Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3152 G - December 2021

Introduction to the Paper & Paperboard Interlaboratory Program

Explanation of Tables and Definitions of Terms

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The CTS Paper & Paperboard Interlaboratory 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, color and wine, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality assurance objectives. Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

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

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Key for Web Summary Reports (Page 1 of 2)

WebCode — Assigned laboratory identification number (temporary) used to ensure lab confidentiality while permitting a lab to locate its data in the Paper Report published on the CTS Web site. The WebCode for each analysis can be found on the datasheets and in the Performance Analysis Report mailed to each participant.

Lab Mean — The average of the values obtained for each sample by the participant.

Grand Mean — The average of the LAB MEANS for all included participants. Laboratories flagged with an X or an M (see DATA FLAG column) are excluded from the GRAND MEAN.

ΔE — The calculated total color difference between the two samples. For the Hunter L,a,b analyses it is calculated in Hunter units (ΔE). For the L*,a*,b* analyses it is calculated in CIELAB units (ΔE*).

Difference from Grand Mean — The difference of the LAB MEAN from the GRAND MEAN.

Between-Lab Standard Deviation — An indication of the precision of measurement between the laboratories. The greater the spread of the LAB MEANS about the GRAND MEAN, the larger the BETWEEN-LAB STANDARD DEVIATION (and vice versa).

Comparative Performance Value — An indication of how well a laboratory's results agree with the other participants. The CPV is a ratio indicating the number of standard deviations from the GRAND MEAN. The closer a laboratory's COMPARATIVE PERFORMANCE VALUE is to zero, the more consistent its results are with the other participants' data (and vice versa). The critical value for each CPV will vary depending on the number of labs participating in a test.

Inst Code — A code indicating the manufacturer of the instrument used to perform the test (see separate INSTRUMENT CODE LIST for each test section), if instruments are tracked.

Data Flag — DATA FLAGS are assigned based on the simultaneous analysis of both samples tested. Refer to the following chart for an explanation of each symbol:

DATA FLAG	STATISTICALLY INCLUDED/EXCLUDED	ACTION REQUIRED
*	INCLUDED	**CAUTION** - review testing procedure and monitor future results. Results fall outside 95% ellipse but within a 99% ellipse that is calculated but not drawn.
X	EXCLUDED	**STOP** - immediate review of data and/or testing procedure is required. Results fall outside the 99% ellipse. See specific notes following each table for more information on why the data is excluded.
M	EXCLUDED	**PROCEED** - lab was unable to report data for at least one sample.

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.

Paper & Paperboard Interlaboratory Testing Program

Analysis 350

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

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

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
64EQCB		GA97	95.05	-0.67	4.09	-0.50	0.00	0.00	0.50	HE
		GA98	94.55	-0.67	4.09					
7C7ME6		GA97	94.39	-0.81	4.57	-0.71	-0.01	-0.04	0.71	VM
		GA98	93.68	-0.82	4.53					
CHD83B		GA97	94.24	-0.74	4.10	-0.48	0.00	0.08	0.49	LA
		GA98	93.76	-0.74	4.19					
CZV789		GA97	95.39	-0.89	4.16	-0.35	-0.01	0.06	0.35	LS
		GA98	95.04	-0.90	4.22					
JKCVED		GA97	95.17	-0.58	4.41	-0.38	-0.03	0.13	0.41	LS
		GA98	94.79	-0.61	4.53					
LZHWAQ	X	GA97	94.21	-0.81	4.02	-12.46	0.00	0.04	12.46X	TC
		GA98	81.74	-0.81	4.06					
NCLYLY		GA97	93.22	-0.41	3.66	-0.17	0.13	0.04	0.22	TS
		GA98	93.05	-0.28	3.70					
NRYBDR		GA97	93.69	-0.57	3.72	-0.60	0.08	0.11	0.61	TS
		GA98	93.10	-0.49	3.83					
P3DM6V		GA97	93.43	-0.52	3.49	-0.55	0.01	0.01	0.55	TS
		GA98	92.87	-0.52	3.50					
PXKMQZ		GA97	92.00	-0.36	2.50	0.26	-0.18	0.62	0.70	TS
		GA98	92.26	-0.54	3.12					
QX2Y7K		GA97	93.43	-0.45	3.70	-0.62	0.06	0.09	0.63	TS
		GA98	92.82	-0.39	3.79					
RW3KQ6		GA97	95.44	-0.83	3.95	-0.40	0.02	0.05	0.40	EH
		GA98	95.04	-0.81	4.01					
RWMWXQ		GA97	94.45	-0.74	4.23	-0.45	0.00	0.02	0.45	HE
		GA98	94.01	-0.74	4.25					
TNK9C4		GA97	93.99	-0.61	3.89	-0.49	-0.01	0.09	0.50	TC
		GA98	93.50	-0.63	3.98					
WWLPHR		GA97	94.41	-0.52	3.44	0.17	-0.06	0.33	0.38	XS
		GA98	94.58	-0.58	3.77					
YNKCC9		GA97	93.40	-0.28	3.54	-0.72	0.05	0.14	0.74	TS
		GA98	92.68	-0.22	3.69					

Paper & Paperboard Interlaboratory Testing Program

Analysis 350

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

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

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
YQC9YG		GA97	94.78	-0.58	3.99	-0.42	-0.04	0.09	0.43	HE
		GA98	94.36	-0.62	4.08					
Z72MUZ		GA97	95.38	-0.83	4.01	-0.32	-0.02	0.05	0.33	TC
		GA98	95.06	-0.85	4.07					

Summary Statistics

Grand Means							
GA97	94.228	-0.622	3.860	-0.396	-0.001	0.110	0.493
GA98	93.832	-0.623	3.966				
Stnd Dev Btwn Labs							
GA97	0.948	0.179	0.458	0.269	0.065	0.154	0.146
GA98	0.927	0.193	0.348				

Statistics based on 17 of 18 reporting participants

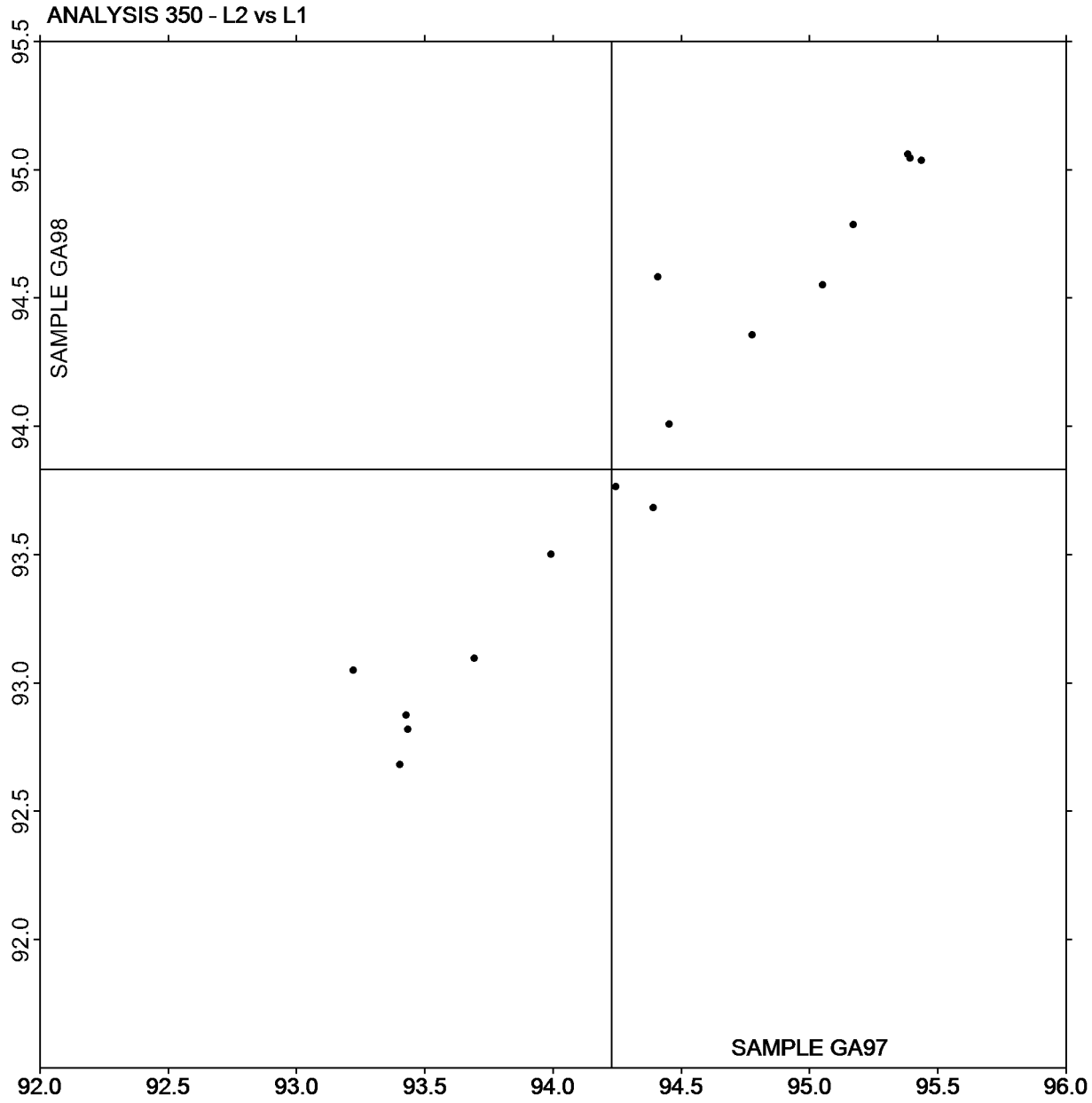
Comments on Assigned Data Flags for Test #350

LZHWAQ (X) - Extreme data for "L" values for sample GA98. Very low delta "L" & very high delta "E" values.

Key to Instrument Codes Reported by Participants

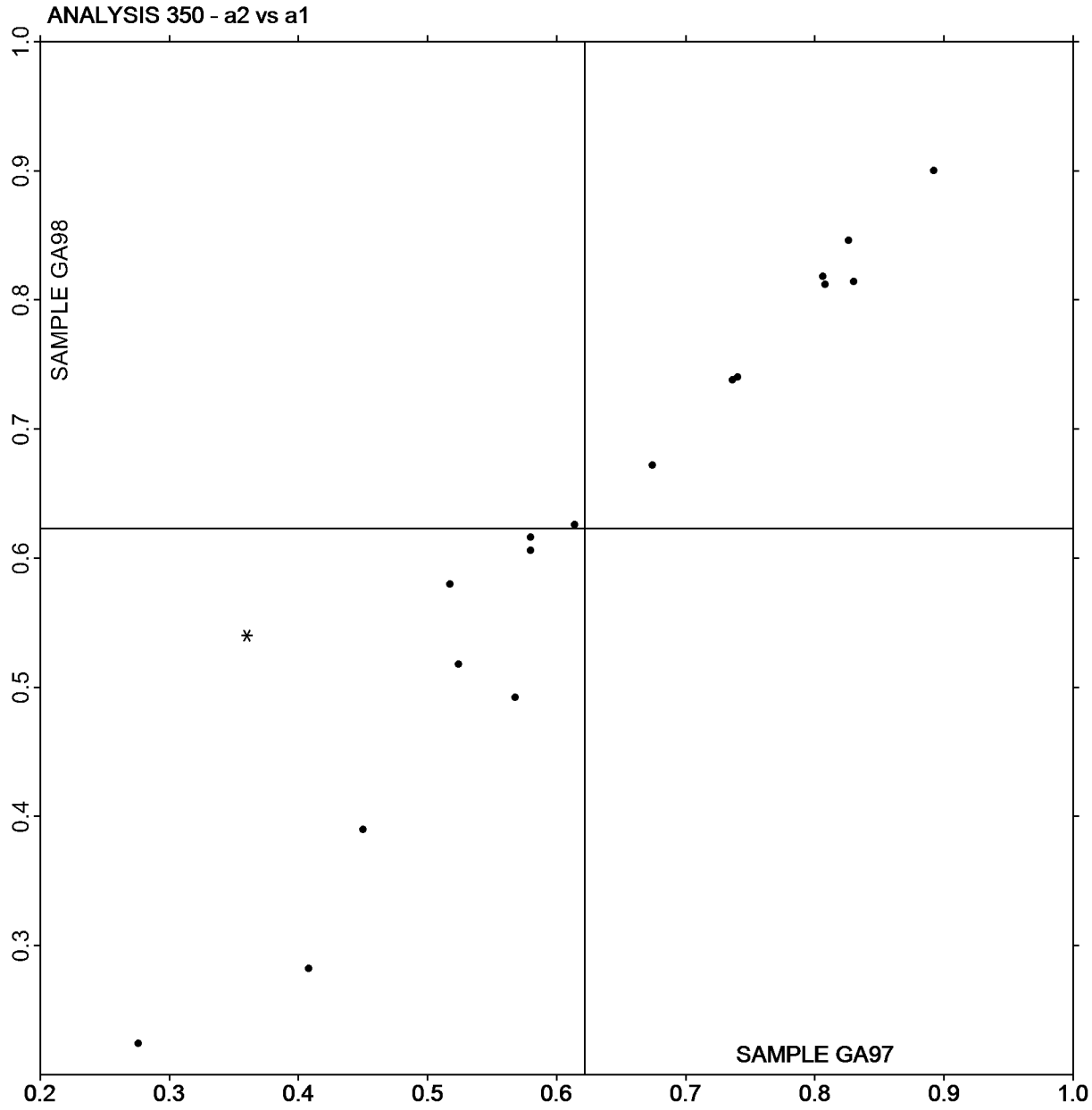
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
LA	L & W Elrepho AL300	LS	L & W Elrepho SE 070
TC	Technidyne Color Touch Series	TS	Technidyne Brightimeter Micro S-5
VM	Valmet PaperLab (was Kajaani/Robotest)	XS	X-Rite 938 Spectrodensitometer

Plot of L values GA98 vs L values GA97



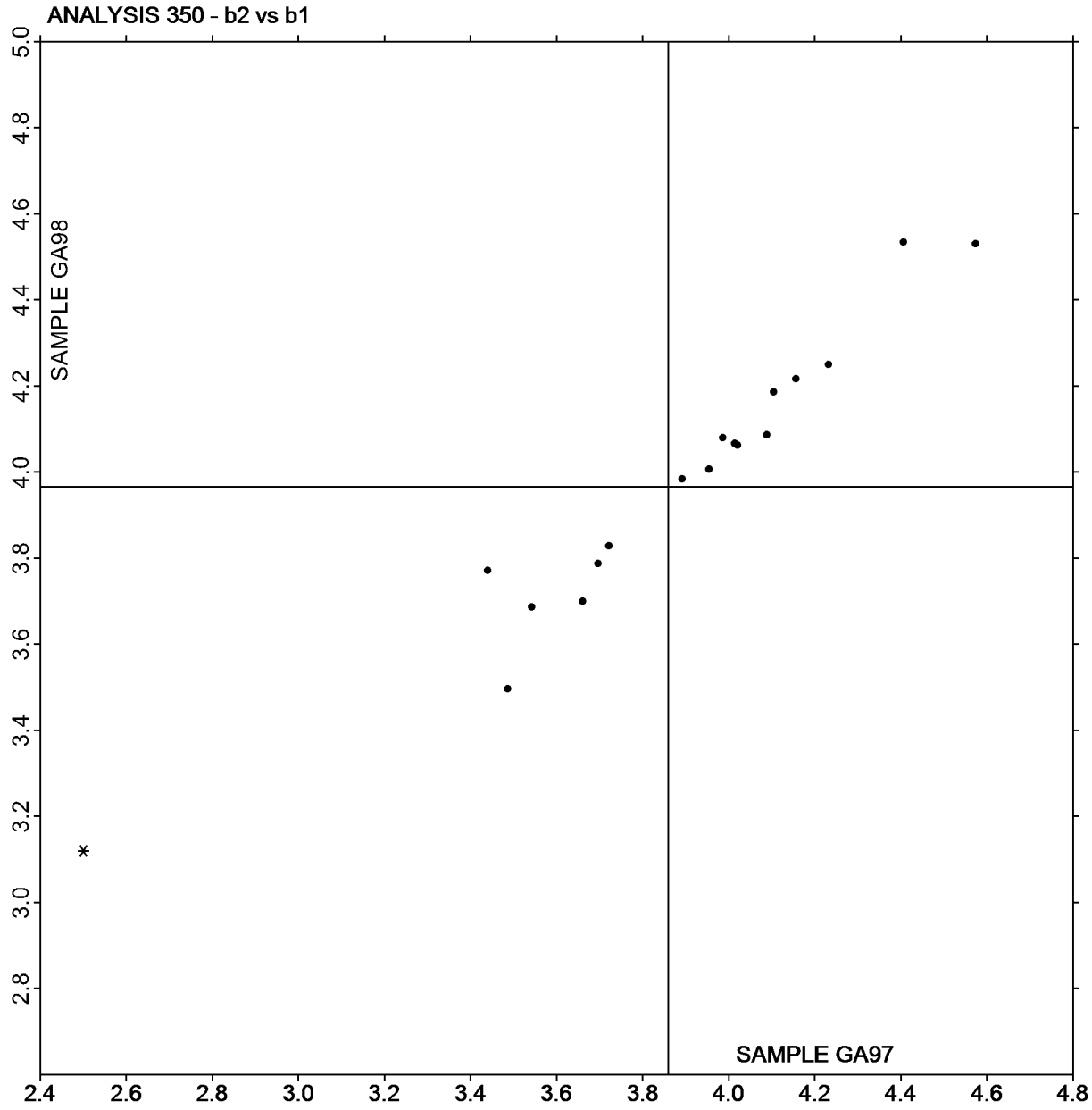
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA98 vs a values GA97



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

Plot of b values GA98 vs b values GA97



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 351

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

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

Web Code	Data Flag	Samples	CIE L* a* b* Color Values L*	a*	b*	Color Difference Values ΔL*	Δa*	Δb*	ΔE*	InstrCode
2F6DUG		GA97	94.80	-0.74	3.17	0.12	0.00	0.60	0.61	NF
		GA98	94.92	-0.75	3.77					
66CZ8E		GA97	95.32	-0.61	4.14	-0.35	-0.02	0.12	0.37	EH
		GA98	94.97	-0.63	4.27					
6BEGCT		GA97	94.63	-0.46	3.86	-0.34	-0.05	-0.06	0.35	HE
		GA98	94.29	-0.51	3.80					
BHWQA4		GA97	95.34	-0.79	3.74	-0.29	-0.01	0.14	0.32	XC
		GA98	95.05	-0.80	3.88					
D9MQ6U		GA97	95.45	-0.54	4.51	-0.32	-0.03	0.03	0.33	NH
		GA98	95.13	-0.56	4.54					
EUEKB8		GA97	95.55	-0.55	4.07	-0.56	0.00	0.05	0.56	NG
		GA98	94.99	-0.55	4.12					
GXATV8		GA97	95.60	-0.61	4.14	-0.35	-0.03	0.02	0.35	HT
		GA98	95.25	-0.64	4.15					
H7ZZKQ		GA97	95.28	-0.55	4.07	-0.38	0.00	0.10	0.39	TC
		GA98	94.90	-0.55	4.17					
HR2UTG		GA97	95.08	-0.53	4.18	-0.56	-0.03	0.11	0.57	LS
		GA98	94.52	-0.56	4.29					
JKCVED		GA97	95.03	-0.83	4.40	-0.19	0.01	0.06	0.20	LS
		GA98	94.85	-0.82	4.46					
K43ARG		GA97	95.75	-0.56	4.11	-0.46	-0.01	0.10	0.48	XV
		GA98	95.29	-0.57	4.21					
KGXD4N		GA97	94.26	-0.49	3.70	0.79	-0.04	0.24	0.83 X	XB
		GA98	95.05	-0.53	3.94					
NKF6GL		GA97	92.69	-0.73	2.98	0.27	0.01	0.47	0.54	TC
		GA98	92.96	-0.72	3.45					
PYCQDF		GA97	95.44	-0.59	4.45	-0.36	-0.05	0.03	0.36	NG
		GA98	95.08	-0.64	4.48					
RW3KQ6		GA97	95.30	-0.62	4.11	-0.41	-0.03	0.09	0.42	EH
		GA98	94.89	-0.64	4.20					
TNK9C4		GA97	94.78	-0.66	4.17	-0.50	0.01	0.10	0.51	HE
		GA98	94.28	-0.65	4.26					

