Collaborative Testing Services, Inc.

Paper & PaperboardTesting Program

Summary Report #272G-October 2014

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.

Instrument Manufacturer Contacts

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

Applied Paper Technology Inc.
Vann Parker, President
555 14th Street, NW
Atlanta, GA 30318
Phone: (404) 881-9801
FAX #: (404) 881-0862
appliedpapertech@mindspring.com

Technidyne Corporation
James Bruner/Nicholas Riggs
100 Quality Avenue
New Albany, IN 47150-2272 USA
Phone: (812) 948-2884
FAX #: (812) 945-6847

Thwing Albert Instrument Co.
Jack Mirkowski, Service Contact
David Zarrilli, Sales Contact
10960 Dutton Road
Philadelphia, PA 19154
Phone: (215) 637-0100
FAX #: (215) 632-8370

Testing Machines Inc.
Michael Foran, Technical Support Engineer
2910 Expressway Drive South
Islandia, NY 11722
Phone: (631) 439-5400
FAX #: (631) 439-5420

Huygen Corporation
Richard Wade
P.O. Box 316
Waconda, IL 60084
Phone: (815) 455-2200
FAX #: (815) 455-2300

Hercules, Inc.
Steven R. Boone
7510 Baymeadows Way
Jacksonville, FL 32256-7524
Phone: (904) 732-3136
FAX #: (904) 448-4995

Lorentzen & Wettre USA Inc.
Bill Crain, Technical Manager
1055 Windward Ridge Pkwy
Suite 160
Alpharetta, GA 30005
Phone: (770) 442-8015 ext 232
FAX #: (770) 442-6792

Valmet Inc.
Eeva Nettamo, Product Manager Paper Testing
3100 Medlock Bridge Road - Suite 260
Norcross, GA 30071
Phone: (770) 448-0849
FAX #: (770) 242-8386

Gurley Precision Instruments
Martin Gordinier, Product Manager
P.O. Box 88
Troy, NY 12181-0088
Phone: (800) 759-1844
FAX #: (518) 274-0336

Hunter Associates Lab, Inc.
Mary Ellen Zuyus
11491 Sunset Hills Road
Reston, VA 22090
Phone: (703) 471-6870 ext. 222
FAX #: (703) 471-4237

BYK-Gardner
Randy Snavely
9104 Guilford Road
Columbia, MD 21046-2729
Phone: (301) 483-6500
FAX #: (301) 483-6555

Emveco Inc.
Donald L. Stradley
113 North Blaine, P.O. Box 16
Newburg, OR 97132-0016
Phone: (503) 538-8616
FAX #: (503) 538-0912

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		
646TFK		GA11	91.19	-1.11	0.99	-0.02	-0.01	-0.02	0.03		HH
		GA12	91.17	-1.12	0.97						
77RQ63		GA11	91.95	-0.68	2.33	0.02	0.02	-0.09	0.09		EH
		GA12	91.97	-0.66	2.24						
7GMZGQ		GA11	93.29	-0.56	1.87	0.00	0.00	-0.05	0.05		XS
		GA12	93.30	-0.56	1.82						
AAEDGL		GA11	93.69	-0.73	2.00	0.01	0.00	-0.07	0.07		EH
		GA12	93.70	-0.73	1.93						
AN2P4G		GA11	90.68	-0.30	2.04	0.13	-0.06	-0.04	0.15		TS
		GA12	90.82	-0.36	1.99						
AT8GXM	X	GA11	83.10	0.13	0.56	0.08	0.14	-0.06	0.17		TS
		GA12	83.18	0.27	0.50						
FNZDW8		GA11	93.31	-0.63	3.08	0.18	0.09	-0.65	0.68	X	MI
		GA12	93.49	-0.54	2.44						
H6JFJ9		GA11	90.79	-0.85	1.01	-0.19	0.02	-0.04	0.19		HH
		GA12	90.61	-0.83	0.97						
H7RTXN		GA11	94.54	-0.39	2.09	0.05	-0.01	-0.19	0.19		HE
		GA12	94.58	-0.40	1.91						
HGWH3K		GA11	90.68	-0.02	1.96	-0.04	-0.01	-0.09	0.10		TS
		GA12	90.64	-0.03	1.87						
K8H9PC		GA11	91.55	-0.36	2.23	0.04	-0.02	-0.03	0.06		TM
		GA12	91.59	-0.39	2.20						
L9KRUX		GA11	93.51	-0.70	2.39	0.00	0.01	-0.09	0.09		EH
		GA12	93.51	-0.69	2.30						
M6ENH2		GA11	89.40	-0.38	0.52	0.13	-0.01	-0.05	0.14		XX
		GA12	89.54	-0.38	0.47						
MWN3C3		GA11	91.68	-0.70	2.34	0.01	-0.03	-0.02	0.04		LS
		GA12	91.68	-0.73	2.32						
PPDTX7		GA11	91.71	-0.46	2.32	0.06	0.00	-0.15	0.16		TM
		GA12	91.76	-0.46	2.17						
Q2QETC		GA11	93.39	-1.25	2.12	-0.01	-0.20	-0.12	0.23		HH
		GA12	93.38	-1.45	2.00						
RKW6CZ		GA11	92.05	-0.57	2.30	-0.02	0.00	-0.07	0.07		MK
		GA12	92.04	-0.56	2.24						

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
RZRPTM		GA11	93.34	-0.61	2.46	-0.04	0.02	-0.02	0.05	LS
		GA12	93.30	-0.59	2.44					
U4ZP3J		GA11	91.81	-0.78	2.51	0.03	0.01	-0.07	0.08	TC
		GA12	91.84	-0.77	2.43					
UF2Y3F		GA11	92.39	-0.41	1.89	0.00	-0.03	0.07	0.08	TS
		GA12	92.39	-0.43	1.96					
VFW28B		GA11	90.90	-0.54	1.99	-0.14	-0.13	-0.01	0.19	TS
		GA12	90.76	-0.67	1.98					
W9TC4B		GA11	92.52	-1.01	0.40	-0.13	-0.13	0.23	0.29	HG
		GA12	92.39	-1.14	0.63					
XYD9YW		GA11	91.78	0.05	1.90	-0.04	0.05	-0.02	0.07	TS
		GA12	91.73	0.10	1.89					
YYDAW2		GA11	90.64	-0.06	1.76	0.05	-0.04	-0.05	0.09	TS
		GA12	90.69	-0.10	1.70					

Summary Statistics

Grand Means							
GA11	92.035	-0.538	1.889	0.004	-0.018	-0.072	0.139
GA12	92.038	-0.550	1.831				
Stnd Dev Btwn Labs							
GA11	1.261	0.348	0.586	0.084	0.062	0.148	0.135
GA12	1.266	0.386	0.578				

Statistics based on 23 of 24 reporting participants

Comments assigned on Data Flags for Test #350

646TFK () -

AT8GXM (X) - Low L values for both samples. Inconsistent within L values for both samples. Inconsistent within a values for Sample GA12. Inconsistent within b values for both samples.

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

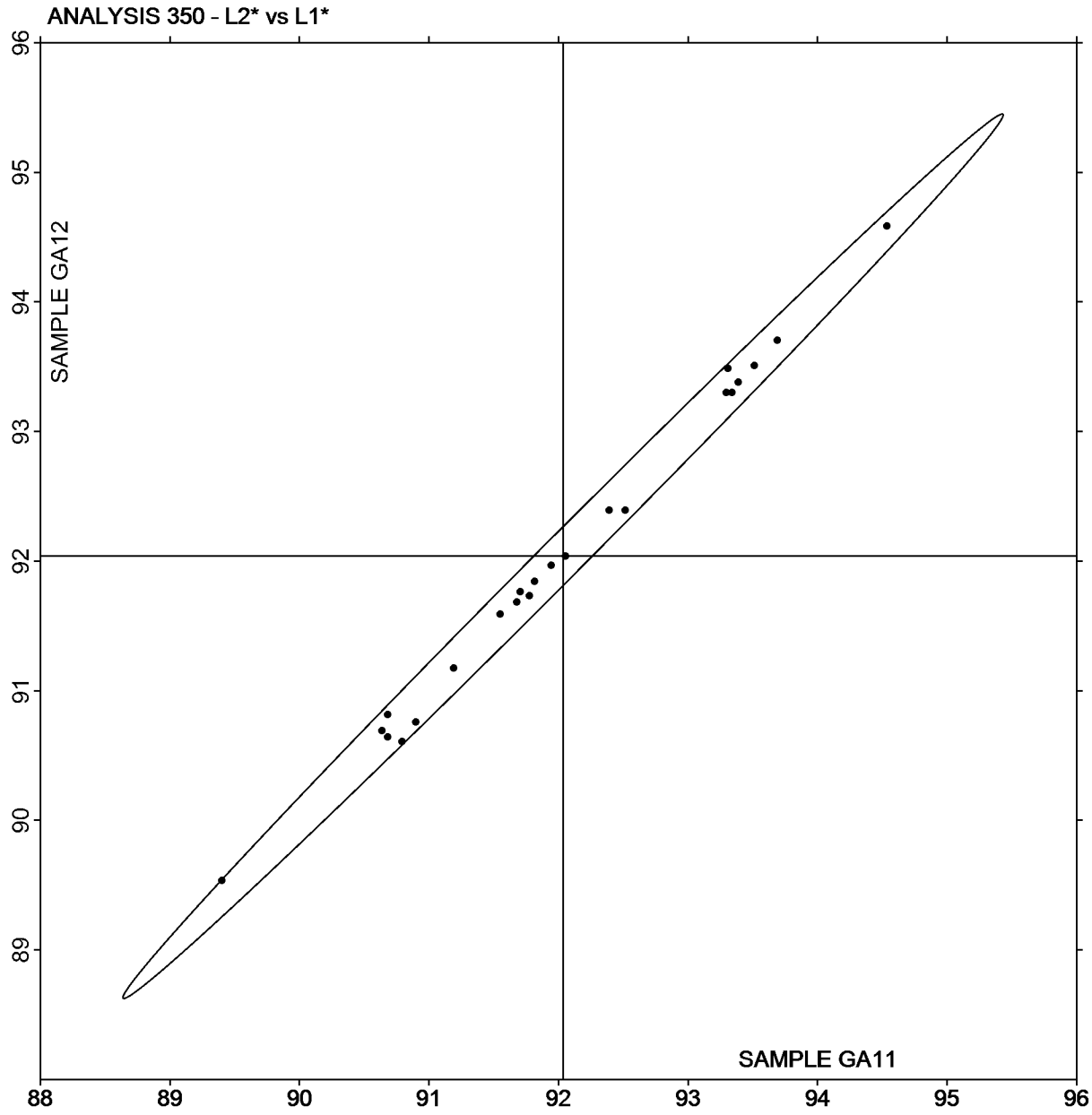
TAPPI-CTS Interlaboratory Testing Program

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 GA12 v L values GA11

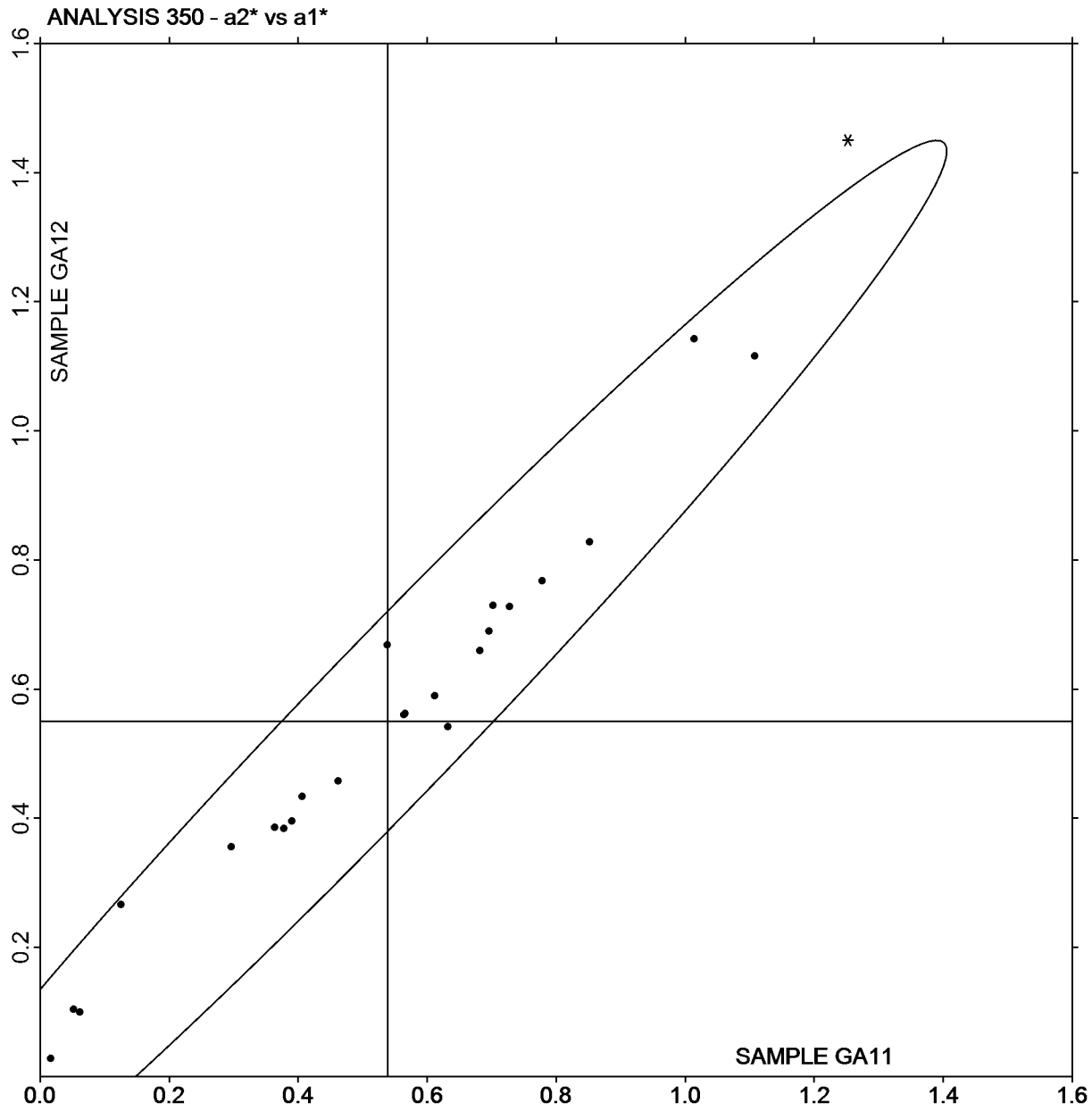


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of a values GA12 v a values GA11

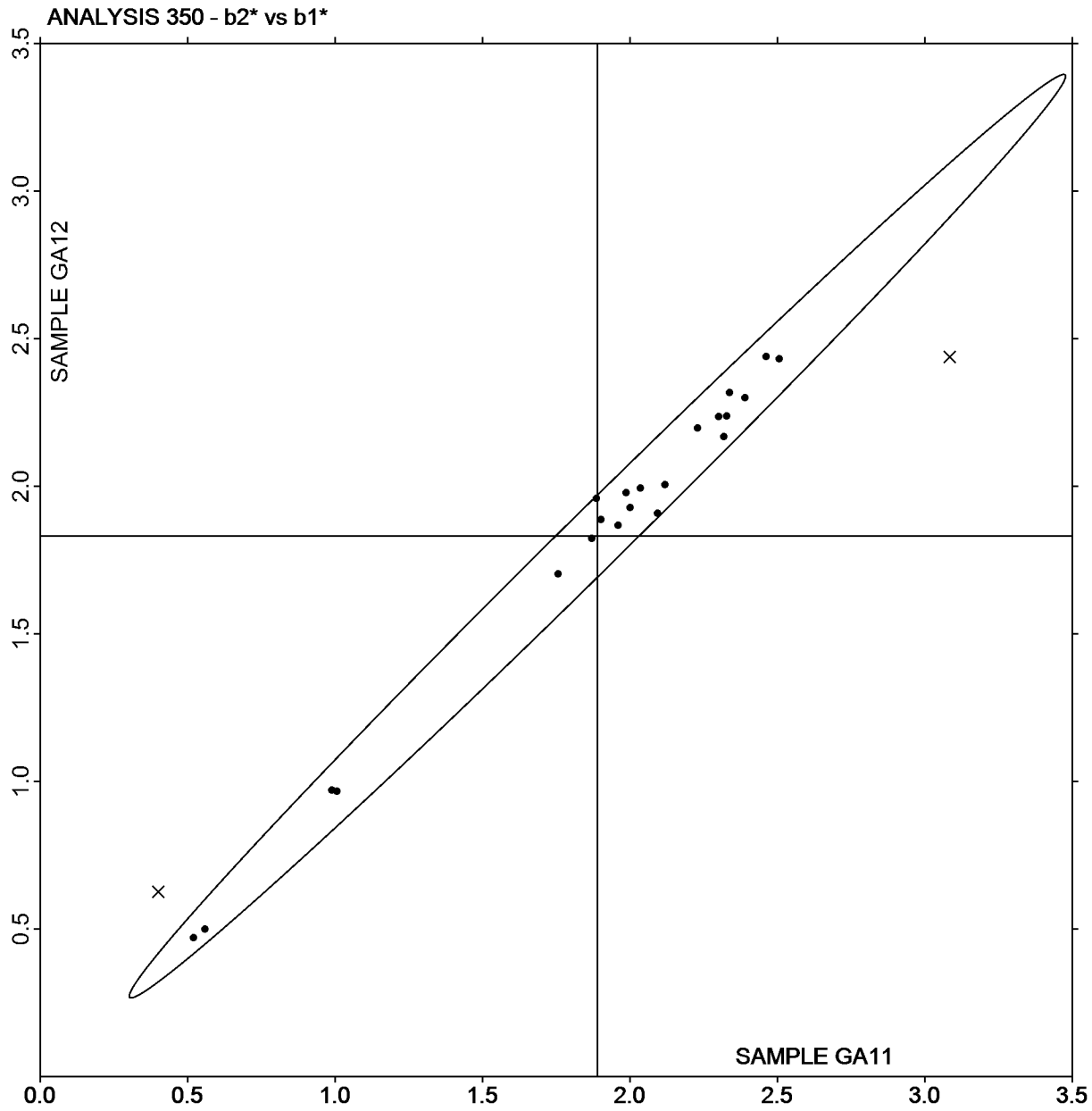


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of b values GA12 v b values GA11



TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

2D3FL8	GA11	93.72	-0.68	2.87	-0.01	-0.03	-0.12	0.12	NG
	GA12	93.71	-0.71	2.76					
9M8A2D	GA11	91.81	-0.96	2.52	0.01	-0.01	-0.07	0.07	TC
	GA12	91.82	-0.96	2.45					
ATTWMP	GA11	92.57	-0.72	2.43	0.03	0.00	-0.04	0.04	HE
	GA12	92.60	-0.72	2.39					
BXJMB8	GA11	93.51	-0.77	2.72	0.00	-0.03	-0.05	0.06	LS
	GA12	93.51	-0.80	2.66					
DX9TGG	GA11	93.67	-0.92	2.70	-0.10	-0.02	-0.07	0.13	TC
	GA12	93.57	-0.94	2.63					
GH9V8G	GA11	94.00	-0.74	2.74	-0.04	-0.01	-0.10	0.11	NF
	GA12	93.96	-0.75	2.64					
GHZAZZ	GA11	93.70	-0.46	2.63	-0.08	0.04	-0.14	0.17	XP
	GA12	93.62	-0.42	2.49					
L3AVPN	GA11	93.65	-0.74	2.72	0.04	-0.02	-0.07	0.09	NG
	GA12	93.69	-0.76	2.65					
L4EZY7	GA11	92.35	-0.83	2.32	0.03	-0.05	-0.11	0.12	HE
	GA12	92.38	-0.88	2.21					
LRCVBX	GA11	91.81	-0.70	2.52	-0.01	0.00	-0.08	0.08	XX
	GA12	91.80	-0.70	2.44					
MERJV9	GA11	93.52	-0.93	2.61	0.05	0.01	-0.06	0.07	TC
	GA12	93.56	-0.93	2.55					
QNGWN3	GA11	93.59	-0.80	2.73	0.10	0.00	-0.04	0.10	HT
	GA12	93.68	-0.81	2.69					
RACVPR	GA11	93.49	-0.85	2.63	0.00	-0.01	-0.05	0.05	EH
	GA12	93.49	-0.86	2.59					
RKX2UB	GA11	91.67	-0.42	2.11	-0.02	0.00	-0.07	0.08	EE
	GA12	91.65	-0.42	2.04					
RZRPTM	GA11	93.26	-0.76	2.64	0.00	0.02	-0.10	0.10	LS
	GA12	93.26	-0.74	2.55					
T2ZZG4	GA11	93.73	-0.73	2.86	-0.04	-0.03	-0.12	0.13	NG
	GA12	93.69	-0.76	2.73					
VA9CMZ	GA11	93.63	-0.79	2.77	-0.05	0.03	-0.16	0.17	EH
	GA12	93.58	-0.76	2.61					
VE2FF6	GA11	93.42	-0.82	2.26	0.06	-0.08	-0.06	0.12	EF
	GA12	93.48	-0.90	2.20					

