Collaborative Testing Services, Inc.

Paper & PaperboardTesting Program

Summary Report #270G-June 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
+1-571-434-1925
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			Color Difference Values					Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE		
37CH6E		GA07	90.13	0.35	0.24	1.22	-0.84	1.37	2.02		TM
		GA08	91.36	-0.49	1.60						
6HCZTJ		GA07	90.42	0.02	0.33	1.18	-0.75	1.36	1.95		EH
		GA08	91.60	-0.73	1.69						
6N46N9		GA07	91.09	-0.43	0.61	1.22	-0.49	1.24	1.81		HE
		GA08	92.32	-0.92	1.85						
797F83	X	GA07	82.54	0.30	-0.02	-0.14	-0.30	0.50	0.60	X	TS
		GA08	82.40	0.00	0.48						
7C6WFQ		GA07	93.55	-0.19	-0.21	1.18	-0.65	1.39	1.93		HE
		GA08	94.73	-0.85	1.18						
BUBPBF		GA07	91.08	-0.21	-0.46	1.41	-0.72	1.41	2.12		HH
		GA08	92.49	-0.92	0.95						
CKGY4D		GA07	90.25	0.01	0.48	1.19	-0.75	1.29	1.91		TC
		GA08	91.44	-0.74	1.76						
D6LV3Z		GA07	89.62	0.40	0.32	0.95	-0.83	1.25	1.77		TS
		GA08	90.57	-0.42	1.57						
DKYAKX	X	GA07	81.97	-0.31	-0.87	-0.62	-0.13	0.33	0.72	X	XX
		GA08	81.35	-0.44	-0.54						
E3BF7E		GA07	90.51	0.78	-0.06	1.45	-0.73	1.56	2.25		TS
		GA08	91.96	0.04	1.50						
FZL8YX		GA07	90.09	-0.10	0.45	1.25	-0.73	1.27	1.92		LS
		GA08	91.34	-0.83	1.72						
GDMRP9		GA07	92.36	0.00	0.48	0.92	-0.69	1.21	1.67		LS
		GA08	93.28	-0.69	1.69						
HPXKT9		GA07	90.34	-0.09	0.59	1.14	-0.71	1.21	1.81		TC
		GA08	91.48	-0.79	1.80						
HXAB66		GA07	89.19	0.62	-0.02	0.99	-0.77	1.38	1.87		TS
		GA08	90.18	-0.15	1.36						
JEN69Y		GA07	90.06	0.16	0.36	1.16	-0.83	1.27	1.91		TM
		GA08	91.23	-0.67	1.63						
MZXEZ8		GA07	92.53	0.16	0.52	1.03	-0.64	1.48	1.91		MI
		GA08	93.55	-0.48	2.00						
PGDJ3G		GA07	92.78	-0.07	0.61	0.46	-0.69	0.99	1.30		EH
		GA08	93.24	-0.77	1.60						

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
PNH7C7		GA07	89.46	0.25	-0.03	1.26	-0.79	1.32	1.98		TS
		GA08	90.71	-0.54	1.28						
RP2WEL		GA07	90.35	-0.67	0.08	0.54	-0.53	0.57	0.94		HH
		GA08	90.88	-1.20	0.64						
TNQEVG		GA07	92.07	0.10	0.08	1.19	-0.68	1.14	1.78		XS
		GA08	93.26	-0.59	1.22						
TPZLWN		GA07	92.55	-0.03	0.03	0.95	-0.77	1.28	1.77		EH
		GA08	93.50	-0.80	1.31						
TRPV44		GA07	90.74	0.90	-0.27	1.31	-0.72	1.20	1.91		TS
		GA08	92.05	0.18	0.93						
VZTMNJ		GA07	90.23	-0.77	0.08	0.55	-0.41	0.59	0.90	X	HH
		GA08	90.78	-1.18	0.67						
Z4W964		GA07	90.57	0.09	0.46	1.17	-0.71	1.28	1.87		MK
		GA08	91.74	-0.61	1.74						

Summary Statistics

Grand Means							
GA07	90.908	0.069	0.201	1.078	-0.702	1.230	1.788
GA08	91.986	-0.615	1.399				
Stnd Dev Btwn Labs							
GA07	1.197	0.400	0.305	0.266	0.107	0.242	0.332
GA08	1.180	0.357	0.421				

Statistics based on 22 of 24 reporting participants

Comments assigned on Data Flags for Test #350

797F83 (X) - Low L values for both samples. Inconsistent within L values for both samples. Small delta L, a, b, and E values.

DKYAKX (X) - Low L values for both samples. Inconsistent within L values for both samples. Small delta L, a, b, and E values.

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450

(HE) - Hunter LabScan

(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

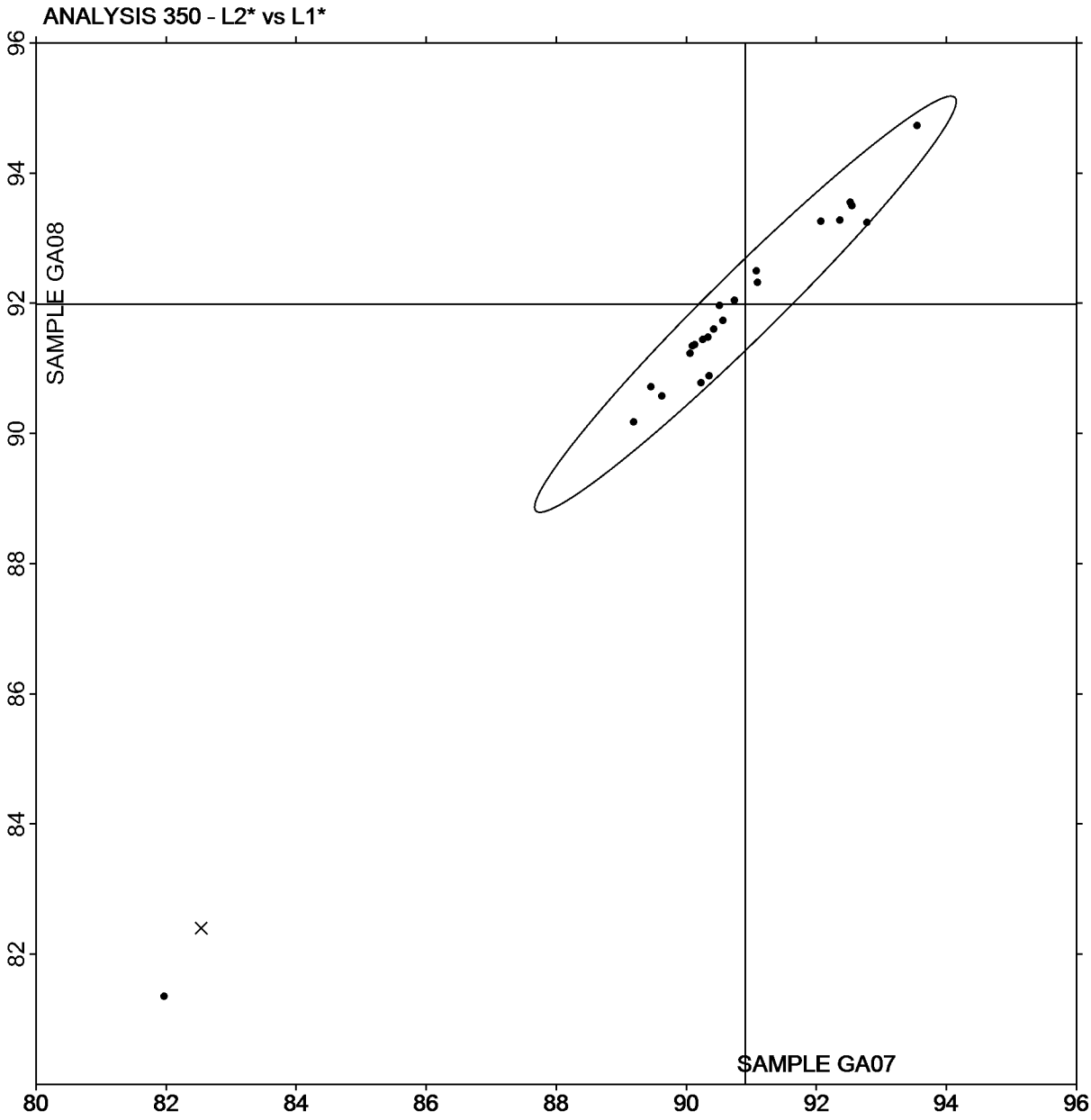
TAPPI-CTS Interlaboratory Testing Program

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			Color Difference Values				Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE	

Plot of L values GA08 v L values GA07

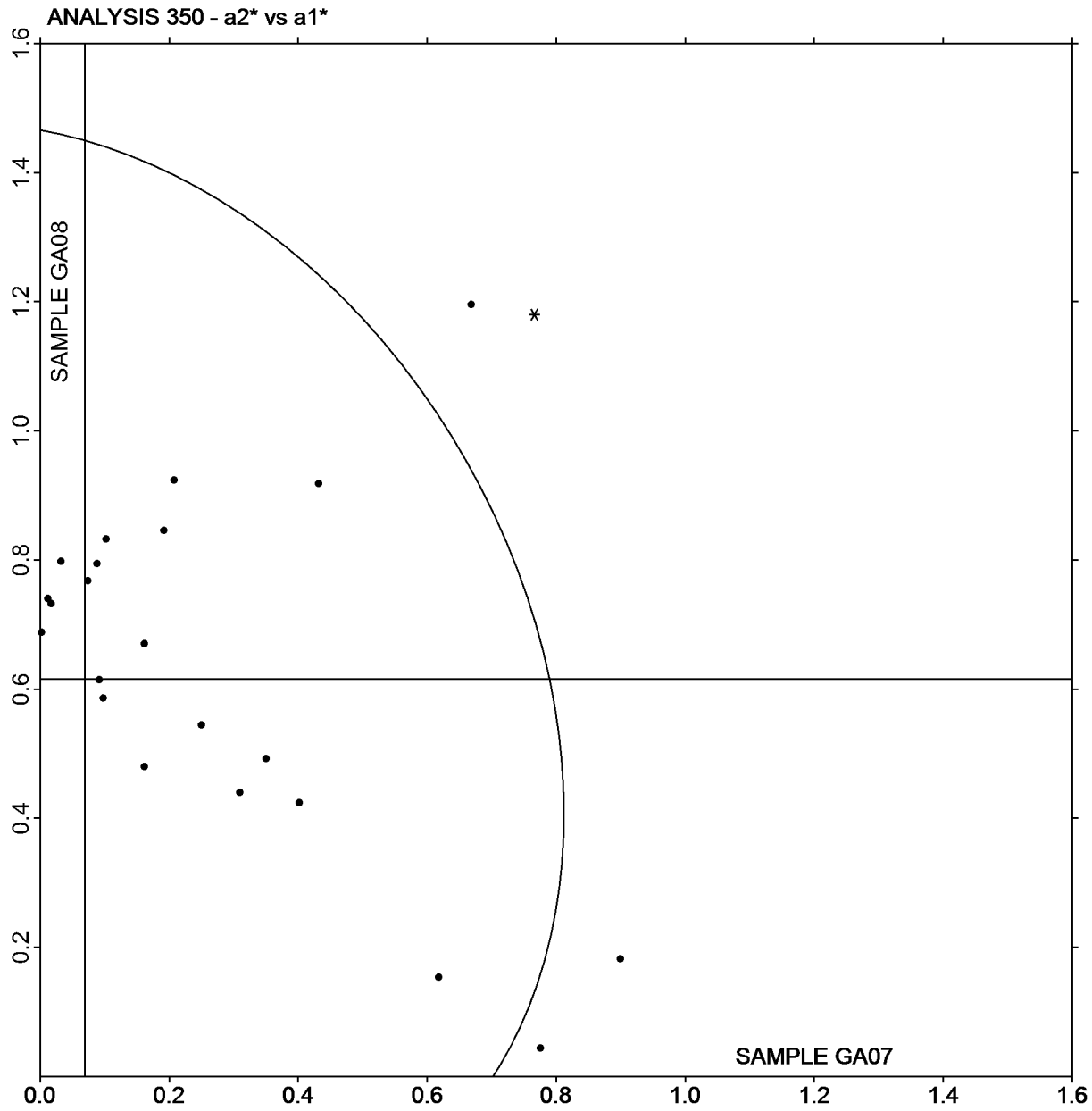


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of a values GA08 v a values GA07

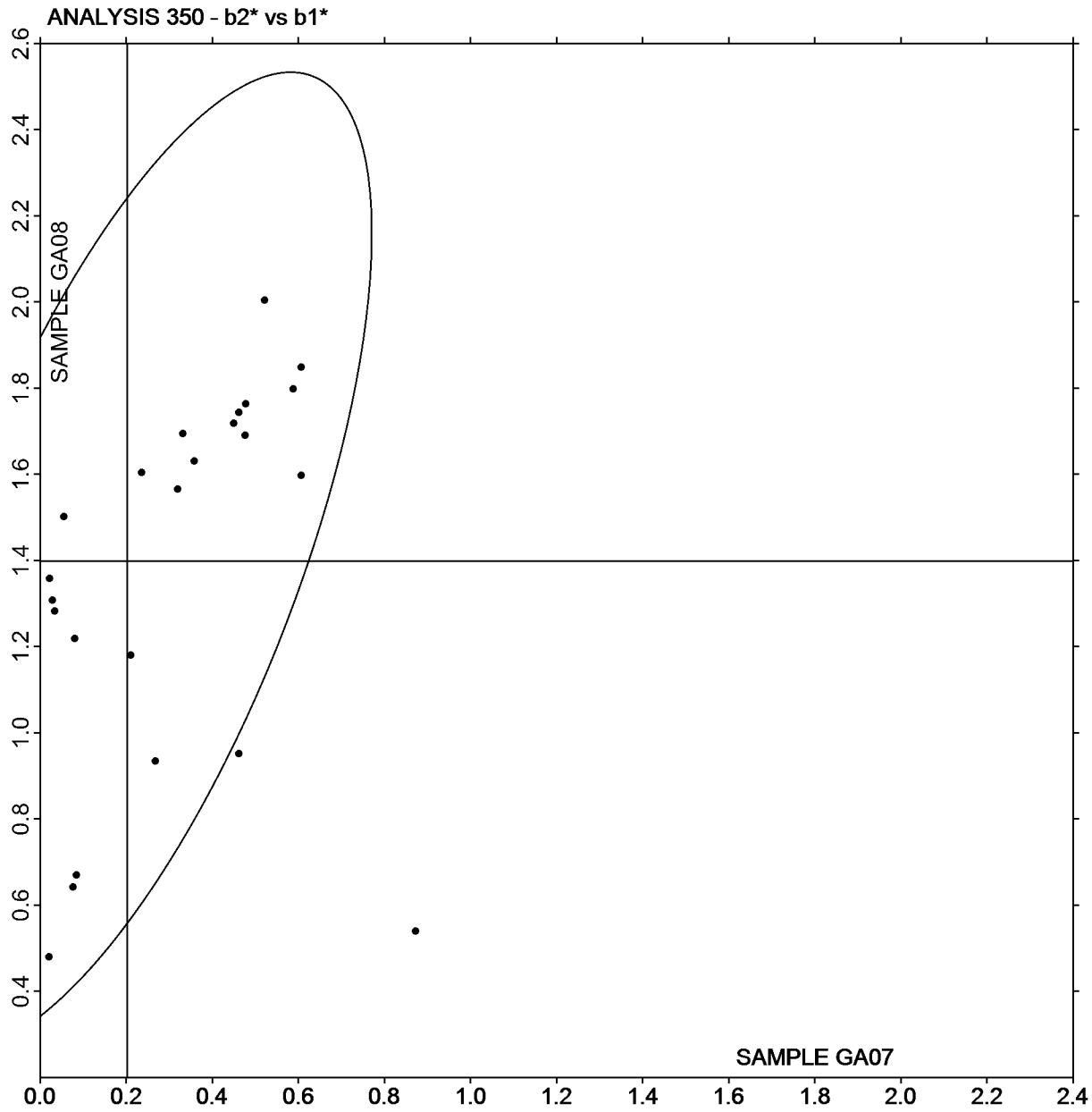


TAPPI-CTS Interlaboratory Testing Program

Analysis 350

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

Plot of b values GA08 v b values GA07



TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

2E9XET	GA07	90.46	-0.74	0.69	1.10	-0.47	1.12	1.63	TC
	GA08	91.56	-1.21	1.80					
2MHRMM	GA07	90.51	-0.50	0.68	1.20	-0.44	1.19	1.75	XX
	GA08	91.72	-0.94	1.88					
4847DG	GA07	93.96	0.30	-0.07	1.20	-0.72	1.22	1.86	XP
	GA08	95.16	-0.42	1.15					
4N8DEG	GA07	92.49	-0.66	0.70	0.87	-0.47	1.24	1.59	TC
	GA08	93.36	-1.12	1.94					
6N46N9	GA07	91.03	-0.43	0.55	1.31	-0.50	1.29	1.90	HE
	GA08	92.34	-0.93	1.84					
7J97ZK	GA07	91.15	-0.36	0.47	1.23	-0.46	1.29	1.84	HV
	GA08	92.38	-0.82	1.76					
7TGBYA	GA07	90.64	-0.63	0.47	1.22	-0.48	1.18	1.76	HE
	GA08	91.86	-1.11	1.65					
8GCAQG	GA07	92.91	-0.60	1.19	0.87	-0.43	1.09	1.45	HT
	GA08	93.78	-1.03	2.28					
BY4RFF	GA07	92.40	-0.60	0.66	0.86	-0.50	1.26	1.61	EF
	GA08	93.26	-1.10	1.92					
DKC2BU	GA07	92.28	-0.60	0.86	0.95	-0.49	1.22	1.62	EH
	GA08	93.23	-1.08	2.09					
DTUCLA	GA07	92.29	-0.48	0.99	0.94	-0.47	1.24	1.63	NG
	GA08	93.23	-0.95	2.23					
FY9WJ7	GA07	92.39	-0.58	0.85	1.09	-0.23	1.18	1.62	EH
	GA08	93.48	-0.81	2.03					
GDMRP9	GA07	92.40	-0.56	0.69	0.86	-0.45	1.17	1.52	LS
	GA08	93.26	-1.01	1.86					
HBAAT3	GA07	92.40	-0.68	0.75	0.92	-0.45	1.23	1.60	TC
	GA08	93.33	-1.13	1.98					
HNLF7P	GA07	92.42	-0.61	0.69	0.99	-0.40	1.35	1.72	LS
	GA08	93.41	-1.01	2.04					
HZXKE7	GA07	90.51	-0.48	0.95	1.31	-0.41	1.05	1.73	XM
	GA08	91.82	-0.90	2.00					
M6R9ZU	GA07	92.59	-0.54	0.83	0.97	-0.44	1.31	1.69	HT
	GA08	93.56	-0.98	2.14					
NDK3AW	GA07	92.78	-0.54	0.91	0.86	-0.48	1.19	1.54	NF
	GA08	93.64	-1.02	2.10					

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
ZCPJBR		GA07	90.05	0.27	0.23	1.10	-0.75	1.17	1.77	EE
		GA08	91.15	-0.48	1.40					

Summary Statistics

Grand Means							
GA07	91.877	-0.474	0.689	1.045	-0.476	1.210	1.676
GA08	92.922	-0.950	1.899				
Stnd Dev Btwn Labs							
GA07	1.073	0.282	0.283	0.162	0.109	0.076	0.120
GA08	0.984	0.204	0.273				

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
(HV) - Hunter Ultrascan XE
(LS) - L & W Elrepho SE 070
(NF) - Minolta CM-3600d Spectrophotometer
(NG) - Minolta CM-3700d Spectrophotometer
(TC) - Technidyne Color Touch Series
(XM) - X-Rite CA-22
(XP) - X-Rite Spectrophotometer DTP
(XX) - Instrument make/model not specified by lab

