



Paper & Paperboard Testing Program

Summary Report #237G-December 2008

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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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Huygen Corporation

Richard Wade
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Waconda, IL 60084
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BYK-Gardner

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Hunter Associates Lab, Inc.

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Phone: (703) 471-6870 ext. 222
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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		
1NRU71		GA37	97.00	-0.71	3.26	-7.27	0.03	-0.34	7.27	TC	
		GA38	89.73	-0.68	2.92						
37B5SJ		GA37	97.96	-0.56	2.81	-5.83	0.04	-0.17	5.84	HE	
		GA38	92.12	-0.52	2.64						
412RG7	X	GA37	96.19	-0.37	1.88	-4.25	-0.09	1.14	4.40	X	MK
		GA38	91.94	-0.46	3.02						
4VDWX2		GA37	96.96	-0.71	3.66	-7.02	0.00	-0.43	7.04	NF	
		GA38	89.94	-0.71	3.23						
4VGSRR		GA37	96.72	-0.42	3.09	-7.33	0.04	-0.27	7.33	TS	
		GA38	89.39	-0.38	2.82						
61FCAZ		GA37	96.71	-0.71	3.51	-7.27	0.13	-0.36	7.28	TB	
		GA38	89.45	-0.59	3.15						
6L5UXM		GA37	96.81	-0.77	3.58	-7.26	0.02	-0.38	7.27	LS	
		GA38	89.55	-0.75	3.20						
9AU4VE		GA37	97.55	-0.72	3.36	-5.74	-0.02	-0.25	5.75	MI	
		GA38	91.81	-0.74	3.11						
9E61C9		GA37	96.58	-0.77	3.64	-7.18	0.03	-0.42	7.19	EF	
		GA38	89.40	-0.74	3.21						
9FHXGE		GA37	96.86	-0.74	3.18	-7.23	0.01	-0.39	7.24	EH	
		GA38	89.63	-0.73	2.78						
9V8WEF		GA37	96.51	-0.33	3.11	-7.26	0.10	-0.22	7.26	TS	
		GA38	89.26	-0.23	2.89						
AG5CB2		GA37	96.85	-0.75	3.49	-7.23	0.05	-0.38	7.24	TC	
		GA38	89.62	-0.70	3.11						
AGDR14		GA37	97.49	-0.71	3.42	-5.52	-0.07	-0.22	5.52	X	XX
		GA38	91.98	-0.78	3.21						
AJU8UG		GA37	96.60	-0.80	3.50	-7.14	0.08	-0.36	7.15	LS	
		GA38	89.46	-0.72	3.14						
C3VX4F		GA37	96.80	-0.80	3.29	-7.25	0.06	-0.32	7.26	TM	
		GA38	89.55	-0.74	2.97						
DC57JT		GA37	97.53	-0.77	3.37	-5.83	0.03	-0.25	5.83	EH	
		GA38	91.70	-0.74	3.11						
DHH6ED		GA37	97.62	-0.85	3.47	-6.95	0.06	-0.36	6.96	XS	
		GA38	90.66	-0.79	3.11						
DK462N		GA37	97.41	-0.77	3.66	-7.43	-0.05	-0.18	7.43	HG	
		GA38	89.98	-0.82	3.48						

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		
DS1B2Y		GA37	97.37	-0.71	3.45	-7.40	0.11	-0.22	7.40	XD	
		GA38	89.97	-0.60	3.23						
EFVXTJ	X	GA37	94.93	-0.80	1.48	-5.67	0.09	1.21	5.79	HH	
		GA38	89.26	-0.71	2.69						
F1X8CD		GA37	97.39	-0.27	3.39	-7.35	-0.07	-0.29	7.36	HV	
		GA38	90.04	-0.34	3.10						
G2EZDF		GA37	96.72	-0.50	3.18	-7.29	0.08	-0.27	7.30	TM	
		GA38	89.43	-0.42	2.91						
G7NQYU		GA37	96.28	-0.27	2.98	-7.25	0.13	-0.26	7.26	TS	
		GA38	89.03	-0.14	2.72						
JTSJDW		GA37	96.92	-0.51	3.00	-7.31	0.14	-0.26	7.32	TS	
		GA38	89.61	-0.37	2.74						
MCH5A3		GA37	97.35	-0.82	3.38	-7.34	0.17	-0.21	7.34	HV	
		GA38	90.01	-0.65	3.17						
N245T2		GA37	96.80	-0.72	3.55	-7.17	-0.03	-0.22	7.17	TC	
		GA38	89.64	-0.75	3.32						
N9JVAM		GA37	96.29	-0.63	3.35	-7.23	0.04	-0.20	7.23	MN	
		GA38	89.07	-0.59	3.15						
P9NZTA		GA37	97.36	-0.63	3.59	-7.23	0.01	-0.19	7.23	TS	
		GA38	90.13	-0.63	3.39						
PSC4JG		GA37	96.31	-0.18	3.01	-7.26	0.06	-0.19	7.26	TS	
		GA38	89.05	-0.12	2.83						
Q79X5P		GA37	97.16	-0.89	3.22	-7.38	0.12	-0.40	7.39	HH	
		GA38	89.78	-0.76	2.82						
R2QBAX		GA37	97.32	-0.75	3.63	-7.55	0.06	-0.41	7.57	TP	
		GA38	89.76	-0.69	3.22						
SEFH2H		GA37	97.45	-0.76	3.59	-5.81	0.01	-0.33	5.82	LS	
		GA38	91.63	-0.74	3.27						
U7HUUQ		GA37	96.92	-0.30	2.79	-7.10	0.08	-0.18	7.10	TS	
		GA38	89.83	-0.22	2.62						
UTA1V8	X	GA37	94.89	-0.71	1.79	-5.44	0.10	1.10	5.55	X	HH
		GA38	89.45	-0.61	2.88						
W6QUBQ		GA37	96.73	-0.19	3.04	-7.15	0.04	-0.16	7.15	TS	
		GA38	89.58	-0.15	2.88						
W7EXK6		GA37	96.66	-0.58	3.36	-7.20	0.01	-0.37	7.21	MK	
		GA38	89.46	-0.57	2.99						

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	
Y8GWW3		GA37	97.62	-0.68	3.68	-7.15	0.02	-0.26	7.15	HG
		GA38	90.48	-0.65	3.42					

		Summary Statistics							
Grand Means									
	GA37	97.018	-0.625	3.341	-7.026	0.045	-0.286	7.033	
	GA38	89.991	-0.582	3.056					
Std Dev Btwn Labs									
	GA37	0.434	0.200	0.249	0.553	0.058	0.084	0.553	
	GA38	0.862	0.206	0.225					
Statistics based on 34 of 37 reporting participants									

Comments assigned on Data Flags for Test #350

412RG7 (X) - Low b values for Sample GA37. Small dL and dE values; large db value.

EFVXTJ (X) - Low L and b values for Sample GA37. Small dL and dE values; large db value.

UTA1V8 (X) - Low L and b values for Sample GA37. Small dL and dE values; large db value.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(EH) - Datacolor Elrepho SF450

(HE) - Hunter LabScan

(HG) - Hunter ColorQUEST

(HH) - Hunter D25DP - 9000

(HV) - Hunter Ultrascan XE

(LS) - L & W Elrepho SE 070

(MI) - Macbeth Color i 5

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(MN) - Minolta (model not specified)

(NF) - Minolta CM-3600d Spectrophotometer

(TB) - Technidyne Technibrite TB-1C

(TC) - Technidyne Color Touch Series

(TM) - Technidyne Technibrite Micro TB-1C

(TP) - Technidyne Spectro Plus

(TS) - Technidyne Brightimeter Micro S-5

(XD) - X-Rite 530 SpectroDensitometer

(XS) - X-Rite 938 Spectrodensitometer

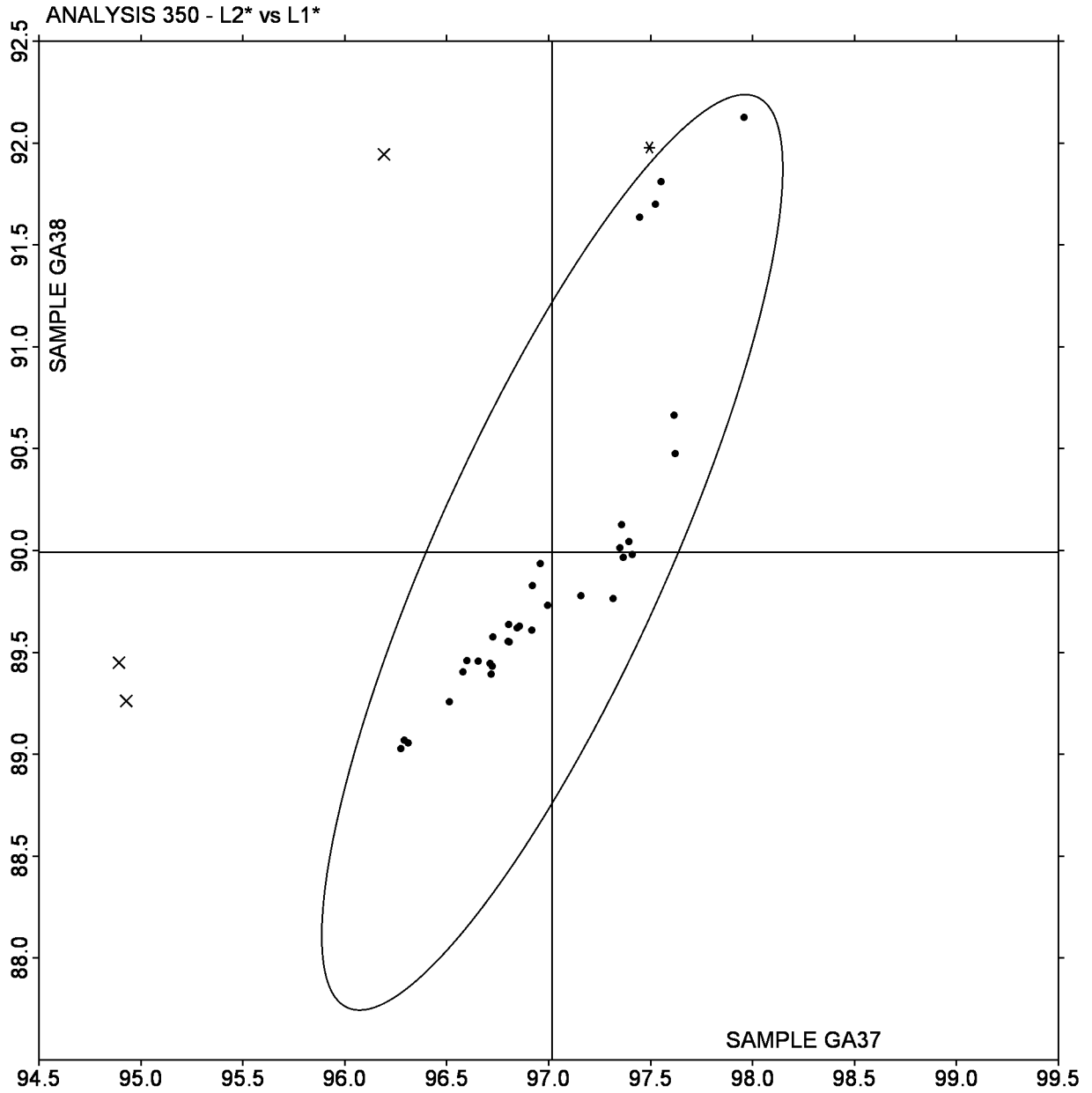
(XX) - Instrument make/model not specified by lab

Analysis 350

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

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

Plot of L values GA38 v L values GA37

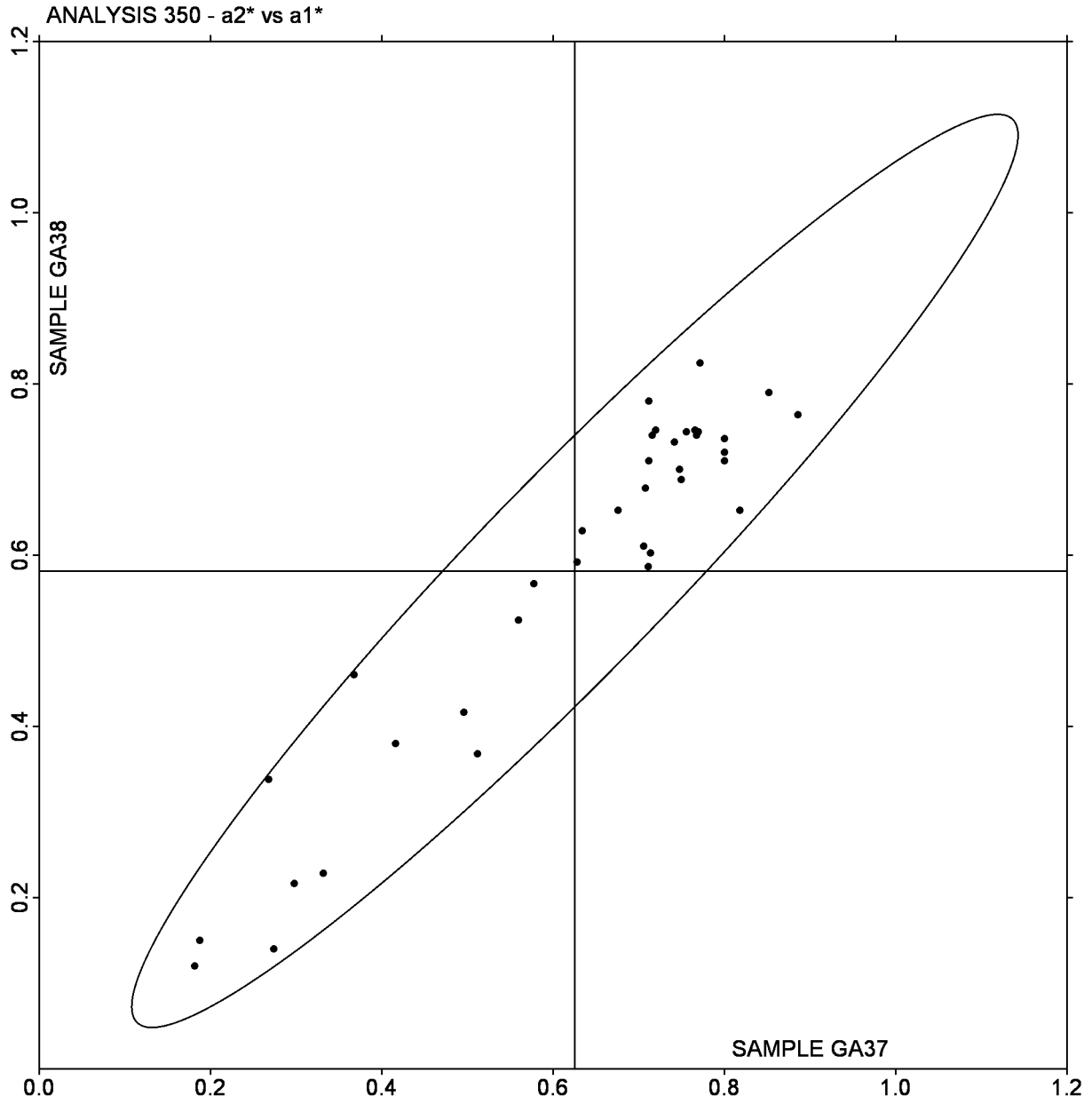


Analysis 350

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

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

Plot of a values GA38 v a values GA37

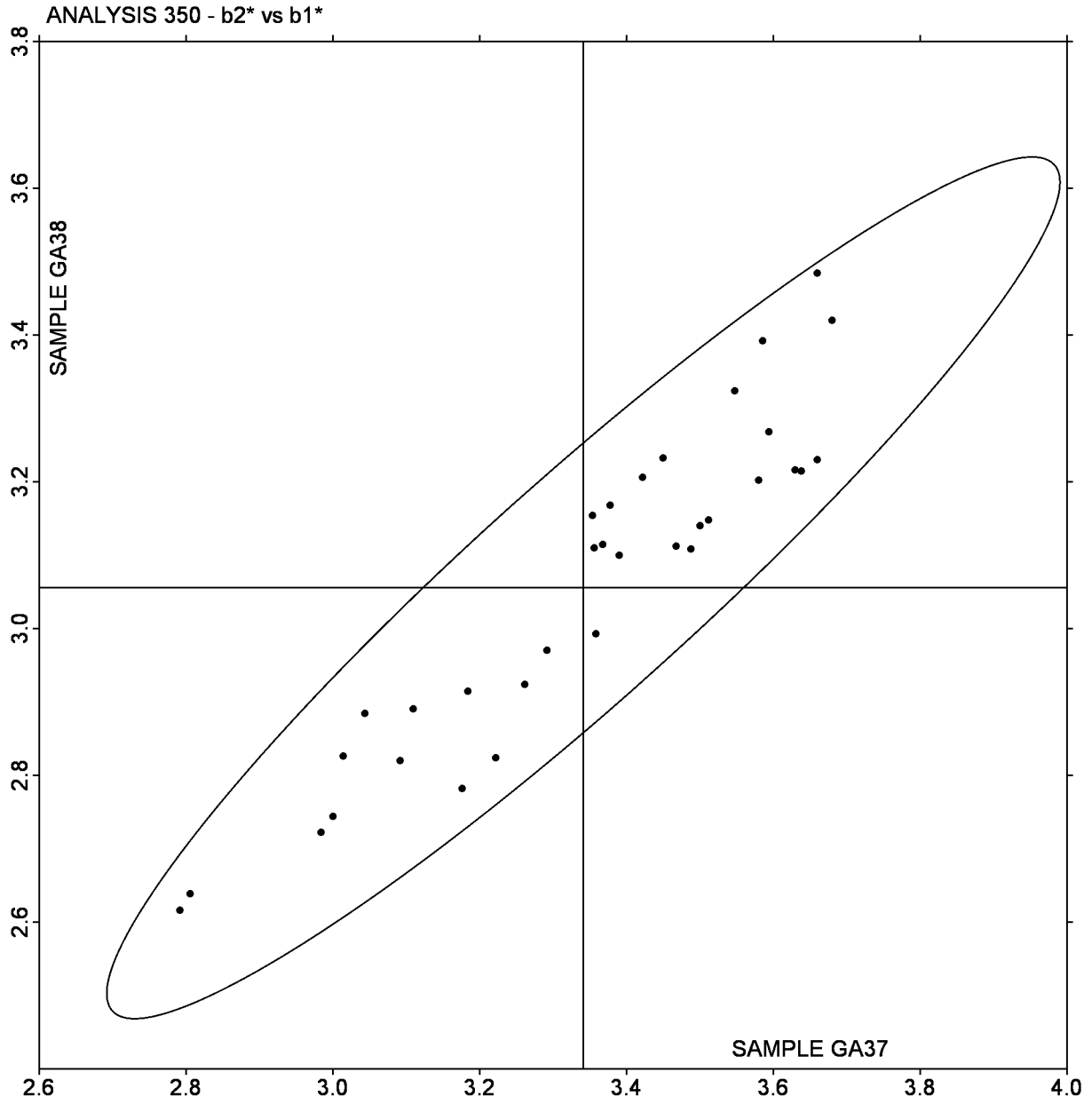


Analysis 350

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

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

Plot of b values GA38 v b values GA37



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	
1FGSES		GA37	97.42	-0.27	3.39	-7.36	-0.06	-0.30	7.37	HV
		GA38	90.06	-0.33	3.10					
2N1J8R		GA37	97.10	-0.60	3.39	-5.59	-0.09	-0.17	5.59	HV
		GA38	91.51	-0.69	3.22					
3G3RD4		GA37	97.37	-0.35	3.35	-5.80	-0.10	-0.24	5.81	EH
		GA38	91.57	-0.44	3.11					
4ZQUBF		GA37	97.43	-0.22	3.51	-5.73	-0.16	-0.16	5.74	NF
		GA38	91.70	-0.39	3.35					
92YTBBD		GA37	97.46	-0.25	3.61	-6.58	-0.11	-0.29	6.59	MG
		GA38	90.88	-0.35	3.31					
9Q15WP		GA37	97.56	-0.32	3.10	-5.70	0.00	0.12	5.70	XD
		GA38	91.86	-0.32	3.22					
AD6KCH		GA37	97.42	-0.34	3.54	-7.22	-0.09	-0.25	7.23	MG
		GA38	90.20	-0.43	3.29					
ARM2R8		GA37	96.94	-0.34	3.24	-7.28	-0.09	-0.17	7.29	HM
		GA38	89.66	-0.43	3.08					
C5KTQH		GA37	96.89	-0.24	3.35	-7.27	-0.05	-0.37	7.28	NF
		GA38	89.62	-0.29	2.98					
EY2KRJ		GA37	96.89	-0.25	3.37	-7.19	-0.07	-0.21	7.20	XA
		GA38	89.69	-0.32	3.16					
F5QLP1		GA37	96.84	-0.54	3.05	-7.06	-0.04	-0.26	7.06	HV
		GA38	89.79	-0.58	2.79					
HUV1J1		GA37	96.47	-0.31	3.61	-7.28	-0.10	-0.34	7.29	EF
		GA38	89.19	-0.42	3.27					
M5M38R		GA37	97.23	-0.40	3.41	-5.57	-0.08	-0.14	5.58	HV
		GA38	91.66	-0.48	3.27					
QRRHXZ		GA37	97.92	-0.27	3.40	-5.84	-0.10	-0.23	5.85	HV
		GA38	92.08	-0.37	3.18					
QZP2ZE		GA37	96.70	-0.30	3.31	-7.10	-0.14	-0.19	7.11	XX
		GA38	89.60	-0.44	3.11					
RU41X8		GA37	97.40	-0.30	3.46	-5.74	-0.10	-0.28	5.75	EF
		GA38	91.66	-0.40	3.18					
SB6HK6		GA37	96.64	-0.25	3.40	-7.16	-0.08	-0.39	7.18	NF
		GA38	89.48	-0.33	3.01					
VP4762		GA37	97.90	-0.39	3.34	-5.75	-0.05	-0.09	5.75	XU
		GA38	92.14	-0.44	3.25					

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	
VWQ45A		GA37	97.41	-0.24	3.53	-5.57	-0.14	-0.18	5.57	NG
		GA38	91.84	-0.38	3.35					
VZSZXQ	X	GA37	95.68	-0.57	1.84	-5.65	0.12	1.07	5.75	HV
		GA38	90.03	-0.45	2.91					
XBFNZ3		GA37	99.38	-0.24	3.48	-6.00	-0.10	-0.16	6.00	HG
		GA38	93.38	-0.34	3.32					
YJXTTU		GA37	96.69	-0.28	3.31	-7.23	-0.08	-0.25	7.24	TC
		GA38	89.46	-0.36	3.06					
ZFC9DH		GA37	96.69	-0.28	3.28	-7.19	-0.10	-0.26	7.19	TC
		GA38	89.51	-0.38	3.02					

		Summary Statistics							
Grand Means									
	GA37	97.193	-0.316	3.383	-6.511	-0.089	-0.219	6.516	
	GA38	90.720	-0.405	3.165					
Std Dev Btwn Labs									
	GA37	0.692	0.096	0.141	0.749	0.036	0.107	0.750	
	GA38	1.192	0.091	0.141					
Statistics based on 22 of 23 reporting participants									

Comments assigned on Data Flags for Test #351

VZSZXQ (X) - Low b values for Sample GA37. High da and db values.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(EH) - Datacolor Elrepho SF450

