Collaborative Testing Services, Inc.

Paper & PaperboardTesting Program

Summary Report #268G-February 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:

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Sterling, Virginia 20166 USA
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FAX #: +1-571-434-1937
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(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.

Technidyne Corp., Hagerty Div.
George Hagerty
287 Dix Ave. P.O. Box 4741
Queensbury, NY 12804
Phone: (518) 793-2834
FAX #: (518) 792-1796

Technidyne Corporation
Jeff Hobbs / Mike Lakins
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

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

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
22NV6B		GA03	93.46	-0.94	7.60	-2.66	1.07	-7.46	7.99		TP
		GA04	90.80	0.12	0.14						
46GH3G		GA03	92.82	-1.14	7.66	-3.24	1.36	-8.31	9.02		TB
		GA04	89.58	0.23	-0.65						
4ZQ827		GA03	92.79	-1.21	8.02	-2.69	1.20	-8.09	8.61		LS
		GA04	90.10	-0.01	-0.07						
962VKN		GA03	95.05	-1.00	7.98	-3.07	1.25	-8.32	8.96		XS
		GA04	91.98	0.24	-0.34						
9CL7DJ		GA03	94.57	-1.22	8.15	-2.14	1.26	-8.50	8.86		EH
		GA04	92.43	0.04	-0.35						
D3WZHM		GA03	93.32	-1.48	8.24	-2.08	0.88	-9.02	9.30		XX
		GA04	91.24	-0.60	-0.78						
DHREV9		GA03	92.79	0.54	6.65	-2.27	-1.10	-6.19	6.68		HH
		GA04	90.52	-0.56	0.46						
DHVRMB		GA03	92.91	-1.30	8.38	-2.81	1.63	-8.69	9.27		TM
		GA04	90.10	0.33	-0.31						
DTVLN2		GA03	93.34	-1.02	7.72	-2.62	1.21	-7.86	8.38		MK
		GA04	90.72	0.19	-0.14						
DZPHLC		GA03	94.40	-1.23	8.20	-2.21	1.34	-8.45	8.83		LS
		GA04	92.19	0.11	-0.25						
GLYZ8P		GA03	93.68	-1.29	8.23	-3.09	1.24	-8.44	9.07		TS
		GA04	90.59	-0.05	-0.21						
HEGQN8		GA03	93.51	-1.21	8.06	-1.74	1.10	-8.91	9.14		HE
		GA04	91.78	-0.10	-0.85						
HMBY9Y		GA03	93.79	0.65	4.47	-2.68	-1.10	-4.37	5.24	X	HV
		GA04	91.11	-0.45	0.10						
HQC2WE		GA03	93.12	-2.37	9.40	-1.75	1.88	-10.41	10.72		HG
		GA04	91.37	-0.49	-1.00						
JBDHUG		GA03	93.50	-0.90	7.75	-2.41	1.79	-8.27	8.80		TS
		GA04	91.09	0.89	-0.52						
JLVZHA		GA03	93.05	-1.64	8.70	-2.91	2.06	-9.00	9.68		XX
		GA04	90.14	0.42	-0.31						
UBJABG		GA03	92.54	-1.08	7.11	-2.30	0.76	-7.29	7.69		HH
		GA04	90.24	-0.32	-0.19						

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
V97ZT4		GA03	92.90	-1.16	8.14	-2.52	1.72	-8.62	9.14	TS
		GA04	90.38	0.56	-0.48					
VHGC8Y		GA03	94.30	-1.49	9.19	-1.83	1.85	-9.19	9.55	MI
		GA04	92.47	0.36	0.00					
VLD8FZ		GA03	92.95	-1.18	7.95	-2.74	1.23	-8.01	8.56	TB
		GA04	90.21	0.06	-0.06					
VQ4E3F		GA03	92.77	-1.30	7.99	-3.45	2.08	-8.95	9.81	TS
		GA04	89.32	0.78	-0.96					
WXM36B		GA03	92.44	-1.25	7.32	-2.13	0.57	-7.51	7.83	HH
		GA04	90.31	-0.68	-0.19					
X9YQX9	X	GA03	92.56	-0.33	5.67	-9.93	-0.01	-6.41	11.82 X	XX
		GA04	82.63	-0.34	-0.74					
YU2WXD		GA03	92.78	-1.52	8.19	-3.46	1.89	-8.64	9.50	TS
		GA04	89.32	0.37	-0.45					
YUWKZV		GA03	94.67	-1.24	7.90	-2.16	1.28	-8.41	8.78	LA
		GA04	92.51	0.05	-0.51					
YXWV2A		GA03	93.04	-1.36	8.28	-2.79	1.44	-8.38	8.94	TC
		GA04	90.25	0.08	-0.10					

Summary Statistics

Grand Means							
GA03	93.380	-1.102	7.806	-2.550	1.195	-8.211	8.734
GA04	90.830	0.047	-0.336				
Stnd Dev Btwn Labs							
GA03	0.716	0.603	0.995	0.492	0.793	1.116	1.071
GA04	0.959	0.410	0.353				

Statistics based on 25 of 26 reporting participants

Comments assigned on Data Flags for Test #350

X9YQX9 (X) - Low L values for Sample GA04. Inconsistent within L values for both samples. Inconsistent within b values for Sample GA03. Large delta L and delta E values.

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	

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450

(HE) - Hunter LabScan

(HG) - Hunter ColorQUEST

(HH) - Hunter D25DP - 9000

(HV) - Hunter Ultrascan XE

(LA) - L & W Elrepho AL300

(LS) - L & W Elrepho SE 070

(MI) - Macbeth Color i 5

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(TB) - Technidyne Technibrite TB-1C

(TC) - Technidyne Color Touch Series

(TM) - Technidyne Technibrite Micro TB-1C

(TP) - Technidyne Spectro Plus

(TS) - Technidyne Brightimeter Micro S-5

(XS) - X-Rite 938 Spectrodensitometer

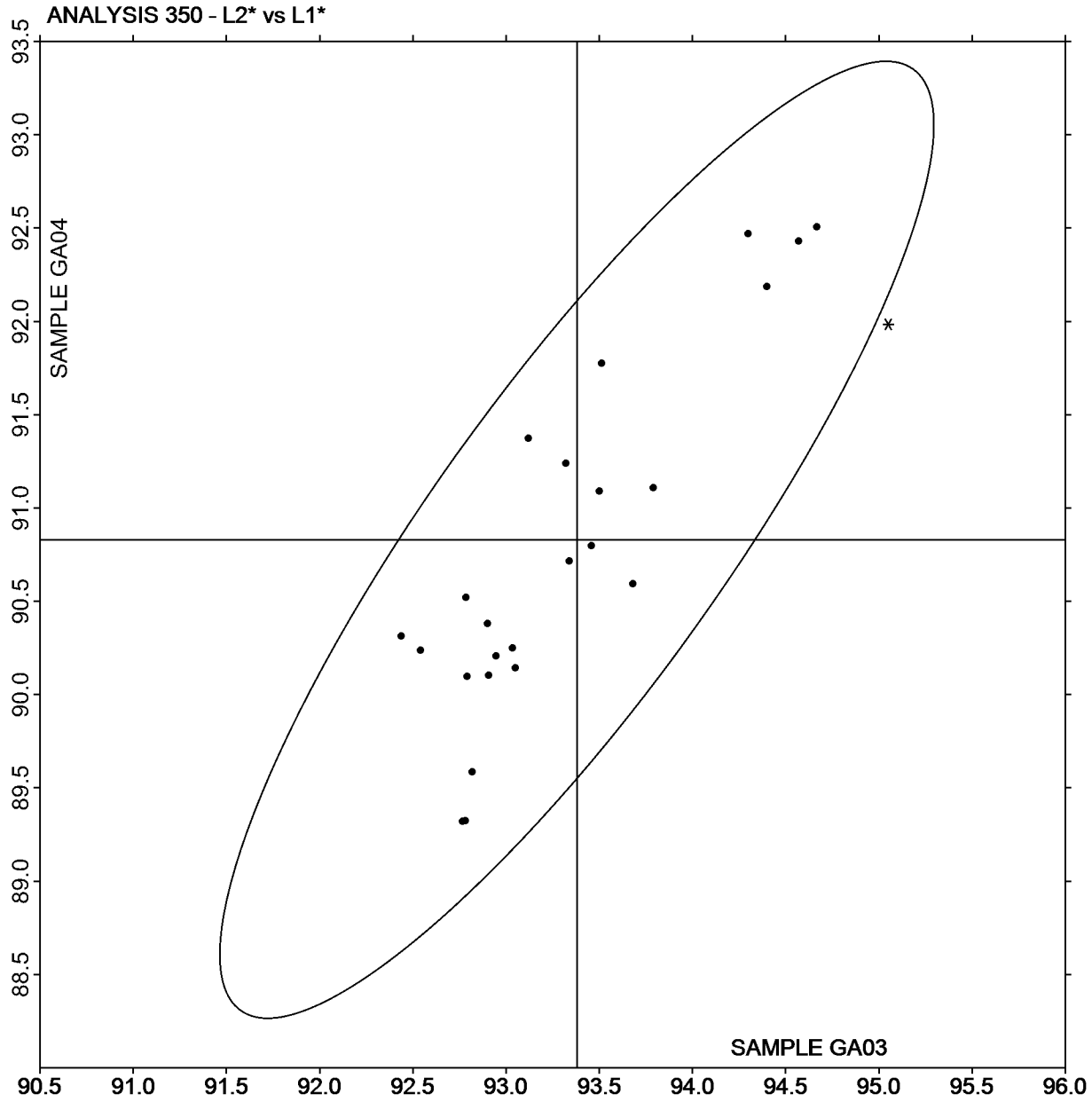
(XX) - Instrument make/model not specified by lab

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**

Plot of L values GA04 v L values GA03

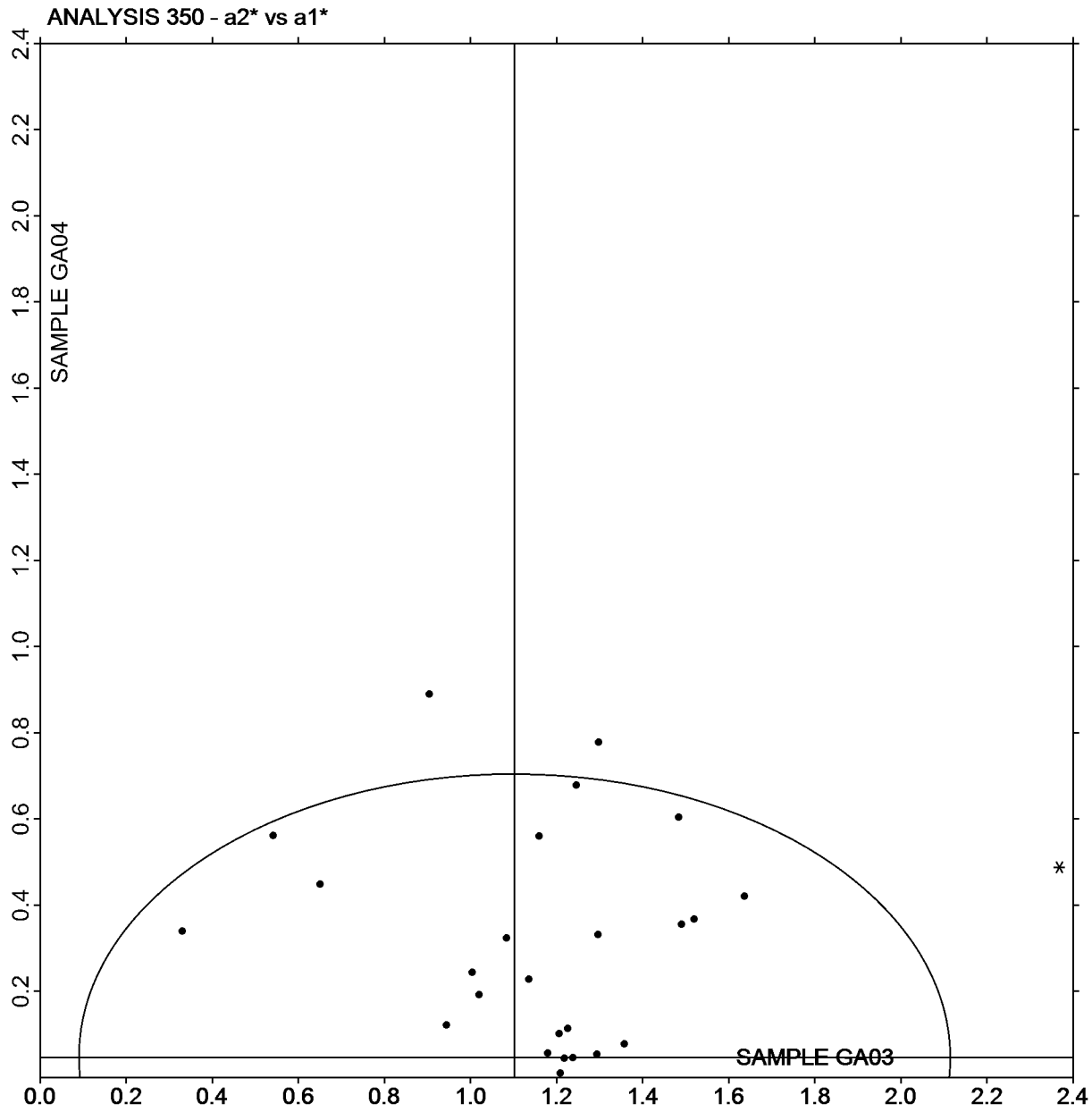


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of a values GA04 v a values GA03

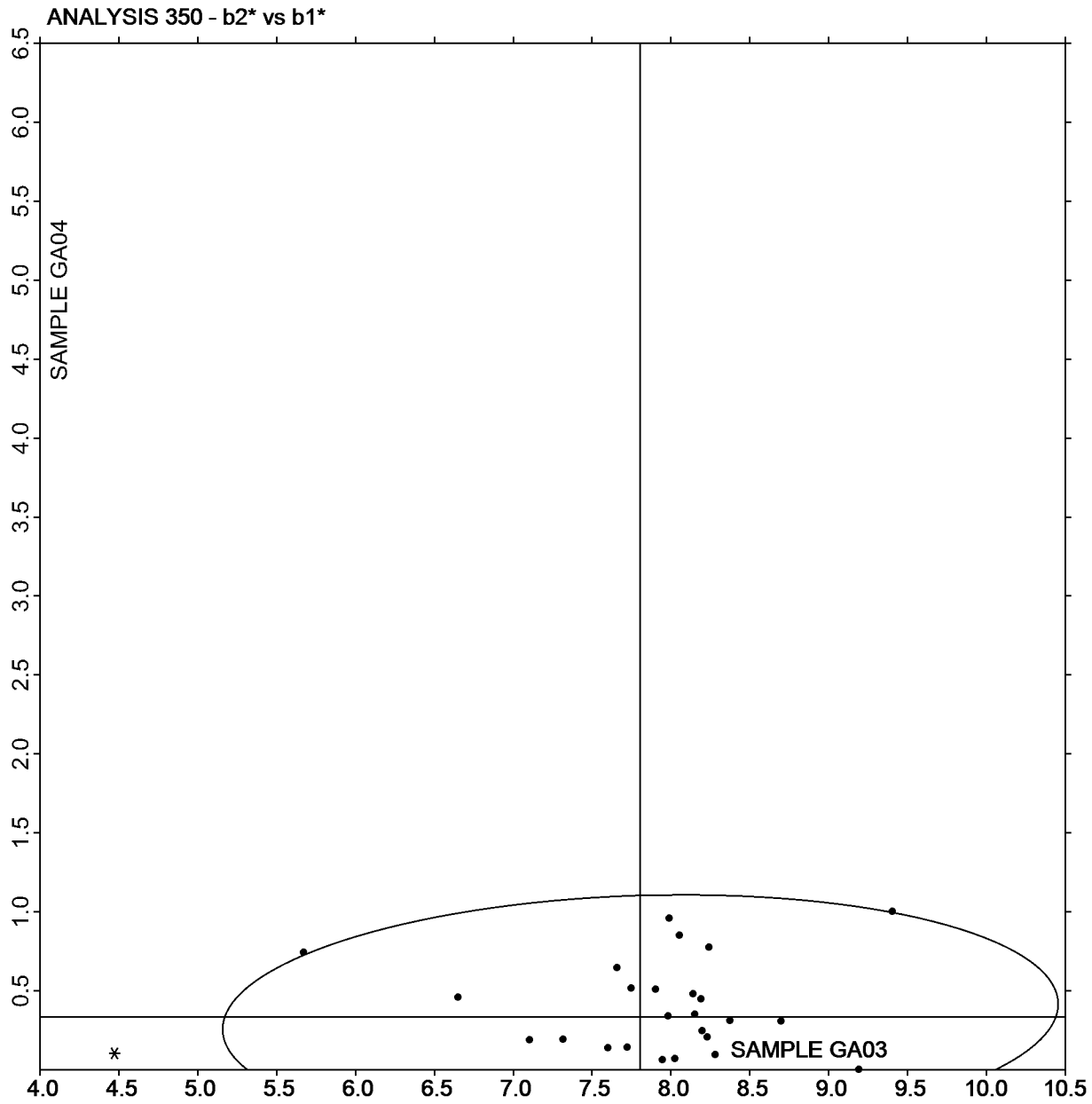


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of b values GA04 v b values GA03



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	
273CUR		GA03	94.32	0.27	7.98	-1.81	-0.94	-7.60	7.87	XX
		GA04	92.51	-0.67	0.37					
4C3GMB		GA03	93.23	0.54	6.40	-2.34	-1.18	-6.47	6.98	HE
		GA04	90.89	-0.63	-0.07					
BJW9M3		GA03	94.01	0.10	8.44	-1.44	-0.50	-8.34	8.48	EE
		GA04	92.57	-0.40	0.10					
DZPHLC		GA03	94.44	-1.22	8.19	-2.16	1.35	-8.37	8.75	LS
		GA04	92.28	0.13	-0.19					
EL938R		GA03	92.77	0.67	5.82	-3.49	-1.21	-5.93	6.99	XM
		GA04	89.27	-0.54	-0.11					
HK4NY4		GA03	93.58	0.81	4.31	-2.49	-1.18	-4.38	5.17	HV
		GA04	91.09	-0.37	-0.07					
HMBY9Y		GA03	93.77	0.64	4.51	-2.60	-1.06	-4.40	5.22	HV
		GA04	91.16	-0.41	0.11					
JALGVK		GA03	94.48	0.49	7.01	-1.77	-1.07	-6.78	7.09	NF
		GA04	92.71	-0.58	0.23					
JVZ4GQ		GA03	94.17	-0.10	9.69	-1.30	-0.49	-9.01	9.12	NG
		GA04	92.87	-0.59	0.68					
NRKBBU		GA03	94.50	0.44	6.61	-1.81	-1.04	-6.19	6.53	HT
		GA04	92.69	-0.60	0.42					
NXUKQ3		GA03	94.16	0.01	8.59	-1.76	-0.62	-8.29	8.50	EH
		GA04	92.40	-0.61	0.29					
R3QCG9		GA03	94.04	0.05	8.56	-1.63	-0.44	-8.50	8.66	EH
		GA04	92.41	-0.39	0.07					
RQF2RX		GA03	94.24	0.31	7.86	-1.76	-0.98	-7.51	7.77	HE
		GA04	92.48	-0.67	0.36					
TMVFN4		GA03	92.81	0.60	6.31	-2.26	-1.11	-6.10	6.60	XX
		GA04	90.55	-0.51	0.21					
XA88NR		GA03	94.36	0.36	6.91	-1.80	-0.95	-6.56	6.87	HT
		GA04	92.56	-0.58	0.35					
XZZGXA		GA03	96.35	-0.83	8.02	-2.47	1.15	-8.38	8.81	XP
		GA04	93.88	0.32	-0.36					
YUC3YV		GA03	94.13	-0.03	8.67	-1.82	-0.51	-8.37	8.58	LS
		GA04	92.31	-0.54	0.30					

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
YZZNV9		GA03	94.40	0.68	6.36	-2.04	-1.24	-6.22	6.66	EF
		GA04	92.36	-0.56	0.14					

Summary Statistics

Grand Means							
GA03	94.097	0.210	7.236	-2.042	-0.666	-7.078	7.481
GA04	92.055	-0.456	0.158				
Stnd Dev Btwn Labs							
GA03	0.779	0.531	1.463	0.514	0.751	1.399	1.206
GA04	1.065	0.267	0.252				

