Collaborative Testing Services, Inc.

Paper & PaperboardTesting Program

Summary Report #273G-December 2014

Introduction to the Paper & Paperboard Program

Explanation of Tables and Definitions of Terms

Analysis	Analysis Name
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
360	Thickness (Caliper), Printing papers, Low range
361	Thickness (Caliper), Packaging papers, High range
364	Coefficient of Static Friction-Horizontal Plane, Printing papers
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
377	Roughness - Print Surf Method 2.5 to 6.0 Microns, High range
378	Roughness, Sheffield Type, Printing papers
382	Moisture Content, Paper Samples
384	Opacity (89% Backing) 82 to 95%, Fine papers
386	Opacity (Paper Backing) 82 to 95%, Fine papers and newsprint
390	Brightness (Directional), Printing papers
391	Directional Brightness of Fluorescent Samples, Printing papers
392	Brightness (Diffuse), Printing papers
394	Fluorescent Component of Directional Brightness, Printing papers
395	Specular Gloss 75 Degree, 50-95 Units, High range
396	Specular Gloss 75 Degreee, 20-65 Units, Low range
398	Grammage (Basis Weight), Printing papers
399	Sizing Test, Hercules Type, Printing papers

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:

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

(Toll-free fax within the U.S.: 1-866-fax-2cts)
Office Hours: 8:00 a.m. - 4:30 p.m. ET

Key for Web Summary Reports (Page 1 of 2)

WebCode — Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Paper Report published on the CTS 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 ob **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
6KQDU7		GA13	92.52	-0.71	1.96	0.05	0.01	0.02	0.05		XX
		GA14	92.57	-0.69	1.98						
6PFH6H		GA13	91.61	-0.72	2.33	0.10	-0.01	0.00	0.10		LS
		GA14	91.71	-0.73	2.33						
6YK98U		GA13	92.49	-0.69	2.50	0.16	0.06	0.04	0.17		HE
		GA14	92.65	-0.63	2.53						
8KXWAG		GA13	91.16	-0.57	1.92	0.16	-0.05	0.08	0.18		XX
		GA14	91.31	-0.62	2.00						
9LKV36		GA13	92.10	-0.55	2.28	0.15	0.04	0.05	0.17		MK
		GA14	92.25	-0.51	2.33						
9RVUUY		GA13	92.39	-0.39	1.96	0.02	0.03	-0.03	0.05		TS
		GA14	92.41	-0.36	1.93						
AXWKEF		GA13	90.74	0.02	1.79	-0.09	-0.32	0.07	0.34	X	TS
		GA14	90.64	-0.29	1.86						
BYLDNP		GA13	92.75	-0.83	1.57	0.09	-0.01	-0.02	0.10		HH
		GA14	92.84	-0.84	1.55						
CQ8PQG		GA13	93.74	-0.89	2.15	0.08	-0.02	0.00	0.08		EH
		GA14	93.82	-0.91	2.15						
DACLKW		GA13	93.50	-0.49	2.57	0.19	0.05	-0.06	0.21		MI
		GA14	93.70	-0.44	2.51						
GP2T99		GA13	90.65	-0.85	0.98	0.08	0.07	0.02	0.11		HH
		GA14	90.73	-0.78	1.01						
J7XZF7		GA13	90.97	-1.19	1.00	0.06	-0.08	0.00	0.10		HH
		GA14	91.03	-1.27	1.00						
NFNARW		GA13	93.14	-0.58	2.12	-0.02	0.00	-0.12	0.12		XS
		GA14	93.12	-0.58	2.00						
Q3PDHU		GA13	90.36	0.01	1.88	0.00	-0.05	0.04	0.06		TS
		GA14	90.37	-0.04	1.92						
QMJVUF		GA13	91.96	-0.68	2.39	0.03	0.00	-0.04	0.05		EH
		GA14	91.99	-0.68	2.35						
RFT4W7		GA13	90.68	-0.06	1.72	0.10	0.08	0.11	0.17		TS
		GA14	90.79	0.02	1.82						
RQE83K		GA13	90.45	-0.40	1.94	-0.02	-0.08	-0.01	0.08		TS
		GA14	90.43	-0.48	1.92						

TAPPI-CTS Interlaboratory Testing Program

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 L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
VMJMRX		GA13	91.71	-0.43	2.30	0.14	0.03	-0.11	0.18	TM
		GA14	91.85	-0.40	2.18					
WDRNBC		GA13	93.52	-0.67	2.28	0.18	0.05	0.09	0.20	TC
		GA14	93.70	-0.62	2.37					
WW2LV9		GA13	92.30	-1.03	0.42	0.08	0.01	0.00	0.08	HG
		GA14	92.38	-1.02	0.42					
X37R4J		GA13	93.50	-0.70	2.42	0.00	0.00	-0.06	0.06	LS
		GA14	93.50	-0.70	2.37					
Y9TUQF		GA13	93.45	0.82	2.32	0.10	-0.19	0.00	0.22	HE
		GA14	93.55	0.63	2.32					

Summary Statistics

Grand Means							
GA13	92.077	-0.525	1.946	0.075	-0.017	0.002	0.131
GA14	92.152	-0.542	1.948				
Stnd Dev Btwn Labs							
GA13	1.128	0.429	0.544	0.073	0.091	0.059	0.072
GA14	1.152	0.394	0.536				

Statistics based on 22 of 22 reporting participants

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450
(HE) - Hunter LabScan
(HG) - Hunter ColorQUEST
(HH) - Hunter D25DP - 9000
(LS) - L & W Elrepho SE 070
(MI) - Macbeth Color i 5
(MK) - Macbeth Color-Eye 7000 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

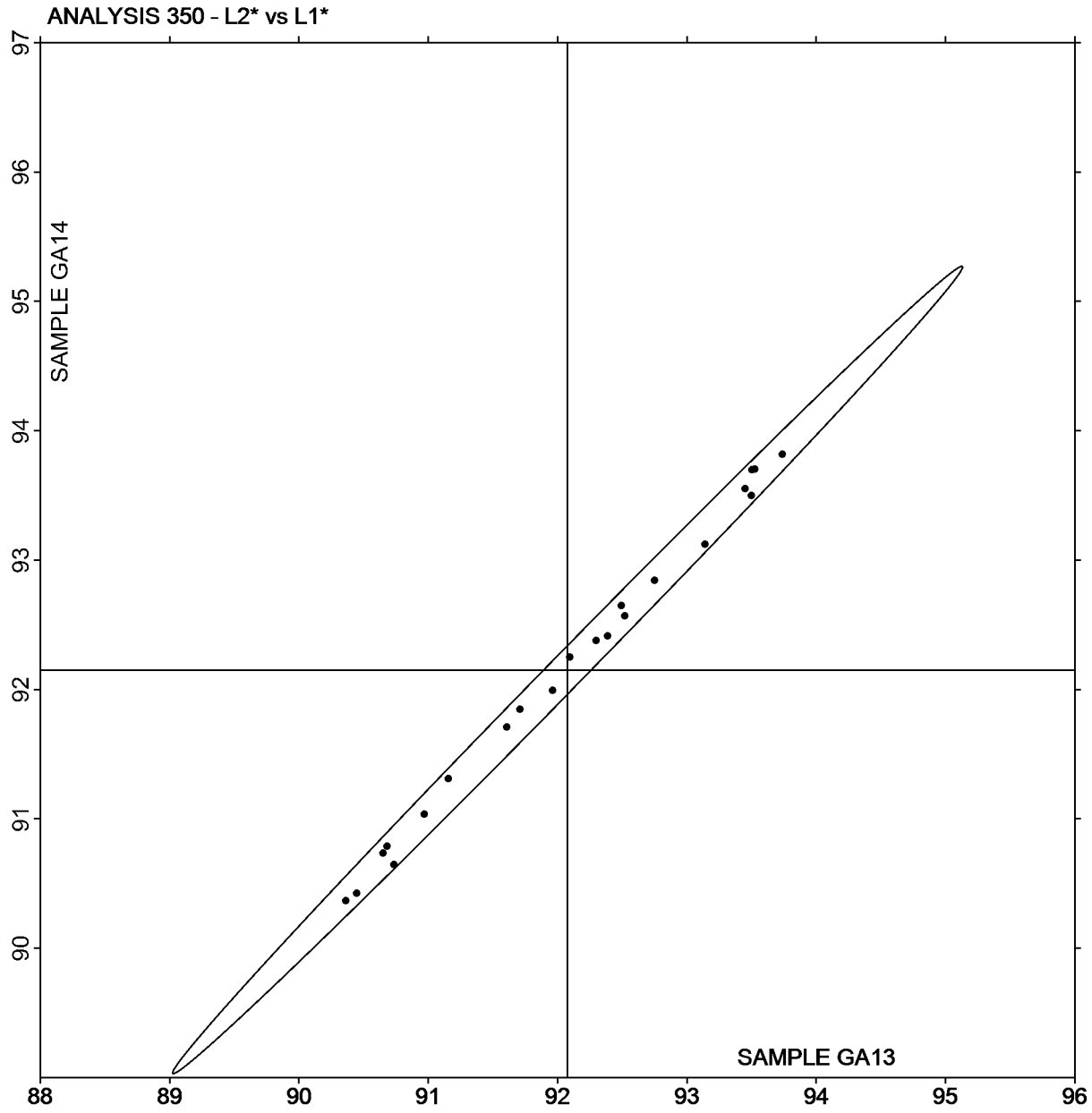
TAPPI-CTS Interlaboratory Testing Program

Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob **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 GA14 v L values GA13



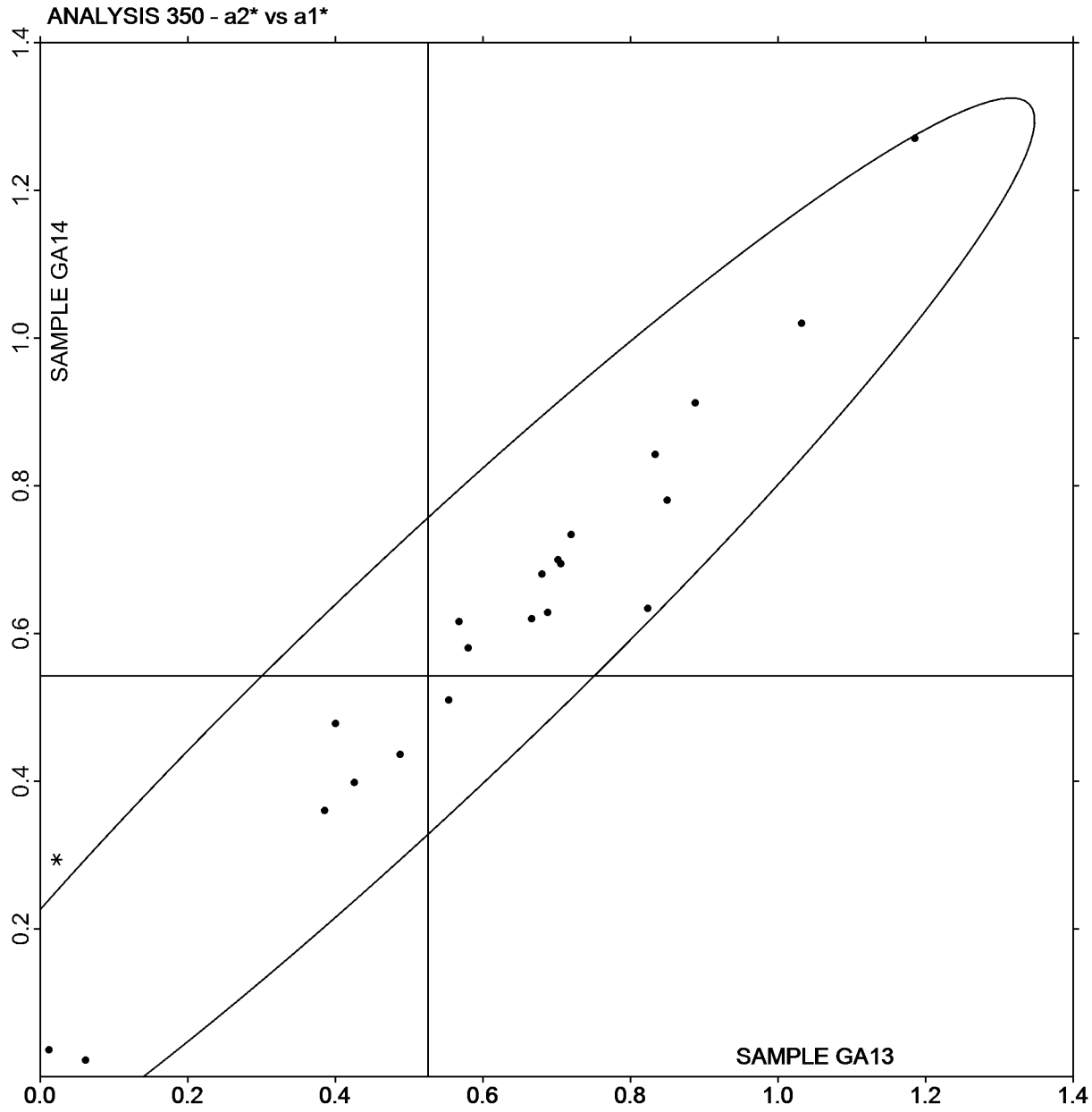
TAPPI-CTS Interlaboratory Testing Program

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	

Plot of a values GA14 v a values GA13

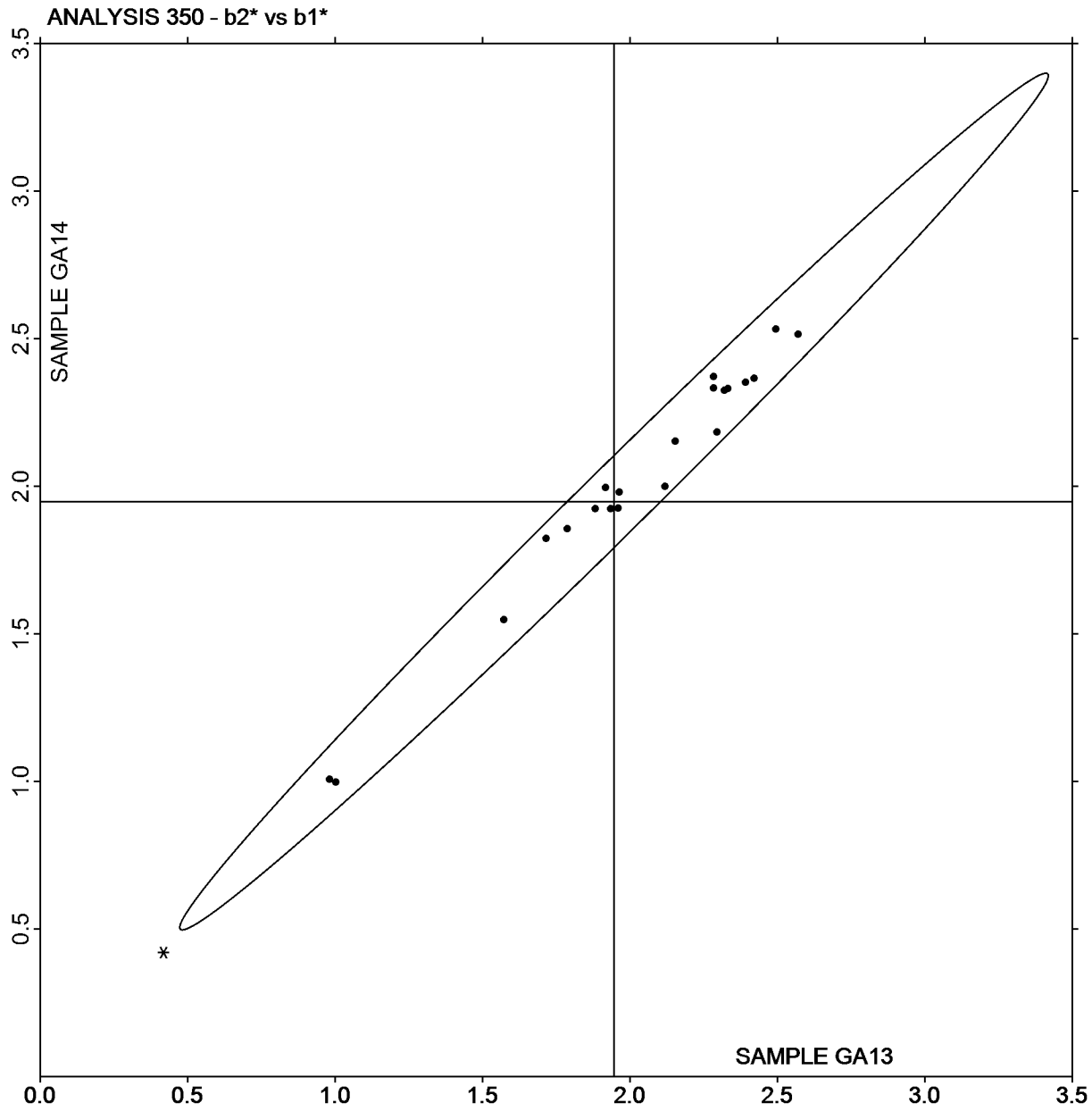


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of b values GA14 v b values GA13



TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

6YK98U		GA13	92.58	-0.68	2.47	0.01	-0.02	0.00	0.03		HE
		GA14	92.59	-0.70	2.47						
7XT4C4		GA13	93.80	-0.58	2.70	0.00	0.00	-0.01	0.01		XP
		GA14	93.80	-0.58	2.70						
9LLVZK		GA13	93.65	-0.80	2.66	0.06	0.00	0.08	0.10		HT
		GA14	93.71	-0.80	2.74						
BDANXT		GA13	93.66	-0.59	3.03	0.03	-0.07	-0.05	0.09		NG
		GA14	93.69	-0.66	2.98						
CEQ3EV		GA13	92.03	-0.73	2.60	0.09	0.00	-0.02	0.09		XM
		GA14	92.12	-0.73	2.58						
CKGEFJ		GA13	93.63	-0.91	2.65	0.00	-0.02	-0.03	0.04		TC
		GA14	93.63	-0.93	2.62						
E3Q9Y3		GA13	93.40	-0.81	2.78	0.06	-0.01	-0.03	0.07		LS
		GA14	93.46	-0.82	2.75						
EP2BVJ		GA13	93.59	-0.73	2.77	0.07	0.00	0.00	0.07		NG
		GA14	93.66	-0.73	2.77						
EUZPKU		GA13	91.69	-0.68	2.52	0.21	0.09	0.05	0.23		XX
		GA14	91.90	-0.59	2.57						
FR9TRU		GA13	91.69	-0.94	2.55	0.30	0.08	0.06	0.31		TC
		GA14	91.98	-0.86	2.61						
G4WDPW		GA13	92.59	-0.62	2.46	0.14	-0.04	-0.17	0.23		HV
		GA14	92.73	-0.66	2.28						
GR6QGF		GA13	93.96	-0.80	2.68	-0.03	-0.01	0.02	0.04		NF
		GA14	93.93	-0.81	2.69						
GXAM32		GA13	93.42	-0.82	2.74	0.06	0.03	-0.02	0.07		EH
		GA14	93.48	-0.79	2.72						
HCKMBC		GA13	93.58	-0.73	2.59	0.04	-0.06	0.00	0.07		TC
		GA14	93.62	-0.79	2.59						
LBLLY6	X	GA13	196.76	85.64	-49.56	-0.34	-0.06	-0.50	0.61	X	HE
		GA14	196.42	85.58	-50.06						
R6E7R3		GA13	93.50	-0.81	3.04	0.30	0.25	-0.35	0.52	X	EH
		GA14	93.80	-0.57	2.68						
RMGJQK		GA13	93.66	-0.78	2.88	0.09	0.01	0.03	0.09		HT
		GA14	93.75	-0.77	2.92						
TGP9BH		GA13	93.53	-0.73	2.81	0.06	-0.02	-0.05	0.08		NG
		GA14	93.59	-0.75	2.76						

TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

WKAYPD	GA13	93.56	-0.84	2.54	-0.06	0.04	-0.14	0.16	EF
	GA14	93.50	-0.80	2.40					
X37R4J	GA13	93.60	-0.84	2.54	-0.04	-0.03	-0.02	0.05	LS
	GA14	93.56	-0.88	2.52					
ZLCYD3	GA13	91.70	-0.44	2.09	0.06	0.00	-0.02	0.07	EE
	GA14	91.76	-0.44	2.07					

Summary Statistics

Grand Means							
GA13	93.141	-0.740	2.655	0.072	0.011	-0.034	0.120
GA14	93.213	-0.742	2.621				
Stnd Dev Btwn Labs							
GA13	0.779	0.123	0.213	0.099	0.068	0.095	0.122
GA14	0.732	0.118	0.207				

Statistics based on 20 of 21 reporting participants

Comments assigned on Data Flags for Test #351

LBLLY6 (X) - Extreme data for L values for both samples. Extreme data for a values for both samples. Extreme data for b values for both samples.

