



Containerboard Interlaboratory Testing Program

Participant Summary Report #627 (N) - December 2021

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX15</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>42F4</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>207</u>	<u>35E2</u>	<u>Bursting Strength (Mullen), 35 lb Linerboard</u>
<u>215</u>	<u>42F4</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>217</u>	<u>35E2</u>	<u>Ring Crush, 35 lb Linerboard</u>
<u>223</u>	<u>42F4</u>	<u>STFI, 42 lb Linerboard</u>
<u>225</u>	<u>35E2</u>	<u>STFI, 35 lb Linerboard</u>
<u>228</u>	<u>42F4</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42F4</u>	<u>Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42F</u>	<u>Internal Bond, 42 lb Linerboard</u>
<u>234</u>	<u>42F</u>	<u>COF Inclined Plane (Slide Angle), 42 lb Linerboard</u>
<u>237</u>	<u>42F4</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	35E2	June 2020 - Current
	35E1	June 2017 - April 2020
42# Corrugating Medium	42F4	August 2021 - Current
	42F3	November 2020 - July 2021
56# Corrugating Medium	56G2	May 2021 - Current
	56G1	January 2020 - March 2021

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, 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 80 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 #627 (N)
December 2021

Top to Bottom Box Compression Strength, Corrugated Boxes - BX15

TAPPI Official Test Method T804

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
22QXYX	831.4	0.08	84.36	840.1	0.47	17.26	4	ER
2RXMP3	841.2	0.30	53.02	855.0	0.79	31.56	3	LH
4MG2T2	762.8	-1.46	70.62	797.4	-0.43	30.56	4	EX
7HDYR6	883.0	1.24	38.89	878.6	1.29	19.43	4	EM
7K2LAK	879.8	1.17	43.41	844.0	0.55	41.81	4	LO
8REUBL	779.4	-1.09	99.58	836.0	0.38	42.08	4	LG
9T6H8L	835.6	0.18	77.25	856.7	0.82	16.27	4	ES
AA9ANG	796.9	-0.70	28.21	830.4	0.27	22.98	4	LM
CKNZ6Q	836.8	0.20	33.33	793.0	-0.53	40.05	4	LM
CR6GXZ	649.1	-4.02 X	57.51	697.9	-2.54 *	48.23	4	LS
DAFP9K	837.5	0.22	37.75	812.9	-0.10	31.15	4	ER
E224ZG	839.2	0.26	85.62	831.6	0.29	47.30	4	ER
GCE3MN	855.6	0.63	13.79 L	845.1	0.58	16.64	4	LG
GK6WAK	857.2	0.66	82.05	819.9	0.04	40.00	4	EX
HYMV3R	840.0	0.27	51.73	842.6	0.53	28.13	4	LS
KT7A8Q	804.2	-0.53	78.76	814.6	-0.07	55.66	4	ET
LE9H2F	814.4	-0.30	53.59	849.3	0.67	32.47	4	ER
NY7P9A	481.8	-7.79 X	9.23 L	720.3	-2.07 *	159.13 H	4	LL
P9K4NH	915.6	1.98 *	15.66	920.9	2.18 *	9.82	4	EX
PBTJVN	879.2	1.16	63.41	827.6	0.21	55.39	4	LS
QGYCPJ	719.9	-2.43 *	62.17	742.8	-1.59	27.43	4	LL
REHNEH	849.4	0.49	65.09	853.1	0.75	36.91	4	LG
RHLBH8	845.4	0.40	49.80	836.5	0.40	51.16	4	EX
VQ8FZX	773.2	-1.23	84.70	779.0	-0.82	51.39	4	LG
W24ZGG	836.1	0.19	32.23	808.0	-0.21	38.46	4	LL
WRQ2XD	774.1	-1.21	64.57	758.1	-1.26	16.86	4	LG
ZQQ2BB	772.5	-1.25	45.94	783.1	-0.74	9.64	3	LS
ZX3D42	862.8	0.79	77.10	825.4	0.16	54.17	4	LG

Consensus (All Labs) Results

Month Mean	827.82	Grand Mean	817.84
Avg SD	61.65	Avg SD Months	46.88
SD btwn Labs	44.42	SD btwn Labs	47.20
Labs Incl	26	Labs Incl	28



Containerboard Interlaboratory Testing Program
Analysis 201

Report #627 (N)
December 2021

Top to Bottom Box Compression Strength, Corrugated Boxes - BX15

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	821.26	68.63	6.56	7
Water based adhesive sealing	883.00	0.00	55.18	1
Clip sealing	827.31	32.29	0.51	18

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
LH	L.A.B. Compression Tester Model #10610	LL	Lansmont 76-5K
LM	Lansmont 122-15k	LO	Lansmont 152-30k
LS	Lansmont Squeezer		



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

Report #627 (N)
December 2021

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
8REUBL	38.9	-0.06	2.13		38.4	-0.03	0.70	2	LE
9X6LZU	47.6	1.87 *	1.37		47.0	2.03 *	0.76	2	XX
CR6GXZ	31.3	-1.75	1.13		31.0	-1.81	0.45	2	EM
DAFP9K	38.9	-0.05	3.13	H	38.5	-0.01	0.65	2	EN
F7VHZB	40.1	0.21	1.74		38.9	0.09	1.65	2	LD
GCE3MN	45.6	1.44	1.37		43.2	1.11	3.49	2	EM
GK6WAK	38.8	-0.07	3.33	H	38.8	0.07	0.00	2	LC
HYMV3R	36.3	-0.64	1.98		35.5	-0.73	1.12	2	LD
MGJ29M	36.3	-0.64	1.08		35.4	-0.75	1.25	2	XX
P9K4NH	40.5	0.30	1.32		40.1	0.38	0.53	2	LC
PWRR8X	36.4	-0.61	0.84	L	37.1	-0.34	0.99	2	TD

Consensus (All Labs) Results				
Month Mean		39.16	Grand Mean	38.54
Avg SD		1.93	Avg SD Months	1.37
SD btwn Labs		4.49	SD btwn Labs	4.18
Labs Incl		11	Labs Incl	11

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	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
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 #627 (N)
December 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
22QXYX	42.3	0.19	1.33	40.7	-0.10	2.18	2	LD
2RXMP3	33.5	-2.18 *	1.78	38.4	-0.88	6.98	2	EM
3JMK43	45.6	1.08	1.54	44.1	1.03	2.07	2	LC
4MG2T2	44.0	0.66	2.70 H	38.8	-0.76	7.44	2	TL
6HWKN2	37.7	-1.04	2.93 H	38.5	-0.85	1.12	2	BU
7AJ3UU	36.0	-1.51	1.39	35.1	-1.99 *	1.21	2	TD
7HDYR6	34.2	-1.99 *	1.91	36.0	-1.70	2.52	2	TH
7K2LAK	42.2	0.16	1.28	40.4	-0.21	2.50	2	LD
8REUBL	41.4	-0.06	0.93	40.8	-0.09	0.84	2	LY
9T6H8L	43.2	0.43	1.23	43.7	0.91	0.81	2	LD
9X6LZU	48.4	1.85	1.35	47.9	2.31 *	0.76	2	XX
AA9ANG	39.6	-0.54	1.50	38.6	-0.83	1.46	2	EM
CKNZ6Q	41.5	-0.03	1.03	40.6	-0.15	1.21	2	TG
CR6GXZ	39.8	-0.49	1.28	39.1	-0.64	0.92	2	EM
DAFP9K	42.2	0.17	1.50	41.7	0.21	0.79	2	EN
E224ZG	42.9	0.36	0.85	42.5	0.48	0.65	2	LD
F7VHZB	39.2	-0.64	1.53	40.1	-0.32	1.24	2	LD
FWJLXP	47.0	1.46	0.81	45.6	1.55	1.88	2	LD
GK6WAK	40.7	-0.23	1.08	40.1	-0.32	0.91	2	LC
HYMV3R	38.7	-0.79	1.14	41.1	0.01	3.38	2	LD
K4N38L	42.8	0.32	1.57	42.1	0.36	0.93	2	TU
KT7A8Q	44.3	0.74	1.32	42.5	0.50	2.58	2	TD
LE9H2F	41.1	-0.13	1.47	41.5	0.16	0.59	2	EM
MGJ29M	39.5	-0.56	1.15	38.7	-0.77	1.08	2	XX
NHFPGB	37.6	-1.09	1.32	37.7	-1.13	0.18	2	TK
NY7P9A	48.9	1.98 *	0.78	45.2	1.39	5.30	2	LC
P9K4NH	44.3	0.74	1.60	43.7	0.89	0.88	2	LC
PBTJVN	47.6	1.63	1.07	45.5	1.49	3.04	2	EM
PWRR8X	38.8	-0.75	0.77	39.4	-0.55	0.83	2	TD
RHLBH8	39.5	-0.57	2.23	39.3	-0.60	0.27	2	LD
VC7YRB	43.1	0.42	2.53 H	44.0	1.00	1.26	2	LD
W24ZGG	41.4	-0.05	1.04	42.2	0.41	1.22	2	BU
WCLK2D	44.9	0.91	1.63	42.7	0.56	3.15	2	LD
Y843W2	36.2	-1.46	1.34	34.5	-2.22 *	2.45	2	XX
YXTZBZ	43.3	0.47	0.91	41.4	0.13	2.65	2	TG
ZX3D42	43.6	0.54	1.30	43.1	0.68	0.75	2	MK



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

Report #627 (N)
December 2021

Consensus (All Labs) Results			
Month Mean	41.57	Grand Mean	41.03
Avg SD	1.51	Avg SD Months	2.51
SD btwn Labs	3.71	SD btwn Labs	2.97
Labs Incl	36	Labs Incl	36

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	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 - 42F4
 TAPPI Official Test Method T807

Report #627 (N)
December 2021

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	
22QXYX	106.6	107.1	108.6	107.2	107.4	-0.75	9.5	0.9	107.1	-1.00	8.4	2.3	16	LZ
2LAAGM_AL	104.8	111.1	111.4	116.2	110.9	0.32	8.1	4.7	109.3	-0.21	8.6	3.8	16	AK
2UKB3N	103.1	106.8	106.6	102.9	104.8	-1.52	9.6	2.2	106.6	-1.16	8.0	2.3	16	LA
33BHR8	127.2 X	124.0 XH	123.2 XH	123.4 *	124.5	4.44 X	12.2	1.9	125.6	5.49 X	11.6	3.8	16	AC
3J42WA	110.2	111.3	107.6	110.2	109.8	-0.01	4.6	1.6	109.7	-0.07	6.5	1.4	16	TP
4PAVTQ	112.8	108.2	114.2 L	111.4	111.7	0.55	5.6	2.6	110.1	0.05	5.7	3.0	16	AX
4PAVTQ_AL	108.9	110.0	106.2	105.8	107.7	-0.64	7.4	2.0	108.8	-0.39	8.0	2.0	16	AL
4UHDPX_AL	109.3	100.8 *H	105.8	No DATA	105.3	-1.38	10.1	4.3	110.4	0.17	9.7	4.2	14	AL
7H2BHQ_AL	113.4	110.3	114.6	111.5	112.5	0.80	7.8	1.9	110.9	0.33	7.0	3.0	16	AL
7YL43N	115.8	107.4	109.8	114.4	111.9	0.61	5.3	3.9	112.9	1.04	5.7	3.3	16	AH
8AYHM2	108.1	112.3	111.1	108.4	110.0	0.04	9.1	2.1	109.4	-0.18	9.0	3.5	16	LC
8PB2GM_AL	111.1	108.7	109.9	106.2	109.0	-0.26	7.4	2.1	106.5	-1.20	7.2	2.0	16	XX
8REUBL	114.1	110.7 L	108.3	111.5	111.2	0.40	6.5	2.4	114.0	1.42	6.6	2.6	16	AH
9JJBAH_AL	106.5	106.4	105.7	106.0	106.2	-1.12	8.0	0.4 L	109.0	-0.32	8.2	2.5	16	AL
9T6H8L	109.5	110.5	107.3	108.3	108.9	-0.29	9.0	1.4	109.4	-0.17	9.0	1.4	16	LA
9X6LZU	116.0 L	114.8 L	116.9 L	117.2 L	116.2	1.94 *	1.9	1.1	115.1	1.81	4.2	1.0	16	LC
AQT7GW_AL	111.2	113.7	111.9	108.9	111.4	0.48	6.7	2.0	109.1	-0.27	6.6	2.2	12	AL
C97JBX	113.2	113.5	113.2 L	112.9	113.2	1.02	3.9	0.2 L	113.1	1.12	4.3	0.6 L	16	LA
CV4TVK	105.3 H	106.1	106.7	106.3	106.1	-1.14	10.8	0.6	108.5	-0.50	9.5	3.1	16	LA
DKXATG	109.6	110.7	105.8	110.6	109.2	-0.20	9.0	2.3	109.8	-0.05	8.9	4.7	16	TB
DPUUYL	111.0	111.0	111.0	111.0	111.0	0.35	5.7	0.0 L	111.2	0.45	5.7	0.1 L	16	LJ
E224ZG	103.7	100.6 *	102.1	105.5	103.0	-2.09 *	9.8	2.1	104.2	-2.01 *	8.4	1.8	16	AH
E2K88G_AL	120.1 *	120.9 *	116.2	113.4	117.6	2.37 *	8.7	3.5	114.6	1.65	8.3	4.3	16	AL
F7VHZZ	113.7	112.6	109.7	108.7	111.2	0.40	6.1	2.4	108.6	-0.48	6.2	2.3	16	LA
FAVNJN	111.4	104.5	116.7 H	109.2	110.5	0.19	9.4	5.1	112.0	0.73	10.1	3.5	16	LJ
G3PCZV	110.1	111.4	109.7	112.8	111.0	0.35	7.9	1.4	110.5	0.18	7.3	1.1	16	AH
GT49VG	110.7 L	110.3 L	110.2 L	111.4 L	110.7	0.25	2.2	0.5 L	109.5	-0.15	2.8	2.0	16	LA
GXVFDQ_AL	116.4	108.4	113.3	116.1	113.6	1.13	8.4	3.7	107.3	-0.92	7.6	9.7 H	16	AL
HYMV3R	110.3	106.2	110.9	106.1	108.4	-0.45	10.0	2.6	109.3	-0.22	9.5	3.7	16	LA
J32R9U	118.7	127.7 X	115.1	127.5 X	122.3	3.77 X	9.8	6.4	121.7	4.13 X	10.6	5.2	16	AX
KECHNB_AL	113.3	113.0	106.1	100.4	108.2	-0.50	9.4	6.2	109.6	-0.12	9.3	4.4	14	AL
KWTQK6	104.6	111.6	105.5	105.4	106.8	-0.92	7.5	3.2	105.5	-1.55	7.9	3.6	16	TB
LH3JZ9	102.3	93.3 X	99.0 *	98.4 *	98.2	-3.53 X	9.3	3.7	103.8	-2.16 *	7.8	4.8	16	LC
LJYUWC	117.4 H	109.8	109.7	117.4	113.6	1.14	10.1	4.4	114.0	1.42	10.0	3.6	16	LA
LYQPC9_AL	109.0	109.9	110.5	106.0	108.8	-0.31	5.8	2.0	110.9	0.33	7.5	2.3	16	AL



