Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #2952 G - August 2018

Analysis	Analysis Name
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351	Color & Color Difference - Near White Papers - D65/10deg obs
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361	Thickness (Caliper), Packaging papers
364	Coefficient of Static Friction - Horizontal Plane Method - Printing Papers
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370	Air Resistance - Gurley Oil Type
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382	Moisture in Paper
384	Opacity (89% Reflectance Backing) - Fine Papers
386	Opacity (Paper Backing) - Fine Papers and Newsprint
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398	Grammage (Mass per Unit Area)
399	Sizing Test (Hercules Type)

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
2ETEWH		GA57	95.95	-0.67	3.04	0.38	0.01	-0.13	0.40	XS
		GA58	96.33	-0.66	2.92					
36YT4P		GA57	95.22	-0.46	3.86	0.38	-0.09	-0.04	0.39	NE
		GA58	95.60	-0.55	3.82					
8M3U6D		GA57	95.08	-0.79	3.90	0.31	0.00	-0.06	0.32	EH
		GA58	95.39	-0.79	3.84					
8XNXBR		GA57	94.61	-0.68	3.64	0.38	0.04	-0.04	0.38	HE
		GA58	94.99	-0.64	3.60					
FAM2MX		GA57	93.31	-0.94	3.33	0.88	0.10	0.41	0.98 X	XX
		GA58	94.19	-0.84	3.74					
FDPWCR		GA57	92.81	-0.12	3.55	0.35	-0.10	-0.10	0.38	TS
		GA58	93.16	-0.21	3.45					
FP4RUC		GA57	93.26	-0.40	3.60	0.33	-0.13	-0.10	0.37	TS
		GA58	93.60	-0.53	3.50					
KLT9YZ		GA57	93.63	-0.81	3.90	0.40	0.00	-0.04	0.40	LA
		GA58	94.03	-0.81	3.86					
KYPQ46		GA57	95.09	-0.81	3.79	0.22	0.15	0.14	0.30	EH
		GA58	95.30	-0.66	3.92					
LTLZHD	X	GA57	93.12	0.06	3.41	0.35	-0.07	-0.05	0.36	TS
		GA58	93.47	-0.01	3.37					
MY7ELB		GA57	94.51	-0.76	3.23	0.35	0.01	-0.04	0.35	HE
		GA58	94.86	-0.75	3.19					
MYJWW4		GA57	94.60	-0.97	3.74	0.05	-0.01	-0.46	0.47	LS
		GA58	94.65	-0.98	3.27					
PWRUQ7		GA57	94.09	-1.05	4.00	0.05	0.16	-0.27	0.32	HG
		GA58	94.13	-0.89	3.73					
RANQ24		GA57	93.76	-0.79	3.87	0.41	0.01	-0.08	0.42	TC
		GA58	94.17	-0.78	3.79					
RJEB6G		GA57	94.80	-0.93	3.42	-0.04	0.00	-0.39	0.39	LA
		GA58	94.76	-0.93	3.03					
RPHFWZ		GA57	93.84	-0.73	4.16	0.61	0.02	0.08	0.62	HH
		GA58	94.45	-0.71	4.24					

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
UKZWQ3		GA57	94.19	-0.70	3.38	0.37	0.02	-0.07	0.38	HE
		GA58	94.56	-0.68	3.31					
WNCL6W		GA57	95.14	-0.70	3.71	0.34	-0.03	-0.03	0.34	TC
		GA58	95.48	-0.72	3.68					
WYDM6V		GA57	95.06	-0.83	3.87	0.29	0.00	-0.04	0.29	LS
		GA58	95.35	-0.82	3.83					
XA8K6Z		GA57	93.65	-0.69	3.70	0.48	-0.06	-0.06	0.49	TS
		GA58	94.13	-0.75	3.64					

Summary Statistics

Grand Means							
GA57	94.285	-0.728	3.655	0.345	0.005	-0.070	0.421
GA58	94.630	-0.722	3.586				
Stnd Dev Btwn Labs							
GA57	0.848	0.216	0.284	0.202	0.073	0.183	0.154
GA58	0.801	0.171	0.329				

Statistics based on 19 of 20 reporting participants

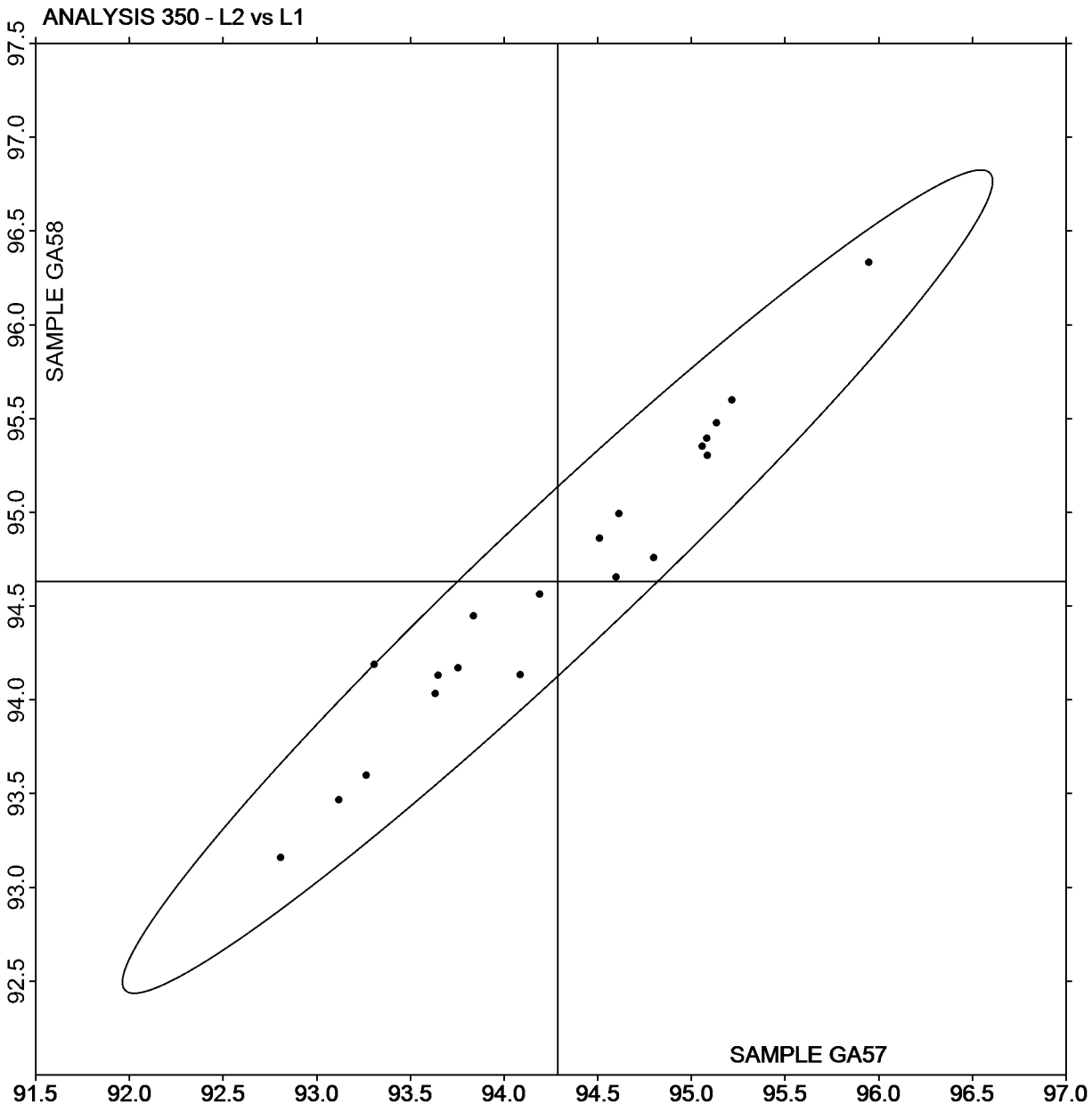
Comments on Assigned Data Flags for Test #350

LTLZHD (X) - High "a"values for both samples. Inconsistent within "a" values for Sample GA58.

Key to Instrument Codes Reported by Participants

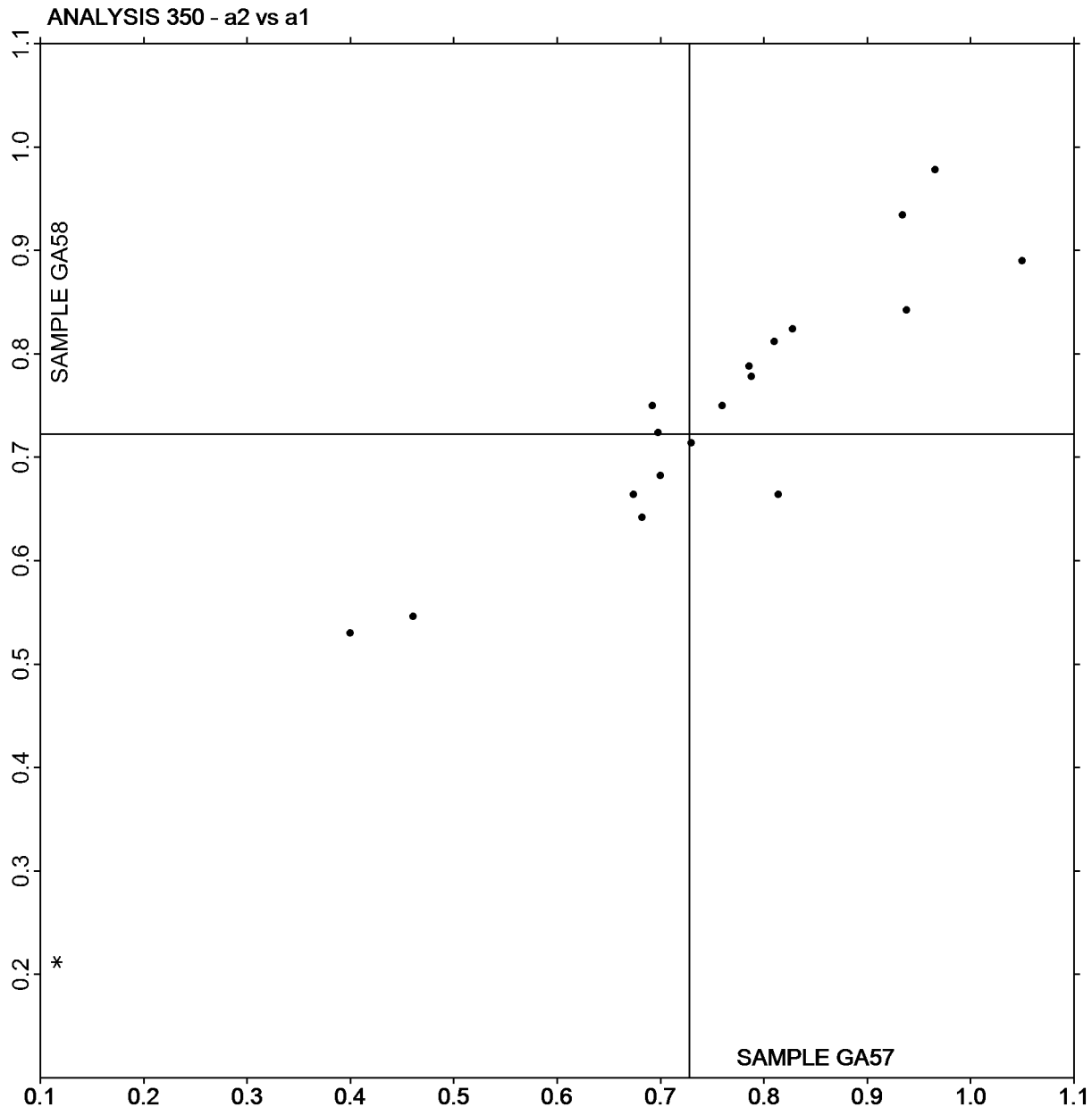
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
HG	Hunter ColorQUEST	HH	Hunter D25DP - 9000
LA	L & W Elrepho AL300	LS	L & W Elrepho SE 070
NE	Minolta CM-3500d Spectrophotometer	TC	Technidyne Color Touch Series
TS	Technidyne Brightimeter Micro S-5	XS	X-Rite 938 Spectrodensitometer
XX	Instrument make/model not specified by lab		

Plot of L values GA58 v L values GA57



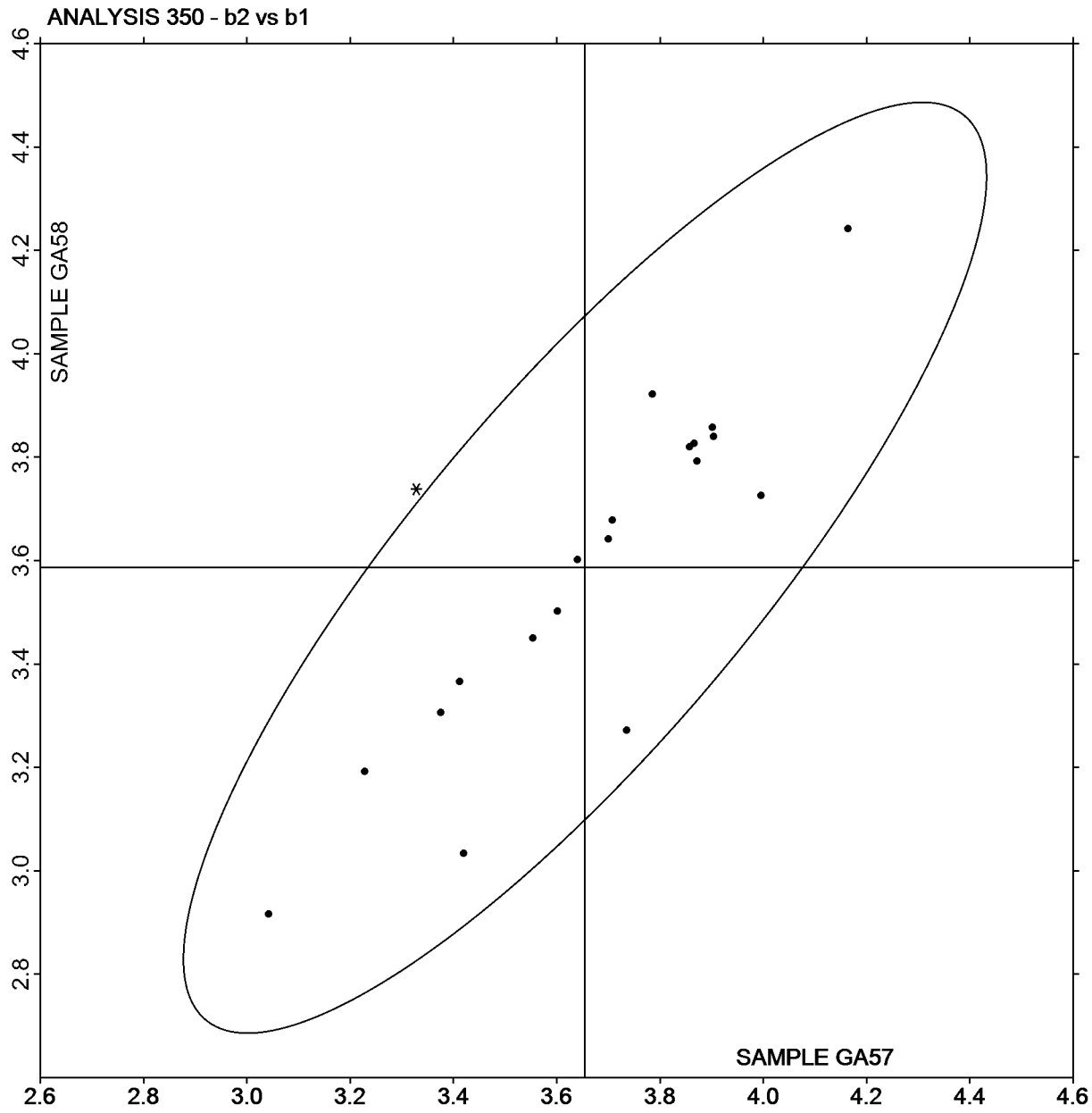
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA58 v a values GA57



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 GA58 v b values GA57



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

Web Code	Data Flag	Samples	CIE L* a* b* Color Values L*	a*	b*	Color Difference Values ΔL*	Δa*	Δb*	ΔE*	InstrCode
67KGCV		**GA57**	94.64	-0.65	3.96	0.34	0.01	-0.15	0.37	EH
		GA58	94.98	-0.64	3.81					
8XNXBR		**GA57**	94.60	-0.67	3.64	0.40	0.02	-0.07	0.40	HE
		GA58	94.99	-0.66	3.58					
9CELD2		**GA57**	94.94	-0.63	4.15	0.33	0.03	-0.10	0.34	NG
		GA58	95.27	-0.60	4.05					
BJBW6C		**GA57**	95.41	-0.61	3.74	0.33	0.01	-0.06	0.34	HE
		GA58	95.74	-0.60	3.68					
BKK8E2		**GA57**	97.13	-0.35	3.41	0.24	-0.04	-0.08	0.26	XP
		GA58	97.37	-0.39	3.33					
CTVM3N		**GA57**	95.30	-0.56	3.90	0.31	0.02	-0.05	0.31	NF
		GA58	95.60	-0.54	3.85					
DYDHGX		**GA57**	93.60	-0.70	3.82	0.43	0.02	-0.11	0.44	TC
		GA58	94.03	-0.68	3.71					
EWNCFD		**GA57**	95.32	-0.68	3.95	0.31	0.04	-0.05	0.32	HT
		GA58	95.64	-0.64	3.90					
GG4UGU		**GA57**	93.86	-0.69	3.38	0.39	0.03	-0.03	0.39	XA
		GA58	94.25	-0.66	3.35					
MKMXT8		**GA57**	94.55	-0.78	3.63	0.64	0.01	-0.09	0.64 X	XC
		GA58	95.19	-0.77	3.54					
MYJWW4		**GA57**	94.48	-0.80	3.77	0.13	0.00	-0.48	0.50	LS
		GA58	94.61	-0.80	3.29					
PYDEXV		**GA57**	95.09	-0.62	3.99	0.32	0.04	-0.07	0.33	HT
		GA58	95.41	-0.57	3.92					
TCTM2X		**GA57**	94.35	-0.54	3.55	0.47	0.02	-0.03	0.47	HV
		GA58	94.82	-0.53	3.52					
UU7NCQ		**GA57**	94.89	-0.66	3.96	0.33	0.03	-0.08	0.34	LS
		GA58	95.22	-0.64	3.88					
V7C27W		**GA57**	93.40	-0.68	3.55	0.13	0.04	-0.29	0.32	TC
		GA58	93.54	-0.64	3.26					
WDUPHD		**GA57**	95.10	-0.60	4.11	0.30	0.03	-0.03	0.30	NG
		GA58	95.39	-0.58	4.08					

Summary Statistics

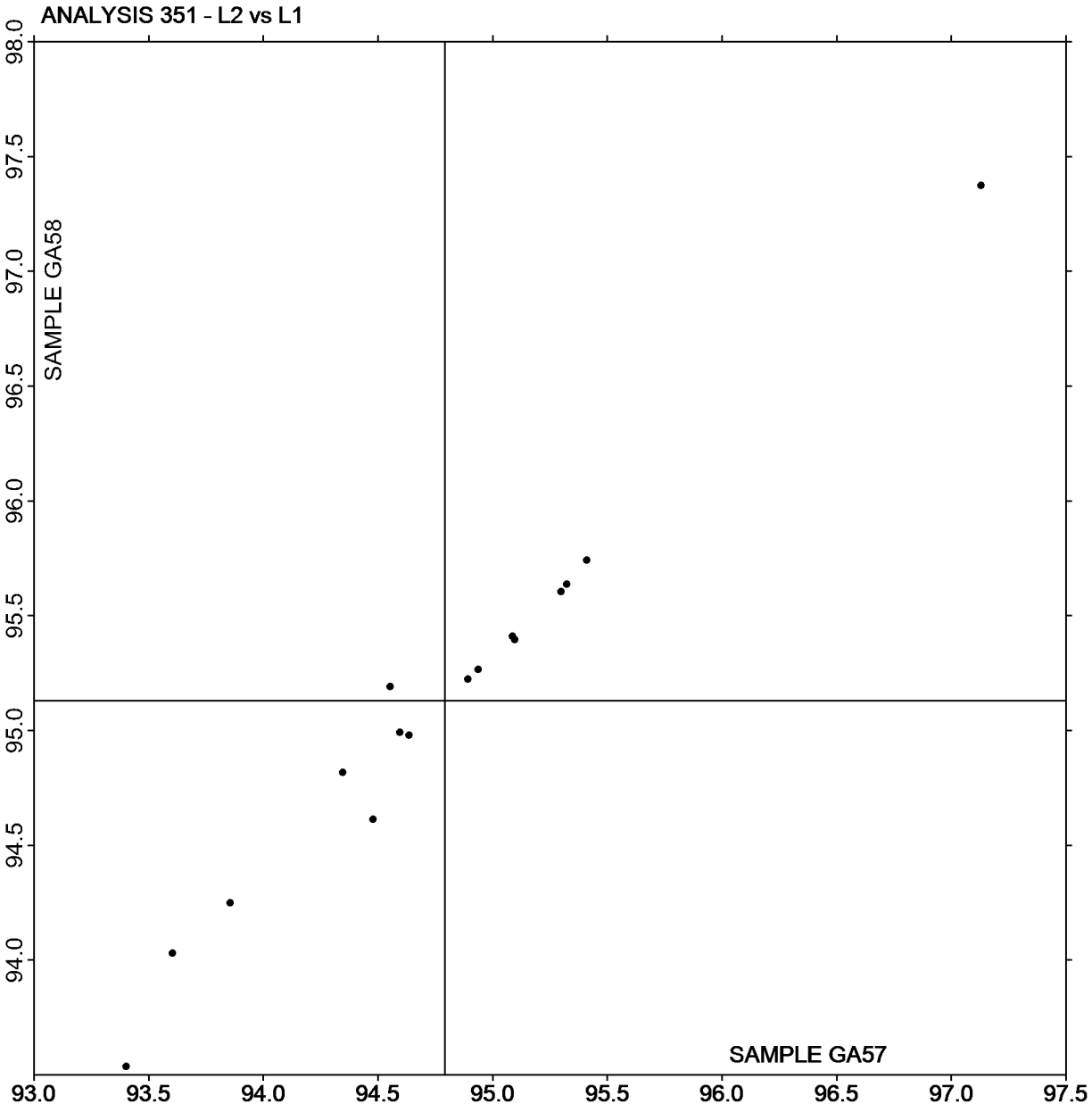
Grand Means							
GA57	94.791	-0.639	3.782	0.338	0.019	-0.110	0.381
GA58	95.129	-0.620	3.672				
Stnd Dev Btwn Labs							
GA57	0.865	0.102	0.237	0.120	0.019	0.117	0.095
GA58	0.857	0.095	0.272				

