



Paper & Paperboard Testing Program

Summary Report #238G - February 2009

[Introduction to the Paper & Paperboard Program](#)

[Explanation of Tables and Definitions of Terms](#)

[Instrument Manufacturer Contacts](#)

Analysis	Analysis Name
<u>350</u>	<u>Color & Color Difference (Near White Papers), Hunter L,a,b - Illuminant C - 2 deg obs</u>
<u>351</u>	<u>Color & Color Difference (Near White Papers), Hunter L,a,b - Illuminant D65 - 10 deg obs</u>
<u>360</u>	<u>Thickness (Caliper), Printing papers, Low range</u>
<u>361</u>	<u>Thickness (Caliper), Packaging papers, High range</u>
<u>364</u>	<u>Coefficient of Static Friction-Horizontal Plane, Printing papers</u>
<u>365</u>	<u>Coefficient of Kinetic Friction-Horizontal Plane, Printing papers</u>
<u>370</u>	<u>Air Resistance, Gurley Oil Type, Printing papers</u>
<u>372</u>	<u>Porosity, Sheffield Type, Printing papers</u>
<u>376</u>	<u>Roughness - Print Surf Method 0.5 to 4.0 Microns, Low range</u>
<u>377</u>	<u>Roughness - Print Surf Method 2.5 to 6.0 Microns, High range</u>
<u>378</u>	<u>Roughness, Sheffield Type, Printing papers</u>
<u>382</u>	<u>Moisture Content, Paper Samples</u>
<u>384</u>	<u>Opacity (89% Backing) 82 to 95%, Fine papers</u>
<u>386</u>	<u>Opacity (Paper Backing) 82 to 95%, Fine papers and newsprint</u>
<u>390</u>	<u>Brightness (Directional), Printing papers</u>
<u>391</u>	<u>Directional Brightness of Fluorescent Samples, Printing papers</u>
<u>392</u>	<u>Brightness (Diffuse), Printing papers</u>
<u>394</u>	<u>Fluorescent Component of Directional Brightness, Printing papers</u>
<u>395</u>	<u>Specular Gloss 75 Degree, 50-95 Units, High range</u>
<u>396</u>	<u>Specular Gloss 75 Degree, 20-65 Units, Low range</u>
<u>398</u>	<u>Grammage (Basis Weight), Printing papers</u>
<u>399</u>	<u>Sizing Test, Hercules Type, Printing papers</u>

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.

If there are any questions on the report or testing program, please contact:

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

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

Key for Web Summary Reports (Page 1 of 2)

WebCode	Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Paper Report published on the CTS Web site. The WebCode for each analysis can be found on the datasheets and in the Performance Analysis Report mailed to each participant.
Lab Mean	The average of the values obtained for each sample by the participant.
Grand Mean	The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.
ΔE	The calculated total color difference between the two samples. For the Hunter L,a,b analyses it is calculated in Hunter units (ΔE). For the L*,a*,b* analyses it is calculated in CIELAB units (ΔE*).
Difference from Grand Mean	The difference of the LAB MEAN from the GRAND MEAN.
Between-Lab Standard Deviation	An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).
Comparative Performance Value	An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa). The critical value for each CPV will vary depending on the number of labs participating in a test.
Inst Code	A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section), if instruments are tracked.
Data Flag	DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

<u>DATA FLAG</u>	<u>STATISTICALLY INCLUDED/EXCLUDED</u>	<u>ACTION REQUIRED</u>
*	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.

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

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

Huygen Corporation

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

Lorentzen & Wettre USA Inc.

Bill Crain, Technical Manager
Testing
1055 Windward Ridge Pkwy
Suite 160
Alpharetta, GA 30005
Phone: (770) 442-8015 ext 232
FAX #: (770) 442-6792

Gurley Precision Instruments

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

BYK-Gardner

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

Applied Paper Technology Inc.

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

Technidyne Corporation

Jeff Hobbs / Mike Lakins
100 Quality Avenue
New Albany, IN 47150-2272 USA
Phone: (812) 948-2884
FAX #: (812) 945-6847

Testing Machines Inc.

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

Hercules, Inc.

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

Valmet Inc.

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

Hunter Associates Lab, Inc.

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

Emveco Inc.

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

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	
126FD9		GA41	97.32	-0.79	3.48	-0.01	0.08	-0.02	0.08	HV
		GA42	97.31	-0.71	3.46					
1VZM26		GA41	96.04	-0.93	1.93	-0.01	0.01	-0.02	0.02	HG
		GA42	96.03	-0.92	1.91					
36XXUC		GA41	97.95	-0.80	2.97	0.00	-0.07	0.03	0.07	HE
		GA42	97.95	-0.86	3.00					
3C5VS5		GA41	96.83	-0.75	3.46	-0.01	0.04	0.00	0.04	TC
		GA42	96.82	-0.71	3.46					
3MQ1K3		GA41	96.80	-0.71	3.51	-0.06	0.01	0.01	0.06	TC
		GA42	96.74	-0.70	3.52					
4WH81S		GA41	97.21	-0.92	3.24	0.02	0.00	0.00	0.02	HH
		GA42	97.23	-0.92	3.23					
89CVHW		GA41	96.56	-0.38	3.18	0.04	0.03	-0.06	0.08	TS
		GA42	96.60	-0.35	3.12					
8S25TR	X	GA41	93.04	-0.05	3.35	-0.02	0.01	-0.01	0.02	HH
		GA42	93.03	-0.04	3.34					
91UY3N		GA41	97.46	-0.79	3.67	-0.02	0.01	-0.01	0.02	LS
		GA42	97.44	-0.78	3.66					
AXVC79		GA41	96.55	-0.23	3.06	0.00	-0.01	0.00	0.01	HH
		GA42	96.55	-0.23	3.06					
CT3NJ3		GA41	96.89	-0.57	3.24	-0.04	0.03	0.02	0.06	TM
		GA42	96.85	-0.55	3.26					
E2Y8AF		GA41	97.51	-0.26	3.40	0.03	0.00	-0.04	0.05	HV
		GA42	97.54	-0.26	3.36					
ECSAXA		GA41	96.43	-0.22	3.14	-0.03	0.00	-0.02	0.04	TS
		GA42	96.40	-0.22	3.12					
GR2UPZ		GA41	96.79	-0.48	3.17	-0.02	-0.01	-0.04	0.04	TM
		GA42	96.77	-0.49	3.14					
GYSBV5		GA41	95.10	-0.71	1.83	0.01	-0.01	-0.02	0.02	HH
		GA42	95.11	-0.71	1.81					
H2538W		GA41	96.84	-0.76	3.22	0.01	0.02	-0.02	0.03	EH
		GA42	96.85	-0.74	3.20					
KLE5Q8		GA41	97.43	-0.75	3.44	0.02	-0.02	0.00	0.03	EH
		GA42	97.45	-0.76	3.44					
MTGDPJ		GA41	96.71	-0.31	3.00	-0.01	0.01	-0.03	0.03	TS
		GA42	96.70	-0.30	2.98					

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	
NBMLAR		GA41	97.33	-0.74	3.62	-0.04	0.03	-0.02	0.06	TP
		GA42	97.28	-0.71	3.60					
NPAT4L		GA41	96.82	-0.74	3.45	0.01	0.01	-0.03	0.03	TC
		GA42	96.82	-0.73	3.42					
P1MAGA		GA41	96.72	-0.58	3.38	-0.02	0.01	-0.02	0.03	MK
		GA42	96.70	-0.58	3.35					
PCL45R		GA41	97.15	-0.55	3.59	0.00	0.02	-0.04	0.05	TS
		GA42	97.15	-0.54	3.55					
QLTQKS		GA41	95.05	-1.02	1.52	0.05	-0.02	0.00	0.05	HH
		GA42	95.10	-1.04	1.52					
QRYYW7		GA41	96.80	-0.59	3.31	0.02	-0.03	-0.01	0.03	TB
		GA42	96.81	-0.62	3.30					
SRE672		GA41	96.78	-0.56	3.05	0.04	-0.02	0.01	0.04	TS
		GA42	96.82	-0.58	3.06					
TT2LB9		GA41	97.47	-0.73	3.35	-0.02	-0.01	-0.05	0.05	MI
		GA42	97.45	-0.74	3.30					
UL5MF1		GA41	97.01	-0.28	3.08	-0.01	0.02	0.00	0.03	TS
		GA42	96.99	-0.26	3.08					
UMJCY Y		GA41	96.72	-0.80	3.56	-0.02	0.06	0.04	0.07	LS
		GA42	96.70	-0.74	3.60					
UUT9G5		GA41	96.46	-0.27	3.05	0.04	0.00	-0.03	0.05	TS
		GA42	96.51	-0.27	3.03					
WDDSJZ		GA41	96.18	-0.37	1.87	0.04	0.00	0.04	0.05	MK
		GA42	96.22	-0.37	1.91					
XMYS43		GA41	97.56	-0.54	3.48	-0.01	0.04	-0.01	0.05	EH
		GA42	97.55	-0.50	3.48					
YH9B24		GA41	96.82	-0.77	3.56	0.00	0.00	-0.02	0.02	LS
		GA42	96.83	-0.76	3.54					
YLL86S		GA41	96.79	-0.55	2.98	-0.03	0.04	-0.04	0.07	TS
		GA42	96.76	-0.50	2.94					

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	

			Summary Statistics						
Grand Means									
	GA41		96.815	-0.591	3.125				
	GA42		96.814	-0.582	3.113	-0.002	0.009	-0.012	0.043
Stnd Dev Btwn Labs									
	GA41		0.619	0.240	0.545				
	GA42		0.612	0.241	0.541	0.027	0.027	0.024	0.019
Statistics based on 32 of 33 reporting participants									

Comments assigned on Data Flags for Test #350

8S25TR (X) - Low L values for both samples.

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450

(HG) - Hunter ColorQUEST

(HV) - Hunter Ultrascan XE

(MI) - Macbeth Color i 5

(TB) - Technidyne Technibrite TB-1C

(TM) - Technidyne Technibrite Micro TB-1C

(TS) - Technidyne Brightimeter Micro S-5

(HE) - Hunter LabScan

(HH) - Hunter D25DP - 9000

(LS) - L & W Elrepho SE 070

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(TC) - Technidyne Color Touch Series

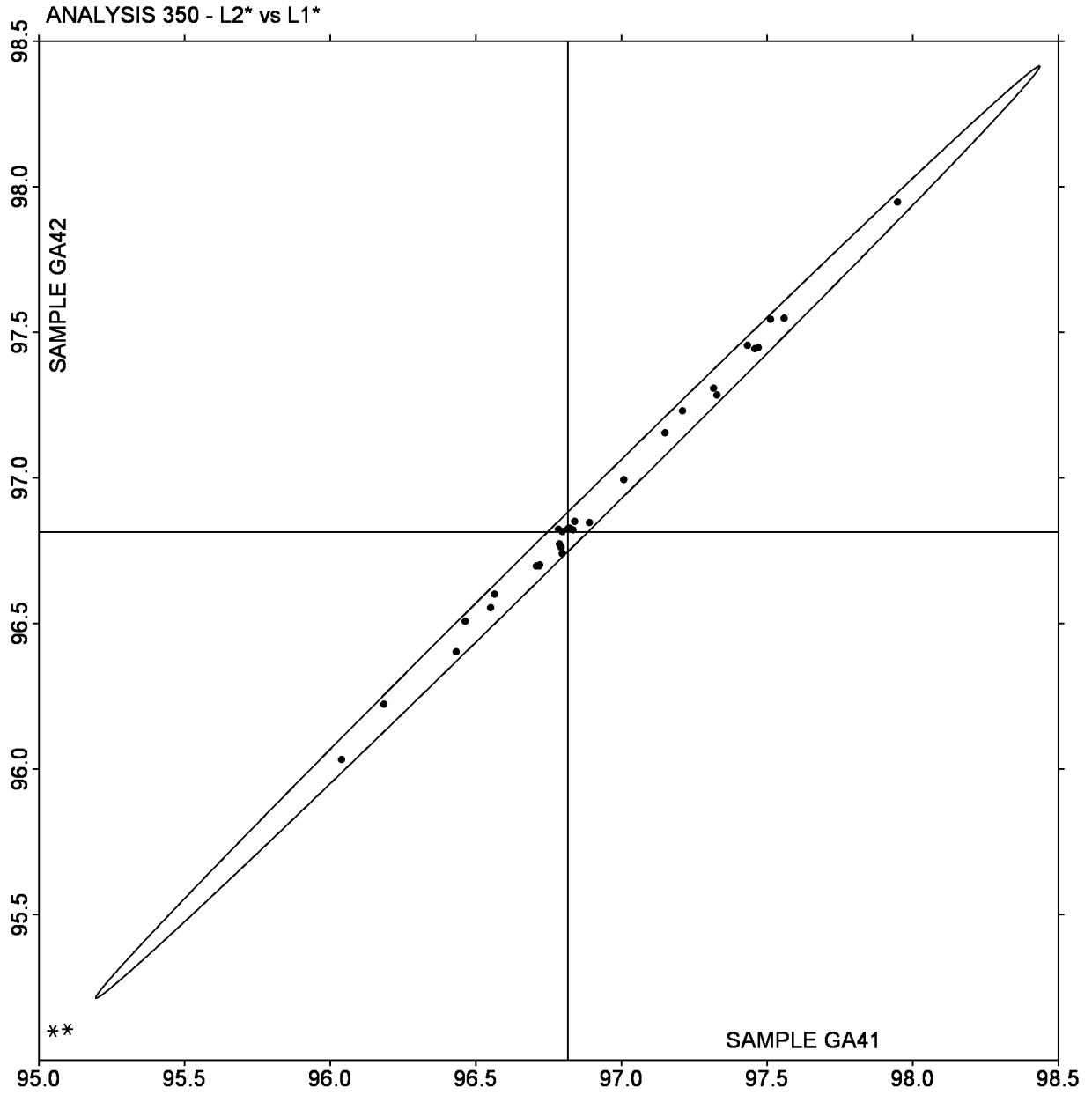
(TP) - Technidyne Spectro Plus

Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Plot of L values GA42 v L values GA41

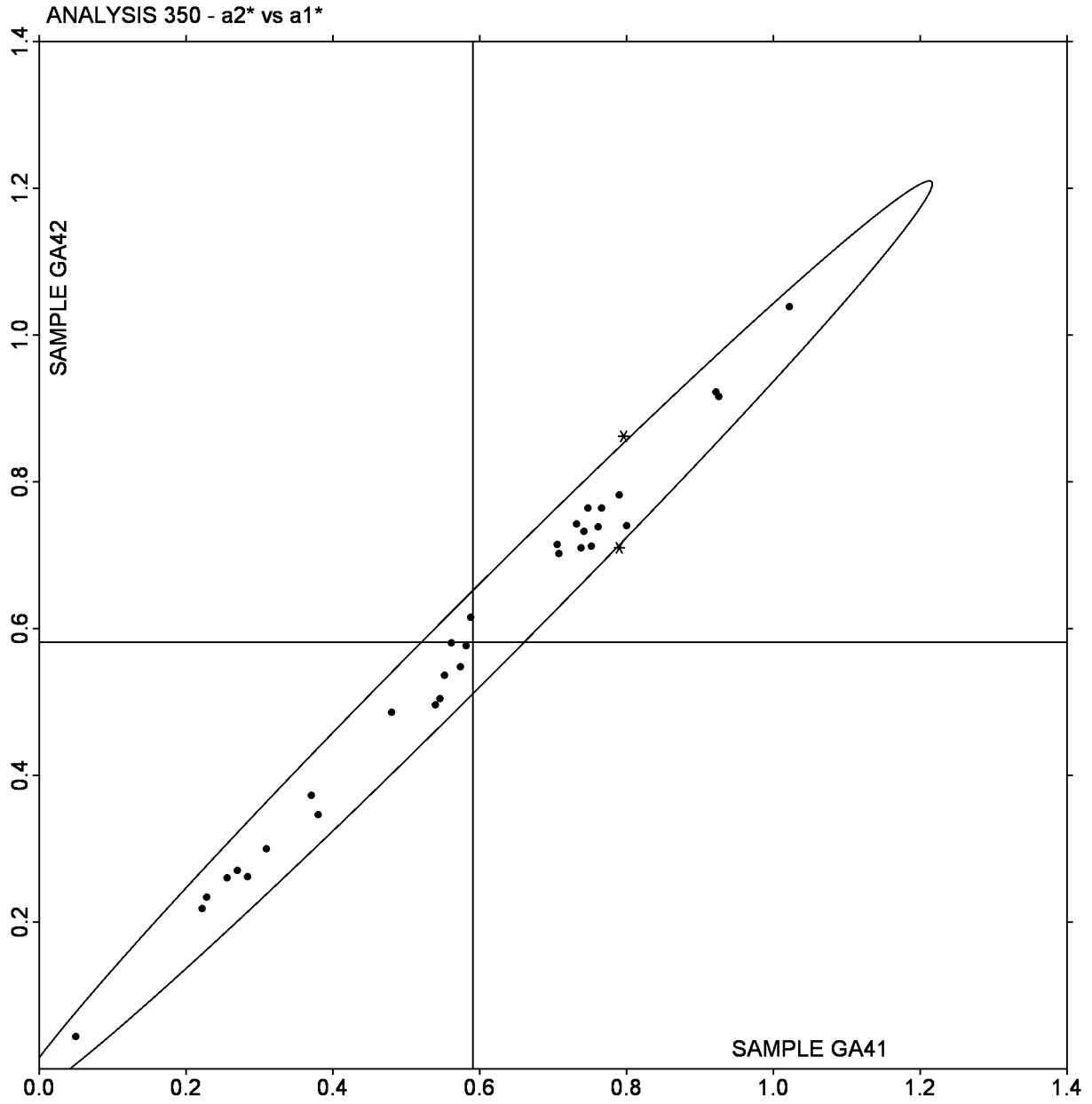


Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Plot of a values GA42 v a values GA41

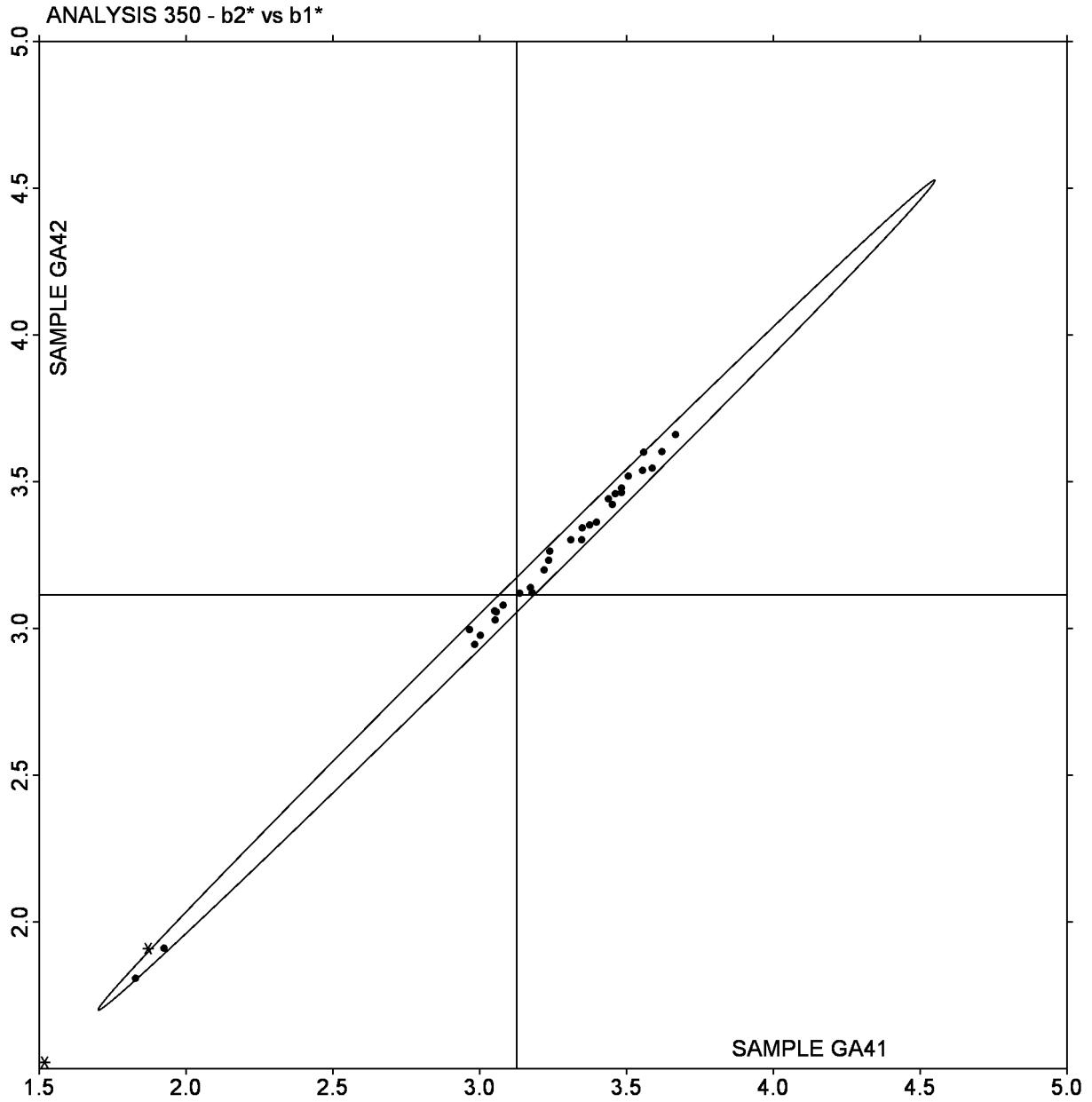


Analysis 350

Color & Color Difference - Near White Papers - C/2deg ob

Hunter L,a,b - Illuminant C - 2 Degree Observer

Plot of b values GA42 v b values GA41



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	
18RUYU		GA41	97.58	-0.27	3.37	-0.04	0.00	-0.02	0.04	HV
		GA42	97.54	-0.27	3.35					
3TSW18		GA41	96.65	-0.26	3.23	-0.05	0.49	-0.04	0.50	X TC
		GA42	96.60	0.24	3.18					
5ARZ54		GA41	97.37	-0.22	3.50	-0.01	0.00	-0.05	0.05	NF
		GA42	97.36	-0.22	3.44					
8MU2Y4		GA41	97.44	-0.26	3.39	0.02	0.00	-0.02	0.03	XX
		GA42	97.46	-0.26	3.38					
9UVVAQ		GA41	96.97	-0.24	3.38	-0.04	0.00	-0.06	0.07	XA
		GA42	96.93	-0.23	3.32					
C6S599		GA41	96.54	-0.20	3.36	-0.02	0.10	-0.17	0.20	NF
		GA42	96.51	-0.11	3.19					
DC1ATS		GA41	97.22	-0.39	3.40	-0.01	0.00	0.00	0.01	HV
		GA42	97.21	-0.39	3.40					
DP53XD		GA41	96.83	-0.26	3.34	0.01	0.00	-0.03	0.03	HU
		GA42	96.84	-0.26	3.31					
DSHXQ4		GA41	99.46	-0.28	3.60	0.00	0.02	-0.06	0.06	HG
		GA42	99.46	-0.25	3.54					
DXDSJP		GA41	97.86	-0.30	3.64	0.02	-0.02	0.02	0.03	HV
		GA42	97.88	-0.32	3.67					
GS5L99		GA41	97.56	-0.26	3.28	0.02	-0.04	-0.06	0.07	HM
		GA42	97.59	-0.30	3.22					
HG9N9G		GA41	97.50	-0.23	3.59	0.01	-0.01	-0.04	0.04	XD
		GA42	97.51	-0.24	3.55					
LJBFDQ		GA41	97.42	-0.33	3.57	0.02	0.00	-0.02	0.03	MG
		GA42	97.45	-0.33	3.55					
M8M5AQ		GA41	97.08	-0.60	3.38	-0.03	0.00	0.01	0.03	HV
		GA42	97.05	-0.60	3.40					
P5LP5X		GA41	97.36	-0.30	3.50	-0.06	0.00	0.00	0.06	EF
		GA42	97.30	-0.30	3.50					
Q78543		GA41	97.30	-0.35	3.59	-0.05	0.06	0.01	0.08	MG
		GA42	97.25	-0.28	3.60					
SART6G	X	GA41	95.67	-0.56	1.85	0.03	-0.01	-0.02	0.04	HV
		GA42	95.71	-0.56	1.83					
TEBBAQ		GA41	96.80	-0.15	3.09	0.00	-0.02	0.00	0.02	TM
		GA42	96.80	-0.17	3.08					