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F4
 TAPPI Official Test Method T807

Report #627 (N)
December 2021

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	
MFNH7L	100.9 *	104.0	101.0 *	102.7	102.2	-2.33 *	7.2	1.5	105.1	-1.68	8.4	7.2 H	16	LC
MQXX68	115.3	115.2	112.3	114.8	114.4	1.38	9.1	1.4	112.1	0.75	8.9	2.8	10	TP
MRQNBL	133.1 X	133.4 XL	133.2 X	133.2 X	133.2	7.11 X	4.3	0.1 L	131.7	7.62 X	4.0	2.6	16	AH
P4QCEY	107.9	107.1	106.9 H	113.8	108.9	-0.28	11.0	3.3	110.1	0.06	10.9	3.8	16	LB
P9K4NH	110.6	116.8	111.7	109.6	112.2	0.71	9.1	3.2	109.0	-0.31	9.6	4.8	16	AH
PWRR8X	106.7	108.6	107.4	105.3	107.0	-0.86	10.5	1.4	107.3	-0.91	12.1	1.7	16	XX
RCZFH4	104.9	101.7	111.6	105.6	105.9	-1.18	7.8	4.2	106.9	-1.05	9.6	3.0	16	XX
RHLBH8	114.8	111.2	107.6	112.4	111.5	0.50	9.6	3.0	110.6	0.24	9.2	3.0	16	AH
TFEDM6	109.6	114.6	102.8	102.2	107.3	-0.77	8.4	5.9	107.2	-0.94	9.0	5.4	15	AH
TFEDM6_AL	111.8	119.7 *	110.6	113.2 H	113.8	1.21	13.0	4.1	113.2	1.13	10.7	4.3	14	AL
TGNHX9	99.0 *	101.7	103.9	106.3	102.7	-2.16 *	6.1	3.1	103.9	-2.10 *	5.8	2.8	16	LA
THH833	109.4	106.4	104.6	105.8	106.6	-1.00	8.5	2.0	107.9	-0.72	8.4	2.2	16	LC
THKVL2	95.9 XH	99.0 *	101.8	99.1	99.0	-3.31 X	9.8	2.4	98.9	-3.86 X	9.1	3.1	12	LA
UHCDW2_AL	99.3 *	110.7	111.9	111.8	108.4	-0.43	9.6	6.1	110.8	0.29	9.2	4.3	16	AL
V26GC3_AL	112.8	113.8	117.6 *	110.8	113.8	1.19	5.9	2.9	112.6	0.94	7.3	3.1	16	AL
VC7YRB_AL	115.4	115.8	112.0	95.2 *	109.6	-0.07	7.0	9.8 H	113.0	1.06	6.4	5.5	16	AK
VJMDW2_AL	110.6	112.8	108.4	109.4	110.3	0.14	7.8	1.9	113.1	1.12	8.3	3.1	16	AL
VPQLW3	114.3	113.7	110.6	115.5	113.5	1.12	6.2	2.1	114.1	1.46	7.7	3.3	16	LA
VPQLW3_AL	110.8	111.1	109.8	109.8	110.4	0.16	7.4	0.6	111.1	0.40	7.3	1.7	16	AL
WJIAK3	112.1	111.0	107.2	117.9	112.0	0.67	6.3	4.4	112.7	0.97	8.8	3.1	16	LC
WVVHKA	109.2	113.5	116.0	111.7	112.6	0.84	8.8	2.9	112.6	0.94	9.1	3.6	15	LC
WVVHKA_AI	114.2	112.0	112.1	110.9	112.3	0.75	8.8	1.4	113.3	1.16	8.6	2.2	16	AL
XUVYUR	109.7	117.0	111.0	110.3 L	112.0	0.66	4.4	3.4	112.5	0.92	5.0	3.3	16	LC
ZX9G49	111.2	108.0	103.7	104.1	106.8	-0.94	4.7	3.5	106.3	-1.27	4.2	2.3	16	XX

Consensus (All Labs) Results														
Wk Mean	110.23	110.11	109.29	109.28	Month Mean	109.84			Grand Mean	109.93				
Avg SDr	8.02	7.87	8.16	8.31	Avg SD	8.05			Avg SD	8.10				
SD btwn Labs	4.61	4.56	4.19	5.28	SD btwn Labs	3.29			SD btwn Labs	2.86				
Labs Incl	56	55	57	56	SD btwn Wks	3.25			SD btwn Wks	3.50				
Labs Excl	3	4	2	2	Labs Incl	54			Labs Incl	55				
Labs not Rcvd	0	0	0	1										



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F4
TAPPI Official Test Method T807

Report #627 (N)
December 2021

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)
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 - 35E2
 TAPPI Official Test Method T807

Report #627 (N)
December 2021

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	
22QXYX	90.9	84.9 *	87.5	90.5	88.4	-1.46	8.1	2.8	89.1	-1.36	7.5	3.0	12	LA
2LAAGM_AL	93.7	93.7	91.9	88.0	91.8	-0.26	9.4	2.7	93.3	0.27	10.2	3.0	12	AK
2UKB3N	94.6	89.9	91.8	92.5	92.2	-0.12	5.8	1.9	90.2	-0.90	7.6	2.7	12	LA
33BHR8	105.6 X	107.4 X	109.7 X	108.7 X	107.9	5.47 X	10.4	1.8	106.7	5.45 X	10.2	5.4	12	AC
3J42WA	92.7	91.4	89.5	88.5	90.5	-0.72	5.9	1.9	91.1	-0.58	6.6	1.5	12	TP
4PAVTQ	94.8	96.2	97.0	94.2	95.6	1.08	6.2	1.3	95.5	1.14	6.7	1.4	8	AX
4PAVTQ_AL	95.1	89.4	91.6	88.6	91.2	-0.48	8.1	2.9	92.2	-0.16	7.6	2.3	8	AL
4UHDPX_AL	93.1	93.4	83.1	* No DATA	89.8	-0.97	7.4	5.9	91.6	-0.37	8.4	4.3	11	AL
7H2BHQ_AL	94.9	95.7	93.7	90.7	93.7	0.43	6.2	2.2	93.1	0.19	6.4	2.0	12	XX
7YL43N	96.0	92.8	95.8	94.2	94.7	0.78	6.2	1.5	96.1	1.37	5.3	3.0	8	AH
8AYHM2	91.0	90.4	90.6	92.8 H	91.2	-0.48	9.2	1.1	92.9	0.12	8.6	1.8	12	LC
8PB2GM_AL	92.8	90.8	91.4 L	95.0	92.5	-0.01	5.1	1.8	91.2	-0.54	5.1	2.5	12	XX
8REUBL	95.9	96.0	90.8	90.7	93.4	0.29	7.6	3.0	96.4	1.46	7.1	3.5	12	AH
9JJBAH_AL	95.8	93.7	93.3	93.6	94.1	0.56	8.2	1.1	94.0	0.53	7.9	2.7	12	AL
9T6H8L	88.8	90.2	94.4	93.0	91.6	-0.33	7.6	2.6	91.1	-0.56	7.8	2.7	12	LA
AQT7GW_AL	90.6	92.9	93.0	93.0	92.4	-0.06	5.8	1.2	92.2	-0.13	5.5	1.2	8	AL
C97JBX	93.0 L	92.5 L	93.5 L	93.0 L	93.0	0.17	2.7	0.4 L	93.3	0.29	2.9	0.6 L	8	LA
CV4TVK	85.5 *	93.8	88.2	92.6	90.0	-0.89	9.3	3.9	91.4	-0.45	8.2	3.6	12	LA
DKXATG	95.7	91.9	92.8	91.3	92.9	0.15	8.4	2.0	93.0	0.17	8.1	2.5	12	TB
DPUUYL	91.4	91.4	91.4	91.4	91.4	-0.41	7.3	0.0 L	91.7	-0.35	6.0	0.2 L	12	LJ
E224ZG	85.3 *	85.2 *	91.2	90.8	88.1	-1.57	8.4	3.3	87.5	-1.95 *	7.9	2.7	12	AH
E2K88G_AL	95.1 H	89.6	94.7	94.0	93.3	0.29	11.8	2.5	96.8	1.63	12.9	6.1	12	AL
F7VHZB	91.3	88.0	92.6	93.2	91.2	-0.46	5.0	2.3	91.4	-0.47	5.5	2.2	12	LA
FAVNJN	89.5	96.0	93.4	97.3	94.1	0.55	8.3	3.5	93.0	0.17	7.8	3.9	12	LJ
G3PCZV	90.9	91.0	89.1	92.2	90.8	-0.62	6.2	1.3	91.5	-0.41	6.3	1.1	12	AH
GT49VG	92.7 L	93.7 L	93.3 L	93.2 L	93.2	0.25	1.6	0.4 L	91.8	-0.29	3.7	1.7	12	LA
GXVFDQ_AL	93.9	97.2 H	95.2	93.9	95.1	0.90	9.5	1.6	100.4	3.04 X	10.3	8.8 H	12	AL
HYMV3R	95.9	88.9	92.1	94.4	92.8	0.10	9.2	3.0	92.4	-0.09	8.0	3.6	12	LA
J32R9U	99.1	100.2 *	98.2	97.2	98.7	2.20 *	10.5	1.3	98.7	2.35 *	10.9	4.3	12	AX
KECHNB_AL	94.8	97.8	102.1 *	89.9	96.1	1.29	7.1	5.1	95.0	0.95	7.1	3.2	12	AL
KWTQK6	88.7	93.3	86.2	90.2	89.6	-1.05	6.1	3.0	92.6	-0.01	7.9	4.1	11	TB
LH3JZ9	94.1	87.4	91.0	89.3	90.4	-0.75	5.3	2.8	91.1	-0.58	6.4	3.2	12	LC
LJYUWC	99.3	91.5	97.4	96.2	96.1	1.28	7.3	3.3	95.0	0.93	7.7	3.7	12	LA
LYQPC9_AL	90.8	89.6	89.8	90.6	90.2	-0.83	5.1	0.6	92.9	0.12	5.8	2.5	12	AL
MFNH7L	82.0 X	83.7 *	84.5	81.8 X	83.0	-3.40 X	8.4	1.3	85.7	-2.65 *	8.2	3.2	12	LC



Containerboard Interlaboratory Testing Program
 Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E2
 TAPPI Official Test Method T807

Report #627 (N)
December 2021

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	
MQXX68	104.8 X	94.8	92.7	96.0	97.1	1.62	7.8	5.3	95.0	0.92	7.9	4.9	8	TP
MRQNBL	106.6 X	107.2 X	107.1 X	107.0 X	107.0	5.16 X	4.7	0.3 L	106.5	5.38 X	4.2	1.2	12	AH
P4QCEY	91.0	94.7	92.3	97.1	93.8	0.45	7.8	2.7	93.2	0.24	7.6	2.9	12	LB
P9K4NH	97.8	92.4	99.6 *	92.2	95.5	1.06	8.7	3.8	91.8	-0.32	8.1	4.1	12	AH
PWRR8X	88.5	89.9	86.2	91.2	89.0	-1.28	7.9	2.1	88.3	-1.66	8.0	1.9	12	XX
RCZFH4	90.3	81.5 X	87.4	93.2	88.1	-1.58	9.7	5.0	89.9	-1.04	9.0	5.0	12	XX
RHLBH8	90.4	92.4 H	91.6	95.6	92.5	-0.01	9.2	2.2	92.1	-0.20	8.1	4.1	12	AH
TFEDM6	95.2	94.8	87.0	95.8	93.2	0.24	7.3	4.2	93.4	0.33	6.6	3.6	11	AH
TFEDM6_AL	90.6	92.3	94.5	94.7	93.0	0.18	8.9	1.9	92.8	0.09	8.0	2.1	10	AL
TGNHX9	83.4 *	88.3	85.2 L	88.8	86.4	-2.18 *	3.7	2.6	86.9	-2.20 *	3.7	2.3	12	LA
THH833	89.8	88.7	92.3	88.8	89.9	-0.94	5.4	1.7	89.6	-1.16	7.2	2.2	8	LA
THKVL2	86.9	85.9	84.8	84.0 X	85.4	-2.55 *	6.5	1.3	83.6	-3.48 X	6.9	2.0	12	LA
UHCDW2_AL	90.4	93.1	92.5	93.3	92.3	-0.08	8.3	1.3	92.2	-0.14	8.1	3.1	12	AL
V26GC3_AL	92.5	93.5	94.3	93.9	93.5	0.35	5.6	0.8	92.8	0.10	6.4	2.0	12	AL
VC7YRB_AL	92.6	94.5	95.7	112.2 X	98.8	2.22 *	7.0	9.1 H	97.2	1.80	6.4	5.0	12	AK
VJMDW2_AL	97.6	88.1 H	87.9	91.1	91.2	-0.48	8.8	4.5	92.7	0.05	7.8	3.5	12	AL
VPQLW3	100.0 *	100.0 *	91.7	97.0	97.2	1.66	9.7	3.9	96.6	1.55	9.1	4.3	12	LA
VPQLW3_AL	93.5	90.8	91.2	91.9	91.8	-0.25	5.3	1.2	94.4	0.69	6.6	2.6	12	AL
WJJAK3	93.8	94.7	97.0	94.8	95.1	0.91	8.3	1.3	93.1	0.19	9.1	3.3	12	LC
WVVHKA	95.6	94.7	98.5	89.4	94.5	0.71	9.5	3.8	94.0	0.56	8.5	3.7	12	LC
WVVHKA_AI	94.2	99.1	89.1 H	91.1	93.4	0.30	10.7	4.3	94.3	0.68	9.0	2.9	12	XX
XUVYUR	96.7	97.4	95.4	94.5	96.0	1.24	6.2	1.3	95.4	1.11	5.4	1.5	12	LC
ZX9G49	90.7	93.4 L	93.2	88.3	91.4	-0.40	4.1	2.4	88.8	-1.44	4.1	2.5	11	XX