Statistics based on 16 of 16 reporting participants

Key to Instrument Codes Reported by Participants

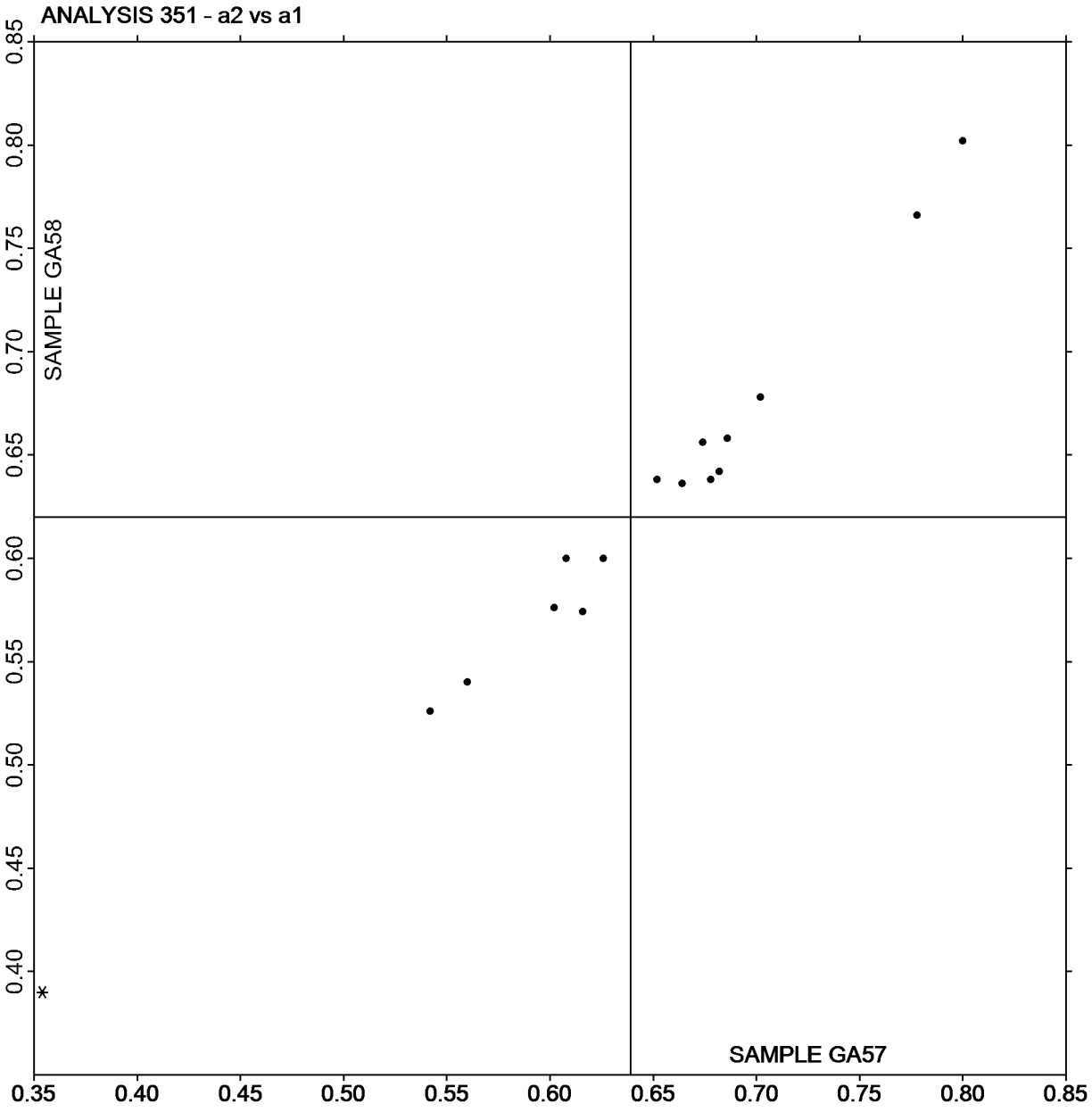
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
HT	Hunter UltraScan Vis	HV	Hunter Ultrascan XE
LS	L & W Elrepho SE 070	NF	Minolta CM-3600d Spectrophotometer
NG	Minolta CM-3700d Spectrophotometer	TC	Technidyne Color Touch Series
XA	X-Rite (model not specified)	XC	X-Rite eXact Series
XP	X-Rite Spectrophotometer DTP		

Plot of L values GA58 v L values GA57



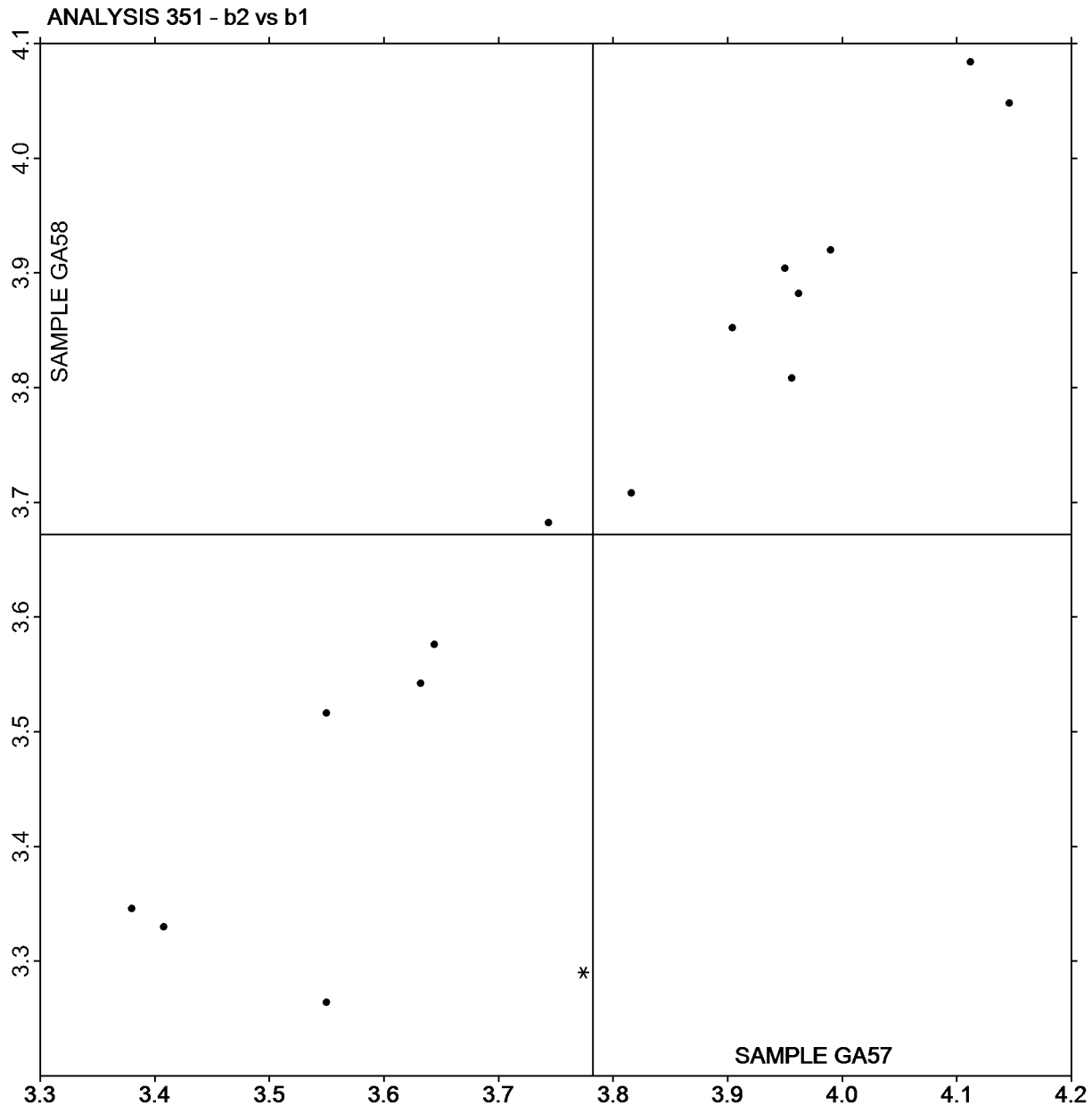
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA58 v a values GA57



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 GA58 v b values GA57



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 GV57 Lab Mean	Sample GV57 Diff from Grand Mean	Sample GV57 CPV	Sample GV58 Lab Mean	Sample GV58 Diff from Grand Mean	Sample GV58 CPV	Instr Code
2ETEWH		3.770	-0.036	-0.50	4.540	-0.020	-0.25	TM
2J4PMR		3.824	0.018	0.24	4.520	-0.040	-0.49	TM
2RV6DG		3.812	0.006	0.08	4.548	-0.012	-0.15	LW
2VULNP		3.851	0.044	0.61	4.594	0.033	0.40	LW
4AA4UY		3.853	0.047	0.64	4.644	0.084	1.02	TM
4VNT68		3.776	-0.030	-0.42	4.555	-0.005	-0.07	PP
6299A6		3.680	-0.126	-1.73	4.454	-0.107	-1.30	PP
6BGZET		3.787	-0.019	-0.26	4.592	0.032	0.38	PP
73X46C		3.788	-0.018	-0.25	4.545	-0.015	-0.19	XX
9CELD2		3.808	0.002	0.02	4.493	-0.067	-0.82	EM
AQU6RM		3.748	-0.058	-0.79	4.478	-0.083	-1.01	LW
BJBW6C		3.854	0.048	0.66	4.617	0.056	0.68	TM
BKK8E2		3.720	-0.086	-1.18	4.525	-0.035	-0.43	TM
CC4W2Z		3.777	-0.029	-0.40	4.559	-0.001	-0.02	TA
CLAR46		3.859	0.053	0.72	4.537	-0.023	-0.29	PP
CTVM3N		3.870	0.064	0.88	4.633	0.072	0.88	TM
DYDHGX		3.700	-0.106	-1.45	4.462	-0.098	-1.20	PP
E7QXH7		3.741	-0.065	-0.89	4.556	-0.005	-0.06	LW
ECYC9G		3.832	0.026	0.35	4.540	-0.021	-0.25	LW
EKB9CN		3.813	0.007	0.09	4.605	0.045	0.54	TA
EWNCFD		3.827	0.021	0.28	4.614	0.054	0.65	EM
F9VVBD	*	3.630	-0.176	-2.41	4.310	-0.250	-3.05	LW
FAM2MX	*	3.610	-0.196	-2.69	4.390	-0.170	-2.07	XX
FGAJB8		3.882	0.076	1.04	4.629	0.069	0.83	LW
FP4RUC		3.841	0.035	0.47	4.619	0.059	0.71	EM
FZM7VU		3.837	0.031	0.42	4.616	0.056	0.68	EM
GG4UGU		3.808	0.002	0.02	4.573	0.013	0.15	LW
HKEAH6		3.827	0.020	0.28	4.575	0.014	0.17	MS
HTDMPZ		3.844	0.037	0.51	4.561	0.001	0.01	LW
J9ZPH9		3.881	0.075	1.02	4.680	0.120	1.46	LW
KL3C9H		3.764	-0.043	-0.58	4.539	-0.021	-0.26	TM
KLT9YZ		3.855	0.048	0.66	4.624	0.063	0.77	LA
KYPQ46		3.920	0.114	1.55	4.717	0.157	1.90	EM
LE2HMN		3.766	-0.040	-0.55	4.516	-0.044	-0.54	EM
LTLZHD		3.734	-0.072	-0.99	4.433	-0.127	-1.55	TM
LWHTAM		3.819	0.013	0.17	4.513	-0.047	-0.58	LA
MKMXT8		3.811	0.005	0.06	4.551	-0.009	-0.11	LW
MM9NWW		3.850	0.043	0.59	4.630	0.070	0.85	LW
MXRTCA		3.886	0.079	1.09	4.626	0.065	0.79	LW
MXUHG7		3.687	-0.119	-1.63	4.450	-0.110	-1.34	PP

Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GV57 Lab Mean	Sample GV57 Diff from Grand Mean	Sample GV57 CPV	Sample GV58 Lab Mean	Sample GV58 Diff from Grand Mean	Sample GV58 CPV	Instr Code
PYDEXV		3.930	0.124	1.69	4.695	0.135	1.64	EM
QACGRR		3.879	0.073	0.99	4.617	0.057	0.69	EM
QMYNNR		3.879	0.073	0.99	4.643	0.083	1.00	EM
T9N8ET		3.753	-0.054	-0.73	4.499	-0.062	-0.75	TM
TCTM2X		3.775	-0.031	-0.43	4.560	0.000	-0.01	TA
U999XN		3.852	0.046	0.63	4.614	0.053	0.65	TM
UZ8XHJ		3.902	0.095	1.30	4.626	0.066	0.80	XX
V96PNR	*	3.880	0.074	1.01	4.733	0.173	2.10	TM
WDUPHD		3.760	-0.046	-0.63	4.527	-0.033	-0.41	PP
WEMHDW	X	3.550	-0.256	-3.50	0.426	-4.135	-50.29	MT
WNCL6W		3.784	-0.022	-0.31	4.551	-0.009	-0.11	TA
WPLDBR		3.717	-0.089	-1.22	4.411	-0.149	-1.82	TA
WYDM6V		3.851	0.045	0.61	4.572	0.012	0.14	LW
XA8K6Z		3.735	-0.071	-0.98	4.562	0.002	0.02	LA
XMWJV3		3.864	0.058	0.79	4.539	-0.021	-0.26	LA
YD6B6K	*	3.979	0.173	2.36	4.691	0.131	1.59	LW
YK6RFQ		3.840	0.034	0.46	4.605	0.045	0.54	PP
YNHKEW		3.726	-0.080	-1.09	4.433	-0.127	-1.55	LW
ZD22UZ		3.720	-0.086	-1.18	4.466	-0.094	-1.15	EM

Summary Statistics	Sample GV57	Sample GV58
Grand Means	3.81 mils	4.56 mils
Stnd Dev Btwn Labs	0.07 mils	0.08 mils

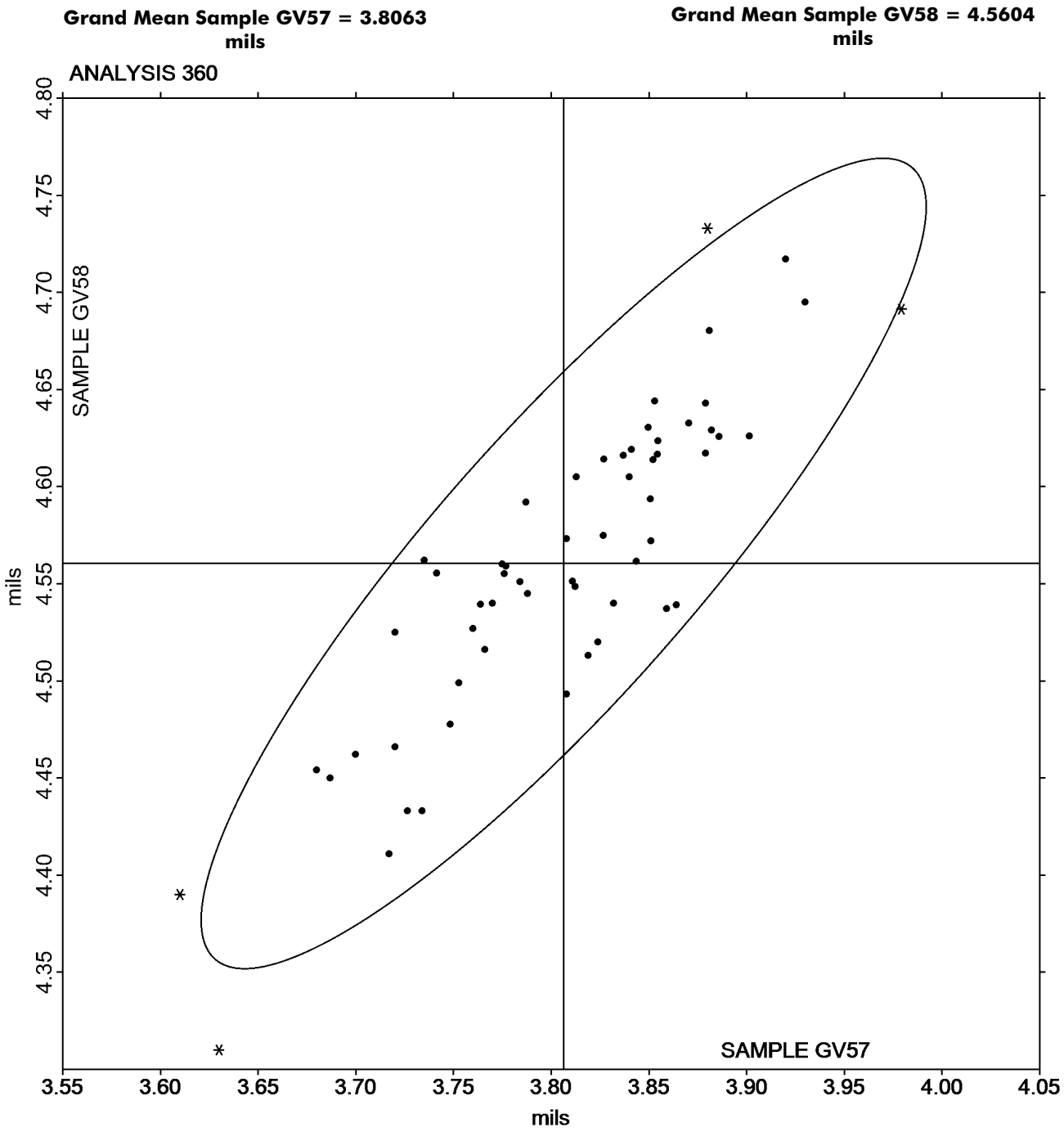
Statistics based on 58 of 59 reporting participants.

