



Containerboard Interlaboratory Testing Program

Participant Summary Report #657 - June 2024

[Introduction to the Containerboard Program](#)

[Explanation of Tables and Definitions of Terms](#)

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX18</u>	<u>Top to Bottom Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC16</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC16</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42H3</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>207</u>	<u>35E3</u>	<u>Bursting Strength (Mullen), 35 lb Linerboard</u>
<u>215</u>	<u>42H3</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>217</u>	<u>35E3</u>	<u>Ring Crush, 35 lb Linerboard</u>
<u>223</u>	<u>42H3</u>	<u>STFI, 42 lb Linerboard</u>
<u>225</u>	<u>35E3</u>	<u>STFI, 35 lb Linerboard</u>
<u>228</u>	<u>42H3</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42H3</u>	<u>Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42H</u>	<u>Internal Bond, 42 lb Linerboard</u>
<u>234</u>	<u>42H</u>	<u>COF Inclined Plane (Slide Angle), 42 lb Linerboard</u>
<u>237</u>	<u>42H</u>	<u>Air Resistance, 42 lb Linerboard</u>
<u>240</u>	<u>CM13</u>	<u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM13</u>	<u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM13</u>	<u>Ring Crush (RCT), 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM13</u>	<u>STFI, 26 lb Corrugating Medium</u>

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

The Interlaboratory Testing Program for Containerboard is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance provided by the Containerboard Group of the American Forest & Paper Association. The tests are conducted on a monthly basis.

For these tests samples of linerboard and corrugating medium, that each have been separately randomized from narrow rolls, are distributed for testing weekly. One weight of medium (26 lb.) is used for Concora Flat Crush Strength, Corrugated Fluted Crush Strength, Ring Crush Strength, and STFI Compression. Two weights of linerboard are tested each month for Mullen Burst, Ring Crush, and STFI Compression: 42 lb. - every month; 35 lb. and 56 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

Please refer to the section, "EXPLANATION OF TABLES", for definitions of terms and guidelines to interpreting the results.

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

The samples of linerboard and corrugating medium, which have been randomized and placed in sealed packages for distribution in this program, may be used as collaborative reference materials. The values most representative of each material are the Cumulative Grand Means in the latest reports, given at the bottom right of each table. Comparisons can only be made within one lot of material; therefore check your measurements against the Cumulative Grand Means with the same lot code as on the packages being tested.

Material	Lot Code	Dates in Use
26# Corrugating Medium	CM13	September 2023 - Current
	CM12	June 2022 - August 2023
35# Linerboard	35E3	June 2022 - Current
	35E2	June 2020 - April 2022
42# Linerboard	42H3	June 2023 - Current
	42H2	November 2022-October 2023
52# Linerboard	52J1	November 2023 - Current
	56G2	May 2021 - May 2022

ABOUT CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries including rubber, plastics, fasteners and metals, containerboard, paper, color, 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 control objectives. Labs from the U.S., as well as more than 100 countries, currently participate in the CTS programs.

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EXPLANATION OF TABLES

Each analysis is divided into three time spans. On the left side of the table are the individual laboratory results for each week of the month; in the center are each lab's statistical data for the month; and on the right are each lab's cumulative data for up to 16 weeks. At the bottom of the table are the consensus statistics for all the participants for each of the three time spans.

Definitions of Terms Used

Weekly Results

Laboratory Data

- WebCode - A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.
- Weekly Means - The average of the test results obtained by the participant for each week that data were reported.

Consensus Data

- Wk Mean - For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
- Avg SD - For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.
- SD btwn Labs - For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
- Labs Incl - The number of laboratory Means included in the Wk Mean for that week.
- Labs Excl - The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).
- Labs not rcvd - The number of laboratories failing to report for that week.

Monthly Results

Laboratory Data

- Mean - For each laboratory, the average of all the weekly Means reported for this month.
- CPV - **Comparative Performance Value**, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.
- SD - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for all reported Weekly Means this month.
- SD Wk - The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

Consensus Data

- Month Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.
- Avg SD - For the current month, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
- SD btwn Labs - For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
- SD btwn Group - For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.
- SD btwn Wks - For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants, excluding those laboratories flagged with an 'X'.

Cumulative Results

Laboratory Data

- Mean - For each lab, the average of all the monthly Means reported for the weeks shown.
- CPV - **Comparative Performance Value**, an indication of how well a laboratory's cumulative mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean).
- SDr - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for the weeks shown.
- SD Wk - The standard deviation among the laboratory's weekly Means for the weeks shown, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.
- Wks - The number of weeks included in the cumulative period.
- Inst - The two letter instrument code. Codes are summarized at the bottom of the last analysis page.

Consensus Data

- Grand Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for the number of weeks included in the cumulative period.
- Avg SD - For the cumulative period, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
- SD btwn Labs - For the cumulative period, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
- SD btwn Wks - For the cumulative period, the average of the laboratory between week standard deviations for all the participants, excluding those laboratories flagged with an 'X'.
- Labs Incd - The number of laboratory Means included in the Grand Mean.

Any laboratory that receives a 'flag' following a mean or standard deviation should refer to the chart below for an explanation of the data flag symbol:

<u>Flag</u>	<u>Explanation</u>
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Data Flags "X" and "*" indicate a laboratory's performance on an average value differed from the consensus.

Data Flags "H" and "L" indicate a laboratory's performance on a standard deviation differed from the consensus.

Flags assigned to Weekly Means, Monthly Mean and Cumulative Mean:

- X Excluded from the weekly means, monthly means and/or the cumulative mean. Immediate review of data and/or testing procedure is recommended.
- * Included in the weekly means, monthly means and/or the cumulative mean; however, lab should review testing procedure and monitor future results.

Flags assigned to Weekly Means:

- H Indicates high within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory average SD and consensus average SD values are shown.
- L Indicates low within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory monthly average SD and consensus average SD values are shown.

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

- H Indicates high variability between weekly means (high week-to-week variation).
- L Indicates low variability between weekly means (low week-to-week variation).



Containerboard Interlaboratory Testing Program
 Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BX18
 TAPPI Official Test Method T804

Report #657
June 2024

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3UH9EH	604.7	0.54	33.17	696.6	2.47 *	215.39 H	4	LG
48LRQH	549.7	-0.89	28.90	551.0	-0.63	8.78	4	EX
6739JP	568.0	-0.41	39.19	568.0	-0.27	0.00	1	ES
6NPNN8	529.7	-1.41	41.22	518.2	-1.33	39.69	4	LL
7ZXQMB	575.7	-0.21	35.97	570.7	-0.21	32.85	4	LM
9E6Q8P	565.0	-0.49	15.89	542.5	-0.81	31.75	2	EX
9YEJEX	673.7	2.33 *	85.13 H	665.3	1.80	31.88	4	ER
CA3PWL	554.0	-0.78	33.22	574.6	-0.13	16.00	4	ER
CD3ZRL	510.6	-1.91 *	49.15	539.5	-0.88	19.56	4	ER
CHBF2A	620.4	0.95	44.90	617.9	0.79	10.32	3	EX
DRW4AG	593.6	0.25	67.15	596.4	0.33	10.77	4	ES
E8QQGU	599.2	0.40	51.95	582.8	0.05	14.62	4	LG
FD7UZG	602.5	0.48	23.23	608.7	0.60	9.09	4	LO
JGEBPN	610.1	0.68	63.40	578.1	-0.05	28.51	4	ET
KXFFP6	544.1	-1.03	34.90	574.3	-0.14	28.66	4	LS
LPXNGH	600.5	0.43	40.91	599.4	0.40	23.34	4	LS
LUB8XZ	572.2	-0.30	34.23	570.9	-0.21	20.85	4	LG
M4ZGKZ	595.1	0.29	32.61	620.7	0.85	45.94	3	LG
M8UBH2	441.3	-3.71 X	17.13	494.7	-1.83	60.26	4	TB
MCBJ72	660.8	2.00 *	34.27	686.4	2.25 *	18.78	4	LS
P22QRQ	559.6	-0.63	37.04	563.0	-0.38	7.61 L	4	ER
PRW734	547.4	-0.95	25.89	551.8	-0.61	12.41	4	LM
QMFXE4	567.8	-0.42	42.92	551.5	-0.62	24.96	4	LG
V4Q9BD	551.4	-0.84	50.89	515.3	-1.39	27.98	4	LG
VAW23M	625.0	1.07	47.71	583.0	0.05	40.95	4	EX
VMHG7M	573.9	-0.26	25.02	549.8	-0.66	16.74	4	EX
VVBPDQ	571.8	-0.31	24.59	603.3	0.48	21.46	4	EX
ZN2UXF	639.0	1.43	45.16	584.4	0.08	36.68	4	ER

Consensus (All Labs) Results			
Month Mean	583.91	Grand Mean	580.68
Avg SD	42.86	Avg SD Months	49.59
SD btwn Labs	38.47	SD btwn Labs	47.02
Labs Incl	27	Labs Incl	28



Containerboard Interlaboratory Testing Program
Analysis 201

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June 2024

Top to Bottom Box Compression Strength, Corrugated Boxes - BX18

TAPPI Official Test Method T804

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	562.62	39.03	21.29	7
Clip sealing	587.03	31.55	3.12	19
Staple sealing	673.66	0.00	89.75	1

Key to Instrument Codes Reported by Participants

ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	EX	Emerson Apparatus (Model not specified)
LG	TLS / L.A.B. Validator Series	LL	Lansmont 76-5K
LM	Lansmont 122-15k	LO	Lansmont 152-30k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC16
 TAPPI Official Test Method T811

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
4UBGZ8	41.3	-1.49	2.42	42.8	-1.52	2.06	4	TS
7DYJRR	139.0	21.33 X	7.83 H	147.7	29.46 X	7.42 H	4	LD
CD3ZRL	45.2	-0.58	4.42 H	43.9	-1.20	2.12	4	EN
CHVWGC	53.9	1.45	2.76	53.7	1.71	0.97	4	XX
LPXNGH	42.0	-1.33	2.09	45.9	-0.60	2.83	4	LD
PNGBPR	50.1	0.55	1.55	50.3	0.70	1.91	4	XX
QMFXE4	52.0	0.99	1.44	49.8	0.56	1.85	4	EX
VDDAQM	47.2	-0.11	1.09 L	48.4	0.14	1.69	2	LD
VMHG7M	47.7	-0.01	1.16	47.5	-0.13	0.68	4	LC
VVBPQD	49.9	0.52	2.98	49.1	0.34	2.43	4	LC

Consensus (All Labs) Results			
Month Mean	47.71	Grand Mean	47.94
Avg SD	2.43	Avg SD Months	1.94
SD btwn Labs	4.28	SD btwn Labs	3.39
Labs Incd	9	Labs Incd	9

Key to Instrument Codes Reported by Participants

EN	Emerson 2200	EX	Emerson (model not specified)
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
TS	TMI Digital Crush Tester, Model 17-56	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC16
 TAPPI Official Test Method T839

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June 2024

WebCode	Monthly Results				Cumulative Results				Inst
	Mean	CPV	SD		Mean	CPV	SD Months	Months	
3QHJXH	55.4	1.20	1.25		56.1	1.53	0.94	4	LC
3UH9EH	46.9	-0.74	2.12		47.3	-0.87	0.62	4	EM
4G8VZ3	51.2	0.23	2.22		52.0	0.40	2.94	4	TE
4UBGZ8	42.4	-1.76	0.87	L	44.4	-1.63	2.08	4	TS
7ZXQMB	51.4	0.27	3.32	H	50.6	0.04	2.41	4	TG
9YEJEX	54.9	1.07	2.38		54.5	1.09	1.57	4	LD
BWVC42	45.0	-1.17	0.99		46.1	-1.18	1.04	3	BU
C3X8Z7	57.8	1.74	3.91	H	57.0	1.76	0.71	4	TG
C6P4PZ	57.3	1.62	0.77	L	55.3	1.30	2.10	4	TH
CA3PWL	53.4	0.73	2.27		50.9	0.11	2.16	4	LD
CD3ZRL	46.7	-0.79	2.93		47.8	-0.73	1.04	4	EN
CHBF2A	53.4	0.73	1.54		53.7	0.87	1.24	3	CT
D7WJW7	33.0	-3.89	2.13	X	33.5	-4.58	0.66	2	XX
DRW4AG	55.6	1.23	2.11		52.6	0.56	2.99	4	LD
E8QQGU	51.5	0.31	1.00		52.8	0.63	0.94	4	MK
FD7UZG	39.1	-2.51	1.32	*	43.7	-1.83	3.08	4	LD
JGEBPN	49.9	-0.06	2.06		50.1	-0.11	1.92	4	TD
KXFFP6	44.6	-1.26	1.14		46.5	-1.06	2.42	3	EM
LLHYD9	48.2	-0.44	1.21		49.8	-0.18	1.30	4	LD
LPXNGH	48.6	-0.35	1.21		46.9	-0.97	2.02	4	LD
LUB8XZ	45.9	-0.97	1.32		45.5	-1.35	0.38	4	EM
M4ZGKZ	48.6	-0.36	1.03		51.2	0.20	1.97	4	BU
M8UBH2	52.1	0.43	0.76	L	51.1	0.16	1.20	4	LD
MCBJ72	58.0	1.78	2.98		58.7	2.22	0.90	4	EM
P22QRQ	49.2	-0.21	1.35		49.6	-0.25	0.77	4	EM
PNGBPR	49.6	-0.14	1.41		50.0	-0.12	2.35	4	XX
PRW734	47.0	-0.72	0.97		46.6	-1.06	3.17	4	EM
QMFXE4	48.4	-0.40	1.46		48.1	-0.63	0.92	4	LY
RD9HBG	49.3	-0.20	2.02		51.8	0.36	4.97	4	TU
U8X4GB	52.8	0.60	2.81		53.0	0.68	1.85	4	EM
VAW23M	49.1	-0.25	3.58	H	48.9	-0.42	1.10	4	LD
VMHG7M	53.6	0.79	1.55		54.3	1.02	1.08	4	LC
VVBPQD	52.1	0.44	3.06		51.9	0.39	1.71	4	LC
ZN2UXF	46.6	-0.81	2.81		47.0	-0.93	0.77	4	LD



Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC16
TAPPI Official Test Method T839

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Consensus (All Labs) Results			
Month Mean	50.16	Grand Mean	50.48
Avg SD	2.06	Avg SD Months	1.97
SD btwn Labs	4.40	SD btwn Labs	3.71
Labs Incl	33	Labs Incl	33

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	CT	Con-Ten
EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W 830	MK	Mark-10 ESM303
TD	TMI Digital Crush Tester, Model 17-09	TE	TMI Monitor/Compression Tester, Model 17-60
TG	TMI Digital Crush Tester, 17-76	TH	TMI Monitor/Compression Tester, Model 17-76
TS	TMI Digital Crush Tester, Model 17-56	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H3
 TAPPI Official Test Method T807