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 L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
Y23J73		GA11	92.01	-0.71	2.50	-0.02	0.00	-0.01	0.02	XM
		GA12	91.99	-0.71	2.49					

Summary Statistics

Grand Means							
GA11	93.111	-0.754	2.594	-0.003	-0.010	-0.080	0.097
GA12	93.108	-0.765	2.514				
Stnd Dev Btwn Labs							
GA11	0.786	0.137	0.202	0.048	0.028	0.038	0.040
GA12	0.782	0.148	0.193				

Statistics based on 19 of 19 reporting participants

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
(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

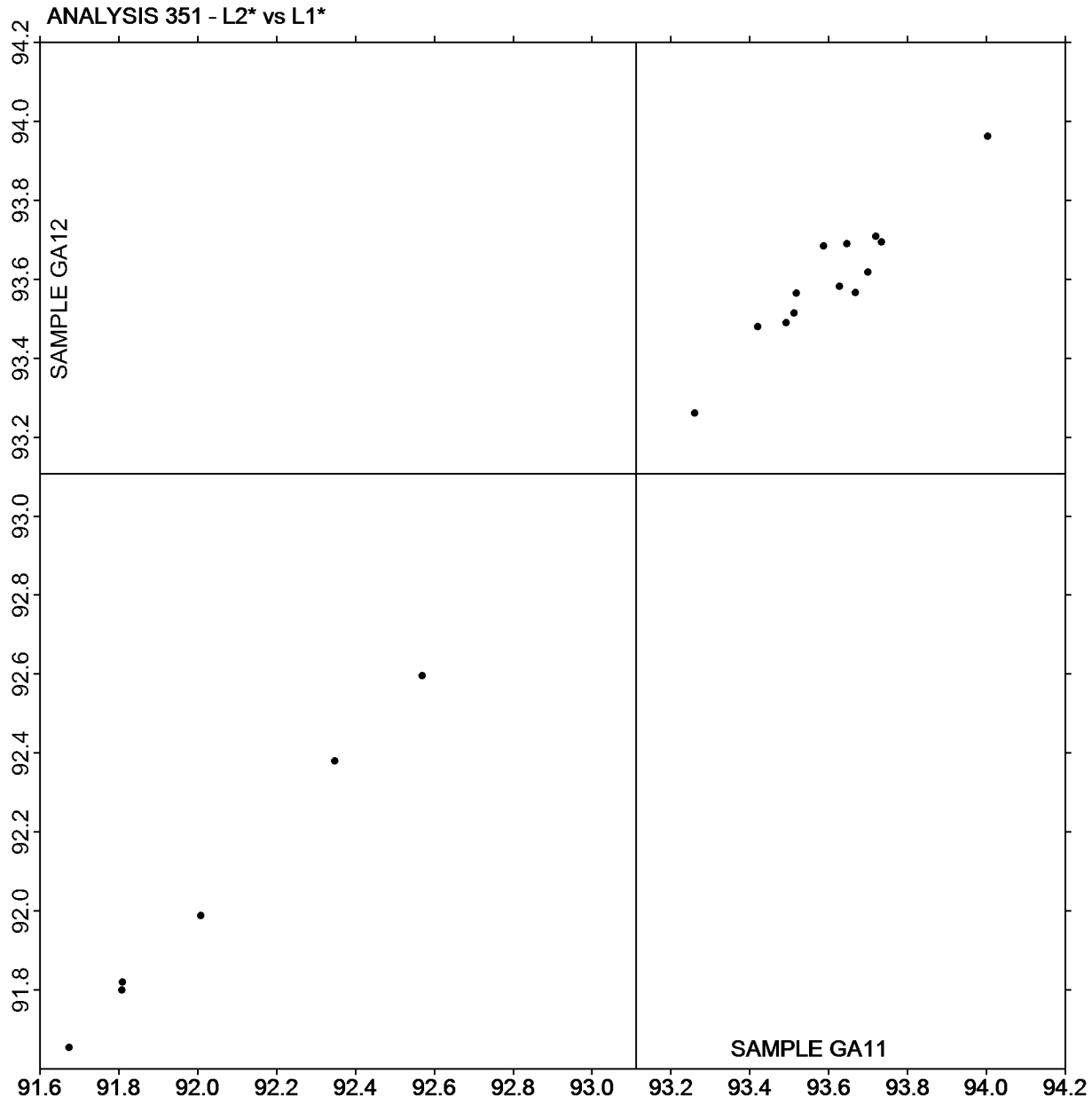
TAPPI-CTS Interlaboratory Testing Program

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 GA12 v L values GA11



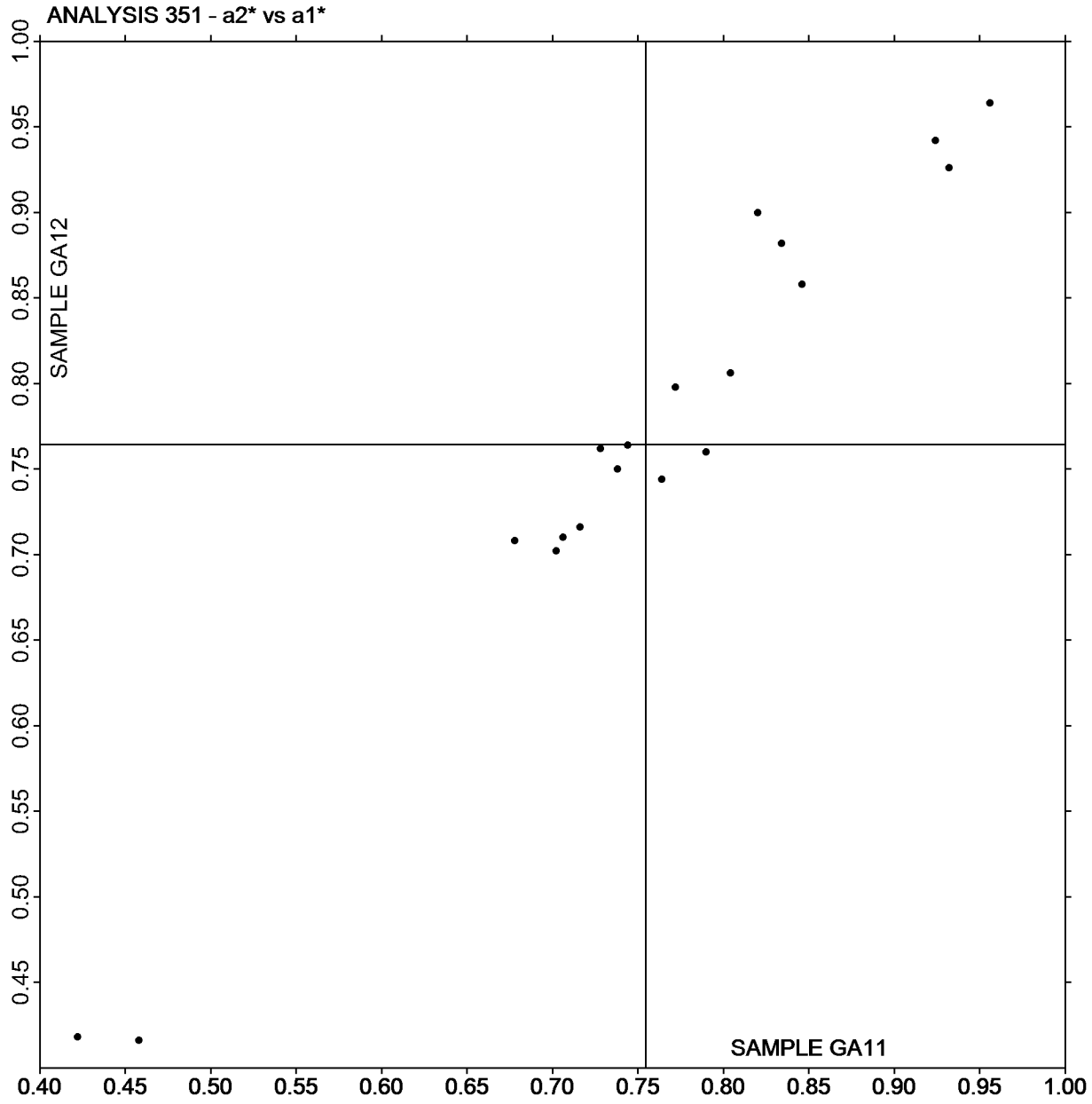
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

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 a values GA12 v a values GA11



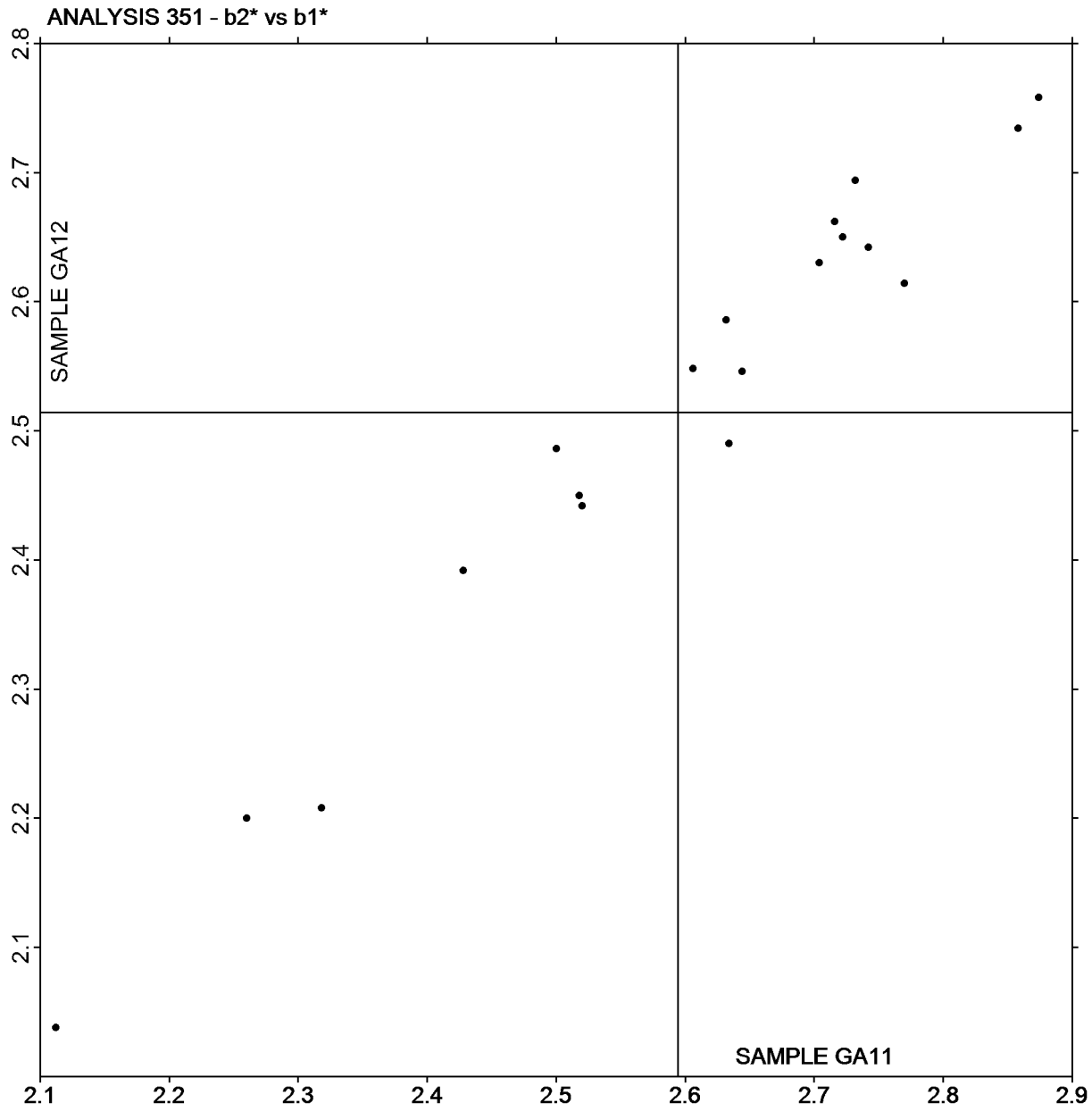
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

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 GA12 v b values GA11



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 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV11 Lab Mean	Sample GV11 Diff from Grand Mean	Sample GV11 CPV	Sample GV12 Lab Mean	Sample GV12 Diff from Grand Mean	Sample GV12 CPV	Instr Code
2CRJB2		3.882	0.090	1.38	4.758	0.128	1.80	LW
2D3FL8		3.824	0.032	0.49	4.680	0.049	0.70	XX
2MEH38		3.772	-0.020	-0.31	4.575	-0.056	-0.79	TM
79BKAP		3.791	-0.001	-0.01	4.551	-0.079	-1.12	PP
7GMZGQ		3.780	-0.012	-0.18	4.560	-0.071	-1.00	TM
7LGX7G		3.850	0.058	0.90	4.594	-0.036	-0.51	FR
92L49B		3.780	-0.013	-0.19	4.591	-0.040	-0.57	TA
9FME3P		3.753	-0.039	-0.60	4.638	0.007	0.10	VM
9M8A2D		3.708	-0.084	-1.29	4.579	-0.052	-0.73	TA
9PUCN8		3.753	-0.039	-0.60	4.615	-0.016	-0.22	PP
9VG3B3	*	3.615	-0.177	-2.72	4.505	-0.126	-1.78	TM
A8RXZQ		3.832	0.040	0.61	4.671	0.041	0.57	XX
AAEDGL		3.744	-0.048	-0.74	4.571	-0.060	-0.84	MT
AN2P4G		3.811	0.019	0.29	4.597	-0.034	-0.48	LA
ANBTGF		3.660	-0.132	-2.03	4.530	-0.101	-1.42	TM
AT8E9H		3.870	0.078	1.20	4.716	0.085	1.21	TM
AYWWQZ		3.854	0.062	0.95	4.735	0.104	1.47	XX
BEH2AD		3.779	-0.013	-0.20	4.673	0.043	0.60	LW
DQPNBA		3.844	0.052	0.80	4.756	0.125	1.77	PP
DX9TGG		3.796	0.004	0.06	4.625	-0.006	-0.08	LW
E2TFZ9		3.744	-0.048	-0.74	4.664	0.033	0.47	LW
E3K2HL	X	3.667	-0.125	-1.92	4.765	0.134	1.90	TA
E6PTCK		3.814	0.022	0.34	4.629	-0.002	-0.02	EM
EHB4XP		3.800	0.008	0.12	4.697	0.067	0.94	EM
FGWUCH		3.832	0.040	0.61	4.629	-0.002	-0.02	TM
FNZDW8		3.739	-0.053	-0.81	4.512	-0.119	-1.68	TA
FYFRQG		3.734	-0.058	-0.89	4.619	-0.012	-0.16	LA
GGQ3YR		3.777	-0.015	-0.23	4.573	-0.058	-0.81	TA
GHZAZZ		3.729	-0.063	-0.97	4.604	-0.027	-0.38	TM
GMKZHG	*	3.735	-0.057	-0.88	4.461	-0.170	-2.40	EM
GVANDK		3.697	-0.095	-1.46	4.560	-0.071	-1.00	PP
HGWH3K		3.800	0.008	0.12	4.649	0.018	0.26	EM
K8H9PC		3.754	-0.038	-0.58	4.564	-0.067	-0.94	TA
K8J7Z8		3.776	-0.016	-0.25	4.627	-0.004	-0.05	TM
KCPXUD		3.746	-0.046	-0.70	4.650	0.020	0.28	LW
KFAQ4K		3.841	0.049	0.75	4.652	0.021	0.30	TM
L3AVPN		3.831	0.039	0.60	4.627	-0.004	-0.05	XX
L4EZY7		3.827	0.035	0.53	4.699	0.068	0.97	TM
L9KRUX		3.759	-0.033	-0.51	4.608	-0.023	-0.32	TA
MWN3C3		3.807	0.015	0.23	4.575	-0.055	-0.78	LW
P288W3		3.782	-0.010	-0.15	4.603	-0.027	-0.39	XX
PPDTX7		3.861	0.069	1.06	4.694	0.064	0.90	XX
PUF4BY		3.717	-0.075	-1.16	4.533	-0.098	-1.39	EM

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV11 Lab Mean	Sample GV11 Diff from Grand Mean	Sample GV11 CPV	Sample GV12 Lab Mean	Sample GV12 Diff from Grand Mean	Sample GV12 CPV	Instr Code
Q8EYXD		3.853	0.061	0.94	4.694	0.063	0.90	EM
QLAC2M		3.820	0.028	0.43	4.669	0.038	0.54	EM
QNGWN3		3.794	0.002	0.03	4.637	0.006	0.09	EM
RE8MXN		3.742	-0.050	-0.77	4.634	0.003	0.05	TA
RKW6CZ		3.895	0.103	1.58	4.740	0.109	1.55	EM
RTCM6Y		3.913	0.121	1.86	4.733	0.102	1.45	LW
T2ZZG4		3.861	0.069	1.05	4.609	-0.022	-0.31	LW
U4ZP3J		3.806	0.014	0.21	4.638	0.007	0.10	PP
UHGKFV		3.847	0.055	0.84	4.740	0.109	1.54	LW
URVD6X		3.782	-0.010	-0.16	4.608	-0.023	-0.32	LW
V6NK6J	*	3.620	-0.172	-2.64	4.490	-0.141	-1.99	XX
V7H9KT		3.700	-0.092	-1.41	4.610	-0.021	-0.29	TM
VFEFLR		3.820	0.028	0.43	4.700	0.069	0.98	EM
X9NE87		3.790	-0.002	-0.03	4.580	-0.051	-0.72	TM
XLLMUL		3.839	0.047	0.71	4.741	0.110	1.56	LW
XYD9YW		3.755	-0.037	-0.57	4.577	-0.053	-0.76	TM
Y23J73		3.827	0.035	0.53	4.673	0.043	0.60	LW
YYDAW2		3.766	-0.026	-0.40	4.597	-0.033	-0.47	TM
Z8NVJA		3.868	0.076	1.17	4.685	0.055	0.77	LW
ZRU2WN		3.824	0.032	0.49	4.626	-0.004	-0.06	LW
ZZ8K69	*	3.978	0.186	2.86	4.798	0.167	2.36	LW

Summary Statistics

	Sample GV11	Sample GV12
Grand Means	3.7920 mils	4.6306 mils
SD Btwn Labs	0.0652 mils	0.0708 mils

Statistics based on 63 of 64 reporting participants

Comments on assigned Data Flags for Test #360

E3K2HL (X) - Inconsistent in testing between samples.

