

Paper & Paperboard Testing Program

Summary Report #3192 G - August 2022

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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 sectors: including color, rubber, plastics, fasteners and metals, containerboard, paper, agriculture, hemp, 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 100 countries, currently participate in the 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:

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

Graph - For each laboratory, the LAB MEAN for the first sample (x-axis) is plotted against the LAB MEAN for the second sample (y-axis) with each point representing a laboratory. The horizontal and vertical cross-hairs are the GRAND MEANS for each sample. When 20 or more laboratories are in the statistics, an ellipse is also drawn so that 95% of the time a randomly selected laboratory will be included inside the ellipse. Plotted data flags are explained on the previous page.

Common Problems Highlighted in Footnotes

1. **Extreme data** - The laboratory's results for one or both samples are so inconsistent with those of the other participants that the lab mean(s) fall outside the plot. The participant is advised to immediately review his data and/or testing procedure.
2. **Systematic bias** - The laboratory's results are either consistently high or low for both samples when compared to the other participants (the plotted point falls near the top or bottom of the ellipse). This indicates that the participant is performing the test with a constant bias. Causes of systematic errors include improper calibration, the particular make/model of equipment or a modification to the testing procedure.
3. **Inconsistency in testing between samples/sample sets** - The laboratory's results indicate that there are differences in the way the two samples tested (the plotted point falls to the side of the ellipse). This type of error may be attributed to the analyst deviating from the procedure when testing one of the samples or a material interaction occurrence with the instrument or room conditions. The inconsistency is reflected in the CPVs for the two samples, such as a +1.5 CPV for sample A and a -2.2 CPV for sample B. CTS also will specify if the laboratory's data for one sample are high/low compared to the other participants. If this inconsistency is slight, the lab's plotted point will be an * that falls on the edge of the ellipse.
4. **Inconsistency in testing within a sample** - The laboratory's within-lab standard deviation for a specified sample is high when compared to the other participants, often causing the lab's plotted point to fall outside of the ellipse.

Labs flagged with an * are not typically included in the footnotes of a data table. These labs may locate their position in the control ellipse and use the definitions above to help identify the type of testing error. An * should serve as a caution flag, a "yellow light", to a lab. If this error is repeated in future rounds, a lab may need to stop and review its testing procedures. The initial data flag is not cause for alarm. Interlaboratory tests conducted at regular intervals permit a lab to recognize trends in testing.



**Paper & Paperboard Interlaboratory Testing Program
Analysis 350**

**Report #3192 G,
August 2022**

**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			Color Difference Values				Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE	
2JQKGG		GA07	93.71	-0.80	4.53	0.03	0.02	-0.09	0.10	HZ
		GA08	93.73	-0.78	4.44					
2K9CRM		GA07	93.69	-0.98	4.24	0.00	-0.01	0.01	0.01	TC
		GA08	93.69	-0.99	4.25					
38DHVJ		GA07	94.31	-0.64	4.05	0.00	0.00	0.05	0.05	HE
		GA08	94.31	-0.64	4.10					
7A9HEY		GA07	95.05	-0.91	4.23	-0.01	0.00	-0.03	0.03	LS
		GA08	95.03	-0.91	4.20					
AYWJWY		GA07	95.05	-0.83	4.06	-0.02	0.00	0.11	0.11	TC
		GA08	95.03	-0.83	4.17					
DAMAE9		GA07	94.00	-0.77	4.36	0.02	0.01	-0.06	0.06	HE
		GA08	94.02	-0.77	4.30					
FMK6GT		GA07	93.02	-1.07	3.54	0.02	0.01	-0.05	0.05	TC
		GA08	93.04	-1.06	3.49					
JQTKMM		GA07	92.89	-0.24	3.65	0.03	-0.03	0.05	0.06	TS
		GA08	92.92	-0.27	3.69					
L4BYVE		GA07	95.08	-0.66	4.08	-0.01	-0.01	0.05	0.05	LA
		GA08	95.06	-0.67	4.12					
MH63CB		GA07	92.20	-0.38 *	3.40	-0.02	-0.06 X	-0.04	0.07	TS
		GA08	92.18	-0.44	3.36					
P6RLGP		GA07	94.54	-0.95	3.59	-0.01	0.00	0.08	0.08	EH
		GA08	94.53	-0.95	3.67					
PK8FFU		GA07	93.21	-0.20	3.67	0.02	-0.02	0.04	0.05	TS
		GA08	93.22	-0.21	3.71					
PXUP2Z		GA07	94.75	-0.59	4.55	-0.02	0.00	-0.02	0.03	NA
		GA08	94.73	-0.59	4.53					
REBTCK		GA07	93.72	-0.93	4.32	0.03	0.02	-0.04	0.05	TC
		GA08	93.75	-0.91	4.28					
RVDEV7		GA07	94.92	-0.60	3.47	0.06	0.00	0.04	0.07	XS
		GA08	94.98	-0.60	3.51					
WWWUBH		GA07	93.82	-1.02	4.39	-0.05	0.00	0.09	0.10	TC
		GA08	93.77	-1.02	4.48					



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**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			Color Difference Values				Instr Code
			L	a	b	ΔL	Δa	Δb	ΔE	
XZUNRK		GA07	95.08	-0.69	4.16	-0.02	0.01	0.12	0.12	TS
		GA08	95.06	-0.67	4.27					
YRR3UG		GA07	94.93	-0.87	4.19	-0.02	0.01	0.05	0.05	LS
		GA08	94.91	-0.86	4.24					

Grand Means			Summary Statistics						
GA07	94.109	-0.729	4.026	0.001	-0.004	0.019	0.064		
GA08	94.110	-0.732	4.045						
Std Dev Btw'n Labs									
GA07	0.885	0.256	0.375	0.027	0.018	0.062	0.029		
GA08	0.880	0.245	0.370						

Statistics based on 18 of 18 reporting participants

Key to Instrument Codes Reported by Participants

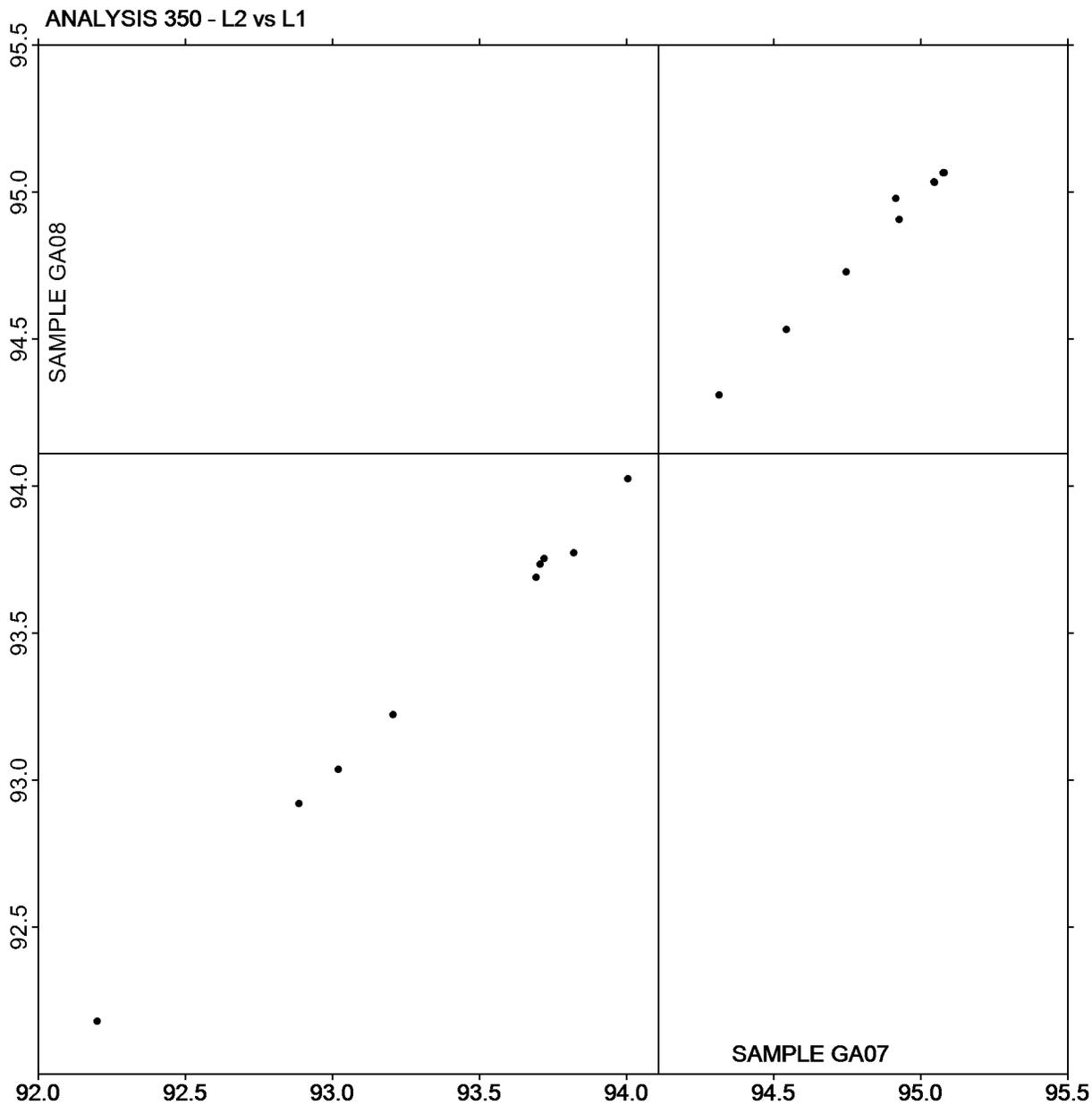
EH	Datacolor Elrepho SF450	HE	Hunter LabScan
HZ	Hunter ColorFlex EZ	LA	L & W Elrepho AL300
LS	L & W Elrepho SE 070	NA	Minolta CM-3700A Spectrophotometer
TC	Technidyne Color Touch Series	TS	Technidyne Brightimeter Micro S-5
XS	X-Rite 938 Spectrodensitometer		



Paper & Paperboard Interlaboratory Testing Program
Analysis 350
Color & Color Difference - Near White Papers - C/2deg obs
Hunter L,a,b - Illuminant C - 2 Degree Observer

Report #3192 G,
August 2022

Plot of L values GA08 vs L values GA07



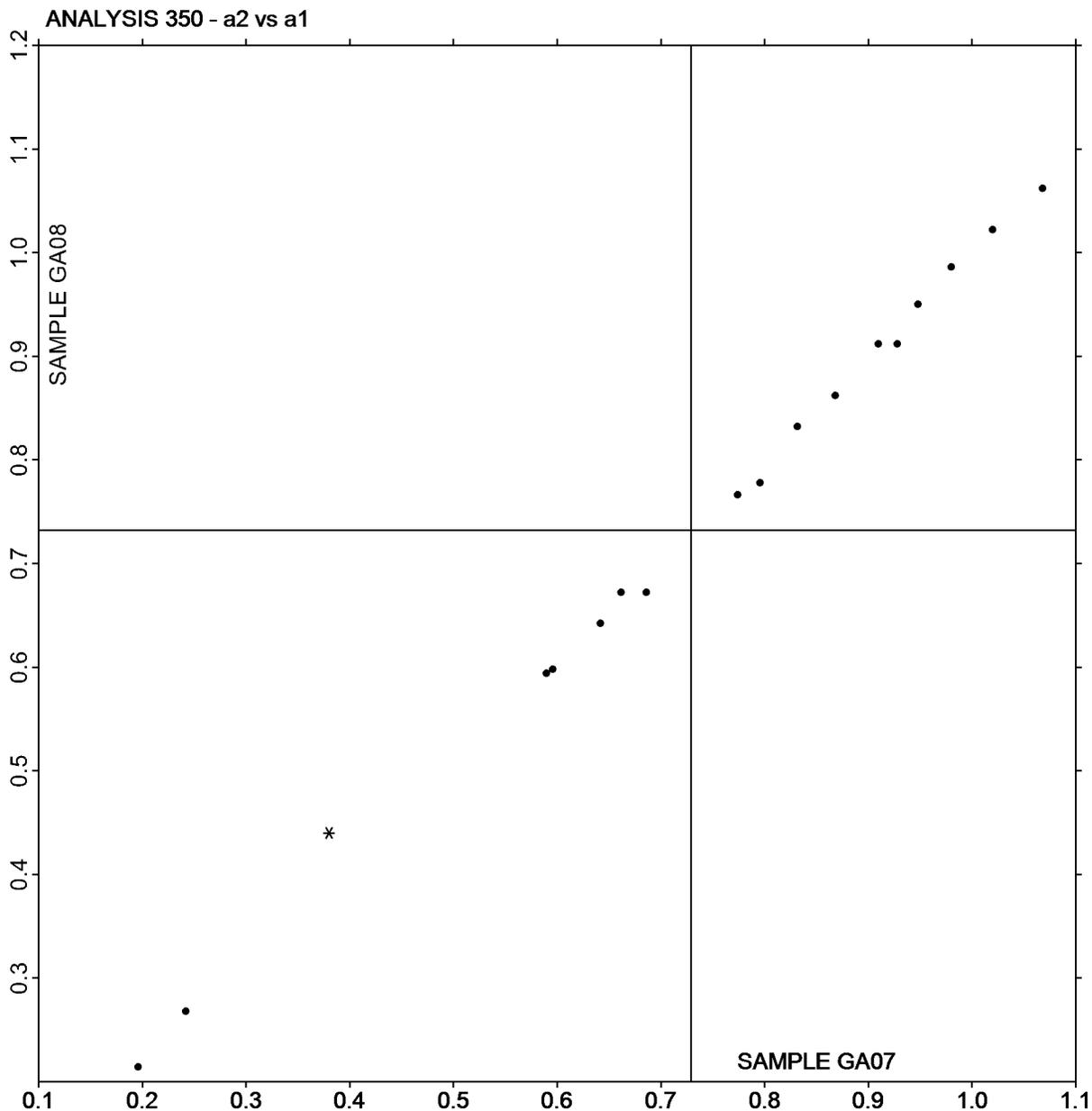
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Paper & Paperboard Interlaboratory Testing Program
Analysis 350
Color & Color Difference - Near White Papers - C/2deg obs
Hunter L,a,b - Illuminant C - 2 Degree Observer

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Plot of a values GA08 vs a values GA07



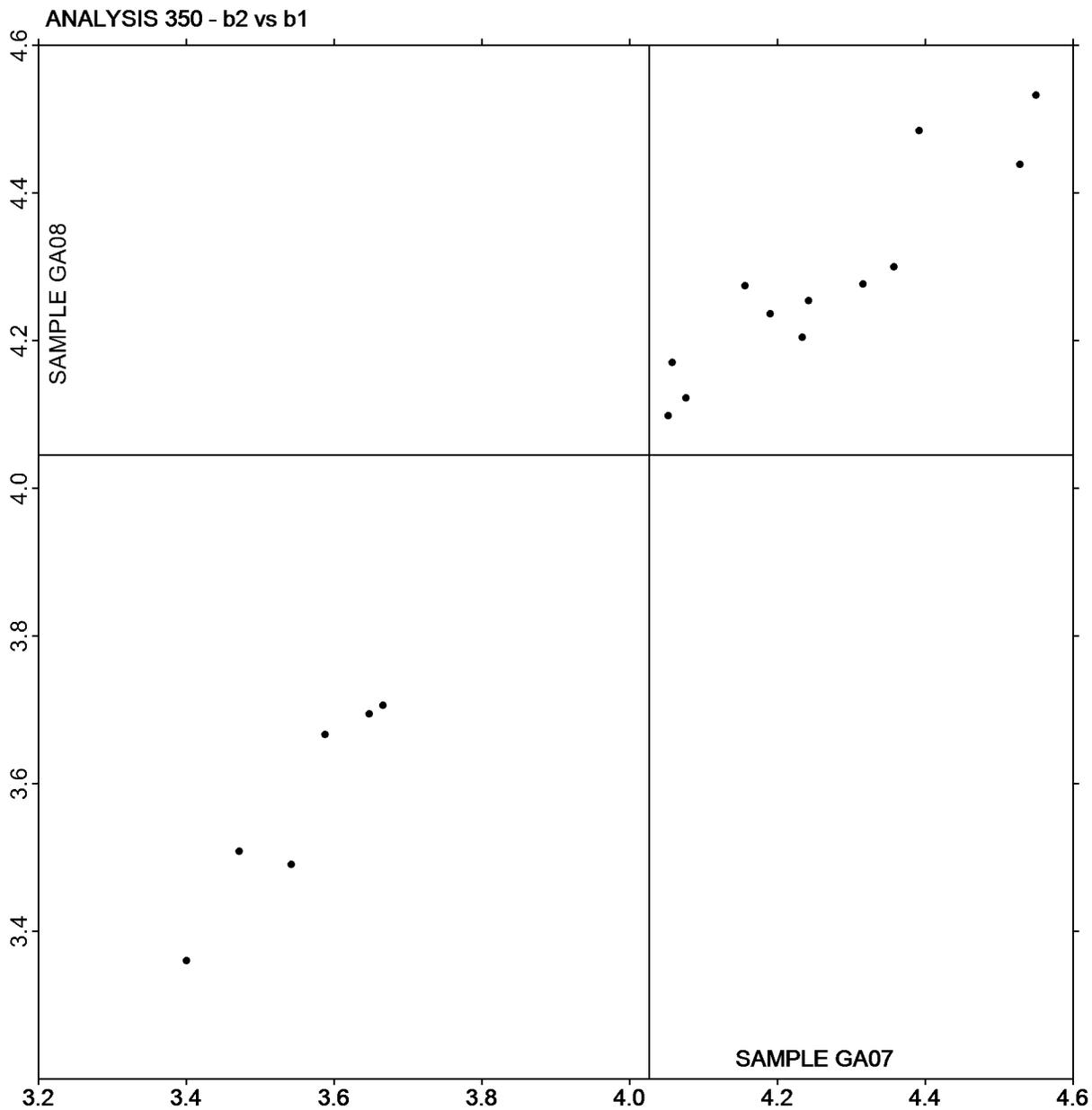
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Paper & Paperboard Interlaboratory Testing Program
Analysis 350
Color & Color Difference - Near White Papers - C/2deg obs
Hunter L,a,b - Illuminant C - 2 Degree Observer