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	
U52U5H		GA41	96.69	-0.28	3.34	-0.05	0.04	-0.04	0.08	TC
		GA42	96.63	-0.24	3.30					
V5ZWGN		GA41	96.75	-0.44	3.27	0.00	-0.01	-0.02	0.02	TM
		GA42	96.75	-0.45	3.26					
XVPC7F		GA41	96.78	-0.52	3.06	0.03	0.01	0.00	0.03	HV
		GA42	96.81	-0.51	3.06					
YE52TZ		GA41	97.46	-0.27	3.38	-0.01	0.00	-0.01	0.02	TC
		GA42	97.45	-0.27	3.37					

Grand Means			Summary Statistics						
	GA41	97.195	-0.317	3.395	-0.011	0.031	-0.028	0.072	
	GA42	97.186	-0.287	3.374					
Std Dev Btwn Labs					0.029	0.109	0.041	0.105	
	GA41	0.698	0.116	0.163					
	GA42	0.699	0.169	0.165					

Statistics based on 21 of 22 reporting participants

Comments assigned on Data Flags for Test #351

SART6G (X) - Low b values for both samples.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(HM) - Hunter MiniScan XE Spectrophotometer

(HV) - Hunter Ultrascan XE

(NF) - Minolta CM-3600d Spectrophotometer

(TM) - Technidyne Brightimeter Model Micro S-5

(XD) - X-Rite 530 SpectroDensitometer

(HG) - Hunter ColorQUEST

(HU) - Hunter UltraScan

(MG) - Macbeth 1500/PLUS - 2025+ Color Eye

(TC) - Technidyne Color Touch Series

(XA) - X-Rite (model not specified)

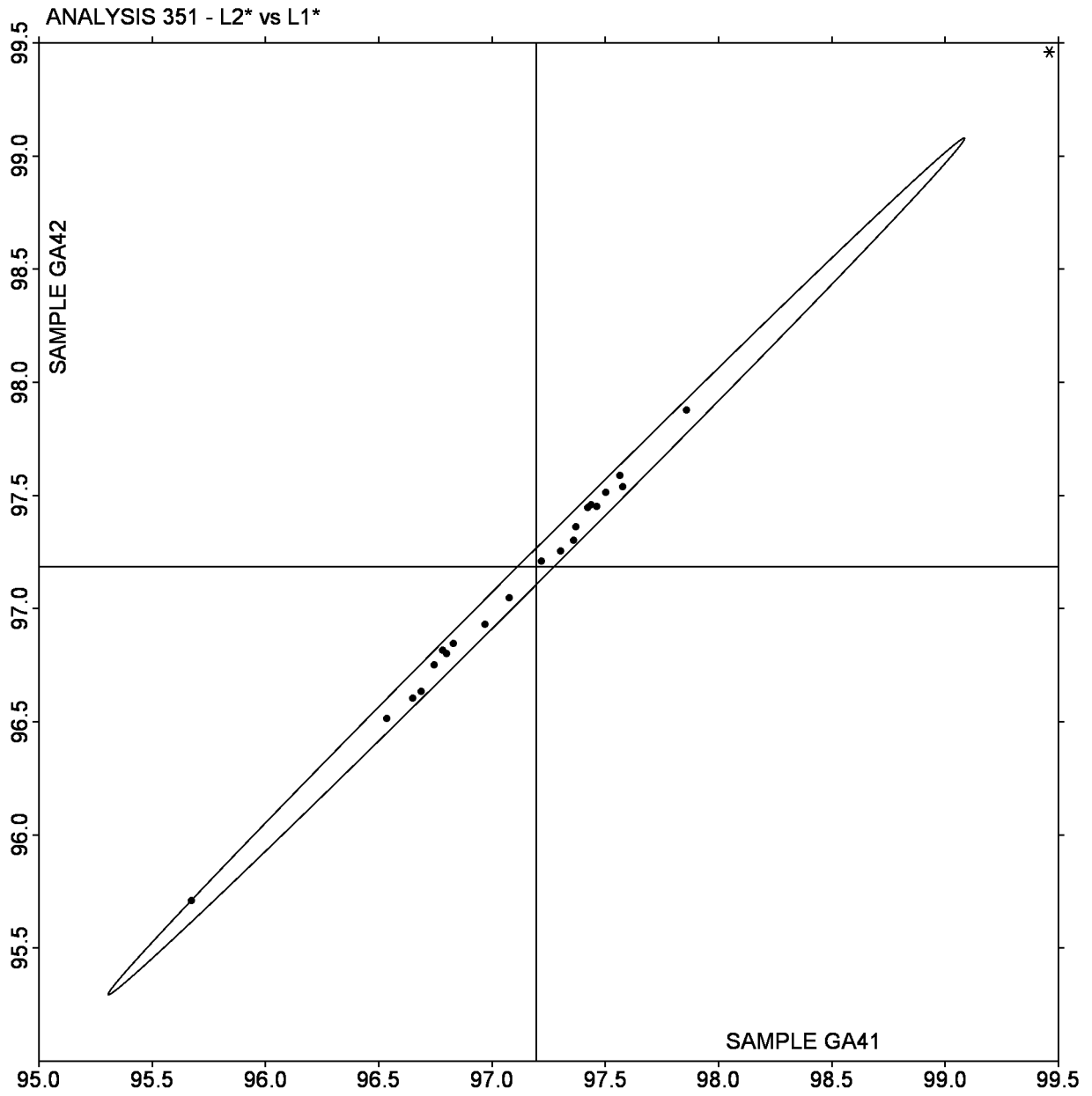
(XX) - Instrument make/model not specified by lab

Analysis 351

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

Hunter L,a,b - Illuminant D65 - 10 Degree Observer

Plot of L values GA42 v L values GA41

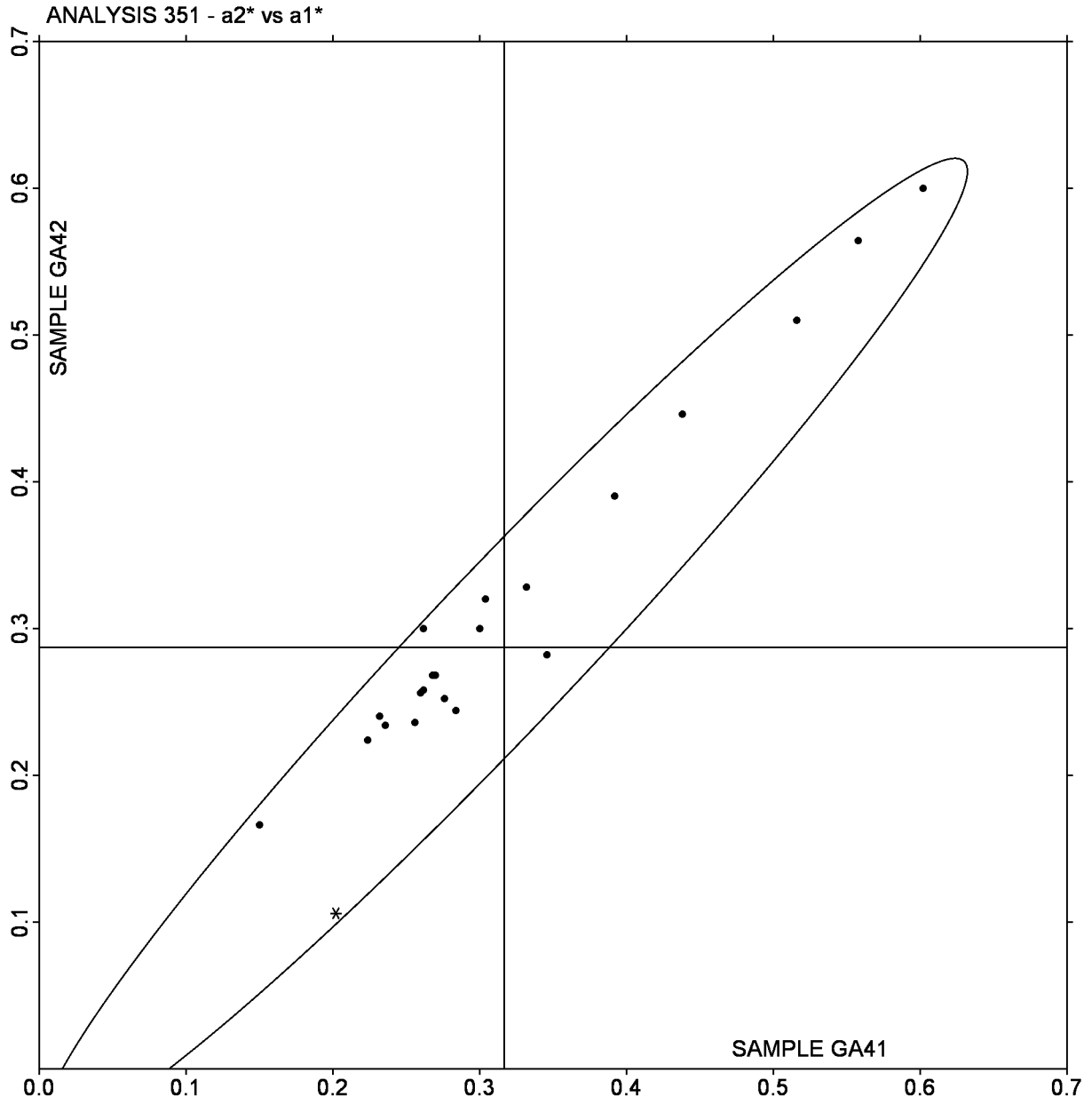


Analysis 351

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

Hunter L,a,b - Illuminant D65 - 10 Degree Observer

Plot of a values GA42 v a values GA41



Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV41			Sample GV42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
113K7D	X	4.724	-0.095	-1.47	4.685	0.037	0.59	MT
1MLTD3	*	4.889	0.069	1.07	4.791	0.143	2.27	VM
21PJ42		4.825	0.005	0.08	4.634	-0.014	-0.22	TM
2684YW		4.786	-0.034	-0.52	4.586	-0.062	-0.98	TM
2VBJU6		4.914	0.094	1.45	4.722	0.074	1.18	LW
2XTL4A		4.791	-0.029	-0.44	4.625	-0.023	-0.36	TA
3NKRPW		4.760	-0.060	-0.92	4.614	-0.034	-0.54	TP
3UD9EZ		4.789	-0.031	-0.47	4.668	0.020	0.32	EM
4CB7DS		4.714	-0.106	-1.63	4.607	-0.041	-0.65	TA
4E1GL7		4.741	-0.079	-1.21	4.627	-0.021	-0.33	LW
4SXXS9		4.770	-0.050	-0.77	4.610	-0.038	-0.60	TM
5MEVUV	X	4.549	-0.271	-4.17	4.398	-0.250	-3.96	TA
5Z6BVQ	X	4.610	-0.210	-3.23	4.456	-0.192	-3.04	EM
6PQA5V		4.885	0.065	1.01	4.667	0.019	0.30	LW
6PQERJ		4.799	-0.021	-0.32	4.630	-0.018	-0.28	LW
6VSK93		4.660	-0.160	-2.46	4.514	-0.134	-2.12	TP
6X4R1F		4.910	0.090	1.39	4.700	0.052	0.83	LW
76R1SX		4.862	0.042	0.65	4.661	0.014	0.21	LW
8VGRBC		4.830	0.010	0.16	4.677	0.029	0.46	EM
8VJ9HN		4.809	-0.011	-0.17	4.646	-0.002	-0.03	EM
96AFJX		4.740	-0.080	-1.23	4.550	-0.098	-1.55	TM
9GDUZH		4.821	0.001	0.02	4.655	0.007	0.11	EM
9GJT86		4.789	-0.031	-0.47	4.577	-0.071	-1.13	XX
A4S9J3		4.943	0.123	1.90	4.759	0.111	1.76	EM
A6KMFY		4.839	0.019	0.30	4.699	0.051	0.81	VM
A91N9D		4.740	-0.080	-1.23	4.600	-0.048	-0.76	TM
AR58U7		4.902	0.082	1.27	4.707	0.059	0.94	TA
B3T4EZ		4.795	-0.025	-0.38	4.607	-0.041	-0.65	TM
B9PTE5	*	4.657	-0.163	-2.50	4.489	-0.159	-2.53	TM
BGLGEE		4.770	-0.050	-0.77	4.600	-0.048	-0.76	LL
BK2TXR		4.828	0.008	0.13	4.708	0.060	0.95	EM
BKW3NG		4.720	-0.100	-1.54	4.520	-0.128	-2.03	TM
C1XXAZ		4.886	0.066	1.02	4.701	0.053	0.84	EM
CWNQA9		4.842	0.022	0.34	4.660	0.012	0.19	TM
F8NZEF		4.819	-0.001	-0.01	4.669	0.021	0.34	XX
G2AWVK		4.940	0.120	1.85	4.757	0.109	1.73	LW
G3BAKL		4.845	0.025	0.39	4.611	-0.037	-0.59	TA
H21VKH		4.750	-0.070	-1.07	4.633	-0.015	-0.24	TM
JAJ7DN		4.839	0.019	0.29	4.677	0.029	0.46	LW
JBBV6A		4.867	0.047	0.73	4.659	0.011	0.18	TM
JPHQU8		4.830	0.010	0.16	4.678	0.030	0.48	TM
JRF387		4.900	0.080	1.24	4.690	0.042	0.67	TM
K216CR		4.783	-0.037	-0.57	4.660	0.012	0.19	TM

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV41			Sample GV42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
KA9AAW		4.677	-0.143	-2.20	4.504	-0.144	-2.28	TM
KP5NBL		4.799	-0.021	-0.32	4.616	-0.032	-0.51	TA
L7YWHV		4.822	0.002	0.04	4.683	0.035	0.56	EM
LMSJST		4.832	0.012	0.19	4.598	-0.050	-0.79	TM
M55TMM		4.872	0.052	0.80	4.658	0.010	0.16	TP
MH1ZUA		4.840	0.020	0.31	4.670	0.022	0.35	TM
MNAQ5R		4.772	-0.048	-0.74	4.614	-0.034	-0.53	LW
PK3CTN		4.830	0.010	0.16	4.650	0.002	0.03	TM
Q4GTQL		4.870	0.050	0.78	4.657	0.010	0.15	LW
Q51U72		4.832	0.013	0.19	4.642	-0.006	-0.09	TM
QBPDS4		4.819	-0.001	-0.01	4.643	-0.004	-0.07	TM
QBUQF1		4.780	-0.040	-0.61	4.690	0.042	0.67	LL
QN9GEW		4.722	-0.098	-1.50	4.555	-0.093	-1.47	LL
R15CMU		4.829	0.009	0.14	4.639	-0.009	-0.14	LW
RUJEY7		4.711	-0.109	-1.68	4.585	-0.063	-1.00	TM
SC1P1L		4.863	0.043	0.67	4.672	0.024	0.38	EM
SS439W		4.730	-0.090	-1.38	4.520	-0.128	-2.03	TM
SYUYL7		4.756	-0.064	-0.98	4.614	-0.034	-0.54	EM
TK5VK6		4.794	-0.026	-0.40	4.584	-0.064	-1.02	LW
UTQ1HR		4.846	0.026	0.40	4.648	0.000	0.00	EM
UWES3F		4.835	0.015	0.23	4.642	-0.006	-0.10	LW
UWVGD2		4.857	0.037	0.57	4.698	0.050	0.79	LW
VPKZTD		4.854	0.034	0.53	4.641	-0.007	-0.11	EM
VRWYMF		4.841	0.021	0.33	4.706	0.058	0.92	LW
W3KU68		4.913	0.094	1.44	4.756	0.108	1.71	LW
WSPAH9		4.885	0.065	1.01	4.700	0.052	0.83	LW
X1HAYS		4.846	0.026	0.40	4.708	0.060	0.95	EM
X62DR3		4.828	0.008	0.13	4.655	0.007	0.11	EM
XBHV7C	X	4.556	-0.264	-4.06	4.447	-0.201	-3.19	TA
XGMMAQ	X	4.606	-0.214	-3.29	4.503	-0.145	-2.30	LL
XHVBIN		4.832	0.012	0.19	4.638	-0.010	-0.16	LL
XN5J75		4.904	0.085	1.30	4.654	0.006	0.09	LW
Y6FDWB		4.944	0.124	1.91	4.725	0.077	1.22	LW
Y87TR1		4.822	0.002	0.04	4.640	-0.008	-0.13	EM
YEFUS		4.763	-0.057	-0.87	4.593	-0.055	-0.88	TM
YJAGSR		4.878	0.058	0.90	4.749	0.101	1.60	EM
ZA3X7Z	*	4.902	0.083	1.27	4.801	0.153	2.42	TM

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

	Summary Statistics	
	Sample GV41	Sample GV42
Grand Means	4.8197 mils	4.6479 mils
SD Btwn Labs	0.0649 mils	0.0631 mils
Statistics based on 75 of 80 reporting participants		

Comments on assigned Data Flags for Test #360

- 113K7D (X) - Inconsistent in testing between samples.
- 5MEVUV (X) - Systematic error (data for both samples are low).
- 5Z6BVQ (X) - Systematic error (data for both samples are low).
- XBHV7C (X) - Systematic error (data for both samples are low).
- XGMMAQ (X) - Systematic error (data for both samples are low).

- B9PTE5 - Data appear to be reported as micrometers, not mils as indicated on datasheet.

- BKW3NG - Data appear to be reported as mils, not mm as indicated on datasheet.

- CWNQA9 - Data appear to be reported as mils, not inches as indicated on datasheet.