Report #657
June 2024

WebCode	Weekly Means				Monthly Results					Cumulative Results				
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
2PPPXU	104.5	93.3 XL	97.2 X	105.4	100.1	-3.47 X	6.3	5.9	108.4	-1.72	8.4	6.2	16	LC
34PNLQ	112.1	112.1	117.9	112.3	113.6	-0.34	11.2	2.9	116.5	0.21	10.1	2.9	16	LB
3B2ZEH	115.9	118.1 H	121.7	115.4	117.7	0.62	11.5	2.9	122.6	1.67	10.3	5.6	12	LJ
3H8GAW_AL	109.9	114.1	121.2	116.4	115.4	0.08	9.4	4.7	115.8	0.05	9.4	3.9	16	AL
3YC4E6	111.1	116.7	114.0	109.8	112.9	-0.50	10.2	3.1	112.3	-0.78	9.7	2.9	16	XX
4G8VZ3	113.9	112.2	114.0	118.8	114.7	-0.08	10.2	2.8	116.6	0.24	10.3	2.8	16	LC
4YQPN7_AL	113.4	115.7	114.3	116.1	114.9	-0.04	7.7	1.2	114.6	-0.24	8.9	2.9	16	AL
6RZYEG_AL	119.0	115.0	111.9	116.9	115.7	0.15	7.0	3.0	115.6	0.01	9.3	3.1	16	AL
72QJHT	107.0 H	112.6	116.4	113.9	112.5	-0.60	16.3	4.0	114.7	-0.20	12.1	3.8	16	LA
7DYJRR	106.1	104.3 *	111.5	105.3	106.8	-1.92	9.0	3.2	104.5	-2.65 *	9.2	2.6	16	LA
8LA24Y	104.5	106.9	110.9	104.4 *	106.7	-1.94 *	8.9	3.0	111.2	-1.05	9.2	4.1	16	LA
8VF9JY	117.5 L	117.0 L	117.5 L	117.3 L	117.3	0.52	2.9	0.2 L	119.6	0.95	3.6	1.8	16	AH
9E6Q8P	116.4	115.4	113.2	122.2	116.8	0.40	9.7	3.8	117.9	0.54	8.4	3.0	16	XX
9GUTFY	115.0	116.7 L	114.4	115.5 L	115.4	0.08	4.3	1.0	115.4	-0.03	5.1	0.6 L	16	LA
9PPVGB_AL	117.7	116.1	122.7	117.4	118.5	0.80	10.0	2.9	118.8	0.77	9.2	3.6	16	AL
9TP7BP	117.9	107.8	115.7	115.1	114.1	-0.22	9.5	4.4	112.0	-0.86	8.5	3.7	14	LJ
9TP7BP_AL	122.6	125.6 *	111.8	116.0	119.0	0.91	6.7	6.3 H	123.3	1.83	8.4	4.6	14	AL
9XYMKD	113.4	120.3	118.3	120.2	118.1	0.69	7.6	3.2	117.6	0.48	9.4	3.3	8	XX
9YEJEX	113.1	110.6	115.0	114.3	113.3	-0.42	6.6	1.9	113.9	-0.41	7.1	2.6	12	LC
A2AWBM_AI	119.6	122.1	120.6	122.1	121.1	1.40	8.3	1.2	122.0	1.52	9.1	1.9	16	AL
ABYL8A	102.6 *L	105.3 *L	104.2 *L	104.3 *	104.1	-2.54 *	3.1	1.1	108.9	-1.60	2.6	4.1	12	LA
CA3PWL	115.4	117.0	120.8	123.8	119.3	0.97	10.0	3.8	118.1	0.60	8.9	2.8	16	AH
CHBF2A	110.5	116.5	116.0	119.0 H	115.5	0.10	10.5	3.6	116.8	0.30	10.2	2.7	12	XX
DFJKCF	125.8 *	121.0	122.9	120.5	122.6	1.73	7.9	2.4	120.0	1.05	7.4	2.6	16	LA
DRW4AG	111.8	114.1	113.2	114.6	113.4	-0.38	8.6	1.2	114.7	-0.22	10.2	2.2	16	LA
GQUFHG_AL	110.8	110.1	111.2	108.2	110.1	-1.16	6.9	1.3	109.8	-1.38	6.8	2.1	16	XX
HLD8UH_AL	118.3 H	125.6 *	121.8 H	125.4 *H	122.8	1.78	14.9	3.5	122.9	1.75	13.0	3.4	16	AL
JNEVPX_AL	119.1 L	120.4	116.9	115.8	118.0	0.69	6.0	2.1	117.4	0.43	8.0	3.1	16	AL
KD9AZB	119.8	118.8	118.8	117.8	118.8	0.87	5.7	0.8	118.6	0.71	6.6	2.4	9	AH
KJD7LV_AL	115.6	117.2	115.4	121.4	117.4	0.54	9.5	2.8	117.2	0.39	8.5	3.5	16	AL
KWNJZB	101.3 *	111.3	107.4	110.7	107.7	-1.71	9.2	4.6	110.4	-1.23	8.5	3.7	16	LC
L9VPTP_AL	119.8	117.8	121.8	123.8	120.8	1.33	10.8	2.6	119.9	1.03	9.9	4.1	12	AL
LAT3CB	114.0	119.6	119.2	111.2 L	116.0	0.22	7.7	4.1	111.6	-0.95	8.1	7.6	16	LZ
LMVQ7Q	112.8	108.8	111.5	110.3	110.8	-0.98	6.9	1.7	111.1	-1.08	6.5	2.6	12	XX
LPXNGH	120.5	114.1	116.9	114.9	116.6	0.35	7.6	2.9	115.6	0.01	10.5	4.0	16	LA



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H3
 TAPPI Official Test Method T807

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
LW37CX	113.7	121.1	115.0	120.7 H	117.6	0.59	10.4	3.8	117.3	0.42	10.6	2.3	16	LC
MYMGN9_AI	115.3	111.8 L	113.4	113.9	113.6	-0.34	3.9	1.4	114.0	-0.38	7.6	2.4	10	XX
P2LUZQ	122.2	117.2	125.6	* NO DATA	121.7	1.53	7.8	4.2	119.3	0.89	6.6	3.5	7	AX
P2LUZQ_AL	111.2 L	106.9	112.0	NO DATA	110.0	-1.17	6.8	2.7	107.9	-1.83	8.3	4.6	7	AL
P7D2HZ	115.8	115.5	112.9	114.8	114.8	-0.07	5.7	1.3	115.6	0.00	5.5	1.1 L	16	AH
PNGBPR	116.4	114.7	118.3	111.8	115.3	0.05	7.2	2.8	115.1	-0.12	7.8	2.4	16	LC
Q3APZ6	119.8	111.3	116.2	108.3	113.9	-0.27	8.5	5.1	116.5	0.22	8.4	3.4	16	TB
Q6K6U7_AL	114.2	117.1	112.2	110.4	113.5	-0.37	10.1	2.9	113.9	-0.39	12.5	4.0	16	AL
QCXGLW	97.0 X	95.0 X	97.0 X	97.1 X	96.5	-4.30 X	8.9	1.0	121.6	1.42	8.9	16.7 H	16	AX
QMFXE4	126.8 *	124.2	121.0	118.8	122.7	1.77	10.7	3.5	123.0	1.75	9.6	4.2	16	AX
QQEC3T	114.2	117.0	115.3	116.4	115.7	0.15	5.0	1.2	115.4	-0.05	5.8	1.0 L	16	LJ
R4JUDT_AL	110.9	115.3	113.9	113.1	113.3	-0.41	9.5	1.9	113.1	-0.59	9.7	2.6	16	AL
RFBGJN	118.9	117.2	121.0	117.9	118.8	0.85	10.6	1.6	119.8	1.00	10.7	2.1	16	LJ
RH3C9H	88.1 X	83.6 X	84.3 X	84.3 X	85.0	-6.96 X	7.2	2.0	85.0	-7.27 X	7.2	2.0	4	LC
U94THY	116.6	108.2	109.6	116.4	112.7	-0.55	5.8	4.4	114.1	-0.34	8.5	5.8	15	ME
UKHQM3	115.1	117.2	111.6	119.4	115.8	0.17	7.7	3.3	118.1	0.61	8.9	2.8	16	LA
UKHQM3_AL	117.9	113.9	116.5	119.2	116.9	0.42	4.9	2.2	117.0	0.34	6.0	2.5	16	AL
UU7H9U	115.0 H	118.1	122.8	111.8	116.9	0.43	11.3	4.7	118.3	0.64	10.0	3.4	16	LC
UU7H9U_AL	119.8	116.3	122.9	125.4 *	121.1	1.39	9.0	3.9	119.6	0.97	9.3	2.9	16	AL
VAW23M	112.4 L	110.0	109.2	110.0	110.4	-1.08	6.0	1.4	112.6	-0.71	7.4	3.0	16	AH
VERV3A_AL	103.1 *H	109.0	106.0 *	107.6	106.4	-2.00 *	18.5	2.5	107.9	-1.84	13.6	4.1	16	AL
VMHG7M	115.0	108.5	110.5	108.6	110.7	-1.02	9.0	3.1	112.6	-0.72	9.6	3.3	16	AH
ZJ8WAP	116.8	116.0	112.9	113.9	114.9	-0.04	5.3	1.8	115.0	-0.15	5.4	1.2	16	TP
ZN2UXF	110.4	107.9	109.4	107.5	108.8	-1.46	9.1	1.3	110.3	-1.27	9.8	3.1	16	LZ

Consensus (All Labs) Results														
Wk Mean	114.57	114.84	115.52	114.95	Month Mean	115.06			Grand Mean	115.59				
Avg SDr	10.26	8.36	8.77	8.29	Avg SD	8.96			Avg SD	8.89				
SD btwn Labs	5.38	4.93	4.73	5.35	SD btwn Labs	4.31			SD btwn Labs	4.20				
Labs Incl	57	56	56	55	SD btwn Wks	3.05			SD btwn Wks	4.05				
Labs Excl	2	3	3	2	Labs Incl	56			Labs Incl	58				
Labs not Rcvd	0	0	0	2										



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H3
TAPPI Official Test Method T807

Report #657
June 2024

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AL	L & W Autoline 400
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (205 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
ME	Messmer Automatic Burst Tester ME-06	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E3
 TAPPI Official Test Method T807

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2PPPXU	87.4	81.4 *L	83.4 *	85.8	84.5	-1.95 *	5.5	2.6	88.6	-0.91	7.0	4.3	12	LC
34PNLQ	92.4	89.4	94.8	90.2	91.7	-0.01	7.4	2.4	91.9	0.03	8.2	1.8	12	LB
3B2ZEH	89.1	101.9 *H	101.7 *	96.6	97.3	1.51	10.4	6.0 H	91.5	-0.10	8.6	6.1	12	LJ
3H8GAW_AL	88.3	85.4	83.7 *	92.7	87.5	-1.13	9.2	3.9	89.8	-0.57	8.4	3.1	12	AL
3YC4E6	89.3	88.1	83.9 *	85.7	86.7	-1.34	9.1	2.4	88.2	-1.00	9.6	2.2	12	XX
4G8VZ3	86.8	90.0	90.8	90.6	89.6	-0.58	8.1	1.9	90.1	-0.48	8.7	1.7	12	LC
4YQPN7_AL	91.8	89.7	93.4	90.4	91.3	-0.10	9.4	1.6	88.7	-0.88	8.4	3.2	12	AL
6RZYEG_AL	93.5	85.1	91.5	90.1	90.1	-0.44	7.6	3.6	90.6	-0.34	6.9	3.3	12	AL
72QJHT	90.7	82.4 *H	90.8	86.9	87.7	-1.08	10.6	4.0	90.6	-0.35	8.8	4.4	12	LA
7DYJRR	83.5	89.6	87.3	83.7	86.0	-1.53	8.3	2.9	82.5	-2.60 *	8.3	3.9	12	LA
8LA24Y	82.8	85.3	87.3	87.2	85.6	-1.63	6.4	2.1	88.9	-0.82	7.6	4.0	12	LA
8VF9JY	96.2	96.3	96.1 L	96.4	96.3	1.22	3.7	0.1 L	99.6	2.17 *	3.6	2.7	12	AH
9E6Q8P	94.1	92.3	87.1	93.7	91.8	0.03	8.0	3.3	91.6	-0.07	7.8	3.2	12	XX
9GUTFY	91.4 L	91.0 L	91.5	92.0 L	91.5	-0.07	2.6	0.4 L	91.5	-0.11	2.8	0.4 L	12	LA
9PPVGB_AL	91.3	91.5	92.8	97.3	93.2	0.41	8.8	2.8	92.1	0.07	9.0	5.1	8	AL
9TP7BP	91.0	90.1	87.5	87.0	88.9	-0.76	5.3	2.0	88.1	-1.03	6.4	2.5	12	LJ
9TP7BP_AL	84.7	92.8	90.6	94.3	90.6	-0.30	6.3	4.2	90.4	-0.41	7.0	3.2	12	AL
9XYMKD	90.6	94.3	94.3	97.2	94.1	0.64	7.7	2.7	94.1	0.63	7.7	2.7	4	XX
9YEJEX	91.7	92.5	92.0	91.2	91.8	0.03	4.9	0.5	92.8	0.27	5.3	1.9	8	LC
A2AWBM_AI	94.9	93.1	94.6	90.9	93.4	0.44	5.2	1.8	95.2	0.93	6.6	3.1	12	AL
ABYL8A	85.4 L	84.5 L	84.8 L	84.6 L	84.8	-1.85	1.9	0.4 L	84.4	-2.06 *	2.6	0.5 L	12	LA
CA3PWL	99.6	93.4	98.4	101.5 *	98.2	1.75	6.1	3.5	97.0	1.43	7.9	2.9	12	AH
CHBF2A	91.0	90.0	95.0	91.5	91.9	0.04	7.7	2.2	93.8	0.54	8.1	2.8	12	XX
DFJKCF	93.0	92.8	91.2	94.6	92.9	0.32	5.6	1.4	96.0	1.16	5.2	7.0 H	12	LA
DRW4AG	86.5	87.0	87.5	93.6	88.7	-0.83	7.7	3.3	90.1	-0.48	8.2	3.3	12	LA
GQUFHG_AL	89.7	89.7	87.8	88.3	88.9	-0.76	5.8	1.0	88.9	-0.81	5.7	1.0	8	XX
HLD8UH_AL	98.0	98.4	97.8 H	94.8 H	97.3	1.49	12.5	1.6	98.8	1.92	10.3	3.1	12	XX
KD9AZB	96.4	99.8 *L	99.8 L	95.8	98.0	1.68	4.6	2.2	96.8	1.37	5.2	2.2	10	AH
KJD7LV_AL	93.6	91.5	90.1	94.7	92.5	0.20	8.0	2.1	92.3	0.14	7.4	2.3	12	AL
KWNJZB	84.8	91.3	90.6	88.0	88.7	-0.82	7.7	2.9	89.6	-0.61	6.7	2.5	12	LA
L9VPTP_AL	94.6 H	95.5	92.0	93.1	93.8	0.56	9.7	1.6	94.3	0.67	9.3	3.4	8	AL
LAT3CB	98.1 H	88.8	97.7	91.5	94.0	0.62	11.0	4.6	93.7	0.51	8.1	3.6	12	LZ
LMVQ7Q	91.5	90.8	89.4	90.3	90.5	-0.33	5.6	0.9	89.9	-0.55	5.7	1.6	12	XX
LPXNGH	96.2	93.3	92.2	91.4	93.3	0.43	8.7	2.1	91.7	-0.03	8.3	2.6	12	LA
LW37CX	93.3	93.0	92.2	92.7	92.8	0.30	8.6	0.5	93.5	0.46	9.3	1.9	12	LC