Report #3192 G,
August 2022

Plot of b values GA08 vs b values GA07



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



**Paper & Paperboard Interlaboratory Testing Program
Analysis 351**

**Report #3192 G,
August 2022**

**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			Color Difference Values				InstrCode
			L*	a*	b*	ΔL^*	Δa^*	Δb^*	ΔE^*	
4W9YN9		GA07	94.94	-0.64	4.62	0.02	0.00	-0.03	0.04	NG
		GA08	94.96	-0.64	4.59					
7AA6ZJ		GA07	95.30	-0.57	4.28	-0.01	0.00	-0.10	0.10	NF
		GA08	95.29	-0.57	4.18					
7H3HZH		GA07	95.00	-0.70	4.38	0.01	0.01	-0.03	0.04	EH
		GA08	95.01	-0.70	4.35					
8QVBM3		GA07	93.63	-0.49	3.85	-0.02	0.01	-0.01	0.02	XB
		GA08	93.61	-0.48	3.84					
8WTUVZ		GA07	95.07	-0.65	4.38	0.01	0.00	-0.07	0.07	NH
		GA08	95.08	-0.65	4.31					
DJB9YM		GA07	95.09	-0.65	4.26	-0.03	0.00	0.00	0.03	HT
		GA08	95.06	-0.65	4.26					
DN4ZEW		GA07	94.47	-0.69	4.01	-0.78	0.00	-0.02	0.78	TC
		GA08	93.69	-0.69	3.99					
F6K3VH		GA07	94.93	-0.69	4.19	0.01	0.01	0.01	0.02	TC
		GA08	94.94	-0.68	4.20					
FMK6GT		GA07	94.31	-0.85	4.08	-0.03	-0.01	0.05	0.06	HE
		GA08	94.28	-0.86	4.13					
J4E26T		GA07	95.08	-0.63	4.56	-0.04	0.01	0.00	0.05	NG
		GA08	95.04	-0.62	4.57					
LH8DTM		GA07	95.04	-0.77	4.22	0.03	-0.01	-0.02	0.03	HT
		GA08	95.07	-0.78	4.20					
P6RLGP		GA07	94.52	-0.82	3.72	-0.02	0.00	0.05	0.05	EH
		GA08	94.50	-0.82	3.76					
PK7RRP		GA07	95.48	-0.75	3.93	-0.03	0.01	-0.02	0.04	XP
		GA08	95.45	-0.74	3.90					
QKWB9G		GA07	93.73	-0.50	3.85	0.02	-0.01	0.00	0.02	HE
		GA08	93.75	-0.50	3.85					
RBU73L		GA07	94.70	-0.78	4.09	-0.03	0.01	-0.01	0.03	XC
		GA08	94.67	-0.77	4.08					
UQWM2J		GA07	94.98	-0.73	4.22	0.03	0.01	0.01	0.03	EF
		GA08	95.00	-0.72	4.22					



**Paper & Paperboard Interlaboratory Testing Program
Analysis 351**

**Report #3192 G,
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**Color & Color Difference - Near White Papers - D65/10deg obs
Hunter L,a,b - Illuminant D65 - 10 Degree Observer**

YRR3UG	GA07	94.92	-0.87	4.21	0.00	0.00	0.06	0.06	LS
	GA08	94.92	-0.87	4.27					

<u>Grand Means</u>		Summary Statistics							
GA07	94.796	-0.693	4.167						
GA08	94.790	-0.691	4.158	-0.051	0.003	-0.009	0.086		
<u>Std Dev Btwn Labs</u>									
GA07	0.514	0.111	0.249						
GA08	0.515	0.112	0.237	0.189	0.007	0.040	0.180		

Statistics based on 17 of 17 reporting participants

Key to Instrument Codes Reported by Participants

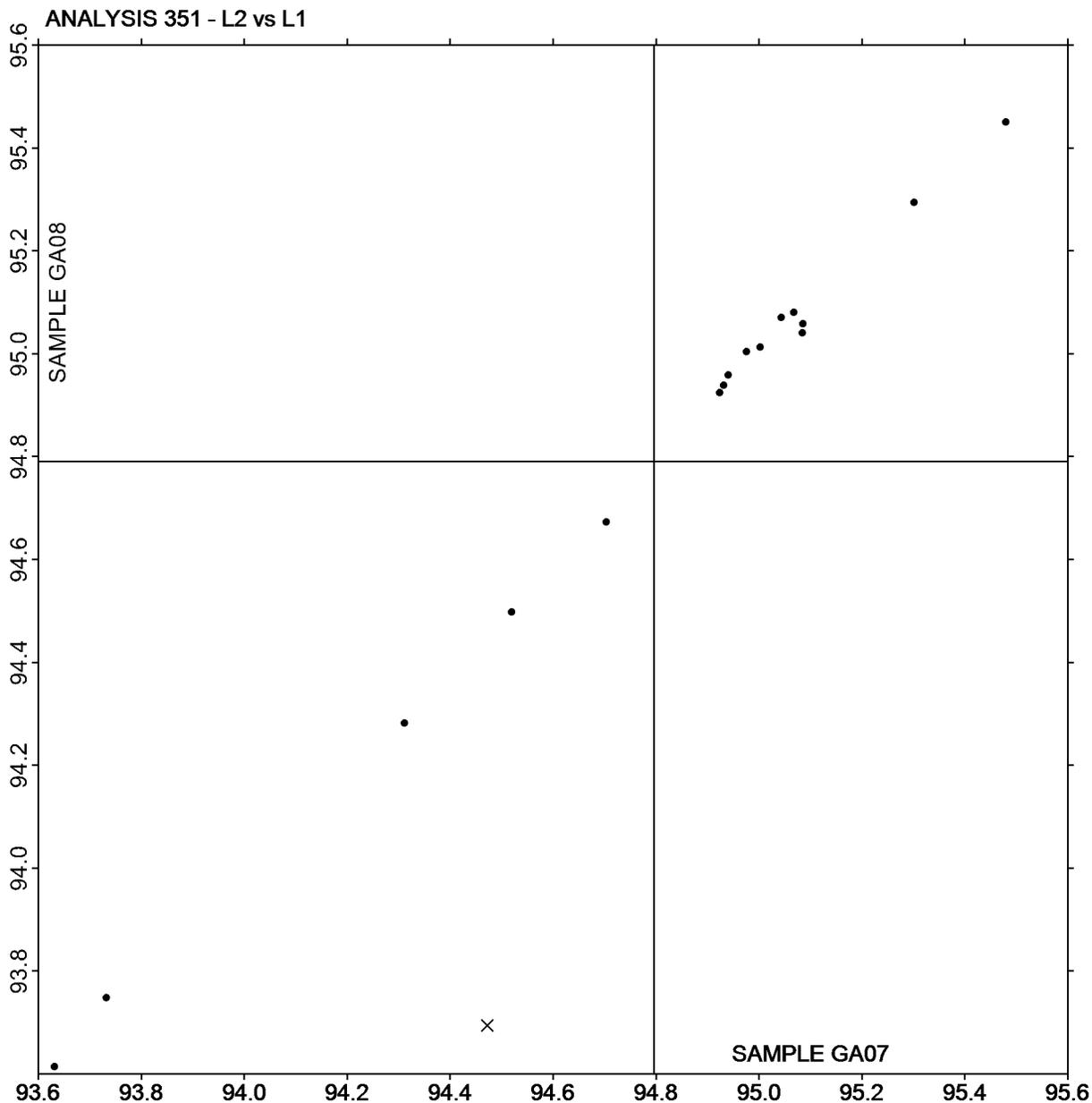
EF Datacolor Elrepho 3000	EH Datacolor Elrepho SF450
HE Hunter LabScan	HT Hunter UltraScan Vis
LS L & W Elrepho SE 070	NF Minolta CM-3600d Spectrophotometer
NG Minolta CM-3700d Spectrophotometer	NH Minolta CM-3700A Spectrophotometer
TC Technidyne Color Touch Series	XB X-Rite Ci7
XC X-Rite eXact Series	XP X-Rite Spectrophotometer DTP



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

Report #3192 G,
August 2022

Plot of L values GA08 vs L values GA07



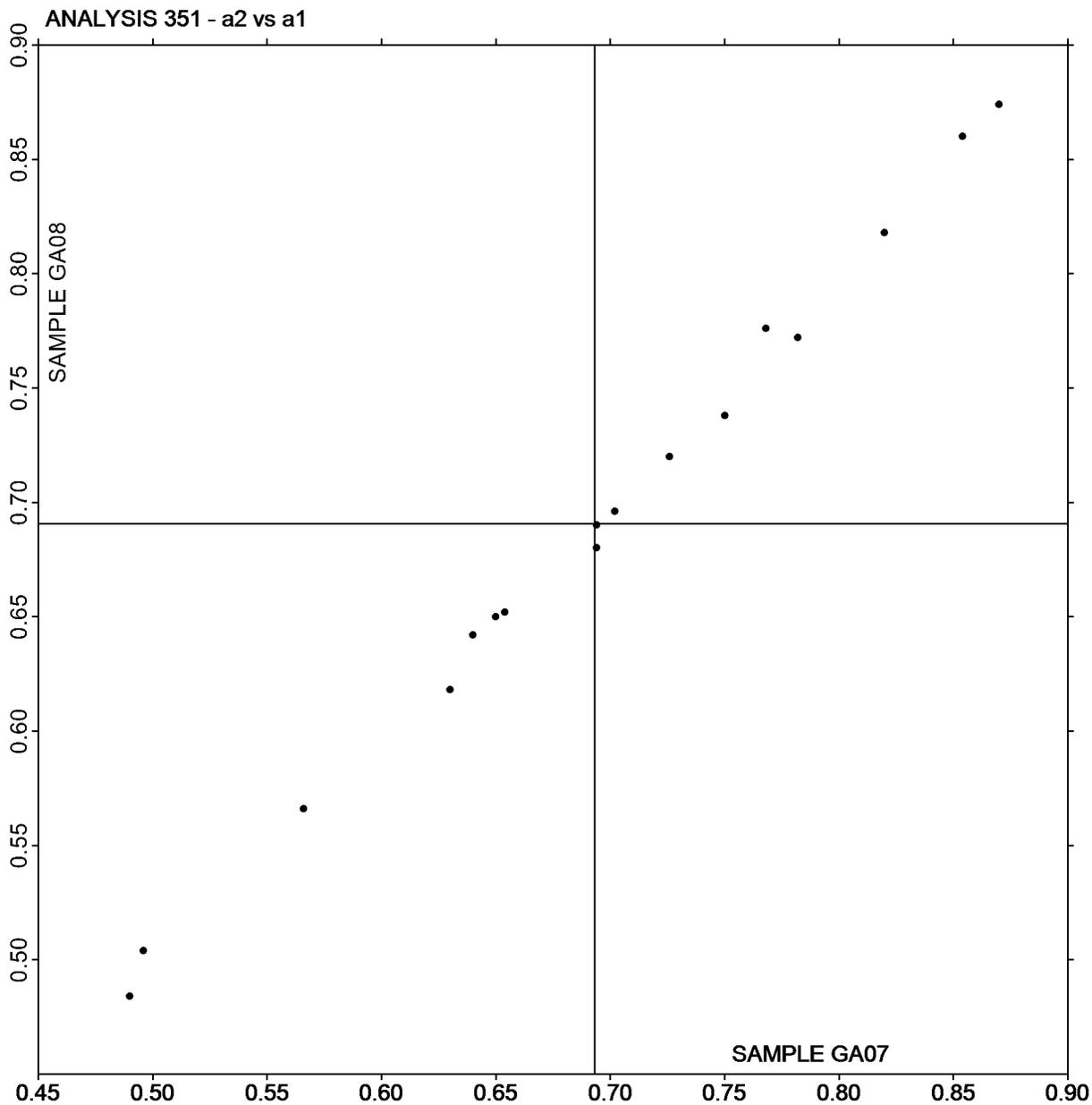
If fewer than 20 laboratories are included in an analysis, a control ellipse will not be drawn on the two-sample plot.



Paper & Paperboard Interlaboratory Testing Program
Analysis 351
Color & Color Difference - Near White Papers - D65/10deg obs
Hunter L,a,b - Illuminant D65 - 10 Degree Observer

Report #3192 G,
August 2022

Plot of a values GA08 vs a values GA07



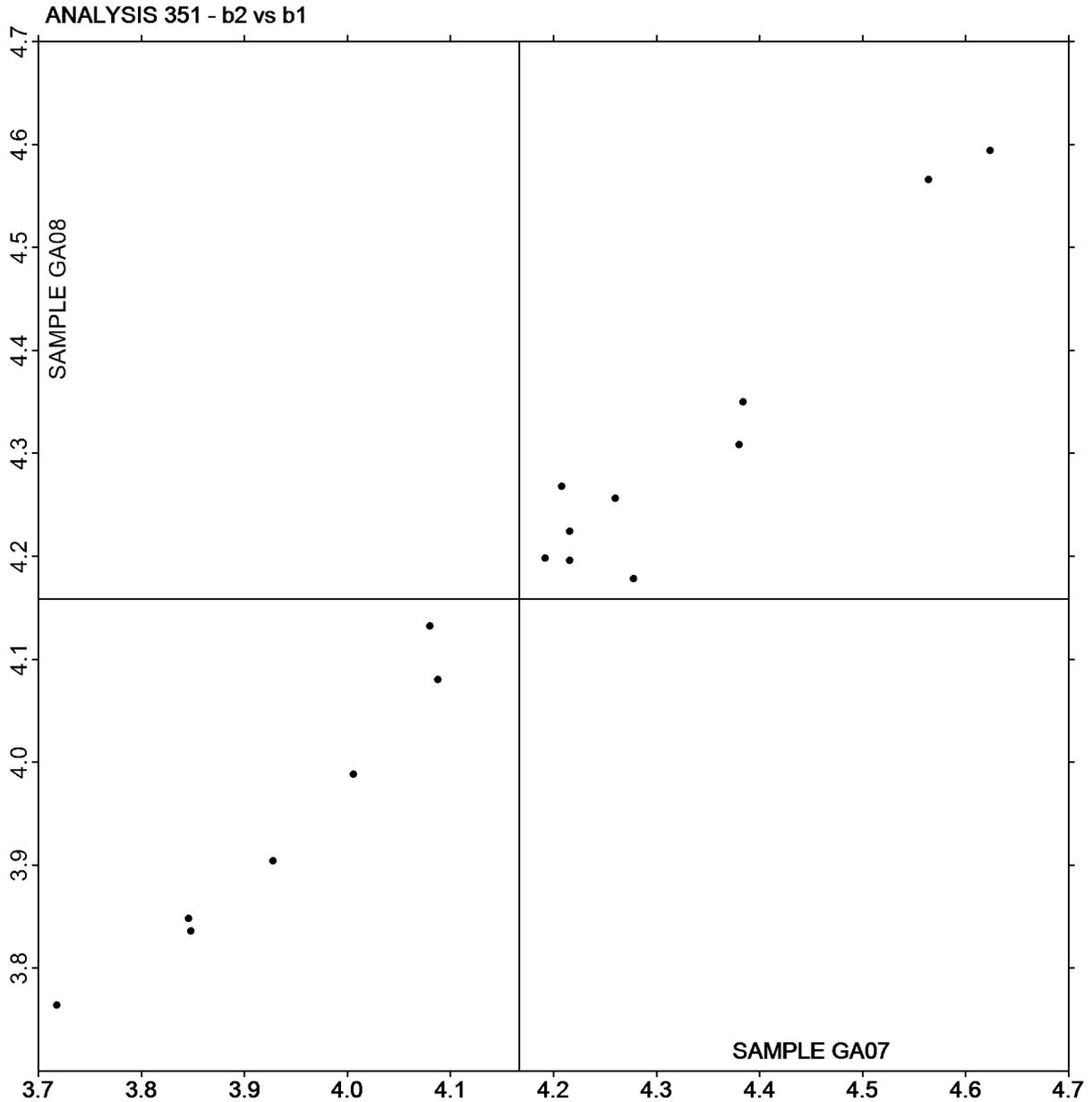
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Paper & Paperboard Interlaboratory Testing Program
Analysis 351
Color & Color Difference - Near White Papers - D65/10deg obs
Hunter L,a,b - Illuminant D65 - 10 Degree Observer

Report #3192 G,
August 2022

Plot of b values GA08 vs b values GA07



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 #3192G,
August 2022

Analysis 360

Thickness (Caliper), Printing papers

TAPPI Official Test Method T411

WebCode	Data Flag	Sample GV07			Sample GV08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BQCH3		4.022	0.116	1.73	4.048	0.153	2.20	PP
3UL642		3.850	-0.056	-0.84	3.843	-0.052	-0.75	EM
48UWXM		3.853	-0.053	-0.79	3.859	-0.036	-0.52	LA
4W9YN9		3.853	-0.053	-0.79	3.846	-0.049	-0.71	EM
63V7NT		3.907	0.001	0.02	3.879	-0.016	-0.23	LW
6PLFZY		3.846	-0.060	-0.89	3.862	-0.033	-0.47	MS
6QDPUZ		3.979	0.073	1.09	3.989	0.094	1.35	OK
7A9HEY		3.989	0.083	1.25	3.949	0.054	0.77	LW
7AA6ZJ	*	4.083	0.177	2.65	4.078	0.183	2.63	TM
7H3HZH		3.934	0.028	0.42	3.928	0.033	0.47	EM
8QVBM3		3.953	0.047	0.70	3.946	0.051	0.73	TM
8TFZ8F		3.950	0.044	0.66	3.880	-0.015	-0.22	PP
8WTUVZ		4.000	0.094	1.40	3.994	0.099	1.43	PP
97Z2Y7		3.908	0.002	0.03	3.905	0.010	0.14	LA
9BRDU3		3.760	-0.146	-2.19	3.760	-0.135	-1.94	LW
AYWJWY		3.894	-0.012	-0.17	3.920	0.025	0.37	LA
BPRPL8		3.914	0.008	0.12	3.922	0.027	0.39	TA
C6VQQT		3.941	0.034	0.52	3.940	0.045	0.65	LW
DJB9YM		3.981	0.075	1.12	3.991	0.096	1.38	EM
DM6BGT		4.010	0.104	1.55	4.018	0.123	1.77	EM
DN4ZEW	*	3.820	-0.086	-1.29	3.740	-0.155	-2.23	PP
DXR723	X	3.651	-0.255	-3.81	3.735	-0.160	-2.30	TA
EPTXXM		3.925	0.019	0.29	3.892	-0.003	-0.04	LW
F6K3VH		3.917	0.011	0.17	3.906	0.011	0.15	PP
FZNDQC		3.862	-0.044	-0.66	3.884	-0.011	-0.15	LW
G8RMBV		4.006	0.100	1.49	3.952	0.057	0.83	LW
H9C27J		3.911	0.005	0.07	3.923	0.028	0.40	TM
HL6FET		3.960	0.054	0.81	3.899	0.004	0.06	TA
J4E26T		3.825	-0.081	-1.21	3.843	-0.052	-0.75	PP
K26BFP	*	3.780	-0.126	-1.88	3.841	-0.054	-0.78	FR
KX7TL4		3.959	0.053	0.79	3.967	0.072	1.04	LB
L4BYVE		3.931	0.025	0.38	3.937	0.042	0.61	EM
LH8DTM		3.915	0.009	0.13	3.917	0.022	0.32	EM
MCY6AX		3.870	-0.036	-0.54	3.839	-0.056	-0.81	PP
P6RLGP		3.889	-0.017	-0.26	3.899	0.004	0.06	EM
P8VH2D		3.950	0.044	0.66	3.926	0.031	0.45	TM
PK7RRP		3.820	-0.086	-1.29	3.800	-0.095	-1.37	TM
PK8FFU		3.913	0.007	0.10	3.883	-0.012	-0.17	EM
PXUP2Z		3.874	-0.032	-0.48	3.857	-0.038	-0.55	LW
QDGRTN		3.978	0.072	1.08	3.938	0.043	0.62	EM
QKWB9G		3.890	-0.016	-0.24	3.852	-0.043	-0.62	PP



Paper & Paperboard Interlaboratory Testing Program
Analysis 360
Thickness (Caliper), Printing papers
TAPPI Official Test Method T411

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GV07</u>			<u>Sample GV08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
QVXR3R		3.832	-0.074	-1.11	3.819	-0.076	-1.09	TA
RBU73L		3.878	-0.028	-0.42	3.886	-0.009	-0.13	LW
RPQK3F		3.885	-0.021	-0.32	3.898	0.003	0.04	EM
RVDEV7		3.790	-0.116	-1.74	3.780	-0.115	-1.66	TM
UQWM2J		3.882	-0.024	-0.36	3.856	-0.039	-0.56	TM
W4YWLB		3.842	-0.064	-0.96	3.796	-0.099	-1.42	PP
XHPGDH		3.871	-0.035	-0.52	3.837	-0.058	-0.84	OK
YPZ4H4		3.907	0.001	0.01	3.878	-0.017	-0.25	TM
ZY9YDW		3.887	-0.019	-0.28	3.853	-0.042	-0.60	LW

Summary Statistics	<u>Sample GV07</u>	<u>Sample GV08</u>
Grand Means	3.91 mils	3.90 mils
Std Dev Btwn Labs	0.07 mils	0.07 mils
Statistics based on 49 of 50 reporting participants.		

