Collaborative Testing Services, Inc.

Paper & Paperboard Testing Program

Summary Report #3042 G - February 2020

Introduction to the Paper & Paperboard Interlaboratory Program

Explanation of Tables and Definitions of Terms

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The CTS Paper & Paperboard Interlaboratory Program

In 1969, the National Bureau of Standards (now designated the National Institute for Standards and Technology) and the Technical Association of the Pulp and Paper Industry (TAPPI) developed an interlaboratory program for paper and paperboard testing. Since 1971, Collaborative Testing Services has operated the Collaborative Reference Program for Paper and Paperboard. With hundreds of organizations from around the world participating in these tests, this program has become one of the largest of its kind. The program allows laboratories to compare the performance of their testing with that of other participating laboratories, and provides a realistic picture of the state of paper testing.

About CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately - owned company that specializes in interlaboratory tests for a variety of industrial sectors: rubber, plastics, fasteners and metals, CKPG, paper, color and wine, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality assurance objectives. Labs from the U.S., as well as more than 80 countries, currently participate in CTS programs.

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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.

Web Code	Data Flag	Samples	Hunter L, a, b Color Values L	a	b	Color Difference Values ΔL	Δa	Δb	ΔE	Instr Code
33ZGAP		GA75	93.19	-0.76	4.09	-0.01	-0.16	0.00	0.16	TS
		GA76	93.18	-0.92	4.09					
3PAMZG		GA75	95.06	-0.80	4.08	-0.01	0.00	-0.05	0.05	TC
		GA76	95.05	-0.80	4.03					
7GPQKK		GA75	92.30	-0.04	3.40	0.12	0.00	0.04	0.13	TS
		GA76	92.42	-0.04	3.44					
84UUYD		GA75	95.06	-0.87	4.06	0.01	0.00	-0.02	0.03	LS
		GA76	95.07	-0.87	4.04					
8AJDZ8		GA75	94.12	-1.07	4.17	-0.08	0.25	-0.13	0.29	HG
		GA76	94.04	-0.81	4.04					
9UMEPK		GA75	94.11	-0.78	4.18	-0.01	0.01	0.00	0.02	HE
		GA76	94.10	-0.77	4.18					
ACXQVF		GA75	92.91	-0.16	3.81	-0.06	-0.04	-0.01	0.08	TS
		GA76	92.84	-0.20	3.79					
CRLMAF		GA75	93.71	-0.16	3.55	-0.10	-0.37	-0.07	0.39 X	TS
		GA76	93.61	-0.53	3.48					
GEN6LC		GA75	94.42	-0.63	3.90	-0.01	0.00	0.00	0.01	HE
		GA76	94.42	-0.63	3.90					
HN8VLA		GA75	95.29	-0.69	3.82	0.00	0.00	-0.02	0.02	XS
		GA76	95.29	-0.68	3.79					
HQCNF9		GA75	93.69	-0.75	4.21	-0.02	-0.01	0.00	0.02	VM
		GA76	93.67	-0.76	4.21					
KBTK94		GA75	93.44	-0.82	3.71	0.00	-0.02	0.06	0.06	TC
		GA76	93.44	-0.83	3.77					
KX8674		GA75	93.75	-0.85	4.04	0.01	0.01	-0.04	0.05	XX
		GA76	93.76	-0.84	4.00					
LCXRN2		GA75	94.93	-0.74	4.32	0.00	-0.01	-0.01	0.01	LS
		GA76	94.93	-0.75	4.31					
PDYWRZ		GA75	94.61	-0.84	3.94	-0.02	0.00	-0.07	0.08	HE
		GA76	94.59	-0.84	3.86					
T82E4Y		GA75	93.72	-0.52	3.92	-0.03	0.00	-0.02	0.03	LA
		GA76	93.69	-0.52	3.90					

Paper & Paperboard Interlaboratory Testing Program

Report #3042 G, February 2020

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
THLPDQ		**GA75**	93.75	-0.81	4.04	0.00	0.02	-0.05	0.05	TC
		GA76	93.75	-0.79	3.99					
TNCZNN		**GA75**	92.73	-0.24	4.00	0.14	0.00	-0.04	0.15	TS
		GA76	92.87	-0.24	3.96					
TWMGYV		**GA75**	95.01	-0.77	4.06	-0.10	0.00	-0.03	0.10	EH
		GA76	94.91	-0.78	4.03					
VEFY2V		**GA75**	93.06	-0.59	4.01	0.00	0.03	-0.10	0.10	TS
		GA76	93.06	-0.56	3.92					

Summary Statistics

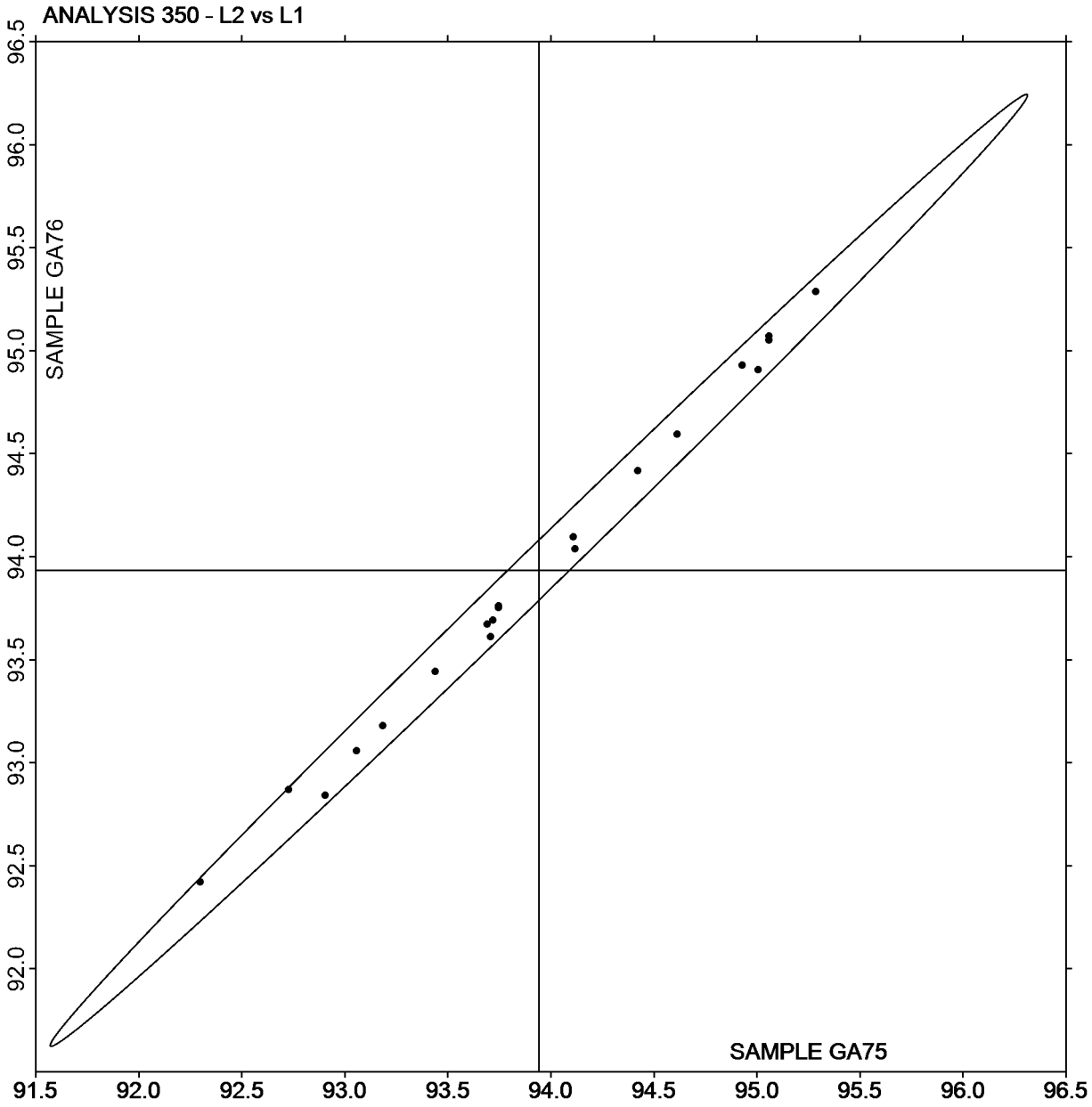
Grand Means							
GA75	93.941	-0.644	3.966	-0.007	-0.015	-0.029	0.092
GA76	93.934	-0.659	3.936				
Stnd Dev Btwn Labs							
GA75	0.866	0.279	0.223	0.059	0.109	0.044	0.098
GA76	0.843	0.243	0.215				

Statistics based on 20 of 20 reporting participants

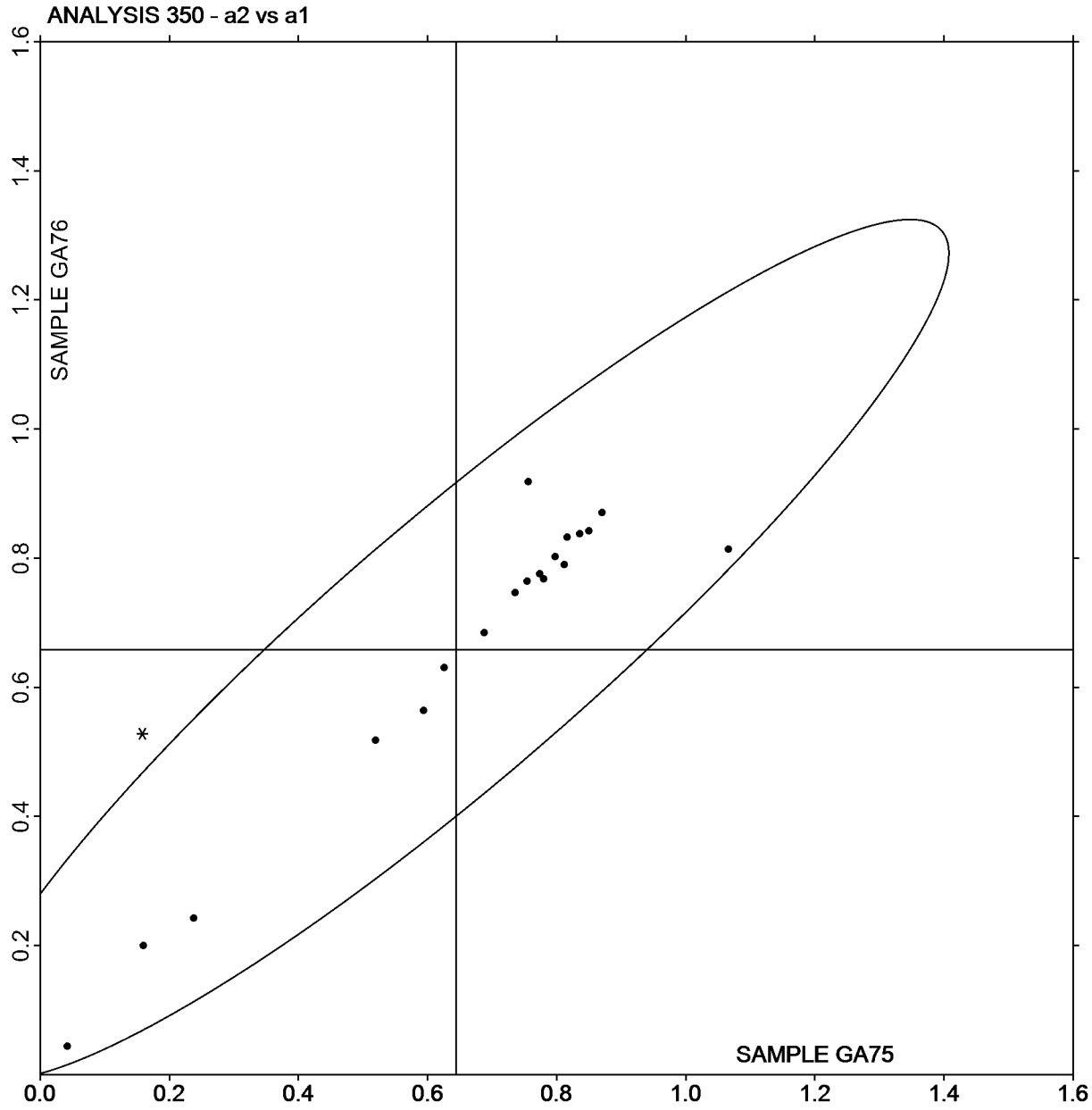
Key to Instrument Codes Reported by Participants

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

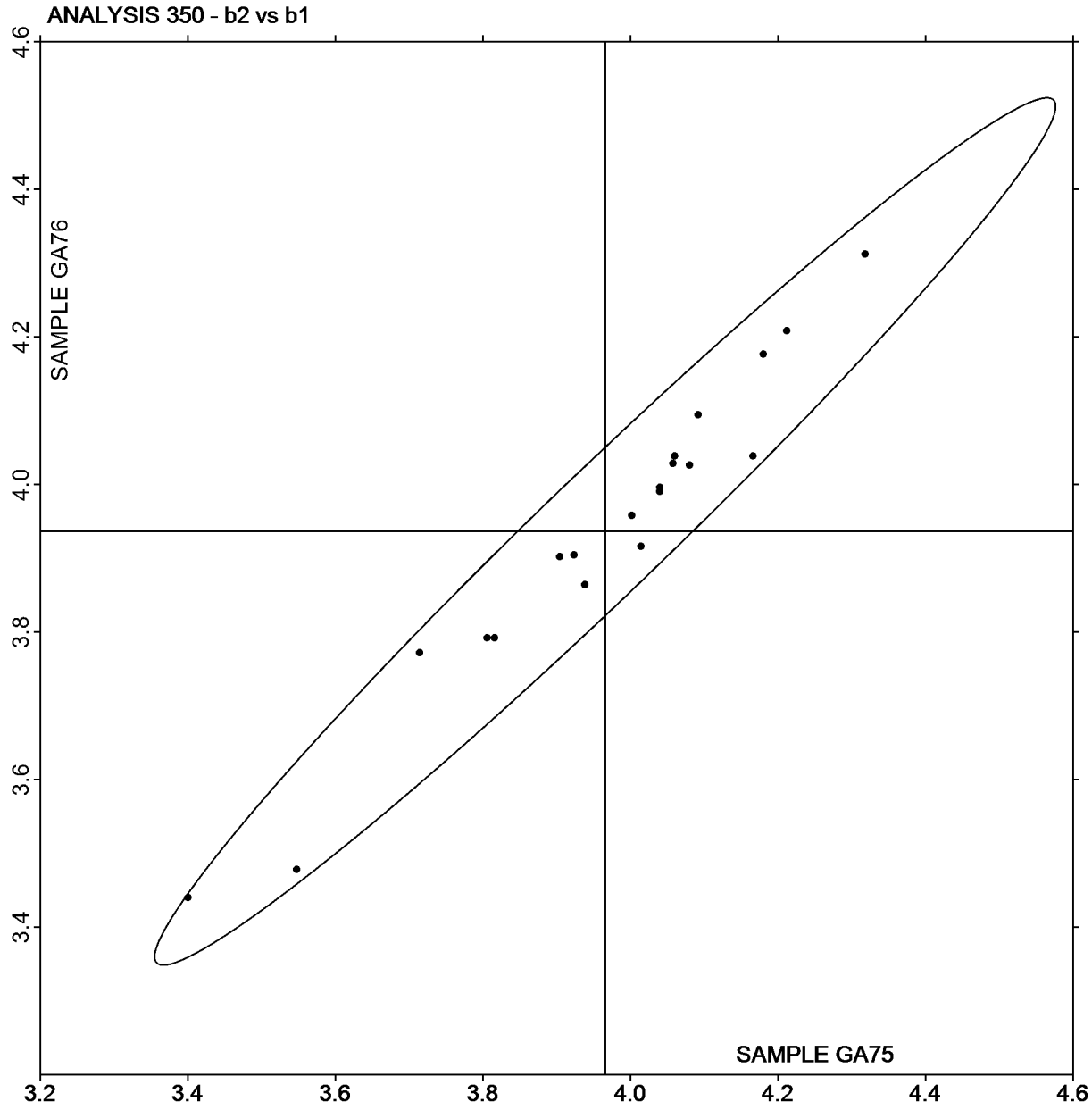
Plot of L values GA76 vs L values GA75



Plot of a values GA76 vs a values GA75



Plot of b values GA76 vs b values GA75



Paper & Paperboard Interlaboratory Testing Program

Analysis 351

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

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

Web Code	Data Flag	Samples	CIE L* a* b* Color Values L*	a*	b*	Color Difference Values ΔL*	Δa*	Δb*	ΔE*	InstrCode
32NK6L		**GA75**	94.36	-0.56	3.71	0.10	0.01	-0.01	0.10	HE
		GA76	94.46	-0.55	3.70					
7AQ24G		**GA75**	95.10	-0.62	4.34	0.03	0.00	-0.01	0.03	NG
		GA76	95.13	-0.62	4.33					
8G3G8B		**GA75**	95.07	-0.66	4.17	-0.02	0.00	-0.05	0.05	EF
		GA76	95.04	-0.67	4.12					
94AF9E		**GA75**	95.18	-0.76	4.00	-0.02	-0.01	0.07	0.07	HT
		GA76	95.17	-0.77	4.07					
B2VPVF		**GA75**	94.98	-0.87	4.21	-0.01	0.00	-0.07	0.07	XX
		GA76	94.97	-0.87	4.14					
FJ4DAC		**GA75**	95.14	-0.62	4.09	0.00	-0.01	0.00	0.01	HT
		GA76	95.14	-0.62	4.09					
HUUL96		**GA75**	96.70	-0.37	3.37	-0.22	0.02	-0.05	0.23	XP
		GA76	96.48	-0.35	3.32					
JJBTWZ		**GA75**	94.99	-0.56	4.21	0.01	-0.07	-0.05	0.08	LS
		GA76	95.00	-0.62	4.17					
KBTK94		**GA75**	94.33	-0.82	3.83	0.06	-0.01	0.08	0.10	HE
		GA76	94.38	-0.83	3.91					
LCXRN2		**GA75**	94.94	-0.75	4.33	-0.11	-0.01	0.13	0.17	LS
		GA76	94.83	-0.76	4.46					
NTJW6U		**GA75**	95.17	-0.78	3.79	-0.08	-0.03	0.12	0.14	XC
		GA76	95.10	-0.81	3.90					
PK786Z		**GA75**	93.61	-0.58	3.80	0.00	0.00	0.07	0.07	TC
		GA76	93.61	-0.58	3.87					
T3PBDW		**GA75**	93.70	-0.53	3.62	0.03	-0.01	-0.02	0.04	XB
		GA76	93.74	-0.54	3.60					
TWMGYV		**GA75**	94.94	-0.65	4.21	-0.08	0.00	-0.07	0.10	XX
		GA76	94.86	-0.65	4.15					
YQYMPQ		**GA75**	94.51	-0.81	3.79	0.01	-0.01	-0.03	0.03	EH
		GA76	94.52	-0.82	3.76					

