Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3102 G - February 2021

Analysis	Analysis Name
350	Color & Color Difference - Near White Papers - C/2deg obs
351	Color & Color Difference - Near White Papers - D65/10deg obs
360	Thickness (Caliper), Printing papers
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364	Coefficient of Static Friction - Horizontal Plane Method - Printing Papers
365	Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers
370	Air Resistance - Gurley Oil Type
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378	Roughness - Sheffield Type
382	Moisture in Paper
384	Opacity (89% Reflectance Backing) - Fine Papers
386	Opacity (Paper Backing) - Fine Papers and Newsprint
390	Directional Brightness
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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

Report #3102 G, February 2021

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
74KLVW		**GA87**	93.69	-0.24	3.83	0.00	0.00	-0.02	0.02	LA
		GA88	93.69	-0.24	3.81					
8P3FZN		**GA87**	93.52	-0.68	3.98	0.01	-0.01	0.00	0.01	TC
		GA88	93.52	-0.70	3.99					
AQN2JP		**GA87**	94.24	-0.80	4.02	-0.03	0.01	-0.04	0.05	HE
		GA88	94.21	-0.79	3.98					
BVTW3P		**GA87**	92.89	-0.23	3.79	-0.05	0.02	0.02	0.06	TS
		GA88	92.84	-0.20	3.81					
CL3XNP		**GA87**	95.07	-0.88	4.09	-0.01	0.36	0.06	0.36 X	LS
		GA88	95.06	-0.53	4.16					
CTL2WR		**GA87**	92.20	-0.52	3.30	0.04	-0.04	0.12	0.13	TS
		GA88	92.24	-0.56	3.42					
CYRVQM		**GA87**	94.35	-0.60	4.06	-0.01	0.01	0.04	0.04	HE
		GA88	94.34	-0.60	4.10					
EBWTP8		**GA87**	93.62	-0.82	3.97	0.01	0.00	0.09	0.09	TC
		GA88	93.63	-0.82	4.06					
FQLZKJ		**GA87**	93.38	-0.68	3.80	0.07	0.12	-0.02	0.14	TS
		GA88	93.45	-0.56	3.78					
GU6ENK		**GA87**	94.93	-0.67	4.23	0.01	0.00	0.06	0.06	TS
		GA88	94.93	-0.66	4.29					
JD6CZC		**GA87**	94.93	-0.80	4.17	0.01	0.01	-0.08	0.08	TC
		GA88	94.94	-0.80	4.09					
KMP3Y9		**GA87**	95.03	-0.84	4.02	-0.03	0.00	-0.02	0.03	EH
		GA88	95.01	-0.84	4.00					
MRUKB8		**GA87**	93.08	-1.03	3.67	0.18	0.00	0.02	0.19	XX
		GA88	93.26	-1.03	3.70					
NYCDZB		**GA87**	94.08	-0.79	4.25	0.02	0.01	-0.02	0.03	HE
		GA88	94.10	-0.78	4.23					
UW3GV9		**GA87**	95.48	-0.81	3.82	0.05	-0.02	0.04	0.06	XS
		GA88	95.53	-0.83	3.86					
W3LJTN		**GA87**	92.69	-0.14	3.47	-0.01	-0.01	0.00	0.01	TS
		GA88	92.68	-0.16	3.47					

Paper & Paperboard Interlaboratory Testing Program

Report #3102 G, February 2021

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
Y2K6J2		**GA87**	93.71	-0.78	4.33	0.03	-0.01	0.05	0.06	VM
		GA88	93.74	-0.79	4.38					
ZTK6JY		**GA87**	94.96	-0.62	4.91	0.02	0.00	-0.05	0.06	NG
		GA88	94.98	-0.62	4.86					

Summary Statistics

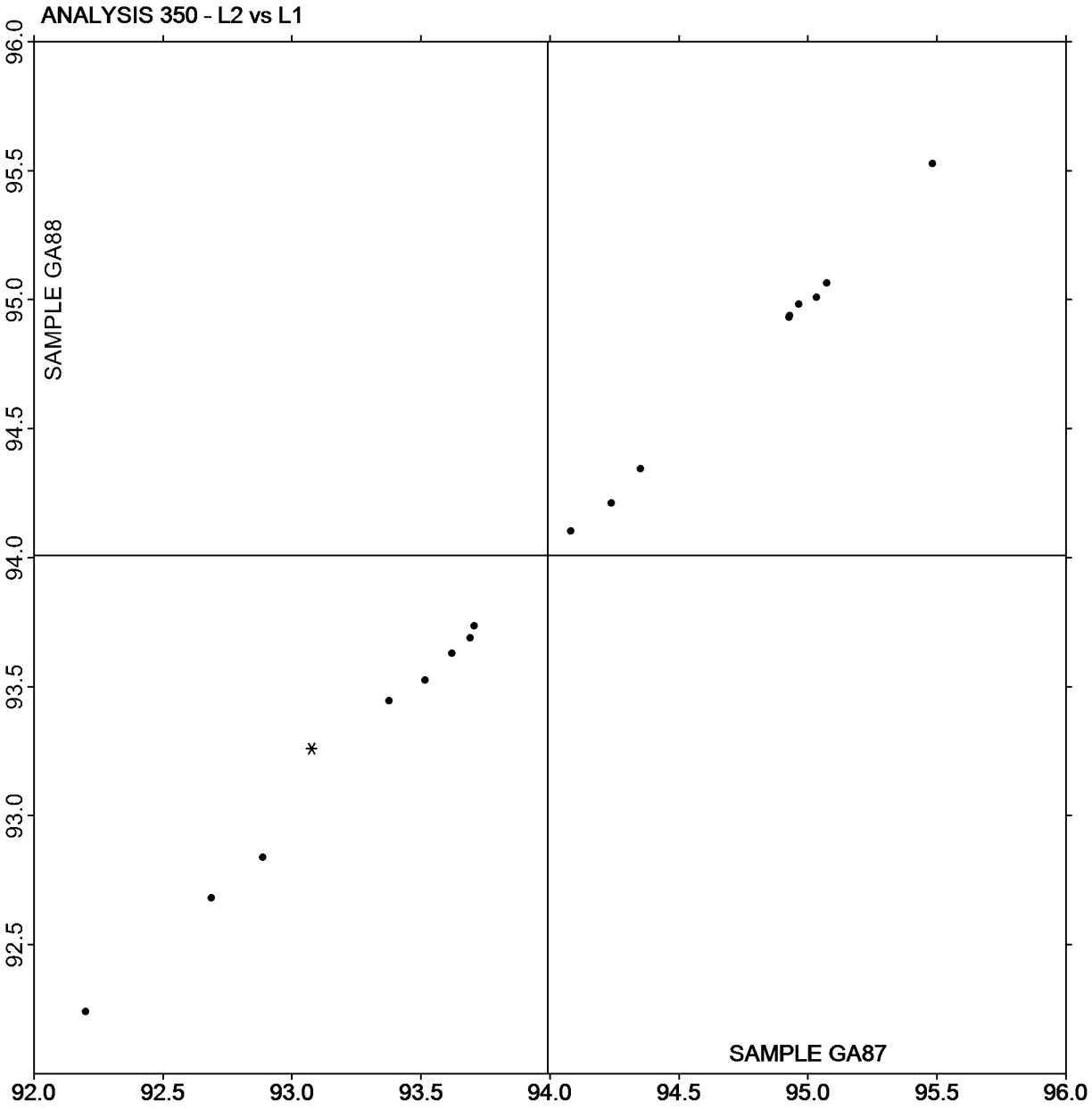
Grand Means							
GA87	93.991	-0.651	3.985	0.018	0.025	0.015	0.083
GA88	94.009	-0.646	4.000				
Stnd Dev Btwn Labs							
GA87	0.947	0.243	0.354	0.050	0.089	0.051	0.083
GA88	0.937	0.245	0.336				

Statistics based on 18 of 18 reporting participants

Key to Instrument Codes Reported by Participants

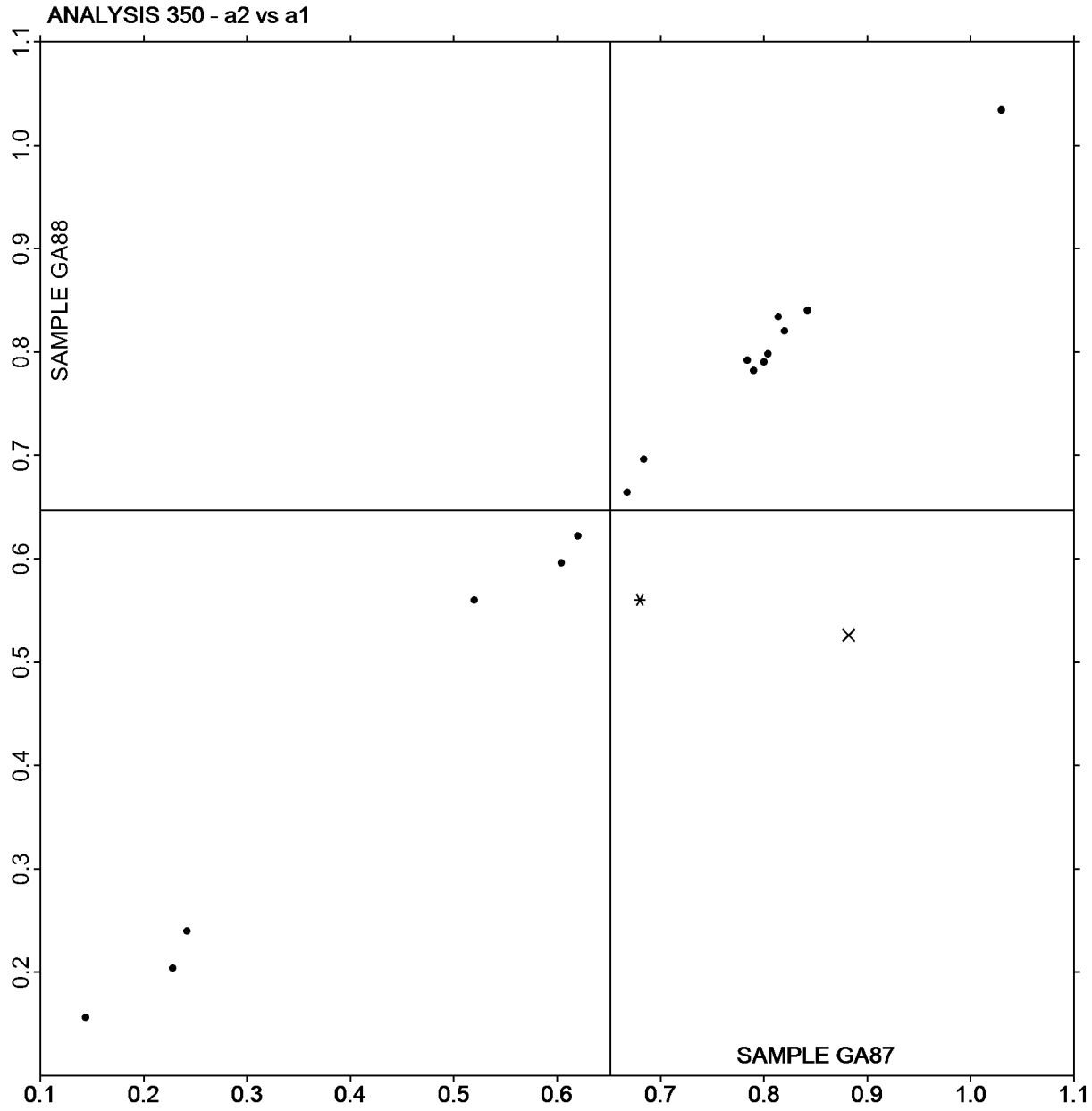
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
LA	L & W Elrepho AL300	LS	L & W Elrepho SE 070
NG	Minolta CM-3700d Spectrophotometer	TC	Technidyne Color Touch Series
TS	Technidyne Brightimeter Micro S-5	VM	Valmet PaperLab (was Kajaani/Robotest)
XS	X-Rite 938 Spectrodensitometer	XX	Instrument make/model not specified by lab

Plot of L values GA88 vs L values GA87



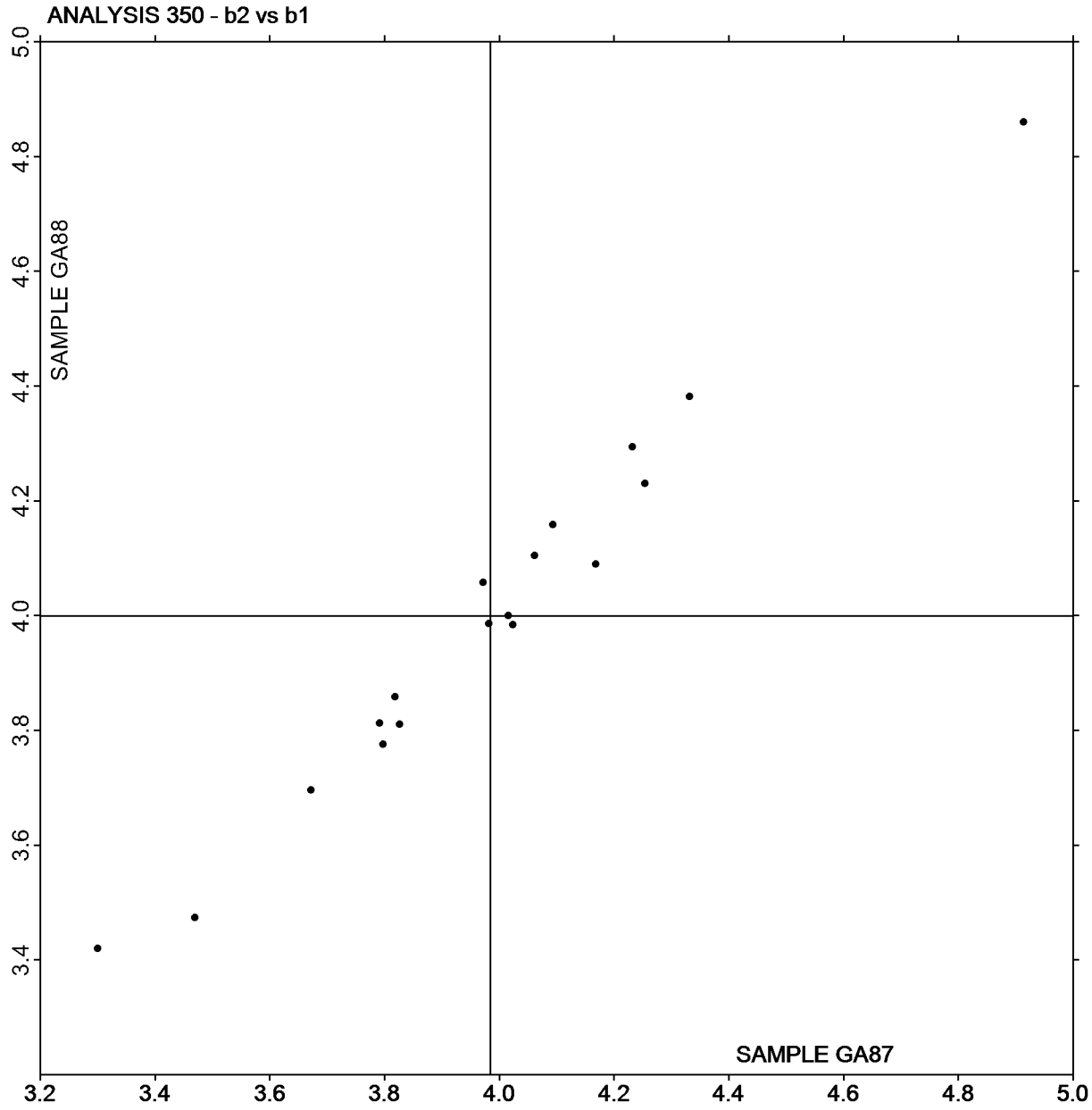
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA88 vs a values GA87



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 GA88 vs b values GA87



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
2ANYQY		**GA87**	95.11	-0.95	4.23	-0.01	0.01	0.01	0.01	EF
		GA88	95.10	-0.95	4.24					
3KHU4K		**GA87**	93.69	-0.56	3.72	0.01	0.03	0.00	0.03	XB
		GA88	93.70	-0.53	3.71					
3UADGT		**GA87**	94.88	-0.64	4.06	0.02	-0.02	-0.03	0.04	TC
		GA88	94.90	-0.66	4.03					
43J2VR		**GA87**	94.12	-0.71	3.54	-0.01	-0.01	0.04	0.04	HE
		GA88	94.11	-0.71	3.59					
4TTGPT		**GA87**	95.04	-0.56	4.39	-0.19	0.02	0.04	0.19	NG
		GA88	94.85	-0.54	4.43					
67W2RJ		**GA87**	93.57	-0.65	3.97	-0.02	0.00	0.04	0.05	TC
		GA88	93.55	-0.65	4.02					
7KCJXR		**GA87**	95.54	-0.57	4.03	0.04	-0.01	-0.05	0.06	XV
		GA88	95.57	-0.58	3.98					
8P3FZN		**GA87**	94.34	-0.65	4.21	0.02	0.00	-0.05	0.05	HE
		GA88	94.36	-0.65	4.17					
9PXFCT		**GA87**	94.96	-0.59	4.24	0.01	-0.01	0.03	0.04	LS
		GA88	94.97	-0.61	4.28					
EUQ7MK		**GA87**	94.99	-0.64	4.26	0.00	0.00	0.08	0.08	EH
		GA88	94.99	-0.64	4.34					
F2823E		**GA87**	94.85	-0.83	3.81	-0.05	0.00	0.07	0.08	NG
		GA88	94.80	-0.83	3.87					
KMP3Y9		**GA87**	94.82	-0.68	4.21	0.06	0.01	-0.06	0.08	EH
		GA88	94.88	-0.67	4.15					
MBAUC8		**GA87**	95.69	-0.40	2.85	0.19	-0.01	-0.08	0.20	XP
		GA88	95.88	-0.41	2.77					
R8BAB4		**GA87**	95.05	-0.72	4.13	0.01	0.01	0.10	0.10	HT
		GA88	95.06	-0.71	4.23					
YP6B6M		**GA87**	95.06	-0.77	4.03	0.04	0.01	0.01	0.04	XC
		GA88	95.09	-0.76	4.04					
Z9XDJ3		**GA87**	95.02	-0.64	4.16	0.16	0.02	-0.06	0.17	HT
		GA88	95.18	-0.62	4.11					