Comments on Assigned Data Flags for Test #360

DXR723 (X) - Data for sample GV07 are low. Inconsistent within the determinations of sample GV07.

Key to Instrument Codes Reported by Participants

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



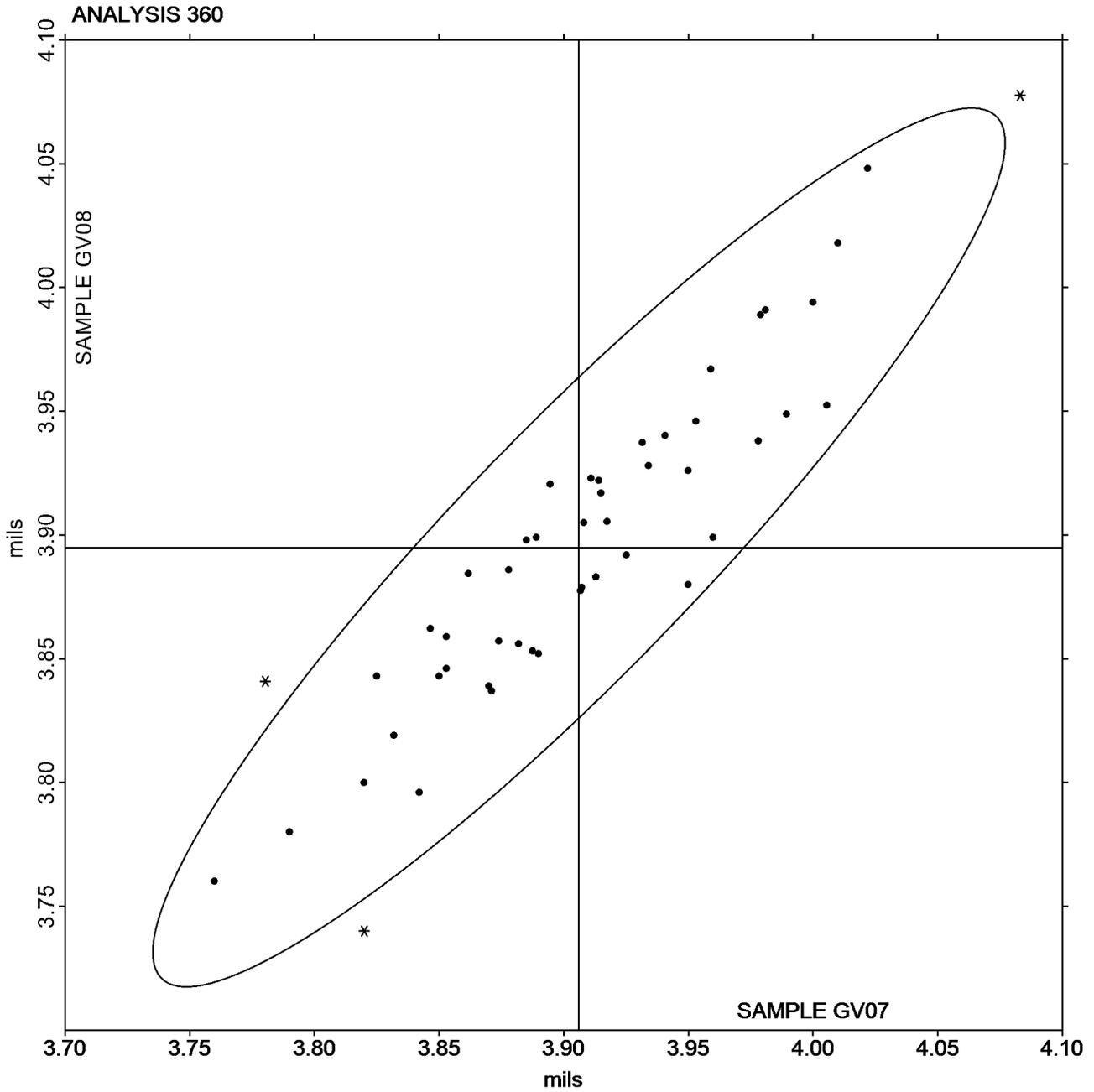
Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

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

Grand Mean Sample GV07 = 3.9061
mils

Grand Mean Sample GV08 = 3.8950
mils





Paper & Paperboard Interlaboratory Testing Program
Analysis 361
Thickness (Caliper), Packaging papers
TAPPI Official Test Method T411

Report #3192G,
August 2022

WebCode	Data Flag	Sample GY07			Sample GY08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24V9ZZ	X	6.978	-0.521	-4.75	7.100	-0.401	-3.12	TM
2JQKGG		7.382	-0.117	-1.07	7.434	-0.067	-0.52	VP
2K7P73		7.531	0.032	0.29	7.520	0.019	0.15	TM
2K9CRM		7.635	0.136	1.24	7.572	0.071	0.55	EM
38DHVJ		7.553	0.054	0.50	7.481	-0.020	-0.16	EM
3KFAE3		7.436	-0.063	-0.57	7.434	-0.067	-0.52	EM
3RJZ2E		7.275	-0.223	-2.04	7.268	-0.234	-1.82	LA
448LHU		7.459	-0.040	-0.36	7.505	0.004	0.03	TM
4DCPPC		7.543	0.045	0.41	7.565	0.063	0.49	LW
4NFLQU		7.426	-0.073	-0.66	7.408	-0.093	-0.73	LW
63V7NT		7.535	0.036	0.33	7.557	0.056	0.44	LW
7H3HZH		7.536	0.037	0.34	7.570	0.069	0.53	EM
8WTUVZ		7.658	0.159	1.45	7.784	0.283	2.20	PP
BPRPL8		7.521	0.022	0.20	7.517	0.016	0.12	TA
CFCG7P		7.408	-0.091	-0.83	7.488	-0.013	-0.10	LA
DAMAE9		7.566	0.067	0.61	7.576	0.075	0.58	EM
DXR723		7.418	-0.081	-0.74	7.391	-0.110	-0.86	TA
EKY29W		7.540	0.041	0.38	7.495	-0.006	-0.05	LW
FMK6GT		7.517	0.018	0.17	7.447	-0.054	-0.42	OK
JNLAKR		7.534	0.035	0.32	7.525	0.024	0.18	LA
KU4YJR		7.605	0.107	0.97	7.637	0.136	1.06	LW
KX7TL4		7.613	0.114	1.04	7.639	0.138	1.07	LB
L4BYVE	*	7.591	0.092	0.84	7.417	-0.084	-0.65	MS
MGT7AR		7.508	0.009	0.08	7.498	-0.003	-0.03	LW
MH63CB		7.254	-0.245	-2.23	7.262	-0.239	-1.86	OK
NXDCXW		7.635	0.136	1.24	7.609	0.107	0.84	LW
QK4BDQ		7.548	0.049	0.45	7.589	0.087	0.68	LW
QTNV4G		7.573	0.074	0.68	7.516	0.015	0.11	PP
W4YWLB		7.508	0.009	0.08	7.528	0.026	0.20	LW
WC8QDH		7.449	-0.050	-0.45	7.362	-0.139	-1.08	LA
WDJ78J		7.284	-0.215	-1.96	7.234	-0.268	-2.08	LA
WPCUV7		7.300	-0.199	-1.81	7.400	-0.101	-0.79	TA
XBMCE8	*	7.618	0.119	1.09	7.815	0.314	2.44	LW
XJJWX3	X	3.543	-3.955	-36.11	3.547	-3.954	-30.74	LW
YRR3UG	X	0.008	-7.491	-68.39	0.008	-7.494	-58.26	TM

Summary Statistics	Sample GY07	Sample GY08
Grand Means	7.50 mils	7.50 mils
Std Dev Btwn Labs	0.11 mils	0.13 mils
Statistics based on 32 of 35 reporting participants.		



Paper & Paperboard Interlaboratory Testing Program
Analysis 361
Thickness (Caliper), Packaging papers
TAPPI Official Test Method T411

Report #3192G,
August 2022

Comments on Assigned Data Flags for Test #361

24V9ZZ (X) - Data for both samples are low.

YRR3UG (X) - Extreme Data.

XJJWX3 (X) - Extreme Data.

Analysis Notes:

MH63CB - Data appear to be off by a factor of 100. Data converted by CTS (/100). CTS will not correct going forward.

Key to Instrument Codes Reported by Participants

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

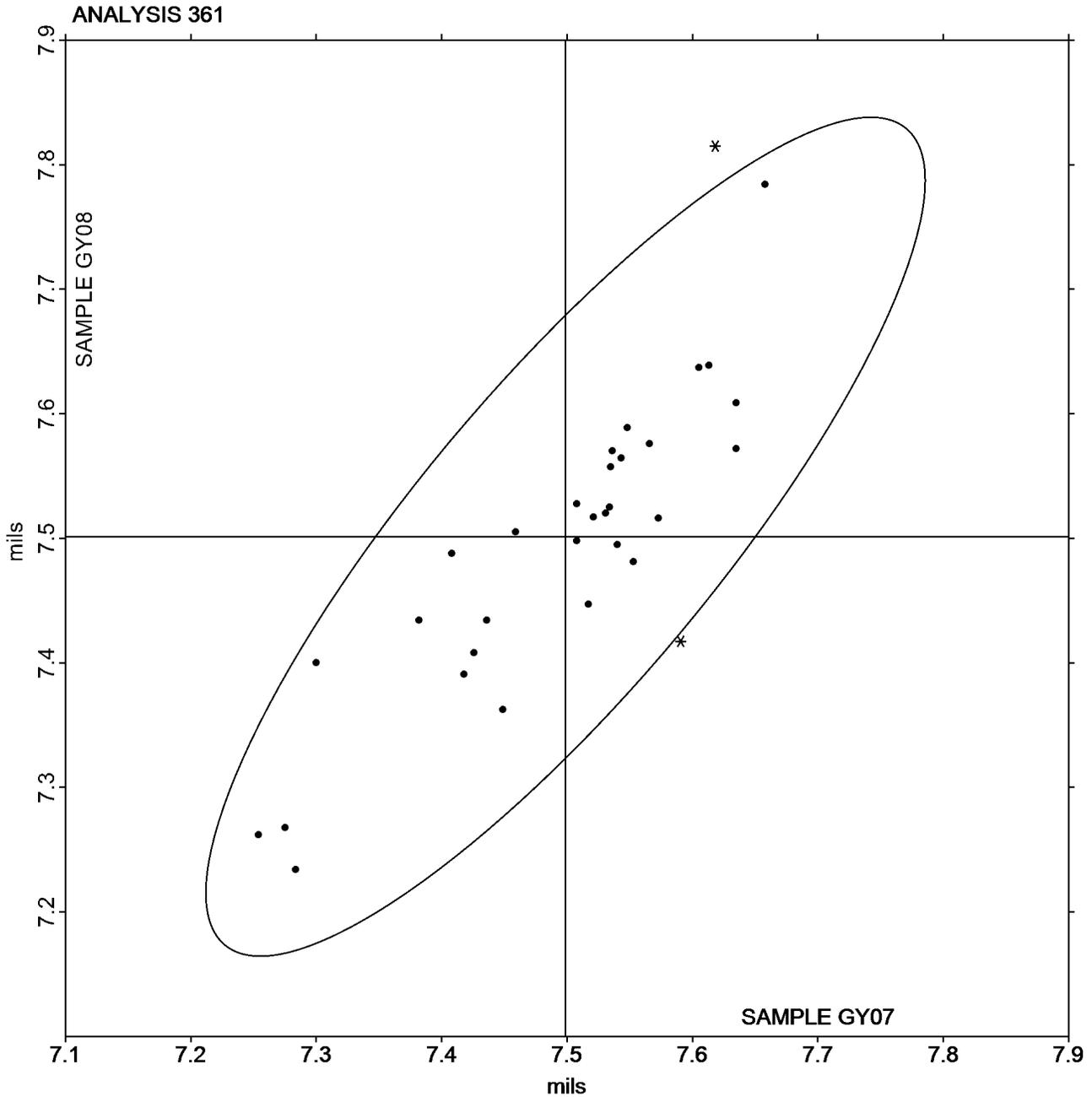


Paper & Paperboard Interlaboratory Testing Program
Analysis 361
Thickness (Caliper), Packaging papers
TAPPI Official Test Method T411

Report #3192G,
August 2022

Grand Mean Sample GY07 = 7.4987
mils

Grand Mean Sample GY08 = 7.5013
mils



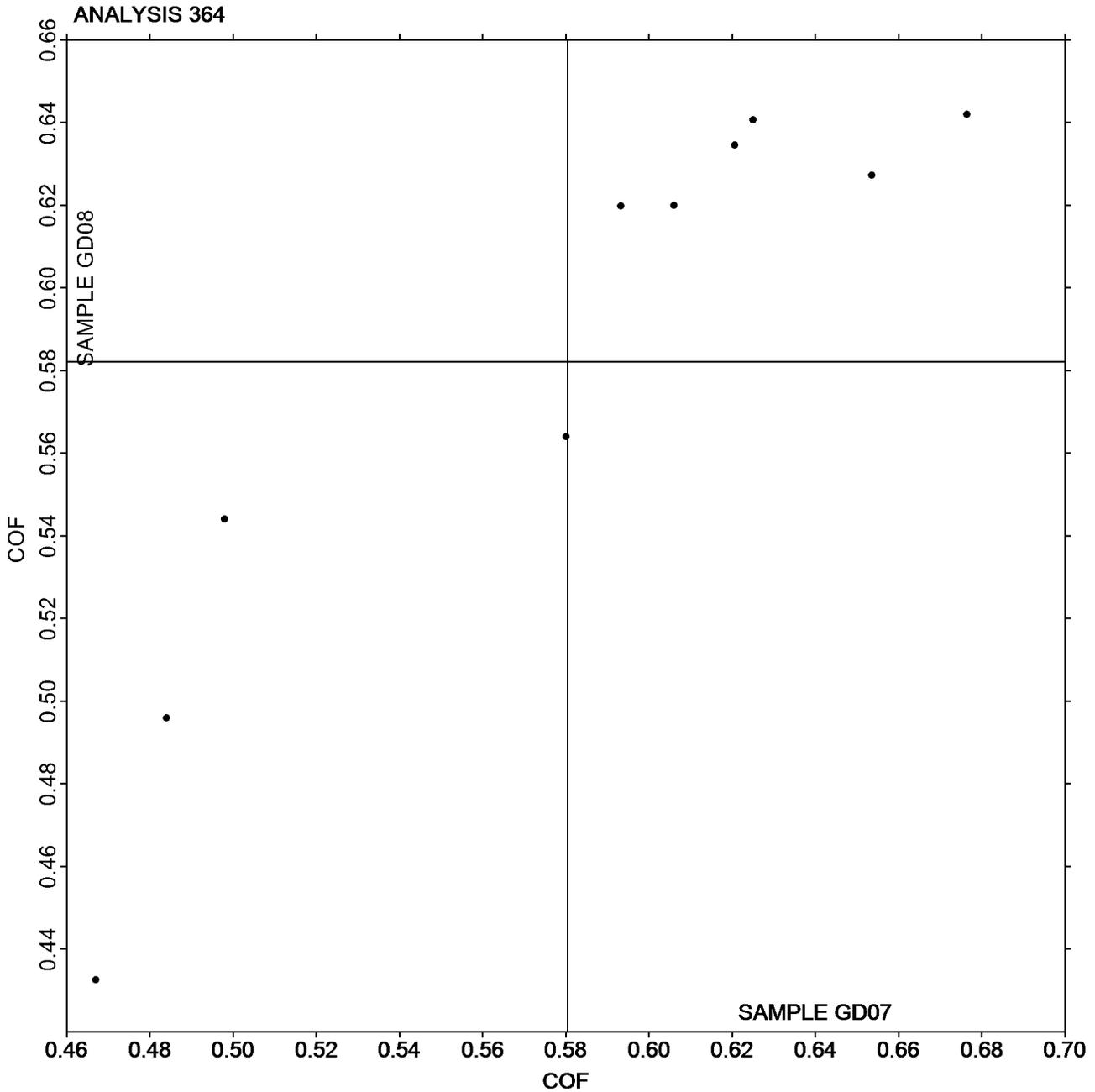


Paper & Paperboard Interlaboratory Testing Program
Analysis 364
Coefficient of Static Friction - Horizontal Plane Method - Printing Papers
TAPPI Official Test Method T549

Report #3192G,
August 2022

Grand Mean Sample GD07 = 0.58038
COF

Grand Mean Sample GD08 =
0.58208 COF



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



Paper & Paperboard Interlaboratory Testing Program
Analysis 365
Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers
TAPPI Official Test Method T549

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GD07</u>			<u>Sample GD08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BQCH3		0.4520	-0.0592	-0.75	0.4700	-0.0488	-0.67	TA
3RJZ2E		0.4982	-0.0130	-0.16	0.5396	0.0208	0.28	TA
ADCKTP		0.5424	0.0312	0.39	0.5126	-0.0062	-0.09	TA
JQTKMM		0.5580	0.0468	0.59	0.5796	0.0608	0.83	TA
NXDCXW		0.5788	0.0676	0.86	0.5768	0.0580	0.79	TN
PK8FFU		0.5664	0.0552	0.70	0.5612	0.0424	0.58	TA
PXUP2Z		0.5804	0.0692	0.88	0.5820	0.0632	0.86	TM
QKWB9G		0.3200	-0.1912	-2.42	0.3400	-0.1788	-2.45	TA
RPQK3F		0.5200	0.0088	0.11	0.5260	0.0072	0.10	XX
RVDEV7		0.4960	-0.0152	-0.19	0.5004	-0.0184	-0.25	XX

Summary Statistics	<u>Sample GD07</u>	<u>Sample GD08</u>
Grand Means	0.51 COF	0.52 COF
Std Dev Btwn Labs	0.08 COF	0.07 COF
Statistics based on 10 of 10 reporting participants.		

