



Paper & Paperboard Testing Program

Summary Report #240G-June 2009

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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:

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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.

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Queensbury, NY 12804
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Thwing Albert Instrument Co.

Jack Mirkowski, Service Contact
David Zarrilli, Sales Contact
10960 Dutton Road
Philadelphia, PA 19154
Phone: (215) 637-0100
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Huygen Corporation

Richard Wade
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Waconda, IL 60084
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Gurley Precision Instruments

Martin Gordinier, Product Manager
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BYK-Gardner

Randy Snavelly
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Applied Paper Technology Inc.

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Technidyne Corporation

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Hercules, Inc.

Steven R. Boone
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Valmet Inc.

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Hunter Associates Lab, Inc.

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Phone: (703) 471-6870 ext. 222
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Emveco Inc.

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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		
1415ZM	X	GA45	92.08	-0.27	2.60	-0.35	0.04	0.04	0.36	X	EH
		GA46	91.73	-0.22	2.64						
19DDDR		GA45	90.31	-0.36	3.11	-0.20	0.02	0.00	0.20		HV
	GA46	90.11	-0.34	3.10							
7YZCMR		GA45	91.73	-0.75	3.12	-0.03	0.02	-0.02	0.04		EH
	GA46	91.70	-0.73	3.10							
81PGYF		GA45	92.06	-0.59	3.05	-0.19	0.01	0.07	0.21		MK
	GA46	91.87	-0.58	3.12							
8USY4K		GA45	89.26	-0.72	2.71	0.00	-0.01	0.00	0.01		HH
	GA46	89.26	-0.73	2.70							
9MGMVZ		GA45	89.54	-0.43	2.91	0.00	-0.04	0.01	0.04		TM
	GA46	89.54	-0.46	2.92							
A547HP		GA45	89.42	-0.65	2.91	-0.03	-0.01	0.03	0.04		HH
	GA46	89.39	-0.66	2.94							
AHNUNF		GA45	89.61	-0.58	2.99	0.01	0.11	-0.07	0.13		TS
	GA46	89.62	-0.47	2.91							
AMD5K7		GA45	89.58	-0.58	3.02	-0.06	-0.02	0.08	0.10		MK
	GA46	89.52	-0.60	3.10							
AUEGJQ		GA45	89.50	-0.71	3.12	0.04	0.01	-0.04	0.06		TC
	GA46	89.54	-0.69	3.08							
B7KSSX		GA45	90.01	-0.72	3.22	-0.15	0.03	-0.01	0.15		TP
	GA46	89.86	-0.69	3.21							
DJ37UA		GA45	89.82	-0.45	2.83	-0.14	0.02	-0.02	0.15		TS
	GA46	89.68	-0.43	2.81							
FVNDKV		GA45	89.77	-0.80	2.84	0.04	0.00	-0.02	0.05		HH
	GA46	89.81	-0.80	2.82							
H2XMJ9		GA45	89.67	-0.36	3.16	-0.03	0.04	-0.03	0.06		TS
	GA46	89.64	-0.32	3.13							
HCHWBP		GA45	89.71	-0.70	3.19	-0.11	0.02	0.00	0.11		TC
	GA46	89.60	-0.68	3.19							
HX1TE1		GA45	89.13	-0.16	2.67	0.01	0.08	-0.06	0.10		TS
	GA46	89.14	-0.07	2.60							
J2DTBS		GA45	89.98	-0.66	3.20	0.07	-0.04	0.05	0.09		HV
	GA46	90.05	-0.70	3.24							
JZGDN9		GA45	89.57	-0.75	3.15	-0.07	0.00	0.00	0.07		LS
	GA46	89.50	-0.74	3.14							

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	
K6MH6K		GA45	89.64	-0.45	2.89	0.13	-0.04	0.05	0.14	TS
		GA46	89.76	-0.49	2.95					
LTY36X		GA45	89.50	-0.76	3.30	-0.02	0.04	-0.08	0.09	LS
		GA46	89.48	-0.72	3.22					
MAFNBU		GA45	91.59	-0.70	3.27	0.03	-0.01	0.02	0.03	LA
		GA46	91.62	-0.71	3.29					
PK1LSH		GA45	90.15	-0.68	3.34	-0.15	0.09	-0.02	0.18	TS
		GA46	89.99	-0.59	3.32					
PZ383K		GA45	89.22	0.07	2.63	0.00	-0.03	0.03	0.04	HH
		GA46	89.22	0.04	2.66					
RSDGLG		GA45	89.60	-0.76	2.92	0.02	-0.01	0.07	0.07	EH
		GA46	89.62	-0.77	2.99					
SDNA98	X	GA45	89.98	0.11	2.98	0.00	-0.07	0.02	0.07	HH
		GA46	89.98	0.04	3.00					
SS6BKS		GA45	89.09	-0.40	2.80	0.18	-0.01	0.01	0.18	TS
		GA46	89.27	-0.41	2.81					
TBXX41	X	GA45	89.59	-1.63	4.57	0.01	-0.08	0.13	0.16	HG
		GA46	89.60	-1.71	4.70					
TY7EBG		GA45	92.00	-0.73	3.14	-0.08	-0.02	0.01	0.08	MI
		GA46	91.92	-0.75	3.15					
U5MV4Z		GA45	89.62	-0.65	3.15	-0.01	-0.01	-0.02	0.03	TC
		GA46	89.61	-0.66	3.13					
U7KQ48		GA45	91.99	-0.85	3.18	-0.15	0.01	0.01	0.15	XX
		GA46	91.84	-0.84	3.20					
UABECU		GA45	91.91	-0.78	3.03	0.01	-0.03	0.09	0.09	LS
		GA46	91.92	-0.81	3.12					
UVKGLK		GA45	89.11	-0.18	2.73	-0.05	0.02	0.01	0.05	TS
		GA46	89.06	-0.16	2.73					
UXBJHN		GA45	89.52	-0.67	3.13	0.04	-0.01	0.01	0.04	TC
		GA46	89.56	-0.67	3.14					
WT6MNX		GA45	89.32	-0.17	2.88	0.11	-0.02	0.04	0.12	TM
		GA46	89.43	-0.18	2.91					
YEJVWZ		GA45	89.65	-0.40	3.05	0.20	-0.05	0.02	0.21	TB
		GA46	89.85	-0.45	3.07					

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									
	GA45		90.018	-0.564	3.020				
	GA46		89.999	-0.558	3.025	-0.019	0.006	0.006	0.098
Std Dev Btwn Labs									
	GA45		0.952	0.225	0.191				
	GA46		0.917	0.227	0.191	0.099	0.037	0.041	0.058
Statistics based on 32 of 35 reporting participants									

Comments assigned on Data Flags for Test #350

1415ZM (X) - Large da, db and dE. Measured color difference between samples large.

SDNA98 (X) - Low a values. Large db value.

TBXX41 (X) - High a values and low b values.

Instrument Code List as Reported by the Labs

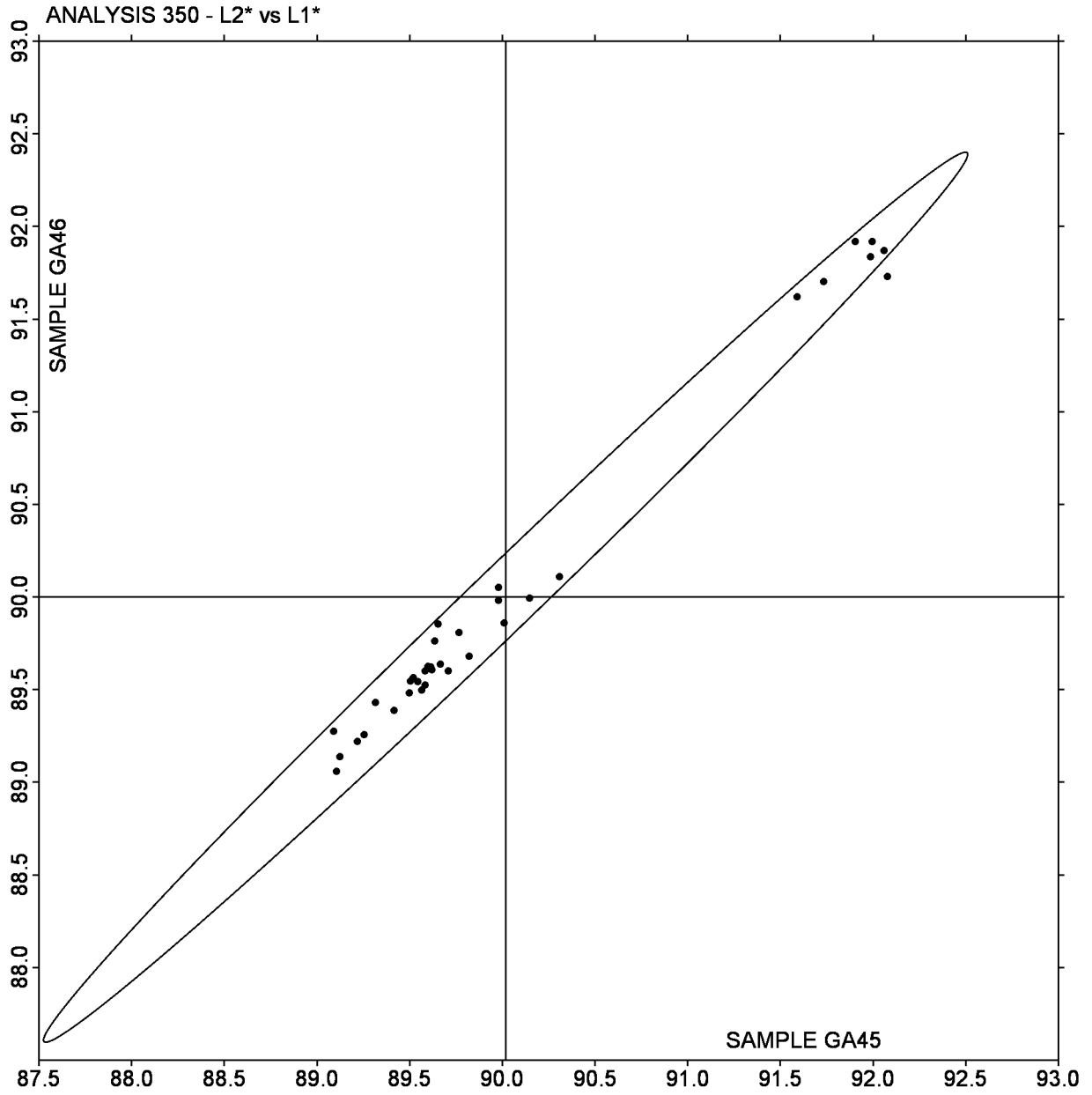
(EH) - Datacolor Elrepho SF450	(HG) - Hunter ColorQUEST
(HH) - Hunter D25DP - 9000	(HV) - Hunter Ultrascan XE
(LA) - L & W Elrepho AL300	(LS) - L & W Elrepho SE 070
(MI) - Macbeth Color i 5	(MK) - Macbeth Color-Eye 7000 Spectrophotometer
(TB) - Technidyne Technibrite TB-1C	(TC) - Technidyne Color Touch Series
(TM) - Technidyne Technibrite Micro TB-1C	(TP) - Technidyne Spectro Plus
(TS) - Technidyne Brightimeter Micro S-5	(XX) - Instrument make/model not specified by lab

Analysis 350

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

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

Plot of L values GA46 v L values GA45

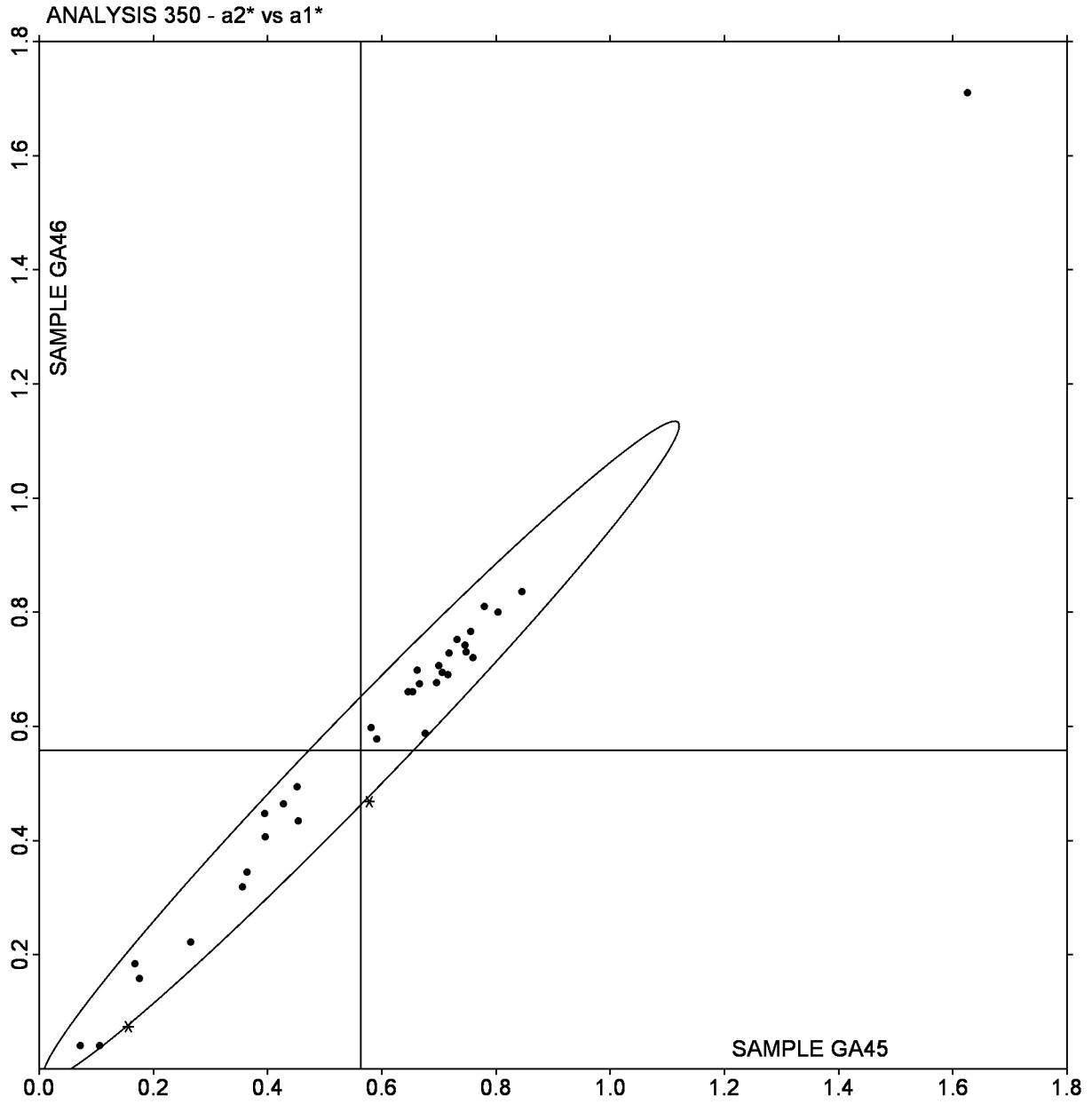


Analysis 350

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

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

Plot of a values GA46 v a values GA45

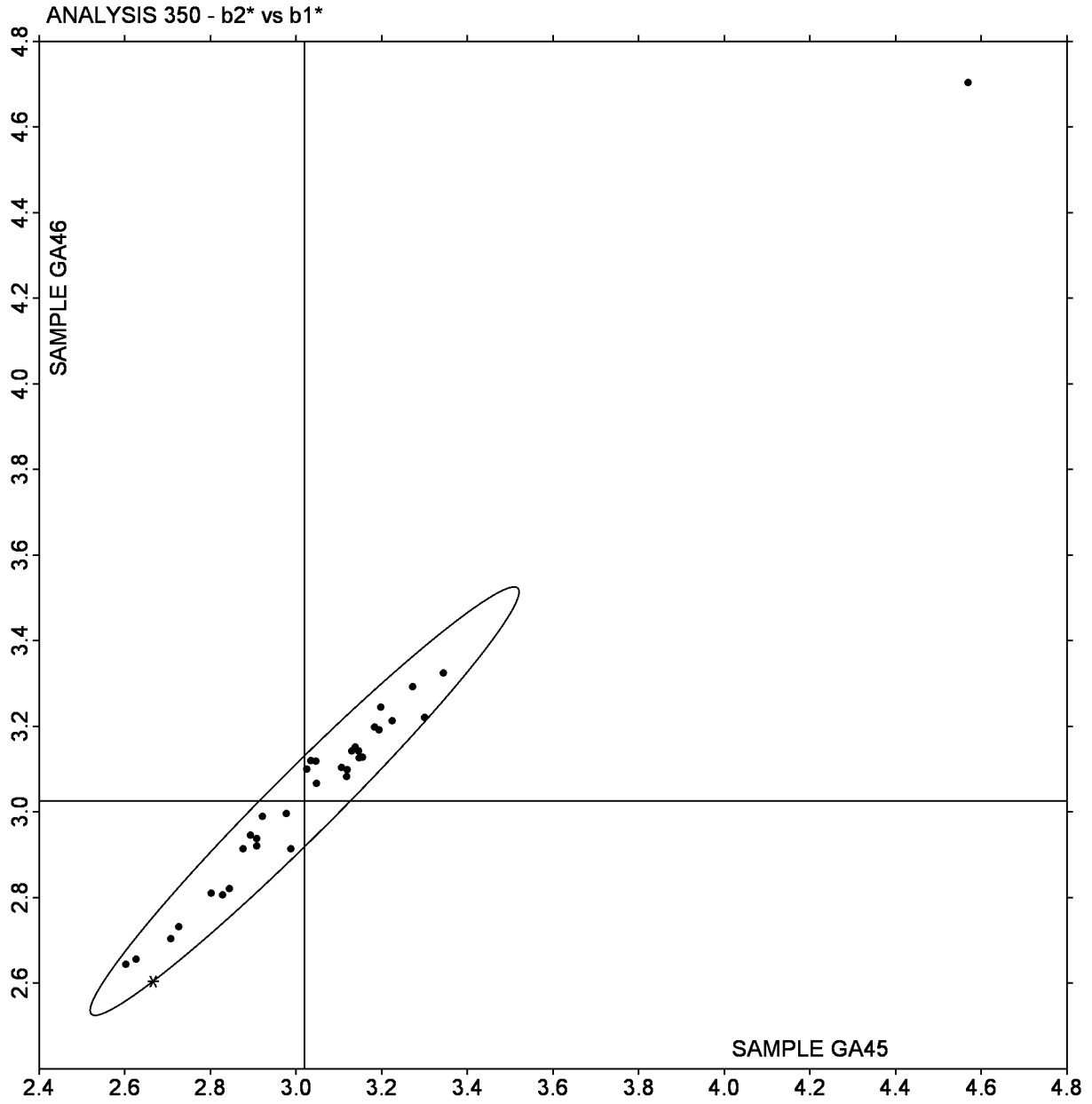


Analysis 350

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

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

Plot of b values GA46 v b values GA45



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	
2WPTR1		GA45	89.13	-0.39	2.82	0.14	0.00	-0.02	0.14	TM
		GA46	89.27	-0.39	2.79					
4BGGEA		GA45	89.47	-0.35	3.14	0.05	0.03	0.00	0.06	XA
		GA46	89.53	-0.32	3.13					
4J2F69		GA45	91.96	-0.38	3.32	-0.09	0.01	0.02	0.09	XD
		GA46	91.88	-0.37	3.34					
4PM9R3		GA45	92.20	-0.40	3.18	-0.06	0.01	0.03	0.07	HV
		GA46	92.13	-0.39	3.21					
4TG63M	X	GA45	89.83	0.45	1.69	-0.12	0.03	-0.01	0.13	TC
		GA46	89.71	0.48	1.68					
4V3E7A		GA45	90.23	-0.51	2.88	0.02	0.00	0.03	0.04	HV
		GA46	90.25	-0.51	2.91					
6N6TME	X	GA45	91.58	-0.73	3.41	-0.08	0.05	-0.13	0.16	HV
		GA46	91.50	-0.68	3.28					
6U1TGU		GA45	91.90	-0.29	3.32	-0.08	-0.02	0.12	0.15	HG
		GA46	91.82	-0.31	3.44					
7FVMX2		GA45	91.35	-0.47	3.33	-0.12	0.01	-0.01	0.12	HV
		GA46	91.23	-0.47	3.33					
CYXK9R		GA45	89.16	-0.41	2.83	0.00	0.04	0.02	0.04	TM
		GA46	89.17	-0.37	2.85					
DBC28U		GA45	89.50	-0.40	3.00	-0.05	0.01	-0.02	0.05	TC
		GA46	89.46	-0.39	2.97					
EWCKTF		GA45	89.79	-0.39	3.35	-0.01	0.00	-0.03	0.03	MG
		GA46	89.78	-0.39	3.32					
FDQ36S		GA45	91.67	-0.44	3.06	-0.05	-0.01	0.00	0.05	EH
		GA46	91.62	-0.45	3.06					
FZ27GE		GA45	91.66	-0.40	3.24	-0.10	0.00	-0.02	0.10	EF
		GA46	91.56	-0.40	3.22					
GLGZ3F		GA45	90.20	-0.47	2.93	-0.24	0.03	0.02	0.24	X HV
		GA46	89.96	-0.44	2.95					
JCZC6V		GA45	89.60	-0.38	3.01	0.03	0.00	-0.01	0.03	HU
		GA46	89.63	-0.38	3.00					
KU9MG2		GA45	91.51	-0.36	3.47	0.11	-0.02	-0.01	0.11	NG
		GA46	91.62	-0.38	3.47					
M197CG	X	GA45	89.58	-0.35	2.98	0.23	-0.06	0.12	0.27	X HM
		GA46	89.81	-0.41	3.10					

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	
NLXFF9		GA45	89.92	-0.46	3.21	0.04	0.02	0.01	0.05	MG
		GA46	89.96	-0.45	3.23					
NRWFKY		GA45	90.24	-0.36	3.12	-0.19	0.02	0.02	0.19	HV
		GA46	90.05	-0.34	3.14					
T3EGYE		GA45	91.64	-0.40	3.24	-0.09	0.01	0.03	0.10	LS
		GA46	91.55	-0.39	3.27					
TEFSR8		GA45	91.60	-0.37	3.34	0.01	0.00	-0.02	0.02	NF
		GA46	91.61	-0.37	3.32					
U4SU27		GA45	89.47	-0.34	3.04	-0.02	-0.01	0.07	0.08	TC
		GA46	89.45	-0.35	3.11					
UB63PX		GA45	91.84	-0.39	2.91	0.11	0.00	-0.01	0.11	XX
		GA46	91.96	-0.39	2.90					
W6WNAK		GA45	89.38	-0.33	3.08	-0.02	-0.02	0.04	0.05	NF
		GA46	89.36	-0.35	3.12					
WPSYDM		GA45	89.54	-0.37	3.10	0.15	-0.02	0.02	0.15	XX
		GA46	89.69	-0.39	3.12					

		Summary Statistics							
Grand Means									
	GA45	90.565	-0.395	3.128	-0.019	0.005	0.012	0.090	
	GA46	90.545	-0.390	3.140					
Std Dev Btwn Labs									
	GA45	1.097	0.051	0.185	0.099	0.016	0.034	0.057	
	GA46	1.075	0.047	0.189					
Statistics based on 23 of 26 reporting participants									

Comments assigned on Data Flags for Test #351

4TG63M (X) - Low a values and hig b values. Large db.

