



Containerboard Interlaboratory Testing Program

Participant Summary Report #618 (C) - March 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>EC13</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC13</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42F3</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>206</u>	<u>56G1</u>	<u>Bursting Strength (Mullen), 56 lb Linerboard</u>
<u>215</u>	<u>42F3</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>216</u>	<u>56G1</u>	<u>Ring Crush, 56 lb Linerboard</u>
<u>223</u>	<u>42F3</u>	<u>STFI, 42 lb Linerboard</u>
<u>224</u>	<u>56G1</u>	<u>STFI, 56 lb Linerboard</u>
<u>228</u>	<u>42F3</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42F3</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>42F</u>	<u>Air Resistance, 42 lb Linerboard</u>
<u>240</u>	<u>CM11</u>	<u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM11</u>	<u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM11</u>	<u>Ring Crush (RCT), 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM11</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 lb Corrugating Medium	CM11	January 2020-Current
35 lb Linerboard	35E2	June 2020-Current
	35E1	February 2020-April 2020
42 lb Linerboard	42F2	February 2020-Current
	42F1	January 2020-January 2020
56 lb Linerboard	56G1	January 2020-Current

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.

For further information, contact:
Collaborative Testing Services, Inc
21331 Gentry Drive
Sterling, VA 20166 USA
Voice: 571-434-1925
Fax: 571-434-1937

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>
-------------	--------------------

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 #618 (C)
March 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
262PWY	873.2	1.17	59.40	874.3	1.30	9.90	3	LG
28RNBX	794.2	-0.45	51.98	871.9	1.23	67.68	H 3	LS
2KHCRQ	843.4	0.56	59.05	819.3	-0.23	24.83	3	LG
3DC74Y	883.4	1.38	39.19	884.7	1.59	3.49	L 3	ET
6BMJNG	855.2	0.80	39.95	873.7	1.28	23.38	3	LS
6V7LJG	817.8	0.03	64.31	831.3	0.10	12.55	3	EX
7PVURU	873.4	1.18	13.90	873.4	1.27	7.60	3	LG
7TU7MU	808.1	-0.17	49.57	808.1	-0.55	0.00	1	EX
83EWMR	811.2	-0.10	45.82	811.2	-0.46	0.00	1	LL
AH97LG	828.1	0.24	23.27	834.1	0.18	36.74	3	LM
BALWAQ	615.0	-4.14	X 27.65	676.5	-4.22	X 136.71	H 3	EM
BQTUTP	870.6	1.12	33.12	854.9	0.76	39.28	3	LH
DAFDLD	775.2	-0.84	70.91	762.9	-1.81	13.30	3	XX
G29UQK	827.6	0.23	43.53	808.6	-0.53	30.03	3	LG
HERWN3	831.8	0.32	65.75	821.3	-0.18	15.88	3	ER
J4TKRZ	815.4	-0.02	96.06	788.8	-1.09	27.01	3	ES
J8Q7HH	741.4	-1.54	27.21	777.2	-1.41	69.95	H 3	LL
JYJ89G	707.2	-2.24	* 108.35	652.5	-4.89	X 52.90	3	TB
NPV36X	828.8	0.26	18.54	827.0	-0.02	5.33	L 3	EX
QKX6TB	838.2	0.45	84.32	833.7	0.17	26.58	3	EX
QMHA3U	762.1	-1.11	81.89	790.8	-1.03	25.01	3	LM
R79KPT	849.4	0.68	13.92	876.6	1.36	24.01	3	ER
TWGN2X	896.7	1.66	82.72	879.8	1.45	15.10	3	LO
VTUQL7	780.6	-0.73	60.59	783.8	-1.23	4.04	L 3	LG
W6ZY4N	822.8	0.14	72.70	822.7	-0.14	6.10	3	ER
WMZCCP	740.4	-1.56	66.29	793.6	-0.95	71.66	H 3	LL
XW6HP4	848.2	0.66	54.03	807.3	-0.57	35.42	3	LS
ZG3QWY	727.5	-1.83	70.82	695.9	-3.68	X 42.87	3	LS
ZJ9BMJ	802.7	-0.28	27.47	810.2	-0.49	29.89	3	ER

Consensus (All Labs) Results

Month Mean	816.23	Grand Mean	827.75
Avg SD	59.63	Avg SD Months	32.54
SD btwn Labs	48.61	SD btwn Labs	35.83
Labs Incl	28	Labs Incl	26



Containerboard Interlaboratory Testing Program
Analysis 201

Report #618 (C)
March 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	812.61	61.63	3.62	9
Clip sealing	817.94	42.97	1.71	19

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	TB	TMI Monitor/Compression Tester, Model 17-70
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC13
 TAPPI Official Test Method T811

Report #618 (C)
March 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2KHCRQ	42.1	-0.24	2.43	42.8	-0.22	1.67	4	LE
6BMJNG	42.0	-0.26	2.04	44.4	0.24	1.69	4	LC
7PVURU	45.4	0.74	2.48	45.8	0.69	0.38	3	EM
87HR7U	44.2	0.38	1.50	45.5	0.58	2.38	4	XX
NAF4XB	45.1	0.63	2.81	46.7	0.93	1.48	3	LC
QKX6TB	44.7	0.53	2.00	44.4	0.25	0.64	4	LC
R4M389	36.5	-1.89 *	0.71 L	37.9	-1.69	1.23	4	TF
WE67JN	46.1	0.95	1.43	48.0	1.34	1.36	4	XX
XW6HP4	40.7	-0.65	3.42	41.6	-0.58	1.85	4	LD
Y6DAUR	44.6	0.50	3.04	43.2	-0.12	1.68	4	LD
ZG3QWY	36.9	-1.78	2.51	37.0	-1.96 *	3.90 H	4	EM
ZJ9BMJ	46.6	1.10	4.38 H	45.3	0.53	1.50	4	EN

Consensus (All Labs) Results			
Month Mean	42.91	Grand Mean	43.55
Avg SD	2.57	Avg SD Months	1.85
SD btwn Labs	3.39	SD btwn Labs	3.34
Labs Incl	12	Labs Incl	12

Key to Instrument Codes Reported by Participants

- | | |
|--|---|
| EM Emerson 1200 Series
LC L&W Crush Tester 48
LE L&W Crush Tester 840
XX Instrument make/model not specified by lab | EN Emerson 2200
LD L&W Crush Tester 248
TF TMI Digital Crush Tester, Model 17-19 |
|--|---|



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC13
 TAPPI Official Test Method T839

Report #618 (C)
March 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
262PWY	49.1	1.13	2.05	46.6	0.34	2.51	4	TJ
28RNBX	52.2	2.20 *	2.49	51.2	2.31 *	1.56	4	TB
2KHCRQ	44.9	-0.32	2.56	45.8	-0.01	1.13	4	LY
3DC74Y	45.7	-0.03	1.22	45.0	-0.35	1.08	4	TD
3W8YRH	48.4	0.89	2.13	46.8	0.40	1.51	4	TG
6BMJNG	48.3	0.87	1.06	47.9	0.91	0.81	4	LC
6V7LJG	44.9	-0.31	1.39	44.0	-0.78	2.44	4	LD
7TU7MU	44.8	-0.34	1.38	46.2	0.16	1.27	4	TL
83EWMR	47.7	0.65	1.19	47.6	0.77	0.09 L	3	BU
AH97LG	49.1	1.12	2.04	47.9	0.91	1.88	4	EM
BALWAQ	46.9	0.39	0.97	46.5	0.28	0.47	4	TH
BQTUTP	50.4	1.59	1.87	49.5	1.57	0.93	3	EM
CVMBKA	41.5	-1.47	2.68	46.8	0.44	4.04	4	TD
DU7DQN	46.3	0.19	3.81 H	47.6	0.77	1.01	4	TD
HERWN3	43.6	-0.76	1.50	44.1	-0.72	0.50	4	EM
J4TKRZ	48.2	0.83	0.63 L	47.2	0.58	1.00	4	LD
JCMPL2	47.9	0.72	2.18	42.2	-1.53	7.03 H	4	XX
JYJ89G	47.8	0.69	2.07	47.0	0.49	0.88	4	LD
KFM2G2	42.2	-1.24	2.26	45.2	-0.25	4.32	2	LC
NAF4XB	46.0	0.08	2.02	47.7	0.79	1.19	4	LC
NPV36X	44.4	-0.49	2.01	44.5	-0.57	0.99	4	CT
PCKPMW	38.3	-2.55 *	2.19	39.7	-2.63 *	3.13	4	XX
QKX6TB	44.9	-0.29	1.10	44.9	-0.41	0.50	4	LC
QMHA3U	45.4	-0.12	1.60	44.7	-0.46	3.81	4	TG
R4M389	40.1	-1.95 *	0.88	42.7	-1.33	1.95	4	TD
R79KPT	44.5	-0.45	2.68	42.6	-1.36	2.36	4	LD
TWGN2X	43.8	-0.68	2.12	44.2	-0.71	1.14	4	LD
V4BDV8	48.7	1.01	1.15	47.5	0.71	0.95	4	EM
W6ZY4N	47.4	0.56	1.26	45.6	-0.10	1.69	4	LD
WE67JN	46.6	0.26	1.38	48.3	1.08	1.24	4	XX
WMZCCP	42.8	-1.03	1.91	46.3	0.20	3.96	4	LC
XKB33N	48.7	1.01	1.66	49.4	1.54	0.98	4	LD
XW6HP4	42.8	-1.03	1.63	43.6	-0.96	1.60	4	LD
Y6DAUR	46.6	0.27	0.97	46.8	0.43	0.86	4	LD
ZG3QWY	44.6	-0.41	0.93	42.5	-1.41	2.36	4	EM
ZJ9BMJ	46.5	0.23	2.46	45.6	-0.08	2.05	4	EN
ZZDH2L	42.2	-1.23	1.79	43.5	-0.99	1.49	4	TK



Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC13
TAPPI Official Test Method T839

Report #618 (C)
March 2021

Consensus (All Labs) Results			
Month Mean	45.78	Grand Mean	45.82
Avg SD	1.88	Avg SD Months	2.26
SD btwn Labs	2.92	SD btwn Labs	2.34
Labs Incl	37	Labs Incl	37

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	TB	TMI Monitor/Compression Tester, Model 17-70
TD	TMI Digital Crush Tester, Model 17-09	TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TK	TLS Compression Tester, Model 5184	TL	Tech-Lab Systems Compression
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 Ib Linerboard - 42F3
 TAPPI Official Test Method T807

Report #618 (C)
March 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
2GGC9L	98.7 *	101.4 *	96.2 X	94.5 X	97.7	-3.85 X	7.9	3.0	88.4	-7.73 X	7.3	18.4 H	16	LA
2KHCRQ	111.4	112.8	112.1	113.2	112.4	0.68	7.3	0.8	114.6	1.34	6.6	3.0	16	AH
3JFAUX	103.9	107.6	107.2	101.6 *	105.1	-1.58	8.7	2.9	106.5	-1.48	9.0	2.6	16	LA
3YW92J	109.6	111.4 H	106.4	109.0	109.1	-0.33	9.3	2.1	108.3	-0.85	8.4	3.1	16	AH
3YW92J_AL	116.6	110.8	115.2	116.4	114.8	1.41	9.3	2.7	112.1	0.46	8.9	3.4	16	AL
6BMJNG	109.1	107.3	116.3	110.7	110.9	0.21	10.6	3.9	110.1	-0.22	9.4	3.0	16	AH
6V7LJG	105.2 H	108.4	106.0	114.0	108.4	-0.55	9.5	4.0	108.1	-0.93	9.2	2.9	16	AH
6WGN6E_AL	110.8	112.9	113.9	110.6	112.0	0.58	9.5	1.6	112.4	0.56	9.7	1.8	12	AK
73YD6F	108.5	110.4	109.2	108.8	109.2	-0.29	3.9	0.8	109.3	-0.49	3.9	0.8 L	16	LA
7DKHCE	109.2	111.1	106.5	109.5	109.1	-0.34	8.3	1.9	110.3	-0.14	9.9	3.1	16	LJ
9MJULD_AL	110.6	107.1	106.6	111.0	108.8	-0.42	6.9	2.3	108.4	-0.82	7.6	3.3	14	AL
A448BP	111.3	109.2	112.1	112.3	111.2	0.33	6.3	1.4	110.1	-0.22	7.4	1.4	16	TP
B6DAYA	117.3	114.8	110.8	110.0	113.2	0.95	7.6	3.4	113.2	0.86	9.4	2.7	12	TB
C7HGE8	107.0	109.2	106.3	108.6	107.7	-0.75	9.1	1.4	106.4	-1.50	8.2	2.0	8	LC
ERWN47	114.4 L	119.2 *	113.6 L	113.4	115.2	1.54	4.7	2.7	114.0	1.12	5.3	2.2	15	AH
FE4LXJ	122.3 *	122.0 X	121.0 *	121.3 X	121.7	3.54 X	7.7	0.6	121.2	3.59 X	8.9	2.7	16	AX
HM9E6G	110.3	109.6	111.8	113.2	111.2	0.33	6.5	1.6	110.4	-0.11	7.1	1.2	16	AH
J4TKRZ	109.0	110.7	109.0	107.1	109.0	-0.38	8.9	1.5	109.7	-0.35	8.1	2.6	16	LA
JBCNZ3	107.6	109.2	112.2	114.8	111.0	0.24	7.5	3.2	113.2	0.84	6.1	3.1	11	AX
JBCNZ3_AL	110.3	108.8	106.3	111.1	109.1	-0.32	8.1	2.1	109.0	-0.59	8.5	2.7	11	AL
K3CNZ2	112.2	108.7	109.4	112.9	110.8	0.20	10.1	2.0	111.6	0.31	9.1	2.5	16	LC
KGTL62	107.2	105.2	102.0	103.4	104.5	-1.76	4.4	2.2	108.1	-0.90	4.6	3.1	16	LA
KLNDYD	107.5	107.1	111.0	107.6	108.3	-0.58	9.0	1.8	109.4	-0.48	8.0	1.9	12	LA
LAW2M8_AL	106.2	106.1	110.6	111.1	108.5	-0.52	9.2	2.8	110.9	0.06	9.5	3.3	16	AL
LH96PY_AL	106.0	108.0	103.5	106.0	105.9	-1.33	9.3	1.8	107.7	-1.04	9.7	2.0	12	XX
LMEVR6	119.2 *	112.6	119.1 *	112.0	115.7	1.72	8.3	3.9	114.9	1.43	9.6	3.2	16	LA
LT2LEZ	112.1	110.2	111.3	112.0	111.4	0.38	5.8	0.9	110.9	0.04	4.9	0.5 L	16	LJ
M3QUCW_AI	111.3	113.5	113.1	111.4	112.3	0.67	8.5	1.1	111.3	0.20	8.8	3.1	16	AL
MAKY7X	112.6	112.5	112.2	111.9	112.3	0.65	7.7	0.3 L	112.5	0.61	6.8	2.0	16	LA
MAKY7X_AL	110.4	110.2	109.7	115.0	111.3	0.35	7.1	2.5	111.8	0.36	6.3	1.8	16	AL
MG63BE	108.5	114.3	111.8	111.5	111.5	0.42	7.2	2.4	109.0	-0.61	7.7	3.5	16	AC
MLEFTD_AL	110.5	111.6	110.1	109.2	110.4	0.06	8.7	1.0	113.0	0.79	9.9	6.1	16	AK
N4BZAX_AL	107.2	109.1	111.8	105.6 H	108.4	-0.54	10.2	2.7	110.1	-0.24	8.1	2.8	16	AL
NFA2M3	115.6	106.8	110.6	113.0	111.5	0.41	8.3	3.7	110.2	-0.17	9.3	3.6	16	LZ
NPV36X	107.5	107.5	109.0	116.5	110.1	-0.01	9.4	4.3	109.3	-0.48	9.5	3.5	16	XX



