
CXWTQD		88.94	-0.09	-0.28	88.81	-0.21	-0.69	TM
D22XZC		88.94	-0.09	-0.28	89.03	0.01	0.04	TC
DS9RKR		89.28	0.26	0.83	89.34	0.32	1.06	TM
DYAQUA		89.33	0.30	0.97	89.18	0.16	0.52	TM
FXXGCN		88.88	-0.14	-0.45	88.91	-0.11	-0.36	EF
GDHM17		88.74	-0.28	-0.91	88.71	-0.31	-1.04	XX
GQ3AEL		89.19	0.17	0.53	89.09	0.07	0.23	TL
GU9DX2		88.36	-0.67	-2.13	88.47	-0.55	-1.81	FR
GX4RGX		88.81	-0.21	-0.67	88.66	-0.36	-1.18	EF
GZP7MD		89.00	-0.02	-0.06	89.21	0.19	0.62	TC
J741Y6		89.17	0.14	0.46	89.20	0.18	0.60	TM
JG8A7J		88.46	-0.56	-1.79	88.47	-0.55	-1.82	LT
JMR994		89.20	0.18	0.58	89.10	0.08	0.25	TM
L69WZH	X	88.89	-0.13	-0.43	88.15	-0.87	-2.88	TC
L8TK2P		88.92	-0.11	-0.34	88.96	-0.06	-0.18	XX
LV3CXN		88.77	-0.25	-0.81	88.97	-0.05	-0.17	TC
MC5R5P		88.61	-0.41	-1.31	88.69	-0.33	-1.10	TC
MGTMCM		89.45	0.43	1.37	89.35	0.33	1.09	TM
MYKWK5		89.01	-0.01	-0.05	89.06	0.04	0.13	TC
NGS7JL		88.71	-0.32	-1.01	88.78	-0.24	-0.79	TM
PX9388		88.89	-0.13	-0.42	88.90	-0.12	-0.41	LS
SBF4TN		89.68	0.66	2.11	89.66	0.64	2.10	LS
SRFEM7		89.32	0.30	0.96	89.31	0.29	0.97	TM
SZF6EF		88.90	-0.12	-0.39	89.00	-0.02	-0.06	TC
TWZSDZ		89.37	0.35	1.11	89.47	0.45	1.49	TC
UFJG4C	X	87.03	-1.99	-6.37	87.17	-1.85	-6.13	TM
UYCTMY		88.96	-0.07	-0.21	88.82	-0.20	-0.67	TC
V9VPFW	X	89.01	-0.01	-0.03	75.59	-13.43	-44.42	LA
XPKG82	*	89.91	0.89	2.85	89.80	0.78	2.58	TM

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

WebCode	Data Flag	Sample GR47			Sample GR48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
Z8JT7D		88.96	-0.07	-0.21	88.93	-0.09	-0.31	TC

		Summary Statistics	
	Sample GR47		Sample GR48
Grand Means	89.022 Percent		89.019 Percent
SD Btwn Labs	0.312 Percent		0.302 Percent
Statistics based on 40 of 44 reporting participants			

Comments on assigned Data Flags for Test #392

- 5PKT8C (X) - Inconsistent in testing between samples.
- L69WZH (X) - Inconsistent in testing between samples, data for Sample GR48 are low.
- UFJG4C (X) - Extreme data.
- V9VPFW (X) - Inconsistent in testing between samples, data for Sample GR48 are low.