Summary Statistics

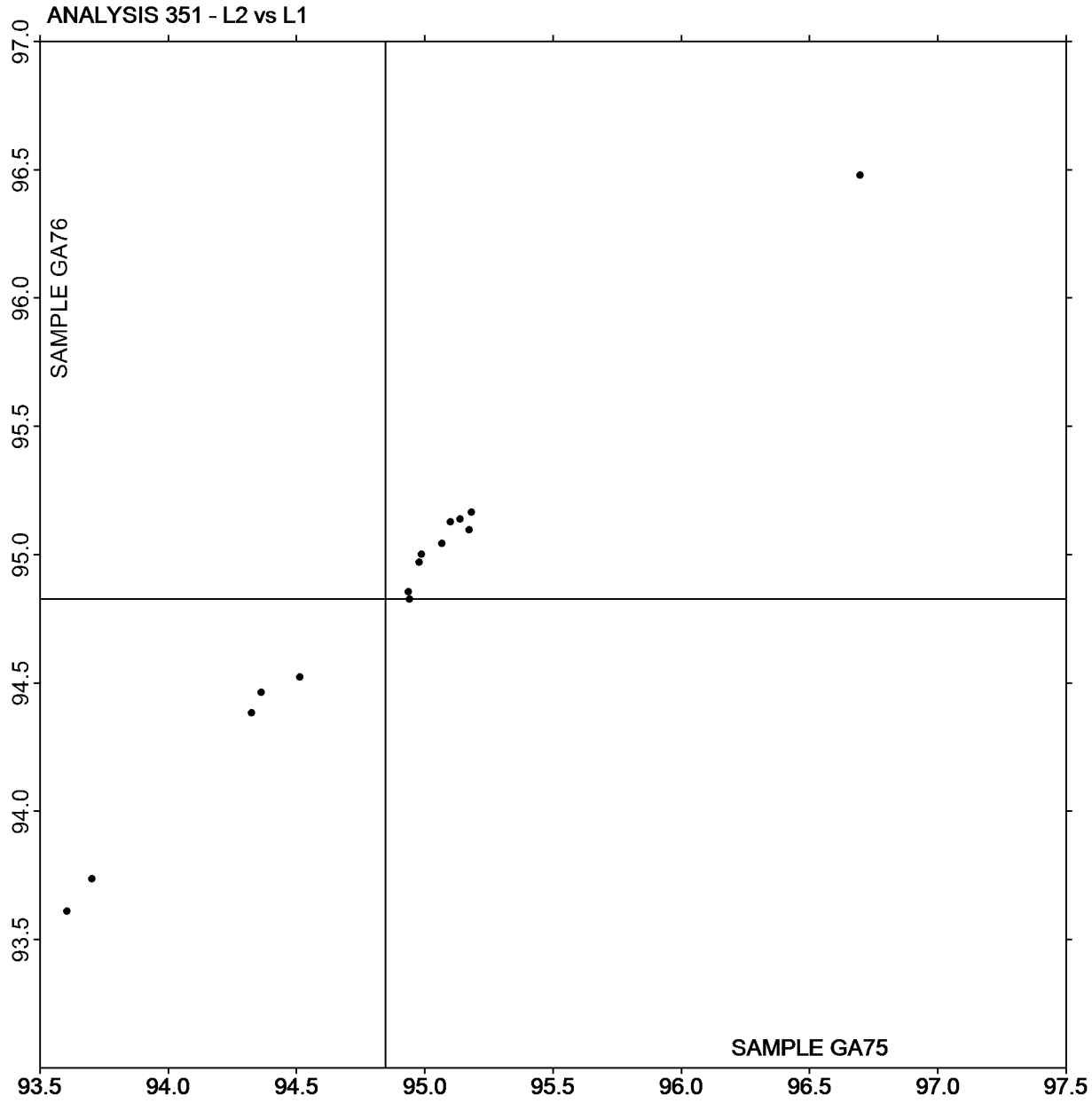
Grand Means							
GA75	94.847	-0.663	3.966	-0.020	-0.009	0.007	0.086
GA76	94.828	-0.671	3.973				
Stnd Dev Btwn Labs							
GA75	0.725	0.135	0.288	0.078	0.019	0.066	0.058
GA76	0.670	0.139	0.293				

Statistics based on 15 of 15 reporting participants

Key to Instrument Codes Reported by Participants

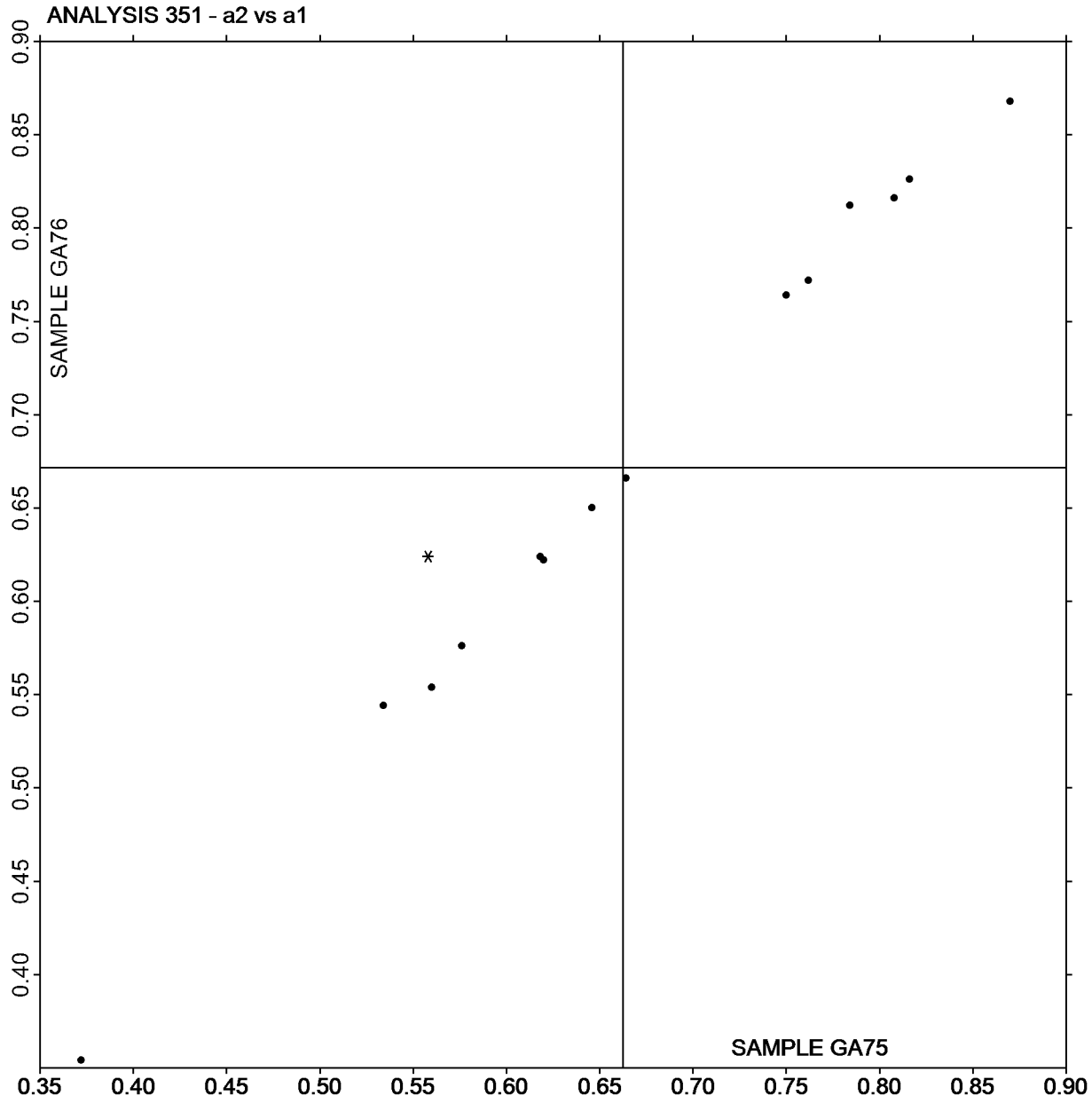
EF	Datacolor Elrepho 3000	EH	Datacolor Elrepho SF450
HE	Hunter LabScan	HT	Hunter UltraScan Vis
LS	L & W Elrepho SE 070	NG	Minolta CM-3700d Spectrophotometer
TC	Technidyne Color Touch Series	XB	X-Rite Ci7
XC	X-Rite eXact Series	XP	X-Rite Spectrophotometer DTP
XX	Instrument make/model not specified by lab		

Plot of L values GA76 vs L values GA75



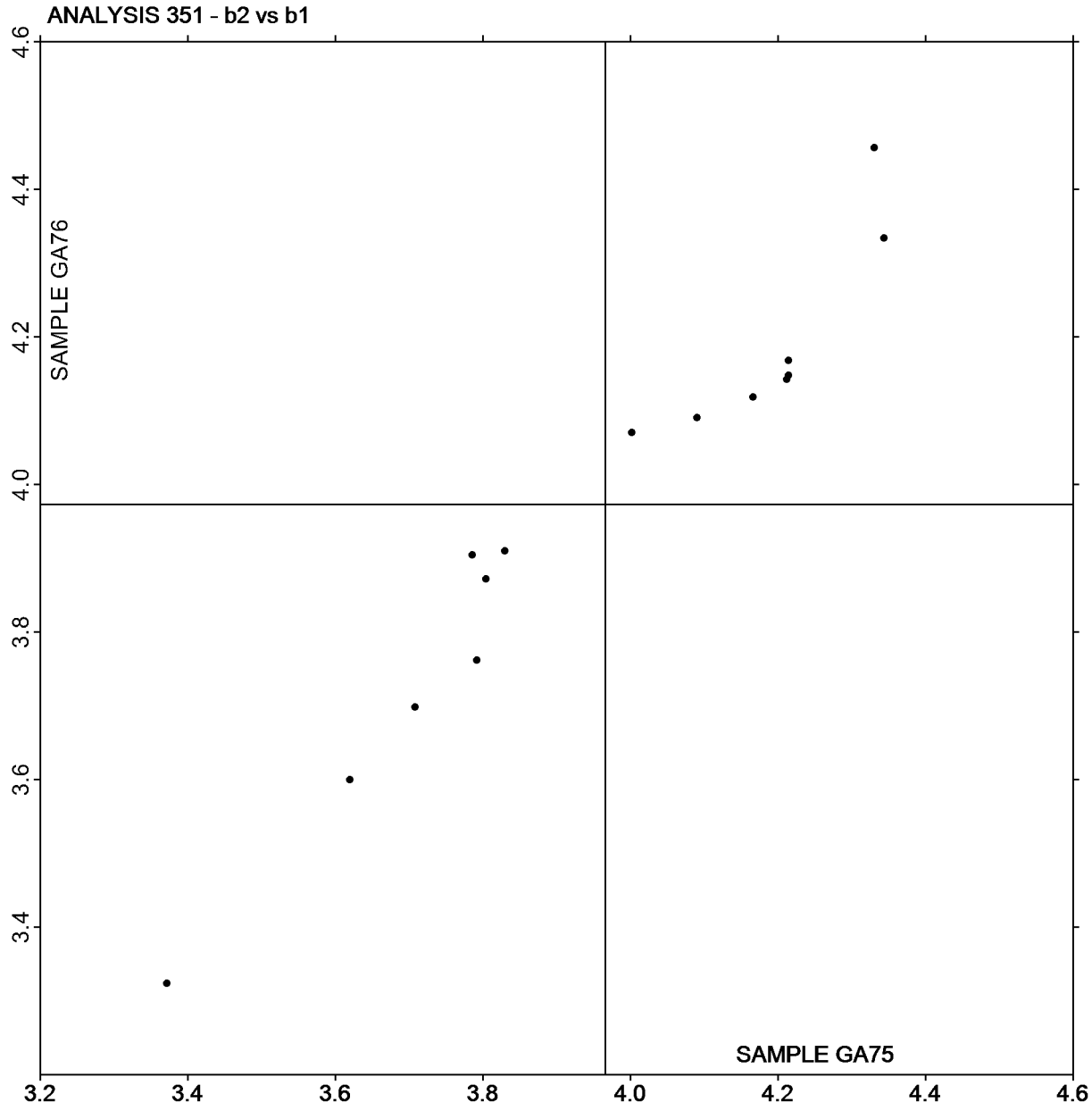
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.

Plot of a values GA76 vs a values GA75



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 GA76 vs b values GA75



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 GV75 Lab Mean	Sample GV75 Diff from Grand Mean	Sample GV75 CPV	Sample GV76 Lab Mean	Sample GV76 Diff from Grand Mean	Sample GV76 CPV	Instr Code
32NK6L		4.727	-0.215	-2.12	3.812	-0.044	-0.62	PP
33ZGAP		4.958	0.016	0.16	3.818	-0.038	-0.54	LA
3PAMZG		4.910	-0.032	-0.32	3.799	-0.057	-0.81	PP
3VXBUM		5.151	0.209	2.06	3.987	0.131	1.86	TM
4DVU6F		5.040	0.098	0.96	3.902	0.046	0.65	LW
682D9F		4.950	0.008	0.08	3.830	-0.026	-0.37	TM
6R9LMF	X	4.880	-0.063	-0.62	37.516	33.660	477.13	LW
7AQ24G		4.944	0.002	0.02	3.884	0.028	0.40	PP
7FA6BJ		5.161	0.219	2.15	4.001	0.145	2.05	XX
84UUYD		4.918	-0.024	-0.24	3.917	0.061	0.86	LW
8YHQ9B		4.780	-0.162	-1.60	3.690	-0.166	-2.35	LW
94AF9E		5.026	0.084	0.83	3.898	0.042	0.59	EM
ACXQVF		4.703	-0.239	-2.36	3.712	-0.144	-2.04	TM
AGRRU9		4.973	0.031	0.30	3.876	0.020	0.28	LW
BAC7NQ		4.715	-0.227	-2.24	3.701	-0.155	-2.20	XX
BUJD3P		5.032	0.090	0.88	3.846	-0.010	-0.14	TA
C8FC27		5.080	0.138	1.36	3.852	-0.004	-0.06	TM
CRLMAF		4.900	-0.042	-0.42	3.877	0.021	0.30	TM
CWFG8G		4.974	0.032	0.31	3.832	-0.024	-0.34	TM
DPFG8E		5.020	0.078	0.76	3.898	0.042	0.59	LW
EG2VYB		4.917	-0.025	-0.25	3.864	0.008	0.11	LA
FE8NT6		4.874	-0.068	-0.67	3.817	-0.039	-0.55	FR
FJ4DAC		4.952	0.010	0.10	3.879	0.023	0.33	EM
FYVAC8		4.868	-0.074	-0.73	3.788	-0.068	-0.96	XX
GBNUQC		5.041	0.099	0.98	3.928	0.072	1.03	LW
GJEEWB		4.920	-0.022	-0.22	3.900	0.044	0.62	TA
H7N6MA		5.004	0.061	0.60	3.920	0.064	0.90	LW
HGMZGY		4.992	0.050	0.49	3.948	0.092	1.30	TA
HN8VLA		5.060	0.118	1.16	3.810	-0.046	-0.65	TM
HUUL96		4.840	-0.102	-1.01	3.900	0.044	0.62	TM
JG3JZW		4.950	0.008	0.08	3.861	0.005	0.07	TM
K9NUZ3		4.967	0.025	0.24	3.761	-0.095	-1.35	EM
KX8674		5.050	0.108	1.06	3.880	0.024	0.34	XX
LLNDUY		4.914	-0.028	-0.28	3.949	0.093	1.32	TM
LYCCL3	*	4.650	-0.292	-2.88	3.730	-0.126	-1.79	PP
N6E7T3		4.953	0.011	0.11	3.884	0.028	0.40	XX
NC9BL4		5.021	0.079	0.78	3.868	0.012	0.17	TM
NPGUKY		4.856	-0.087	-0.85	3.877	0.021	0.30	MT
NTJW6U		4.862	-0.080	-0.79	3.854	-0.002	-0.02	LW
NUDH27		5.060	0.118	1.16	3.895	0.039	0.55	LW
PDYU3V		4.839	-0.103	-1.02	3.792	-0.064	-0.91	PP

Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GV75 Lab Mean	Sample GV75 Diff from Grand Mean	Sample GV75 CPV	Sample GV76 Lab Mean	Sample GV76 Diff from Grand Mean	Sample GV76 CPV	Instr Code
PK786Z		4.942	0.000	0.00	3.816	-0.040	-0.57	TA
QGFKMW		4.949	0.007	0.07	3.899	0.043	0.61	EM
RYFTLV		4.938	-0.004	-0.04	3.875	0.019	0.27	EM
T38GE8		4.862	-0.080	-0.79	3.764	-0.092	-1.31	TM
T3PBDW		5.015	0.073	0.72	3.871	0.015	0.21	TM
T7T2MW		4.958	0.016	0.16	3.822	-0.034	-0.48	PP
T82E4Y		5.026	0.084	0.83	3.882	0.026	0.37	EM
TWMGYV		4.933	-0.009	-0.09	3.904	0.048	0.68	EM
VA22WT	*	4.852	-0.090	-0.89	3.686	-0.170	-2.41	TA
VEFY2V		4.959	0.017	0.17	3.889	0.033	0.47	EM
VXM93R		4.912	-0.030	-0.30	3.827	-0.029	-0.41	PP
X3UEU4		4.900	-0.042	-0.42	3.842	-0.014	-0.20	TA
XQZX8N		5.007	0.065	0.64	3.949	0.093	1.32	LW
Y7REAQ		4.960	0.018	0.18	3.851	-0.005	-0.07	PP
YCXV4L		4.960	0.018	0.18	3.843	-0.014	-0.19	LW
YQYMPQ		5.036	0.094	0.92	3.983	0.127	1.80	XX

Summary Statistics	Sample GV75	Sample GV76
Grand Means	4.94 mils	3.86 mils
Stnd Dev Btwn Labs	0.10 mils	0.07 mils

Statistics based on 56 of 57 reporting participants.

Comments on Assigned Data Flags for Test #360

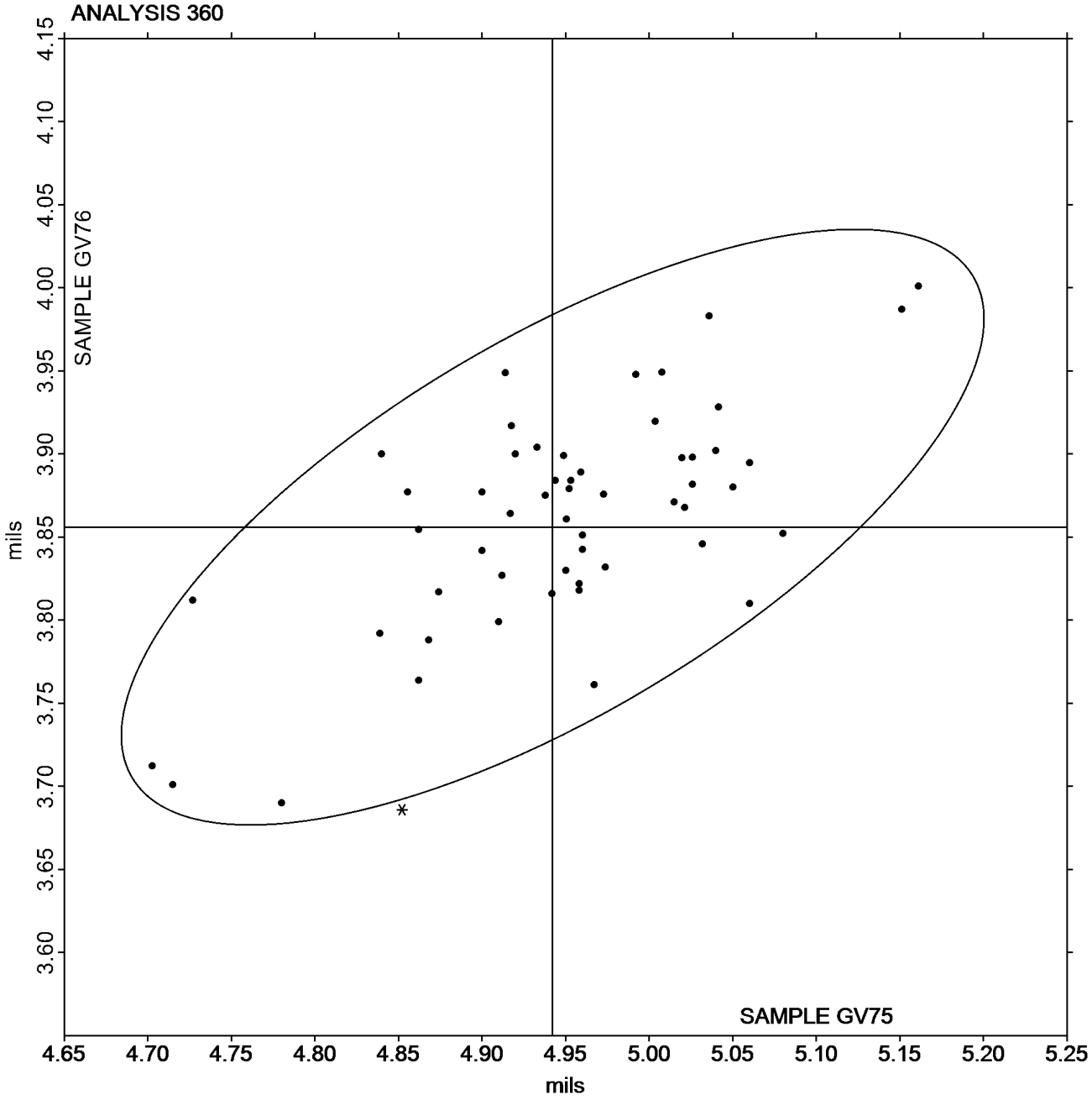
6R9LMF (X) - Extreme Data for Sample GV76.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample GV75 = 4.9422 mils

