



Containerboard Interlaboratory Testing Program

Participant Summary Report #634 (H) - July 2022

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX16</u>	<u>Top to Bottom Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC14</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC14</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42H1</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>206</u>	<u>56G3</u>	<u>Bursting Strength (Mullen), 56 lb Linerboard</u>
<u>215</u>	<u>42H1</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>216</u>	<u>56G3</u>	<u>Ring Crush, 56 lb Linerboard</u>
<u>223</u>	<u>42H1</u>	<u>STFI, 42 lb Linerboard</u>
<u>224</u>	<u>56G3</u>	<u>STFI, 56 lb Linerboard</u>
<u>228</u>	<u>42H1</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42H1</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>42H1</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>CM12</u>	<u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM12</u>	<u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM12</u>	<u>Ring Crush (RCT), 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM12</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	CM12	July 2021 - Current
	CM11	April 2019 - June 2021
35# Corrugating Medium	35E3	June 2022 - Current
	35E2	June 2020 - April 2022
42# Corrugating Medium	42H1	April 2022 - Current
	42F4	August 2021 - March 2022
56# Corrugating Medium	56G3	July 2022 - 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

Report #634 (H)
July 2022

Top to Bottom Box Compression Strength, Corrugated Boxes - BX16

TAPPI Official Test Method T804

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2C7WUR	695.0	0.68	34.48	668.2	0.16	21.77	4	LM
367YJU	673.6	0.09	38.55	669.6	0.21	15.34	4	LG
3AVFUY	661.5	-0.25	32.87	674.4	0.40	18.23	2	EX
3Q4CDX	704.2	0.94	88.44	691.3	1.05	26.50	4	TB
6EZ2U2	667.8	-0.07	70.16	751.2	3.36 X	60.23	4	LS
AB6V8Y	757.6	2.42 *	40.98	826.6	6.26 X	56.83	4	EM
BEKL9M	667.0	-0.09	81.03	631.5	-1.25	32.68	3	ER
CWWRV3	673.5	0.09	81.72	628.4	-1.37	39.18	4	LL
D8DVHT	660.1	-0.29	13.51	646.1	-0.69	33.00	4	LS
E982FX	670.8	0.01	18.74	664.5	0.02	14.27	4	EX
G47CCW	667.1	-0.09	47.24	664.8	0.03	11.49	4	ER
GDW3UH	603.8	-1.85	49.42	631.6	-1.25	31.97	4	ER
GJYAAK	650.2	-0.56	80.66	689.6	0.98	27.30	4	LO
JQQ7AT	688.6	0.51	51.12	702.6	1.49	42.42	4	EX
LKX4YR	593.8	-2.13 *	28.89	625.0	-1.51	52.45	4	LM
ME73CJ	651.2	-0.53	35.83	659.9	-0.16	12.43	4	LL
MPPHEL	643.2	-0.75	40.68	653.9	-0.39	19.70	4	TE
Q67U3P	638.6	-0.88	44.26	633.4	-1.18	7.26	4	ER
RRVQDK	647.1	-0.65	22.60	657.7	-0.24	31.27	4	LG
UQW369	704.2	0.94	47.50	692.6	1.10	41.94	4	LG
V3MEWD	684.8	0.40	23.74	694.5	1.17	93.54 H	3	LS
VK6D3B	641.6	-0.80	26.42	673.6	0.37	41.66	4	ET
VWV9Y3	705.2	0.97	53.24	672.0	0.30	22.67	4	EX
WK33P6	676.0	0.16	23.67	666.1	0.08	23.50	4	ES
XBPDGX	744.6	2.06 *	62.59	718.1	2.08 *	46.90	4	EX
XTPKEW	658.2	-0.34	18.95	628.2	-1.38	27.07	4	LG
ZE6K24	512.0	-4.40 X	31.91	524.3	-5.39 X	45.44	4	LL

Consensus (All Labs) Results

Month Mean	670.36	Grand Mean	664.05
Avg SD	49.30	Avg SD Months	35.30
SD btwn Labs	35.98	SD btwn Labs	25.94
Labs Incl	26	Labs Incl	24



Containerboard Interlaboratory Testing Program
Analysis 201

Report #634 (H)
July 2022

Top to Bottom Box Compression Strength, Corrugated Boxes - BX16

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	684.08	33.24	13.73	8
Water based adhesive sealing	757.60	0.00	87.24	1
Clip sealing	658.76	28.75	11.59	17

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	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	TE	Testometric M500 - 25 KN



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC14
 TAPPI Official Test Method T811

Report #634 (H)
July 2022

WebCode	Monthly Results				Cumulative Results				Inst
	Mean	CPV	SD		Mean	CPV	SD Months	Months	
367YJU	37.1	-0.75	1.43		37.9	-0.32	1.59	4	LE
ATNRMR	37.1	-0.77	5.30	H	38.6	-0.05	1.09	4	LD
BEKL9M	37.7	-0.56	4.41	H	36.3	-0.98	1.28	3	EN
D8DVHT	37.2	-0.73	2.67		37.2	-0.62	0.78	4	LD
JHCHBK	40.1	0.26	0.47	L	37.5	-0.50	1.89	4	TD
JQQ7AT	39.7	0.14	1.49		39.4	0.29	0.88	4	LC
KNZLGU	38.7	-0.22	2.14		38.7	-0.02	0.00	1	TS
P73XBE	43.9	1.55	1.70		39.9	0.49	4.53	H 3	XX
PKMBWL	143.0	35.25 X	3.41		147.0	44.36 X	3.42	4	XX
VWV9Y3	42.4	1.04	1.36		41.5	1.14	0.88	4	LC
WLU4KU	35.0	-1.46	2.57		35.0	-1.52	0.00	1	TD
WTE2FA	81.6	14.39 X	4.81	H	60.4	8.87 X	30.08	2	TD
XAC2KE	43.7	1.49	1.43		43.8	2.09 *	2.40	4	XX

Consensus (All Labs) Results			
Month Mean	39.31	Grand Mean	38.71
Avg SD	2.65	Avg SD Months	2.04
SD btwn Labs	2.94	SD btwn Labs	2.44
Labs Incd	11	Labs Incd	11

Key to Instrument Codes Reported by Participants

EN	Emerson 2200	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LE	L&W Crush Tester 840
TD	TMI Digital Crush Tester, Model 17-09	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 - EC14
 TAPPI Official Test Method T839

Report #634 (H)
July 2022

WebCode	Monthly Results				Cumulative Results					
	Mean	CPV	SD		Mean	CPV	SD	Months	Inst	
2C7WUR	43.2	0.58	1.46		41.0	-0.42	2.96	H	4	EM
367YJU	41.9	-0.05	2.29	H	40.6	-0.70	2.91	H	4	LY
3AVFUY	42.2	0.11	1.42		42.3	0.41	1.24		3	TL
3Q4CDX	43.1	0.52	0.51	L	43.8	1.34	1.01		4	LD
44BFDL	38.7	-1.53	2.20		38.6	-1.94	*	0.55	4	XX
4RG44U	40.6	-0.64	1.24		42.3	0.40	1.60		4	LD
6EZ2U2	45.7	1.76	0.95		48.0	3.92	X	1.53	4	EM
6T6WD4	37.5	-2.12	*	1.45	39.0	-1.69	1.23		4	EM
7BZA2V	45.3	1.55	0.80		44.1	1.51	1.06		4	LC
AB6V8Y	40.3	-0.80	2.55	H	41.5	-0.12	1.74		4	TH
ATNRMR	43.3	0.60	0.65		42.8	0.68	0.68		3	LD
BEKL9M	40.8	-0.54	1.62		41.2	-0.29	0.71		3	EN
CKREYC	44.5	1.20	1.80		43.1	0.88	0.97		4	TG
D8DVHT	41.7	-0.15	1.15		42.0	0.17	1.09		4	LD
E982FX	38.4	-1.66	1.63		38.8	-1.81	0.96		4	LD
ET92JN	43.0	0.50	1.11		42.8	0.69	0.83		4	LD
G47CCW	41.5	-0.21	0.81		40.8	-0.57	1.26		4	LD
GDW3UH	42.3	0.16	1.16		41.6	-0.05	0.76		4	LD
GJYAAK	40.7	-0.59	1.53		40.5	-0.73	0.78		4	LD
JHCHBK	42.1	0.05	0.61	L	40.9	-0.50	1.00		4	BU
JQ7AT	43.0	0.51	0.87		42.0	0.19	0.87		4	LC
JZVFEW	38.0	-1.89	2.36	H	37.9	-2.35	*	0.34	4	BU
LKX4YR	38.5	-1.62	1.51		41.7	0.00	2.37		4	TG
M2G4M3	41.1	-0.39	1.69		41.1	-0.34	0.00		1	XX
ME73CJ	39.9	-0.99	0.98		41.0	-0.45	0.93		4	BU
PA34UQ	43.1	0.54	2.06		44.0	1.43	0.88		4	TU
Q67U3P	41.1	-0.43	1.19		41.3	-0.27	0.41		4	EM
QU3KUE	42.7	0.32	0.97		43.5	1.16	1.05		3	EM
RRVQDK	46.3	2.01	*	1.26	46.8	3.22	X	0.90	4	MK
UQW369	41.3	-0.31	1.42		41.7	0.03	0.34		4	EM
VK6D3B	43.4	0.66	0.92		43.8	1.29	0.72		4	TD
VWV9Y3	44.6	1.22	0.79		43.8	1.29	0.59		4	LC
WK33P6	43.7	0.82	1.06		42.3	0.40	1.13		4	LD
XAC2KE	44.8	1.35	1.26		43.7	1.27	2.20		4	XX
XBPDGX	42.5	0.26	2.23		42.7	0.64	0.91		4	CT
Y4NHXQ	40.9	-0.51	0.84		42.0	0.16	1.24		4	LC
YCHNRR	42.6	0.29	1.20		39.3	-1.49	3.34	H	4	TK
ZE6K24	40.7	-0.60	1.12		41.3	-0.22	1.38		4	LC



Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC14
TAPPI Official Test Method T839

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Consensus (All Labs) Results			
Month Mean	41.97	Grand Mean	41.69
Avg SD	1.43	Avg SD Months	1.40
SD btwn Labs	2.13	SD btwn Labs	1.60
Labs Incl	38	Labs Incl	36

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	TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76	TK	TLS Compression Tester, Model 5184
TL	Tech-Lab Systems Compression	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 - 42H1
 TAPPI Official Test Method T807

Report #634 (H)
July 2022

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	
243J24_AL	121.9	108.2	119.2	124.3	118.4	0.44	10.2	7.1 H	118.5	0.45	8.6	5.3	16	AL
2CBB68	121.2 L	119.6	115.2	118.0	118.5	0.47	5.8	2.6	117.8	0.28	5.4	2.3	15	AX
2CBB68_AL	120.2	122.1	117.6 L	116.1	119.0	0.58	8.1	2.7	117.6	0.22	8.2	3.6	15	AL
2LUUHC	109.9	108.8	110.9	114.3	111.0	-1.33	6.9	2.4	109.8	-1.73	6.0	3.3	16	XX
367YJU	120.5	124.5	124.2	120.8	122.5	1.42	8.9	2.1	120.1	0.85	7.6	3.7	16	AH
38W3C2	107.1	107.5	111.0	111.6	109.3	-1.72	8.7	2.3	109.6	-1.78	10.0	2.8	16	LA
4AY6XW	115.1	114.2	117.3	115.3	115.5	-0.25	6.4	1.3	113.4	-0.83	7.1	2.8	16	TP
4RG44U_AL	121.3	118.2	119.3	116.4	118.8	0.54	8.0	2.1	120.1	0.86	7.3	2.4	16	AK
6G88G3_AL	117.6	118.4	114.8	123.2 L	118.5	0.46	9.2	3.5	117.3	0.15	9.5	2.6	15	AL
6NRAN6	123.6	121.0	125.0	123.4	123.3	1.59	11.3	1.7	121.1	1.11	11.2	3.7	16	RE
78LABV	109.0 H	113.1	116.9 H	112.7	112.9	-0.86	13.7	3.3	115.3	-0.35	11.4	3.1	16	LZ
7BLE63_AL	110.0	116.0	116.7	117.3	115.0	-0.37	8.5	3.4	117.0	0.08	8.0	2.6	16	AL
7KMY8V_AL	120.6	118.0	118.8 L	120.3	119.4	0.69	5.3	1.2	115.9	-0.21	6.4	3.5	16	XX
8YM8FW	128.6 *L	128.7 *L	129.1 *L	130.2 *L	129.2	2.99 X	3.2	0.7	131.3	3.68 X	3.0	3.2	16	AH
99KMKR	113.7	118.3	117.7	116.1	116.4	-0.02	9.1	2.1	117.7	0.27	8.6	3.3	16	LA
99KMKR_AL	113.7	118.4	117.9	117.3	116.8	0.07	6.3	2.1	116.6	-0.02	7.4	2.7	16	AL
9DEJ8X	117.5 L	117.0 L	117.2 L	117.2 L	117.2	0.16	3.5	0.2 L	116.0	-0.17	3.9	1.3	16	LA
9HVN7T	122.7	114.0	121.3	121.7	119.9	0.80	9.3	4.0	120.7	1.00	9.7	2.8	16	LA
9LTATP_AL	115.5	119.3	120.1	114.1	117.3	0.17	6.8	2.9	116.3	-0.09	7.9	2.2	8	AL
ATNRMR	109.9	108.6	109.3	108.6	109.1	-1.77	7.3	0.6	110.3	-1.60	6.8	2.5	16	LA
C2TFDV	113.2	118.0	118.5	126.0	118.9	0.57	5.9	5.3	118.6	0.48	6.6	3.3	15	AC
CTZ9T6	129.8 *	133.6 X	122.6	124.6	127.7	2.64 *	7.6	5.0	126.4	2.44 *	8.3	3.7	16	XX
D8DVHT	107.7	111.8	117.3	118.7	113.9	-0.63	9.8	5.1	117.0	0.08	9.9	3.8	16	LA
E4T9JD	116.9	116.7	116.2	116.2	116.5	-0.01	5.2	0.3 L	114.9	-0.44	5.3	2.7	16	LJ
E982FX	116.8	120.0	116.8	116.0	117.4	0.20	9.3	1.8	118.2	0.38	8.9	1.6	16	AH
EPC9UZ	126.8	119.8	125.6	119.2	122.8	1.50	10.4	3.9	122.5	1.46	10.0	3.8	12	LA
FZN3ER	114.9	117.1	116.6	116.5	116.3	-0.06	7.5	1.0	113.8	-0.73	7.5	2.5	16	AH
G47CCW	114.9	107.0	108.6	106.2	109.2	-1.75	10.2	3.9	110.1	-1.65	10.1	4.3	16	LZ
GAU3UK_AL	121.1	125.7	118.8	115.2	120.2	0.87	6.3	4.4	119.7	0.75	7.0	2.8	16	AL
GDW3UH	121.0	117.3	114.3	115.5	117.0	0.11	7.9	2.9	119.1	0.61	9.3	3.2	12	AH
GEPQDD	121.5	118.1	119.0	120.5	119.8	0.77	6.6	1.5	119.2	0.64	6.6	3.0	16	LA
GNEMA9_AL	126.0	119.3	120.2	121.8	121.8	1.25	8.8	3.0	120.8	1.04	8.7	3.5	16	AL
GUHGCG	116.7	110.2	115.2	110.7	113.2	-0.79	10.1	3.2	113.6	-0.78	9.3	2.9	16	LA
H2XMLT	113.1	119.2	117.3	113.1	115.7	-0.20	7.5	3.1	115.2	-0.38	7.5	2.5	12	TP
H2XMLT_AL	111.6	111.6	109.4	113.7	111.6	-1.18	8.0	1.7	111.3	-1.35	6.9	2.8	12	XX