Consensus (All Labs) Results														
Wk Mean	92.75	92.31	92.00	92.59	Month Mean	92.53			Grand Mean	92.58				
Avg SDr	8.06	7.55	7.66	7.02	Avg SD	7.59			Avg SD	7.50				
SD btwn Labs	3.50	3.66	3.91	2.53	SD btwn Labs	2.80			SD btwn Labs	2.59				
Labs Inclcd	54	55	56	52	SD btwn Wks	3.02			SD btwn Wks	3.14				
Labs Exclcd	4	3	2	5	Labs Inclcd	55			Labs Inclcd	54				
Labs not Rcvd	0	0	0	1										



Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E2
TAPPI Official Test Method T807

Report #627 (N)
December 2021

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 (207 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 215

Report #627 (N)

December 2021

Ring Crush, 42 lb Linerboard - 42F4

TAPPI Official Test Method T822

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	
22QXYX	90.5 L	88.6	92.6	91.0	90.6	-0.53	2.7	1.7	90.9	-0.53	3.0	1.1	16	LD
3J42WA	91.1	93.2	92.4	90.4	91.8	-0.18	4.1	1.2	91.5	-0.30	4.0	1.2	16	TJ
3JMK43	93.8	93.7	95.4	93.7	94.2	0.58	3.1	0.8	89.7	-1.00	2.7	3.7	16	LC
4KD7AX	91.2	88.6	91.2	92.2	90.8	-0.48	3.1	1.6	90.8	-0.59	3.1	1.7	16	LD
7H2BHQ	94.8	94.3	94.2	93.1	94.1	0.57	3.4	0.7	93.2	0.34	3.7	2.3	16	LZ
8AYHM2	88.9	No DATA	95.8	90.2	91.6	-0.22	3.1	3.7	92.7	0.17	3.2	3.2	15	MB
8REUBL	92.6	95.3	93.9	96.4	94.6	0.71	2.8	1.7	93.2	0.35	2.7	1.7	16	LG
8ZW3YH	99.7 *	98.1	98.8 *	98.1 H	98.7	2.01 *	4.0	0.7	94.6	0.91	4.2	6.2 H	16	TU
9JJBAH	99.9 *H	100.8 *	100.0 *H	98.9 *H	99.9	2.40 *	5.2	0.8	93.0	0.30	4.7	6.3 H	16	LC
A7AV6X	96.3	100.2 *	95.2	97.9	97.4	1.61	3.3	2.2	97.6	2.10 *	4.8	5.9 H	16	MB
C97JBX	93.3	94.2	92.9	93.0	93.4	0.33	2.6	0.6	93.2	0.35	2.6	0.6 L	16	LD
DAFP9K	87.6	89.7	90.2	91.4	89.7	-0.82	2.9	1.6	89.0	-1.26	2.8	1.9	16	EN
DKXATG	93.8	91.2	92.2	93.8	92.8	0.14	3.7	1.3	93.7	0.55	4.3	3.4	16	LD
DPUUYL	91.3	91.4	92.1	91.7 H	91.6	-0.21	4.4	0.4	91.6	-0.28	3.5	0.3 L	16	LD
E224ZG	87.5	93.0	88.7	91.5	90.2	-0.68	3.2	2.5	90.0	-0.89	2.7	1.7	16	LD
E2K88G	66.0 XH	67.2 XH	64.3 XH	69.5 X	66.8	-8.09 X	6.3	2.2	78.8	-5.26 X	6.3	12.7 H	16	LC
F7VHQB	89.1	88.4	88.0	89.7 L	88.8	-1.11	1.9	0.7	88.8	-1.36	2.0	1.0	16	LD
GT49VG	95.0 L	95.7 L	95.5 L	95.2 L	95.4	0.96	0.9	0.3 L	94.6	0.90	1.0	1.2	16	TU
HYMV3R	92.1	89.5	92.2	90.2	91.0	-0.43	2.5	1.4	91.0	-0.51	2.5	1.3	16	LD
J32R9U	92.7	90.5	89.0	88.1 H	90.1	-0.71	4.3	2.0	89.3	-1.14	3.9	2.6	16	LD
KECHNB	88.0	90.4	89.8	89.1	89.3	-0.95	3.3	1.0	88.7	-1.39	3.3	2.0	16	LC
KWTQK6	93.7	98.2	98.1	99.2 *	97.3	1.58	3.7	2.4	98.0	2.24 *	3.3	2.3	16	LX
LH3JZ9	89.1	91.0 H	92.7	92.1	91.2	-0.35	4.3	1.6	92.9	0.26	4.2	2.7	16	LD
LJYUWC	94.0	95.2	93.9	97.0	95.0	0.86	2.6	1.4	95.2	1.14	3.5	1.2	16	LZ
MFNH7L	91.3	89.8	91.1	89.1	90.3	-0.63	2.6	1.0	92.1	-0.06	2.8	2.9	16	LZ
MQXX68	93.9	91.0	91.9	93.0	92.5	0.04	2.4	1.2	95.0	1.05	2.7	2.2	16	LD
MRQNBL	90.7	90.2	91.0	90.7	90.6	-0.53	3.0	0.3	90.9	-0.52	3.2	1.6	16	LD
NBYD2N	93.8	93.9	95.8	95.5	94.7	0.77	2.7	1.0	95.2	1.16	2.6	1.3	8	LZ
NHFPGB	92.3	92.4	92.3	92.3	92.3	0.00	1.7	0.1 L	93.1	0.33	1.6	0.5 L	16	MB
NW23TK	77.4 X	79.5 X	76.9 X	75.8 XH	77.4	-4.72 X	4.3	1.6	75.7	-6.44 X	4.0	2.8	16	EM
P4QCEY	91.7	93.0	93.8 L	90.0	92.1	-0.06	2.5	1.6	92.9	0.23	2.4	2.2	16	LC
P9K4NH	94.4	94.0	93.8	94.6	94.2	0.59	2.9	0.4	94.1	0.73	2.7	1.0	16	LC
RBML24	99.6 *	97.6	97.7	98.3	98.3	1.89	3.4	0.9	97.7	2.11 *	3.5	3.9	16	EX
TGNHX9	91.6	91.6	93.5	91.6	92.1	-0.08	2.3	1.0	91.6	-0.26	2.3	0.9	16	LZ
THH833	89.6	89.2	90.3	93.0	90.5	-0.57	3.5	1.7	91.8	-0.19	2.7	1.9	16	LD



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42F4
 TAPPI Official Test Method T822

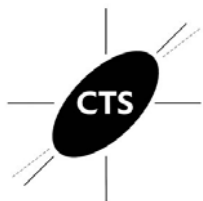
Report #627 (N)
December 2021

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
THKVL2	89.1 H	82.8 XH	82.6 XH	81.8 XH	84.1	-2.61 *	9.0	3.4	78.4	-5.40 X	9.9	7.4 H	12	LD
UHCDW2	88.5	93.5	90.7	91.8	91.1	-0.38	3.4	2.1	90.9	-0.54	3.1	1.6	16	LD
VC7YRB	93.8	93.1	93.9	93.8	93.7	0.42	1.8	0.4	92.1	-0.08	2.2	4.7	16	LD
VJMDW2	89.9	91.6	90.6	91.5	90.9	-0.44	1.8	0.8	90.7	-0.59	2.6	1.0	16	LD
VPQLW3	93.1	92.8	90.3	91.4	91.9	-0.13	3.1	1.3	90.6	-0.64	3.1	1.6	16	LD
WJAK3	93.4	94.4	94.9 L	91.4	93.5	0.38	2.3	1.6	94.4	0.82	2.4	1.9	16	LD
WRYT3G	89.3 H	92.4	74.4 X	84.2 *	85.1	-2.28 *	4.0	7.9 H	87.5	-1.84	3.5	4.8	16	TH
WVHKA	90.5	96.0	90.4	90.6	91.9	-0.14	2.4	2.8	89.5	-1.06	2.8	3.3	16	LD
XUVYUR	90.0	88.8	95.7	92.2	91.7	-0.20	2.5	3.0	90.7	-0.63	2.8	2.1	16	LC
YXTZBZ	92.8	92.8	93.5	94.6	93.4	0.35	2.8	0.9	95.7	1.33	2.9	2.0	16	TH
Z6LJZ9	87.7 L	87.2 L	88.0 L	88.1	87.8	-1.44	1.2	0.4	87.9	-1.70	1.3	0.5 L	16	RS
ZX9G49	80.2 X	79.6 X	82.1 X	75.1 X	79.3	-4.14 X	4.3	3.0	81.0	-4.40 X	4.0	3.6	16	LD

Consensus (All Labs) Results													
Wk Mean	92.12	92.78	92.95	92.60	Month Mean	92.32		Grand Mean	92.27				
Avg SDr	3.33	3.12	2.97	3.05	Avg SD	3.34		Avg SD	3.10				
SD btwn Labs	3.05	3.19	2.84	3.17	SD btwn Labs	3.16		SD btwn Labs	2.57				
Labs Incd	44	42	42	43	SD btwn Wks	1.97		SD btwn Wks	2.71				
Labs Excl	3	4	5	4	Labs Incd	44		Labs Incd	43				
Labs not Rcvd	0	1	0	0									

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	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 217

Report #627 (N)

December 2021

Ring Crush, 35 lb Linerboard - 35E2

TAPPI Official Test Method T822

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	
22QXYX	81.4	80.0	80.4	81.4	80.8	-0.51	3.2	0.7	81.6	0.12	3.5	1.2	12	LD
3J42WA	82.8	83.5	84.9	82.7	83.5	0.51	4.9	1.0	81.8	0.19	4.6	1.6	12	TJ
3JMK43	81.8	80.0	81.4	80.5	80.9	-0.45	2.6	0.8	80.0	-0.54	2.9	1.1	12	LC
4KD7AX	80.3	78.1	80.8	79.6	79.7	-0.91	4.2	1.1	79.2	-0.88	4.0	2.1	12	LD
7H2BHQ	82.2	83.4	83.1	82.6	82.8	0.26	4.1	0.6	82.4	0.43	3.8	1.3	12	LZ
8AYHM2	81.6	89.7 *L	88.6 *	81.2	85.3	1.17	2.9	4.5 H	84.2	1.18	3.6	3.6	12	MB
8REUBL	84.0	86.7	85.2	86.2	85.5	1.26	2.4	1.2	84.9	1.49	2.7	1.2	12	LG
8ZW3YH	84.4	84.1	86.5	83.5	84.6	0.94	4.5	1.3	79.4	-0.82	6.0	7.9 H	12	TU
9JJBAH	86.2	85.8	86.0	86.4	86.1	1.48	4.6	0.3 L	81.2	-0.05	4.8	6.0	12	LC
A7AV6X	83.9	89.6 *	82.2	84.1	84.9	1.05	4.1	3.2	84.8	1.45	5.0	4.9	8	MB
C97JBX	82.4	82.2	82.9	82.7	82.6	0.15	2.8	0.3 L	82.7	0.56	2.7	0.3 L	8	LD
DAFP9K	81.8	78.6	74.6 *	80.4	78.8	-1.24	4.6	3.1	79.6	-0.70	3.6	2.2	12	EN
DKXATG	85.6 H	81.7 H	81.5 H	79.8 H	82.2	0.00	6.8	2.5	81.0	-0.14	6.4	3.4	12	LC
DPUUYL	81.2	81.2	81.1	81.6 H	81.3	-0.32	4.4	0.2 L	81.5	0.06	3.3	0.3 L	12	LD
E224ZG	78.1	81.1	78.5	81.1	79.7	-0.91	3.0	1.6	79.6	-0.71	2.9	1.3	12	LD
E2K88G	80.6	60.0 XH	59.6 XH	67.4 X	66.9	-5.71 X	6.0	9.8 H	68.1	-5.47 X	6.5	7.1 H	12	LC
F7VHZZ	79.2	78.0	77.2	79.5	78.5	-1.38	2.8	1.0	78.2	-1.28	2.8	1.0	12	LD
GT49VG	88.4 *L	88.3 L	88.1 L	88.6 *L	88.4	2.33 *	1.3	0.2 L	82.9	0.66	1.7	4.1	12	TU
HYMV3R	82.0	79.6	78.6	78.3	79.6	-0.95	3.0	1.7	79.0	-0.95	2.9	1.5	12	LD
J32R9U	85.6	82.3	82.1	80.3	82.6	0.16	3.6	2.2	81.8	0.21	4.2	2.0	12	LD
KECHNB	76.0 *	78.3	81.0	80.7	79.0	-1.18	3.7	2.3	78.9	-1.02	3.9	3.0	12	LC
KWTQK6	87.7	82.9	85.9 H	92.5 X	87.2	1.91	5.0	4.0	86.1	1.99 *	4.5	4.0	12	LX
LH3JZ9	82.7	77.6	81.4	80.7 H	80.6	-0.59	4.4	2.2	81.9	0.25	4.3	2.5	12	LD
LJYUWC	87.0	85.0	75.6 *	85.5	83.3	0.42	4.8	5.2 H	83.8	1.03	3.8	3.2	12	LZ
MFNH7L	84.0	82.6	80.5	79.8	81.7	-0.16	4.2	1.9	80.7	-0.26	3.8	1.8	12	LZ
MQXX68	84.7	82.0	82.5	84.3	83.4	0.47	2.3	1.3	84.3	1.24	2.3	1.4	12	LD
MRQNBL	76.8 *	77.4	77.3	76.6 *	77.0	-1.92	3.0	0.4	77.1	-1.76	3.1	1.2	12	LD
NBYD2N	85.5	85.0	86.0	84.1	85.1	1.13	3.6	0.8	80.6	-0.31	3.4	5.9	12	LZ
NHFPGB	81.6 L	81.8 L	81.9	81.8 L	81.8	-0.14	1.6	0.2 L	81.9	0.24	1.6	1.3	12	MB
NW23TK	58.9 XH	59.9 XH	61.1 XH	62.3 X	60.6	-8.08 X	6.2	1.5	62.8	-7.71 X	5.2	5.8	12	EM
P4QCEY	81.6	84.1	81.6	82.7	82.5	0.14	3.7	1.2	84.4	1.28	3.4	1.8	12	LC
P9K4NH	85.8	84.6	83.7	84.2	84.6	0.91	3.2	0.9	84.1	1.14	3.2	1.0	12	LC
RBML24	83.7 H	85.2	84.1	84.3	84.3	0.82	4.7	0.6	85.7	1.82	4.2	1.8	12	EX
TGNHX9	81.6	79.4	81.0	80.9	80.7	-0.53	3.5	0.9	80.6	-0.28	3.3	2.5	12	LZ
THH833	81.1	80.9	81.5	81.5	81.2	-0.34	2.6	0.3 L	82.7	0.57	2.5	1.7	8	LD