Comments on Assigned Data Flags for Test #360

WEMHDW (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

EM	Emveco	LA	L & W Autoline
LW	L & W	MS	Messmer
MT	Mitutoyo	PP	Technidyne Profile/Plus
TA	Thwing-Albert	TM	TMI
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 361
Thickness (Caliper), Packaging papers
TAPPI Official Test Method T411

WebCode	Data Flag	Sample GY57 Lab Mean	Sample GY57 Diff from Grand Mean	Sample GY57 CPV	Sample GY58 Lab Mean	Sample GY58 Diff from Grand Mean	Sample GY58 CPV	Instr Code
29MP9J		7.498	-0.107	-1.35	9.548	-0.074	-0.93	TM
3JHDLX	X	8.027	0.422	5.31	10.008	0.386	4.82	LA
4A8FBY		7.539	-0.066	-0.83	9.642	0.019	0.24	XX
4H2JKN		7.429	-0.176	-2.21	9.543	-0.079	-0.99	LW
6299A6		7.736	0.131	1.65	9.705	0.082	1.03	LW
67KGCV	X	7.941	0.336	4.23	9.966	0.344	4.30	EM
7WB4XC		7.714	0.109	1.37	9.678	0.056	0.69	TM
8XNXBR		7.602	-0.003	-0.04	9.632	0.010	0.12	EM
9XFKZZ		7.555	-0.050	-0.63	9.540	-0.083	-1.04	LA
C4FWQH		7.516	-0.089	-1.12	9.441	-0.182	-2.27	LW
CHU9Z3		7.657	0.052	0.66	9.618	-0.004	-0.05	LW
DXH2X9	X	7.156	-0.449	-5.65	9.485	-0.137	-1.72	TM
EKB9CN		7.675	0.070	0.88	9.641	0.019	0.23	TA
HTDMPZ		7.657	0.052	0.65	9.702	0.080	1.00	LW
J9ZPH9		7.742	0.137	1.72	9.713	0.091	1.13	XX
KL3C9H		7.504	-0.101	-1.27	9.642	0.019	0.24	TM
KLT9YZ		7.677	0.072	0.91	9.705	0.082	1.03	LA
LNAWPQ		7.550	-0.055	-0.69	9.480	-0.142	-1.78	TM
LZ64PF		7.550	-0.055	-0.69	9.590	-0.032	-0.41	LA
MWG94Y		7.604	-0.001	-0.01	9.602	-0.020	-0.26	TM
MY7ELB		7.682	0.077	0.97	9.643	0.021	0.26	EM
MYJWW4		7.539	-0.066	-0.83	9.516	-0.107	-1.33	TM
NM3TQW		7.500	-0.105	-1.32	9.650	0.028	0.34	LW
QBN72V		7.645	0.040	0.50	9.625	0.003	0.03	TA
RCAG6T		7.570	-0.035	-0.44	9.560	-0.062	-0.78	TA
RJEB6G		7.608	0.003	0.04	9.596	-0.026	-0.33	LA
RPHFWZ		7.677	0.072	0.91	9.755	0.133	1.66	VP
UDZJNE		7.582	-0.023	-0.29	9.692	0.070	0.87	LW
UKZWQ3		7.644	0.039	0.49	9.740	0.118	1.47	EM
UU7NCQ		7.698	0.093	1.17	9.747	0.125	1.56	LA
V7C27W		7.532	-0.073	-0.92	9.571	-0.051	-0.64	EM
WPLDBR		7.560	-0.045	-0.57	9.543	-0.079	-0.99	TA
X4GBWM		7.650	0.045	0.57	9.555	-0.067	-0.84	TA
YLERKX		7.663	0.058	0.73	9.682	0.060	0.74	LA

Summary Statistics	Sample GY57	Sample GY58
Grand Means	7.61 mils	9.62 mils
Stnd Dev Btwn Labs	0.08 mils	0.08 mils

Statistics based on 31 of 34 reporting participants.

Comments on Assigned Data Flags for Test #361

67KGCV (X) - Data for both samples are high.

3JHDLX (X) - Data for both samples are high.

DXH2X9 (X) - Data for sample GY57 are low.

Analysis Notes:

29MP9J - Data appear to be reported as mils, not inches as indicated on datasheet. Units corrected by CTS.

MY7ELB - Data appear to be reported as mils, not micrometers as indicated on datasheet. Units corrected by CTS.

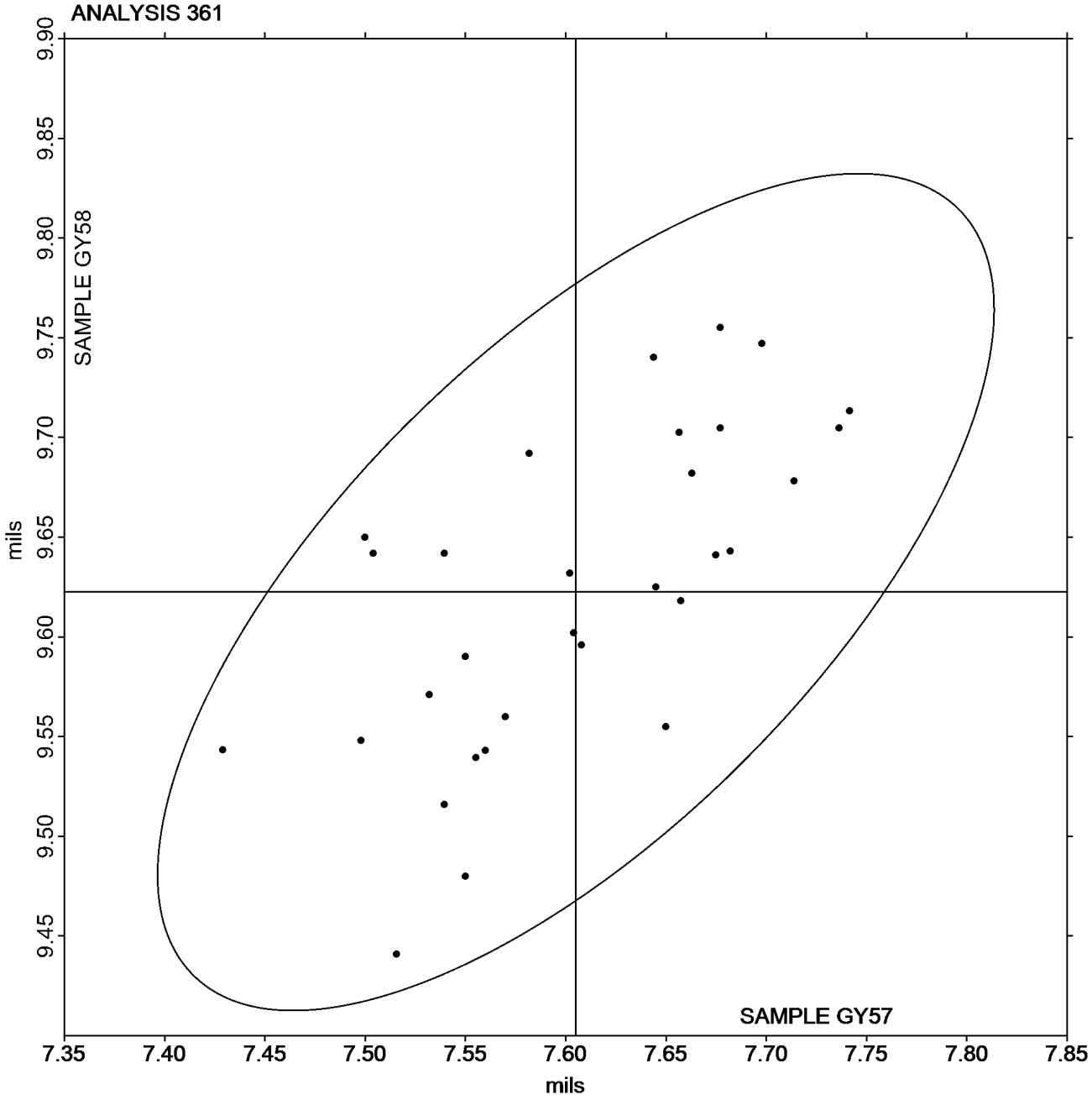
UKZWQ3 - Data appear to be reported as mils, not micrometers as indicated on datasheet. Units corrected by CTS.

Key to Instrument Codes Reported by Participants

EM	Emveco	LA	L & W Autoline
LW	L & W	TA	Thwing-Albert
TM	TMI	VP	Valmet Paper Lab
XX	Instrument make/model not specified by lab		

Grand Mean Sample GY57 = 7.6050 mils

Grand Mean Sample GY58 = 9.6225 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 GD57 Lab Mean	Sample GD57 Diff from Grand Mean	Sample GD57 CPV	Sample GD58 Lab Mean	Sample GD58 Diff from Grand Mean	Sample GD58 CPV	Instr Code
2ETEWH	X	0.3490	-0.2252	-3.47	0.2656	-0.2478	-3.26	XX
7Y4386		0.6010	0.0269	0.41	0.5572	0.0438	0.58	IT
9H2GCK		0.5300	-0.0442	-0.68	0.4900	-0.0234	-0.31	CH
9XFKZZ		0.5598	-0.0144	-0.22	0.4984	-0.0150	-0.20	TA
FP4RUC		0.6366	0.0625	0.96	0.5498	0.0364	0.48	TA
FZM7VU		0.5640	-0.0102	-0.16	0.5040	-0.0094	-0.12	TA
J9ZPH9		0.5838	0.0097	0.15	0.6226	0.1092	1.44	TL
L9ER6Z		0.6640	0.0899	1.38	0.5270	0.0136	0.18	TA
TCTM2X		0.4540	-0.1202	-1.85	0.3580	-0.1554	-2.05	TA

Summary Statistics	Sample GD57	Sample GD58
Grand Means	0.57 COF	0.51 COF
Stnd Dev Btwn Labs	0.06 COF	0.08 COF

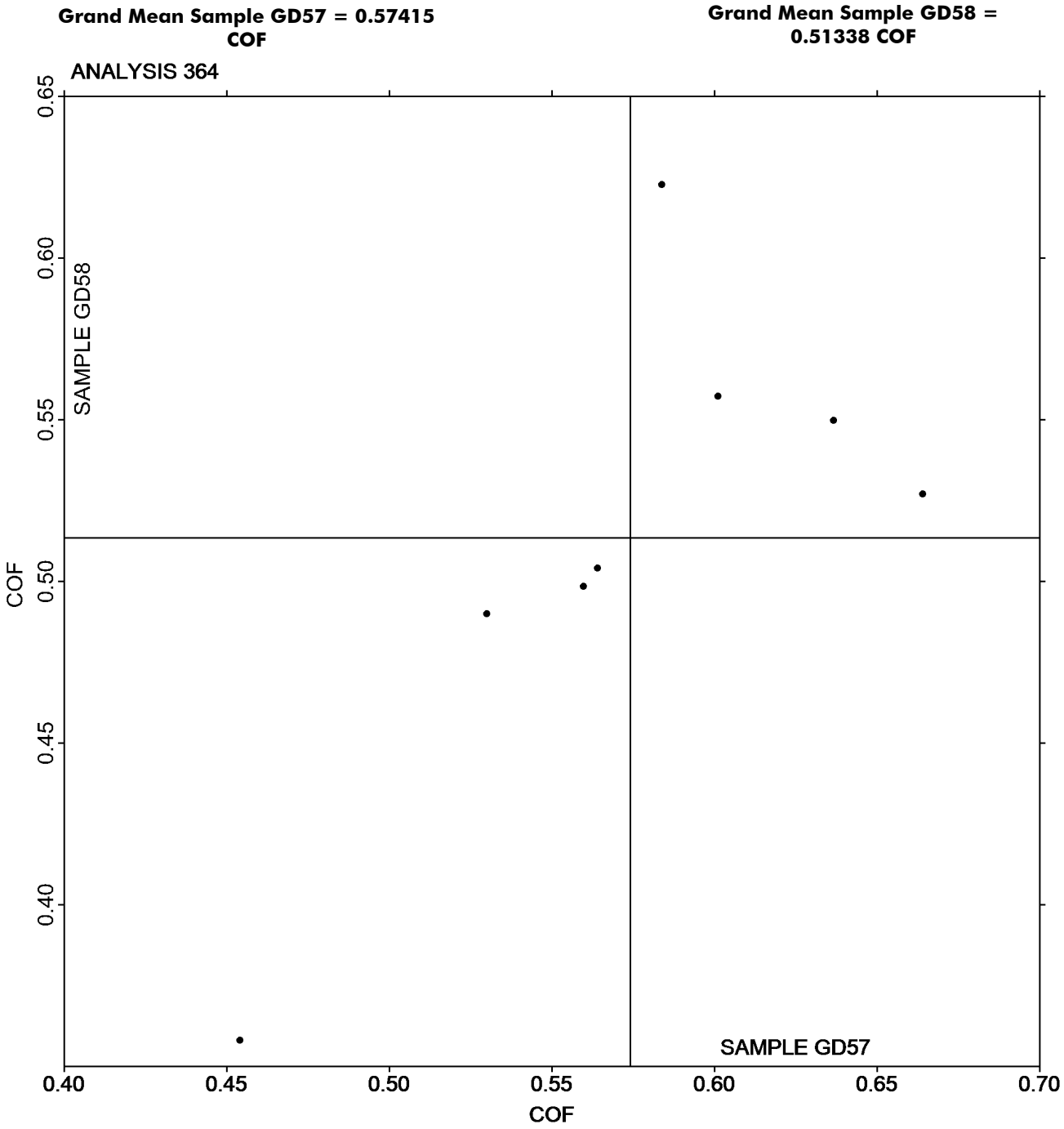
Statistics based on 8 of 9 reporting participants.

Comments on Assigned Data Flags for Test #364

2ETEWH (X) - Data for both samples are low.

Key to Instrument Codes Reported by Participants

CH	Cheminstruments AR-1000	IT	IMASS SP-2100
TA	Thwing-Albert Friction Tester	TL	TMI 32-90 Lab Master/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 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

		Sample GD57			Sample GD58			
WebCode	Data Flag	Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	Instr Code
2ETEWH	X	0.3422	-0.1797	-3.07	0.2580	-0.2089	-2.85	XX
4VNT68		0.5918	0.0699	1.19	0.5174	0.0505	0.69	TA
7Y4386		0.4648	-0.0571	-0.98	0.3576	-0.1093	-1.49	IR
9H2GCK		0.5100	-0.0119	-0.20	0.4960	0.0291	0.40	CH
9XFKZZ		0.5290	0.0071	0.12	0.4920	0.0251	0.34	TA
FDPWCR		0.4068	-0.1151	-1.97	0.3442	-0.1227	-1.68	TA
J9ZPH9		0.5456	0.0237	0.40	0.5274	0.0605	0.83	TL
KLT9YZ		0.5806	0.0587	1.00	0.5534	0.0865	1.18	TM
L9ER6Z		0.5066	-0.0153	-0.26	0.4414	-0.0255	-0.35	TA
LE2HMN		0.5622	0.0403	0.69	0.4728	0.0059	0.08	TA

Summary Statistics	Sample GD57	Sample GD58
Grand Means	0.52 COF	0.47 COF
Stnd Dev Btwn Labs	0.06 COF	0.07 COF

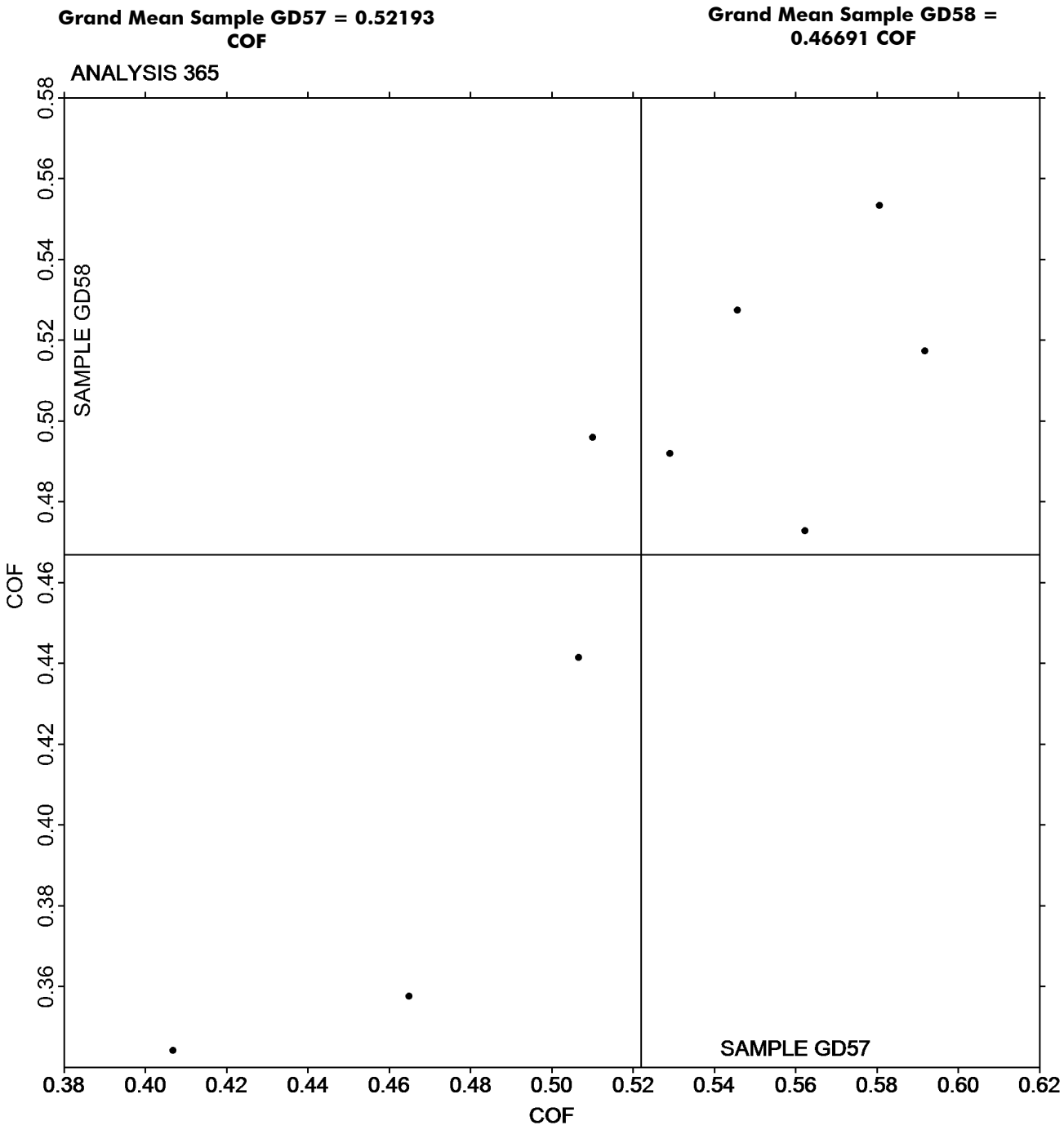
Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #365

2ETEWH (X) - Data for both samples are low.

Key to Instrument Codes Reported by Participants

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



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 GE57 Lab Mean	Sample GE57 Diff from Grand Mean	Sample GE57 CPV	Sample GE58 Lab Mean	Sample GE58 Diff from Grand Mean	Sample GE58 CPV	Instr Code
2ETEWH		20.40	-0.32	-0.30	12.40	0.01	0.02	GS
2VULNP		21.13	0.41	0.39	12.96	0.57	0.80	LP
6299A6		21.28	0.56	0.53	12.15	-0.24	-0.34	PP
8CKEZP		21.20	0.48	0.45	12.48	0.09	0.12	LA
8M3U6D	*	18.04	-2.68	-2.53	10.62	-1.77	-2.49	RE
9T2ZVZ		20.57	-0.15	-0.14	12.67	0.28	0.40	XX
9XFKZZ		21.36	0.64	0.60	13.17	0.78	1.10	LA
AGQUE7	*	19.51	-1.21	-1.15	10.32	-2.07	-2.92	PP
BM8KJX		21.73	1.01	0.95	12.17	-0.22	-0.31	LP
C4FWQH		19.23	-1.49	-1.41	12.53	0.14	0.20	LW
CHU9Z3		19.66	-1.06	-1.00	10.87	-1.52	-2.14	LP
CLAR46		20.72	0.00	0.00	11.42	-0.97	-1.37	PP
CTVM3N		19.24	-1.48	-1.40	12.40	0.01	0.02	PR
DKFD9Z		20.96	0.24	0.23	12.11	-0.28	-0.39	PP
DYDHGX		21.14	0.42	0.40	12.45	0.06	0.09	PP
EKB9CN		21.28	0.56	0.53	12.47	0.09	0.12	GA
EWNCFD		22.90	2.18	2.06	12.96	0.57	0.80	HG
FAM2MX		19.77	-0.95	-0.90	12.49	0.10	0.14	XX
FCXJ73		21.50	0.78	0.74	11.39	-1.00	-1.41	TN
FZM7VU		22.21	1.49	1.40	13.01	0.62	0.87	PP
J9ZPH9		20.69	-0.03	-0.03	12.83	0.44	0.62	LP
KK69BZ		22.25	1.53	1.44	13.47	1.08	1.52	XX
KYPQ46		19.40	-1.32	-1.25	11.34	-1.05	-1.47	HG
L9ER6Z		21.73	1.01	0.95	12.37	-0.02	-0.03	WG
LNAWPQ		21.44	0.72	0.68	13.24	0.85	1.20	TL
LTLZHD		20.92	0.20	0.19	13.04	0.65	0.92	LP
LZ64PF		20.80	0.08	0.08	13.00	0.61	0.86	LA
MKMXT8		19.30	-1.42	-1.34	12.50	0.11	0.16	LW
MM9NWW		18.82	-1.90	-1.79	11.47	-0.92	-1.29	LP
MXUHG7		21.33	0.61	0.58	12.86	0.47	0.66	PP
PB76AM		21.07	0.35	0.33	12.50	0.11	0.16	PP
PYDEXV		20.45	-0.27	-0.26	12.41	0.02	0.03	PP
Q3WTYB		20.14	-0.58	-0.55	12.02	-0.37	-0.52	LP
QMYNNR		20.69	-0.03	-0.03	12.72	0.33	0.47	PP
RPHFWZ		22.07	1.35	1.27	12.90	0.51	0.72	VM
TCTM2X		18.61	-2.11	-2.00	11.77	-0.62	-0.87	PP
UDZJNE		21.25	0.53	0.50	12.43	0.04	0.06	TL
V7C27W		20.95	0.23	0.22	12.79	0.40	0.56	PP
V96PNR		21.11	0.39	0.37	12.15	-0.24	-0.34	HG
WNCL6W		20.86	0.14	0.13	12.23	-0.16	-0.23	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE57 Lab Mean	Sample GE57 Diff from Grand Mean	Sample GE57 CPV	Sample GE58 Lab Mean	Sample GE58 Diff from Grand Mean	Sample GE58 CPV	Instr Code
WYDM6V		20.39	-0.33	-0.31	12.91	0.52	0.73	LP
XA8K6Z		19.91	-0.81	-0.76	12.37	-0.02	-0.03	LA
XMWJV3		23.00	2.28	2.15	13.96	1.57	2.21	LA
YBGUWX		20.60	-0.12	-0.11	12.50	0.11	0.16	GA
YD6B6K		20.78	0.06	0.06	12.32	-0.07	-0.10	LP
YK6RFQ		20.73	0.01	0.01	12.75	0.36	0.51	HG