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H1
 TAPPI Official Test Method T807

Report #634 (H)
July 2022

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	
H82LXH_AL	127.9	133.4 X	136.5 XH	127.0	131.2	3.48 X	14.8	4.5	130.8	3.56 X	17.0	5.9	14	AL
JBEQ8W	115.0 H	114.3 H	118.9 H	122.9 H	117.8	0.29	21.4	4.0	120.6	0.97	16.7	4.4	16	LJ
JHCHBK	115.7	117.8	117.2	116.7	116.9	0.07	10.3	0.9	114.3	-0.61	11.4	3.2	16	XX
JV8RZE	113.3	106.2	116.7	108.0	111.1	-1.30	9.3	4.8	111.7	-1.25	9.9	2.9	16	LC
K3JAQR_AL	123.8	125.2	113.0	119.0	120.3	0.88	11.3	5.5	122.9	1.57	10.8	4.8	16	AK
M9ET48_AL	121.4	118.0	111.5	115.1	116.5	-0.01	9.7	4.2	115.8	-0.23	10.4	3.0	16	AL
MARFL_AL	114.6 L	117.7	116.2	117.7	116.5	0.00	8.8	1.5	116.8	0.04	9.4	2.4	15	AL
MW4E6E	123.4	121.4	119.0	118.8	120.7	0.98	5.2	2.2	120.7	1.00	6.0	2.7	16	AH
NGA9CB	115.7	116.9	118.9	116.1	116.9	0.08	9.8	1.4	119.0	0.58	10.3	2.9	15	TB
PKMBWL	104.1 *	101.8 *	99.5 X	103.0 *	102.1	-3.43 X	7.1	2.0	103.6	-3.29 X	8.7	2.9	16	LA
Q326ZF_AL	116.7 H	114.7	118.0	116.4	116.5	-0.02	11.6	1.4	117.2	0.13	9.5	2.9	16	AL
QDHVKJ	110.8	104.5 *	104.4 *	108.0	106.9	-2.29 *	10.3	3.1	108.6	-2.04 *	10.3	3.2	16	LC
QKJ8FF	119.6	113.5	112.7	110.4	114.1	-0.59	10.5	3.9	114.6	-0.54	9.5	3.9	16	LC
R7UQ79	109.3	105.7	106.4 *	109.6	107.7	-2.09 *	7.8	2.0	109.2	-1.90	7.7	3.9	16	LC
RQHWVY	115.5	117.3	118.4	119.2 L	117.6	0.25	7.3	1.6	119.0	0.57	4.2	2.5	16	LA
TKWGN8_AL	107.4	118.2	112.3	120.1	114.5	-0.48	9.9	5.8	115.4	-0.32	10.1	3.9	16	AL
TXZMUY	121.6	118.0	119.6	116.9	119.0	0.59	9.9	2.0	122.3	1.40	11.6	3.7	16	LC
VVPJ2Z	115.7	116.4	105.9 *	110.0	112.0	-1.08	9.4	5.0	115.4	-0.33	10.4	4.2	12	LB
VWV9Y3	108.4	113.8	114.6	106.9	110.9	-1.33	7.6	3.8	111.4	-1.34	9.6	4.1	16	AH
WCJYEV	112.8	112.3	132.1 X	107.6	116.2	-0.08	8.0	10.8 H	112.1	-1.15	9.1	6.0	15	ME
WK33P6	113.2	112.5	113.3	117.5	114.1	-0.57	10.1	2.3	113.7	-0.76	9.0	3.0	16	LA
XAC2KE	119.1	116.7	115.3	113.8	116.2	-0.08	6.2	2.2	115.6	-0.28	6.1	1.5	14	LC
XBPDGX	115.0	120.0	117.5	120.0	118.1	0.38	10.9	2.4	118.8	0.54	9.7	3.0	16	XX
Y4LTR8	125.2	115.5	119.4	123.9	121.0	1.06	9.1	4.4	124.8	2.05 *	8.0	3.5	16	AX
YR9Q9V	111.7	111.8	111.0	112.4	111.7	-1.14	7.7	0.6 L	113.8	-0.73	7.1	2.1	16	XX
ZMEAF2	119.2	114.6	NO DATA	NO DATA	116.9	0.09	11.7	3.3	119.1	0.60	10.0	4.9	10	AH
ZMEAF2_AL	124.3	126.1 H	NO DATA	NO DATA	125.2	2.06 *	14.3	1.3	120.5	0.97	11.7	5.3	7	AL

Consensus (All Labs) Results														
Wk Mean	116.97	115.94	116.42	116.50	Month Mean	116.54	Grand Mean	116.69						
Avg SDr	9.07	9.04	9.01	9.26	Avg SD	9.24	Avg SD	8.92						
SD btwn Labs	5.88	5.47	4.74	5.52	SD btwn Labs	4.21	SD btwn Labs	3.97						
Labs Incl	62	60	57	60	SD btwn Wks	3.46	SD btwn Wks	3.36						
Labs Excl	0	2	3	0	Labs Incl	59	Labs Incl	59						
Labs not Rcvd	0	0	2	2										



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H1
TAPPI Official Test Method T807

Report #634 (H)
July 2022

Key to Instrument Codes Reported by Participants

AC	Perkins Model C	AH	Perkins Model AH
AK	L & W Autoline 300	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	RE	Regmed/Mullen Tester
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G3
 TAPPI Official Test Method T807

Report #634 (H)
July 2022

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	
243J24_AL	114.7	113.6	121.9	119.6	117.5	0.25	10.2	3.9	117.5	0.25	10.2	3.9	4	AL
2CBB68	117.6	121.8	117.8	117.2 L	118.6	0.57	4.9	2.1	118.6	0.57	4.9	2.1	4	AH
2CBB68_AL	114.5	115.1	109.0	119.5	114.5	-0.56	8.4	4.3	114.5	-0.56	8.4	4.3	4	AL
2LUUHC	108.1 *	113.4	110.6	111.0	110.8	-1.60	8.4	2.2	110.8	-1.60	8.4	2.2	4	XX
367YJU	124.0	122.9	119.0	122.8	122.2	1.56	7.5	2.2	122.2	1.56	7.5	2.2	4	AH
38W3C2	113.3	110.6	107.5	115.1	111.6	-1.37	13.4	3.3	111.6	-1.37	13.4	3.3	4	LA
4AY6XW	117.8	114.9	117.2	114.1	116.0	-0.15	7.1	1.8	116.0	-0.15	7.1	1.8	4	TP
4RG44U_AL	111.8	117.2	114.0	111.7	113.7	-0.80	8.9	2.6	113.7	-0.80	8.9	2.6	4	AL
6G88G3_AL	No DATA	114.8	119.8	106.2 *	113.6	-0.82	9.8	6.9	113.6	-0.82	9.8	6.9	3	AL
6NRAN6	115.6	121.4	124.6	118.4	120.0	0.95	11.0	3.9	120.0	0.95	11.0	3.9	4	RE
78LABV	120.2	115.9	111.5	121.1	117.2	0.17	12.0	4.4	117.2	0.17	12.0	4.4	4	LZ
7BLE63_AL	120.6	114.5	116.7	118.1	117.5	0.25	7.0	2.5	117.5	0.25	7.0	2.5	4	AL
7KMY8V_AL	113.6	114.4	111.2	113.5	113.2	-0.94	8.6	1.4	113.2	-0.94	8.6	1.4	4	XX
8YM8FW	139.2 XL	139.6 XL	140.1 XL	140.8 XL	139.9	6.47 X	2.9	0.7	139.9	6.47 X	2.9	0.7	4	AH
99KMKR	119.9	122.4	118.9	118.2	119.8	0.91	9.0	1.8	119.8	0.91	9.0	1.8	4	LA
99KMKR_AL	120.9	119.3	115.8	116.8	118.2	0.45	7.1	2.4	118.2	0.45	7.1	2.4	4	AL
9DEJ8X	114.7 L	115.3 L	116.3 L	115.1 L	115.4	-0.33	3.2	0.7	115.4	-0.33	3.2	0.7	4	LA
9HVN7T	116.5	120.2	119.0	122.0	119.4	0.79	9.6	2.3	119.4	0.79	9.6	2.3	4	LA
9LTATP_AL	113.6	120.3	118.1	117.3	117.3	0.21	13.5	2.8	117.3	0.21	13.5	2.8	4	AL
ATNRM	112.5	117.8	112.3	109.3	113.0	-0.99	6.9	3.5	113.0	-0.99	6.9	3.5	4	LA
C2TFDV	134.1 X	138.6 X	131.1 XH	130.8 X	133.7	4.73 X	13.3	3.6	133.7	4.73 X	13.3	3.6	4	AC
CTZ9T6	123.4	124.2	123.4	125.0 *	124.0	2.06 *	10.3	0.8	124.0	2.06 *	10.3	0.8	4	XX
D8DVHT	121.4	116.2	121.4	118.9	119.5	0.81	8.3	2.5	119.5	0.81	8.3	2.5	4	LA
E4T9JD	115.0	115.2	115.2	115.9	115.3	-0.34	6.1	0.4 L	115.3	-0.34	6.1	0.4 L	4	LJ
E982FX	117.2	115.2	114.0	113.6	115.0	-0.43	9.3	1.6	115.0	-0.43	9.3	1.6	4	AH
EPC9UZ	122.3	117.7	122.5	115.8	119.6	0.84	10.1	3.4	119.6	0.84	10.1	3.4	4	LA
FZN3ER	116.6	115.6	115.3	114.5	115.5	-0.29	8.2	0.9	115.5	-0.29	8.2	0.9	4	AH
G47CCW	111.2	107.3 *	106.0 *	106.9 *	107.8	-2.41 *	12.8	2.3	107.8	-2.41 *	12.8	2.3	4	LZ
GAU3UK_AL	120.3	120.0	115.9	116.5	118.2	0.45	7.8	2.3	118.2	0.45	7.8	2.3	4	AL
GDW3UH	117.9	118.0	125.1	117.4	119.6	0.84	9.4	3.7	119.6	0.84	9.4	3.7	4	AH
GEPQDD	120.1	125.9 *	119.9	116.7	120.7	1.13	6.3	3.8	120.7	1.13	6.3	3.8	4	LA
GNEMA9_AL	122.8	120.7	117.8	122.0	120.8	1.18	9.8	2.2	120.8	1.18	9.8	2.2	4	AL
GUHGCG	114.8	114.3	120.6	109.4	114.8	-0.49	8.8	4.6	114.8	-0.49	8.8	4.6	4	LA
H2XMLT	114.5	118.0	118.3	112.8	115.9	-0.18	9.2	2.7	115.9	-0.18	9.2	2.7	4	TP
H2XMLT_AL	110.3	111.6	106.9 *	112.7	110.4	-1.71	9.0	2.5	110.4	-1.71	9.0	2.5	4	XX



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G3
 TAPPI Official Test Method T807