Containerboard Interlaboratory Testing Program
Analysis 217

Report #627 (N)
December 2021

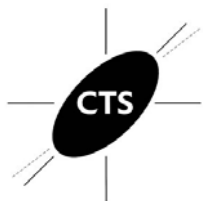
Ring Crush, 35 lb Linerboard - 35E2
TAPPI Official Test Method T822

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
THKVL2	71.9 XH	66.4 XH	62.0 XH	62.2 XH	65.6	-6.18 X	10.1	4.7 H	78.5	-1.17	6.3	10.1 H	12	LD
UHCDW2	80.8	81.1	81.1	80.7	80.9	-0.45	3.5	0.2 L	79.6	-0.70	3.5	1.8	12	LD
VC7YRB	84.0	84.5	83.0	84.5	84.0	0.69	3.6	0.7	80.9	-0.17	3.2	3.8	12	LD
VJMDW2	81.2	80.8	81.0	81.2 L	81.1	-0.41	2.9	0.2 L	80.9	-0.20	3.1	1.3	12	LD
VPQLW3	83.9	79.6	82.5	81.2	81.8	-0.12	2.7	1.9	81.3	-0.03	3.7	1.5	12	LD
WJAK3	81.5	85.7	85.5	83.5	84.1	0.72	3.9	2.0	83.7	0.98	3.3	1.4	12	LD
WRYT3G	82.1	82.9	66.6 X	75.3 *	76.8	-2.02 *	3.4	7.6 H	75.1	-2.57 *	3.3	4.4	12	TH
WVHKA	83.0	85.3	83.4	80.5	83.1	0.34	2.7	2.0	79.4	-0.78	2.8	3.4	12	LD
XUVYUR	82.2	77.6	85.2	81.9	81.7	-0.15	3.6	3.1	79.5	-0.77	3.4	3.6	12	LC
YXTZBZ	83.4	83.2 L	80.4	79.7	81.7	-0.17	2.9	1.9	82.9	0.67	3.2	1.7	12	TH
Z6LJZ9	76.2 *	76.6	76.6 L	77.4 L	76.7	-2.04 *	1.6	0.5	77.8	-1.48	1.4	1.2	12	RS
ZX9G49	64.1 X	69.6 XH	69.4 X	72.8 X	69.0	-4.93 X	5.3	3.6	71.1	-4.26 X	4.4	3.9	11	LD

Consensus (All Labs) Results													
Wk Mean	82.54	82.28	82.05	81.75	Month Mean	82.14		Grand Mean	81.32				
Avg SDr	3.46	3.71	3.85	3.62	Avg SD	3.66		Avg SD	3.69				
SD btwn Labs	2.75	3.27	3.17	2.63	SD btwn Labs	2.67		SD btwn Labs	2.41				
Labs Incl	44	43	42	42	SD btwn Wks	2.22		SD btwn Wks	3.25				
Labs Excl	3	4	5	5	Labs Incl	43		Labs Incl	44				
Labs not Rcvd	0	0	0	0									

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	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 223

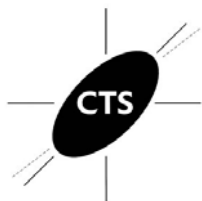
STFI, 42 lb Linerboard - 42F4

TAPPI Official Test Method T826

Report #627 (N)

December 2021

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	
22QXYX	23.6	21.8	23.8	22.7	22.9	-0.76	1.8	0.9	23.3	-0.60	1.7	0.6	16	LY
23HYU	23.6	23.3	23.1	23.1	23.3	-0.50	1.8	0.3	23.1	-0.77	1.6	0.7	16	LW
2LAAGM_AL	24.7	24.7	24.5 L	25.6	24.9	0.76	1.5	0.5	24.7	0.62	1.9	0.9	16	AK
2UKB3N	24.9	23.0	23.3	24.0	23.8	-0.09	1.9	0.9	24.0	0.05	2.0	1.0	16	LH
33BHR8	21.6 *	22.1	22.0	22.8	22.1	-1.40	1.6	0.5	22.3	-1.47	1.7	0.4	16	LH
3J42WA	23.9	23.9	23.7	24.2 L	23.9	0.01	1.4	0.2	23.8	-0.18	1.4	0.4 L	16	TT
4KD7AX	26.0	25.6	26.9 *	25.9	26.1	1.71	1.7	0.6	23.8	-0.18	1.9	3.0 H	16	LH
4PAVTQ	25.2	24.4	25.3	25.1	25.0	0.87	1.6	0.4	25.0	0.87	1.6	0.5	16	LU
4PAVTQ_AL	23.9	23.3	24.2	22.1 L	23.4	-0.40	1.4	0.9	23.6	-0.32	1.4	1.2	16	AL
7H2BHQ_AL	23.7	23.3	22.6	23.9	23.4	-0.43	1.6	0.6	23.3	-0.57	1.5	0.7	16	AL
7HDYR6	26.9 *	25.8	26.8 *	27.0 *	26.6	2.13 *	1.6	0.6	25.3	1.13	1.7	2.0	16	TT
7WFR6	22.3	22.9	22.8	21.7	22.4	-1.17	1.5	0.6	24.2	0.21	1.5	1.5	12	LH
7X6YH4	24.0	24.1	23.8	23.6	23.9	-0.05	1.7	0.2	23.7	-0.23	1.7	0.5	16	LU
7YL43N	25.8	26.2	26.0	27.1 *	26.3	1.87	1.8	0.6	26.5	2.17 *	1.7	0.9	16	LU
8AYHM2	24.0	25.5	25.8	24.6	25.0	0.84	2.0	0.8	24.6	0.59	1.9	1.1	15	LA
8PB2GM	24.8	24.1	24.2	24.4	24.4	0.37	1.8	0.3	24.4	0.37	1.8	0.3 L	4	LY
8PB2GM_AL	25.4	22.7 L	25.4	25.4 L	24.8	0.67	1.2	1.3	25.2	1.05	1.5	1.2	16	XX
8REUBL	22.8	23.7	23.1	23.2	23.2	-0.55	1.7	0.4	22.9	-0.94	1.6	0.5	16	LU
8ZW3YH	26.0	24.6	25.3	24.9	25.2	1.01	1.9	0.6	24.5	0.45	1.7	1.5	16	LA
9JJBAH_AL	26.3 H	26.0	25.7 H	26.3	26.1	1.70	2.4	0.3	25.9	1.68	1.9	0.9	16	AL
9X6LZU	25.3	26.2	25.8	26.7	26.0	1.65	1.2	0.6	25.0	0.94	1.6	1.2	16	LA
A7AV6X	23.9	25.9	25.3	23.3	24.6	0.54	1.5	1.2	24.7	0.67	1.7	0.8	16	LA
AQT7GW_AL	24.7	24.7	23.6	24.4	24.3	0.33	1.5	0.5	24.4	0.39	1.7	0.5	12	AL
C97JBX	23.8	23.9	23.8	23.8	23.8	-0.06	1.9	0.0 L	23.8	-0.12	2.0	0.1 L	16	LA
CV4TVK	23.1	22.2	23.5	22.5	22.8	-0.85	1.6	0.6	23.3	-0.56	1.5	0.5	16	LY
DAFP9K	22.3	22.9	22.2	21.9	22.3	-1.25	1.7	0.4	22.0	-1.68	1.7	0.4	16	LY
DKXATG	23.2	24.4	24.9	21.6	23.6	-0.28	1.9	1.5 H	23.9	-0.02	2.0	1.5	16	LW
E224ZG	22.8	22.3	22.5	23.3	22.7	-0.94	1.7	0.5	22.4	-1.33	1.7	0.7	16	LU
E2K88G_AL	23.6	22.9	23.5	21.7	22.9	-0.79	1.7	0.9	23.8	-0.11	1.8	1.2	16	AL
F7VHQB	23.4	23.1 L	23.7	23.3 L	23.4	-0.43	1.3	0.3	23.2	-0.63	1.2	0.6	16	BK
FAVNJN	26.3	26.1	26.5	27.9 *H	26.7	2.17 *	2.2	0.8	26.1	1.88	2.2	0.9	16	LH
G3PCZV	23.5	23.5	23.3	23.8	23.5	-0.31	1.4	0.2	23.7	-0.22	1.4	0.3 L	16	TT
GXVFDQ_AL	25.7	26.2	26.0 L	26.1 L	26.0	1.64	1.5	0.2	26.9	2.59 *	1.8	5.1 H	16	AL
HYMV3R	22.5	22.9	23.3 L	23.2	23.0	-0.74	1.5	0.3	22.7	-1.07	1.6	0.6	16	LZ
J32R9U	26.0 L	24.5 L	24.8 L	25.1 L	25.1	0.95	0.5	0.7	24.7	0.60	0.7	0.9	16	LH



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F4

TAPPI Official Test Method T826

Report #627 (N)

December 2021

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
KECHNB	24.4	24.6	No DATA	24.9	24.6	0.56	1.7	0.3	24.8	0.71	1.7	0.8	14	LU
LCV2GM	24.7	24.7	24.8	23.9	24.5	0.49	1.8	0.4	25.4	1.24	1.6	0.9	16	LH
LH3JZ9	24.4	25.2	24.6	24.8 H	24.8	0.66	2.0	0.4	24.1	0.14	2.2	0.7	16	LA
LJYUWC	22.5	22.5 L	21.4	23.0	22.3	-1.24	1.5	0.7	22.4	-1.33	1.8	0.5	16	LU
LYQPC9	24.8	22.7 L	No DATA	22.4	23.3	-0.47	1.2	1.3	23.4	-0.46	1.6	0.9	12	LU
MFNH7L	23.8	24.1	21.2 *	24.4	23.4	-0.41	1.6	1.5 H	26.1	1.85	1.5	4.9 H	16	LA
NBYD2N	45.3 XH	48.2 X	47.1 X	45.2 XH	46.5	17.72 X	2.2	1.5 H	46.0	19.23 X	2.6	1.3	8	XX
P4QCEY	23.3	23.2	22.1	21.8	22.6	-1.02	1.5	0.8	22.9	-0.96	1.5	0.7	16	LW
P9K4NH	23.5	23.9	23.5	23.4	23.6	-0.27	1.7	0.2	23.2	-0.63	1.6	0.4	16	LU
RBML24	29.3 XL	30.7 XL	30.3 XL	31.7 XL	30.5	5.17 X	0.0	1.0	30.5	5.69 X	0.0	1.5	16	TT
TFEDM6	24.2	22.2	23.4	23.1	23.2	-0.55	1.6	0.8	23.6	-0.29	1.8	0.9	15	LH
TFEDM6_AL	20.0 X	21.4	22.7	21.9	21.5	-1.90	1.7	1.1	23.4	-0.54	1.6	1.6	14	AL
THH833	22.4	21.4	23.6	22.7	22.5	-1.09	1.4	0.9	22.8	-1.02	1.5	0.7	16	LA
THKVL2	46.5 XL	42.4 XL	40.8 XL	41.2 XL	42.7	14.78 X	0.0	2.6 H	42.9	16.47 X	0.0	1.9	12	LH
UHCDW2_AL	23.0	24.4	23.3	23.9	23.7	-0.21	1.6	0.6	23.5	-0.44	1.7	0.5	16	AL
V26GC3_AL	24.2	23.5	23.6	22.7	23.5	-0.35	1.7	0.6	23.3	-0.55	1.8	0.6	16	AL
VC7YRB_AL	24.2	24.1	24.0	21.7	23.5	-0.32	1.4	1.2	23.4	-0.52	1.5	0.9	16	AK
VJMDW2_AL	22.8	21.8	23.1	23.1	22.7	-0.96	1.5	0.6	23.3	-0.58	1.7	0.9	16	AL
VPQLW3_AL	23.8	23.4	22.6	23.9	23.4	-0.39	1.8	0.6	23.6	-0.34	1.7	0.7	16	AL
WJIAK3	23.9	23.9	24.2	23.3	23.8	-0.06	1.6	0.4	23.8	-0.13	1.7	0.6	16	LA
WRYT3G	22.1	22.6 H	21.1 *	19.6 *H	21.3	-2.03 *	2.2	1.3	21.0	-2.60 *	1.8	1.0	16	LZ
WVVHKA	18.1 X	19.2 X	18.6 XH	18.8 X	18.7	-4.12 X	2.3	0.5	17.1	-5.98 X	2.3	1.9	16	LZ
WVVHKA_AI	40.7 XL	42.6 XL	42.3 XL	40.0 XL	41.4	13.76 X	0.0	1.2	38.9	13.04 X	0.0	2.3	16	AL
XUVYUR	24.9 L	25.2	24.8 L	25.3	25.1	0.89	1.1	0.2	24.9	0.85	1.2	0.4	16	LA
Y843W2	24.2	24.5 H	24.8	24.4	24.5	0.44	2.0	0.3	24.3	0.30	1.6	0.8	16	XX

