



Containerboard Interlaboratory Testing Program

Participant Summary Report #611 (J) - August 2020

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX14</u>	<u>Top to Bottom Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC12</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC12</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42F2</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>42F2</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>42F2</u>	<u>STFI, 42 lb Linerboard</u>
<u>225</u>	<u>35E2</u>	<u>STFI, 35 lb Linerboard</u>
<u>228</u>	<u>42F</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42F2</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>42F2</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; 36 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	April 2019-Current
	CM92	January 2019-March 2019
35 lb Linerboard	35E2	June 2020-Current
	35E1	February 2019-April 2020
42 lb Linerboard	42F2	February 2020-Current
	42F1	January 2019-January 2020
56 lb Linerboard	56G1	January 2020-Current
	56A2	January 2019-November 2019

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 #611 (J)
August 2020

Top to Bottom Box Compression Strength, Corrugated Boxes - BX14

TAPPI Official Test Method T804

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
27BXXKX	552.9	-0.52	61.87	549.7	-0.79	21.40	4	ER
3BKB3W	595.8	0.14	31.82	612.4	0.58	39.54	4	LO
4982PP	677.0	1.40	23.99	662.9	1.68	27.46	4	LG
8E33FU	566.6	-0.31	22.62	566.1	-0.44	34.85	3	LM
98YHRP	754.2	2.60 *	79.65	632.5	1.02	83.37 H	4	LL
9LHA9H	602.6	0.25	67.90	555.3	-0.67	32.73	4	EX
AGNQPK	515.6	-1.10	12.38	522.9	-1.38	20.87	3	EX
CHTW7H	541.3	-0.70	32.32	552.7	-0.73	16.31	4	LS
D2F7FH	572.5	-0.22	34.65	565.3	-0.45	31.03	4	LL
GHVD7C	618.7	0.50	88.33 H	622.0	0.79	16.29	4	TB
HW8BP3	603.1	0.26	32.87	597.4	0.25	11.31	4	LM
HXXJP7	502.1	-1.31	26.01	566.9	-0.42	67.36	4	ET
JV7XFF	558.8	-0.43	38.32	583.9	-0.05	66.91	4	ES
N79QR3	548.6	-0.59	11.74	548.6	-0.82	0.00	1	ET
P9XBG8	555.4	-0.48	11.15	628.1	0.92	95.59 H	4	LS
QEEC3M	593.2	0.10	30.15	587.6	0.03	11.29	3	LG
QK7DFA	628.2	0.65	28.19	642.6	1.23	11.45	4	ER
QYRTJA	588.2	0.03	60.74	574.7	-0.25	31.73	4	ER
R2TFB4	497.4	-1.38	37.28	517.2	-1.51	19.23	4	LS
R4GRBA	478.6	-1.67	10.78	481.1	-2.30 *	2.83 L	4	LL
TAVY4Y	742.0	2.41 *	60.66	697.2	2.43 *	34.65	4	EM
TRHDQ4	632.0	0.71	68.77	632.7	1.02	4.30 L	4	TE
V6ED8W	607.7	0.33	20.59	600.9	0.32	18.71	3	TC
VFCB4H	609.8	0.36	36.73	572.1	-0.30	32.72	3	XX
XGNQL3	605.4	0.29	24.40	602.9	0.37	9.72	4	EX
YECBR3	598.5	0.19	73.80	584.8	-0.03	19.10	4	ER
ZKCYZU	511.5	-1.16	11.43	575.0	-0.24	66.88	4	LG
ZPLDHR	562.4	-0.37	28.85	574.8	-0.25	11.37	4	LS

Consensus (All Labs) Results

Month Mean	586.44	Grand Mean	586.07
Avg SD	44.18	Avg SD Months	39.24
SD btwn Labs	64.51	SD btwn Labs	45.74
Labs Incl	28	Labs Incl	28



Containerboard Interlaboratory Testing Program
Analysis 201

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Top to Bottom Box Compression Strength, Corrugated Boxes - BX14

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	610.94	78.31	24.50	8
Water based adhesive sealing	742.00	0.00	155.56	1
Clip sealing	565.61	43.45	20.83	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
LL	Lansmont 76-5K	LM	Lansmont 122-15k
LO	Lansmont 152-30k	LS	Lansmont Squeezer
TB	TMI Monitor/Compression Tester, Model 17-70	TC	TMI Monitor/Compression Tester, Model 17-37
TE	Testometric M500 - 25 KN	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC12
 TAPPI Official Test Method T811

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
27BXXKX	38.1	0.38	1.49	36.1	-0.30	1.85	3	EN
8DB7TL	32.7	-1.57	1.28	32.6	-1.62	0.78	4	TX
8NTMKR	36.7	-0.12	4.86 H	36.5	-0.14	1.64	4	LD
9LHA9H	35.3	-0.63	2.21	35.4	-0.58	0.75	4	LC
CHTW7H	38.2	0.43	1.35	39.0	0.79	0.54	4	LC
MURBU7	40.2	1.15	1.01	40.6	1.41	0.37	4	LC
QEEC3M	37.1	0.03	1.46	36.9	0.00	1.22	3	LE
R2TFB4	20.1	-6.17 X	1.24	24.0	-4.86 X	2.78	4	EM
RNZU69	42.3	1.90 *	1.10	41.6	1.76	3.07 H	4	XX
RWH3U7	36.3	-0.29	0.67 L	36.6	-0.12	1.48	4	XX
TAVY4Y	38.5	0.53	1.48	38.5	0.61	0.00	1	TH
XC87TV	36.3	-0.27	1.16	35.3	-0.62	1.29	4	TF
ZPLDHR	32.8	-1.55	3.80 H	33.7	-1.20	0.93	4	LD

Consensus (All Labs) Results			
Month Mean	37.04	Grand Mean	36.88
Avg SD	2.18	Avg SD Months	1.46
SD btwn Labs	2.75	SD btwn Labs	2.65
Labs Incd	12	Labs Incd	12

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	TF	TMI Digital Crush Tester, Model 17-19
TH	TMI Monitor/Compression Tester, Model 17-76	TX	TMI (model not specified)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC12
 TAPPI Official Test Method T839

Report #611 (J)
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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
27BXXKX	39.6	0.10	2.86	37.7	-0.90	2.36	3	EN
3BKB3W	40.3	0.43	1.32	38.8	-0.27	1.15	4	LD
4982PP	40.0	0.29	1.81	40.3	0.61	1.08	4	EM
4C7CKP	39.5	0.02	1.77	39.7	0.26	0.49	3	TL
8CXJ9L	40.5	0.53	1.21	39.9	0.39	1.83	3	EM
8DB7TL	28.1	-5.98 X	1.28	36.3	-1.69	5.82 H	4	TX
8E33FU	35.1	-2.31 *	2.17	36.1	-1.80	1.18	3	TG
8NTMKR	37.4	-1.09	1.41	38.1	-0.66	1.73	4	LD
9LHA9H	39.1	-0.21	1.50	38.6	-0.38	0.57	4	LC
AAP4YK	41.6	1.13	1.29	40.4	0.68	1.01	4	TG
AGNQPK	41.2	0.90	1.27	39.8	0.30	1.74	3	CT
AU96TK	38.5	-0.53	1.57	38.9	-0.20	0.76	4	TK
CHTW7H	42.1	1.42	1.47	40.9	0.96	0.92	4	LC
CYDN6H	31.7	-4.11 X	2.63	33.4	-3.40 X	2.04	4	XX
D2F7FH	40.3	0.42	1.28	40.3	0.62	0.16 L	4	BU
D474UG	36.0	-1.85	1.28	37.8	-0.84	2.60	2	EM
GHVD7C	39.9	0.23	0.87	40.4	0.67	0.63	4	LD
HW8BP3	39.1	-0.21	2.47	39.7	0.28	0.52	4	EM
HXXJP7	39.1	-0.18	2.50	39.9	0.37	1.34	4	TD
JE32JB	39.3	-0.10	1.71	41.9	1.54	1.88	4	LD
JV7XFF	40.8	0.68	1.28	40.7	0.81	0.81	4	LD
KCU93H	37.9	-0.82	1.87	36.8	-1.41	1.22	4	LC
M3HT9E	39.7	0.13	0.77 L	36.4	-1.65	4.66	2	IM
MURBU7	41.8	1.24	1.45	41.2	1.11	0.86	4	LC
N79QR3	38.9	-0.31	1.05	38.9	-0.23	0.00	1	EM
P3TJ44	40.5	0.55	2.47	40.2	0.54	1.67	4	TD
P9XBG8	42.2	1.45	1.48	40.9	0.96	2.03	4	TB
QEEC3M	39.0	-0.24	2.14	39.0	-0.14	0.49	3	LY
QK7DFA	40.3	0.43	1.56	40.0	0.45	0.30 L	4	EM
QYRTJA	40.8	0.72	1.26	40.0	0.42	0.74	4	LD
R2TFB4	36.9	-1.37	0.81	38.1	-0.70	0.79	4	EM
R4GRBA	38.1	-0.71	3.07 H	37.5	-1.03	1.12	4	LC
RK46P2	36.1	-1.76	1.18	35.9	-1.93 *	1.39	4	LC
RNZU69	40.2	0.38	2.63	41.5	1.30	1.69	4	XX
TRHDQ4	39.1	-0.20	1.19	41.5	1.27	1.72	4	LD
UZ7LNY	42.3	1.51	2.86	39.7	0.26	2.07	4	XX
XC87TV	42.8	1.76	0.79 L	39.2	-0.02	2.46	4	TD
XGNQL3	40.6	0.60	1.46	41.1	1.05	1.51	4	LD
XMPZRV	34.9	-2.42 *	3.48 H	35.1	-2.42 *	0.29 L	4	TD



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC12
 TAPPI Official Test Method T839

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
YECBR3	39.8	0.17	1.93	41.1	1.04	1.96	4	LD
ZKCYZU	38.1	-0.71	1.48	39.8	0.29	1.68	4	TJ
ZPLDHR	39.3	-0.09	1.03	40.6	0.79	1.35	4	LD

Consensus (All Labs) Results				
Month Mean	39.46		Grand Mean	39.26
Avg SD	1.80		Avg SD Months	1.83
SD btwn Labs	1.90		SD btwn Labs	1.73
Labs Incl	40		Labs Incl	40

Key to Instrument Codes Reported by Participants

BU Buchel Digital Crush Tester	CT Con-Ten
EM Emerson 1200 Series	EN Emerson 2200
IM Instron 5500 Series	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	TJ TLS Compression Tester, Model CDM-5
TK TLS Compression Tester, Model 5184	TL Tech-Lab Systems Compression
TX TMI (model not specified)	XX Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 Ib Linerboard - 42F2
 TAPPI Official Test Method T807

Report #611 (J)
August 2020

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	
3D76UQ	101.1 *	108.9	103.6	109.0	105.7	-1.32	7.7	3.9	106.0	-1.14	8.4	3.6	16	LA
3QWPJU_AL	113.1	111.1	111.3	114.0	112.4	0.48	10.6	1.4	114.2	1.07	9.7	3.9	14	AL
6ETD2X	94.2 X	99.1 *	100.0 *	99.6 *	98.2	-3.30 X	11.3	2.7	101.4	-2.41 *	9.9	4.0	8	LA
6VGQFP_AL	112.8	118.2	111.0	No DATA	114.0	0.91	6.7	3.7	114.6	1.20	9.4	3.8	15	AL
6XN7LV	109.2	109.5	109.2	109.8	109.4	-0.31	5.6	0.3 L	108.7	-0.40	6.5	0.5 L	16	LJ
73AJZN	115.3	112.4	No DATA	No DATA	113.9	0.87	9.7	2.1	114.4	1.15	9.4	1.9	8	LC
7PAKDR_AL	112.6	108.8	109.7	112.8	111.0	0.10	9.2	2.0	111.2	0.26	9.4	1.8	8	AL
8NTMKR	102.5	103.2	112.9	103.2	105.4	-1.38	7.0	5.0	106.1	-1.11	6.9	3.4	16	LA
A8X6KM	109.1	110.0	109.3	110.1	109.6	-0.26	6.8	0.5 L	109.8	-0.11	6.7	1.1	16	AH
AGNQPK	111.5	112.0 H	110.5	113.0	111.8	0.31	10.2	1.0	111.3	0.29	9.9	3.1	12	XX
AWWGTP	108.1	115.5	107.3	108.1	109.8	-0.22	8.1	3.9	110.0	-0.07	8.6	3.1	16	LZ
B22Z4M	111.0	111.8	111.7	110.4	111.2	0.16	5.3	0.7	110.9	0.18	6.7	1.6	16	LA
B22Z4M_AL	110.7	108.1	111.4	111.5	110.4	-0.04	5.4	1.6	110.2	-0.01	9.8	2.7	16	AL
B7G8RM	117.6	119.0	115.4 L	109.0 L	115.3	1.24	6.8	4.4	116.5	1.72	9.1	3.1	16	AH
BC7KTB_AL	106.1	106.2	103.4	104.9	105.2	-1.45	9.5	1.3	106.9	-0.90	8.6	3.7	16	AL
BHBNGN_AL	110.0 L	108.0 L	107.2	107.1	108.0	-0.68	5.3	1.4	107.9	-0.63	5.8	2.2	16	AL
C9JP4N	110.4	110.2 L	109.3 L	107.2 L	109.3	-0.35	3.3	1.4	109.4	-0.21	4.4	1.4	16	LA
CHTW7H	113.0	118.9	106.6	108.9	111.9	0.34	8.7	5.4	109.6	-0.18	7.7	5.2	16	AH
DBLQ4K	106.1	104.5	103.5	101.8	104.0	-1.77	9.6	1.8	105.4	-1.31	9.9	2.9	16	LC
DDR93G	108.6	111.3	108.1	108.6	109.2	-0.38	4.6	1.5	108.5	-0.46	4.3	1.4	16	LA
DUEV2D	124.4 X	113.2	105.2	No DATA	114.3	0.98	10.1	9.6 H	114.3	1.10	10.1	9.6 H	3	LA
ELHD9M	116.0	115.8	110.2	113.6	113.9	0.88	7.5	2.7	110.2	-0.01	8.1	4.2	16	AH
ELHD9M_AL	109.6	111.2	106.1	106.5	108.4	-0.60	8.9	2.5	110.7	0.14	9.3	2.8	13	AL
EWYXRJ_AL	112.0	111.0	114.6	111.9	112.4	0.48	7.4	1.5	113.5	0.90	7.4	2.8	16	AL
EYPYX8	110.3 H	No DATA	130.2 X	113.9	118.1	2.01 *	11.3	10.6 H	115.4	1.42	10.0	7.6 H	10	TB
G7DTLF	125.3 X	117.4 H	118.4	118.2 *H	119.8	2.46 *	12.3	3.7	119.8	2.62 *	12.3	3.7	4	AX
GAXLXH	118.7 *	99.1 *L	113.8	112.6	111.1	0.12	8.2	8.4 H	112.5	0.63	9.0	4.9	16	LA
GFM8JB	101.4 *	103.3 L	100.9 *	104.3	102.5	-2.16 *	6.2	1.6	103.1	-1.95 *	6.4	2.3	10	AC
GWREYD_AI	111.2	128.7 X	114.1	111.8	116.5	1.56	8.9	8.2 H	115.5	1.43	8.9	5.3	16	AK
JE32JB_AL	117.4	115.4	120.6 *	118.6 *	118.0	1.98 *	7.3	2.2	117.3	1.93	7.0	2.4	16	AK
JV7XFF	108.9	111.0	105.3	105.3	107.6	-0.79	9.7	2.8	106.5	-1.01	10.0	3.4	16	LA
K4J7GG_AL	108.5	107.7 H	113.3	110.2	109.9	-0.18	8.7	2.5	110.8	0.15	7.8	2.3	16	AL
K9VUGD	No DATA	112.9	117.2	117.1	115.7	1.37	9.5	2.5	113.9	1.01	8.6	3.3	15	TB
KCU93H_AL	110.7	117.3	113.2	111.6	113.2	0.69	9.0	2.9	112.0	0.48	8.6	2.3	14	AL
KTHLGA_AL	No DATA	108.9	109.4	109.9	109.4	-0.31	5.7	0.5 L	109.4	-0.22	5.7	0.5 L	3	AL



