Collaborative Testing Services, Inc.

Paper & PaperboardTesting Program

Summary Report #279G-December 2015

Introduction to the Paper & Paperboard Program

Explanation of Tables and Definitions of Terms

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350	Color & Color Difference (Near White Papers), Hunter L,a,b - Illuminant C - 2 deg obs
351	Color & Color Difference (Near White Papers), Hunter L,a,b - Illuminant D65 - 10 deg obs
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365	Coefficient of Kinetic Friction-Horizontal Plane, Printing papers
370	Air Resistance, Gurley Oil Type, Printing papers
372	Porosity, Sheffield Type, Printing papers
376	Roughness - Print Surf Method 0.5 to 4.0 Microns, Low range
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384	Opacity (89% Backing) 82 to 95%, Fine papers
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390	Brightness (Directional), Printing papers
391	Directional Brightness of Fluorescent Samples, Printing papers
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396	Specular Gloss 75 Degreee, 20-65 Units, Low range
398	Grammage (Basis Weight), Printing papers
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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. Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

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:

DATA FLAG	STATISTICALLY INCLUDED/EXCLUDED	ACTION REQUIRED
*	INCLUDED	**CAUTION** - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	**STOP** - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse. See specific notes following each table for more information on why the data is excluded.
M	EXCLUDED	**PROCEED** - lab was unable to report data for at least one sample.

Key for Web Summary Reports (Page 2 of 2)

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.

TAPPI-CTS Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs **Hunter L,a,b - Illuminant C - 2 Degree Observer**

Web Code	F	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
2LY3QV		GA25	91.78	-0.25	2.36	0.50	-0.18	0.68	0.87	TM
		GA26	92.28	-0.43	3.04					
4T8FJB		GA25	92.78	0.12	2.12	0.00	-0.14	0.92	0.93	TS
		GA26	92.77	-0.02	3.04					
69ZBW2		GA25	93.59	-0.56	3.19	0.40	-0.16	0.16	0.46	MI
		GA26	93.99	-0.71	3.35					
83MAN3		GA25	91.85	-0.80	2.75	0.49	-0.13	0.66	0.83	LS
		GA26	92.34	-0.93	3.42					
A7CPQ8		GA25	90.69	-0.76	1.11	0.41	-0.08	0.31	0.52	HH
		GA26	91.09	-0.84	1.42					
AEPGG6		GA25	92.18	-0.63	2.97	0.62	-0.15	0.76	0.99	LA
		GA26	92.81	-0.78	3.73					
B6XH6P		GA25	92.69	-0.11	2.62	0.32	-0.17	0.61	0.71	TS
		GA26	93.01	-0.28	3.23					
BP7NTY		GA25	92.31	-0.61	2.73	0.39	-0.14	0.62	0.74	NE
		GA26	92.70	-0.75	3.35					
BX2N67		GA25	91.81	-1.11	1.28	0.35	-0.08	0.36	0.51	HH
		GA26	92.15	-1.19	1.64					
GUYVDU		GA25	92.22	-0.57	2.63	0.49	-0.12	0.61	0.79	MK
		GA26	92.72	-0.69	3.24					
L3FZDG		GA25	91.97	-0.72	2.72	0.58	-0.15	0.69	0.92	EH
		GA26	92.55	-0.88	3.42					
LBQ3YH		GA25	92.04	-0.04	2.22	0.60	-0.11	0.64	0.88	TS
		GA26	92.64	-0.15	2.86					
PAMQJR		GA25	93.64	-0.72	2.64	0.40	-0.13	0.69	0.81	LS
		GA26	94.05	-0.84	3.34					
PBH9LT		GA25	91.40	-0.58	2.32	0.66	-0.18	0.43	0.81	XX
		GA26	92.07	-0.76	2.75					
PGQMDP		GA25	92.50	-0.57	2.77	0.19	-0.12	-0.08	0.24 X	XS
		GA26	92.69	-0.68	2.69					
R9KT8M		GA25	93.61	-0.68	2.90	0.42	-0.13	0.68	0.81	EH
		GA26	94.03	-0.81	3.58					
RDGEYP		GA25	91.33	0.24	2.34	0.80	-0.29	0.74	1.12	TS
		GA26	92.12	-0.05	3.08					

TAPPI-CTS Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs | **Hunter L,a,b - Illuminant C - 2 Degree Observer**

Web Code	F	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
TZAQLL		GA25	92.75	0.07	2.26	0.02	-0.04	0.66	0.66	TS
		GA26	92.77	0.03	2.92					
VFBAC9		GA25	93.99	0.46	2.37	0.23	0.01	0.65	0.69	HE
		GA26	94.22	0.47	3.01					
VXRFLJ		GA25	92.76	-0.66	2.77	0.58	0.00	0.68	0.89	HE
		GA26	93.34	-0.67	3.45					
XC7MD2		GA25	92.08	-0.61	2.61	0.48	-0.16	0.60	0.79	TC
		GA26	92.56	-0.77	3.21					
XFZGB3		GA25	91.85	-0.75	2.90	0.55	0.03	0.64	0.84	HH
		GA26	92.40	-0.72	3.54					
Y3A823		GA25	90.52	0.32	2.05	0.63	-0.06	0.89	1.09	TS
		GA26	91.15	0.26	2.93					
Y3QDCL		GA25	93.66	-0.80	2.77	0.42	-0.10	0.65	0.78	TC
		GA26	94.08	-0.90	3.42					

Summary Statistics

Grand Means							
GA25	92.333	-0.430	2.475	0.439	-0.115	0.594	0.779
GA26	92.772	-0.545	3.069				
Stnd Dev Btwn Labs							
GA25	0.918	0.420	0.488	0.191	0.069	0.219	0.199
GA26	0.843	0.423	0.545				

Statistics based on 24 of 24 reporting participants

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450
(HE) - Hunter LabScan
(HH) - Hunter D25DP - 9000
(LA) - L & W Elrepho AL300
(LS) - L & W Elrepho SE 070
(MI) - Macbeth Color i 5
(MK) - Macbeth Color-Eye 7000 Spectrophotometer
(NE) - Minolta CM-3500d Spectrophotometer
(TC) - Technidyne Color Touch Series
(TM) - Technidyne Technibrite Micro TB-1C
(TS) - Technidyne Brightimeter Micro S-5
(XS) - X-Rite 938 Spectrodensitometer
(XX) - Instrument make/model not specified by lab

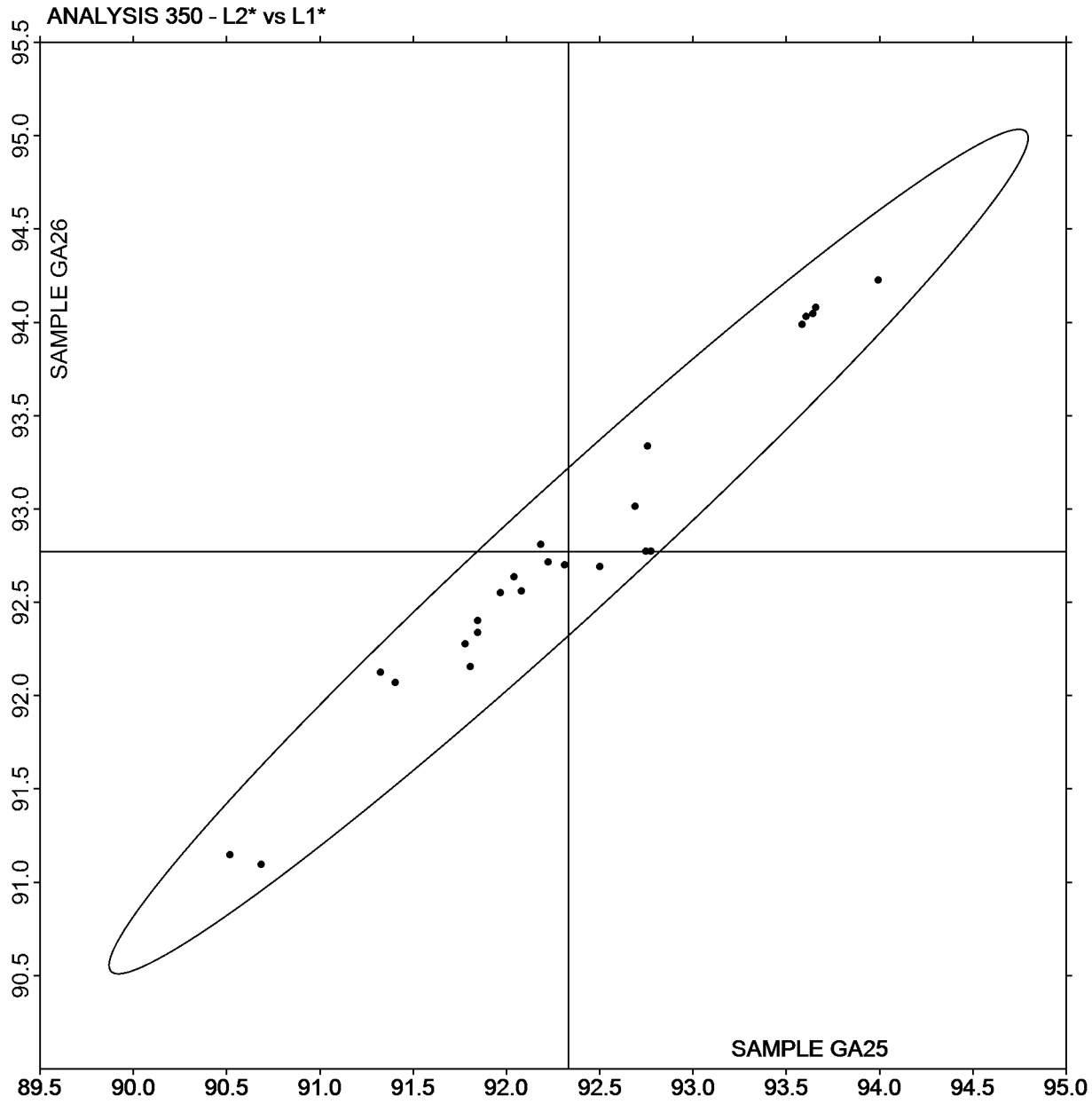
TAPPI-CTS Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs **Hunter L,a,b - Illuminant C - 2 Degree Observer**

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

Plot of L values GA26 v L values GA25



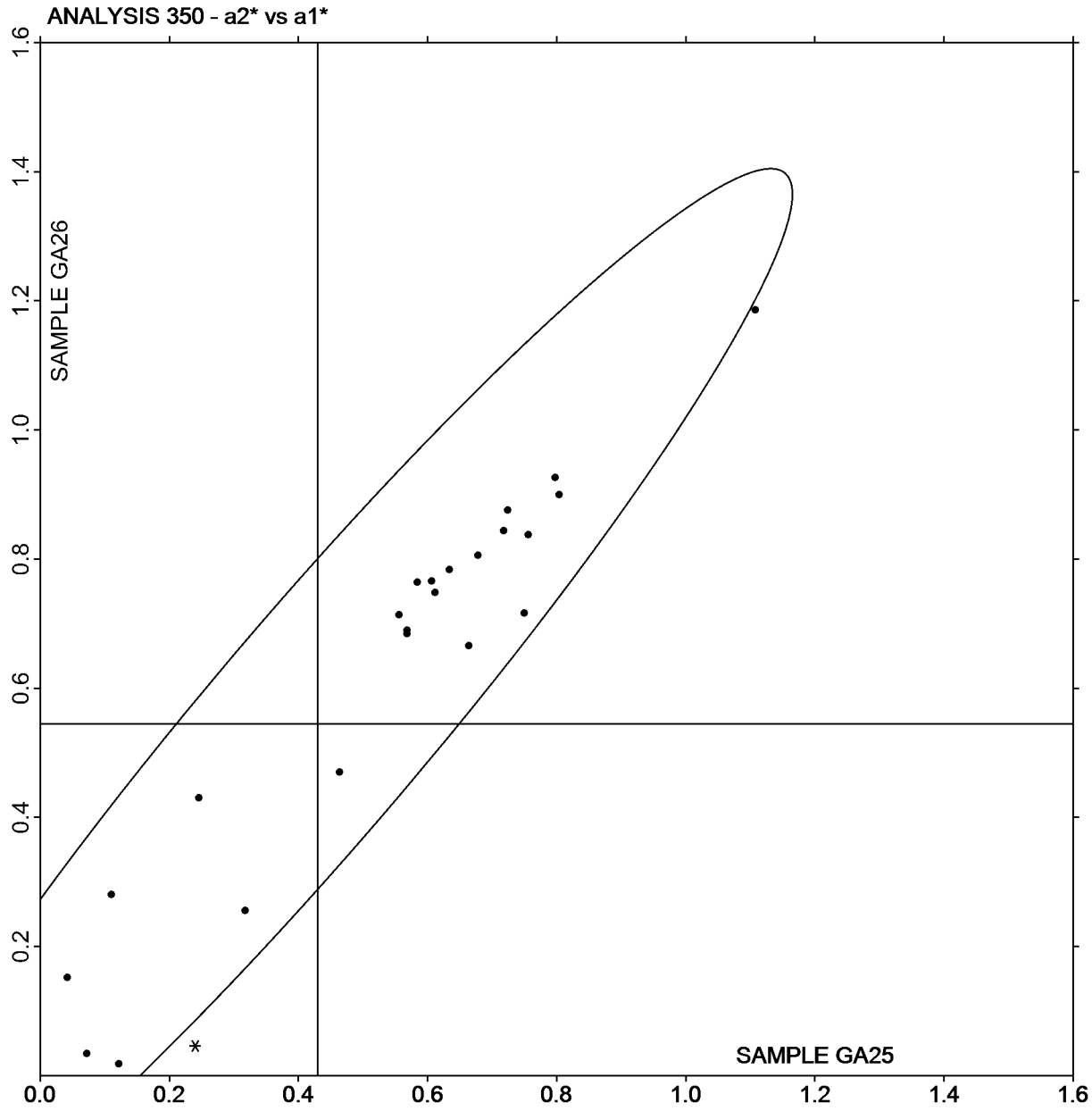
TAPPI-CTS Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs **Hunter L,a,b - Illuminant C - 2 Degree Observer**

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

Plot of a values GA26 v a values GA25

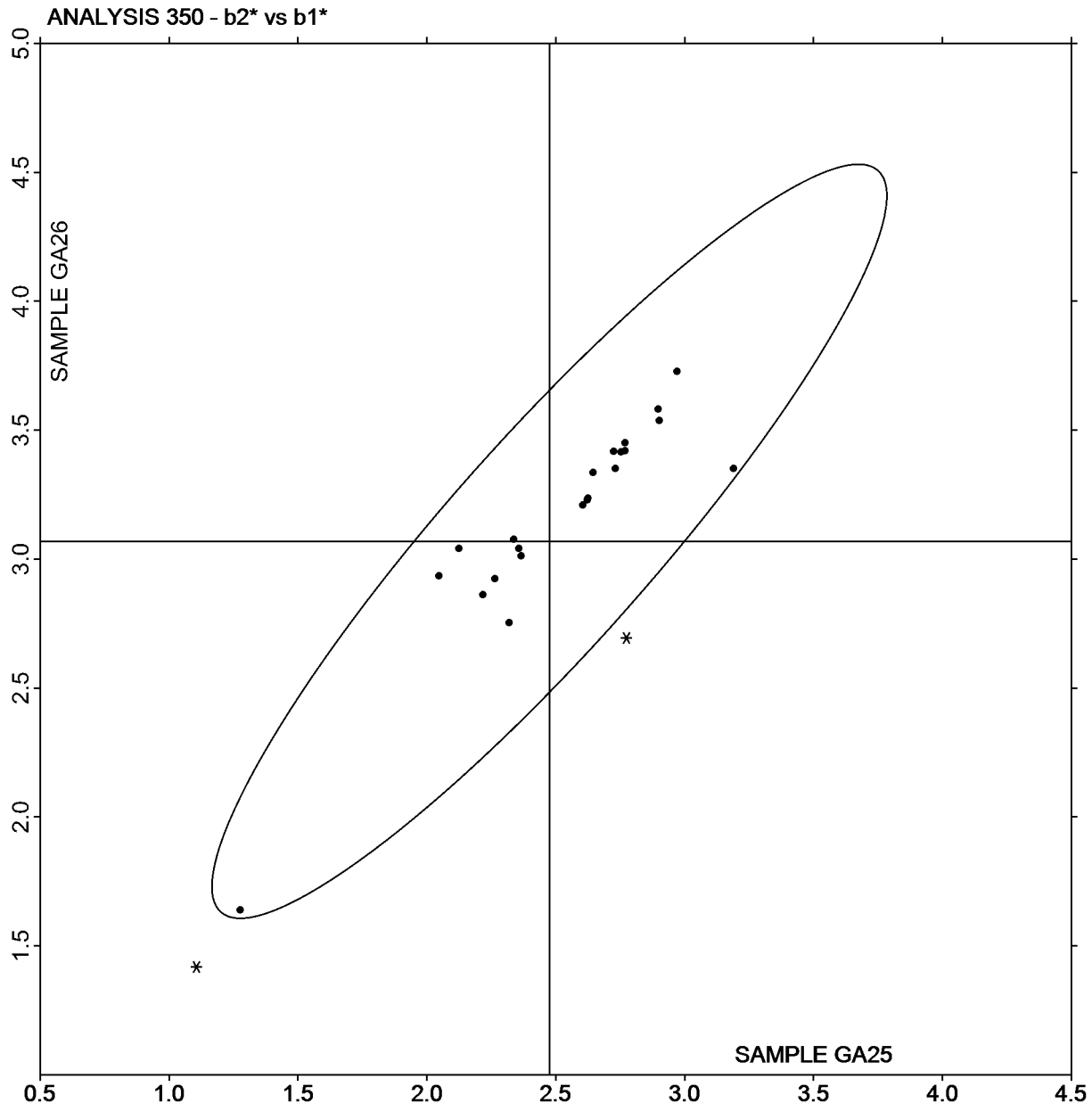


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg obs **Hunter L,a,b - Illuminant C - 2 Degree Observer**

Plot of b values GA26 v b values GA25



TAPPI-CTS Interlaboratory Testing Program

Analysis 351

Color & Color Difference - Near White Papers - D65/10deg obs **Hunter L,a,b - Illuminant D65 - 10 Degree Observer**

2696ME	GA25	93.86	-0.61	2.82	0.57	0.03	0.68	0.89		HE
	GA26	94.44	-0.58	3.50						
38U9VC	GA25	94.08	-0.75	2.97	0.33	-0.01	0.63	0.71		NG
	GA26	94.41	-0.76	3.60						
3C4JPR	GA25	93.66	-0.69	2.87	0.36	0.04	0.61	0.71		EH
	GA26	94.02	-0.65	3.47						
4XMNAV	GA25	93.63	-0.86	2.97	0.35	0.04	0.65	0.74		TC
	GA26	93.98	-0.82	3.62						
7YNKLA	GA25	93.75	-0.73	3.15	0.35	0.00	0.57	0.67		NG
	GA26	94.09	-0.73	3.72						
9BVACB	GA25	93.68	-0.78	3.00	0.39	0.02	0.62	0.74		EH
	GA26	94.07	-0.76	3.62						
C36YQ6	GA25	94.02	-0.79	3.01	0.44	0.04	0.73	0.86		HT
	GA26	94.46	-0.75	3.74						
JBFTLY	GA25	93.71	-0.62	3.15	0.24	-0.11	0.52	0.58		LS
	GA26	93.95	-0.74	3.67						
JHECMU	GA25	94.72	-0.36	2.35	0.28	-0.12	0.61	0.68		XP
	GA26	95.00	-0.48	2.96						
JKMHAV	GA25	93.96	-0.74	2.93	0.30	0.00	0.64	0.70		NF
	GA26	94.26	-0.74	3.57						
K97Z7Q	GA25	92.35	-0.77	2.71	0.52	-0.01	0.62	0.81		MW
	GA26	92.87	-0.78	3.33						
M3VLMJ	GA25	92.07	-0.89	2.80	0.42	0.02	0.61	0.74		TC
	GA26	92.49	-0.87	3.41						
M7TAUR	GA25	93.41	-0.70	3.19	0.45	0.01	0.73	0.85		NG
	GA26	93.86	-0.69	3.92						
N9FY2C	GA25	91.98	-0.65	2.77	0.41	0.02	0.68	0.79		XM
	GA26	92.39	-0.64	3.45						
PAMQJR	GA25	93.62	-0.72	2.66	0.41	-0.10	0.66	0.79		LS
	GA26	94.03	-0.82	3.32						
RMHNKT	GA25	91.70	-0.65	3.36	0.19	0.02	0.23	0.30	X	TC
	GA26	91.89	-0.63	3.59						
VMP8WL	GA25	92.84	-0.65	2.54	0.49	-0.02	0.63	0.80		HV
	GA26	93.34	-0.67	3.16						
VXRFLJ	GA25	92.88	-0.61	2.81	0.40	-0.07	0.61	0.73		HE
	GA26	93.28	-0.68	3.42						

TAPPI-CTS Interlaboratory Testing Program

Analysis 351

Color & Color Difference - Near White Papers - D65/10deg obs | **Hunter L,a,b - Illuminant D65 - 10 Degree Observer**