Instrument Code List as Reported by the Labs

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

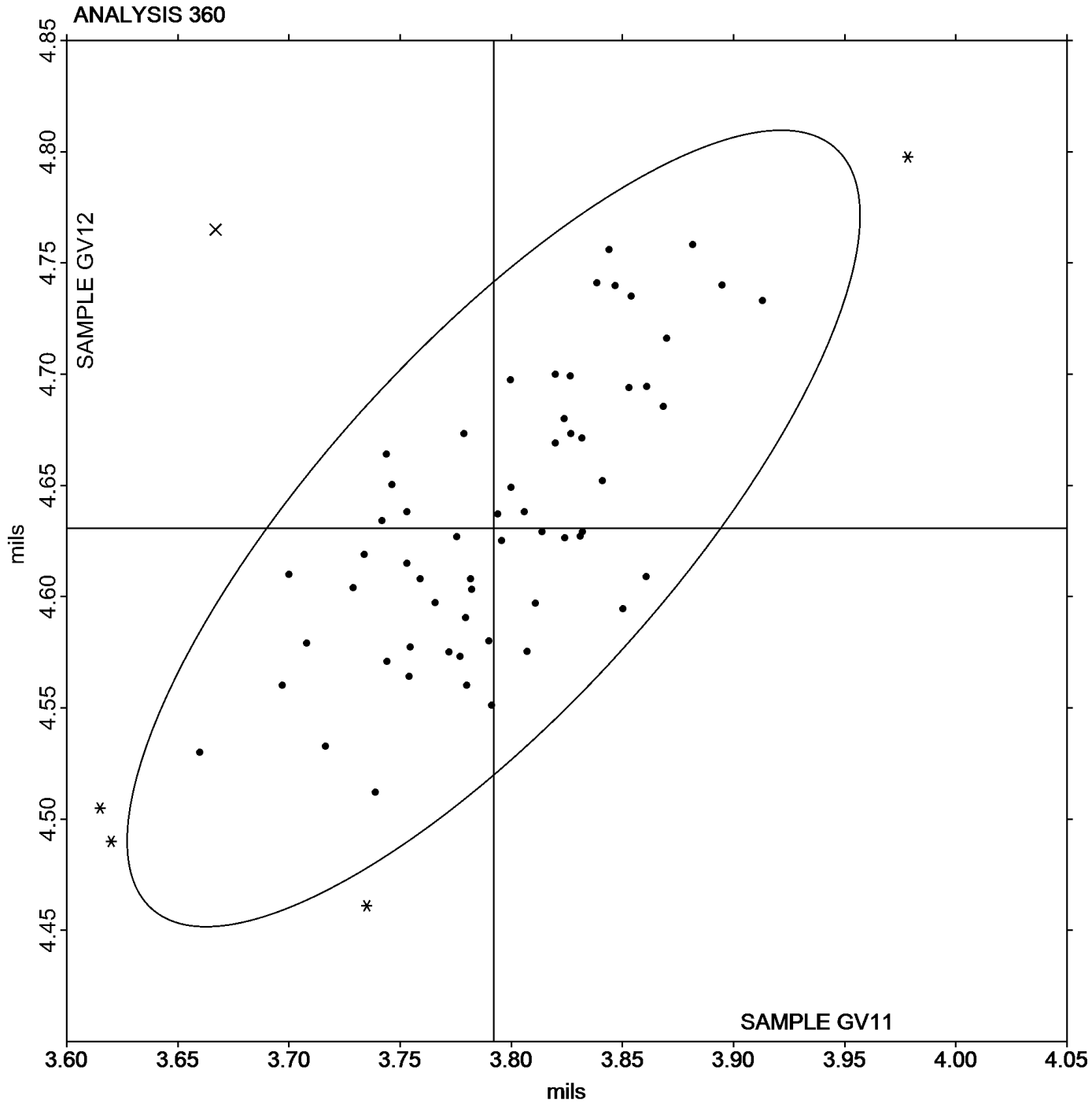
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV11** = 3.7920 mils

Grand Mean Sample **GV12** = 4.6306 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY11 Lab Mean	Sample GY11 Diff from Grand Mean	Sample GY11 CPV	Sample GY12 Lab Mean	Sample GY12 Diff from Grand Mean	Sample GY12 CPV	Instr Code
4MM9AN		7.585	-0.045	-0.29	9.333	-0.127	-0.90	TM
646TFK		7.781	0.151	0.98	9.655	0.194	1.37	EM
6GTVMQ		7.379	-0.251	-1.63	9.199	-0.262	-1.84	EM
7KLCEB		7.515	-0.115	-0.75	9.457	-0.004	-0.03	PP
899CHH		7.539	-0.091	-0.59	9.445	-0.016	-0.11	XX
8BDYVL		7.455	-0.175	-1.14	9.345	-0.116	-0.81	TA
ANBTGF		7.480	-0.150	-0.98	9.350	-0.111	-0.78	TM
AT8GXM		7.504	-0.126	-0.82	9.315	-0.146	-1.02	EM
ATTWMP		7.524	-0.106	-0.69	9.335	-0.126	-0.88	EM
B2KRYE		7.752	0.122	0.79	9.566	0.105	0.74	TM
BEH2AD		7.626	-0.005	-0.03	9.545	0.084	0.59	LW
D8WNLX		7.670	0.040	0.26	9.530	0.069	0.49	TM
E6L39H		7.633	0.003	0.02	9.412	-0.049	-0.34	TM
FNZDW8		7.421	-0.209	-1.36	9.203	-0.258	-1.81	TA
H6JFJ9		7.886	0.256	1.66	9.669	0.208	1.46	EM
H7RTXN		7.516	-0.115	-0.74	9.354	-0.106	-0.75	LA
HY7QLR		7.882	0.252	1.64	9.746	0.285	2.00	LA
KNFR77		7.761	0.131	0.85	9.542	0.081	0.57	TM
MBN22K		7.550	-0.080	-0.52	9.410	-0.051	-0.36	TM
MZP8ZA		7.280	-0.350	-2.28	9.180	-0.281	-1.97	LA
PPDTX7		7.725	0.095	0.61	9.557	0.096	0.68	XX
Q2QETC		7.558	-0.072	-0.47	9.416	-0.045	-0.31	EM
RACVPR		7.780	0.150	0.97	9.580	0.119	0.84	LA
RE8MXN		7.670	0.040	0.26	9.501	0.040	0.28	TA
RYC79Q		7.735	0.105	0.68	9.548	0.087	0.61	PP
RZRPTM	X	8.307	0.677	4.40	9.945	0.484	3.40	TM
UDCTK4		7.766	0.136	0.88	9.562	0.101	0.71	LA
V7H9KT		7.690	0.060	0.39	9.510	0.049	0.35	TM
VA9CMZ		7.804	0.174	1.13	9.580	0.119	0.84	EM
X9NE87		7.690	0.060	0.39	9.490	0.029	0.21	TM
YDWZV4		7.732	0.102	0.66	9.524	0.063	0.44	LW
YE4BGL		7.463	-0.167	-1.09	9.258	-0.203	-1.42	TM
YGBUCZ		7.933	0.303	1.97	9.697	0.236	1.66	XX
Z2BADJ		7.570	-0.060	-0.39	9.450	-0.011	-0.07	TA
ZRU2WN		7.575	-0.055	-0.36	9.398	-0.063	-0.44	LW

Summary Statistics

	Sample GY11	Sample GY12
Grand Means	7.6303 mils	9.4606 mils
SD Btwn Labs	0.1537 mils	0.1423 mils

Statistics based on 34 of 35 reporting participants

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

Comments on assigned Data Flags for Test #361

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

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

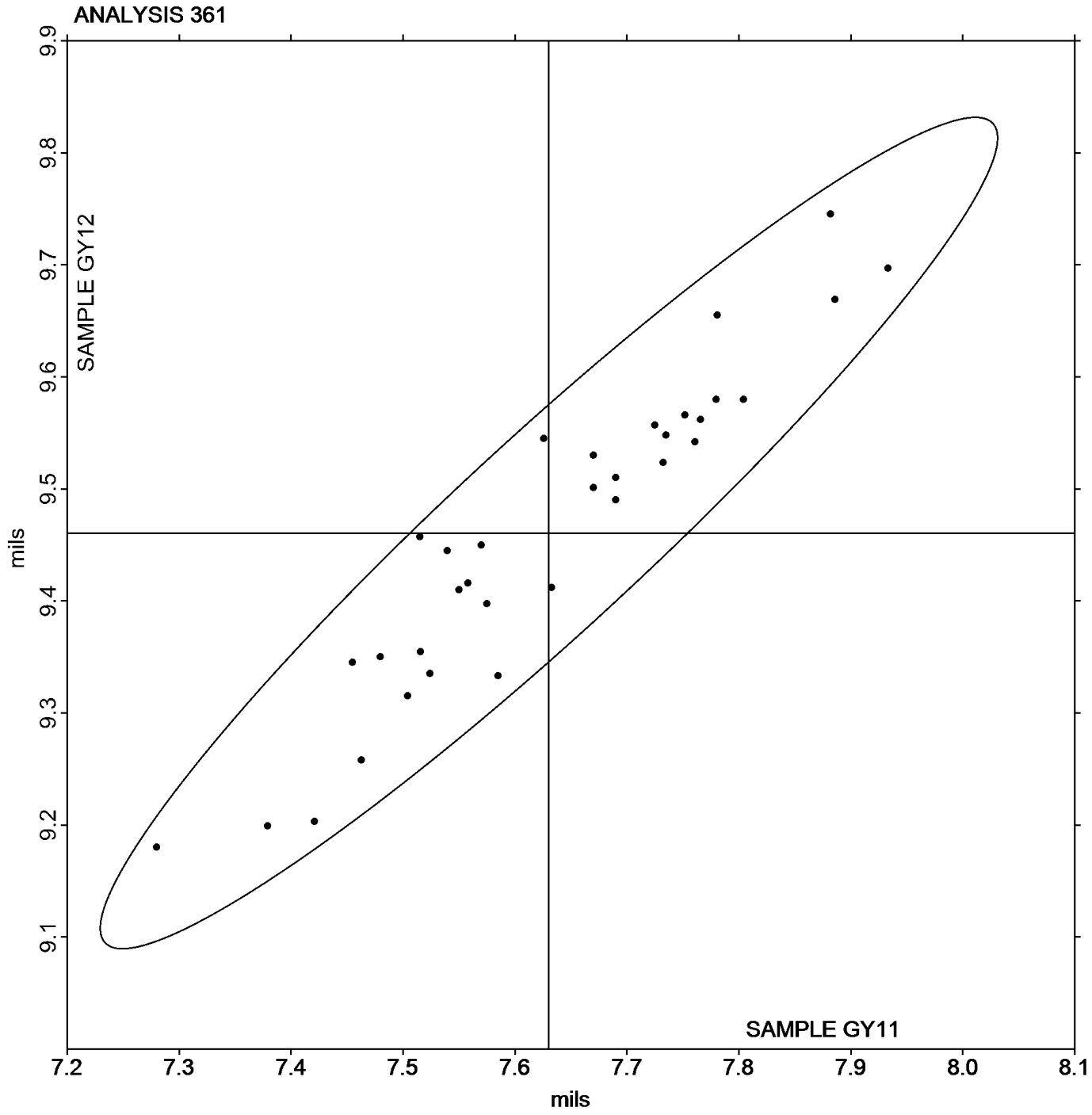
Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample **GY11** = 7.6303 mils

Grand Mean Sample **GY12** = 9.4606 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD11 Lab Mean	Sample GD11 Diff from Grand Mean	Sample GD11 CPV	Sample GD12 Lab Mean	Sample GD12 Diff from Grand Mean	Sample GD12 CPV	Instr Code
2CRJB2		0.6400	0.1060	1.28	0.6580	0.0815	1.14	TL
7GMZGQ		0.3542	-0.1798	-2.17	0.4388	-0.1377	-1.92	XX
HGWH3K		0.5672	0.0332	0.40	0.5724	-0.0041	-0.06	XX
HY7QLR		0.4738	-0.0602	-0.73	0.5224	-0.0541	-0.76	TA
L9KRUX		0.4900	-0.0440	-0.53	0.5000	-0.0765	-1.07	XX
PPDTX7		0.5618	0.0278	0.33	0.6292	0.0527	0.73	TM
T2ZZG4		0.6590	0.1250	1.51	0.6328	0.0563	0.78	TM
UTKC6U		0.4998	-0.0342	-0.41	0.5526	-0.0239	-0.33	IT
VFEFLR		0.5664	0.0324	0.39	0.6786	0.1021	1.42	TM
VG8QKV		0.5310	-0.0030	-0.04	0.5762	-0.0003	0.00	TA
WGZ8QN		0.5310	-0.0030	-0.04	0.5810	0.0045	0.06	CH

Summary Statistics

	Sample GD11	Sample GD12
Grand Means	0.53402 COF	0.57655 COF
SD Btwn Labs	0.08298 COF	0.07167 COF

Statistics based on 11 of 11 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

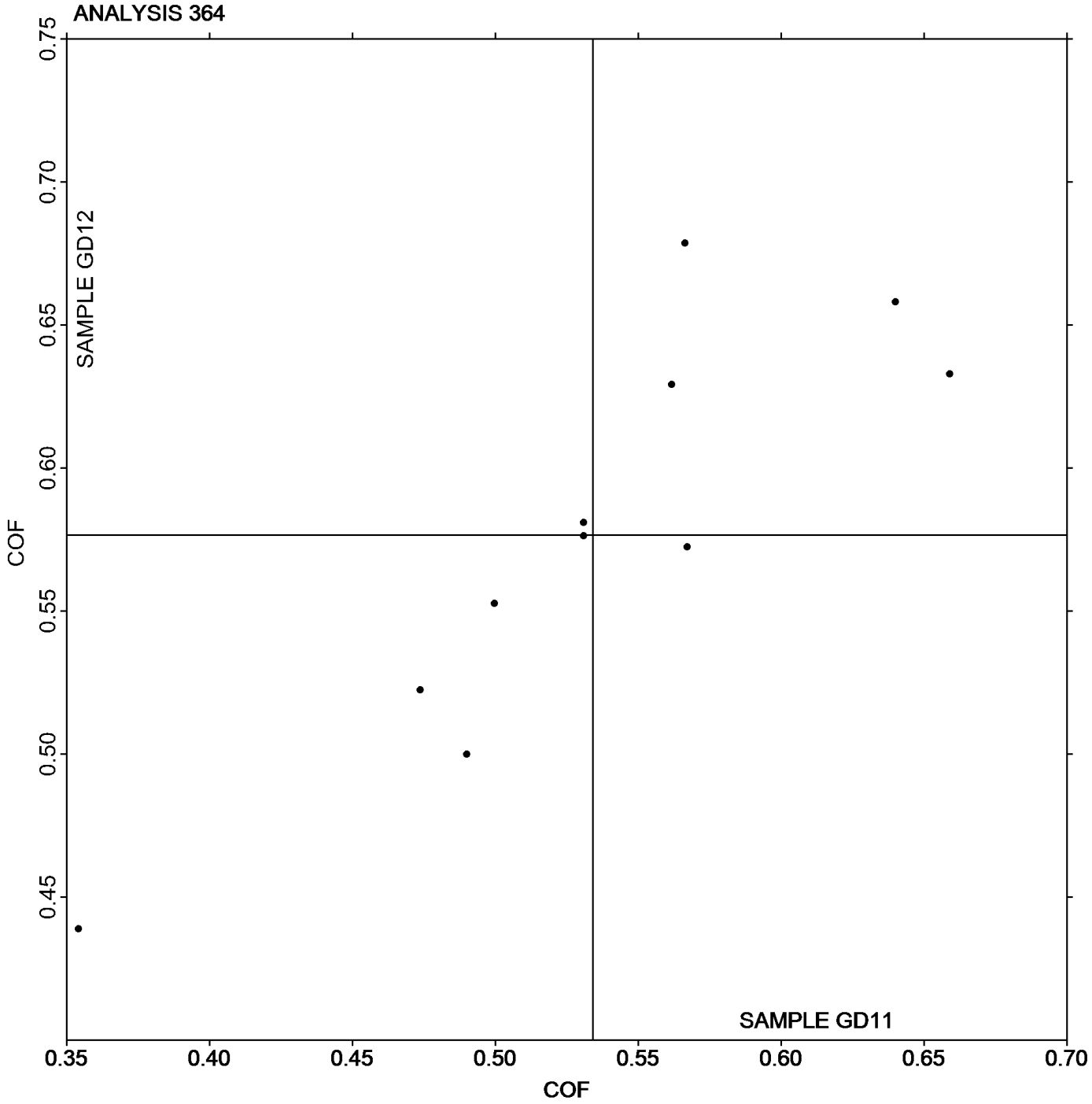
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD11** = 0.53402 COF

Grand Mean Sample **GD12** = 0.57655 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 GD11 Lab Mean	Sample GD11 Diff from Grand Mean	Sample GD11 CPV	Sample GD12 Lab Mean	Sample GD12 Diff from Grand Mean	Sample GD12 CPV	Instr Code
2CRJB2		0.5340	0.1359	1.64	0.5460	0.0921	1.21	TL
3J9B78		0.3578	-0.0403	-0.49	0.4686	0.0147	0.19	TM
7GMZGQ		0.2248	-0.1733	-2.09	0.2938	-0.1601	-2.10	XX
HJHRZ6		0.3698	-0.0283	-0.34	0.3938	-0.0601	-0.79	TM
HY7QLR		0.4158	0.0177	0.21	0.4876	0.0337	0.44	TA
K8H9PC		0.3566	-0.0415	-0.50	0.3908	-0.0631	-0.83	TA
L9KRUX		0.4420	0.0439	0.53	0.4820	0.0281	0.37	XX
PPDTX7		0.4874	0.0893	1.08	0.5502	0.0963	1.26	TM
PUF4BY		0.3788	-0.0193	-0.23	0.4052	-0.0487	-0.64	TA
T2ZZG4		0.4434	0.0453	0.55	0.4914	0.0375	0.49	TM
UTKC6U		0.3540	-0.0441	-0.53	0.3882	-0.0657	-0.86	IR
VFW28B		0.3110	-0.0871	-1.05	0.4256	-0.0283	-0.37	TA
VG8QKV		0.3816	-0.0165	-0.20	0.4620	0.0081	0.11	TA
WGZ8QN		0.5162	0.1181	1.43	0.5700	0.1161	1.52	CH

Summary Statistics

	Sample GD11	Sample GD12
Grand Means	0.39809 COF	0.45394 COF
SD Btwn Labs	0.08276 COF	0.07624 COF

Statistics based on 14 of 14 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

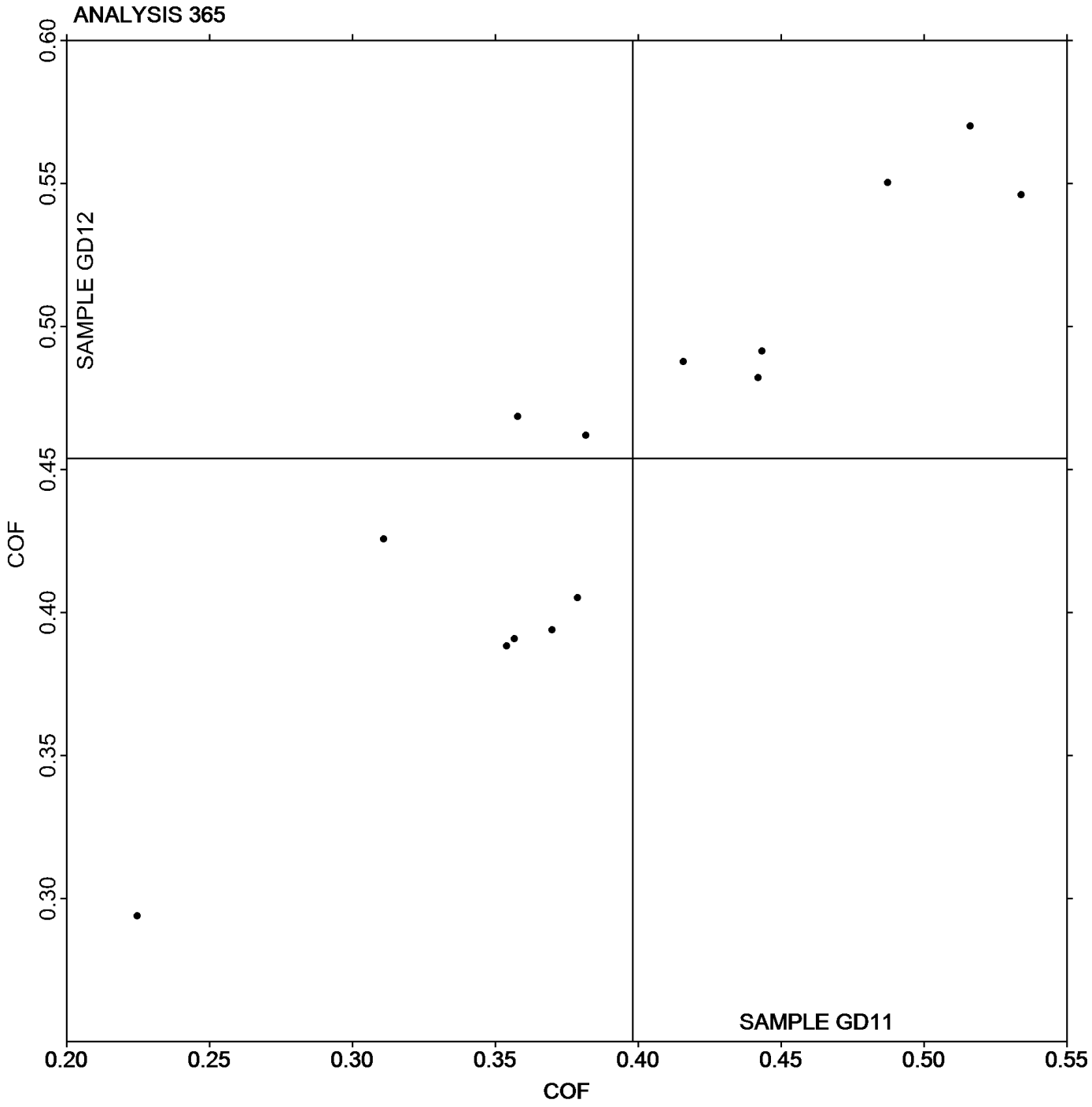
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD11** = 0.39809 COF