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F2
 TAPPI Official Test Method T807

Report #611 (J)
August 2020

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	
L4YP2E	110.0	108.9	111.7	114.8	111.3	0.20	9.1	2.6	111.2	0.28	8.9	2.8	16	LA
LMBEEC	105.7	111.0	113.0	110.3	110.0	-0.16	8.3	3.1	107.1	-0.85	7.7	2.4	16	LC
P794YV	110.8	114.5	112.8	117.3	113.9	0.87	10.1	2.7	106.3	-1.07	9.4	7.0	16	LB
PU3WGD	103.1	105.0	103.7	111.6	105.9	-1.26	8.0	3.9	105.8	-1.20	8.2	2.8	8	XX
Q3LMGB	113.1	111.7	105.9	106.0	109.2	-0.37	9.7	3.8	108.4	-0.48	9.7	2.9	16	LA
QEEC3M	114.7	113.3	115.5	115.8	114.8	1.13	8.0	1.1	115.0	1.31	7.4	1.7	12	AH
QG83KA	111.1	123.8 X	113.7	107.8	114.1	0.93	7.0	6.9	111.4	0.33	9.2	4.2	16	LJ
QYRTJA	110.5	109.1	117.2	113.8	112.7	0.55	8.7	3.6	112.4	0.59	8.2	2.6	16	AH
RNZU69	110.0	110.3	112.6	112.2	111.3	0.18	5.9	1.4	113.8	0.97	4.7	2.0	16	LC
T9Q6T9	112.3	115.8	110.0	106.8	111.2	0.17	9.6	3.8	112.7	0.68	9.0	3.0	16	LC
U2YHB9	113.8	111.4	109.4 L	106.2 L	110.2	-0.10	6.3	3.2	110.3	0.01	9.2	2.3	16	AX
U2YHB9_AL	106.5	110.7	108.1	111.0	109.1	-0.40	7.7	2.2	103.5	-1.82	6.6	9.4 H	16	AL
UDF2U6_AL	107.3	106.6	100.4 *	106.4	105.2	-1.44	6.9	3.2	107.7	-0.69	6.1	2.7	16	AL
WHZ4QZ	109.1	109.5	108.3	109.7	109.2	-0.38	6.8	0.6 L	109.2	-0.28	6.7	1.6	16	TP
WQEPY4	104.7 L	108.5	104.5	100.3 *	104.5	-1.62	5.6	3.4	104.5	-1.55	7.3	2.9	16	LC
WQFMAY	113.3	112.4	111.3	113.2 L	112.6	0.52	4.0	0.9	113.0	0.75	5.2	1.1	16	LA
XC87TV	112.8	110.6 H	110.1 H	110.6	111.0	0.12	12.8	1.2	111.6	0.39	11.6	3.1	16	XX
XEVVYU	116.5	116.4	111.0	115.0	114.7	1.10	9.2	2.6	111.8	0.44	9.4	3.4	16	LC
XEVVYU_AL	114.3	109.2	113.5	107.6	111.2	0.15	8.4	3.3	109.9	-0.09	12.5	4.8	16	AL
XGNQL3	105.0	107.0	107.8	102.4	105.6	-1.34	8.3	2.4	108.7	-0.41	9.7	3.4	16	AH
XU97P3_AL	104.9	109.5	113.0	108.8	109.1	-0.41	7.8	3.3	109.2	-0.29	8.4	2.9	16	AL
YECBR3	104.2	105.9 H	105.6	107.7	105.9	-1.26	10.4	1.4	107.5	-0.75	10.0	2.7	16	LZ
YPCYJY_AL	112.9	109.7	108.3	114.8	111.4	0.22	7.1	3.0	108.8	-0.37	10.7	3.2	16	AL
YXMZ6Z	111.6	106.0	108.0	108.6	108.6	-0.54	7.3	2.3	109.5	-0.20	8.3	1.7	16	LA
ZPLDHR	108.6	99.7 *	103.8	106.5	104.7	-1.58	8.2	3.8	105.5	-1.27	9.2	2.4	16	LA

Consensus (All Labs) Results														
Wk Mean	110.19	110.24	109.71	109.82	Month Mean	110.59			Grand Mean	110.21				
Avg SDr	8.73	8.40	7.79	8.01	Avg SD	8.23			Avg SD	8.58				
SD btwn Labs	4.06	4.56	4.50	4.31	SD btwn Labs	3.75			SD btwn Labs	3.68				
Labs Incl	55	57	58	57	SD btwn Wks	3.66			SD btwn Wks	3.63				
Labs Excl	3	2	1	0	Labs Incl	59			Labs Incl	60				
Labs not Rcvd	2	1	1	3										



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42F2
TAPPI Official Test Method T807

Report #611 (J)
August 2020

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 #611 (J)
August 2020

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	
3D76UQ	88.1	88.4	89.2	88.8	88.6	-1.04	6.8	0.5 L	89.8	-0.73	8.2	1.6	8	LA
3QWPJU_AL	97.4	97.1	98.8	91.4	96.2	1.09	8.9	3.3	96.0	1.24	9.2	2.8	8	XX
6ETD2X	86.6	89.7	80.6 *	84.7	85.4	-1.96 *	7.9	3.8	85.4	-2.09 *	7.9	3.8	4	LA
6VGQFP_AL	103.5 *	103.6 *	93.4	No DATA	100.2	2.22 *	8.2	5.9	98.5	2.00 *	9.5	4.3	7	AL
6XN7LV	90.9	90.6	90.8	90.8	90.8	-0.44	4.3	0.1 L	90.5	-0.50	4.5	0.3 L	8	LJ
73AJZN	97.4	90.5	No DATA	No DATA	94.0	0.46	6.9	4.9	91.5	-0.17	7.4	5.0	4	LC
7PAKDR_AL	87.5	92.9	89.9	96.9	91.8	-0.15	7.8	4.1	91.8	-0.09	7.8	4.1	4	AL
8NTMKR	90.1	90.9	90.3	89.2	90.1	-0.62	6.7	0.7	89.9	-0.69	6.4	2.0	8	LA
A8X6KM	90.1	90.5	90.2	90.5	90.3	-0.56	6.5	0.2 L	90.7	-0.42	6.5	0.7 L	8	AH
AGNQPK	97.5	90.5	88.5 H	93.0	92.4	0.02	9.7	3.9	91.2	-0.28	8.6	2.9	8	XX
AWWGTP	92.5	96.4	93.3	96.1	94.6	0.63	7.8	2.0	92.7	0.18	8.6	2.5	8	LZ
B22Z4M	86.3 L	86.1	86.0 L	86.8	86.3	-1.71	4.6	0.3 L	89.7	-0.76	5.6	3.9	8	LA
B22Z4M_AL	95.3	89.6	88.8	91.4	91.3	-0.29	5.3	2.9	91.7	-0.12	5.8	2.1	8	AL
B7G8RM	95.4	103.4 *	102.8 *	98.8 *	100.1	2.20 *	7.0	3.7	100.3	2.57 *	7.8	2.7	8	AH
BC7KTB_AL	81.6 *	88.7	85.6	86.9	85.7	-1.87	7.5	3.0	85.6	-2.04 *	8.2	2.4	8	AL
BHBNGN_AL	91.3	92.4	92.6	89.6	91.4	-0.24	5.1	1.4	90.8	-0.41	4.9	1.9	8	AL
C9JP4N	89.6 L	91.7	89.7	89.2	90.0	-0.64	4.3	1.1	89.1	-0.93	4.9	1.2	8	LA
CHTW7H	98.7	101.6 *	87.3	87.4	93.8	0.41	6.1	7.5 H	94.5	0.75	7.9	5.1	8	AH
DBLQ4K	89.7	89.3	95.2	93.7	92.0	-0.10	8.6	2.9	90.6	-0.46	8.0	2.7	8	LC
DDR93G	92.3	90.7	93.0	90.9	91.7	-0.17	3.5	1.1	91.9	-0.05	3.8	1.0	8	LA
DUEV2D	102.1 *	96.4	87.4	88.3	93.5	0.35	8.1	7.0 H	93.5	0.46	8.1	7.0 H	4	LA
ELHD9M	96.4	97.8	95.6	95.2	96.3	1.11	7.1	1.1	95.5	1.07	6.7	2.2	8	AH
ELHD9M_AL	89.1	89.3	90.4	90.8	89.9	-0.68	7.8	0.8	90.0	-0.64	8.2	3.3	8	AL
EWYXRJ_AL	94.8 H	90.6	99.6	93.1	94.5	0.62	8.3	3.8	94.5	0.75	7.0	3.1	8	AL
EYPYX8	89.6	No DATA	98.8	97.8	95.4	0.87	7.6	5.0	96.0	1.23	8.2	3.6	7	TB
G7DTLF	100.1	95.7	92.0 H	85.9	93.4	0.31	11.7	6.0	93.4	0.42	11.7	6.0	4	AX
GAXLXH	96.2	94.6	92.7	93.0	94.1	0.51	6.7	1.6	93.6	0.49	9.2	2.2	8	LA
GFM8JB	89.8	83.7	81.9 *L	84.0 *	84.9	-2.11 *	6.4	3.4	84.2	-2.47 *	6.6	2.9	6	AC
GWREYD_AI	99.8	105.0 *	99.5 H	97.5	100.4	2.30 *	9.5	3.2	99.3	2.27 *	9.4	4.9	8	AK
JE32JB_AL	97.1	96.7	99.5	94.4	96.9	1.30	8.4	2.1	97.1	1.57	7.3	1.7	8	AK
JV7XFF	90.2	90.0	83.7	90.3	88.6	-1.06	8.0	3.2	89.6	-0.77	7.5	2.7	8	LA
K4J7GG_AL	95.5	96.6	93.0	90.2	93.8	0.43	7.1	2.9	92.7	0.21	7.6	2.7	8	AL
K9VUGD	No DATA	95.5	98.5	91.0	95.0	0.76	7.1	3.8	95.2	0.98	6.5	3.7	7	TB
KCU93H_AL	101.1 H	95.2 H	97.7	92.2	96.5	1.19	10.5	3.8	94.1	0.62	10.6	4.8	6	AL
KTHLGA_AL	No DATA	92.7	92.0	93.5	92.7	0.12	7.3	0.7	92.7	0.21	7.3	0.7 L	3	AL



