



Containerboard Interlaboratory Testing Program

Participant Summary Report #605 (B) - February 2020

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX14</u>	<u>Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC12</u>	<u>Edgewise Compressive Strength, Wax (T811), Corrugated Board</u>
<u>203</u>	<u>EC12</u>	<u>Edgewise Compressive Strength by Clamp (T839), Corrugated Board</u>
<u>205</u>	<u>42F2</u>	<u>Mullen Burst of Linerboard, 42 lb Linerboard</u>
<u>207</u>	<u>35E1</u>	<u>Mullen Burst of Linerboard, 35 lb Linerboard</u>
<u>215</u>	<u>42F2</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard</u>
<u>217</u>	<u>35E1</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 35 lb Linerboard</u>
<u>223</u>	<u>42F2</u>	<u>STFI of Linerboard, 42 lb Linerboard</u>
<u>225</u>	<u>35E1</u>	<u>STFI of Linerboard, 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>Autoline: Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42F</u>	<u>Internal Bond Strength, Linerboard, 42 lb Linerboard</u>
<u>234</u>	<u>42F</u>	<u>Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard</u>
<u>237</u>	<u>42F</u>	<u>Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard</u>
<u>240</u>	<u>CM11</u>	<u>Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM11</u>	<u>Fluted Crush of Medium, 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM11</u>	<u>Ring Crush of Medium, 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM11</u>	<u>STFI of Medium, 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	35E1	February 2019-Current
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 #605 (B)
February 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
226E6V	588.0	-0.22	49.71	601.1	0.12	18.53	2	EX
3X23MZ	566.4	-0.67	20.32	569.3	-0.52	4.10	2	LG
3ZUYBU	577.9	-0.43	60.68	566.5	-0.58	16.15	2	ER
4VB9GJ	593.4	-0.11	40.49	587.9	-0.15	7.81	2	TB
6W2RVP	550.4	-0.99	25.38	532.5	-1.26	25.31	2	LS
9ZUP3K	638.6	0.81	39.84	601.4	0.12	52.64	2	LL
AQYBCJ	625.4	0.54	30.04	691.4	1.93 *	93.34	2	EX
BZKPYL	592.5	-0.13	29.25	596.0	0.01	4.82	2	LM
C6UD4B	690.4	1.87	27.01	677.0	1.64	18.96	2	LG
E2K23R	658.0	1.21	83.20	607.1	0.24	72.01	2	LG
E3HBEG	579.8	-0.39	40.10	571.3	-0.48	12.02	2	ES
F3APZD	608.8	0.20	48.12	587.4	-0.16	30.31	2	LS
FGTFWU	710.0	2.27 *	11.60	703.5	2.17 *	9.19	2	EM
GZJ7CK	607.8	0.18	63.45	600.8	0.11	9.82	2	LO
HQBQ6C	482.8	-2.38 *	13.75	473.5	-2.45 *	13.18	2	LL
K646HB	564.2	-0.71	23.51	564.4	-0.62	0.28	2	ER
KNXZTD	640.6	0.85	20.48	634.9	0.80	8.06	2	ER
LGQUQF	575.9	-0.47	28.90	560.9	-0.69	21.10	2	LM
T8LW3E	621.1	0.45	101.34 H	603.3	0.16	25.12	2	ET
UYLW4C	557.0	-0.86	25.93	570.6	-0.50	19.23	2	EX
V6LXJW	613.8	0.30	42.94	617.4	0.44	5.09	2	LS
W8ATHA	563.6	-0.72	34.08	568.0	-0.55	6.26	2	LS
WCLBJZ	569.9	-0.60	71.27	605.2	0.20	50.03	2	ER

Consensus (All Labs) Results

Month Mean	598.97	Grand Mean	595.28
Avg SD	46.13	Avg SD Months	32.22
SD btwn Labs	48.89	SD btwn Labs	49.79
Labs Incd	23	Labs Incd	23

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	606.58	44.83	7.61	7
Water based adhesive sealing	710.00	0.00	111.03	1
Clip sealing	588.01	43.08	10.96	15



Containerboard Interlaboratory Testing Program
Analysis 201

Report #605 (B)
February 2020

Top to Bottom Box Compression Strength, Corrugated Boxes - BX14
TAPPI Official Test Method T804

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		



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

Report #605 (B)
February 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3WQ7B4	33.6	-0.55	2.55	34.3	-0.55	2.60	4	XX
3X23MZ	35.9	0.17	2.26	37.6	0.38	1.19	4	LE
6W2RVP	40.0	1.49	1.38	38.8	0.72	1.39	4	LC
FAUQFP	33.4	-0.62	1.07	33.2	-0.89	1.15	4	TF
LDRHUF	34.4	-0.29	2.73	34.8	-0.42	1.84	4	LD
UYLW4C	36.6	0.40	2.27	35.9	-0.12	0.58	4	LC
VAHHP2	48.0	4.09 X	1.51	44.2	2.30 *	4.81 H	3	XX
VPELAR	39.5	1.32	1.06	38.6	0.68	1.37	4	LC
W8ATHA	35.1	-0.06	3.21 H	34.6	-0.49	1.07	4	LD
WCLBJZ	35.8	0.16	1.36	35.7	-0.18	0.95	4	EN
X6VQ8V	29.1	-2.01 *	0.54 L	31.3	-1.42	1.96	4	WK

Consensus (All Labs) Results			
Month Mean	35.33	Grand Mean	36.27
Avg SD	2.02	Avg SD Months	2.05
SD btwn Labs	3.11	SD btwn Labs	3.47
Labs Incl	10	Labs Incl	11

Key to Instrument Codes Reported by Participants

EN Emerson 2200	LC L&W Crush Tester 48
LD L&W Crush Tester 248	LE L&W Crush Tester 840
TF TMI Digital Crush Tester, Model 17-19	WK Zwick Z005 Crush Tester
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 #605 (B)
February 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
226E6V	39.0	-0.29	2.28	37.9	-0.96	1.54	2	LD
3WQ7B4	38.7	-0.39	1.92	40.1	0.10	1.09	4	IM
3X23MZ	38.0	-0.71	2.04	38.5	-0.66	0.58	4	LY
3ZUYBU	37.6	-0.85	1.46	38.8	-0.53	2.50	4	LD
4VB9GJ	41.5	0.73	0.93	41.1	0.57	1.09	4	LD
68PG2Q	40.2	0.21	1.44	39.5	-0.21	1.17	4	IM
6AM7YP	41.0	0.52	1.72	41.0	0.54	0.47	4	TG
6DLHUP	34.7	-2.04 *	1.72	34.9	-2.44 *	1.65	4	XX
6W2RVP	41.6	0.78	1.70	41.1	0.58	0.53	4	LC
78F4QY	43.7	1.65	2.13	42.4	1.21	0.99	4	TD
7HFYKN	38.0	-0.71	0.86	38.1	-0.87	0.21	L 3	EM
9GXJAJ	38.2	-0.64	1.96	40.6	0.32	2.56	3	LC
9ZUP3K	42.1	0.98	1.51	41.7	0.90	0.52	2	BU
AQYBCJ	43.4	1.52	1.65	42.9	1.48	0.66	3	CT
BZKPYL	39.8	0.04	0.67	L 40.4	0.23	0.41	4	TG
C6UD4B	41.9	0.91	2.59	42.3	1.15	0.88	4	EM
CUCVAH	42.0	0.94	1.12	42.0	1.05	0.06	L 4	LD
E2K23R	40.5	0.33	1.04	40.7	0.40	2.15	4	TJ
E3HBEG	43.1	1.38	2.05	40.7	0.41	1.79	4	LD
FAUQFP	36.6	-1.27	0.70	L 37.3	-1.27	0.72	4	TD
FGTFWU	38.5	-0.48	0.94	38.4	-0.74	0.25	2	TH
FW6TER	41.4	0.69	1.80	40.3	0.19	1.14	4	EM
GZJ7CK	39.7	-0.02	2.06	40.4	0.23	0.87	4	LD
HQBQ6C	38.4	-0.53	0.75	37.9	-0.96	1.24	4	LC
K646HB	41.7	0.84	1.51	39.6	-0.15	1.65	4	LD
KNXZTD	38.5	-0.48	1.28	38.8	-0.55	0.26	L 4	EM
KYDYE9	39.1	-0.23	1.16	39.4	-0.25	0.44	4	LC
LDRHUF	36.9	-1.17	1.26	39.0	-0.41	2.14	4	LD
LGQUQF	39.1	-0.26	1.16	39.6	-0.11	0.39	4	EM
MXHQRB	38.8	-0.37	1.10	39.3	-0.30	0.66	2	TK
NEFFD7	37.7	-0.82	2.61	38.3	-0.79	0.48	3	XX
NN2UZA	29.1	-4.36 X	1.97	36.2	-1.81	4.72	H 4	LC
T8LW3E	45.1	2.21 *	1.42	44.0	2.02 *	0.72	4	TD
TR8TEX	36.0	-1.52	2.05	38.3	-0.79	3.18	2	TD
UYLW4C	38.9	-0.34	2.23	38.6	-0.64	0.64	4	LC
V6LXJW	42.9	1.32	2.02	42.9	1.47	1.53	4	TB
VAHHP2	49.1	3.87 X	1.39	44.7	2.36 *	5.22	H 3	XX
VPELAR	39.8	0.05	1.50	40.7	0.42	0.87	4	LC
W8ATHA	41.9	0.91	1.40	41.4	0.76	0.70	4	LD



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

Report #605 (B)
February 2020

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
WCLBJZ	37.2	-1.03	2.80	H	38.2	-0.83	0.85	4	EN
X6VQ8V	35.2	-1.87	1.22		37.6	-1.12	2.16	4	WK

Consensus (All Labs) Results				
Month Mean		39.70	Grand Mean	39.88
Avg SD		1.67	Avg SD Months	1.68
SD btwn Labs		2.43	SD btwn Labs	2.06
Labs Incd		39	Labs Incd	41

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	TH TMI Monitor/Compression Tester, Model 17-76
TJ TLS Compression Tester, Model CDM-5	TK TLS Compression Tester, Model 5184
WK Zwick Z005 Crush Tester	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 #605 (B)
February 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	
226E6V	106.4	106.0	112.0	114.4	109.7	-0.05	9.9	4.2	109.7	-0.05	9.9	4.2	4	AH
29PHCX	111.1	108.5	111.0 L	111.4	110.5	0.16	5.3	1.3	110.5	0.16	5.3	1.3	4	LA
2TZ8PV_AL	114.0	108.3	105.5	109.2	109.2	-0.17	8.0	3.5	109.2	-0.17	8.0	3.5	4	XX
3AUM3Q	109.0	107.5	111.1	109.0	109.2	-0.19	8.5	1.5	109.2	-0.19	8.5	1.5	4	LA
3X23MZ	118.2	114.6	117.3	117.3	116.9	1.81	5.8	1.6	116.9	1.81	5.8	1.6	4	AH
3ZUYBU	98.1 *H	103.8	103.4	105.5	102.7	-1.87	17.7	3.2	102.7	-1.87	17.7	3.2	4	LZ
6W2RVP	110.7	112.2	107.6	105.5	109.0	-0.23	9.3	3.0	109.0	-0.23	9.3	3.0	4	AH
6YBRZW	114.0	112.1	110.5	112.7	112.3	0.63	9.3	1.4	112.3	0.63	9.3	1.4	4	AX
74GKUT	105.9	105.6	105.5	104.3	105.3	-1.18	9.0	0.7 L	105.3	-1.18	9.0	0.7 L	4	XX
8ECDFN	105.8	106.7	104.0	107.1	105.9	-1.03	8.9	1.4	105.9	-1.03	8.9	1.4	4	LC
8WGKVQ	110.0	109.2	109.7	109.5	109.6	-0.08	6.9	0.3 L	109.6	-0.08	6.9	0.3 L	4	LJ
97GUEK_AL	108.3	108.1	106.6	103.6	106.7	-0.84	10.2	2.2	106.7	-0.84	10.2	2.2	4	AL
AQYBCJ	110.0	105.0 H	107.0	109.0	107.8	-0.56	10.7	2.2	107.8	-0.56	10.7	2.2	4	XX
AXXTQV	118.7	113.6	114.1	113.1	114.9	1.30	9.9	2.6	114.9	1.30	9.9	2.6	4	LC
AZQK6M	112.0	107.9	105.2	108.5	108.4	-0.38	10.4	2.8	108.4	-0.38	10.4	2.8	4	LC
B38AZJ	110.0	110.0	111.3	109.9	110.3	0.11	7.7	0.7 L	110.3	0.11	7.7	0.7 L	4	AH
C6RKCU	107.1	104.0	111.2	107.3	107.4	-0.64	7.2	2.9	107.4	-0.64	7.2	2.9	4	LA
C9AXWH	106.3	105.7	102.8	108.2	105.7	-1.08	8.8	2.3	105.7	-1.08	8.8	2.3	4	LC
CUCVAH_AL	120.7 *	116.2	117.3	116.7	117.7	2.04 *	7.0	2.0	117.7	2.04 *	7.0	2.0	4	AK
D8QF7G	102.4	104.5	102.9	100.2 *	102.5	-1.93	6.4	1.8	102.5	-1.93	6.4	1.8	4	LJ
E3HBEG	107.5	107.9	106.1	106.0	106.9	-0.78	9.8	1.0	106.9	-0.78	9.8	1.0	4	LA
ECMHUG	113.3	113.0	111.2	119.0	114.1	1.11	8.4	3.4	114.1	1.11	8.4	3.4	4	TB
EDX7B9	98.6 *	99.3 *	104.2	106.7	102.2	-2.00 *	7.0	3.9	102.2	-2.00 *	7.0	3.9	4	AH
EWQ3UN	108.0	108.0	108.1	107.9	108.0	-0.49	7.4	0.1 L	108.0	-0.49	7.4	0.1 L	4	LC
FAUQFP	113.7	112.7	113.2	116.7	114.1	1.09	8.3	1.8	114.1	1.09	8.3	1.8	4	XX
FKUGYC	115.2 L	115.4	114.6	115.4	115.2	1.37	4.9	0.4 L	115.2	1.37	4.9	0.4 L	4	RE
FQ23QF_AL	106.4	116.0	106.9	112.3	110.4	0.13	9.8	4.6	110.4	0.13	9.8	4.6	4	XX
FUHAEF_AL	115.3	110.3	111.4	107.6	111.1	0.32	7.9	3.2	111.1	0.32	7.9	3.2	4	XX
G7QDDH	115.7	114.4	116.4	112.8	114.8	1.29	10.3	1.6	114.8	1.29	10.3	1.6	4	LA
G8YQCB	107.7	110.5 L	110.8 L	108.3	109.3	-0.15	3.9	1.6	109.3	-0.15	3.9	1.6	4	XX
GZ4MRM	112.4	106.1	110.6	107.4	109.1	-0.20	9.2	2.9	109.1	-0.20	9.2	2.9	4	LA
HJAGYJ	116.5	115.8	117.6	116.7	116.7	1.76	9.0	0.8	116.7	1.76	9.0	0.8	4	TB
JRXWWM	114.0	113.8	114.2	114.0	114.0	1.07	7.1	0.2 L	114.0	1.07	7.1	0.2 L	4	LA
JTC4H4	112.9	109.4	112.4	111.4	111.5	0.42	6.8	1.5	111.5	0.42	6.8	1.5	4	TP
K646HB	105.3	109.6	114.1	109.1	109.5	-0.09	9.3	3.6	109.5	-0.09	9.3	3.6	4	AH