Consensus (All Labs) Results									
Wk Mean	24.09	23.85	23.96	23.82	Month Mean	23.91	Grand Mean	23.96	
Avg SDr	1.64	1.70	1.58	1.68	Avg SD	1.65	Avg SD	1.68	
SD btwn Labs	1.21	1.32	1.39	1.62	SD btwn Labs	1.27	SD btwn Labs	1.15	
Labs Incl	54	55	53	55	SD btwn Wks	0.72	SD btwn Wks	1.34	
Labs Excl	6	5	5	5	Labs Incl	55	Labs Incl	55	
Labs not Rcvd	0	0	2	0					

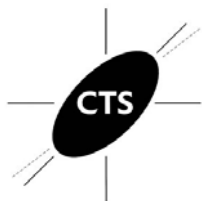


Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42F4
TAPPI Official Test Method T826

Report #627 (N)
December 2021

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
BK	Buchel Strip Compression Tester BK-155	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

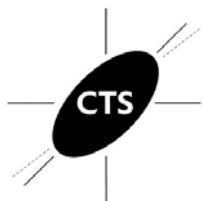
STFI, 35 lb Linerboard - 35E2

TAPPI Official Test Method T826

Report #627 (N)

December 2021

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	
22QXYX	22.8	21.8	22.9	22.7	22.5	-0.63	1.5	0.5	22.5	-0.76	1.7	0.6	12	LY
23HYU	23.2	24.5	22.6	21.9	23.1	-0.16	1.4	1.1	23.0	-0.21	1.3	0.8	8	LW
2LAAGM_AL	24.3	25.1 L	23.6	23.6	24.1	0.83	1.9	0.7	24.3	1.14	1.9	0.7	12	AK
2UKB3N	24.7	22.6	23.0	22.7 H	23.3	0.04	1.9	1.0	23.2	-0.08	1.8	0.9	12	LH
33BHR8	22.0	21.8	22.9	21.8	22.1	-1.00	1.6	0.5	22.0	-1.35	1.6	0.5	12	LH
3J42WA	23.5	23.0	23.5	23.3	23.3	0.10	1.3	0.2	23.0	-0.30	1.3	0.4	12	TT
4KD7AX	24.2	25.0	24.5	24.8	24.6	1.26	1.9	0.4	24.2	1.06	1.8	2.0 H	12	LH
4PAVTQ	23.7	23.5	24.4	23.1	23.6	0.38	1.6	0.5	23.8	0.63	1.4	0.8	8	LU
4PAVTQ_AL	22.7 L	23.0	23.0	21.3	22.5	-0.64	1.4	0.8	22.5	-0.75	1.4	0.9	8	AL
7H2BHQ_AL	23.1	21.6	22.3	22.9	22.5	-0.69	1.6	0.7	22.9	-0.35	1.6	1.0	12	XX
7HDYR6	26.3 *	26.5 *	26.7 *	26.7 *	26.6	3.05 X	1.6	0.2	24.2	1.02	1.7	2.4 H	12	TT
7WFG6	21.7	21.7	21.7	21.3	21.6	-1.48	1.4	0.2	23.2	-0.05	1.5	1.3	12	LH
7X6YH4	22.7	22.9	23.8	22.9	23.1	-0.14	1.5	0.5	23.5	0.26	1.6	0.4	12	LU
7YL43N	25.3	25.0	25.1 H	24.9	25.1	1.69	2.0	0.1	25.2	2.17 *	1.7	0.5	8	LU
8AYHM2	24.5	24.4 H	25.2	24.5	24.7	1.32	2.0	0.4	23.9	0.69	1.8	1.2	12	LA
8PB2GM	24.6	24.1	23.6	23.5	23.9	0.65	1.9	0.5	23.9	0.78	1.9	0.5	4	LY
8PB2GM_AL	23.7	22.3	23.2	23.8 L	23.3	0.03	1.7	0.7	23.7	0.54	1.5	1.0	12	XX
8REUBL	22.0	23.8	22.9	23.0	22.9	-0.28	1.5	0.7	22.4	-0.92	1.6	0.8	12	LW
8ZW3YH	23.6	24.3	24.0 H	24.4	24.1	0.78	2.0	0.4	23.7	0.49	2.0	1.7	12	LA
9JJBAH_AL	23.9	24.1	24.2	24.5	24.2	0.87	2.1	0.2	23.4	0.22	1.5	1.5	12	AL
9X6LZU	23.0	24.2	22.6	23.8	23.4	0.17	1.4	0.7	23.5	0.35	1.7	0.9	12	LA
A7AV6X	24.2	23.9 H	24.1 H	23.3 H	23.9	0.60	2.3	0.4	23.7	0.53	2.1	0.8	8	LA
AQT7GW_AL	24.3	24.6	24.3	24.6	24.4	1.10	1.9	0.2	24.4	1.34	1.8	0.2 L	8	AL
C97JBX	22.9	23.1	23.1	23.0	23.0	-0.18	1.9	0.1 L	23.0	-0.26	1.9	0.1 L	8	LA
CV4TVK	21.3	20.8	20.8 *	21.1	21.0	-2.03 *	1.4	0.2	22.4	-0.88	1.6	1.1	12	LU
DAFP9K	22.3	21.5	21.2	21.1	21.5	-1.56	1.4	0.6	21.3	-2.11 *	1.6	0.6	12	LY
DKXATG	21.2	24.1	23.9 H	20.7	22.5	-0.66	1.9	1.8 H	23.5	0.30	2.1	1.5	12	LW
E224ZG	20.8 *	21.0	21.8	23.9	21.9	-1.22	1.6	1.4 H	21.9	-1.47	1.8	1.0	12	LU
E2K88G_AL	23.3 L	23.8 H	23.4	24.6	23.8	0.50	1.7	0.6	23.2	-0.07	1.5	0.8	12	AL
F7VHZB	22.3	22.4 L	22.8	22.7	22.6	-0.61	1.0	0.2	22.0	-1.36	1.0	0.5	12	BK
FAVNJN	24.9	25.9	25.8 *	26.2 *	25.7	2.26 *	1.8	0.6	25.6	2.60 *	1.9	0.9	12	LH
G3PCZV	23.0	23.0	24.0	23.3	23.3	0.08	1.5	0.5	23.1	-0.11	1.3	0.4	12	TT
GXVFDQ_AL	25.3	26.0 *	25.3 L	25.7 L	25.6	2.13 *	1.6	0.3	24.8	1.75	1.6	1.1	12	AL
HYMV3R	22.0	23.4	22.8	22.8	22.8	-0.42	1.7	0.6	22.5	-0.80	1.7	0.5	12	LZ
J32R9U	25.2 L	24.9 L	25.0 L	24.9 L	25.0	1.63	0.7	0.2	24.4	1.30	0.7	0.7	12	LH



Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E2

TAPPI Official Test Method T826

Report #627 (N)

December 2021

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	
KECHNB	23.4	25.0	No DATA	23.9	24.1	0.79	1.6	0.8	24.3	1.22	1.8	0.8	11	LU
LCV2GM	24.0	24.4	24.8	24.2	24.3	1.02	1.7	0.3	24.9	1.83	1.7	0.6	12	LH
LH3JZ9	23.2 H	23.5 H	22.5	22.8	23.0	-0.21	2.1	0.4	23.2	0.02	1.7	0.9	12	LA
LJYUWC	22.3	22.3	21.2	22.9	22.2	-0.95	1.9	0.7	21.9	-1.47	1.8	0.5	12	LU
LYQPC9	24.3	23.5 L	No DATA	23.4	23.7	0.46	1.5	0.5	23.8	0.63	1.6	0.9	10	LU
MFNH7L	22.0	23.0	23.1	25.5	23.4	0.18	1.6	1.5 H	23.0	-0.21	1.6	1.3	12	LA
NBYD2N	43.5 X	40.2 X	40.1 XH	39.7 XH	40.9	16.10 X	2.9	1.7 H	34.9	12.82 X	3.0	8.2 H	12	LZ
P4QCEY	22.8	21.4	21.8	22.3	22.1	-1.07	1.6	0.6	22.4	-0.94	1.6	0.5	12	LW
P9K4NH	23.6	23.2	23.1	23.3	23.3	0.06	1.5	0.2	22.8	-0.47	1.6	0.4	12	LU
RBML24	28.4 XL	27.8 XL	28.1 XL	28.0 XL	28.1	4.41 X	0.0	0.2	28.5	5.79 X	0.0	1.1	12	TT
TFEDM6	22.4	21.9	23.6	22.4	22.6	-0.59	1.8	0.7	22.8	-0.49	1.7	0.6	11	LH
TFEDM6_AL	20.4 *	21.7	22.6	20.1 *	21.2	-1.85	1.4	1.2	22.5	-0.83	1.8	1.3	10	AL
THH833	21.4	21.9	No DATA	21.7	21.6	-1.44	1.5	0.3	22.4	-0.92	1.5	0.8	7	LW
THKVL2	35.8 XL	41.6 XL	36.3 XL	36.6 XL	37.5	13.07 X	0.0	2.7 H	35.4	13.35 X	0.0	3.7 H	12	LH
UHCDW2_AL	22.8	23.1	23.2	22.5	22.9	-0.28	1.5	0.3	22.9	-0.35	1.8	0.2 L	12	AL
V26GC3_AL	22.7	22.9	23.1	23.0	22.9	-0.27	1.4	0.2	22.6	-0.69	1.5	0.5	12	XX
VC7YRB_AL	23.2	23.1	22.7	24.4	23.4	0.11	1.4	0.7	22.8	-0.42	1.5	0.7	12	AK
VJMDW2_AL	23.2	23.1	23.4	23.7	23.4	0.12	1.6	0.3	23.1	-0.12	1.6	0.6	12	AL
VPQLW3_AL	22.9 L	22.9	23.6	23.5	23.2	0.00	1.4	0.4	23.3	0.04	1.7	0.6	12	AL
WJIAK3	23.3	24.0	24.3	23.2	23.7	0.42	1.5	0.5	23.1	-0.13	1.7	0.7	12	LA
WRYT3G	21.9	21.1	19.3 X	20.4 *	20.7	-2.34 *	1.9	1.1	21.3	-2.13 *	1.6	1.2	12	LZ
WVVHKA	17.4 X	16.9 X	20.2 *	17.6 X	18.0	-4.77 X	1.5	1.5 H	17.2	-6.64 X	1.9	1.8	12	LZ
WVVHKA_AI	35.2 XL	36.5 XL	36.0 XL	34.7 XL	35.6	11.28 X	0.0	0.8	33.5	11.22 X	0.0	1.8	12	AL
XUVYUR	23.7	24.3	23.8	23.9	23.9	0.64	1.4	0.3	23.6	0.37	1.3	0.4	12	LA
Y843W2	23.7	24.4	23.6	23.3	23.8	0.50	1.7	0.4	23.0	-0.27	1.4	0.9	12	XX

Consensus (All Labs) Results									
Wk Mean	23.19	23.35	23.36	23.27	Month Mean	23.23	Grand Mean	23.23	
Avg SDr	1.64	1.67	1.65	1.62	Avg SD	1.64	Avg SD	1.65	
SD btwn Labs	1.20	1.33	1.24	1.39	SD btwn Labs	1.10	SD btwn Labs	0.91	
Labs Incl	55	55	52	55	SD btwn Wks	0.66	SD btwn Wks	0.93	
Labs Excl	5	5	5	5	Labs Incl	54	Labs Incl	55	
Labs not Rcvd	0	0	3	0					



Containerboard Interlaboratory Testing Program
Analysis 225
STFI, 35 lb Linerboard - 35E2
TAPPI Official Test Method T826

Report #627 (N)
December 2021

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
BK	Buchel Strip Compression Tester BK-155	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 - 42F
 TAPPI Official Test Method T575