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F3
 TAPPI Official Test Method T807

Report #618 (C)
March 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	
NRKCEY	103.2	102.9 *	99.3 *	102.5 *	102.0	-2.53 *	8.0	1.8	102.0	-3.03 X	8.0	1.8	4	LA
P243EV	108.0	108.3	107.4	105.4	107.3	-0.90	8.4	1.3	108.7	-0.69	9.1	3.8	16	LA
P7YY22_AL	106.1	106.5	106.0	106.2	106.2	-1.22	6.3	0.2 L	115.4	1.61	8.5	7.7 H	16	AL
PWEFR3	No DATA	117.4 *	121.8 *	124.7 X	121.3	3.44 X	8.7	3.7	116.8	2.10 *	9.9	7.8 H	15	TB
R4M389	114.6	113.8	114.9	113.3	114.2	1.23	9.7	0.7	112.0	0.42	9.6	2.7	16	XX
R79KPT	109.0	113.1	108.2	113.4	110.9	0.23	9.5	2.7	108.0	-0.95	9.4	3.6	16	LZ
RZKZKT_AL	107.8	113.0	109.2	106.5	109.1	-0.32	8.8	2.8	112.4	0.57	8.8	6.7 H	16	AL
RZMRC9	105.9	104.2	103.9	104.3 L	104.6	-1.73	6.5	0.9	105.1	-1.94 *	7.8	3.2	16	LA
UJR9DN_AL	112.4	112.3	111.5	113.3	112.3	0.67	6.4	0.7	110.8	0.01	6.9	3.3	16	AL
UXRNXR_AL	109.1	105.6	105.9	108.0	107.1	-0.94	7.3	1.7	106.4	-1.52	8.6	3.1	16	AL
VYWVDP_AI	113.3	111.2	126.3 X	116.1	116.7	2.02 *	6.5	6.7 H	116.6	2.02 *	7.5	3.9	16	AL
W3EGL4	106.9	108.8	106.2	108.5	107.6	-0.79	4.7	1.3	108.0	-0.96	4.0	1.5	16	XX
W6ZY4N	102.9	107.3	102.0	106.7	104.7	-1.68	8.8	2.7	106.0	-1.63	8.6	4.7	16	AH
WE67JN	117.0 L	114.5 L	116.6 L	114.8 L	115.7	1.71	2.0	1.2	115.2	1.55	2.8	1.0	16	LC
X84GD4	112.8	112.8	114.1	112.8	113.1	0.91	5.2	0.7	112.9	0.76	5.0	0.5 L	16	LA
XDUQPM	113.8	112.6	113.8	109.1	112.3	0.67	9.0	2.2	114.4	1.25	10.0	2.6	16	LA
XKB33N_AL	117.2	115.5	115.1	111.2	114.8	1.41	5.5	2.5	116.9	2.12 *	6.3	2.8	16	AK
XW6HP4	110.4	112.1	109.0	108.2	109.9	-0.08	6.7	1.7	108.6	-0.75	8.0	2.1	16	LA
Y6DAUR	109.8	111.7	111.1	107.2	109.9	-0.07	5.8	2.0	108.2	-0.87	5.7	3.2	16	LA
Y6R2J3	116.2	112.8	No DATA	No DATA	114.5	1.34	7.5	2.4	112.4	0.58	9.3	1.9	8	LC
Z4XKTR	105.1	108.1	108.3	105.8	106.8	-1.03	7.1	1.6	109.8	-0.33	9.5	3.1	16	LB
ZCU6BM_AL	116.6	113.4	109.3	112.1	112.8	0.83	9.9	3.0	112.3	0.53	10.5	4.5	15	AL
ZFAZQJ	104.6	109.3	105.3	106.4	106.4	-1.16	9.0	2.1	107.1	-1.27	9.1	2.4	16	LC

Consensus (All Labs) Results														
Wk Mean	110.17	110.22	110.12	110.11	Month Mean	110.17	Grand Mean	110.74						
Avg SDr	8.16	7.68	8.04	7.71	Avg SD	7.91	Avg SD	8.18						
SD btwn Labs	4.47	3.44	4.52	3.62	SD btwn Labs	3.24	SD btwn Labs	2.90						
Labs Incl	57	57	55	54	SD btwn Wks	2.41	SD btwn Wks	3.33						
Labs Excl	0	1	2	3	Labs Incl	55	Labs Incl	55						
Labs not Rcvd	1	0	1	1										



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F3
TAPPI Official Test Method T807

Report #618 (C)
March 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 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G1
 TAPPI Official Test Method T807

Report #618 (C)
March 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	
2GGC9L	100.7 *	102.5 *	103.5 *	105.7 *	103.1	-3.15 X	10.0	2.1	106.2	-2.56 *	10.0	3.5	12	LA
2KHCRQ	116.1	115.4	116.8	117.3	116.4	0.44	6.1	0.8	117.7	0.81	7.4	1.9	12	AH
3JFAUX	108.5	109.1	112.2	109.5	109.8	-1.34	9.4	1.6	112.6	-0.66	10.5	4.0	12	XX
3YW92J	111.9	114.2	111.2	107.0	111.1	-1.00	10.1	3.0	110.5	-1.28	10.6	3.2	12	AH
3YW92J_AL	113.9	114.0	116.8	115.8	115.1	0.10	11.7	1.4	112.6	-0.66	11.6	3.2	12	XX
6BMJNG	107.6	110.1	114.2	106.1 *	109.5	-1.42	9.5	3.5	111.4	-1.02	9.3	3.0	12	AH
6V7LJG	112.4	112.8	112.4	116.0	113.4	-0.37	11.3	1.7	112.2	-0.79	10.8	2.8	12	AH
6WGN6E_AL	116.3	119.7	109.3	116.5	115.5	0.19	11.7	4.4	115.5	0.17	10.8	3.4	8	AK
73YD6F	121.9 L	123.7 L	122.0 L	124.6 *L	123.1	2.24 *	3.1	1.3	123.7	2.58 *	3.1	1.3	12	LA
7DKHCE	111.6	116.1	113.4	114.9	114.0	-0.20	10.5	2.0	111.4	-1.04	12.2	2.8	12	LZ
9MJULD_AL	115.4	113.8 H	119.0	114.5	115.7	0.25	12.4	2.3	118.0	0.92	11.4	4.1	10	AL
A448BP	114.4	113.4	111.6	115.7	113.8	-0.27	8.2	1.7	113.6	-0.39	8.5	1.4	12	TP
B6DAYA	122.2	113.7	109.3	121.5	116.7	0.51	12.5	6.2	116.4	0.45	11.7	4.4	11	TB
C7HGE8	106.1	118.8	113.6	120.1	114.7	-0.02	9.8	6.3	112.0	-0.84	11.2	6.3	8	LC
ERWN47	116.6	121.4	119.0	122.4	119.9	1.38	6.8	2.6	120.6	1.67	7.2	2.9	11	AH
FE4LXJ	122.2	121.4	121.2	114.4	119.8	1.36	10.6	3.6	120.6	1.67	10.1	2.6	12	AX
HM9E6G	114.0	113.2	114.9	115.8	114.5	-0.08	7.2	1.1	113.8	-0.32	6.8	1.3	12	AH
J4TKRZ	115.9	118.5	112.4	107.8	113.7	-0.30	9.9	4.6	114.1	-0.24	10.8	3.8	12	LA
JBCNZ3	115.2	112.4	115.8	113.8	114.3	-0.12	7.3	1.5	116.5	0.47	7.0	3.8	11	LC
JBCNZ3_AL	117.7	115.0	111.8	114.3	114.7	-0.01	7.4	2.4	114.6	-0.08	8.1	2.6	10	AL
K3CNZ2	116.5	115.1	118.8	113.1	115.9	0.30	10.0	2.4	115.7	0.22	10.4	2.1	12	LC
KGTL62	115.6	112.2	114.8	112.0	113.6	-0.30	4.9	1.8	114.4	-0.15	5.6	1.4	12	LA
KLNDYD	112.0	113.2	116.4	115.4	114.3	-0.14	10.6	2.0	114.0	-0.26	9.2	2.1	12	LA
LAW2M8_AL	113.7	123.7	113.3	121.6	118.1	0.90	11.1	5.3	116.4	0.43	10.0	3.5	12	AL
LH96PY_AL	107.8	112.9	102.1 *	111.3	108.5	-1.68	10.3	4.8	110.6	-1.25	8.9	3.9	8	XX
LMEVR6	126.6 *	125.6 *	119.8	120.0	123.0	2.22 *	7.8	3.6	120.6	1.68	11.1	5.1	12	LA
LT2LEZ	112.7	112.5	113.6	114.0	113.2	-0.42	5.3	0.7	113.5	-0.40	5.6	0.7 L	12	LJ
M3QUCW_AI	117.4	117.8	119.1	119.0	118.3	0.97	8.9	0.9	117.6	0.80	9.2	1.8	12	XX
MAKY7X	118.2	121.1 L	115.6	119.8	118.7	1.06	6.7	2.3	117.6	0.80	6.9	2.6	12	LA
MAKY7X_AL	119.1	117.3	111.3	119.2	116.7	0.53	7.6	3.7	116.0	0.34	7.4	2.7	12	XX
MG63BE	110.9	117.0	112.0	110.9	112.7	-0.56	6.9	2.9	110.2	-1.39	7.1	3.5	12	XX
MLEFTD_AL	122.2	123.7	117.1	116.5	119.9	1.39	10.0	3.6	118.6	1.09	10.9	3.8	12	AK
N4BZAX_AL	109.1	115.3	114.3	111.4	112.5	-0.60	7.8	2.8	113.2	-0.51	8.2	2.5	12	AL
NFA2M3	115.3	113.8	120.9	115.4	116.3	0.43	11.1	3.1	115.3	0.13	11.6	2.8	12	LZ
NPV36X	110.5	111.0	113.0	111.5	111.5	-0.88	8.7	1.1	113.6	-0.37	10.3	4.2	12	XX



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G1
 TAPPI Official Test Method T807