Summary Statistics	Sample GE57	Sample GE58
Grand Means	20.72 sec/100 cc	12.39 sec/100 cc
Stnd Dev Btwn Labs	1.06 sec/100 cc	0.71 sec/100 cc

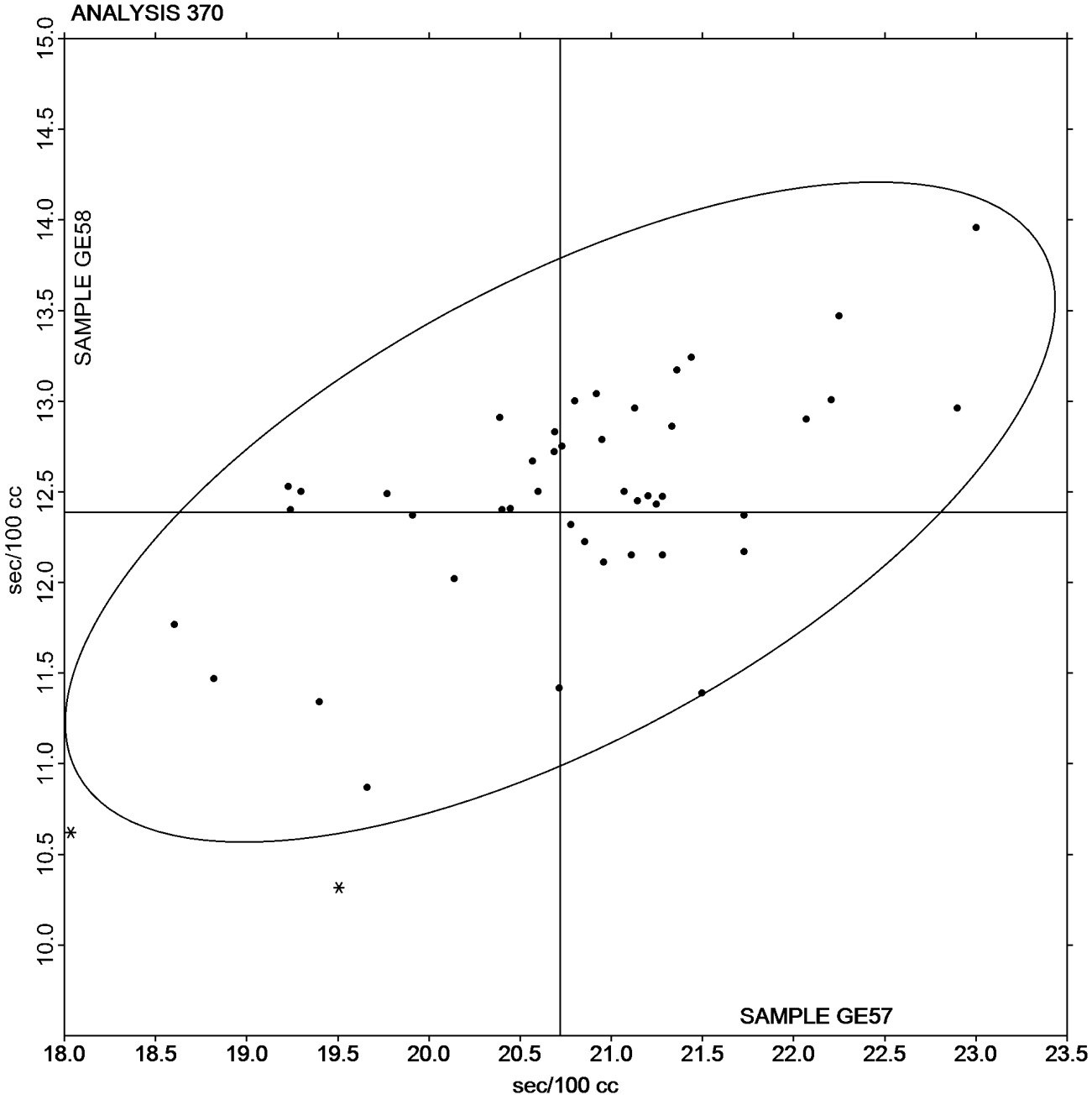
Statistics based on 46 of 46 reporting participants.

Key to Instrument Codes Reported by Participants

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	PR	Parker Print-Surf (PPS) Model M590
RE	Regmed Gurley Densometer PGH-T	TL	Gurley Densometer #4110, Oil Flotation
TN	Gurley S-P-S Tester #4190	VM	Valmet PaperLab (was Kajaani/Robotest)
WG	W & LE Gurley Tester	XX	Instrument make/model not specified by lab

Grand Mean Sample GE57 = 20.719 sec/100 cc

Grand Mean Sample GE58 = 12.388 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

		Sample GE57			Sample GE58			
WebCode	Data Flag	Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	Instr Code
2ETEWH	X	118.9	-14.1	-3.20	149.1	-59.6	-6.65	SH
4AA4UY		137.7	4.7	1.06	229.6	20.9	2.33	SH
4TYN4N	X	94.7	-38.3	-8.68	135.2	-73.5	-8.20	TT
BKK8E2		135.9	2.9	0.65	214.8	6.1	0.68	TT
DXKJ76		128.8	-4.2	-0.95	211.6	2.9	0.32	HM
DYDHGX		132.8	-0.2	-0.05	202.7	-6.0	-0.67	PP
EKB9CN		132.2	-0.8	-0.17	211.2	2.5	0.28	GA
FAM2MX		134.2	1.2	0.27	202.5	-6.2	-0.69	XX
G8V39Y		135.8	2.8	0.63	204.5	-4.2	-0.47	PP
M6U67K		122.5	-10.5	-2.37	198.7	-10.0	-1.12	GA
PMPE68		139.1	6.1	1.38	218.2	9.5	1.06	TT
RPHFWZ		133.6	0.6	0.13	206.8	-1.9	-0.21	PP
U999XN		130.0	-3.0	-0.68	199.0	-9.7	-1.08	TT
WNCL6W		133.5	0.5	0.11	204.9	-3.8	-0.42	HM

Summary Statistics	Sample GE57	Sample GE58
Grand Means	133.01 Sheffield Units	208.70 Sheffield Units
Stnd Dev Btwn Labs	4.41 Sheffield Units	8.96 Sheffield Units

Statistics based on 12 of 14 reporting participants.

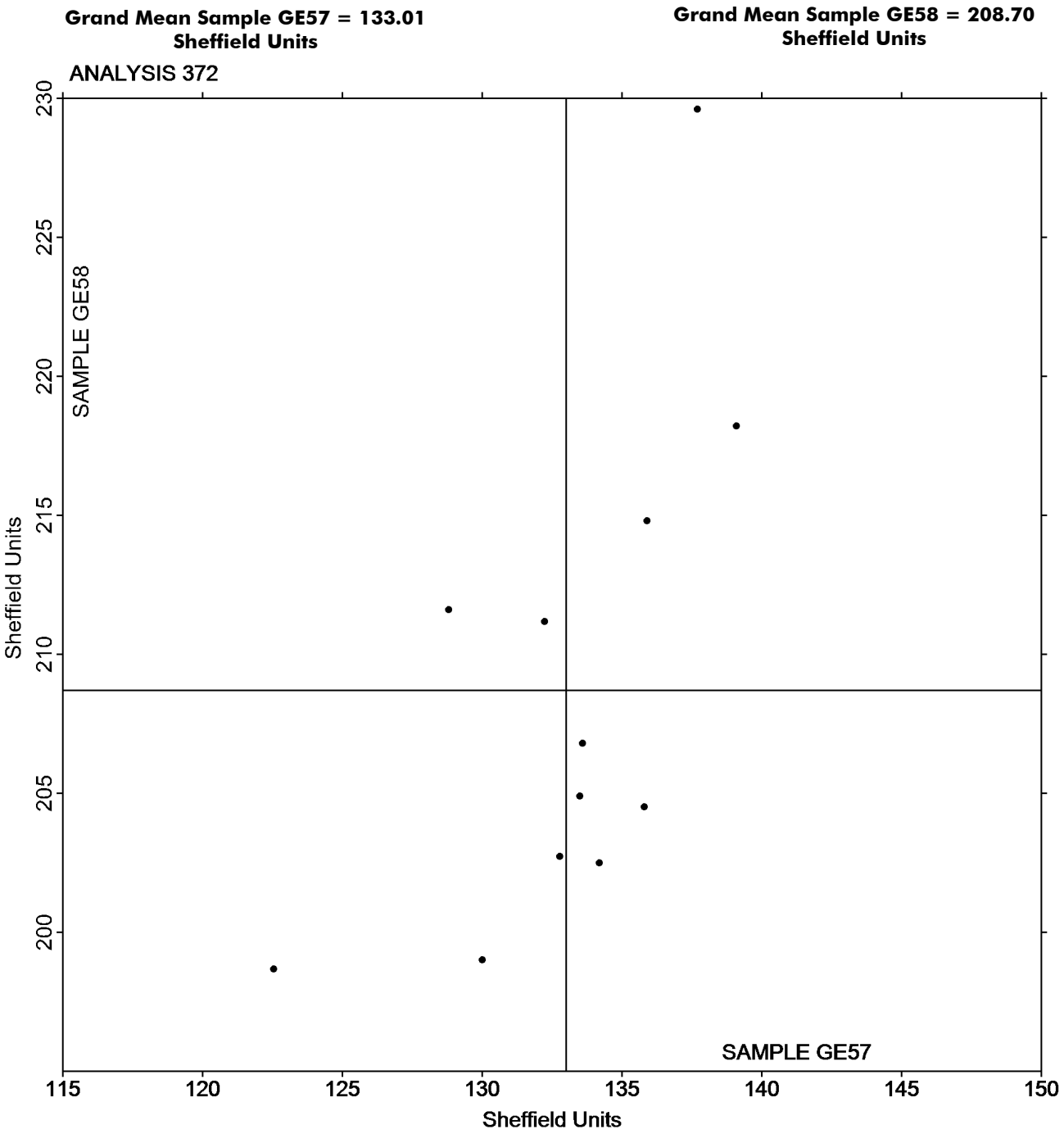
Comments on Assigned Data Flags for Test #372

2ETEWH (X) - Extreme Data.

4TYN4N (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	HM	Technidyne - Hagerty Model #538
PP	Technidyne Profile/Plus	SH	Sheffield
TT	TMI Monitor/Smoothness II, Model 58-24	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 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

TAPPI Official Test Method T555

WebCode	Data Flag	Sample GJ57 Lab Mean	Sample GJ57 Diff from Grand Mean	Sample GJ57 CPV	Sample GJ58 Lab Mean	Sample GJ58 Diff from Grand Mean	Sample GJ58 CPV	Instr Code
2RV6DG	X	1.2070	0.4040	4.85	1.2660	0.4696	5.53	ZZ
3JHDLX		0.8630	0.0600	0.72	0.8230	0.0266	0.31	ZZ
67KGCV		0.7830	-0.0200	-0.24	0.7870	-0.0094	-0.11	ZZ
6YLV48		0.8230	0.0200	0.24	0.8180	0.0216	0.25	ZZ
847NCD	X	0.6200	-0.1830	-2.20	0.8780	0.0816	0.96	ZZ
8XNXBR		0.7480	-0.0550	-0.66	0.7370	-0.0594	-0.70	ZZ
BKK8E2	*	1.0070	0.2040	2.45	1.0290	0.2326	2.74	ZZ
CBA9H6		0.9620	0.1590	1.91	0.9790	0.1826	2.15	ZZ
CH8ZND	*	1.0040	0.2010	2.42	0.9520	0.1556	1.83	ZZ
DXKJ76		0.8560	0.0530	0.64	0.8480	0.0516	0.61	ZZ
DYDHGX		0.7920	-0.0110	-0.13	0.7970	0.0006	0.01	ZZ
ECYC9G		0.7670	-0.0360	-0.43	0.8050	0.0086	0.10	ZZ
FDPWCR		0.7190	-0.0840	-1.01	0.6920	-0.1044	-1.23	ZZ
HTDMPZ		0.7980	-0.0050	-0.06	0.7880	-0.0084	-0.10	ZZ
KL3C9H		0.7790	-0.0240	-0.29	0.7540	-0.0424	-0.50	ZZ
KYPQ46		0.8140	0.0110	0.13	0.7780	-0.0184	-0.22	ZZ
L9ER6Z		0.6890	-0.1140	-1.37	0.6870	-0.1094	-1.29	ZZ
LTLZHD	X	0.9950	0.1920	2.31	1.0640	0.2676	3.15	ZZ
LXXVGV		0.9010	0.0980	1.18	0.9040	0.1076	1.27	ZZ
MY7ELB		0.7680	-0.0350	-0.42	0.7560	-0.0404	-0.48	ZZ
MYJWW4		0.7210	-0.0820	-0.98	0.7260	-0.0704	-0.83	ZZ
NM3TQW		0.6870	-0.1160	-1.39	0.6770	-0.1194	-1.41	ZZ
P4AACN		0.6860	-0.1170	-1.41	0.6770	-0.1194	-1.41	ZZ
QACGRR		0.7870	-0.0160	-0.19	0.7650	-0.0314	-0.37	ZZ
QMYNNR		0.7870	-0.0160	-0.19	0.7560	-0.0404	-0.48	ZZ
RANQ24		0.7750	-0.0280	-0.34	0.7790	-0.0174	-0.21	ZZ
RJEB6G		0.8550	0.0520	0.63	0.8410	0.0446	0.53	ZZ
RPHFWZ	X	1.3350	0.5320	6.39	0.8780	0.0816	0.96	ZZ
TCTM2X		0.7420	-0.0610	-0.73	0.7430	-0.0534	-0.63	ZZ
UKZWQ3		0.7610	-0.0420	-0.50	0.7640	-0.0324	-0.38	ZZ
UU7NCQ		0.7970	-0.0060	-0.07	0.7860	-0.0104	-0.12	ZZ
YK6RFQ		0.8050	0.0020	0.02	0.8130	0.0166	0.20	ZZ
ZD22UZ		0.8100	0.0070	0.08	0.8350	0.0386	0.45	ZZ

Summary Statistics	Sample GJ57	Sample GJ58
Grand Means	0.80 Microns	0.80 Microns
Stnd Dev Btwn Labs	0.08 Microns	0.08 Microns

Statistics based on 29 of 33 reporting participants.

Comments on Assigned Data Flags for Test #376

RPHFWZ (X) - Extreme Data for Sample GJ57.

LTLZHD (X) - Data for sample GJ58 are high. Inconsistent within the determinations of sample GJ57.

847NCD (X) - Inconsistent in testing between samples. Inconsistent within the determinations of both samples.

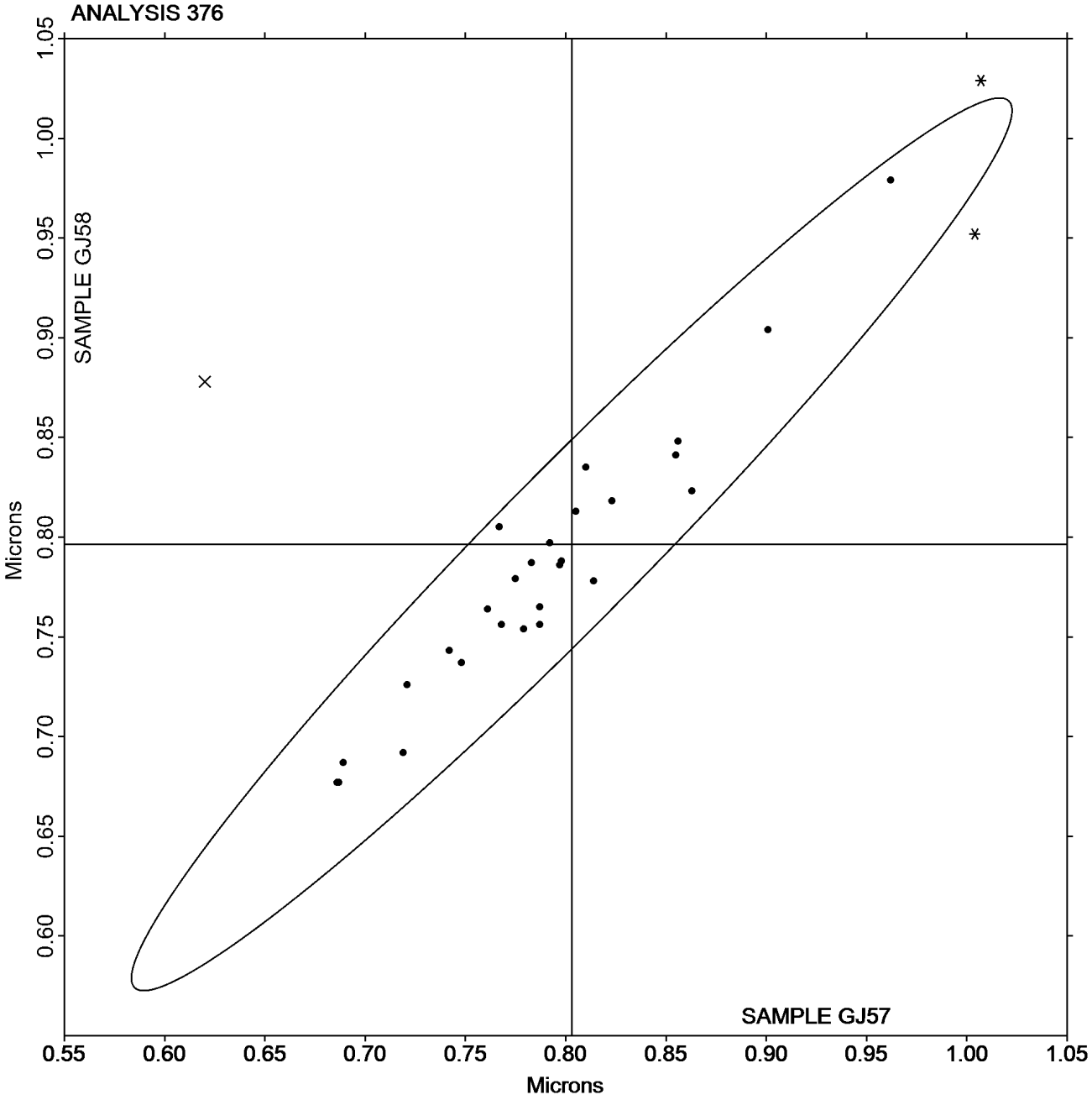
2RV6DG (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample GJ58.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GJ57 = 0.80297 Microns

Grand Mean Sample GJ58 = 0.79641 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 GK57 Lab Mean	Sample GK57 Diff from Grand Mean	Sample GK57 CPV	Sample GK58 Lab Mean	Sample GK58 Diff from Grand Mean	Sample GK58 CPV	Instr Code
29MP9J	X	3.340	-0.159	-1.45	3.430	-2.215	-20.74	ZZ
6299A6		3.544	0.045	0.41	5.741	0.096	0.90	ZZ
FP4RUC		3.428	-0.071	-0.65	5.599	-0.046	-0.43	ZZ
FZM7VU	X	3.729	0.230	2.10	5.557	-0.088	-0.83	ZZ
J9ZPH9		3.483	-0.016	-0.15	5.651	0.006	0.05	ZZ
L9ER6Z		3.433	-0.066	-0.60	5.562	-0.083	-0.78	ZZ
V7C27W		3.699	0.200	1.82	5.798	0.153	1.43	ZZ
XA8K6Z		3.408	-0.091	-0.83	5.521	-0.124	-1.16	ZZ

Summary Statistics	Sample GK57	Sample GK58
Grand Means	3.50 Microns	5.65 Microns
Stnd Dev Btwn Labs	0.11 Microns	0.11 Microns

Statistics based on 6 of 8 reporting participants.