Containerboard Interlaboratory Testing Program
 Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E3
 TAPPI Official Test Method T807

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
MYMGN9_AI	102.1 *L	99.6 L	99.2 L	98.1 L	99.8	2.16 *	1.4	1.7	94.0	0.60	5.6	5.4	10	XX
P2LUZQ	89.8	96.0	95.2	No DATA	93.7	0.52	6.5	3.4	93.2	0.37	6.2	2.5	7	AX
P2LUZQ_AL	91.0	85.8	89.3	No DATA	88.7	-0.81	4.7	2.7	86.3	-1.55	5.2	5.3	6	AL
P7D2HZ	91.9	91.4	89.3	91.2	91.0	-0.21	5.5	1.1	91.2	-0.17	5.3	1.2	12	AH
Q3APZ6	93.9	90.1	92.0	89.8	91.4	-0.08	8.7	1.9	92.6	0.21	8.3	2.2	12	TB
Q6K6U7_AL	85.3	90.7	89.9	96.2	90.5	-0.32	7.8	4.4	91.9	0.01	7.7	3.4	12	AL
QCXGLW	97.0	95.0	96.5	97.5	96.5	1.29	9.5	1.1	100.8	2.47 *10.8	4.8	8	AX	
QMFXE4	96.6	96.7	97.3	103.4 *	98.5	1.82	7.6	3.3	97.9	1.67	8.2	2.5	12	AH
QQEC3T	91.6	92.3	90.9	90.8	91.4	-0.09	4.1	0.7	91.5	-0.10	5.7	0.9	12	LJ
R4JUDT_AL	89.0	90.7	88.8	85.9	88.6	-0.84	8.5	2.0	88.9	-0.81	8.8	2.3	12	AL
RFBGJN	93.8	97.3	94.6	95.9	95.4	0.99	9.0	1.5	94.0	0.59	8.4	2.4	12	LJ
RH3C9H	104.2 *	105.5 X	105.2 X	106.5 X	105.3	3.66 X	9.1	0.9	105.3	3.75 X	9.1	0.9	4	LC
U94THY	98.7	93.5	95.2	97.0	96.1	1.18	6.4	2.2	94.3	0.68	7.1	2.1	12	ME
UKHQM3	91.9	94.0	96.6	90.9	93.4	0.44	8.0	2.5	93.9	0.57	8.2	2.1	12	LA
UKHQM3_AL	90.1	95.4	92.1	90.3	92.0	0.07	6.3	2.5	93.0	0.31	6.7	2.6	12	AL
UU7H9U	96.9	92.9	93.7	94.5	94.5	0.75	8.0	1.7	93.9	0.57	8.6	2.3	12	LC
UU7H9U_AL	97.3	93.1	93.7	98.6	95.7	1.06	8.1	2.7	95.2	0.93	8.8	2.2	12	XX
VAW23M	88.8	92.4	89.6	92.0	90.7	-0.27	6.6	1.8	90.6	-0.35	7.9	2.6	12	AH
VERV3A_AL	87.4	85.0	88.2	81.6 *	85.5	-1.67	7.9	3.0	85.2	-1.84	7.4	2.6	12	AL
VMHG7M	91.4	89.4	93.8	93.7	92.1	0.09	8.4	2.1	90.0	-0.52	8.1	2.3	12	AH
ZJ8WAP	89.1	90.9	88.4	89.7	89.5	-0.59	4.8	1.1	90.8	-0.28	4.7	1.4	12	TP
ZN2UXF	81.8 *	89.4	88.8	82.7 *	85.7	-1.63	8.2	4.0	86.6	-1.44	7.8	3.1	12	LA

Consensus (All Labs) Results												
Wk Mean	91.80	91.49	91.87	91.96	Month Mean	91.72	Grand Mean	91.84				
Avg SDr	7.87	7.86	7.17	7.15	Avg SD	7.50	Avg SD	7.52				
SD btwn Labs	4.72	4.22	4.15	4.59	SD btwn Labs	3.72	SD btwn Labs	3.60				
Labs Incl	57	56	56	54	SD btwn Wks	2.59	SD btwn Wks	3.13				
Labs Excl	0	1	1	1	Labs Incl	56	Labs Incl	56				
Labs not Rcvd	0	0	0	2								



Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E3
TAPPI Official Test Method T807

Report #657
June 2024

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AL	L & W Autoline 400
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (207 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
ME	Messmer Automatic Burst Tester ME-06	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42H3
 TAPPI Official Test Method T822

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2PPPXU	91.5	91.4	90.2	94.4	91.9	-1.07	4.2	1.8	92.2	-1.11	3.9	2.0	16	LD
34PNLQ	99.4	93.6 H	99.6	97.8	97.6	0.73	5.0	2.8	96.8	0.56	5.0	1.9	16	LD
3H8GAW	97.1	97.6	98.4	96.2	97.3	0.65	3.1	0.9	97.2	0.71	2.6	1.2	16	LD
3QHXLJH	96.9	94.7	95.3	92.7	94.9	-0.12	2.9	1.7	95.3	0.02	3.0	1.5	16	LC
4G8VZ3	96.9	96.3	97.5	97.5	97.1	0.56	3.2	0.6	97.0	0.64	6.0	4.4	16	MB
4HF9FJ	93.6 L	92.6	93.4 L	93.6	93.3	-0.62	1.6	0.5	93.5	-0.65	2.0	1.7	16	LD
4P22QJ	78.5 XH	80.6 X	81.1 X	80.1 XH	80.1	-4.78 X	4.5	1.2	86.5	-3.21 X	3.8	6.4 H	16	EM
4T3AVT	91.5	92.3	91.9	92.3	92.0	-1.03	3.3	0.4	94.2	-0.38	2.9	3.5	13	LD
6RZYEG	95.3	96.8	96.6	96.6	96.3	0.32	3.4	0.7	96.0	0.27	2.8	1.5	16	LD
7DYJRR	135.1 X	135.9 X	139.9 X	136.5 X	136.8	13.09 X	4.1	2.1	107.4	4.44 X	17.7	18.0 H	16	LB
7LVHJ2	96.4	97.3	98.9 L	98.0	97.7	0.75	2.9	1.1	97.7	0.89	2.9	1.1	4	LD
7UL3ME	96.4	95.6	97.4	96.6	96.5	0.39	3.5	0.7	97.8	0.94	4.4	2.6	16	MB
8VF9JY	96.1	96.1	96.5	96.7 L	96.3	0.34	3.3	0.3	94.9	-0.11	2.9	1.1	16	LD
8X2UBL	101.7	103.1 *	101.0 L	95.9	100.4	1.62	3.3	3.1	100.1	1.76	6.0	3.2	16	TU
9XYMKD	104.4 *H	104.5 *	102.0	101.6 *	103.1	2.47 *	4.4	1.5	99.1	1.40	5.3	4.6	8	LD
ABYL8A	92.6 L	91.5 L	91.8 L	91.7 L	91.9	-1.06	0.8	0.5	94.3	-0.36	1.0	2.5	12	TU
C3X8Z7	93.6	95.4	92.4	97.2 L	94.6	-0.20	2.4	2.1	96.9	0.62	2.9	2.1	16	TH
CA3PWL	95.0	94.2	92.7 L	94.0	94.0	-0.41	2.3	1.0	94.7	-0.19	2.6	1.2	16	LD
CD3ZRL	88.8 *	86.6 *	86.7 *L	88.6 *	87.7	-2.38 *	2.4	1.2	88.0	-2.63 *	2.5	1.3	16	LC
DFJKCF	95.0	96.7	94.1	97.6	95.9	0.18	3.5	1.6	91.3	-1.45	3.0	3.4	16	LC
ECHXZ4	94.9 L	93.8 L	94.2 L	93.6	94.1	-0.36	1.4	0.6	94.2	-0.38	1.4	0.6 L	16	LZ
F6EBL9	95.5 L	95.3 L	95.2 L	95.3 L	95.3	0.02	0.5	0.1 L	95.8	0.20	1.3	1.0	16	MZ
F8LTJ4	94.8	94.4	94.3 L	94.7	94.5	-0.23	1.6	0.2 L	95.6	0.14	1.6	1.1	16	MB
GQUFHG	95.9	96.0	95.3 L	96.2	95.8	0.18	2.7	0.4	96.3	0.38	2.8	1.0	13	LD
HLD8UH	78.0 XH	80.0 XH	75.9 X	77.2 XH	77.8	-5.51 X	8.2	1.7	86.0	-3.39 X	7.0	14.2 H	16	LZ
KJD7LV	95.2	96.4	95.6	95.3	95.6	0.11	3.3	0.5	96.5	0.48	3.3	1.5	16	LC
KWNJZB	97.0	95.0	94.4 L	96.9	95.8	0.17	2.5	1.3	94.4	-0.29	2.5	1.4	16	LD
LAT3CB	95.3	95.1	96.8	99.5	96.7	0.44	5.0	2.0	96.2	0.36	4.9	3.4	16	LC
LMVQ7Q	91.2	90.9 H	91.9	88.2 *	90.6	-1.49	6.1	1.6	92.6	-0.97	6.0	2.4	12	TU
LPXNGH	91.2 L	92.6	91.4	92.4	91.9	-1.06	2.6	0.7	93.0	-0.81	2.6	1.4	16	LD
LW37CX	94.0	97.2	94.3	94.0	94.9	-0.12	3.1	1.6	95.0	-0.10	2.5	2.2	16	LD
Q3APZ6	92.9	93.1	98.1	94.5	94.7	-0.19	4.5	2.4	95.3	0.02	4.2	2.1	16	LD
Q6K6U7	98.5	97.2	97.5 L	97.0	97.5	0.71	4.0	0.7	96.7	0.53	3.9	1.9	16	LD
QCXGLW	89.7	88.3 *	86.6 *	87.7 *	88.1	-2.27 *	3.8	1.3	87.9	-2.68 *	6.0	5.9 H	16	LD
QMFXE4	93.6	93.9	95.5 L	93.0	94.0	-0.40	2.5	1.1	94.6	-0.25	2.6	2.0	16	LG



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42H3
 TAPPI Official Test Method T822

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
QQEC3T	96.0	95.1	95.3	95.5	95.5	0.06	2.7	0.4	95.1	-0.05	2.6	0.7	L 16	LD
R4JUDT	66.8 XH	67.8 XH	65.7 XH	69.5 XH	67.5	-8.76	X 9.1	1.6	69.0	-9.59	X 8.9	1.9	16	LD
RH3C9H	96.3	93.4	92.2	92.7	93.6	-0.51	3.5	1.8	93.6	-0.58	3.5	1.8	4	LZ
U8X4GB	98.0	97.9	88.2	H 94.4	94.6	-0.21	14.3	4.6 H	94.4	-0.32	7.8	2.2	16	EM
U94THY	104.0 *	102.3 *	100.3	103.1 *	102.4	2.25 *	3.6	1.6	100.9	2.05 *	4.3	4.9	14	LX
UKHQM3	97.7	94.6	96.8	L 97.2	96.6	0.41	3.1	1.4	97.5	0.82	3.1	1.4	16	LD
UU7H9U	89.7	91.0	92.5	91.6	91.2	-1.28	4.7	1.2	93.3	-0.73	3.7	3.8	16	LD
VMHG7M	97.3 L	94.5	93.7	L 94.7	95.0	-0.07	2.1	1.6	96.1	0.33	2.3	1.6	16	LC
YK8D9G	101.7 L	101.8	103.5 *	100.8 L	101.9	2.10 *	1.9	1.1	101.2	2.17 *	2.9	1.5	16	LD
YMM6XN	95.3 L	95.4 L	95.5 L	95.4 L	95.4	0.04	0.4	0.1 L	95.4	0.05	1.1	0.6	L 12	MZ
ZJ8WAP	98.2	94.5	99.4	91.4	95.9	0.19	4.0	3.6 H	95.6	0.12	3.1	2.1	16	TX
ZN2UXF	96.0	97.7	96.6	95.6	96.5	0.38	3.2	0.9	91.4	-1.41	4.3	5.7	H 16	LD

Consensus (All Labs) Results									
Wk Mean	95.63	95.19	95.15	95.11	Month Mean	95.27	Grand Mean	95.23	
Avg SDr	3.33	3.47	5.37	2.99	Avg SD	3.90	Avg SD	3.70	
SD btwn Labs	3.44	3.48	3.71	3.21	SD btwn Labs	3.18	SD btwn Labs	2.73	
Labs Incl	43	43	43	43	SD btwn Wks	1.59	SD btwn Wks	2.57	
Labs Excl	4	4	4	4	Labs Incl	43	Labs Incl	43	
Labs not Rcvd	0	0	0	0					

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	LB	L&W Crush Tester 240
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LG	L&W 753	LX	L&W 506
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
MZ	Messmer Buchel (model not specified)	TH	TMI Compression Tester, Model 17-76
TU	TMI Universal Crush Tester (TMI K440)	TX	TMI Digital Crush Tester (model not specified)



Containerboard Interlaboratory Testing Program
 Analysis 217
Ring Crush, 35 lb Linerboard - 35E3
 TAPPI Official Test Method T822