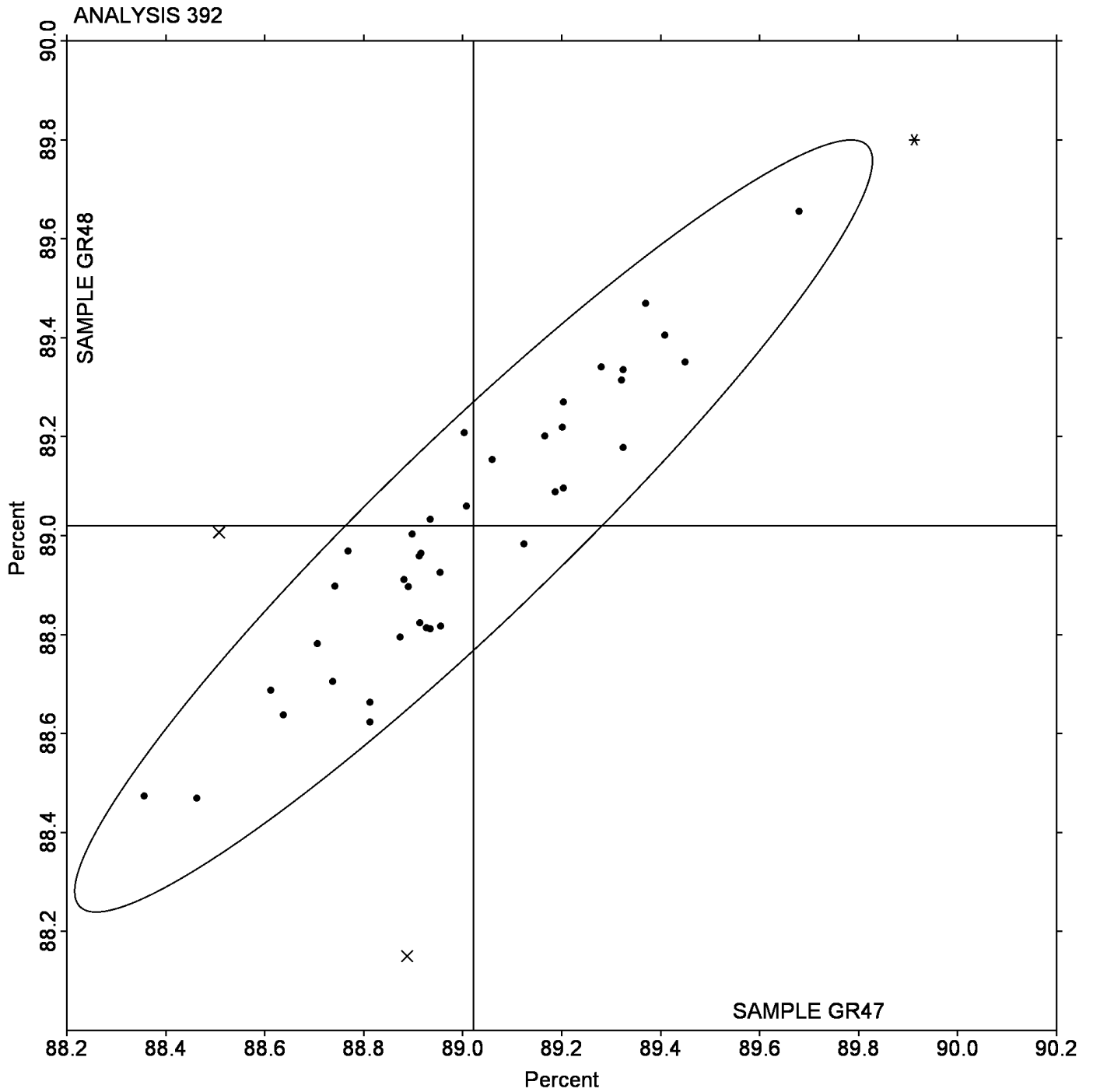
Instrument Code List as Reported by the Labs

- | | |
|---|---|
| (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 **GR47** = 89.022 Percent

Grand Mean Sample **GR48** = 89.019 Percent



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

WebCode	Data Flag	Sample GZ47			Sample GZ48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
16EJRU		4.490	-0.416	-0.54	1.854	-0.032	-0.10	TS
2WSCKX		4.680	-0.226	-0.29	1.820	-0.066	-0.22	XX
34Y53L		4.780	-0.126	-0.16	1.800	-0.086	-0.28	TT
51DW5W		4.692	-0.214	-0.28	1.746	-0.140	-0.46	TS
65VF3X	X	92.134	87.228	113.14	83.536	81.650	268.37	TS
7GA72T		4.556	-0.350	-0.45	1.774	-0.112	-0.37	TS
DVX6BM		4.744	-0.162	-0.21	2.038	0.152	0.50	TS
FPYHHK		4.340	-0.566	-0.73	1.542	-0.344	-1.13	TS
H83FVK		4.740	-0.166	-0.22	1.760	-0.126	-0.41	TT
LKMJU9		4.532	-0.374	-0.49	1.734	-0.152	-0.50	TS
LXZDRK		6.860	1.954	2.53	2.614	0.728	2.39	HV
LY88WD		4.420	-0.486	-0.63	1.706	-0.180	-0.59	TS
N49HGG	*	4.906	0.000	0.00	2.306	0.420	1.38	XX
NQAQN2		4.118	-0.788	-1.02	1.576	-0.310	-1.02	TS
QFCW4Y		5.104	0.198	0.26	1.844	-0.042	-0.14	PP
QXZRXC		6.909	2.003	2.60	2.485	0.600	1.97	MK
S1DSDL		4.800	-0.106	-0.14	1.960	0.074	0.24	TT
TYM65V		4.340	-0.566	-0.73	1.480	-0.406	-1.33	TS
W9AV8E	X	13.822	8.916	11.56	5.366	3.480	11.44	HV
YMPM75	X	5.756	0.850	1.10	2.068	0.182	0.60	EF
YX47BE		4.540	-0.366	-0.48	1.700	-0.186	-0.61	TT
ZS3L8P		5.670	0.764	0.99	2.086	0.200	0.66	GM

Summary Statistics		
	Sample GZ47	Sample GZ48
Grand Means	4.9064 Percent	1.8855 Percent
SD Btw Labs	0.7710 Percent	0.3042 Percent
Statistics based on 19 of 22 reporting participants		

Comments on assigned Data Flags for Test #394

- 65VF3X (X) - Extreme data. Results do not appear to be Fluorescent Component of Directional Brightness.
- W9AV8E (X) - Extreme data.
- YMPM75 (X) - Results excluded for using a nonconforming instrument.