(HG) - Hunter ColorQUEST

(HM) - Hunter MiniScan XE Spectrophotometer

(HV) - Hunter Ultrascan XE

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

(NF) - Minolta CM-3600d Spectrophotometer

(NG) - Minolta CM-3700d Spectrophotometer

(TC) - Technidyne Color Touch Series

(XA) - X-Rite (model not specified)

(XD) - X-Rite 530 SpectroDensitometer

(XU) - X-Rite 968 Spectrophotometer

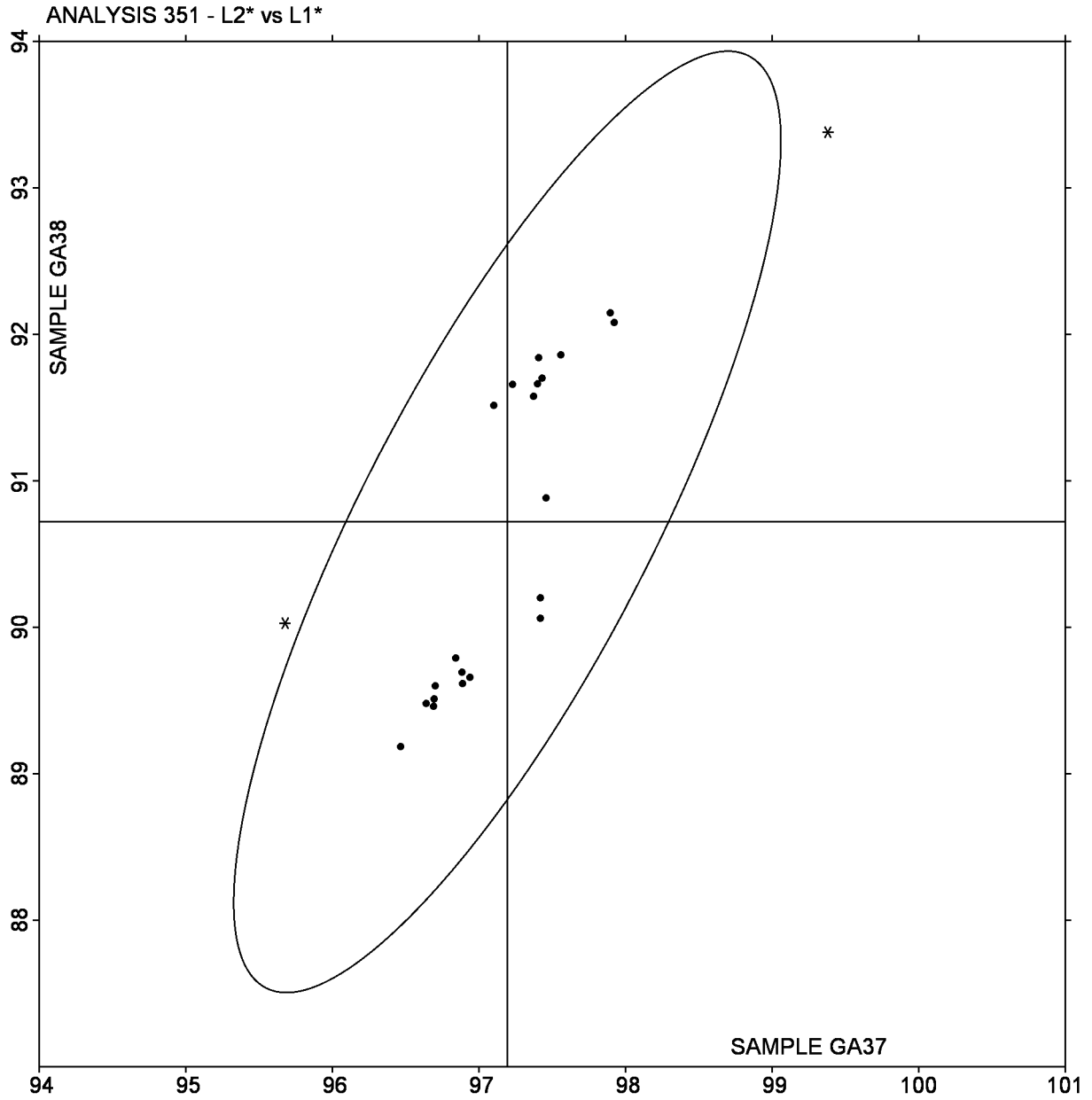
(XX) - Instrument make/model not specified by lab

Analysis 351

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

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

Plot of L values GA38 v L values GA37

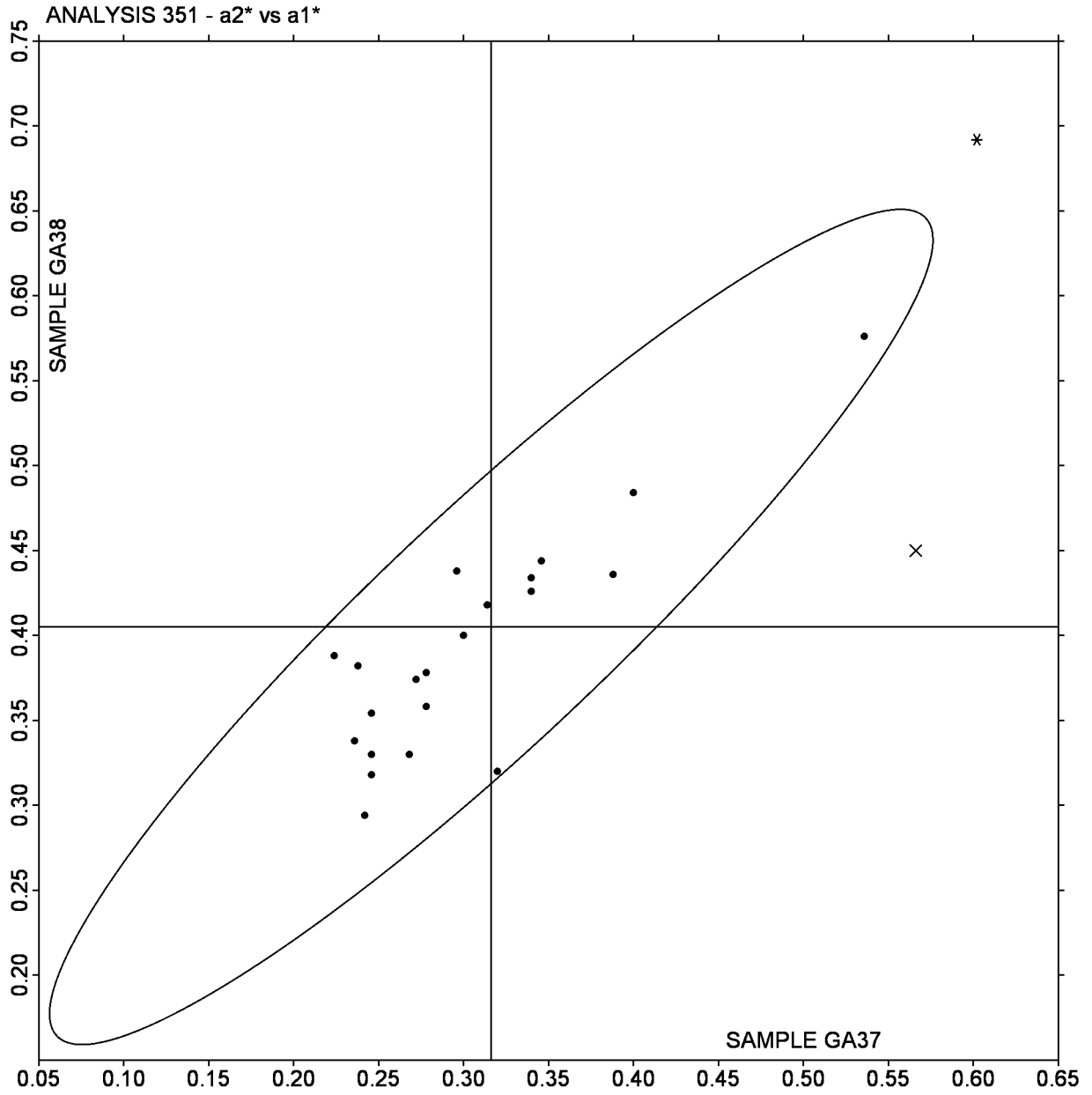


Analysis 351

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

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

Plot of a values GA38 v a values GA37

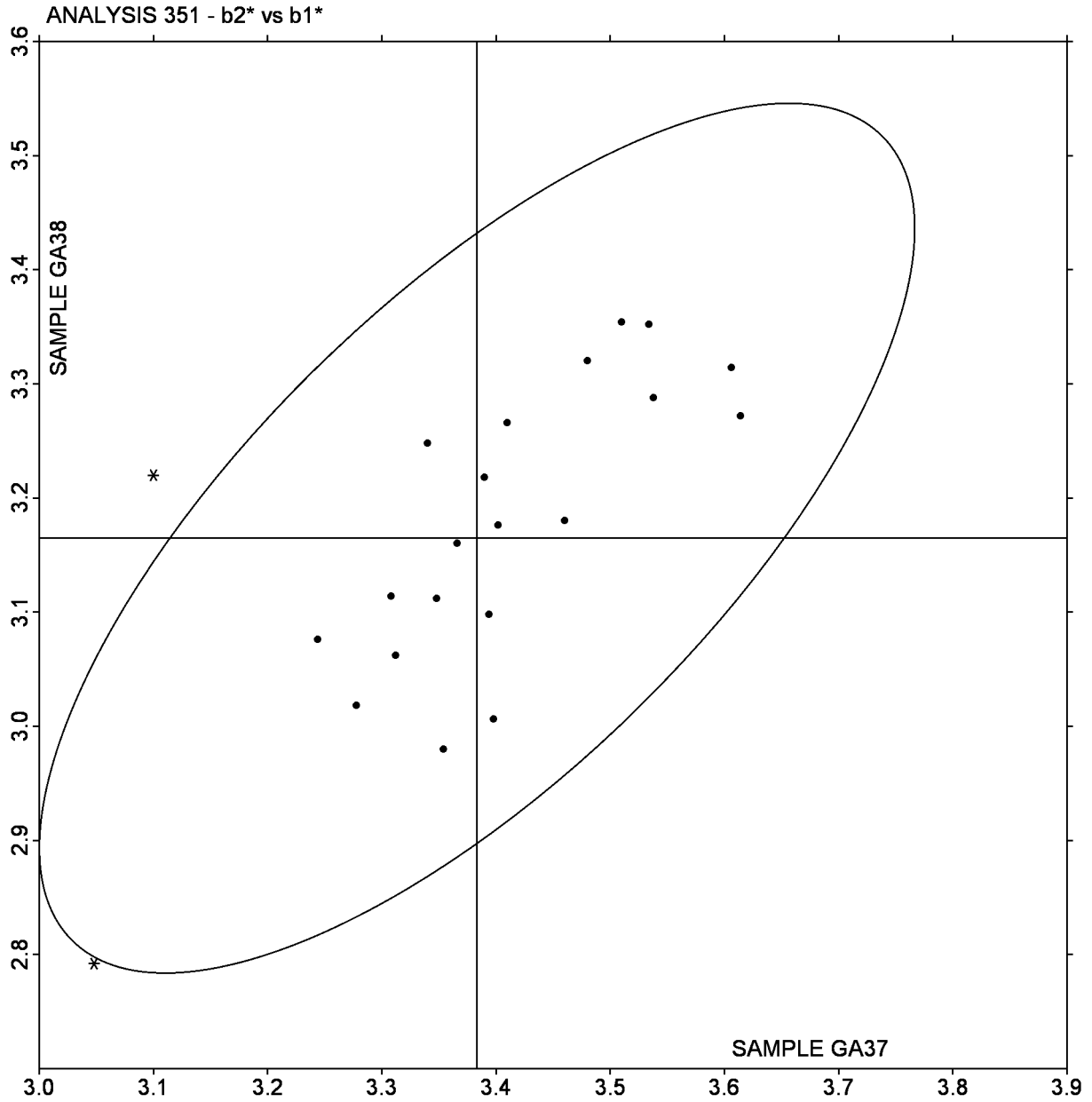


Analysis 351

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

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

Plot of b values GA38 v b values GA37



Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV37			Sample GV38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
16H4SQ		4.630	0.014	0.22	4.840	0.034	0.57	TP
1ETEYA		4.643	0.027	0.43	4.839	0.033	0.55	TM
21VGT3		4.527	-0.089	-1.41	4.686	-0.120	-2.02	XX
22KEVV		4.689	0.073	1.16	4.827	0.020	0.35	LW
2R84KC		4.533	-0.083	-1.31	4.733	-0.073	-1.24	TA
3JP5NB		4.654	0.038	0.60	4.871	0.065	1.09	EM
4R8KDT		4.541	-0.075	-1.18	4.767	-0.039	-0.66	EM
5EUQS2		4.685	0.069	1.09	4.833	0.026	0.45	TM
5GU36E		4.666	0.050	0.80	4.834	0.028	0.47	TM
624B4J		4.640	0.024	0.38	4.847	0.041	0.69	TM
6PWYWB		4.531	-0.085	-1.34	4.791	-0.015	-0.26	LL
7PAURH		4.685	0.069	1.09	4.858	0.052	0.88	LW
7ZU4GX		4.694	0.078	1.24	4.896	0.090	1.52	LW
8V6H4V		4.678	0.062	0.98	4.877	0.071	1.19	VM
8Y45CQ		4.639	0.023	0.37	4.845	0.039	0.65	EM
93HKKA		4.668	0.052	0.82	4.812	0.006	0.10	EM
9KKTMI		4.695	0.079	1.25	4.912	0.106	1.79	EM
9RMY5K		4.721	0.105	1.66	4.930	0.124	2.09	LW
ADTD98		4.644	0.028	0.45	4.793	-0.013	-0.22	TM
AL9G7F		4.539	-0.077	-1.21	4.718	-0.088	-1.49	EM
AU74HE		4.580	-0.036	-0.57	4.820	0.014	0.23	LL
BLD6HS		4.664	0.048	0.76	4.896	0.090	1.52	TM
BNCYER		4.643	0.027	0.43	4.839	0.033	0.55	EM
BZ1A5G		4.695	0.079	1.25	4.851	0.045	0.76	EM
C2F9GP		4.494	-0.122	-1.93	4.678	-0.128	-2.17	TM
C6MJ5R		4.593	-0.023	-0.36	4.731	-0.075	-1.27	LL
CN7MVK		4.690	0.074	1.17	4.884	0.078	1.31	TA
D1937M		4.648	0.032	0.51	4.866	0.059	1.00	LW
DAG5LD		4.524	-0.091	-1.44	4.702	-0.104	-1.75	TA
DYZLNA		4.645	0.029	0.46	4.777	-0.029	-0.49	EM
E78FH3		4.553	-0.063	-0.99	4.783	-0.023	-0.39	EM
EAYHXG		4.632	0.016	0.26	4.856	0.050	0.84	TM
EMLVJD		4.704	0.088	1.39	4.836	0.030	0.50	EM
EYFN5Q		4.528	-0.088	-1.40	4.783	-0.023	-0.39	MT
F1QAT1		4.602	-0.013	-0.21	4.811	0.005	0.08	LW
F2JH2Z		4.592	-0.024	-0.38	4.834	0.028	0.47	XX
FJLBLT		4.748	0.132	2.09	4.925	0.119	2.01	FR
FSUU5B		4.674	0.058	0.92	4.860	0.054	0.91	LW
FYGB77	*	4.473	-0.143	-2.26	4.650	-0.156	-2.64	TA
G75CGP		4.643	0.027	0.42	4.872	0.065	1.10	LW
GAZU94	*	4.563	-0.053	-0.83	4.842	0.036	0.60	TA
GZ4S2U		4.700	0.084	1.33	4.860	0.054	0.91	XX
HBJSK9		4.712	0.096	1.52	4.846	0.040	0.68	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV37			Sample GV38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
JBZ8CG		4.563	-0.053	-0.84	4.732	-0.074	-1.25	LW
JJEJQM		4.573	-0.043	-0.68	4.749	-0.057	-0.97	EM
JWB2P7		4.620	0.004	0.07	4.800	-0.006	-0.11	LW
K7988X		4.618	0.002	0.04	4.764	-0.042	-0.72	LW
KL VKK7		4.648	0.032	0.51	4.835	0.029	0.49	LW
KN6L52		4.633	0.017	0.27	4.855	0.049	0.82	TA
KPHKZA		4.551	-0.065	-1.02	4.815	0.009	0.15	XX
KRKXLV		4.650	0.034	0.54	4.860	0.054	0.91	TM
M17YFH		4.540	-0.076	-1.20	4.740	-0.066	-1.12	TM
M1PLVX		4.654	0.038	0.60	4.845	0.039	0.65	LW
M4KHY5	X	4.797	0.181	2.86	5.019	0.213	3.59	VM
M6UVWT		4.675	0.059	0.94	4.832	0.026	0.44	LW
MAP8RA		4.609	-0.007	-0.11	4.845	0.039	0.65	EM
MBV7EJ		4.598	-0.018	-0.28	4.752	-0.054	-0.92	EM
NA2AN9		4.515	-0.101	-1.59	4.717	-0.089	-1.51	LW
NJ8EX8		4.614	-0.002	-0.03	4.748	-0.058	-0.98	LW
P6QM35		4.555	-0.061	-0.97	4.746	-0.061	-1.02	TM
P9RN5N		4.614	-0.002	-0.03	4.820	0.013	0.23	LW
PRWUKP		4.660	0.044	0.70	4.790	-0.016	-0.27	TM
PV59WU		4.633	0.017	0.27	4.864	0.058	0.97	LW
PZL4TD		4.543	-0.073	-1.15	4.768	-0.039	-0.65	TM
QDMJL1		4.590	-0.026	-0.41	4.753	-0.053	-0.90	TP
QU8NU9		4.570	-0.046	-0.72	4.780	-0.026	-0.44	TM
QVFHZ1		4.661	0.046	0.72	4.795	-0.011	-0.19	LW
RAQL1L		4.598	-0.018	-0.28	4.814	0.008	0.13	TM
RH31ZQ		4.525	-0.091	-1.44	4.733	-0.074	-1.24	TM
RJD3A3		4.566	-0.050	-0.79	4.791	-0.016	-0.26	TM
RVJCNR		4.609	-0.007	-0.11	4.783	-0.023	-0.39	TA
RZ2LXB		4.488	-0.128	-2.02	4.673	-0.133	-2.25	TM
SJHAJV		4.570	-0.046	-0.72	4.787	-0.019	-0.33	TA
SJHBFE		4.648	0.032	0.51	4.850	0.044	0.74	TM
SXL7S9		4.630	0.014	0.22	4.839	0.032	0.55	LW
T8GADU		4.459	-0.157	-2.48	4.682	-0.124	-2.10	TA
V18Y83		4.603	-0.013	-0.20	4.774	-0.032	-0.54	EM
V1SDLQ		4.594	-0.022	-0.34	4.776	-0.030	-0.51	TM
V2VW3M		4.596	-0.019	-0.31	4.778	-0.028	-0.48	TM
VD97WP		4.638	0.022	0.35	4.780	-0.026	-0.44	EM
WL83HU		4.650	0.034	0.54	4.810	0.004	0.06	TM
WMU3UK		4.560	-0.056	-0.88	4.770	-0.036	-0.61	TM
X7ZEG5	X	4.679	0.063	1.00	4.736	-0.070	-1.19	TA
XBB3EG		4.710	0.094	1.49	4.873	0.067	1.13	EM
XC1RZV		4.587	-0.029	-0.46	4.794	-0.012	-0.21	TM

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

WebCode	Data Flag	Sample GV37			Sample GV38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XCBJTK		4.588	-0.028	-0.44	4.802	-0.004	-0.07	TM
XM6476		4.611	-0.005	-0.08	4.801	-0.005	-0.09	LL
XU1917		4.648	0.032	0.51	4.816	0.010	0.16	TM
XY2RGT		4.612	-0.004	-0.06	4.846	0.040	0.67	TM
YHHKBT	*	4.708	0.092	1.45	4.799	-0.007	-0.13	EM
YL2JPN		4.746	0.130	2.06	4.909	0.103	1.73	EM
Z33RE9		4.590	-0.026	-0.41	4.769	-0.037	-0.63	TM
ZRUA1Y	X	4.570	-0.046	-0.72	4.750	-0.056	-0.95	TM

Summary Statistics			
	Sample GV37		Sample GV38
Grand Means	4.6158 mils		4.8063 mils
SD Btwn Labs	0.0633 mils		0.0592 mils
Statistics based on 90 of 93 reporting participants			

Comments on assigned Data Flags for Test #360

M4KHY5 (X) - Systematic error (data for both samples are high).

X7ZEG5 (X) - Inconsistent in testing between samples.

ZRUA1Y (X) - Data appear to be reported as mils, not mm as indicated on datasheet.