ZYDAC4	GA87	95.78	-0.39	4.12	0.00	0.00	-0.01	0.01	NG
	GA88	95.78	-0.39	4.11					

Summary Statistics

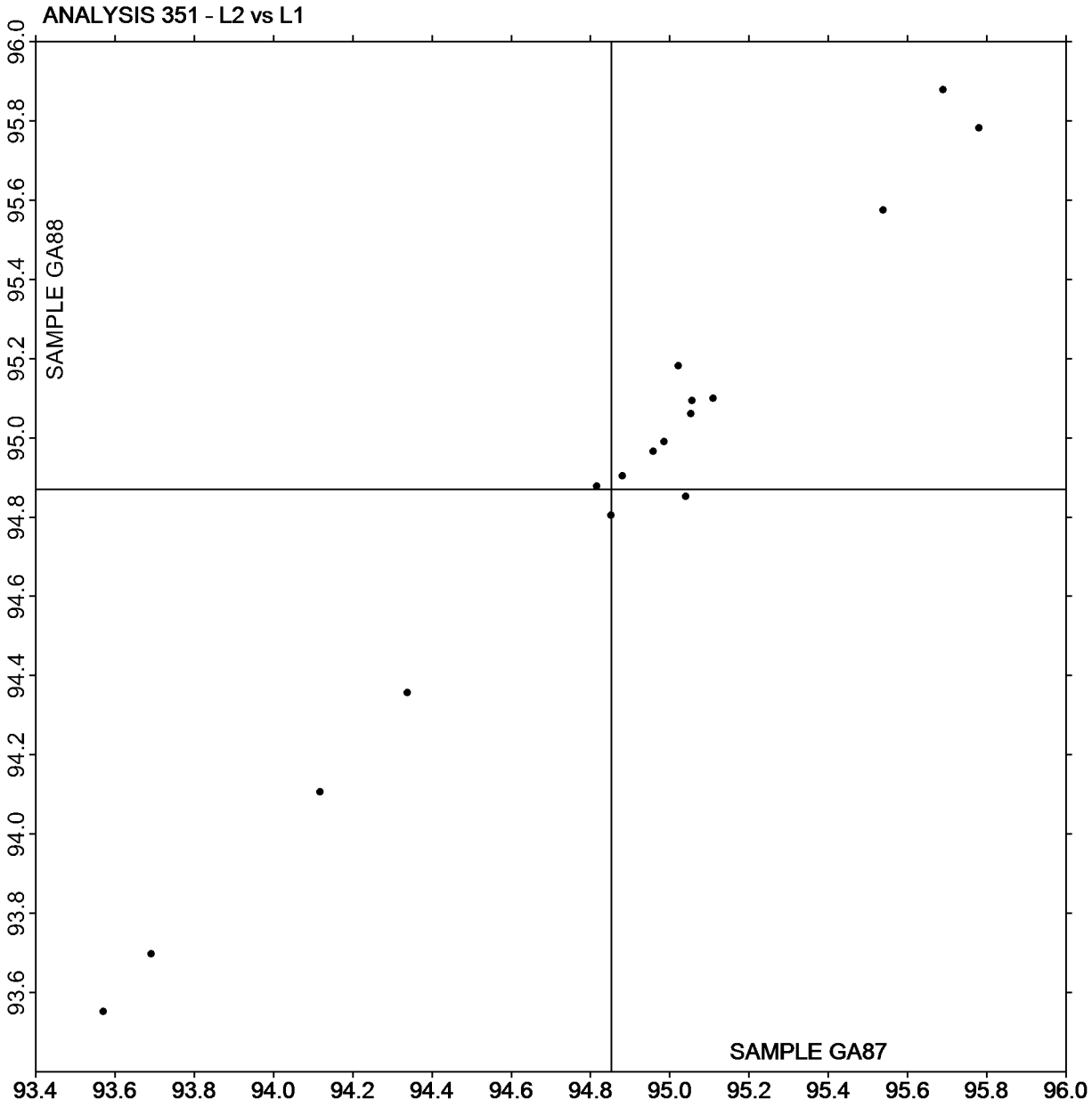
Grand Means							
GA87	94.853	-0.645	3.997	0.016	0.002	0.005	0.075
GA88	94.869	-0.643	4.003				
Stnd Dev Btwn Labs							
GA87	0.616	0.137	0.365	0.080	0.013	0.052	0.059
GA88	0.641	0.136	0.382				

Statistics based on 17 of 17 reporting participants

Key to Instrument Codes Reported by Participants

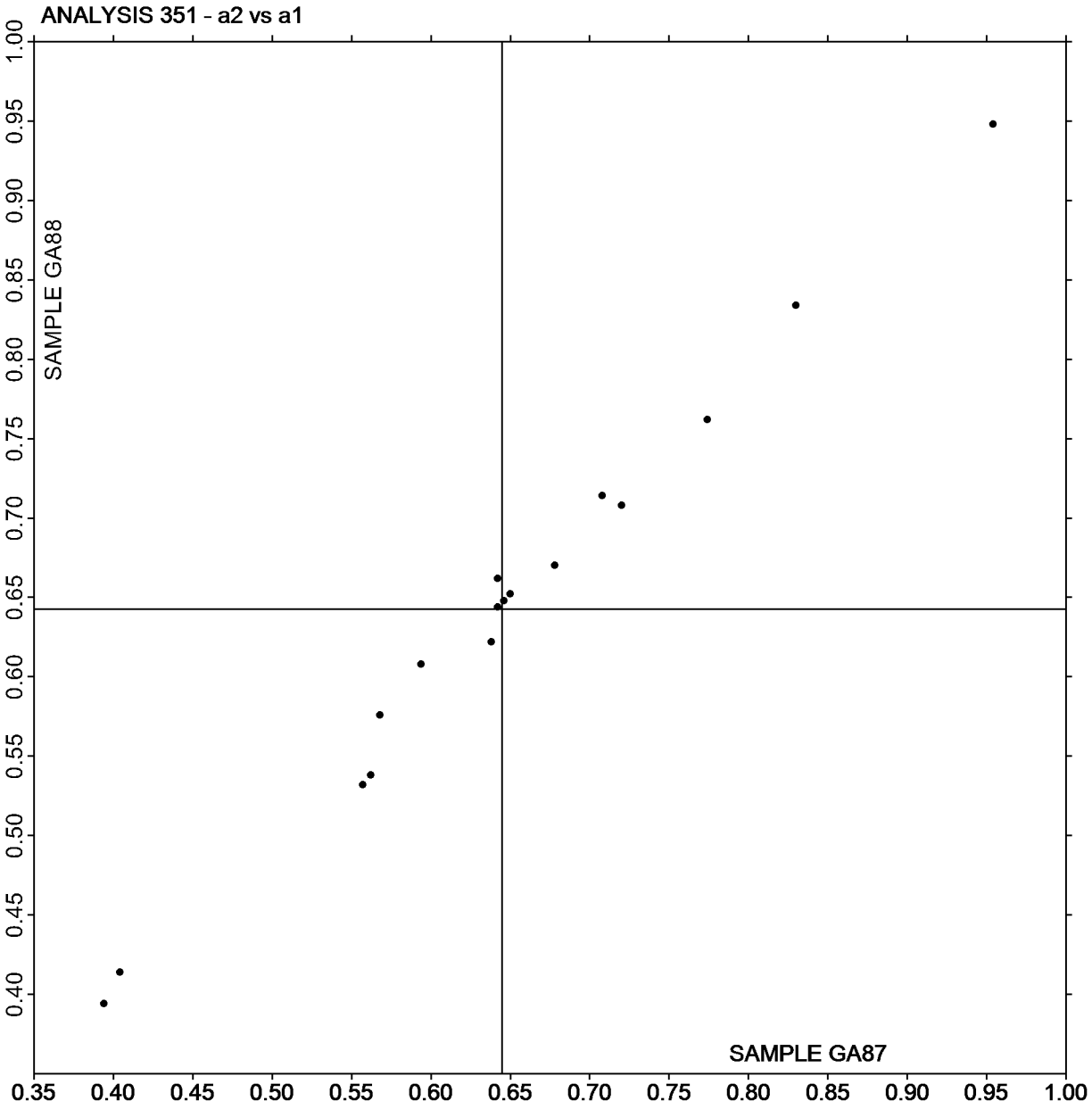
EF	Datacolor Elrepho 3000	EH	Datacolor Elrepho SF450
HE	Hunter LabScan	HT	Hunter UltraScan Vis
LS	L & W Elrepho SE 070	NG	Minolta CM-3700d Spectrophotometer
TC	Technidyne Color Touch Series	XB	X-Rite Ci7
XC	X-Rite eXact Series	XP	X-Rite Spectrophotometer DTP
XV	X-Rite SP60 Series		

Plot of L values GA88 vs L values GA87



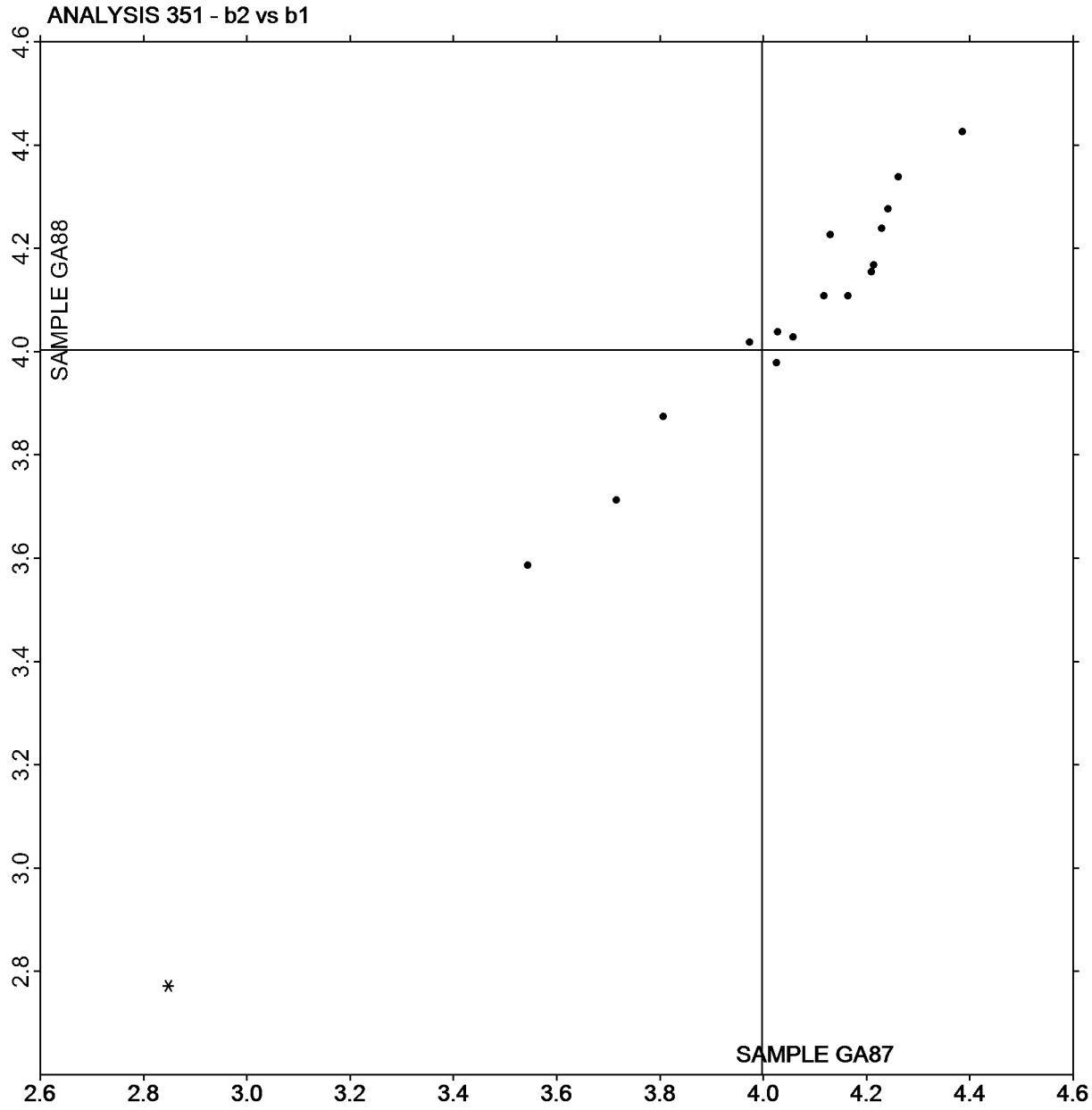
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA88 vs a values GA87



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 GA88 vs b values GA87



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

WebCode	Data Flag	Sample GV87 Lab Mean	Sample GV87 Diff from Grand Mean	Sample GV87 CPV	Sample GV88 Lab Mean	Sample GV88 Diff from Grand Mean	Sample GV88 CPV	Instr Code
236VJW		4.874	-0.080	-0.97	4.953	0.010	0.13	TM
3KHU4K		4.994	0.040	0.49	4.993	0.050	0.66	TM
3UADGT		5.075	0.121	1.47	5.051	0.108	1.44	PP
43J2VR		4.924	-0.030	-0.36	4.912	-0.031	-0.41	PP
4TTGPT		4.906	-0.048	-0.58	4.924	-0.019	-0.25	PP
4YG4KY		5.031	0.077	0.94	4.993	0.050	0.66	LW
67W2RJ		4.909	-0.045	-0.55	4.923	-0.020	-0.27	PP
6CMC2G		5.033	0.079	0.96	5.018	0.075	1.00	EM
6ND92U	*	4.984	0.030	0.37	4.820	-0.123	-1.64	LA
6X3WYH		5.045	0.091	1.11	4.984	0.041	0.54	LW
74KLVW		5.038	0.084	1.02	4.973	0.030	0.40	EM
8D6CVU		5.061	0.108	1.31	5.061	0.118	1.57	LW
98DPDU		4.997	0.043	0.52	4.887	-0.056	-0.75	TM
9ZE3NE		5.000	0.046	0.56	4.931	-0.012	-0.16	PP
AHTYGD		4.898	-0.056	-0.68	4.844	-0.099	-1.32	PP
BVTW3P		5.023	0.069	0.84	5.063	0.120	1.59	EM
BW8JEC		4.948	-0.006	-0.07	4.930	-0.013	-0.17	EM
CCXQAP		4.912	-0.042	-0.51	4.867	-0.076	-1.01	TA
CL3XNP		4.922	-0.032	-0.39	4.968	0.025	0.33	LW
EDLY8H		4.955	0.001	0.01	4.952	0.009	0.12	EM
EUQ7MK		4.833	-0.121	-1.47	4.963	0.020	0.27	EM
EWXNKF		4.908	-0.046	-0.56	4.868	-0.075	-1.00	FR
F2823E		4.942	-0.012	-0.14	4.860	-0.083	-1.10	EM
FQ64RK		4.961	0.007	0.09	4.926	-0.017	-0.23	TA
FQLZKJ		4.926	-0.028	-0.34	4.820	-0.123	-1.64	LA
GBP6MJ		4.983	0.029	0.36	4.963	0.020	0.27	PP
J4JBGG		5.041	0.087	1.06	5.022	0.079	1.05	TA
J9AKRE		4.909	-0.045	-0.55	4.969	0.026	0.34	LA
JD6CZC		4.900	-0.054	-0.66	4.840	-0.103	-1.37	TM
JK8K4J		4.983	0.029	0.36	4.887	-0.056	-0.75	LW
KMP3Y9		4.975	0.021	0.26	4.971	0.028	0.37	EM
KPDEYE		4.984	0.030	0.37	5.018	0.075	1.00	LA
MBAUC8		4.860	-0.094	-1.14	4.910	-0.033	-0.44	TM
MRUKB8		5.050	0.096	1.17	5.000	0.057	0.76	XX
NMUTFE		5.046	0.092	1.12	5.005	0.062	0.82	TM
R3J3QA		4.959	0.005	0.06	4.884	-0.059	-0.79	TM
R8BAB4		5.044	0.090	1.10	4.973	0.030	0.40	EM
R9KCX3	*	4.702	-0.252	-3.07	4.750	-0.193	-2.57	LW
RQMWXC		4.920	-0.034	-0.41	4.948	0.005	0.07	LW
RZQ742		4.827	-0.127	-1.55	4.827	-0.116	-1.54	TA
UW3GV9	*	4.710	-0.244	-2.97	4.780	-0.163	-2.17	TM

Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GV87 Lab Mean	Sample GV87 Diff from Grand Mean	Sample GV87 CPV	Sample GV88 Lab Mean	Sample GV88 Diff from Grand Mean	Sample GV88 CPV	Instr Code
V4V9F8		5.004	0.050	0.61	5.012	0.069	0.91	LW
VMAK9X		4.838	-0.116	-1.41	4.908	-0.035	-0.47	PP
W33DTY		5.032	0.078	0.96	5.022	0.079	1.06	LW
XDY3N6		4.911	-0.043	-0.52	4.984	0.041	0.54	PP
YBPCX2		4.959	0.005	0.06	5.044	0.101	1.34	OK
YP6B6M		4.969	0.015	0.18	4.984	0.041	0.55	LW
Z9XDJ3		5.025	0.071	0.87	4.997	0.054	0.72	EM
ZTK6JY		5.010	0.056	0.68	5.028	0.085	1.13	EM

Summary Statistics	Sample GV87	Sample GV88
Grand Means	4.95 mils	4.94 mils
Stnd Dev Btwn Labs	0.08 mils	0.08 mils

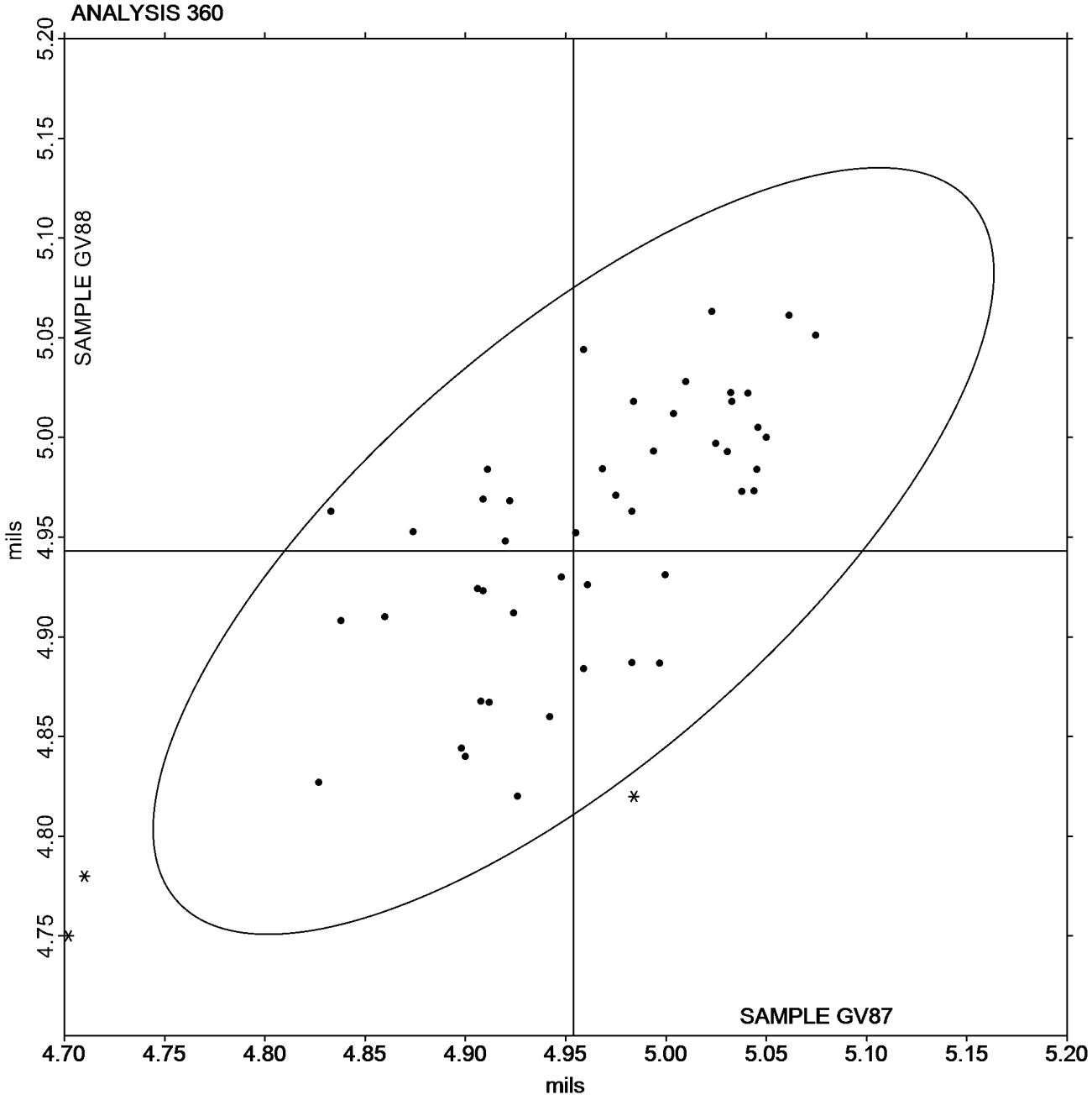
Statistics based on 49 of 49 reporting participants.