Key to Instrument Codes Reported by Participants

TA	Thwing-Albert Friction Tester	TM	TMI 32-06 Monitor/Slip and Friction
TN	TMI 32-07 Monitor/Slip and Friction	XX	Instrument make/model not specified by lab

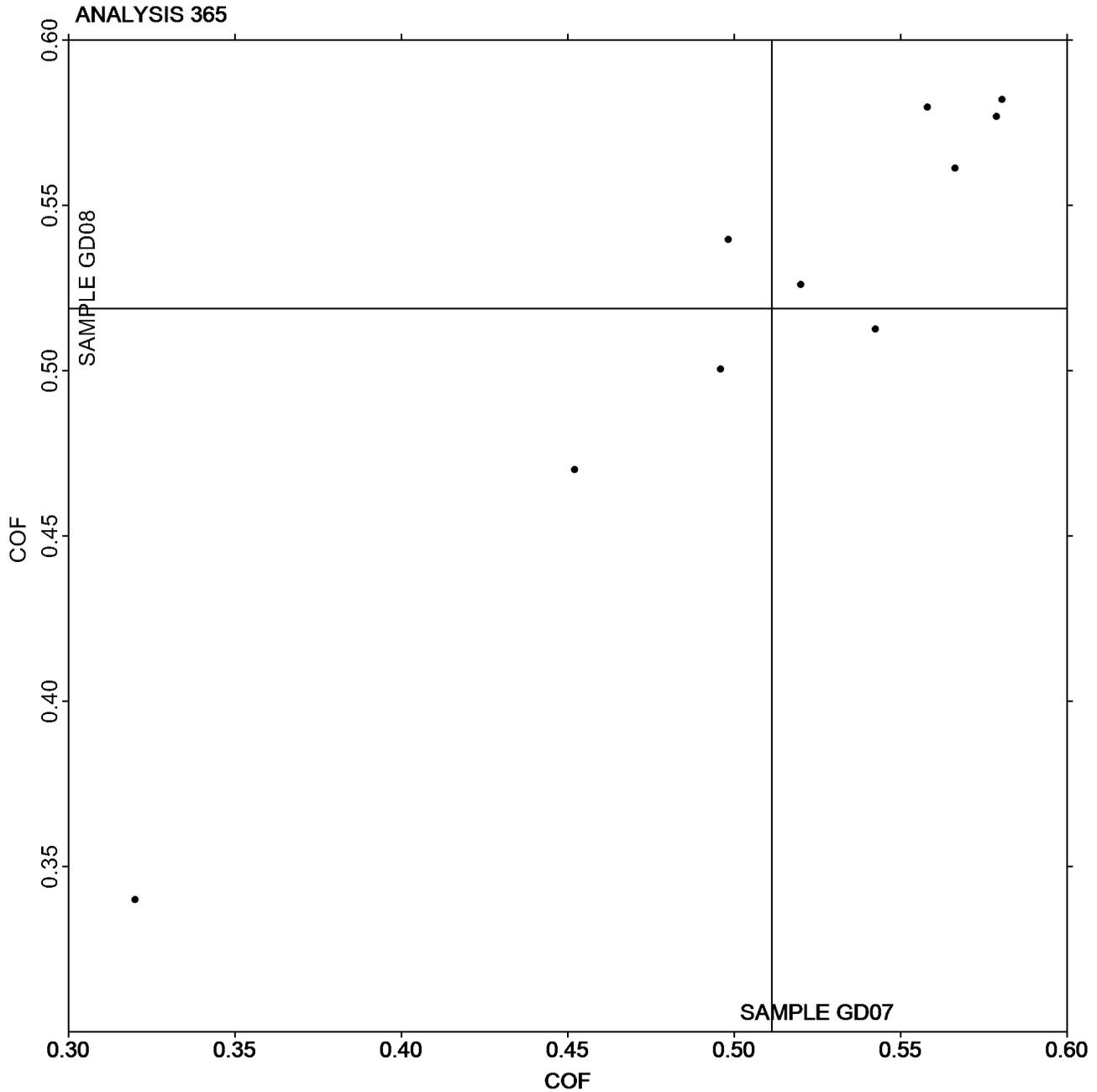


Paper & Paperboard Interlaboratory Testing Program
Analysis 365
Coefficient of Kinetic Friction - Horizontal Plane Method - Printing Papers
TAPPI Official Test Method T549

Report #3192G,
August 2022

Grand Mean Sample GD07 = 0.51122
COF

Grand Mean Sample GD08 =
0.51882 COF



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



Paper & Paperboard Interlaboratory Testing Program

**Report #3192G,
August 2022**

Analysis 370

Air Resistance - Gurley Oil Type

TAPPI Official Test Method T460

WebCode	Data Flag	Sample GE07			Sample GE08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2JQKGG		6.640	-0.413	-0.97	6.730	-0.416	-0.91	VM
3BQCH3		6.648	-0.405	-0.95	6.519	-0.627	-1.37	VM
3KFAE3		7.083	0.030	0.07	7.323	0.177	0.39	LP
3RJZ2E		6.790	-0.263	-0.62	6.770	-0.376	-0.82	LA
3UL642		6.860	-0.193	-0.45	7.200	0.054	0.12	TL
48UWXM	X	12.535	5.482	12.90	11.868	4.722	10.33	LA
6QDPUZ		6.976	-0.077	-0.18	7.285	0.139	0.30	PP
7A9HEY		7.200	0.147	0.35	7.220	0.074	0.16	LP
7AA6ZJ		6.437	-0.616	-1.45	6.593	-0.553	-1.21	LP
8QVBM3		7.068	0.015	0.04	6.985	-0.161	-0.35	PP
8WTUVZ		6.729	-0.324	-0.76	6.797	-0.349	-0.76	PP
9X7W66		6.904	-0.149	-0.35	7.234	0.088	0.19	PP
ADCKTP		7.070	0.017	0.04	7.190	0.044	0.10	WG
BPRPL8		7.596	0.543	1.28	7.489	0.343	0.75	PP
C6VQQT		7.480	0.427	1.00	7.430	0.284	0.62	LP
CFCG7P		7.290	0.237	0.56	7.280	0.134	0.29	LA
D2RATP		6.750	-0.303	-0.71	6.710	-0.436	-0.95	XX
DJB9YM		7.088	0.035	0.08	6.925	-0.221	-0.48	PP
DN4ZEW		6.773	-0.280	-0.66	6.887	-0.259	-0.57	PP
F6K3VH		7.900	0.847	1.99	7.938	0.792	1.73	PP
FMK6GT		7.205	0.152	0.36	7.146	0.000	0.00	PP
KU4YJR		7.052	-0.001	0.00	7.109	-0.037	-0.08	LP
LH8DTM		7.117	0.064	0.15	7.358	0.212	0.46	HG
MCY6AX		7.807	0.754	1.77	7.938	0.792	1.73	PP
MGT7AR		6.932	-0.121	-0.28	7.112	-0.034	-0.07	LP
P2R4PP	*	5.950	-1.103	-2.60	6.050	-1.096	-2.40	GA
P6RLGP		6.922	-0.131	-0.31	7.004	-0.142	-0.31	PP
P8VH2D		6.744	-0.309	-0.73	7.158	0.012	0.03	HG
PBVGKJ		6.720	-0.333	-0.78	7.090	-0.056	-0.12	GL
QCL6EY		6.825	-0.228	-0.54	6.751	-0.395	-0.86	LP
QDGRTN		7.125	0.072	0.17	7.123	-0.023	-0.05	PP
QK4BDQ		6.712	-0.341	-0.80	6.749	-0.397	-0.87	LA
QKWB9G		7.744	0.691	1.63	7.843	0.697	1.52	PP
QPDQME		7.210	0.157	0.37	7.190	0.044	0.10	LP
QVXR3R		6.960	-0.093	-0.22	7.030	-0.116	-0.25	GA
RBU73L	*	8.400	1.347	3.17	8.600	1.454	3.18	LW
RPQK3F	*	7.028	-0.025	-0.06	7.690	0.544	1.19	PP
RVDEV7		7.300	0.247	0.58	7.300	0.154	0.34	GS
UQWM2J		7.401	0.348	0.82	7.652	0.506	1.11	LP
W4YWLB		6.860	-0.193	-0.45	6.550	-0.596	-1.30	PP
WC8QDH		7.060	0.007	0.02	7.330	0.184	0.40	LA



Paper & Paperboard Interlaboratory Testing Program
Analysis 370
Air Resistance - Gurley Oil Type
TAPPI Official Test Method T460

Report #3192G,
August 2022

WebCode	Data Flag	Sample GE07			Sample GE08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
XJJWX3		6.820	-0.233	-0.55	6.710	-0.436	-0.95	LP

Summary Statistics	Sample GE07	Sample GE08
Grand Means	7.05 sec/100 cc	7.15 sec/100 cc
Std Dev Btwn Labs	0.42 sec/100 cc	0.46 sec/100 cc
Statistics based on 41 of 42 reporting participants.		

Comments on Assigned Data Flags for Test #370

48UWXM (X) - Extreme Data.

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
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



Paper & Paperboard Interlaboratory Testing Program
Analysis 372
Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice
TAPPI Official Test Method T547

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GE07</u>			<u>Sample GE08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2JQKGG		219.8	-55.0	-0.69	217.7	-64.9	-0.78	PP
BPRPL8		235.0	-39.8	-0.50	232.9	-49.7	-0.60	PP
DN4ZEW		142.1	-132.7	-1.66	145.8	-136.8	-1.65	PP
HL6FET		355.9	81.1	1.01	344.1	61.5	0.74	HM
PK7RRP		330.0	55.2	0.69	333.8	51.2	0.62	TT
RVDEV7		284.6	9.8	0.12	349.8	67.2	0.81	SH
XHPGDH		356.2	81.4	1.02	354.1	71.5	0.86	LA

Summary Statistics	<u>Sample GE07</u>	<u>Sample GE08</u>
Grand Means	274.80 Sheffield Units	282.60 Sheffield Units
Std Dev Btwn Labs	80.17 Sheffield Units	83.09 Sheffield Units
Statistics based on 7 of 7 reporting participants.		

Key to Instrument Codes Reported by Participants

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



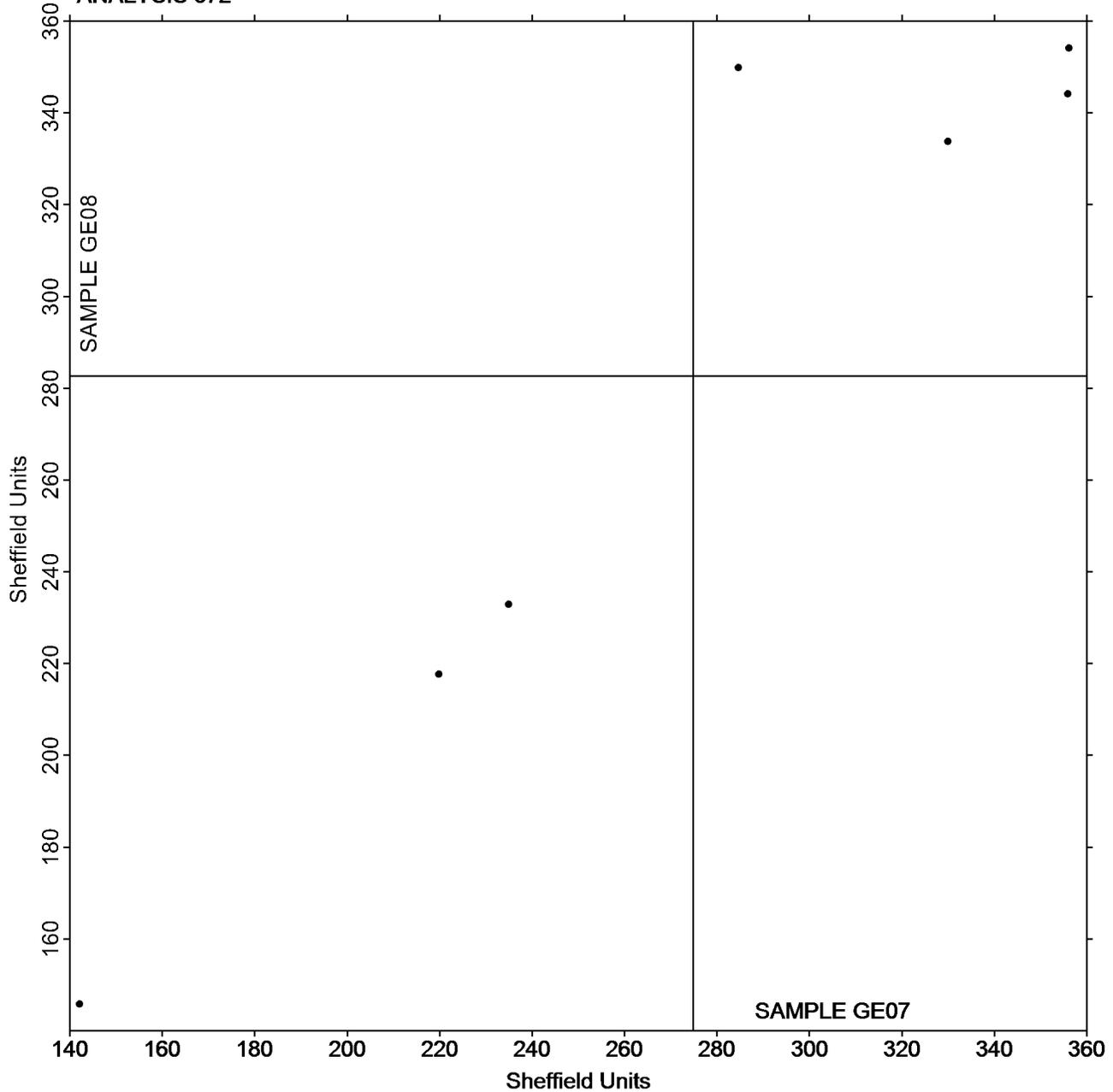
Paper & Paperboard Interlaboratory Testing Program
Analysis 372
Porosity - Sheffield Type - Sheffield Units for 3/4 inch Diameter Orifice
TAPPI Official Test Method T547

Report #3192G,
August 2022

Grand Mean Sample GE07 = 274.80
Sheffield Units

Grand Mean Sample GE08 = 282.60
Sheffield Units

ANALYSIS 372



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 #3192G,
August 2022**

Analysis 376

Roughness - Print Surf Method - 0.5 to 4.0 Microns

TAPPI Official Test Method T555

WebCode	Data Flag	<u>Sample GJ07</u>			<u>Sample GJ08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2JQKGG		1.773	-0.302	-0.99	1.605	-0.665	-1.70	ZZ
2K9CRM		2.557	0.482	1.58	2.135	-0.135	-0.35	ZZ
38DHVJ		2.629	0.554	1.82	2.741	0.471	1.20	ZZ
63V7NT		2.115	0.040	0.13	2.008	-0.262	-0.67	ZZ
7H3HZH		1.929	-0.146	-0.48	1.844	-0.426	-1.09	ZZ
8TFZ8F		2.180	0.105	0.35	2.107	-0.163	-0.42	ZZ
97Z2Y7		1.875	-0.200	-0.66	2.445	0.175	0.45	ZZ
9X7W66		2.751	0.676	2.22	2.704	0.434	1.11	ZZ
ADCKTP		1.805	-0.270	-0.89	2.526	0.256	0.65	ZZ
AYWJWY		2.063	-0.012	-0.04	2.777	0.507	1.30	ZZ
DAMAE9		2.630	0.555	1.82	2.770	0.500	1.28	ZZ
EKY29W		1.976	-0.099	-0.33	2.026	-0.244	-0.62	ZZ
FMK6GT		2.637	0.562	1.85	2.911	0.641	1.64	ZZ
G8RMBV		1.957	-0.118	-0.39	2.719	0.449	1.15	ZZ
JNLAKR		1.785	-0.290	-0.95	2.332	0.062	0.16	ZZ
JQTKMM		2.002	-0.073	-0.24	2.338	0.068	0.17	ZZ
KX7TL4		2.005	-0.070	-0.23	2.017	-0.253	-0.65	ZZ
MH63CB		1.992	-0.083	-0.27	2.836	0.566	1.45	ZZ
NUARJB		1.607	-0.468	-1.54	1.937	-0.333	-0.85	ZZ
P6RLGP		1.848	-0.227	-0.75	1.873	-0.397	-1.01	ZZ
QDGRTN		2.113	0.038	0.13	2.178	-0.092	-0.24	ZZ
QKWB9G		2.045	-0.030	-0.10	2.049	-0.221	-0.56	ZZ
QKZVZQ		2.154	0.079	0.26	2.063	-0.207	-0.53	ZZ
REBTCK		2.055	-0.020	-0.07	2.054	-0.216	-0.55	ZZ
T6HL9K		2.074	-0.001	0.00	2.206	-0.064	-0.16	ZZ
W24HJK		1.626	-0.449	-1.48	1.618	-0.652	-1.67	ZZ
YRR3UG		1.904	-0.171	-0.56	1.895	-0.375	-0.96	ZZ
ZY9YDW		2.012	-0.063	-0.21	2.847	0.577	1.47	ZZ

Summary Statistics	<u>Sample GJ07</u>	<u>Sample GJ08</u>
Grand Means	2.07 Microns	2.27 Microns
Std Dev Btwn Labs	0.30 Microns	0.39 Microns

Statistics based on 28 of 28 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