Instrument Code List as Reported by the Labs

(EM) - Emveco	(FR) - Frank Instruments
(LL) - L & W Autoline 300	(LW) - L & W
(MT) - Mitutoyo	(TA) - Thwing-Albert
(TM) - TMI	(TP) - Technidyne Profile Plus
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab

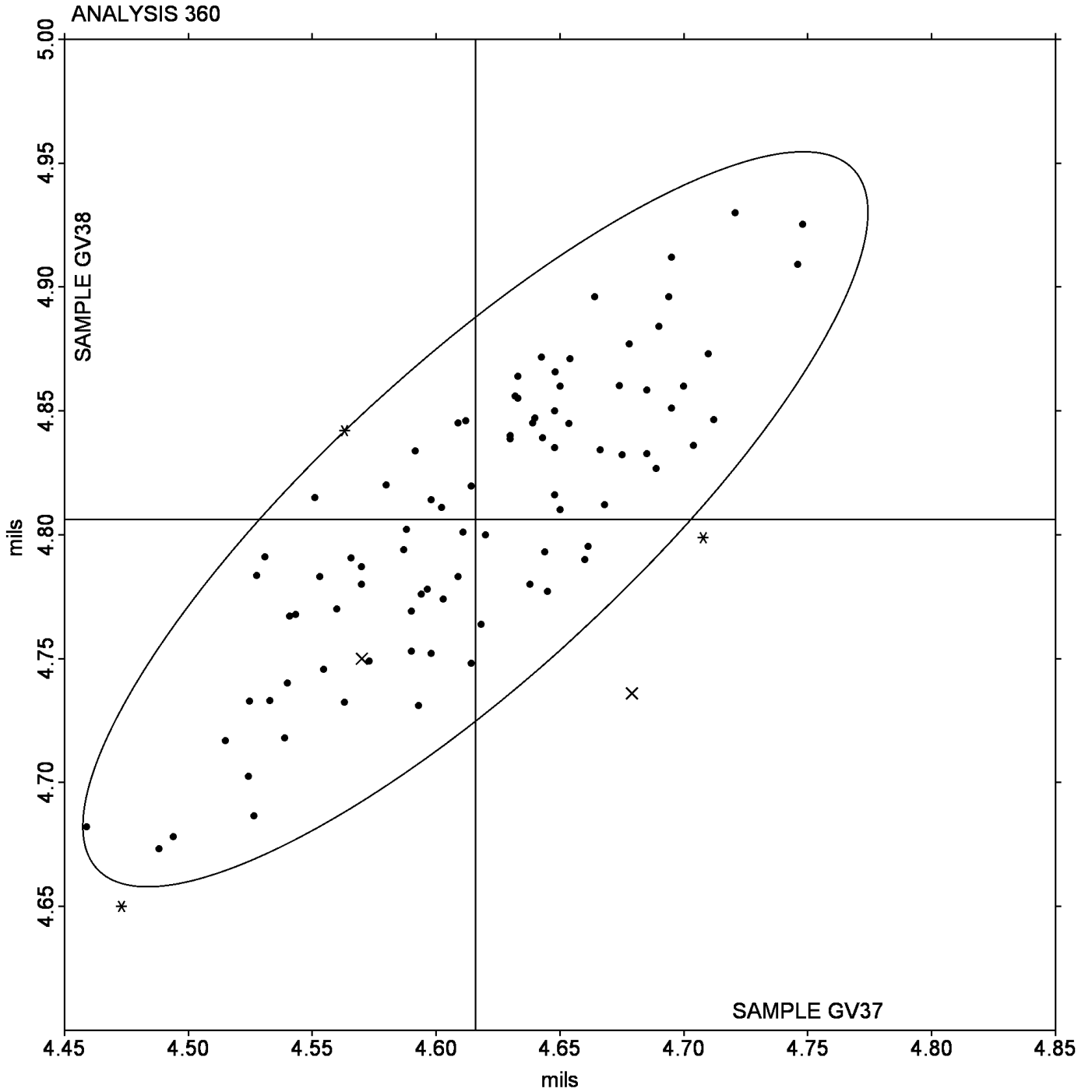
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV37** = 4.6158 mils

Grand Mean Sample **GV38** = 4.8063 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY37			Sample GY38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
176RTR		8.610	0.035	0.32	7.376	-0.002	-0.02	EM
1DHW4A		8.701	0.126	1.14	7.457	0.079	0.86	LW
1ZKAW2		8.546	-0.029	-0.27	7.340	-0.038	-0.41	TM
4E5ALK		8.437	-0.138	-1.26	7.367	-0.011	-0.12	TA
57JH86		8.657	0.082	0.74	7.453	0.075	0.82	EM
5AQCCN		8.587	0.011	0.10	7.409	0.032	0.35	LW
5VRYU1		8.845	0.270	2.46	7.517	0.139	1.52	TA
7FC97B		8.699	0.124	1.13	7.545	0.167	1.82	TM
8SGWTD		8.540	-0.035	-0.32	7.290	-0.088	-0.95	TM
9HVSJT		8.652	0.077	0.70	7.400	0.022	0.24	LA
A2P1FE		8.638	0.063	0.57	7.406	0.028	0.30	LW
AF85NQ		8.562	-0.013	-0.12	7.290	-0.088	-0.95	TA
BTDPTP		8.530	-0.045	-0.41	7.390	0.012	0.13	EM
C5TPPA		8.618	0.043	0.39	7.502	0.124	1.35	LW
CST4QC		8.634	0.059	0.54	7.343	-0.035	-0.38	LW
DGPF9Z		8.650	0.075	0.68	7.440	0.062	0.68	TM
EZWNJD		8.545	-0.030	-0.27	7.246	-0.132	-1.43	TM
FD77HK		8.631	0.056	0.51	7.355	-0.023	-0.25	EM
GGXPN4		8.412	-0.163	-1.49	7.309	-0.069	-0.75	EM
HNJC5X		8.650	0.075	0.68	7.396	0.018	0.20	TM
J2BVC3		8.593	0.018	0.16	7.464	0.086	0.94	EM
K8BNTA	X	8.717	0.141	1.29	7.374	-0.004	-0.04	LA
LHREZE		8.445	-0.130	-1.19	7.274	-0.104	-1.13	TM
MWJUXL		8.720	0.145	1.32	7.420	0.042	0.46	TM
NDAL2L		8.390	-0.185	-1.69	7.200	-0.178	-1.93	TA
PF9EEF		8.390	-0.185	-1.69	7.180	-0.198	-2.15	TM
Q7ZS3M		8.307	-0.268	-2.44	7.181	-0.196	-2.14	XX
RV9L9M		8.580	0.005	0.04	7.361	-0.017	-0.18	TA
TSSZRS		8.514	-0.061	-0.56	7.322	-0.056	-0.60	EM
TW7EGJ		8.642	0.067	0.61	7.406	0.028	0.30	XX
W4SVMQ		8.446	-0.129	-1.18	7.298	-0.080	-0.87	TA
WBZYA5		8.575	0.000	0.00	7.372	-0.006	-0.06	EM
WP27LM		8.682	0.107	0.97	7.500	0.122	1.33	TM
XACNH5		8.619	0.044	0.40	7.469	0.091	0.99	LA
XCHQA8		8.496	-0.079	-0.72	7.415	0.037	0.41	TM
XS35SD		8.565	-0.010	-0.09	7.438	0.061	0.66	LW
Y51R2E		8.493	-0.082	-0.75	7.349	-0.029	-0.31	XX
YC3LUN		8.683	0.108	0.98	7.492	0.114	1.24	TM

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

	Sample GY37	Summary Statistics	Sample GY38
Grand Means	8.5752 mils		7.3776 mils
SD Btwn Labs	0.1098 mils		0.0919 mils
Statistics based on 37 of 38 reporting participants			

Comments on assigned Data Flags for Test #361

K8BNTA (X) - Data appear to be reported as micrometers, not mm as indicated on datasheet.

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(LW) - L & W

(TA) - Thwing-Albert

(TM) - TMI

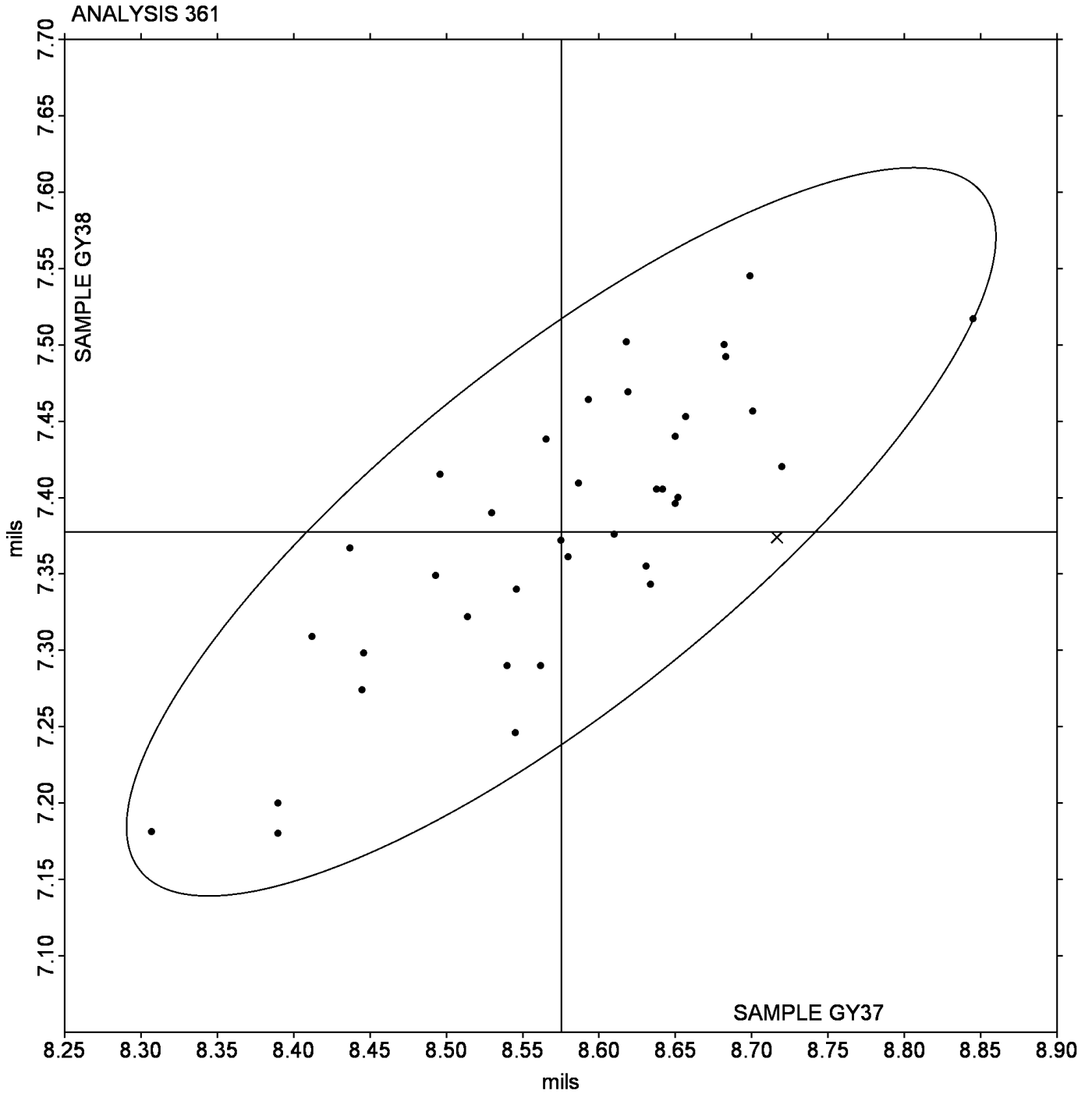
(XX) - Instrument make/model not specified by lab

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample GY37 = 8.5752 mils

Grand Mean Sample GY38 = 7.3776 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD37			Sample GD38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
5MDKSB		0.5864	0.0669	0.81	0.6192	0.0716	0.86	TA
83N29F		0.5672	0.0477	0.58	0.5620	0.0144	0.17	TM
8GSA2W		0.4842	-0.0353	-0.43	0.4946	-0.0530	-0.64	TM
9AAZ58		0.5760	0.0565	0.68	0.6100	0.0624	0.75	TA
9EMY82		0.5980	0.0785	0.95	0.5980	0.0504	0.61	IX
DM9RR8		0.5358	0.0163	0.20	0.5804	0.0328	0.39	TM
EK556G		0.4838	-0.0357	-0.43	0.5580	0.0104	0.12	TM
FRFP3U		0.4594	-0.0601	-0.73	0.4856	-0.0620	-0.75	TL
G8681L		0.5520	0.0325	0.39	0.5800	0.0324	0.39	TM
HUAETW		0.6308	0.1113	1.35	0.6214	0.0738	0.89	TM
N374BV		0.4994	-0.0201	-0.24	0.5070	-0.0406	-0.49	TM
Q8U16J		0.4888	-0.0307	-0.37	0.5468	-0.0008	-0.01	TM
SRJYLF		0.4892	-0.0303	-0.37	0.5470	-0.0006	-0.01	TM
TFSZU9		0.6244	0.1049	1.27	0.6800	0.1324	1.59	TM
TNCVCR		0.5254	0.0059	0.07	0.5638	0.0162	0.19	TM
VZT76R		0.5640	0.0445	0.54	0.6000	0.0524	0.63	TL
XJVXFK		0.5434	0.0239	0.29	0.5462	-0.0014	-0.02	XX
Y136CX	X	0.2446	-0.2749	-3.32	0.2464	-0.3012	-3.62	TA
Y8BE8Y		0.3340	-0.1855	-2.24	0.3520	-0.1956	-2.35	IN
YQRPVS		0.3276	-0.1919	-2.32	0.3524	-0.1952	-2.35	XX

Sample GD37		Summary Statistics	Sample GD38	
Grand Means	0.51946 COF		0.54760 COF	
SD Btwn Labs	0.08268 COF		0.08322 COF	
Statistics based on 19 of 20 reporting participants				

Comments on assigned Data Flags for Test #364

Y136CX (X) - Systematic error (data for both samples are low).

Instrument Code List as Reported by the Labs

(IN) - Instron 5500 R

(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

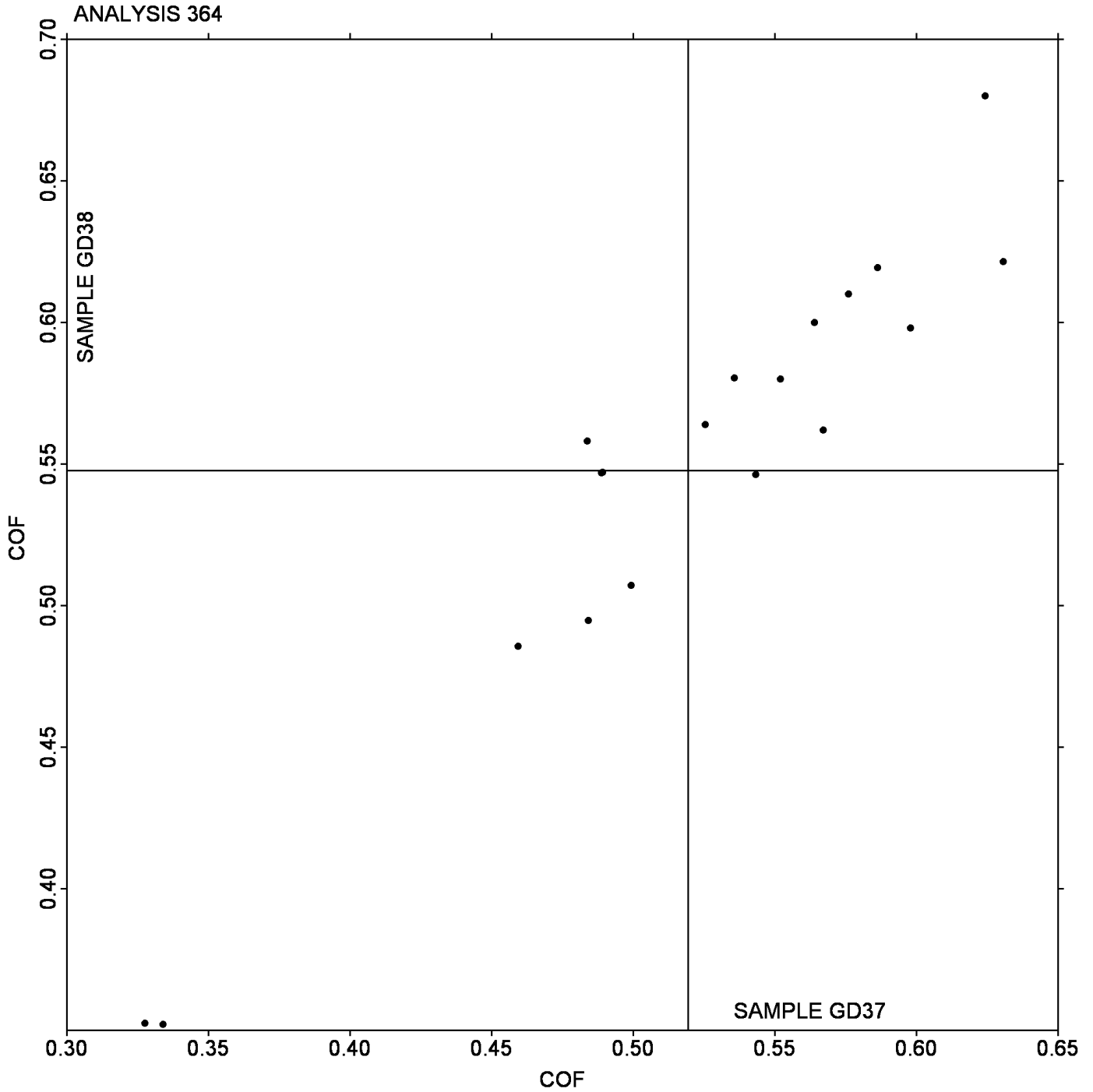
(XX) - Instrument make/model not specified by lab

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample GD37 = 0.51946 COF

Grand Mean Sample GD38 = 0.54760 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 GD37			Sample GD38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3ESJYU		0.5098	0.0780	0.75	0.5382	0.0832	0.77	TM
7736HJ		0.2684	-0.1634	-1.57	0.3044	-0.1506	-1.39	XX
8KB65P		0.2340	-0.1978	-1.90	0.2140	-0.2410	-2.22	IN
8PN7WL		0.4534	0.0216	0.21	0.4720	0.0170	0.16	TM
8PR81D		0.6060	0.1742	1.67	0.6200	0.1650	1.52	TL
BYXSNK		0.4350	0.0032	0.03	0.5010	0.0460	0.42	TM
CV2TAE		0.4640	0.0322	0.31	0.5160	0.0610	0.56	KY
GUXG4E		0.2268	-0.2050	-1.96	0.2448	-0.2102	-1.94	TA
HNAQ3Y		0.4400	0.0082	0.08	0.4700	0.0150	0.14	TA
HRMP5S		0.5340	0.1022	0.98	0.5600	0.1050	0.97	IX
KC1ER6		0.4750	0.0432	0.41	0.5094	0.0544	0.50	TA
LSVH7X		0.3722	-0.0596	-0.57	0.4630	0.0080	0.07	TM
NXQBWG		0.4812	0.0494	0.47	0.4196	-0.0354	-0.33	TM
P9YKPZ		0.5102	0.0784	0.75	0.4980	0.0430	0.40	TM
SRCGW9		0.4660	0.0342	0.33	0.4930	0.0380	0.35	TA
TYV2WT		0.4684	0.0366	0.35	0.5012	0.0462	0.43	TM
YKAZUB		0.3956	-0.0362	-0.35	0.4100	-0.0450	-0.41	TL

Summary Statistics			
	Sample GD37		Sample GD38
Grand Means	0.43176 COF		0.45498 COF
SD Btw Labs	0.10432 COF		0.10845 COF
Statistics based on 17 of 17 reporting participants			

Notes for Analysis 365

No Data Flags assigned for this analysis.

Instrument Code List as Reported by the Labs

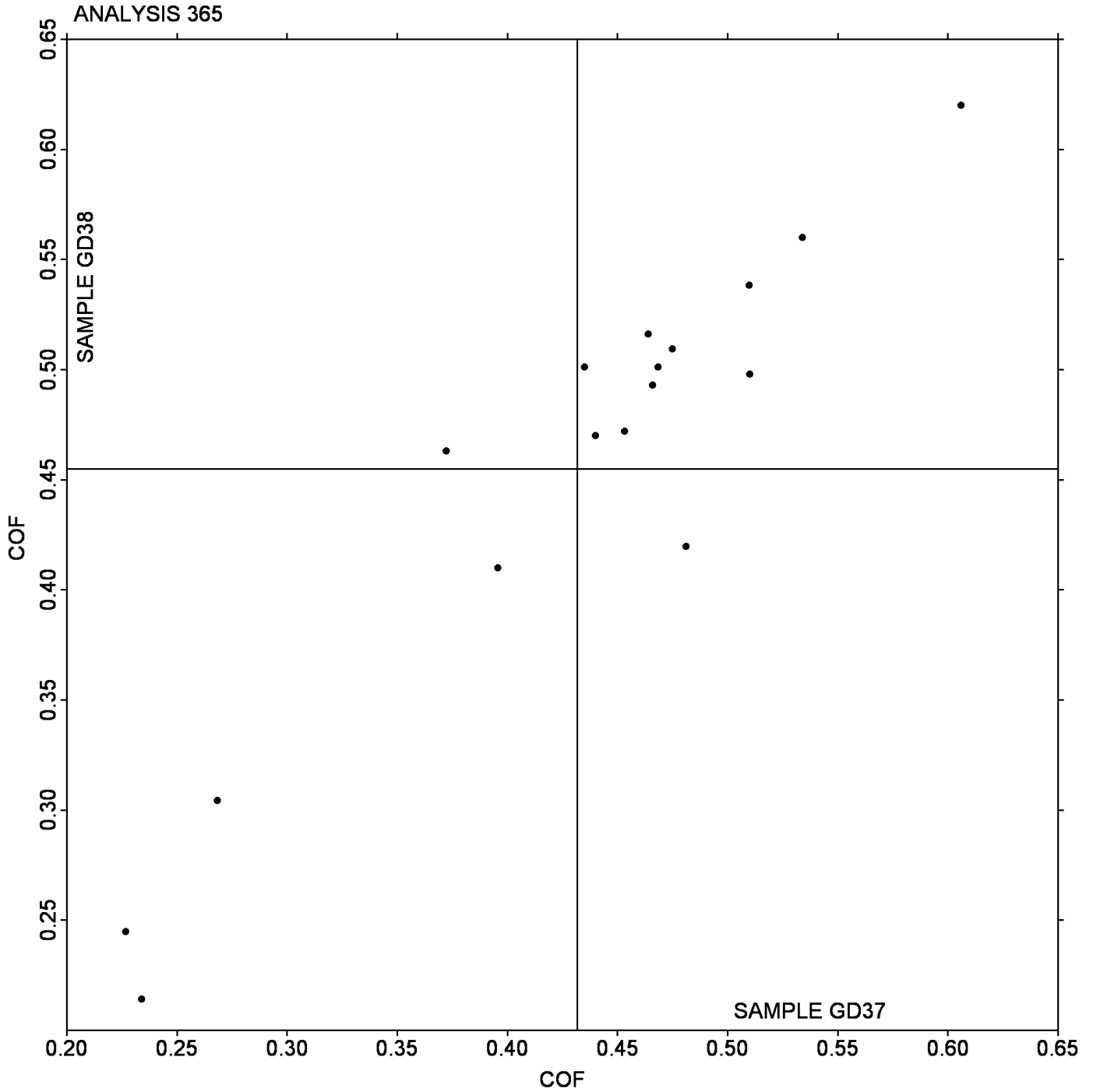
- (IN) - Instron 5500 R
- (IX) - Instron (model not specified)
- (KY) - Kayeness COF Tester D1055D
- (TA) - Thwing-Albert Friction Tester
- (TL) - TMI 32-90 Lab Master/Slip and Friction
- (TM) - TMI 32-06 Monitor/Slip and Friction
- (XX) - Instrument make/model not specified by lab

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD37** = 0.43176 COF

Grand Mean Sample **GD38** = 0.45498 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 GE37			Sample GE38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1P6RKD		18.36	1.92	2.46	13.25	1.50	2.10	GS
275425		18.08	1.64	2.10	13.08	1.33	1.86	TL
2D2YTY		16.40	-0.04	-0.05	12.60	0.85	1.19	XX
3TYDMR		15.98	-0.46	-0.59	11.16	-0.59	-0.82	LW
4D8PHZ		16.93	0.49	0.63	11.82	0.07	0.10	XX
4R9YTE		17.24	0.80	1.02	12.04	0.29	0.41	XX
545KGB	*	17.46	1.02	1.30	13.67	1.92	2.68	TN
55GJBK		16.14	-0.30	-0.39	11.55	-0.20	-0.28	LW
5B22ST		16.42	-0.02	-0.03	11.71	-0.04	-0.05	LP
5ZKHUQ		17.26	0.82	1.05	12.18	0.43	0.60	TL
65WG69		16.69	0.25	0.32	10.94	-0.81	-1.13	TM
81ULT7		16.44	0.00	0.00	11.71	-0.04	-0.05	XX
84UWQ7		16.30	-0.14	-0.18	11.36	-0.39	-0.54	GL
89WPJQ		15.41	-1.03	-1.32	10.99	-0.76	-1.06	LP
8ESTD2		16.54	0.10	0.13	11.35	-0.40	-0.56	LW
8H1LLT	X	23.18	6.74	8.63	16.13	4.38	6.11	VM
9EP7BZ		15.16	-1.28	-1.64	11.42	-0.33	-0.46	XX
9U4NJB		16.30	-0.14	-0.18	11.51	-0.24	-0.33	LA
9Y6MCE		15.77	-0.67	-0.86	11.10	-0.65	-0.91	LW
B9QZYP		16.03	-0.41	-0.53	11.39	-0.36	-0.50	LP
BBWUQZ		16.91	0.47	0.60	11.78	0.03	0.04	LW
BCWU1L		16.59	0.15	0.19	12.34	0.59	0.83	HG
DZHASP		16.66	0.22	0.28	12.22	0.47	0.66	HG
EV34M2		15.78	-0.66	-0.85	10.66	-1.09	-1.52	TM
F381TZ		16.52	0.08	0.10	12.54	0.79	1.11	LP
FKWN7G		16.50	0.06	0.08	12.30	0.55	0.77	LW
FKZPBA		15.89	-0.55	-0.71	11.68	-0.07	-0.10	LP
FX682V		16.77	0.33	0.42	12.48	0.73	1.02	HG
HSXDKX		15.91	-0.53	-0.68	11.58	-0.17	-0.24	LP
JJ1H36		17.20	0.76	0.97	12.54	0.79	1.11	LP
KRND78		17.60	1.16	1.48	12.20	0.45	0.63	TL
KXEK3N		15.80	-0.64	-0.82	11.40	-0.35	-0.49	LA
LH44QK		16.59	0.15	0.20	11.35	-0.40	-0.56	HG
MLCXWB		15.72	-0.72	-0.92	11.08	-0.67	-0.93	WG
MVMT5T		16.02	-0.42	-0.54	11.49	-0.26	-0.36	HG
N82Y72	*	14.43	-2.01	-2.58	9.89	-1.86	-2.60	GS
NA29RQ		17.68	1.24	1.59	12.72	0.97	1.36	TL
NVA419		16.91	0.47	0.60	12.23	0.48	0.67	TL
P4XMSM		16.42	-0.02	-0.03	11.84	0.09	0.13	XX
QLPQK3		15.51	-0.93	-1.19	10.88	-0.87	-1.21	GS
QTUVKK		15.00	-1.44	-1.85	10.60	-1.15	-1.60	LW
RC4HYK		17.34	0.90	1.15	12.41	0.66	0.92	XX
RJRSDE		15.78	-0.66	-0.85	11.47	-0.28	-0.39	RE

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

WebCode	Data Flag	Sample GE37			Sample GE38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
T5AT2S		17.30	0.86	1.10	12.00	0.25	0.35	HG
TFHQJQ		15.70	-0.74	-0.95	10.80	-0.95	-1.32	GL
TUH694		16.18	-0.26	-0.33	11.60	-0.15	-0.21	HG
U278YS		17.61	1.17	1.50	11.83	0.08	0.11	HG
W1X964		16.25	-0.19	-0.24	11.80	0.05	0.07	LP
W3DW5G		16.07	-0.37	-0.48	11.47	-0.28	-0.39	XX
XCJ5G1		15.92	-0.52	-0.67	11.15	-0.60	-0.84	TN
Y1NR32		16.95	0.51	0.65	12.04	0.29	0.41	GA
YFB2CX		15.79	-0.65	-0.83	11.11	-0.64	-0.89	LW
YV2TU7	X	21.68	5.24	6.71	15.84	4.09	5.71	TL
ZQPCW3		16.73	0.29	0.37	12.62	0.87	1.22	XX

Summary Statistics			
	Sample GE37		Sample GE38
Grand Means	16.441 sec/100 cc		11.749 sec/100 cc
SD Btwn Labs	0.781 sec/100 cc		0.716 sec/100 cc
Statistics based on 52 of 54 reporting participants			

Comments on assigned Data Flags for Test #370

8HILLT (X) - Extreme data.