Instrument Code List as Reported by the Labs

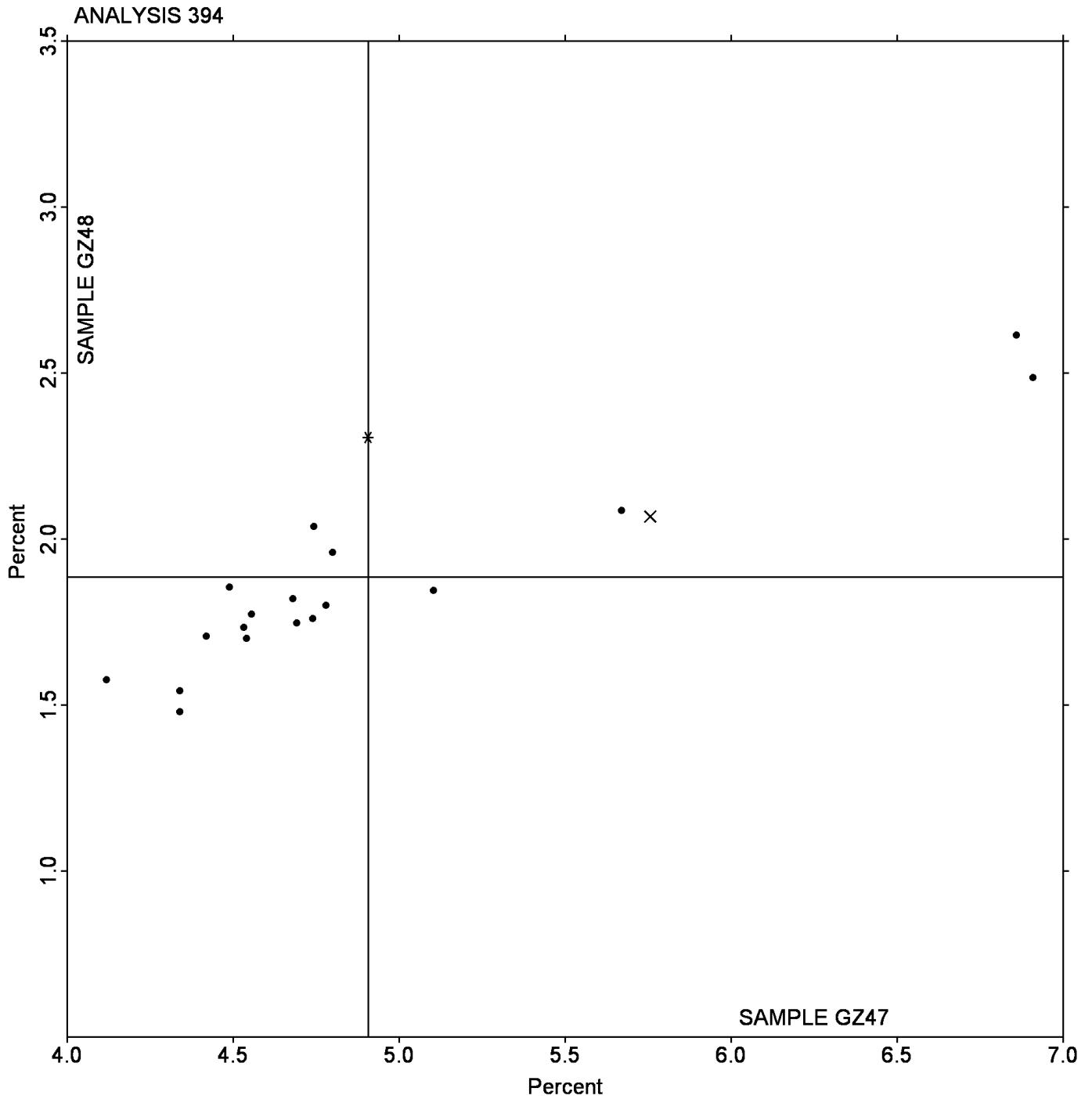
- (EF) - Datacolor Elrepho 3000
- (GM) - Gretag Macbeth Color i5
- (HV) - Hunter Ultrascan XE
- (MK) - Macbeth Color-Eye 7000 Spectrophotometer
- (PP) - Technidyne Profile/Plus
- (TS) - Technidyne Brightimeter Micro S-5
- (TT) - Technidyne Brightimeter Micro S4-M
- (XX) - Instrument make/model not specified by lab