Analysis 376

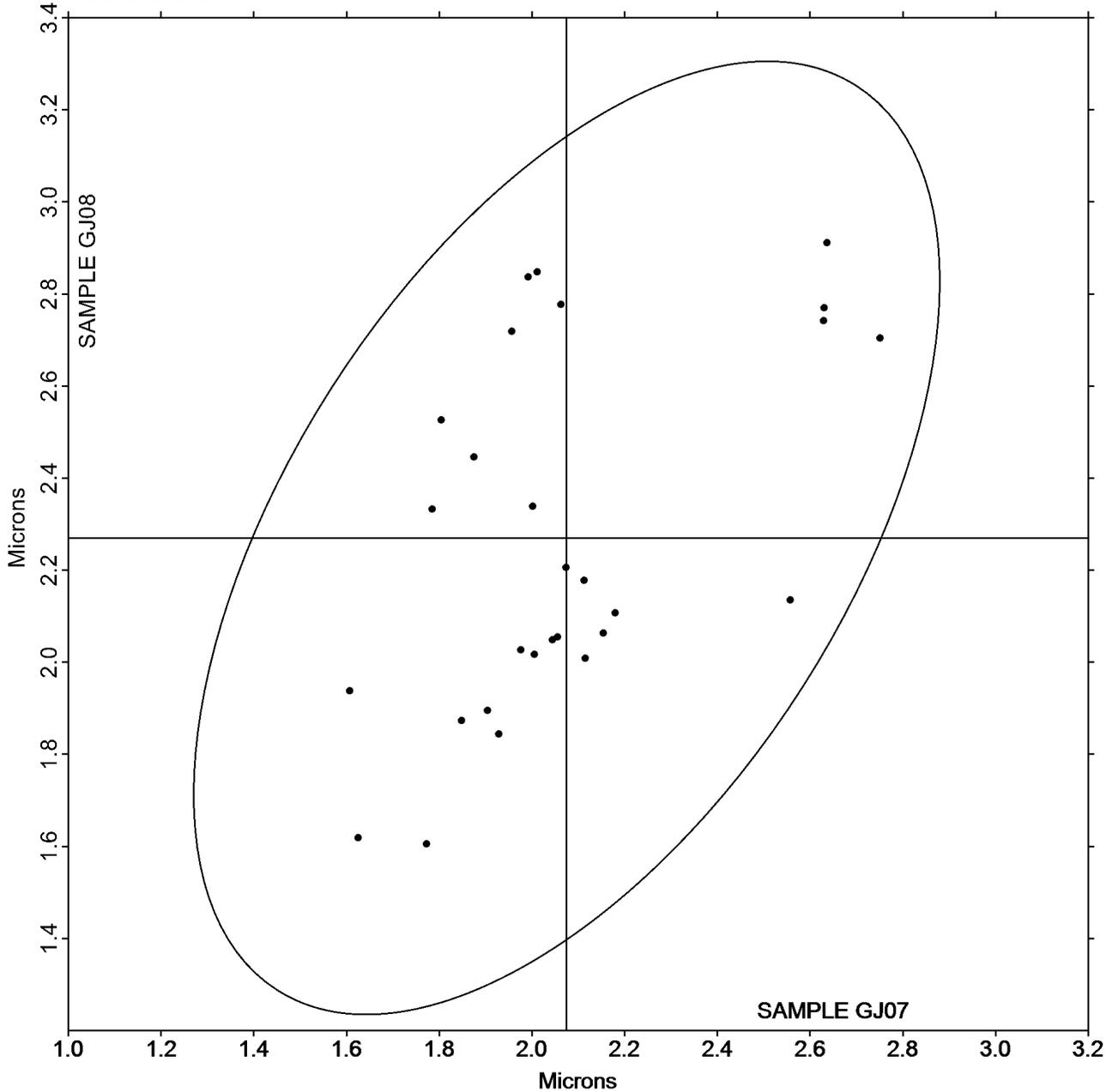
Roughness - Print Surf Method - 0.5 to 4.0 Microns

TAPPI Official Test Method T555

Grand Mean Sample GJ07 = 2.0750
Microns

Grand Mean Sample GJ08 = 2.2700
Microns

ANALYSIS 376





Paper & Paperboard Interlaboratory Testing Program
Analysis 377
Roughness - Print Surf Method - 2.5 to 6.0 Microns
TAPPI Official Test Method T555

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GK07</u>			<u>Sample GK08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
7H3HZH		6.184	-0.106	-0.55	6.016	-0.130	-0.75	ZZ
8WTUVZ		6.279	-0.011	-0.06	6.141	-0.005	-0.03	ZZ
ADCKTP		5.911	-0.379	-1.99	5.980	-0.166	-0.96	ZZ
FMK6GT		6.498	0.208	1.10	6.522	0.376	2.16	ZZ
KX7TL4		6.476	0.186	0.98	6.241	0.095	0.54	ZZ
NXDCXW		6.138	-0.152	-0.80	6.119	-0.027	-0.16	ZZ
PK8FFU		6.435	0.145	0.76	6.179	0.033	0.19	ZZ
RPQK3F		6.282	-0.008	-0.04	6.183	0.037	0.21	ZZ
W4YWLB		6.403	0.113	0.60	5.936	-0.210	-1.21	ZZ

Summary Statistics	<u>Sample GK07</u>	<u>Sample GK08</u>
Grand Means	6.29 Microns	6.15 Microns
Std Dev Btwn Labs	0.19 Microns	0.17 Microns
Statistics based on 9 of 9 reporting participants.		

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

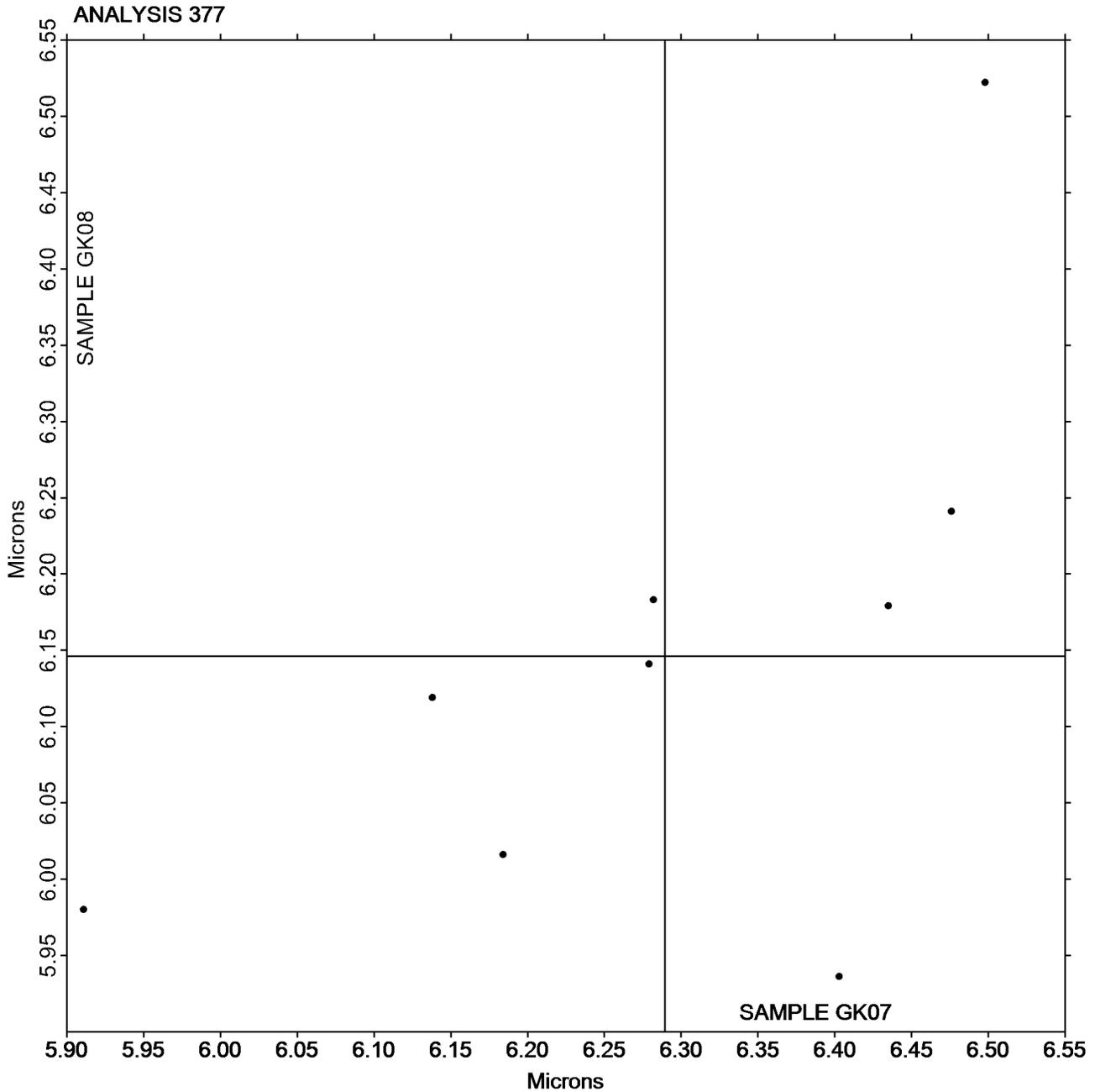
Analysis 377

Roughness - Print Surf Method - 2.5 to 6.0 Microns

TAPPI Official Test Method T555

Grand Mean Sample GK07 = 6.2896
Microns

Grand Mean Sample GK08 = 6.1463
Microns



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



Paper & Paperboard Interlaboratory Testing Program

**Report #3192G,
August 2022**

Analysis 378

Roughness - Sheffield Type

TAPPI Official Test Method T538

WebCode	Data Flag	Sample GL07			Sample GL08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2JQKGG		133.3	-1.2	-0.15	128.5	-6.1	-0.69	VM
2K9CRM		128.2	-6.3	-0.75	121.5	-13.1	-1.49	PP
38DHVJ		141.6	7.0	0.84	147.7	13.0	1.48	PP
3BQCH3		133.4	-1.1	-0.13	130.1	-4.5	-0.51	PP
3UL642		138.9	4.4	0.52	146.0	11.4	1.29	SS
48UWXM		114.0	-20.6	-2.45	113.6	-21.0	-2.38	LA
4W9YN9		130.7	-3.8	-0.46	131.7	-3.0	-0.34	PP
4ZQ74V		144.0	9.5	1.13	142.2	7.6	0.86	LA
6QDPUZ		139.7	5.2	0.62	141.2	6.6	0.75	PP
7A9HEY	X	171.5	37.0	4.41	179.1	44.5	5.06	LW
7H3HZH		136.8	2.3	0.27	134.9	0.3	0.03	LW
8QVBM3		135.5	1.0	0.12	135.3	0.7	0.08	PP
8WTUVZ		151.3	16.8	2.00	150.9	16.3	1.85	PP
ADCKTP		147.5	13.0	1.55	149.5	14.9	1.69	XX
BPRPL8		140.0	5.5	0.65	140.8	6.2	0.70	PP
CFCG7P		134.0	-0.5	-0.06	132.2	-2.4	-0.27	LA
DAMAE9		145.2	10.7	1.27	146.2	11.6	1.32	PP
DJB9YM		134.6	0.1	0.01	136.8	2.2	0.25	SH
DN4ZEW	X	5.6	-128.9	-15.38	5.9	-128.7	-14.63	PP
EKY29W		136.9	2.4	0.29	138.9	4.3	0.49	PP
F6K3VH		132.0	-2.5	-0.30	131.6	-3.0	-0.35	PP
FMK6GT		131.8	-2.7	-0.33	136.9	2.3	0.26	LW
J4E26T		119.5	-15.0	-1.79	119.0	-15.6	-1.77	PP
JNLAKR		139.5	5.0	0.59	135.9	1.3	0.15	LA
JQTKMM		145.1	10.6	1.26	143.4	8.8	1.00	HM
KX7TL4		120.9	-13.6	-1.63	125.4	-9.2	-1.05	LB
LH8DTM		133.9	-0.6	-0.07	127.7	-6.9	-0.79	HM
MCY6AX		130.0	-4.5	-0.54	129.5	-5.2	-0.59	PP
MGT7AR		134.3	-0.2	-0.03	135.4	0.8	0.09	LW
MH63CB	X	184.0	49.5	5.90	196.0	61.4	6.98	GL
NUARJB		141.9	7.4	0.88	140.7	6.1	0.69	LW
NXDCXW		143.4	8.9	1.06	149.8	15.2	1.73	LW
P6RLGP		142.3	7.8	0.93	144.7	10.0	1.14	PP
P8VH2D	X	137.7	3.2	0.38	107.6	-27.0	-3.07	TS
PK8FFU		127.0	-7.6	-0.90	126.4	-8.2	-0.93	PP
PXUP2Z	X	96.5	-38.1	-4.54	121.3	-13.3	-1.51	PP
QDGRTN		137.0	2.5	0.30	133.1	-1.5	-0.17	PP
QKWB9G		123.3	-11.2	-1.34	130.4	-4.3	-0.48	PP
QKZVZQ		138.7	4.1	0.49	135.8	1.2	0.13	PP
QVXR3R		139.4	4.9	0.58	133.9	-0.7	-0.08	GA
QWQRXH	X	175.4	40.9	4.87	213.5	78.9	8.96	TT



Paper & Paperboard Interlaboratory Testing Program
Analysis 378
Roughness - Sheffield Type
TAPPI Official Test Method T538

Report #3192G,
August 2022

WebCode	Data Flag	Sample GL07			Sample GL08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
RBU73L		128.2	-6.3	-0.75	132.2	-2.4	-0.27	TS
RPQK3F		124.4	-10.1	-1.21	125.0	-9.7	-1.10	PP
RVDEV7		127.1	-7.4	-0.89	125.4	-9.2	-1.05	XX
UQWM2J		120.2	-14.3	-1.71	122.2	-12.4	-1.41	LW
W24HNC		124.0	-10.5	-1.26	125.3	-9.3	-1.06	LW
W4YWLB		143.7	9.2	1.10	139.5	4.8	0.55	PP
XHPGDH	X	106.2	-28.3	-3.38	117.2	-17.4	-1.98	LA
YMGR49		136.9	2.4	0.28	136.7	2.1	0.24	GA
YQZ3YR	X	95.2	-39.4	-4.70	92.2	-42.4	-4.82	LA
YRR3UG	X	175.0	40.5	4.83	149.0	14.4	1.63	TT

Summary Statistics	Sample GL07	Sample GL08
Grand Means	134.53 Sheffield	134.61 Sheffield
Std Dev Btwn Labs	8.38 Sheffield	8.80 Sheffield
Statistics based on 42 of 51 reporting participants.		

Comments on Assigned Data Flags for Test #378

- DN4ZEW (X) - Extreme Data.
- XHPGDH (X) - Data for sample GL07 are low. Inconsistent within the determinations of sample GL08.
- YQZ3YR (X) - Data for both samples are low. Possible Systematic Error.
- PXUP2Z (X) - Data for sample GL07 are low.
- MH63CB (X) - Extreme Data.
- 7A9HEY (X) - Data for both samples are high. Possible Systematic Error. Inconsistent within the determinations of both samples.
- P8VH2D (X) - Data for sample GL08 are low.
- QWQRXH (X) - Extreme Data.
- YRR3UG (X) - Data for sample GL07 are high.

Key to Instrument Codes Reported by Participants

GA Gurley Precision #4340 Automatic Densometer	GL Giddings and Lewis Sheffield
HM Technidyne - Hagerty Model #538	LA L & W Roughness Sheffield - Autoline
LB L & W - Autoline 600	LW L & W Roughness Tester
PP Technidyne Profile/Plus	SH Sheffield (Bendix Precisionaire)
SS Sheffield Smoothchek Tester	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	



Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

Analysis 378

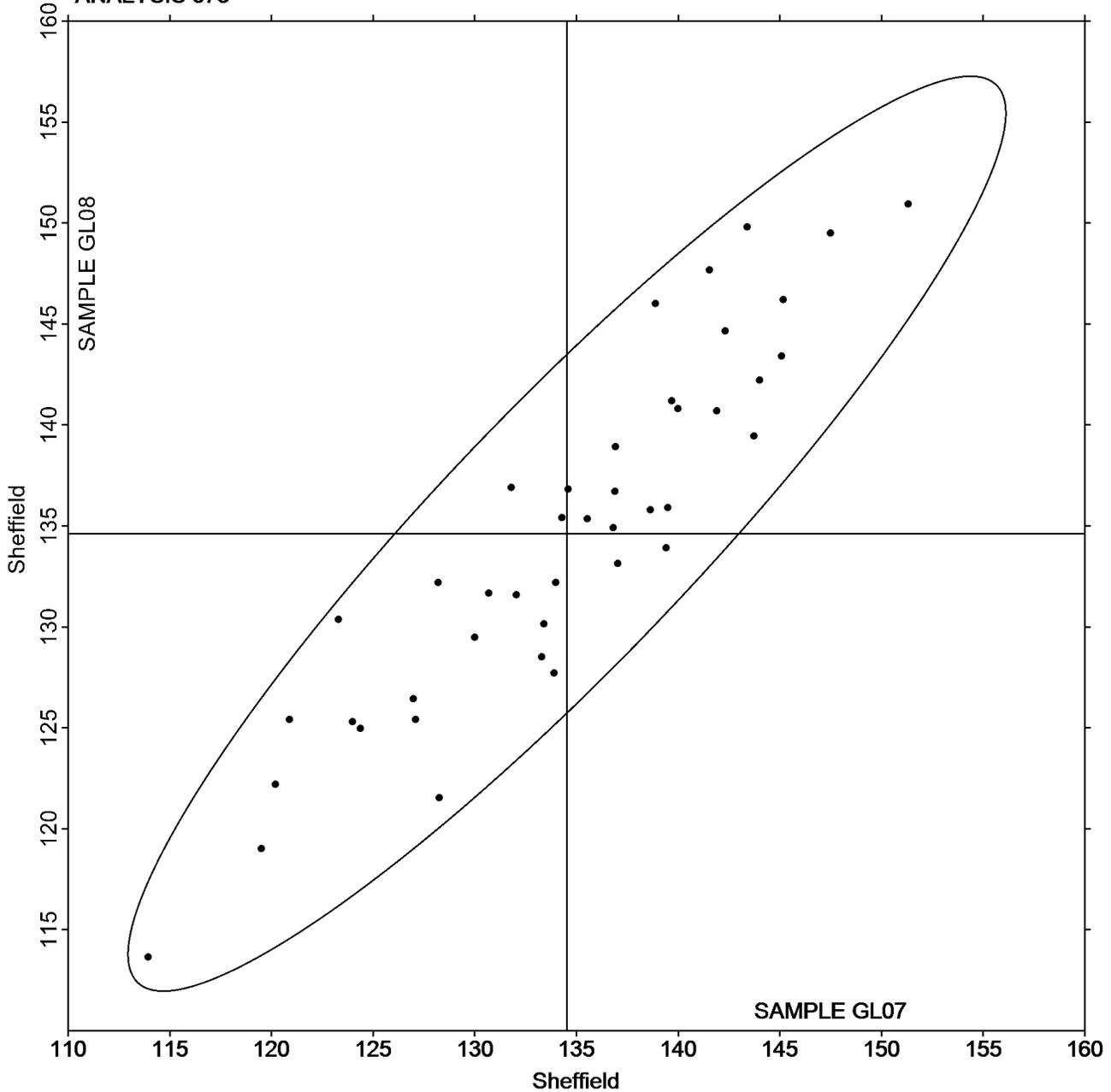
Roughness - Sheffield Type

TAPPI Official Test Method T538

Grand Mean Sample GL07 = 134.53
Sheffield

Grand Mean Sample GL08 = 134.61
Sheffield

ANALYSIS 378





Paper & Paperboard Interlaboratory Testing Program
Analysis 382
Moisture in Paper
TAPPI Official Test Method T412

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GM07</u>			<u>Sample GM08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2K7P73		4.365	-0.307	-0.68	4.342	-0.246	-0.69	ZZ
2LZB3E		4.229	-0.443	-0.99	4.201	-0.387	-1.08	ZZ
6PLFZY		4.673	0.001	0.00	4.643	0.055	0.16	ZZ
7A9HEY		4.211	-0.461	-1.03	4.073	-0.515	-1.44	ZZ
9GFVAY		4.858	0.186	0.42	4.970	0.382	1.07	ZZ
9Q32YQ		4.383	-0.289	-0.64	4.569	-0.018	-0.05	ZZ
D72EKN		5.730	1.058	2.36	5.240	0.652	1.83	ZZ
FZNDQC		4.173	-0.499	-1.11	4.319	-0.269	-0.75	ZZ
HL6FET		4.831	0.159	0.36	4.659	0.071	0.20	ZZ
NJXB4R		4.990	0.318	0.71	4.300	-0.288	-0.81	ZZ
RPQK3F		4.683	0.012	0.03	4.666	0.079	0.22	ZZ
YPZ4H4		4.525	-0.147	-0.33	4.535	-0.053	-0.15	ZZ
YRR3UG		5.319	0.647	1.44	5.240	0.652	1.83	ZZ
ZY9YDW		4.434	-0.238	-0.53	4.471	-0.117	-0.33	ZZ