YV2TU7 (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
- (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

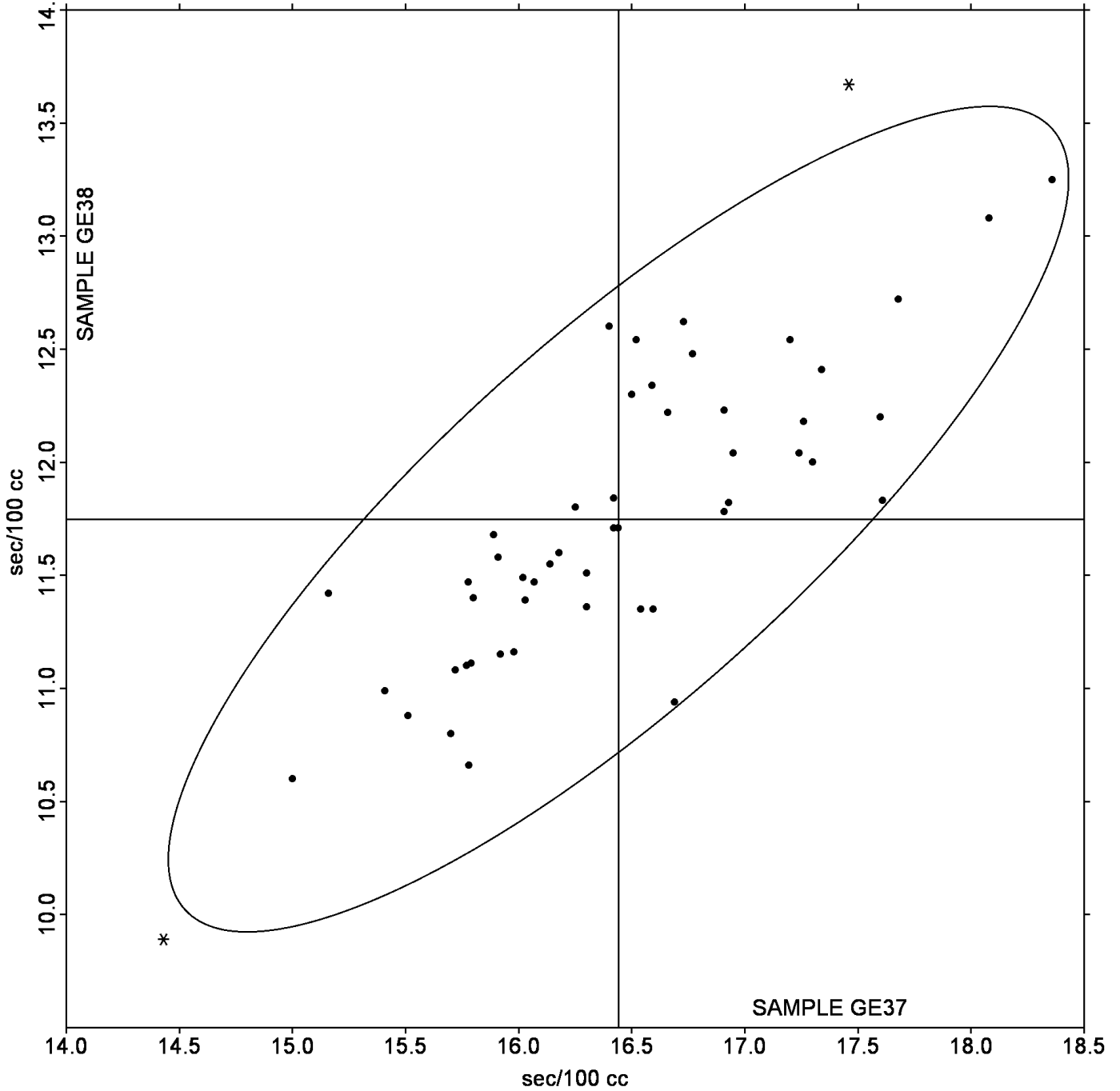
Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE37** = 16.441 sec/100 cc

Grand Mean Sample **GE38** = 11.749 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 GE37			Sample GE38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1YYALC		163.1	4.8	0.57	213.0	-1.5	-0.09	SH
2QRZ3D		162.3	4.0	0.47	238.0	23.5	1.44	SH
67AHQU		156.5	-1.8	-0.22	216.6	2.1	0.13	LA
7EH5SP		162.2	3.9	0.46	229.4	14.9	0.92	TT
8LT9Y8		162.2	3.9	0.46	211.1	-3.4	-0.21	HM
AXH9QF	*	135.1	-23.2	-2.75	197.9	-16.6	-1.02	SH
F8CATT		156.2	-2.1	-0.25	200.3	-14.2	-0.88	SH
G2SMK9		151.9	-6.4	-0.76	187.5	-27.0	-1.66	LP
G47ZQJ		155.0	-3.3	-0.39	210.5	-4.0	-0.25	TT
GEYHXJ		157.4	-0.9	-0.11	182.0	-32.5	-2.00	TA
GQWQAU		163.4	5.1	0.60	232.3	17.8	1.09	SH
HE1PY4		152.4	-5.9	-0.70	213.3	-1.2	-0.08	XX
HRLD7F		169.5	11.2	1.33	228.6	14.1	0.87	SH
JXKJJR		162.5	4.2	0.50	219.0	4.5	0.28	SH
KS5DE5	*	139.4	-18.9	-2.24	234.5	20.0	1.23	SH
KX9846		166.0	7.7	0.91	194.0	-20.5	-1.26	SH
L844GS		168.0	9.7	1.15	232.9	18.4	1.13	HG
LU54M4		154.0	-4.3	-0.51	216.8	2.3	0.14	GA
NJWB68		148.3	-10.0	-1.19	210.8	-3.7	-0.23	HM
NX6RS5	X	122.3	-36.0	-4.27	150.9	-63.6	-3.92	TS
Q2FEQ7		170.9	12.6	1.49	253.3	38.8	2.39	SH
QUR2BC		159.6	1.3	0.15	203.3	-11.2	-0.69	TT
TLXARM		166.4	8.1	0.96	222.3	7.8	0.48	HG
W43QYR		151.6	-6.7	-0.80	201.2	-13.3	-0.82	LP
W8Q43T		163.8	5.5	0.65	208.5	-6.0	-0.37	VM
XK4EA9		159.3	1.0	0.12	221.5	7.0	0.43	HM
Y7HWJW		163.5	5.2	0.61	208.4	-6.1	-0.38	HM
Z4DQB4		154.2	-4.1	-0.49	205.2	-9.3	-0.57	HM

Summary Statistics		
	Sample GE37	Sample GE38
Grand Means	158.32 Sheffield Units	214.53 Sheffield Units
SD Btwn Labs	8.43 Sheffield Units	16.25 Sheffield Units
Statistics based on 27 of 28 reporting participants		

Comments on assigned Data Flags for Test #372

NX6RS5 (X) - Systematic error (data for both samples are low).

**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 300
(LP) - L & W Densometer, Air Permeance	(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	

Paper & Paperboard Interlaboratory Testing Program

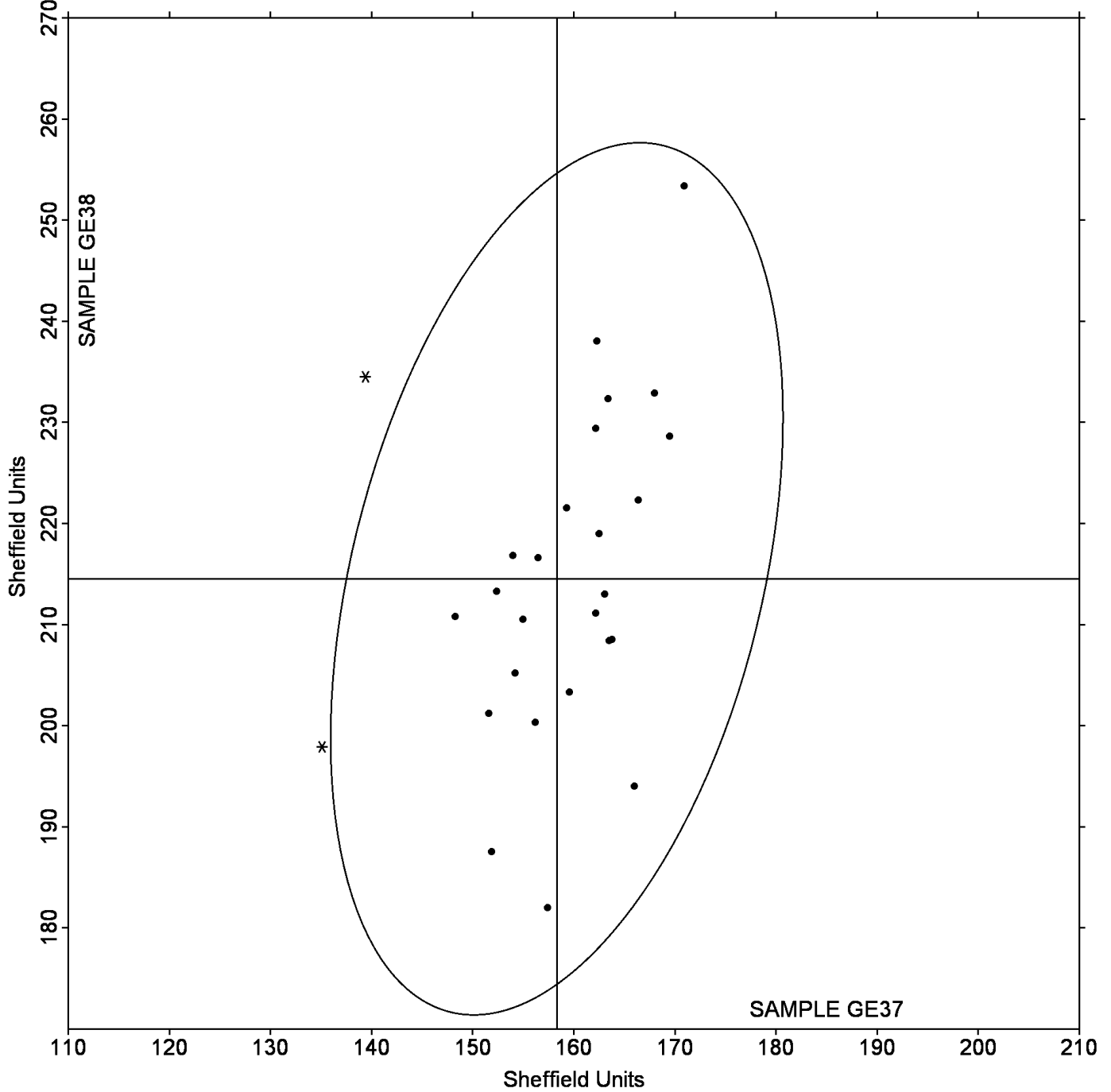
Analysis 372

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

Grand Mean Sample **GE37** = 158.32 Sheffield Units

Grand Mean Sample **GE38** = 214.53 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 GJ37			Sample GJ38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2XP7J8	X	6.486	4.899	62.42	6.480	5.077	68.27
4TL3MR		1.637	0.050	0.64	1.433	0.030	0.41
5SU1U9		1.662	0.075	0.96	1.467	0.064	0.86
63HA7L		1.581	-0.006	-0.07	1.429	0.026	0.35
69BHL9		1.693	0.106	1.35	1.505	0.102	1.38
7MNLQY	X	6.437	4.850	61.79	6.607	5.204	69.98
7N5PUU		1.617	0.030	0.39	1.448	0.045	0.61
8AFUB9		1.527	-0.060	-0.76	1.351	-0.052	-0.70
B1ZCAD		1.660	0.073	0.93	1.487	0.084	1.13
B22F5V		1.516	-0.071	-0.90	1.331	-0.072	-0.96
BY8VWB	*	1.796	0.209	2.67	1.518	0.115	1.55
CFBKT9		1.608	0.021	0.27	1.410	0.007	0.10
CFF4TJ		1.647	0.060	0.77	1.499	0.096	1.29
DEEMX7		1.701	0.114	1.46	1.527	0.124	1.67
DKF4TL		1.572	-0.015	-0.19	1.361	-0.042	-0.56
FAZ72J	X	2.375	0.788	10.04	2.188	0.785	10.56
HT2ACM		1.538	-0.049	-0.62	1.328	-0.075	-1.00
J3QF5C	*	1.607	0.020	0.26	1.534	0.131	1.77
LEHVNR		1.601	0.014	0.18	1.394	-0.009	-0.12
LV2XMF		1.553	-0.034	-0.43	1.363	-0.040	-0.53
MZ2P1D		1.484	-0.103	-1.31	1.352	-0.051	-0.68
N77X6Y		1.701	0.114	1.46	1.482	0.079	1.07
NAMS6X		1.521	-0.066	-0.84	1.317	-0.086	-1.15
P7882M		1.481	-0.106	-1.35	1.312	-0.091	-1.22
Q7DY3G		1.637	0.050	0.64	1.432	0.029	0.39
S4FDUW		1.482	-0.105	-1.33	1.317	-0.086	-1.15
SCQXXS		1.483	-0.104	-1.32	1.356	-0.047	-0.63
SEBM9T		1.614	0.027	0.35	1.415	0.012	0.17
SHLBAH	X	5.222	3.635	46.31	4.057	2.654	35.69
T1CBQY		1.579	-0.008	-0.10	1.442	0.039	0.53
TBNEH4		1.655	0.068	0.87	1.450	0.047	0.64
UKGV27		1.539	-0.048	-0.61	1.373	-0.030	-0.40
UU4VMA		1.592	0.005	0.07	1.360	-0.043	-0.57
VCFZC7		1.460	-0.127	-1.61	1.333	-0.070	-0.94
VUSCKH		1.523	-0.064	-0.81	1.273	-0.130	-1.74
YSGR31		1.470	-0.117	-1.49	1.278	-0.125	-1.68
Z2E2H2		1.564	-0.023	-0.29	1.330	-0.073	-0.98
ZABWVS		1.653	0.066	0.84	1.484	0.081	1.09
ZFTK2P		1.581	-0.006	-0.07	1.404	0.001	0.02

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

	Sample GJ37	Summary Statistics	Sample GJ38
Grand Means	1.5867 Microns		1.4027 Microns
SD Btwn Labs	0.0785 Microns		0.0744 Microns
Statistics based on 35 of 39 reporting participants			

Comments on assigned Data Flags for Test #376

2XP7J8 (X) - Extreme data.

7MNLYQ (X) - Extreme data.

FAZ72J (X) - Extreme data.

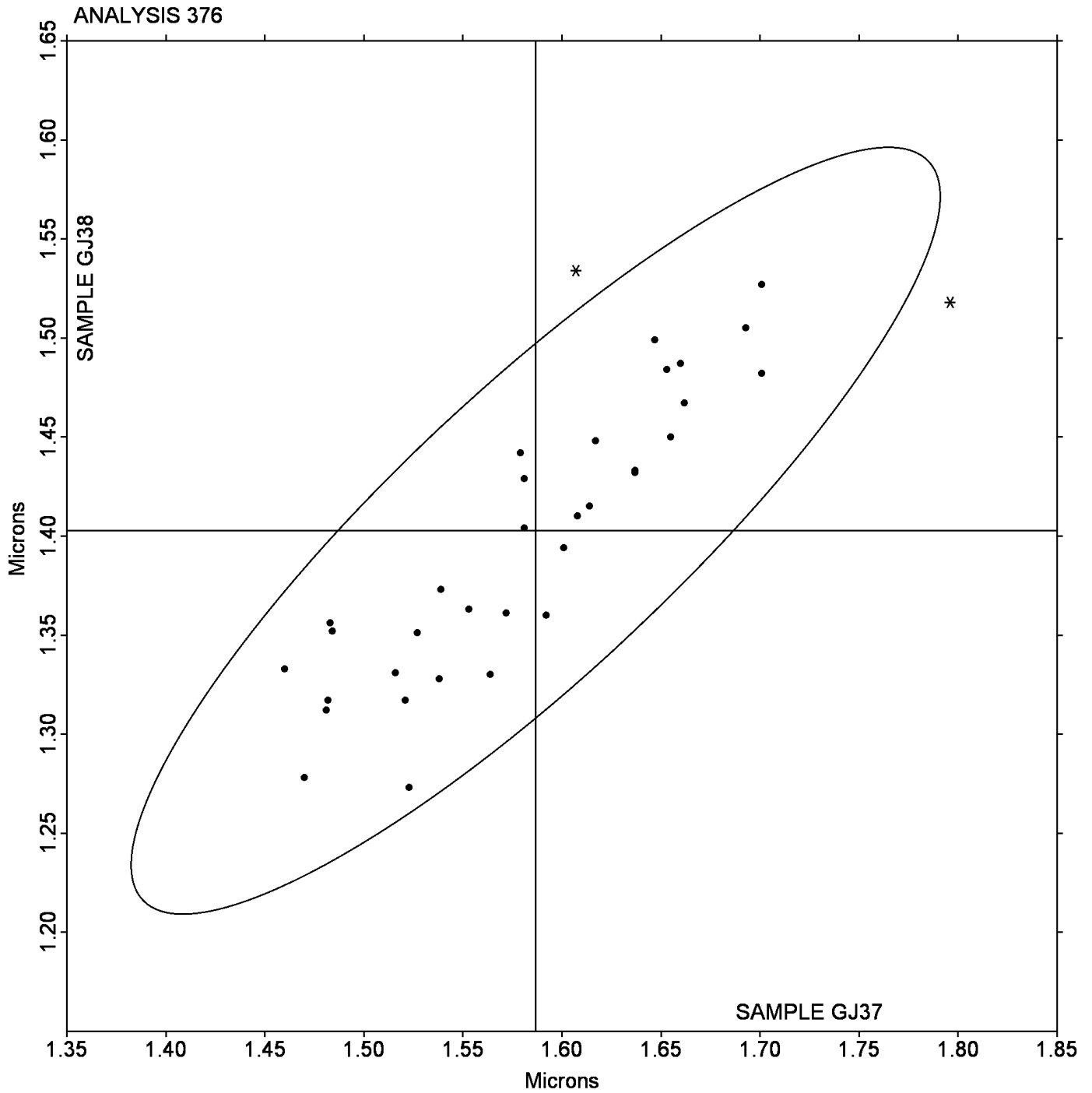
SHLBAH (X) - Extreme data.

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample GJ37 = 1.5867 Microns

Grand Mean Sample GJ38 = 1.4027 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK37			Sample GK38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
42JX9A		5.632	0.064	0.19	6.941	0.193	0.30
5P7HTB		5.219	-0.349	-1.03	6.242	-0.506	-0.79
5TKGV5		5.578	0.010	0.03	7.538	0.790	1.23
6AKY97		6.063	0.495	1.47	7.267	0.519	0.81
7V3VBV		5.516	-0.052	-0.15	6.393	-0.355	-0.55
8PHDVM		4.910	-0.658	-1.95	6.060	-0.688	-1.07
8TRFHU		5.660	0.092	0.27	7.008	0.260	0.40
D967L3		5.866	0.298	0.88	7.505	0.757	1.18
DMDJYB		5.153	-0.415	-1.23	6.051	-0.697	-1.08
JBGUVB		5.850	0.282	0.84	6.480	-0.268	-0.42
JBLDWL		5.356	-0.212	-0.63	6.118	-0.630	-0.98
JRUAWM		5.858	0.290	0.86	7.546	0.798	1.24
KE6U95		5.867	0.299	0.89	6.832	0.084	0.13
LWXVCG		5.447	-0.121	-0.36	6.719	-0.029	-0.05
N6H12J		5.698	0.130	0.39	6.963	0.215	0.33
PRTVZA		5.100	-0.468	-1.38	5.380	-1.368	-2.13
SBN431		5.677	0.109	0.32	7.020	0.272	0.42
VPFEUX		5.080	-0.488	-1.44	5.932	-0.816	-1.27
WHPZSP		6.085	0.517	1.53	7.702	0.954	1.48
XFVLKQ		5.736	0.168	0.50	7.263	0.515	0.80

Sample GK37		Summary Statistics	Sample GK38	
Grand Means	5.5676 Microns		6.7480 Microns	
SD Btwn Labs	0.3380 Microns		0.6431 Microns	
Statistics based on 20 of 20 reporting participants				

Notes for Analysis 377

No Data Flags assigned for this analysis.