Instrument Code List as Reported by the Labs

(EE) - Datacolor Elrepho 2000
(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
(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
(XX) - Instrument make/model not specified by lab

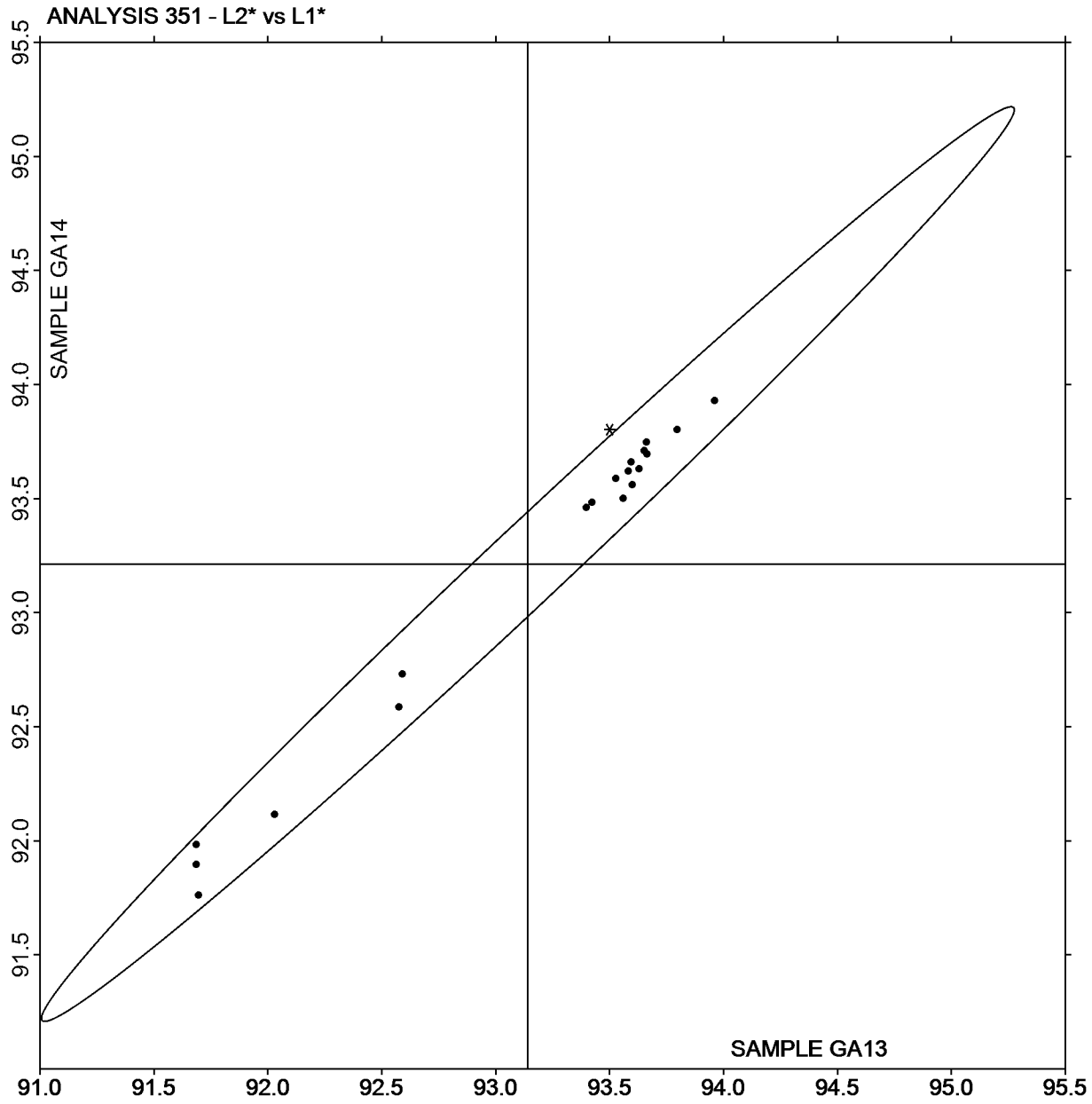
TAPPI-CTS Interlaboratory Testing Program

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	

Plot of L values GA14 v L values GA13



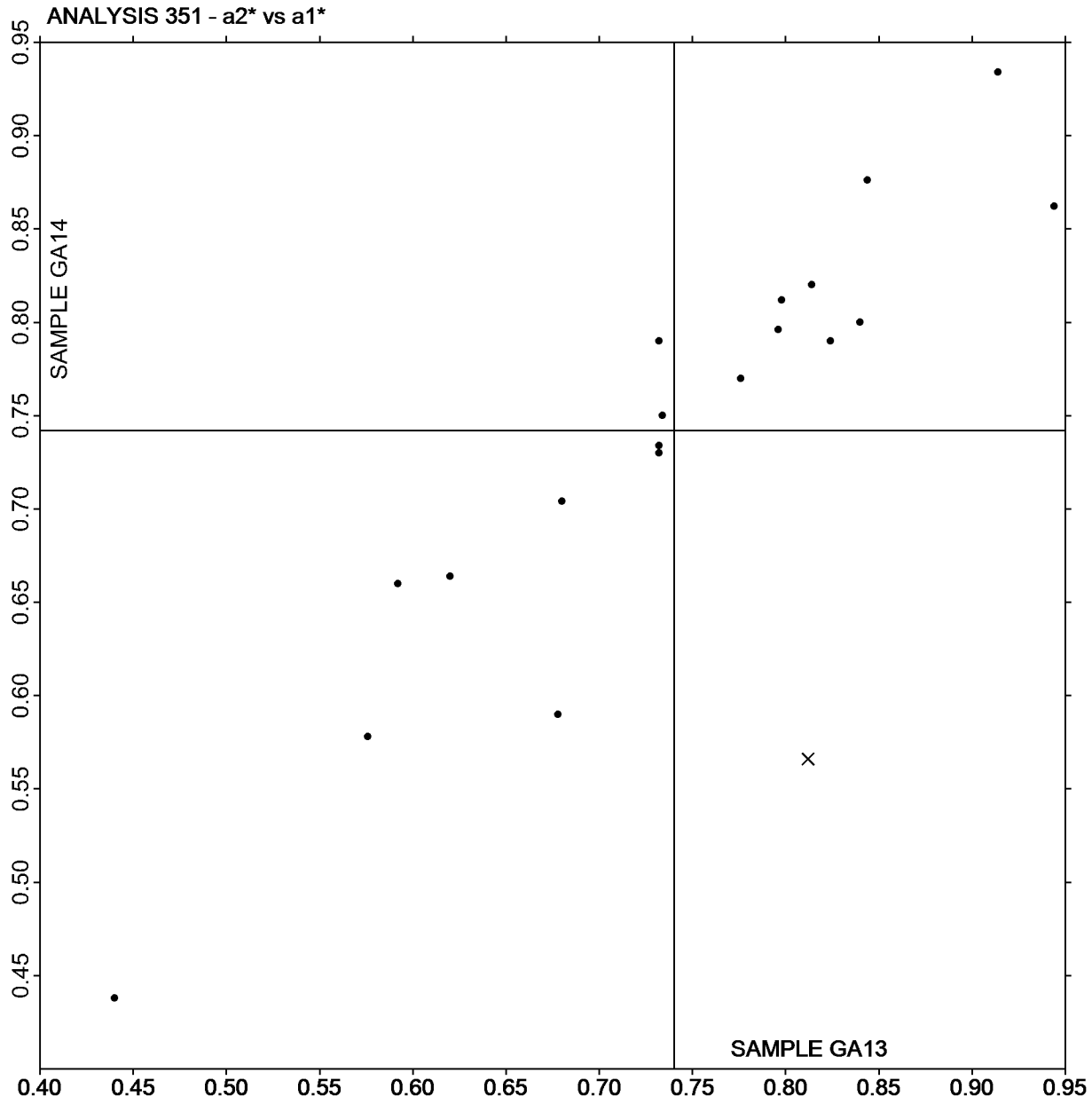
TAPPI-CTS Interlaboratory Testing Program

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	

Plot of a values GA14 v a values GA13

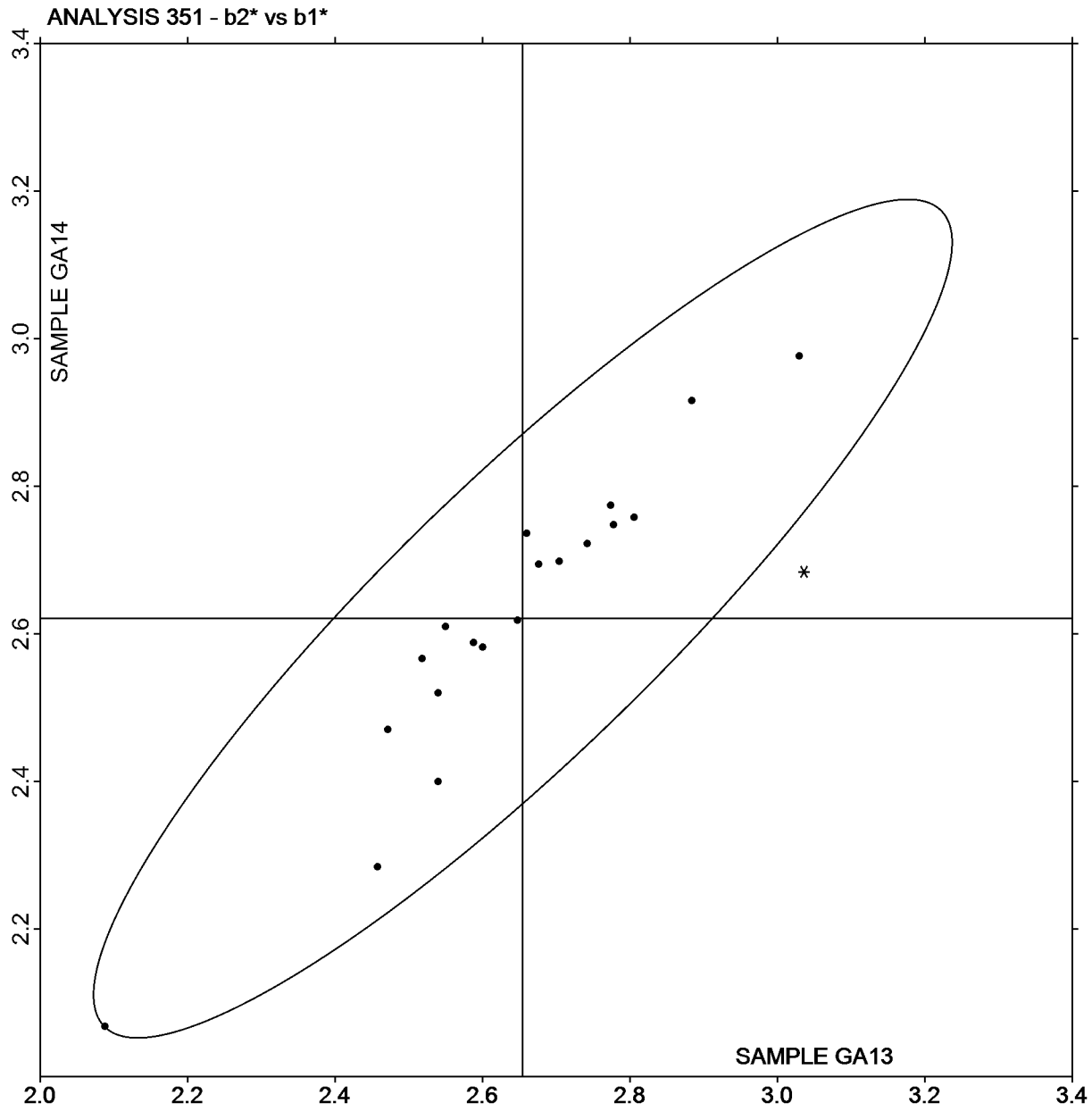


TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

Plot of b values GA14 v b values GA13



Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV13 Lab Mean	Sample GV13 Diff from Grand Mean	Sample GV13 CPV	Sample GV14 Lab Mean	Sample GV14 Diff from Grand Mean	Sample GV14 CPV	Instr Code
23EXYB		4.097	-0.045	-0.63	3.734	-0.057	-0.86	EM
2V42G3		4.212	0.070	0.96	3.855	0.064	0.96	XX
3XX8T8		4.102	-0.040	-0.56	3.728	-0.063	-0.95	TA
6KQDU7	*	4.160	0.018	0.24	3.890	0.099	1.48	XX
6PFH6H		4.142	0.000	0.00	3.818	0.027	0.40	LW
7XT4C4		4.050	-0.092	-1.28	3.700	-0.091	-1.38	TM
96WM22		4.131	-0.011	-0.16	3.812	0.021	0.31	LW
9GQ4Q3		4.128	-0.015	-0.21	3.809	0.018	0.27	LW
9LKV36		4.271	0.129	1.78	3.894	0.103	1.54	PP
9LLVZK		4.202	0.060	0.83	3.810	0.019	0.28	EM
9RU4JA		4.078	-0.064	-0.89	3.727	-0.064	-0.97	PP
AXWKEF		4.034	-0.108	-1.50	3.689	-0.102	-1.54	LA
BDANXT		4.060	-0.082	-1.14	3.766	-0.025	-0.38	XX
BWET3B		4.254	0.112	1.55	3.824	0.033	0.49	PP
CEQ3EV		4.177	0.035	0.48	3.843	0.051	0.77	LW
CGKQYC		4.184	0.042	0.58	3.837	0.045	0.68	LW
CJLRZ9		4.079	-0.063	-0.88	3.724	-0.068	-1.02	LW
CKGEFJ		4.069	-0.074	-1.03	3.764	-0.027	-0.41	LW
CQ8PQG		4.106	-0.036	-0.50	3.724	-0.067	-1.01	MT
DACLKW		4.137	-0.005	-0.08	3.753	-0.038	-0.58	TA
DKYN6D		4.199	0.056	0.78	3.863	0.072	1.08	LW
EJY6FG		4.072	-0.070	-0.98	3.719	-0.072	-1.09	LA
EP2BVJ		4.125	-0.017	-0.24	3.834	0.042	0.63	LW
FBY3TV		4.178	0.035	0.49	3.893	0.101	1.53	LW
FR9TRU		4.057	-0.085	-1.18	3.713	-0.078	-1.18	TA
FWJ4KN		4.072	-0.070	-0.98	3.747	-0.044	-0.67	TM
G4WDPW		4.172	0.030	0.41	3.793	0.002	0.02	EM
GZ4NNV		4.112	-0.030	-0.42	3.771	-0.020	-0.31	TA
H3XRBV		4.100	-0.042	-0.59	3.720	-0.071	-1.08	TM
J2HMCX		4.158	0.016	0.22	3.830	0.039	0.58	TM
J3D944	*	4.080	-0.062	-0.87	3.660	-0.131	-1.98	TM
KLKXU7		4.127	-0.016	-0.22	3.788	-0.003	-0.05	LW
LA8WXD	*	3.929	-0.213	-2.96	3.626	-0.165	-2.49	EM
LBLLY6		4.217	0.074	1.03	3.889	0.097	1.46	TM
M3763N		4.192	0.050	0.69	3.835	0.044	0.66	EM
MGZPJC		4.150	0.008	0.10	3.740	-0.051	-0.77	LW
NFNARW		4.110	-0.032	-0.45	3.790	-0.001	-0.02	TM
PNCKEW		4.249	0.107	1.48	3.846	0.055	0.82	PP
PXNLXC		4.101	-0.041	-0.57	3.784	-0.007	-0.11	PP
Q3PDHU	X	4.070	-0.072	-1.00	3.532	-0.259	-3.90	TM
Q9HJXG		4.270	0.128	1.77	3.915	0.124	1.86	LW
QN8P9V		4.163	0.020	0.28	3.769	-0.023	-0.35	LW
REJT8U		4.134	-0.009	-0.12	3.839	0.047	0.71	TM

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV13 Lab Mean	Sample GV13 Diff from Grand Mean	Sample GV13 CPV	Sample GV14 Lab Mean	Sample GV14 Diff from Grand Mean	Sample GV14 CPV	Instr Code
RFT4W7		4.100	-0.043	-0.59	3.732	-0.060	-0.90	TM
RGR4YR		4.083	-0.060	-0.83	3.760	-0.032	-0.48	PP
RMC4GP		4.106	-0.036	-0.50	3.784	-0.008	-0.11	XX
RMGJQK		4.238	0.096	1.32	3.889	0.098	1.47	EM
TGP9BH		4.180	0.038	0.52	3.854	0.063	0.94	XX
TPEJ4L		4.213	0.070	0.97	3.807	0.016	0.24	MS
TVPHVF		4.178	0.035	0.49	3.807	0.016	0.24	XX
UF7ENB		4.224	0.082	1.14	3.843	0.051	0.77	LW
UWVJW4		4.130	-0.012	-0.17	3.754	-0.037	-0.56	EM
VCBCJE		4.077	-0.065	-0.91	3.682	-0.109	-1.65	TA
VMJMRX		4.181	0.039	0.54	3.831	0.040	0.60	XX
WDRNBC		4.248	0.106	1.46	3.868	0.077	1.15	TA
WJEEX8		4.134	-0.008	-0.12	3.816	0.025	0.37	EM
WWZVKJ		3.990	-0.152	-2.11	3.670	-0.121	-1.83	XX
XD7DC4		4.306	0.163	2.26	3.890	0.098	1.48	LW
XK9JR7	X	4.252	0.110	1.52	3.762	-0.029	-0.44	TM
YEZH73		4.130	-0.012	-0.17	3.760	-0.031	-0.47	TM
YF73U3		4.181	0.039	0.54	3.852	0.060	0.91	EM
Z9QJEA		4.247	0.104	1.45	3.836	0.044	0.67	LW
ZV2MBQ		4.106	-0.036	-0.50	3.781	-0.010	-0.15	TM

Summary Statistics

	Sample GV13	Sample GV14
Grand Means	4.1425 mils	3.7915 mils
SD Btwn Labs	0.0721 mils	0.0665 mils

Statistics based on 61 of 63 reporting participants

Comments on assigned Data Flags for Test #360

Q3PDHU (X) - Inconsistent in testing between samples, data for Sample GV14 are low. Inconsistent within the determinations for Sample GV14.

XK9JR7 (X) - Inconsistent in testing between samples and within the determinations for Sample GV13.