Report #634 (H)
July 2022

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
H82LXH_AL	120.6	119.6	136.1 XH	118.6	123.7	1.98 *	15.6	8.3 H	123.7	1.98 *	15.6	8.3 H	4	XX
JBEQ8W	111.4	116.5 H	113.5 H	110.4 H	113.0	-0.99	18.5	2.7	113.0	-0.99	18.5	2.7	4	LZ
JHCHBK	118.6	119.3	117.2	119.4 H	118.6	0.57	12.5	1.0	118.6	0.57	12.5	1.0	4	XX
JV8RZE	107.0 *	113.8	111.8	112.3	111.2	-1.48	8.4	2.9	111.2	-1.48	8.4	2.9	4	LA
K3JAQR_AL	124.1	127.2 *	121.8	124.0 *	124.3	2.14 *	9.6	2.2	124.3	2.14 *	9.6	2.2	4	AK
M9ET48_AL	118.5	115.3	113.2	115.2	115.5	-0.28	10.5	2.2	115.5	-0.28	10.5	2.2	4	AL
MARFLL_AL	125.0	116.2	113.6	115.3 H	117.5	0.26	11.5	5.1	117.5	0.26	11.5	5.1	4	AL
MW4E6E	122.8	115.4	122.4	116.2	119.2	0.73	6.6	3.9	119.2	0.73	6.6	3.9	4	AH
PKMBWL	114.2	117.1	111.1	111.2	113.4	-0.87	8.9	2.9	113.4	-0.87	8.9	2.9	4	LA
Q326ZF_AL	118.4	107.6 *	118.9 H	116.1	115.3	-0.36	12.6	5.2	115.3	-0.36	12.6	5.2	4	XX
QDHVKJ	114.0	117.8	118.8	112.6	115.8	-0.21	10.7	3.0	115.8	-0.21	10.7	3.0	4	LC
QKJ8FF	121.6	118.7	121.3	113.6	118.8	0.62	9.0	3.7	118.8	0.62	9.0	3.7	4	XX
R7UQ79	110.5	108.2	112.0	110.1	110.2	-1.76	7.6	1.6	110.2	-1.76	7.6	1.6	4	LC
RQHWVY	125.4	124.9	109.6	119.2	119.8	0.89	6.3	7.3 H	119.8	0.89	6.3	7.3 H	4	LA
TKWGN8_AL	123.2	112.9	115.0	118.4	117.4	0.23	10.6	4.5	117.4	0.23	10.6	4.5	4	AL
TXZMUY	115.2	118.7	119.5	119.0	118.1	0.43	11.5	1.9	118.1	0.43	11.5	1.9	4	LC
VVPJ2Z	117.7	108.6	114.1	111.2	112.9	-1.01	12.5	3.9	112.9	-1.01	12.5	3.9	4	LB
VWV9Y3	125.0	108.3	111.9	113.5	114.7	-0.52	9.9	7.2 H	114.7	-0.52	9.9	7.2 H	4	AH
WCJYEV	111.4	110.7	126.1 *	111.6	115.0	-0.44	8.8	7.4 H	115.0	-0.44	8.8	7.4 H	4	LA
WK33P6	110.8	111.2	113.7	112.2 L	112.0	-1.27	10.4	1.3	112.0	-1.27	10.4	1.3	4	LA
XBPDGX	119.5	117.0	122.5	119.5	119.6	0.85	9.7	2.3	119.6	0.85	9.7	2.3	4	XX
Y4LTR8	120.1	117.9	120.4	122.6	120.3	1.02	9.6	1.9	120.3	1.02	9.6	1.9	4	XX
YR9Q9V	113.6	113.5	114.5	112.7	113.6	-0.83	7.6	0.7	113.6	-0.83	7.6	0.7	4	XX
ZMEAF2	122.4	117.0	NO DATA	NO DATA	119.7	0.87	9.3	3.8	119.7	0.87	9.3	3.8	2	AH
ZMEAF2_AL	112.5	116.4	NO DATA	NO DATA	114.5	-0.58	7.4	2.8	114.5	-0.58	7.4	2.8	2	AL

Consensus (All Labs) Results														
Wk Mean	117.21	116.47	116.48	115.71	Month Mean	116.55			Grand Mean	116.55				
Avg SDr	9.39	9.81	9.70	9.62	Avg SD	9.77			Avg SD	9.77				
SD btwn Labs	4.66	4.44	4.80	4.24	SD btwn Labs	3.61			SD btwn Labs	3.61				
Labs Incl	57	58	55	56	SD btwn Wks	3.54			SD btwn Wks	3.54				
Labs Excl	2	2	3	2	Labs Incl	58			Labs Incl	58				
Labs not Rcvd	1	0	2	2										



Containerboard Interlaboratory Testing Program
Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G3
TAPPI Official Test Method T807

Report #634 (H)
July 2022

Key to Instrument Codes Reported by Participants

AC	Perkins Model C	AH	Perkins Model AH
AK	L & W Autoline 300	AL	L & W Autoline 400
LA	L&W Bursting Strength Tester	LB	L&W Burst-O-Matic
LC	L&W Autoline (206 Enrollment)	LJ	L&W Bursting Strength Tester J-Type
LZ	L&W (model not specified)	RE	Regmed/Mullen Tester
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42H1

TAPPI Official Test Method T822

Report #634 (H)

July 2022

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
243J24	92.7	94.6	94.7	95.3	94.3	-0.33	3.4	1.1	94.4	-0.40	3.7	1.8	16	LZ
2LUUHC	101.1	96.1	99.4	97.4	98.5	0.87	3.0	2.2	101.1	1.53	3.2	3.9	16	TU
367YJU	93.5	93.9	95.4	97.0 L	95.0	-0.15	3.0	1.6	95.0	-0.24	2.7	1.9	16	LG
38UET3	93.1	94.7	95.7	92.2	93.9	-0.44	2.4	1.6	95.9	0.02	2.3	2.1	16	TH
4AY6XW	98.3	107.3 X	94.6 H	93.8	98.5	0.86	4.8	6.2 H	96.0	0.06	4.0	4.0	16	TJ
4RG44U	95.3	95.4	93.6	96.4	95.2	-0.09	2.3	1.2	96.2	0.13	2.5	2.3	16	LD
6G88G3	94.3	92.7 H	92.0 H	92.0 H	92.8	-0.78	6.9	1.1	100.3	1.28	4.8	5.0	16	LC
6NRAN6	99.2	102.3	103.0 *	103.4	102.0	1.85	3.6	1.9	103.8	2.27 *	3.3	2.9	16	EX
78LABV	92.8	89.6	86.8 *	85.9 *	88.8	-1.91	2.9	3.1	90.6	-1.50	3.1	2.7	16	LC
7BZA2V	95.8	96.3	96.2	96.2	96.1	0.19	3.7	0.2 L	93.9	-0.54	3.0	2.9	16	LC
8GMA29	97.4 L	97.8	102.3	101.6	99.8	1.23	3.0	2.5	100.9	1.46	2.8	2.2	16	LD
8YM8FW	90.8	90.6	90.2	91.4	90.8	-1.34	2.6	0.5	91.6	-1.21	3.0	1.8	16	LD
99KMKR	98.3	94.3	94.9	94.4	95.5	0.00	2.5	1.9	93.4	-0.68	2.6	2.2	16	LD
9DEJ8X	93.0	93.3	93.9	93.6	93.5	-0.58	2.4	0.4	94.9	-0.27	2.5	1.1 L	16	LD
9HVN7T	100.6	No DATA	No DATA	No DATA	100.6	1.47	3.4	0.0	98.8	0.86	3.6	2.5	13	LZ
9LTATP	93.6	94.2	92.7	91.7	93.0	-0.70	2.3	1.1	92.7	-0.89	2.8	0.8 L	8	LD
ATNRMR	91.8	91.5	93.3	94.8	92.8	-0.75	2.4	1.5	93.1	-0.78	2.6	1.2	16	LD
BAC8KW	87.5 *	87.1 *	92.0	89.4	89.0	-1.84	2.5	2.2	93.1	-0.78	3.2	3.7	12	LZ
BEKL9M	91.5	90.3	95.9	95.4	93.2	-0.63	3.2	2.8	93.1	-0.78	2.8	2.0	12	EN
BW6AHH	102.9	104.6 *H	104.5 *	99.4	102.8	2.10 *	4.6	2.4	102.7	1.98 *	4.2	3.3	16	TU
CKPNRU	91.3	94.5	93.6	90.9	92.6	-0.83	3.7	1.8	95.0	-0.23	3.3	2.6	16	TH
CKREYC	97.5	96.0	97.5	97.8	97.2	0.49	4.0	0.8	97.0	0.35	3.4	1.5	16	TH
D8DVHT	97.5	96.9	94.3	96.2	96.2	0.22	2.8	1.4	94.1	-0.48	2.5	3.0	16	LD
E4T9JD	95.4	95.2	95.8	95.2	95.4	-0.03	2.3	0.3 L	94.9	-0.27	2.5	1.1 L	16	LD
EPC9UZ	106.5 *	104.1 *	109.4 X	104.7 *	106.2	3.05 X	4.7	2.4	106.9	3.17 X	4.1	2.5	12	LD
FVFGTF	101.5	95.9	101.0	95.9	98.5	0.88	2.8	3.1	101.0	1.48	3.0	3.2	16	MB
G47CCW	100.3	96.1	97.3	95.4	97.3	0.52	3.2	2.2	95.9	0.04	3.2	2.0	16	LD
GDW3UH	96.7	98.7	96.6	97.0	97.3	0.51	3.6	1.0	95.4	-0.12	3.0	2.1	16	LD
GEPQDD	98.3	98.7	94.4	98.7	97.5	0.59	3.0	2.1	94.5	-0.37	2.9	2.6	16	LC
H2XMLT	97.9	98.3	98.2	98.1	98.1	0.76	2.9	0.2 L	96.8	0.28	2.9	1.4	12	LD
H82LXH	67.8 XH	99.7	68.3 XH	86.9 H	80.7	-4.22 X	6.9	15.5 H	83.6	-3.48 X	6.2	13.1 H	14	LC
JV8RZE	93.9	93.6	95.3	95.1	94.5	-0.29	2.8	0.9	94.3	-0.44	2.6	1.1 L	16	LD
KMPHAW	97.9	96.3	95.2	98.4	96.9	0.41	2.1	1.5	96.9	0.32	2.1	1.5	4	LZ
LZ9MTD	95.5	91.6	95.7	95.9	94.7	-0.23	2.7	2.0	92.0	-1.10	3.0	2.6	16	LD
M9ET48	80.3 XH	78.7 XH	80.4 XH	78.3 XH	79.4	-4.58 X	8.4	1.1	79.8	-4.57 X	7.5	8.2	16	LD



Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42H1

TAPPI Official Test Method T822

Report #634 (H)

July 2022

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	
MUYTBM	93.2	94.5 L	94.8	94.6	94.3	-0.34	1.5	0.7	93.0	-0.81	1.8	1.3	16	RS
NGA9CB	89.9	95.9	92.5	90.3 L	92.1	-0.95	2.3	2.7	93.0	-0.79	3.2	6.1	16	LD
NKPK88	93.2 H	91.0	94.5 H	91.9	92.6	-0.81	4.7	1.6	87.8	-2.29 *	4.1	4.4	16	EM
PKMBWL	139.9 X	148.1 X	144.6 X	143.9 X	144.1	13.87 X	4.2	3.4	104.7	2.54 *	16.4	23.8 H	16	LB
Q326ZF	98.1	99.4	98.8	98.3	98.6	0.90	2.1	0.6	96.5	0.21	2.1	2.2	16	LD
QDHVKJ	91.1	92.7	93.0	91.8	92.2	-0.95	2.7	0.9	94.6	-0.35	3.3	2.8	16	LZ
QKJ8FF	93.2	94.3	91.9	91.9	92.8	-0.75	3.4	1.2	97.1	0.37	3.2	4.4	16	MB
QU3KUE	96.8	97.7	95.2	98.6	97.1	0.45	3.0	1.5	96.0	0.06	3.1	1.8	12	EM
R7UQ79	101.5	98.2	99.2	100.8	99.9	1.27	3.7	1.5	96.6	0.22	3.5	2.4	16	LD
RQHWVY	100.9	100.9 L	98.9	104.8 *	101.4	1.68	2.7	2.5	100.4	1.32	2.0	3.3	16	TU
TKWGN8	92.2	93.6	93.6	No DATA	93.1	-0.67	2.8	0.8	92.8	-0.86	3.2	1.7	15	LD
TXZMUY	95.2	91.4	87.7 *	90.0	91.1	-1.25	2.6	3.1	93.5	-0.65	2.6	2.3	16	LD
VVPJ2Z	96.6	99.1	97.3	99.6	98.1	0.76	2.7	1.4	99.6	1.09	2.6	3.3	11	LC
VWV9Y3	99.3	97.1	97.4	94.8	97.1	0.48	2.7	1.9	97.3	0.43	2.6	1.1 L	16	LC
WCJYEV	97.4	96.2	101.4	99.3 L	98.6	0.89	2.9	2.3	99.5	1.06	4.6	5.3	16	LX
Y4LTR8	93.2	92.7	95.4	93.3	93.6	-0.52	3.4	1.2	92.5	-0.93	3.9	1.7	16	LD
YCHNRR	95.8 L	98.0	97.5 L	97.1 L	97.1	0.47	1.4	1.0	94.5	-0.38	1.7	1.8	16	MB
YR9Q9V	86.0 *H	93.5	80.2 X	84.5 *	86.1	-2.69 *	5.4	5.5 H	91.6	-1.21	5.2	5.4	16	LD

Consensus (All Labs) Results									
Wk Mean	95.74	95.52	95.64	95.28	Month Mean	95.47	Grand Mean	95.80	
Avg SDr	3.19	3.21	3.22	3.37	Avg SD	3.22	Avg SD	3.88	
SD btwn Labs	4.02	3.57	3.54	4.37	SD btwn Labs	3.51	SD btwn Labs	3.50	
Labs Incl	50	49	47	49	SD btwn Wks	2.08	SD btwn Wks	4.40	
Labs Excl	3	3	5	2	Labs Incl	49	Labs Incl	50	
Labs not Rcvd	0	1	1	2					

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	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
RS	Regmed Digital Crush Tester CT-2000	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)



Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56G3

TAPPI Official Test Method T822

Report #634 (H)