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

Report #605 (B)
February 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
KKYPWD	108.3	107.4	108.5	111.9	109.0	-0.23	9.7	2.0	109.0	-0.23	9.7	2.0	4	LZ
LDRHUF	103.7	108.1	106.4	106.7	106.2	-0.96	7.5	1.8	106.2	-0.96	7.5	1.8	4	LA
LZ73RG	113.2	108.2	106.0	104.0	107.8	-0.53	8.7	4.0	107.8	-0.53	8.7	4.0	4	LZ
MVQV4G	67.9 XH	118.9 *	116.9	123.1 *	106.7	-0.83	13.7	26.0 H	106.7	-0.83	13.7	26.0 H	4	LB
N6BL3E	112.2	108.0	111.7	115.1	111.7	0.48	8.2	2.9	111.7	0.48	8.2	2.9	4	LA
N6BL3E_AL	112.9	115.6	111.7	111.1	112.8	0.76	6.2	2.0	112.8	0.76	6.2	2.0	4	AL
NBJRWY	97.7 *	100.5 *	106.4	97.9 *	100.6	-2.41 *	10.2	4.0	100.6	-2.41 *	10.2	4.0	4	XX
NLKAFE_AL	110.2	106.6	107.6	108.2	108.2	-0.45	7.3	1.5	108.2	-0.45	7.3	1.5	4	XX
NN2UZA_AL	114.7	114.5	110.1	118.5	114.5	1.19	9.6	3.4	114.5	1.19	9.6	3.4	4	XX
P8FFE6	112.1	108.9	114.5	116.2	112.9	0.79	8.4	3.1	112.9	0.79	8.4	3.1	4	LC
QG2U28	110.9 L	109.9	107.4 L	110.6 L	109.7	-0.05	3.5	1.6	109.7	-0.05	3.5	1.6	4	LA
QWQ3X6	105.3	107.4	106.7	108.2	106.9	-0.77	7.4	1.2	106.9	-0.77	7.4	1.2	4	LC
TXZT27_AL	113.0	106.4	104.6	107.0	107.8	-0.56	8.4	3.6	107.8	-0.56	8.4	3.6	4	XX
UD88W9	113.6	107.4	116.8	119.0	114.2	1.12	10.2	5.0	114.2	1.12	10.2	5.0	4	LA
UN4BZ3	111.4	105.1	101.8	107.2	106.4	-0.92	11.2	4.0	106.4	-0.92	11.2	4.0	4	LA
VAHHP2	113.2	113.2	114.9	112.7	113.5	0.93	5.4	1.0	113.5	0.93	5.4	1.0	4	LC
W8ATHA	105.7	103.2	106.7	108.0	105.9	-1.04	8.6	2.0	105.9	-1.04	8.6	2.0	4	LA
WU9TCZ	112.5	112.5	113.6	113.5	113.0	0.82	6.9	0.6 L	113.0	0.82	6.9	0.6 L	4	LC
XAPK6W_AL	111.0	114.8	111.2	112.2	112.3	0.63	8.7	1.7	112.3	0.63	8.7	1.7	4	AL
XHQTUX	111.8	114.0	108.0	114.1	112.0	0.54	10.7	2.9	112.0	0.54	10.7	2.9	4	AH
XMG6UZ	107.8	115.7	109.6	108.1 H	110.3	0.11	11.2	3.7	110.3	0.11	11.2	3.7	4	LZ
XMG6UZ_AL	84.3 X	85.1 X	80.6 X	83.2 X	83.3	-6.91 X	9.2	2.0	83.3	-6.91 X	9.2	2.0	4	AL
XNUKHA	109.6	No DATA	No DATA	No DATA	109.6	-0.08	11.8	0.0	109.6	-0.08	11.8	0.0	1	LC
YXEBG7	103.8	102.8	114.6 H	105.4	106.6	-0.85	13.1	5.4	106.6	-0.85	13.1	5.4	4	LA
ZZGRQL_AL	111.5	116.5	120.9 *	No DATA	116.3	1.66	8.9	4.7	116.3	1.66	8.9	4.7	3	AL

Consensus (All Labs) Results														
Wk Mean	110.12	109.61	110.07	110.39	Month Mean	109.89			Grand Mean	109.89				
Avg SDr	9.44	8.83	8.84	8.25	Avg SD	8.97			Avg SD	8.97				
SD btwn Labs	4.79	4.40	4.43	4.86	SD btwn Labs	3.85			SD btwn Labs	3.85				
Labs Incl	58	58	58	57	SD btwn Wks	4.33			SD btwn Wks	4.33				
Labs Excl	2	1	1	1	Labs Incl	59			Labs Incl	59				
Labs not Rcvd	0	1	1	2										



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

Report #605 (B)
February 2020

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



Containerboard Interlaboratory Testing Program
 Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E1
 TAPPI Official Test Method T807

Report #605 (B)
February 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
226E6V	91.6	94.4	96.8	94.4	94.3	0.63	7.2	2.1	89.6	-0.96	8.2	4.1	12	AH
29PHCX	92.0	91.8 L	91.2	87.8	90.7	-0.62	4.4	2.0	90.3	-0.68	3.9	1.4	12	LA
2TZ8PV_AL	91.2	92.0	92.7	94.5	92.6	0.04	7.8	1.4	92.6	0.15	7.8	1.4	4	XX
3AUM3Q	90.9	89.2	90.8 L	90.7	90.4	-0.72	5.7	0.8	91.5	-0.25	6.6	2.1	12	LA
3X23MZ	96.0	95.7	95.0	93.1	95.0	0.85	7.2	1.3	94.5	0.83	6.5	1.5	12	AH
3ZUYBU	89.8	87.6	85.9	89.5	88.2	-1.47	8.0	1.8	88.0	-1.53	8.2	1.8	12	LA
6W2RVP	92.1	88.7	88.4	90.6	90.0	-0.87	8.5	1.7	89.5	-0.99	8.1	2.1	12	AH
6YBRZW	93.7	94.8	96.8	101.4 *	96.7	1.44	7.2	3.4	95.1	1.07	7.4	3.8	12	AX
74GKUT	87.0	85.8	90.1	85.1	87.0	-1.90	8.9	2.2	87.0	-1.90	8.9	2.2	4	XX
8ECDFN	89.2 H	86.0	90.2	89.6	88.8	-1.28	9.6	1.9	89.9	-0.82	8.3	2.4	12	LC
8WGVQ	90.6	90.4	90.4	90.4	90.4	-0.70	7.0	0.1 L	90.4	-0.64	5.9	0.3 L	12	LJ
97GUEK_AL	86.8	89.6	94.4	93.1	91.0	-0.52	9.2	3.4	91.0	-0.44	9.2	3.4	4	AL
AQYBCJ	97.5	94.0	90.5	92.5	93.6	0.39	8.6	3.0	95.7	1.27	8.7	3.0	12	XX
AXXTQV	92.4	97.8	96.9	99.1	96.5	1.40	9.2	2.9	95.3	1.12	9.0	2.5	12	LC
AZQK6M	91.8	86.5	88.6	89.8	89.2	-1.14	8.4	2.2	90.5	-0.62	7.7	3.4	12	LC
B38AZJ	89.8	91.8	91.7	90.8	91.0	-0.50	5.9	0.9	91.1	-0.40	5.3	0.9 L	12	AH
C6RKCU	91.9	87.7	92.4	90.1	90.5	-0.68	9.4	2.1	89.4	-1.02	8.2	2.5	8	LA
C9AXWH	91.5	90.9	87.3	91.5	90.3	-0.75	8.7	2.0	90.2	-0.72	7.7	1.9	12	LA
CUCVAH_AL	100.8 *	99.1 *	95.3	97.4	98.2	1.96 *	7.0	2.4	98.2	2.18 *	7.0	2.4	4	AK
D8QF7G	89.3	87.9	89.2	85.3	87.9	-1.58	8.0	1.9	87.1	-1.87	7.5	2.3	8	LJ
E3HBEG	90.8	91.7	92.4	91.9	91.7	-0.27	8.4	0.7 L	91.7	-0.17	9.0	2.9	12	LA
ECMHUG	96.5	95.1	95.1	98.8	96.4	1.34	7.2	1.7	95.0	1.01	7.8	3.3	12	TB
EDX7B9	89.0	86.4	91.4	96.6	90.8	-0.57	5.7	4.4	90.1	-0.78	5.5	3.0	12	AH
EWQ3UN	88.9	90.2	88.7	88.7	89.1	-1.16	6.0	0.7 L	91.7	-0.19	7.1	2.0	12	LC
FAUQFP	93.5	93.2	92.0	93.6	93.1	0.20	10.1	0.7 L	92.8	0.20	9.5	2.4	12	XX
FKUGYC	92.0 L	92.2	92.8 L	93.6 L	92.7	0.06	3.2	0.7 L	93.3	0.42	3.3	1.6	12	RE
FQ23QF_AL	95.8	94.5	93.2	91.7	93.8	0.45	8.1	1.7	93.8	0.58	8.1	1.7	4	XX
FUHAEF_AL	92.6	93.5	92.3	96.5	93.7	0.42	5.3	1.9	93.7	0.56	5.3	1.9	4	XX
G7QDDH	101.2 *H	92.2	98.5	94.0	96.5	1.37	10.9	4.1	92.8	0.24	7.6	7.3 H	12	LA
G8YQCB	89.9 L	88.4	89.6	91.8 L	89.9	-0.88	3.8	1.4	90.4	-0.65	3.9	1.4	12	XX
GZ4MRM	98.4	92.9	94.5	92.0	94.5	0.68	7.1	2.8	93.5	0.48	6.8	2.5	8	LA
HJAGYJ	94.1	96.3	96.0	96.1	95.6	1.09	7.9	1.0	96.9	1.71	7.5	1.9	12	TB
JRXWWM	93.2	93.0	93.4	93.8	93.4	0.30	4.8	0.3 L	92.8	0.23	4.5	0.7 L	12	LA
JTC4H4	90.6	90.1	92.0	91.5	91.1	-0.49	5.6	0.9	90.9	-0.47	5.4	0.9 L	12	TP
K646HB	90.4	94.9	95.1	90.7	92.8	0.10	7.2	2.6	93.2	0.37	7.1	3.4	12	AH



Containerboard Interlaboratory Testing Program
 Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E1
 TAPPI Official Test Method T807