Instrument Code List as Reported by the Labs

(EM) - Emveco
(LA) - L & W Autoline
(LW) - L & W
(MS) - Messmer
(MT) - Mitutoyo
(PP) - Technidyne Profile/Plus
(TA) - Thwing-Albert
(TM) - TMI
(XX) - Instrument make/model not specified by lab

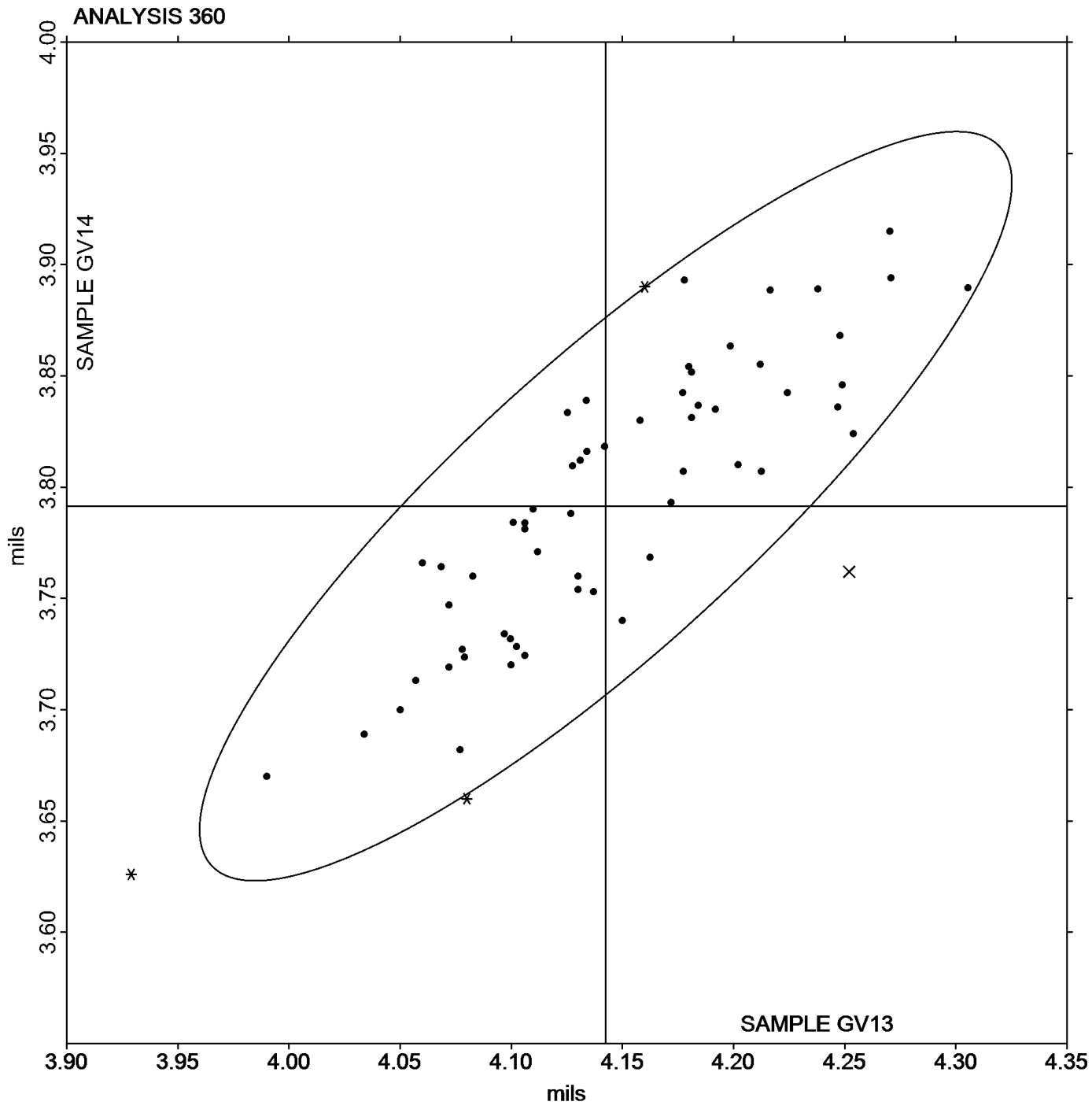
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV13** = 4.1425 mils

Grand Mean Sample **GV14** = 3.7915 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY13 Lab Mean	Sample GY13 Diff from Grand Mean	Sample GY13 CPV	Sample GY14 Lab Mean	Sample GY14 Diff from Grand Mean	Sample GY14 CPV	Instr Code
4E3VJC		9.239	-0.183	-1.66	7.473	-0.191	-1.73	TM
4KNUAK		9.583	0.161	1.46	7.798	0.134	1.21	TM
6FNZQA		9.504	0.082	0.74	7.642	-0.023	-0.21	XX
6YK98U		9.361	-0.061	-0.56	7.615	-0.049	-0.45	EM
88TJDP		9.440	0.018	0.16	7.630	-0.034	-0.31	TM
9GQ4Q3		9.378	-0.044	-0.40	7.606	-0.058	-0.53	LW
BLY7RN		9.390	-0.033	-0.30	7.618	-0.046	-0.42	LW
BYLDNP		9.377	-0.045	-0.41	7.612	-0.052	-0.47	EM
DACLKW		9.334	-0.088	-0.80	7.592	-0.072	-0.65	TA
DGJKFY		9.310	-0.112	-1.02	7.510	-0.154	-1.39	TM
F36YKT		9.437	0.015	0.13	7.657	-0.007	-0.06	XX
F6XTKH		9.590	0.168	1.52	7.744	0.080	0.72	LA
FB9B4M		9.400	-0.022	-0.20	7.720	0.056	0.50	TM
FJTAAF		9.350	-0.072	-0.66	7.610	-0.054	-0.49	LA
FVAUUC		9.210	-0.212	-1.93	7.425	-0.239	-2.16	TA
GP2T99		9.554	0.132	1.20	7.711	0.047	0.42	EM
GXAM32		9.500	0.078	0.71	7.830	0.166	1.49	LA
H3XRBV		9.340	-0.082	-0.75	7.560	-0.104	-0.94	TM
HYHWVY		9.446	0.024	0.22	7.709	0.045	0.40	TM
J3D944		9.380	-0.042	-0.38	7.620	-0.044	-0.40	TM
J7XZF7		9.523	0.101	0.92	7.793	0.129	1.16	EM
MLWBCZ		9.396	-0.026	-0.24	7.595	-0.069	-0.63	TM
PRDN7J		9.265	-0.157	-1.43	7.621	-0.043	-0.39	TM
QJXA2T		9.370	-0.052	-0.48	7.620	-0.044	-0.40	TA
QN8P9V		9.507	0.085	0.77	7.671	0.007	0.06	LW
R6E7R3		9.557	0.135	1.22	7.799	0.135	1.21	EM
VCBCJE		9.460	0.038	0.34	7.594	-0.070	-0.64	TA
VMJMRX		9.513	0.091	0.83	7.785	0.121	1.09	XX
X37R4J		9.598	0.176	1.60	7.835	0.170	1.54	TM
XK9JR7		9.428	0.006	0.05	7.726	0.062	0.56	TM
XXF2P4	*	9.611	0.189	1.72	7.953	0.289	2.61	LA
Y9TUQF		9.238	-0.184	-1.67	7.615	-0.049	-0.45	LA
YE68VC		9.345	-0.077	-0.70	7.637	-0.027	-0.25	PP

Summary Statistics

	Sample GY13	Sample GY14
Grand Means	9.4223 mils	7.6645 mils
SD Btwn Labs	0.1100 mils	0.1107 mils

Statistics based on 33 of 33 reporting participants

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

Analysis Notes:

Y9TUQF - Data appear to be reported as mils, not micrometers as indicated on datasheet. Units corrected by CTS.

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

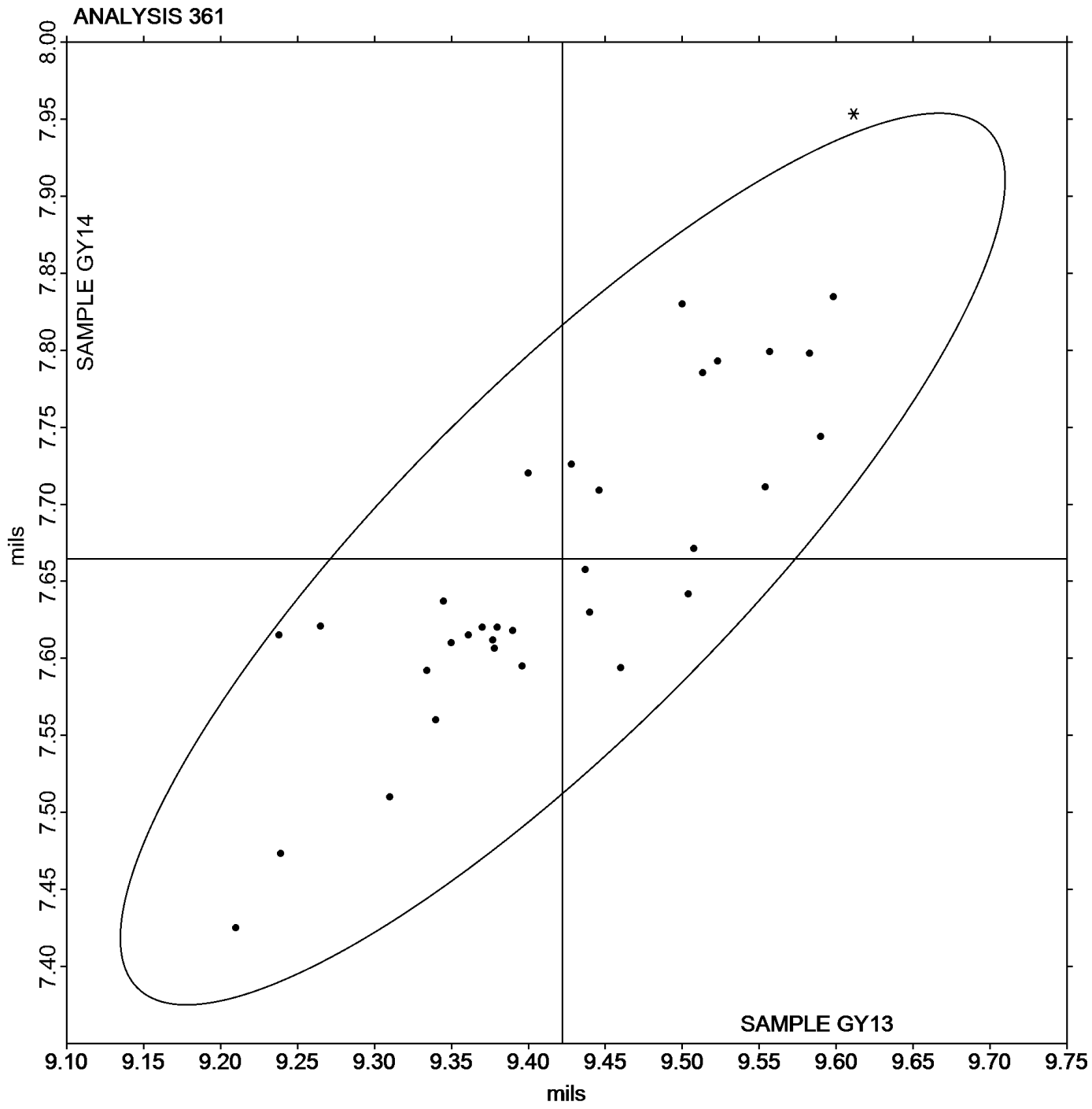
Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample **GY13** = 9.4223 mils

Grand Mean Sample **GY14** = 7.6645 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD13 Lab Mean	Sample GD13 Diff from Grand Mean	Sample GD13 CPV	Sample GD14 Lab Mean	Sample GD14 Diff from Grand Mean	Sample GD14 CPV	Instr Code
EP2BVJ		0.5904	0.0485	0.51	0.5874	0.0552	0.62	TM
M3763N		0.5060	-0.0359	-0.38	0.5100	-0.0222	-0.25	TM
NFNARW		0.3736	-0.1683	-1.76	0.3610	-0.1712	-1.92	XX
TWE46H		0.5704	0.0285	0.30	0.5562	0.0240	0.27	CH
VB9AAW		0.5968	0.0549	0.57	0.5934	0.0612	0.69	TA
VMJMRX		0.6356	0.0937	0.98	0.5746	0.0424	0.48	TM
XD7DC4		0.6720	0.1301	1.36	0.6620	0.1298	1.46	TL
XXF2P4		0.4740	-0.0679	-0.71	0.4896	-0.0426	-0.48	TA
ZZ9DCB		0.4580	-0.0839	-0.88	0.4554	-0.0768	-0.86	IT

Summary Statistics

	Sample GD13	Sample GD14
Grand Means	0.54187 COF	0.53218 COF
SD Btwn Labs	0.09562 COF	0.08911 COF

Statistics based on 9 of 9 reporting participants

Instrument Code List as Reported by the Labs

(CH) - Cheminstruments AR-1000

(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

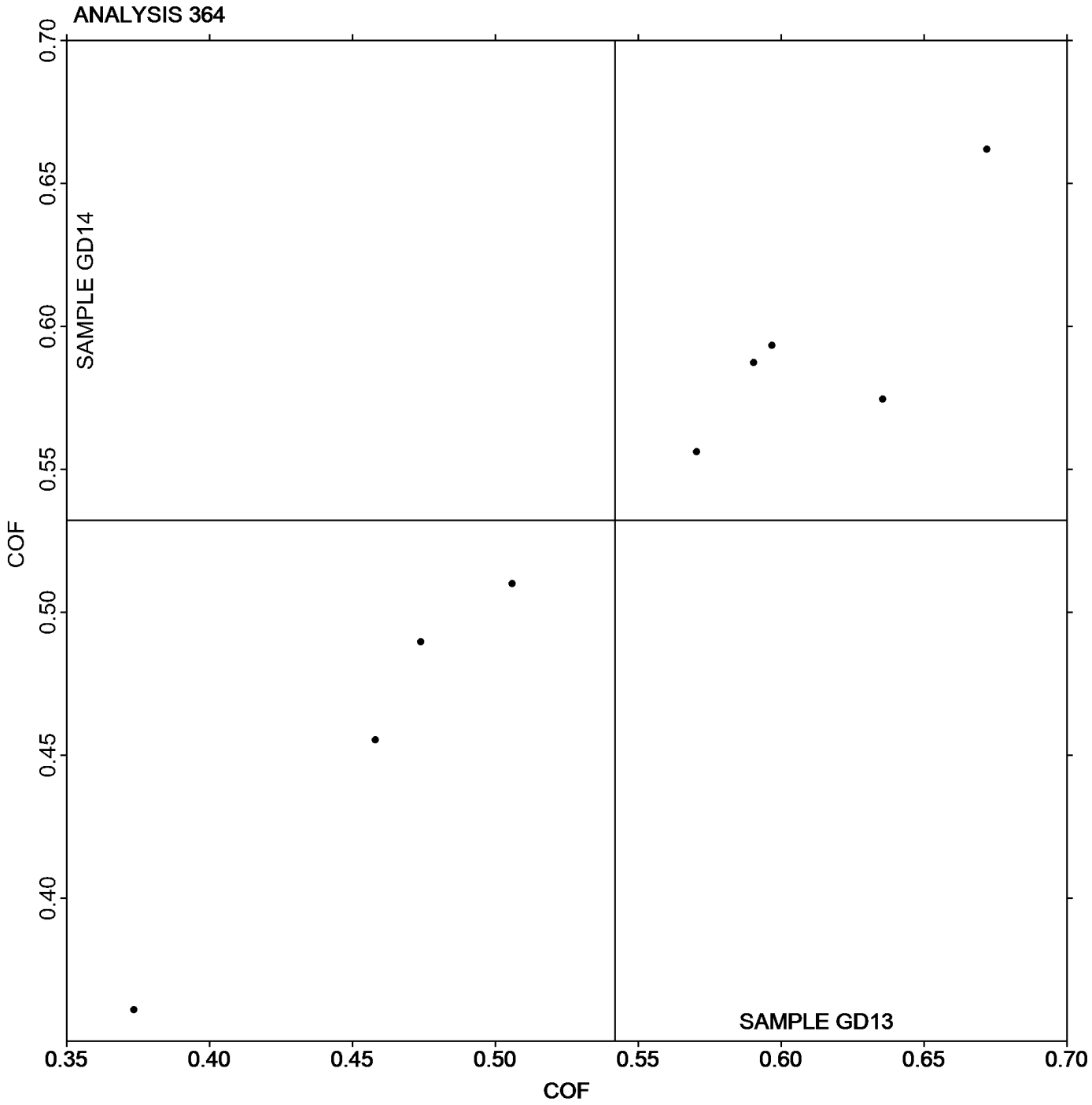
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD13** = 0.54187 COF

Grand Mean Sample **GD14** = 0.53218 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 GD13 Lab Mean	Sample GD13 Diff from Grand Mean	Sample GD13 CPV	Sample GD14 Lab Mean	Sample GD14 Diff from Grand Mean	Sample GD14 CPV	Instr Code
23EXYB		0.4156	-0.0517	-0.59	0.4010	-0.0354	-0.41	TA
EP2BVJ		0.4440	-0.0233	-0.26	0.4224	-0.0140	-0.16	TM
KBM2UP		0.4160	-0.0513	-0.58	0.3950	-0.0414	-0.48	TM
NFNARW		0.3628	-0.1045	-1.19	0.4876	0.0512	0.60	XX
RQE83K		0.5298	0.0625	0.71	0.4630	0.0266	0.31	TA
TWE46H		0.5441	0.0768	0.87	0.5248	0.0884	1.03	CH
VB9AAW		0.4876	0.0203	0.23	0.4386	0.0022	0.03	TA
VMJMRX		0.5672	0.0999	1.14	0.5078	0.0714	0.83	TM
XD7DC4		0.6320	0.1647	1.87	0.5800	0.1436	1.67	TL
XU4ULE		0.3720	-0.0953	-1.08	0.2726	-0.1638	-1.90	TM
XXF2P4		0.4780	0.0107	0.12	0.4276	-0.0088	-0.10	TA
ZZ9DCB		0.3580	-0.1093	-1.24	0.3164	-0.1200	-1.40	IR

Summary Statistics

	Sample GD13	Sample GD14
Grand Means	0.46726 COF	0.43640 COF
SD Btwn Labs	0.08803 COF	0.08599 COF

Statistics based on 12 of 12 reporting participants

Instrument Code List as Reported by the Labs

(CH) - Cheminstruments AR-1000

(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

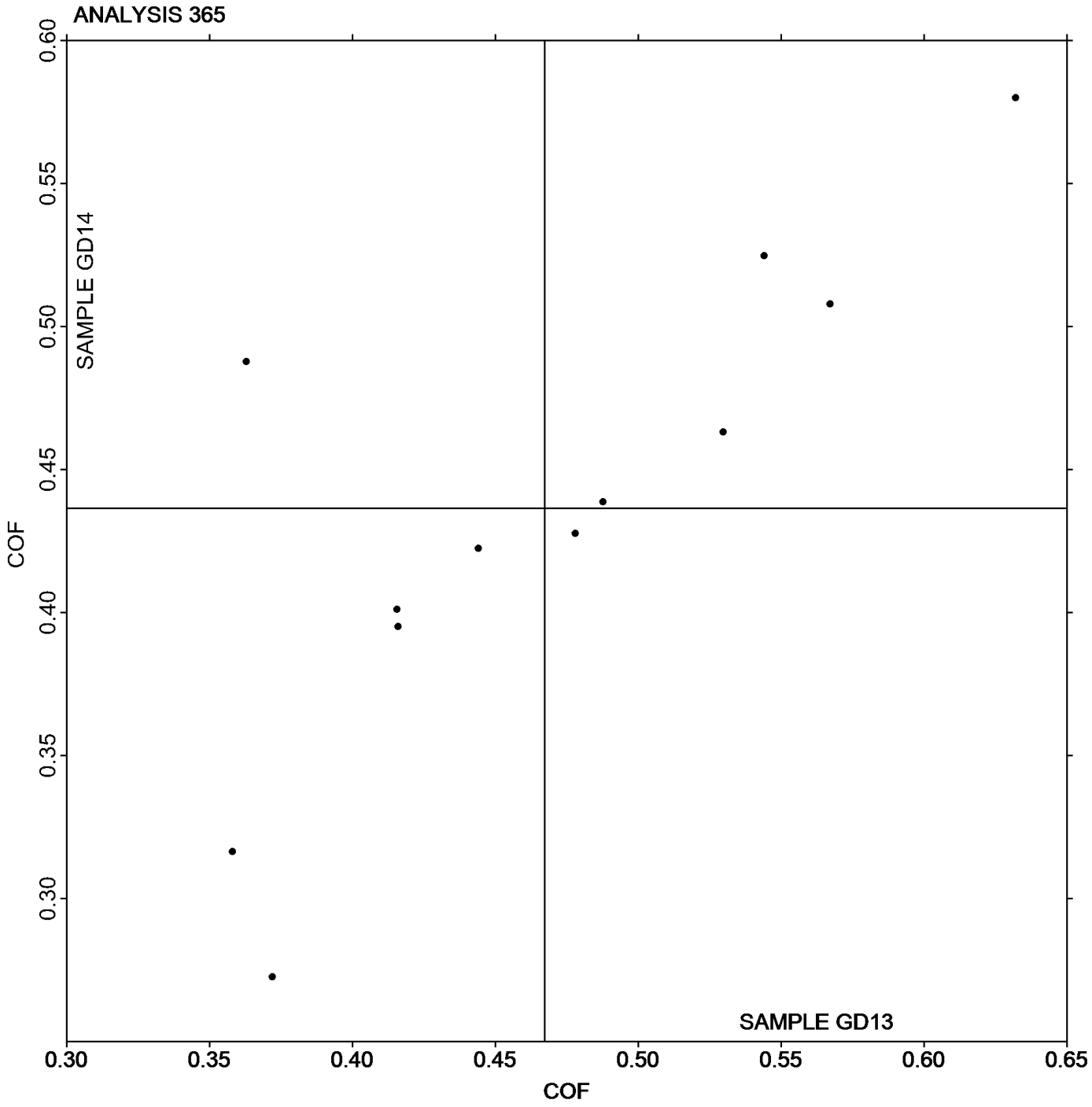
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD13** = 0.46726 COF