Summary Statistics	<u>Sample GM07</u>	<u>Sample GM08</u>
Grand Means	4.67 Percent	4.59 Percent
Std Dev Btwn Labs	0.45 Percent	0.36 Percent

Statistics based on 14 of 14 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program
Analysis 384
Opacity (89% Reflectance Backing) - Fine Papers
TAPPI Official Test Method T425

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GN07</u>			<u>Sample GN08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BQCH3		88.27	-1.04	-1.96	88.08	-1.34	-2.24	ZZ
3UL642		88.72	-0.59	-1.12	88.83	-0.59	-0.98	ZZ
48UWXM		89.21	-0.10	-0.20	89.32	-0.10	-0.16	ZZ
4BQPPW		90.09	0.78	1.46	90.00	0.58	0.98	ZZ
4W9YN9	*	91.06	1.74	3.28	91.01	1.59	2.66	ZZ
6PLFZY		89.97	0.66	1.23	90.33	0.91	1.52	ZZ
7AA6ZJ		89.44	0.13	0.24	89.31	-0.11	-0.18	ZZ
8QVBM3		89.54	0.23	0.42	89.38	-0.04	-0.06	ZZ
8WTUVZ		88.86	-0.45	-0.85	89.13	-0.28	-0.48	ZZ
97Z2Y7		89.37	0.06	0.11	88.81	-0.61	-1.02	ZZ
9X7W66		89.16	-0.15	-0.29	89.43	0.01	0.02	ZZ
AYWJWY		89.82	0.50	0.94	90.31	0.89	1.48	ZZ
BPRPL8		89.00	-0.31	-0.59	89.20	-0.22	-0.37	ZZ
DJB9YM		89.33	0.02	0.03	89.31	-0.11	-0.18	ZZ
DN4ZEW		89.14	-0.17	-0.33	89.25	-0.17	-0.28	ZZ
F6K3VH		88.89	-0.42	-0.79	88.85	-0.57	-0.96	ZZ
J4E26T		88.87	-0.45	-0.84	89.08	-0.34	-0.57	ZZ
JQTKMM		89.86	0.55	1.03	89.77	0.35	0.59	ZZ
LH8DTM		88.86	-0.45	-0.85	88.88	-0.54	-0.90	ZZ
MCY6AX		88.97	-0.34	-0.64	88.78	-0.64	-1.07	ZZ
P6RLGP		89.58	0.27	0.50	89.95	0.53	0.89	ZZ
PK7RRP		89.68	0.37	0.69	90.17	0.75	1.25	ZZ
PK8FFU		89.23	-0.09	-0.16	89.14	-0.27	-0.46	ZZ
QKWB9G	*	88.82	-0.50	-0.93	89.58	0.17	0.28	ZZ
RBU73L		89.29	-0.02	-0.05	89.26	-0.16	-0.27	ZZ
REBTCK		89.32	0.01	0.01	89.49	0.07	0.11	ZZ
RPQK3F		89.82	0.51	0.96	90.19	0.77	1.29	ZZ
RVDEV7		89.00	-0.31	-0.59	89.26	-0.16	-0.27	ZZ
W4YWLB		88.89	-0.42	-0.80	88.86	-0.56	-0.93	ZZ
XHPGDH		89.37	0.06	0.11	89.60	0.18	0.30	ZZ

Summary Statistics	<u>Sample GN07</u>	<u>Sample GN08</u>
Grand Means	89.31 Percent	89.42 Percent
Std Dev Btwn Labs	0.53 Percent	0.60 Percent
Statistics based on 30 of 30 reporting participants.		

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

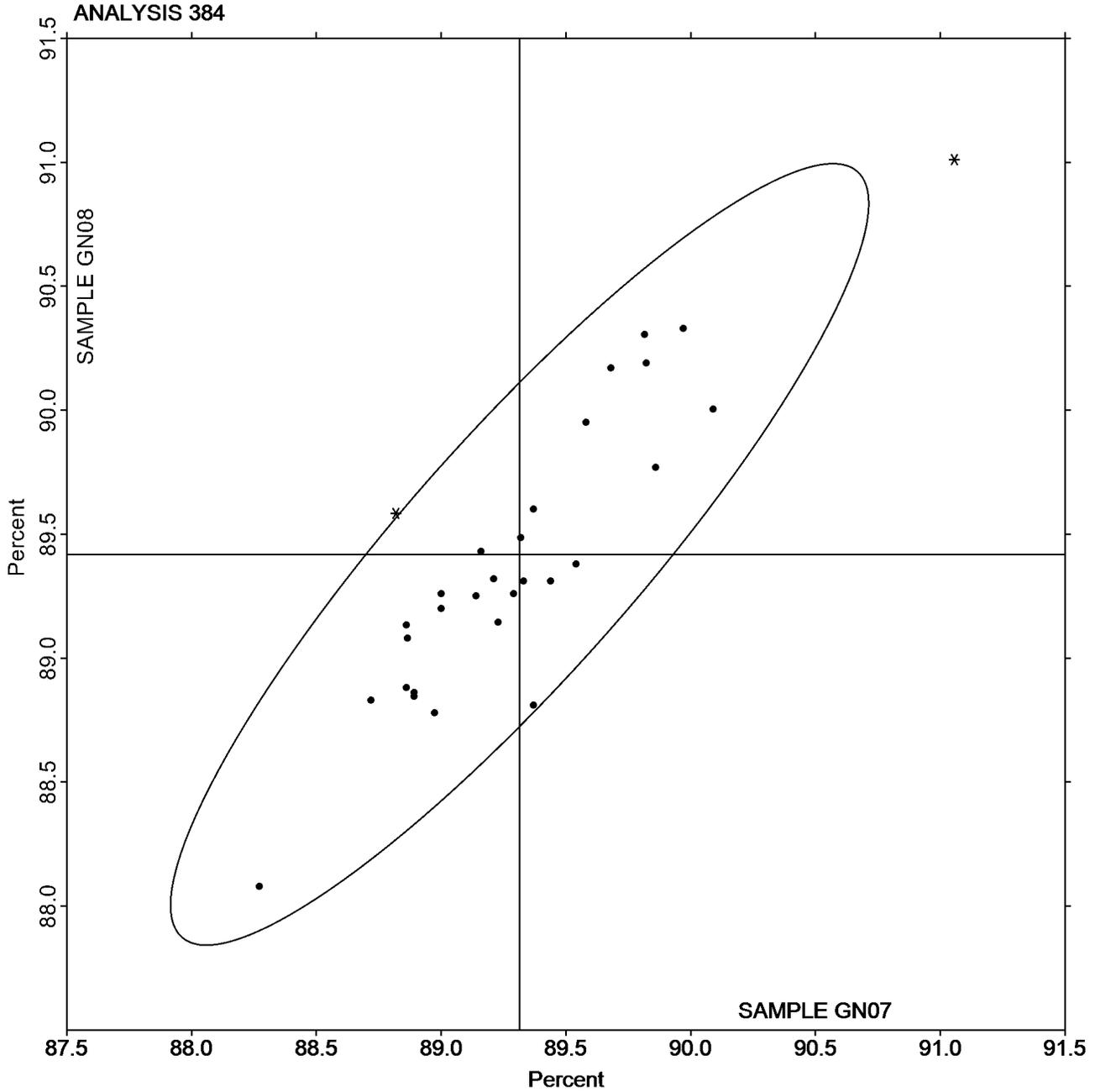


Paper & Paperboard Interlaboratory Testing Program
Analysis 384
Opacity (89% Reflectance Backing) - Fine Papers
TAPPI Official Test Method T425

Report #3192G,
August 2022

Grand Mean Sample GN07 = 89.314
Percent

Grand Mean Sample GN08 = 89.419
Percent





Paper & Paperboard Interlaboratory Testing Program
Analysis 386
Opacity (Paper Backing) - Fine Papers and Newsprint
TAPPI Official Test Method T519

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GP07</u>			<u>Sample GP08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
63V7NT		90.17	-0.57	-0.39	90.30	-0.51	-0.35	ZZ
7A9HEY		90.08	-0.66	-0.45	90.18	-0.64	-0.44	ZZ
L4BYVE		93.75	3.01	2.04	93.78	2.97	2.04	ZZ
QPDQME		90.18	-0.56	-0.38	90.30	-0.51	-0.35	ZZ
WWWUBH		90.18	-0.56	-0.38	90.23	-0.58	-0.40	ZZ
XJJWX3		90.08	-0.66	-0.45	90.10	-0.72	-0.49	ZZ

Summary Statistics	<u>Sample GP07</u>	<u>Sample GP08</u>
Grand Means	90.74 Percent	90.82 Percent
Stnd Dev Btwn Labs	1.48 Percent	1.45 Percent

Statistics based on 6 of 6 reporting participants.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

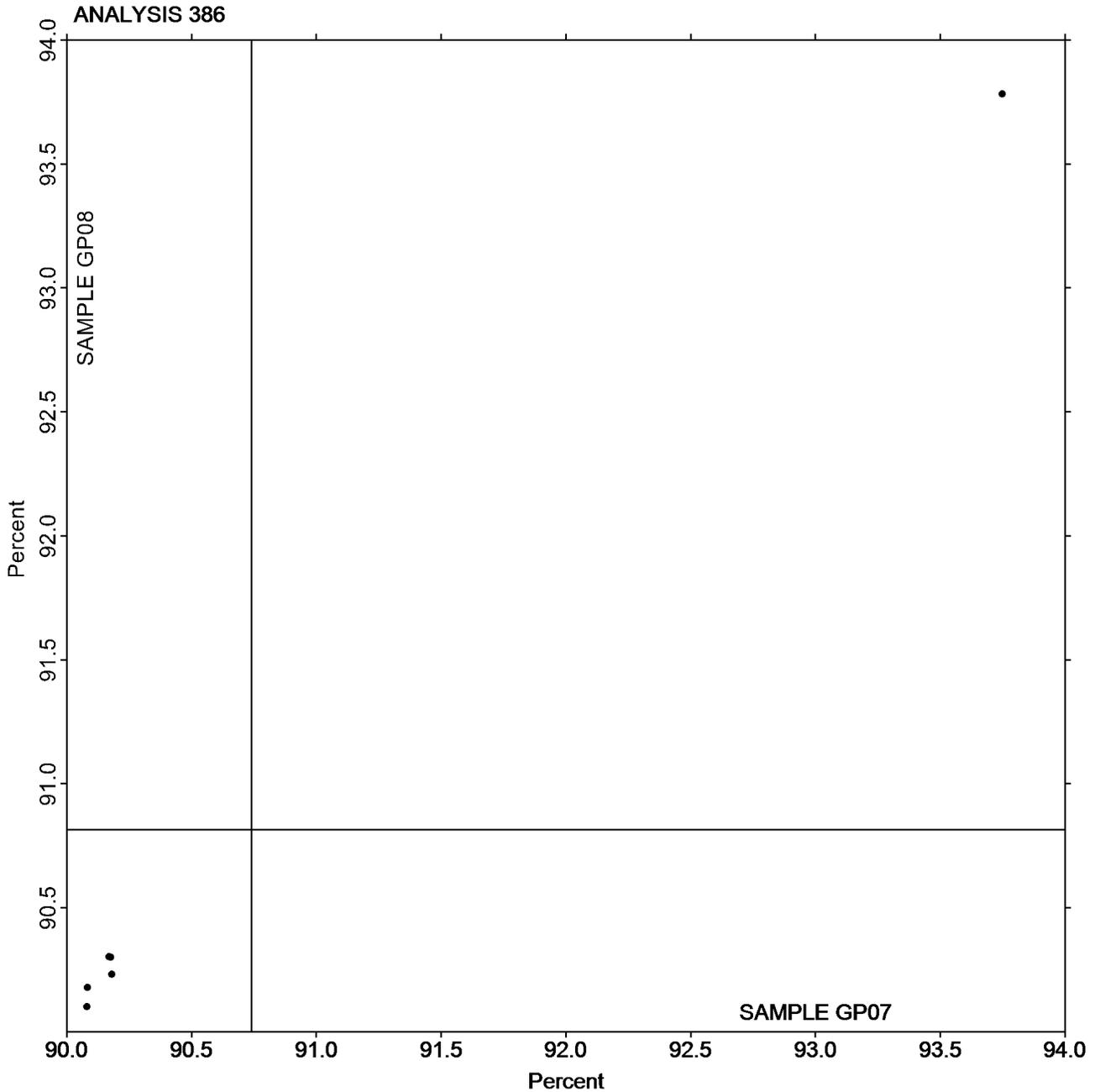
Analysis 386

Opacity (Paper Backing) - Fine Papers and Newsprint

TAPPI Official Test Method T519

Grand Mean Sample GP07 = 90.740
Percent

Grand Mean Sample GP08 = 90.816
Percent



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



Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness
TAPPI Official Test Method T452

Report #3192G,
August 2022

WebCode	Data Flag	Sample GR07			Sample GR08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2K9CRM		84.41	1.05	0.82	84.31	0.97	0.72	TP
38DHVJ		83.96	0.60	0.46	83.89	0.55	0.41	HG
3UL642		84.84	1.47	1.14	84.85	1.51	1.12	TP
4W9YN9		82.38	-0.98	-0.76	82.21	-1.13	-0.84	TP
6PLFZY		83.08	-0.28	-0.22	83.07	-0.27	-0.20	TC
7H3HZH		83.45	0.09	0.07	83.47	0.13	0.10	TP
8QVBM3		82.01	-1.35	-1.04	82.10	-1.24	-0.92	TT
97Z2Y7		82.53	-0.84	-0.65	82.35	-0.99	-0.73	TS
BPRPL8		83.24	-0.12	-0.09	83.26	-0.08	-0.06	XC
DAMAE9		83.30	-0.07	-0.05	83.29	-0.05	-0.04	HG
EKY29W		82.10	-1.26	-0.98	82.18	-1.17	-0.86	TP
FMK6GT		83.93	0.57	0.44	83.89	0.55	0.41	HG
J4E26T		84.16	0.80	0.62	84.06	0.72	0.53	XX
JQTKMM		82.34	-1.03	-0.79	82.33	-1.01	-0.75	TS
MCY6AX		82.42	-0.94	-0.73	82.26	-1.09	-0.80	TP
MH63CB		81.33	-2.04	-1.58	81.33	-2.02	-1.49	TS
NUARJB	*	86.82	3.46	2.68	86.85	3.51	2.60	HZ
P6RLGP		83.09	-0.27	-0.21	83.03	-0.31	-0.23	TT
P8VH2D		81.96	-1.40	-1.08	81.76	-1.58	-1.17	TS
QKWB9G		82.85	-0.51	-0.39	82.69	-0.65	-0.48	TP
QKZVZQ		84.46	1.10	0.85	84.70	1.36	1.01	TS
RVDEV7		85.29	1.93	1.49	85.61	2.27	1.68	PE

Summary Statistics	Sample GR07	Sample GR08
Grand Means	83.36 Percent	83.34 Percent
Std Dev Btwn Labs	1.29 Percent	1.35 Percent
Statistics based on 22 of 22 reporting participants.		

Key to Instrument Codes Reported by Participants

HG	Hunter Labscan / XE	HZ	Hunter Lab ColorFlex EZ Series
PE	Photovolt 577	TC	Technidyne Color Touch Series
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		



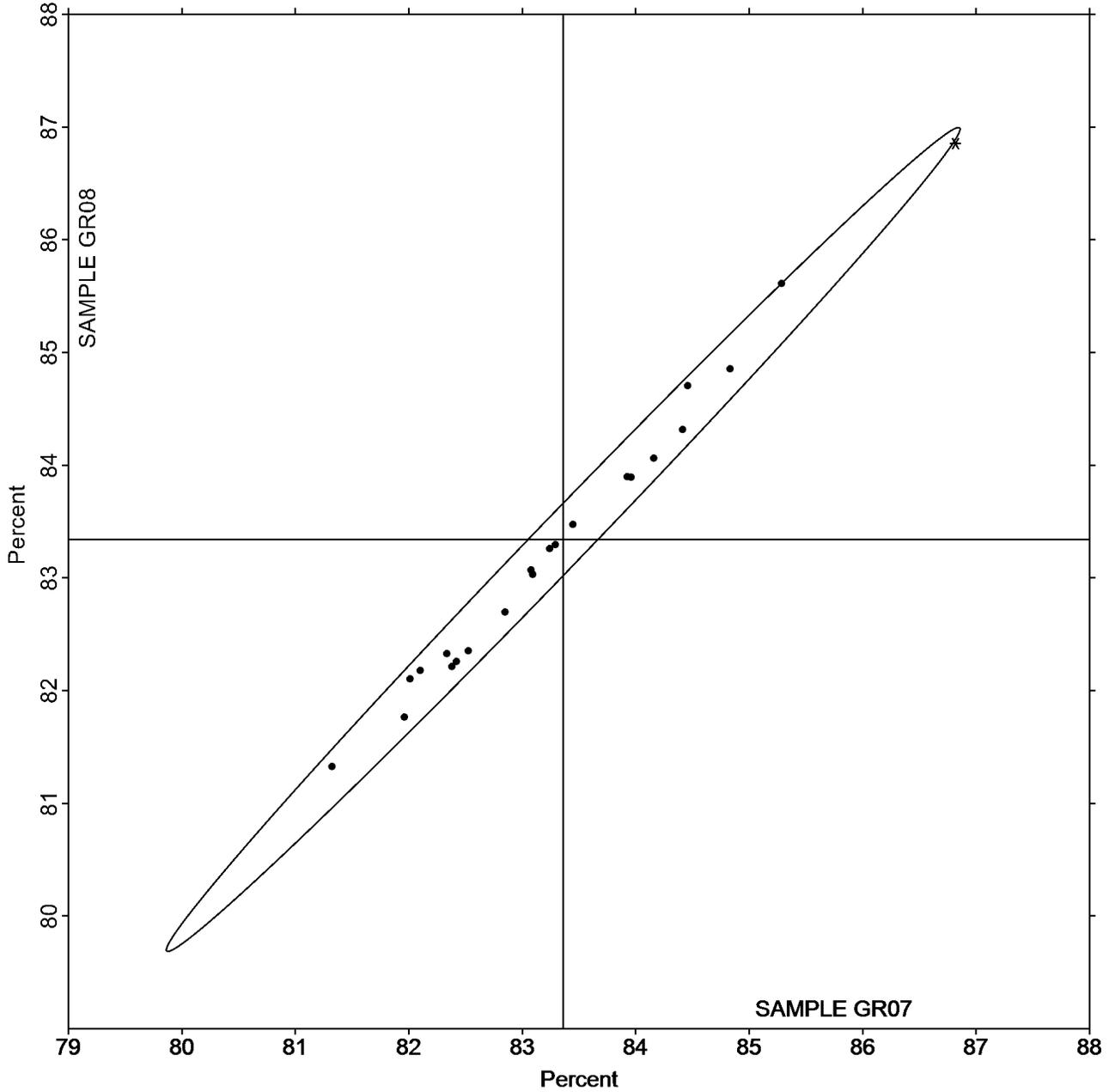
Paper & Paperboard Interlaboratory Testing Program
Analysis 390
Directional Brightness
TAPPI Official Test Method T452

Report #3192G,
August 2022

Grand Mean Sample GR07 = 83.360
Percent

Grand Mean Sample GR08 = 83.341
Percent

ANALYSIS 390





Paper & Paperboard Interlaboratory Testing Program
Analysis 391
Directional Brightness of Fluorescent Samples
TAPPI Official Test Method T452

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GZ07</u>			<u>Sample GZ08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BQCH3		98.70	0.04	0.06	98.20	-0.34	-0.45	PP
48UWXM		99.77	1.11	1.65	99.81	1.27	1.67	TD
7AA6ZJ		99.08	0.42	0.62	99.36	0.82	1.07	TD
8WTUVZ		99.54	0.88	1.30	99.96	1.42	1.86	TT
AYWJWY		98.43	-0.23	-0.34	98.63	0.09	0.11	TS
F6K3VH		98.68	0.02	0.03	98.36	-0.18	-0.24	PP
MCY6AX		98.46	-0.20	-0.30	98.73	0.18	0.24	PP
P6RLGP		97.30	-1.36	-2.02	97.45	-1.09	-1.44	EF
P8VH2D		99.05	0.39	0.58	98.68	0.14	0.18	TS
PK7RRP		98.26	-0.40	-0.59	98.20	-0.34	-0.45	TT
PXUP2Z		98.36	-0.30	-0.45	97.85	-0.70	-0.92	TS
RBU73L		97.54	-1.12	-1.66	97.38	-1.16	-1.53	TS
REBTCK		99.38	0.72	1.07	99.07	0.53	0.69	PP
RPQK3F		98.84	0.18	0.27	98.35	-0.20	-0.26	TS
W4YWLB		98.52	-0.14	-0.21	98.14	-0.40	-0.53	TS

Summary Statistics	<u>Sample GZ07</u>	<u>Sample GZ08</u>
Grand Means	98.66 Percent	98.54 Percent
Std Dev Btwn Labs	0.67 Percent	0.76 Percent
Statistics based on 15 of 15 reporting participants.		