Grand Mean Sample GV76 = 3.8560 mils



Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GY75 Lab Mean	Sample GY75 Diff from Grand Mean	Sample GY75 CPV	Sample GY76 Lab Mean	Sample GY76 Diff from Grand Mean	Sample GY76 CPV	Instr Code
38UEYG		7.739	0.082	0.82	7.698	0.006	0.05	LA
4P6MCM		7.752	0.095	0.95	7.685	-0.007	-0.05	TM
682D9F		7.560	-0.097	-0.97	7.560	-0.132	-1.00	TM
72QLE9		7.717	0.059	0.59	7.634	-0.058	-0.44	LA
7FA6BJ		7.881	0.224	2.24	7.959	0.267	2.03	LA
7GPQKK		7.515	-0.142	-1.42	7.503	-0.189	-1.43	EM
9NHH7K		7.704	0.047	0.47	7.780	0.088	0.67	TM
9UMEPK		7.716	0.059	0.59	7.638	-0.054	-0.41	EM
ACJ4LD	X	7.201	-0.456	-4.56	7.327	-0.365	-2.77	LA
BUJD3P		7.688	0.031	0.31	7.631	-0.061	-0.46	TA
CHXNJA		7.530	-0.127	-1.27	7.660	-0.032	-0.24	TM
DPFG8E		7.728	0.070	0.70	7.767	0.075	0.57	LW
DQRG69		7.642	-0.015	-0.15	7.526	-0.165	-1.26	LW
EGFLKZ		7.673	0.016	0.16	7.727	0.035	0.27	LA
GEN6LC		7.566	-0.091	-0.91	7.531	-0.161	-1.22	EM
GJEEWB		7.810	0.153	1.53	7.830	0.138	1.05	TA
HHGLCB		7.595	-0.062	-0.62	7.605	-0.087	-0.66	TA
HQCNF9		7.540	-0.117	-1.17	7.620	-0.072	-0.54	VP
HYMQ29		7.816	0.158	1.58	7.816	0.125	0.95	LW
JJBTWZ		7.715	0.058	0.58	7.711	0.019	0.15	LW
LCXRN2		7.598	-0.059	-0.59	7.587	-0.105	-0.80	TM
MKA9RV		7.646	-0.011	-0.11	7.629	-0.063	-0.48	LW
P9T3X6		7.500	-0.157	-1.57	7.605	-0.087	-0.66	TA
PDYWRZ		7.675	0.018	0.18	7.709	0.017	0.13	EM
R93RC2		7.742	0.085	0.85	7.929	0.237	1.80	TM
RJ4CET		7.610	-0.047	-0.47	7.878	0.186	1.42	LW
T82E4Y		7.670	0.013	0.13	7.715	0.023	0.18	EM
VA22WT		7.624	-0.033	-0.33	7.598	-0.094	-0.71	TA
VK3NNQ		7.737	0.080	0.80	7.792	0.100	0.76	TM
VXM93R		7.654	-0.004	-0.04	7.559	-0.133	-1.01	LW
WKH89N		7.500	-0.157	-1.57	7.710	0.018	0.14	TA
WMZP2T		7.470	-0.187	-1.87	7.600	-0.092	-0.70	TM
YQYMPQ	*	7.750	0.093	0.93	8.054	0.362	2.75	EM
Z2PVMJ	X	7.076	-0.581	-5.81	7.017	-0.675	-5.13	TM
Z4YLB2		7.622	-0.035	-0.35	7.579	-0.113	-0.86	LW

Summary Statistics	Sample GY75	Sample GY76
Grand Means	7.66 mils	7.69 mils
Stnd Dev Btwn Labs	0.10 mils	0.13 mils

Statistics based on 33 of 35 reporting participants.

Comments on Assigned Data Flags for Test #361

Z2PVMJ (X) - Data for both samples are low.

ACJ4LD (X) - Data for both samples are low.

Analysis Notes:

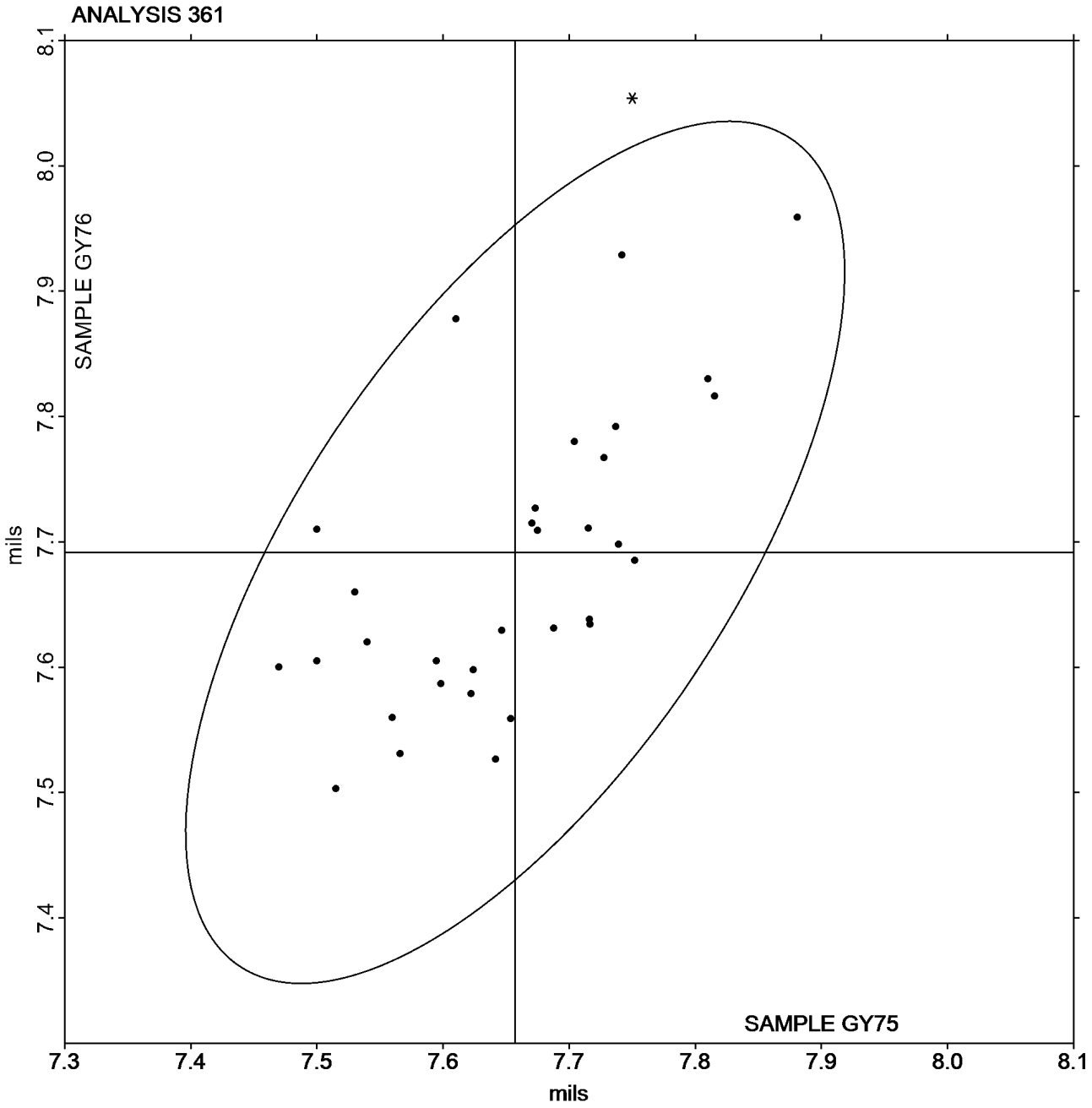
LCXRN2 - Data appear to be reported as mils, not micrometers as indicated on data entry form. CTS will not correct the Units going forward.

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

Grand Mean Sample GY75 = 7.6571 mils

Grand Mean Sample GY76 = 7.6917 mils



Paper & Paperboard Interlaboratory Testing Program

Analysis 364

Coefficient of Static Friction - Horizontal Plane Method - Printing Papers

TAPPI Official Test Method T549

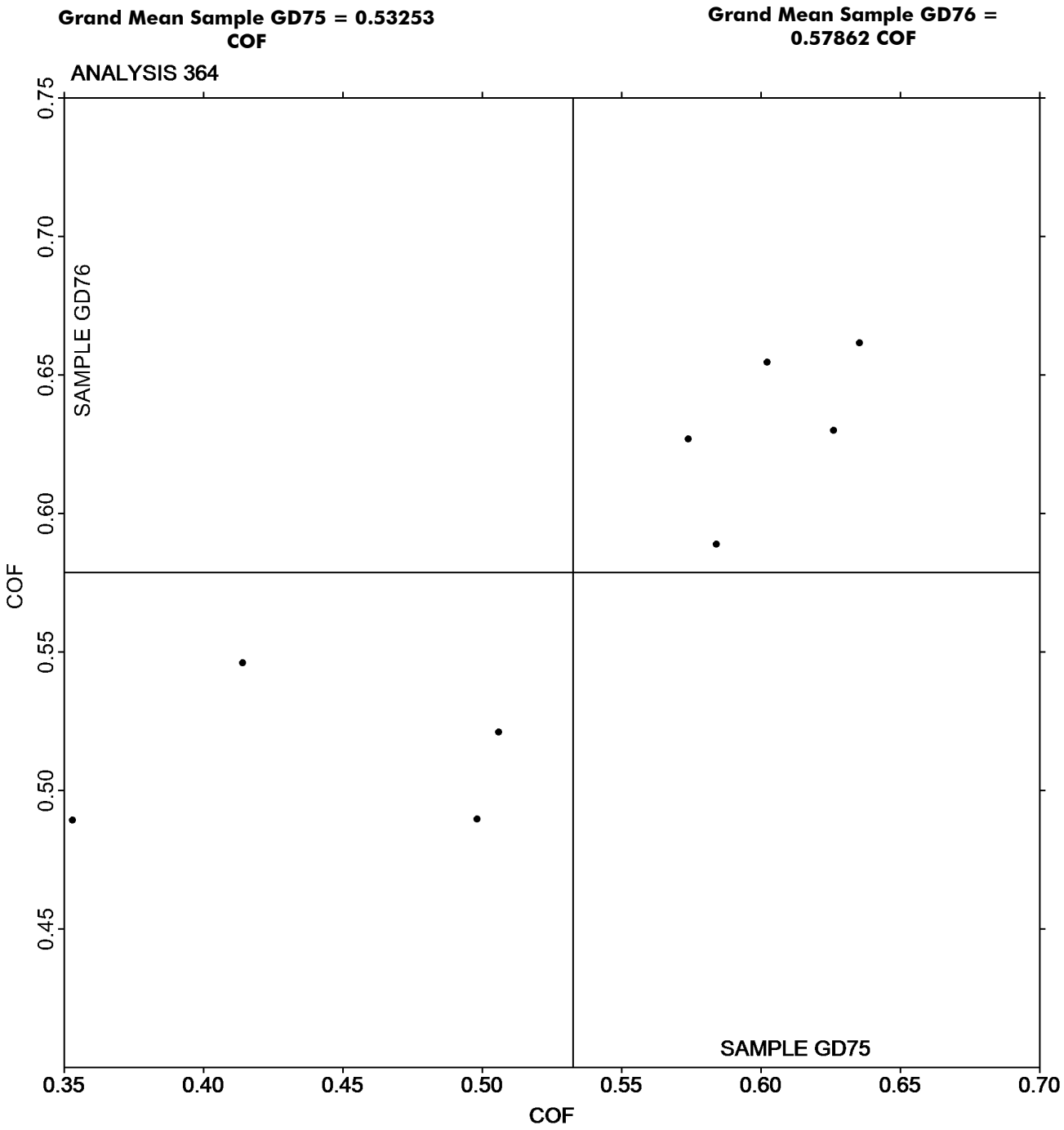
WebCode	Data Flag	Sample GD75 Lab Mean	Sample GD75 Diff from Grand Mean	Sample GD75 CPV	Sample GD76 Lab Mean	Sample GD76 Diff from Grand Mean	Sample GD76 CPV	Instr Code
32NK6L		0.4140	-0.1185	-1.21	0.5460	-0.0326	-0.47	TA
ACJ4LD		0.5060	-0.0265	-0.27	0.5210	-0.0576	-0.84	TA
D64YWA		0.4982	-0.0343	-0.35	0.4896	-0.0890	-1.29	IT
GW4EMD		0.5840	0.0515	0.53	0.5888	0.0102	0.15	TA
HN8VLA		0.3530	-0.1795	-1.83	0.4892	-0.0894	-1.30	XX
HYMQ29		0.5740	0.0415	0.42	0.6268	0.0482	0.70	TL
QGFKMW		0.6260	0.0935	0.95	0.6300	0.0514	0.75	TA
TNCZNN		0.6354	0.1029	1.05	0.6616	0.0830	1.20	XX
VEFY2V		0.6022	0.0697	0.71	0.6546	0.0760	1.10	TA

Summary Statistics	Sample GD75	Sample GD76
Grand Means	0.53 COF	0.58 COF
Stnd Dev Btwn Labs	0.10 COF	0.07 COF

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

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

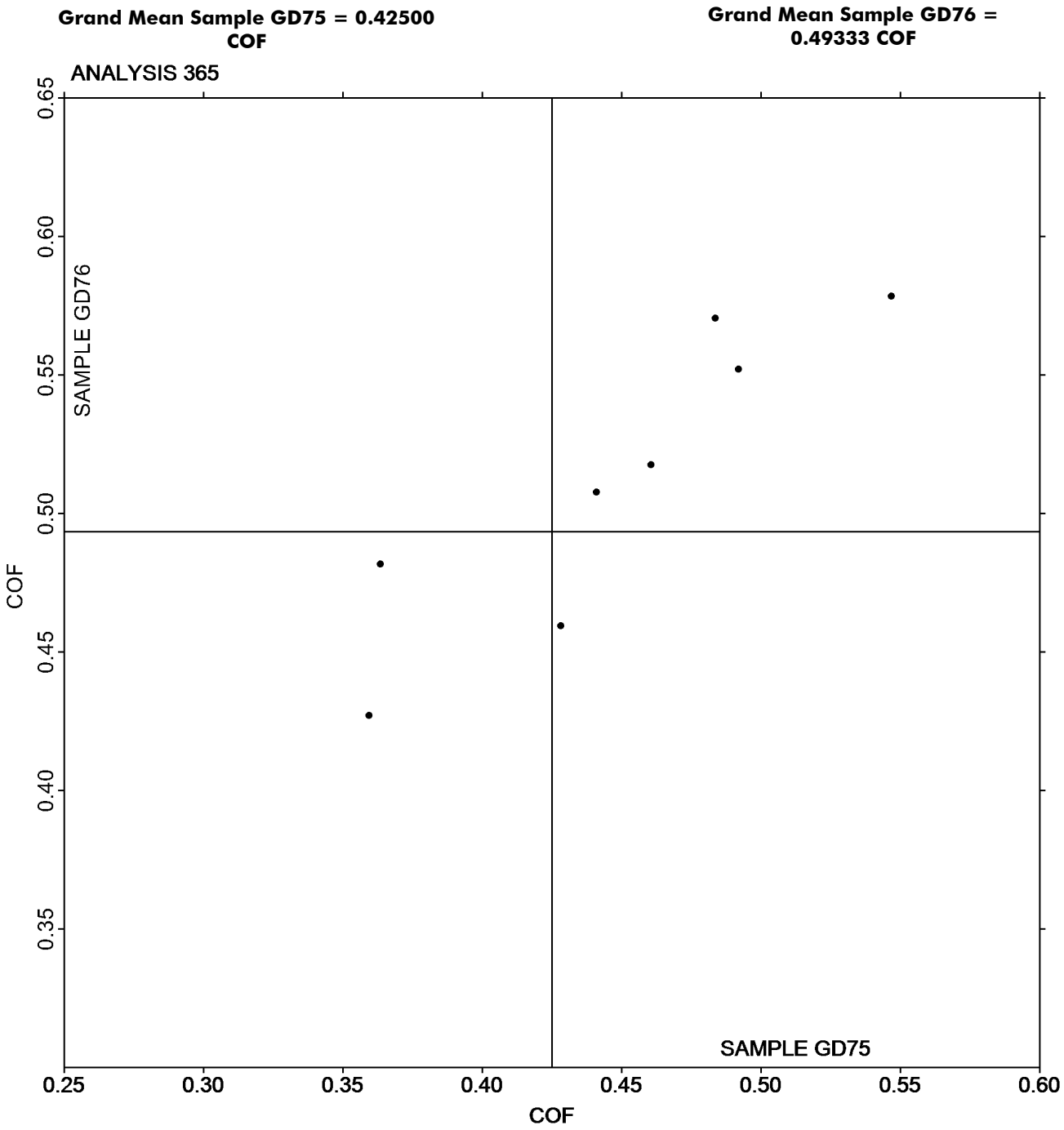
WebCode	Data Flag	Sample GD75 Lab Mean	Sample GD75 Diff from Grand Mean	Sample GD75 CPV	Sample GD76 Lab Mean	Sample GD76 Diff from Grand Mean	Sample GD76 CPV	Instr Code
32NK6L		0.2500	-0.1750	-1.97	0.3460	-0.1473	-1.97	TA
ACJ4LD		0.4410	0.0160	0.18	0.5076	0.0143	0.19	TA
D64YWA		0.3594	-0.0656	-0.74	0.4270	-0.0663	-0.89	IR
GW4EMD		0.4282	0.0032	0.04	0.4594	-0.0339	-0.45	TA
HN8VLA		0.3634	-0.0616	-0.69	0.4816	-0.0117	-0.16	XX
HYMQ29		0.4836	0.0586	0.66	0.5704	0.0771	1.03	TL
K9NUZ3		0.4606	0.0356	0.40	0.5176	0.0243	0.32	TA
QGFKMW		0.4920	0.0670	0.75	0.5520	0.0587	0.78	XX
TNCZNN		0.5468	0.1218	1.37	0.5784	0.0851	1.14	TA

Summary Statistics	Sample GD75	Sample GD76
Grand Means	0.43 COF	0.49 COF
Stnd Dev Btwn Labs	0.09 COF	0.07 COF

Statistics based on 9 of 9 reporting participants.

Key to Instrument Codes Reported by Participants

IR	IMASS SP-2000	TA	Thwing-Albert Friction Tester
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.