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2PPPXU	71.2 XH	76.4 *	77.6	80.5	76.4	-1.99 *	5.2	3.9	81.0	-0.34	4.7	4.4	12	LD
34PNLQ	83.9	79.3 H	84.2	83.4	82.7	0.29	4.8	2.3	82.2	0.10	4.6	1.4	12	LC
3H8GAW	84.0	84.6	84.7	85.9	84.8	1.06	3.3	0.8	84.6	0.96	2.6	0.8 L	12	LD
3QHXLJH	82.3	81.5	83.0	80.7	81.9	-0.01	3.4	1.0	82.1	0.05	3.7	1.6	12	LC
4G8VZ3	86.5	84.2	82.5	86.5 H	84.9	1.11	4.3	2.0	83.7	0.63	5.0	4.8	12	MB
4HF9FJ	79.7 L	80.0 L	79.3 L	79.2 L	79.6	-0.84	1.5	0.4 L	81.2	-0.27	2.4	2.5	12	LD
4P22QJ	63.9 X	67.9 X	71.7 *	64.1 X	66.9	-5.45 X	3.3	3.7	72.4	-3.36 X	3.8	4.5	12	EM
4T3AVT	79.3	77.4	78.9	82.3	79.5	-0.88	3.6	2.1	82.8	0.30	3.4	3.9	10	LD
6RZYEG	84.8	84.6	82.6	82.3	83.6	0.61	4.3	1.3	83.7	0.63	3.8	0.9	12	LD
7DYJRR	74.3 *H	73.1 XH	73.1 *H	73.4 XH	73.5	-3.06 X	15.1	0.5	73.1	-3.12 X	14.8	1.5	12	LB
7LVHJ2	87.0	84.6	83.6	83.7	84.7	1.03	2.9	1.6	84.7	0.98	2.9	1.6	4	LD
7UL3ME	81.8	82.3	80.9	84.6	82.4	0.19	5.0	1.5	84.9	1.06	4.4	2.9	12	MB
8VF9JY	85.5	85.4	85.7	85.5	85.5	1.32	2.9	0.2 L	87.3	1.89	2.9	3.0	12	LD
8X2UBL	87.4	80.9	79.0	80.6	82.0	0.04	4.5	3.7	84.7	0.96	5.9	3.6	12	TU
9XYMKD	79.1	79.3	80.4	81.2	80.0	-0.69	4.5	1.0	80.0	-0.68	4.5	1.0	4	LD
ABYL8A	78.1 L	77.6	75.8 L	76.5 *L	77.0	-1.78	1.3	1.1	80.1	-0.64	1.3	2.4	12	TU
C3X8Z7	74.5 *	80.6	82.6	81.5	79.8	-0.77	3.5	3.6	81.9	-0.01	2.9	2.6	12	TH
CA3PWL	82.8	82.3	82.8	81.9	82.5	0.21	2.9	0.4	82.1	0.06	2.9	1.0	12	LD
CD3ZRL	78.6	77.5	80.6	82.7	79.8	-0.74	3.3	2.3	80.3	-0.57	3.4	1.6	12	LC
DFJKCF	85.9	80.5	79.0	81.4	81.7	-0.07	2.9	3.0	78.0	-1.38	4.1	5.8	12	LC
ECHXZ4	78.4	79.8 L	78.8	80.0	79.2	-0.96	2.9	0.8	79.5	-0.87	2.3	1.1	12	LZ
F6EBL9	82.4 L	82.6 L	82.5 L	82.9 L	82.6	0.26	0.8	0.2 L	83.3	0.49	1.9	0.8 L	8	MZ
F8LTJ4	82.2 L	82.6	82.9 L	82.7	82.6	0.26	1.7	0.3 L	82.0	0.04	1.7	0.6 L	8	MB
GQUFHG	85.4	85.0	85.5	84.8	85.2	1.20	2.7	0.4 L	85.2	1.14	2.9	0.7 L	8	LD
HLD8UH	89.2 *	81.8	89.0 *	64.4 XH	81.1	-0.29	4.9	11.7 H	74.9	-2.49 *	6.8	11.9 H	12	LZ
KJD7LV	82.7	86.2	83.5	82.9	83.8	0.71	4.0	1.6	82.9	0.35	3.9	1.5	12	LC
KWNJZB	82.6 L	83.0	82.4	83.3	82.8	0.35	2.1	0.4 L	82.9	0.33	3.0	1.4	12	LD
LAT3CB	88.1	89.6 X	88.1	88.7 *	88.6	2.44 *	4.5	0.7	83.8	0.65	3.9	4.7	12	LC
LMVQ7Q	75.7	77.3	76.1	75.3 *	76.1	-2.11 *	4.7	0.8	77.9	-1.44	5.2	1.8	12	TU
LPXNGH	79.9	79.7	80.5	79.4	79.9	-0.73	3.4	0.5	79.9	-0.71	3.6	1.9	12	LD
LW37CX	79.1	84.0	86.2	81.4	82.7	0.28	3.2	3.0	81.0	-0.32	2.8	2.3	12	LD
Q3APZ6	79.2 H	79.7	78.0	77.9 H	78.7	-1.16	6.0	0.9	79.2	-0.96	5.6	1.7	12	LC
Q6K6U7	86.1	84.8	82.3	82.5	83.9	0.75	3.6	1.9	82.6	0.24	4.0	1.5	12	LD
QCXGLW	80.5	80.5 H	79.5	78.5	79.7	-0.78	5.2	1.0	76.6	-1.89	4.6	7.9 H	12	LD
QMFXE4	83.3	82.0	82.3	83.2	82.7	0.31	3.7	0.7	82.4	0.15	3.4	1.0	12	LG



Containerboard Interlaboratory Testing Program
 Analysis 217
Ring Crush, 35 lb Linerboard - 35E3
 TAPPI Official Test Method T822

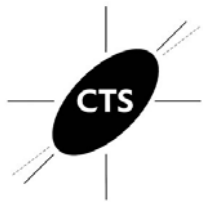
Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
QQEC3T	82.6 L	83.5	82.0	82.9	82.7	0.31	2.3	0.6	83.0	0.37	3.3	0.9	12	LD
R4JUDT	59.6 XH	59.2 XH	61.2 X	59.6 XH	59.9	-8.00 X	6.9	0.9	59.5	-7.93 X	7.3	1.4	12	LD
RH3C9H	77.9	78.4	79.0	76.9	78.1	-1.39	3.4	0.9	78.1	-1.37	3.4	0.9	4	LZ
U8X4GB	82.0	83.4	80.7	83.0	82.3	0.13	4.6	1.2	81.6	-0.13	4.3	1.3	12	EM
UKHQM3	83.9	79.9	84.9	81.9	82.6	0.28	3.7	2.2	84.2	0.81	3.9	2.3	12	LD
UU7H9U	81.0	79.3	81.6	81.3	80.8	-0.39	3.9	1.0	80.4	-0.53	3.5	1.5	12	LD
VMHG7M	84.7	82.8	82.7	85.1	83.8	0.71	3.6	1.2	83.8	0.64	3.5	1.2	12	LC
YK8D9G	85.6	84.4	90.7 *	91.6 X	88.1	2.25 *	3.1	3.6	89.5	2.68 *	3.1	3.1	12	LD
YMM6XN	82.4 L	82.3 L	82.6 L	82.3 L	82.4	0.18	0.4	0.1 L	83.6	0.57	1.8	1.4	8	XX
ZJ8WAP	83.1	81.6	85.2	82.1	83.0	0.40	3.8	1.6	82.6	0.23	3.6	1.4	12	TX
ZN2UXF	77.8	78.6	78.9	80.3	78.9	-1.08	4.0	1.0	77.1	-1.72	6.0	4.7	12	LD

Consensus (All Labs) Results														
Wk Mean	82.12	81.48	81.63	81.94	Month Mean	81.88	Grand Mean	81.93						
Avg SDr	4.27	3.48	4.27	3.66	Avg SD	3.69	Avg SD	3.84						
SD btwn Labs	3.57	2.56	3.73	2.69	SD btwn Labs	2.75	SD btwn Labs	2.84						
Labs Incd	43	42	45	41	SD btwn Wks	2.47	SD btwn Wks	3.25						
Labs Exclcd	3	4	1	5	Labs Incd	43	Labs Incd	43						
Labs not Rcvd	0	0	0	0										

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	LB	L&W Crush Tester 240
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LG	L&W 753	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	MZ	Messmer Buchel (model not specified)
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Digital Crush Tester (model not specified)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 223

Report #657

June 2024

STFI, 42 lb Linerboard - 42H3

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2PPPXU	26.5 *	28.2 X	25.9	25.7	26.6	2.40 *	2.1	1.2	24.4	0.61	1.9	1.5	16	LA
34PNLQ	25.1	24.9	25.1	25.0	25.0	1.10	1.9	0.1 L	24.9	1.14	1.9	0.2 L	16	LU
3H8GAW_AL	23.4	23.1 L	24.9	23.6	23.7	0.04	1.5	0.8	23.1	-0.62	1.6	0.8	16	AL
3KC6Q9	21.4 H	22.1 H	21.8	22.8 H	22.0	-1.41	2.8	0.6	22.6	-1.15	2.6	0.7	14	LH
3YC4E6	22.4	22.6 L	22.4	23.7	22.8	-0.78	1.6	0.6	22.9	-0.83	1.5	0.6	16	LH
4G8VZ3	23.5	24.7	24.3	23.6	24.0	0.27	2.1	0.6	24.6	0.81	1.9	0.8	16	LA
4YQPN7_AL	29.2 XH	28.6 X	28.1 X	28.4 X	28.6	4.08 X	2.2	0.4	29.5	5.64 X	2.4	1.3	16	AL
6RZYEG_AL	23.7	24.7	23.3	23.9	23.9	0.16	1.8	0.6	24.1	0.31	2.1	0.5	16	AL
72QJHT	24.4	23.0	22.5	23.3	23.3	-0.34	2.0	0.8	24.2	0.42	1.8	0.8	16	LY
7DYJRR	24.7 H	23.4	24.5 H	23.7 H	24.1	0.33	2.4	0.6	23.8	0.09	2.2	0.9	16	LH
7UL3ME	23.0	23.2	22.5	23.1	22.9	-0.64	2.0	0.3	23.5	-0.24	1.9	0.6	16	LA
8LA24Y	25.6	23.5	24.5	25.0	24.6	0.78	2.0	0.9	25.0	1.20	2.2	1.0	16	LH
8X2UBL	25.8	24.1	25.0	26.1 *	25.3	1.30	1.5	0.9	25.1	1.35	1.7	0.7	15	LA
9GUTFY	24.0	23.5	23.7	23.8	23.7	0.01	1.8	0.2	23.8	0.08	1.9	0.2 L	16	LZ
9PPVGB_AL	23.2	24.2	No DATA	24.3	23.9	0.15	1.8	0.6	23.9	0.17	1.8	1.2	15	AL
9TP7BP	21.4	21.8	21.3 *	21.0 *	21.4	-1.97 *	1.6	0.4	22.0	-1.76	1.8	0.6	14	LH
9TP7BP_AL	22.3	22.3 L	21.2 *	21.2	21.8	-1.64	1.3	0.6	21.8	-1.93	1.3	0.6	12	AL
9YEJEX	26.0	26.4 *	25.1	26.5 *	26.0	1.93	2.0	0.6	24.6	0.87	1.6	1.7	16	LA
A2AWBM_AI	23.2	23.9	23.0	22.2 L	23.1	-0.52	1.4	0.7	23.5	-0.21	1.7	0.7	16	AL
ABYL8A	21.1	21.4	21.3	21.2	21.3	-2.06 *	1.4	0.1	21.9	-1.81	1.6	0.6	12	XX
CA3PWL	23.8	23.5	23.8	23.3	23.6	-0.10	1.3	0.3	23.1	-0.66	1.8	0.6	16	LU
CD3ZRL	22.1	21.3	21.8	22.8	22.0	-1.44	1.6	0.6	22.0	-1.75	1.8	0.6	16	LZ
D7WJW7	23.3 L	22.6	22.8	22.8	22.9	-0.69	1.3	0.3	22.6	-1.09	1.4	0.6	8	XX
DFJKCF	24.4	24.4	24.5	24.4	24.4	0.60	1.6	0.1 L	24.1	0.34	1.6	0.5	16	LA
ECHXZ4	23.2 L	23.5 L	24.0 L	23.0 L	23.4	-0.24	0.1	0.5	23.4	-0.32	0.1	0.5	4	ID
F6EBL9	23.9 L	23.7 L	23.6 L	23.5 L	23.7	-0.02	0.3	0.2	24.2	0.46	0.8	0.8	16	XX
FD7UZG	23.2 H	25.7	24.3	23.2	24.1	0.33	2.2	1.2	24.1	0.34	2.0	0.6	16	LH
FN7KJ4	23.3	24.3	24.4	23.6	23.9	0.18	1.6	0.5	23.8	0.09	1.6	0.6	16	LZ
GQUFHG_AL	23.1	24.1	24.5	23.3	23.8	0.05	1.7	0.7	23.3	-0.44	1.7	0.6	16	XX
HLD8UH_AL	22.3	22.5	20.9 *	20.7 *	21.6	-1.77	1.5	0.9	22.9	-0.85	1.7	1.0	16	AL
JNEVPX	23.3	22.9	22.7	21.5 H	22.6	-0.94	2.2	0.7	23.2	-0.57	1.9	1.0	16	LU
KD9AZB	25.8	No DATA	26.2	26.2 *	26.1	2.00 *	2.0	0.2	25.8	2.06 *	2.1	0.4	8	LU
KJD7LV	23.1	23.1	25.1	22.5	23.5	-0.21	1.5	1.1	23.6	-0.19	1.9	0.9	16	LU
KWNJZB	23.1	23.6	23.0	22.6	23.1	-0.55	1.7	0.4	23.3	-0.46	4.2	0.7	16	LA
L9VPTP_AL	19.5 X	24.6 H	25.1	23.7	23.2	-0.39	1.9	2.5 H	24.1	0.39	2.0	2.2	12	AL