Key to Instrument Codes Reported by Participants

EM	Emveco	FR	Frank Instruments
LA	L & W Autoline	LW	L & W
OK	Oakland	PP	Technidyne Profile/Plus
TA	Thwing-Albert	TM	TMI
XX	Instrument make/model not specified by lab		

Grand Mean Sample GV87 = 4.9539 mils

Grand Mean Sample GV88 = 4.9431 mils



Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GY87 Lab Mean	Sample GY87 Diff from Grand Mean	Sample GY87 CPV	Sample GY88 Lab Mean	Sample GY88 Diff from Grand Mean	Sample GY88 CPV	Instr Code
4MMMVX		14.14	0.01	0.07	14.14	0.05	0.34	TM
647ZLV		14.40	0.27	1.94	14.39	0.30	1.97	LW
72WAWR		13.99	-0.13	-0.93	13.95	-0.14	-0.90	LA
74KLVW		14.32	0.19	1.37	14.33	0.24	1.57	EM
8P3FZN		14.19	0.07	0.47	14.17	0.08	0.52	EM
9PXFCT		14.18	0.05	0.35	14.05	-0.04	-0.25	LW
9ZE3NE		14.11	-0.02	-0.11	14.01	-0.08	-0.51	LW
AQN2JP		14.08	-0.05	-0.34	14.12	0.03	0.17	EM
CTL2WR		13.89	-0.24	-1.68	13.86	-0.23	-1.49	OK
CYRVQM		14.12	0.00	-0.02	14.12	0.03	0.19	EM
DWG8R9		14.23	0.10	0.73	14.22	0.13	0.86	LA
EUQ7MK		13.97	-0.15	-1.08	13.88	-0.21	-1.36	EM
FQ64RK		14.17	0.05	0.33	14.14	0.05	0.36	TA
GDVMLF		14.43	0.30	2.14	14.35	0.26	1.75	PP
HYAXZH		14.08	-0.05	-0.36	14.01	-0.08	-0.53	LW
K33DPG		14.04	-0.09	-0.61	13.97	-0.12	-0.79	LW
KPDEYE		14.01	-0.11	-0.79	13.92	-0.17	-1.10	LA
KU99WF		14.06	-0.07	-0.48	13.95	-0.14	-0.93	LW
MDDPVB	X	9.49	-4.64	-32.97	7.58	-6.51	-42.86	LW
NYCDZB		14.00	-0.13	-0.90	13.98	-0.11	-0.75	EM
PHLRWW		14.15	0.03	0.19	14.25	0.16	1.09	LW
QM8694		14.24	0.12	0.84	14.24	0.15	1.01	LA
QXPL4W		14.13	0.01	0.06	14.09	0.01	0.04	LA
RAYLBA		14.20	0.07	0.52	14.10	0.01	0.07	LW
RQMWXC		14.14	0.02	0.13	14.14	0.05	0.32	LW
RZQ742		14.04	-0.09	-0.61	13.97	-0.12	-0.78	TA
V6C798	*	13.77	-0.36	-2.53	13.81	-0.28	-1.84	TA
VLYJMY		14.22	0.09	0.67	14.07	-0.02	-0.13	TM
Y2K6J2		14.21	0.09	0.62	14.26	0.17	1.11	VP
ZMJTM3	X	13.15	-0.98	-6.95	13.27	-0.82	-5.42	TM

Summary Statistics	Sample GY87	Sample GY88
Grand Means	14.13 mils	14.09 mils
Stnd Dev Btwn Labs	0.14 mils	0.15 mils

Statistics based on 28 of 30 reporting participants.

Comments on Assigned Data Flags for Test #361

ZMJTM3 (X) - Extreme Data.

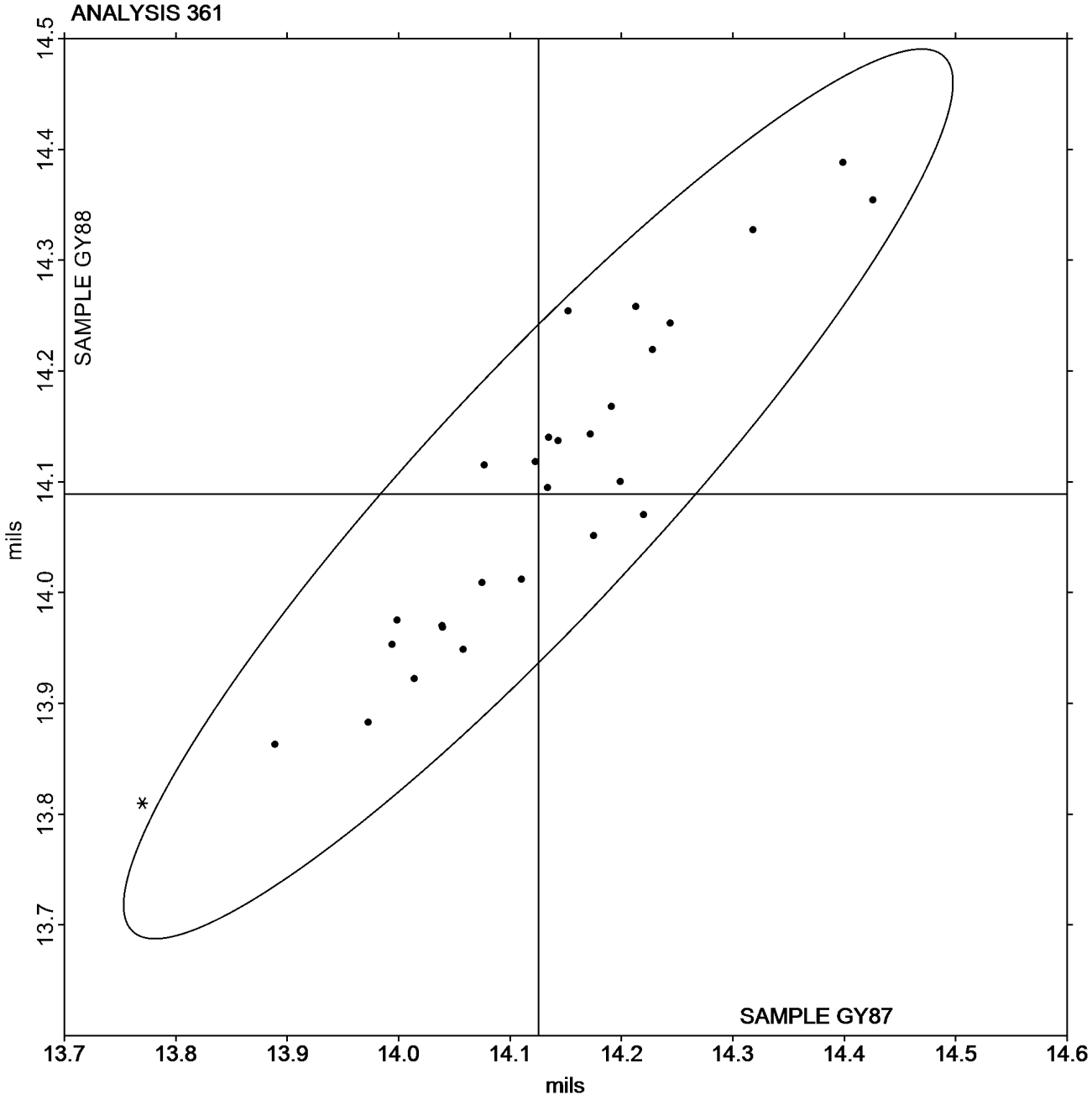
MDDPVB (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample GY87 = 14.125 mils

Grand Mean Sample GY88 = 14.089 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

		Sample GD87			Sample GD88			
WebCode	Data Flag	Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	Instr Code
2JDMMM		0.5182	-0.0460	-0.53	0.6062	0.0383	0.32	IT
43J2VR		0.5020	-0.0622	-0.71	0.5680	0.0001	0.00	TA
647ZLV		0.5436	-0.0206	-0.24	0.5806	0.0127	0.11	TA
6CMC2G		0.6340	0.0698	0.80	0.6280	0.0601	0.50	TA
72WAWR		0.5596	-0.0046	-0.05	0.5512	-0.0167	-0.14	TA
AHTYGD		0.3840	-0.1802	-2.06	0.2484	-0.3195	-2.67	TM
BVTW3P		0.6854	0.1212	1.38	0.6456	0.0777	0.65	TA
BW8JEC		0.5804	0.0162	0.19	0.5998	0.0319	0.27	TA
GNE6EL		0.6408	0.0766	0.87	0.6286	0.0607	0.51	TA
UW3GV9		0.5026	-0.0616	-0.70	0.4862	-0.0817	-0.68	XX
W3LJTN		0.6554	0.0912	1.04	0.7048	0.1369	1.14	TA
ZTK6JY	X	523.7000	523.1358	5,973.10	449.0500	448.4821	3,740.53	TM

Summary Statistics	Sample GD87	Sample GD88
Grand Means	0.56 COF	0.57 COF
Stnd Dev Btwn Labs	0.09 COF	0.12 COF

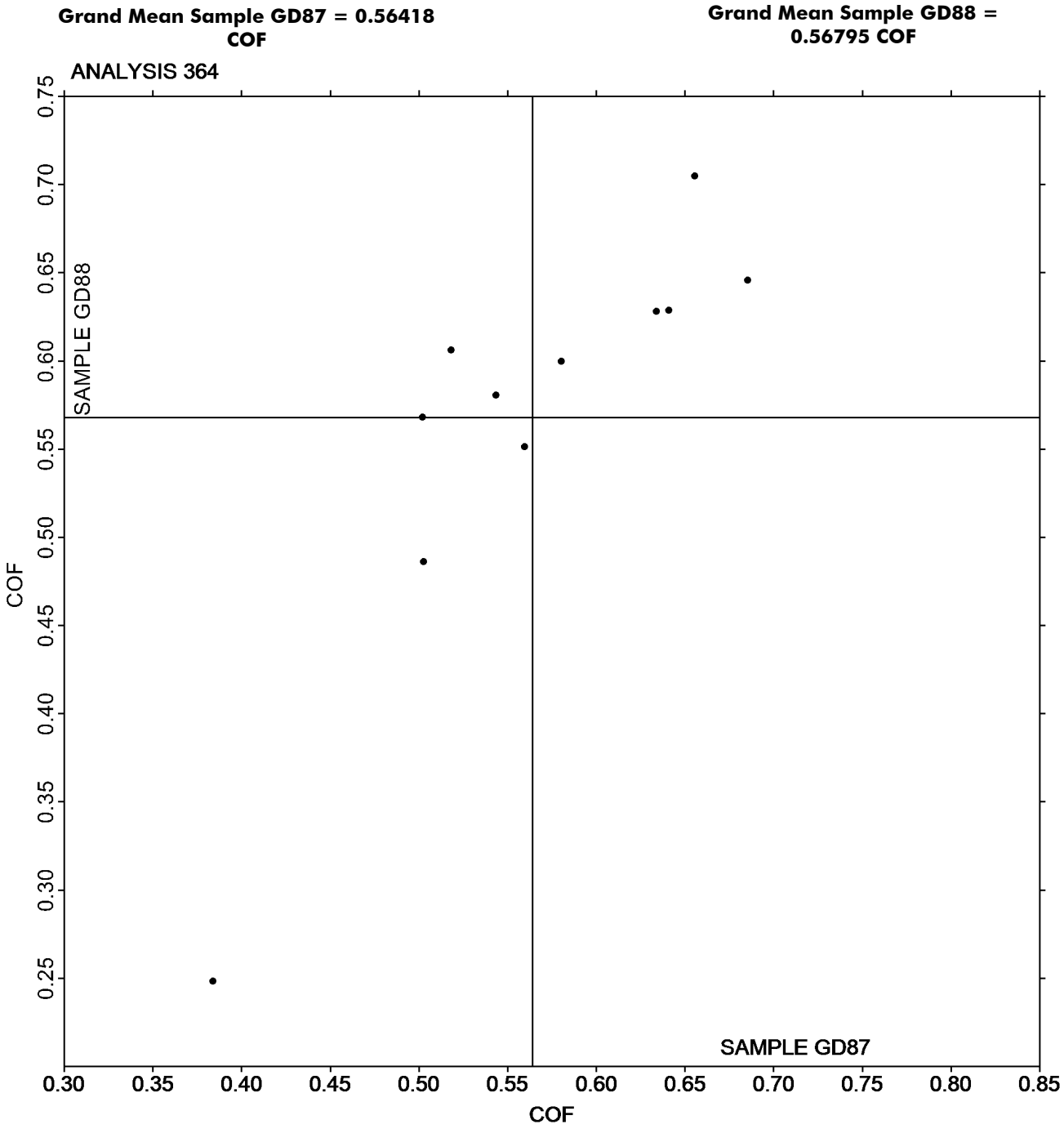
Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #364

ZTK6JY (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

IT	IMASS SP-2100	TA	Thwing-Albert Friction Tester
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 365

Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

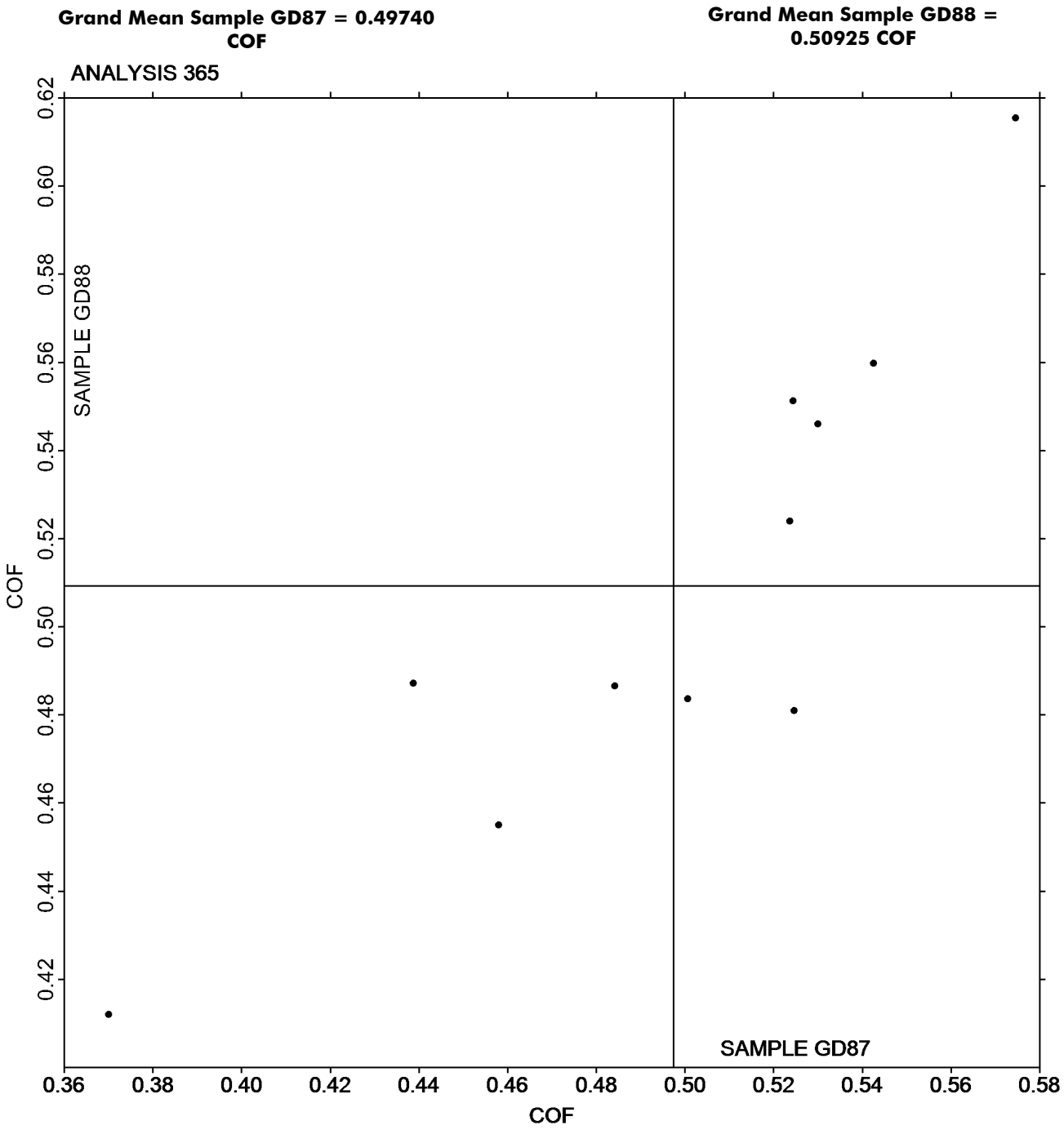
WebCode	Data Flag	Sample GD87 Lab Mean	Sample GD87 Diff from Grand Mean	Sample GD87 CPV	Sample GD88 Lab Mean	Sample GD88 Diff from Grand Mean	Sample GD88 CPV	Instr Code
2JDMMM		0.4388	-0.0586	-1.03	0.4872	-0.0221	-0.39	IR
43J2VR		0.3700	-0.1274	-2.23	0.4120	-0.0973	-1.72	TA
647ZLV		0.5244	0.0270	0.47	0.5512	0.0419	0.74	TN
6CMC2G		0.5300	0.0326	0.57	0.5460	0.0367	0.65	XX
72WAWR		0.4842	-0.0132	-0.23	0.4866	-0.0227	-0.40	TA
AHTYGD		0.5006	0.0032	0.06	0.4836	-0.0257	-0.45	TA
BVTW3P		0.5246	0.0272	0.48	0.4810	-0.0283	-0.50	TA
BW8JEC		0.5426	0.0452	0.79	0.5598	0.0505	0.89	TA
GNE6EL		0.5236	0.0262	0.46	0.5240	0.0147	0.26	TA
UW3GV9		0.4580	-0.0394	-0.69	0.4550	-0.0543	-0.96	XX
W3LJTN		0.5746	0.0772	1.35	0.6154	0.1061	1.88	TA

Summary Statistics	Sample GD87	Sample GD88
Grand Means	0.50 COF	0.51 COF
Stnd Dev Btwn Labs	0.06 COF	0.06 COF

Statistics based on 11 of 11 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 GE87 Lab Mean	Sample GE87 Diff from Grand Mean	Sample GE87 CPV	Sample GE88 Lab Mean	Sample GE88 Diff from Grand Mean	Sample GE88 CPV	Instr Code
2ANYQY		16.91	1.10	1.16	27.57	1.93	1.05	LP
3KHU4K		15.67	-0.14	-0.14	24.09	-1.55	-0.84	PP
3UADGT		16.59	0.78	0.83	28.63	3.00	1.62	PP
43J2VR		16.12	0.31	0.33	28.11	2.48	1.34	PP
67W2RJ		15.68	-0.12	-0.13	25.29	-0.34	-0.19	PP
6CMC2G		16.05	0.25	0.26	27.81	2.17	1.18	PP
6ND92U	*	18.46	2.65	2.79	28.48	2.84	1.54	LA
72WAWR		15.95	0.14	0.15	25.94	0.30	0.16	LA
8D6CVU		16.01	0.20	0.21	26.35	0.71	0.39	LP
8P3FZN		15.98	0.17	0.18	26.66	1.03	0.56	PP
9ZE3NE		15.64	-0.17	-0.18	25.91	0.27	0.15	PP
CCXQAP		15.70	-0.11	-0.11	26.67	1.03	0.56	GA
CL3XNP		15.55	-0.26	-0.27	24.83	-0.81	-0.44	LP
EDLY8H		15.57	-0.24	-0.25	25.31	-0.33	-0.18	PP
FNXNLE		15.59	-0.22	-0.23	25.43	-0.21	-0.11	PP
FQ64RK		15.66	-0.15	-0.15	27.03	1.39	0.75	GA
FQLZKJ		16.08	0.27	0.29	24.89	-0.75	-0.40	LA
GBP6MJ		16.64	0.84	0.88	26.61	0.97	0.53	PP
GFMLZD		16.57	0.76	0.80	26.01	0.37	0.20	PP
GNE6EL		15.58	-0.23	-0.24	26.61	0.97	0.53	WG
HKAWMG		15.36	-0.45	-0.47	24.03	-1.61	-0.87	LP
KKM6NG	*	13.11	-2.70	-2.84	20.16	-5.48	-2.96	HM
KMP3Y9		15.29	-0.52	-0.54	24.56	-1.07	-0.58	PP
MDDPVB	X	14.66	-1.15	-1.21	15.54	-10.10	-5.46	TL
MRUKB8		15.05	-0.76	-0.80	24.25	-1.39	-0.75	XX
MT7HFB		16.30	0.49	0.52	26.59	0.95	0.52	TL
PHLRWW		14.74	-1.07	-1.13	22.45	-3.19	-1.73	WG
QXPL4W		16.25	0.44	0.46	25.42	-0.22	-0.12	LA
R3J3QA		14.77	-1.04	-1.09	25.01	-0.63	-0.34	HG
R8BAB4		16.31	0.50	0.53	27.52	1.88	1.02	HG
RAYLBA	*	12.93	-2.88	-3.03	20.51	-5.13	-2.77	HM
T6472T		16.69	0.88	0.93	26.20	0.56	0.31	LP
UW3GV9		15.30	-0.51	-0.53	23.80	-1.84	-0.99	GS
VBG2UR		16.11	0.30	0.32	27.16	1.52	0.82	GL
VMAK9X	X	0.63	-15.18	-16.00	0.63	-25.01	-13.53	HG
W33DTY		15.91	0.10	0.11	25.69	0.05	0.03	LP
WYL8WP		16.48	0.67	0.71	26.75	1.11	0.60	TL
XDY3N6		15.74	-0.07	-0.07	25.84	0.21	0.11	PP
Y2K6J2		14.61	-1.20	-1.26	23.14	-2.50	-1.35	VM
YJJHR3		16.89	1.08	1.14	25.97	0.33	0.18	XX
YP6B6M		16.60	0.79	0.84	26.10	0.46	0.25	LW

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE87 Lab Mean	Sample GE87 Diff from Grand Mean	Sample GE87 CPV	Sample GE88 Lab Mean	Sample GE88 Diff from Grand Mean	Sample GE88 CPV	Instr Code
Z9XDJ3		15.84	0.03	0.03	26.04	0.41	0.22	PP

Summary Statistics	Sample GE87	Sample GE88
Grand Means	15.81 sec/100 cc	25.64 sec/100 cc
Stnd Dev Btwn Labs	0.95 sec/100 cc	1.85 sec/100 cc

Statistics based on 40 of 42 reporting participants.