Z9KY9W	GA97	95.36	-0.69	4.16	-0.36	-0.04	0.03	0.36	HT
	GA98	95.00	-0.73	4.19					

Summary Statistics

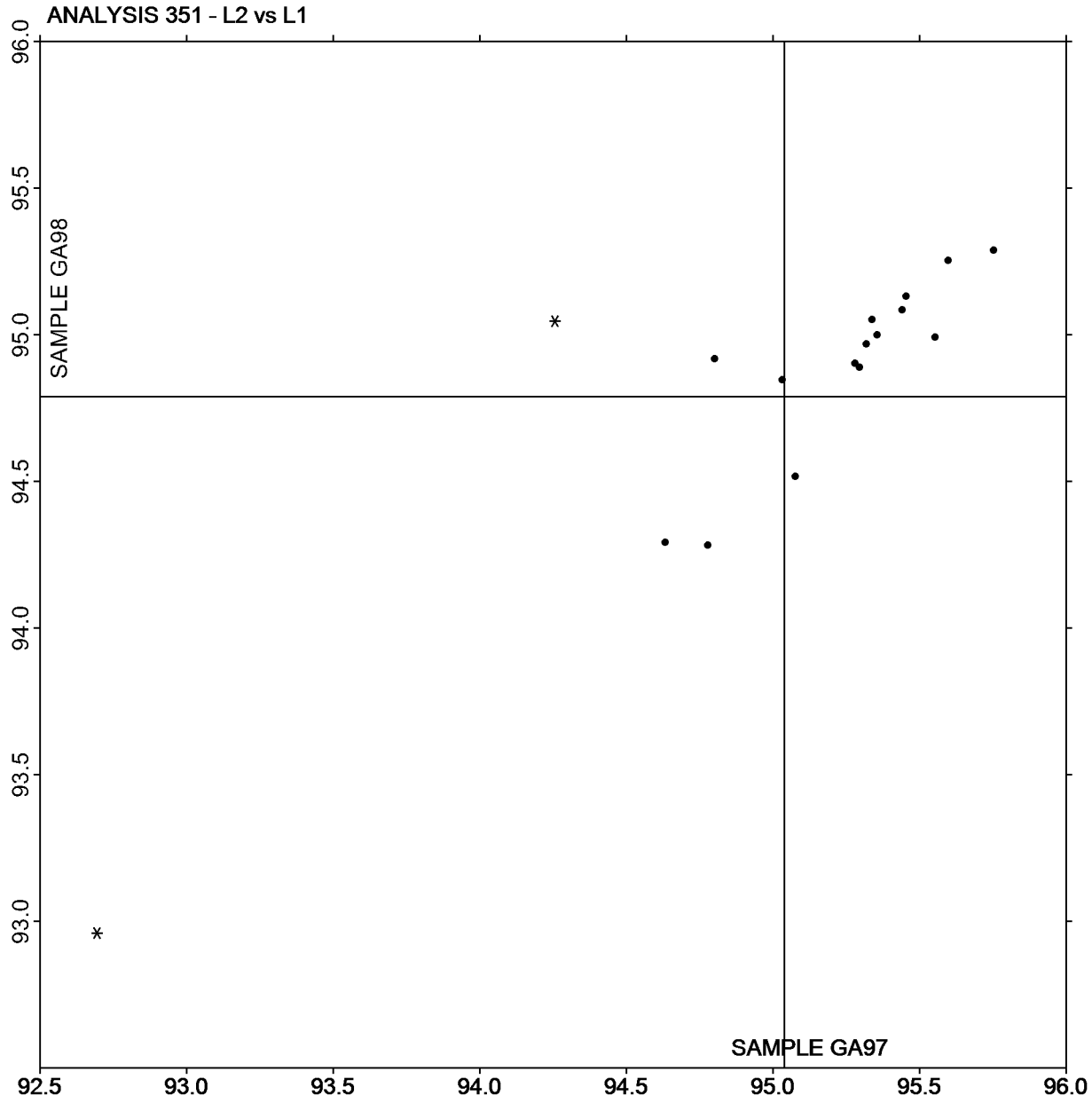
Grand Means							
GA97	95.039	-0.620	3.996	-0.249	-0.018	0.132	0.443
GA98	94.789	-0.639	4.128				
Stnd Dev Btwn Labs							
GA97	0.717	0.106	0.410	0.343	0.019	0.166	0.148
GA98	0.553	0.096	0.283				

Statistics based on 17 of 17 reporting participants

Key to Instrument Codes Reported by Participants

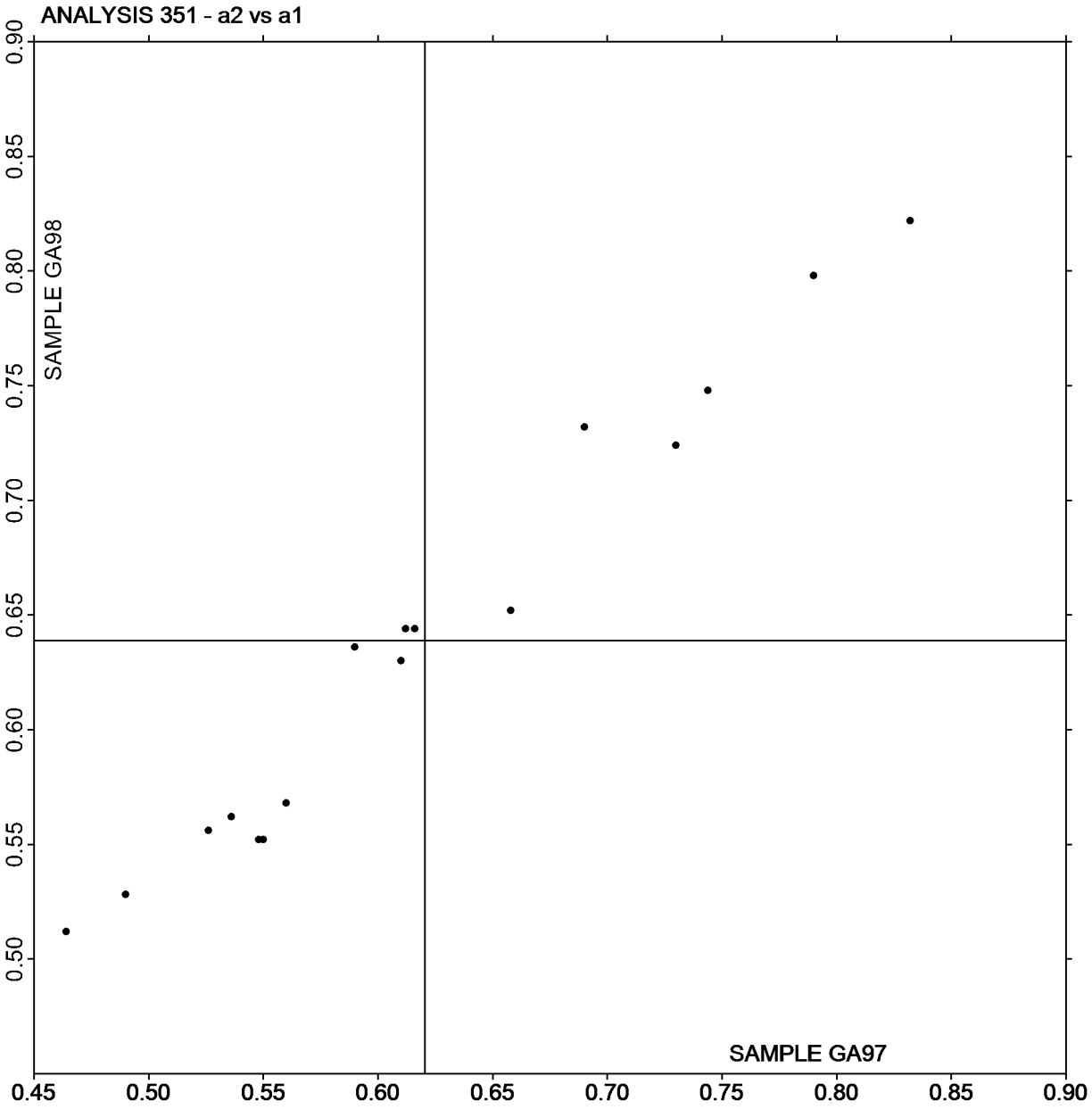
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
HT	Hunter UltraScan Vis	LS	L & W Elrepho SE 070
NF	Minolta CM-3600d Spectrophotometer	NG	Minolta CM-3700d Spectrophotometer
NH	Minolta CM-3700A Spectrophotometer	TC	Technidyne Color Touch Series
XB	X-Rite Ci7	XC	X-Rite eXact Series
XV	X-Rite SP60 Series		

Plot of L values GA98 vs L values GA97



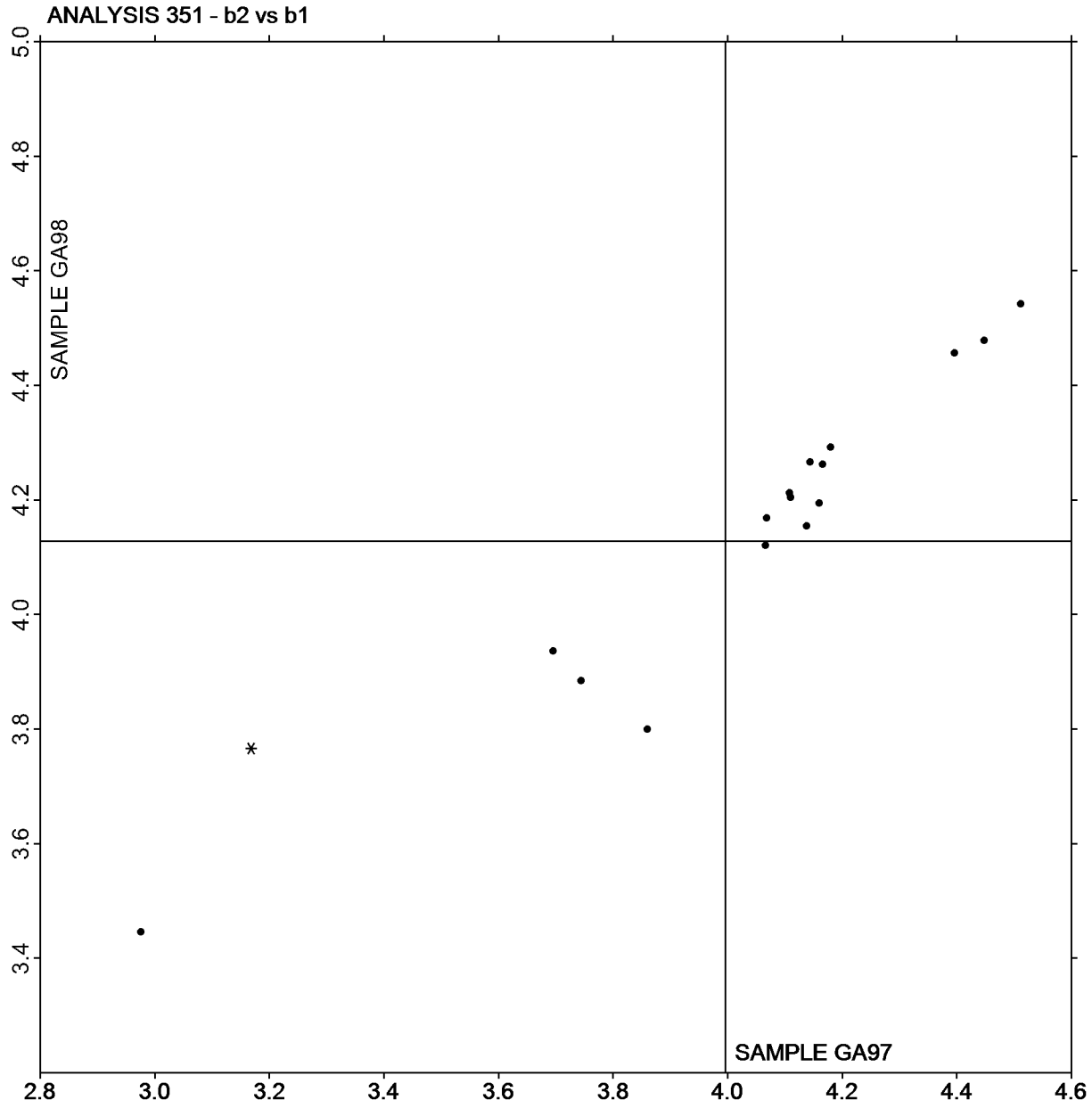
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA98 vs a values GA97



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

Plot of b values GA98 vs b values GA97



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 360
Thickness (Caliper), Printing papers
TAPPI Official Test Method T411

WebCode	Data Flag	Sample GV97 Lab Mean	Sample GV97 Diff from Grand Mean	Sample GV97 CPV	Sample GV98 Lab Mean	Sample GV98 Diff from Grand Mean	Sample GV98 CPV	Instr Code
2F6DUG		5.183	0.207	2.10	5.209	0.238	2.30	TM
2TET38		4.854	-0.123	-1.25	4.824	-0.147	-1.41	PP
2ZCK9F		5.011	0.034	0.34	4.978	0.007	0.07	TM
3MHNL9		4.976	-0.001	-0.01	4.945	-0.026	-0.25	TA
66CZ8E		4.863	-0.114	-1.16	4.854	-0.117	-1.12	EM
677PQA		5.047	0.070	0.71	4.978	0.007	0.07	TM
6BEGCT		5.055	0.078	0.79	5.013	0.042	0.41	PP
6QD44U		4.796	-0.181	-1.84	4.800	-0.171	-1.64	LW
8KXA2U		4.991	0.014	0.14	5.089	0.118	1.14	EM
8ZTP8F		5.090	0.113	1.15	5.096	0.125	1.21	TM
9DCURG		5.019	0.042	0.43	5.037	0.066	0.64	LW
9XVWMF		5.059	0.082	0.83	4.982	0.011	0.11	PP
9Z4W3V	*	4.958	-0.019	-0.19	4.821	-0.150	-1.44	LA
A4Y6LW	X	4.755	-0.222	-2.25	4.940	-0.031	-0.29	MT
AJVLBU	*	4.827	-0.150	-1.52	4.713	-0.258	-2.48	TA
AYP2JZ		5.008	0.031	0.32	4.954	-0.017	-0.16	PP
B2TW34		4.840	-0.137	-1.39	4.892	-0.079	-0.76	TM
BHWQA4		5.020	0.043	0.43	5.004	0.033	0.32	LW
C27VQK		5.115	0.138	1.40	5.131	0.160	1.54	LW
CHD83B		5.032	0.055	0.56	5.067	0.096	0.93	EM
CKEBRC		4.944	-0.032	-0.33	4.945	-0.025	-0.24	LW
CZV789		5.000	0.023	0.24	4.970	-0.001	-0.01	LW
D9MQ6U		5.132	0.155	1.58	5.126	0.155	1.50	PP
DMNHU6		5.042	0.065	0.66	5.084	0.113	1.09	LB
DQK4L9		5.050	0.073	0.74	5.063	0.092	0.89	LW
G74YQU		4.931	-0.046	-0.47	4.929	-0.042	-0.40	TA
GXATV8		4.993	0.016	0.16	4.971	0.000	0.00	EM
H7ZZKQ		4.976	-0.001	-0.01	4.976	0.006	0.06	PP
HCNDUR		4.887	-0.090	-0.91	4.970	-0.001	-0.01	LW
HWT43E		4.944	-0.033	-0.33	5.000	0.029	0.28	FR
JT7WZX		4.981	0.004	0.04	4.971	0.000	0.00	LW
KGXD4N		4.863	-0.114	-1.16	4.822	-0.149	-1.43	TM
LKRR3X		4.901	-0.076	-0.77	4.889	-0.082	-0.79	LA
LNPB4V		5.073	0.096	0.97	5.054	0.083	0.80	LW
NCLYLY		4.969	-0.008	-0.08	4.961	-0.010	-0.09	TM
NKF6GL	X	0.609	-4.368	-44.38	0.614	-4.357	-41.95	TA
NRYBDR		4.769	-0.208	-2.11	4.832	-0.139	-1.33	LA
P3DM6V	*	4.662	-0.315	-3.20	4.695	-0.276	-2.66	TM
PQLXBG		4.992	0.015	0.15	5.012	0.041	0.40	EM
PXKRYG		4.985	0.008	0.08	5.058	0.087	0.84	EM
PYCQDF		4.998	0.021	0.21	4.992	0.021	0.21	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 360
Thickness (Caliper), Printing papers
TAPPI Official Test Method T411

WebCode	Data Flag	Sample GV97 Lab Mean	Sample GV97 Diff from Grand Mean	Sample GV97 CPV	Sample GV98 Lab Mean	Sample GV98 Diff from Grand Mean	Sample GV98 CPV	Instr Code
QX2Y7K		5.040	0.063	0.64	4.980	0.009	0.09	EM
RW3KQ6		5.041	0.064	0.65	4.982	0.011	0.11	EM
TD4HUL		4.995	0.018	0.18	5.006	0.035	0.34	TA
TQTEWK		5.026	0.049	0.50	5.013	0.043	0.41	LW
TYLRVJ		4.977	0.000	0.00	5.073	0.103	0.99	OK
WWLPHR		4.930	-0.047	-0.48	4.930	-0.041	-0.39	TM
Z72MUZ		5.081	0.104	1.06	4.997	0.026	0.25	TM
Z9KY9W		4.990	0.013	0.13	4.933	-0.038	-0.36	EM

Summary Statistics	Sample GV97	Sample GV98
Grand Means	4.98 mils	4.97 mils
Stnd Dev Btwn Labs	0.10 mils	0.10 mils

Statistics based on 47 of 49 reporting participants.

Comments on Assigned Data Flags for Test #360

NKF6GL (X) - Extreme Data.

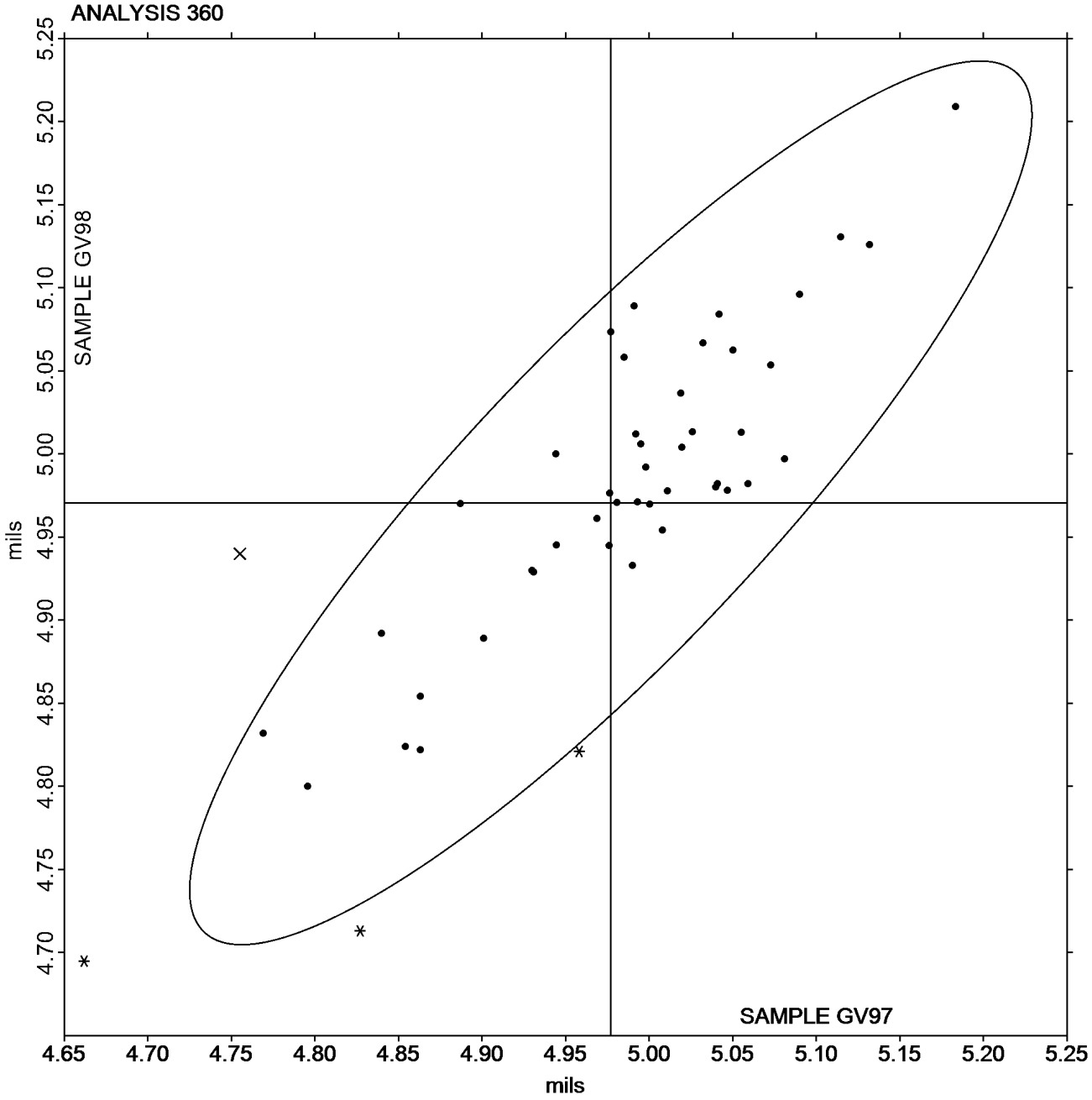
A4Y6LW (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample GV98.

