



Paper & Paperboard Testing Program

Summary Report #274G-February 2015

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

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

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.

Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

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

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

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

Key for Web Summary Reports (Page 1 of 2)

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

<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.

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	
3EN4FV		GA15	92.54	-0.66	2.55	-0.07	0.01	-0.03	0.08	HE
		GA16	92.47	-0.65	2.53					
487VRY		GA15	90.59	0.17	1.94	-0.10	-0.02	0.02	0.11	TS
		GA16	90.49	0.15	1.96					
4ZLRKW		GA15	90.65	-0.92	1.05	0.03	-0.01	0.00	0.03	HH
		GA16	90.68	-0.92	1.05					
6YM9VZ		GA15	91.59	-0.39	2.30	0.21	0.01	0.18	0.28	TM
		GA16	91.80	-0.38	2.48					
AACD7W		GA15	93.43	-0.66	2.62	0.18	0.06	0.15	0.24	EH
		GA16	93.60	-0.60	2.77					
AP2HEP		GA15	92.44	-0.55	1.94	0.34	-0.07	0.00	0.35	XX
		GA16	92.78	-0.62	1.93					
F8KHVM		GA15	91.68	-0.81	2.85	0.10	0.03	0.04	0.11	HH
		GA16	91.77	-0.78	2.89					
HVYZ6M		GA15	91.57	-0.39	2.32	0.05	0.04	-0.01	0.06	TM
		GA16	91.62	-0.35	2.31					
JTRX3P		GA15	92.10	-0.35	1.95	0.14	-0.13	0.01	0.19	TS
		GA16	92.25	-0.48	1.97					
KBAFBF		GA15	91.73	-0.30	2.14	-0.04	0.09	0.04	0.11	TS
		GA16	91.69	-0.21	2.17					
LXWHVE		GA15	91.98	-0.57	2.36	0.04	0.00	0.02	0.04	MK
		GA16	92.02	-0.58	2.37					
MEHFKC		GA15	90.43	-0.05	1.80	-0.04	0.01	0.00	0.04	TS
		GA16	90.39	-0.04	1.80					
NZV3V3		GA15	93.40	-0.07	2.58	0.00	-0.63	0.01	0.63	X LS
		GA16	93.40	-0.70	2.59					
P884GB		GA15	90.78	-1.12	0.99	0.04	-0.04	0.02	0.06	HH
		GA16	90.82	-1.17	1.01					
R6GP3K		GA15	91.72	-0.66	2.38	0.01	0.00	0.03	0.03	TC
		GA16	91.73	-0.66	2.41					
RAANGF		GA15	91.70	-0.66	2.53	-0.02	-0.02	-0.02	0.03	EH
		GA16	91.67	-0.68	2.52					
RFWHA8		GA15	91.56	-0.76	2.43	0.19	0.05	0.07	0.21	LS
		GA16	91.75	-0.70	2.51					

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	
RNQLMG		GA15	92.40	-1.02	0.33	-0.07	0.00	0.01	0.07	HG
		GA16	92.33	-1.02	0.34					
RYPNFC		GA15	90.27	0.09	1.84	0.10	0.01	0.03	0.10	TS
		GA16	90.37	0.10	1.86					
TCAGNJ		GA15	93.48	-0.57	2.79	0.25	0.12	-0.14	0.31	MI
		GA16	93.72	-0.45	2.65					
TG6PYZ		GA15	91.92	-0.91	2.55	0.17	0.06	0.09	0.20	TC
		GA16	92.09	-0.86	2.64					
UTZJ6N		GA15	93.27	0.96	2.47	0.08	0.02	0.05	0.10	HE
		GA16	93.35	0.98	2.52					
UVETYZ		GA15	92.48	-0.35	2.00	0.32	0.08	0.21	0.39	XX
		GA16	92.80	-0.27	2.21					
WQKY9J		GA15	91.95	-0.50	2.17	0.03	0.01	-0.01	0.04	HC
		GA16	91.99	-0.49	2.16					
XW3XVA		GA15	93.27	-0.52	1.86	0.11	0.05	-0.01	0.12	XS
		GA16	93.38	-0.46	1.85					

Grand Means		Summary Statistics							
GA15	91.957	-0.479	2.109						
GA16	92.038	-0.464	2.140	0.081	-0.010	0.030	0.157		
Std Dev Btwn Labs									
GA15	0.955	0.443	0.590	0.120	0.139	0.070	0.144		
GA16	1.001	0.447	0.598						

Statistics based on 25 of 25 reporting participants

Instrument Code List as Reported by the Labs

(EH) - Datacolor Elrepho SF450

(HE) - Hunter LabScan

(HH) - Hunter D25DP - 9000

(MI) - Macbeth Color i 5

(TC) - Technidyne Color Touch Series

(TS) - Technidyne Brightimeter Micro S-5

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

(HC) - HunterLab ColorQuest XE

(HG) - Hunter ColorQUEST

(LS) - L & W Elrepho SE 070

(MK) - Macbeth Color-Eye 7000 Spectrophotometer

(TM) - Technidyne Technibrite Micro TB-1C

(XS) - X-Rite 938 Spectrodensitometer

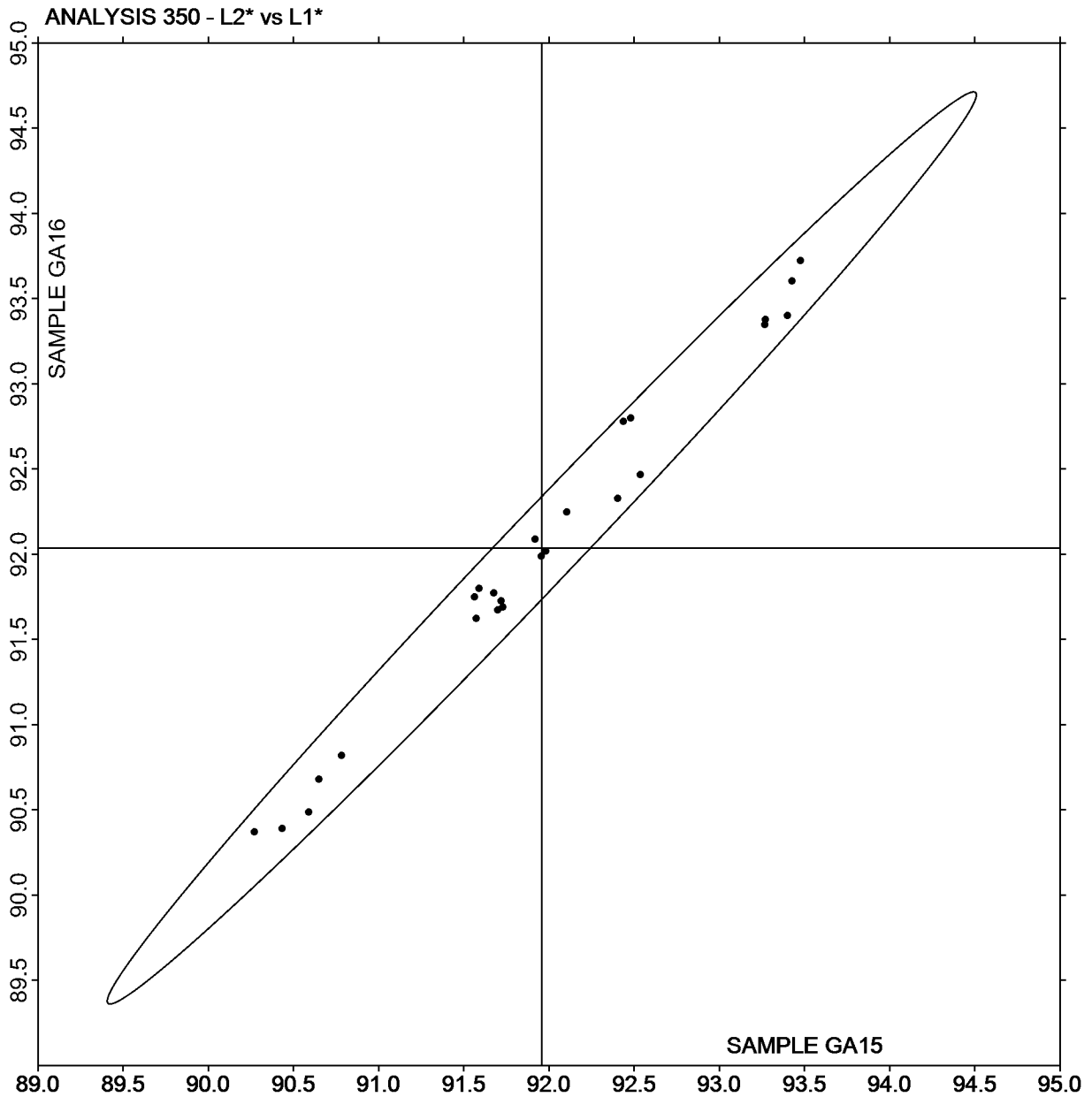
Analysis 350

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

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

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

Plot of L values GA16 v L values GA15



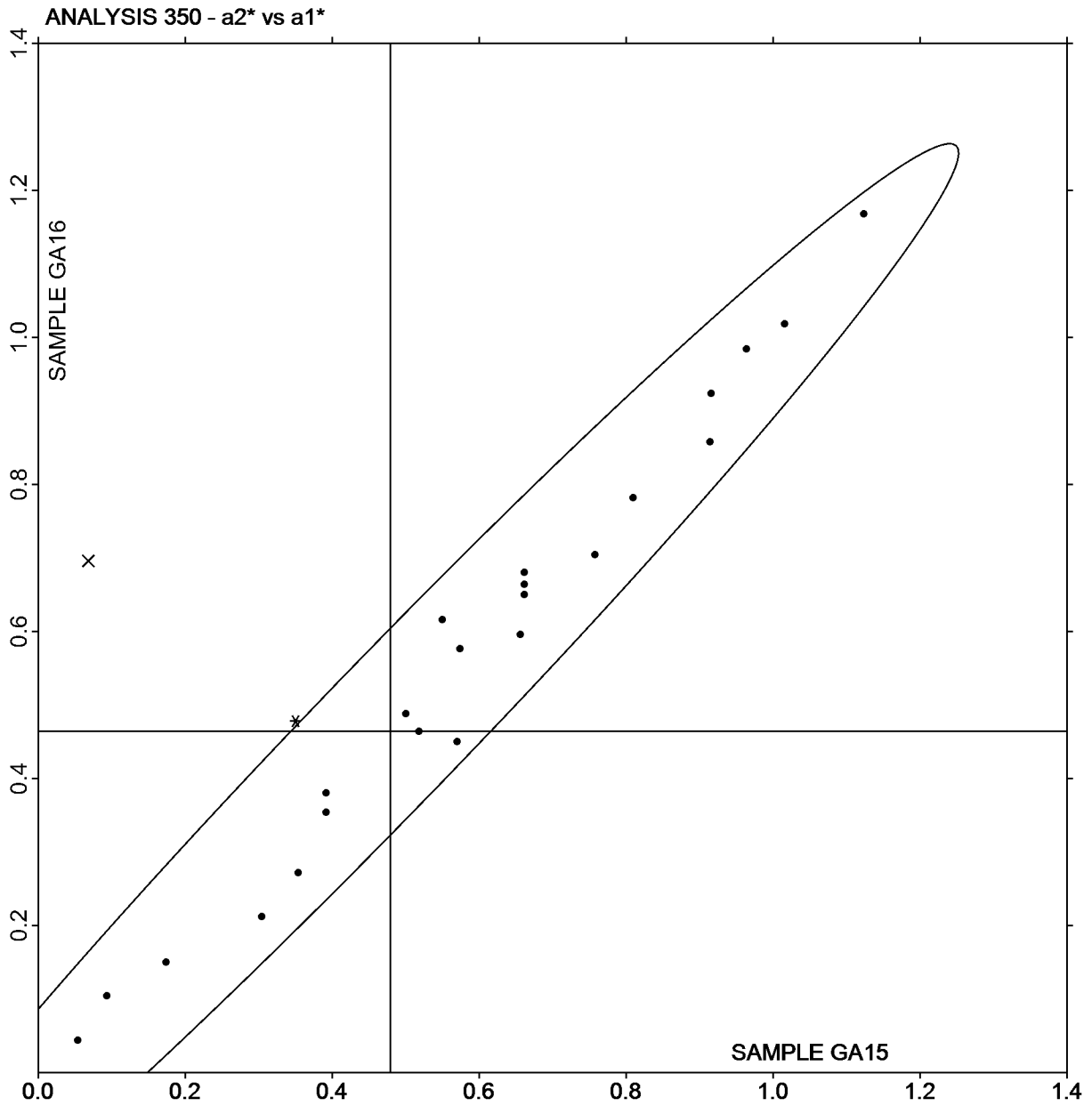
Analysis 350

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

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

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

Plot of a values GA16 v a values GA15

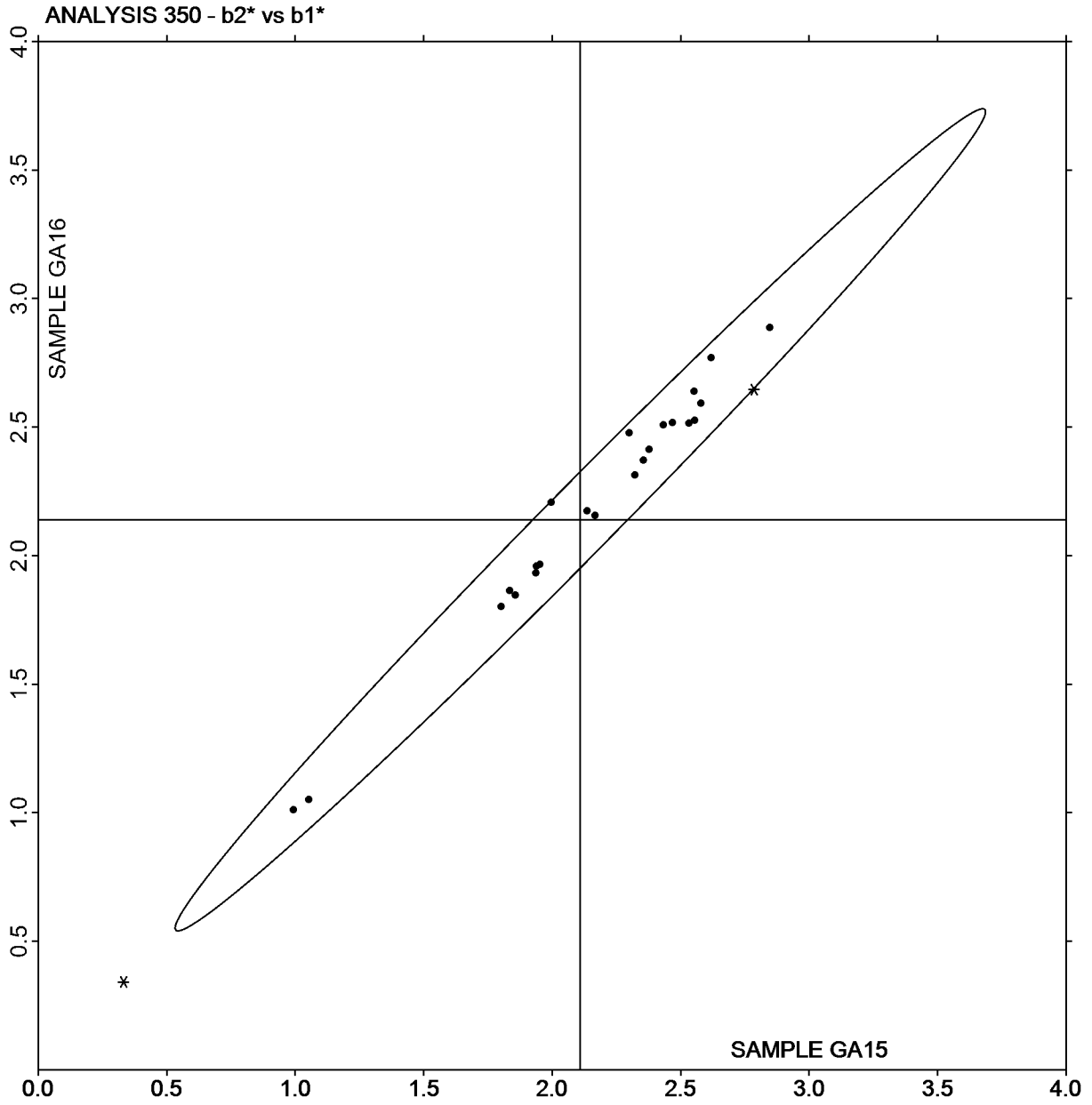


Analysis 350

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

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

Plot of b values GA16 v b values GA15



TAPPI-CTS Interlaboratory Testing Program

Analysis 351

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

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

3EN4FV	GA15	92.51	-0.63	2.56	0.12	0.01	0.05	0.13	HE	
	GA16	92.63	-0.62	2.61						
92X66U	GA15	93.47	-0.82	2.77	-0.02	0.01	0.00	0.02	EH	
	GA16	93.45	-0.82	2.77						
9MZ9Q3	GA15	93.56	-1.51	-0.33	0.08	0.03	0.05	0.10	LS	
	GA16	93.64	-1.48	-0.28						
AAVC9Z	GA15	92.26	-0.78	2.42	0.14	0.02	0.04	0.15	EF	
	GA16	92.40	-0.76	2.46						
AK9JZU	GA15	93.83	-0.67	2.83	-0.15	-0.10	-0.11	0.21	HT	
	GA16	93.68	-0.78	2.72						
BD9C6R	GA15	92.47	-0.83	2.32	-0.03	-0.02	-0.01	0.04	HE	
	GA16	92.44	-0.86	2.30						
E9J2JJ	GA15	94.01	-0.75	2.74	-0.14	-0.02	-0.06	0.15	NF	
	GA16	93.88	-0.77	2.68						
F3CX8P	GA15	93.49	-0.94	2.68	0.04	0.01	0.03	0.05	TC	
	GA16	93.53	-0.93	2.71						
GNMYJF	GA15	93.79	-0.39	2.30	0.00	-0.01	0.02	0.02	XP	
	GA16	93.79	-0.41	2.32						
GVN9Q8	GA15	93.55	-0.54	3.16	-0.09	0.00	-0.21	0.23	NG	
	GA16	93.46	-0.54	2.95						
LDQZTP	GA15	93.55	-1.49	-0.27	0.06	-0.01	0.04	0.07	LS	
	GA16	93.61	-1.50	-0.23						
MGM7ML	GA15	92.06	-0.71	2.50	0.06	0.02	-0.04	0.07	XM	
	GA16	92.11	-0.69	2.46						
NZV3V3	GA15	93.30	-0.80	2.72	0.10	0.06	-0.08	0.14	LS	
	GA16	93.40	-0.74	2.64						
QFMEHX	GA15	93.47	-0.70	2.59	0.13	0.11	0.10	0.20	XX	
	GA16	93.60	-0.59	2.69						
QX2JT9	GA15	93.39	-0.71	2.94	0.16	0.09	0.10	0.21	NG	
	GA16	93.55	-0.61	3.04						
U9PNCG	GA15	93.37	-1.54	-0.36	0.17	0.07	0.10	0.21	LS	
	GA16	93.55	-1.47	-0.26						
VJJ2Q2	GA15	93.38	-0.70	2.94	0.04	0.03	0.04	0.06	NG	
	GA16	93.42	-0.67	2.98						
VQN2M4	GA15	93.70	-0.87	3.02	0.15	0.30	-0.27	0.43	X EH	
	GA16	93.86	-0.58	2.75						

Analysis 351

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

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

W6JDKT	GA15	93.66	-0.76	2.90	0.02	-0.02	0.02	0.04	HT
	GA16	93.68	-0.78	2.92					
XQXYM6	GA15	93.52	-0.74	2.75	-0.01	-0.01	0.06	0.06	LS
	GA16	93.51	-0.75	2.82					
YKLTJQ	GA15	92.50	-0.62	2.36	0.11	-0.02	-0.04	0.12	HV
	GA16	92.61	-0.64	2.32					
ZLVT66	GA15	91.70	-0.45	2.14	0.05	0.03	0.04	0.07	EE
	GA16	91.74	-0.43	2.18					

Grand Means

Summary Statistics

GA15	93.206	-0.814	2.258	0.045	0.025	-0.007	0.128	
GA16	93.251	-0.802	2.252					
Std Dev Btwn Labs								
GA15	0.641	0.318	1.080	0.093	0.076	0.095	0.095	
GA16	0.618	0.314	1.047					