Report #618 (C)
March 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	
NRKCEY	108.5	104.4 *	109.7	117.2	109.9	-1.30	7.5	5.3	109.9	-1.46	7.5	5.3	4	LA
P243EV	111.8	116.5	116.9	107.0	113.0	-0.47	7.7	4.6	115.4	0.16	8.2	4.4	8	LA
P7YY22_AL	114.4	115.1	115.1 L	114.9 L	114.9	0.03	4.6	0.3 L	118.1	0.94	7.8	4.3	12	AL
PWEFR3	No DATA	117.6	119.9	130.1 X	122.5	2.10 *	9.0	6.7 H	118.9	1.18	9.4	7.2	11	TB
R4M389	115.8	118.1	116.1	115.5	116.4	0.44	8.8	1.2	117.0	0.63	11.2	1.5	12	XX
R79KPT	112.8	110.1	107.9	115.1	111.5	-0.88	9.9	3.1	111.3	-1.06	10.4	2.7	12	LZ
RZKZKT_AL	111.3	108.9	113.0	114.0	111.8	-0.80	8.7	2.2	114.4	-0.13	9.1	3.2	12	XX
RZMRC9	110.8	111.5	104.8 *	109.4 L	109.1	-1.52	7.0	3.0	110.5	-1.29	9.2	2.9	12	LA
UJR9DN_AL	112.9	114.4	115.2	117.3	114.9	0.05	9.8	1.8	114.0	-0.26	10.2	2.4	12	AL
UXRNXR_AL	116.2	116.9	103.2 *	117.0	113.3	-0.38	13.2	6.8 H	113.6	-0.38	12.4	4.1	12	XX
VYWVDP_AI	118.9	114.5	121.3	117.9	118.2	0.92	7.8	2.8	118.8	1.14	8.4	4.4	12	AL
W3EGL4	114.3 L	115.7 L	112.8 L	114.8 L	114.4	-0.10	2.9	1.2	117.2	0.69	5.0	4.2	12	XX
W6ZY4N	103.7 *	110.1	108.7	109.8	108.1	-1.81	9.5	3.0	111.8	-0.90	11.6	7.9 H	12	AH
X84GD4	116.4	115.9	116.1	116.1	116.1	0.37	4.8	0.2 L	115.9	0.30	5.4	0.5 L	12	LA
XDUQPM	125.7 *H	118.6	124.4 *	120.8	122.4	2.06 *	14.1	3.3	120.0	1.51	12.0	3.9	8	LA
XKB33N_AL	119.4	124.6 *	120.4	116.8	120.3	1.50	8.0	3.2	121.8	2.04 *	8.6	3.4	12	AL
XW6HP4	111.5	105.9	116.4	110.8	111.1	-0.98	11.8	4.3	112.0	-0.84	11.5	4.2	12	LA
Y6DAUR	113.9	113.5	113.4	108.2	112.2	-0.68	8.4	2.7	113.8	-0.32	8.0	2.7	12	LA
Y6R2J3	109.5	113.1	No DATA	No DATA	111.3	-0.93	13.1	2.5	114.9	-0.01	11.2	4.4	6	XX
Z4XKTR	111.2	110.1	108.7	109.3	109.8	-1.34	11.1	1.1	112.4	-0.72	10.6	2.9	12	LB
ZCU6BM_AL	110.4	117.0 H	115.0	111.5	113.5	-0.34	13.1	3.1	113.6	-0.38	15.2	5.4	12	AL
ZFAZQJ	106.2 H	111.8	115.6	117.8	112.9	-0.52	14.2	5.1	111.9	-0.87	12.4	3.6	12	LA

Consensus (All Labs) Results														
Wk Mean	114.00	115.01	114.23	114.65	Month Mean	114.76			Grand Mean	114.89				
Avg SDr	10.15	9.45	8.79	9.17	Avg SD	9.44			Avg SD	9.68				
SD btwn Labs	5.07	4.76	4.77	4.36	SD btwn Labs	3.70			SD btwn Labs	3.40				
Labs Incd	56	57	56	55	SD btwn Wks	3.30			SD btwn Wks	3.63				
Labs Exclcd	0	0	0	1	Labs Incd	56			Labs Incd	57				
Labs not Rcvd	1	0	1	1										



Containerboard Interlaboratory Testing Program
Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G1
TAPPI Official Test Method T807

Report #618 (C)
March 2021

Key to Instrument Codes Reported by Participants

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 (206 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 215

Ring Crush, 42 lb Linerboard - 42F3

TAPPI Official Test Method T822

Report #618 (C)

March 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							
2KHCRQ	90.5	90.8	90.9	91.6	L	91.0	-0.32	2.1	0.5	92.2	0.19	2.4	1.3	16	LG					
3JFAUX	87.5	85.7	*	94.9	90.1	89.6	-0.79	2.7	4.0	89.7	-0.92	3.0	2.4	16	LD					
3W8YRH	90.8	94.1	95.3	96.0	94.1	0.70	2.4	2.3	94.1	1.04	2.8	2.1	16	TH						
4NQMCW	96.2	96.2	99.1	91.4	95.7	1.26	4.3	3.2	91.8	0.01	5.4	6.5	H	14	MB					
6BMJNG	92.6	94.2	94.6	92.9	93.6	0.54	2.3	1.0	93.2	0.63	2.5	1.0	16	LC						
6WGN6E	84.9	89.5	88.0	90.2	88.1	-1.27	2.5	2.4	88.1	-1.58	2.6	1.6	16	LD						
73YD6F	91.1	90.0	89.6	89.7	90.1	-0.62	2.1	0.7	90.5	-0.54	2.6	1.1	16	TU						
A448BP	90.6	H	90.7	91.8	92.2	91.3	-0.20	4.9	0.8	91.1	-0.27	4.2	1.2	16	TJ					
AEMA4J	98.0	95.3	95.6	H	79.9	XH	92.2	0.09	7.2	8.3	H	91.8	0.01	6.2	4.5	16	TU			
B6DAYA	96.7	95.3	95.2	89.2	94.1	0.72	4.0	3.3	92.3	0.22	3.6	2.6	12	LD						
C7HGE8	98.0	H	90.8	94.0	96.6	94.8	0.96	6.4	3.2	93.9	0.95	5.5	2.7	8	LD					
CZFCMN	94.2	98.8	*	99.1	97.3	97.4	1.81	3.0	2.2	95.0	1.42	3.4	3.0	8	TH					
FE4LXJ	89.2	90.9	H	91.4	93.2	91.1	-0.26	4.7	1.7	91.4	-0.15	3.9	1.7	16	LD					
G8Y434	90.7	90.2	93.2	94.1	92.1	0.04	3.3	1.9	91.3	-0.20	3.1	2.3	16	LD						
K3CNZ2	92.9	95.3	92.3	94.7	93.8	0.61	2.9	1.4	93.5	0.77	2.9	1.5	16	LD						
KCZJYG	86.1	86.0	85.9	85.9	86.0	-1.99	*	2.8	0.1	L	92.3	0.25	2.5	4.0	16	LZ				
KGTL62	91.1	92.7	92.0	91.5	91.8	-0.03	2.7	0.7	93.3	0.68	2.2	2.0	16	LZ						
LGPF2D	79.1	*	80.0	X	79.3	X	79.5	XL	79.5	-4.15	X	2.2	0.4	91.8	0.00	2.7	7.6	H	16	LZ
LMEVR6	94.3	94.4	93.9	97.3	95.0	1.02	3.0	1.6	95.7	1.72	3.0	1.6	16	LZ						
LT2LEZ	91.9	92.2	92.0	91.8	92.0	0.01	2.4	0.2	L	92.0	0.09	2.5	0.5	L	16	LD				
M3QUCW	91.9	L	91.7	92.4	92.7	92.2	0.07	2.3	0.5	90.7	-0.49	2.4	1.4	16	LD					
MAKY7X	88.4	90.4	91.8	91.4	90.5	-0.48	2.5	1.5	89.8	-0.85	2.7	1.9	16	LD						
NAF4XB	86.2	85.4	*	87.0	88.0	86.7	-1.76	2.8	1.1	88.0	-1.65	2.9	1.4	16	LC					
NFA2M3	89.9	91.6	89.1	90.6	90.3	-0.55	2.8	1.1	90.7	-0.45	2.8	1.7	16	LC						
NRKCEY	102.7	*	105.2	X	104.8	X	101.4	*	103.5	3.85	X	3.2	1.8	103.5	5.13	X	3.2	1.8	4	LD
P243EV	99.0	97.3	98.6	98.5	98.4	2.14	*	3.9	0.7	96.4	2.01	*	3.5	2.7	16	LD				
PWEFR3	94.0	93.1	97.5	93.9	94.6	0.89	3.6	2.0	95.2	1.48	3.3	2.1	16	LX						
R79KPT	96.4	95.6	93.7	93.7	94.9	0.97	2.8	1.4	94.1	1.00	2.9	3.0	16	LD						
RYT27U	90.8	93.4	91.6	88.8	91.1	-0.27	2.4	1.9	90.7	-0.47	2.7	2.9	16	LD						
RZKZKT	90.6	90.9	90.3	92.1	H	91.0	-0.32	4.5	0.8	91.8	0.01	4.8	6.7	H	16	LC				
U9BDGX	89.1	88.1	87.4	92.2	89.2	-0.91	2.6	2.1	92.7	0.41	2.7	3.0	16	LC						
UF8XYT	100.9	*	98.0	100.6	*	100.0	99.9	2.64	*	3.3	1.3	99.9	3.56	X	3.3	1.5	16	EX		
UJR9DN	89.1	90.7	H	90.4	92.8	H	90.8	-0.40	6.0	1.5	92.7	0.40	5.5	4.1	16	LZ				
UXRNXR	91.6	92.0	92.6	93.2	92.4	0.14	2.8	0.7	92.8	0.45	2.8	1.0	16	LD						
V4BDV8	87.6	89.3	88.7	90.3	89.0	-0.99	2.5	1.1	88.7	-1.34	2.5	2.6	16	EM						



Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42F3
 TAPPI Official Test Method T822

Report #618 (C)
March 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	
W3EGL4	82.4 *	75.5 X	82.9 *	77.7 X	79.6	-4.10 X	3.6	3.6	82.1	-4.23 X	3.8	3.8	16	LD
W6ZY4N	88.9	86.3	82.9 *	83.3 *	85.3	-2.20 *	2.9	2.8	87.9	-1.67	2.9	2.6	16	LD
X2XKT4	91.9	91.7	91.1	91.7 L	91.6	-0.12	1.7	0.3 L	90.5	-0.53	2.0	0.8 L	16	RS
X84GD4	93.1	93.5	93.1	93.8	93.4	0.48	2.5	0.3 L	93.2	0.62	2.4	0.5 L	16	LD
XDUQPM	104.0 *	102.4 XH	103.5 *	102.6 *	103.1	3.73 X	4.1	0.8	102.6	4.73 X	3.5	1.5	16	LD
XKB33N	90.6	92.6	95.3	93.7	93.1	0.37	2.9	2.0	94.1	1.03	2.6	2.4	16	LD
XT4FZ3	73.1 X	72.5 X	74.9 X	74.0 X	73.6	-6.09 X	3.0	1.0	74.0	-7.79 X	3.3	1.4	16	EM
XW6HP4	90.8	91.4	92.8	91.1	91.5	-0.14	2.9	0.9	92.4	0.26	2.4	1.3	16	LD
Y6DAUR	91.4	88.7	88.7	88.5	89.3	-0.87	3.0	1.4	89.4	-1.03	2.6	1.0	16	LD
Y6R2J3	92.3	92.0	95.2	95.4	93.7	0.60	2.6	1.8	96.2	1.96 *	2.9	4.0	16	MB
Z4XKTR	92.5	94.1	93.8	93.9	93.6	0.54	2.7	0.7	91.3	-0.20	2.4	3.1	16	LC
ZCU6BM	91.7	95.5	91.1	92.8	92.8	0.28	3.9	1.9	91.6	-0.09	3.6	3.2	16	LC
ZFAZQJ	92.0	92.1	93.0 L	92.0	92.3	0.11	2.1	0.5	91.0	-0.33	2.4	1.2	16	LD
ZJ9BMJ	88.5	88.7	91.1	87.3	88.9	-1.01	3.3	1.6	89.8	-0.87	2.8	1.9	16	EN
ZTD4EY	86.7	88.0	88.2	84.4 *	86.8	-1.70	4.0	1.7	88.5	-1.44	3.5	2.1	16	TH
ZZDH2L	91.0	93.5	92.0	93.4 L	92.5	0.18	1.5	1.2	85.9	-2.55 *	1.6	7.2 H	12	MB

Consensus (All Labs) Results									
Wk Mean	91.65	91.92	92.40	92.53	Month Mean	91.94	Grand Mean	91.77	
Avg SDr	3.51	2.86	3.18	3.50	Avg SD	3.39	Avg SD	3.25	
SD btwn Labs	4.64	3.17	4.09	3.88	SD btwn Labs	3.00	SD btwn Labs	2.28	
Labs Incl	50	46	48	47	SD btwn Wks	2.09	SD btwn Wks	3.04	
Labs Excl	1	5	3	4	Labs Incl	46	Labs Incl	46	
Labs not Rcvd	0	0	0	0					

Analysis Notes

2KHCRQ - Data appears to be switched between Analysis 215 and Analysis 216. Data switched by CTS.