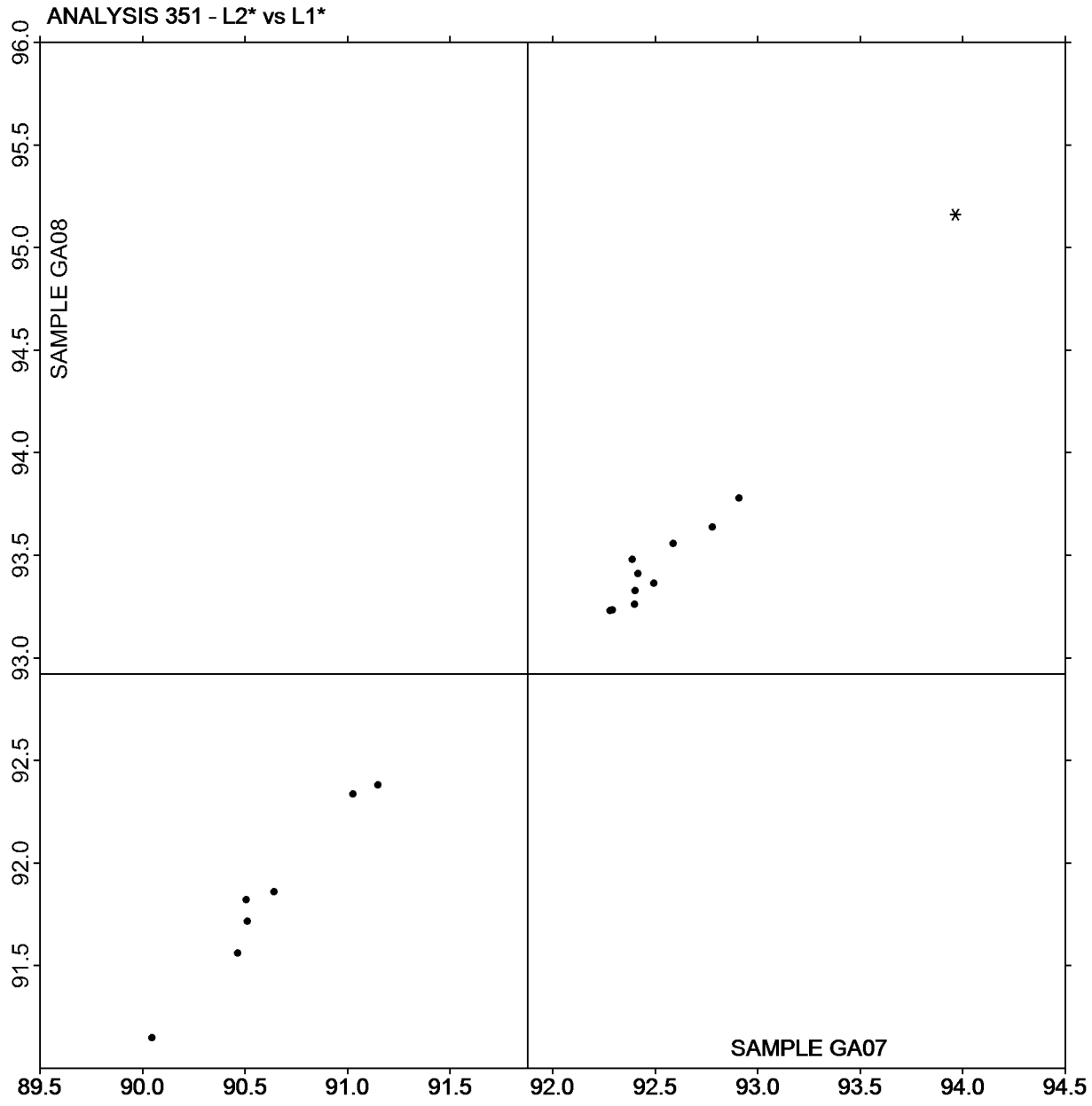
TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

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

Plot of L values GA08 v L values GA07



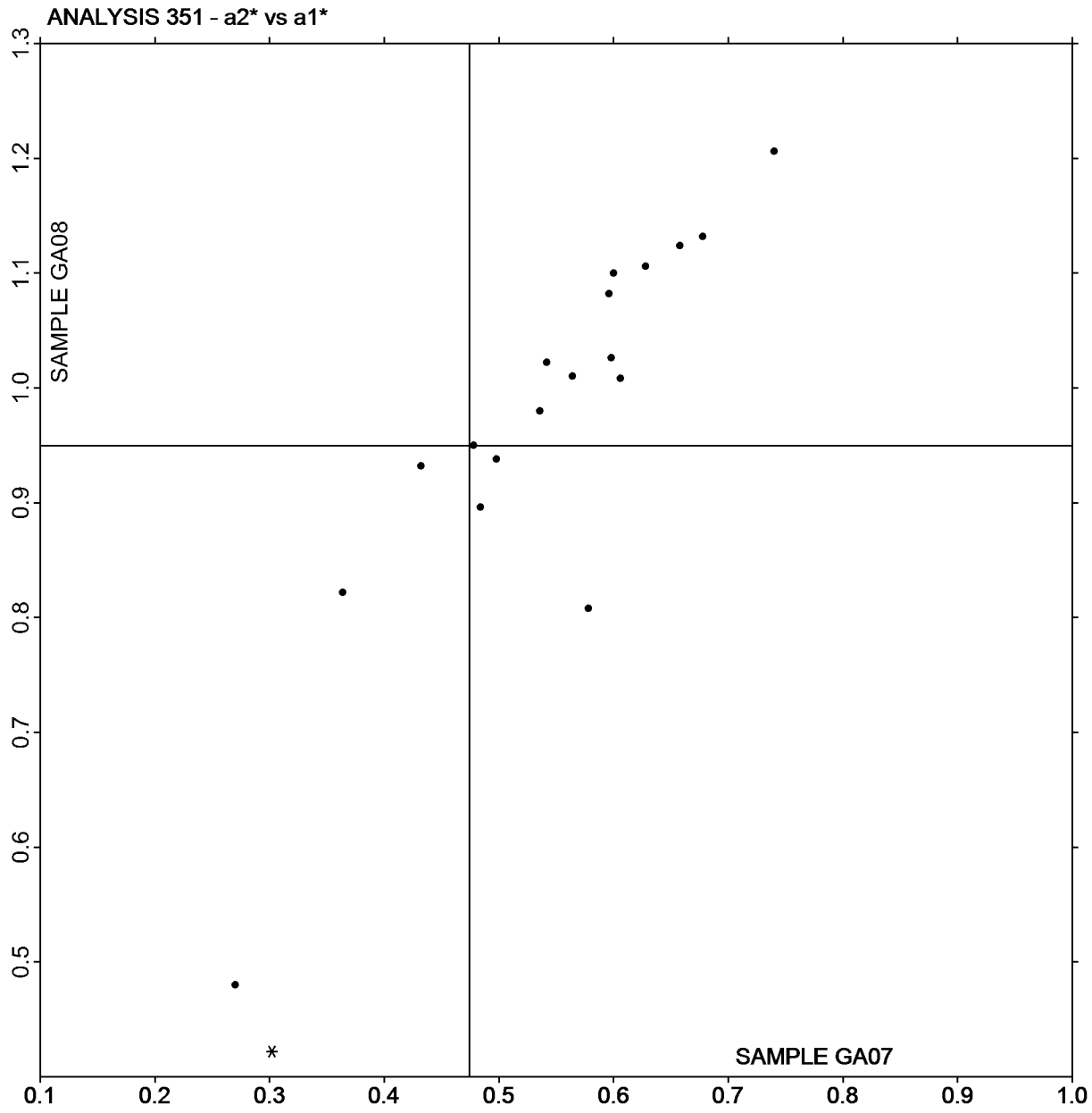
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

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 GA08 v a values GA07



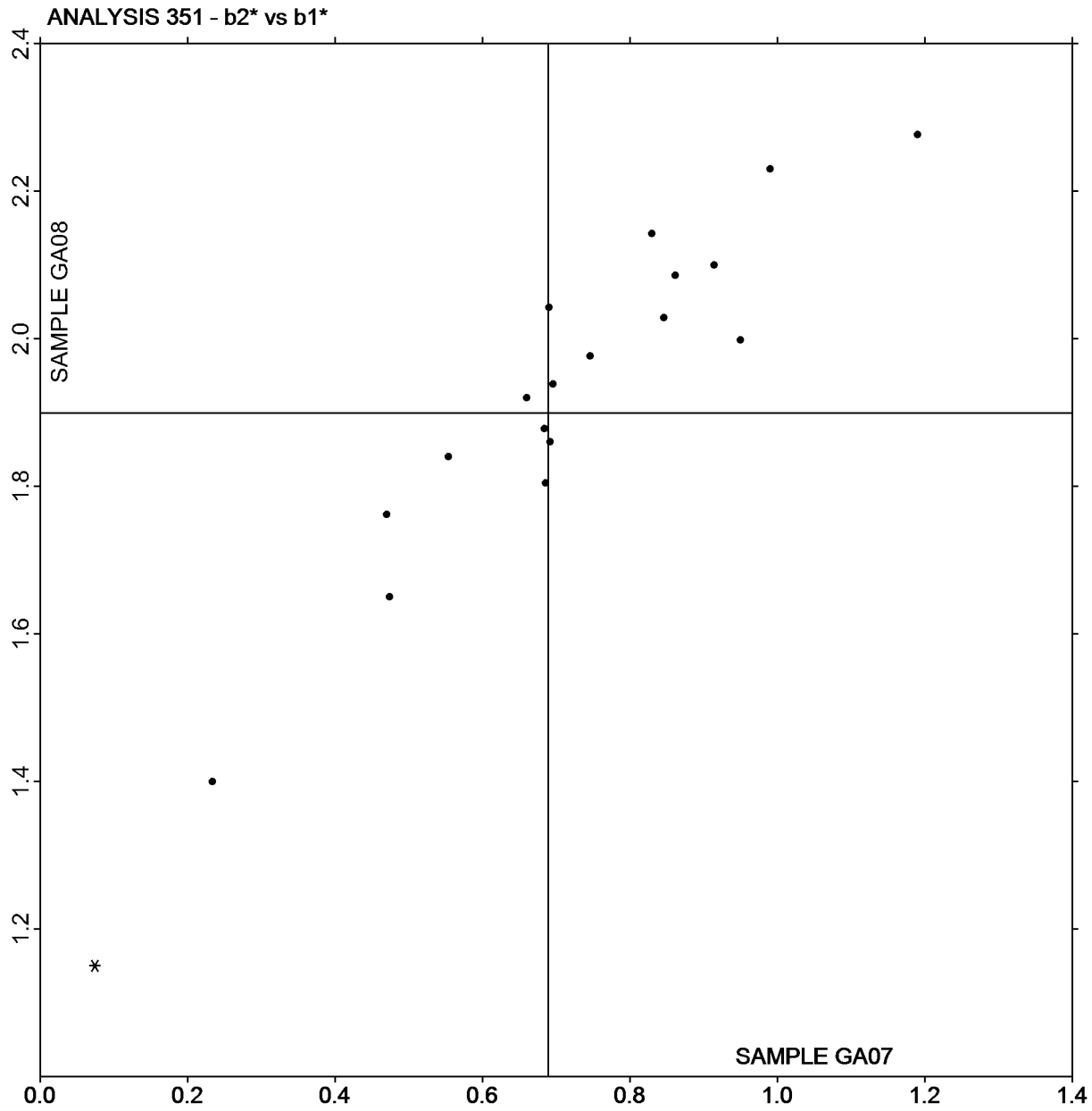
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

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 GA08 v b values GA07



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 GV07 Lab Mean	Sample GV07 Diff from Grand Mean	Sample GV07 CPV	Sample GV08 Lab Mean	Sample GV08 Diff from Grand Mean	Sample GV08 CPV	Instr Code
24CRKU		3.789	-0.007	-0.11	4.702	0.011	0.15	LW
2E9XET		3.733	-0.064	-0.93	4.654	-0.036	-0.49	TA
2KXD6K		3.742	-0.055	-0.80	4.648	-0.042	-0.57	LA
2NWRTA		3.863	0.066	0.97	4.754	0.064	0.86	PP
32FTN8		3.756	-0.041	-0.60	4.643	-0.047	-0.63	LW
37CH6E		3.813	0.017	0.24	4.713	0.023	0.31	XX
4847DG		3.742	-0.055	-0.80	4.618	-0.072	-0.97	TM
49G88N		3.842	0.045	0.66	4.728	0.038	0.51	EM
4LML6Z		3.700	-0.097	-1.41	4.570	-0.120	-1.62	TM
6MRB99		3.830	0.033	0.49	4.715	0.025	0.33	LW
7BVPEH		3.846	0.050	0.72	4.759	0.069	0.92	LW
7J97ZK		3.807	0.010	0.15	4.705	0.015	0.20	EM
7QAPC9		3.830	0.033	0.48	4.697	0.007	0.09	EM
7TGBYA	X	3.836	0.039	0.56	4.746	0.055	0.74	TM
8GCAQG		3.887	0.090	1.32	4.760	0.070	0.94	EM
8Q6V4M		3.792	-0.005	-0.07	4.702	0.012	0.16	LW
98AJXY		3.780	-0.017	-0.25	4.626	-0.064	-0.86	TA
9P7823	*	3.743	-0.054	-0.78	4.727	0.037	0.50	LW
9RBW7X		3.791	-0.006	-0.08	4.696	0.005	0.07	XX
9YR9KX		3.860	0.063	0.92	4.808	0.118	1.58	TM
AUW9WA		3.735	-0.062	-0.90	4.699	0.009	0.12	TA
B3KJJA		3.816	0.019	0.28	4.681	-0.009	-0.13	XX
B764DX		3.830	0.033	0.48	4.761	0.071	0.95	TM
B9UCKD		3.961	0.165	2.40	4.831	0.140	1.89	XX
BCCY9E		3.701	-0.096	-1.40	4.575	-0.116	-1.55	FR
CKGY4D		3.829	0.032	0.47	4.755	0.065	0.87	TA
D6LV3Z		3.737	-0.060	-0.87	4.626	-0.064	-0.86	LA
DTUCLA		3.820	0.023	0.33	4.659	-0.031	-0.42	LW
E3BF7E		3.797	0.000	0.00	4.670	-0.020	-0.27	EM
E6YPFF		3.809	0.012	0.17	4.631	-0.060	-0.80	EM
EJHDPD	X	3.793	-0.004	-0.06	4.535	-0.155	-2.09	PP
FA9XAC		3.710	-0.087	-1.27	4.620	-0.070	-0.95	XX
FZL8YX		3.833	0.037	0.53	4.667	-0.024	-0.32	LW
G4GFHY		3.803	0.006	0.09	4.651	-0.039	-0.53	LW
HBAAT3		3.761	-0.036	-0.52	4.661	-0.030	-0.40	LW
HPXKT9		3.815	0.018	0.26	4.719	0.029	0.39	PP
HXAB66		3.717	-0.080	-1.16	4.618	-0.073	-0.98	TM
HYGT2F		3.720	-0.077	-1.12	4.590	-0.100	-1.35	TM
HZXKE7		3.791	-0.006	-0.08	4.713	0.022	0.30	LW
JEN69Y		3.799	0.002	0.03	4.749	0.059	0.79	TA
K498U3		3.782	-0.015	-0.22	4.746	0.056	0.75	TM
K7RUDU		3.757	-0.040	-0.58	4.648	-0.043	-0.57	TM
KULJ78		3.834	0.037	0.54	4.716	0.025	0.34	EM

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV07 Lab Mean	Sample GV07 Diff from Grand Mean	Sample GV07 CPV	Sample GV08 Lab Mean	Sample GV08 Diff from Grand Mean	Sample GV08 CPV	Instr Code
LKRTY7		3.760	-0.037	-0.54	4.660	-0.030	-0.41	LW
M6R9ZU		3.903	0.106	1.55	4.781	0.091	1.22	EM
MEJQD3		3.757	-0.040	-0.58	4.668	-0.023	-0.30	LW
MWGGMX		3.765	-0.032	-0.46	4.663	-0.027	-0.37	TA
MZXEZ8	*	3.585	-0.212	-3.09	4.464	-0.226	-3.04	TA
NDK3AW	*	3.986	0.189	2.76	4.882	0.192	2.58	TM
NHCBVQ		3.871	0.074	1.08	4.740	0.050	0.67	LW
NNZKVV		3.836	0.039	0.57	4.712	0.022	0.29	XX
PGDJ3G		3.744	-0.053	-0.77	4.602	-0.088	-1.19	TA
PM44JY	X	3.839	0.042	0.61	5.552	0.862	11.59	LW
PRXVDU		3.756	-0.041	-0.60	4.670	-0.020	-0.27	TM
QAUGUE		3.835	0.038	0.55	4.681	-0.009	-0.12	MS
QBP2LK		3.764	-0.033	-0.48	4.644	-0.046	-0.62	VM
RK8644		3.753	-0.044	-0.64	4.675	-0.015	-0.21	PP
T9WGKT		3.826	0.029	0.43	4.702	0.012	0.16	XX
TNQEVG		3.690	-0.107	-1.56	4.590	-0.100	-1.35	TM
TPZLWN		3.819	0.022	0.32	4.713	0.022	0.30	MT
UK3RPU		3.927	0.130	1.90	4.843	0.152	2.05	LW
UTCUWT		3.800	0.003	0.05	4.655	-0.035	-0.47	EM
UWRJXG		3.814	0.017	0.25	4.732	0.042	0.56	EM
UYGT7X		3.770	-0.027	-0.39	4.640	-0.050	-0.68	TM
WJ348M		3.843	0.046	0.67	4.688	-0.002	-0.03	TM
YHJWYB		3.700	-0.097	-1.41	4.600	-0.090	-1.21	TM
YRMLRT	X	3.790	-0.007	-0.10	5.219	0.529	7.11	PP
YZYBEK		3.833	0.036	0.53	4.760	0.070	0.94	EM
Z4W964	*	3.953	0.156	2.28	4.899	0.209	2.81	EM

Summary Statistics

	Sample GV07	Sample GV08
Grand Means	3.7968 mils	4.6903 mils
SD Btwn Labs	0.0685 mils	0.0744 mils

Statistics based on 65 of 69 reporting participants

EJHDPD (X) - Inconsistent in testing between samples.

PM44JY (X) - Extreme data for Sample GV08.

YRMLRT (X) - Extreme data for Sample GV08.

Analysis Notes:

7TGBYA - Data appear to be off by a factor of 10; data converted by CTS (x.1).

K7RUDU - One determination removed from the Lab Mean of Sample GV08 per Grubb's Test at 5% risk (TAPPI 1205).

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

Instrument Code List as Reported by the Labs

(EM) - Emveco

(FR) - Frank Instruments

(LA) - L & W Autoline

(LW) - L & W

(MS) - Messmer

(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

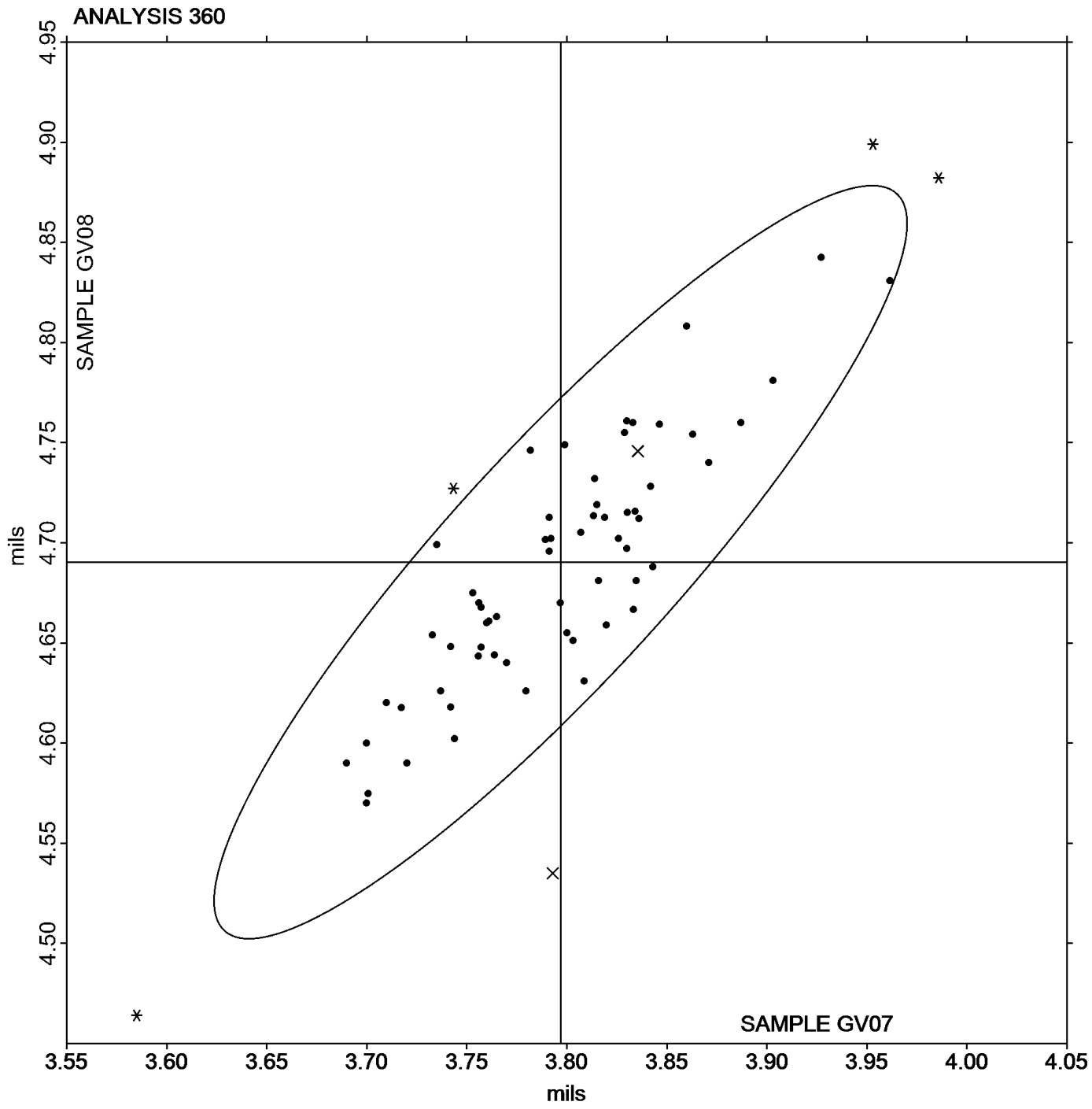
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV07** = 3.7968 mils