6N6TME (X) - Laboratory did not report L values; consensus value used for laboratory results, but not included in statistics.

M197CG (X) - Large dL and dE values.

Analysis 351

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

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

Instrument Code List as Reported by the Labs

(EF) - Datacolor Elrepho 3000

(EH) - Datacolor Elrepho SF450

(HG) - Hunter ColorQUEST

(HM) - Hunter MiniScan XE Spectrophotometer

(HU) - Hunter UltraScan

(HV) - Hunter Ultrascan XE

(LS) - L & W Elrepho SE 070

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

(NF) - Minolta CM-3600d Spectrophotometer

(NG) - Minolta CM-3700d Spectrophotometer

(TC) - Technidyne Color Touch Series

(TM) - Technidyne Brightimeter Model Micro S-5

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

(XD) - X-Rite 530 SpectroDensitometer

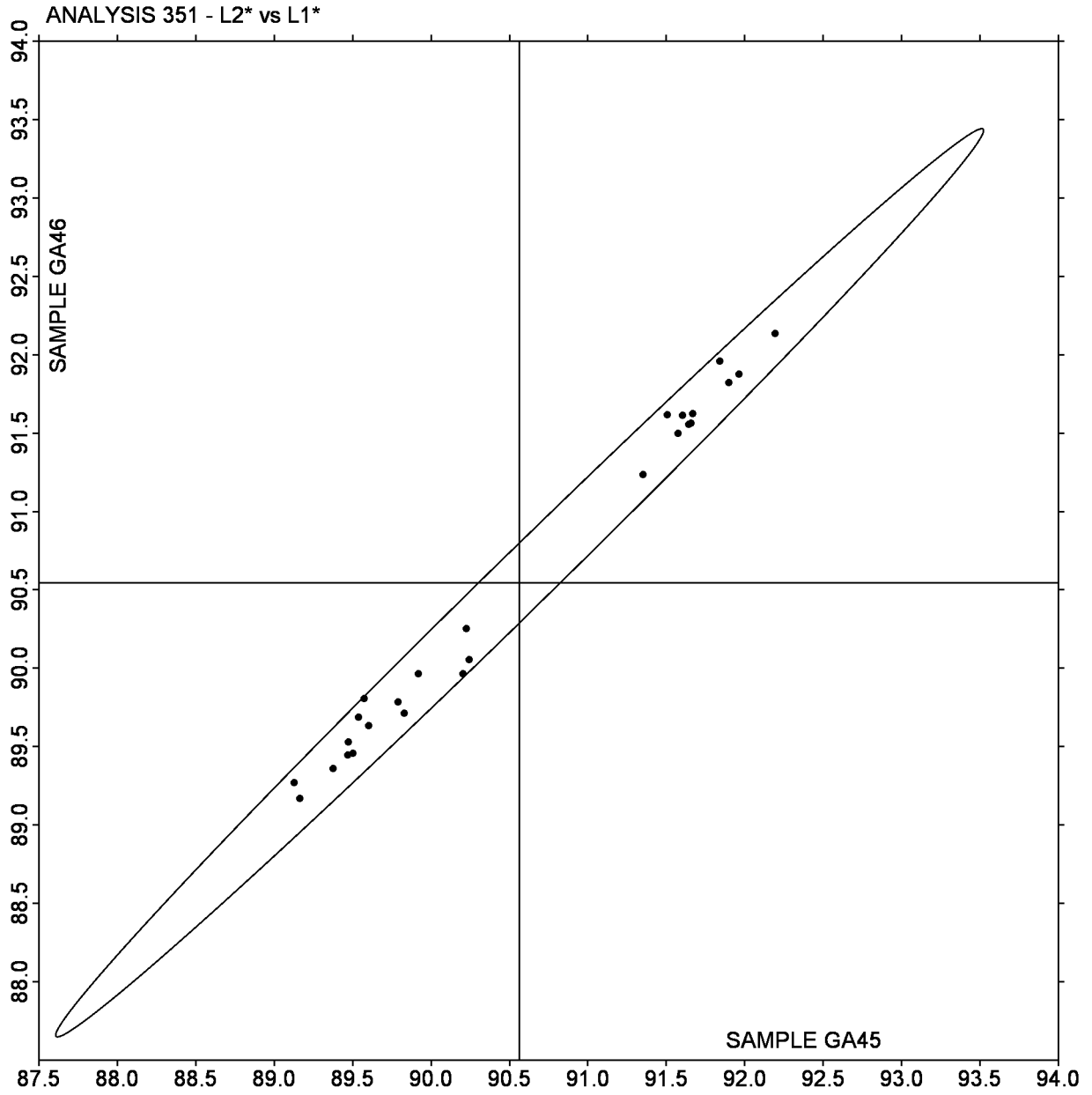
(XX) - Instrument make/model not specified by lab

Analysis 351

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

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

Plot of L values GA46 v L values GA45

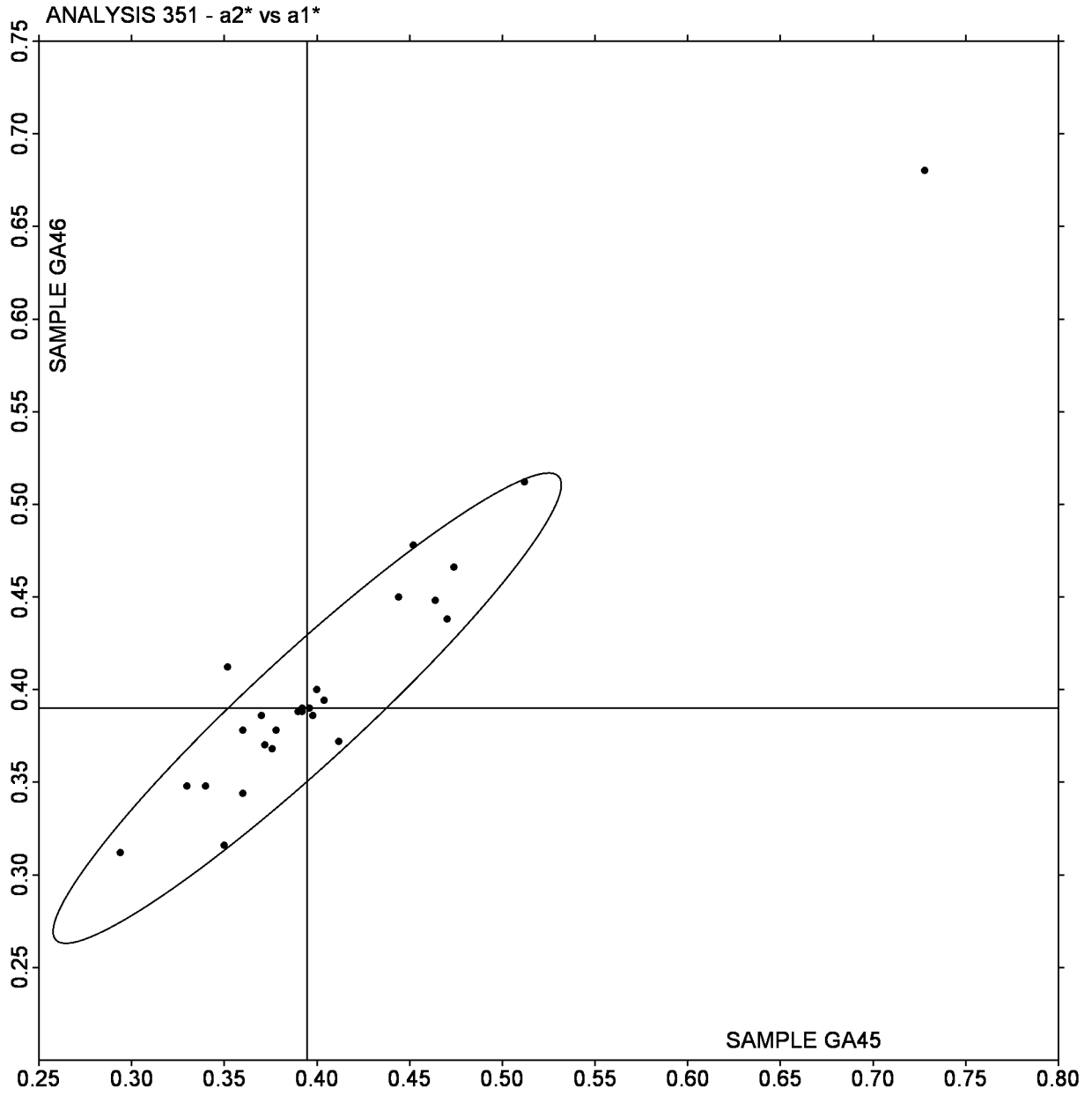


Analysis 351

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

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

Plot of a values GA46 v a values GA45

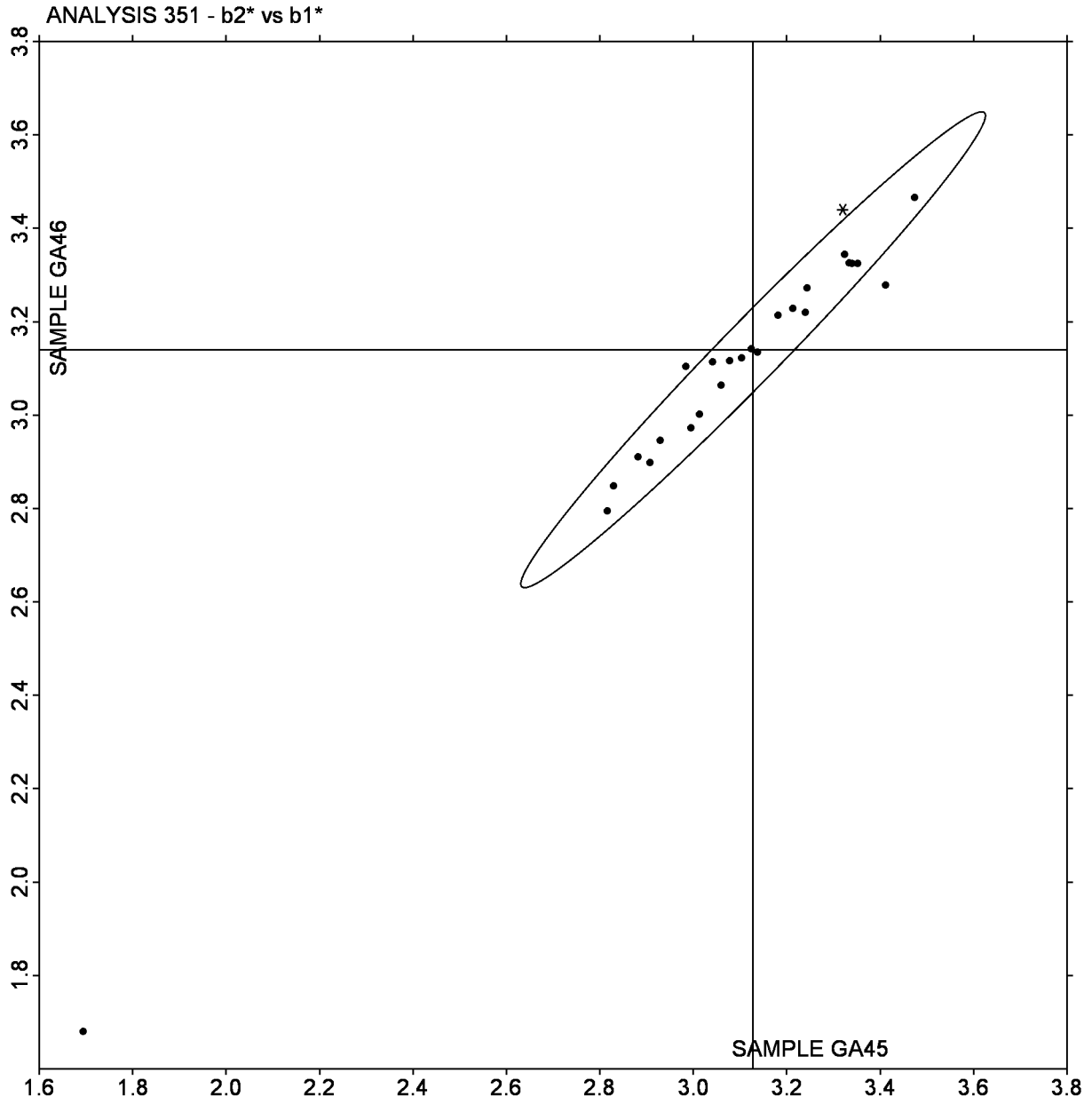


Analysis 351

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

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

Plot of b values GA46 v b values GA45



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

WebCode	Data Flag	Sample GV45			Sample GV46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1LTDDJ		3.815	-0.047	-0.74	4.563	-0.068	-1.09	XX
2ACLQ9		3.736	-0.126	-1.99	4.543	-0.088	-1.40	TA
2Z9R9Q		3.872	0.010	0.16	4.641	0.011	0.17	XX
2ZQUTJ		3.931	0.069	1.09	4.683	0.052	0.84	EM
38GK3H	*	3.740	-0.122	-1.92	4.587	-0.044	-0.71	TM
3USCLB		3.846	-0.016	-0.25	4.598	-0.032	-0.52	LW
3VKARX		3.875	0.013	0.21	4.644	0.013	0.21	LW
4AV2H9		3.930	0.068	1.07	4.707	0.076	1.22	TA
4FUU2Q		3.937	0.075	1.18	4.724	0.094	1.50	MT
4YMXD5		3.948	0.086	1.36	4.694	0.064	1.02	EM
55VFLY		3.770	-0.092	-1.45	4.500	-0.131	-2.10	TM
5C9SSQ		3.868	0.006	0.09	4.629	-0.002	-0.03	EM
5DEU7N		3.936	0.074	1.16	4.721	0.090	1.45	LW
5S3JA5		3.850	-0.012	-0.19	4.620	-0.011	-0.17	TM
8EDX59		3.921	0.059	0.93	4.692	0.061	0.98	VM
8T2S1Z		3.878	0.016	0.25	4.602	-0.028	-0.46	LW
8W9JDT		3.730	-0.132	-2.09	4.510	-0.121	-1.94	TM
8ZRRN2		3.854	-0.008	-0.12	4.622	-0.009	-0.14	FR
9CNFTL		3.927	0.065	1.03	4.720	0.089	1.42	EM
9NJ64L		3.836	-0.026	-0.41	4.637	0.006	0.10	EM
A443VE		3.857	-0.005	-0.08	4.658	0.027	0.44	PP
A8PW32		3.875	0.013	0.20	4.686	0.055	0.89	TM
AA15PD		3.811	-0.051	-0.81	4.642	0.011	0.17	LW
ACKN8C	*	3.800	-0.062	-0.98	4.654	0.023	0.37	TM
BJU5RQ		3.846	-0.016	-0.25	4.589	-0.042	-0.67	TM
C87VS5		3.807	-0.055	-0.87	4.594	-0.037	-0.59	PP
CYH6ZV		3.859	-0.003	-0.05	4.600	-0.031	-0.49	TM
D3EJHK		3.864	0.002	0.03	4.662	0.031	0.50	TM
DRYHHY		3.954	0.092	1.45	4.701	0.070	1.12	EM
DZAGCA		3.921	0.059	0.93	4.669	0.038	0.62	LW
EAEKTJ		3.856	-0.006	-0.10	4.637	0.006	0.09	TM
EBT1XK		3.790	-0.072	-1.14	4.590	-0.041	-0.65	TM
F8DE8G		3.843	-0.020	-0.31	4.606	-0.025	-0.39	XX
FCDCV3		3.815	-0.047	-0.74	4.578	-0.053	-0.85	PP
FFD6NJ		3.934	0.072	1.13	4.734	0.103	1.65	LW
FGZGZY		3.842	-0.020	-0.32	4.601	-0.030	-0.48	EM
FHN3HN		3.842	-0.020	-0.32	4.646	0.015	0.24	TA
FLAZ8M		3.853	-0.009	-0.15	4.583	-0.048	-0.77	TM
FQ1JQH		3.958	0.096	1.51	4.736	0.105	1.69	VM
G4L2A5		3.852	-0.010	-0.16	4.640	0.009	0.15	EM
GDAZ8K		3.724	-0.138	-2.18	4.536	-0.095	-1.53	TM
H28F9H	X	3.991	0.129	2.03	4.797	0.166	2.66	LW
HFUXVU		3.820	-0.042	-0.67	4.594	-0.037	-0.59	TM

Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

WebCode	Data Flag	Sample GV45			Sample GV46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
HZ8DBT		3.891	0.029	0.45	4.643	0.012	0.20	EM
J7ARGG		3.913	0.051	0.81	4.673	0.042	0.68	LW
KFB2T6		3.775	-0.087	-1.38	4.605	-0.026	-0.41	LA
KPQDDP		3.915	0.053	0.83	4.676	0.045	0.72	TA
KVYNTY	X	3.673	-0.189	-2.98	4.444	-0.187	-2.99	EM
L9XAXQ		3.820	-0.042	-0.67	4.601	-0.030	-0.48	TA
MCZ4DE		3.900	0.038	0.60	4.690	0.059	0.94	LW
MHUDXM		3.877	0.015	0.23	4.593	-0.038	-0.61	TA
MVY67C		3.740	-0.122	-1.92	4.504	-0.127	-2.03	TM
N66ZSG		3.873	0.011	0.17	4.668	0.037	0.60	EM
NDLURK		3.875	0.013	0.20	4.630	-0.001	-0.01	TA
NZXAVP		3.913	0.051	0.81	4.670	0.039	0.63	LW
P2J8WZ		3.913	0.051	0.81	4.665	0.035	0.55	LW
PVBA1V		3.950	0.088	1.39	4.715	0.084	1.35	EM
Q4QEYX		3.867	0.005	0.08	4.654	0.023	0.37	LW
QXHN8G		3.763	-0.099	-1.56	4.505	-0.126	-2.02	PP
RLMXXM		3.794	-0.068	-1.08	4.558	-0.073	-1.17	TM
RLTCWN		3.834	-0.028	-0.45	4.559	-0.072	-1.15	TA
S2AB7Y		3.820	-0.042	-0.67	4.590	-0.041	-0.65	TM
S6PYXW		3.950	0.088	1.39	4.680	0.049	0.79	TM
SBY22S		3.815	-0.047	-0.74	4.524	-0.107	-1.72	LW
SGAL2C		3.886	0.024	0.37	4.681	0.050	0.81	LW
SPKPR5		3.921	0.059	0.93	4.685	0.054	0.87	LW
T2NAUU		3.930	0.068	1.07	4.670	0.039	0.63	LW
T64MQB		3.780	-0.083	-1.30	4.539	-0.091	-1.47	TM
TBENX1		3.872	0.010	0.16	4.629	-0.002	-0.03	LA
TDJGSZ		3.864	0.002	0.03	4.598	-0.033	-0.53	TM
TF8U7W		3.963	0.101	1.59	4.689	0.058	0.93	LW
TT9Y8B		3.850	-0.013	-0.20	4.615	-0.016	-0.26	TM
U2ZGC4		3.878	0.016	0.25	4.656	0.025	0.40	TM
UZG5WZ		3.922	0.060	0.94	4.687	0.056	0.90	LA
V4717J		3.953	0.091	1.43	4.670	0.039	0.62	LW
VDN8MD		3.916	0.054	0.85	4.684	0.053	0.85	EM
WLAMNX		3.937	0.075	1.19	4.715	0.085	1.35	LW
X47EXP		3.879	0.017	0.27	4.679	0.048	0.77	EM
Y3TYAT		3.834	-0.028	-0.44	4.601	-0.030	-0.48	TM
YACY4C		3.846	-0.016	-0.25	4.594	-0.037	-0.59	TM
YBY7UU		3.941	0.079	1.24	4.719	0.088	1.41	LW
YCR9C4		3.931	0.069	1.09	4.663	0.032	0.52	EM
YEGBDC		3.740	-0.122	-1.93	4.500	-0.131	-2.10	TM
YF7PNH		3.731	-0.131	-2.07	4.478	-0.153	-2.45	PP

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

	Sample GV45	Summary Statistics	Sample GV46
Grand Means	3.8622 mils		4.6308 mils
SD Btwn Labs	0.0634 mils		0.0624 mils
Statistics based on 82 of 84 reporting participants			

Comments on assigned Data Flags for Test #360

H28F9H (X) - Systematic error (data for both samples are high).