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 216

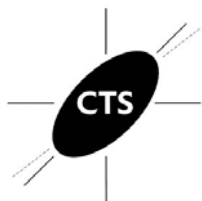
Ring Crush, 56 lb Linerboard - 56G1

TAPPI Official Test Method T822

Report #618 (C)

March 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	
2KHCRQ	135.2	132.7	133.4	135.0	134.0	-0.57	3.5	1.2	136.1	-0.11	3.6	2.3	12	LY
3JFAUX	129.2	132.7	137.8	134.1	133.4	-0.69	4.7	3.6	134.1	-0.50	3.9	2.4	12	LD
3W8YRH	136.3	139.2	136.6	138.6	137.7	0.13	3.4	1.4	138.3	0.32	3.6	2.2	12	TH
4NQMCW	138.7	139.5	150.3 *	133.5 H	140.5	0.68	6.5	7.0 H	141.7	1.00	6.3	5.4	10	MB
6BMJNG	141.5	137.3	138.5	141.5	139.7	0.53	3.2	2.1	138.3	0.33	3.4	3.3	12	LC
6WGN6E	131.2	133.1	133.3	130.3	132.0	-0.97	3.4	1.4	131.7	-0.96	3.5	2.1	12	LD
73YD6F	131.5	130.3	129.1	130.2	130.2	-1.31	2.8	1.0	133.4	-0.64	2.8	2.6	12	TU
A448BP	134.0	136.2	137.7	136.7	136.2	-0.16	5.3	1.5	137.2	0.10	5.2	1.4	12	TJ
AEMA4J	136.6	135.3	135.4	133.5	135.2	-0.35	4.6	1.3	134.0	-0.51	5.1	3.0	12	TU
B6DAYA	144.6	145.2 H	140.7	142.8	143.3	1.23	5.5	2.0	142.5	1.14	5.1	2.0	12	LD
C7HGE8	128.9 H	131.8	137.2	144.3	135.5	-0.28	5.7	6.8 H	137.8	0.22	5.4	5.9	8	LD
CZFCMN	137.7	142.5	147.8	144.2	143.0	1.17	4.9	4.2	143.0	1.26	4.9	4.2	4	TH
FE4LXJ	136.9	138.4	137.3	143.7	139.1	0.40	5.6	3.2	138.5	0.36	5.5	2.8	12	LD
G8Y434	136.4	137.6	136.8	136.7	136.9	-0.02	4.5	0.5	133.0	-0.72	3.9	4.2	8	LD
K3CNZ2	140.7	139.7	137.2	136.2	138.5	0.29	3.9	2.1	138.6	0.38	3.9	1.7	12	LD
KCZJYG	130.1	130.7	130.6	130.7	130.6	-1.25	2.4	0.3 L	134.5	-0.42	3.2	6.5	12	LZ
KGTL62	135.9	139.0	136.8 L	136.0	136.9	-0.01	3.3	1.5	135.6	-0.20	2.6	2.2	12	LZ
LGPF2D	119.2 X	118.1 XL	121.3 *	120.7 *	119.8	-3.33 X	2.7	1.5	131.3	-1.05	2.6	9.1 H	12	LZ
LMEVR6	136.3	134.6	137.7	138.3	136.7	-0.05	3.2	1.6	138.0	0.27	3.8	2.2	12	LZ
LT2LEZ	139.3	139.8	139.4	139.4	139.5	0.48	2.5	0.2 L	139.7	0.61	2.5	0.4 L	12	LD
M3QUCW	139.0	138.6	139.7	138.4	138.9	0.37	3.2	0.6	137.9	0.24	3.6	1.1 L	12	LD
MAKY7X	133.7	135.0	133.4	134.3	134.1	-0.56	4.4	0.7	132.0	-0.91	4.1	2.4	8	LD
NAF4XB	129.0	130.4	131.6	131.4	130.6	-1.24	3.2	1.2	131.9	-0.93	3.5	1.6	12	LC
NFA2M3	132.8	132.3	130.4	134.0	132.4	-0.89	3.5	1.5	130.3	-1.25	3.4	2.4	12	LC
NRKCEY	146.1	150.1 *	146.8	148.1	147.8	2.09 *	3.8	1.7	147.8	2.18 *	3.8	1.7	4	LD
P243EV	144.1	146.1	145.9	149.2	146.3	1.81	4.4	2.2	143.5	1.35	4.2	3.4	8	LD
PWEFR3	145.5	141.8	151.9 *	145.8	146.2	1.79	4.2	4.2	144.2	1.49	4.2	3.8	11	LY
R79KPT	144.4	140.8	141.1	140.9	141.8	0.93	4.6	1.8	139.9	0.63	4.2	2.5	12	LD
RYT27U	136.2	135.1	133.5	131.4	134.0	-0.57	5.0	2.1	130.2	-1.27	4.1	4.2	12	LD
RZKZKT	139.1	140.6	140.2	118.3 *H	134.6	-0.47	5.9	10.9 H	130.2	-1.27	8.3	14.5 H	12	LC
U9BDGX	133.3	135.2	135.6	137.8	135.5	-0.29	3.7	1.8	140.2	0.69	3.5	4.2	12	LC
UF8XYT	145.9	144.3	146.5	145.6	145.6	1.67	4.3	0.9	146.5	1.94 *	4.2	1.3	12	EX
UJR9DN	132.4	138.8	133.7	141.8	136.7	-0.06	4.4	4.4	137.5	0.17	5.9	4.0	12	LZ
UXRNXR	137.6	136.1	136.3	137.2	136.8	-0.03	3.7	0.7	137.0	0.07	4.0	1.3	12	LD
V4BDV8	131.7	132.8	130.8	134.7	132.5	-0.87	3.4	1.7	131.1	-1.08	3.4	2.7	12	EM



Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56G1

TAPPI Official Test Method T822

Report #618 (C)

March 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	
W3EGL4	122.6 *	113.2 X	119.3 *	121.8	119.2	-3.44 X	5.1	4.3	121.3	-3.00 X	3.8	4.4	12	LD
W6ZY4N	130.9	125.5 *	121.6 *	121.1 *	124.8	-2.37 *	3.4	4.5	127.8	-1.73	3.6	4.0	12	LD
X2XKT4	133.8	134.0	133.1	134.6 L	133.9	-0.60	1.9	0.6	131.1	-1.09	2.4	7.0	12	RS
X84GD4	137.2	137.8	137.8	139.0	138.0	0.19	3.8	0.8	139.1	0.49	3.1	1.1	12	LD
XDUQPM	149.2 *	148.6 *	149.6	149.4	149.2	2.37 *	3.8	0.4 L	149.9	2.59 *	4.3	1.5	8	LD
XKB33N	134.0	131.5	136.9	135.6	134.5	-0.49	3.5	2.3	135.6	-0.20	3.4	2.3	12	LD
XT4FZ3	117.0 X	113.6 X	112.8 X	116.2 *	114.9	-4.28 X	3.9	2.0	114.2	-4.41 X	4.2	2.0	12	EM
XW6HP4	136.3	133.8	133.9	133.7	134.4	-0.50	3.7	1.3	135.0	-0.32	3.8	1.9	12	LD
Y6DAUR	133.8	131.9	132.0	135.2	133.2	-0.73	2.8	1.6	132.7	-0.78	3.4	1.6	12	LD
Y6R2J3	134.5	140.1	142.0 H	143.3	140.0	0.58	4.8	3.9	142.8	1.21	4.8	5.9	12	MB
Z4XKTR	138.9	137.4	139.8	139.5	138.9	0.37	3.8	1.1	138.2	0.32	3.5	3.0	12	LC
ZCU6BM	140.5	142.4	140.6	139.5	140.8	0.73	4.2	1.2	136.6	-0.01	4.4	3.3	12	LC
ZFAZQJ	134.0	132.6	135.5	133.1	133.8	-0.62	4.1	1.2	133.7	-0.58	4.0	1.5	12	LD
ZJ9BMJ	133.1	134.3	135.4	129.1	133.0	-0.78	4.0	2.8	130.1	-1.28	3.8	4.9	12	EN
ZTD4EY	131.0	126.0 *	127.3	124.2 H	127.1	-1.91	6.8	2.9	128.1	-1.68	6.0	2.8	8	EN
ZZDH2L	140.8 L	141.2 L	142.9 L	140.2 L	141.3	0.83	1.4	1.2	137.5	0.17	1.5	4.1	8	MB

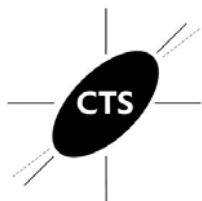
Consensus (All Labs) Results									
Wk Mean	136.37	136.89	136.79	135.90	Month Mean	136.98	Grand Mean	136.64	
Avg SDr	4.16	4.12	3.99	4.37	Avg SD	4.16	Avg SD	4.18	
SD btwn Labs	5.32	5.28	6.85	7.60	SD btwn Labs	5.16	SD btwn Labs	5.10	
Labs Incl	49	48	50	51	SD btwn Wks	2.93	SD btwn Wks	4.06	
Labs Excl	2	3	1	0	Labs Incl	48	Labs Incl	49	
Labs not Rcvd	0	0	0	0					

Analysis Notes

2KHCRQ - Data appears to be switched between Analysis 215 and Analysis 216. Data switched by CTS.

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	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

STFI, 42 lb Linerboard - 42F3

TAPPI Official Test Method T826

Report #618 (C)

March 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	
2KHCRQ	22.8 H	22.9	22.0	22.3	22.5	-1.07	1.9	0.4	23.0	-0.73	1.7	0.6	16	LU
3YW92J	22.2	22.8	21.9	22.2	22.3	-1.27	1.9	0.4	23.0	-0.73	1.8	1.0	16	LH
3YW92J_AL	24.2	24.8	22.8	22.8	23.7	0.10	1.4	1.0	25.5	1.69	1.6	1.5	16	AL
4NQMCW	23.0	23.2	23.9	24.0	23.5	-0.05	1.8	0.5	23.6	-0.13	1.9	0.8	14	LA
6BMJNG	23.5	23.3	22.6	22.5	23.0	-0.56	1.6	0.5	23.1	-0.58	1.6	0.5	16	LU
6V7LJG	23.1	22.9	23.4	24.2	23.4	-0.17	1.5	0.5	23.5	-0.22	1.6	0.5	16	XX
6WGN6E_AL	23.4	22.8	22.6	23.4	23.0	-0.53	1.7	0.4	22.9	-0.80	1.7	0.4	16	AK
7DKHCE	27.1 X	27.2 XH	26.2 *	27.4 X	27.0	3.40 X	2.0	0.5	26.0	2.19 *	2.1	1.3	16	LH
A448BP	23.7	23.4	23.3	22.8	23.3	-0.26	1.5	0.4	23.5	-0.21	1.5	0.4	16	TT
AEMA4J	24.8	22.5	23.6	23.4	23.6	0.02	1.5	0.9	24.6	0.81	1.8	1.0	16	LA
B6DAYA	24.5	23.9	24.8	24.1	24.3	0.74	2.0	0.4	23.9	0.18	1.9	0.8	12	LW
BALWAQ	23.6	24.1	24.3	23.9	24.0	0.40	1.8	0.3	24.3	0.55	1.9	0.6	16	TT
C7HGE8	24.2	26.1 *	25.9	25.5 *	25.4	1.85	1.7	0.9	25.7	1.89	1.8	1.5	8	LA
CZFCMN	43.2 X	44.0 XH	41.5 XH	42.6 XH	42.8	19.22 X	2.8	1.0	41.9	17.17 X	2.9	1.2	8	TT
ERWN47	25.4 H	26.6 *	25.6	26.9 X	26.1	2.54 *	2.1	0.7	25.8	1.97 *	2.0	0.6	15	LU
FE4LXJ	24.1 L	23.3	23.4	25.5	24.1	0.51	1.6	1.0	24.0	0.22	1.7	0.6	16	LH
GLHUYK	25.4	25.5	24.8	25.1	25.2	1.65	1.5	0.3	24.9	1.07	1.5	1.7	16	LH
HM9E6G	23.0	23.6	22.9	22.7	23.1	-0.49	1.3	0.4	23.4	-0.32	1.3	0.4	16	TT
JBCNZ3	25.6	25.3	22.9	No DATA	24.6	1.01	1.6	1.5 H	24.8	1.01	1.6	0.8	10	LU
JBCNZ3_AL	24.4	22.9	24.4	22.6	23.6	0.04	1.3	0.9	23.8	0.11	1.4	0.7	11	AL
K3CNZ2	22.4	24.3	23.4	23.7	23.4	-0.12	1.6	0.8	23.1	-0.59	1.6	0.7	16	LA
KCZJYG	21.7	24.1 H	23.2	23.3	23.1	-0.48	1.8	1.0	23.0	-0.72	1.7	0.9	16	LA
KLNDYD	23.1	24.8 L	24.2	24.1	24.1	0.49	1.6	0.7	23.9	0.12	1.6	0.6	12	LY
LAW2M8_AL	26.1 *	25.4	25.9 H	26.0 *	25.9	2.29 *	2.1	0.3	25.0	1.21	1.7	1.7	16	AL
LGPF2D	22.0 L	22.5 L	21.9 L	21.9 L	22.1	-1.46	0.3	0.3	23.3	-0.44	0.8	1.1	16	XX
LH96PY	22.7	24.4	24.0	23.6 H	23.7	0.10	2.2	0.7	23.2	-0.47	1.9	0.7	16	LY
LH96PY_AL	253.1 XH	242.1 XH	255.4 XH	255.6 XH	251.5	227.61 X	12.9	6.4 H	113.0	84.13 X	7.6	102.4 H	12	XX
LMEVR6	23.1	22.4	23.0	22.9	22.8	-0.71	1.8	0.3	23.0	-0.70	1.7	0.4	16	LW
M3QUCW_AI	23.3	23.8	23.4 H	23.1	23.4	-0.17	1.9	0.3	23.0	-0.66	1.7	0.5	16	AL
MAKY7X_AL	23.5	23.1	23.0	23.0	23.2	-0.40	1.5	0.2	23.0	-0.68	1.7	0.7	16	AL
MG63BE	21.8 L	21.4	21.7	21.8	21.7	-1.88	1.3	0.2	22.4	-1.27	1.4	0.7	16	LH
MLEFTD_AL	23.2	23.9	23.2	23.9	23.6	0.00	1.5	0.4	24.6	0.84	1.7	0.8	16	AK
N4BZAX	25.1 H	23.6	23.2	23.1	23.7	0.19	2.2	0.9	24.4	0.60	1.9	2.0	15	LU
NFA2M3	24.1	24.7	24.1	24.2	24.3	0.70	1.5	0.3	24.4	0.61	1.6	0.4	16	LY
P7YY22_AL	22.8	21.2 *	23.3	22.4	22.4	-1.13	1.4	0.9	22.7	-1.00	1.7	0.9	16	AL