Report #605 (B)
February 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
KKYPWD	93.6	96.8	93.3	94.3	94.5	0.69	8.0	1.6	95.7	1.28	8.5	2.2	12	LZ
LDRHUF	84.5 *	89.0	91.0	86.3	87.7	-1.65	6.1	2.8	88.5	-1.33	6.5	2.4	12	LA
LZ73RG	94.1	93.0	88.7	90.4	91.5	-0.32	7.5	2.5	95.6	1.23	8.9	5.2	10	LZ
MVQV4G	44.1 X	100.1 *	94.4	103.3 X	85.5	-2.42 *	8.3	27.8 H	86.9	-1.92	7.2	14.7 H	12	LB
N6BL3E	95.6 H	92.6	95.6	96.7	95.1	0.91	10.0	1.7	91.3	-0.33	8.2	5.3	12	LA
N6BL3E_AL	96.6	93.7	90.5	97.0	94.5	0.68	6.6	3.0	94.5	0.83	6.6	3.0	4	AL
NBJRWY	82.2 *	85.8	83.1 *	77.4 X	82.1	-3.57 X	7.9	3.5	82.1	-3.67 X	7.9	3.5	4	XX
NLKAFF_AL	91.0	89.5	95.6	91.5	91.9	-0.21	5.9	2.6	91.9	-0.11	5.9	2.6	4	XX
NN2UZA_AL	100.6 *	95.3	99.9 *	92.6	97.1	1.60	7.6	3.8	97.1	1.80	7.6	3.8	4	XX
P8FFE6	89.1	94.1	91.3	97.7	93.1	0.20	8.6	3.7	92.7	0.19	8.2	3.6	12	LC
QG2U28	94.1 L	94.6 L	94.2 L	94.5 L	94.4	0.64	2.7	0.2 L	92.5	0.10	3.3	1.8	12	LA
QWQ3X6	88.2	89.9	96.8	92.6	91.9	-0.21	6.2	3.8	90.6	-0.57	7.7	3.3	12	LC
TXZT27_AL	92.2	90.6	96.8	95.6	93.8	0.45	7.6	2.9	93.8	0.59	7.6	2.9	4	XX
UD88W9	91.8	96.9	93.2	93.5	93.9	0.48	8.9	2.2	94.2	0.73	7.9	2.4	12	LA
UN4BZ3	94.3	91.7	87.8	86.3	90.0	-0.85	8.0	3.7	88.8	-1.23	8.6	3.2	8	LA
W8ATHA	94.1	89.9	89.7	91.3	91.2	-0.43	8.9	2.1	90.7	-0.55	8.2	3.6	12	LA
WU9TCZ	100.8 *	99.1 *	95.8	96.3	98.0	1.90	7.5	2.4	95.3	1.13	8.9	3.2	12	LC
XAPK6W_AL	98.7	91.9	93.9	88.4	93.2	0.26	8.9	4.3	93.2	0.38	8.9	4.3	4	AL
XHQTUX	97.5	95.3	96.5	88.4 H	94.4	0.67	11.3	4.1	94.6	0.87	9.7	2.7	12	AH
XMG6UZ	96.4	93.9	99.9 *	87.6	94.5	0.68	8.5	5.2	91.1	-0.41	8.6	4.0	12	LZ
XMG6UZ_AL	75.3 X	73.1 X	68.9 X	84.5 *	75.5	-5.88 X	6.7	6.6	75.5	-6.11 X	6.7	6.6	4	AL
XNUKHA	94.4	No DATA	No DATA	No DATA	94.4	0.66	9.8	0.0	94.4	0.81	9.8	0.0	1	LC
YXEBC7	84.7 *	88.9	90.7	88.8	88.3	-1.46	7.2	2.5	86.5	-2.07 *	6.7	2.8	12	LA
ZZGRQL_AL	95.1	90.7	101.4 *	No DATA	95.7	1.12	9.2	5.4	95.7	1.30	9.2	5.4	3	XX

Consensus (All Labs) Results													
Wk Mean	92.67	92.10	92.83	92.22	Month Mean	92.48		Grand Mean	92.19				
Avg SDr	8.04	7.41	7.60	7.87	Avg SD	7.76		Avg SD	7.55				
SD btwn Labs	4.06	3.49	3.59	3.73	SD btwn Labs	2.89		SD btwn Labs	2.74				
Labs Incl	57	57	57	55	SD btwn Wks	4.52		SD btwn Wks	3.56				
Labs Excl	2	1	1	2	Labs Incl	57		Labs Incl	57				
Labs not Rcvd	0	1	1	2									



Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E1
TAPPI Official Test Method T807

Report #605 (B)
February 2020

Key to Instrument Codes Reported by Participants

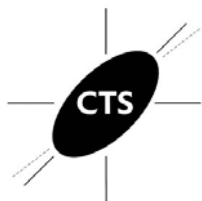
AH	Perkins Model AH	AK	L & W Autoline 300
AL	L & W Autoline 400	AX	Perkins Mullen Tester (model not specified)
LA	L&W Bursting Strength Tester	LB	L&W Burst-O-Matic
LC	L&W Autoline (207 Enrollment)	LJ	L&W Bursting Strength Tester J-Type
LZ	L&W (model not specified)	RE	Regmed/Mullen Tester
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42F2
 TAPPI Official Test Method T822

Report #605 (B)
February 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
29PHCX	91.4	91.8	92.9	93.3	92.4	0.41	2.3	0.9	92.4	0.41	2.3	0.9	4	LZ
2U9MW2	89.1	88.8	89.0	87.4	88.6	-0.50	4.0	0.8	88.6	-0.50	4.0	0.8	4	LD
33HBBZ	98.1	101.1 *	101.8 *	100.1	100.3	2.30 *	2.8	1.6	100.3	2.30 *	2.8	1.6	4	TU
3WQ7B4	87.6 L	87.1	87.3	84.7	86.7	-0.95	2.0	1.3	86.7	-0.95	2.0	1.3	4	MB
3X23MZ	88.0	89.4	88.9	89.0	88.8	-0.44	2.4	0.6	88.8	-0.44	2.4	0.6	4	LG
3ZUYBU	92.5 L	91.3	93.5	93.1	92.6	0.47	2.9	1.0	92.6	0.47	2.9	1.0	4	LD
42HYJP	85.5 H	80.2 *H	90.8	89.2 H	86.4	-1.01	8.8	4.7 H	86.4	-1.01	8.8	4.7 H	4	MB
6AM7YP	91.0	92.6	92.3	93.5	92.3	0.41	2.8	1.0	92.3	0.41	2.8	1.0	4	TH
6W2RVP	89.8	88.3	91.4	88.1	89.4	-0.29	2.6	1.5	89.4	-0.29	2.6	1.5	4	LC
6YBRZW	80.1 *	77.9 *H	84.2	65.1 X	76.8	-3.29 X	4.4	8.2 H	76.8	-3.29 X	4.4	8.2 H	4	LC
8ECDFN	85.5	85.5	86.8	85.3	85.8	-1.16	3.4	0.7	85.8	-1.16	3.4	0.7	4	LD
8WGKVQ	93.2	93.5	93.9	93.4	93.5	0.68	3.2	0.3 L	93.5	0.68	3.2	0.3 L	4	LD
97GUEK	88.3	88.7	87.7	88.2	88.2	-0.58	2.7	0.4	88.2	-0.58	2.7	0.4	4	LD
C6RKCU	88.9	87.5	No DATA	85.6	87.3	-0.79	3.4	1.7	87.3	-0.79	3.4	1.7	3	LD
C9AXWH	91.9	90.5	89.9	89.3	90.4	-0.06	2.6	1.1	90.4	-0.06	2.6	1.1	4	LD
CUCVAH	93.5	92.0	91.1	90.8	91.9	0.30	2.2	1.2	91.9	0.30	2.2	1.2	4	LD
D8QF7G	85.2	84.9	85.3	82.3	84.4	-1.48	4.2	1.4	84.4	-1.48	4.2	1.4	4	LD
ECMHUG	No DATA	95.8	No DATA	87.9	91.9	0.29	4.5	5.6	91.9	0.29	4.5	5.6	2	LD
EDX7B9	101.1 *	96.3	100.1 *	98.1	98.9	1.97 *	3.9	2.2	98.9	1.97 *	3.9	2.2	4	LZ
EWQ3UN	90.8 H	87.0	89.2 H	89.9 H	89.2	-0.34	6.9	1.6	89.2	-0.34	6.9	1.6	4	LC
FGV64C	85.0	85.5	84.3 H	86.3	85.3	-1.28	4.0	0.9	85.3	-1.28	4.0	0.9	4	LD
FKUGYC	96.8	95.8	95.7	96.1	96.1	1.30	2.8	0.5	96.1	1.30	2.8	0.5	4	LZ
FQ23QF	123.9 X	123.1 X	124.3 XH	125.9 X	124.3	8.03 X	3.9	1.2	124.3	8.03 X	3.9	1.2	4	LC
FUHAEF	94.5	90.0	89.9	93.0	91.9	0.29	2.6	2.3	91.9	0.29	2.6	2.3	4	LZ
FW6TER	91.0	92.8	89.2	90.9	91.0	0.08	2.8	1.5	91.0	0.08	2.8	1.5	4	EM
G7QDDH	97.1	96.3	96.8	96.4	96.6	1.43	2.4	0.4	96.6	1.43	2.4	0.4	4	LD
G8YQCB	90.8	81.1	91.0	No DATA	87.6	-0.72	2.9	5.7 H	87.6	-0.72	2.9	5.7 H	3	LD
GZ4MRM	91.8	86.7	88.9	89.2	89.2	-0.36	3.0	2.1	89.2	-0.36	3.0	2.1	4	LC
HJAGYJ	101.0 *	95.0	98.3	100.9 *	98.8	1.94 *	3.6	2.8	98.8	1.94 *	3.6	2.8	4	LX
JLWKZP	95.5	94.2	99.6 *	101.6 *	97.7	1.69	2.9	3.5	97.7	1.69	2.9	3.5	4	LZ
JRXWWM	93.6	91.9	93.2	92.9	92.9	0.54	3.2	0.7	92.9	0.54	3.2	0.7	4	LD
JTC4H4	91.3	90.5	90.7	90.6	90.8	0.03	3.3	0.3	90.8	0.03	3.3	0.3	4	TJ
K646HB	87.3	87.4	87.7	87.4	87.4	-0.76	2.7	0.2 L	87.4	-0.76	2.7	0.2 L	4	LD
LDRHUF	91.1	89.5	87.2	88.3	89.0	-0.39	2.6	1.7	89.0	-0.39	2.6	1.7	4	LD
LZ73RG	90.7	90.7	91.2	85.7	89.6	-0.25	2.6	2.6	89.6	-0.25	2.6	2.6	4	LC



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42F2
 TAPPI Official Test Method T822

Report #605 (B)
February 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
MVQV4G	94.0	94.8	93.2	86.5	92.1	0.35	3.1	3.8	92.1	0.35	3.1	3.8	4	LC
MXHQRB	84.7 L	84.4 L	84.2 L	84.3 L	84.4	-1.49	1.2	0.2 L	84.4	-1.49	1.2	0.2 L	4	MB
N6BL3E	87.3	88.1	88.6	88.6	88.2	-0.59	3.2	0.6	88.2	-0.59	3.2	0.6	4	LD
NN2UZA	75.3 XH	75.0 X	73.1 X	76.8 *	75.1	-3.72 X	4.9	1.5	75.1	-3.72 X	4.9	1.5	4	LC
NXCWLA	86.9	87.3	86.0	86.2	86.6	-0.96	3.7	0.6	86.6	-0.96	3.7	0.6	4	EX
P8FFE6	91.9	90.9	92.5	91.7	91.8	0.27	2.7	0.7	91.8	0.27	2.7	0.7	4	LD
PGJTCJ	83.4 L	85.1	84.9	84.5	84.5	-1.47	1.7	0.8	84.5	-1.47	1.7	0.8	4	RS
QG2U28	82.7	83.7	84.6	83.6	83.7	-1.67	2.0	0.8	83.7	-1.67	2.0	0.8	4	TU
QWQ3X6	91.6	93.4	94.9	93.7	93.4	0.65	3.7	1.4	93.4	0.65	3.7	1.4	4	LD
UD88W9	95.3	96.8	95.1	95.9	95.8	1.22	2.3	0.8	95.8	1.22	2.3	0.8	4	LZ
UN4BZ3	97.4	99.9 *	99.7 *	99.4	99.1	2.02 *	3.1	1.1	99.1	2.02 *	3.1	1.1	4	LD
VPELAR	88.9	88.1	87.2	87.2	87.9	-0.67	3.2	0.8	87.9	-0.67	3.2	0.8	4	LC
W8ATHA	90.3	87.6	89.8	91.0	89.7	-0.24	2.8	1.5	89.7	-0.24	2.8	1.5	4	LD
WCLBJZ	86.2	84.9	85.2	87.5	86.0	-1.12	2.2	1.2	86.0	-1.12	2.2	1.2	4	EN
WEQ6XW	91.8	91.9	93.6	92.1	92.3	0.41	3.0	0.8	92.3	0.41	3.0	0.8	4	EN
WU9TCZ	91.2	93.1	92.2	93.7	92.5	0.45	2.5	1.1	92.5	0.45	2.5	1.1	4	LD
Z2U34T	72.7 X	73.7 X	72.7 X	71.5 X	72.6	-4.29 X	3.5	0.9	72.6	-4.29 X	3.5	0.9	4	EM
ZZGRQL	87.4	91.8	91.3	92.7	90.8	0.03	2.8	2.3	90.8	0.03	2.8	2.3	4	LD

Consensus (All Labs) Results														
Wk Mean	90.61	89.98	90.90	90.28	Month Mean	90.64			Grand Mean	90.64				
Avg SDr	3.37	3.39	3.10	3.43	Avg SD	3.32			Avg SD	3.32				
SD btwn Labs	4.52	4.79	4.48	5.07	SD btwn Labs	4.19			SD btwn Labs	4.19				
Labs Incl	49	50	48	49	SD btwn Wks	1.95			SD btwn Wks	1.95				
Labs Excl	3	3	3	3	Labs Incl	49			Labs Incl	49				
Labs not Rcvd	1	0	2	1										

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program

Analysis 217

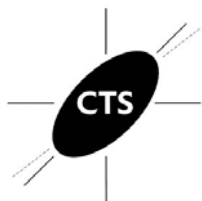
Report #605 (B)