XF6Y92	GA25	94.06	-0.70	2.96	0.24	-0.10	0.54	0.60	EF
	GA26	94.30	-0.80	3.50					
YFKHRD	GA25	94.12	-0.68	3.08	0.26	-0.06	0.60	0.66	HT
	GA26	94.38	-0.73	3.69					

Summary Statistics

Grand Means								
GA25	93.405	-0.697	2.881	0.370	-0.018	0.608	0.717	
GA26	93.775	-0.716	3.509					
Stnd Dev Btwn Labs								
GA25	0.824	0.110	0.217	0.101	0.055	0.103	0.127	
GA26	0.810	0.091	0.220					

Statistics based on 20 of 20 reporting participants

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(EH) - Datacolor Elrepho SF450

(HE) - Hunter LabScan

(HT) - Hunter UltraScan Vis

(HV) - Hunter Ultrascan XE

(LS) - L & W Elrepho SE 070

(MW) - Minolta CM-2500 Spectrophotometer

(NF) - Minolta CM-3600d Spectrophotometer

(NG) - Minolta CM-3700d Spectrophotometer

(TC) - Technidyne Color Touch Series

(XM) - X-Rite CA-22

(XP) - X-Rite Spectrophotometer DTP

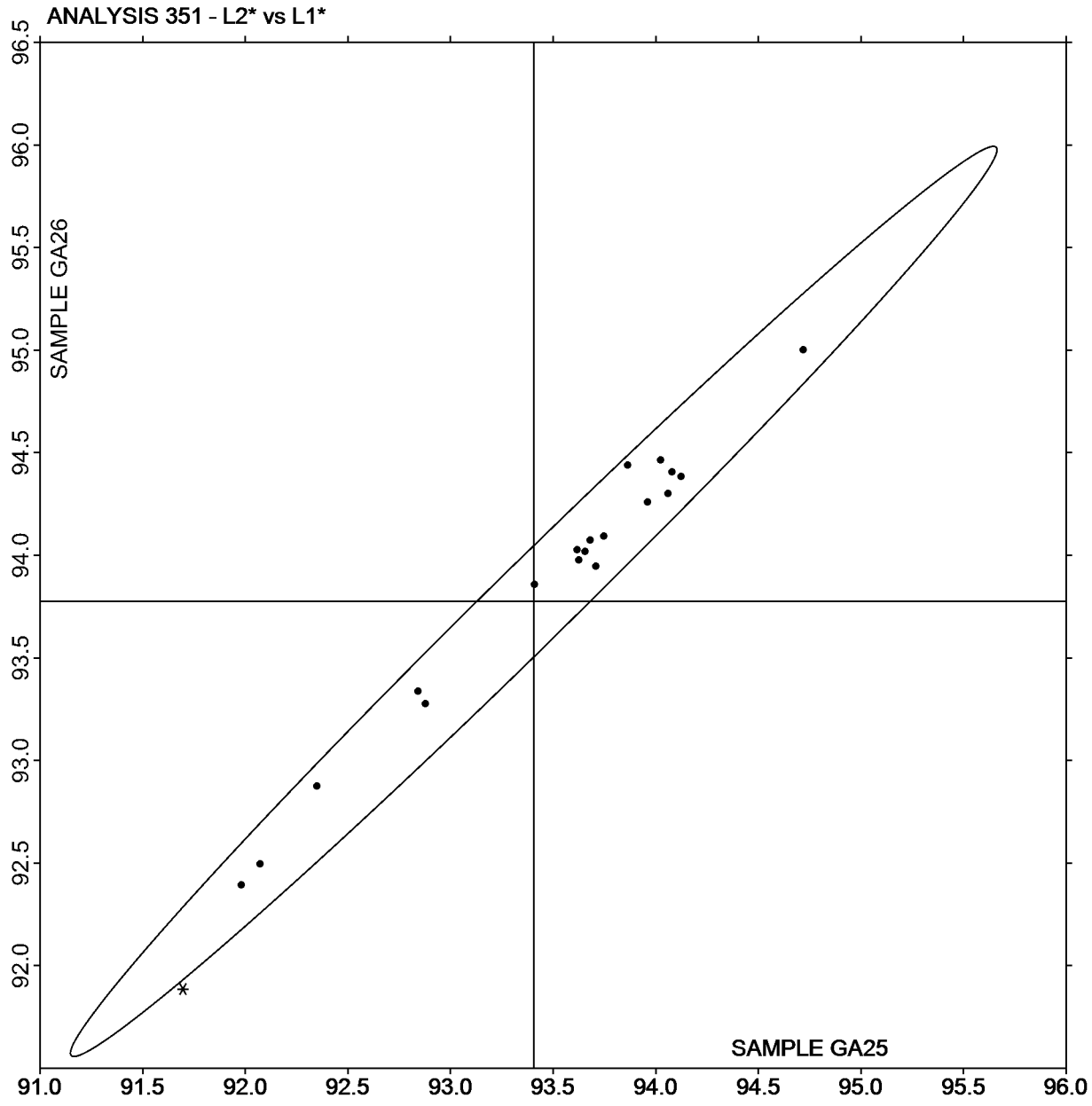
TAPPI-CTS Interlaboratory Testing Program

Analysis 351

Color & Color Difference - Near White Papers - D65/10deg obs **Hunter L,a,b - Illuminant D65 - 10 Degree Observer**

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

Plot of L values GA26 v L values GA25



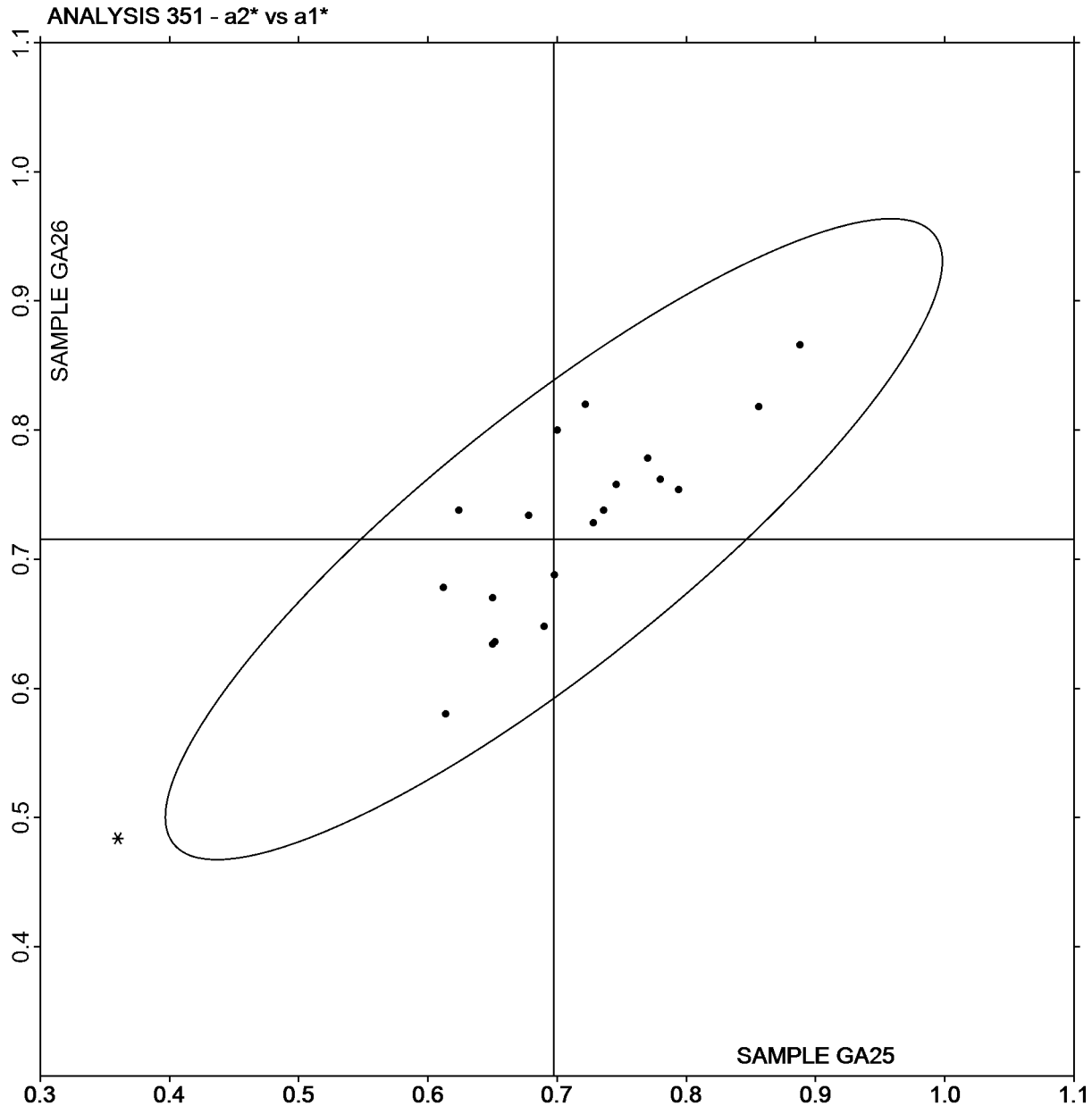
TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

Plot of a values GA26 v a values GA25

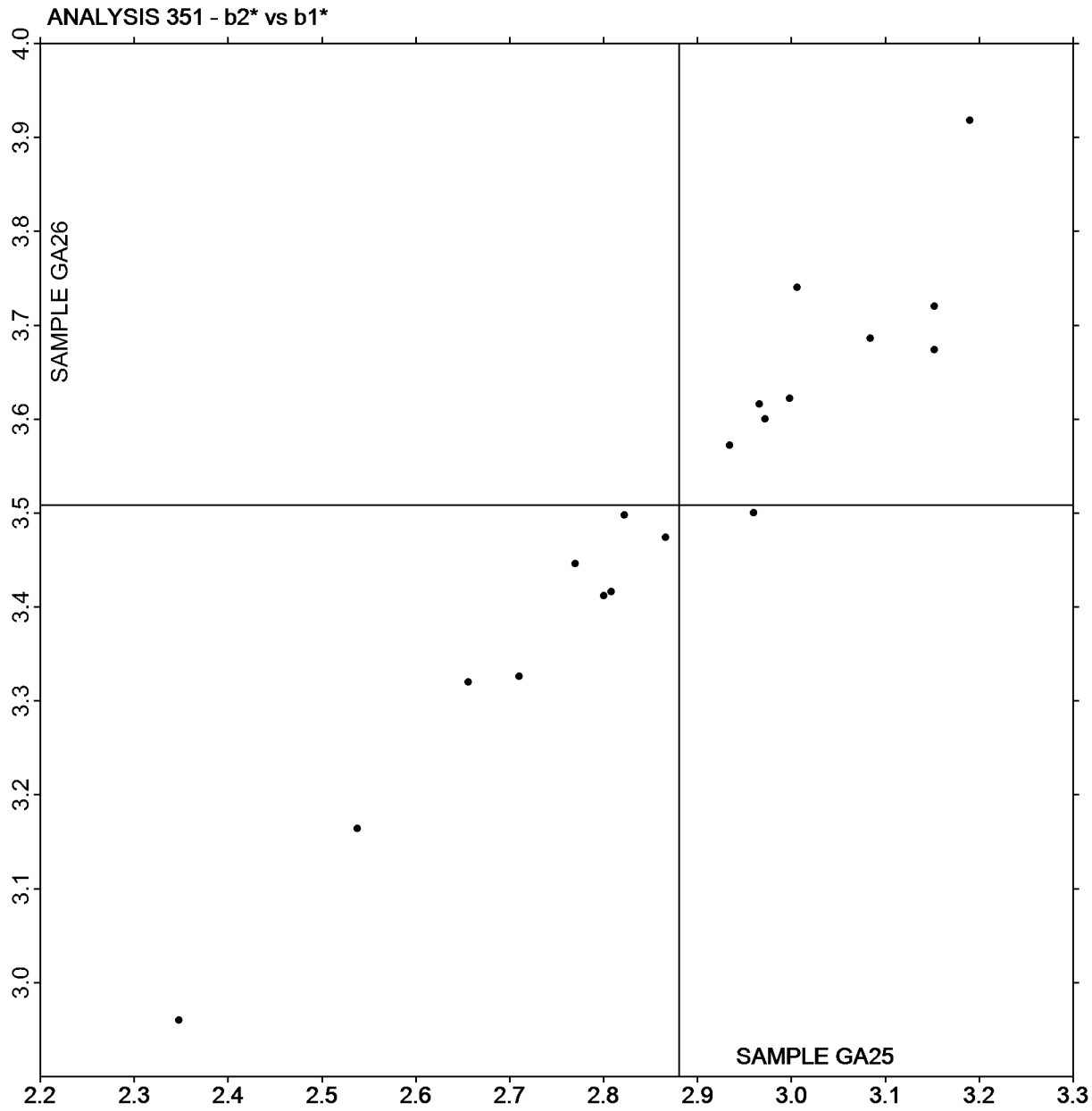


TAPPI-CTS Interlaboratory Testing Program

Analysis 351

Color & Color Difference - Near White Papers - D65/10deg obs **Hunter L,a,b - Illuminant D65 - 10 Degree Observer**

Plot of b values GA26 v b values GA25



Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV25 Lab Mean	Sample GV25 Diff from Grand Mean	Sample GV25 CPV	Sample GV26 Lab Mean	Sample GV26 Diff from Grand Mean	Sample GV26 CPV	Instr Code
239UTZ		4.643	0.072	0.81	3.833	0.054	0.74	LW
2696ME	X	4.656	0.085	0.95	3.870	0.090	1.24	TM
2LY3QV		4.627	0.056	0.62	3.802	0.023	0.31	TA
38U9VC		4.563	-0.008	-0.09	3.802	0.023	0.31	LW
4KX2RG		4.642	0.070	0.79	3.812	0.033	0.45	LW
4T8FJB		4.455	-0.117	-1.31	3.724	-0.055	-0.75	TM
69ZBW2	*	4.328	-0.243	-2.73	3.591	-0.188	-2.57	TA
738Q7Q		4.645	0.074	0.83	3.829	0.050	0.68	TM
7QDJZ9		4.591	0.020	0.22	3.787	0.008	0.11	XX
7YNKLA		4.512	-0.059	-0.66	3.749	-0.030	-0.41	XX
83MAN3		4.600	0.029	0.32	3.833	0.054	0.74	LW
8GG3NA		4.470	-0.101	-1.13	3.734	-0.045	-0.62	PP
8QR6AB		4.650	0.079	0.88	3.816	0.037	0.50	EM
94RG4Z		4.617	0.046	0.51	3.814	0.035	0.48	PP
AEPGG6		4.665	0.094	1.05	3.844	0.065	0.89	LA
B6XH6P		4.525	-0.046	-0.52	3.703	-0.076	-1.04	EM
BJJX74		4.541	-0.030	-0.34	3.755	-0.024	-0.33	EM
C36YQ6		4.655	0.084	0.94	3.827	0.048	0.65	EM
CD88HN		4.594	0.023	0.26	3.791	0.012	0.17	LW
CE3PKP		4.604	0.033	0.37	3.814	0.035	0.48	PP
CK69A2		4.517	-0.054	-0.61	3.756	-0.023	-0.32	MT
D6CQ7P		4.677	0.106	1.18	3.842	0.063	0.86	EM
D98HC2		4.539	-0.032	-0.36	3.827	0.047	0.65	TM
DZGW73		4.597	0.026	0.29	3.756	-0.023	-0.31	TM
G3AXYV		4.450	-0.121	-1.36	3.640	-0.139	-1.90	TM
GDTHXX		4.553	-0.018	-0.20	3.838	0.059	0.81	XX
GMZBBY		4.606	0.034	0.38	3.806	0.027	0.37	LW
GUYVDU	X	4.760	0.189	2.11	4.014	0.235	3.21	PP
H32JKX		4.420	-0.151	-1.69	3.650	-0.129	-1.77	XX
HY37YT		4.661	0.090	1.01	3.883	0.104	1.42	EM
J8WLAJ		4.579	0.008	0.09	3.832	0.053	0.72	LW
JHECMU		4.576	0.005	0.05	3.775	-0.004	-0.06	TM
JKMHAV		4.618	0.046	0.52	3.852	0.072	0.99	TM
JTD4EU		4.574	0.003	0.03	3.765	-0.015	-0.20	LW
JTZA2E		4.531	-0.040	-0.45	3.754	-0.025	-0.34	LA
LKGM3V		4.529	-0.042	-0.47	3.736	-0.043	-0.58	LW
LKHKDQ		4.613	0.042	0.47	3.833	0.054	0.74	LW
M3VLMJ		4.596	0.025	0.28	3.810	0.031	0.42	TA
M7TAUR		4.554	-0.017	-0.19	3.801	0.022	0.30	XX
MP2CRW	X	4.836	0.265	2.97	3.912	0.133	1.81	FR
MTJMRM		4.645	0.074	0.83	3.781	0.002	0.02	LW
MTKK3H		4.432	-0.139	-1.56	3.651	-0.128	-1.75	EM
N9FY2C		4.539	-0.032	-0.36	3.795	0.016	0.22	LW

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

WebCode	Data Flag	Sample GV25 Lab Mean	Sample GV25 Diff from Grand Mean	Sample GV25 CPV	Sample GV26 Lab Mean	Sample GV26 Diff from Grand Mean	Sample GV26 CPV	Instr Code
PBH9LT		4.590	0.019	0.21	3.800	0.021	0.29	XX
PGQMDP		4.570	-0.001	-0.01	3.740	-0.039	-0.53	TM
Q4VTH8		4.648	0.077	0.86	3.846	0.067	0.92	EM
QZQA8R		4.551	-0.020	-0.22	3.744	-0.035	-0.48	TA
R9KT8M		4.583	0.011	0.13	3.760	-0.019	-0.26	MT
RDGEYP		4.438	-0.133	-1.49	3.694	-0.085	-1.16	LA
RJ3A3E	*	4.640	0.069	0.77	3.748	-0.031	-0.43	LW
RVYD79		4.739	0.168	1.88	3.902	0.122	1.67	LW
TE73WB		4.576	0.005	0.05	3.799	0.020	0.27	TM
TP8PN8	X	4.750	0.179	2.00	3.810	0.031	0.42	LW
TZAQLL		4.417	-0.154	-1.72	3.639	-0.140	-1.92	TM
UZWVAP		4.648	0.077	0.86	3.864	0.085	1.16	TM
V9QHFF		4.592	0.021	0.23	3.754	-0.025	-0.34	EM
VD44NM		4.524	-0.047	-0.53	3.736	-0.043	-0.59	TA
VMP8WL		4.597	0.026	0.29	3.764	-0.015	-0.21	EM
WVHQY2		4.620	0.049	0.55	3.792	0.013	0.18	TM
XC7MD2		4.632	0.061	0.68	3.845	0.066	0.90	TA
Y3QDCL		4.528	-0.043	-0.48	3.753	-0.026	-0.36	LA
YFKHRD		4.632	0.061	0.68	3.837	0.058	0.79	EM
Z7P2FE	*	4.347	-0.224	-2.51	3.598	-0.181	-2.48	EM
ZUFBQK	*	4.830	0.259	2.90	3.998	0.219	2.99	LW
ZVR23A		4.410	-0.161	-1.81	3.670	-0.109	-1.49	TM

Summary Statistics

	Sample GV25	Sample GV26
Grand Means	4.5712 mils	3.7791 mils
SD Btwn Labs	0.0892 mils	0.0731 mils

Statistics based on 61 of 65 reporting participants

Comments on assigned Data Flags for Test #360

2696ME (X) - Data appear to be off by a factor of 10; data converted by CTS (x0.1).

GUYVDU (X) - Data for Sample GV26 are high.

MP2CRW (X) - Data for Sample GV25 are high.

TP8PN8 (X) - Inconsistent in testing between samples.