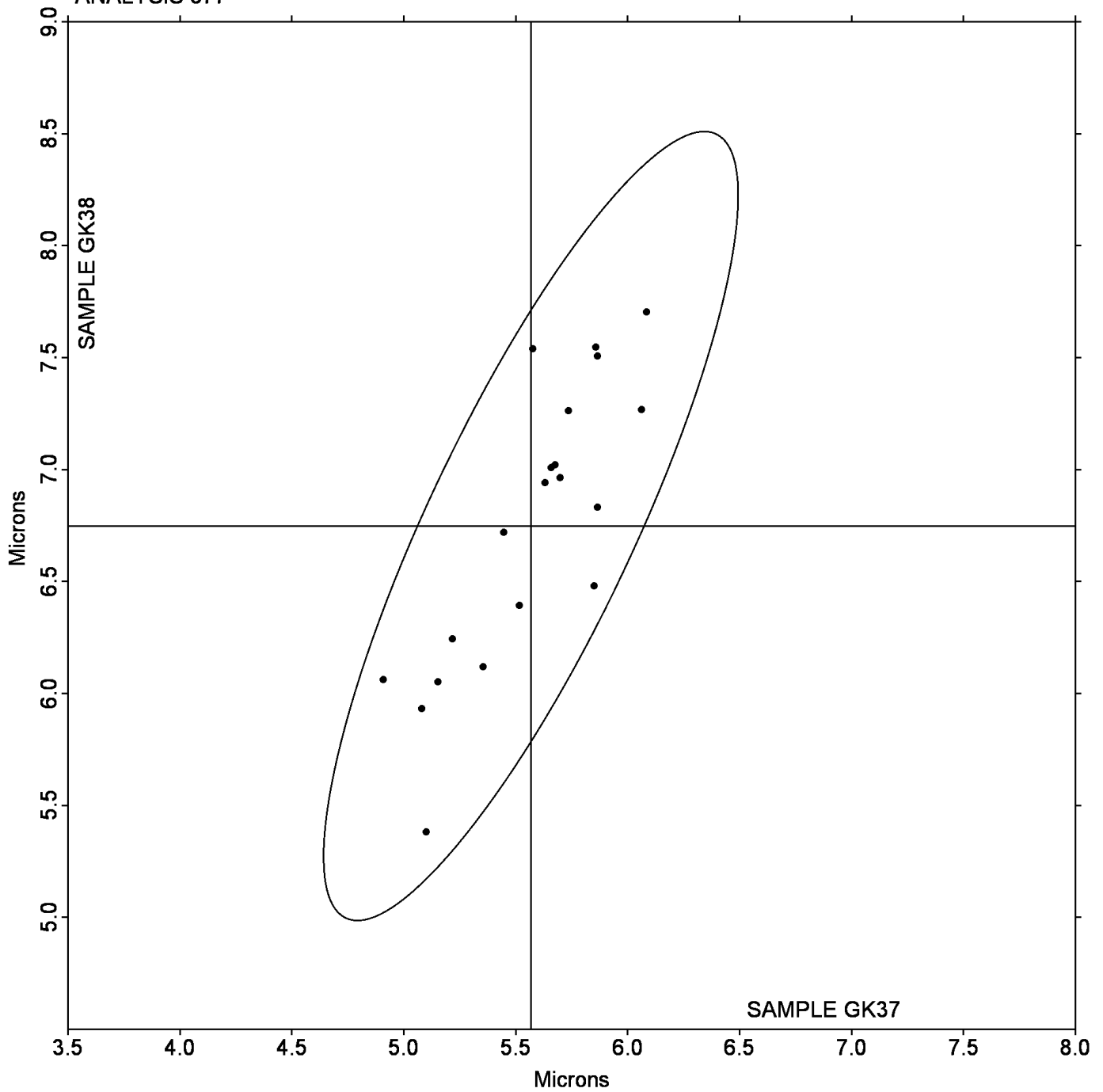
Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK37** = 5.5676 Microns

Grand Mean Sample **GK38** = 6.7480 Microns

ANALYSIS 377



Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

WebCode	Data Flag	Sample GL37			Sample GL38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
14ZH3U		124.3	-9.7	-0.92	208.8	2.6	0.14	HM
1JL467		153.3	19.3	1.83	225.5	19.3	1.06	SH
1NCJD3	*	159.9	25.9	2.46	254.1	47.9	2.62	HM
2K5ZXY		135.5	1.5	0.14	212.2	6.0	0.33	SH
38S1XP		134.3	0.3	0.03	201.2	-5.0	-0.27	TS
3PFXVT		128.4	-5.6	-0.53	205.0	-1.2	-0.07	HM
41ZGDF		130.0	-4.0	-0.38	209.4	3.2	0.17	HM
43PNWR		133.6	-0.4	-0.04	213.5	7.3	0.40	HM
59UJTX		123.4	-10.6	-1.00	172.3	-33.9	-1.86	SH
5EAMYD		132.0	-2.0	-0.19	208.6	2.3	0.13	TP
675PPU		152.2	18.2	1.73	230.5	24.3	1.33	XX
6TMYSD		127.0	-7.0	-0.66	177.3	-28.9	-1.58	TS
6WS93V		155.1	21.1	2.00	214.0	7.7	0.42	VM
6YV8ZG		138.0	4.0	0.38	223.8	17.6	0.96	HM
75C1PL		137.0	3.0	0.29	237.9	31.7	1.73	HM
7R1YNW		124.4	-9.6	-0.91	196.2	-10.0	-0.55	HM
7SNKXM		139.5	5.5	0.52	210.5	4.3	0.23	PG
824Q7W		154.1	20.1	1.91	226.5	20.3	1.11	GL
8KQNT2		145.5	11.5	1.09	228.0	21.8	1.19	SH
8YBGHE		128.1	-5.9	-0.56	192.5	-13.7	-0.75	LW
9J9V9J		131.6	-2.4	-0.23	177.9	-28.3	-1.55	SH
AFZP6Z		130.9	-3.1	-0.29	203.0	-3.2	-0.18	HM
B5V4HA		143.9	9.9	0.94	212.7	6.5	0.36	TT
BJVEW1		123.1	-10.9	-1.03	207.5	1.3	0.07	HM
C9Y4GX		127.8	-6.2	-0.59	208.0	1.8	0.10	SH
CJZYWB		112.3	-21.7	-2.06	182.3	-23.9	-1.31	TT
CRUPVL		141.4	7.4	0.70	232.3	26.1	1.43	TS
CUZLP8		139.4	5.4	0.51	185.6	-20.7	-1.13	GA
CWK65R	X	196.0	62.0	5.89	258.0	51.8	2.83	XX
CYPBPJ		136.5	2.5	0.24	230.0	23.8	1.30	SH
EAARLC		130.3	-3.7	-0.35	191.9	-14.3	-0.78	HM
EPF9Q4	X	24.7	-109.3	-10.37	21.7	-184.5	-10.09	SH
ER4C7X		129.9	-4.1	-0.39	226.7	20.5	1.12	XX
FNE1S4	X	191.4	57.4	5.45	289.3	83.1	4.55	TU
G517XW		128.4	-5.6	-0.53	194.8	-11.4	-0.62	HM
GD8HU7	*	146.3	12.3	1.17	180.4	-25.8	-1.41	GA
GH9GRJ		119.2	-14.8	-1.40	195.5	-10.7	-0.59	TT
GZA7NN		140.4	6.4	0.61	215.1	8.9	0.49	HM
HMYVHS		134.3	0.3	0.03	222.5	16.3	0.89	XX
JHBZB6		142.3	8.3	0.79	209.4	3.2	0.17	LW
K1USXW	X	140.5	6.5	0.62	266.0	59.8	3.27	GL
K6EG2J		123.7	-10.3	-0.98	197.7	-8.5	-0.47	HM
KF8KQD		131.7	-2.2	-0.21	207.3	1.1	0.06	TP

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

WebCode	Data Flag	Sample GL37			Sample GL38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
KLGTXH		114.1	-19.9	-1.89	179.0	-27.2	-1.49	VM
KLHS3B		116.0	-18.0	-1.71	200.9	-5.3	-0.29	HM
KVSPAU		124.8	-9.2	-0.87	202.7	-3.5	-0.19	HM
L8RFBK		128.1	-5.9	-0.56	211.3	5.1	0.28	HM
LM4SPL		125.2	-8.8	-0.83	196.5	-9.7	-0.53	HM
MM9JD9		131.3	-2.7	-0.25	174.2	-32.0	-1.75	TS
MPZKLH		153.5	19.5	1.85	221.5	15.3	0.84	SH
MW3C5D		133.6	-0.4	-0.04	209.7	3.5	0.19	HM
MYDAV2		133.5	-0.5	-0.05	214.8	8.6	0.47	TT
NQRGM2		136.3	2.3	0.22	209.0	2.8	0.15	HM
NTU7V3		129.2	-4.8	-0.45	211.2	5.0	0.27	SH
PS5Y1U		142.5	8.5	0.81	235.0	28.8	1.58	SH
QA8YYD		126.0	-7.9	-0.75	211.0	4.7	0.26	TP
QG4K9E		123.9	-10.1	-0.96	187.9	-18.3	-1.00	SH
QW8WLC		132.6	-1.4	-0.13	209.9	3.7	0.20	SH
R48T42		136.0	2.0	0.19	208.0	1.8	0.10	GA
R9WVU7		154.0	20.0	1.90	240.0	33.8	1.85	SH
RKK4VV		148.5	14.5	1.38	218.0	11.8	0.64	GL
RQG151		124.4	-9.6	-0.91	187.2	-19.0	-1.04	TP
SACUZQ		129.4	-4.6	-0.43	194.6	-11.6	-0.64	HM
SAN5QU		125.6	-8.4	-0.80	191.2	-15.0	-0.82	HM
T2E5VB		145.5	11.5	1.09	212.5	6.3	0.34	TS
T9JVP3		130.9	-3.1	-0.30	206.6	0.4	0.02	TP
TEK78T		123.2	-10.8	-1.02	202.9	-3.3	-0.18	HM
TMRN82		124.5	-9.5	-0.90	182.7	-23.5	-1.29	TT
U8FV5N		125.5	-8.4	-0.80	199.6	-6.6	-0.36	MP
US9YGH		128.2	-5.8	-0.55	196.3	-9.9	-0.54	LA
UUALWK		132.6	-1.4	-0.13	173.6	-32.6	-1.78	XX
UVC2HY		139.5	5.5	0.52	236.3	30.1	1.65	TP
VPBHBS		135.4	1.4	0.14	206.3	0.1	0.00	HM
WAGCYF		125.9	-8.1	-0.77	196.4	-9.8	-0.54	HM
WSW97P	*	143.6	9.7	0.92	183.4	-22.8	-1.25	LA
X3HDGM		155.7	21.7	2.06	244.4	38.2	2.09	HM
X5EB36		124.2	-9.8	-0.93	169.8	-36.4	-1.99	HM
Y3C272		149.5	15.5	1.47	214.0	7.8	0.43	TT
Y93D8Q	X	106.7	-27.3	-2.59	141.5	-64.7	-3.54	SH
YY7VYV		126.6	-7.4	-0.70	199.1	-7.1	-0.39	HM

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

	Sample GL37	Summary Statistics	Sample GL38
Grand Means	133.98 Sheffield		206.21 Sheffield
SD Btwn Labs	10.53 Sheffield		18.28 Sheffield
Statistics based on 75 of 80 reporting participants			

Comments on assigned Data Flags for Test #378

CWK65R (X) - Extreme data.

EPF9Q4 (X) - Extreme data.

FNE1S4 (X) - Extreme data.

K1USXW (X) - Inconsistent in testing between samples, data for Sample GL38 are high.

Y93D8Q (X) - Systematic error (data for both samples are low).

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

(TP) - Technidyne Profile Plus

(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 300

(MP) - Metso Paperlab

(SH) - Sheffield (Bendix Precisionaire)

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

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

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

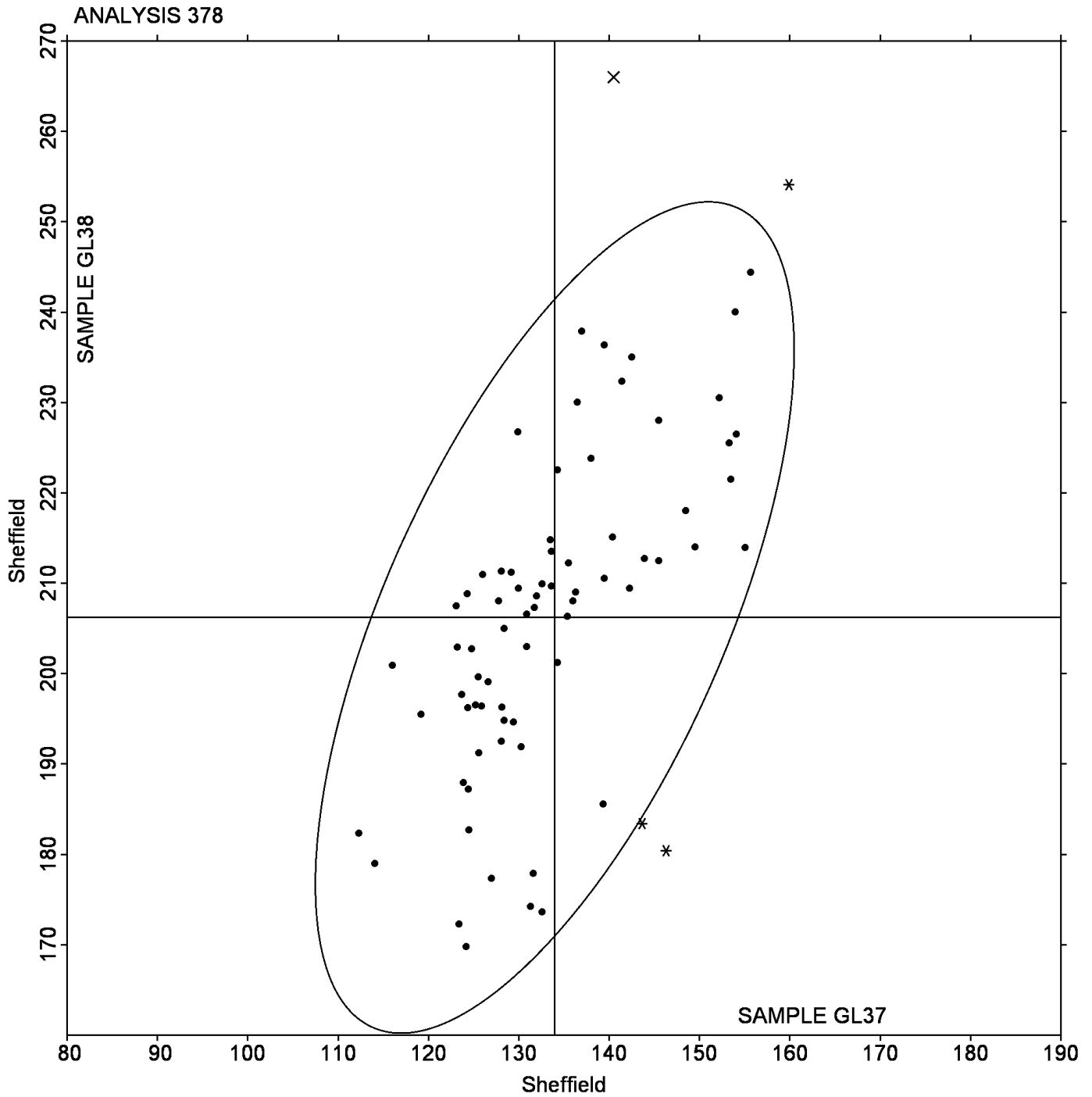
Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL37** = 133.98 Sheffield

Grand Mean Sample **GL38** = 206.21 Sheffield



**Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper**

WebCode	Data Flag	Sample GM37			Sample GM38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
4UN2KC		4.412	-0.139	-0.36	4.483	-0.121	-0.47
51PT81		4.672	0.120	0.31	4.740	0.137	0.53
5GDCZA		4.997	0.445	1.14	4.938	0.335	1.29
AE7CNW		4.484	-0.068	-0.17	4.498	-0.105	-0.41
BVM2RA		4.020	-0.532	-1.36	4.300	-0.303	-1.17
GZAFKE		4.304	-0.248	-0.63	4.470	-0.133	-0.51
H353K3	X	4.740	0.188	0.48	3.950	-0.653	-2.52
H61GQ5		4.890	0.338	0.86	4.940	0.337	1.30
L1ZA3X		4.138	-0.414	-1.05	4.464	-0.139	-0.54
PT14C1		4.170	-0.382	-0.97	4.170	-0.433	-1.67
UK62NK		4.430	-0.122	-0.31	4.575	-0.028	-0.11
W4YA8M		4.761	0.209	0.53	4.674	0.071	0.27
X7TN7V		5.340	0.788	2.01	4.990	0.387	1.49

Summary Statistics			
	Sample GM37		Sample GM38
Grand Means	4.5515	Percent	4.6035
SD Btwn Labs	0.3922	Percent	0.2597
Statistics based on 12 of 13 reporting participants			

Comments on assigned Data Flags for Test #382

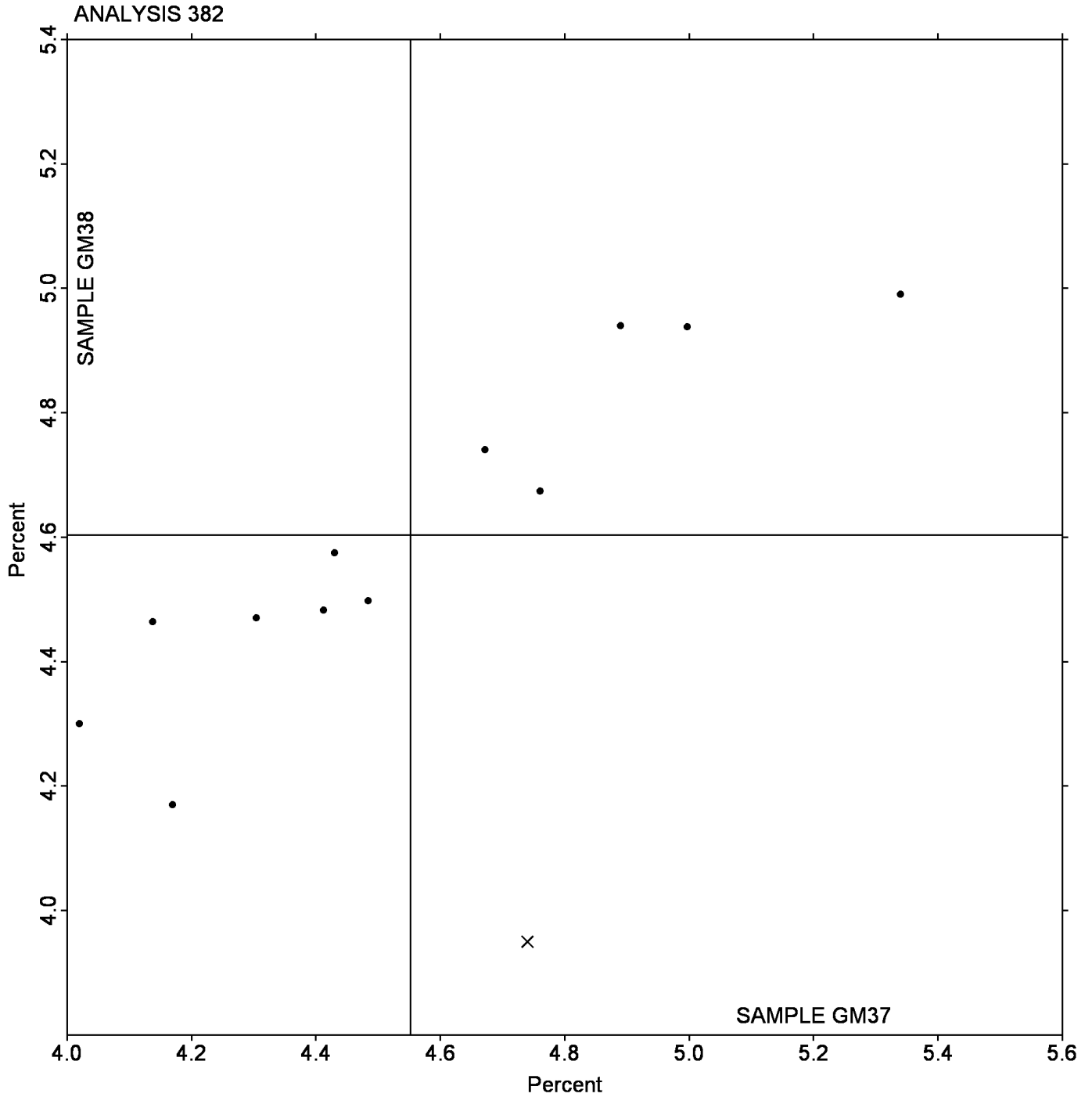
H353K3 (X) - Inconsistent in testing between samples, data for Sample GM38 are low.