Key to Instrument Codes Reported by Participants

EF	Datacolor Elrepho	PP	Technidyne Profile/Plus
TD	Technidyne Color Touch X-45	TS	Technidyne Brightimeter Micro S-5
TT	Technidyne Brightimeter Micro S4-M		

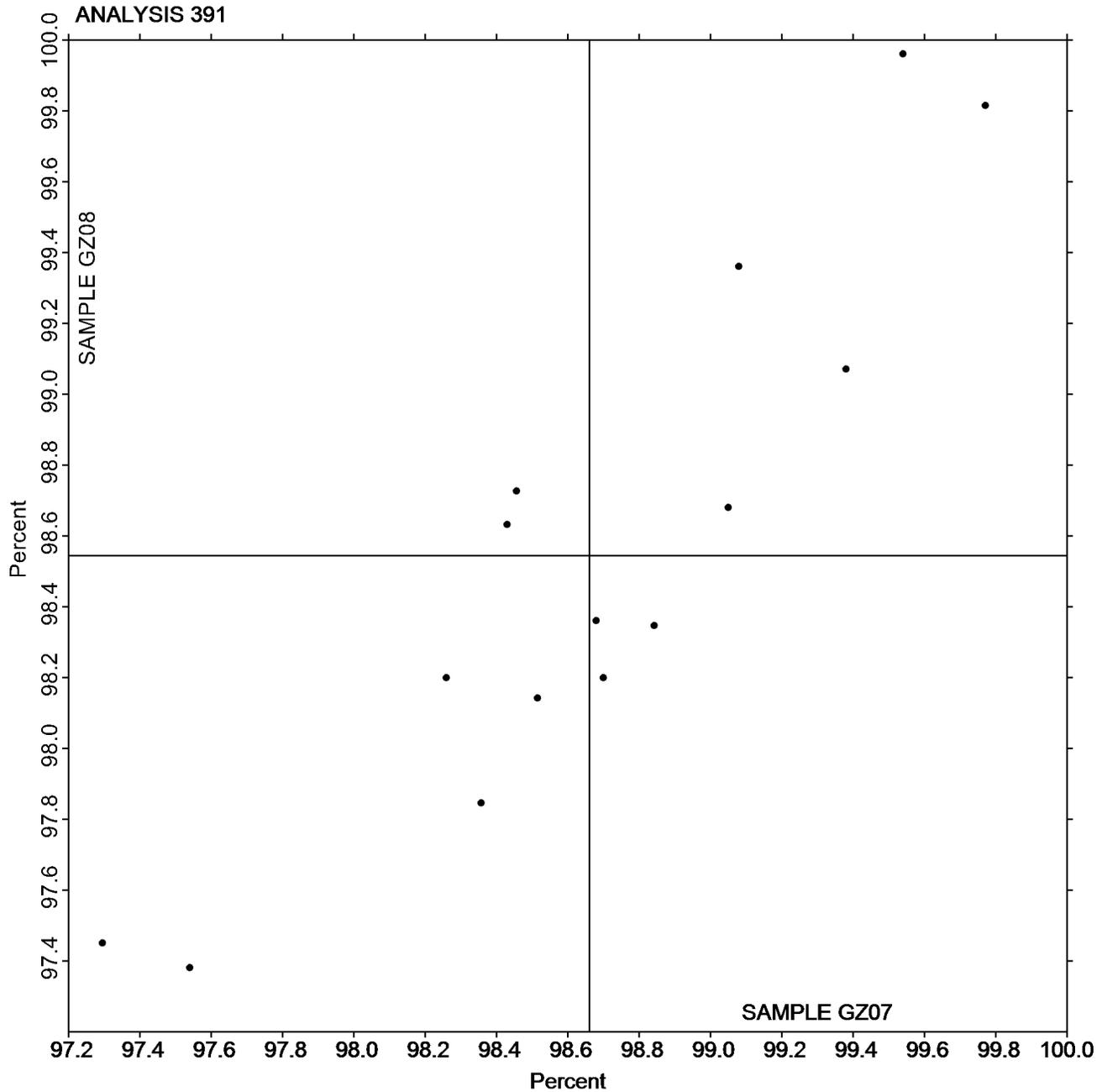


Paper & Paperboard Interlaboratory Testing Program
Analysis 391
Directional Brightness of Fluorescent Samples
TAPPI Official Test Method T452

Report #3192G,
August 2022

Grand Mean Sample GZ07 = 98.660
Percent

Grand Mean Sample GZ08 = 98.544
Percent



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



Paper & Paperboard Interlaboratory Testing Program
Analysis 392
Diffuse Brightness
TAPPI Official Test Method T525

Report #3192G,
August 2022

WebCode	Data Flag	Sample GR07			Sample GR08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2K9CRM		82.60	-0.05	-0.20	82.62	-0.01	-0.03	TC
63V7NT	*	82.80	0.15	0.54	82.47	-0.15	-0.56	AC
7A9HEY		82.51	-0.15	-0.55	82.54	-0.09	-0.32	LE
7H3HZH		82.52	-0.14	-0.52	82.64	0.02	0.06	EG
8TFZ8F		82.64	-0.02	-0.08	82.64	0.02	0.08	TC
9BRDU3		82.76	0.10	0.39	82.71	0.09	0.34	LE
CW39HC		82.59	-0.07	-0.25	82.54	-0.09	-0.32	TC
DN4ZEW		82.52	-0.14	-0.51	82.56	-0.06	-0.24	TC
EKY29W	*	83.49	0.83	3.09	83.51	0.89	3.30	LT
FMK6GT		82.36	-0.30	-1.12	82.37	-0.25	-0.94	TC
G8RMBV		82.87	0.21	0.80	82.82	0.20	0.73	TC
JQTKMM		82.46	-0.19	-0.73	82.44	-0.18	-0.68	LT
L4BYVE		82.62	-0.04	-0.14	82.56	-0.06	-0.22	LA
QKZVZQ		82.68	0.02	0.07	82.62	0.00	-0.02	TC
QPDQME		82.66	0.00	-0.01	82.48	-0.15	-0.55	TC
UQWM2J		82.52	-0.14	-0.52	82.55	-0.07	-0.26	EF
XZUNRK		82.97	0.31	1.15	82.91	0.28	1.05	LA
YRR3UG		82.28	-0.38	-1.42	82.24	-0.38	-1.41	LE

Summary Statistics	Sample GR07	Sample GR08
Grand Means	82.66 Percent	82.62 Percent
Std Dev Btwn Labs	0.27 Percent	0.27 Percent

Statistics based on 18 of 18 reporting participants.

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		



Paper & Paperboard Interlaboratory Testing Program

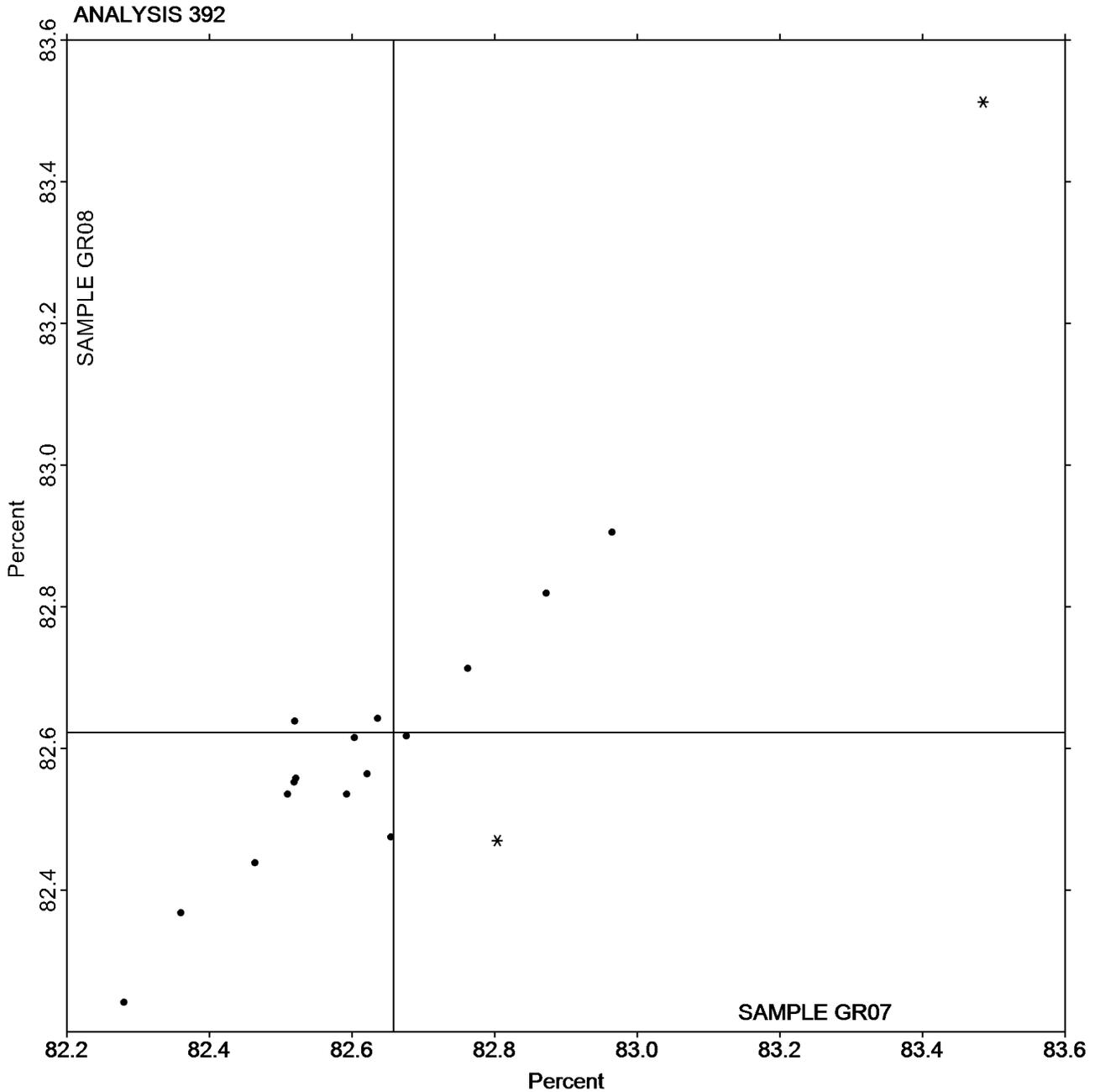
Report #3192G,
August 2022

Analysis 392 Diffuse Brightness

TAPPI Official Test Method T525

Grand Mean Sample GR07 = 82.658
Percent

Grand Mean Sample GR08 = 82.622
Percent



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



Paper & Paperboard Interlaboratory Testing Program
Analysis 394
Fluorescent Component of Directional Brightness
TAPPI Official Test Method T452

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GZ07</u>			<u>Sample GZ08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
3BQCH3		7.960	-0.013	-0.05	7.920	-0.111	-0.48	PP
48UWXM		8.062	0.089	0.34	8.114	0.083	0.36	TT
7AA6ZJ		8.380	0.407	1.55	8.440	0.409	1.76	TD
AYWJWY		7.682	-0.291	-1.11	7.804	-0.227	-0.98	TS
F6K3VH		7.720	-0.253	-0.96	8.060	0.029	0.12	PP
MCY6AX		7.978	0.005	0.02	8.136	0.105	0.45	XX
P8VH2D		7.768	-0.205	-0.78	7.716	-0.315	-1.36	TS
PXUP2Z		8.086	0.113	0.43	8.122	0.091	0.39	TS
REBTCK		8.224	0.251	0.95	8.240	0.209	0.90	PP
RPQK3F		8.273	0.299	1.14	8.122	0.091	0.39	TS
W4YWLB		7.574	-0.399	-1.52	7.670	-0.361	-1.56	TS

Summary Statistics	<u>Sample GZ07</u>	<u>Sample GZ08</u>
Grand Means	7.97 Percent	8.03 Percent
Std Dev Btwn Labs	0.26 Percent	0.23 Percent
Statistics based on 11 of 11 reporting participants.		

Key to Instrument Codes Reported by Participants

PP	Technidyne Profile/Plus	TD	Technidyne Color Touch X-45
TS	Technidyne Brightimeter Micro S-5	TT	Technidyne Brightimeter Micro S4-M
XX	Instrument make/model not specified by lab		

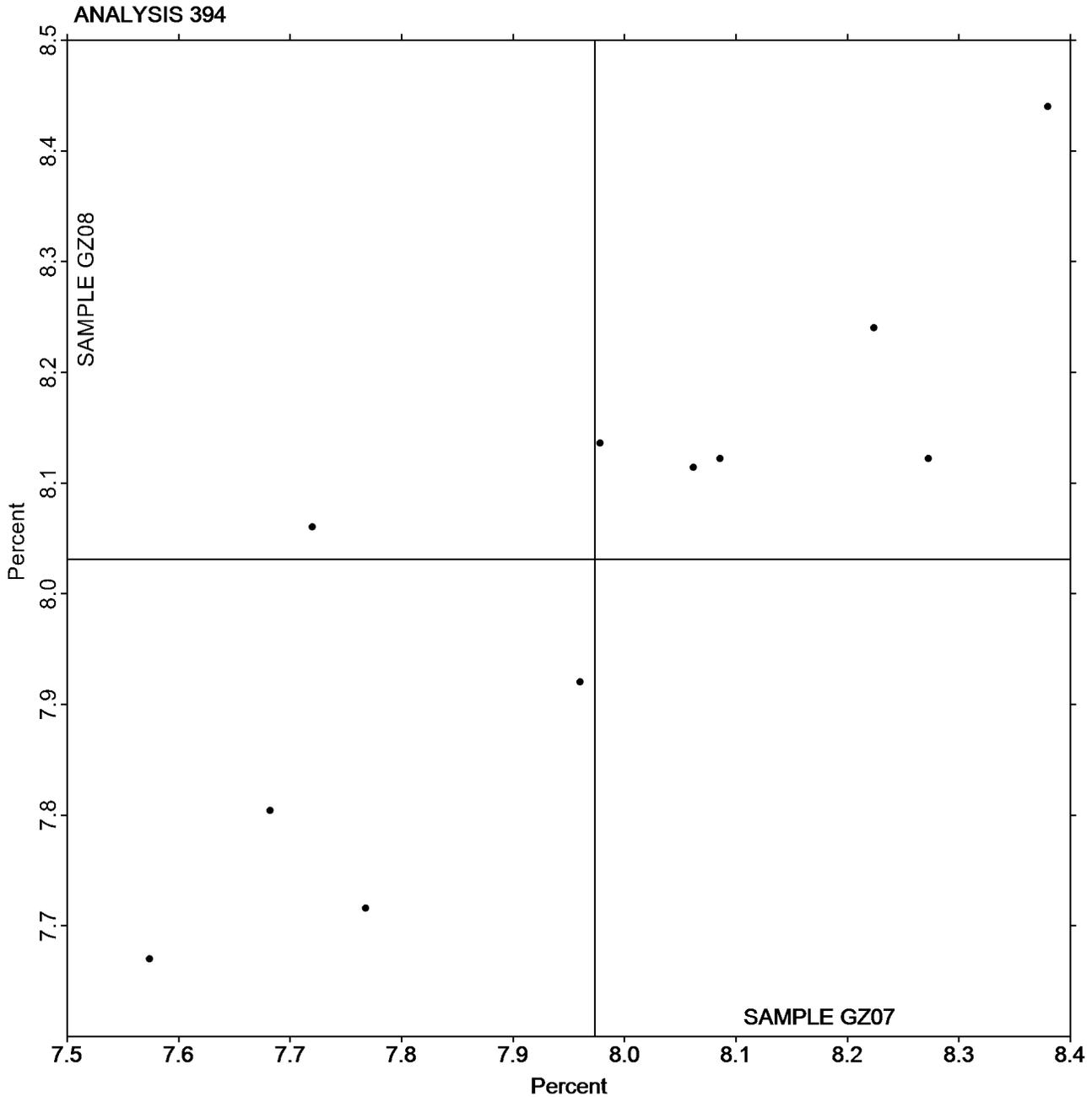


Paper & Paperboard Interlaboratory Testing Program
Analysis 394
Fluorescent Component of Directional Brightness
TAPPI Official Test Method T452

Report #3192G,
August 2022

Grand Mean Sample GZ07 = 7.9733
Percent

Grand Mean Sample GZ08 = 8.0313
Percent



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



Paper & Paperboard Interlaboratory Testing Program
Analysis 395
Specular Gloss at 75 Degrees - High Range
TAPPI Official Test Method T480

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GT07</u>			<u>Sample GT08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
2JQKGG		73.37	-0.01	-0.01	72.42	-0.94	-0.56	GM
2K9CRM		72.00	-1.38	-0.84	73.25	-0.11	-0.06	GM
38DHVJ		71.96	-1.42	-0.87	71.21	-2.15	-1.29	PP
63V7NT		75.55	2.17	1.32	75.70	2.34	1.41	LB
7H3HZH		74.35	0.97	0.59	74.66	1.30	0.78	TH
97Z2Y7		74.27	0.89	0.54	74.52	1.16	0.70	LA
AYWJWY		74.14	0.76	0.46	74.16	0.80	0.48	LF
DAMAE9		71.08	-2.30	-1.40	70.91	-2.45	-1.47	PP
EKY29W		71.37	-2.01	-1.23	70.77	-2.59	-1.55	GA
JNLAKR		76.74	3.36	2.04	75.83	2.47	1.49	LF
KX7TL4		72.05	-1.33	-0.81	72.65	-0.71	-0.42	LG
P6RLGP		73.54	0.16	0.10	73.93	0.57	0.34	TH
REBTCK		72.56	-0.83	-0.50	72.58	-0.78	-0.47	PP
WWWUBH		74.40	1.02	0.62	74.40	1.04	0.63	XX

Summary Statistics	<u>Sample GT07</u>	<u>Sample GT08</u>
Grand Means	73.38 Gloss Units	73.36 Gloss Units
Std Dev Btwn Labs	1.64 Gloss Units	1.66 Gloss Units
Statistics based on 14 of 14 reporting participants.		