Statistics based on 22 of 22 reporting participants

Instrument Code List as Reported by the Labs

(EE) - Datacolor Elrepho 2000	(EF) - Datacolor Elrepho 3000
(EH) - Datacolor Elrepho SF450	(HE) - Hunter LabScan
(HT) - Hunter UltraScan Vis	(HV) - Hunter Ultrascan XE
(LS) - L & W Elrepho SE 070	(NF) - Minolta CM-3600d Spectrophotometer
(NG) - Minolta CM-3700d Spectrophotometer	(TC) - Technidyne Color Touch Series
(XM) - X-Rite CA-22	(XP) - X-Rite Spectrophotometer DTP
(XX) - Instrument make/model not specified by lab	

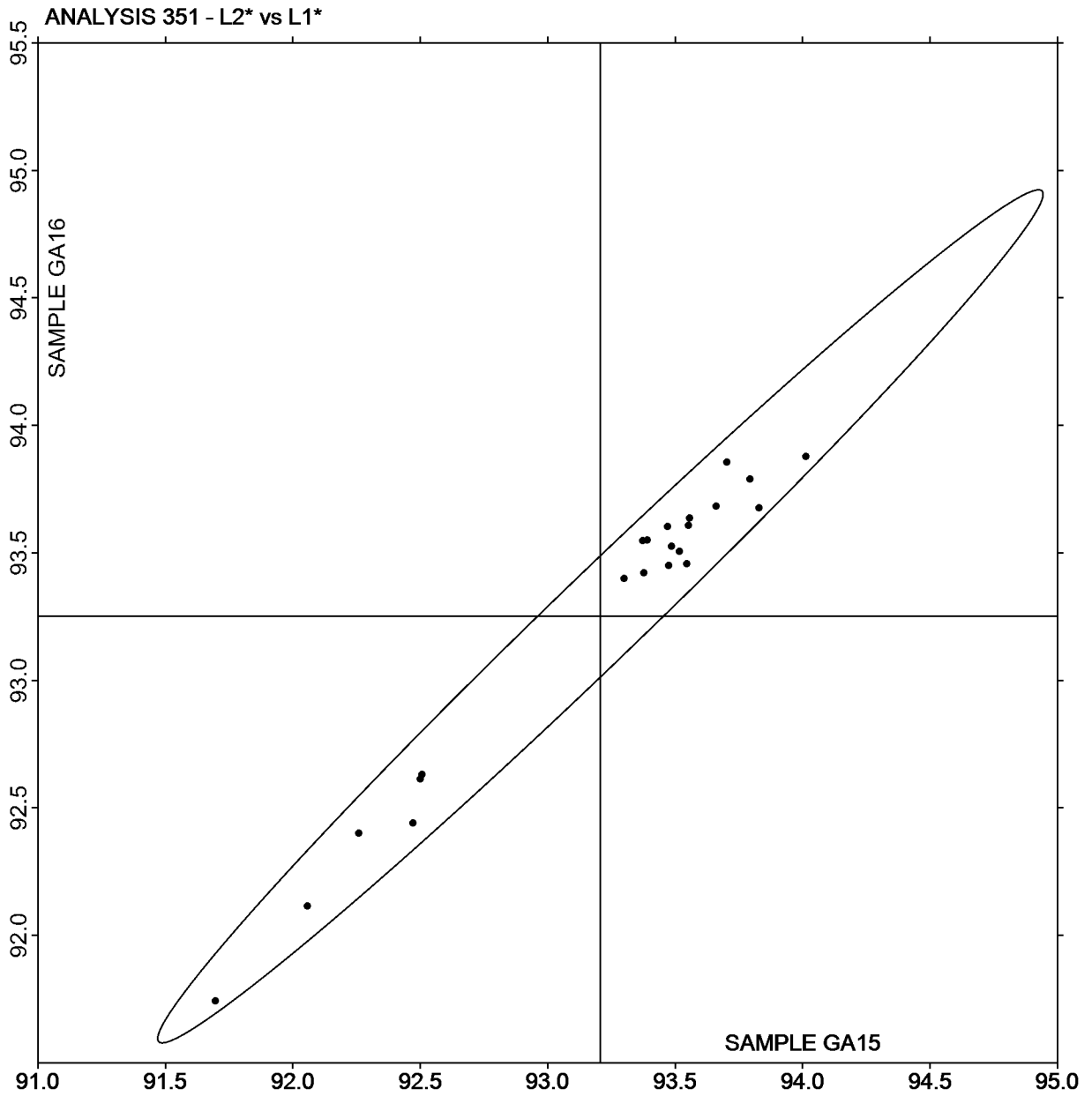
Analysis 351

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

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

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

Plot of L values GA16 v L values GA15



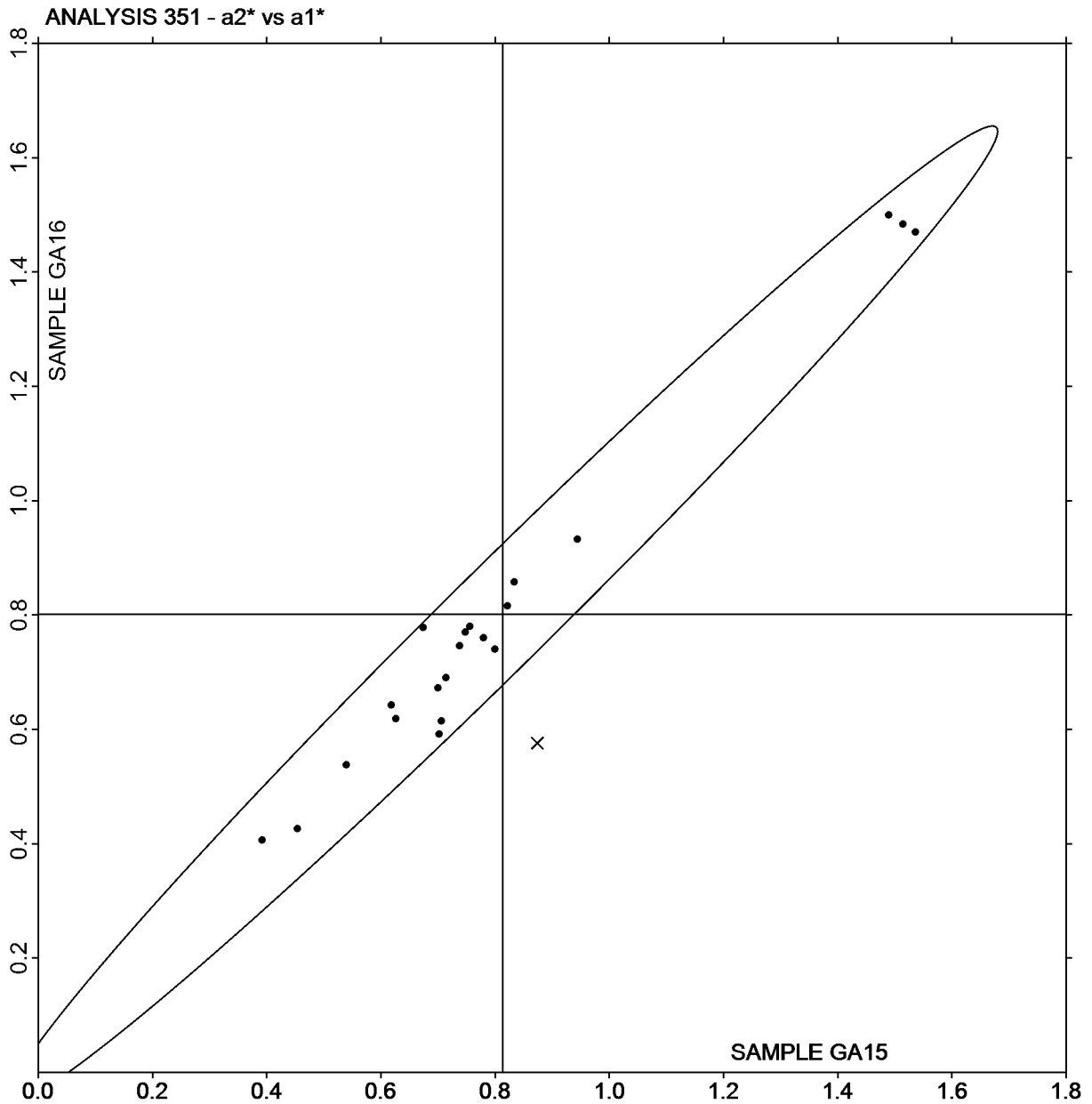
Analysis 351

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

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

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

Plot of a values GA16 v a values GA15

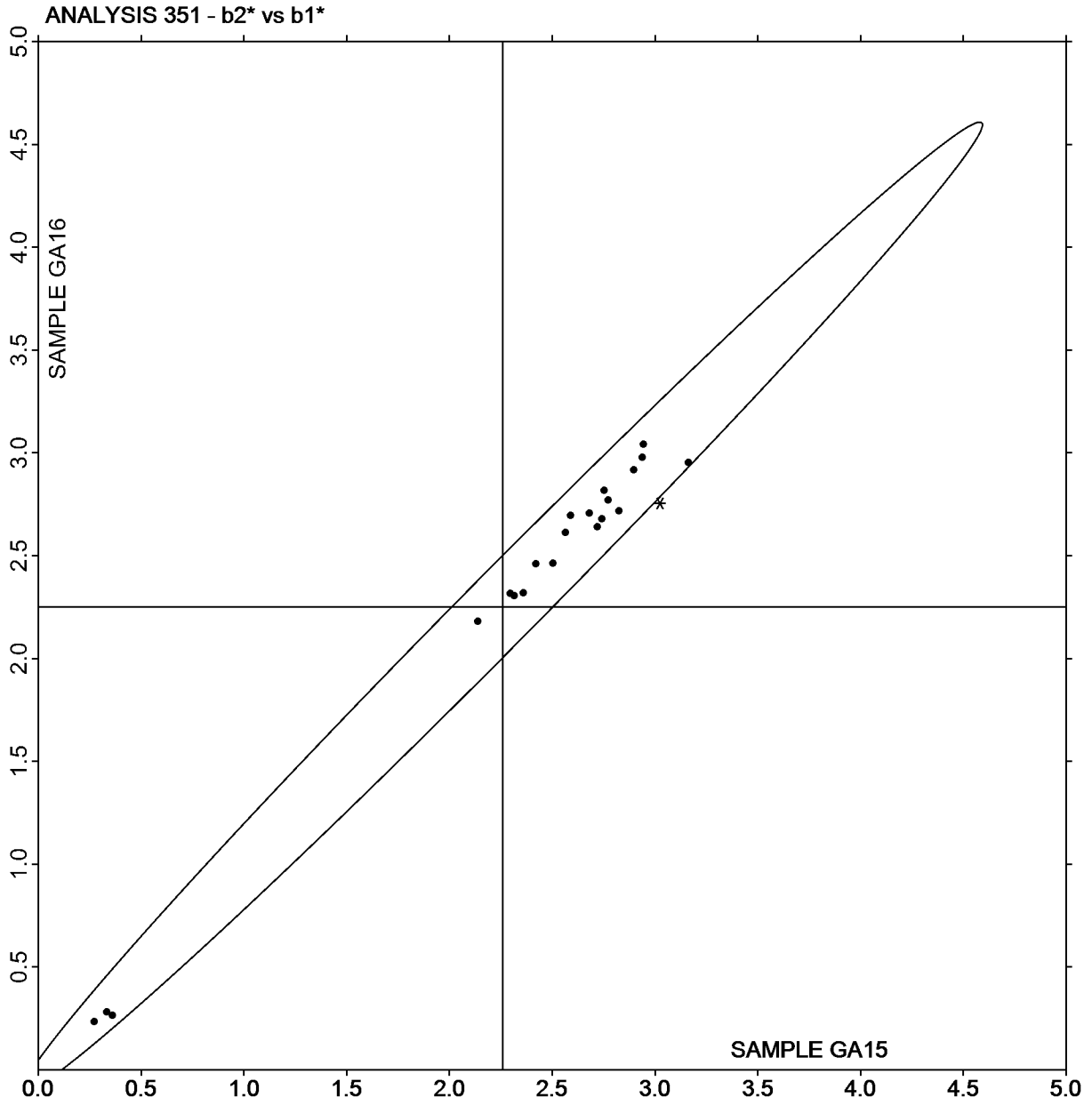


Analysis 351

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

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

Plot of b values GA16 v b values GA15



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

WebCode	Data Flag	Sample GV15			Sample GV16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24WVH3		3.794	0.020	0.27	4.182	0.047	0.59	TM
2F8XRL		3.837	0.063	0.85	4.224	0.088	1.11	LW
3AEM78		3.921	0.147	2.00	4.307	0.172	2.14	LW
42DK7M		3.610	-0.164	-2.24	4.000	-0.135	-1.69	XX
487VRY		3.725	-0.049	-0.67	4.220	0.085	1.06	EM
4UJK39		3.825	0.051	0.69	4.255	0.120	1.50	LW
4WLL47		3.800	0.025	0.34	4.193	0.058	0.72	XX
6YM9VZ		3.876	0.102	1.38	4.135	0.000	0.00	TA
7BFRA7		3.660	-0.114	-1.56	4.000	-0.135	-1.69	TM
7R6Z84		3.889	0.115	1.56	4.233	0.098	1.22	LW
863DWZ		3.837	0.063	0.86	4.155	0.020	0.25	TM
8ECCHG		3.777	0.003	0.04	4.124	-0.011	-0.14	XX
8F8X9M		3.863	0.089	1.21	4.214	0.079	0.98	EM
8Q3RFV		3.733	-0.042	-0.57	4.038	-0.097	-1.21	LW
9MZ9Q3		3.746	-0.028	-0.39	3.994	-0.141	-1.76	VM
AACD7W		3.713	-0.062	-0.84	4.079	-0.056	-0.71	MT
AK9JZU		3.752	-0.022	-0.31	4.148	0.013	0.16	EM
ANPWM3		3.800	0.026	0.35	4.067	-0.068	-0.85	LW
AUJ4JD		3.895	0.120	1.64	4.193	0.058	0.73	LW
AYT2TX		3.775	0.000	0.01	4.207	0.072	0.90	LW
BD9C6R		3.860	0.086	1.17	4.198	0.063	0.79	TM
CEZZZR		3.818	0.043	0.59	4.149	0.014	0.17	EM
CVKMZP	*	3.854	0.080	1.08	4.050	-0.085	-1.06	TM
E9J2JJ		3.904	0.130	1.77	4.273	0.138	1.73	TM
F2WABC		3.820	0.046	0.62	4.221	0.086	1.07	XX
F3CX8P		3.772	-0.002	-0.03	4.123	-0.012	-0.15	LW
FVPNME		3.694	-0.080	-1.10	4.117	-0.018	-0.23	PP
G8ENNL		3.722	-0.052	-0.71	4.163	0.028	0.35	PP
GG6M7E		3.770	-0.004	-0.06	4.123	-0.012	-0.15	TA
GNMJYJF		3.695	-0.079	-1.08	4.145	0.010	0.12	TM
GVN9Q8		3.744	-0.030	-0.41	4.058	-0.077	-0.96	XX
H4VAND		3.725	-0.049	-0.67	4.124	-0.011	-0.14	TA
HUU6UW		3.700	-0.074	-1.01	4.033	-0.102	-1.27	LW
HVYZ6M		3.814	0.039	0.54	4.124	-0.011	-0.13	XX
JP86QM		3.782	0.008	0.10	4.105	-0.030	-0.38	EM
K23NXE		3.911	0.137	1.86	4.283	0.148	1.85	PP
KBAFBF		3.740	-0.034	-0.47	4.110	-0.025	-0.31	LA
LDQZTP		3.723	-0.051	-0.70	4.070	-0.065	-0.81	XX
LGVZ63	*	3.760	-0.015	-0.20	4.276	0.140	1.75	FR
LXWHVE		3.796	0.022	0.29	4.261	0.126	1.57	PP
M4HWYC		3.827	0.053	0.72	4.217	0.082	1.03	LW
MEHFKC		3.652	-0.122	-1.66	4.056	-0.079	-0.99	TM
MFT8Q8		3.752	-0.022	-0.31	4.055	-0.080	-1.00	TA

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

WebCode	Data Flag	Sample GV15			Sample GV16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
MGM7ML		3.827	0.052	0.71	4.169	0.034	0.43	LW
MQA6DQ		3.868	0.094	1.28	4.262	0.127	1.58	EM
NNGK4C		3.630	-0.144	-1.97	4.000	-0.135	-1.69	TM
NUP4ZK		3.749	-0.026	-0.35	4.076	-0.059	-0.73	LW
P8UEFJ		3.740	-0.034	-0.47	4.118	-0.017	-0.21	TM
PVXDRG		3.692	-0.082	-1.12	4.079	-0.056	-0.70	PP
QCZ4YX		3.805	0.031	0.42	4.142	0.007	0.09	XX
QFZNCB		3.765	-0.010	-0.13	4.114	-0.021	-0.26	XX
QX2JT9		3.719	-0.056	-0.76	4.060	-0.075	-0.94	LW
R6GP3K		3.905	0.131	1.78	4.244	0.109	1.36	TA
R7QUGA		3.902	0.127	1.74	4.238	0.103	1.28	LW
RFWHA8		3.707	-0.067	-0.92	4.161	0.026	0.32	LW
RYPNFC		3.666	-0.108	-1.48	4.027	-0.108	-1.35	TM
TCAGNJ		3.751	-0.023	-0.32	4.068	-0.067	-0.84	TA
U9PNCG		3.849	0.075	1.02	4.174	0.039	0.49	LW
UVETYZ		3.770	-0.004	-0.06	4.160	0.025	0.31	XX
UZCXP6		3.753	-0.021	-0.29	4.097	-0.038	-0.48	EM
VAZV6C		3.713	-0.062	-0.84	4.039	-0.096	-1.20	PP
VJJ2Q2		3.803	0.029	0.39	4.111	-0.024	-0.30	XX
VRWD3J		3.685	-0.090	-1.22	4.005	-0.130	-1.62	EM
VRX9NB		3.786	0.012	0.16	4.129	-0.006	-0.08	LA
W6JDKT		3.845	0.071	0.96	4.180	0.045	0.56	EM
XCWD72	X	3.478	-0.296	-4.04	3.842	-0.293	-3.66	EM
XW3XVA		3.670	-0.104	-1.42	4.030	-0.105	-1.31	TM
YG9JH2		3.791	0.016	0.22	4.150	0.015	0.19	LW
YKLTJQ		3.734	-0.040	-0.55	4.172	0.037	0.46	TA
YWERBA		3.690	-0.084	-1.15	4.060	-0.075	-0.94	TM
ZWVFW2		3.733	-0.041	-0.56	4.094	-0.042	-0.52	TM

	Sample GV15	Summary Statistics	Sample GV16
Grand Means	3.7744 mils		4.1352 mils
SD Btwn Labs	0.0734 mils		0.0800 mils
Statistics based on 70 of 71 reporting participants			

Comments on assigned Data Flags for Test #360

XCWD72 (X) - Systematic error (data for both samples are low).