Statistics based on 18 of 18 reporting participants

Instrument Code List as Reported by the Labs

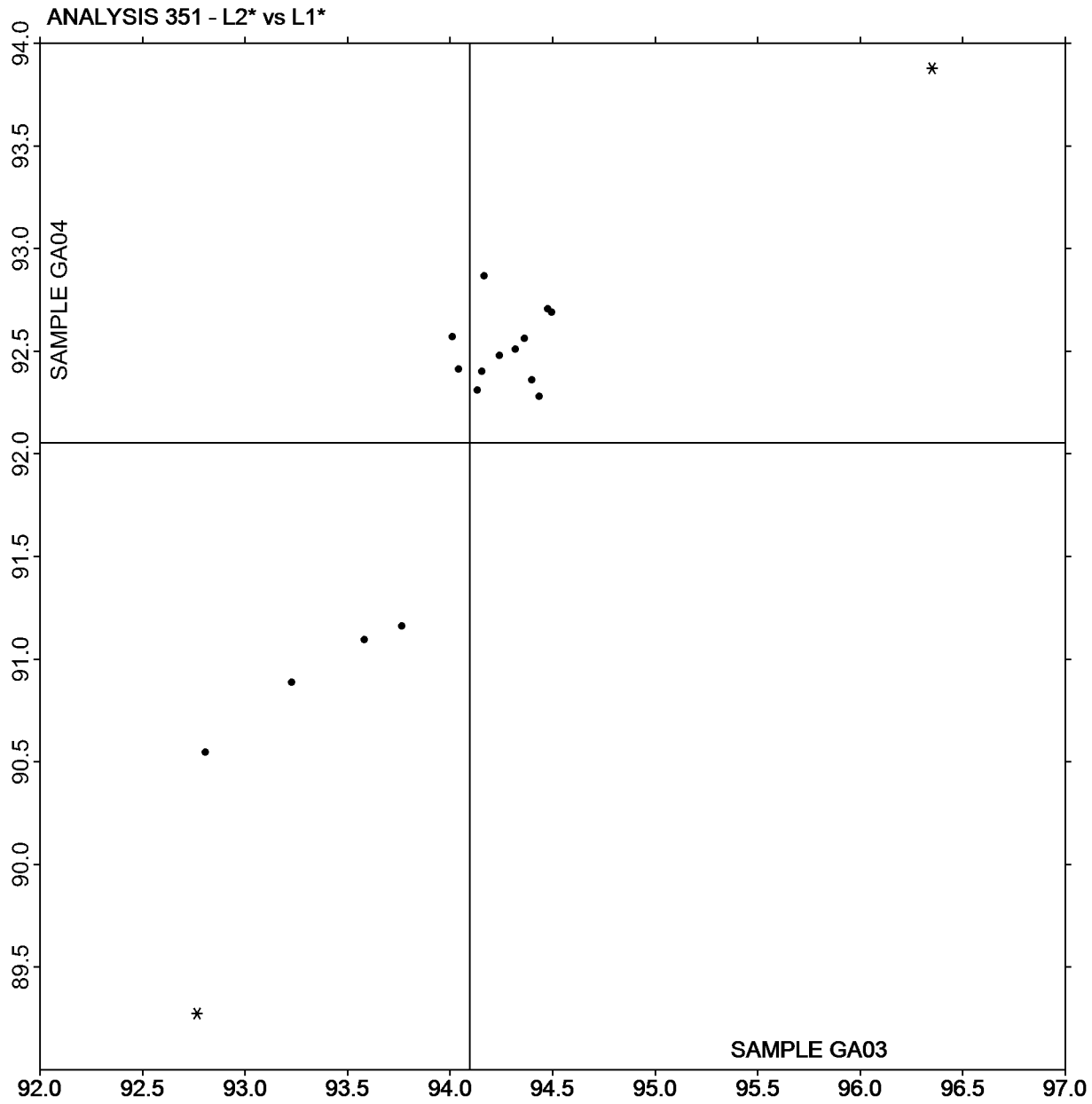
(EE) - Datacolor Elrepho 2000
(EF) - Datacolor Elrepho 3000
(EH) - Datacolor Elrepho SF450
(HE) - Hunter LabScan
(HT) - Hunter UltraScan Vis
(HV) - Hunter Ultrascan XE
(LS) - L & W Elrepho SE 070
(NF) - Minolta CM-3600d Spectrophotometer
(NG) - Minolta CM-3700d Spectrophotometer
(XM) - X-Rite CA-22
(XP) - 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**

Plot of L values GA04 v L values GA03



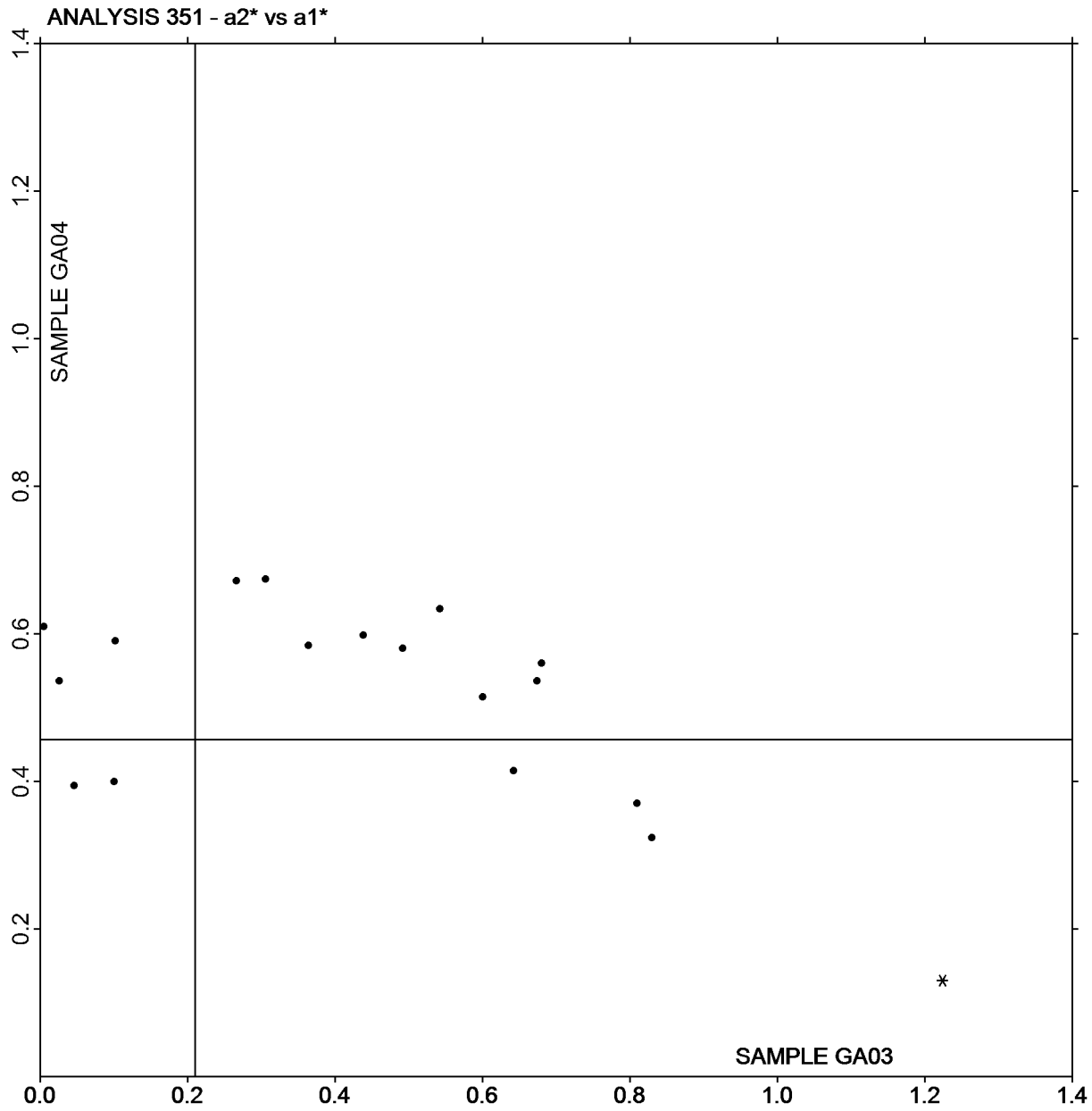
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

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 GA04 v a values GA03



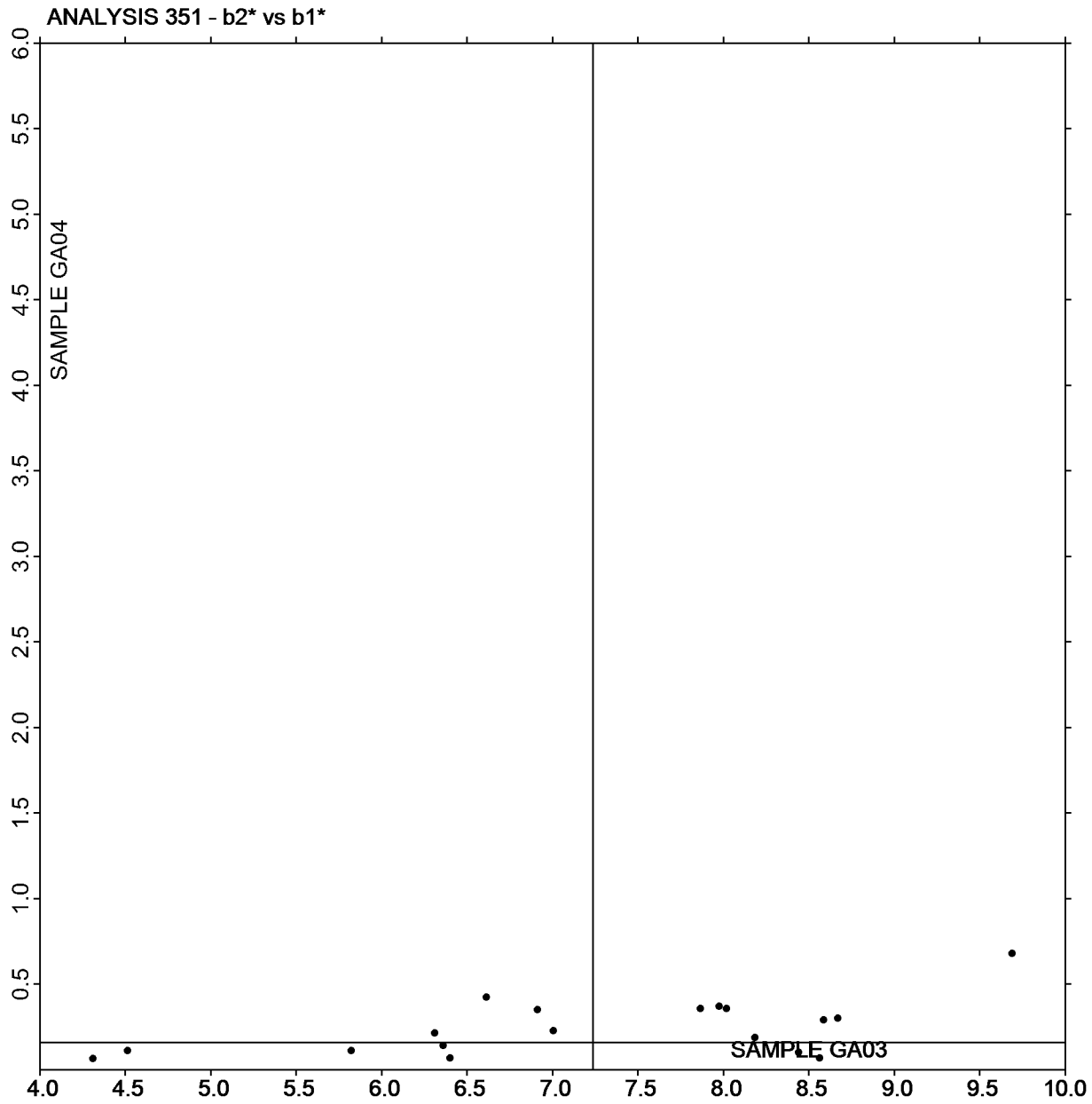
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

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 GA04 v b values GA03



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 GV03 Lab Mean	Sample GV03 Diff from Grand Mean	Sample GV03 CPV	Sample GV04 Lab Mean	Sample GV04 Diff from Grand Mean	Sample GV04 CPV	Instr Code
47UAWJ		3.809	0.014	0.26	4.659	-0.033	-0.65	EM
4C3GMB		3.813	0.018	0.35	4.665	-0.027	-0.53	TM
4NXKVB	*	3.710	-0.085	-1.62	4.540	-0.152	-2.96	TM
4ZQ827		3.789	-0.006	-0.11	4.675	-0.017	-0.33	LW
63P3ZY		3.850	0.055	1.04	4.760	0.068	1.31	PP
6JCFC7		3.835	0.040	0.77	4.734	0.041	0.81	LW
82NR48		3.810	0.015	0.28	4.660	-0.032	-0.63	LW
8YGA8X		3.742	-0.053	-1.01	4.667	-0.025	-0.49	XX
962VKN		3.740	-0.055	-1.05	4.630	-0.062	-1.21	TM
9CL7DJ		3.742	-0.053	-1.01	4.671	-0.021	-0.42	TA
A22WRB		3.819	0.024	0.45	4.713	0.020	0.39	MS
ADVCNC		3.797	0.002	0.03	4.747	0.055	1.06	TM
AH4WGQ	X	3.600	-0.195	-3.71	4.520	-0.172	-3.35	TM
AMGE78		3.794	-0.001	-0.01	4.675	-0.017	-0.34	EM
APPU7D		3.864	0.069	1.31	4.742	0.050	0.96	TM
CEXWHP		3.850	0.055	1.04	4.731	0.038	0.74	LW
CFNBRM		3.752	-0.043	-0.82	4.671	-0.021	-0.42	TA
D3WZHM		3.890	0.095	1.80	4.800	0.108	2.09	XX
DCQ4UW		3.758	-0.037	-0.70	4.645	-0.047	-0.92	LW
DDFG99		3.750	-0.045	-0.86	4.610	-0.082	-1.60	XX
DHVRMB		3.805	0.010	0.19	4.726	0.034	0.65	LA
DTVLN2		3.870	0.075	1.42	4.780	0.088	1.70	EM
E3DMHG		3.728	-0.067	-1.27	4.646	-0.047	-0.91	TA
EDXTLK		3.750	-0.045	-0.86	4.652	-0.040	-0.78	PP
EL938R		3.791	-0.004	-0.07	4.693	0.001	0.01	LW
FFXEWN		3.785	-0.010	-0.19	4.711	0.018	0.35	LW
FXCVYH		3.706	-0.089	-1.70	4.603	-0.089	-1.74	PP
GLYZ8P		3.813	0.018	0.34	4.693	0.001	0.01	LA
HK4NY4		3.705	-0.090	-1.71	4.628	-0.064	-1.25	EM
HRMTCB		3.814	0.019	0.36	4.743	0.051	0.98	LW
JALGVK		3.867	0.072	1.37	4.694	0.001	0.03	TM
JLVZHA		3.808	0.013	0.25	4.746	0.054	1.05	XX
JVZ4GQ		3.692	-0.103	-1.96	4.622	-0.070	-1.37	LW
K3L8BE		3.732	-0.063	-1.20	4.646	-0.046	-0.90	EM
LCZW6Q		3.850	0.054	1.03	4.708	0.015	0.30	LW
NRKBBU		3.813	0.018	0.34	4.757	0.065	1.26	EM
NZHXH7		3.737	-0.058	-1.11	4.675	-0.017	-0.34	TM
PG2C4P		3.799	0.004	0.08	4.676	-0.017	-0.32	TM
PTUPER		3.808	0.013	0.24	4.692	0.000	-0.01	TM
QCE7UR		3.808	0.013	0.24	4.674	-0.018	-0.36	XX
QDEUVP	X	3.653	-0.142	-2.70	4.498	-0.194	-3.78	EM
QGHLPN		3.734	-0.061	-1.16	4.674	-0.018	-0.36	EM
QRFL89		3.840	0.045	0.85	4.736	0.044	0.85	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV03 Lab Mean	Sample GV03 Diff from Grand Mean	Sample GV03 CPV	Sample GV04 Lab Mean	Sample GV04 Diff from Grand Mean	Sample GV04 CPV	Instr Code
RKR4GP	*	3.900	0.105	1.99	4.710	0.018	0.34	TM
RQF2RX		3.747	-0.048	-0.92	4.646	-0.046	-0.90	LW
T84L2Q		3.799	0.004	0.07	4.696	0.004	0.07	PP
VHGC8Y		3.816	0.021	0.40	4.672	-0.020	-0.40	TA
VLD8FZ		3.860	0.065	1.23	4.757	0.065	1.27	LW
VQ4E3F		3.708	-0.087	-1.65	4.593	-0.099	-1.93	TM
XA88NR		3.862	0.067	1.27	4.753	0.061	1.18	EM
XJH33J		3.887	0.092	1.75	4.721	0.029	0.56	PP
XY7JUA		3.810	0.015	0.28	4.715	0.023	0.44	LA
XZZGXA		3.756	-0.039	-0.75	4.730	0.038	0.73	TM
YJD72Y		3.828	0.032	0.62	4.727	0.035	0.68	LW
YRKXEB		3.767	-0.028	-0.54	4.682	-0.010	-0.20	TA
YTXN3K	X	3.984	0.189	3.59	4.773	0.081	1.57	XX
YU2WXD		3.800	0.005	0.09	4.705	0.013	0.25	EM
YUWKZV		3.764	-0.031	-0.60	4.709	0.016	0.32	MT
YXWV2A		3.854	0.059	1.12	4.787	0.095	1.84	TA
Z9BAJ3	X	3.978	0.183	3.48	4.876	0.184	3.58	LW
ZNMM7G	X	4.043	0.248	4.71	4.917	0.225	4.37	LW
ZRYVZJ	X	5.566	1.771	33.67	5.527	0.835	16.22	EM

Summary Statistics

	Sample GV03	Sample GV04
Grand Means	3.7952 mils	4.6924 mils
SD Btwn Labs	0.0526 mils	0.0515 mils

Statistics based on 56 of 62 reporting participants

Comments on assigned Data Flags for Test #360

AH4WGQ (X) - Systematic error (data for both samples are low). Inconsistent within the determinations for Sample GV04.

QDEUVP (X) - Inconsistent in testing between samples, data for Sample GV04 are low. Inconsistent within the determinations for Sample GV03.

YTXN3K (X) - Inconsistent in testing between samples, data for Sample GV03 are high.

Z9BAJ3 (X) - Systematic error (data for both samples are high).

ZNMM7G (X) - Systematic error (data for both samples are high).

ZRYVZJ (X) - Extreme data.