Comments on Assigned Data Flags for Test #370

VMAK9X (X) - Extreme Data.

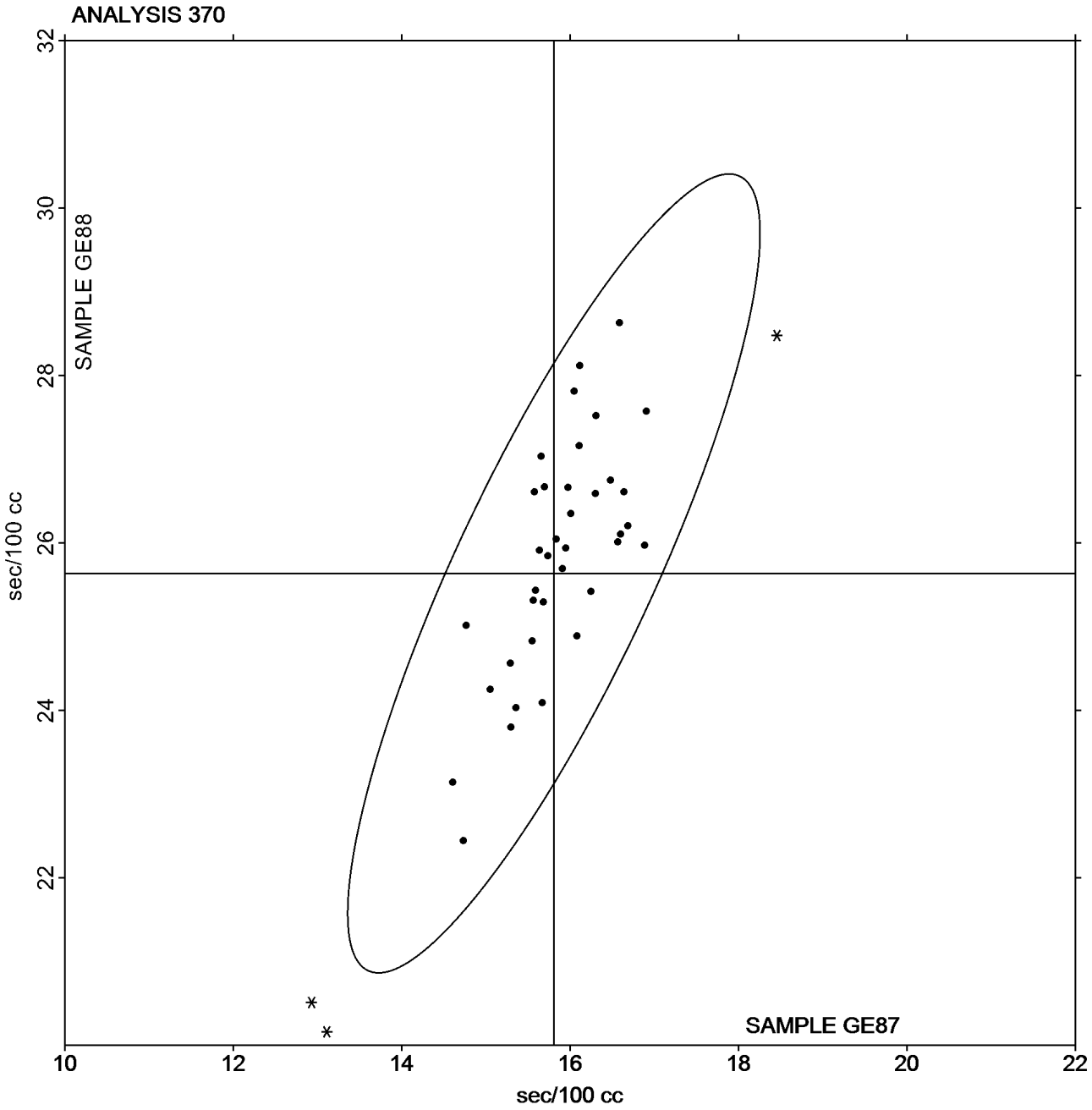
MDDPVB (X) - Data for sample GE88 are low.

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
VM	Valmet PaperLab (was Kajaani/Robotest)	WG	W & LE Gurley Tester
XX	Instrument make/model not specified by lab		

Grand Mean Sample GE87 = 15.807 sec/100 cc

Grand Mean Sample GE88 = 25.636 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 GE87 Lab Mean	Sample GE87 Diff from Grand Mean	Sample GE87 CPV	Sample GE88 Lab Mean	Sample GE88 Diff from Grand Mean	Sample GE88 CPV	Instr Code
67W2RJ		165.7	-3.9	-0.56	113.2	0.9	0.15	PP
FQ64RK		168.7	-0.9	-0.13	103.1	-9.2	-1.57	GA
J4JBGG		172.7	3.1	0.45	111.3	-1.0	-0.17	HM
M3RLNB		162.7	-6.9	-1.00	107.7	-4.6	-0.79	LB
NMUTFE		169.9	0.3	0.05	120.3	8.0	1.36	SH
UW3GV9	X	128.3	-41.3	-5.99	92.9	-19.4	-3.31	SH
Y2K6J2		181.8	12.2	1.77	118.2	5.9	1.01	PP
YBBQNY		160.4	-9.2	-1.33	108.2	-4.1	-0.70	LP
YBPCX2		174.7	5.1	0.74	116.4	4.1	0.70	LA

Summary Statistics	Sample GE87	Sample GE88
Grand Means	169.58 Sheffield Units	112.30 Sheffield Units
Stnd Dev Btwn Labs	6.90 Sheffield Units	5.86 Sheffield Units

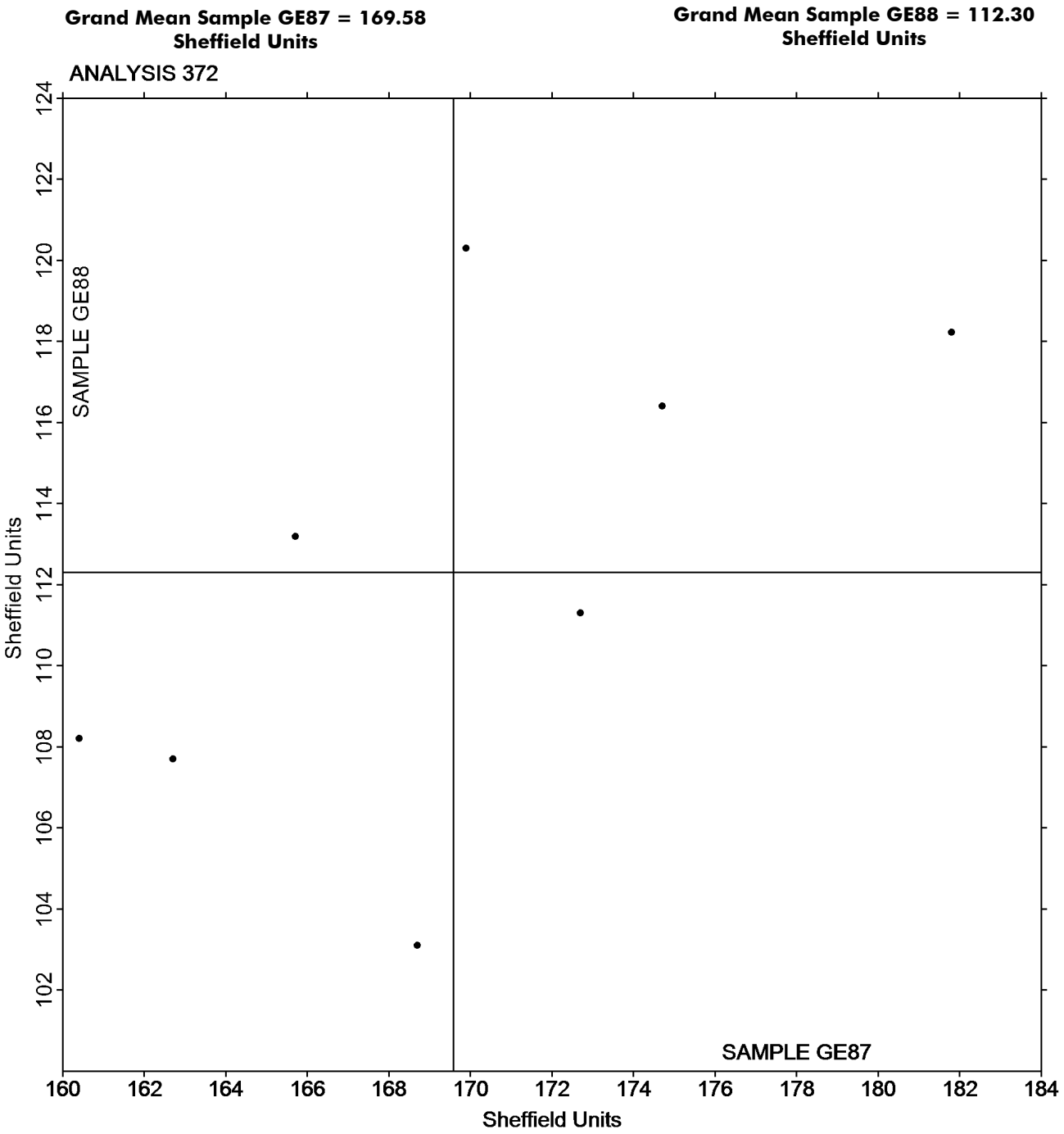
Statistics based on 8 of 9 reporting participants.

Comments on Assigned Data Flags for Test #372

UW3GV9 (X) - Data for both samples are low.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	HM	Technidyne - Hagerty Model #538
LA	L & W Roughness Sheffield - Autoline	LB	L & W Air Permeance - Autoline
LP	L & W Densometer, Air Permeance	PP	Technidyne Profile/Plus
SH	Sheffield		



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 GJ87 Lab Mean	Sample GJ87 Diff from Grand Mean	Sample GJ87 CPV	Sample GJ88 Lab Mean	Sample GJ88 Diff from Grand Mean	Sample GJ88 CPV	Instr Code
2Y7HXR		1.0190	0.1521	1.45	0.9900	0.1384	1.39	ZZ
43J2VR	*	0.8720	0.0051	0.05	0.7390	-0.1126	-1.13	ZZ
67W2RJ		0.8090	-0.0579	-0.55	0.8030	-0.0486	-0.49	ZZ
6X3WYH		0.7600	-0.1069	-1.02	0.8000	-0.0516	-0.52	ZZ
88HPZN		0.8340	-0.0329	-0.31	0.8070	-0.0446	-0.45	ZZ
8P3FZN	*	1.1460	0.2791	2.65	1.1260	0.2744	2.76	ZZ
9PXFCT		0.8000	-0.0669	-0.64	0.8050	-0.0466	-0.47	ZZ
AQN2JP		0.8910	0.0241	0.23	0.8990	0.0474	0.48	ZZ
B2YQWK	X	1.5480	0.6811	6.47	1.6120	0.7604	7.65	ZZ
CTL2WR		0.8240	-0.0429	-0.41	0.8240	-0.0276	-0.28	ZZ
CYRVQM		0.8040	-0.0629	-0.60	0.7690	-0.0826	-0.83	ZZ
EBWTP8		0.8540	-0.0129	-0.12	0.7490	-0.1026	-1.03	ZZ
EDLY8H		0.9150	0.0481	0.46	0.9590	0.1074	1.08	ZZ
EUQ7MK		0.7560	-0.1109	-1.05	0.7500	-0.1016	-1.02	ZZ
GNE6EL		1.0940	0.2271	2.16	1.0260	0.1744	1.76	ZZ
J9AKRE		0.8030	-0.0639	-0.61	0.7870	-0.0646	-0.65	ZZ
JD6CZC		0.8510	-0.0159	-0.15	0.8570	0.0054	0.05	ZZ
KMP3Y9		0.8420	-0.0249	-0.24	0.8810	0.0294	0.30	ZZ
KPDEYE		0.7310	-0.1359	-1.29	0.7220	-0.1296	-1.30	ZZ
NYCDZB		0.7360	-0.1309	-1.24	0.7830	-0.0686	-0.69	ZZ
QM8694		0.8390	-0.0279	-0.27	0.8520	0.0004	0.00	ZZ
RQMWXC		0.8520	-0.0149	-0.14	0.8680	0.0164	0.17	ZZ
V4V9F8		1.0490	0.1821	1.73	1.0150	0.1634	1.64	ZZ
VMAK9X		0.8400	-0.0269	-0.26	0.8160	-0.0356	-0.36	ZZ
W3LJTN		0.8150	-0.0519	-0.49	0.8400	-0.0116	-0.12	ZZ
Y2K6J2		0.9340	0.0671	0.64	0.8720	0.0204	0.21	ZZ
ZGRL6U		0.8700	0.0031	0.03	0.8020	-0.0496	-0.50	ZZ

Summary Statistics	Sample GJ87	Sample GJ88
Grand Means	0.87 Microns	0.85 Microns
Stnd Dev Btwn Labs	0.11 Microns	0.10 Microns

Statistics based on 26 of 27 reporting participants.

Comments on Assigned Data Flags for Test #376

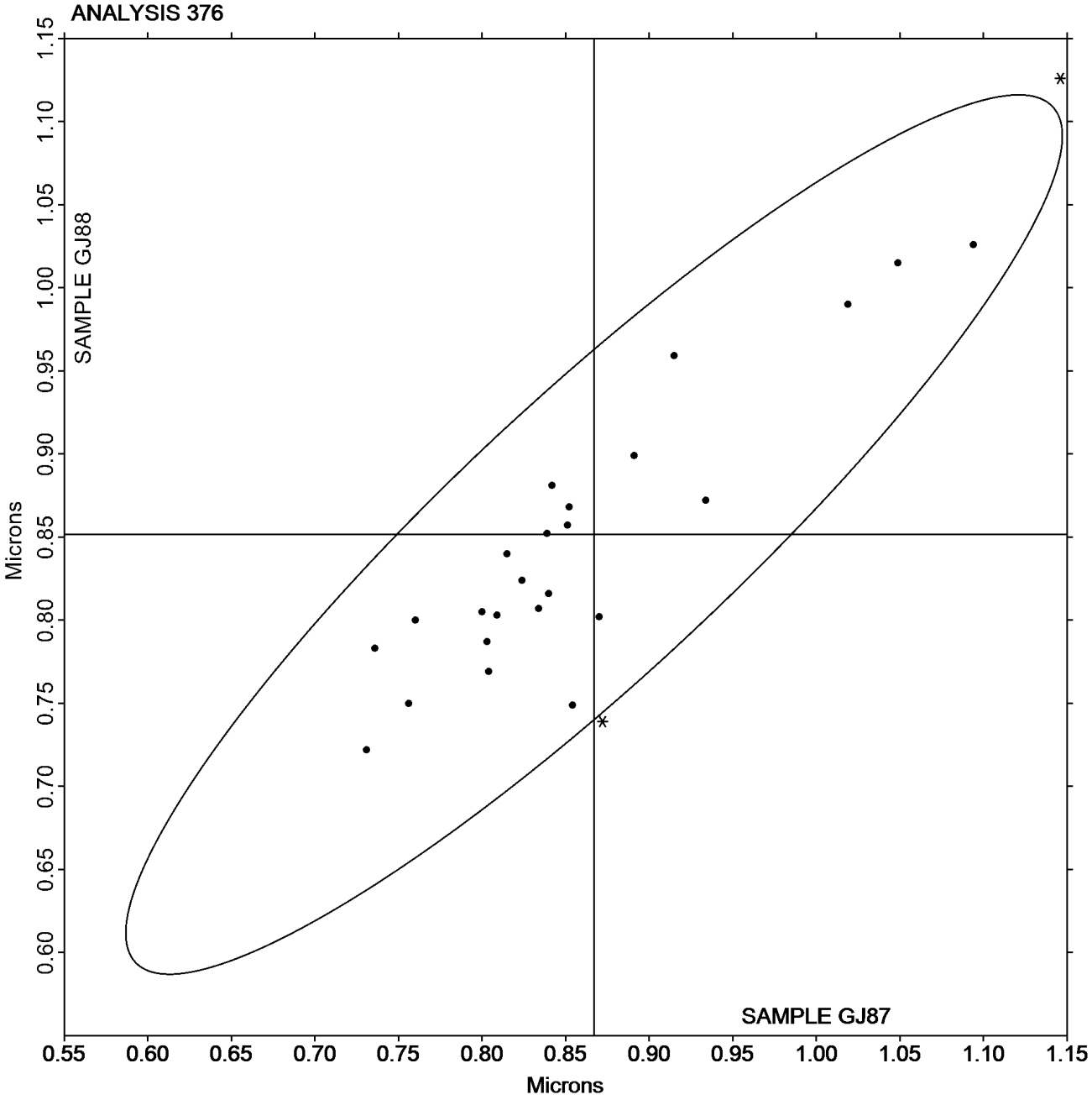
B2YQWK (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GJ87 = 0.86692 Microns

Grand Mean Sample GJ88 = 0.85158 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