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

Instrument Code List as Reported by the Labs

(EM) - Emveco

(FR) - Frank Instruments

(LA) - L & W Autoline

(LW) - L & W

(MT) - Mitutoyo

(PP) - Technidyne Profile/Plus

(TA) - Thwing-Albert

(TM) - TMI

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

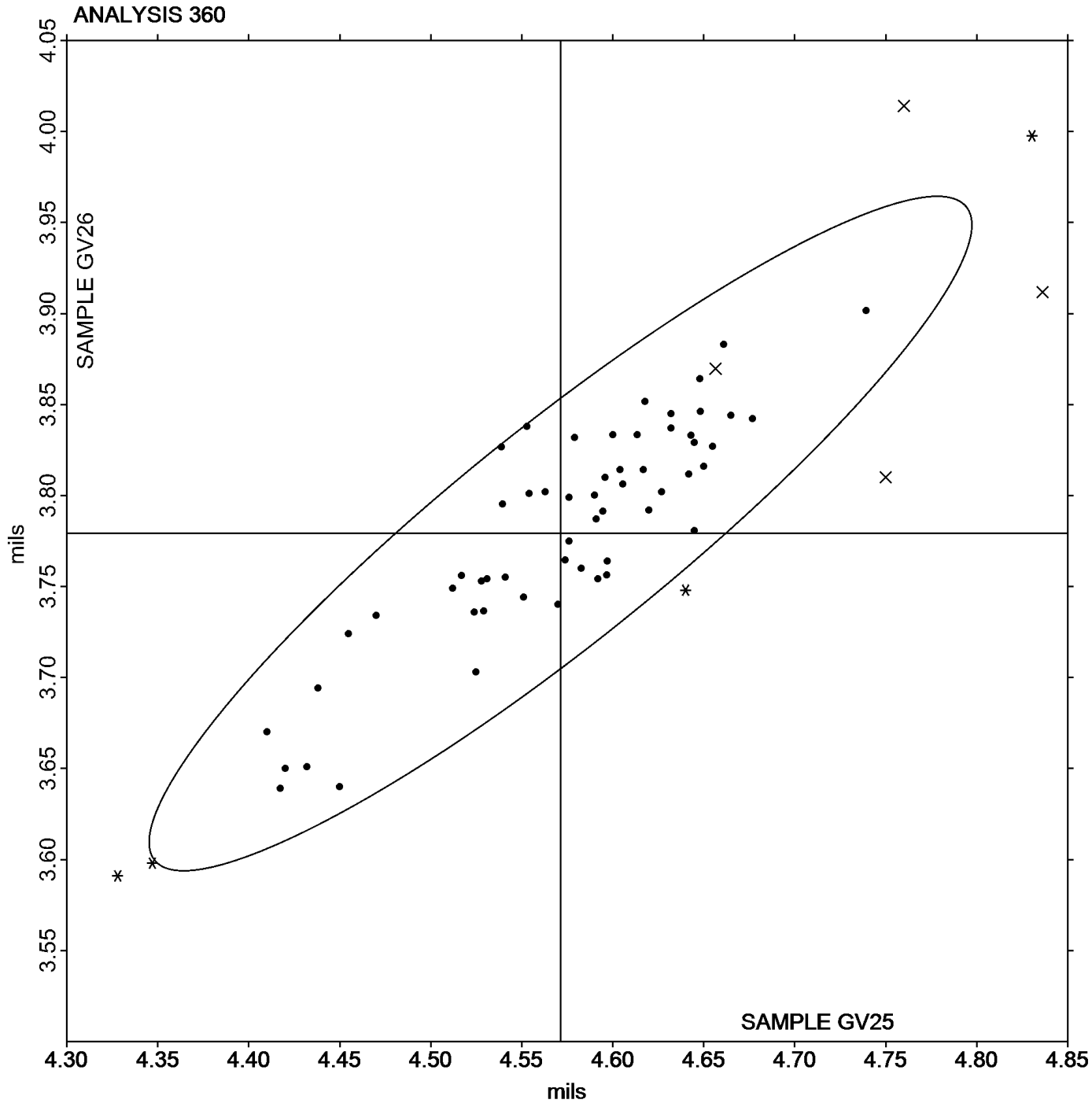
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV25** = 4.5712 mils

Grand Mean Sample **GV26** = 3.7791 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY25 Lab Mean	Sample GY25 Diff from Grand Mean	Sample GY25 CPV	Sample GY26 Lab Mean	Sample GY26 Diff from Grand Mean	Sample GY26 CPV	Instr Code
239UTZ		9.301	0.159	1.08	14.33	0.28	1.61	XX
2XTJFW		8.800	-0.342	-2.33	13.74	-0.31	-1.78	LA
3C4JPR		9.374	0.232	1.58	14.26	0.21	1.22	EM
44TH4Q		9.390	0.248	1.69	14.40	0.35	1.98	LA
69YDL7		9.217	0.075	0.51	14.15	0.10	0.59	TM
69ZBW2		8.848	-0.294	-2.01	13.61	-0.44	-2.52	TA
7RBKA8		8.945	-0.197	-1.34	13.89	-0.16	-0.92	TA
8NLXR4		9.169	0.027	0.19	14.12	0.07	0.41	XX
9BVACB		9.310	0.168	1.15	14.27	0.22	1.26	LA
A7CPQ8		9.339	0.197	1.34	14.12	0.06	0.37	EM
AC2E34		9.156	0.014	0.09	14.02	-0.04	-0.20	PP
AEPGG6		9.264	0.122	0.83	14.19	0.13	0.77	LA
BX2N67		9.337	0.195	1.33	14.20	0.15	0.86	EM
CLZQC3		9.046	-0.096	-0.66	13.85	-0.20	-1.15	LW
DLG6E7		9.030	-0.112	-0.76	14.08	0.03	0.17	TA
G3AXYV		9.010	-0.132	-0.90	13.81	-0.24	-1.38	TM
G9V2L4		9.062	-0.080	-0.55	14.01	-0.04	-0.23	TM
GTNVGZ		9.226	0.084	0.57	14.32	0.27	1.53	TM
GWPWJH		9.106	-0.036	-0.24	14.07	0.02	0.12	XX
HTJYLU		9.080	-0.062	-0.42	13.99	-0.06	-0.35	TA
J8WLAJ		9.252	0.110	0.75	14.12	0.07	0.39	LW
MJEPXR		9.126	-0.016	-0.11	13.93	-0.12	-0.67	LA
MTJMRM		9.139	-0.003	-0.02	14.01	-0.04	-0.25	LW
PAMQJR		9.307	0.165	1.13	14.24	0.19	1.09	TM
Q8DZUM		9.160	0.018	0.12	13.94	-0.11	-0.63	TM
RMHNKT		9.015	-0.127	-0.87	13.95	-0.10	-0.59	TA
TXXBU7		9.201	0.059	0.40	14.13	0.08	0.48	XX
VD44NM		9.141	-0.001	-0.01	14.03	-0.02	-0.12	TA
VFBAC9		9.000	-0.142	-0.97	14.03	-0.02	-0.13	LA
VXRFLJ		9.193	0.051	0.35	13.96	-0.09	-0.53	EM
WVHQY2		9.220	0.078	0.53	14.17	0.12	0.66	TM
X4ATDH		9.010	-0.132	-0.90	13.92	-0.13	-0.75	TM
XFZGB3		9.234	0.092	0.63	14.07	0.02	0.12	EM
Y2UUBK		8.987	-0.155	-1.06	13.81	-0.24	-1.38	TM
YQGNKC		9.191	0.049	0.33	14.18	0.13	0.74	TM
ZVR23A		8.930	-0.212	-1.45	13.91	-0.14	-0.80	TM

Summary Statistics

	Sample GY25	Sample GY26
Grand Means	9.1421 mils	14.050 mils
SD Btwn Labs	0.1466 mils	0.175 mils

Statistics based on 36 of 36 reporting participants

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

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(LW) - L & W

(PP) - Technidyne Profile/Plus

(TA) - Thwing-Albert

(TM) - TMI

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

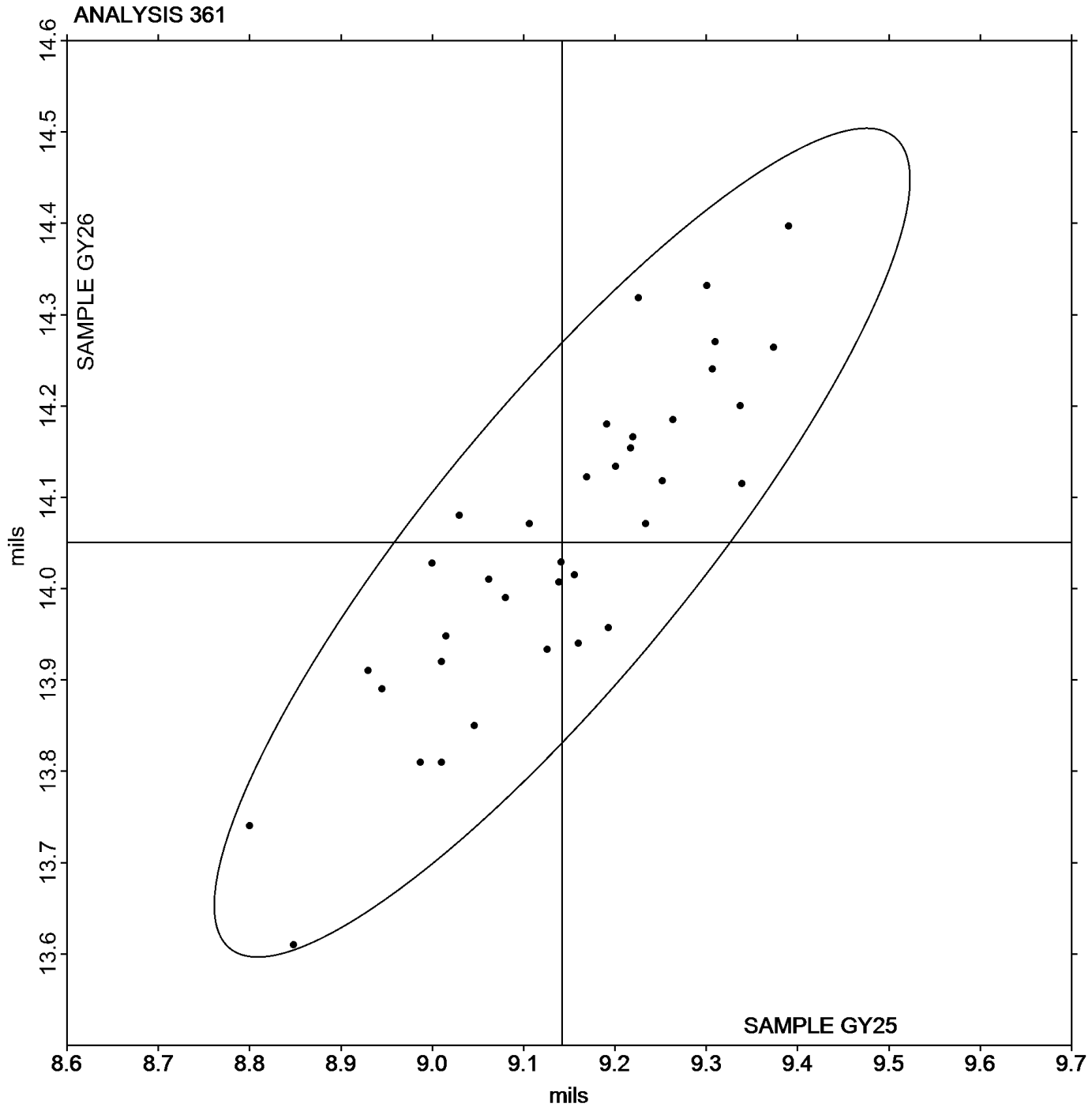
Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample **GY25** = 9.1421 mils

Grand Mean Sample **GY26** = 14.050 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD25 Lab Mean	Sample GD25 Diff from Grand Mean	Sample GD25 CPV	Sample GD26 Lab Mean	Sample GD26 Diff from Grand Mean	Sample GD26 CPV	Instr Code
239UTZ		0.6100	0.0232	0.37	0.6080	0.0744	1.07	TL
38U9VC		0.6060	0.0192	0.31	0.5842	0.0506	0.73	TM
AEPGG6		0.6232	0.0364	0.58	0.5590	0.0254	0.37	TM
B6XH6P		0.6190	0.0322	0.51	0.5106	-0.0230	-0.33	XX
D6CQ7P		0.6336	0.0468	0.74	0.5440	0.0104	0.15	TM
M8QB4Q		0.5818	-0.0050	-0.08	0.5368	0.0032	0.05	TA
MJEPXR		0.4870	-0.0998	-1.58	0.4948	-0.0388	-0.56	TA
PGQMDP		0.4740	-0.1128	-1.79	0.3764	-0.1572	-2.26	XX
VEFQB8		0.6462	0.0594	0.94	0.5882	0.0546	0.79	IT

Summary Statistics

	Sample GD25	Sample GD26
Grand Means	0.58676 COF	0.53356 COF
SD Btwn Labs	0.06294 COF	0.06945 COF

Statistics based on 9 of 9 reporting participants

Instrument Code List as Reported by the Labs

(IT) - IMASS SP-2100

(TA) - Thwing-Albert Friction Tester

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

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

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

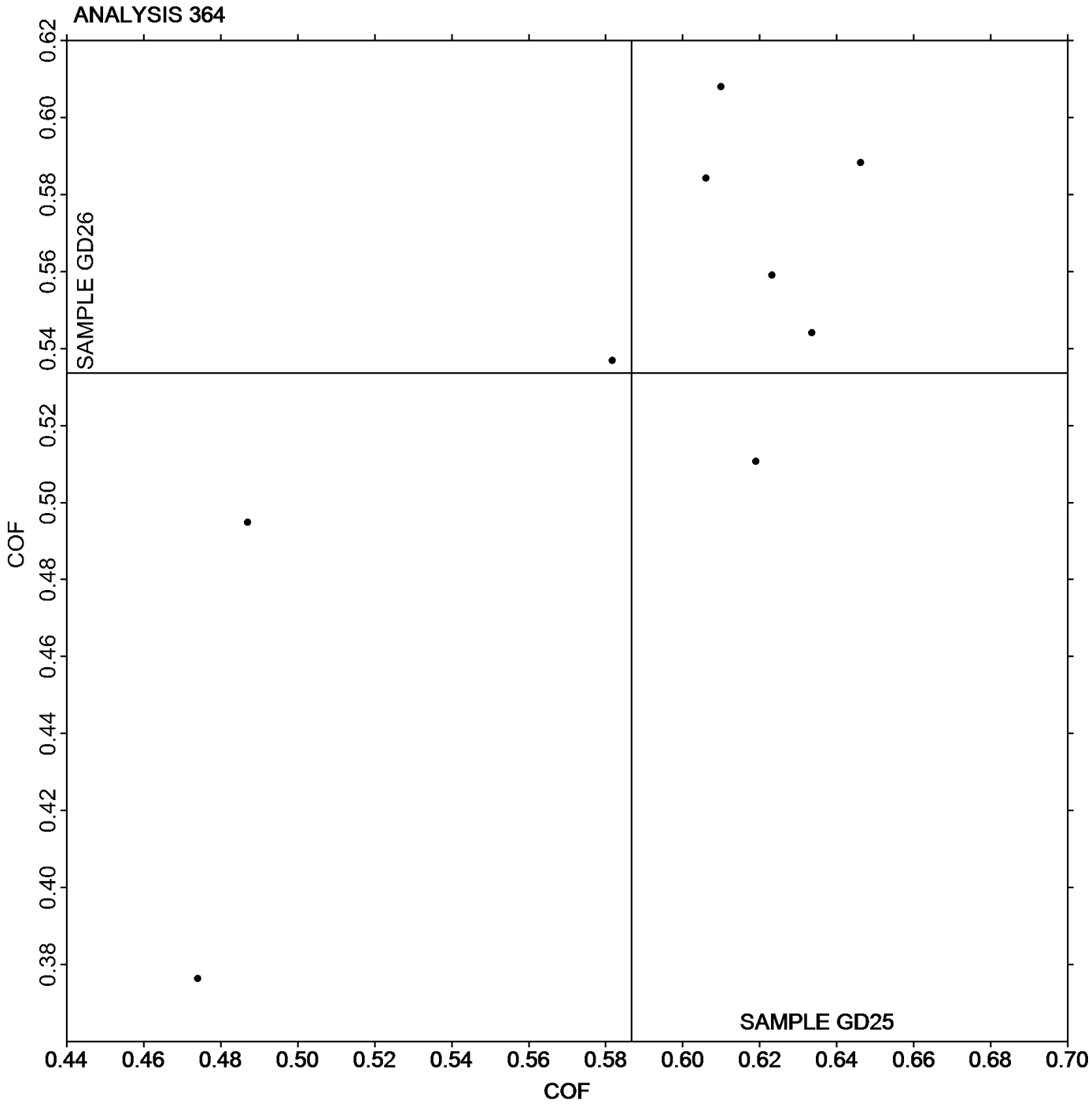
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD25** = 0.58676 COF

Grand Mean Sample **GD26** = 0.53356 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 GD25 Lab Mean	Sample GD25 Diff from Grand Mean	Sample GD25 CPV	Sample GD26 Lab Mean	Sample GD26 Diff from Grand Mean	Sample GD26 CPV	Instr Code
239UTZ		0.6060	0.1369	1.25	0.5520	0.1156	1.21	TL
2LY3QV		0.3501	-0.1191	-1.09	0.3434	-0.0930	-0.97	TA
38U9VC		0.5148	0.0457	0.42	0.5184	0.0820	0.86	TM
AEPGG6		0.5454	0.0763	0.70	0.4960	0.0596	0.62	TM
J3HXN2		0.2920	-0.1771	-1.62	0.3040	-0.1324	-1.39	TA
M8QB4Q		0.4728	0.0037	0.03	0.4220	-0.0144	-0.15	TA
MJEPXR		0.4786	0.0095	0.09	0.4354	-0.0010	-0.01	TA
MTKK3H		0.4786	0.0095	0.09	0.4534	0.0170	0.18	TA
PGQMDP		0.2696	-0.1995	-1.83	0.2416	-0.1948	-2.04	XX
U6BLKC		0.5788	0.1097	1.00	0.4870	0.0506	0.53	TM
VEFQB8		0.5504	0.0813	0.74	0.4516	0.0152	0.16	IR
Y3A823		0.4924	0.0233	0.21	0.5324	0.0960	1.01	TA

Summary Statistics

	Sample GD25	Sample GD26
Grand Means	0.46912 COF	0.43643 COF
SD Btwn Labs	0.10928 COF	0.09547 COF

Statistics based on 12 of 12 reporting participants

Instrument Code List as Reported by the Labs

(IR) - IMASS SP-2000

(TA) - Thwing-Albert Friction Tester

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

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

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

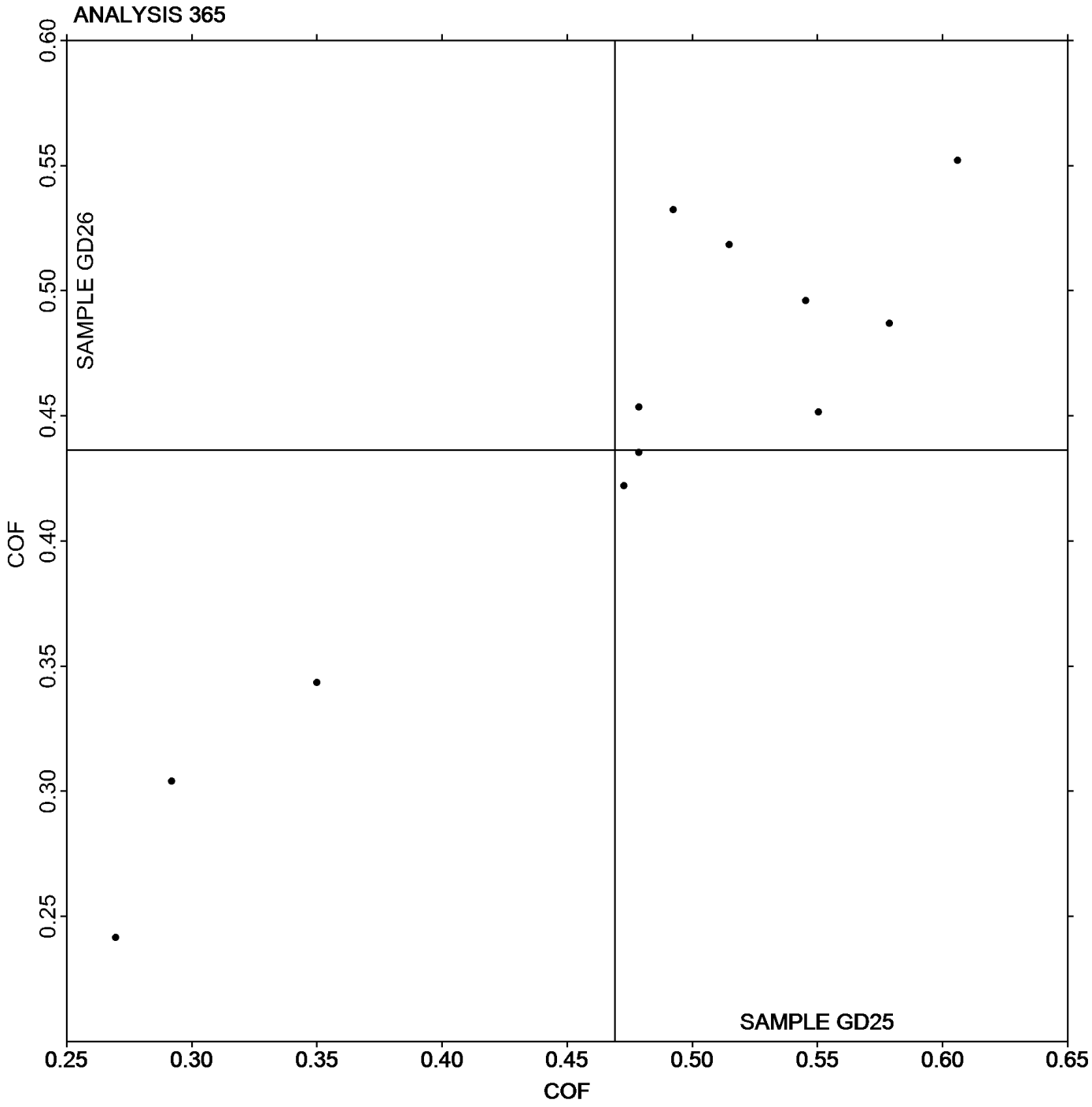
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD25** = 0.46912 COF