Grand Mean Sample **GD14** = 0.43640 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 GE13 Lab Mean	Sample GE13 Diff from Grand Mean	Sample GE13 CPV	Sample GE14 Lab Mean	Sample GE14 Diff from Grand Mean	Sample GE14 CPV	Instr Code
6KQDU7		25.52	0.49	0.31	12.83	1.17	1.33	XX
6PFH6H		24.16	-0.87	-0.54	13.27	1.61	1.83	LP
73GE2P		23.18	-1.85	-1.15	12.27	0.61	0.70	LP
88TJDP		26.90	1.87	1.17	13.88	2.22	2.52	TL
9GQ4Q3		25.00	-0.03	-0.02	11.10	-0.56	-0.63	PP
9LLVZK		28.41	3.38	2.11	12.36	0.70	0.80	GS
9U2EHY		26.94	1.91	1.19	13.66	2.00	2.27	GA
A3PRV4		25.59	0.56	0.35	11.58	-0.08	-0.09	XX
AXWKEF		25.37	0.34	0.21	12.88	1.22	1.39	LA
BLY7RN		25.08	0.05	0.03	10.93	-0.73	-0.82	LW
BWET3B		23.63	-1.40	-0.87	11.48	-0.18	-0.20	HG
BYLDNP		24.12	-0.91	-0.57	10.90	-0.76	-0.86	PP
CEQ3EV		25.00	-0.03	-0.02	11.10	-0.56	-0.63	LW
CGKQYC		24.43	-0.60	-0.37	11.61	-0.05	-0.05	LP
CQ8PQG		22.38	-2.64	-1.65	11.71	0.05	0.06	RE
DGJKFY		25.83	0.80	0.50	11.59	-0.07	-0.07	TL
EJY6FG		25.11	0.08	0.05	12.40	0.75	0.85	LA
F36YKT		24.53	-0.50	-0.31	11.64	-0.02	-0.02	LW
FB9B4M		25.73	0.70	0.44	11.53	-0.13	-0.14	GA
FBY3TV		23.31	-1.72	-1.07	10.90	-0.76	-0.86	LP
FJTAAF		26.40	1.37	0.86	11.70	0.04	0.05	LA
FR9TRU		26.13	1.10	0.69	11.80	0.15	0.17	HG
G4WDPW		23.66	-1.36	-0.85	11.30	-0.36	-0.40	PP
GR6QGF		22.74	-2.29	-1.42	10.29	-1.37	-1.55	XX
J2HMCX		22.44	-2.59	-1.61	10.83	-0.83	-0.93	TN
M3763N		24.22	-0.81	-0.50	10.97	-0.69	-0.78	PP
NFNARW		26.00	0.97	0.61	12.00	0.34	0.39	GS
PNCKEW		24.40	-0.63	-0.39	10.72	-0.93	-1.05	HG
PXNLXC		27.38	2.36	1.47	11.29	-0.37	-0.41	PP
Q3PDHU		25.75	0.72	0.45	10.78	-0.88	-0.99	LW
R38L7N		24.40	-0.63	-0.39	11.36	-0.30	-0.33	TN
RFT4W7		23.79	-1.24	-0.77	10.94	-0.71	-0.81	LP
RMGJQK	X	12.70	-12.33	-7.68	10.80	-0.86	-0.97	HG
VB9AAW		26.30	1.27	0.79	12.30	0.64	0.73	WG
WDRNBC		24.60	-0.43	-0.27	13.28	1.63	1.84	HG
WEMA3H		27.29	2.26	1.41	11.85	0.19	0.22	TL
WJEEX8		22.65	-2.38	-1.48	9.78	-1.88	-2.12	XX
WKAYPD		22.97	-2.06	-1.28	10.78	-0.88	-0.99	LP
WWZVKJ		28.52	3.49	2.18	11.46	-0.20	-0.22	WG
XD7DC4		24.15	-0.88	-0.55	12.32	0.66	0.75	LP
XK9JR7		25.11	0.08	0.05	10.89	-0.76	-0.86	HG
XXF2P4		26.52	1.49	0.93	12.16	0.50	0.57	LA
YE68VC		27.64	2.61	1.63	11.37	-0.28	-0.32	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

WebCode	Data Flag	Sample GE13 Lab Mean	Sample GE13 Diff from Grand Mean	Sample GE13 CPV	Sample GE14 Lab Mean	Sample GE14 Diff from Grand Mean	Sample GE14 CPV	Instr Code
Z9QJEA		22.88	-2.15	-1.34	11.37	-0.28	-0.32	LP

Summary Statistics

	Sample GE13	Sample GE14
Grand Means	25.027 sec/100 cc	11.655 sec/100 cc
SD Btwn Labs	1.605 sec/100 cc	0.883 sec/100 cc

Statistics based on 43 of 44 reporting participants

Comments on assigned Data Flags for Test #370

RMGJQK (X) - Extreme data for Sample GE13.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer
(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

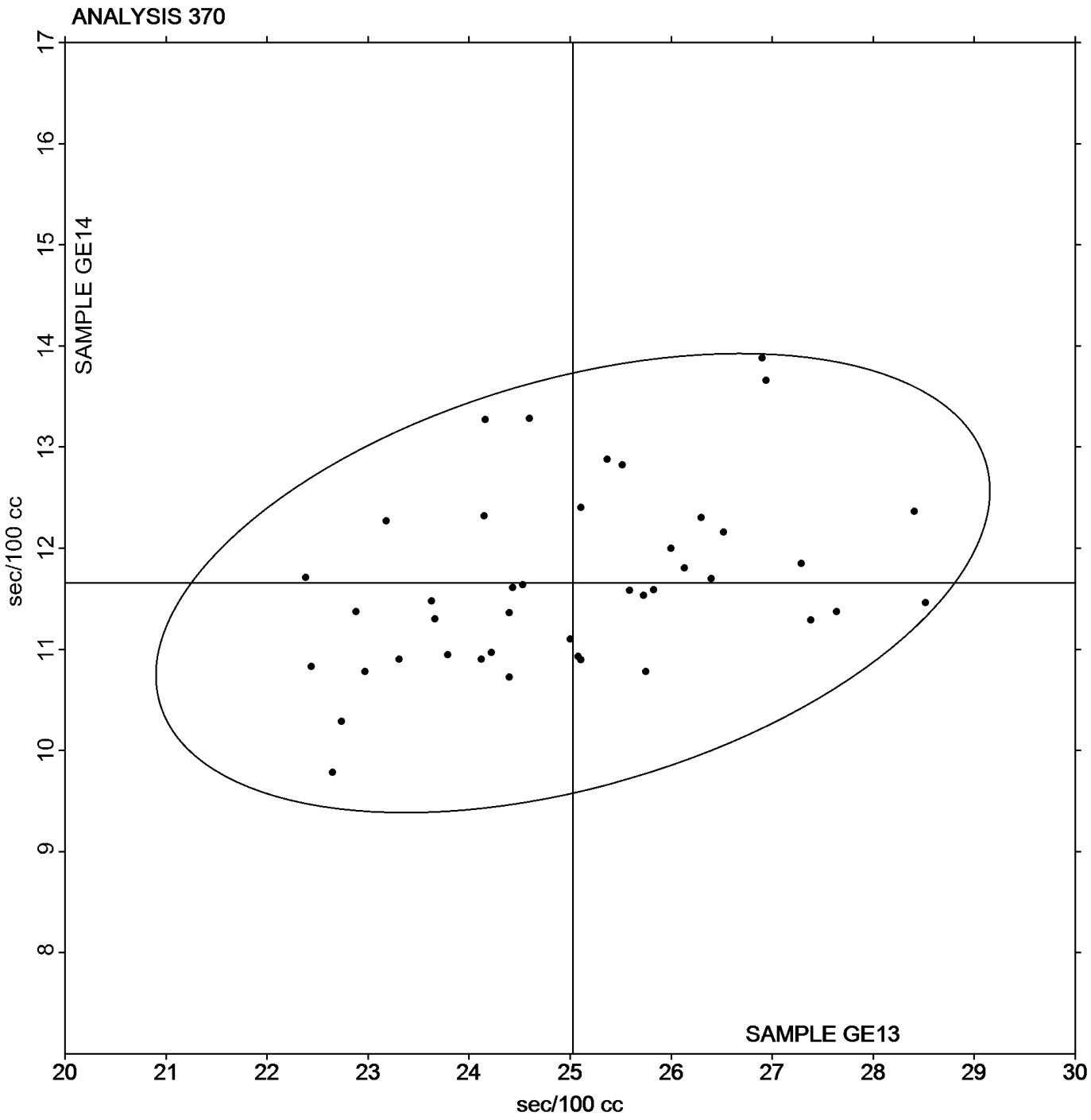
Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE13** = 25.027 sec/100 cc

Grand Mean Sample **GE14** = 11.655 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 GE13 Lab Mean	Sample GE13 Diff from Grand Mean	Sample GE13 CPV	Sample GE14 Lab Mean	Sample GE14 Diff from Grand Mean	Sample GE14 CPV	Instr Code
2GFUX4		107.1	-3.0	-0.47	215.6	0.4	0.03	LP
4K8F3B		114.0	3.9	0.62	241.6	26.4	1.76	TT
6KQDU7		105.7	-4.4	-0.69	216.4	1.2	0.08	XX
7XT4C4		117.1	7.0	1.12	225.5	10.3	0.69	TT
BYLDNP		110.1	0.0	0.00	215.8	0.6	0.04	SH
CKGEFJ		113.7	3.6	0.58	223.0	7.8	0.52	HM
DACLKW		113.6	3.5	0.56	232.2	17.0	1.14	XX
EE6748		108.3	-1.8	-0.28	217.3	2.1	0.14	HM
FR9TRU		113.9	3.8	0.61	202.8	-12.4	-0.83	TT
J7DJXH		113.2	3.1	0.49	206.1	-9.1	-0.61	PP
MGZPJC	X	189.9	79.8	12.71	268.5	53.3	3.56	LP
NFNARW		117.6	7.5	1.20	193.4	-21.8	-1.45	SH
REJT8U		110.6	0.5	0.08	194.5	-20.7	-1.38	TT
UF4NDL		114.1	4.0	0.64	241.1	25.9	1.73	VM
UVZY6Y		101.0	-9.1	-1.45	212.9	-2.3	-0.15	LP
WDRNBC		112.2	2.1	0.34	211.5	-3.7	-0.25	HM
XK9JR7	*	92.3	-17.8	-2.83	190.8	-24.4	-1.63	HG
YC8N8D		106.9	-3.2	-0.51	217.7	2.5	0.17	GA

Summary Statistics

	Sample GE13	Sample GE14
Grand Means	110.08 Sheffield Units	215.19 Sheffield Units
SD Btwn Labs	6.28 Sheffield Units	14.98 Sheffield Units

Statistics based on 17 of 18 reporting participants

Comments on assigned Data Flags for Test #372

MGZPJC (X) - Extreme data.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer
(HG) - Technidyne - Hagerty Model #1
(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

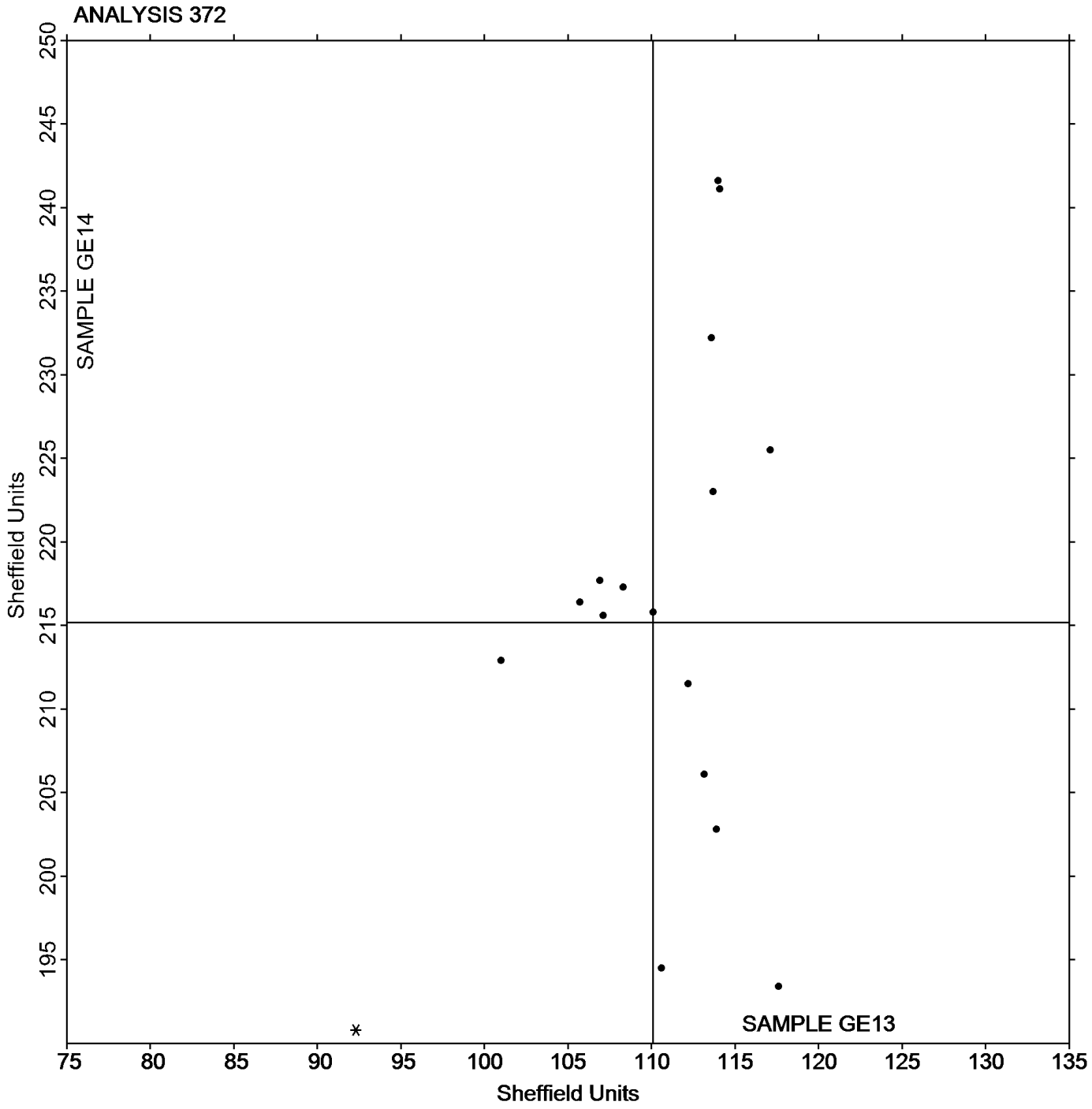
Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

Grand Mean Sample **GE13** = 110.08 Sheffield Units

Grand Mean Sample **GE14** = 215.19 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 GJ13 Lab Mean	Sample GJ13 Diff from Grand Mean	Sample GJ13 CPV	Sample GJ14 Lab Mean	Sample GJ14 Diff from Grand Mean	Sample GJ14 CPV
6YK98U		1.409	0.033	0.35	1.805	0.057	0.53
7XT4C4		1.574	0.198	2.10	1.973	0.225	2.11
9LKV36		1.399	0.023	0.25	1.816	0.068	0.63
9RU4JA		1.480	0.104	1.11	1.845	0.097	0.91
BYLDNP		1.363	-0.013	-0.14	1.693	-0.055	-0.52
CJLRZ9		1.411	0.035	0.37	1.821	0.073	0.68
E3Q9Y3		1.314	-0.062	-0.66	1.645	-0.103	-0.97
EE6748		1.299	-0.077	-0.81	1.653	-0.095	-0.89
F6XTKH		1.312	-0.064	-0.68	1.698	-0.050	-0.47
FR9TRU		1.405	0.029	0.31	1.773	0.025	0.23
G4WDPW		1.503	0.127	1.35	1.939	0.191	1.79
GP2T99		1.298	-0.078	-0.83	1.799	0.051	0.48
GXAM32		1.310	-0.066	-0.70	1.670	-0.078	-0.73
J7XZF7		1.309	-0.067	-0.71	1.764	0.016	0.15
KTP7JQ	X	0.471	-0.905	-9.60	0.471	-1.277	-11.98
M3DJXG		1.459	0.083	0.88	1.711	-0.037	-0.35
PENQ6L	*	1.490	0.114	1.21	2.006	0.258	2.42
QMJVUF		1.335	-0.041	-0.43	1.664	-0.084	-0.79
QN8P9V		1.364	-0.012	-0.13	1.725	-0.023	-0.22
R6E7R3		1.294	-0.082	-0.87	1.618	-0.130	-1.22
RFT4W7		1.330	-0.046	-0.49	1.692	-0.056	-0.53
RQE83K		1.349	-0.027	-0.28	1.673	-0.075	-0.71
RQWZYN	*	1.615	0.239	2.54	1.846	0.098	0.92
UWVJW4		1.338	-0.038	-0.40	1.617	-0.131	-1.23
VB9AAW		1.170	-0.206	-2.18	1.604	-0.144	-1.35
WVU4YX		1.300	-0.076	-0.80	1.670	-0.078	-0.73
Y9TUQF		1.323	-0.053	-0.56	1.680	-0.068	-0.64
YE68VC		1.394	0.018	0.19	1.748	0.000	0.00
YF73U3		1.376	0.000	0.00	1.805	0.056	0.53

Summary Statistics

	Sample GJ13	Sample GJ14
Grand Means	1.3758 Microns	1.7483 Microns
SD Btwn Labs	0.0943 Microns	0.1066 Microns

Statistics based on 28 of 29 reporting participants

Comments on assigned Data Flags for Test #376

KTP7JQ (X) - Extreme data.