TAPPI Official Test Method T555

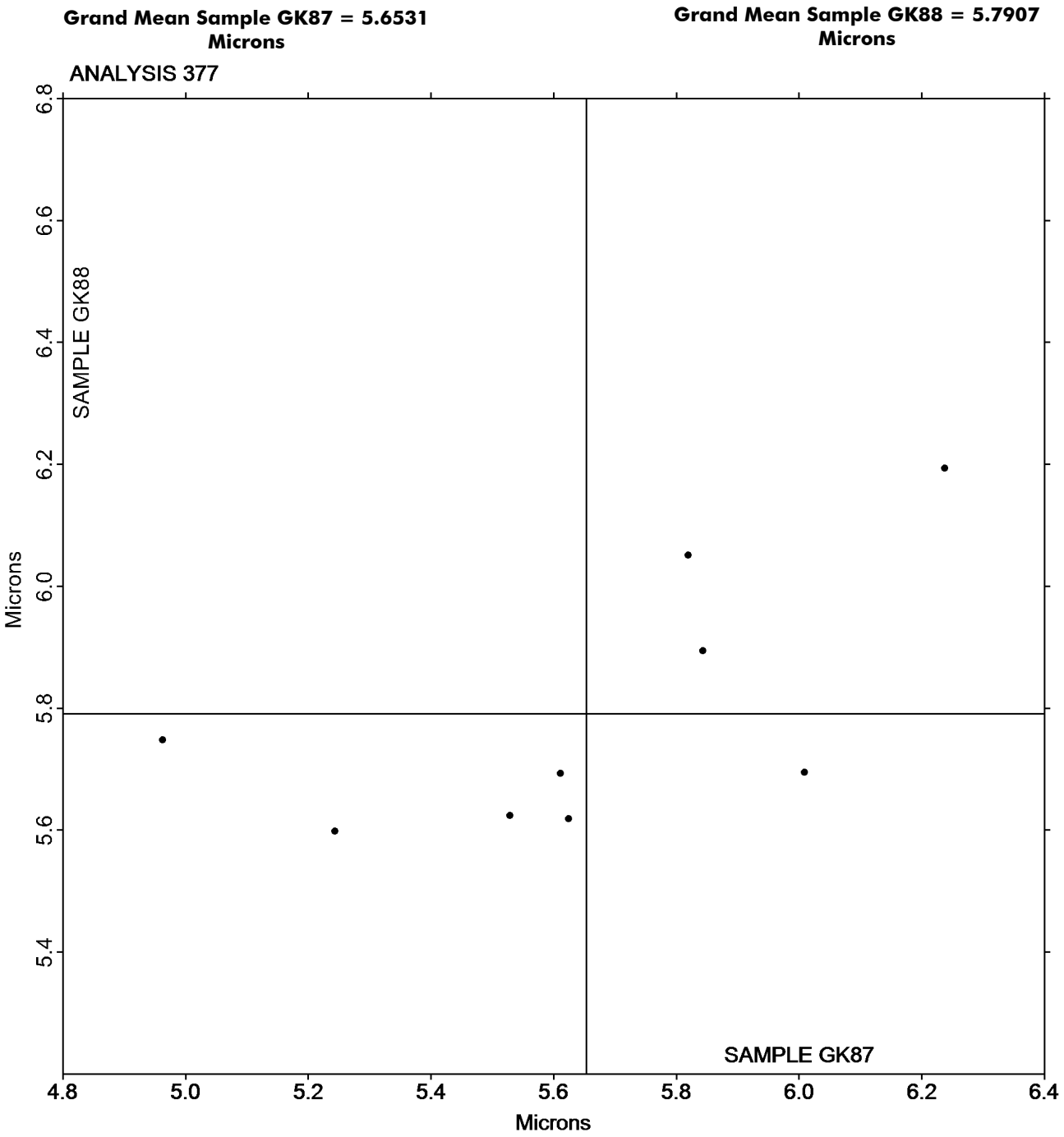
WebCode	Data Flag	Sample GK87 Lab Mean	Sample GK87 Diff from Grand Mean	Sample GK87 CPV	Sample GK88 Lab Mean	Sample GK88 Diff from Grand Mean	Sample GK88 CPV	Instr Code
647ZLV		6.009	0.356	0.92	5.695	-0.096	-0.45	ZZ
6CMC2G		5.843	0.190	0.49	5.894	0.103	0.49	ZZ
8P3FZN		6.237	0.584	1.51	6.194	0.403	1.91	ZZ
9ZE3NE		5.611	-0.042	-0.11	5.693	-0.098	-0.46	ZZ
BVTW3P		5.819	0.166	0.43	6.051	0.260	1.23	ZZ
EUQ7MK		4.963	-0.690	-1.79	5.748	-0.043	-0.20	ZZ
FQLZKJ		5.243	-0.410	-1.06	5.598	-0.193	-0.91	ZZ
GNE6EL		5.529	-0.124	-0.32	5.624	-0.167	-0.79	ZZ
KPDEYE		5.624	-0.029	-0.08	5.619	-0.172	-0.81	ZZ

Summary Statistics	Sample GK87	Sample GK88
Grand Means	5.65 Microns	5.79 Microns
Stnd Dev Btwn Labs	0.39 Microns	0.21 Microns

Statistics based on 9 of 9 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 GL87 Lab Mean	Sample GL87 Diff from Grand Mean	Sample GL87 CPV	Sample GL88 Lab Mean	Sample GL88 Diff from Grand Mean	Sample GL88 CPV	Instr Code
2ANYQY		117.9	-2.1	-0.26	107.1	-8.2	-1.08	LW
2Y7HXR		116.4	-3.6	-0.45	114.5	-0.8	-0.10	LW
3KHU4K		109.9	-10.1	-1.26	108.2	-7.0	-0.93	PP
3UADGT		116.7	-3.2	-0.40	117.4	2.1	0.29	PP
43J2VR		107.7	-12.2	-1.53	107.4	-7.9	-1.04	PP
4TTGPT		116.0	-4.0	-0.50	112.0	-3.3	-0.43	PP
647ZLV		126.0	6.0	0.75	125.7	10.4	1.39	LW
67W2RJ		127.8	7.8	0.97	126.1	10.9	1.45	PP
6CMC2G		119.3	-0.6	-0.08	115.6	0.3	0.04	PP
6ND92U		102.6	-17.4	-2.17	104.7	-10.6	-1.41	LA
88HPZN		127.6	7.6	0.95	118.6	3.3	0.44	LW
8P3FZN		125.4	5.4	0.68	120.4	5.1	0.68	LW
9PXFCT		124.8	4.8	0.60	118.7	3.5	0.46	PP
9ZE3NE		132.8	12.8	1.60	122.0	6.7	0.89	PP
AQN2JP		118.4	-1.5	-0.19	107.4	-7.9	-1.05	PP
B2YQWK		102.5	-17.5	-2.18	100.3	-15.0	-1.99	LA
BVTW3P		116.7	-3.3	-0.41	116.8	1.6	0.21	PP
CCXQAP		129.4	9.5	1.18	124.7	9.4	1.25	GA
CL3XNP	*	118.0	-2.0	-0.25	126.1	10.8	1.44	LW
CTL2WR	X	146.0	26.0	3.25	147.0	31.7	4.22	GL
CYRVQM		125.6	5.6	0.70	119.6	4.4	0.58	PP
D4299L		114.8	-5.1	-0.64	106.7	-8.5	-1.13	LA
DJQJUN		124.7	4.7	0.59	120.3	5.0	0.67	GA
DZXDNH	X	152.7	32.7	4.09	148.8	33.5	4.46	TT
EDLY8H		112.4	-7.5	-0.94	109.1	-6.1	-0.82	PP
EUQ7MK		122.7	2.7	0.34	112.6	-2.7	-0.35	LW
F2823E		125.9	5.9	0.74	123.9	8.7	1.15	PP
FNXNLE		117.6	-2.3	-0.29	113.2	-2.0	-0.27	PP
FQ64RK		118.6	-1.4	-0.17	113.0	-2.3	-0.30	PP
FQLZKJ		127.6	7.6	0.95	123.2	7.9	1.06	LA
GBP6MJ		127.2	7.3	0.91	118.5	3.3	0.43	PP
GFMLZD		119.2	-0.8	-0.10	115.7	0.4	0.06	PP
GNE6EL		129.5	9.5	1.19	131.7	16.4	2.19	XX
JWKLZC		130.5	10.5	1.32	121.9	6.6	0.88	TT
KKM6NG		112.2	-7.8	-0.97	109.0	-6.3	-0.83	HM
KPDEYE		125.7	5.7	0.72	118.9	3.6	0.48	LA
MRUKB8	*	100.0	-20.0	-2.49	96.4	-18.9	-2.51	XX
NMUTFE		121.5	1.5	0.19	121.6	6.3	0.84	TZ
NYCDZB		125.3	5.3	0.66	126.2	10.9	1.45	PP
QM8694		119.3	-0.7	-0.08	116.2	0.9	0.13	LA
R3J3QA		126.8	6.8	0.85	121.2	5.9	0.79	TS

Paper & Paperboard Interlaboratory Testing Program

Report #3102G, February 2021

Analysis 378

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL87 Lab Mean	Sample GL87 Diff from Grand Mean	Sample GL87 CPV	Sample GL88 Lab Mean	Sample GL88 Diff from Grand Mean	Sample GL88 CPV	Instr Code
R8BAB4		120.5	0.5	0.07	111.5	-3.8	-0.50	HM
RAYLBA		121.6	1.6	0.20	110.7	-4.6	-0.61	HM
UW3GV9		102.9	-17.1	-2.13	98.2	-17.1	-2.27	XX
VMAK9X		120.1	0.1	0.02	112.0	-3.3	-0.43	HM
W3LJTN		125.6	5.6	0.70	118.1	2.8	0.38	HM
XDY3N6		116.9	-3.1	-0.39	109.7	-5.6	-0.74	PP
Y2K6J2		134.2	14.2	1.78	120.4	5.1	0.68	VM
YBBQNY		121.8	1.8	0.23	120.5	5.2	0.70	LW
YBPCX2		109.2	-10.8	-1.35	107.6	-7.7	-1.02	LA
YP6B6M		122.3	2.3	0.29	114.4	-0.9	-0.11	TS
Z44JM2		112.0	-8.0	-1.00	109.6	-5.7	-0.75	MP
Z9XDJ3		118.8	-1.2	-0.15	112.9	-2.4	-0.31	SH
ZTK6JY		129.3	9.4	1.17	115.2	-0.1	-0.01	PP

Summary Statistics	Sample GL87	Sample GL88
Grand Means	119.97 Sheffield	115.26 Sheffield
Stnd Dev Btwn Labs	8.00 Sheffield	7.52 Sheffield

Statistics based on 52 of 54 reporting participants.

Comments on Assigned Data Flags for Test #378

CTL2WR (X) - Data for both samples are high. Possible Systematic Error.

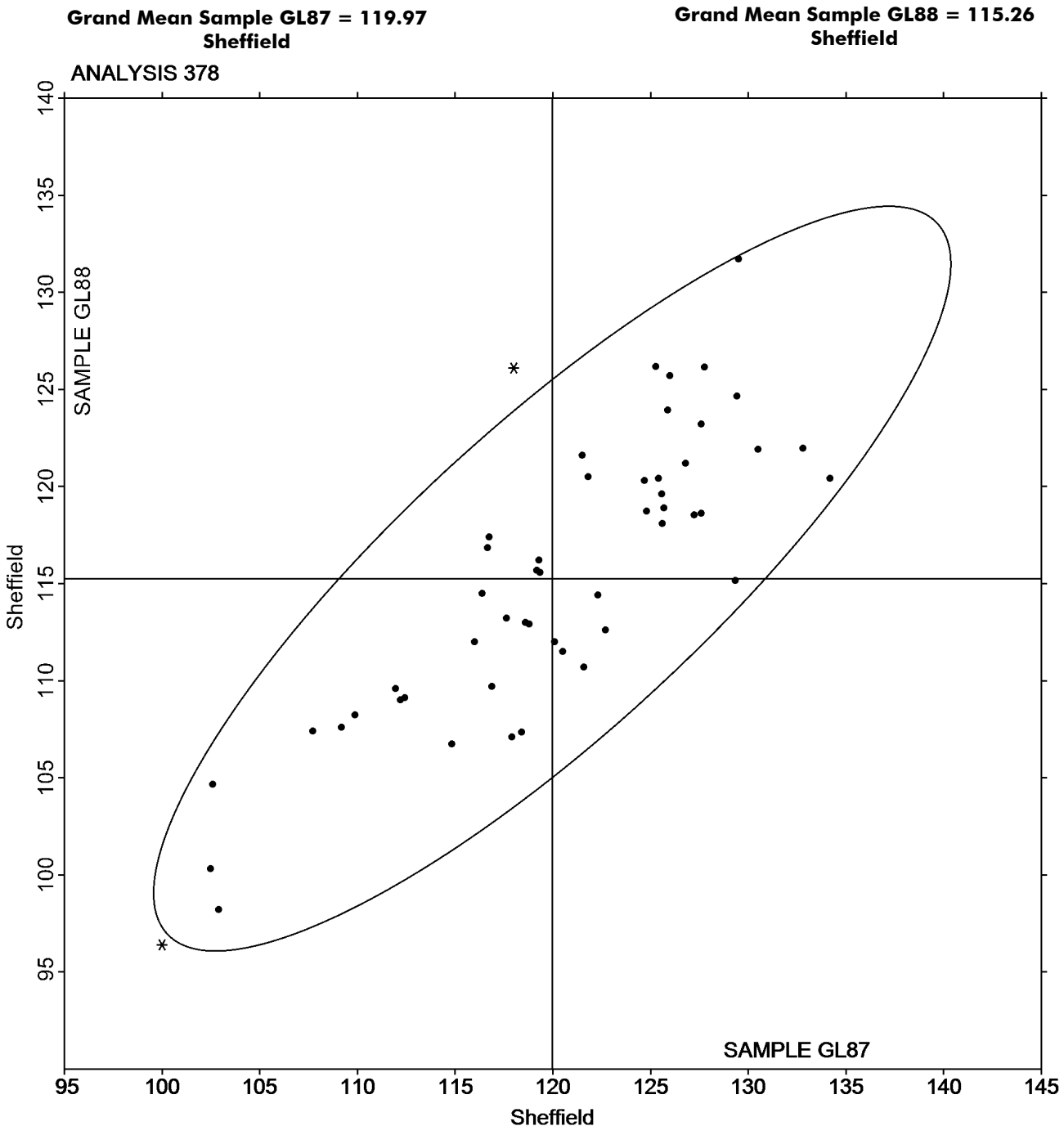
DZXDNH (X) - Data for both samples are high. Possible Systematic Error.

Analysis Notes:

Y2K6J2 - Data appears to be transposed between samples. CTS will not correct going forward.

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
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
TZ	TMI Sheffield Paper Tester, Model 58-25	VM	Valmet PaperLab (was Kajaani\Robotest)
XX	Instrument make/model not specified by lab		



Paper & Paperboard Interlaboratory Testing Program

Analysis 382
Moisture in Paper
TAPPI Official Test Method T412

WebCode	Data Flag	Sample GM87 Lab Mean	Sample GM87 Diff from Grand Mean	Sample GM87 CPV	Sample GM88 Lab Mean	Sample GM88 Diff from Grand Mean	Sample GM88 CPV	Instr Code
4MMMVX		3.888	-0.140	-0.35	3.865	-0.180	-0.43	ZZ
6CMC2G		4.216	0.188	0.47	4.187	0.142	0.34	ZZ
CL3XNP		3.129	-0.899	-2.23	3.188	-0.857	-2.04	ZZ
DEXE2J		3.935	-0.093	-0.23	3.964	-0.081	-0.19	ZZ
GZ7QKG		4.130	0.102	0.25	4.320	0.275	0.65	ZZ
J4JBGG	X	95.220	91.192	226.46	95.246	91.201	216.92	ZZ
L2P4CA		4.627	0.599	1.49	4.746	0.701	1.67	ZZ
LAV7BF		3.910	-0.118	-0.29	3.900	-0.145	-0.35	ZZ
V4V9F8		3.936	-0.092	-0.23	3.933	-0.112	-0.27	ZZ
WK2TUP		4.470	0.442	1.10	4.460	0.415	0.99	ZZ
ZYDAC4		4.040	0.012	0.03	3.890	-0.155	-0.37	ZZ

Summary Statistics	Sample GM87	Sample GM88
Grand Means	4.03 Percent	4.05 Percent
Stnd Dev Btwn Labs	0.40 Percent	0.42 Percent

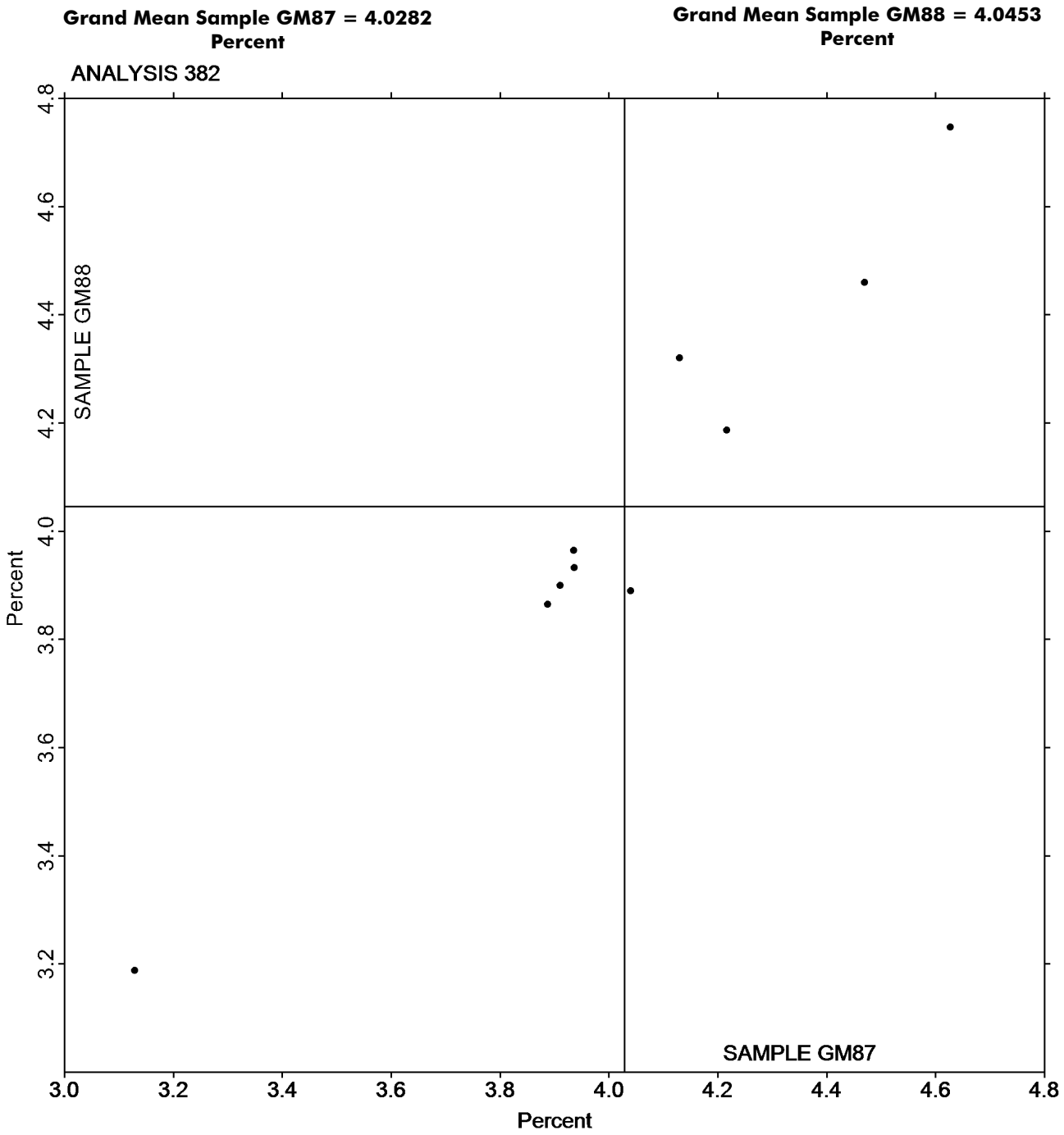
Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #382