Report #627 (N)
December 2021

WebCode	Monthly Results			Cumulative Results					
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst	
22QXYX	152.5	1.29	11.96	147.5	0.70	4.25	4	EV	
2LAAGM_AL	131.4	-0.41	19.65	129.7	-0.42	6.02	4	AK	
2UKB3N	133.1	-0.27	12.74	134.3	-0.13	1.58	L 4	EV	
4PAVTQ_AL	121.4	-1.22	16.99	117.9	-1.16	4.58	4	AL	
7H2BHQ_AL	121.1	-1.24	12.49	121.2	-0.96	4.07	L 4	XX	
8AYHM2	135.7	-0.07	9.10	173.0	2.31 *	66.11	H 4	LA	
8PB2GM_AL	132.6	-0.31	13.95	126.0	-0.65	4.71	4	XX	
8ZW3YH	140.2	0.30	26.28	137.3	0.06	2.54	L 4	LA	
9JJBH_AL	153.2	1.35	15.22	152.9	1.04	4.29	4	AL	
A7AV6X	132.2	-0.35	13.34	133.9	-0.15	1.64	L 4	LA	
AQT7GW_AL	131.4	-0.41	23.64	130.4	-0.37	1.94	L 3	AL	
C97JBX	136.7	0.02	18.04	136.3	0.00	0.87	L 4	LS	
DAFP9K	141.0	0.37	17.10	147.5	0.71	4.46	4	EV	
DKXATG	126.1	-0.84	14.69	118.1	-1.15	5.65	4	XX	
E224ZG	153.0	1.34	13.40	147.0	0.67	6.60	4	EV	
E2K88G_AL	159.5	1.86	28.16	148.3	0.75	9.50	4	AL	
FAVNJN	146.3	0.80	13.28	159.1	1.44	15.42	4	LS	
GXVFDQ_AL	116.3	-1.63	11.19	143.3	0.44	55.28	H 4	AL	
HYMV3R	144.4	0.64	21.70	138.6	0.15	4.83	4	LS	
KECHNB	135.3	-0.10	13.74	162.3	1.64	60.50	H 4	EV	
LH3JZ9	133.2	-0.27	15.80	135.3	-0.07	4.71	4	LA	
LJYUWC	142.8	0.51	7.27	L 4	146.1	0.61	5.43	4	EV
LYQPC9	197.5	4.94	X 76.28	H 4	194.5	3.67	X 54.21	H 3	EV
QCKWX7	135.0	-0.12	19.86	133.7	-0.17	3.88	L 4	LS	
TFEDM6_AL	129.4	-0.57	20.04	127.5	-0.56	1.29	L 4	AL	
THH833	138.8	0.19	22.83	139.0	0.17	3.96	L 4	LA	
UHCDW2	128.4	-0.65	13.49	126.8	-0.60	2.41	L 4	LS	
UHCDW2_AL	139.3	0.23	30.28	H 4	134.2	-0.13	8.38	4	AL
V26GC3_AL	115.3	-1.72	18.00	113.4	-1.45	3.28	L 4	AL	
VC7YRB	151.7	1.23	17.72	142.0	0.36	10.04	4	EV	
WVVHKA	160.5	1.94	* 23.22	152.8	1.03	10.88	2	LA	
WVVHKA_AL	139.3	0.23	16.74	96.4	-2.52	* 83.42	H 3	AL	
XUVYUR	110.4	-2.11	* 6.82	L 4	111.3	-1.58	1.33	L 4	EV



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

Report #627 (N)
December 2021

Consensus (All Labs) Results			
Month Mean	136.47	Grand Mean	136.35
Avg SD	17.73	Avg SD Months	24.39
SD btwn Labs	12.35	SD btwn Labs	15.86
Labs Incl	32	Labs Incl	32

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 - 42F4
 TAPPI Official Test Method T538

Report #627 (N)
December 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2LAAGM_AL	350.4	-0.52	4.72	348.7	-0.81	3.18	4	AK
8PB2GM_AL	354.8	-0.26	6.20	237.7	-11.13 X	135.87 H	4	XX
9X6LZU	370.1	0.66	6.69	366.4	0.83	2.72	4	XX
FT33W9	372.3	0.79	7.10	370.6	1.23	1.88	4	PP
GXVFDQ_AL	347.4	-0.70	13.52	354.3	-0.28	12.69 H	4	AL
HYMV3R	351.7	-0.44	9.64	349.1	-0.77	2.56	4	XX
MQXX68	358.4	-0.04	8.14	357.2	-0.02	2.37	4	PP
NW23TK	399.3	2.42 *	7.65	397.1	3.69 X	3.19	4	TS
P9K4NH	359.8	0.04	8.31	361.9	0.42	2.90	4	XX
TFEDM6_AL	345.0	-0.85	7.90	346.4	-1.02	1.48	4	AL
THKVL2	376.0	1.02	7.80	373.7	1.52	3.67	3	LA
THKVL2_AL	317.3	-2.52 *	30.36 H	335.3	-2.05 *	15.66 H	3	AK
UHCDW2_AL	345.5	-0.82	7.15	349.2	-0.76	7.21	3	AL
VC7YRB	356.2	-0.17	9.26	353.8	-0.33	2.24	4	LA
VC7YRB_AL	357.3	-0.11	8.03	352.3	-0.47	5.42	4	AK
VJMDW2_AL	372.9	0.83	7.16	367.7	0.96	5.79	4	AL
VPQLW3_AL	359.2	0.01	8.39	359.4	0.19	0.55 L	4	AL
WVVHKA_AL	358.3	-0.05	8.26	295.4	-5.76 X	109.03 H	3	AL
YZ4HU7	371.1	0.72	5.78	372.1	1.37	1.27	3	TS

Consensus (All Labs) Results			
Month Mean	359.10	Grand Mean	357.37
Avg SD	10.50	Avg SD Months	6.05
SD btwn Labs	16.60	SD btwn Labs	10.76
Labs Incl	19	Labs Incl	16

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
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
Internal Bond, 42 lb Linerboard - 42F
 TAPPI Official Test Method T569

Report #627 (N)
December 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
22QXYX	103.3	0.39	8.93	104.1	0.17	1.71	4	HZ
2LAAGM	87.4	-0.93	2.41	97.4	-0.41	15.72	4	TM
2UKB3N	113.4	1.23	3.85	114.3	1.06	2.96	4	SC
7H2BHQ	100.2	0.13	3.35	99.3	-0.25	3.36	4	TM
9JJBAH	116.0	1.45	7.42	112.3	0.88	5.19	4	SC
9X6LZU	85.8	-1.06	3.56	87.8	-1.24	1.42	L 4	SC
E224ZG	92.8	-0.48	3.96	93.0	-0.79	4.18	4	TM
E2K88G	120.6	1.83	4.77	127.2	2.17 *	22.03	H 4	SC
FAVNJN	97.6	-0.08	8.96	82.6	-1.69	11.42	4	TM
HTBY9Q	97.6	-0.08	1.16	L 96.7	-0.46	0.84	L 4	TM
KECHNB	85.0	-1.13	3.24	94.5	-0.66	22.10	H 4	TM
LYQPC9	88.4	-0.85	3.91	92.9	-0.80	3.21	4	TM
MQXX68	104.8	0.52	3.83	105.2	0.27	1.84	4	HY
P9K4NH	105.9	0.61	6.32	113.1	0.95	9.72	4	HY
QCKWX7	102.4	0.32	1.34	101.8	-0.03	1.38	L 4	HY
RYBGNF	109.2	0.88	1.51	109.1	0.61	2.66	4	TM
THH833	137.8	3.26	X 4.87	125.5	2.03 *	18.78	4	HY
UHCDW2	92.7	-0.49	4.81	96.6	-0.48	4.40	4	TM
VC7YRB	83.6	-1.24	3.91	85.3	-1.45	3.09	4	TM
VJMDW2	40.4	-4.83	X 3.46	42.0	-5.21	X 1.34	L 4	LZ
VPQLW3	97.2	-0.11	5.86	101.5	-0.05	3.62	4	TM
WJJAK3	106.8	0.68	10.99	H 102.2	0.01	4.08	4	HZ
XUVYUR	107.4	0.73	9.40	103.7	0.14	3.58	4	TM
ZHFQ7Q	70.7	-2.31	* 4.07	160.8	5.09	X 177.18	H 4	SC

Consensus (All Labs) Results			
Month Mean	98.59	Grand Mean	102.08
Avg SD	5.57	Avg SD Months	9.45
SD btwn Labs	12.05	SD btwn Labs	11.53
Labs Incl	22	Labs Incl	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	97.78	12.36	0.81	20
Modified Scott Bond Mechanics	105.88	0.00	7.29	1

Analysis Notes

VJMDW2 - Method used is not covered in this test. Data excluded from consensus calculation.



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

Report #627 (N)
December 2021

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 - 42F
 TAPPI Official Test Method T815

Report #627 (N)
December 2021

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
22QXYX	18.2	-2.30 *	1.30	19.2	-2.33 *	1.83	4
2LAAGM	29.7	0.76	2.47	28.8	0.57	1.10	4
2UKB3N	29.8	0.80	3.27	30.7	1.17	1.41	4
4UHDPX	36.4	2.57 *	3.44	33.0	1.84	2.34	4
7H2BHQ	29.3	0.68	4.78	29.2	0.69	0.27 L	4
8AYHM2	23.6	-0.85	4.03	21.9	-1.50	1.40	4
9JBAH	24.6	-0.59	0.89	24.0	-0.87	0.69	4
9X6LZU	28.8	0.53	1.10	28.9	0.60	0.10 L	4
C97JBX	26.8	0.00	0.45 L	26.6	-0.10	0.19 L	4
DAFP9K	28.9	0.56	1.00	28.3	0.42	1.12	4
DKXATG	28.4	0.43	4.39	26.7	-0.05	1.55	4
E224ZG	26.2	-0.16	2.28	26.9	0.01	2.99	4
E2K88G	31.2	1.18	1.79	30.8	1.18	2.30	4
FAVNJN	23.8	-0.80	4.76	22.7	-1.28	2.26	4
GXVFDQ	28.0	0.31	2.08	27.8	0.26	2.50	4
HYMV3R	29.7	0.78	4.96	30.1	0.96	1.13	4
J32R9U	26.7	-0.03	0.76	28.5	0.49	2.01	4
KECHNB	20.6	-1.66	1.14	29.6	0.81	8.21 H	4
LJYUWC	24.8	-0.54	1.64	24.2	-0.81	2.88	4
LYQPC9	31.0	1.12	3.16	32.4	1.66	1.45	4
MQXX68	24.2	-0.70	3.03	24.7	-0.67	3.16	4
P9K4NH	24.9	-0.50	1.51	24.4	-0.74	2.11	3
PJ7AJZ	25.4	-0.38	1.67	24.3	-0.80	0.87	4
Q6KG8Y	25.4	-0.38	1.52	23.9	-0.90	1.05	4
THH833	23.6	-0.86	2.51	27.0	0.02	3.44	4
UHCDW2	29.0	0.59	1.46	27.9	0.31	1.43	4
V26GC3	28.8	0.53	1.30	26.2	-0.22	2.21	4
VC7YRB	28.9	0.57	2.68	29.2	0.71	0.62	4
VJMDW2	20.6	-1.66	3.44	22.1	-1.44	2.07	4

Consensus (All Labs) Results			
Month Mean	26.80	Grand Mean	26.88
Avg SD	2.70	Avg SD Months	2.40
SD btwn Labs	3.73	SD btwn Labs	3.30
Labs Incl	29	Labs Incl	29



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

Report #627 (N)
December 2021

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #627 (N)
December 2021

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD	Months	Inst
22QXYX	22.7	0.58	1.64	22.0	-0.13	0.71	4	LP
2LAAGM_AL	23.0	0.87	2.27	22.5	0.27	0.53	4	AK
2UKB3N	21.9	-0.09	1.84	22.8	0.62	1.40	4	LP
4KD7AX	20.9	-0.98	2.23	21.0	-1.10	0.95	4	XX
4PAVTQ	20.4	-1.41	1.58	22.6	0.36	2.16	H 3	LA
4PAVTQ_AL	20.4	-1.41	1.58	21.4	-0.72	0.69	4	AL
4UHDPX_AL	26.0	3.38 X	14.11 H	22.5	0.29	2.41 H	4	AL
76BEGT	22.6	0.46	1.29	22.8	0.58	0.41	4	LP
7H2BHQ_AL	21.7	-0.27	1.79	22.5	0.33	0.68	4	XX
8AYHM2	21.3	-0.62	1.64	21.3	-0.84	0.33	4	LA
8PB2GM_AL	22.5	0.41	1.86	22.4	0.23	0.52	4	XX
8ZW3YH	27.2	4.44 X	0.99	26.8	4.32 X	0.44	4	LA
9JJBAL_AL	21.1	-0.80	1.60	20.0	-2.04 *	1.13	4	AL
A7AV6X	24.9	2.49 *	1.14	24.6	2.34 *	0.94	4	LA
AQT7GW_AL	23.6	1.37	1.34	23.5	1.21	0.15 L	3	AL
C97JBX	22.3	0.23	1.64	22.2	0.05	0.15 L	4	LA
DKXATG	22.6	0.50	1.79	21.6	-0.55	1.01	4	LP
E224ZG	21.9	-0.12	2.18	21.7	-0.44	0.48	4	GA
E2K88G_AL	21.7	-0.27	2.46	23.1	0.88	1.07	4	AL
FAVNJN	23.9	1.61	3.41 H	24.9	2.56 *	1.17	4	TD
GMC42D	20.2	-1.62	1.85	20.3	-1.81	0.14	2	GG
GXVFDQ_AL	20.5	-1.32	1.51	21.1	-1.01	0.55	4	AL
HYMV3R	22.0	0.00	1.94	22.5	0.31	0.92	4	GA
KECHNB_AL	24.0	1.73	1.32	23.4	1.18	1.14	4	AL
LH3JZ9	21.4	-0.55	1.46	21.9	-0.23	0.37	4	LA
LJYUWC	21.5	-0.45	1.28	21.6	-0.53	0.46	4	LP
LYQPC9_AL	23.3	1.09	2.58	22.2	0.03	1.04	4	AL
MQXX68	21.9	-0.11	3.00	22.1	-0.11	0.17	4	TP
P9K4NH	20.7	-1.16	1.29	22.4	0.26	1.36	4	TP
QCKWX7	22.3	0.24	1.22	22.1	-0.03	0.68	4	LP
TFEDM6_AL	21.8	-0.24	1.53	23.3	1.04	1.05	4	AL
TGNHX9	22.8	0.66	2.15	22.4	0.24	0.55	4	XX
THH833	22.5	0.40	2.01	22.3	0.08	0.80	4	LP
THKVL2	21.2	-0.72	2.03	18.2	-3.72 X	2.67 H	3	GA
THKVL2_AL	21.7	-0.33	3.45 H	20.2	-1.86	1.32	3	AK
UHCDW2_AL	21.5	-0.45	1.25	22.0	-0.18	0.53	4	AL
V26GC3_AL	21.2	-0.73	1.67	21.9	-0.28	0.75	4	AL
VC7YRB_AL	22.7	0.54	2.28	21.5	-0.61	0.87	4	AK
VJMDW2_AL	24.8	2.38 *	0.86 L	24.1	1.86	0.60	4	AL