Instrument Code List as Reported by the Labs

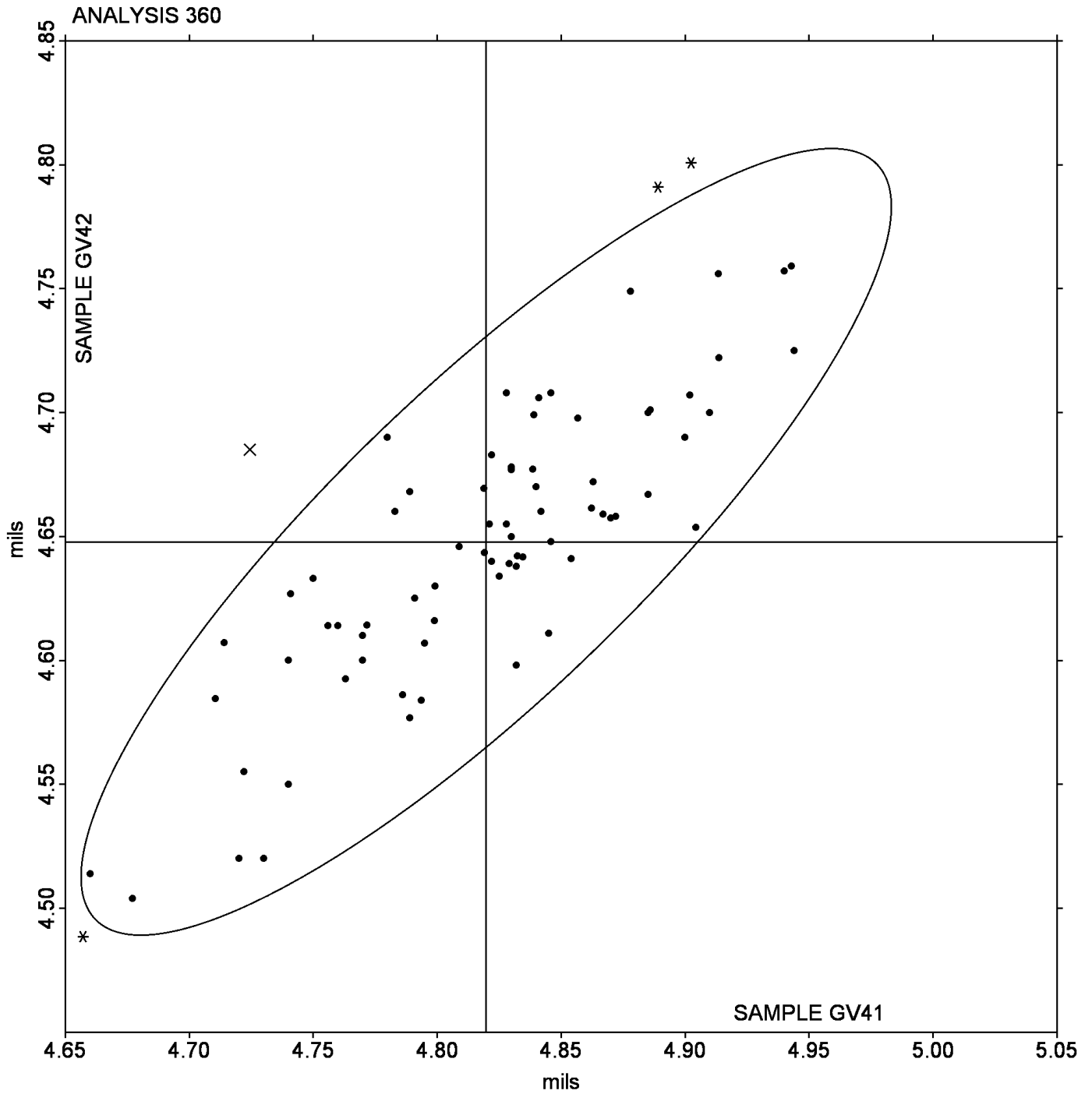
- | | |
|---------------------------------------------------|-----------------------------------------------|
| (EM) - Emveco | (LL) - L & W Autoline 300 |
| (LW) - L & W | (MT) - Mitutoyo |
| (TA) - Thwing-Albert | (TM) - TMI |
| (TP) - Technidyne Profile Plus | (VM) - Valmet PaperLab (was Kajaani/Robotest) |
| (XX) - Instrument make/model not specified by lab | |

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV41** = 4.8197 mils

Grand Mean Sample **GV42** = 4.6479 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY41			Sample GY42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1W3MJ6	*	8.340	-0.213	-1.75	8.560	0.001	0.01	TA
2FHEJ8		8.398	-0.156	-1.28	8.327	-0.232	-1.73	XX
2UYL9D		8.628	0.075	0.61	8.620	0.061	0.46	TM
3JVA8Q		8.682	0.129	1.05	8.749	0.190	1.42	TM
5866B9		8.614	0.061	0.50	8.600	0.041	0.31	LW
6RZSN6		8.638	0.084	0.69	8.815	0.256	1.91	LW
7ETY7E		8.431	-0.122	-1.00	8.432	-0.127	-0.95	EM
98995A		8.640	0.087	0.71	8.541	-0.018	-0.13	TM
AMHFKD		8.556	0.003	0.02	8.522	-0.037	-0.27	EM
CE1R7B		8.556	0.003	0.02	8.537	-0.022	-0.16	LA
CN2JX4		8.614	0.061	0.50	8.673	0.114	0.85	LW
DX1HZ9		8.580	0.026	0.21	8.633	0.074	0.56	LW
ECZN26		8.690	0.137	1.12	8.680	0.121	0.91	EM
F3RE16		8.560	0.007	0.05	8.490	-0.069	-0.51	TM
FP16W7		8.470	-0.083	-0.68	8.450	-0.109	-0.81	TM
G5UJGZ		8.570	0.017	0.14	8.570	0.011	0.08	TM
H7GJRF		8.680	0.127	1.04	8.730	0.171	1.28	TM
HT9W3R		8.673	0.120	0.98	8.610	0.052	0.38	XX
K48F9U		8.279	-0.274	-2.25	8.267	-0.292	-2.18	EM
KQHGGQ1		8.518	-0.035	-0.29	8.432	-0.127	-0.95	TM
KZ5H6A		8.513	-0.040	-0.33	8.520	-0.039	-0.29	TA
LQDTT2		8.454	-0.099	-0.81	8.386	-0.173	-1.29	TM
MVFBHD		8.637	0.084	0.69	8.673	0.114	0.85	EM
QEFBLV		8.731	0.178	1.46	8.671	0.112	0.84	LA
R3VP8L		8.405	-0.148	-1.22	8.510	-0.049	-0.36	TA
UAN63E		8.705	0.151	1.24	8.618	0.059	0.44	LW
UD17PK		8.362	-0.191	-1.57	8.414	-0.145	-1.08	TA
W2KF53		8.669	0.116	0.95	8.710	0.151	1.13	EM
W61WPT		8.481	-0.072	-0.59	8.501	-0.058	-0.43	EM
W7BNNB		8.469	-0.084	-0.69	8.451	-0.108	-0.80	EM
X85VNS		8.443	-0.110	-0.91	8.408	-0.151	-1.13	TM
ZC5MG1		8.724	0.171	1.40	8.780	0.221	1.65	LW

Summary Statistics		
	Sample GY41	Sample GY42
Grand Means	8.5534 mils	8.5587 mils
SD Btwn Labs	0.1220 mils	0.1339 mils
Statistics based on 32 of 32 reporting participants		

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

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(LW) - L & W

(TA) - Thwing-Albert

(TM) - TMI

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

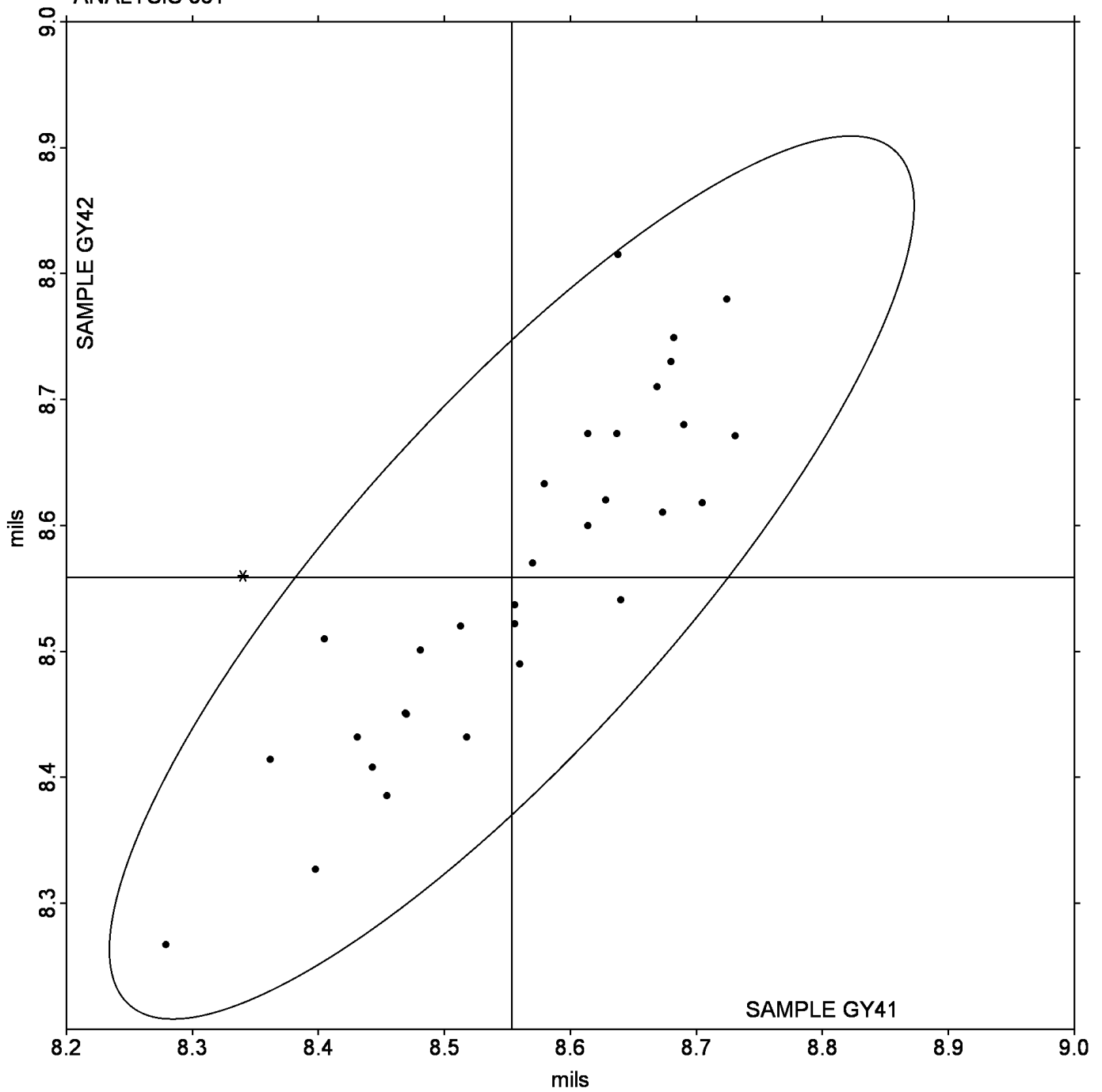
Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample GY41 = 8.5534 mils

Grand Mean Sample GY42 = 8.5587 mils

ANALYSIS 361



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD41			Sample GD42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4PFYUZ		0.5742	-0.0107	-0.15	0.5424	-0.0195	-0.24	XX
5NF48U		0.6340	0.0491	0.69	0.6180	0.0561	0.68	IX
7TLXEF		0.6180	0.0331	0.47	0.5800	0.0181	0.22	TL
8QWET3		0.6666	0.0817	1.15	0.6552	0.0933	1.13	TM
9LCQXX		0.6384	0.0535	0.76	0.5670	0.0051	0.06	TM
ADHCYN		0.5750	-0.0099	-0.14	0.5342	-0.0277	-0.33	TM
EFZGY2		0.7402	0.1553	2.19	0.7849	0.2230	2.69	TM
F89HDV		0.5300	-0.0549	-0.78	0.4948	-0.0671	-0.81	TM
FSTKVN		0.5964	0.0115	0.16	0.6004	0.0385	0.46	TM
HM1MNG		0.5742	-0.0107	-0.15	0.5346	-0.0273	-0.33	TA
HQSF65		0.5954	0.0105	0.15	0.5402	-0.0217	-0.26	TM
LDT78S		0.4686	-0.1163	-1.64	0.4836	-0.0783	-0.94	TM
M4HN9N		0.5692	-0.0157	-0.22	0.5434	-0.0185	-0.22	TM
TP6552		0.4898	-0.0951	-1.34	0.4282	-0.1337	-1.61	TL
WXB5F7		0.5040	-0.0809	-1.14	0.5216	-0.0403	-0.49	TM

Summary Statistics			
	Sample GD41		Sample GD42
Grand Means	0.58493	COF	0.56190
SD Btwn Labs	0.07076	COF	0.08293
Statistics based on 15 of 15 reporting participants			

Instrument Code List as Reported by the Labs

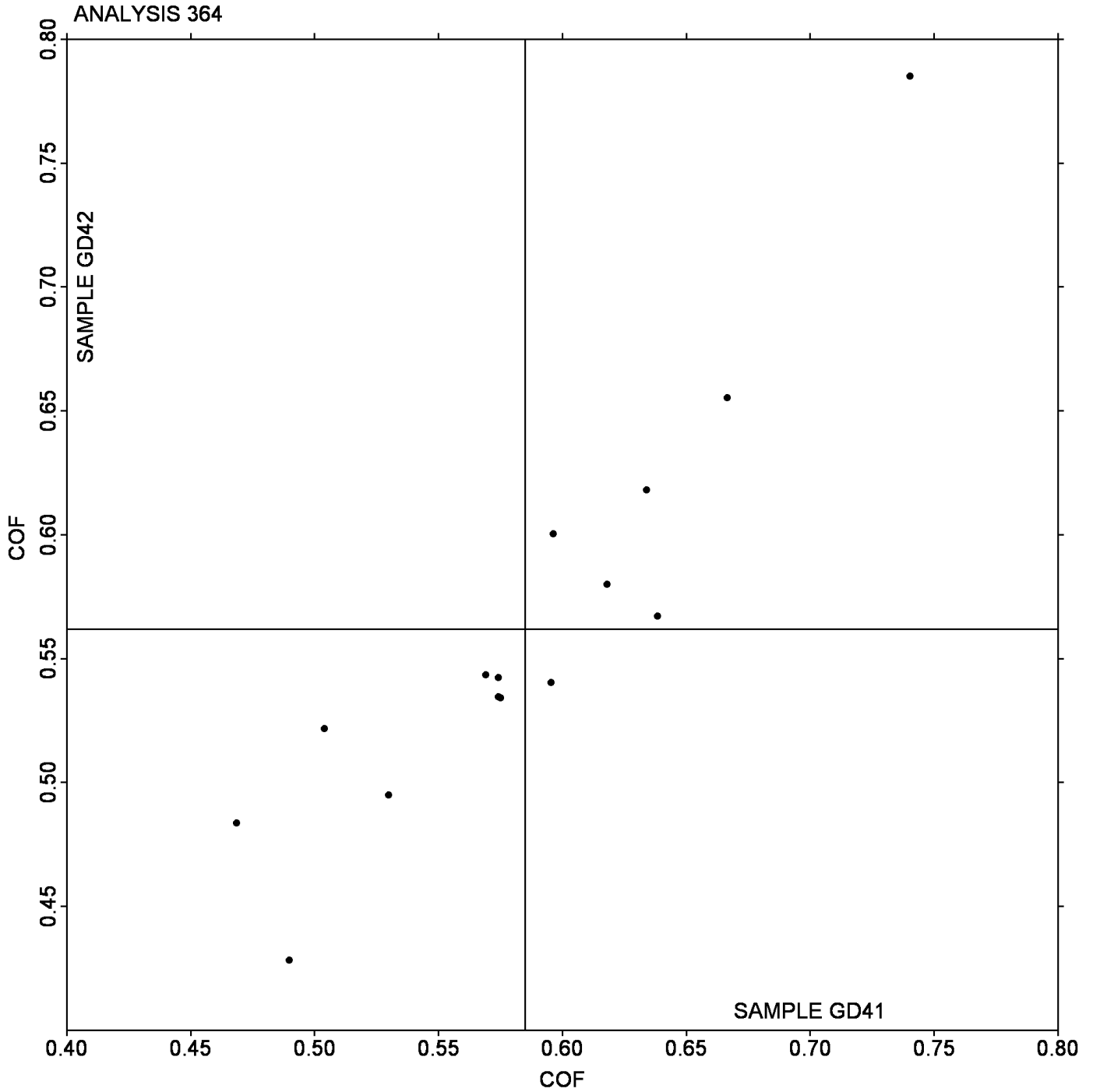
- (IX) - Instron (model not specified)
- (TL) - TMI 32-90 Lab Master/Slip and Friction
- (XX) - Instrument make/model not specified by lab
- (TA) - Thwing-Albert Friction Tester
- (TM) - TMI 32-06 Monitor/Slip and Friction

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample GD41 = 0.58493 COF

Grand Mean Sample GD42 = 0.56190 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 GD41			Sample GD42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
43EMM8		0.4574	-0.0458	-0.67	0.3600	-0.1377	-1.56	TM
86T3HE		0.4760	-0.0272	-0.40	0.4474	-0.0503	-0.57	TM
8L4PRJ		0.5900	0.0868	1.28	0.5900	0.0923	1.05	TL
KVFT7K		0.5116	0.0084	0.12	0.5028	0.0051	0.06	TM
NM1UHR		0.5976	0.0944	1.39	0.5548	0.0571	0.65	TN
P93C99		0.3960	-0.1072	-1.58	0.3748	-0.1229	-1.40	TL
PGSXMf		0.4730	-0.0302	-0.44	0.5030	0.0053	0.06	TA
ULQMV5		0.4532	-0.0500	-0.73	0.4614	-0.0363	-0.41	TA
V4GRJ4		0.5300	0.0268	0.39	0.5460	0.0483	0.55	IX
VVXF34		0.4774	-0.0258	-0.38	0.4770	-0.0207	-0.24	TM
W6NWQH		0.4580	-0.0452	-0.66	0.4780	-0.0197	-0.22	KY
Y73XK3		0.6183	0.1151	1.69	0.6775	0.1797	2.04	TM

Summary Statistics			
	Sample GD41		Sample GD42
Grand Means	0.50321	COF	0.49772
SD Btwn Labs	0.06805	COF	0.08801
Statistics based on 12 of 12 reporting participants			

Instrument Code List as Reported by the Labs

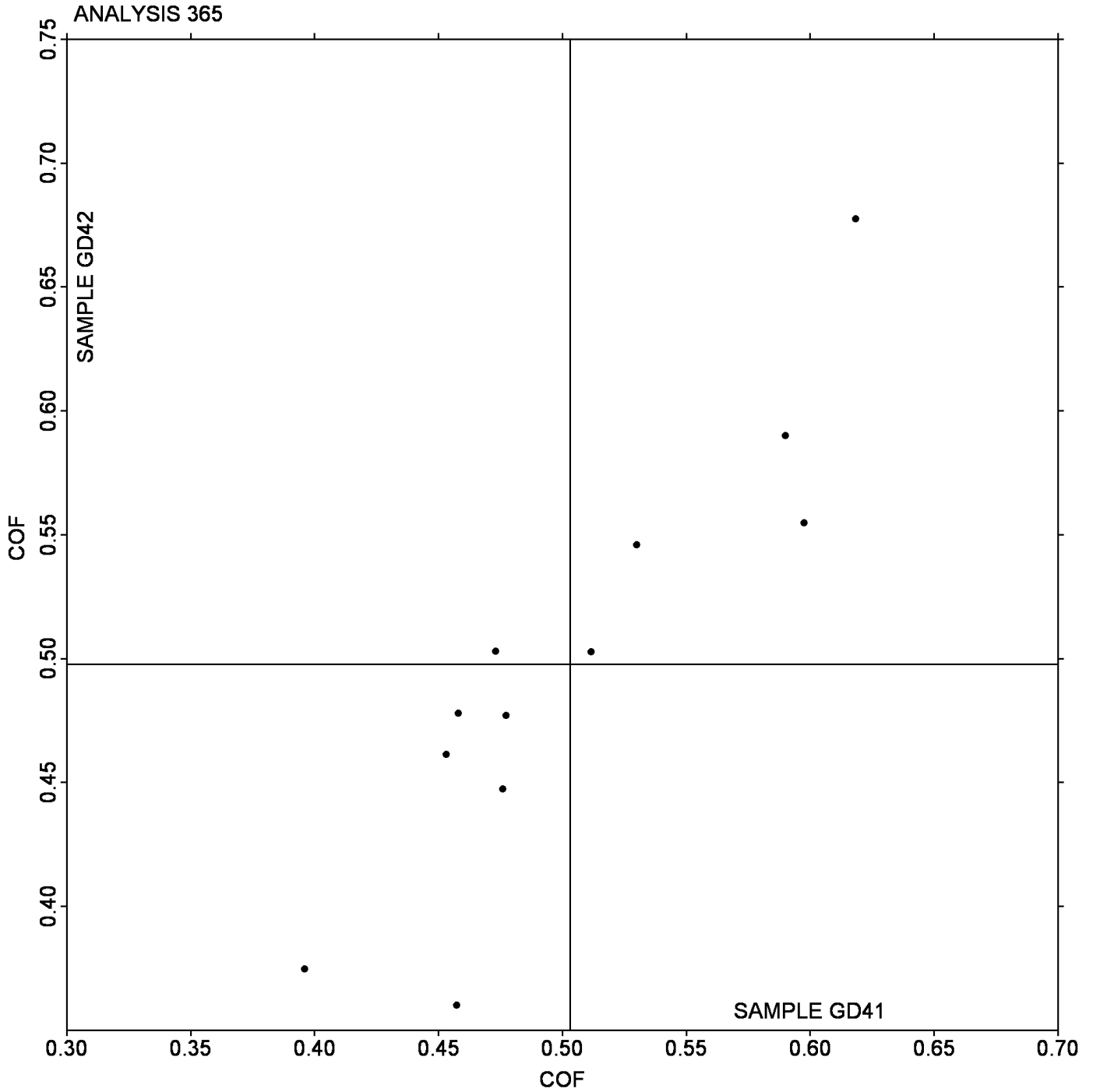
- (IX) - Instron (model not specified)
- (KY) - Kayeness COF Tester D1055D
- (TA) - Thwing-Albert Friction Tester
- (TL) - TMI 32-90 Lab Master/Slip and Friction
- (TM) - TMI 32-06 Monitor/Slip and Friction
- (TN) - TMI 32-06 Monitor/Slip and Friction