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

Instrument Code List as Reported by the Labs

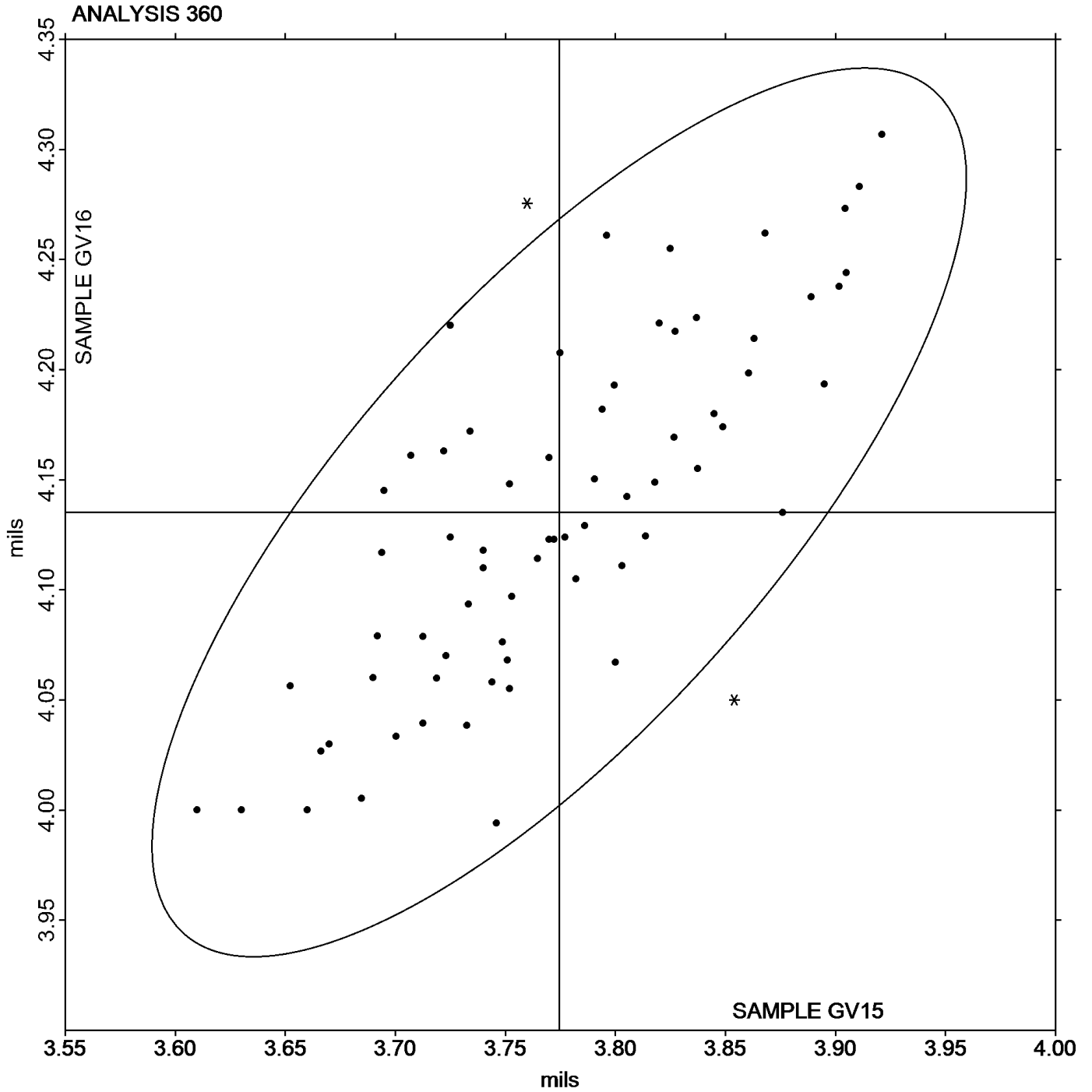
(EM) - Emveco	(FR) - Frank Instruments
(LA) - L & W Autoline	(LW) - L & W
(MT) - Mitutoyo	(PP) - Technidyne Profile/Plus
(TA) - Thwing-Albert	(TM) - TMI
(VM) - Valmet PaperLab (was Kajaani/Robotest)	(XX) - Instrument make/model not specified by lab

Analysis 360

Thickness (Caliper), Printing papers

Grand Mean Sample **GV15** = 3.7744 mils

Grand Mean Sample **GV16** = 4.1352 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

WebCode	Data Flag	Sample GY15			Sample GY16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24WVH3		7.764	0.170	1.41	9.512	0.147	1.09	TM
3E64C7		7.574	-0.020	-0.16	9.328	-0.037	-0.27	TM
3EN4FV		7.554	-0.040	-0.33	9.264	-0.101	-0.75	EM
4MWX93		7.330	-0.264	-2.19	9.090	-0.275	-2.03	LA
4ZLRKW		7.737	0.143	1.19	9.559	0.194	1.43	EM
8Q3RFV		7.544	-0.050	-0.41	9.278	-0.087	-0.65	XX
92X66U		7.670	0.076	0.63	9.510	0.145	1.07	LA
9C43ZP		7.620	0.026	0.22	9.390	0.025	0.19	LA
AYT2TX		7.766	0.172	1.43	9.526	0.161	1.19	LW
EDAKEL		7.508	-0.086	-0.71	9.319	-0.046	-0.34	XX
F8KHVM		7.548	-0.046	-0.38	9.306	-0.059	-0.44	EM
FUU3W9		7.540	-0.053	-0.44	9.354	-0.011	-0.08	LW
FVQYFG		7.680	0.086	0.72	9.400	0.035	0.26	TM
GFTQZA		7.830	0.237	1.96	9.567	0.202	1.49	LA
H4VAND	*	7.584	-0.010	-0.08	9.478	0.113	0.84	TA
HAKMNG		7.490	-0.104	-0.86	9.280	-0.085	-0.63	TM
HMB3MU		7.728	0.135	1.12	9.575	0.210	1.55	XX
HNG4DE		7.538	-0.056	-0.46	9.329	-0.036	-0.27	PP
HUU6UW		7.382	-0.212	-1.76	9.130	-0.235	-1.74	LW
HVYZ6M		7.653	0.059	0.49	9.457	0.092	0.68	XX
JBVE6G		7.649	0.055	0.46	9.456	0.091	0.67	TM
JETLJ7		7.587	-0.007	-0.06	9.353	-0.012	-0.09	TA
LZ2KUB		7.620	0.026	0.22	9.390	0.025	0.19	PP
MUPLPG		7.411	-0.183	-1.52	9.083	-0.282	-2.09	TM
NNGK4C		7.460	-0.134	-1.11	9.200	-0.165	-1.22	TM
NZV3V3		7.535	-0.058	-0.48	9.311	-0.054	-0.40	TM
P884GB		7.735	0.141	1.17	9.466	0.101	0.75	EM
RYV2JV		7.540	-0.054	-0.45	9.240	-0.125	-0.92	TM
TCAGNJ		7.622	0.028	0.24	9.379	0.014	0.10	TA
UPVX9B		7.490	-0.104	-0.86	9.235	-0.130	-0.96	TA
UTZJ6N		7.480	-0.113	-0.94	9.228	-0.137	-1.01	LA
VC3V69		7.415	-0.179	-1.48	9.230	-0.135	-1.00	TA
VQN2M4		7.780	0.186	1.55	9.554	0.189	1.40	EM
W3EC9F		7.630	0.036	0.30	9.402	0.037	0.27	XX
WYCCB4		7.698	0.104	0.87	9.488	0.123	0.91	TM
YWERBA		7.680	0.086	0.72	9.470	0.105	0.78	TM

Sample GY15

Summary Statistics

Sample GY16

Grand Means

7.5937 mils

9.3649 mils

SD Btwn Labs

0.1205 mils

0.1353 mils

Statistics based on 36 of 36 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

(PP) - Technidyne Profile/Plus

(TA) - Thwing-Albert

(TM) - TMI

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

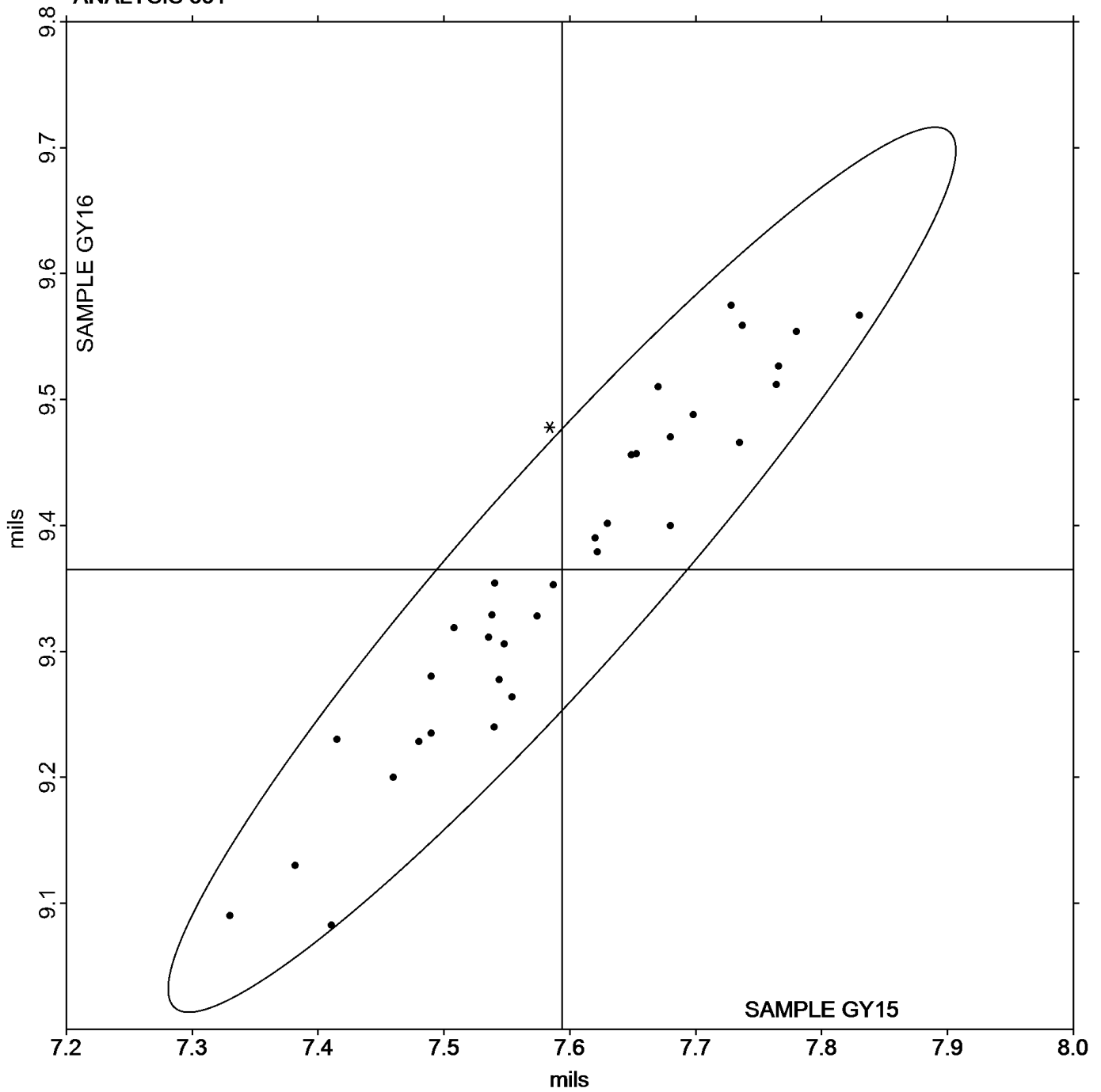
Analysis 361

Thickness (Caliper), Packaging papers

Grand Mean Sample GY15 = 7.5937 mils

Grand Mean Sample GY16 = 9.3649 mils

ANALYSIS 361



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

WebCode	Data Flag	Sample GD15			Sample GD16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
487VRY		0.5402	0.0049	0.08	0.5624	-0.0449	-0.90	XX
49E6HB		0.4380	-0.0973	-1.51	0.6078	0.0006	0.01	IT
7R7UTV		0.5452	0.0099	0.15	0.6240	0.0168	0.34	TA
8Q3RFV		0.6040	0.0687	1.07	0.6040	-0.0033	-0.07	TL
EW94NB	X	107.1000	106.5647	1,659.14	124.6800	124.0728	2,490.36	CH
GFTQZA		0.4366	-0.0987	-1.54	0.5232	-0.0841	-1.69	TA
HVYZ6M		0.5848	0.0495	0.77	0.6100	0.0028	0.06	TM
MQA6DQ		0.5528	0.0175	0.27	0.6340	0.0268	0.54	TM
QX2JT9		0.5808	0.0455	0.71	0.6926	0.0854	1.71	TM
XW3XVA	X	0.3788	-0.1565	-2.44	0.3376	-0.2697	-5.41	XX

Summary Statistics			
	Sample GD15		Sample GD16
Grand Means	0.53530	COF	0.60725
SD Btwn Labs	0.06423	COF	0.04982
Statistics based on 8 of 10 reporting participants			

Comments on assigned Data Flags for Test #364

EW94NB (X) - Extreme data.

XW3XVA (X) - Data for both samples are low.

Instrument Code List as Reported by the Labs

(CH) - Cheminstruments AR-1000

(IT) - IMASS SP-2100

(TA) - Thwing-Albert Friction Tester

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

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

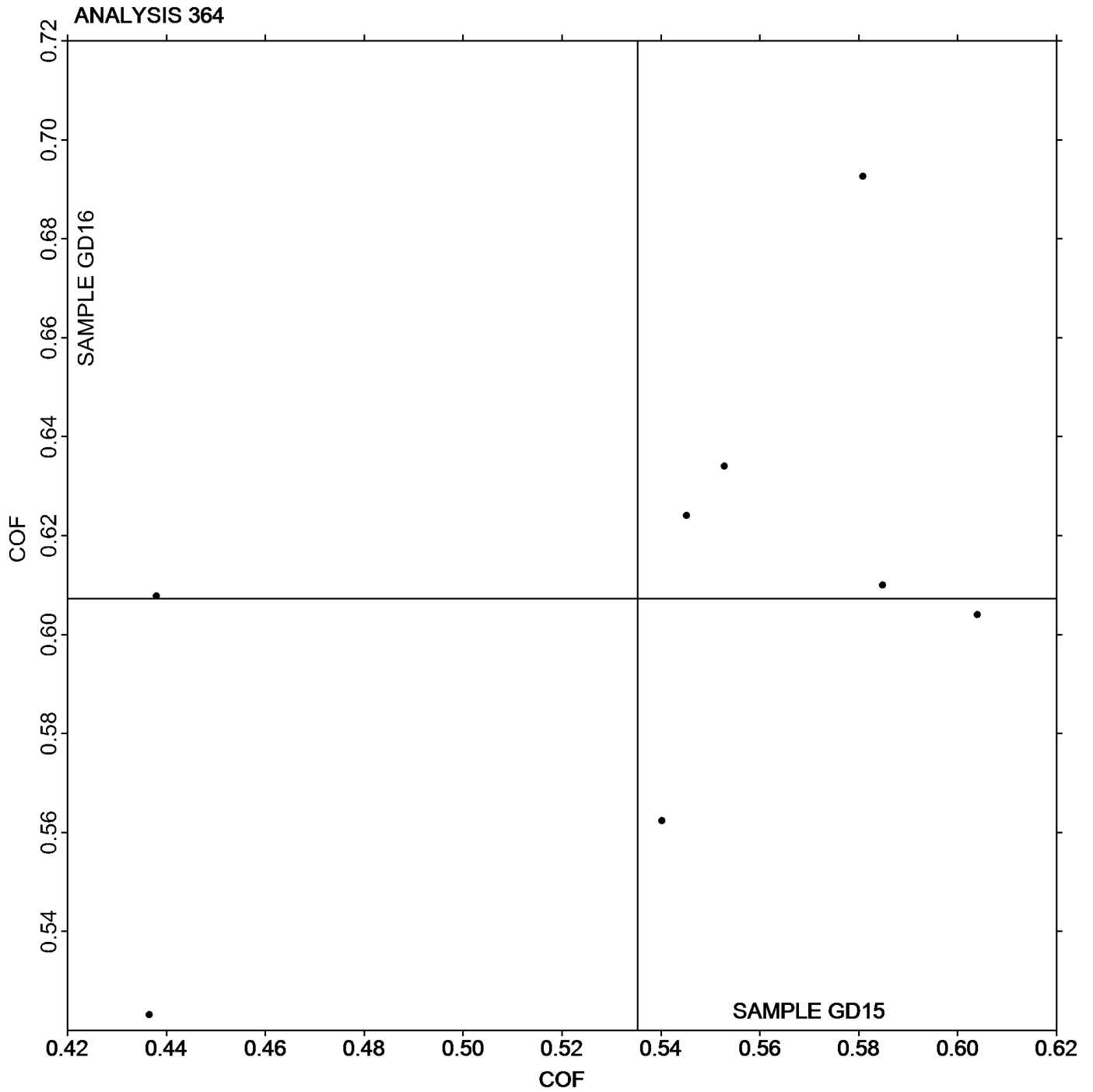
(XX) - Instrument make/model not specified by lab

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD15** = 0.53530 COF

Grand Mean Sample **GD16** = 0.60725 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 GD15			Sample GD16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3GU66U		0.3330	-0.0785	-0.86	0.4242	-0.0423	-0.54	TM
49E6HB		0.3488	-0.0627	-0.68	0.4870	0.0205	0.26	IR
6YM9VZ		0.3150	-0.0965	-1.05	0.3782	-0.0883	-1.12	TA
7R7UTV		0.4120	0.0005	0.01	0.4834	0.0169	0.22	TA
8Q3RFV		0.5660	0.1545	1.68	0.5860	0.1195	1.52	TL
DBRYDZ		0.3290	-0.0825	-0.90	0.3574	-0.1091	-1.39	TM
EW94NB	X	97.5800	97.1685	1,059.34	114.4800	114.0135	1,449.54	CH
GFTQZA		0.3986	-0.0129	-0.14	0.4874	0.0209	0.27	TA
HVYZ6M		0.4988	0.0873	0.95	0.5114	0.0449	0.57	TM
QX2JT9		0.4280	0.0165	0.18	0.4646	-0.0019	-0.02	TM
R387VV		0.5568	0.1453	1.58	0.5684	0.1019	1.30	XX
U9PNCG		0.5084	0.0969	1.06	0.5396	0.0731	0.93	TA
VRWD3J		0.3810	-0.0305	-0.33	0.4062	-0.0603	-0.77	TA
WQKY9J		0.4150	0.0035	0.04	0.5118	0.0453	0.58	TA
XW3XVA		0.2708	-0.1407	-1.53	0.3248	-0.1417	-1.80	XX

Sample GD15			Summary Statistics	Sample GD16	
Grand Means	0.41151	COF		0.46646	COF
SD Btwn Labs	0.09173	COF		0.07865	COF
Statistics based on 14 of 15 reporting participants					

Comments on assigned Data Flags for Test #365

EW94NB (X) - Extreme data.