Grand Mean Sample **GD12** = 0.45394 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 GE11 Lab Mean	Sample GE11 Diff from Grand Mean	Sample GE11 CPV	Sample GE12 Lab Mean	Sample GE12 Diff from Grand Mean	Sample GE12 CPV	Instr Code
2CRJB2		10.76	-0.87	-1.12	12.73	0.14	0.22	LP
6VNAMK		12.30	0.67	0.86	12.98	0.39	0.62	TN
7GMZGQ		11.30	-0.33	-0.42	12.30	-0.29	-0.46	GS
7KLCEB		11.00	-0.63	-0.81	12.27	-0.32	-0.50	PP
9FME3P	*	9.91	-1.72	-2.20	10.71	-1.88	-2.97	TL
9M8A2D		11.04	-0.59	-0.75	13.11	0.52	0.82	HG
AAEDGL		11.59	-0.04	-0.05	11.32	-1.27	-2.01	RE
AN2P4G		12.49	0.86	1.10	12.98	0.39	0.62	LA
AT8E9H		10.73	-0.90	-1.15	12.39	-0.20	-0.32	TN
CHLVZV		12.26	0.63	0.81	13.41	0.82	1.30	GA
D8WNLX		12.08	0.45	0.58	12.24	-0.35	-0.55	GA
DBZRGC		11.19	-0.44	-0.56	12.59	0.00	0.00	LW
DQPNBA		11.85	0.22	0.28	12.40	-0.19	-0.30	HG
E3K2HL		11.65	0.02	0.03	13.12	0.53	0.84	HG
FYFRQG	X	16.24	4.61	5.91	17.50	4.91	7.76	LA
GH9V8G		10.83	-0.80	-1.02	11.89	-0.70	-1.11	XX
GVANDK		12.11	0.48	0.61	13.13	0.54	0.85	PP
HY7QLR		12.92	1.29	1.65	13.39	0.80	1.26	LA
L9KRUX		12.09	0.46	0.59	13.26	0.67	1.06	XX
MBN22K		11.02	-0.61	-0.78	13.08	0.49	0.78	TL
MWN3C3		11.40	-0.23	-0.29	12.52	-0.07	-0.11	LP
MZP8ZA		13.10	1.47	1.89	12.90	0.31	0.49	LA
PMW6W8		11.21	-0.42	-0.54	11.36	-1.23	-1.94	LP
Q2QETC		13.04	1.41	1.81	13.03	0.44	0.70	PP
Q8EYXD		10.16	-1.47	-1.88	11.81	-0.78	-1.23	XX
QLAC2M		11.96	0.33	0.42	12.91	0.32	0.51	PP
QNGWN3		12.10	0.47	0.60	12.87	0.28	0.44	GS
RYC79Q		12.28	0.65	0.83	13.81	1.22	1.92	PP
UHGKFV		12.08	0.45	0.58	12.65	0.06	0.10	LP
V6NK6J		13.26	1.63	2.09	12.64	0.05	0.08	WG
VE2FF6		11.51	-0.12	-0.15	12.12	-0.47	-0.74	LP
VFEFLR		10.95	-0.68	-0.88	12.61	0.02	0.03	PP
VG8QKV		12.24	0.61	0.78	12.68	0.09	0.14	WG
WZD4QT		12.23	0.60	0.77	13.25	0.66	1.04	XX
X9NE87		11.33	-0.30	-0.38	12.83	0.24	0.38	GA
XLLMUL		10.83	-0.79	-1.02	11.81	-0.78	-1.23	LP
XYD9YW		11.22	-0.41	-0.52	11.68	-0.91	-1.44	LW
Y23J73		11.20	-0.43	-0.55	12.50	-0.09	-0.14	LW
YDWZV4		10.57	-1.06	-1.36	12.38	-0.21	-0.33	LW
YGBUCZ		11.24	-0.39	-0.50	12.70	0.11	0.17	LW
YYDAW2		11.87	0.24	0.31	12.52	-0.07	-0.11	LP
ZRU2WN		11.90	0.27	0.35	13.30	0.71	1.12	TL

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

Summary Statistics

	Sample GE11	Sample GE12
Grand Means	11.629 sec/100 cc	12.590 sec/100 cc
SD Btwn Labs	0.780 sec/100 cc	0.633 sec/100 cc

Statistics based on 41 of 42 reporting participants

Comments on assigned Data Flags for Test #370

FYFRQG (X) - Extreme data.

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

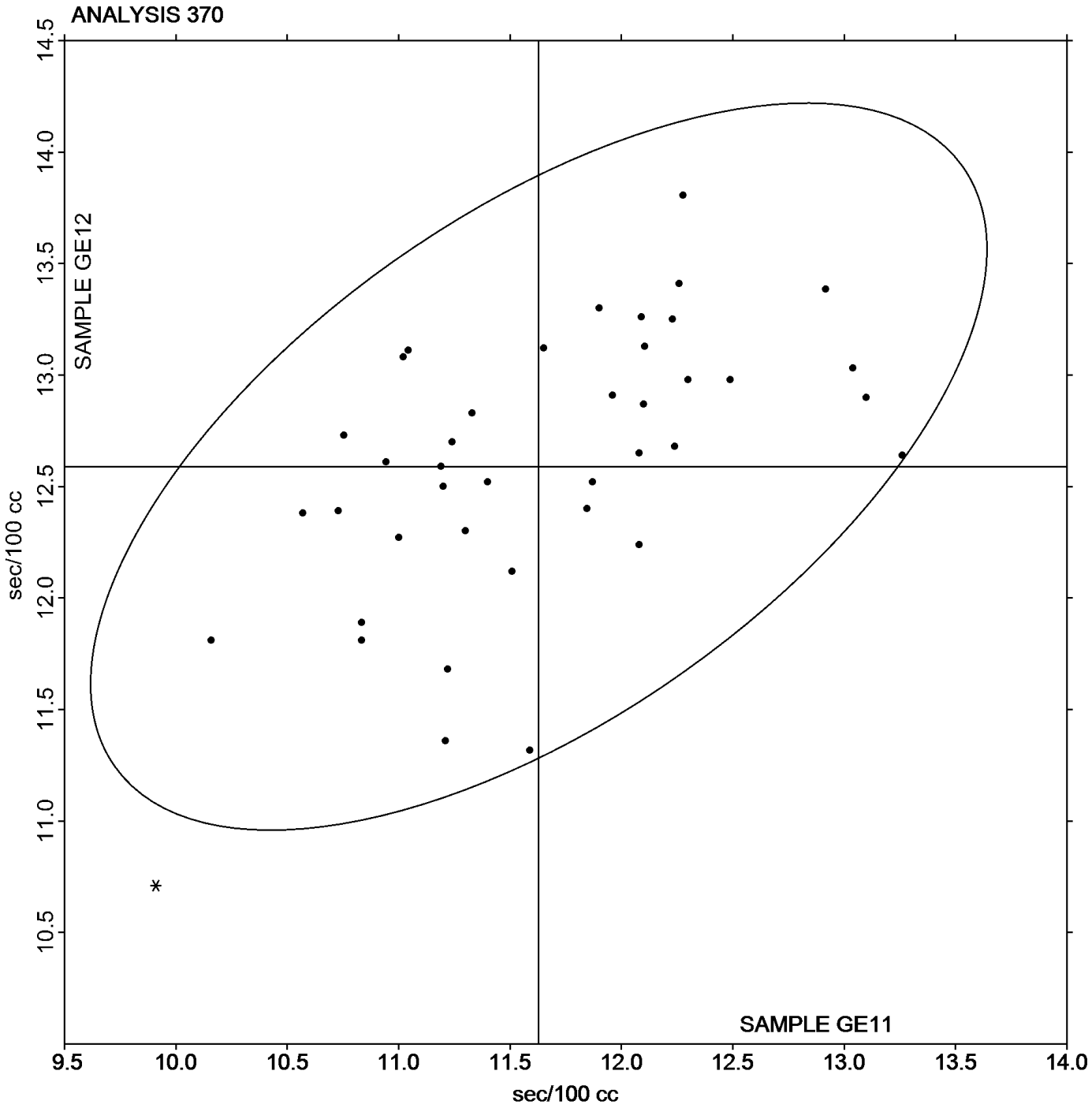
Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE11** = 11.629 sec/100 cc

Grand Mean Sample **GE12** = 12.590 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 GE11 Lab Mean	Sample GE11 Diff from Grand Mean	Sample GE11 CPV	Sample GE12 Lab Mean	Sample GE12 Diff from Grand Mean	Sample GE12 CPV	Instr Code
7GMZGQ		182.7	-35.0	-2.31	179.3	-20.9	-2.26	SH
9M8A2D		207.7	-10.0	-0.66	200.4	0.2	0.02	TT
DX9TGG		226.9	9.2	0.61	207.0	6.8	0.74	HM
E3K2HL	X	161.5	-56.2	-3.71	88.6	-111.6	-12.10	HM
ELVVAR		209.7	-8.0	-0.53	188.3	-11.9	-1.29	LP
EQTECQ		220.0	2.3	0.15	204.9	4.7	0.51	PP
FGWUCH		206.5	-11.2	-0.74	201.5	1.3	0.14	TT
FNZDW8		234.2	16.5	1.09	203.8	3.6	0.39	XX
GHZAZZ		221.3	3.6	0.24	209.3	9.1	0.99	TT
KFAQ4K		219.9	2.2	0.15	210.7	10.5	1.14	SH
M7QKM7		220.1	2.4	0.16	188.5	-11.7	-1.27	LP
Q2QETC		210.0	-7.7	-0.51	202.0	1.8	0.20	SH
Q6B74E		221.6	3.9	0.26	197.3	-2.8	-0.31	GA
TM4N8E		249.5	31.8	2.10	210.3	10.1	1.10	TT
X9NE87		217.3	-0.4	-0.02	199.1	-1.1	-0.12	GA
ZLK7XF	X	296.3	78.6	5.19	250.1	49.9	5.41	VM

Summary Statistics

	Sample GE11	Sample GE12
Grand Means	217.67 Sheffield Units	200.17 Sheffield Units
SD Btwn Labs	15.16 Sheffield Units	9.22 Sheffield Units

Statistics based on 14 of 16 reporting participants

Comments on assigned Data Flags for Test #372

E3K2HL (X) - Extreme data.

ZLK7XF (X) - Data for both samples are high.

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

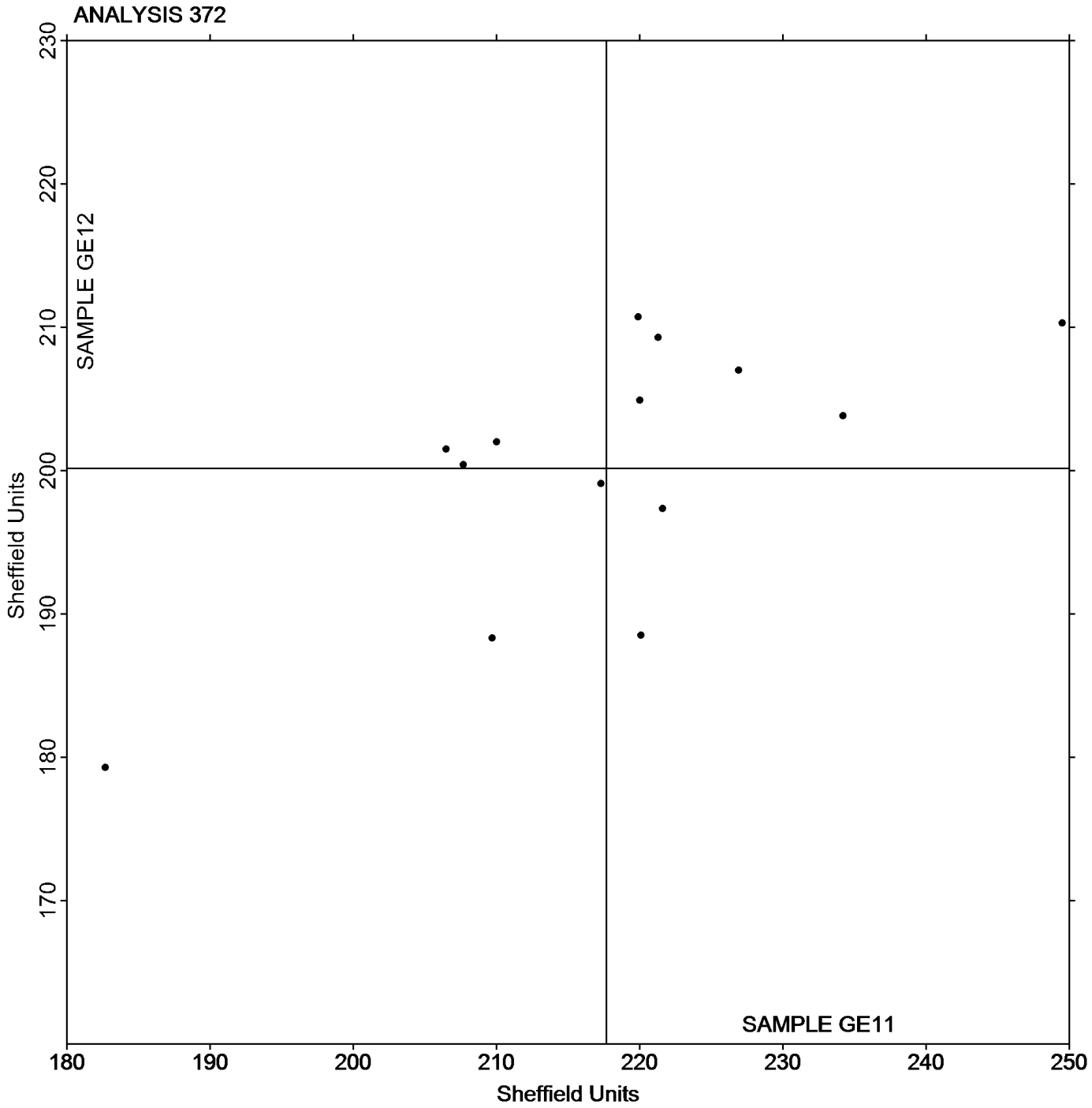
Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

Grand Mean Sample **GE11** = 217.67 Sheffield Units

Grand Mean Sample **GE12** = 200.17 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 GJ11 Lab Mean	Sample GJ11 Diff from Grand Mean	Sample GJ11 CPV	Sample GJ12 Lab Mean	Sample GJ12 Diff from Grand Mean	Sample GJ12 CPV
44P68D	X	1.5240	0.6106	5.59	1.1780	0.4253	4.99
646TFK		0.8300	-0.0834	-0.76	0.7060	-0.0467	-0.55
77RQ63		0.8440	-0.0694	-0.64	0.6920	-0.0607	-0.71
7BJU2M		0.9490	0.0356	0.33	0.8780	0.1253	1.47
7KLCEB		0.9960	0.0826	0.76	0.7220	-0.0307	-0.36
9M8A2D		0.9990	0.0856	0.78	0.7900	0.0373	0.44
9PUCN8		0.9230	0.0096	0.09	0.7620	0.0093	0.11
ATTWMP		0.9000	-0.0134	-0.12	0.7830	0.0303	0.36
BEH2AD		0.8110	-0.1024	-0.94	0.7120	-0.0407	-0.48
BXJMB8		0.9060	-0.0074	-0.07	0.7750	0.0223	0.26
E6PTCK		1.0180	0.1046	0.96	0.6760	-0.0767	-0.90
EHB4XP		0.9815	0.0681	0.62	0.9280	0.1753	2.06
H6JFJ9		0.7960	-0.1174	-1.08	0.7050	-0.0477	-0.56
H7RTXN		0.8410	-0.0724	-0.66	0.7230	-0.0297	-0.35
HBHYMY	*	1.0850	0.1716	1.57	0.9910	0.2383	2.80
K8H9PC		1.0300	0.1166	1.07	0.8180	0.0653	0.77
KCPXUD		0.9070	-0.0064	-0.06	0.7870	0.0343	0.40
L9KRUX		0.8230	-0.0904	-0.83	0.6860	-0.0667	-0.78
Q2QETC		1.0260	0.1126	1.03	0.7610	0.0083	0.10
QLAC2M		0.7380	-0.1754	-1.61	0.6460	-0.1067	-1.25
RACVPR		0.9100	-0.0034	-0.03	0.8300	0.0773	0.91
RKW6CZ		1.0220	0.1086	0.99	0.7600	0.0073	0.09
RYC79Q		0.8430	-0.0704	-0.64	0.6730	-0.0797	-0.94
UDCTK4		0.8810	-0.0324	-0.30	0.7060	-0.0467	-0.55
UTY4ZR	*	1.2460	0.3326	3.04	0.8750	0.1223	1.44
VA9CMZ		0.7800	-0.1334	-1.22	0.6640	-0.0887	-1.04
VFW28B		0.8820	-0.0314	-0.29	0.7090	-0.0437	-0.51
VG8QKV		0.7970	-0.1164	-1.07	0.6300	-0.1227	-1.44
YYDAW2		0.8830	-0.0304	-0.28	0.7490	-0.0037	-0.04
Z8NVJA		0.8420	-0.0714	-0.65	0.6920	-0.0607	-0.71

Summary Statistics

	Sample GJ11	Sample GJ12
Grand Means	0.91343 Microns	0.75272 Microns
SD Btwn Labs	0.10923 Microns	0.08515 Microns

Statistics based on 29 of 30 reporting participants

Comments on assigned Data Flags for Test #376

44P68D (X) - Data for both samples are high. Inconsistent within the determinations for Sample GJ12.

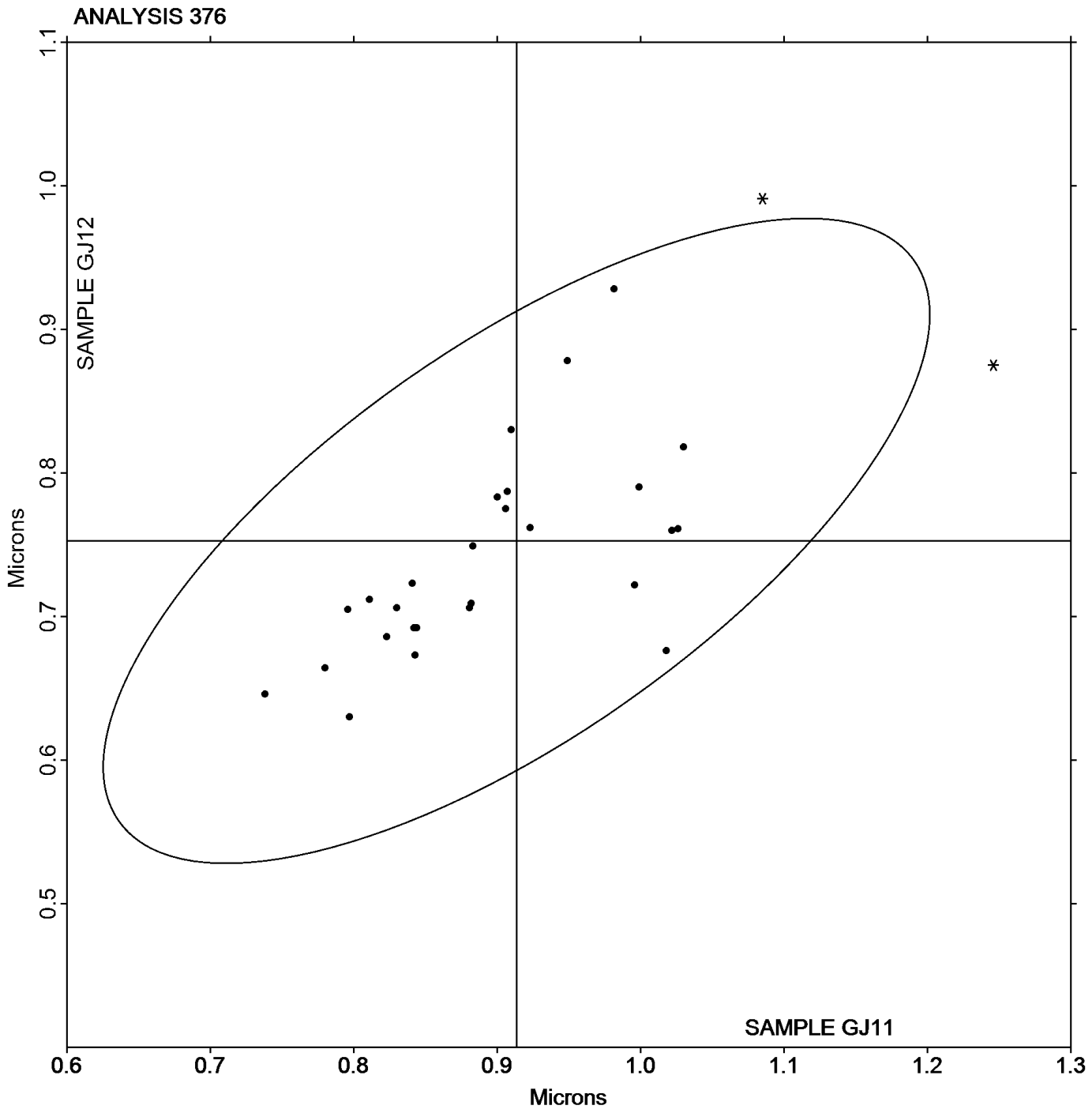
Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample **GJ11** = 0.91343 Microns

Grand Mean Sample **GJ12** = 0.75272 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK11 Lab Mean	Sample GK11 Diff from Grand Mean	Sample GK11 CPV	Sample GK12 Lab Mean	Sample GK12 Diff from Grand Mean	Sample GK12 CPV
2CRJB2		0.9140	-0.0276	-0.15	1.493	0.482	1.84
AN2P4G		0.8140	-0.1276	-0.67	0.788	-0.223	-0.85
HGWH3K	X	3.6530	2.7114	14.28	4.037	3.026	11.56
UTY4ZR		1.0000	0.0584	0.31	0.949	-0.062	-0.24
VFEFLR		0.8940	-0.0476	-0.25	0.885	-0.126	-0.48
VG8QKV		0.7200	-0.2216	-1.17	0.754	-0.257	-0.98
YE4BGL		1.1100	0.1684	0.89	1.120	0.109	0.42
ZLK7XF		1.2980	0.3564	1.88	1.270	0.259	0.99
ZRU2WN		0.7830	-0.1586	-0.84	0.831	-0.180	-0.69

Summary Statistics

	Sample GK11	Sample GK12
Grand Means	0.94163 Microns	1.0113 Microns
SD Btwn Labs	0.18987 Microns	0.2616 Microns

Statistics based on 8 of 9 reporting participants

Comments on assigned Data Flags for Test #377

HGWH3K (X) - Extreme data.