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

TF8U7W - One determination removed from the Lab Mean of Sample GV45 per Grubb's Test at 1% risk (TAPPI 1205).

YEGBDC - Data appear to be reported as mils, not micrometers as indicated on datasheet. Unit changed by CTS.

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(MT) - Mitutoyo

(TA) - Thwing-Albert

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

(FR) - Frank Instruments

(LW) - L & W

(PP) - Technidyne Profile/Plus

(TM) - TMI

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

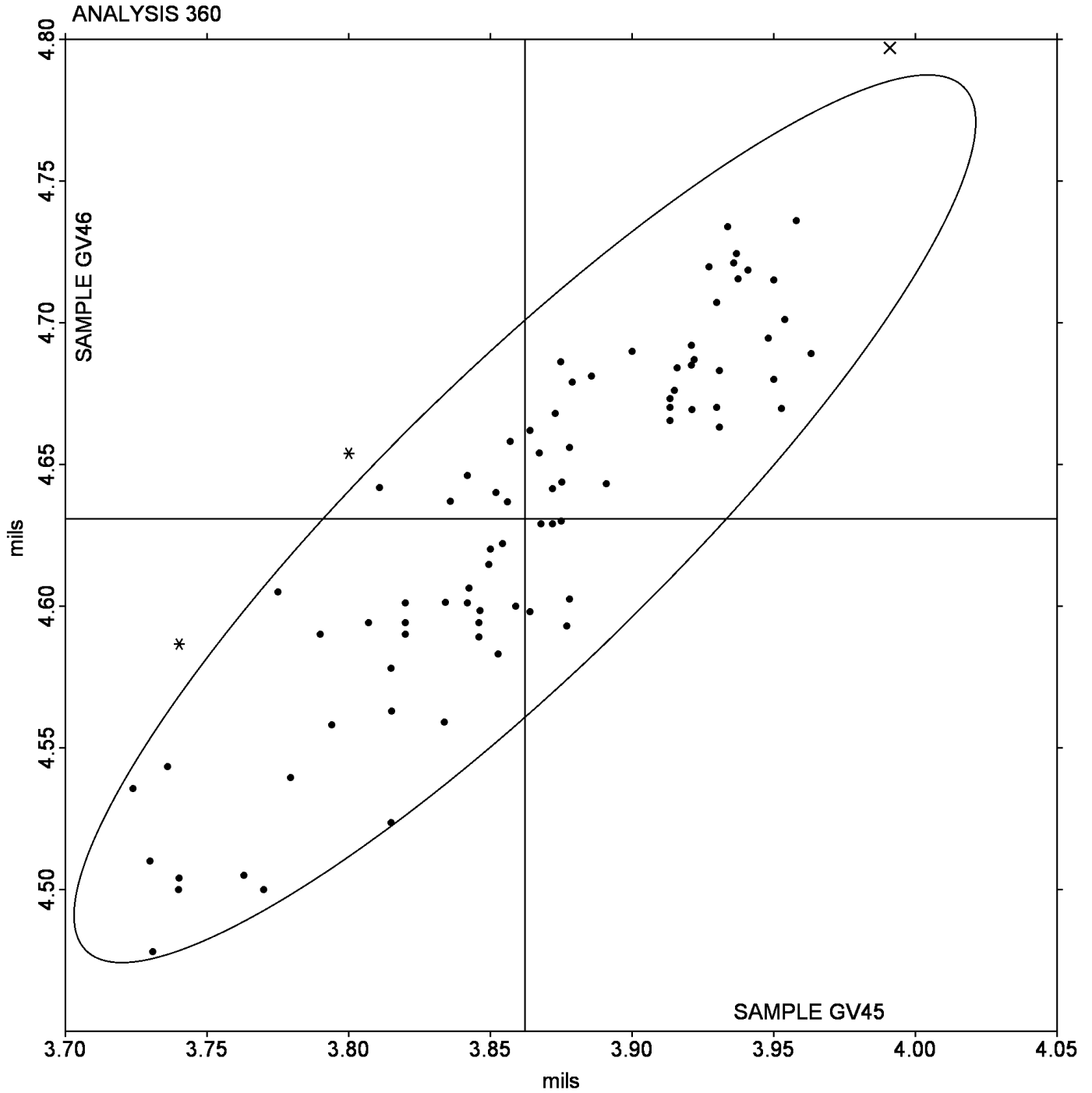
Paper & Paperboard Interlaboratory Testing Program

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV45** = 3.8622 mils

Grand Mean Sample **GV46** = 4.6308 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY45			Sample GY46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1Q8TZ4		8.807	0.054	0.67	8.858	0.117	1.24	LW
251XQC		8.666	-0.087	-1.10	8.654	-0.087	-0.92	TM
2MLGN7		8.833	0.079	1.00	8.828	0.087	0.91	TM
2QMNUA		8.772	0.019	0.23	8.764	0.023	0.24	TM
3W59J8		8.742	-0.011	-0.14	8.696	-0.045	-0.47	TA
49PACK		8.831	0.077	0.97	8.807	0.066	0.70	LW
6BWGEH		8.768	0.014	0.18	8.783	0.043	0.45	LW
9TA9DD	X	8.450	-0.303	-3.82	8.440	-0.301	-3.18	TM
AHATSM		8.721	-0.032	-0.41	8.695	-0.046	-0.48	EM
AKC3VW		8.595	-0.158	-1.99	8.572	-0.169	-1.78	EM
BS9JB8		8.680	-0.073	-0.92	8.710	-0.031	-0.33	TM
CFUQ2M		8.690	-0.063	-0.80	8.690	-0.051	-0.54	TM
E9E VW3		8.740	-0.013	-0.17	8.708	-0.033	-0.35	EM
ED4FLP		8.752	-0.001	-0.02	8.709	-0.032	-0.34	XX
EWSJMD		8.920	0.167	2.10	8.849	0.108	1.14	TA
FNSKGV		8.827	0.074	0.93	8.733	-0.008	-0.09	TM
GS34RN		8.843	0.089	1.12	8.953	0.212	2.24	XX
H2CGCB		8.852	0.099	1.24	8.859	0.118	1.25	EM
H4DNCQ		8.680	-0.073	-0.92	8.730	-0.011	-0.12	TA
H5T2MK	*	8.540	-0.213	-2.68	8.510	-0.231	-2.44	TM
HANYPH		8.720	-0.033	-0.42	8.640	-0.101	-1.07	TM
HQU71C		8.785	0.032	0.40	8.778	0.037	0.39	LA
KLUHXA		8.716	-0.037	-0.47	8.664	-0.077	-0.81	TM
L7CZ2E		8.776	0.023	0.28	8.651	-0.090	-0.95	EM
LR4VSF		8.785	0.032	0.40	8.772	0.031	0.33	LW
M9UKAN		8.711	-0.042	-0.53	8.721	-0.020	-0.21	LW
MW3HJZ	*	8.780	0.026	0.33	8.937	0.196	2.07	LA
NH1RHA		8.875	0.122	1.53	8.815	0.074	0.78	TM
PEKH7G		8.661	-0.092	-1.16	8.674	-0.067	-0.71	EM
PKGEC7		8.832	0.079	0.99	8.804	0.063	0.67	LA
QXMVWG		8.656	-0.097	-1.23	8.703	-0.038	-0.40	TM
TPBKLL		8.725	-0.028	-0.36	8.650	-0.091	-0.96	TA
VHGT6G		8.778	0.025	0.31	8.673	-0.068	-0.72	TA
WKHG1X		8.727	-0.026	-0.33	8.708	-0.033	-0.35	XX
X4RP33		8.760	0.007	0.08	8.840	0.099	1.05	EM
ZPUGDN		8.826	0.073	0.91	8.795	0.054	0.57	EM

Sample GY45		Summary Statistics	Sample GY46	
Grand Means	8.7534 mils		8.7409 mils	
SD Btwn Labs	0.0795 mils		0.0948 mils	
Statistics based on 35 of 36 reporting participants				

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

Comments on assigned Data Flags for Test #361

9TA9DD (X) - Data appear to be reported as mills, not mm as indicated on datasheet. Unit changed by CTS. Systematic error (data for both samples are low).

Instrument Code List as Reported by the Labs

(EM) - Emveco

(LA) - L & W Autoline

(LW) - L & W

(TA) - Thwing-Albert

(TM) - TMI

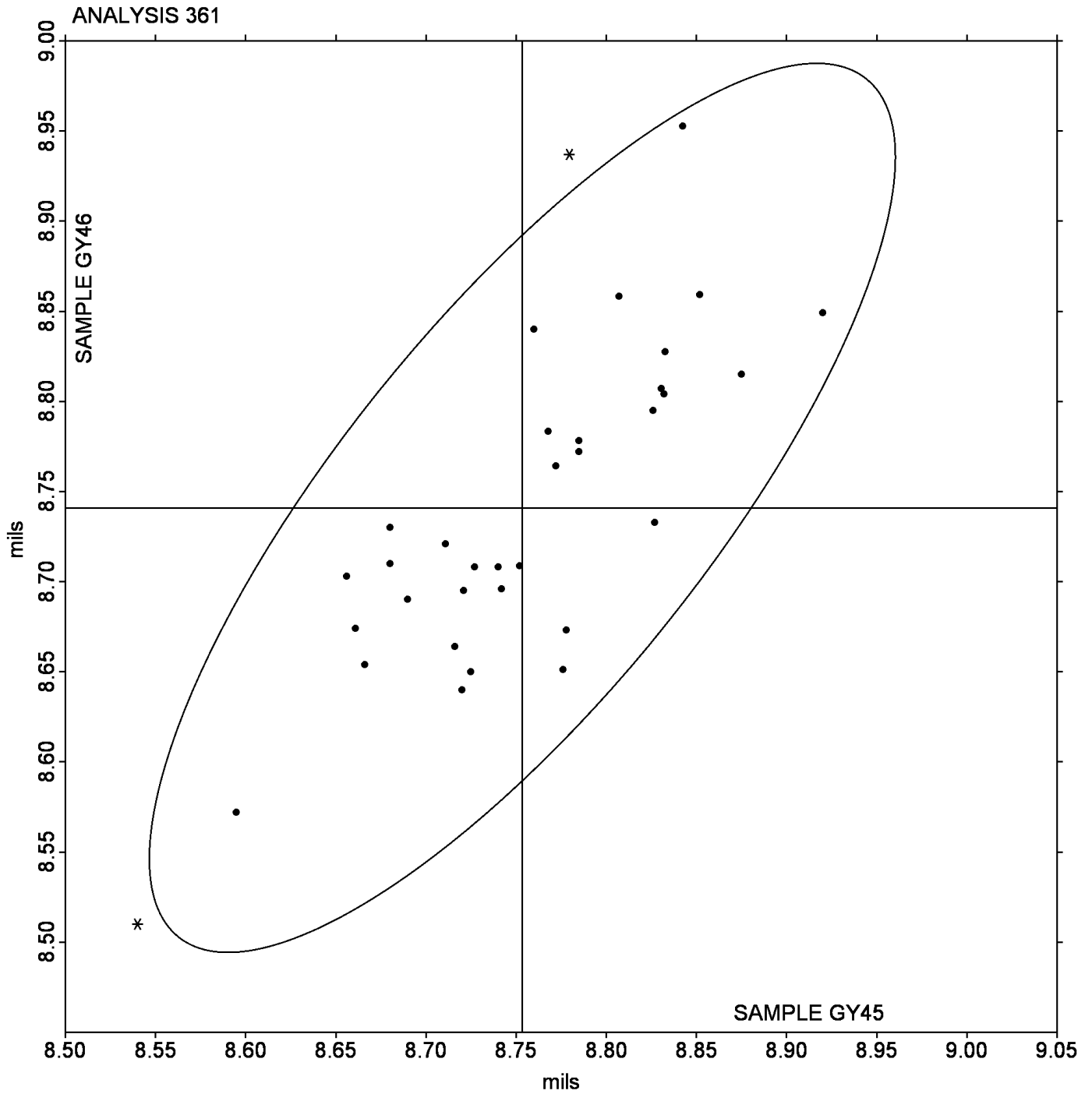
(XX) - Instrument make/model not specified by lab

Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample GY45 = 8.7534 mils

Grand Mean Sample GY46 = 8.7409 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD45			Sample GD46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3HCH8Y		0.5642	-0.0140	-0.34	0.5806	-0.0023	-0.05	TM
3YHMH4		0.5546	-0.0236	-0.57	0.5396	-0.0433	-0.93	TM
6291RW		0.6282	0.0500	1.22	0.5686	-0.0143	-0.31	TM
983QZH		0.5758	-0.0024	-0.06	0.5054	-0.0775	-1.66	TM
9KQKPB		0.5590	-0.0192	-0.47	0.5930	0.0101	0.22	XX
DQ9LF5		0.5382	-0.0400	-0.97	0.6012	0.0183	0.39	TM
M5U1X8		0.5278	-0.0504	-1.22	0.5690	-0.0139	-0.30	TM
M87CCR		0.5174	-0.0608	-1.48	0.5526	-0.0303	-0.65	TM
MCVAAS	X	0.4224	-0.1558	-3.79	0.3382	-0.2447	-5.23	TL
MU8B2Q		0.6506	0.0724	1.76	0.6864	0.1035	2.21	TM
PLJZMU		0.6086	0.0304	0.74	0.5994	0.0165	0.35	TM
UX5JZJ		0.6240	0.0458	1.11	0.6340	0.0511	1.09	TL
WA97MM		0.5680	-0.0102	-0.25	0.5360	-0.0469	-1.00	IX
ZMG71F		0.6002	0.0220	0.53	0.6120	0.0291	0.62	TM

Summary Statistics			
	Sample GD45		Sample GD46
Grand Means	0.57820	COF	0.58291
SD Btwn Labs	0.04115	COF	0.04680
Statistics based on 13 of 14 reporting participants			

Comments on assigned Data Flags for Test #364

MCVAAS (X) - Extreme data.

Instrument Code List as Reported by the Labs

(IX) - Instron (model not specified)

(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

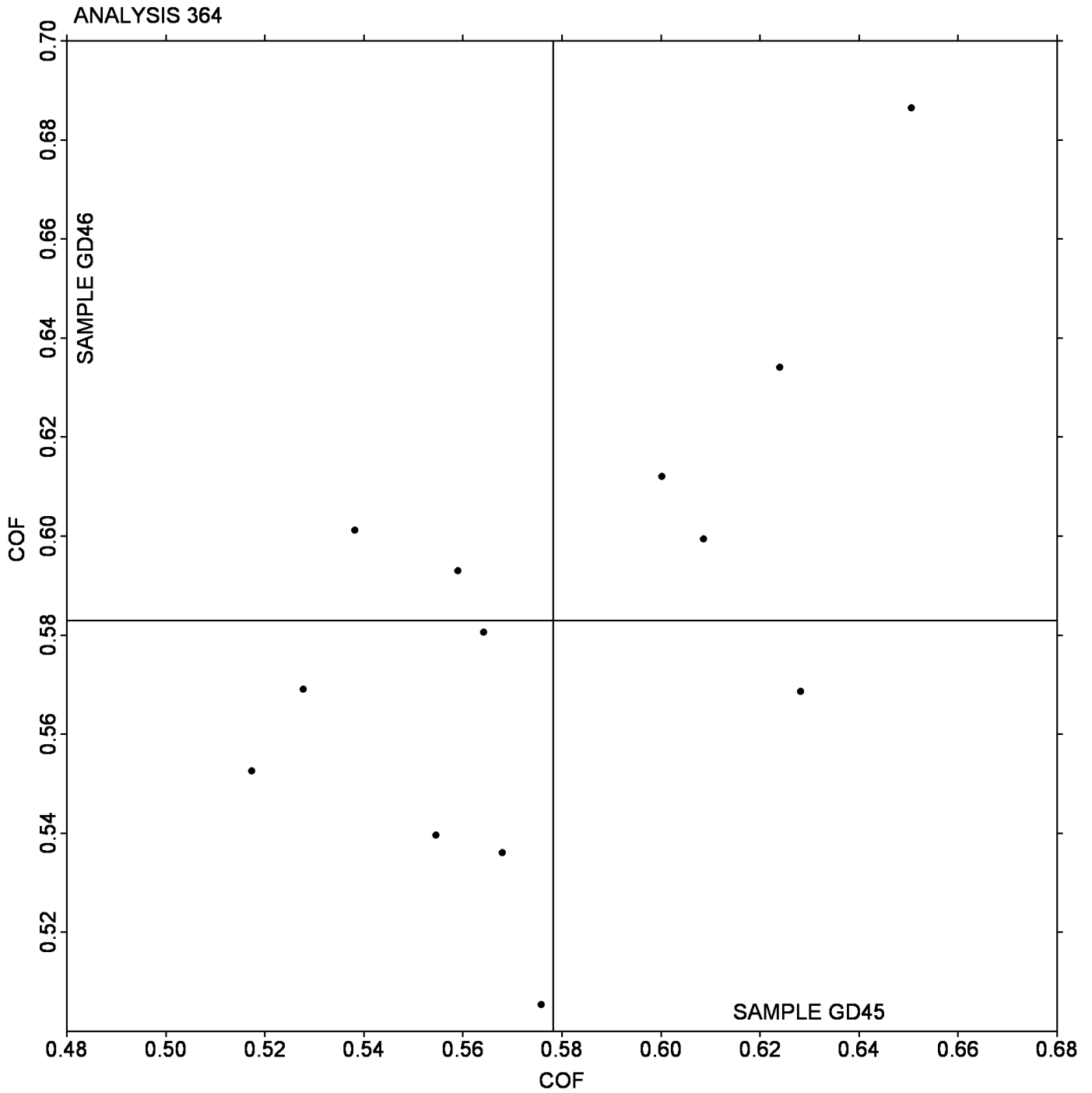
Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD45** = 0.57820 COF

Grand Mean Sample **GD46** = 0.58291 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 GD45			Sample GD46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
4EQM1B	X	0.3334	-0.1781	-3.67	0.2490	-0.2496	-5.02	TL
8FNZUT		0.4760	-0.0355	-0.73	0.4656	-0.0330	-0.66	TM
8GP4XN		0.5408	0.0293	0.60	0.5448	0.0462	0.93	KY
8VFPLR		0.5132	0.0017	0.04	0.4774	-0.0212	-0.43	TA
N34UEW		0.4460	-0.0655	-1.35	0.5202	0.0216	0.43	TM
REHXS		0.5196	0.0081	0.17	0.5108	0.0122	0.25	TN
T2583L		0.6120	0.1005	2.07	0.5940	0.0954	1.92	TL
V9Y51N		0.5200	0.0085	0.18	0.4900	-0.0086	-0.17	IX
W9JKYV		0.5002	-0.0113	-0.23	0.4326	-0.0660	-1.33	TM
YRGW4H		0.5394	0.0279	0.58	0.5452	0.0466	0.94	TM
YZTNGE		0.4350	-0.0765	-1.58	0.4382	-0.0604	-1.21	TM
Z1CEX4		0.5238	0.0123	0.25	0.4656	-0.0330	-0.66	TM

Summary Statistics

Sample GD45

Sample GD46

Grand Means 0.51145 COF
SD Btwn Labs 0.04854 COF

0.49858 COF
0.04973 COF

Statistics based on 11 of 12 reporting participants

Comments on assigned Data Flags for Test #365

4EQM1B (X) - Extreme data.