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ47** = 4.9064 Percent

Grand Mean Sample **GZ48** = 1.8855 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 GT47			Sample GT48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2J8445		67.97	-0.10	-0.06	70.23	-1.17	-0.76	TH
3NCU1Y		68.68	0.61	0.37	72.59	1.19	0.78	VM
5RY68J		68.51	0.44	0.26	71.54	0.14	0.09	PP
65GREC		69.59	1.51	0.91	73.02	1.62	1.06	TG
7CSCY1		66.07	-2.00	-1.20	69.70	-1.70	-1.11	GM
9KXWZ9		64.95	-3.12	-1.88	69.73	-1.67	-1.09	TH
AJ734J		67.71	-0.36	-0.22	70.45	-0.95	-0.62	XX
B7T5YE		68.91	0.84	0.50	71.85	0.45	0.30	TG
GAFTZG		65.25	-2.82	-1.70	70.42	-0.98	-0.64	GM
GLAUDT		68.63	0.56	0.34	71.37	-0.03	-0.02	TH
GQP7ZL		67.14	-0.93	-0.56	70.58	-0.82	-0.54	LB
HBCXFF		67.59	-0.48	-0.29	70.29	-1.11	-0.73	GS
J24MKA		66.02	-2.05	-1.23	69.72	-1.68	-1.10	TH
L739BW		69.93	1.86	1.12	72.64	1.24	0.81	TH
MM67WE		67.73	-0.34	-0.21	70.82	-0.58	-0.38	GM
N5AE3Y		68.64	0.56	0.34	71.71	0.31	0.20	TH
NA1APY		69.35	1.28	0.77	72.07	0.67	0.44	XX
NBSDFK		69.32	1.25	0.75	73.15	1.75	1.15	TG
NQUXYW		68.96	0.89	0.53	71.49	0.09	0.06	HN
Q22MQX		67.35	-0.72	-0.43	70.48	-0.92	-0.60	XX
Q3NWCY		63.95	-4.12	-2.48	67.43	-3.97	-2.60	TH
QQ5NW6		70.81	2.74	1.65	74.57	3.17	2.08	HG
TFSF39		66.72	-1.35	-0.81	71.01	-0.39	-0.25	PP
U3V19R		67.24	-0.83	-0.50	70.81	-0.59	-0.38	ZH
UG7LHH		68.98	0.91	0.55	72.97	1.57	1.03	TH
VXM9RZ		68.66	0.59	0.35	71.91	0.51	0.34	XX
W3929Y		69.92	1.85	1.11	73.17	1.77	1.16	HN
YKAR97	*	68.31	0.24	0.14	69.73	-1.67	-1.09	TH
YS6XLL		67.60	-0.47	-0.28	71.10	-0.30	-0.20	GA
Z71EC4		68.25	0.18	0.11	72.22	0.82	0.54	HN
ZFBWPA		71.49	3.42	2.05	74.57	3.17	2.08	TG

Sample GT47		Summary Statistics	Sample GT48	
Grand Means	68.072 Gloss Units		71.398 Gloss Units	
SD Btwn Labs	1.663 Gloss Units		1.528 Gloss Units	
Statistics based on 31 of 31 reporting participants				

Notes for Analysis 395

No Data Flags assigned for this analysis.

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

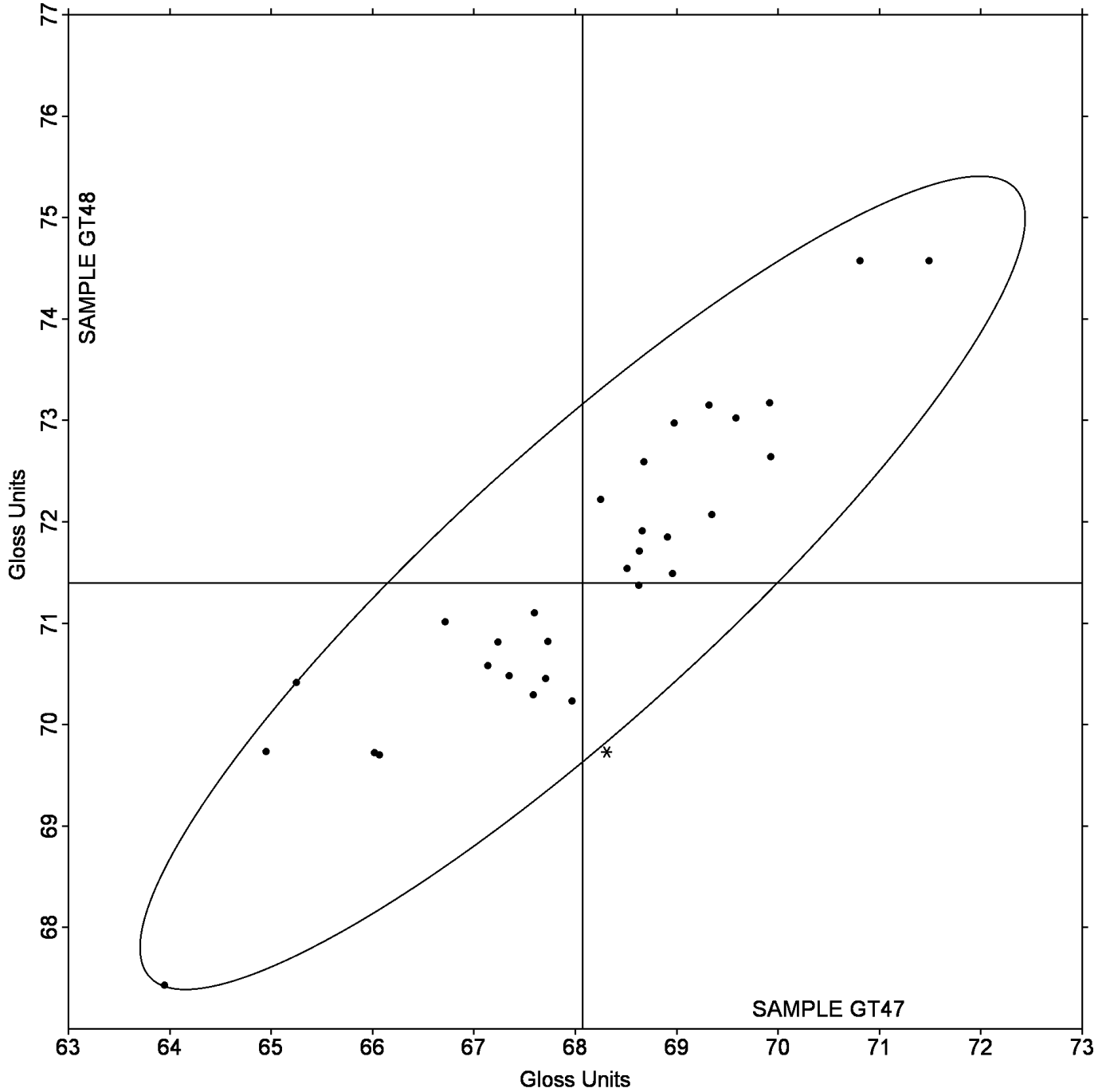
Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT47** = 68.072 Gloss Units