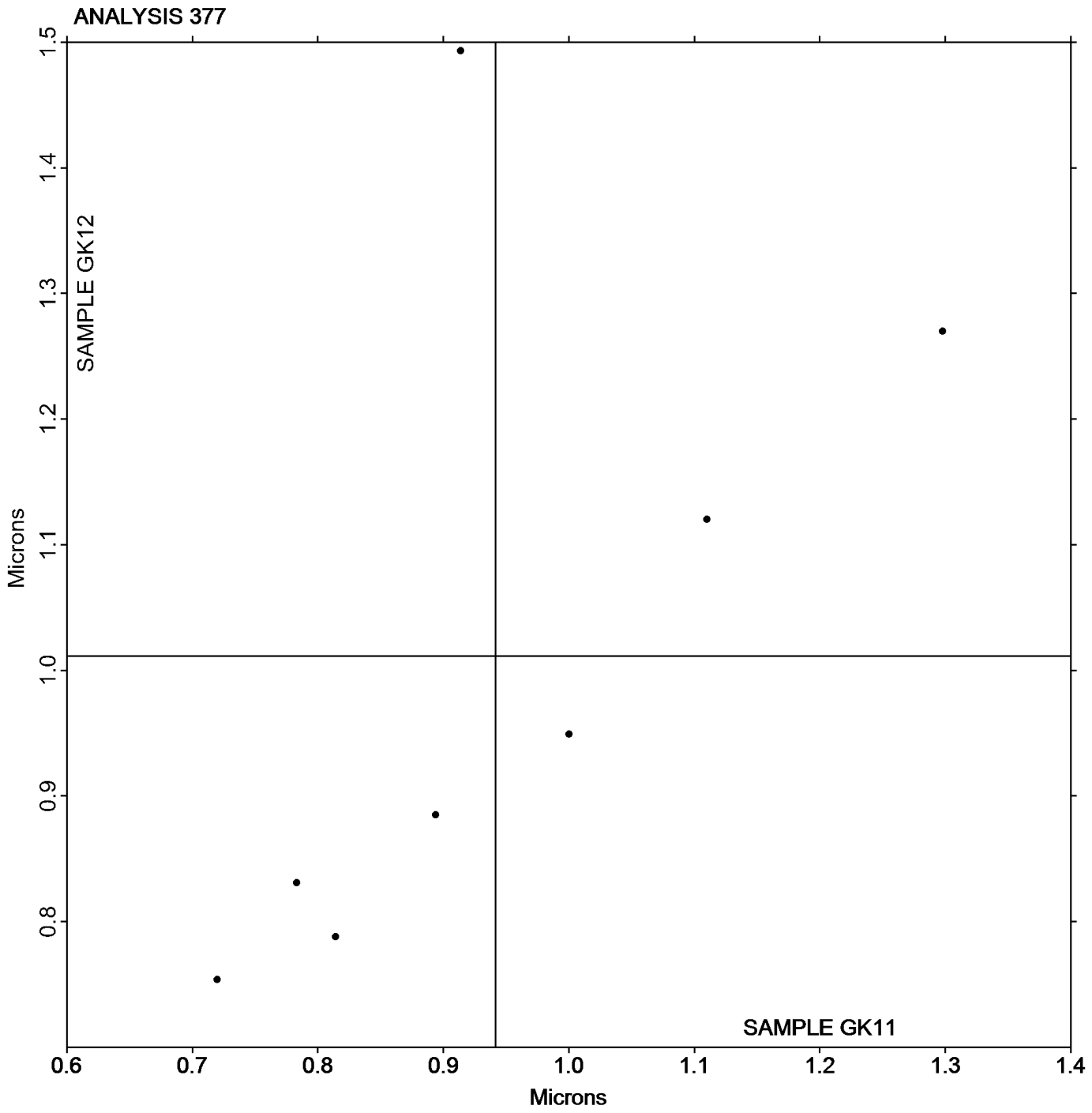
Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK11** = 0.94163 Microns

Grand Mean Sample **GK12** = 1.0113 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 GL11 Lab Mean	Sample GL11 Diff from Grand Mean	Sample GL11 CPV	Sample GL12 Lab Mean	Sample GL12 Diff from Grand Mean	Sample GL12 CPV	Instr Code
2CRJB2		165.6	4.0	0.47	95.70	3.45	0.43	LW
2D3FL8		161.3	-0.3	-0.04	85.70	-6.55	-0.82	PP
3J9B78		170.3	8.7	1.04	98.30	6.05	0.76	TS
646TFK	X	313.7	152.1	18.21	92.77	0.52	0.07	PP
7GMZGQ	X	171.9	10.3	1.23	126.60	34.35	4.32	XX
7KLCEB		159.3	-2.3	-0.28	81.74	-10.51	-1.32	PP
8BDYVL		165.2	3.6	0.43	87.51	-4.73	-0.60	PP
9FME3P		158.7	-3.0	-0.35	90.82	-1.43	-0.18	VM
9M8A2D		168.7	7.1	0.85	100.60	8.35	1.05	SH
9PUCN8		165.9	4.3	0.51	84.30	-7.95	-1.00	HM
AEREFX	X	124.3	-37.3	-4.47	81.00	-11.25	-1.42	TS
AN2P4G		176.1	14.5	1.73	94.60	2.35	0.30	LA
ANBTGF		171.1	9.5	1.13	105.30	13.05	1.64	GL
AT8E9H		158.6	-3.0	-0.36	93.00	0.75	0.09	TS
AT8GXM	*	176.5	14.9	1.78	114.00	21.75	2.74	TS
ATTWMP		148.3	-13.4	-1.60	82.14	-10.11	-1.27	PP
AYWWQZ		154.4	-7.2	-0.87	91.00	-1.25	-0.16	LA
B2KRYE		164.4	2.7	0.33	107.10	14.85	1.87	GA
BXJMB8		172.9	11.3	1.35	99.60	7.35	0.93	TT
DQPNBA		164.3	2.7	0.32	88.10	-4.15	-0.52	HM
DX9TGG		169.7	8.1	0.97	92.00	-0.25	-0.03	HM
E2TFZ9		151.6	-10.0	-1.20	96.50	4.25	0.54	SH
E3K2HL	X	217.5	55.9	6.69	214.80	122.55	15.43	HM
EQTECQ		166.6	5.0	0.59	88.00	-4.25	-0.53	PP
FGWUCH		162.5	0.9	0.10	98.00	5.75	0.72	TT
FNZDW8		161.4	-0.2	-0.03	83.80	-8.45	-1.06	HM
FYFRQG		155.9	-5.7	-0.69	81.51	-10.74	-1.35	LA
GHZAZZ		146.6	-15.0	-1.80	90.60	-1.65	-0.21	TT
GVANDK		177.5	15.9	1.90	91.57	-0.67	-0.08	PP
H6JFJ9	*	185.1	23.5	2.81	101.93	9.68	1.22	PP
HGWH3K		161.0	-0.6	-0.08	88.20	-4.05	-0.51	HM
K8H9PC		159.5	-2.1	-0.26	88.20	-4.05	-0.51	HM
KFAQ4K		152.6	-9.0	-1.08	87.20	-5.05	-0.64	SH
KNFR77		158.4	-3.2	-0.39	89.70	-2.55	-0.32	PP
L3AVPN		157.7	-3.9	-0.47	86.40	-5.85	-0.74	XX
M7QKM7		164.3	2.7	0.32	87.70	-4.55	-0.57	PP
Q2QETC		162.5	0.9	0.10	80.20	-12.05	-1.52	PP
Q6B74E		148.3	-13.4	-1.60	94.84	2.59	0.33	GA
Q8EYXD		161.8	0.2	0.02	96.30	4.05	0.51	PP
QLAC2M		156.5	-5.1	-0.62	87.10	-5.15	-0.65	HM
QNGWN3		155.5	-6.1	-0.74	92.50	0.25	0.03	SH
RACVPR		153.1	-8.5	-1.02	84.67	-7.58	-0.95	LA
RYC79Q		147.5	-14.1	-1.69	81.00	-11.25	-1.42	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

WebCode	Data Flag	Sample GL11 Lab Mean	Sample GL11 Diff from Grand Mean	Sample GL11 CPV	Sample GL12 Lab Mean	Sample GL12 Diff from Grand Mean	Sample GL12 CPV	Instr Code
RZRPTM	X	186.8	25.2	3.01	134.90	42.65	5.37	TT
T2ZZG4		162.2	0.5	0.06	87.90	-4.35	-0.55	PP
UDCTK4		164.3	2.7	0.32	89.60	-2.65	-0.33	LA
V6NK6J		167.4	5.8	0.69	100.50	8.25	1.04	PG
VA9CMZ		158.2	-3.4	-0.41	88.30	-3.95	-0.50	LA
VE2FF6		151.0	-10.6	-1.27	87.30	-4.95	-0.62	LW
VFEFLR		159.6	-2.1	-0.25	90.10	-2.15	-0.27	PP
VFW28B		167.5	5.9	0.70	94.80	2.55	0.32	HM
X8P9UT		166.7	5.1	0.61	84.60	-7.65	-0.96	GA
X9NE87		155.7	-5.9	-0.71	88.50	-3.75	-0.47	HM
XU24MV		173.5	11.9	1.42	108.60	16.35	2.06	TS
XYD9YW		156.5	-5.1	-0.62	105.50	13.25	1.67	TS
Y23J73		151.8	-9.8	-1.18	98.10	5.85	0.74	SH
Y4J2TR		157.4	-4.3	-0.51	98.69	6.44	0.81	PP
YYDAW2		148.2	-13.4	-1.61	98.80	6.55	0.82	TS
ZFD3KL		169.0	7.4	0.88	106.10	13.85	1.74	TT
ZRU2WN		163.9	2.3	0.27	78.79	-13.46	-1.69	PP

Summary Statistics

	Sample GL11	Sample GL12
Grand Means	161.64 Sheffield	92.247 Sheffield
SD Btwn Labs	8.35 Sheffield	7.944 Sheffield

Statistics based on 55 of 60 reporting participants

Comments on assigned Data Flags for Test #378

646TFK (X) - Extreme data.

7GMZGQ (X) - Data for Sample GL12 are high.

AEREFX (X) - Data for Sample GL11 are low.

E3K2HL (X) - Extreme data.

RZRPTM (X) - Data for both samples 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

(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

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

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

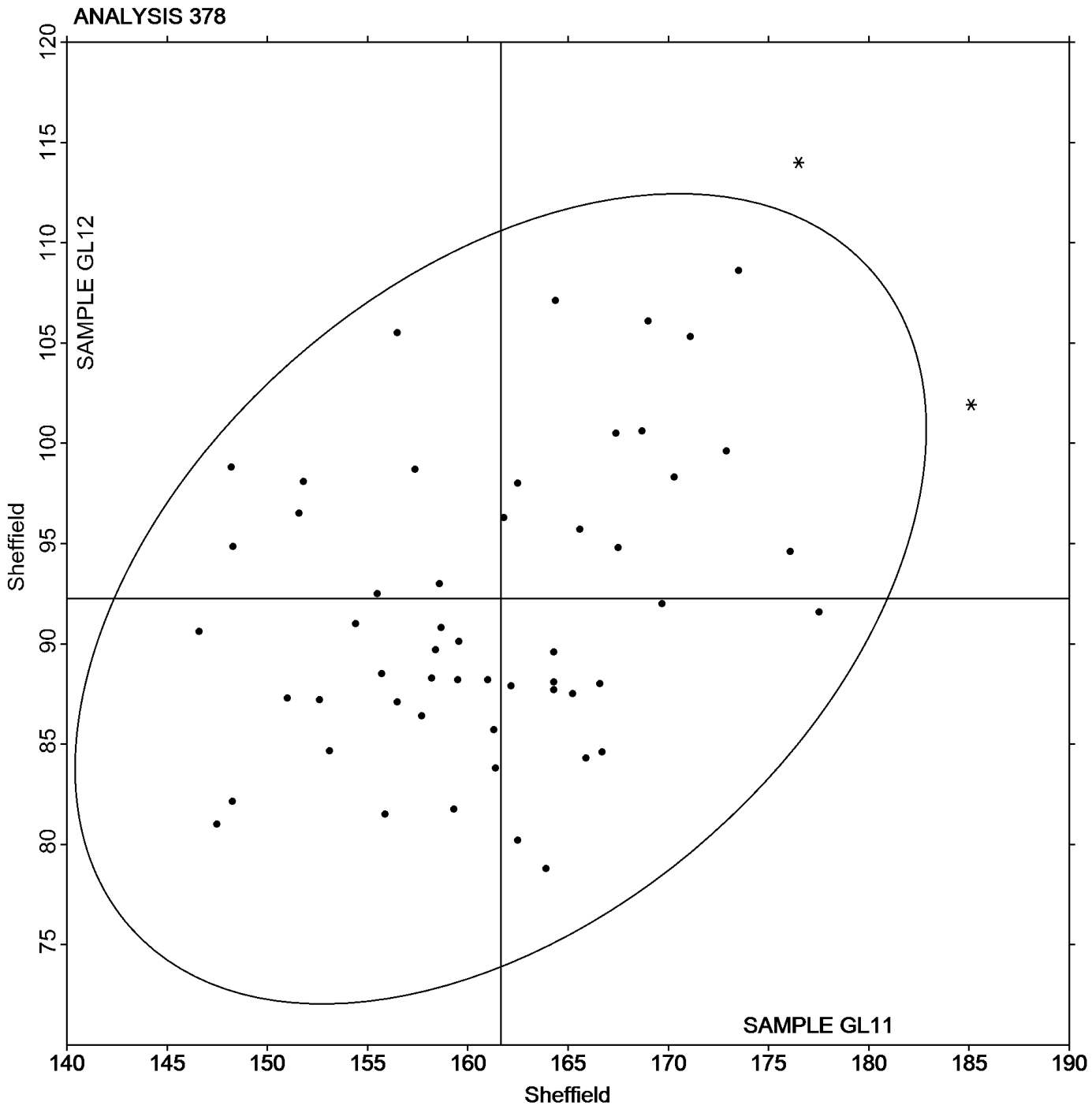
Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL11** = 161.64 Sheffield

Grand Mean Sample **GL12** = 92.247 Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

WebCode	Data Flag	Sample GM11 Lab Mean	Sample GM11 Diff from Grand Mean	Sample GM11 CPV	Sample GM12 Lab Mean	Sample GM12 Diff from Grand Mean	Sample GM12 CPV
AAEDGL		4.663	-0.340	-0.94	4.594	-0.226	-0.66
HGWH3K		4.940	-0.063	-0.18	4.510	-0.309	-0.91
KCPXUD		4.768	-0.236	-0.65	4.610	-0.209	-0.61
KNFR77		5.122	0.119	0.33	5.312	0.493	1.45
M6ENH2		5.710	0.707	1.96	5.140	0.321	0.94
MWN3C3		4.576	-0.427	-1.19	4.455	-0.364	-1.07
R9GBYL		5.058	0.055	0.15	4.743	-0.076	-0.22
RZRPTM		5.190	0.187	0.52	5.190	0.371	1.09
YE4BGL	X	2.287	-2.716	-7.54	5.190	0.371	1.09

Summary Statistics

	Sample GM11	Sample GM12
Grand Means	5.0033 Percent	4.8192 Percent
SD Btwn Labs	0.3604 Percent	0.3406 Percent

Statistics based on 8 of 9 reporting participants

Comments on assigned Data Flags for Test #382

YE4BGL (X) - Extreme data for Sample GM11.