J4JBGG (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 384

Opacity (89% Reflectance Backing) - Fine Papers

TAPPI Official Test Method T425

WebCode	Data Flag	Sample GN87 Lab Mean	Sample GN87 Diff from Grand Mean	Sample GN87 CPV	Sample GN88 Lab Mean	Sample GN88 Diff from Grand Mean	Sample GN88 CPV	Instr Code
3KHU4K	*	94.62	0.98	2.73	94.33	0.61	1.48	ZZ
3UADGT		93.24	-0.40	-1.11	93.07	-0.65	-1.57	ZZ
43J2VR		93.70	0.06	0.16	93.45	-0.27	-0.66	ZZ
4TTGPT		93.60	-0.04	-0.11	93.53	-0.19	-0.46	ZZ
67W2RJ		93.90	0.26	0.73	93.81	0.09	0.22	ZZ
6CMC2G		93.58	-0.06	-0.16	93.59	-0.13	-0.31	ZZ
6ND92U		93.29	-0.35	-0.98	93.78	0.06	0.14	ZZ
9ZE3NE		93.26	-0.38	-1.06	93.52	-0.20	-0.49	ZZ
BVTW3P		93.63	-0.01	-0.04	93.81	0.09	0.22	ZZ
EBWTP8		93.77	0.13	0.36	93.98	0.25	0.62	ZZ
F2823E		94.03	0.39	1.08	94.38	0.66	1.59	ZZ
FQ64RK		93.27	-0.37	-1.04	93.73	0.01	0.02	ZZ
FQLZKJ	*	94.59	0.95	2.65	94.75	1.03	2.50	ZZ
GBP6MJ		93.46	-0.18	-0.51	93.50	-0.22	-0.54	ZZ
J9AKRE		93.33	-0.31	-0.87	93.06	-0.66	-1.61	ZZ
JD6CZC		93.48	-0.16	-0.45	93.72	0.00	-0.01	ZZ
KMP3Y9		93.78	0.14	0.39	93.47	-0.25	-0.61	ZZ
MBAUC8		93.52	-0.12	-0.34	93.42	-0.30	-0.73	ZZ
NMUTFE		93.41	-0.23	-0.64	93.53	-0.19	-0.46	ZZ
R3J3QA		93.71	0.07	0.20	93.89	0.17	0.41	ZZ
R8BAB4		93.62	-0.02	-0.06	93.23	-0.49	-1.19	ZZ
UW3GV9	X	91.49	-2.15	-6.02	91.45	-2.27	-5.52	ZZ
VMAK9X		93.70	0.06	0.17	93.82	0.10	0.24	ZZ
W3LJTN		93.95	0.31	0.87	94.32	0.60	1.45	ZZ
YBPCX2		93.64	0.00	0.00	94.11	0.39	0.94	ZZ
YH9F64		93.25	-0.39	-1.10	93.67	-0.05	-0.13	ZZ
YP6B6M		93.73	0.09	0.25	93.90	0.18	0.43	ZZ
Z9XDJ3		93.24	-0.40	-1.12	93.11	-0.61	-1.49	ZZ

Summary Statistics	Sample GN87	Sample GN88
Grand Means	93.64 Percent	93.72 Percent
Stnd Dev Btwn Labs	0.36 Percent	0.41 Percent

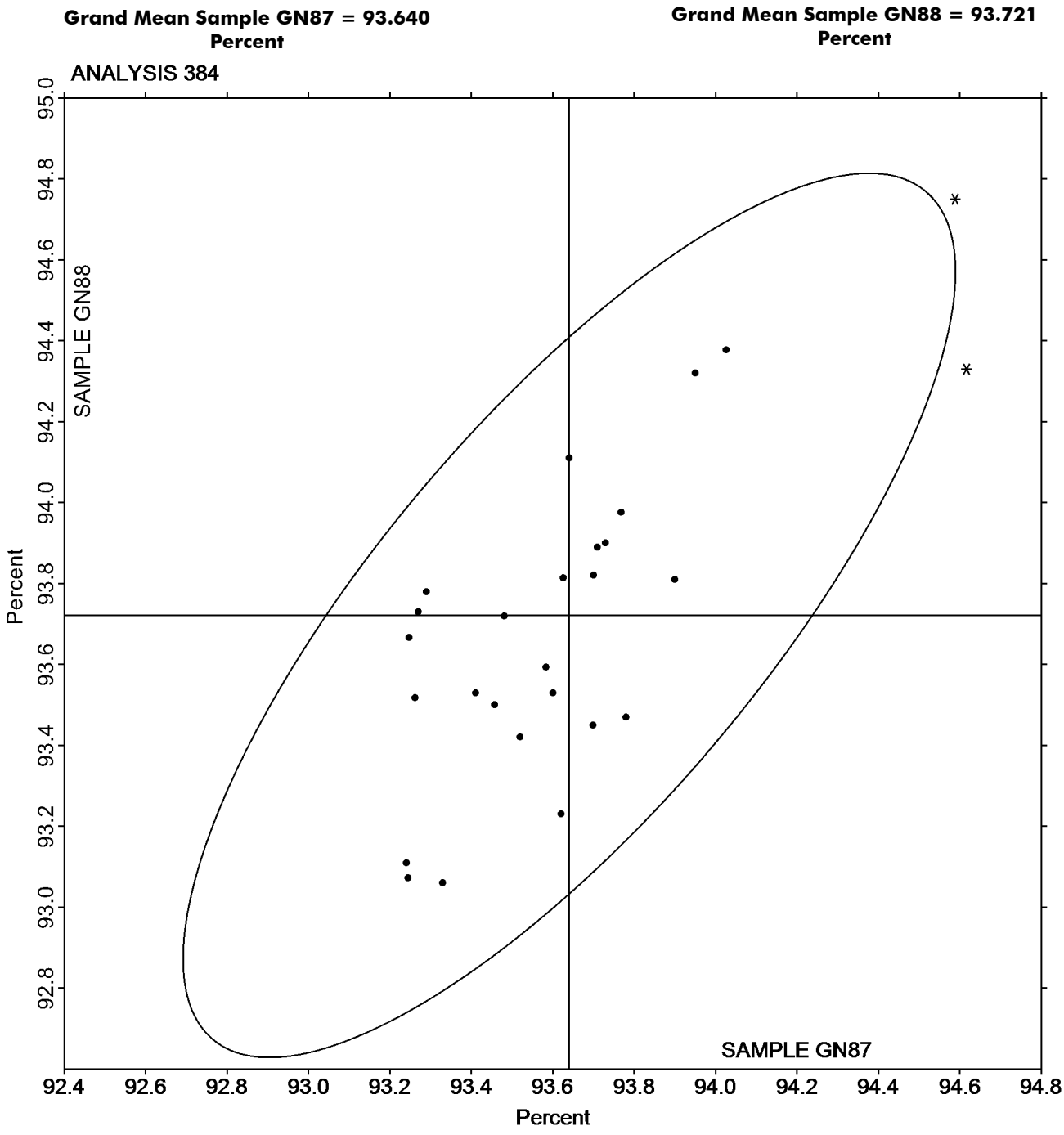
Statistics based on 27 of 28 reporting participants.

Comments on Assigned Data Flags for Test #384

UW3GV9 (X) - Extreme Data.

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

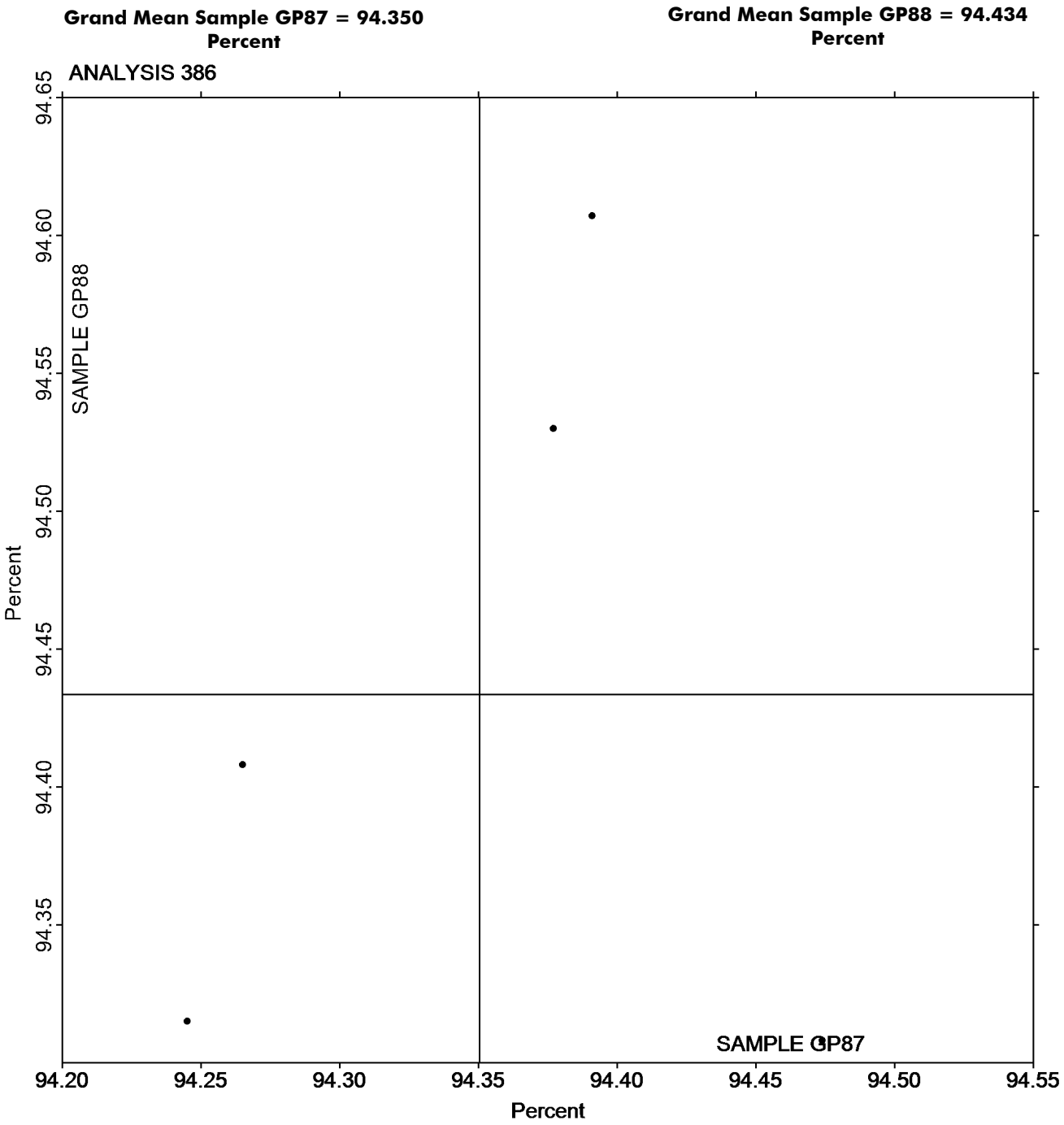
WebCode	Data Flag	Sample GP87 Lab Mean	Sample GP87 Diff from Grand Mean	Sample GP87 CPV	Sample GP88 Lab Mean	Sample GP88 Diff from Grand Mean	Sample GP88 CPV	Instr Code
74KLVW		94.27	-0.09	-0.90	94.41	-0.03	-0.19	ZZ
CL3XNP		94.38	0.03	0.28	94.53	0.10	0.73	ZZ
JK8K4J		94.25	-0.11	-1.11	94.32	-0.12	-0.90	ZZ
RQMWXC		94.39	0.04	0.43	94.61	0.17	1.31	ZZ
W33DTY		94.47	0.12	1.30	94.31	-0.13	-0.95	ZZ

Summary Statistics	Sample GP87	Sample GP88
Grand Means	94.35 Percent	94.43 Percent
Stnd Dev Btwn Labs	0.09 Percent	0.13 Percent

Statistics based on 5 of 5 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 #3102G, February 2021

Analysis 390

Directional Brightness

TAPPI Official Test Method T452

WebCode	Data Flag	Sample GR87 Lab Mean	Sample GR87 Diff from Grand Mean	Sample GR87 CPV	Sample GR88 Lab Mean	Sample GR88 Diff from Grand Mean	Sample GR88 CPV	Instr Code
3KHU4K		84.33	-0.86	-0.49	84.29	-0.89	-0.49	TT
43J2VR		82.78	-2.40	-1.37	82.79	-2.39	-1.32	PP
4TTGPT		83.86	-1.32	-0.75	83.88	-1.31	-0.72	XX
88HPZN		85.17	-0.02	-0.01	85.07	-0.11	-0.06	HZ
8P3FZN		85.95	0.77	0.44	85.98	0.80	0.44	HG
9PXFCT		84.14	-1.05	-0.59	84.03	-1.16	-0.64	TA
AQN2JP		86.51	1.33	0.76	86.16	0.98	0.54	TT
CTL2WR	X	67.20	-17.98	-10.23	67.43	-17.76	-9.78	TS
CYRVQM		85.64	0.45	0.26	85.66	0.47	0.26	HG
EUQ7MK		83.68	-1.51	-0.86	83.74	-1.44	-0.79	TT
F2823E		84.33	-0.86	-0.49	83.98	-1.20	-0.66	TS
F8AB8L		86.28	1.10	0.62	86.39	1.21	0.67	TS
FQ64RK		84.60	-0.59	-0.33	84.85	-0.33	-0.18	XC
FQLZKJ		84.77	-0.41	-0.23	84.79	-0.39	-0.22	TS
GBP6MJ		84.17	-1.01	-0.57	84.16	-1.02	-0.56	TP
J9AKRE		84.25	-0.93	-0.53	84.13	-1.06	-0.58	TS
KMP3Y9		84.35	-0.83	-0.47	84.38	-0.81	-0.44	TP
MRUKB8	*	89.01	3.83	2.18	89.45	4.27	2.35	XX
NMUTFE		88.73	3.54	2.02	88.68	3.49	1.92	TS
NYCDZB		85.05	-0.14	-0.08	84.99	-0.19	-0.10	HG
R3J3QA		83.83	-1.36	-0.77	83.61	-1.57	-0.86	TS
UW3GV9		88.96	3.77	2.15	89.09	3.91	2.15	PE
W3LJTN		83.66	-1.53	-0.87	83.92	-1.26	-0.70	TS

Summary Statistics	Sample GR87	Sample GR88
Grand Means	85.18 Percent	85.18 Percent
Stnd Dev Btwn Labs	1.76 Percent	1.82 Percent

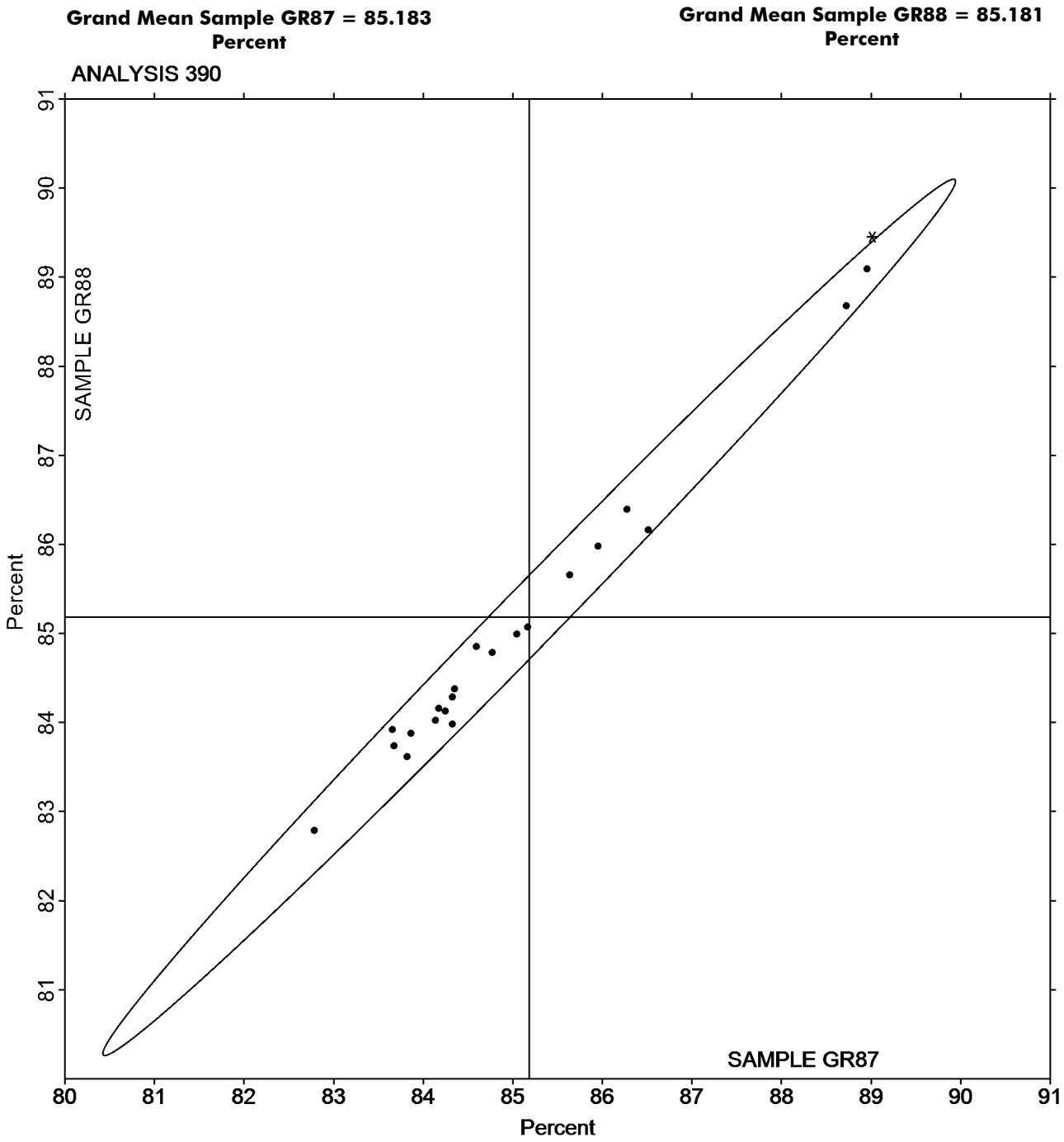
Statistics based on 22 of 23 reporting participants.

Comments on Assigned Data Flags for Test #390

CTL2WR (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
TA	Technidyne, Diano, M.S. S-4	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 GZ87 Lab Mean	Sample GZ87 Diff from Grand Mean	Sample GZ87 CPV	Sample GZ88 Lab Mean	Sample GZ88 Diff from Grand Mean	Sample GZ88 CPV	Instr Code
3UADGT		98.62	-0.02	-0.06	95.54	0.09	0.37	PP
6CMC2G		98.35	-0.29	-0.80	95.22	-0.22	-0.86	TS
6ND92U		98.34	-0.30	-0.84	95.18	-0.27	-1.03	TT
9ZE3NE		98.79	0.15	0.41	95.76	0.32	1.24	TS
EBWTP8		98.71	0.06	0.18	95.63	0.18	0.72	PP
GBP6MJ		99.35	0.71	1.98	95.42	-0.03	-0.11	PP
JD6CZC		99.09	0.44	1.24	95.88	0.43	1.68	TS
MBAUC8		98.64	0.00	0.00	95.54	0.09	0.37	TT
R3J3QA		98.70	0.06	0.16	95.44	-0.01	-0.02	TS
VMAK9X	X	94.22	-4.42	-12.30	90.50	-4.95	-19.23	TT
YP6B6M		98.08	-0.56	-1.56	95.24	-0.21	-0.80	TS
ZTK6JY		98.38	-0.26	-0.72	95.05	-0.40	-1.55	TS

Summary Statistics	Sample GZ87	Sample GZ88
Grand Means	98.64 Percent	95.45 Percent
Stnd Dev Btwn Labs	0.36 Percent	0.26 Percent

Statistics based on 11 of 12 reporting participants.