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

Report #611 (J)
August 2020

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	
L4YP2E	97.8	93.6	97.3	93.6	95.6	0.92	8.8	2.3	94.3	0.69	8.6	3.8	8	LA
LMBEEC	87.2	92.5	93.9	85.9	89.9	-0.69	7.0	3.9	89.6	-0.77	7.0	2.7	8	LA
P794YV	94.5	96.9	93.0	96.3	95.2	0.81	7.4	1.8	92.1	0.01	7.6	3.8	8	LB
PU3WGD	87.0	85.2	88.9	87.9	87.3	-1.43	7.2	1.6	87.3	-1.48	7.8	1.8	8	XX
Q3LMGB	96.7	87.8	93.7	89.9	92.0	-0.08	7.7	4.0	91.8	-0.10	8.7	4.1	8	LA
QEEC3M	100.7	98.0	95.3 L	93.6	96.9	1.30	7.0	3.1	96.6	1.40	6.8	2.1	8	AH
QG83KA	91.6	94.3	94.0	94.6	93.6	0.37	8.5	1.4	92.7	0.19	8.2	3.1	8	LJ
QYRTJA	90.5	93.2	93.5	92.0	92.3	0.00	8.0	1.4	92.0	-0.02	7.3	1.5	8	AH
T9Q6T9	97.0	92.6	98.0	98.5 *	96.5	1.19	9.1	2.7	95.6	1.11	8.3	2.6	8	LC
U2YHB9	92.2	96.6	97.2 L	94.8 L	95.2	0.82	4.0	2.2	93.8	0.52	6.6	2.3	8	AX
U2YHB9_AL	92.3	89.8	92.8	88.2	90.8	-0.43	4.9	2.2	90.6	-0.46	6.2	2.2	8	AL
UDF2U6_AL	91.3	92.2	91.6	92.8	92.0	-0.09	5.9	0.7	92.2	0.04	5.4	0.7 L	8	XX
WHZ4QZ	89.9	93.1	90.2	90.3	90.9	-0.41	7.3	1.5	92.0	-0.02	6.6	1.7	8	TP
WQEPY4	88.7	82.8 *	88.4 H	86.1	86.5	-1.65	9.1	2.7	86.1	-1.88	8.1	2.2	8	LC
WQFMAY	92.4	92.1 L	92.2	91.9 L	92.2	-0.05	3.4	0.2 L	92.3	0.05	3.1	0.3 L	8	LA
XC87TV	91.3	89.1	89.9	90.5	90.2	-0.60	9.8	0.9	90.4	-0.54	8.2	1.3	8	XX
XEVVYU	93.5	86.3	90.3	82.5 *	88.1	-1.18	6.6	4.8	90.7	-0.42	7.6	4.4	8	LC
XEVVYU_AL	98.3	92.6	97.5	92.0	95.1	0.78	8.0	3.2	93.5	0.43	8.5	3.9	8	AL
XGNQL3	90.8	90.2	89.0	87.0	89.3	-0.87	8.3	1.7	90.5	-0.49	7.7	2.0	8	AH
XU97P3_AL	89.7	91.2	93.5	89.7	91.0	-0.36	8.2	1.8	90.9	-0.36	7.5	2.7	8	AL
YECBR3	87.1	91.5	89.6	94.3	90.6	-0.48	7.0	3.0	90.3	-0.55	8.8	2.4	8	LA
YPCYJY_AL	94.3	91.0	87.9	90.5	90.9	-0.39	8.3	2.6	89.9	-0.69	8.3	2.4	8	AL
YXMZ6Z	92.7	93.3	91.8	91.9	92.4	0.03	7.6	0.7	94.2	0.66	7.1	2.2	8	LA
ZPLDHR	91.4	84.5	91.0	91.2	89.5	-0.79	9.0	3.4	89.8	-0.72	8.9	3.5	8	LA

Consensus (All Labs) Results													
Wk Mean	93.02	92.50	92.21	91.21	Month Mean	92.31		Grand Mean	92.08				
Avg SDr	7.66	7.37	7.69	7.38	Avg SD	7.52		Avg SD	7.64				
SD btwn Labs	4.59	4.62	4.52	3.66	SD btwn Labs	3.54		SD btwn Labs	3.20				
Labs Incl	57	58	58	57	SD btwn Wks	3.12		SD btwn Wks	3.09				
Labs Excl	0	0	0	0	Labs Incl	59		Labs Incl	59				
Labs not Rcvd	2	1	1	2									



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

Report #611 (J)
August 2020

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	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 - 42F2
 TAPPI Official Test Method T822

Report #611 (J)
August 2020

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	
27BXKX	86.5	85.5	86.6	85.4	86.0	-1.70	3.0	0.6	84.0	-1.94 *	2.7	2.0	16	LC
2HYWBZ	94.6	95.3	92.5	92.8	93.8	1.28	3.1	1.3	86.5	-1.20	3.2	4.5	16	EX
3QWPJU	89.4	90.0	89.7	91.6	90.2	-0.11	3.6	1.0	90.7	0.04	3.2	1.7	16	LD
44BLTM	88.1 L	88.3 L	88.3 L	88.1 L	88.2	-0.86	1.0	0.1 L	90.2	-0.13	2.1	1.5	16	RS
4N3NJA	89.5	87.8	89.8	87.4	88.6	-0.70	2.6	1.2	88.1	-0.74	2.8	2.2	16	LC
6XN7LV	92.5	92.9	92.3	92.5	92.5	0.79	3.1	0.3 L	93.2	0.78	2.8	0.5 L	16	LD
73AJZN	89.5	113.7 X	97.0 *	99.7 *	100.0	3.64 X	4.0	10.1 H	96.0	1.60	3.8	5.7 H	16	MB
7ML9EL	75.0 X	75.9 X	76.0 X	75.1 X	75.5	-5.70 X	3.2	0.5	74.5	-4.77 X	3.1	2.2	16	EM
7PAKDR	97.7 *	96.9 *	96.0 *	97.9	97.1	2.55 *	2.5	0.9	96.3	1.68	2.6	1.3	8	LC
8CXJ9L	92.7	92.0	90.7	91.2	91.6	0.45	2.5	0.9	90.9	0.09	2.6	1.6	12	EM
8NTMKR	89.8	90.0	90.5	86.3 L	89.2	-0.49	1.7	1.9	88.9	-0.49	2.1	1.4	16	LD
8YUBDP	86.3	88.4	86.5	87.3	87.1	-1.27	3.1	0.9	89.0	-0.48	3.0	2.4	16	LZ
AAP4YK	86.7	88.3	90.0	91.5	89.1	-0.51	2.3	2.1	93.0	0.73	2.5	2.8	16	TH
AU96TK	86.5	86.6	86.9	86.5 L	86.6	-1.46	1.7	0.2 L	86.8	-1.13	1.5	0.6 L	16	MB
AWWGTP	85.8	85.1	88.3	89.1	87.1	-1.29	2.2	1.9	87.8	-0.83	2.7	2.7	16	LC
B22Z4M	87.4	88.9	87.4	89.2	88.2	-0.86	2.6	1.0	88.1	-0.75	3.2	1.4	16	LD
BC7KTB	89.7 H	92.5 H	89.4 H	90.9 H	90.6	0.07	8.9	1.4	95.5	1.46	6.2	4.0	16	LC
C9JP4N	90.6	91.8	90.7	92.6	91.4	0.38	2.5	1.0	91.4	0.24	2.1	1.6	16	LZ
CHTW7H	94.2	95.1	93.4	96.1	94.7	1.61	2.8	1.2	93.2	0.79	2.7	2.6	16	LC
D9XE6F	78.4 XH	95.0	93.4	87.3 H	88.5	-0.73	5.4	7.5 H	87.8	-0.81	5.8	6.7 H	13	MB
DBLQ4K	88.8	85.2	88.8	89.8	88.2	-0.87	2.8	2.0	87.6	-0.89	2.9	1.4	16	LD
DDR93G	85.5	83.4 *L	83.1 X	84.1 L	84.0	-2.45 *	1.4	1.1	83.3	-2.17 *	1.7	0.8	16	TU
DUEV2D	88.0	85.1	91.5	89.8	88.6	-0.71	3.2	2.7	88.6	-0.59	3.2	2.7	4	LD
EWYXRJ	90.5	89.1	87.3	85.3	88.1	-0.92	3.6	2.3	89.6	-0.29	3.5	1.8	12	LC
EYPYX8	92.3	91.8	94.2	90.6 H	92.2	0.67	4.5	1.5	92.7	0.64	4.3	3.2	12	LX
G7DTLF	90.2	88.5	89.9	90.4	89.7	-0.27	3.4	0.9	86.8	-1.11	3.7	2.0	16	LD
GAXLXH	92.6	112.1 XH	95.0	95.1	98.7	3.16 X	6.5	9.0 H	96.7	1.83	4.0	4.4	16	LZ
HZ7MJH	84.9 *	89.2	91.9	91.4	89.4	-0.42	3.0	3.2	86.8	-1.13	3.8	2.7	16	LD
JE32JB	92.0	91.6	90.9	91.2	91.4	0.37	2.3	0.5	93.2	0.77	3.3	2.3	16	LD
K9VUGD	No DATA	No DATA	92.6	93.6	93.1	1.01	3.9	0.7	91.2	0.17	3.8	1.4	13	LD
KA7W4C	92.8	88.8	90.6	92.6	91.2	0.28	3.2	1.9	91.2	0.18	3.2	1.9	4	EX
KCU93H	91.7	88.5	91.7	87.7	89.9	-0.21	3.0	2.1	87.1	-1.05	4.5	3.5	16	LC
KTHLGA	No DATA	91.1	91.3	94.8	92.4	0.74	2.9	2.1	92.3	0.51	2.9	1.7	11	LD
L4YP2E	94.0	95.7	95.4	95.1	95.1	1.76	2.3	0.7	97.0	1.92	3.0	3.4	16	LD
L6ARMD	88.4 L	87.3	87.5	88.9	88.0	-0.94	2.4	0.7	87.6	-0.89	2.9	1.2	16	LD



Containerboard Interlaboratory Testing Program

Analysis 215

Report #611 (J)

August 2020

Ring Crush, 42 lb Linerboard - 42F2

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	
LBFB37	92.8	91.3	90.8	87.8	90.7	0.08	2.7	2.1	87.0	-1.07	2.7	3.0	16	LZ
LMBEEC	90.8	89.3	90.1	91.4	90.4	-0.03	2.5	0.9	89.9	-0.19	2.8	1.3	16	LD
MURBU7	86.6	87.5	87.9	85.6	86.9	-1.36	1.8	1.0	87.2	-0.99	2.9	1.0	16	LC
P794YV	94.1	90.2	93.7	94.2	93.1	1.00	3.0	1.9	98.1	2.22 *	3.8	4.0	16	LC
Q3LMGB	101.1 X	102.2 X	102.6 X	100.4 *	101.6	4.24 X	2.5	1.0	102.2	3.44 X	2.7	1.0	16	LD
QEEC3M	88.6	88.0	90.4	87.6	88.6	-0.69	3.1	1.2	88.6	-0.59	3.0	1.0	12	LG
QYRTJA	87.1	87.6	88.0	87.1	87.5	-1.15	2.7	0.4	87.6	-0.87	2.6	1.7	16	LD
T9Q6T9	93.7	95.8	92.3	94.5	94.1	1.38	2.6	1.5	93.2	0.77	2.8	1.2	16	LD
TRHDQ4	92.7	93.1	92.9 L	93.0	92.9	0.94	2.0	0.2 L	93.1	0.73	1.9	0.8	16	LD
UDF2U6	91.0 H	94.9	89.2	93.3	92.1	0.62	3.9	2.5	91.4	0.24	4.9	3.7	16	LZ
WHZ4QZ	90.5	91.3	91.5	91.7	91.2	0.30	3.2	0.5	91.4	0.25	3.4	0.8	16	TJ
WQEPY4	91.4	91.6	94.8	96.1	93.5	1.15	2.8	2.4	93.3	0.80	3.8	2.2	16	LD
WQFMAY	92.2	92.5	92.3	91.8	92.2	0.67	3.2	0.3 L	92.3	0.50	3.0	0.7 L	16	LD
WWED9V	91.4	90.8	89.4	90.7	90.6	0.05	3.8	0.9	91.5	0.27	3.0	2.3	16	LD
XEVVYU	92.5	93.9	93.4	94.7	93.6	1.21	2.0	0.9	92.4	0.54	2.8	1.5	16	LD
XHXTAM	92.0	91.1	90.1	90.5	90.9	0.18	3.1	0.8	95.3	1.41	3.2	3.3	16	TU
YECBR3	91.0	91.0 H	90.6	91.5	91.0	0.22	4.7	0.4	91.5	0.28	3.6	1.3	16	LD
YPCYJY	90.4	90.5	90.6	89.2	90.2	-0.12	2.9	0.7	88.8	-0.53	2.8	1.6	16	LD
ZPLDHR	90.6	91.8	91.5	91.6	91.4	0.35	3.2	0.5	91.1	0.16	2.7	1.3	16	LD

Consensus (All Labs) Results												
Wk Mean	90.38	90.36	90.93	91.07	Month Mean	90.45	Grand Mean	90.58				
Avg SDr	3.29	3.09	3.25	3.10	Avg SD	3.21	Avg SD	3.28				
SD btwn Labs	2.77	3.14	2.50	3.61	SD btwn Labs	2.62	SD btwn Labs	3.37				
Labs Incl	49	49	51	53	SD btwn Wks	1.76	SD btwn Wks	2.55				
Labs Excl	3	4	3	1	Labs Incl	50	Labs Incl	51				
Labs not Rcvd	2	1	0	0								

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	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 #611 (J)