February 2020

Ring Crush, 35 lb Linerboard - 35E1

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	
29PHCX	80.1	82.3	83.3	82.8	82.1	0.48	3.2	1.4	79.5	-0.07	2.6	2.5	12	LZ
2U9MW2	73.9	77.7	77.7	76.3	76.4	-0.65	2.9	1.8	77.0	-0.62	3.6	2.8	12	LD
33HBBZ	66.2 *H	80.2 H	91.5 *	91.0 *	82.2	0.50	8.1	11.9 H	86.1	1.37	5.9	7.2 H	12	TU
3WQ7B4	78.0	77.1	78.0	79.3	78.1	-0.31	3.1	0.9	78.6	-0.27	3.0	1.1	12	MB
3X23MZ	81.6	80.1	82.1	79.2	80.8	0.21	3.4	1.4	79.7	-0.04	3.4	1.8	12	LG
3ZUYBU	80.1	82.1	83.4	83.5	82.3	0.51	3.5	1.6	82.4	0.57	3.5	1.4	12	LD
42HYJP	73.7 H	75.7 H	85.6	76.7	77.9	-0.35	7.1	5.3 H	79.1	-0.17	6.1	5.2	11	MB
6AM7YP	88.5	88.0	85.8	84.6	86.7	1.38	4.1	1.9	84.0	0.92	3.2	3.7	12	TH
6W2RVP	81.9	80.3	77.5	79.5	79.8	0.02	3.9	1.8	80.2	0.09	3.7	1.3	12	LC
6YBRZW	69.2	71.6	76.9	74.5	73.1	-1.31	4.3	3.4	70.2	-2.13 *	4.6	3.7	12	LC
8ECDFN	72.4	75.9	78.3	74.6	75.3	-0.87	3.4	2.4	76.9	-0.65	3.4	2.0	12	LD
8WGKQV	82.9	83.3	83.8	83.7	83.4	0.74	4.2	0.4 L	82.3	0.55	4.2	0.9 L	12	LD
97GUEK	77.5	77.5	77.1	76.5	77.1	-0.50	3.5	0.5	80.1	0.05	3.1	2.4	12	LD
C6RKCU	78.5	77.5	No DATA	80.6	78.9	-0.17	4.7	1.6	77.8	-0.44	4.2	1.7	7	LD
C9AXWH	81.1	81.8	81.4	79.4	80.9	0.24	2.6	1.0	79.9	0.02	2.6	1.6	12	LD
CUCVAH	80.5	78.3	82.1	80.9	80.4	0.15	2.9	1.6	81.2	0.29	2.9	1.6	12	LD
D8QF7G	78.1	71.6	77.8 H	79.8	76.8	-0.57	5.0	3.6	78.7	-0.25	4.5	3.6	8	LD
ECMHUG	No DATA	84.7	No DATA	80.7	82.7	0.59	5.5	2.8	82.3	0.55	5.6	2.1	8	LC
EDX7B9	92.4 *	88.3	87.6	87.5 H	88.9	1.82	5.0	2.3	85.8	1.31	4.4	3.0	12	LZ
EWQ3UN	73.7	77.7 H	72.8 H	72.9	74.3	-1.07	6.9	2.3	75.9	-0.87	5.8	2.1	12	LC
FGV64C	77.4	77.5	78.5	77.7	77.8	-0.38	3.8	0.5	80.1	0.06	3.5	2.7	12	LD
FKUGYC	87.1	87.9	87.5 L	87.0	87.4	1.51	2.4	0.4 L	85.8	1.31	2.2	2.3	12	LZ
FQ23QF	97.0 X	100.6 X	102.8 X	100.1 X	100.1	4.02 X	3.5	2.4	84.4	1.00	4.1	13.5 H	12	LC
FUHAEF	77.6	80.2	80.4	81.6	80.0	0.05	3.7	1.7	79.2	-0.14	4.1	2.5	12	LZ
FW6TER	81.2 L	81.7	80.6	80.5	81.0	0.26	2.6	0.6	80.3	0.11	3.1	1.4	12	EM
G7QDDH	85.0	88.2	88.7	88.5	87.6	1.56	4.4	1.7	86.4	1.45	4.1	2.2	8	LC
G8YQCB	80.0	74.5	81.3 H	No DATA	78.6	-0.22	5.1	3.6	74.8	-1.11	4.4	4.4	11	LD
GZ4MRM	85.0	77.2	76.8	77.6	79.2	-0.11	3.4	3.9	78.5	-0.29	3.2	3.5	12	LC
HJAGYJ	88.5	85.2	88.1	82.1	86.0	1.24	4.7	3.0	88.0	1.79	4.1	3.9	12	LX
JLWKZP	87.9	89.0	88.9	91.0 *	89.2	1.87	3.2	1.3	86.6	1.49	3.2	3.8	12	LZ
JRXWWM	81.5	81.4	81.8	82.6	81.8	0.42	3.2	0.5	81.2	0.31	2.9	0.9 L	12	LD
JTC4H4	77.8	77.7	77.0	77.7	77.6	-0.42	4.5	0.3 L	77.6	-0.48	4.4	0.6 L	12	TJ
K646HB	77.5	76.9	78.8	78.3	77.9	-0.36	3.5	0.8	77.5	-0.50	3.3	1.5	12	LD
LDRHUF	78.8	78.9	75.2	80.9	78.4	-0.25	3.2	2.4	77.8	-0.44	3.2	1.6	12	LD
LZ73RG	78.7	78.3	80.0	73.5	77.6	-0.41	3.3	2.8	77.8	-0.45	3.2	2.3	10	LC



Containerboard Interlaboratory Testing Program

Analysis 217

Report #605 (B)

February 2020

Ring Crush, 35 lb Linerboard - 35E1

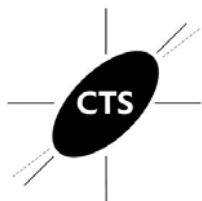
TAPPI Official Test Method T822

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	
MVQV4G	86.0	89.3	88.2	76.7	85.0	1.05	3.4	5.8 H	83.1	0.73	4.7	3.7	12	LC
MXHQRB	71.1 L	70.2 L	71.7 L	72.1 L	71.3	-1.66	1.4	0.8	71.6	-1.81	1.6	1.2	8	MB
N6BL3E	75.5	76.5	76.3	76.5	76.2	-0.69	3.1	0.5	76.5	-0.74	3.9	1.7	12	LD
NN2UZA	66.4 *	65.0 *	64.8 *	67.8 *	66.0	-2.70 *	4.7	1.4	69.1	-2.35 *	4.5	3.4	12	LC
NXCWLA	76.6	74.5	73.5	73.5	74.5	-1.02	2.9	1.5	76.4	-0.75	3.1	2.0	12	EX
P8FFE6	80.7	82.5	81.9	80.5	81.4	0.33	3.2	1.0	82.3	0.54	3.2	1.7	12	LD
PGJTCJ	74.6 L	75.5	75.2	75.8	75.3	-0.87	2.1	0.5	75.4	-0.96	2.1	0.6 L	12	RS
QG2U28	75.3 L	73.9 L	75.0	75.0 L	74.8	-0.96	1.5	0.6	75.5	-0.95	1.3	1.1	12	TU
QWQ3X6	84.2	83.6	78.7	81.7	82.1	0.46	3.7	2.5	81.9	0.45	4.2	2.3	12	LD
UD88W9	84.3	83.3	85.8	85.8	84.8	1.00	3.3	1.2	85.7	1.30	3.3	1.3	12	LZ
UN4BZ3	90.4	90.6 *	90.5	91.4 *	90.7	2.17 *	2.9	0.5	90.6	2.38 *	3.1	1.4	8	LD
VPELAR	78.8	79.2	77.9	79.0	78.7	-0.19	2.8	0.6	78.9	-0.20	3.2	0.7 L	12	LC
W8ATHA	80.2	81.8	79.8	81.9	80.9	0.24	3.1	1.1	79.1	-0.15	3.5	2.2	12	LD
WCLBJZ	74.5	77.1 L	75.2	74.9	75.4	-0.84	2.8	1.2	75.6	-0.93	2.9	1.1	12	EN
WEQ6XW	79.9	78.2	77.0 L	80.0	78.8	-0.18	4.2	1.4	81.2	0.31	4.3	2.2	12	EN
WU9TCZ	83.0	83.3	82.8	83.7	83.2	0.69	4.2	0.4 L	83.8	0.87	3.8	1.1	12	LD
Z2U34T	65.9 *	65.8 *	65.1 *	69.3 *	66.5	-2.60 *	3.4	1.9	69.1	-2.35 *	3.6	6.8 H	12	EM
ZZGRQL	79.6	81.3	80.9	79.8	80.4	0.14	2.4	0.8	81.0	0.27	3.3	2.3	12	LD

Consensus (All Labs) Results												
Wk Mean	79.24	79.57	80.13	79.77	Month Mean	79.69	Grand Mean	79.83				
Avg SDr	4.02	4.26	3.49	3.74	Avg SD	3.92	Avg SD	3.77				
SD btwn Labs	5.91	5.54	5.74	5.18	SD btwn Labs	5.08	SD btwn Labs	4.55				
Labs Incl	51	52	50	51	SD btwn Wks	2.63	SD btwn Wks	3.28				
Labs Excl	1	1	1	1	Labs Incl	52	Labs Incl	53				
Labs not Rcvd	1	0	2	1								

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program

Analysis 223

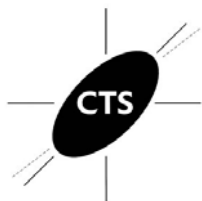
STFI, 42 lb Linerboard - 42F2

TAPPI Official Test Method T826

Report #605 (B)

February 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	
226E6V	22.9	25.6 *H	23.8	30.4 X	25.7	2.20 *	2.0	3.4 H	25.7	2.20 *	2.0	3.4 H	4	XX
33HBBZ	25.4 H	24.7 H	26.9 XH	26.0 *H	25.8	2.28 *	6.5	0.9	25.8	2.28 *	6.5	0.9	4	LA
3AUM3Q	24.1	24.0	23.8	24.3	24.0	0.62	1.6	0.2	24.0	0.62	1.6	0.2	4	LY
3X23MZ	23.5	23.2	23.0	23.0	23.2	-0.22	1.7	0.2	23.2	-0.22	1.7	0.2	4	LU
3ZUYBU	22.1 L	24.0	23.3	23.7	23.3	-0.12	1.8	0.8	23.3	-0.12	1.8	0.8	4	LY
42HYJP	22.6	23.6	22.9	22.8	23.0	-0.42	1.8	0.5	23.0	-0.42	1.8	0.5	4	LA
679J9Q	No DATA	22.8	No DATA	23.8	23.3	-0.09	1.6	0.7	23.3	-0.09	1.6	0.7	2	LY
6DLHUP	25.0	23.5	23.0	24.1	23.9	0.49	1.7	0.9	23.9	0.49	1.7	0.9	4	XX
6W2RVP	22.9	23.4	23.3	22.9	23.1	-0.27	1.6	0.2	23.1	-0.27	1.6	0.2	4	LU
6YBRZW	20.0 *	19.4 X	20.1 *	19.0 X	19.7	-3.63 X	1.4	0.5	19.7	-3.63 X	1.4	0.5	4	LZ
8CBDFR	23.7	24.1	24.1	24.4	24.1	0.67	1.8	0.3	24.1	0.67	1.8	0.3	4	XX
8ECDFN_AL	22.6	23.4	23.4	23.4	23.2	-0.19	1.8	0.4	23.2	-0.19	1.8	0.4	4	AK
8ZDC4M	23.0 L	22.9	22.6	23.2	22.9	-0.45	1.6	0.3	22.9	-0.45	1.6	0.3	4	LW
97GUEK_AL	22.3 L	23.2	22.3 L	22.3 L	22.5	-0.84	1.0	0.5	22.5	-0.84	1.0	0.5	4	AL
AMGA7Y	22.3	22.3	22.7	22.7	22.5	-0.89	1.9	0.2	22.5	-0.89	1.9	0.2	4	XX
AXXTQV	23.7	23.4	22.8	21.3 *	22.8	-0.58	1.8	1.1	22.8	-0.58	1.8	1.1	4	LA
B38AZJ	22.8	23.6 L	3.1 X	23.4 L	18.2	-5.01 X	1.1	10.1 H	18.2	-5.01 X	1.1	10.1 H	4	TT
C9AXWH	22.2	22.9	22.1	22.0	22.3	-1.06	1.3	0.4	22.3	-1.06	1.3	0.4	4	LA
CUCVAH_AL	38.0 XH	39.6 X	38.6 X	40.8 X	39.3	15.39 X	2.3	1.2	39.3	15.39 X	2.3	1.2	4	AK
D8QF7G	21.6	22.9	21.5	21.4	21.9	-1.50	1.8	0.7	21.9	-1.50	1.8	0.7	4	LY
ECMHUG	24.0	24.5	23.9	23.8	24.0	0.62	1.7	0.3	24.0	0.62	1.7	0.3	4	LW
EWQ3UN	24.7 L	22.6	23.8	24.6	23.9	0.51	1.8	1.0	23.9	0.51	1.8	1.0	4	LA
FGTFWU	24.8	24.8	23.2	24.5	24.3	0.89	1.8	0.8	24.3	0.89	1.8	0.8	4	XX
FGV64C	21.2	21.6 *	21.7	21.9	21.6	-1.76	1.5	0.3	21.6	-1.76	1.5	0.3	4	LH
FKRQTU	23.0	24.1	22.7	22.8	23.2	-0.24	1.6	0.6	23.2	-0.24	1.6	0.6	4	LH
FQ23QF_AL	38.5 X	37.7 XH	36.9 X	37.4 X	37.6	13.80 X	2.3	0.7	37.6	13.80 X	2.3	0.7	4	XX
FUHAEF_AL	36.8 X	37.9 X	35.3 X	32.4 X	35.6	11.84 X	1.9	2.4 H	35.6	11.84 X	1.9	2.4 H	4	XX
GZ4MRM	21.8	21.5 *L	20.9	21.6	21.5	-1.89	1.5	0.4	21.5	-1.89	1.5	0.4	4	LA
JLWKZP	22.7	24.2	22.8	23.1	23.2	-0.21	1.9	0.7	23.2	-0.21	1.9	0.7	4	LA
JRXWWM	23.5	23.6	23.3	23.8	23.5	0.12	1.8	0.2	23.5	0.12	1.8	0.2	4	LA
JTC4H4	23.9 L	23.5 L	23.6	23.3	23.6	0.18	1.2	0.3	23.6	0.18	1.2	0.3	4	TT
K646HB	25.0	24.7	25.1	24.8	24.9	1.46	1.8	0.1	24.9	1.46	1.8	0.1	4	LU
KKYPWD	22.8	23.7	25.1	24.6	24.1	0.64	2.1	1.0	24.1	0.64	2.1	1.0	4	LZ
LDRHUF	23.6	24.5	23.3 L	23.7	23.8	0.36	1.4	0.5	23.8	0.36	1.4	0.5	4	BK
LZ73RG	24.0	23.9	24.4	22.4	23.7	0.26	1.8	0.9	23.7	0.26	1.8	0.9	4	LW