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 32-07 Monitor/Slip and Friction

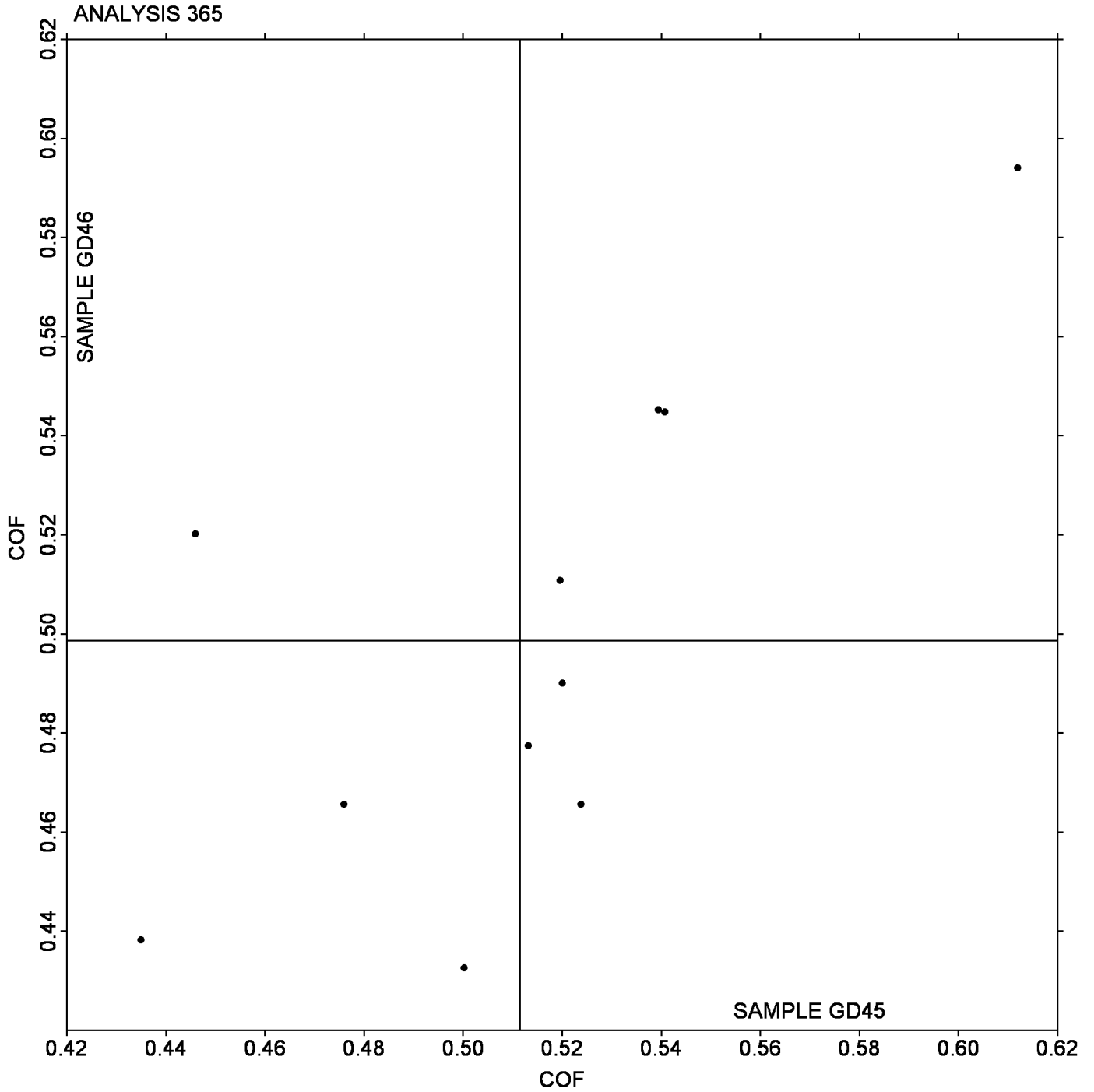
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD45** = 0.51145 COF

Grand Mean Sample **GD46** = 0.49858 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 GE45			Sample GE46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
12QR8Z		32.21	1.93	1.18	16.68	0.48	0.57	XX
1HCYW4		28.55	-1.73	-1.06	15.74	-0.46	-0.55	LW
1WVFU9		31.50	1.22	0.74	16.21	0.01	0.01	HG
2J4563		30.00	-0.28	-0.17	17.20	1.00	1.19	GL
31FV6E		29.30	-0.98	-0.60	15.00	-1.20	-1.43	LA
3DQZFM		31.13	0.85	0.52	16.83	0.63	0.75	LP
3MSU6Z	*	26.29	-3.99	-2.44	14.06	-2.14	-2.55	LW
4LSW75		30.60	0.32	0.19	16.30	0.10	0.11	HG
53Z4HJ	X	25.08	-5.20	-3.18	22.49	6.29	7.49	LA
5CQL8Z		28.12	-2.16	-1.32	15.52	-0.68	-0.82	LP
5FX6HK		32.00	1.72	1.05	16.90	0.70	0.83	TL
65AP1X		31.44	1.16	0.71	16.52	0.32	0.38	TM
6TFFDP		30.30	0.02	0.01	16.70	0.50	0.59	XX
7GELQC		31.11	0.83	0.50	16.43	0.23	0.27	XX
9SSPX9		30.49	0.21	0.13	16.16	-0.04	-0.05	LW
C1NRGV		30.84	0.56	0.34	16.21	0.01	0.01	PP
DMKPNZ		30.49	0.21	0.13	16.02	-0.18	-0.22	HG
E771GW		31.07	0.78	0.48	15.57	-0.63	-0.76	HG
EHQJSF		31.83	1.55	0.94	18.01	1.81	2.15	GA
FAW5U8		27.75	-2.53	-1.54	14.81	-1.39	-1.66	RE
G8UZ96	*	34.25	3.97	2.42	16.66	0.46	0.54	LA
GRS25P		30.43	0.15	0.09	17.04	0.84	1.00	LW
HAZP9U		29.06	-1.22	-0.75	15.62	-0.58	-0.70	XX
JN87TE		28.67	-1.61	-0.98	15.11	-1.09	-1.30	LP
L5NQUY	*	25.88	-4.40	-2.69	14.43	-1.77	-2.11	TL
LD9W74		30.37	0.09	0.05	15.94	-0.26	-0.32	LP
LE942N		29.36	-0.92	-0.56	15.92	-0.28	-0.34	GS
LLMZ45		29.52	-0.76	-0.47	15.86	-0.34	-0.41	LW
LT7BMH		29.89	-0.39	-0.24	15.11	-1.09	-1.30	TM
LUEAFL		29.70	-0.58	-0.36	16.33	0.13	0.15	LW
MQKPQW	X	41.02	10.74	6.56	20.98	4.78	5.69	VM
MWXWJS		31.37	1.09	0.66	17.53	1.33	1.58	HG
NYRRDF		31.38	1.10	0.67	16.84	0.64	0.76	TN
PDXFF7		30.39	0.11	0.07	15.79	-0.41	-0.49	LP
QLEX3E		28.55	-1.73	-1.06	15.61	-0.59	-0.71	LP
R9BDPS		31.77	1.49	0.91	16.62	0.42	0.50	PP
RD7ILM		29.19	-1.09	-0.67	16.16	-0.04	-0.05	LP
S7Q5HH		31.48	1.20	0.73	16.73	0.53	0.63	TL
S8G984		28.67	-1.61	-0.98	16.11	-0.09	-0.11	GS
SD5766		29.10	-1.18	-0.72	15.80	-0.40	-0.48	LW
TG6VHU		30.82	0.54	0.33	16.91	0.71	0.84	GL
V2JEEG		32.68	2.40	1.46	17.59	1.39	1.65	TL
WPZ23Z		29.80	-0.48	-0.29	16.60	0.40	0.47	WG

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

WebCode	Data Flag	Sample GE45			Sample GE46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
X7GNWT		30.88	0.60	0.36	15.84	-0.36	-0.43	LW
Y2HWPU		28.49	-1.79	-1.09	15.31	-0.89	-1.07	LP
YTRDAM		32.28	2.00	1.22	16.34	0.14	0.16	TL
YXXKJS		32.15	1.87	1.14	17.70	1.50	1.78	TN
ZUYGDR		31.87	1.59	0.97	17.03	0.83	0.98	HG

Summary Statistics			
	Sample GE45		Sample GE46
Grand Means	30.283 sec/100 cc		16.204 sec/100 cc
SD Btwn Labs	1.638 sec/100 cc		0.839 sec/100 cc
Statistics based on 46 of 48 reporting participants			

Comments on assigned Data Flags for Test #370

53Z4HJ (X) - Extreme data.

MQKPQW (X) - Extreme data.

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 |
| (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

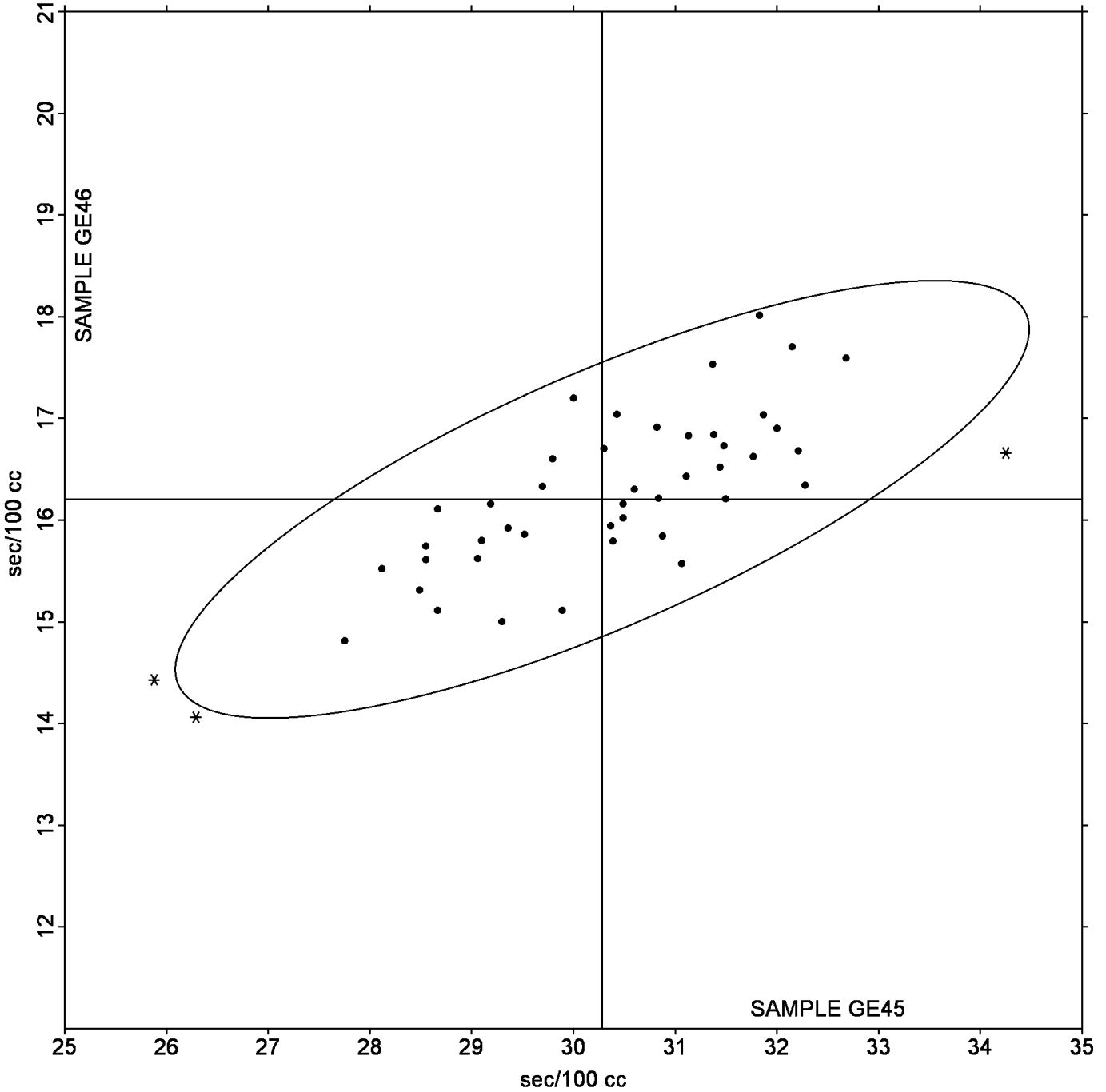
Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE45** = 30.283 sec/100 cc

Grand Mean Sample **GE46** = 16.204 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 GE45			Sample GE46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1FTASB		95.11	-0.08	-0.02	166.5	7.2	0.79	XX
2EA333		93.90	-1.29	-0.28	157.2	-2.1	-0.23	HM
3EBDDQ		100.00	4.81	1.04	153.5	-5.8	-0.64	SH
3NX6HM		91.90	-3.29	-0.71	157.6	-1.7	-0.19	TT
4EP3G3		96.50	1.31	0.28	149.0	-10.3	-1.13	TT
4QQR9Z		89.40	-5.79	-1.25	155.6	-3.7	-0.41	HM
58BSFU	X	30.73	-64.46	-13.89	17.0	-142.3	-15.57	HG
64S6Y6		94.10	-1.09	-0.24	158.2	-1.1	-0.12	SH
7CL6C4		82.98	-12.21	-2.63	142.9	-16.4	-1.80	LP
8FUH2A		96.50	1.31	0.28	160.9	1.6	0.17	SH
BQE1W1	X	120.90	25.71	5.54	128.1	-31.2	-3.42	SH
BYCQRB		98.49	3.29	0.71	178.1	18.8	2.06	SH
CU2T4E		102.86	7.67	1.65	179.7	20.4	2.23	HM
GQPAKG	X	64.20	-30.99	-6.68	101.1	-58.2	-6.37	TS
JD99L7		89.80	-5.39	-1.16	158.9	-0.4	-0.05	LP
KKQB3U		98.10	2.91	0.63	155.3	-4.0	-0.44	SH
KLLWP8		94.20	-0.99	-0.21	155.8	-3.5	-0.38	HM
RPFV96		94.50	-0.69	-0.15	166.2	6.9	0.75	SH
SBUSQ7		94.30	-0.89	-0.19	154.7	-4.6	-0.50	SH
UPD369		100.80	5.61	1.21	171.6	12.3	1.34	HG
VEMYYT		93.70	-1.49	-0.32	154.8	-4.5	-0.49	LP
WJ7EDY		99.14	3.95	0.85	165.1	5.8	0.63	HG
Y1W5YB		91.60	-3.59	-0.77	153.3	-6.0	-0.66	HM
Y4VJL1		101.20	6.01	1.29	150.6	-8.7	-0.95	VM
YGPBD3	X	30.40	-64.79	-13.96	16.2	-143.1	-15.66	GA

Summary Statistics		
Sample GE45		Sample GE46
Grand Means	95.194 Sheffield Units	159.31 Sheffield Units
SD Btwn Labs	4.640 Sheffield Units	9.14 Sheffield Units
Statistics based on 21 of 25 reporting participants		

Comments on assigned Data Flags for Test #372

58BSFU (X) - Extreme data.

BQE1W1 (X) - Extreme data.

GQPAKG (X) - Extreme data.

YGPBD3 (X) - Extreme data.

Paper & Paperboard Interlaboratory Testing Program**Analysis 372****Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice**

Instrument Code List as Reported by the Labs

(GA) - Gurley Precision #4340 Automatic Densometer

(HG) - Technidyne - Hagerty Model #1

(HM) - Technidyne - Hagerty Model #538

(LP) - L & W Densometer, Air Permeance

(SH) - Sheffield

(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

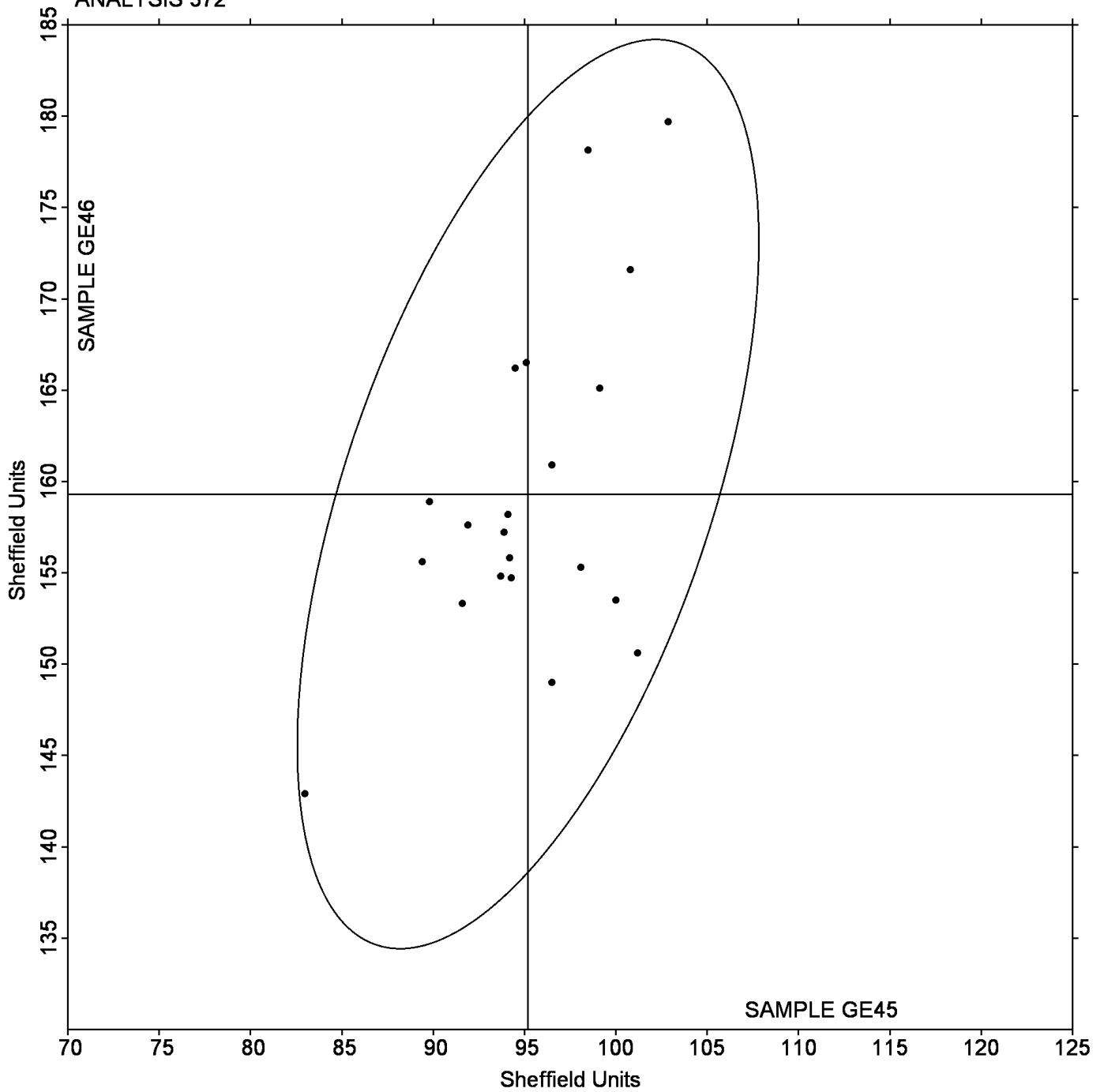
Analysis 372

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

Grand Mean Sample **GE45** = 95.194 Sheffield Units

Grand Mean Sample **GE46** = 159.31 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 GJ45			Sample GJ46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
2DJ2HY		0.6050	-0.1403	-1.48	0.6850	-0.0954	-1.16
2GYPJX		0.7310	-0.0143	-0.15	0.7560	-0.0244	-0.30
2KFXT5		0.7600	0.0147	0.15	0.8000	0.0196	0.24
3555ZR		0.9200	0.1747	1.84	0.8960	0.1156	1.41
39U4Z8		0.7660	0.0207	0.22	0.8280	0.0476	0.58
3DEKED		0.8370	0.0917	0.97	0.8980	0.1176	1.43
4PEPN1		0.6660	-0.0793	-0.84	0.7490	-0.0314	-0.38
6X14B8		0.7350	-0.0103	-0.11	0.7270	-0.0534	-0.65
7CA7CT		0.7110	-0.0343	-0.36	0.7450	-0.0354	-0.43
7DVVBG	*	0.9590	0.2137	2.25	0.8690	0.0886	1.08
7WV5JJ		0.7160	-0.0293	-0.31	0.7370	-0.0434	-0.53
7XDKW8		0.8720	0.1267	1.33	0.9060	0.1256	1.53
8T8SB1		0.7210	-0.0243	-0.26	0.7710	-0.0094	-0.12
BRM4YK		0.7570	0.0117	0.12	0.7710	-0.0094	-0.12
DFS8SU		0.8770	0.1317	1.39	0.8780	0.0976	1.19
DNWKYL		0.9130	0.1677	1.77	0.9240	0.1436	1.75
EC4T1Z		0.8400	0.0947	1.00	0.8340	0.0536	0.65
GCZATE		0.7980	0.0527	0.55	0.7370	-0.0434	-0.53
KABWU2		0.6790	-0.0663	-0.70	0.7190	-0.0614	-0.75
LBGQW		0.6360	-0.1093	-1.15	0.7000	-0.0804	-0.98
M7YAQK		0.7500	0.0047	0.05	0.8230	0.0426	0.52
NYS6GL		0.6520	-0.0933	-0.98	0.7250	-0.0554	-0.68
PEYQU4		0.7290	-0.0163	-0.17	0.7940	0.0136	0.17
PT4SSJ		0.6170	-0.1283	-1.35	0.6720	-0.1084	-1.32
PTE6Y7		0.6620	-0.0833	-0.88	0.7420	-0.0384	-0.47
PU9V2B		0.6920	-0.0533	-0.56	0.7300	-0.0504	-0.62
Q4BXXD		0.6670	-0.0783	-0.83	0.7330	-0.0474	-0.58
Q58AVS		0.7770	0.0317	0.33	0.7930	0.0126	0.15
Q5V4QX		0.8070	0.0617	0.65	0.8410	0.0606	0.74
QMC794		0.7650	0.0197	0.21	0.8600	0.0796	0.97
QT95ET		0.7850	0.0397	0.42	0.8270	0.0466	0.57
RA4BUD		0.6220	-0.1233	-1.30	0.7230	-0.0574	-0.70
RQ44QF		0.8430	0.0977	1.03	0.8970	0.1166	1.42
SGVRN4	*	0.5920	-0.1533	-1.62	0.5790	-0.2014	-2.46
UNFWTA		0.6620	-0.0833	-0.88	0.6700	-0.1104	-1.35
V9BUZE		0.7215	-0.0238	-0.25	0.7530	-0.0274	-0.33
VYPD27		0.7390	-0.0063	-0.07	0.7530	-0.0274	-0.33
X8V7Q3		0.6120	-0.1333	-1.40	0.6680	-0.1124	-1.37
Y33HPQ		0.8750	0.1297	1.37	0.9240	0.1436	1.75

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

	Sample GJ45	Summary Statistics	Sample GJ46
Grand Means	0.74535 Microns		0.78044 Microns
SD Btwn Labs	0.09493 Microns		0.08196 Microns
Statistics based on 39 of 39 reporting participants			

Notes for Analysis 376

No Data Flags assigned for this analysis.