July 2022

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	
243J24	134.7	136.3	138.6	136.1	136.4	0.29	5.1	1.6	136.4	0.29	5.1	1.6	4	LZ
2LUUHC	137.2	137.0 L	137.5	136.1	137.0	0.40	2.5	0.6	137.0	0.40	2.5	0.6	4	TU
367YJU	133.1	131.9	130.1	130.9	131.5	-0.66	4.0	1.3	131.5	-0.66	4.0	1.3	4	LY
38UET3	128.0	128.0	135.3	130.1	130.4	-0.88	3.7	3.4	130.4	-0.88	3.7	3.4	4	TH
4AY6XW	136.6	137.1	135.9	139.9	137.4	0.48	4.9	1.8	137.4	0.48	4.9	1.8	4	TJ
4RG44U	128.1	130.2	128.2	127.6	128.5	-1.23	3.4	1.2	128.5	-1.23	3.4	1.2	4	LD
6G88G3	125.4 H	122.6 *H	121.3 *H	133.4 H	125.7	-1.78	13.1	5.4 H	125.7	-1.78	13.1	5.4 H	4	LC
6NRAN6	146.7 *	146.1 *	145.6	145.1	145.9	2.12 *	4.3	0.7	145.9	2.12 *	4.3	0.7	4	EX
78LABV	129.9	127.1	125.6	127.3	127.4	-1.44	4.7	1.8	127.4	-1.44	4.7	1.8	4	LC
7BZA2V	134.8	135.9	133.9	134.9	134.9	-0.01	3.6	0.8	134.9	-0.01	3.6	0.8	4	LC
8GMA29	137.0	133.1 H	145.8	143.8	139.9	0.97	5.2	5.9 H	139.9	0.97	5.2	5.9 H	4	LD
8YM8FW	129.7	129.9	130.3 L	131.1	130.2	-0.90	2.4	0.6	130.2	-0.90	2.4	0.6	4	LD
99KMKR	134.4	129.8	131.4	132.0	131.9	-0.58	4.3	1.9	131.9	-0.58	4.3	1.9	4	LD
9DEJ8X	136.2	137.1	136.1	135.8	136.3	0.27	3.1	0.6	136.3	0.27	3.1	0.6	4	LD
9HVN7T	134.5	No DATA	No DATA	No DATA	134.5	-0.07	3.2	0.0	134.5	-0.07	3.2	0.0	1	LZ
9LTATP	127.3	128.6	125.8	131.7	128.3	-1.27	3.9	2.5	128.3	-1.27	3.9	2.5	4	LD
ATNRMR	133.6	133.2 L	134.4	135.9	134.3	-0.12	2.5	1.2	134.3	-0.12	2.5	1.2	4	LD
BAC8KW	128.9	126.7	125.8	127.1	127.1	-1.50	2.7	1.3	127.1	-1.50	2.7	1.3	4	LZ
BEKL9M	129.2	127.1	132.7	132.3	130.3	-0.89	3.7	2.7	130.3	-0.89	3.7	2.7	4	EN
BW6AHH	143.0	141.9	140.7	140.8	141.6	1.29	4.2	1.1	141.6	1.29	4.2	1.1	4	TU
CKREYC	126.2	133.8	130.6	130.8	130.3	-0.88	2.7	3.1	130.3	-0.88	2.7	3.1	4	TH
D8DVHT	133.6	135.7	133.5	132.3	133.8	-0.22	3.6	1.4	133.8	-0.22	3.6	1.4	4	LD
E4T9JD	136.9	137.1	136.8	137.0	136.9	0.39	2.7	0.1 L	136.9	0.39	2.7	0.1 L	4	LD
EPC9UZ	139.5	140.8 H	142.8 H	142.3 H	141.4	1.25	7.3	1.5	141.4	1.25	7.3	1.5	4	LD
FVFGTF	140.1	133.5	136.8	131.2	135.4	0.10	4.3	3.9	135.4	0.10	4.3	3.9	4	MB
G47CCW	135.2	136.0	135.2	137.8	136.0	0.22	3.7	1.3	136.0	0.22	3.7	1.3	4	LD
GDW3UH	129.3	131.3 L	133.8	132.9	131.8	-0.59	3.2	2.0	131.8	-0.59	3.2	2.0	4	LD
GEPQDD	138.0	136.5	138.7	139.2	138.1	0.62	4.0	1.2	138.1	0.62	4.0	1.2	4	LC
H2XMLT	135.8	134.6	131.9	136.9	134.8	-0.02	3.7	2.1	134.8	-0.02	3.7	2.1	4	LD
H82LXH	92.8 XH	94.5 XH	87.7 XH	126.1 H	100.3	-6.69 X	15.7	17.5 H	100.3	-6.69 X	15.7	17.5 H	4	LC
JV8RZE	131.6	132.6	134.1	135.4	133.4	-0.28	2.9	1.7	133.4	-0.28	2.9	1.7	4	LD
KMPHAW	136.2	136.9 L	136.9	136.5	136.6	0.34	2.8	0.3 L	136.6	0.34	2.8	0.3 L	4	LZ
LZ9MTD	132.0	130.2	136.9	132.3	132.8	-0.40	4.1	2.9	132.8	-0.40	4.1	2.9	4	LD
M9ET48	118.4 X	110.2 XH	112.9 XH	110.9 XH	113.1	-4.21 X	8.6	3.7	113.1	-4.21 X	8.6	3.7	4	LD
MUYTBM	134.9 L	135.1 L	134.4 L	134.3 L	134.7	-0.05	1.2	0.4 L	134.7	-0.05	1.2	0.4 L	4	RS



Containerboard Interlaboratory Testing Program
 Analysis 216
Ring Crush, 56 lb Linerboard - 56G3
 TAPPI Official Test Method T822

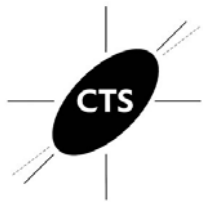
Report #634 (H)
July 2022

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
NKPK88	127.3	121.4 *	121.7 *	120.8 *	122.8	-2.34 *	4.7	3.0	122.8	-2.34 *	4.7	3.0	4	EM
PKMBWL	144.9 *	145.1	148.2 *	149.8 *	147.0	2.34 *	5.9	2.4	147.0	2.34 *	5.9	2.4	4	LB
Q326ZF	139.9 L	139.3	140.4	140.8	140.1	1.00	2.6	0.7	140.1	1.00	2.6	0.7	4	LD
QDHVKJ	130.5	129.6	130.8	132.7	130.9	-0.77	3.3	1.3	130.9	-0.77	3.3	1.3	4	LZ
QKJ8FF	133.1	135.8	132.8	134.0	133.9	-0.19	4.8	1.3	133.9	-0.19	4.8	1.3	4	MB
QU3KUE	131.1	133.6	129.4	129.4	130.9	-0.78	3.5	2.0	130.9	-0.78	3.5	2.0	4	EM
R7UQ79	142.5	139.7	140.1	144.1	141.6	1.30	5.8	2.1	141.6	1.30	5.8	2.1	4	LD
RQHWVY	138.3	143.5	141.6	137.0	140.1	1.00	3.5	3.0	140.1	1.00	3.5	3.0	4	TU
TKWGN8	133.2	135.7	133.5	NO DATA	134.1	-0.15	3.1	1.4	134.1	-0.15	3.1	1.4	3	LD
TXZMUY	133.8	133.3	125.6	131.2	131.0	-0.76	4.1	3.7	131.0	-0.76	4.1	3.7	4	LD
VVPJ2Z	138.7	140.9	139.1	141.3	140.0	0.98	3.6	1.3	140.0	0.98	3.6	1.3	4	LC
VWV9Y3	140.3	139.6	141.6	135.9	139.3	0.86	3.6	2.4	139.3	0.86	3.6	2.4	4	LC
WCJYEV	140.6	141.0	147.9 *	146.9 *	144.1	1.78	4.0	3.8	144.1	1.78	4.0	3.8	4	LY
Y4LTR8	135.5	135.9	133.2	136.1	135.2	0.05	5.5	1.3	135.2	0.05	5.5	1.3	4	LD
YCHNRR	138.2 L	138.7 L	138.8 L	138.6 L	138.6	0.71	1.8	0.3 L	138.6	0.71	1.8	0.3 L	4	MB
YR9Q9V	116.9 X	119.5 *	110.3 X	117.7 X	116.1	-3.63 X	5.1	4.0	116.1	-3.63 X	5.1	4.0	4	LD

Consensus (All Labs) Results											
Wk Mean	134.69	134.29	134.93	135.22	Month Mean	134.90		Grand Mean	134.90		
Avg SDr	4.53	4.47	4.14	5.06	Avg SD	4.33		Avg SD	4.33		
SD btwn Labs	4.96	5.78	6.26	5.74	SD btwn Labs	5.17		SD btwn Labs	5.17		
Labs Incl	48	48	47	47	SD btwn Wks	2.26		SD btwn Wks	2.26		
Labs Excl	3	2	3	2	Labs Incl	48		Labs Incl	48		
Labs not Rcvd	0	1	1	2							

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LB	L&W Crush Tester 240
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W Crush Tester 958	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program

Analysis 223

Report #634 (H)

July 2022

STFI, 42 lb Linerboard - 42H1

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	
243J24_AL	21.0	21.8	22.3	22.5	21.9	-1.21	1.4	0.7	22.2	-1.28	1.6	0.7	16	AL
2CBB68	24.8	25.2	25.5	24.9	25.1	1.15	2.0	0.3	24.8	0.97	1.9	0.8	15	LU
2CBB68_AL	22.7	21.4	23.7	22.4	22.5	-0.74	1.6	1.0	23.2	-0.42	1.4	1.1	15	AL
2LUUHC	25.2	23.9	24.4	23.2	24.2	0.47	1.9	0.8	25.0	1.14	2.0	0.8	16	TT
367YJU	21.8	21.9	21.3	22.3	21.8	-1.28	1.8	0.4	22.4	-1.12	1.6	0.6	16	LU
38UET3	20.6	21.7	22.3	22.0	21.7	-1.40	1.8	0.7	22.5	-0.99	1.9	0.7	16	LZ
38W3C2	24.6 H	26.5	26.4	25.2	25.6	1.55	2.3	0.9	25.3	1.37	2.4	1.1	16	LH
3X7JW8	25.6	26.1	26.3	25.4	25.8	1.69	1.4	0.4	25.5	1.56	1.6	0.8	16	LH
44BFDL	22.0	22.9	22.1	22.5	22.4	-0.86	1.8	0.4	22.2	-1.25	1.9	1.4	16	XX
4AY6XW	24.5	23.7	23.3	23.8	23.8	0.20	1.6	0.5	23.8	0.13	1.6	0.5	16	TT
4RG44U_AL	24.3	23.5	24.1	24.6	24.1	0.42	1.9	0.5	24.3	0.56	1.8	0.8	16	AK
6G88G3	No DATA	23.8	24.0	25.9	24.6	0.75	1.8	1.2	24.2	0.42	1.8	0.8	13	LU
78LABV	21.5	24.0 H	21.2	19.5 X	21.6	-1.47	2.0	1.8 H	21.1	-2.26 *	1.9	1.0	16	LY
7BLE63	24.2	24.7	22.8 L	22.3	23.5	-0.03	1.6	1.1	23.8	0.08	1.9	1.0	14	LU
7KMY8V	22.3	22.3	22.4	21.4	22.1	-1.07	1.5	0.5	22.1	-1.33	1.6	0.6	16	LY
7KMY8V_AL	23.5	24.6	22.9 L	22.6	23.4	-0.09	1.7	0.9	23.3	-0.32	1.5	0.8	16	XX
8GMA29	25.6	25.6	25.0	24.7	25.2	1.24	1.9	0.4	25.6	1.62	1.8	0.6	16	LH
99KMKR_AL	21.6	23.5 L	23.8	23.2	23.0	-0.38	1.8	1.0	23.3	-0.37	1.6	0.6	16	AL
9DEJ8X	23.4	23.3	23.5	23.4	23.4	-0.10	2.0	0.1 L	23.3	-0.32	1.9	0.4	16	LA
9HVN7T	22.8	22.6	22.4	22.8	22.6	-0.68	1.8	0.2	22.4	-1.11	1.7	0.4	16	LU
9LTATP_AL	25.2	25.8	24.2	26.1	25.3	1.31	2.0	0.8	25.3	1.40	2.1	0.6	8	AL
ATNRM	23.4	24.2	22.5	23.2	23.3	-0.16	1.5	0.7	23.2	-0.38	1.2	0.6	16	BK
BAC8KW	25.6	25.6	25.9	24.4	25.4	1.33	1.5	0.7	25.5	1.54	1.7	0.8	12	LH
BEKL9M	21.9	22.0	22.2	22.1	22.1	-1.10	1.4	0.1 L	21.9	-1.56	1.7	0.5	12	LY
BW6AHH	25.1	24.2	24.0	25.1	24.6	0.77	2.2	0.6	24.3	0.50	2.1	1.1	16	LA
C2TFDV	22.2	22.6	21.9 L	22.4	22.3	-0.94	1.2	0.3	22.4	-1.11	1.4	0.6	16	LH
CKPNRU	21.5	22.3	21.1	21.3 H	21.6	-1.47	2.0	0.5	22.4	-1.11	1.7	0.7	16	LZ
D8DVHT	22.9	23.1	22.9	22.5	22.8	-0.53	1.9	0.3	22.5	-1.01	1.6	0.9	16	LZ
EZURAQ	23.5	23.7	24.0	23.4	23.6	0.07	1.4	0.3	24.1	0.38	1.5	0.6	16	LH
FVFGTF	24.5	24.7	25.4	24.4	24.8	0.89	2.1	0.5	24.9	1.03	2.0	0.7	16	LA
FZN3ER	24.8	23.9	23.6	No DATA	24.1	0.41	1.5	0.6	24.1	0.40	1.5	0.3	15	TT
G47CCW	22.4	No DATA	23.0	23.1	22.8	-0.54	1.6	0.4	22.7	-0.89	1.7	0.5	15	LY
GAU3UK_AL	24.9	24.3	24.8	24.3	24.6	0.75	1.8	0.3	24.3	0.57	2.0	0.6	16	AL
GDW3UH	21.5	22.7	22.2	22.8	22.3	-0.91	1.9	0.6	22.6	-0.95	1.9	0.4	16	LU
GEPQDD	24.1 L	23.6 L	24.0	23.8	23.9	0.24	1.2	0.2	23.9	0.19	1.5	0.8	16	LA



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42H1

TAPPI Official Test Method T826

Report #634 (H)