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample GD41 = 0.50321 COF

Grand Mean Sample GD42 = 0.49772 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 GE41			Sample GE42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
		30.72	0.27	0.16	17.92	1.26	1.41	XX
1N5Z78		33.06	2.61	1.48	18.03	1.37	1.53	TL
2SSRH1		28.50	-1.95	-1.10	16.60	-0.06	-0.07	LW
3N12AG		29.61	-0.84	-0.47	15.93	-0.73	-0.81	LP
4GTMQ5		30.90	0.45	0.26	16.60	-0.06	-0.07	TM
4XZ2E9		33.09	2.64	1.50	17.55	0.89	1.00	HG
59B9R6		31.51	1.06	0.60	16.35	-0.31	-0.35	HG
5FKPD1		32.24	1.79	1.02	16.94	0.28	0.31	TL
5KZLFA		30.02	-0.43	-0.24	16.27	-0.39	-0.43	HG
5SXE95		30.83	0.38	0.22	16.71	0.05	0.06	HG
61BWZP		28.89	-1.56	-0.88	16.31	-0.35	-0.39	GS
69FYXG		29.16	-1.29	-0.73	16.69	0.03	0.04	XX
6NHZJC		29.89	-0.56	-0.32	17.07	0.41	0.46	LP
6XJNA8		30.40	-0.05	-0.03	16.34	-0.32	-0.36	LP
7LA4NY		31.45	1.00	0.57	17.80	1.14	1.28	GA
7ZWBRR		32.20	1.75	1.00	16.90	0.24	0.27	TL
81WWT6		31.97	1.52	0.86	18.17	1.51	1.69	TN
8ENFTT		31.61	1.16	0.66	17.53	0.87	0.97	TL
8EWZR5		33.62	3.17	1.80	17.39	0.73	0.82	LA
8QEMAZ		29.22	-1.23	-0.70	15.98	-0.68	-0.76	LW
91ERWY	X	44.49	14.04	7.96	23.79	7.13	7.97	VM
93EPRT		29.84	-0.61	-0.34	16.14	-0.52	-0.58	HG
9FQBJ5		30.38	-0.07	-0.04	16.09	-0.57	-0.64	HG
BF2MCU		28.44	-2.01	-1.14	16.51	-0.15	-0.17	LW
BY3NAL		31.84	1.39	0.79	17.56	0.90	1.01	HG
EDJ7M5		29.58	-0.87	-0.49	16.35	-0.31	-0.35	LW
GAFR7J		32.40	1.95	1.11	18.60	1.94	2.17	WG
HE75J7		28.80	-1.65	-0.93	16.10	-0.56	-0.62	LW
KR9YQV		29.78	-0.67	-0.38	16.39	-0.27	-0.30	GL
L6BRH3		29.73	-0.71	-0.41	15.55	-1.11	-1.24	LA
MKEPRG		29.78	-0.67	-0.38	16.23	-0.43	-0.48	LW
N65RME		29.80	-0.65	-0.37	15.20	-1.46	-1.63	LA
NARK9M		31.21	0.76	0.43	17.11	0.45	0.50	LP
QXFZR5		32.77	2.32	1.32	17.91	1.25	1.40	TL
RCDF1H		30.20	-0.25	-0.14	16.40	-0.26	-0.29	XX
TJVLWF		30.40	-0.05	-0.03	16.30	-0.36	-0.40	TM
TR8A5G		30.12	-0.33	-0.18	17.07	0.41	0.46	LW
UWPSYY	*	25.16	-5.29	-3.00	14.68	-1.98	-2.21	TN
UYUGYL	X	20.11	-10.34	-5.86	19.31	2.65	2.96	XX
VACM82		27.18	-3.27	-1.85	14.93	-1.73	-1.93	TL
VC85NA		29.60	-0.85	-0.48	17.30	0.64	0.72	GL
VP5G9G		32.83	2.38	1.35	16.84	0.18	0.20	XX
WH1SDU		31.30	0.85	0.48	17.34	0.68	0.76	HG

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

WebCode	Data Flag	Sample GE41			Sample GE42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
WSUWK3		30.46	0.01	0.01	15.43	-1.23	-1.37	LW
XDJEZ7		28.45	-2.00	-1.13	16.43	-0.23	-0.26	LP
Y8WF84		27.07	-3.37	-1.91	14.54	-2.12	-2.37	RE
YAN1B8		32.64	2.19	1.24	16.91	0.25	0.28	XX
YVVEE2		29.23	-1.22	-0.69	16.54	-0.12	-0.13	LP
ZZ6FRB		33.08	2.63	1.49	17.42	0.76	0.85	GS

Summary Statistics			
	Sample GE41		Sample GE42
Grand Means	30.446 sec/100 cc		16.659 sec/100 cc
SD Btwn Labs	1.763 sec/100 cc		0.894 sec/100 cc
Statistics based on 47 of 49 reporting participants			

91ERWY (X) - Extreme data.

UYUGYL (X) - Extreme data.

Analysis Notes:

- Data appears to be transposed between Analysis 372 (Porosity, Sheffield) and Analysis 370 (Air Resistance, Gurley Oil). Data switched by CTS.

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 | (RE) - Regmed Gurley Densometer PGH-T |
| (TL) - Teledyne Gurley Densometer #4110, Oil Flotation | (TM) - TMI Densometer 58-03 |
| (TN) - Teledyne Gurley S-P-S Tester #4190 | (VM) - Valmet PaperLab (was Kajaani/Robotest) |
| (WG) - W & LE Gurley Tester | (XX) - Instrument make/model not specified by lab |

Paper & Paperboard Interlaboratory Testing Program

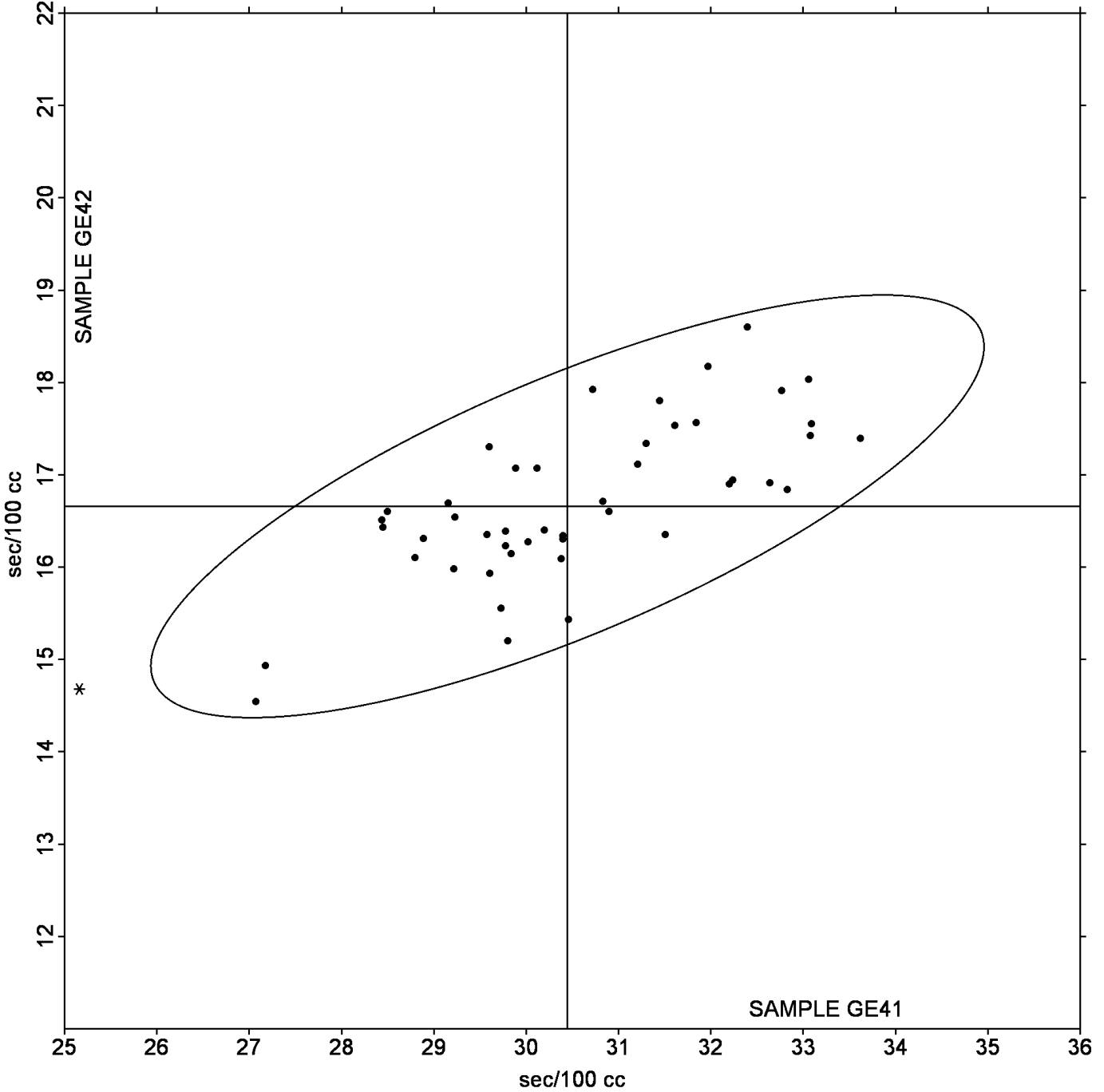
Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE41** = 30.446 sec/100 cc

Grand Mean Sample **GE42** = 16.659 sec/100 cc

ANALYSIS 370



Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

WebCode	Data Flag	Sample GE41			Sample GE42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
141PSQ		99.30	4.05	0.69	154.4	-1.1	-0.11	SH
24ANVT		86.40	-8.85	-1.52	130.1	-25.4	-2.47	TS
269EW5		104.60	9.35	1.60	157.6	2.1	0.20	VM
2K813F		101.47	6.22	1.07	167.7	12.2	1.18	HG
51VAP9		92.00	-3.25	-0.56	146.3	-9.2	-0.90	HM
6PD6VH	X	170.00	74.75	12.81	142.4	-13.1	-1.28	LP
91L4XU		81.69	-13.56	-2.32	137.9	-17.6	-1.71	LP
C3D3BX		90.00	-5.25	-0.90	146.5	-9.0	-0.88	SH
EAU3BK		100.77	5.52	0.95	169.1	13.6	1.32	HG
FSW6NN		94.90	-0.35	-0.06	159.7	4.2	0.40	HM
GM6GUH		89.40	-5.85	-1.00	153.3	-2.2	-0.22	LA
H7ZA1Z		96.50	1.25	0.21	149.5	-6.0	-0.59	TT
K19NCX		95.90	0.65	0.11	162.1	6.6	0.64	SH
ME4TD6		99.36	4.11	0.70	175.2	19.7	1.91	SH
MZQ2TS		88.90	-6.35	-1.09	144.7	-10.8	-1.05	HM
ND4LVS		99.42	4.17	0.71	162.4	6.9	0.67	XX
NLY984		91.40	-3.85	-0.66	155.6	0.1	0.01	HM
RF4VFK		95.70	0.45	0.08	155.1	-0.4	-0.04	TT
VT9YTW		101.50	6.25	1.07	155.5	0.0	0.00	SH
X4KGRX		101.50	6.25	1.07	166.5	11.0	1.06	SH
XEXFTD		96.10	0.85	0.15	161.1	5.6	0.54	SH
Y6F9L9		88.08	-7.17	-1.23	151.1	-4.4	-0.43	LP
YM5C85		92.15	-3.10	-0.53	152.1	-3.4	-0.33	TA
YS3E95		97.40	2.15	0.37	152.5	-3.0	-0.30	SH
Z3T727		101.53	6.28	1.08	167.0	11.5	1.11	HM

Summary Statistics		
Sample GE41		Sample GE42
Grand Means	95.249 Sheffield Units	155.54 Sheffield Units
SD Btwn Labs	5.835 Sheffield Units	10.30 Sheffield Units
Statistics based on 24 of 25 reporting participants		

Comments on assigned Data Flags for Test #372

6PD6VH (X) - Extreme data for Sample GE41.

Instrument Code List as Reported by the Labs

- | | |
|-------------------------------------------------|---------------------------------------------------|
| (HG) - Technidyne - Hagerty Model #1 | (HM) - Technidyne - Hagerty Model #538 |
| (LA) - L & W Roughness Sheffield - Autoline 300 | (LP) - L & W Densometer, Air Permeance |
| (SH) - Sheffield | (TA) - Twing-Albert Porosity Tester |
| (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 |

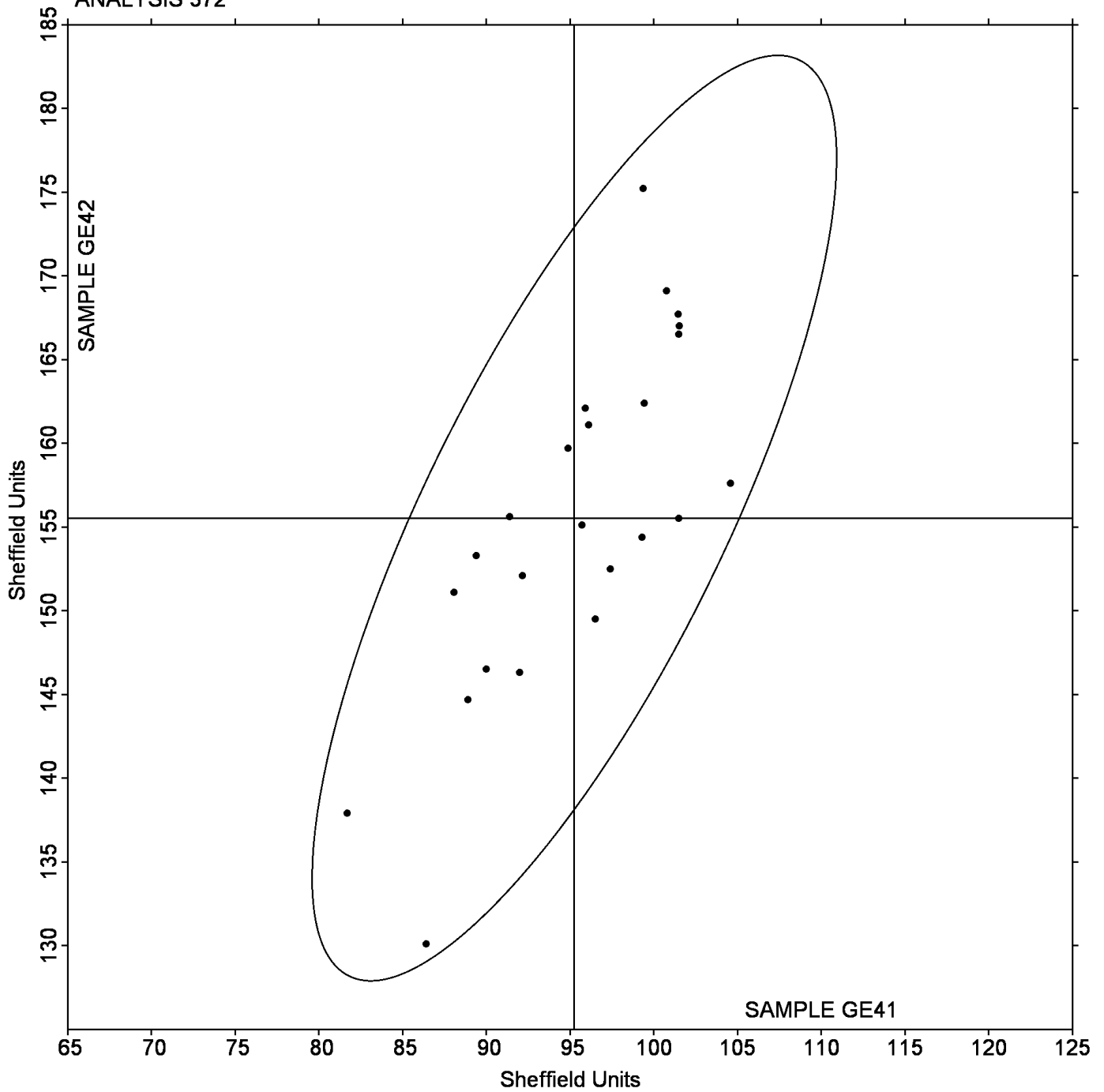
Analysis 372

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

Grand Mean Sample **GE41** = 95.249 Sheffield Units

Grand Mean Sample **GE42** = 155.54 Sheffield Units

ANALYSIS 372



Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

WebCode	Data Flag	Sample GJ41			Sample GJ42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
39B42S		0.9070	-0.0698	-0.80	1.504	-0.093	-0.87
39HHKM	X	1.2620	0.2852	3.26	1.994	0.397	3.70
4FBXJ1		0.9450	-0.0318	-0.36	1.650	0.053	0.49
4W82BW		0.9250	-0.0518	-0.59	1.607	0.010	0.09
4ZK93A	X	1.4230	0.4462	5.09	1.616	0.019	0.18
5D4HR6		0.9100	-0.0668	-0.76	1.552	-0.045	-0.42
6Q9LH1	*	1.2430	0.2662	3.04	1.784	0.187	1.74
7KJ3RN		0.8930	-0.0838	-0.96	1.524	-0.073	-0.68
7TS3DR		0.8690	-0.1078	-1.23	1.462	-0.135	-1.26
85RDYQ		0.9985	0.0217	0.25	1.630	0.032	0.30
APDRG7		0.9790	0.0022	0.03	1.565	-0.032	-0.30
CP9BJK	X	1.1430	0.1662	1.90	2.051	0.454	4.23
CYGER9		0.9040	-0.0728	-0.83	1.552	-0.045	-0.42
EK7HPT		0.9580	-0.0188	-0.21	1.672	0.075	0.70
EWP5UD		0.9140	-0.0628	-0.72	1.573	-0.024	-0.23
GCDNKL		1.0660	0.0892	1.02	1.671	0.074	0.69
H34SRE		0.9700	-0.0068	-0.08	1.599	0.002	0.02
H6LY4D	*	0.9520	-0.0248	-0.28	1.890	0.293	2.73
H755YJ		1.0000	0.0232	0.27	1.464	-0.133	-1.24
H85RMP		1.0820	0.1052	1.20	1.510	-0.087	-0.81
HLQ23G		1.0920	0.1152	1.32	1.558	-0.039	-0.37
J22A3F		0.8650	-0.1118	-1.28	1.526	-0.071	-0.66
KPC4UY		1.0070	0.0302	0.35	1.744	0.147	1.37
KV3YT5		1.0730	0.0962	1.10	1.721	0.124	1.15
L8A15E		0.9390	-0.0378	-0.43	1.658	0.061	0.57
ND3AYH		1.1050	0.1282	1.46	1.719	0.122	1.14
NYGQSP		0.9560	-0.0208	-0.24	1.654	0.057	0.53
PHG8Z4		0.9490	-0.0278	-0.32	1.691	0.094	0.87
PKVJ9U		0.9480	-0.0288	-0.33	1.495	-0.102	-0.95
PT6HY4		0.8920	-0.0848	-0.97	1.567	-0.030	-0.28
RTNHJR		1.0690	0.0922	1.05	1.472	-0.125	-1.17
RYKH5M		0.8700	-0.1068	-1.22	1.514	-0.083	-0.78
SJR129		1.1510	0.1742	1.99	1.746	0.149	1.39
VK6QHQ		0.9330	-0.0438	-0.50	1.476	-0.121	-1.13
VKS53M		1.0340	0.0572	0.65	1.741	0.144	1.34
XWRY6G		0.9030	-0.0738	-0.84	1.511	-0.086	-0.80
Y8R2PP		0.9260	-0.0508	-0.58	1.645	0.048	0.45
YEB7E4		0.9280	-0.0488	-0.56	1.495	-0.102	-0.95
Z1X7QH		0.9090	-0.0678	-0.77	1.459	-0.138	-1.29
ZUCAK8		1.0760	0.0992	1.13	1.497	-0.100	-0.93

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

	Sample GJ41	Summary Statistics	Sample GJ42
Grand Means	0.97677 Microns		1.5972 Microns
SD Btwn Labs	0.08758 Microns		0.1072 Microns
Statistics based on 37 of 40 reporting participants			

Comments on assigned Data Flags for Test #376

39HHKM (X) - Systematic error (data for both samples are high).

4ZK93A (X) - Extreme data for Sample GJ41.

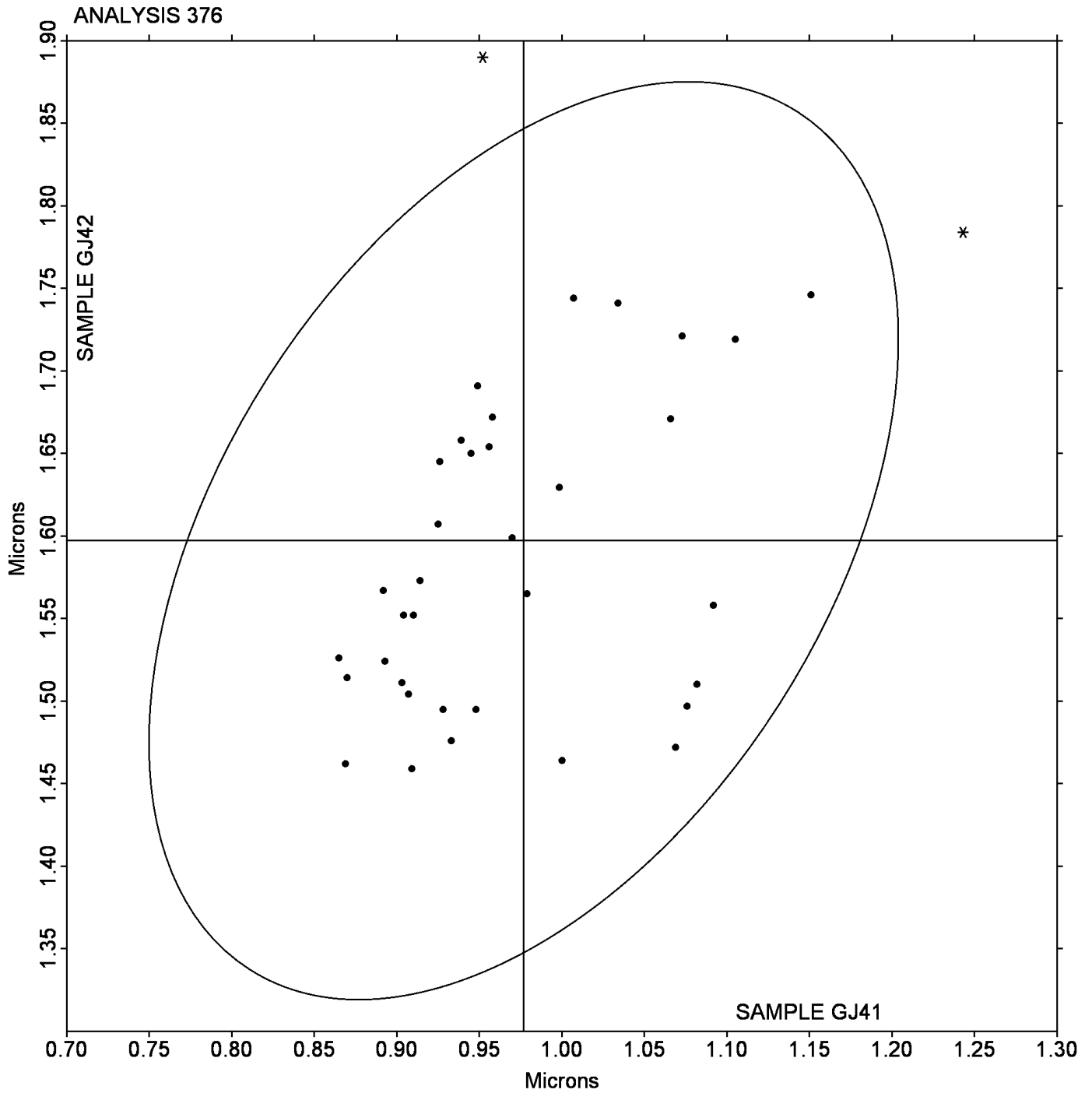
CP9BJK (X) - Inconsistent in testing between samples, data for Sample GJ42 are high and inconsistent within the determinations for Sample GJ42.