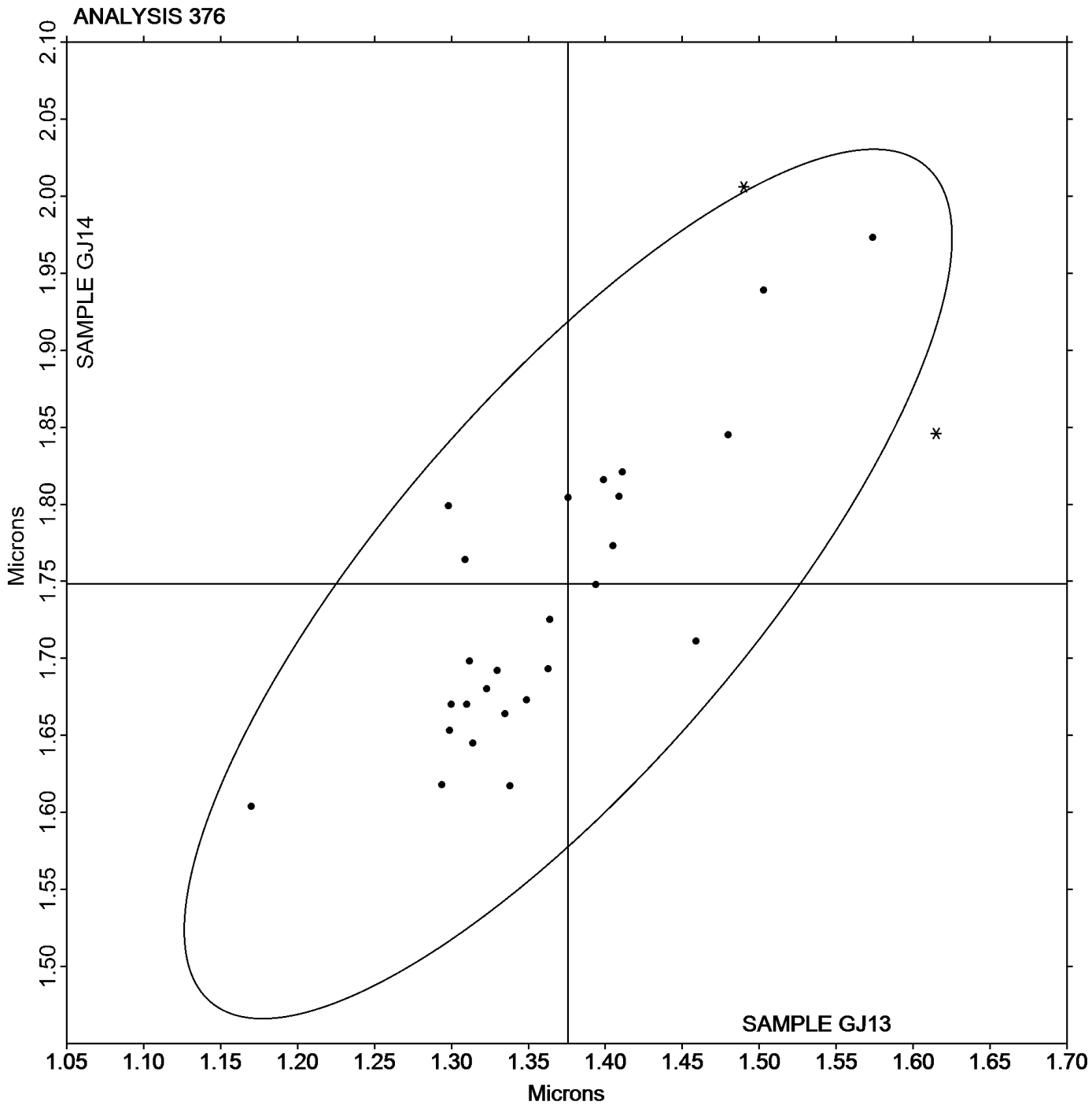
Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample **GJ13** = 1.3758 Microns

Grand Mean Sample **GJ14** = 1.7483 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK13 Lab Mean	Sample GK13 Diff from Grand Mean	Sample GK13 CPV	Sample GK14 Lab Mean	Sample GK14 Diff from Grand Mean	Sample GK14 CPV
9GQ4Q3		4.060	-0.193	-0.56	4.175	-0.156	-0.55
AXWKEF		3.998	-0.255	-0.74	4.122	-0.209	-0.74
M3763N		4.432	0.179	0.52	4.389	0.058	0.20
PENQ6L		4.829	0.576	1.67	4.875	0.544	1.93
PRDN7J		3.820	-0.433	-1.26	4.320	-0.011	-0.04
UF4NDL		4.632	0.379	1.10	4.595	0.264	0.94
VB9AAW		4.096	-0.157	-0.46	4.087	-0.244	-0.87
XD7DC4		4.156	-0.097	-0.28	4.087	-0.244	-0.87

Summary Statistics

	Sample GK13	Sample GK14
Grand Means	4.2529 Microns	4.3313 Microns
SD Btwn Labs	0.3446 Microns	0.2819 Microns

Statistics based on 8 of 8 reporting participants

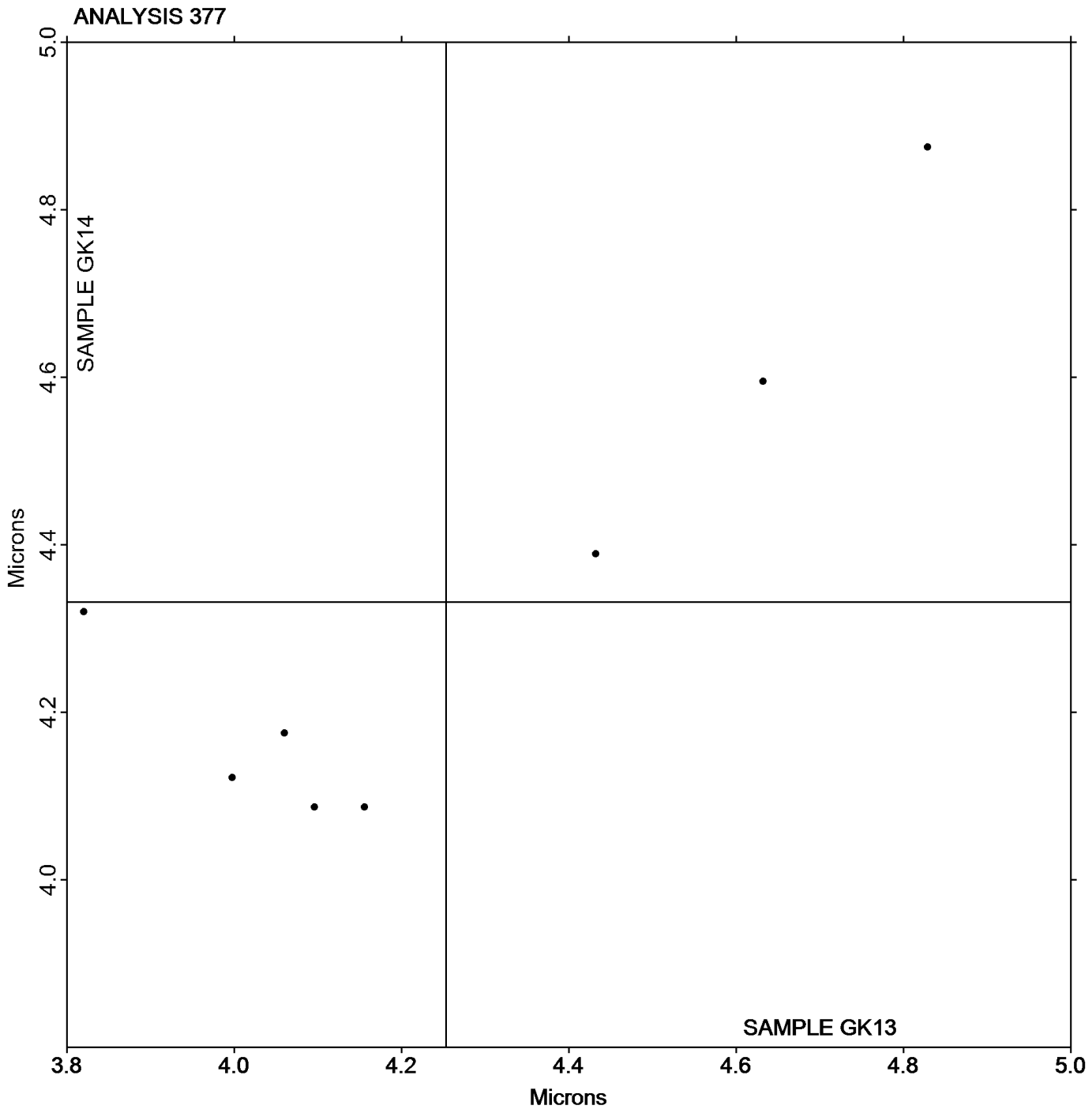
Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK13** = 4.2529 Microns

Grand Mean Sample **GK14** = 4.3313 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 GL13 Lab Mean	Sample GL13 Diff from Grand Mean	Sample GL13 CPV	Sample GL14 Lab Mean	Sample GL14 Diff from Grand Mean	Sample GL14 CPV	Instr Code
2V42G3		58.60	0.12	0.02	150.2	-9.3	-1.03	LA
3479EB	X	81.10	22.62	2.94	198.0	38.5	4.27	TT
4KNUAK		75.79	17.31	2.25	165.7	6.2	0.68	GA
6KQDU7		56.60	-1.88	-0.24	152.4	-7.1	-0.79	XX
6YK98U	*	45.78	-12.70	-1.65	135.6	-23.9	-2.65	PP
7XT4C4		64.30	5.82	0.76	148.8	-10.7	-1.19	TT
96WM22		65.00	6.52	0.85	151.8	-7.7	-0.85	SH
9GQ4Q3		53.28	-5.20	-0.68	158.0	-1.5	-0.17	PP
9LLVZK		66.90	8.42	1.10	153.0	-6.5	-0.72	SH
9RU4JA		48.80	-9.68	-1.26	162.0	2.5	0.28	HM
AXWKEF		54.60	-3.88	-0.50	171.9	12.4	1.37	LA
BDANXT		50.10	-8.38	-1.09	156.2	-3.3	-0.37	PP
BWET3B		54.84	-3.64	-0.47	158.0	-1.5	-0.17	GL
BYLDNP		54.70	-3.78	-0.49	165.9	6.4	0.71	PP
CEQ3EV		61.20	2.72	0.35	148.5	-11.0	-1.22	SH
CKGEFJ		49.00	-9.48	-1.23	161.3	1.8	0.20	HM
DACLKW		48.20	-10.28	-1.34	167.3	7.8	0.86	HM
E3Q9Y3		69.20	10.72	1.39	176.7	17.2	1.91	TT
EJY6FG		55.18	-3.30	-0.43	145.3	-14.2	-1.58	LA
EP2BVJ		56.11	-2.37	-0.31	161.5	2.0	0.22	PP
F6XTKH		65.50	7.02	0.91	164.9	5.4	0.60	LA
FJTAAF	X	348.60	290.12	37.72	352.2	192.7	21.35	LA
FR9TRU		60.80	2.32	0.30	164.2	4.7	0.52	SH
FVAUUC		52.45	-6.02	-0.78	161.1	1.6	0.17	PP
G4WDPW		60.43	1.96	0.25	169.0	9.5	1.05	PP
GP2T99		64.65	6.17	0.80	175.7	16.2	1.79	PP
GXAM32		53.88	-4.60	-0.60	157.3	-2.2	-0.24	LA
H3XRBV	*	72.30	13.82	1.80	178.7	19.2	2.13	GL
HYHWVY	X	153.40	94.92	12.34	168.0	8.5	0.94	PP
J2HMCX		49.30	-9.18	-1.19	156.4	-3.1	-0.34	TS
J7DJXH		55.20	-3.28	-0.43	160.4	0.9	0.10	PP
J7XZF7		64.79	6.31	0.82	166.4	6.9	0.76	PP
K3D3KR	X	50.10	-8.38	-1.09	124.1	-35.4	-3.92	TS
M3763N		58.11	-0.37	-0.05	164.7	5.2	0.57	PP
MGZPJC		71.20	12.72	1.65	155.6	-3.9	-0.43	LW
NFNARW	X	91.90	33.42	4.35	168.3	8.8	0.98	XX
PNCKEW		61.30	2.82	0.37	165.1	5.6	0.62	HM
PXNLXC		50.54	-7.93	-1.03	174.3	14.8	1.64	PP
Q3PDHU		69.50	11.02	1.43	149.7	-9.8	-1.09	SH
QAB9JX		56.00	-2.48	-0.32	161.6	2.1	0.23	GA
R6E7R3		55.10	-3.38	-0.44	154.6	-4.9	-0.54	LA
REJT8U		64.70	6.22	0.81	148.5	-11.0	-1.22	TT
RFT4W7	*	71.10	12.62	1.64	142.1	-17.4	-1.93	TS

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

WebCode	Data Flag	Sample GL13 Lab Mean	Sample GL13 Diff from Grand Mean	Sample GL13 CPV	Sample GL14 Lab Mean	Sample GL14 Diff from Grand Mean	Sample GL14 CPV	Instr Code
RMGJQK		52.80	-5.68	-0.74	160.9	1.4	0.16	HM
RQE83K		55.10	-3.38	-0.44	164.2	4.7	0.52	HM
TGP9BH		50.40	-8.08	-1.05	153.9	-5.6	-0.62	XX
UVZY6Y		55.00	-3.48	-0.45	170.7	11.2	1.24	PP
VKXX8K		73.21	14.73	1.92	164.3	4.8	0.53	MP
WDRNBC		59.00	0.52	0.07	157.3	-2.2	-0.24	HM
WJEEX8		58.10	-0.38	-0.05	164.1	4.6	0.51	PP
WKAYPD		54.10	-4.38	-0.57	152.5	-7.0	-0.78	XX
WWZVKJ		66.50	8.02	1.04	164.6	5.1	0.57	PG
XD7DC4		62.30	3.82	0.50	160.7	1.2	0.13	LW
XK9JR7		53.90	-4.58	-0.60	161.9	2.4	0.27	HM
XRRM2U	X	85.80	27.32	3.55	172.6	13.1	1.45	TS
XU4ULE	*	41.70	-16.78	-2.18	143.7	-15.8	-1.75	TS
YC8N8D		61.50	3.02	0.39	152.9	-6.6	-0.73	GA
YE68VC		52.16	-6.32	-0.82	161.9	2.4	0.27	PP

Summary Statistics

	Sample GL13	Sample GL14
Grand Means	58.477 Sheffield	159.50 Sheffield
SD Btwn Labs	7.692 Sheffield	9.03 Sheffield

Statistics based on 52 of 58 reporting participants

Comments on assigned Data Flags for Test #378

3479EB (X) - Data for both samples are high.

FJTAAF (X) - Extreme data.

HYHWVY (X) - Extreme data for Sample GL13.

K3D3KR (X) - Data for Sample GL14 are low.

NFNARW (X) - Data for Sample GL13 are high.

XRRM2U (X) - Data for Sample GL13 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

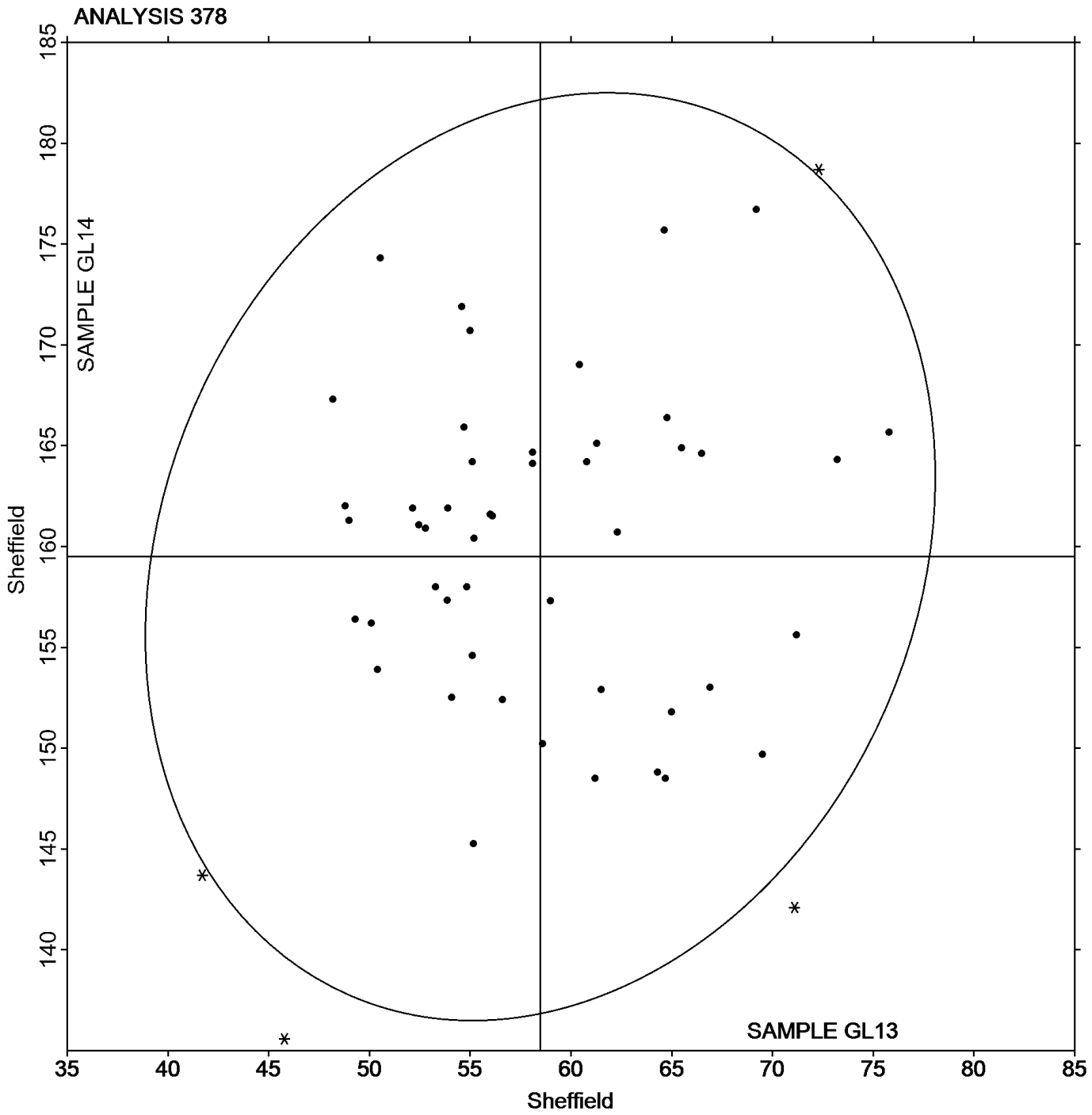
Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL13** = 58.477 Sheffield

Grand Mean Sample **GL14** = 159.50 Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

WebCode	Data Flag	Sample GM13 Lab Mean	Sample GM13 Diff from Grand Mean	Sample GM13 CPV	Sample GM14 Lab Mean	Sample GM14 Diff from Grand Mean	Sample GM14 CPV
6PFH6H		4.065	-0.534	-1.44	4.099	-0.548	-1.42
8KXWAG		5.090	0.491	1.32	4.700	0.053	0.14
CJLRZ9		4.387	-0.213	-0.57	4.374	-0.273	-0.71
CQ8PQG		4.478	-0.122	-0.33	4.492	-0.155	-0.40
GWE2CV		5.108	0.509	1.37	5.146	0.499	1.29
HYHWVY		4.784	0.185	0.50	5.166	0.519	1.34
PRDN7J		4.183	-0.416	-1.12	4.348	-0.299	-0.77
TPEJ4L		4.510	-0.089	-0.24	4.460	-0.187	-0.48
X37R4J		4.790	0.191	0.51	5.040	0.393	1.01

Summary Statistics

	Sample GM13	Sample GM14
Grand Means	4.5994 Percent	4.6472 Percent
SD Btwn Labs	0.3703 Percent	0.3871 Percent

Statistics based on 9 of 9 reporting participants

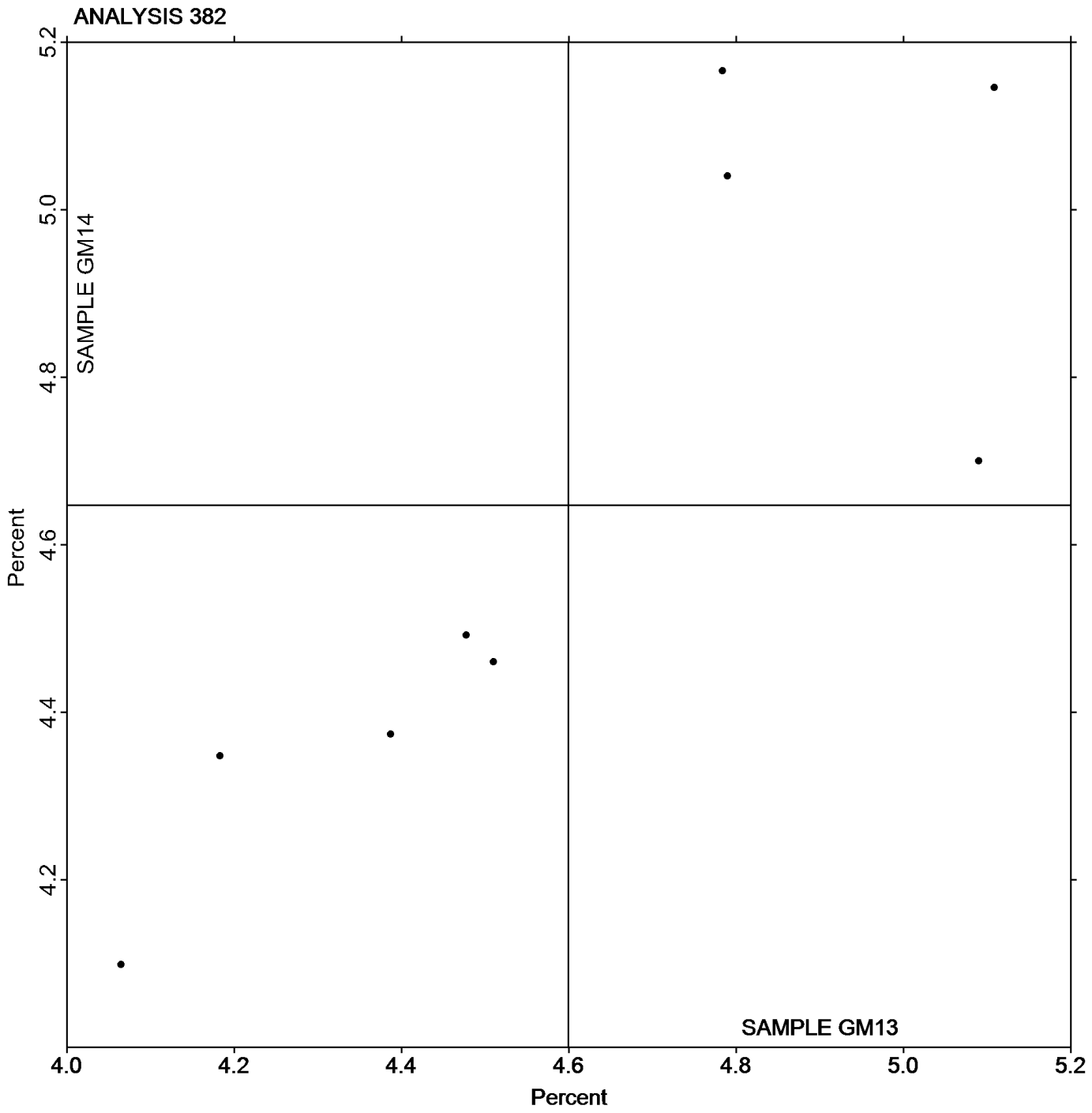
Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