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F2

TAPPI Official Test Method T826

Report #605 (B)

February 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	
MVQV4G	24.6 H	23.9	24.2	24.9	24.4	0.95	2.2	0.4	24.4	0.95	2.2	0.4	4	LW
N6BL3E_AL	40.9 XH	40.7 X	39.6 X	36.7 XH	39.5	15.61 X	3.5	1.9 H	39.5	15.61 X	3.5	1.9 H	4	AL
NBJRWY	20.8 *	23.3	20.4 *H	19.8 X	21.1	-2.26 *	2.4	1.5	21.1	-2.26 *	2.4	1.5	4	LH
NLKAFE_AL	22.3	22.6	21.7	22.9	22.4	-0.97	1.5	0.5	22.4	-0.97	1.5	0.5	4	XX
NN2UZA	23.7	24.1	24.1	24.4	24.1	0.67	1.8	0.3	24.1	0.67	1.8	0.3	4	LU
NXCWLA	22.4 L	22.2 L	24.7 L	24.4 L	23.5	0.05	0.0	1.3	23.5	0.05	0.0	1.3	4	TT
P8FFE6	22.9	23.9	23.2	23.8	23.4	0.03	1.6	0.5	23.4	0.03	1.6	0.5	4	LA
QWQ3X6	23.4	21.9	24.9	25.7	24.0	0.56	1.7	1.7 H	24.0	0.56	1.7	1.7 H	4	LA
TXZT27	22.7	24.0	23.8	24.2	23.7	0.28	1.9	0.7	23.7	0.28	1.9	0.7	4	LU
UD88W9	23.7	23.5	22.3	23.1	23.1	-0.25	1.6	0.6	23.1	-0.25	1.6	0.6	4	LW
VAHHP2	22.8 L	23.7	23.3	22.3	23.0	-0.38	1.4	0.6	23.0	-0.38	1.4	0.6	4	LA
W8ATHA	21.8	22.3	22.7	22.9	22.4	-0.95	1.6	0.5	22.4	-0.95	1.6	0.5	4	LZ
WCLBJZ	21.8	22.2	22.1	21.4	21.9	-1.48	1.6	0.4	21.9	-1.48	1.6	0.4	4	LY
WEQ6XW	21.4	21.7	21.3	22.0	21.6	-1.76	2.3	0.3	21.6	-1.76	2.3	0.3	4	LH
WU9TCZ	23.6	23.8	23.6 L	25.2	24.0	0.63	1.3	0.8	24.0	0.63	1.3	0.8	4	LA
XAPK6W_AL	23.1	22.7	23.6	24.1	23.4	-0.02	1.7	0.6	23.4	-0.02	1.7	0.6	4	AL
XHQTUX	24.7	24.7	24.4 H	24.6	24.6	1.16	2.1	0.2	24.6	1.16	2.1	0.2	4	LU
XMG6UZ	23.7	24.2	24.3	23.6	24.0	0.55	1.9	0.4	24.0	0.55	1.9	0.4	4	LZ
XMG6UZ_AL	40.3 XH	39.2 XH	39.7 X	42.0 XH	40.3	16.39 X	5.2	1.2	40.3	16.39 X	5.2	1.2	4	AL
XR9GMB	25.7 *	25.3	25.1	24.8	25.2	1.76	1.7	0.4	25.2	1.76	1.7	0.4	4	LH
YXEBC7	23.2	24.9	24.9	24.3	24.3	0.89	1.9	0.8	24.3	0.89	1.9	0.8	4	LH
ZZGRQL_AL	42.9 XL	40.2 XL	40.8 XL	No DATA	41.3	17.39 X	0.0	1.4	41.3	17.39 X	0.0	1.4	3	AL

Consensus (All Labs) Results														
Wk Mean	23.12	23.51	23.19	23.50	Month Mean	23.40			Grand Mean	23.40				
Avg SDr	1.89	1.94	1.75	1.97	Avg SD	1.96			Avg SD	1.96				
SD btwn Labs	1.19	0.95	1.19	1.14	SD btwn Labs	1.03			SD btwn Labs	1.03				
Labs Incd	50	50	48	48	SD btwn Wks	0.82			SD btwn Wks	0.82				
Labs Exclcd	6	7	8	8	Labs Incd	49			Labs Incd	49				
Labs not Rcvd	1	0	1	1										

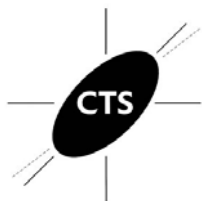


Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42F2
TAPPI Official Test Method T826

Report #605 (B)
February 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

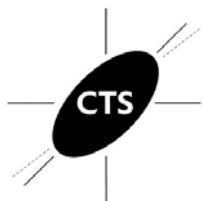
STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

Report #605 (B)

February 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	
226E6V	22.1	23.3	23.6	28.5 X	24.4	1.56	1.7	2.8 H	24.4	1.59	1.7	2.8 H	4	XX
33HBBZ	22.4 H	28.2 XH	22.2 H	23.5 H	24.1	1.25	6.2	2.8 H	23.7	0.88	3.6	1.7	12	LA
3AUM3Q	22.5	23.5 L	24.0	23.2	23.3	0.46	1.3	0.6	22.8	-0.12	1.8	0.7	12	LU
3X23MZ	23.0	22.2	22.8	22.6	22.6	-0.21	1.7	0.3	22.4	-0.55	1.5	0.6	12	LW
3ZUYBU	21.8	22.5	21.9	23.0	22.3	-0.57	1.9	0.6	22.8	-0.12	1.5	0.6	12	LY
42HYJP	22.1	22.8	22.2	23.8	22.7	-0.14	2.1	0.8	22.5	-0.43	1.9	0.8	11	LA
679J9Q	No DATA	21.8	No DATA	21.9	21.8	-1.03	1.4	0.1	22.7	-0.25	1.6	0.8	7	LY
6DLHUP	22.8	22.1	22.8	22.0	22.4	-0.43	1.8	0.4	23.0	0.13	1.6	0.7	12	XX
6W2RVP	22.7	22.9	22.9	23.2	22.9	0.04	1.6	0.2	22.9	0.00	1.6	0.3	12	LU
6YBRZW	18.6 X	19.6 X	20.8	18.5 X	19.4	-3.54 X	1.7	1.1	20.4	-2.67 *	1.7	1.8 H	12	LZ
8CBDFR	22.9	22.8	22.2	23.5	22.9	0.00	2.0	0.5	23.2	0.37	1.8	0.5	12	XX
8ECDFN_AL	21.8	22.4	21.6	22.4	22.1	-0.81	1.7	0.4	22.1	-0.90	1.7	0.4	4	AK
8ZDC4M	22.4	21.9	22.6	22.8	22.4	-0.46	1.6	0.3	22.4	-0.54	1.5	0.4	12	LW
97GUEK_AL	26.5 X	22.5	23.7	23.2	24.0	1.16	2.0	1.8 H	24.0	1.18	2.0	1.8 H	4	AL
AMGA7Y	21.3	22.6	22.4	21.7	22.0	-0.87	1.9	0.6	21.9	-1.02	1.6	0.9	12	XX
AXXTQV	23.1	22.1	22.2	20.2 *	21.9	-0.95	1.6	1.2	22.2	-0.69	1.6	0.8	12	LA
B38AZJ	23.0 L	23.1 L	23.1 L	22.9	23.0	0.20	1.0	0.1 L	23.0	0.11	1.1	0.1 L	12	TT
C9AXWH	22.6	21.6	23.2	21.1	22.1	-0.72	1.8	0.9	22.4	-0.51	1.7	0.7	12	LW
CUCVAH_AL	33.3 X	32.5 X	31.5 X	32.8 X	32.5	9.86 X	2.4	0.8	32.5	10.32 X	2.4	0.8	4	AK
D8QF7G	21.4	21.8	21.9	22.1	21.8	-1.06	1.9	0.3	21.7	-1.23	1.8	0.2 L	8	LY
ECMHUG	22.5	23.6	22.2	22.4	22.7	-0.17	2.1	0.6	23.4	0.60	2.0	0.8	12	LW
EWQ3UN	23.9	23.4	23.4	24.3	23.8	0.92	2.0	0.4	23.5	0.61	1.8	0.4	12	LA
FGTFWU	25.1 *	24.0 H	24.0	24.0	24.3	1.46	2.1	0.5	24.3	1.49	2.1	0.5	4	XX
FGV64C	22.0	21.9	21.6	21.7	21.8	-1.04	1.5	0.2	22.1	-0.83	1.5	0.8	12	LH
FKRQTU	22.5	23.8	23.4	23.1	23.2	0.36	1.9	0.5	23.2	0.33	1.9	0.5	4	LH
FQ23QF_AL	28.3 X	30.2 XH	29.9 X	31.7 X	30.0	7.29 X	2.4	1.4	30.0	7.61 X	2.4	1.4	4	XX
FUHAEF_AL	30.5 XH	33.4 X	32.9 XH	33.7 X	32.6	9.96 X	3.0	1.4	32.6	10.42 X	3.0	1.4	4	XX
GZ4MRM	20.4 *L	20.8	20.2 *L	20.7 *	20.5	-2.37 *	1.4	0.3	21.3	-1.66	1.5	1.1	12	LA
JLWKZP	21.3	21.8	22.2	22.2	21.8	-1.02	1.6	0.4	22.2	-0.73	1.7	0.4	12	LA
JRXWWM	22.4	22.8	22.6	22.8	22.6	-0.20	1.6	0.2	22.5	-0.40	1.5	0.3	12	LA
JTC4H4	22.5	23.0	22.7 L	22.6 L	22.7	-0.17	1.1	0.2	22.7	-0.20	1.2	0.3	12	TT
K646HB	23.7	24.5	23.9	23.9	24.0	1.17	2.0	0.3	24.1	1.28	1.8	0.7	12	LU
KKYPWD	22.5 L	23.7 L	24.9 *L	23.9 L	23.7	0.91	0.5	1.0	24.1	1.33	1.6	0.7	12	LZ
LDRHUF	22.6	22.4 L	23.0 L	23.9 L	23.0	0.15	1.1	0.6	22.4	-0.55	1.3	0.9	12	BK
LZ73RG	24.1	24.1	24.3	22.6	23.8	0.94	1.9	0.8	23.5	0.70	1.8	0.6	10	LW



Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

Report #605 (B)

February 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	
MVQV4G	25.5 *	23.8	23.8	23.8	24.2	1.42	1.9	0.9	23.5	0.70	1.6	0.8	12	LW
N6BL3E_AL	35.2 X	31.7 XH	32.7 X	32.8 X	33.1	10.44 X	3.4	1.5	33.1	10.93 X	3.4	1.5	4	AL
NBJRWY	21.3	20.3 *	20.3 *	19.1 X	20.3	-2.63 *	1.7	0.9	19.9	-3.23 X	1.7	1.0	8	LH
NLKAFE_AL	22.7	22.2	22.4	21.9	22.3	-0.57	1.5	0.3	22.3	-0.64	1.5	0.3	4	XX
NN2UZA	22.9	22.8	22.2	23.5	22.9	0.00	2.0	0.5	23.2	0.37	1.8	0.5	12	LU
NXCWLA	23.2 L	22.2 L	23.0 L	24.2 L	23.1	0.30	0.0	0.8	23.4	0.49	0.0	0.9	12	LZ
P8FFE6	22.1	22.8	23.1	22.6	22.6	-0.21	1.5	0.4	22.7	-0.17	1.7	0.4	12	LA
QWQ3X6	22.5	21.5	22.3	24.5	22.7	-0.17	1.5	1.3	23.0	0.16	1.9	1.0	12	LA
TXZT27	22.7	23.7	23.2	23.7	23.3	0.47	1.9	0.5	23.1	0.22	1.9	0.6	12	LU
UD88W9	23.4	23.8	22.7	23.0	23.2	0.37	1.8	0.5	22.0	-1.00	1.8	1.0	12	LW
VAHHP2	23.0 L	24.6	23.8	22.6 L	23.5	0.64	1.3	0.9	23.8	0.97	1.5	0.9	8	LA
W8ATHA	21.9	21.7	22.4	22.6	22.2	-0.71	1.9	0.4	22.1	-0.80	1.7	0.4	12	LZ
WCLBJZ	21.5	21.7	21.5	22.0	21.7	-1.22	1.7	0.2	21.4	-1.59	1.7	0.5	12	LY
WEQ6XW	20.7	21.3	21.1	21.4	21.1	-1.74	1.6	0.3	21.2	-1.78	1.6	0.6	12	LH
WU9TCZ	23.5	23.4	24.0	24.3	23.8	0.99	1.8	0.4	23.1	0.26	1.6	0.7	12	LU
XAPK6W_AL	23.8	24.0	23.3	24.0	23.7	0.92	1.5	0.3	23.7	0.92	1.5	0.3	4	AL
XHQTUX	24.2	21.7	22.9	23.8	23.1	0.30	2.0	1.1	23.3	0.45	1.9	0.8	12	LU
XMG6UZ	22.8	23.2	22.7	22.8	22.9	0.00	1.8	0.2	22.8	-0.06	1.9	0.7	8	LZ
XMG6UZ_AL	35.5 XH	34.1 XH	36.6 X	34.0 X	35.1	12.44 X	2.6	1.2	35.1	13.03 X	2.6	1.2	4	AL
XR9GMB	24.9 *	25.2 *	24.6	25.2 *	25.0	2.16 *	1.8	0.3	25.4	2.64 *	1.6	0.6	12	LH
YXEBC7	24.9 *	24.8	23.2	23.8	24.2	1.34	2.0	0.8	24.5	1.68	2.4	0.7	12	LH
ZZGRQL_AL	35.2 XL	47.5 XL	34.2 XL	No DATA	39.0	16.40 X	0.0	7.4 H	39.0	17.20 X	0.0	7.4 H	3	AL