Paper & Paperboard Interlaboratory Testing Program

Analysis 382 Moisture in Paper

Grand Mean Sample **GM37** = 4.5515 Percent

Grand Mean Sample **GM38** = 4.6035 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 GN37			Sample GN38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
16NC23	*	92.98	0.80	2.80	93.56	0.38	1.03
1E3YA6		92.03	-0.15	-0.54	93.65	0.47	1.27
1M2ZMY		92.47	0.29	1.01	93.34	0.16	0.44
1M6DES		91.92	-0.26	-0.93	93.44	0.26	0.71
1T48TS		91.87	-0.32	-1.12	92.93	-0.24	-0.65
1V4YYN		92.47	0.28	0.99	93.23	0.06	0.15
2HWU9C		92.39	0.21	0.72	92.62	-0.56	-1.49
3MJLMT		92.12	-0.06	-0.23	93.53	0.35	0.95
3SKY5J		91.81	-0.37	-1.32	92.53	-0.65	-1.73
3T2AFF		91.74	-0.44	-1.56	92.52	-0.66	-1.76
3Y1J59		92.34	0.16	0.55	93.08	-0.10	-0.26
411DZW		92.34	0.16	0.55	93.42	0.24	0.66
41E8FS		92.10	-0.09	-0.31	93.26	0.08	0.22
449PD8	X	92.94	0.76	2.66	94.56	1.38	3.71
4BQAEZ	X	84.74	-7.44	-26.22	88.39	-4.79	-12.84
4X3TC1		92.32	0.13	0.47	93.22	0.04	0.12
514LX6		92.08	-0.11	-0.37	93.40	0.23	0.61
5KQB34		92.30	0.11	0.39	92.97	-0.20	-0.55
5MU83Y		92.11	-0.07	-0.26	93.41	0.23	0.63
5YHBA5		91.88	-0.30	-1.07	93.32	0.14	0.39
6AS8QS		92.30	0.12	0.41	93.24	0.06	0.17
6K27NE		92.03	-0.15	-0.54	92.94	-0.24	-0.63
6T355H		92.62	0.44	1.53	93.99	0.81	2.19
6VR4Y2		91.89	-0.29	-1.04	93.31	0.13	0.36
76YABM		92.25	0.07	0.23	93.24	0.06	0.17
7EELPT		92.02	-0.16	-0.58	93.07	-0.11	-0.28
8AX33P		92.21	0.03	0.09	92.60	-0.58	-1.54
8E47K4		92.02	-0.16	-0.58	92.95	-0.23	-0.61
97JBET		92.30	0.12	0.41	92.95	-0.22	-0.60
97PSPD		92.20	0.02	0.06	93.37	0.19	0.52
CD2APX		92.48	0.30	1.04	93.32	0.14	0.39
CJ6MEV	*	92.01	-0.17	-0.61	93.95	0.77	2.08
EWZGKF		92.31	0.13	0.44	93.38	0.20	0.55
EYDEZ4		92.19	0.01	0.02	92.90	-0.28	-0.74
G1BYY3	*	91.42	-0.77	-2.71	92.89	-0.29	-0.78
H1VF6N		92.55	0.37	1.29	93.53	0.35	0.95
H2GXHA		92.33	0.15	0.51	93.70	0.52	1.41
H8QLMH		92.26	0.07	0.25	92.97	-0.21	-0.56
H9JBSW		91.78	-0.40	-1.42	92.66	-0.52	-1.38
HBQURS		92.31	0.12	0.43	93.10	-0.08	-0.21
JM7J15		91.90	-0.28	-1.00	93.25	0.07	0.20
L7EJ7F		92.43	0.24	0.85	93.28	0.11	0.29
LA7JJX		92.05	-0.13	-0.46	92.73	-0.45	-1.20

Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

WebCode	Data Flag	Sample GN37			Sample GN38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
LS2MRF		92.30	0.12	0.41	93.04	-0.14	-0.36
M1LVTV		92.21	0.03	0.09	93.52	0.34	0.92
QB5PB1		92.22	0.04	0.13	92.80	-0.38	-1.01
S2YHPQ		92.04	-0.15	-0.52	93.27	0.09	0.25
SAALU4		92.23	0.05	0.17	93.35	0.17	0.45
TCUVM2		92.11	-0.08	-0.28	92.63	-0.54	-1.46
U7A289		92.61	0.43	1.50	93.21	0.03	0.09
UHVS6Z		92.44	0.26	0.90	93.72	0.54	1.46
W5NSZL		92.50	0.32	1.11	93.85	0.67	1.81
WAWQPY		92.44	0.26	0.90	93.19	0.01	0.04
X2B1ZW	*	91.48	-0.70	-2.48	92.43	-0.75	-2.00
X2E176		92.19	0.01	0.02	93.26	0.08	0.22
XDRTUX		92.08	-0.10	-0.37	93.10	-0.08	-0.20
YV11UD		92.70	0.52	1.82	93.73	0.55	1.49
Z9XC3H		91.77	-0.41	-1.46	92.49	-0.69	-1.84
ZNTQ6S		92.22	0.04	0.13	93.07	-0.11	-0.28
ZTLWP1		92.05	-0.13	-0.47	92.78	-0.40	-1.06

		Summary Statistics	
	Sample GN37		Sample GN38
Grand Means	92.184 Percent		93.176 Percent
SD Btwn Labs	0.284 Percent		0.373 Percent
Statistics based on 58 of 60 reporting participants			

Comments on assigned Data Flags for Test #384

449PD8 (X) - Systematic error (data for both samples are high).

4BQAEZ (X) - Extreme data.

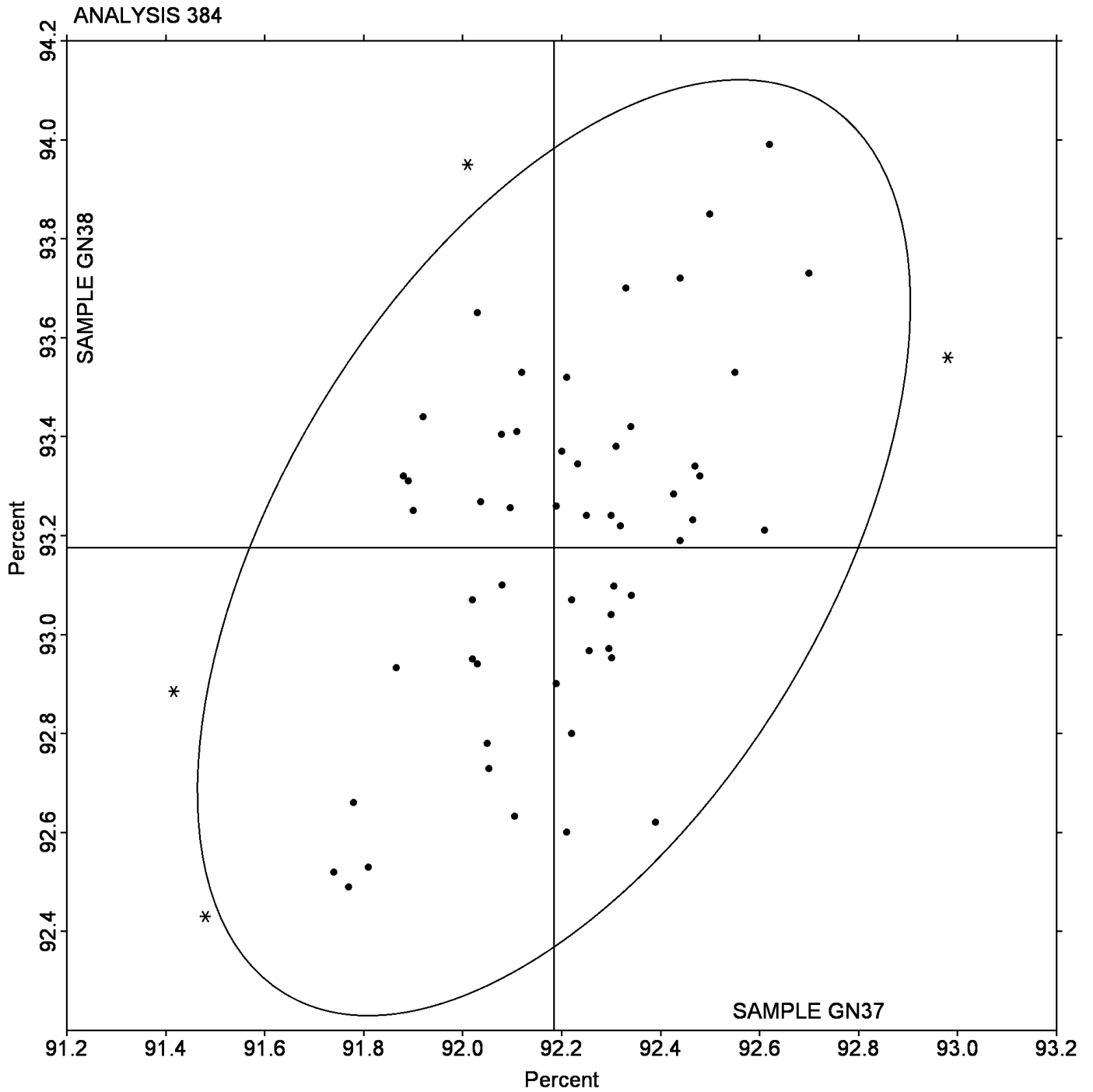
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN37** = 92.184 Percent

Grand Mean Sample **GN38** = 93.176 Percent



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

WebCode	Data Flag	Sample GP37			Sample GP38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1ATPJN		93.61	-0.04	-0.54	93.78	0.15	0.90
2J8T67		93.51	-0.13	-1.75	93.79	0.16	0.96
2U7UYX		93.69	0.04	0.59	93.43	-0.21	-1.23
45XYTU		93.67	0.02	0.31	93.50	-0.13	-0.77
6YQDBP		93.74	0.09	1.19	93.78	0.15	0.87
7K6S72		93.69	0.04	0.57	93.78	0.15	0.88
9XG4LE		93.74	0.10	1.27	94.02	0.39	2.31
B74LND		93.63	-0.02	-0.26	93.68	0.04	0.25
DRYCGH		93.72	0.07	0.91	93.28	-0.35	-2.09
FFGU8H		93.62	-0.03	-0.40	93.82	0.19	1.11
GS2JHV		93.75	0.11	1.39	93.79	0.16	0.95
KPQE42		93.46	-0.19	-2.45	93.67	0.04	0.22
KRBM8Q		93.60	-0.04	-0.58	93.57	-0.06	-0.38
LADGDF		93.47	-0.18	-2.32	93.68	0.05	0.29
MNPP4K		93.65	0.00	0.05	93.68	0.05	0.28
MQPMYD		93.67	0.02	0.30	93.64	0.00	0.01
N2UYRY		93.53	-0.12	-1.55	93.35	-0.28	-1.69
NQGBMK		93.68	0.03	0.44	93.59	-0.04	-0.27
PKDIAU		93.69	0.05	0.62	93.77	0.14	0.83
PMJ51F		93.69	0.04	0.53	93.45	-0.19	-1.12
Q36RZC		93.63	-0.02	-0.22	93.45	-0.18	-1.09
Q5WVWQ		93.73	0.08	1.11	93.66	0.02	0.14
Q8BMPD		93.62	-0.02	-0.32	93.63	-0.01	-0.03
QE5S58		93.73	0.08	1.03	93.55	-0.08	-0.50
SDBMWL		93.68	0.03	0.41	93.82	0.18	1.10
T13KBW		93.64	-0.01	-0.11	93.65	0.02	0.10
TEBFUP		93.65	0.00	0.06	93.75	0.12	0.70
TQKPVP		93.67	0.02	0.30	93.52	-0.11	-0.68
UBUTXH		93.57	-0.07	-0.96	93.57	-0.07	-0.40
WWZ6FN		93.68	0.03	0.39	93.36	-0.28	-1.66

Sample GP37		Summary Statistics	Sample GP38	
Grand Means	93.646 Percent		93.633 Percent	
SD Btwn Labs	0.076 Percent		0.168 Percent	
Statistics based on 30 of 30 reporting participants				

Notes for Analysis 386

No Data Flags assigned for this analysis.

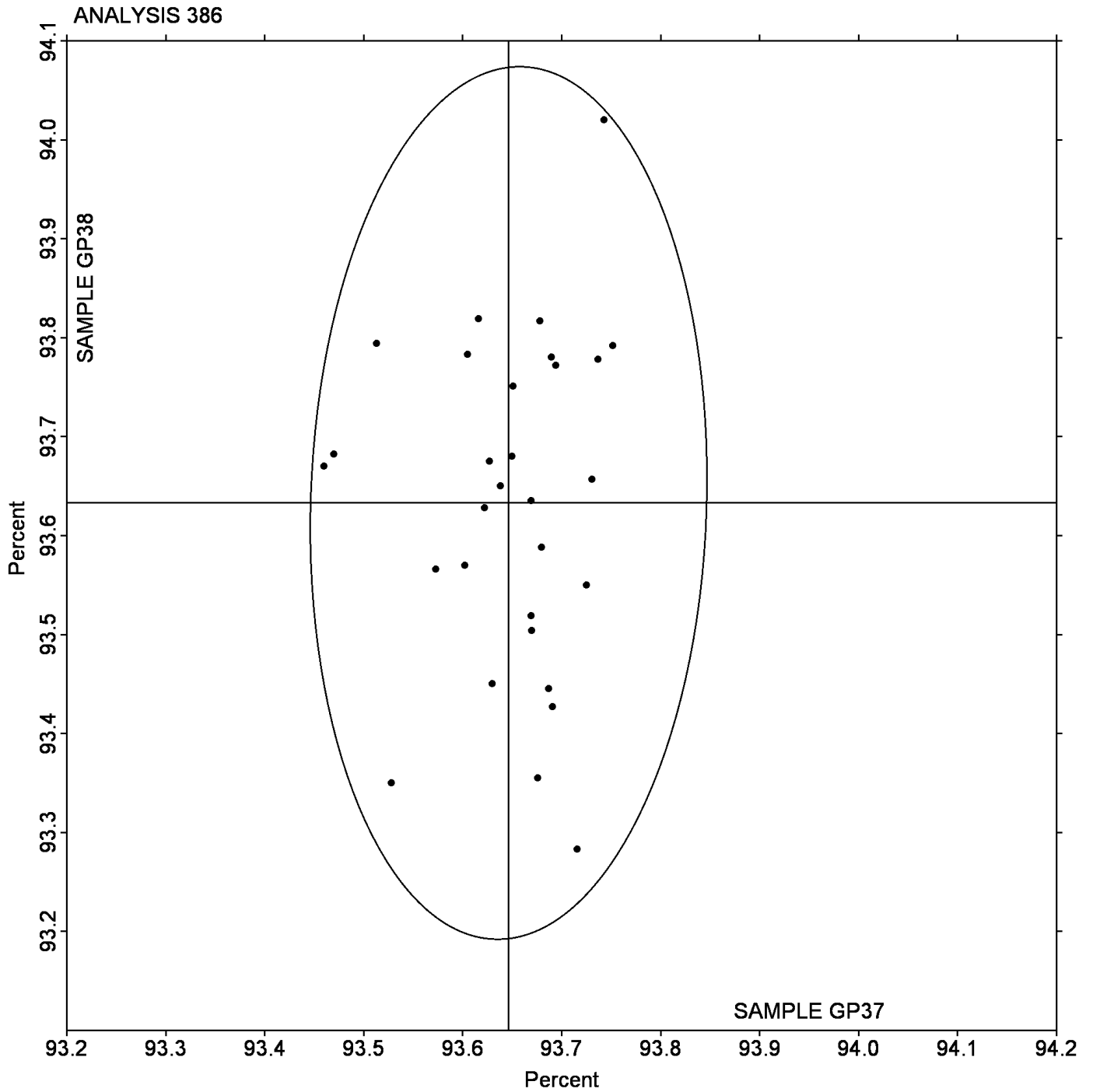
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP37** = 93.646 Percent

Grand Mean Sample **GP38** = 93.633 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

WebCode	Data Flag	Sample GR37			Sample GR38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1HU36A	X	86.30	-3.20	-4.58	76.51	-0.35	-0.78	TT
1K7Z59		89.17	-0.33	-0.47	76.41	-0.45	-1.01	TS
3TGA3X	X	88.44	-1.06	-1.51	78.79	1.93	4.31	HD
3WTR6P		89.66	0.16	0.23	76.61	-0.25	-0.56	TT
539NQ8		88.68	-0.82	-1.17	76.87	0.00	0.01	TS
594GDN		89.54	0.04	0.05	76.63	-0.24	-0.53	TS
5NY49U		90.28	0.78	1.11	77.74	0.88	1.96	TS
6HJRRU		90.07	0.57	0.82	76.92	0.06	0.13	MG
6ZBXH7		90.30	0.80	1.15	77.21	0.34	0.77	XX
7657TJ		88.84	-0.66	-0.94	76.61	-0.25	-0.57	XX
8CS3KE	X	87.74	-1.76	-2.52	78.88	2.01	4.51	PE
BL3QS5		89.41	-0.09	-0.12	76.70	-0.16	-0.36	TA
D88NF9		89.71	0.21	0.31	76.71	-0.15	-0.33	TT
E7RVWS		89.98	0.48	0.68	77.13	0.26	0.59	TS
EXC6L7	*	89.64	0.14	0.20	77.96	1.10	2.47	HD
GRFARD		90.44	0.94	1.34	77.29	0.43	0.95	TT
HKY3WE		88.62	-0.88	-1.26	76.78	-0.08	-0.18	TS
JC2JKB		89.77	0.27	0.39	76.94	0.07	0.17	TS
JZSX7K		89.38	-0.12	-0.17	76.44	-0.42	-0.95	TS
M112L1	X	83.72	-5.78	-8.27	72.57	-4.29	-9.61	TT
M9KEC4		89.91	0.41	0.59	76.99	0.13	0.28	TT
MSV4W9		89.13	-0.37	-0.54	76.25	-0.61	-1.37	PE
PFLAMF		89.89	0.39	0.56	77.21	0.35	0.78	TA
PLWX44		88.56	-0.94	-1.34	77.03	0.16	0.36	TA
RG6TCD		89.98	0.48	0.68	77.34	0.48	1.06	TS
S86XQZ		90.11	0.61	0.88	77.40	0.54	1.20	TS
SJ8852		89.59	0.09	0.13	76.70	-0.16	-0.36	TT
SKN23V		89.66	0.16	0.23	76.87	0.01	0.01	TS
U2EBPR		89.01	-0.49	-0.71	76.86	-0.01	-0.01	GM
UJGJWK		88.83	-0.67	-0.96	76.36	-0.50	-1.12	XX
V393P4		88.23	-1.27	-1.82	76.83	-0.04	-0.08	TT
Y35JUQ		89.49	-0.01	-0.02	76.64	-0.22	-0.50	TT
Y3TLW1	X	86.23	-3.27	-4.68	76.34	-0.52	-1.17	TS
Y7WWAU		89.41	-0.09	-0.12	76.43	-0.43	-0.96	TS
YVJWD1		89.79	0.29	0.41	77.00	0.14	0.31	TT
Z2YFZ7	*	87.46	-2.04	-2.91	75.54	-1.32	-2.97	TT
ZTBRMX		90.06	0.56	0.81	77.08	0.21	0.48	TS
ZVQPET		90.89	1.39	1.99	77.01	0.15	0.34	HG

**Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness**

	Sample GR37	Summary Statistics	Sample GR38
Grand Means	89.499 Percent		76.862 Percent
SD Btwn Labs	0.699 Percent		0.447 Percent
Statistics based on 33 of 38 reporting participants			

Comments on assigned Data Flags for Test #390

- 1HU36A (X) - Inconsistent in testing between samples, data for Sample GR37 are low.
- 3TGA3X (X) - Inconsistent in testing between samples, data for Sample GR38 are high.
- 8CS3KE (X) - Inconsistent in testing between samples, data for Sample GR38 are high.
- M112L1 (X) - Extreme data.
- Y3TLW1 (X) - Inconsistent in testing between samples, data for Sample GR37 are low and inconsistent within the replicate measurements for Sample GR37.

Instrument Code List as Reported by the Labs

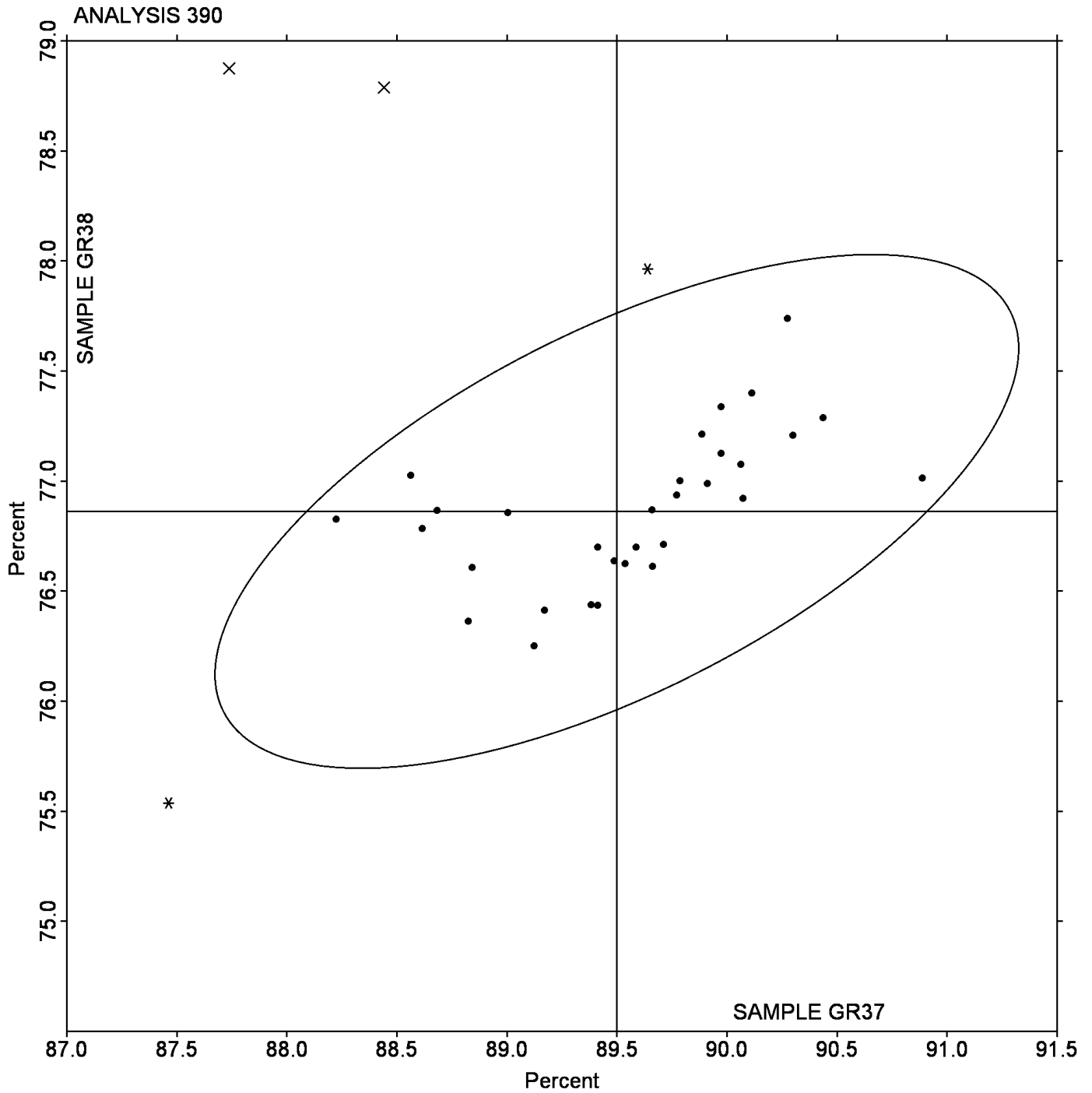
- (GM) - Gretag Macbeth Color i5
- (HG) - Hunter Labscan / XE
- (PE) - Photovolt 577
- (TS) - Technidyne Brightimeter Micro S-5
- (XX) - Instrument make/model not specified by lab
- (HD) - Hunter D25DP - 9000
- (MG) - Macbeth 1500/PLUS - 2025+ Color Eye
- (TA) - Technidyne, Diano, M.S. S-4
- (TT) - Technidyne Brightimeter Micro S4-M

Analysis 390

Directional Brightness

Grand Mean Sample GR37 = 89.499 Percent

Grand Mean Sample GR38 = 76.862 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ37			Sample GZ38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3MZF1D		91.92	-0.27	-0.22	90.04	-0.40	-0.43	TT
3UKD9Z		91.59	-0.59	-0.50	89.99	-0.45	-0.48	XX
7USJP7		94.30	2.11	1.78	91.81	1.37	1.46	TS
7X4HSZ		91.86	-0.33	-0.28	90.67	0.23	0.24	TS
879249		92.10	-0.09	-0.07	90.04	-0.40	-0.42	TS
8ATJ2E		92.04	-0.15	-0.12	90.22	-0.22	-0.23	TT
9ULTT8		92.22	0.03	0.03	90.32	-0.12	-0.13	TT
A45XLL		92.05	-0.14	-0.12	90.26	-0.18	-0.19	TS
CG6X68		93.47	1.28	1.08	91.73	1.29	1.38	TS
J1JJHH	X	97.70	5.51	4.64	95.94	5.50	5.87	MK
KURD1D		93.84	1.65	1.39	91.27	0.83	0.88	TS
QFMC2C		91.98	-0.21	-0.17	90.24	-0.20	-0.21	XX
RF6Z6T		89.59	-2.59	-2.19	88.88	-1.56	-1.66	GM
SQNKUG		92.04	-0.15	-0.12	90.78	0.34	0.36	XX
TRETNJ		91.88	-0.31	-0.26	90.02	-0.42	-0.45	TT
UGSNBH	*	94.70	2.51	2.12	92.94	2.50	2.67	HV
VAVXZ8		91.77	-0.41	-0.35	90.01	-0.43	-0.46	TS
VM7AFN		92.84	0.66	0.55	90.55	0.11	0.12	MG
X1Y2WU	X	104.62	12.43	10.47	104.24	13.80	14.72	HV
XYJ44Z		91.72	-0.47	-0.39	90.10	-0.34	-0.36	TS
YLAB3S		90.67	-1.51	-1.27	88.94	-1.50	-1.60	XX
ZS5MNM		91.15	-1.03	-0.87	89.97	-0.47	-0.50	TP

Summary Statistics			
	Sample GZ37		Sample GZ38
Grand Means	92.187 Percent		90.439 Percent
SD Btw Labs	1.187 Percent		0.938 Percent
Statistics based on 20 of 22 reporting participants			

Comments on assigned Data Flags for Test #391

J1JJHH (X) - Extreme data.