Grand Mean Sample **GT48** = 71.398 Gloss Units

ANALYSIS 395



Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU47			Sample GU48			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1Q7XEE		29.12	2.80	2.18	38.82	3.31	2.38	WG
2VR371	*	26.31	-0.01	-0.01	37.99	2.48	1.79	TG
4EDX4L		26.29	-0.03	-0.03	35.03	-0.48	-0.35	PP
4NS53F		25.52	-0.80	-0.63	35.21	-0.30	-0.22	TH
78YAZ7		25.20	-1.12	-0.88	34.30	-1.21	-0.88	PP
9FWJUR		22.88	-3.44	-2.68	32.96	-2.55	-1.84	XX
A75WJR		25.87	-0.45	-0.35	34.91	-0.60	-0.44	TG
B56J8C		27.31	0.99	0.77	35.74	0.22	0.16	XX
B77NMT		25.99	-0.33	-0.26	35.60	0.09	0.06	HN
BKRD63	X	20.68	-5.64	-4.40	41.03	5.52	3.98	TH
H39AA3		27.08	0.76	0.59	36.25	0.74	0.53	TG
H817SM		27.05	0.72	0.56	36.33	0.81	0.59	PP
HAWZ95		26.20	-0.12	-0.10	34.74	-0.77	-0.56	GM
KA8FDW		26.47	0.15	0.11	34.94	-0.57	-0.41	TH
P6V5BB		26.10	-0.22	-0.17	34.85	-0.66	-0.48	GM
QPGEGH		26.99	0.67	0.52	34.86	-0.65	-0.47	TG
SK9YXL		26.80	0.48	0.37	35.70	0.19	0.13	TH

Summary Statistics			
	Sample GU47		Sample GU48
Grand Means	26.324 Gloss Units		35.514 Gloss Units
SD Btwn Labs	1.284 Gloss Units		1.387 Gloss Units
Statistics based on 16 of 17 reporting participants			

Comments on assigned Data Flags for Test #396

BKRD63 (X) - Inconsistent in testing between samples, data for Sample GU47 are low and data for Sample GU48 are high.