Key to Instrument Codes Reported by Participants

EM	Emveco	FR	Frank Instruments
LA	L & W Autoline	LB	L & W Autoline 600
LW	L & W	MT	Mitutoyo
OK	Oakland	PP	Technidyne Profile/Plus
TA	Thwing-Albert	TM	TMI

Grand Mean Sample GV97 = 4.9769 mils

Grand Mean Sample GV98 = 4.9706 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 361

Thickness (Caliper), Packaging papers

TAPPI Official Test Method T411

WebCode	Data Flag	Sample GY97 Lab Mean	Sample GY97 Diff from Grand Mean	Sample GY97 CPV	Sample GY98 Lab Mean	Sample GY98 Diff from Grand Mean	Sample GY98 CPV	Instr Code
2QZN2N		7.762	0.179	1.33	7.849	0.267	1.93	LW
3MHNL9		7.629	0.046	0.34	7.601	0.019	0.14	TA
4FGQCB		7.598	0.015	0.11	7.611	0.029	0.21	LW
4JW9MZ		7.569	-0.014	-0.11	7.649	0.067	0.49	LW
4W48F8		7.798	0.215	1.60	7.673	0.091	0.66	LW
4WYPG9		7.623	0.040	0.30	7.622	0.040	0.29	LW
4Y6A69	*	7.287	-0.297	-2.22	7.213	-0.369	-2.66	LW
64EQCB		7.584	0.001	0.01	7.620	0.038	0.28	EM
66CZ8E		7.508	-0.075	-0.56	7.549	-0.033	-0.24	EM
6JUQ92		7.676	0.092	0.69	7.679	0.097	0.70	LA
7C7ME6		7.453	-0.130	-0.97	7.423	-0.159	-1.14	VP
7RHBJR		7.540	-0.043	-0.32	7.630	0.048	0.35	TA
946YRW		7.740	0.157	1.17	7.740	0.158	1.14	TM
AA6XFR		7.347	-0.237	-1.77	7.264	-0.318	-2.29	LA
AJVLBU	*	7.390	-0.193	-1.44	7.556	-0.026	-0.19	TA
CHD83B	*	7.859	0.276	2.06	7.713	0.131	0.94	EM
CKEBRC		7.570	-0.013	-0.10	7.576	-0.005	-0.04	LW
CM9YCT		7.668	0.085	0.63	7.677	0.095	0.69	EM
D9MQ6U		7.741	0.158	1.18	7.804	0.222	1.60	PP
DMNHU6		7.707	0.124	0.92	7.707	0.125	0.90	LB
E38ZUJ		7.580	-0.003	-0.02	7.596	0.014	0.10	LA
EJ33VX		7.680	0.097	0.72	7.682	0.100	0.72	PP
ERTN2V		7.583	0.000	0.00	7.575	-0.006	-0.05	LW
HCNDUR		7.587	0.003	0.03	7.551	-0.031	-0.22	LW
HGKCXP		7.417	-0.166	-1.24	7.366	-0.216	-1.55	GE
HR2UTG		7.586	0.003	0.02	7.569	-0.013	-0.09	LW
JBQRD7		7.559	-0.024	-0.18	7.533	-0.049	-0.35	TM
JKCVED		7.264	-0.319	-2.39	7.307	-0.275	-1.98	TM
K3UAC3		7.693	0.110	0.82	7.676	0.094	0.68	TM
PXKMQZ		7.526	-0.057	-0.43	7.465	-0.117	-0.84	OK
RWMWXQ		7.608	0.025	0.19	7.524	-0.058	-0.42	EM
TNK9C4		7.557	-0.026	-0.20	7.619	0.037	0.27	EM
W83JPD		7.587	0.003	0.03	7.654	0.072	0.52	LW
WQJNB6	X	9.522	1.939	14.49	10.145	2.563	18.49	LW
WYUZCA		7.508	-0.075	-0.56	7.512	-0.070	-0.50	LA
YQC9YG		7.631	0.048	0.36	7.575	-0.006	-0.05	EM

Summary Statistics	Sample GY97	Sample GY98
Grand Means	7.58 mils	7.58 mils
Stnd Dev Btwn Labs	0.13 mils	0.14 mils

Statistics based on 35 of 36 reporting participants.

Comments on Assigned Data Flags for Test #361

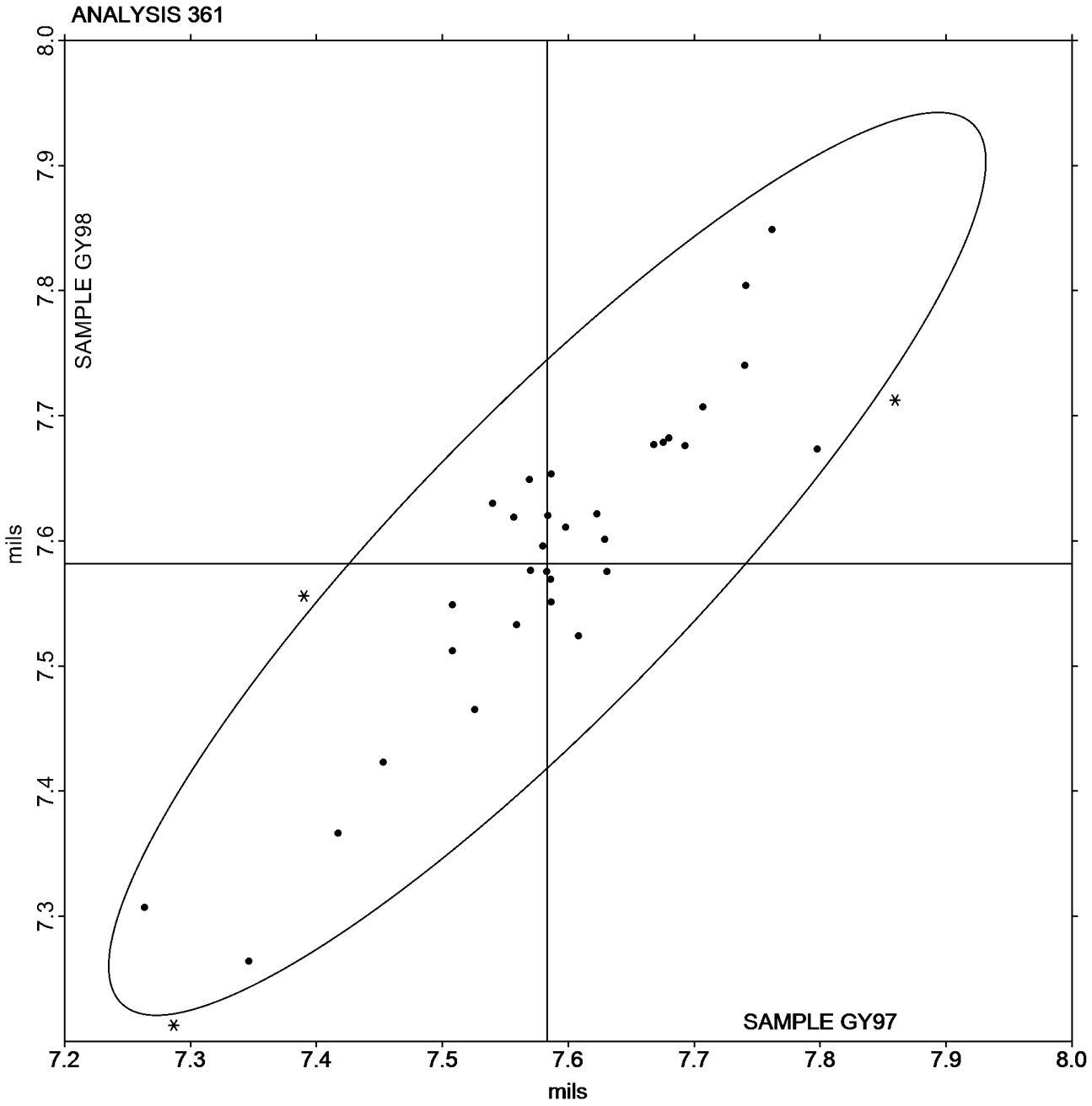
WQJNB6 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

EM	Emveco	GE	Gester Electronic Thickness Tester
LA	L & W Autoline	LB	L & W Autoline 600
LW	L & W	OK	Oakland
PP	Technidyne Profile/Plus	TA	Thwing-Albert
TM	TMI	VP	Valmet Paper Lab Automated Tester

Grand Mean Sample GY97 = 7.5832 mils

Grand Mean Sample GY98 = 7.5817 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

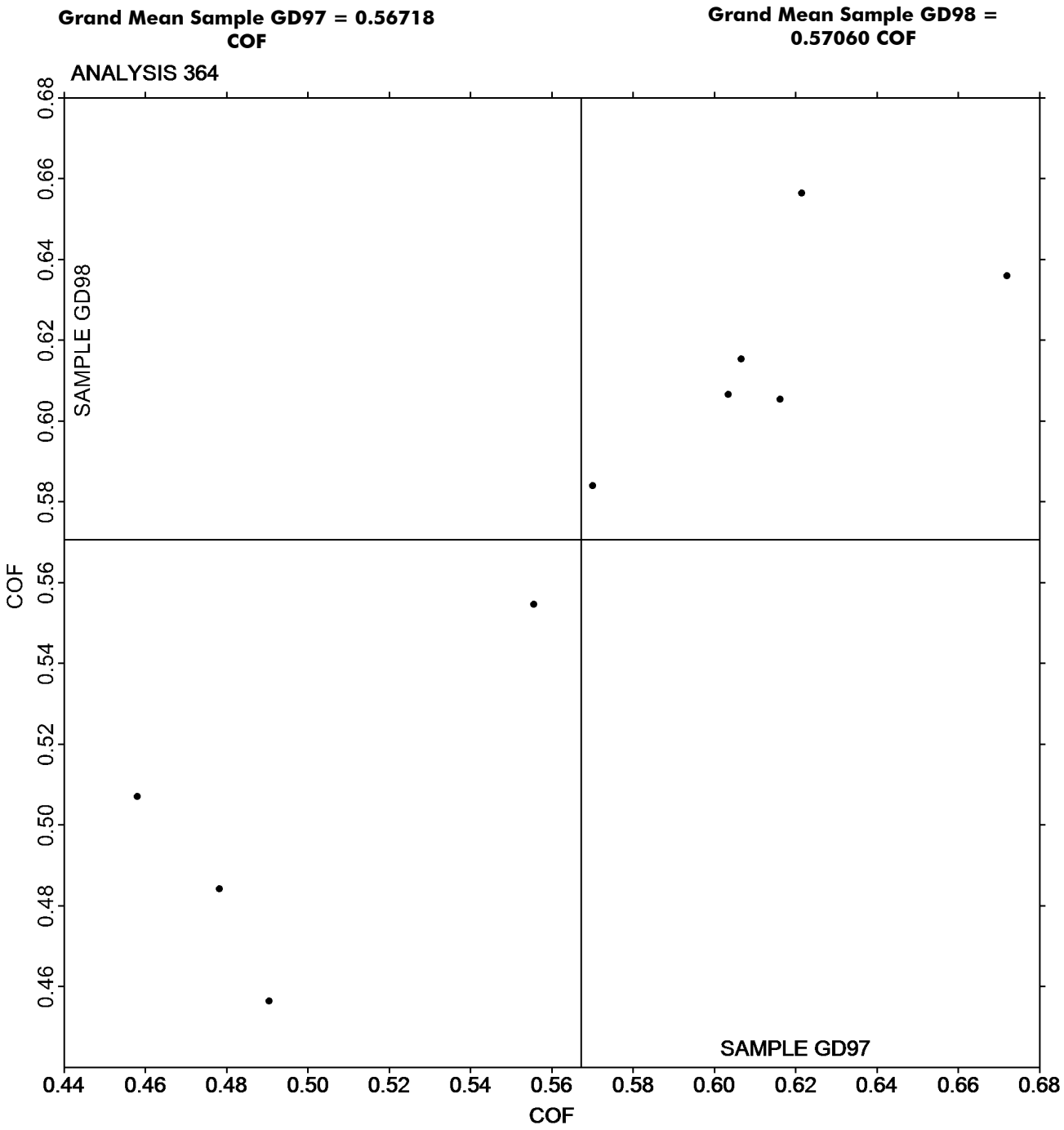
WebCode	Data Flag	Sample GD97 Lab Mean	Sample GD97 Diff from Grand Mean	Sample GD97 CPV	Sample GD98 Lab Mean	Sample GD98 Diff from Grand Mean	Sample GD98 CPV	Instr Code
2TET38		0.4904	-0.0768	-1.08	0.4564	-0.1142	-1.69	TA
4W48F8		0.6066	0.0394	0.56	0.6154	0.0448	0.66	TA
AA6XFR		0.5556	-0.0116	-0.16	0.5546	-0.0160	-0.24	TA
D9MQ6U		0.6720	0.1048	1.48	0.6360	0.0654	0.97	TP
KKWUEW		0.6034	0.0362	0.51	0.6066	0.0360	0.53	TA
PQLXBG		0.5700	0.0028	0.04	0.5840	0.0134	0.20	TA
QX2Y7K		0.6214	0.0542	0.77	0.6564	0.0858	1.27	TA
VBQL4E		0.6162	0.0490	0.69	0.6054	0.0348	0.51	IT
WWLPHR		0.4782	-0.0890	-1.26	0.4842	-0.0864	-1.28	XX
YNKCC9		0.4580	-0.1092	-1.54	0.5070	-0.0636	-0.94	TA

Summary Statistics	Sample GD97	Sample GD98
Grand Means	0.57 COF	0.57 COF
Stnd Dev Btwn Labs	0.07 COF	0.07 COF

Statistics based on 10 of 10 reporting participants.

Key to Instrument Codes Reported by Participants

IT	IMASS SP-2100	TA	Thwing-Albert Friction Tester
TP	TMI 32-25 COF Tester (Inclined Plane)	XX	Instrument make/model not specified by lab



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

TAPPI Official Test Method T549

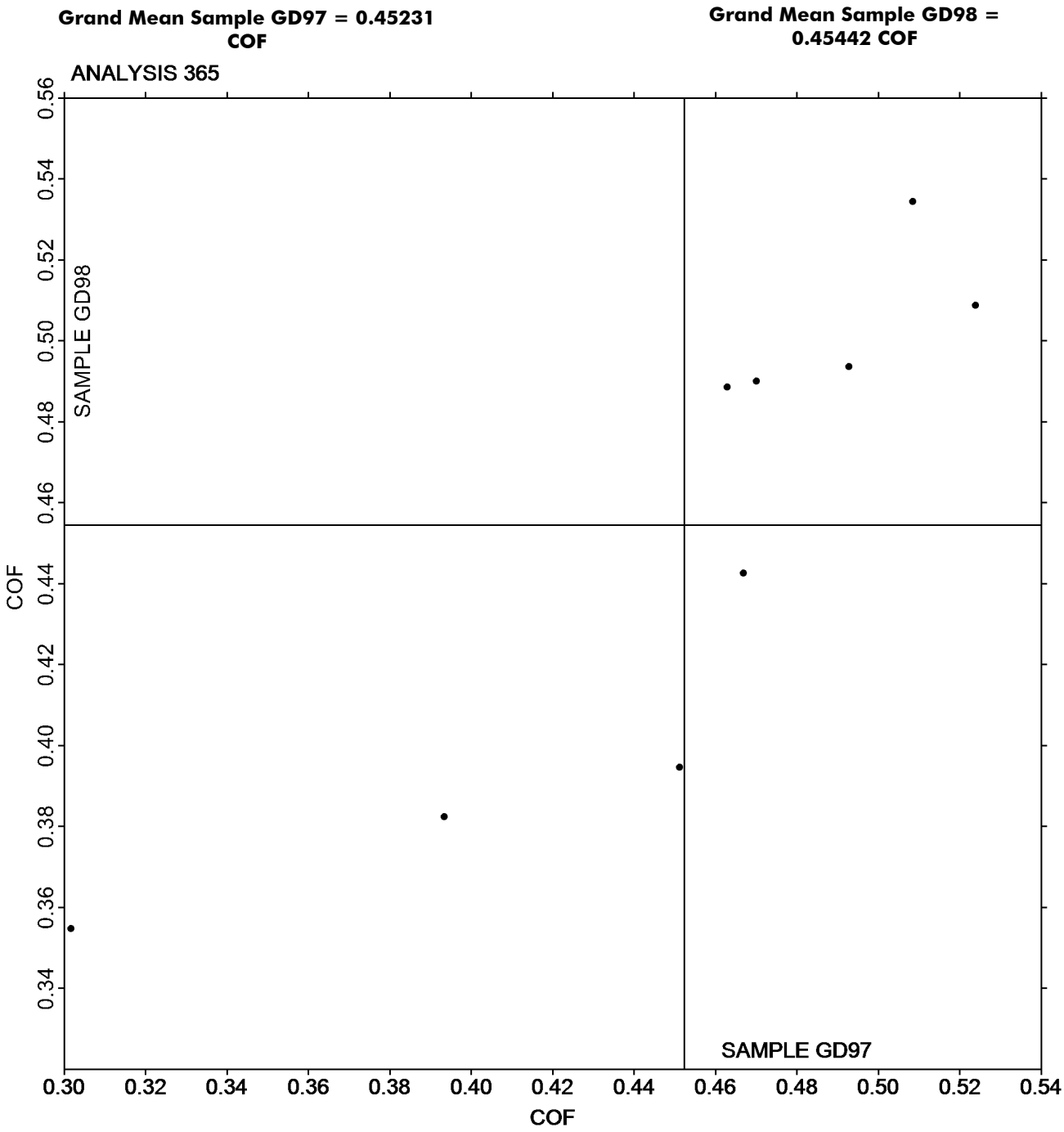
WebCode	Data Flag	Sample GD97 Lab Mean	Sample GD97 Diff from Grand Mean	Sample GD97 CPV	Sample GD98 Lab Mean	Sample GD98 Diff from Grand Mean	Sample GD98 CPV	Instr Code
2TET38		0.3934	-0.0589	-0.87	0.3824	-0.0720	-1.14	TA
4W48F8		0.5238	0.0715	1.06	0.5088	0.0544	0.86	TN
AA6XFR		0.4928	0.0405	0.60	0.4936	0.0392	0.62	TA
KKWUEW		0.4628	0.0105	0.15	0.4886	0.0342	0.54	TA
PQLXBG		0.4700	0.0177	0.26	0.4900	0.0356	0.56	XX
QX2Y7K		0.5084	0.0561	0.83	0.5344	0.0800	1.26	TA
VBQL4E		0.4512	-0.0011	-0.02	0.3946	-0.0598	-0.94	IR
WWLPHR		0.4668	0.0145	0.21	0.4426	-0.0118	-0.19	XX
YNKCC9		0.3016	-0.1507	-2.22	0.3548	-0.0996	-1.57	TA

Summary Statistics	Sample GD97	Sample GD98
Grand Means	0.45 COF	0.45 COF
Stnd Dev Btwn Labs	0.07 COF	0.06 COF

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

IR	IMASS SP-2000	TA	Thwing-Albert Friction Tester
TN	TMI 32-07 Monitor/Slip and Friction	XX	Instrument make/model not specified by lab