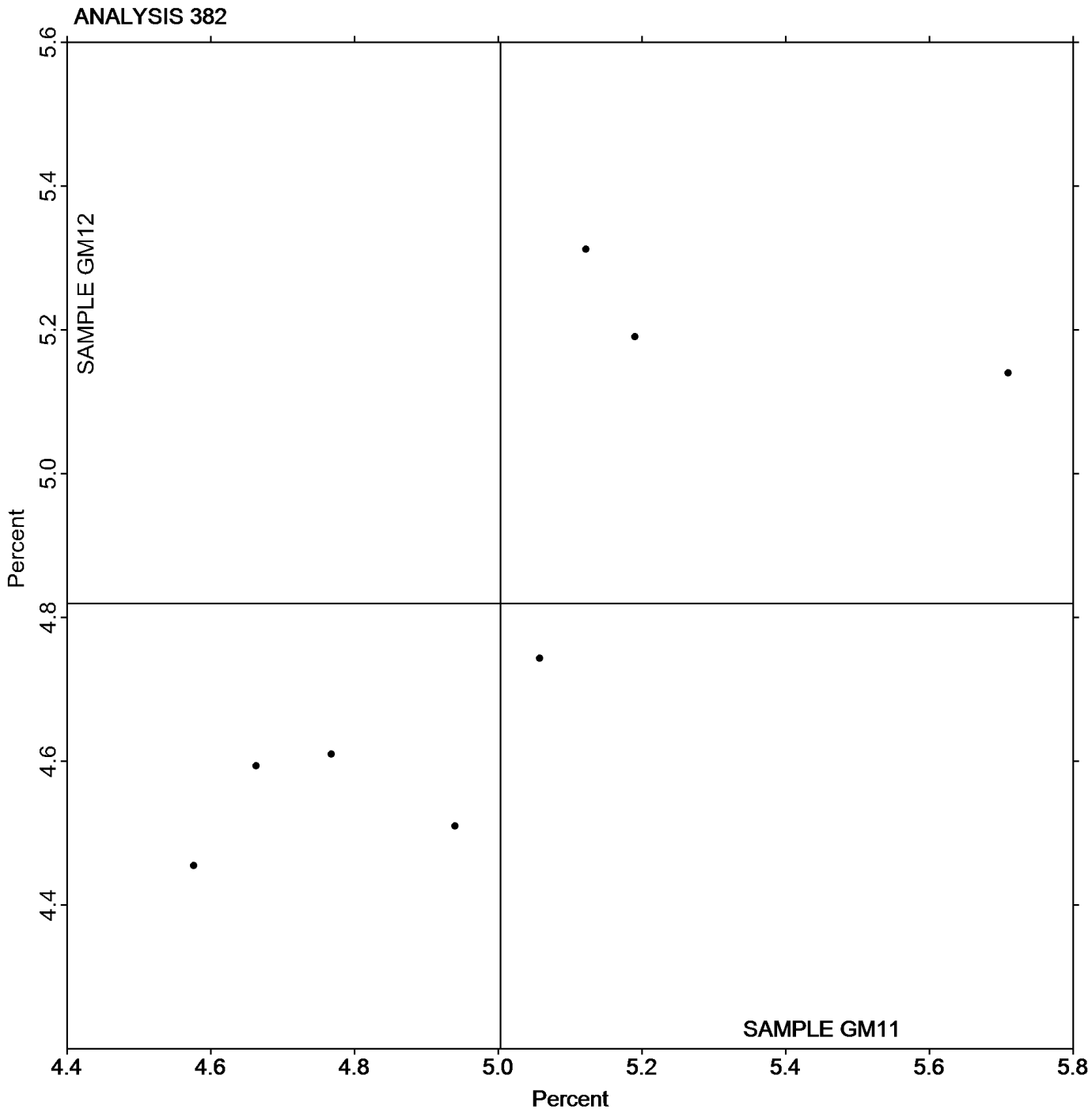
Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

Grand Mean Sample **GM11** = 5.0033 Percent

Grand Mean Sample **GM12** = 4.8192 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 GN11			Sample GN12		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2D3FL8		86.96	0.19	0.39	93.27	-0.17	-0.66
77RQ63		87.23	0.46	0.95	93.44	0.00	-0.01
7GMZGQ	X	81.39	-5.38	-11.01	92.16	-1.28	-4.87
9FME3P	*	87.58	0.81	1.67	93.07	-0.37	-1.41
9M8A2D		86.90	0.13	0.27	93.64	0.20	0.75
AN2P4G	*	85.71	-1.06	-2.17	92.69	-0.75	-2.86
ANBTGF		86.78	0.01	0.03	93.25	-0.19	-0.73
AT8E9H		86.51	-0.26	-0.53	93.56	0.12	0.44
E2TFZ9		86.36	-0.41	-0.83	93.61	0.17	0.63
E3K2HL		86.86	0.09	0.18	93.36	-0.08	-0.30
EHB4XP		86.81	0.04	0.09	93.12	-0.32	-1.23
EZFD6G		86.82	0.05	0.11	93.44	0.00	-0.01
FGWUCH	X	90.81	4.04	8.28	95.67	2.23	8.45
FNZDW8		86.76	-0.01	-0.02	93.27	-0.17	-0.66
FYFRQG		86.75	-0.02	-0.05	93.29	-0.16	-0.59
GH9V8G		86.98	0.21	0.43	93.70	0.26	0.97
GHZAZZ		87.66	0.89	1.83	93.97	0.53	2.00
GVANDK		86.89	0.12	0.25	93.52	0.08	0.29
HGWH3K		86.57	-0.20	-0.40	93.33	-0.11	-0.43
K8H9PC		87.47	0.70	1.43	94.04	0.59	2.26
KFAQ4K		86.83	0.06	0.12	93.51	0.07	0.25
L3AVPN		86.77	0.00	0.00	93.59	0.15	0.56
L4EZY7		86.28	-0.49	-1.00	93.61	0.17	0.63
L9KRUX		86.45	-0.32	-0.65	93.47	0.03	0.10
MBN22K		87.67	0.90	1.85	93.33	-0.11	-0.43
Q8EYXD		86.32	-0.45	-0.92	93.59	0.15	0.56
QLAC2M		86.57	-0.20	-0.40	93.63	0.19	0.71
QNGWN3		86.90	0.13	0.27	93.42	-0.02	-0.09
RKW6CZ		86.63	-0.14	-0.28	93.53	0.09	0.33
T2ZZG4		86.67	-0.10	-0.20	93.25	-0.19	-0.73
U4ZP3J		87.15	0.38	0.78	93.46	0.02	0.06
V6NK6J		86.02	-0.75	-1.53	93.03	-0.41	-1.57
VFEFLR		87.22	0.45	0.93	93.57	0.13	0.49
VFW28B		86.95	0.18	0.37	93.91	0.47	1.77
X9NE87	*	85.42	-1.35	-2.76	93.26	-0.18	-0.70
Y23J73		87.05	0.28	0.58	93.48	0.04	0.14
ZRU2WN		86.38	-0.39	-0.79	93.30	-0.14	-0.53

Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Summary Statistics

	Sample GN11	Sample GN12
Grand Means	86.768 Percent	93.443 Percent
SD Btwn Labs	0.488 Percent	0.264 Percent

Statistics based on 35 of 37 reporting participants

Comments on assigned Data Flags for Test #384

7GMZGQ (X) - Extreme data.

FGWUCH (X) - Extreme data.

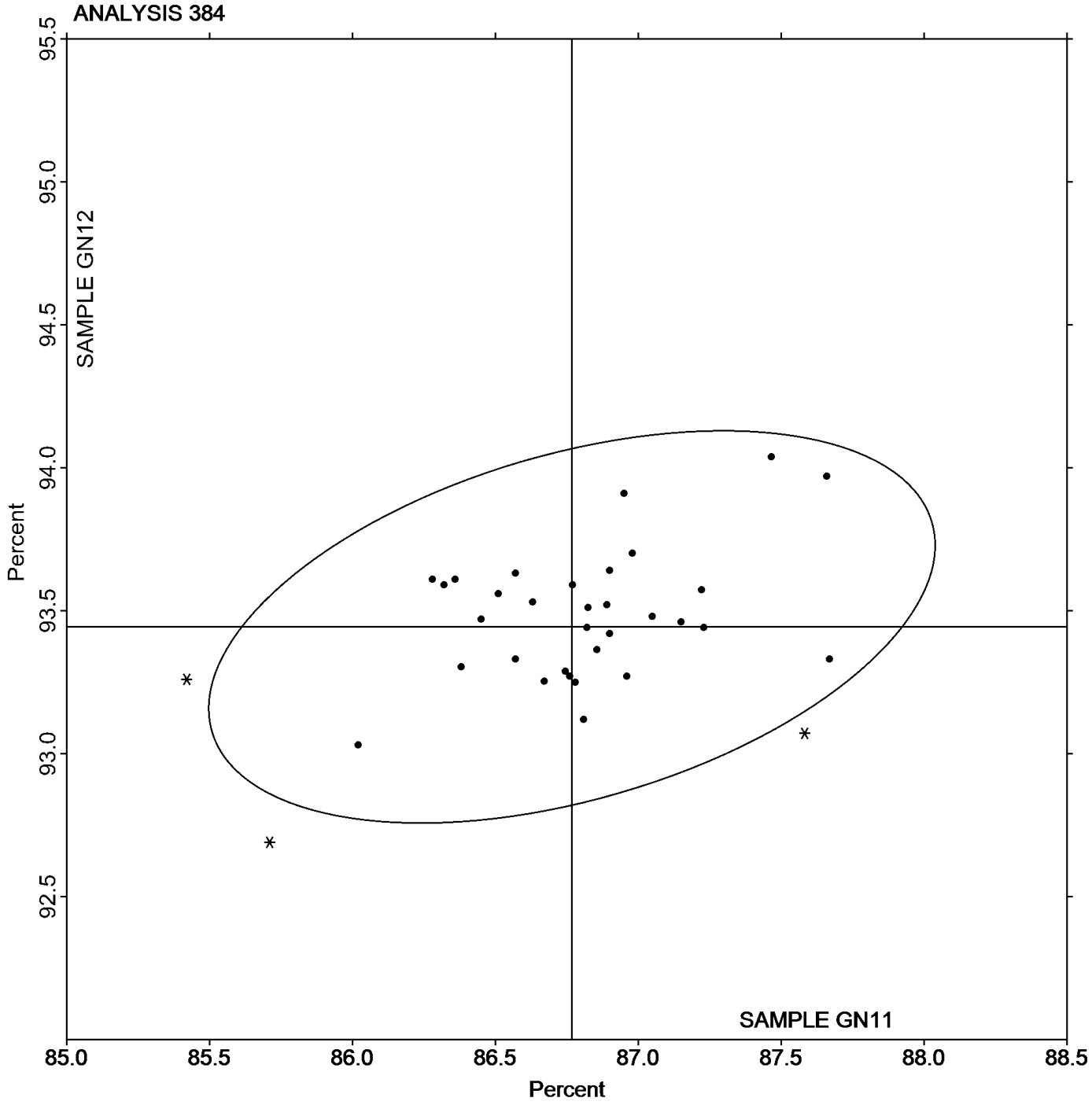
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN11** = 86.768 Percent

Grand Mean Sample **GN12** = 93.443 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

WebCode	Data Flag	Sample GP11 Lab Mean	Sample GP11 Diff from Grand Mean	Sample GP11 CPV	Sample GP12 Lab Mean	Sample GP12 Diff from Grand Mean	Sample GP12 CPV
79BKAP		89.11	0.18	1.06	93.47	0.07	0.71
7LGX7G	*	88.81	-0.12	-0.72	93.07	-0.33	-3.21
A8RXZQ		89.13	0.20	1.16	93.40	0.00	0.02
AAEDGL		89.01	0.08	0.45	93.46	0.06	0.57
BEH2AD		89.01	0.08	0.44	93.32	-0.08	-0.76
DX9TGG		89.00	0.07	0.40	93.34	-0.06	-0.58
EHB4XP		88.90	-0.03	-0.19	93.39	-0.01	-0.09
HY7QLR		88.94	0.01	0.07	93.55	0.15	1.51
K8H9PC		88.51	-0.42	-2.47	93.35	-0.04	-0.43
MERJV9		89.15	0.22	1.30	93.47	0.07	0.71
MWN3C3		88.93	0.00	0.01	93.43	0.03	0.28
P288W3		88.97	0.04	0.24	93.52	0.12	1.18
PPDTX7		89.11	0.18	1.07	93.41	0.02	0.15
URVD6X		89.01	0.08	0.48	93.43	0.03	0.34
XLLMUL		88.88	-0.05	-0.32	93.39	-0.01	-0.10
YDWZV4		88.87	-0.06	-0.37	93.40	0.00	0.04
YGBUCZ		88.62	-0.31	-1.83	93.42	0.02	0.22
ZZ8K69		88.80	-0.13	-0.78	93.34	-0.06	-0.57

Summary Statistics

	Sample GP11	Sample GP12
Grand Means	88.930 Percent	93.398 Percent
SD Btwn Labs	0.170 Percent	0.102 Percent

Statistics based on 18 of 18 reporting participants

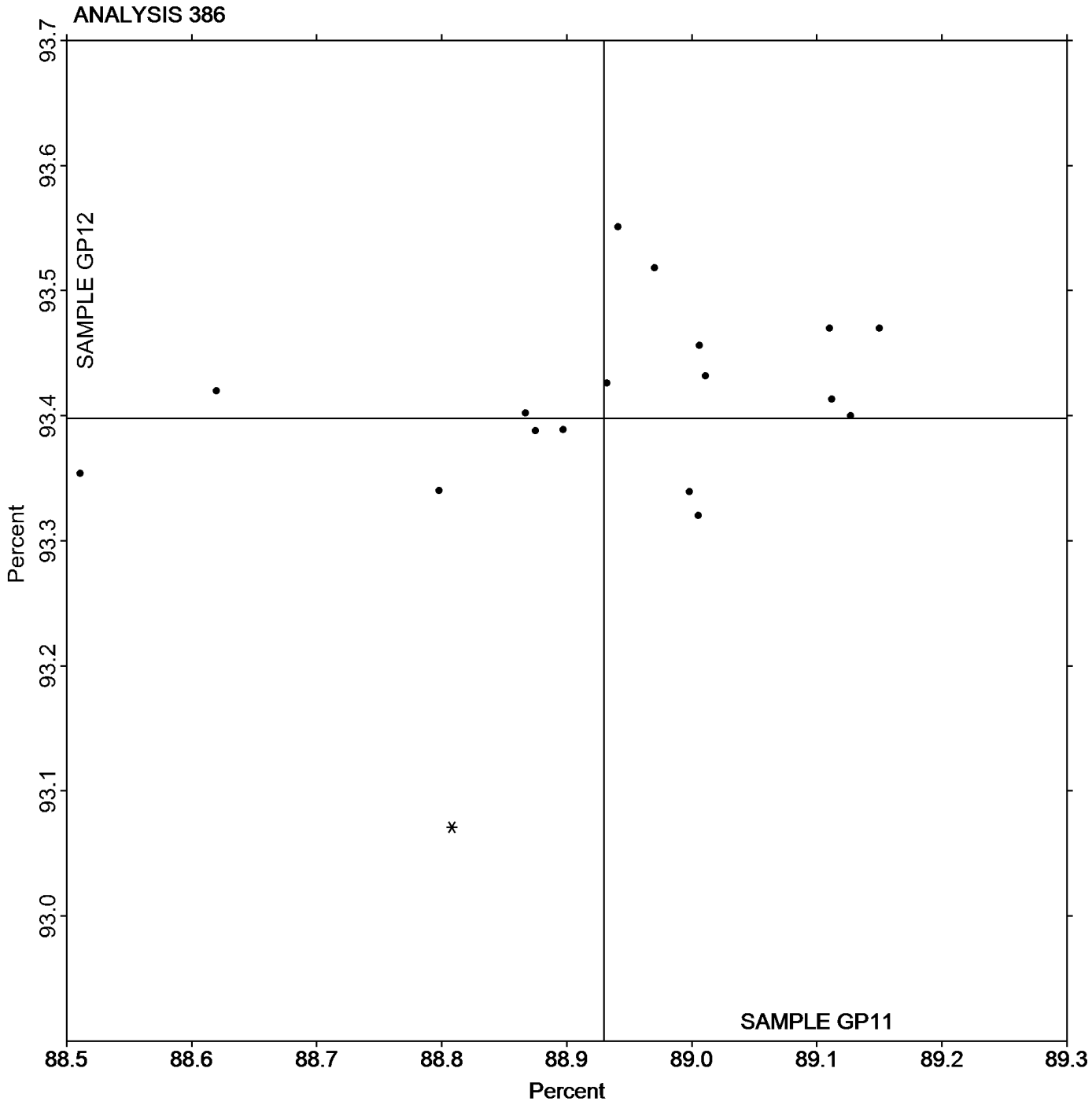
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP11** = 88.930 Percent

Grand Mean Sample **GP12** = 93.398 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 GR11 Lab Mean	Sample GR11 Diff from Grand Mean	Sample GR11 CPV	Sample GR12 Lab Mean	Sample GR12 Diff from Grand Mean	Sample GR12 CPV	Instr Code
2D3FL8		82.84	1.07	0.71	83.01	1.13	0.76	XX
2MEH38		83.79	2.02	1.34	83.90	2.02	1.35	HG
646TFK		83.10	1.34	0.88	83.10	1.22	0.82	HD
7GMZGQ		85.56	3.80	2.51	85.64	3.76	2.52	PE
8BDYVL		80.09	-1.68	-1.11	80.09	-1.79	-1.20	TS
AN2P4G		80.70	-1.06	-0.70	80.48	-1.40	-0.94	TS
AT8E9H		80.98	-0.79	-0.52	81.09	-0.79	-0.53	PE
AT8GXM	X	69.56	-12.20	-8.05	68.74	-13.14	-8.80	TS
ATTWMP		82.98	1.21	0.80	82.85	0.97	0.65	TT
BXJMB8		83.61	1.85	1.22	83.61	1.73	1.16	TT
E2TFZ9		80.96	-0.80	-0.53	81.05	-0.83	-0.55	TA
E3K2HL		80.71	-1.05	-0.70	80.69	-1.19	-0.79	TS
EHB4XP		79.80	-1.96	-1.29	79.66	-2.22	-1.49	TT
FGWUCH		82.96	1.20	0.79	83.19	1.31	0.88	TT
FNZDW8	*	80.15	-1.62	-1.07	81.14	-0.74	-0.49	GM
GH9V8G		82.83	1.06	0.70	83.06	1.18	0.79	TS
GVANDK		81.51	-0.25	-0.17	81.50	-0.38	-0.25	TT
H6JFJ9		83.63	1.86	1.23	83.77	1.89	1.26	HD
K8H9PC		80.05	-1.72	-1.13	80.07	-1.81	-1.21	TS
L3AVPN		80.89	-0.88	-0.58	81.26	-0.62	-0.41	XX
L9KRUX		80.98	-0.79	-0.52	80.84	-1.04	-0.70	TT
MBN22K	X	83.51	1.75	1.15	81.60	-0.28	-0.19	TS
RKW6CZ		82.02	0.26	0.17	82.03	0.15	0.10	MK
U4ZP3J		80.59	-1.18	-0.78	80.51	-1.37	-0.91	TT
V6NK6J		82.49	0.72	0.48	82.40	0.52	0.35	TS
VFW28B		80.63	-1.14	-0.75	80.90	-0.98	-0.66	TT
X9NE87	*	80.26	-1.50	-0.99	81.14	-0.74	-0.50	XX
YE4BGL	X	6.35	-75.41	-49.78	6.44	-75.44	-50.50	TS

Summary Statistics

	Sample GR11	Sample GR12
Grand Means	81.763 Percent	81.879 Percent
SD Btwn Labs	1.515 Percent	1.494 Percent

Statistics based on 25 of 28 reporting participants

Comments on assigned Data Flags for Test #390

AT8GXM (X) - Extreme data.

MBN22K (X) - Inconsistent in testing between samples.

YE4BGL (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

(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

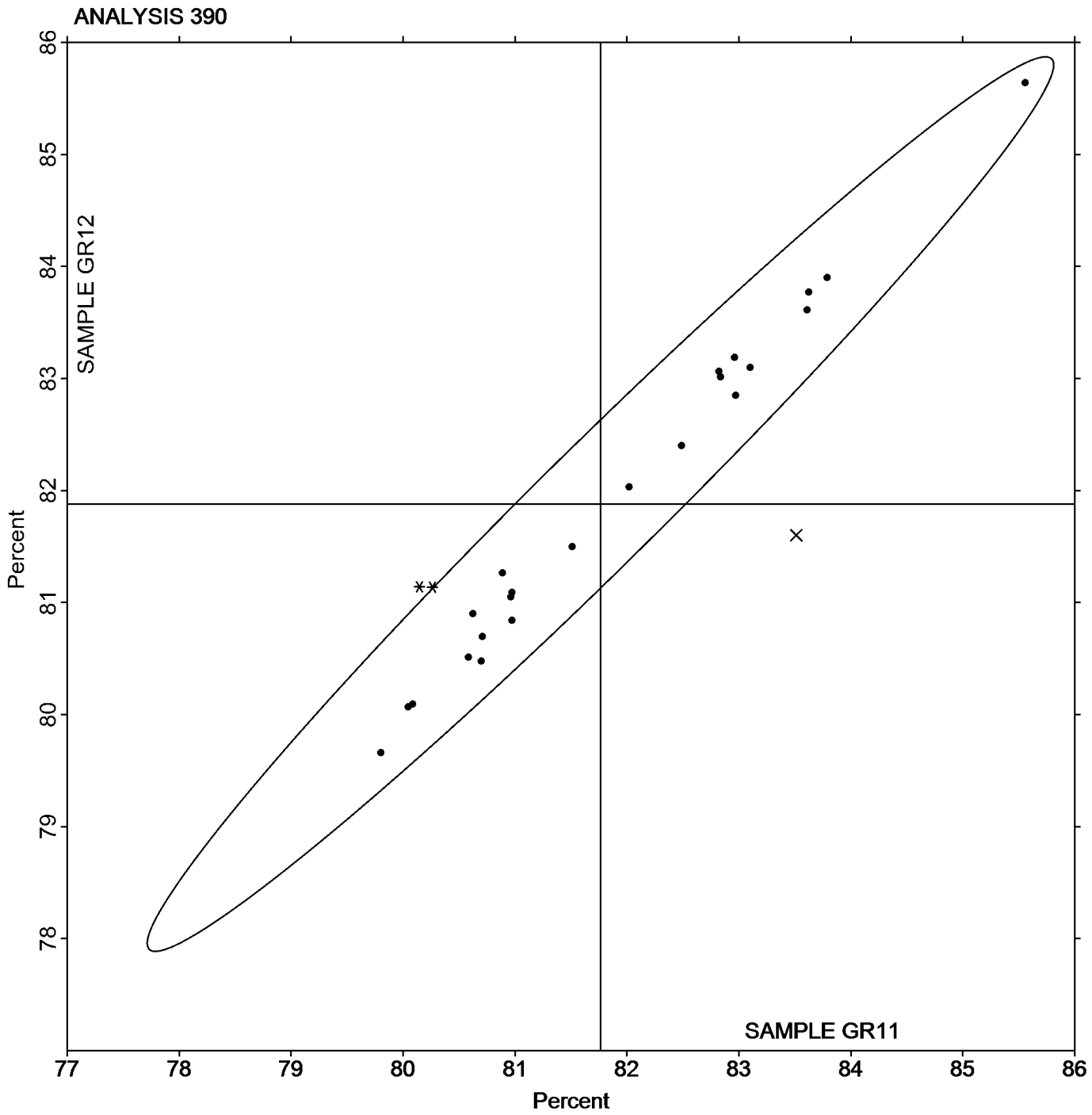
Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

Grand Mean Sample **GR11** = 81.763 Percent

Grand Mean Sample **GR12** = 81.879 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ11 Lab Mean	Sample GZ11 Diff from Grand Mean	Sample GZ11 CPV	Sample GZ12 Lab Mean	Sample GZ12 Diff from Grand Mean	Sample GZ12 CPV	Instr Code
77RQ63		90.19	0.32	0.32	98.37	0.24	0.24	PP
AT8E9H		90.17	0.30	0.30	98.50	0.37	0.38	TS
FNZDW8		87.29	-2.58	-2.60	95.63	-2.50	-2.52	GM
FYFRQG		90.28	0.41	0.41	98.74	0.61	0.61	TT
GHZAZZ		90.58	0.71	0.71	98.14	0.01	0.01	TT
QNGWN3		88.21	-1.66	-1.67	96.50	-1.63	-1.65	HT
QYZ7CV		90.26	0.39	0.39	98.55	0.41	0.42	TS
RACVPR		89.92	0.05	0.05	98.10	-0.03	-0.03	TT
T2ZZG4		90.18	0.31	0.31	98.74	0.61	0.62	TS
U4ZP3J		89.96	0.09	0.09	98.00	-0.13	-0.13	TT
UF2Y3F	X	90.78	0.91	0.92	99.56	1.43	1.45	TS
VFEFLR		90.14	0.27	0.27	98.49	0.36	0.36	TS
Y23J73		90.92	1.05	1.06	99.28	1.15	1.16	TS
ZRU2WN		90.22	0.35	0.35	98.66	0.53	0.53	TS

Summary Statistics

	Sample GZ11	Sample GZ12
Grand Means	89.870 Percent	98.131 Percent
SD Btwn Labs	0.993 Percent	0.990 Percent

Statistics based on 13 of 14 reporting participants

Comments on assigned Data Flags for Test #391

UF2Y3F (X) - Data appears to be transposed between Analysis #391 and Analysis #394. Data switched by CTS.