August 2020

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	
27BXKX	77.0	76.2 L	76.7	76.5	76.6	-1.21	3.1	0.3	75.6	-1.44	3.4	1.7	8	LC
2HYWBZ	83.7	83.7	85.3	82.5	83.8	1.32	4.4	1.2	79.2	-0.30	3.8	5.2 H	8	EX
3QWPJU	79.3	80.6	78.8	82.6	80.3	0.09	3.1	1.7	81.0	0.29	3.6	2.0	8	LD
44BLTM	78.5 L	78.6 L	79.1 L	78.6 L	78.7	-0.47	1.1	0.3 L	79.0	-0.33	1.5	0.5 L	8	RS
4N3NJA	81.2	76.9	79.5	77.5	78.8	-0.44	3.8	2.0	77.5	-0.85	3.3	2.1	8	LC
6XN7LV	83.4	82.6	82.1	82.3	82.6	0.91	3.1	0.6	82.7	0.85	3.1	0.5 L	8	LD
73AJZN	82.9	100.9 X	86.4	85.0	88.8	3.08 X	3.6	8.2 H	85.5	1.74	9.2	7.0 H	8	MB
7ML9EL	65.6 X	66.2 X	68.5 X	67.6 X	67.0	-4.58 X	4.3	1.3	67.1	-4.18 X	4.3	1.2	8	EM
7PAKDR	83.9	85.0	85.0	84.1	84.5	1.57	3.0	0.6	84.5	1.42	3.0	0.6 L	4	LC
8CXJ9L	78.6	81.3	81.3 L	81.2	80.6	0.20	3.0	1.3	80.0	-0.02	3.0	1.6	8	EM
8NTMKR	77.2	81.9	78.6	78.6	79.1	-0.34	2.6	2.0	78.2	-0.62	2.9	2.3	8	LD
8YUBDP	77.1	78.6	77.3	76.7	77.4	-0.91	3.2	0.8	79.8	-0.10	3.1	2.6	8	LZ
AAP4YK	81.6	81.6	84.8	81.6	82.4	0.82	3.9	1.6	82.9	0.92	3.4	1.5	8	TH
AU96TK	76.5 L	76.6 L	76.2	76.5 L	76.4	-1.26	1.4	0.2 L	76.3	-1.22	1.3	0.2 L	8	MB
AWWGTP	77.0	73.1 *	76.4	75.4	75.5	-1.61	3.3	1.7	75.6	-1.44	3.5	1.2	8	LC
B22Z4M	78.4	77.5	77.9	79.5	78.3	-0.61	2.8	0.9	77.1	-0.97	3.8	2.1	8	LD
BC7KTB	81.9 H	81.5	81.9 H	82.4 H	81.9	0.66	6.1	0.4	79.4	-0.23	5.2	3.0	8	LC
C9JP4N	79.6	79.6	79.7	81.6	80.1	0.02	2.7	1.0	80.8	0.24	2.6	1.8	8	LZ
CHTW7H	83.1	82.6	84.9	85.8	84.1	1.43	2.7	1.5	83.4	1.06	2.9	1.8	8	LC
D9XE6F	70.9 XH	82.3	79.9	77.4 H	77.6	-0.85	6.2	4.9 H	77.2	-0.92	5.7	5.3 H	7	MB
DBLQ4K	77.1	77.8	76.4	77.3	77.1	-1.01	3.5	0.6	76.3	-1.21	3.0	1.5	8	LD
DDR93G	74.5 *L	74.9 L	74.5 L	76.0 L	74.9	-1.79	1.0	0.7	75.2	-1.58	1.5	0.6 L	8	TU
DUEV2D	78.6	73.7 *	80.3	77.7	77.6	-0.86	3.2	2.8	77.6	-0.81	3.2	2.8	4	LD
EWYXRJ	71.3 X	78.2	75.1	75.1	74.9	-1.79	3.1	2.8	104.8	7.94 X	3.5	32.0 H	8	LC
EYPYX8	79.4	77.3 H	84.7 H	84.1	81.4	0.47	5.5	3.6 H	81.1	0.34	5.0	4.0	8	LX
G7DTLF	80.8	78.7	81.9	80.8	80.5	0.18	4.0	1.3	78.8	-0.41	3.8	2.2	8	LD
GAXLXH	86.0 *	84.7	84.4	86.5	85.4	1.88	2.7	1.0	85.7	1.80	3.3	1.1	8	LZ
HZ7MJH	70.2 X	75.3 H	76.1	80.0	75.4	-1.62	4.8	4.0 H	73.9	-1.99 *	4.3	3.2	8	LD
JE32JB	81.6 L	79.6 L	80.1	80.2	80.4	0.12	2.5	0.9	80.9	0.25	2.8	1.3	8	LD
K9VUGD	No DATA	No DATA	80.8	80.3	80.6	0.18	3.2	0.4	80.0	-0.04	5.1	0.9	6	LC
KA7W4C	76.1	77.0	79.2	78.3	77.6	-0.84	2.7	1.4	77.6	-0.79	2.7	1.4	4	EX
KCU93H	80.5	82.1	77.6	80.0	80.1	0.00	3.8	1.9	79.6	-0.17	4.7	3.1	8	LC
KTHLGA	No DATA	79.7	83.6	83.4	82.2	0.76	3.0	2.2	82.3	0.72	3.4	1.6	7	LD
L4YP2E	83.3	82.5	82.4	80.8	82.2	0.77	4.0	1.0	88.1	2.57 *	5.0	6.4 H	8	LC
L6ARMD	78.0	77.1	77.3	78.5	77.7	-0.81	2.7	0.7	77.0	-1.00	3.4	1.4	8	LD



Containerboard Interlaboratory Testing Program
 Analysis 217
Ring Crush, 35 lb Linerboard - 35E2
 TAPPI Official Test Method T822

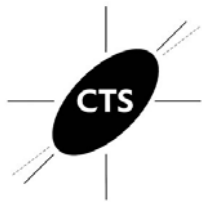
Report #611 (J)
August 2020

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
LBFB37	80.3	76.8	80.2	78.6	79.0	-0.37	2.6	1.7	78.8	-0.42	2.7	1.5	8	LZ
LMBEEC	82.8	82.3	81.6	83.5	82.6	0.88	3.3	0.8	81.9	0.59	2.9	1.0	8	LD
MURBU7	79.6	79.9	78.5	79.5	79.3	-0.24	3.0	0.6	79.2	-0.29	3.0	0.8	8	LC
P794YV	85.2	84.0	85.1	84.4	84.7	1.63	3.8	0.6	86.3	1.98 *	3.5	2.0	8	LC
Q3LMGB	92.6 X	92.4 X	89.9 *	91.6 X	91.6	4.06 X	3.5	1.2	91.0	3.51 X	3.8	1.4	8	LD
QEEC3M	81.2	77.4	81.8	77.9	79.6	-0.17	3.5	2.2	80.1	-0.01	3.0	2.0	8	LG
QYRTJA	76.8	75.9	74.1	74.9	75.4	-1.62	2.6	1.2	75.9	-1.35	3.1	1.2	8	LD
T9Q6T9	83.5	81.9	86.0	85.1	84.1	1.44	3.6	1.8	82.5	0.79	3.4	2.1	8	LD
TRHDQ4	82.5	83.0	82.4	82.5	82.6	0.89	2.4	0.3 L	82.4	0.74	2.6	0.5 L	8	LD
UDF2U6	79.6 H	84.5	77.0	83.1	81.1	0.36	4.5	3.4	79.7	-0.14	4.1	3.6	8	LZ
WHZ4QZ	78.8	78.8	79.6	81.8	79.7	-0.10	4.6	1.4	79.2	-0.27	4.7	1.2	8	TJ
WQEPY4	84.6	80.5	84.2 H	85.8	83.8	1.31	5.1	2.3	83.5	1.10	5.0	1.8	8	LD
WQFMAY	81.5	82.2	81.8	82.0	81.9	0.65	2.9	0.3	82.3	0.70	2.7	0.5 L	8	LD
WWED9V	81.6	82.5	81.7	86.4 H	83.0	1.06	4.9	2.3	83.0	0.94	4.5	2.3	8	LD
XEVVYU	81.6	81.6	81.8	82.7	81.9	0.66	2.8	0.5	81.8	0.56	3.1	0.9	8	LD
XHXTAM	79.1	76.4	76.5	80.5	78.1	-0.68	3.8	2.0	79.4	-0.22	3.7	1.9	8	TU
YECBR3	82.9	84.2	82.4	81.5	82.7	0.94	2.9	1.1	82.1	0.64	3.4	1.7	8	LD
YPCYJY	76.1	76.0	75.4	75.9	75.8	-1.47	3.1	0.3	76.4	-1.19	3.1	1.7	8	LD
ZPLDHR	78.9	78.2	79.8	82.0	79.7	-0.11	3.3	1.7	80.4	0.09	3.1	1.5	8	LD

Consensus (All Labs) Results										
Wk Mean	80.28	79.70	80.48	80.62	Month Mean	80.04	Grand Mean	80.09		
Avg SDr	3.74	3.43	3.35	3.39	Avg SD	3.52	Avg SD	3.76		
SD btwn Labs	2.75	3.08	3.50	3.15	SD btwn Labs	2.85	SD btwn Labs	3.11		
Labs Incl	47	50	53	52	SD btwn Wks	1.75	SD btwn Wks	2.46		
Labs Excl	5	3	1	2	Labs Incl	51	Labs Incl	51		
Labs not Rcvd	2	1	0	0						

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	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

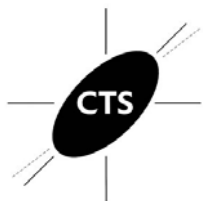
STFI, 42 lb Linerboard - 42F2

TAPPI Official Test Method T826

Report #611 (J)

August 2020

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		
27BXKX	21.4 *	21.7 *	22.3	21.5 *	21.7	-2.11 *	1.7	0.4	21.7	-1.70	1.6	0.4	16	LY	
2GBBWR	24.6	24.0	24.6	24.6	24.4	1.33	1.6	0.3	24.3	0.93	1.6	0.5	12	LH	
2HYWBZ	28.3 X	29.3 X	28.2 XH	28.2 XH	28.5	6.56 X	2.1	0.5	26.9	3.67 X	2.0	4.5 H	16	TT	
3D76UQ	24.5	26.1 X	24.7	25.0	25.1	2.18 *	1.9	0.7	25.0	1.65	1.9	0.6	16	LH	
3QWPJU_AL	41.9 XL	41.4 XL	40.8 XL	40.5 XL	41.1	22.60 X	0.0	0.6	37.3	14.34 X	1.6	7.1 H	14	AL	
4N3NJA	25.7 *	24.0	23.5 L	24.0	24.3	1.19	1.3	1.0	23.5	0.10	1.3	1.2	16	LA	
6ETD2X	41.3 XH	40.9 XH	42.8 XH	42.0 XH	41.7	23.36 X	17.7	0.8	42.0	19.22 X	17.7	0.8	8	LH	
6VGQFP_AL	24.4	23.6	23.8	No DATA	23.9	0.71	1.7	0.4	23.7	0.32	1.7	0.4	15	AL	
73AJZN	23.6 H	No DATA	25.2	25.7 *H	24.8	1.87	2.7	1.1	24.0	0.64	2.0	1.3	13	LA	
8NTMKR	23.7	23.4	23.2	22.7 L	23.2	-0.20	1.3	0.4	23.2	-0.21	1.1	0.6	16	BK	
8YUBDP	77.1 XL	76.5 XL	77.2 XL	74.2 XL	76.3	67.27 X	0.0	1.4 H	31.2	8.07 X	2.2	27.9 H	16	XX	
9MRADP	22.3	23.5	23.0	22.7	22.9	-0.63	1.8	0.5	22.6	-0.81	1.6	0.4	16	LW	
A8X6KM	23.1	23.8	24.0	23.8	23.7	0.38	1.3	0.4	23.3	-0.05	1.2	0.4	16	TT	
AWWGTP	23.8	23.1	24.0	24.1	23.7	0.46	1.9	0.4	24.1	0.72	1.8	0.9	16	LW	
B22Z4M_AL	23.7	22.0	23.6	22.6	23.0	-0.52	1.7	0.8	22.9	-0.48	1.6	0.7	16	AL	
B3GWWM	24.2	22.6	23.1	23.0	23.2	-0.19	1.7	0.7	22.9	-0.47	1.6	0.8	16	LY	
B7G8RM	24.2	24.8 *	24.2	24.2	24.3	1.23	1.8	0.3	24.8	1.46	1.9	0.5	16	LU	
BC7KTB_AL	24.0 L	23.0	24.1	23.7	23.7	0.42	1.3	0.5	23.7	0.33	1.7	0.8	16	AL	
BHBNGN_AL	22.4 L	22.6	23.0	22.9	22.7	-0.82	1.4	0.3	22.4	-1.03	1.4	0.7	16	AL	
BQMRJG	23.4	24.7	24.1	24.5	24.2	1.02	1.4	0.6	25.7	2.40 *	1.7	1.1	16	LH	
CHTW7H	23.1	22.7	22.4	22.4	22.7	-0.90	1.5	0.3	23.0	-0.35	1.7	0.4	16	LU	
CYDN6H	16.9 X	16.7 XL	16.6 X	16.0 X	16.5	-8.69 X	1.2	0.4	21.3	-2.17 *	1.4	2.9 H	16	XX	
D9XE6F	22.6	23.4 H	23.0	23.4	23.1	-0.36	1.8	0.4	22.4	-0.95	1.6	2.9 H	13	LA	
DBLQ4K_AL	21.5 *	22.2	21.6	21.9	21.8	-1.96 *	1.4	0.3	21.8	-1.56	1.5	0.5	16	AK	
ELHD9M	22.9	23.0	23.9	22.7	23.1	-0.35	1.7	0.5	22.8	-0.55	1.8	0.7	16	LH	
ELHD9M_AL	25.0	27.4 X	26.2 *	26.8 X	26.4	3.82 X	1.8	1.0	25.9	2.65 *	1.9	0.9	13	AL	
EWYXRJ_AL	21.4 *H	22.3 H	21.1 *	22.2	21.8	-2.04 *	2.2	0.6	21.9	-1.55	2.2	1.0	16	AL	
G7DTLF	23.1	23.7	23.0	24.2	23.5	0.15	1.7	0.6	23.2	-0.22	1.6	0.9	16	LH	
GAXLXH	22.3	21.0 X	21.6	23.1	22.0	-1.76	1.6	0.9	22.3	-1.11	1.6	0.7	16	LW	
GFM8JB	23.7	24.1	21.9	23.5	23.3	-0.08	1.6	1.0	23.2	-0.13	1.5	0.6	16	LH	
GWREYD_AI	24.4	23.0	25.4 *H	23.9	24.2	1.04	2.0	1.0	24.0	0.62	1.9	0.9	16	AK	
JE32JB_AL	22.9	23.4	23.0	24.5	23.5	0.11	1.4	0.7	23.8	0.49	1.5	0.6	16	AK	
K4J7GG	23.6	22.6	24.7	No DATA	23.6	0.35	1.9	1.0	25.2	1.93	2.1	4.3 H	14	LU	
K9VUGD	No DATA	23.8	24.0	23.7	23.8	0.55	1.8	0.1	23.7	0.37	1.8	0.5	15	LW	
KA7W4C	20.0 X	20.6 XH	20.4 *	20.8 *	20.5	-3.71 X	2.0	0.3	20.5	-3.00 X	2.0	0.3	4	LH	