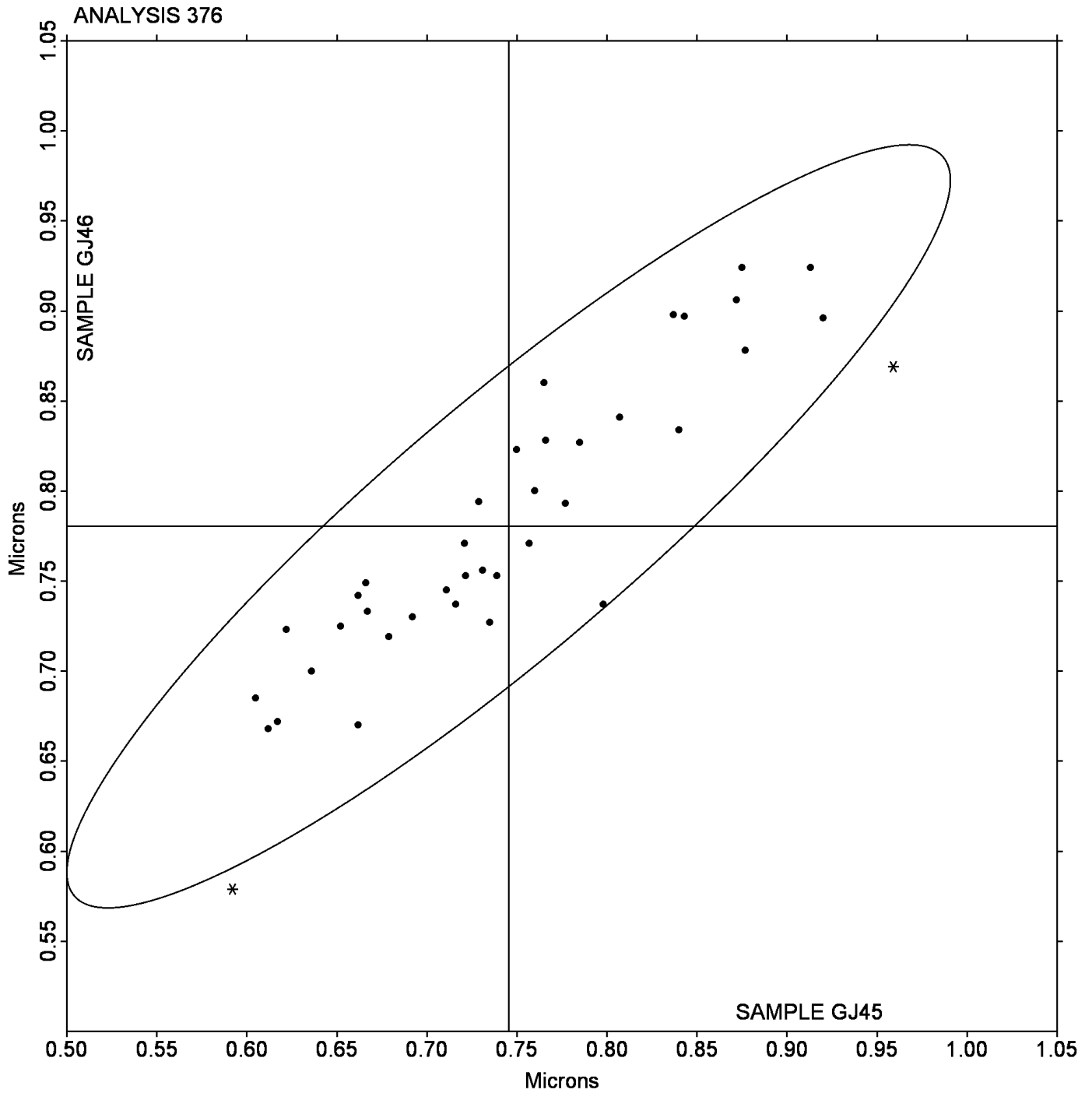
Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample **GJ45** = 0.74535 Microns

Grand Mean Sample **GJ46** = 0.78044 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK45			Sample GK46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1HT7R1		4.496	0.064	0.22	4.434	0.014	0.05
78N618		4.099	-0.333	-1.12	4.181	-0.239	-0.88
7L2QR2		4.310	-0.122	-0.41	4.366	-0.054	-0.20
7U2ZJD	X	3.460	-0.972	-3.26	3.470	-0.950	-3.48
8PW3SS		4.368	-0.064	-0.21	4.417	-0.003	-0.01
93QH86		4.546	0.114	0.38	4.555	0.135	0.50
E2GNE8	X	5.400	0.968	3.25	5.430	1.010	3.70
E5R516		3.858	-0.574	-1.93	3.940	-0.480	-1.76
EE352K		4.878	0.446	1.50	4.850	0.430	1.58
HLEJN8		4.590	0.158	0.53	4.534	0.114	0.42
LG7HWL		4.323	-0.109	-0.36	4.248	-0.172	-0.63
N7U32K		4.550	0.118	0.40	4.510	0.090	0.33
NPKV64		4.433	0.001	0.00	4.358	-0.062	-0.23
NWK97K		5.041	0.609	2.05	5.040	0.620	2.27
P68GUU		4.554	0.122	0.41	4.420	0.000	0.00
PP4ES8		4.574	0.142	0.48	4.511	0.091	0.33
UKAVGK		4.115	-0.317	-1.06	4.125	-0.295	-1.08
VJ2AVA		4.598	0.166	0.56	4.584	0.164	0.60
W7BQAS		3.938	-0.494	-1.66	3.972	-0.448	-1.64
WS8JVN		4.498	0.066	0.22	4.512	0.092	0.34

Sample GK45		Summary Statistics	Sample GK46	
Grand Means	4.4316 Microns		4.4198 Microns	
SD Btwn Labs	0.2979 Microns		0.2727 Microns	
Statistics based on 18 of 20 reporting participants				

Comments on assigned Data Flags for Test #377

7U2ZJD (X) - Systematic error (data for both samples are low).

E2GNE8 (X) - Systematic error (data for both samples are high).

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

WebCode	Data Flag	Sample GL45			Sample GL46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1DEDUF		133.2	0.0	0.00	144.5	3.7	0.32	HM
1DZ1F4		119.2	-14.0	-1.27	128.4	-12.4	-1.05	HM
1F26TP		133.2	0.0	0.00	129.8	-11.0	-0.94	HM
1FVDMV	*	156.0	22.8	2.08	174.0	33.2	2.83	SH
1LZDMZ		138.0	4.8	0.44	141.5	0.7	0.06	GL
1MTMQU		134.3	1.1	0.10	130.8	-10.0	-0.85	HM
1RUKQM		121.9	-11.3	-1.03	137.3	-3.5	-0.30	PP
1U5EPL		144.1	10.9	1.00	149.8	9.0	0.77	HM
2QE9XV		150.0	16.8	1.53	152.0	11.2	0.96	TS
32DJYG	X	185.0	51.8	4.72	196.0	55.2	4.70	XX
33WFEN		118.8	-14.4	-1.31	134.4	-6.4	-0.54	HM
3F4TMT		141.9	8.7	0.80	153.8	13.0	1.11	SH
3M5MLA		135.0	1.8	0.17	141.3	0.5	0.04	XX
429C51		120.2	-13.0	-1.18	133.5	-7.3	-0.62	HM
4812XW		152.5	19.3	1.76	160.0	19.2	1.64	SH
6WTPG9		149.0	15.8	1.44	162.1	21.3	1.82	SH
6YLL12	X	5.6	-127.5	-11.62	5.3	-135.5	-11.55	TT
753HZ8		114.9	-18.3	-1.66	137.9	-2.9	-0.25	HM
7APLYY		125.1	-8.1	-0.73	131.4	-9.4	-0.80	TS
8A6PEB		133.7	0.5	0.04	132.1	-8.7	-0.74	PP
8G2TR9		124.7	-8.5	-0.77	129.5	-11.3	-0.96	HM
8S2WYW		122.1	-11.1	-1.01	125.6	-15.2	-1.29	HM
8ZRFQ3		134.2	1.0	0.09	132.2	-8.6	-0.73	XX
9XHXD8	*	138.8	5.6	0.51	167.1	26.3	2.24	HM
AHGLGN		137.2	4.0	0.37	141.9	1.1	0.10	HM
APZ57G		118.2	-15.0	-1.36	133.6	-7.2	-0.61	LW
ATXC1R		148.7	15.5	1.41	143.7	2.9	0.25	LA
BX74DX		121.5	-11.7	-1.06	126.2	-14.6	-1.24	HM
CAMPYP		132.6	-0.6	-0.05	150.9	10.1	0.86	HM
CPTH38		126.6	-6.6	-0.60	135.3	-5.5	-0.47	SH
DGK6XF		136.5	3.3	0.30	155.0	14.2	1.21	SH
EKDLGA		154.7	21.5	1.96	150.9	10.1	0.86	XX
ESPYFD		118.3	-14.9	-1.35	132.8	-8.0	-0.68	VM
EXKLBM		121.4	-11.7	-1.07	124.5	-16.3	-1.39	LA
EYARSD		136.6	3.4	0.31	146.5	5.7	0.49	SH
F6FTXS		143.5	10.3	0.94	151.1	10.3	0.88	TS
F72PWS		128.9	-4.3	-0.39	134.4	-6.4	-0.54	HM
GKBB63		145.7	12.5	1.14	151.0	10.2	0.87	VM
GTHKNF		125.0	-8.2	-0.74	136.9	-3.9	-0.33	HM
H9CW3J		144.7	11.6	1.05	149.6	8.8	0.75	GA
J4182M		124.0	-9.2	-0.84	126.6	-14.2	-1.21	PP
J636Z8		128.8	-4.4	-0.40	130.2	-10.6	-0.90	GA
J9VGLT		125.5	-7.7	-0.70	131.4	-9.4	-0.80	SH

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

WebCode	Data Flag	Sample GL45			Sample GL46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
JPU3SE	*	131.5	-1.7	-0.15	115.5	-25.3	-2.15	SH
JQMLSA		117.9	-15.3	-1.39	125.7	-15.1	-1.28	HM
KFW6TY		130.4	-2.8	-0.25	123.2	-17.6	-1.50	SH
KHQCCF		138.1	4.9	0.45	149.5	8.7	0.74	HM
LFHCWF		127.6	-5.6	-0.51	127.2	-13.6	-1.16	PP
M27TJN		131.7	-1.5	-0.13	154.5	13.7	1.17	TT
NWPN37		143.3	10.1	0.92	152.2	11.4	0.97	TT
P4K24Y		121.6	-11.6	-1.06	135.3	-5.4	-0.46	PP
PFMQNM		137.4	4.2	0.39	143.1	2.3	0.20	HM
PGLASK		128.4	-4.8	-0.43	147.0	6.2	0.53	HM
QAHJ3N		122.3	-10.9	-0.99	119.3	-21.5	-1.83	HM
QPUTJC		145.0	11.8	1.08	156.0	15.2	1.30	GL
QTGJC8		145.0	11.8	1.08	144.8	4.0	0.34	SH
RBVH1H	*	107.2	-25.9	-2.36	135.0	-5.8	-0.49	HM
S2DGJ7		135.5	2.3	0.21	148.2	7.4	0.63	HM
T3NR7X		146.0	12.8	1.17	144.1	3.3	0.28	SH
TMMBD6	*	136.8	3.6	0.33	121.8	-19.0	-1.62	TS
UXAKC6		126.7	-6.5	-0.59	138.8	-2.0	-0.17	MP
VGXR28	X	54.2	-79.0	-7.19	32.6	-108.2	-9.22	TS
VS6Z38		134.5	1.3	0.12	146.7	5.9	0.50	SH
WK48DA		137.5	4.3	0.39	148.0	7.2	0.61	TT
XJ2LRA		144.7	11.5	1.05	152.1	11.3	0.96	HM
XLP1H5		152.5	19.3	1.76	142.1	1.3	0.11	GA
XW7XGS		140.5	7.3	0.67	151.0	10.2	0.87	GL
YQ4QLE		117.9	-15.3	-1.39	140.3	-0.5	-0.04	HM
YWEPMY		124.9	-8.3	-0.75	136.4	-4.4	-0.37	HM
ZHY4PR		150.9	17.7	1.62	155.3	14.5	1.24	LW
ZKSAJU		126.3	-6.9	-0.63	136.4	-4.4	-0.37	TS
ZWPVQ8		125.3	-7.9	-0.72	138.9	-1.9	-0.16	HM
ZZM6S9		135.1	2.0	0.18	144.8	4.1	0.35	LA

		Summary Statistics	
	Sample GL45		Sample GL46
Grand Means	133.17 Sheffield		140.78 Sheffield
SD Btw Labs	10.98 Sheffield		11.74 Sheffield
Statistics based on 70 of 73 reporting participants			

Comments on assigned Data Flags for Test #378

32DJYG (X) - Systematic error (data for both samples are high).

6YLL12 (X) - Extreme data.

VGXR28 (X) - Extreme data.

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

Instrument Code List as Reported by the Labs

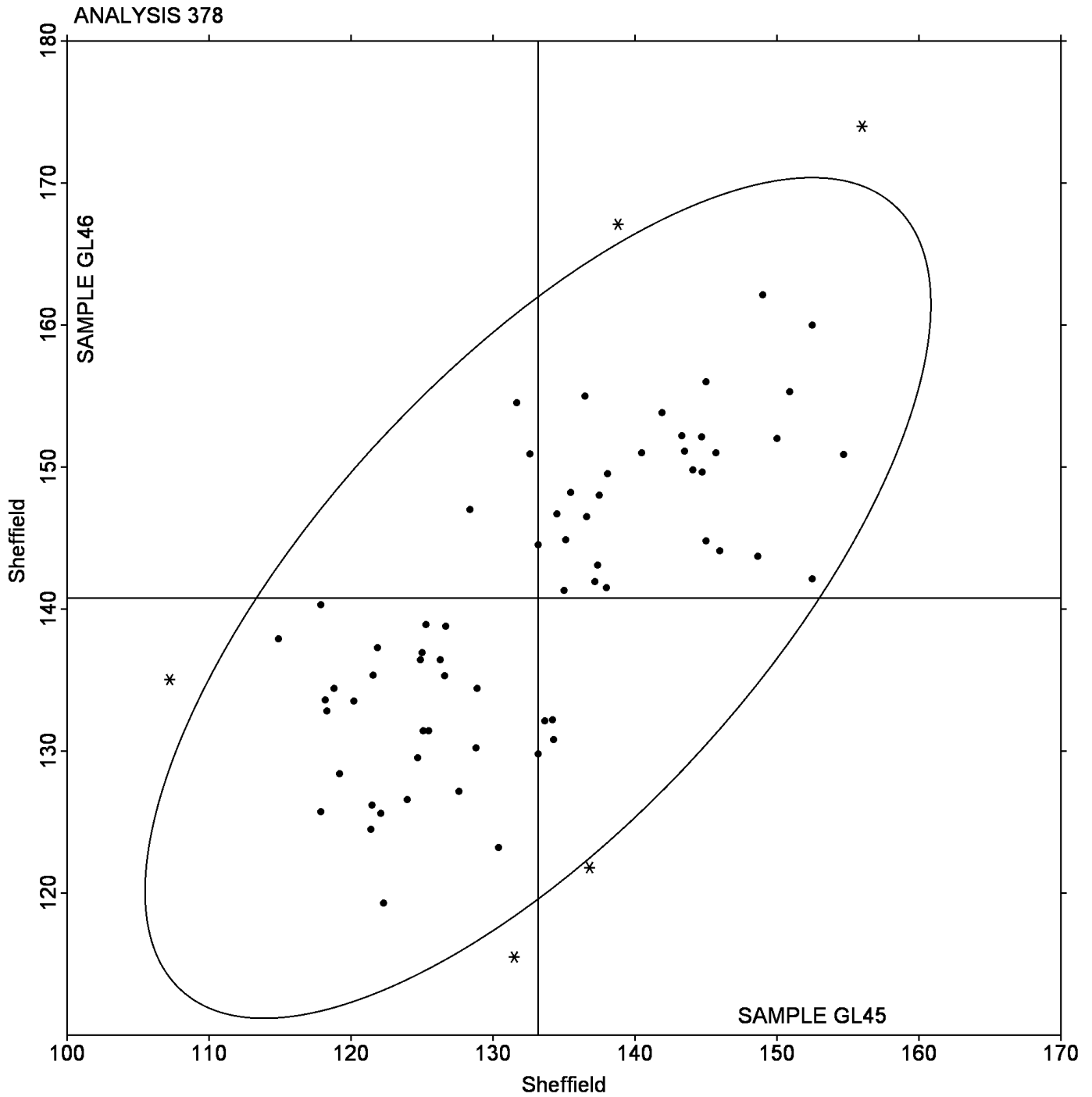
(GA) - Gurley Precision #4340 Automatic Densometer	(GL) - Giddings and Lewis Sheffield
(HM) - Technidyne - Hagerty Model #538	(LA) - L & W Roughness Sheffield - Autoline
(LW) - L & W Roughness Tester	(MP) - Metso Paperlab
(PP) - Technidyne Profile/Plus	(SH) - Sheffield (Bendix Precisionaire)
(TS) - TMI 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

Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL45** = 133.17 Sheffield

Grand Mean Sample **GL46** = 140.78 Sheffield



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM45			Sample GM46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
88ZE72	X	2.206	-2.634	-9.35	5.468	0.693	2.57
F3UX7T		4.742	-0.098	-0.35	4.698	-0.077	-0.29
F6WUY8		4.960	0.120	0.43	4.976	0.201	0.75
HAUGWZ		5.230	0.390	1.39	5.100	0.325	1.21
HK7ANN		4.354	-0.486	-1.72	4.388	-0.387	-1.43
L68UUR		4.750	-0.090	-0.32	4.430	-0.345	-1.28
T9QES6		5.201	0.361	1.28	5.087	0.312	1.16
UQUQ83		4.970	0.130	0.46	4.970	0.195	0.72
UXVFVL		4.755	-0.085	-0.30	4.675	-0.100	-0.37
Y67737		4.595	-0.245	-0.87	4.650	-0.125	-0.46

		Summary Statistics	
	Sample GM45		Sample GM46
Grand Means	4.8397 Percent		4.7748 Percent
SD Btwn Labs	0.2817 Percent		0.2697 Percent
Statistics based on 9 of 10 reporting participants			

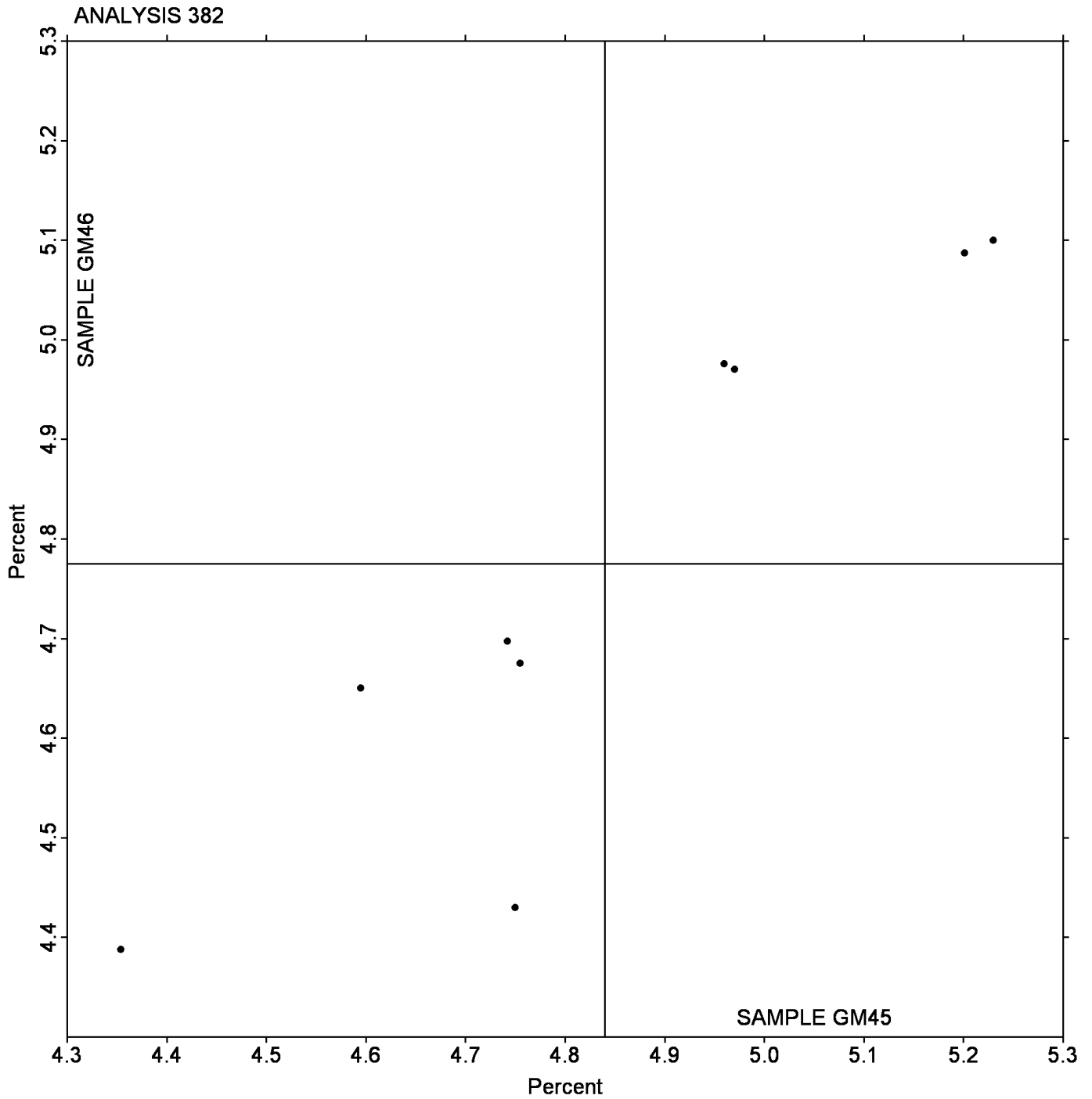
Comments on assigned Data Flags for Test #382

88ZE72 (X) - Extreme data.