Grand Mean Sample **GV08** = 4.6903 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY07 Lab Mean	Sample GY07 Diff from Grand Mean	Sample GY07 CPV	Sample GY08 Lab Mean	Sample GY08 Diff from Grand Mean	Sample GY08 CPV	Instr Code
24CRKU		7.543	-0.098	-0.57	9.465	-0.118	-0.74	LW
2CKRAH		7.550	-0.091	-0.53	9.430	-0.152	-0.96	TM
2Q4822		7.684	0.043	0.25	9.676	0.094	0.59	TM
2WUJ24	*	7.242	-0.399	-2.31	9.153	-0.429	-2.72	TM
3463VM		7.689	0.048	0.28	9.709	0.126	0.80	XX
37CH6E		7.714	0.073	0.42	9.638	0.056	0.35	XX
4LML6Z		7.460	-0.181	-1.05	9.440	-0.142	-0.90	TM
62AQ3E		7.601	-0.040	-0.23	9.527	-0.055	-0.35	PP
6N46N9		7.576	-0.065	-0.38	9.523	-0.059	-0.37	EM
797F83		7.393	-0.248	-1.44	9.440	-0.142	-0.90	EM
7C6WFQ		7.469	-0.173	-1.00	9.488	-0.094	-0.59	LA
8U8TF2		7.610	-0.031	-0.18	9.640	0.058	0.37	TA
9P7823		7.778	0.137	0.79	9.679	0.097	0.61	LW
AJX7GY		7.368	-0.273	-1.58	9.285	-0.297	-1.88	EM
AUW9WA		7.714	0.073	0.42	9.692	0.110	0.69	TA
BUBPBF		7.555	-0.086	-0.50	9.541	-0.041	-0.26	EM
DKC2BU		7.810	0.169	0.98	9.800	0.218	1.38	LA
FY9WJ7		7.823	0.182	1.05	9.723	0.141	0.89	EM
GDMRP9		7.508	-0.133	-0.77	9.445	-0.137	-0.87	TM
JVFDJY		7.538	-0.103	-0.60	9.498	-0.084	-0.53	PP
K6ERH3		7.444	-0.197	-1.14	9.427	-0.155	-0.98	TM
KVVNKW		7.530	-0.111	-0.64	9.485	-0.097	-0.62	TA
L3PH92	*	7.797	0.155	0.90	9.564	-0.019	-0.12	LW
M6AJDT		7.638	-0.003	-0.02	9.662	0.080	0.51	TM
MZXEZ8		7.522	-0.119	-0.69	9.486	-0.096	-0.61	TA
PRXVDU		7.750	0.109	0.63	9.670	0.088	0.56	TM
RP2WEL		7.808	0.167	0.96	9.758	0.176	1.11	EM
TPYNLT		7.778	0.137	0.79	9.716	0.134	0.85	LA
UC9MVT		7.779	0.138	0.80	9.728	0.146	0.93	LA
VZTMNJ		7.806	0.165	0.95	9.742	0.160	1.01	EM
XP28CC	*	8.111	0.470	2.72	9.959	0.377	2.38	TM
YDP3YN		7.660	0.019	0.11	9.530	-0.052	-0.33	TM
YHJWYB		7.680	0.039	0.22	9.580	-0.002	-0.01	TM
YK968Q		7.878	0.237	1.37	9.697	0.115	0.73	LW

Summary Statistics

	Sample GY07	Sample GY08
Grand Means	7.6414 mils	9.5822 mils
SD Btwn Labs	0.1729 mils	0.1580 mils

Statistics based on 34 of 34 reporting participants

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

Analysis Notes:

7C6WFQ - Data appear to be reported as micrometers, not mils as indicated on datasheet. Units corrected by CTS.

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(LW) - L & W

(PP) - Technidyne Profile/Plus

(TA) - Thwing-Albert

(TM) - TMI

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

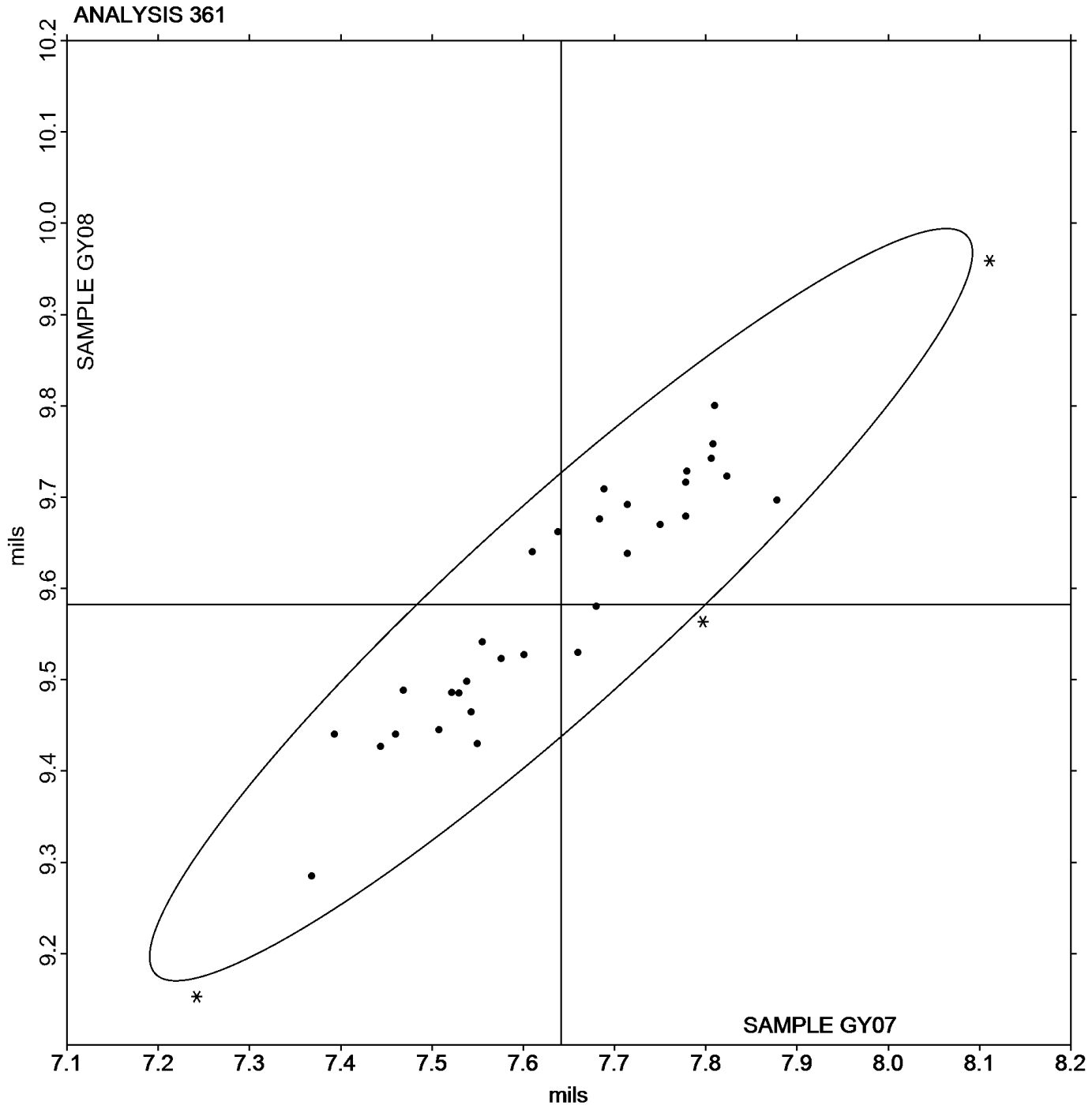
Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample **GY07** = 7.6414 mils

Grand Mean Sample **GY08** = 9.5822 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD07 Lab Mean	Sample GD07 Diff from Grand Mean	Sample GD07 CPV	Sample GD08 Lab Mean	Sample GD08 Diff from Grand Mean	Sample GD08 CPV	Instr Code
37CH6E		0.5770	0.0294	0.55	0.6296	0.0449	0.65	TM
49G88N		0.5920	0.0444	0.82	0.6220	0.0373	0.54	TL
BN7ND8		0.5534	0.0058	0.11	0.6352	0.0505	0.73	TA
DTUCLA		0.4864	-0.0612	-1.14	0.4898	-0.0949	-1.38	TM
E3BF7E		0.5944	0.0468	0.87	0.5670	-0.0177	-0.26	XX
J8QFPA		0.6278	0.0802	1.49	0.6592	0.0745	1.08	IT
PGDJ3G		0.4760	-0.0716	-1.33	0.5040	-0.0807	-1.17	XX
RK8644		0.5026	-0.0450	-0.84	0.6504	0.0657	0.95	TM
TNQEVG	X	0.2684	-0.2792	-5.18	0.2290	-0.3557	-5.16	XX
UC9MVT		0.5190	-0.0286	-0.53	0.5052	-0.0795	-1.15	TA

Summary Statistics

	Sample GD07	Sample GD08
Grand Means	0.54762 COF	0.58471 COF
SD Btwn Labs	0.05386 COF	0.06890 COF

Statistics based on 9 of 10 reporting participants

Comments on assigned Data Flags for Test #364

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

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

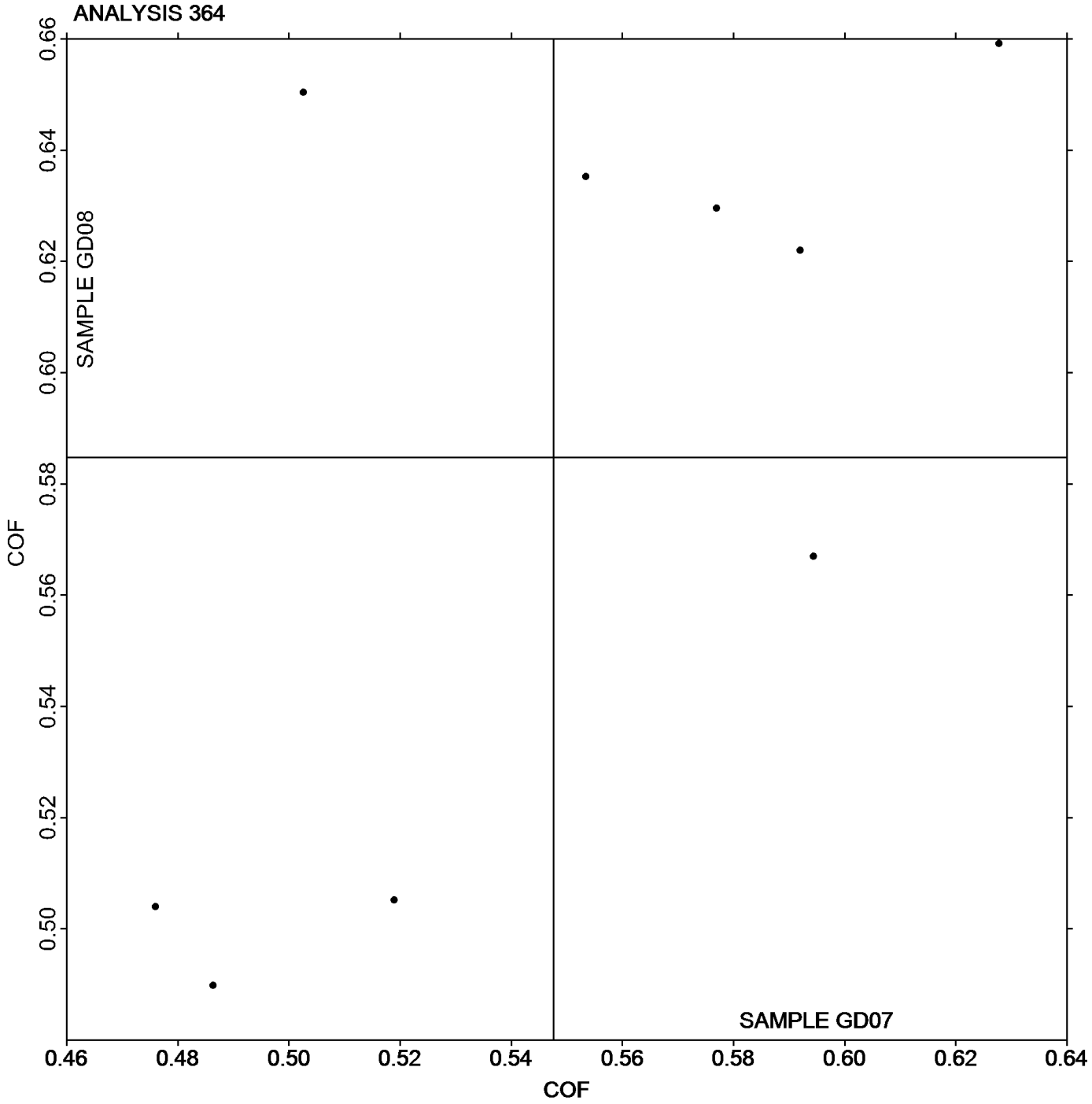
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD07** = 0.54762 COF

Grand Mean Sample **GD08** = 0.58471 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 GD07 Lab Mean	Sample GD07 Diff from Grand Mean	Sample GD07 CPV	Sample GD08 Lab Mean	Sample GD08 Diff from Grand Mean	Sample GD08 CPV	Instr Code
37CH6E		0.5152	0.0707	1.20	0.5694	0.0734	0.94	TM
3N9DTJ		0.4624	0.0179	0.30	0.4788	-0.0173	-0.22	TM
49G88N		0.5420	0.0975	1.65	0.6120	0.1160	1.49	TL
BN7ND8		0.4384	-0.0061	-0.10	0.5394	0.0434	0.56	TA
DTUCLA		0.4044	-0.0401	-0.68	0.4104	-0.0857	-1.10	TM
E6YPFF		0.4128	-0.0317	-0.54	0.4310	-0.0651	-0.83	TA
J8QFPA		0.4702	0.0257	0.43	0.5396	0.0436	0.56	IR
JEN69Y		0.3576	-0.0869	-1.47	0.3724	-0.1237	-1.58	TA
PGDJ3G		0.4200	-0.0245	-0.42	0.4780	-0.0181	-0.23	XX
PNH7C7		0.5102	0.0657	1.11	0.5866	0.0906	1.16	TA
TNQEVG	X	0.1272	-0.3173	-5.37	0.2386	-0.2575	-3.30	XX
UC9MVT		0.4446	0.0001	0.00	0.5272	0.0312	0.40	TA
WNV9Y7		0.3564	-0.0881	-1.49	0.4078	-0.0883	-1.13	TM

Summary Statistics

	Sample GD07	Sample GD08
Grand Means	0.44452 COF	0.49605 COF
SD Btwn Labs	0.05906 COF	0.07807 COF

Statistics based on 12 of 13 reporting participants

Comments on assigned Data Flags for Test #365

TNQEVG (X) - Data for both samples are low. Inconsistent within the determinations for Sample GD08.

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

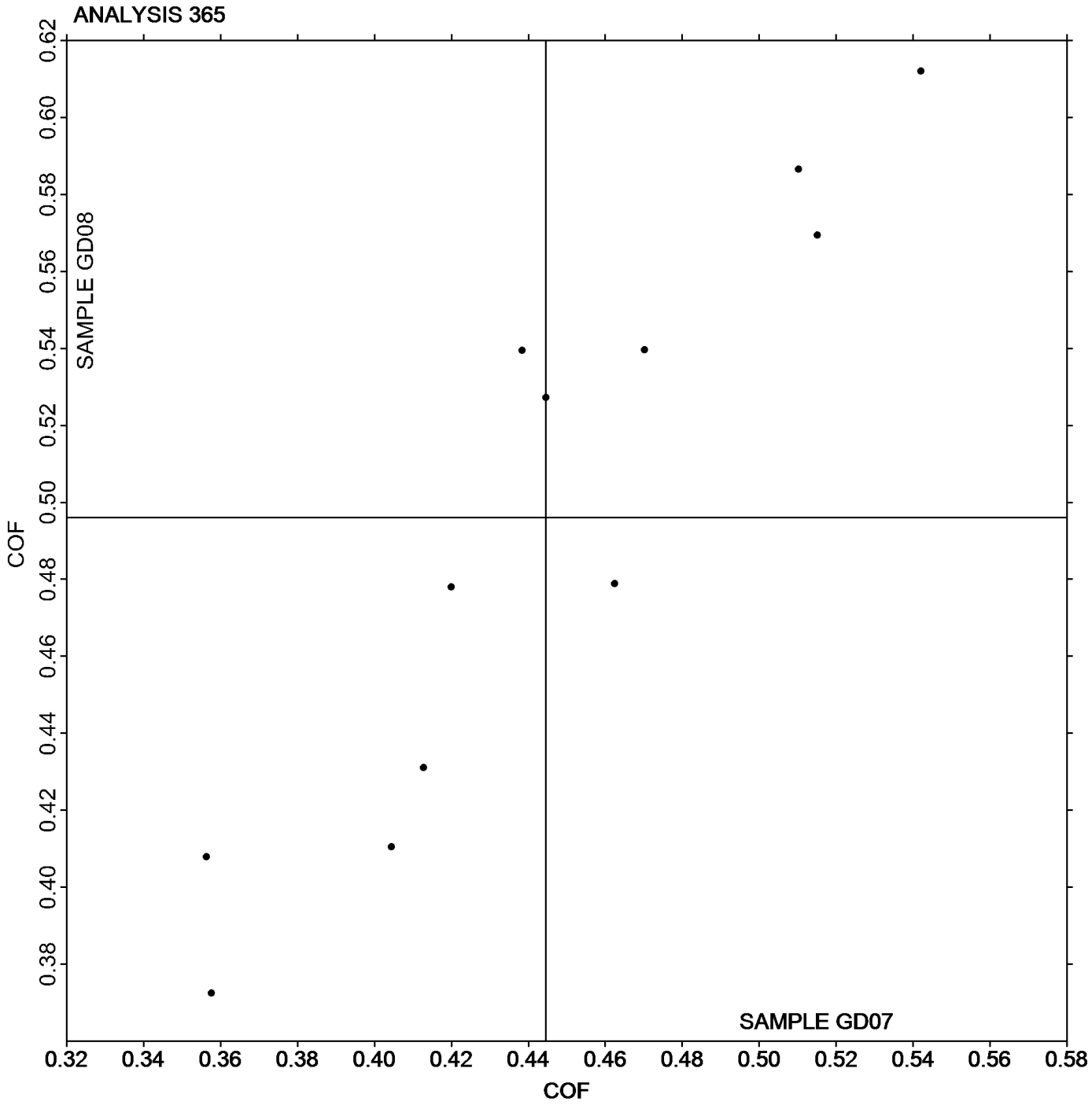
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD07** = 0.44452 COF