Key to Instrument Codes Reported by Participants

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



Paper & Paperboard Interlaboratory Testing Program
Analysis 396
Specular Gloss at 75 Degrees - Low Range
TAPPI Official Test Method T480

Report #3192G,
August 2022

WebCode	Data Flag	<u>Sample GU07</u>			<u>Sample GU08</u>			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
63V7NT		48.07	0.97	0.50	48.56	1.38	0.80	LA
8QVBM3		46.77	-0.33	-0.17	46.94	-0.24	-0.14	TH
BPRPL8		47.00	-0.10	-0.05	46.70	-0.48	-0.28	TH
DN4ZEW		48.27	1.17	0.60	46.09	-1.09	-0.63	TH
FMK6GT		49.10	2.00	1.02	49.13	1.95	1.13	PP
MGT7AR		46.74	-0.36	-0.19	46.90	-0.28	-0.16	GM
NUARJB		46.32	-0.78	-0.40	46.45	-0.73	-0.42	GS
PK8FFU		45.43	-1.67	-0.86	46.35	-0.83	-0.48	PP
YRR3UG		50.13	3.03	1.55	50.36	3.18	1.84	TH
ZY9YDW		43.21	-3.89	-2.00	44.32	-2.86	-1.66	WJ

Summary Statistics	<u>Sample GU07</u>	<u>Sample GU08</u>
Grand Means	47.10 Gloss Units	47.18 Gloss Units
Std Dev Btwn Labs	1.95 Gloss Units	1.72 Gloss Units
Statistics based on 10 of 10 reporting participants.		

Key to Instrument Codes Reported by Participants

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



Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

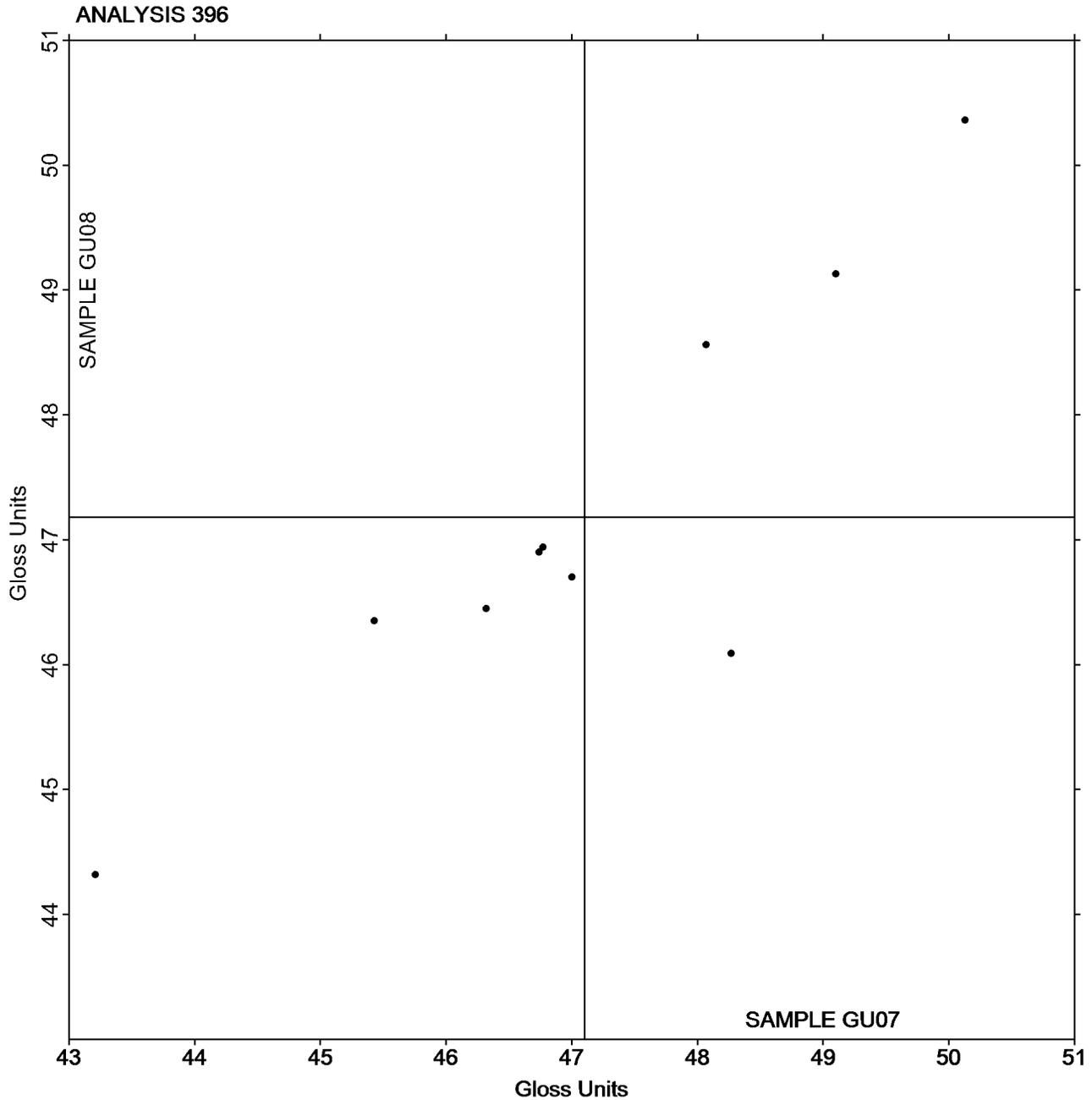
Analysis 396

Specular Gloss at 75 Degrees - Low Range

TAPPI Official Test Method T480

Grand Mean Sample GU07 = 47.104
Gloss Units

Grand Mean Sample GU08 = 47.180
Gloss Units



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



Paper & Paperboard Interlaboratory Testing Program
Analysis 398
Grammage (Mass per Unit Area)
TAPPI Official Test Method T410

Report #3192G,
August 2022

WebCode	Data Flag	Sample GW07			Sample GW08			Instr Code
		Lab Mean	Diff from Grand Mean	CPV	Lab Mean	Diff from Grand Mean	CPV	
24V9ZZ		89.17	-0.61	-0.87	103.3	-0.3	-0.60	ZZ
2K7P73		88.88	-0.90	-1.28	103.2	-0.4	-0.74	ZZ
3RJZ2E		91.01	1.23	1.75	104.5	0.9	1.55	ZZ
4W9YN9		88.83	-0.96	-1.36	102.9	-0.7	-1.23	ZZ
63V7NT		89.22	-0.56	-0.80	102.7	-0.9	-1.58	ZZ
6PLFZY		90.99	1.21	1.72	104.9	1.2	2.15	ZZ
7A9HEY		90.27	0.49	0.69	104.0	0.4	0.63	ZZ
7AA6ZJ		91.23	1.44	2.06	104.6	1.0	1.71	ZZ
8QVBM3		90.54	0.75	1.08	104.2	0.6	0.95	ZZ
9GFVAY		90.55	0.77	1.09	103.5	-0.1	-0.15	ZZ
AG9F7X		89.71	-0.07	-0.11	102.7	-0.9	-1.58	ZZ
BPRPL8		90.45	0.66	0.94	103.7	0.1	0.17	ZZ
DJB9YM	X	89.78	0.00	-0.01	101.6	-2.0	-3.39	ZZ
DN4ZEW		89.75	-0.04	-0.05	103.4	-0.2	-0.41	ZZ
FWRUBR		89.78	-0.01	-0.01	103.4	-0.2	-0.33	ZZ
FZNDCQ		89.45	-0.33	-0.47	103.4	-0.2	-0.38	ZZ
HL6FET		89.27	-0.51	-0.73	103.1	-0.5	-0.82	ZZ
J4E26T		88.80	-0.98	-1.40	103.0	-0.6	-1.04	ZZ
K26BFP		90.87	1.09	1.55	103.4	-0.2	-0.27	ZZ
LH8DTM		88.82	-0.96	-1.37	103.4	-0.2	-0.28	ZZ
QVXR3R		89.53	-0.25	-0.36	104.2	0.6	1.01	ZZ
R8RCXP		89.09	-0.69	-0.99	103.4	-0.2	-0.38	ZZ
RBU73L		89.95	0.17	0.24	104.6	1.0	1.77	ZZ
WDJ78J		89.67	-0.11	-0.16	103.7	0.1	0.13	ZZ
XBMCE8		89.69	-0.10	-0.14	104.1	0.5	0.91	ZZ
XHPGDH		89.71	-0.07	-0.11	103.9	0.3	0.53	ZZ
XJJWX3		89.38	-0.40	-0.58	102.9	-0.7	-1.18	ZZ
YPZ4H4		89.82	0.04	0.05	103.4	-0.2	-0.32	ZZ
YRR3UG		90.00	0.22	0.31	103.6	0.0	-0.01	ZZ
ZY9YDW		89.31	-0.47	-0.67	103.5	-0.1	-0.21	ZZ

Summary Statistics	Sample GW07	Sample GW08
Grand Means	89.78 g/sq m	103.60 g/sq m
Std Dev Btw Labs	0.70 g/sq m	0.58 g/sq m
Statistics based on 29 of 30 reporting participants.		

Comments on Assigned Data Flags for Test #398

DJB9YM (X) - Data for sample GW08 are low.



Paper & Paperboard Interlaboratory Testing Program
Analysis 398
Grammage (Mass per Unit Area)
TAPPI Official Test Method T410

Report #3192G,
August 2022

Analysis Notes:

XJJWX3 - Data appears to be transposed between samples. CTS will not correct going forward.

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



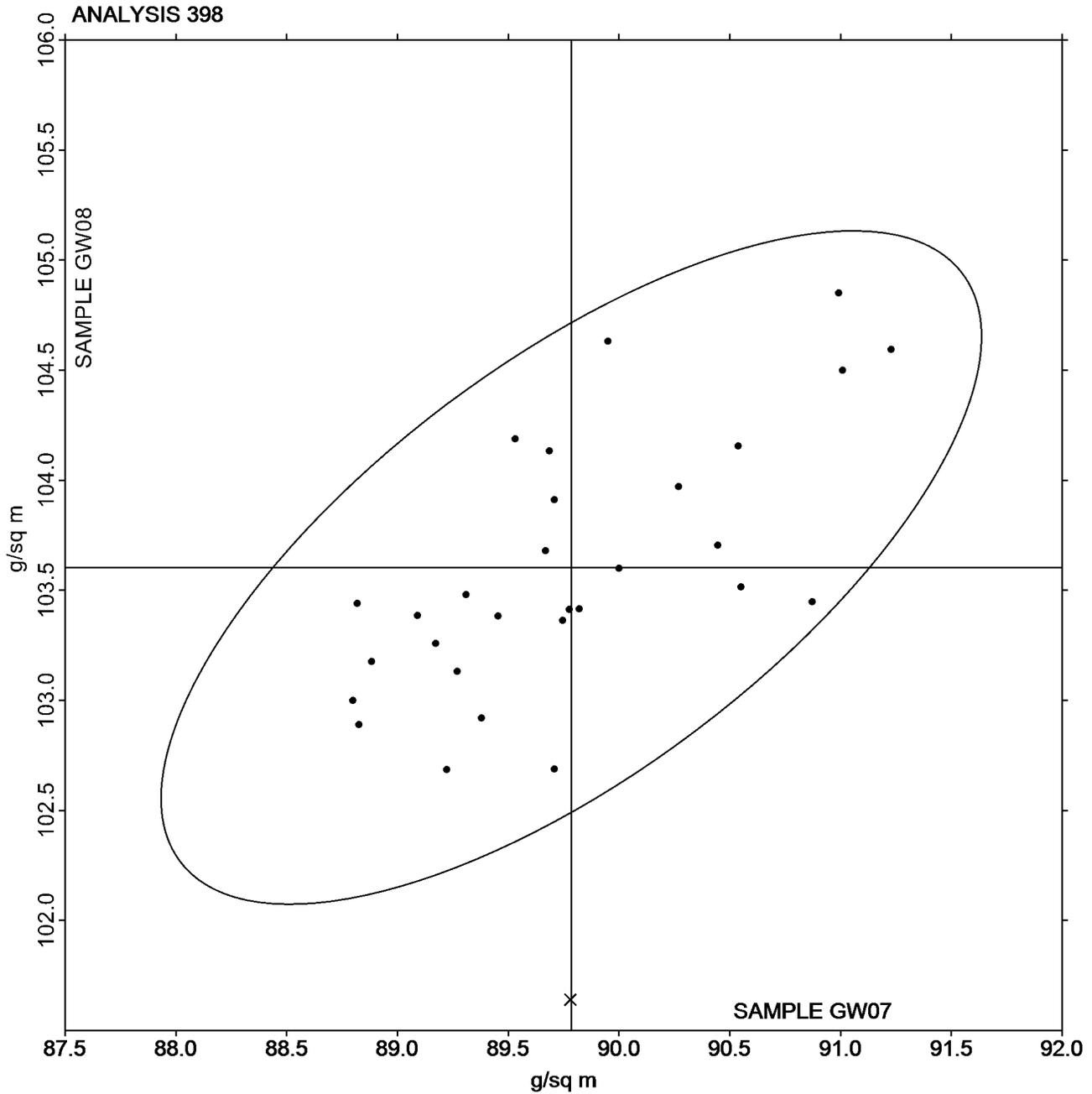
Paper & Paperboard Interlaboratory Testing Program

Report #3192G,
August 2022

Analysis 398 Grammage (Mass per Unit Area) TAPPI Official Test Method T410

Grand Mean Sample GW07 = 89.784
g/sq m

Grand Mean Sample GW08 =
103.60 g/sq m





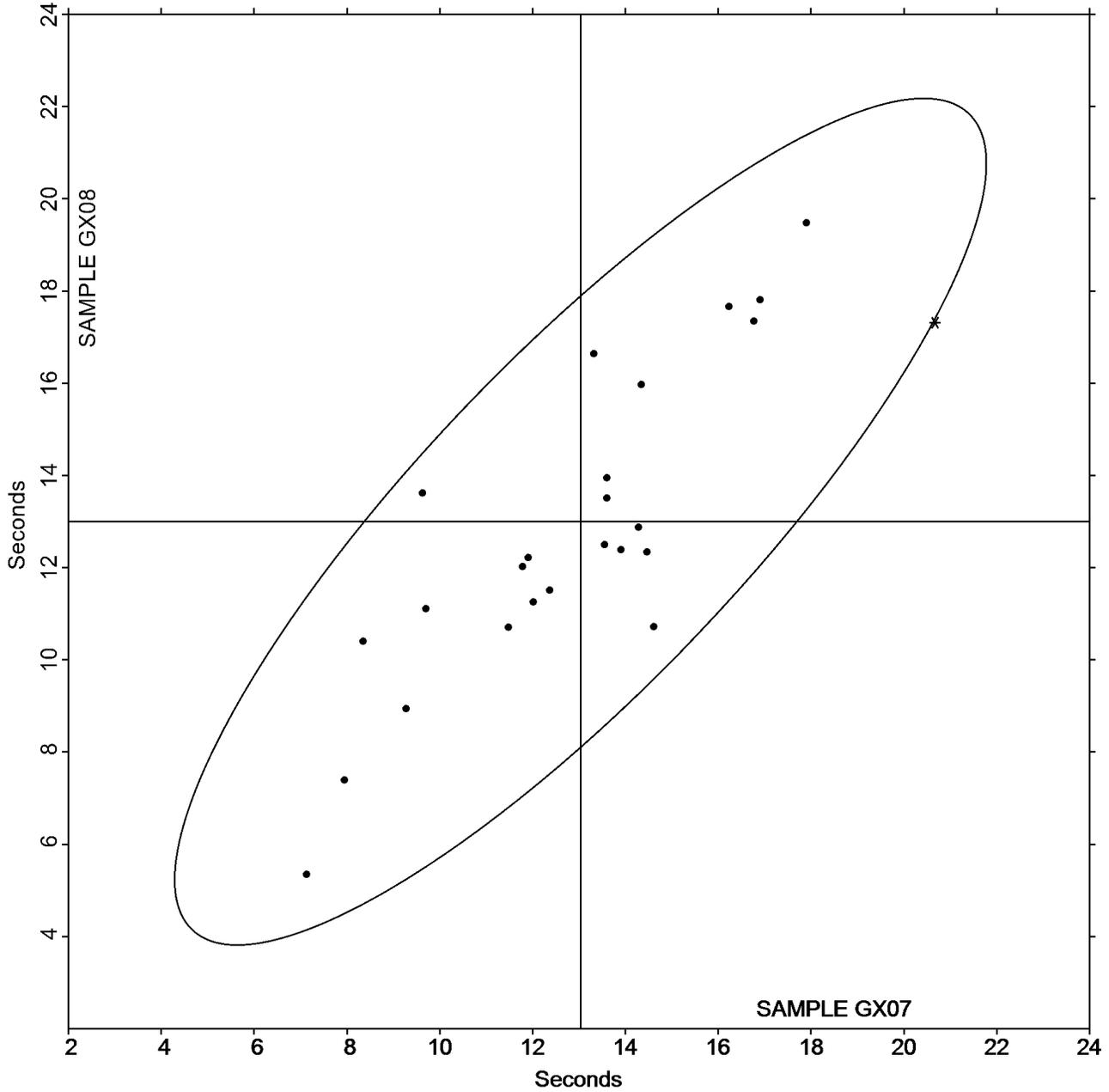
Paper & Paperboard Interlaboratory Testing Program
Analysis 399
Sizing Test (Hercules Type)
TAPPI Official Test Method T530

Report #3192G,
August 2022

Grand Mean Sample GX07 = 13.032
Seconds

Grand Mean Sample GX08 = 12.996
Seconds

ANALYSIS 399



-End of Report-