WebCode	Data Flag	Sample GE75 Lab Mean	Sample GE75 Diff from Grand Mean	Sample GE75 CPV	Sample GE76 Lab Mean	Sample GE76 Diff from Grand Mean	Sample GE76 CPV	Instr Code
32NK6L		17.59	-0.91	-1.02	18.73	0.11	0.12	PP
33ZGAP		18.20	-0.31	-0.34	18.31	-0.30	-0.31	LA
3VXBUM		18.53	0.02	0.03	19.17	0.56	0.57	PR
72QLE9		19.02	0.52	0.58	18.85	0.24	0.24	LA
84UUYD		18.47	-0.04	-0.04	18.13	-0.48	-0.49	LP
8G3G8B		19.49	0.98	1.10	19.51	0.90	0.91	LP
94AF9E		19.38	0.87	0.98	19.62	1.01	1.02	HG
ACJ4LD		19.82	1.31	1.47	19.59	0.98	0.99	LA
ACXQVF		19.00	0.49	0.55	19.46	0.85	0.86	LP
BUJD3P		18.74	0.24	0.26	19.01	0.40	0.41	PP
CRLMAF		17.06	-1.45	-1.61	17.16	-1.45	-1.47	LW
DK6934		18.34	-0.17	-0.18	18.53	-0.08	-0.08	XX
DQRG69		18.60	0.10	0.11	18.30	-0.31	-0.32	TL
EG2VYB	*	20.82	2.31	2.58	21.12	2.50	2.54	LA
FJ4DAC		18.50	-0.01	-0.01	19.14	0.52	0.53	PP
G46NU6		18.46	-0.05	-0.05	18.83	0.22	0.22	PP
GJEEWB		19.51	1.00	1.12	19.45	0.84	0.85	GA
GW4EMD		19.08	0.57	0.64	19.24	0.63	0.64	WG
HBH4WY		20.09	1.58	1.77	19.97	1.36	1.38	GL
HN8VLA		17.80	-0.71	-0.79	17.10	-1.51	-1.53	GS
HQCNF9		16.95	-1.56	-1.74	16.76	-1.85	-1.88	VM
KX8674		17.32	-1.19	-1.32	17.08	-1.53	-1.55	XX
LLNDUY		17.71	-0.80	-0.89	18.25	-0.36	-0.37	HG
LYCCL3		18.11	-0.40	-0.44	18.72	0.11	0.11	HG
MKA9RV		18.48	-0.03	-0.03	18.67	0.06	0.06	LW
NTJW6U		18.20	-0.31	-0.34	18.50	-0.11	-0.11	LW
PDYU3V		18.06	-0.44	-0.49	19.02	0.41	0.41	HG
PK786Z		18.34	-0.17	-0.18	17.99	-0.62	-0.63	PP
PZCQFW	*	17.80	-0.71	-0.79	19.18	0.57	0.58	GL
QGFKMW		19.10	0.60	0.67	19.32	0.71	0.72	PP
QH9AAY		17.63	-0.88	-0.98	17.60	-1.01	-1.03	LP
RYFTLV		18.64	0.14	0.15	18.79	0.18	0.18	PP
T3PBDW		18.77	0.27	0.30	18.73	0.12	0.12	PP
TWMGYV		17.46	-1.05	-1.17	17.88	-0.73	-0.74	PP
UWLN2M		18.80	0.29	0.33	17.79	-0.82	-0.83	LP
VWGLTU		19.58	1.07	1.20	19.70	1.09	1.10	LA
VXM93R		18.57	0.06	0.07	18.40	-0.21	-0.22	PP
WMZP2T		18.54	0.03	0.04	18.07	-0.54	-0.55	TL
XQZX8N		19.24	0.73	0.82	19.23	0.62	0.63	LP
Y7REAQ		19.57	1.07	1.19	19.59	0.98	0.99	PP
YAAC3N		17.92	-0.59	-0.65	17.87	-0.74	-0.75	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE75 Lab Mean	Sample GE75 Diff from Grand Mean	Sample GE75 CPV	Sample GE76 Lab Mean	Sample GE76 Diff from Grand Mean	Sample GE76 CPV	Instr Code
YYRXYL		17.03	-1.48	-1.65	16.61	-2.00	-2.03	GL
Z4YLB2		16.54	-1.97	-2.19	16.32	-2.29	-2.33	LP
ZXQKRJ		19.36	0.85	0.95	19.66	1.05	1.06	XX

Summary Statistics	Sample GE75	Sample GE76
Grand Means	18.51 sec/100 cc	18.61 sec/100 cc
Stnd Dev Btwn Labs	0.90 sec/100 cc	0.99 sec/100 cc

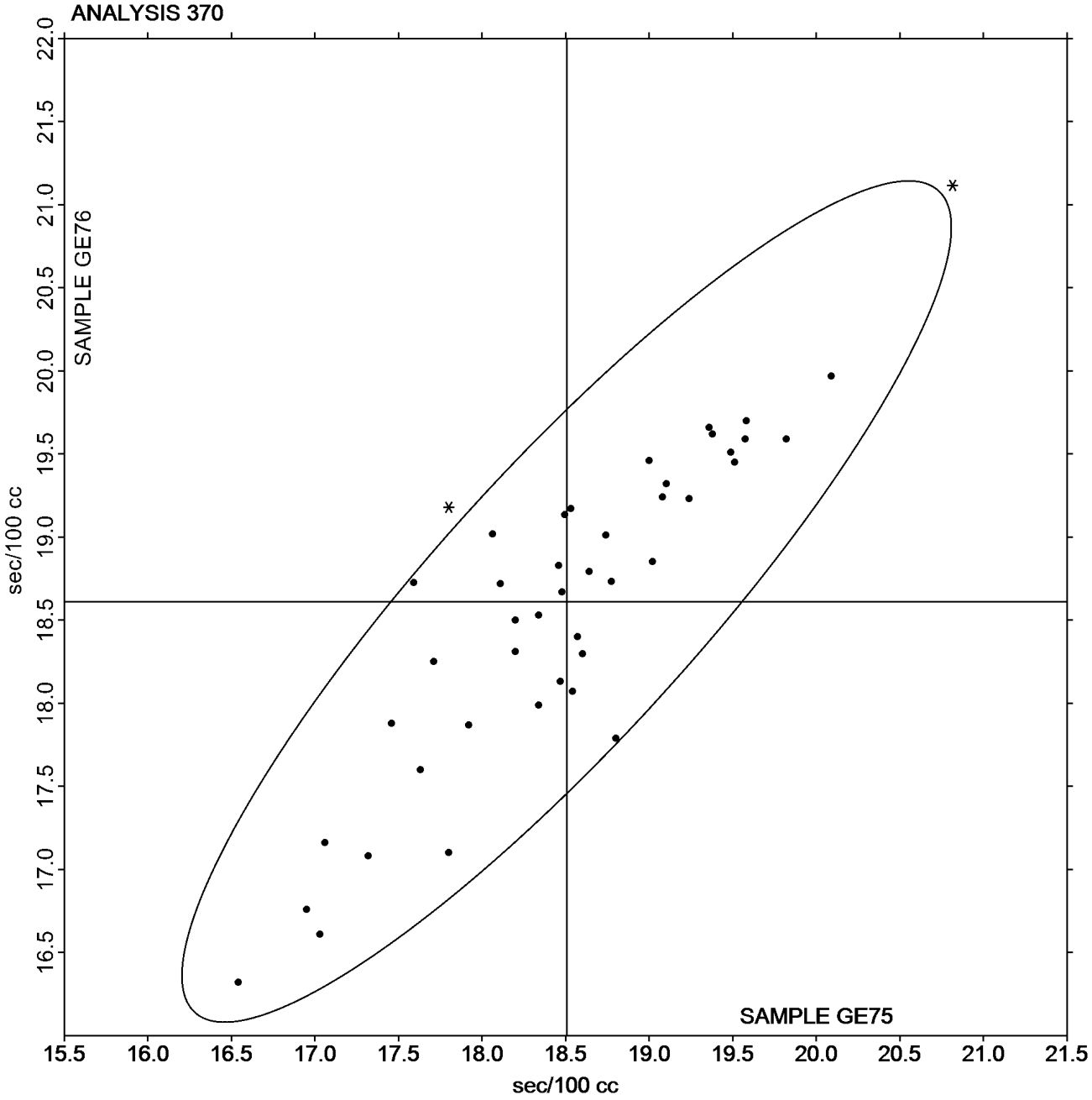
Statistics based on 44 of 44 reporting participants.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GL	Gurley #4110
GS	Gurley-Hill S-P-S Tester #4190	HG	Technidyne - Hagerty Model #1
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	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 GE75 = 18.505 sec/100 cc

Grand Mean Sample GE76 = 18.612 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

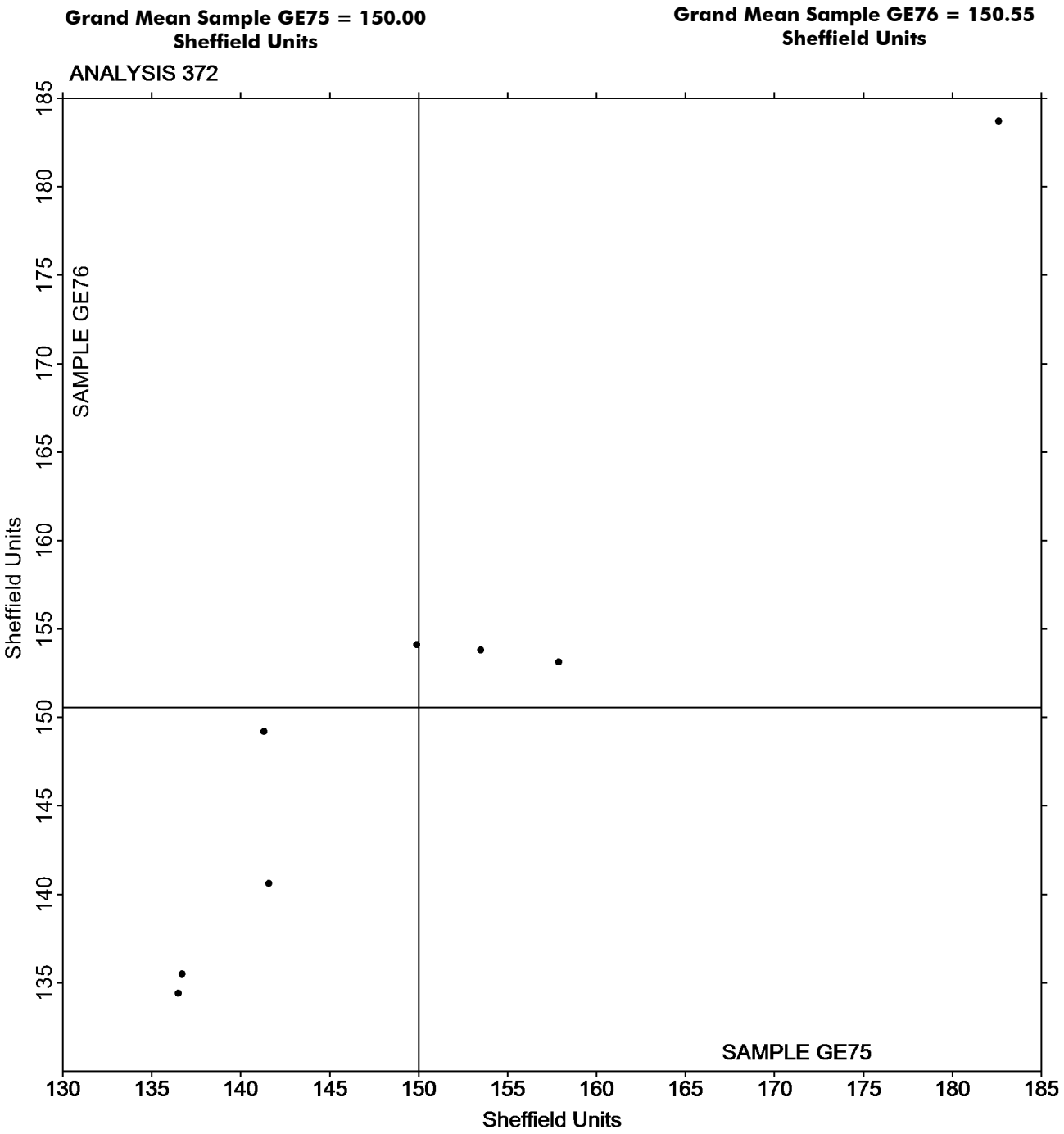
WebCode	Data Flag	Sample GE75 Lab Mean	Sample GE75 Diff from Grand Mean	Sample GE75 CPV	Sample GE76 Lab Mean	Sample GE76 Diff from Grand Mean	Sample GE76 CPV	Instr Code
GJEEWB		136.5	-13.5	-0.88	134.4	-16.2	-1.03	GA
HGMZGY		141.3	-8.7	-0.57	149.2	-1.4	-0.09	HM
HN8VLA		136.7	-13.3	-0.87	135.5	-15.1	-0.96	SH
HQCNF9		157.9	7.9	0.52	153.1	2.6	0.16	PP
LVB9UF		182.6	32.6	2.13	183.7	33.1	2.12	LP
N6E7T3		149.9	-0.1	-0.01	154.1	3.5	0.23	LA
NC9BL4		153.5	3.5	0.23	153.8	3.2	0.21	TT
PK786Z		141.6	-8.4	-0.55	140.6	-10.0	-0.64	PP

Summary Statistics	Sample GE75	Sample GE76
Grand Means	150.00 Sheffield Units	150.55 Sheffield Units
Stnd Dev Btwn Labs	15.32 Sheffield Units	15.66 Sheffield Units

Statistics based on 8 of 8 reporting participants.

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	HM	Technidyne - Hagerty Model #538
LA	L & W Roughness Sheffield - Autoline	LP	L & W Densometer, Air Permeance
PP	Technidyne Profile/Plus	SH	Sheffield
TT	TMI Monitor/Smoothness II, Model 58-24		



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

TAPPI Official Test Method T555

WebCode	Data Flag	Sample GJ75 Lab Mean	Sample GJ75 Diff from Grand Mean	Sample GJ75 CPV	Sample GJ76 Lab Mean	Sample GJ76 Diff from Grand Mean	Sample GJ76 CPV	Instr Code
32NK6L		0.6610	-0.0428	-0.40	0.6600	-0.0469	-0.44	ZZ
38UEYG		0.7530	0.0492	0.46	0.7650	0.0581	0.55	ZZ
3PAMZG		0.6780	-0.0258	-0.24	0.6940	-0.0129	-0.12	ZZ
7FA6BJ		0.6520	-0.0518	-0.48	0.6600	-0.0469	-0.44	ZZ
7GPQKK		0.8150	0.1112	1.04	0.7950	0.0881	0.83	ZZ
9UMEPK		0.6100	-0.0938	-0.88	0.6080	-0.0989	-0.93	ZZ
ACXQVF		0.7360	0.0322	0.30	0.7330	0.0261	0.25	ZZ
AGRRU9		0.6700	-0.0338	-0.32	0.6670	-0.0399	-0.38	ZZ
BAC7NQ	X	1.2140	0.5102	4.77	1.1580	0.4511	4.25	ZZ
BUJD3P		0.6140	-0.0898	-0.84	0.6110	-0.0959	-0.90	ZZ
DPFG8E		0.6370	-0.0668	-0.62	0.6490	-0.0579	-0.55	ZZ
EPBJCA		0.6240	-0.0798	-0.75	0.6270	-0.0799	-0.75	ZZ
GEN6LC		0.6580	-0.0458	-0.43	0.6570	-0.0499	-0.47	ZZ
GW4EMD		0.6700	-0.0338	-0.32	0.6750	-0.0319	-0.30	ZZ
HHGLCB		0.6740	-0.0298	-0.28	0.6960	-0.0109	-0.10	ZZ
HQCNF9	X	1.2800	0.5762	5.39	1.2990	0.5921	5.58	ZZ
HYPF77		0.8880	0.1842	1.72	0.8900	0.1831	1.73	ZZ
JJBTWZ	*	0.9410	0.2372	2.22	0.9680	0.2611	2.46	ZZ
KBTK94		0.9250	0.2212	2.07	0.9190	0.2121	2.00	ZZ
LCXRN2		0.9260	0.2222	2.08	0.9260	0.2191	2.07	ZZ
LYCCL3		0.6530	-0.0508	-0.47	0.6430	-0.0639	-0.60	ZZ
NKQJAZ	X	1.4270	0.7232	6.76	1.7510	1.0441	9.85	ZZ
PDYWRZ		0.6410	-0.0628	-0.59	0.6430	-0.0639	-0.60	ZZ
PK786Z		0.6780	-0.0258	-0.24	0.6810	-0.0259	-0.24	ZZ
RYFTLV		0.6820	-0.0218	-0.20	0.6810	-0.0259	-0.24	ZZ
T7T2MW		0.6340	-0.0698	-0.65	0.6300	-0.0769	-0.72	ZZ
THLPDQ		0.6210	-0.0828	-0.77	0.6240	-0.0829	-0.78	ZZ
TNCZNN		0.6300	-0.0738	-0.69	0.6310	-0.0759	-0.72	ZZ
TWMGYV		0.8190	0.1152	1.08	0.8130	0.1061	1.00	ZZ
VQR9R7	*	0.5370	-0.1668	-1.56	0.5720	-0.1349	-1.27	ZZ
YQYMPQ		0.6790	-0.0248	-0.23	0.6740	-0.0329	-0.31	ZZ

Summary Statistics	Sample GJ75	Sample GJ76
Grand Means	0.70 Microns	0.71 Microns
Stnd Dev Btwn Labs	0.11 Microns	0.11 Microns

Statistics based on 28 of 31 reporting participants.

Comments on Assigned Data Flags for Test #376

HQCNF9 (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample GJ75.

NKQJAZ (X) - Extreme Data.

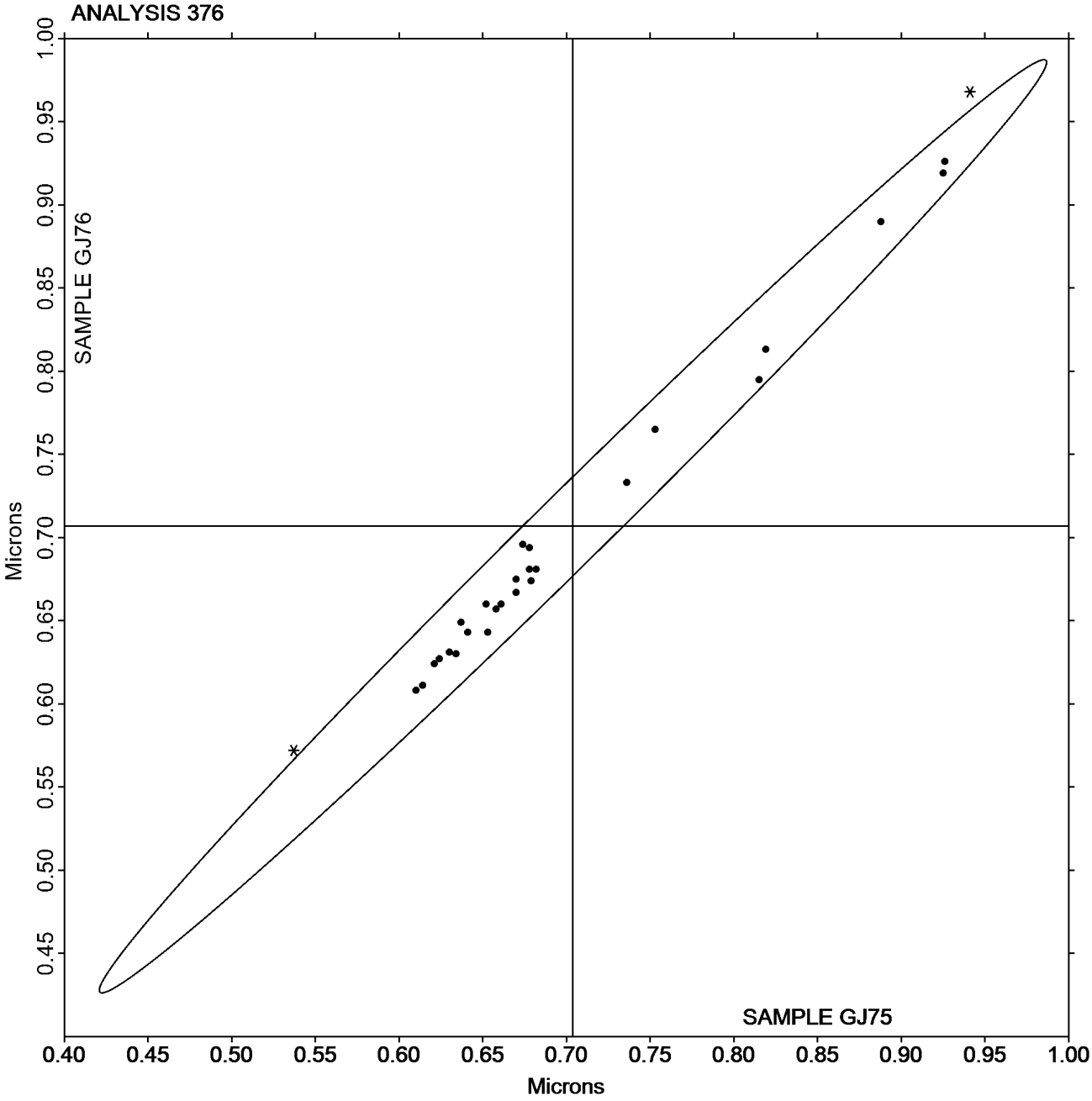
BAC7NQ (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of sample GJ75.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GJ75 = 0.70379 Microns