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

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

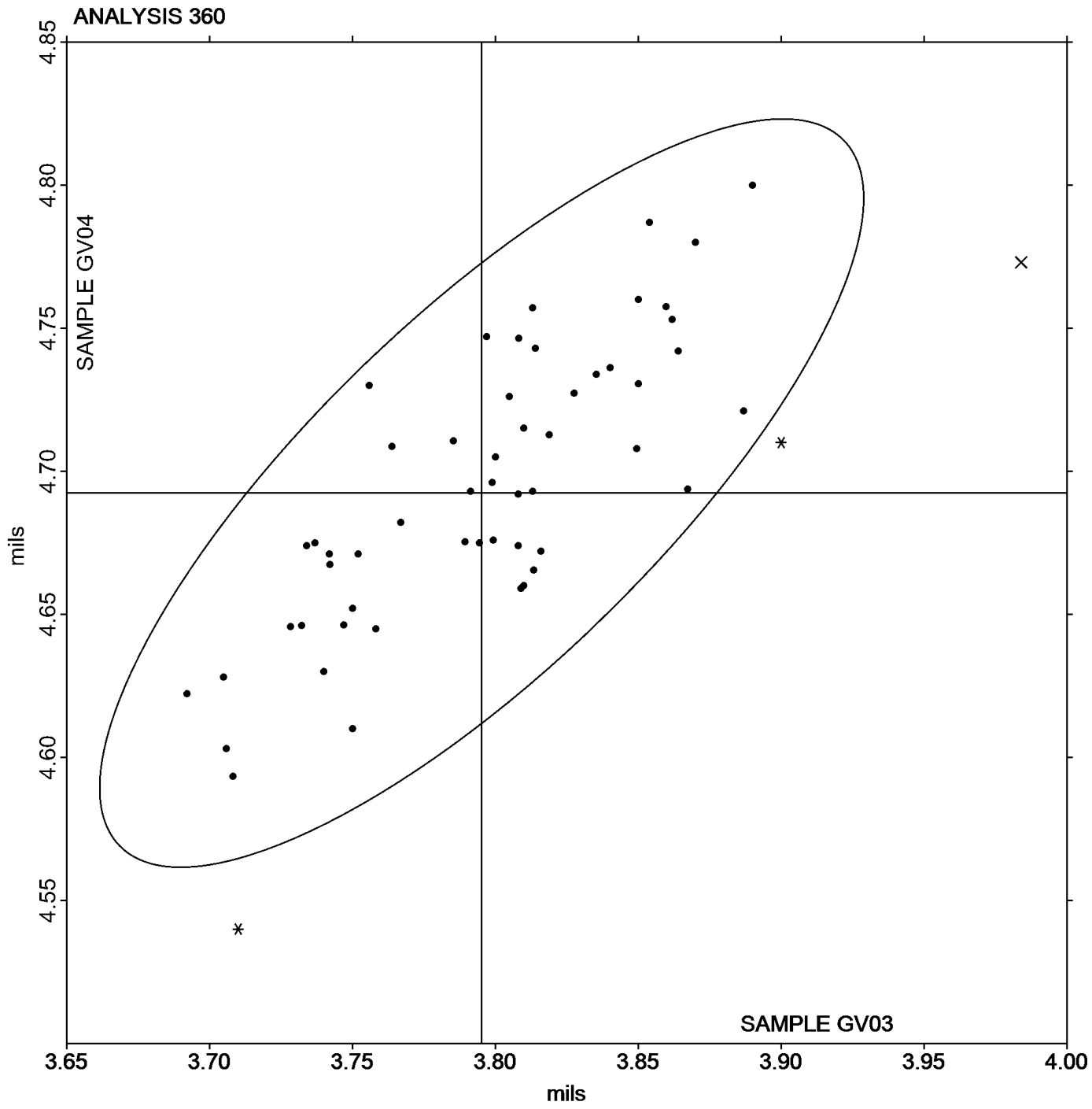
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV03** = 3.7952 mils

Grand Mean Sample **GV04** = 4.6924 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY03 Lab Mean	Sample GY03 Diff from Grand Mean	Sample GY03 CPV	Sample GY04 Lab Mean	Sample GY04 Diff from Grand Mean	Sample GY04 CPV	Instr Code
22NV6B		8.540	-0.091	-0.83	7.570	-0.026	-0.20	LW
3DCBE4		8.664	0.033	0.30	7.578	-0.018	-0.14	PP
4NXKVB		8.410	-0.221	-2.02	7.320	-0.276	-2.13	TM
67R24P	X	7.580	-1.051	-9.58	6.620	-0.976	-7.55	LA
6BJAGJ		8.435	-0.196	-1.79	7.313	-0.282	-2.18	TM
AH4WGQ		8.540	-0.091	-0.83	7.530	-0.066	-0.51	TM
C2PA6E		8.720	0.089	0.81	7.670	0.074	0.57	TA
C6T4TV		8.660	0.029	0.26	7.760	0.164	1.27	TM
CFNBRM		8.660	0.029	0.26	7.609	0.013	0.10	TA
CV3KK4		8.741	0.110	1.00	7.717	0.121	0.94	TM
D243EM		8.518	-0.113	-1.03	7.458	-0.138	-1.07	EM
D9LHWX		8.540	-0.091	-0.83	7.590	-0.006	-0.04	TM
DHREV9		8.499	-0.132	-1.21	7.530	-0.066	-0.51	EM
DZPHLC		8.732	0.101	0.92	7.685	0.089	0.69	TM
FFXEWN		8.669	0.038	0.35	7.591	-0.005	-0.04	LW
GHXWF3		8.600	-0.031	-0.29	7.445	-0.151	-1.17	TA
HEGQN8		8.579	-0.053	-0.48	7.453	-0.143	-1.11	LA
HMBY9Y		8.656	0.025	0.23	7.613	0.017	0.13	EM
JLVZHA		8.701	0.069	0.63	7.756	0.161	1.24	XX
M9TX9N		8.598	-0.033	-0.30	7.562	-0.034	-0.26	TM
MQEHZE		8.553	-0.078	-0.71	7.560	-0.036	-0.28	LA
NXUKQ3		8.680	0.049	0.44	7.640	0.044	0.34	LA
PTUPER		8.632	0.001	0.01	7.668	0.072	0.56	TM
Q4QZEL		8.795	0.164	1.49	7.756	0.160	1.24	XX
R3QCG9		8.801	0.170	1.55	7.817	0.221	1.71	EM
UAZQYH		8.604	-0.027	-0.25	7.551	-0.045	-0.35	LW
UBJABG		8.836	0.205	1.87	7.783	0.187	1.45	EM
V97ZT4		8.389	-0.242	-2.21	7.341	-0.255	-1.97	EM
VHGC8Y		8.699	0.068	0.62	7.567	-0.029	-0.22	TA
W268XE		8.605	-0.026	-0.24	7.565	-0.031	-0.24	TM
WXM36B		8.742	0.111	1.01	7.700	0.104	0.81	EM
WZ9QTH		8.709	0.077	0.71	7.736	0.141	1.09	LW
Y2P347		8.606	-0.025	-0.23	7.555	-0.041	-0.32	PP
ZLYCZA		8.720	0.089	0.81	7.669	0.074	0.57	XX

Summary Statistics

	Sample GY03	Sample GY04
Grand Means	8.6313 mils	7.5957 mils
SD Btwn Labs	0.1097 mils	0.1293 mils

Statistics based on 33 of 34 reporting participants

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

Comments on assigned Data Flags for Test #361

67R24P (X) - Extreme data.

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

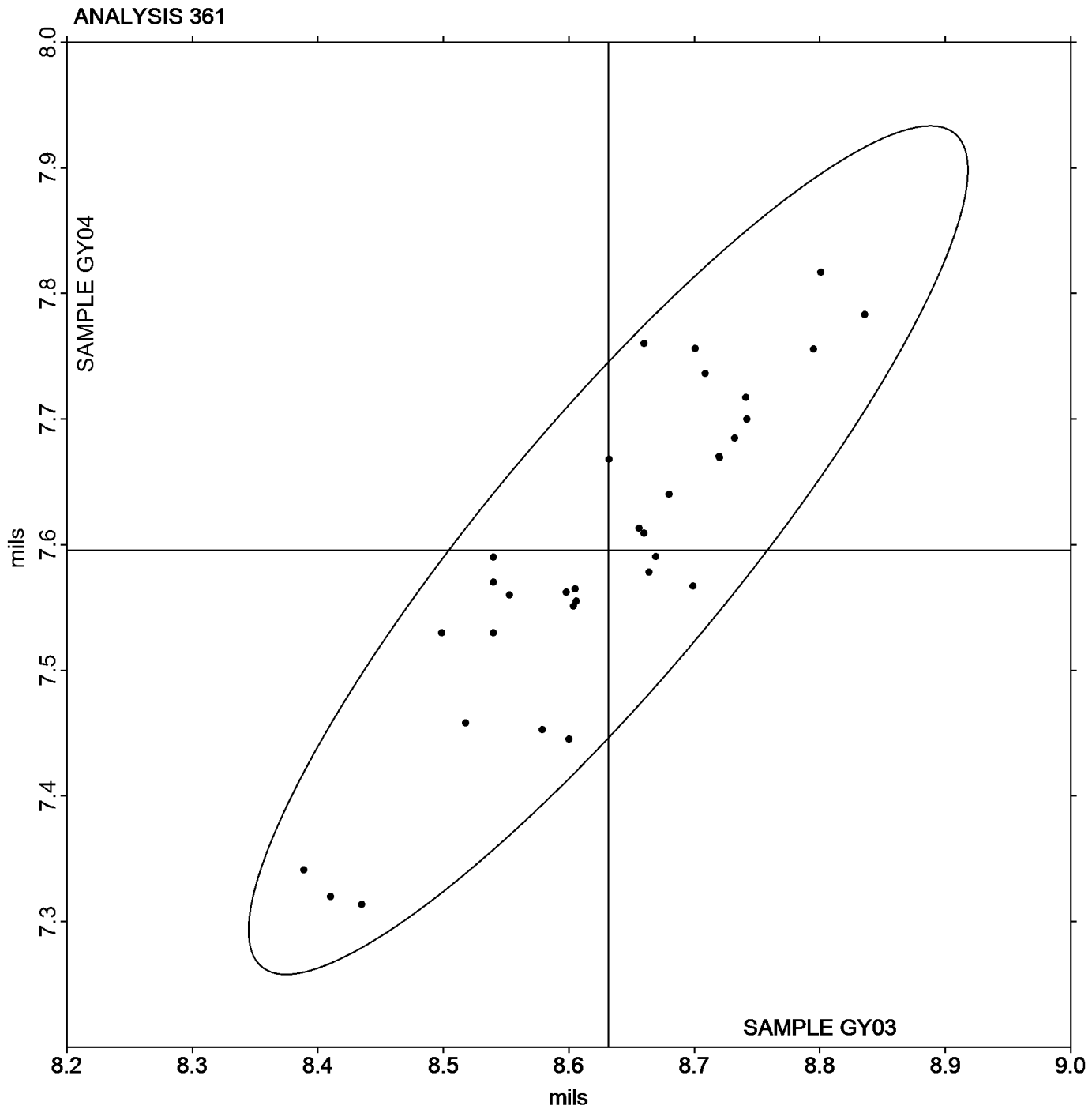
Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample **GY03** = 8.6313 mils

Grand Mean Sample **GY04** = 7.5957 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD03 Lab Mean	Sample GD03 Diff from Grand Mean	Sample GD03 CPV	Sample GD04 Lab Mean	Sample GD04 Diff from Grand Mean	Sample GD04 CPV	Instr Code
89P6WB		0.5320	0.0363	0.43	0.5834	0.0611	0.64	TA
962VKN		0.3944	-0.1013	-1.21	0.3930	-0.1293	-1.36	XX
9CL7DJ		0.4780	-0.0177	-0.21	0.4960	-0.0263	-0.28	XX
JLVZHA		0.5720	0.0763	0.91	0.6418	0.1195	1.25	TM
JVZ4GQ		0.4240	-0.0717	-0.86	0.4358	-0.0865	-0.91	TM
MGT8WE		0.4166	-0.0791	-0.95	0.4496	-0.0727	-0.76	IT
XJH33J		0.4170	-0.0787	-0.94	0.4156	-0.1067	-1.12	TM
Y2W6Z7		0.4962	0.0005	0.01	0.5978	0.0755	0.79	TM
YU2WXD		0.6152	0.1195	1.43	0.5680	0.0457	0.48	XX
ZRYVZJ		0.6120	0.1163	1.39	0.6420	0.1197	1.26	TL

Summary Statistics

	Sample GD03	Sample GD04
Grand Means	0.49574 COF	0.52230 COF
SD Btwn Labs	0.08374 COF	0.09527 COF

Statistics based on 10 of 10 reporting participants

Instrument Code List as Reported by the Labs

(IT) - IMASS SP-2100

(TA) - Thwing-Albert Friction Tester

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

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

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

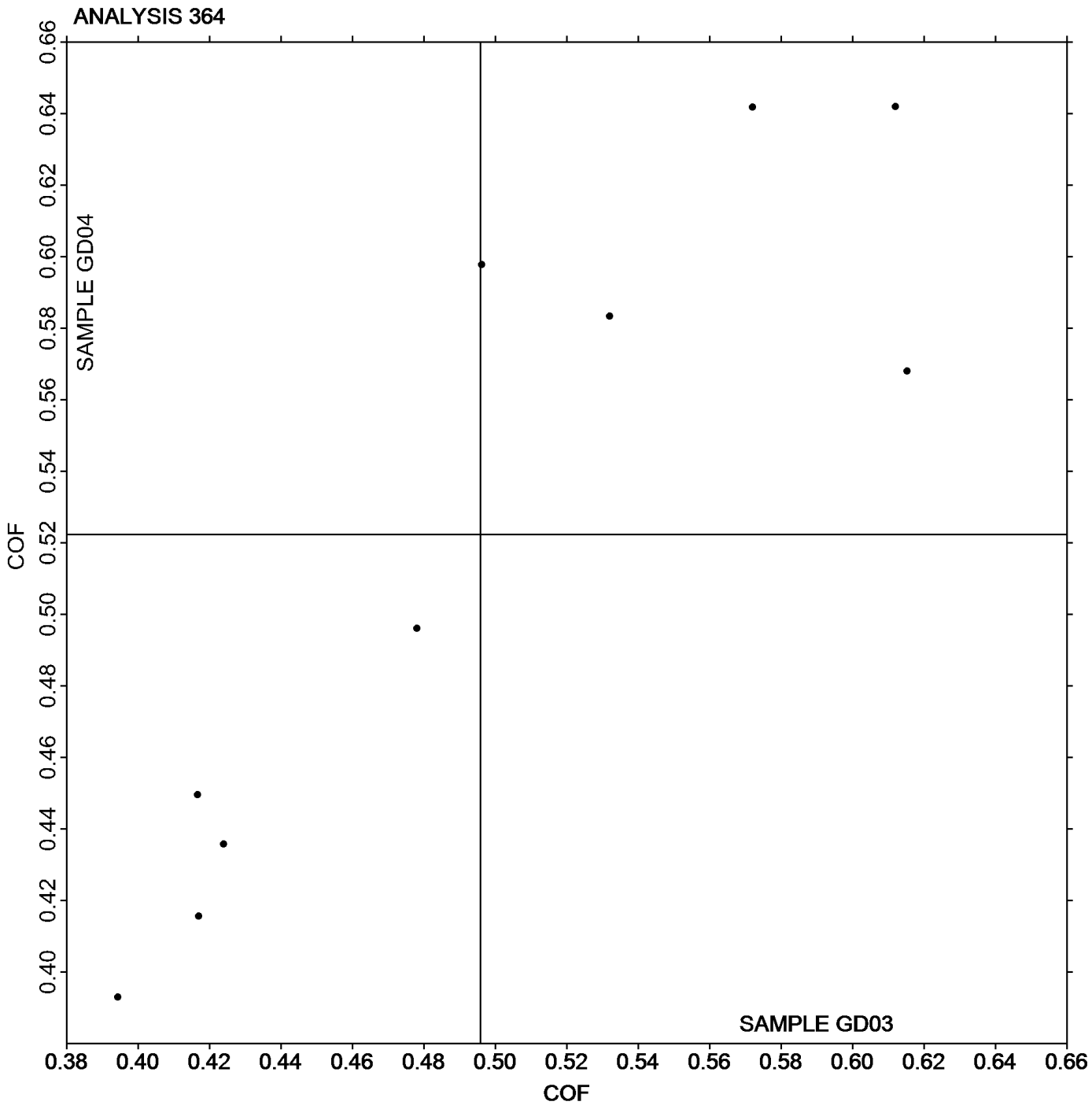
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD03** = 0.49574 COF

Grand Mean Sample **GD04** = 0.52230 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 GD03 Lab Mean	Sample GD03 Diff from Grand Mean	Sample GD03 CPV	Sample GD04 Lab Mean	Sample GD04 Diff from Grand Mean	Sample GD04 CPV	Instr Code
46GH3G		0.5010	0.0846	1.02	0.5444	0.0849	0.84	TA
89P6WB		0.4056	-0.0108	-0.13	0.4398	-0.0197	-0.19	TA
962VKN		0.3104	-0.1060	-1.28	0.3452	-0.1143	-1.13	XX
9CL7DJ		0.4660	0.0496	0.60	0.4660	0.0065	0.06	XX
A7RJDG		0.4338	0.0174	0.21	0.4740	0.0145	0.14	TM
DHVRMB		0.3284	-0.0880	-1.07	0.3378	-0.1217	-1.20	TA
JLVZHA		0.5150	0.0986	1.19	0.5788	0.1193	1.18	TM
JVZ4GQ		0.3490	-0.0674	-0.82	0.3552	-0.1043	-1.03	TM
K3L8BE		0.3974	-0.0190	-0.23	0.4452	-0.0143	-0.14	TA
MGT8WE		0.3008	-0.1156	-1.40	0.3158	-0.1437	-1.42	IR
Y2W6Z7		0.3940	-0.0224	-0.27	0.5250	0.0655	0.65	TM
ZRYVZJ		0.5700	0.1536	1.86	0.6460	0.1865	1.85	TL
ZUNA9G		0.4420	0.0256	0.31	0.5002	0.0407	0.40	TM

Summary Statistics

	Sample GD03	Sample GD04
Grand Means	0.41642 COF	0.45949 COF
SD Btwn Labs	0.08254 COF	0.10100 COF

Statistics based on 13 of 13 reporting participants

Instrument Code List as Reported by the Labs

(IR) - IMASS SP-2000

(TA) - Thwing-Albert Friction Tester

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

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

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

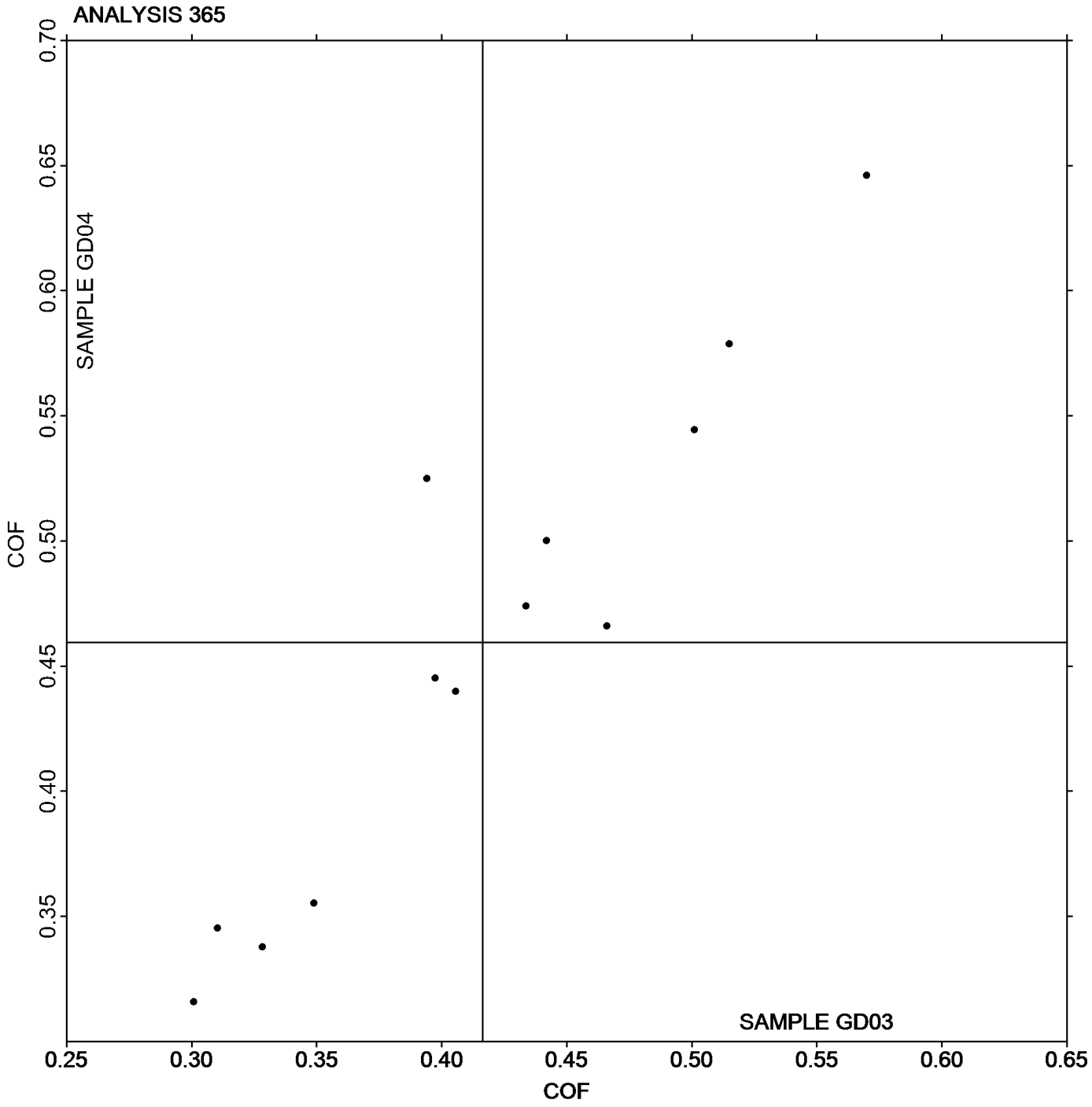
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD03** = 0.41642 COF