Containerboard Interlaboratory Testing Program

Analysis 223

Report #611 (J)

August 2020

STFI, 42 lb Linerboard - 42F2

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
KCU93H	24.2 L	23.5	22.8 H	23.7	23.6	0.24	1.6	0.6	24.1	0.75	1.9	0.8	14	LU
KTHLGA	No DATA	21.4 *	21.3	23.5 H	22.1	-1.67	1.9	1.2 H	22.1	-1.32	1.7	0.7	11	LY
KTHLGA_AL	No DATA	31.6 XH	No DATA	40.0 XH	35.8	15.82 X	3.1	6.0	35.8	12.81 X	3.1	6.0	2	AL
LBFB37	23.2 L	23.1	22.6	22.4 L	22.8	-0.68	1.3	0.4	22.3	-1.09	1.3	0.8	16	LA
LMBEEC	23.1	23.4	23.6	22.7	23.2	-0.19	1.6	0.4	22.9	-0.52	1.7	0.4	16	LA
P794YV	24.3	23.7	23.8	24.0	23.9	0.73	1.8	0.3	23.7	0.37	1.7	0.9	16	LW
QEEC3M	22.7	22.8	22.3	22.0	22.5	-1.15	1.5	0.4	22.7	-0.70	1.5	0.5	12	LU
QG83KA	24.0	24.7	24.3	25.2	24.5	1.49	1.8	0.5	22.7	-0.68	1.0	1.3	16	LH
QYRTJA	23.7	23.0	21.8	23.1	22.9	-0.63	1.7	0.8	22.5	-0.90	1.7	0.6	16	LU
RNZU69	26.1 *	24.3	24.1	24.9	24.9	1.89	2.0	0.9	25.0	1.64	1.9	0.9	16	LA
T9Q6T9	23.7	23.8	22.9	22.8	23.3	-0.08	1.5	0.5	22.9	-0.52	1.6	0.5	16	LA
TAVY4Y	23.1	21.5 *	21.6	22.1	22.1	-1.67	1.6	0.7	22.7	-0.65	1.8	0.8	16	TT
TRHDQ4	23.1	22.9	23.3	22.6	23.0	-0.48	2.0	0.3	23.2	-0.19	1.8	0.3	16	LY
U2YHB9	24.1	24.5 L	24.0	23.9 L	24.1	0.93	1.3	0.3	24.3	0.98	1.6	0.6	16	LU
U2YHB9_AL	23.7 L	23.1	23.6	23.1	23.4	0.02	1.2	0.3	23.8	0.45	1.5	0.7	16	AL
UDF2U6_AL	22.4	23.5	23.2	22.4	22.9	-0.64	1.7	0.5	22.5	-0.90	1.7	1.0	16	AL
WHZ4QZ	23.3	22.7	23.2	23.3	23.1	-0.33	1.2	0.3	23.1	-0.23	1.3	0.4	16	TT
WQEPY4	24.7	23.1	22.8	24.3	23.7	0.44	1.5	0.9	24.1	0.79	2.1	0.7	16	LA
WQFMAY	23.3	23.0	23.6	23.5	23.3	-0.07	1.9	0.3	23.4	0.03	1.8	0.4	16	LA
XEVVYU	23.0	23.5	23.3	23.3	23.3	-0.10	1.3	0.2	23.1	-0.24	1.5	0.5	16	LA
XEVVYU_AL	23.1	22.8	23.0	23.0	23.0	-0.49	1.6	0.1	23.1	-0.24	1.7	0.3	16	AL
XGNQL3	22.5	22.7	23.0	23.6 L	23.0	-0.52	1.6	0.5	24.1	0.75	1.7	1.6	16	XX
XHXTAM	23.7	24.0 H	24.3	23.7	23.9	0.70	1.9	0.3	24.1	0.71	1.9	0.7	16	LA
YECBR3	23.9	23.7	23.6	23.1	23.6	0.24	1.9	0.3	23.3	-0.04	1.7	0.5	16	LY
YPCYJY_AL	25.1	23.6	23.5	23.6	24.0	0.74	1.5	0.8	23.9	0.55	1.5	0.6	16	AL
YXMZ6Z	24.4	23.9	23.9	23.5	23.9	0.72	1.7	0.4	23.7	0.36	1.8	0.4	16	LY
ZPLDHR	23.2	23.1	22.7	22.9	23.0	-0.50	1.8	0.2	23.0	-0.42	1.7	0.4	16	LZ

Consensus (All Labs) Results														
Wk Mean	23.53	23.26	23.28	23.34	Month Mean	23.37			Grand Mean	23.36				
Avg SDr	1.74	1.65	1.67	1.62	Avg SD	1.68			Avg SD	1.68				
SD btwn Labs	0.97	0.77	1.09	0.95	SD btwn Labs	0.79			SD btwn Labs	0.97				
Labs Incl	53	51	56	53	SD btwn Wks	0.59			SD btwn Wks	1.07				
Labs Excl	6	10	5	7	Labs Incl	54			Labs Incl	56				
Labs not Rcvd	3	1	1	2										



Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42F2
TAPPI Official Test Method T826

Report #611 (J)
August 2020

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 #611 (J)

August 2020

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	
27BXKX	21.5	20.6 *	21.7	21.1	21.2	-1.99 *	1.3	0.5	21.1	-2.42 *	1.4	0.4	8	LY
2GBBWR	22.8	23.4	23.4	23.4	23.3	0.44	1.5	0.3	23.2	0.50	1.5	0.3	8	LH
2HYWBZ	26.7 X	29.2 XH	31.3 X	30.2 X	29.3	7.63 X	2.3	2.0 H	25.8	4.19 X	2.3	4.0 H	8	TT
3D76UQ	24.3	23.7	22.8	24.0	23.7	0.94	1.9	0.6	23.8	1.37	1.9	0.5	8	LH
3QWPJU_AL	33.3 XL	28.2 XL	35.6 XL	34.9 XL	33.0	11.96 X	0.0	3.3 H	34.3	16.00 X	0.0	2.8 H	8	AL
4N3NJA	24.2	24.7	25.2 *	23.8	24.5	1.88	1.5	0.6	23.4	0.88	1.4	1.5 H	8	LA
6ETD2X	33.1 XH	36.0 XH	36.5 XH	37.0 XH	35.7	15.13 X	12.7	1.7 H	35.7	17.91 X	12.7	1.7 H	4	LH
6VGQFP_AL	23.5	23.0	23.1	No DATA	23.2	0.39	1.7	0.3	23.3	0.69	1.7	0.3	7	AL
73AJZN	22.4	No DATA	23.3	25.9 X	23.9	1.16	2.0	1.8 H	23.1	0.38	1.6	1.5 H	6	LA
8NTMKR	23.2	22.3 L	23.1	22.7 L	22.8	-0.08	1.0	0.4	22.6	-0.26	1.3	0.5	8	BK
8YUBDP	68.4 XL	63.7 XL	61.7 XL	62.5 XL	64.1	48.76 X	0.0	3.0 H	35.1	17.11 X	0.0	31.0 H	8	XX
9MRADP	22.0	21.7	22.1	22.0	21.9	-1.12	1.7	0.2	22.1	-0.93	1.5	0.5	8	LW
A8X6KM	22.6 L	22.3	23.1	23.1	22.8	-0.13	1.1	0.4	22.6	-0.27	1.1	0.3	8	TT
AWWGTP	22.8	23.0	23.0	23.4	23.1	0.20	1.5	0.2	23.3	0.69	1.6	0.3	8	LW
B22Z4M_AL	22.5	22.5	23.0	22.5	22.6	-0.31	2.2	0.2	22.7	-0.13	1.9	0.3	8	AL
B3GWWM	22.3	22.6	22.2	22.0	22.3	-0.73	1.7	0.2	22.5	-0.43	1.8	0.5	8	LY
B7G8RM	22.8	23.6	23.3	23.3	23.2	0.41	1.5	0.3	23.3	0.72	1.8	0.3	8	LU
BC7KTB_AL	22.6 H	22.2 H	22.5	22.4 H	22.4	-0.54	2.8	0.2	21.9	-1.30	2.5	0.9	8	AL
BHBNGN_AL	23.4	22.2	21.5	21.7	22.2	-0.82	1.5	0.9	22.1	-0.99	1.5	0.9	8	AL
BQMRJG	23.9	23.1	23.2	23.0	23.3	0.51	1.8	0.4	24.3	2.03 *	1.7	1.1	8	LH
CHTW7H	22.0	22.3	22.3	22.4	22.3	-0.74	1.6	0.2	22.2	-0.78	1.5	0.5	8	LU
CYDN6H	16.2 XL	18.2 X	17.4 XL	16.4 X	17.0	-6.93 X	1.0	0.9	18.9	-5.47 X	1.4	2.1 H	8	XX
D9XE6F	22.6	23.6	23.0	23.0	23.0	0.17	2.0	0.4	22.5	-0.34	1.9	0.7	7	LA
DBLQ4K_AL	21.6	21.6	21.9	21.5	21.6	-1.47	1.5	0.2	21.5	-1.79	1.5	0.4	8	AK
ELHD9M	22.1	22.7	23.1	22.4	22.6	-0.39	1.7	0.4	22.6	-0.24	1.8	0.6	8	LH
ELHD9M_AL	26.3 X	24.4	26.0 X	26.7 X	25.8	3.50 X	2.0	1.0	25.3	3.54 X	1.8	0.9	8	AL
EWYXRJ_AL	21.2 H	21.8 H	22.3	22.7	22.0	-1.06	2.4	0.6	22.2	-0.86	2.2	0.7	8	AL
G7DTLF	22.1	23.9	22.8	22.6	22.8	-0.05	1.7	0.8	22.8	0.00	1.6	0.7	8	LH
GAXLXH	22.4	21.3	22.3	22.9	22.2	-0.78	1.8	0.6	22.1	-1.04	1.5	0.5	8	LW
GFM8JB	24.0	23.5	22.0	22.8	23.1	0.23	1.5	0.9	23.0	0.32	1.4	0.6	8	LH
GWREYD_AI	25.6 *	25.1 *	23.5	24.3 H	24.6	2.04 *	2.0	0.9	24.0	1.65	1.8	0.9	8	AK
JE32JB_AL	22.8	23.1	22.1	22.4	22.6	-0.34	1.7	0.4	22.7	-0.15	1.6	0.4	8	AK
K4J7GG	22.9 H	22.4	22.6	No DATA	22.6	-0.32	2.1	0.3	22.7	-0.18	1.8	0.2	7	LU
K9VUGD	No DATA	23.2	23.8	23.2	23.4	0.62	1.8	0.3	23.0	0.29	1.8	0.6	7	LW
KA7W4C	20.2 *	19.9 X	21.1 H	19.9 *	20.3	-3.07 X	2.1	0.6	20.3	-3.48 X	2.1	0.6	4	LH



Containerboard Interlaboratory Testing Program

Analysis 225

Report #611 (J)