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample GJ41 = 0.97677 Microns

Grand Mean Sample GJ42 = 1.5972 Microns



Paper & Paperboard Interlaboratory Testing Program
Analysis 377
Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK41			Sample GK42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
14R1S5		5.745	-0.119	-0.36	5.639	-0.045	-0.14
3FRPAR		5.356	-0.508	-1.53	5.255	-0.429	-1.32
574L12		5.952	0.088	0.26	5.787	0.103	0.32
57D941		5.733	-0.131	-0.39	5.532	-0.152	-0.47
59YQ61		6.088	0.224	0.67	5.930	0.246	0.76
5WW2CL		6.380	0.516	1.55	6.250	0.566	1.75
A11DG2		5.723	-0.141	-0.42	5.552	-0.132	-0.41
A16RYW		5.895	0.031	0.09	5.500	-0.184	-0.57
B8UATP		5.974	0.110	0.33	5.785	0.101	0.31
DFBX4C		5.240	-0.624	-1.88	5.100	-0.584	-1.80
DS1U4Q		6.434	0.570	1.71	6.057	0.373	1.15
F28ET9		5.984	0.120	0.36	5.786	0.102	0.32
HG58WF		5.885	0.021	0.06	5.551	-0.133	-0.41
LBK1MR		6.157	0.293	0.88	6.163	0.479	1.48
LX8QQC		5.428	-0.436	-1.31	5.293	-0.391	-1.21
MZMAQQ		6.114	0.250	0.75	5.797	0.113	0.35
PSCDMW		6.012	0.148	0.44	5.979	0.295	0.91
RP2W2C		5.957	0.093	0.28	5.822	0.138	0.43
Z6Q2VW		5.365	-0.499	-1.50	5.215	-0.469	-1.45

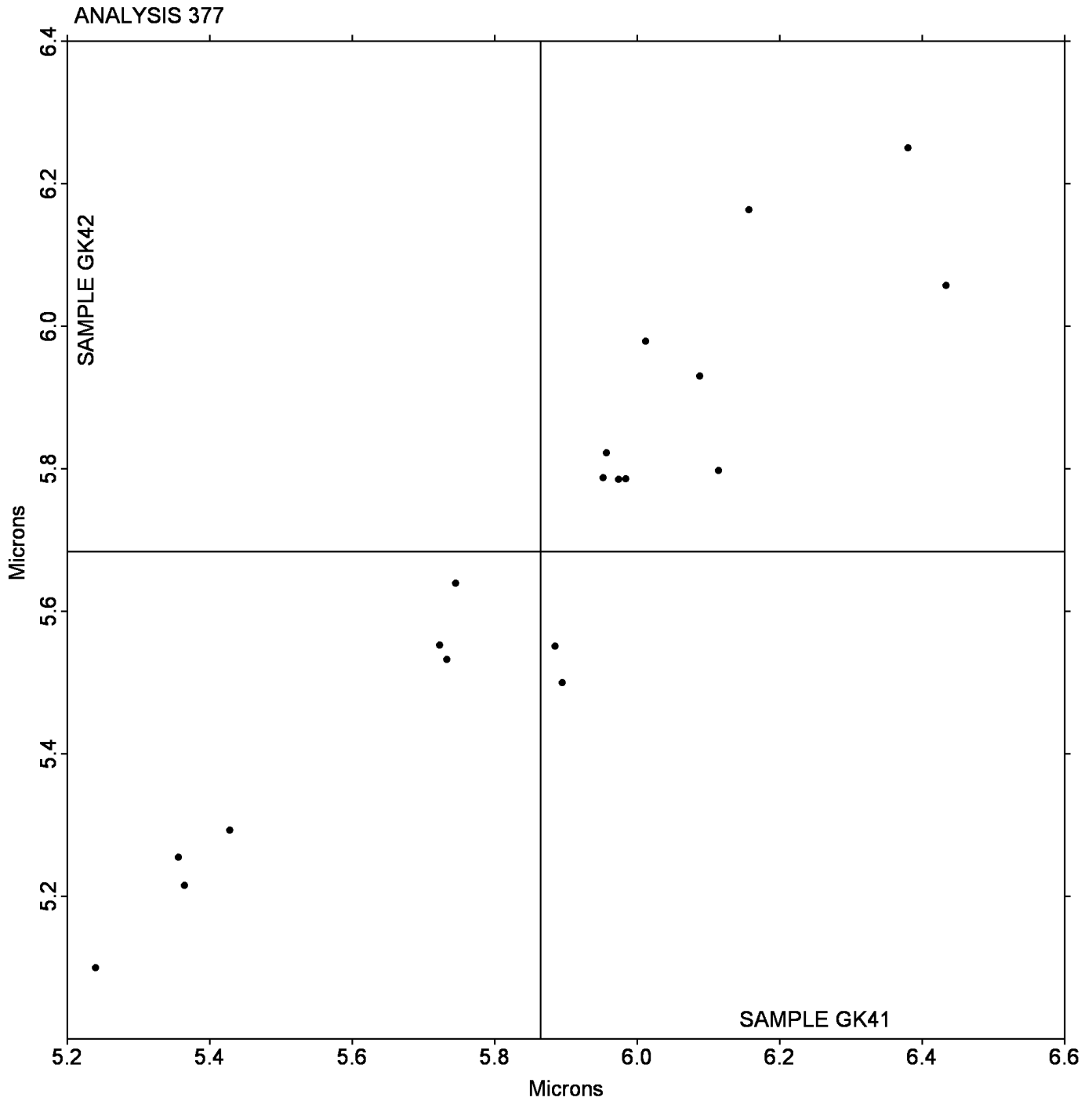
		Summary Statistics	
	Sample GK41		Sample GK42
Grand Means	5.8643 Microns		5.6838 Microns
SD Btwn Labs	0.3328 Microns		0.3242 Microns
Statistics based on 19 of 19 reporting participants			

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK41** = 5.8643 Microns

Grand Mean Sample **GK42** = 5.6838 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 GL41			Sample GL42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1944B1		142.0	22.4	1.93	155.5	18.0	1.62	SH
1HPGRY		111.5	-8.1	-0.70	141.0	3.5	0.31	HM
1VAKPB		123.1	3.5	0.30	134.4	-3.1	-0.28	SH
1WAU38		108.1	-11.5	-0.99	125.5	-12.0	-1.08	SH
2ZD6GD		106.4	-13.2	-1.14	124.5	-13.0	-1.17	TT
36XFTG		121.9	2.3	0.20	147.4	9.9	0.89	HM
39Y1NL		118.3	-1.3	-0.11	141.2	3.7	0.33	SH
3E6WGF		113.4	-6.2	-0.54	122.0	-15.5	-1.40	TS
3QPFSZ	*	143.5	23.9	2.06	166.5	29.0	2.61	TS
3USWDF		113.3	-6.3	-0.55	130.3	-7.2	-0.65	HM
3WSKPQ		110.0	-9.6	-0.83	137.6	0.1	0.01	TS
42VK35		119.2	-0.4	-0.04	144.7	7.2	0.65	HM
4AG48S		110.3	-9.3	-0.80	127.7	-9.8	-0.88	SH
4CVH47		145.0	25.4	2.19	153.5	16.0	1.44	TT
5N9H6Z		109.9	-9.7	-0.84	135.8	-1.7	-0.15	HM
5R8WTP		127.5	7.9	0.68	142.5	5.0	0.45	SH
62QC4Q		127.5	7.8	0.68	140.7	3.1	0.28	GA
67C9KZ		112.5	-7.1	-0.61	128.3	-9.2	-0.83	HM
6JA34P		132.8	13.2	1.14	150.1	12.6	1.13	TT
6RGV7Z		113.4	-6.2	-0.54	126.8	-10.7	-0.97	TP
741BDR		136.0	16.4	1.41	149.0	11.5	1.03	GL
7AUT5U		130.3	10.7	0.92	158.3	20.7	1.87	VM
8VBR5B		131.1	11.5	0.99	152.1	14.6	1.31	HM
8YNY4V		110.0	-9.6	-0.83	126.5	-11.0	-0.99	GA
98A23H		129.0	9.4	0.81	147.9	10.4	0.93	TS
ABZ4ZM	X	121.3	1.7	0.14	158.1	20.6	1.85	HM
B1Q8VW		108.9	-10.7	-0.93	122.5	-15.0	-1.35	HM
BM6K7S		130.3	10.7	0.92	142.9	5.4	0.48	LW
BUJ5Z8		97.8	-21.8	-1.88	117.9	-19.6	-1.77	VM
CML5A2	X	27.7	-91.9	-7.93	32.4	-105.1	-9.46	TS
EJHY9E		120.2	0.6	0.05	136.0	-1.5	-0.13	TP
ENQ4A8	*	153.5	33.9	2.92	164.0	26.5	2.38	GL
FY88AX		109.3	-10.3	-0.89	131.2	-6.3	-0.57	HM
G2L51E		140.4	20.8	1.79	155.6	18.1	1.63	HM
G9ZYBA		119.2	-0.4	-0.04	142.3	4.8	0.43	XX
H7YYFV		114.7	-4.9	-0.42	128.7	-8.8	-0.79	HM
HSCXWY		129.5	9.9	0.85	147.5	10.0	0.90	GL
HX9PV2		130.5	10.9	0.94	146.0	8.5	0.76	SH
JDQXUX		107.6	-12.0	-1.04	128.6	-8.9	-0.80	HM
JQ5141		128.3	8.7	0.75	146.5	9.0	0.81	SH
JRQULA		111.3	-8.3	-0.72	132.9	-4.6	-0.42	HM
KKLJXH		137.9	18.3	1.58	143.8	6.3	0.57	XX
L7W33V		112.6	-7.0	-0.61	128.5	-9.0	-0.81	HM

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

WebCode	Data Flag	Sample GL41			Sample GL42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
LG5SML		117.2	-2.4	-0.21	127.6	-9.9	-0.89	HM
LY4C2F		114.0	-5.6	-0.48	132.0	-5.5	-0.49	TP
P4VWPU		112.4	-7.2	-0.62	143.1	5.6	0.50	SH
PDXB6T		113.7	-5.9	-0.51	125.8	-11.7	-1.06	HM
PN5CV6		119.7	0.1	0.01	136.0	-1.5	-0.14	SH
PND9KB		106.3	-13.3	-1.15	127.9	-9.6	-0.87	LW
PWWVAD		117.0	-2.7	-0.23	134.7	-2.8	-0.25	TP
QTXREY		130.9	11.3	0.97	156.8	19.3	1.74	SH
QXP6MT		128.4	8.8	0.76	138.6	1.1	0.10	TU
QYTJNV		117.8	-1.8	-0.16	134.3	-3.2	-0.29	HM
RJ3J2F		128.2	8.6	0.74	145.9	8.4	0.75	TS
S4CA4N		107.2	-12.4	-1.07	119.1	-18.4	-1.66	HM
T34KNA		125.6	6.0	0.52	142.7	5.2	0.47	SH
THHPDB		108.6	-11.1	-0.95	129.3	-8.3	-0.74	TP
VK6U6Z		123.6	4.0	0.34	136.2	-1.3	-0.12	TT
WA4AK4		109.1	-10.5	-0.91	133.3	-4.2	-0.38	HM
WFX79U		106.2	-13.4	-1.16	121.9	-15.6	-1.41	HM
X2QXA6		107.1	-12.5	-1.08	126.9	-10.6	-0.96	HM
XAZMN3		117.5	-2.1	-0.18	135.1	-2.4	-0.22	SH
XFEBQ8		106.8	-12.8	-1.11	128.4	-9.1	-0.82	HM
XN25AY		123.2	3.6	0.31	143.6	6.1	0.55	XX
XURHE7		110.4	-9.2	-0.80	130.3	-7.2	-0.65	HM
YA5GLP		109.0	-10.7	-0.92	130.3	-7.2	-0.65	TP
YSVGSF		117.8	-1.8	-0.15	134.3	-3.2	-0.29	MP
ZEK8LH	X	68.4	-51.2	-4.42	120.8	-16.8	-1.51	LA

		Summary Statistics	
	Sample GL41		Sample GL42
Grand Means	119.62 Sheffield		137.52 Sheffield
SD Btwn Labs	11.59 Sheffield		11.11 Sheffield
Statistics based on 65 of 68 reporting participants			

Comments on assigned Data Flags for Test #378

ABZ4ZM (X) - Inconsistent in testing between samples.

CML5A2 (X) - Extreme data.

ZEK8LH (X) - Inconsistent in testing between samples, data for Sample GL41 are low.

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

Instrument Code List as Reported by the Labs

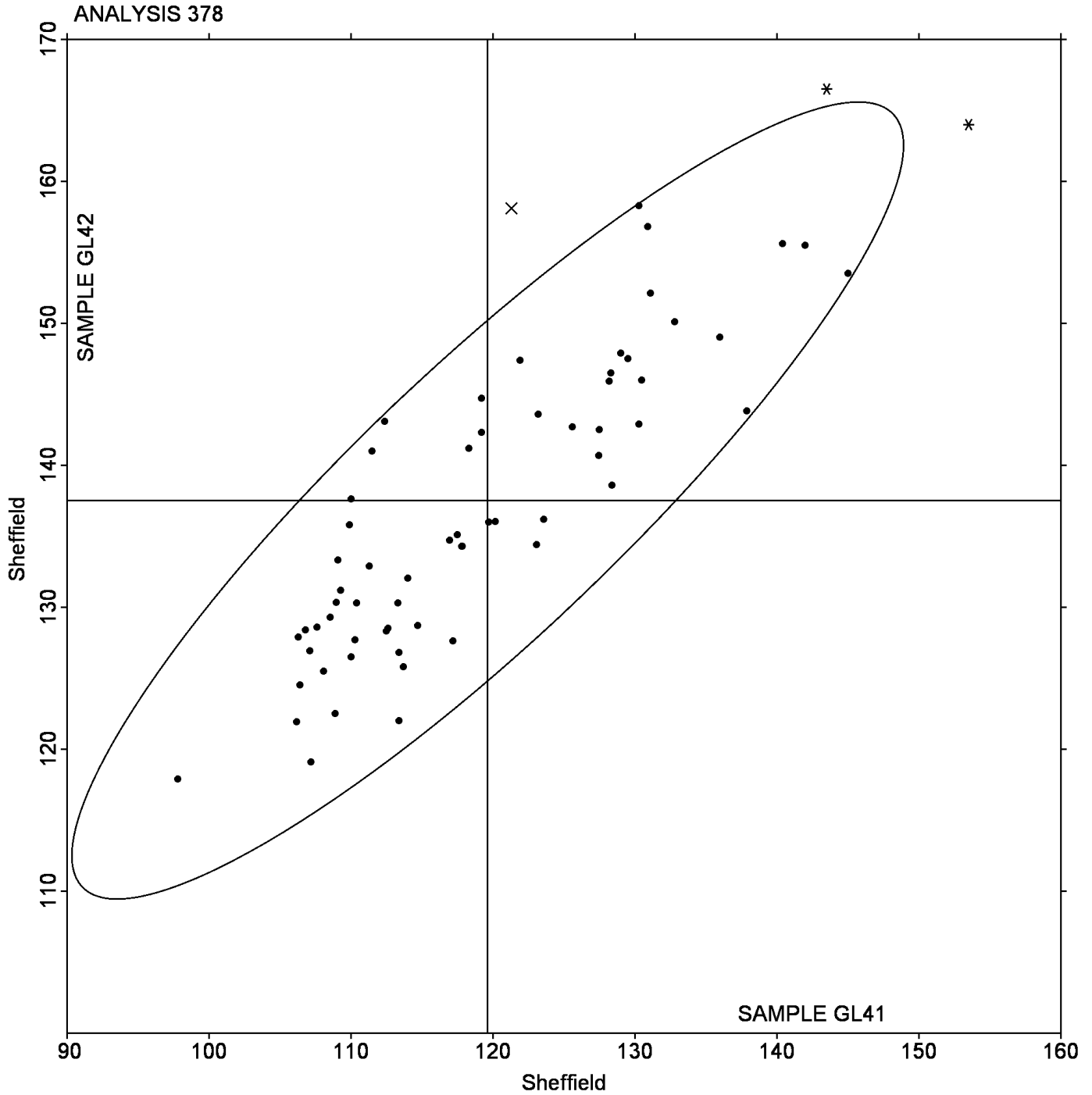
(GA) - Gurley Precision #4340 Automatic Densometer	(GL) - Giddings and Lewis Sheffield
(HM) - Technidyne - Hagerty Model #538	(LA) - L & W Roughness Sheffield - Autoline 300
(LW) - L & W Roughness Tester	(MP) - Metso Paperlab
(SH) - Sheffield (Bendix Precisionaire)	(TP) - Technidyne Profile Plus
(TS) - TMI Monitor/Smoothness, Model 58-02	(TT) - TMI Monitor/Smoothness II, Model 58-24
(TU) - TMI Universal Crush Tester (TMI K440)	(VM) - Valmet PaperLab (was Kajaani\Robotest)
(XX) - Instrument make/model not specified by lab	

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL41** = 119.62 Sheffield

Grand Mean Sample **GL42** = 137.52 Sheffield



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM41			Sample GM42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3S1E21		3.940	-0.060	-0.27	4.315	-0.083	-0.41
879H9F		3.690	-0.310	-1.39	4.480	0.082	0.40
EE3HPP		4.158	0.158	0.70	4.452	0.054	0.26
F222SD		4.354	0.354	1.58	4.736	0.338	1.66
HTL44T		4.143	0.142	0.63	4.525	0.127	0.62
HU4DQL		3.918	-0.082	-0.37	4.223	-0.176	-0.86
T3WGXB	X	3.400	-0.600	-2.68	3.370	-1.028	-5.05
TBDSKD		3.952	-0.049	-0.22	4.175	-0.224	-1.10
WCUR2L		3.690	-0.310	-1.39	4.120	-0.278	-1.37
ZM39SZ		4.160	0.160	0.71	4.560	0.162	0.79

		Summary Statistics	
	Sample GM41		Sample GM42
Grand Means	4.0005 Percent		4.3983 Percent
SD Btwn Labs	0.2239 Percent		0.2035 Percent
Statistics based on 9 of 10 reporting participants			

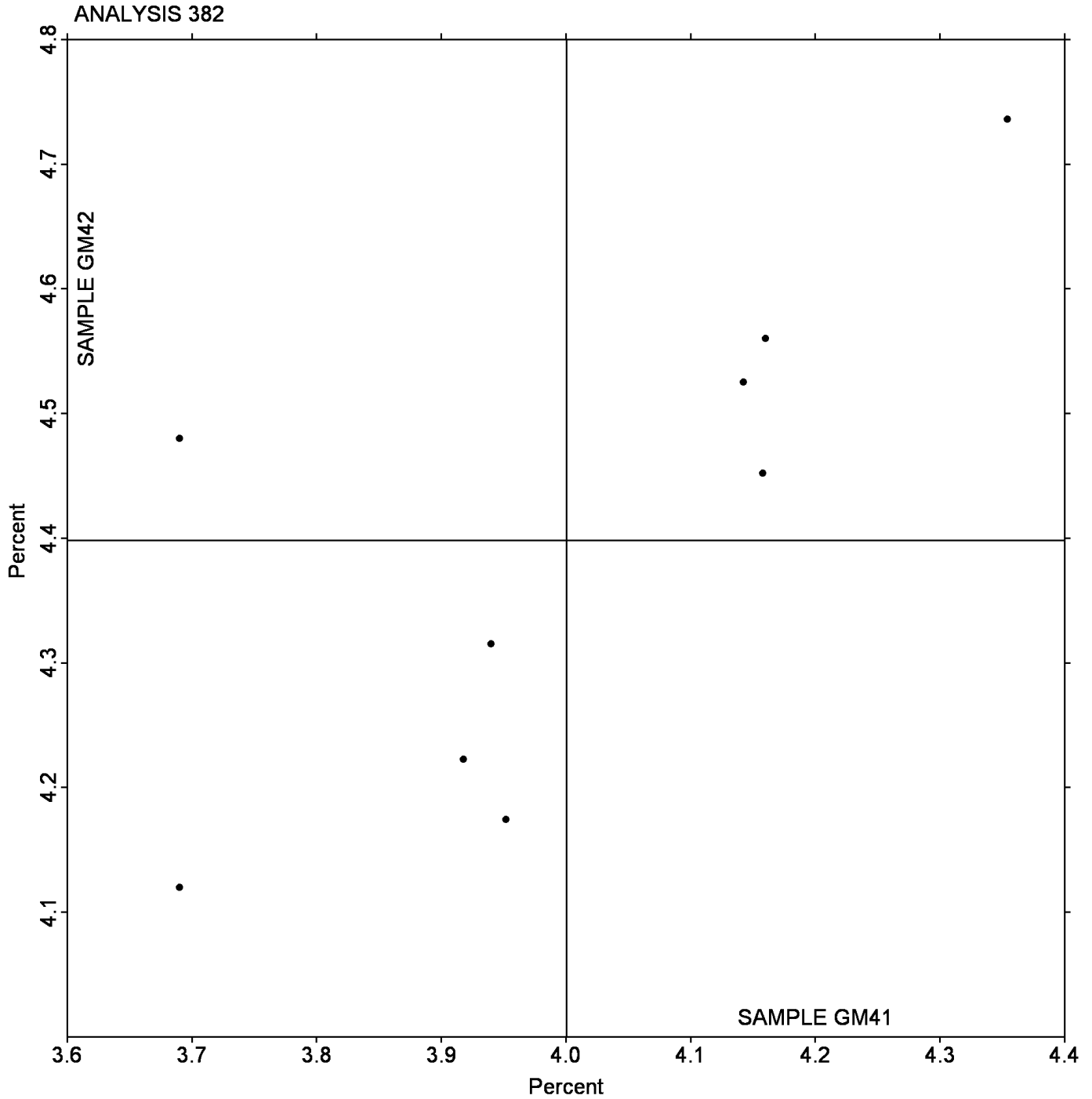
Comments on assigned Data Flags for Test #382

T3WGXB (X) - Extreme data.