Comments on Assigned Data Flags for Test #391

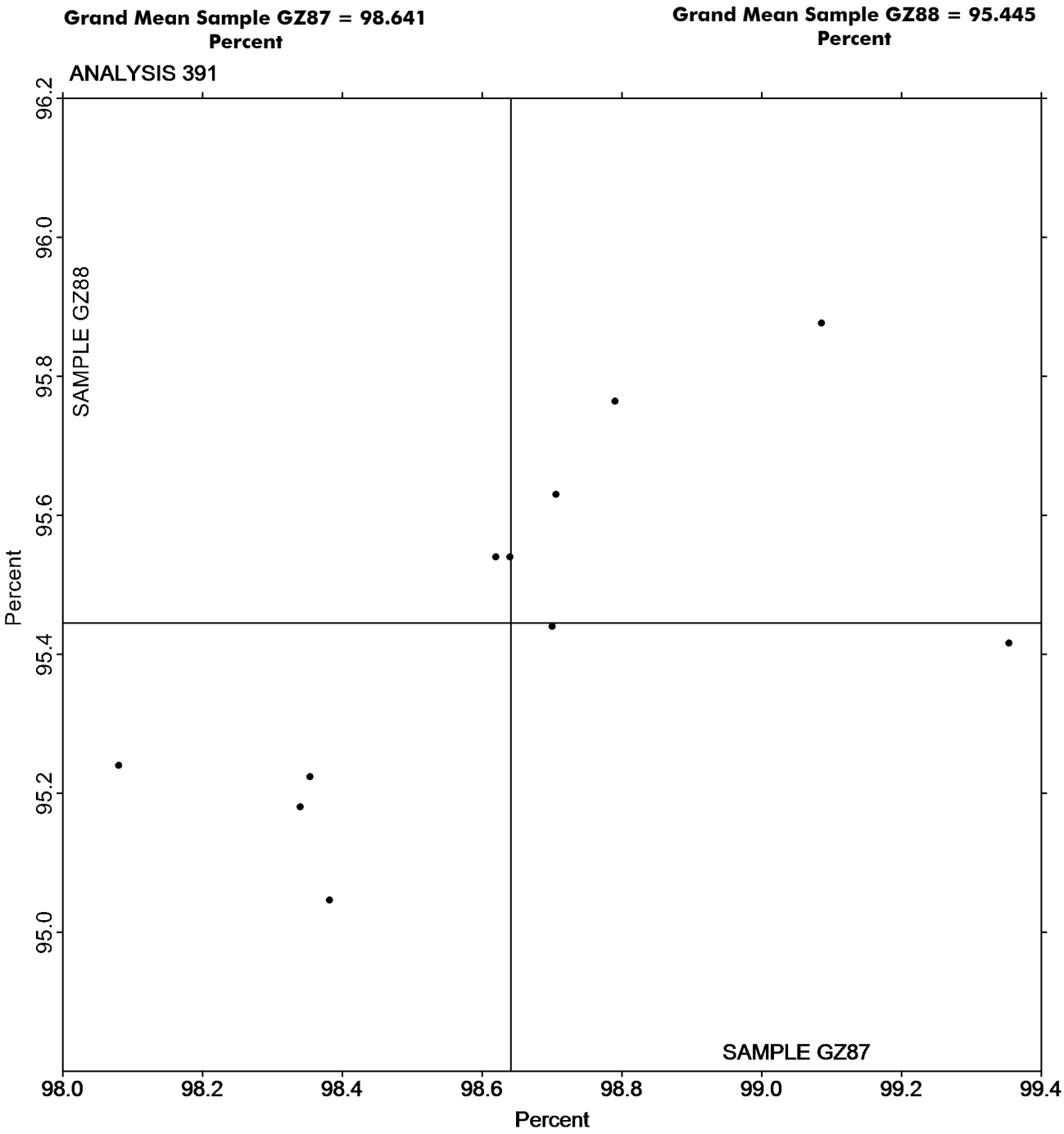
VMAK9X (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

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 GR87 Lab Mean	Sample GR87 Diff from Grand Mean	Sample GR87 CPV	Sample GR88 Lab Mean	Sample GR88 Diff from Grand Mean	Sample GR88 CPV	Instr Code
236VJW	X	85.74	0.96	6.43	85.72	0.94	6.83	XX
2ANYQY		84.77	-0.01	-0.06	84.81	0.03	0.19	EF
3DL3VQ		84.76	-0.02	-0.14	84.79	0.00	0.02	XX
67W2RJ		84.77	-0.01	-0.05	84.87	0.08	0.57	TC
6X3WYH		84.72	-0.06	-0.40	84.79	0.01	0.05	TC
74KLVW		84.79	0.01	0.09	84.78	-0.01	-0.08	LA
8P3FZN		84.77	-0.01	-0.05	84.77	-0.02	-0.16	TC
9PXFCT		84.65	-0.13	-0.86	84.63	-0.16	-1.16	LT
AQN2JP		84.79	0.01	0.05	84.75	-0.04	-0.26	TL
BW8JEC		84.85	0.07	0.45	84.84	0.05	0.36	TC
CL3XNP		84.73	-0.05	-0.33	84.67	-0.12	-0.86	LE
EUQ7MK		84.86	0.08	0.56	84.78	0.00	-0.02	EG
FNXNLE		84.76	-0.02	-0.12	84.90	0.11	0.83	TC
FQLZKJ		84.87	0.09	0.58	84.89	0.10	0.77	TC
GU6ENK		84.59	-0.20	-1.31	84.58	-0.20	-1.49	LA
JK8K4J		84.78	0.00	0.01	84.80	0.01	0.11	LE
R9KCX3		84.80	0.02	0.13	84.88	0.09	0.65	LE
RQMWXC		84.64	-0.14	-0.94	84.61	-0.18	-1.32	AC
T6472T		84.62	-0.17	-1.11	84.64	-0.15	-1.09	TC
W3LJTN	*	85.30	0.52	3.50	85.19	0.40	2.91	LT
YFZ4QM	X	68.74	-16.04	-107.33	68.70	-16.09	-117.36	TL

Summary Statistics	Sample GR87	Sample GR88
Grand Means	84.78 Percent	84.79 Percent
Stnd Dev Btwn Labs	0.15 Percent	0.14 Percent

Statistics based on 19 of 21 reporting participants.

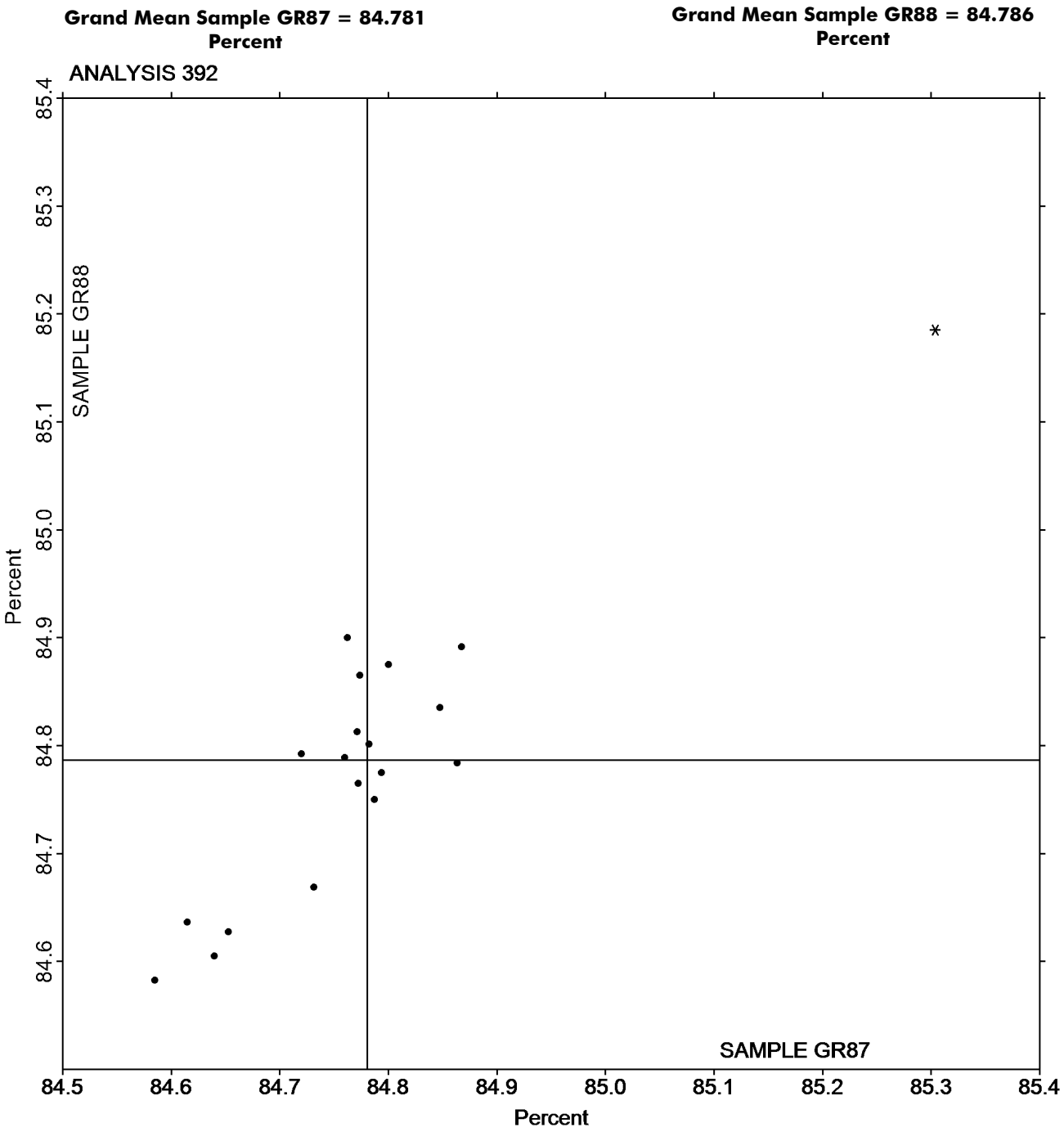
Comments on Assigned Data Flags for Test #392

YFZ4QM (X) - Extreme Data.

236VJW (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

AC	ACS Spectro-Sensor II	EF	Datacolor Elrepho 3000
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
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 GZ87 Lab Mean	Sample GZ87 Diff from Grand Mean	Sample GZ87 CPV	Sample GZ88 Lab Mean	Sample GZ88 Diff from Grand Mean	Sample GZ88 CPV	Instr Code
3UADGT		8.820	-0.066	-0.21	7.880	-0.124	-0.55	PP
6CMC2G		8.768	-0.118	-0.38	7.888	-0.116	-0.52	TS
6ND92U		8.860	-0.026	-0.08	7.980	-0.024	-0.11	TT
9ZE3NE		9.296	0.410	1.32	8.312	0.308	1.38	TS
EBWTP8		9.184	0.298	0.96	8.258	0.254	1.14	PP
JD6CZC		8.834	-0.052	-0.17	8.044	0.040	0.18	TS
R3J3QA		9.180	0.294	0.95	8.220	0.216	0.97	TS
VMAK9X		8.260	-0.626	-2.02	7.660	-0.344	-1.53	TT
ZTK6JY		8.774	-0.112	-0.36	7.790	-0.214	-0.95	TS

Summary Statistics	Sample GZ87	Sample GZ88
Grand Means	8.89 Percent	8.00 Percent
Stnd Dev Btwn Labs	0.31 Percent	0.22 Percent

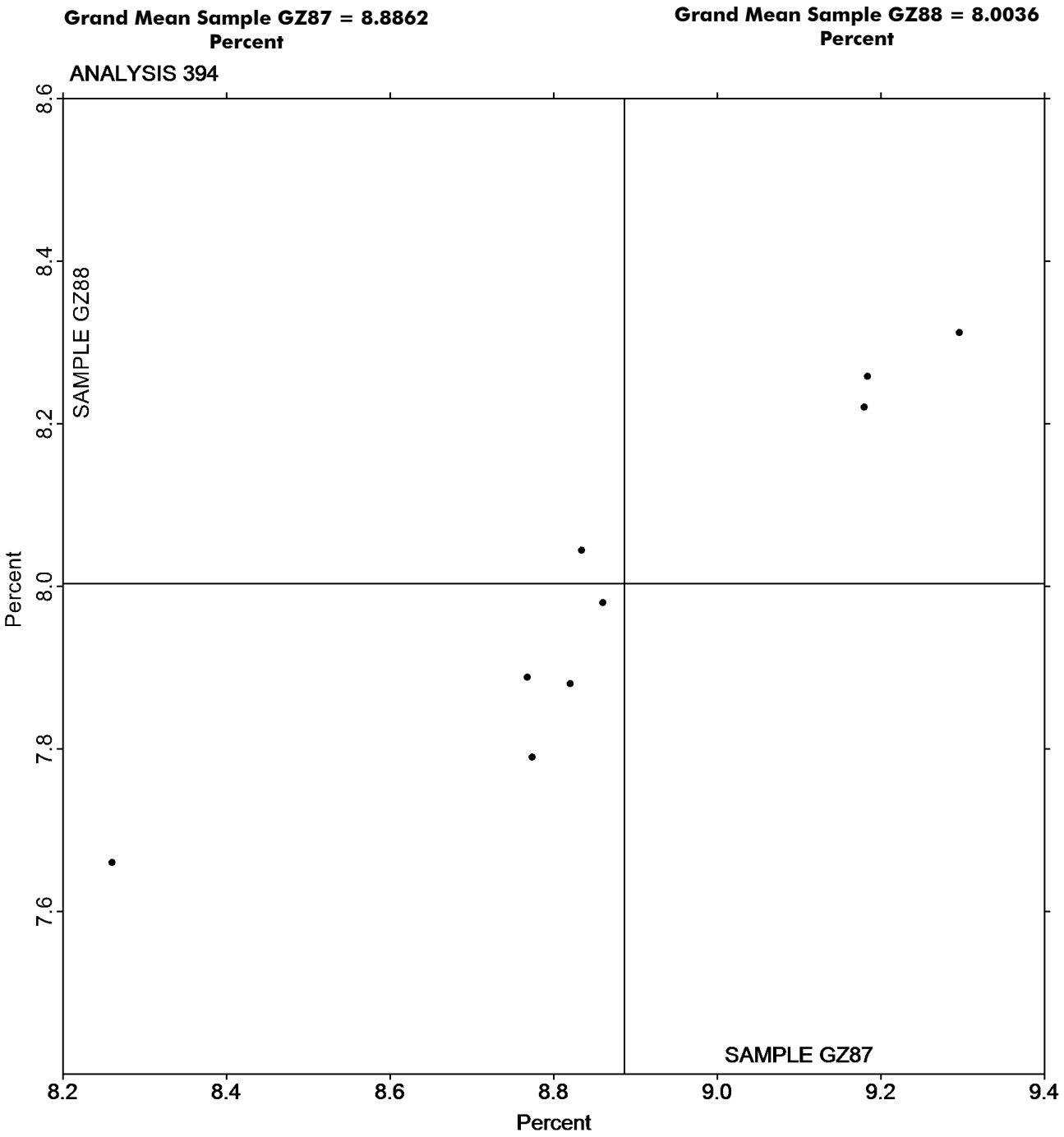
Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

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

Report #3102G, February 2021

Analysis 395

Specular Gloss at 75 Degrees - High Range

TAPPI Official Test Method T480

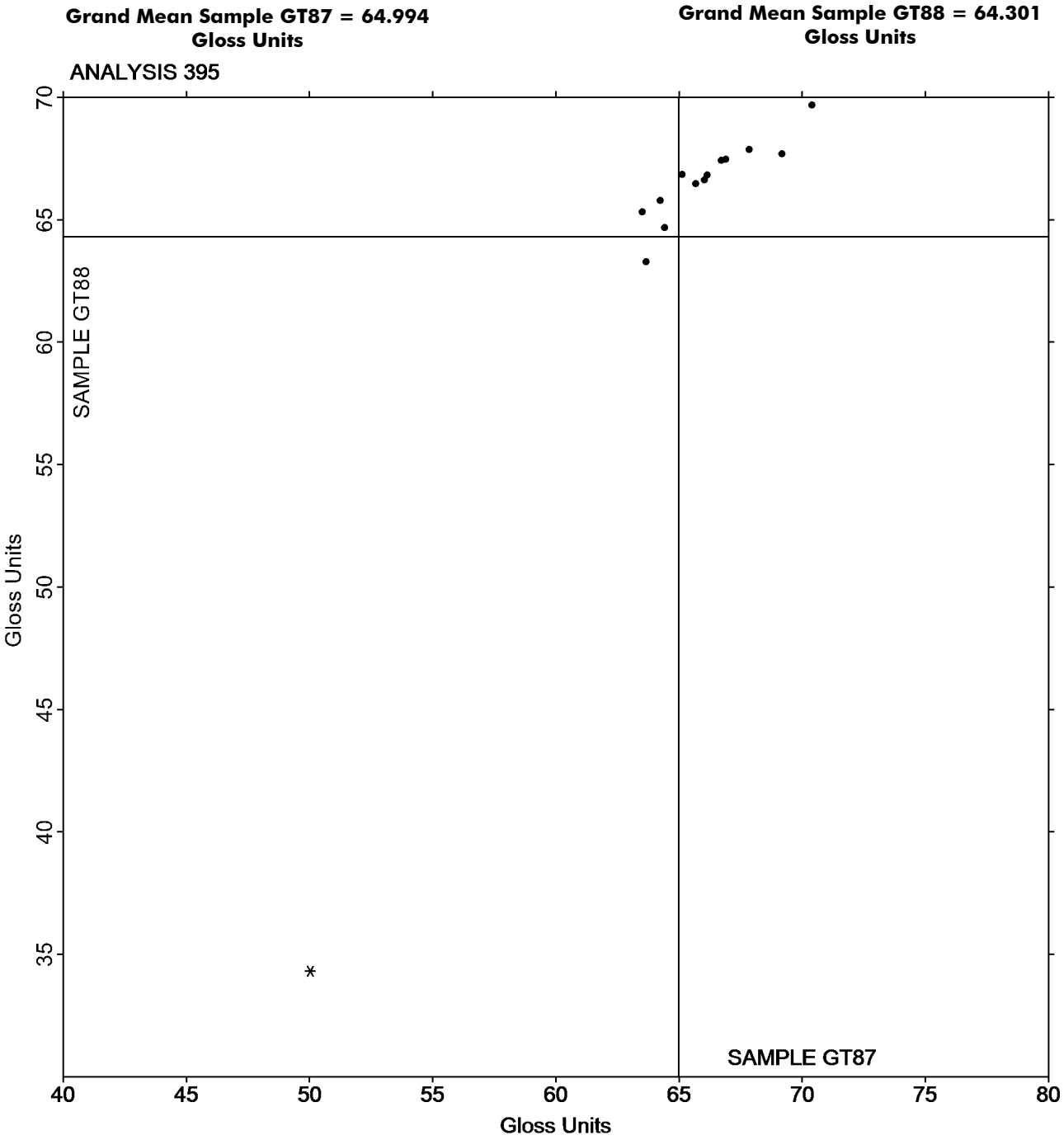
WebCode	Data Flag	Sample GT87 Lab Mean	Sample GT87 Diff from Grand Mean	Sample GT87 CPV	Sample GT88 Lab Mean	Sample GT88 Diff from Grand Mean	Sample GT88 CPV	Instr Code
9PXFCT		63.67	-1.32	-0.28	63.28	-1.02	-0.12	GA
AQN2JP		66.89	1.90	0.40	67.47	3.17	0.36	GM
CYRVQM		69.19	4.20	0.88	67.69	3.39	0.39	TH
EBWTP8		65.67	0.68	0.14	66.46	2.16	0.25	PP
EUQ7MK		67.85	2.86	0.60	67.87	3.57	0.41	TH
J9AKRE		64.24	-0.75	-0.16	65.78	1.48	0.17	LA
JD6CZC		63.51	-1.48	-0.31	65.31	1.01	0.12	LF
KMP3Y9		66.04	1.05	0.22	66.63	2.33	0.27	TH
KPDEYE		70.40	5.41	1.14	69.67	5.37	0.61	LA
NYCDZB		66.73	1.74	0.37	67.41	3.11	0.35	TH
QM8694	*	50.03	-14.96	-3.15	34.31	-29.99	-3.42	LF
RQMWXC		66.15	1.16	0.24	66.83	2.53	0.29	LB
VMAK9X		64.42	-0.57	-0.12	64.67	0.37	0.04	PP
Y2K6J2		65.12	0.13	0.03	66.84	2.54	0.29	VM