August 2020

STFI, 35 lb Linerboard - 35E2

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
KCU93H	25.0 *	23.2	23.6	24.8 *	24.1	1.48	2.0	0.9	24.0	1.71	2.0	0.8	6	LU
KTHLGA	No DATA	21.3	20.7 *	21.7	21.3	-1.92	1.5	0.5	21.4	-1.90	1.7	0.4	7	LY
KTHLGA_AL	No DATA	26.7 X	No DATA	35.2 X	31.0	9.58 X	1.9	6.0	31.0	11.38 X	1.9	6.0	2	AL
LFBF37	21.2	22.4 L	22.7	21.2 L	21.9	-1.17	1.2	0.8	21.6	-1.73	1.2	0.7	8	LA
LMBEEC	23.4	23.1	22.5	22.2	22.8	-0.11	1.4	0.6	22.9	0.10	1.6	0.5	8	LW
P794YV	23.7	22.8	23.8	23.3	23.4	0.61	1.5	0.4	24.0	1.70	1.8	0.8	8	LW
QEEC3M	22.4	21.8	22.0	22.1	22.1	-0.98	1.6	0.3	22.3	-0.66	1.6	0.4	8	LW
QG83KA	22.9	25.4 *	24.8 *	25.0 *	24.5	1.93	1.7	1.1	23.3	0.64	1.9	1.6 H	8	LH
QYRTJA	22.0	22.0	21.8	21.3	21.8	-1.34	1.4	0.3	22.0	-1.13	1.7	0.3	8	LU
RNZU69	24.7 L	25.3 *	24.2	25.3 *	24.9	2.34 *	1.3	0.5	24.1	1.76	1.0	1.0	8	LA
T9Q6T9	22.7	23.2	24.0	23.6	23.4	0.60	1.8	0.5	23.0	0.27	1.7	0.6	8	LU
TAVY4Y	21.9	22.3	21.4	21.4	21.8	-1.33	1.6	0.5	22.5	-0.35	1.6	1.1	8	TT
TRHDQ4	21.9	22.6	21.1	21.2	21.7	-1.41	2.0	0.7	22.0	-1.15	1.9	0.6	8	LY
U2YHB9	25.0 *	23.7	23.2	23.9 L	23.9	1.24	1.5	0.8	23.9	1.49	1.6	0.8	8	LU
U2YHB9_AL	23.4	22.0	22.7	22.4 L	22.6	-0.31	1.2	0.6	22.7	-0.10	1.1	0.5	8	AL
UDF2U6_AL	22.5	22.8	23.2 H	23.1	22.9	0.05	1.9	0.3	22.1	-0.92	1.6	1.0	8	XX
WHZ4QZ	22.2	22.3	22.5	22.8	22.5	-0.50	1.4	0.3	22.4	-0.56	1.3	0.4	8	TT
WQEPY4	24.7	24.2	23.0	22.2	23.5	0.78	1.7	1.1	23.1	0.40	1.6	1.0	8	LA
WQFMAY	22.6	22.9	23.1	23.4	23.0	0.15	1.8	0.3	23.1	0.39	1.8	0.4	8	LA
XEVVYU	22.5	23.0	22.8	23.1	22.8	-0.04	1.3	0.3	22.7	-0.14	1.6	0.3	8	LA
XEVVYU_AL	23.1	23.0	23.1	22.4	22.9	0.00	1.5	0.3	23.1	0.42	1.6	0.4	8	AL
XGNQL3	23.1	23.4	22.2	23.2 L	23.0	0.12	1.7	0.5	22.9	0.15	1.7	0.9	8	XX
XHXTAM	23.1	23.6	23.9	23.5	23.5	0.76	1.8	0.3	23.3	0.69	1.8	0.3	8	LA
YECBR3	22.5	22.8	22.0	22.8	22.5	-0.44	1.8	0.4	22.6	-0.20	1.7	0.3	8	LY
YPCYJY_AL	24.2	23.8	24.5	24.6	24.3	1.62	1.4	0.3	23.8	1.42	1.5	0.8	8	AL
YXMZ6Z	22.7	23.5	23.3	23.1	23.2	0.32	1.7	0.4	23.1	0.47	1.7	0.6	8	LU
ZPLDHR	23.0	22.5	22.8	21.3	22.4	-0.57	1.6	0.8	22.6	-0.22	1.6	0.7	8	LZ

Consensus (All Labs) Results														
Wk Mean	22.88	22.94	22.80	22.75	Month Mean	22.89	Grand Mean	22.79						
Avg SDr	1.77	1.73	1.64	1.62	Avg SD	1.69	Avg SD	1.65						
SD btwn Labs	1.05	0.98	0.90	1.06	SD btwn Labs	0.84	SD btwn Labs	0.72						
Labs Incl	53	54	55	52	SD btwn Wks	0.59	SD btwn Wks	0.71						
Labs Excl	6	7	6	8	Labs Incl	54	Labs Incl	54						
Labs not Rcvd	3	1	1	2										



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

Report #611 (J)
August 2020

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 #611 (J)
August 2020

WebCode	Monthly Results				Cumulative Results					
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst	
27BXXKX	144.7	-0.06	16.05		150.3	0.70	4.69	4	EV	
3D76UQ	132.6	-0.83	15.29		125.9	-1.42	5.25	4	EV	
3QWPJU_AL	151.7	0.38	14.23		150.2	0.70	7.81	4	AL	
6VGQFP_AL	123.9	-1.38	15.61		130.5	-1.02	8.32	4	AL	
73AJZN	143.9	-0.11	33.06	H	178.3	3.14 X	53.42	H	4	LA
7M33EW	137.6	-0.51	20.59		138.0	-0.37	3.84	4	LS	
7PAKDR_AL	139.6	-0.39	20.67		139.6	-0.23	0.00	1	AL	
AWWGTP	134.7	-0.70	12.73		135.2	-0.60	2.67	L	4	LS
BC7KTB_AL	145.4	-0.02	27.57		145.6	0.30	7.35	4	AL	
BHBNGN_AL	138.6	-0.45	13.50		140.6	-0.14	6.12	4	AL	
D9XE6F	130.8	-0.94	20.09		134.6	-0.66	2.56	L	4	LA
DBLQ4K	124.8	-1.33	7.18	L	126.7	-1.35	2.62	2	LS	
ELHD9M_AL	123.9	-1.38	11.26		129.2	-1.13	7.88	4	AL	
EWYXRJ_AL	157.4	0.74	16.03		123.3	-1.65	67.08	H	4	AL
GAXLXH	144.9	-0.05	13.90		143.5	0.11	3.92	4	EV	
GWREYD_AI	136.1	-0.61	20.12		133.2	-0.78	8.72	4	AK	
JE32JB	176.7	1.97 *	32.08	H	157.6	1.34	15.21	4	EV	
K4J7GG	155.8	0.64	23.71		205.8	5.53 X	67.51	H	4	EV
K9VUGD	129.9	-1.00	12.98		125.3	-1.46	7.96	4	XX	
KCU93H	154.1	0.53	30.43		146.8	0.40	6.48	4	EV	
LMBEEC	134.2	-0.73	11.45		150.1	0.69	13.77	3	LA	
Q3LMGB	125.0	-1.31	11.48		138.0	-0.36	25.99	4	EV	
QG83KA	159.7	0.89	19.56		155.9	1.20	3.43	4	LS	
QYRTJA	155.4	0.61	15.02		157.2	1.30	3.16	4	EV	
UDF2U6_AL	144.4	-0.08	8.51	L	144.6	0.21	5.74	4	XX	
WQEPY4	186.3	2.58 *	35.21	H	151.1	0.78	26.32	4	LA	
WQFMAY	150.7	0.32	15.54		150.3	0.71	0.94	L	4	LS
XEVVYU	146.2	0.03	19.95		138.1	-0.35	5.46	4	LA	
XEVVYU_AL	155.0	0.59	24.92		137.7	-0.39	11.97	4	AL	
XHXTAM	178.2	2.07 *	17.63		170.8	2.49 *	7.21	4	LA	
YECBR3	154.1	0.54	17.03		153.4	0.98	7.57	4	EV	

Consensus (All Labs) Results

Month Mean	145.69	Grand Mean	142.18
Avg SD	19.80	Avg SD Months	16.03
SD btwn Labs	15.75	SD btwn Labs	11.49
Labs Incl	31	Labs Incl	29



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

Report #611 (J)
August 2020

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 - 42F2
 TAPPI Official Test Method T538

Report #611 (J)
August 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3QWPJU_AL	361.3	0.47	6.50	361.9	0.54	2.55	4	AL
6VGQFP_AL	353.2	-0.90	7.86	352.2	-1.13	4.61	4	AL
7ML9EL	400.8	7.14 X	4.66	398.7	6.96 X	5.08	4	TS
B22Z4M_AL	362.4	0.66	6.92	361.6	0.50	1.55	4	AL
CHTW7H	362.8	0.73	8.95	362.6	0.67	1.52	4	XX
ELHD9M_AL	351.3	-1.22	5.03	356.4	-0.40	5.04	4	AL
EWYXRJ_AL	22.7	-56.72 X	1.40 L	22.7	-58.47 X	0.00	1	AL
GWREYD_AL	350.3	-1.39	6.83	348.9	-1.72	6.16	4	AK
JE32JB_AL	357.5	-0.17	6.98	353.4	-0.92	4.46	4	AK
KTHLGA	356.3	-0.37	6.11	356.8	-0.33	0.46 L	3	PP
RNZU69	360.3	0.30	4.67	361.8	0.54	4.43	4	XX
XEVVYU_AL	359.1	0.10	5.90	355.4	-0.58	2.89	4	AL
YPCYJY_AL	371.9	2.26 *	13.53 H	366.7	1.38	4.70	4	AL
ZPLDHR	355.7	-0.48	9.96	367.1	1.46	10.72 H	4	XX

Consensus (All Labs) Results			
Month Mean	358.51	Grand Mean	358.72
Avg SD	7.79	Avg SD Months	4.84
SD btwn Labs	5.92	SD btwn Labs	5.75
Labs Incd	12	Labs Incd	12

Key to Instrument Codes Reported by Participants

- | | |
|---|--|
| AK L & W Autoline 300
PP Technidyne Profile/Plus
XX Instrument make/model not specified by lab | AL L & W Autoline 400
TS TMI Monitor/Smoothness |
|---|--|



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

Report #611 (J)
August 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
22EA4Q	133.4	2.22 *	8.82	114.1	1.23	13.81	4	TM
3D76UQ	128.8	1.91 *	5.07	117.3	1.51	8.08	4	XX
4N3NJA	96.4	-0.33	5.03	94.2	-0.51	2.41	4	TM
7M33EW	100.2	-0.07	2.86	96.9	-0.27	2.98	4	HY
B22Z4M	107.5	0.44	5.17	106.0	0.53	2.25	4	SC
BC7KTB	117.0	1.09	5.70	113.5	1.18	10.54	4	SC
CHTW7H	107.3	0.42	5.51	106.3	0.55	1.41	4	HY
DBLQ4K	107.9	0.47	5.14	111.2	0.98	15.31	4	TM
DDR93G	78.3	-1.58	3.26	94.6	-0.47	16.33	4	TM
EWYXRJ	98.0	-0.22	49.07 H	143.2	3.78 X	58.11 H	4	SC
JE32JB	85.6	-1.08	4.22	83.9	-1.41	3.36	4	TM
K4J7GG	94.2	-0.48	6.76	83.0	-1.49	8.49	4	TM
KCU93H	83.8	-1.20	3.03	82.8	-1.50	3.45	4	TM
KTHLGA	115.2	0.97	5.93	108.1	0.71	6.33	3	HY
LMBEEC	103.6	0.17	3.78	116.8	1.47	10.31	4	HY
Q3LMGB	115.8	1.01	2.28 L	113.6	1.19	4.02	4	HY
QG83KA	89.6	-0.80	1.95 L	95.8	-0.37	13.49	4	TM
QYRTJA	89.2	-0.83	4.97	88.3	-1.02	1.17 L	3	TM
RNZU69	85.2	-1.10	1.64 L	88.8	-0.98	2.98	4	SC
T9Q6T9	98.8	-0.16	5.72	100.4	0.04	2.14	4	HZ
UDF2U6	96.2	-0.34	4.09	98.2	-0.16	1.43	4	TM
XEVVYU	109.6	0.58	9.61	97.1	-0.25	11.60	4	TM
YECBR3	85.6	-1.08	2.99	89.1	-0.95	3.94	4	XX
YPCYJY	41.7	-4.11 X	0.29 L	42.0	-5.08 X	0.58 L	4	LZ

Consensus (All Labs) Results			
Month Mean	101.18	Grand Mean	99.99
Avg SD	11.38	Avg SD Months	8.25
SD btwn Labs	14.49	SD btwn Labs	11.43
Labs Incl	23	Labs Incl	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	99.53	14.41	1.65	19
Modified Scott Bond Mechanics	105.46	2.63	4.28	2

Analysis Notes

YPCYJY - Method used 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 #611 (J)
August 2020

Key to Instrument Codes Reported by Participants

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



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

Report #611 (J)
August 2020

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
27BXXKX	29.0	0.38	2.04	29.0	0.55	0.46	4
3D76UQ	30.9	0.95	1.65	29.7	0.84	1.24	4
6VGQFP	30.0	0.68	3.70	29.9	0.93	0.41	4
73AJZN	19.4	-2.45 *	1.39	22.2	-2.07 *	2.31	4
AWWGTP	31.9	1.24	0.36 L	29.5	0.77	1.77	4
AZYL94	24.8	-0.85	2.59	24.7	-1.09	0.68	4
BC7KTB	25.6	-0.61	1.52	25.9	-0.64	0.91	4
BHBNGN	24.6	-0.91	1.82	24.2	-1.28	0.88	4
CHTW7H	26.3	-0.40	1.74	25.6	-0.72	1.35	4
DBLQ4K	29.4	0.51	3.80	27.7	0.07	1.54	4
DUEV2D	30.8	0.92	0.84	30.8	1.27	0.00	1
EWYXRJ	33.2	1.63	4.09	32.7	1.99 *	0.53	4
G7DTLF	29.4	0.51	1.56	29.3	0.68	0.71	4
GAXLXH	28.4	0.21	2.07	27.1	-0.16	3.70	4
GWREYD	31.0	0.98	1.98	31.0	1.36	1.01	4
JE32JB	29.0	0.38	3.21	28.3	0.31	0.50	4
K4J7GG	29.0	0.39	2.35	28.9	0.52	1.00	4
K9VUGD	27.8	0.04	4.32	26.9	-0.26	1.36	4
KCU93H	26.6	-0.32	3.65	26.5	-0.41	1.89	4
KTHLGA	28.2	0.15	6.98 H	27.8	0.10	1.12	3
L4YP2E	25.0	-0.79	4.42	27.1	-0.16	1.99	4
LMBEEC	31.6	1.16	1.52	25.9	-0.61	5.19 H	3
QG83KA	24.6	-0.91	1.67	24.1	-1.34	1.44	4
QYRTJA	31.6	1.16	3.44	28.7	0.44	3.34	4
RNZU69	28.0	0.10	1.00	28.4	0.34	0.63	4
TNH7AK	23.6	-1.21	1.82	24.1	-1.34	1.75	4
UDF2U6	28.2	0.15	3.56	28.9	0.52	0.68	4
WQFMAY	24.6	-0.91	1.34	25.0	-0.98	0.48	4
XEVVYU	24.4	-0.97	1.95	24.2	-1.30	0.68	4
XU97P3	31.8	1.22	1.48	30.0	0.94	2.44	4
YECBR3	19.4	-2.45 *	1.14	23.8	-1.43	3.12	4
YPCYJY	29.4	0.51	1.14	29.1	0.59	1.17	4
ZPLDHR	26.0	-0.50	6.75 H	31.6	1.57	3.86	4