Containerboard Interlaboratory Testing Program
Analysis 223

Report #657
June 2024

STFI, 42 lb Linerboard - 42H3
TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results				Inst	
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks		Wks
LAT3CB	21.8	20.7 *	22.4	21.5	21.6	-1.78	2.0	0.7	21.3	-2.44 *	1.9	1.1	16	LY
LMVQ7Q	23.9	24.2	23.3	23.0	23.6	-0.09	1.9	0.5	23.7	-0.08	1.9	0.6	12	TT
LPXNGH	22.7	22.7	23.9	22.7	23.0	-0.58	1.6	0.6	23.0	-0.71	1.7	0.5	16	LY
LW37CX	23.2	23.4	23.7	23.2	23.4	-0.27	1.6	0.3	23.0	-0.68	1.7	0.9	16	LA
MG7BCC	23.5	23.0	23.8	23.3	23.4	-0.26	1.8	0.3	23.1	-0.68	1.6	0.6	16	LW
MYMGN9_AI	26.1	25.5	25.9	24.9	25.6	1.59	1.7	0.5	25.4	1.65	2.0	1.0	10	XX
P2LUZQ	24.9	24.5	24.8	NO DATA	24.7	0.87	1.7	0.2	24.2	0.49	1.7	0.9	7	LU
P2LUZQ_AL	23.8	24.9	25.7	NO DATA	24.8	0.92	2.2	1.0	24.6	0.80	1.9	0.8	7	AL
PNGBPR	26.0	24.6	25.7	22.4 L	24.7	0.82	1.6	1.6 H	22.8	-0.93	1.6	1.7	16	LA
PTB9DH	24.6	26.1	24.7	24.3	24.9	1.03	1.9	0.8	25.0	1.21	1.9	0.5	16	LA
Q3APZ6	23.5	23.5	24.3 H	24.4	23.9	0.18	2.3	0.5	23.6	-0.13	2.2	0.8	16	LW
Q6K6U7_AL	24.8	24.0	24.5	25.2	24.6	0.75	2.0	0.5	24.4	0.63	1.8	0.6	16	AL
QCXGLW	24.4 L	23.5 L	23.5 L	23.3 L	23.7	-0.02	0.0	0.5	25.5	1.75	0.0	6.7 H	16	LH
QMFXE4	24.1	23.6	22.8	24.0	23.6	-0.06	1.5	0.6	23.6	-0.11	1.6	0.8	16	BK
QMJKVH	24.6	24.9	25.0	25.1	24.9	1.00	1.9	0.2	24.8	0.99	2.0	0.6	16	LU
R4JUDT	21.9	22.7	22.3	22.0	22.2	-1.25	1.8	0.3	22.9	-0.82	1.8	0.6	16	LY
R4JUDT_AL	23.7	23.3	22.7	23.2	23.2	-0.42	1.8	0.4	23.1	-0.67	1.7	0.7	16	AL
RFBGJN	24.5	24.6	23.5	24.3	24.2	0.45	2.1	0.5	24.4	0.61	2.2	0.8	16	LH
RH3C9H	24.7	26.8 *H	25.4	25.5 L	25.6	1.59	2.0	0.9	25.6	1.82	2.0	0.9	4	LA
U94THY	21.2	23.3 H	25.4	24.8	23.7	-0.03	2.4	1.9 H	25.7	1.89	3.4	2.2	14	LZ
UKHQM3_AI	23.8	24.3	24.3	24.9	24.3	0.52	1.5	0.4	23.7	-0.08	1.7	0.6	16	AL
UU7H9U	21.6	22.7	22.2	23.2	22.4	-1.08	1.7	0.7	23.1	-0.68	1.6	1.1	16	LZ
UU7H9U_AL	46.5 XL	44.8 XL	44.9 XL	47.3 XL	45.9	18.63 X	0.0	1.3	46.3	22.10 X	0.0	1.3	16	AL
VERV3A_AL	24.7	22.7	23.1	24.2	23.7	-0.03	1.8	0.9	23.9	0.11	1.9	0.9	16	AL
VMHG7M	22.6	22.4	23.7	22.7	22.9	-0.72	1.4	0.6	23.1	-0.60	1.6	0.4	16	LU
X6EJYB	25.6	26.3 *	25.6	25.0	25.6	1.60	1.6	0.6	25.3	1.54	1.4	0.5	16	LH
YK8D9G	21.2	22.4	23.0	22.6	22.3	-1.20	1.7	0.7	22.6	-1.09	1.6	1.0	16	LH
YMM6XN	23.8 L	23.7 L	23.6 L	23.6 L	23.7	-0.04	0.3	0.1 L	23.9	0.19	0.5	0.7	12	XX
ZN2UXF	23.7	24.8	24.4	24.7	24.4	0.59	1.7	0.5	23.9	0.15	1.7	0.6	16	LY

Consensus (All Labs) Results												
Wk Mean	23.66	23.70	23.81	23.57	Month Mean	23.71		Grand Mean	23.74			
Avg SDr	1.85	1.75	1.73	1.80	Avg SD	1.78		Avg SD	1.89			
SD btwn Labs	1.33	1.25	1.31	1.30	SD btwn Labs	1.19		SD btwn Labs	1.02			
Labs Incl	61	60	61	60	SD btwn Wks	0.75		SD btwn Wks	1.22			
Labs Excl	3	3	2	2	Labs Incl	62		Labs Incl	62			
Labs not Rcvd	0	1	1	2								



Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42H3
TAPPI Official Test Method T826

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Key to Instrument Codes Reported by Participants

AL	L & W Autoline 400	BK	Buchel Strip Compression Tester BK-155
ID	IDM Compression Tester	LA	L&W Autoline (223 Enrollment)
LH	L&W 282	LU	L&W 52 without moisture correction(was 53)
LW	L&W 53 with moisture correction (was 53M)	LY	L&W 152 without moisture correction
LZ	L&W (model not specified)	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

Analysis 225

Report #657

June 2024

STFI, 35 lb Linerboard - 35E3

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2PPPXU	25.7 *	26.1 X	25.9	25.7	25.8	2.45 *	2.0	0.2	25.0	1.42	2.1	0.9	12	LA
34PNLQ	25.3	23.7	25.8	25.8	25.1	1.72	1.8	1.0	25.3	1.74	1.7	0.9	12	LW
3H8GAW_AL	22.7	23.6 L	23.2 L	22.8	23.1	-0.43	1.2	0.4	22.9	-0.66	1.5	0.5	12	AL
3KC6Q9	22.5 H	21.5 *H	21.0 *H	21.7 H	21.7	-1.87	3.0	0.6	21.6	-2.04 *	2.9	0.7	6	LH
3YC4E6	22.6	23.7	22.8	22.5	22.9	-0.60	1.4	0.5	22.8	-0.84	1.4	0.5	12	LH
4G8VZ3	23.5	23.9	23.9	25.1	24.1	0.65	1.9	0.7	24.2	0.66	2.0	1.1	12	LA
4YQPN7_AL	29.4 X	28.9 X	28.3 X	29.0 X	28.9	5.65 X	2.1	0.4	29.9	6.39 X	2.2	1.1	12	AL
6RZYEG_AL	23.7	24.1 L	24.4	23.5	23.9	0.47	1.8	0.4	24.1	0.52	1.9	0.5	12	AL
72QJHT	23.1 L	23.2	23.9	23.3	23.4	-0.10	1.6	0.4	22.9	-0.65	1.7	0.9	12	LU
7DYJRR	24.2	23.5	24.9	23.0	23.9	0.43	1.8	0.8	23.4	-0.15	1.9	1.2	12	LH
7UL3ME	22.0	22.6 H	23.8	21.4	22.4	-1.08	2.1	1.0	23.6	-0.02	2.1	1.2	12	LA
8LA24Y	25.0 H	24.4	23.9	25.1	24.6	1.16	2.1	0.5	24.6	1.01	2.2	0.9	12	LH
8X2UBL	23.2	25.7 *	25.3 L	24.8	24.8	1.33	1.4	1.1	25.1	1.56	1.9	1.3	12	LA
9GUTFY	23.8	24.0	23.5	23.7	23.7	0.28	1.9	0.2	23.7	0.16	1.8	0.2 L	12	LA
9PPVGB_AL	25.9 *	23.0	25.7	22.7	24.3	0.87	1.8	1.7 H	24.3	0.73	1.8	1.4	8	AL
9TP7BP	21.9	22.5	21.8	21.4	21.9	-1.63	1.7	0.4	22.3	-1.34	1.8	0.6	12	LH
9TP7BP_AL	21.2	21.5 *	21.6	21.5 L	21.5	-2.11 *	1.3	0.2	22.0	-1.64	1.3	0.8	12	AL
9YEJEX	24.9	23.4	24.1	24.5	24.2	0.78	1.5	0.6	24.3	0.67	1.6	0.8	12	LA
A2AWBM_AI	22.0	22.4	21.9	23.1	22.3	-1.18	1.9	0.5	22.8	-0.81	1.8	0.6	12	XX
ABYL8A	20.3 *	20.1 X	19.3 X	19.9 *	19.9	-3.73 X	1.8	0.4	20.6	-2.98 X	1.8	0.9	12	XX
CA3PWL	23.3	23.5	23.0	23.3	23.3	-0.19	1.6	0.2	23.3	-0.30	1.7	0.7	12	LU
CD3ZRL	21.9	22.2	22.2	21.5	22.0	-1.59	1.6	0.3	21.8	-1.76	1.6	0.4	12	LZ
D7WJW7	23.2	22.4	23.2	22.8	22.9	-0.57	1.4	0.4	22.9	-0.70	1.4	0.4	8	XX
DFJKCF	23.5	24.2	24.5 H	24.1	24.1	0.62	2.2	0.4	23.9	0.28	2.1	0.7	12	LA
ECHXZ4	23.0	22.8	23.7	23.3	23.2	-0.30	1.7	0.4	23.2	-0.40	1.7	0.4	4	ID
F6EBL9	23.3 L	23.6 L	23.2 L	23.2 L	23.3	-0.19	0.3	0.2	23.6	0.00	0.6	0.4	8	XX
FD7UZG	23.7	24.0	22.7	24.5 L	23.7	0.26	1.6	0.8	24.0	0.44	1.9	0.7	12	LH
FN7KJ4	23.1	23.8	24.5	23.4	23.7	0.21	1.7	0.6	23.2	-0.35	1.5	0.8	8	XX
GQUFHG_AL	22.8	23.6	23.4	23.3	23.2	-0.24	1.5	0.3	23.3	-0.27	1.5	0.4	8	XX
HLD8UH_AL	23.5	21.5 *	22.6	22.6	22.6	-0.97	1.6	0.9	22.9	-0.67	1.8	0.9	12	XX
JNEVPX	23.2 L	23.9	23.5	21.5	23.0	-0.47	1.5	1.1	23.6	0.06	1.7	1.0	11	LU
KD9AZB	24.3	No DATA	26.4 *	25.2	25.3	1.91	1.7	1.1	25.1	1.55	2.0	0.6	9	LU
KJD7LV	23.9	22.9	25.1	23.7	23.9	0.42	1.7	0.9	23.8	0.25	1.7	1.0	12	LU
KWNJZB	22.7	23.6	23.8	22.9	23.2	-0.26	1.8	0.5	23.1	-0.50	1.7	0.5	12	LW
L9VPTP_AL	21.8	24.6	24.6	25.5	24.1	0.68	1.7	1.6 H	25.2	1.65	2.0	1.9	8	AL



Containerboard Interlaboratory Testing Program
 Analysis 225
STFI, 35 lb Linerboard - 35E3
 TAPPI Official Test Method T826

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results				Inst	
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks		Wks
LAT3CB	21.0	20.1 X	19.7 X	21.6	20.6	-3.00 X	1.8	0.9	21.4	-2.17 *	1.7	1.4	12	LZ
LMVQ7Q	23.4	23.0 H	23.1	21.7	22.8	-0.73	1.9	0.8	23.2	-0.36	2.0	0.6	12	TT
LPXNGH	22.5	23.0	23.6	22.5	22.9	-0.61	1.8	0.5	23.0	-0.57	1.8	0.5	12	LY
LW37CX	23.1	22.9	23.3	23.2	23.1	-0.37	1.6	0.2	22.8	-0.76	1.5	0.5	12	LA
MG7BCC	22.8	22.2	23.1	22.5	22.6	-0.88	1.5	0.4	22.9	-0.69	1.7	0.5	12	LW
MYMGN9_AI	26.9 XL	27.1 X	27.5 X	27.6 X	27.3	3.97 X	1.1	0.3	26.1	2.56 *	1.8	2.9 H	10	XX
P2LUZQ	23.8	23.4	23.4	NO DATA	23.5	0.06	1.9	0.2	24.2	0.64	1.8	0.9	7	LU
P2LUZQ_AL	24.9	24.4	24.5	NO DATA	24.6	1.19	1.7	0.3	24.6	1.00	1.7	0.6	6	AL
PNGBPR	24.7	23.2 L	23.8	25.0	24.2	0.73	1.4	0.8	23.1	-0.53	1.6	1.1	12	LA
PTB9DH	25.5	27.3 X	25.4	25.1	25.8	2.43 *	1.7	1.0	25.4	1.80	1.6	0.8	12	LA
Q3APZ6	21.8	22.9	23.3	22.4	22.6	-0.94	2.0	0.7	23.3	-0.30	2.1	2.7 H	12	LW
Q6K6U7_AL	24.0	22.9	23.6	23.9	23.6	0.15	1.6	0.5	23.8	0.21	1.7	0.5	12	AL
QCXGLW	23.2 L	24.4 L	23.9 L	24.0 L	23.9	0.43	0.0	0.5	23.5	-0.07	1.9	0.7	12	LH
QMFXE4	22.3	22.8	22.5	22.8	22.6	-0.92	1.6	0.3	22.8	-0.79	1.6	0.3	12	LW
QMJKVH	24.1	24.3	24.3	24.1	24.2	0.75	1.7	0.1 L	24.4	0.84	1.9	0.2 L	12	LU
R4JUDT	22.4	22.0	21.5	21.9	21.9	-1.59	2.0	0.4	22.1	-1.47	2.0	1.0	12	LU
R4JUDT_AL	23.1	21.7	21.9	22.4	22.3	-1.25	1.7	0.6	22.2	-1.44	1.9	0.4	12	AL
RFBGJN	23.6	24.7	23.0	24.4	23.9	0.48	1.9	0.7	24.4	0.77	2.0	0.8	12	LH
RH3C9H	22.8	22.6 L	24.8	26.1 *	24.1	0.63	1.4	1.7 H	24.1	0.50	1.4	1.7	4	LA
U94THY	20.8 *	23.1	25.0 H	24.0	23.2	-0.27	2.2	1.8 H	24.5	0.95	2.9	2.2 H	12	LZ
UKHQM3_AI	22.8	23.1	23.1	23.5	23.1	-0.40	1.6	0.3	23.2	-0.36	1.5	0.4	12	AL
UU7H9U	23.2	23.4 L	22.3	24.0	23.2	-0.25	1.8	0.7	22.8	-0.75	1.7	0.8	12	LZ
UU7H9U_AL	33.3 XL	32.9 XL	34.2 XL	34.5 XL	33.7	10.68 X	0.0	0.8	33.9	10.39 X	0.0	1.0	12	AL
VERV3A_AL	24.7	23.8	24.5	21.2	23.6	0.08	1.9	1.6 H	23.7	0.09	2.0	1.0	12	AL
VMHG7M	23.3 L	22.9	22.7	23.8	23.2	-0.30	1.6	0.5	23.1	-0.45	1.7	0.4	12	LU
X6EJYB	25.1	25.3 *	25.1	25.1	25.1	1.73	1.4	0.1 L	25.1	1.55	1.5	0.3	12	LH
YK8D9G	23.2	23.4	22.3	22.3	22.8	-0.71	1.6	0.6	23.3	-0.34	1.6	0.9	12	LH
YMM6XN	23.3 L	23.4 L	23.3 L	23.5 L	23.4	-0.07	0.3	0.1 L	23.9	0.30	0.9	0.7	8	XX
ZN2UXF	22.9	23.4	24.2	24.2	23.7	0.19	1.7	0.6	23.8	0.26	1.7	0.6	12	LY

Consensus (All Labs) Results									
Wk Mean	23.26	23.31	23.65	23.34	Month Mean	23.48	Grand Mean	23.59	
Avg SDr	1.75	1.76	1.72	1.67	Avg SD	1.73	Avg SD	1.80	
SD btwn Labs	1.18	0.89	1.18	1.34	SD btwn Labs	0.96	SD btwn Labs	0.99	
Labs Incl	61	56	59	59	SD btwn Wks	0.75	SD btwn Wks	0.99	
Labs Excl	3	7	5	3	Labs Incl	59	Labs Incl	61	
Labs not Rcvd	0	1	0	2					