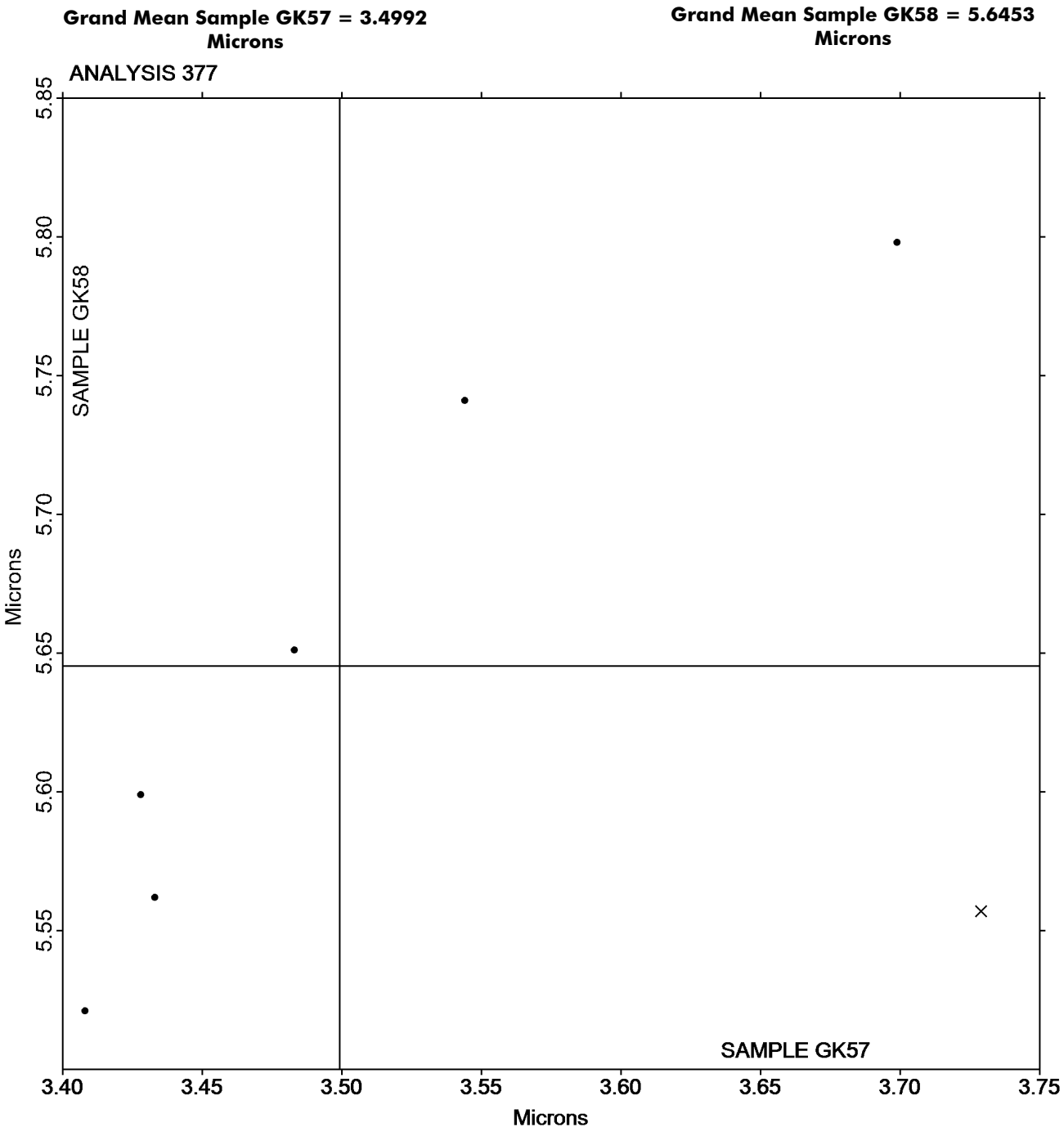
Comments on Assigned Data Flags for Test #377

FZM7VU (X) - Data for sample GK57 are high.

29MP9J (X) - Extreme Data for Sample GK58.

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 GL57 Lab Mean	Sample GL57 Diff from Grand Mean	Sample GL57 CPV	Sample GL58 Lab Mean	Sample GL58 Diff from Grand Mean	Sample GL58 CPV	Instr Code
2ETEWH	*	136.0	15.1	2.20	289.9	39.5	2.49	XX
3JHDLX		127.8	6.9	1.00	247.0	-3.4	-0.21	LA
4AA4UY		119.3	-1.6	-0.24	212.8	-37.6	-2.37	SH
4TYN4N	X	91.5	-29.4	-4.31	174.2	-76.2	-4.79	TT
6299A6		128.0	7.1	1.04	273.0	22.6	1.43	PP
67KGCV		127.0	6.1	0.89	249.2	-1.2	-0.07	LW
73X46C		122.5	1.6	0.23	233.0	-17.4	-1.09	XX
8X4JKT		123.4	2.5	0.37	237.6	-12.7	-0.80	XX
8XNXBR		114.6	-6.3	-0.93	244.9	-5.5	-0.34	PP
96EAEJ		122.3	1.4	0.20	265.8	15.4	0.97	TT
9CELD2		112.0	-8.9	-1.31	249.7	-0.7	-0.04	PP
BKK8E2		132.8	11.9	1.74	239.4	-11.0	-0.69	TT
CH8ZND		110.9	-10.0	-1.47	222.5	-27.9	-1.75	LW
CLAR46		120.5	-0.4	-0.06	241.6	-8.8	-0.55	PP
DKFD9Z		126.3	5.4	0.79	262.3	11.9	0.75	PP
DYDHGX		126.4	5.5	0.80	263.6	13.2	0.83	PP
EKB9CN		118.5	-2.4	-0.36	221.6	-28.8	-1.81	PP
EWNCFD		119.4	-1.5	-0.23	258.9	8.5	0.54	HM
FAM2MX		116.1	-4.8	-0.71	254.6	4.2	0.27	XX
FDPWCR		128.8	7.9	1.15	242.7	-7.7	-0.48	HM
FP4RUC		115.5	-5.5	-0.80	246.7	-3.7	-0.23	PP
FZM7VU		119.2	-1.7	-0.25	255.4	5.0	0.32	PP
G8V39Y		107.5	-13.4	-1.97	237.4	-13.0	-0.82	PP
GG4UGU		124.2	3.2	0.48	255.6	5.2	0.33	PP
HDXLRA		111.5	-9.4	-1.38	268.5	18.1	1.14	GA
J9ZPH9		121.5	0.6	0.08	249.5	-0.9	-0.06	LW
KL3C9H		115.0	-5.9	-0.87	255.6	5.2	0.33	HM
L2BVB2	X	107.0	-13.9	-2.04	288.4	38.0	2.39	MP
L9ER6Z		128.4	7.5	1.09	260.5	10.1	0.64	XX
LTLZHD		122.6	1.7	0.24	244.6	-5.8	-0.36	TS
LWHTAM		114.2	-6.7	-0.99	239.1	-11.3	-0.71	LA
M6U67K		121.4	0.4	0.06	266.8	16.4	1.03	GA
MKMXT8		119.2	-1.7	-0.26	245.4	-5.0	-0.31	TS
MXUHG7		118.4	-2.6	-0.38	262.4	12.0	0.76	PP
MY7ELB		119.4	-1.5	-0.22	237.5	-12.9	-0.81	PP
MYJWW4		136.6	15.7	2.29	265.8	15.4	0.97	TT
NM3TQW	X	3.8	-117.1	-17.16	1.4	-249.0	-15.67	LA
P4AACN		129.1	8.2	1.19	277.2	26.8	1.69	LW
PB76AM		124.9	4.0	0.58	254.6	4.2	0.27	PP
PYDEXV		118.0	-2.9	-0.43	215.0	-35.4	-2.23	SH

Paper & Paperboard Interlaboratory Testing Program

Analysis 378

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL57 Lab Mean	Sample GL57 Diff from Grand Mean	Sample GL57 CPV	Sample GL58 Lab Mean	Sample GL58 Diff from Grand Mean	Sample GL58 CPV	Instr Code
QBN72V		116.2	-4.7	-0.69	244.5	-5.9	-0.37	PP
QMYNNR	X	2.4	-118.5	-17.36	2.2	-248.2	-15.62	PP
RJEB6G		120.3	-0.6	-0.09	247.5	-2.9	-0.18	LA
RPHFWZ		113.9	-7.0	-1.03	236.5	-13.9	-0.87	VM
TCTM2X		122.0	1.1	0.16	249.5	-0.9	-0.06	PP
TDZZLK		121.1	0.2	0.02	282.1	31.7	2.00	HM
U999XN	*	139.5	18.6	2.72	254.0	3.6	0.23	TT
UKZWQ3		119.5	-1.5	-0.21	252.2	1.8	0.11	PP
UU7NCQ		120.6	-0.3	-0.05	250.8	0.4	0.03	PP
V7C27W		112.3	-8.7	-1.27	249.4	-1.0	-0.06	PP
V96PNR		119.8	-1.1	-0.17	254.9	4.5	0.28	TS
WDUPHD		115.0	-6.0	-0.88	244.8	-5.5	-0.35	PP
X4GBWM		112.4	-8.6	-1.26	247.6	-2.8	-0.17	PP
XA8K6Z		125.9	5.0	0.73	245.1	-5.3	-0.33	LA
XMWJV3		114.3	-6.7	-0.97	231.5	-18.9	-1.19	LA
YK6RFQ		117.2	-3.7	-0.55	281.8	31.4	1.98	HM

Summary Statistics	Sample GL57	Sample GL58
Grand Means	120.95 Sheffield	250.39 Sheffield
Stnd Dev Btwn Labs	6.83 Sheffield	15.89 Sheffield

Statistics based on 52 of 56 reporting participants.

Comments on Assigned Data Flags for Test #378

L2BVB2 (X) - Inconsistent in testing between samples. Inconsistent within the determinations of sample GL58.

NM3TQW (X) - Extreme Data.

4TYN4N (X) - Data for both samples are low.

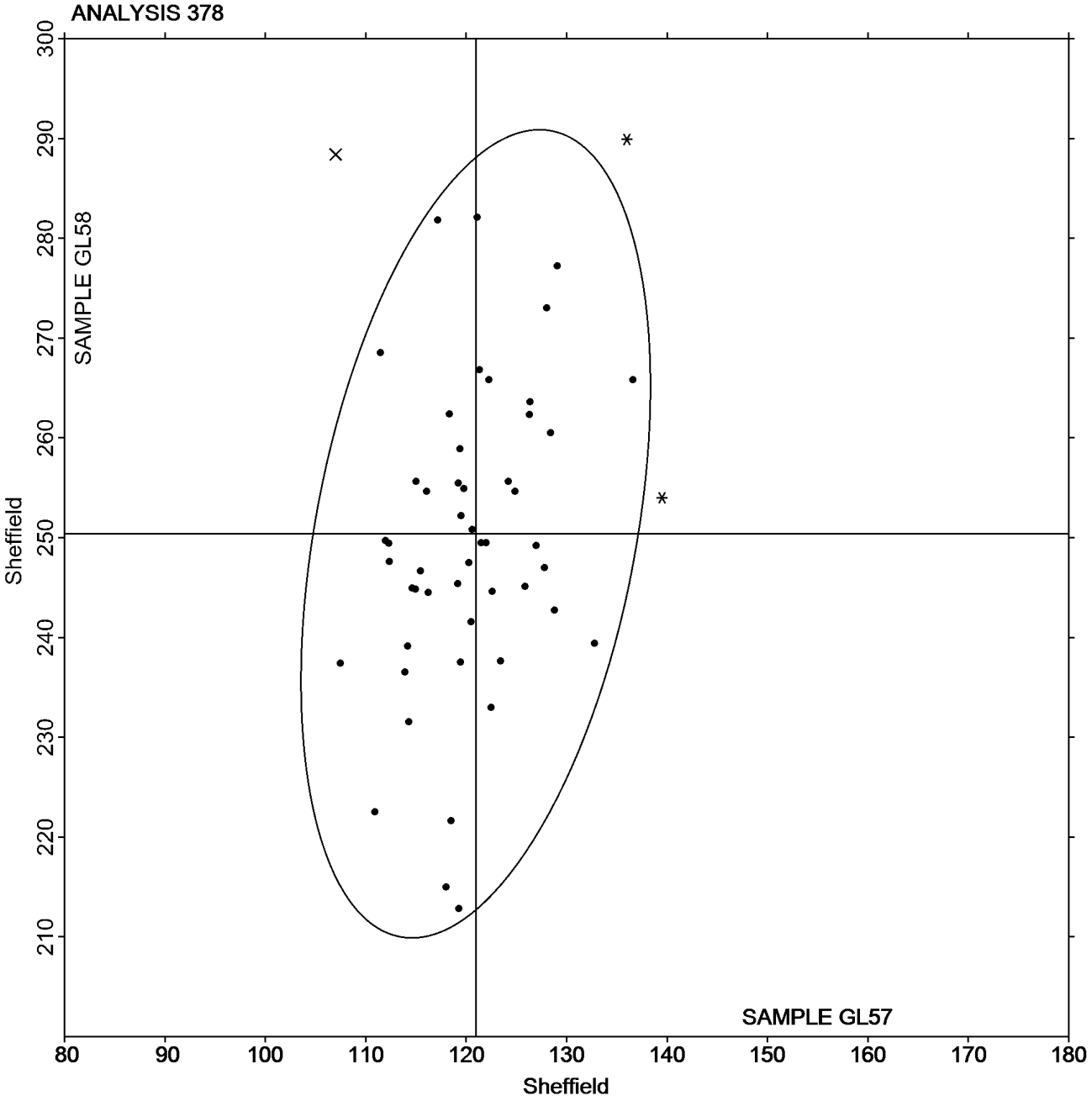
QMYNNR (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample GL57 = 120.95
Sheffield

Grand Mean Sample GL58 = 250.39
Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382
Moisture in Paper
TAPPI Official Test Method T412

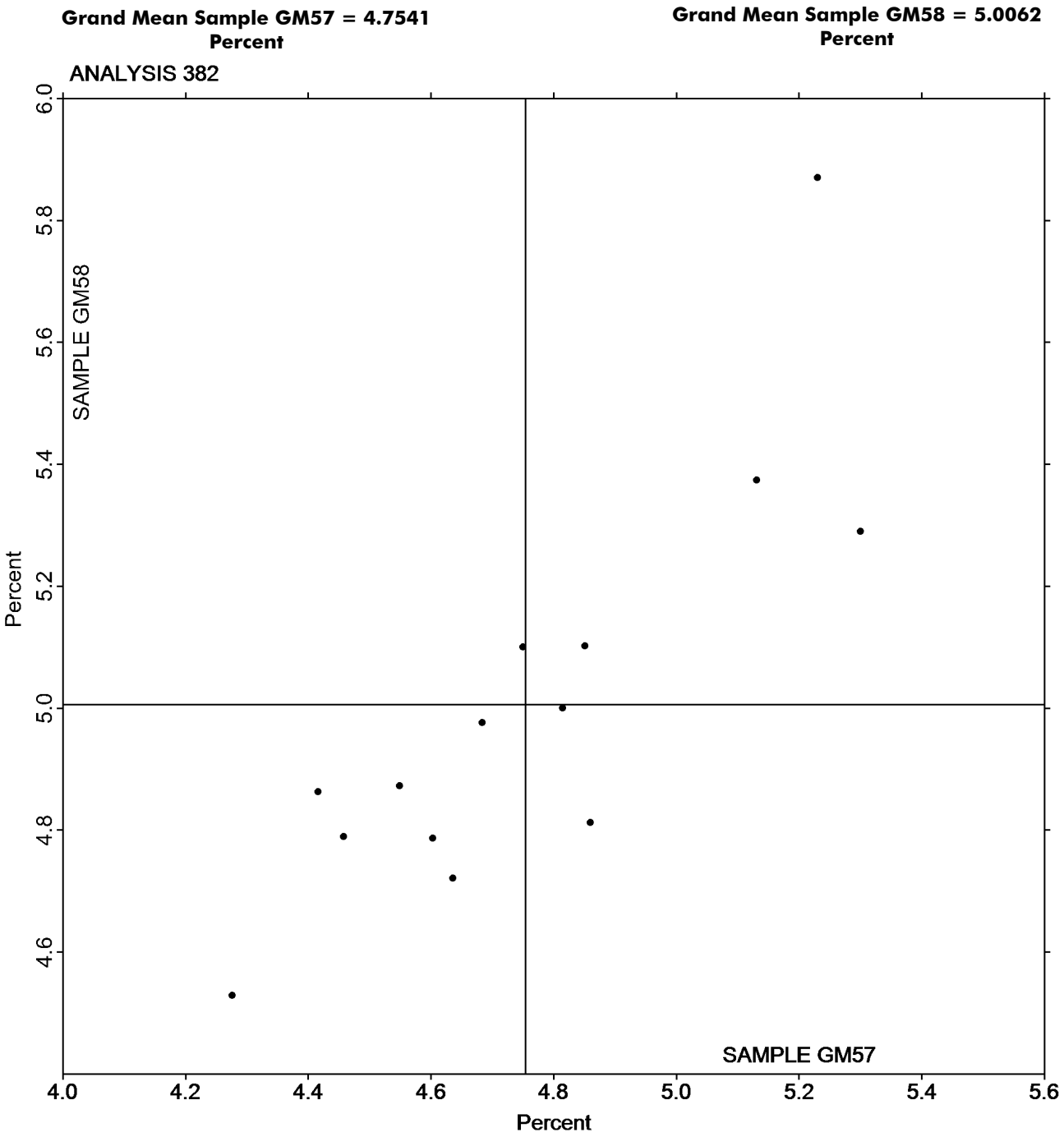
WebCode	Data Flag	Sample GM57 Lab Mean	Sample GM57 Diff from Grand Mean	Sample GM57 CPV	Sample GM58 Lab Mean	Sample GM58 Diff from Grand Mean	Sample GM58 CPV	Instr Code
29MP9J		5.131	0.377	1.24	5.374	0.368	1.10	ZZ
2RV6DG		4.860	0.106	0.35	4.813	-0.194	-0.58	ZZ
36YT4P		5.300	0.546	1.79	5.290	0.284	0.85	ZZ
44H3AB		4.750	-0.004	-0.01	5.100	0.094	0.28	ZZ
4A8FBY		4.276	-0.478	-1.57	4.529	-0.477	-1.42	ZZ
FZM7VU		4.683	-0.071	-0.23	4.977	-0.030	-0.09	ZZ
HKEAH6		4.815	0.061	0.20	5.000	-0.006	-0.02	ZZ
KYCV7C		4.636	-0.118	-0.39	4.721	-0.285	-0.85	ZZ
MWG94Y		4.603	-0.151	-0.50	4.787	-0.219	-0.65	ZZ
MXRZAV		4.458	-0.296	-0.97	4.789	-0.217	-0.65	ZZ
MYJWW4		5.230	0.476	1.56	5.870	0.864	2.58	ZZ
UM682K		4.549	-0.205	-0.67	4.872	-0.134	-0.40	ZZ
WYDM6V		4.416	-0.338	-1.11	4.863	-0.143	-0.43	ZZ
Y4XVWR		4.851	0.097	0.32	5.102	0.096	0.29	ZZ

Summary Statistics	Sample GM57	Sample GM58
Grand Means	4.75 Percent	5.01 Percent
Stnd Dev Btwn Labs	0.30 Percent	0.34 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

Report #2952G, August 2018

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

TAPPI Official Test Method T425

WebCode	Data Flag	Sample GN57 Lab Mean	Sample GN57 Diff from Grand Mean	Sample GN57 CPV	Sample GN58 Lab Mean	Sample GN58 Diff from Grand Mean	Sample GN58 CPV	Instr Code
2ETEWH		88.40	-0.57	-1.07	93.07	-0.51	-1.46	ZZ
4AA4UY		89.09	0.12	0.22	93.73	0.15	0.42	ZZ
6299A6		88.31	-0.66	-1.23	93.40	-0.18	-0.53	ZZ
73X46C		88.42	-0.56	-1.04	93.59	0.00	0.01	ZZ
9CELD2		89.80	0.83	1.54	93.91	0.33	0.93	ZZ
AGQUE7		88.42	-0.56	-1.04	92.89	-0.69	-1.97	ZZ
BJBW6C		88.98	0.00	0.00	93.56	-0.02	-0.07	ZZ
BKK8E2		89.03	0.06	0.10	93.32	-0.26	-0.75	ZZ
CBA9H6	X	87.59	-1.38	-2.58	91.96	-1.63	-4.63	ZZ
DYDHGX		89.08	0.11	0.20	94.03	0.45	1.27	ZZ
EKB9CN		88.96	-0.01	-0.03	93.47	-0.11	-0.32	ZZ
EWNCFD		88.22	-0.75	-1.41	93.31	-0.27	-0.78	ZZ
FAM2MX	X	91.57	2.60	4.85	95.25	1.66	4.73	ZZ
FDPWCR		89.46	0.49	0.91	93.52	-0.06	-0.18	ZZ
FP4RUC		89.23	0.25	0.47	93.63	0.05	0.14	ZZ
FZM7VU		89.29	0.31	0.59	93.54	-0.04	-0.12	ZZ
GG4UGU		89.30	0.33	0.61	93.49	-0.09	-0.26	ZZ
KL3C9H		88.17	-0.80	-1.49	92.75	-0.83	-2.36	ZZ
KYPQ46		89.17	0.20	0.37	93.76	0.18	0.50	ZZ
LNAWPQ		89.10	0.13	0.23	94.03	0.45	1.27	ZZ
LPLPNY		87.80	-1.18	-2.20	93.09	-0.49	-1.40	ZZ
LXXVGV		89.01	0.03	0.06	93.71	0.13	0.36	ZZ
MKMXT8		88.42	-0.55	-1.03	93.14	-0.44	-1.26	ZZ
MXUHG7		88.68	-0.29	-0.54	93.72	0.13	0.38	ZZ
PYDEXV		89.63	0.66	1.22	94.03	0.45	1.27	ZZ
QACGRR		88.46	-0.51	-0.96	93.75	0.17	0.48	ZZ
RANQ24		89.20	0.22	0.41	94.03	0.45	1.28	ZZ
TCTM2X		89.16	0.19	0.35	93.41	-0.17	-0.49	ZZ
U999XN		89.56	0.59	1.09	93.65	0.07	0.19	ZZ
V96PNR		88.69	-0.28	-0.53	93.67	0.09	0.25	ZZ
WDUPHD		90.22	1.25	2.32	94.36	0.78	2.22	ZZ
XA8K6Z		89.33	0.36	0.66	93.59	0.01	0.02	ZZ
XMWJV3		89.60	0.63	1.17	93.85	0.27	0.76	ZZ
YK6RFQ		89.00	0.03	0.05	93.65	0.07	0.19	ZZ

Summary Statistics	Sample GN57	Sample GN58
Grand Means	88.97 Percent	93.58 Percent
Stnd Dev Btwn Labs	0.54 Percent	0.35 Percent

Statistics based on 32 of 34 reporting participants.