Analysis 382
Moisture in Paper

Grand Mean Sample **GM41** = 4.0005 Percent

Grand Mean Sample **GM42** = 4.3983 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 GN41			Sample GN42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1D6RY8		93.80	-0.30	-0.95	92.01	-0.13	-0.37
1H9QPM		94.13	0.03	0.08	91.99	-0.15	-0.43
3V5DMC		93.84	-0.26	-0.82	91.65	-0.49	-1.40
479KVB		93.99	-0.11	-0.35	92.10	-0.04	-0.12
481P66		94.20	0.10	0.30	92.23	0.09	0.26
5DW7LF		94.45	0.35	1.08	92.40	0.26	0.75
5UCX3G	*	93.14	-0.96	-3.00	91.49	-0.65	-1.87
5YFK9S		93.50	-0.60	-1.88	91.92	-0.22	-0.63
6JCKRN		94.14	0.04	0.11	92.14	0.00	0.00
8B8AJL		94.11	0.01	0.02	92.13	-0.01	-0.03
9D9UQS		94.44	0.34	1.05	92.64	0.50	1.44
9SD2YV		93.77	-0.33	-1.04	91.98	-0.16	-0.46
A5P7SF		94.04	-0.06	-0.20	92.06	-0.08	-0.23
A8MBEF		94.08	-0.02	-0.08	92.49	0.35	1.01
A9SPTF		94.05	-0.06	-0.18	92.68	0.54	1.56
AYKRCN		94.03	-0.07	-0.23	92.22	0.08	0.23
B9EDTH	*	94.81	0.71	2.20	93.13	0.99	2.84
BRX2TH		94.17	0.07	0.20	92.26	0.13	0.36
CTJ62F		94.20	0.10	0.30	92.17	0.03	0.09
DA1XT7		94.09	-0.01	-0.04	92.52	0.38	1.09
DMR9R5		93.94	-0.16	-0.51	91.91	-0.23	-0.66
E8DFBL		93.89	-0.21	-0.67	91.92	-0.22	-0.63
EJP85L		94.10	-0.01	-0.03	92.10	-0.04	-0.12
EPJE89		94.31	0.21	0.64	92.38	0.24	0.69
ER256L		94.10	0.00	-0.01	92.19	0.05	0.15
F7LSVN		94.08	-0.02	-0.07	92.16	0.02	0.06
FQHAQP		94.27	0.16	0.50	92.54	0.40	1.15
JDCD9R	*	94.47	0.36	1.13	91.77	-0.37	-1.07
K4QQZA		94.44	0.34	1.05	92.49	0.35	1.01
K7AWM7		94.24	0.14	0.42	92.61	0.47	1.35
KAA8C5	X	94.92	0.82	2.55	93.87	1.73	4.97
KS3ETW		94.12	0.02	0.05	91.96	-0.18	-0.51
L4QUAC		93.77	-0.33	-1.04	91.88	-0.26	-0.74
LE33TG		93.99	-0.11	-0.36	92.32	0.18	0.52
LSUAMD	*	94.30	0.20	0.61	91.50	-0.64	-1.83
LV73NE	*	94.94	0.84	2.61	92.56	0.42	1.21
M37ZUH		94.05	-0.05	-0.16	91.69	-0.45	-1.30
N5DZQT		93.79	-0.31	-0.98	91.69	-0.45	-1.29
NJ6CQB		94.04	-0.06	-0.20	92.19	0.05	0.15
QCXN59		94.11	0.01	0.02	91.92	-0.22	-0.63
QE13G1		93.98	-0.13	-0.40	92.17	0.03	0.10
QFDSJB		94.11	0.01	0.02	91.90	-0.24	-0.69
QJFWT6		93.71	-0.39	-1.23	91.79	-0.35	-1.00

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

WebCode	Data Flag	Sample GN41			Sample GN42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
THA8HR		94.78	0.68	2.11	92.64	0.50	1.44
UH2759		93.55	-0.55	-1.73	91.32	-0.82	-2.35
V37GVC		94.02	-0.08	-0.26	92.06	-0.08	-0.23
VEHYQM		94.34	0.24	0.73	92.31	0.17	0.49
WHTHPW		93.98	-0.12	-0.39	92.28	0.14	0.41
WZUXWV		94.56	0.45	1.41	92.25	0.11	0.31
X6PTBZ		94.16	0.06	0.17	92.10	-0.04	-0.11

		Summary Statistics			
		Sample GN41		Sample GN42	
Grand Means		94.104	Percent	92.139	Percent
SD Btwn Labs		0.321	Percent	0.349	Percent
Statistics based on 49 of 50 reporting participants					

Comments on assigned Data Flags for Test #384

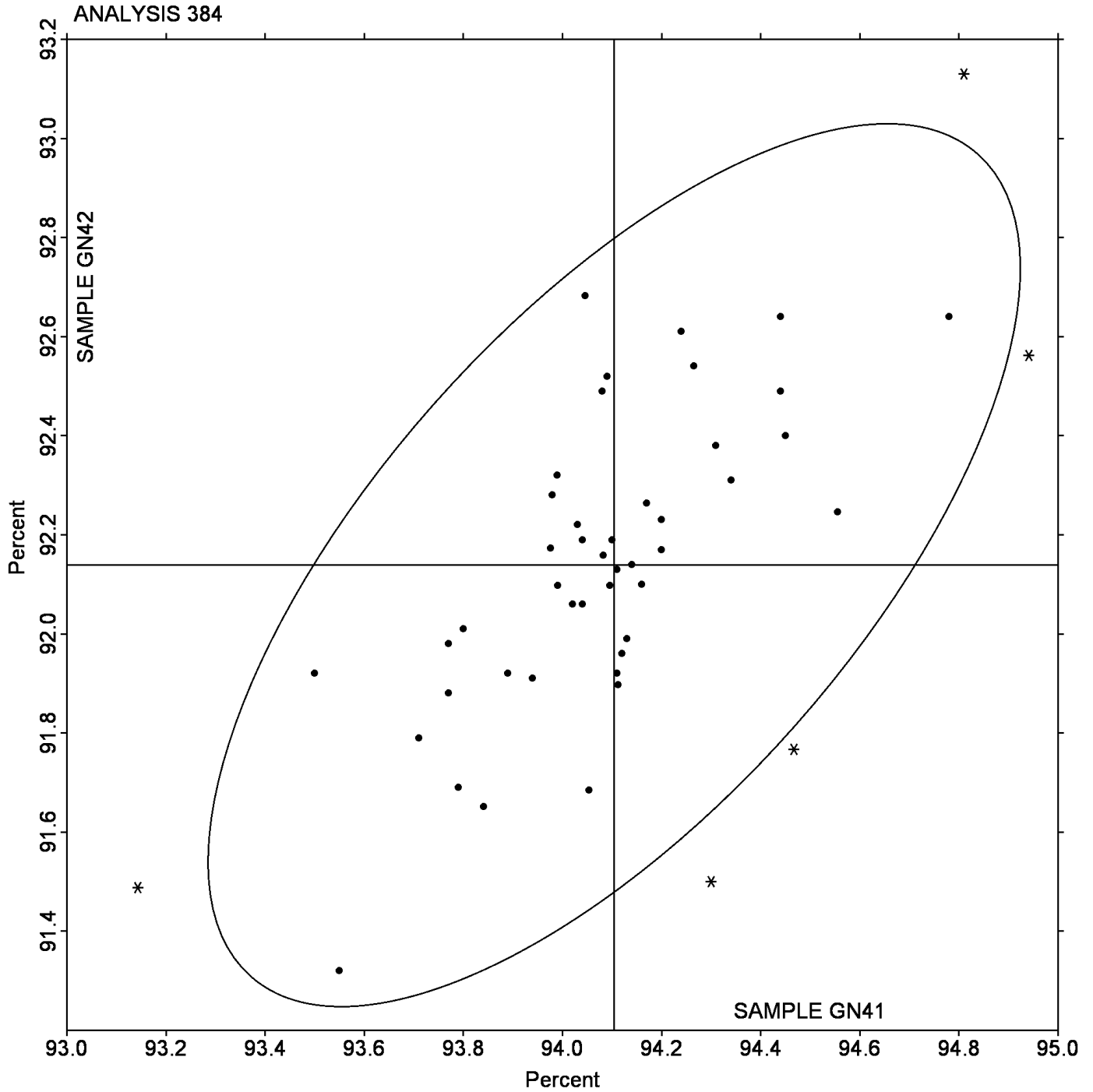
KAA8C5 (X) - Extreme data for Sample GN42.

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample GN41 = 94.104 Percent

Grand Mean Sample GN42 = 92.139 Percent



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

WebCode	Data Flag	Sample GP41			Sample GP42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
4JSDRJ		95.30	0.05	0.43	94.88	-0.04	-0.35
5NH4E2		95.24	-0.01	-0.06	94.89	-0.03	-0.26
75B4G6		95.03	-0.22	-1.85	94.71	-0.21	-2.09
8TYSSV		95.27	0.02	0.17	94.90	-0.02	-0.19
CC3NV2		95.34	0.10	0.81	95.01	0.09	0.94
CJ1TH6		95.27	0.02	0.18	94.86	-0.06	-0.57
CWAZK4		95.37	0.13	1.07	95.09	0.18	1.77
E1KSS8		95.29	0.04	0.34	94.91	0.00	-0.03
GQ8DLY	X	94.87	-0.37	-3.18	94.18	-0.74	-7.41
KE5YPH		95.19	-0.05	-0.44	94.88	-0.04	-0.38
LZVWYS		95.15	-0.10	-0.85	94.78	-0.14	-1.38
M6ZG1B		95.20	-0.04	-0.35	94.89	-0.02	-0.22
MKM9HB	*	95.25	0.01	0.04	95.14	0.22	2.25
N14SQ3		95.26	0.01	0.10	94.89	-0.02	-0.23
NMJ4QC		95.23	-0.01	-0.13	94.81	-0.11	-1.07
PSL8SQ		95.33	0.08	0.72	95.05	0.13	1.32
QHAZ7M		95.22	-0.02	-0.21	94.91	-0.01	-0.05
QTYTYB		95.30	0.06	0.48	94.96	0.04	0.41
SAXFP2	X	95.15	-0.09	-0.79	93.67	-1.25	-12.56
T2RRAV		95.22	-0.02	-0.21	94.91	-0.01	-0.05
TVA3HE		95.27	0.03	0.22	94.92	0.00	0.04
V1JJL		95.13	-0.12	-0.99	94.82	-0.10	-0.96
VCE37M		95.41	0.16	1.40	95.03	0.11	1.11
W5371H		95.26	0.02	0.16	94.93	0.02	0.17
WJVFQY	*	95.55	0.30	2.60	95.01	0.10	0.96
YNME55		95.18	-0.07	-0.58	94.95	0.03	0.31
YP374Z	*	94.93	-0.31	-2.69	94.76	-0.16	-1.59
ZY2TJS		95.20	-0.04	-0.37	94.93	0.02	0.16

Summary Statistics		
	Sample GP41	Sample GP42
Grand Means	95.245 Percent	94.916 Percent
SD Btwn Labs	0.117 Percent	0.099 Percent
Statistics based on 26 of 28 reporting participants		

Comments on assigned Data Flags for Test #386

GQ8DLY (X) - Extreme data.

SAXFP2 (X) - Extreme data for Sample GP42.

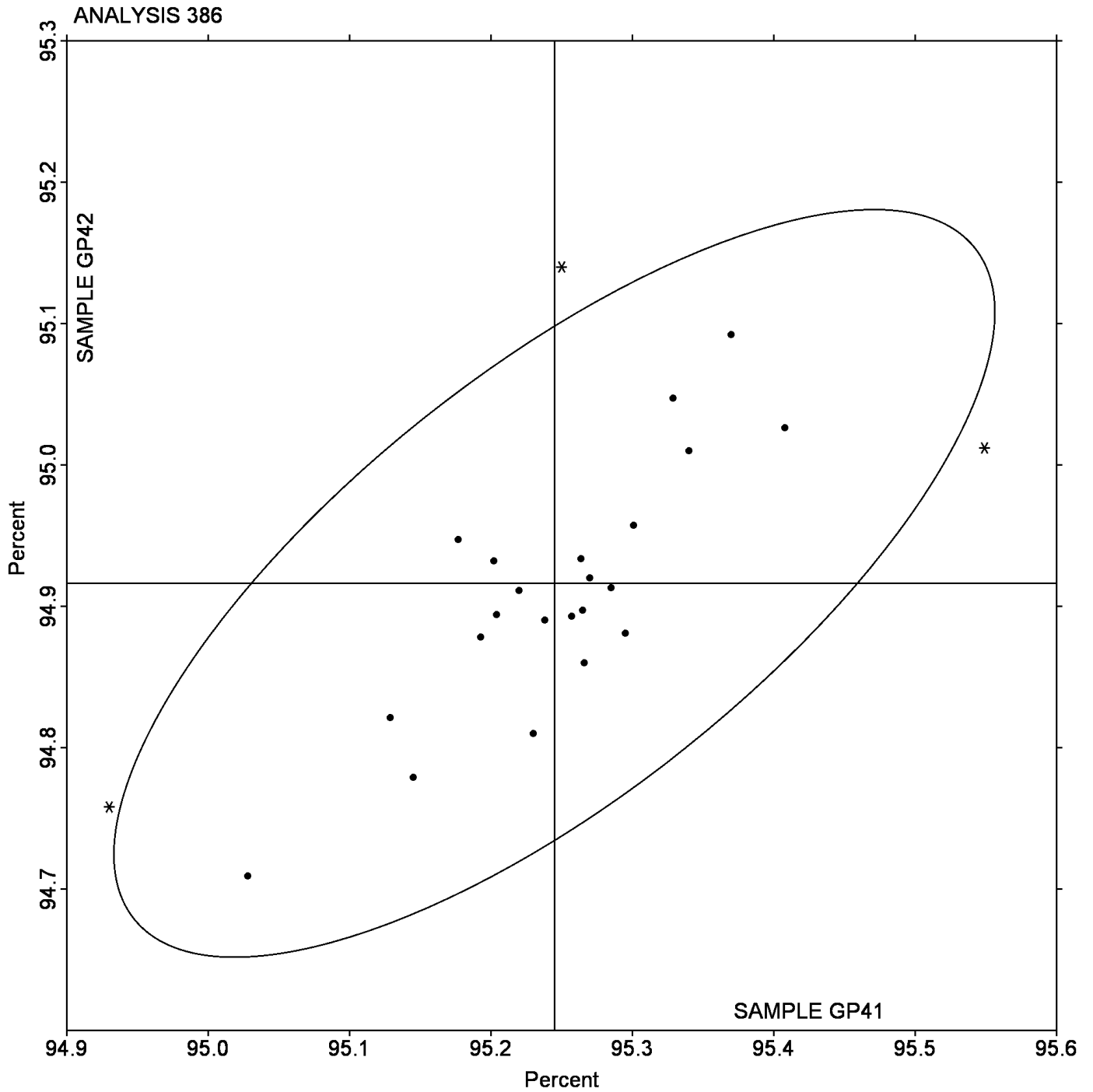
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample GP41 = 95.245 Percent

Grand Mean Sample GP42 = 94.916 Percent



**Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness**

WebCode	Data Flag	Sample GR41			Sample GR42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1FWBRT	X	86.91	-2.56	-4.76	87.79	-1.79	-3.94	TS
27TQYS		89.52	0.04	0.08	89.49	-0.08	-0.18	HD
5DUDM8		89.90	0.42	0.79	89.87	0.29	0.64	TS
6EKJLT		89.64	0.16	0.30	89.66	0.09	0.19	TT
8PKRDX		89.61	0.14	0.25	89.64	0.06	0.13	TS
BMQ97Z		90.19	0.71	1.32	90.36	0.78	1.71	XX
BQ8HGK		88.48	-1.00	-1.86	88.53	-1.05	-2.31	TA
CT1NYP		89.37	-0.10	-0.19	89.41	-0.16	-0.36	TS
DSY7BQ		89.99	0.51	0.95	90.01	0.44	0.96	TS
ELJB9Z		89.56	0.09	0.16	89.57	-0.01	-0.03	TS
F2D1DW		89.84	0.36	0.67	89.89	0.31	0.68	TT
F2PCQ2		89.88	0.40	0.74	89.71	0.14	0.30	TT
FD4QC3	*	88.42	-1.06	-1.97	89.41	-0.17	-0.37	TS
GCIJKZ		90.15	0.68	1.25	90.20	0.62	1.37	TS
GMNJRH	X	85.93	-3.55	-6.59	90.09	0.51	1.12	TT
JA3DT1		88.96	-0.51	-0.95	88.99	-0.59	-1.30	PE
JH7BKM		89.44	-0.04	-0.07	89.44	-0.14	-0.30	TS
JP3BGX		89.41	-0.06	-0.12	89.48	-0.10	-0.22	XX
KNLZGJ		89.29	-0.19	-0.35	89.34	-0.24	-0.53	TS
MFCK4E		90.39	0.91	1.70	90.37	0.79	1.74	HG
MW88U1		89.53	0.05	0.10	89.56	-0.02	-0.04	TS
MXMP67		89.65	0.17	0.32	89.54	-0.04	-0.09	TT
NEYUW3		89.35	-0.13	-0.23	89.41	-0.16	-0.36	TS
QLFV6C	X	88.84	-0.64	-1.18	88.11	-1.46	-3.22	TT
QX5VXE	*	88.94	-0.54	-1.00	89.84	0.26	0.57	TS
RWS612		89.49	0.01	0.02	89.46	-0.11	-0.25	TA
SGQ17U		89.13	-0.35	-0.64	89.10	-0.48	-1.05	HD
W5DRQ1		90.14	0.66	1.23	90.20	0.62	1.37	TT
WH99PL		88.74	-0.73	-1.36	88.93	-0.65	-1.42	GM
WKGWER		90.06	0.59	1.09	90.03	0.45	0.99	TT
WVWTBH		88.52	-0.96	-1.78	88.54	-1.04	-2.28	HD
X4G2Z7		89.34	-0.14	-0.25	89.27	-0.31	-0.68	TS
X9V2RB		89.70	0.22	0.41	89.66	0.09	0.19	TS
XS9N46	X	86.66	-2.81	-5.22	86.89	-2.69	-5.92	TS
YMAETP		90.07	0.59	1.09	90.08	0.50	1.11	MG
ZYQSFQ	*	88.55	-0.92	-1.72	89.50	-0.08	-0.17	TT

Sample GR41		Summary Statistics	Sample GR42	
Grand Means	89.476 Percent		89.577 Percent	
SD Btwn Labs	0.539 Percent		0.455 Percent	
Statistics based on 32 of 36 reporting participants				

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

Comments on assigned Data Flags for Test #390

1FWBRT (X) - Systematic error (data for both samples are low).

GMNJRH (X) - Extreme data for Sample GR41.

QLFV6C (X) - Inconsistent in testing between samples, data for Sample GR42 are low.

XS9N46 (X) - Extreme data.

Instrument Code List as Reported by the Labs

(GM) - Gretag Macbeth Color i5

(HD) - Hunter D25DP - 9000

(HG) - Hunter Labscan / XE

(MG) - Macbeth 1500/PLUS - 2025+ Color Eye

(PE) - Photovolt 577

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

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

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

Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ41			Sample GZ42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
5EFCCX		92.81	-0.62	-0.37	90.13	-0.43	-0.23	XX
5KS6LB		93.71	0.28	0.17	89.75	-0.81	-0.44	TS
813YY4		92.25	-1.17	-0.71	87.87	-2.70	-1.46	XX
A4MH65		91.05	-2.38	-1.44	88.33	-2.23	-1.21	GM
ADUTJA		94.40	0.97	0.59	91.12	0.56	0.30	TT
D2ABN8	*	91.88	-1.55	-0.94	90.72	0.16	0.09	TS
E9HCD2		92.54	-0.88	-0.54	89.21	-1.35	-0.73	TS
KZRTF4		95.69	2.27	1.37	93.13	2.57	1.39	HV
MRECZ8	X	105.76	12.33	7.46	104.58	14.02	7.57	HV
N5J7FU		93.90	0.47	0.29	90.84	0.28	0.15	TS
NUASZV		92.40	-1.03	-0.62	89.41	-1.15	-0.62	TP
P451UC		92.44	-0.99	-0.60	89.60	-0.96	-0.52	TT
PJRZRC		92.67	-0.75	-0.46	89.79	-0.77	-0.42	TS
QFJT6G		95.32	1.90	1.15	92.72	2.15	1.16	TS
QXXE4F		94.44	1.02	0.61	91.44	0.88	0.48	TS
S1TS6G		92.79	-0.63	-0.38	90.35	-0.21	-0.11	TS
SU8V29	*	98.04	4.61	2.79	95.92	5.36	2.90	MK
T5LNFN		94.18	0.76	0.46	91.09	0.52	0.28	TS
WVZ3YT		92.55	-0.88	-0.53	90.23	-0.33	-0.18	MG
YAW8SW		92.04	-1.39	-0.84	89.04	-1.52	-0.82	TT

Sample GZ41			Summary Statistics	Sample GZ42	
Grand Means	93.427	Percent		90.562	Percent
SD Btw Labs	1.653	Percent		1.851	Percent
Statistics based on 19 of 20 reporting participants					

Comments on assigned Data Flags for Test #391

MRECZ8 (X) - Extreme data.