Grand Mean Sample **GD04** = 0.45949 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 GE03 Lab Mean	Sample GE03 Diff from Grand Mean	Sample GE03 CPV	Sample GE04 Lab Mean	Sample GE04 Diff from Grand Mean	Sample GE04 CPV	Instr Code
3DCBE4		12.40	0.78	1.00	11.86	0.46	0.77	PP
47UAWJ	*	9.80	-1.82	-2.33	9.61	-1.79	-3.02	XX
48LBWF		11.90	0.28	0.36	12.21	0.81	1.36	XX
4ZQ827		12.06	0.44	0.57	11.62	0.22	0.36	LP
63P3ZY		11.43	-0.19	-0.24	11.39	-0.02	-0.03	HG
67R24P		11.10	-0.52	-0.66	12.00	0.60	1.00	LA
6JCFC7		12.12	0.50	0.64	11.71	0.31	0.51	LP
6Y9FNE		11.50	-0.12	-0.15	12.15	0.75	1.26	TN
89P6WB		12.73	1.11	1.43	11.88	0.48	0.80	WG
962VKN		10.70	-0.92	-1.18	11.10	-0.30	-0.51	GS
9CL7DJ		13.32	1.70	2.18	12.01	0.61	1.02	XX
AEMDM9		11.57	-0.05	-0.06	11.57	0.17	0.28	XX
APPU7D		12.22	0.60	0.77	11.17	-0.23	-0.39	TN
C6T4TV	X	5.84	-5.78	-7.41	5.67	-5.73	-9.65	TL
D3WZHM		12.66	1.04	1.34	12.43	1.03	1.73	XX
D9LHWX		11.36	-0.26	-0.33	11.66	0.26	0.43	XX
DHREV9		11.92	0.30	0.39	11.55	0.15	0.25	PP
EDXTLK	X	16.74	5.12	6.56	15.76	4.36	7.33	LA
EFF8UE		11.26	-0.36	-0.46	11.37	-0.03	-0.06	WG
EL938R		11.80	0.18	0.23	11.60	0.20	0.33	LW
FFXEWN		11.70	0.08	0.10	11.20	-0.20	-0.34	TL
GLYZ8P		10.94	-0.68	-0.88	11.35	-0.05	-0.09	LA
HK4NY4		11.14	-0.48	-0.62	11.20	-0.21	-0.35	PP
JALGVK		10.46	-1.16	-1.49	10.73	-0.67	-1.13	XX
NRKBBU		11.96	0.34	0.43	11.62	0.22	0.36	HG
PTUPER		11.37	-0.25	-0.32	11.09	-0.31	-0.53	GA
Q4QZEL		12.30	0.68	0.87	11.20	-0.20	-0.34	XX
QRFL89		10.76	-0.86	-1.10	10.76	-0.64	-1.08	LP
RXYCY8		12.42	0.80	1.03	12.58	1.18	1.98	GA
T84L2Q		13.11	1.49	1.92	11.79	0.39	0.65	PP
TFWRYX		11.28	-0.34	-0.43	12.11	0.71	1.19	TL
UAZQYH		11.44	-0.17	-0.22	11.50	0.09	0.16	WG
UUTNE2		11.33	-0.29	-0.37	10.81	-0.60	-1.01	LP
VQ4E3F		11.74	0.12	0.16	11.25	-0.15	-0.26	LP
WZ9QTH		11.45	-0.17	-0.22	11.01	-0.39	-0.66	LW
XA88NR	X	9.76	-1.86	-2.38	11.77	0.37	0.62	GS
XJH33J		11.77	0.15	0.19	11.12	-0.29	-0.48	PP
XY7JUA		10.03	-1.59	-2.04	10.26	-1.14	-1.93	TL
Y2P347		11.62	0.00	0.00	10.92	-0.49	-0.82	PP
YJD72Y		11.06	-0.56	-0.71	11.04	-0.36	-0.61	LP
YUWKZV		9.91	-1.71	-2.19	10.21	-1.19	-2.01	RE
YXWV2A		12.37	0.75	0.96	12.02	0.62	1.04	HG
YZZNV9		12.08	0.46	0.59	11.31	-0.09	-0.16	LP

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

WebCode	Data Flag	Sample GE03 Lab Mean	Sample GE03 Diff from Grand Mean	Sample GE03 CPV	Sample GE04 Lab Mean	Sample GE04 Diff from Grand Mean	Sample GE04 CPV	Instr Code
ZLYCZA		12.17	0.55	0.71	11.30	-0.10	-0.18	LW
ZRYVZJ		11.73	0.11	0.15	11.72	0.32	0.53	HG

Summary Statistics

	Sample GE03	Sample GE04
Grand Means	11.619 sec/100 cc	11.404 sec/100 cc
SD Btwn Labs	0.780 sec/100 cc	0.594 sec/100 cc

Statistics based on 42 of 45 reporting participants

Comments on assigned Data Flags for Test #370

C6T4TV (X) - Extreme data.

EDXTLK (X) - Extreme data.

XA88NR (X) - Inconsistent in testing between samples.

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) - Teledyne Gurley Densometer #4110, Oil Flotation

(TN) - Teledyne Gurley S-P-S Tester #4190

(WG) - W & LE Gurley Tester

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

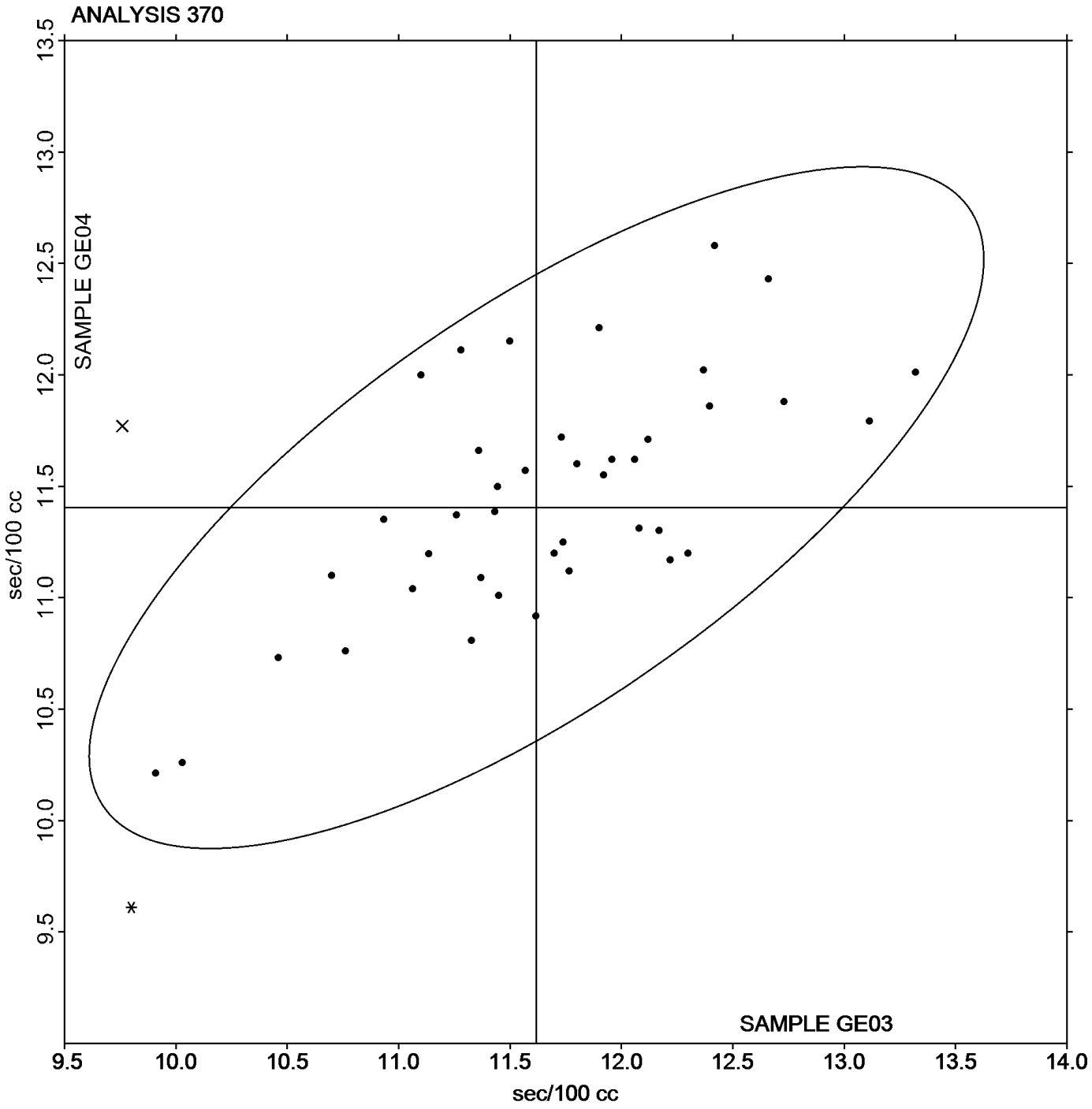
Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE03** = 11.619 sec/100 cc

Grand Mean Sample **GE04** = 11.404 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 GE03 Lab Mean	Sample GE03 Diff from Grand Mean	Sample GE03 CPV	Sample GE04 Lab Mean	Sample GE04 Diff from Grand Mean	Sample GE04 CPV	Instr Code
82NR48		204.4	-9.2	-0.48	205.8	-11.3	-0.65	LP
962VKN		166.5	-47.1	-2.48	183.7	-33.4	-1.93	SH
ADVCNC		224.7	11.1	0.59	223.9	6.8	0.39	SH
CHYZAC		216.3	2.7	0.14	222.7	5.6	0.32	TT
CQPNWU	X	160.9	-52.7	-2.78	96.8	-120.3	-6.95	HM
D3WZHM		202.4	-11.2	-0.59	203.2	-13.9	-0.80	XX
DHREV9		212.8	-0.8	-0.04	222.0	4.9	0.28	SH
JNYTC9		204.5	-9.1	-0.48	209.0	-8.1	-0.47	LP
KU6Z6U		217.5	3.9	0.21	224.6	7.5	0.43	PP
PTUPER		229.1	15.5	0.82	215.8	-1.3	-0.08	GA
PWBYL6		209.8	-3.8	-0.20	204.7	-12.4	-0.72	LP
RQF2RX		226.0	12.4	0.66	229.4	12.3	0.71	HM
U2ML7X		249.1	35.5	1.87	259.2	42.1	2.44	VM
VHGC8Y		227.9	14.3	0.76	239.2	22.1	1.28	XX
XXH84P		199.0	-14.5	-0.77	212.5	-4.6	-0.27	GA
XZZGXA		195.6	-18.0	-0.95	201.7	-15.4	-0.89	TT
YXWV2A		231.5	17.9	0.95	216.0	-1.1	-0.06	HM

Summary Statistics

	Sample GE03	Sample GE04
Grand Means	213.57 Sheffield Units	217.08 Sheffield Units
SD Btwn Labs	18.95 Sheffield Units	17.30 Sheffield Units

Statistics based on 16 of 17 reporting participants

Comments on assigned Data Flags for Test #372

CQPNWU (X) - Extreme data.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer

(HM) - Technidyne - Hagerty Model #538

(LP) - L & W Densometer, Air Permeance

(PP) - Technidyne Profile/Plus

(SH) - Sheffield

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

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

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

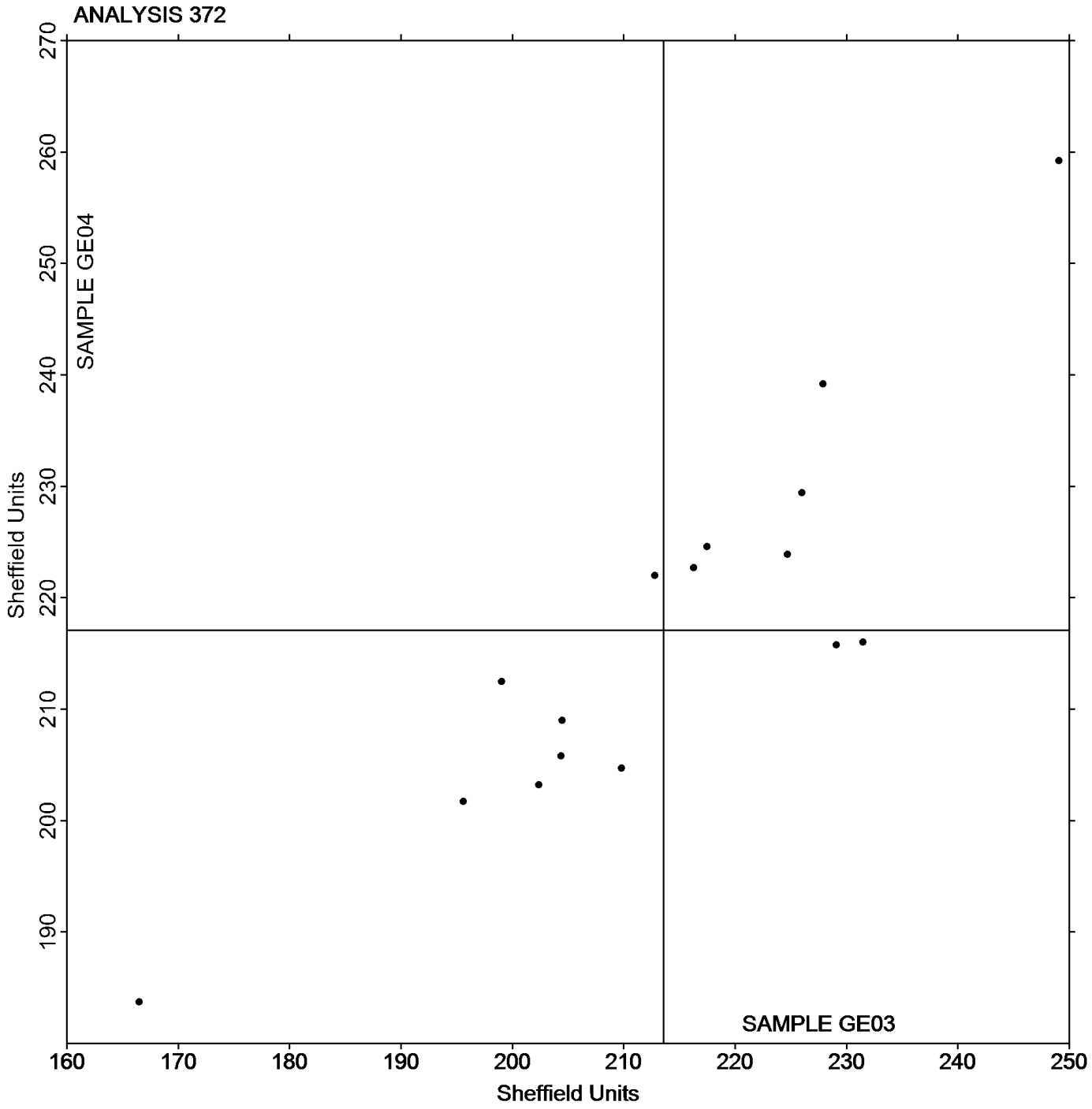
Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

Grand Mean Sample **GE03** = 213.57 Sheffield Units

Grand Mean Sample **GE04** = 217.08 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 GJ03 Lab Mean	Sample GJ03 Diff from Grand Mean	Sample GJ03 CPV	Sample GJ04 Lab Mean	Sample GJ04 Diff from Grand Mean	Sample GJ04 CPV
22NV6B	X	1.2600	0.5066	5.71	1.601	0.421	5.85
3DCBE4		0.7180	-0.0354	-0.40	1.190	0.010	0.14
46GH3G		0.6230	-0.1304	-1.47	1.109	-0.071	-0.99
68EJ8J		0.7430	-0.0104	-0.12	1.151	-0.029	-0.41
89P6WB		0.8160	0.0626	0.71	1.097	-0.083	-1.16
9CL7DJ		0.6690	-0.0844	-0.95	1.131	-0.049	-0.68
AMGE78		0.8655	0.1121	1.26	1.275	0.095	1.32
CEXWHP		0.7450	-0.0084	-0.09	1.193	0.013	0.18
CQPNWU		0.5520	-0.2014	-2.27	1.064	-0.116	-1.62
DCQ4UW		0.9810	0.2276	2.57	1.290	0.110	1.53
DHREV9		0.6910	-0.0624	-0.70	1.154	-0.026	-0.36
DHVRMB		0.8190	0.0656	0.74	1.320	0.140	1.94
DTVLN2	X	0.3500	-0.4034	-4.55	0.349	-0.831	-11.56
FXCVYH		0.7490	-0.0044	-0.05	1.221	0.041	0.57
HEGQN8		0.7680	0.0146	0.16	1.212	0.032	0.44
HK4NY4		0.7110	-0.0424	-0.48	1.180	0.000	0.00
HMBY9Y	X	0.5030	-0.2504	-2.82	0.482	-0.698	-9.71
KPQ96G		0.7670	0.0136	0.15	1.274	0.094	1.30
MB2Z7F		0.7830	0.0296	0.33	1.159	-0.021	-0.30
MQEHZE		0.6300	-0.1234	-1.39	1.021	-0.159	-2.21
NXUKQ3		0.7900	0.0366	0.41	1.140	-0.040	-0.56
PUJ4NP	X	1.1630	0.4096	4.62	1.244	0.064	0.89
QGHLPN	X	3.1020	2.3486	26.47	5.215	4.035	56.09
R3QCG9		0.8650	0.1116	1.26	1.239	0.059	0.82
UBJABG		0.7370	-0.0164	-0.18	1.201	0.021	0.29
V97ZT4		0.8590	0.1056	1.19	1.237	0.057	0.79
VQ4E3F		0.7250	-0.0284	-0.32	1.141	-0.039	-0.55
WXM36B		0.7120	-0.0414	-0.47	1.229	0.049	0.68
Y2P347		0.7460	-0.0074	-0.08	1.156	-0.024	-0.34
YUC3YV		0.7700	0.0166	0.19	1.122	-0.058	-0.81

Summary Statistics

	Sample GJ03	Sample GJ04
Grand Means	0.75338 Microns	1.1802 Microns
SD Btwn Labs	0.08874 Microns	0.0719 Microns

Statistics based on 25 of 30 reporting participants

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

Comments on assigned Data Flags for Test #376

22NV6B (X) - Data for both samples are high.

DTVLN2 (X) - Extreme data.

HMBY9Y (X) - Extreme data.

PUJ4NP (X) - Data for Sample GJ03 are high. Inconsistent in testing within determinations for Sample GJ03.

QGHLPN (X) - Extreme data.