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

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE97 Lab Mean	Sample GE97 Diff from Grand Mean	Sample GE97 CPV	Sample GE98 Lab Mean	Sample GE98 Diff from Grand Mean	Sample GE98 CPV	Instr Code
2F6DUG		13.15	-0.64	-0.94	13.31	-0.50	-0.67	LP
3MHNL9		13.64	-0.15	-0.22	13.65	-0.16	-0.21	PP
4FGQCB		13.87	0.08	0.12	14.32	0.51	0.70	LW
4JW9MZ		14.44	0.65	0.95	14.65	0.84	1.15	LP
4WYPG9		12.77	-1.02	-1.49	13.13	-0.68	-0.92	HM
6BEGCT		13.76	-0.03	-0.04	13.78	-0.03	-0.04	PP
772P7Z		14.75	0.96	1.40	14.76	0.95	1.30	TM
7C7ME6		14.92	1.13	1.65	14.72	0.91	1.24	VM
7WAFCW		12.86	-0.93	-1.36	12.48	-1.33	-1.80	LA
8KXA2U		13.67	-0.12	-0.18	13.58	-0.23	-0.31	PP
8ZTP8F		14.09	0.30	0.44	14.14	0.33	0.45	HG
9XVWMF		13.59	-0.20	-0.30	13.81	0.00	0.00	PP
AA6XFR		13.87	0.08	0.12	14.05	0.24	0.33	LA
AYP2JZ		14.57	0.78	1.13	14.97	1.16	1.58	PP
BHWQA4		14.30	0.51	0.74	14.10	0.29	0.40	LW
C27VQK		13.70	-0.09	-0.13	13.24	-0.57	-0.77	LP
CM9YCT		13.95	0.16	0.23	14.21	0.40	0.55	LP
CZV789		13.32	-0.47	-0.69	13.67	-0.14	-0.19	LP
D9MQ6U		12.97	-0.83	-1.21	13.07	-0.74	-1.01	PP
DQK4L9		14.01	0.22	0.32	14.17	0.36	0.50	LP
G74YQU		13.66	-0.13	-0.19	13.90	0.09	0.13	GA
GXATV8		13.84	0.05	0.07	13.96	0.15	0.21	PP
H7ZZKQ		14.32	0.53	0.78	14.71	0.90	1.22	PP
HCNDUR		13.56	-0.23	-0.34	13.36	-0.45	-0.61	PP
HTEGBV		12.31	-1.48	-2.16	12.29	-1.52	-2.06	GA
KGXD4N		13.89	0.09	0.14	13.67	-0.14	-0.19	PP
KKWUEW		14.45	0.66	0.96	14.56	0.75	1.03	WG
LKRR3X	*	15.94	2.15	3.14	15.80	1.99	2.71	LA
M4XQHB		14.41	0.62	0.90	13.92	0.11	0.16	XX
MKLYML		14.25	0.46	0.67	13.79	-0.02	-0.02	GL
NC99XN	*	13.10	-0.69	-1.01	12.37	-1.44	-1.95	LP
NCLYLY		12.40	-1.39	-2.03	12.23	-1.58	-2.14	LW
NKF6GL		13.16	-0.64	-0.93	13.54	-0.27	-0.37	PP
NRYBDR		13.47	-0.32	-0.47	13.89	0.08	0.11	LA
NUQ4DH		13.46	-0.33	-0.48	13.26	-0.55	-0.74	LP
P3DM6V		14.42	0.63	0.92	14.10	0.29	0.40	LP
PQLXBG		13.65	-0.14	-0.20	13.67	-0.14	-0.18	PP
RW3KQ6		13.73	-0.06	-0.09	13.37	-0.43	-0.59	PP
TK6UQJ		14.08	0.29	0.42	14.30	0.49	0.67	TL
TNK9C4		14.03	0.24	0.35	14.27	0.47	0.63	PP
W83JPD		12.92	-0.87	-1.27	12.84	-0.97	-1.31	LP

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE97 Lab Mean	Sample GE97 Diff from Grand Mean	Sample GE97 CPV	Sample GE98 Lab Mean	Sample GE98 Diff from Grand Mean	Sample GE98 CPV	Instr Code
WQJNB6		13.14	-0.65	-0.95	13.07	-0.74	-1.01	TL
WWLPHR		14.60	0.81	1.18	14.40	0.59	0.81	GS
WYUZCA		13.92	0.13	0.19	14.37	0.56	0.77	LA
Z9KY9W		13.70	-0.09	-0.13	13.85	0.04	0.06	HG

Summary Statistics	Sample GE97	Sample GE98
Grand Means	13.79 sec/100 cc	13.81 sec/100 cc
Stnd Dev Btwn Labs	0.68 sec/100 cc	0.74 sec/100 cc

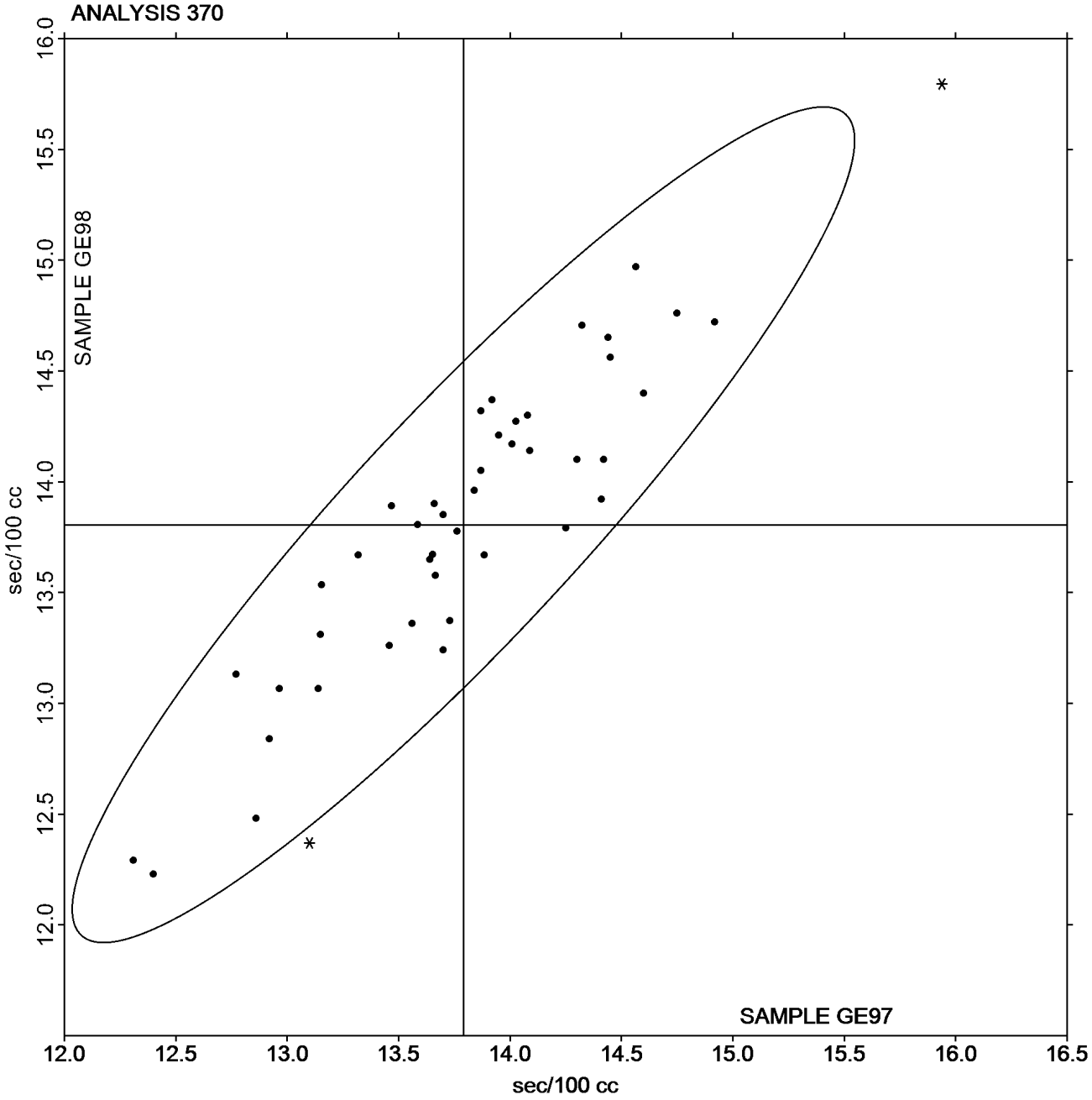
Statistics based on 45 of 45 reporting participants.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GL	Gurley #4110
GS	Gurley-Hill S-P-S Tester #4190	HG	Technidyne - Hagerty Model #1
HM	Technidyne - Hagerty Model #538	LA	L & W Autoline
LP	L & W Densometer, Air Permeance	LW	L & W Type Gurley Densometer, Oil Flotation
PP	Technidyne Profile/Plus	TL	Gurley Densometer #4110, Oil Flotation
TM	TMI Densometer 58-03	VM	Valmet PaperLab (was Kajaani/Robotest)
WG	W & LE Gurley Tester	XX	Instrument make/model not specified by lab

Grand Mean Sample GE97 = 13.791 sec/100 cc

Grand Mean Sample GE98 = 13.806 sec/100 cc



Paper & Paperboard Interlaboratory Testing Program

Analysis 372

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

TAPPI Official Test Method T547

WebCode	Data Flag	Sample GE97 Lab Mean	Sample GE97 Diff from Grand Mean	Sample GE97 CPV	Sample GE98 Lab Mean	Sample GE98 Diff from Grand Mean	Sample GE98 CPV	Instr Code
3MHNL9		187.4	-1.2	-0.10	188.4	-3.9	-0.27	PP
677PQA	X	256.4	67.8	5.61	261.6	69.3	4.87	LP
7C7ME6		190.8	2.2	0.18	192.4	0.1	0.01	PP
NKF6GL		192.9	4.3	0.36	205.4	13.1	0.92	TT
TD4HUL		191.3	2.7	0.22	194.3	2.0	0.14	HM
TYLRVJ		202.8	14.2	1.18	206.0	13.7	0.96	LA
WWLPHR		166.3	-22.3	-1.84	167.1	-25.2	-1.77	SH

Summary Statistics	Sample GE97	Sample GE98
Grand Means	188.58 Sheffield Units	192.27 Sheffield Units
Stnd Dev Btwn Labs	12.09 Sheffield Units	14.24 Sheffield Units

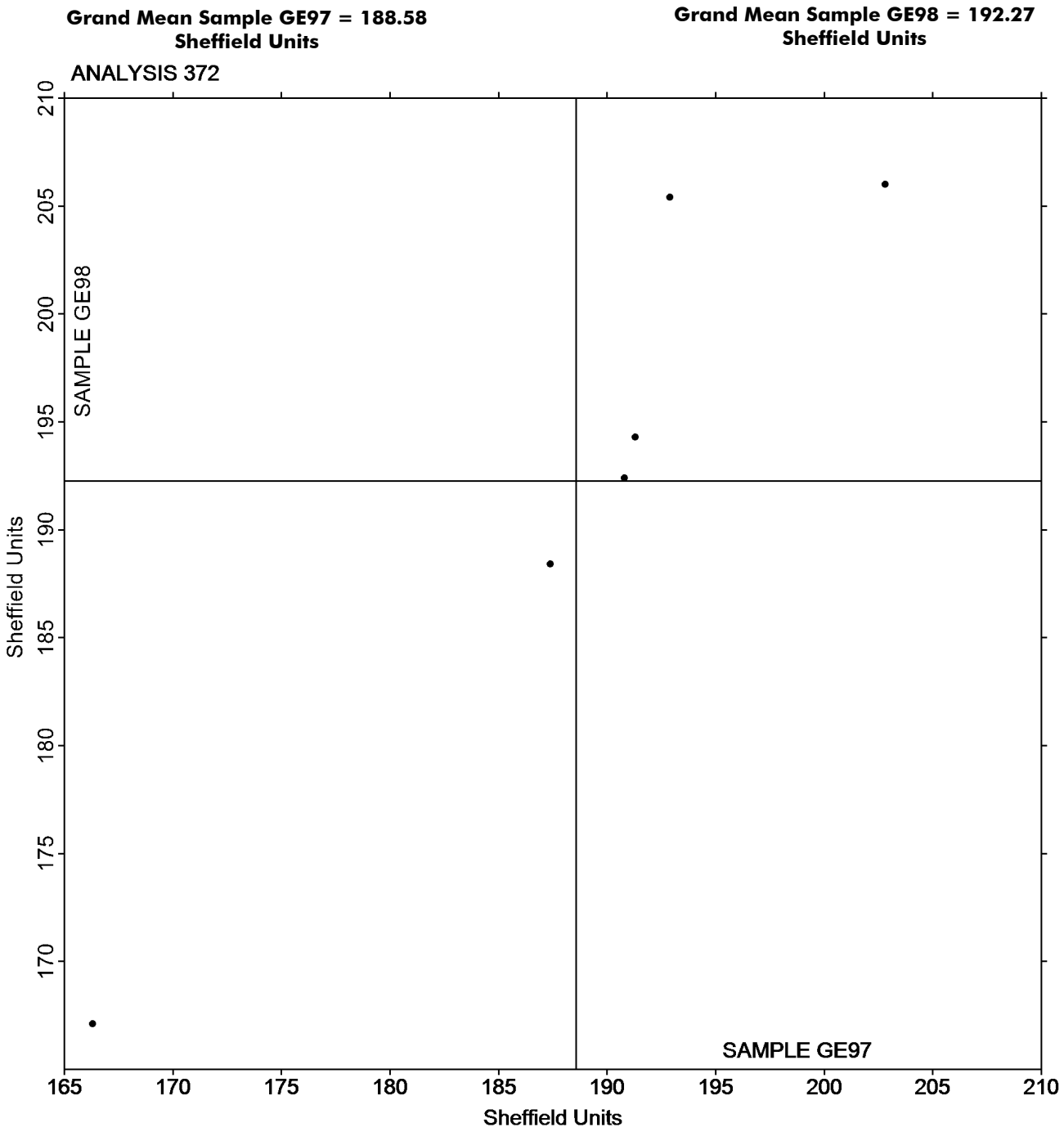
Statistics based on 6 of 7 reporting participants.

Comments on Assigned Data Flags for Test #372

677PQA (X) - Data for both samples are high. Possible Systematic Error.

Key to Instrument Codes Reported by Participants

HM	Technidyne - Hagerty Model #538	LA	L & W Roughness Sheffield - Autoline
LP	L & W Densometer, Air Permeance	PP	Technidyne Profile/Plus
SH	Sheffield	TT	TMI Monitor/Smoothness II, Model 58-24



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

TAPPI Official Test Method T555

WebCode	Data Flag	Sample GJ97 Lab Mean	Sample GJ97 Diff from Grand Mean	Sample GJ97 CPV	Sample GJ98 Lab Mean	Sample GJ98 Diff from Grand Mean	Sample GJ98 CPV	Instr Code
64EQCB		0.9260	-0.0168	-0.17	0.9670	0.0196	0.19	ZZ
66CZ8E		1.0150	0.0722	0.72	0.9830	0.0356	0.34	ZZ
6BEGCT		0.8930	-0.0498	-0.50	0.9860	0.0386	0.37	ZZ
7C7ME6	X	1.1240	0.1812	1.80	0.9500	0.0026	0.03	ZZ
8KXA2U		1.0890	0.1462	1.45	1.0920	0.1446	1.39	ZZ
93BB92		1.0670	0.1242	1.24	1.1140	0.1666	1.60	ZZ
9DCURG		1.0110	0.0682	0.68	0.9980	0.0506	0.49	ZZ
9Z4W3V		0.8090	-0.1338	-1.33	0.8580	-0.0894	-0.86	ZZ
CKEBRC		0.8390	-0.1038	-1.03	0.8310	-0.1164	-1.12	ZZ
DMNHU6		0.9170	-0.0258	-0.26	0.8850	-0.0624	-0.60	ZZ
E38ZUJ		0.7510	-0.1918	-1.91	0.7540	-0.1934	-1.85	ZZ
HR2UTG		0.9070	-0.0358	-0.36	0.8700	-0.0774	-0.74	ZZ
JKCVED		0.9470	0.0042	0.04	0.9460	-0.0014	-0.01	ZZ
KKWUEW		0.8450	-0.0978	-0.97	0.7850	-0.1624	-1.56	ZZ
KP2XVH		0.8530	-0.0898	-0.89	0.8900	-0.0574	-0.55	ZZ
L7Q34C		0.7700	-0.1728	-1.72	0.7680	-0.1794	-1.72	ZZ
LZHWAQ		0.9800	0.0372	0.37	0.9470	-0.0004	0.00	ZZ
NKF6GL		0.9990	0.0562	0.56	1.0720	0.1246	1.20	ZZ
P3DM6V		0.9970	0.0542	0.54	0.9640	0.0166	0.16	ZZ
PXKMQZ		0.9530	0.0102	0.10	0.9160	-0.0314	-0.30	ZZ
RW3KQ6	*	1.2060	0.2632	2.62	1.1820	0.2346	2.25	ZZ
RWMWXQ		0.9530	0.0102	0.10	1.0060	0.0586	0.56	ZZ
TNK9C4		0.8830	-0.0598	-0.60	0.9040	-0.0434	-0.42	ZZ
TQTEWK		0.9070	-0.0358	-0.36	0.8600	-0.0874	-0.84	ZZ
VQ46R9		0.9620	0.0192	0.19	0.9860	0.0386	0.37	ZZ
YNKCC9		0.9610	0.0182	0.18	0.9540	0.0066	0.06	ZZ
YQC9YG		0.9120	-0.0308	-0.31	0.9350	-0.0124	-0.12	ZZ
YVMB2C		1.1000	0.1572	1.56	1.0920	0.1446	1.39	ZZ
Z72MUZ		0.9470	0.0042	0.04	0.9810	0.0336	0.32	ZZ

Summary Statistics	Sample GJ97	Sample GJ98
Grand Means	0.94 Microns	0.95 Microns
Stnd Dev Btwn Labs	0.10 Microns	0.10 Microns

Statistics based on 28 of 29 reporting participants.

Comments on Assigned Data Flags for Test #376

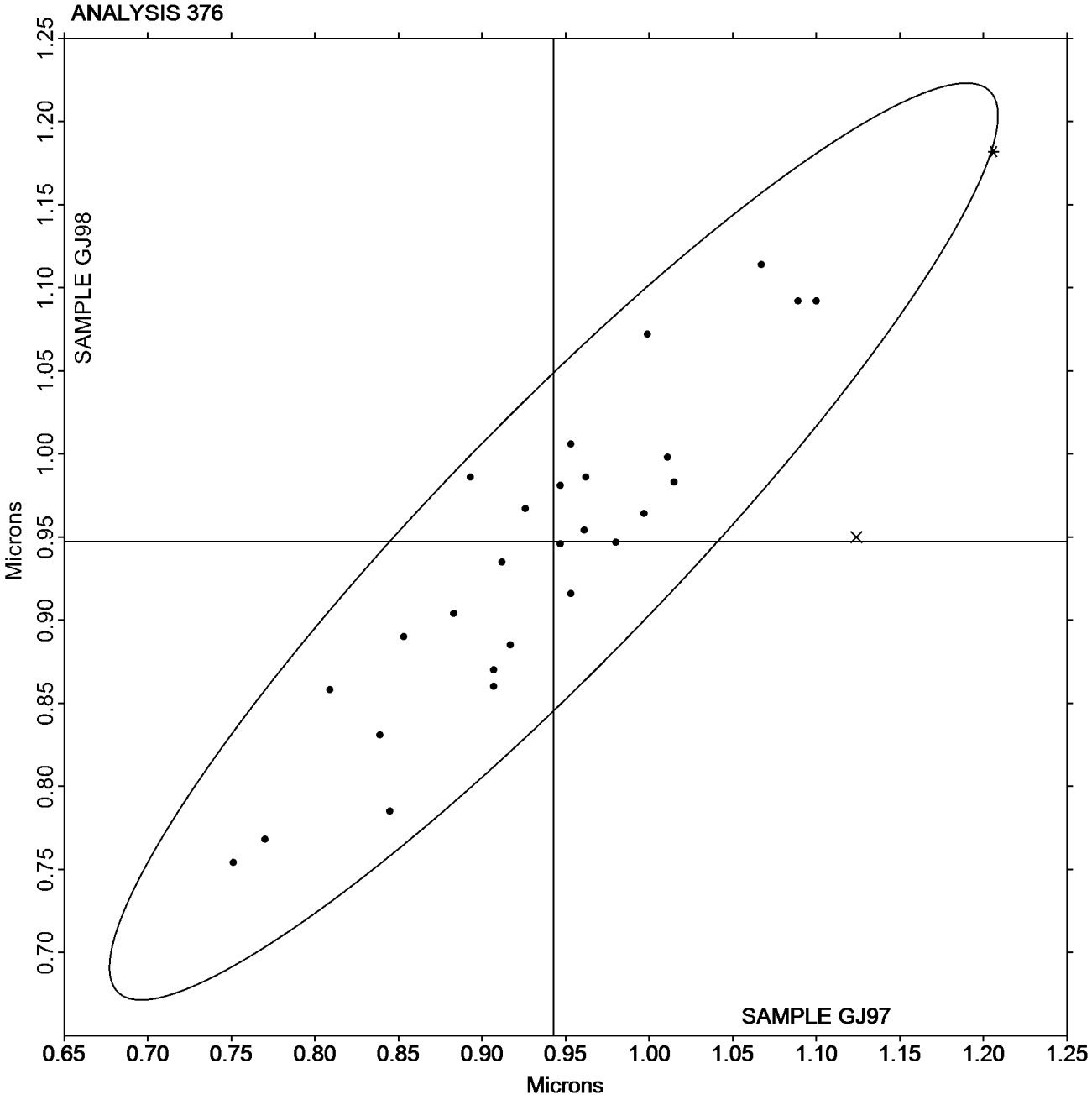
7C7ME6 (X) - Inconsistent in testing between samples.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GJ97 = 0.94282 Microns