Consensus (All Labs) Results										
Wk Mean	22.72	22.78	22.74	22.93	Month Mean	22.85	Grand Mean	22.89		
Avg SDr	1.87	1.72	1.94	1.95	Avg SD	1.91	Avg SD	1.76		
SD btwn Labs	1.09	1.05	1.01	1.03	SD btwn Labs	0.98	SD btwn Labs	0.93		
Labs Incl	48	49	50	48	SD btwn Wks	0.85	SD btwn Wks	0.85		
Labs Excl	8	8	6	8	Labs Incl	50	Labs Incl	50		
Labs not Rcvd	1	0	1	1						



Containerboard Interlaboratory Testing Program
Analysis 225
STFI, 35 lb Linerboard - 35E1
TAPPI Official Test Method T826

Report #605 (B)
February 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 #605 (B)
February 2020

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2EVB7T	129.4	-0.81	15.06		131.5	-0.82	7.23	4	LS
33HBBZ	195.7	1.11	37.58		173.0	0.89	15.98	4	LA
3ZUYBU	152.7	-0.14	8.46	L	151.9	0.02	6.06	4	EV
42HYJP	137.0	-0.59	14.84		138.3	-0.54	9.01	4	LA
8ECDFN	124.4	-0.95	12.85	L	125.2	-1.07	4.01	4	LS
AXXTQV	198.1	1.18	94.28	H	187.0	1.47	21.27	4	LA
C9AXWH	137.1	-0.59	20.64		141.1	-0.42	2.81	L 4	LA
CUCVAH	295.7	4.00	X 26.34		299.9	6.12	X 5.87	2	EV
ECMHUG	123.0	-1.00	11.87	L	120.8	-1.26	3.13	2	XX
EWQ3UN	134.7	-0.66	12.11	L	151.8	0.02	14.02	4	LA
FQ23QF_AL	199.1	1.21	55.20	H	185.9	1.42	18.73	2	XX
FUHAEF_AL	140.4	-0.49	16.67		146.0	-0.22	7.89	2	XX
GZ4MRM	1.9	-4.50	X 4.61	L	1.0	-6.19	X 1.26	2	EV
JRXWWM	145.0	-0.36	10.46	L	150.4	-0.04	3.64	4	XX
K646HB	157.0	-0.01	17.48		150.0	-0.05	5.58	4	EV
KKYPWD	115.7	-1.21	15.38		128.2	-0.95	11.51	4	XX
LZ73RG	151.9	-0.16	9.05	L	146.4	-0.20	3.91	4	XX
NLKAFE_AL	141.1	-0.47	7.55	L	144.8	-0.27	5.18	2	AL
NN2UZA	187.8	0.88	39.25		192.6	1.70	19.63	4	EV
NN2UZA_AL	205.7	1.40	62.90	H	205.7	2.24	* 0.00	1	XX
P8FFE6	128.8	-0.83	8.08	L	131.1	-0.83	8.76	4	LA
QWQ3X6	138.7	-0.54	20.82		132.4	-0.78	4.57	4	LA
TXZT27	175.6	0.53	57.63	H	182.8	1.30	6.25	3	EV
TXZT27_AL	404.8	7.15	X 170.04	H	404.8	10.44	X 0.00	1	XX
UD88W9	148.2	-0.27	17.00		139.9	-0.47	5.79	4	EV
UN4BZ3	168.0	0.31	48.25		160.2	0.37	11.03	2	EV
WCLBJZ	145.4	-0.35	11.93	L	150.4	-0.04	4.55	4	EV
XAPK6W_AL	245.1	2.54	* 23.37		189.0	1.55	79.34	2	AL
XMG6UZ_AL	118.1	-1.14	20.22		122.8	-1.17	6.65	2	AL
XNUKHA	132.2	-0.73	27.92		138.1	-0.54	6.05	3	LA
YXEBC7	150.1	-0.21	47.63		119.4	-1.31	20.68	4	EV
ZZGRQL_AL	239.2	2.37	* 24.13		234.4	3.42	X 6.80	2	AL

Consensus (All Labs) Results

Month Mean	157.42	Grand Mean	151.31
Avg SD	33.46	Avg SD Months	18.50
SD btwn Labs	34.58	SD btwn Labs	24.27
Labs Incl	29	Labs Incl	28



Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42F2
TAPPI Official Test Method T575

Report #605 (B)
February 2020

Key to Instrument Codes Reported by Participants

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 #605 (B)
February 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6W2RVP	359.2	-0.23	7.33	361.4	0.56	3.11	2	XX
8ECDFN	350.8	-0.90	8.21	354.5	-0.55	5.24	2	LA
97GUEK_AL	358.3	-0.30	7.69	358.3	0.06	0.00	1	AL
AXXTQV	357.4	-0.37	4.74	358.5	0.09	1.48	2	LA
AZQK6M	347.3	-1.18	4.48	350.9	-1.12	5.19	2	LA
CUCVAH_AL	356.2	-0.47	9.59	356.3	-0.26	0.14	2	AK
D8QF7G	353.9	-0.65	6.82	352.2	-0.92	2.44	2	PP
EDX7B9	350.8	-0.90	6.30	348.7	-1.48	3.04	2	XX
FQ23QF_AL	242.5	-9.48 X	34.55 H	242.5	-18.47 X	0.00	1	XX
N6BL3E_AL	356.4	-0.45	5.68	356.4	-0.24	0.00	1	XX
VAHHP2	365.4	0.26	10.38	366.4	1.36	1.41	2	XX
W8ATHA	378.5	1.30	5.56	371.9	2.24 *	9.31	2	XX
XAPK6W_AL	366.0	0.31	11.60	360.0	0.33	8.56	2	AL
YXEBG7	358.5	-0.29	7.14	357.6	-0.06	1.34	2	LA
Z2U34T	392.5	2.41 *	5.90	395.2	5.96 X	3.74	2	XX
ZZGRQL_AL	380.6	1.46	8.88	380.6	3.63 X	0.00	1	AL

Consensus (All Labs) Results			
Month Mean	362.11	Grand Mean	357.91
Avg SD	7.62	Avg SD Months	4.72
SD btwn Labs	12.62	SD btwn Labs	6.25
Labs Incl	15	Labs Incl	13

Key to Instrument Codes Reported by Participants

- | | |
|---|---|
| AK L & W Autoline 300
LA L & W Autoline (229 Enrollment)
XX Instrument make/model not specified by lab | AL L & W Autoline 400
PP Technidyne Profile/Plus |
|---|---|



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

Report #605 (B)
February 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2EVB7T	99.0	0.26	1.73	97.8	0.22	2.83	4	HY
3ZUYBU	94.3	-0.11	3.95	91.6	-0.24	2.13	4	XX
6W2RVP	105.8	0.78	1.61	107.4	0.92	1.38	4	HY
6YBRZW	45.5	-3.90 X	2.03	61.0	-2.46 *	13.67 H	3	SC
8ECDFN	102.1	0.49	8.00	103.7	0.65	1.82	4	TM
97GUEK	44.4	-3.98 X	0.99 L	42.3	-3.83 X	1.82	3	LZ
C9AXWH	124.6	2.25 *	6.50	117.6	1.66	5.64	4	HY
CUCVAH	84.6	-0.86	3.85	85.6	-0.67	3.46	4	TM
D8QF7G	103.4	0.60	6.47	105.3	0.77	1.70	3	HY
EWQ3UN	116.0	1.58	10.25 H	109.0	1.04	7.53	4	SC
FQ23QF	95.0	-0.05	7.91	111.3	1.20	11.93	4	SC
FUHAEF	95.6	-0.01	4.34	92.0	-0.21	3.77	4	TM
GZ4MRM	89.4	-0.49	3.51	91.3	-0.26	3.83	4	TM
K646HB	79.6	-1.25	1.52	81.8	-0.95	1.80	4	TM
N6BL3E	83.4	-0.96	3.19	92.0	-0.20	5.98	4	SC
NBJRWY	100.0	0.33	5.24	100.7	0.43	0.93	2	XX
NN2UZA	85.0	-0.83	10.93 H	83.1	-0.86	3.27	4	TM
P8FFE6	90.6	-0.40	3.65	89.2	-0.41	7.51	4	TM
QG2U28	84.1	-0.90	2.39	93.3	-0.11	13.01	2	XX
TUYUH2	103.2	0.59	2.67	106.3	0.84	2.90	4	TM
TXZT27	66.0	-2.31 *	3.94	65.1	-2.17 *	8.47	4	TM
UN4BZ3	108.8	1.02	4.21	104.7	0.72	5.80	2	HY
VAHHP2	93.3	-0.19	2.35	92.0	-0.20	1.78	3	SC
WU9TCZ	101.6	0.46	3.65	98.8	0.29	2.29	4	HZ

Consensus (All Labs) Results			
Month Mean	95.70	Grand Mean	94.79
Avg SD	5.31	Avg SD Months	6.18
SD btwn Labs	12.87	SD btwn Labs	13.70
Labs Incl	22	Labs Incl	23

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	94.20	12.02	1.49	17
Modified Scott Bond Mechanics	115.18	13.32	19.48	2

Analysis Notes

97GUEK - Method used is not covered in this test. Data excluded from consensus calculation.



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

Report #605 (B)
February 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 Ib Linerboard - 42F
 TAPPI Official Test Method T815

Report #605 (B)
February 2020

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
3ZUYBU	28.9	0.62	3.07	23.7	-1.11	3.60	4
6W2RVP	28.6	0.52	1.36	25.7	-0.38	2.04	4
8CBDFR	26.6	-0.11	5.04	24.8	-0.70	2.01	4
8ECDFN	22.6	-1.38	2.30	25.0	-0.62	1.64	4
97GUEK	27.2	0.08	0.84	27.9	0.43	0.95	3
AXXTQV	29.8	0.91	4.49	30.9	1.50	1.31	4
C6RKCU	30.0	0.97	5.61	28.5	0.63	1.80	3
C9AXWH	25.8	-0.37	3.77	27.6	0.31	3.08	4
CUCVAH	28.0	0.32	3.66	27.4	0.22	1.49	3
D8QF7G	26.2	-0.24	4.97	26.6	-0.05	1.64	3
ECMHUG	31.6	1.48	4.56	30.6	1.39	1.91	4
EWQ3UN	20.0	-2.21 *	1.00	20.4	-2.30 *	0.30 L	4
FGV64C	32.0	1.61	1.27	31.6	1.75	0.72	4
FQ23QF	29.6	0.84	1.14	31.7	1.77	2.67	4
FUHAEF	25.2	-0.56	1.30	27.8	0.38	1.81	4
G7QDDH	28.2	0.40	1.30	28.0	0.44	1.51	4
JRXWWM	26.2	-0.24	0.84	25.9	-0.32	0.41	4
KKYPWD	24.2	-0.87	2.17	24.1	-0.95	0.26 L	4
KQLCRJ	24.4	-0.81	3.85	25.7	-0.39	1.14	3
LZ73RG	28.4	0.46	2.70	28.2	0.52	1.21	4
NLKAFE	23.0	-1.26	1.00	24.3	-0.88	0.90	4
NN2UZA	28.8	0.59	3.37	26.8	0.00	1.59	4
P8FFE6	23.4	-1.13	1.82	27.0	0.09	3.02	4
QYJXKE	26.2	-0.24	2.68	24.6	-0.77	1.36	4
TXZT27	25.9	-0.33	2.48	26.7	-0.03	3.33	4
UD88W9	25.2	-0.56	2.77	25.1	-0.59	2.19	4
VAHHP2	29.0	0.65	0.71	28.8	0.74	0.20 L	3
W8ATHA	31.4	1.42	3.78	27.6	0.30	7.77 H	4
WCLBJZ	28.4	0.45	0.59 L	27.2	0.16	2.76	4
XAPK6W	31.0	1.30	2.83	30.0	1.16	1.10	4
XFJDL7	24.4	-0.81	5.03	24.5	-0.82	0.50	3
XNUKHA	19.6	-2.34 *	2.77	19.6	-2.57 *	0.00	1
YXEBC7	29.6	0.84	3.78	28.8	0.74	1.87	4