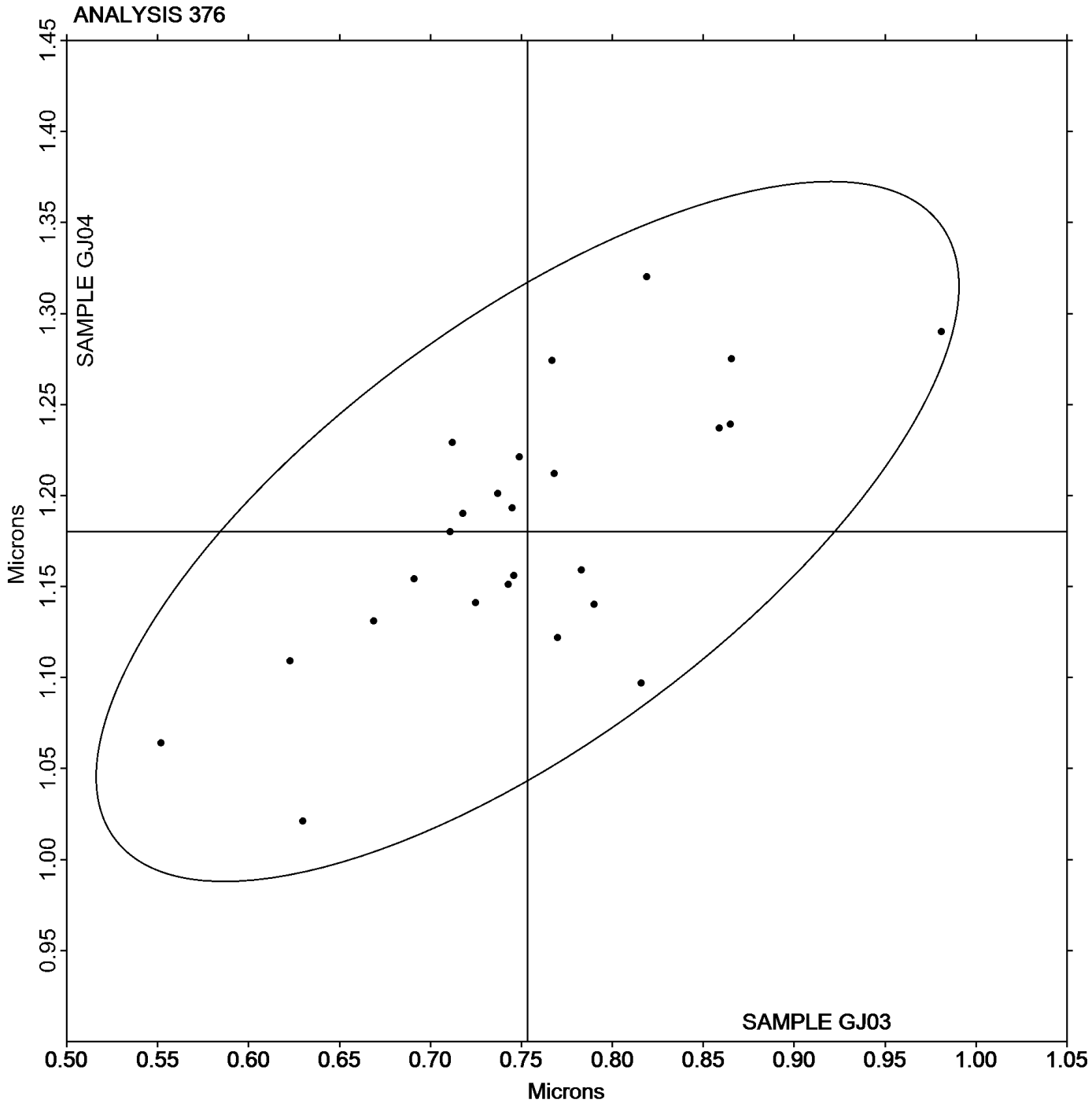
Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample **GJ03** = 0.75338 Microns

Grand Mean Sample **GJ04** = 1.1802 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK03 Lab Mean	Sample GK03 Diff from Grand Mean	Sample GK03 CPV	Sample GK04 Lab Mean	Sample GK04 Diff from Grand Mean	Sample GK04 CPV
89P6WB		1.586	-0.202	-1.44	1.242	-0.175	-1.37
FFXEWN		1.678	-0.110	-0.78	1.327	-0.090	-0.70
GLYZ8P		1.630	-0.158	-1.12	1.355	-0.062	-0.49
KPQ96G		1.991	0.203	1.44	1.474	0.057	0.44
U2ML7X		1.978	0.190	1.34	1.705	0.288	2.24
VLD8FZ		1.774	-0.014	-0.10	1.404	-0.013	-0.10
XJH33J		1.798	0.010	0.07	1.453	0.036	0.28
YU2WXD		1.828	0.040	0.28	1.418	0.001	0.01
ZRYVZJ		1.833	0.045	0.32	1.378	-0.039	-0.31

Summary Statistics

	Sample GK03	Sample GK04
Grand Means	1.7884 Microns	1.4173 Microns
SD Btwn Labs	0.1410 Microns	0.1283 Microns

Statistics based on 9 of 9 reporting participants

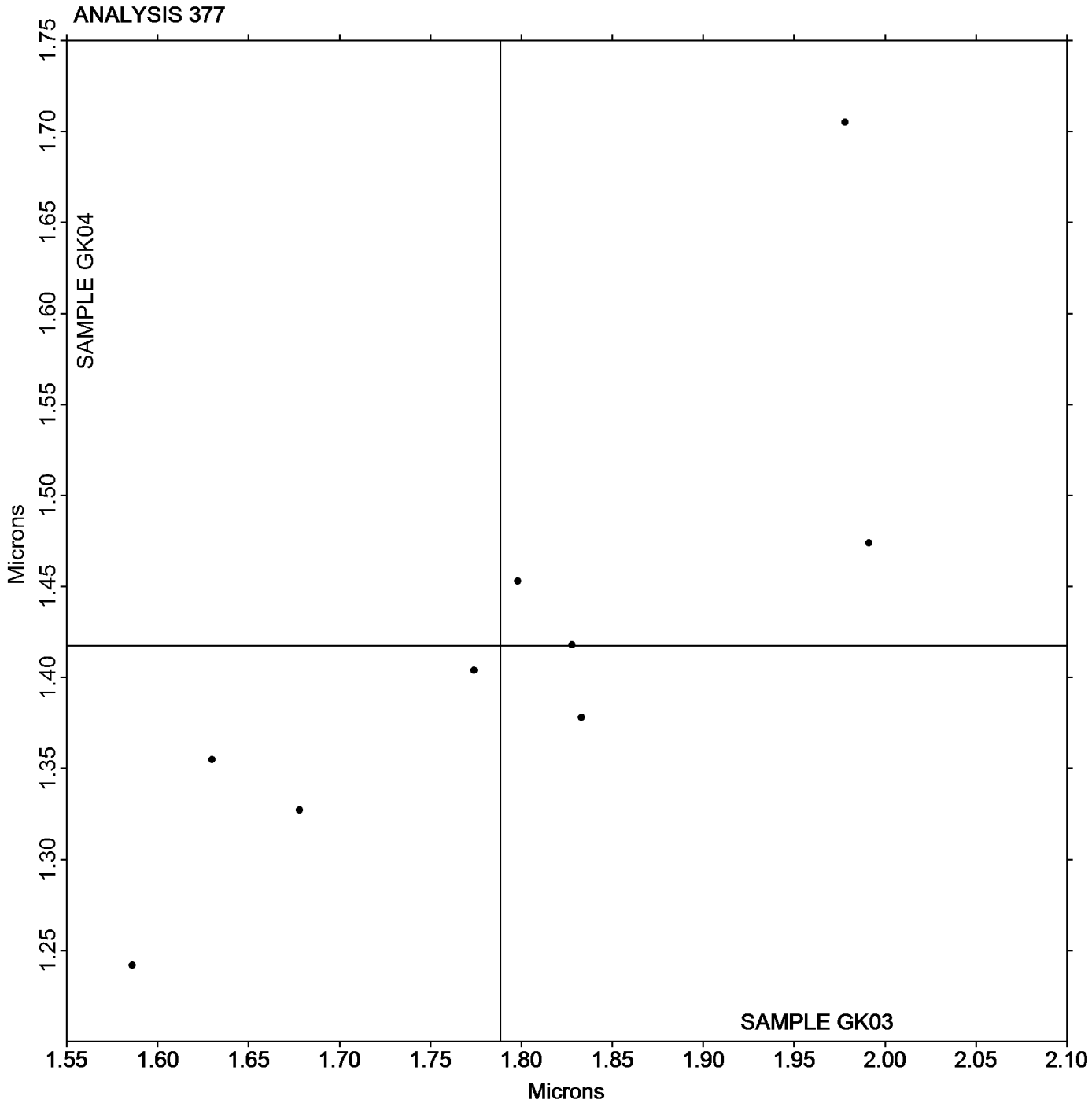
Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK03** = 1.7884 Microns

Grand Mean Sample **GK04** = 1.4173 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 GL03 Lab Mean	Sample GL03 Diff from Grand Mean	Sample GL03 CPV	Sample GL04 Lab Mean	Sample GL04 Diff from Grand Mean	Sample GL04 CPV	Instr Code
22NV6B		172.0	8.8	0.72	118.5	15.9	1.45	GL
3DCBE4		156.5	-6.6	-0.55	100.5	-2.1	-0.19	PP
3HP4K2		165.2	2.0	0.17	114.1	11.5	1.05	TT
46GH3G		174.6	11.4	0.94	99.9	-2.7	-0.25	HM
47UAWJ		162.2	-1.0	-0.08	100.4	-2.2	-0.20	PP
4NXKVB	*	197.0	33.8	2.77	134.5	31.9	2.91	GL
63P3ZY		169.6	6.4	0.53	96.8	-5.8	-0.53	HM
67R24P	X	306.2	143.0	11.73	276.0	173.4	15.85	LA
6YCYD4		167.7	4.5	0.37	101.6	-1.0	-0.09	GA
82NR48		163.5	0.3	0.03	107.1	4.5	0.41	LW
962VKN	*	180.8	17.6	1.45	131.0	28.4	2.60	XX
ADVCNC		159.8	-3.4	-0.28	101.4	-1.2	-0.11	SH
APPU7D	X	133.5	-29.7	-2.43	106.4	3.8	0.35	TS
B3RHX8		159.1	-4.1	-0.33	101.8	-0.8	-0.08	MP
CV3KK4	*	188.2	25.0	2.05	105.1	2.5	0.23	HM
D3WZHM	*	139.2	-24.0	-1.97	101.3	-1.3	-0.12	XX
DDFG99		148.7	-14.5	-1.19	96.7	-5.9	-0.54	LA
DHREV9		154.5	-8.7	-0.71	97.3	-5.3	-0.48	PP
DHVRMB		160.6	-2.6	-0.21	97.1	-5.5	-0.50	HM
DZPHLC		175.4	12.2	1.00	128.3	25.7	2.35	TT
EDXTLK		143.1	-20.1	-1.65	83.5	-19.1	-1.75	LA
EFF8UE		179.8	16.6	1.36	112.7	10.1	0.92	PG
EL938R		163.1	-0.1	-0.01	107.2	4.6	0.42	SH
FFXEWN		183.5	20.4	1.67	110.2	7.6	0.69	PP
FXCVYH		167.5	4.3	0.35	97.1	-5.5	-0.50	HM
GHXWF3		161.6	-1.5	-0.13	98.9	-3.7	-0.34	PP
GLYZ8P		150.4	-12.8	-1.05	95.2	-7.4	-0.68	LA
HK4NY4		154.7	-8.5	-0.70	96.9	-5.7	-0.52	PP
HMBY9Y		154.1	-9.0	-0.74	96.4	-6.2	-0.57	PP
HRMTCB		147.0	-16.2	-1.33	101.4	-1.2	-0.11	SH
JNYTC9		168.0	4.8	0.40	99.2	-3.4	-0.31	PP
JVZ4GQ	X	4.2	-159.0	-13.04	7.5	-95.1	-8.69	HM
KU6Z6U		153.4	-9.8	-0.80	93.9	-8.7	-0.80	PP
KWAEZ3	*	173.6	10.4	0.86	130.1	27.5	2.51	TS
M9TX9N		161.5	-1.7	-0.14	112.2	9.5	0.87	GA
MQEHZE		158.8	-4.4	-0.36	103.1	0.5	0.05	LA
NRKBBU	X	224.7	61.5	5.05	122.7	20.1	1.84	HM
NXUKQ3		162.4	-0.8	-0.07	98.1	-4.5	-0.41	LA
PTUPER		157.0	-6.2	-0.51	95.4	-7.2	-0.66	HM
QCE7UR		155.3	-7.9	-0.65	95.8	-6.8	-0.62	XX
R3QCG9		156.8	-6.4	-0.52	94.0	-8.6	-0.79	HM
RQF2RX		169.6	6.4	0.53	98.8	-3.8	-0.35	HM
T84L2Q		170.1	6.9	0.57	108.1	5.5	0.50	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

WebCode	Data Flag	Sample GL03 Lab Mean	Sample GL03 Diff from Grand Mean	Sample GL03 CPV	Sample GL04 Lab Mean	Sample GL04 Diff from Grand Mean	Sample GL04 CPV	Instr Code
U4FHQK	*	129.0	-34.2	-2.80	85.4	-17.2	-1.57	TS
UBJABG		159.8	-3.4	-0.28	100.9	-1.8	-0.16	PP
V97ZT4	X	162.5	-0.7	-0.06	132.5	29.9	2.73	TS
VHGC8Y		160.6	-2.6	-0.21	100.7	-1.9	-0.17	HM
VLD8FZ		186.8	23.6	1.94	106.6	4.0	0.37	HM
VQ4E3F		163.8	0.6	0.05	114.7	12.1	1.11	TS
WXM36B		170.7	7.5	0.62	108.5	5.9	0.54	PP
XA88NR		160.0	-3.2	-0.26	100.0	-2.6	-0.24	SH
XJH33J		163.6	0.4	0.04	99.5	-3.1	-0.29	PP
XXH84P		157.4	-5.8	-0.47	103.8	1.2	0.11	GA
XY7JUA	X	108.8	-54.4	-4.46	130.7	28.1	2.56	VM
XZZGXA	*	142.7	-20.5	-1.68	74.6	-28.0	-2.56	TT
Y2P347		165.9	2.7	0.23	94.4	-8.2	-0.75	PP
YTXN3K		161.2	-2.0	-0.16	99.4	-3.2	-0.29	PP
YU2WXD		165.4	2.2	0.18	94.9	-7.7	-0.70	HM
YUC3YV		178.5	15.3	1.26	112.0	9.4	0.86	TT
YXWV2A		166.8	3.6	0.30	96.7	-5.9	-0.54	HM
YZZNV9		158.1	-5.1	-0.42	94.3	-8.3	-0.76	XX
ZRYVZJ		161.5	-1.7	-0.14	97.9	-4.7	-0.43	HM

Summary Statistics

	Sample GL03	Sample GL04
Grand Means	163.18 Sheffield	102.60 Sheffield
SD Btwn Labs	12.19 Sheffield	10.94 Sheffield

Statistics based on 56 of 62 reporting participants

Comments on assigned Data Flags for Test #378

67R24P (X) - Extreme data.

APPU7D (X) - Inconsistent in testing between samples.

JVZ4GQ (X) - Extreme data.

NRKBBU (X) - Data for Sample GL03 are high. Inconsistent in testing within the determinations for both samples.

V97ZT4 (X) - Data for Sample GL04 are high. Inconsistent in testing within determinations for Sample GL04.

XY7JUA (X) - Data for Sample GL03 are low.

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

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

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

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

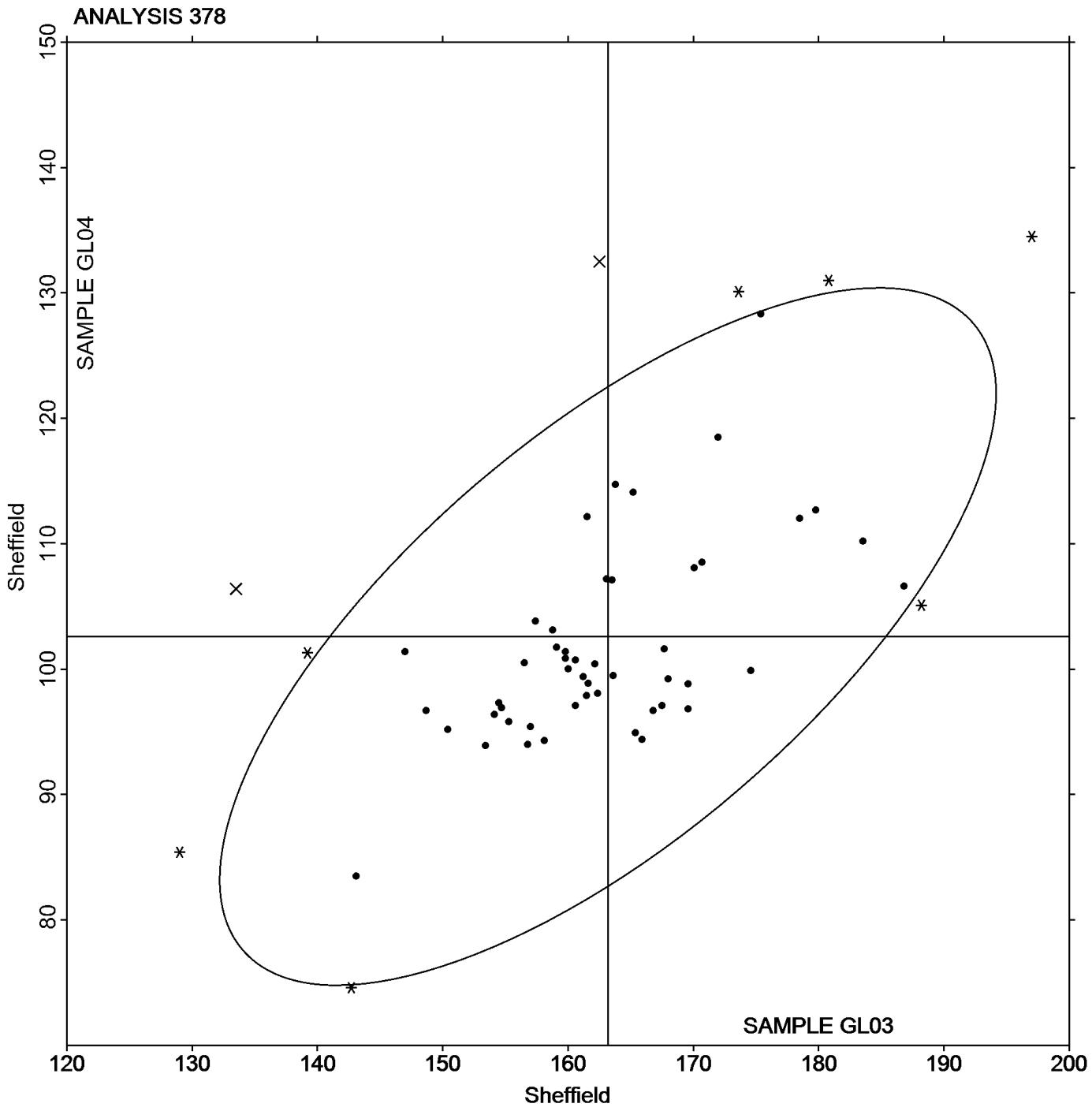
Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL03** = 163.18 Sheffield

Grand Mean Sample **GL04** = 102.60 Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

WebCode	Data Flag	Sample GM03 Lab Mean	Sample GM03 Diff from Grand Mean	Sample GM03 CPV	Sample GM04 Lab Mean	Sample GM04 Diff from Grand Mean	Sample GM04 CPV
4ZQ827		4.270	-0.512	-1.35	4.181	-0.450	-1.19
A22WRB		4.470	-0.312	-0.82	4.435	-0.196	-0.52
CV3KK4		4.851	0.069	0.18	4.749	0.118	0.31
DCQ4UW		4.610	-0.171	-0.45	4.585	-0.047	-0.12
DZPHLC	X	7.120	2.338	6.15	6.270	1.639	4.32
RUDFHV		5.430	0.648	1.71	5.194	0.563	1.48
X9YQX9		4.820	0.038	0.10	4.660	0.029	0.08
YU2WXD		4.610	-0.172	-0.45	4.160	-0.471	-1.24
YUWKZV		5.191	0.410	1.08	5.087	0.456	1.20

Summary Statistics

	Sample GM03	Sample GM04
Grand Means	4.7816 Percent	4.6314 Percent
SD Btwn Labs	0.3803 Percent	0.3789 Percent

Statistics based on 8 of 9 reporting participants

Comments on assigned Data Flags for Test #382

DZPHLC (X) - Extreme data.