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

Report #611 (J)
August 2020

Consensus (All Labs) Results			
Month Mean	27.68	Grand Mean	27.51
Avg SD	2.94	Avg SD Months	1.94
SD btwn Labs	3.38	SD btwn Labs	2.59
Labs Incl	33	Labs Incl	33

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #611 (J)
August 2020

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD	Months	Inst
3D76UQ	22.8	0.53	0.93	22.5	0.21	0.98	4	LP
6KY8VT	21.4	-0.30	1.21	21.0	-0.69	0.33	4	LP
6VGQFP_AL	20.2	-1.01	1.82	19.8	-1.40	0.58	4	AL
73AJZN	21.0	-0.56	1.10	20.9	-0.75	1.19	4	LA
7M33EW	21.5	-0.23	1.30	22.1	-0.03	0.42	4	LP
7PAKDR_AL	5.9	-9.40 X	0.43 L	5.9	-9.74 X	0.00	1	AL
B22Z4M_AL	21.4	-0.28	1.85	21.8	-0.21	0.60	4	AL
BC7KTB_AL	20.0	-1.12	1.70	19.3	-1.70	2.13	4	AL
BHBNGN_AL	21.5	-0.26	1.49	21.9	-0.18	0.67	4	AL
C9JP4N	22.2	0.18	1.23	22.3	0.08	0.45	4	XX
CHTW7H	21.5	-0.23	2.53	22.9	0.42	1.19	4	TP
DUEV2D	20.7	-0.72	1.57	20.7	-0.89	0.00	1	LA
ELHD9M_AL	23.8	1.10	1.00	23.7	0.95	0.31	4	AL
EWYXRJ_AL	22.8	0.52	1.34	22.6	0.24	0.28	3	AL
F4RPDH	19.4	-1.50	1.81	18.7	-2.06 *	2.05	4	GA
GAXLXH	17.7	-2.45 *	1.38	18.8	-2.00 *	1.26	4	XX
GWREYD_AI	20.7	-0.69	1.91	19.6	-1.53	0.76	4	AK
JE32JB_AL	21.7	-0.11	1.99	22.7	0.33	0.90	4	AK
K4J7GG_AL	21.9	-0.02	2.89	22.5	0.23	0.89	4	AL
K9VUGD	22.2	0.18	2.35	22.3	0.08	0.73	4	LP
KCU93H_AL	22.8	0.51	1.31	22.6	0.29	0.74	4	AL
KTHLGA	22.5	0.34	3.14	23.7	0.94	2.15	3	TP
LMBEEC	23.0	0.65	1.63	22.4	0.14	0.56	3	LP
QG83KA	23.5	0.94	4.65 H	23.3	0.69	3.27 H	4	TD
QYRTJA	23.7	1.06	3.13	22.8	0.38	0.97	4	GA
TRHDQ4	20.6	-0.76	1.07	20.4	-1.07	0.15 L	4	LP
UDF2U6_AL	23.3	0.80	1.78	23.4	0.77	0.58	4	XX
WKNFP6	23.0	0.63	2.74	22.9	0.46	0.27	4	LP
WQEPY4	18.5	-1.99 *	1.71	21.4	-0.46	2.01	4	LA
WQFMAY	21.4	-0.32	1.90	21.2	-0.55	0.15 L	4	LA
WWED9V	20.7	-0.71	1.21	21.1	-0.64	1.52	4	XX
XEVVYU	23.4	0.91	1.75	24.5	1.41	0.77	4	LA
XEVVYU_AL	26.0	2.43 *	1.80	24.8	1.59	0.82	4	AL
XHXTAM	25.7	2.25 *	2.15	25.9	2.26 *	0.30	3	LA
XU97P3_AL	21.6	-0.20	2.72	22.3	0.10	0.56	4	AL
YECBR3	22.6	0.44	0.81 L	23.0	0.51	0.53	4	LP
YPCYJY_AL	27.2	3.15 X	1.29	24.9	1.65	1.72	4	AL
ZPLDHR	21.9	0.00	3.06	22.9	0.44	1.45	4	GA



Containerboard Interlaboratory Testing Program
Analysis 237

Report #611 (J)
August 2020

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	21.90	Grand Mean	22.16
Avg SD	2.05	Avg SD Months	1.17
SD btwn Labs	1.70	SD btwn Labs	1.66
Labs Incl	36	Labs Incl	37

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
GA	Gurley Precision #4340 Automatic 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 #611 (J)
August 2020

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	
27BXKX	55.3	53.6	57.7	56.5	55.8	-0.89	3.3	1.8	58.1	0.14	3.6	2.7	16	EN
2GBBWR	58.5	63.6 *	62.0	63.0 *	61.8	1.83	3.8	2.3	61.5	1.93	4.6	2.0	12	LD
2HYWBZ	58.8	58.1	59.9	57.9	58.7	0.42	3.6	0.9	56.0	-0.97	2.9	2.5	16	EM
3BKB3W	61.5	61.2	62.8	59.8	61.3	1.61	4.1	1.2	61.0	1.66	4.2	1.5	16	LD
3Q9LNY	58.2	58.4	58.1	58.3 L	58.3	0.24	1.6	0.1 L	58.1	0.16	1.5	0.3 L	16	LD
3QWPJU	56.2	56.7	57.2	55.5	56.4	-0.60	3.7	0.7	56.4	-0.76	3.4	2.3	16	LD
49Q4WQ	55.6 L	57.4	57.0	58.9	57.2	-0.23	2.0	1.4	58.6	0.39	2.4	1.8	15	LC
4FVNJV	56.1	57.3	57.5	56.9	57.0	-0.35	3.1	0.6	57.2	-0.32	3.2	0.6	16	LD
4N3NJA	60.0	56.0	60.5	56.6	58.3	0.25	3.1	2.3	57.2	-0.34	3.2	1.5	16	LC
6KY8VT	63.6 *	59.4	59.2	60.2	60.6	1.29	3.9	2.1	60.2	1.25	4.0	1.6	16	LD
6PU2TU	58.3	57.7	57.2	58.0	57.8	0.03	2.8	0.5	57.7	-0.06	3.5	0.5	16	LD
6VZJ8M	60.1	60.1	60.3 L	60.2 L	60.2	1.11	1.6	0.1 L	60.6	1.46	1.9	0.2 L	16	LD
6X63EV	58.1	57.3	57.8	58.4	57.9	0.08	3.5	0.5	57.9	0.03	3.5	0.6	16	LC
6XN7LV	59.4	59.4	59.2	59.6	59.4	0.75	3.5	0.1 L	59.1	0.68	3.3	0.5	16	LD
73AJZN	48.9 XH	No DATA	56.1	54.0	53.0	-2.14 *	6.3	3.7 H	55.0	-1.49	4.8	2.5	11	MB
77XVZU	64.7 *	66.0 X	65.3 *	64.2 *	65.0	3.30 X	4.0	0.7	64.9	3.77 X	4.2	1.0	16	LC
7M33EW	No DATA	59.1	No DATA	59.2	59.2	0.65	2.2	0.1	57.7	-0.04	1.9	1.3	8	LD
A8X6KM	56.3	57.0	57.2	55.0 H	56.4	-0.62	5.0	1.0	56.7	-0.57	5.0	0.8	16	TG
AU96TK	56.8	56.9 L	57.3 L	55.4 L	56.6	-0.51	1.4	0.8	57.1	-0.40	1.5	0.7	16	MB
AZYL94	58.8	57.1	53.0	55.0	56.0	-0.80	3.0	2.5	54.5	-1.73	3.5	3.0	16	LZ
B3GWWM	56.7	60.0	56.9	64.7 *	59.6	0.84	2.9	3.7 H	56.0	-0.97	3.3	4.0 H	16	LD
BHBNGN	59.8	54.7	57.0	58.2	57.4	-0.14	3.7	2.2	58.5	0.39	4.1	2.1	16	LZ
BQMRJG	52.2 *	51.1 *	52.0	52.2 *	51.9	-2.66 *	2.9	0.5	52.8	-2.65 *	3.1	1.5	16	LD
CHTW7H	57.1	55.3	60.2	56.3	57.2	-0.24	4.0	2.1	57.9	0.06	3.7	2.5	16	LC
CYDN6H	60.0 L	58.6	61.9 L	59.0 L	59.9	0.96	1.2	1.5	60.3	1.30	1.0	1.8	16	XX
D9XE6F	47.1 X	52.3	50.2 *	53.0	50.6	-3.21 X	3.5	2.6	51.1	-3.52 X	4.0	3.8 H	13	MB
DDR93G	61.3	62.0 L	60.3	60.2	61.0	1.46	1.7	0.8	60.7	1.51	2.0	0.8	16	TU
EYPYX8	63.1	59.1	60.5	56.1	59.7	0.88	3.3	2.9	59.2	0.71	3.8	2.1	12	LD
F4RPDH	60.7	62.2 H	58.8	62.2	61.0	1.46	4.7	1.6	60.6	1.47	4.4	1.9	16	LD
G7DTLF	60.0	58.3	57.5	58.4 H	58.5	0.36	4.2	1.0	57.7	-0.09	3.5	1.3	16	LD
GFM8JB	58.9	59.7	60.6	58.6	59.4	0.77	2.5	0.9	59.6	0.92	2.6	0.8	16	EN
GWREYD	53.3	54.5	56.6	56.5 L	55.2	-1.13	3.5	1.6	54.4	-1.83	4.0	2.5	16	LD
K9VUGD	No DATA	No DATA	58.5	60.2	59.4	0.74	4.1	1.2	59.3	0.76	3.7	1.7	14	LD
KCU93H	59.9	60.5	60.4	56.3	59.3	0.70	3.8	2.0	59.0	0.63	3.6	1.9	16	LC
KTHLGA	No DATA	54.3	55.5	53.1	54.3	-1.55	3.1	1.2	54.7	-1.65	3.5	1.3	11	LD



Containerboard Interlaboratory Testing Program
Analysis 240

Report #611 (J)
August 2020

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

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
LMBEEC	55.9	54.3	54.0	L 56.3	55.1	-1.18	3.8	1.1	56.4	-0.76	3.4	1.4	16	LD
P794YV	H 57.9	57.8	58.2	58.9	58.2	0.20	3.9	0.5	58.5	0.35	3.4	1.7	16	LD
QEEC3M	57.9	59.7	59.8	58.1	58.9	0.51	3.4	1.0	58.6	0.43	3.0	0.9	12	LZ
QYRTJA	59.2	56.6	58.3	54.8	57.2	-0.23	3.5	2.0	57.1	-0.40	3.5	1.5	12	LD
T9Q6T9	55.4	59.1	53.6	56.1	56.1	-0.75	3.1	2.3	55.7	-1.13	3.1	1.6	16	LD
WHZ4QZ	58.6	58.8	55.7	59.7	L 58.2	0.21	3.0	1.8	58.6	0.39	3.5	1.0	16	TJ
WKNFP6	59.9	61.5	56.3	57.4	58.8	0.46	2.7	2.4	58.3	0.25	2.8	2.2	16	LD
WQFMAY	57.7	57.1	57.6	58.2	57.7	-0.04	3.5	0.5	57.9	0.02	2.7	0.6	12	LD
XEVVYU	57.3	57.4	56.8	57.8	57.3	-0.18	3.0	0.4	58.2	0.21	4.0	1.9	16	LD
XHXTAM	53.0	* 54.3	52.7	H 54.8	53.7	-1.83	5.5	1.0	58.2	0.18	4.6	3.1	16	TU
YECBR3	57.4	54.0	53.0	60.1	56.2	-0.71	3.2	3.3	57.6	-0.14	3.5	1.8	16	LZ
YPCYJY	54.4	53.4	53.5	55.4	54.2	-1.62	3.0	0.9	55.1	-1.43	3.3	1.5	16	LD
YXMZ6Z	59.9	60.0	58.3	58.0	59.1	0.60	4.0	1.0	59.0	0.61	4.0	1.0	16	LD
ZPLDHR	57.5	55.2	H 60.9	57.2	57.7	-0.01	4.1	2.3	57.5	-0.15	3.6	2.1	16	LZ

Consensus (All Labs) Results									
Wk Mean	58.21	57.56	57.72	57.76	Month Mean	57.73	Grand Mean	57.82	
Avg SDR	3.54	3.35	3.36	3.37	Avg SD	3.48	Avg SD	3.44	
SD btwn Labs	2.64	2.76	2.99	2.68	SD btwn Labs	2.21	SD btwn Labs	1.89	
Labs Incl	44	46	48	49	SD btwn Wks	1.69	SD btwn Wks	1.80	
Labs Excl	2	1	0	0	Labs Incl	47	Labs Incl	47	
Labs not Rcvd	3	2	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	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
Analysis 250