Containerboard Interlaboratory Testing Program
Analysis 237

Report #627 (N)
December 2021

Air Resistance, 42 lb Linerboard - 42F4

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
VPQLW3_AL	21.7	-0.28	1.08	21.7	-0.45	0.24	4	AL
W62KLZ	20.5	-1.29	2.03	21.1	-1.02	1.01	4	LP
WVVHKA_AL	20.5	-1.30	1.23	20.6	-1.47	0.11	2	XX
YPMXBA	22.3	0.21	3.25 H	22.3	0.11	0.00	1	TD
ZX9G49	22.9	0.75	3.07	22.8	0.55	0.99	4	GG

Consensus (All Labs) Results			
Month Mean	22.03	Grand Mean	22.17
Avg SD	1.98	Avg SD Months	0.93
SD btwn Labs	1.16	SD btwn Labs	1.06
Labs Incd	42	Labs Incd	42

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 | TP Technidyne Profile/ plus Roughness & Porosity |
| XX Instrument make/model not specified by lab | |



Containerboard Interlaboratory Testing Program
Analysis 240

Report #627 (N)
December 2021

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
22QXYX	56.8	60.1	56.8	60.2	58.5	-0.12	3.1	1.9	57.9	-0.17	4.1	1.9	16	LZ
2LAAGM	56.5	55.1	59.3	59.0	57.5	-0.51	3.5	2.0	56.4	-0.73	4.1	2.9	16	LD
2YJM3U	53.7	54.4	53.9 *	53.6	53.9	-1.91	3.7	0.4	55.8	-0.95	2.8	1.3	16	LD
33BHR8	56.2	56.3	56.9	56.8	56.5	-0.88	2.6	0.4	56.3	-0.80	2.6	0.7	16	EN
3J42WA	59.5	60.1	58.6	59.1	59.3	0.22	4.8	0.6	59.0	0.23	4.4	1.0	16	TJ
4KD7AX	54.7	55.6	57.1	57.1	56.1	-1.03	3.1	1.2	55.9	-0.92	3.4	1.0	16	LD
4PAVTQ	63.5	65.4 *	64.9 *	65.5 *	64.8	2.37 *	3.3	0.9	63.9	2.08 *	3.4	1.7	16	LZ
6BGMT4	58.9	58.3	62.7	65.5 *	61.4	1.00	3.4	3.4	59.6	0.48	2.6	2.3	16	LC
6JDQCR	58.3 L	58.2 L	58.5 L	58.4	58.3	-0.17	1.5	0.1 L	58.4	0.02	1.6	0.1 L	16	LD
76BEGT	59.3	58.3	59.7	57.9	58.8	0.01	2.9	0.8	58.8	0.16	3.0	1.5	16	LD
7J69MR	59.0	58.6	58.4	57.9	58.5	-0.12	2.8	0.5	58.5	0.04	3.0	0.4 L	16	LD
7K2LAK	62.4	58.1	63.1	64.8	62.1	1.29	3.9	2.9	60.7	0.89	4.2	3.4	16	LD
7TJPLT	59.1	61.6	60.7	61.8	60.8	0.79	3.8	1.2	62.0	1.38	4.2	3.1	16	LD
7WFG6	61.3	61.6	63.3	60.6	61.7	1.15	4.4	1.2	64.1	2.17 *	3.7	2.2	12	LD
8AYHM2	57.4	56.4 H	No DATA	53.9	55.9	-1.12	5.2	1.8	53.5	-1.85	4.2	6.3 H	14	MB
8PB2GM	60.0	59.6	60.1	62.5	60.5	0.68	4.1	1.3	60.8	0.92	4.0	1.9	16	LD
8REUBL	58.2	57.1	55.9	58.1	57.3	-0.57	3.2	1.1	57.8	-0.21	3.1	1.3	16	LZ
8ZW3YH	60.1	51.5 *	54.9	62.2	57.1	-0.64	3.9	4.9 H	57.0	-0.52	4.3	3.1	16	TU
A7AV6X	48.4 X	49.6 X	49.5 X	49.1 X	49.2	-3.76 X	3.3	0.5	51.9	-2.43 *	4.5	4.0	16	MB
BRHZTQ	64.1 *	59.5	61.4	64.9	62.5	1.44	4.9	2.5	60.8	0.93	4.8	3.2	8	LD
C97JBX	58.6 L	58.3	58.7	58.0	58.4	-0.15	1.7	0.3 L	58.4	0.01	1.9	0.4 L	16	LD
CV4TVK	58.0	59.2	56.2	58.5	58.0	-0.31	4.1	1.3	56.8	-0.61	4.0	1.8	16	LD
DAFP9K	58.7	60.5	56.2	56.4	57.9	-0.33	3.3	2.1	57.9	-0.19	3.8	2.1	16	EN
DKXATG	61.0	58.8	63.0	59.6	60.6	0.71	3.6	1.8	62.6	1.57	3.8	3.1	16	LD
DPUUYL	58.1	58.4	58.3	58.3	58.3	-0.19	3.7	0.1 L	58.3	-0.04	3.9	0.1 L	16	LD
E224ZG	52.9 *	57.7	55.2	57.2	55.7	-1.19	3.2	2.2	57.2	-0.43	3.5	2.4	16	LD
G3PCZV	59.2 H	58.0 H	57.8 H	58.6 H	58.4	-0.15	6.5	0.6	58.3	-0.02	5.9	1.4	16	TG
GT49VG	59.2 L	59.2 L	58.8 L	58.7 L	59.0	0.07	1.0	0.2 L	58.9	0.21	1.3	2.9	16	TU
HYMV3R	56.7	59.0	58.2	55.9	57.5	-0.51	4.0	1.4	58.0	-0.15	3.7	1.5	16	LZ
J32R9U	60.0	58.5	61.6	61.8	60.5	0.67	3.1	1.6	61.5	1.16	3.3	1.5	16	LD
KECHNB	63.1	57.9	57.9	No DATA	59.6	0.33	3.9	3.0	58.9	0.19	3.9	1.9	15	LC
KL643M	59.5 L	59.5 L	59.5 L	59.5 L	59.5	0.29	1.2	0.0 L	59.4	0.40	1.4	0.2 L	16	LD
KP8XBQ	54.8	56.5	58.6	54.3	56.0	-1.07	3.8	1.9	56.3	-0.77	3.3	1.6	12	TH
KWTQK6	58.7	56.8	60.8	66.9 *	60.8	0.79	3.7	4.4 H	60.6	0.86	3.9	3.0	15	LD
LCV2GM	55.0	56.1	56.5	53.7	55.3	-1.35	2.8	1.3	54.9	-1.32	3.3	1.2	16	LD



Containerboard Interlaboratory Testing Program
Analysis 240

Report #627 (N)
December 2021

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

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	
MQXX68	56.9	56.8	57.3	58.2	57.3	-0.58	3.6	0.6	56.4	-0.76	3.5	1.2	8	LD
NHFPGB	60.5 L	60.2 L	60.4	60.9	60.5	0.67	1.5	0.3 L	60.5	0.82	1.7	0.2 L	16	MB
NWVYTE	64.5 *	65.4 *	67.8 X	63.1	65.2	2.51 *	4.7	2.0	63.6	1.95 *	4.5	2.5	16	TX
P4QCEY	60.5	61.0	58.6	58.7	59.7	0.37	3.3	1.2	59.6	0.47	3.2	1.2	16	LD
P9K4NH	55.0	52.9	56.6	58.9	55.9	-1.14	4.6	2.6	57.1	-0.49	4.4	2.1	16	LC
PJ7AJZ	63.5	61.3	58.8	58.5	60.5	0.68	4.0	2.3	58.4	0.00	4.0	3.8	16	LZ
QCKWX7	No DATA	No DATA	No DATA	59.5	59.5	0.28	3.0	0.0	60.8	0.92	3.9	1.6	4	LD
QVF6FB	63.6 H	66.3 *	66.3 XH	62.7 H	64.7	2.32 *	6.2	1.8	61.0	0.99	10.4	4.4	12	LC
RBML24	56.5	55.6	57.9	57.4	56.9	-0.75	3.5	1.0	56.6	-0.65	3.3	1.9	16	EM
THH833	57.5	55.6	59.4	56.2	57.2	-0.63	3.1	1.7	56.7	-0.62	3.0	1.3	12	LD
TXWG37	58.9	58.5	57.8	58.1	58.3	-0.18	2.8	0.5	58.3	-0.01	3.0	0.5 L	16	LC
V26GC3	59.0	64.1	61.7	63.9	62.2	1.33	3.4	2.4	60.9	0.95	3.6	2.5	16	LZ
VJMDW2	55.6	55.8	53.8 *	54.6	54.9	-1.50	2.2	1.0	53.2	-1.94 *	3.2	2.1	16	LD
W62KLZ	56.8	54.6	58.8	61.5	57.9	-0.34	3.5	2.9	59.0	0.24	3.3	1.9	16	LD
WJJAK3	58.8	58.9	63.5	60.9	60.5	0.67	3.2	2.2	58.8	0.15	3.4	1.8	16	LD
WRYT3G	58.0	57.4	59.0	55.4	57.4	-0.53	3.7	1.5	55.9	-0.94	3.8	1.6	16	TH
WVVHKA	56.8	61.2	59.4	53.7	57.8	-0.40	3.0	3.3	56.6	-0.66	3.6	1.9	16	LD
XUVYUR	59.1	59.8	59.5	58.7	59.3	0.19	3.5	0.5	59.4	0.40	3.2	1.7	16	LC
Y843W2	62.4 L	60.2 L	60.9 L	59.6 L	60.8	0.78	0.9	1.2	60.8	0.93	0.8	1.3	16	XX
YPMXBA	53.6 L	No DATA	No DATA	No DATA	53.6	-2.02 *	1.5	0.0	53.6	-1.79	1.5	0.0	1	TH
ZHFQ7Q	53.4	54.5	58.2	56.4	55.6	-1.23	3.7	2.1	54.2	-1.56	3.4	2.0	16	LC

Consensus (All Labs) Results														
Wk Mean	58.58	58.49	58.90	59.13	Month Mean	58.78	Grand Mean	58.37						
Avg SDr	3.59	3.64	3.48	3.54	Avg SD	3.57	Avg SD	3.76						
SD btwn Labs	2.83	2.95	2.47	3.24	SD btwn Labs	2.56	SD btwn Labs	2.66						
Labs Incl	54	53	50	53	SD btwn Wks	1.88	SD btwn Wks	2.24						
Labs Excl	1	1	3	1	Labs Incl	55	Labs Incl	56						
Labs not Rcvd	1	2	3	2										



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

Report #627 (N)
December 2021

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
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 #627 (N)
December 2021