Grand Mean Sample **GD08** = 0.49605 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 GE07 Lab Mean	Sample GE07 Diff from Grand Mean	Sample GE07 CPV	Sample GE08 Lab Mean	Sample GE08 Diff from Grand Mean	Sample GE08 CPV	Instr Code
24CRKU		11.90	0.47	0.67	13.50	0.91	1.39	TL
2CKRAH		11.91	0.48	0.69	12.93	0.34	0.52	GL
2E9XET		11.92	0.49	0.70	13.27	0.68	1.04	HG
2KXD6K	X	16.18	4.75	6.84	17.14	4.55	6.96	LA
2NWRTA		12.32	0.88	1.27	12.21	-0.38	-0.58	HG
3463VM		11.13	-0.30	-0.44	12.60	0.01	0.02	LW
49G88N		12.36	0.93	1.34	13.43	0.84	1.29	HG
62AQ3E		12.95	1.52	2.19	14.05	1.46	2.22	PP
6MRB99		11.68	0.25	0.35	12.90	0.31	0.48	LP
7J97ZK		11.96	0.53	0.76	13.10	0.51	0.78	PP
7LRRGR		12.18	0.75	1.07	13.52	0.93	1.42	GA
7ZBFQP		11.05	-0.38	-0.55	12.88	0.29	0.44	XX
8GCAQG		11.45	0.01	0.02	12.26	-0.33	-0.50	HG
9YR9KX		10.72	-0.71	-1.03	11.96	-0.63	-0.96	TN
BN7ND8		11.22	-0.21	-0.31	12.60	0.01	0.02	WG
BUBPBF		12.37	0.94	1.35	13.05	0.46	0.70	PP
BY4RFF		11.76	0.33	0.47	12.63	0.04	0.06	LP
CKGY4D		11.81	0.38	0.55	12.76	0.17	0.26	HG
D6LV3Z		11.52	0.09	0.12	12.88	0.29	0.44	LA
DRFNKH		11.51	0.08	0.11	12.71	0.12	0.19	XX
EJHDPD		11.22	-0.22	-0.31	12.19	-0.40	-0.61	PP
FA9XAC		12.45	1.02	1.46	12.05	-0.54	-0.82	WG
FZL8YX		11.60	0.17	0.24	12.28	-0.31	-0.47	LP
HN2YQM		12.01	0.58	0.83	12.08	-0.51	-0.78	TN
HXAB66		10.42	-1.02	-1.46	13.01	0.42	0.64	LP
HZXKE7		11.00	-0.43	-0.63	12.10	-0.49	-0.75	LW
JVFDJY		10.72	-0.72	-1.04	12.28	-0.31	-0.48	PP
L3PH92		12.16	0.72	1.04	11.81	-0.78	-1.19	WG
LB6U9Z	*	10.51	-0.93	-1.33	10.84	-1.75	-2.67	LP
M6R9ZU		11.35	-0.08	-0.12	13.06	0.47	0.72	GS
NDK3AW		11.14	-0.29	-0.42	11.48	-1.11	-1.69	XX
PGDJ3G		10.90	-0.53	-0.77	13.26	0.67	1.03	XX
PM44JY		10.27	-1.17	-1.68	12.44	-0.15	-0.23	LP
PRXVDU		10.75	-0.68	-0.99	12.45	-0.14	-0.21	GA
QBP2LK	X	7.79	-3.64	-5.25	9.44	-3.15	-4.81	TL
RK8644		10.46	-0.98	-1.41	12.76	0.17	0.26	PP
TNQEVG		10.80	-0.63	-0.91	12.70	0.11	0.17	GS
TPZLWN		10.79	-0.64	-0.93	11.28	-1.31	-2.00	RE
UC9MVT		11.37	-0.06	-0.09	12.07	-0.51	-0.79	LA
UCQ9C3		11.85	0.42	0.60	13.10	0.51	0.78	TL
UK3RPU		10.49	-0.94	-1.36	11.87	-0.72	-1.10	LP
UWRJXG		11.90	0.47	0.67	13.00	0.41	0.63	PP
YDP3YN		12.57	1.14	1.64	13.62	1.03	1.58	TL

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

WebCode	Data Flag	Sample GE07 Lab Mean	Sample GE07 Diff from Grand Mean	Sample GE07 CPV	Sample GE08 Lab Mean	Sample GE08 Diff from Grand Mean	Sample GE08 CPV	Instr Code
YK968Q		10.21	-1.22	-1.76	11.90	-0.69	-1.05	LW
YZYBEK		11.02	-0.41	-0.60	12.46	-0.13	-0.20	XX

Summary Statistics

	Sample GE07	Sample GE08
Grand Means	11.434 sec/100 cc	12.589 sec/100 cc
SD Btwn Labs	0.694 sec/100 cc	0.655 sec/100 cc

Statistics based on 43 of 45 reporting participants

Comments on assigned Data Flags for Test #370

2KXD6K (X) - Extreme data.

QBP2LK (X) - Data for both samples are low. Inconsistent in testing within the determinations for both samples.

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer
(GL) - Gurley #4110
(GS) - Gurley-Hill S-P-S Tester #4190
(HG) - Technidyne - Hagerty Model #1
(LA) - L & W Autoline
(LP) - L & W Densometer, Air Permeance
(LW) - L & W Type Gurley Densometer, Oil Flotation
(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

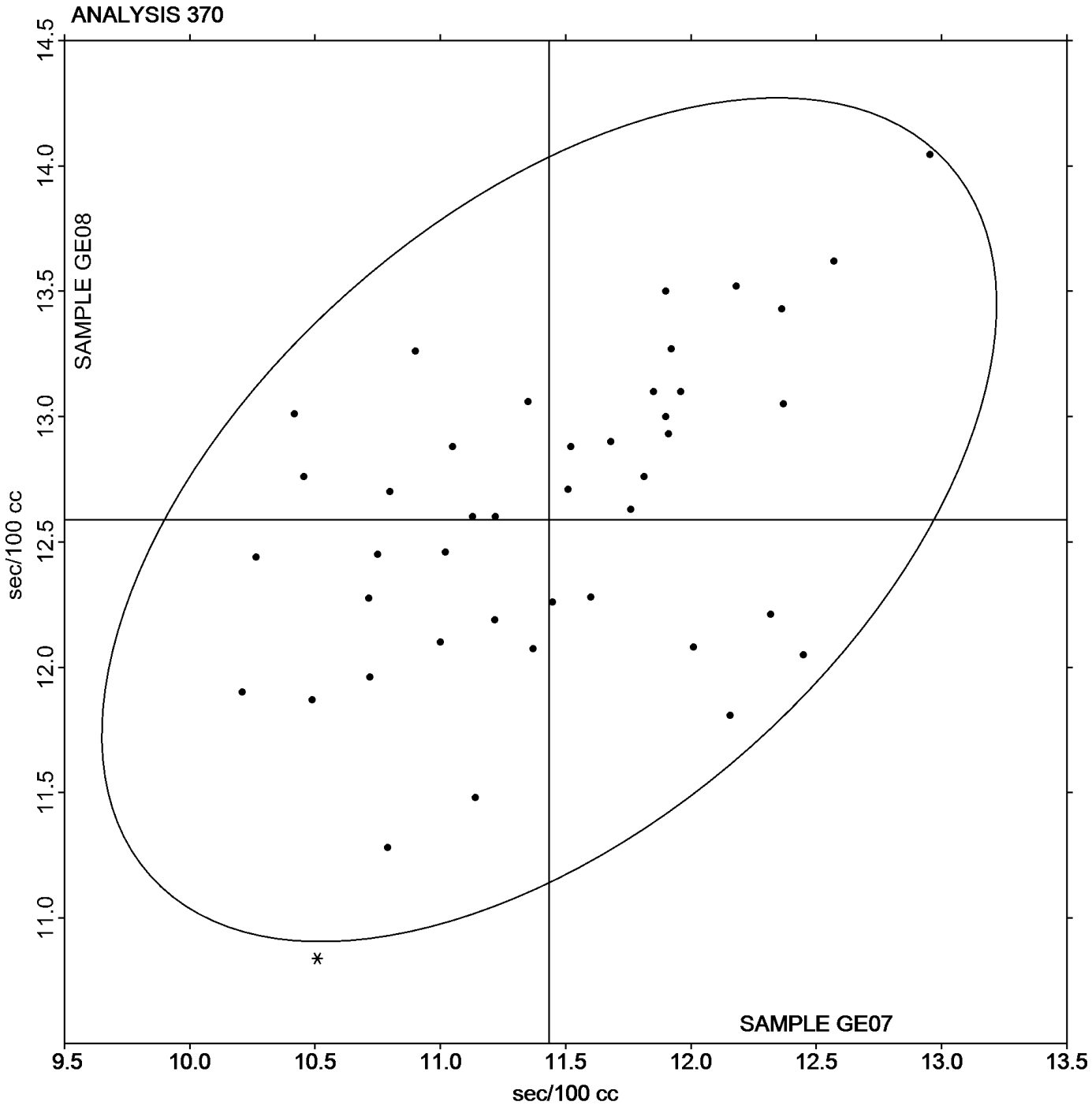
Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE07** = 11.434 sec/100 cc

Grand Mean Sample **GE08** = 12.589 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 GE07 Lab Mean	Sample GE07 Diff from Grand Mean	Sample GE07 CPV	Sample GE08 Lab Mean	Sample GE08 Diff from Grand Mean	Sample GE08 CPV	Instr Code
2498XR		223.5	8.0	0.87	211.7	12.2	1.27	PP
2E9XET		209.5	-6.0	-0.65	189.3	-10.2	-1.06	TT
4847DG		216.3	0.8	0.09	200.7	1.2	0.12	TT
B764DX		220.0	4.5	0.49	203.5	4.0	0.41	TT
BUBPBF		230.0	14.5	1.57	200.0	0.5	0.05	SH
CKGY4D		216.4	0.9	0.10	205.2	5.7	0.59	HM
HBAAT3		211.2	-4.3	-0.46	213.3	13.8	1.43	HM
KCKTRP		214.0	-1.5	-0.16	195.5	-4.0	-0.42	HM
LKRTY7		219.3	3.8	0.41	190.4	-9.1	-0.95	LP
MZXEZ8		228.7	13.2	1.43	215.6	16.1	1.67	XX
PRXVDU		223.2	7.7	0.83	207.9	8.4	0.87	GA
TNQEVG		192.8	-22.7	-2.46	181.8	-17.7	-1.85	SH
WJ348M		209.7	-5.8	-0.63	193.8	-5.7	-0.60	SH
XEKVBU	X	267.0	51.5	5.59	240.7	41.2	4.29	VM
YXA26J		209.0	-6.5	-0.70	190.4	-9.1	-0.95	LP
Z978WW		206.6	-8.9	-0.96	193.7	-5.8	-0.61	LP
ZKGYZW		217.6	2.1	0.23	199.6	0.0	0.00	GA

Summary Statistics

	Sample GE07	Sample GE08
Grand Means	215.48 Sheffield Units	199.52 Sheffield Units
SD Btwn Labs	9.22 Sheffield Units	9.60 Sheffield Units

Statistics based on 16 of 17 reporting participants

Comments on assigned Data Flags for Test #372

XEKVBU (X) - Data for both samples are high. Inconsistent within the determinations for Sample GE08.

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

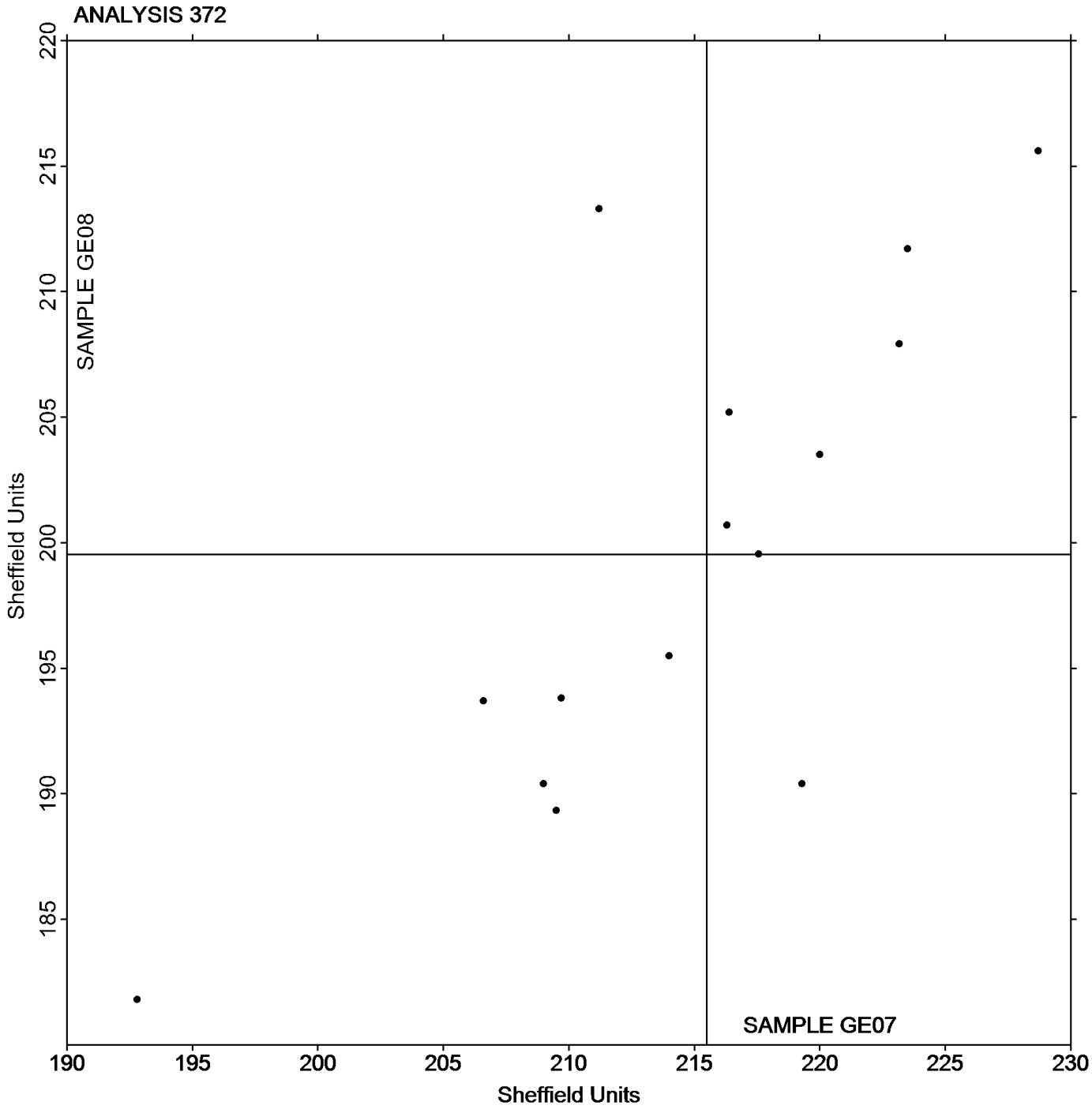
Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

Grand Mean Sample **GE07** = 215.48 Sheffield Units

Grand Mean Sample **GE08** = 199.52 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 GJ07 Lab Mean	Sample GJ07 Diff from Grand Mean	Sample GJ07 CPV	Sample GJ08 Lab Mean	Sample GJ08 Diff from Grand Mean	Sample GJ08 CPV
2E9XET	*	1.377	0.223	2.92	1.0150	0.1175	1.81
32FTN8		1.254	0.100	1.31	0.9900	0.0925	1.42
62AQ3E		1.102	-0.052	-0.68	0.8390	-0.0585	-0.90
6HCZTJ		1.150	-0.004	-0.06	0.8960	-0.0015	-0.02
6MAREH	*	1.188	0.034	0.44	1.0510	0.1535	2.36
6N46N9		1.164	0.010	0.13	0.8890	-0.0085	-0.13
7BVPEH		1.108	-0.046	-0.61	0.8600	-0.0375	-0.58
7C6WFQ		1.107	-0.047	-0.62	0.8260	-0.0715	-1.10
7J97ZK		1.215	0.061	0.80	0.9520	0.0545	0.84
9P7823		1.133	-0.021	-0.28	0.8230	-0.0745	-1.15
BN7ND8		1.101	-0.053	-0.70	0.8740	-0.0235	-0.36
BUBPBF		1.072	-0.082	-1.08	0.7890	-0.1085	-1.67
DKC2BU		1.080	-0.074	-0.97	0.8800	-0.0175	-0.27
FY9WJ7		1.025	-0.129	-1.69	0.7890	-0.1085	-1.67
HNLF7P		1.099	-0.055	-0.72	0.8920	-0.0055	-0.08
HXAB66		1.074	-0.080	-1.05	0.8800	-0.0175	-0.27
JEN69Y		1.282	0.128	1.67	0.9840	0.0865	1.33
JVFDJY		1.120	-0.034	-0.45	0.8720	-0.0255	-0.39
KCKTRP		1.226	0.072	0.94	0.9200	0.0225	0.35
KULJ78		1.185	0.030	0.40	0.9000	0.0025	0.04
PGDJ3G		1.086	-0.068	-0.89	0.8630	-0.0345	-0.53
PNH7C7		1.205	0.051	0.66	0.9570	0.0595	0.92
PTUCQQ		1.088	-0.066	-0.87	0.8150	-0.0825	-1.27
RP2WEL		1.230	0.076	0.99	0.9400	0.0425	0.65
TPYNLT		1.119	-0.035	-0.46	0.8650	-0.0325	-0.50
UBC7JV		1.273	0.119	1.56	0.9260	0.0285	0.44
UTCUWT		1.066	-0.088	-1.16	0.8330	-0.0645	-0.99
VZTMNJ		1.192	0.038	0.49	0.8920	-0.0055	-0.08
W6ENVU	*	1.118	-0.036	-0.47	0.9990	0.1015	1.56
WQHAXL		1.171	0.017	0.22	0.9360	0.0385	0.59
YRMLRT		1.173	0.019	0.25	0.9130	0.0155	0.24
Z4W964		1.153	-0.001	-0.02	0.8590	-0.0385	-0.59

Summary Statistics

	Sample GJ07	Sample GJ08
Grand Means	1.1542 Microns	0.89747 Microns
SD Btwn Labs	0.0764 Microns	0.06495 Microns

Statistics based on 32 of 32 reporting participants

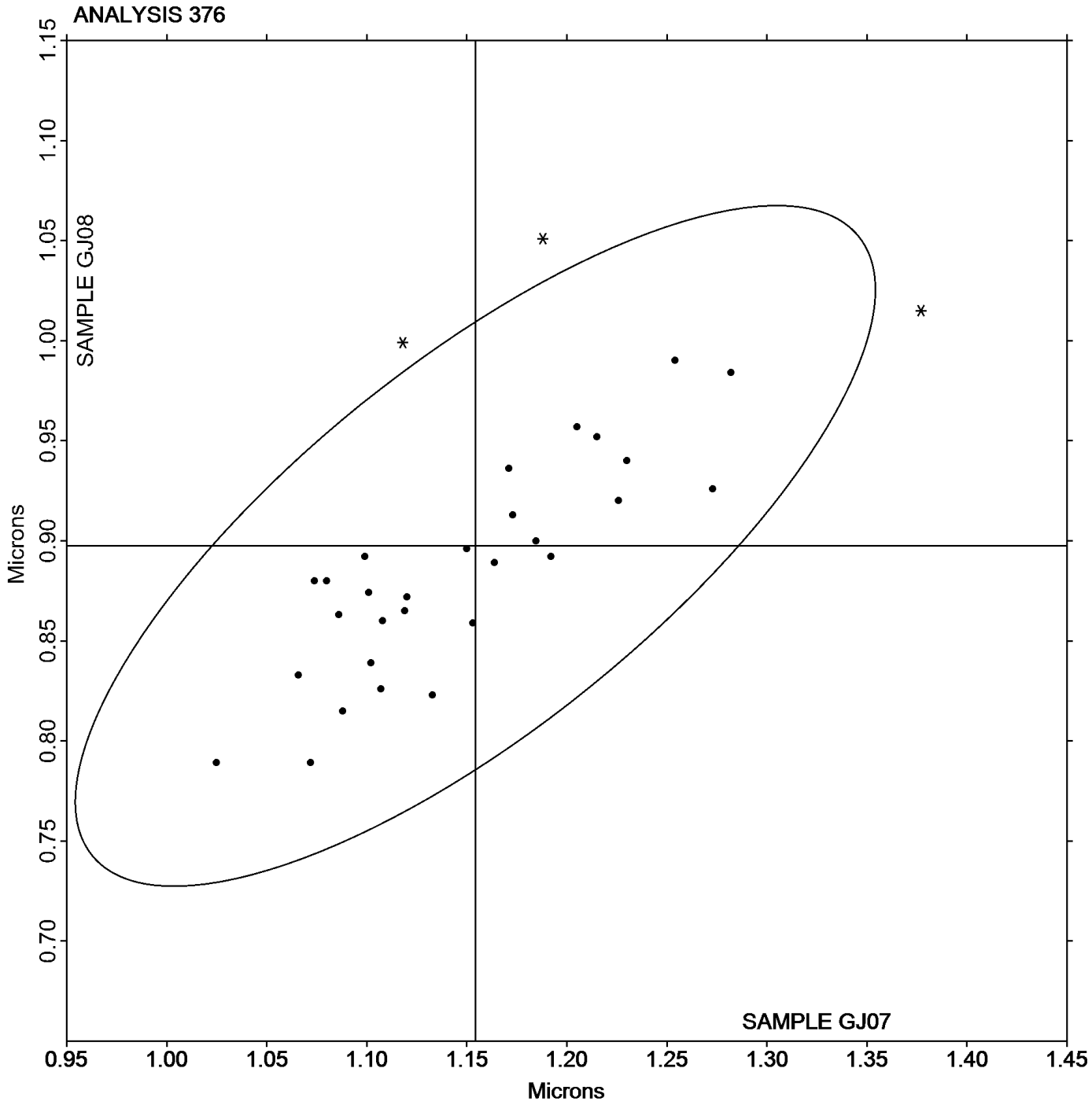
Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample **GJ07** = 1.1542 Microns

Grand Mean Sample **GJ08** = 0.89747 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK07 Lab Mean	Sample GK07 Diff from Grand Mean	Sample GK07 CPV	Sample GK08 Lab Mean	Sample GK08 Diff from Grand Mean	Sample GK08 CPV
24CRKU		5.232	0.174	0.46	1.111	-0.097	-0.46
49G88N		5.015	-0.043	-0.11	1.252	0.045	0.21
BN7ND8		4.997	-0.061	-0.16	1.084	-0.124	-0.58
D6LV3Z		4.874	-0.184	-0.48	1.126	-0.082	-0.39
E3BF7E		5.228	0.170	0.45	1.165	-0.043	-0.20
K6ERH3		4.340	-0.718	-1.88	0.970	-0.238	-1.12
RK8644	X	8.039	2.981	7.82	9.312	8.105	38.31
UBC7JV		5.693	0.635	1.67	1.279	0.072	0.34
XEKVBU		5.082	0.024	0.06	1.673	0.466	2.20

Summary Statistics

	Sample GK07	Sample GK08
Grand Means	5.0576 Microns	1.2075 Microns
SD Btwn Labs	0.3813 Microns	0.2115 Microns

Statistics based on 8 of 9 reporting participants

Comments on assigned Data Flags for Test #377

RK8644 (X) - Extreme data.