Instrument Code List as Reported by the Labs

- (CH) - Cheminstruments AR-1000
- (IR) - IMASS SP-2000
- (TA) - Thwing-Albert Friction Tester
- (TL) - TMI 32-90 Lab Master/Slip and Friction
- (TM) - TMI 32-06 Monitor/Slip and Friction
- (XX) - Instrument make/model not specified by lab

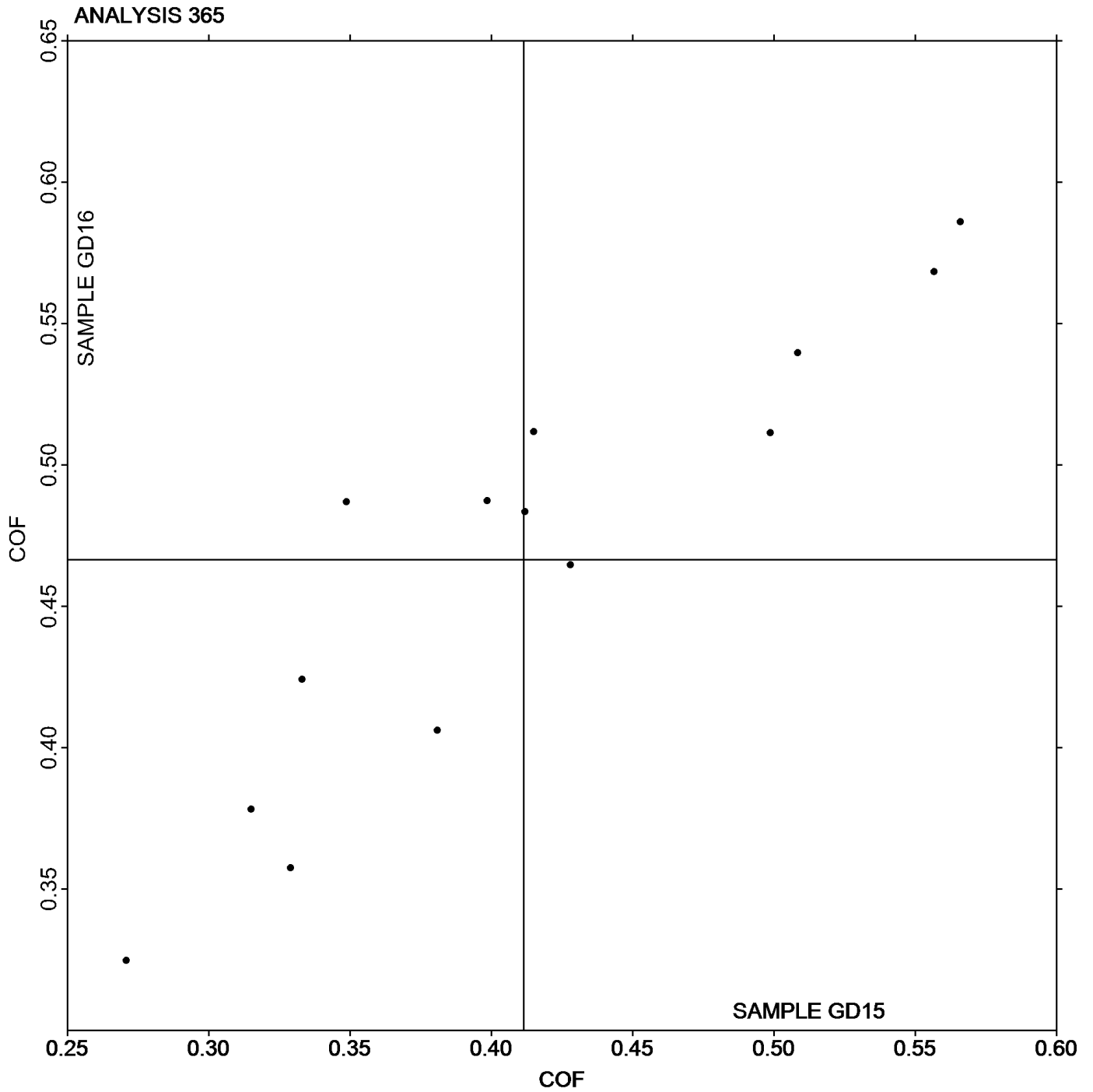
Paper & Paperboard Interlaboratory Testing Program

Analysis 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

Grand Mean Sample **GD15** = 0.41151 COF

Grand Mean Sample **GD16** = 0.46646 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 GE15			Sample GE16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
		10.45	-1.09	-1.48	23.99	-1.13	-0.85	XX
24WVH3		11.52	-0.02	-0.03	24.80	-0.32	-0.24	GA
2F8XRL		10.47	-1.07	-1.46	22.17	-2.95	-2.23	LP
42DK7M		11.36	-0.18	-0.24	26.38	1.26	0.96	WG
4MWX93		11.00	-0.54	-0.73	24.80	-0.32	-0.24	LA
69A6W2		10.71	-0.83	-1.13	22.67	-2.45	-1.85	LP
73XQJV		11.13	-0.41	-0.56	24.00	-1.12	-0.84	TN
7R7UTV		11.50	-0.04	-0.05	25.87	0.75	0.57	WG
8F8X9M	*	13.62	2.08	2.82	26.07	0.95	0.72	HG
8Q3RFV		12.19	0.65	0.88	25.27	0.15	0.12	LP
AACD7W		11.03	-0.51	-0.69	23.93	-1.18	-0.89	RE
AAVC9Z		11.95	0.41	0.56	24.33	-0.79	-0.59	LP
AK9JZU		11.77	0.23	0.31	26.54	1.42	1.08	HG
AUJ4JD		11.28	-0.26	-0.35	22.96	-2.16	-1.63	LP
CVKMZP		11.21	-0.33	-0.45	26.22	1.10	0.83	HG
DHDUE4		11.46	-0.08	-0.11	25.20	0.08	0.06	TL
E9J2JJ	X	28.43	16.89	22.92	72.74	47.62	35.99	XX
F2WABC		12.78	1.24	1.68	25.50	0.38	0.29	XX
F8KHVM		12.38	0.84	1.14	27.22	2.10	1.59	PP
FUU3W9		11.77	0.23	0.31	27.30	2.18	1.65	GA
FVPNME		11.99	0.45	0.61	26.57	1.45	1.10	HG
FVQ24Z		11.14	-0.40	-0.54	24.99	-0.13	-0.09	XX
FVQYFG		12.98	1.44	1.95	26.99	1.87	1.42	TL
G8ENNL		12.59	1.05	1.43	26.09	0.97	0.74	PP
GFTQZA		12.23	0.69	0.94	27.99	2.87	2.17	LA
HAKMNG		12.12	0.58	0.79	25.79	0.67	0.51	TL
HMB3MU		11.12	-0.42	-0.57	24.58	-0.54	-0.40	LW
HNG4DE		10.73	-0.81	-1.10	24.42	-0.70	-0.53	PP
HUU6UW		12.25	0.71	0.96	24.87	-0.25	-0.19	PP
JETLJ7		10.35	-1.19	-1.61	22.34	-2.78	-2.10	GA
JP86QM		10.02	-1.52	-2.06	22.94	-2.18	-1.64	XX
K23NXE		10.68	-0.86	-1.17	25.57	0.45	0.34	HG
KBAFBF		11.84	0.30	0.40	26.14	1.02	0.77	LA
LZ2KUB		12.20	0.66	0.90	25.49	0.38	0.28	PP
M4HWYC		12.18	0.64	0.87	25.39	0.27	0.21	LP
MEHFKC		10.79	-0.75	-1.02	24.05	-1.07	-0.80	LP
MGM7ML		11.10	-0.44	-0.60	24.40	-0.72	-0.54	LW
MQA6DQ		11.25	-0.29	-0.40	24.39	-0.73	-0.55	PP
PVXDRG		11.40	-0.14	-0.19	24.89	-0.23	-0.17	HG
R6GP3K		11.40	-0.14	-0.18	24.25	-0.87	-0.66	HG
RFWHA8		11.83	0.29	0.39	24.69	-0.43	-0.32	LP
RYPNFC		11.71	0.17	0.23	25.05	-0.07	-0.05	LW
UVETYZ		11.81	0.27	0.37	25.56	0.44	0.34	XX

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

WebCode	Data Flag	Sample GE15			Sample GE16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
VRX9NB		12.41	0.87	1.18	26.89	1.77	1.34	LA
W6JDKT		10.99	-0.55	-0.75	26.61	1.49	1.13	HG
XW3XVA		11.02	-0.52	-0.70	25.74	0.62	0.47	GS
YKLTJQ		11.03	-0.51	-0.69	23.96	-1.16	-0.88	PP
ZFTLMG		11.62	0.08	0.11	24.57	-0.55	-0.41	XX

Summary Statistics			
	Sample GE15		Sample GE16
Grand Means	11.540 sec/100 cc		25.115 sec/100 cc
SD Btwn Labs	0.737 sec/100 cc		1.323 sec/100 cc
Statistics based on 47 of 48 reporting participants			

Comments on assigned Data Flags for Test #370

E9J2JJ (X) - Extreme data.

Instrument Code List as Reported by the Labs

- | | |
|--|--|
| (GA) - Gurley Precision #4340 Automatic Densometer | (GS) - Gurley-Hill S-P-S Tester #4190 |
| (HG) - Technidyne - Hagerty Model #1 | (LA) - L & W Autoline |
| (LP) - L & W Densometer, Air Permeance | (LW) - L & W Type Gurley Densometer, Oil Flotation |
| (PP) - Technidyne Profile/Plus | (RE) - Regmed Gurley Densometer PGH-T |
| (TL) - Gurley Densometer #4110, Oil Flotation | (TN) - Gurley S-P-S Tester #4190 |
| (WG) - W & LE Gurley Tester | (XX) - Instrument make/model not specified by lab |

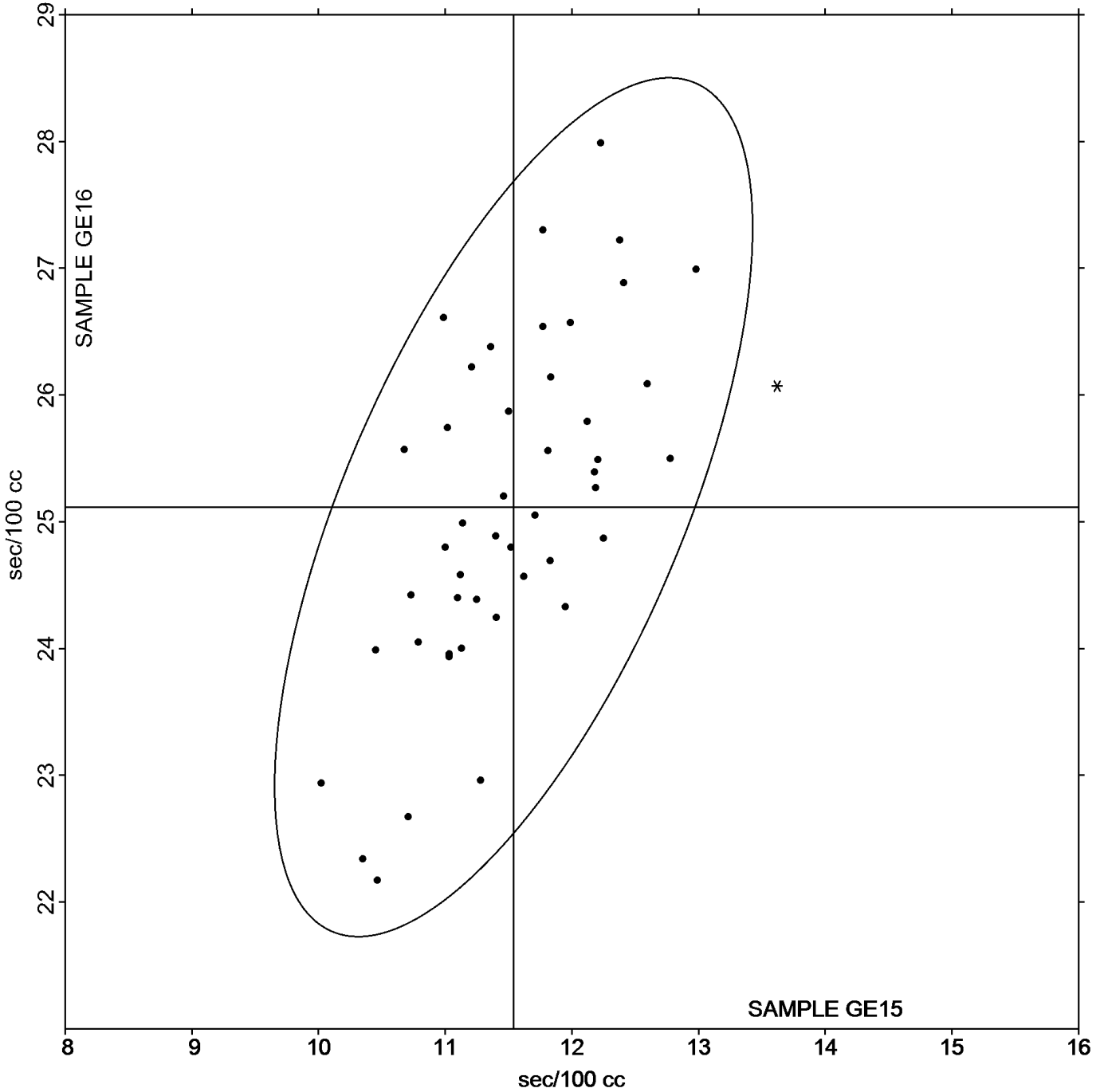
Analysis 370

Air Resistance - Gurley Oil Type

Grand Mean Sample **GE15** = 11.540 sec/100 cc

Grand Mean Sample **GE16** = 25.115 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 GE15			Sample GE16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24WVH3		213.1	-2.8	-0.17	105.9	-7.3	-0.84	GA
4UJK39		215.3	-0.6	-0.03	127.8	14.6	1.68	LP
863DWZ		206.0	-9.9	-0.59	117.0	3.8	0.44	TT
8UMGZ9		217.3	1.4	0.08	105.9	-7.3	-0.84	GA
9MZ9Q3		247.9	32.0	1.92	126.6	13.4	1.54	VM
DT9AVT		206.8	-9.1	-0.54	104.3	-8.9	-1.02	LP
F3CX8P		213.0	-2.9	-0.17	107.3	-5.9	-0.68	HM
F8KHVM		207.5	-8.4	-0.50	105.8	-7.4	-0.85	SH
GNMYJF		233.4	17.5	1.05	122.4	9.2	1.06	TT
KDTZ67	X	287.1	71.2	4.26	160.0	46.8	5.38	VM
LDQZTP		241.1	25.2	1.51	126.9	13.7	1.58	XX
R6GP3K	X	156.3	-59.6	-3.56	59.4	-53.8	-6.19	HM
RJT8QE		221.2	5.3	0.32	114.8	1.6	0.19	HM
RUWFGC		215.2	-0.7	-0.04	105.4	-7.8	-0.90	HG
RXG6ZP		206.4	-9.5	-0.57	106.1	-7.1	-0.82	LP
TCAGNJ		236.3	20.4	1.22	115.9	2.7	0.31	XX
TZGUHN		179.9	-36.0	-2.15	104.9	-8.3	-0.95	TT
UVETYZ		213.5	-2.4	-0.14	107.9	-5.3	-0.61	XX
XW3XVA		195.8	-20.1	-1.20	119.3	6.1	0.70	SH

Summary Statistics			
	Sample GE15		Sample GE16
Grand Means	215.86 Sheffield Units		113.19 Sheffield Units
SD Btwn Labs	16.73 Sheffield Units		8.70 Sheffield Units
Statistics based on 17 of 19 reporting participants			

Comments on assigned Data Flags for Test #372

KDTZ67 (X) - Data for both samples are high. Inconsistent within the determinations for Sample GE16.

R6GP3K (X) - Extreme data.

Instrument Code List as Reported by the Labs

- (GA) - Gurley Precision #4340 Automatic Densometer
- (HM) - Technidyne - Hagerty Model #538
- (SH) - Sheffield
- (VM) - Valmet PaperLab (was Kajaani/Robotest)
- (HG) - Technidyne - Hagerty Model #1
- (LP) - L & W Densometer, Air Permeance
- (TT) - TMI Monitor/Smoothness II, Model 58-24
- (XX) - Instrument make/model not specified by lab

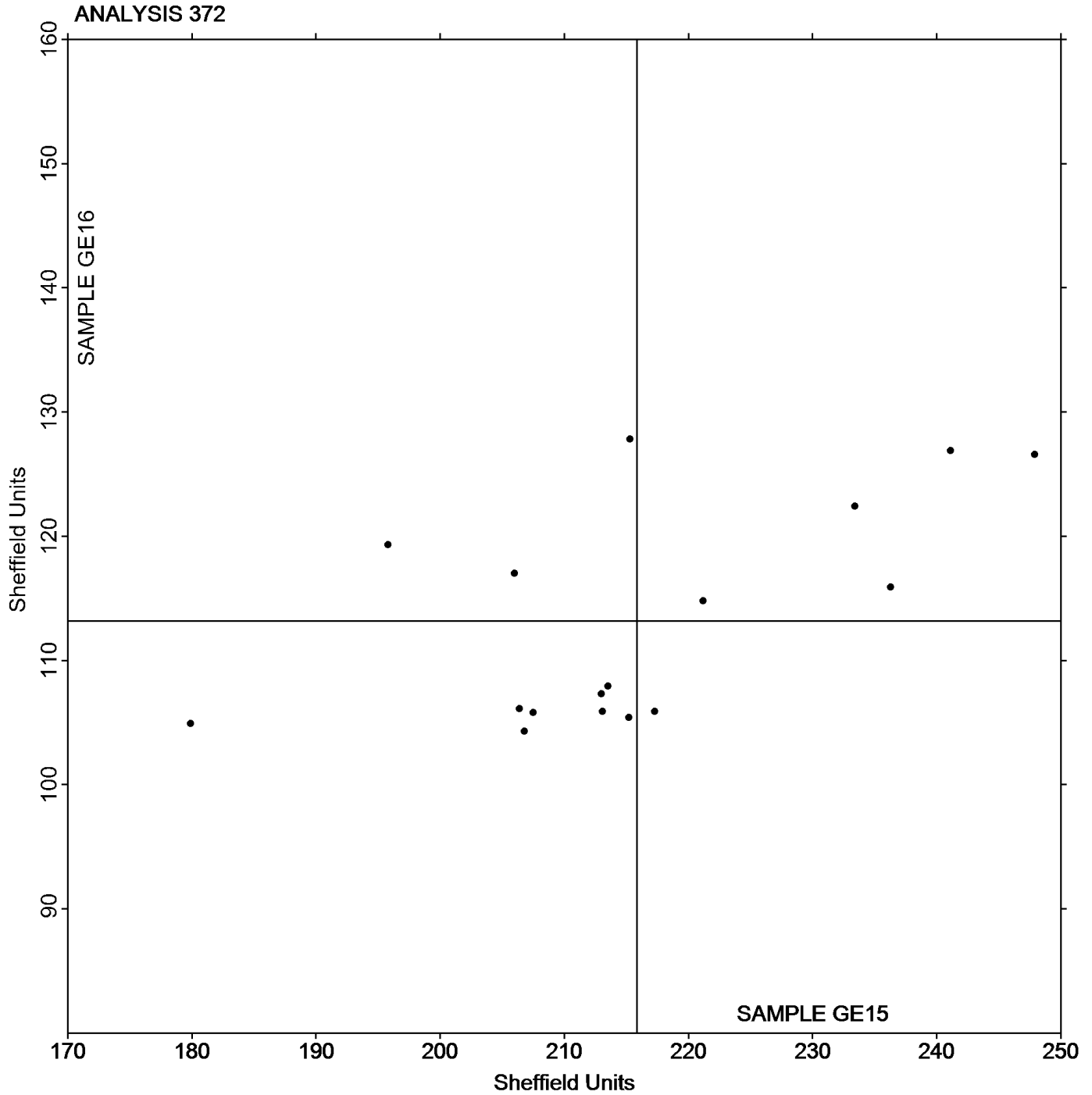
Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

Grand Mean Sample **GE15** = 215.86 Sheffield Units

Grand Mean Sample **GE16** = 113.19 Sheffield Units



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

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

WebCode	Data Flag	Sample GJ15			Sample GJ16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
3EN4FV		0.7630	0.0059	0.06	0.9140	-0.0008	-0.01
3YE2V3		0.7120	-0.0451	-0.45	0.8640	-0.0508	-0.58
4ZLRKW		0.6940	-0.0631	-0.63	0.8970	-0.0178	-0.20
6YM9VZ		0.8450	0.0879	0.87	1.0080	0.0932	1.06
7R6Z84		0.8600	0.1029	1.02	0.9230	0.0082	0.09
7R7UTV		0.6350	-0.1221	-1.21	0.7170	-0.1978	-2.25
8F8X9M		0.7580	0.0009	0.01	0.9060	-0.0088	-0.10
92X66U		0.7700	0.0129	0.13	1.0500	0.1352	1.54
9C43ZP		0.8230	0.0659	0.65	0.9190	0.0042	0.05
AYT2TX		0.7700	0.0129	0.13	0.9020	-0.0128	-0.15
CEZZZR		0.7930	0.0359	0.36	0.9040	-0.0108	-0.12
F2WABC		0.8400	0.0829	0.82	1.0030	0.0882	1.00
F8KHVM		0.7660	0.0089	0.09	0.8540	-0.0608	-0.69
FVPNME		0.8070	0.0499	0.50	0.9910	0.0762	0.87
GNYMYJF		1.0130	0.2559	2.54	1.1230	0.2082	2.37
HNG4DE		0.7350	-0.0221	-0.22	0.8610	-0.0538	-0.61
JKEMFB		0.6700	-0.0871	-0.87	0.9400	0.0252	0.29
JUN396		0.7560	-0.0011	-0.01	0.9900	0.0752	0.86
LXWHVE		0.9550	0.1979	1.97	1.1030	0.1882	2.14
LZ2KUB		0.7290	-0.0281	-0.28	0.9070	-0.0078	-0.09
MEHFKC		0.7380	-0.0191	-0.19	0.8800	-0.0348	-0.40
NUP4ZK	X	1.1770	0.4199	4.17	1.2900	0.3752	4.27
NZV3V3		0.5840	-0.1731	-1.72	0.8110	-0.1038	-1.18
P884GB		0.7700	0.0129	0.13	0.8900	-0.0248	-0.28
RAANGF		0.6870	-0.0701	-0.70	0.9160	0.0012	0.01
RJT8QE	*	0.5110	-0.2461	-2.44	0.8300	-0.0848	-0.96
TFA49U	X	1.1870	0.4299	4.27	1.2410	0.3262	3.71
UTZJ6N		0.6710	-0.0861	-0.86	0.8300	-0.0848	-0.96
UZCXP6	X	0.6890	-0.0681	-0.68	1.1050	0.1902	2.16
VQN2M4		0.6700	-0.0871	-0.87	0.8040	-0.1108	-1.26
WQKY9J		0.7250	-0.0321	-0.32	0.8510	-0.0638	-0.73
XQXYM6		0.7960	0.0389	0.39	0.8740	-0.0408	-0.46
YKLTJQ		0.8680	0.1109	1.10	0.9820	0.0672	0.76

Sample GJ15**Summary Statistics****Sample GJ16**

Grand Means 0.75713 Microns
SD Btwn Labs 0.10069 Microns

0.91480 Microns
0.08793 Microns

Statistics based on 30 of 33 reporting participants

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Comments on assigned Data Flags for Test #376

NUP4ZK (X) - Data for both samples are high.