Grand Mean Sample **GM13** = 4.5994 Percent

Grand Mean Sample **GM14** = 4.6472 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 GN13 Lab Mean	Sample GN13 Diff from Grand Mean	Sample GN13 CPV	Sample GN14 Lab Mean	Sample GN14 Diff from Grand Mean	Sample GN14 CPV
6KQDU7	*	91.43	-1.06	-2.62	85.40	-1.40	-2.66
7XT4C4		92.96	0.47	1.15	87.45	0.65	1.23
96WM22		92.69	0.20	0.49	87.18	0.38	0.71
9GQ4Q3		92.77	0.28	0.69	86.31	-0.49	-0.94
9LKV36		92.64	0.15	0.36	86.73	-0.07	-0.14
9LLVZK		92.97	0.48	1.18	87.47	0.67	1.26
AXWKEF		92.91	0.42	1.04	87.41	0.60	1.15
BDANXT		92.40	-0.09	-0.23	87.20	0.40	0.75
BWET3B	*	91.45	-1.05	-2.58	86.37	-0.43	-0.82
CEQ3EV		92.29	-0.20	-0.50	87.53	0.73	1.38
DACLKW		92.03	-0.46	-1.14	86.13	-0.67	-1.28
DGJKFY		92.53	0.04	0.09	87.41	0.61	1.15
EJY6FG		91.87	-0.62	-1.54	86.21	-0.59	-1.13
EP2BVJ		91.93	-0.56	-1.39	85.82	-0.99	-1.87
FR9TRU		92.57	0.08	0.20	87.03	0.23	0.43
G4WDPW		92.54	0.05	0.12	87.32	0.52	0.98
GR6QGF		92.72	0.23	0.56	86.96	0.16	0.30
H3XRBV		93.33	0.84	2.07	87.13	0.33	0.62
J2HMCX		92.70	0.21	0.51	87.08	0.28	0.52
LBLLY6		92.35	-0.14	-0.35	86.25	-0.55	-1.05
M3763N		92.86	0.36	0.90	87.27	0.47	0.89
NFNARW		92.20	-0.29	-0.72	86.10	-0.70	-1.33
PXNLXC		92.60	0.11	0.26	86.76	-0.04	-0.08
QMJVUF		92.34	-0.15	-0.38	86.54	-0.26	-0.50
REJT8U	X	95.17	2.68	6.61	90.63	3.83	7.26
RMGJQK		92.43	-0.06	-0.16	87.21	0.41	0.77
RQE83K		92.75	0.26	0.63	87.13	0.33	0.62
TGP9BH		92.62	0.13	0.31	86.66	-0.14	-0.27
UF7ENB		92.84	0.34	0.84	86.97	0.17	0.31
WJEEX8		92.57	0.08	0.19	86.42	-0.38	-0.73
WWZVKJ		92.44	-0.05	-0.13	86.91	0.11	0.20
X6C6UX		92.57	0.08	0.19	86.98	0.18	0.34
XK9JR7		92.45	-0.04	-0.11	86.41	-0.39	-0.75
YF73U3		92.52	0.03	0.06	86.76	-0.05	-0.09

Summary Statistics

	Sample GN13	Sample GN14
Grand Means	92.493 Percent	86.803 Percent
SD Btwn Labs	0.405 Percent	0.527 Percent

Statistics based on 33 of 34 reporting participants

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

Comments on assigned Data Flags for Test #384

REJT8U (X) - Extreme data.

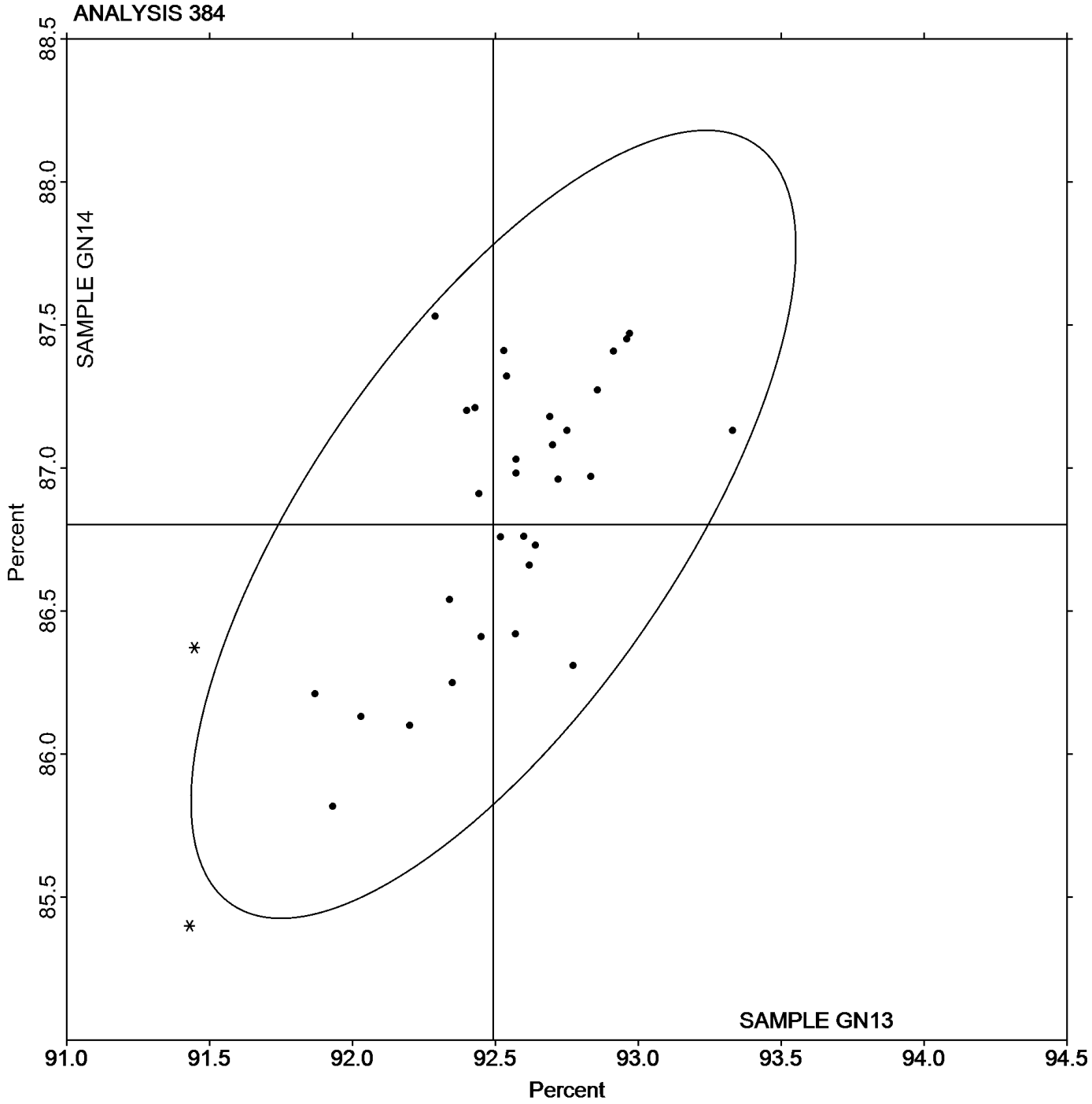
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN13** = 92.493 Percent

Grand Mean Sample **GN14** = 86.803 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

WebCode	Data Flag	Sample GP13 Lab Mean	Sample GP13 Diff from Grand Mean	Sample GP13 CPV	Sample GP14 Lab Mean	Sample GP14 Diff from Grand Mean	Sample GP14 CPV
6PFH6H		92.13	-0.06	-0.52	88.69	-0.28	-1.52
88TJDP		92.21	0.01	0.13	89.13	0.16	0.83
BLY7RN		92.38	0.18	1.54	88.75	-0.22	-1.20
CKGEFJ		92.11	-0.09	-0.75	88.95	-0.02	-0.11
CQ8PQG		92.36	0.16	1.39	89.04	0.07	0.37
F36YKT		92.18	-0.02	-0.13	89.02	0.05	0.24
FBY3TV		92.11	-0.09	-0.74	88.83	-0.15	-0.79
HCKMBC		92.15	-0.05	-0.41	89.10	0.12	0.67
KLKXU7		92.10	-0.09	-0.79	89.19	0.21	1.12
MGZPJC		92.17	-0.03	-0.22	88.82	-0.15	-0.80
Q9HJXG		92.22	0.02	0.20	88.73	-0.24	-1.30
QN8P9V		92.12	-0.07	-0.61	88.84	-0.14	-0.73
RGR4YR		92.22	0.02	0.21	88.93	-0.04	-0.24
RMC4GP		92.49	0.30	2.55	89.09	0.12	0.63
TVPHVF		92.15	-0.04	-0.36	88.60	-0.38	-2.01
U9M73Y		92.23	0.04	0.33	89.04	0.06	0.34
VMJMRX		92.10	-0.09	-0.79	89.30	0.32	1.73
WDRNBC		92.22	0.03	0.23	89.16	0.19	1.01
XXF2P4		92.36	0.17	1.42	89.12	0.15	0.78
YF73U3		92.03	-0.16	-1.38	89.16	0.18	0.97
Z9QJEA		92.05	-0.15	-1.28	88.98	0.00	0.00

Summary Statistics

	Sample GP13	Sample GP14
Grand Means	92.195 Percent	88.974 Percent
SD Btwn Labs	0.117 Percent	0.187 Percent

Statistics based on 21 of 21 reporting participants

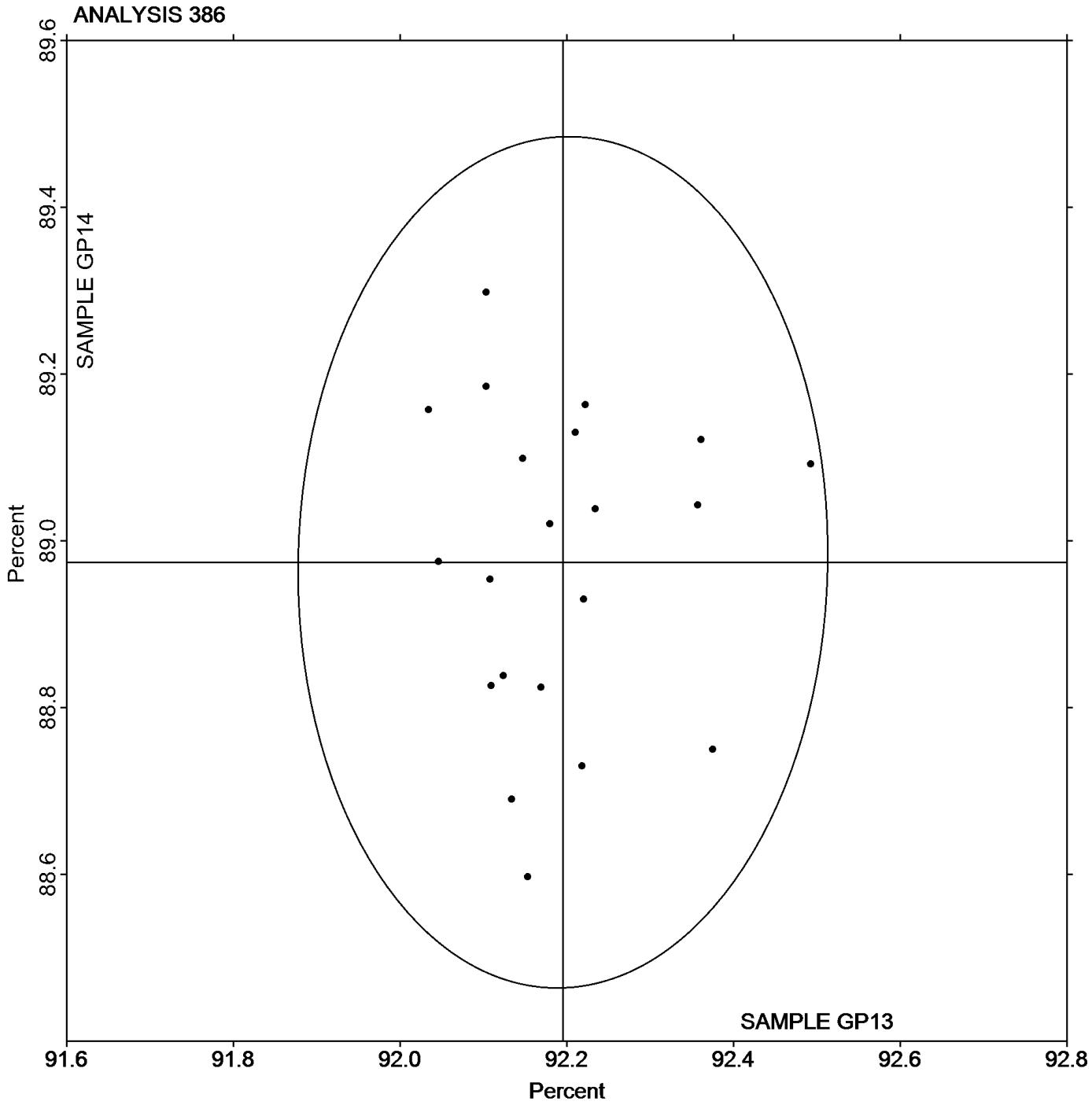
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP13** = 92.195 Percent

Grand Mean Sample **GP14** = 88.974 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

WebCode	Data Flag	Sample GR13 Lab Mean	Sample GR13 Diff from Grand Mean	Sample GR13 CPV	Sample GR14 Lab Mean	Sample GR14 Diff from Grand Mean	Sample GR14 CPV	Instr Code
6KQDU7		84.54	2.47	1.76	84.39	2.22	1.62	XX
6YK98U		82.38	0.30	0.22	82.54	0.37	0.27	TT
87K2DX		80.53	-1.55	-1.11	80.70	-1.47	-1.07	TS
96WM22		82.85	0.78	0.56	83.18	1.01	0.73	TA
9LKV36		82.13	0.06	0.04	82.25	0.08	0.06	MK
AXWKEF		80.85	-1.22	-0.87	80.84	-1.33	-0.97	TS
BDANXT		82.64	0.57	0.41	82.96	0.79	0.58	XX
DACLKW		81.20	-0.87	-0.62	81.83	-0.34	-0.25	GM
DGJKFY		82.81	0.74	0.53	82.85	0.68	0.50	TS
E3Q9Y3		83.33	1.25	0.90	83.59	1.42	1.03	TT
FVAUUC		79.91	-2.16	-1.54	80.06	-2.11	-1.54	TS
FWJ4KN		83.66	1.59	1.14	83.74	1.57	1.14	HG
GP2T99		83.63	1.55	1.11	83.37	1.20	0.87	HD
GR6QGF		80.37	-1.70	-1.22	80.47	-1.70	-1.24	TS
J2HMCX		81.15	-0.92	-0.66	81.48	-0.69	-0.51	TS
J7XZF7		82.84	0.77	0.55	82.90	0.73	0.53	HD
NFNARW		85.00	2.93	2.10	85.00	2.83	2.06	PE
PRDN7J	X	63.24	-18.83	-13.47	64.14	-18.03	-13.13	TS
PXNLXC		80.76	-1.31	-0.94	80.68	-1.49	-1.09	TT
REJT8U		82.60	0.53	0.38	82.93	0.76	0.55	TT
RQE83K		80.56	-1.51	-1.08	80.66	-1.51	-1.10	TT
TGP9BH		81.04	-1.03	-0.74	81.01	-1.16	-0.84	XX
TPEJ4L		82.04	-0.03	-0.02	81.74	-0.43	-0.31	XX
WWZVKJ		82.56	0.49	0.35	82.53	0.36	0.26	TS
XK9JR7	X	80.12	-1.95	-1.40	81.71	-0.46	-0.34	XX
YF73U3		80.35	-1.73	-1.23	80.39	-1.78	-1.30	TT

Summary Statistics

	Sample GR13	Sample GR14
Grand Means	82.071 Percent	82.169 Percent
SD Btwn Labs	1.398 Percent	1.373 Percent

Statistics based on 24 of 26 reporting participants

Comments on assigned Data Flags for Test #390

PRDN7J (X) - Extreme data.

XK9JR7 (X) - Inconsistent in testing between samples and within the determinations for Sample GR13.

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

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

(HD) - Hunter D25DP - 9000

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

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

(TT) - Technidyne Brightimeter Micro S4-M

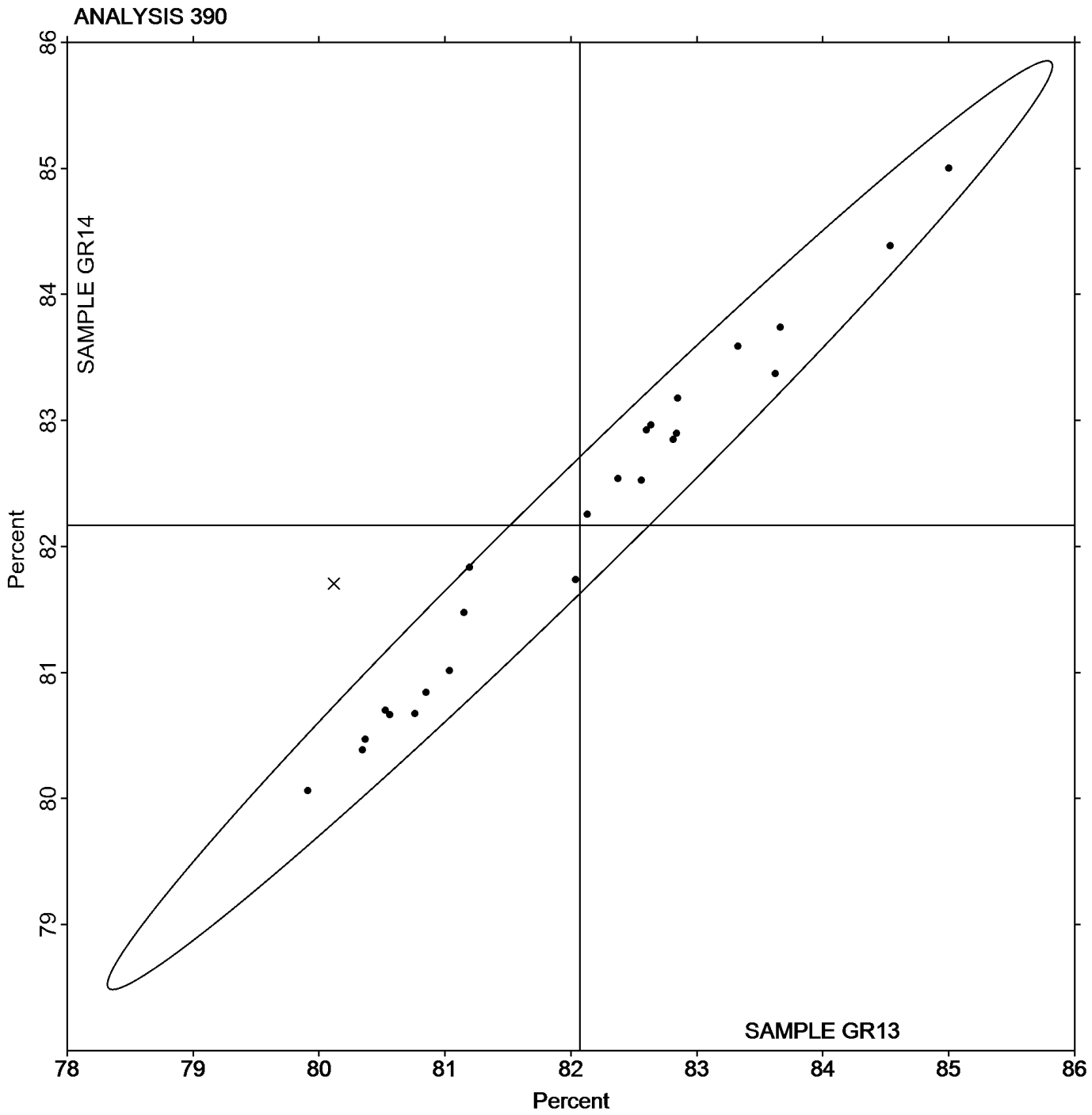
Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

Grand Mean Sample **GR13** = 82.071 Percent

Grand Mean Sample **GR14** = 82.169 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ13 Lab Mean	Sample GZ13 Diff from Grand Mean	Sample GZ13 CPV	Sample GZ14 Lab Mean	Sample GZ14 Diff from Grand Mean	Sample GZ14 CPV	Instr Code
7XT4C4		96.60	-0.43	-0.33	89.90	-0.46	-0.38	TT
9GQ4Q3		97.14	0.11	0.08	90.47	0.11	0.09	TS
9LLVZK		95.13	-1.90	-1.44	88.37	-1.98	-1.64	HT
9RVUUY		98.38	1.35	1.01	91.53	1.17	0.97	TS
CEQ3EV		97.66	0.63	0.47	91.00	0.64	0.53	TS
DACLKW		94.39	-2.64	-1.99	88.59	-1.76	-1.46	GM
EJY6FG		97.16	0.13	0.10	90.12	-0.24	-0.20	TT
EP2BVJ		96.59	-0.45	-0.34	89.88	-0.48	-0.40	TS
GXAM32		96.54	-0.49	-0.37	89.60	-0.76	-0.63	TT
J2HMCX		97.18	0.15	0.11	90.78	0.42	0.35	TS
M3763N		96.73	-0.31	-0.23	90.14	-0.21	-0.18	TS
QMJVUF		96.86	-0.17	-0.13	89.76	-0.59	-0.49	PP
QT64VL		97.06	0.03	0.02	91.10	0.75	0.62	TS
RMGJQK	X	94.90	-2.13	-1.61	98.36	8.00	6.63	HT
UF7ENB		97.81	0.78	0.59	90.69	0.33	0.28	TS
X37R4J		100.26	3.23	2.43	93.40	3.04	2.52	EF

Summary Statistics

	Sample GZ13	Sample GZ14
Grand Means	97.033 Percent	90.355 Percent
SD Btwn Labs	1.326 Percent	1.207 Percent

Statistics based on 15 of 16 reporting participants

Comments on assigned Data Flags for Test #391

RMGJQK (X) - Extreme data for Sample GZ14.