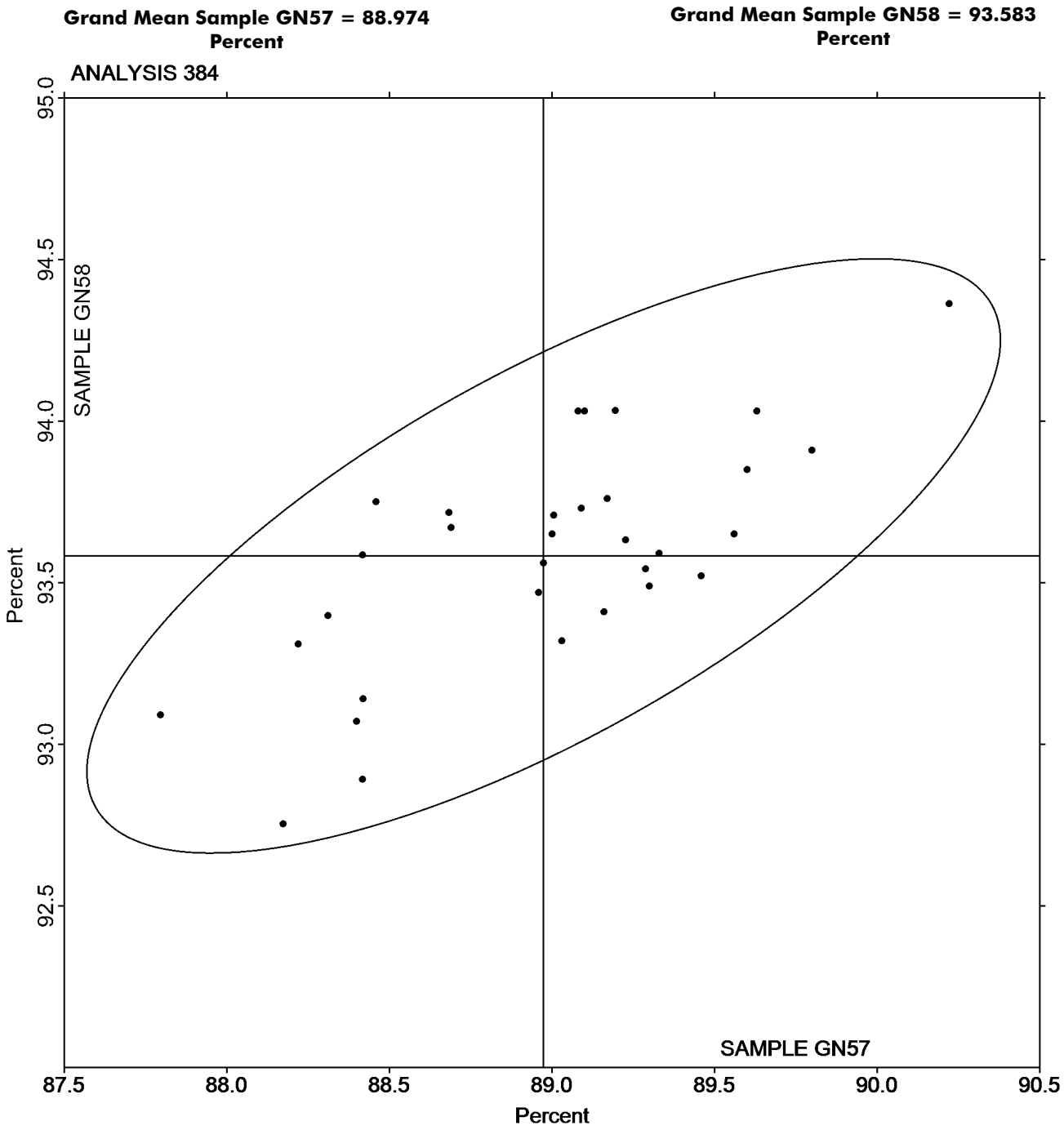
Comments on Assigned Data Flags for Test #384

FAM2MX (X) - Data for both samples are high.

CBA9H6 (X) - Data for sample GN58 are low.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program

Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

TAPPI Official Test Method T519

WebCode	Data Flag	Sample GP57 Lab Mean	Sample GP57 Diff from Grand Mean	Sample GP57 CPV	Sample GP58 Lab Mean	Sample GP58 Diff from Grand Mean	Sample GP58 CPV	Instr Code
4TYN4N	X	95.75	0.60	7.13	94.82	1.81	24.11	ZZ
8M3U6D		95.25	0.11	1.26	93.10	0.10	1.27	ZZ
AQU6RM		94.99	-0.16	-1.83	92.91	-0.09	-1.22	ZZ
BM8KJX		95.26	0.11	1.33	92.97	-0.04	-0.50	ZZ
C4FWQH		95.14	0.00	-0.05	93.00	0.00	-0.05	ZZ
CHU9Z3	X	97.03	1.88	22.18	99.41	6.40	85.21	ZZ
F9VVBD		95.07	-0.08	-0.96	93.01	0.01	0.07	ZZ
HTDMPZ		95.17	0.03	0.31	92.99	-0.01	-0.20	ZZ
KL3C9H		95.26	0.11	1.30	93.12	0.11	1.48	ZZ
KLT9YZ		95.02	-0.13	-1.50	92.92	-0.09	-1.14	ZZ
MM9NWW		95.23	0.08	0.93	92.95	-0.06	-0.76	ZZ
MXRTCA		95.09	-0.06	-0.70	93.01	0.01	0.10	ZZ
UZ8XHJ		95.11	-0.04	-0.48	92.89	-0.11	-1.50	ZZ
V2MJRK		95.18	0.03	0.34	93.10	0.09	1.20	ZZ
WNCL6W		95.09	-0.05	-0.64	93.12	0.11	1.45	ZZ
WYDM6V		95.16	0.01	0.11	92.96	-0.05	-0.65	ZZ
YD6B6K		95.11	-0.04	-0.44	93.08	0.08	1.00	ZZ
YNHKEW		95.23	0.09	1.01	92.97	-0.04	-0.54	ZZ

Summary Statistics	Sample GP57	Sample GP58
Grand Means	95.15 Percent	93.01 Percent
Stnd Dev Btwn Labs	0.08 Percent	0.08 Percent

Statistics based on 16 of 18 reporting participants.

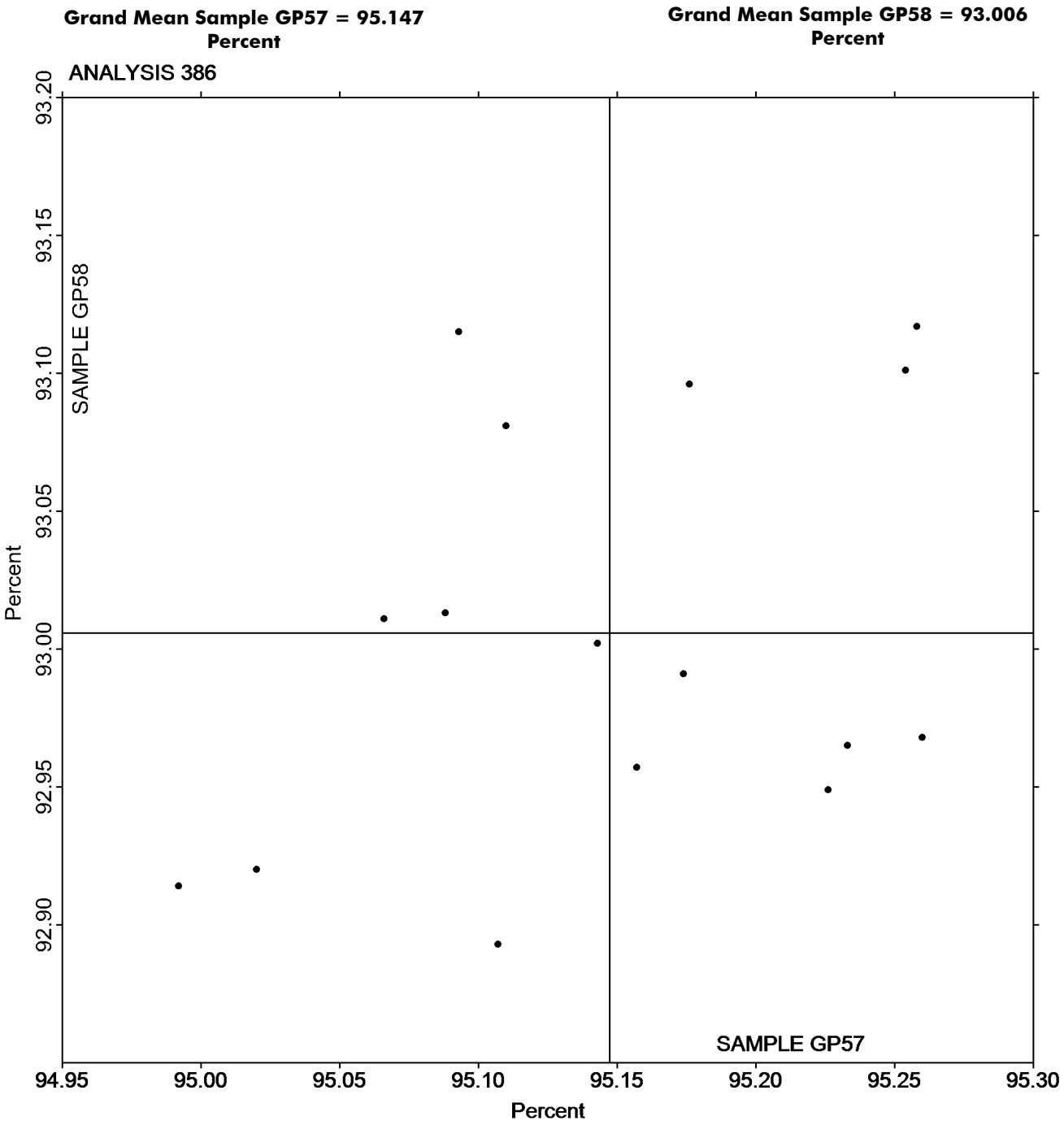
Comments on Assigned Data Flags for Test #386

4TYN4N (X) - Extreme Data.

CHU9Z3 (X) - Extreme Data.

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

WebCode	Data Flag	Sample GR57 Lab Mean	Sample GR57 Diff from Grand Mean	Sample GR57 CPV	Sample GR58 Lab Mean	Sample GR58 Diff from Grand Mean	Sample GR58 CPV	Instr Code
29MP9J	X	59.80	-20.80	-13.17	61.03	-19.57	-12.18	TS
2ETEWH	*	84.98	4.38	2.77	84.92	4.33	2.69	PE
67KGCV		79.35	-1.25	-0.79	79.19	-1.40	-0.87	TT
73X46C		81.19	0.59	0.37	81.28	0.68	0.43	XX
8XNXBR		80.64	0.04	0.02	80.71	0.12	0.08	TT
9CELD2		79.40	-1.20	-0.76	79.19	-1.40	-0.87	TS
CBA9H6		80.80	0.20	0.13	80.83	0.24	0.15	VM
EKB9CN	X	79.41	-1.19	-0.75	80.24	-0.35	-0.22	XC
FAM2MX		79.65	-0.95	-0.60	79.73	-0.87	-0.54	XX
FDPWCR		78.98	-1.63	-1.03	79.06	-1.53	-0.95	TT
GG4UGU		82.50	1.90	1.20	82.64	2.05	1.27	TT
HKEAH6		80.07	-0.53	-0.34	79.98	-0.62	-0.38	XX
KL3C9H		79.49	-1.11	-0.70	79.59	-1.00	-0.62	TS
KYPQ46		79.89	-0.71	-0.45	80.00	-0.59	-0.37	TT
LNAWPQ		80.75	0.15	0.09	81.01	0.42	0.26	TS
LXXVGV		81.41	0.81	0.51	81.43	0.83	0.52	TS
MXUHG7		78.69	-1.91	-1.21	78.78	-1.82	-1.13	TP
MY7ELB		83.56	2.96	1.88	83.55	2.96	1.84	HG
P4AACN		81.66	1.05	0.67	81.70	1.11	0.69	HZ
QBN72V		79.24	-1.37	-0.86	78.98	-1.62	-1.01	TS
RJEB6G	X	71.20	-9.41	-5.96	71.10	-9.49	-5.91	EA
TCTM2X		78.91	-1.69	-1.07	78.80	-1.79	-1.12	TT
U999XN		81.30	0.70	0.44	81.30	0.71	0.44	TS
UKZWQ3		82.95	2.35	1.49	82.95	2.36	1.47	HG
UU7NCQ		80.45	-0.15	-0.10	80.44	-0.15	-0.10	PP
V7C27W		80.88	0.27	0.17	80.95	0.36	0.22	TS
V96PNR		79.28	-1.33	-0.84	79.16	-1.43	-0.89	TS
WDUPHD		81.65	1.05	0.66	81.65	1.06	0.66	XX
X4GBWM		78.35	-2.25	-1.42	78.37	-2.22	-1.38	TS
XA8K6Z	*	80.25	-0.36	-0.23	79.82	-0.78	-0.48	TS

Summary Statistics	Sample GR57	Sample GR58
Grand Means	80.60 Percent	80.59 Percent
Stnd Dev Btwn Labs	1.58 Percent	1.61 Percent

Statistics based on 27 of 30 reporting participants.

Comments on Assigned Data Flags for Test #390

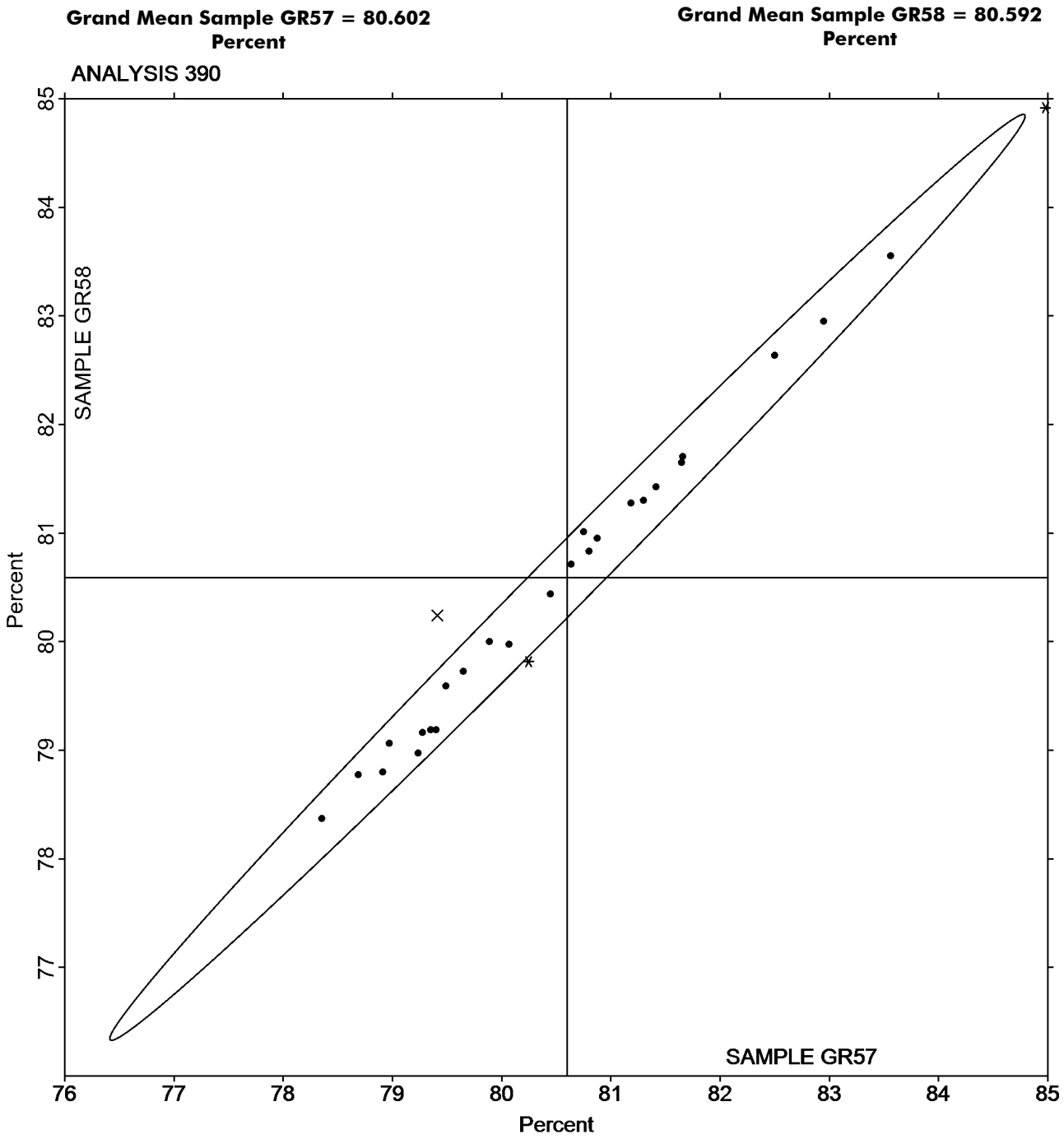
RJEB6G (X) - Data for both samples are low. Possible Systematic Error.

EKB9CN (X) - Inconsistent in testing between samples.

29MP9J (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

EA	L & W Autoline 400	HG	Hunter Labscan / XE
HZ	Hunter Lab ColorFlex EZ Series	PE	Photovolt 577
PP	Technidyne Profile/Plus	TP	Technidyne Test/Plus
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M
VM	Valmet PaperLab (was Kajaani/Robotest)	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 GZ57 Lab Mean	Sample GZ57 Diff from Grand Mean	Sample GZ57 CPV	Sample GZ58 Lab Mean	Sample GZ58 Diff from Grand Mean	Sample GZ58 CPV	Instr Code
6299A6		99.01	0.27	0.13	98.09	-0.03	-0.01	TS
73X46C		98.46	-0.28	-0.13	98.31	0.19	0.08	XX
BKK8E2		99.86	1.12	0.55	99.02	0.90	0.37	TT
EWNCFD		98.16	-0.58	-0.28	98.05	-0.07	-0.03	HT
FZM7VU		99.19	0.45	0.22	98.60	0.47	0.19	TS
MKMXT8		99.62	0.88	0.43	98.66	0.54	0.22	TS
MYJWW4		97.82	-0.92	-0.45	97.86	-0.26	-0.11	LE
PYDEXV		97.54	-1.19	-0.58	97.37	-0.75	-0.31	HT
QACGRR		99.88	1.14	0.56	99.30	1.18	0.48	TT
RANQ24		99.47	0.73	0.36	98.52	0.40	0.16	PP
V2MJRK		101.20	2.46	1.21	101.24	3.11	1.27	TS
V96PNR		99.87	1.13	0.55	99.29	1.17	0.48	TS
XMWJV3		99.74	1.00	0.49	99.20	1.08	0.44	TT
YK6RFQ	*	92.48	-6.26	-3.06	90.22	-7.90	-3.22	TT

Summary Statistics	Sample GZ57	Sample GZ58
Grand Means	98.74 Percent	98.12 Percent
Stnd Dev Btwn Labs	2.04 Percent	2.45 Percent

Statistics based on 14 of 14 reporting participants.