Grand Mean Sample GJ98 = 0.94736 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

TAPPI Official Test Method T555

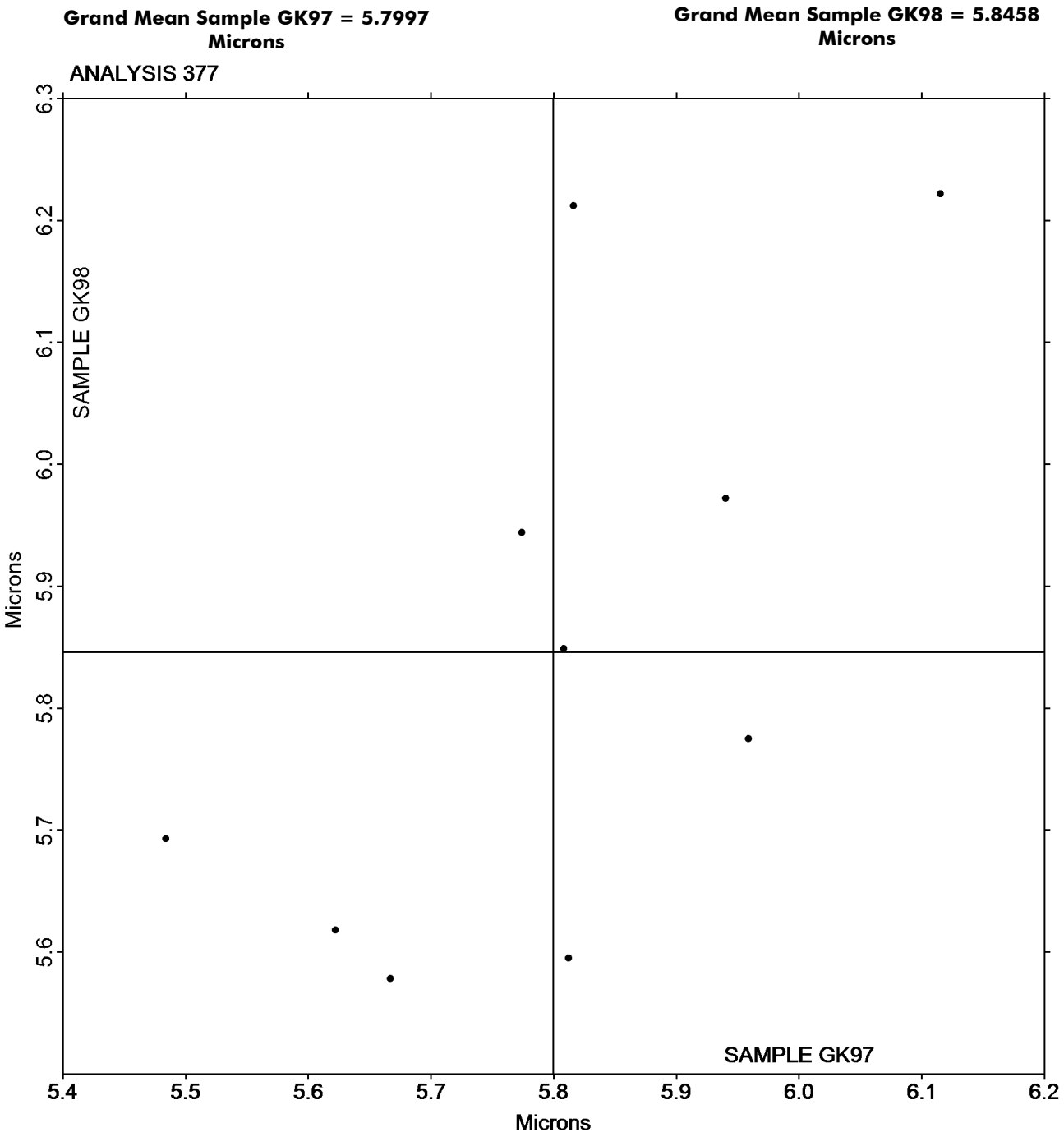
WebCode	Data Flag	Sample GK97 Lab Mean	Sample GK97 Diff from Grand Mean	Sample GK97 CPV	Sample GK98 Lab Mean	Sample GK98 Diff from Grand Mean	Sample GK98 CPV	Instr Code
4W48F8		5.959	0.159	0.88	5.775	-0.071	-0.30	ZZ
66CZ8E		5.667	-0.133	-0.73	5.578	-0.268	-1.12	ZZ
D9MQ6U		5.774	-0.026	-0.14	5.944	0.098	0.41	ZZ
DMNHU6		5.808	0.008	0.05	5.849	0.003	0.01	ZZ
HCNDUR		5.812	0.012	0.07	5.595	-0.251	-1.05	ZZ
KKWUEW		5.622	-0.178	-0.98	5.618	-0.228	-0.95	ZZ
NRYBDR		5.484	-0.316	-1.75	5.693	-0.153	-0.64	ZZ
PQLXBG		5.940	0.140	0.78	5.972	0.126	0.53	ZZ
QX2Y7K		5.816	0.016	0.09	6.212	0.366	1.53	ZZ
TNK9C4		6.115	0.315	1.74	6.222	0.376	1.57	ZZ

Summary Statistics	Sample GK97	Sample GK98
Grand Means	5.80 Microns	5.85 Microns
Stnd Dev Btwn Labs	0.18 Microns	0.24 Microns

Statistics based on 10 of 10 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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

TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL97 Lab Mean	Sample GL97 Diff from Grand Mean	Sample GL97 CPV	Sample GL98 Lab Mean	Sample GL98 Diff from Grand Mean	Sample GL98 CPV	Instr Code
3MHNL9		120.3	-3.3	-0.43	125.2	0.5	0.05	PP
4DM3TE		123.5	-0.1	-0.01	113.8	-10.9	-1.08	LA
4JW9MZ		125.3	1.7	0.23	124.3	-0.4	-0.04	LW
4W48F8		125.3	1.7	0.23	127.6	2.9	0.28	LW
64EQCB		118.7	-4.9	-0.65	112.2	-12.5	-1.23	PP
66CZ8E		125.1	1.5	0.20	130.5	5.8	0.57	LW
677PQA		120.2	-3.4	-0.45	118.4	-6.3	-0.62	LW
6BEGCT		119.5	-4.1	-0.54	119.8	-5.0	-0.49	PP
7C7ME6		127.0	3.4	0.45	115.1	-9.6	-0.95	VM
7WAFCW		121.3	-2.3	-0.30	117.0	-7.7	-0.76	LA
8KXA2U		116.6	-7.0	-0.93	123.9	-0.9	-0.08	PP
8ZTP8F		130.8	7.2	0.95	130.6	5.9	0.58	TS
93BB92		127.7	4.1	0.54	124.9	0.2	0.02	LW
9XVWMF		113.2	-10.3	-1.37	114.6	-10.1	-1.00	PP
AYP2JZ		130.6	7.0	0.93	127.7	3.0	0.29	PP
BHWQA4		126.7	3.1	0.41	123.9	-0.8	-0.08	TS
CZV789	*	128.8	5.2	0.69	151.8	27.1	2.67	LW
D9MQ6U		133.3	9.7	1.29	143.8	19.0	1.88	PP
DMNHU6		123.7	0.1	0.02	128.2	3.5	0.34	LB
E38ZUJ		125.6	2.0	0.27	129.9	5.2	0.51	LA
G74YQU		126.6	3.0	0.40	114.1	-10.7	-1.05	GA
GUCGTF		135.8	12.2	1.62	138.0	13.3	1.31	TT
GXATV8		120.9	-2.7	-0.35	120.4	-4.3	-0.43	SH
H7ZZKQ		117.6	-6.0	-0.79	126.5	1.8	0.18	PP
HCNDUR		125.2	1.6	0.21	126.6	1.9	0.18	PP
HR2UTG		126.2	2.6	0.34	131.4	6.7	0.66	PP
JKCVED	*	138.6	15.0	1.99	150.4	25.7	2.54	TT
KGXD4N		113.7	-9.8	-1.30	115.3	-9.4	-0.93	PP
KKWUEW	*	143.9	20.3	2.69	145.0	20.3	2.00	XX
L7Q34C		121.2	-2.4	-0.32	114.6	-10.1	-1.00	LW
LKRR3X		107.4	-16.2	-2.14	115.0	-9.7	-0.96	LA
NCLYLY		127.9	4.3	0.57	129.5	4.8	0.47	SH
NKF6GL		135.5	11.9	1.58	126.8	2.1	0.21	TT
NRYBDR		124.6	1.0	0.13	128.8	4.1	0.40	LA
P3DM6V		118.8	-4.8	-0.63	121.1	-3.6	-0.36	TS
PQLXBG		121.2	-2.3	-0.31	123.0	-1.8	-0.17	PP
PXKMQZ	X	167.5	43.9	5.81	174.0	49.3	4.87	GL
PYCQDF		123.1	-0.5	-0.06	113.1	-11.6	-1.15	PP
QX2Y7K		121.2	-2.4	-0.32	119.2	-5.5	-0.54	PP
RJCL6U		123.3	-0.3	-0.04	129.4	4.7	0.46	GA
RWMWXQ		123.3	-0.3	-0.03	129.7	5.0	0.49	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL97 Lab Mean	Sample GL97 Diff from Grand Mean	Sample GL97 CPV	Sample GL98 Lab Mean	Sample GL98 Diff from Grand Mean	Sample GL98 CPV	Instr Code
TNK9C4		124.3	0.7	0.09	133.0	8.3	0.82	LW
TYLRVJ		112.6	-11.0	-1.45	124.4	-0.3	-0.03	LA
WB4MGZ	*	132.5	8.9	1.18	111.8	-12.9	-1.28	TT
WWLPHR		122.1	-1.5	-0.20	114.7	-10.0	-0.99	XX
YJRB8M		105.1	-18.5	-2.44	106.6	-18.1	-1.79	MP
YNKCC9		121.8	-1.8	-0.24	133.8	9.1	0.90	HM
YQC9YG		125.2	1.6	0.22	135.9	11.2	1.10	PP
YVMB2C		106.8	-16.8	-2.22	109.6	-15.1	-1.49	LA
Z9KY9W		125.9	2.3	0.31	120.2	-4.5	-0.45	HM

Summary Statistics	Sample GL97	Sample GL98
Grand Means	123.58 Sheffield	124.71 Sheffield
Stnd Dev Btwn Labs	7.56 Sheffield	10.13 Sheffield

Statistics based on 49 of 50 reporting participants.

Comments on Assigned Data Flags for Test #378

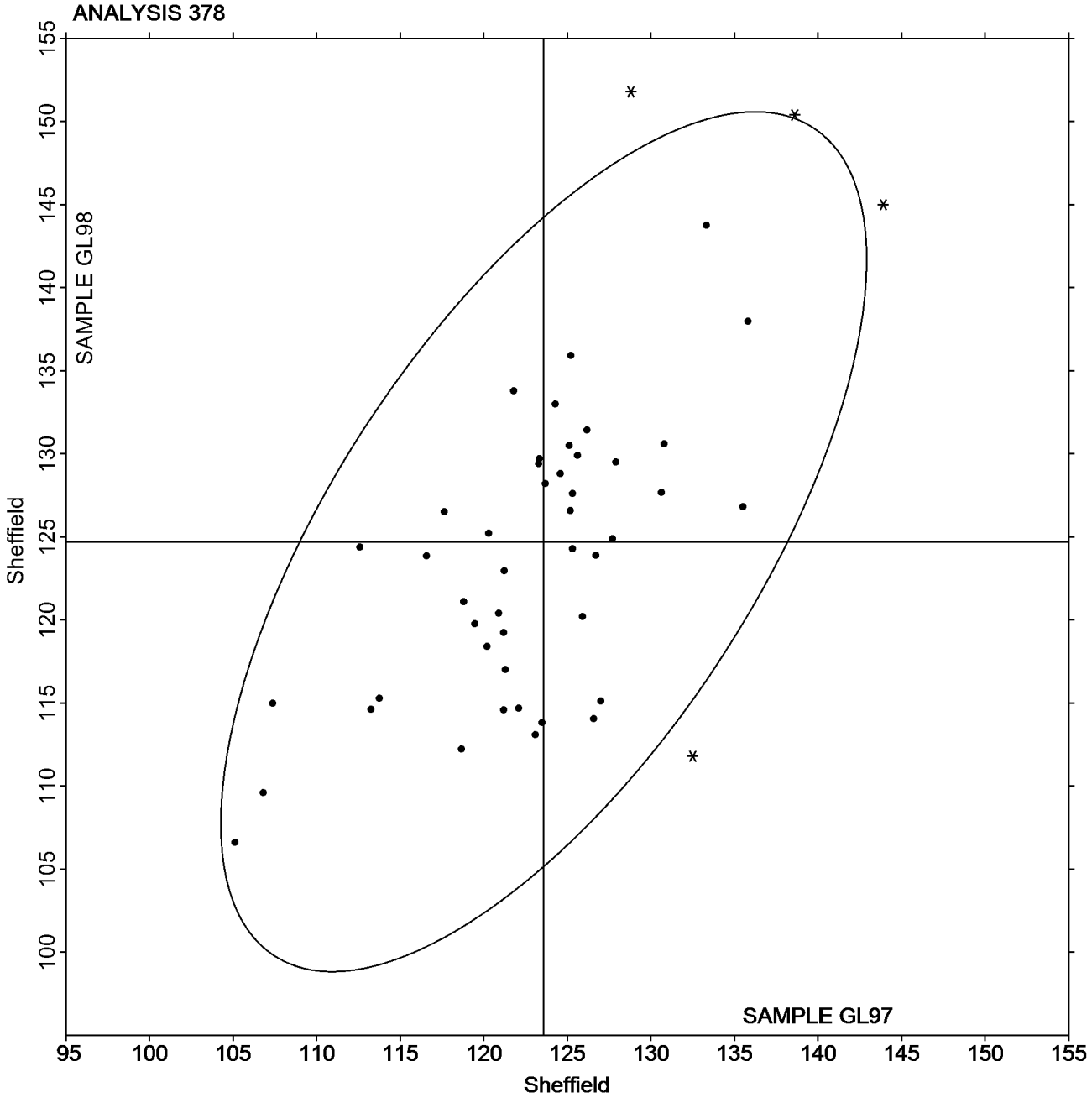
PXKMQZ (X) - Data for both samples are high.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GL	Giddings and Lewis Sheffield
HM	Technidyne - Hagerty Model #538	LA	L & W Roughness Sheffield - Autoline
LB	L & W - Autoline 600	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		

Grand Mean Sample GL97 = 123.58
Sheffield

Grand Mean Sample GL98 = 124.71
Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382
Moisture in Paper
TAPPI Official Test Method T412

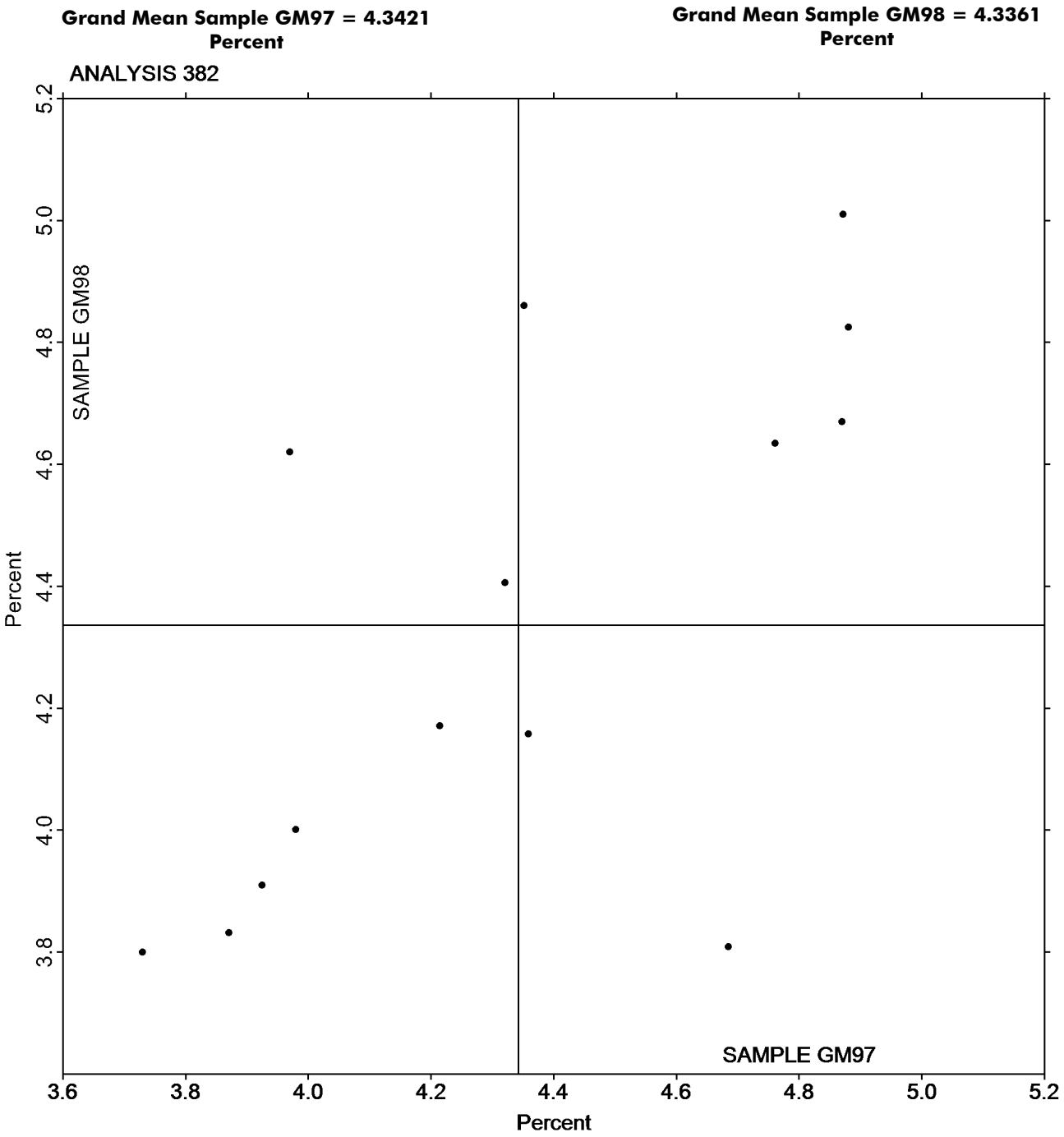
WebCode	Data Flag	Sample GM97 Lab Mean	Sample GM97 Diff from Grand Mean	Sample GM97 CPV	Sample GM98 Lab Mean	Sample GM98 Diff from Grand Mean	Sample GM98 CPV	Instr Code
2KDHM2		4.685	0.343	0.83	3.808	-0.528	-1.22	ZZ
2W76TW		4.761	0.419	1.02	4.634	0.298	0.69	ZZ
2YXZF7		4.352	0.010	0.02	4.860	0.524	1.21	ZZ
6FVFD2		4.870	0.528	1.28	4.670	0.334	0.77	ZZ
9DCURG		3.979	-0.363	-0.88	4.001	-0.335	-0.78	ZZ
CRWNNQ		3.970	-0.372	-0.90	4.620	0.284	0.66	ZZ
CZV789		3.871	-0.471	-1.15	3.832	-0.504	-1.17	ZZ
EUEKB8		3.730	-0.612	-1.49	3.800	-0.536	-1.24	ZZ
GHXCN7		3.925	-0.417	-1.01	3.910	-0.426	-0.99	ZZ
HGKCXP		4.359	0.017	0.04	4.158	-0.178	-0.41	ZZ
JKCVED		4.872	0.530	1.29	5.010	0.674	1.56	ZZ
K3UAC3		4.214	-0.128	-0.31	4.171	-0.165	-0.38	ZZ
PQLXBG		4.321	-0.021	-0.05	4.406	0.070	0.16	ZZ
TD4HUL		4.881	0.539	1.31	4.825	0.489	1.13	ZZ