Instrument Code List as Reported by the Labs

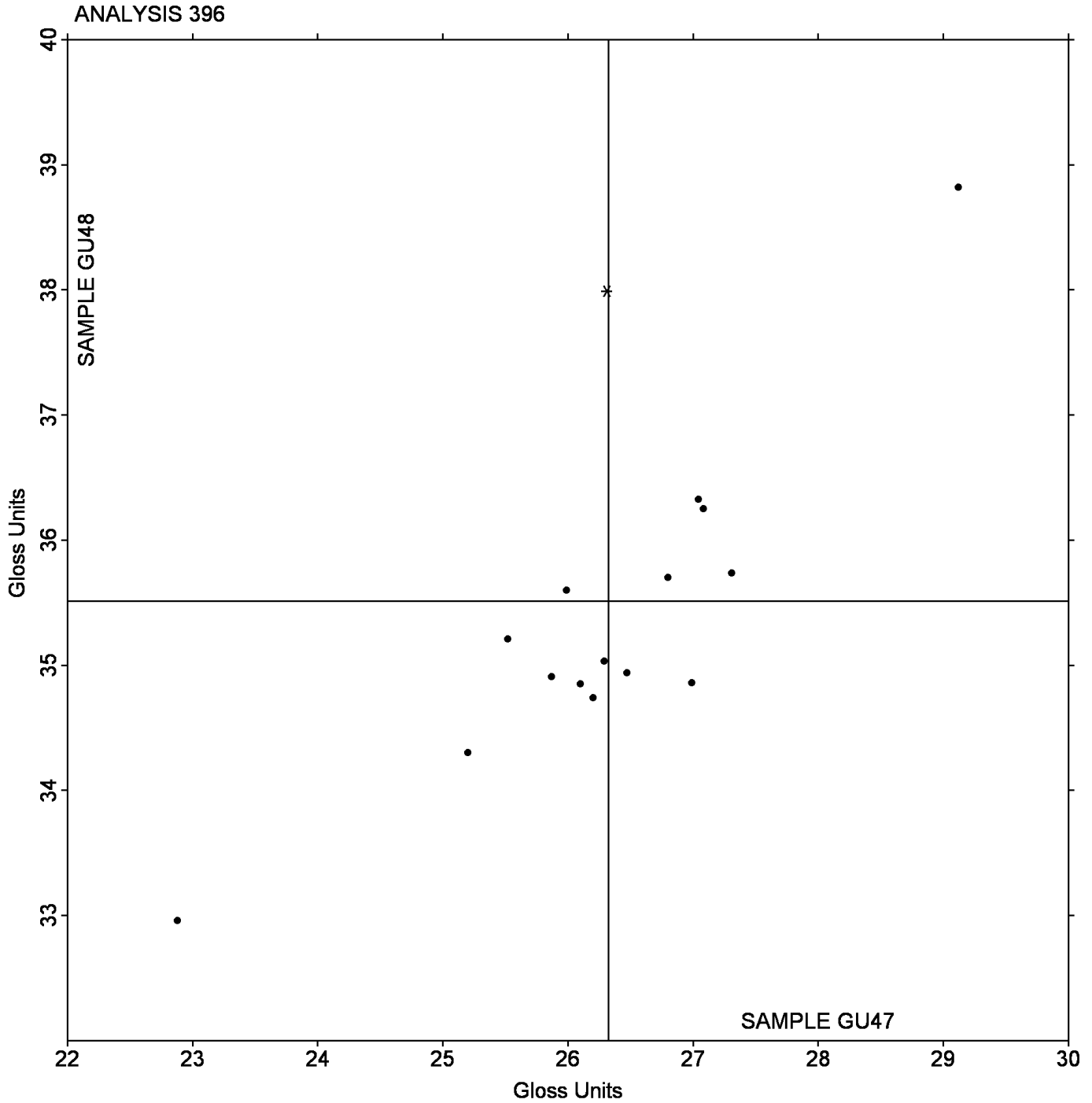
- (GM) - BYK-Gardner micro-gloss
- (HN) - Hunter D-48
- (PP) - Technidyne Profile/Plus
- (TG) - Technidyne T480
- (TH) - Technidyne T480A
- (WG) - Zehntner ZLR 1050M
- (XX) - Instrument make/model not specified by lab

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU47** = 26.324 Gloss Units

Grand Mean Sample **GU48** = 35.514 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 GW47			Sample GW48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1CH79G		92.08	0.29	0.61	88.51	-0.16	-0.28
1V2N4Y		92.06	0.27	0.58	88.77	0.10	0.18
2DA91R		91.59	-0.20	-0.43	88.36	-0.31	-0.54
2Q1TW3		92.70	0.91	1.95	89.90	1.23	2.14
3LNKTH		92.10	0.31	0.66	88.83	0.16	0.28
3ZHS65	*	90.45	-1.34	-2.88	87.28	-1.39	-2.41
44T75T		91.94	0.15	0.32	88.80	0.13	0.23
52N7AV		92.06	0.27	0.57	88.52	-0.15	-0.26
5UUC9	*	92.41	0.62	1.33	88.50	-0.17	-0.30
67XMKJ		91.66	-0.13	-0.28	88.12	-0.55	-0.95
6PHDGX		91.75	-0.04	-0.08	88.42	-0.25	-0.43
78HZDL		91.97	0.18	0.38	88.67	0.00	0.01
B8524K		91.99	0.19	0.42	88.87	0.20	0.35
DRUZHG		92.08	0.29	0.62	88.80	0.13	0.22
DXU1JN		92.23	0.44	0.95	89.68	1.01	1.76
EWAYZN	X	93.93	2.13	4.58	89.87	1.20	2.08
F2SELR		91.95	0.16	0.34	88.54	-0.13	-0.23
F823QZ		91.48	-0.31	-0.67	88.62	-0.05	-0.08
FMVMYG		91.55	-0.24	-0.52	88.55	-0.12	-0.21
FVJHWD		92.57	0.78	1.67	89.82	1.15	1.99
G4V3ME		91.56	-0.23	-0.50	88.06	-0.61	-1.06
GFMA6W		92.59	0.80	1.71	89.79	1.12	1.95
GXUBD5	X	95.08	3.29	7.07	91.17	2.50	4.35
J4PJTA		92.09	0.30	0.65	88.73	0.06	0.10
JVS6UN		91.83	0.04	0.09	88.47	-0.19	-0.34
K75KUU		91.28	-0.51	-1.09	88.19	-0.48	-0.84
KF9X7P		91.45	-0.34	-0.73	88.55	-0.12	-0.21
KMGM63		91.64	-0.15	-0.31	88.26	-0.41	-0.70
LH2XG7	X	90.34	-1.45	-3.11	88.11	-0.56	-0.97
LNUNWW		91.41	-0.39	-0.83	88.56	-0.11	-0.19
LQP5DQ	X	109.93	18.14	38.98	106.44	17.77	30.87
MR6MD3		91.89	0.10	0.21	88.57	-0.10	-0.18
MUT15X		91.91	0.12	0.25	88.86	0.19	0.33
PPEFF4		91.56	-0.23	-0.49	88.47	-0.20	-0.35
RG982C	*	92.06	0.27	0.58	89.87	1.20	2.08
SKUF1Z	X	91.50	-0.29	-0.63	93.90	5.23	9.09
T968CV		91.96	0.17	0.36	89.35	0.68	1.18
TAVH9R		91.72	-0.07	-0.15	88.54	-0.12	-0.22
TS2JGX		91.17	-0.62	-1.34	88.35	-0.32	-0.55
UBQWHM		91.87	0.08	0.17	88.82	0.15	0.26
UJNGNP		92.17	0.38	0.81	88.93	0.26	0.46
UY5ZB4	X	83.92	-7.88	-16.92	81.70	-6.96	-12.10
VGM7GY		91.24	-0.56	-1.20	88.21	-0.46	-0.80