Containerboard Interlaboratory Testing Program
Analysis 225
STFI, 35 lb Linerboard - 35E3
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Key to Instrument Codes Reported by Participants

AL	L & W Autoline 400	ID	IDM Compression Tester
LA	L&W Autoline (223 Enrollment)	LH	L&W 282
LU	L&W 52 without moisture correction (was 53)	LW	L&W 53 with moisture correction (was 53M)
LY	L&W 152 (was 52M)	LZ	L&W (model not specified)
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42H
 TAPPI Official Test Method T575

Report #657
June 2024

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2PPPXU	150.7	0.82	15.56	143.1	0.24	12.42	4	LA
4G8VZ3	128.8	-0.57	17.12	140.3	0.01	13.08	4	LA
4YQPN7_AL	119.8	-1.15	16.03	119.8	-1.69	6.77	4	AL
7UL3ME	148.6	0.68	23.18	140.7	0.05	6.13	4	LA
8LA24Y	135.0	-0.18	12.60	135.2	-0.41	1.38	L 4	EV
8X2UBL	144.5	0.42	17.94	138.0	-0.18	7.78	4	LA
9E6Q8P	151.1	0.84	13.14	154.5	1.20	7.09	4	LS
9GUTFY	143.0	0.33	17.23	142.7	0.22	1.05	L 4	LS
9PPVGB_AL	127.7	-0.64	13.68	130.2	-0.83	16.35	4	AL
9TP7BP_AL	120.9	-1.08	13.14	125.9	-1.19	6.19	3	AL
A2AWBM_AL	192.4	3.46	X 21.11	149.6	0.79	28.87	H 4	AL
CA3PWL	147.8	0.63	8.43	145.1	0.42	2.23	L 4	EV
CD3ZRL	154.9	1.08	19.68	151.0	0.90	6.07	4	EV
DFJKCF	122.1	-1.00	22.21	138.1	-0.17	15.56	4	EV
HLD8UH_AL	114.5	-1.48	9.48	123.8	-1.36	23.49	4	AL
JNEVPX	124.3	-0.86	11.26	161.0	1.74	24.53	4	EV
KJD7LV	170.6	2.08	* 17.56	149.8	0.80	29.49	2	EV
KWNJZB	122.9	-0.95	13.02	136.8	-0.28	9.79	4	LA
L9VPTP_AL	159.4	1.37	26.77	H 157.8	1.48	9.30	3	AL
LAT3CB	250.1	7.13	X 17.06	238.8	8.22	X 11.69	4	LS
LPXNGH	136.5	-0.09	19.88	133.8	-0.53	2.61	4	LS
MYMGN9_AL	173.7	2.28	* 9.42	162.9	1.90	9.48	3	AL
P2LUZQ_AL	125.0	-0.82	17.08	141.5	0.12	26.36	3	AL
PTB9DH	136.9	-0.06	5.32	L 138.9	-0.10	10.92	4	LA
Q3APZ6	110.4	-1.74	11.14	119.0	-1.76	6.25	4	XX
Q6K6U7	125.7	-0.77	17.85	151.1	0.92	27.00	4	LS
Q6K6U7_AL	140.6	0.18	17.15	142.6	0.21	2.83	2	AL
R4JUDT	128.8	-0.57	7.25	122.1	-1.50	5.75	4	XX
R4JUDT_AL	123.4	-0.92	13.89	123.5	-1.38	0.14	2	AL
RFBGJN	131.1	-0.43	18.20	125.0	-1.26	7.60	4	LS
UU7H9U	144.1	0.40	15.65	70.1	-5.83	X 80.69	H 4	LA
UU7H9U_AL	151.6	0.87	25.90	140.5	0.04	9.84	4	AL
VERV3A_AL	154.9	1.08	20.56	150.5	0.87	13.58	4	AL
ZN2UXF	141.6	0.24	11.31	148.8	0.72	9.99	4	EV



Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42H
TAPPI Official Test Method T575

Report #657
June 2024

Consensus (All Labs) Results			
Month Mean	137.84	Grand Mean	140.11
Avg SD	16.38	Avg SD Months	14.04
SD btwn Labs	15.75	SD btwn Labs	12.00
Labs Incl	32	Labs Incl	32

Key to Instrument Codes Reported by Participants

- | | | | |
|----|--|----|-----------------------------|
| AL | L & W Autoline 400 | EV | Emveco Microgag Model 210-R |
| LA | L&W Autoline (228 Enrollment) | LS | L&W 263 |
| XX | Instrument make/model not specified by lab | | |



Containerboard Interlaboratory Testing Program
 Analysis 229
Roughness - Sheffield Method, 42 lb Linerboard - 42H3
 TAPPI Official Test Method T538

Report #657
June 2024

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3H8GAW_AL	373.5	0.55	6.19	372.7	0.34	3.04	4	AL
4P22QJ	357.5	-0.87	5.08	361.8	-0.65	5.53	4	TS
6RZYEG	377.9	0.94	9.01	371.8	0.26	5.69	4	PP
7DYJRR	341.8	-2.28 *	7.81	342.6	-2.39 *	3.86	4	LA
9PPVGB_AL	359.0	-0.74	7.54	360.8	-0.74	3.71	4	AL
9TP7BP_AL	350.2	-1.53	5.65	352.3	-1.52	2.90	2	AL
GQUFHG_AL	368.1	0.07	4.76	371.6	0.24	5.01	4	XX
L9VPTP_AL	373.8	0.58	15.42 H	373.7	0.43	0.21	2	XX
LPXNGH	378.9	1.03	18.21 H	379.2	0.93	1.50	4	XX
MYMGN9_AL	374.4	0.63	3.57 L	371.2	0.21	3.81	3	XX
PNGBPR	375.9	0.76	7.00	376.8	0.71	2.08	4	XX
Q6K6U7_AL	421.7	4.85 X	9.16	391.5	2.05 *	28.62 H	4	AL
R4JUDT_AL	362.6	-0.42	6.45	365.5	-0.32	3.64	4	AL
UKHQM3_AL	373.3	0.53	9.38	374.3	0.48	1.47	4	AL
UU7H9U_AL	362.9	-0.40	6.95	365.3	-0.34	2.62	4	AL
VERV3A_AL	364.8	-0.23	3.79 L	365.4	-0.33	2.88	4	AL
VMHG7M	382.8	1.38	8.18	376.1	0.65	4.60	4	XX

Consensus (All Labs) Results			
Month Mean	367.34	Grand Mean	368.96
Avg SD	8.69	Avg SD Months	7.77
SD btwn Labs	11.21	SD btwn Labs	11.02
Labs Incd	16	Labs Incd	17

Key to Instrument Codes Reported by Participants

- | | |
|---|---|
| AL L & W Autoline 400
PP Technidyne Profile/Plus
XX Instrument make/model not specified by lab | LA L & W Autoline (229 Enrollment)
TS TMI Monitor/Smoothness |
|---|---|



Containerboard Interlaboratory Testing Program
 Analysis 231
Internal Bond, 42 lb Linerboard - 42H
 TAPPI Official Test Method T569

Report #657
June 2024

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3H8GAW	141.8	0.81	6.61	141.8	0.74	2.16	4	LZ
3KC6Q9	132.6	0.08	7.89	132.1	0.00	2.76	4	HY
6RZYEG	138.6	0.55	8.20	141.9	0.75	4.16	3	HY
8LA24Y	140.4	0.70	7.44	139.2	0.54	3.83	4	TM
9E6Q8P	138.2	0.52	7.33	141.0	0.68	3.17	4	HY
CA3PWL	126.8	-0.39	7.29	129.2	-0.22	1.68	4	TM
DFJKCF	130.2	-0.11	10.64	128.2	-0.30	1.48	4	TM
GQUFHG	141.0	0.75	8.57	146.0	1.07	8.75	4	HY
HLD8UH	130.8	-0.07	5.26	143.7	0.89	20.04	H 4	TM
JNEVPX	116.0	-1.25	7.14	114.1	-1.38	5.62	4	TM
KJD7LV	104.8	-2.14 *	6.30	109.0	-1.77	3.59	4	TM
KWNJZB	145.0	1.06	9.08	140.5	0.64	3.61	4	HY
LMVQ7Q	113.0	-1.49	5.67	112.7	-1.48	2.39	3	TM
LW37CX	132.0	0.03	1.87	136.1	0.31	4.40	4	HZ
PNGBPR	114.8	-1.35	2.32	108.0	-1.85	8.26	4	SC
Q6K6U7	115.9	-1.25	8.38	115.8	-1.24	3.73	4	TM
R4JUDT	127.2	-0.35	3.27	124.7	-0.57	4.35	4	TM
UFMYE7	134.6	0.24	3.21	139.8	0.59	6.51	4	TM
UKHQM3	128.1	-0.29	6.59	125.6	-0.50	2.75	4	TM
VERV3A	152.8	1.69	18.17	H 140.5	0.64	14.68	H 4	TM
VMHG7M	143.9	0.98	3.60	146.8	1.13	2.40	4	HY
ZN2UXF	147.7	1.28	12.19	149.4	1.32	4.55	4	HZ

Consensus (All Labs) Results			
Month Mean	131.64	Grand Mean	132.08
Avg SD	7.95	Avg SD Months	6.79
SD btwn Labs	12.55	SD btwn Labs	13.05
Labs Incd	22	Labs Incd	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	129.45	13.19	2.19	17
Modified Scott Bond Mechanics	143.57	1.63	11.93	3



Containerboard Interlaboratory Testing Program
Analysis 231
Internal Bond, 42 lb Linerboard - 42H
TAPPI Official Test Method T569

Report #657
June 2024

Key to Instrument Codes Reported by Participants

HY	Huygen Digitized Scott Internal Bond Tester	HZ	Huygen Internal Bond Tester with AccuPress
LZ	L&W (model not specified)	SC	Scott Internal Bond Tester (Manual)
TM	TMI Monitor/Internal Bond Tester		



Containerboard Interlaboratory Testing Program
 Analysis 234
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H
 TAPPI Official Test Method T815

Report #657
June 2024

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
3H8GAW	26.6	-0.14	2.88	25.9	-0.42	0.50	4
3KC6Q9	25.8	-0.40	0.96	24.0	-1.12	4.36	H 4
4G8VZ3	25.0	-0.63	3.54	26.3	-0.28	1.84	2
4YQPN7	21.0	-1.84	4.40	23.0	-1.49	2.26	4
6RZYEG	25.8	-0.38	2.77	28.7	0.59	1.98	4
7Q93QM	25.6	-0.45	1.52	26.5	-0.23	0.60	4
8LA24Y	29.8	0.83	1.30	29.3	0.81	0.57	4
9E6Q8P	28.6	0.47	0.89	28.8	0.61	0.10	L 4
9GUTFY	27.0	-0.02	1.00	27.1	0.01	0.26	L 4
9PPVGB	23.8	-0.98	7.11	H 24.9	-0.78	3.29	4
A2AWBM	24.2	-0.87	1.10	25.5	-0.59	1.17	4
CA3PWL	23.4	-1.11	3.97	26.5	-0.23	2.20	4
CD3ZRL	30.6	1.07	1.07	28.7	0.58	2.06	4
GQUFHG	26.0	-0.32	2.00	27.3	0.06	1.06	4
HLD8UH	30.2	0.95	4.42	30.0	1.08	0.98	4
JNEVPX	32.0	1.50	1.22	31.6	1.63	1.04	4
KD9AZB	30.8	1.13	1.10	31.1	1.45	0.83	3
KJD7LV	28.6	0.47	2.07	29.3	0.79	2.00	4
KWNJZB	33.4	1.92 *	1.34	30.1	1.08	3.65	4
L9VPTP	23.6	-1.05	1.95	24.1	-1.10	1.75	3
LAT3CB	30.2	0.95	1.10	29.3	0.81	0.77	4
LPXNGH	25.5	-0.48	4.89	30.1	1.09	3.12	4
P2LUZQ	32.8	1.74	0.84	32.6	2.01 *	0.28	2
PJ242R	33.8	2.05 *	2.49	28.7	0.60	4.46	H 3
PNGBPR	27.8	0.22	0.45	L 25.8	-0.47	2.96	4
Q3APZ6	29.6	0.77	3.21	27.2	0.04	1.97	4
Q6K6U7	24.0	-0.93	2.00	24.3	-1.03	1.22	4
QCXGLW	21.9	-1.57	0.74	22.4	-1.71	0.76	4
R4JUDT	26.8	-0.08	2.68	24.1	-1.09	2.31	4
RFBGJN	22.4	-1.42	1.34	21.2	-2.16 *	1.08	4
UQNKGX	25.6	-0.45	1.14	26.0	-0.39	0.54	4
VERV3A	26.0	-0.32	3.39	28.4	0.48	2.36	4
VMHG7M	25.9	-0.37	2.71	24.5	-0.93	1.64	4
ZJ8WAP	27.9	0.25	2.53	29.4	0.85	1.15	4
ZN2UXF	25.4	-0.51	2.07	25.6	-0.55	0.69	4



Containerboard Interlaboratory Testing Program
Analysis 234
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H
TAPPI Official Test Method T815

Report #657
June 2024

Consensus (All Labs) Results			
Month Mean	27.07	Grand Mean	27.08
Avg SD	2.65	Avg SD Months	2.00
SD btwn Labs	3.29	SD btwn Labs	2.75
Labs Incl	35	Labs Incl	35