July 2022

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	
GJYAAK	24.6	25.2	25.4	25.0	25.0	1.09	1.8	0.4	24.5	0.74	1.8	0.8	16	LH
GNEMA9_AL	24.3	23.1	25.7	24.8	24.5	0.68	1.6	1.1	25.4	1.44	1.8	1.2	16	AL
GUHGCG	22.2 L	21.9	21.4	21.7	21.8	-1.27	1.1	0.3	22.3	-1.16	1.5	0.8	16	LY
H82LXH_AL	23.3 L	24.8 L	23.5	25.1	24.2	0.46	1.1	0.9	23.7	-0.02	1.7	0.6	14	AL
JJAURL	25.2	25.5	26.3	25.0	25.5	1.44	1.4	0.6	24.9	1.06	1.8	1.1	12	ID
JV8RZE	23.2	23.2 L	22.8	23.6	23.2	-0.27	1.4	0.3	23.6	-0.06	1.6	0.9	16	LA
K3JAQR_AL	24.3	23.1	25.9	23.6	24.2	0.50	1.9	1.2	24.2	0.49	2.0	0.8	16	AK
KNZLGU	20.7 L	23.0	21.2	22.5	21.9	-1.24	1.5	1.1	22.8	-0.74	1.3	1.2	16	LH
M9ET48	22.8	22.8	23.1	22.7	22.8	-0.52	2.1	0.1	22.8	-0.81	2.0	0.4	16	LY
M9ET48_AL	22.8	22.6	23.1	22.8	22.8	-0.53	1.7	0.2	23.5	-0.19	1.7	0.5	16	AL
MW4E6E	25.8	27.2 *	25.5	26.5 *	26.2	1.98 *	1.8	0.8	26.2	2.16 *	1.9	0.6	16	LU
NGA9CB	24.0	23.2	24.0	23.2	23.6	0.03	2.0	0.5	23.7	-0.03	2.0	0.9	16	LW
PKMBWL	46.7 XH	50.7 XH	45.6 X	50.0 XH	48.2	18.20 X	3.4	2.5 H	39.4	13.56 X	4.6	11.1 H	12	LH
Q326ZF_AL	23.2 L	23.8 L	24.7 L	23.7	23.9	0.22	1.2	0.6	23.6	-0.08	1.4	0.6	16	AL
QCLHXQ	22.7	24.7	22.9	23.1	23.4	-0.13	1.6	0.9	23.4	-0.21	1.6	0.8	16	LA
QDHVKJ	26.1 H	22.5	23.4	22.8	23.7	0.12	2.1	1.7 H	23.1	-0.52	1.9	1.2	16	LA
QKJ8FF	25.6	25.1	25.9 H	26.2 *L	25.7	1.57	1.8	0.4	25.6	1.63	2.0	0.6	16	LA
R7UQ79	25.6	26.2	25.2	24.6	25.4	1.37	1.7	0.7	24.7	0.89	2.2	0.9	16	LA
TKWGN8_AL	24.6	23.1	23.2	24.1	23.8	0.15	1.7	0.7	23.7	0.01	1.8	0.5	16	AL
TXZMUY	24.0	23.7	23.2	23.3	23.5	-0.01	1.7	0.4	23.4	-0.22	1.7	0.5	16	LA
UXFJJ6	23.1	22.1	23.3	22.8	22.8	-0.54	1.7	0.5	23.1	-0.51	1.6	0.6	16	LW
VVPJ2Z	20.2 *	20.0 *	19.9 *	20.2 *	20.1	-2.55 *	1.6	0.2	22.7	-0.87	1.6	2.1 H	12	ID
VWV9Y3	23.4	24.6	24.1	23.4	23.9	0.25	1.8	0.6	23.6	-0.06	1.7	0.5	16	LU
WCJYEV	20.8 H	25.7 H	23.4	23.9	23.4	-0.07	2.5	2.0 H	23.7	0.05	2.6	1.7 H	15	LZ
XAC2KE	22.3	24.9	27.6 *H	25.5	25.1	1.11	2.2	2.2 H	26.1	2.06 *	2.3	1.5	16	LA
Y4LTR8	25.8	26.3 L	24.0 L	23.5 L	24.9	1.00	0.8	1.4	24.7	0.86	0.9	0.8	16	LH
ZMEAF2	21.6	21.1	NO DATA	NO DATA	21.4	-1.60	1.6	0.4	22.9	-0.69	1.8	1.1	9	LH
ZMEAF2_AL	22.3	20.7 *	NO DATA	NO DATA	21.5	-1.51	1.6	1.1	22.2	-1.28	1.7	0.7	7	AL

Consensus (All Labs) Results														
Wk Mean	23.44	23.70	23.67	23.57	Month Mean	23.55	Grand Mean	23.69						
Avg SDr	1.75	1.78	1.76	1.65	Avg SD	1.73	Avg SD	1.78						
SD btwn Labs	1.55	1.53	1.56	1.32	SD btwn Labs	1.36	SD btwn Labs	1.16						
Labs Incl	61	61	60	58	SD btwn Wks	0.81	SD btwn Wks	0.85						
Labs Excl	1	1	1	2	Labs Incl	62	Labs Incl	62						
Labs not Rcvd	1	1	2	3										



Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42H1
TAPPI Official Test Method T826

Report #634 (H)
July 2022

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	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 224

Report #634 (H)
July 2022

STFI, 56 lb Linerboard - 56G3
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	
243J24_AL	32.2	30.6	30.7	30.7	31.0	-1.38	1.9	0.8	31.0	-1.38	1.9	0.8	4	AL
2CBB68	35.6	35.7	37.1	35.6	36.0	0.99	2.4	0.7	36.0	0.99	2.4	0.7	4	LU
2CBB68_AL	32.4	33.6	34.6	32.5	33.3	-0.31	2.1	1.1	33.3	-0.31	2.1	1.1	4	AL
2LUUHC	36.0	35.1	35.0	34.8	35.2	0.63	2.5	0.5	35.2	0.63	2.5	0.5	4	TT
367YJU	32.8	32.7	32.1	31.8	32.4	-0.75	2.1	0.5	32.4	-0.75	2.1	0.5	4	LU
38UET3	28.3 *	30.3	29.0 *	28.2 *	29.0	-2.39 *	2.4	1.0	29.0	-2.39 *	2.4	1.0	4	LZ
38W3C2	35.0	38.6 *	38.7 *H	36.4	37.2	1.56	2.8	1.8	37.2	1.56	2.8	1.8	4	LH
3X7JW8	37.2	37.8	37.2	37.1 L	37.3	1.64	1.5	0.3	37.3	1.64	1.5	0.3	4	LH
44BFDL	31.3	33.6	32.4	32.0	32.3	-0.77	2.3	1.0	32.3	-0.77	2.3	1.0	4	XX
4AY6XW	34.4	33.8	34.7	33.8	34.2	0.13	2.0	0.5	34.2	0.13	2.0	0.5	4	TT
4RG44U_AL	32.6	33.0	34.0	34.5	33.5	-0.19	2.1	0.9	33.5	-0.19	2.1	0.9	4	XX
6G88G3	No DATA	35.2	35.0	34.4	34.9	0.45	2.2	0.4	34.9	0.45	2.2	0.4	3	LU
78LABV	30.3	30.8	29.0 *	29.5 *	29.9	-1.93	2.5	0.8	29.9	-1.93	2.5	0.8	4	LW
7BLE63	33.6	34.1	33.4	35.6	34.2	0.13	2.0	1.0	34.2	0.13	2.0	1.0	4	LU
7KMY8V	33.1	32.0	31.2	32.1	32.1	-0.87	2.2	0.8	32.1	-0.87	2.2	0.8	4	LY
7KMY8V_AL	35.4	35.1 L	32.6	32.4	33.9	-0.02	2.2	1.6	33.9	-0.02	2.2	1.6	4	XX
8GMA29	36.4	36.8	35.5	34.9	35.9	0.94	2.3	0.8	35.9	0.94	2.3	0.8	4	LH
99KMKR_AL	33.3 L	32.6	33.8	33.2	33.2	-0.33	1.7	0.5	33.2	-0.33	1.7	0.5	4	AL
9DEJ8X	34.5 H	34.4	34.7	34.5	34.5	0.29	2.9	0.1 L	34.5	0.29	2.9	0.1 L	4	LA
9HVN7T	33.5	32.1	33.6 H	32.9	33.1	-0.42	2.8	0.7	33.1	-0.42	2.8	0.7	4	LU
9LTATP_AL	37.8	36.4	36.3	35.3	36.5	1.21	2.4	1.0	36.5	1.21	2.4	1.0	4	XX
ATNRMR	34.2	33.2	33.8	34.7	34.0	0.02	1.7	0.6	34.0	0.02	1.7	0.6	4	BK
BAC8KW	34.9	35.5	33.7 H	33.9 L	34.5	0.28	2.7	0.9	34.5	0.28	2.7	0.9	4	LH
BEKL9M	31.9	32.9	31.6	32.5	32.2	-0.82	2.3	0.6	32.2	-0.82	2.3	0.6	4	LY
BW6AHH	37.1	35.7	35.5	34.3	35.7	0.83	2.8	1.1	35.7	0.83	2.8	1.1	4	LA
C2TFDV	32.6	32.5	33.0	32.3	32.6	-0.63	1.9	0.3	32.6	-0.63	1.9	0.3	4	LH
D8DVHT	34.1	33.5	33.8	33.4	33.7	-0.11	2.4	0.3	33.7	-0.11	2.4	0.3	4	LZ
EZURAQ	35.0	34.8	37.1	35.4	35.6	0.80	2.3	1.0	35.6	0.80	2.3	1.0	4	LH
FVFGTF	36.9	34.5	34.8	35.7	35.5	0.74	2.3	1.1	35.5	0.74	2.3	1.1	4	LA
FZN3ER	35.0	34.7	34.6	No DATA	34.8	0.40	1.9	0.2	34.8	0.40	1.9	0.2	3	TT
G47CCW	33.7	No DATA	33.7	33.5	33.6	-0.14	2.2	0.1 L	33.6	-0.14	2.2	0.1 L	3	LZ
GAU3UK_AL	34.1	34.9	34.6	34.2	34.4	0.25	2.1	0.4	34.4	0.25	2.1	0.4	4	AL
GDW3UH	30.9	32.5	31.5	32.8	31.9	-0.97	2.4	0.9	31.9	-0.97	2.4	0.9	4	LU
GEPQDD	36.7 L	34.7	34.4	35.8	35.4	0.71	1.7	1.1	35.4	0.71	1.7	1.1	4	LA
GJYAAK	37.7	35.8	37.1	36.2	36.7	1.34	2.4	0.9	36.7	1.34	2.4	0.9	4	LH



Containerboard Interlaboratory Testing Program

Analysis 224

Report #634 (H)

July 2022

STFI, 56 lb Linerboard - 56G3

TAPPI Official Test Method T826

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
GNEMA9_AL	34.7	34.0	34.1	34.8	34.4	0.23	2.4	0.4	34.4	0.23	2.4	0.4	4	AL
GUHGCG	31.2	32.1	29.3 *H	30.8	30.8	-1.49	2.8	1.1	30.8	-1.49	2.8	1.1	4	LU
H82LXH_AL	36.1	34.9	32.8	39.5 *	35.8	0.91	2.0	2.8 H	35.8	0.91	2.0	2.8 H	4	XX
JJAURL	34.3	36.4	35.8	35.6	35.5	0.76	1.9	0.9	35.5	0.76	1.9	0.9	4	ID
JV8RZE	35.5	34.3 L	34.8	33.7	34.6	0.31	2.4	0.8	34.6	0.31	2.4	0.8	4	LW
K3JAQR_AL	36.7	35.4	36.2	35.2	35.9	0.93	2.5	0.7	35.9	0.93	2.5	0.7	4	AK
KNZLGU	28.8 *	29.3 *	29.7	30.6	29.6	-2.07 *	1.8	0.8	29.6	-2.07 *	1.8	0.8	4	LH
M9ET48	32.8	32.3	33.1	32.3	32.6	-0.63	2.2	0.4	32.6	-0.63	2.2	0.4	4	LY
M9ET48_AL	33.3	33.3	34.6	33.4	33.7	-0.13	2.1	0.7	33.7	-0.13	2.1	0.7	4	AL
MW4E6E	37.5	37.1	37.5	37.6	37.4	1.68	2.2	0.2	37.4	1.68	2.2	0.2	4	LU
NGA9CB	33.7	32.2 H	34.8 H	31.7	33.1	-0.39	2.9	1.4	33.1	-0.39	2.9	1.4	4	LW
PKMBWL	46.3 XH	46.5 X	45.3 X	44.7 XH	45.7	5.66 X	3.5	0.8	45.7	5.66 X	3.5	0.8	4	LH
Q326ZF_AL	33.5	33.0	35.1 L	33.1 L	33.7	-0.12	1.4	1.0	33.7	-0.12	1.4	1.0	4	XX
QCLHXQ	32.0	35.6	32.9	34.6	33.8	-0.08	1.9	1.6	33.8	-0.08	1.9	1.6	4	LA
QDHVKJ	31.0	33.3 L	33.5 L	34.8	33.2	-0.37	1.7	1.5	33.2	-0.37	1.7	1.5	4	LA
QKJ8FF	37.7	36.7	36.8	34.7 L	36.5	1.22	2.3	1.3	36.5	1.22	2.3	1.3	4	LA
R7UQ79	37.9	36.7	38.4	39.3 *H	38.1	2.00 *	3.1	1.1	38.1	2.00 *	3.1	1.1	4	LA
TKWGN8_AL	34.3	34.3	35.0	34.2	34.5	0.26	2.2	0.4	34.5	0.26	2.2	0.4	4	AL
TXZMUJ	34.9	33.7	32.5	33.9	33.7	-0.09	2.1	1.0	33.7	-0.09	2.1	1.0	4	LU
UXFJJ6	33.6	33.3	31.7	32.9	32.9	-0.50	2.3	0.8	32.9	-0.50	2.3	0.8	4	LW
VVPJ2Z	27.6 *	28.6 *	28.1 *	29.0 *	28.3	-2.69 *	2.0	0.6	28.3	-2.69 *	2.0	0.6	4	ID
VWV9Y3	34.2	33.5	35.4	33.8	34.2	0.14	2.3	0.9	34.2	0.14	2.3	0.9	4	LU
WCJYEV	31.5	37.9 H	30.5	33.8 H	33.4	-0.24	3.5	3.3 H	33.4	-0.24	3.5	3.3 H	4	LZ
XAC2KE	33.2 L	37.6	37.1	35.6 H	35.9	0.93	2.4	2.0	35.9	0.93	2.4	2.0	4	LA
Y4LTR8	35.4	38.2	34.5 L	34.0	35.6	0.79	1.4	1.9	35.6	0.79	1.4	1.9	4	LH
ZMEAF2	31.1	30.9	No DATA	No DATA	31.0	-1.41	1.9	0.1	31.0	-1.41	1.9	0.1	2	LH
ZMEAF2_AL	32.2	30.4	No DATA	No DATA	31.3	-1.26	1.6	1.3	31.3	-1.26	1.6	1.3	2	AL

Consensus (All Labs) Results														
Wk Mean	33.92	34.07	33.96	33.89	Month Mean	33.92			Grand Mean	33.92				
Avg SDr	2.11	2.27	2.38	2.33	Avg SD	2.26			Avg SD	2.26				
SD btwn Labs	2.37	2.21	2.38	2.16	SD btwn Labs	2.08			SD btwn Labs	2.08				
Labs Incl	60	60	59	58	SD btwn Wks	1.08			SD btwn Wks	1.08				
Labs Excl	1	1	1	1	Labs Incl	61			Labs Incl	61				
Labs not Rcvd	1	1	2	3										