Summary Statistics	Sample GT87	Sample GT88
Grand Means	64.99 Gloss Units	64.30 Gloss Units
Stnd Dev Btwn Labs	4.75 Gloss Units	8.77 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	PP	Technidyne Profile/Plus
TH	Technidyne T480A	VM	Valmet PaperLab (was Kajaani/Robotest)



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

Report #3102G, February 2021

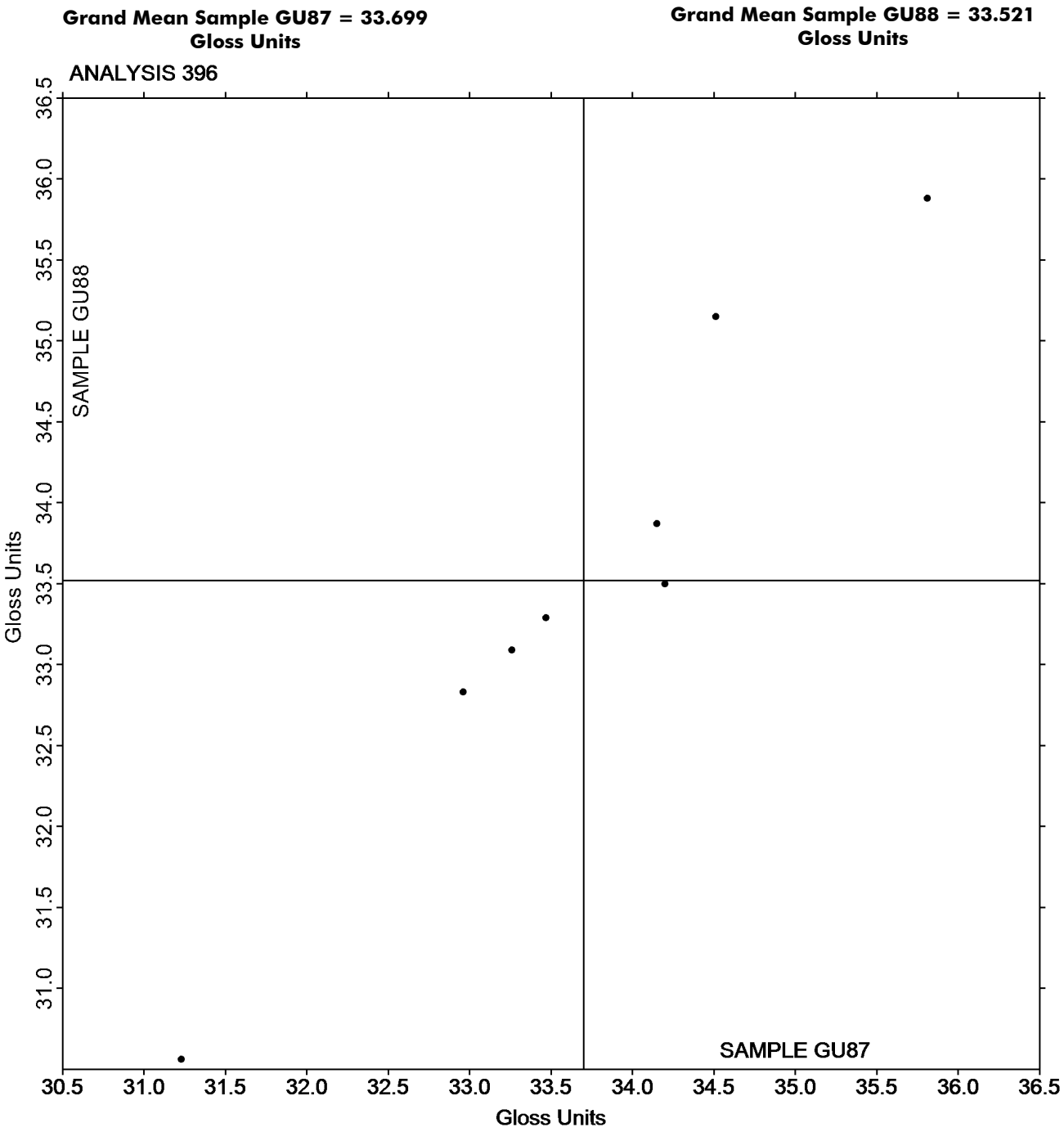
WebCode	Data Flag	Sample GU87 Lab Mean	Sample GU87 Diff from Grand Mean	Sample GU87 CPV	Sample GU88 Lab Mean	Sample GU88 Diff from Grand Mean	Sample GU88 CPV	Instr Code
3KHU4K		34.15	0.45	0.34	33.87	0.35	0.22	TH
67W2RJ		35.81	2.11	1.58	35.88	2.36	1.48	TH
88HPZN		33.26	-0.44	-0.33	33.09	-0.43	-0.27	GS
8P3FZN		34.51	0.81	0.61	35.15	1.63	1.02	PP
BVTW3P		32.96	-0.74	-0.55	32.83	-0.69	-0.43	PP
FQ64RK		34.20	0.50	0.38	33.50	-0.02	-0.01	TH
RQMWXC		33.47	-0.23	-0.17	33.29	-0.23	-0.14	LA
V4V9F8		31.23	-2.47	-1.85	30.56	-2.96	-1.86	WJ

Summary Statistics	Sample GU87	Sample GU88
Grand Means	33.70 Gloss Units	33.52 Gloss Units
Stnd Dev Btwn Labs	1.33 Gloss Units	1.60 Gloss Units

Statistics based on 8 of 8 reporting participants.

Key to Instrument Codes Reported by Participants

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 GW87 Lab Mean	Sample GW87 Diff from Grand Mean	Sample GW87 CPV	Sample GW88 Lab Mean	Sample GW88 Diff from Grand Mean	Sample GW88 CPV	Instr Code
236VJW		73.21	0.05	0.11	89.56	-0.58	-0.80	ZZ
3KHU4K		72.72	-0.44	-0.96	90.15	0.02	0.03	ZZ
4MMMVX		73.34	0.18	0.39	90.55	0.42	0.57	ZZ
4TTGPT	X	48.95	-24.21	-52.62	60.58	-29.55	-40.93	ZZ
67W2RJ	X	72.99	-0.17	-0.36	92.41	2.28	3.16	ZZ
72WAWR		73.60	0.44	0.95	89.90	-0.23	-0.32	ZZ
AFLJ8L		72.58	-0.59	-1.27	89.41	-0.72	-0.99	ZZ
BJJGVK		72.77	-0.40	-0.86	88.71	-1.42	-1.97	ZZ
CCXQAP		73.34	0.18	0.39	89.88	-0.25	-0.35	ZZ
CL3XNP		73.28	0.12	0.26	90.43	0.30	0.41	ZZ
DWG8R9		73.40	0.24	0.52	90.75	0.62	0.86	ZZ
EWXNKF		73.80	0.64	1.39	91.85	1.71	2.37	ZZ
F2823E		72.90	-0.26	-0.56	89.09	-1.04	-1.44	ZZ
F8AB8L		73.58	0.42	0.91	90.28	0.15	0.21	ZZ
FQ64RK		73.55	0.39	0.84	90.38	0.25	0.35	ZZ
J4JBGG		73.39	0.23	0.50	91.02	0.89	1.23	ZZ
K33DPG		73.27	0.11	0.24	90.14	0.01	0.01	ZZ
L2P4CA		73.65	0.49	1.06	91.24	1.11	1.54	ZZ
LAV7BF		73.51	0.35	0.77	90.55	0.42	0.58	ZZ
R8BAB4		73.36	0.20	0.43	90.86	0.73	1.01	ZZ
RQMWXC		73.23	0.07	0.15	90.30	0.17	0.24	ZZ
T6472T		73.63	0.46	1.01	90.10	-0.03	-0.04	ZZ
V4V9F8		73.31	0.15	0.32	90.23	0.10	0.13	ZZ
YBPCX2		72.67	-0.49	-1.06	89.03	-1.10	-1.53	ZZ
YP6B6M		72.63	-0.53	-1.15	89.80	-0.33	-0.46	ZZ
Z9XDJ3		72.24	-0.92	-2.00	89.50	-0.63	-0.88	ZZ
ZMJTM3		72.08	-1.09	-2.36	89.60	-0.54	-0.74	ZZ

Summary Statistics	Sample GW87	Sample GW88
Grand Means	73.16 g/sq m	90.13 g/sq m
Stnd Dev Btwn Labs	0.46 g/sq m	0.72 g/sq m

Statistics based on 25 of 27 reporting participants.

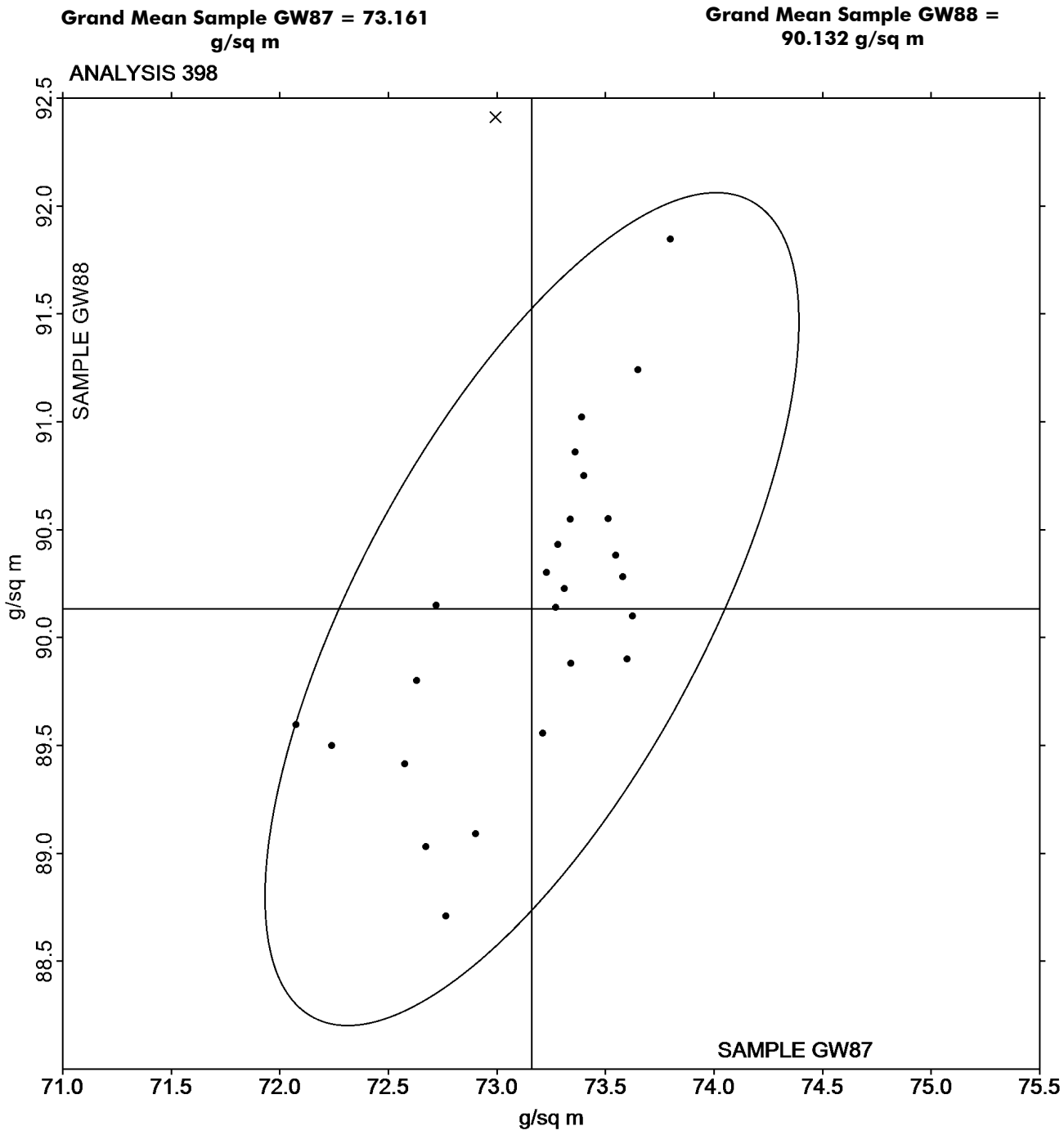
Comments on Assigned Data Flags for Test #398

67W2RJ (X) - Data for sample GW88 are high.

4TTGPT (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GX87 Lab Mean	Sample GX87 Diff from Grand Mean	Sample GX87 CPV	Sample GX88 Lab Mean	Sample GX88 Diff from Grand Mean	Sample GX88 CPV	Instr Code
3UADGT		13.19	0.22	0.05	10.07	-0.74	-0.18	HE
43J2VR		15.69	2.72	0.62	13.75	2.94	0.73	HE
4TTGPT		16.75	3.78	0.86	13.84	3.03	0.75	XX
647ZLV		12.68	-0.29	-0.07	9.69	-1.12	-0.28	HE
67W2RJ		19.49	6.52	1.49	17.40	6.59	1.63	HE
6CMC2G		13.41	0.44	0.10	12.18	1.37	0.34	HE
6X3WYH		19.25	6.28	1.43	17.07	6.26	1.55	HE
9ZE3NE		13.57	0.60	0.14	13.09	2.28	0.56	HE
AQN2JP	*	0.48	-12.49	-2.85	0.47	-10.34	-2.56	XX
BVTW3P		16.87	3.90	0.89	15.75	4.94	1.22	HE
F2823E		11.43	-1.54	-0.35	9.94	-0.87	-0.22	HE
FQLZKJ		12.86	-0.11	-0.03	10.59	-0.22	-0.05	HE
GBP6MJ	*	18.62	5.65	1.29	9.75	-1.06	-0.26	HE
JD6CZC		12.25	-0.72	-0.17	11.30	0.49	0.12	HE
JWKLZC		11.70	-1.27	-0.29	11.00	0.19	0.05	HE
M3RLNB		13.70	0.73	0.17	6.50	-4.31	-1.07	HE
MBAUC8		14.18	1.21	0.28	9.15	-1.66	-0.41	HE
MRUKB8		7.94	-5.03	-1.15	6.02	-4.79	-1.18	XX
NMUTFE		12.70	-0.27	-0.06	11.10	0.29	0.07	HE
PHLRWW		1.91	-11.06	-2.53	1.74	-9.07	-2.24	HE
QXPL4W		11.21	-1.76	-0.40	9.02	-1.79	-0.44	HE
R3J3QA		11.40	-1.57	-0.36	8.51	-2.30	-0.57	HE
RZQ742		10.92	-2.05	-0.47	8.58	-2.23	-0.55	HE
UW3GV9		15.68	2.71	0.62	15.85	5.04	1.25	HE
W3LJTN		10.48	-2.49	-0.57	9.10	-1.71	-0.42	HE
Y2K6J2		10.93	-2.04	-0.47	11.20	0.39	0.10	HE
YBBQNY		16.34	3.37	0.77	10.86	0.05	0.01	HE
YBPCX2		11.78	-1.19	-0.27	11.08	0.27	0.07	HE
YP6B6M		11.60	-1.37	-0.31	11.00	0.19	0.05	HE
ZTK6JY		20.22	7.25	1.65	18.75	7.94	1.96	HE

Summary Statistics	Sample GX87	Sample GX88
Grand Means	12.97 Seconds	10.81 Seconds
Stnd Dev Btwn Labs	4.38 Seconds	4.05 Seconds

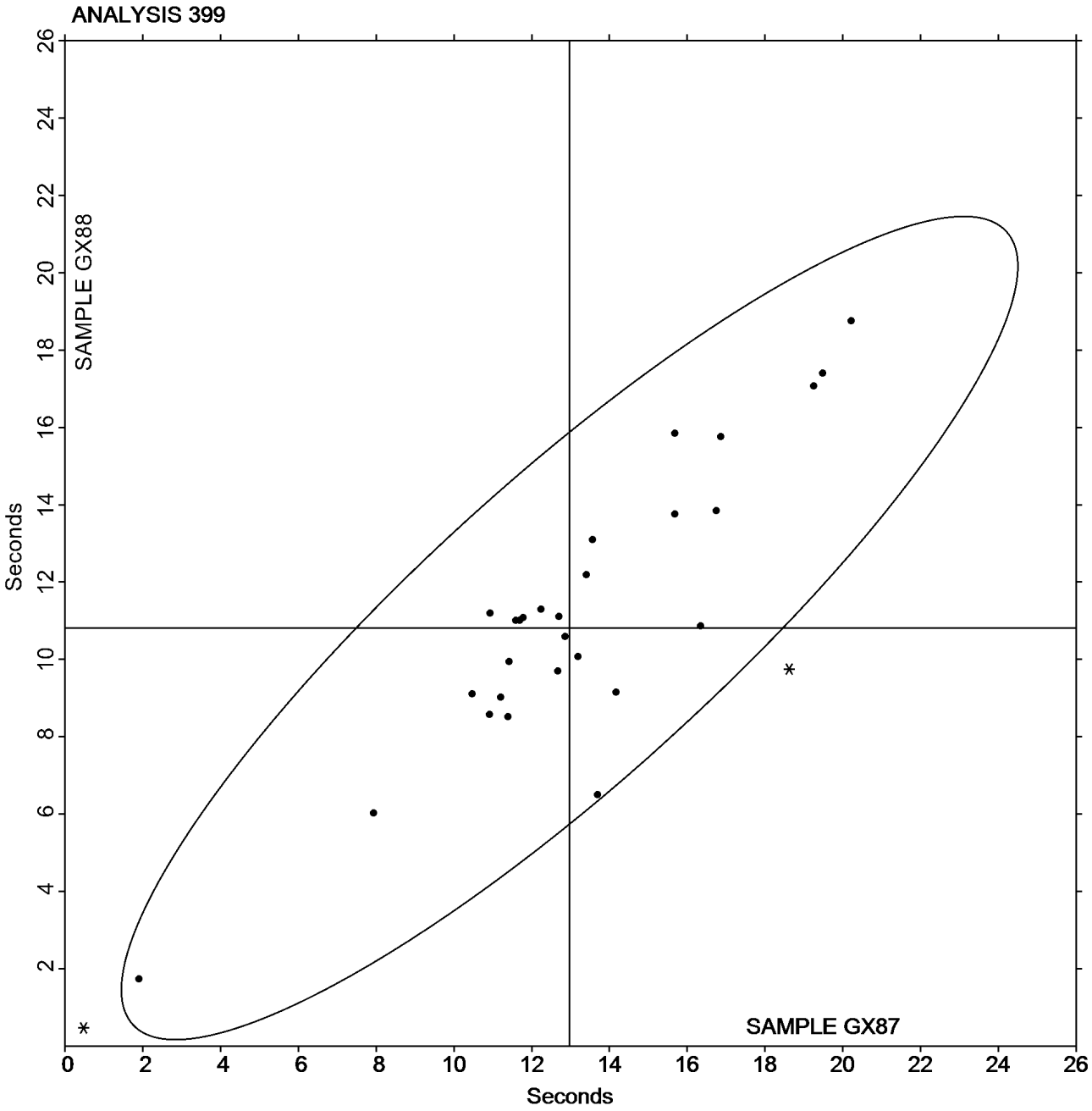
Statistics based on 30 of 30 reporting participants.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample GX87 = 12.974 Seconds

Grand Mean Sample GX88 = 10.812 Seconds



-End of Report-