Grand Mean Sample GJ76 = 0.70686 Microns



Paper & Paperboard Interlaboratory Testing Program

Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

TAPPI Official Test Method T555

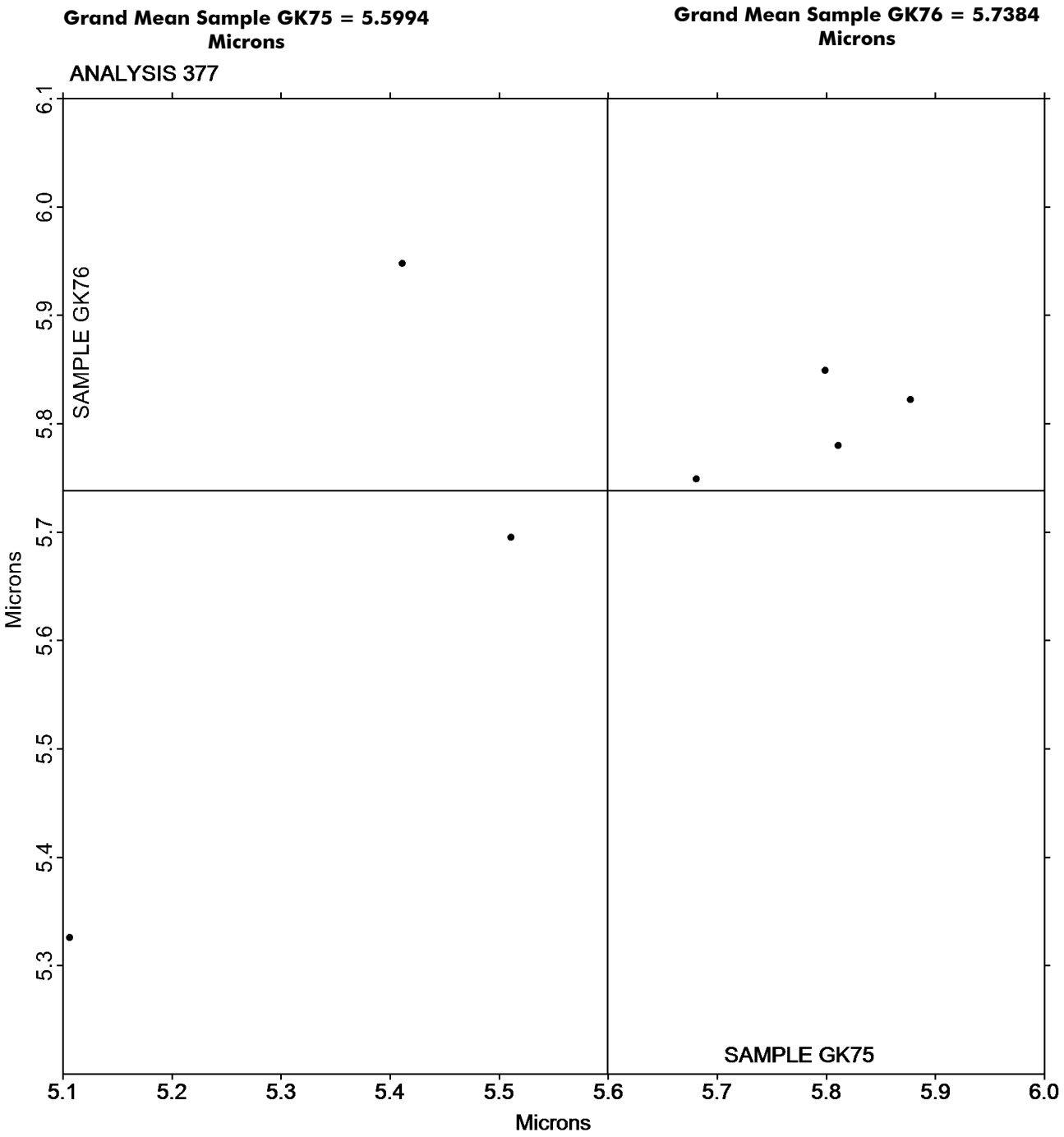
WebCode	Data Flag	Sample GK75 Lab Mean	Sample GK75 Diff from Grand Mean	Sample GK75 CPV	Sample GK76 Lab Mean	Sample GK76 Diff from Grand Mean	Sample GK76 CPV	Instr Code
33ZGAP		5.106	-0.493	-1.79	5.326	-0.412	-2.08	ZZ
7FA6BJ		5.877	0.278	1.01	5.822	0.084	0.42	ZZ
GW4EMD		5.681	0.082	0.30	5.749	0.011	0.05	ZZ
HYMQ29		5.411	-0.188	-0.68	5.948	0.210	1.05	ZZ
VEFY2V		5.799	0.200	0.72	5.849	0.111	0.56	ZZ
VXM93R		5.511	-0.088	-0.32	5.695	-0.043	-0.22	ZZ
YQYMPQ		5.811	0.212	0.77	5.780	0.042	0.21	ZZ

Summary Statistics	Sample GK75	Sample GK76
Grand Means	5.60 Microns	5.74 Microns
Stnd Dev Btwn Labs	0.28 Microns	0.20 Microns

Statistics based on 7 of 7 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 GL75 Lab Mean	Sample GL75 Diff from Grand Mean	Sample GL75 CPV	Sample GL76 Lab Mean	Sample GL76 Diff from Grand Mean	Sample GL76 CPV	Instr Code
2DJCCK		119.8	0.3	0.04	122.1	2.5	0.33	GA
2FPWZK	*	104.8	-14.7	-1.97	114.1	-5.6	-0.72	MP
32NK6L		123.0	3.4	0.46	118.5	-1.1	-0.14	PP
33ZGAP		126.8	7.3	0.98	124.8	5.2	0.68	LA
38UEYG		121.1	1.6	0.21	115.7	-3.9	-0.51	LA
682D9F		135.5	16.0	2.14	134.5	14.9	1.94	GL
7AQ24G		116.1	-3.4	-0.46	114.5	-5.1	-0.67	PP
7FA6BJ		118.0	-1.5	-0.20	122.0	2.4	0.31	LA
7GPQKK	*	142.0	22.5	3.01	143.0	23.4	3.05	GL
8G3G8B		109.9	-9.6	-1.29	111.4	-8.2	-1.07	LW
94AF9E		117.2	-2.3	-0.31	119.4	-0.2	-0.03	HM
9UMEPK		124.1	4.6	0.62	125.5	5.9	0.78	PP
ACXQVF		108.6	-10.9	-1.46	113.3	-6.3	-0.82	TS
CRLMAF		106.9	-12.6	-1.69	107.6	-12.0	-1.57	SH
EG2VYB		117.7	-1.9	-0.25	121.0	1.4	0.18	LA
FJ4DAC		113.0	-6.5	-0.87	108.0	-11.6	-1.51	SH
FYVAC8		129.7	10.2	1.36	129.6	10.0	1.30	XX
G46NU6		123.3	3.8	0.51	124.6	5.0	0.66	PP
GEN6LC		119.9	0.4	0.06	123.1	3.5	0.45	PP
GJEEWB		121.3	1.8	0.24	123.2	3.6	0.47	PP
GW4EMD		128.7	9.2	1.23	128.0	8.4	1.10	XX
HHGLCB		118.3	-1.2	-0.16	112.3	-7.3	-0.96	PP
HN8VLA		129.6	10.1	1.35	127.5	7.9	1.03	XX
HQCNF9	*	111.3	-8.2	-1.10	123.3	3.7	0.48	VM
HYMQ29		124.1	4.6	0.61	120.0	0.4	0.05	LW
HYPF77		110.1	-9.4	-1.26	103.7	-15.9	-2.07	LW
JJBTWZ		120.4	0.9	0.12	119.2	-0.5	-0.06	PP
KBTK94		125.6	6.1	0.82	120.9	1.3	0.17	LW
KX8674		111.4	-8.1	-1.09	110.8	-8.8	-1.15	XX
LCXRN2	X	140.9	21.4	2.87	148.3	28.7	3.74	TT
LLNDUY		121.7	2.2	0.29	115.2	-4.4	-0.57	TS
LVB9UF		120.6	1.1	0.15	119.9	0.3	0.04	LW
LYCCL3		117.8	-1.7	-0.23	112.6	-7.0	-0.91	HM
N6E7T3		121.1	1.6	0.21	118.3	-1.3	-0.17	LA
NC9BL4	X	155.9	36.4	4.88	144.5	24.9	3.25	TT
NTJW6U		124.1	4.6	0.61	124.1	4.5	0.59	TS
P9T3X6		119.4	-0.1	-0.02	119.5	-0.1	-0.01	PP
PDYU3V		114.3	-5.2	-0.69	113.6	-6.0	-0.79	HM
PDYWRZ		110.6	-8.9	-1.20	112.5	-7.1	-0.93	PP
PK786Z		126.5	7.0	0.94	118.7	-0.9	-0.12	PP
QGFKMW		119.4	-0.1	-0.02	116.2	-3.4	-0.44	PP

Paper & Paperboard Interlaboratory Testing Program

Analysis 378
Roughness - Sheffield Type
TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL75 Lab Mean	Sample GL75 Diff from Grand Mean	Sample GL75 CPV	Sample GL76 Lab Mean	Sample GL76 Diff from Grand Mean	Sample GL76 CPV	Instr Code
RYFTLV		110.7	-8.8	-1.18	110.7	-8.9	-1.16	PP
T3PBDW		110.6	-8.9	-1.19	113.6	-6.0	-0.78	PP
TNCZNN		118.7	-0.8	-0.11	125.7	6.1	0.80	HM
UUDQAQ		119.1	-0.4	-0.06	128.1	8.5	1.11	HM
VEFY2V		115.4	-4.1	-0.55	116.9	-2.7	-0.35	PP
VQR9R7		124.8	5.3	0.71	122.6	3.0	0.39	LW
VXM93R		125.9	6.4	0.86	124.5	4.9	0.64	PP
X6KFZR		105.7	-13.9	-1.86	103.6	-16.0	-2.09	LA
X93ZKL		125.3	5.8	0.77	133.9	14.3	1.87	TT
Y7REAQ		123.0	3.5	0.47	121.7	2.1	0.28	PP
YAAC3N		124.2	4.6	0.62	121.5	1.9	0.25	PP
YQYMPQ		118.3	-1.2	-0.16	124.7	5.1	0.67	LW

Summary Statistics	Sample GL75	Sample GL76
Grand Means	119.52 Sheffield	119.60 Sheffield
Stnd Dev Btwn Labs	7.46 Sheffield	7.67 Sheffield

Statistics based on 51 of 53 reporting participants.

Comments on Assigned Data Flags for Test #378

NC9BL4 (X) - Data for both samples are high. Possible Systematic Error.

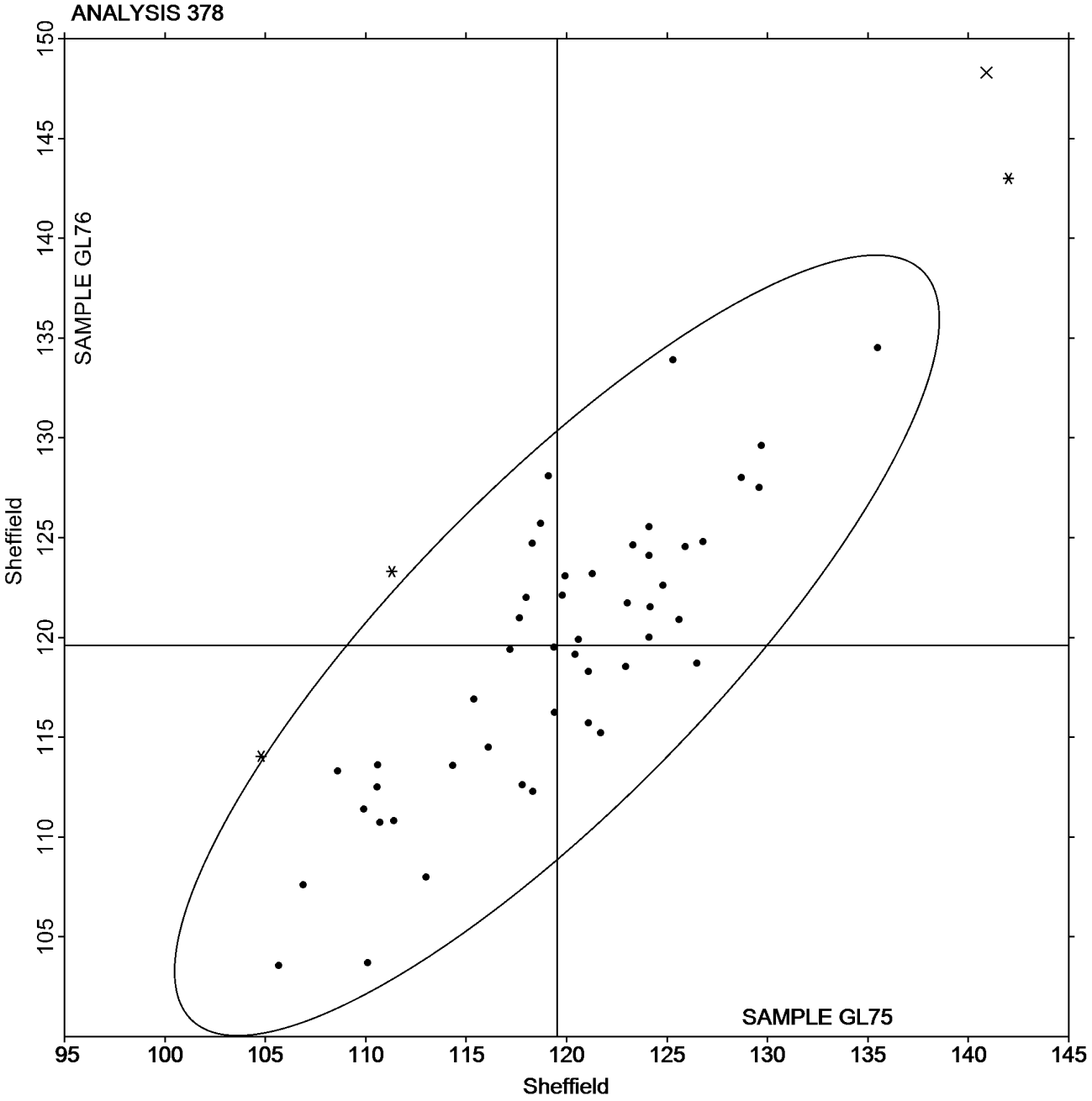
LCXRN2 (X) - Data for both samples are high. Possible Systematic Error.

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
VM	Valmet PaperLab (was Kajaani\Robotest)	XX	Instrument make/model not specified by lab

Grand Mean Sample GL75 = 119.52
Sheffield

Grand Mean Sample GL76 = 119.60
Sheffield



Paper & Paperboard Interlaboratory Testing Program

Analysis 382
Moisture in Paper
TAPPI Official Test Method T412

WebCode	Data Flag	Sample GM75 Lab Mean	Sample GM75 Diff from Grand Mean	Sample GM75 CPV	Sample GM76 Lab Mean	Sample GM76 Diff from Grand Mean	Sample GM76 CPV	Instr Code
3TCQMX	M	No data reported for this sample			4.156	-0.009	-0.02	ZZ
6GQ24J		4.676	0.534	1.22	4.607	0.443	1.17	ZZ
78ZYXT		3.862	-0.280	-0.64	3.991	-0.174	-0.46	ZZ
84UUYD		3.543	-0.599	-1.37	3.618	-0.547	-1.45	ZZ
DLFBP3		4.084	-0.058	-0.13	4.470	0.305	0.81	ZZ
FUZGE6		4.175	0.033	0.08	4.150	-0.015	-0.04	ZZ
H7N6MA		3.940	-0.202	-0.46	3.983	-0.182	-0.48	ZZ
QGFKMW		4.936	0.794	1.81	4.853	0.689	1.82	ZZ
RMY7AA		4.520	0.378	0.86	4.200	0.035	0.09	ZZ
VK3NNQ		3.876	-0.266	-0.61	3.931	-0.234	-0.62	ZZ
Z8YW72		3.806	-0.336	-0.77	3.843	-0.322	-0.85	ZZ

Summary Statistics	Sample GM75	Sample GM76
Grand Means	4.14 Percent	4.16 Percent
Stnd Dev Btwn Labs	0.44 Percent	0.38 Percent

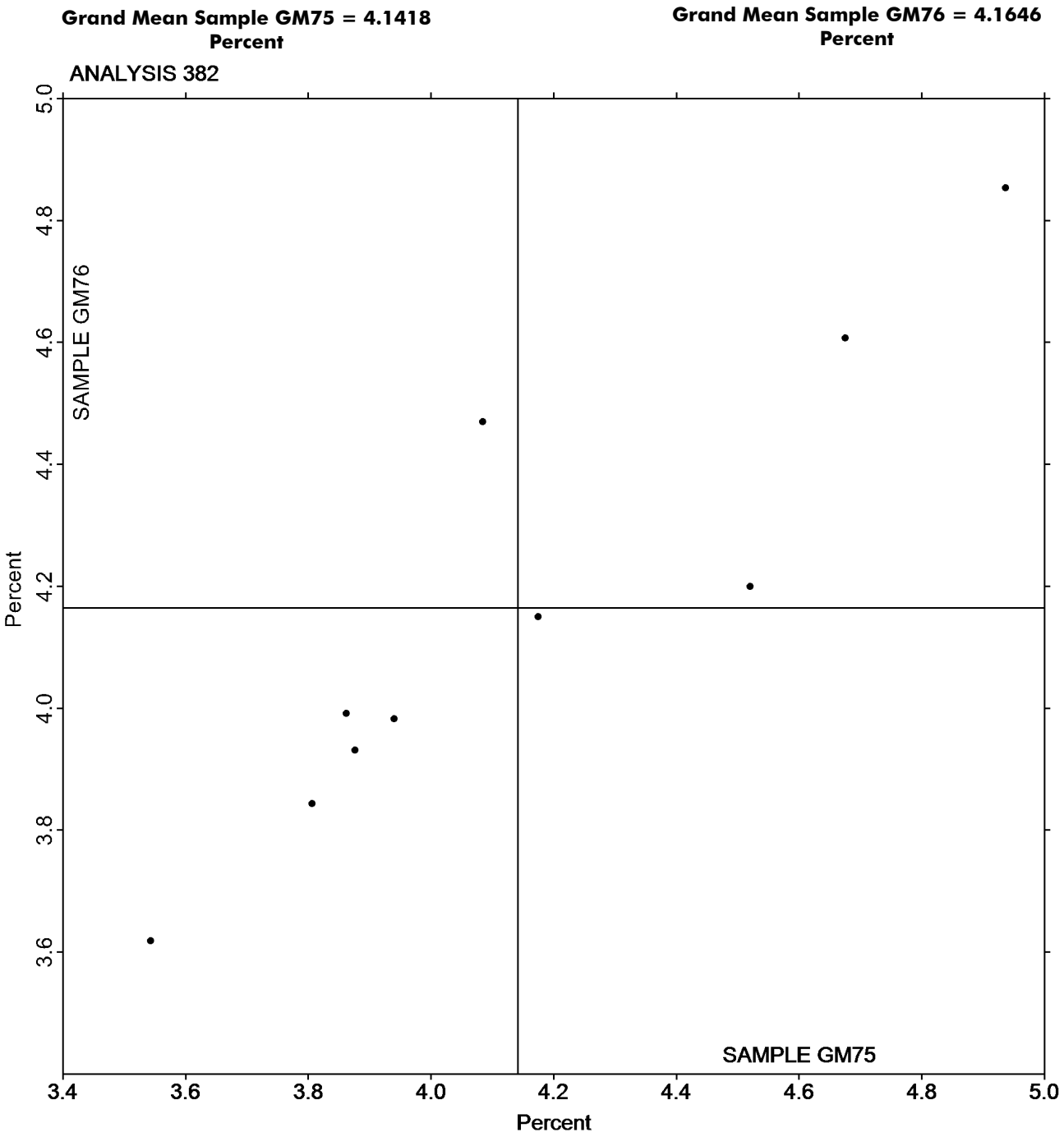
Statistics based on 10 of 11 reporting participants.

Comments on Assigned Data Flags for Test #382

3TCQMX (M) - Participant did not submit data for sample GM75.