Analysis 382
Moisture in Paper

Grand Mean Sample **GM45** = 4.8397 Percent

Grand Mean Sample **GM46** = 4.7748 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 GN45			Sample GN46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
17TLHF		89.70	-0.15	-0.33	91.76	-0.43	-0.99
18F567		89.97	0.12	0.26	92.26	0.07	0.15
2UDZNL	X	92.26	2.41	5.27	93.76	1.57	3.59
2ZUVWA	*	91.11	1.26	2.75	92.80	0.61	1.39
3735LA		89.72	-0.13	-0.29	91.99	-0.20	-0.46
3R4XVG		90.63	0.78	1.71	92.34	0.15	0.34
5GN61A		90.53	0.68	1.48	92.43	0.24	0.54
5WQ2Q9		89.73	-0.13	-0.28	91.98	-0.21	-0.49
6B5CGV		89.53	-0.32	-0.70	91.94	-0.25	-0.58
6J7B6Z		89.71	-0.14	-0.31	91.27	-0.92	-2.11
6UESLY		89.45	-0.40	-0.88	91.72	-0.47	-1.07
7J6A3J	*	89.84	-0.01	-0.02	93.16	0.97	2.22
7NC1W1	*	91.03	1.18	2.58	92.91	0.72	1.64
7TPEX6		89.80	-0.05	-0.12	91.90	-0.29	-0.67
8DQUS2		89.64	-0.21	-0.47	91.84	-0.35	-0.81
9NQ7EN		90.02	0.17	0.37	92.29	0.10	0.22
9TTA31		90.18	0.33	0.72	92.77	0.58	1.32
BZ7B8G		90.84	0.99	2.16	92.69	0.50	1.14
CR88HP		89.59	-0.26	-0.57	91.70	-0.50	-1.13
E7VMAU		89.73	-0.12	-0.27	92.35	0.16	0.36
F3VCHK		89.44	-0.41	-0.90	92.43	0.24	0.54
FTY9NG		89.58	-0.27	-0.60	92.36	0.17	0.38
G742AT		89.27	-0.58	-1.27	91.68	-0.51	-1.17
GCM41P		90.28	0.43	0.94	92.07	-0.12	-0.28
GHQQDE		89.64	-0.21	-0.47	92.26	0.07	0.15
GP2YD3		89.85	0.00	-0.01	91.97	-0.22	-0.51
H1BVVB		89.65	-0.20	-0.44	91.77	-0.42	-0.97
JKJH1G		89.27	-0.58	-1.27	92.36	0.17	0.38
L5KMYE		90.01	0.16	0.34	92.45	0.26	0.59
MYNZ8T		89.63	-0.22	-0.49	92.09	-0.10	-0.23
N3LK8W		90.05	0.20	0.43	91.91	-0.28	-0.65
NY58CF		90.56	0.71	1.55	92.60	0.41	0.93
RHGBE3		89.62	-0.23	-0.51	92.12	-0.07	-0.17
RPB277		89.04	-0.81	-1.78	91.10	-1.09	-2.50
RWRC76		89.46	-0.39	-0.85	92.60	0.41	0.94
S2JFBW		89.68	-0.17	-0.38	92.68	0.49	1.12
S4ZQQG		89.14	-0.71	-1.56	91.86	-0.33	-0.76
SQ6FE3		89.29	-0.56	-1.23	91.71	-0.49	-1.11
SQ75SM		89.67	-0.18	-0.40	91.92	-0.27	-0.62
SXANCD		89.61	-0.24	-0.53	91.82	-0.37	-0.85
TJV5QA	*	90.56	0.71	1.55	93.43	1.24	2.83
TWEL16		89.78	-0.07	-0.15	92.28	0.08	0.19
U56RMZ		90.36	0.51	1.11	92.19	0.00	-0.01

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

WebCode	Data Flag	Sample GN45			Sample GN46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
UM9EZJ		89.87	0.02	0.04	92.32	0.13	0.29
VGHNPM		89.56	-0.29	-0.64	92.01	-0.18	-0.42
VJ7WW3		89.91	0.06	0.12	92.13	-0.06	-0.14
W3WDBR		89.25	-0.60	-1.32	91.86	-0.33	-0.76
X2GT9Y		89.98	0.13	0.28	92.14	-0.05	-0.12
YVL3RM		89.62	-0.23	-0.51	92.13	-0.07	-0.15
Z1TPLQ		89.60	-0.25	-0.55	92.15	-0.04	-0.09
Z3KTBC		90.15	0.30	0.65	92.09	-0.10	-0.23
ZH32BE		89.91	0.06	0.13	92.29	0.09	0.22
ZRVQ35		90.27	0.42	0.91	93.02	0.83	1.89
ZYZWC1		89.86	0.01	0.02	92.31	0.12	0.27

		Summary Statistics	
	Sample GN45		Sample GN46
Grand Means	89.853 Percent		92.192 Percent
SD Btwn Labs	0.457 Percent		0.437 Percent
Statistics based on 53 of 54 reporting participants			

Comments on assigned Data Flags for Test #384

2UDZNL (X) - Extreme data.

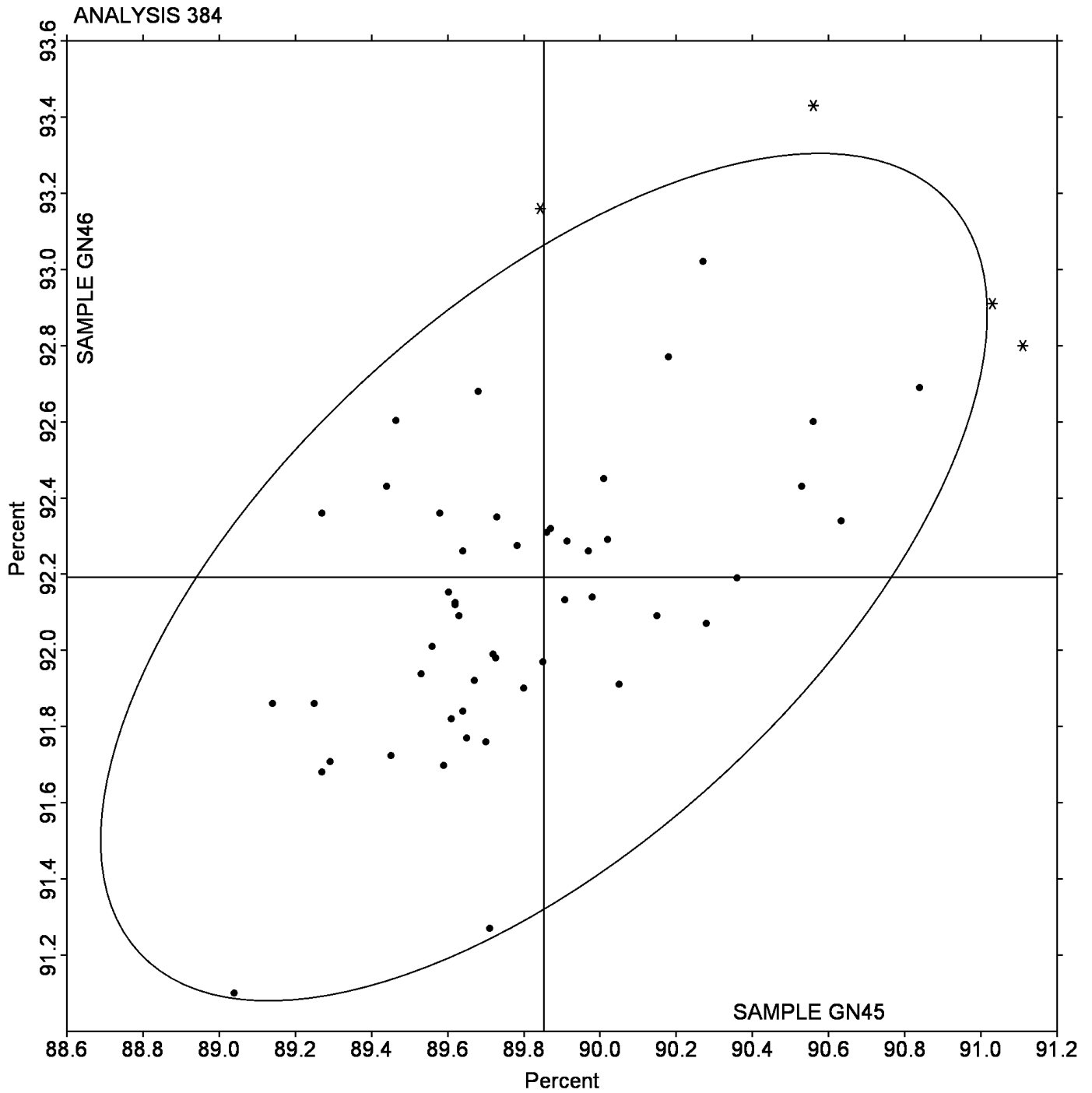
Paper & Paperboard Interlaboratory Testing Program

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

Grand Mean Sample **GN45** = 89.853 Percent

Grand Mean Sample **GN46** = 92.192 Percent



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

WebCode	Data Flag	Sample GP45			Sample GP46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
1XYXES		95.03	0.19	1.43	94.94	0.11	0.89
283QV4	X	94.54	-0.30	-2.20	94.22	-0.60	-4.90
2PTP5C		94.88	0.04	0.32	94.69	-0.14	-1.10
3WTHYW		94.84	0.00	0.02	94.85	0.02	0.18
4758YL		95.17	0.33	2.43	94.99	0.16	1.28
62237K		94.92	0.08	0.60	94.94	0.11	0.93
8H1BW4		95.03	0.19	1.38	94.96	0.13	1.03
96Z85F		94.79	-0.04	-0.32	94.87	0.04	0.31
9DFZCT		94.83	-0.01	-0.09	94.89	0.06	0.50
9QHMXG		94.78	-0.06	-0.45	94.80	-0.02	-0.20
AA23UV		94.86	0.02	0.13	94.88	0.06	0.46
AEDU62		94.85	0.02	0.11	94.93	0.10	0.79
BFM84V	X	93.15	-1.69	-12.41	93.28	-1.55	-12.55
CQACZ2		94.86	0.02	0.16	94.88	0.05	0.43
DN37RR		94.82	-0.02	-0.12	94.86	0.03	0.28
EWRN8M	*	94.45	-0.39	-2.85	94.44	-0.39	-3.16
GKQVQM		94.79	-0.05	-0.34	94.75	-0.08	-0.67
H6ZNY Y		94.82	-0.02	-0.17	94.85	0.02	0.20
KCUDAZ		94.78	-0.06	-0.46	94.81	-0.01	-0.12
KYX4Z1	X	91.31	-3.53	-25.97	91.54	-3.29	-26.65
N85YHV		94.79	-0.05	-0.35	94.88	0.05	0.42
PCY5SR		94.89	0.05	0.37	94.80	-0.03	-0.25
R2JWHW	*	94.70	-0.14	-1.00	94.52	-0.31	-2.52
RX3JLF		94.91	0.07	0.52	94.90	0.07	0.57
RY5J6U		94.90	0.06	0.46	94.79	-0.04	-0.31
V18JVQ		94.55	-0.29	-2.12	94.72	-0.11	-0.90
X4GPDN		94.89	0.05	0.36	94.88	0.06	0.45
ZPKFZS		94.80	-0.04	-0.29	94.85	0.03	0.20
ZQ6T1B		94.80	-0.03	-0.26	94.80	-0.03	-0.25
ZUAHTY		94.91	0.07	0.54	94.90	0.07	0.56

Sample GP45		Summary Statistics	Sample GP46	
Grand Means	94.838 Percent		94.828 Percent	
SD Btwn Labs	0.136 Percent		0.123 Percent	
Statistics based on 27 of 30 reporting participants				

Comments on assigned Data Flags for Test #386

283QV4 (X) - Inconsistent in testing between samples, data for Sample GP46 are low.

BFM84V (X) - Extreme data.

KYX4Z1 (X) - Extreme data.

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

WebCode	Data Flag	Sample GR45			Sample GR46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
11KT36		76.80	-0.06	-0.15	76.94	0.03	0.07	TS
1LDUS1		76.79	-0.08	-0.18	76.73	-0.18	-0.44	TT
2JY2WB		76.57	-0.29	-0.71	76.52	-0.39	-0.94	TS
3M48C1		77.20	0.34	0.82	77.07	0.16	0.39	GM
3TE8YS		76.47	-0.39	-0.94	76.57	-0.34	-0.82	TS
4QFXYC		76.71	-0.15	-0.36	76.73	-0.18	-0.44	TS
6937G4		76.70	-0.16	-0.40	77.00	0.09	0.22	TS
82MAR1		77.26	0.40	0.97	77.21	0.30	0.73	TT
889HDT		77.60	0.74	1.79	77.77	0.86	2.07	HD
AZCA16		76.55	-0.31	-0.75	76.45	-0.46	-1.10	TS
B3SNDL	*	76.85	-0.01	-0.03	76.36	-0.55	-1.32	TT
B8T9HF		76.45	-0.41	-1.00	76.58	-0.33	-0.81	XX
EP98AJ		76.64	-0.23	-0.55	76.60	-0.31	-0.75	TS
G2W34G		77.30	0.44	1.06	77.75	0.84	2.03	TS
GDYQQQ		76.76	-0.11	-0.26	76.79	-0.12	-0.29	TS
GEM7MS		76.46	-0.40	-0.97	76.63	-0.28	-0.69	TS
GWS29D		77.93	1.06	2.58	77.83	0.92	2.22	HD
HK1C2R		76.26	-0.60	-1.46	76.58	-0.33	-0.81	TA
JUQ64E		77.73	0.86	2.08	77.69	0.78	1.88	TS
LSP7PY	X	78.34	1.47	3.57	76.68	-0.23	-0.56	TT
LWMEJ9		77.40	0.54	1.30	77.33	0.42	1.00	PE
M2LU2H		76.64	-0.22	-0.54	76.74	-0.17	-0.41	TS
M6SNGM		76.75	-0.11	-0.28	76.89	-0.02	-0.05	TT
MH1CBG		76.90	0.04	0.10	76.92	0.01	0.03	TS
MUJ3CL		76.84	-0.03	-0.06	76.96	0.05	0.13	TT
N19UX7		76.90	0.04	0.09	77.10	0.19	0.46	MG
N6NPRX	X	78.60	1.74	4.20	77.20	0.29	0.70	PE
NMXTLV		76.82	-0.04	-0.11	76.72	-0.19	-0.46	TT
PG13GQ		76.63	-0.23	-0.56	76.49	-0.42	-1.02	TS
Q7VY56		76.50	-0.37	-0.89	76.58	-0.33	-0.79	XX
QE1JPA		77.32	0.46	1.11	77.37	0.46	1.12	PP
QMGZH5		76.69	-0.18	-0.43	76.84	-0.07	-0.17	TT
RVLYC7		76.82	-0.05	-0.11	76.76	-0.15	-0.35	TS
TG51YP		76.85	-0.01	-0.03	76.88	-0.03	-0.08	TS
TJP74C		75.99	-0.88	-2.13	76.39	-0.52	-1.26	XX
U77AEU		77.36	0.50	1.21	77.08	0.17	0.40	TT
UDAGUX	X	78.72	1.85	4.49	78.67	1.76	4.24	HD
V2UTGQ		76.35	-0.51	-1.24	76.66	-0.25	-0.59	TS
VC5576		77.03	0.16	0.39	77.00	0.09	0.22	TA
VFR236		76.54	-0.33	-0.79	76.18	-0.73	-1.77	TT
YHJCFV		77.35	0.49	1.18	77.29	0.38	0.91	TA
YM1ZCE	*	76.98	0.12	0.28	77.54	0.63	1.51	HG

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

	Sample GR45	Summary Statistics	Sample GR46
Grand Means	76.864 Percent		76.909 Percent
SD Btwn Labs	0.413 Percent		0.415 Percent
Statistics based on 39 of 42 reporting participants			

Comments on assigned Data Flags for Test #390

LSP7PY (X) - Inconsistent in testing between samples, data for Sample GR45 are high.

N6NPRX (X) - Inconsistent in testing between samples (data for sample GR45 are high) and inconsistent within the replicate measurements for Sample GR46.

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

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

(PP) - Technidyne Profile/Plus

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

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

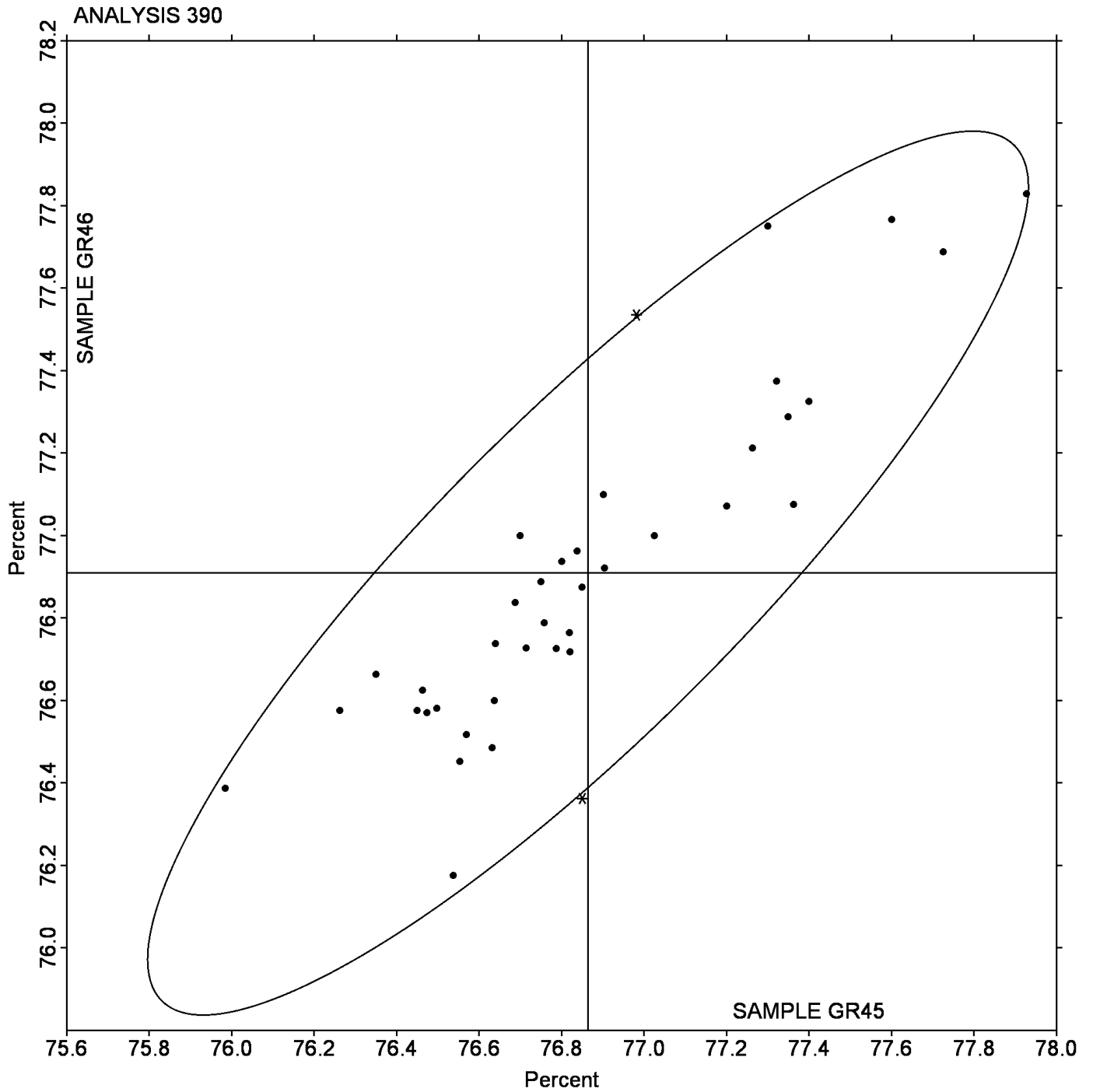
(XX) - Instrument make/model not specified by lab

Analysis 390

Directional Brightness

Grand Mean Sample GR45 = 76.864 Percent

Grand Mean Sample GR46 = 76.909 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

WebCode	Data Flag	Sample GZ45			Sample GZ46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
194QPW		93.47	-2.62	-2.11	90.06	-2.29	-1.90	XX
3ALA4S		96.08	-0.01	-0.01	93.06	0.71	0.59	TT
3T6ZKS		96.66	0.57	0.46	93.58	1.23	1.03	TS
6FDJX9		95.56	-0.54	-0.43	92.52	0.17	0.14	TS
6UTFGK		96.81	0.71	0.58	90.90	-1.45	-1.20	TS
73XENR		96.19	0.10	0.08	93.15	0.80	0.67	XX
7NCMGR		95.98	-0.11	-0.09	92.87	0.53	0.44	TS
96M235		95.86	-0.24	-0.19	91.51	-0.84	-0.69	TS
9RNUNH		98.59	2.50	2.01	94.44	2.09	1.74	HV
9WQQ3P		95.19	-0.90	-0.73	91.34	-1.01	-0.84	MG
9XVMD1		99.34	3.25	2.62	94.82	2.47	2.06	EF
CF7Q1U		96.19	0.09	0.08	91.34	-1.00	-0.83	TS
FFB3T2		95.86	-0.23	-0.19	92.92	0.57	0.48	TT
G3PYE4	X	102.48	6.39	5.15	97.44	5.09	4.24	MK
K6ZJ37		95.88	-0.21	-0.17	91.44	-0.90	-0.75	XX
KARH6P		95.78	-0.31	-0.25	91.74	-0.61	-0.50	XX
LARAMP		96.06	-0.04	-0.03	92.92	0.57	0.48	PP
MYSRRF		95.57	-0.52	-0.42	92.65	0.31	0.26	TS
PPW6DN		96.84	0.75	0.60	91.84	-0.51	-0.42	TT
SSCA3W	X	111.29	15.20	12.26	105.27	12.92	10.75	HV
TZFBZV6		95.84	-0.25	-0.20	92.94	0.59	0.49	TS
U35VNB		93.80	-2.29	-1.85	90.43	-1.92	-1.59	GM
U3FL68	X	91.12	-4.97	-4.01	85.24	-7.11	-5.91	TT
XQL55S		96.58	0.48	0.39	92.06	-0.29	-0.24	TS
ZUQ4M1		95.91	-0.18	-0.14	93.07	0.73	0.60	TS

Sample GZ45		Summary Statistics	Sample GZ46	
Grand Means	96.093 Percent		92.345 Percent	
SD Btw Labs	1.240 Percent		1.202 Percent	
Statistics based on 22 of 25 reporting participants				

G3PYE4 (X) - Extreme data.