Grand Mean Sample **GD26** = 0.43643 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 GE25 Lab Mean	Sample GE25 Diff from Grand Mean	Sample GE25 CPV	Sample GE26 Lab Mean	Sample GE26 Diff from Grand Mean	Sample GE26 CPV	Instr Code
239UTZ		14.03	0.19	0.33	35.05	1.64	0.72	LP
2XTJFW		14.30	0.46	0.80	34.11	0.70	0.31	LA
4KX2RG		12.79	-1.05	-1.83	31.09	-2.32	-1.02	LP
4T8FJB		13.28	-0.56	-0.98	31.67	-1.74	-0.77	LP
83MAN3		14.00	0.16	0.28	32.18	-1.23	-0.54	LP
8GG3NA		14.47	0.63	1.10	36.64	3.23	1.42	HG
8QR6AB		14.22	0.38	0.66	36.02	2.61	1.15	HG
94RG4Z		13.99	0.15	0.26	31.75	-1.66	-0.73	HG
AC2E34		13.10	-0.74	-1.29	32.51	-0.90	-0.40	PP
C36YQ6		14.80	0.96	1.67	36.54	3.13	1.38	HG
CE3PKP		14.12	0.28	0.48	35.35	1.95	0.86	PP
CLZQC3		13.76	-0.08	-0.14	33.91	0.50	0.22	TL
D6CQ7P		13.71	-0.14	-0.24	33.74	0.33	0.15	PP
FKE86M		13.89	0.05	0.08	32.11	-1.30	-0.57	LP
GGCNFT		13.42	-0.42	-0.74	30.06	-3.35	-1.48	TN
GWPWJH	*	12.91	-0.93	-1.63	35.73	2.32	1.02	XX
H32JKX	X	14.42	0.58	1.01	14.17	-19.24	-8.48	WG
HY37YT		14.08	0.24	0.42	33.67	0.26	0.12	PP
J8WLAJ		13.46	-0.38	-0.67	32.90	-0.51	-0.22	PP
JKMHAV		13.08	-0.76	-1.33	30.54	-2.87	-1.26	XX
JTZA2E		15.01	1.17	2.04	34.74	1.33	0.58	LA
LKHKDQ		14.27	0.43	0.75	32.73	-0.68	-0.30	LP
M3VLMJ		14.44	0.60	1.04	34.26	0.85	0.38	HG
M8QB4Q		14.56	0.72	1.25	36.09	2.68	1.18	WG
MJEPXR		14.68	0.84	1.46	36.42	3.01	1.33	LA
MZ26ZN		13.91	0.06	0.11	34.90	1.50	0.66	TN
N9FY2C		13.80	-0.04	-0.07	33.40	-0.01	0.00	LW
PBH9LT		14.12	0.28	0.49	34.11	0.70	0.31	XX
PGQMDP		13.20	-0.64	-1.12	33.00	-0.41	-0.18	GS
Q8DZUM		14.71	0.87	1.52	36.51	3.10	1.37	TL
R9KT8M		13.34	-0.50	-0.88	31.67	-1.73	-0.76	RE
RDGEYP		13.77	-0.07	-0.12	32.63	-0.78	-0.34	LA
RMHNKT		14.40	0.56	0.98	32.36	-1.04	-0.46	PP
TXXBU7		13.48	-0.36	-0.63	33.04	-0.37	-0.16	LW
TZAQLL		13.53	-0.31	-0.54	33.22	-0.19	-0.08	LW
UZWVAP		13.82	-0.02	-0.04	36.06	2.65	1.17	HG
VMP8WL		13.85	0.01	0.01	33.61	0.21	0.09	PP
W2PG28		14.30	0.46	0.81	35.58	2.17	0.96	TL
WPWXM2		13.00	-0.84	-1.47	28.50	-4.91	-2.16	LP
WVHQY2		13.54	-0.30	-0.53	32.70	-0.71	-0.31	PP
X4ATDH		14.68	0.84	1.46	34.05	0.64	0.28	TL
XC7MD2		13.95	0.11	0.19	29.92	-3.49	-1.54	PP
XF6Y92		13.56	-0.28	-0.49	35.19	1.78	0.79	LP

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

WebCode	Data Flag	Sample GE25 Lab Mean	Sample GE25 Diff from Grand Mean	Sample GE25 CPV	Sample GE26 Lab Mean	Sample GE26 Diff from Grand Mean	Sample GE26 CPV	Instr Code
XFZGB3		13.02	-0.82	-1.43	31.87	-1.54	-0.68	PP
Y79HW3		14.25	0.41	0.71	37.28	3.87	1.71	XX
YFKHRD		12.87	-0.97	-1.69	30.41	-2.99	-1.32	PP
ZUFBQK	*	13.24	-0.60	-1.05	26.93	-6.48	-2.85	LP

Summary Statistics

	Sample GE25	Sample GE26
Grand Means	13.841 sec/100 cc	33.408 sec/100 cc
SD Btwn Labs	0.573 sec/100 cc	2.269 sec/100 cc

Statistics based on 46 of 47 reporting participants

H32JKX (X) - Extreme data for Sample GE26.

Analysis Notes:

2XTJFW - One determination removed from the Lab Mean of Sample GE26 per Grubb's Test at 1% risk (TAPPI 1205).

Instrument Code List as Reported by the Labs

(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) - Gurley Densometer #4110, Oil Flotation
(TN) - Gurley S-P-S Tester #4190
(WG) - W & LE Gurley Tester
(XX) - Instrument make/model not specified by lab

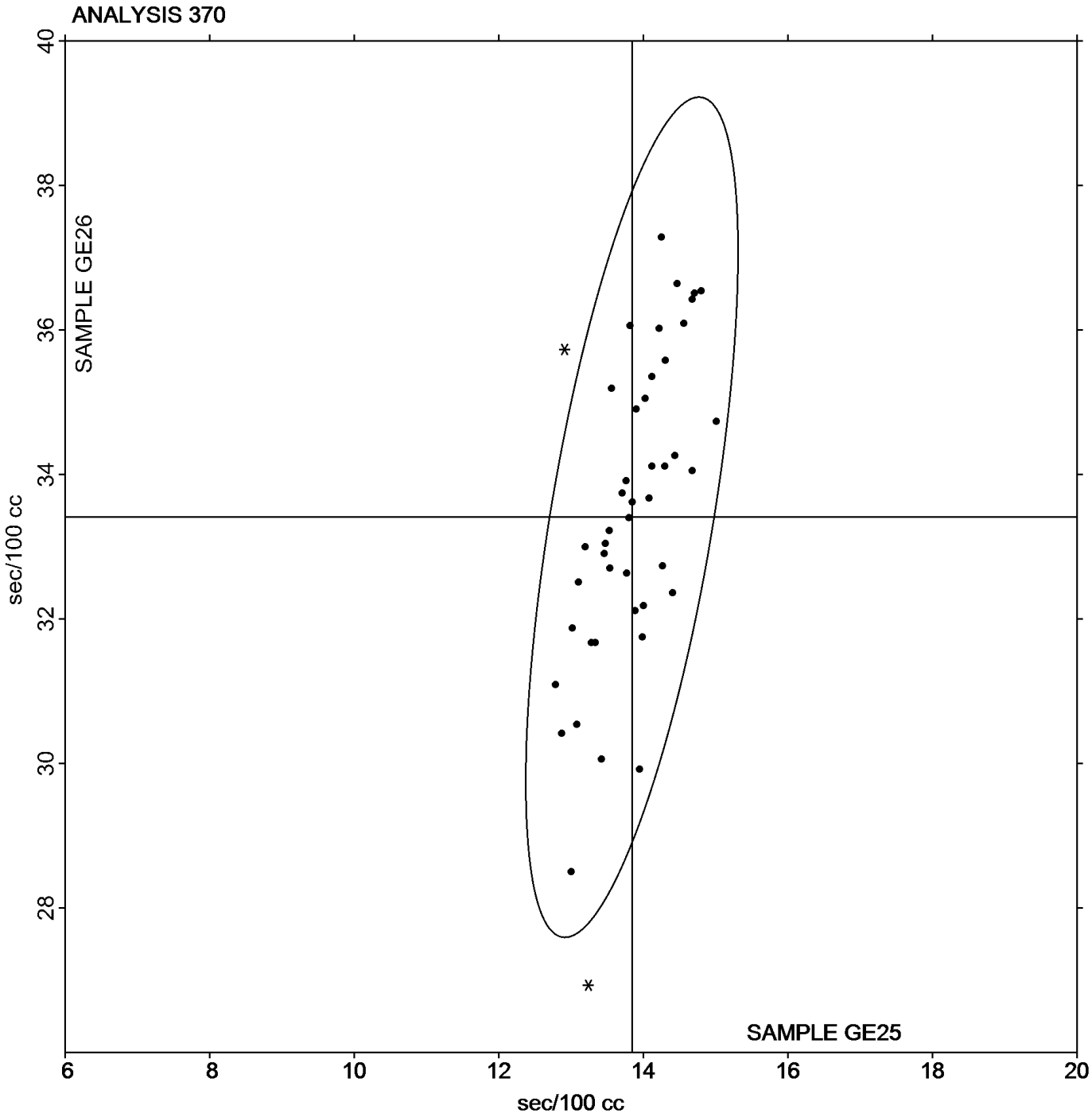
Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE25** = 13.841 sec/100 cc

Grand Mean Sample **GE26** = 33.408 sec/100 cc



Paper & Paperboard Interlaboratory Testing Program
Analysis 372
Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice

WebCode	Data Flag	Sample GE25 Lab Mean	Sample GE25 Diff from Grand Mean	Sample GE25 CPV	Sample GE26 Lab Mean	Sample GE26 Diff from Grand Mean	Sample GE26 CPV	Instr Code
4R2YMZ		176.4	-11.0	-0.68	84.76	-7.19	-0.87	LP
69ZBW2		197.4	10.0	0.61	89.46	-2.49	-0.30	XX
99N6MT		184.1	-3.3	-0.20	96.40	4.45	0.54	TT
D98HC2		185.0	-2.4	-0.15	101.00	9.05	1.09	TT
JHECMU		179.0	-8.4	-0.52	94.30	2.35	0.28	TT
NBY6DR		222.1	34.7	2.13	89.40	-2.55	-0.31	VM
PBH9LT		180.9	-6.5	-0.40	84.41	-7.54	-0.91	XX
PGQMDP		160.0	-27.4	-1.68	106.60	14.65	1.76	SH
T8NWXJ		172.7	-14.7	-0.90	77.15	-14.80	-1.78	LP
VP2VH8	X	13.5	-173.9	-10.68	35.24	-56.71	-6.83	GA
WVHQY2		197.2	9.8	0.60	100.90	8.95	1.08	PP
XC7MD2		189.9	2.5	0.15	88.00	-3.95	-0.48	HM
XFZGB3		204.5	17.1	1.05	91.00	-0.95	-0.11	SH

Summary Statistics

	Sample GE25	Sample GE26
Grand Means	187.43 Sheffield Units	91.948 Sheffield Units
SD Btwn Labs	16.28 Sheffield Units	8.305 Sheffield Units

Statistics based on 12 of 13 reporting participants

Comments on assigned Data Flags for Test #372

VP2VH8 (X) - Extreme data.

Instrument Code List as Reported by the Labs

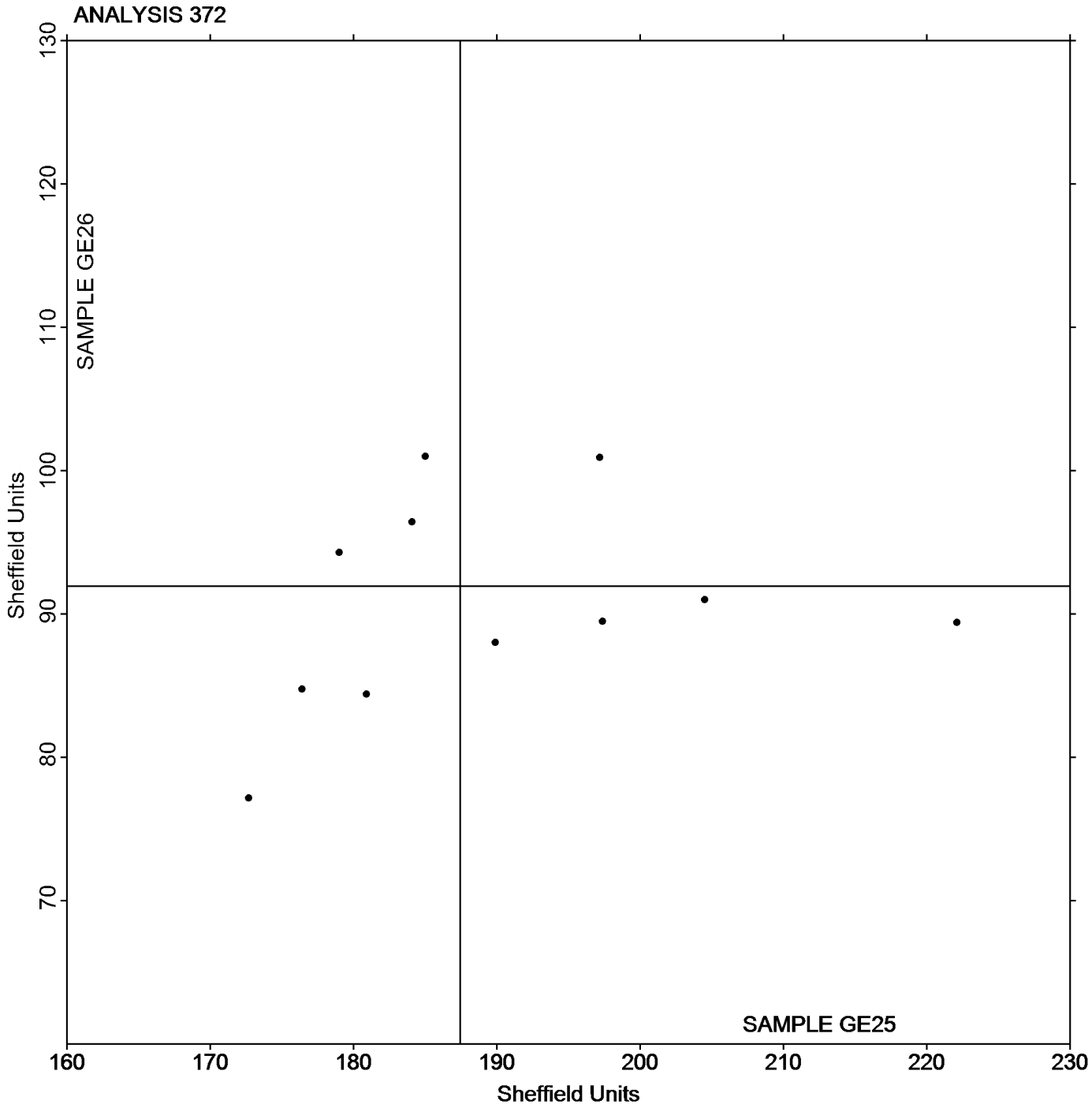
(GA) - Gurley Precision #4340 Automatic Densometer
(HM) - Technidyne - Hagerty Model #538
(LP) - L & W Densometer, Air Permeance
(PP) - Technidyne Profile/Plus
(SH) - Sheffield
(TT) - TMI Monitor/Smoothness II, Model 58-24
(VM) - Valmet PaperLab (was Kajaani/Robotest)
(XX) - Instrument make/model not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

Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

Grand Mean Sample **GE25** = 187.43 Sheffield Units Grand Mean Sample **GE26** = 91.948 Sheffield 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 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

WebCode	Data Flag	Sample GJ25 Lab Mean	Sample GJ25 Diff from Grand Mean	Sample GJ25 CPV	Sample GJ26 Lab Mean	Sample GJ26 Diff from Grand Mean	Sample GJ26 CPV
2LY3QV		1.284	0.139	1.85	1.0200	0.1129	1.63
334WVA		1.114	-0.031	-0.41	0.8900	-0.0171	-0.25
3C4JPR		1.207	0.062	0.83	0.9530	0.0459	0.66
44TH4Q		1.061	-0.084	-1.12	0.8140	-0.0931	-1.35
4T8FJB		1.097	-0.048	-0.64	0.9410	0.0339	0.49
6KQ9C7		1.281	0.136	1.81	0.9420	0.0349	0.50
7P3J3E		1.226	0.081	1.08	0.8820	-0.0251	-0.36
8GG3NA		1.179	0.034	0.45	0.9520	0.0449	0.65
8QR6AB		1.128	-0.017	-0.22	0.8990	-0.0081	-0.12
9BVACB		1.100	-0.045	-0.60	0.8900	-0.0171	-0.25
9PQR29		1.118	-0.027	-0.36	0.8490	-0.0581	-0.84
A7CPQ8		1.100	-0.045	-0.60	0.9310	0.0239	0.34
AC2E34		1.093	-0.052	-0.69	0.8730	-0.0341	-0.49
BJJX74		1.180	0.035	0.47	0.9370	0.0299	0.43
BX2N67		1.189	0.044	0.59	0.9170	0.0099	0.14
GUYVDU		1.152	0.007	0.09	0.8900	-0.0171	-0.25
HY37YT		1.165	0.020	0.27	0.8870	-0.0201	-0.29
JBFTLY		1.110	-0.035	-0.46	0.9590	0.0519	0.75
JHECMU		1.262	0.117	1.56	1.0030	0.0959	1.39
JTD4EU		1.282	0.137	1.82	0.9650	0.0579	0.84
L3FZDG		1.075	-0.070	-0.93	0.8560	-0.0511	-0.74
M3VLMJ		1.111	-0.034	-0.45	0.8660	-0.0411	-0.59
M8QB4Q		0.957	-0.188	-2.50	0.7540	-0.1531	-2.21
MTJMRM		1.128	-0.017	-0.22	0.9800	0.0729	1.05
PAMQJR		1.072	-0.073	-0.97	0.7990	-0.1081	-1.56
Q4VTH8		1.164	0.019	0.25	0.8590	-0.0481	-0.70
V9QHFF		1.190	0.045	0.60	1.0470	0.1399	2.02
VFBAC9		1.055	-0.090	-1.20	0.9180	0.0109	0.16
VMP8WL		1.138	-0.007	-0.09	0.9700	0.0629	0.91
VXRFLJ		1.229	0.084	1.12	0.9220	0.0149	0.21
XFZGB3		1.117	-0.028	-0.37	0.9180	0.0109	0.16
Y3A823		1.073	-0.072	-0.96	0.7450	-0.1621	-2.34

Summary Statistics

	Sample GJ25	Sample GJ26
Grand Means	1.1449 Microns	0.90713 Microns
SD Btwn Labs	0.0752 Microns	0.06922 Microns

Statistics based on 32 of 32 reporting participants

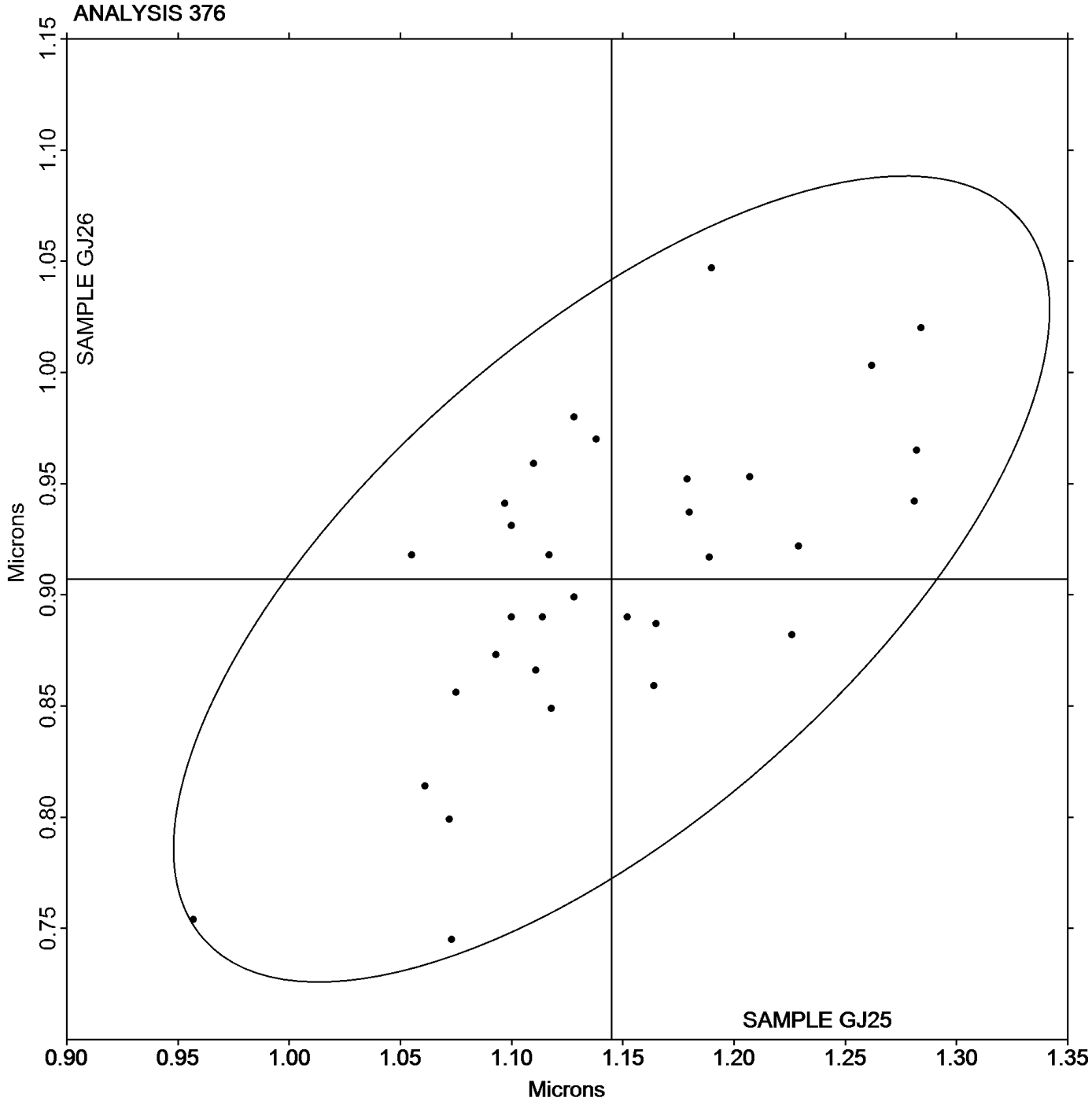
Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample **GJ25** = 1.1449 Microns