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F3

TAPPI Official Test Method T826

Report #618 (C)

March 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	
PCKPMW	23.1	23.1 L	23.2	23.1	23.1	-0.42	1.6	0.1 L	21.4	-2.23 *	3.5	4.5 H	16	XX
PL9KMC	24.5	24.2	24.3	23.5	24.1	0.54	1.8	0.4	23.0	-0.68	1.4	1.1	12	LU
R79KPT	23.2	23.1	23.1	23.4	23.2	-0.35	1.7	0.1	23.5	-0.22	1.7	0.5	16	LY
RYT27U	24.9	25.0	25.6	25.4	25.2	1.65	1.9	0.3	24.6	0.85	1.7	1.2	16	LH
RZKZKT_AL	23.7 L	23.5 L	23.2	23.3 L	23.4	-0.14	1.0	0.2	22.7	-0.92	1.4	1.2	16	AL
RZMRC9	23.1	25.7	25.4	24.6	24.7	1.14	2.0	1.2	24.9	1.08	2.0	1.1	16	LH
U9BDGX	24.0	23.9	23.6	24.1	23.9	0.34	1.2	0.2	25.0	1.17	1.5	1.1	16	LA
UF8XYT	32.5 XL	31.3 XL	30.2 XL	30.9 XL	31.3	7.68 X	0.0	0.9	31.6	7.41 X	0.0	3.0 H	16	TT
UJR9DN_AL	21.6	23.7 H	24.2	22.4	23.0	-0.60	1.9	1.2	23.0	-0.69	1.6	1.1	16	AL
UXRNXR_AL	23.7	24.1	25.7	23.7	24.3	0.74	1.4	1.0	24.6	0.87	1.8	0.8	16	AL
VYWVDP_AI	23.6	23.8	22.3 H	23.6	23.3	-0.21	2.2	0.7	23.7	-0.03	1.8	0.6	16	AL
W6ZY4N	22.4	21.4	21.8	22.2	22.0	-1.59	2.0	0.5	23.0	-0.73	1.9	0.8	16	LU
WE67JN	24.5 L	26.2 *L	25.5 L	25.6 *L	25.4	1.88	0.5	0.7	25.2	1.40	1.3	1.0	16	LA
WZ767M	22.2	22.4	23.1	23.0	22.7	-0.90	1.8	0.5	22.7	-0.97	1.7	0.5	16	LW
X84GD4	23.7	23.7	23.5	23.7	23.6	0.09	2.0	0.1 L	23.6	-0.16	1.9	0.1 L	16	LA
XKB33N_AL	24.6	23.7	24.8	23.3	24.1	0.54	1.8	0.7	24.0	0.22	1.5	0.6	16	AK
XW6HP4	23.4	23.2	23.0	22.6	23.0	-0.52	1.8	0.4	22.9	-0.80	1.8	0.4	16	LZ
Y6DAUR	23.2	23.4 L	22.9	22.2 L	22.9	-0.65	1.0	0.5	22.9	-0.80	1.8	0.4	16	BK
Y6R2J3	25.0	24.2	25.2 H	25.0	24.8	1.26	2.0	0.4	24.7	0.90	1.9	1.4	16	LA
Z4XKTR	22.4	22.7	22.1	22.7	22.5	-1.09	1.4	0.3	22.9	-0.79	1.5	0.6	16	LW
ZCU6BM	24.4	41.7 XH	24.7	23.9	28.7	5.10 X	2.1	8.7 H	25.5	1.72	1.9	4.4 H	16	LU
ZFAZQJ	22.6	22.0	23.1	23.0	22.7	-0.90	1.6	0.5	22.8	-0.85	1.7	0.4	16	LA
ZJ9BMJ	22.9	22.5	23.1	21.4	22.5	-1.07	1.6	0.8	22.6	-1.06	1.7	0.6	16	LY
ZTD4EY	21.6	22.6	22.1	21.6 H	22.0	-1.58	2.0	0.5	21.5	-2.09 *	1.7	1.2	16	LH

Consensus (All Labs) Results									
Wk Mean	23.52	23.65	23.65	23.42	Month Mean	23.56		Grand Mean	23.72
Avg SDr	1.77	1.67	1.60	1.63	Avg SD	1.67		Avg SD	1.74
SD btwn Labs	1.06	1.19	1.17	1.07	SD btwn Labs	1.00		SD btwn Labs	1.06
Labs Incl	55	54	56	53	SD btwn Wks	0.63		SD btwn Wks	1.22
Labs Excl	4	5	3	5	Labs Incl	54		Labs Incl	56
Labs not Rcvd	0	0	0	1					

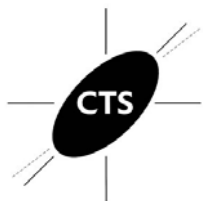


Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42F3
TAPPI Official Test Method T826

Report #618 (C)
March 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 224

Report #618 (C)

March 2021

STFI, 56 lb Linerboard - 56G1

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	
2GGC9L	46.2 XH	45.6 XH	45.4 XH	47.1 XH	46.1	6.25 X	20.9	0.8	47.2	8.34 X	22.0	1.5	12	LH
2KHCRQ	34.0	33.9	33.7	32.6	33.5	-0.83	2.4	0.7	33.8	-0.87	2.3	0.7	12	LU
3YW92J	33.7	33.4	31.4	31.8	32.6	-1.37	2.5	1.2	33.0	-1.43	3.2	1.0	12	LH
3YW92J_AL	35.5	38.6	36.1	36.1	36.6	0.89	2.5	1.4	37.1	1.38	2.2	1.1	12	XX
4NQMCW	34.4	35.5	35.7	34.8	35.1	0.06	2.5	0.6	35.5	0.26	2.4	0.6	10	LA
6BMJNG	34.5	35.0	34.4	34.4	34.6	-0.24	2.1	0.3	34.1	-0.70	2.1	0.7	12	LU
6V7LJG	34.2	34.9	35.9	34.2	34.8	-0.12	2.3	0.8	35.0	-0.06	2.2	0.7	12	XX
6WGN6E_AL	33.8	33.2	33.8	33.2	33.5	-0.85	2.1	0.3	33.7	-0.93	2.1	0.8	12	AK
7DKHCE	40.0 X	39.7 *	38.6 *	39.0 *	39.3	2.45 *	2.6	0.6	38.4	2.28 *	2.7	1.2	12	LZ
A448BP	35.2	34.8	35.6	35.1	35.2	0.12	1.6	0.3	35.2	0.09	1.7	0.3 L	12	TT
AEMA4J	36.4	36.8	37.1 H	37.4	36.9	1.09	2.9	0.4	37.1	1.39	2.5	0.9	12	LA
B6DAYA	36.1 H	36.2	35.8	35.9	36.0	0.56	2.8	0.2	35.8	0.52	2.7	0.4	11	LW
BALWAQ	35.8	34.2	33.3	34.3	34.4	-0.33	2.1	1.1	36.0	0.62	2.6	1.8	12	TT
C7HGE8	34.8	37.7	35.8	35.3	35.9	0.50	2.5	1.3	36.1	0.69	2.7	0.9	8	LA
CZFCMN	45.2 X	42.2 XH	42.4 X	44.5 X	43.6	4.85 X	2.7	1.5	43.6	5.84 X	2.7	1.5	4	TT
ERWN47	37.3 H	38.0	38.9 *	39.0 *	38.3	1.86	2.7	0.8	37.7	1.80	2.6	0.7	11	LU
FE4LXJ	34.7	35.3	35.9	36.8	35.7	0.38	2.4	0.9	35.1	0.01	2.3	1.2	12	LH
GLHUYK	38.7 *	37.8	37.9	38.6	38.2	1.84	2.5	0.5	37.8	1.88	2.0	0.7	8	LH
HM9E6G	35.3 L	35.4	35.2 L	34.8 L	35.2	0.10	1.3	0.2	35.4	0.22	1.5	0.4	12	TT
JBCNZ3	37.2	37.0	36.3	NO DATA	36.8	1.03	2.3	0.5	36.4	0.87	2.4	0.7	10	LA
JBCNZ3_AL	35.8	35.0 L	34.4 L	33.5	34.7	-0.17	1.7	0.9	35.4	0.21	1.7	1.6	10	AL
K3CNZ2	35.0	34.2	33.6	34.6	34.4	-0.36	2.4	0.6	34.0	-0.72	2.3	0.6	12	LA
KCZYJG	31.9	34.6	33.3 L	31.9 L	32.9	-1.17	1.7	1.3	33.1	-1.33	1.9	1.0	12	LA
KLNDYD	35.3	34.9	35.1 L	34.9	35.1	0.04	2.0	0.2	35.2	0.05	2.1	0.3 L	12	LU
LAW2M8_AL	37.9 H	39.6 *	38.7 *H	38.9 *	38.8	2.14 *	3.2	0.7	38.2	2.12 *	3.1	1.2	12	XX
LGPFD2D	32.2 L	32.3 L	32.8 L	33.6 L	32.7	-1.29	0.3	0.6	33.8	-0.86	0.3	1.0	12	XX
LH96PY	34.1	35.2	35.1	33.7	34.5	-0.27	2.7	0.8	34.1	-0.71	2.4	1.1	12	LY
LH96PY_AL	260.4XH	278.9XH	270.0XH	271.7XH	270.3	132.84 X	17.8	7.6 H	157.5	84.16 X	12.7	120.7H	8	XX
LMEVR6	34.3	31.9 H	32.0	34.5	33.2	-1.03	2.9	1.4	33.6	-1.02	2.4	1.0	12	LW
M3QUCW_AI	35.0 H	34.9	33.4	34.8	34.5	-0.27	2.4	0.7	34.1	-0.65	2.1	0.9	12	XX
MAKY7X_AL	33.4	34.5	33.6 H	32.9	33.6	-0.80	2.5	0.7	33.8	-0.88	2.4	0.6	12	XX
MG63BE	32.7	32.0	31.1 *	32.6	32.1	-1.63	1.7	0.7	33.3	-1.22	1.6	1.3	12	LH
MLEFTD_AL	33.9	38.6	35.4	37.2 L	36.3	0.72	2.4	2.1 H	36.1	0.71	2.5	1.6	12	AK
N4BZAX	33.3	35.7	34.2	33.0	34.1	-0.53	2.6	1.2	34.7	-0.27	2.5	1.0	12	LU
NFA2M3	36.5	36.4	37.7	35.4	36.5	0.86	2.1	1.0	35.7	0.44	2.2	1.1	12	LW



Containerboard Interlaboratory Testing Program
 Analysis 224
STFI, 56 lb Linerboard - 56G1
 TAPPI Official Test Method T826

Report #618 (C)
March 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	
P7YY22_AL	32.0	31.1 *	32.2	31.5 L	31.7	-1.86	2.0	0.5	32.8	-1.61	2.2	1.0	12	AL
PCKPMW	33.2	34.7 L	33.3	35.5	34.2	-0.46	1.8	1.1	35.0	-0.06	1.8	1.2	12	XX
PL9KMC	36.8	36.2	35.9	36.1	36.2	0.70	2.2	0.4	35.0	-0.04	1.7	1.3	8	LU
R79KPT	35.3	35.1	35.0	35.4	35.2	0.11	2.3	0.2	34.9	-0.11	2.3	1.0	12	LZ
RYT27U	37.9	37.4	37.3	37.2 L	37.4	1.39	2.1	0.3	36.8	1.15	2.3	1.3	8	LH
RZKZKT_AL	34.4 L	33.3 H	33.8 H	34.0 H	33.9	-0.64	3.6	0.4	33.3	-1.21	2.5	1.4	12	XX
RZMRC9	34.3	37.1 H	38.5 H	39.1 *	37.3	1.28	3.2	2.1 H	36.4	0.87	2.9	1.8	12	LH
U9BDGX	34.6	35.5 L	34.4 L	36.4	35.2	0.13	1.3	0.9	36.2	0.79	1.7	1.3	12	LA
UF8XYT	43.3 XL	47.3 XL	44.9 XL	44.2 XL	44.9	5.61 X	0.0	1.7	45.2	6.95 X	0.0	1.5	12	LZ
UJR9DN_AL	32.6	35.5	34.6	31.0	33.4	-0.90	2.5	2.0 H	34.7	-0.25	2.4	2.1	12	AL
UXRNXR_AL	37.5	35.6	35.9 L	36.0 H	36.3	0.71	2.8	0.9	36.1	0.66	2.3	0.6	12	XX
VYWVDP_AI	35.2	34.6	34.6	34.2	34.6	-0.20	2.6	0.4	34.3	-0.54	2.5	0.6	12	AL
W6ZY4N	34.3	31.3 *	33.3	33.1	33.0	-1.11	2.3	1.2	33.4	-1.18	2.6	1.1	12	LU
WE67JN	38.5 *L	37.8 L	38.4 L	38.6 L	38.3	1.87	0.7	0.3	37.7	1.78	1.9	1.4	12	LA
WZ767M	32.8	34.4	34.0	33.3	33.6	-0.78	1.7	0.7	33.5	-1.10	2.1	0.5	12	LW
X84GD4	35.1	35.0	34.9	35.1	35.0	0.01	3.0	0.1 L	34.9	-0.14	3.0	0.2 L	12	LA
XKB33N_AL	34.6 L	35.6	33.2	34.1	34.4	-0.35	1.9	1.0	34.6	-0.32	2.2	0.8	12	XX
XW6HP4	34.1	34.0	34.2	33.1	33.8	-0.65	2.6	0.5	33.8	-0.89	2.6	0.6	12	LZ
Y6DAUR	34.7	34.8	34.1	35.3 L	34.7	-0.16	1.4	0.5	34.0	-0.77	1.6	0.9	12	BK
Y6R2J3	36.1	37.7 L	37.5 L	36.4 H	36.9	1.10	2.2	0.8	37.2	1.48	2.7	2.5 H	12	LA
Z4XKTR	34.6	34.3	34.3	33.7 L	34.2	-0.43	1.8	0.4	34.7	-0.26	1.9	0.6	12	ID
ZCU6BM	34.1	37.0 L	35.0	35.0	35.2	0.15	1.8	1.2	35.1	0.01	2.2	1.5	12	LU
ZFAZQJ	33.2	33.5	34.4	32.8	33.5	-0.86	2.4	0.7	33.5	-1.12	2.2	0.7	12	LW
ZJ9BMJ	33.2	33.9	34.6	33.7	33.8	-0.65	2.2	0.6	33.6	-1.05	2.2	0.9	12	LY
ZTD4EY	31.4 *H	31.8	33.0	31.2	31.9	-1.77	2.7	0.8	30.8	-2.96 X	2.8	1.4	8	LU