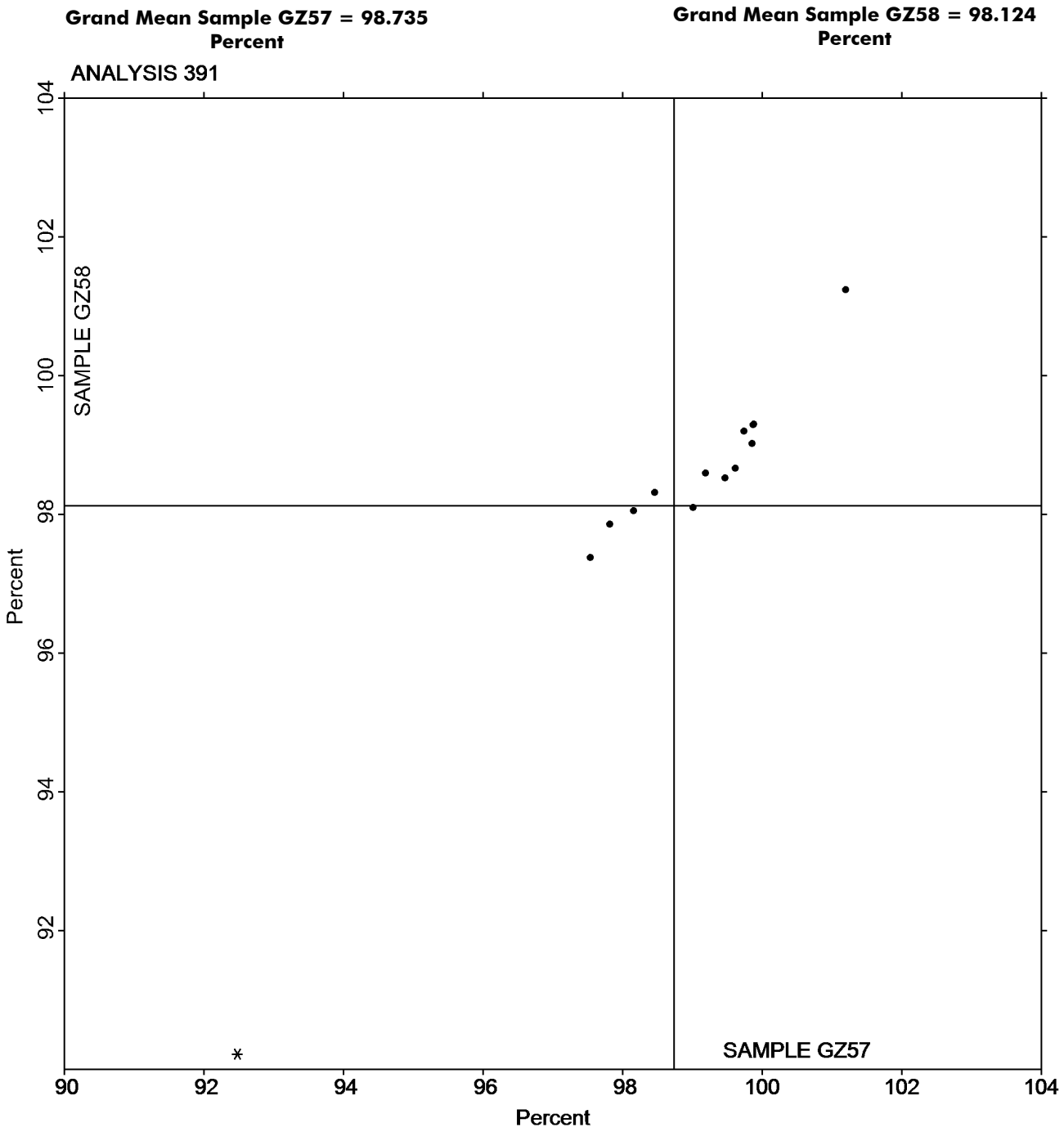
Comments on Assigned Data Flags for Test #391

Analysis Notes:

YK6RFQ - Data appears to be transposed between Analysis 391 (Directional Brightness) and Analysis 394 (Fluorescenct Component). Data switched by CTS.

Key to Instrument Codes Reported by Participants

HT	Hunter UltraScan Vis	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 392
Diffuse Brightness
TAPPI Official Test Method T525

WebCode	Data Flag	Sample GR57 Lab Mean	Sample GR57 Diff from Grand Mean	Sample GR57 CPV	Sample GR58 Lab Mean	Sample GR58 Diff from Grand Mean	Sample GR58 CPV	Instr Code
2J4PMR		79.48	-0.06	-0.17	79.51	-0.03	-0.10	TC
67KGCV		78.96	-0.57	-1.76	78.88	-0.66	-2.08	EG
6GKQYK		79.84	0.31	0.94	79.66	0.12	0.39	XX
8M3U6D		79.38	-0.15	-0.47	79.43	-0.11	-0.35	EG
8XNXBR	X	82.16	2.63	8.06	82.20	2.66	8.41	TL
AQU6RM		80.05	0.51	1.57	79.97	0.43	1.35	TM
BM8KJX		79.86	0.33	1.00	79.95	0.41	1.29	TC
DKFD9Z		79.46	-0.07	-0.22	79.53	-0.01	-0.04	TC
DYDHGX		79.56	0.03	0.08	79.57	0.03	0.09	TC
E7QXH7		79.46	-0.08	-0.24	79.49	-0.05	-0.15	TC
ECYC9G		79.70	0.16	0.50	79.64	0.10	0.31	TC
F9VVBD		79.59	0.05	0.15	79.56	0.02	0.06	TC
FDPWCR		80.30	0.77	2.35	80.33	0.79	2.50	LT
HKEAH6		79.92	0.38	1.18	79.75	0.21	0.68	EE
HTDMPZ		79.22	-0.32	-0.97	79.22	-0.31	-0.99	LE
KL3C9H		79.86	0.33	1.00	79.91	0.37	1.17	TC
KLT9YZ		79.34	-0.20	-0.61	79.34	-0.20	-0.62	LA
LE2HMN		79.45	-0.09	-0.27	79.31	-0.23	-0.73	TC
MYJWW4		79.03	-0.51	-1.56	79.06	-0.48	-1.50	LE
NTUZ96		79.09	-0.45	-1.37	79.11	-0.43	-1.36	TC
UU7NCQ		79.29	-0.24	-0.74	79.43	-0.11	-0.36	EG
V2MJRK		79.78	0.24	0.74	79.68	0.14	0.45	TC
V7C27W		79.67	0.13	0.41	79.67	0.13	0.42	TC
WNCL6W		79.74	0.21	0.64	79.89	0.35	1.12	TC
WYDM6V		79.28	-0.26	-0.80	79.35	-0.19	-0.59	LE
XA8K6Z		79.36	-0.18	-0.55	79.31	-0.23	-0.73	TC
ZD22UZ		79.26	-0.27	-0.83	79.46	-0.08	-0.24	TC

Summary Statistics	Sample GR57	Sample GR58
Grand Means	79.54 Percent	79.54 Percent
Stnd Dev Btwn Labs	0.33 Percent	0.32 Percent

Statistics based on 26 of 27 reporting participants.

Comments on Assigned Data Flags for Test #392

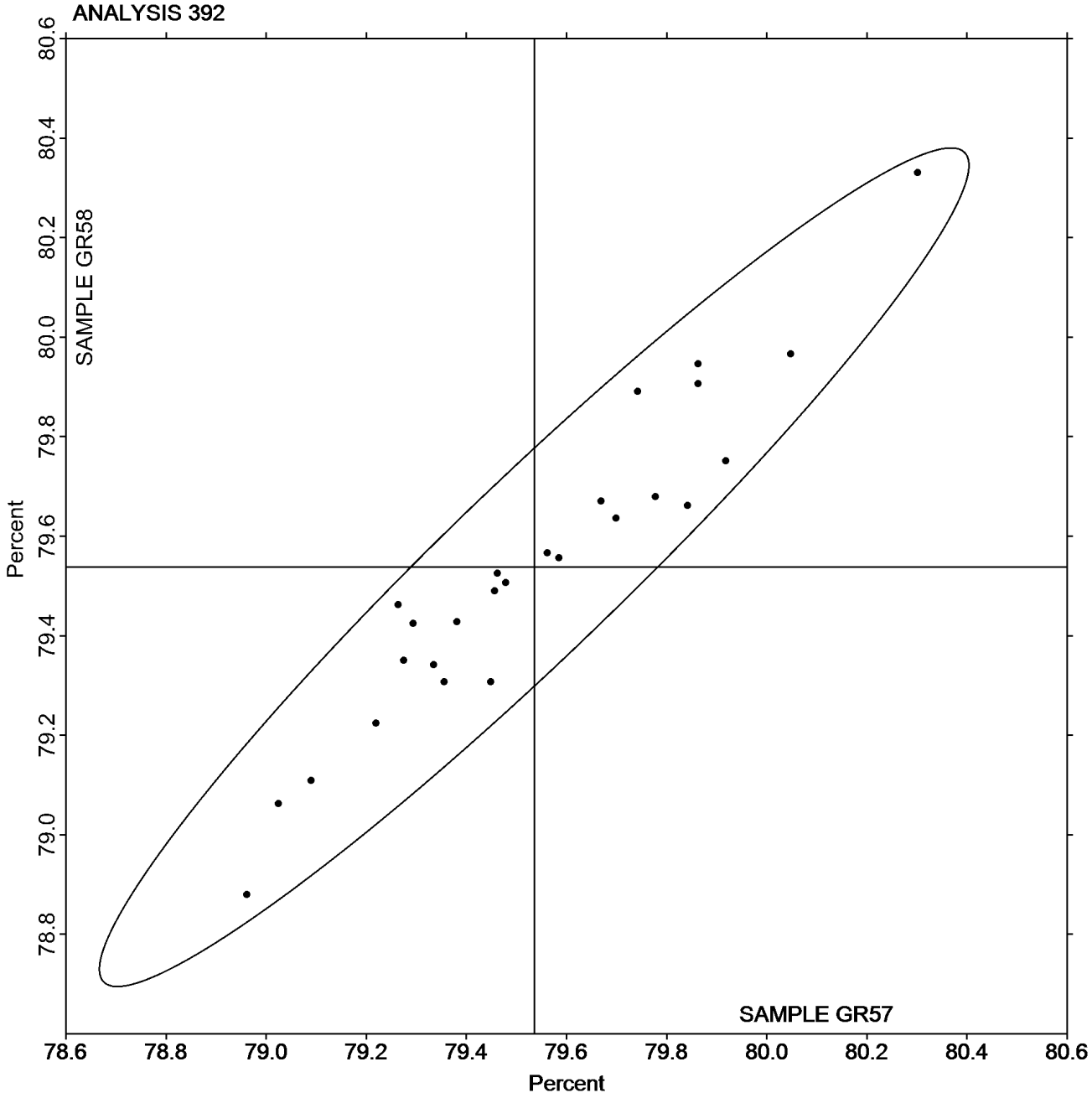
8XNXBR (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

EE	Datacolor Elrepho 2000	EG	Datacolor Elrepho 450X
LA	L & W Elrepho - Autoline	LE	L & W Elrepho
LT	L & W Elrepho SE 071	TC	Technidyne Color Touch Series
TL	Technidyne Technibrite TB-1	TM	Technidyne Technibrite Micro TB-1C
XX	Instrument make/model not specified by lab		

Grand Mean Sample GR57 = 79.535 Percent

Grand Mean Sample GR58 = 79.538 Percent



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

TAPPI Official Test Method T452

WebCode	Data Flag	Sample GZ57 Lab Mean	Sample GZ57 Diff from Grand Mean	Sample GZ57 CPV	Sample GZ58 Lab Mean	Sample GZ58 Diff from Grand Mean	Sample GZ58 CPV	Instr Code
6299A6		7.316	-0.189	-0.64	8.480	-0.239	-0.70	TS
73X46C		7.154	-0.351	-1.18	8.378	-0.341	-1.00	XX
FZM7VU		7.522	0.017	0.06	8.754	0.035	0.10	TS
MYJWW4	X	9.900	2.395	8.08	11.140	2.421	7.13	LE
RANQ24		7.814	0.309	1.04	8.992	0.273	0.80	PP
V2MJRK		7.250	-0.255	-0.86	8.366	-0.353	-1.04	TS
V96PNR		7.518	0.013	0.04	8.782	0.063	0.19	TS
XMWJV3		7.960	0.455	1.54	9.280	0.561	1.65	TT
YK6RFQ	X	6.100	-1.405	-4.74	3.700	-5.019	-14.77	TT

Summary Statistics	Sample GZ57	Sample GZ58
Grand Means	7.50 Percent	8.72 Percent
Stnd Dev Btwn Labs	0.30 Percent	0.34 Percent

Statistics based on 7 of 9 reporting participants.

Comments on Assigned Data Flags for Test #394

MYJWW4 (X) - Extreme Data.

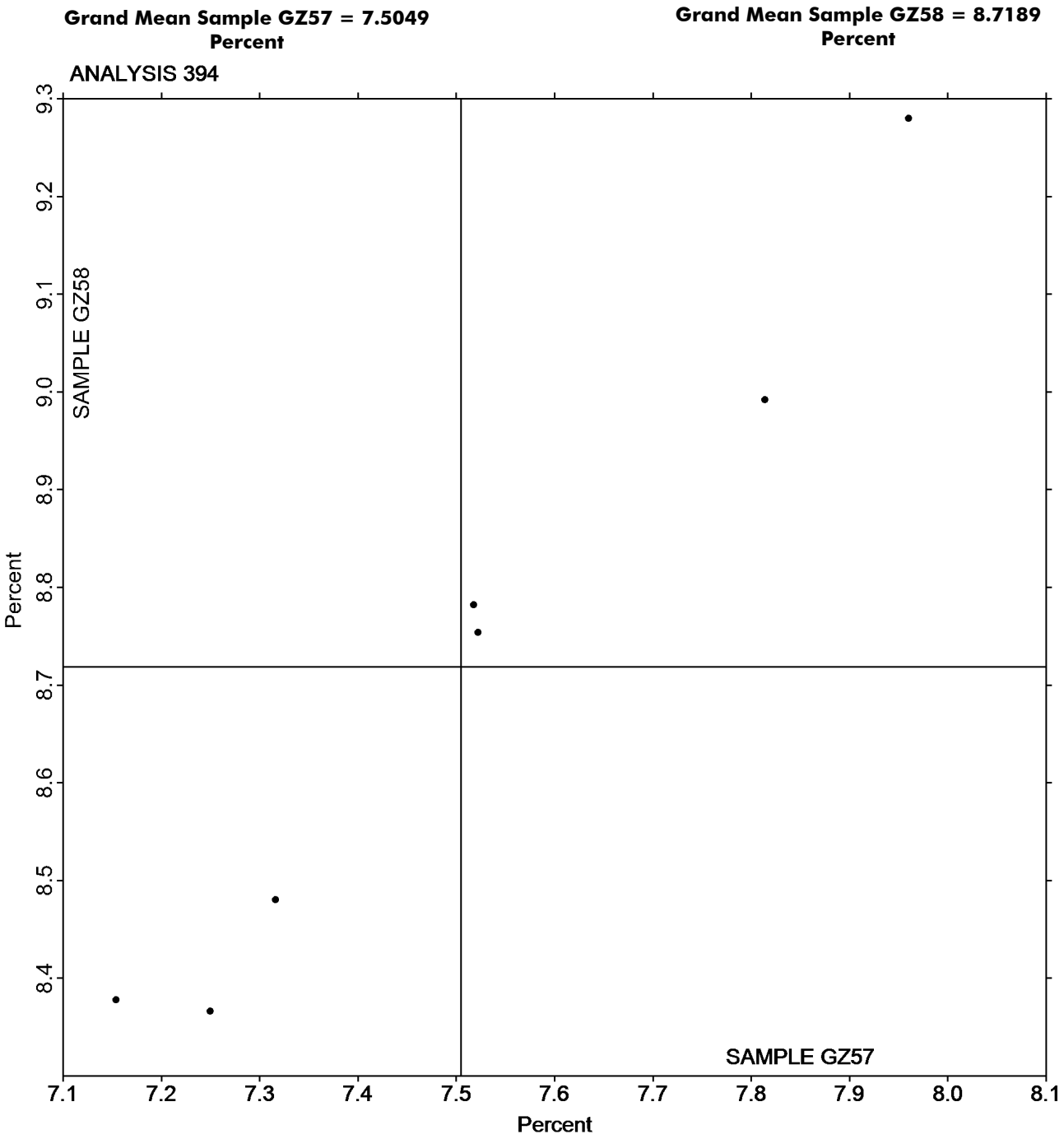
YK6RFQ (X) - Extreme Data.

Analysis Notes:

YK6RFQ - Data appears to be transposed between Analysis 391 (Directional Brightness) and Analysis 394 (Fluorescenct Component). Data switched by CTS.

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

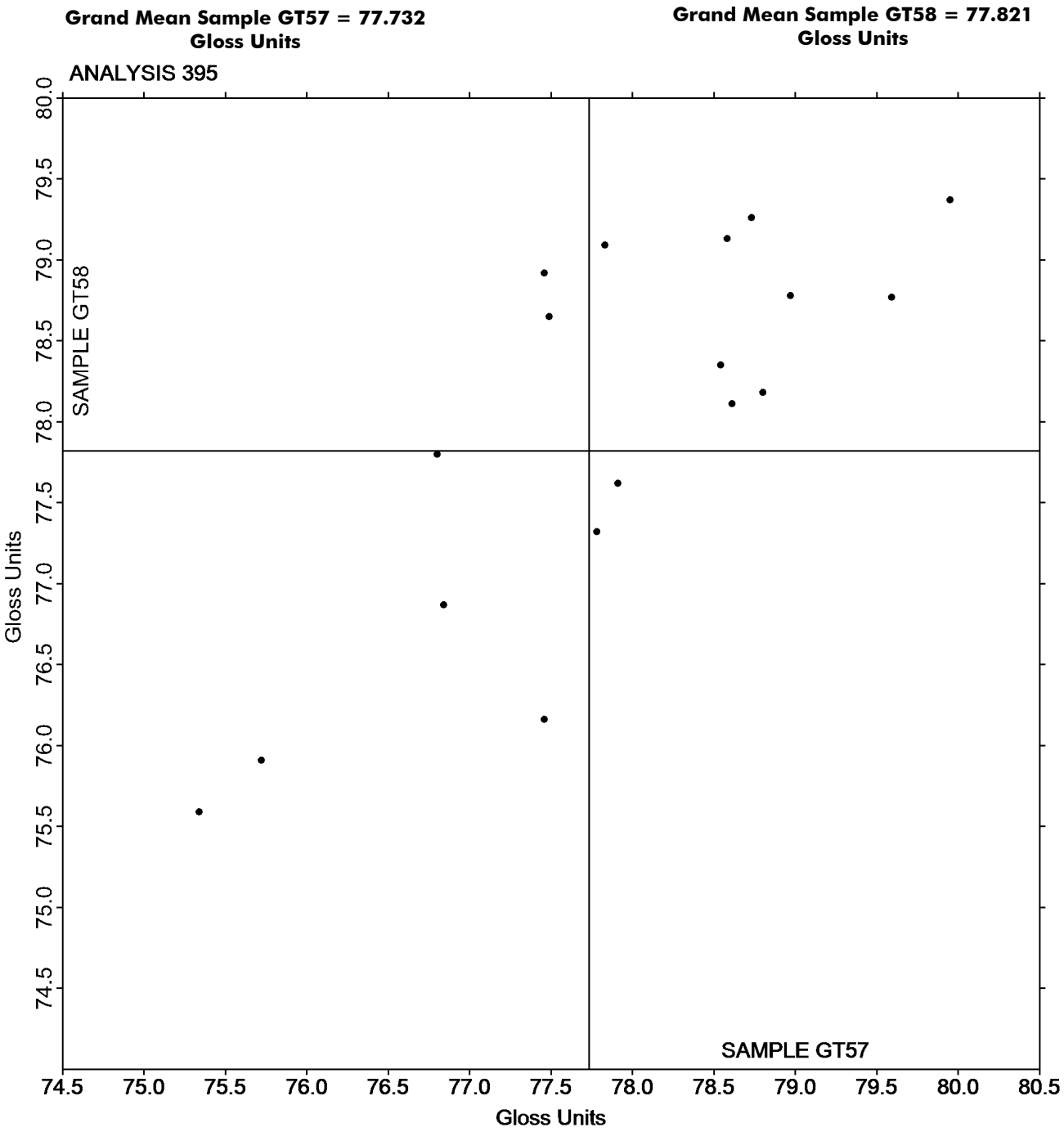
WebCode	Data Flag	Sample GT57 Lab Mean	Sample GT57 Diff from Grand Mean	Sample GT57 CPV	Sample GT58 Lab Mean	Sample GT58 Diff from Grand Mean	Sample GT58 CPV	Instr Code
3JHDLX		77.46	-0.27	-0.19	76.16	-1.66	-1.20	LA
67KGCV		79.95	2.22	1.56	79.37	1.55	1.12	TH
8XNXBR		76.84	-0.89	-0.63	76.87	-0.95	-0.69	GS
CBA9H6		78.54	0.81	0.57	78.35	0.53	0.38	VM
HTDMPZ		77.83	0.10	0.07	79.09	1.27	0.92	LB
KYPQ46		78.58	0.85	0.60	79.13	1.31	0.95	TH
LTLZHD		78.97	1.24	0.87	78.78	0.96	0.70	XX
LXXVGV		77.78	0.05	0.03	77.32	-0.50	-0.36	LA
MY7ELB		78.73	1.00	0.70	79.26	1.44	1.04	TH
NM3TQW		76.80	-0.93	-0.66	77.80	-0.02	-0.01	GM
NTUZ96		74.50	-3.23	-2.28	74.71	-3.11	-2.25	ZH
QACGRR		79.59	1.86	1.31	78.77	0.95	0.69	TG
RANQ24		77.49	-0.24	-0.17	78.65	0.83	0.60	PP
RPHFWZ		75.72	-2.01	-1.42	75.91	-1.91	-1.38	VM
UKZWQ3		77.46	-0.27	-0.19	78.92	1.10	0.80	TH
UU7NCQ		78.61	0.88	0.62	78.11	0.29	0.21	GA
UZ8XHJ		77.91	0.18	0.13	77.62	-0.20	-0.15	EP
V2MJRK		75.34	-2.39	-1.68	75.59	-2.23	-1.62	LA
YK6RFQ		78.80	1.07	0.75	78.18	0.36	0.26	PP

Summary Statistics	Sample GT57	Sample GT58
Grand Means	77.73 Gloss Units	77.82 Gloss Units
Stnd Dev Btwn Labs	1.42 Gloss Units	1.38 Gloss Units

Statistics based on 19 of 19 reporting participants.