Grand Mean Sample **GJ26** = 0.90713 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK25 Lab Mean	Sample GK25 Diff from Grand Mean	Sample GK25 CPV	Sample GK26 Lab Mean	Sample GK26 Diff from Grand Mean	Sample GK26 CPV
239UTZ		2.954	-0.087	-0.43	4.045	0.041	0.13
7P3J3E		3.456	0.415	2.04	4.647	0.643	2.09
B6XH6P		3.105	0.064	0.31	4.055	0.051	0.17
D6CQ7P		3.074	0.033	0.16	4.088	0.084	0.27
G9V2L4		3.260	0.219	1.08	3.560	-0.444	-1.44
J8WLAJ		2.888	-0.153	-0.75	4.042	0.038	0.12
M8QB4Q		2.858	-0.183	-0.90	3.722	-0.282	-0.92
NBY6DR		3.043	0.002	0.01	4.075	0.071	0.23
RDGEYP		2.755	-0.286	-1.41	3.654	-0.350	-1.14
RMHNKT		3.019	-0.022	-0.11	4.153	0.149	0.48

Summary Statistics

	Sample GK25	Sample GK26
Grand Means	3.0412 Microns	4.0041 Microns
SD Btwn Labs	0.2033 Microns	0.3078 Microns

Statistics based on 10 of 10 reporting participants

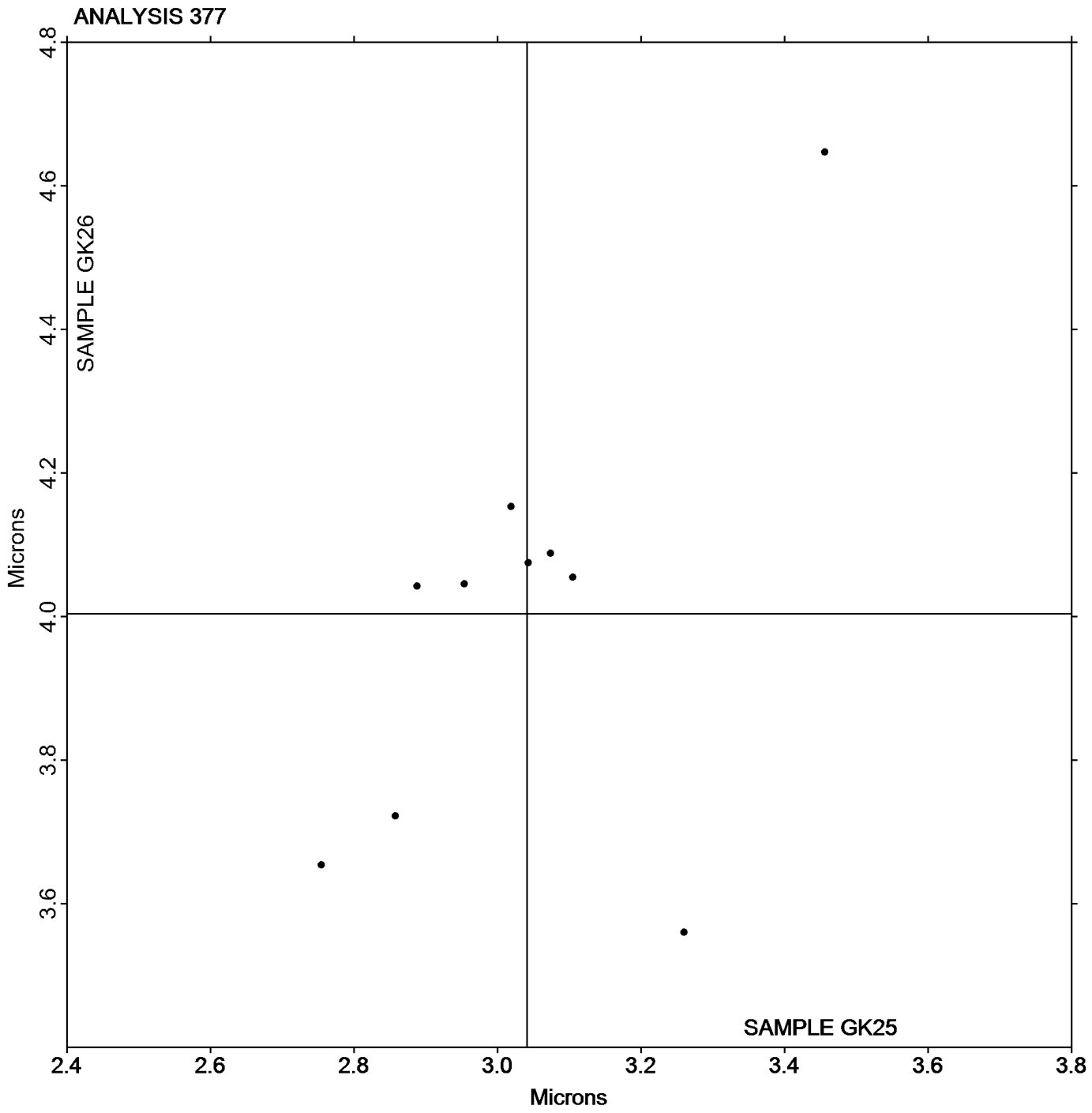
Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK25** = 3.0412 Microns

Grand Mean Sample **GK26** = 4.0041 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 GL25 Lab Mean	Sample GL25 Diff from Grand Mean	Sample GL25 CPV	Sample GL26 Lab Mean	Sample GL26 Diff from Grand Mean	Sample GL26 CPV	Instr Code
239UTZ		87.90	1.69	0.38	155.4	-1.7	-0.23	LW
2LY3QV		82.90	-3.31	-0.74	164.4	7.3	0.96	HM
38U9VC		89.49	3.28	0.73	158.0	0.9	0.11	PP
3C4JPR		88.20	1.99	0.44	156.2	-0.9	-0.12	LW
44TH4Q		89.40	3.19	0.71	161.4	4.3	0.56	LA
4T8FJB	*	95.70	9.49	2.12	141.9	-15.2	-2.01	TS
69ZBW2		81.80	-4.41	-0.98	156.3	-0.8	-0.11	HM
738Q7Q		84.50	-1.71	-0.38	152.8	-4.3	-0.57	SH
7QDJZ9		85.30	-0.91	-0.20	150.8	-6.3	-0.84	LA
7RBKA8		77.82	-8.39	-1.87	152.5	-4.6	-0.61	PP
7YNKLA		83.30	-2.91	-0.65	150.2	-6.9	-0.92	PP
89A74D		86.50	0.29	0.06	147.1	-10.0	-1.33	TT
8GG3NA		82.70	-3.51	-0.78	157.6	0.5	0.06	HM
94RG4Z		84.10	-2.11	-0.47	158.6	1.5	0.19	HM
9BVACB		81.22	-4.99	-1.11	157.4	0.3	0.03	LA
A7CPQ8		86.19	-0.02	-0.01	157.2	0.1	0.01	PP
AC2E34		83.09	-3.12	-0.70	164.1	6.9	0.91	PP
B6XH6P		89.50	3.29	0.73	152.1	-5.0	-0.67	HM
BX2N67		88.39	2.18	0.49	168.8	11.7	1.54	PP
C36YQ6		81.20	-5.01	-1.12	163.5	6.4	0.84	HM
CE3PKP		89.03	2.83	0.63	165.1	7.9	1.05	PP
D6CQ7P		88.97	2.76	0.62	167.4	10.3	1.35	PP
D98HC2	X	116.50	30.29	6.75	169.0	11.9	1.57	TT
G3AXYV		93.50	7.29	1.62	157.0	-0.1	-0.02	GL
GDTHXX		89.00	2.79	0.62	162.5	5.4	0.71	XX
GFG6ER		84.90	-1.31	-0.29	161.7	4.6	0.60	GA
GTNVGZ		89.38	3.17	0.71	141.5	-15.6	-2.07	GA
H32JKX	X	102.50	16.29	3.63	49.5	-107.6	-14.21	PG
HTJYLU		83.52	-2.69	-0.60	159.5	2.4	0.32	PP
HY37YT		84.90	-1.31	-0.29	160.4	3.3	0.43	PP
J8WLAJ		77.04	-9.17	-2.04	168.1	11.0	1.45	PP
JBFTLY		83.50	-2.71	-0.60	158.8	1.7	0.22	TT
JHECMU		93.10	6.89	1.54	157.2	0.1	0.01	TT
JTZA2E		82.37	-3.84	-0.86	146.4	-10.8	-1.42	LA
M7TAUR		81.40	-4.81	-1.07	153.1	-4.0	-0.53	XX
M8QB4Q	*	97.20	10.99	2.45	161.0	3.9	0.51	XX
MKULPQ	*	81.90	-4.31	-0.96	136.1	-21.0	-2.78	TS
N9FY2C		92.00	5.79	1.29	151.5	-5.6	-0.75	TS
NJXJJM	*	77.00	-9.21	-2.05	177.6	20.5	2.70	MP
PAMQJR	X	108.50	22.29	4.97	161.7	4.6	0.60	TT
PBH9LT		89.40	3.19	0.71	154.3	-2.8	-0.38	XX
PFV6CN	X	107.80	21.59	4.81	172.3	15.2	2.00	TS
PGQMDP	X	115.60	29.39	6.55	165.8	8.7	1.14	XX

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

WebCode	Data Flag	Sample GL25 Lab Mean	Sample GL25 Diff from Grand Mean	Sample GL25 CPV	Sample GL26 Lab Mean	Sample GL26 Diff from Grand Mean	Sample GL26 CPV	Instr Code
Q4VTH8		86.10	-0.11	-0.02	163.8	6.7	0.88	XX
RDGEYP	X	90.60	4.39	0.98	181.5	24.4	3.22	LA
RMHNKT		83.85	-2.36	-0.53	149.8	-7.3	-0.96	PP
T8NWXJ		84.00	-2.21	-0.49	159.6	2.5	0.32	PP
TZAQLL		88.60	2.39	0.53	140.5	-16.6	-2.20	SH
UZWVAP		85.80	-0.41	-0.09	157.6	0.5	0.06	TS
VMP8WL		86.26	0.05	0.01	163.9	6.7	0.89	PP
VP2VH8		96.81	10.60	2.36	155.1	-2.0	-0.27	GA
VXRFLJ		84.62	-1.59	-0.36	158.0	0.9	0.12	PP
WVHQY2		85.10	-1.11	-0.25	160.6	3.5	0.46	HM
XC7MD2		85.55	-0.66	-0.15	158.5	1.3	0.17	PP
XF6Y92		82.50	-3.71	-0.83	161.3	4.2	0.55	LW
XFZGB3		87.70	1.49	0.33	163.3	6.2	0.81	PP
Y3A823		88.20	1.99	0.44	159.5	2.4	0.31	HM
YFKHRD		91.50	5.29	1.18	151.8	-5.3	-0.71	SH
YQGNKC		85.20	-1.01	-0.22	159.8	2.7	0.35	PP

Summary Statistics

	Sample GL25	Sample GL26
Grand Means	86.209 Sheffield	157.14 Sheffield
SD Btwn Labs	4.487 Sheffield	7.57 Sheffield

Statistics based on 53 of 59 reporting participants

Comments on assigned Data Flags for Test #378

D98HC2 (X) - Extreme data for Sample GL25.

H32JKX (X) - Extreme data.

PAMQJR (X) - Data for Sample GL25 are high.

PFV6CN (X) - Data for Sample GL25 are high.

PGQMDP (X) - Extreme data for Sample GL25.

RDGEYP (X) - Data for Sample GL26 are high.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer

(GL) - Giddings and Lewis Sheffield

(HM) - Technidyne - Hagerty Model #538

(LA) - L & W Roughness Sheffield - Autoline

(LW) - L & W Roughness Tester

(MP) - Metso Paperlab

(PG) - Precision Gage Smoothcheck

(PP) - Technidyne Profile/Plus

(SH) - Sheffield (Bendix Precisionaire)

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

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

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

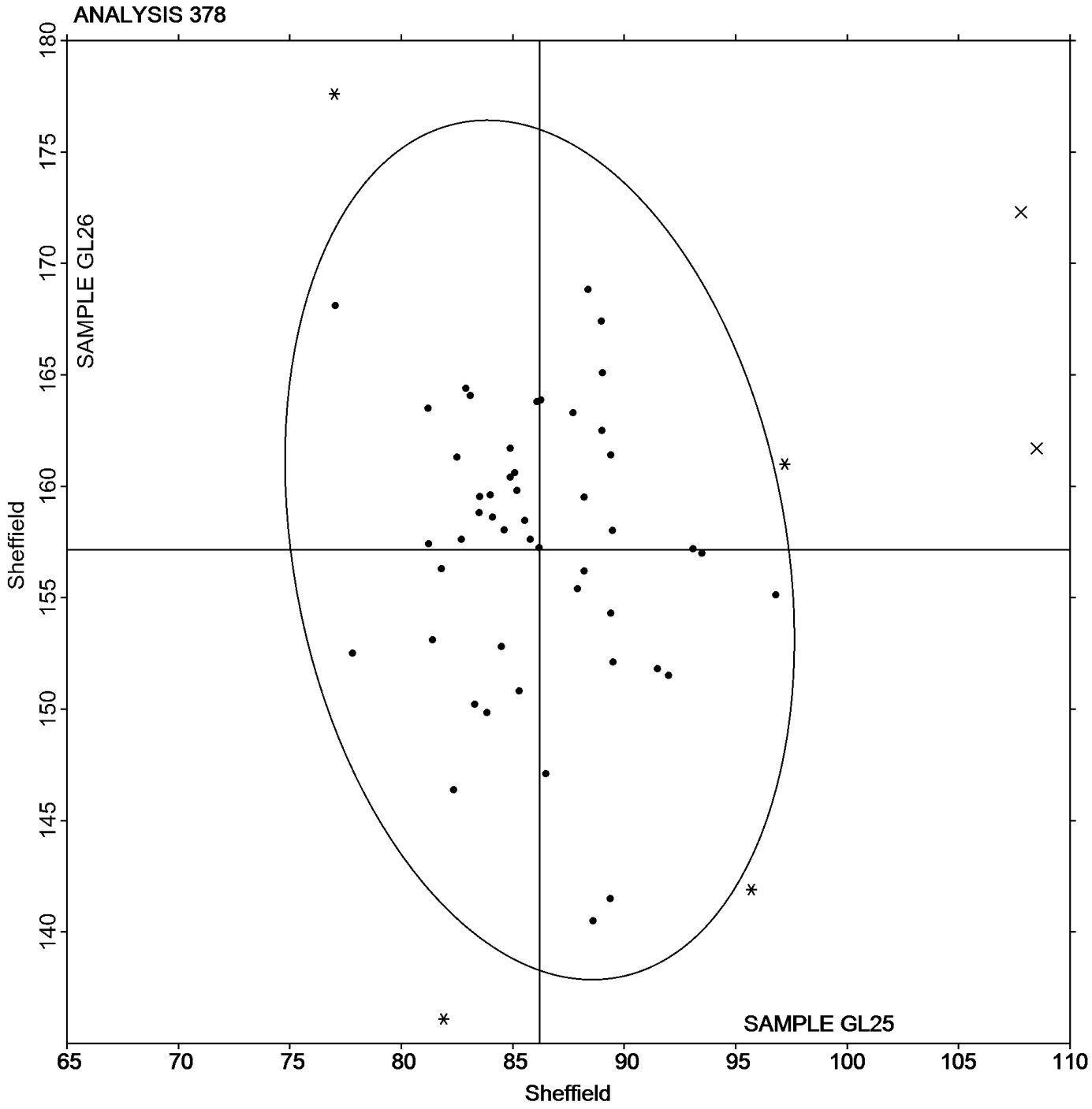
Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL25** = 86.209 Sheffield

Grand Mean Sample **GL26** = 157.14 Sheffield



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM25 Lab Mean	Sample GM25 Diff from Grand Mean	Sample GM25 CPV	Sample GM26 Lab Mean	Sample GM26 Diff from Grand Mean	Sample GM26 CPV
2JMF6A		4.319	-0.491	-0.99	4.151	-0.522	-1.19
83MAN3		4.372	-0.438	-0.88	4.257	-0.416	-0.95
B6XH6P		4.450	-0.360	-0.73	4.470	-0.203	-0.46
BP7NTY		5.010	0.200	0.40	4.920	0.247	0.56
D6CQ7P		4.723	-0.087	-0.18	4.695	0.022	0.05
EC9RX3		6.013	1.202	2.42	5.632	0.959	2.18
JTD4EU		4.534	-0.276	-0.56	4.374	-0.299	-0.68
KWF6FQ		4.730	-0.080	-0.16	4.570	-0.103	-0.24
PAMQJR		5.290	0.480	0.97	5.220	0.547	1.25
R9KT8M		4.534	-0.276	-0.56	4.430	-0.243	-0.55
YQGNKC		4.937	0.127	0.26	4.687	0.014	0.03

Summary Statistics

	Sample GM25	Sample GM26
Grand Means	4.8102 Percent	4.6733 Percent
SD Btwn Labs	0.4962 Percent	0.4389 Percent

Statistics based on 11 of 11 reporting participants

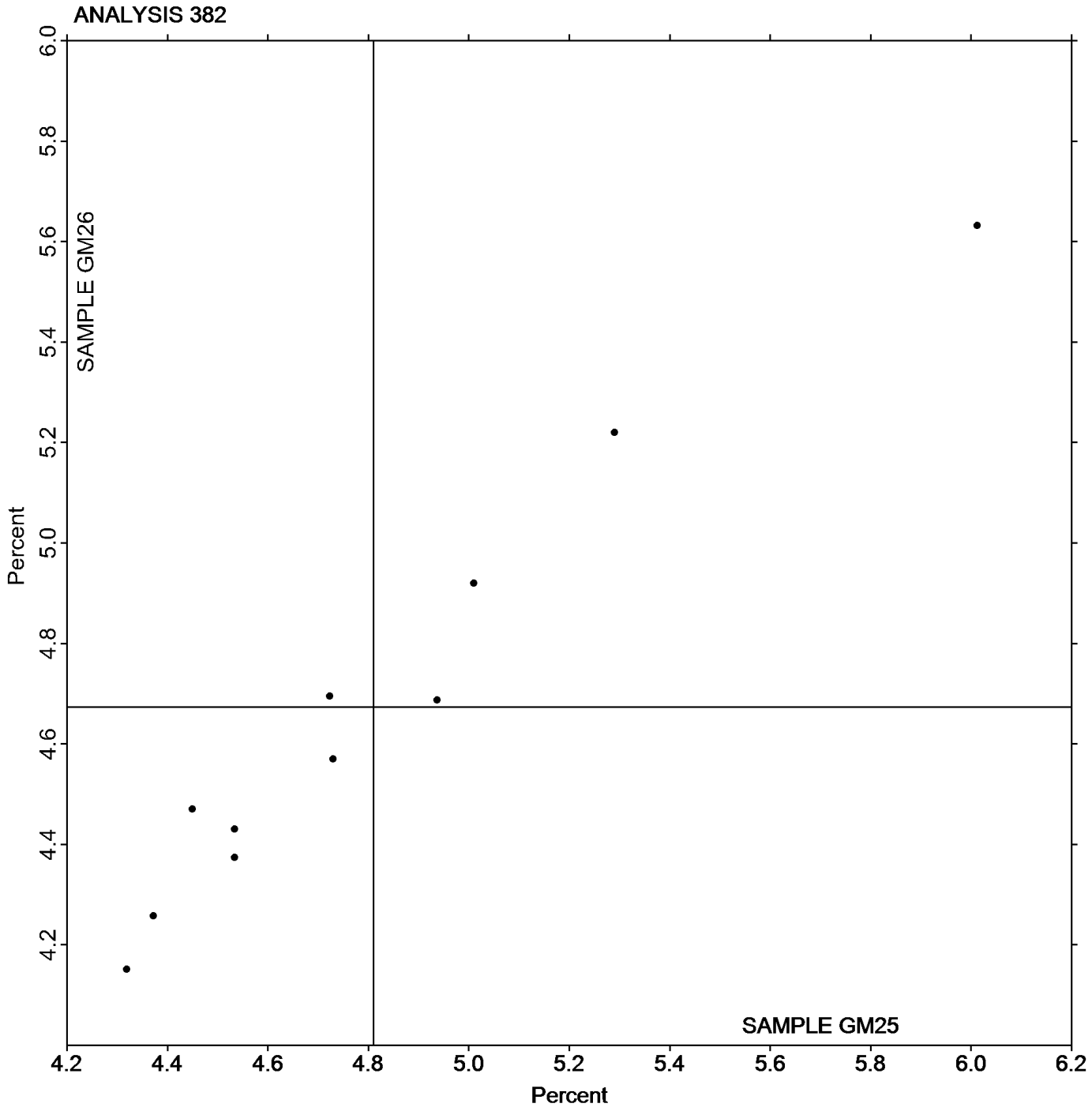
Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