Instrument Code List as Reported by the Labs

(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

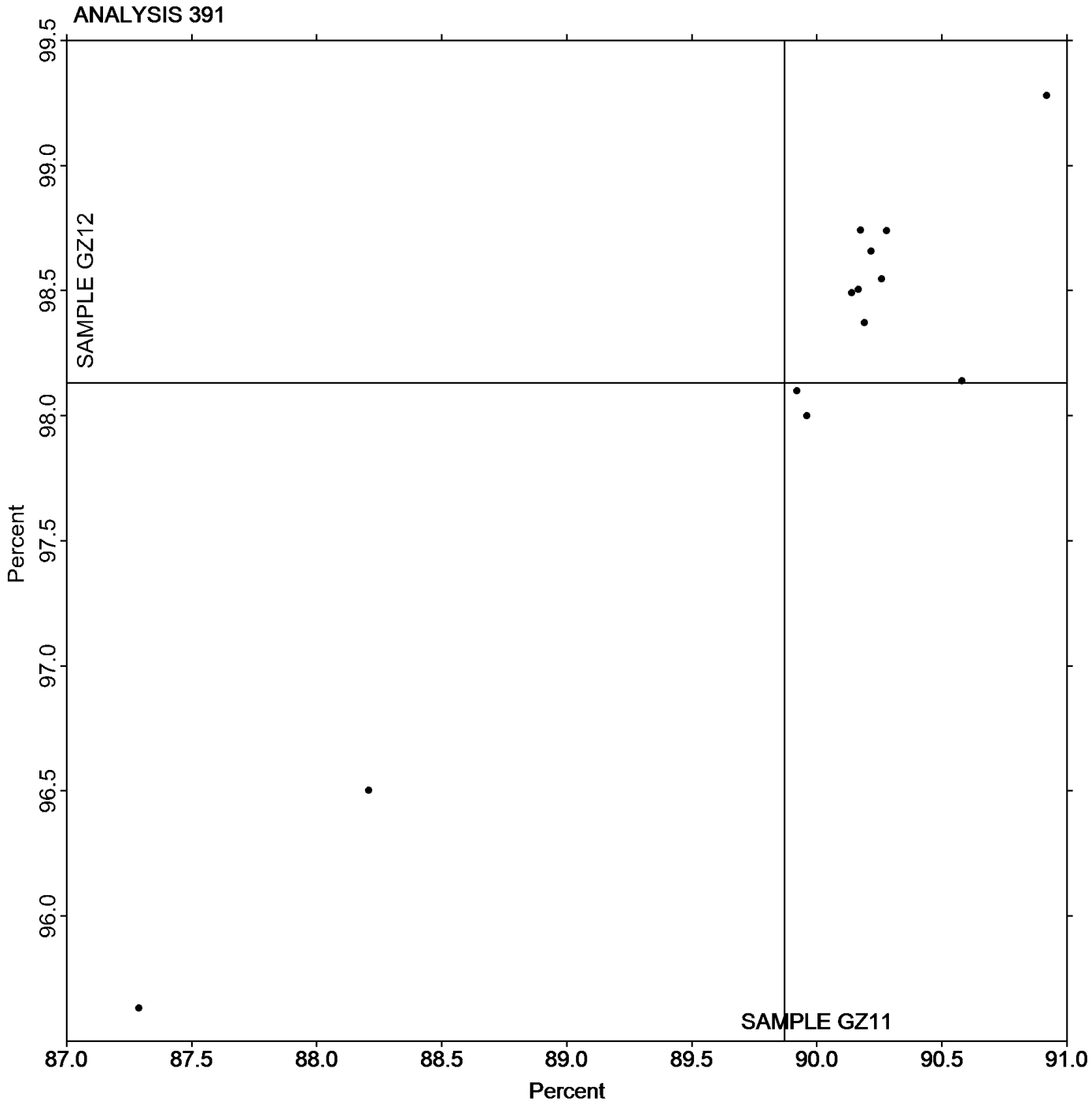
Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ11** = 89.870 Percent

Grand Mean Sample **GZ12** = 98.131 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 GR11 Lab Mean	Sample GR11 Diff from Grand Mean	Sample GR11 CPV	Sample GR12 Lab Mean	Sample GR12 Diff from Grand Mean	Sample GR12 CPV	Instr Code
7KLCEB		81.52	0.10	0.48	81.53	0.05	0.24	TC
7LGX7G		81.21	-0.21	-1.00	81.47	-0.01	-0.08	FR
92L49B		81.20	-0.22	-1.03	81.49	0.00	0.02	TC
9M8A2D		81.44	0.02	0.08	81.49	0.01	0.05	TC
AAEDGL	X	82.45	1.03	4.84	82.39	0.90	4.69	EG
AN2P4G		81.22	-0.20	-0.93	81.31	-0.18	-0.92	TC
ATTWMP		81.51	0.09	0.44	81.59	0.11	0.55	TL
BEH2AD		81.49	0.08	0.35	81.59	0.10	0.54	LS
BXJMB8		81.24	-0.18	-0.85	81.35	-0.13	-0.69	EG
DBZRGC		81.54	0.12	0.58	81.62	0.14	0.72	TC
DX9TGG		81.42	0.00	-0.01	81.58	0.10	0.50	TC
E6PTCK		81.32	-0.10	-0.47	81.39	-0.09	-0.46	TC
EHB4XP	X	82.36	0.94	4.41	82.43	0.94	4.90	TM
GMKZHG	X	71.47	-9.95	-46.72	71.39	-10.09	-52.41	TC
K8H9PC		81.34	-0.08	-0.37	81.34	-0.14	-0.73	TM
MERJV9		81.55	0.13	0.62	81.51	0.03	0.13	TC
MWN3C3		81.28	-0.14	-0.64	81.32	-0.16	-0.85	LS
P288W3		81.28	-0.14	-0.63	81.28	-0.20	-1.03	XX
PPDTX7		81.61	0.19	0.90	81.63	0.15	0.75	TM
PUF4BY		81.70	0.28	1.31	81.55	0.07	0.37	TC
Q22CQ2		81.29	-0.13	-0.60	81.40	-0.08	-0.41	TC
RKX2UB		81.76	0.34	1.61	81.86	0.37	1.94	EE
RYC79Q		81.50	0.08	0.37	81.56	0.07	0.38	PP
RZRPTM	*	80.76	-0.66	-3.08	80.90	-0.58	-3.02	LA
U4ZP3J		81.44	0.02	0.09	81.47	-0.01	-0.05	TC
URVD6X		81.65	0.23	1.09	81.60	0.11	0.59	TM
UTY4ZR		81.34	-0.08	-0.38	81.27	-0.21	-1.10	TC
VE2FF6		81.73	0.31	1.44	81.86	0.38	1.98	EF
Z8NVJA		81.55	0.14	0.63	81.59	0.11	0.58	TC

Summary Statistics

	Sample GR11	Sample GR12
Grand Means	81.419 Percent	81.482 Percent
SD Btwn Labs	0.213 Percent	0.192 Percent

Statistics based on 26 of 29 reporting participants

Comments on assigned Data Flags for Test #392

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

EHB4XP (X) - Systematic error (data for both samples are high).

GMKZHG (X) - Extreme data.

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

(FR) - Frank Instruments

(LA) - L & W Elrepho - Autoline

(LS) - L & W Elrepho SE 070

(PP) - Technidyne Profile/Plus

(TC) - Technidyne Color Touch Series

(TL) - Technidyne Technibrite TB-1

(TM) - Technidyne Technibrite Micro TB-1C

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

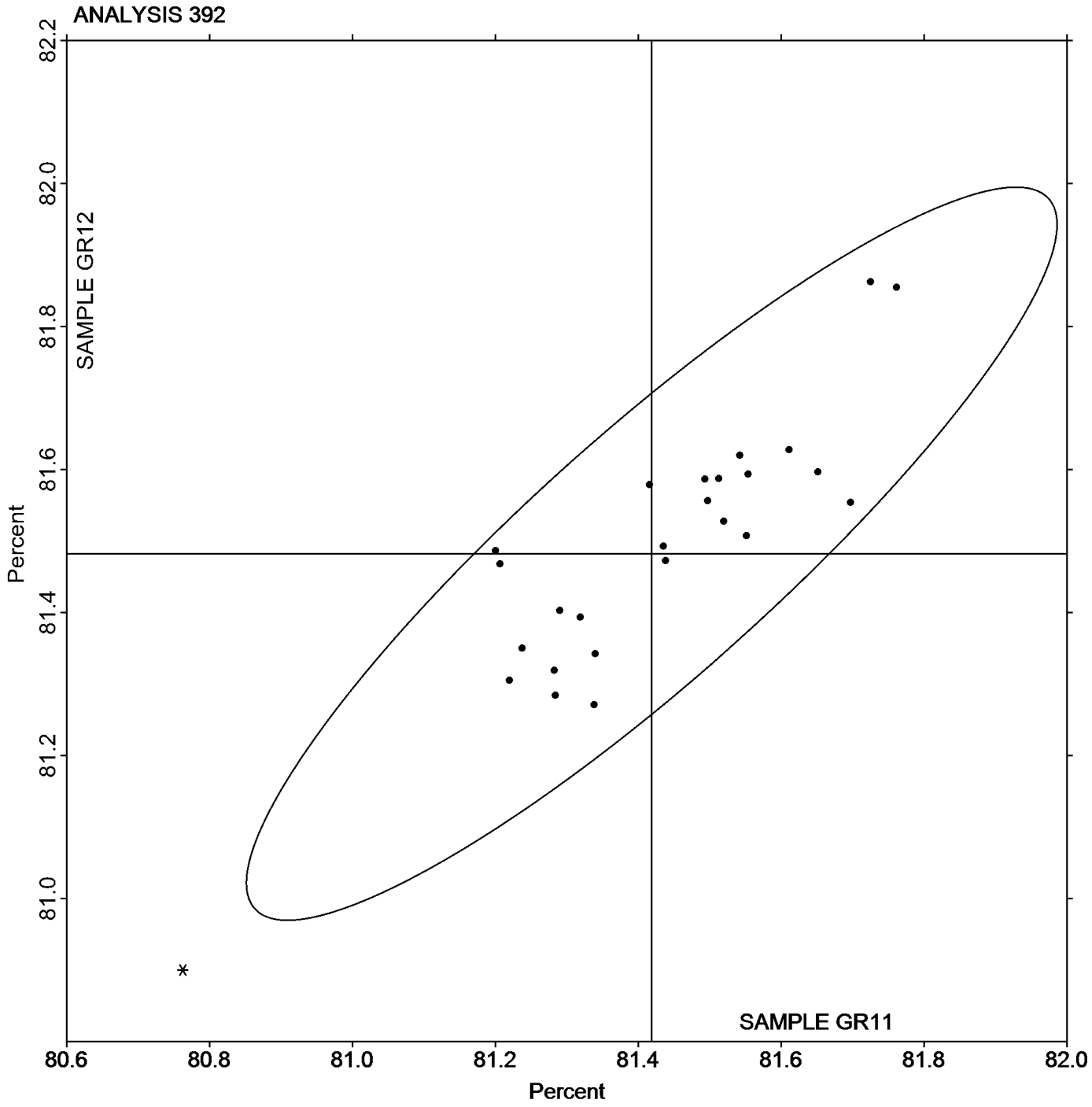
Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

Grand Mean Sample **GR11** = 81.419 Percent

Grand Mean Sample **GR12** = 81.482 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

WebCode	Data Flag	Sample GZ11 Lab Mean	Sample GZ11 Diff from Grand Mean	Sample GZ11 CPV	Sample GZ12 Lab Mean	Sample GZ12 Diff from Grand Mean	Sample GZ12 CPV	Instr Code
77RQ63		7.200	0.134	0.22	9.380	0.111	0.14	PP
AT8E9H		6.732	-0.334	-0.55	9.144	-0.125	-0.16	TS
FNZDW8		8.446	1.380	2.28	11.054	1.785	2.26	GM
FYFRQG		7.540	0.474	0.78	9.820	0.551	0.70	TT
QNGWN3		5.910	-1.156	-1.91	7.688	-1.581	-2.00	HT
QYZ7CV		6.998	-0.068	-0.11	9.162	-0.107	-0.14	TS
RACVPR		6.880	-0.186	-0.31	9.000	-0.269	-0.34	TT
T2ZZG4		6.924	-0.142	-0.24	9.146	-0.123	-0.16	TS
U4ZP3J		7.020	-0.046	-0.08	8.900	-0.369	-0.47	TT
UF2Y3F	X	6.888	-0.178	-0.29	9.048	-0.221	-0.28	TS
VFEFLR		6.998	-0.068	-0.11	9.304	0.035	0.04	TS
ZRU2WN		7.082	0.016	0.03	9.362	0.093	0.12	TS

Summary Statistics

	Sample GZ11	Sample GZ12
Grand Means	7.0664 Percent	9.2691 Percent
SD Btwn Labs	0.6051 Percent	0.7913 Percent

Statistics based on 11 of 12 reporting participants

Comments on assigned Data Flags for Test #394

UF2Y3F (X) - Data appears to be transposed between Analysis #394 and Analysis #391. Data switched by CTS.

Instrument Code List as Reported by the Labs

(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

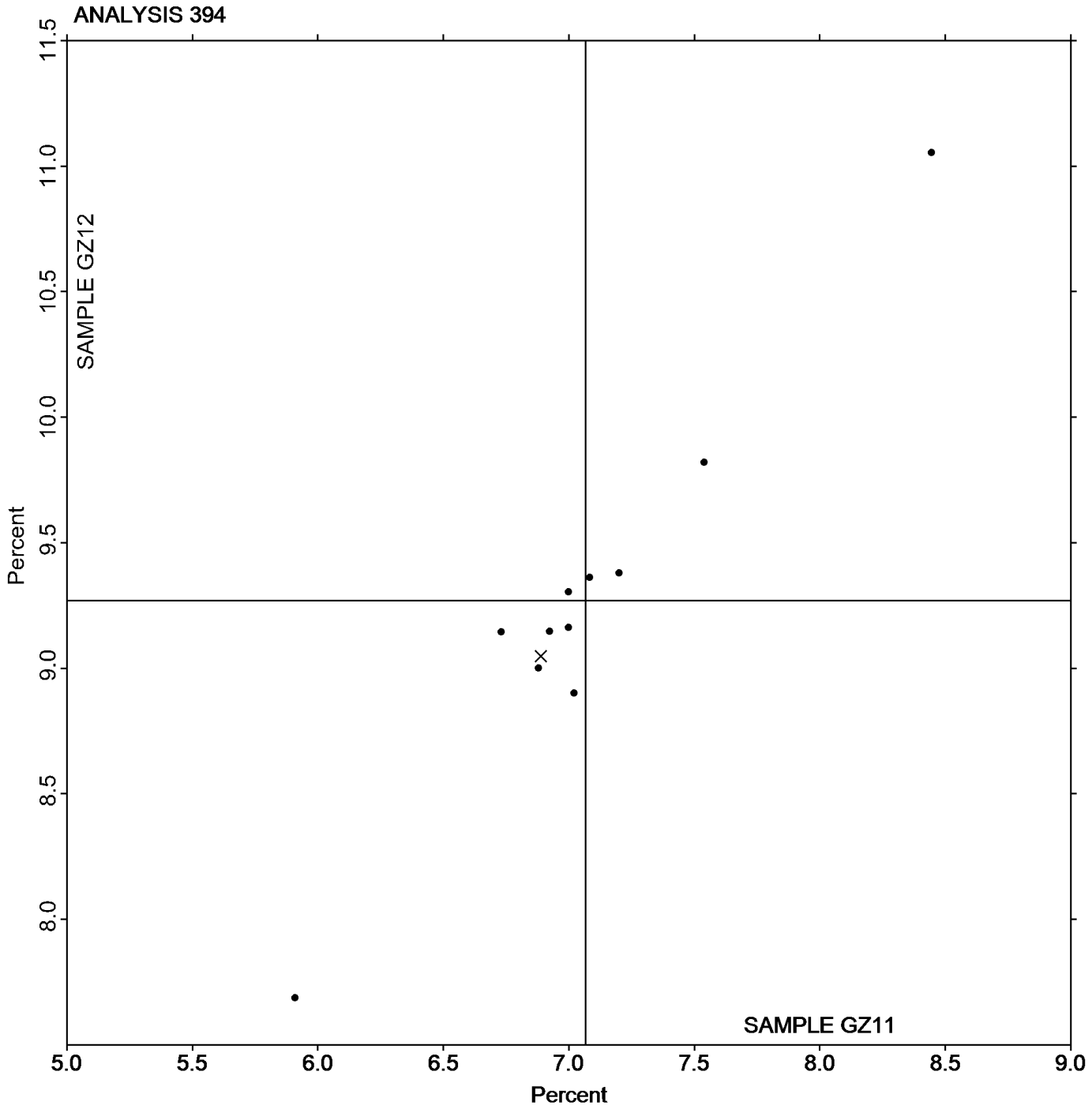
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ11** = 7.0664 Percent

Grand Mean Sample **GZ12** = 9.2691 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 GT11 Lab Mean	Sample GT11 Diff from Grand Mean	Sample GT11 CPV	Sample GT12 Lab Mean	Sample GT12 Diff from Grand Mean	Sample GT12 CPV	Instr Code
646TFK		68.41	1.29	0.49	75.29	1.15	0.60	TH
77RQ63		66.21	-0.91	-0.34	73.62	-0.52	-0.28	PP
79BKAP		69.20	2.08	0.79	74.00	-0.14	-0.08	GA
AAEDGL	*	59.77	-7.35	-2.79	69.05	-5.09	-2.68	TH
AT8GXM		64.36	-2.76	-1.05	73.57	-0.57	-0.30	TH
ATTWMP		65.99	-1.13	-0.43	72.12	-2.02	-1.06	GS
BEH2AD		68.39	1.27	0.48	73.30	-0.84	-0.44	LB
BXJMB8		62.51	-4.61	-1.75	73.58	-0.56	-0.30	GM
EHB4XP		70.06	2.94	1.12	77.64	3.50	1.84	TG
H6JFJ9		68.53	1.41	0.54	74.68	0.54	0.28	TH
K8H9PC		65.22	-1.90	-0.72	75.03	0.89	0.47	TH
L9KRUX		69.11	1.99	0.76	74.61	0.47	0.25	TG
P288W3		68.60	1.48	0.56	74.36	0.22	0.11	XX
Q2QETC		67.95	0.83	0.32	73.88	-0.26	-0.14	GM
RACVPR	X	78.20	11.08	4.21	86.50	12.36	6.50	LA
RKW6CZ		67.43	0.31	0.12	76.52	2.38	1.25	PP
UDCTK4		69.31	2.19	0.83	77.32	3.18	1.67	LA
UTY4ZR		66.92	-0.20	-0.08	72.83	-1.31	-0.69	ZH
VA9CMZ		67.76	0.64	0.24	74.14	0.00	0.00	TH
YYDAW2		69.52	2.40	0.91	73.18	-0.96	-0.51	TH