X1Y2WU (X) - Extreme data.

VM7AFN - Data appears to be transposed between Analysis 391 (Directional Brightness) and Analysis 394 (Fluorescent Component). Data switched by CTS.

Instrument Code List as Reported by the Labs

- (GM) - Gretag Macbeth Color i5
- (MG) - Macbeth 1500/Plus - 2025+ Color Eye
- (TP) - Technidyne Profile Plus
- (TT) - Technidyne Brightimeter Micro S4-M
- (HV) - Hunter Ultrascan XE
- (MK) - Macbeth Color-Eye 7000 Spectrophotometer
- (TS) - Technidyne Brightimeter Micro S-5
- (XX) - Instrument make/model not specified by lab

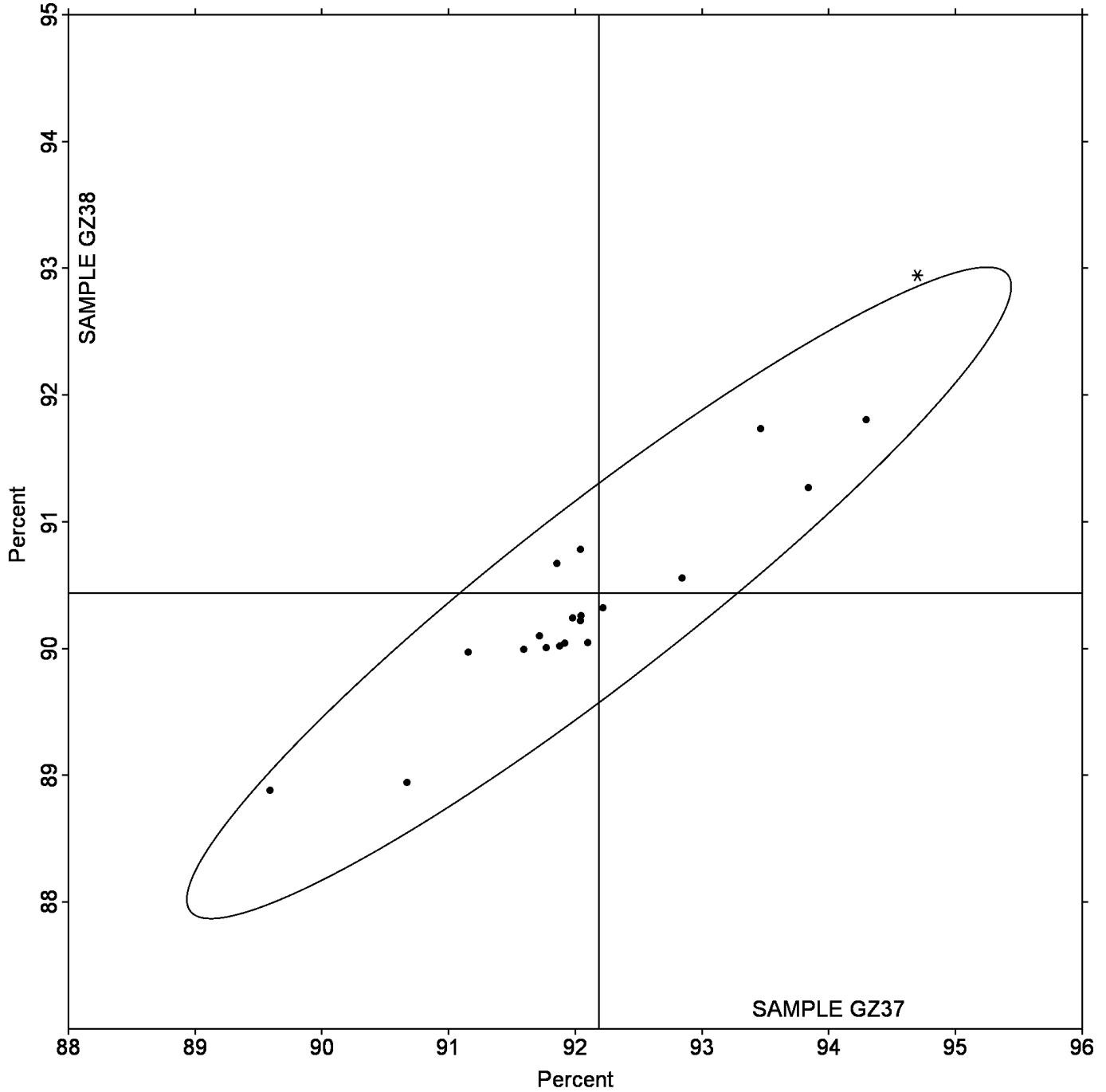
Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ37** = 92.187 Percent

Grand Mean Sample **GZ38** = 90.439 Percent

ANALYSIS 391



Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

WebCode	Data Flag	Sample GR37			Sample GR38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1Y6DBA		88.91	-0.02	-0.04	76.29	-0.16	-0.60	TC
21AW3Y		89.60	0.67	1.74	76.99	0.54	2.00	TC
2D3A9M		88.87	-0.06	-0.16	76.46	0.01	0.03	LS
32DKPU		89.15	0.22	0.57	76.68	0.23	0.85	LA
3VV9HL		89.01	0.08	0.20	76.53	0.08	0.30	TC
4AJARR		88.40	-0.53	-1.37	76.55	0.10	0.37	TC
4J1W18		88.98	0.05	0.13	76.58	0.12	0.46	TC
55PDFB		88.95	0.03	0.07	76.15	-0.30	-1.11	LS
55PZUX		88.94	0.01	0.03	76.50	0.05	0.19	TC
8HN6VC		88.68	-0.25	-0.66	76.38	-0.08	-0.28	TC
8LW95F		88.73	-0.20	-0.51	76.20	-0.26	-0.95	TC
97TUBK		88.50	-0.43	-1.11	76.05	-0.40	-1.49	XX
9SQ2BN		88.50	-0.43	-1.11	76.35	-0.10	-0.37	TM
A3BPEA		89.10	0.17	0.44	76.78	0.32	1.20	TC
AMZBXC		89.61	0.68	1.77	76.83	0.37	1.39	TM
ATHGGC		88.89	-0.04	-0.10	76.42	-0.04	-0.13	TC
BUBUQA	*	90.04	1.11	2.87	77.07	0.62	2.28	FR
C7K56Q		88.86	-0.07	-0.19	76.22	-0.23	-0.86	TM
CEU6YZ		89.17	0.24	0.63	76.49	0.04	0.16	TM
D5BUP1		88.84	-0.09	-0.24	76.50	0.04	0.17	XX
E54KC6	*	88.29	-0.64	-1.65	76.52	0.07	0.26	TC
EHQ1YJ		88.74	-0.19	-0.49	76.43	-0.03	-0.09	EF
F4DHKQ		88.94	0.01	0.02	76.26	-0.19	-0.70	EF
GBTAC6		89.17	0.24	0.61	76.60	0.15	0.56	TC
H4HKWT		89.24	0.31	0.80	76.28	-0.18	-0.65	EF
HX6BW3		88.63	-0.30	-0.79	76.21	-0.24	-0.88	LS
J5QT5X		88.49	-0.44	-1.14	76.05	-0.40	-1.48	XX
JQGV8C		88.86	-0.07	-0.18	76.52	0.07	0.27	TC
JUV1XE		89.35	0.42	1.08	76.77	0.32	1.20	TM
KPDENZ		89.08	0.16	0.40	76.55	0.10	0.37	TM
LV77T6		88.51	-0.42	-1.08	75.92	-0.54	-1.98	LS
M6D37N		88.40	-0.53	-1.38	76.00	-0.46	-1.69	LS
MTUF2W		89.35	0.42	1.08	76.63	0.18	0.66	TM
NPBLZ4		89.23	0.30	0.77	76.38	-0.07	-0.27	TM
PD2SPA		89.07	0.14	0.37	76.52	0.07	0.25	TC
PGH595	X	89.32	0.39	1.01	79.77	3.32	12.30	DR
Q13VTG		89.31	0.38	0.99	76.74	0.29	1.06	TM
QHT8SN		88.28	-0.65	-1.67	76.29	-0.16	-0.58	TM
QYFPKY	X	88.51	-0.42	-1.09	77.12	0.67	2.47	TM
RBB5LY		89.31	0.38	0.99	76.64	0.19	0.69	TL
RR93LP		88.22	-0.71	-1.83	75.78	-0.67	-2.49	LS
SG3KNR		89.25	0.33	0.84	76.48	0.03	0.12	TM
TK4KL8		89.06	0.13	0.34	76.49	0.04	0.14	TC

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

WebCode	Data Flag	Sample GR37			Sample GR38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
UA1MQ5		89.01	0.08	0.21	76.48	0.03	0.12	TC
UND7B6	*	88.72	-0.21	-0.55	76.89	0.43	1.61	EE
WVLZU6		88.44	-0.49	-1.27	76.31	-0.14	-0.51	TM
XKBVR2		89.15	0.22	0.57	76.56	0.11	0.41	TC

Summary Statistics				
	Sample GR37		Sample GR38	
Grand Means	88.929	Percent	76.450	Percent
SD Btwn Labs	0.387	Percent	0.270	Percent
Statistics based on 45 of 47 reporting participants				

Comments on assigned Data Flags for Test #392

PGH595 (X) - Extreme data for Sample GR38.

QYFPKY (X) - Inconsistent in testing between samples.

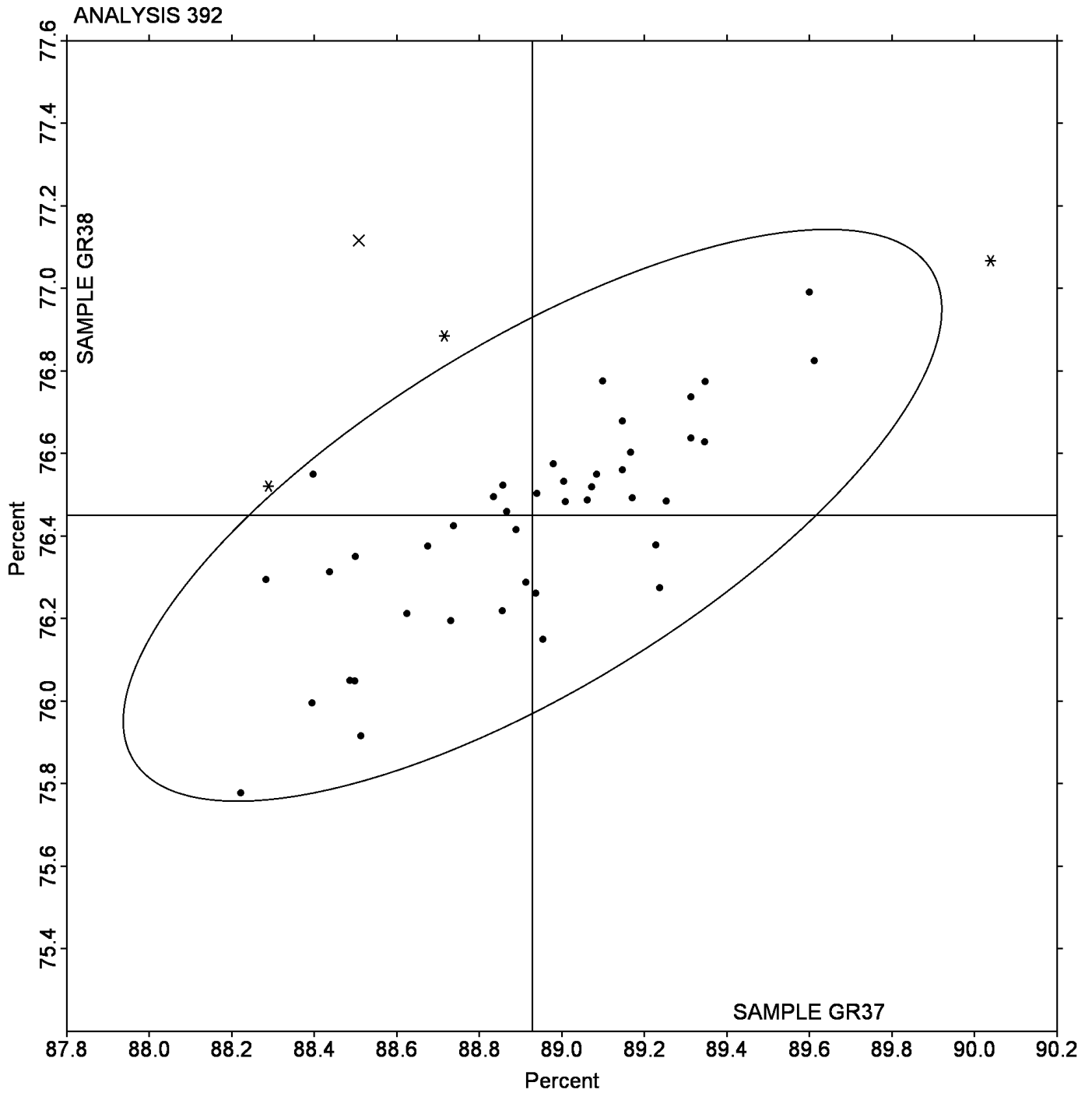
Instrument Code List as Reported by the Labs

(DR) - Datacolor Spectraflash 300	(EE) - Datacolor Elrepho 2000
(EF) - Datacolor Elrepho 3000	(FR) - Frank Instruments
(LA) - L & W Elrepho - Autoline 300	(LS) - L & W Elrepho SE 070
(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 **GR37** = 88.929 Percent

Grand Mean Sample **GR38** = 76.450 Percent



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

WebCode	Data Flag	Sample GZ37			Sample GZ38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2UQ8E1		6.444	0.295	0.31	7.604	0.294	0.32	XX
3D6A8C		5.900	-0.249	-0.26	7.060	-0.250	-0.27	XX
4XP61D		5.942	-0.207	-0.22	7.094	-0.216	-0.23	TS
6EA5XG		5.800	-0.349	-0.36	6.980	-0.330	-0.36	TS
6RT9AC		6.778	0.629	0.66	7.782	0.472	0.51	GM
AN37Q2		8.404	2.255	2.36	9.684	2.374	2.56	HV
CCKB1D	X	17.620	11.471	11.99	20.200	12.890	13.92	HV
CGJ4AG		4.690	-1.459	-1.52	5.718	-1.592	-1.72	TS
DTRR4U		5.444	-0.705	-0.74	6.828	-0.482	-0.52	TS
FB31BY		5.492	-0.657	-0.69	6.758	-0.552	-0.60	TS
HFP7Q4		5.660	-0.489	-0.51	7.050	-0.260	-0.28	TP
KVCSYG	X	7.158	1.009	1.05	5.388	-1.922	-2.08	TS
Q57G5L		5.740	-0.409	-0.43	6.940	-0.370	-0.40	TT
U5DQ9V	X	13.282	7.133	7.45	15.656	8.346	9.01	XX
UA5DVN		5.780	-0.369	-0.39	6.860	-0.450	-0.49	TT
W319YN		6.082	-0.067	-0.07	7.176	-0.134	-0.14	TS
YAPEVY		6.056	-0.093	-0.10	7.056	-0.254	-0.27	TS
Z6VXDL		8.220	2.071	2.16	9.080	1.770	1.91	MK
ZG92JW		5.946	-0.203	-0.21	7.292	-0.018	-0.02	TS

Summary Statistics			
	Sample GZ37		Sample GZ38
Grand Means	6.1486	Percent	7.3101
SD Btwn Labs	0.9570	Percent	0.9258
Statistics based on 16 of 19 reporting participants			

Comments on assigned Data Flags for Test #394

CCKB1D (X) - Extreme data.

KVCSYG (X) - Inconsistent in testing between samples.

U5DQ9V (X) - Extreme data.

KVCSYG - Data appear to be reported as UV Excluded Brightness. Fluorescent component calculated by CTS.

Instrument Code List as Reported by the Labs

(GM) - Gretag Macbeth Color i5

(HV) - Hunter Ultrascan XE

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(TP) - Technidyne Profile Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

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

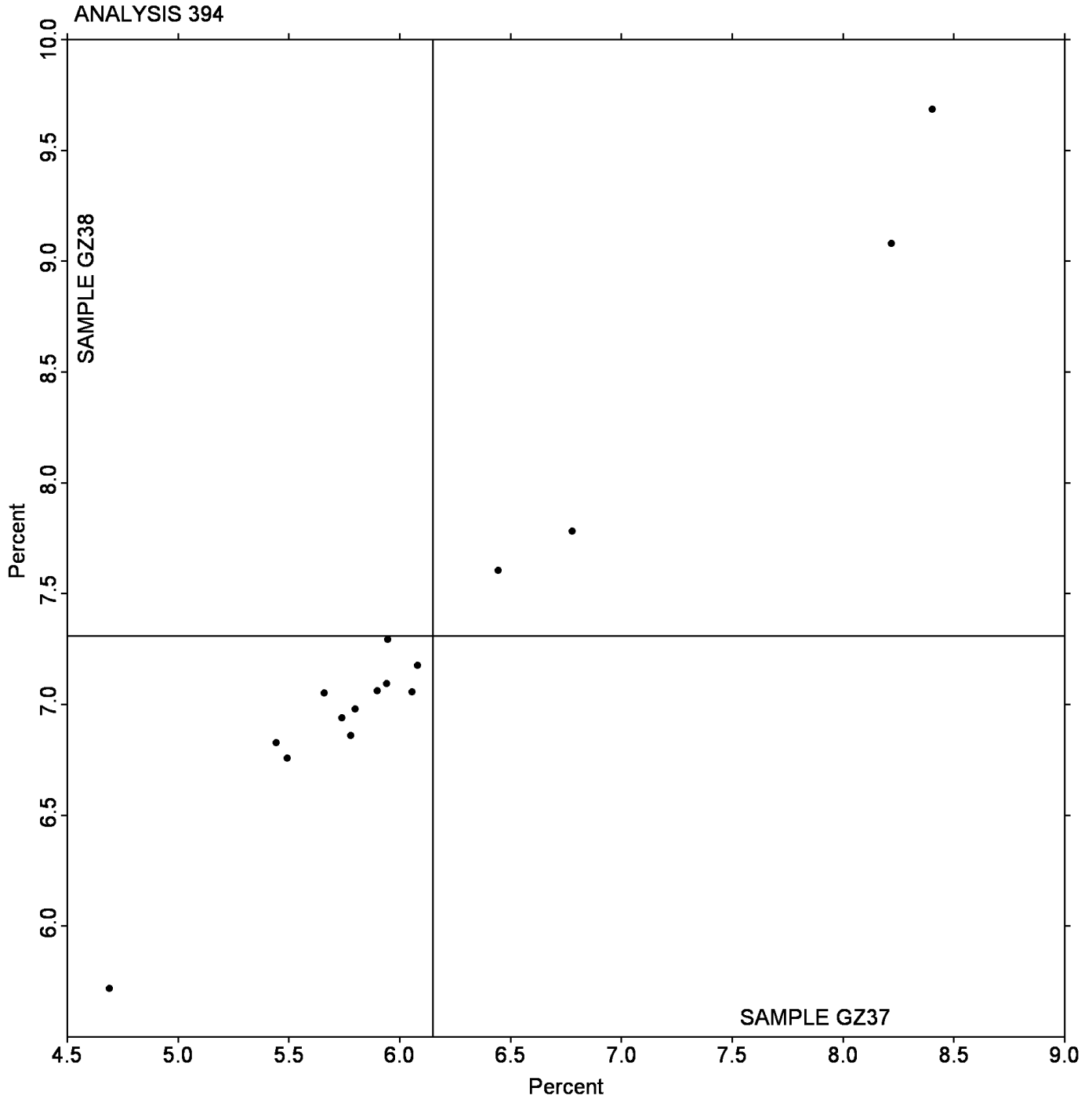
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ37** = 6.1486 Percent

Grand Mean Sample **GZ38** = 7.3101 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 GT37			Sample GT38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
16ANYQ		74.12	-0.12	-0.08	71.82	0.09	0.08	TG
48WVD3		74.11	-0.13	-0.09	72.27	0.54	0.50	XX
4D7MZ9		73.26	-0.98	-0.67	70.67	-1.06	-0.98	GM
4NFUNF		71.18	-3.06	-2.10	70.37	-1.36	-1.26	GS
5A2ZPH		73.30	-0.94	-0.64	69.99	-1.74	-1.61	TH
5GTR95		74.80	0.56	0.38	72.83	1.10	1.01	HN
6MYPD4		74.43	0.19	0.13	71.00	-0.73	-0.68	VM
6SS3GX		76.72	2.48	1.70	74.15	2.42	2.23	TH
7REXET		74.25	0.01	0.01	71.83	0.10	0.09	TH
89FH6L		72.84	-1.40	-0.96	71.13	-0.60	-0.56	TG
8L88MJ		76.01	1.77	1.21	72.92	1.19	1.10	TG
AX7FDD		74.58	0.34	0.23	71.08	-0.65	-0.60	GS
BT3GAU		74.95	0.71	0.49	72.62	0.89	0.82	HG
D1HBN8		75.60	1.36	0.93	72.26	0.53	0.49	HN
FFQ3MJ		76.00	1.76	1.21	72.01	0.28	0.26	TH
FHCV9L		73.30	-0.94	-0.64	70.60	-1.13	-1.05	GA
FTFZPG		71.91	-2.33	-1.60	70.09	-1.64	-1.52	TH
H3M65U		74.70	0.46	0.32	71.88	0.15	0.13	ZH
JJTL8A		72.60	-1.64	-1.12	71.41	-0.32	-0.30	XX
K5JAWE		73.94	-0.30	-0.20	71.84	0.11	0.10	TH
K5UGF9		73.06	-1.18	-0.81	70.80	-0.93	-0.86	XX
MPSNPZ		73.07	-1.17	-0.80	72.08	0.35	0.32	TP
MWZDX4		72.82	-1.42	-0.97	70.37	-1.36	-1.26	GM
NRFDRG		74.14	-0.10	-0.07	71.48	-0.25	-0.23	TH
QXCBBK		71.65	-2.59	-1.78	69.97	-1.76	-1.63	XX
RCYWWQ		74.95	0.71	0.49	72.69	0.95	0.88	TH
RMCGW7		75.95	1.71	1.17	72.54	0.81	0.74	TG
USVV5W		73.20	-1.04	-0.71	71.56	-0.17	-0.16	HN
UVA2AQ		76.00	1.76	1.21	72.64	0.91	0.84	TG
XC3U1F		75.69	1.45	1.00	72.67	0.94	0.87	TH
XNJLKJ		74.11	-0.13	-0.09	71.82	0.09	0.08	TP
Z39UHE		75.84	1.60	1.10	71.51	-0.22	-0.21	XX
ZCSWMM		76.81	2.57	1.76	74.33	2.59	2.39	GM