Key to Instrument Codes Reported by Participants

EP	Erichsen Picogloss 503	GA	BYK-Gardner (model not specified)
GM	BYK-Gardner micro-gloss	GS	BYK-Gardner Glossgard II
LA	L & W Gloss - Autoline 300	LB	L & W Gloss Tester Code 224
PP	Technidyne Profile/Plus	TG	Technidyne T480
TH	Technidyne T480A	VM	Valmet PaperLab (was Kajaani/Robotest)
XX	Instrument make/model not specified by lab	ZH	Zehntner ZLR 1050



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

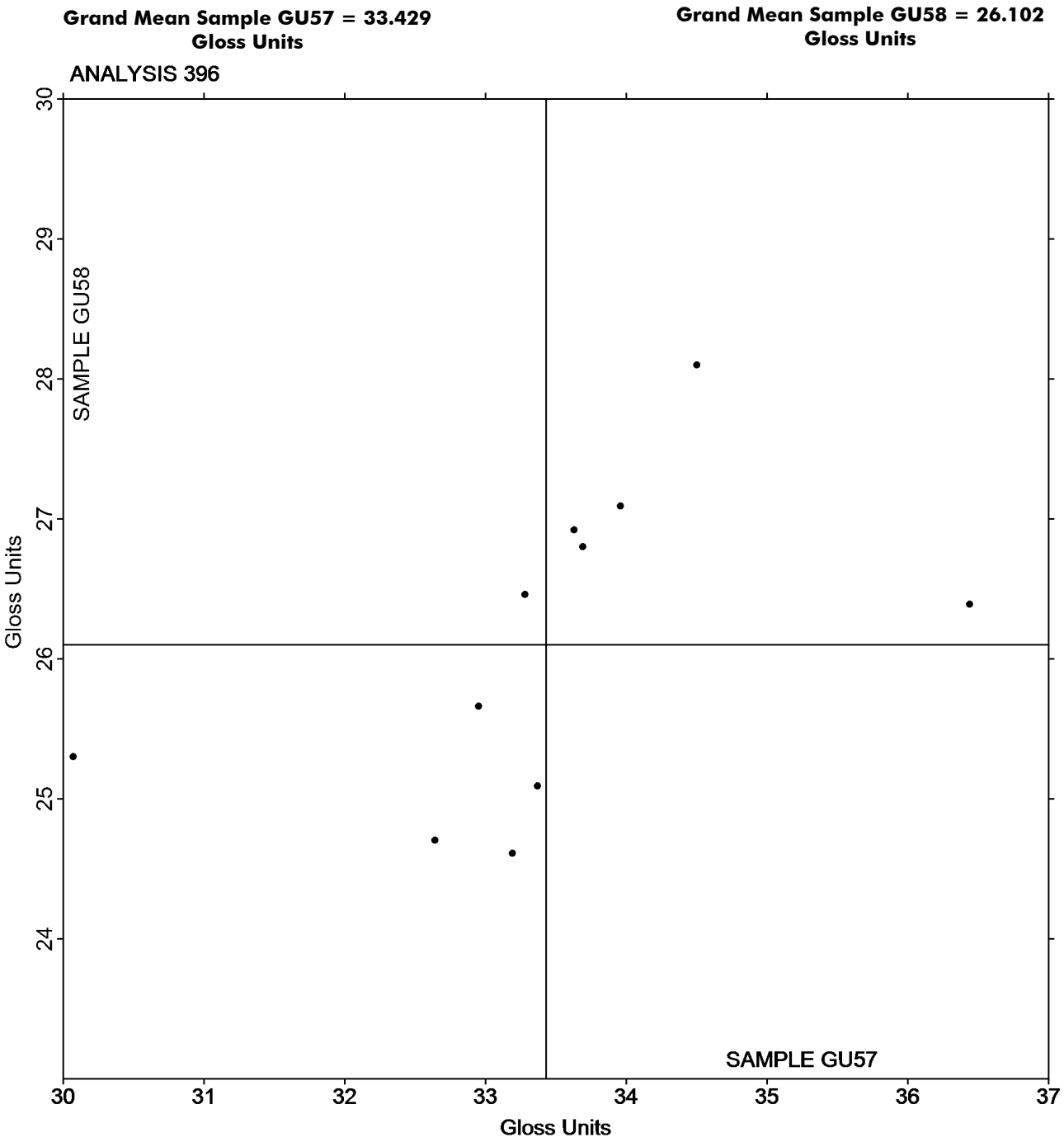
WebCode	Data Flag	Sample GU57 Lab Mean	Sample GU57 Diff from Grand Mean	Sample GU57 CPV	Sample GU58 Lab Mean	Sample GU58 Diff from Grand Mean	Sample GU58 CPV	Instr Code
2RV6DG		33.37	-0.06	-0.04	25.09	-1.01	-0.91	XX
DYDHGX		34.50	1.07	0.71	28.10	2.00	1.80	TH
EKB9CN		33.63	0.20	0.13	26.92	0.82	0.74	TH
FP4RUC		32.95	-0.48	-0.32	25.66	-0.44	-0.40	PP
GG4UGU		32.64	-0.79	-0.52	24.71	-1.40	-1.26	TH
HTDMPZ		33.28	-0.15	-0.10	26.46	0.36	0.32	LA
KL3C9H		33.19	-0.24	-0.16	24.61	-1.49	-1.34	TG
MYJWW4		36.44	3.01	1.99	26.39	0.29	0.26	LE
P4AACN		33.69	0.26	0.17	26.80	0.70	0.63	GS
V2MJRK		30.07	-3.36	-2.22	25.30	-0.80	-0.72	LA
V7C27W		33.96	0.53	0.35	27.09	0.99	0.89	TH

Summary Statistics	Sample GU57	Sample GU58
Grand Means	33.43 Gloss Units	26.10 Gloss Units
Stnd Dev Btwn Labs	1.51 Gloss Units	1.11 Gloss Units

Statistics based on 11 of 11 reporting participants.

Key to Instrument Codes Reported by Participants

GS	BYK-Gardner Glossgard II	LA	L & W Gloss - Autoline 300
LE	L & W Elrepho	PP	Technidyne Profile/Plus
TG	Technidyne T480	TH	Technidyne T480A
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 398

Grammage (Mass per Unit Area)

TAPPI Official Test Method T410

WebCode	Data Flag	Sample GW57 Lab Mean	Sample GW57 Diff from Grand Mean	Sample GW57 CPV	Sample GW58 Lab Mean	Sample GW58 Diff from Grand Mean	Sample GW58 CPV	Instr Code
2KT33N		103.2	-0.5	-0.51	88.94	-0.58	-0.89	ZZ
2RV6DG		103.5	-0.2	-0.19	89.07	-0.45	-0.70	ZZ
4A8FBY		103.8	0.2	0.16	89.84	0.32	0.50	ZZ
4AA4UY		102.1	-1.6	-1.69	89.50	-0.02	-0.03	ZZ
4H2JKN		103.1	-0.5	-0.56	89.08	-0.44	-0.69	ZZ
9CELD2		103.2	-0.5	-0.54	89.68	0.16	0.25	ZZ
9XFKZZ		104.8	1.1	1.18	89.00	-0.52	-0.81	ZZ
AHKHW2		105.8	2.1	2.18	90.72	1.20	1.86	ZZ
BJBW6C		104.7	1.0	1.04	89.94	0.42	0.65	ZZ
C4FWQH		104.0	0.3	0.33	89.80	0.28	0.44	ZZ
CHU9Z3		103.1	-0.6	-0.60	90.11	0.59	0.91	ZZ
CTVM3N		103.5	-0.2	-0.16	89.48	-0.04	-0.06	ZZ
DXH2X9		103.5	-0.2	-0.18	89.09	-0.43	-0.66	ZZ
DYDHGX	X	17.5	-86.2	-90.51	15.15	-74.37	-115.38	ZZ
EKB9CN		103.3	-0.4	-0.42	88.54	-0.98	-1.52	ZZ
EWNCFD		102.8	-0.9	-0.92	89.06	-0.46	-0.71	ZZ
GG4UGU		103.8	0.2	0.17	89.29	-0.23	-0.35	ZZ
HKEAH6		104.4	0.7	0.71	89.63	0.11	0.17	ZZ
HTDMPZ		103.5	-0.2	-0.16	89.22	-0.30	-0.46	ZZ
LWHTAM	*	104.0	0.3	0.35	91.01	1.49	2.31	ZZ
MKMXT8		104.6	0.9	1.00	90.10	0.58	0.90	ZZ
MWG94Y		103.2	-0.5	-0.49	89.33	-0.19	-0.30	ZZ
MXRTCA		104.2	0.5	0.56	89.52	0.00	0.00	ZZ
MYJWW4	*	100.6	-3.1	-3.23	87.80	-1.72	-2.67	ZZ
PYDEXV		104.3	0.6	0.67	89.54	0.02	0.03	ZZ
UZ8XHJ		103.3	-0.4	-0.41	89.20	-0.32	-0.49	ZZ
WDUPHD		105.0	1.3	1.41	90.57	1.05	1.64	ZZ
WEMHDW		104.4	0.7	0.73	89.89	0.37	0.58	ZZ
WYDM6V		103.3	-0.3	-0.36	88.99	-0.53	-0.82	ZZ
Y4XVWR		104.1	0.4	0.47	89.78	0.26	0.40	ZZ
YLERKX		103.2	-0.5	-0.53	89.87	0.35	0.54	ZZ

Summary Statistics	Sample GW57	Sample GW58
Grand Means	103.67 g/sq m	89.52 g/sq m
Stnd Dev Btwn Labs	0.95 g/sq m	0.64 g/sq m

Statistics based on 30 of 31 reporting participants.

Comments on Assigned Data Flags for Test #398

DYDHGX (X) - Extreme Data.

Analysis Notes:

9CELD2 - Data appears to be transposed between samples. Data Switched by CTS.

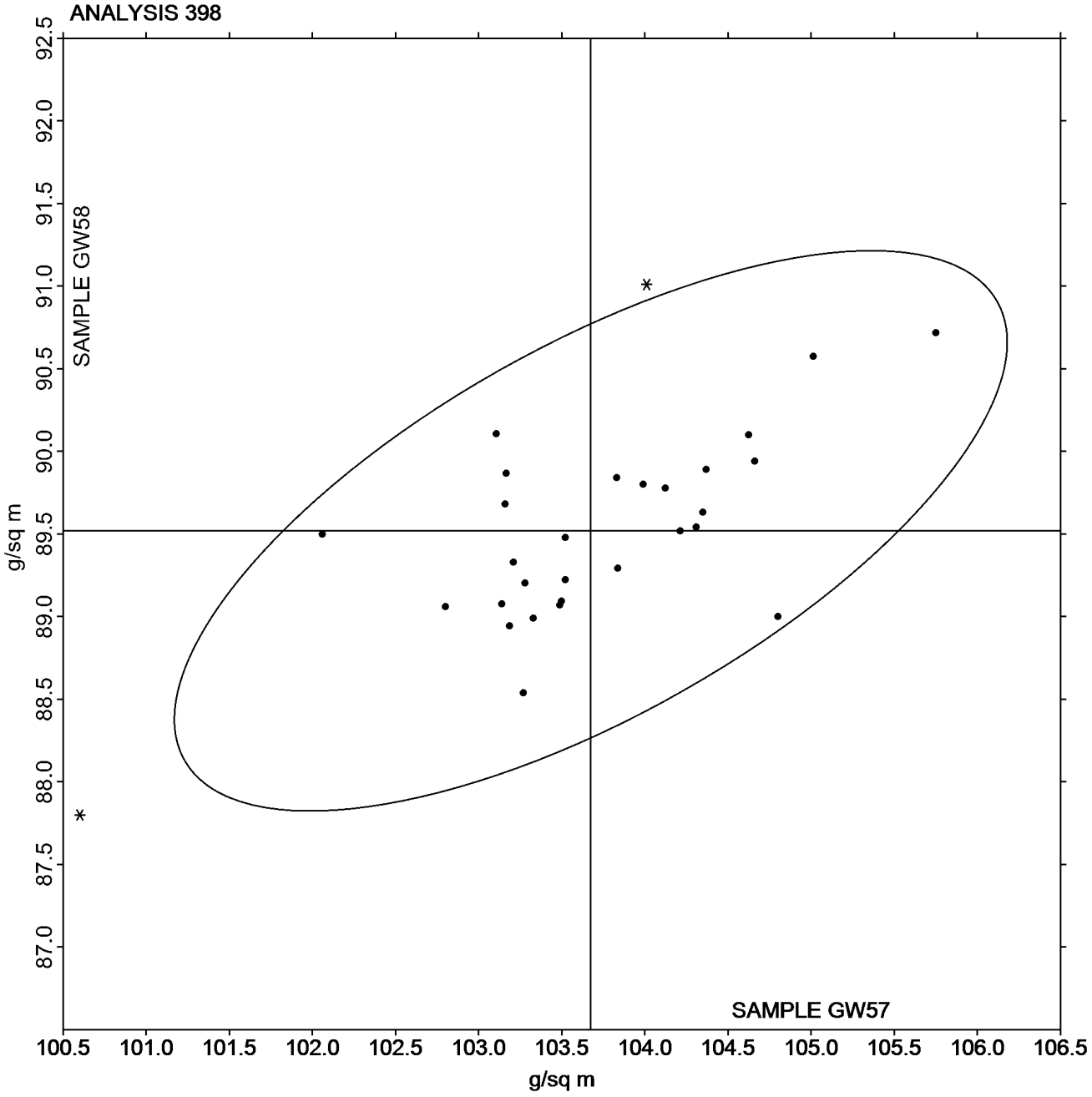
LWHTAM - Data appears to be transposed between samples. Data Switched by CTS.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GW57 = 103.67 g/sq m

Grand Mean Sample GW58 = 89.520 g/sq m



Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GX57 Lab Mean	Sample GX57 Diff from Grand Mean	Sample GX57 CPV	Sample GX58 Lab Mean	Sample GX58 Diff from Grand Mean	Sample GX58 CPV	Instr Code
2ETEWH		24.00	6.80	1.69	23.60	7.20	1.97	HE
4AA4UY		20.17	2.97	0.74	18.38	1.98	0.54	HE
6299A6		15.78	-1.42	-0.35	13.38	-3.02	-0.83	HE
8CKEZP		15.57	-1.63	-0.41	14.97	-1.43	-0.39	HE
9CELD2		22.98	5.78	1.44	22.14	5.74	1.57	HE
BKK8E2		16.50	-0.70	-0.17	17.60	1.20	0.33	HE
DYDHGX	*	28.20	11.00	2.74	25.70	9.30	2.55	HE
FAM2MX		16.98	-0.22	-0.05	14.36	-2.04	-0.56	XX
FDPWCR		18.29	1.09	0.27	17.74	1.34	0.37	HE
FP4RUC		25.65	8.45	2.11	23.33	6.93	1.90	HE
FZM7VU		15.58	-1.62	-0.40	14.51	-1.89	-0.52	HE
G8V39Y		12.91	-4.29	-1.07	12.47	-3.93	-1.08	HE
J9ZPH9		16.02	-1.18	-0.29	17.23	0.83	0.23	HE
JPRAFW		14.56	-2.64	-0.66	13.81	-2.59	-0.71	HE
LXXVGV		13.98	-3.22	-0.80	14.05	-2.35	-0.64	HE
MKMXT8		11.90	-5.30	-1.32	12.03	-4.37	-1.20	HE
MXUHG7	X	35.85	18.65	4.65	26.31	9.91	2.72	HE
QBN72V		15.30	-1.90	-0.47	14.26	-2.14	-0.59	HE
RPHFWZ		16.60	-0.60	-0.15	17.90	1.50	0.41	HE
TCTM2X		20.17	2.97	0.74	16.43	0.03	0.01	HE
TDZZLK		14.00	-3.20	-0.80	12.00	-4.40	-1.21	HE
U999XN		16.30	-0.90	-0.22	15.10	-1.30	-0.36	HE
V96PNR		14.66	-2.54	-0.63	14.82	-1.58	-0.43	HE
WDUPHD		15.92	-1.28	-0.32	16.40	0.00	0.00	XX
WPLDBR		14.90	-2.30	-0.57	14.00	-2.40	-0.66	HE
X4GBWM		14.18	-3.02	-0.75	15.07	-1.33	-0.36	HE
XA8K6Z	X	38.58	21.38	5.33	27.92	11.52	3.16	XX
YBGUWX		16.03	-1.17	-0.29	15.03	-1.37	-0.37	HE

Summary Statistics	Sample GX57	Sample GX58
Grand Means	17.20 Seconds	16.40 Seconds
Stnd Dev Btwn Labs	4.01 Seconds	3.65 Seconds

Statistics based on 26 of 28 reporting participants.

Comments on Assigned Data Flags for Test #399

MXUHG7 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

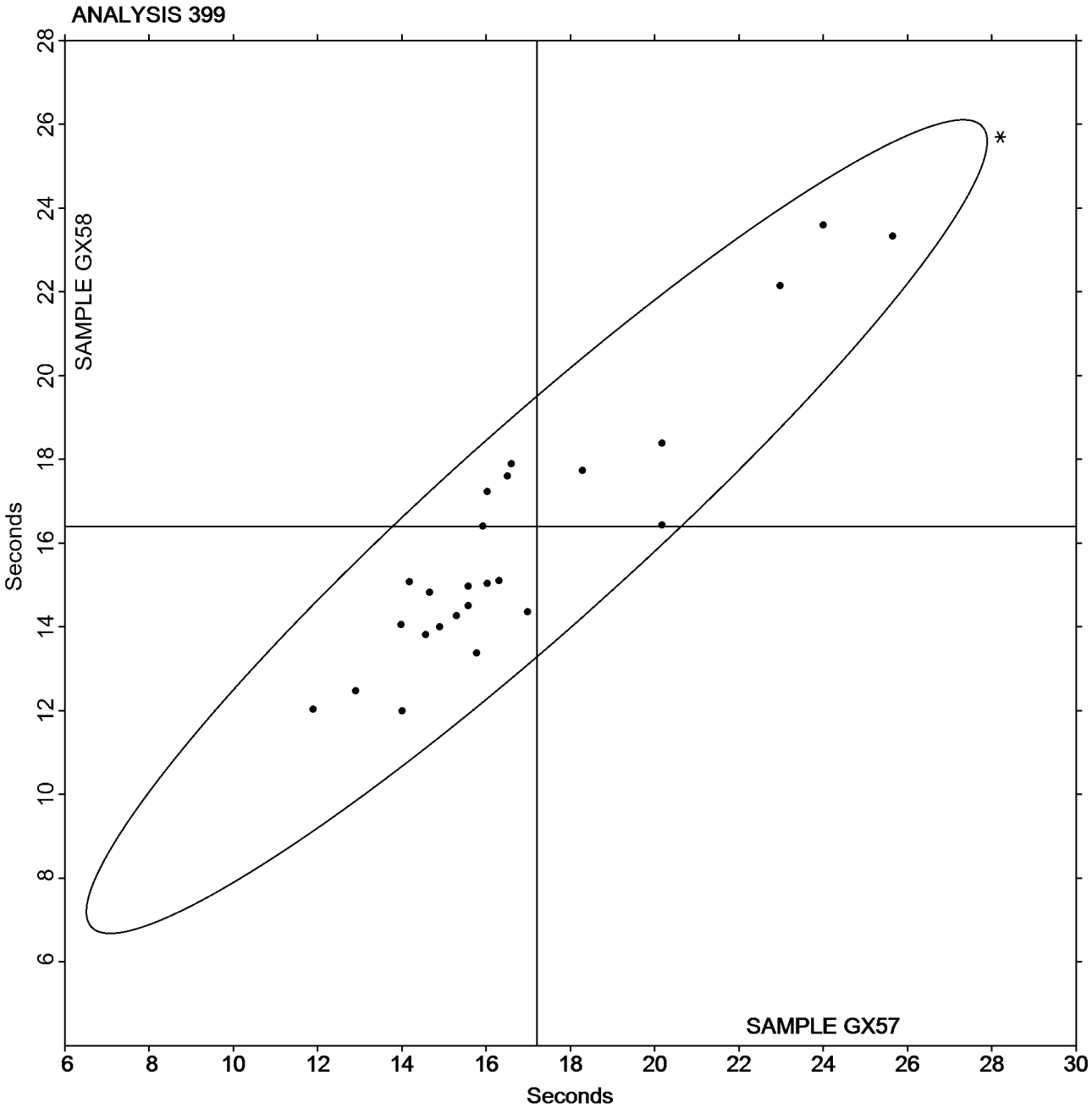
XA8K6Z (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample GX57 = 17.197 Seconds

Grand Mean Sample GX58 = 16.397 Seconds



-End of Report-