Summary Statistics	Sample GM97	Sample GM98
Grand Means	4.34 Percent	4.34 Percent
Stnd Dev Btwn Labs	0.41 Percent	0.43 Percent

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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

TAPPI Official Test Method T425

WebCode	Data Flag	Sample GN97 Lab Mean	Sample GN97 Diff from Grand Mean	Sample GN97 CPV	Sample GN98 Lab Mean	Sample GN98 Diff from Grand Mean	Sample GN98 CPV	Instr Code
2F6DUG		93.73	0.32	0.19	93.68	0.17	0.10	ZZ
3MHNL9		93.17	-0.24	-0.14	93.44	-0.07	-0.04	ZZ
6BEGCT		94.63	1.22	0.70	95.31	1.80	1.08	ZZ
8ZTP8F		93.60	0.19	0.11	93.51	0.00	0.00	ZZ
9Z4W3V		97.93	4.52	2.58	97.81	4.30	2.59	ZZ
AYP2JZ		93.70	0.29	0.17	93.74	0.23	0.14	ZZ
BHWQA4		93.06	-0.35	-0.20	93.24	-0.27	-0.16	ZZ
D9MQ6U		92.28	-1.12	-0.64	93.50	-0.01	0.00	ZZ
GXATV8		93.59	0.18	0.10	93.65	0.14	0.09	ZZ
H7ZZKQ	*	93.66	0.25	0.14	92.47	-1.04	-0.63	ZZ
HCNDUR		93.58	0.18	0.10	93.44	-0.07	-0.04	ZZ
KGXD4N		93.16	-0.25	-0.14	93.73	0.22	0.13	ZZ
LKRR3X		88.96	-4.45	-2.54	89.38	-4.13	-2.48	ZZ
LZHWAQ		93.91	0.50	0.29	93.81	0.30	0.18	ZZ
NKF6GL		94.03	0.62	0.36	93.53	0.02	0.01	ZZ
NRYBDR		94.27	0.87	0.49	94.51	1.00	0.60	ZZ
PQLXBG		93.57	0.16	0.09	94.27	0.76	0.46	ZZ
PYCQDF		93.69	0.28	0.16	94.11	0.60	0.36	ZZ
QX2Y7K		93.72	0.31	0.18	93.35	-0.15	-0.09	ZZ
R6TXVW		93.04	-0.36	-0.21	93.31	-0.20	-0.12	ZZ
RW3KQ6		93.55	0.14	0.08	93.70	0.19	0.12	ZZ
TYLRVJ		93.44	0.03	0.02	93.40	-0.11	-0.06	ZZ
WWLPHR	*	87.95	-5.46	-3.12	88.39	-5.12	-3.08	ZZ
YNKCC9		94.08	0.67	0.38	94.01	0.50	0.30	ZZ
Z72MUZ		94.16	0.75	0.43	94.21	0.70	0.42	ZZ
Z9KY9W		94.13	0.72	0.41	93.68	0.17	0.10	ZZ

Summary Statistics	Sample GN97	Sample GN98
Grand Means	93.41 Percent	93.51 Percent
Stnd Dev Btwn Labs	1.75 Percent	1.66 Percent

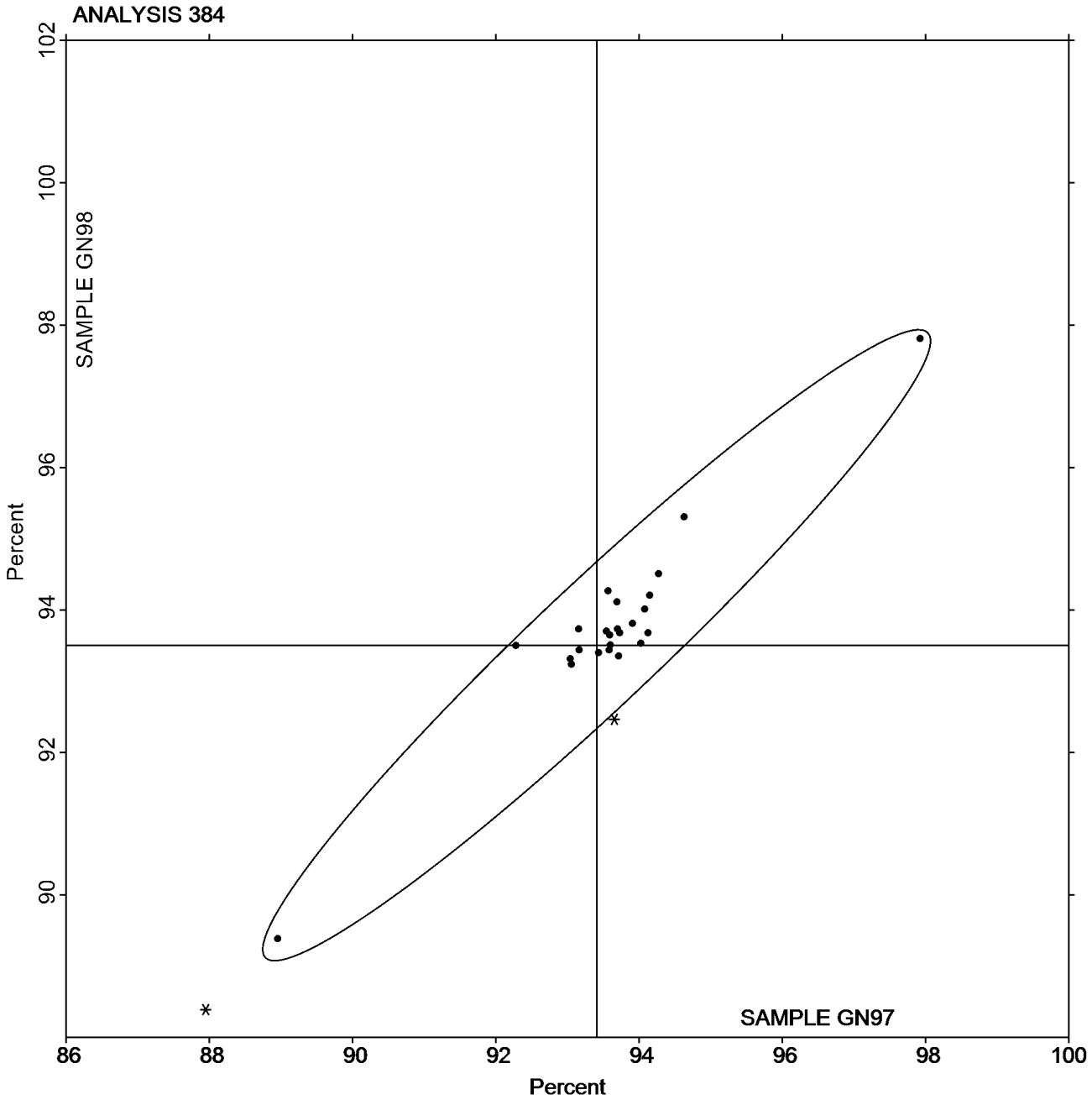
Statistics based on 26 of 26 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GN97 = 93.407 Percent

Grand Mean Sample GN98 = 93.506 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

TAPPI Official Test Method T519

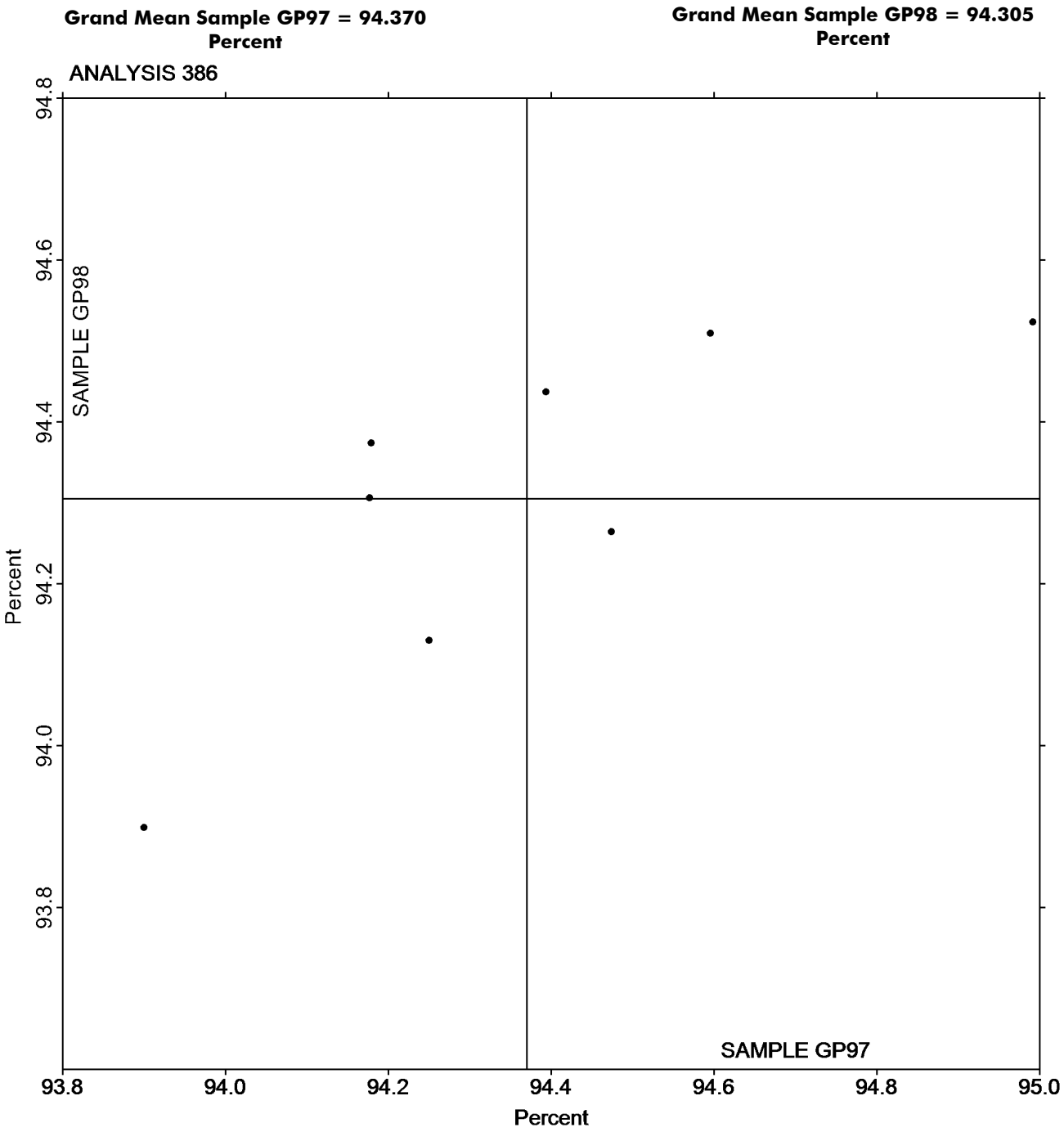
WebCode	Data Flag	Sample GP97 Lab Mean	Sample GP97 Diff from Grand Mean	Sample GP97 CPV	Sample GP98 Lab Mean	Sample GP98 Diff from Grand Mean	Sample GP98 CPV	Instr Code
4FGQCB		94.99	0.62	1.89	94.52	0.22	1.04	ZZ
677PQA		94.39	0.02	0.07	94.44	0.13	0.63	ZZ
C27VQK		94.18	-0.19	-0.58	94.37	0.07	0.33	ZZ
CHD83B		94.18	-0.19	-0.59	94.31	0.00	0.00	ZZ
CKEBRC		94.60	0.23	0.69	94.51	0.20	0.97	ZZ
CZV789		94.47	0.10	0.32	94.26	-0.04	-0.20	ZZ
LNPB4V		93.90	-0.47	-1.43	93.90	-0.41	-1.94	ZZ
W83JPD		94.25	-0.12	-0.37	94.13	-0.18	-0.83	ZZ

Summary Statistics	Sample GP97	Sample GP98
Grand Means	94.37 Percent	94.31 Percent
Stnd Dev Btwn Labs	0.33 Percent	0.21 Percent

Statistics based on 8 of 8 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 390
Directional Brightness
TAPPI Official Test Method T452

Report #3152G, December 2021

WebCode	Data Flag	Sample GR97 Lab Mean	Sample GR97 Diff from Grand Mean	Sample GR97 CPV	Sample GR98 Lab Mean	Sample GR98 Diff from Grand Mean	Sample GR98 CPV	Instr Code
3MHNL9		85.77	0.42	0.20	86.19	0.75	0.35	XC
64EQCB		87.45	2.10	1.00	87.46	2.02	0.95	TP
66CZ8E		86.08	0.73	0.35	85.89	0.45	0.21	TT
6BEGCT		82.32	-3.03	-1.45	82.27	-3.17	-1.50	PP
8ZTP8F		85.24	-0.11	-0.05	85.06	-0.38	-0.18	TS
93BB92		85.66	0.31	0.15	85.55	0.11	0.05	HZ
9Z4W3V		84.93	-0.42	-0.20	84.93	-0.52	-0.24	TS
AYP2JZ		85.33	-0.02	-0.01	85.39	-0.05	-0.02	TP
B74AK3	*	87.60	2.25	1.07	88.42	2.98	1.41	HG
HR2UTG		85.70	0.35	0.17	85.75	0.31	0.15	TP
KGXD4N		85.39	0.04	0.02	85.51	0.07	0.03	TT
KP2XVH	*	78.16	-7.19	-3.44	78.35	-7.09	-3.35	TD
NRYBDR		85.66	0.31	0.15	85.61	0.17	0.08	TS
PXKMQZ	X	68.19	-17.16	-8.21	68.41	-17.03	-8.04	TS
PYCQDF		85.14	-0.21	-0.10	85.15	-0.29	-0.14	XX
RW3KQ6		85.34	-0.01	-0.01	85.48	0.04	0.02	TT
RWMWXQ		85.22	-0.13	-0.06	85.26	-0.18	-0.09	HG
TNK9C4		86.81	1.46	0.70	86.84	1.39	0.66	HG
WWLPHR		88.35	3.00	1.43	88.35	2.91	1.37	PE
YNKCC9		84.99	-0.36	-0.17	85.45	0.01	0.00	TS
YQC9YG		85.87	0.52	0.25	85.91	0.46	0.22	HG

Summary Statistics	Sample GR97	Sample GR98
Grand Means	85.35 Percent	85.44 Percent
Stnd Dev Btwn Labs	2.09 Percent	2.12 Percent

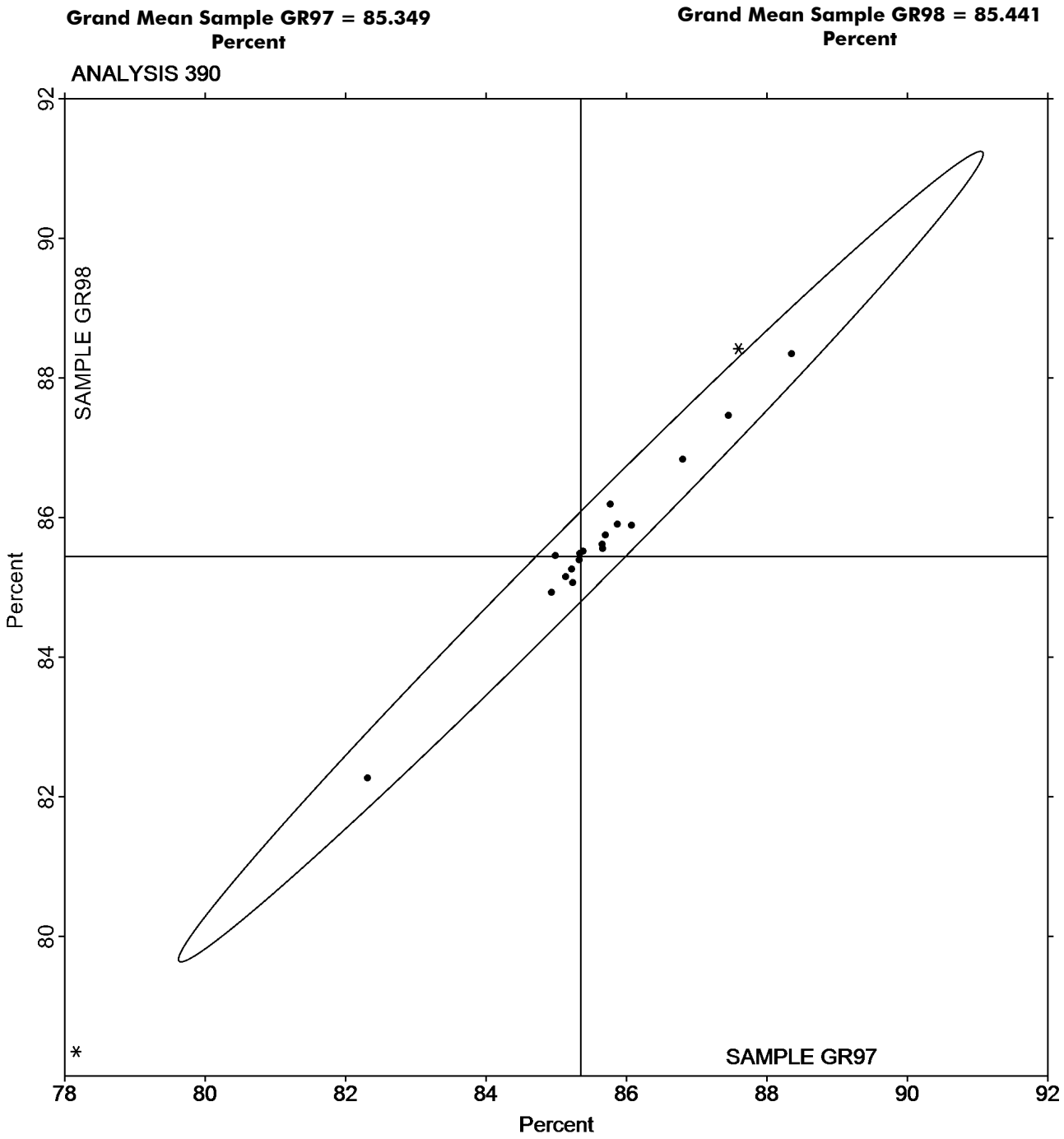
Statistics based on 20 of 21 reporting participants.