Consensus (All Labs) Results										
Wk Mean	34.78	35.25	34.96	34.84	Month Mean	34.99	Grand Mean	35.09		
Avg SDr	2.31	2.41	2.31	2.26	Avg SD	2.32	Avg SD	2.29		
SD btwn Labs	1.67	1.98	1.87	2.07	SD btwn Labs	1.77	SD btwn Labs	1.45		
Labs Incl	55	56	56	55	SD btwn Wks	0.89	SD btwn Wks	1.08		
Labs Excl	5	4	4	4	Labs Incl	56	Labs Incl	55		
Labs not Rcvd	0	0	0	1						



Containerboard Interlaboratory Testing Program
Analysis 224
STFI, 56 lb Linerboard - 56G1
TAPPI Official Test Method T826

Report #618 (C)
March 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	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 - 42F3
 TAPPI Official Test Method T575

Report #618 (C)
March 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3YW92J_AL	137.1	0.42	22.08	126.8	-0.86	7.43	4	AL
4DBTYH	137.8	0.47	16.37	133.4	-0.20	5.52	4	LS
4NQMCW	129.2	-0.24	18.40	131.2	-0.42	11.25	4	LA
6WGN6E	119.4	-1.04	10.37	148.3	1.29	58.10	H 4	LS
7DKHCE	208.1	6.27 X	65.41 H	184.2	4.87 X	26.83	4	LS
AEMA4J	137.6	0.46	15.22	140.1	0.48	1.80	L 4	LA
B6DAYA	111.6	-1.68	6.71 L	116.0	-1.94 *	3.84	4	XX
C7HGE8	127.4	-0.38	14.98	128.7	-0.67	1.84	2	LA
JBCNZ3_AL	125.2	-0.57	10.60	124.7	-1.06	3.68	3	AL
LAW2M8_AL	144.8	1.05	21.71	139.8	0.44	7.41	3	AL
LH96PY_AL	127.0	-0.42	13.78	169.6	3.42 X	61.67 H	3	XX
LMEVR6	143.0	0.90	10.56	141.0	0.56	3.86	4	EV
MLEFTD_AL	121.4	-0.88	19.55	135.3	-0.01	28.39	4	AK
N4BZAX	123.2	-0.73	16.38	135.4	0.00	8.27	4	EV
NFA2M3	134.9	0.23	10.68	134.1	-0.13	0.63	L 4	LS
P7YY22_AL	120.1	-0.99	10.11	131.3	-0.41	14.49	4	AL
R79KPT	157.0	2.05 *	12.82	157.0	2.16 *	0.00	1	EV
RZKZKT_AL	151.1	1.57	24.69 H	146.8	1.14	4.15	4	AL
RZMRC9	135.7	0.30	18.45	132.9	-0.25	7.07	4	EV
U9BDGX	111.9	-1.66	6.61 L	115.9	-1.95 *	7.08	4	EV
UJR9DN_AL	122.3	-0.80	13.39	123.9	-1.14	4.28	4	XX
VYWVDP_AL	121.5	-0.87	6.57 L	127.9	-0.74	10.22	4	AL
W6ZY4N	157.6	2.11 *	22.87	153.7	1.83	2.73	4	EV
X84GD4	138.6	0.54	16.81	140.6	0.52	1.40	L 4	LS
XDUQPM	118.3	-1.13	14.27	128.5	-0.69	27.54	4	EV
XKB33N	132.2	0.01	15.16	137.4	0.20	6.02	4	EV
Y6R2J3	137.1	0.41	19.84	140.3	0.49	4.30	4	LA
ZCU6BM	191.9	4.93 X	21.31	173.7	3.82 X	40.44 H	4	EV
ZFAZQJ	137.4	0.44	11.83	139.0	0.37	5.83	4	LA
ZJ9BMJ	137.2	0.42	7.78	145.2	0.98	6.44	4	EV

Consensus (All Labs) Results			
Month Mean	132.06	Grand Mean	135.36
Avg SD	15.43	Avg SD Months	15.08
SD btwn Labs	12.13	SD btwn Labs	10.01
Labs Incd	28	Labs Incd	27



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

Report #618 (C)
March 2021

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 - 42F3
 TAPPI Official Test Method T538

Report #618 (C)
March 2021

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3YW92J_AL	343.3	-1.79	9.68	348.0	-1.35	3.32	4	AL
6BMJNG	356.7	0.27	7.92	361.7	0.57	3.62	4	XX
LH96PY_AL	119.5	-36.19 X	8.07	205.6	-21.23 X	148.12 H	3	XX
M3QUCW_AI	381.4	4.07 X	8.58	373.2	2.16 *	7.52	4	AL
MAKY7X_AL	360.1	0.79	5.92	357.1	-0.08	2.89	4	AL
MLEFTD_AL	348.6	-0.98	7.14	353.8	-0.53	4.78	4	AK
UXRNXR	355.9	0.15	8.10	355.4	-0.32	2.31	4	PP
VYWVDP_AL	348.4	-1.01	8.69	349.6	-1.12	3.58	4	AL
WE67JN	364.9	1.53	6.38	366.1	1.17	1.94	4	XX
XKB33N	355.6	0.10	10.38	357.0	-0.09	1.35	3	LA
XKB33N_AL	360.6	0.87	12.52	355.1	-0.36	3.88	4	AK
XT4FZ3	395.5	6.24 X	6.22	403.3	6.37 X	7.12	4	TS
XW6HP4	355.4	0.07	9.34	357.3	-0.05	3.65	4	XX

Consensus (All Labs) Results			
Month Mean	354.95	Grand Mean	357.65
Avg SD	8.81	Avg SD Months	3.86
SD btwn Labs	6.51	SD btwn Labs	7.16
Labs Incd	10	Labs Incd	11

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 #618 (C)
March 2021

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
4DBTYH	96.6	0.10	2.61	L	99.6	0.28	2.86	4	HY
6BMJNG	102.6	0.54	5.36		107.3	0.95	3.42	4	HY
6WGN6E	94.4	-0.05	6.28		90.3	-0.54	4.30	4	TM
7DKHCE	82.6	-0.91	8.91		86.2	-0.90	6.90	4	TM
7LEPVK	93.7	-0.10	62.05	H	99.0	0.23	25.49	H 4	SC
K3CNZ2	96.0	0.06	3.94		100.2	0.33	3.38	4	HZ
LAW2M8	120.0	1.80	6.12		114.8	1.61	6.70	4	SC
M3QUCW	42.4	-3.82	X 0.33	L	41.3	-4.84	X 1.47	4	LZ
MAKY7X	92.6	-0.19	1.95	L	95.0	-0.12	4.04	4	SC
MLEFTD	82.0	-0.95	8.46		86.7	-0.85	6.38	4	TM
N4BZAX	80.0	-1.10	3.74		77.1	-1.70	4.89	4	TM
NRKCEY	101.0	0.42	2.06	L	101.0	0.40	0.00	1	HY
R79KPT	80.8	-1.04	3.88		88.7	-0.68	5.35	4	XX
RG8HB9	111.2	1.16	5.17		108.6	1.07	4.24	4	TM
RZKZKT	128.8	2.43	* 3.42		178.3	7.19	X 33.97	H 4	SC
RZMRC9	97.3	0.15	7.22		106.7	0.91	7.72	4	SC
U9BDGX	85.8	-0.68	1.64	L	87.9	-0.75	2.11	4	TM
UJR9DN	112.1	1.23	3.52		108.6	1.07	6.97	4	TM
UXRNXR	106.6	0.83	2.88	L	106.2	0.86	2.92	4	HY
W6ZY4N	82.2	-0.94	4.21		88.4	-0.70	4.57	4	TM
WE67JN	83.8	-0.82	3.03	L	85.7	-0.94	2.22	4	SC
XDUQPM	94.0	-0.08	4.18		97.7	0.11	3.52	4	HY
XKB33N	79.2	-1.16	4.76		81.8	-1.29	2.51	4	TM
ZCU6BM	76.0	-1.39	4.30		81.5	-1.31	4.78	4	TM
ZFAZQJ	104.8	0.70	9.60		118.5	1.94	* 18.48	H 4	HY

Consensus (All Labs) Results			
Month Mean	95.17	Grand Mean	96.40
Avg SD	13.63	Avg SD Months	8.12
SD btwn Labs	13.83	SD btwn Labs	11.38
Labs Incl	24	Labs Incl	23

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	94.81	14.42	0.37	21
Modified Scott Bond Mechanics	103.70	1.56	8.53	2



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

Report #618 (C)
March 2021

Analysis Notes

M3QUCW - 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 Ib Linerboard - 42F
 TAPPI Official Test Method T815

Report #618 (C)
March 2021

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
3JFAUX	32.4	1.61	2.88	32.3	1.87	0.20	L 4
6BMJNG	28.9	0.33	2.46	28.0	0.08	2.16	4
6WGN6E	26.8	-0.45	2.17	27.2	-0.24	0.99	4
7DKHCE	24.4	-1.33	2.97	23.1	-1.96 *	1.64	4
9MJULD	30.0	0.73	0.71	31.1	1.35	1.71	4
B6DAYA	25.6	-0.89	1.34	27.7	-0.04	2.54	4
FE4LXJ	27.5	-0.20	0.82	28.8	0.42	1.54	4
LAW2M8	23.2	-1.77	1.10	23.4	-1.83	0.54	4
LMEVR6	27.4	-0.22	1.52	24.7	-1.29	2.47	4
M3QUCW	26.0	-0.74	0.71	26.9	-0.40	3.42	4
MLEFTD	27.8	-0.08	3.96	29.8	0.82	1.83	4
N4BZAX	30.0	0.73	2.83	30.1	0.96	0.38	4
NFA2M3	29.3	0.48	4.61	29.6	0.76	0.24	L 4
NRKCEY	28.2	0.07	5.63	28.2	0.17	0.00	H 1
P243EV	21.8	-2.28 *	2.95	26.6	-0.50	3.37	4
P7YY22	26.2	-0.67	3.03	25.1	-1.13	1.05	4
R79KPT	26.6	-0.52	2.25	25.2	-1.07	3.35	4
RZKZKT	33.0	1.83	4.12	30.2	1.00	5.76	H 4
RZMRC9	29.4	0.51	2.41	27.7	-0.03	1.49	4
UGLE3X	25.0	-1.11	2.12	24.4	-1.44	1.00	4
UJR9DN	29.0	0.36	4.58	28.4	0.23	1.20	4
UXRNXR	30.0	0.73	2.45	29.9	0.88	0.94	4
VYWVDP	29.7	0.63	2.37	29.3	0.61	0.93	4
W6ZY4N	28.9	0.33	2.63	28.5	0.28	2.07	4
WE67JN	29.0	0.36	0.71	28.6	0.31	0.34	L 4
X84GD4	27.0	-0.37	0.71	27.0	-0.35	0.19	L 4
XKB33N	27.3	-0.25	2.77	27.9	0.04	2.16	4
XW6HP4	33.1	1.87	1.24	31.7	1.63	0.92	4
Y6R2J3	23.1	-1.80	4.55	23.4	-1.84	0.42	4
ZCU6BM	30.0	0.73	3.94	26.8	-0.44	3.16	4
ZFAZQJ	30.0	0.73	3.39	29.4	0.67	1.81	4
ZJ9BMJ	29.7	0.62	1.34	28.9	0.48	0.80	4

Consensus (All Labs) Results			
Month Mean	28.01	Grand Mean	27.80
Avg SD	2.86	Avg SD Months	2.04
SD btwn Labs	2.72	SD btwn Labs	2.40
Labs Incl	32	Labs Incl	32