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

Report #605 (B)
February 2020

Consensus (All Labs) Results			
Month Mean	26.95	Grand Mean	26.75
Avg SD	3.06	Avg SD Months	2.29
SD btwn Labs	3.14	SD btwn Labs	2.78
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 #605 (B)
February 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
29PHCX	21.5	-0.26	0.85	L	20.8	-0.65	1.56	4	XX
2EVB7T	22.8	0.44	1.89		22.6	0.57	0.29	L	4
33HBBZ	25.2	1.68	2.15		21.0	-0.52	10.25	H	4
3J6NNR	17.7	-2.28 *	3.51		18.3	-2.36 *	1.18		4
3ZUYBU	22.9	0.48	1.88		22.2	0.30	0.91		4
6W2RVP	21.2	-0.43	1.70		22.0	0.16	0.86		4
8CBDFR_AL	21.3	-0.35	1.35		21.3	-0.31	0.00		1
97GUEK_AL	6.0	-8.42 X	0.30	L	6.0	-10.61 X	0.00		1
AXXTQV	18.2	-2.00 *	1.80		18.9	-1.94 *	0.88		4
C6RKCUCU	22.1	0.07	1.91		21.8	0.03	0.32	L	3
C9AXWH	22.0	0.00	1.63		22.2	0.24	0.95		4
CUCVAH_AL	22.1	0.06	1.72		22.1	0.18	0.08		2
D8QF7G	23.7	0.88	3.09		23.5	1.15	1.25		3
ECMHUG	23.2	0.63	2.44		21.9	0.07	0.97		4
EWQ3UN	19.7	-1.21	3.68	H	18.7	-2.06 *	1.69		4
FQ23QF_AL	20.9	-0.60	1.43		21.2	-0.38	0.53		2
FUHAEF_AL	22.7	0.36	1.27		22.8	0.70	0.21		2
G8YQCB	23.9	1.00	4.04	H	23.4	1.06	1.49		4
JRXWWM	21.7	-0.16	1.05		21.2	-0.42	1.03		4
K646HB	26.8	2.51 *	3.85	H	25.2	2.30 *	2.18		2
KKYPWD	20.8	-0.63	2.15		21.4	-0.29	1.25		3
N6BL3E_AL	21.1	-0.49	1.03		21.1	-0.49	0.00		1
NBJRWY	21.9	-0.08	4.03	H	21.8	0.02	0.04		2
NLKAFF_AL	20.9	-0.56	1.89		21.2	-0.39	0.37		2
NN2UZA_AL	22.7	0.35	1.88		22.7	0.58	0.00		1
P8FFE6	24.9	1.55	1.00		24.4	1.72	0.50		4
QWQ3X6	22.8	0.39	1.43		22.2	0.28	0.47		4
TXZT27_AL	23.1	0.58	1.65		23.1	0.88	0.00		1
UD88W9	18.8	-1.67	2.57		19.7	-1.43	1.85		4
W8ATHA	23.8	0.92	3.25		23.6	1.20	0.94		4
XAPK6W_AL	19.2	-1.47	2.15		213.3	128.54 X	274.50		2
XMG6UZ_AL	21.6	-0.21	0.97	L	21.9	0.05	0.37		2
XNUKHA	21.6	-0.19	1.74		20.8	-0.65	0.71		3
XYXPEW	21.1	-0.48	0.98	L	20.9	-0.60	0.48		4
Y7RGYV	23.2	0.61	1.72		22.9	0.75	0.62		4
YXEBC7	23.1	0.56	1.15		22.2	0.24	1.17		4



Containerboard Interlaboratory Testing Program
Analysis 237

Report #605 (B)
February 2020

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	22.00	Grand Mean	21.79
Avg SD	2.22	Avg SD Months	2.12
SD btwn Labs	1.90	SD btwn Labs	1.49
Labs Incl	35	Labs Incl	34

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	AL	L & W Autoline 400
GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline (237 Enrollment)	LP	L&W Air Permeance Tester SE 166
TD	TMI Gurley Densometer	TP	Technidyne Profile/ plus Roughness & Porosity
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
Analysis 240

Report #605 (B)
February 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	
2EVB7T	No DATA	No DATA	No DATA	55.6 L	55.6	-0.75	1.4	0.0	56.0	-0.83	3.3	2.0	4	LD
33HBBZ	58.5	55.0	54.8	55.1	55.8	-0.65	4.5	1.8	56.0	-0.82	5.1	3.0	16	TU
3AUM3Q	58.4	56.0	58.3	58.5	57.8	0.15	3.6	1.2	58.1	0.20	4.5	1.5	16	LD
3J6NNR	61.5	61.3	62.8	60.8	61.6	1.70	4.3	0.9	58.6	0.49	4.4	3.5	12	LD
3X23MZ	58.6	58.5	57.3	59.1	58.4	0.39	3.4	0.8	58.1	0.24	3.4	1.5	16	LZ
3ZUYBU	57.0	61.2	61.1	58.2	59.4	0.79	4.2	2.1	58.4	0.35	3.8	1.5	16	LZ
42HYJP	54.2	57.6	53.7	57.7	55.8	-0.66	4.2	2.1	55.5	-1.08	3.7	2.1	15	MB
4H2PHN	47.8 X	47.9 X	49.0 *	48.8 X	48.4	-3.70 X	2.2	0.6	57.0	-0.32	3.4	5.3 H	16	LC
679J9Q	No DATA	52.6	* No DATA	53.6	53.1	-1.77	3.2	0.7	54.7	-1.47	2.9	1.9	8	LD
6DLHUP	69.1 XL	70.4 XL	72.0 XL	69.3 XL	70.2	5.21 X	0.9	1.3	62.5	2.41 *	1.3	4.8 H	16	XX
6W2RVP	59.2	59.2	58.6	61.6	59.7	0.91	3.1	1.3	59.1	0.70	3.9	1.8	16	LC
6YBRZW	50.4 *	53.8	55.2	51.6 *H	52.8	-1.90	4.6	2.1	55.1	-1.26	3.7	2.4	16	LC
8WGKVV	58.8	58.5	58.4	58.5	58.5	0.46	3.6	0.2 L	60.2	1.26	3.4	1.2	16	LD
97GUEK	55.7	56.3	55.7	56.3	56.0	-0.59	3.5	0.3	54.4	-1.60	3.3	2.0	12	LD
AMGA7Y	57.1	57.7	60.2	58.4	58.3	0.37	3.6	1.3	58.6	0.47	3.8	1.7	16	LD
AXXTQV	52.0	51.1 *	51.0 *	52.3	51.6	-2.38 *	4.5	0.6	53.9	-1.86	4.3	2.7	16	LD
B38AZJ	58.4	57.3	58.0	56.7	57.6	0.06	4.0	0.7	58.6	0.47	4.1	1.3	16	TG
C9AXWH	58.8	56.0	59.7	57.2	57.9	0.20	3.3	1.6	58.3	0.32	3.4	1.5	16	LD
D4XAWL	64.9 *	65.9 X	65.6 *	66.0 X	65.6	3.33 X	3.8	0.5	66.4	4.31 X	4.2	1.7	16	LC
D8QF7G	56.2	58.0	55.7	50.5 *	55.1	-0.95	3.5	3.2 H	54.8	-1.39	3.4	2.4	11	LD
EAZMBV	60.4	59.9	60.7 L	60.5	60.4	1.20	2.3	0.3	60.2	1.26	2.3	0.5 L	16	LD
ECMHUG	60.5	59.7	58.2	59.0	59.4	0.79	3.9	1.0	60.5	1.42	3.5	1.2	16	LD
FGV64C	54.9	56.2	58.1	56.2	56.3	-0.44	3.4	1.3	56.2	-0.73	3.4	1.7	16	LD
FKRQTU	59.6	58.7	58.9	59.0	59.1	0.66	2.5	0.4	58.1	0.20	3.7	1.5	8	EN
GZ4MRM	57.1	61.4	55.2	55.9	57.4	-0.01	4.0	2.8	57.9	0.13	3.5	2.5	16	LC
GZJ7CK	57.8	59.1	61.6	59.7	59.6	0.87	3.4	1.6	59.5	0.89	4.3	1.2	8	LD
HJAGYJ	57.6	59.1	61.1	56.7	58.6	0.48	3.9	1.9	59.3	0.80	3.9	3.6	16	LD
JRXWWM	58.0	58.0	58.5	58.9	58.4	0.38	2.0	0.4	58.2	0.25	1.9	0.5 L	16	LD
JTC4H4	58.0	57.9	57.6	59.6	58.3	0.34	3.2	0.9	59.2	0.78	3.4	1.2	16	TJ
K646HB	52.9	57.4 L	55.5	53.9	54.9	-1.02	2.0	2.0	55.2	-1.22	3.1	1.4	16	LD
KPADXA	57.7	56.8	56.5	57.7	57.2	-0.10	2.9	0.6	58.7	0.51	2.9	1.6	16	LD
MVQV4G	59.1	58.0	58.1	58.5	58.4	0.40	3.6	0.5	59.2	0.77	3.6	1.1	16	LD
MXHQRB	61.1	59.7 L	61.5 L	62.0 L	61.1	1.49	2.3	1.0	60.7	1.52	1.9	0.8	8	MB
NLKAFE	57.2	62.9 *	60.6	58.4	59.8	0.96	3.8	2.5	59.0	0.66	3.5	2.8	16	LZ
NN2UZA	59.9	59.6	60.4	58.1	59.5	0.85	4.0	1.0	58.2	0.25	4.2	2.2	16	LC



Containerboard Interlaboratory Testing Program
Analysis 240

Report #605 (B)
February 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	
NXCWLA	56.6	58.1	56.9	57.4	57.3	-0.07	3.0	0.7	57.2	-0.23	3.7	1.6	16	EM
P8FFE6	56.8	58.3	64.4 *	60.8	60.1	1.09	3.9	3.3 H	58.7	0.52	4.0	2.2	16	LD
PPCWM9	63.6 *H	71.0 X	69.9 X	66.9 X	67.9	4.26 X	4.5	3.3 H	66.7	4.48 X	4.2	2.6	16	EM
QBML7F	57.2	55.6	59.1	57.7	57.4	-0.02	3.0	1.5	56.1	-0.77	3.2	1.5	16	TH
QG2U28	61.0	61.3	60.9	61.2	61.1	1.50	2.4	0.2 L	60.7	1.53	3.6	1.6	16	TU
QYJXKE	55.6	55.3	53.6	54.5	54.7	-1.10	4.5	0.9	55.9	-0.84	4.3	1.2	16	LZ
RPQ3Y4	58.1 L	58.2 L	58.2 L	58.6	58.3	0.34	1.4	0.2 L	58.1	0.21	1.5	0.4 L	16	LD
TEJJ26	43.5 X	46.5 X	44.2 X	41.2 X	43.9	-5.54 X	4.1	2.2	44.4	-6.52 X	4.3	1.5	16	TC
W8ATHA	59.4	56.9	54.3	59.0	57.4	-0.02	4.4	2.3	57.5	-0.07	3.7	2.1	16	LZ
WCLBJZ	54.8	54.9	53.5	55.8	54.7	-1.10	3.3	1.0	58.0	0.17	3.3	2.2	16	EN
WEQ6XW	51.9 *	52.3 *	54.7	51.8 *	52.6	-1.95 *	3.4	1.4	55.3	-1.17	3.0	2.0	16	EN
WU9TCZ	56.0	55.2	57.9	54.3	55.8	-0.65	2.8	1.5	55.9	-0.84	2.9	2.0	16	LD
XR9GMB	52.0	50.2 X	51.3 *	53.5	51.8	-2.32 *	3.6	1.4	52.9	-2.35 *	3.4	1.5	16	LD
XXYPEW	61.3	62.4	62.1	58.8	61.1	1.51	4.0	1.6	60.2	1.27	4.1	2.2	16	LD
Y6GFDW	57.5	58.4	57.9	57.0	57.7	0.11	3.1	0.6	57.7	0.01	3.0	0.5 L	16	LC
Y7RGYV	56.3	57.6	58.2	59.4	57.9	0.17	3.3	1.3	57.2	-0.21	3.5	1.8	16	LD
YV7DRW	58.2	58.5	57.5	57.1	57.8	0.16	3.2	0.6	57.7	0.02	3.4	0.5 L	16	LD
ZZGRQL	55.3	59.3	60.1	56.4	57.8	0.14	3.5	2.3	55.6	-1.01	3.5	2.5	16	LD

Consensus (All Labs) Results														
Wk Mean	57.56	57.75	57.88	57.27	Month Mean	57.43			Grand Mean	57.65				
Avg SDr	3.29	3.61	3.65	3.53	Avg SD	3.47			Avg SD	3.53				
SD btwn Labs	2.91	2.53	3.37	2.68	SD btwn Labs	2.45			SD btwn Labs	2.02				
Labs Incl	48	46	48	48	SD btwn Wks	1.50			SD btwn Wks	2.10				
Labs Excl	3	6	3	5	Labs Incl	48			Labs Incl	50				
Labs not Rcvd	2	1	2	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
TC	TMI Monitor/Compression Tester, 17-37	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)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
Analysis 250