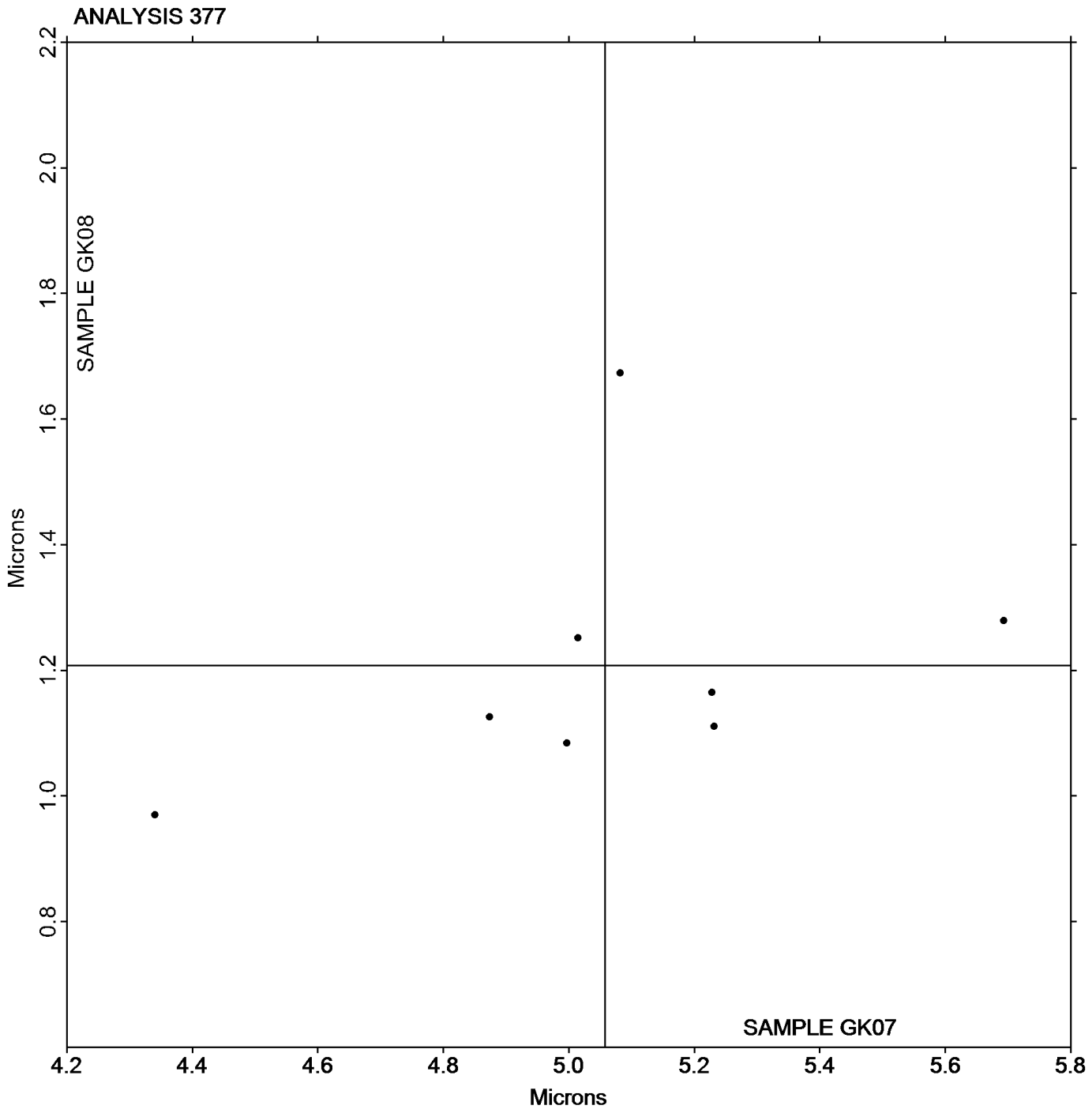
Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK07** = 5.0576 Microns

Grand Mean Sample **GK08** = 1.2075 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 GL07 Lab Mean	Sample GL07 Diff from Grand Mean	Sample GL07 CPV	Sample GL08 Lab Mean	Sample GL08 Diff from Grand Mean	Sample GL08 CPV	Instr Code
2498XR		161.8	-1.2	-0.12	96.30	-3.08	-0.39	PP
24CRKU		180.9	17.9	1.88	113.74	14.36	1.81	PP
2E9XET		167.0	4.0	0.42	111.20	11.82	1.49	SH
2KXD6K		153.9	-9.1	-0.96	94.34	-5.04	-0.63	LA
2NWRTA		160.6	-2.4	-0.25	104.70	5.32	0.67	HM
2Q4822		180.0	17.0	1.79	108.10	8.72	1.10	HM
3N9DTJ		162.9	-0.1	-0.01	105.80	6.42	0.81	TS
4847DG	*	147.8	-15.2	-1.60	75.30	-24.08	-3.03	TT
49G88N		166.3	3.3	0.35	101.90	2.52	0.32	HM
4LML6Z	*	190.0	27.0	2.84	112.30	12.92	1.63	GL
62AQ3E		151.8	-11.2	-1.17	92.10	-7.28	-0.92	PP
6N46N9		156.3	-6.7	-0.70	87.54	-11.83	-1.49	PP
797F83		153.5	-9.5	-1.00	109.00	9.62	1.21	TS
7J97ZK		158.2	-4.8	-0.50	99.10	-0.28	-0.03	PP
8GCAQG		165.8	2.8	0.30	97.40	-1.98	-0.25	HM
8Q6V4M		159.0	-4.0	-0.42	102.30	2.92	0.37	SH
9YR9KX		156.6	-6.4	-0.67	96.60	-2.78	-0.35	TS
B3KJJA		167.1	4.1	0.43	90.20	-9.18	-1.15	PP
B764DX		162.5	-0.5	-0.05	97.50	-1.88	-0.24	TT
BH2GNB		143.3	-19.7	-2.07	92.20	-7.18	-0.90	TS
BUBPBF		169.5	6.5	0.68	91.60	-7.78	-0.98	PP
BY4RFF		157.1	-5.9	-0.62	96.30	-3.08	-0.39	LW
CKGY4D		157.3	-5.7	-0.60	96.00	-3.38	-0.42	HM
CVYFZQ		161.2	-1.8	-0.19	100.80	1.42	0.18	MP
D6LV3Z	X	205.5	42.5	4.46	133.20	33.82	4.25	LA
DKC2BU		157.0	-6.0	-0.63	93.73	-5.65	-0.71	LA
DTUCLA		159.1	-3.9	-0.41	92.74	-6.63	-0.83	HM
E3BF7E		164.7	1.7	0.18	99.20	-0.18	-0.02	HM
EJHDPD		177.6	14.6	1.53	102.66	3.28	0.41	PP
ENWFPB		151.1	-11.9	-1.25	93.50	-5.88	-0.74	TT
FA9XAC		170.9	7.9	0.83	102.00	2.62	0.33	PG
FY9WJ7		163.2	0.2	0.02	100.00	0.62	0.08	HM
GDMRP9		180.3	17.3	1.82	114.30	14.92	1.88	TT
HBAAT3		169.8	6.8	0.72	102.50	3.12	0.39	HM
HNLF7P		181.7	18.7	1.97	108.60	9.22	1.16	TT
HXAB66		154.5	-8.5	-0.89	107.70	8.32	1.05	TS
HZXKE7		160.4	-2.6	-0.27	98.40	-0.98	-0.12	SH
JEN69Y		162.2	-0.8	-0.08	94.40	-4.98	-0.63	HM
JVFDJY		167.1	4.1	0.43	93.34	-6.04	-0.76	PP
KVVNKW		163.7	0.7	0.07	95.98	-3.40	-0.43	PP
LKRTY7		176.3	13.3	1.40	105.90	6.52	0.82	LW
M6AJDT		156.0	-7.0	-0.74	106.97	7.59	0.96	GA
M6R9ZU		160.5	-2.5	-0.26	108.50	9.12	1.15	SH

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

WebCode	Data Flag	Sample GL07 Lab Mean	Sample GL07 Diff from Grand Mean	Sample GL07 CPV	Sample GL08 Lab Mean	Sample GL08 Diff from Grand Mean	Sample GL08 CPV	Instr Code
MZXEZ8		160.7	-2.3	-0.24	94.80	-4.58	-0.58	HM
NNZKVV		153.6	-9.4	-0.99	91.70	-7.68	-0.97	LA
PNH7C7	X	367.0	204.0	21.42	372.80	273.42	34.39	HM
PRXVDU		162.8	-0.2	-0.02	95.10	-4.28	-0.54	HM
QBP2LK	X	155.5	-7.5	-0.79	123.86	24.48	3.08	VM
RK8644		163.4	0.4	0.05	100.16	0.79	0.10	PP
RP2WEL		181.8	18.8	1.98	108.44	9.06	1.14	PP
T9WGKT		165.2	2.2	0.23	90.60	-8.78	-1.10	XX
TNQEVG	X	185.1	22.1	2.32	130.30	30.92	3.89	XX
TPYNLT		160.1	-2.9	-0.30	108.40	9.02	1.14	LA
U72N9M		167.7	4.7	0.49	117.20	17.82	2.24	TS
UWRJXG		162.4	-0.6	-0.06	85.70	-13.68	-1.72	HM
VZTMNJ		168.3	5.3	0.56	102.67	3.29	0.41	PP
WJ348M		151.4	-11.6	-1.22	95.30	-4.08	-0.51	SH
XYN4ED		163.3	0.3	0.03	94.90	-4.48	-0.56	GA
YRMLRT		161.3	-1.7	-0.18	101.80	2.42	0.30	HM
YXA26J		167.3	4.3	0.45	88.40	-10.98	-1.38	PP
YZYBEK		153.8	-9.2	-0.97	97.57	-1.81	-0.23	PP
ZKGYZW		143.9	-19.1	-2.01	98.34	-1.04	-0.13	GA

Summary Statistics

	Sample GL07	Sample GL08
Grand Means	162.99 Sheffield	99.376 Sheffield
SD Btwn Labs	9.52 Sheffield	7.950 Sheffield

Statistics based on 58 of 62 reporting participants

Comments on assigned Data Flags for Test #378

D6LV3Z (X) - Data for both samples are high. Inconsistent within the determinations for Sample GL07.

PNH7C7 (X) - Extreme data.

QBP2LK (X) - Data for Sample GL08 are high.

TNQEVG (X) - Data for Sample GL08 are high.

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

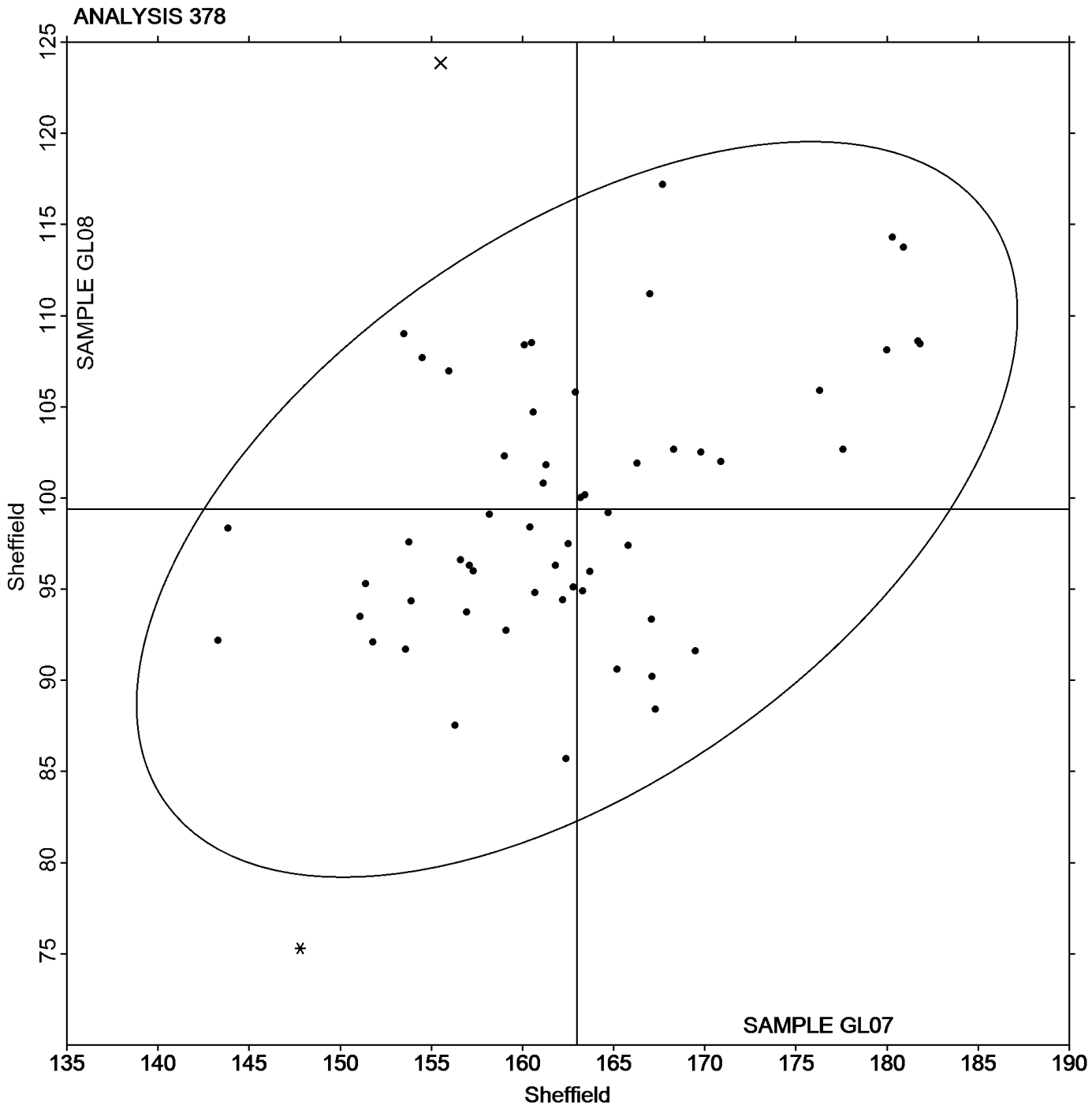
Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL07** = 162.99 Sheffield

Grand Mean Sample **GL08** = 99.376 Sheffield



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM07 Lab Mean	Sample GM07 Diff from Grand Mean	Sample GM07 CPV	Sample GM08 Lab Mean	Sample GM08 Diff from Grand Mean	Sample GM08 CPV
2Q4822		4.849	0.036	0.10	4.898	0.057	0.16
32FTN8		4.100	-0.713	-2.00	4.350	-0.491	-1.38
CBDDUD		5.191	0.378	1.06	5.503	0.662	1.86
DKYAKX		4.890	0.077	0.22	4.890	0.049	0.14
E3BF7E		4.930	0.117	0.33	4.970	0.129	0.36
FZL8YX		4.447	-0.366	-1.03	4.436	-0.405	-1.14
GDMRP9		5.130	0.317	0.89	5.140	0.299	0.84
K6ERH3		5.110	0.297	0.83	4.780	-0.061	-0.17
TPZLWN		4.670	-0.143	-0.40	4.603	-0.238	-0.67

Summary Statistics

	Sample GM07		Sample GM08	
Grand Means	4.8130	Percent	4.8412	Percent
SD Btwn Labs	0.3562	Percent	0.3563	Percent

Statistics based on 9 of 9 reporting participants

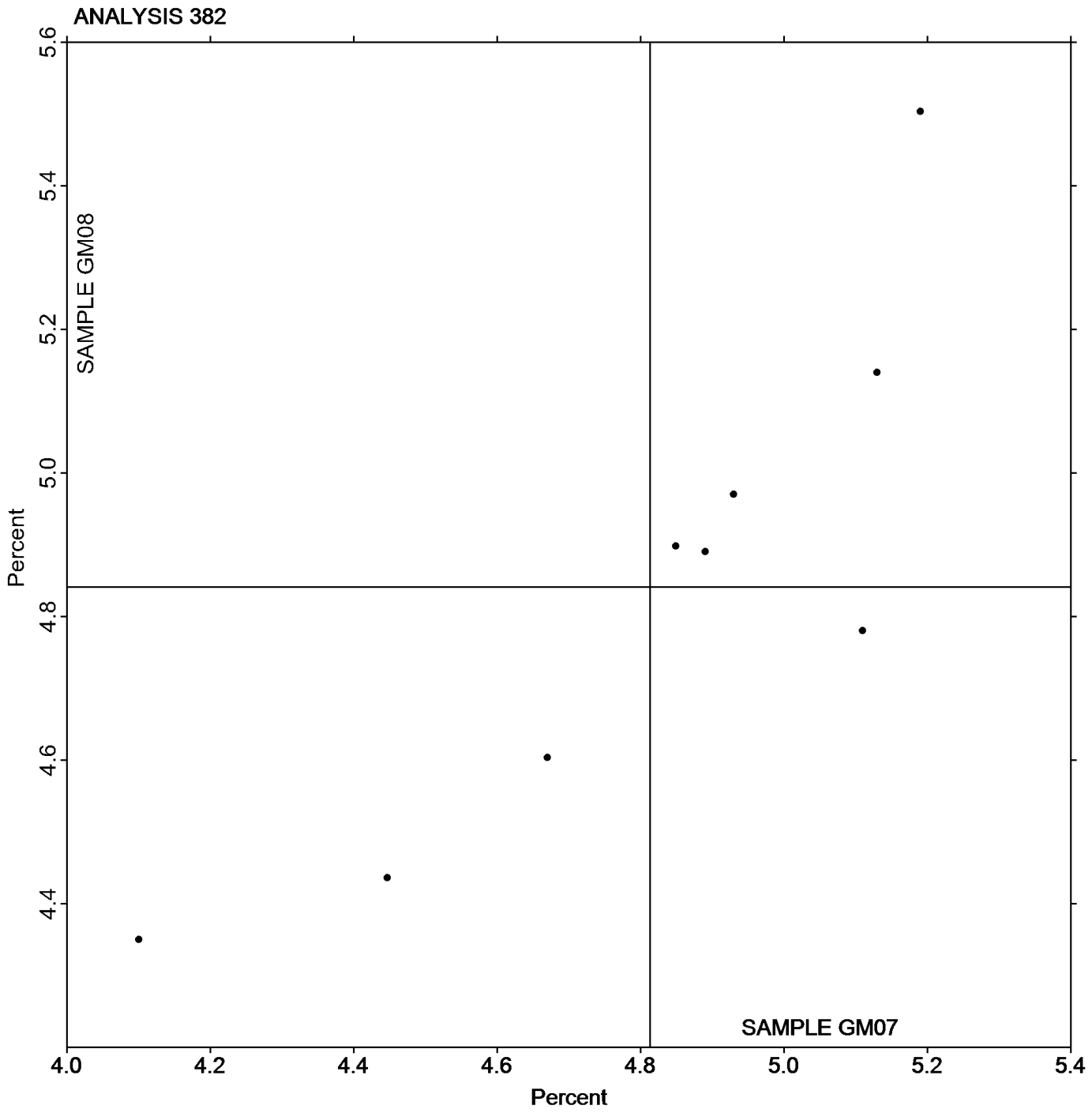
Paper & Paperboard Interlaboratory Testing Program