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 #3042G, February 2020

Analysis 384

Opacity (89% Reflectance Backing) - Fine Papers

TAPPI Official Test Method T425

WebCode	Data Flag	Sample GN75 Lab Mean	Sample GN75 Diff from Grand Mean	Sample GN75 CPV	Sample GN76 Lab Mean	Sample GN76 Diff from Grand Mean	Sample GN76 CPV	Instr Code
2Y4D6X		93.27	-0.36	-0.68	89.20	-0.12	-0.20	ZZ
32NK6L		94.93	1.31	2.51	90.87	1.54	2.44	ZZ
33ZGAP		93.76	0.13	0.26	90.16	0.83	1.32	ZZ
3PAMZG		93.62	-0.01	-0.01	89.38	0.06	0.09	ZZ
682D9F	*	94.66	1.03	1.99	91.11	1.79	2.83	ZZ
7AQ24G		93.54	-0.09	-0.17	89.50	0.18	0.28	ZZ
94AF9E		93.21	-0.42	-0.80	89.06	-0.26	-0.42	ZZ
BAC7NQ	*	94.64	1.01	1.94	89.43	0.11	0.17	ZZ
BUJD3P		93.23	-0.40	-0.77	88.59	-0.73	-1.16	ZZ
EG2VYB	X	93.97	0.34	0.66	92.35	3.03	4.79	ZZ
EVX88E		93.37	-0.26	-0.49	88.51	-0.82	-1.29	ZZ
FJ4DAC		93.40	-0.23	-0.43	88.97	-0.35	-0.56	ZZ
FYVAC8		93.73	0.10	0.20	89.40	0.08	0.12	ZZ
GJEEWB		93.69	0.06	0.12	88.93	-0.39	-0.62	ZZ
HN8VLA		92.41	-1.22	-2.34	88.48	-0.84	-1.33	ZZ
HUUL96		94.19	0.56	1.08	90.25	0.93	1.47	ZZ
LLNDUY		94.02	0.39	0.76	89.21	-0.11	-0.18	ZZ
LYCCL3		93.56	-0.07	-0.13	89.53	0.21	0.33	ZZ
N6E7T3		93.08	-0.55	-1.05	88.49	-0.83	-1.32	ZZ
NC9BL4		93.07	-0.56	-1.07	89.01	-0.31	-0.50	ZZ
NTJW6U		93.49	-0.14	-0.26	89.44	0.12	0.18	ZZ
PK786Z		93.56	-0.07	-0.13	89.28	-0.04	-0.07	ZZ
QGFKMW		94.20	0.57	1.10	89.90	0.58	0.91	ZZ
T3PBDW		93.44	-0.19	-0.36	89.25	-0.07	-0.12	ZZ
THLPDQ		93.60	-0.03	-0.06	89.01	-0.31	-0.49	ZZ
TNCZNN		93.66	0.03	0.06	89.39	0.07	0.11	ZZ
TWMGYV		93.55	-0.08	-0.15	89.16	-0.16	-0.26	ZZ
VEFY2V		93.58	-0.04	-0.08	89.00	-0.33	-0.52	ZZ
VXM93R		93.17	-0.45	-0.87	89.01	-0.31	-0.50	ZZ
Y7REAQ		93.53	-0.10	-0.18	88.87	-0.46	-0.72	ZZ

Summary Statistics	Sample GN75	Sample GN76
Grand Means	93.63 Percent	89.32 Percent
Stnd Dev Btwn Labs	0.52 Percent	0.63 Percent

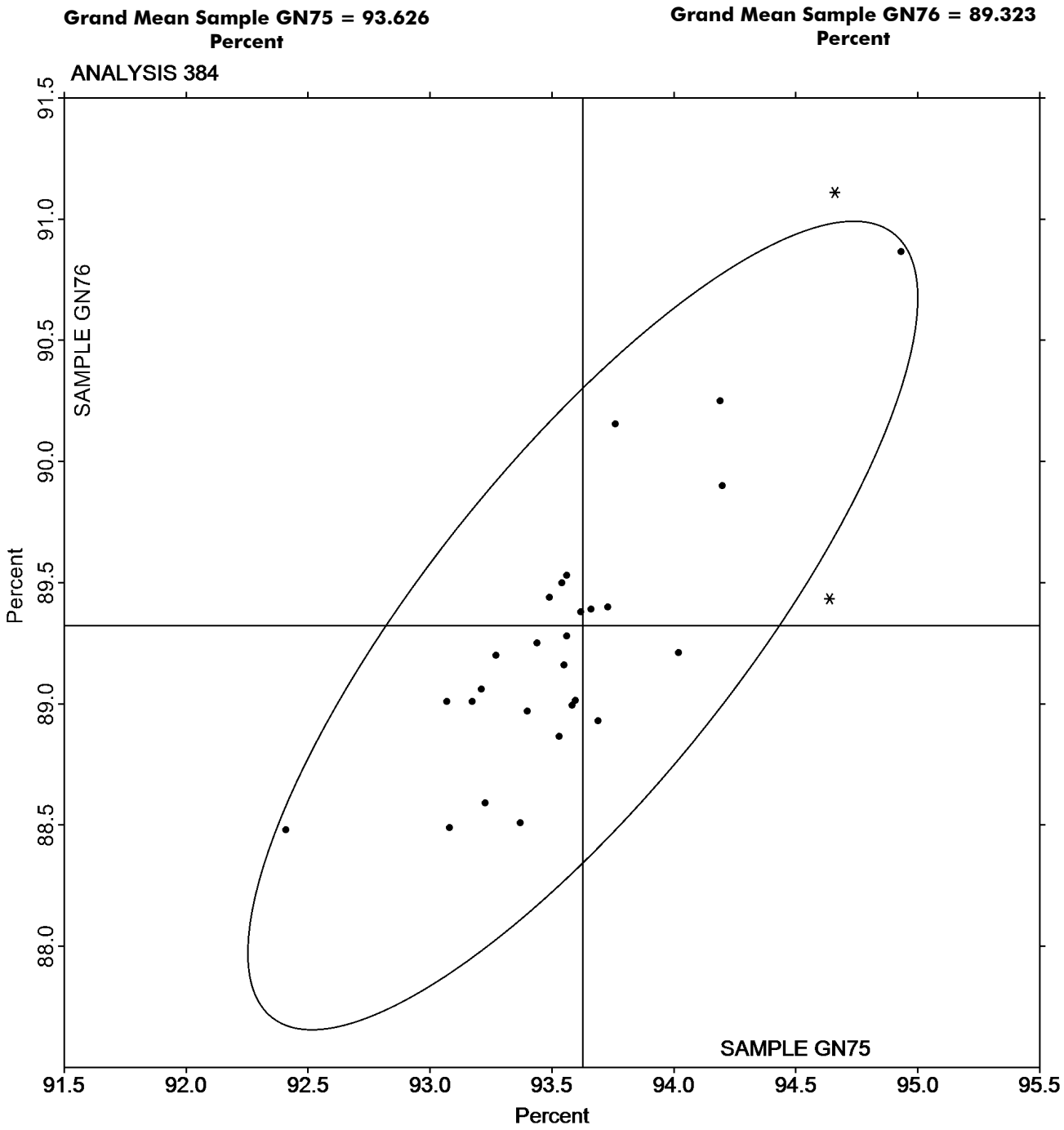
Statistics based on 29 of 30 reporting participants.

Comments on Assigned Data Flags for Test #384

EG2VYB (X) - Data for sample GN76 are high.

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

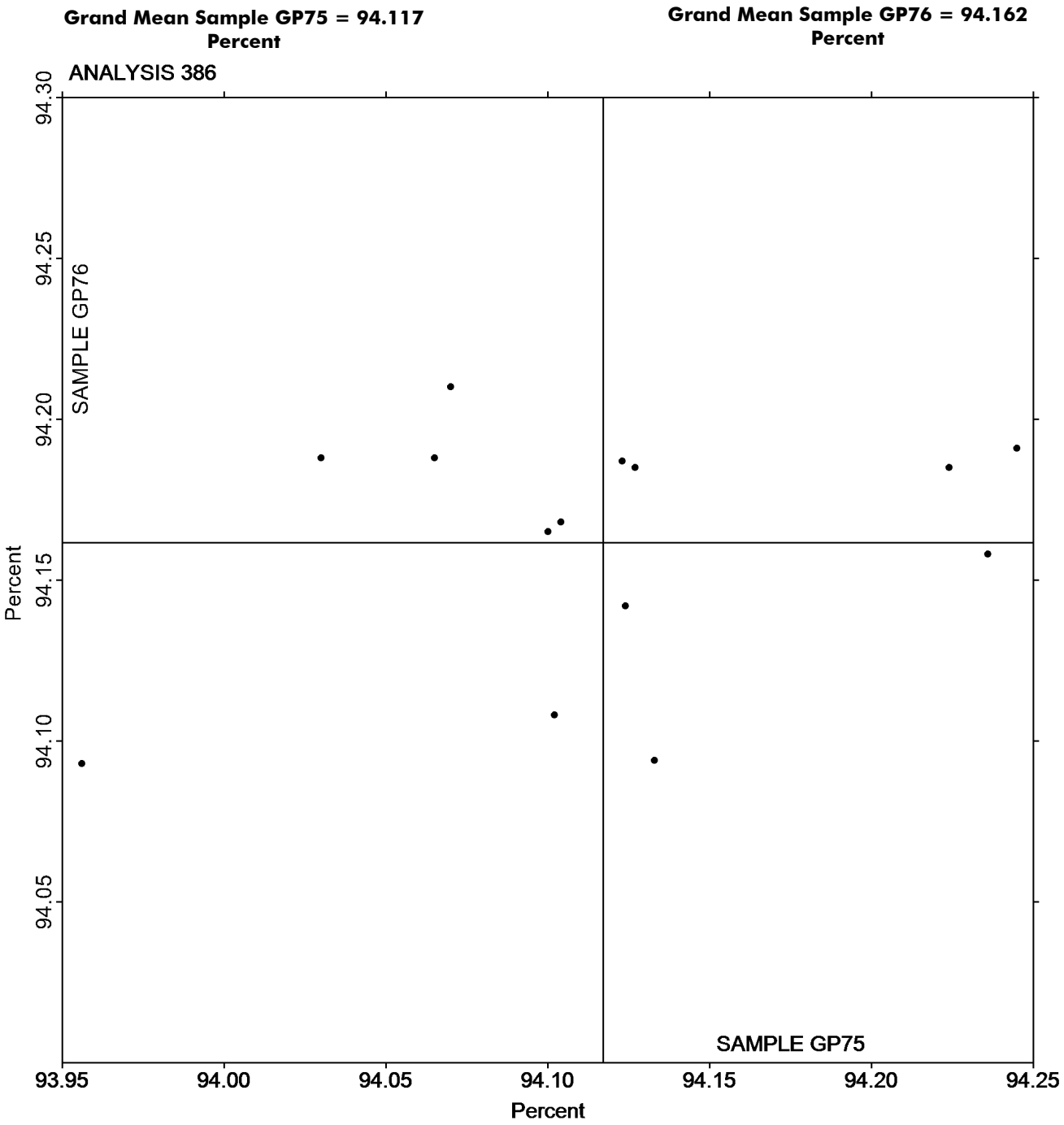
WebCode	Data Flag	Sample GP75 Lab Mean	Sample GP75 Diff from Grand Mean	Sample GP75 CPV	Sample GP76 Lab Mean	Sample GP76 Diff from Grand Mean	Sample GP76 CPV	Instr Code
4DVU6F		94.07	-0.05	-0.66	94.19	0.03	0.69	ZZ
4P6MCM		94.24	0.12	1.50	94.16	0.00	-0.09	ZZ
84UUYD		94.13	0.01	0.13	94.19	0.02	0.61	ZZ
B2VPVF		94.12	0.01	0.09	94.14	-0.02	-0.51	ZZ
C8FC27		93.96	-0.16	-2.03	94.09	-0.07	-1.80	ZZ
DPFG8E		94.10	-0.01	-0.17	94.17	0.01	0.17	ZZ
GBNUQC		94.12	0.01	0.07	94.19	0.03	0.67	ZZ
MKA9RV		94.25	0.13	1.62	94.19	0.03	0.77	ZZ
T38GE8		94.13	0.02	0.20	94.09	-0.07	-1.77	ZZ
T82E4Y		94.07	-0.05	-0.59	94.21	0.05	1.27	ZZ
UWLN2M		94.22	0.11	1.35	94.19	0.02	0.61	ZZ
WMZP2T		94.03	-0.09	-1.10	94.19	0.03	0.69	ZZ
YCXV4L		94.10	-0.02	-0.19	94.11	-0.05	-1.40	ZZ
Z4YLB2		94.10	-0.02	-0.22	94.17	0.00	0.09	ZZ

Summary Statistics	Sample GP75	Sample GP76
Grand Means	94.12 Percent	94.16 Percent
Stnd Dev Btwn Labs	0.08 Percent	0.04 Percent

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 390
Directional Brightness
TAPPI Official Test Method T452

WebCode	Data Flag	Sample GR75 Lab Mean	Sample GR75 Diff from Grand Mean	Sample GR75 CPV	Sample GR76 Lab Mean	Sample GR76 Diff from Grand Mean	Sample GR76 CPV	Instr Code
32NK6L		84.64	1.03	0.67	84.54	0.91	0.61	TT
33ZGAP		82.71	-0.90	-0.58	82.93	-0.70	-0.47	TS
7AQ24G		82.59	-1.02	-0.66	82.61	-1.02	-0.68	XX
7GPQKK		82.21	-1.40	-0.90	82.06	-1.57	-1.05	TS
9UMEPK		83.42	-0.19	-0.12	83.42	-0.21	-0.14	HG
ARELBC		82.11	-1.50	-0.97	82.19	-1.44	-0.96	TS
BAC7NQ		83.90	0.29	0.19	83.83	0.20	0.13	VM
FYVAC8		84.49	0.88	0.57	84.25	0.62	0.42	XX
GEN6LC		84.48	0.87	0.56	84.45	0.82	0.55	HG
GJEEWB		84.01	0.40	0.26	83.72	0.09	0.06	XC
HHGLCB		82.36	-1.24	-0.81	82.42	-1.21	-0.81	TS
HN8VLA	*	86.07	2.46	1.59	86.44	2.82	1.89	PE
JG3JZW		84.00	0.39	0.25	84.01	0.38	0.25	HG
JJBTWZ		82.33	-1.28	-0.83	82.49	-1.14	-0.76	PP
KBTK94		84.34	0.73	0.48	84.15	0.52	0.35	HG
KX8674		87.14	3.53	2.28	86.98	3.35	2.24	XX
LLNDUY		82.19	-1.42	-0.92	82.26	-1.37	-0.92	TS
NC9BL4		85.01	1.40	0.91	84.96	1.33	0.89	TS
PDYWRZ		84.24	0.63	0.41	84.21	0.58	0.39	TT
T3PBDW		82.04	-1.57	-1.02	82.25	-1.38	-0.92	TT
TNCZNN		81.92	-1.69	-1.09	82.18	-1.45	-0.97	TS
TWMGYV		82.41	-1.20	-0.77	82.57	-1.06	-0.71	TT
VQR9R7		86.98	3.37	2.18	86.99	3.36	2.25	HZ
WBBPAQ		84.31	0.70	0.45	84.22	0.60	0.40	TS
Y7REAQ		82.11	-1.50	-0.97	82.20	-1.43	-0.96	TT
YQYMPQ		81.83	-1.78	-1.15	82.03	-1.60	-1.07	TT

Summary Statistics	Sample GR75	Sample GR76
Grand Means	83.61 Percent	83.63 Percent
Stnd Dev Btwn Labs	1.55 Percent	1.49 Percent

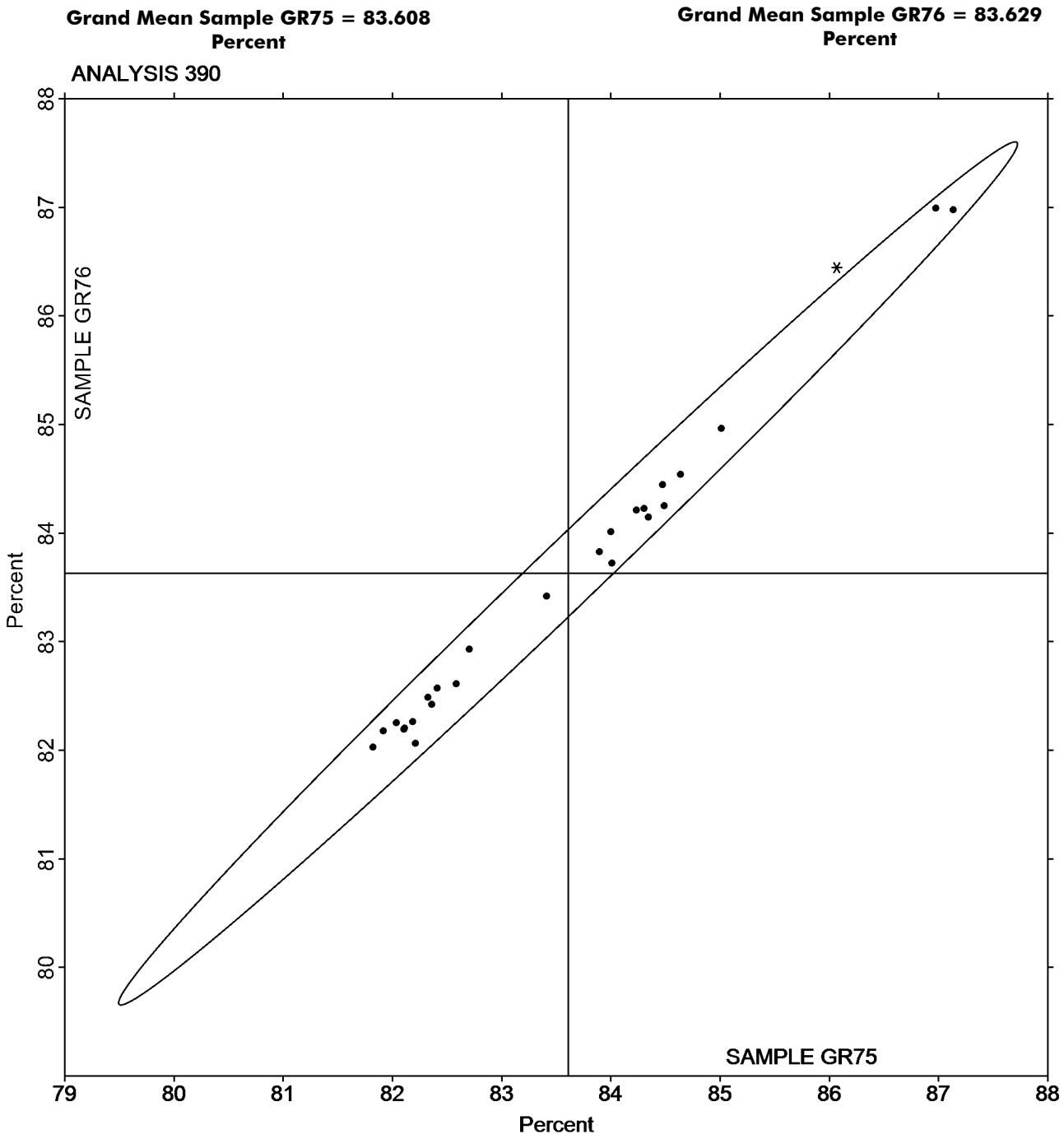
Statistics based on 26 of 26 reporting participants.

Analysis Notes:

FYVAC8 - One determination removed from the Lab Mean of Sample GR76 per Grubb's Test at 1% risk (TAPPI 1205).

Key to Instrument Codes Reported by Participants

HG	Hunter Labscan / XE	HZ	Hunter Lab ColorFlex EZ Series
PE	Photovolt 577	PP	Technidyne Profile/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

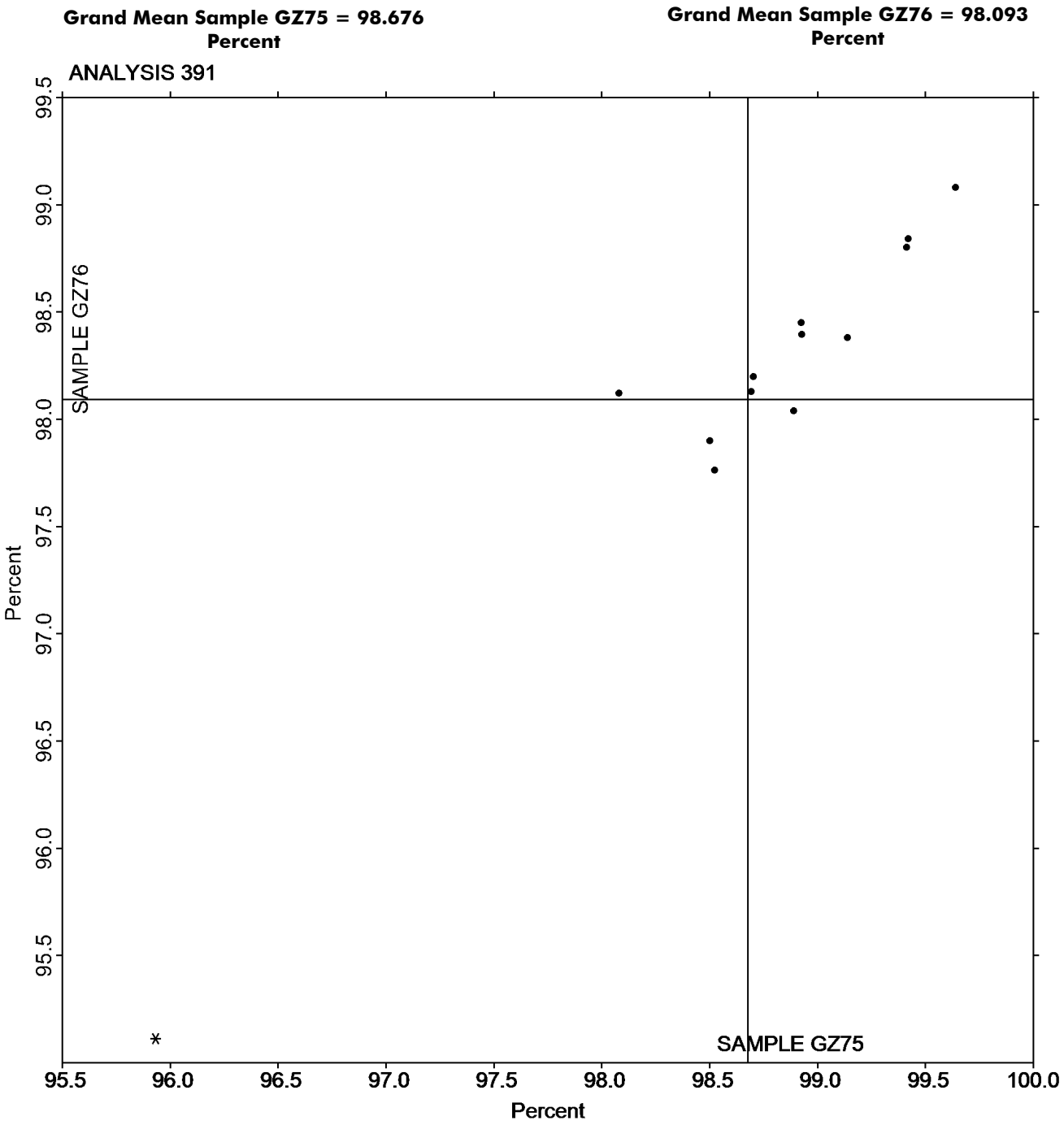
WebCode	Data Flag	Sample GZ75 Lab Mean	Sample GZ75 Diff from Grand Mean	Sample GZ75 CPV	Sample GZ76 Lab Mean	Sample GZ76 Diff from Grand Mean	Sample GZ76 CPV	Instr Code
3PAMZG		98.92	0.25	0.27	98.45	0.36	0.37	TS
BUJD3P		98.52	-0.15	-0.16	97.76	-0.33	-0.34	PP
EG2VYB		98.50	-0.18	-0.19	97.90	-0.19	-0.20	TT
FYVAC8		98.69	0.02	0.02	98.13	0.04	0.04	XX
HUUL96		99.64	0.96	1.04	99.08	0.99	1.01	TT
LLNDUY		99.42	0.74	0.80	98.84	0.75	0.77	TS
LYCCL3		99.41	0.74	0.79	98.80	0.71	0.73	TT
NTJW6U		98.08	-0.60	-0.64	98.12	0.03	0.03	TS
QGFKMW		98.70	0.03	0.03	98.20	0.11	0.11	TS
T38GE8	*	95.93	-2.74	-2.95	95.11	-2.98	-3.06	EF
THLPDQ		98.89	0.21	0.23	98.04	-0.05	-0.06	PP
VXM93R		98.93	0.25	0.27	98.40	0.30	0.31	TS
Y7REAQ		99.14	0.46	0.50	98.38	0.29	0.30	TT

Summary Statistics	Sample GZ75	Sample GZ76
Grand Means	98.68 Percent	98.09 Percent
Stnd Dev Btwn Labs	0.93 Percent	0.97 Percent

Statistics based on 13 of 13 reporting participants.