Containerboard Interlaboratory Testing Program
Analysis 224
STFI, 56 lb Linerboard - 56G3
TAPPI Official Test Method T826

Report #634 (H)
July 2022

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
BK	Buchel Strip Compression Tester BK-155	ID	IDM Compression Tester
LA	L&W Autoline (224 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 with 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 228
Roughness - Stylus Method, 42 lb Linerboard - 42H1
 TAPPI Official Test Method T575

Report #634 (H)
July 2022

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
243J24_AL	141.9	0.26	17.75	130.2	-0.86	16.20	4	XX
2CBB68_AL	116.2	-1.75	10.04	119.1	-1.85	7.02	4	AL
38W3C2	134.0	-0.36	11.39	136.6	-0.30	2.06	L 4	EV
4RG44U	144.7	0.47	12.50	144.9	0.44	1.83	L 4	EV
6BJNZ7	126.5	-0.95	11.48	133.6	-0.56	7.75	4	LS
6G88G3	167.5	2.25 *	25.72	166.4	2.33 *	7.12	4	EV
78LABV	145.3	0.52	6.57 L	140.1	0.01	9.72	4	LS
7BLE63	131.1	-0.59	14.34	147.1	0.63	13.39	4	EV
7KMY8V_AL	164.8	2.04 *	10.90	155.7	1.39	8.57	4	XX
9DEJ8X	140.1	0.11	19.90	145.7	0.51	5.85	4	LS
9HVN7T	132.8	-0.46	14.08	135.5	-0.40	4.02	4	EV
BEKL9M	152.7	1.10	19.64	153.6	1.20	1.95	L 3	EV
BW6AHH	144.7	0.47	24.68	139.3	-0.06	4.20	4	LA
D8DVHT	136.4	-0.18	12.06	139.5	-0.04	5.39	4	LS
FVFGTF	132.7	-0.46	21.46	142.5	0.23	20.69	4	LA
G47CCW	148.8	0.79	12.98	147.2	0.64	6.27	4	EV
GAU3UK_AL	125.9	-0.99	15.11	123.1	-1.49	1.97	L 4	AL
GDW3UH	157.2	1.45	24.40	149.3	0.83	7.69	4	EV
GEPQDD	120.6	-1.41	8.64	122.6	-1.54	8.27	4	EV
GNEMA9_AL	144.9	0.49	23.29	125.1	-1.31	13.48	4	AL
H82LXH_AL	144.9	0.49	14.32	139.5	-0.04	7.83	4	AL
JBEQ8W	184.1	3.54 X	26.19	205.8	5.82 X	23.66	4	LS
JV8RZE	131.6	-0.55	15.50	146.7	0.60	26.05	H 4	LA
K3JAQR_AL	133.3	-0.42	8.64	137.6	-0.21	10.49	4	AK
M9ET48	147.6	0.70	26.32	146.4	0.57	17.13	4	XX
M9ET48_AL	146.4	0.60	22.97	146.6	0.58	12.55	4	AL
NGA9CB	126.8	-0.92	12.57	118.0	-1.94 *	6.09	4	XX
QKJ8FF	135.2	-0.27	18.50	151.5	1.02	17.59	4	LA
R7UQ79	129.9	-0.68	11.03	134.2	-0.51	23.07	4	LA
ZMEAF2_AL	116.4	-1.74	11.63	141.1	0.10	22.50	3	AL

Consensus (All Labs) Results			
Month Mean	138.66	Grand Mean	139.95
Avg SD	16.78	Avg SD Months	12.24
SD btwn Labs	12.82	SD btwn Labs	11.31
Labs Incl	29	Labs Incl	29



Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42H1
TAPPI Official Test Method T575

Report #634 (H)
July 2022

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
EV	Emveco Microgage 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 - 42H1
 TAPPI Official Test Method T538

Report #634 (H)
July 2022

WebCode	Monthly Results				Cumulative Results					
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst	
4RG44U	373.3	-0.21	7.21		375.4	-0.19	2.03	4	LA	
4RG44U_AL	369.7	-0.42	9.76		374.2	-0.35	3.16	4	AK	
7KMY8V_AL	375.4	-0.09	9.65		374.2	-0.34	4.32	4	XX	
99KMKR_AL	373.5	-0.20	7.76		376.1	-0.10	2.54	4	AL	
9LTATP	377.9	0.05	8.92		375.5	-0.18	3.39	2	PP	
D8DVHT	383.8	0.39	12.99	H	380.5	0.46	2.61	4	XX	
GNEMA9_AL	366.6	-0.60	6.17		368.8	-1.03	6.82	4	AL	
H2XMLT	372.2	-0.28	7.47		374.2	-0.34	2.47	3	PP	
H2XMLT_AL	386.7	0.56	6.48		382.6	0.72	3.70	3	XX	
H82LXH_AL	148.5	-13.26	14.66	H	148.5	-28.98	0.00	1	AL	
K3JAQR_AL	360.9	-0.93	7.78		362.6	-1.82	3.49	4	AK	
M9ET48_AL	369.5	-0.43	6.52		370.4	-0.82	2.93	4	AL	
NKPK88	417.0	2.32	4.82	*	420.5	5.54	4.34	4	TS	
PKMBWL	337.7	-2.28	3.04	L	213.3	-20.76	175.91	2	HM	
Q326ZF_AL	378.5	0.09	9.26		383.5	0.84	3.88	4	AL	
VPEQJA	392.3	0.89	7.43		390.1	1.67	2.07	4	PP	
VWV9Y3	383.0	0.35	7.64		379.3	0.30	3.49	4	XX	
WX6DB6	406.4	1.71	9.61		391.2	1.81	10.27	H	4	TS
XAC2KE	380.9	0.23	8.49		383.5	0.84	3.04	4	XX	
ZMEAF2_AL	357.6	-1.13	7.03		365.1	-1.49	6.56	3	AL	

Consensus (All Labs) Results			
Month Mean	377.00	Grand Mean	376.88
Avg SD	8.06	Avg SD Months	4.43
SD btwn Labs	17.23	SD btwn Labs	7.88
Labs Incl	19	Labs Incl	17

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
HM	Technidyne - Hagerty Model	LA	L & W Autoline (229 Enrollment)
PP	Technidyne Profile/Plus	TS	TMI Monitor/Smoothness
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
Analysis 231

Report #634 (H)
July 2022

Internal Bond, 42 Ib Linerboard - 42H

TAPPI Official Test Method T569

WebCode	Monthly Results				Cumulative Results				Inst	
	Mean	CPV	SD		Mean	CPV	SD Months	Months		
243J24	110.0	-0.93	4.06		110.3	-0.93	3.30	4	TM	
2LUUHC	150.3	1.55	42.68	H	126.2	0.03	17.16	4	TM	
38W3C2	123.2	-0.12	3.90		118.2	-0.45	4.75	4	TM	
4JF49Y	118.6	-0.40	7.22		98.7	-1.62	25.97	H	4	SC
4RG44U	115.6	-0.59	4.10		111.3	-0.86	5.56	4	TM	
6BJNZ7	136.4	0.69	2.97		139.9	0.85	3.33	4	HY	
6G88G3	91.8	-2.06	6.76	*	101.4	-1.46	9.69	4	TM	
7BLE63	111.6	-0.83	1.14	L	115.6	-0.61	3.80	4	TM	
99KMKR	121.0	-0.25	5.48		127.0	0.08	4.73	4	TM	
9LTATP	148.6	1.45	7.20		146.2	1.23	3.39	2	HY	
EPC9UZ	138.2	0.80	6.83		137.5	0.70	0.64	L	3	HY
G47CCW	139.5	0.88	6.63		139.5	0.82	3.20	4	HZ	
GDW3UH	122.4	-0.17	5.50		126.0	0.01	3.89	4	TM	
GEPQDD	125.6	0.03	4.04		125.8	0.00	3.83	4	TM	
H2XMLT	133.2	0.50	9.68		138.1	0.74	4.90	3	HY	
H82LXH	94.8	-1.87	7.79		90.5	-2.11	3.40	*	4	SC
JV8RZE	131.8	0.41	2.49		153.8	1.68	18.99	H	4	HY
K3JAQR	119.0	-0.38	3.94		123.8	-0.12	13.23	4	TM	
M9ET48	122.4	-0.17	6.19		126.9	0.07	3.77	4	XX	
PQA6PD	123.6	-0.10	5.18		128.0	0.14	4.40	3	XX	
Q326ZF	60.4	-3.99	1.20	X	57.7	-4.07	1.84	X	4	LZ
TKWGN8	121.8	-0.21	12.66		126.4	0.04	3.87	4	TM	
TXZMUY	144.2	1.17	7.12		138.9	0.79	5.80	4	HZ	
VWV9Y3	145.7	1.27	6.94		148.1	1.34	4.01	4	HY	
XAC2KE	97.2	-1.72	4.35		101.3	-1.47	4.63	4	SC	
XLQZ9V	142.1	1.05	2.67		144.4	1.12	2.06	4	TM	

Consensus (All Labs) Results

Month Mean	125.15	Grand Mean	125.74
Avg SD	10.44	Avg SD Months	8.77
SD btwn Labs	16.22	SD btwn Labs	16.69
Labs Incd	25	Labs Incd	25

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	123.90	17.05	1.24	21
Modified Scott Bond Mechanics	138.75	9.83	13.60	2



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

Report #634 (H)
July 2022

Analysis Notes

Q326ZF - Method used is not covered in this test. Data excluded from consensus calculation.

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	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 234
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H1
 TAPPI Official Test Method T815

Report #634 (H)
July 2022

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
243J24	29.1	0.24	2.69	29.3	0.43	3.70	4
2CBB68	28.8	0.16	4.38	31.0	1.13	2.36	3
38W3C2	29.2	0.28	3.24	29.5	0.50	0.44	4
4RG44U	29.0	0.23	4.91	28.7	0.20	0.70	4
6BJNZ7	27.6	-0.18	1.14	29.7	0.58	3.56	4
6G88G3	25.0	-0.93	1.58	28.1	-0.06	2.91	4
78LABV	33.4	1.49	1.14	32.5	1.72	1.05	4
7BLE63	30.2	0.57	4.55	31.0	1.12	0.94	4
9DEJ8X	27.0	-0.36	0.71	26.9	-0.56	0.34	L 4
9HVN7T	26.0	-0.65	2.00	26.1	-0.87	1.43	4
BEKL9M	30.4	0.61	2.51	29.8	0.62	0.60	3
D8DVHT	35.4	2.07 *	1.47	32.3	1.64	2.58	4
G47CCW	26.6	-0.47	3.91	22.4	-2.36 *	3.50	4
GAU3UK	32.2	1.14	2.49	28.3	0.02	3.27	4
GDW3UH	28.8	0.16	2.20	29.9	0.65	2.83	4
GNEMA9	28.8	0.17	4.83	28.4	0.05	0.91	4
H2XMLT	27.0	-0.36	3.00	27.2	-0.42	2.31	3
H82LXH	32.1	1.12	5.41	31.5	1.31	0.50	4
JBEQ8W	20.2	-2.32 *	1.30	20.4	-3.20 X	0.30	L 4
JV8RZE	31.0	0.80	1.87	27.0	-0.52	3.66	4
K3JAQR	33.2	1.43	0.84	30.0	0.70	3.40	4
M9ET48	27.4	-0.24	3.85	28.3	0.02	0.74	4
MARFLL	35.8	2.18 *	3.11	31.3	1.22	4.59	4
MW4E6E	22.0	-1.80	2.35	29.1	0.33	4.80	4
NGA9CB	27.2	-0.30	3.35	27.7	-0.22	1.52	4
Q326ZF	24.2	-1.17	2.20	23.2	-2.04 *	1.99	4
QKJ8FF	25.6	-0.76	1.85	25.7	-1.02	0.91	3
RJHXZ4	27.0	-0.36	1.58	26.3	-0.79	1.01	4
RQ4QB3	24.6	-1.05	3.05	25.0	-1.33	0.77	4
TKWGN8	27.2	-0.30	6.87	28.0	-0.10	4.38	H 4
VWV9Y3	26.3	-0.55	2.46	24.2	-1.62	1.58	4
XAC2KE	26.8	-0.42	1.79	27.8	-0.18	0.67	4
Y4LTR8	26.7	-0.44	1.44	27.9	-0.14	0.98	4



Containerboard Interlaboratory Testing Program
Analysis 234
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H1
TAPPI Official Test Method T815

Report #634 (H)
July 2022

Consensus (All Labs) Results			
Month Mean	28.24	Grand Mean	28.24
Avg SD	3.08	Avg SD Months	2.44
SD btwn Labs	3.46	SD btwn Labs	2.47
Labs Incl	33	Labs Incl	32