Analysis 382

Moisture in Paper

Grand Mean Sample **GM07** = 4.8130 Percent

Grand Mean Sample **GM08** = 4.8412 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 GN07 Lab Mean	Sample GN07 Diff from Grand Mean	Sample GN07 CPV	Sample GN08 Lab Mean	Sample GN08 Diff from Grand Mean	Sample GN08 CPV
24CRKU		86.25	-0.68	-1.62	94.60	-0.29	-1.60
2CKRAH	X	86.95	0.01	0.03	94.31	-0.58	-3.18
2E9XET		86.75	-0.19	-0.44	94.79	-0.10	-0.53
2KXD6K		86.03	-0.91	-2.15	94.49	-0.40	-2.19
4847DG		87.94	1.00	2.37	95.24	0.35	1.96
4LML6Z		87.37	0.43	1.02	94.98	0.09	0.52
6HCZTJ		86.81	-0.13	-0.30	94.62	-0.27	-1.47
7J97ZK		87.14	0.20	0.48	94.77	-0.12	-0.64
7TGBYA		86.98	0.04	0.10	94.99	0.10	0.58
8GCAQG		86.96	0.02	0.05	94.95	0.06	0.36
8Q6V4M		86.90	-0.04	-0.09	95.02	0.13	0.74
9YR9KX		87.25	0.31	0.74	94.90	0.01	0.08
B3KJJA		86.94	0.00	0.01	95.02	0.13	0.74
B764DX	X	88.12	1.18	2.80	94.86	-0.03	-0.14
CKGY4D		86.69	-0.25	-0.58	94.89	0.01	0.04
D6LV3Z	X	85.65	-1.29	-3.04	93.82	-1.07	-5.89
DTUCLA		86.96	0.02	0.05	94.84	-0.05	-0.28
E3BF7E		86.74	-0.20	-0.47	94.96	0.07	0.41
EJHDPD		86.91	-0.03	-0.07	95.00	0.11	0.63
FA9XAC		86.11	-0.82	-1.95	94.58	-0.31	-1.72
HPXKT9		86.85	-0.09	-0.21	94.82	-0.07	-0.36
HZXKE7		87.07	0.13	0.31	94.85	-0.04	-0.19
JEN69Y		87.41	0.47	1.12	95.11	0.22	1.22
KULJ78		86.71	-0.23	-0.54	94.72	-0.17	-0.91
M6R9ZU		86.89	-0.05	-0.11	94.72	-0.17	-0.91
MZXEZ8		86.38	-0.56	-1.32	94.73	-0.16	-0.86
NDK3AW		87.16	0.22	0.53	95.02	0.13	0.74
PGDJ3G		87.31	0.37	0.88	94.80	-0.09	-0.47
PNH7C7		86.73	-0.21	-0.49	94.85	-0.04	-0.19
PRXVDU		86.39	-0.55	-1.29	94.78	-0.11	-0.58
QBP2LK		87.70	0.76	1.80	95.08	0.20	1.09
RK8644		86.94	0.00	0.00	94.98	0.09	0.52
T9WGKT		87.19	0.25	0.60	94.86	-0.03	-0.14
TNQEVG	X	81.78	-5.16	-12.19	92.73	-2.16	-11.92
UWRJXG		86.65	-0.29	-0.68	94.86	-0.03	-0.14
WJ348M		86.89	-0.05	-0.11	94.92	0.04	0.20
YZYBEK		87.63	0.69	1.64	95.33	0.44	2.46
Z4W964		87.24	0.30	0.72	95.04	0.15	0.86
ZFL9TK	X	86.06	-0.88	-2.08	95.10	0.22	1.21

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

Summary Statistics

	Sample GN07	Sample GN08
Grand Means	86.938 Percent	94.885 Percent
SD Btwn Labs	0.423 Percent	0.181 Percent

Statistics based on 34 of 39 reporting participants

Comments on assigned Data Flags for Test #384

2CKRAH (X) - Data for Sample GN08 are low. Inconsistent in testing within determinations for Sample GN08.

B764DX (X) - Data for Sample GN07 are high.

D6LV3Z (X) - Data for both samples are low.

TNQEVG (X) - Extreme data.

ZFL9TK (X) - Inconsistent in testing between samples and within the determinations for Sample GN08.

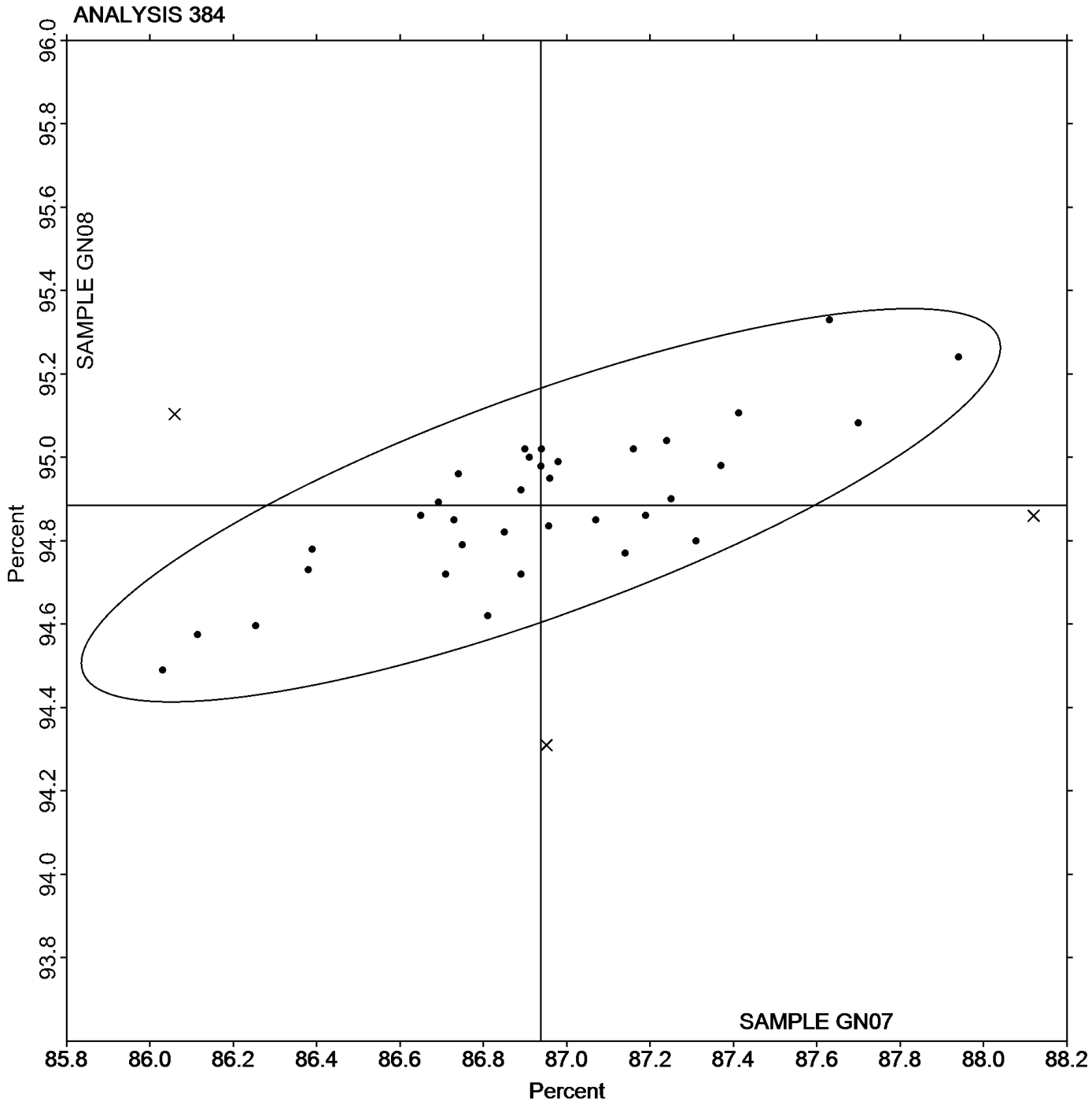
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN07** = 86.938 Percent

Grand Mean Sample **GN08** = 94.885 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

WebCode	Data Flag	Sample GP07 Lab Mean	Sample GP07 Diff from Grand Mean	Sample GP07 CPV	Sample GP08 Lab Mean	Sample GP08 Diff from Grand Mean	Sample GP08 CPV
3463VM		89.00	0.05	0.35	94.91	0.07	1.03
37CH6E		88.86	-0.09	-0.67	94.85	0.00	0.05
4N8DEG		88.80	-0.16	-1.15	94.96	0.12	1.84
9P7823		88.97	0.02	0.12	94.81	-0.04	-0.58
9RBW7X		88.92	-0.04	-0.26	94.86	0.02	0.32
B9UCKD		89.06	0.11	0.78	94.80	-0.04	-0.61
BCCY9E		89.02	0.06	0.46	94.69	-0.15	-2.33
CKGY4D		88.91	-0.05	-0.34	94.85	0.01	0.12
FZL8YX		88.83	-0.13	-0.93	94.86	0.02	0.32
G4GFHY		89.07	0.12	0.85	94.85	0.01	0.14
HBAAT3		89.14	0.19	1.37	94.76	-0.08	-1.26
JEN69Y		88.86	-0.09	-0.68	94.84	0.00	-0.06
KULJ78		88.84	-0.11	-0.82	94.84	0.00	0.00
LKRTY7		89.24	0.29	2.12	94.91	0.06	0.95
MEJQD3		88.71	-0.24	-1.75	94.83	-0.01	-0.17
PM44JY		89.14	0.19	1.39	94.83	-0.01	-0.18
TPZLWN		88.85	-0.11	-0.77	94.80	-0.04	-0.63
UC9MVT	X	88.04	-0.91	-6.72	95.62	0.77	11.84
UK3RPU		89.01	0.05	0.39	94.75	-0.09	-1.44
YDP3YN	X	88.30	-0.65	-4.80	94.55	-0.29	-4.49
YK968Q		88.82	-0.13	-0.98	94.91	0.07	1.06
Z8G2EK		89.02	0.07	0.53	94.94	0.09	1.43

Summary Statistics

	Sample GP07	Sample GP08
Grand Means	88.952 Percent	94.843 Percent
SD Btwn Labs	0.136 Percent	0.065 Percent

Statistics based on 20 of 22 reporting participants

Comments on assigned Data Flags for Test #386

UC9MVT (X) - Extreme data.

YDP3YN (X) - Data for both samples are low.

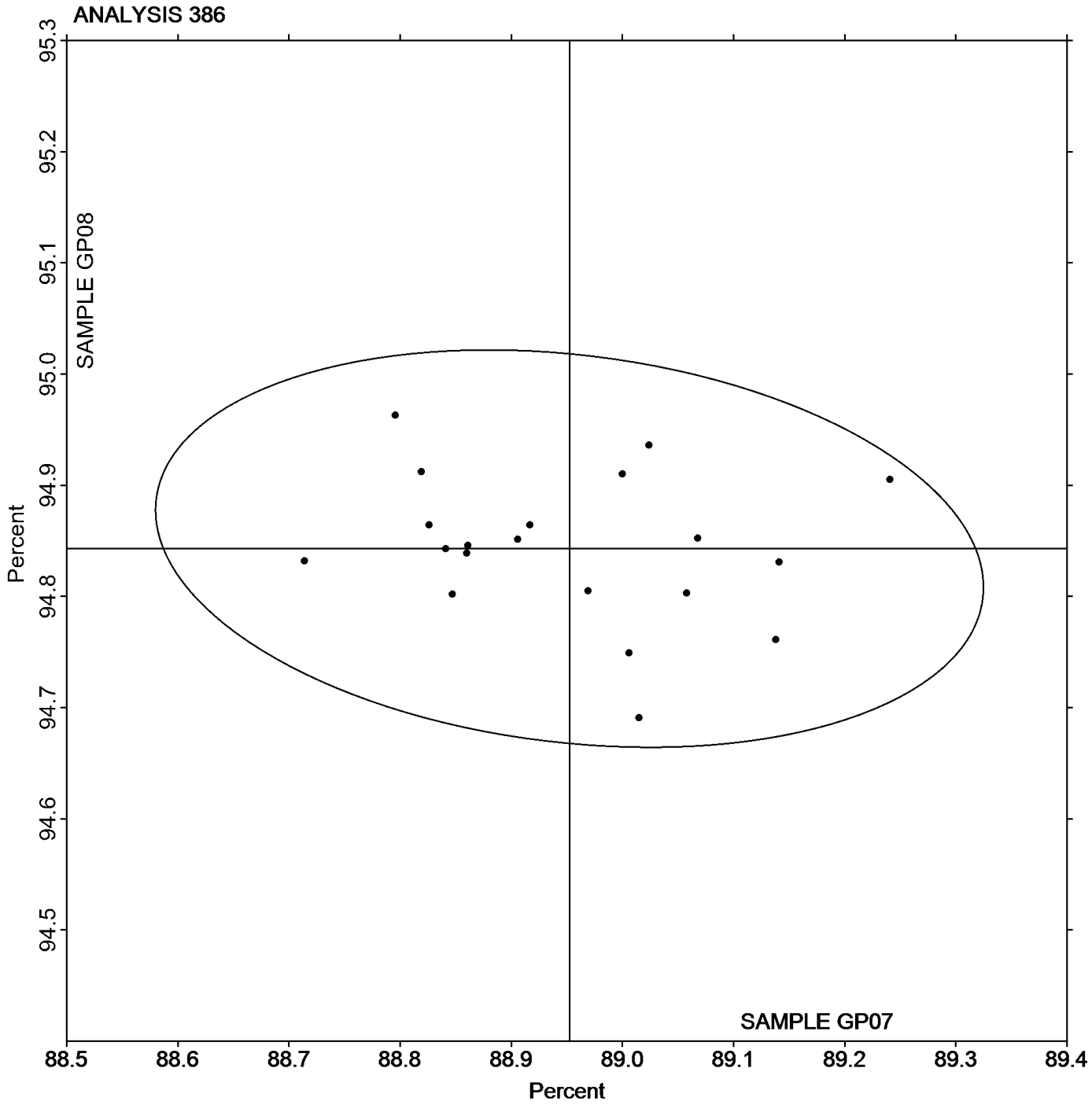
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample **GP07** = 88.952 Percent

Grand Mean Sample **GP08** = 94.843 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

WebCode	Data Flag	Sample GR07 Lab Mean	Sample GR07 Diff from Grand Mean	Sample GR07 CPV	Sample GR08 Lab Mean	Sample GR08 Diff from Grand Mean	Sample GR08 CPV	Instr Code
2CKRAH		82.11	-0.17	-0.12	82.28	-0.06	-0.04	TS
6N46N9		83.65	1.37	1.01	83.43	1.09	0.82	TT
797F83	X	63.15	-19.13	-14.19	62.96	-19.37	-14.57	TS
8Q6V4M		81.18	-1.11	-0.82	80.99	-1.34	-1.01	TA
9YR9KX		81.31	-0.97	-0.72	81.14	-1.19	-0.90	PE
B3KJJA		83.36	1.08	0.80	83.50	1.17	0.88	XX
B764DX		83.16	0.88	0.65	82.59	0.26	0.19	TT
CKGY4D		80.60	-1.69	-1.25	80.82	-1.51	-1.14	TS
D6LV3Z		80.84	-1.45	-1.07	81.03	-1.30	-0.98	TS
EJHDPD		81.29	-0.99	-0.74	81.64	-0.69	-0.52	TT
FA9XAC		83.16	0.88	0.65	83.11	0.78	0.59	TS
HNLF7P		83.43	1.14	0.85	83.69	1.36	1.02	TT
HPXKT9		81.10	-1.18	-0.88	81.10	-1.23	-0.93	TT
HYGT2F		84.08	1.79	1.33	84.18	1.84	1.39	HG
JEN69Y		80.57	-1.71	-1.27	80.62	-1.71	-1.29	TS
K6ERH3		83.20	0.92	0.68	83.34	1.01	0.76	TS
KULJ78		80.69	-1.59	-1.18	80.68	-1.65	-1.24	TT
KVVNKW		80.60	-1.68	-1.25	80.88	-1.45	-1.09	TS
MZXEZ8		81.86	-0.42	-0.31	82.28	-0.05	-0.04	GM
NDK3AW		83.08	0.79	0.59	83.18	0.84	0.64	TS
PGDJ3G		81.44	-0.84	-0.63	81.64	-0.69	-0.52	TT
PNH7C7		81.53	-0.76	-0.56	81.54	-0.79	-0.60	TS
PRXVDU		81.90	-0.38	-0.28	82.53	0.20	0.15	XX
QAUGUE		82.16	-0.12	-0.09	82.28	-0.06	-0.04	XX
RP2WEL		83.71	1.43	1.06	83.71	1.37	1.03	HD
T9WGKT		81.53	-0.76	-0.56	81.21	-1.12	-0.84	XX
TNQEVG	*	86.43	4.15	3.08	86.52	4.19	3.15	PE
UWRJXG		83.13	0.84	0.63	82.65	0.32	0.24	TT
VZTMNJ		82.87	0.59	0.44	82.90	0.57	0.43	HD
Z4W964		82.24	-0.04	-0.03	82.19	-0.15	-0.11	XX

Summary Statistics

	Sample GR07	Sample GR08
Grand Means	82.282 Percent	82.331 Percent
SD Btwn Labs	1.348 Percent	1.329 Percent

Statistics based on 29 of 30 reporting participants

Comments on assigned Data Flags for Test #390

797F83 (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

(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

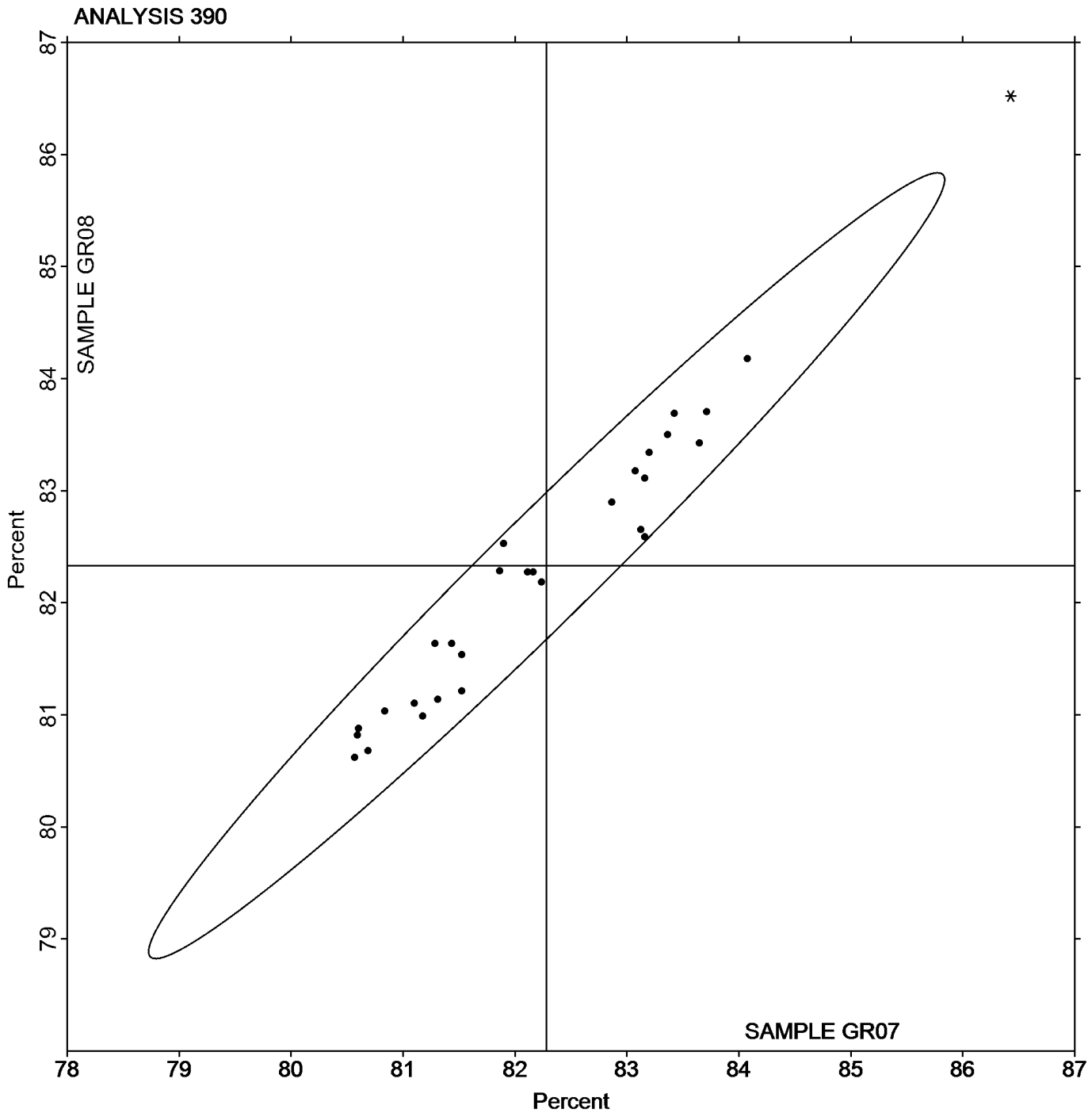
Paper & Paperboard Interlaboratory Testing Program

Analysis 390

Directional Brightness

Grand Mean Sample **GR07** = 82.282 Percent

Grand Mean Sample **GR08** = 82.331 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ07 Lab Mean	Sample GZ07 Diff from Grand Mean	Sample GZ07 CPV	Sample GZ08 Lab Mean	Sample GZ08 Diff from Grand Mean	Sample GZ08 CPV	Instr Code
24CRKU		96.58	0.17	0.18	96.71	0.18	0.27	TS
2KXD6K		96.54	0.13	0.14	96.78	0.25	0.37	TT
4847DG		97.22	0.81	0.86	97.26	0.73	1.09	TT
6HCZTJ		96.74	0.33	0.35	96.75	0.22	0.33	PP
8GCAQG		96.83	0.42	0.44	96.74	0.21	0.32	HT
9YR9KX		96.84	0.44	0.46	96.79	0.26	0.39	TS
DKC2BU		96.18	-0.23	-0.24	96.36	-0.17	-0.25	TT
DTUCLA		96.78	0.37	0.39	96.60	0.07	0.11	TS
GDMRP9	X	100.62	4.21	4.44	101.10	4.57	6.78	EF
HPXKT9		96.90	0.49	0.52	96.82	0.29	0.43	TT
HZXKE7		96.88	0.47	0.50	97.06	0.53	0.79	TS
M6R9ZU		95.35	-1.06	-1.11	95.43	-1.10	-1.63	HT
MZXEZ8	*	93.63	-2.77	-2.92	94.80	-1.73	-2.57	GM
RK8644		96.83	0.42	0.45	96.76	0.23	0.34	TS
TRPV44	X	99.12	2.71	2.86	98.60	2.07	3.07	TS

Summary Statistics

	Sample GZ07	Sample GZ08
Grand Means	96.408 Percent	96.527 Percent
SD Btwn Labs	0.950 Percent	0.675 Percent

Statistics based on 13 of 15 reporting participants

Comments on assigned Data Flags for Test #391

GDMRP9 (X) - Extreme data.