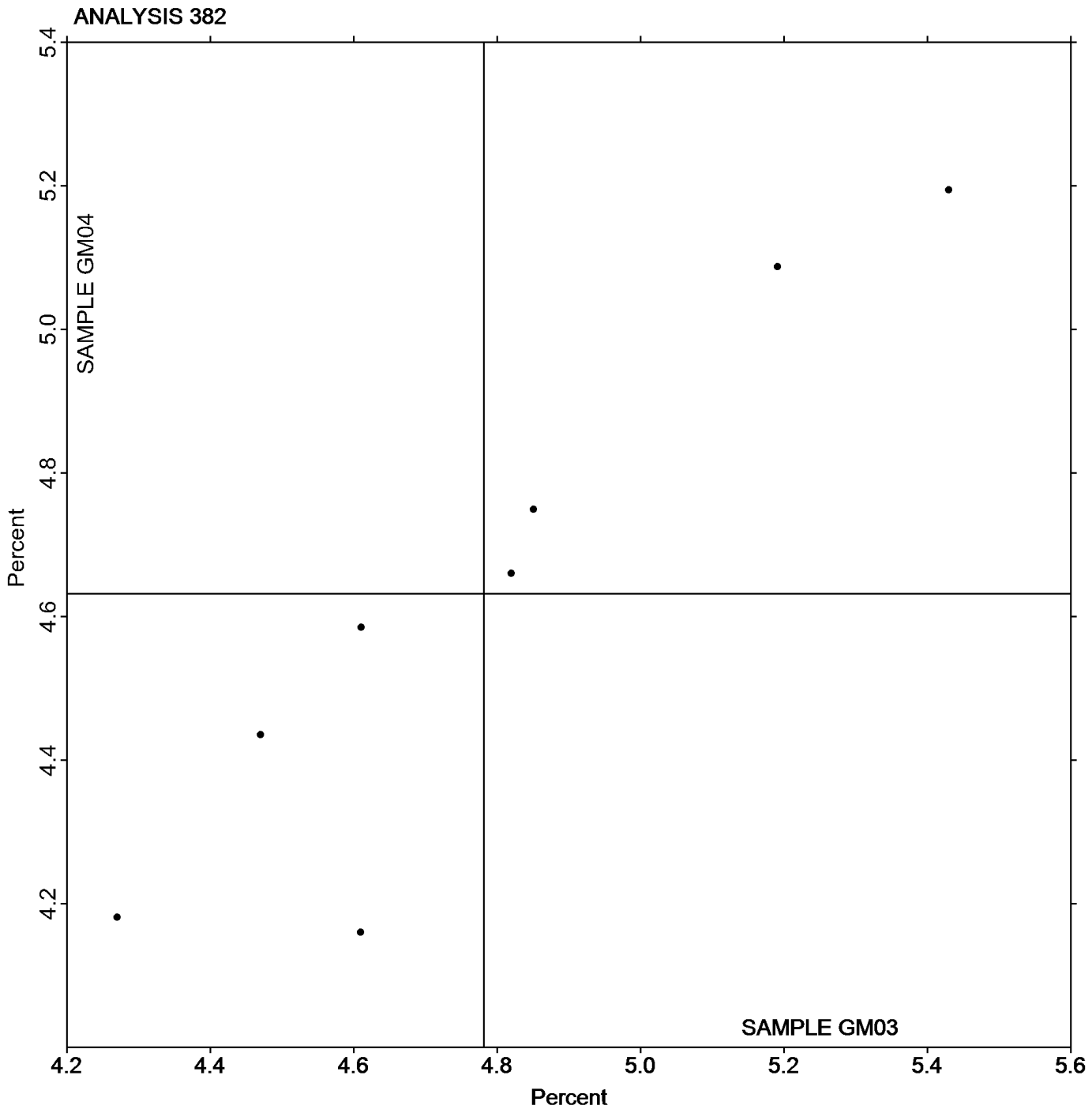
Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

Grand Mean Sample **GM03** = 4.7816 Percent

Grand Mean Sample **GM04** = 4.6314 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 GN03 Lab Mean	Sample GN03 Diff from Grand Mean	Sample GN03 CPV	Sample GN04 Lab Mean	Sample GN04 Diff from Grand Mean	Sample GN04 CPV
46GH3G		86.94	0.16	0.27	93.71	0.31	0.77
47UAWJ		86.68	-0.10	-0.16	93.81	0.41	1.02
4C3GMB		87.53	0.75	1.25	94.20	0.80	1.99
4NXKVB		86.73	-0.05	-0.08	93.30	-0.10	-0.25
962VKN	X	81.29	-5.49	-9.11	91.69	-1.71	-4.26
9CL7DJ		86.65	-0.13	-0.21	93.29	-0.11	-0.27
ADVCNC		86.86	0.08	0.14	93.18	-0.22	-0.54
AMGE78		87.08	0.30	0.51	93.32	-0.08	-0.20
APPU7D		87.33	0.55	0.92	93.60	0.20	0.50
D3WZHM	*	85.80	-0.98	-1.62	92.35	-1.05	-2.61
D9LHWX		86.00	-0.78	-1.29	93.34	-0.06	-0.15
DHVRMB		87.42	0.65	1.08	94.02	0.62	1.54
DTVLN2		87.00	0.22	0.37	93.46	0.06	0.15
EDXTLK		85.90	-0.88	-1.45	93.04	-0.36	-0.90
EFF8UE		87.14	0.37	0.61	93.22	-0.19	-0.46
EL938R		87.13	0.35	0.58	93.15	-0.25	-0.62
FFXEWN		86.33	-0.45	-0.74	93.28	-0.12	-0.30
GLYZ8P	*	84.95	-1.83	-3.03	92.31	-1.09	-2.71
HK4NY4		86.73	-0.05	-0.08	93.30	-0.10	-0.25
HRMTCB		87.02	0.24	0.41	93.53	0.13	0.32
JALGVK		86.58	-0.19	-0.32	93.17	-0.23	-0.57
JVZ4GQ		87.41	0.63	1.05	94.04	0.64	1.60
NRKBBU		87.01	0.23	0.39	93.71	0.31	0.77
PTUPER		86.81	0.03	0.06	92.98	-0.42	-1.05
QCE7UR		87.14	0.36	0.61	93.69	0.29	0.72
T84L2Q		86.73	-0.05	-0.08	93.50	0.10	0.25
VDLLGU		85.50	-1.28	-2.12	93.13	-0.27	-0.67
VHGC8Y		86.34	-0.44	-0.72	93.09	-0.31	-0.77
VLD8FZ		87.49	0.71	1.18	93.89	0.49	1.22
XA88NR		86.67	-0.11	-0.17	93.54	0.14	0.35
XJH33J		86.94	0.17	0.28	93.38	-0.02	-0.04
XY7JUA		87.85	1.07	1.78	93.62	0.21	0.53
YTXN3K		86.93	0.15	0.26	93.45	0.05	0.12
YU2WXD		87.11	0.33	0.56	93.62	0.22	0.55
YXWV2A		86.63	-0.14	-0.24	93.39	-0.01	-0.02

Summary Statistics

	Sample GN03	Sample GN04
Grand Means	86.775 Percent	93.400 Percent
SD Btwn Labs	0.602 Percent	0.402 Percent

Statistics based on 34 of 35 reporting participants

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

Comments on assigned Data Flags for Test #384

962VKN (X) - Extreme data.

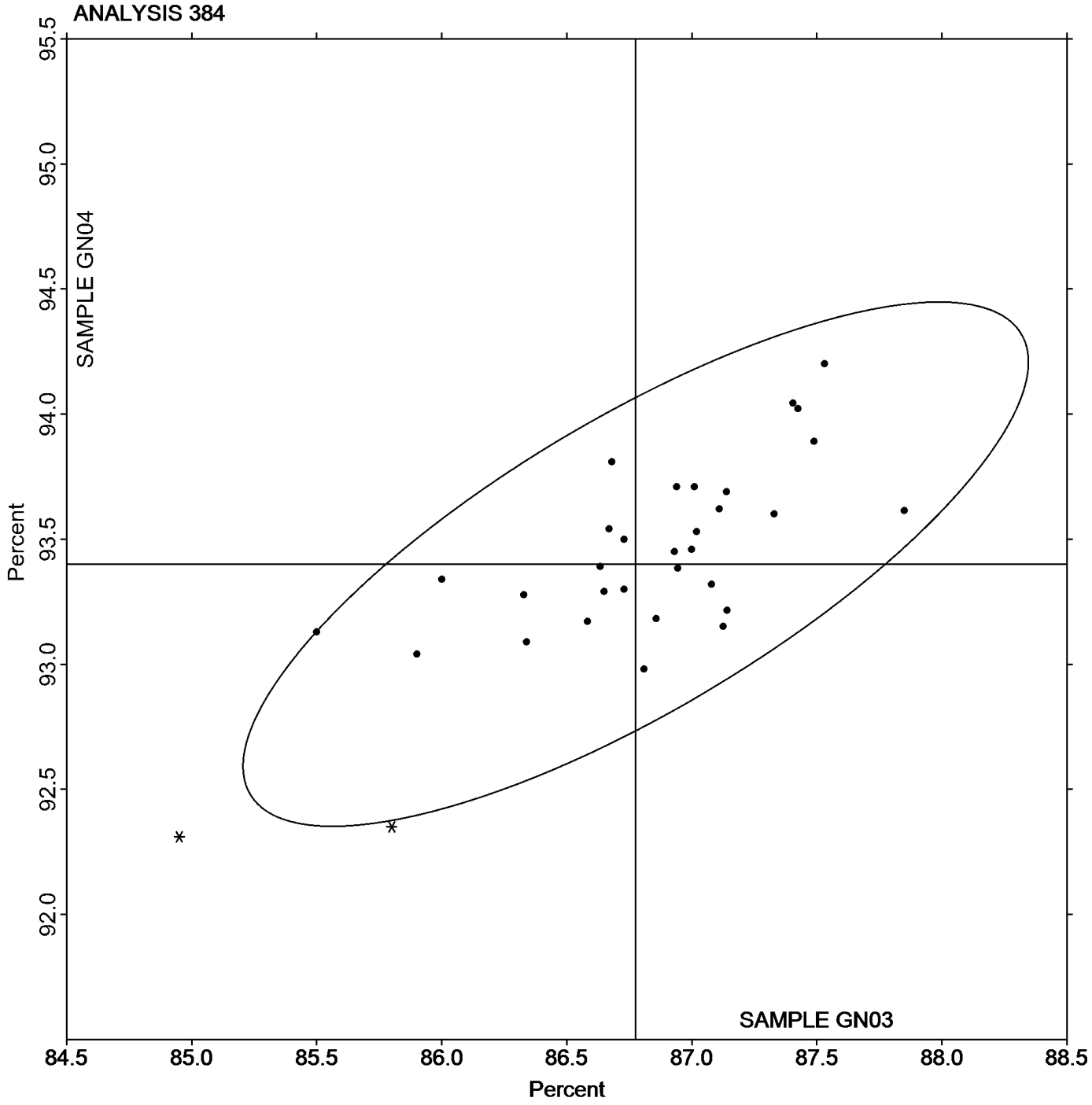
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN03** = 86.775 Percent

Grand Mean Sample **GN04** = 93.400 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

WebCode	Data Flag	Sample GP03 Lab Mean	Sample GP03 Diff from Grand Mean	Sample GP03 CPV	Sample GP04 Lab Mean	Sample GP04 Diff from Grand Mean	Sample GP04 CPV
273CUR		89.02	-0.01	-0.04	93.57	0.11	2.24
3TB3KR		89.00	-0.02	-0.14	93.53	0.07	1.54
4ZQ827		89.26	0.23	1.69	93.45	-0.01	-0.15
82NR48		88.93	-0.09	-0.68	93.34	-0.12	-2.56
8YGA8X		88.96	-0.06	-0.44	93.41	-0.05	-0.93
AMGE78		89.09	0.07	0.49	93.42	-0.04	-0.79
C6T4TV	X	73.78	-15.24	-110.95	83.29	-10.17	-209.26
DHVRMB		89.10	0.07	0.54	93.46	0.00	0.00
JLVZHA		89.15	0.12	0.89	93.43	-0.03	-0.66
LCZW6Q		89.06	0.03	0.24	93.49	0.03	0.63
Q4QZEL		88.97	-0.06	-0.40	93.47	0.01	0.24
QRFL89		88.83	-0.19	-1.41	93.47	0.01	0.22
RQF2RX		89.39	0.36	2.63	93.48	0.02	0.32
VLD8FZ		89.11	0.09	0.65	93.47	0.01	0.26
WZ9QTH		89.04	0.01	0.09	93.48	0.02	0.32
YJD72Y		88.87	-0.15	-1.11	93.41	-0.05	-1.07
YUWKZV		88.91	-0.12	-0.84	93.46	0.00	-0.07
YXWV2A		88.93	-0.10	-0.71	93.46	0.00	-0.07
Z9BAJ3		88.90	-0.13	-0.93	93.46	0.00	0.08
ZLYCZA		88.95	-0.07	-0.53	93.48	0.02	0.43

Summary Statistics

	Sample GP03	Sample GP04
Grand Means	89.023 Percent	93.459 Percent
SD Btwn Labs	0.137 Percent	0.049 Percent

Statistics based on 19 of 20 reporting participants

Comments on assigned Data Flags for Test #386

C6T4TV (X) - Extreme data.

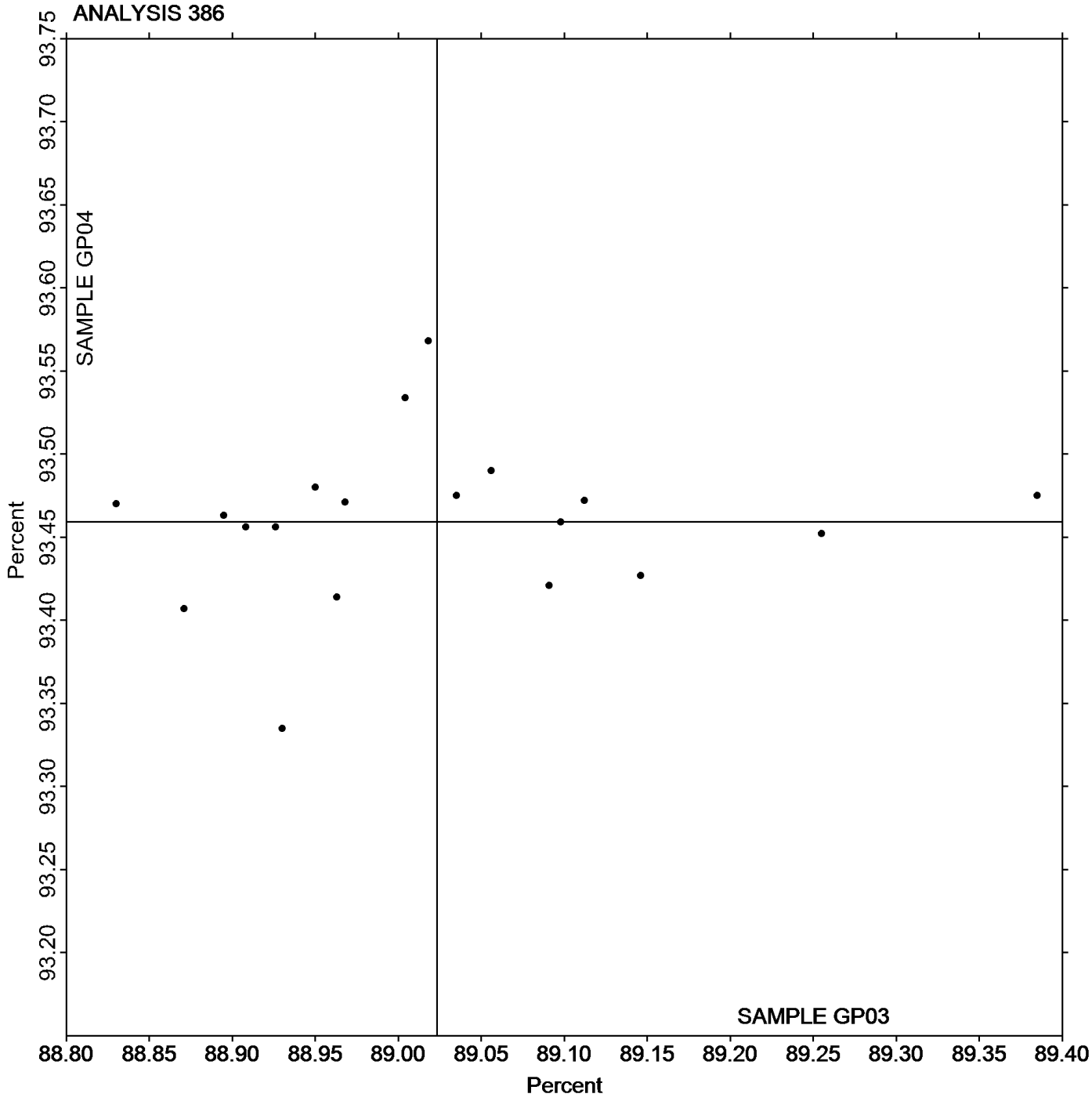
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP03** = 89.023 Percent

Grand Mean Sample **GP04** = 93.459 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 GR03 Lab Mean	Sample GR03 Diff from Grand Mean	Sample GR03 CPV	Sample GR04 Lab Mean	Sample GR04 Diff from Grand Mean	Sample GR04 CPV	Instr Code
22NV6B		83.85	1.42	1.14	83.85	1.14	0.89	TT
46GH3G		81.65	-0.78	-0.63	81.98	-0.73	-0.57	TS
962VKN	*	85.75	3.32	2.66	85.70	2.99	2.33	PE
9CL7DJ		81.30	-1.13	-0.91	81.20	-1.51	-1.18	TT
A22WRB		82.53	0.09	0.08	82.55	-0.16	-0.13	XX
AMGE78		80.88	-1.55	-1.24	80.79	-1.92	-1.50	TT
APPU7D		81.54	-0.89	-0.72	81.69	-1.02	-0.80	PE
D3WZHM		84.49	2.06	1.65	84.50	1.79	1.40	XX
D9LHWX		83.48	1.04	0.84	83.95	1.24	0.97	TS
DHVRMB		80.66	-1.77	-1.42	80.78	-1.93	-1.51	TS
DTVLN2		82.66	0.22	0.18	82.74	0.03	0.02	XX
EFF8UE		83.35	0.92	0.74	84.07	1.36	1.06	TS
GHXWF3		81.03	-1.40	-1.12	80.94	-1.77	-1.38	TS
GLYZ8P		82.85	0.41	0.33	83.68	0.97	0.76	TS
HMBY9Y		82.33	-0.11	-0.09	83.34	0.63	0.49	TT
HRMTCB		80.69	-1.74	-1.40	81.08	-1.64	-1.28	TA
JALGVK		81.63	-0.80	-0.64	81.83	-0.89	-0.69	TS
NZHXH7		84.08	1.64	1.32	84.20	1.49	1.16	HG
PTUPER		81.63	-0.80	-0.64	82.78	0.07	0.05	XX
QCE7UR		82.41	-0.02	-0.02	82.39	-0.32	-0.25	XX
T84L2Q	X	81.71	-0.72	-0.58	83.70	0.99	0.77	TT
UBJABG		83.47	1.04	0.83	83.43	0.72	0.56	HD
V97ZT4		82.50	0.07	0.05	82.78	0.06	0.05	TS
VHGC8Y		82.02	-0.41	-0.33	82.55	-0.16	-0.12	GM
WXM36B		82.56	0.12	0.10	82.72	0.01	0.01	HD
YTXN3K		82.99	0.56	0.45	83.70	0.99	0.77	XX
YUC3YV		82.44	0.01	0.00	82.94	0.23	0.18	TT
YXWV2A		80.91	-1.52	-1.22	81.06	-1.65	-1.29	TS

Summary Statistics

	Sample GR03	Sample GR04
Grand Means	82.431 Percent	82.710 Percent
SD Btwn Labs	1.249 Percent	1.282 Percent

Statistics based on 27 of 28 reporting participants

Comments on assigned Data Flags for Test #390

T84L2Q (X) - Inconsistent in testing between samples.

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

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

(TT) - Technidyne Brightimeter Micro S4-M

(HD) - Hunter D25DP - 9000

(PE) - Photovolt 577

(TS) - Technidyne Brightimeter Micro S-5

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

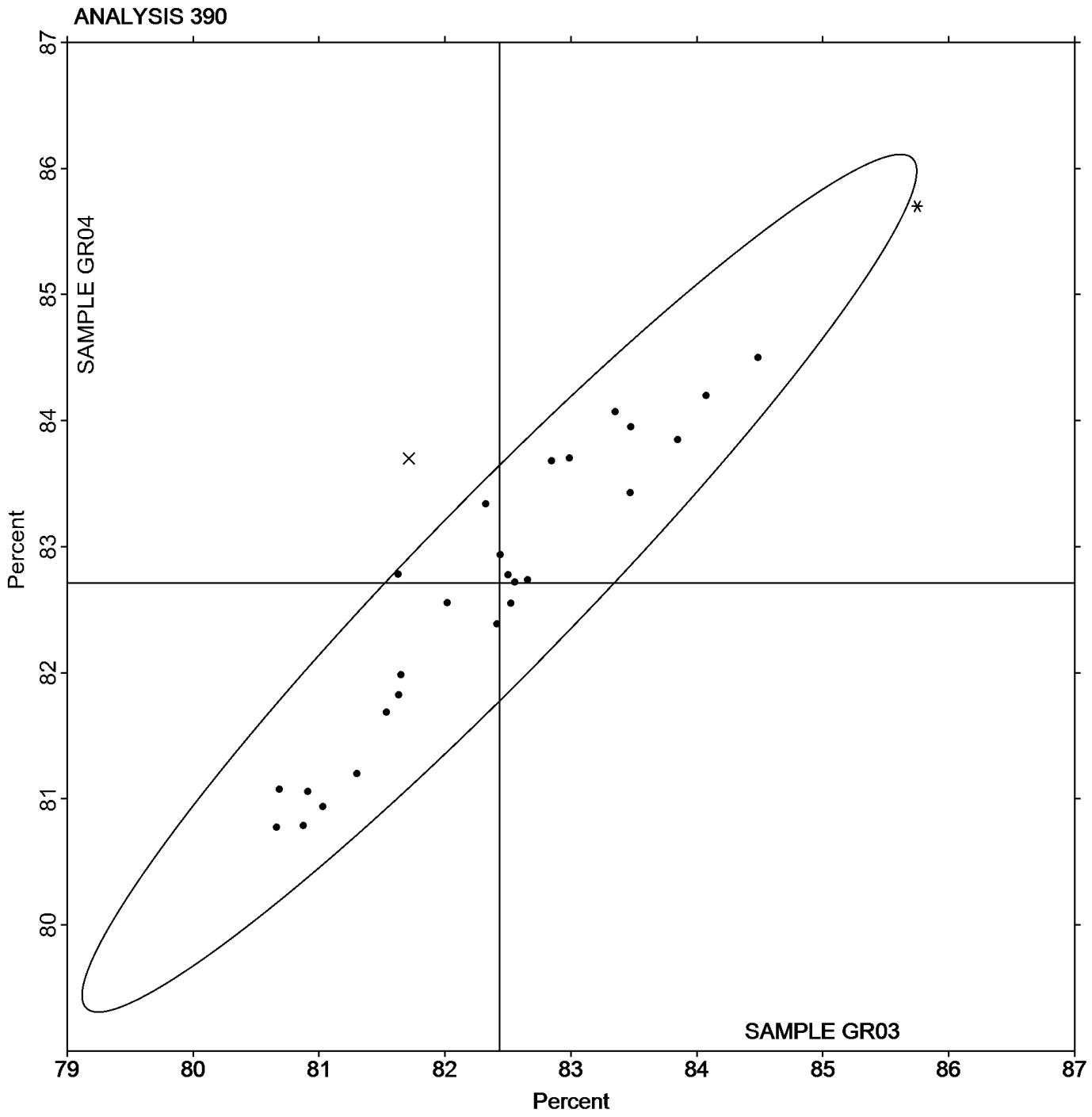
Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