Report #611 (J)
August 2020

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

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
27BXXK	65.1	69.5	65.3	67.8	66.9	-0.84	2.7	2.1	66.2	-1.06	3.4	3.1	16	EN
3Q9LNY	68.9 L	68.7	68.7	68.5	68.7	0.08	1.8	0.1 L	68.7	0.03	1.9	0.1 L	16	LD
6ETD2X	54.8 XH	56.0 X	55.6 X	56.4 XH	55.7	-6.69 X	4.3	0.7	55.2	-5.91 X	4.0	1.1	8	LD
6KY8VT	69.6	66.4	69.2	67.9	68.3	-0.13	3.9	1.4	70.0	0.61	3.6	2.0	16	LD
6X63EV	67.8	68.9	68.0	68.3	68.3	-0.16	3.8	0.5	68.0	-0.29	3.4	0.6	16	LD
7M33EW	No DATA	63.0 * No DATA	64.4 *		63.7	-2.52 *	2.0	1.0	63.2	-2.39 *	3.0	1.3	8	LD
8NTMKR	67.2	68.5	66.8	68.2	67.7	-0.46	3.4	0.8	68.2	-0.18	3.9	1.8	16	LD
AU96TK	67.0	67.2	65.8	66.1	66.5	-1.06	1.6	0.7	65.2	-1.49	1.6	1.1	16	MB
BHBNGN	71.0	70.2	67.6	68.7	69.4	0.43	3.1	1.5	68.3	-0.14	3.4	1.5	16	LZ
C9JP4N	65.9	65.8	68.0 L	67.4 L	66.7	-0.94	1.5	1.1	66.9	-0.74	2.4	1.5	16	LZ
CHTW7H	71.0	74.0 *	73.6 *	69.4	72.0	1.80	2.5	2.2	70.9	1.03	3.0	2.3	16	LC
CYDN6H	68.8 L	71.0 L	66.5 L	68.2 L	68.6	0.03	0.8	1.9	70.1	0.67	0.9	2.0	16	XX
GWREYD	65.9	70.2	69.6	72.4	69.5	0.51	3.3	2.7	71.2	1.15	3.8	2.4	16	LD
K9VUGD	No DATA	No DATA	70.3	70.5	70.4	0.96	2.4	0.1	70.9	0.98	3.7	1.6	14	LD
KCU93H	67.2	72.1 H	70.5	No DATA	69.9	0.72	4.6	2.5	68.4	-0.11	5.1	5.4 H	15	XX
KTHLGA	No DATA	67.9	70.3	70.8	69.7	0.57	3.8	1.5	70.4	0.76	4.0	1.6	11	LD
LMBEEC	70.9	72.3	70.5	74.0 *	71.9	1.75	3.0	1.6	73.5	2.18 *	3.2	2.0	16	LD
QEEC3M	68.5 H	70.2	68.9	68.6	69.1	0.27	4.5	0.8	68.6	0.00	3.8	1.3	12	LZ
WKNFP6	63.6 *	67.8	66.9	67.4 H	66.4	-1.11	3.8	1.9	66.9	-0.78	3.5	1.7	16	LD
WQFMAY	68.7	68.3	68.3	69.3	68.7	0.05	3.6	0.5	68.6	-0.03	3.2	0.4 L	12	LD
XEVVYU	66.1	69.4	65.1	68.6	67.3	-0.64	3.3	2.0	67.8	-0.34	3.8	1.6	16	LD
YPCYJY	70.4	69.5	69.3	70.3	69.9	0.68	2.2	0.6	68.9	0.14	3.0	1.5	16	LD

Consensus (All Labs) Results									
Wk Mean	67.98	69.04	68.46	68.83	Month Mean	68.55	Grand Mean	68.62	
Avg SDr	3.13	2.93	3.28	3.05	Avg SD	3.09	Avg SD	3.35	
SD btwn Labs	2.16	2.45	2.09	2.09	SD btwn Labs	1.92	SD btwn Labs	2.26	
Labs Incd	18	20	20	20	SD btwn Wks	1.51	SD btwn Wks	2.03	
Labs Excl'd	1	1	1	1	Labs Incd	21	Labs Incd	21	
Labs not Rcvd	3	1	1	1					

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	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 #611 (J)
August 2020

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	
2HYWBZ	43.3	45.1	42.8	42.9	43.5	-0.02	3.3	1.1	40.1	-1.48	3.2	2.5	16	EM
3BKB3W	46.6	43.1	45.3	45.1	45.0	0.56	3.8	1.4	45.0	0.70	3.3	1.6	16	LD
3QWPJU	43.2	44.4	40.8	43.9	43.1	-0.20	3.3	1.6	43.9	0.21	3.2	1.5	16	LD
49Q4WQ	48.4	48.2 *L	47.9 L	47.3 L	48.0	1.70	1.5	0.5	48.1	2.09 *	2.6	1.2	15	LC
4FVNJV	44.4 L	44.5 L	44.2	43.8	44.2	0.25	1.4	0.3 L	43.2	-0.12	1.8	0.8	16	LC
6KY8VT	46.0	45.4	45.1	45.5	45.5	0.74	3.5	0.4	45.5	0.93	3.5	1.4	16	LD
6VZJ8M	43.3	43.2	43.5	43.6	43.4	-0.07	2.2	0.2 L	43.7	0.11	2.2	0.5 L	16	LD
6XN7LV	43.4	43.6	43.8	43.8 L	43.7	0.03	2.3	0.2 L	44.4	0.43	2.9	0.5 L	16	LD
73AJZN	44.7	59.5 X	45.4	47.6	49.3	2.23 *	3.6	6.9 H	46.7	1.48	3.8	4.0	16	MB
77XVZU	34.9 *	36.1 *	34.9 XH	35.2 *	35.3	-3.22 X	4.3	0.5	34.9	-3.78 X	3.1	1.0	16	XX
AAP4YK	40.7	42.5	43.0	41.9 L	42.0	-0.61	2.3	1.0	43.4	-0.02	2.8	1.4	16	TH
BKVHAH	40.6	39.6	37.2 *	36.9	38.6	-1.94 *	4.0	1.8	39.4	-1.78	3.4	2.9	12	LD
CHTW7H	47.2	41.8	43.7	47.8	45.1	0.60	3.1	2.9	45.1	0.72	3.4	2.1	16	LC
DDR93G	41.1 L	40.7 L	41.3 L	41.6 L	41.2	-0.94	1.0	0.4	41.1	-1.06	1.4	0.5 L	16	TU
EYPYX8	46.9	45.6	45.7	43.9	45.5	0.76	3.3	1.2	45.8	1.04	3.7	1.3	12	LZ
F4RPDH	33.8 *H	38.6	39.1	44.9	39.1	-1.73	4.8	4.5 H	42.8	-0.27	4.5	4.2 H	16	LD
KTHLGA	No DATA	46.3	45.5	45.5	45.8	0.85	4.1	0.5	44.9	0.65	4.9	1.1	11	LD
LBFB37	43.2	39.6	42.9	40.5	41.6	-0.78	3.6	1.8	41.7	-0.78	3.2	1.9	16	LZ
LMBEEC	43.6	44.3	46.0	44.1	44.5	0.36	3.7	1.1	44.4	0.41	3.6	1.0	16	XX
T9Q6T9	46.4	44.5	47.0	46.8	46.2	1.01	3.2	1.1	45.3	0.85	3.4	1.4	16	LD
TGWAH4	33.8 *L	33.6 XL	32.0 X	34.5 *L	33.5	-3.92 X	1.5	1.0	41.2	-0.98	2.7	4.9 H	16	LZ
WKNFP6	40.5	41.0	40.7	41.8	41.0	-1.00	4.0	0.5	41.1	-1.03	3.5	0.9	16	LD
WQFMAY	43.8	44.3	43.2	43.4	43.7	0.04	2.8	0.5	43.8	0.15	2.9	0.8	12	LD
XNHWE4	41.1	41.2	39.7	43.5	41.4	-0.85	4.5	1.6	40.1	-1.48	4.8	1.6	16	TX
YPCYJY	40.7	40.2	41.2	42.0	41.0	-1.00	3.2	0.8	41.8	-0.74	3.0	1.8	16	LD
ZPLDHR	42.8	43.5	44.7	43.3	43.6	0.00	2.5	0.8	43.3	-0.07	3.1	1.0	16	LD

Consensus (All Labs) Results														
Wk Mean	42.57	42.79	43.33	43.11	Month Mean	43.57			Grand Mean	43.43				
Avg SDr	3.39	3.26	3.05	3.28	Avg SD	3.27			Avg SD	3.34				
SD btwn Labs	3.87	2.77	2.62	3.37	SD btwn Labs	2.57			SD btwn Labs	2.25				
Labs Incl	25	24	24	26	SD btwn Wks	2.03			SD btwn Wks	2.08				
Labs Excl	0	2	2	0	Labs Incl	24			Labs Incl	24				
Labs not Rcvd	1	0	0	0										



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

Report #611 (J)
August 2020

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)	TX	TMI Digital Crush Tester (model not specified)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

Analysis 261

Report #611 (J)

August 2020

STFI, 26 lb Corrugating Medium - CM11

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	
3Q9LNY	13.6 L	13.7 L	13.8 L	13.7 L	13.7	0.03	0.5	0.1	13.8	0.34	0.4	0.7	16	LA
3QWPJU	13.0	12.3 *	10.0 X	9.9 X	11.3	-5.20 X	1.1	1.6 H	12.6	-1.56	1.1	1.4 H	16	LZ
4FVNJV	14.2	13.6	13.8	13.9	13.9	0.46	1.1	0.2	13.8	0.34	1.1	0.2	12	LH
6PU2TU	13.7	13.7	14.0	13.0	13.6	-0.19	0.9	0.4	13.6	0.10	0.8	0.4	12	LB
6X63EV	14.0	13.8	13.5 L	12.9	13.5	-0.26	0.7	0.5	13.6	-0.04	0.8	0.5	16	LB
73AJZN	13.6	No DATA	12.9	No DATA	13.3	-0.85	1.1	0.5	13.7	0.25	1.0	0.7	10	LA
CHTW7H	13.1	13.6	13.8	13.5	13.5	-0.36	1.1	0.3	13.7	0.21	1.1	0.3	16	LU
CYDN6H	10.3 X	9.4 X	10.2 XL	10.4 X	10.1	-7.87 X	0.7	0.5	12.5	-1.74	1.0	1.6 H	16	XX
D9XE6F	13.3	13.5	13.0	13.4	13.3	-0.76	1.2	0.2	16.1	4.18 X	1.1	10.1 H	12	LA
DBLQ4K	13.2	12.7	13.6	13.5	13.3	-0.91	1.3	0.4	13.2	-0.63	1.0	0.2	16	LA
F4RPDH	13.5	13.7 L	13.6	13.6	13.6	-0.09	0.9	0.1	14.1	0.86	1.2	0.7	16	LA
G7DTLF	13.6	14.6	13.9	14.6	14.2	1.07	1.0	0.5	14.1	0.87	1.0	0.4	16	LH
GFM8JB	14.5	14.7	13.4 L	14.4	14.2	1.26	0.8	0.6	14.2	1.10	0.9	0.5	16	LH
GWREYD	15.3 *	14.3	14.9 *	14.5	14.7	2.35 *	1.1	0.4	14.4	1.44	1.1	0.4	16	LA
KTHLGA	No DATA	13.5	13.2	13.8	13.5	-0.37	1.0	0.3	13.2	-0.67	1.1	0.4	11	LB
LBFB37	14.2 H	13.7 L	13.3	14.0 L	13.8	0.26	1.1	0.4	13.4	-0.33	0.9	0.5	16	LA
LKM3F7	22.0 XH	22.5 XH	21.5 X	22.0 XH	22.0	18.33 X	1.7	0.4	21.5	13.17 X	1.7	1.2	16	TX
QYRTJA	14.0	13.3	13.0	14.3	13.6	-0.07	1.2	0.6	13.5	-0.18	1.2	0.5	16	LU
TGWAH4	11.8 *H	12.5	13.2 H	12.6	12.5	-2.46 *	1.5	0.6	12.9	-1.06	1.3	0.6	16	LA
WHZ4QZ	13.3	13.6	13.4	13.3	13.4	-0.59	0.9	0.2	13.6	0.01	0.9	0.3	16	TT
WQFMAY	13.6	14.0 H	13.2	13.5	13.6	-0.25	1.3	0.3	13.5	-0.10	1.3	0.3	12	LB
XEVVYU	13.1 L	13.5	13.8	13.4	13.5	-0.47	1.0	0.3	13.8	0.44	1.1	0.4	16	LA
XHXTAM	13.8	13.9	13.6	13.5	13.7	0.09	1.1	0.2	13.8	0.33	1.1	0.4	16	LA
XNHWE4	11.8 *	12.1 *	12.1 *	12.3 *	12.1	-3.46 X	1.0	0.2	12.1	-2.39 *	1.0	0.4	16	TT
YPCYJY	14.7	14.4	15.0 *	13.9	14.5	1.77	1.3	0.5	14.8	2.03 *	1.1	0.4	16	LA
ZPLDHR	13.6	13.7	13.7	14.3	13.8	0.35	1.1	0.3	13.8	0.40	1.1	0.3	16	LZ

Consensus (All Labs) Results														
Wk Mean	13.58	13.59	13.55	13.62	Month Mean	13.66			Grand Mean	13.58				
Avg SDr	1.13	0.98	1.14	1.03	Avg SD	1.07			Avg SD	1.04				
SD btwn Labs	0.77	0.67	0.59	0.59	SD btwn Labs	0.46			SD btwn Labs	0.60				
Labs Incl	23	23	23	22	SD btwn Wks	0.39			SD btwn Wks	0.61				
Labs Excl	2	2	3	3	Labs Incl	22			Labs Incl	24				
Labs not Rcvd	1	1	0	1										



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

Report #611 (J)
August 2020

Key to Instrument Codes Reported by Participants

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

End of Report