Key to Instrument Codes Reported by Participants

EF	Datacolor 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

Report #3042G, February 2020

Analysis 392
Diffuse Brightness
TAPPI Official Test Method T525

WebCode	Data Flag	Sample GR75 Lab Mean	Sample GR75 Diff from Grand Mean	Sample GR75 CPV	Sample GR76 Lab Mean	Sample GR76 Diff from Grand Mean	Sample GR76 CPV	Instr Code
33ZGAP		83.16	0.34	1.22	83.15	0.35	1.16	TC
4P6MCM		83.35	0.53	1.94	83.40	0.60	2.02	TC
6R9LMF		82.85	0.03	0.10	82.77	-0.03	-0.11	TC
84UUYD		82.74	-0.08	-0.28	82.78	-0.02	-0.07	LE
8G3G8B		82.92	0.10	0.35	82.94	0.14	0.48	EF
8YHQ9B		82.80	-0.02	-0.07	82.69	-0.11	-0.38	TC
AGRRU9		82.82	0.00	-0.01	82.89	0.09	0.30	TC
B2VPVF		82.53	-0.29	-1.07	82.44	-0.36	-1.21	EG
C8FC27		82.80	-0.02	-0.08	82.75	-0.05	-0.18	TC
DPFG8E		82.97	0.15	0.54	83.09	0.29	0.98	AC
FUZGE6		82.74	-0.08	-0.29	82.71	-0.09	-0.29	EE
GBNUQC		82.86	0.04	0.16	82.82	0.02	0.08	LE
JJBTWZ		82.76	-0.06	-0.23	82.70	-0.10	-0.35	LT
K9NUZ3		82.88	0.06	0.22	82.69	-0.11	-0.37	TC
KBTK94		82.81	-0.01	-0.03	82.65	-0.16	-0.53	TC
LCXRN2	X	36.15	-46.67	-170.20	45.61	-37.19	-125.39	LE
NKQJAZ		83.42	0.60	2.20	83.38	0.58	1.94	XX
PDYWRZ		82.99	0.17	0.61	82.91	0.11	0.38	TL
PK786Z		82.83	0.01	0.05	82.87	0.07	0.23	TC
T7T2MW		82.73	-0.09	-0.34	82.69	-0.11	-0.39	TC
T82E4Y		82.81	-0.01	-0.04	82.79	-0.01	-0.05	LA
TNCZNN		82.78	-0.04	-0.14	82.75	-0.06	-0.19	LT
TWHY2W		82.64	-0.18	-0.67	82.70	-0.10	-0.35	TC
UWLN2M		82.86	0.04	0.13	82.92	0.12	0.39	TC
VUNX7R	*	81.99	-0.83	-3.03	81.89	-0.91	-3.08	TZ
WBBPAQ		82.62	-0.20	-0.71	82.72	-0.08	-0.28	TC
WMZP2T		83.13	0.31	1.11	83.18	0.37	1.26	TM
YAAC3N		82.85	0.03	0.11	82.85	0.05	0.16	TC
YQYMPQ		82.34	-0.48	-1.75	82.34	-0.46	-1.55	EG

Summary Statistics	Sample GR75	Sample GR76
Grand Means	82.82 Percent	82.80 Percent
Stnd Dev Btwn Labs	0.27 Percent	0.30 Percent

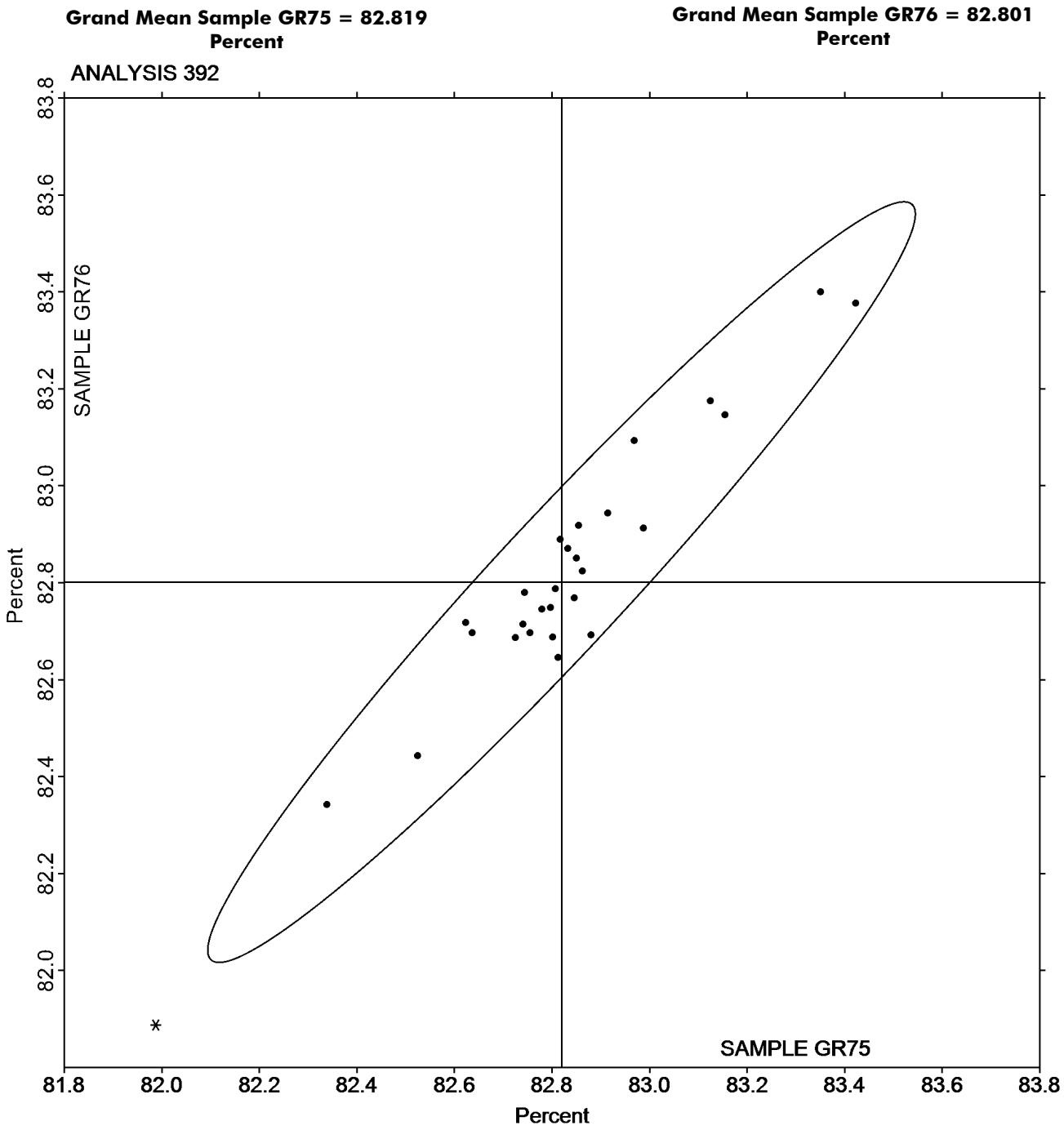
Statistics based on 28 of 29 reporting participants.

Comments on Assigned Data Flags for Test #392

LCXRN2 (X) - Extreme Data.

Key to Instrument Codes Reported by Participants

AC	ACS Spectro-Sensor II	EE	Datacolor Elrepho 2000
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	TM	Technidyne Technibrite Micro TB-1C
TZ	Technibrite Model TB-1	XX	Instrument make/model not specified by lab



Paper & Paperboard Interlaboratory Testing Program

Analysis 394

Fluorescent Component of Directional Brightness

TAPPI Official Test Method T452

WebCode	Data Flag	Sample GZ75 Lab Mean	Sample GZ75 Diff from Grand Mean	Sample GZ75 CPV	Sample GZ76 Lab Mean	Sample GZ76 Diff from Grand Mean	Sample GZ76 CPV	Instr Code
3PAMZG		7.364	-0.134	-0.36	8.116	0.034	0.08	TS
BUJD3P		7.044	-0.454	-1.21	7.456	-0.626	-1.46	PP
EG2VYB		7.000	-0.498	-1.33	7.640	-0.442	-1.03	TT
FYVAC8		7.356	-0.142	-0.38	7.696	-0.386	-0.90	XX
LLNDUY		8.200	0.702	1.87	8.820	0.738	1.73	TS
LYCCL3		7.854	0.356	0.95	8.466	0.384	0.90	TT
QGFKMW		7.608	0.110	0.29	8.188	0.106	0.25	TS
T38GE8	X	115.598	108.100	287.78	114.598	106.516	249.06	XX
THLPDQ		7.492	-0.006	-0.02	8.130	0.048	0.11	PP
VXM93R		7.568	0.070	0.19	8.224	0.142	0.33	TS

Summary Statistics	Sample GZ75	Sample GZ76
Grand Means	7.50 Percent	8.08 Percent
Stnd Dev Btwn Labs	0.38 Percent	0.43 Percent

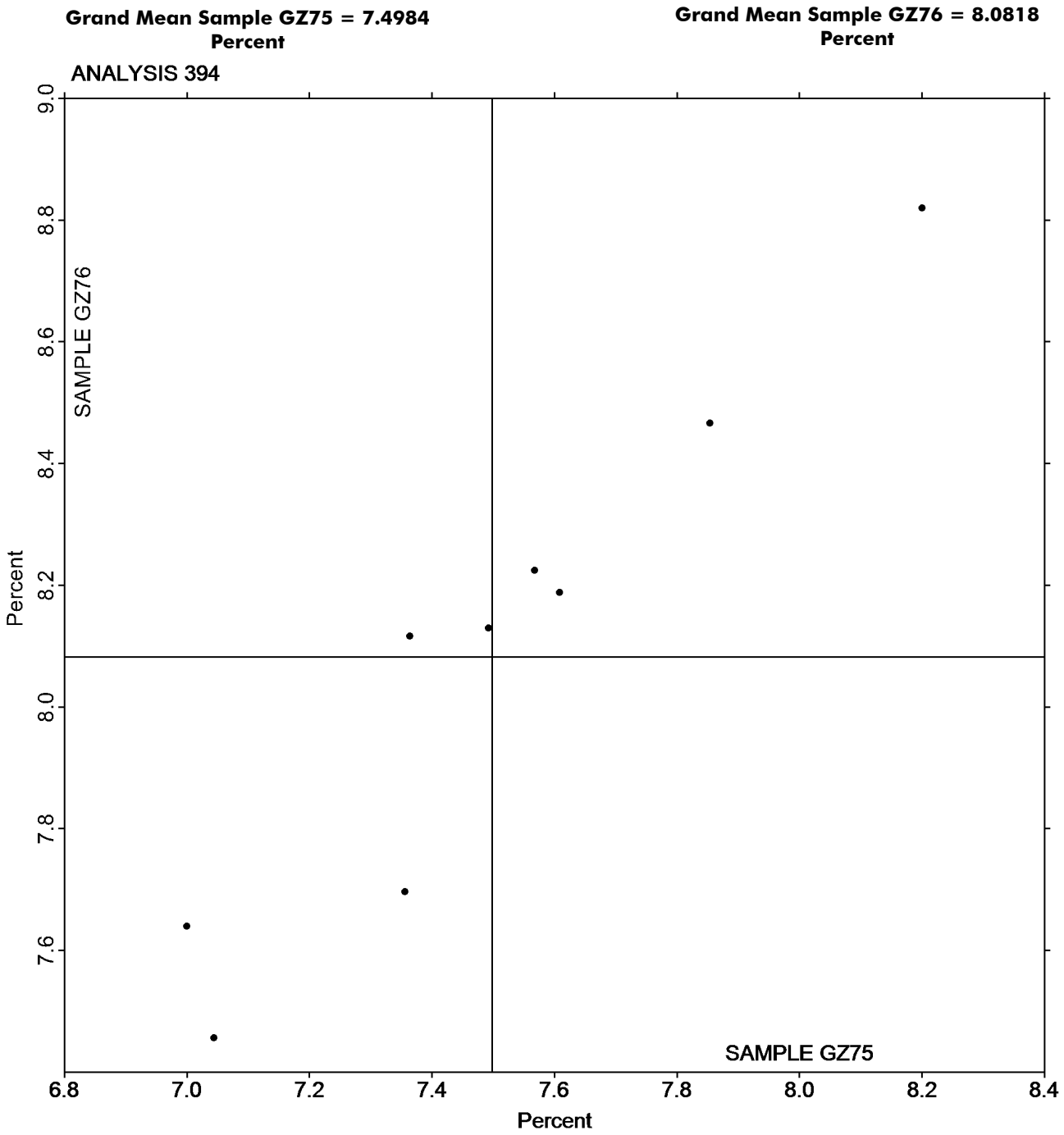
Statistics based on 9 of 10 reporting participants.

Comments on Assigned Data Flags for Test #394

T38GE8 (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	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

Report #3042G, February 2020

Analysis 395

Specular Gloss at 75 Degrees - High Range

TAPPI Official Test Method T480

WebCode	Data Flag	Sample GT75 Lab Mean	Sample GT75 Diff from Grand Mean	Sample GT75 CPV	Sample GT76 Lab Mean	Sample GT76 Diff from Grand Mean	Sample GT76 CPV	Instr Code
38UEYG	X	76.83	-4.78	-3.78	70.00	-11.61	-9.12	LF
3PAMZG		80.20	-1.41	-1.11	80.22	-1.39	-1.09	LA
7FA6BJ		83.45	1.84	1.46	84.07	2.46	1.94	LA
9UMEPK		83.62	2.01	1.59	83.25	1.64	1.29	TH
ACXQVF		82.72	1.11	0.88	83.21	1.60	1.26	XX
BAC7NQ		81.20	-0.41	-0.32	81.22	-0.39	-0.30	VM
BUJD3P		79.63	-1.98	-1.56	80.00	-1.61	-1.26	PP
DPFG8E		82.61	1.00	0.79	82.66	1.05	0.83	LB
GEN6LC		82.91	1.30	1.03	82.62	1.01	0.80	TH
HQCNF9		82.89	1.28	1.02	82.48	0.87	0.69	VM
JJBTWZ		80.98	-0.63	-0.50	81.06	-0.55	-0.43	GA
LYCCL3		80.02	-1.59	-1.25	80.16	-1.45	-1.14	PP
PDYWRZ		81.34	-0.27	-0.21	80.49	-1.12	-0.88	GM
T38GE8		80.86	-0.75	-0.59	81.04	-0.57	-0.45	GM
THLPDQ		81.08	-0.53	-0.42	80.93	-0.68	-0.53	PP
TWMGYV		80.58	-1.03	-0.81	80.62	-0.99	-0.78	TH
YQYMPQ		81.61	0.00	0.00	81.67	0.06	0.05	TH

Summary Statistics	Sample GT75	Sample GT76
Grand Means	81.61 Gloss Units	81.61 Gloss Units
Stnd Dev Btwn Labs	1.26 Gloss Units	1.27 Gloss Units

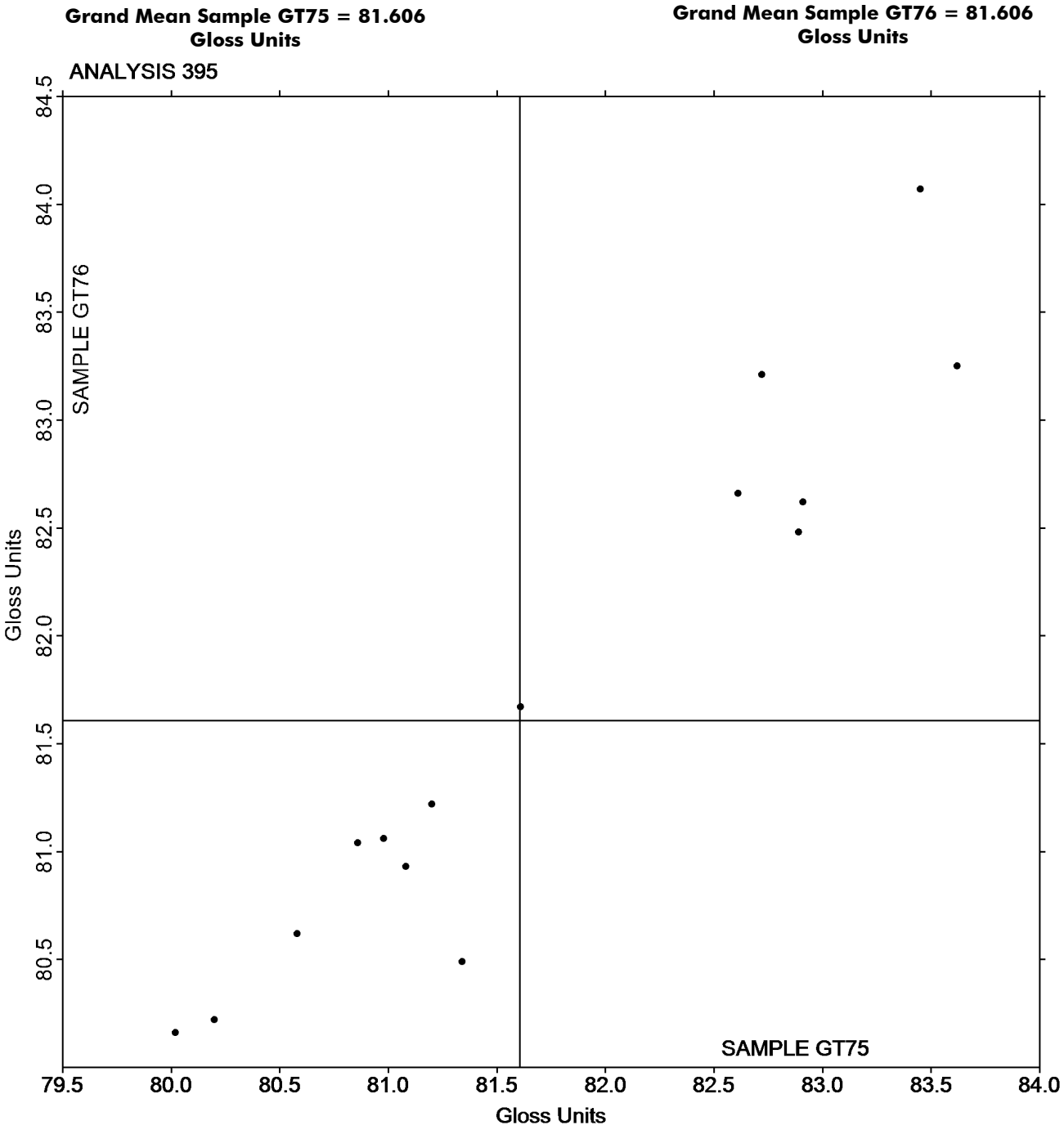
Statistics based on 16 of 17 reporting participants.