Comments on Assigned Data Flags for Test #390

PXKMQZ (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

HG	Hunter Labscan / XE	HZ	Hunter Lab ColorFlex EZ Series
PE	Photovolt 577	PP	Technidyne Profile/Plus
TD	Technidyne Color Touch 45X	TP	Technidyne Test/Plus
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M
XC	X-Rite Color i5	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 391

Directional Brightness of Fluorescent Samples

TAPPI Official Test Method T452

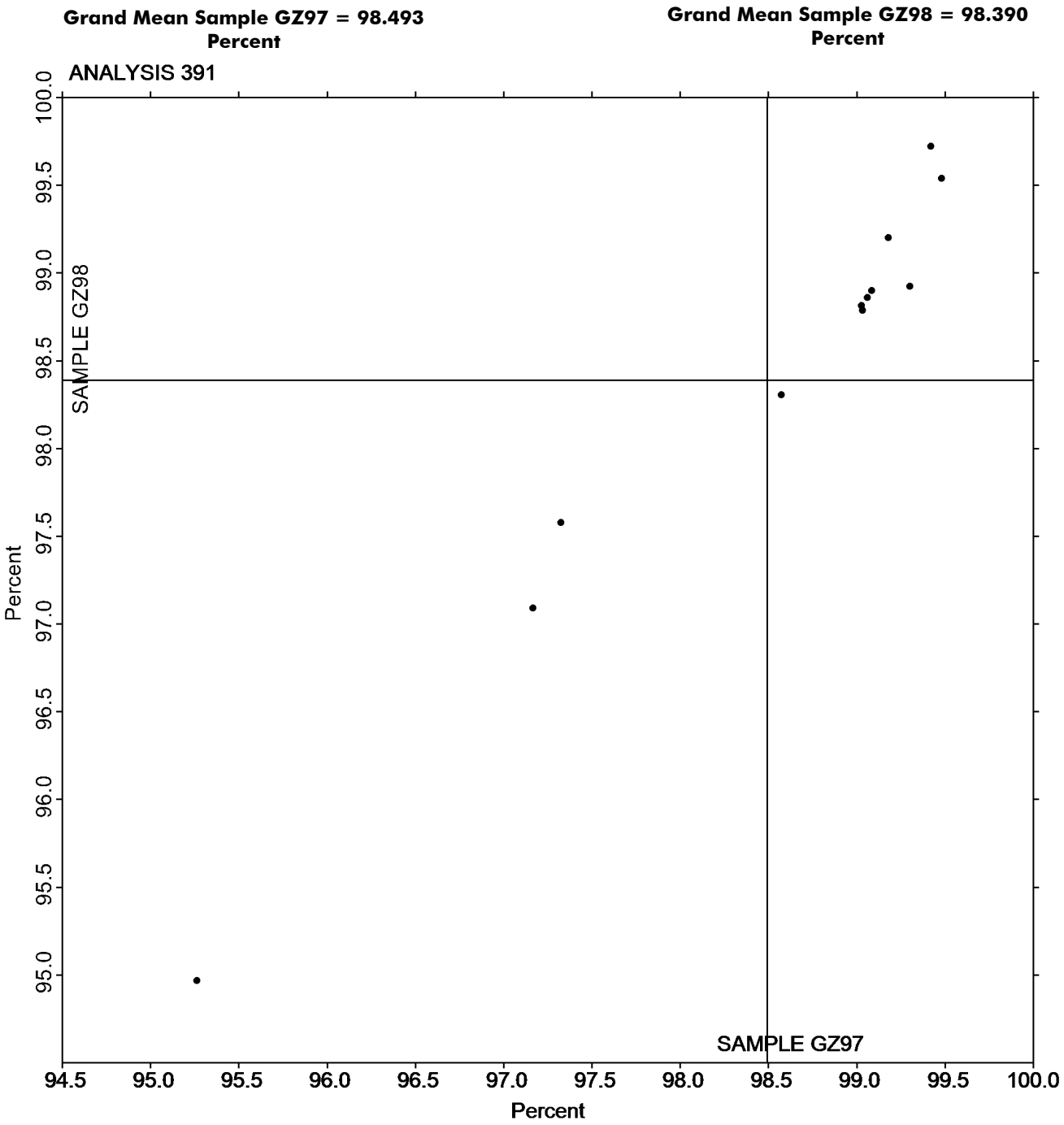
WebCode	Data Flag	Sample GZ97 Lab Mean	Sample GZ97 Diff from Grand Mean	Sample GZ97 CPV	Sample GZ98 Lab Mean	Sample GZ98 Diff from Grand Mean	Sample GZ98 CPV	Instr Code
2F6DUG		95.26	-3.23	-2.54	94.97	-3.42	-2.61	TS
8ZTP8F		99.08	0.59	0.47	98.90	0.51	0.39	TS
AYP2JZ		99.03	0.54	0.42	98.81	0.42	0.32	PP
BHWQA4		99.18	0.69	0.54	99.20	0.81	0.62	TS
D9MQ6U		99.42	0.93	0.73	99.72	1.33	1.01	TT
ERTN2V		97.17	-1.33	-1.04	97.09	-1.30	-0.99	LE
H7ZZKQ		99.06	0.57	0.45	98.86	0.47	0.36	PP
HCNDUR		99.03	0.54	0.42	98.79	0.40	0.30	TS
LKRR3X		99.48	0.99	0.78	99.54	1.15	0.88	TT
LZHWAQ		97.32	-1.17	-0.92	97.58	-0.81	-0.62	PP
PQLXBG		99.30	0.81	0.64	98.92	0.53	0.41	TS
Z72MUZ		98.57	0.08	0.06	98.30	-0.09	-0.07	TS

Summary Statistics	Sample GZ97	Sample GZ98
Grand Means	98.49 Percent	98.39 Percent
Stnd Dev Btwn Labs	1.27 Percent	1.31 Percent

Statistics based on 12 of 12 reporting participants.

Key to Instrument Codes Reported by Participants

LE	L & W Elrepho	PP	Technidyne Profile/Plus
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M



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
TAPPI Official Test Method T525

WebCode	Data Flag	Sample GR97 Lab Mean	Sample GR97 Diff from Grand Mean	Sample GR97 CPV	Sample GR98 Lab Mean	Sample GR98 Diff from Grand Mean	Sample GR98 CPV	Instr Code
64EQCB		85.69	0.04	0.13	85.69	0.07	0.22	TC
66CZ8E		85.75	0.09	0.31	85.72	0.10	0.32	EG
677PQA		85.81	0.15	0.51	85.78	0.15	0.51	TC
6QD44U		85.78	0.12	0.40	85.85	0.23	0.76	LE
B2TW34		85.59	-0.06	-0.21	85.52	-0.10	-0.33	TC
CHD83B		85.72	0.07	0.23	85.63	0.01	0.02	LA
CKEBRC		85.21	-0.44	-1.49	85.23	-0.39	-1.31	AC
CZV789		85.53	-0.13	-0.42	85.48	-0.15	-0.49	LE
HR2UTG		85.76	0.11	0.37	85.73	0.10	0.35	LT
JKCVED	*	84.81	-0.85	-2.84	84.80	-0.82	-2.76	LE
LNPB4V		85.62	-0.04	-0.12	85.65	0.02	0.08	LE
NKF6GL	X	68.53	-17.12	-57.42	68.80	-16.82	-56.26	TC
NRYBDR		85.67	0.02	0.06	85.65	0.02	0.08	TC
NUQ4DH		85.64	-0.01	-0.05	85.63	0.00	0.01	TC
TNK9C4	*	85.94	0.29	0.96	85.62	-0.01	-0.02	TC
TQTEWK		85.99	0.33	1.11	85.95	0.32	1.08	TC
WUXKG8		85.51	-0.15	-0.49	85.48	-0.14	-0.47	XX
YNKCC9		86.11	0.46	1.53	86.21	0.58	1.95	LT

Summary Statistics	Sample GR97	Sample GR98
Grand Means	85.65 Percent	85.62 Percent
Stnd Dev Btwn Labs	0.30 Percent	0.30 Percent

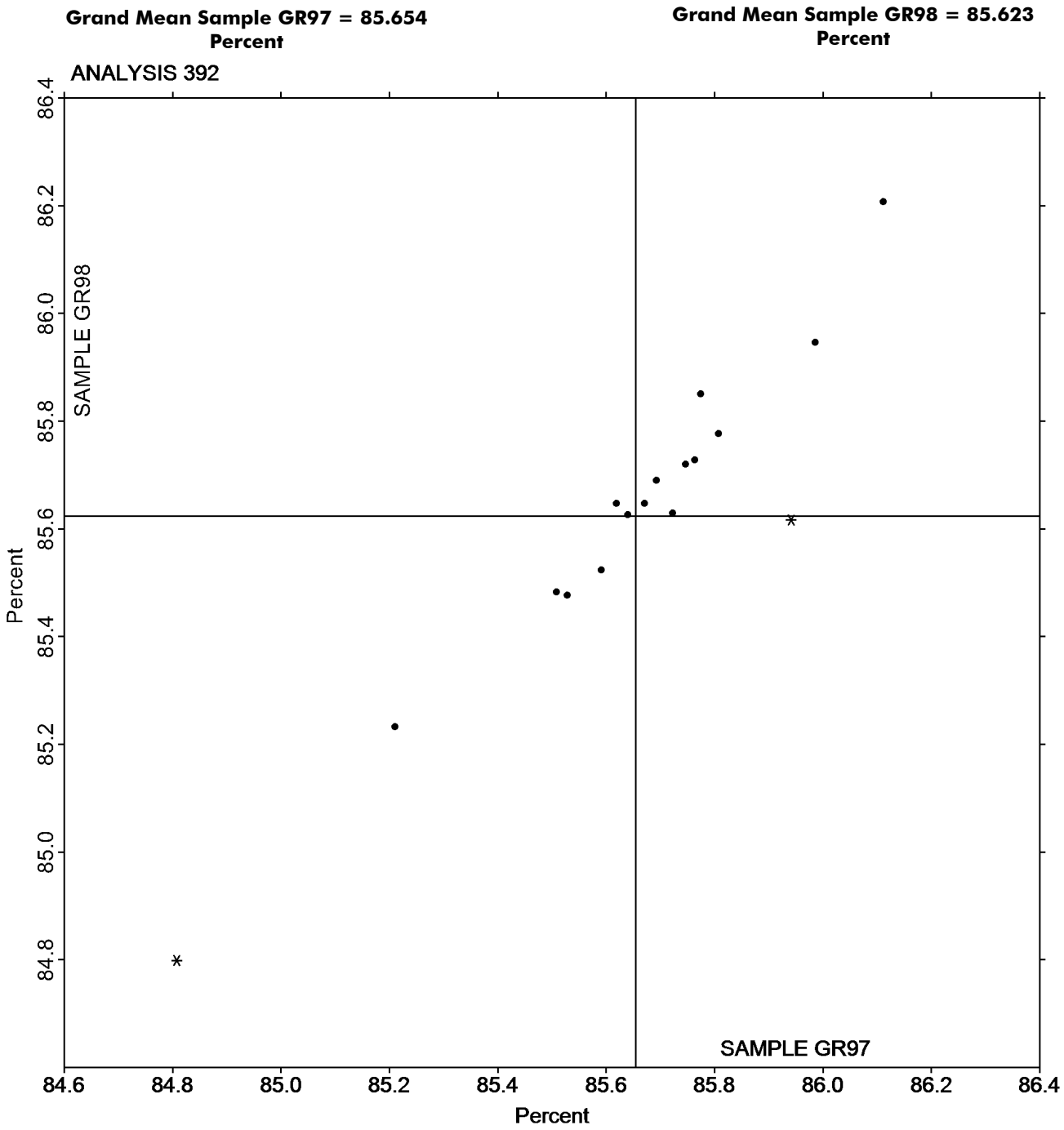
Statistics based on 17 of 18 reporting participants.

Comments on Assigned Data Flags for Test #392

NKF6GL (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

AC	ACS Spectro-Sensor II	EG	Datacolor Elrepho 450X
LA	L & W Elrepho - Autoline	LE	L & W Elrepho
LT	L & W Elrepho SE 071	TC	Technidyne Color Touch Series
XX	Instrument make/model not specified by lab		



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 394

Fluorescent Component of Directional Brightness

TAPPI Official Test Method T452

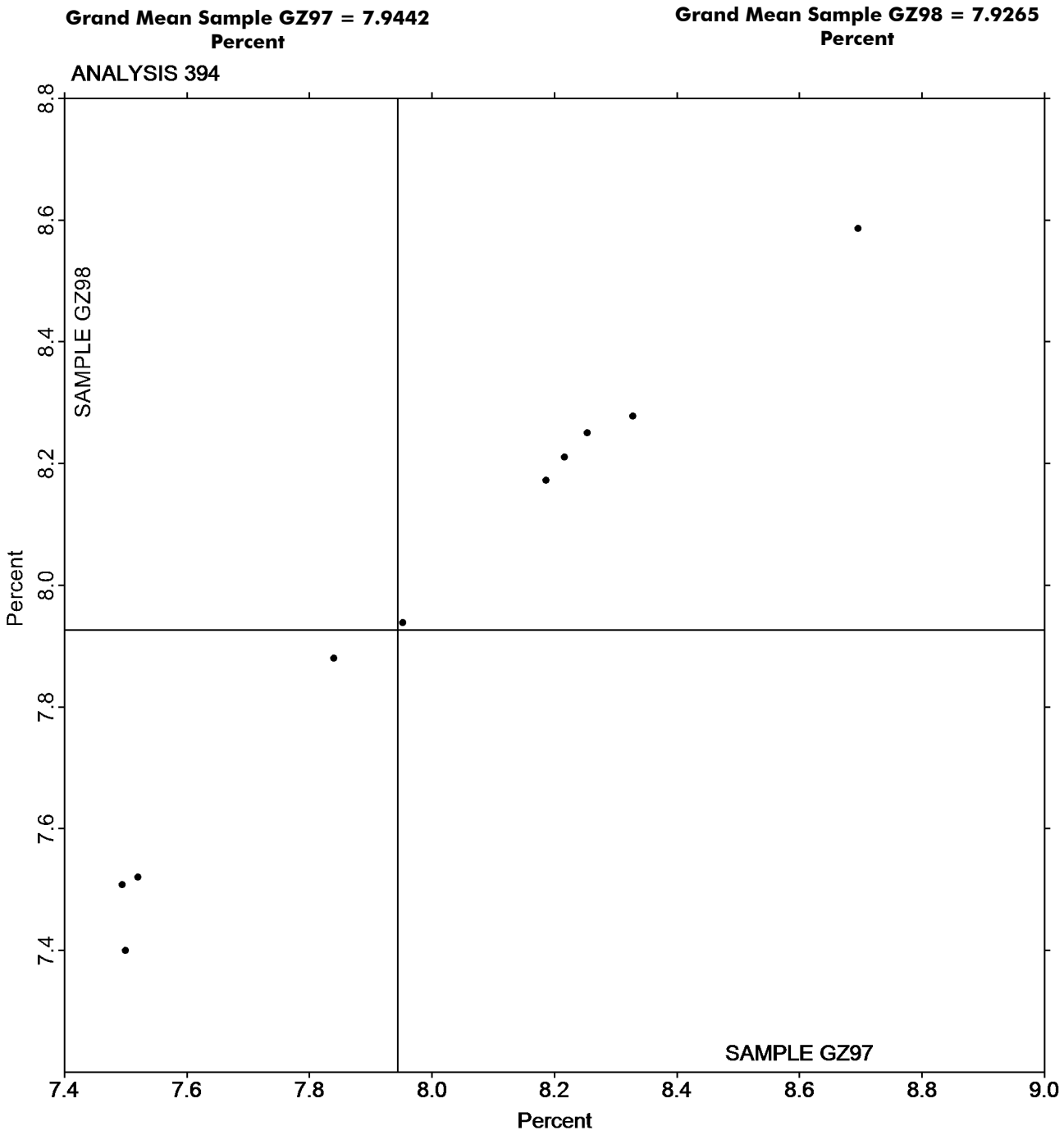
WebCode	Data Flag	Sample GZ97 Lab Mean	Sample GZ97 Diff from Grand Mean	Sample GZ97 CPV	Sample GZ98 Lab Mean	Sample GZ98 Diff from Grand Mean	Sample GZ98 CPV	Instr Code
2F6DUG		8.328	0.384	0.90	8.278	0.351	0.87	TS
8ZTP8F		8.254	0.310	0.72	8.250	0.323	0.80	TS
AYP2JZ		8.186	0.242	0.57	8.172	0.245	0.60	XX
D9MQ6U		7.520	-0.424	-0.99	7.520	-0.407	-1.00	TT
ERTN2V		8.216	0.272	0.64	8.210	0.283	0.70	LE
H7ZZKQ		7.840	-0.104	-0.24	7.880	-0.047	-0.11	PP
HCNDUR		7.952	0.008	0.02	7.938	0.011	0.03	TS
LKRR3X		7.500	-0.444	-1.04	7.400	-0.527	-1.30	TT
LZHWAQ		7.400	-0.544	-1.27	7.450	-0.477	-1.17	PP
PQLXBG		8.696	0.752	1.76	8.586	0.659	1.62	TS
Z72MUZ		7.494	-0.450	-1.05	7.508	-0.419	-1.03	TS

Summary Statistics	Sample GZ97	Sample GZ98
Grand Means	7.94 Percent	7.93 Percent
Stnd Dev Btwn Labs	0.43 Percent	0.41 Percent

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

LE	L & W Elrepho	PP	Technidyne Profile/Plus
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M
XX	Instrument make/model not specified by lab		



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

TAPPI Official Test Method T480

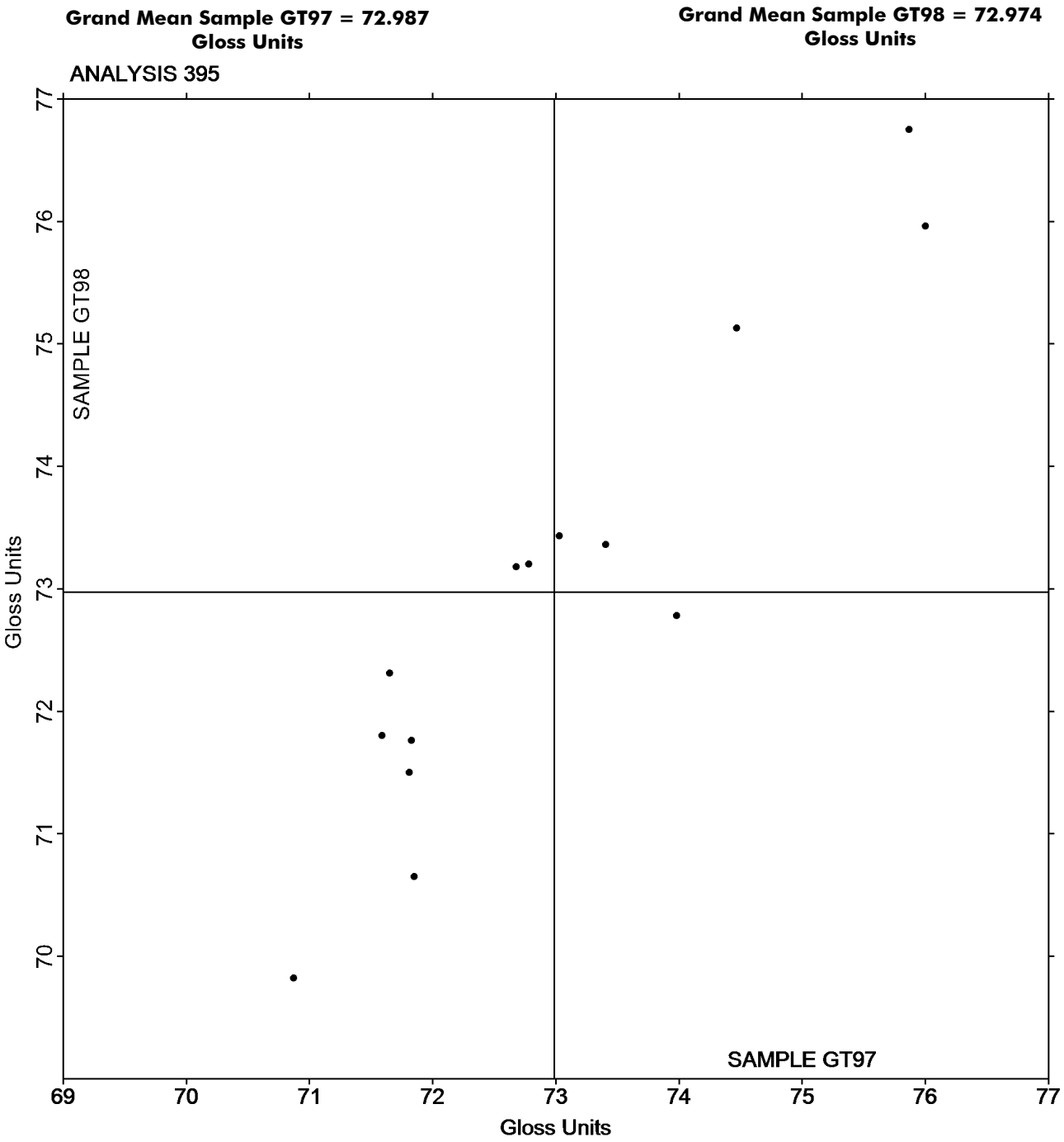
WebCode	Data Flag	Sample GT97 Lab Mean	Sample GT97 Diff from Grand Mean	Sample GT97 CPV	Sample GT98 Lab Mean	Sample GT98 Diff from Grand Mean	Sample GT98 CPV	Instr Code
64EQCB		71.59	-1.40	-0.88	71.80	-1.17	-0.60	GM
66CZ8E		74.47	1.48	0.93	75.13	2.16	1.11	TH
7C7ME6		73.98	0.99	0.62	72.78	-0.19	-0.10	VM
9Z4W3V		71.81	-1.18	-0.74	71.50	-1.47	-0.76	LA
CKEBRC		75.87	2.88	1.81	76.75	3.78	1.94	LB
DMNHU6		72.68	-0.31	-0.19	73.18	0.21	0.11	LG
E38ZUJ		76.00	3.01	1.89	75.96	2.99	1.54	LF
HR2UTG		70.87	-2.12	-1.33	69.82	-3.15	-1.62	GA
LZHWAQ		72.78	-0.21	-0.13	73.20	0.23	0.12	PP
P3DM6V		71.65	-1.34	-0.84	72.31	-0.66	-0.34	XX
RW3KQ6		73.41	0.42	0.26	73.36	0.39	0.20	TH
RWMWXQ		71.83	-1.16	-0.72	71.76	-1.21	-0.62	PP
YQC9YG		71.85	-1.14	-0.71	70.65	-2.32	-1.20	PP
Z72MUZ		73.03	0.04	0.03	73.43	0.46	0.23	LF

Summary Statistics	Sample GT97	Sample GT98
Grand Means	72.99 Gloss Units	72.97 Gloss Units
Stnd Dev Btwn Labs	1.60 Gloss Units	1.94 Gloss Units