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

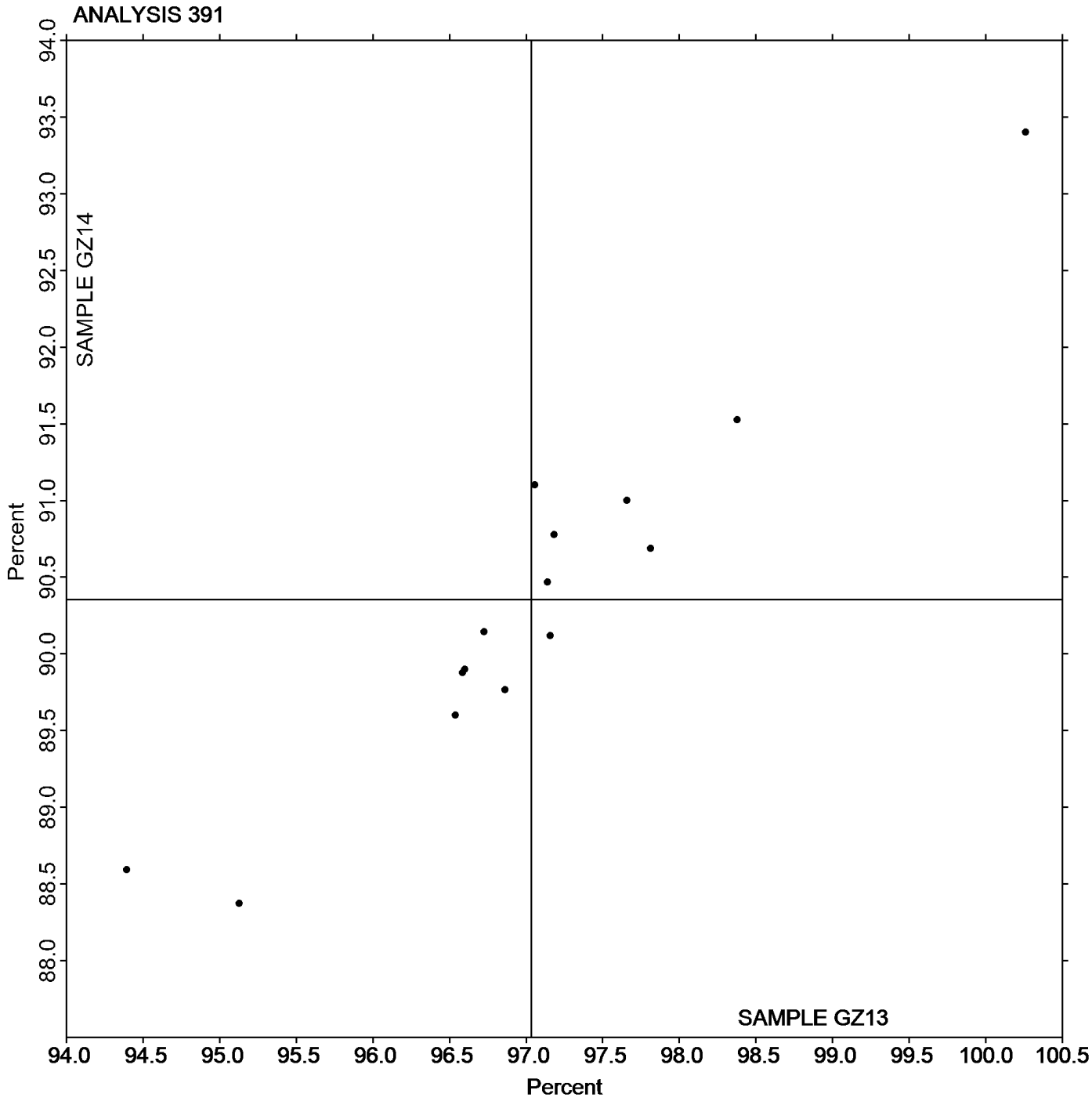
Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ13** = 97.033 Percent

Grand Mean Sample **GZ14** = 90.355 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 GR13 Lab Mean	Sample GR13 Diff from Grand Mean	Sample GR13 CPV	Sample GR14 Lab Mean	Sample GR14 Diff from Grand Mean	Sample GR14 CPV	Instr Code
23EXYB		81.29	-0.10	-0.55	81.47	-0.08	-0.37	TC
3XX8T8		81.22	-0.17	-0.96	81.41	-0.14	-0.64	TC
6PFH6H		81.17	-0.22	-1.21	81.36	-0.18	-0.83	LS
6YK98U	X	83.86	2.47	13.79	84.06	2.51	11.29	TL
87K2DX		81.29	-0.10	-0.56	81.36	-0.19	-0.83	TM
88TJDP		81.56	0.17	0.97	81.73	0.18	0.80	TM
A3PRV4		81.51	0.12	0.67	81.75	0.20	0.89	TC
AXWKEF		81.21	-0.18	-0.98	81.21	-0.34	-1.51	TC
CKGEFJ		81.46	0.07	0.39	81.81	0.26	1.15	TC
CQ8PQG	X	82.38	0.99	5.52	82.52	0.97	4.35	EG
E3Q9Y3		81.34	-0.05	-0.28	81.44	-0.11	-0.49	EG
FR9TRU		81.33	-0.06	-0.33	81.48	-0.07	-0.33	TC
HCKMBC		81.67	0.28	1.58	81.71	0.17	0.75	TC
KLKXU7		81.26	-0.13	-0.70	81.50	-0.04	-0.19	TM
LA8WXD		81.26	-0.13	-0.71	81.29	-0.26	-1.14	TC
MGZPJC		81.51	0.12	0.69	81.58	0.03	0.15	TC
PENQ6L		81.24	-0.15	-0.85	81.34	-0.20	-0.91	TC
QN8P9V		81.34	-0.05	-0.27	81.40	-0.15	-0.68	LS
RMC4GP		81.18	-0.21	-1.17	81.35	-0.20	-0.89	XX
TPEJ4L		81.39	0.00	0.03	81.58	0.03	0.16	EE
U9M73Y		81.19	-0.20	-1.10	81.36	-0.19	-0.85	TC
UDJRVM	X	79.88	-1.51	-8.41	79.97	-1.58	-7.08	TC
UF7ENB		81.44	0.06	0.31	81.61	0.06	0.29	TM
UWVJW4		81.24	-0.14	-0.80	81.44	-0.11	-0.47	TC
VMJMRX		81.77	0.38	2.10	81.91	0.36	1.61	TM
WDRNBC		81.54	0.15	0.83	81.87	0.32	1.45	TC
WKAYPD		81.44	0.05	0.28	81.65	0.10	0.46	EF
X37R4J		81.34	-0.05	-0.28	81.46	-0.09	-0.38	LA
YE68VC		81.31	-0.08	-0.44	81.46	-0.09	-0.39	TC
YEZH73		81.50	0.12	0.65	81.58	0.03	0.16	TC
YF73U3	X	82.57	1.18	6.59	82.68	1.13	5.08	TM
ZLCYD3	*	81.87	0.49	2.71	82.23	0.68	3.07	EE

Summary Statistics

	Sample GR13	Sample GR14
Grand Means	81.388 Percent	81.548 Percent
SD Btwn Labs	0.179 Percent	0.223 Percent

Statistics based on 28 of 32 reporting participants

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

Comments on assigned Data Flags for Test #392

6YK98U (X) - Extreme data.

CQ8PQG (X) - Data for both samples are high.

UDJRVM (X) - Extreme data.

YF73U3 (X) - Extreme data.

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

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

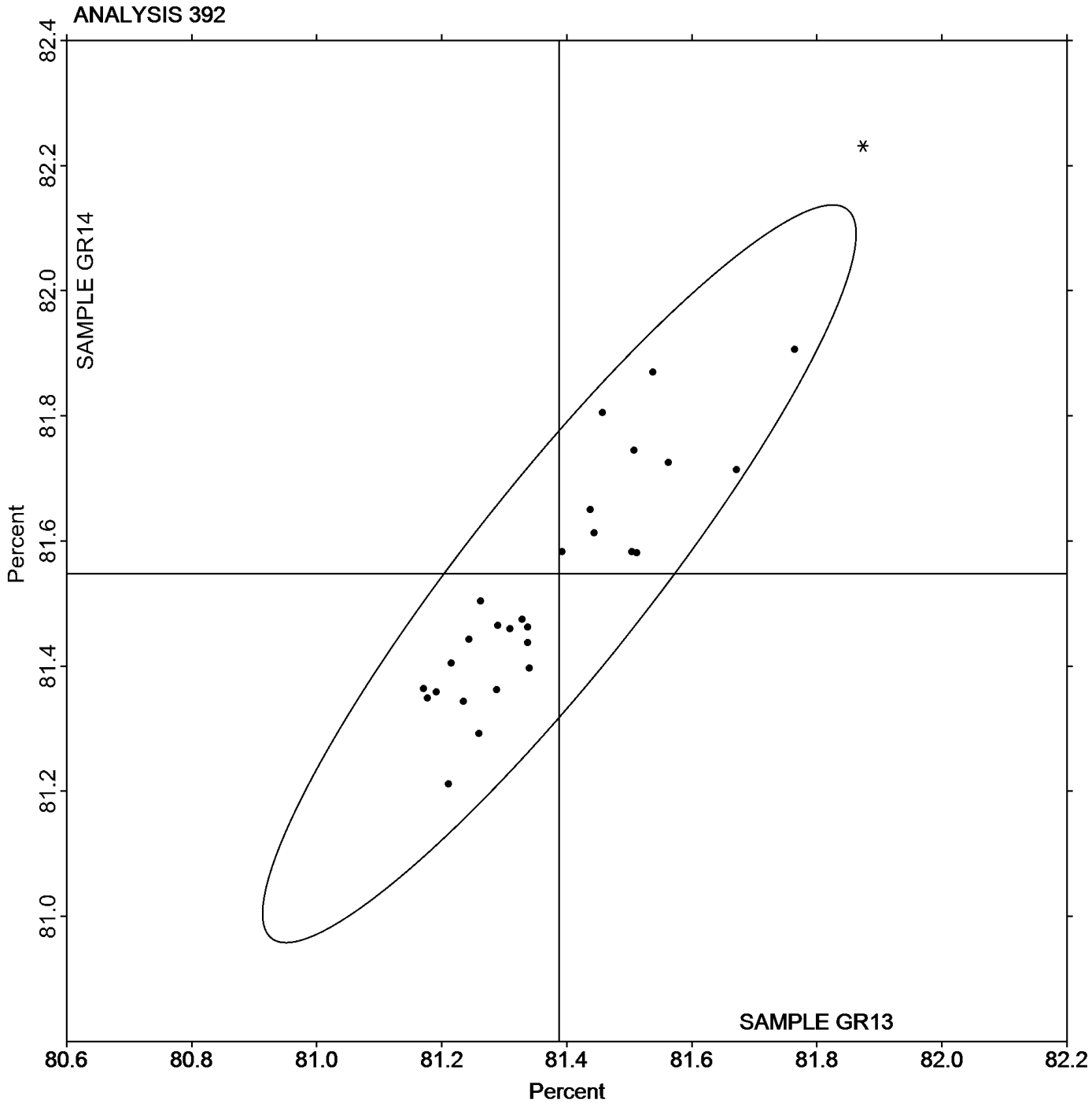
Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

Grand Mean Sample **GR13** = 81.388 Percent

Grand Mean Sample **GR14** = 81.548 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

WebCode	Data Flag	Sample GZ13 Lab Mean	Sample GZ13 Diff from Grand Mean	Sample GZ13 CPV	Sample GZ14 Lab Mean	Sample GZ14 Diff from Grand Mean	Sample GZ14 CPV	Instr Code
9GQ4Q3		7.802	-0.095	-0.13	7.322	-0.089	-0.13	TS
9LLVZK		6.604	-1.293	-1.76	6.170	-1.241	-1.76	HT
9RVUUY		7.668	-0.229	-0.31	7.142	-0.269	-0.38	TS
DACLKW		9.986	2.089	2.84	9.408	1.997	2.83	GM
EJY6FG		7.960	0.063	0.09	7.580	0.169	0.24	TT
EP2BVJ		7.542	-0.355	-0.48	6.994	-0.417	-0.59	TS
GXAM32		8.080	0.183	0.25	7.440	0.029	0.04	TT
J2HMCX		7.634	-0.263	-0.36	7.312	-0.099	-0.14	TS
M3763N		7.872	-0.025	-0.03	7.510	0.099	0.14	TS
QMJVUF		7.818	-0.079	-0.11	7.386	-0.025	-0.04	PP
QT64VL		7.884	-0.013	-0.02	7.516	0.105	0.15	TS
RMGJQK		8.188	0.291	0.40	7.508	0.097	0.14	HT
UF7ENB		7.624	-0.273	-0.37	7.058	-0.353	-0.50	TS
X37R4J	X	11.300	3.403	4.63	10.540	3.129	4.43	EF

Summary Statistics

	Sample GZ13	Sample GZ14
Grand Means	7.8971 Percent	7.4112 Percent
SD Btwn Labs	0.7358 Percent	0.7057 Percent

Statistics based on 13 of 14 reporting participants

Comments on assigned Data Flags for Test #394

X37R4J (X) - Data for both samples are high.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(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

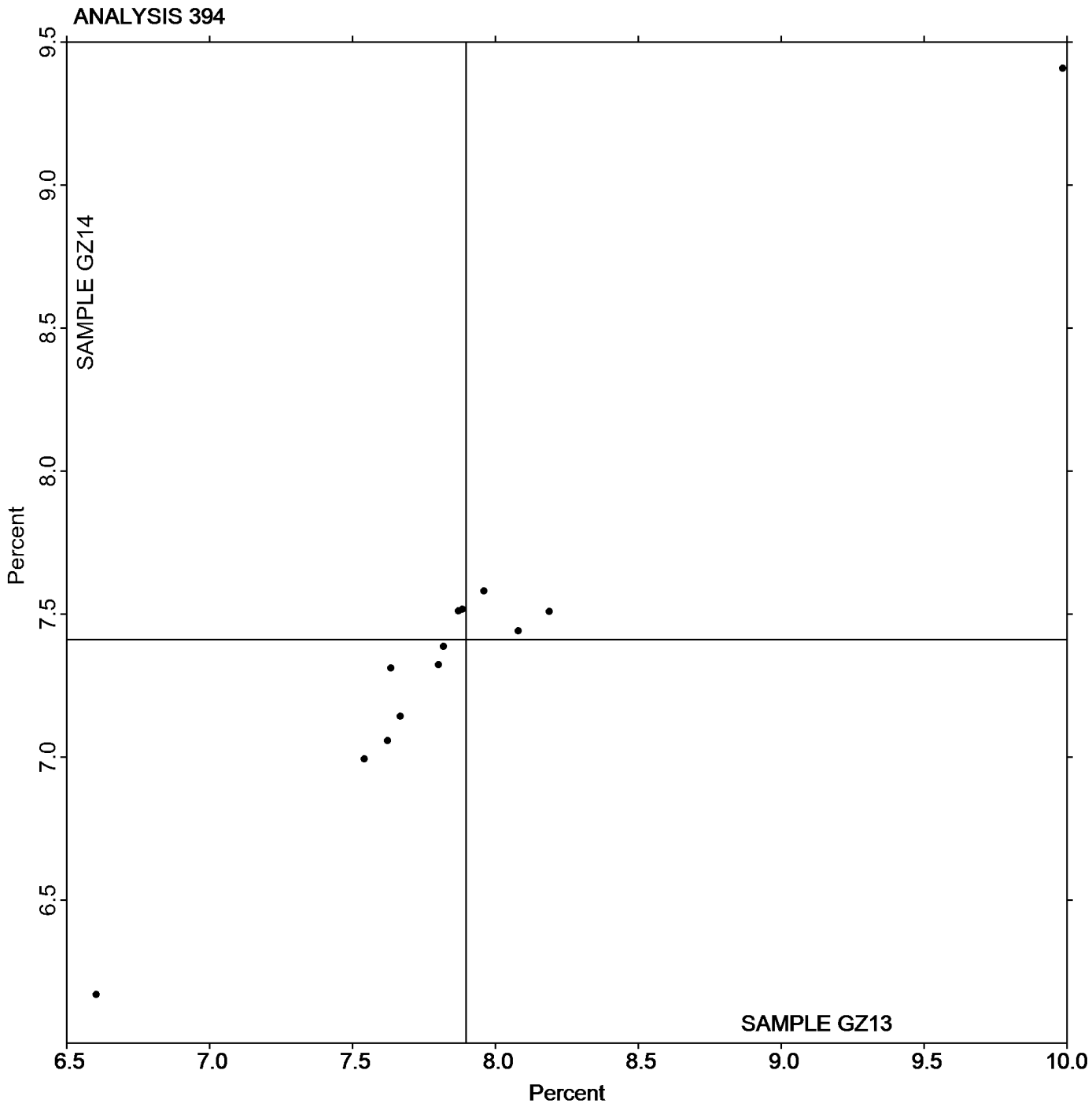
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ13** = 7.8971 Percent

Grand Mean Sample **GZ14** = 7.4112 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 GT13 Lab Mean	Sample GT13 Diff from Grand Mean	Sample GT13 CPV	Sample GT14 Lab Mean	Sample GT14 Diff from Grand Mean	Sample GT14 CPV	Instr Code
6YK98U		66.60	-1.31	-0.64	73.40	-0.14	-0.14	GS
9LKV36		68.58	0.67	0.33	73.20	-0.34	-0.34	PP
BYLDNP		68.28	0.37	0.18	74.07	0.53	0.53	GM
CQ8PQG	X	57.95	-9.96	-4.91	66.43	-7.11	-7.09	TH
E3Q9Y3		63.43	-4.48	-2.21	74.28	0.74	0.74	GM
F6XTKH		67.48	-0.43	-0.21	73.60	0.06	0.06	LA
GP2T99		67.49	-0.42	-0.21	74.50	0.96	0.96	TH
GXAM32		71.90	3.99	1.97	72.90	-0.64	-0.64	LA
J7XZF7		69.54	1.63	0.81	74.26	0.72	0.72	TH
PENQ6L		66.18	-1.73	-0.85	71.96	-1.58	-1.57	ZH
QMJVUF		68.11	0.20	0.10	72.41	-1.13	-1.13	PP
QN8P9V		69.66	1.75	0.87	74.59	1.05	1.05	LB
R6E7R3		67.64	-0.27	-0.13	73.35	-0.19	-0.19	TH
RFT4W7		67.28	-0.63	-0.31	71.69	-1.85	-1.84	TH
RGR4YR		65.10	-2.81	-1.38	72.90	-0.64	-0.64	GA
RMC4GP		69.70	1.79	0.89	74.21	0.67	0.67	XX
YF73U3		69.52	1.62	0.80	75.29	1.76	1.75	TG

Summary Statistics

	Sample GT13	Sample GT14
Grand Means	67.906 Gloss Units	73.538 Gloss Units
SD Btwn Labs	2.026 Gloss Units	1.003 Gloss Units

Statistics based on 16 of 17 reporting participants

Comments on assigned Data Flags for Test #395

CQ8PQG (X) - Extreme data.