Comments on Assigned Data Flags for Test #395

38UEYG (X) - Extreme Data.

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)
XX	Instrument make/model not specified by lab		



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

Paper & Paperboard Interlaboratory Testing Program

Analysis 396

Specular Gloss at 75 Degrees - Low Range

TAPPI Official Test Method T480

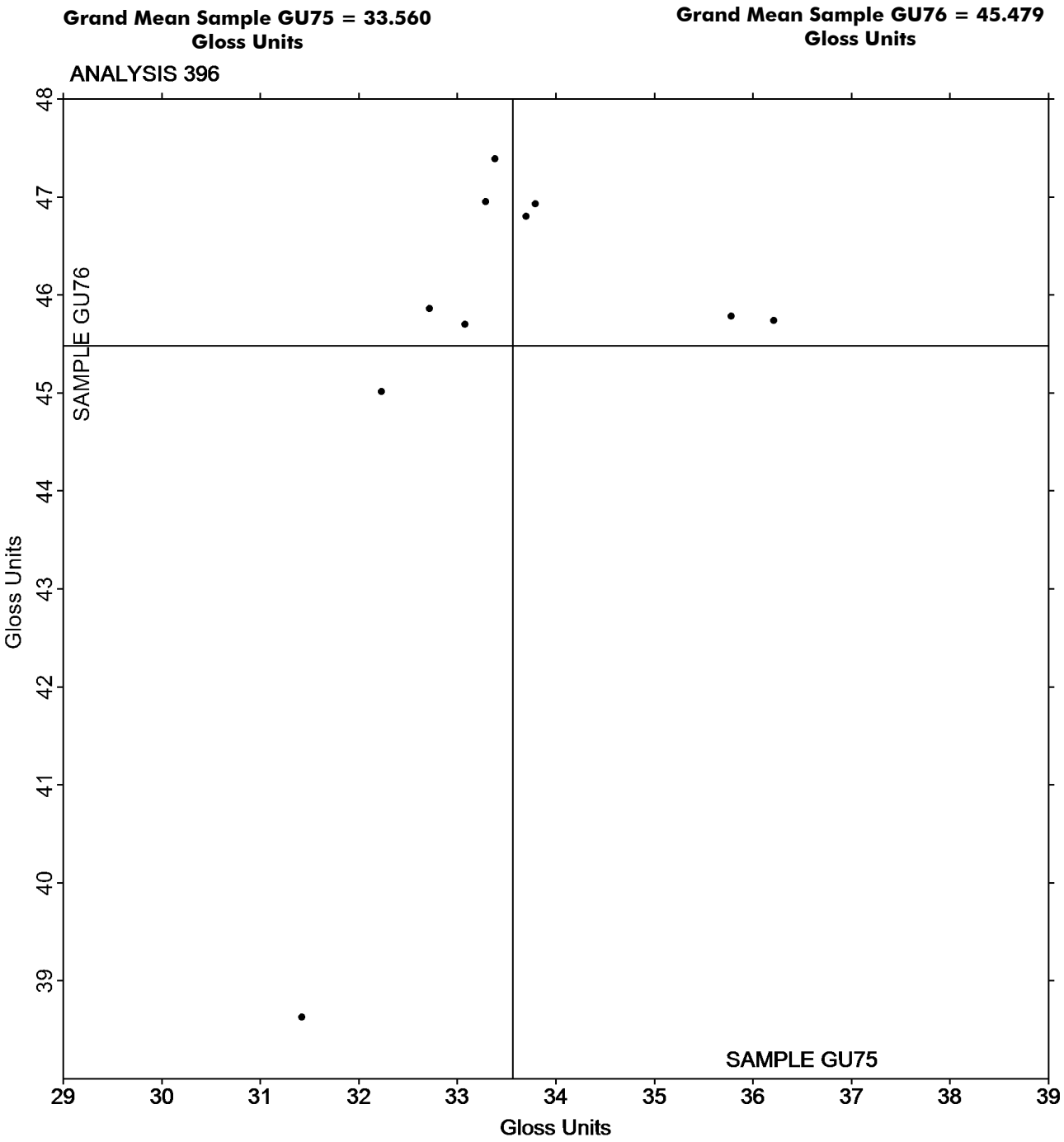
WebCode	Data Flag	Sample GU75 Lab Mean	Sample GU75 Diff from Grand Mean	Sample GU75 CPV	Sample GU76 Lab Mean	Sample GU76 Diff from Grand Mean	Sample GU76 CPV	Instr Code
BUJD3P		33.29	-0.27	-0.18	46.95	1.47	0.58	PP
DPFG8E		33.08	-0.48	-0.33	45.70	0.22	0.09	LA
GJEEWB		33.70	0.14	0.10	46.80	1.32	0.52	TH
H7N6MA		31.42	-2.14	-1.46	38.63	-6.85	-2.72	ZT
KBTK94		33.79	0.23	0.16	46.93	1.45	0.58	PP
LCXRN2		35.78	2.22	1.51	45.78	0.30	0.12	TH
PK786Z		36.21	2.65	1.80	45.74	0.26	0.10	TH
T3PBDW		33.38	-0.18	-0.12	47.39	1.91	0.76	TH
VEFY2V		32.23	-1.33	-0.91	45.01	-0.47	-0.19	PP
VQR9R7		32.72	-0.84	-0.57	45.86	0.38	0.15	GS

Summary Statistics	Sample GU75	Sample GU76
Grand Means	33.56 Gloss Units	45.48 Gloss Units
Stnd Dev Btwn Labs	1.47 Gloss Units	2.52 Gloss Units

Statistics based on 10 of 10 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
ZT	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 GW75 Lab Mean	Sample GW75 Diff from Grand Mean	Sample GW75 CPV	Sample GW76 Lab Mean	Sample GW76 Diff from Grand Mean	Sample GW76 CPV	Instr Code
3VXBUM		103.8	0.4	0.57	89.46	0.38	0.75	ZZ
6GQ24J	*	101.5	-2.0	-2.72	87.63	-1.45	-2.84	ZZ
78ZYXT		103.0	-0.4	-0.54	89.16	0.08	0.16	ZZ
7AQ24G		103.7	0.3	0.46	88.66	-0.42	-0.82	ZZ
84UUYD		104.2	0.8	1.11	89.06	-0.02	-0.03	ZZ
94AF9E		103.9	0.5	0.68	89.58	0.50	0.99	ZZ
9967EQ		103.1	-0.3	-0.45	88.70	-0.37	-0.73	ZZ
ACJ4LD		104.0	0.6	0.82	88.80	-0.28	-0.54	ZZ
ARELBC		103.5	0.0	0.07	89.41	0.33	0.66	ZZ
BUJD3P		103.4	0.0	-0.04	89.44	0.36	0.72	ZZ
DPFG8E		102.6	-0.8	-1.16	89.26	0.19	0.37	ZZ
EGFLKZ		103.2	-0.2	-0.29	89.28	0.20	0.40	ZZ
FE8NT6	*	103.8	0.4	0.57	90.32	1.25	2.45	ZZ
FJ4DAC		102.7	-0.7	-0.96	88.80	-0.28	-0.54	ZZ
FUZGE6		103.2	-0.2	-0.24	89.21	0.13	0.26	ZZ
GJEEWB		103.1	-0.3	-0.44	88.99	-0.09	-0.17	ZZ
H7N6MA		103.3	-0.1	-0.16	88.93	-0.14	-0.28	ZZ
HGMZGY		103.9	0.5	0.71	89.19	0.11	0.22	ZZ
JG3JZW		103.4	0.0	-0.02	89.19	0.11	0.23	ZZ
LCXRN2		102.0	-1.4	-1.96	87.80	-1.28	-2.51	ZZ
LFW4K2		103.0	-0.4	-0.59	88.62	-0.45	-0.89	ZZ
MKA9RV		103.1	-0.3	-0.47	89.26	0.18	0.36	ZZ
N6E7T3		103.1	-0.4	-0.49	89.07	-0.01	-0.01	ZZ
NTJW6U		103.5	0.1	0.11	88.49	-0.59	-1.15	ZZ
PK786Z	X	93.4	-10.1	-13.96	80.39	-8.68	-17.06	ZZ
PKLLCA		103.5	0.1	0.15	89.67	0.59	1.17	ZZ
RJ4CET		103.4	0.0	-0.06	89.44	0.36	0.71	ZZ
T38GE8	X	88.7	-14.7	-20.41	88.93	-0.14	-0.28	ZZ
T3PBDW		104.0	0.6	0.80	89.42	0.34	0.68	ZZ
UWLN2M	X	524.2	420.8	584.54	448.54	359.47	706.52	ZZ
VK3NNQ	*	105.2	1.8	2.45	89.28	0.20	0.40	ZZ
YCXV4L		104.1	0.7	0.95	89.06	-0.02	-0.03	ZZ
Z2PVMJ		103.0	-0.4	-0.60	89.03	-0.05	-0.09	ZZ
Z4YLB2		104.7	1.3	1.77	89.12	0.04	0.08	ZZ

Summary Statistics	Sample GW75	Sample GW76
Grand Means	103.41 g/sq m	89.08 g/sq m
Stnd Dev Btwn Labs	0.72 g/sq m	0.51 g/sq m

Statistics based on 31 of 34 reporting participants.

Comments on Assigned Data Flags for Test #398

PK786Z (X) - Extreme Data.

UWLN2M (X) - Extreme Data.

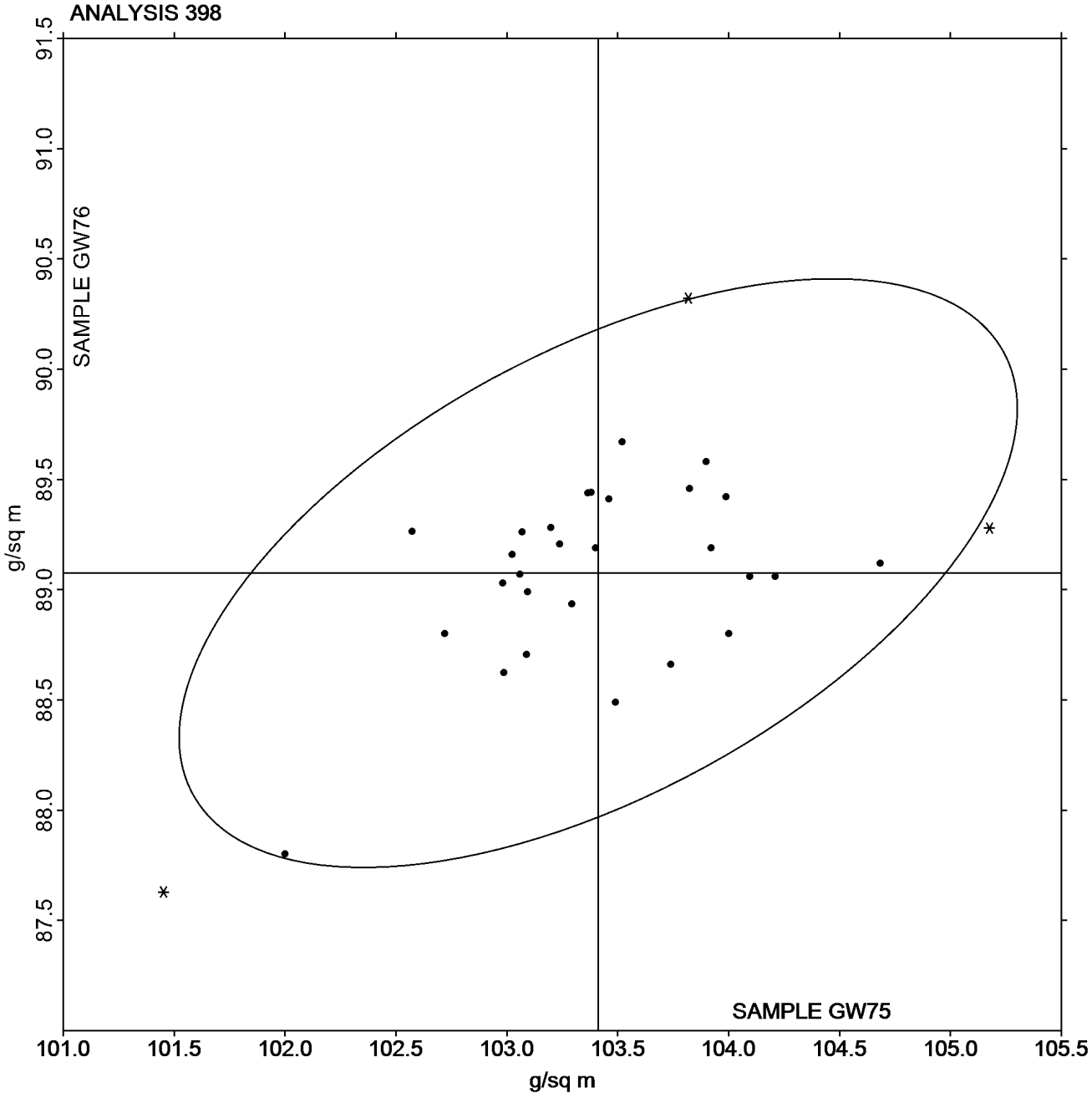
T38GE8 (X) - Extreme Data for Sample GW75.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Grand Mean Sample GW75 = 103.41 g/sq m

Grand Mean Sample GW76 = 89.075 g/sq m



Paper & Paperboard Interlaboratory Testing Program

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

WebCode	Data Flag	Sample GX75 Lab Mean	Sample GX75 Diff from Grand Mean	Sample GX75 CPV	Sample GX76 Lab Mean	Sample GX76 Diff from Grand Mean	Sample GX76 CPV	Instr Code
32NK6L		16.75	2.83	0.87	15.01	2.41	0.64	HE
33ZGAP		19.95	6.03	1.85	20.13	7.53	2.00	HE
3PAMZG		13.48	-0.44	-0.14	8.11	-4.49	-1.20	HE
682D9F		16.51	2.59	0.79	13.53	0.93	0.25	HE
72QLE9		10.25	-3.67	-1.12	10.12	-2.48	-0.66	HE
7AQ24G		16.45	2.53	0.77	16.62	4.02	1.07	XX
ACXQVF		15.52	1.60	0.49	15.33	2.73	0.73	XX
AGRRU9		16.66	2.74	0.84	16.71	4.11	1.09	XX
BUJD3P		9.01	-4.91	-1.50	7.94	-4.66	-1.24	HE
CRLMAF		13.93	0.01	0.00	13.39	0.79	0.21	XX
FTPEQL		11.50	-2.42	-0.74	11.90	-0.70	-0.19	HE
HHGLCB		11.03	-2.89	-0.89	11.34	-1.26	-0.34	HE
HN8VLA		14.78	0.86	0.26	12.80	0.20	0.05	HE
HQCNF9		12.73	-1.19	-0.36	11.51	-1.09	-0.29	HE
HUUL96		9.78	-4.14	-1.27	8.59	-4.01	-1.07	HE
HYMQ29	*	13.31	-0.61	-0.19	6.84	-5.76	-1.53	HE
KX8674		10.57	-3.35	-1.03	6.22	-6.38	-1.70	XX
LLNDUY		12.07	-1.85	-0.57	10.36	-2.24	-0.60	HE
LVB9UF		10.15	-3.77	-1.15	8.49	-4.11	-1.09	HE
N6E7T3		15.68	1.76	0.54	15.15	2.55	0.68	HE
NC9BL4		17.80	3.88	1.19	14.80	2.20	0.58	HE
NTJW6U		12.10	-1.82	-0.56	11.60	-1.00	-0.27	HE
P9T3X6		11.10	-2.82	-0.86	11.97	-0.63	-0.17	HE
PK786Z		21.46	7.54	2.31	20.95	8.35	2.22	HE
QGFKMW		13.61	-0.31	-0.10	13.76	1.16	0.31	HE
TNCZNN		9.99	-3.93	-1.20	10.09	-2.51	-0.67	HE
VA22WT		15.83	1.91	0.58	15.28	2.68	0.71	HE
VEFY2V	X	29.33	15.41	4.72	26.50	13.90	3.70	HE
VXM93R		11.69	-2.23	-0.68	10.09	-2.51	-0.67	HE
Y7REAQ		19.44	5.52	1.69	18.55	5.95	1.58	HE
YYRXYL		14.50	0.58	0.18	10.90	-1.70	-0.45	HE

Summary Statistics	Sample GX75	Sample GX76
Grand Means	13.92 Seconds	12.60 Seconds
Stnd Dev Btwn Labs	3.27 Seconds	3.76 Seconds

Statistics based on 30 of 31 reporting participants.

Comments on Assigned Data Flags for Test #399

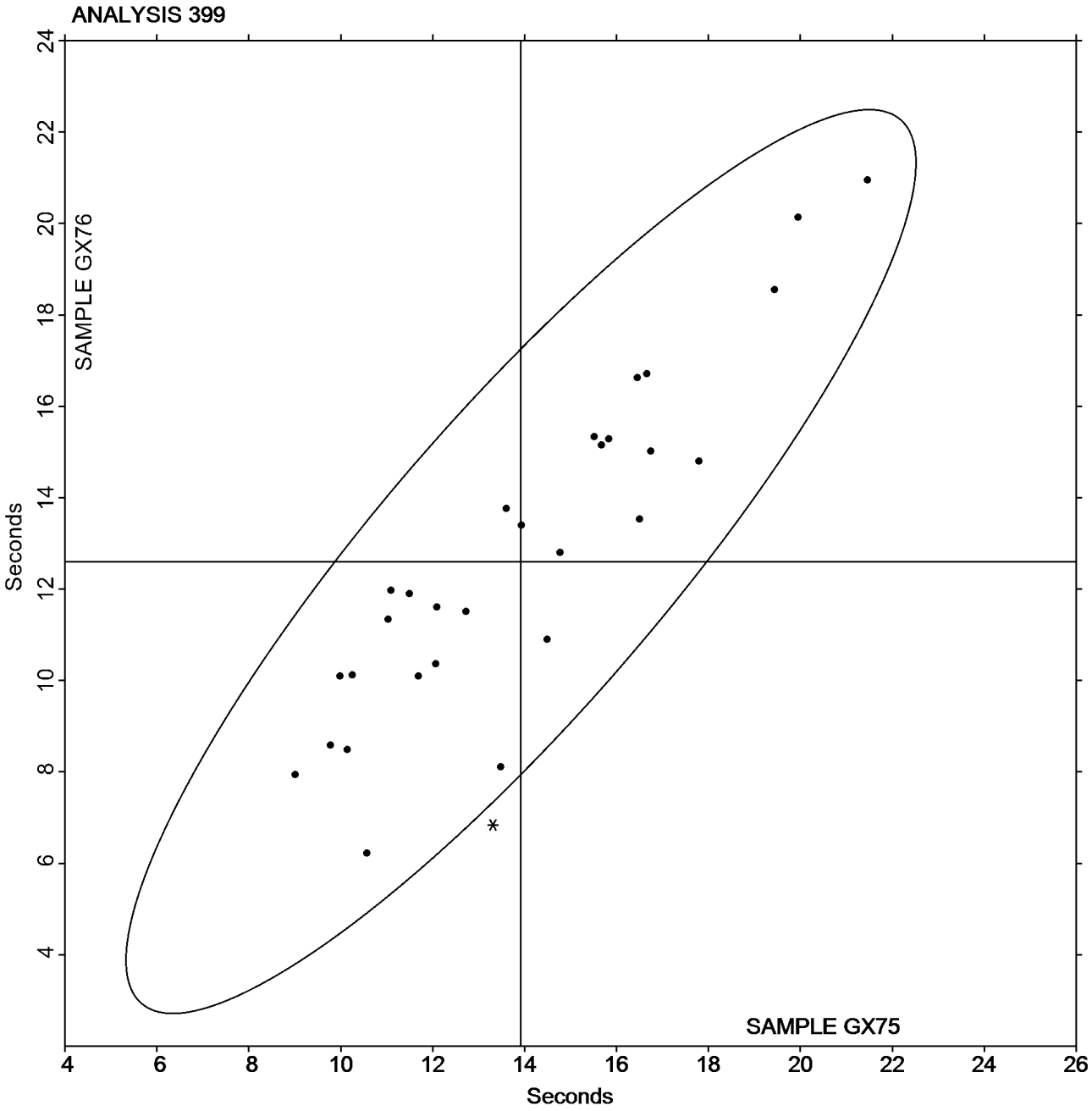
VEFY2V (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.

Key to Instrument Codes Reported by Participants

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

Grand Mean Sample GX75 = 13.921 Seconds

Grand Mean Sample GX76 = 12.603 Seconds



-End of Report-