Instrument Code List as Reported by the Labs

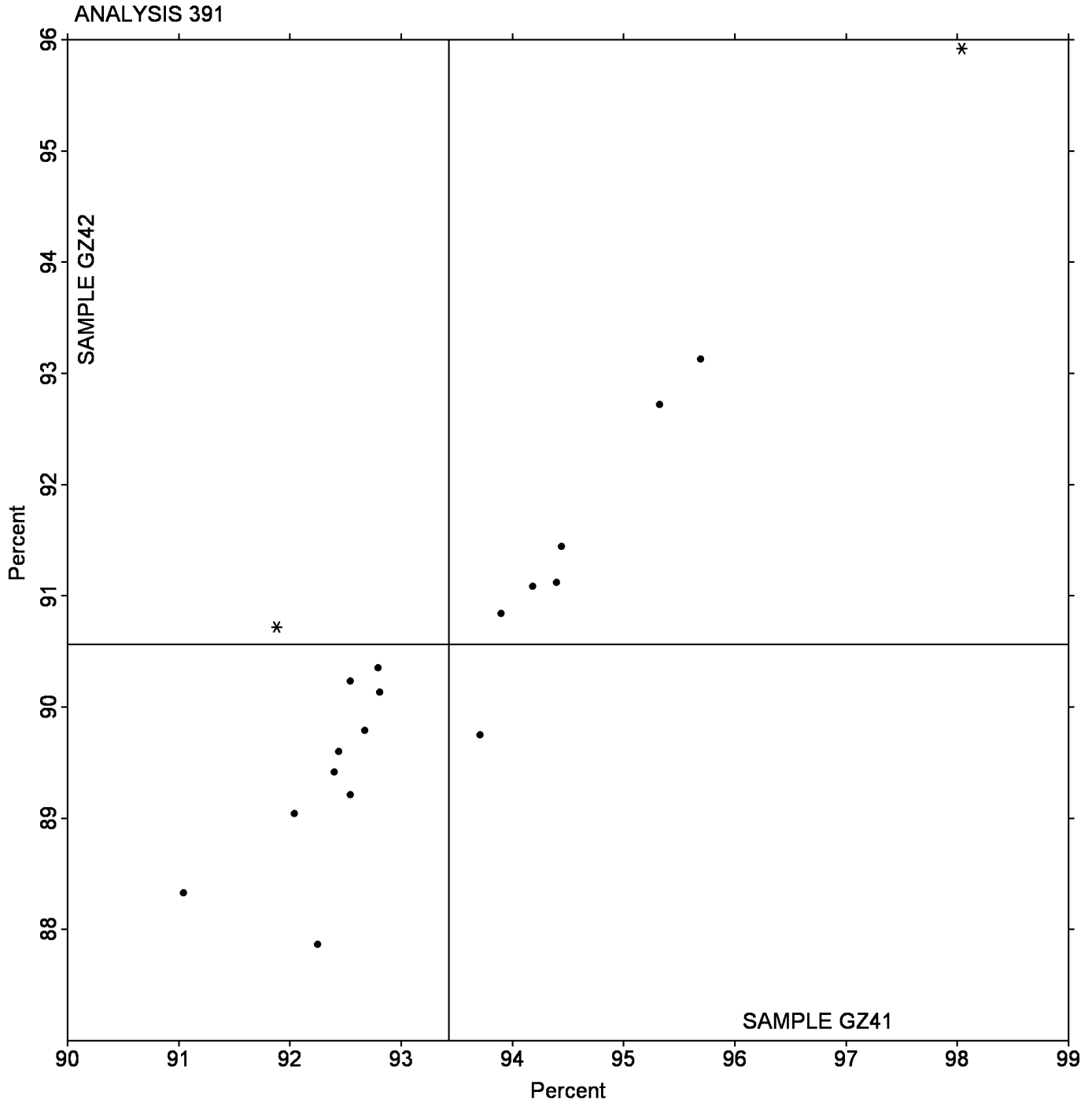
- (GM) - Gretag Macbeth Color i5
- (MG) - Macbeth 1500/Plus - 2025+ Color Eye
- (TP) - Technidyne Profile Plus
- (TT) - Technidyne Brightimeter Micro S4-M
- (HV) - Hunter Ultrascan XE
- (MK) - Macbeth Color-Eye 7000 Spectrophotometer
- (TS) - Technidyne Brightimeter Micro S-5
- (XX) - Instrument make/model not specified by lab

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample GZ41 = 93.427 Percent

Grand Mean Sample GZ42 = 90.562 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 GR41			Sample GR42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
21VX45		88.68	-0.30	-1.03	88.65	-0.35	-1.18	LT
479JYS		89.15	0.17	0.58	89.25	0.25	0.86	TC
4HYLV1		88.93	-0.06	-0.19	89.07	0.07	0.25	TC
4NHZ5Z		88.70	-0.28	-0.95	88.68	-0.32	-1.08	LS
52AZC1		88.99	0.01	0.03	89.07	0.08	0.26	TC
7NAUHM		88.45	-0.53	-1.80	88.51	-0.48	-1.62	LS
97X17P		89.66	0.68	2.30	89.65	0.65	2.21	LA
AW6E8Y		89.08	0.09	0.32	89.11	0.12	0.40	TM
B7CU7P		89.04	0.06	0.19	89.02	0.03	0.10	LS
BCYE19		88.88	-0.10	-0.33	88.89	-0.10	-0.35	TC
DPF565		89.09	0.11	0.36	89.09	0.09	0.31	TC
DPM5VD		89.15	0.17	0.57	89.10	0.11	0.36	EF
E6BZAF		88.89	-0.09	-0.31	88.91	-0.08	-0.27	EG
EW99KK		88.99	0.01	0.04	88.99	-0.01	-0.03	TC
F3TAEA		89.25	0.27	0.91	89.31	0.32	1.08	TL
G636KY		88.58	-0.41	-1.38	88.68	-0.32	-1.08	EF
K8WEVC		89.59	0.61	2.06	89.63	0.63	2.14	TM
KY1ZST		89.27	0.28	0.97	89.18	0.18	0.62	TM
LDFETG		89.28	0.30	1.00	89.32	0.33	1.11	TM
LGFLZM		88.95	-0.03	-0.11	88.90	-0.09	-0.32	TC
MLTJKG		88.59	-0.39	-1.34	88.53	-0.47	-1.58	TC
MWLXVS		88.94	-0.04	-0.13	88.97	-0.03	-0.10	TM
P1YEML		88.97	-0.01	-0.03	89.10	0.10	0.35	TC
P4X7JH	X	85.49	-3.49	-11.86	85.49	-3.51	-11.86	TC
Q94117		89.02	0.04	0.12	89.02	0.03	0.10	TC
QJT78J		89.02	0.04	0.14	89.05	0.05	0.18	XX
TV8HMY		89.32	0.34	1.15	89.31	0.32	1.08	TM
TY2X13		88.42	-0.56	-1.92	88.42	-0.58	-1.95	XX
UGFRAP		88.58	-0.41	-1.38	88.58	-0.42	-1.41	TM
VSQDQK		89.26	0.27	0.93	89.24	0.24	0.82	TM
VXQUPD	X	88.79	-0.19	-0.66	89.13	0.14	0.46	TM
W8896U		88.88	-0.10	-0.35	88.84	-0.15	-0.52	TC
W8L968		88.98	0.00	-0.01	88.88	-0.11	-0.38	TC
WNKNNS	X	85.53	-3.45	-11.72	85.63	-3.36	-11.37	TC
XFN1KY		88.95	-0.03	-0.12	89.01	0.02	0.07	TC
XP3BX5		89.12	0.14	0.46	89.14	0.15	0.51	TC
XYJC5Y		89.24	0.26	0.88	89.14	0.14	0.48	TM
YD7K5Y		89.17	0.19	0.64	89.24	0.25	0.85	TM
ZJL75N		88.91	-0.07	-0.25	88.90	-0.09	-0.32	LS
ZZHUXE		88.38	-0.60	-2.04	88.41	-0.58	-1.96	LS

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

Sample GR41		Summary Statistics	Sample GR42	
Grand Means	88.981 Percent		88.994 Percent	
SD Btwn Labs	0.294 Percent		0.296 Percent	
Statistics based on 37 of 40 reporting participants				

Comments on assigned Data Flags for Test #392

P4X7JH (X) - Extreme data.

VXQUPD (X) - Inconsistent in testing between samples and within the determinations for Sample GR41.

WNKNNS (X) - Extreme data.

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(EG) - Datacolor Elrepho 450X

(LA) - L & W Elrepho - Autoline 300

(LS) - L & W Elrepho SE 070

(LT) - L & W Elrepho SE 071

(TC) - Technidyne Color Touch Series

(TL) - Technidyne Technibrite TB-1

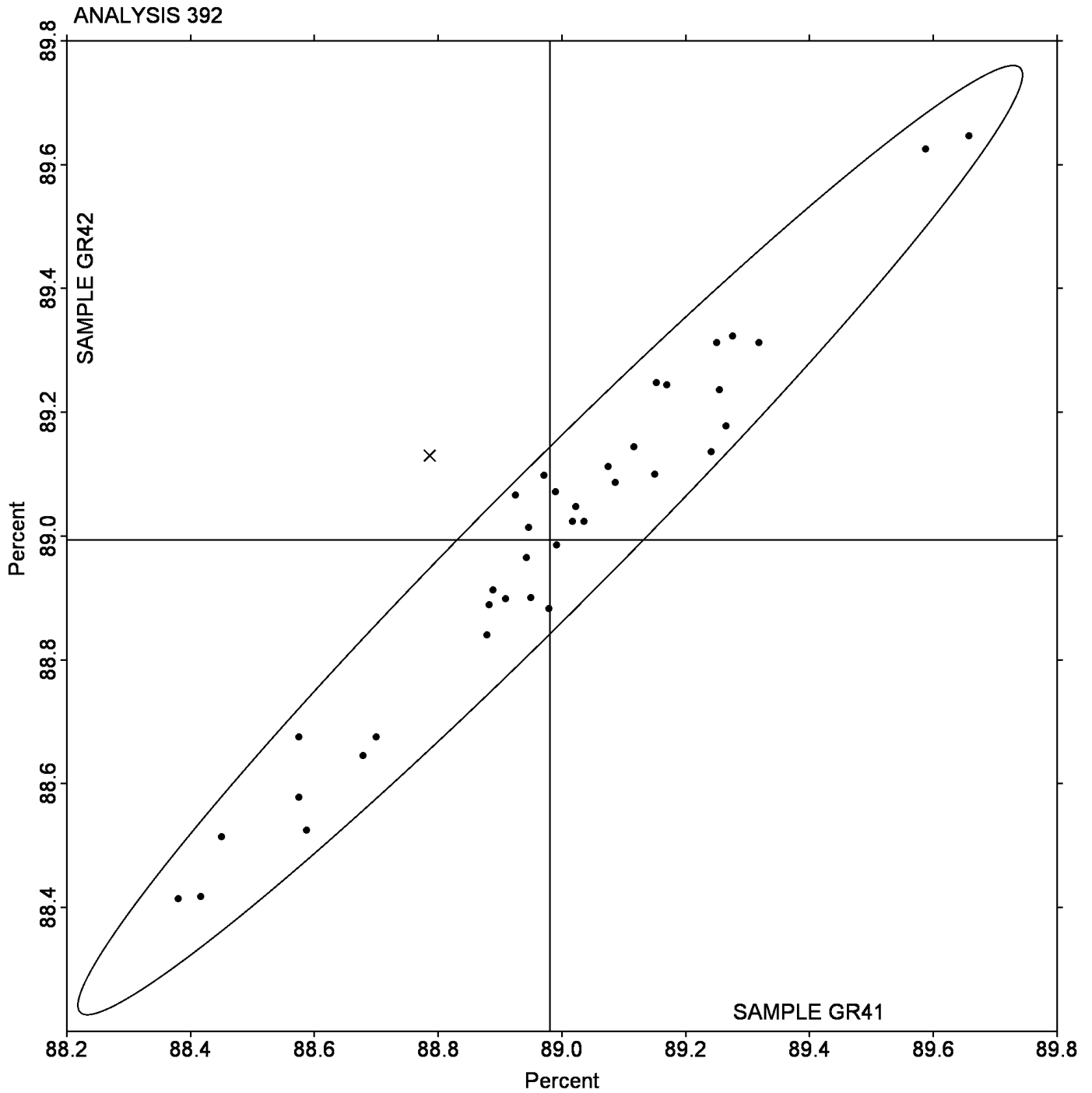
(TM) - Technidyne Technibrite Micro TB-1C

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

Analysis 392
Diffuse Brightness

Grand Mean Sample GR41 = 88.981 Percent

Grand Mean Sample GR42 = 88.994 Percent



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

WebCode	Data Flag	Sample GZ41			Sample GZ42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2AC9SE		6.478	0.155	0.12	7.410	0.270	0.18	TP
2CR6RD		5.796	-0.527	-0.39	6.674	-0.466	-0.32	TS
4DUFX1		5.958	-0.365	-0.27	6.810	-0.330	-0.22	TS
4JF2GZ		6.374	0.051	0.04	7.150	0.010	0.01	TS
4T9NQS	X	19.080	12.757	9.57	21.440	14.300	9.67	HV
9PQQMJ		9.052	2.729	2.05	10.066	2.926	1.98	HV
AM8PRQ		8.580	2.257	1.69	9.620	2.480	1.68	MK
B4NBLC		6.040	-0.283	-0.21	6.760	-0.380	-0.26	TT
C6JVW2		6.002	-0.321	-0.24	6.788	-0.352	-0.24	TS
GXPW3C		5.628	-0.695	-0.52	6.446	-0.694	-0.47	TS
HXKDGf		6.180	-0.143	-0.11	7.040	-0.100	-0.07	TT
L95A89		5.706	-0.617	-0.46	6.590	-0.550	-0.37	TS
P8PNCF	*	2.966	-3.357	-2.52	3.214	-3.926	-2.65	TS
SH4C3D		6.736	0.413	0.31	7.634	0.494	0.33	XX
TSQRQG		6.148	-0.175	-0.13	6.962	-0.178	-0.12	TS
X44D5J		7.378	1.055	0.79	8.102	0.962	0.65	GM
Y7XBKV		6.140	-0.183	-0.14	6.980	-0.160	-0.11	TT

		Summary Statistics			
		Sample GZ41		Sample GZ42	
Grand Means		6.3226	Percent	7.1404	Percent
SD Btwn Labs		1.3333	Percent	1.4790	Percent
Statistics based on 16 of 17 reporting participants					

Comments on assigned Data Flags for Test #394

4T9NQS (X) - Extreme data.

P8PNCF - Fluorescent component calculated by CTS.

Instrument Code List as Reported by the Labs

(GM) - Gretag Macbeth Color i5

(HV) - Hunter Ultrascan XE

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(TP) - Technidyne Profile Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

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

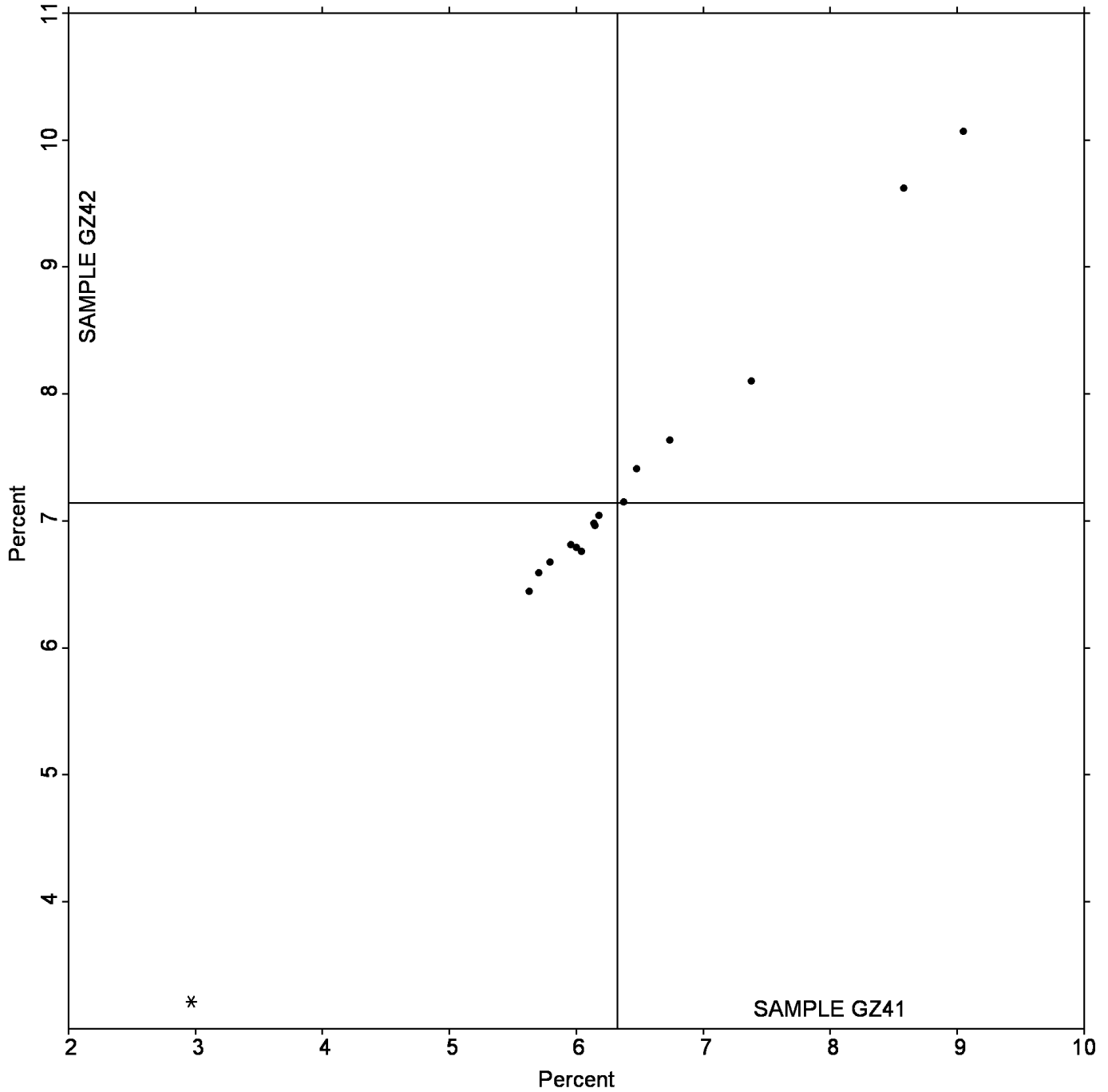
Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample GZ41 = 6.3226 Percent

Grand Mean Sample GZ42 = 7.1404 Percent

ANALYSIS 394



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 GT41			Sample GT42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24JGY1		74.70	0.51	0.48	69.67	1.24	1.13	VM
2FVALS		74.78	0.59	0.56	68.05	-0.38	-0.35	TH
34H3QS		72.71	-1.48	-1.38	69.22	0.79	0.72	TG
4RUHZG		72.35	-1.84	-1.72	66.39	-2.04	-1.87	TH
6EVEUD		75.15	0.96	0.90	68.23	-0.20	-0.19	TH
7K81HW		73.65	-0.54	-0.50	67.60	-0.83	-0.76	TH
89YEPG		74.62	0.43	0.41	68.11	-0.32	-0.30	GS
8FE5M4		71.88	-2.31	-2.16	67.84	-0.59	-0.54	GM
AUP5GD		74.10	-0.09	-0.09	70.24	1.80	1.64	XX
EDYKZF		74.41	0.22	0.21	67.55	-0.88	-0.81	ZH
EYNU6N		74.94	0.75	0.71	69.21	0.78	0.71	TG
F31YCG	X	66.92	-7.27	-6.82	65.52	-2.91	-2.66	XX
FJKX12		74.13	-0.06	-0.05	69.01	0.58	0.53	TH
J3CAZA		75.40	1.21	1.14	69.33	0.90	0.82	HN
JCW4ZE	*	75.10	0.92	0.86	66.14	-2.29	-2.10	GM
LJU2RL		73.68	-0.51	-0.48	67.88	-0.56	-0.51	TH
MPG8QE		76.01	1.82	1.71	69.35	0.91	0.83	TG
NB97P3		73.56	-0.63	-0.59	67.74	-0.69	-0.63	XX
NX1K3Y		73.93	-0.26	-0.24	68.78	0.35	0.32	TP
SLGCM1		76.39	2.20	2.06	69.78	1.34	1.22	TG
SY1UNR		74.34	0.15	0.14	70.56	2.13	1.94	XX
TBLTQD		72.83	-1.36	-1.28	67.27	-1.16	-1.06	LB
TJD9YQ		75.30	1.11	1.05	69.20	0.77	0.70	GA
TZT516		74.89	0.70	0.66	69.23	0.80	0.73	HN
VKHB66	X	77.83	3.64	3.42	71.40	2.97	2.71	TG
W4YH7Z		73.79	-0.40	-0.37	69.02	0.59	0.53	GM
Y4JH1G		73.77	-0.42	-0.39	67.12	-1.31	-1.20	TH
Y7RN2A		74.40	0.21	0.20	67.89	-0.54	-0.50	TH
ZKPQLH		73.02	-1.17	-1.09	68.06	-0.37	-0.34	TP
ZU61P2		73.40	-0.79	-0.74	67.72	-0.72	-0.66	TH

Sample GT41		Summary Statistics	Sample GT42	
Grand Means	74.186 Gloss Units		68.434 Gloss Units	
SD Btwn Labs	1.066 Gloss Units		1.095 Gloss Units	
Statistics based on 28 of 30 reporting participants				

Comments on assigned Data Flags for Test #395

F31YCG (X) - Extreme data.