SSCA3W (X) - Extreme data.

U3FL68 (X) - Extreme data.

Analysis Notes:

9XVMD1 - Data appears to be transposed between Analysis 394 (Fluorescent Component) and Analysis 391 (Directional Brightness). Data switched by CTS.

FFB3T2 - Data appears to be transposed between Analysis 394 (Fluorescent Component) and Analysis 391 (Directional Brightness). Data switched by CTS.

Paper & Paperboard Interlaboratory Testing Program
Analysis 391
Directional Brightness of Fluorescent Samples

Instrument Code List as Reported by the Labs

(EF) - L & W Datacolor Elrepho

(GM) - Gretag Macbeth Color i5

(HV) - Hunter Ultrascan XE

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

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(PP) - Technidyne Profile/Plus

(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 392
Diffuse Brightness

WebCode	Data Flag	Sample GR45			Sample GR46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1G4R3B		76.37	-0.09	-0.31	76.45	-0.02	-0.09	TM
21DAQK		76.56	0.10	0.36	76.63	0.15	0.58	TM
2JV581		76.75	0.29	1.01	76.63	0.16	0.59	TM
3B4ZUC		76.97	0.51	1.75	77.03	0.56	2.12	TM
4A73K9	X	76.93	0.47	1.62	76.47	0.00	0.01	EF
85C1G6		76.60	0.14	0.48	76.57	0.10	0.37	TC
9FDKQY		76.31	-0.15	-0.52	76.19	-0.29	-1.08	LS
9R9T22		75.94	-0.52	-1.82	76.00	-0.47	-1.79	LA
ANGM4Q		76.59	0.13	0.45	76.50	0.03	0.12	TM
BBEUSR		76.71	0.25	0.87	76.59	0.11	0.43	TC
BVM11X		76.93	0.47	1.61	76.90	0.43	1.62	TM
CX5M45		76.63	0.17	0.59	76.56	0.08	0.32	TC
D2NM7X		76.88	0.42	1.46	76.81	0.34	1.29	TM
EHKTH5		76.05	-0.41	-1.42	76.11	-0.36	-1.36	TC
F27K8G		76.69	0.23	0.78	76.64	0.17	0.64	TC
G7P5D8		76.85	0.39	1.35	76.75	0.28	1.05	TL
K3X9Y5		76.81	0.35	1.22	76.95	0.48	1.82	EG
L7RUH7		76.58	0.12	0.41	76.39	-0.08	-0.30	TC
LE46AY		76.48	0.02	0.08	76.35	-0.12	-0.47	TC
LHGDBY	*	75.99	-0.47	-1.64	76.30	-0.17	-0.65	LS
M9EL7J		76.23	-0.23	-0.81	76.31	-0.16	-0.60	TC
ME22EG		76.66	0.20	0.71	76.61	0.13	0.50	TM
MXDXMU		76.73	0.27	0.93	76.79	0.32	1.21	LS
N8BM1E		76.43	-0.03	-0.11	76.54	0.07	0.27	TM
P3YHVS		76.54	0.08	0.28	76.51	0.04	0.15	TC
PE6KZW		76.20	-0.26	-0.89	76.21	-0.26	-0.98	TC
R8ET2E		75.98	-0.48	-1.68	75.95	-0.53	-1.99	LT
RKA2P2		76.63	0.17	0.58	76.66	0.19	0.73	XX
RYZAY2	*	76.62	0.16	0.56	76.90	0.43	1.61	TM
SKM27P		76.36	-0.10	-0.35	76.42	-0.05	-0.19	TM
SVXNZW		76.34	-0.12	-0.40	76.37	-0.10	-0.38	TC
TL2K38		76.50	0.04	0.13	76.50	0.03	0.12	TC
U6GP1G		76.38	-0.08	-0.28	76.46	-0.02	-0.06	XX
UFLL1D		75.99	-0.47	-1.64	76.03	-0.45	-1.69	EF
UJ89DD		76.36	-0.10	-0.34	76.38	-0.09	-0.35	TC
V1QSXB		76.44	-0.02	-0.06	76.43	-0.05	-0.17	LS
V555US		76.48	0.02	0.08	76.43	-0.04	-0.16	EE
VKK6S4		76.02	-0.44	-1.54	76.13	-0.34	-1.29	XX
VY87N3		76.39	-0.07	-0.25	76.33	-0.14	-0.54	TC
X7AD8V		76.77	0.31	1.08	76.77	0.30	1.14	LS
Y8WGAN	*	75.76	-0.70	-2.42	76.00	-0.47	-1.79	FR
YMR38N	X	77.26	0.80	2.78	77.38	0.91	3.44	TC
ZE2XH6		76.47	0.01	0.03	76.45	-0.02	-0.08	TC

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

WebCode	Data Flag	Sample GR45			Sample GR46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
ZG7HDT		76.44	-0.02	-0.06	76.32	-0.15	-0.58	TC
ZY7VRV		76.39	-0.07	-0.24	76.44	-0.03	-0.11	TC

		Summary Statistics			
		Sample GR45		Sample GR46	
Grand Means		76.460	Percent	76.472	Percent
SD Btwn Labs		0.288	Percent	0.264	Percent
Statistics based on 43 of 45 reporting participants					

Comments on assigned Data Flags for Test #392

4A73K9 (X) - Inconsistent in testing between samples.

YMR38N (X) - Systematic error (data for both samples are high).

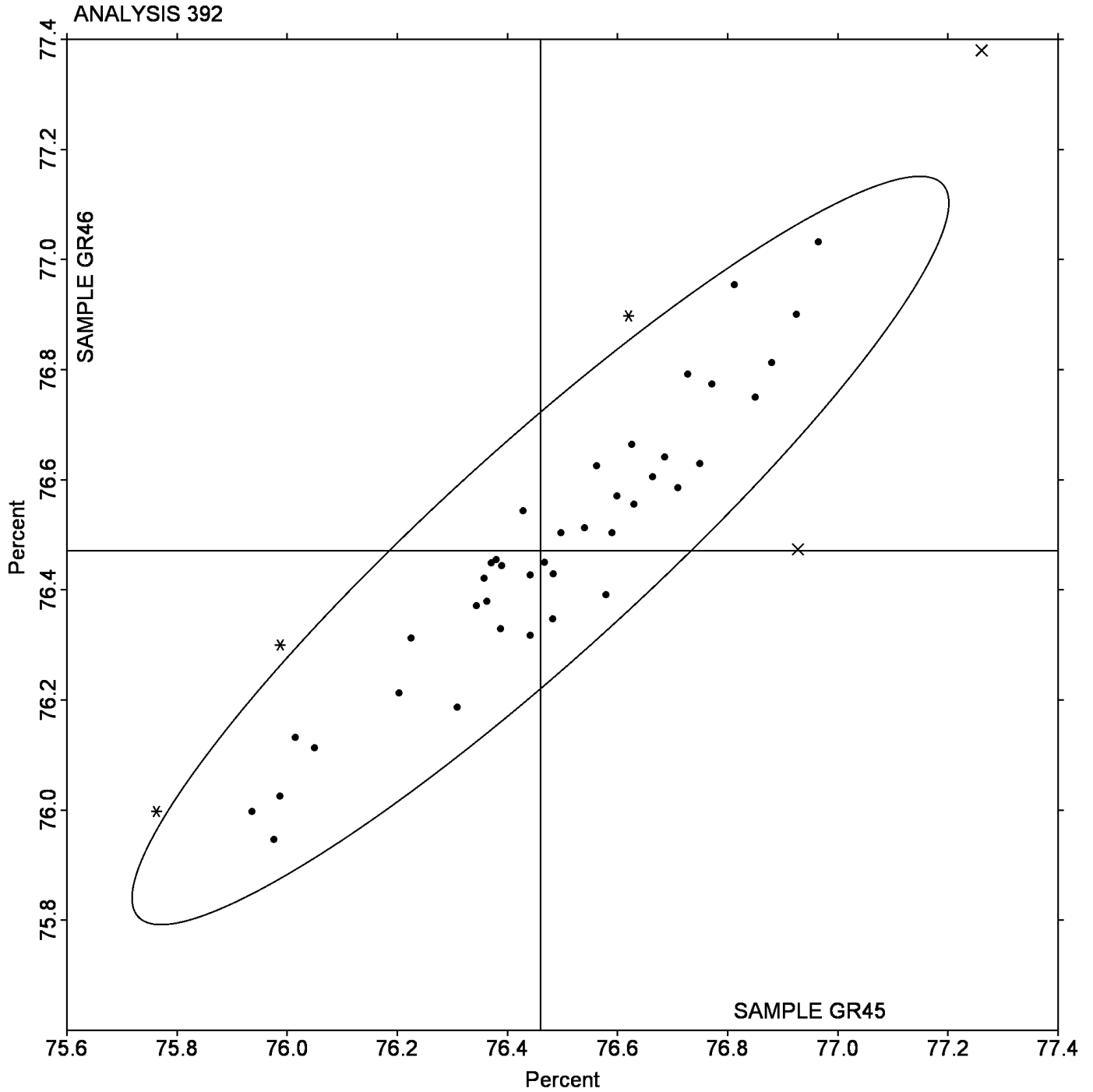
Instrument Code List as Reported by the Labs

- | | |
|---|---|
| (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 |
| (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 GR45 = 76.460 Percent

Grand Mean Sample GR46 = 76.472 Percent



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

WebCode	Data Flag	Sample GZ45			Sample GZ46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2DT82T	*	11.060	2.646	2.13	9.040	1.840	1.71	MK
3QQYRC		7.880	-0.534	-0.43	6.714	-0.486	-0.45	TS
4MK68T		7.720	-0.694	-0.56	6.560	-0.640	-0.59	TS
55PCQY		7.600	-0.814	-0.65	6.360	-0.840	-0.78	TT
67X3ST		8.202	-0.212	-0.17	6.946	-0.254	-0.24	TS
8A75K2		8.510	0.096	0.08	7.246	0.046	0.04	PP
91181R		7.722	-0.692	-0.56	6.548	-0.652	-0.60	TS
A2AAMQ		7.956	-0.458	-0.37	6.876	-0.324	-0.30	TS
BRS5GY		7.740	-0.674	-0.54	6.500	-0.700	-0.65	XX
C32133		7.536	-0.878	-0.71	6.434	-0.766	-0.71	TS
DCZF5C		8.124	-0.290	-0.23	7.400	0.200	0.19	TS
DUA3YD		11.026	2.612	2.10	9.600	2.400	2.23	HV
EUFFSS		7.486	-0.928	-0.75	6.516	-0.684	-0.63	TS
FS4SEF		8.060	-0.354	-0.28	6.940	-0.260	-0.24	TT
GB9KYT		11.536	3.122	2.51	9.922	2.722	2.53	EF
LCALJN		7.860	-0.554	-0.44	6.720	-0.480	-0.44	TT
NN5KCT		7.950	-0.464	-0.37	6.662	-0.538	-0.50	TS
NTWVGP		8.000	-0.414	-0.33	6.860	-0.340	-0.31	TT
P3ZY34		8.622	0.208	0.17	7.570	0.370	0.34	XX
SW39CA		7.476	-0.938	-0.75	6.278	-0.922	-0.85	TS
T2UT2C		9.712	1.298	1.04	8.486	1.286	1.19	GM
XL6S6Q	X	23.140	14.726	11.83	20.100	12.900	11.97	HV
YRRSR1		7.322	-1.092	-0.88	6.212	-0.988	-0.92	TS

		Summary Statistics	
	Sample GZ45		Sample GZ46
Grand Means	8.4136 Percent		7.1995 Percent
SD Btw Labs	1.2447 Percent		1.0781 Percent
Statistics based on 22 of 23 reporting participants			

XL6S6Q (X) - Extreme data.

Analysis Notes:

GB9KYT - Data appears to be transposed between Analysis 394 (Fluorescent Component) and Analysis 391 (Directional Brightness). Data switched by CTS.

LCALJN - Data appears to be transposed between Analysis 394 (Fluorescent Component) and Analysis 391 (Directional Brightness). Data switched by CTS.

Instrument Code List as Reported by the Labs

- | | |
|---|---|
| (EF) - Datacolor Elrepho 3000 | (GM) - Gretag Macbeth Color i5 |
| (HV) - Hunter Ultrascan XE | (MK) - Macbeth Color-Eye 7000 Spectrophotometer |
| (PP) - Technidyne Profile/Plus | (TS) - Technidyne Brightimeter Micro S-5 |
| (TT) - Technidyne Brightimeter Micro S4-M | (XX) - Instrument make/model not specified by lab |

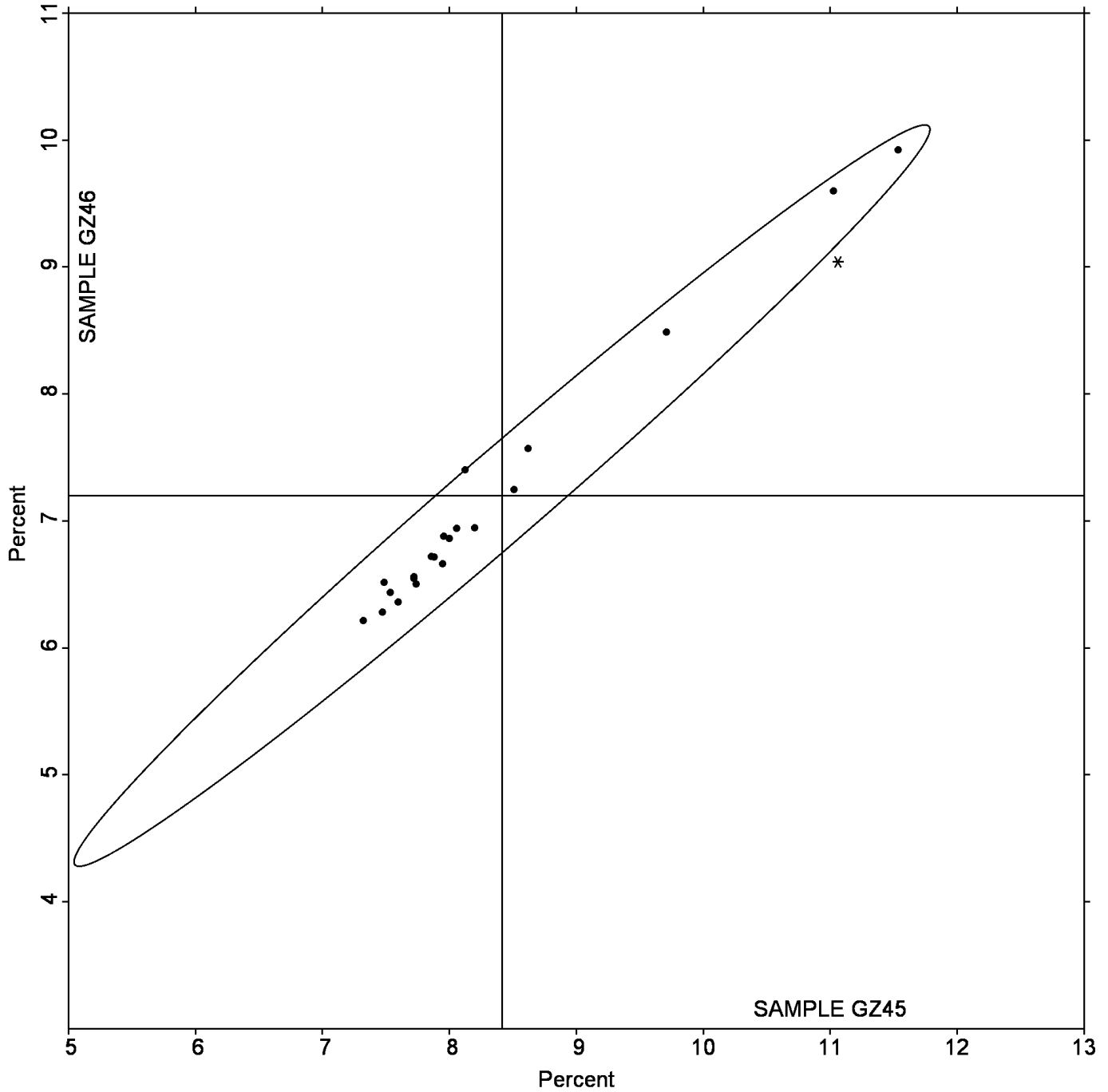
Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample GZ45 = 8.4136 Percent

Grand Mean Sample GZ46 = 7.1995 Percent

ANALYSIS 394



Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

WebCode	Data Flag	Sample GT45			Sample GT46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
1FLC8Z		73.17	-1.32	-1.20	71.23	-0.02	-0.02	PP
1X85BF	*	74.81	0.32	0.29	69.70	-1.55	-1.70	TH
28VDNT	X	78.22	3.73	3.40	74.98	3.73	4.09	HN
4W4JC5		74.74	0.25	0.23	70.87	-0.38	-0.42	ZH
57P3H1		74.00	-0.49	-0.45	70.47	-0.78	-0.86	TH
5X36CT		74.62	0.13	0.12	72.02	0.77	0.84	TH
89H7C5		74.22	-0.27	-0.24	71.21	-0.04	-0.05	PP
9C3A9F		73.77	-0.72	-0.66	70.40	-0.85	-0.93	GS
AKZ2Z2		76.42	1.93	1.76	72.17	0.92	1.01	TH
ANTRWU		74.06	-0.43	-0.39	71.30	0.05	0.05	VM
BLEGJN		74.84	0.35	0.32	71.90	0.65	0.71	XX
BPLP2F		75.20	0.71	0.65	71.01	-0.24	-0.27	HG
BTB8VX		75.57	1.08	0.99	72.51	1.26	1.38	TH
BYP4LT		73.66	-0.83	-0.76	70.82	-0.43	-0.47	HN
CAPRXP		73.40	-1.09	-0.99	71.40	0.15	0.16	GA
D4MGBM		75.35	0.86	0.79	71.73	0.48	0.52	GM
E4KZ2V		72.07	-2.42	-2.20	69.63	-1.62	-1.78	GM
FJ33HB		74.51	0.02	0.02	71.59	0.34	0.37	TH
HJQAFS		72.47	-2.02	-1.84	70.86	-0.39	-0.43	TG
HLYE69		75.44	0.95	0.87	71.66	0.41	0.45	XX
JFPKTC		76.38	1.89	1.72	72.74	1.49	1.63	TG
JZLAEC		72.56	-1.93	-1.76	69.12	-2.13	-2.34	TH
KGV4AL		74.80	0.31	0.28	71.82	0.57	0.62	XX
NQU5UV		74.86	0.37	0.34	71.52	0.27	0.29	GM
R7DSD2		74.63	0.14	0.13	70.51	-0.74	-0.81	TH
RF9FK6	X	78.47	3.98	3.63	74.83	3.58	3.92	TG
SC6HNQ		75.03	0.54	0.49	71.37	0.12	0.13	TH
UWX1DU		74.14	-0.35	-0.32	71.43	0.18	0.20	HN
V3Q1PE		76.32	1.83	1.67	73.41	2.16	2.37	TG
V7EWWF		73.60	-0.89	-0.81	70.86	-0.39	-0.43	XX
YQS3H8		74.60	0.11	0.10	70.58	-0.67	-0.74	LB
ZLZ1F6		75.43	0.94	0.86	71.72	0.47	0.51	TG

Sample GT45		Summary Statistics	Sample GT46	
Grand Means	74.489 Gloss Units		71.252 Gloss Units	
SD Btwn Labs	1.097 Gloss Units		0.912 Gloss Units	
Statistics based on 30 of 32 reporting participants				

Comments on assigned Data Flags for Test #395

28VDNT (X) - Systematic error (data for both samples are high).