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #634 (H)
July 2022

Air Resistance, 42 lb Linerboard - 42H1

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD	Months	Inst
243J24_AL	31.5	-0.53	2.70	32.9	0.55	1.10	4	XX
2CBB68	32.5	0.30	1.74	32.4	0.18	1.01	4	TL
2CBB68_AL	32.9	0.61	1.97	32.5	0.23	0.71	4	AL
38W3C2	29.6	-2.09 *	1.37	30.8	-1.08	1.16	4	LP
4RG44U_AL	32.6	0.38	1.61	32.0	-0.12	0.53	4	AK
6BJNZ7	31.0	-0.96	1.86	31.4	-0.59	0.67	4	LP
6G88G3_AL	35.1	2.39 *	1.38	33.0	0.63	1.86	4	AL
78LABV	30.3	-1.53	1.25	29.7	-1.93 *	0.79	4	XX
7BLE63_AL	33.2	0.83	2.87	33.9	1.28	1.22	4	AL
7KMY8V_AL	32.0	-0.17	2.06	32.3	0.10	0.29	L 4	XX
8GMA29	27.3	-3.99 X	2.00	27.8	-3.36 X	0.88	4	XX
99KMKR_AL	32.5	0.32	1.99	32.6	0.28	1.01	4	AL
9DEJ8X	31.4	-0.63	1.43	31.5	-0.57	0.54	4	LA
9HVN7T	31.1	-0.88	1.97	32.1	-0.10	0.80	4	LP
9LTATP	33.2	0.82	4.57 H	32.9	0.53	0.36	2	TP
BW6AHH	32.2	0.03	2.83	33.4	0.93	1.02	4	LA
D8DVHT	35.4	2.64 *	3.81	35.3	2.35 *	0.31	L 4	GA
FVFGTF	32.5	0.24	1.91	32.2	-0.01	1.23	4	LA
G47CCW	30.9	-1.05	2.31	32.2	0.02	1.83	4	LP
GAU3UK_AL	31.4	-0.60	2.21	31.6	-0.46	0.56	4	AL
GDW3UH	34.6	2.00 *	3.95	33.4	0.89	1.21	4	GA
GNEMA9_AL	28.2	-3.25 X	2.39	30.2	-1.51	1.86	4	AL
GTM69Z	4,369.4	3,558.4 X	262.78 H	4,369.4	3,277.8 X	0.00	1	XX
H2XMLT	31.6	-0.44	3.07	32.3	0.04	0.70	3	TP
H2XMLT_AL	31.4	-0.67	1.16	31.7	-0.36	0.32	L 3	XX
H82LXH_AL	32.2	0.03	0.97 L	32.6	0.31	1.38	4	AL
HDRZLP	32.5	0.27	2.08	31.3	-0.70	2.21	4	LP
JBEQ8W	32.0	-0.15	4.04	33.3	0.86	1.01	4	TD
JV8RZE	32.8	0.52	3.12	33.0	0.60	0.28	L 4	LP
K3JAQR_AL	31.3	-0.70	2.92	32.1	-0.08	0.98	4	AK
KMPHAW	31.0	-0.95	2.67	31.0	-0.91	0.00	1	XX
M9ET48_AL	35.9	3.03 X	2.25	35.1	2.18 *	0.55	4	AL
MARFLL_AL	30.8	-1.09	4.11	32.4	0.15	1.13	4	AL
MPPHEL	33.0	0.69	2.21	30.7	-1.17	2.66	4	LP
MW4E6E	32.0	-0.13	1.22	32.6	0.32	0.85	4	TL
NGA9CB	34.1	1.61	1.57	30.4	-1.39	5.62	H 4	LP
PY3DB4	16.5	-12.87 X	1.70	28.7	-2.65 *	8.58	H 4	TD
Q326ZF_AL	32.1	-0.04	0.91 L	34.1	1.45	1.92	4	AL
QFLMTJ	31.5	-0.51	4.35 H	30.8	-1.08	1.41	3	GG



Containerboard Interlaboratory Testing Program
Analysis 237

Report #634 (H)
July 2022

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
QKJ8FF	31.9	-0.21	2.17	30.9	-0.96	1.09	4	LA
R7UQ79	31.0	-0.95	1.44	31.9	-0.26	0.61	4	LA
TP4629	31.1	-0.90	1.23	32.8	0.43	1.36	4	LP
VWV9Y3	32.7	0.44	4.52 H	32.0	-0.13	1.34	4	TP
YR9Q9V	32.5	0.28	3.03	33.2	0.76	1.31	4	GG
ZMEAF2_AL	33.1	0.80	1.07 L	33.5	1.01	0.41	3	AL

Consensus (All Labs) Results			
Month Mean	32.16	Grand Mean	32.20
Avg SD	2.56	Avg SD Months	1.96
SD btwn Labs	1.22	SD btwn Labs	1.32
Labs Incd	40	Labs Incd	43

Key to Instrument Codes Reported by Participants

- | | |
|---|---|
| AK L & W Autoline 300 | 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 |
| TD TMI Gurley Densometer | TL Teledyne Gurley Densometer #4110, Oil Flotation |
| TP Technidyne Profile/ plus Roughness & Porosity | XX Instrument make/model not specified by lab |



Containerboard Interlaboratory Testing Program
Analysis 240

Report #634 (H)
July 2022

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM12

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
2CBB68	60.4	62.6	62.7	68.0 X	63.5	2.28 *	2.7	3.2 H	63.1	1.97 *	2.8	1.8	14	LZ
2FRLE6	56.5	57.6	60.5	60.3	58.7	0.13	3.1	2.0	56.5	-0.69	3.4	1.9	16	TH
367YJU	58.9	59.6	57.9	58.8	58.8	0.16	3.0	0.7	58.2	-0.01	3.0	1.2	16	LZ
38UET3	54.6	53.0	54.6	54.1 *	54.1	-1.99 *	3.1	0.8	57.8	-0.14	3.1	2.6	16	TH
3X7JW8	56.2	57.9	57.9	57.9	57.5	-0.44	3.1	0.8	56.8	-0.55	2.8	2.0	16	LD
44BFDL	59.1 L	62.9 L	62.0	60.0 L	61.0	1.15	2.1	1.8	60.7	1.02	1.4	1.4	16	XX
4AY6XW	59.2	62.0	61.8	59.1	60.5	0.95	4.6	1.6	59.9	0.68	4.6	1.4	16	TJ
4JF49Y	53.3	58.1	56.8	56.7	56.2	-1.00	3.6	2.0	55.2	-1.20	3.8	1.7	16	LC
6BJNZ7	No DATA	No DATA	No DATA	59.2	59.2	0.35	1.5	0.0	60.5	0.95	2.6	0.9	4	LD
6G88G3	63.5	60.2	59.6	57.8	60.3	0.83	4.1	2.4	58.9	0.27	3.6	3.8	16	LC
6NRAN6	57.0	57.8	56.7	56.1	56.9	-0.70	2.8	0.7	56.8	-0.57	3.0	1.1	16	EM
7KMY8V	58.8	55.3	56.1	57.8	57.0	-0.66	4.0	1.6	60.7	1.03	4.0	2.5	16	LD
7TJWUX	58.1	58.2	58.2 L	57.9	58.1	-0.17	1.7	0.1 L	58.2	0.00	1.7	0.2 L	16	LD
8GMA29	49.6 *	50.6 *	50.2 *	51.2 X	50.4	-3.66 X	3.9	0.7	53.9	-1.75	3.2	2.9	16	LD
9DEJ8X	57.2	57.9	57.3	57.2	57.4	-0.48	1.9	0.3	58.3	0.02	1.7	0.6	16	LD
9LTATP	53.9	56.2	52.6	54.8 *	54.3	-1.86	3.5	1.5	54.4	-1.53	3.3	1.4	8	LD
9ZQEZ2	58.9 L	58.7 L	58.7 L	58.8 L	58.8	0.14	0.5	0.1 L	59.1	0.39	0.8	0.2 L	16	LD
BEKL9M	60.9	59.7	61.3	57.5	59.8	0.63	3.7	1.7	57.9	-0.10	3.6	2.6	12	EN
BW6AHH	59.2	60.6 H	60.2	59.2	59.8	0.62	4.7	0.7	57.0	-0.48	4.7	3.1	16	TU
C2TFDV	55.6	56.2	55.9	57.1	56.2	-1.01	2.7	0.6	56.9	-0.51	2.4	0.9	16	EN
D8DVHT	60.5	58.4	57.5	60.1	59.1	0.31	3.2	1.4	58.6	0.18	3.2	1.2	16	LZ
E4T9JD	58.1	58.5	58.5	58.6	58.4	-0.01	2.6	0.2 L	58.4	0.10	2.7	0.3 L	16	LD
EZURAQ	64.1	61.8	61.3	61.4 *	62.1	1.68	3.7	1.3	61.9	1.51	3.5	1.2	16	LD
FVFGTF	52.9	53.9	52.4	55.7	53.7	-2.16 *	3.6	1.5	52.1	-2.49 *	3.5	1.8	16	MB
FZN3ER	57.3	55.6 H	58.3	59.5	57.7	-0.35	5.9	1.6	57.9	-0.14	6.0	1.4	16	TG
G47CCW	62.0 H	61.5	62.3	58.1	61.0	1.14	4.5	1.9	58.8	0.25	4.1	1.9	16	LZ
GAU3UK	57.6	59.1	61.0	58.5	59.0	0.27	3.8	1.4	60.4	0.91	4.4	1.9	16	LZ
GDW3UH	56.0	56.2	54.7	57.9	56.2	-1.02	3.3	1.3	56.9	-0.53	3.3	1.5	16	LD
GEPQDD	61.0	62.0	61.3	57.7	60.5	0.93	3.4	1.9	59.9	0.71	3.4	1.8	16	LC
GJYAAK	61.8	59.8	60.3	58.9	60.2	0.79	3.6	1.2	61.2	1.21	4.6	2.2	16	LD
GUHGCG	61.6	55.0	59.0	56.7	58.1	-0.17	4.6	2.9	57.0	-0.50	5.0	3.3	16	LD
H2XMLT	57.3	57.8	57.5	57.2	57.4	-0.46	3.4	0.3	58.2	-0.02	3.6	0.9	12	LD
HDRZLP	59.5	60.3	60.9	58.5	59.8	0.62	3.9	1.0	59.3	0.43	3.6	2.3	16	LD
HK8J2H	59.4	58.9	58.3	57.9	58.6	0.08	3.2	0.7	58.5	0.14	3.3	0.5	16	LC
JJAURL	55.3	55.3	55.4	54.7 *	55.2	-1.48	2.8	0.3	54.3	-1.56	3.0	0.9	12	RS



Containerboard Interlaboratory Testing Program
Analysis 240

Report #634 (H)
July 2022

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM12

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
JMDL8D	56.0	55.9	56.2	57.4	56.4	-0.95	2.6	0.7	55.0	-1.31	2.7	1.0	16	LD
JV8RZE	58.0	58.0	55.0	57.3	57.1	-0.62	3.8	1.4	56.1	-0.86	3.9	1.9	16	LD
K3JAQR	57.6	58.6	59.5	59.2	58.7	0.13	3.8	0.8	58.3	0.03	4.0	1.3	16	LD
M2Y92U	58.5	58.6	57.5	L 58.5	58.3	-0.08	3.0	0.5	60.4	0.89	3.6	3.4	16	LC
M9ET48	46.9 X	50.5 *	49.2 *	49.4 X	49.0	-4.29 X	2.9	1.5	54.1	-1.66	3.6	3.3	16	LD
N8HXWN	64.4 *	61.3	63.6	64.3 X	63.4	2.25 *	3.6	1.5	63.3	2.08 *	4.1	1.6	16	TX
NGA9CB	60.5	63.6	58.2	61.7 *	61.0	1.16	3.6	2.3	61.2	1.21	4.0	1.6	16	LD
PKMBWL	31.9 X	31.9 XL	32.7 X	33.4 X	32.4	-11.81 X	2.3	0.7	48.8	-3.81 X	5.3	10.0 H	16	LD
PY3DB4	49.7 *	51.8 *	50.6 *	49.5 X	50.4	-3.66 X	3.6	1.0	49.7	-3.44 X	3.6	1.4	16	TH
Q326ZF	53.3	57.6	57.5	57.2	56.4	-0.93	2.9	2.1	55.1	-1.25	2.5	1.5	16	LD
QKJ8FF	56.9	58.2	55.1 H	58.3	57.1	-0.60	5.3	1.5	54.6	-1.46	5.0	2.1	16	MB
RQ4QB3	62.1	62.1	62.2	60.1	61.6	1.44	3.6	1.0	60.9	1.12	3.8	1.6	16	LZ
RQHWVY	59.7	55.0	56.7	56.4	56.9	-0.69	3.1	2.0	56.2	-0.80	1.9	1.9	16	TU
TP4629	57.7	60.9	57.1	57.5	58.3	-0.07	2.7	1.8	57.4	-0.30	3.1	1.7	16	LD
TXZMUY	58.2	59.0	58.9	59.1	58.8	0.15	3.4	0.4	58.2	-0.01	3.3	1.1	16	LD
VVPJ2Z	53.1	56.9	52.1	57.0	54.8	-1.67	3.4	2.5	58.1	-0.05	3.2	2.8	12	LD
VWV9Y3	60.5	58.9	56.8	59.4	58.9	0.20	3.9	1.5	59.6	0.58	4.3	1.3	16	LC
WCJYEV	58.0	57.8	58.9 H	65.8 X	60.1	0.76	4.1	3.8 H	59.5	0.55	3.9	2.3	16	LD
WFQ2KZ	58.8	58.3	No DATA	No DATA	58.6	0.05	2.0	0.4	59.9	0.69	3.4	2.2	14	LC
Y4LTR8	61.2	62.9	58.8	62.5 *	61.3	1.31	3.7	1.8	63.3	2.06 *	3.7	2.4	16	LD
YCHNRR	56.2	56.2	56.6	56.2	56.3	-0.99	1.8	0.2 L	56.5	-0.70	1.7	0.3 L	16	MB
YKCTPY	58.4	59.2	58.1	58.6	58.6	0.06	3.2	0.5	58.6	0.18	3.5	0.5	16	LD

Consensus (All Labs) Results													
Wk Mean	58.03	58.19	57.75	58.12	Month Mean	58.45		Grand Mean	58.19				
Avg SDr	3.43	3.63	3.52	3.30	Avg SD	3.44		Avg SD	3.50				
SD btwn Labs	3.17	2.97	3.22	1.70	SD btwn Labs	2.20		SD btwn Labs	2.47				
Labs Incl	54	55	54	49	SD btwn Wks	1.55		SD btwn Wks	1.90				
Labs Excl	2	1	1	7	Labs Incl	53		Labs Incl	55				
Labs not Rcvd	1	1	2	1									



Containerboard Interlaboratory Testing Program
Analysis 240
Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM12
TAPPI Official Test Method T809

Report #634 (H)
July 2022

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
RS	Regmed Digital Crush Tester CT-2000	TG	TMI Compression Tester, Model 17-10
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
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 #634 (H)
July 2022