Instrument Code List as Reported by the Labs

(GA) - BYK-Gardner (model not specified)
(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

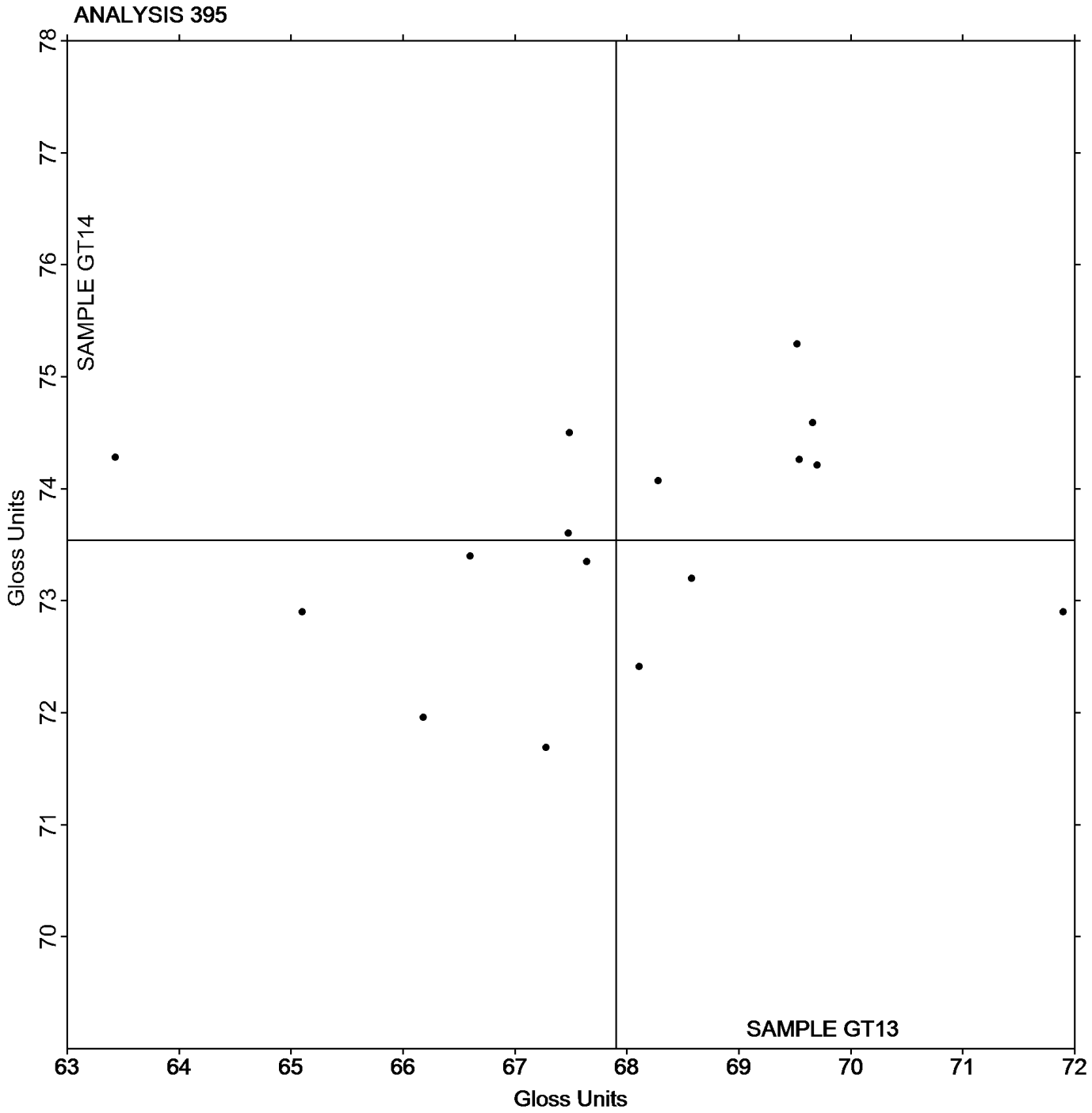
Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT13** = 67.906 Gloss Units

Grand Mean Sample **GT14** = 73.538 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 396

Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU13 Lab Mean	Sample GU13 Diff from Grand Mean	Sample GU13 CPV	Sample GU14 Lab Mean	Sample GU14 Diff from Grand Mean	Sample GU14 CPV	Instr Code
96WM22		42.19	-0.19	-0.16	34.51	-0.83	-0.56	TH
CJLRZ9		42.59	0.21	0.18	34.83	-0.50	-0.34	XX
FR9TRU		44.42	2.04	1.69	36.60	1.27	0.85	TH
QN8P9V		40.47	-1.91	-1.58	36.83	1.50	1.01	LA
X37R4J		42.46	0.08	0.07	33.12	-2.21	-1.49	TG
X6C6UX		43.51	1.13	0.94	33.71	-1.62	-1.09	TG
XK9JR7		41.50	-0.88	-0.73	36.20	0.87	0.58	XX
YF73U3		41.88	-0.50	-0.41	36.87	1.54	1.04	TG

Summary Statistics

	Sample GU13	Sample GU14
Grand Means	42.378 Gloss Units	35.334 Gloss Units
SD Btwn Labs	1.207 Gloss Units	1.485 Gloss Units

Statistics based on 8 of 8 reporting participants

Instrument Code List as Reported by the Labs

(LA) - L & W Gloss - Autoline 300

(TG) - Technidyne T480

(TH) - Technidyne T480A

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

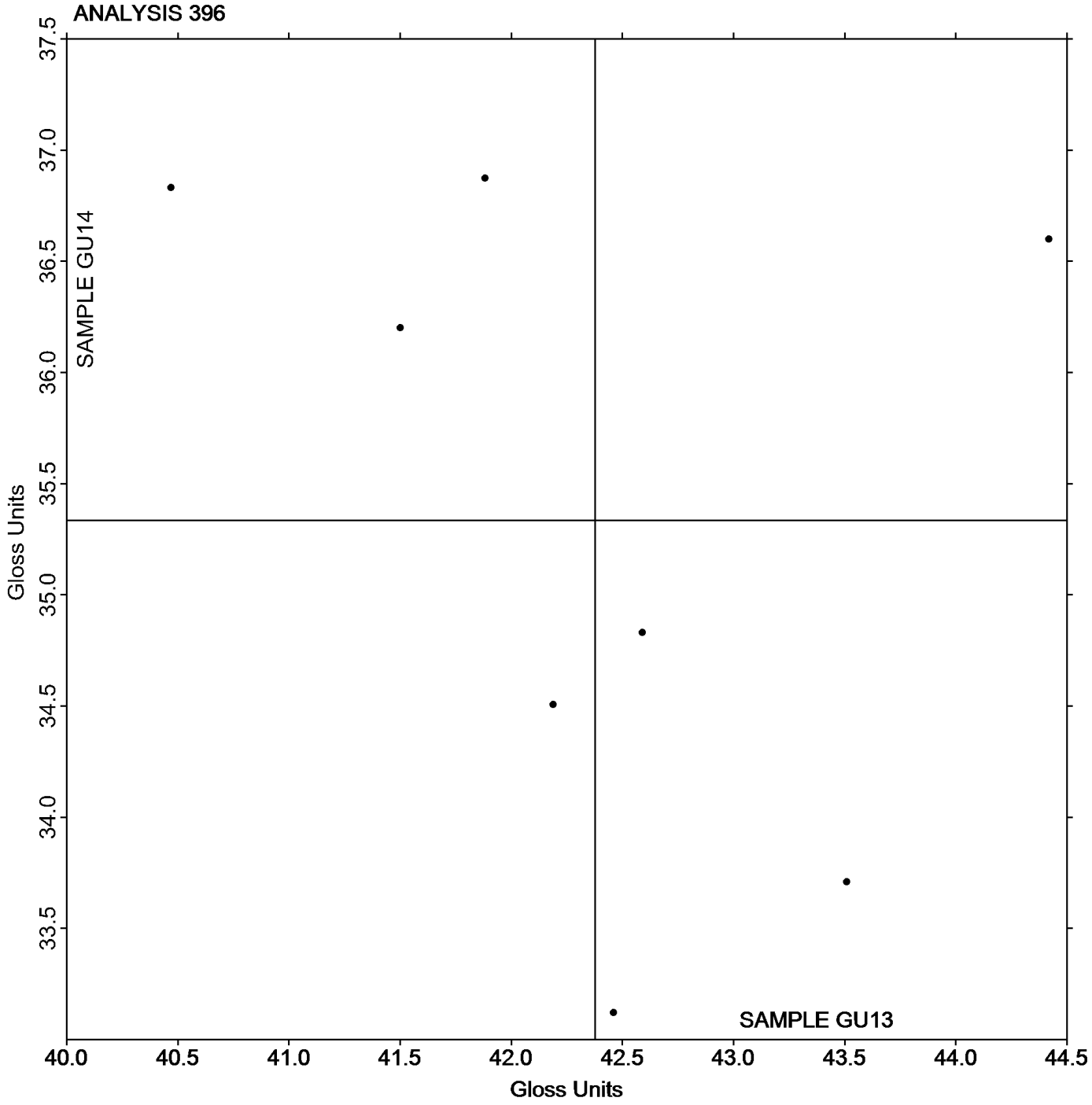
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU13** = 42.378 Gloss Units

Grand Mean Sample **GU14** = 35.334 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 GW13 Lab Mean	Sample GW13 Diff from Grand Mean	Sample GW13 CPV	Sample GW14 Lab Mean	Sample GW14 Diff from Grand Mean	Sample GW14 CPV
2V42G3		72.73	0.09	0.23	100.1	-0.6	-1.19
4E3VJC		73.39	0.75	1.86	101.5	0.9	1.73
6FNZQA		72.51	-0.13	-0.32	100.8	0.1	0.29
6PFH6H		72.83	0.19	0.48	100.9	0.2	0.50
96WM22		71.89	-0.75	-1.85	100.1	-0.5	-1.00
9LLVZK		72.27	-0.37	-0.92	100.2	-0.5	-0.95
AUEVCU		72.95	0.32	0.78	100.8	0.2	0.34
BDANXT	X	72.41	-0.23	-0.57	100.8	0.2	0.40
BLY7RN		72.30	-0.34	-0.84	100.4	-0.2	-0.48
CEQ3EV		72.54	-0.10	-0.24	101.4	0.7	1.51
CJLRZ9		72.66	0.03	0.07	100.3	-0.3	-0.62
CKGEFJ		72.38	-0.26	-0.63	100.2	-0.4	-0.81
CQ8PQG		72.47	-0.17	-0.42	100.7	0.0	0.05
DACLKW		72.30	-0.33	-0.83	99.9	-0.7	-1.45
EUZPKU		72.11	-0.52	-1.30	99.8	-0.8	-1.71
F36YKT		72.99	0.35	0.88	100.5	-0.2	-0.34
FR9TRU		72.75	0.12	0.29	99.7	-1.0	-1.92
FWJ4KN		72.43	-0.21	-0.51	100.5	-0.1	-0.22
GR6QGF		72.13	-0.51	-1.26	100.8	0.1	0.22
HYHWVY		72.31	-0.33	-0.82	99.9	-0.7	-1.42
J3D944		73.20	0.56	1.40	100.4	-0.3	-0.57
LBLLY6		72.43	-0.21	-0.51	101.1	0.4	0.88
Q8L2ZL		73.01	0.38	0.94	101.0	0.3	0.69
Q9HJXG		73.45	0.81	2.02	101.0	0.3	0.69
QN8P9V		72.48	-0.16	-0.39	100.7	0.0	0.09
RMC4GP		72.50	-0.14	-0.34	101.0	0.3	0.62
RMGJQK		72.12	-0.52	-1.29	100.6	-0.1	-0.14
TGP9BH		72.80	0.16	0.40	100.7	0.1	0.15
TPEJ4L		73.06	0.42	1.05	101.0	0.3	0.64
UDJRVM		73.09	0.45	1.13	100.9	0.3	0.52
X37R4J		73.30	0.66	1.65	101.6	1.0	1.93
XK9JR7		72.71	0.07	0.18	101.5	0.8	1.66
XXF2P4		72.28	-0.36	-0.88	100.8	0.1	0.30

Summary Statistics

	Sample GW13	Sample GW14
Grand Means	72.636 g/sq m	100.64 g/sq m
SD Btwn Labs	0.403 g/sq m	0.50 g/sq m

Statistics based on 32 of 33 reporting participants

Comments on assigned Data Flags for Test #398

BDANXT (X) - Data appear to be off by a factor of .01; data converted by CTS (x100).

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

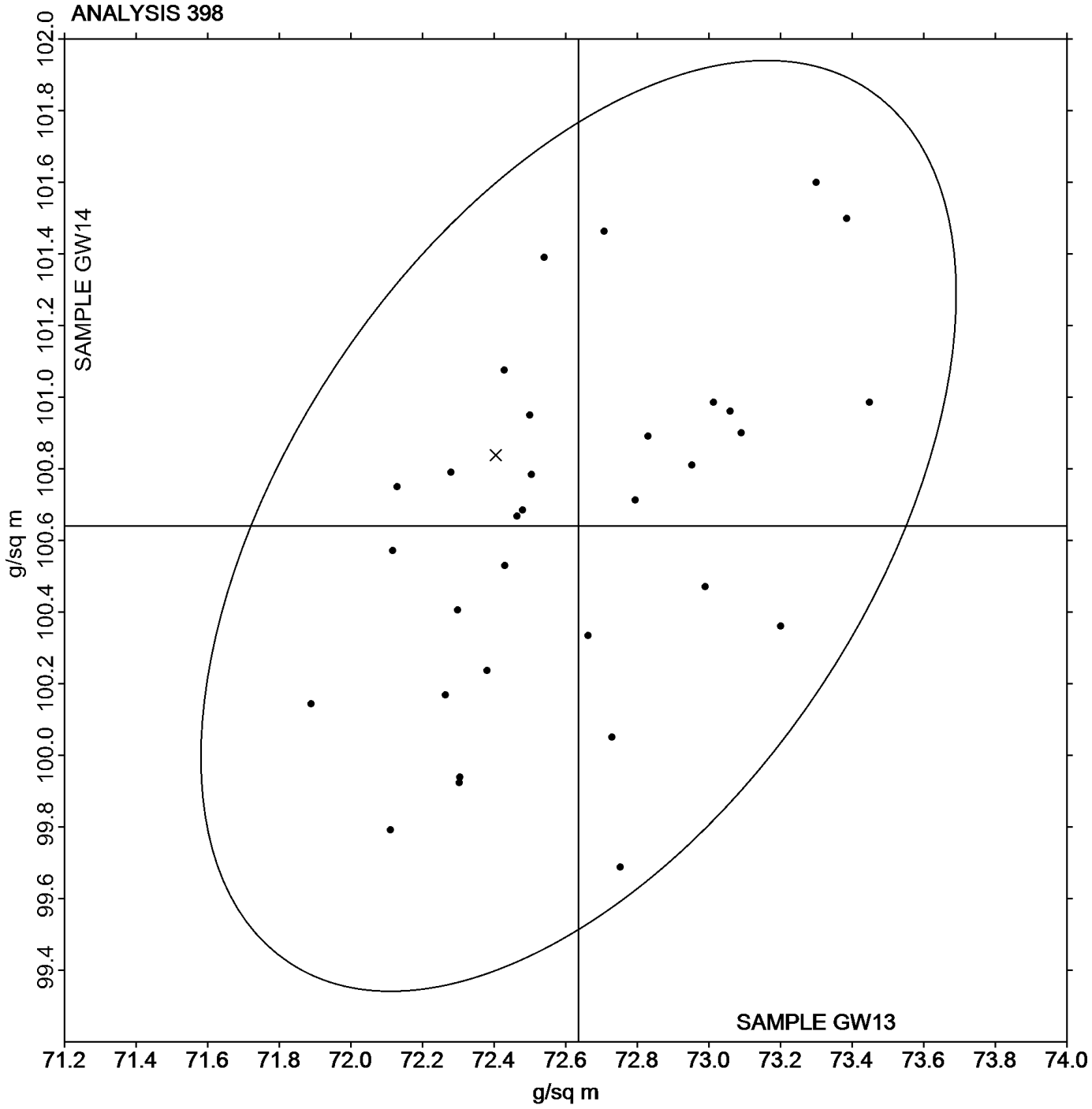
Paper & Paperboard Interlaboratory Testing Program

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW13** = 72.636 g/sq m

Grand Mean Sample **GW14** = 100.64 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

WebCode	Data Flag	Sample GX13 Lab Mean	Sample GX13 Diff from Grand Mean	Sample GX13 CPV	Sample GX14 Lab Mean	Sample GX14 Diff from Grand Mean	Sample GX14 CPV
6KQDU7		22.48	-9.97	-1.11	9.11	-3.11	-1.49
7XT4C4		38.77	6.32	0.71	13.95	1.73	0.83
9GQ4Q3		30.09	-2.36	-0.26	12.38	0.16	0.08
9U2EHY		24.20	-8.25	-0.92	9.74	-2.48	-1.19
AXWKEF		35.00	2.55	0.28	14.50	2.28	1.09
BDANXT		49.84	17.39	1.94	17.02	4.80	2.30
BWET3B		22.63	-9.82	-1.10	10.20	-2.02	-0.97
BYLDNP		24.60	-7.85	-0.88	11.00	-1.22	-0.59
CEQ3EV		34.80	2.35	0.26	13.30	1.08	0.52
DACLKW		27.44	-5.01	-0.56	10.87	-1.35	-0.65
EE6748		26.89	-5.56	-0.62	11.75	-0.47	-0.23
EP2BVJ	X	59.66	27.21	3.04	25.14	12.92	6.19
FR9TRU		40.88	8.43	0.94	14.71	2.49	1.19
FVAUUC	*	53.41	20.96	2.34	14.41	2.19	1.05
G4WDPW		33.50	1.05	0.12	12.65	0.43	0.20
H3XRBV		37.32	4.87	0.54	13.49	1.27	0.61
J2HMCX	X	109.60	77.15	8.61	18.80	6.58	3.15
J7DJXH		16.17	-16.28	-1.82	7.63	-4.59	-2.20
KBM2UP		33.85	1.40	0.16	12.82	0.60	0.29
M3763N		23.69	-8.76	-0.98	10.27	-1.95	-0.94
NFNARW	X	127.80	95.35	10.65	26.20	13.98	6.70
PXNLXC	X	82.22	49.77	5.56	17.57	5.35	2.56
QT64VL		29.88	-2.57	-0.29	12.22	0.00	0.00
RQE83K		32.98	0.53	0.06	12.73	0.51	0.24
TGP9BH	*	44.00	11.55	1.29	11.10	-1.12	-0.54
WJEEX8		33.30	0.85	0.10	12.80	0.58	0.28
X6C6UX		30.61	-1.84	-0.21	12.49	0.27	0.13
XD7DC4	X	20.82	-11.63	-1.30	98.43	86.21	41.31

Summary Statistics

	Sample GX13	Sample GX14
Grand Means	32.449 Seconds	12.223 Seconds
SD Btwn Labs	8.957 Seconds	2.087 Seconds

Statistics based on 23 of 28 reporting participants

Comments on assigned Data Flags for Test #399

EP2BVJ (X) - Extreme data.

J2HMCX (X) - Extreme data.

NFNARW (X) - Extreme data.

PXNLXC (X) - Data for Sample GX13 are high.

XD7DC4 (X) - Extreme data.

Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX13** = 32.449 Seconds

Grand Mean Sample **GX14** = 12.223 Seconds