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #657
June 2024

Air Resistance, 42 Ib Linerboard - 42H

TAPPI Official Test Method T460

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD	Months	Inst
2PPPXU	31.0	-0.83	0.79	L	33.1	0.41	1.75	4	LA
3H8GAW_AL	37.5	3.07 X	1.70		34.5	1.61	2.24	4	AL
4EGURU	35.2	1.73	2.64		33.9	1.04	1.41	4	LP
4G8VZ3	31.0	-0.80	2.19		30.0	-2.15 *	1.46	4	LA
4YQPN7_AL	4.1	-16.88 X	0.34	L	28.9	-3.06 X	16.58 H	4	AL
6RZYEG	35.7	2.00 *	3.14		33.6	0.80	2.10	4	TP
7DYJRR	31.9	-0.24	3.37		32.4	-0.14	2.55	4	LA
7LVHJ2	34.0	1.01	1.03	L	34.0	1.17	0.00	1	XX
7UL3ME	32.4	0.03	2.07		32.3	-0.25	1.49	4	LA
8LA24Y	34.0	0.96	1.54		32.6	-0.02	0.93	4	LP
8X2UBL	34.9	1.54	1.73		34.0	1.11	0.85	4	LA
9E6Q8P	31.5	-0.51	1.01	L	32.7	0.07	1.09	4	LP
9GUTFY	32.3	-0.02	2.21		32.3	-0.25	0.24	4	LP
9PPVGB_AL	28.7	-2.17 *	1.63		29.8	-2.33 *	1.73	4	AL
9TP7BP_AL	33.5	0.68	1.20		33.7	0.87	1.06	3	AL
9XYMKD	29.1	-1.93 *	1.66		30.2	-2.02 *	1.48	2	GG
9YEJEX	31.5	-0.48	2.28		32.7	0.05	1.94	3	LA
A2AWBM_AL	30.6	-1.01	3.03		30.7	-1.55	0.40	4	AL
CA3PWL	30.9	-0.86	2.36		33.3	0.59	2.03	4	LW
ECHXZ4	34.0	0.99	2.11		32.6	0.00	1.02	4	XX
GQUFHG	30.6	-1.03	4.12	H	32.5	-0.09	1.26	4	TP
GQUFHG_AL	32.3	-0.04	1.30		32.2	-0.33	0.16	L 4	XX
HLD8UH_AL	30.4	-1.18	2.01		31.9	-0.55	1.59	4	AL
JNEVPX_AL	33.3	0.59	1.95		33.0	0.33	0.66	4	AL
KD9AZB	33.3	0.60	1.63		35.0	1.97 *	1.71	3	GG
KJD7LV_AL	33.3	0.57	2.45		32.7	0.11	1.27	4	AL
KWNJZB	33.6	0.76	2.41		33.7	0.87	0.49	4	LP
L9VPTP_AL	33.2	0.49	3.04		32.7	0.11	0.47	3	AL
LAT3CB	21.7	-6.35 X	2.75		24.8	-6.42 X	2.21	4	XX
LMVQ7Q	31.2	-0.66	3.02		32.3	-0.28	1.03	3	GA
LPXNGH	33.9	0.92	2.71		32.0	-0.50	1.72	4	GA
MYMGN9_AL	33.0	0.38	2.01		33.3	0.56	0.64	3	XX
NNY3XC	31.3	-0.60	2.00		31.4	-1.03	1.18	4	LP
P2LUZQ	34.3	1.17	2.71		34.7	1.74	0.72	3	GG
P2LUZQ_AL	31.9	-0.26	1.20		31.2	-1.15	0.66	3	AL
PJ242R_AL	33.5	0.67	2.66		32.6	-0.04	0.74	4	AL
PTB9DH	32.1	-0.11	1.29		32.7	0.08	1.04	4	XX
Q3APZ6	30.5	-1.08	3.01		32.6	0.03	1.76	4	LP
Q6K6U7_AL	31.2	-0.69	1.73		32.1	-0.42	0.82	4	AL



Containerboard Interlaboratory Testing Program
Analysis 237

Report #657
June 2024

Air Resistance, 42 lb Linerboard - 42H

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
R4JUDT	31.4	-0.59	1.45	32.0	-0.51	0.68	4	LP
R4JUDT_AL	34.6	1.33	2.82	34.9	1.92	0.95	4	AL
RFBGJN	28.1	-2.51 *	2.89	30.2	-1.96 *	1.81	4	TD
UKHQM3_AL	33.4	0.65	2.23	33.2	0.53	0.34	4	AL
UQNKGX	32.3	-0.05	4.69 H	32.8	0.17	1.11	4	TD
UU7H9U_AL	30.8	-0.90	2.57	31.3	-1.03	1.40	4	XX
VERV3A_AL	33.1	0.45	3.22	32.3	-0.26	0.76	4	AL
VMHG7M	33.7	0.80	3.26	32.4	-0.14	1.40	4	TP
YK8D9G	32.6	0.16	3.17	33.3	0.56	1.42	4	XX
ZN2UXF	32.4	0.04	2.49	33.0	0.31	0.96	4	LP

Consensus (All Labs) Results			
Month Mean	32.34	Grand Mean	32.60
Avg SD	2.44	Avg SD Months	1.31
SD btwn Labs	1.67	SD btwn Labs	1.21
Labs Incd	46	Labs Incd	47

Key to Instrument Codes Reported by Participants

- | | | | |
|-----------|--|-----------|---|
| AL | L & W Autoline 400 | GA | Gurley Precision #4340 Automatic Densometer |
| GG | Gurley Precision #4320 Densometer | LA | L&W Autoline (237 Enrollment) |
| LP | L&W Air Permeance Tester SE 166 | LW | L&W Gurley Densometer, Oil Flotation |
| TD | TMI Gurley Densometer | TP | Technidyne Profile/ plus Roughness & Porosity |
| XX | Instrument make/model not specified by lab | | |



Containerboard Interlaboratory Testing Program
Analysis 240

Report #657
June 2024

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM13

TAPPI Official Test Method T809

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2ZMQBX	59.6 L	60.0	60.6	60.1	60.1	0.97	2.0	0.4	60.1	1.04	2.0	0.4 L	4	LD
34PNLQ	57.1	54.1	55.2	58.6	56.3	-0.33	4.2	2.0	58.0	0.19	4.3	2.1	16	LD
3B2ZEH	52.4	49.7 *	46.0 X	49.8 *	49.5	-2.67 *	4.2	2.6	51.6	-2.44 *	4.2	2.4	16	TH
3H8GAW	53.1	54.4	53.8	51.3	53.1	-1.41	2.8	1.4	53.1	-1.86	2.5	1.5	16	LD
3YC4E6	56.0	56.8	56.8	57.4	56.8	-0.17	2.7	0.6	56.7	-0.36	2.8	0.7	16	EM
4EGURU	55.5	59.2	54.6	57.1	56.6	-0.22	3.6	2.0	58.2	0.27	4.0	1.9	16	LD
4G8VZ3	51.3 *H	54.6	58.6	53.8	54.6	-0.91	6.4	3.0	55.9	-0.68	5.1	2.0	16	MB
6A2L4U	58.3	57.2	58.2	56.8	57.6	0.12	3.5	0.7	56.7	-0.36	3.6	0.9	16	LD
6RZYEG	56.3	55.3	54.6	56.7	55.7	-0.53	4.5	1.0	56.7	-0.37	4.6	1.7	8	LD
72QJHT	63.8 *	60.5	63.4	60.1	62.0	1.61	3.6	1.9	60.2	1.10	4.5	2.0	16	LD
7DYJRR	52.7	51.9 H	51.5	48.6 *	51.2	-2.09 *	5.3	1.8	52.7	-2.01 *	4.6	2.3	16	LD
8X2UBL	58.4	63.9 *	67.9 XH	61.4	62.9	1.94 *	5.0	4.1	60.5	1.21	4.8	3.1	16	TU
9E6Q8P	55.0	55.8 L	57.1	59.9	57.0	-0.10	2.6	2.2	57.8	0.11	2.5	1.2	16	LD
9GUTFY	57.8	57.9	58.3	57.6	57.9	0.22	2.0	0.3 L	58.0	0.18	2.0	0.4 L	16	LD
9KAMTB	59.6	61.6	52.7	54.0	57.0	-0.09	3.6	4.3 H	58.8	0.53	4.1	2.8	16	LD
A2AWBM	54.7	55.7	53.3	55.0	54.7	-0.88	3.2	1.0	55.8	-0.75	4.2	1.8	16	LZ
ABYL8A	55.1 L	54.9 L	55.0 L	54.0	54.7	-0.86	1.2	0.5	54.7	-1.19	0.9	0.4 L	12	TU
CA3PWL	56.0 L	58.3	56.5	57.3	57.0	-0.08	3.0	1.0	55.3	-0.94	3.4	1.4	16	LD
CD3ZRL	53.7	54.1 H	51.8	51.8	52.8	-1.51	4.3	1.2	53.5	-1.68	4.0	2.2	16	EN
D7WJW7	59.7 L	58.5 L	61.3 L	60.1 L	59.9	0.91	0.5	1.2	60.2	1.07	0.7	1.0	8	XX
DFJKCF	61.2	60.4	61.3	58.3 L	60.3	1.05	2.1	1.4	59.0	0.57	2.4	1.4	16	LC
EGVXWU	58.1 L	58.3 L	58.2 L	58.3 L	58.2	0.34	0.6	0.1 L	58.5	0.39	0.9	0.2 L	16	LD
F6EBL9	57.6 L	56.9 L	57.4 L	57.3 L	57.3	0.01	0.6	0.3 L	57.2	-0.16	1.5	1.3	16	XX
F8LTJ4	56.2	56.6	56.9	56.4	56.6	-0.24	1.7	0.3 L	57.6	0.02	1.7	1.3	16	MB
FD7UZG	55.4	58.3	58.9 H	62.3	58.7	0.51	4.7	2.8	59.2	0.67	4.2	1.9	16	LD
G7M3QU	59.6	59.0	61.6	59.5	59.9	0.92	3.8	1.2	59.3	0.71	4.0	2.2	16	LD
GK2BRX	60.2 L	62.0	60.7	61.7	61.1	1.33	2.4	0.9	62.3	1.96 *	2.6	1.4	16	TB
GQUFHG	59.9	57.6	57.4	57.1	58.0	0.25	3.7	1.3	57.8	0.10	3.7	1.3	16	LD
KJD7LV	No DATA	No DATA	No DATA	63.7 H	63.7	2.22 *	7.9	0.0	60.9	1.36	4.6	1.7	10	LC
KWNJZB	60.5	55.9	57.1	58.5	58.0	0.26	4.7	2.0	59.3	0.73	4.5	1.7	16	XX
LPXNGH	54.8	55.4	52.9	57.1	55.0	-0.76	3.1	1.7	57.4	-0.07	2.9	2.5	16	LZ
LW37CX	54.9	55.7	56.0	55.7	55.6	-0.57	3.1	0.5	55.9	-0.70	2.7	1.3	16	LD
NNY3XC	61.0	59.7	58.8	57.1	59.1	0.65	2.9	1.6	58.4	0.33	3.2	1.3	16	LD
Q2YJ2H	66.2 X	67.5 X	64.6 *H	65.4 *	65.9	2.97 X	4.9	1.2	66.5	3.69 X	4.9	1.3	16	TX
Q3APZ6	61.5	59.5	62.8	60.6	61.1	1.32	3.5	1.4	61.3	1.55	4.1	1.8	16	LD



Containerboard Interlaboratory Testing Program
Analysis 240

Report #657
June 2024

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM13

TAPPI Official Test Method T809

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
Q8PTBG	56.6	57.5	56.2	56.1	56.6	-0.22	2.4	0.6	56.6	-0.39	2.1	0.5	12	TH
QCXGLW	59.7	61.8	61.1	58.0	60.2	1.01	4.0	1.7	61.3	1.54	3.6	2.0	16	LD
QMFXE4	57.8	59.2	58.8	58.0	58.5	0.42	4.2	0.7	58.1	0.20	3.6	1.1	16	LZ
QQEC3T	57.4	58.3	56.7	57.3	57.4	0.06	2.3	0.7	58.8	0.52	3.1	1.2	16	LD
QZ8KMK	59.9	63.1 *	59.3	59.1	60.3	1.06	3.4	1.9	58.6	0.41	3.9	3.0	16	LD
R4JUDT	52.7	53.8	54.8	54.7	54.0	-1.12	3.3	1.0	54.9	-1.10	4.2	1.1	16	LD
U94THY	56.2	58.2	55.6	61.3	57.8	0.20	4.3	2.6	58.6	0.42	4.0	2.3	16	LD
UQNKGX	56.9	57.0	56.9	60.0	57.7	0.15	4.1	1.5	56.1	-0.62	3.8	1.7	16	LZ
UU7H9U	54.4	57.6	59.9	55.1	56.7	-0.17	3.5	2.5	56.5	-0.43	3.7	1.7	16	LD
VERV3A	56.4	55.1	58.2	54.4	56.0	-0.42	3.5	1.7	57.4	-0.08	3.6	1.8	16	LD
VMHG7M	42.3 X	57.0	58.8	59.7	54.5	-0.95	3.9	8.2 H	57.4	-0.08	3.7	4.3 H	16	LC
X6EJYB	54.4	51.5 *	52.4	53.0	52.8	-1.52	3.9	1.2	53.9	-1.50	3.6	1.6	16	LD
XLYAXB	56.9 H	56.5	NO DATA	NO DATA	56.7	-0.20	6.8	0.3	59.7	0.88	5.5	2.7	14	LD
XVQRCJ	61.6	62.2	60.8	61.5	61.5	1.47	2.8	0.6	61.8	1.72	2.9	1.0	16	LC
YK8D9G	58.1	56.1 L	56.1	56.3	56.7	-0.20	3.4	1.0	54.8	-1.14	3.4	2.7	16	LD
ZN2UXF	53.4	56.5	53.5	56.6	55.0	-0.77	4.4	1.8	55.5	-0.85	4.5	1.8	16	LZ

Consensus (All Labs) Results									
Wk Mean	57.06	57.37	57.38	57.42	Month Mean	57.24	Grand Mean	57.57	
Avg SDr	3.90	3.53	3.48	3.47	Avg SD	3.75	Avg SD	3.59	
SD btwn Labs	2.84	2.95	3.15	3.36	SD btwn Labs	2.91	SD btwn Labs	2.43	
Labs Incl	48	49	47	50	SD btwn Wks	2.04	SD btwn Wks	1.85	
Labs Excl	2	1	2	0	Labs Incl	50	Labs Incl	50	
Labs not Rcvd	1	1	2	1					

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TB	TMI Monitor/Compression Tester, 17-70	TH	TMI Compression Tester, Model 17-76
TU	TMI Universal Crush Tester (TMI K440)	TX	TMI Crush Tester (model not specified)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
Analysis 250