Fluted Edge Crush Strength (FCF), 26 lb Corrugating Medium - CM12

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	
367YJU	64.0 *	66.8	65.7	67.0	65.9	-1.68	3.0	1.4	66.9	-1.64	3.3	1.5	16	LZ
38UET3	61.8 X	57.9 X	62.9 *	61.7 X	61.1	-4.03 X	3.2	2.2	62.1	-4.82 X	3.6	1.7	16	TH
44BFDL	70.4 L	71.9	71.2 L	72.7 L	71.6	1.12	1.1	1.0	70.9	1.05	1.0	1.9	16	XX
6G88G3	72.3	65.0 H	71.7	69.7	69.7	0.20	4.1	3.3 H	69.1	-0.14	3.7	3.4 H	16	LC
7TJWUX	68.9 L	68.8 L	68.8	69.0	68.9	-0.20	1.6	0.1 L	68.7	-0.38	1.6	0.1 L	16	LD
9DEJ8X	67.9	68.0	68.1	67.5	67.9	-0.69	1.8	0.3	68.7	-0.45	1.7	0.6	16	LD
9LTATP	69.9	67.3	67.7	68.2	68.3	-0.50	3.7	1.1	68.8	-0.38	3.7	1.2	8	LD
ATNRMR	68.7	67.7	66.5	67.2	67.5	-0.87	2.9	0.9	67.8	-0.99	3.3	0.6	16	LD
GAU3UK	68.1	65.3	64.7	65.6	65.9	-1.64	4.1	1.5	66.8	-1.67	3.8	1.5	16	LZ
H2XMLT	72.2	70.5	70.0	71.6	71.1	0.89	3.8	1.0	70.8	0.96	3.7	0.8	12	LD
HDRZLP	72.0	72.1	72.7	72.0	72.2	1.43	3.4	0.3	71.0	1.11	3.5	1.7	16	LD
HK8J2H	69.0	69.5	68.4	68.7	68.9	-0.19	2.9	0.5	68.6	-0.51	3.1	0.6	16	LD
JV8RZE	74.2 *	70.1	69.8	72.7	71.7	1.20	3.6	2.1	71.7	1.61	3.6	1.7	16	LD
K3JAQR	66.5	64.9	66.7	67.9	66.5	-1.36	3.1	1.2	68.0	-0.89	3.4	2.1	16	LD
KMPHAW	70.8	68.9	71.0	70.1	70.2	0.46	3.3	1.0	70.2	0.60	3.3	1.0	4	LZ
M9ET48	56.5 X	57.9 X	57.0 XH	55.4 X	56.7	-6.17 X	5.0	1.0	58.6	-7.20 X	6.7	1.6	16	LD
NGA9CB	67.1	67.6	64.8	68.4	67.0	-1.13	3.6	1.6	67.7	-1.10	4.3	1.8	16	LD
PKMBWL	71.8 H	70.2 H	67.6	65.7	68.8	-0.23	6.7	2.7	63.6	-3.83 X	5.6	7.1 H	16	LD
Q326ZF	71.2	72.4	71.2	74.0 *	72.2	1.43	3.3	1.3	71.4	1.38	2.9	1.5	16	LD
TP4629	68.6	70.4	72.4	70.4	70.4	0.57	4.1	1.5	70.6	0.85	3.6	1.9	16	LD
VVPJ2Z	69.3	73.2	70.1	71.3	71.0	0.83	3.4	1.7	68.9	-0.27	3.3	2.6	12	LD
VWV9Y3	68.9	69.7	74.5 *	70.8	71.0	0.83	2.7	2.5	70.7	0.92	3.3	2.2	16	LC
YCHNRR	68.0 L	68.2	68.5	68.6	68.3	-0.47	1.7	0.3	69.3	-0.04	1.7	0.6	16	MB

Consensus (All Labs) Results												
Wk Mean	69.51	68.97	68.87	69.48	Month Mean	69.28		Grand Mean	69.32			
Avg SDr	3.98	3.66	2.97	2.97	Avg SD	3.42		Avg SD	3.21			
SD btwn Labs	2.34	2.39	2.93	2.34	SD btwn Labs	2.04		SD btwn Labs	1.49			
Labs Incd	21	21	22	21	SD btwn Wks	1.54		SD btwn Wks	1.66			
Labs Excl	2	2	1	2	Labs Incd	21		Labs Incd	20			
Labs not Rcvd	0	0	0	0								

Key to Instrument Codes Reported by Participants

- | | | | |
|----|--|----|--|
| LC | L&W Crush Tester 48 | LD | L&W Crush Tester 248 |
| LZ | L&W Crush Tester (model not specified) | MB | Messmer Buchel K440 |
| TH | TMI Compression Tester, Model 17-76 | XX | Instrument make/model not specified by lab |



Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM12
 TAPPI Official Test Method T822

Report #634 (H)
July 2022

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	
2FRLE6	37.0 *	35.4 *	36.2 *	35.9 X	36.1	-4.55 X	2.1	0.7	35.7	-5.74 X	2.4	1.6	16	TH
38UET3	40.6	40.4	41.4	40.6	40.8	-1.90 *	3.3	0.4	42.3	-1.24	2.8	1.4	16	TH
6NRAN6	44.4	46.5	44.4	44.9	45.0	0.55	3.3	1.0	45.6	1.00	3.4	1.9	16	EM
8GMA29	46.2	46.4	50.2 *	47.4	47.5	1.97 *	3.0	1.8	46.7	1.78	3.0	1.8	16	LD
9DEJ8X	43.7	43.4	43.0	43.2	43.3	-0.43	2.6	0.3	44.2	0.04	2.9	0.6	16	LD
9LTATP	41.8	42.6	42.7	41.8	42.2	-1.06	3.9	0.5	42.6	-1.01	3.3	1.1	8	LD
9ZQEZ2	45.5 L	45.6 L	45.6 L	45.3 L	45.5	0.81	0.6	0.1 L	45.5	0.98	0.6	0.2 L	16	LD
CKREYC	42.3	41.5	43.7	46.3	43.4	-0.37	3.1	2.1	43.4	-0.46	2.8	2.0	16	TH
D8DVHT	43.6	44.0	44.9	40.8	43.3	-0.43	3.2	1.8	42.6	-1.05	2.7	1.5	16	LD
E4T9JD	43.7	43.8	43.8	44.0	43.8	-0.13	2.3	0.1 L	43.8	-0.21	2.2	0.2 L	16	LD
ET92JN	43.1	45.2	47.5	45.3	45.2	0.67	3.3	1.8	45.3	0.79	2.9	1.6	16	LD
H2XMLT	45.3	41.9	43.3	42.2	43.2	-0.51	3.5	1.6	42.8	-0.90	2.9	1.8	12	LD
HDRZLP	46.7	45.7	45.8	44.6	45.7	0.93	2.3	0.9	43.8	-0.20	3.3	1.6	16	LD
JMDL8D	44.7	43.1	44.1	44.7	44.2	0.05	2.5	0.7	44.6	0.32	2.9	1.0	16	LC
JV8RZE	42.8	46.4	44.5	46.2	44.9	0.50	2.7	1.7	44.3	0.12	3.3	1.7	16	XX
M2Y92U	37.8 *H	38.6	37.0 *	38.8 *	38.0	-3.45 X	4.4	0.8	37.8	-4.33 X	4.0	1.5	16	XX
N8HXWN	44.5	36.5 *	43.6	40.6	41.3	-1.60	3.6	3.6 H	42.0	-1.44	3.7	3.0	16	LZ
Q326ZF	44.9	44.0	45.1	45.6	44.9	0.47	2.1	0.7	45.4	0.87	2.2	1.1	16	LD
QKJ8FF	41.4	42.4	No DATA	44.1 H	42.6	-0.84	4.2	1.4	43.4	-0.51	4.0	2.3	15	MB
RQHWVY	41.4	41.6	43.5	44.7	42.8	-0.72	3.3	1.6	42.9	-0.82	2.2	1.5	16	TU
TP4629	45.9	41.2	43.7	46.0	44.2	0.07	4.0	2.3	43.2	-0.62	3.9	1.8	16	LD
TXZMUU	45.5	42.0	38.9	42.5	42.2	-1.05	3.2	2.7	43.4	-0.48	3.4	2.3	16	LD
VWV9Y3	44.2	44.0	45.3	47.1	45.2	0.63	3.0	1.4	45.1	0.68	3.5	1.8	16	LC
WCJYEV	43.7	45.1	45.9	44.5 H	44.8	0.42	4.4	0.9	44.9	0.52	3.7	1.8	16	LZ
WFQ2KZ	48.3	47.9	No DATA	No DATA	48.1	2.30 *	1.7	0.3	47.9	2.58 *	2.4	0.8	14	LC
YCHNRR	43.1	44.0	43.3	43.5	43.5	-0.34	1.7	0.4	43.0	-0.74	1.6	0.5	16	MB

Consensus (All Labs) Results														
Wk Mean	43.53	43.04	43.64	43.94	Month Mean	44.07			Grand Mean	44.12				
Avg SDr	2.81	2.99	3.10	3.56	Avg SD	3.07			Avg SD	3.00				
SD btwn Labs	2.54	2.98	3.00	2.24	SD btwn Labs	1.75			SD btwn Labs	1.46				
Labs Incl	26	26	24	24	SD btwn Wks	1.52			SD btwn Wks	1.62				
Labs Excl	0	0	0	1	Labs Incl	24			Labs Incl	24				
Labs not Rcvd	0	0	2	1										

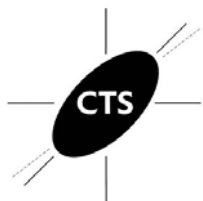


Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM12
TAPPI Official Test Method T822

Report #634 (H)
July 2022

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 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	TH	TMI Compression Tester, Model 17-76
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 261

Report #634 (H)

July 2022

STFI, 26 lb Corrugating Medium - CM12

TAPPI Official Test Method T826

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
38UET3	12.6	12.2 *	12.9	12.4 *	12.5	-1.88	1.2	0.3	13.1	-1.39	1.0	0.5	16	LZ
44BFDL	12.0 *	12.1 *L	12.0 *	12.6	12.2	-2.40 *	0.8	0.3	12.6	-2.38 *	1.0	0.6	16	XX
4AY6XW	13.9	13.8	13.8	13.9	13.9	0.13	1.2	0.1	13.7	-0.23	1.2	0.4	16	TT
7TJWUX	13.7 L	13.8 L	13.8 L	13.7 L	13.7	-0.04	0.3	0.1 L	13.7	-0.16	0.4	0.1 L	16	LA
9DEJ8X	13.4	13.5	13.4	13.6	13.5	-0.47	1.2	0.1	13.8	-0.05	1.1	0.2	16	LB
9LTATP	12.3	13.3	13.4	13.6	13.1	-0.94	1.0	0.6	13.3	-0.86	1.0	0.5	8	LB
BW6AHH	13.5	14.1	13.2	12.9 H	13.4	-0.51	1.3	0.5	13.6	-0.43	1.2	0.5	16	LA
C2TFDV	12.9	13.3	13.9	13.1	13.3	-0.70	0.9	0.4	13.3	-1.04	1.0	0.3	16	LH
D8DVHT	14.0	14.1	12.8	13.7	13.6	-0.22	1.0	0.6	13.3	-1.04	1.0	0.6	16	LZ
ET92JN	14.7	15.3 *	15.1	14.8 H	15.0	1.83	1.4	0.3	14.0	0.37	1.2	0.8	16	LA
FVFGTF	13.5	13.9	14.2	13.4	13.7	-0.05	1.2	0.4	13.9	0.15	1.5	0.7	16	LA
GDW3UH	13.4	13.1	13.7	13.5	13.4	-0.51	1.2	0.3	13.5	-0.59	1.2	0.3	16	LU
GJYAAK	14.7	14.7	14.9	14.7	14.8	1.54	1.2	0.1	14.5	1.44	1.1	0.3	16	XX
HK8J2H	13.1	13.8	14.2	13.7	13.7	-0.09	1.0	0.5	13.6	-0.42	0.9	0.4	16	LB
JJAURL	13.9	14.6	14.6	14.6 L	14.4	1.00	0.9	0.3	14.4	1.20	1.0	0.5	12	XX
JMDL8D	13.4	14.6	13.7	13.7	13.9	0.17	1.2	0.5	14.2	0.75	1.2	0.4	16	LH
K3JAQR	14.4	13.6	14.9	14.9	14.4	1.03	0.9	0.6	14.6	1.58	1.1	0.5	16	LA
M9ET48	13.2	13.2	13.0	13.0	13.1	-1.02	1.2	0.1	13.3	-0.88	1.4	0.7	16	LB
PQA6PD	13.0	13.4	13.9	13.3	13.4	-0.55	1.2	0.4	13.4	-0.70	1.1	0.3	16	LA
PY3DB4	12.8	12.9	13.2	13.7	13.1	-0.94	1.1	0.4	13.6	-0.35	1.1	0.5	16	TX
Q326ZF	14.0	13.8	13.9	13.9 H	13.9	0.22	1.2	0.1	13.7	-0.09	0.9	0.5	16	LA
QCLHXQ	13.0	14.1	13.7 L	13.9	13.7	-0.14	0.8	0.5	13.7	-0.16	1.0	0.4	16	LA
QDHVKJ	13.8 L	12.7	15.8 *	14.5	14.2	0.62	1.1	1.3 H	14.1	0.54	0.9	0.7	16	LA
QKJ8FF	14.0 L	14.5	15.0	14.6 L	14.5	1.15	0.9	0.4	14.5	1.45	1.2	0.8	14	LA
TKWGN8	15.1 *	14.8	14.9	14.3 H	14.8	1.56	1.3	0.3	14.4	1.30	1.2	0.5	16	LA
VWV9Y3	14.2	13.8	14.4	14.1	14.1	0.58	1.2	0.2	14.2	0.78	1.1	0.3	16	LU
Y4LTR8	13.7	14.2 L	15.0	14.5 L	14.4	0.91	0.8	0.5	14.6	1.64	0.7	0.5	16	LH
YKCTPY	14.2	12.9	13.8	13.4	13.6	-0.28	0.9	0.5	13.6	-0.43	0.9	0.5	16	LB

Consensus (All Labs) Results														
Wk Mean	13.58	13.72	13.96	13.79	Month Mean	13.76	Grand Mean	13.79						
Avg SDr	1.01	0.97	1.09	1.23	Avg SD	1.08	Avg SD	1.07						
SD btwn Labs	0.74	0.78	0.84	0.66	SD btwn Labs	0.66	SD btwn Labs	0.51						
Labs Incl	28	28	28	28	SD btwn Wks	0.46	SD btwn Wks	0.50						
Labs Excl	0	0	0	0	Labs Incl	28	Labs Incl	28						
Labs not Rcvd	0	0	0	0										



Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM12
TAPPI Official Test Method T826

Report #634 (H)
July 2022

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

End of Report