Grand Mean Sample **GR03** = 82.431 Percent

Grand Mean Sample **GR04** = 82.710 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ03 Lab Mean	Sample GZ03 Diff from Grand Mean	Sample GZ03 CPV	Sample GZ04 Lab Mean	Sample GZ04 Diff from Grand Mean	Sample GZ04 CPV	Instr Code
APPU7D		90.49	0.10	0.07	94.84	0.09	0.06	TS
DZPHLC		94.10	3.71	2.37	97.67	2.91	2.01	EF
EDXTLK		90.20	-0.19	-0.12	94.86	0.10	0.07	TT
EL938R		90.26	-0.13	-0.08	95.10	0.34	0.24	TS
FFXEWN		90.47	0.08	0.05	94.93	0.17	0.12	TS
JBDHUG		92.23	1.84	1.18	96.71	1.96	1.35	TS
JVZ4GQ		90.79	0.41	0.26	94.47	-0.28	-0.20	TS
NRKBBU		90.01	-0.38	-0.24	93.38	-1.38	-0.95	HT
NXUKQ3		90.24	-0.15	-0.09	95.04	0.28	0.19	TT
VHGC8Y		87.09	-3.30	-2.10	92.21	-2.55	-1.76	GM
VLD8FZ		90.24	-0.14	-0.09	94.76	0.00	0.00	TS
XA88NR		88.52	-1.87	-1.19	92.36	-2.40	-1.66	HT
XJH33J		90.43	0.05	0.03	94.81	0.06	0.04	TS
XZZGXA		90.34	-0.05	-0.03	95.46	0.70	0.48	TT

Summary Statistics

	Sample GZ03	Sample GZ04
Grand Means	90.386 Percent	94.758 Percent
SD Btwn Labs	1.567 Percent	1.448 Percent

Statistics based on 14 of 14 reporting participants

Instrument Code List as Reported by the Labs

(EF) - L & W Datacolor Elrepho

(GM) - Gretag Macbeth Color i5

(HT) - Hunter UltraScan Vis

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

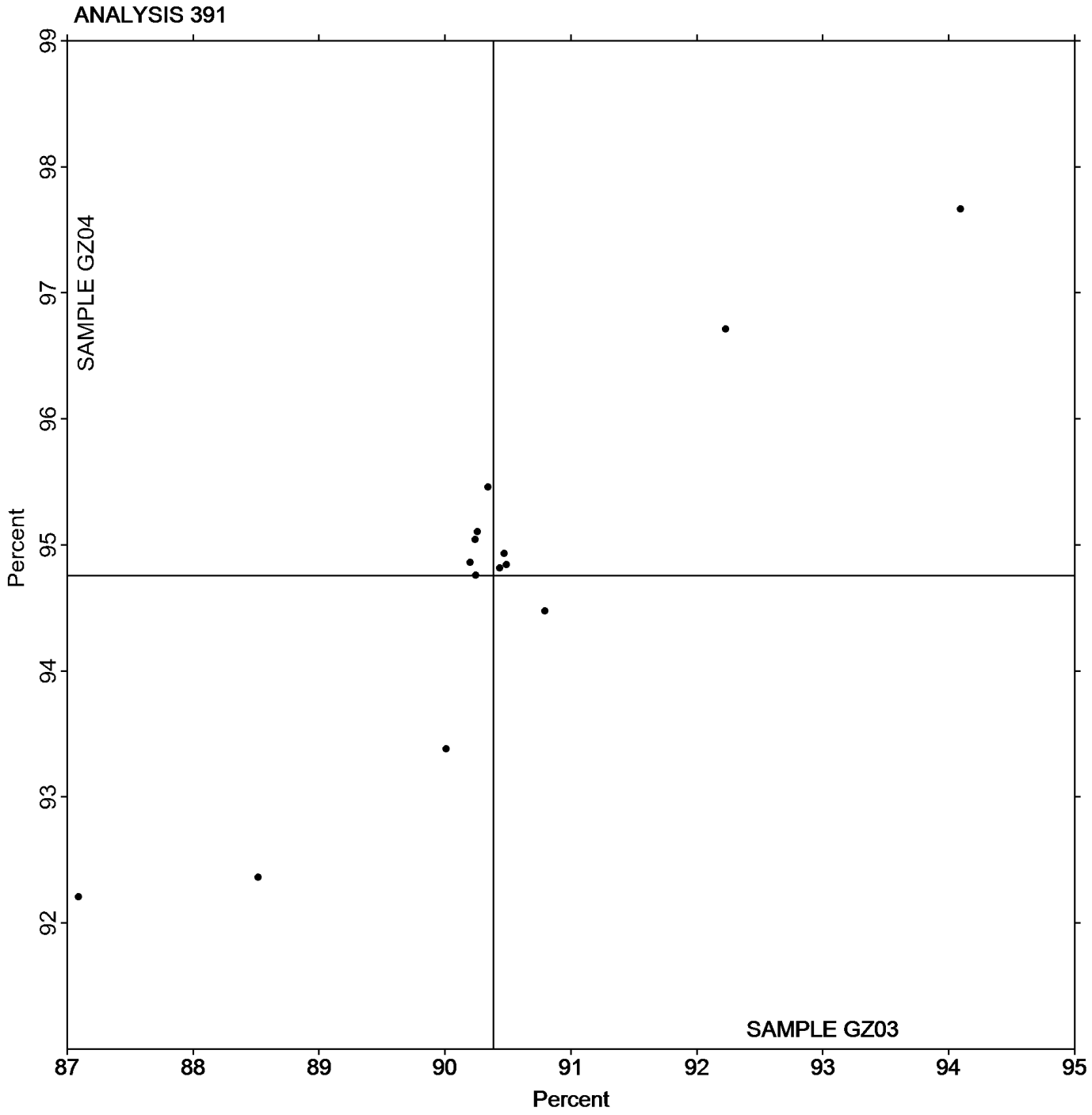
Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ03** = 90.386 Percent

Grand Mean Sample **GZ04** = 94.758 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 GR03 Lab Mean	Sample GR03 Diff from Grand Mean	Sample GR03 CPV	Sample GR04 Lab Mean	Sample GR04 Diff from Grand Mean	Sample GR04 CPV	Instr Code
273CUR		81.97	0.14	0.77	82.17	0.15	1.01	TC
3DCBE4		81.81	-0.03	-0.14	81.94	-0.08	-0.53	PP
3TB3KR		81.63	-0.21	-1.20	81.84	-0.18	-1.16	TC
4ZQ827		81.57	-0.27	-1.54	81.66	-0.36	-2.35	LS
82NR48		81.92	0.08	0.47	81.90	-0.12	-0.81	TC
A22WRB		82.13	0.29	1.64	82.12	0.10	0.65	EE
AEMDM9		81.85	0.01	0.07	82.10	0.08	0.52	TC
AMGE78		81.90	0.06	0.34	82.16	0.14	0.94	TM
BJW9M3	X	74.19	-7.65	-43.23	82.62	0.61	4.00	EE
C6T4TV	X	61.84	-20.00	-113.03	62.19	-19.83	-131.03	TM
CEXWHP		81.69	-0.15	-0.86	81.92	-0.10	-0.65	TC
DHVRMB		81.76	-0.07	-0.42	81.96	-0.06	-0.38	TM
DZPHLC		81.71	-0.12	-0.70	82.02	0.00	0.02	LA
E3DMHG		81.92	0.08	0.46	81.97	-0.04	-0.29	TC
GLYZ8P	*	81.55	-0.29	-1.66	82.03	0.01	0.06	TC
HMBY9Y		82.29	0.45	2.54	82.29	0.27	1.78	TL
JLVZHA		81.81	-0.03	-0.16	81.98	-0.04	-0.24	XX
K3L8BE		81.86	0.03	0.15	82.11	0.09	0.57	TC
KPQ96G		81.87	0.03	0.18	81.95	-0.07	-0.48	TC
LCZW6Q		81.84	0.00	0.01	82.05	0.03	0.20	TM
QDEUVP		82.14	0.30	1.70	82.33	0.31	2.06	TC
QGHLPN		81.93	0.09	0.51	82.18	0.16	1.06	TC
QZAQ3V		81.71	-0.13	-0.74	81.96	-0.06	-0.40	TC
RKR4GP		81.86	0.02	0.11	81.99	-0.03	-0.17	TC
RQF2RX		81.75	-0.09	-0.49	82.05	0.03	0.23	TC
VLD8FZ		81.88	0.04	0.24	82.05	0.03	0.23	TM
YUC3YV		81.61	-0.23	-1.27	81.74	-0.28	-1.86	EG
YUWKZV	X	82.83	0.99	5.59	82.99	0.97	6.40	LA
YXWV2A	X	81.85	0.02	0.09	92.32	10.31	68.09	TC
YZZNV9	X	80.71	-1.13	-6.36	81.79	-0.23	-1.52	EF

Summary Statistics

	Sample GR03	Sample GR04
Grand Means	81.838 Percent	82.018 Percent
SD Btwn Labs	0.177 Percent	0.151 Percent

Statistics based on 25 of 30 reporting participants

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

Comments on assigned Data Flags for Test #392

BJW9M3 (X) - Extreme data.

C6T4TV (X) - Extreme data.

YUWKZV (X) - Extreme data.

YXWV2A (X) - Extreme data for Sample GR04.

YZZNV9 (X) - Extreme data for Sample GR03.

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
(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

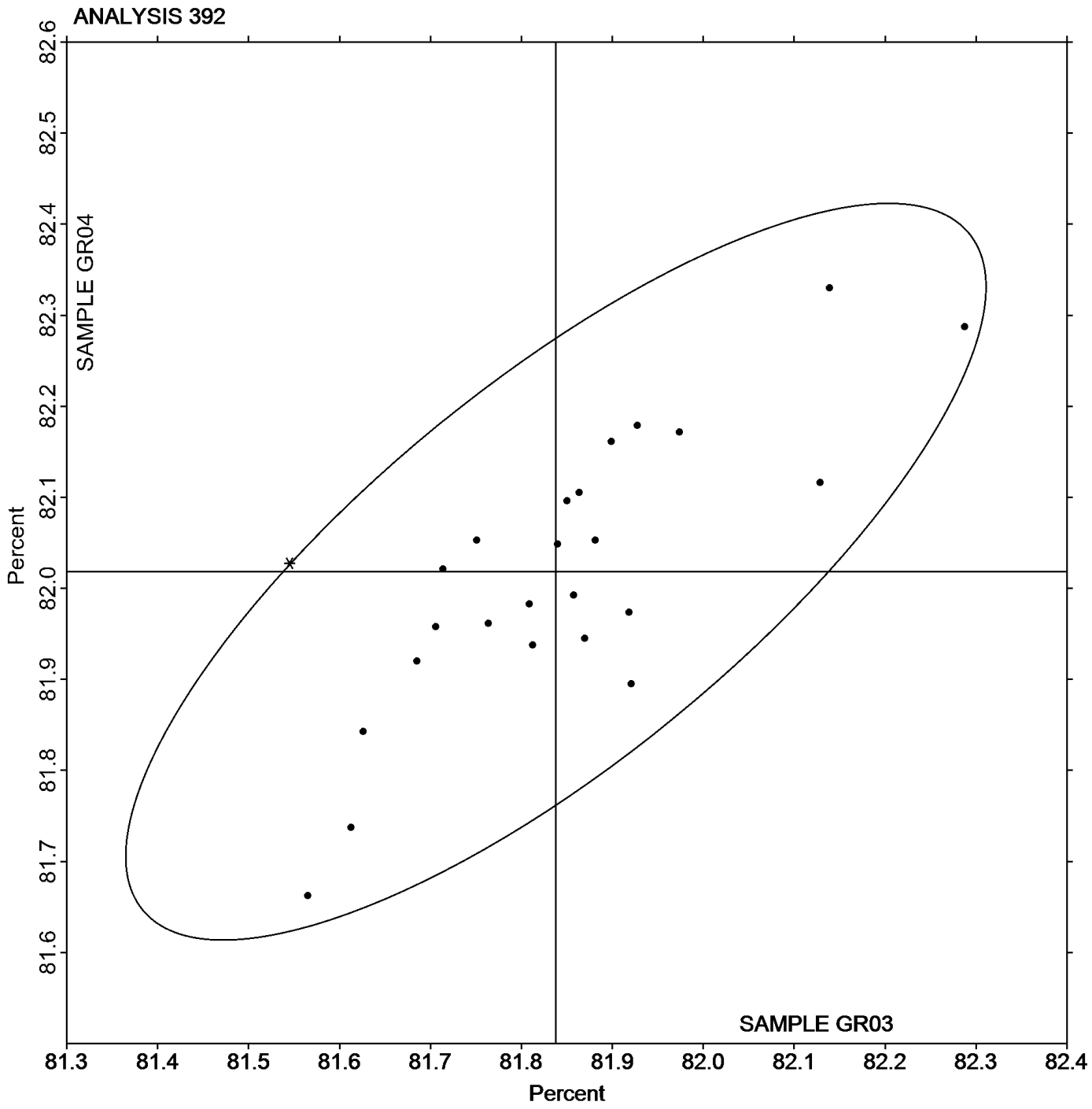
Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

Grand Mean Sample **GR03** = 81.838 Percent

Grand Mean Sample **GR04** = 82.018 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

WebCode	Data Flag	Sample GZ03 Lab Mean	Sample GZ03 Diff from Grand Mean	Sample GZ03 CPV	Sample GZ04 Lab Mean	Sample GZ04 Diff from Grand Mean	Sample GZ04 CPV	Instr Code
APPU7D		7.254	-0.053	-0.08	5.862	-0.289	-0.45	TS
DZPHLC	X	11.032	3.725	5.49	9.350	3.199	4.94	EF
EDXTLK		7.060	-0.247	-0.36	5.840	-0.311	-0.48	TT
FFXEWN		7.650	0.343	0.51	6.250	0.099	0.15	TS
JBDHUG		6.540	-0.767	-1.13	5.212	-0.939	-1.45	TS
JVZ4GQ		7.320	0.013	0.02	6.204	0.053	0.08	TS
NRKBBU		7.578	0.271	0.40	6.542	0.391	0.60	HT
NXUKQ3		7.240	-0.067	-0.10	6.400	0.249	0.38	TT
VHGC8Y		8.800	1.493	2.20	7.608	1.457	2.25	GM
VLD8FZ	X	46.034	38.727	57.11	47.452	41.301	63.78	TS
XA88NR		6.278	-1.029	-1.52	5.562	-0.589	-0.91	HT
XJH33J		7.354	0.047	0.07	6.028	-0.123	-0.19	TS

Summary Statistics

	Sample GZ03	Sample GZ04
Grand Means	7.3074 Percent	6.1508 Percent
SD Btwn Labs	0.6781 Percent	0.6476 Percent

Statistics based on 10 of 12 reporting participants

Comments on assigned Data Flags for Test #394

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

VLD8FZ (X) - Extreme data.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(GM) - Gretag Macbeth Color i5

(HT) - Hunter UltraScan Vis

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

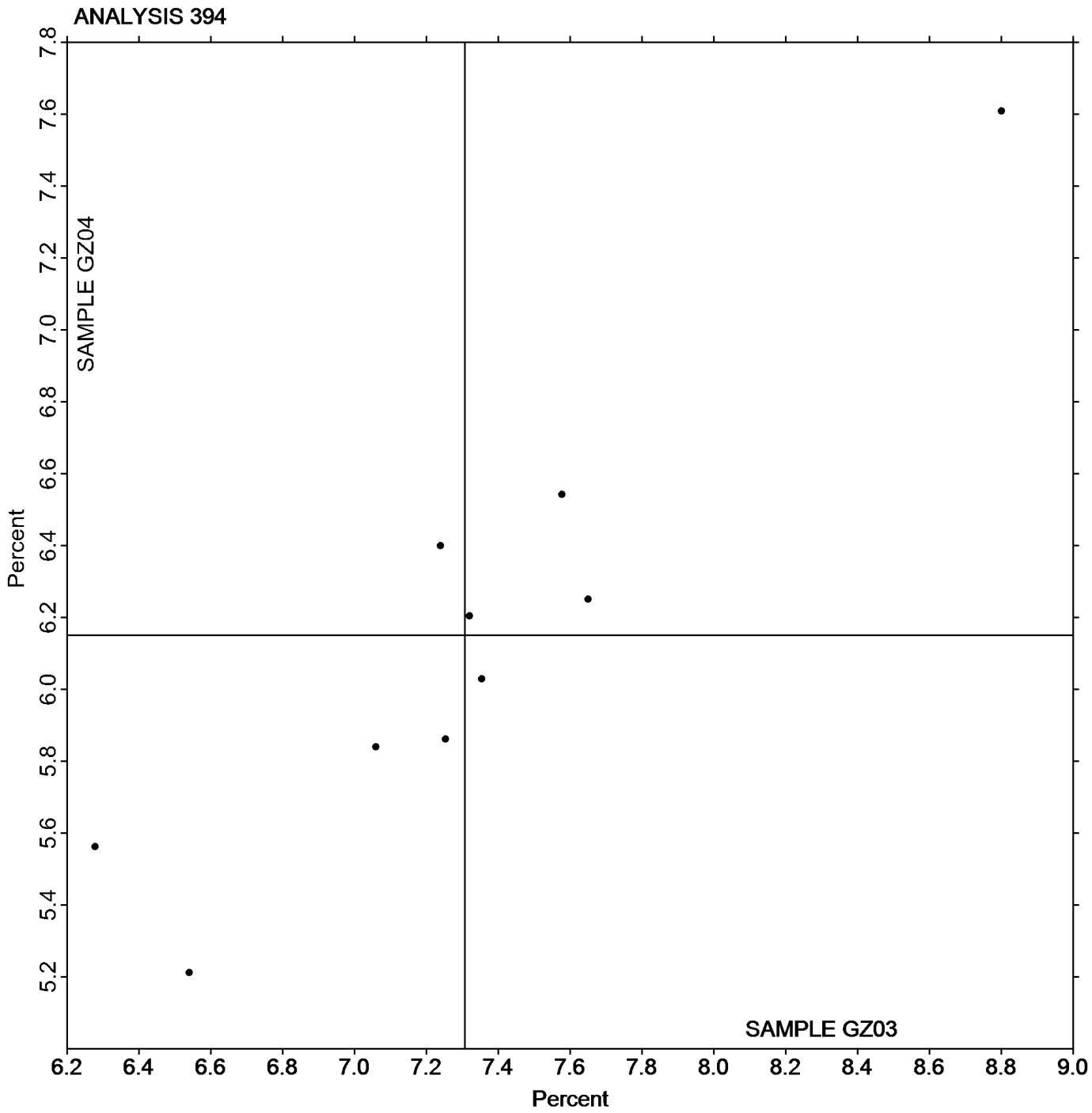
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ03** = 7.3074 Percent

Grand Mean Sample **GZ04** = 6.1508 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 GT03 Lab Mean	Sample GT03 Diff from Grand Mean	Sample GT03 CPV	Sample GT04 Lab Mean	Sample GT04 Diff from Grand Mean	Sample GT04 CPV	Instr Code
9CL7DJ		75.36	-0.20	-0.08	67.57	0.45	0.12	TG
AMGE78		77.69	2.13	0.81	70.61	3.49	0.93	TG
DHREV9		76.06	0.50	0.19	68.35	1.23	0.33	GM
DHVRMB		73.96	-1.60	-0.61	65.24	-1.88	-0.50	TH
DTVLN2		76.42	0.86	0.33	67.94	0.82	0.22	TG
HMBY9Y		80.06	4.50	1.72	72.94	5.82	1.55	GS
KPQ96G		75.46	-0.10	-0.04	66.41	-0.71	-0.19	ZH
MQEHZE		75.13	-0.43	-0.17	67.50	0.38	0.10	LA
NXUKQ3		81.10	5.54	2.12	69.40	2.28	0.61	LA
R3QCG9		74.50	-1.06	-0.41	66.88	-0.24	-0.06	TH
UBJABG		75.25	-0.31	-0.12	67.54	0.42	0.11	TH
V97ZT4		75.24	-0.32	-0.12	67.33	0.20	0.05	TH
VQ4E3F		73.80	-1.76	-0.67	70.77	3.65	0.97	TH
WXM36B		76.52	0.96	0.37	66.95	-0.17	-0.05	TH
YUC3YV		71.67	-3.89	-1.49	62.08	-5.04	-1.35	GM
YUWKZV	*	70.77	-4.79	-1.83	56.46	-10.66	-2.85	TH