Grand Mean Sample **GM25** = 4.8102 Percent

Grand Mean Sample **GM26** = 4.6733 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 GN25 Lab Mean	Sample GN25 Diff from Grand Mean	Sample GN25 CPV	Sample GN26 Lab Mean	Sample GN26 Diff from Grand Mean	Sample GN26 CPV
2696ME	X	94.42	-0.71	-3.27	86.79	-0.06	-0.13
2LY3QV		95.39	0.25	1.16	87.69	0.85	1.83
38U9VC		95.30	0.16	0.75	87.62	0.77	1.67
69ZBW2		95.29	0.16	0.72	87.46	0.61	1.32
6KQ9C7		95.24	0.10	0.47	87.08	0.23	0.50
738Q7Q		95.11	-0.02	-0.10	86.72	-0.13	-0.28
7YNKLA		95.13	0.00	-0.01	86.59	-0.26	-0.56
8QR6AB		95.09	-0.04	-0.20	86.62	-0.23	-0.49
AREDH3		94.96	-0.18	-0.81	86.92	0.07	0.15
B6XH6P		95.68	0.55	2.51	87.47	0.62	1.34
C36YQ6		95.20	0.07	0.31	86.91	0.06	0.13
CE3PKP		95.13	-0.01	-0.03	86.48	-0.37	-0.80
D6CQ7P		95.24	0.11	0.50	86.90	0.05	0.11
D98HC2	X	95.22	0.09	0.40	88.90	2.05	4.43
G3AXYV		95.39	0.26	1.18	87.41	0.56	1.21
GDTHXX		95.19	0.06	0.28	87.44	0.59	1.28
GUYVDU		95.23	0.10	0.45	86.91	0.06	0.13
H32JKX		94.84	-0.29	-1.34	85.95	-0.90	-1.94
J8WLAJ		94.87	-0.26	-1.21	86.47	-0.38	-0.82
JHECMU		95.38	0.25	1.13	86.59	-0.26	-0.56
JKMHAV		95.24	0.11	0.49	86.56	-0.29	-0.62
JTZA2E		95.00	-0.13	-0.61	86.50	-0.35	-0.75
L3FZDG		95.24	0.11	0.49	86.81	-0.04	-0.08
M3VLMJ		95.21	0.08	0.36	86.82	-0.03	-0.06
M7TAUR		95.11	-0.02	-0.10	86.28	-0.57	-1.23
N9FY2C		94.76	-0.37	-1.71	86.61	-0.24	-0.51
PBH9LT	X	94.15	-0.98	-4.50	85.55	-1.30	-2.80
PGQMDP		94.81	-0.32	-1.48	86.41	-0.44	-0.95
Q4VTH8	*	94.52	-0.61	-2.81	86.06	-0.79	-1.70
Q8DZUM		94.76	-0.37	-1.71	85.90	-0.95	-2.05
RDGEYP		95.11	-0.02	-0.10	87.26	0.41	0.89
RJ3A3E		95.33	0.20	0.91	87.19	0.34	0.74
UZWVAP		95.08	-0.05	-0.24	87.34	0.49	1.06
V9QHFF		95.11	-0.02	-0.10	87.22	0.37	0.80
VMP8WL		95.08	-0.05	-0.24	86.58	-0.27	-0.58
WVHQY2		95.04	-0.09	-0.42	86.67	-0.18	-0.39
XC7MD2		95.33	0.20	0.92	86.85	0.00	0.00
Y3A823		95.32	0.19	0.86	87.51	0.66	1.43
Y3QDCL		95.16	0.03	0.13	87.02	0.17	0.37
YFKHRD		95.05	-0.08	-0.38	86.57	-0.28	-0.60

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

Summary Statistics

	Sample GN25	Sample GN26
Grand Means	95.133 Percent	86.848 Percent
SD Btwn Labs	0.218 Percent	0.463 Percent

Statistics based on 37 of 40 reporting participants

Comments on assigned Data Flags for Test #384

2696ME (X) - Data for Sample GN25 are low.

D98HC2 (X) - Data for Sample GN26 are high.

PBH9LT (X) - Data for both samples are low.

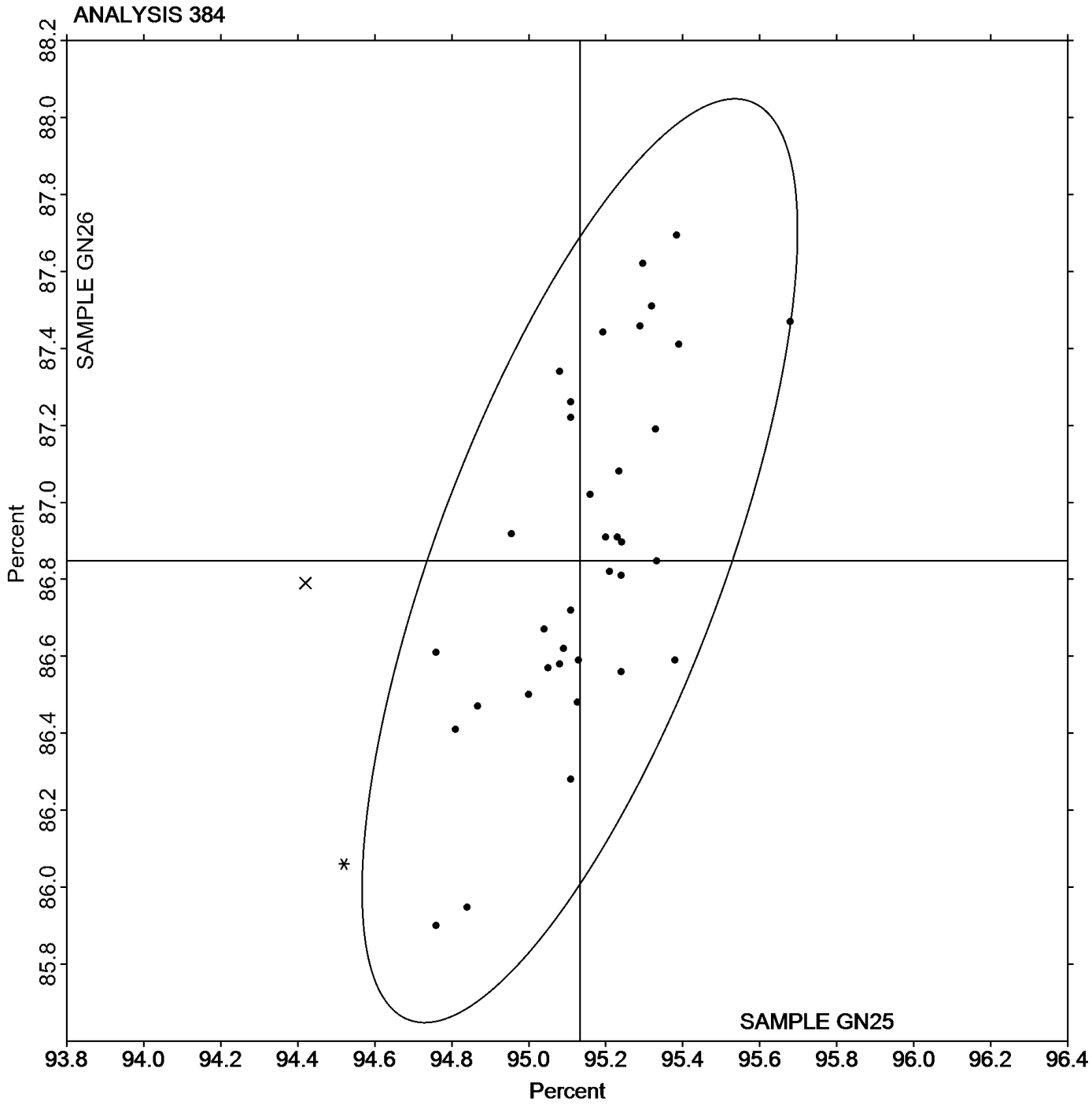
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN25** = 95.133 Percent

Grand Mean Sample **GN26** = 86.848 Percent



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

WebCode	Data Flag	Sample GP25 Lab Mean	Sample GP25 Diff from Grand Mean	Sample GP25 CPV	Sample GP26 Lab Mean	Sample GP26 Diff from Grand Mean	Sample GP26 CPV
2LY3QV		95.13	0.01	0.17	88.81	-0.17	-0.98
4KX2RG		95.13	0.00	0.03	89.03	0.05	0.28
4XMNAV		95.13	0.00	0.01	88.93	-0.05	-0.29
83MAN3		95.09	-0.03	-0.65	89.04	0.05	0.31
AEPGG6		95.16	0.03	0.59	89.20	0.22	1.26
ANY7WN		95.09	-0.04	-0.70	88.86	-0.13	-0.73
CD88HN		95.02	-0.10	-1.96	88.86	-0.12	-0.70
GMZBBY		95.17	0.04	0.80	89.04	0.06	0.33
GWPWJH		95.10	-0.02	-0.47	89.16	0.18	1.04
MTJMRM		95.15	0.03	0.55	88.59	-0.40	-2.30
Q4VTH8		95.14	0.01	0.28	88.90	-0.08	-0.49
R9KT8M		95.03	-0.10	-1.88	89.00	0.01	0.08
RVYD79		95.14	0.01	0.26	88.82	-0.16	-0.94
TP8PN8	X	95.21	0.08	1.64	86.73	-2.25	-13.03
TXXBU7		95.19	0.06	1.25	88.94	-0.04	-0.25
X4ATDH		95.11	-0.02	-0.30	89.27	0.29	1.66
XC7MD2		95.23	0.11	2.08	89.20	0.22	1.27
ZUFBQK		95.12	0.00	-0.07	89.06	0.07	0.43

Summary Statistics

	Sample GP25	Sample GP26
Grand Means	95.125 Percent	88.983 Percent
SD Btwn Labs	0.052 Percent	0.173 Percent

Statistics based on 17 of 18 reporting participants

Comments on assigned Data Flags for Test #386

TP8PN8 (X) - Extreme data for Sample GP26.

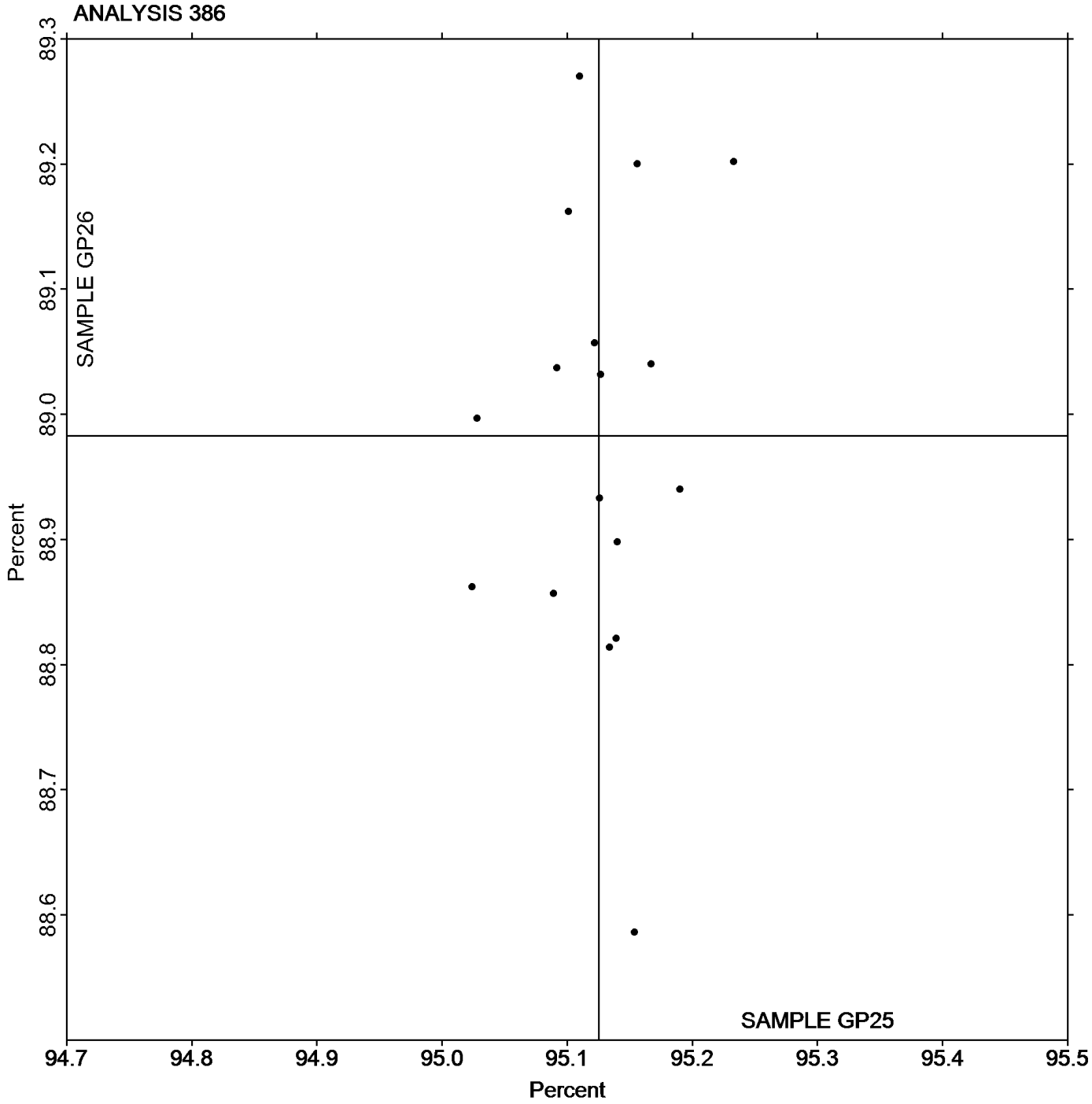
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP25** = 95.125 Percent

Grand Mean Sample **GP26** = 88.983 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 390
Directional Brightness

WebCode	Data Flag	Sample GR25 Lab Mean	Sample GR25 Diff from Grand Mean	Sample GR25 CPV	Sample GR26 Lab Mean	Sample GR26 Diff from Grand Mean	Sample GR26 CPV	Instr Code
2LY3QV		80.39	-1.42	-1.01	80.78	-1.19	-0.93	TS
3C4JPR		79.91	-1.89	-1.35	80.56	-1.41	-1.10	TT
69ZBW2		80.07	-1.74	-1.24	81.57	-0.40	-0.31	GM
6KQ9C7		82.71	0.91	0.65	82.48	0.50	0.39	TS
7RBKA8		80.66	-1.14	-0.82	81.00	-0.97	-0.76	TS
7YNKLA		82.98	1.17	0.83	82.56	0.59	0.46	XX
8QR6AB		80.86	-0.94	-0.67	80.91	-1.06	-0.83	TT
A7CPQ8		83.44	1.63	1.16	83.56	1.59	1.24	HD
BX2N67		82.46	0.66	0.47	82.70	0.73	0.57	HD
CE3PKP		81.14	-0.67	-0.48	80.64	-1.34	-1.05	TT
D98HC2		84.21	2.41	1.72	83.69	1.72	1.34	TT
G9V2L4	X	64.31	-17.49	-12.48	64.28	-17.70	-13.86	TS
GDTHXX		83.46	1.66	1.18	83.33	1.36	1.06	XX
GUYVDU		82.05	0.25	0.18	81.93	-0.04	-0.03	MK
H32JKX	X	62.78	-19.02	-13.57	62.59	-19.39	-15.18	TS
HTJYLU		80.84	-0.96	-0.69	81.18	-0.80	-0.62	TS
JBFTLY		83.68	1.87	1.33	83.33	1.35	1.06	TT
JKMHAV		80.35	-1.45	-1.04	80.65	-1.32	-1.04	TS
KWF6FQ		82.13	0.32	0.23	82.27	0.30	0.23	XX
M7TAUR		80.45	-1.35	-0.97	80.91	-1.06	-0.83	XX
PBH9LT	*	85.05	3.25	2.31	85.49	3.52	2.75	XX
PGQMDP	*	81.78	-0.03	-0.02	83.45	1.48	1.16	PE
Q4VTH8		80.13	-1.67	-1.19	80.48	-1.50	-1.17	TT
Q8DZUM		82.75	0.95	0.67	82.61	0.64	0.50	TS
RDGEYP		81.73	-0.07	-0.05	81.96	-0.02	-0.01	TS
RJ3A3E		81.30	-0.50	-0.36	81.58	-0.40	-0.31	TA
TE73WB		82.81	1.01	0.72	83.34	1.37	1.07	HG
UZWVAP		81.63	-0.18	-0.13	81.15	-0.82	-0.64	TS
VXRFLJ		83.44	1.63	1.16	82.84	0.87	0.68	TT
WVHQY2		81.18	-0.63	-0.45	81.43	-0.55	-0.43	XS
XC7MD2		80.62	-1.18	-0.84	80.72	-1.25	-0.98	TS
Y3A823		79.97	-1.84	-1.31	80.10	-1.88	-1.47	TS

Summary Statistics

	Sample GR25	Sample GR26
Grand Means	81.805 Percent	81.973 Percent
SD Btwn Labs	1.402 Percent	1.277 Percent

Statistics based on 30 of 32 reporting participants

Comments on assigned Data Flags for Test #390

G9V2L4 (X) - Extreme data.

H32JKX (X) - Extreme data.