RF9FK6 (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

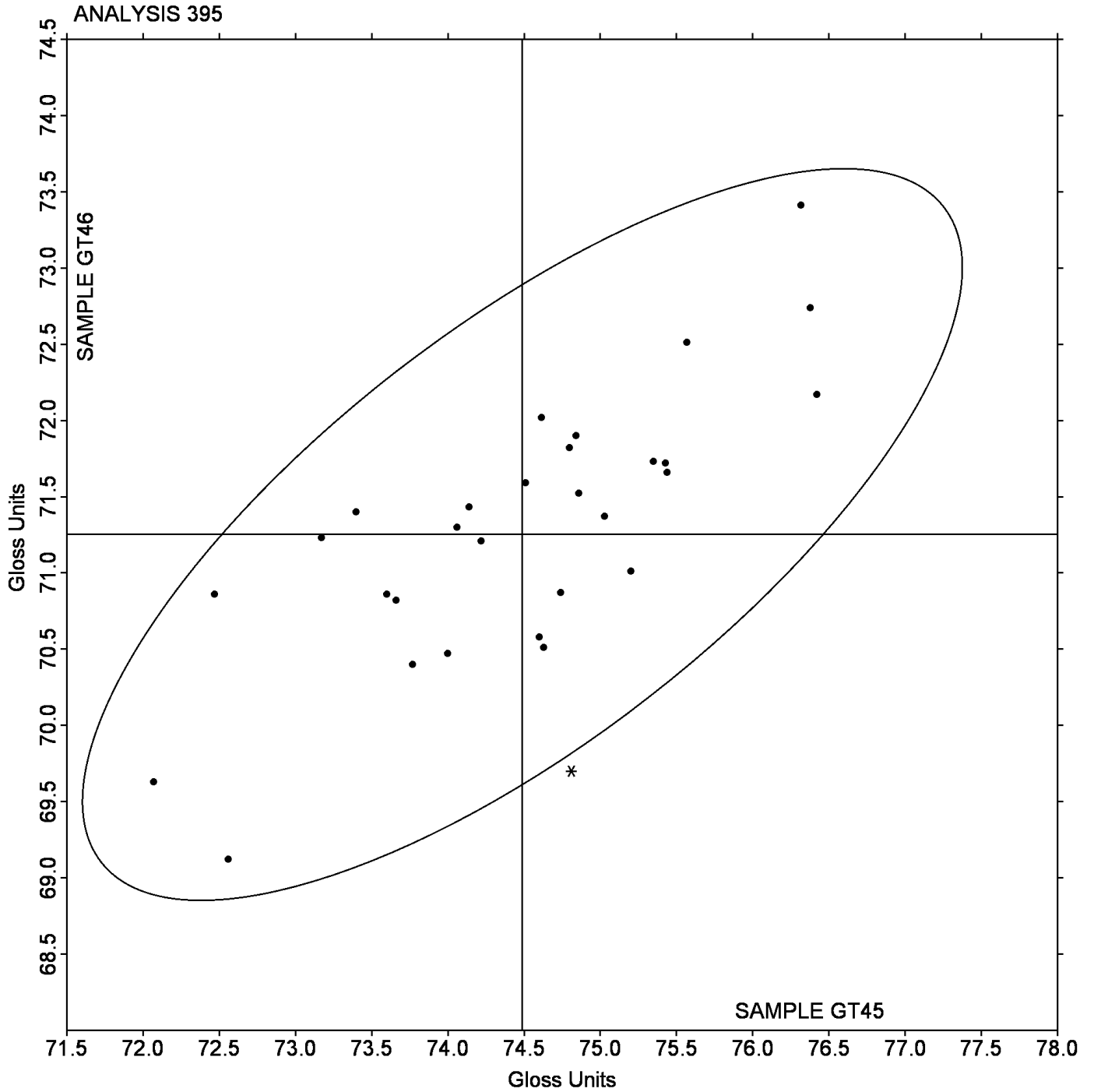
(GA) - BYK-Gardner (model not specified)	(GM) - BYK-Gardner micro-gloss
(GS) - BYK-Gardner Glossgard II	(HG) - Hunter ProGloss 75
(HN) - Hunter D-48	(LB) - L & W Gloss Tester Code 224
(PP) - Technidyne Profile/Plus	(TG) - Technidyne T480
(TH) - Technidyne T480A	(VM) - Valmet PaperLab (was Kajaani/Robotest)
(XX) - Instrument make/model not specified by lab	(ZH) - Zehntner ZLR 1050

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample GT45 = 74.489 Gloss Units

Grand Mean Sample GT46 = 71.252 Gloss Units



Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

WebCode	Data Flag	Sample GU45			Sample GU46			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
IJ8NNT		42.10	2.85	2.06	37.70	2.85	1.75	TH
4UG4LA		39.66	0.41	0.30	34.70	-0.15	-0.09	PP
4X5W4X		39.40	0.15	0.11	35.20	0.35	0.22	TH
9Z77LN		40.37	1.12	0.81	35.25	0.40	0.25	XX
AF7UV1		40.96	1.72	1.24	35.87	1.02	0.63	TG
AJANVR		39.38	0.13	0.10	34.68	-0.17	-0.10	GM
BLYEK2		39.54	0.29	0.21	34.62	-0.23	-0.14	PP
CHG4SG		38.29	-0.96	-0.69	33.81	-1.04	-0.64	TH
G6B51R		39.89	0.64	0.47	35.36	0.51	0.31	TG
H5MZS6	X	43.00	3.75	2.71	38.96	4.11	2.52	WG
JEVMPC		39.04	-0.21	-0.15	34.86	0.01	0.01	GM
LP3B1L		37.60	-1.65	-1.19	33.97	-0.88	-0.54	HN
N2E6Y9		37.72	-1.53	-1.10	31.70	-3.15	-1.93	XX
PZSBCM		36.94	-2.31	-1.67	32.55	-2.30	-1.41	TG
Z92GET	*	38.55	-0.70	-0.50	37.62	2.77	1.70	PP

Sample GU45		Summary Statistics	Sample GU46	
Grand Means	39.246 Gloss Units		34.849 Gloss Units	
SD Btwn Labs	1.383 Gloss Units		1.630 Gloss Units	
Statistics based on 14 of 15 reporting participants				

Comments on assigned Data Flags for Test #396

H5MZS6 (X) - Systematic error (data for both samples are high).

Instrument Code List as Reported by the Labs

- (GM) - BYK-Gardner micro-gloss
- (PP) - Technidyne Profile/Plus
- (TH) - Technidyne T480A
- (XX) - Instrument make/model not specified by lab
- (HN) - Hunter D-48
- (TG) - Technidyne T480
- (WG) - Zehntner ZLR 1050M

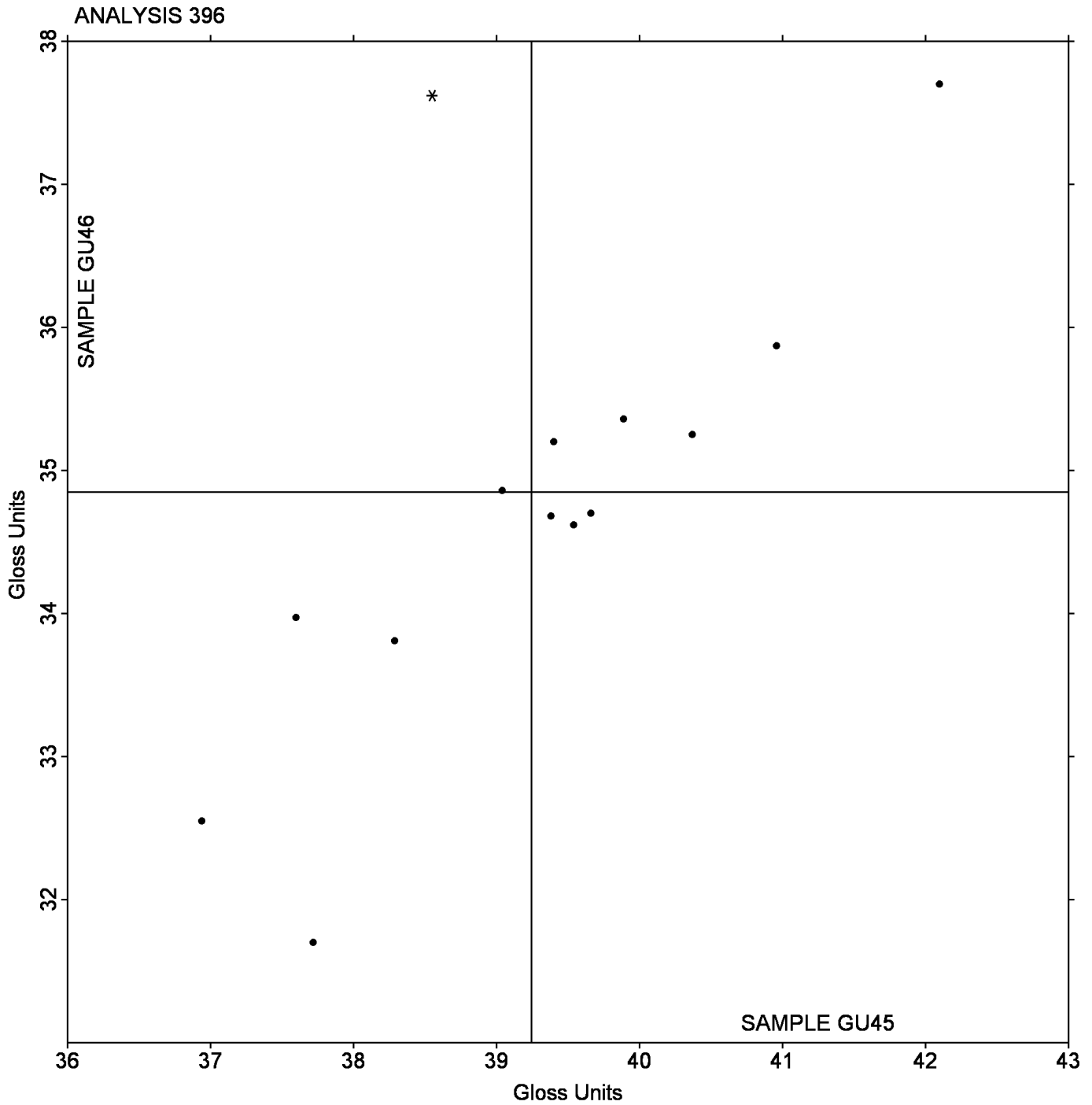
Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU45** = 39.246 Gloss Units

Grand Mean Sample **GU46** = 34.849 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 GW45			Sample GW46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
17GBX1		107.4	1.0	1.95	105.7	0.9	1.58
1HEF6W		106.7	0.3	0.60	104.8	0.1	0.13
2PNJ82		106.3	-0.1	-0.25	104.1	-0.6	-1.01
3STTDW	X	97.3	-9.1	-17.60	95.8	-8.9	-14.94
3XTRF9		105.6	-0.8	-1.55	104.1	-0.7	-1.12
4GTYYN		106.1	-0.3	-0.49	104.5	-0.2	-0.36
4K2KUH		106.6	0.2	0.38	104.7	-0.1	-0.14
62AVCN		106.0	-0.4	-0.79	104.8	0.0	0.05
63R2VC		105.9	-0.5	-0.87	104.2	-0.6	-0.98
84BWPB	X	106.2	-0.2	-0.32	104.4	-0.4	-0.61
A9X9HH	*	107.7	1.3	2.60	106.0	1.2	2.00
AGRHQ2	X	108.8	2.4	4.56	108.1	3.4	5.60
ANMEB6		107.3	0.9	1.79	105.9	1.1	1.84
BJYW9E		107.0	0.6	1.15	104.7	-0.1	-0.10
BK5C6Z		106.3	-0.1	-0.14	104.8	0.0	0.03
BWY1V7		106.5	0.1	0.25	105.0	0.3	0.42
CE2SW1		106.3	-0.1	-0.21	104.8	0.0	0.06
CSLXL2		106.6	0.2	0.35	105.0	0.3	0.48
EE2HR8		107.1	0.7	1.35	105.0	0.2	0.34
ELAG8J	X	97.1	-9.3	-17.95	96.5	-8.3	-13.80
FUDMDZ		106.7	0.3	0.64	105.2	0.4	0.70
GPLMVX		106.9	0.5	0.91	105.4	0.6	1.05
GPSP3J		106.3	-0.1	-0.27	104.5	-0.2	-0.39
HZUQJU	*	106.0	-0.4	-0.75	103.3	-1.5	-2.42
J26MVP		106.4	0.0	-0.02	105.3	0.6	0.93
K4Q686		106.4	0.0	0.01	105.0	0.3	0.49
N5AUFB		106.4	0.0	0.10	104.8	0.1	0.13
NBX7AQ		106.9	0.5	1.02	105.3	0.5	0.88
PDBWNT		106.6	0.2	0.43	105.2	0.5	0.82
Q62MC7		105.3	-1.1	-2.06	104.2	-0.5	-0.85
QCHBME		106.4	0.0	0.08	105.3	0.5	0.90
QRKX3Y		105.8	-0.6	-1.12	103.9	-0.8	-1.36
R23173		106.2	-0.2	-0.36	104.2	-0.6	-0.93
REHUBU		106.1	-0.3	-0.64	104.6	-0.2	-0.27
SRU6W8		106.8	0.4	0.69	105.3	0.5	0.83
ST5BS5	*	106.1	-0.3	-0.48	105.5	0.7	1.23
TKCFJ2		106.0	-0.4	-0.74	104.6	-0.1	-0.25
UNL1QL		106.8	0.4	0.75	104.9	0.2	0.30
V67P5Z		105.9	-0.5	-0.96	104.3	-0.5	-0.75
VR8STQ		106.3	-0.1	-0.13	104.5	-0.2	-0.38
WJMSS9		105.8	-0.6	-1.20	103.9	-0.8	-1.37
WR1PFG		105.9	-0.5	-1.02	104.4	-0.4	-0.65
WRB4JB		106.6	0.2	0.48	104.2	-0.5	-0.86

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

WebCode	Data Flag	Sample GW45			Sample GW46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
X5G2D8		105.6	-0.8	-1.60	103.4	-1.4	-2.29
Y4NYGZ		106.1	-0.3	-0.58	104.8	0.0	0.02
Z5S6MB		107.2	0.8	1.47	105.7	0.9	1.50
ZTTC9E		106.0	-0.4	-0.75	104.6	-0.1	-0.22

		Summary Statistics	
	Sample GW45		Sample GW46
Grand Means	106.39 g/sq m		104.75 g/sq m
SD Btwn Labs	0.52 g/sq m		0.60 g/sq m
Statistics based on 43 of 47 reporting participants			

Comments on assigned Data Flags for Test #398

3STTDW (X) - Extreme data.

84BWPB (X) - Data appear to be off by a factor of 100; data converted by CTS (x100).

AGRHQ2 (X) - Extreme data.

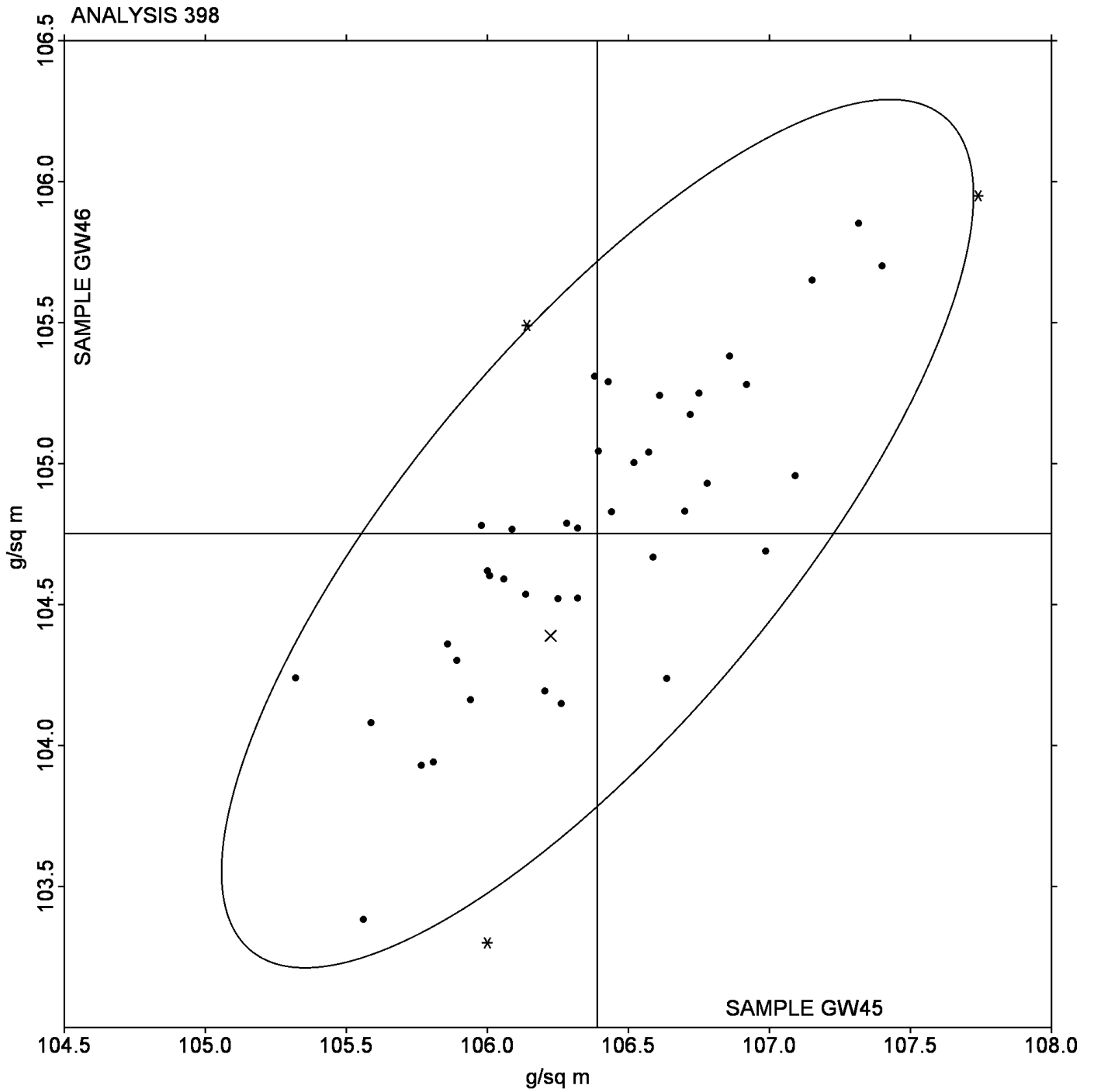
ELAG8J (X) - Extreme data.

Analysis 398

Grammage (Mass per Unit Area)

Grand Mean Sample **GW45** = 106.39 g/sq m

Grand Mean Sample **GW46** = 104.75 g/sq m



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

WebCode	Data Flag	Sample GX45			Sample GX46		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3PPTRY	*	66.25	19.75	1.47	115.50	43.50	2.18
3Y2YKN		46.99	0.49	0.04	89.18	17.18	0.86
494KGE		59.55	13.05	0.97	91.45	19.45	0.97
4CSH29		35.65	-10.85	-0.81	64.06	-7.94	-0.40
4P2HUB		40.33	-6.17	-0.46	54.08	-17.92	-0.90
55FGNL		38.88	-7.62	-0.57	59.27	-12.73	-0.64
6EE96L		41.63	-4.87	-0.36	66.02	-5.98	-0.30
7TETM3		36.83	-9.67	-0.72	59.92	-12.08	-0.61
8BBW3R		78.66	32.16	2.40	109.84	37.84	1.90
98HWCM		64.46	17.96	1.34	98.54	26.54	1.33
9T52NC		42.14	-4.36	-0.33	67.15	-4.85	-0.24
A84BCW		49.00	2.50	0.19	80.85	8.85	0.44
AS269Y		39.56	-6.94	-0.52	66.84	-5.16	-0.26
AVMRJ9		44.00	-2.50	-0.19	74.00	2.00	0.10
B8CVA6		28.90	-17.60	-1.31	48.50	-23.50	-1.18
D2XJAN		42.80	-3.70	-0.28	59.40	-12.60	-0.63
EQQWYA		33.12	-13.38	-1.00	55.18	-16.82	-0.84
FNCKUD		43.63	-2.87	-0.21	68.43	-3.57	-0.18
FS8XDB		68.00	21.50	1.60	102.70	30.70	1.54
GG2GYR		42.59	-3.91	-0.29	50.84	-21.16	-1.06
GY8MHM		50.50	4.00	0.30	84.01	12.01	0.60
HTUCQR		51.60	5.10	0.38	77.60	5.60	0.28
HZQ2MF		42.10	-4.40	-0.33	60.98	-11.02	-0.55
JAH9XJ		29.51	-16.99	-1.27	39.75	-32.25	-1.62
JY2ZED		73.60	27.10	2.02	108.20	36.20	1.81
L6YWBL		29.10	-17.40	-1.30	35.70	-36.30	-1.82
MMBJRN		41.80	-4.70	-0.35	67.70	-4.30	-0.22
N1EL7G		40.45	-6.05	-0.45	62.28	-9.72	-0.49
PCZXRY		60.79	14.29	1.07	85.23	13.23	0.66
Q6EP6D		42.65	-3.85	-0.29	77.16	5.16	0.26
R5SDBK		33.93	-12.57	-0.94	56.73	-15.27	-0.77
SMHJF5		38.90	-7.60	-0.57	64.50	-7.50	-0.38
TFCRY1		76.00	29.50	2.20	113.70	41.70	2.09
U9PVP3	*	61.10	14.60	1.09	72.70	0.70	0.03
VSK8QU		39.62	-6.88	-0.51	63.71	-8.29	-0.42
VV815R		41.72	-4.78	-0.36	64.52	-7.48	-0.37
WQTDXX		40.33	-6.17	-0.46	65.37	-6.63	-0.33
XC55MJ		30.26	-16.24	-1.21	54.55	-17.45	-0.87

Analysis 399

Sizing Test (Hercules Type)

	Sample GX45	Summary Statistics	Sample GX46
Grand Means	46.498 Seconds		72.004 Seconds
SD Btwn Labs	13.409 Seconds		19.960 Seconds
Statistics based on 38 of 38 reporting participants			

Notes for Analysis 399

No Data Flags assigned for this analysis.

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample **GX45** = 46.498 Seconds

Grand Mean Sample **GX46** = 72.004 Seconds

ANALYSIS 399