Summary Statistics

	Sample GT03	Sample GT04
Grand Means	75.562 Gloss Units	67.123 Gloss Units
SD Btwn Labs	2.616 Gloss Units	3.746 Gloss Units

Statistics based on 16 of 16 reporting participants

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss

(GS) - BYK-Gardner Glossgard II

(LA) - L & W Gloss - Autoline 300

(TG) - Technidyne T480

(TH) - Technidyne T480A

(ZH) - Zehntner ZLR 1050

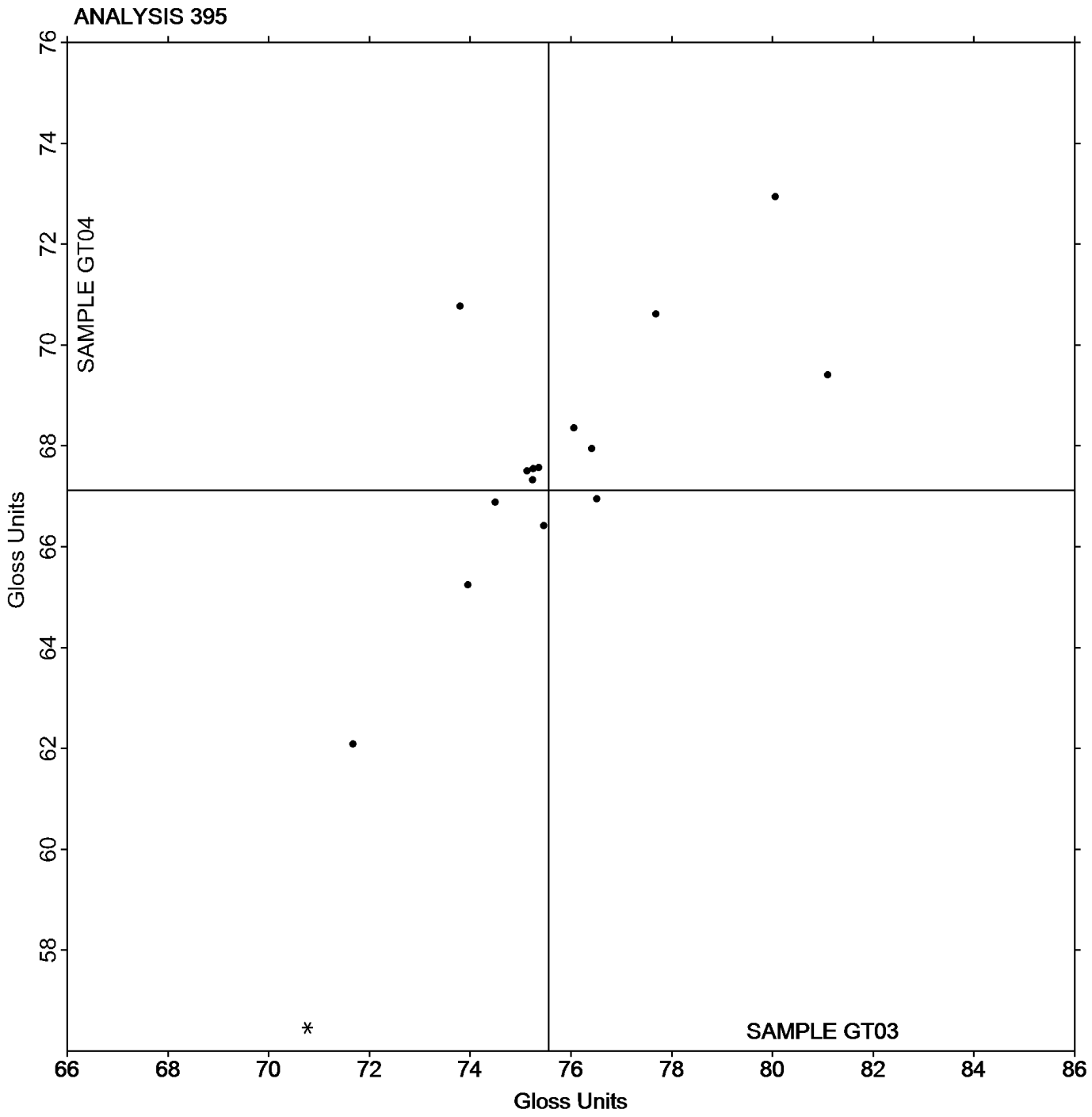
Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT03** = 75.562 Gloss Units

Grand Mean Sample **GT04** = 67.123 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 GU03 Lab Mean	Sample GU03 Diff from Grand Mean	Sample GU03 CPV	Sample GU04 Lab Mean	Sample GU04 Diff from Grand Mean	Sample GU04 CPV	Instr Code
AMGE78		37.59	1.26	1.08	42.92	-0.15	-0.13	TG
DCQ4UW		34.92	-1.41	-1.20	44.31	1.24	1.10	XX
DZPHLC		37.53	1.20	1.02	44.18	1.11	0.98	TG
HRMTCB		35.08	-1.25	-1.06	42.97	-0.10	-0.09	TH
PTUPER		36.40	0.07	0.06	40.91	-2.16	-1.91	TH
VDLLGU		37.30	0.97	0.83	42.77	-0.30	-0.26	TG
YU2WXD		35.48	-0.85	-0.72	43.43	0.36	0.32	PP

Summary Statistics

	Sample GU03	Sample GU04
Grand Means	36.329 Gloss Units	43.070 Gloss Units
SD Btwn Labs	1.173 Gloss Units	1.132 Gloss Units

Statistics based on 7 of 7 reporting participants

Instrument Code List as Reported by the Labs

(PP) - Technidyne Profile/Plus

(TG) - Technidyne T480

(TH) - Technidyne T480A

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

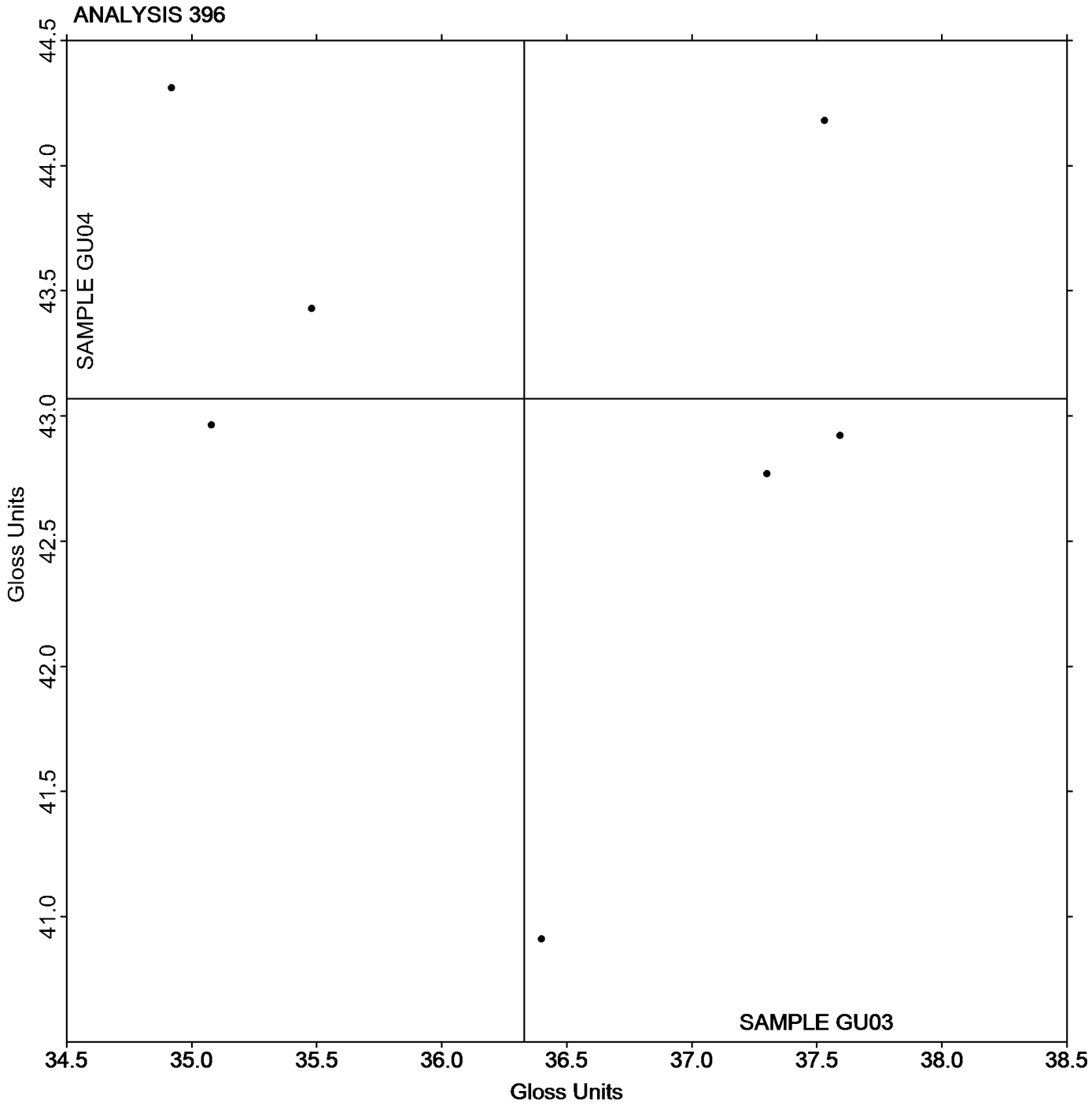
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU03** = 36.329 Gloss Units

Grand Mean Sample **GU04** = 43.070 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 GW03 Lab Mean	Sample GW03 Diff from Grand Mean	Sample GW03 CPV	Sample GW04 Lab Mean	Sample GW04 Diff from Grand Mean	Sample GW04 CPV
4C3GMB		73.14	0.64	1.49	86.92	1.12	1.92
4ZQ827		72.68	0.18	0.42	86.06	0.26	0.45
6BJAGJ		72.02	-0.49	-1.14	85.61	-0.19	-0.33
A22WRB		73.02	0.52	1.21	86.95	1.15	1.98
AH4WGQ		72.54	0.04	0.09	85.60	-0.20	-0.34
CV3KK4		72.36	-0.14	-0.34	85.68	-0.12	-0.21
DCQ4UW		72.92	0.42	0.98	85.92	0.12	0.20
DDFG99	X	72.69	0.19	0.44	85.87	0.07	0.12
DZPHLC	X	55.82	-16.68	-39.10	66.27	-19.53	-33.52
EDBFZF		72.20	-0.30	-0.70	85.49	-0.31	-0.53
EL938R		72.04	-0.46	-1.08	85.12	-0.68	-1.17
FNPUH9	X	79.11	6.61	15.48	93.03	7.23	12.40
GFDZ2K		72.21	-0.30	-0.69	86.11	0.32	0.54
H8B87V	X	73.99	1.49	3.49	88.65	2.85	4.89
HRMTCB		72.32	-0.19	-0.44	85.67	-0.13	-0.22
JALGVK	X	72.83	0.33	0.77	80.89	-4.91	-8.42
NRKBBU		71.50	-1.00	-2.35	84.62	-1.18	-2.02
NZHXH7		72.22	-0.28	-0.66	84.99	-0.81	-1.39
PTUPER		72.40	-0.11	-0.25	85.59	-0.21	-0.35
Q4QZEL		72.80	0.30	0.70	86.35	0.55	0.95
QCE7UR	X	72.05	-0.45	-1.05	85.38	-0.42	-0.72
QZAQ3V		71.90	-0.60	-1.41	85.07	-0.73	-1.25
RQF2RX		72.81	0.31	0.72	86.03	0.23	0.39
TMVFN4		72.39	-0.11	-0.26	86.01	0.22	0.37
VHGC8Y		72.04	-0.46	-1.09	85.49	-0.31	-0.53
WZ9QTH		73.05	0.54	1.28	85.71	-0.09	-0.15
XA88NR		72.64	0.14	0.32	86.18	0.38	0.65
YTXN3K		72.62	0.12	0.27	85.08	-0.72	-1.23
YUWKZV		73.02	0.52	1.21	85.92	0.12	0.21
Z9BAJ3		73.06	0.56	1.30	86.72	0.92	1.58
ZLYCZA		72.68	0.18	0.42	86.08	0.28	0.48

Summary Statistics

	Sample GW03	Sample GW04
Grand Means	72.502 g/sq m	85.799 g/sq m
SD Btwn Labs	0.427 g/sq m	0.583 g/sq m

Statistics based on 25 of 31 reporting participants

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

DZPHLC (X) - Extreme data.

FNPUH9 (X) - Extreme data.

H8B87V (X) - Data for both samples are high.

JALGVK (X) - Extreme data for Sample GW04.

Analysis Notes:

4C3GMB - Data appears to be transposed between samples. Data Switched by CTS.

DDFG99 - Data appear to be off by a factor of .01; data converted by CTS (x100).

QCE7UR - Data appear to be off by a factor of .01; data converted by CTS (x100).

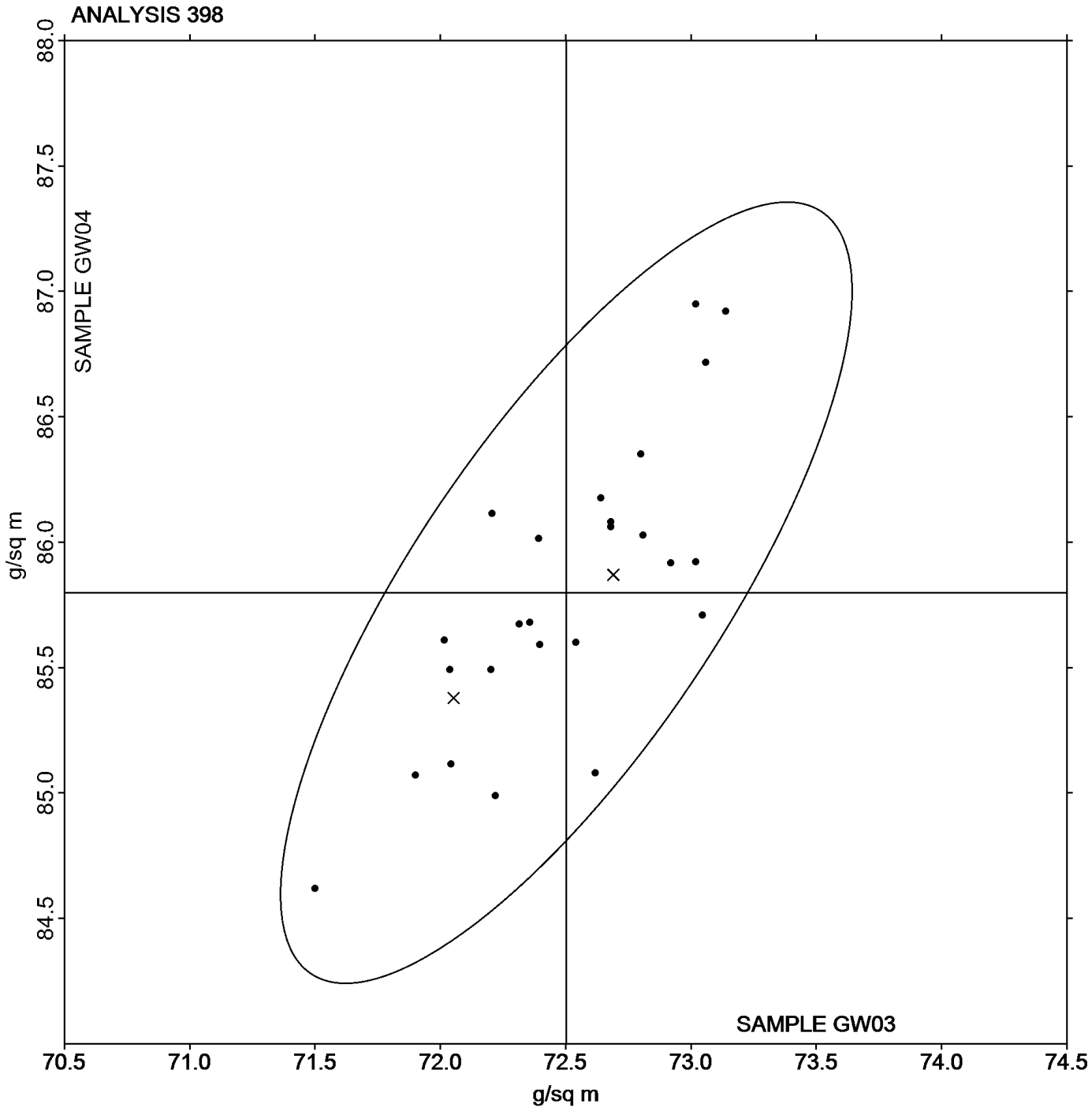
Paper & Paperboard Interlaboratory Testing Program

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW03** = 72.502 g/sq m

Grand Mean Sample **GW04** = 85.799 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

WebCode	Data Flag	Sample GX03 Lab Mean	Sample GX03 Diff from Grand Mean	Sample GX03 CPV	Sample GX04 Lab Mean	Sample GX04 Diff from Grand Mean	Sample GX04 CPV
46GH3G		11.84	-5.30	-1.26	13.51	-3.45	-0.82
47UAWJ		18.20	1.06	0.25	17.00	0.04	0.01
4NXKVB	X	34.92	17.78	4.23	38.08	21.12	5.05
962VKN	*	24.10	6.96	1.66	26.00	9.04	2.16
A7RJDG		18.69	1.55	0.37	18.47	1.51	0.36
ADVCNC		18.01	0.87	0.21	17.29	0.33	0.08
APPU7D	*	29.90	12.76	3.03	28.50	11.54	2.76
CQPNWU		15.80	-1.34	-0.32	15.97	-0.99	-0.24
D3WZHM		11.27	-5.87	-1.40	11.35	-5.61	-1.34
DHREV9		18.30	1.16	0.28	17.70	0.74	0.18
DHVRMB		17.57	0.43	0.10	18.21	1.25	0.30
EL938R		18.00	0.86	0.20	17.30	0.34	0.08
FFXEWN		18.02	0.88	0.21	16.28	-0.68	-0.16
GHXWF3		14.45	-2.69	-0.64	16.43	-0.53	-0.13
GLYZ8P		18.67	1.53	0.36	19.79	2.83	0.68
HK4NY4		17.55	0.41	0.10	17.50	0.54	0.13
JVZ4GQ	X	39.34	22.20	5.28	37.60	20.64	4.93
KU6Z6U	*	7.91	-9.23	-2.19	6.41	-10.55	-2.52
QCE7UR		20.30	3.16	0.75	18.90	1.94	0.46
RXYCY8		16.02	-1.12	-0.27	15.63	-1.33	-0.32
T84L2Q	X	33.86	16.72	3.98	36.69	19.73	4.71
V97ZT4		20.19	3.05	0.73	18.68	1.72	0.41
VDLLGU		14.00	-3.14	-0.75	13.60	-3.36	-0.80
VHGC8Y		18.16	1.02	0.24	18.69	1.73	0.41
XJH33J		15.14	-2.00	-0.48	15.39	-1.57	-0.37
XY7JUA		16.38	-0.76	-0.18	14.72	-2.24	-0.53
XZZGXA		15.89	-1.25	-0.30	15.91	-1.05	-0.25
YTXN3K	X	21.40	4.26	1.01	28.19	11.23	2.68
YU2WXD		14.14	-3.00	-0.71	14.70	-2.26	-0.54
ZRYVZJ	M	No data reported for this sample			9.70	-7.26	-1.73

Summary Statistics

	Sample Sample	Gx04
Grand Means	17.140 Seconds	16.957 Seconds
SD Btwn Labs	4.205 Seconds	4.187 Seconds

Statistics based on 25 of 30 reporting participants

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

Comments on assigned Data Flags for Test #399

4NXKVB (X) - Systematic error (data for both samples are high). Inconsistent within the determinations for Sample GX03.

JVZ4GQ (X) - Systematic error (data for both samples are high). Inconsistent in testing within the determinations for both samples.

T84L2Q (X) - Systematic error (data for both samples are high). Inconsistent in testing within the determinations for both samples.

YTXN3K (X) - Inconsistent in testing between samples, data for Sample GX04 are high.

ZRYVZJ (M) - No data for Sample GX03.

Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample GX03 = 17.140 Seconds

Grand Mean Sample **GX04** = 16.957 Seconds