Report #605 (B)
February 2020

Fluted Edge Crush Strength (FCF), 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
29PHCX	67.0	68.1	68.6	67.9	67.9	-0.16	2.3	0.7	67.8	-0.06	1.9	0.9	16	LZ
2EVB7T	No DATA	No DATA	No DATA	60.5	60.5	-3.33 X	4.0	0.0	60.8	-2.55 *	3.3	0.5	2	LD
3X23MZ	66.9	66.8	67.9	69.8	67.8	-0.19	3.1	1.4	69.1	0.41	3.3	1.9	16	LZ
6DLHUP	70.2 L	72.3 L	70.4 L	71.0 L	71.0	1.15	1.0	1.0	69.3	0.46	1.0	1.9	16	XX
6W2RVP	71.6	70.8	70.2	67.6	70.0	0.75	3.6	1.7	70.2	0.79	3.1	2.2	16	LC
97GUEK	56.5 X	54.8 X	52.9 X	56.2 *	55.1	-5.61 X	3.8	1.6	63.3	-1.67	3.7	6.2 H	12	LD
C9AXWH	71.3	71.8	72.7 L	73.4	72.3	1.72	3.7	0.9	73.4	1.93 *	4.1	2.1	16	LD
D8QF7G	67.5	70.4	69.7	69.0	69.1	0.37	4.6	1.3	69.1	0.39	4.2	1.7	11	LD
ECMHUG	72.7 *L	72.3	72.3	70.6	72.0	1.58	3.1	0.9	70.9	1.03	4.2	1.5	16	LD
JRXWWM	69.2	68.8	69.4	68.8	69.1	0.33	1.9	0.3 L	68.8	0.30	1.9	0.3 L	16	LD
LDRHUF	66.4	69.7	66.1	66.8	67.2	-0.45	4.0	1.7	66.8	-0.43	4.1	1.3	16	LD
MVQV4G	66.7	65.1 L	66.6	68.6	66.8	-0.65	3.0	1.4	67.5	-0.16	2.7	1.3	16	LD
MXHQRB	65.6	65.2 L	64.3 L	65.3 L	65.1	-1.36	1.2	0.6	65.8	-0.77	1.4	1.2	8	MB
NLKAFF	68.8	67.9	68.9	66.9	68.1	-0.07	3.2	0.9	68.9	0.34	3.4	1.4	16	LZ
NN2UZA	65.7 H	76.4 *	63.2 H	59.4 H	66.2	-0.90	7.0	7.3 H	69.7	0.62	5.2	4.7 H	16	XX
P8FFE6	68.6	66.7	66.7	67.4	67.4	-0.39	3.9	0.9	67.0	-0.35	4.2	1.7	16	LD
RPQ3Y4	67.9	68.6 L	68.4 L	69.0 L	68.5	0.08	1.4	0.5	68.4	0.16	1.8	0.4 L	16	LD
WCLBJZ	60.6 X	64.3	64.3	61.2	62.6	-2.42 *	3.1	2.0	63.9	-1.44	2.9	2.5	8	XX
XYXPEW	69.0	73.4	70.7	69.2	70.6	0.98	3.2	2.0	71.0	1.06	3.4	1.9	16	LD
Y6GFDW	68.5	69.1	67.5	68.0	68.3	0.00	3.8	0.7	68.1	0.05	4.2	0.5 L	16	LD
Y7RGYV	67.1	68.9	66.4	67.1	67.4	-0.38	2.7	1.1	67.6	-0.13	3.1	1.5	16	LD

Consensus (All Labs) Results													
Wk Mean	68.37	69.30	68.13	66.85	Month Mean	68.28	Grand Mean	67.97					
Avg SDr	3.26	3.52	3.33	3.59	Avg SD	3.41	Avg SD	3.38					
SD btwn Labs	2.04	3.09	2.64	4.19	SD btwn Labs	2.35	SD btwn Labs	2.81					
Labs Incl	18	19	19	21	SD btwn Wks	2.05	SD btwn Wks	2.24					
Labs Excl	2	1	1	0	Labs Incl	19	Labs Incl	21					
Labs not Rcvd	1	1	1	0									

Key to Instrument Codes Reported by Participants

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



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

Report #605 (B)
February 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	
3J6NNR	46.7	43.3	47.3	44.7	45.5	0.97	3.7	1.8	46.4	1.04	3.7	2.4	16	LD
4H2PHN	59.8 X	60.4 X	60.4 X	60.1 X	60.2	5.19 X	2.4	0.3	50.9	2.53 *	4.3	5.8 H	16	LC
4NQ7B3	41.0	42.0	39.1	41.0	40.7	-0.38	4.0	1.2	41.4	-0.63	3.7	2.9	16	LZ
6AM7YP	44.1	46.2	42.2	42.6	43.7	0.48	3.7	1.8	44.9	0.53	3.2	1.9	16	TH
6W2RVP	42.8	44.1	43.7	44.3	43.7	0.47	3.1	0.7	43.1	-0.04	3.6	1.2	16	LC
8WGVQ	45.2	45.5	45.5	45.6	45.5	0.97	3.1	0.2 L	45.4	0.70	2.9	0.2 L	16	LD
97GUEK	41.4	41.0	41.0	41.7	41.3	-0.22	3.5	0.4	43.3	0.01	3.3	1.9	12	LD
9ZB2KP	34.1 *H	36.6 H	32.6 *H	34.6 *H	34.5	-2.18 *	7.1	1.6	38.9	-1.44	5.5	3.0	16	TX
C9AXWH	43.2	44.5	45.4	43.0	44.0	0.56	3.2	1.1	44.5	0.40	2.9	1.3	8	XX
D4XAWL	37.0	35.8 *	35.6	34.4 *	35.7	-1.83	3.0	1.1	31.0	-4.02 X	3.0	2.9	16	XX
D8QF7G	41.7	40.6	41.4	38.9	40.6	-0.41	3.4	1.3	42.0	-0.41	3.4	1.9	11	LD
EAZMBV	44.3	44.7	44.5	44.5 L	44.5	0.69	2.1	0.2 L	44.2	0.29	2.2	0.6 L	16	LD
GZJ7CK	45.8	44.3	48.1	45.1	45.8	1.08	3.1	1.6	45.5	0.72	3.1	1.5	16	LD
HJAGYJ	45.7	47.9	44.0	43.3	45.2	0.90	4.0	2.0	45.8	0.84	4.3	3.2	16	LZ
JLWKZP	46.1	47.2	48.5	47.0	47.2	1.47	4.4	1.0	46.8	1.17	3.5	1.5	16	LZ
JRXWWM	43.7	44.1	44.1	44.3	44.1	0.57	3.2	0.3 L	43.6	0.11	3.0	0.5 L	16	LD
KPADXA	42.5	41.6	41.3	42.5 L	42.0	-0.03	2.2	0.6	42.4	-0.29	2.0	0.7 L	16	LC
MXHQRB	39.6 L	38.6 L	40.0 L	39.4 L	39.4	-0.76	1.2	0.6	41.7	-0.50	1.5	2.5	8	MB
NXCWLA	41.4	39.5	41.1	39.7	40.4	-0.47	3.3	0.9	40.6	-0.87	3.3	1.1	16	EM
PPCWM9	42.4	40.9	41.9	44.3	42.3	0.08	3.6	1.4	43.4	0.04	3.6	2.2	16	EM
QBML7F	36.9	35.0 *	37.4	33.9 *	35.8	-1.80	3.1	1.6	36.0	-2.41 *	2.9	2.0	16	TH
QG2U28	39.0 L	41.0	39.3	40.3 L	39.9	-0.62	1.5	0.9	42.5	-0.26	1.6	7.3 H	16	TU
TEJJ26	38.0	28.0 X	38.3	37.9	35.5	-1.88	4.8	5.0 H	36.8	-2.13 *	5.3	2.5	16	TC
W8ATHA	44.0	44.1	41.3	41.0	42.6	0.15	2.8	1.7	43.2	-0.01	3.2	1.2	16	LD
WU9TCZ	43.1	43.0	42.0	44.6	43.2	0.31	3.7	1.1	45.0	0.58	3.5	1.7	16	LD
XYXPEW	46.6	45.5	45.8	44.8	45.7	1.04	3.4	0.8	43.9	0.20	3.2	1.7	16	LD
Y7RGYV	41.7	42.2	43.2	40.5	41.9	-0.05	3.3	1.1	41.6	-0.55	3.2	1.2	16	LD
ZZGRQL	45.4	47.5	45.5	42.3	45.2	0.89	3.7	2.2	44.3	0.34	3.3	1.8	16	LD

Consensus (All Labs) Results														
Wk Mean	42.34	42.57	42.23	41.70	Month Mean	42.07			Grand Mean	43.27				
Avg SDr	3.58	3.53	3.64	3.42	Avg SD	3.54			Avg SD	3.41				
SD btwn Labs	3.24	3.48	3.73	3.48	SD btwn Labs	3.49			SD btwn Labs	3.04				
Labs Incl	27	26	27	27	SD btwn Wks	1.57			SD btwn Wks	2.54				
Labs Excl	1	2	1	1	Labs Incl	27			Labs Incl	27				
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 #605 (B)
February 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	TC	TMI Monitor/Compression Tester, 17-37
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 #605 (B)

February 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	
33HBBZ	15.5 *H	16.0 *H	14.4 H	14.4 H	15.1	1.86	2.3	0.8	14.2	0.99	1.6	1.2 H	16	LA
3J6NNR	15.3	15.7 *	13.4	13.9	14.6	1.11	1.3	1.1 H	14.7	2.26 *	1.2	0.8	16	LA
42HYJP	13.5	13.3	13.8	14.0	13.6	-0.21	1.0	0.3	13.5	-0.56	1.1	0.5	15	LA
6DLHUP	14.0	15.2	14.3	13.9	14.4	0.84	1.0	0.6	14.3	1.18	1.2	0.5	16	XX
6W2RVP	14.2	13.6	14.0	13.8 H	13.9	0.15	1.4	0.3	13.6	-0.26	1.1	0.4	16	LU
8ECDFN	13.6	13.4	13.8	14.5	13.8	0.03	1.1	0.5	13.8	0.17	1.1	0.4	16	LA
97GUEK	13.9	14.4	13.8	14.1	14.0	0.35	1.2	0.3	14.0	0.60	1.2	0.3	8	LA
9ZB2KP	12.4	12.4	12.1 *	12.2 *	12.3	-2.16 *	1.0	0.2	12.4	-3.26 X	0.9	0.2	16	TT
AXXTQV	14.3	13.4	13.8 L	14.0	13.9	0.13	0.8	0.4	13.7	-0.21	0.9	0.4	16	LA
D8QF7G	12.9	13.2	13.0	13.0	13.0	-1.11	1.0	0.1	13.2	-1.36	1.1	0.3	11	LB
DC8NUG	23.9 XH	22.6 X	22.3 XH	22.7 XH	22.9	13.14 X	1.7	0.7	23.1	22.22 X	1.8	0.9	8	TX
FGV64C	13.4	13.4 L	13.7	13.3	13.4	-0.55	0.8	0.2	13.4	-0.86	1.0	0.5	16	LH
FKRQTU	14.2	14.3	14.4	13.6	14.1	0.48	1.1	0.4	14.2	1.06	1.0	0.4	8	LH
JLWKZP	13.5	13.2 L	14.3	14.0	13.8	-0.06	0.8	0.5	13.7	-0.02	1.0	0.6	16	LA
JRXWWM	13.6	13.3	13.8	13.5	13.6	-0.32	1.0	0.2	13.5	-0.57	0.9	0.1	16	LB
JTC4H4	13.5 L	13.8 L	13.5	13.7	13.6	-0.21	0.7	0.1	13.6	-0.48	0.7	0.2	16	TT
K646HB	14.9	14.3	14.3	15.3 *	14.7	1.33	1.2	0.5	14.5	1.70	1.2	0.4	16	LU
KPADXA	13.1	13.3	13.3	12.9	13.2	-0.92	0.9	0.2	13.2	-1.38	1.0	0.4	16	LB
P8FFE6	14.2	13.5	13.9	14.4	14.0	0.29	1.0	0.4	14.1	0.79	1.1	0.4	16	LA
RPQ3Y4	13.3 L	13.7 L	13.6 L	13.8	13.6	-0.29	0.6	0.2	13.6	-0.40	0.5	0.2	16	LA
TEJJ26	15.5 *	15.5	15.1 *	15.1 H	15.3	2.19 *	1.4	0.3	15.4	4.01 X	1.3	0.3	16	TS
W8ATHA	13.0	13.2	13.2	13.7	13.3	-0.75	1.1	0.3	13.5	-0.71	1.1	0.2	16	LZ
WEQ6XW	12.4	13.0	12.8	12.6	12.7	-1.58	1.4	0.3	13.1	-1.50	1.0	0.4	16	LH
Y6GFDW	13.3	13.8	14.1	13.0	13.5	-0.36	0.9	0.5	13.6	-0.31	0.9	0.4	16	LB
YV7DRW	13.9	14.1	13.0	13.5	13.6	-0.25	0.8	0.5	13.7	-0.11	0.9	0.4	16	LB
ZZGRQL	19.1 X	22.2 X	22.2 XH	22.9 X	21.6	11.29 X	1.5	1.7 H	16.2	5.68 X	1.3	4.9 H	16	LZ

Consensus (All Labs) Results													
Wk Mean	13.81	13.87	13.72	13.76	Month Mean	13.79			Grand Mean	13.75			
Avg SDr	1.14	1.18	1.09	1.04	Avg SD	1.11			Avg SD	1.05			
SD btwn Labs	0.86	0.91	0.64	0.72	SD btwn Labs	0.69			SD btwn Labs	0.42			
Labs Incl	24	24	24	24	SD btwn Wks	0.43			SD btwn Wks	0.48			
Labs Excl	2	2	2	2	Labs Incl	24			Labs Incl	22			
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 #605 (B)
February 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)	TS	TMI Monitor/STFI Compression Tester, 17-33
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