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

Report #618 (C)
March 2021

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #618 (C)
March 2021

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results					
	Mean	CPV	SD	Mean	CPV	SD	Months	Months	Inst
3JFAUX	21.1	-1.44	1.78	14.0	-5.64 X	8.84	H	4	LA
3YW92J_AL	23.1	0.47	2.52	23.2	0.69	0.31		4	AL
4DBTYH	22.8	0.19	2.51	22.6	0.25	0.84		4	LP
62WVTE	22.0	-0.58	1.29	21.8	-0.28	0.27	L	4	LP
6BMJNG	22.8	0.19	3.05	22.2	0.00	0.83		4	TP
6WGN6E_AL	21.5	-1.08	1.90	21.7	-0.38	0.27		2	AK
7DKHCE	31.3	8.51 X	5.85	25.4	2.16 *	4.14	H	4	TD
9MJULD_AL	22.7	0.12	1.47	22.5	0.23	0.45		4	AL
AEMA4J	23.5	0.94	2.19	24.0	1.25	0.76		4	LA
B6DAYA	21.5	-1.05	2.55	22.0	-0.17	1.01		4	LP
C7HGE8	23.3	0.70	2.18	22.9	0.48	0.54		2	LA
JBCNZ3	22.0	-0.57	1.83	21.6	-0.42	0.57		2	LW
JBCNZ3_AL	22.2	-0.37	1.93	22.1	-0.10	0.23	L	3	AL
KGTL62	20.8	-1.74	1.87	21.3	-0.66	1.32		4	XX
LAW2M8_AL	17.1	-5.35 X	1.37	20.3	-1.30	2.55		4	AL
LH96PY_AL	22.7	0.12	1.73	22.4	0.14	0.33		3	XX
LMEVR6	18.7	-3.76 X	0.81	18.7	-2.39 *	0.63		4	XX
LMFT3Z	24.9	2.30 *	3.33	23.8	1.06	1.26		4	LP
M3QUCW_AI	23.2	0.56	0.83	23.6	0.98	1.56		4	AL
MAKY7X_AL	21.8	-0.77	1.55	22.1	-0.08	0.51		4	AL
MLEFTD_AL	19.3	-3.17 X	1.32	19.3	-1.98 *	0.25	L	4	AK
N4BZAX_AL	22.2	-0.40	1.19	22.8	0.42	1.24		4	AL
NFA2M3	22.6	0.03	2.36	22.1	-0.08	0.76		3	LP
P7YY22_AL	22.8	0.17	2.40	22.5	0.20	0.74		4	AL
QPA9GT	22.6	0.06	3.86	20.4	-1.22	2.13		4	GA
R79KPT	23.3	0.69	1.58	22.7	0.36	0.54		4	LP
RZKZKT_AL	6.0	-16.21 X	0.43	18.4	-2.65 *	8.35	H	4	AL
RZMRC9	22.7	0.16	1.70	22.5	0.17	0.49		4	LP
UJR9DN_AL	22.4	-0.15	1.28	23.4	0.83	0.84		4	XX
UXRNXR	22.7	0.07	2.59	22.2	0.00	1.98		4	TP
VYWVDP_AL	21.2	-1.36	1.26	21.2	-0.73	0.52		4	AL
W3EGL4	24.8	2.16 *	4.26	23.6	0.95	1.84		4	GG
W6ZY4N	26.9	4.21 X	3.81	24.5	1.57	1.64		4	GA
X84GD4	21.5	-1.05	1.51	21.6	-0.44	0.15	L	4	LA
XKB33N_AL	23.3	0.70	2.22	22.0	-0.16	1.14		3	AK
XW6HP4	24.7	2.05 *	4.01	23.7	1.00	1.45		4	GA
Y6R2J3	20.9	-1.63	1.36	21.3	-0.63	0.58		4	LA
ZCU6BM_AL	22.6	0.00	1.48	23.2	0.65	0.59		4	AL
ZFAZQJ	23.1	0.51	2.13	22.6	0.28	0.46		4	LP



Containerboard Interlaboratory Testing Program
 Analysis 237

Report #618 (C)
March 2021

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

Consensus (All Labs) Results			
Month Mean	22.58	Grand Mean	22.22
Avg SD	2.27	Avg SD Months	1.83
SD btwn Labs	1.02	SD btwn Labs	1.45
Labs Incl	33	Labs Incl	38

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 |
| LW L&W Gurley Densometer, Oil Flotation | TD TMI Gurley Densometer |
| TP Technidyne Profile/ plus Roughness & Porosity | XX Instrument make/model not specified by lab |



Containerboard Interlaboratory Testing Program
Analysis 240

Report #618 (C)
March 2021

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM11

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							
2ET4YK	60.9	58.5	58.4	58.3	L	59.0	0.32	2.5	1.3	58.7	0.39	2.3	1.0	16	LC					
2KHCRQ	58.2	60.3	60.9	58.8		59.5	0.53	3.1	1.3	59.0	0.51	3.2	1.6	16	LZ					
2M9MHJ	57.3	58.1	56.9	57.8		57.5	-0.27	3.4	0.5	57.8	-0.01	3.6	0.6	L	16	LD				
3WTDHG	57.6	58.2	58.3	57.5		57.9	-0.12	3.1	0.4	58.3	0.22	3.3	0.9	16	LD					
4DBTYH	No DATA	55.8	No DATA	54.1		54.9	-1.29	3.8	1.2	58.9	0.48	5.4	6.9	H	3	LD				
4NQMCW	58.0	L	58.2	H	55.2	56.5	57.0	-0.49	3.7	1.4	55.4	-1.11	3.3	1.5	16	MB				
62WVTE	60.5	62.1	60.0	61.4		61.0	1.10	3.8	0.9	60.0	0.97	3.8	2.0	16	LD					
6BMJNG	56.7	59.5	56.3	53.8		56.6	-0.64	4.2	2.3	57.3	-0.25	3.7	2.0	16	LC					
73YD6F	59.5	58.8	58.8	L	58.9	L	59.0	0.31	1.5	0.4	54.8	-1.38	1.9	8.0	H	16	TU			
7LEPVK	54.9	53.4	52.7	*	53.2		53.6	-1.83	2.7	0.9	53.7	-1.89	3.0	0.8	16	LC				
A448BP	57.5	57.6	59.4	56.1		57.7	-0.21	4.6	1.3	57.7	-0.07	4.8	1.1	16	TJ					
AEMA4J	61.7	62.0	59.6	62.7		61.5	1.29	4.1	1.3	59.6	0.79	4.8	2.0	16	TU					
B6DAYA	61.4	62.6	61.7	60.2		61.5	1.29	3.4	1.0	59.3	0.66	3.3	2.3	12	LD					
F3A8XL	56.7	56.1	57.2	55.8		56.5	-0.69	3.4	0.6	56.3	-0.71	3.4	1.6	16	TH					
FE4LXJ	57.4	58.6	57.9	59.4		58.3	0.04	3.6	0.9	58.6	0.34	3.6	1.9	16	LD					
FVTVKL	59.0	59.2	59.2	59.0	L	59.1	0.35	2.1	0.1	L	59.3	0.65	2.0	0.2	L	16	LD			
GLHUYK	53.4	54.0	53.5	52.2	*	53.3	-1.94	*	2.6	0.8	54.7	-1.44	3.4	2.0	16	LD				
HM9E6G	56.9	57.4	H	58.4	59.2	58.0	-0.09	5.1	1.0	57.1	-0.32	5.2	1.3	16	TG					
JBCNZ3	63.7	*	61.1	64.6	*	63.1	63.1	1.94	*	2.0	1.5	62.9	2.29	*	2.8	1.7	8	XX		
K3CNZ2	57.5	55.3	54.2	56.9		56.0	-0.88	3.6	1.5	55.7	-0.96	3.4	1.7	16	LD					
KLNDYD	57.1	57.3	57.1	59.0		57.6	-0.23	4.0	0.9	58.8	0.45	4.1	1.2	12	LD					
LH96PY	62.2	57.9	57.4	57.6		58.8	0.22	3.3	2.3	57.7	-0.08	3.7	1.9	16	LD					
LMFT3Z	58.6	59.6	57.3	57.6		58.3	0.02	3.0	1.0	57.9	0.04	3.1	1.0	16	LD					
LT2LEZ	59.7	59.5	60.2	59.4		59.7	0.59	2.9	0.4	59.0	0.53	3.5	0.5	L	16	LD				
M3QUCW	55.3	55.1	55.3	56.3		55.5	-1.06	2.5	0.6	55.0	-1.29	3.0	0.9	16	LD					
MG63BE	59.0	58.3	L	58.0	L	58.2	58.4	0.07	2.3	0.4	58.5	0.32	2.4	0.9	16	EN				
MLEFTD	56.6	H	57.8	H	57.5	54.9	56.7	-0.59	5.4	1.3	54.7	-1.45	4.4	2.8	16	LD				
P7YY22	53.6	57.4	55.0	57.8		55.9	-0.89	2.9	2.0	56.3	-0.70	3.7	2.0	16	LZ					
PCKPMW	60.0	L	59.7	L	60.0	61.0	L	60.2	0.77	1.6	0.6	61.3	1.56	1.6	1.5	16	XX			
PWEFR3	63.8	*	62.2	61.0	62.6	62.4	1.65	4.3	1.2	61.3	1.57	4.3	1.9	14	LD					
QPA9GT	59.4	H	65.1	*	58.6	59.6	H	60.7	0.97	5.7	3.0	H	59.0	0.51	4.5	2.1	16	LD		
R3TC2U	62.6	63.5	62.5	61.2		62.5	1.68	3.9	1.0	60.1	1.03	6.3	6.6	H	12	LC				
R79KPT	57.7	59.0	58.3	56.4		57.9	-0.14	3.9	1.1	58.1	0.13	4.2	1.3	16	LZ					
RYT27U	52.5	*	52.3	*	51.2	*	52.1	*	52.0	-2.43	*	4.0	0.6	53.1	-2.14	*	3.2	2.1	16	LD
T39VLR	57.9	57.4	57.2	58.2		57.7	-0.21	3.3	0.5	57.9	0.01	3.6	0.8	16	LC					



Containerboard Interlaboratory Testing Program
Analysis 240

Report #618 (C)
March 2021

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM11

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	
TWGN2X	58.0	60.3	58.9	62.7	60.0	0.69	3.2	2.0	60.8	1.35	3.8	1.5	16	LD
U9BDGX	61.8	61.1	61.9	58.7	60.9	1.05	3.4	1.5	62.1	1.90	3.2	1.9	16	LC
U9QLJ7	63.6	65.9 *	64.9 *	63.1	64.4	2.43 *	4.4	1.3	65.2	3.34 X	4.6	1.7	16	TX
UF8XYT	59.7	57.1	59.9	58.1	58.7	0.20	4.0	1.3	58.4	0.23	3.4	1.5	16	EM
UGLE3X	53.9	56.3	56.2	56.8	55.8	-0.96	4.2	1.3	56.5	-0.62	3.9	2.1	16	LZ
UXRNXR	58.4	58.4	58.5	60.7	59.0	0.31	3.0	1.1	57.8	-0.04	3.8	1.5	16	LD
W6ZY4N	60.6	58.2	56.9	57.1	58.2	0.00	3.5	1.7	58.2	0.17	3.5	1.7	16	LD
X84GD4	58.1	58.5	58.6	57.9	58.3	0.03	1.9	0.3	58.3	0.22	2.0	0.5 L	16	LD
XW6HP4	56.5	58.1	54.4	54.8	56.0	-0.88	3.5	1.7	57.4	-0.22	3.1	1.5	16	LZ
Y6R2J3	55.4	52.1 *	53.5	55.3	54.1	-1.62	4.0	1.6	52.5	-2.41 *	5.2	4.9 H	16	MB
Z4XKTR	61.1	59.2	60.0	59.1	59.8	0.65	3.4	0.9	59.1	0.56	3.5	1.1	16	LD
ZCU6BM	57.7	55.3	56.7	55.3	56.3	-0.77	3.1	1.2	56.7	-0.54	4.0	1.9	16	LC
ZFAZQJ	55.5	54.3	57.8	55.3	55.7	-0.98	3.5	1.5	55.4	-1.13	3.7	1.2	12	LD
ZJ9BMJ	60.0	61.0	57.6	59.0	59.4	0.47	4.2	1.5	59.2	0.60	3.9	1.4	16	EN
ZJP9EJ	57.9 L	57.7	57.9	58.1	57.9	-0.12	1.7	0.1 L	57.8	-0.01	1.5	0.3 L	16	LD
ZTD4EY	58.6	54.9	56.1	56.9	56.6	-0.62	3.9	1.6	56.4	-0.67	3.9	2.3	16	TH
ZZDH2L	61.4 L	61.0	59.6 L	61.0	60.7	1.00	1.6	0.8	60.1	1.01	1.6	0.6 L	12	MB

Consensus (All Labs) Results													
Wk Mean	58.49	58.42	58.02	58.01	Month Mean	58.20		Grand Mean	57.85				
Avg SDr	3.68	3.45	3.45	3.41	Avg SD	3.50		Avg SD	3.65				
SD btwn Labs	2.68	2.91	2.73	2.69	SD btwn Labs	2.54		SD btwn Labs	2.21				
Labs Inclcd	51	52	51	52	SD btwn Wks	1.27		SD btwn Wks	2.40				
Labs Exclcd	0	0	0	0	Labs Inclcd	52		Labs Inclcd	51				
Labs not Rcvd	1	0	1	0									