TFA49U (X) - Data for both samples are high.

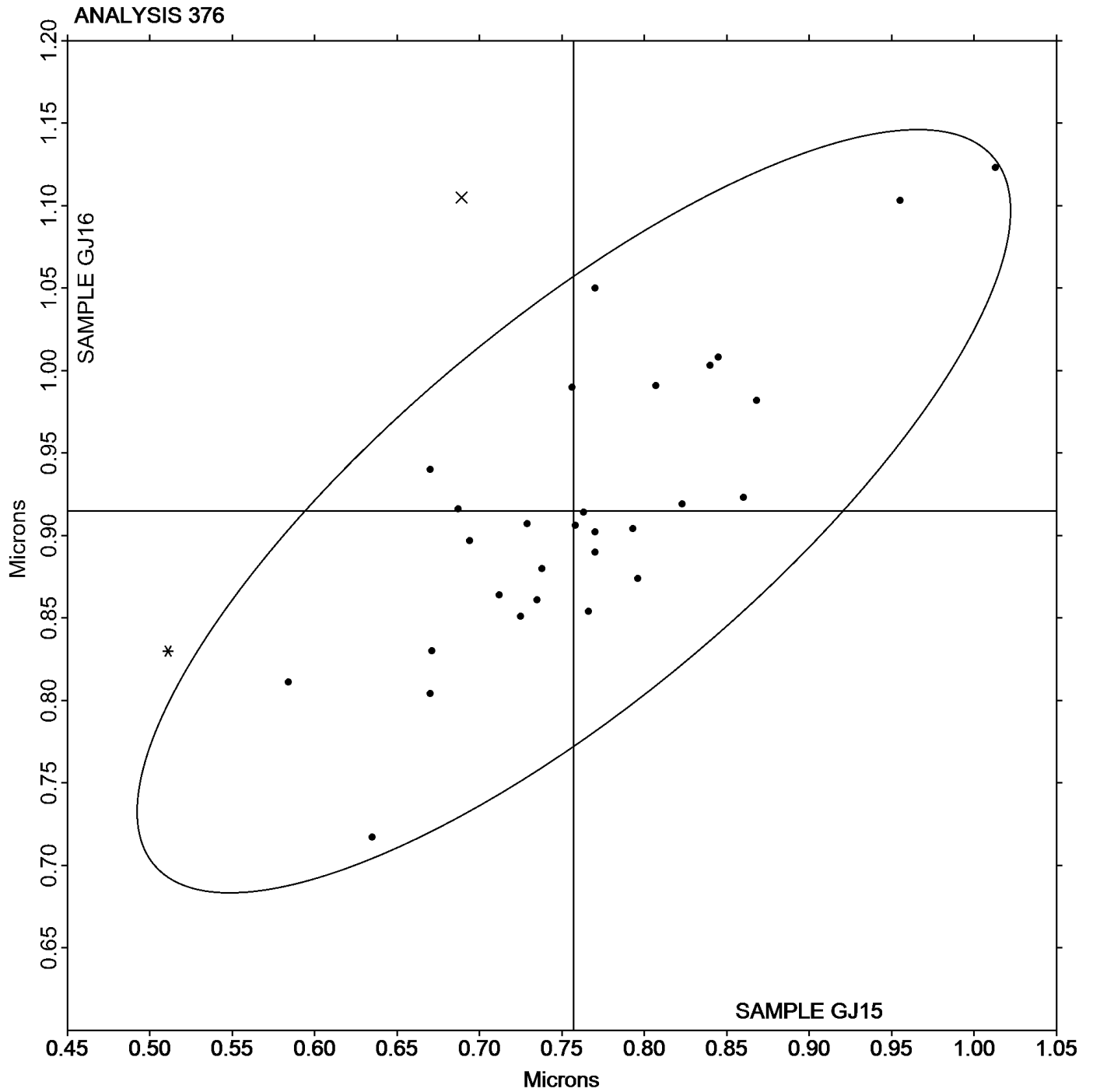
UZCXP6 (X) - Inconsistent in testing between samples.

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

Grand Mean Sample GJ15 = 0.75713 Microns

Grand Mean Sample GJ16 = 0.91480 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

WebCode	Data Flag	Sample GK15			Sample GK16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
487VRY		4.344	0.122	0.34	4.414	0.166	0.40
7R7UTV		4.218	-0.004	-0.01	4.156	-0.092	-0.22
8Q3RFV		4.078	-0.144	-0.39	4.133	-0.115	-0.28
9MZ9Q3		4.240	0.018	0.05	4.076	-0.172	-0.41
HUU6UW		4.177	-0.045	-0.12	4.173	-0.075	-0.18
JETLJ7		4.192	-0.030	-0.08	4.310	0.062	0.15
JUN396		4.806	0.584	1.61	4.977	0.729	1.76
KBAFBF		4.060	-0.162	-0.44	3.970	-0.278	-0.67
KDTZ67		4.650	0.428	1.18	4.797	0.549	1.32
LDQZTP		4.181	-0.041	-0.11	4.174	-0.074	-0.18
MQA6DQ		4.379	0.157	0.43	4.405	0.157	0.38
RYV2JV		3.240	-0.982	-2.70	3.240	-1.008	-2.43
U9PNCG		4.315	0.093	0.26	4.394	0.146	0.35

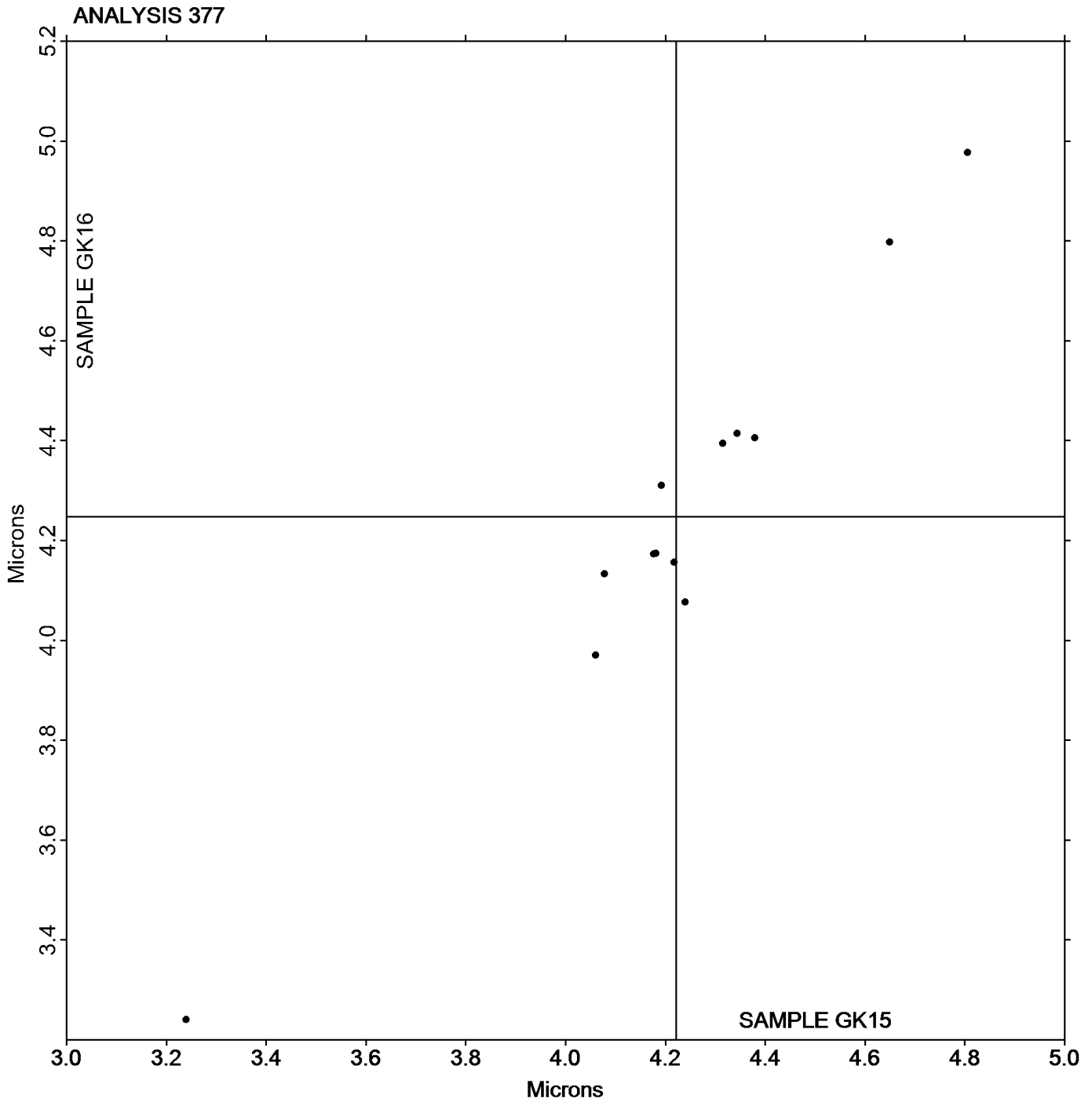
Summary Statistics			
	Sample GK15		Sample GK16
Grand Means	4.2215 Microns		4.2476 Microns
SD Btwn Labs	0.3639 Microns		0.4149 Microns
Statistics based on 13 of 13 reporting participants			

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

Grand Mean Sample **GK15** = 4.2215 Microns

Grand Mean Sample **GK16** = 4.2476 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 GL15			Sample GL16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24WVH3		89.90	-5.25	-0.50	58.00	-2.99	-0.31	HM
3EN4FV		84.40	-10.75	-1.03	49.20	-11.79	-1.24	PP
3GU66U		90.70	-4.45	-0.42	55.80	-5.19	-0.55	TS
42DK7M		100.90	5.75	0.55	67.90	6.91	0.73	PG
487VRY		93.90	-1.25	-0.12	52.50	-8.49	-0.89	HM
4UJK39		100.40	5.25	0.50	67.60	6.61	0.69	LW
4ZLRKW		101.95	6.80	0.65	60.97	-0.02	0.00	PP
6YM9VZ		85.60	-9.55	-0.91	56.70	-4.29	-0.45	HM
6ZWKNH	*	127.90	32.75	3.12	87.00	26.01	2.73	TT
74V9VR		79.20	-15.95	-1.52	56.70	-4.29	-0.45	TS
7R7UTV		108.90	13.75	1.31	70.70	9.71	1.02	XX
863DWZ		101.00	5.85	0.56	69.50	8.51	0.89	TT
8ECCHG		82.00	-13.15	-1.25	51.90	-9.09	-0.96	LA
8Q3RFV		87.30	-7.85	-0.75	54.20	-6.79	-0.71	LW
8UMGZ9		102.91	7.76	0.74	63.55	2.56	0.27	GA
92X66U		85.21	-9.94	-0.95	55.01	-5.98	-0.63	LA
9C43ZP		98.30	3.15	0.30	59.40	-1.59	-0.17	LA
9MZ9Q3		90.40	-4.75	-0.45	51.30	-9.69	-1.02	VM
AAVC9Z		89.40	-5.75	-0.55	50.90	-10.09	-1.06	LW
AK9JZU		91.50	-3.65	-0.35	69.00	8.01	0.84	SH
ANPWM3		92.90	-2.25	-0.21	64.90	3.91	0.41	SH
CA2K6P		97.89	2.74	0.26	72.41	11.42	1.20	MP
CEZZZR		90.70	-4.45	-0.42	56.60	-4.39	-0.46	XX
CVKMZP		83.90	-11.25	-1.07	47.10	-13.89	-1.46	TS
DT9AVT		94.20	-0.95	-0.09	56.20	-4.79	-0.50	PP
E9J2JJ		120.20	25.05	2.39	78.00	17.01	1.79	XX
F2WABC		84.60	-10.55	-1.01	52.00	-8.99	-0.94	XX
F3CX8P		95.10	-0.05	0.00	59.80	-1.19	-0.13	HM
F8KHVM		92.10	-3.05	-0.29	54.50	-6.49	-0.68	PP
FVPNME		88.40	-6.75	-0.64	53.80	-7.19	-0.76	HM
G8ENNL		100.77	5.62	0.54	60.10	-0.89	-0.09	PP
GCUZJH		89.70	-5.45	-0.52	56.80	-4.19	-0.44	GA
GNMYJF		100.00	4.85	0.46	65.00	4.01	0.42	TT
GVN9Q8		85.00	-10.15	-0.97	50.20	-10.79	-1.13	PP
HNG4DE		85.29	-9.86	-0.94	58.18	-2.82	-0.30	PP
HUU6UW		82.16	-12.99	-1.24	53.74	-7.26	-0.76	PP
JBVE6G		116.30	21.15	2.02	75.20	14.21	1.49	PP
JETLJ7		83.38	-11.77	-1.12	53.69	-7.30	-0.77	PP
JP86QM		87.84	-7.31	-0.70	54.70	-6.29	-0.66	PP
K23NXE		99.30	4.15	0.40	64.90	3.91	0.41	HM
KBAFBF		108.90	13.75	1.31	70.00	9.01	0.95	LA
LDQZTP		89.90	-5.25	-0.50	54.50	-6.49	-0.68	XX
LZ2KUB		83.78	-11.36	-1.08	50.63	-10.36	-1.09	PP

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

WebCode	Data Flag	Sample GL15			Sample GL16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
MEHFKC		93.60	-1.55	-0.15	68.30	7.31	0.77	TS
MGM7ML		95.30	0.15	0.01	64.30	3.31	0.35	SH
MNLHYH		108.50	13.35	1.27	80.60	19.61	2.06	TS
MQA6DQ		99.72	4.57	0.44	57.68	-3.31	-0.35	PP
NNGK4C		103.50	8.35	0.80	67.50	6.51	0.68	GL
NZV3V3		109.60	14.45	1.38	76.70	15.71	1.65	TT
P884GB		99.13	3.99	0.38	62.51	1.52	0.16	PP
PVXDRG	X	4.59	-90.56	-8.64	4.23	-56.76	-5.96	GL
QCZ4YX		96.00	0.85	0.08	57.00	-3.99	-0.42	XX
QX2JT9		90.18	-4.97	-0.47	52.32	-8.67	-0.91	PP
R6GP3K	X	222.80	127.65	12.18	121.10	60.11	6.31	HM
RUWFGC		79.00	-16.15	-1.54	52.20	-8.79	-0.92	HM
RYPNFC		104.40	9.25	0.88	76.30	15.31	1.61	SH
TCAGNJ		88.60	-6.55	-0.62	50.10	-10.89	-1.14	HM
UPVX9B		106.60	11.45	1.09	68.60	7.61	0.80	PG
UVETYZ		114.50	19.35	1.85	82.40	21.41	2.25	XX
VC3V69		83.10	-12.05	-1.15	58.34	-2.65	-0.28	PP
VJJ2Q2		85.40	-9.75	-0.93	48.60	-12.39	-1.30	XX
VQN2M4		95.80	0.65	0.06	57.50	-3.49	-0.37	LA
VRX9NB		87.19	-7.96	-0.76	56.79	-4.20	-0.44	LA
W6JDKT		90.90	-4.25	-0.41	55.10	-5.89	-0.62	HM
WQKY9J		91.60	-3.55	-0.34	64.00	3.01	0.32	HM
WYCCB4		118.74	23.59	2.25	84.79	23.80	2.50	GA
XQXYM6		93.00	-2.15	-0.20	54.20	-6.79	-0.71	TT
XW3XVA	X	129.40	34.25	3.27	106.30	45.31	4.76	XX
YKLTJQ		101.30	6.15	0.59	58.86	-2.13	-0.22	PP

Summary Statistics

Sample GL15

Grand Means 95.147 Sheffield
SD Btw Labs 10.484 Sheffield

Sample GL16

60.992 Sheffield
9.520 Sheffield

Statistics based on 66 of 69 reporting participants

Comments on assigned Data Flags for Test #378

PVXDRG (X) - Extreme data.

R6GP3K (X) - Extreme data.

XW3XVA (X) - Systematic error (data for both samples are high).

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

Instrument Code List as Reported by the Labs

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

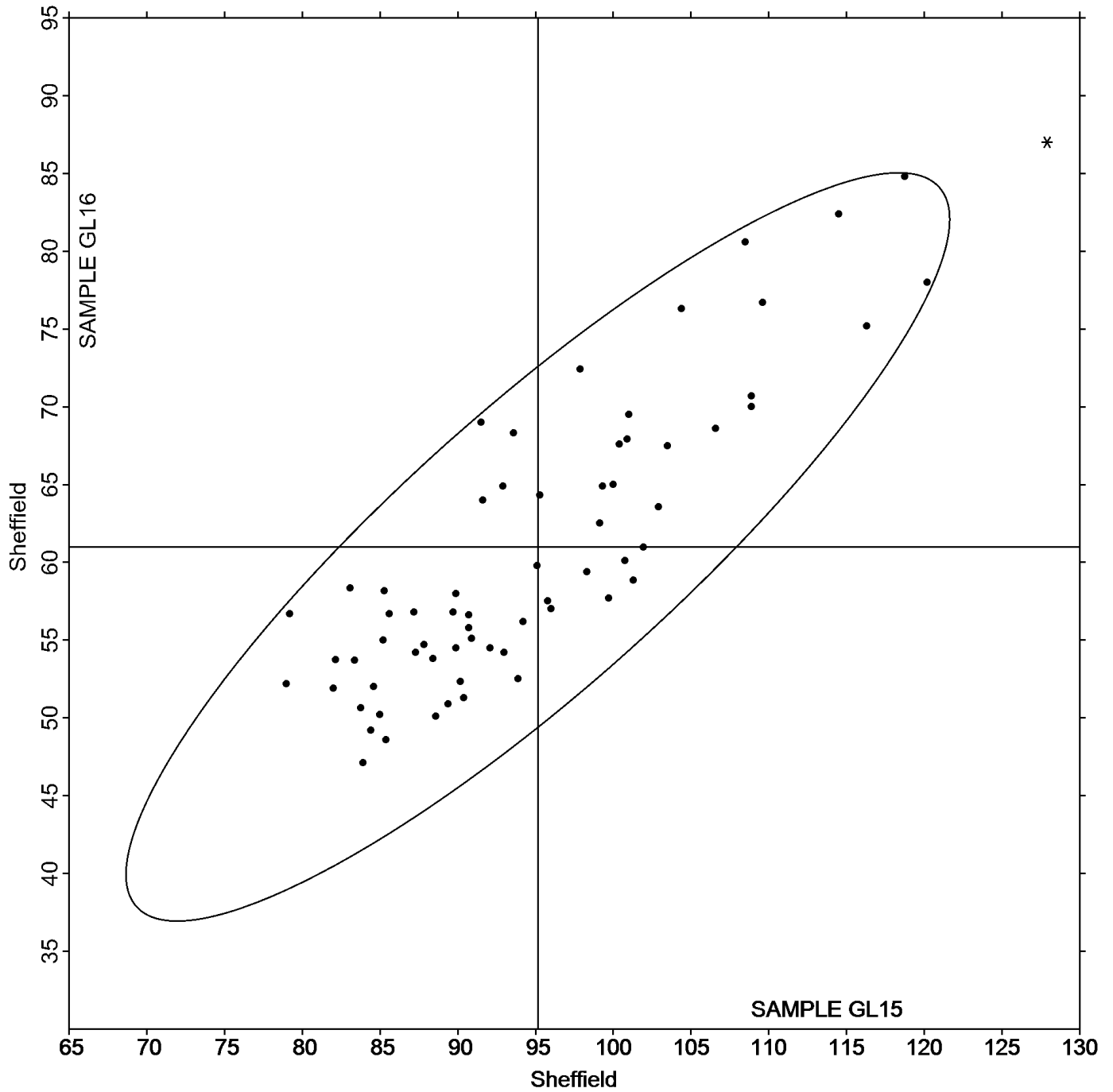
Analysis 378

Roughness - Sheffield Type

Grand Mean Sample **GL15** = 95.147 Sheffield

Grand Mean Sample **GL16** = 60.992 Sheffield

ANALYSIS 378



Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper

WebCode	Data Flag	Sample GM15			Sample GM16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
487VRY		4.230	-0.260	-0.71	4.120	-0.239	-0.54
AACD7W		4.631	0.141	0.38	4.357	-0.002	-0.01
AP2HEP		4.930	0.440	1.20	4.880	0.521	1.17
JBVE6G		4.890	0.400	1.09	4.603	0.244	0.55
MQA6DQ		4.336	-0.154	-0.42	4.319	-0.040	-0.09
NUP4ZK		4.255	-0.235	-0.64	4.138	-0.222	-0.50
NZV3V3		4.200	-0.290	-0.79	4.770	0.411	0.92
PYY8LY		4.259	-0.232	-0.63	3.561	-0.799	-1.80
RFWHA8		4.070	-0.420	-1.15	3.910	-0.449	-1.01
RYV2JV		5.102	0.612	1.67	4.937	0.578	1.30