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

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

(XS) - X-Rite 938 Spectrodensitometer

(HD) - Hunter D25DP - 9000

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

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

(TT) - Technidyne Brightimeter Micro S4-M

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

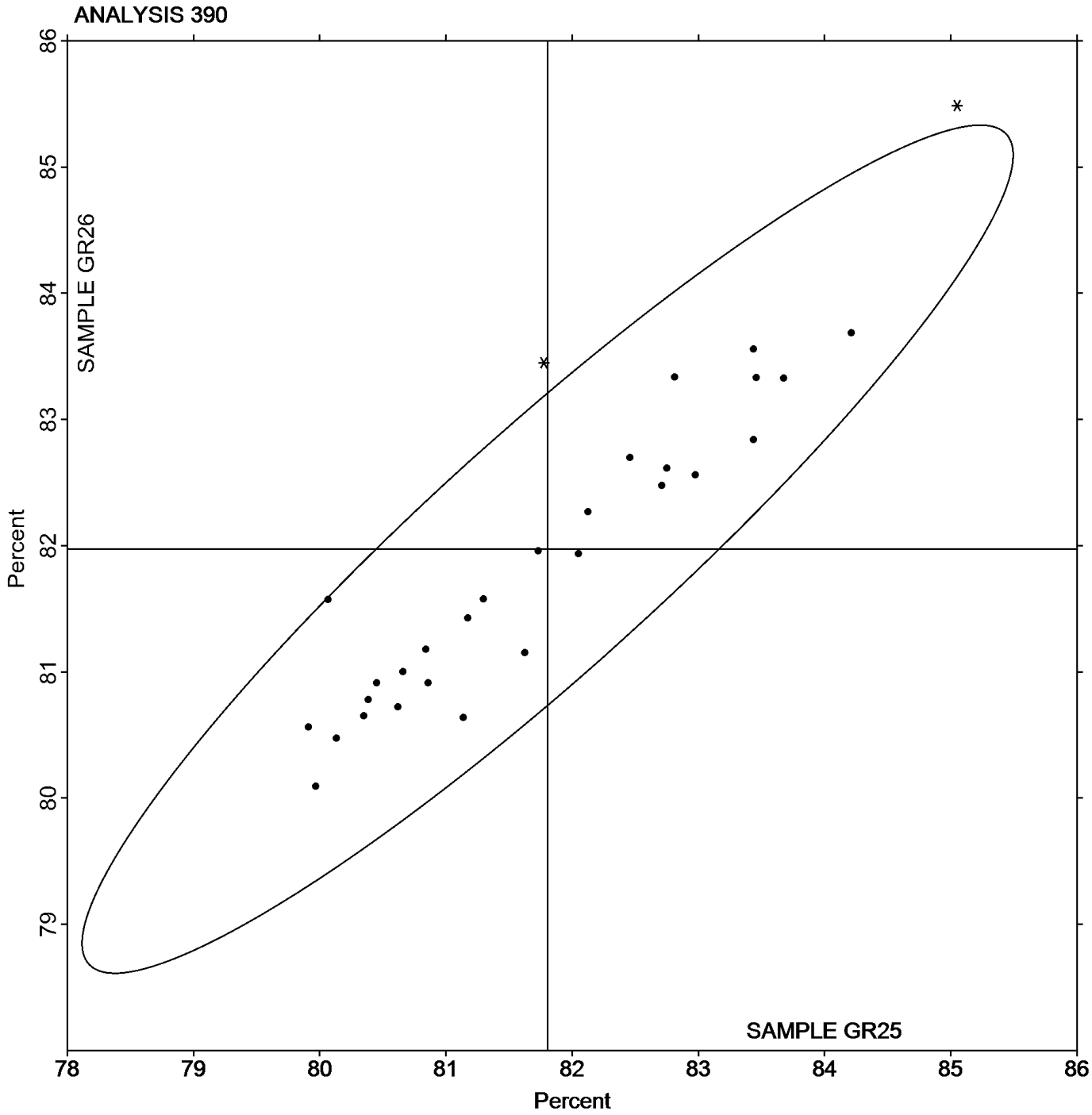
Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

Grand Mean Sample **GR25** = 81.805 Percent

Grand Mean Sample **GR26** = 81.973 Percent



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

WebCode	Data Flag	Sample GZ25 Lab Mean	Sample GZ25 Diff from Grand Mean	Sample GZ25 CPV	Sample GZ26 Lab Mean	Sample GZ26 Diff from Grand Mean	Sample GZ26 CPV	Instr Code
38U9VC		98.13	-0.41	-0.39	89.94	-0.31	-0.32	TS
69ZBW2	X	93.98	-4.56	-4.31	88.17	-2.08	-2.17	GM
9BVACB		98.28	-0.26	-0.25	90.20	-0.05	-0.05	TT
C36YQ6		97.31	-1.24	-1.17	88.83	-1.42	-1.48	HT
D6CQ7P		98.64	0.10	0.09	90.44	0.19	0.20	TS
GDTHXX		99.54	1.00	0.94	91.36	1.11	1.15	XX
J3HXN2		99.16	0.61	0.58	90.63	0.38	0.40	TS
J8WLAJ		98.30	-0.25	-0.23	90.06	-0.19	-0.20	TS
JHECMU		98.08	-0.46	-0.44	89.98	-0.27	-0.28	TT
JTZA2E		98.42	-0.12	-0.12	90.08	-0.17	-0.18	TT
L3FZDG		98.11	-0.43	-0.41	89.61	-0.64	-0.67	PP
LBQ3YH		99.28	0.74	0.70	91.01	0.76	0.79	TS
N9FY2C		98.40	-0.14	-0.13	89.98	-0.27	-0.28	TS
PAMQJR	*	101.74	3.20	3.02	93.00	2.75	2.86	EF
UZWVAP		98.29	-0.26	-0.24	89.91	-0.34	-0.35	TS
V9QHFF		98.68	0.14	0.13	90.58	0.33	0.34	TT
Y3QDCL		98.14	-0.40	-0.38	89.82	-0.43	-0.45	TS
YFKHRD		96.73	-1.81	-1.71	88.82	-1.43	-1.49	HT

Summary Statistics

	Sample GZ25	Sample GZ26
Grand Means	98.542 Percent	90.250 Percent
SD Btwn Labs	1.059 Percent	0.959 Percent

Statistics based on 17 of 18 reporting participants

Comments on assigned Data Flags for Test #391

69ZBW2 (X) - Data for Sample GZ25 are low.

Instrument Code List as Reported by the Labs

(EF) - L & W Datacolor Elrepho

(GM) - Gretag Macbeth Color i5

(HT) - Hunter UltraScan Vis

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

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

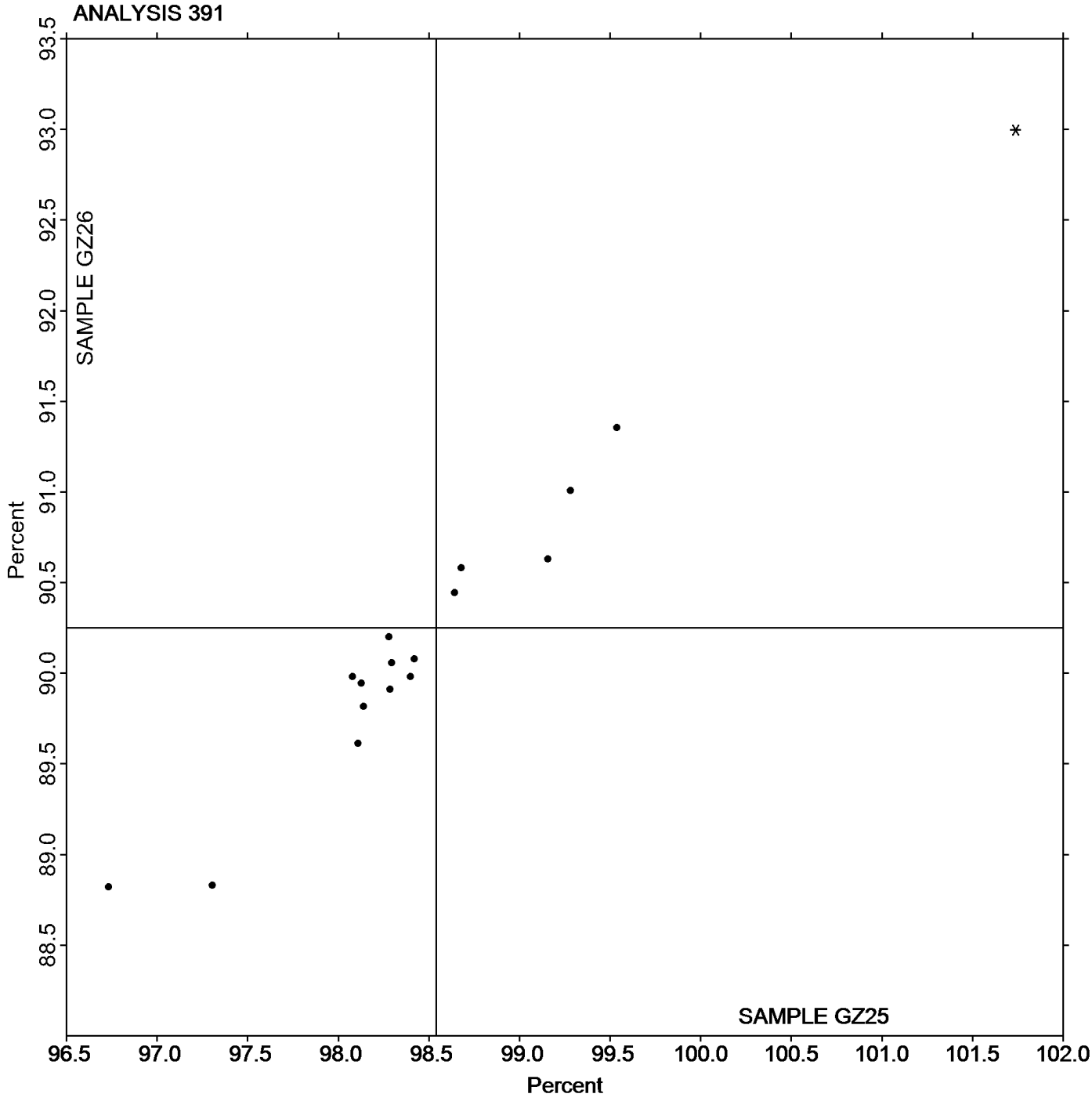
Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ25** = 98.542 Percent

Grand Mean Sample **GZ26** = 90.250 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 392
Diffuse Brightness

WebCode	Data Flag	Sample GR25 Lab Mean	Sample GR25 Diff from Grand Mean	Sample GR25 CPV	Sample GR26 Lab Mean	Sample GR26 Diff from Grand Mean	Sample GR26 CPV	Instr Code
2LY3QV		81.52	0.04	0.11	81.52	0.01	0.03	TM
3C4JPR	X	81.50	0.03	0.06	82.04	0.53	1.37	EG
4XMNAV		81.11	-0.36	-0.90	81.24	-0.27	-0.69	TC
6PR9XW		81.70	0.22	0.54	81.62	0.12	0.30	TC
7P3J3E		81.24	-0.24	-0.59	81.31	-0.20	-0.50	TC
83MAN3		81.10	-0.38	-0.94	81.12	-0.39	-1.01	LS
AC2E34		81.62	0.14	0.34	81.71	0.20	0.51	TC
AEPGG6		81.67	0.20	0.49	81.59	0.08	0.21	LA
ANY7WN		81.35	-0.12	-0.31	81.46	-0.05	-0.12	TC
BJJX74		81.27	-0.21	-0.51	81.35	-0.15	-0.40	TC
FKE86M		81.71	0.23	0.58	81.70	0.19	0.49	TC
GMZBBY		81.33	-0.15	-0.36	81.28	-0.23	-0.59	TM
JBFTLY		81.09	-0.39	-0.96	81.25	-0.26	-0.66	EG
KWF6FQ		82.49	1.01	2.51	82.49	0.98	2.53	EE
M3VLMJ		81.55	0.07	0.18	81.62	0.12	0.30	EG
MTJMRM		81.38	-0.10	-0.24	81.51	0.00	0.01	LS
MTKK3H		81.48	0.00	0.00	81.50	0.00	0.00	TC
PAMQJR		81.32	-0.15	-0.38	81.41	-0.10	-0.25	LA
Q4VTH8		82.17	0.69	1.71	82.21	0.70	1.80	TM
QZQA8R		81.59	0.11	0.28	81.51	0.01	0.02	TC
R9KT8M		81.10	-0.38	-0.94	81.14	-0.37	-0.95	EG
RDGEYP		81.25	-0.22	-0.56	81.27	-0.24	-0.62	TC
RMHNKT	*	80.30	-1.17	-2.91	80.29	-1.22	-3.13	TC
TP8PN8		81.70	0.22	0.56	81.73	0.23	0.58	TC
VXRFLJ		81.84	0.36	0.89	81.76	0.26	0.66	TL
X4ATDH		81.68	0.20	0.49	81.75	0.24	0.63	TM
XC7MD2		81.83	0.35	0.88	81.71	0.21	0.53	TC
XF6Y92		81.80	0.32	0.80	81.88	0.37	0.95	EF
Z7P2FE		81.17	-0.31	-0.77	81.26	-0.25	-0.63	TC

Summary Statistics

	Sample GR25	Sample GR26
Grand Means	81.477 Percent	81.506 Percent
SD Btwn Labs	0.404 Percent	0.388 Percent

Statistics based on 28 of 29 reporting participants

Comments on assigned Data Flags for Test #392

3C4JPR (X) - Inconsistent in testing between samples and within the determinations for both samples.

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

Instrument Code List as Reported by the Labs

(EE) - Datacolor Elrepho 2000

(EF) - Datacolor Elrepho 3000

(EG) - Datacolor Elrepho 450X

(LA) - L & W Elrepho - Autoline

(LS) - L & W Elrepho SE 070

(TC) - Technidyne Color Touch Series

(TL) - Technidyne Technibrite TB-1

(TM) - Technidyne Technibrite Micro TB-1C

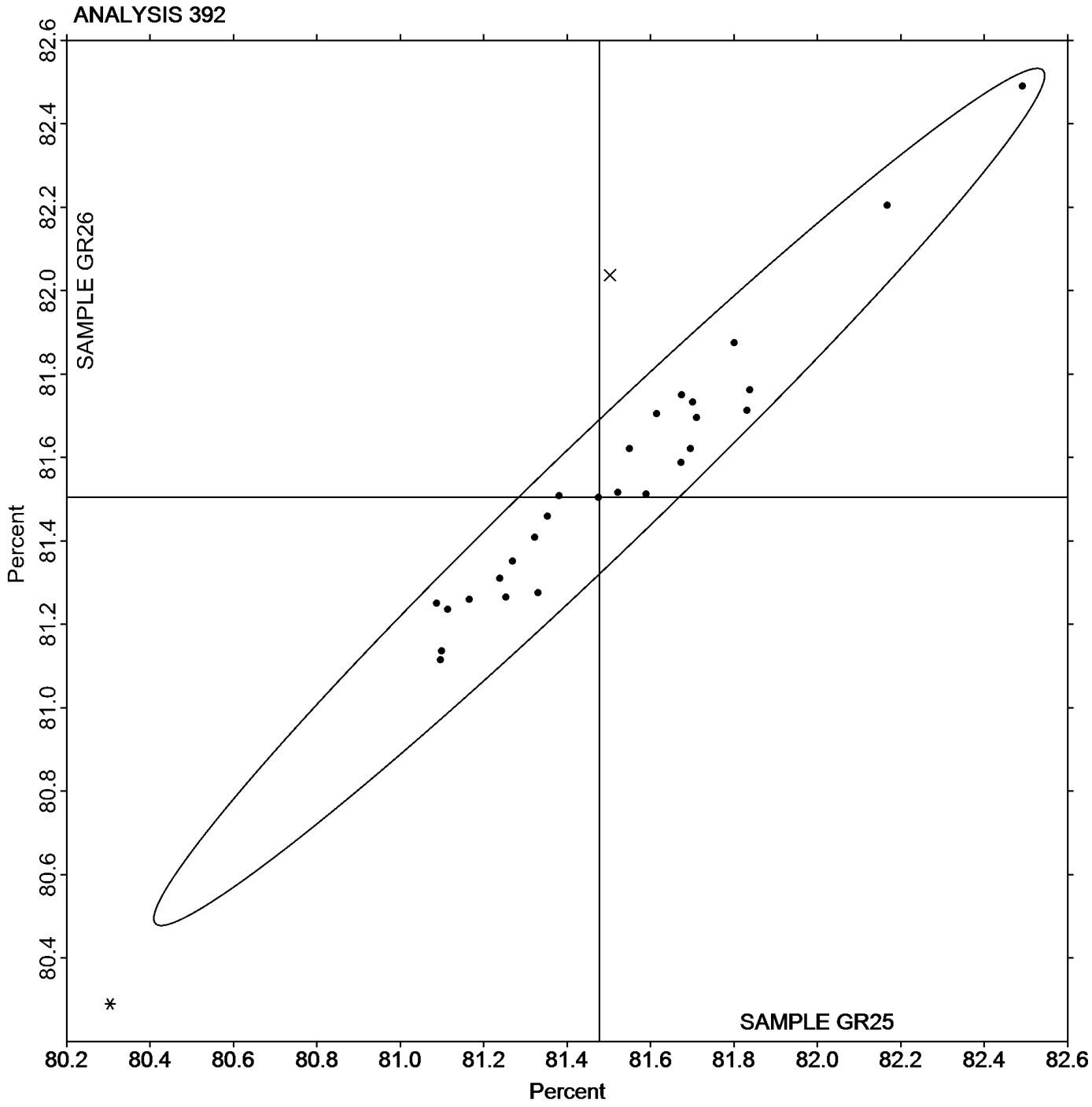
Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

Grand Mean Sample **GR25** = 81.477 Percent

Grand Mean Sample **GR26** = 81.506 Percent



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

WebCode	Data Flag	Sample GZ25 Lab Mean	Sample GZ25 Diff from Grand Mean	Sample GZ25 CPV	Sample GZ26 Lab Mean	Sample GZ26 Diff from Grand Mean	Sample GZ26 CPV	Instr Code
38U9VC		8.578	-0.720	-0.58	7.120	-0.667	-0.58	TS
69ZBW2		11.238	1.940	1.56	9.782	1.995	1.74	GM
9BVACB		8.900	-0.398	-0.32	7.520	-0.267	-0.23	TT
D6CQ7P		9.378	0.080	0.06	8.012	0.225	0.20	TS
GDTHXX		8.462	-0.836	-0.67	6.888	-0.899	-0.78	XX
J3HXN2		10.054	0.756	0.61	8.432	0.645	0.56	TS
J8WLAJ		8.948	-0.350	-0.28	7.400	-0.387	-0.34	TS
JTZA2E		8.840	-0.458	-0.37	7.540	-0.247	-0.22	TT
L3FZDG		8.536	-0.762	-0.61	7.172	-0.615	-0.54	PP
LBQ3YH		8.180	-1.118	-0.90	6.728	-1.059	-0.92	TS
PAMQJR		12.452	3.154	2.53	10.472	2.685	2.34	EF
UZWVAP		8.620	-0.678	-0.54	6.878	-0.909	-0.79	TS
Y3QDCL		8.690	-0.608	-0.49	7.282	-0.505	-0.44	TS

Summary Statistics

	Sample GZ25	Sample GZ26
Grand Means	9.2982 Percent	7.7866 Percent
SD Btwn Labs	1.2469 Percent	1.1464 Percent

Statistics based on 13 of 13 reporting participants

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(GM) - Gretag Macbeth Color i5

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

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

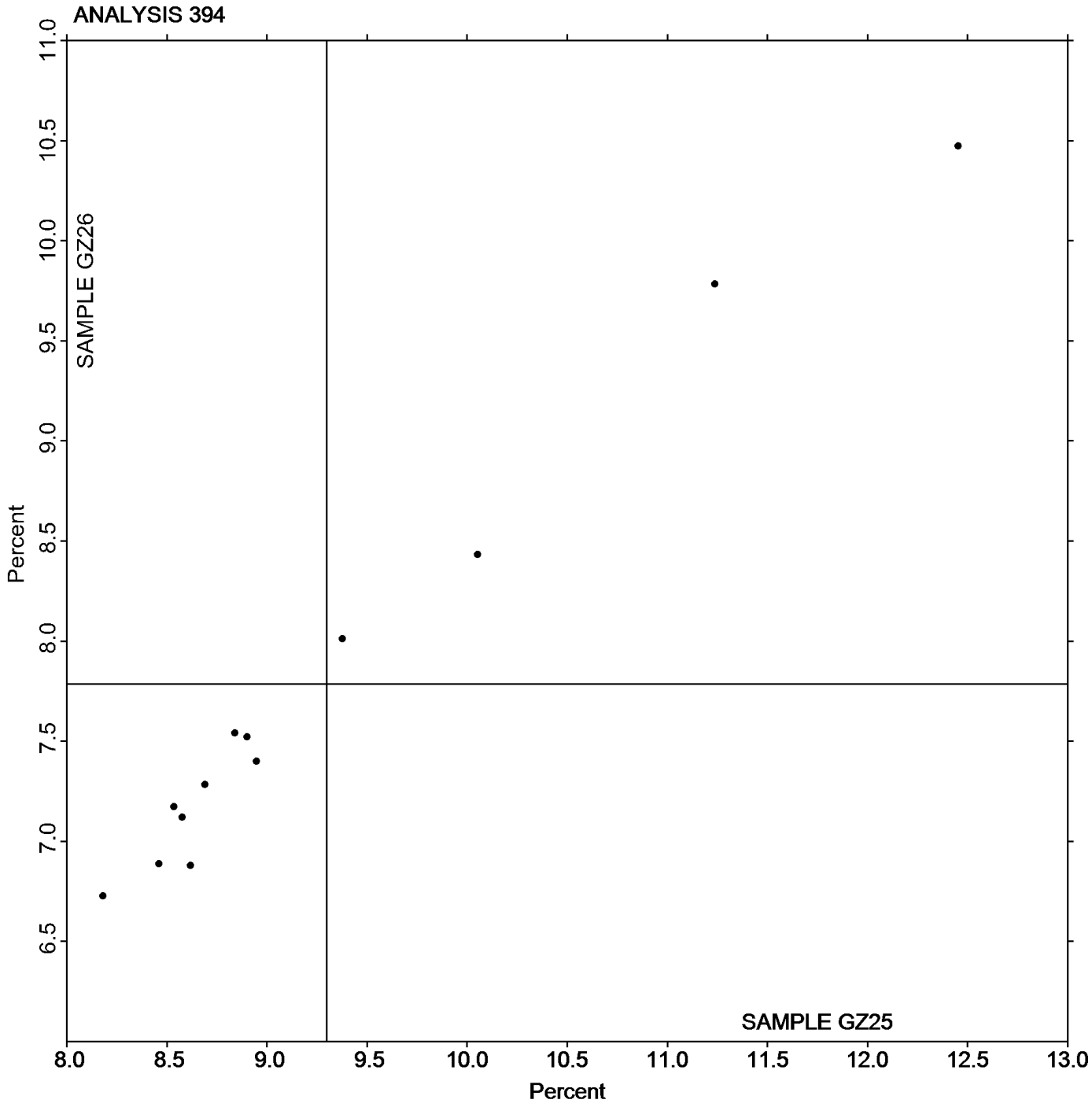
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ25** = 9.2982 Percent