TRPV44 - Data appears to be transposed between Analysis #391 and Analysis #394. Data switched by CTS.

Instrument Code List as Reported by the Labs

(EF) - L & W Datacolor Elrepho

(GM) - Gretag Macbeth Color i5

(HT) - Hunter UltraScan Vis

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

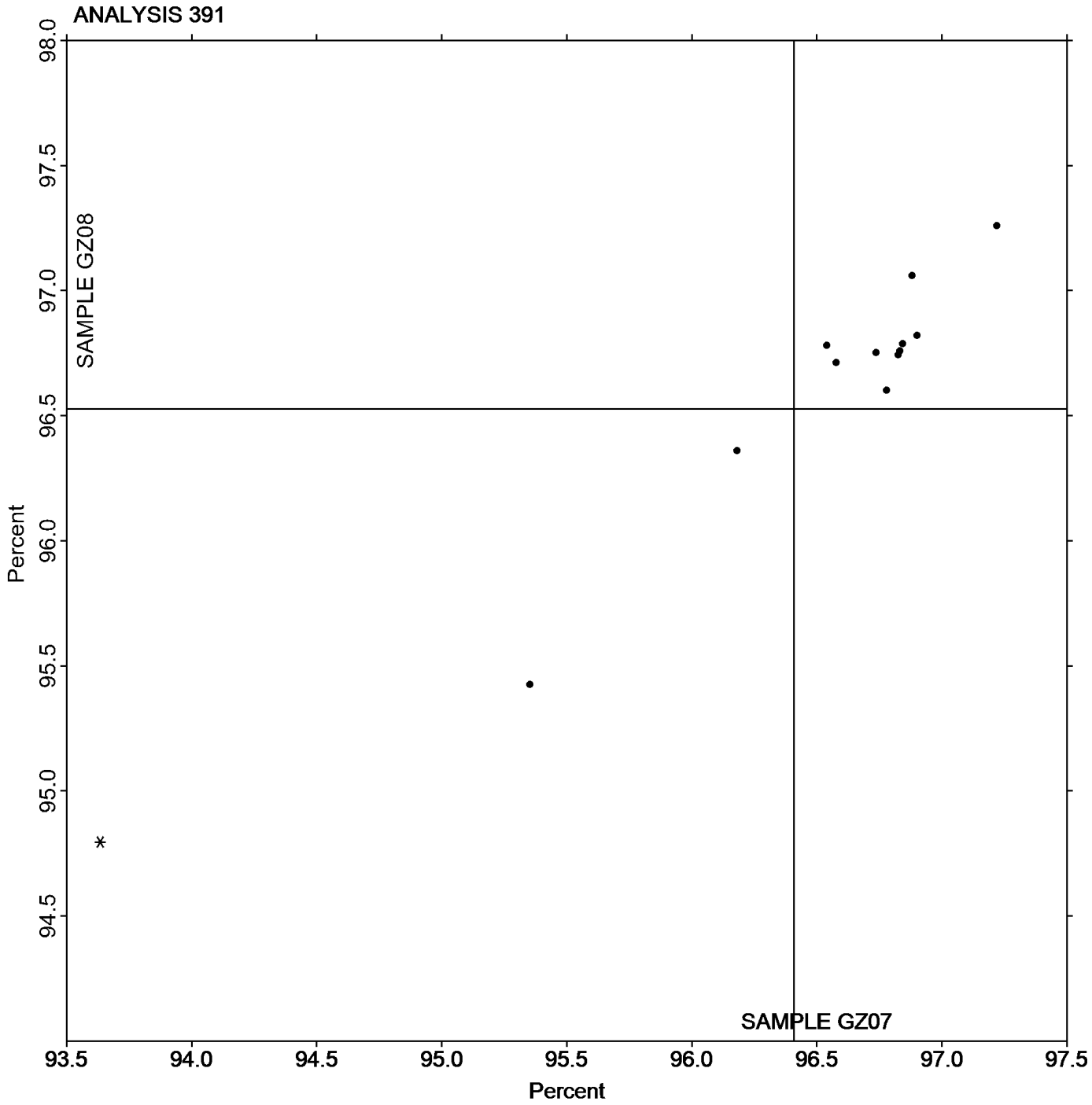
Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ07** = 96.408 Percent

Grand Mean Sample **GZ08** = 96.527 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 GR07 Lab Mean	Sample GR07 Diff from Grand Mean	Sample GR07 CPV	Sample GR08 Lab Mean	Sample GR08 Diff from Grand Mean	Sample GR08 CPV	Instr Code
2E9XET	X	59.61	-22.05	-113.43	59.83	-21.86	-104.84	TC
37CH6E		81.49	-0.16	-0.82	81.70	0.01	0.05	TM
3ZL9W2		81.44	-0.22	-1.11	81.36	-0.33	-1.59	TC
4N8DEG		81.91	0.26	1.34	81.94	0.25	1.20	TC
62AQ3E		81.78	0.13	0.66	81.75	0.06	0.31	PP
6N46N9		81.70	0.05	0.24	81.66	-0.03	-0.12	TL
7BVPEH		81.55	-0.10	-0.52	81.63	-0.06	-0.26	TC
7QAPC9		81.55	-0.10	-0.52	81.49	-0.20	-0.95	TC
7ZBFQP		81.81	0.16	0.82	81.89	0.21	0.98	TC
98AJXY		81.81	0.15	0.80	81.91	0.22	1.07	TC
9P7823		81.49	-0.17	-0.86	81.57	-0.12	-0.57	LS
9RBW7X		81.33	-0.32	-1.64	81.42	-0.26	-1.26	TC
BCCY9E	*	82.04	0.39	1.99	82.21	0.52	2.48	FR
BY4RFF	*	81.11	-0.54	-2.78	81.23	-0.46	-2.22	EF
CKGY4D		81.71	0.06	0.31	81.71	0.02	0.09	TC
D6LV3Z		81.54	-0.12	-0.61	81.60	-0.09	-0.41	TC
E6YPFF		81.78	0.12	0.63	81.86	0.17	0.81	TC
FZL8YX		81.46	-0.19	-0.98	81.39	-0.29	-1.41	LS
G4GFHY		81.74	0.09	0.46	81.72	0.04	0.17	TM
GDMRP9		81.70	0.05	0.24	81.81	0.13	0.60	LA
HBAAT3		81.71	0.06	0.30	81.76	0.08	0.37	TC
HNLF7P		81.44	-0.22	-1.11	81.59	-0.10	-0.48	EG
HPXKT9		81.73	0.07	0.38	81.69	0.01	0.02	TC
JEN69Y		81.55	-0.10	-0.53	81.44	-0.25	-1.19	TM
JVFDJY		81.75	0.09	0.49	81.81	0.12	0.58	TC
KULJ78		81.97	0.32	1.65	82.05	0.36	1.74	TM
LKRTY7		81.80	0.14	0.73	81.81	0.12	0.56	TC
QAUGUE		81.82	0.17	0.86	81.85	0.16	0.78	EE
UBC7JV		81.52	-0.13	-0.66	81.52	-0.17	-0.82	TC
UTCUWT		81.66	0.00	0.01	81.69	0.00	0.00	TC
UYGT7X		81.76	0.10	0.54	81.77	0.09	0.41	TC
YDP3YN		81.51	-0.14	-0.72	81.46	-0.23	-1.08	TM
Z8G2EK		81.53	-0.13	-0.64	81.60	-0.09	-0.43	TC
ZCPJBR		81.86	0.20	1.04	81.81	0.12	0.58	EE

Summary Statistics

	Sample GR07	Sample GR08
Grand Means	81.653 Percent	81.688 Percent
SD Btwn Labs	0.194 Percent	0.209 Percent

Statistics based on 33 of 34 reporting participants

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

Comments on assigned Data Flags for Test #392

2E9XET (X) - Extreme data.

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

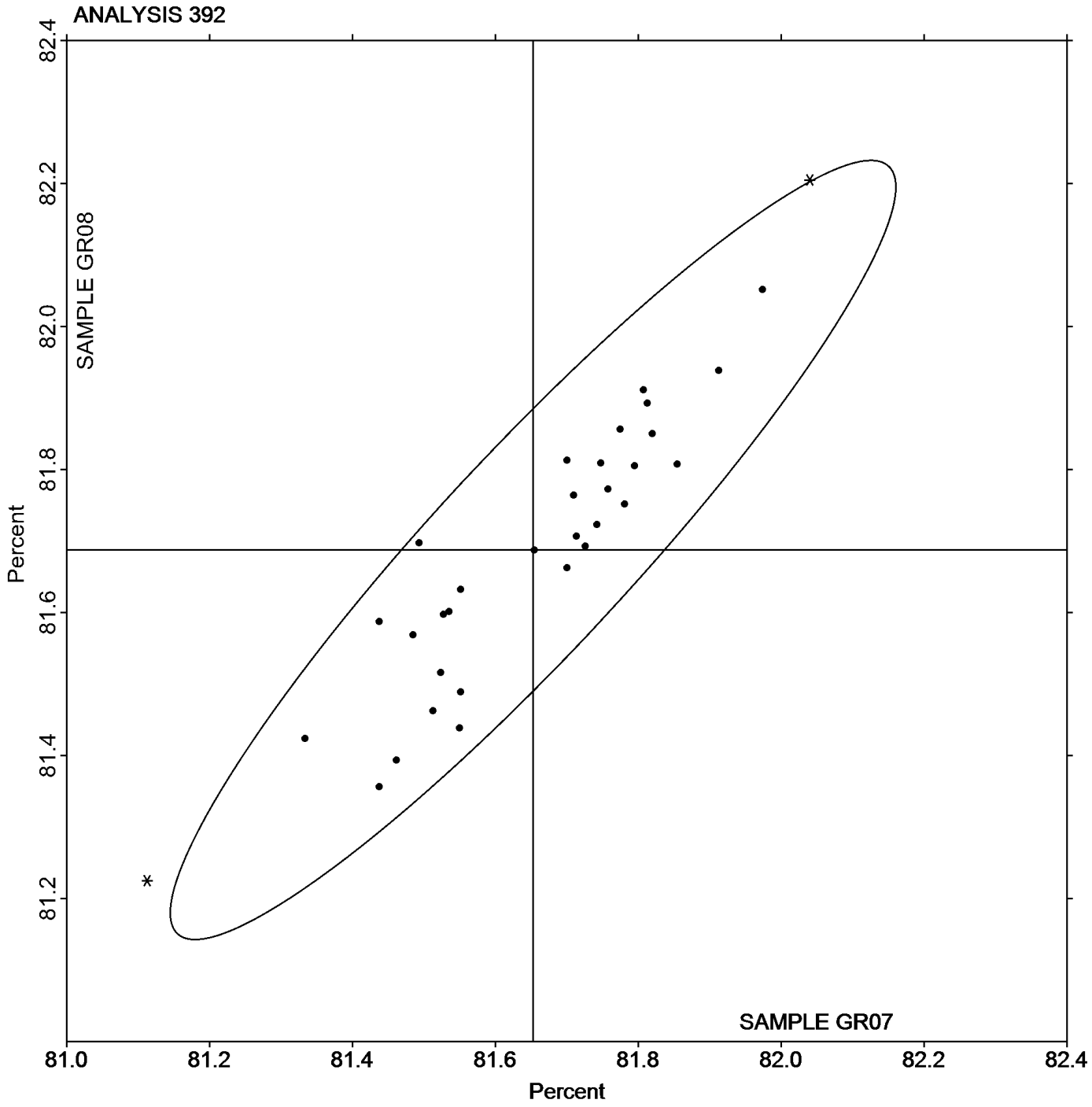
Paper & Paperboard Interlaboratory Testing Program

Analysis 392

Diffuse Brightness

Grand Mean Sample **GR07** = 81.653 Percent

Grand Mean Sample **GR08** = 81.688 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

WebCode	Data Flag	Sample GZ07 Lab Mean	Sample GZ07 Diff from Grand Mean	Sample GZ07 CPV	Sample GZ08 Lab Mean	Sample GZ08 Diff from Grand Mean	Sample GZ08 CPV	Instr Code
24CRKU		9.066	-0.108	-0.14	9.218	-0.051	-0.07	TS
2KXD6K		9.340	0.166	0.22	9.120	-0.149	-0.19	TT
6HCZTJ		9.242	0.068	0.09	9.486	0.217	0.28	PP
8GCAQG		8.950	-0.224	-0.30	8.942	-0.327	-0.42	HT
9YR9KX		9.096	-0.078	-0.10	9.228	-0.041	-0.05	TS
DKC2BU		9.060	-0.114	-0.15	9.300	0.031	0.04	TT
DTUCLA		9.260	0.086	0.11	9.316	0.047	0.06	TS
GDMRP9	X	12.840	3.666	4.90	13.480	4.211	5.44	EF
HPXKT9		9.200	0.026	0.03	9.240	-0.029	-0.04	TT
M6R9ZU		7.604	-1.570	-2.10	7.726	-1.543	-1.99	HT
MZXEZ8		10.908	1.734	2.32	11.122	1.853	2.39	GM
RK8644		9.192	0.018	0.02	9.262	-0.007	-0.01	TS
TRPV44	X	8.688	-0.486	-0.65	8.842	-0.427	-0.55	TS

Summary Statistics

	Sample GZ07	Sample GZ08
Grand Means	9.1744 Percent	9.2691 Percent
SD Btwn Labs	0.7479 Percent	0.7745 Percent

Statistics based on 11 of 13 reporting participants

Comments on assigned Data Flags for Test #394

GDMRP9 (X) - Data for both samples are high. Inconsistent within the determinations for Sample GZ07.

TRPV44 - Data appears to be transposed between Analysis #394 and Analysis #391. Data switched by CTS.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(GM) - Gretag Macbeth Color i5

(HT) - Hunter UltraScan Vis

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

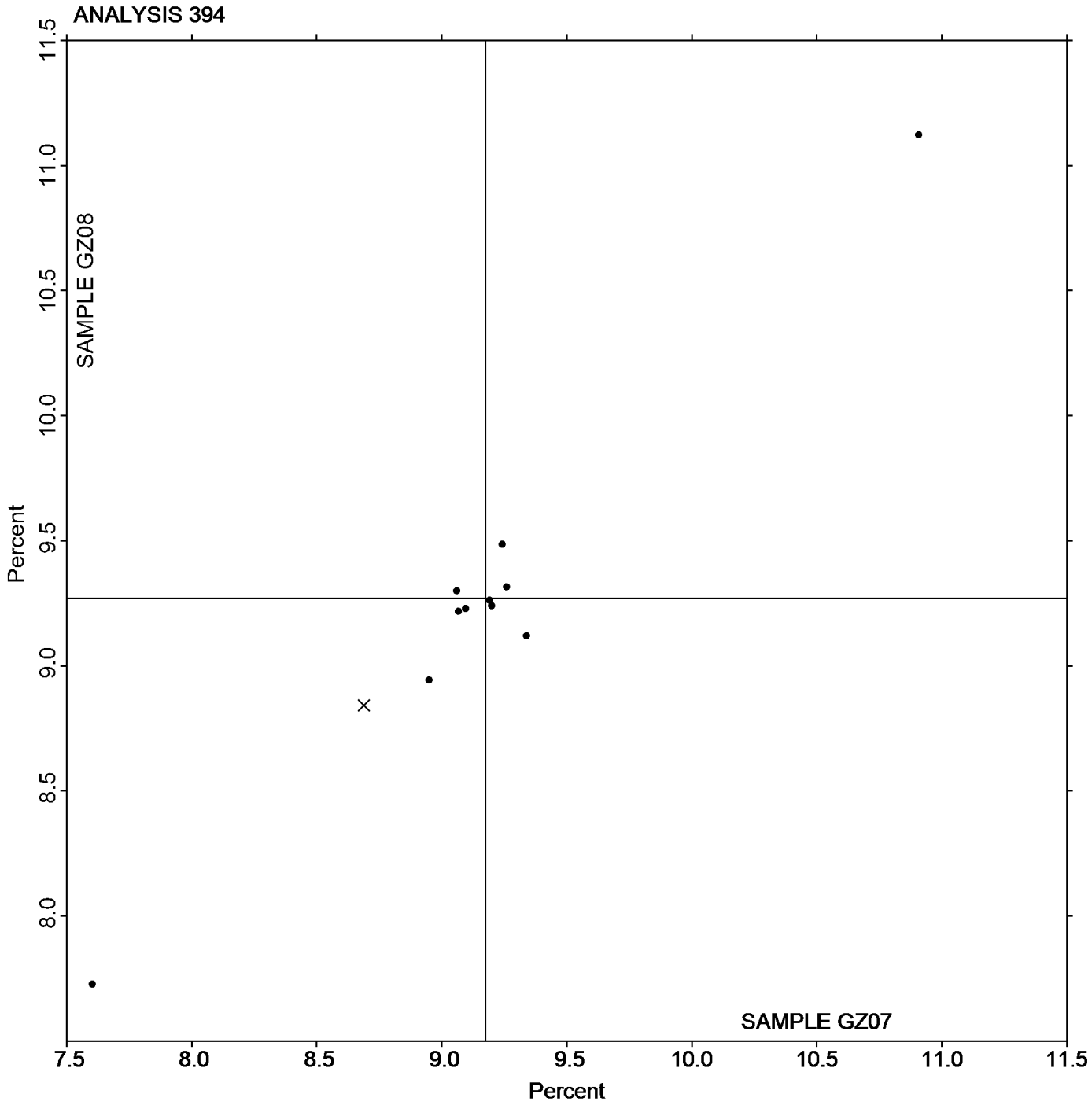
Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ07** = 9.1744 Percent

Grand Mean Sample **GZ08** = 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 GT07 Lab Mean	Sample GT07 Diff from Grand Mean	Sample GT07 CPV	Sample GT08 Lab Mean	Sample GT08 Diff from Grand Mean	Sample GT08 CPV	Instr Code
6HCZTJ		71.35	-0.50	-0.16	72.92	-0.27	-0.11	PP
6N46N9	*	77.93	6.08	1.95	80.45	7.26	2.86	GS
797F83		65.68	-6.17	-1.98	70.83	-2.36	-0.93	TH
9P7823		73.03	1.18	0.38	73.82	0.63	0.25	TH
9RBW7X		72.93	1.08	0.35	74.38	1.19	0.47	TH
BUBPBF		72.42	0.57	0.18	72.93	-0.26	-0.10	GM
DKC2BU		76.10	4.25	1.37	71.40	-1.79	-0.71	LA
FY9WJ7		71.74	-0.11	-0.04	72.97	-0.22	-0.09	TH
HNLF7P		67.52	-4.33	-1.39	74.50	1.31	0.52	GM
HXAB66		71.64	-0.21	-0.07	68.53	-4.66	-1.84	TH
JEN69Y		72.84	0.99	0.32	74.36	1.17	0.46	TH
KULJ78		74.99	3.14	1.01	74.19	0.99	0.39	TG
PGDJ3G		72.64	0.79	0.25	73.59	0.40	0.16	TG
RP2WEL		72.04	0.19	0.06	73.84	0.65	0.25	TH
TPYNLT		73.67	1.82	0.58	73.81	0.62	0.24	LA
TPZLWN		64.69	-7.16	-2.30	67.78	-5.41	-2.13	TH
UBC7JV		70.70	-1.15	-0.37	73.21	0.02	0.01	ZH
UWRJXG		71.66	-0.19	-0.06	72.97	-0.22	-0.09	GS
VZTMNJ		70.88	-0.97	-0.31	72.62	-0.57	-0.23	TH
Z4W964		72.55	0.70	0.22	74.77	1.57	0.62	TG