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

WebCode	Data Flag	Sample GW47			Sample GW48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XHBPTP		90.76	-1.03	-2.22	87.37	-1.30	-2.26
Y7CDYM		91.78	-0.01	-0.02	88.98	0.31	0.54
Z3DNGM		91.10	-0.70	-1.49	88.26	-0.41	-0.71

Summary Statistics			
	Sample GW47		Sample GW48
Grand Means	91.791 g/sq m		88.668 g/sq m
SD Btwn Labs	0.465 g/sq m		0.576 g/sq m
Statistics based on 40 of 46 reporting participants			

Comments on assigned Data Flags for Test #398

EWAYZN (X) - Inconsistent in testing between samples, data for Sample GW47 are high.

GXUBD5 (X) - Extreme data.

LH2XG7 (X) - Inconsistent in testing between samples, data for Sample GW47 are low.

LQP5DQ (X) - Extreme data.

SKUF1Z (X) - Extreme data.

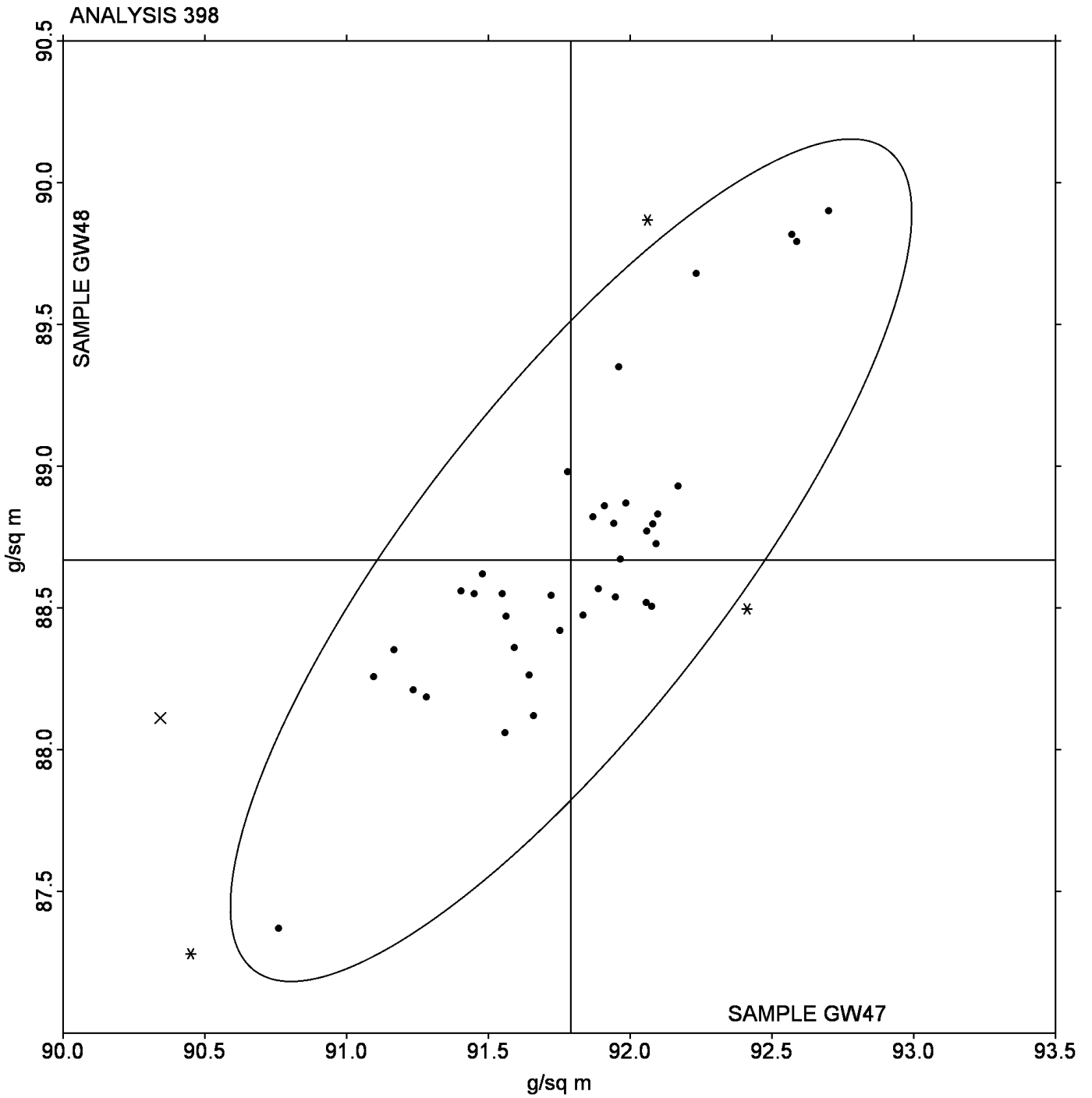
UY5ZB4 (X) - Extreme data.