Summary Statistics

	Sample GT11	Sample GT12
Grand Means	67.118 Gloss Units	74.143 Gloss Units
SD Btwn Labs	2.633 Gloss Units	1.901 Gloss Units

Statistics based on 19 of 20 reporting participants

Comments on assigned Data Flags for Test #395

RACVPR (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

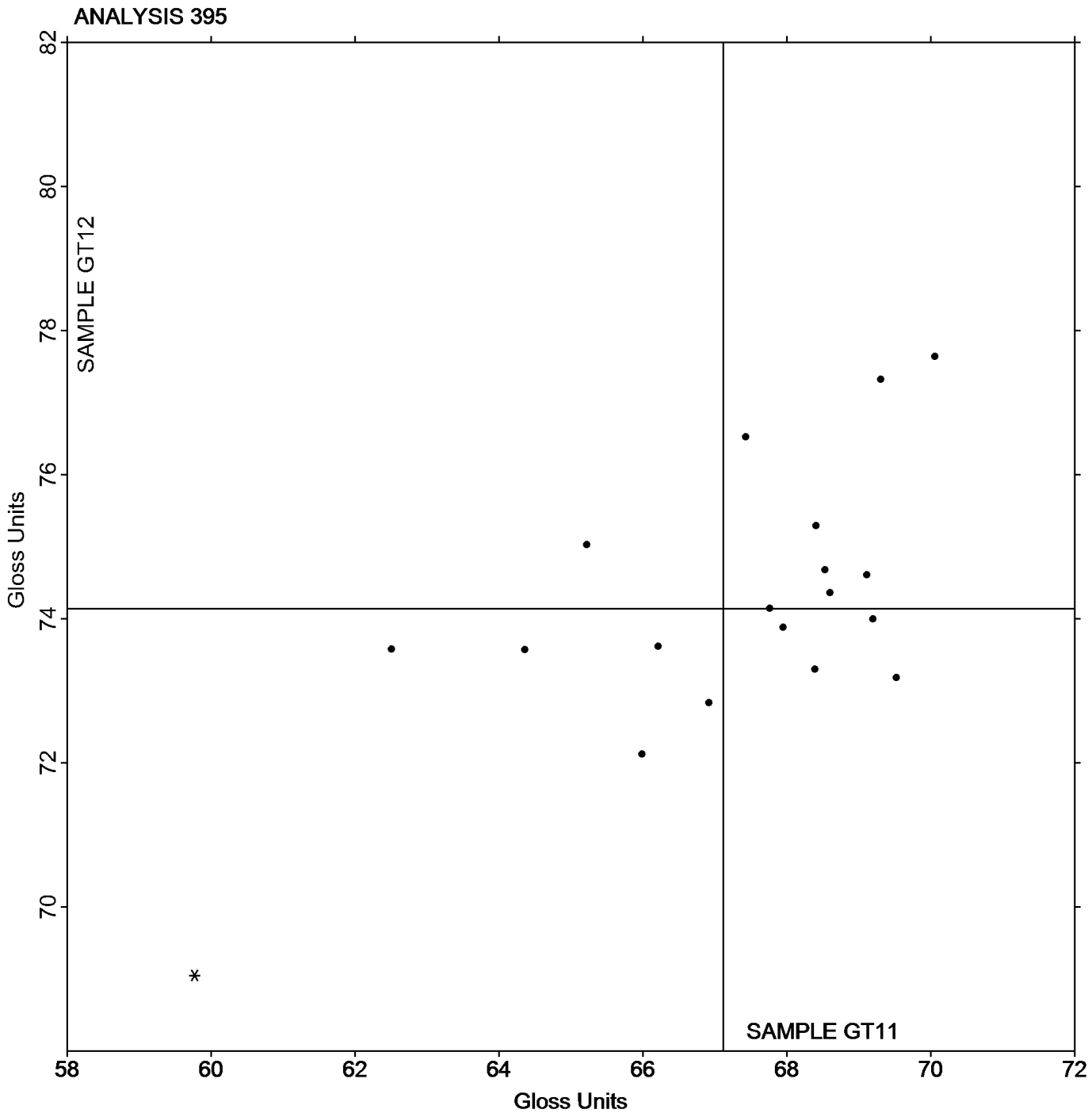
Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT11** = 67.118 Gloss Units

Grand Mean Sample **GT12** = 74.143 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 GU11 Lab Mean	Sample GU11 Diff from Grand Mean	Sample GU11 CPV	Sample GU12 Lab Mean	Sample GU12 Diff from Grand Mean	Sample GU12 CPV	Instr Code
9M8A2D		37.19	1.92	0.98	45.54	3.55	1.76	TH
BEH2AD		36.04	0.77	0.39	41.03	-0.96	-0.48	LA
E2TFZ9		36.18	0.90	0.46	41.41	-0.58	-0.29	TH
EHB4XP		36.63	1.36	0.69	42.75	0.76	0.38	TG
EZFD6G		34.25	-1.02	-0.52	44.55	2.56	1.27	TG
HGWH3K		35.11	-0.16	-0.08	40.32	-1.67	-0.83	PP
KCPXUD		33.59	-1.68	-0.86	41.13	-0.86	-0.43	XX
RZRPTM		31.27	-4.00	-2.05	39.18	-2.81	-1.40	TG
X9NE87		37.20	1.93	0.99	42.00	0.01	0.01	HN

Summary Statistics

	Sample GU11	Sample GU12
Grand Means	35.273 Gloss Units	41.989 Gloss Units
SD Btwn Labs	1.955 Gloss Units	2.013 Gloss Units

Statistics based on 9 of 9 reporting participants

Instrument Code List as Reported by the Labs

(HN) - Hunter D-48

(LA) - L & W Gloss - Autoline 300

(PP) - Technidyne Profile/Plus

(TG) - Technidyne T480

(TH) - Technidyne T480A

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

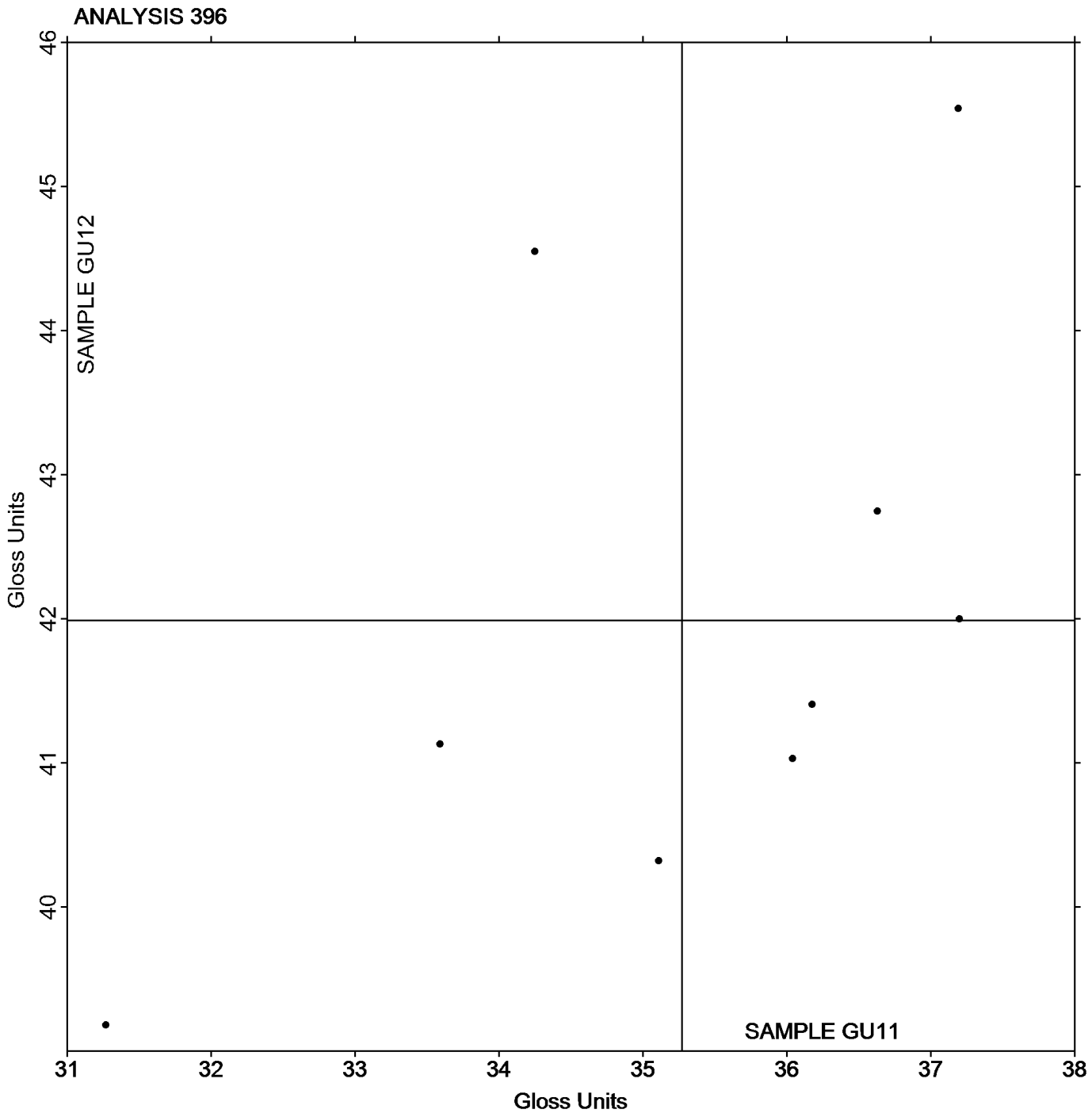
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU11** = 35.273 Gloss Units

Grand Mean Sample **GU12** = 41.989 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 GW11 Lab Mean	Sample GW11 Diff from Grand Mean	Sample GW11 CPV	Sample GW12 Lab Mean	Sample GW12 Diff from Grand Mean	Sample GW12 CPV
2D3FL8		85.73	-0.34	-0.54	73.15	0.42	0.89
2MEH38		85.42	-0.64	-1.04	72.49	-0.24	-0.50
4MM9AN		86.67	0.61	0.99	73.12	0.39	0.83
7LGX7G	*	84.44	-1.62	-2.63	71.81	-0.92	-1.94
899CHH		86.26	0.20	0.33	73.09	0.36	0.76
9M8A2D		85.84	-0.22	-0.36	71.98	-0.74	-1.57
AAEDGL		85.32	-0.75	-1.21	72.17	-0.56	-1.18
AYWWQZ	*	86.55	0.49	0.79	71.95	-0.78	-1.64
BEH2AD		85.69	-0.37	-0.60	72.57	-0.15	-0.32
CTJVH2		85.91	-0.15	-0.25	72.50	-0.23	-0.48
DX9TGG		86.60	0.54	0.88	72.83	0.10	0.22
E2TFZ9		85.28	-0.78	-1.26	72.39	-0.34	-0.72
FNZDW8		84.97	-1.09	-1.77	72.49	-0.24	-0.50
GH9V8G		85.82	-0.24	-0.39	72.13	-0.60	-1.26
HY7QLR		86.70	0.64	1.04	73.40	0.67	1.42
KCPXUD		86.08	0.02	0.03	73.35	0.62	1.31
KNFR77	X	171.12	85.06	137.88	144.22	71.49	150.94
L3AVPN		85.76	-0.30	-0.48	72.12	-0.60	-1.28
L4EZY7		86.48	0.42	0.68	73.03	0.30	0.64
LRCVBX		85.46	-0.60	-0.97	72.49	-0.24	-0.51
MWN3C3		86.43	0.37	0.60	72.68	-0.05	-0.10
P288W3		86.34	0.28	0.45	72.93	0.20	0.43
Q22CQ2		86.32	0.26	0.42	72.83	0.10	0.22
QNGWN3		85.88	-0.18	-0.29	73.17	0.44	0.93
RZRPTM		87.20	1.14	1.85	73.40	0.67	1.42
V7H9KT		86.70	0.64	1.04	73.28	0.55	1.17
X9NE87		86.67	0.61	0.99	72.62	-0.11	-0.22
Y23J73		85.98	-0.08	-0.13	72.66	-0.07	-0.14
YDWZV4		86.00	-0.06	-0.10	72.59	-0.14	-0.29
YGBUCZ		86.92	0.86	1.39	73.25	0.52	1.10
ZZ8K69		86.41	0.34	0.56	73.36	0.63	1.33

Summary Statistics

	Sample GW11	Sample GW12
Grand Means	86.060 g/sq m	72.728 g/sq m
SD Btwn Labs	0.617 g/sq m	0.474 g/sq m

Statistics based on 30 of 31 reporting participants

Comments on assigned Data Flags for Test #398

KNFR77 (X) - Extreme data.

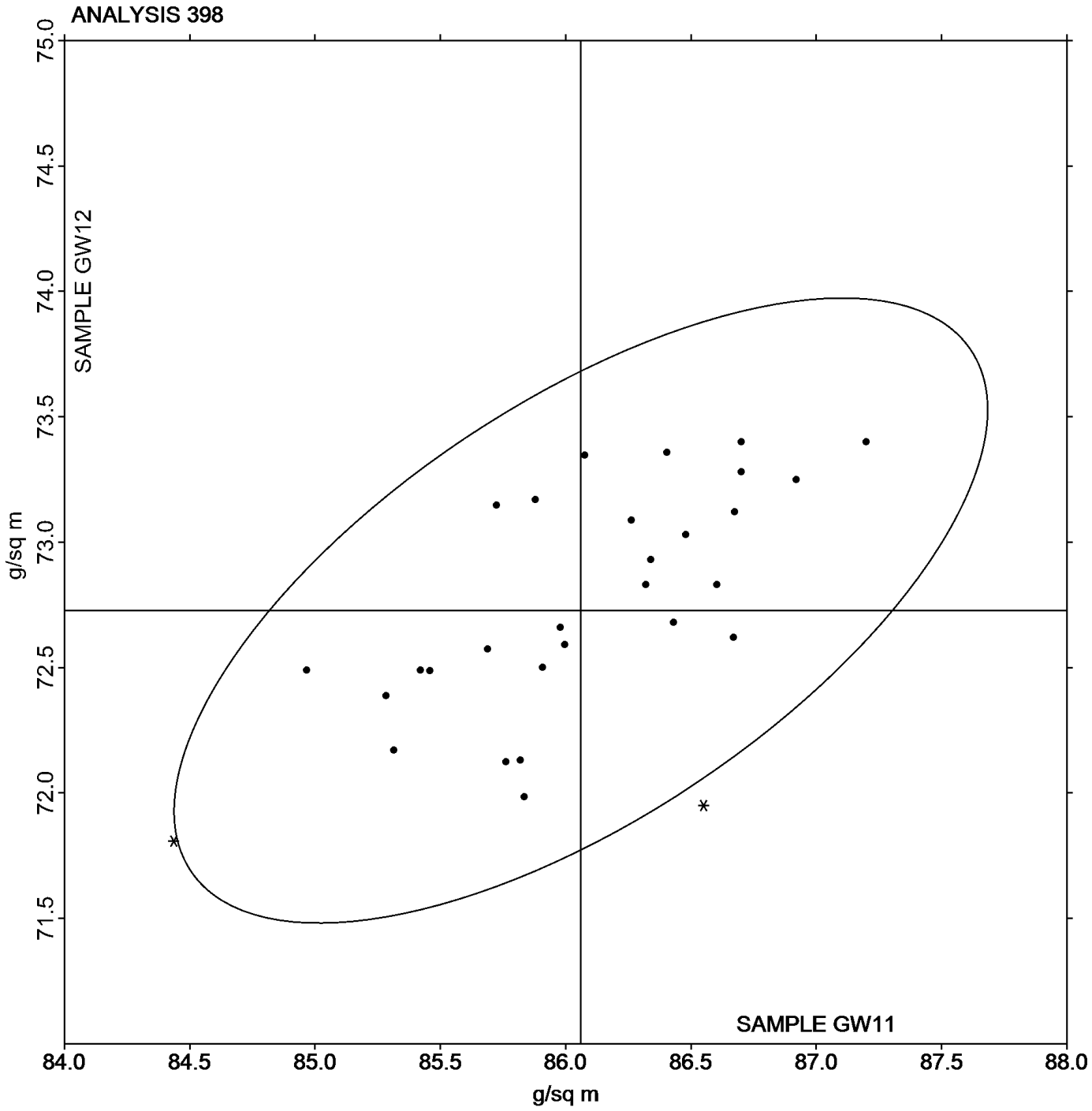
Paper & Paperboard Interlaboratory Testing Program

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW11** = 86.060 g/sq m

Grand Mean Sample **GW12** = 72.728 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

WebCode	Data Flag	Sample GX11 Lab Mean	Sample GX11 Diff from Grand Mean	Sample GX11 CPV	Sample GX12 Lab Mean	Sample GX12 Diff from Grand Mean	Sample GX12 CPV
2CRJB2		9.98	-2.84	-0.96	28.97	-22.57	-0.86
2D3FL8		13.11	0.29	0.10	78.11	26.57	1.01
7GMZGQ	X	20.19	7.37	2.49	186.91	135.37	5.13
8BDYVL		9.55	-3.27	-1.11	28.58	-22.96	-0.87
9FME3P		8.67	-4.15	-1.40	27.80	-23.74	-0.90
9M8A2D		18.24	5.42	1.83	70.17	18.63	0.71
AN2P4G		15.41	2.59	0.88	77.44	25.90	0.98
ANBTGF	X	16.64	3.82	1.29	253.81	202.27	7.66
AT8E9H	*	16.70	3.88	1.31	116.10	64.56	2.45
CHLVZV		10.09	-2.73	-0.92	31.61	-19.93	-0.76
EQTECQ		7.85	-4.97	-1.68	33.22	-18.32	-0.69
FNZDW8		11.85	-0.97	-0.33	41.88	-9.66	-0.37
GHZAZZ		12.24	-0.58	-0.20	34.30	-17.24	-0.65
GVANDK		19.68	6.86	2.32	100.00	48.46	1.84
HGWH3K		10.86	-1.96	-0.66	32.58	-18.96	-0.72
HJHRZ6		14.35	1.53	0.52	78.94	27.40	1.04
K8H9PC		14.15	1.33	0.45	70.05	18.51	0.70
KFAQ4K		12.10	-0.72	-0.24	38.30	-13.24	-0.50
L3AVPN		13.40	0.58	0.20	32.30	-19.24	-0.73
Q2QETC		11.30	-1.52	-0.51	28.10	-23.44	-0.89
Q8EYXD		9.02	-3.80	-1.28	20.43	-31.11	-1.18
QLAC2M		16.38	3.56	1.21	65.86	14.32	0.54
QYZ7CV		15.41	2.59	0.88	93.51	41.97	1.59
T2ZZG4		12.52	-0.30	-0.10	41.84	-9.70	-0.37
U4ZP3J		13.72	0.90	0.31	65.68	14.14	0.54
VFEFLR		10.39	-2.43	-0.82	23.28	-28.26	-1.07
VFW28B		12.78	-0.04	-0.01	38.37	-13.17	-0.50
Y23J73		15.10	2.28	0.77	60.40	8.86	0.34
ZRU2WN		11.23	-1.59	-0.54	33.75	-17.79	-0.67

Summary Statistics

	Sample GX11	Sample GX12
Grand Means	12.818 Seconds	51.540 Seconds
SD Btwn Labs	2.956 Seconds	26.390 Seconds

Statistics based on 27 of 29 reporting participants

Comments on assigned Data Flags for Test #399

7GMZGQ (X) - Data for Sample GX12 are high. Inconsistent in testing within the determinations for both samples.

ANBTGF (X) - Extreme data.

Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX11** = 12.818 Seconds

Grand Mean Sample **GX12** = 51.540 Seconds