Summary Statistics

	Sample GT07	Sample GT08
Grand Means	71.850 Gloss Units	73.193 Gloss Units
SD Btwn Labs	3.111 Gloss Units	2.538 Gloss Units

Statistics based on 20 of 20 reporting participants

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss
(GS) - BYK-Gardner Glossgard II
(LA) - L & W Gloss - Autoline 300
(PP) - Technidyne Profile/Plus
(TG) - Technidyne T480
(TH) - Technidyne T480A
(ZH) - Zehntner ZLR 1050

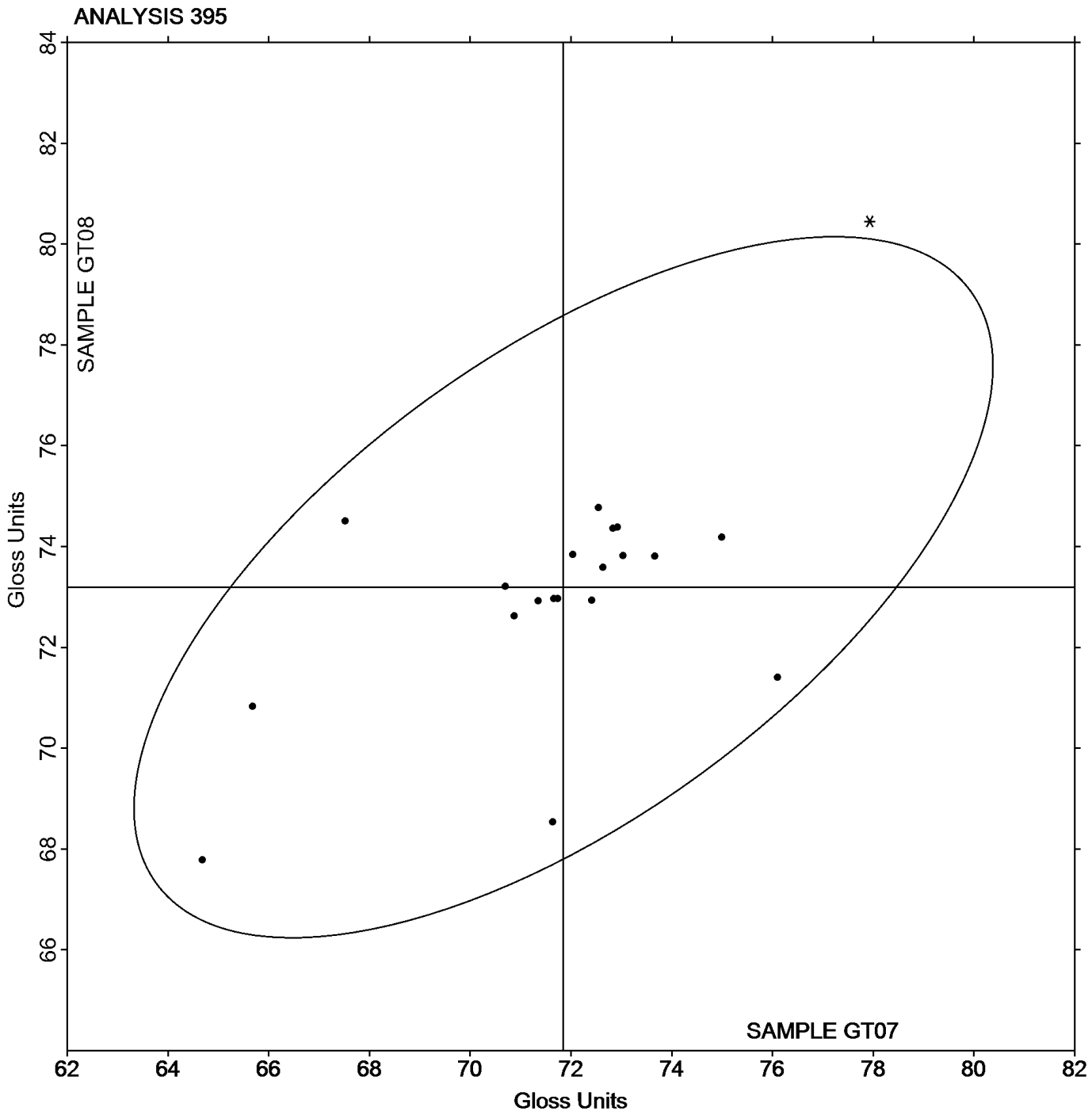
Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT07** = 71.850 Gloss Units

Grand Mean Sample **GT08** = 73.193 Gloss Units



Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU07 Lab Mean	Sample GU07 Diff from Grand Mean	Sample GU07 CPV	Sample GU08 Lab Mean	Sample GU08 Diff from Grand Mean	Sample GU08 CPV	Instr Code
2E9XET		37.70	2.25	1.63	47.10	4.35	2.05	TH
32FTN8		34.72	-0.73	-0.53	43.90	1.15	0.54	XX
8Q6V4M		34.26	-1.19	-0.86	42.84	0.08	0.04	TH
9P7823		35.45	0.00	0.00	40.61	-2.14	-1.01	TH
E3BF7E		34.58	-0.87	-0.63	43.31	0.56	0.26	PP
GDMRP9		35.65	0.20	0.15	40.72	-2.03	-0.96	TG
KULJ78		37.01	1.56	1.13	42.43	-0.32	-0.15	TG
PRXVDU		36.36	0.91	0.66	42.33	-0.42	-0.20	TG
UWRJXG		35.75	0.30	0.22	39.86	-2.89	-1.36	GM
ZFL9TK		33.02	-2.43	-1.76	44.42	1.67	0.78	TG

Summary Statistics

	Sample GU07	Sample GU08
Grand Means	35.450 Gloss Units	42.751 Gloss Units
SD Btwn Labs	1.377 Gloss Units	2.126 Gloss Units

Statistics based on 10 of 10 reporting participants

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss

(PP) - Technidyne Profile/Plus

(TG) - Technidyne T480

(TH) - Technidyne T480A

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

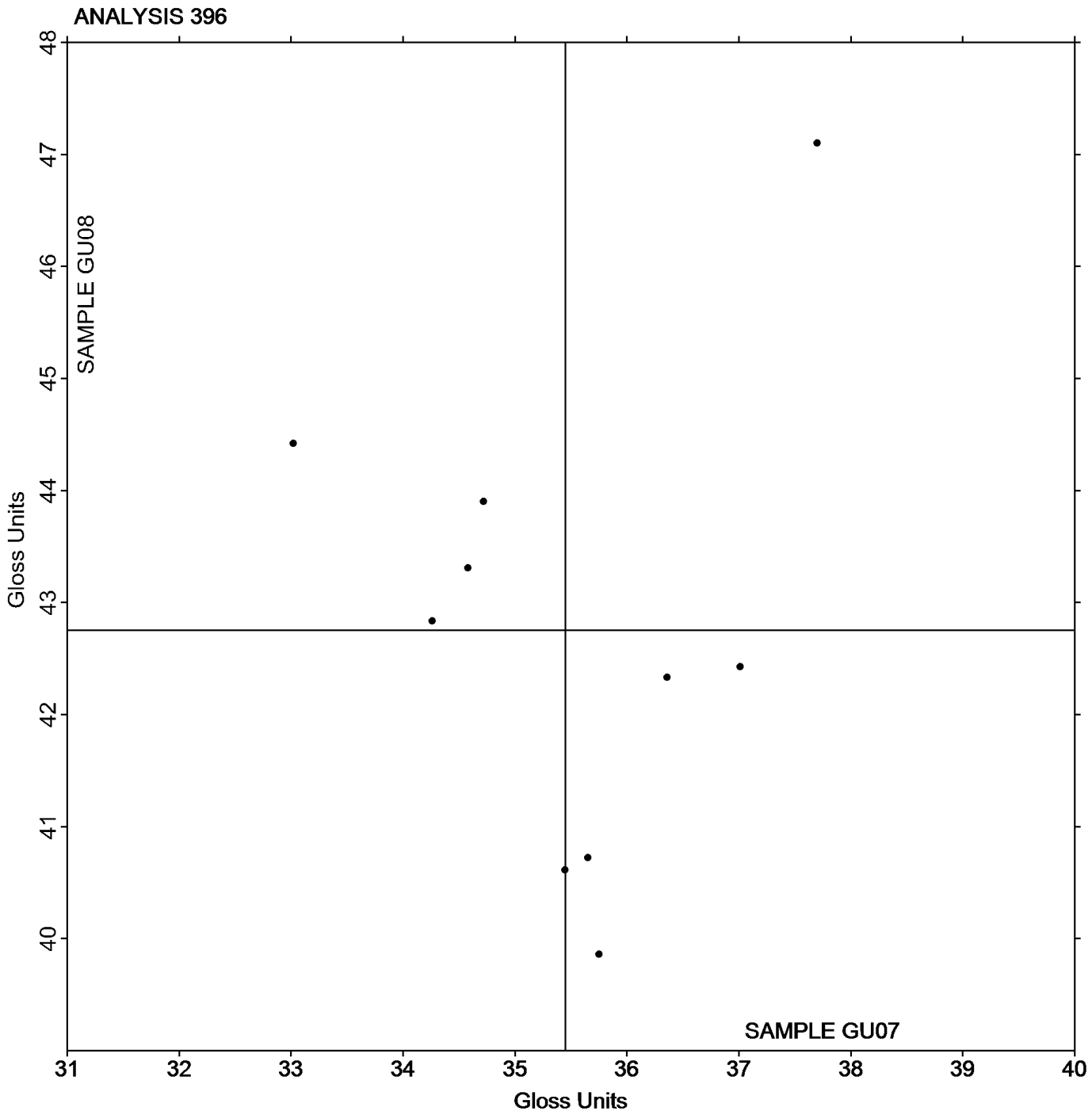
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU07** = 35.450 Gloss Units

Grand Mean Sample **GU08** = 42.751 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 GW07 Lab Mean	Sample GW07 Diff from Grand Mean	Sample GW07 CPV	Sample GW08 Lab Mean	Sample GW08 Diff from Grand Mean	Sample GW08 CPV
2MHRMM		86.35	0.39	0.72	72.85	0.26	0.69
2Q4822	X	17.62	-68.34	-126.25	14.87	-57.73	-154.10
2WUJ24		87.34	1.38	2.56	73.37	0.78	2.08
32FTN8		86.61	0.65	1.21	72.37	-0.23	-0.60
3463VM		85.97	0.01	0.02	72.58	-0.02	-0.04
3ZL9W2		86.32	0.36	0.67	73.11	0.51	1.37
7TGBYA		86.02	0.06	0.11	72.51	-0.09	-0.23
8GCAQG		85.36	-0.60	-1.11	72.23	-0.37	-0.98
8Q6V4M		85.55	-0.41	-0.75	72.11	-0.49	-1.31
9P7823		85.40	-0.56	-1.03	72.09	-0.50	-1.34
9RBW7X		85.97	0.01	0.02	72.69	0.09	0.25
B3KJJA	X	85.26	-0.70	-1.29	72.39	-0.20	-0.55
BCCY9E		85.22	-0.74	-1.36	72.01	-0.59	-1.58
ER9K2B		85.78	-0.18	-0.33	72.82	0.23	0.61
FZL8YX		85.59	-0.37	-0.68	72.21	-0.39	-1.03
GDMRP9		86.30	0.34	0.63	72.60	0.00	0.01
HBAAT3		85.80	-0.16	-0.30	72.84	0.24	0.64
HYGT2F		85.69	-0.27	-0.50	72.21	-0.39	-1.03
HZXKE7		85.43	-0.53	-0.98	72.02	-0.58	-1.54
M6R9ZU		86.63	0.67	1.24	72.72	0.12	0.32
MEJQD3		85.98	0.02	0.03	72.69	0.10	0.26
MZXEZ8		85.53	-0.43	-0.80	72.23	-0.36	-0.97
NDK3AW		85.89	-0.07	-0.13	72.32	-0.28	-0.74
NNZKVV		85.81	-0.15	-0.28	72.25	-0.35	-0.92
PRXVDU		86.16	0.20	0.37	73.20	0.60	1.60
QAUGUE		86.86	0.90	1.66	73.15	0.55	1.48
T9WGKT		85.84	-0.12	-0.21	72.97	0.37	0.99
TPZLWN		85.37	-0.59	-1.09	72.82	0.22	0.60
UC9MVT		87.13	1.17	2.16	72.96	0.36	0.97
UVNYLX		85.27	-0.69	-1.28	72.58	-0.02	-0.05
UWRJXG	X	57.52	-28.44	-52.54	48.58	-24.02	-64.10
YHJWYB		85.97	0.01	0.02	72.69	0.09	0.25
YK968Q		85.63	-0.33	-0.60	72.67	0.08	0.21

Summary Statistics

	Sample GW07	Sample GW08
Grand Means	85.959 g/sq m	72.595 g/sq m
SD Btwn Labs	0.541 g/sq m	0.375 g/sq m

Statistics based on 30 of 33 reporting participants

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

Comments on assigned Data Flags for Test #398

2Q4822 (X) - Extreme data.

UWRJXG (X) - Extreme data.

B3KJJA - Data appear to be off by a factor of .01; data converted by CTS (x100).

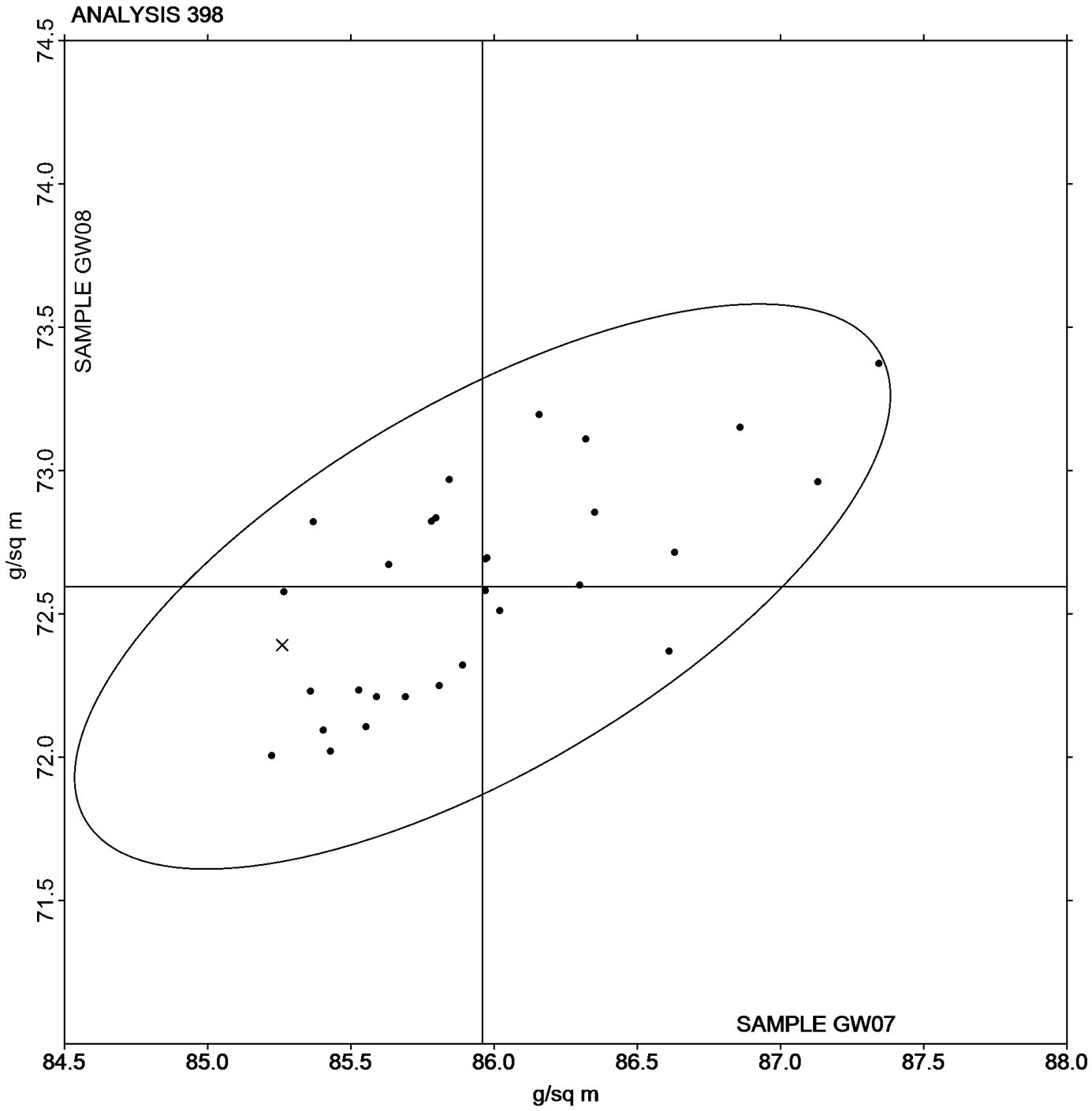
Paper & Paperboard Interlaboratory Testing Program

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW07** = 85.959 g/sq m

Grand Mean Sample **GW08** = 72.595 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

WebCode	Data Flag	Sample GX07 Lab Mean	Sample GX07 Diff from Grand Mean	Sample GX07 CPV	Sample GX08 Lab Mean	Sample GX08 Diff from Grand Mean	Sample GX08 CPV
2498XR	*	5.70	-8.62	-2.63	6.240	0.517	0.45
24CRKU		14.48	0.16	0.05	5.980	0.257	0.22
2E9XET		18.90	4.58	1.40	6.200	0.477	0.41
4847DG		12.25	-2.07	-0.63	4.500	-1.223	-1.06
49G88N		13.89	-0.43	-0.13	5.290	-0.433	-0.38
4LML6Z		15.70	1.38	0.42	4.690	-1.033	-0.90
797F83		17.90	3.58	1.09	6.040	0.317	0.28
7J97ZK		15.36	1.04	0.32	4.160	-1.563	-1.36
7LRRGR		12.79	-1.53	-0.47	5.590	-0.133	-0.12
9YR9KX		19.47	5.15	1.57	6.480	0.757	0.66
BUBPBF		15.40	1.08	0.33	4.400	-1.323	-1.15
D6LV3Z		16.60	2.28	0.70	8.200	2.477	2.15
DTUCLA		16.54	2.22	0.68	6.390	0.667	0.58
E3BF7E		14.42	0.10	0.03	5.610	-0.113	-0.10
EJHDPD	*	22.02	7.70	2.35	8.690	2.967	2.58
HPXKT9		16.20	1.88	0.57	5.120	-0.603	-0.52
HZXKE7		15.90	1.58	0.48	5.900	0.177	0.15
JEN69Y		13.83	-0.49	-0.15	5.350	-0.373	-0.32
KCKTRP		15.05	0.73	0.22	6.800	1.077	0.94
KVVNKW		14.21	-0.11	-0.03	4.890	-0.833	-0.72
MZXEZ8		13.13	-1.19	-0.36	7.500	1.777	1.54
PNH7C7		10.69	-3.63	-1.11	5.440	-0.283	-0.25
QBP2LK		12.12	-2.20	-0.67	4.440	-1.283	-1.11
RK8644		11.16	-3.16	-0.97	6.310	0.587	0.51
T9WGKT		16.60	2.28	0.70	6.400	0.677	0.59
TNQEVG	X	97.79	83.47	25.52	6.900	1.177	1.02
UWRJXG		13.80	-0.52	-0.16	6.000	0.277	0.24
WJ348M		13.52	-0.80	-0.24	5.660	-0.063	-0.05
WNV9Y7		11.71	-2.61	-0.80	5.210	-0.513	-0.45
YZYBEK		12.44	-1.88	-0.57	4.880	-0.843	-0.73
ZFL9TK		7.79	-6.53	-2.00	3.330	-2.393	-2.08

Summary Statistics

	Sample GX07	Sample GX08
Grand Means	14.319 Seconds	5.7230 Seconds
SD Btwn Labs	3.271 Seconds	1.1514 Seconds

Statistics based on 30 of 31 reporting participants

Comments on assigned Data Flags for Test #399

TNQEVG (X) - Extreme data for Sample GX07.

Paper & Paperboard Interlaboratory Testing Program

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX07** = 14.319 Seconds

Grand Mean Sample **GX08** = 5.7230 Seconds