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

TAPPI Official Test Method T843

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
2LAAGM	71.1	70.9	69.2	68.9	70.0	0.24	3.9	1.1	68.9	-0.41	3.7	2.8	16	LD
6JDQCR	69.2	69.1	69.2	69.3	69.2	-0.25	1.7	0.1 L	68.8	-0.47	1.8	0.3 L	16	LD
76BEGT	68.1 H	71.2	70.5	70.2	70.0	0.23	3.5	1.3	69.2	-0.22	3.2	1.9	16	LD
8REUBL	68.1	69.2	67.1	67.9	68.1	-0.90	3.0	0.9	68.4	-0.71	3.0	1.8	16	LZ
C97JBX	68.5	68.5	68.9	68.6	68.6	-0.58	1.5	0.2 L	68.7	-0.54	1.7	0.4 L	16	LD
DAFP9K	66.8	66.9	67.2	64.7 *	66.4	-1.90 *	4.0	1.2	68.2	-0.83	4.7	2.6	16	EN
DKXATG	68.5	70.0	71.1	70.6	70.0	0.25	3.6	1.1	68.6	-0.59	4.1	2.3	16	LD
F7VHZB	66.1 *L	68.7	66.4	68.1	67.3	-1.34	2.2	1.3	67.2	-1.47	2.2	1.0	14	LD
KECHNB	66.6 H	69.3	69.7	H NO DATA	68.5	-0.63	4.7	1.7	70.6	0.65	3.9	2.5	15	LC
MQXX68	71.2	74.2 *	71.5	72.7	72.4	1.62	2.2	1.4	72.6	1.87	3.1	0.9	8	LD
NHFPGB	69.0	69.6	69.5	69.9	69.5	-0.06	1.7	0.4	70.4	0.51	1.7	0.8	16	MB
P4QCEY	68.6	69.3	71.8	71.3	70.2	0.37	2.1	1.5	69.2	-0.20	2.7	1.9	16	LD
P9K4NH	73.8 X	67.5	69.8	70.8	70.5	0.51	3.2	2.6 H	70.3	0.45	3.0	1.8	16	LC
QCKWX7	NO DATA	NO DATA	NO DATA	71.0 H	71.0	0.83	5.2	0.0	71.8	1.39	4.0	1.0	4	LD
TGNHX9	68.6	68.7 L	67.4	69.2	68.5	-0.66	1.6	0.7	68.7	-0.55	2.2	0.5	16	LZ
THH833	75.5 X	73.2	72.4	74.2 *	73.8	2.46 *	3.9	1.3	72.6	1.88	3.8	2.0	12	LD
THKVL2	51.7 X	53.0 X	52.9 X	50.7 X	52.1	-10.29 X	3.0	1.1	52.4	-10.59 X	3.2	1.6	12	LD
TXWG37	68.7	69.3	68.4	69.7	69.0	-0.35	3.3	0.6	68.7	-0.51	3.0	0.5	16	LD
V26GC3	69.0	68.2	64.1 *	69.2	67.6	-1.17	2.8	2.4	66.8	-1.71	3.1	1.9	16	LZ
VJMDW2	69.1	69.4	70.3	69.6	69.6	-0.01	3.3	0.5	68.8	-0.45	3.3	1.5	16	LD
W62KLZ	70.8	70.2 H	69.5	70.1	70.1	0.31	3.7	0.5	70.6	0.65	3.7	1.0	16	LD
WRYT3G	61.4 X	64.6 *	63.4 *	64.3 *	63.4	-3.63 X	2.7	1.4	61.9	-4.75 X	2.9	1.5	16	TH
Y843W2	69.6 L	72.3 L	71.1 L	72.6 L	71.4	1.03	0.8	1.4	71.6	1.26	0.9	1.3	12	XX

Consensus (All Labs) Results														
Wk Mean	68.75	69.53	68.98	69.65	Month Mean	69.61			Grand Mean	69.55				
Avg SDr	3.00	2.98	2.91	3.13	Avg SD	3.15			Avg SD	3.13				
SD btwn Labs	1.39	2.10	2.35	2.31	SD btwn Labs	1.71			SD btwn Labs	1.61				
Labs Incl	18	21	21	21	SD btwn Wks	1.28			SD btwn Wks	1.65				
Labs Excl	4	1	1	1	Labs Incl	21			Labs Incl	21				
Labs not Rcvd	1	1	1	1										



Containerboard Interlaboratory Testing Program
Analysis 250

Report #627 (N)
December 2021

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM12
TAPPI Official Test Method T843

Key to Instrument Codes Reported by Participants

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	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 #627 (N)
December 2021

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	
2YJM3U	43.4	43.8	44.0	43.8	43.8	0.03	2.4	0.3	44.1	0.11	2.6	0.7	16	LC
4KD7AX	43.0	43.2	44.1	43.4	43.4	-0.12	3.4	0.5	42.6	-0.81	3.1	1.1	8	LD
6BGMT4	47.0	48.2	43.6	49.0 *H	47.0	1.43	3.5	2.4	47.7	2.38 *	3.6	1.5	16	LC
76BEGT	41.4	43.5	40.4	43.7	42.2	-0.65	3.7	1.6	42.3	-1.02	3.4	1.6	16	LD
7K2LAK	47.7	46.2	43.4	47.5	46.2	1.09	3.4	2.0	44.5	0.35	2.7	1.7	16	LD
7TJPLT	48.2	47.6	43.1	44.8	45.9	0.98	3.4	2.4	44.1	0.11	3.3	2.5	16	EM
8AYHM2	41.7	42.6	42.6	44.0	42.7	-0.43	3.1	0.9	44.0	0.07	3.1	2.3	16	MB
8WCDF6	45.4	46.8	45.3 H	46.4	45.9	0.98	4.8	0.8	44.8	0.54	4.7	1.4	16	XX
BRHZTQ	46.5	48.8 *	50.6 *	48.3	48.5	2.12 *	3.7	1.7	47.5	2.22 *	4.0	2.1	8	LD
C97JBX	43.6	43.6	43.6	43.7	43.6	-0.04	2.6	0.1 L	43.9	0.01	2.8	0.5 L	16	LD
DPUUYL	43.6	43.9	43.3	43.3	43.5	-0.09	2.2	0.3	43.4	-0.31	2.7	0.2 L	16	LD
GT49VG	43.3 L	42.9 L	42.7 L	42.9 L	42.9	-0.35	1.0	0.3	43.4	-0.35	1.1	0.7	16	TU
HYMV3R	41.4	42.7	44.7	41.8	42.7	-0.47	3.2	1.4	42.4	-0.91	3.1	1.5	16	LD
KL643M	45.5	45.5 L	45.7 L	45.7 L	45.6	0.83	1.1	0.1 L	45.4	0.94	0.9	0.2 L	16	LD
KP8XBQ	37.3 *	38.3 *	40.5	34.8 X	37.7	-2.63 *	2.8	2.4	36.9	-4.38 X	2.6	1.7	12	TH
KWTQK6	43.1	43.0	45.0	45.4	44.1	0.18	3.2	1.3	44.1	0.14	3.1	1.7	16	LZ
MQXX68	47.0	44.6	45.6	43.2	45.1	0.59	3.2	1.6	45.8	1.16	3.0	1.4	8	LD
NHFPGB	43.7	43.2	43.2 L	43.2	43.3	-0.17	1.6	0.2 L	43.1	-0.51	1.5	0.4 L	16	MB
NWVYTE	43.5	41.4	44.9	39.6 *	42.3	-0.61	3.9	2.4	41.4	-1.58	3.4	4.8 H	16	LZ
P9K4NH	43.8	46.4	46.4	47.0	45.9	0.96	4.0	1.4	45.3	0.85	4.0	2.1	16	LC
QVF6FB	36.2 *H	35.7 X	36.4 *	34.4 X	35.7	-3.54 X	4.3	0.9	35.4	-5.28 X	5.3	2.4	12	XX
RBML24	41.6	42.3	41.7	44.9	42.6	-0.48	3.6	1.5	44.2	0.17	4.8	2.7	16	EM
THH833	44.5	44.5	44.9	46.9	45.2	0.66	3.4	1.1	44.3	0.24	3.1	1.6	12	XX
VJMDW2	44.1	44.3	42.4 L	43.2	43.5	-0.10	1.6	0.9	43.1	-0.52	3.1	1.7	16	LD
W62KLZ	44.2	42.1	42.8	46.1	43.8	0.04	3.0	1.8	43.6	-0.21	3.0	1.3	16	LD
WCLK2D	38.3 L	41.5	36.5 *	39.9 *	39.0	-2.06 *	2.4	2.1	43.2	-0.44	2.8	3.0	16	LD
WJJAK3	43.0	41.7	44.6	44.4	43.4	-0.12	2.8	1.3	44.4	0.30	3.3	2.1	16	LD
WRYT3G	40.4	39.8	40.9	40.9	40.5	-1.43	2.8	0.5	39.7	-2.60 *	2.9	1.1	16	TH
WVVHKA	43.4	45.3	46.1	46.0 H	45.2	0.65	4.0	1.3	43.5	-0.25	3.3	2.3	16	LD
YXTZBZ	41.3	42.1	41.7	42.7	41.9	-0.79	2.6	0.6	43.8	-0.07	3.1	1.8	16	TH



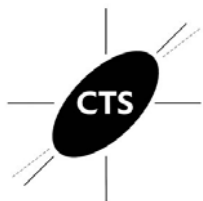
Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM12
 TAPPI Official Test Method T822

Report #627 (N)
December 2021

Consensus (All Labs) Results									
Wk Mean	43.24	43.79	43.35	44.33	Month Mean	43.72	Grand Mean	43.91	
Avg SDr	2.89	3.01	3.16	3.47	Avg SD	3.10	Avg SD	3.17	
SD btwn Labs	2.82	2.41	2.76	2.34	SD btwn Labs	2.27	SD btwn Labs	1.61	
Labs Incd	30	29	30	28	SD btwn Wks	1.42	SD btwn Wks	1.90	
Labs Excld	0	1	0	2	Labs Incd	29	Labs Incd	28	
Labs not Rcvd	0	0	0	0					

Key to Instrument Codes Reported by Participants	
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EM Emerson 1200 Series LD L&W Crush Tester 248 MB Messmer Buchel K440 TU TMI Universal Crush Tester (TMI K440)	LC L&W Crush Tester 48 LZ L&W Crush Tester (model not specified) TH TMI Compression Tester, Model 17-76 XX Instrument make/model not specified by lab
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Containerboard Interlaboratory Testing Program

Analysis 261

Report #627 (N)

December 2021

STFI, 26 lb Corrugating Medium - CM12

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	
2LAAGM	14.7 *	14.5	14.9	14.8 *	14.7	1.52	1.1	0.2	14.5	1.66	1.2	0.5	16	LA
2YJM3U	14.1	14.7	14.6	13.8	14.3	0.82	1.0	0.4	14.0	0.68	1.1	0.4	16	LH
33BHR8	13.3	13.2	12.9	13.6	13.3	-0.89	1.0	0.3	13.3	-0.92	1.0	0.2	16	LH
3J42WA	14.0	14.4	13.7	14.0	14.0	0.39	1.0	0.3	13.7	-0.06	1.0	0.5	16	TT
6JDQCR	13.8 L	13.7 L	13.7 L	13.6 L	13.7	-0.17	0.4	0.1 L	13.7	-0.15	0.4	0.1 L	16	LA
7J69MR	13.7	13.0	14.0	13.9	13.6	-0.25	0.8	0.4	13.6	-0.22	0.8	0.4	16	LB
7X6YH4	13.7	13.8	14.0	14.1	13.9	0.20	1.0	0.2	13.9	0.46	1.0	0.3	16	LU
8AYHM2	14.3	14.3	15.5 *	13.9	14.5	1.16	1.1	0.7	14.3	1.37	1.0	0.5	12	LA
8ZW3YH	13.7	13.7	13.4	14.1	13.7	-0.11	1.1	0.3	13.8	0.14	1.2	0.8	16	LA
A7AV6X	13.5	13.5	13.9	14.6	13.9	0.11	1.2	0.5	14.1	0.82	1.2	0.4	16	LA
C97JBX	13.7	13.7	13.7	13.9	13.8	-0.07	1.2	0.1 L	13.8	0.07	1.2	0.1 L	16	LB
DAFP9K	13.6	14.1	13.0	13.1 *	13.4	-0.59	1.0	0.5	13.1	-1.40	1.0	0.4	16	LB
E224ZG	13.3	12.5	13.9	14.0	13.4	-0.63	0.9	0.7	13.2	-1.21	1.1	0.5	16	LU
HYMV3R	13.2	13.6	14.2	13.5	13.6	-0.26	1.0	0.4	13.6	-0.34	1.1	0.3	16	LZ
J32R9U	15.6 XL	15.2 L	14.3 L	15.6 XL	15.2	2.24 *	0.4	0.6	14.7	2.24 *	0.4	0.5	16	LH
MFNH7L	13.3	14.9	13.5	13.8	13.9	0.10	1.0	0.7	14.2	1.02	1.4	0.6	16	LA
P9K4NH	14.1	14.0 H	13.7	13.8	13.9	0.14	1.1	0.2	13.6	-0.17	1.1	0.4	16	LU
TXWG37	13.7	13.0	13.9	14.0	13.6	-0.27	0.9	0.5	13.5	-0.45	0.9	0.4	16	LB
UHCDW2	13.7	14.1	14.3	13.4	13.9	0.14	1.0	0.4	13.8	0.17	1.1	0.2	16	LA
VJMDW2	13.5	14.4	13.0 L	14.4 L	13.8	0.05	0.8	0.7	13.6	-0.34	0.9	0.6	16	LA
WCLK2D	12.5 *	13.3	14.1 H	10.0 X	12.5	-2.13 *	1.3	1.8 H	13.2	-1.19	1.1	1.1 H	16	LA
WRYT3G	12.8	12.2 *	12.2 *H	12.3 X	12.4	-2.33 *	1.2	0.3	12.9	-1.91 *	1.0	0.6	16	LZ
WVVHKA	9.8 XH	9.0 XH	8.2 XH	8.0 XL	8.8	-8.24 X	1.5	0.8	8.6	-11.70 X	1.5	1.4 H	16	LZ
Y843W2	14.2 H	14.7	14.5	13.8	14.3	0.83	1.1	0.4	13.6	-0.26	1.0	0.8	16	XX
YPMXBA	22.8 X	No DATA	No DATA	No DATA	22.8	14.80 X	1.0	0.0	22.8	20.61 X	1.0	0.0	1	TS

Consensus (All Labs) Results									
Wk Mean	13.66	13.84	13.87	13.89	Month Mean	13.79		Grand Mean	13.72
Avg SDr	1.01	0.96	1.08	0.97	Avg SD	1.01		Avg SD	1.04
SD btwn Labs	0.49	0.76	0.71	0.39	SD btwn Labs	0.61		SD btwn Labs	0.44
Labs Incl	22	23	23	20	SD btwn Wks	0.57		SD btwn Wks	0.51
Labs Excl	3	1	1	4	Labs Incl	23		Labs Incl	23
Labs not Rcvd	0	1	1	1					



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

Report #627 (N)
December 2021

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)	TS	TMI Monitor/STFI Compression Tester, 17-33
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab

End of Report