Summary Statistics

Sample GT37

Grand Means 74.239 Gloss Units
SD Btwn Labs 1.458 Gloss Units

Sample GT38

71.734 Gloss Units
1.082 Gloss Units

Statistics based on 33 of 33 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	(TG) - Technidyne T480
(TH) - Technidyne T480A	(TP) - Technidyne Profile Plus
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab
(ZH) - Zehntner ZLR 1050	

Paper & Paperboard Interlaboratory Testing Program

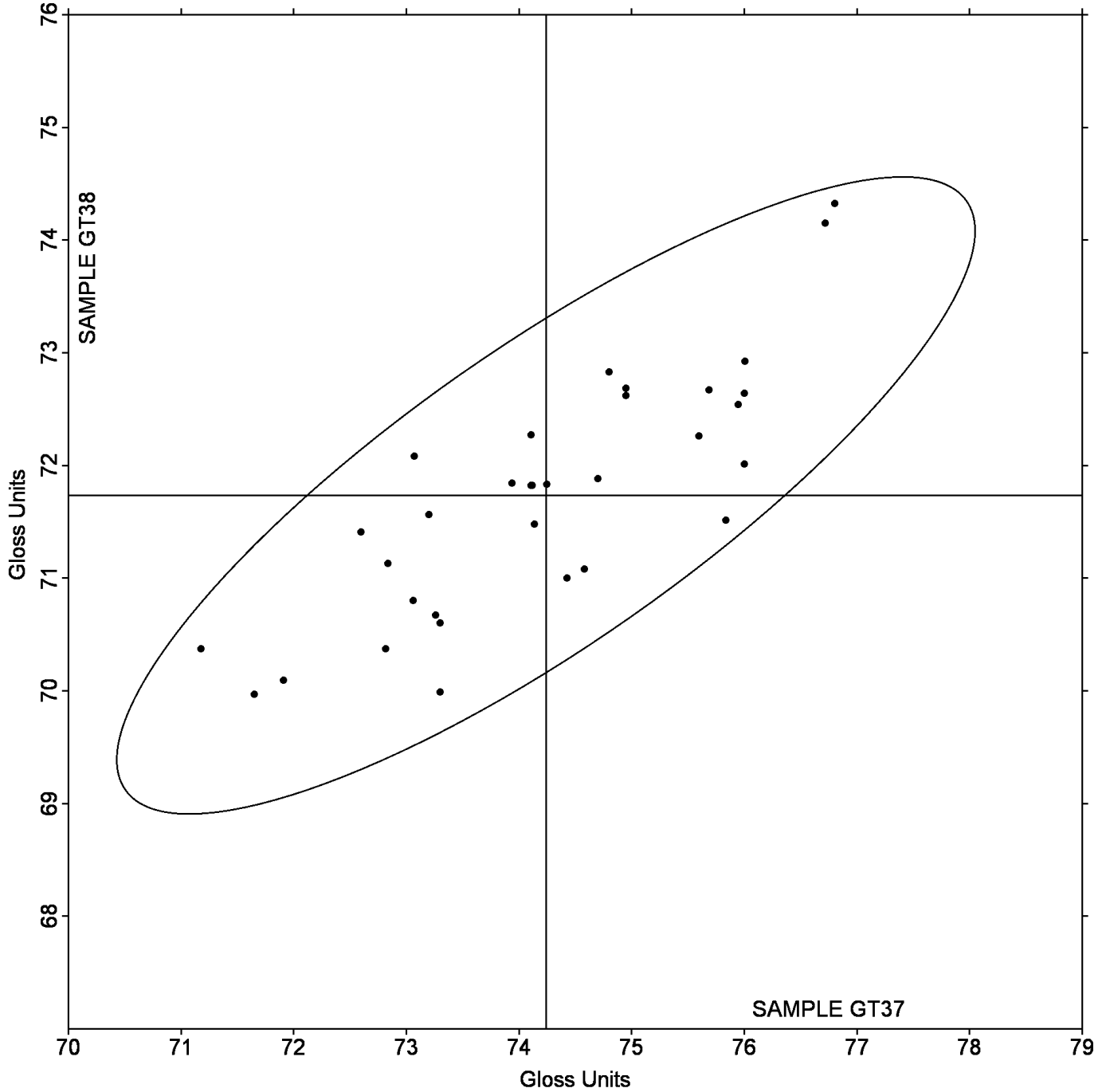
Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT37** = 74.239 Gloss Units

Grand Mean Sample **GT38** = 71.734 Gloss Units

ANALYSIS 395



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

WebCode	Data Flag	Sample GU37			Sample GU38			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1UL278	X	20.76	-5.93	-4.34	41.06	1.15	0.75	TH
7SUPUA		27.99	1.31	0.96	41.43	1.53	1.00	TG
APALIN		25.24	-1.45	-1.06	38.47	-1.44	-0.94	TH
AS4NNA		25.12	-1.57	-1.15	38.61	-1.30	-0.85	TP
CR7DWZ		25.56	-1.13	-0.83	38.69	-1.22	-0.80	GM
G2Q6ZV		25.83	-0.86	-0.63	38.66	-1.25	-0.82	HN
LW8KVE		29.28	2.60	1.90	42.67	2.76	1.81	WG
PXZ1X7	X	21.51	-5.18	-3.79	40.74	0.83	0.54	TH
RZGQS4		26.42	-0.27	-0.19	39.29	-0.62	-0.40	GM
U2LBCZ		28.98	2.30	1.68	42.73	2.82	1.85	TG
VRNRMK		26.20	-0.49	-0.36	39.81	-0.10	-0.06	TP
XWBJ4J		26.30	-0.39	-0.28	39.40	-0.51	-0.33	TH
Y3CHAL		27.39	0.71	0.52	40.21	0.30	0.19	XX
Z7H8VJ		25.65	-1.04	-0.76	38.38	-1.53	-1.00	GS
ZUXK81		26.95	0.27	0.19	40.44	0.53	0.35	TH

Sample GU37		Summary Statistics	Sample GU38	
Grand Means	26.685 Gloss Units		39.907 Gloss Units	
SD Btwn Labs	1.364 Gloss Units		1.529 Gloss Units	
Statistics based on 13 of 15 reporting participants				

Comments on assigned Data Flags for Test #396

1UL278 (X) - Inconsistent in testing between samples, data for Sample GU37 are low.

PXZ1X7 (X) - Inconsistent in testing between samples, data for Sample GU37 are low. Inconsistent within the replicate measurements for Sample GU37.

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss
 (HN) - Hunter D-48
 (TH) - Technidyne T480A
 (WG) - Zehntner ZLR 1050M

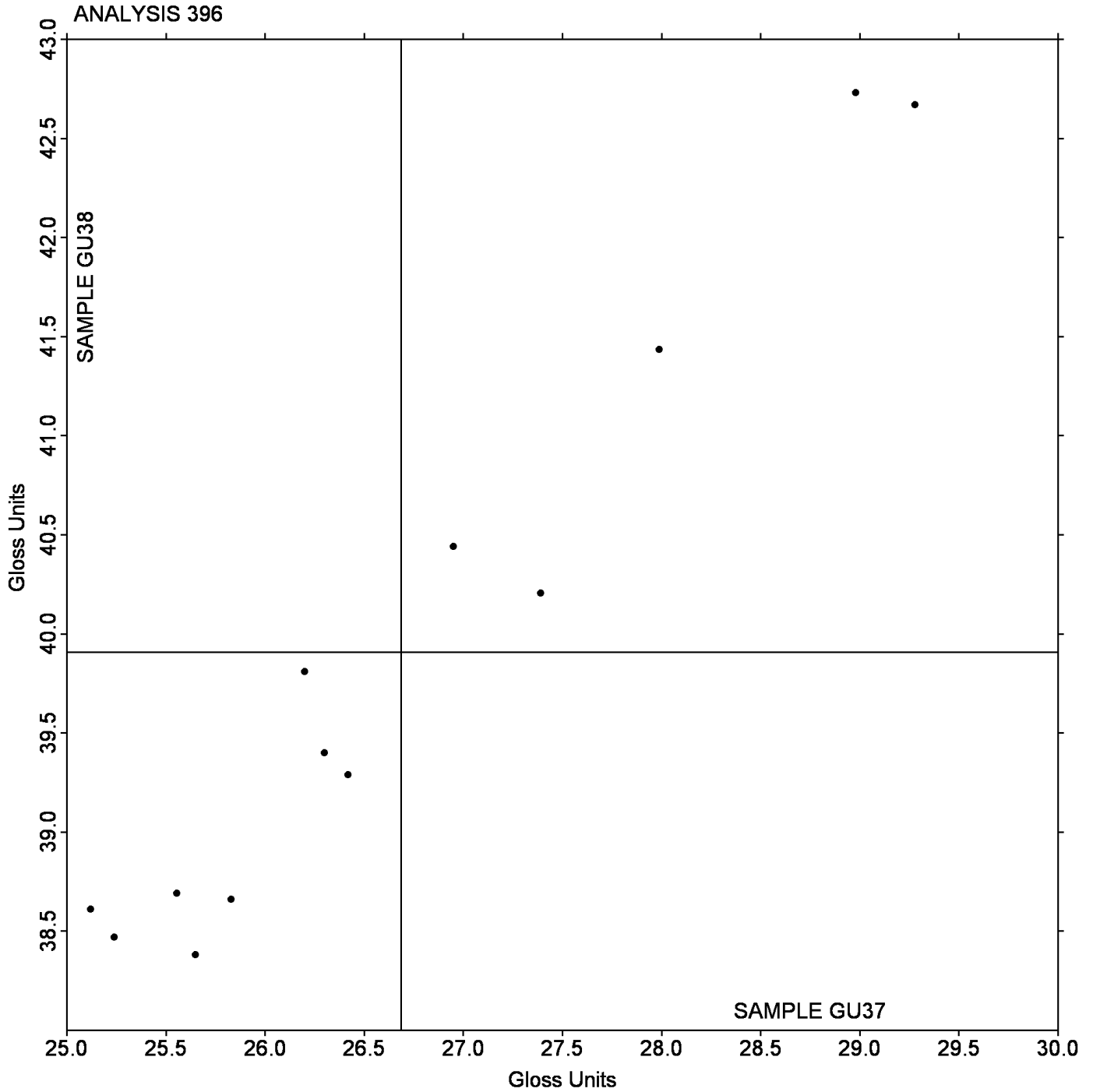
(GS) - BYK-Gardner Glossgard II
 (TG) - Technidyne T480
 (TP) - Technidyne Profile Plus
 (XX) - Instrument make/model not specified by lab

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU37** = 26.685 Gloss Units

Grand Mean Sample **GU38** = 39.907 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 GW37			Sample GW38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24DZ4D		91.80	0.05	0.08	88.40	-0.12	-0.20
3QJXBR		91.92	0.17	0.26	89.22	0.70	1.18
5FNFXG	*	90.99	-0.76	-1.19	88.82	0.30	0.51
69VGH7		92.66	0.91	1.43	88.82	0.30	0.51
6CHCM6		92.87	1.13	1.77	89.87	1.35	2.25
6X1LHB		92.35	0.60	0.95	89.36	0.84	1.41
7C717K		91.90	0.15	0.23	88.48	-0.04	-0.06
7HKSL5		91.41	-0.34	-0.53	88.24	-0.28	-0.46
8MX3Z8		92.56	0.81	1.28	88.77	0.25	0.42
91P5YY		92.25	0.50	0.79	88.17	-0.35	-0.58
9TWB39		92.04	0.29	0.45	88.86	0.34	0.57
BHK5SQ		90.55	-1.19	-1.88	87.34	-1.17	-1.97
CAPTQM		90.76	-0.99	-1.56	88.21	-0.31	-0.52
CM6Q93		90.82	-0.93	-1.46	87.75	-0.77	-1.29
D52KCD		92.30	0.55	0.87	89.14	0.62	1.04
FPT7B1	X	92.07	0.32	0.50	88.32	-0.20	-0.34
GEMT2B		90.94	-0.81	-1.27	87.70	-0.82	-1.37
HL512A		92.00	0.25	0.40	88.45	-0.07	-0.11
HN975F		91.64	-0.11	-0.17	88.46	-0.06	-0.10
HSE4DV		91.42	-0.33	-0.51	88.19	-0.33	-0.55
J54DK1		92.59	0.85	1.33	88.86	0.34	0.56
J7Z62L		90.56	-1.19	-1.87	87.36	-1.16	-1.94
LUYX5F		90.77	-0.98	-1.54	87.67	-0.85	-1.42
LZVLX8		92.15	0.40	0.63	88.40	-0.12	-0.20
MGUG5C		92.20	0.45	0.71	88.75	0.23	0.39
MNYXJK		91.67	-0.08	-0.12	88.53	0.01	0.02
MS1QWG		92.15	0.40	0.63	88.51	-0.01	-0.02
MWDFFR		92.84	1.09	1.72	89.53	1.01	1.69
PKNK2V	X	90.98	-0.77	-1.20	84.77	-3.75	-6.27
QSQTK9		91.91	0.16	0.25	88.33	-0.19	-0.32
RDWP3G	X	91.35	-0.40	-0.63	89.93	1.41	2.37
SC473M		91.56	-0.19	-0.30	88.52	0.00	-0.01
SK4QDH		91.71	-0.04	-0.06	88.57	0.05	0.08
TARH1G		91.35	-0.40	-0.62	88.98	0.46	0.77
TNXPTU		92.16	0.41	0.65	89.22	0.70	1.17
TQZM2P	X	91.91	0.16	0.25	88.76	0.24	0.40
TTV18R		91.23	-0.52	-0.82	88.13	-0.39	-0.65
TW588J		91.98	0.23	0.37	88.76	0.24	0.40
UBJYNX		92.28	0.53	0.84	89.30	0.78	1.31
VJBPQJ	X	90.80	-0.95	-1.49	88.15	-0.37	-0.62
VVTHPC		91.05	-0.70	-1.10	87.98	-0.53	-0.89
VZYNFA		91.33	-0.42	-0.66	88.17	-0.35	-0.59
X46L6U		91.84	0.09	0.14	88.14	-0.38	-0.63

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

WebCode	Data Flag	Sample GW37			Sample GW38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
XT4W3T		91.19	-0.56	-0.88	87.67	-0.85	-1.42
YV9T5N		91.43	-0.32	-0.50	88.06	-0.46	-0.78
YZ8WCN		92.57	0.82	1.29	89.58	1.06	1.78
Z75EJQ	X	15.19	-76.56	-120.43	14.67	-73.85	-123.61

		Summary Statistics	
	Sample GW37		Sample GW38
Grand Means	91.749 g/sq m		88.518 g/sq m
SD Btwn Labs	0.636 g/sq m		0.597 g/sq m
Statistics based on 41 of 47 reporting participants			

Comments on assigned Data Flags for Test #398

FPT7B1 (X) - Data appears to be transposed between samples. Data Switched by CTS.

PKNK2V (X) - Extreme data for Sample GW38.

RDWP3G (X) - Inconsistent in testing between samples.

TQZM2P (X) - Data appear to be reported as basis weight; data converted by CTS (x1.48).

VJBPQJ (X) - Data appears to be transposed between samples. Data Switched by CTS.

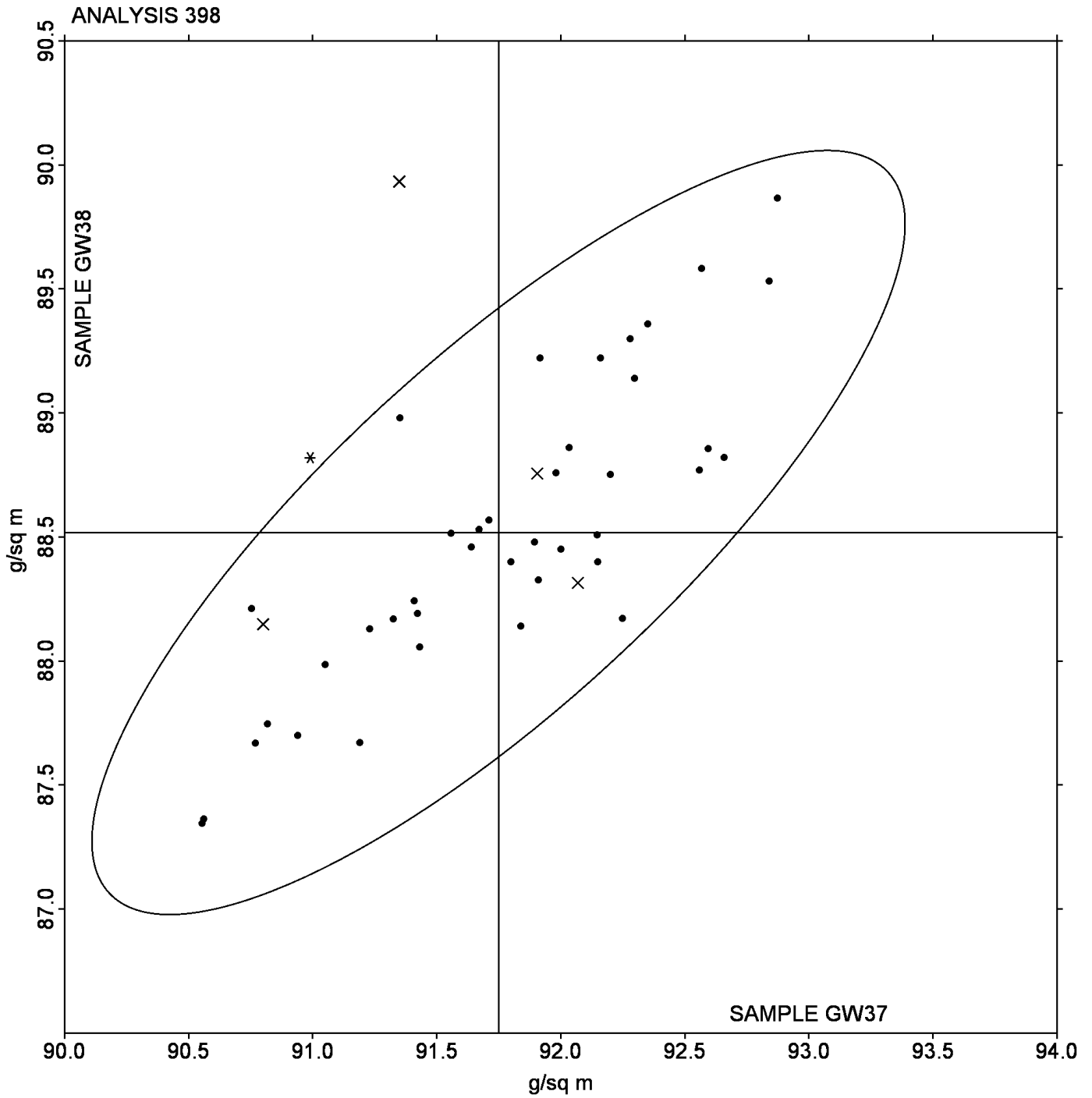
Z75EJQ (X) - Extreme data.

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW37** = 91.749 g/sq m

Grand Mean Sample **GW38** = 88.518 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

WebCode	Data Flag	Sample GX37			Sample GX38		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1F8LJ5		67.20	9.69	0.54	37.20	-10.83	-0.75
1PBX8T		53.93	-3.58	-0.20	49.04	1.02	0.07
1V8Z2S		61.68	4.17	0.23	58.79	10.77	0.74
3W7YXR		70.89	13.38	0.74	40.42	-7.61	-0.52
4KJWPP		59.60	2.09	0.12	45.50	-2.53	-0.17
4XH2GU		61.10	3.59	0.20	44.75	-3.28	-0.23
5H3DQB		65.95	8.44	0.47	60.58	12.56	0.86
5QWJ66		42.65	-14.86	-0.83	50.32	2.30	0.16
65LLAV		31.15	-26.36	-1.46	29.57	-18.46	-1.27
6EN2NT		76.28	18.77	1.04	70.66	22.64	1.56
6EXNWB		46.01	-11.50	-0.64	38.75	-9.28	-0.64
6L8ZBG		49.69	-7.82	-0.43	25.73	-22.30	-1.54
7GL8FZ		32.40	-25.11	-1.40	29.30	-18.73	-1.29
8UALDU		78.45	20.94	1.16	49.62	1.60	0.11
9S9HTB		53.58	-3.93	-0.22	48.83	0.81	0.06
BE1Q7G		52.80	-4.71	-0.26	43.60	-4.43	-0.30
CGHY5G		63.40	5.89	0.33	52.83	4.81	0.33
D89QD7		59.80	2.29	0.13	52.97	4.95	0.34
DB5H7C		56.90	-0.61	-0.03	44.40	-3.63	-0.25
FV968Y		53.59	-3.92	-0.22	51.40	3.38	0.23
G6BG18		53.30	-4.21	-0.23	29.80	-18.23	-1.25
G6MQ3E		68.21	10.70	0.59	61.46	13.44	0.93
G9F9TL		43.98	-13.53	-0.75	34.84	-13.19	-0.91
HT2TCQ		50.73	-6.78	-0.38	45.05	-2.98	-0.20
K1LJG8		81.16	23.65	1.31	74.00	25.98	1.79
K9VBPC		37.45	-20.06	-1.11	41.58	-6.45	-0.44
KLM1NH	*	103.81	46.30	2.57	86.21	38.19	2.63
L1WAJJ		46.30	-11.21	-0.62	25.89	-22.14	-1.52
LMPJMC	X	119.90	62.39	3.47	80.88	32.86	2.26
LUJP37		90.93	33.42	1.86	61.98	13.96	0.96
MHJD75		62.31	4.80	0.27	53.48	5.46	0.38
NLND8F		42.68	-14.83	-0.82	46.12	-1.91	-0.13
P6KVTV		30.56	-26.95	-1.50	26.96	-21.07	-1.45
Q3DT5C		49.94	-7.57	-0.42	40.56	-7.47	-0.51
QGR6FJ		38.32	-19.19	-1.07	54.77	6.75	0.46
QQND8H		52.29	-5.22	-0.29	40.60	-7.43	-0.51
QZLW8D		47.00	-10.51	-0.58	44.56	-3.47	-0.24
RDTXZF		32.96	-24.55	-1.36	34.15	-13.88	-0.96
SM31ZS		45.68	-11.83	-0.66	45.13	-2.90	-0.20
SY2SRR		56.56	-0.95	-0.05	43.51	-4.52	-0.31
V41QZ1		100.30	42.79	2.38	84.30	36.28	2.50
ZAWW8A		49.18	-8.33	-0.46	46.25	-1.78	-0.12
ZG64UZ		94.65	37.14	2.06	71.59	23.57	1.62

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

	Sample GX37	Summary Statistics	Sample GX38
Grand Means	57.508 Seconds		48.025 Seconds
SD Btwn Labs	17.998 Seconds		14.524 Seconds
Statistics based on 42 of 43 reporting participants			

Comments on assigned Data Flags for Test #399

LMPJMC (X) - Inconsistent in testing between samples, data for Sample GX37 are high.

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample GX37 = 57.508 Seconds

Grand Mean Sample GX38 = 48.025 Seconds

ANALYSIS 399