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

GA	BYK-Gardner (model not specified)	GM	BYK-Gardner micro-gloss
LA	L & W Gloss - Autoline 300	LB	L & W Gloss Tester Code 224
LF	L & W Autoline 400	LG	L & W Autoline 600
PP	Technidyne Profile/Plus	TH	Technidyne T480A
VM	Valmet PaperLab (was Kajaani/Robotest)	XX	Instrument make/model not specified by lab



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

TAPPI Official Test Method T480

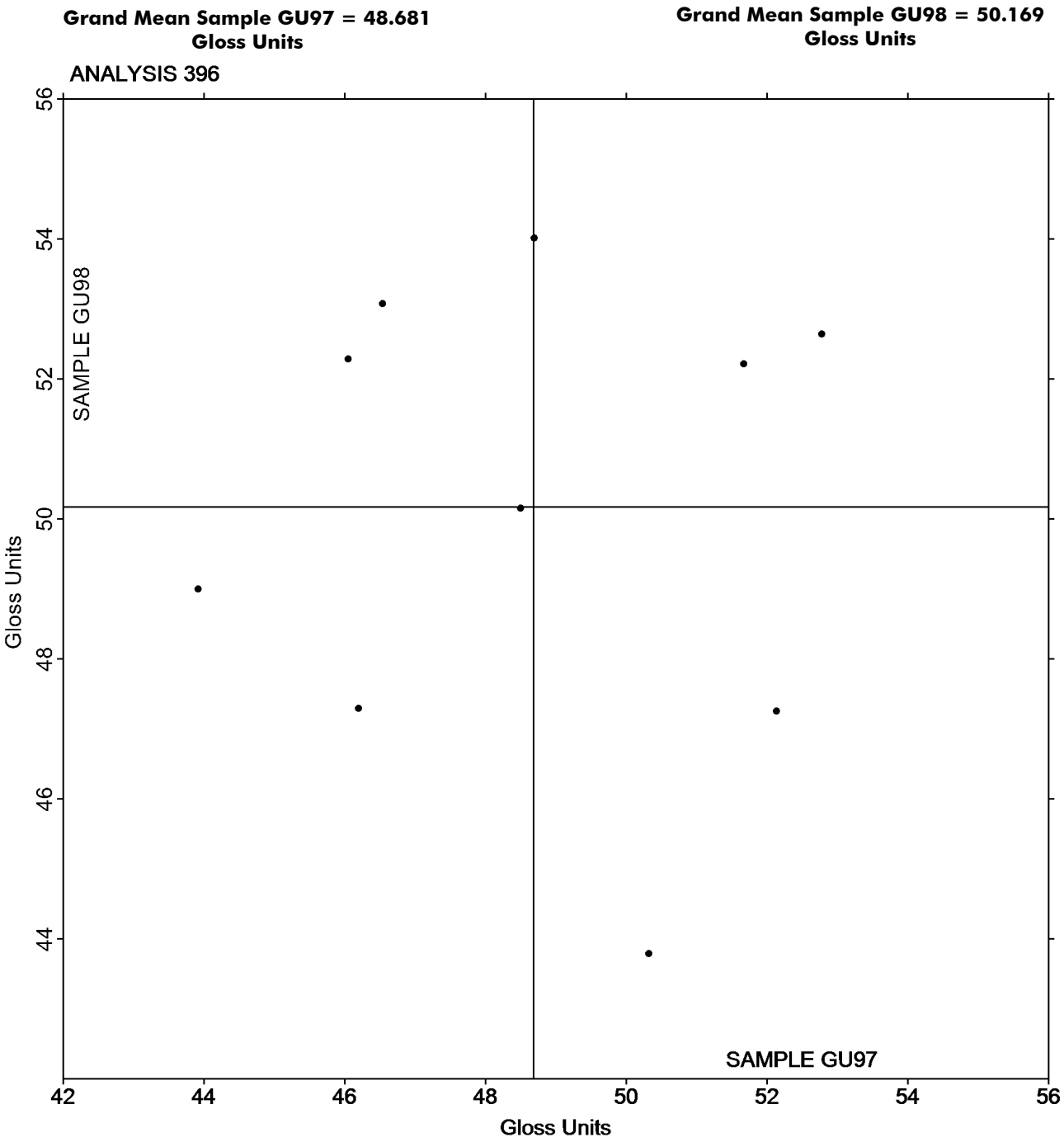
WebCode	Data Flag	Sample GU97 Lab Mean	Sample GU97 Diff from Grand Mean	Sample GU97 CPV	Sample GU98 Lab Mean	Sample GU98 Diff from Grand Mean	Sample GU98 CPV	Instr Code
3MHNL9		46.20	-2.48	-0.83	47.29	-2.88	-0.88	TH
4JW9MZ		46.54	-2.14	-0.71	53.07	2.90	0.88	GM
93BB92		52.78	4.10	1.37	52.64	2.47	0.75	GS
9DCURG		43.92	-4.76	-1.59	49.00	-1.17	-0.36	WJ
CKEBRC		48.50	-0.18	-0.06	50.15	-0.02	-0.01	LA
JKCVED		50.32	1.64	0.55	43.79	-6.38	-1.95	TH
KGXD4N		52.14	3.45	1.15	47.25	-2.92	-0.89	TH
NKF6GL		51.67	2.99	1.00	52.21	2.04	0.62	TH
QX2Y7K		46.05	-2.63	-0.88	52.28	2.11	0.64	PP
TNK9C4		48.69	0.01	0.00	54.01	3.84	1.17	PP

Summary Statistics	Sample GU97	Sample GU98
Grand Means	48.68 Gloss Units	50.17 Gloss Units
Stnd Dev Btwn Labs	2.99 Gloss Units	3.28 Gloss Units

Statistics based on 10 of 10 reporting participants.

Key to Instrument Codes Reported by Participants

GM	BYK-Gardner micro-gloss	GS	BYK-Gardner Glossgard II
LA	L & W Gloss - Autoline 300	PP	Technidyne Profile/Plus
TH	Technidyne T480A	WJ	Zehntner ZLR 1020



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)

TAPPI Official Test Method T410

WebCode	Data Flag	Sample GW97 Lab Mean	Sample GW97 Diff from Grand Mean	Sample GW97 CPV	Sample GW98 Lab Mean	Sample GW98 Diff from Grand Mean	Sample GW98 CPV	Instr Code
2F6DUG		104.6	1.2	1.89	75.77	0.54	1.13	ZZ
2W76TW	*	103.6	0.1	0.24	76.38	1.15	2.39	ZZ
2YXZF7		103.5	0.0	0.03	75.64	0.41	0.86	ZZ
3MHNL9		103.4	0.0	-0.03	75.62	0.39	0.81	ZZ
4FGQCB		102.9	-0.6	-0.92	74.75	-0.48	-1.00	ZZ
6JUQ92		104.1	0.6	1.00	75.86	0.63	1.31	ZZ
9DCURG		103.5	0.0	0.02	75.14	-0.10	-0.20	ZZ
AA6XFR	*	103.9	0.4	0.69	74.19	-1.04	-2.16	ZZ
B74AK3		103.2	-0.2	-0.37	75.33	0.10	0.21	ZZ
BHWQA4		103.5	0.1	0.09	75.04	-0.19	-0.39	ZZ
CKEBRC		103.2	-0.2	-0.38	75.00	-0.23	-0.48	ZZ
CZV789		104.5	1.0	1.64	75.50	0.27	0.56	ZZ
G74YQU		103.5	0.0	0.05	75.19	-0.04	-0.09	ZZ
GHXCN7		103.7	0.3	0.49	75.29	0.06	0.12	ZZ
GXATV8		102.8	-0.7	-1.08	74.54	-0.69	-1.43	ZZ
HGKCXP		103.0	-0.4	-0.68	75.19	-0.04	-0.09	ZZ
HWT43E		104.6	1.1	1.85	75.72	0.49	1.02	ZZ
JKCVED		103.0	-0.5	-0.77	75.20	-0.03	-0.06	ZZ
K3UAC3		104.1	0.6	1.00	75.72	0.49	1.02	ZZ
KGXD4N		104.1	0.7	1.07	75.58	0.35	0.72	ZZ
NKF6GL		102.6	-0.9	-1.41	74.36	-0.87	-1.81	ZZ
NUQ4DH	X	5.2	-98.3	-160.03	3.78	-71.45	-148.35	ZZ
PJMK6L		102.4	-1.0	-1.70	74.66	-0.57	-1.18	ZZ
PYCQDF	X	112.1	8.6	14.02	82.35	7.12	14.78	ZZ
QHMZT7		103.4	-0.1	-0.14	75.08	-0.15	-0.31	ZZ
TD4HUL		103.5	0.0	0.05	75.32	0.09	0.18	ZZ
TYLRVJ		103.7	0.2	0.40	75.31	0.08	0.17	ZZ
VUHHUG		103.5	0.0	0.06	74.80	-0.43	-0.89	ZZ
W83JPD		102.7	-0.8	-1.26	75.04	-0.19	-0.39	ZZ
Z9KY9W		102.3	-1.1	-1.83	75.22	-0.01	-0.02	ZZ

Summary Statistics	Sample GW97	Sample GW98
Grand Means	103.44 g/sq m	75.23 g/sq m
Stnd Dev Btwn Labs	0.61 g/sq m	0.48 g/sq m

Statistics based on 28 of 30 reporting participants.

Comments on Assigned Data Flags for Test #398

NUQ4DH (X) - Extreme Data.

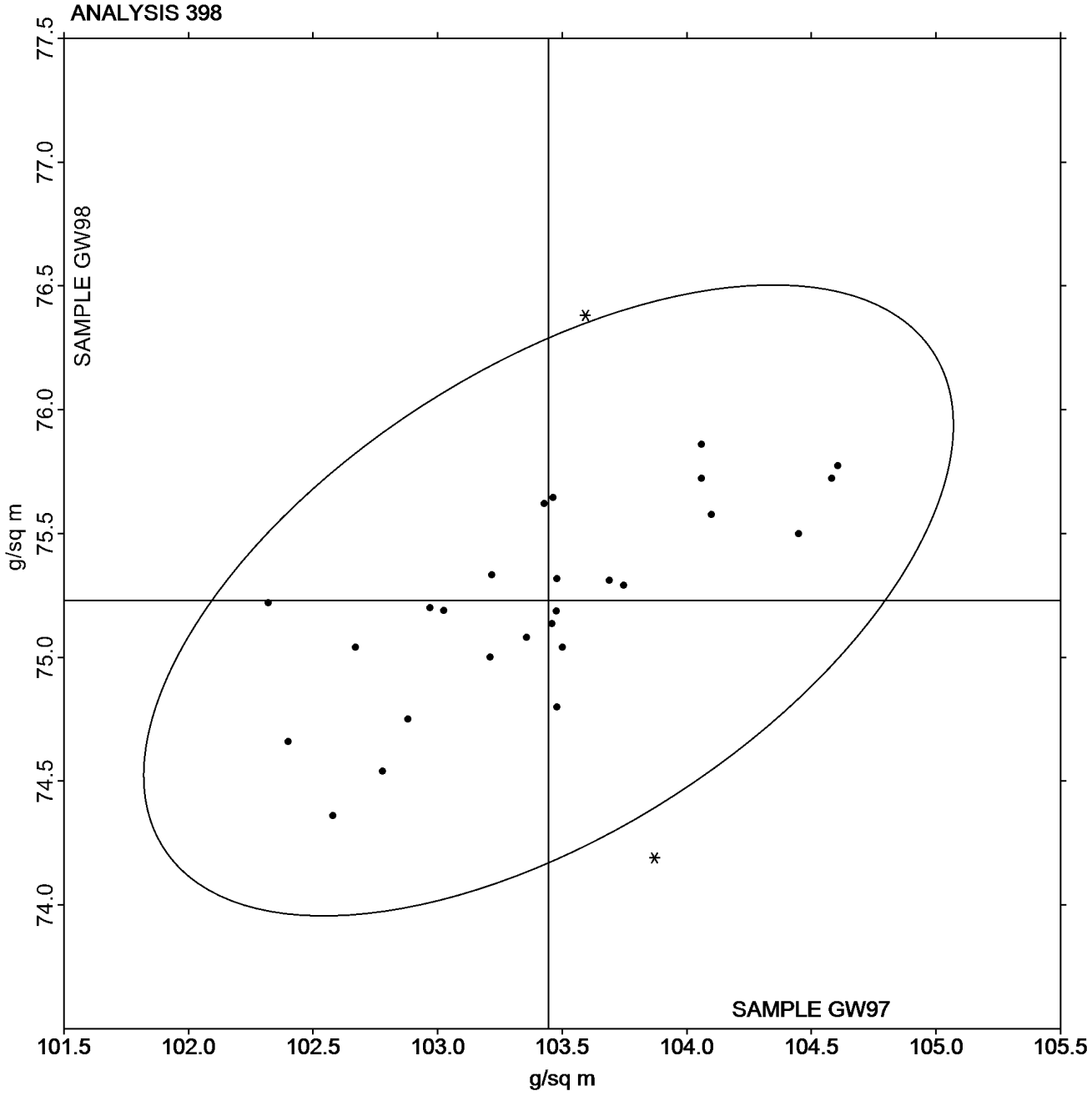
PYCQDF (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GW97 = 103.44 g/sq m

Grand Mean Sample GW98 = 75.230 g/sq m



Paper & Paperboard Interlaboratory Testing Program

Analysis 399
Sizing Test (Hercules Type)
TAPPI Official Test Method T530

WebCode	Data Flag	Sample GX97 Lab Mean	Sample GX97 Diff from Grand Mean	Sample GX97 CPV	Sample GX98 Lab Mean	Sample GX98 Diff from Grand Mean	Sample GX98 CPV	Instr Code
4JW9MZ		13.79	2.80	1.11	13.16	2.20	0.96	HE
4W48F8		10.29	-0.70	-0.28	11.08	0.12	0.05	HE
677PQA		8.46	-2.53	-1.01	8.05	-2.91	-1.26	HE
6BEGCT	X	16.67	5.68	2.26	12.49	1.53	0.67	HE
7C7ME6		9.68	-1.31	-0.52	9.72	-1.24	-0.54	HE
7WAFCW		9.80	-1.19	-0.47	10.20	-0.76	-0.33	HE
8ZTP8F		10.72	-0.27	-0.11	10.46	-0.50	-0.22	HE
AJVLBU		10.48	-0.51	-0.20	10.73	-0.23	-0.10	HE
AYP2JZ		16.62	5.63	2.24	15.82	4.86	2.12	HE
BHWQA4		8.90	-2.09	-0.83	10.10	-0.86	-0.37	HE
CM9YCT		9.77	-1.22	-0.49	8.96	-2.00	-0.87	HE
D9MQ6U		9.00	-1.99	-0.79	9.40	-1.56	-0.68	HE
GUCGTF		11.36	0.37	0.15	10.94	-0.02	-0.01	HE
H7ZZKQ	X	20.93	9.94	3.95	21.76	10.80	4.70	HE
HCNDUR		10.36	-0.63	-0.25	11.13	0.17	0.08	HE
HTEGBV		7.43	-3.56	-1.42	7.25	-3.71	-1.61	HE
NCLYLY		10.81	-0.18	-0.07	10.39	-0.57	-0.25	HE
NKF6GL		14.27	3.28	1.30	14.78	3.82	1.66	HE
NRYBDR		13.21	2.22	0.88	12.55	1.59	0.69	HE
P3DM6V		11.05	0.06	0.02	9.95	-1.01	-0.44	HE
PQLXBG		11.75	0.76	0.30	11.93	0.97	0.42	HE
PYCQDF		11.67	0.68	0.27	12.63	1.67	0.73	XX
QX2Y7K		13.57	2.58	1.02	13.40	2.44	1.06	HE
TQTEWK		8.82	-2.17	-0.86	9.08	-1.88	-0.82	HE
TYLRVJ		10.22	-0.77	-0.31	9.72	-1.24	-0.54	HE
WWLPHR	*	17.88	6.89	2.74	16.55	5.59	2.44	HE
WYUZCA		8.18	-2.81	-1.12	9.11	-1.85	-0.80	HE
YNKCC9		8.31	-2.68	-1.07	7.97	-2.99	-1.30	HE
Z72MUZ		10.40	-0.59	-0.24	10.74	-0.22	-0.09	HE

Summary Statistics	Sample GX97	Sample GX98
Grand Means	10.99 Seconds	10.96 Seconds
Stnd Dev Btwn Labs	2.52 Seconds	2.30 Seconds

Statistics based on 27 of 29 reporting participants.

Comments on Assigned Data Flags for Test #399

6BEGCT (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample GX97.

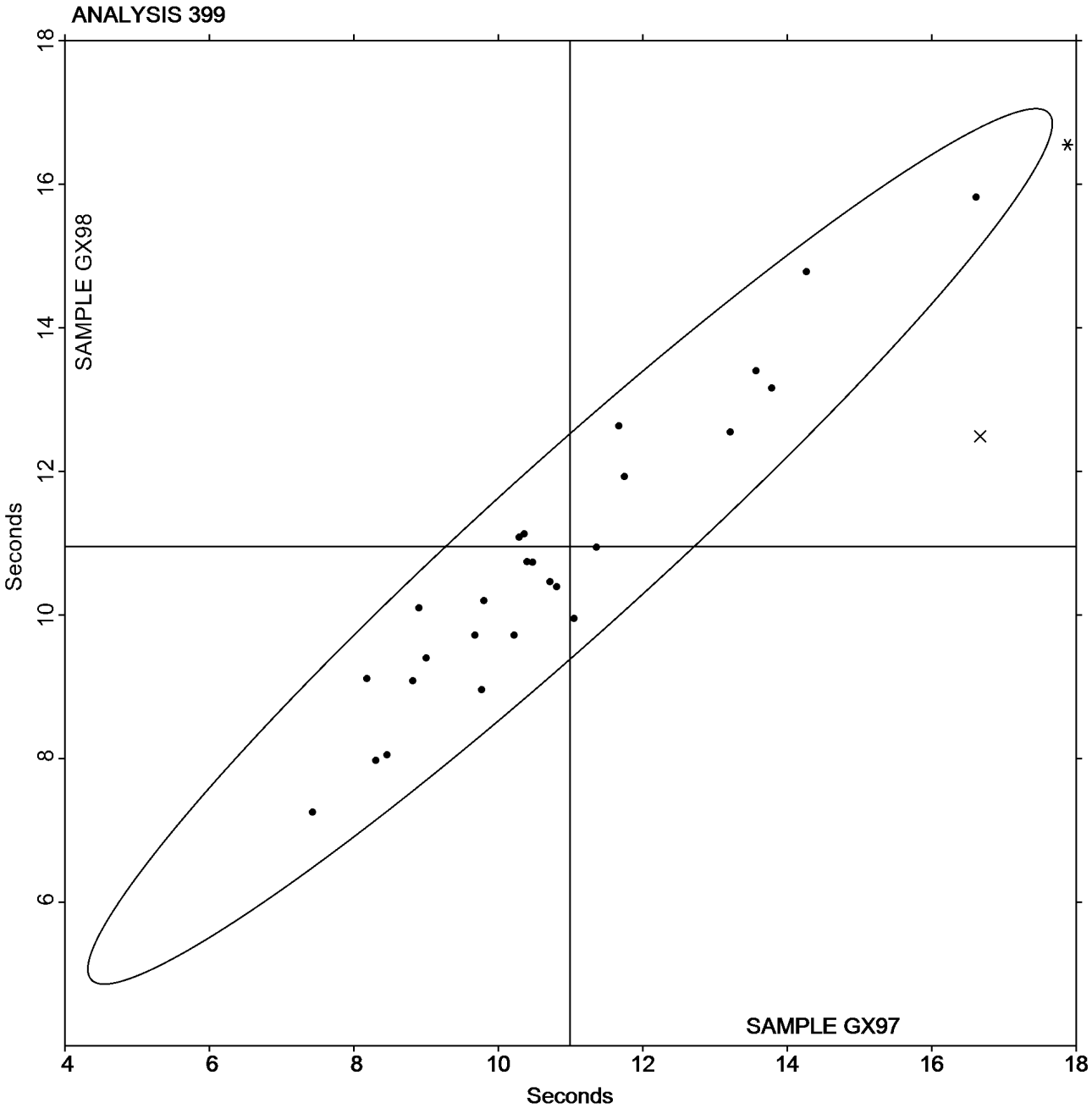
H7ZZKQ (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

HE	Hercules Sizing Tester	XX	Instrument make/model not specified by lab

Grand Mean Sample GX97 = 10.993 Seconds

Grand Mean Sample GX98 = 10.956 Seconds



-End of Report-