Grand Mean Sample **GZ26** = 7.7866 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 GT25 Lab Mean	Sample GT25 Diff from Grand Mean	Sample GT25 CPV	Sample GT26 Lab Mean	Sample GT26 Diff from Grand Mean	Sample GT26 CPV	Instr Code
2LY3QV		69.25	-0.42	-0.25	74.59	0.44	0.25	TH
3C4JPR		70.13	0.46	0.27	74.50	0.35	0.20	TH
44TH4Q		70.49	0.82	0.48	75.60	1.45	0.84	LA
4T8FJB		69.59	-0.08	-0.05	73.44	-0.71	-0.41	XX
6KQ9C7		68.23	-1.44	-0.85	72.78	-1.37	-0.79	LA
7P3J3E		67.39	-2.28	-1.34	74.39	0.24	0.14	ZH
8QR6AB		70.06	0.39	0.23	74.76	0.61	0.35	TH
9BVACB		72.00	2.33	1.38	76.70	2.55	1.47	LA
A7CPQ8		69.79	0.12	0.07	72.51	-1.64	-0.95	TH
BX2N67		71.10	1.43	0.84	71.19	-2.96	-1.71	TH
GUYVDU		70.38	0.71	0.42	73.62	-0.53	-0.31	PP
JBFTLY	*	65.64	-4.03	-2.38	75.52	1.37	0.79	GM
L3FZDG		69.14	-0.53	-0.31	75.20	1.05	0.61	PP
MTJMRM		69.98	0.31	0.18	73.32	-0.83	-0.48	LB
Q4VTH8		71.94	2.27	1.34	77.97	3.81	2.21	TG
R9KT8M		70.12	0.45	0.27	74.57	0.42	0.24	TH
V9QHFF		72.96	3.29	1.94	75.74	1.58	0.92	TG
VXRFLJ		68.84	-0.83	-0.49	72.92	-1.23	-0.71	GS
XFZGB3		67.92	-1.75	-1.03	71.44	-2.71	-1.57	GM
Y3QDCL		68.43	-1.24	-0.73	72.27	-1.88	-1.09	LA

Summary Statistics

	Sample GT25	Sample GT26
Grand Means	69.669 Gloss Units	74.151 Gloss Units
SD Btwn Labs	1.695 Gloss Units	1.729 Gloss Units

Statistics based on 20 of 20 reporting participants

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss
(GS) - BYK-Gardner Glossgard II
(LA) - L & W Gloss - Autoline 300
(LB) - L & W Gloss Tester Code 224
(PP) - Technidyne Profile/Plus
(TG) - Technidyne T480
(TH) - Technidyne T480A
(XX) - Instrument make/model not specified by lab
(ZH) - Zehntner ZLR 1050

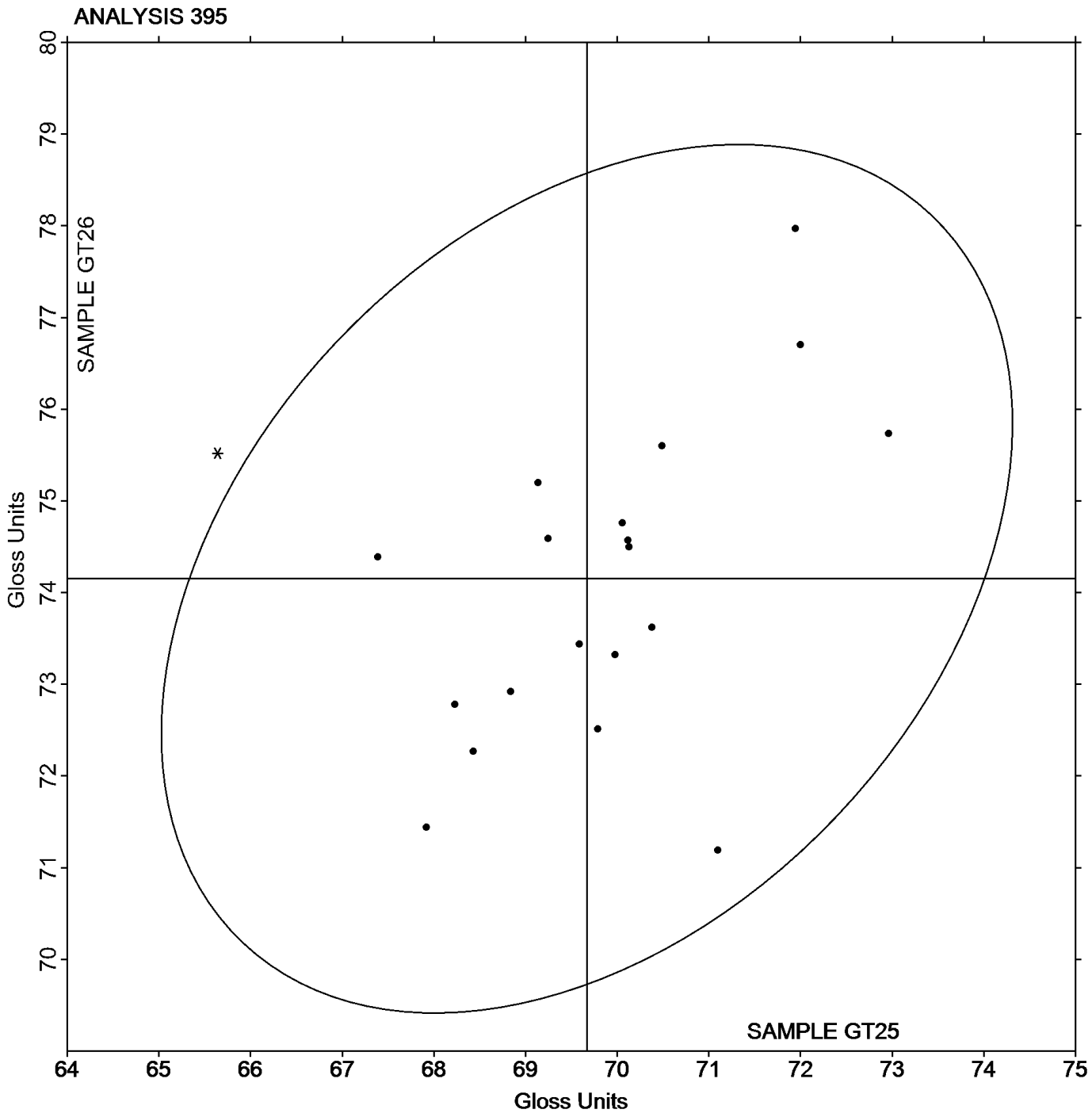
Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT25** = 69.669 Gloss Units

Grand Mean Sample **GT26** = 74.151 Gloss Units



Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU25 Lab Mean	Sample GU25 Diff from Grand Mean	Sample GU25 CPV	Sample GU26 Lab Mean	Sample GU26 Diff from Grand Mean	Sample GU26 CPV	Instr Code
B6XH6P		44.57	-0.65	-0.52	26.45	0.14	0.24	PP
JTD4EU		45.32	0.10	0.08	25.69	-0.62	-1.03	XX
M3VLMJ		46.83	1.61	1.30	27.25	0.94	1.57	TH
MTJMRM		44.66	-0.56	-0.45	25.55	-0.76	-1.27	LA
PAMQJR		43.54	-1.68	-1.36	26.51	0.20	0.34	TG
Q4VTH8		45.09	-0.13	-0.10	26.43	0.12	0.20	TG
RJ3A3E		44.58	-0.64	-0.52	26.20	-0.11	-0.19	TH
RMHNKT		47.57	2.35	1.90	27.03	0.72	1.21	TH
WVHQY2		44.82	-0.40	-0.32	25.67	-0.64	-1.07	TH

Summary Statistics

	Sample GU25	Sample GU26
Grand Means	45.220 Gloss Units	26.308 Gloss Units
SD Btwn Labs	1.239 Gloss Units	0.598 Gloss Units

Statistics based on 9 of 9 reporting participants

Instrument Code List as Reported by the Labs

(LA) - L & W Gloss - Autoline 300

(PP) - Technidyne Profile/Plus

(TG) - Technidyne T480

(TH) - Technidyne T480A

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

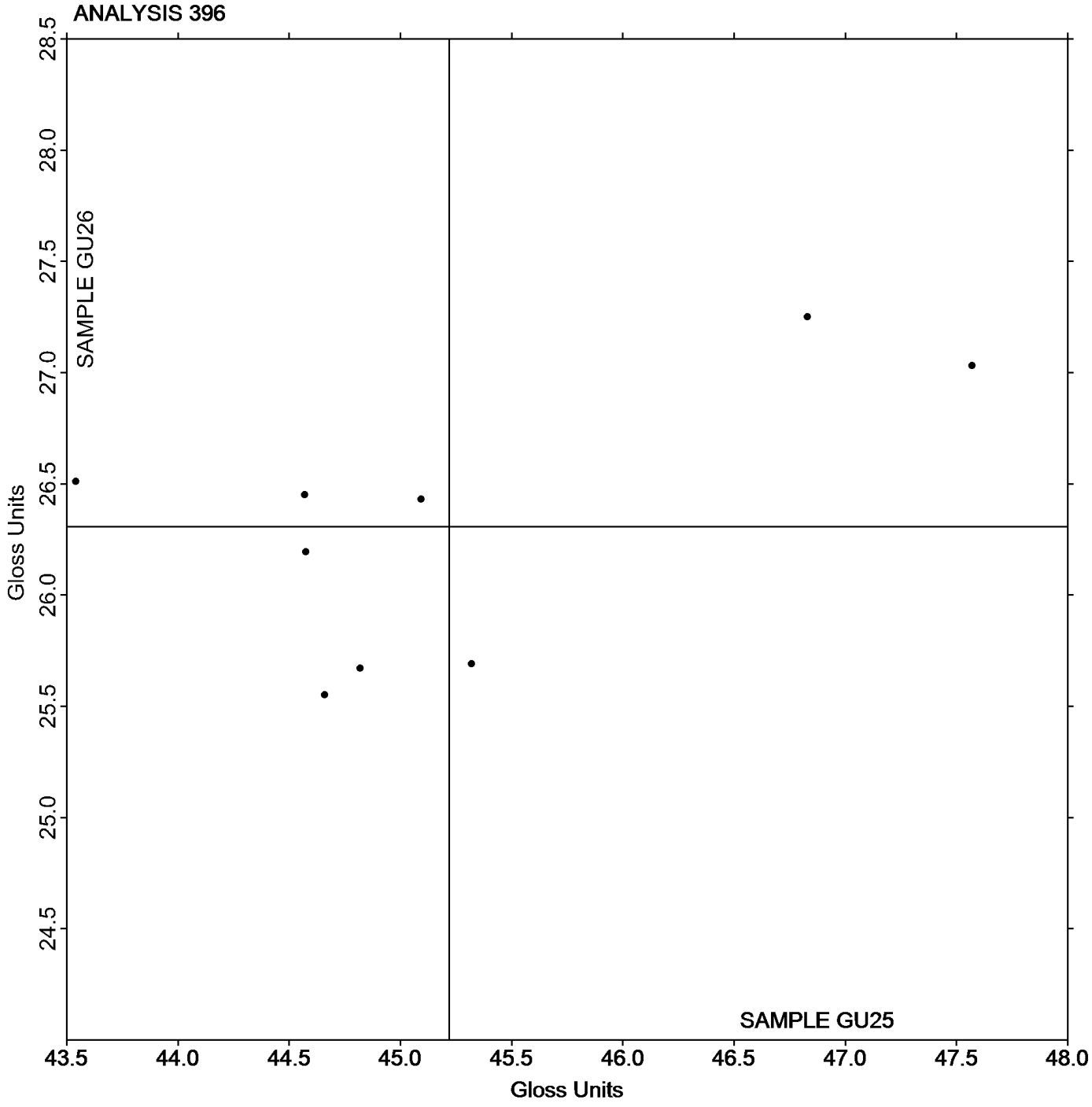
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU25** = 45.220 Gloss Units

Grand Mean Sample **GU26** = 26.308 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 GW25 Lab Mean	Sample GW25 Diff from Grand Mean	Sample GW25 CPV	Sample GW26 Lab Mean	Sample GW26 Diff from Grand Mean	Sample GW26 CPV
2696ME		101.4	1.0	1.71	86.76	0.68	1.31
26QZ6G		100.7	0.2	0.43	85.77	-0.31	-0.60
69ZBW2		100.2	-0.2	-0.36	85.15	-0.93	-1.79
7QDJZ9		100.8	0.3	0.58	87.00	0.92	1.77
7YNKLA		100.2	-0.3	-0.49	85.37	-0.71	-1.37
83MAN3		99.9	-0.5	-0.96	85.94	-0.14	-0.27
8NLXR4		100.8	0.4	0.70	85.95	-0.13	-0.26
C36YQ6		99.8	-0.6	-1.16	86.16	0.08	0.15
GWPWJH		100.0	-0.4	-0.71	86.15	0.07	0.14
HJB9XX		101.4	0.9	1.67	86.68	0.59	1.15
JKMHAV		100.0	-0.4	-0.73	85.83	-0.25	-0.49
JTD4EU		100.7	0.3	0.52	86.75	0.67	1.29
KWF6FQ		100.8	0.3	0.58	86.32	0.24	0.46
M3VLMJ		100.9	0.5	0.81	85.78	-0.30	-0.58
M7TAUR		100.0	-0.5	-0.82	86.44	0.36	0.69
MJEPXR		100.2	-0.2	-0.40	85.60	-0.48	-0.93
MP2CRW	X	104.2	3.8	6.81	88.59	2.50	4.84
MTJMRM		100.5	0.1	0.21	86.41	0.32	0.63
N9FY2C		100.5	0.1	0.21	86.37	0.29	0.56
PAMQJR		101.8	1.4	2.47	87.20	1.12	2.16
R9KT8M		100.5	0.1	0.11	85.96	-0.12	-0.23
RJ3A3E		99.9	-0.6	-1.01	85.42	-0.67	-1.29
RVYD79		100.9	0.5	0.86	86.05	-0.04	-0.07
TE73WB		99.5	-0.9	-1.66	85.50	-0.58	-1.13
TXXBU7		100.5	0.1	0.15	86.61	0.53	1.02
WVHQY2		100.5	0.1	0.12	86.08	0.00	0.00
Y2UUBK		99.4	-1.0	-1.76	85.35	-0.74	-1.42
YFKHRD		100.0	-0.4	-0.73	85.58	-0.50	-0.97
YQGNKC		99.9	-0.5	-0.90	86.03	-0.05	-0.09
ZVR23A		100.7	0.3	0.56	86.17	0.09	0.17

Summary Statistics

	Sample GW25	Sample GW26
Grand Means	100.43 g/sq m	86.082 g/sq m
SD Btwn Labs	0.56 g/sq m	0.517 g/sq m

Statistics based on 29 of 30 reporting participants

Comments on assigned Data Flags for Test #398

MP2CRW (X) - Data for both samples are high.

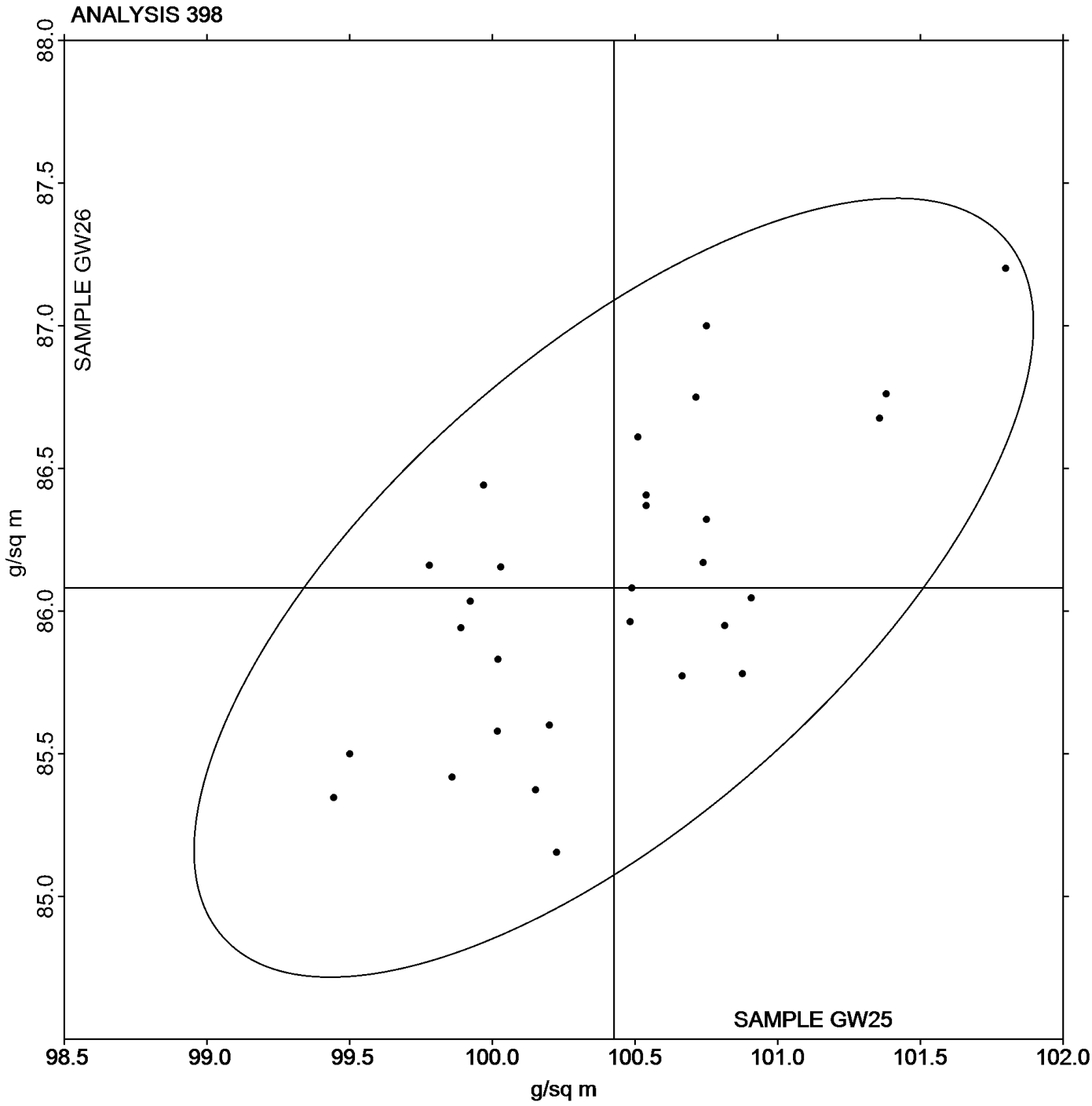
Paper & Paperboard Interlaboratory Testing Program

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW25** = 100.43 g/sq m

Grand Mean Sample **GW26** = 86.082 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

WebCode	Data Flag	Sample GX25 Lab Mean	Sample GX25 Diff from Grand Mean	Sample GX25 CPV	Sample GX26 Lab Mean	Sample GX26 Diff from Grand Mean	Sample GX26 CPV
239UTZ		11.80	-0.13	-0.07	11.69	0.15	0.09
2LY3QV		12.24	0.31	0.18	11.58	0.04	0.02
38U9VC		12.61	0.68	0.39	11.46	-0.08	-0.05
69ZBW2		11.90	-0.03	-0.02	12.10	0.56	0.34
6KQ9C7		8.83	-3.10	-1.78	8.54	-3.00	-1.85
738Q7Q		10.63	-1.30	-0.75	10.72	-0.82	-0.51
7RBKA8		9.97	-1.96	-1.13	10.30	-1.24	-0.77
7YNKLA	*	12.96	1.03	0.59	14.27	2.73	1.68
B6XH6P		11.01	-0.92	-0.53	10.95	-0.59	-0.37
CE3PKP	*	16.49	4.56	2.62	15.19	3.65	2.24
D6CQ7P		11.18	-0.75	-0.43	10.78	-0.76	-0.47
G3AXYV	X	5.70	-6.23	-3.58	7.90	-3.64	-2.24
GUYVDU		13.37	1.44	0.83	13.62	2.08	1.28
HTJYLU		10.49	-1.44	-0.83	9.60	-1.94	-1.20
J8WLAJ		14.83	2.90	1.67	14.60	3.06	1.88
JHECMU		10.89	-1.04	-0.60	10.50	-1.04	-0.64
M3VLMJ		12.64	0.71	0.41	11.75	0.21	0.13
M7TAUR		12.80	0.87	0.50	12.50	0.96	0.59
N9FY2C		12.80	0.87	0.50	11.90	0.36	0.22
PBH9LT		9.74	-2.19	-1.26	10.05	-1.49	-0.92
PGQMDP	*	14.09	2.16	1.24	11.76	0.22	0.13
RDGEYP		12.30	0.37	0.21	12.00	0.46	0.28
U6BLKC		10.11	-1.82	-1.05	9.59	-1.95	-1.20
UZWVAP		13.70	1.77	1.02	13.40	1.86	1.14
VD44NM		11.96	0.03	0.02	11.50	-0.04	-0.03
VMP8WL		13.70	1.77	1.02	12.85	1.31	0.80
XFZGB3		10.60	-1.33	-0.76	9.90	-1.64	-1.01
Y3A823		10.09	-1.84	-1.06	10.05	-1.49	-0.92
Y3QDCL		10.30	-1.63	-0.94	10.10	-1.44	-0.89

Summary Statistics

	Sample GX25	Sample GX26
Grand Means	11.930 Seconds	11.545 Seconds
SD Btwn Labs	1.739 Seconds	1.626 Seconds

Statistics based on 28 of 29 reporting participants

Comments on assigned Data Flags for Test #399

G3AXYV (X) - Inconsistent in testing between samples, data for Sample GX25 are low.

Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX25** = 11.930 Seconds

Grand Mean Sample **GX26** = 11.545 Seconds