Summary Statistics

Sample GM15

Sample GM16

Grand Means 4.4903 Percent

4.3594 Percent

SD Btwn Labs 0.3665 Percent

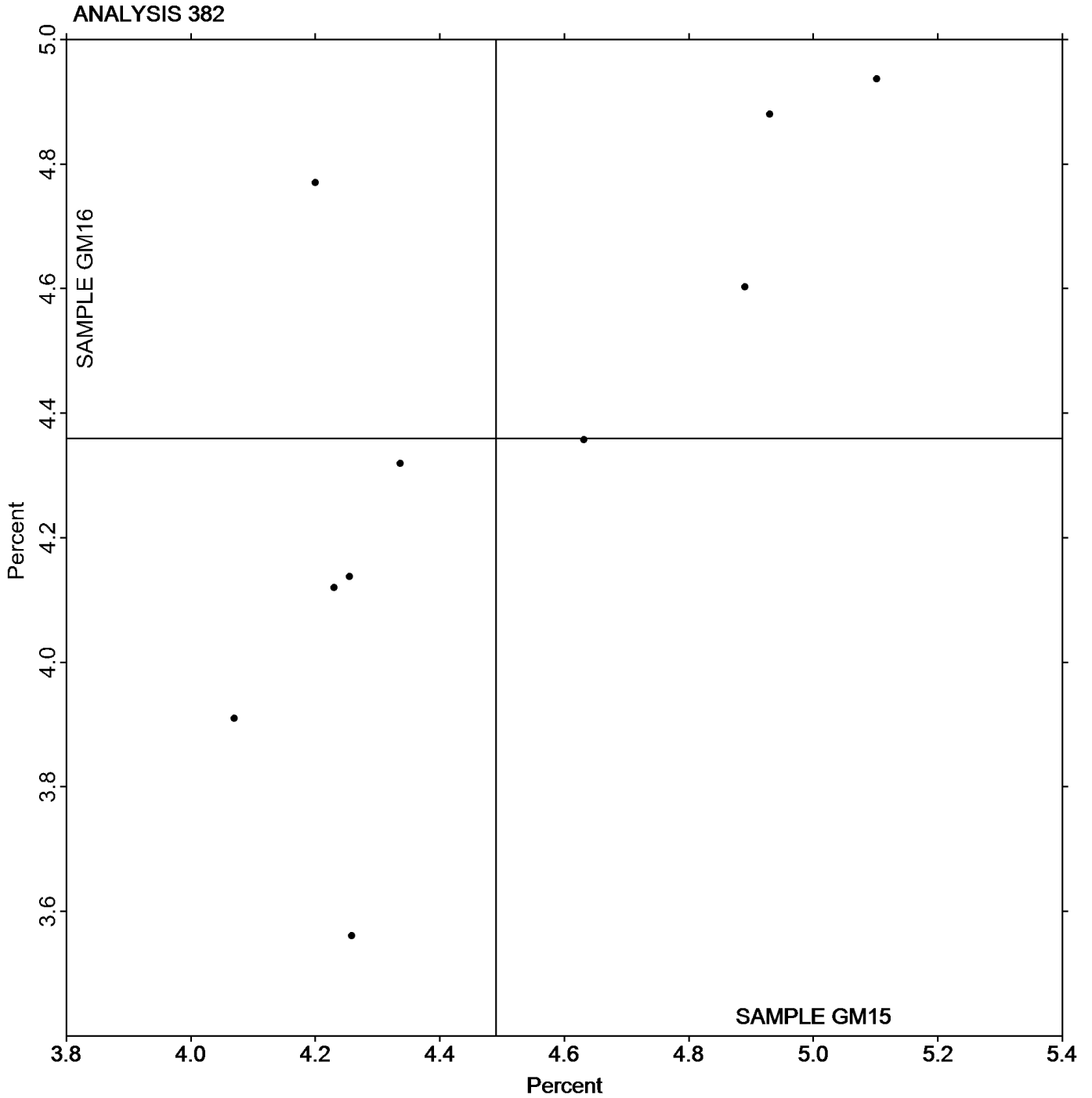
0.4448 Percent

Statistics based on 10 of 10 reporting participants

Analysis 382
Moisture in Paper

Grand Mean Sample **GM15** = 4.4903 Percent

Grand Mean Sample **GM16** = 4.3594 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 GN15			Sample GN16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
24WVH3		86.49	-0.36	-0.68	92.01	-0.54	-0.98
42DK7M		87.03	0.17	0.33	93.28	0.73	1.31
487VRY		87.11	0.26	0.48	92.12	-0.43	-0.78
6YM9VZ		87.37	0.51	0.96	93.24	0.68	1.23
7R6XHY		86.56	-0.30	-0.56	92.65	0.10	0.18
863DWZ	X	89.17	2.32	4.33	93.23	0.68	1.22
8F8X9M		86.92	0.07	0.12	92.68	0.13	0.23
9MZ9Q3	X	89.03	2.18	4.07	92.35	-0.20	-0.36
AK9JZU		86.73	-0.12	-0.23	92.71	0.16	0.28
ANPWM3		87.07	0.22	0.40	92.88	0.33	0.59
BD9C6R		86.50	-0.35	-0.66	92.50	-0.05	-0.10
CEZZZR		86.87	0.02	0.03	92.26	-0.29	-0.53
CVKMZP		86.61	-0.24	-0.46	92.94	0.39	0.70
E9J2JJ		87.25	0.40	0.74	92.63	0.08	0.14
G8ENNL		86.40	-0.45	-0.85	92.73	0.18	0.32
GNMYJF		87.61	0.76	1.41	92.91	0.36	0.64
GVN9Q8		86.70	-0.15	-0.29	92.20	-0.35	-0.63
HAKMNG		87.27	0.42	0.78	93.13	0.58	1.04
HUU6UW		87.30	0.45	0.83	93.13	0.58	1.04
JP86QM		86.29	-0.56	-1.06	92.40	-0.15	-0.28
KBAFBF		87.73	0.88	1.64	92.92	0.36	0.65
LDQZTP		86.35	-0.51	-0.95	92.13	-0.42	-0.75
LXWHVE		87.14	0.29	0.53	92.50	-0.05	-0.10
MGM7ML		87.28	0.43	0.80	92.91	0.36	0.64
MQA6DQ		87.20	0.35	0.65	92.78	0.22	0.40
NNGK4C		87.63	0.78	1.45	93.17	0.62	1.11
PVXDRG	*	86.65	-0.20	-0.38	91.41	-1.15	-2.06
QCZ4YX		87.34	0.49	0.91	93.04	0.49	0.88
QX2JT9		86.10	-0.75	-1.41	92.07	-0.48	-0.86
R6GP3K		86.97	0.11	0.21	92.70	0.15	0.27
RAANGF		86.50	-0.35	-0.66	92.03	-0.52	-0.94
TCAGNJ		86.52	-0.33	-0.63	92.36	-0.19	-0.35
TG6PYZ	X	89.17	2.31	4.33	92.47	-0.08	-0.15
U9PNCG	X	89.26	2.40	4.49	92.18	-0.37	-0.67
UVETYZ	*	85.59	-1.26	-2.37	91.06	-1.49	-2.68
VJJ2Q2		87.40	0.55	1.02	93.18	0.63	1.13
VRX9NB		86.51	-0.34	-0.65	92.34	-0.21	-0.38
W6JDKT		87.18	0.33	0.61	92.83	0.28	0.50
WQKY9J		87.32	0.47	0.87	93.00	0.45	0.80
XW3XVA	*	85.32	-1.53	-2.87	91.02	-1.53	-2.76
YKLTJQ		86.82	-0.03	-0.07	92.61	0.06	0.10

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

	Sample GN15	Summary Statistics	Sample GN16
Grand Means	86.855 Percent		92.553 Percent
SD Btwn Labs	0.534 Percent		0.556 Percent
Statistics based on 37 of 41 reporting participants			

Comments on assigned Data Flags for Test #384

863DWZ (X) - Inconsistent in testing between samples, data for Sample GN15 are high.

9MZ9Q3 (X) - Inconsistent in testing between samples, data for Sample GN15 are high.

TG6PYZ (X) - Inconsistent in testing between samples, data for Sample GN15 are high.

U9PNCG (X) - Inconsistent in testing between samples, data for Sample GN15 are high.

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

WebCode	Data Flag	Sample GP15			Sample GP16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
27ZQ27		89.15	0.11	0.57	92.13	-0.06	-0.39
2F8XRL		88.80	-0.23	-1.16	92.34	0.15	1.06
3AEM78		89.13	0.10	0.48	92.08	-0.10	-0.69
4UJK39		89.09	0.06	0.31	92.56	0.38	2.62
6YM9VZ		89.07	0.04	0.21	92.10	-0.08	-0.55
AACD7W		88.99	-0.05	-0.23	92.15	-0.03	-0.23
AUJ4JD		89.10	0.07	0.34	92.24	0.06	0.41
AYT2TX		88.99	-0.04	-0.21	92.02	-0.17	-1.17
CEZZZR		89.11	0.07	0.37	92.25	0.07	0.47
F3CX8P		88.84	-0.20	-0.98	92.30	0.12	0.81
FVQYFG		89.31	0.28	1.40	92.06	-0.12	-0.86
HMB3MU		88.89	-0.14	-0.71	92.24	0.06	0.39
HVYZ6M		89.33	0.30	1.51	92.24	0.06	0.40
LGVZ63	*	88.57	-0.46	-2.30	91.98	-0.20	-1.38
QFZNCB		89.41	0.38	1.92	92.07	-0.12	-0.82
R6GP3K		88.87	-0.16	-0.80	92.10	-0.08	-0.56
RFWHA8		89.03	-0.01	-0.03	92.26	0.07	0.51
VAZV6C		88.83	-0.20	-1.01	92.20	0.02	0.11
W3EC9F		89.13	0.10	0.51	91.99	-0.20	-1.36
YG9JH2		88.99	-0.04	-0.20	92.36	0.18	1.24

		Summary Statistics	
	Sample GP15		Sample GP16
Grand Means	89.031 Percent		92.184 Percent
SD Btwn Labs	0.199 Percent		0.145 Percent
Statistics based on 20 of 20 reporting participants			

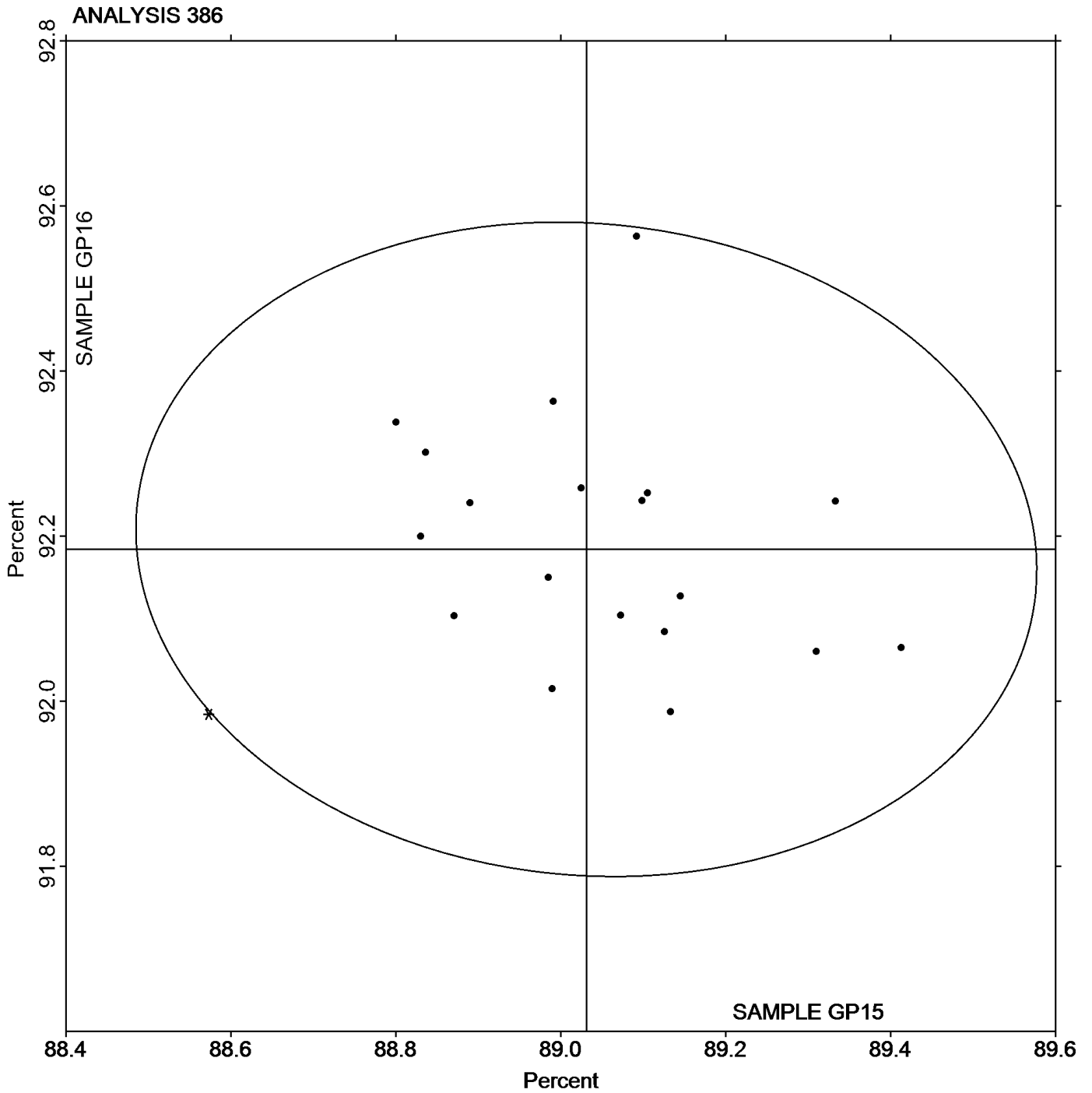
Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

Grand Mean Sample GP15 = 89.031 Percent

Grand Mean Sample GP16 = 92.184 Percent



Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

WebCode	Data Flag	Sample GR15			Sample GR16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24WVH3	X	80.54	-1.33	-0.95	82.00	-0.07	-0.06	XS
2M2AGN		83.01	1.15	0.82	83.33	1.25	0.96	TS
3EN4FV		82.48	0.61	0.44	82.43	0.35	0.27	TT
42DK7M		80.42	-1.45	-1.04	80.69	-1.38	-1.06	TS
4ZLRKW		83.64	1.78	1.27	83.61	1.54	1.18	HD
6YM9VZ		80.19	-1.67	-1.20	80.31	-1.77	-1.36	TS
863DWZ	X	83.90	2.03	1.46	82.43	0.35	0.27	TT
8F8X9M		80.28	-1.59	-1.14	80.68	-1.40	-1.08	TT
ANPWM3		82.85	0.98	0.71	83.13	1.05	0.81	TA
CEZZR		80.24	-1.63	-1.17	80.61	-1.46	-1.13	TT
CVKMZP		80.96	-0.90	-0.65	81.64	-0.44	-0.34	TS
E9J2JJ		80.50	-1.36	-0.98	80.52	-1.55	-1.20	TS
G8ENNL		80.29	-1.58	-1.13	80.65	-1.42	-1.10	TT
GVN9Q8		82.83	0.96	0.69	82.84	0.76	0.59	XX
HAKMNG		83.43	1.56	1.12	83.46	1.39	1.07	TS
KBAFBF		82.18	0.31	0.22	82.89	0.81	0.62	TS
LXWHVE		81.94	0.07	0.05	82.06	-0.01	-0.01	MK
P884GB		82.75	0.88	0.63	83.00	0.92	0.71	HD
P8UEFJ		83.71	1.85	1.32	84.00	1.93	1.48	HG
QCZ4YX		82.67	0.80	0.57	82.49	0.42	0.32	TS
R6GP3K		80.31	-1.56	-1.12	80.61	-1.47	-1.13	TS
RYV2JV		83.23	1.36	0.97	83.04	0.96	0.74	TS
TCAGNJ		80.81	-1.06	-0.76	81.36	-0.72	-0.55	GM
UPVX9B		80.23	-1.64	-1.17	80.64	-1.44	-1.10	TS
UVETYZ		83.58	1.71	1.23	83.69	1.61	1.24	XX
VC3V69		80.29	-1.58	-1.13	80.64	-1.44	-1.11	TS
VJJ2Q2		80.66	-1.20	-0.86	80.81	-1.26	-0.97	XX
WQKY9J		81.31	-0.55	-0.40	81.58	-0.50	-0.38	TT
XQXYM6		83.18	1.31	0.94	82.91	0.84	0.64	TT
XW3XVA		84.35	2.48	1.78	84.51	2.44	1.87	PE

		Summary Statistics			
		Sample GR15		Sample GR16	
Grand Means		81.867	Percent	82.075	Percent
SD Btwn Labs		1.394	Percent	1.300	Percent
Statistics based on 28 of 30 reporting participants					

Comments on assigned Data Flags for Test #390

24WVH3 (X) - Inconsistent in testing between samples and within the determinations for Sample GR15.

863DWZ (X) - Inconsistent in testing between samples.

Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness

Instrument Code List as Reported by the Labs

(GM) - Gretag Macbeth Color i5	(HD) - Hunter D25DP - 9000
(HG) - Hunter Labscan / XE	(MK) - Macbeth Color-Eye 7000 Spectrophotometer
(PE) - Photovolt 577	(TA) - Technidyne, Diano, M.S. S-4
(TS) - Technidyne Brightimeter Micro S-5	(TT) - Technidyne Brightimeter Micro S4-M
(XS) - X-Rite 938 Spectrodensitometer	(XX) - Instrument make/model not specified by lab

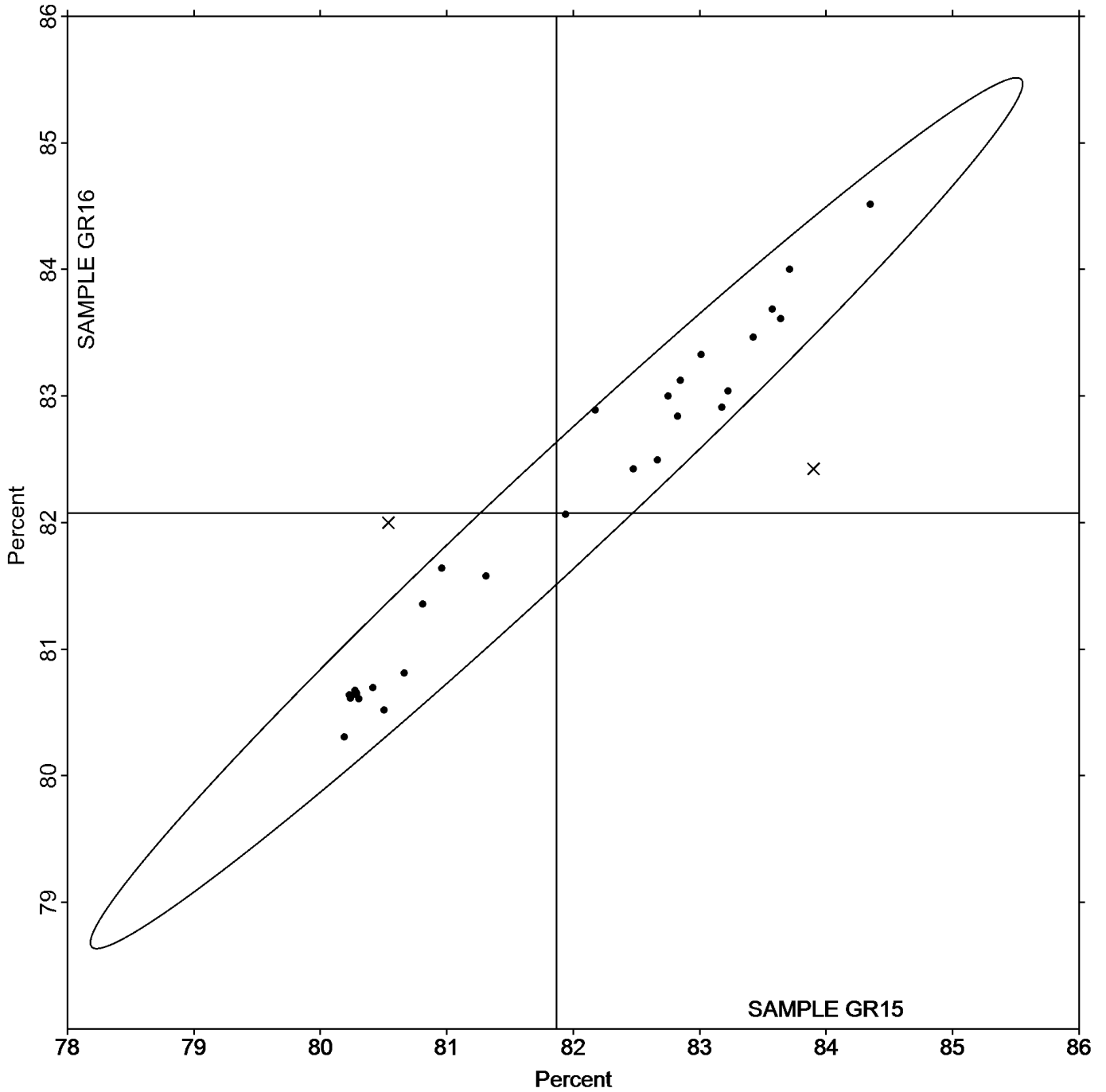
Analysis 390

Directional Brightness

Grand Mean Sample GR15 = 81.867 Percent

Grand Mean Sample GR16 = 82.075 Percent

ANALYSIS 390



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

WebCode	Data Flag	Sample GZ15			Sample GZ16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
92X66U		90.20	0.01	0.01	97.16	0.13	0.13	TT
AK9JZU	X	99.91	9.72	12.50	108.10	11.07	10.69	HT
CVKMZP		90.35	0.15	0.20	97.20	0.17	0.16	TS
GNMYJF		90.66	0.47	0.60	97.70	0.67	0.65	TT
HUU6UW		90.09	-0.10	-0.13	97.19	0.16	0.15	TS
JTRX3P		90.87	0.68	0.87	98.16	1.13	1.09	TS
MGM7ML		89.68	-0.51	-0.66	96.54	-0.49	-0.47	TS
MQA6DQ		89.84	-0.35	-0.45	95.72	-1.31	-1.26	TS
NZV3V3		92.26	2.07	2.66	99.36	2.33	2.25	EF
QCZ4YX	X	83.46	-6.73	-8.66	89.80	-7.23	-6.99	TS
QX2JT9		89.33	-0.86	-1.11	95.99	-1.04	-1.00	TS
R387VV		90.25	0.06	0.07	97.28	0.25	0.24	TS
RAANGF		89.89	-0.30	-0.38	96.90	-0.13	-0.13	PP
TCAGNJ	X	85.97	-4.22	-5.42	94.71	-2.32	-2.24	GM
VRX9NB		89.84	-0.35	-0.45	96.72	-0.31	-0.30	TT
W6JDKT		89.23	-0.96	-1.24	95.47	-1.56	-1.51	HT

		Summary Statistics			
		Sample GZ15		Sample GZ16	
Grand Means		90.191	Percent	97.030	Percent
SD Btwn Labs		0.778	Percent	1.035	Percent
Statistics based on 13 of 16 reporting participants					

Comments on assigned Data Flags for Test #391

AK9JZU (X) - Extreme data.

QCZ4YX (X) - Extreme data.

TCAGNJ (X) - Data for Sample GZ15 are low.

Instrument Code List as Reported by the Labs

(EF) - L & W Datacolor Elrepho

(GM) - Gretag Macbeth Color i5

(HT) - Hunter UltraScan Vis

(PP) - Technidyne Profile/Plus

(TS) - Technidyne Brightimeter Micro S-5

(TT) - Technidyne Brightimeter Micro S4-M

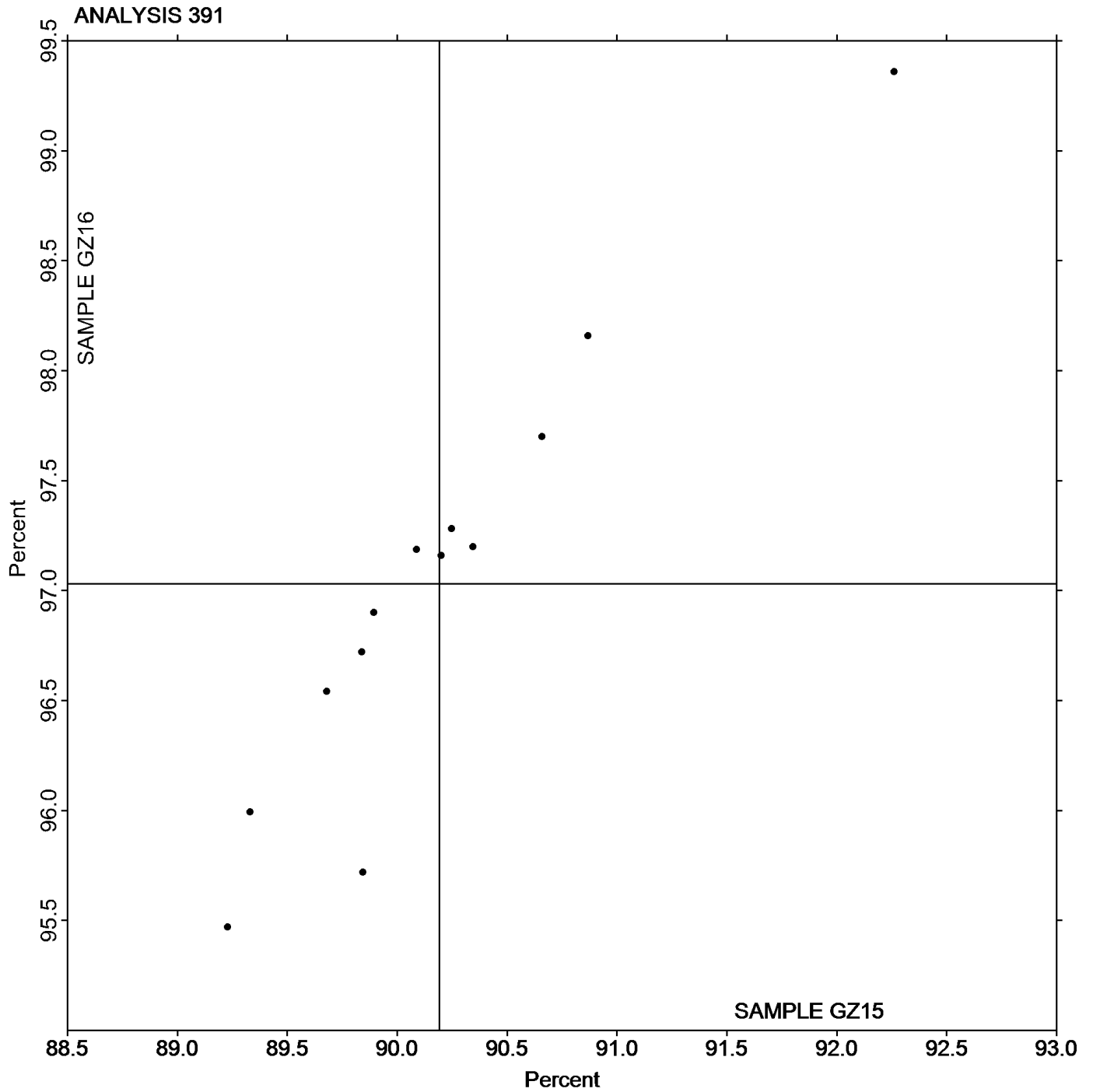
Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

Grand Mean Sample **GZ15** = 90.191 Percent

Grand Mean Sample **GZ16** = 97.030 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 GR15			Sample GR16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
27ZQ27		81.11	-0.24	-0.88	81.35	-0.15	-0.52	TC
2M2AGN		81.28	-0.07	-0.28	81.48	-0.03	-0.09	TM
3EN4FV		81.71	0.36	1.35	81.91	0.41	1.40	TL
4UJK39		81.66	0.31	1.17	81.86	0.36	1.21	TC
6YM9VZ		81.31	-0.04	-0.15	81.46	-0.04	-0.14	TM
7BFRA7		81.61	0.26	0.98	81.76	0.26	0.87	TC
7R6Z84	X	80.75	-0.60	-2.24	81.53	0.03	0.11	TC
9MZ9Q3		81.44	0.09	0.32	81.51	0.01	0.02	LS
AACD7W		81.16	-0.19	-0.71	81.24	-0.26	-0.90	EG
AAVC9Z	X	78.40	-2.95	-10.99	79.20	-2.30	-7.82	EF
AYT2TX		81.40	0.05	0.19	81.53	0.02	0.08	LS
CEZZZR	X	82.82	1.47	5.46	82.93	1.43	4.85	TM
F3CX8P		81.28	-0.07	-0.24	81.39	-0.11	-0.37	TC
FVQ24Z		81.63	0.28	1.04	81.75	0.25	0.85	TC
FVQYFG		81.66	0.31	1.17	81.76	0.26	0.89	TM
HNG4DE		81.42	0.07	0.27	81.54	0.04	0.13	TC
HVYZ6M		81.24	-0.11	-0.41	81.50	0.00	0.00	TM
JUN396		81.49	0.14	0.53	81.61	0.11	0.39	TC
KBAFBF	*	81.21	-0.14	-0.51	81.58	0.08	0.26	TC
LDQZTP		81.66	0.31	1.16	81.76	0.26	0.88	LS
LGVZ63	*	80.64	-0.71	-2.66	80.70	-0.80	-2.72	FR
LZ2KUB		81.30	-0.05	-0.19	81.36	-0.14	-0.47	PP
MFT8Q8		81.26	-0.09	-0.33	81.52	0.02	0.07	TC
NZV3V3		80.74	-0.61	-2.28	80.75	-0.75	-2.55	LA
QFZNCB		81.21	-0.14	-0.53	81.28	-0.22	-0.74	XX
R6GP3K		81.54	0.19	0.72	81.84	0.34	1.15	TC
RFWHA8		81.10	-0.25	-0.92	81.29	-0.21	-0.71	LS
U9PNCG		81.28	-0.07	-0.28	81.30	-0.21	-0.70	LS
UZCXP6		81.33	-0.02	-0.08	81.57	0.07	0.22	TC
VRWD3J		81.46	0.11	0.39	81.72	0.22	0.75	TC
XCWD72		81.34	-0.01	-0.04	81.45	-0.05	-0.17	TC
XQXYM6		81.15	-0.20	-0.74	81.25	-0.25	-0.85	EG
YG9JH2		81.28	-0.07	-0.25	81.45	-0.05	-0.16	TM
ZLVT66		81.94	0.59	2.18	82.06	0.56	1.91	EE

Summary Statistics			
	Sample GR15		Sample GR16
Grand Means	81.349 Percent		81.500 Percent
SD Btwn Labs	0.268 Percent		0.294 Percent
Statistics based on 31 of 34 reporting participants			

Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness

Comments on assigned Data Flags for Test #392

7R6Z84 (X) - Inconsistent in testing between samples and within the determinations for Sample GR15.

AAVC9Z (X) - Extreme data.

CEXZZR (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

(PP) - Technidyne Profile/Plus

(TC) - Technidyne Color Touch Series

(TL) - Technidyne Technibrite TB-1

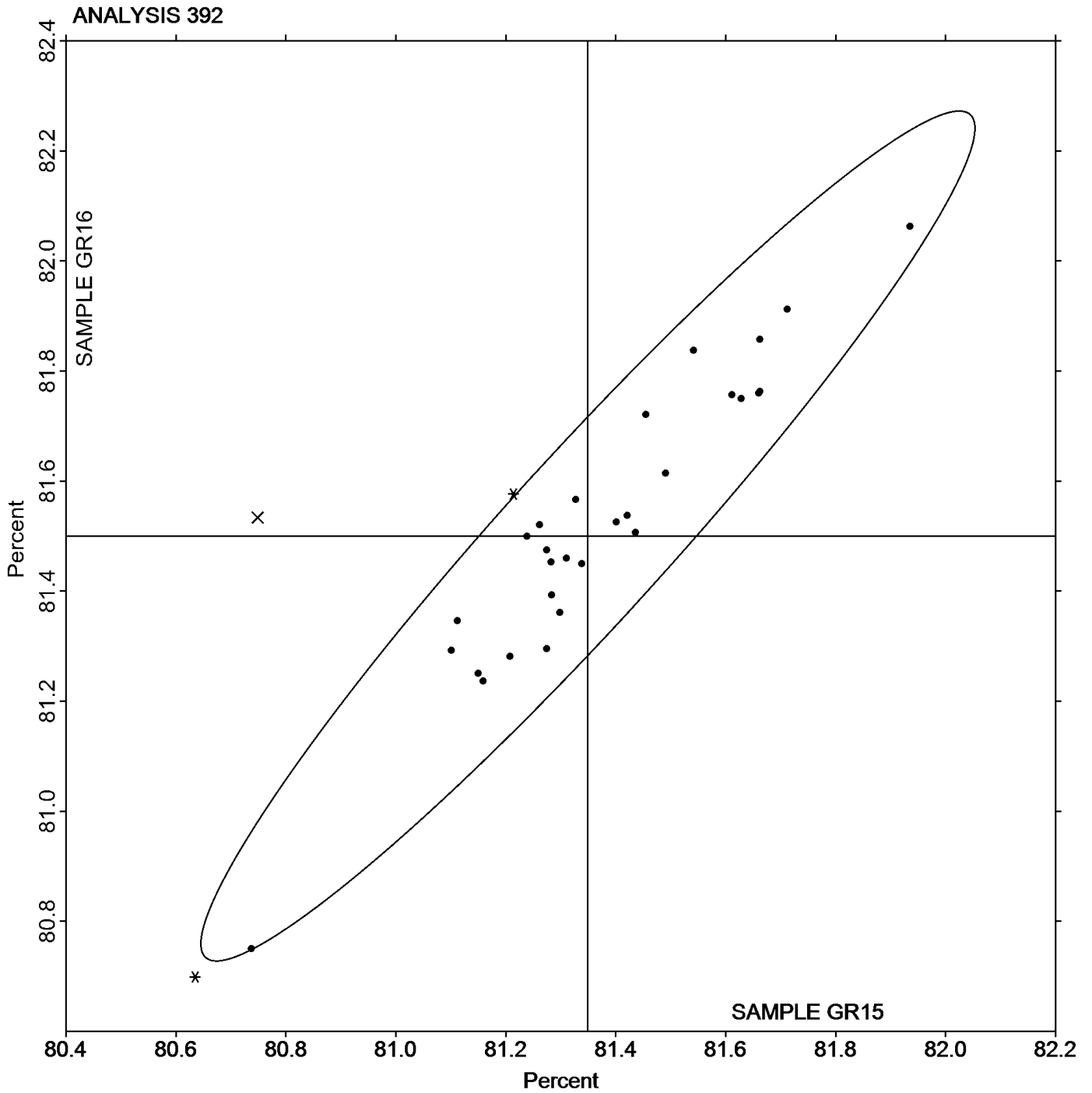
(TM) - Technidyne Technibrite Micro TB-1C

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

Analysis 392
Diffuse Brightness

Grand Mean Sample GR15 = 81.349 Percent

Grand Mean Sample GR16 = 81.500 Percent



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

WebCode	Data Flag	Sample GZ15			Sample GZ16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
92X66U		7.560	0.665	1.44	8.100	0.536	1.11	TT
AK9JZU		5.882	-1.013	-2.19	6.618	-0.946	-1.96	HT
CVKMZP		7.034	0.139	0.30	7.718	0.154	0.32	TS
HUU6UW		7.084	0.189	0.41	7.980	0.416	0.86	TS
JTRX3P		6.870	-0.025	-0.05	7.486	-0.078	-0.16	TS
MQA6DQ		7.242	0.347	0.75	7.728	0.164	0.34	TS
NZV3V3	X	10.060	3.165	6.83	10.460	2.896	5.99	EF
QCZ4YX		6.270	-0.625	-1.35	6.792	-0.772	-1.60	TS
QX2JT9		6.700	-0.195	-0.42	7.280	-0.284	-0.59	TS
R387VV		7.114	0.219	0.47	7.970	0.406	0.84	TS
RAANGF		7.074	0.179	0.39	7.782	0.218	0.45	PP
TCAGNJ	X	8.502	1.607	3.47	9.760	2.196	4.54	GM
VRX9NB		6.640	-0.255	-0.55	7.300	-0.264	-0.55	TT
W6JDKT		7.270	0.375	0.81	8.014	0.450	0.93	HT

Summary Statistics			
	Sample GZ15		Sample GZ16
Grand Means	6.8950	Percent	7.5640
SD Btwn Labs	0.4631	Percent	0.4837
Statistics based on 12 of 14 reporting participants			

Comments on assigned Data Flags for Test #394

NZV3V3 (X) - Data for both samples are high. Inconsistent within the determinations for Sample GZ15.

TCAGNJ (X) - Data for both samples are high. Inconsistent within the determinations for Sample GZ15.