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 #618 (C)
March 2021

Fluted Edge Crush Strength (FCF), 26 lb Corrugating Medium - CM11

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	
2GGC9L	57.5 *	56.1 X	51.7 X	53.1 X	54.6	-8.90 X	3.2	2.7	56.0	-8.05 X	3.8	2.0	16	LD
2KHCRQ	68.8	67.8	69.4	66.9	68.2	-0.42	3.0	1.1	68.1	-0.39	3.1	1.5	16	LZ
4DBTYH	No DATA	69.4	No DATA	72.6	71.0	1.29	4.0	2.3	66.5	-1.42	3.5	8.0 H	3	LD
62WVTE	66.8	68.7	71.7	72.2	69.8	0.58	4.1	2.6	67.9	-0.52	3.7	2.3	16	LD
6BMJNG	72.4	69.5	70.6	72.2	71.2	1.42	2.6	1.4	71.0	1.42	2.7	1.9	16	LC
B6DAYA	68.1	70.0	69.8	68.5	69.1	0.11	3.7	0.9	70.4	1.03	4.2	1.6	12	LD
KGTL62	67.5	67.3	68.9	69.6 L	68.3	-0.35	2.7	1.1	68.9	0.08	2.3	0.7	16	LZ
LMFT3Z	68.2	68.0	68.5	67.3	68.0	-0.57	3.4	0.5	68.8	0.03	3.8	1.2	16	LD
M3QUCW	67.7	69.1	68.5	67.1	68.1	-0.51	3.4	0.9	66.8	-1.21	3.2	1.5	16	LD
MLEFTD	70.4	66.8 H	63.8 *	68.9	67.5	-0.89	3.9	2.9	67.2	-0.98	6.0	3.1	16	LD
P7YY22	67.7	67.2	68.2	69.8	68.2	-0.45	3.4	1.1	67.5	-0.77	3.8	1.7	16	LZ
PCKPMW	69.3 L	69.8 L	71.1	71.0	70.3	0.86	1.3	0.9	70.7	1.26	1.3	1.6	16	XX
T39VLR	67.1	67.5	66.7	67.9	67.3	-1.00	3.6	0.5	68.2	-0.35	4.0	0.7	16	LD
UXRNXR	70.4	71.5 *	71.6	69.7	70.8	1.18	3.4	0.9	69.7	0.60	4.0	1.7	16	LD
X84GD4	68.6	68.9	68.8	68.5	68.7	-0.13	1.8	0.2 L	68.8	0.02	1.9	0.5 L	16	LD
Y6DAUR	68.1	66.6	67.3	67.6	67.4	-0.93	2.7	0.6	67.4	-0.82	3.3	1.3	16	LD
Z4XKTR	68.3	68.0	73.5	72.3	70.5	1.00	2.8	2.8	70.9	1.40	3.1	2.5	16	LD
ZCU6BM	57.4 *H	69.0	72.0	70.3	67.2	-1.08	4.1	6.6 H	67.4	-0.83	5.2	5.4 H	16	LC
ZFAZQJ	74.0	70.4	71.8	73.1	72.3	2.12 *	2.7	1.6	72.3	2.24 *	3.1	1.5	12	LD
ZJ9BMJ	66.8	70.3	63.7 *	63.1 XH	66.0	-1.81	4.0	3.3	69.0	0.21	3.8	2.8	16	EN
ZJP9EJ	68.8	68.8	68.7	68.9	68.8	-0.07	1.9	0.1 L	68.7	0.01	1.7	0.2 L	16	LD
ZTD4EY	58.5 *	57.4 X	57.5 X	56.9 X	57.6	-7.04 X	3.9	0.7	58.3	-6.64 X	3.1	1.1	16	TH
ZZDH2L	68.8	67.6	67.3	69.7	68.4	-0.34	1.6	1.1	67.1	-1.00	1.6	1.2	12	MB

Consensus (All Labs) Results													
Wk Mean	67.32	68.67	69.09	69.70	Month Mean	68.91			Grand Mean	68.72			
Avg SDr	3.35	3.23	3.01	2.80	Avg SD	3.16			Avg SD	3.48			
SD btwn Labs	4.25	1.31	2.57	1.97	SD btwn Labs	1.61			SD btwn Labs	1.58			
Labs Incl	22	21	20	20	SD btwn Wks	2.14			SD btwn Wks	2.67			
Labs Excl	0	2	2	3	Labs Incl	21			Labs Incl	21			
Labs not Rcvd	1	0	1	0									



Containerboard Interlaboratory Testing Program
Analysis 250

Report #618 (C)
March 2021

Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM11
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 - CM11
 TAPPI Official Test Method T822

Report #618 (C)
March 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
2ET4YK	48.3	47.8	47.7 L	47.3 L	47.8	1.73	1.5	0.4	47.6	1.92 *	1.6	0.4 L	16	LC
3W8YRH	44.4	44.5	44.4	44.1	44.3	-0.12	2.9	0.2 L	43.9	-0.47	2.6	1.1	16	TH
3WTDHG	43.2	45.5 L	46.0 L	44.9	44.9	0.19	2.0	1.2	44.0	-0.40	2.6	1.0	16	LC
62WVTE	41.8	47.2	44.6	45.2	44.7	0.05	3.0	2.2	44.2	-0.28	3.3	1.6	16	LD
6BMJNG	44.1	47.0	46.6	44.8	45.6	0.55	2.6	1.4	45.8	0.80	2.7	1.8	16	LC
73YD6F	40.4	43.0 L	41.7	41.2	41.6	-1.61	1.8	1.1	46.8	1.40	2.0	8.1 H	16	TU
F3A8XL	37.2 *	35.6 X	38.6	35.6 X	36.8	-4.21 X	2.1	1.4	35.7	-5.71 X	2.3	1.7	16	TH
FCZT4K	47.5	43.4	47.3 H	45.2	45.8	0.67	5.1	1.9	43.3	-0.82	4.6	3.2	12	XX
FVTVKL	44.6 L	44.7 L	44.8 L	44.7 L	44.7	0.07	0.9	0.1 L	44.3	-0.19	1.5	0.2 L	16	LD
K3CNZ2	41.0	43.6	44.6	46.3	43.9	-0.38	3.1	2.2	44.9	0.19	3.1	1.7	16	LD
KCZJYG	42.7	42.3	42.5	42.3	42.4	-1.14	3.2	0.2 L	44.7	0.05	3.5	1.7	16	LZ
LMFT3Z	41.0	43.9	42.1	44.7	42.9	-0.89	3.6	1.7	43.1	-0.98	3.8	1.5	16	LD
LT2LEZ	44.1	44.0	44.0	43.8	44.0	-0.33	2.3	0.1 L	44.0	-0.39	2.8	0.4 L	16	LD
M3QUCW	43.6	42.6	45.1	44.4	43.9	-0.35	3.1	1.1	44.0	-0.41	3.0	1.4	16	LD
PWEFR3	47.4 H	44.6	47.1	47.0	46.5	1.05	4.2	1.3	45.8	0.80	4.1	1.8	14	LZ
QPA9GT	45.6	33.7 X	36.6 *H	50.8 *H	41.7	-1.57	5.7	7.9 H	43.0	-1.05	4.2	4.6	16	LD
QU3C9B	41.5	44.8	39.4	41.3	41.7	-1.52	3.3	2.2	41.4	-2.05 *	2.6	3.1	16	LZ
R3TC2U	34.1 XH	32.5 X	36.2 *	41.5	36.1	-4.56 X	4.7	3.9	36.1	-5.51 X	4.6	2.8	12	XX
TWGN2X	44.9	45.8	47.0	47.6	46.3	0.95	3.5	1.2	46.7	1.39	3.2	1.4	16	LD
U9QLJ7	47.2	46.7	47.1	43.9	46.2	0.89	3.7	1.6	45.4	0.50	4.2	1.6	16	LD
UF8XYT	48.7	47.7 H	46.8	49.1	48.1	1.90	4.3	1.0	47.0	1.54	4.0	1.5	16	EM
UXRNXR	46.1	46.6	48.1	47.3	47.0	1.33	3.1	0.9	46.2	1.03	4.1	1.5	16	LD
X84GD4	44.5	44.9	44.9	44.2	44.6	0.03	3.2	0.3 L	44.3	-0.22	2.9	0.5 L	16	LD
XW6HP4	45.1	40.9 *	42.1	41.8	42.5	-1.14	3.6	1.9	44.0	-0.39	3.4	1.7	16	LD
Y6R2J3	43.3	44.3	46.6	47.3	45.4	0.44	3.2	1.9	45.8	0.79	3.3	3.7	16	MB
ZFAZQJ	47.2	45.5	45.6	43.6	45.5	0.49	3.7	1.5	44.6	-0.01	3.3	1.4	12	XX
ZTD4EY	43.6	46.6 H	42.3	45.0	44.4	-0.10	3.8	1.8	42.5	-1.34	3.4	2.0	16	TH
ZZDH2L	42.5	42.4	42.3 L	42.1 L	42.3	-1.20	1.4	0.2 L	42.4	-1.43	1.5	0.2 L	12	MB

Consensus (All Labs) Results														
Wk Mean	44.12	44.80	44.00	44.87	Month Mean	44.57	Grand Mean	44.60						
Avg SDr	3.31	2.95	3.56	3.45	Avg SD	3.33	Avg SD	3.25						
SD btwn Labs	2.70	1.84	3.26	2.41	SD btwn Labs	1.86	SD btwn Labs	1.55						
Labs Incl	27	25	28	27	SD btwn Wks	2.06	SD btwn Wks	2.48						
Labs Excl	1	3	0	1	Labs Incl	26	Labs Incl	26						
Labs not Rcvd	0	0	0	0										



Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM11
TAPPI Official Test Method T822

Report #618 (C)
March 2021

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
STFI, 26 lb Corrugating Medium - CM11
 TAPPI Official Test Method T826

Report #618 (C)
March 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	
2M9MHJ	14.1	14.1	13.9	13.0	13.8	-0.19	0.9	0.5	13.7	-0.42	0.9	0.4	16	LB
3WTDHG	14.4	14.5	14.8 *	14.2	14.5	1.09	1.2	0.3	14.4	1.10	1.1	0.3	16	LH
4NQMCW	13.0	13.1	13.9	13.6	13.4	-0.92	1.2	0.4	13.5	-1.03	1.1	0.3	14	LA
6BMJNG	13.5	13.6	13.6	14.6	13.8	-0.09	0.9	0.5	13.8	-0.25	1.0	0.4	16	LU
6WGN6E	13.8	14.2	14.1	13.9	14.0	0.21	1.0	0.2	13.9	0.02	1.0	0.4	16	LA
A448BP	14.1	13.9	13.8	13.7	13.9	0.02	1.0	0.2	13.9	-0.11	1.0	0.3	16	TT
FE4LXJ	14.5	13.9	13.4	15.0 *	14.2	0.59	1.0	0.7	14.1	0.48	1.0	0.5	16	LH
KCZJYG	14.1	13.1	14.0	13.4	13.7	-0.40	1.1	0.5	13.6	-0.65	0.9	0.5	16	LA
M3QUCW	14.6	14.2	14.3	13.9	14.3	0.69	1.1	0.3	14.1	0.52	1.1	0.2	16	LA
MG63BE	13.7	12.7 L	13.2	13.1	13.2	-1.29	0.7	0.4	13.5	-0.93	0.9	0.5	16	LH
MLEFTD	14.7	14.6	14.6	13.3	14.3	0.75	1.2	0.7	14.6	1.57	1.1	0.5	16	LA
PCKPMW	13.4	13.5	12.4 X	13.4	13.2	-1.27	1.1	0.5	16.0	4.76 X	1.3	4.4 H	16	XX
PL9KMC	14.5	15.2	14.9 *	14.3	14.7	1.58	1.1	0.4	14.1	0.46	0.9	0.6	12	LU
QPA9GT	14.3	15.7 *H	14.0	15.9 X	15.0	2.02 *	1.2	1.0	14.6	1.67	1.2	0.7	16	LA
QU3C9B	15.2 *H	14.8	14.5	13.9 H	14.6	1.32	1.5	0.6	14.6	1.59	1.3	0.9	16	LA
T39VLR	13.5	13.1	14.0	14.2	13.7	-0.35	0.9	0.5	13.8	-0.35	0.9	0.3	16	LB
UXRNXR	13.2	13.3	13.6	13.5	13.4	-0.92	1.0	0.2	13.4	-1.16	1.1	0.4	16	LB
W6ZY4N	13.9	12.9	13.4	13.3	13.4	-0.89	1.0	0.4	13.9	-0.02	1.2	0.5	16	LU
X84GD4	14.0	13.8	13.9	13.9	13.9	0.03	1.2	0.1 L	13.8	-0.17	1.1	0.1 L	16	LB
XW6HP4	13.9	13.2	13.7	13.5	13.6	-0.56	1.1	0.3	13.4	-1.12	1.0	0.3	16	LZ
Y6R2J3	13.9	14.0	16.0 XL	14.5	14.6	1.30	0.9	1.0	14.6	1.68	2.3	0.8	16	LA
ZJ9BMJ	13.6	13.3	13.5	13.2	13.4	-0.89	1.1	0.2	13.5	-0.90	1.0	0.2	12	LB
ZJP9EJ	13.9 L	13.9 L	13.8 L	13.8 L	13.9	-0.05	0.5	0.1 L	13.8	-0.15	0.4	0.1 L	16	LA
ZTD4EY	12.7 *H	11.9 *	13.5	13.5	12.9	-1.79	1.2	0.8	13.1	-1.81	1.1	0.6	16	LH

Consensus (All Labs) Results														
Wk Mean	13.94	13.77	13.93	13.76	Month Mean	13.88			Grand Mean	13.92				
Avg SDr	1.08	1.08	1.06	1.04	Avg SD	1.06			Avg SD	1.12				
SD btwn Labs	0.59	0.85	0.46	0.51	SD btwn Labs	0.55			SD btwn Labs	0.43				
Labs Incl	24	24	22	23	SD btwn Wks	0.50			SD btwn Wks	0.47				
Labs Excl	0	0	2	1	Labs Incl	24			Labs Incl	23				
Labs not Rcvd	0	0	0	0										



Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM11
TAPPI Official Test Method T826

Report #618 (C)
March 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)	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		