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW47** = 91.791 g/sq m

Grand Mean Sample **GW48** = 88.668 g/sq m



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

WebCode	Data Flag	Sample GX47			Sample GX48		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1JJ6YL		12.97	-33.60	-2.22	24.81	-34.38	-1.44
1SJ6NK		42.52	-4.05	-0.27	42.25	-16.94	-0.71
26D9SQ		53.32	6.75	0.45	97.23	38.04	1.60
366UNP		27.90	-18.67	-1.23	31.80	-27.39	-1.15
3BQ714		45.72	-0.85	-0.06	35.87	-23.32	-0.98
4TJDH8		78.02	31.45	2.08	101.45	42.26	1.77
6BUPLJ		45.51	-1.06	-0.07	51.98	-7.21	-0.30
6N4ECT		49.63	3.06	0.20	62.55	3.36	0.14
6WU224		40.05	-6.52	-0.43	49.11	-10.08	-0.42
82QBZ2		42.27	-4.30	-0.28	50.78	-8.41	-0.35
85CQQW		35.90	-10.67	-0.70	49.40	-9.79	-0.41
9H8NST		47.68	1.11	0.07	52.97	-6.22	-0.26
A3JSGG		40.88	-5.69	-0.38	52.73	-6.46	-0.27
A6P8YK		65.53	18.96	1.25	109.04	49.85	2.09
AFL7E5		53.34	6.77	0.45	74.71	15.52	0.65
B3ZR65		77.00	30.43	2.01	119.30	60.11	2.52
B6Y16K		52.10	5.53	0.36	46.50	-12.69	-0.53
BK2DQR		45.16	-1.41	-0.09	45.04	-14.15	-0.59
E9U1G9	*	68.20	21.63	1.43	60.20	1.01	0.04
EQ71JW		52.53	5.96	0.39	59.83	0.64	0.03
ETVJPN		56.14	9.57	0.63	61.47	2.28	0.10
FJ888M		43.00	-3.57	-0.24	57.30	-1.89	-0.08
FKSTBY		21.24	-25.33	-1.67	23.46	-35.73	-1.50
G323XG		52.41	5.84	0.39	63.34	4.15	0.17
JH3W18		43.00	-3.57	-0.24	55.00	-4.19	-0.18
L16RGY		21.45	-25.12	-1.66	31.92	-27.27	-1.14
M17AA1		38.99	-7.58	-0.50	49.80	-9.39	-0.39
M383LD		54.58	8.01	0.53	64.63	5.44	0.23
MEHU97		30.96	-15.61	-1.03	52.98	-6.21	-0.26
P42JFZ		42.94	-3.63	-0.24	54.14	-5.05	-0.21
R1HF8Z		41.17	-5.40	-0.36	36.28	-22.91	-0.96
S6AX6B		28.65	-17.92	-1.18	47.18	-12.01	-0.50
UBDK6H		53.34	6.77	0.45	61.83	2.64	0.11
UXQ89T		54.30	7.73	0.51	71.10	11.91	0.50
VH4QLA		79.95	33.38	2.20	118.10	58.91	2.47
VW33A2		61.80	15.23	1.00	90.65	31.46	1.32
X3HZZD		35.53	-11.04	-0.73	51.79	-7.40	-0.31
Z9KQTV	X	76.87	30.30	2.00	143.38	84.19	3.53
ZH15WR		34.07	-12.50	-0.82	40.86	-18.33	-0.77

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

	Sample GX47	Summary Statistics	Sample GX48
Grand Means	46.572 Seconds		59.194 Seconds
SD Btwn Labs	15.155 Seconds		23.837 Seconds
Statistics based on 38 of 39 reporting participants			

Comments on assigned Data Flags for Test #399

Z9KQTV (X) - Inconsistent in testing between samples, data for Sample GX48 are high and inconsistent within the determinations for Sample GX48.

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX47** = 46.572 Seconds

Grand Mean Sample **GX48** = 59.194 Seconds