VKHB66 (X) - Systematic error (data for both samples are high).

Paper & Paperboard Interlaboratory Testing Program
Analysis 395
Specular Gloss at 75 Degrees - High Range

Instrument Code List as Reported by the Labs

(GA) - BYK-Gardner (model not specified)	(GM) - BYK-Gardner micro-gloss
(GS) - BYK-Gardner Glossgard II	(HN) - Hunter D-48
(LB) - L & W Gloss Tester Code 224	(TG) - Technidyne T480
(TH) - Technidyne T480A	(TP) - Technidyne Profile Plus
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab
(ZH) - Zehntner ZLR 1050	

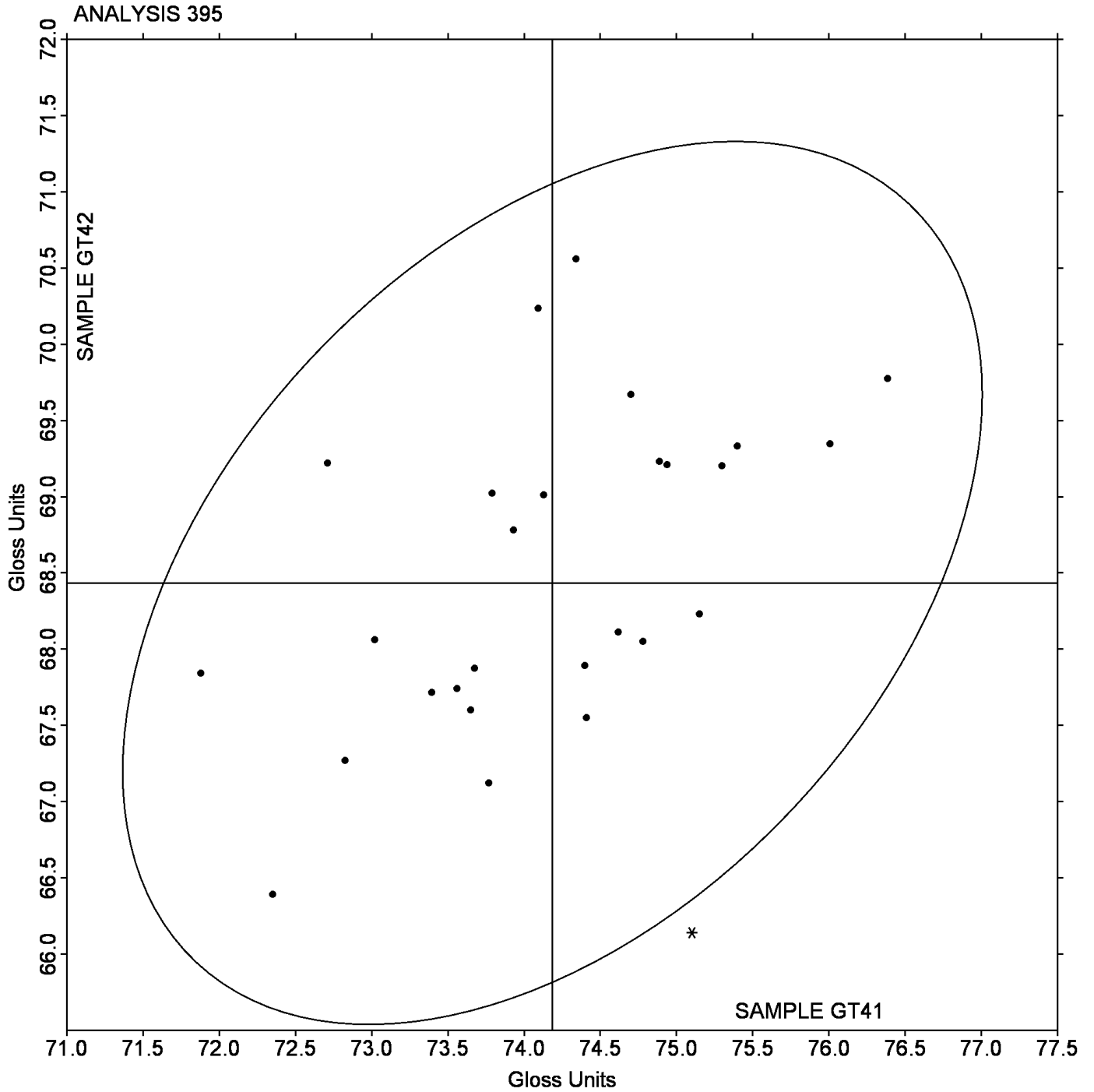
Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT41** = 74.186 Gloss Units

Grand Mean Sample **GT42** = 68.434 Gloss Units



Paper & Paperboard Interlaboratory Testing Program
Analysis 396
Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU41			Sample GU42			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
36JLCL		25.45	-0.46	-0.25	25.26	-0.79	-0.49	TP
4TEGSS		26.21	0.30	0.16	26.29	0.24	0.15	GM
5H2Z6L		22.73	-3.18	-1.72	23.80	-2.25	-1.39	TH
9RFAPN		26.50	0.59	0.32	26.20	0.15	0.09	TH
GC4K98		26.76	0.85	0.46	26.44	0.39	0.24	GM
JFK5AZ		26.18	0.27	0.15	26.22	0.17	0.11	TH
L7CZW2		26.61	0.70	0.38	26.79	0.74	0.46	TP
LPX5HE		27.00	1.09	0.59	27.41	1.36	0.84	TG
Q2SS1J		25.00	-0.91	-0.49	25.19	-0.86	-0.53	HN
SJ7B12		27.44	1.52	0.82	27.27	1.22	0.75	XX
TDJGK1	X	21.22	-4.69	-2.53	20.22	-5.83	-3.59	TH
THL28Z		28.77	2.86	1.54	28.89	2.84	1.75	TG
XGSY97		22.29	-3.62	-1.96	22.84	-3.21	-1.98	XX

Summary Statistics			
	Sample GU41		Sample GU42
Grand Means	25.912 Gloss Units		26.049 Gloss Units
SD Btwn Labs	1.851 Gloss Units		1.622 Gloss Units
Statistics based on 12 of 13 reporting participants			

Comments on assigned Data Flags for Test #396

TDJGK1 (X) - Systematic error (data for both samples are low).

Instrument Code List as Reported by the Labs

(GM) - BYK-Gardner micro-gloss

(HN) - Hunter D-48

(TG) - Technidyne T480

(TH) - Technidyne T480A

(TP) - Technidyne Profile Plus

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

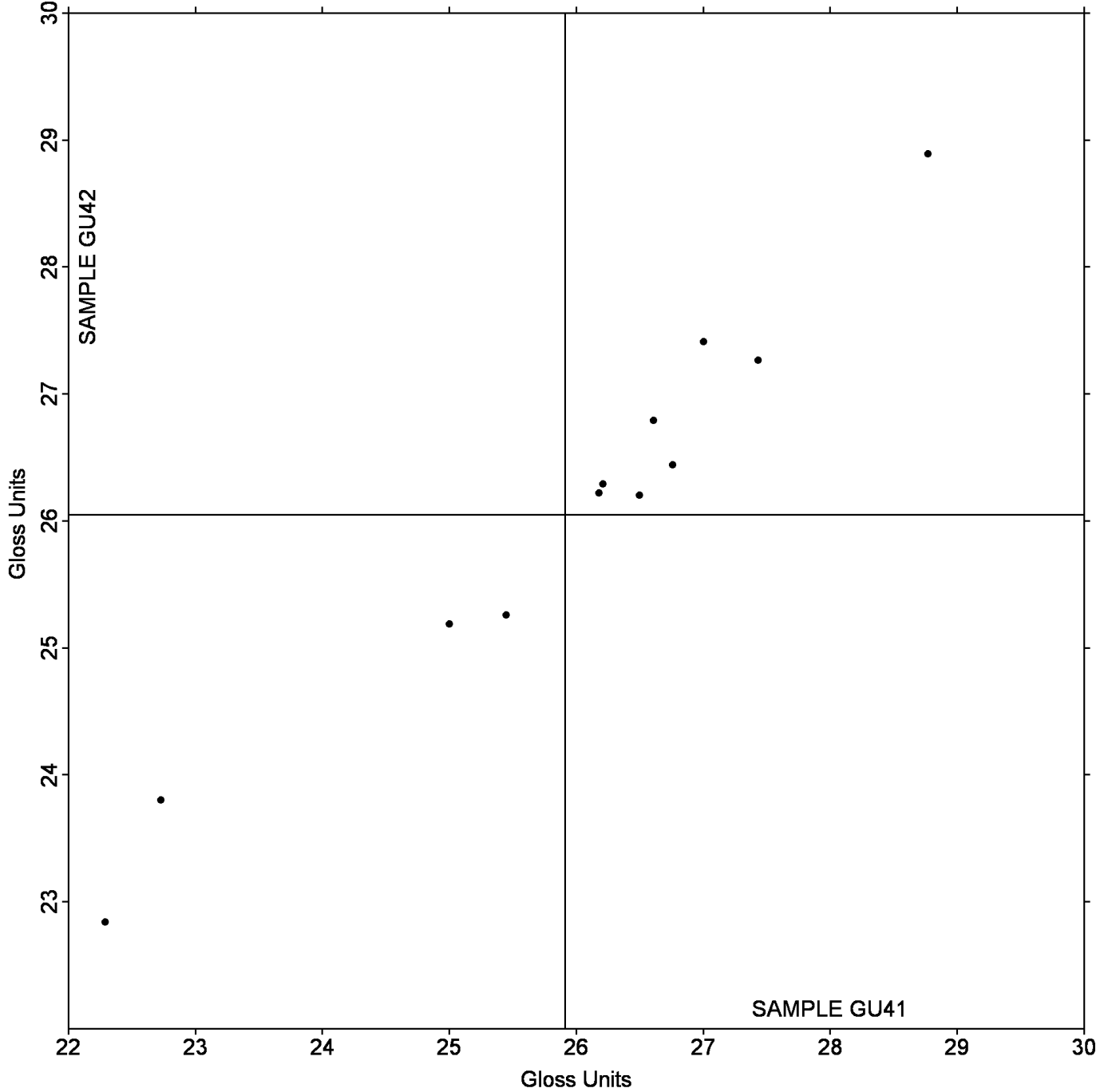
Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU41** = 25.912 Gloss Units

Grand Mean Sample **GU42** = 26.049 Gloss Units

ANALYSIS 396



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 GW41			Sample GW42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1C4LZV		105.4	0.9	1.89	107.2	1.1	1.84
1TYUDM		103.7	-0.9	-1.90	105.2	-0.9	-1.47
3BU FDP		104.8	0.3	0.60	106.5	0.4	0.64
4PEWHV	X	102.9	-1.6	-3.49	104.6	-1.5	-2.50
5P9Q2L	X	103.8	-0.8	-1.60	104.0	-2.1	-3.46
8FYFQN		104.3	-0.2	-0.48	105.9	-0.2	-0.34
8SA6LR		104.9	0.3	0.64	105.7	-0.5	-0.75
B7PXB1		104.8	0.2	0.51	105.9	-0.2	-0.40
C82AMV		104.6	0.0	0.09	105.8	-0.4	-0.62
CAA7C8		104.7	0.1	0.28	106.6	0.4	0.72
CHEHV5		104.3	-0.2	-0.48	106.1	0.0	-0.04
DEYBGW		104.8	0.2	0.43	106.5	0.3	0.57
DVD7FP		104.5	0.0	-0.03	106.3	0.2	0.29
E2FCE7		104.7	0.1	0.22	106.6	0.5	0.78
E52BBV		104.0	-0.6	-1.21	105.0	-1.2	-1.92
EBF3YU	*	105.2	0.6	1.29	105.8	-0.4	-0.59
FCG1E9		104.0	-0.5	-1.13	106.0	-0.2	-0.26
LNDBHC		104.4	-0.2	-0.33	106.4	0.3	0.45
LP3R73		105.3	0.7	1.48	106.8	0.7	1.08
LPXGAW		104.5	-0.1	-0.13	106.4	0.3	0.49
LZHFS6		104.7	0.2	0.33	106.1	0.0	-0.08
MX Y6RR		104.3	-0.2	-0.52	105.6	-0.5	-0.81
MYA636	X	104.4	-0.1	-0.28	105.7	-0.4	-0.63
NR37QV		104.4	-0.2	-0.37	105.7	-0.4	-0.74
P17JT5		105.1	0.6	1.22	107.4	1.3	2.08
PH15DP	X	107.8	3.3	6.90	110.2	4.1	6.77
PS4ERF		103.4	-1.1	-2.38	104.9	-1.3	-2.09
Q84LHM		104.7	0.2	0.35	106.4	0.3	0.53
QR6TNU	X	95.5	-9.0	-19.14	98.0	-8.1	-13.44
R5BUB4		105.3	0.7	1.50	106.8	0.7	1.08
SUPF1S		104.8	0.2	0.43	106.0	-0.1	-0.21
TB6T4H		104.2	-0.4	-0.75	105.6	-0.5	-0.87
U7KZCU	X	104.1	-0.5	-1.05	106.2	0.0	0.06
W6SGVT		104.6	0.0	0.10	106.3	0.1	0.24
X957RT		104.5	0.0	-0.10	106.9	0.8	1.28
XGH SKB		103.8	-0.7	-1.56	105.6	-0.5	-0.87
ZJ2DHS	X	103.3	-1.3	-2.70	105.5	-0.6	-1.04

Analysis 398

Grammage (Mass per Unit Area)

	Sample GW41	Summary Statistics	Sample GW42
Grand Means	104.56 g/sq m		106.13 g/sq m
SD Btwn Labs	0.47 g/sq m		0.61 g/sq m
Statistics based on 30 of 37 reporting participants			

Comments on assigned Data Flags for Test #398

4PEWHV (X) - Systematic error (data for both samples are low).

5P9Q2L (X) - Data converted by CTS from Basis Weight. Inconsistent in testing between samples, data for Sample GW42 are low. Inconsistent within the determinations for both samples.

MYA636 (X) - Data appear to be off by a factor of 100; data converted by CTS (x100).

PH15DP (X) - Extreme data.

QR6TNU (X) - Extreme data.

U7KZCU (X) - Data converted by CTS from Basis Weight.

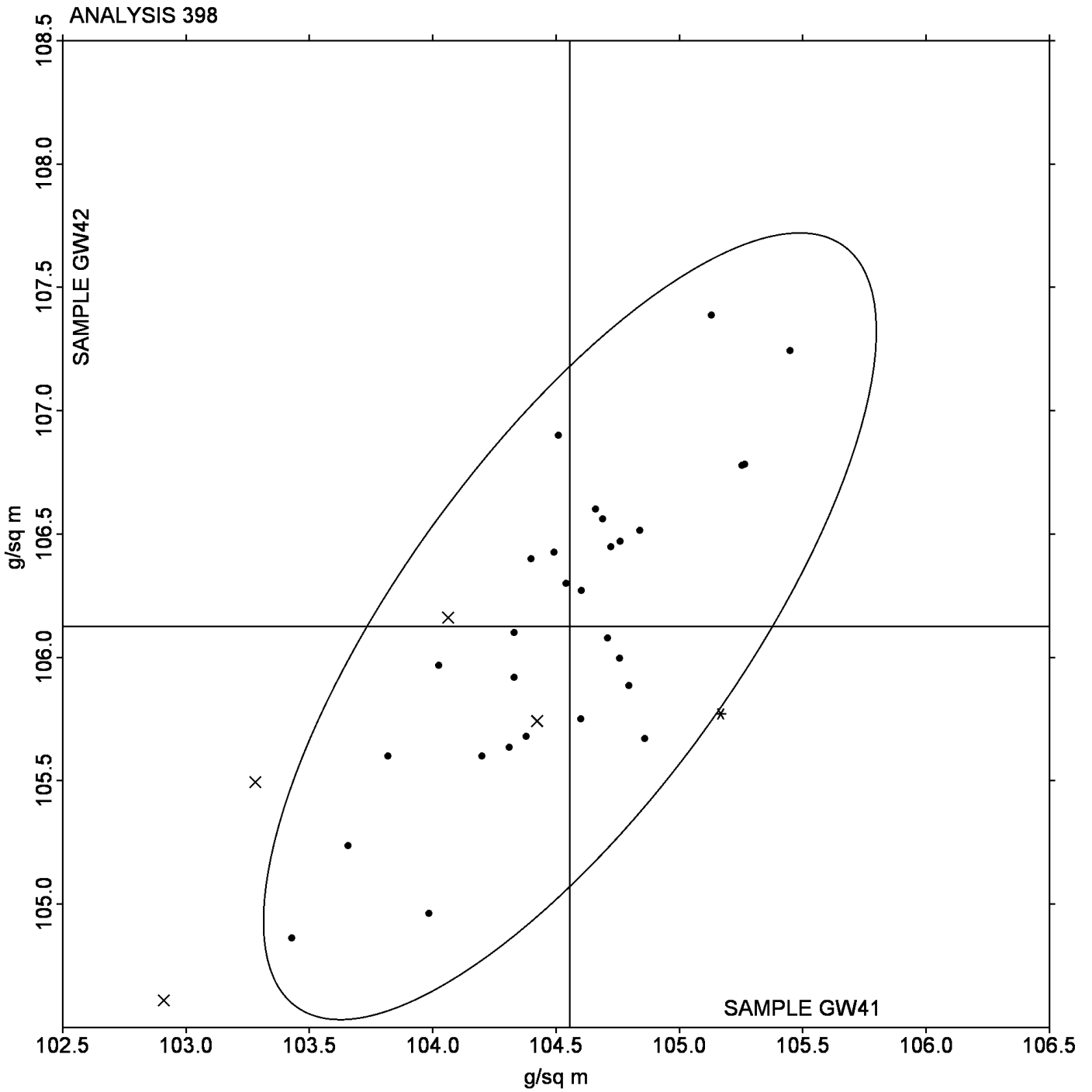
ZJ2DHS (X) - Data converted by CTS from Basis Weight. Inconsistent in testing between samples, data for Sample GW41 are low.

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW41** = 104.56 g/sq m

Grand Mean Sample **GW42** = 106.13 g/sq m



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

WebCode	Data Flag	Sample GX41			Sample GX42		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1PKR9H		66.46	13.04	1.09	55.28	5.90	0.44
2B982U		49.93	-3.49	-0.29	38.31	-11.07	-0.82
334RXP		51.35	-2.07	-0.17	48.07	-1.31	-0.10
33FSCV		57.46	4.04	0.34	57.20	7.82	0.58
6WPJHF		48.28	-5.14	-0.43	45.33	-4.05	-0.30
7P9HYJ		54.00	0.58	0.05	50.98	1.60	0.12
7TN1F1		54.80	1.38	0.12	53.20	3.82	0.28
8SM65E		53.91	0.49	0.04	56.46	7.08	0.53
8Y98G4		48.20	-5.22	-0.44	49.10	-0.28	-0.02
9HPWLG		73.70	20.28	1.69	73.50	24.12	1.79
ADVLGH		51.90	-1.52	-0.13	50.90	1.52	0.11
CC3MYH		46.27	-7.15	-0.60	48.64	-0.74	-0.06
CNHLMY		47.00	-6.42	-0.54	43.90	-5.48	-0.41
FPXDP4	X	7.62	-45.80	-3.83	27.46	-21.92	-1.63
GA2XWP		38.28	-15.14	-1.27	33.17	-16.21	-1.21
GNVVYU		71.15	17.73	1.48	70.23	20.85	1.55
H5JRNA		76.10	22.68	1.90	71.40	22.02	1.64
J5WAYC		50.93	-2.49	-0.21	33.65	-15.73	-1.17
LJRX25		30.30	-23.12	-1.93	17.40	-31.98	-2.38
MDRAGF		38.89	-14.53	-1.21	33.83	-15.55	-1.16
NS64HK		68.30	14.88	1.24	63.55	14.17	1.05
PCV5KM		34.76	-18.66	-1.56	30.23	-19.15	-1.42
PLGWLX		64.87	11.45	0.96	59.19	9.81	0.73
PYLSQE		51.85	-1.57	-0.13	47.20	-2.18	-0.16
QC6YP6		52.16	-1.26	-0.11	48.55	-0.83	-0.06
QGGMUQ		67.60	14.18	1.19	71.20	21.82	1.62
QXNT1E		73.83	20.41	1.71	65.73	16.35	1.22
T97VAN		46.76	-6.66	-0.56	48.11	-1.27	-0.09
TM7FWE		56.12	2.70	0.23	62.46	13.08	0.97
VL5PCH		61.41	7.99	0.67	46.53	-2.85	-0.21
WKXJYM		55.02	1.60	0.13	49.02	-0.36	-0.03
X4DXGV		42.18	-11.24	-0.94	34.72	-14.66	-1.09
Y6TJ6P		44.87	-8.55	-0.71	40.04	-9.34	-0.69
YQ2419		34.30	-19.12	-1.60	32.62	-16.76	-1.25
ZXMBH7	X	17.46	-35.96	-3.01	15.87	-33.51	-2.49

Sample GX41**Summary Statistics****Sample GX42**

Grand Means 53.422 Seconds
SD Btwn Labs 11.964 Seconds

49.385 Seconds
13.451 Seconds

Statistics based on 33 of 35 reporting participants

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

Comments on assigned Data Flags for Test #399

FPXDP4 (X) - Inconsistent in testing between samples, data for Sample GW41 are low.

ZXMBH7 (X) - Systematic error (data for both samples are low).

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX41** = 53.422 Seconds

Grand Mean Sample **GX42** = 49.385 Seconds

ANALYSIS 399