Instrument Code List as Reported by the Labs

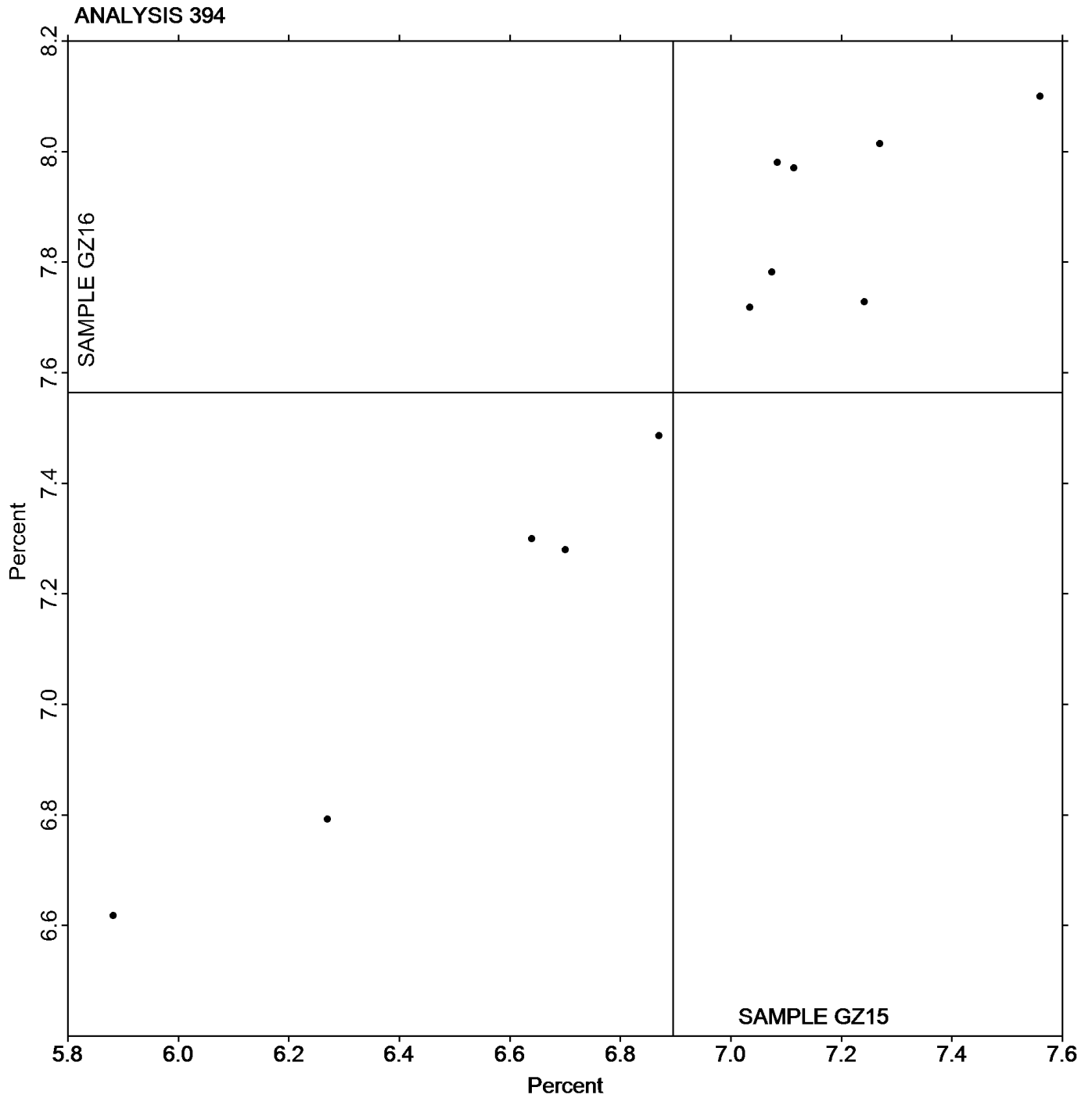
- | | |
|--|---|
| (EF) - Datacolor Elrepho 3000 | (GM) - Gretag Macbeth Color i5 |
| (HT) - Hunter UltraScan Vis | (PP) - Technidyne Profile/Plus |
| (TS) - Technidyne Brightimeter Micro S-5 | (TT) - Technidyne Brightimeter Micro S4-M |

Analysis 394

Fluorescent Component of Directional Brightness

Grand Mean Sample **GZ15** = 6.8950 Percent

Grand Mean Sample **GZ16** = 7.5640 Percent



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 395

Specular Gloss at 75 Degrees - High Range

WebCode	Data Flag	Sample GT15			Sample GT16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3EN4FV		76.00	0.77	0.59	73.20	-0.27	-0.21	GS
4ZLRKW		75.26	0.03	0.02	74.87	1.40	1.09	TH
6YM9VZ		74.42	-0.81	-0.62	73.33	-0.14	-0.11	TH
8F8X9M		75.46	0.23	0.18	74.98	1.51	1.18	TH
92X66U	X	85.90	10.67	8.19	80.20	6.73	5.25	LA
9C43ZP		76.07	0.84	0.65	72.17	-1.30	-1.01	LA
AACD7W	X	70.16	-5.07	-3.89	66.14	-7.33	-5.71	TH
AYT2TX		75.44	0.21	0.16	74.41	0.94	0.73	LB
CEZZZR		76.98	1.75	1.34	75.28	1.81	1.41	TG
F8KHVM		75.70	0.47	0.36	72.82	-0.65	-0.51	GM
JUN396		73.86	-1.37	-1.05	70.80	-2.67	-2.08	ZH
LXWHVE		75.36	0.13	0.10	73.74	0.27	0.21	PP
MEHFKC		73.61	-1.62	-1.24	72.85	-0.62	-0.48	XX
P884GB		76.90	1.67	1.28	75.14	1.67	1.30	TH
QFZNCB		76.93	1.70	1.31	74.36	0.89	0.70	XX
RAANGF		75.62	0.39	0.30	72.75	-0.72	-0.56	PP
VAZV6C		73.35	-1.88	-1.44	71.47	-2.00	-1.56	GA
VQN2M4		75.50	0.27	0.21	73.43	-0.04	-0.03	TH
XQXYM6		72.42	-2.81	-2.15	73.36	-0.11	-0.08	GM

Summary Statistics			
	Sample GT15		Sample GT16
Grand Means	75.228 Gloss Units		73.468 Gloss Units
SD Btwn Labs	1.303 Gloss Units		1.282 Gloss Units
Statistics based on 17 of 19 reporting participants			

Comments on assigned Data Flags for Test #395

92X66U (X) - Extreme data.

AACD7W (X) - Data for both samples are low.

Instrument Code List as Reported by the Labs

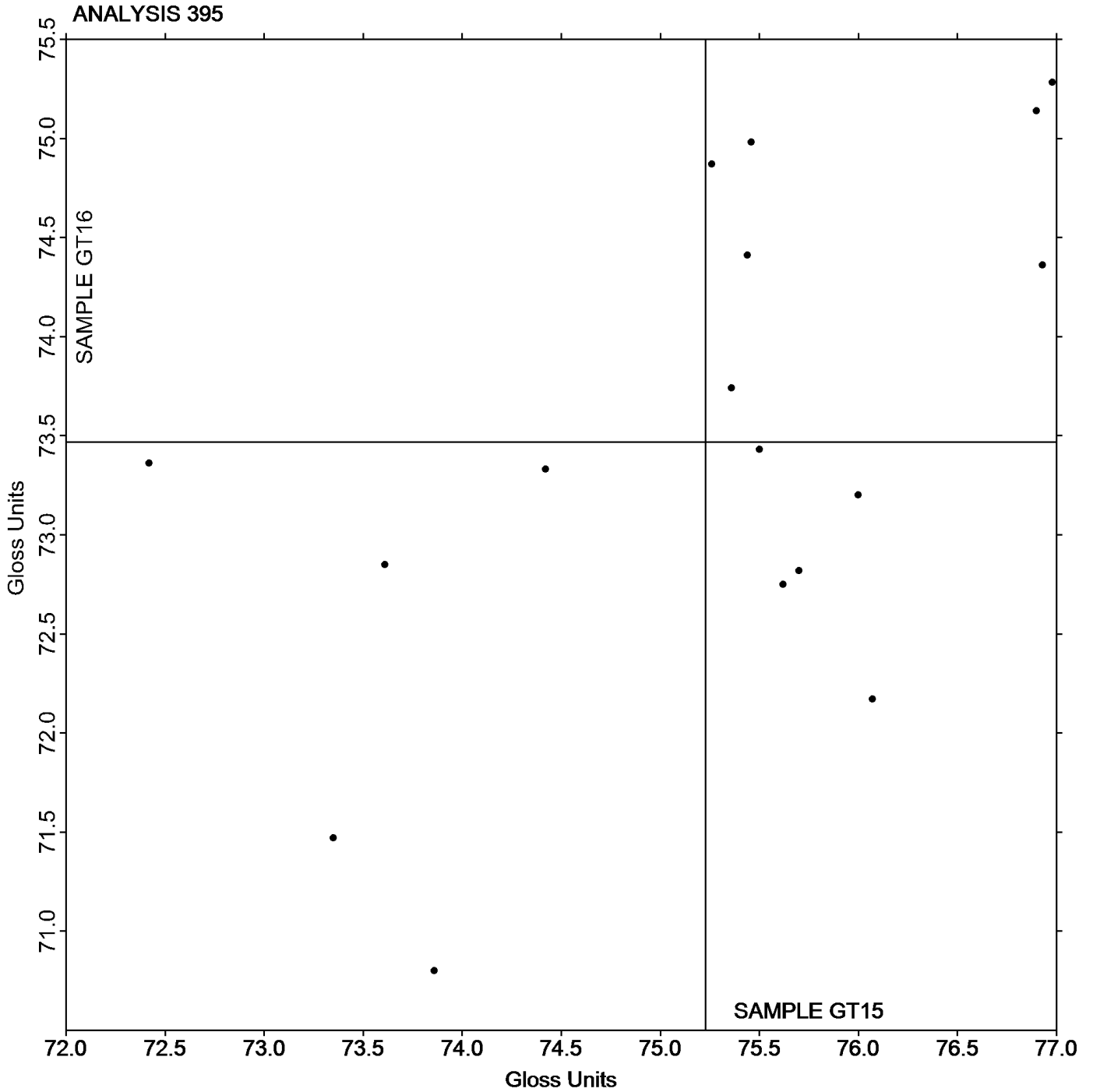
- (GA) - BYK-Gardner (model not specified)
- (GS) - BYK-Gardner Glossgard II
- (LB) - L & W Gloss Tester Code 224
- (TG) - Technidyne T480
- (XX) - Instrument make/model not specified by lab
- (GM) - BYK-Gardner micro-gloss
- (LA) - L & W Gloss - Autoline 300
- (PP) - Technidyne Profile/Plus
- (TH) - Technidyne T480A
- (ZH) - Zehntner ZLR 1050

Analysis 395

Specular Gloss at 75 Degrees - High Range

Grand Mean Sample **GT15** = 75.228 Gloss Units

Grand Mean Sample **GT16** = 73.468 Gloss Units



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

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

WebCode	Data Flag	Sample GU15			Sample GU16			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24WVH3		36.30	0.49	0.64	43.30	1.11	1.02	TH
487VRY		35.07	-0.74	-0.98	42.17	-0.02	-0.02	PP
7R6XHY		34.89	-0.92	-1.22	43.38	1.19	1.09	TG
ANPWM3		35.66	-0.15	-0.20	42.80	0.61	0.56	TH
AYT2TX		35.72	-0.09	-0.12	40.90	-1.29	-1.18	LA
CEXZZR		37.15	1.34	1.76	42.15	-0.03	-0.03	TG
NUP4ZK		35.91	0.10	0.13	40.61	-1.58	-1.44	XX
NZV3V3	X	49.97	14.16	18.61	50.51	8.32	7.61	TG

Summary Statistics			
	Sample GU15		Sample GU16
Grand Means	35.814 Gloss Units		42.188 Gloss Units
SD Btwn Labs	0.761 Gloss Units		1.094 Gloss Units
Statistics based on 7 of 8 reporting participants			

Comments on assigned Data Flags for Test #396

NZV3V3 (X) - Extreme data.

Instrument Code List as Reported by the Labs

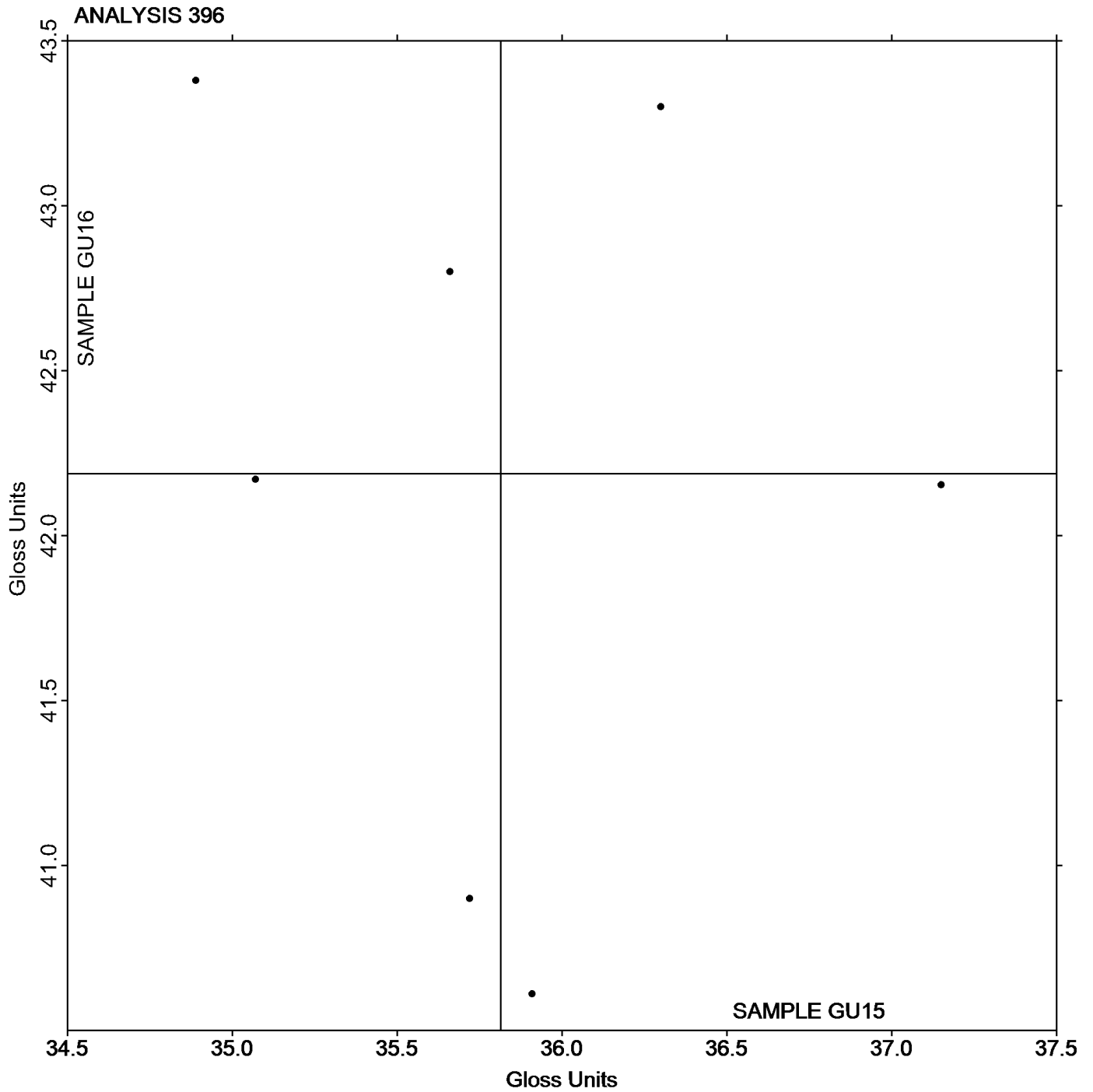
- | | |
|---|--------------------------------|
| (LA) - L & W Gloss - Autoline 300 | (PP) - Technidyne Profile/Plus |
| (TG) - Technidyne T480 | (TH) - Technidyne T480A |
| (XX) - Instrument make/model not specified by lab | |

Analysis 396

Specular Gloss at 75 Degrees - Low Range

Grand Mean Sample **GU15** = 35.814 Gloss Units

Grand Mean Sample **GU16** = 42.188 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 GW15			Sample GW16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
		85.96	0.17	0.30	72.34	-0.12	-0.28
24WVH3		85.90	0.11	0.19	72.21	-0.25	-0.55
3AEM78		86.25	0.46	0.82	73.36	0.90	1.99
8ECCHG		85.72	-0.07	-0.13	72.30	-0.16	-0.36
AACD7W		85.43	-0.36	-0.65	72.22	-0.24	-0.53
AK9JZU		85.05	-0.75	-1.33	71.89	-0.57	-1.27
AKQT9H		85.96	0.17	0.30	72.40	-0.06	-0.14
ANPWM3		84.57	-1.22	-2.18	71.82	-0.65	-1.43
AYT2TX		85.98	0.18	0.33	72.53	0.07	0.15
BD9C6R		86.46	0.66	1.19	72.71	0.25	0.56
E9J2JJ		85.65	-0.14	-0.25	72.63	0.17	0.37
EDAKEL		86.53	0.74	1.32	72.85	0.39	0.86
F3CX8P		86.36	0.57	1.01	73.28	0.82	1.81
GFTQZA		84.76	-1.03	-1.84	72.24	-0.22	-0.50
GVN9Q8		86.04	0.25	0.44	72.33	-0.14	-0.30
H3ZPX9		85.00	-0.79	-1.42	72.48	0.01	0.03
HMB3MU		85.64	-0.15	-0.27	72.93	0.47	1.04
JBVE6G		85.91	0.12	0.21	72.42	-0.05	-0.10
LGVZ63		86.39	0.60	1.06	72.43	-0.04	-0.08
MGM7ML		86.69	0.90	1.60	72.56	0.10	0.21
MUPLPG		85.56	-0.23	-0.41	71.68	-0.79	-1.75
NUP4ZK		86.58	0.79	1.40	73.01	0.54	1.21
NZV3V3		86.40	0.61	1.09	73.20	0.74	1.63
P8UEFJ		85.83	0.04	0.07	72.22	-0.24	-0.54
QFMEHX		84.78	-1.01	-1.80	71.71	-0.75	-1.67
QFZNCB		85.46	-0.33	-0.59	72.24	-0.22	-0.50
RFWHA8		85.91	0.12	0.21	72.61	0.15	0.33
TCAGNJ		85.68	-0.11	-0.20	71.97	-0.50	-1.10
VJJ2Q2		85.27	-0.52	-0.93	72.84	0.38	0.84
W6JDKT		85.69	-0.10	-0.18	71.93	-0.54	-1.19
YWERBA		86.17	0.38	0.67	73.04	0.58	1.28

Summary Statistics

Sample GW15

Grand Means 85.792 g/sq m
SD Btwn Labs 0.560 g/sq m

Sample GW16

72.463 g/sq m
0.451 g/sq m

Statistics based on 31 of 31 reporting participants

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

WebCode	Data Flag	Sample GX15			Sample GX16		
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV
487VRY		11.62	-6.27	-0.89	12.66	-4.67	-0.79
6YM9VZ		16.65	-1.24	-0.18	15.32	-2.01	-0.34
8Q3RFV		15.69	-2.20	-0.31	15.27	-2.06	-0.35
CVKMZP	*	37.20	19.31	2.74	35.50	18.17	3.07
DBRYDZ		11.46	-6.43	-0.91	14.45	-2.88	-0.49
F8KHVM		19.70	1.81	0.26	18.60	1.27	0.21
G8ENNL	X	41.16	23.27	3.30	25.67	8.34	1.41
GNMYJF		12.97	-4.92	-0.70	14.77	-2.56	-0.43
GVN9Q8	*	34.55	16.66	2.36	27.78	10.45	1.76
HUU6UW		20.37	2.48	0.35	17.13	-0.20	-0.03
JP86QM		24.65	6.76	0.96	23.41	6.08	1.03
KBAFBF		24.59	6.70	0.95	26.88	9.55	1.61
LXWHVE		14.00	-3.89	-0.55	12.49	-4.84	-0.82
MGM7ML		26.70	8.81	1.25	21.10	3.77	0.64
MQA6DQ		10.41	-7.48	-1.06	10.61	-6.72	-1.13
NNGK4C		17.84	-0.05	-0.01	17.57	0.24	0.04
PVXDRG		13.23	-4.66	-0.66	13.98	-3.35	-0.56
QX2JT9		21.32	3.43	0.49	21.44	4.11	0.69
RJT8QE		17.39	-0.50	-0.07	16.92	-0.41	-0.07
RUWFGC	X	97.23	79.34	11.25	103.20	85.87	14.49
TCAGNJ		17.00	-0.89	-0.13	16.30	-1.03	-0.17
UPVX9B		16.61	-1.28	-0.18	15.46	-1.87	-0.31
UVETYZ		11.30	-6.59	-0.93	11.39	-5.94	-1.00
VC3V69		15.33	-2.56	-0.36	17.11	-0.22	-0.04
VJJ2Q2		12.20	-5.69	-0.81	13.70	-3.63	-0.61
WQKY9J		13.13	-4.76	-0.67	11.03	-6.30	-1.06
XW3XVA	X	525.30	507.41	71.93	533.90	516.57	87.14
YKLTJQ		11.35	-6.54	-0.93	12.29	-5.04	-0.85

		Summary Statistics	
	Sample GX15		Sample GX16
Grand Means	17.890 Seconds		17.326 Seconds
SD Btwn Labs	7.054 Seconds		5.928 Seconds
Statistics based on 25 of 28 reporting participants			

Comments on assigned Data Flags for Test #399

G8ENNL (X) - Inconsistent in testing between samples, data for Sample GX15 are high. Inconsistent within the determinations for Sample GX15.

RUWFGC (X) - Extreme data.

XW3XVA (X) - Extreme data.

Analysis 399

Sizing Test (Hercules Type)

Grand Mean Sample GX15 = 17.890 Seconds

Grand Mean Sample GX16 = 17.326 Seconds

ANALYSIS 399