Report #657
June 2024

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM13

TAPPI Official Test Method T843

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2ZMQBX	69.2 L	70.5	71.4	70.7	70.5	1.09	2.1	0.9	70.5	1.06	2.1	0.9	4	LD
34PNLQ	66.5	64.5	65.4	65.0	65.3	-0.65	3.8	0.8	66.2	-0.09	6.1	1.5	16	LD
3H8GAW	65.6	69.9	67.6	67.2	67.6	0.10	4.1	1.8	68.9	0.64	3.1	1.9	16	LD
4EGURU	66.1	65.5	64.6	65.5	65.4	-0.64	2.9	0.6	65.4	-0.28	3.6	1.7	16	LD
6RZYEG	69.1	71.3	71.3	69.9	70.4	1.06	4.0	1.1	70.0	0.93	3.7	1.3	8	LD
7DYJRR	54.4 *H	53.3 XH	55.1 *H	53.4 XH	54.1	-4.50 X	7.8	0.9	58.5	-2.14 *	8.5	7.6 H	16	LD
9GUTFY	67.5 L	67.3	67.6	68.2	67.7	0.13	2.2	0.4	67.3	0.20	2.1	0.5 L	16	LD
A2AWBM	55.9 *	61.9 *	58.3	64.1	60.0	-2.46 *	4.3	3.6 H	62.5	-1.08	3.8	3.2	16	LZ
D7WJW7	69.4 L	70.4 L	72.9 L	71.7 L	71.1	1.30	0.7	1.5	70.7	1.12	0.8	1.5	8	XX
ECHXZ4	63.5 L	65.5 L	65.6 L	64.1	64.7	-0.89	1.7	1.0	65.7	-0.20	1.6	1.3	16	LZ
F6EBL9	64.0 L	64.9 L	65.8 L	65.6 L	65.1	-0.75	0.8	0.8	63.1	-0.91	1.5	1.8	16	XX
F8LTJ4	66.1 L	66.5	66.3	66.2	66.3	-0.34	1.7	0.2 L	65.2	-0.36	1.7	0.8	16	MB
GQUFHG	68.0	67.0 H	67.7	67.5	67.5	0.09	5.1	0.4	67.3	0.20	4.9	2.2	16	LD
KJD7LV	No DATA	No DATA	No DATA	72.7 *H	72.7	1.85	6.2	0.0	71.1	1.22	4.2	2.1	10	LC
KWNJZB	69.5	68.2 H	69.8	68.5 H	69.0	0.59	4.5	0.8	69.1	0.69	3.8	1.3	16	XX
NNY3XC	71.7	70.3	69.3	72.3	70.9	1.23	3.2	1.4	71.1	1.23	3.6	1.2	16	LD
Q3APZ6	67.4	67.4	65.7	67.6	67.0	-0.09	3.8	0.9	67.4	0.25	4.0	1.8	16	LD
QMFXE4	65.7 L	63.3 H	64.8	67.4	65.3	-0.66	4.3	1.7	65.9	-0.15	3.8	1.8	16	LZ
R4JUDT	54.8 *	56.5 XH	56.3 *	54.6 X	55.5	-4.00 X	5.1	1.0	57.2	-2.50 *	5.2	1.3	16	LD
UU7H9U	65.2	64.3	63.8	64.9	64.6	-0.93	2.8	0.6	64.4	-0.57	4.0	1.2	16	XX
VERV3A	66.1	66.7	67.7	66.7	66.8	-0.16	3.3	0.7	67.3	0.21	3.6	1.6	16	LD
VMHG7M	68.6	67.2	69.5	65.2	67.6	0.12	3.0	1.8	68.5	0.53	3.2	1.7	16	LC

Consensus (All Labs) Results												
Wk Mean	65.44	66.98	66.01	67.54	Month Mean	67.27		Grand Mean	66.50			
Avg SDr	4.41	3.32	3.30	3.25	Avg SD	3.50		Avg SD	3.95			
SD btwn Labs	4.80	2.63	4.66	2.69	SD btwn Labs	2.94		SD btwn Labs	3.73			
Labs Incd	21	19	21	20	SD btwn Wks	1.34		SD btwn Wks	2.29			
Labs Exclcd	0	2	0	2	Labs Incd	20		Labs Incd	22			
Labs not Rcvd	1	1	1	0								

Key to Instrument Codes Reported by Participants

- LC L&W Crush Tester 48
- LZ L&W Crush Tester (model not specified)
- XX Instrument make/model not specified by lab
- LD L&W Crush Tester 248
- MB Messmer Buchel K440



Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T822

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
3H8GAW	43.6	42.0	43.0	43.8	43.1	1.02	2.9	0.8	42.9	0.75	3.0	1.1	16	LD
4EGURU	39.8	44.2	38.4	37.0	39.8	-0.78	3.7	3.1	40.0	-1.22	3.4	1.7	16	LD
4G8VZ3	44.1	40.7	41.2	41.1	41.8	0.28	3.0	1.6	41.9	0.09	3.4	2.3	16	MB
6A2L4U	41.7	43.5	45.0	42.6	43.2	1.06	2.3	1.4	43.7	1.27	2.6	1.1	16	LC
6RZYEG	41.5	41.1	43.8	42.4	42.2	0.51	3.0	1.2	42.8	0.66	3.2	1.4	8	LD
9KAMTB	44.0	44.8	44.7 H	42.5	44.0	1.50	3.8	1.1	43.7	1.30	3.6	2.1	16	EM
9YEJEX	41.3	40.9	42.3	40.9	41.3	0.04	3.1	0.7	41.0	-0.51	2.9	1.3	16	LD
ABYL8A	41.3 L	41.2 L	41.7 L	41.6 L	41.4	0.10	0.8	0.2 L	40.6	-0.79	0.8	1.3	12	TU
C3X8Z7	44.3	38.9	40.1	41.0	41.1	-0.10	3.1	2.3	41.1	-0.42	2.7	1.6	16	TH
EGVXWU	44.0 L	43.7 L	43.6 L	43.4 L	43.7	1.33	0.7	0.2 L	44.7	1.92 *	0.7	0.8	16	LD
F6EBL9	41.9 L	41.8 L	41.8 L	41.6 L	41.8	0.29	0.5	0.1 L	42.9	0.73	1.2	0.8	16	MZ
F8LTJ4	40.8	40.5	40.7	40.3	40.6	-0.39	1.6	0.2 L	41.2	-0.36	1.7	0.5 L	16	MB
FD7UZG	42.8	44.9	41.9	38.5	42.0	0.42	2.7	2.7	42.8	0.65	2.9	2.4	16	LD
G7M3QU	40.5	44.4	37.0	39.6	40.4	-0.49	2.7	3.1	39.9	-1.26	2.5	2.2	16	LD
GK2BRX	39.4	39.2 L	40.3	40.5	39.9	-0.76	1.9	0.6	40.7	-0.76	2.4	1.1	16	XX
GQUFHG	41.6	41.2	40.0	42.2	41.2	-0.01	3.7	0.9	42.0	0.14	3.2	1.6	16	LD
KWNJZB	41.2	40.6	41.1	41.5	41.1	-0.09	2.4	0.4	41.1	-0.47	3.2	1.2	16	XX
LPXNGH	41.8	38.8	38.7	39.7	39.7	-0.84	2.6	1.4	39.9	-1.24	3.0	1.9	16	LD
LW37CX	40.8	44.3	43.5	42.4	42.8	0.83	2.2	1.5	43.2	0.95	2.4	1.0	16	LD
NNY3XC	42.5	41.3	42.2	42.3	42.1	0.44	3.0	0.5	40.8	-0.63	3.3	1.5	16	LD
Q2YJ2H	37.3 *	38.4	40.9	35.3 *	38.0	-1.81	3.3	2.3	41.1	-0.49	3.3	2.9	16	LZ
Q8PTBG	35.3 X	32.6 X	35.3 *	33.4 X	34.1	-3.94 X	2.7	1.4	33.1	-5.81 X	2.8	2.7	12	TH
QCXGLW	40.5 H	38.7	37.3	37.6	38.5	-1.52	3.2	1.5	38.4	-2.29 *	3.5	2.7	16	XX
QQEC3T	41.9	42.8	42.0	41.7	42.1	0.47	2.0	0.5	42.2	0.26	3.5	1.0	16	LD
QZ8KMK	40.3	39.5	41.3	41.7	40.7	-0.30	3.5	1.0	41.5	-0.17	3.4	1.4	16	LD
TTVFMV	37.2 *H	36.4 H	38.3 H	37.6	37.4	-2.14 *	5.6	0.8	34.3	-5.02 X	4.4	5.4 H	16	XX
U94THY	44.3	47.1 *H	48.5 *H	36.2 *H	44.0	1.52	5.1	5.5 H	43.1	0.89	4.1	3.7 H	16	LZ
UU7H9U	41.7	39.5	43.8	43.3 H	42.1	0.45	4.1	1.9	41.3	-0.30	3.6	1.3	16	LD
VMHG7M	42.3	39.5	39.1	42.1	40.8	-0.28	3.8	1.7	42.6	0.52	3.7	2.3	16	LC
XLYAXB	38.9	36.3 *	No DATA	No DATA	37.6	-2.02 *	3.4	1.9	40.9	-0.59	3.5	2.7	14	LD
XVQRCJ	39.3	40.4 L	41.2	41.6	40.6	-0.36	2.0	1.0	40.7	-0.75	2.3	1.2	16	XX
YK8D9G	42.3	42.6	46.3	45.8 *	44.2	1.64	2.8	2.1	45.0	2.12 *	2.9	1.4	16	LD



Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T822

Report #657
June 2024

Consensus (All Labs) Results									
Wk Mean	41.46	41.27	41.45	40.93	Month Mean	41.27	Grand Mean	41.78	
Avg SDr	2.76	3.11	3.10	3.20	Avg SD	3.06	Avg SD	2.98	
SD btwn Labs	1.86	2.54	2.80	2.36	SD btwn Labs	1.81	SD btwn Labs	1.50	
Labs Incd	31	31	31	30	SD btwn Wks	1.81	SD btwn Wks	1.80	
Labs Excd	1	1	0	1	Labs Incd	31	Labs Incd	30	
Labs not Rcvd	0	0	1	1					

Key to Instrument Codes Reported by Participants

EM Emerson 1200 Series LD L&W Crush Tester 248 MB Messmer Buchel K440 TH TMI Compression Tester, Model 17-76 XX Instrument make/model not specified by lab	LC L&W Crush Tester 48 LZ L&W Crush Tester (model not specified) MZ Messmer Buchel (model not specified) TU TMI Universal Crush Tester (TMI K440)
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Containerboard Interlaboratory Testing Program
 Analysis 261
STFI, 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T826

Report #657
June 2024

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2RGLMM	13.3	13.1	12.9	13.1	13.1	-0.77	1.1	0.2	13.5	-0.38	1.1	0.4	16	TX
3H8GAW	14.0	14.2	14.3	14.0 L	14.1	0.94	0.8	0.2	13.6	-0.10	0.8	0.4	16	LA
3YC4E6	13.6	12.7	12.9	12.6	13.0	-1.02	1.1	0.5	13.1	-1.08	1.0	0.4	16	LH
4G8VZ3	12.7	13.9	13.8	14.0	13.6	0.05	1.1	0.6	14.1	0.72	1.1	0.5	16	LA
6A2L4U	14.0	13.9	13.8	14.2	14.0	0.70	1.1	0.2	14.1	0.69	1.1	0.3	16	LH
6RZYEG	13.1	13.6 L	13.2	13.1	13.3	-0.49	1.0	0.3	13.5	-0.37	1.1	0.3	8	LB
7UL3ME	13.3 H	13.0	13.3 H	12.8	13.1	-0.76	1.4	0.2	13.2	-0.85	1.3	0.4	16	LA
8X2UBL	13.7 L	14.9	14.8 *H	14.5 H	14.5	1.53	1.3	0.5	14.3	1.09	1.2	0.5	15	LA
9E6Q8P	13.2	13.4	13.1	13.1	13.2	-0.62	0.9	0.1	13.3	-0.64	0.9	0.1 L	16	LH
9GUTFY	13.8	13.6	13.9	13.8	13.8	0.35	1.1	0.1	13.8	0.10	1.1	0.2 L	16	LA
9KAMTB	15.9 X	14.5	23.2 XH	14.6	17.0	5.82 X	2.5	4.1 H	15.1	2.50 * 1.6	2.8 H	12	LH	
9YEJEX	14.4	14.4	14.3	14.3	14.4	1.32	1.3	0.1 L	14.1	0.68	1.1	0.9	16	LH
ABYL8A	11.8 X	11.9 *	12.3	12.4	12.1	-2.45 *	1.3	0.3	12.5	-2.02 * 1.4	1.0	12	XX	
CA3PWL	13.8	14.4	13.8	13.7	13.9	0.60	1.0	0.3	13.4	-0.47	1.2	0.4	16	LU
D7WJW7	13.2	13.6	12.2 *	12.2 *L	12.8	-1.26	0.8	0.7	12.9	-1.37	0.9	0.5	8	XX
DFJKCF	14.1	13.8 L	13.2	14.9	14.0	0.74	0.9	0.7	14.0	0.54	0.9	0.7	4	XX
F6EBL9	13.4 L	13.4 L	13.4 L	13.6 L	13.4	-0.19	0.2	0.1	13.8	0.11	0.4	0.5	16	XX
FD7UZG	13.9 L	13.7	14.3	13.5 L	13.8	0.48	0.8	0.3	13.8	0.27	1.0	0.4	16	XX
LPXNGH	13.2	13.2	13.9 H	13.1	13.3	-0.38	1.3	0.4	13.5	-0.40	1.2	0.3	16	LB
LW37CX	13.4	13.9	13.3	13.8	13.6	0.06	1.0	0.3	13.8	0.10	1.4	0.4	16	XX
PTB9DH	15.2 X	14.4	13.6	13.8	14.3	1.20	1.1	0.7	14.2	0.88	1.1	0.6	16	LA
Q6K6U7	14.3	14.5	14.1	14.3	14.3	1.23	1.1	0.2	14.3	1.08	1.1	0.4	16	LA
QCXGLW	14.1 L	13.8 L	12.9 L	13.6 L	13.6	0.02	0.0	0.5	14.3	1.01	0.0	1.9 H	16	LH
QMJKVH	13.5	14.3	13.5	14.1	13.8	0.46	1.1	0.4	14.0	0.46	1.2	0.5	16	LU
R4JUDT	12.8	12.5 H	11.3 XH	13.2 H	12.4	-1.90	1.9	0.8	12.8	-1.57	1.7	0.6	16	LB
RH3C9H	14.5	15.1 *H	13.7 L	14.9	14.6	1.68	1.5	0.6	14.6	1.52	1.5	0.6	4	LA
U94THY	13.3	12.9 L	NO DATA	12.3	12.8	-1.27	1.0	0.5	12.6	-1.86	1.2	1.1	14	XX
UU7H9U	13.5	12.8 H	14.3	13.9	13.6	0.10	1.3	0.6	13.5	-0.34	1.3	0.7	16	LZ
VERV3A	12.6	14.3	13.9	14.0	13.7	0.23	1.3	0.8	13.8	0.22	1.1	0.5	16	LA
VMHG7M	13.1	14.3	13.7	13.2	13.6	0.02	1.1	0.5	13.5	-0.39	1.1	0.3	16	LU
ZJ8WAP	13.9	13.1	12.2 *	13.6	13.2	-0.60	1.1	0.7	13.6	-0.11	1.2	0.6	16	TT



Containerboard Interlaboratory Testing Program
 Analysis 261
STFI, 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T826

Report #657
June 2024

Consensus (All Labs) Results									
Wk Mean	13.55	13.71	13.53	13.61	Month Mean	13.56	Grand Mean	13.69	
Avg SDr	1.12	1.20	1.11	1.04	Avg SD	1.14	Avg SD	1.17	
SD btwn Labs	0.50	0.74	0.65	0.72	SD btwn Labs	0.60	SD btwn Labs	0.57	
Labs Incd	28	31	28	31	SD btwn Wks	0.47	SD btwn Wks	0.81	
Labs Excld	3	0	2	0	Labs Incd	30	Labs Incd	31	
Labs not Rcvd	0	0	1	0					

Key to Instrument Codes Reported by Participants

LA	L&W Autoline	LB	L&W Model 152
LH	L&W 282	LU	L&W 52 without moisture correction (was 53)
LZ	L&W (model not specified)	TT	TMI Short Span Compression, 17-34 (MB K455)
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab