



## Containerboard Interlaboratory Testing Program

Participant Summary Report #614 (M) - November 2020

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[Introduction to the Containerboard Program](#)

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

<b>Analysis</b>	<b>Sample</b>	<b>Analysis Name</b>
<a href="#"><u>201</u></a>	<a href="#"><u>BX14</u></a>	<a href="#"><u>Top to Bottom Box Compression Strength, Corrugated Boxes</u></a>
<a href="#"><u>202</u></a>	<a href="#"><u>EC13</u></a>	<a href="#"><u>Edgewise Compressive Strength, by T811, Corrugated Board</u></a>
<a href="#"><u>203</u></a>	<a href="#"><u>EC13</u></a>	<a href="#"><u>Edgewise Compressive Strength by T839, Corrugated Board</u></a>
<a href="#"><u>205</u></a>	<a href="#"><u>42F3</u></a>	<a href="#"><u>Bursting Strength (Mullen), 42 lb Linerboard</u></a>
<a href="#"><u>206</u></a>	<a href="#"><u>56G1</u></a>	<a href="#"><u>Bursting Strength (Mullen), 56 lb Linerboard</u></a>
<a href="#"><u>215</u></a>	<a href="#"><u>42F3</u></a>	<a href="#"><u>Ring Crush, 42 lb Linerboard</u></a>
<a href="#"><u>216</u></a>	<a href="#"><u>56G1</u></a>	<a href="#"><u>Ring Crush, 56 lb Linerboard</u></a>
<a href="#"><u>223</u></a>	<a href="#"><u>42F3</u></a>	<a href="#"><u>STFI, 42 lb Linerboard</u></a>
<a href="#"><u>224</u></a>	<a href="#"><u>56G1</u></a>	<a href="#"><u>STFI, 56 lb Linerboard</u></a>
<a href="#"><u>228</u></a>	<a href="#"><u>42F3</u></a>	<a href="#"><u>Roughness - Stylus Method, 42 lb Linerboard</u></a>
<a href="#"><u>229</u></a>	<a href="#"><u>42F3</u></a>	<a href="#"><u>Roughness - Sheffield Method, 42 lb Linerboard</u></a>
<a href="#"><u>231</u></a>	<a href="#"><u>42F</u></a>	<a href="#"><u>Internal Bond, 42 lb Linerboard</u></a>
<a href="#"><u>234</u></a>	<a href="#"><u>42F</u></a>	<a href="#"><u>COF Inclined Plane (Slide Angle), 42 lb Linerboard</u></a>
<a href="#"><u>237</u></a>	<a href="#"><u>42F3</u></a>	<a href="#"><u>Air Resistance, 42 lb Linerboard</u></a>
<a href="#"><u>240</u></a>	<a href="#"><u>CM11</u></a>	<a href="#"><u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u></a>
<a href="#"><u>250</u></a>	<a href="#"><u>CM11</u></a>	<a href="#"><u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u></a>
<a href="#"><u>255</u></a>	<a href="#"><u>CM11</u></a>	<a href="#"><u>Ring Crush (RCT), 26 lb Corrugating Medium</u></a>
<a href="#"><u>261</u></a>	<a href="#"><u>CM11</u></a>	<a href="#"><u>STFI, 26 lb Corrugating Medium</u></a>

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.

<b>Material</b>	<b>Lot Code</b>	<b>Dates in Use</b>
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.

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

## EXPLANATION OF TABLES

Each analysis is divided into three time spans. On the left side of the table are the individual laboratory results for each week of the month; in the center are each lab's statistical data for the month; and on the right are each lab's cumulative data for up to 16 weeks. At the bottom of the table are the consensus statistics for all the participants for each of the three time spans.

### Definitions of Terms Used

#### Weekly Results

##### Laboratory Data

- WebCode - A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.
- Weekly Means - The average of the test results obtained by the participant for each week that data were reported.

##### Consensus Data

- Wk Mean - For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
- Avg SD - For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.
- SD btwn Labs - For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
- Labs Incl - The number of laboratory Means included in the Wk Mean for that week.
- Labs Excl - The number of laboratory Means reported but excluded from the Wk Mean for that week because of outlying results ('X' following Mean).
- Labs not rcvd - The number of laboratories failing to report for that week.

#### Monthly Results

##### Laboratory Data

- Mean - For each laboratory, the average of all the weekly Means reported for this month.
- CPV - **Comparative Performance Value**, an indication of how well a laboratory's Mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean). The closer a laboratory's CPV is to zero, the more consistent its results are with the other participants' data.
- SD - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for all reported Weekly Means this month.
- SD Wk - The standard deviation among the laboratory's weekly Means, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.

##### Consensus Data

- Month Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for this month.
- Avg SD - For the current month, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
- SD btwn Labs - For the current month, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
- SD btwn Group - For the current month, the standard deviation of the laboratory Means within the group about the Month Mean, excluding those laboratories flagged with an 'X'.
- SD btwn Wks - For the current month, the average of the laboratory between week standard deviations (SD Wks') for all the participants, excluding those laboratories flagged with an 'X'.

## Cumulative Results

### Laboratory Data

- Mean - For each lab, the average of all the monthly Means reported for the weeks shown.
- CPV - **Comparative Performance Value**, an indication of how well a laboratory's cumulative mean agrees with the other participants. The CPV is a ratio indicating the number of standard deviations from the consensus mean (Monthly Mean).
- SDr - For each laboratory, the average of the weekly within-lab standard deviations (SD's) for the weeks shown.
- SD Wk - The standard deviation among the laboratory's weekly Means for the weeks shown, including those Means flagged with an 'X'. The SD Wks is an indication of that laboratory's ability to obtain constant results from week to week.
- Wks - The number of weeks included in the cumulative period.
- Inst - The two letter instrument code. Codes are summarized at the bottom of the last analysis page.

### Consensus Data

- Grand Mean - The average of the Means for all the participants, excluding those laboratories flagged with an 'X,' reporting data for the number of weeks included in the cumulative period.
- Avg SD - For the cumulative period, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'.
- SD btwn Labs - For the cumulative period, the standard deviation of the laboratory Means about the Month Mean, excluding those laboratories flagged with an 'X'.
- SD btwn Wks - For the cumulative period, the average of the laboratory between week standard deviations for all the participants, excluding those laboratories flagged with an 'X'.
- Labs Incd - The number of laboratory Means included in the Grand Mean.

**Any laboratory that receives a 'flag' following a mean or standard deviation should refer to the chart below for an explanation of the data flag symbol:**

<u>Flag</u>	<u>Explanation</u>
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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 #614 (M)  
November 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
2K3TNQ	607.9	0.48	59.15	571.8	-0.35	27.62	4	ER
3CRR3P	570.8	-0.29	33.99	570.2	-0.39	20.44	4	ER
42ZTNP	562.6	-0.47	36.39	586.5	-0.04	17.30	4	ER
4EPPQM	644.4	1.25	44.40	605.5	0.37	32.30	4	LO
4ULRPF	556.0	-0.60	34.15	572.6	-0.33	17.60	4	LG
7WLU8F	517.9	-1.40	38.91	543.7	-0.95	38.03	4	LS
8UVVTH	591.0	0.13	30.60	552.2	-0.77	61.29	4	LS
96QMED	609.8	0.52	80.88	577.0	-0.24	53.22	3	EX
AVGFCJ	654.8	1.47	35.34	641.2	1.13	12.64	4	ER
B9J46D	542.1	-0.90	15.92	551.8	-0.78	10.40	4	LS
C9F4HH	483.0	-2.14 *	9.22 L	481.4	-2.28 *	1.91 L	4	LL
EQKHPM	535.6	-1.03	79.44	588.9	0.01	70.98	4	EX
GKVKD6	662.8	1.64	14.35 L	679.8	1.96 *	15.83	4	LG
HD4WUJ	571.8	-0.27	8.04 L	575.3	-0.28	21.70	4	ET
HDTU8K	659.8	1.57	44.57	693.5	2.25 *	34.64	4	EM
LACYV3	659.9	1.58	77.36	639.5	1.09	98.36 H	4	LL
M844P6	596.4	0.24	71.25	576.4	-0.25	25.89	4	LM
MPJDQ7	552.8	-0.67	43.02	589.1	0.02	35.13	4	EX
NMV2QZ	635.7	1.07	20.40	641.8	1.14	38.64	4	TC
NPZTJD	591.8	0.15	17.45	558.0	-0.65	45.86	4	LG
PNP7KY	548.3	-0.77	21.26	592.6	0.09	57.11	3	LL
TDDDJU	505.2	-1.67	26.21	526.0	-1.33	33.87	4	ET
TE4CXT	573.8	-0.23	286.52 H	620.1	0.68	41.76	3	LH
THQVYQ	600.4	0.33	36.23	584.9	-0.07	23.72	4	XX
U6XUZV	605.3	0.43	21.51	605.2	0.36	31.14	4	TE
V4Y8GN	580.2	-0.10	8.94 L	592.5	0.09	11.65	4	LM
WHWEPF	617.2	0.68	21.54	656.1	1.45	45.56	4	TB
YDUFTP	535.7	-1.03	30.86	518.5	-1.49	26.76	4	LS
YT8NTT	586.2	0.03	79.58	566.7	-0.46	26.47	4	ES

Consensus (All Labs) Results

Month Mean	584.80	Grand Mean	588.22
Avg SD	68.16	Avg SD Months	39.21
SD btwn Labs	47.62	SD btwn Labs	46.84
Labs Incl	29	Labs Incl	29



Containerboard Interlaboratory Testing Program  
Analysis 201

Report #614 (M)  
November 2020

**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	615.65	45.92	30.85	8
Water based adhesive sealing	659.80	0.00	75.00	1
Clip sealing	567.04	40.32	17.76	19

**Key to Instrument Codes Reported by Participants**

EM	Emerson 1200	ER	Emerson 6200 Series
ES	Emerson 8510	ET	Emerson 7200
EX	Emerson Apparatus (Model not specified)	LG	TLS / L.A.B. Validator Series
LH	L.A.B. Compression Tester Model #10610	LL	Lansmont 76-5K
LM	Lansmont 122-15k	LO	Lansmont 152-30k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
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 - EC13**  
 TAPPI Official Test Method T811

**Report #614 (M)**  
**November 2020**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2K3TNQ	43.7	0.29	3.11	43.5	0.43	0.36	2	EN
4ULRPF	42.3	-0.11	2.12	42.3	-0.08	1.26	3	LE
7WLU8F	43.1	0.11	1.58	44.1	0.70	2.82	3	LC
8X8Z2B	44.8	0.59	1.47	40.8	-0.70	4.08	3	LD
9QQL3C	39.6	-0.89	1.41	37.7	-1.98 *	2.49	3	WK
B9J46D	38.2	-1.30	4.02 H	40.8	-0.68	3.55	3	LD
EQKHPM	42.3	-0.13	1.88	43.4	0.39	1.08	3	LC
G488ZC	48.8	1.73	1.33	43.6	0.49	4.49	3	XX
HW4MC8	46.2	0.98	1.40	43.4	0.39	3.66	3	XX
PTZJ3X	40.9	-0.52	0.74 L	40.6	-0.77	0.61	3	TF
YDUFTP	36.8	-1.70	4.15 H	28.6	-5.77 X	7.12 H	3	EM
ZY43UK	46.1	0.96	1.38	46.8	1.82 *	0.62	3	LC

Consensus (All Labs) Results			
Month Mean	42.73	Grand Mean	42.45
Avg SD	2.31	Avg SD Months	2.71
SD btwn Labs	3.51	SD btwn Labs	2.40
Labs Incd	12	Labs Incd	11

**Key to Instrument Codes Reported by Participants**

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W Crush Tester 840	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 - EC13**  
 TAPPI Official Test Method T839

**Report #614 (M)**  
**November 2020**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2K3TNQ	42.8	-1.23	1.99	43.8	-0.50	0.86	3	EN
3CRR3P	45.5	-0.04	1.58	46.5	0.68	2.28	3	LD
3HEGK	43.0	-1.15	2.26	42.4	-1.14	0.90	2	EM
3KLWVQ	43.0	-1.17	1.62	43.4	-0.68	0.53	3	TK
42ZTNP	45.2	-0.19	1.39	43.7	-0.57	3.13	3	LD
4EPPQM	44.1	-0.66	1.29	43.6	-0.61	0.60	3	LD
4ULRPF	45.5	-0.04	1.49	45.0	0.03	1.66	3	LY
7WLU8F	47.0	0.65	1.46	47.1	0.92	0.05	L 3	LC
7ZL64F	48.0	1.09	2.39	47.8	1.24	0.38	3	LD
8UVVTH	51.3	2.54 *	1.77	49.7	2.10 *	1.91	3	TB
8X8Z2B	43.5	-0.96	1.29	41.6	-1.51	2.26	3	LD
96QMED	43.3	-1.03	3.76	H 44.7	-0.14	1.94	2	CT
9QQL3C	44.0	-0.70	1.05	42.9	-0.89	1.01	3	WK
AAZ2WC	46.5	0.40	3.75	H 42.6	-1.06	3.48	3	TD
AVGFCJ	44.1	-0.69	1.44	44.4	-0.23	0.55	3	EM
AZPYBC	43.4	-0.97	1.18	43.9	-0.49	2.63	3	LC
B9J46D	44.3	-0.60	3.31	H 45.1	0.04	1.40	3	LD
C9F4HH	45.4	-0.07	1.68	43.6	-0.59	2.01	3	LC
CFCVQC	45.8	0.11	1.21	44.8	-0.09	0.96	3	TD
EQKHPM	43.4	-1.00	1.08	44.0	-0.44	0.99	3	LC
G488ZC	48.5	1.31	0.57	L 43.7	-0.58	4.32	H 3	XX
GKVKD6	47.8	0.99	2.01	46.7	0.78	1.01	3	EM
HD4WUJ	49.5	1.73	0.82	47.6	1.18	1.89	3	EM
HDTU8K	47.8	0.98	1.00	45.5	0.25	2.17	3	TH
HR9TE7	46.9	0.60	1.48	46.5	0.69	0.49	3	EM
M844P6	40.5	-2.26 *	2.16	40.2	-2.10 *	0.45	3	TG
MPJDQ7	46.7	0.48	1.69	43.9	-0.47	4.14	H 3	LD
NPZTJD	47.0	0.64	1.51	46.8	0.80	0.25	L 3	TJ
P82VXW	48.0	1.06	1.50	47.9	1.30	0.83	3	TG
PNP7KY	47.8	1.00	0.89	47.6	1.17	0.29	2	BU
PTZJ3X	45.5	-0.04	0.97	45.4	0.19	0.36	3	TD
RNW9J4	43.3	-1.04	2.11	42.0	-1.30	2.81	3	LC
TDDDJU	45.5	-0.06	1.01	44.8	-0.10	1.62	3	TD
TE4CXT	49.4	1.69	1.64	47.1	0.92	2.35	3	EM
U6XUZV	43.8	-0.80	2.24	43.1	-0.84	1.26	3	LD
V4Y8GN	47.1	0.68	2.25	47.9	1.30	0.95	3	EM
VAMQ2Q	42.9	-1.22	2.94	40.6	-1.93 *	4.33	H 3	XX
WHWEFP	43.6	-0.88	0.63	L 48.1	1.39	3.98	3	LD
YDUFTP	45.0	-0.28	2.32	42.0	-1.31	2.70	3	EM





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

**Report #614 (M)**  
**November 2020**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
YNCZDL	45.6	0.01	1.29	46.5	0.66	1.22	2	TL
YT8NTT	47.1	0.67	1.60	47.6	1.17	1.25	3	LD
ZY43UK	46.6	0.43	1.71	46.7	0.77	0.20	L 3	LC

Consensus (All Labs) Results				
Month Mean		45.59	Grand Mean	44.97
Avg SD		1.85	Avg SD Months	2.02
SD btwn Labs		2.24	SD btwn Labs	2.27
Labs Incl		42	Labs Incl	42

**Key to Instrument Codes Reported by Participants**

<b>BU</b>	Buchel Digital Crush Tester	<b>CT</b>	Con-Ten
<b>EM</b>	Emerson 1200 Series	<b>EN</b>	Emerson 2200
<b>LC</b>	L&W Crush Tester 48	<b>LD</b>	L&W Crush Tester 248
<b>LY</b>	L&W 830	<b>TB</b>	TMI Monitor/Compression Tester, Model 17-70
<b>TD</b>	TMI Digital Crush Tester, Model 17-09	<b>TG</b>	TMI Digital Crush Tester, 17-76
<b>TH</b>	TMI Monitor/Compression Tester, Model 17-76	<b>TJ</b>	TLS Compression Tester, Model CDM-5
<b>TK</b>	TLS Compression Tester, Model 5184	<b>TL</b>	Tech-Lab Systems Compression
<b>WK</b>	Zwick Z005 Crush Tester	<b>XX</b>	Instrument make/model not specified by lab



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

**Report #614 (M)**  
**November 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	
3AZTNQ	101.5 *	99.5 *	98.9 X	102.1	100.5	-2.44 *	8.9	1.5	100.5	-2.44 *	8.9	1.5	4	LA
3C8BMM	105.5	109.4	108.7	110.7	108.6	-0.64	8.8	2.2	108.6	-0.64	8.8	2.2	4	LC
3CRR3P	119.4	125.4 X	122.6 *	116.7 H	121.0	2.16 *	10.7	3.8	121.0	2.16 *	10.7	3.8	4	AH
3ZDUXL	109.5	111.7	108.5	109.0	109.7	-0.39	7.4	1.4	109.7	-0.39	7.4	1.4	4	TP
42ZTNP	111.4	115.0	106.6	110.6	110.9	-0.11	8.8	3.5	110.9	-0.11	8.8	3.5	4	LZ
4BQDUM	116.9	116.4	117.5	115.8	116.7	1.18	9.1	0.7	116.7	1.18	9.1	0.7	4	AX
4P8AAJ	113.7	112.8	113.2	112.9 L	113.2	0.39	5.2	0.4 L	113.2	0.39	5.2	0.4 L	4	LA
4TVKAP	106.4	108.8	109.2	110.4	108.7	-0.60	9.8	1.7	108.7	-0.60	9.8	1.7	4	LJ
4ULRPF	115.8	117.0	114.8	116.4	116.0	1.03	6.8	0.9	116.0	1.03	6.8	0.9	4	AH
7WLU8F	111.8	109.3	108.2	110.3	109.9	-0.34	7.7	1.5	109.9	-0.34	7.7	1.5	4	AH
7ZL64F_AL	117.7	122.3 *	118.1	123.6 *	120.4	2.02 *	7.7	3.0	120.4	2.02 *	7.7	3.0	4	AK
8PEM6H	No DATA	113.0	109.0	116.4	112.8	0.31	9.9	3.7	112.8	0.31	9.9	3.7	3	TB
8X8Z2B	103.1	107.2	112.1 L	102.9	106.3	-1.14	6.9	4.3	106.3	-1.14	6.9	4.3	4	LA
969EQJ	117.1	116.9	114.7	116.5	116.3	1.10	9.2	1.1	116.3	1.10	9.2	1.1	4	LA
96QMED	103.0	110.5	107.5	115.0	109.0	-0.54	9.3	5.0	109.0	-0.54	9.3	5.0	4	XX
A7DJER_AL	119.7	126.8 X	125.6 X	119.2	122.8	2.56 *	9.4	3.9	122.8	2.56 *	9.4	3.9	4	AK
APNBJE	109.0	108.5	109.1	111.3	109.5	-0.43	7.2	1.2	109.5	-0.43	7.2	1.2	4	AH
AVU6DB	109.9	109.4	111.1	114.9	111.3	-0.02	9.7	2.5	111.3	-0.02	9.7	2.5	4	LC
AVU6DB_AL	113.8	116.3 H	118.4	115.4	116.0	1.03	10.7	1.9	116.0	1.03	10.7	1.9	4	AL
AXHGDF	108.9	106.3	108.0	107.2	107.6	-0.85	8.8	1.1	107.6	-0.85	8.8	1.1	4	LC
B9J46D	107.1	101.3 *H	105.8	109.6	106.0	-1.22	10.8	3.5	106.0	-1.22	10.8	3.5	4	LA
CKQE68_AL	108.9	109.0	110.0	110.2	109.5	-0.42	7.9	0.6	109.5	-0.42	7.9	0.6	4	AL
DQPFMD_AL	111.6	111.6	113.1	111.6	112.0	0.13	8.3	0.7	112.0	0.13	8.3	0.7	4	AL
EVJWCC	109.8	113.9	113.4 L	112.7	112.4	0.23	4.8	1.8	112.4	0.23	4.8	1.8	4	LA
EVJWCC_AL	112.4	113.0	108.6	114.2	112.0	0.14	5.4	2.4	112.0	0.14	5.4	2.4	4	AL
F2ZRT7_AL	107.4	104.0	111.4	111.3	108.5	-0.65	8.1	3.5	108.5	-0.65	8.1	3.5	4	AL
F6XDF3	114.3	116.1	117.9	113.4	115.4	0.90	9.2	2.0	115.4	0.90	9.2	2.0	4	LB
FAUWL8	104.2	100.4 *	113.3	100.4 *	104.6	-1.53	10.0	6.1 H	104.6	-1.53	10.0	6.1 H	4	LA
FVXHLE	108.2	108.6	105.4	107.2	107.4	-0.91	10.8	1.4	107.4	-0.91	10.8	1.4	4	AH
FVXHLE_AL	106.8	118.1	116.2	110.1	112.8	0.31	9.3	5.3	112.8	0.31	9.3	5.3	4	AL
G488ZC	116.4 L	116.2 L	116.8 L	118.4	116.9	1.24	3.3	1.0	116.9	1.24	3.3	1.0	4	LC
GFFCP6	109.0 L	108.9	109.8 L	108.3 L	109.0	-0.54	3.2	0.6	109.0	-0.54	3.2	0.6	4	XX
GVTKQ9_AL	114.9	113.5	117.4	123.4 *	117.3	1.32	7.7	4.4	117.3	1.32	7.7	4.4	4	AL
GWMBU3	116.5	107.1	119.9 *	118.1	115.4	0.90	7.5	5.7 H	115.4	0.90	7.5	5.7 H	4	TB
GYRYCD	109.5	109.7	107.3	110.3	109.2	-0.50	4.7	1.3	109.2	-0.50	4.7	1.3	4	LA



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

**Report #614 (M)**  
**November 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	
JBV4EB	111.8	107.6	111.4	105.8 L	109.2	-0.51	5.6	2.9	109.2	-0.51	5.6	2.9	4	AX
JBV4EB_AL	109.6	111.6	108.7	106.4	109.1	-0.52	6.7	2.2	109.1	-0.52	6.7	2.2	4	AL
LGYMQ9_AL	114.2	113.3	111.0	108.2	111.7	0.06	8.7	2.7	111.7	0.06	8.7	2.7	4	AL
MLPJT6	104.7	106.1	107.7	104.0	105.6	-1.30	10.7	1.6	105.6	-1.30	10.7	1.6	4	LC
MPJDQ7	108.0	105.6	111.6	103.6	107.2	-0.94	7.9	3.4	107.2	-0.94	7.9	3.4	4	AH
MVBMZ4_AL	111.1	113.8	114.9	110.4	112.5	0.26	6.4	2.1	112.5	0.26	6.4	2.1	4	AL
MVV2Q3	121.5 *	124.9 X	119.5	117.5	120.9	2.12 *	8.3	3.2	120.9	2.12 *	8.3	3.2	4	AX
NE6FL3	114.2	115.6	115.4	114.2	114.9	0.77	7.4	0.8	114.9	0.77	7.4	0.8	4	AH
P4FEFC	105.1	106.7	109.9	110.6	108.1	-0.75	9.6	2.6	108.1	-0.75	9.6	2.6	4	LA
PBXKE4	114.2	111.5	109.4	114.5	112.4	0.22	9.5	2.4	112.4	0.22	9.5	2.4	4	LC
PTZJ3X	108.7	111.1	111.6	111.3	110.7	-0.16	11.2	1.3	110.7	-0.16	11.2	1.3	4	XX
PVNV24	109.4	109.6	109.1	109.7	109.5	-0.44	4.1	0.3 L	109.5	-0.44	4.1	0.3 L	4	LA
RM4CWU_AI	121.6 *	110.7	113.2	119.5 H	116.3	1.09	12.0	5.1	116.3	1.09	12.0	5.1	4	AL
RNW9J4_AL	113.4	115.4	116.2	113.4	114.6	0.72	9.7	1.4	114.6	0.72	9.7	1.4	4	AL
V2922X	110.3 L	110.3	110.4 L	110.4	110.3	-0.24	4.5	0.1 L	110.3	-0.24	4.5	0.1 L	4	LJ
WCAPTU_AL	109.6	109.0	108.4	108.4	108.8	-0.57	7.3	0.6	108.8	-0.57	7.3	0.6	4	AL
WZVRNQ	111.8	110.1	No DATA	No DATA	111.0	-0.10	8.9	1.2	111.0	-0.10	8.9	1.2	2	LC
XUKZW6	101.4 *	103.9	107.5	101.3 *	103.5	-1.77	9.8	2.9	103.5	-1.77	9.8	2.9	4	AC
Y6WMKV_AI	106.7	107.5	108.1	108.2	107.6	-0.85	9.4	0.7	107.6	-0.85	9.4	0.7	4	AL
YT8NTT	109.5	108.1	112.5	109.9	110.0	-0.32	8.2	1.8	110.0	-0.32	8.2	1.8	4	LA
Z3RETQ	111.0	110.6	108.0	108.7	109.6	-0.41	7.2	1.5	109.6	-0.41	7.2	1.5	4	LA
ZXH2BR	108.9	109.8	113.7	112.9	111.3	-0.02	8.0	2.3	111.3	-0.02	8.0	2.3	4	LZ

Consensus (All Labs) Results														
Wk Mean	110.85	110.55	111.88	111.52	Month Mean	111.41			Grand Mean	111.41				
Avg SDr	8.34	7.92	8.45	8.65	Avg SD	8.38			Avg SD	8.38				
SD btwn Labs	4.77	4.52	4.07	5.07	SD btwn Labs	4.46			SD btwn Labs	4.46				
Labs Incd	56	54	54	56	SD btwn Wks	2.69			SD btwn Wks	2.69				
Labs Exclcd	0	3	2	0	Labs Incd	57			Labs Incd	57				
Labs not Rcvd	1	0	1	1										



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

**Report #614 (M)**  
**November 2020**

**Key to Instrument Codes Reported by Participants**

<b>AC</b>	Perkins Model C	<b>AH</b>	Perkins Model AH
<b>AK</b>	L & W Autoline 300	<b>AL</b>	L & W Autoline 400
<b>AX</b>	Perkins Mullen Tester (model not specified)	<b>LA</b>	L&W Bursting Strength Tester
<b>LB</b>	L&W Burst-O-Matic	<b>LC</b>	L&W Autoline (205 Enrollment)
<b>LJ</b>	L&W Bursting Strength Tester J-Type	<b>LZ</b>	L&W (model not specified)
<b>TB</b>	TMI Monitor/Burst 1000	<b>TP</b>	Technidyne PROFILE/Plus
<b>XX</b>	Instrument make/model not specified by lab		



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

**Report #614 (M)**  
**November 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	
3AZTNQ	104.0 *	110.6	107.2 *	109.5	107.8	-1.90	10.7	2.9	109.2	-1.73	9.1	4.5	12	LA
3C8BMM	117.9	109.5	111.1 H	116.4	113.7	-0.37	12.7	4.1	114.6	-0.23	11.5	3.5	12	LC
3CRR3P	122.5	121.0	122.5	120.9	121.7	1.71	12.0	0.9	119.0	0.98	11.3	3.2	12	AH
3ZDUXL	114.5	112.3	112.2	115.2	113.6	-0.41	8.9	1.5	113.5	-0.54	8.0	1.8	12	TP
42ZTNP	110.6	110.2	113.5	106.9	110.3	-1.24	13.1	2.7	110.7	-1.30	11.4	2.3	12	LZ
4BQDUM	117.2	119.7	119.8	115.8	118.1	0.78	13.1	1.9	118.1	0.76	13.1	1.9	4	AX
4P8AAJ	115.7	115.3	115.6 L	115.4 L	115.5	0.10	5.2	0.2 L	115.9	0.13	5.2	0.6 L	8	LA
4TVKAP	107.6	113.8	108.8	111.1	110.3	-1.24	11.1	2.8	112.9	-0.71	10.5	3.0	12	LZ
4ULRPF	119.6	120.6	118.8	117.0	119.0	1.00	7.6	1.5	119.7	1.19	6.9	1.2	12	AH
7WLU8F	113.5	109.4	110.7	113.9	111.9	-0.84	8.3	2.2	111.4	-1.10	8.3	3.8	12	AH
7ZL64F_AL	117.9	124.4	125.4 *	125.2 *	123.2	2.09 *	9.6	3.6	123.5	2.26 *	8.4	3.3	12	AL
8PEM6H	No DATA	116.5	115.1	121.5	117.7	0.67	11.6	3.4	116.8	0.40	10.5	2.9	11	TB
8X8Z2B	118.3	111.4	114.9	113.6	114.5	-0.15	7.3	2.9	114.1	-0.37	7.5	3.2	12	LA
969EQJ	115.2	128.3 *	121.4	121.7	121.7	1.69	10.4	5.4	120.0	1.28	10.2	4.4	12	LA
96QMED	115.5	118.0	103.0 X	116.0	113.1	-0.52	11.6	6.8	113.3	-0.60	11.1	4.9	12	XX
A7DJER_AL	120.0	121.0	116.9	118.5	119.1	1.03	11.3	1.8	117.9	0.69	10.9	3.5	12	XX
APNBJE	115.6	112.5	111.5	113.5	113.3	-0.48	5.9	1.8	113.8	-0.44	8.2	1.7	12	AH
AVU6DB	118.0	107.3	112.5	121.7	114.9	-0.07	10.4	6.3	116.4	0.27	10.3	4.1	12	LC
AVU6DB_AL	109.6 H	119.9	118.2	112.3	115.0	-0.04	15.0	4.9	116.6	0.34	13.1	4.2	12	AL
AXHGDF	113.6	111.5	109.3	106.8	110.3	-1.25	11.4	2.9	112.1	-0.93	10.4	4.2	12	LA
B9J46D	112.7	107.3	108.9	111.5	110.1	-1.30	12.5	2.5	111.6	-1.06	10.5	3.0	12	LA
CKQE68_AL	113.3	114.2	114.6	112.7	113.7	-0.37	9.2	0.9	117.0	0.43	9.6	4.2	12	AL
DQPFMD_AL	117.5	117.0	116.4	114.9	116.5	0.34	8.2	1.1	116.1	0.20	8.1	3.3	12	XX
EVJWCC	115.1 L	117.2	114.6	117.6	116.1	0.26	5.2	1.5	116.0	0.17	7.1	1.8	12	LA
EVJWCC_AL	119.0	114.7	113.8	115.0	115.6	0.13	7.7	2.3	116.4	0.29	8.3	1.9	12	XX
F2ZRT7_AL	111.6	117.6	110.4 H	115.2	113.7	-0.37	12.5	3.3	114.2	-0.34	11.9	3.3	7	AL
F6XDF3	116.3	117.6	114.3	114.1	115.6	0.12	8.2	1.7	115.2	-0.06	8.3	5.4	12	LB
FAUWL8	107.2	113.2	112.5	113.1	111.5	-0.94	10.7	2.9	109.5	-1.64	10.7	3.8	12	LA
FVXHLE	115.6	109.0	110.8	106.6	110.5	-1.20	11.6	3.8	113.0	-0.67	10.8	4.8	12	AH
FVXHLE_AL	109.3	114.9	115.3	106.6	111.5	-0.93	11.9	4.3	113.4	-0.54	10.6	2.9	12	AL
GFFCP6	121.4 L	120.9 L	121.8 L	123.5 L	121.9	1.75	3.3	1.1	121.9	1.80	3.3	1.1	4	XX
GVTQ9_AL	114.8	118.9	116.1	119.5	117.3	0.57	9.2	2.3	116.6	0.35	8.2	3.6	12	AL
GWMBU3	108.5	112.5	130.7 X	117.6	117.3	0.57	9.2	9.7 H	118.3	0.80	9.5	6.8	10	TB
GYRYCD	114.6	114.6	113.3 L	114.7	114.3	-0.21	6.8	0.7	114.3	-0.30	6.6	0.6 L	12	LA
JBV4EB	115.4	119.4	114.4	111.2	115.1	-0.01	7.2	3.4	115.6	0.04	6.9	2.6	12	LZ



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

**Report #614 (M)**  
**November 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	
JBV4EB_AL	116.8	117.1	114.1	114.7	115.7	0.14	9.2	1.5	114.7	-0.19	7.8	1.7	12	AL
LGYMQ9_AL	116.1	113.5	112.6	111.3	113.4	-0.45	7.7	2.0	113.3	-0.58	7.6	1.8	12	AL
MLPJT6	103.2 *	113.6	114.9	106.0	109.4	-1.48	12.4	5.7	109.1	-1.74	10.0	5.1	12	LC
MPJDQ7	110.6	106.4	114.0	110.0	110.3	-1.26	10.6	3.1	110.6	-1.34	10.1	2.9	12	AH
MVBMZ4_AL	117.5	113.2	116.2	119.2	116.5	0.35	6.8	2.6	116.0	0.18	6.1	1.6	12	AL
MVV2Q3	120.5	123.0	120.2	122.0	121.4	1.63	8.3	1.3	123.7	2.31	*10.3	5.1	8	AX
NE6FL3	122.0 L	120.6	114.8	120.2 L	119.4	1.11	5.9	3.2	118.9	0.98	7.5	2.3	12	AH
P4FEFC	116.1	111.6	120.1	119.4	116.8	0.44	11.3	3.9	114.7	-0.19	11.5	4.3	8	XX
PBXKE4	118.9	115.4	117.7	115.0	116.8	0.43	10.2	1.9	116.5	0.30	10.0	2.1	12	LC
PTZJ3X	117.8	114.1	117.7	115.6	116.3	0.30	10.7	1.8	117.8	0.66	12.4	2.9	12	XX
PVNV24	124.9 *L	123.8 L	125.0 *L	125.7 *L	124.9	2.51 *	3.1	0.8	123.6	2.27 *	3.4	2.0	12	LA
RM4CWU_AI	122.1	114.8	113.4	120.8	117.8	0.69	8.0	4.3	119.0	0.99	9.7	4.9	12	AL
RNW9J4_AL	117.9	105.4 H	121.2	107.2 H	112.9	-0.56	17.5	7.8 H	115.5	0.02	13.1	6.5	12	XX
V2922X	113.3 L	113.8	113.8	113.6	113.6	-0.39	6.1	0.2 L	113.2	-0.60	6.5	0.4 L	12	LJ
WCAPTU_AL	115.9	112.4	110.9	110.5	112.4	-0.70	11.7	2.5	114.0	-0.39	9.5	2.4	12	AL
WZVRNQ	119.3	110.6	NO DATA	NO DATA	115.0	-0.05	7.7	6.2	116.5	0.31	10.2	3.8	6	XX
XUKZW6	104.6 *	107.1	110.0	107.3	107.3	-2.04 *	7.7	2.2	107.0	-2.33 *	8.3	2.6	12	AC
Y6WMKV_AI	120.0	125.2 *	114.6	123.1	120.7	1.44	10.3	4.6	119.9	1.25	10.2	3.7	12	AL
YT8NTT	114.1	113.1	114.5	113.4	113.8	-0.35	12.2	0.6	112.2	-0.90	11.1	2.9	12	LA
Z3RETQ	110.0	113.4	116.5	115.8	113.9	-0.31	8.6	2.9	113.7	-0.48	9.9	2.6	12	LA
ZXH2BR	111.2	111.0	117.9	113.5	113.4	-0.45	11.9	3.2	114.2	-0.34	11.5	2.8	12	LZ

Consensus (All Labs) Results														
Wk Mean	115.12	115.02	115.14	115.11	Month Mean	115.12			Grand Mean	115.40				
Avg SDr	9.91	9.57	10.06	10.42	Avg SD	10.00			Avg SD	9.59				
SD btwn Labs	4.76	5.06	4.07	5.02	SD btwn Labs	3.87			SD btwn Labs	3.60				
Labs Incd	55	56	53	55	SD btwn Wks	3.49			SD btwn Wks	3.43				
Labs Exclcd	0	0	2	0	Labs Incd	56			Labs Incd	56				
Labs not Rcvd	1	0	1	1										



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

**Report #614 (M)**  
**November 2020**

**Key to Instrument Codes Reported by Participants**

<b>AC</b>	Perkins Model C	<b>AH</b>	Perkins Model AH
<b>AL</b>	L & W Autoline 400	<b>AX</b>	Perkins Mullen Tester (model not specified)
<b>LA</b>	L&W Bursting Strength Tester	<b>LB</b>	L&W Burst-O-Matic
<b>LC</b>	L&W Autoline (206 Enrollment)	<b>LJ</b>	L&W Bursting Strength Tester J-Type
<b>LZ</b>	L&W (model not specified)	<b>TB</b>	TMI Monitor/Burst 1000
<b>TP</b>	Technidyne PROFILE/Plus	<b>XX</b>	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F3

TAPPI Official Test Method T822

Report #614 (M)

November 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	
22Q4BT	99.4 X	96.1	99.5 *L	99.0	98.5	2.16 *	2.1	1.6	98.5	2.16 *	2.1	1.6	4	EX
2K3TNQ	86.0	82.6 *	84.5	86.8	85.0	-1.78	3.7	1.8	85.0	-1.78	3.7	1.8	4	EN
3C8BMM	88.3	85.2	89.5	90.3	88.3	-0.80	2.3	2.2	88.3	-0.80	2.3	2.2	4	LD
3CRR3P	87.0	85.9	87.3	86.9	86.8	-1.25	2.6	0.6	86.8	-1.25	2.6	0.6	4	LD
3KLWVQ	88.7	88.6	88.0	88.1 L	88.3	-0.80	1.7	0.3	88.3	-0.80	1.7	0.3	4	MB
3ZDUXL	93.1	90.7	90.5	90.9	91.3	0.06	4.0	1.2	91.3	0.06	4.0	1.2	4	TJ
42ZTNP	93.9	91.8	91.7	91.7	92.3	0.35	3.2	1.1	92.3	0.35	3.2	1.1	4	LD
4BQDUM	77.0 X	76.4 X	76.1 X	79.5 *	77.2	-4.02 X	3.2	1.5	77.2	-4.02 X	3.2	1.5	4	LC
4P8AAJ	92.8	92.8	93.3	92.9	93.0	0.54	2.2	0.2 L	93.0	0.54	2.2	0.2 L	4	LD
4ULRPF	90.2	89.4	90.2	91.3	90.3	-0.24	3.3	0.8	90.3	-0.24	3.3	0.8	4	LG
7WLU8F	92.7	94.1	92.5	92.8	93.1	0.57	3.0	0.7	93.1	0.57	3.0	0.7	4	LC
7ZL64F	90.7	93.8	90.3	93.0	91.9	0.25	2.8	1.7	91.9	0.25	2.8	1.7	4	LD
8PEM6H	91.9	91.2	96.7	94.7	93.6	0.74	3.1	2.5	93.6	0.74	3.1	2.5	4	LD
8X8Z2B	87.9	87.4	87.7	87.7	87.7	-0.99	2.6	0.2 L	87.7	-0.99	2.6	0.2 L	4	LD
969EQJ	95.4	96.9	92.0 H	97.1	95.4	1.24	5.5	2.3	95.4	1.24	5.5	2.3	4	LZ
A247WT	91.2	91.7	91.3	92.0	91.6	0.14	3.4	0.4	91.6	0.14	3.4	0.4	4	LD
AJNWWR	86.6	86.7	84.1 H	82.7 H	85.0	-1.75	4.0	2.0	85.0	-1.75	4.0	2.0	4	LZ
AVU6DB	89.6	88.8	90.2	90.1	89.7	-0.41	2.9	0.6	89.7	-0.41	2.9	0.6	4	LD
AXHGDF	89.8	89.7	93.3	91.5	91.0	-0.01	2.6	1.7	91.0	-0.01	2.6	1.7	4	LD
B9J46D	89.8	89.6	90.0	89.5	89.7	-0.40	2.5	0.2 L	89.7	-0.40	2.5	0.2 L	4	LD
CB73VF	88.3	88.7	86.7	88.0	87.9	-0.92	2.3	0.9	87.9	-0.92	2.3	0.9	4	LD
CKQE68	102.1 X	102.0 X	103.6 X	102.9 *	102.7	3.36 X	3.4	0.8	102.7	3.36 X	3.4	0.8	4	LC
DQPFMD	92.3	93.1	92.7	93.4	92.9	0.52	2.3	0.5	92.9	0.52	2.3	0.5	4	LD
DYM8V8	74.0 X	74.2 X	72.4 X	72.0 X	73.1	-5.22 X	3.5	1.1	73.1	-5.22 X	3.5	1.1	4	EM
EVJWCC	89.7	87.1	88.6	89.9	88.8	-0.66	2.8	1.3	88.8	-0.66	2.8	1.3	4	LD
F2ZRT7	91.0	91.9	91.2	91.7	91.5	0.11	2.9	0.4	91.5	0.11	2.9	0.4	4	LD
F6XDF3	91.5	92.5	95.9	96.1	94.0	0.85	2.7	2.3	94.0	0.85	2.7	2.3	4	LC
GFFCP6	78.8 X	77.1 X	80.0 X	82.3 *	79.6	-3.35 X	3.7	2.2	79.6	-3.35 X	3.7	2.2	4	LD
GVTQ9	91.2	92.2	90.1	90.9	91.1	0.01	3.0	0.9	91.1	0.01	3.0	0.9	4	LC
GWMBU3	93.8 H	93.3	96.1	97.1	95.1	1.16	4.3	1.8	95.1	1.16	4.3	1.8	4	LX
GYRYCD	90.9	90.8	91.6	92.0	91.3	0.07	2.1	0.6	91.3	0.07	2.1	0.6	4	LZ
HR9TE7	91.7	94.3	93.6	93.0	93.2	0.61	2.7	1.1	93.2	0.61	2.7	1.1	4	EM
LFNMWY	97.6 *	97.1	95.2	95.0	96.2	1.50	2.9	1.3	96.2	1.50	2.9	1.3	4	MB
M8LXQF	91.8	90.9 L	91.9 L	91.3 L	91.5	0.11	1.3	0.5	91.5	0.11	1.3	0.5	4	RS
MLPJT6	89.3	94.1	93.1	86.2	90.7	-0.12	3.4	3.6 H	90.7	-0.12	3.4	3.6 H	4	LD





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

**Report #614 (M)**  
**November 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
MRAJ7W	80.4 XH	77.2 XH	84.1 H	89.9 H	82.9	-2.38 *	8.8	5.5 H	82.9	-2.38 *	8.8	5.5 H	4	TU
MVV2Q3	91.0	90.1	89.4	88.0	89.6	-0.42	4.5	1.3	89.6	-0.42	4.5	1.3	4	LD
P4FEFC	88.9	86.9	91.5	89.2	89.1	-0.56	3.4	1.9	89.1	-0.56	3.4	1.9	4	LD
P82VXW	95.6	94.1	94.3	95.0	94.8	1.07	2.5	0.7	94.8	1.07	2.5	0.7	4	TH
PBXKE4	90.4	91.9	93.0 L	93.2	92.1	0.29	2.2	1.3	92.1	0.29	2.2	1.3	4	LD
PEE4YY	92.4	92.7 L	92.0 L	91.9 L	92.2	0.34	1.2	0.4	92.2	0.34	1.2	0.4	4	LZ
PVNV24	89.8	90.4	89.9	90.1	90.0	-0.30	2.9	0.3	90.0	-0.30	2.9	0.3	4	TU
RNW9J4	92.4	89.2	89.8	87.7	89.8	-0.38	3.5	2.0	89.8	-0.38	3.5	2.0	4	LC
U6XUZV	91.4	93.8	91.5	92.2	92.2	0.33	2.1	1.1	92.2	0.33	2.1	1.1	4	LD
V2922X	91.8	91.3	91.5	91.3	91.5	0.11	2.3	0.2 L	91.5	0.11	2.3	0.2 L	4	LD
VG7WXX	85.3 *	84.7	85.9	84.6	85.1	-1.73	2.5	0.6	85.1	-1.73	2.5	0.6	4	LD
WCAPTU	95.7	93.9	100.2 *	96.7	96.6	1.61	3.4	2.6	96.6	1.61	3.4	2.6	4	LZ
WZVRNQ	No DATA	98.0 *	99.9 *	99.8 *	99.2	2.37 *	3.4	1.0	99.2	2.37 *	3.4	1.0	3	MB
XC32NL	93.1	92.7	95.1	93.6	93.6	0.74	2.8	1.0	93.6	0.74	2.8	1.0	4	LC
ZXH2BR	87.1	86.0	86.6	87.1	86.7	-1.27	3.4	0.5	86.7	-1.27	3.4	0.5	4	LC
ZY43UK	88.5	88.8	88.4	89.4	88.8	-0.68	2.6	0.5	88.8	-0.68	2.6	0.5	4	LC

Consensus (All Labs) Results									
Wk Mean	90.87	90.95	91.32	91.16	Month Mean	91.08	Grand Mean	91.08	
Avg SDr	2.79	3.06	3.42	3.28	Avg SD	3.23	Avg SD	3.23	
SD btwn Labs	2.66	3.43	3.77	4.40	SD btwn Labs	3.44	SD btwn Labs	3.44	
Labs Incl	44	46	47	50	SD btwn Wks	1.59	SD btwn Wks	1.59	
Labs Excl	6	5	4	1	Labs Incl	47	Labs Incl	47	
Labs not Rcvd	1	0	0	0					

**Key to Instrument Codes Reported by Participants**

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



**Containerboard Interlaboratory Testing Program**  
 Analysis 216  
**Ring Crush, 56 lb Linerboard - 56G1**  
 TAPPI Official Test Method T822

**Report #614 (M)**  
**November 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	
22Q4BT	145.7	147.7	147.3	147.2	147.0	1.85	3.9	0.9	140.0	0.99	4.9	8.2 H	12	EX
2K3TNQ	133.5	123.5	122.0 *	122.4 *	125.3	-1.81	4.2	5.5 H	124.5	-2.38 *	4.0	3.6	12	EN
3C8BMM	132.1	130.2	137.3	131.2	132.7	-0.56	3.6	3.1	130.5	-1.08	3.4	3.2	12	LD
3CRR3P	127.0	126.2	127.9	126.2	126.8	-1.56	3.8	0.8	126.7	-1.89	3.4	2.1	12	LD
3KLWVQ	134.3	133.5 L	133.6 L	133.5 L	133.7	-0.39	1.7	0.4 L	133.9	-0.32	1.6	1.4	12	MB
3ZDUXL	138.2	138.2	137.8	136.2	137.6	0.26	4.5	1.0	136.6	0.26	4.3	1.7	12	TJ
42ZTNP	136.2	135.7	137.0	140.5	137.4	0.23	3.6	2.2	136.1	0.15	4.3	2.3	12	LD
4BQDUM	115.4 X	117.6 *	119.6 *	119.2 *	118.0	-3.06 X	4.3	1.9	118.0	-3.80 X	4.3	1.9	4	LC
4P8AAJ	140.3	140.2	140.7	140.3	140.4	0.73	2.7	0.2 L	141.5	1.32	3.3	1.2	8	LD
4ULRPF	137.2	134.2	135.7	139.8	136.7	0.11	3.5	2.4	133.7	-0.36	3.6	2.9	12	LY
7WLU8F	134.2	142.4	134.3	137.8	137.2	0.19	3.9	3.9	137.5	0.45	3.6	2.7	12	LC
7ZL64F	134.2	133.3	134.5	136.3	134.6	-0.25	3.1	1.3	135.8	0.09	3.5	1.9	12	LD
8PEM6H	146.3	141.2	141.6 H	141.9	142.8	1.14	4.9	2.4	141.4	1.29	4.9	3.2	12	LD
8X8Z2B	133.5	132.2	131.9	130.4	132.0	-0.68	3.3	1.3	133.3	-0.46	3.0	2.4	12	LD
969EQJ	140.7	139.8 H	137.5	137.6	138.9	0.49	4.5	1.6	137.3	0.42	6.7	3.3	12	LZ
A247WT	142.6	141.4	140.6	142.1	141.7	0.95	4.9	0.9	139.9	0.98	5.3	2.0	12	LD
AJNWWR	129.3	129.7	128.3	131.7	129.8	-1.06	2.7	1.4	133.6	-0.40	3.5	4.5	12	LZ
AVU6DB	136.6	137.0	138.0	127.7 H	134.8	-0.21	7.4	4.8 H	136.4	0.23	5.2	3.1	12	LD
AXHGDF	132.8	130.9	133.6	135.7	133.3	-0.47	4.2	2.0	133.7	-0.37	3.6	1.5	12	LD
B9J46D	133.1	134.8	133.6	133.1	133.7	-0.40	3.6	0.8	135.1	-0.06	3.8	2.2	12	LD
CB73VF	129.0	129.0	128.4	129.8	129.0	-1.19	3.3	0.6	130.6	-1.03	3.7	2.8	12	LD
CKQE68	149.9 *	148.3	148.4 *	148.9 *	148.9	2.17 *	4.5	0.7	145.8	2.26 *	7.0	3.9	12	LC
DQPFMD	138.5	136.8	136.1	138.0	137.3	0.22	3.9	1.1	136.0	0.13	4.0	1.5	12	LD
DYM8V8	111.0 X	112.1 X	111.3 X	114.1 X	112.1	-4.05 X	3.9	1.4	113.2	-4.83 X	4.3	1.8	12	EM
EVJWCC	129.5	129.0	129.5	131.6	129.9	-1.05	3.8	1.2	129.3	-1.33	4.7	1.2	12	LD
F2ZRT7	135.2	136.2	137.2	136.4	136.3	0.04	4.2	0.8	136.3	0.19	4.0	1.2	12	LD
F6XDF3	139.6	139.6	140.2	139.8	139.8	0.64	3.3	0.3 L	140.1	1.02	3.9	4.8	12	LC
GFFCP6	119.0 X	117.4 *	118.3 *	126.9	120.4	-2.65 *	2.9	4.4	120.4	-3.27 X	2.9	4.4	4	LD
GVTKQ9	132.3 H	131.8	133.5	131.7	132.3	-0.63	5.6	0.8	135.0	-0.09	4.4	6.0	12	LC
GWMBU3	143.1	136.3	147.0	143.8	142.5	1.10	4.2	4.5	140.4	1.08	4.8	3.5	12	LY
GYRYCD	135.7	135.0	136.4 L	135.8	135.7	-0.05	2.3	0.6	136.7	0.27	2.7	1.8	12	LZ
HR9TE7	131.8	133.6	133.2	132.2	132.7	-0.56	3.9	0.8	132.1	-0.71	3.7	2.2	12	EM
LFNMWY	143.1	146.4	142.7	144.7	144.2	1.38	4.2	1.7	141.3	1.29	5.5	5.7	12	MB
M8LXQF	137.9	137.1	137.2	137.4	137.4	0.23	2.1	0.3 L	137.0	0.35	1.5	2.4	12	RS
MLPJT6	140.9	142.8	143.1	133.2	140.0	0.67	5.1	4.6 H	140.4	1.09	6.4	3.8	12	LD



**Containerboard Interlaboratory Testing Program**  
 Analysis 216  
**Ring Crush, 56 lb Linerboard - 56G1**  
 TAPPI Official Test Method T822

**Report #614 (M)**  
**November 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
MRAJ7W	133.3	128.6	135.1	127.7 H	131.2	-0.83	6.3	3.6	133.5	-0.41	5.4	5.5	12	TU
MVV2Q3	138.9	138.0	135.8	135.2	137.0	0.16	5.9	1.8	134.7	-0.15	5.5	3.9	12	LD
P4FEFC	133.5	133.1	137.5	136.1	135.0	-0.17	3.4	2.1	133.9	-0.32	3.4	2.1	8	LD
P82VXW	142.5	140.1	135.6	140.2	139.6	0.60	2.6	2.9	135.4	0.00	3.8	4.0	12	TH
PBXKE4	138.7	137.8	135.6	140.3	138.1	0.35	3.7	2.0	137.9	0.55	3.8	1.7	12	LD
PEE4YY	134.4	133.8	132.5 L	132.6 L	133.4	-0.46	1.9	0.9	135.1	-0.07	4.1	5.0	12	LZ
PVNV24	134.5	136.3	135.6	131.9	134.6	-0.25	3.1	1.9	126.0	-2.05 *	2.5	6.9	12	TU
RNW9J4	134.5	132.3	135.7	135.7	134.6	-0.25	3.7	1.6	130.2	-1.14	6.6	4.3	12	LC
U6XUZV	138.2	138.5	139.0 L	139.2	138.7	0.46	1.9	0.4	137.3	0.41	2.2	1.3	12	LD
V2922X	140.1 L	139.8	139.5	140.2	139.9	0.65	2.3	0.3 L	140.5	1.11	2.9	0.7 L	12	LD
VG7WXX	128.3	123.0	127.3	125.7	126.1	-1.69	4.2	2.3	127.5	-1.71	4.7	3.8	12	LD
WCAPTU	142.8	142.2	141.1	139.8	141.5	0.92	5.4	1.3	138.0	0.56	5.0	3.0	12	LZ
WZVRNQ	151.6 *	148.6	147.6	150.8 *	149.6	2.30 *	4.9	1.9	142.8	1.62	4.7	6.3	12	MB
XC32NL	144.1	141.0	144.7	139.3	142.3	1.06	3.8	2.6	136.9	0.34	4.2	5.0	12	LC
ZXH2BR	128.7	126.1	126.9	133.0	128.7	-1.25	3.2	3.1	128.5	-1.50	3.9	3.1	12	LC
ZY43UK	134.3	131.3	135.0	131.8	133.1	-0.50	3.3	1.8	132.4	-0.66	3.7	1.5	12	LC

Consensus (All Labs) Results														
Wk Mean	136.93	135.19	135.77	135.61	Month Mean	136.04	Grand Mean	135.40						
Avg SDr	3.91	3.79	3.71	4.49	Avg SD	3.98	Avg SD	4.30						
SD btwn Labs	5.59	6.98	6.53	6.41	SD btwn Labs	5.91	SD btwn Labs	4.59						
Labs Incl	48	50	50	50	SD btwn Wks	2.26	SD btwn Wks	3.59						
Labs Excl	3	1	1	1	Labs Incl	49	Labs Incl	48						
Labs not Rcvd	0	0	0	0										

**Key to Instrument Codes Reported by Participants**

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



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F3

TAPPI Official Test Method T826

Report #614 (M)

November 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	
22Q4BT	30.6 XL	31.2 XL	30.1 XL	32.4 XL	31.1	8.54 X	0.0	1.0	31.1	8.54 X	0.0	1.0	4	TT
2K3TNQ	22.5	21.7 *	21.3 *	22.1	21.9	-1.85	1.7	0.5	21.9	-1.85	1.7	0.5	4	LY
3AZTNQ	43.0 XH	44.3 XH	44.5 XH	44.9 XH	44.2	23.36 X	19.2	0.8	44.2	23.36 X	19.2	0.8	4	LH
3C8BMM_AL	22.5	23.1	22.8	23.1	22.9	-0.73	1.6	0.3	22.9	-0.73	1.6	0.3	4	AK
3CRR3P	22.9 H	22.8	22.0 H	22.5	22.5	-1.12	2.1	0.4	22.5	-1.12	2.1	0.4	4	LU
3ZDUXL	23.2	23.2	23.4	23.1	23.2	-0.32	1.6	0.1	23.2	-0.32	1.6	0.1	4	TT
42ZTNP	23.8	23.6	23.1	22.8	23.3	-0.25	1.3	0.5	23.3	-0.25	1.3	0.5	4	LY
4BQDUM	23.1	23.1	22.3	22.9	22.9	-0.75	1.8	0.4	22.9	-0.75	1.8	0.4	4	LZ
4P8AAJ	23.4	23.2	23.4	23.3	23.3	-0.24	1.8	0.1 L	23.3	-0.24	1.8	0.1 L	4	LA
4TVKAP	25.0 *	27.3 X	25.0	25.1	25.6	2.35 *	2.1	1.1	25.6	2.35 *	2.1	1.1	4	LH
4ULRPF	22.8	22.6	23.0	23.5	23.0	-0.62	1.7	0.4	23.0	-0.62	1.7	0.4	4	LU
7WLU8F	23.3	22.8	22.3	22.9	22.8	-0.79	1.7	0.4	22.8	-0.79	1.7	0.4	4	LU
7ZL64F_AL	24.6	24.5	24.3	24.2	24.4	0.99	1.5	0.2	24.4	0.99	1.5	0.2	4	AK
8PEM6H	24.6	24.0	25.1 H	23.7	24.4	0.94	2.2	0.6	24.4	0.94	2.2	0.6	4	LW
8X8Z2B	23.0	22.3 L	22.2	23.0	22.6	-1.03	1.2	0.4	22.6	-1.03	1.2	0.4	4	BK
969EQJ	23.1	22.3	22.2	22.4	22.5	-1.19	1.8	0.4	22.5	-1.19	1.8	0.4	4	LW
A7DJER_AL	23.6	24.1	23.2 L	24.3	23.8	0.33	1.5	0.5	23.8	0.33	1.5	0.5	4	AK
AJNWWR	23.0	22.5	22.7	22.3	22.6	-1.00	1.6	0.3	22.6	-1.00	1.6	0.3	4	LA
APNBJE	23.2	23.6	23.7	22.9	23.3	-0.24	1.4	0.4	23.3	-0.24	1.4	0.4	4	TT
AVU6DB	23.9	23.7	23.9	23.8	23.8	0.31	1.5	0.1 L	23.8	0.31	1.5	0.1 L	4	LA
AVU6DB_AL	22.9	23.6	23.7	22.7 L	23.2	-0.36	1.5	0.5	23.2	-0.36	1.5	0.5	4	AL
AXHGDF	23.4	22.9	23.0	23.6	23.2	-0.35	1.2	0.4	23.2	-0.35	1.2	0.4	4	LA
B9J46D	23.3	22.8	22.2	22.7	22.8	-0.85	1.4	0.5	22.8	-0.85	1.4	0.5	4	LZ
CJWN2E	21.8 *L	22.2	21.7	21.1 *	21.7	-2.07 *	1.3	0.5	21.7	-2.07 *	1.3	0.5	4	LW
CKQE68_AL	26.8 X	26.7 X	26.7 X	26.9 X	26.8	3.68 X	1.4	0.1 L	26.8	3.68 X	1.4	0.1 L	4	AL
DQPFMD_AL	22.8	23.5	21.9	24.0	23.0	-0.55	1.6	0.9	23.0	-0.55	1.6	0.9	4	AL
EVJWCC_AL	23.4	23.6	23.2	23.4	23.4	-0.13	1.2	0.2	23.4	-0.13	1.2	0.2	4	AL
F2ZRT7_AL	24.5	22.8	23.4	22.9	23.4	-0.14	1.6	0.7	23.4	-0.14	1.6	0.7	4	AL
F6XDF3	23.1	22.6	23.2	22.5	22.8	-0.80	1.2	0.4	22.8	-0.80	1.2	0.4	4	LW
FAUWL8	23.0	25.4 *	23.1	23.3	23.7	0.18	1.8	1.1	23.7	0.18	1.8	1.1	4	LH
FVXHLE	22.9	23.0	23.3	22.3	22.9	-0.75	1.4	0.4	22.9	-0.75	1.4	0.4	4	LH
FVXHLE_AL	24.7	24.9	27.0 X	25.1 H	25.4	2.15 *	2.0	1.1	25.4	2.15 *	2.0	1.1	4	AL
G488ZC	24.2	23.8	22.9	23.5	23.6	0.09	1.7	0.5	23.6	0.09	1.7	0.5	4	LA
GVTQ9_AL	22.3	23.3	22.5	22.8	22.7	-0.91	1.8	0.4	22.7	-0.91	1.8	0.4	4	AL
HDTU8K	25.0 *	26.3 XH	24.9	25.0	25.3	2.00 *	1.9	0.6	25.3	2.00 *	1.9	0.6	4	TT



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F3

TAPPI Official Test Method T826

Report #614 (M)

November 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	
JBV4EB	24.0	24.5	23.8	24.6	24.3	0.82	2.0	0.4	24.3	0.82	2.0	0.4	4	LU
JBV4EB_AL	22.3 L	25.9 *	24.7	24.2	24.3	0.82	1.4	1.5 H	24.3	0.82	1.4	1.5 H	4	AL
JM94B4	23.8	24.0	24.7	24.6	24.2	0.80	1.6	0.4	24.2	0.80	1.6	0.4	4	LH
LFNMWY	23.8	23.7	23.8	24.2	23.9	0.40	1.8	0.2	23.9	0.40	1.8	0.2	4	LA
LGYMQ9	22.5 L	23.6	22.4	23.7	23.0	-0.55	1.4	0.7	23.0	-0.55	1.4	0.7	4	LU
MLPJT6	24.1	23.8	23.9	23.7	23.9	0.37	1.8	0.2	23.9	0.37	1.8	0.2	4	LA
MPJDQ7	24.4	23.2	23.9	23.1	23.7	0.15	1.6	0.6	23.7	0.15	1.6	0.6	4	XX
MRAJ7W	24.2	23.1	24.9	24.1	24.1	0.62	1.7	0.7	24.1	0.62	1.7	0.7	4	LA
MVBMZ4_AI	23.0	23.6	22.1	23.2	23.0	-0.63	1.9	0.7	23.0	-0.63	1.9	0.7	4	AL
MVV2Q3	22.9	23.9	24.7	22.4	23.5	-0.08	1.7	1.1	23.5	-0.08	1.7	1.1	4	LH
NE6FL3	25.8 X	25.5 *	25.3 H	24.3	25.2	1.94 *	2.0	0.6	25.2	1.94 *	2.0	0.6	4	LU
PBXKE4	22.6	22.2	22.6	23.0	22.6	-1.07	1.6	0.3	22.6	-1.07	1.6	0.3	4	LA
PEE4YY	23.8 L	24.2 L	23.5 L	24.3 L	23.9	0.46	0.3	0.3	23.9	0.46	0.3	0.3	4	XX
RM4CWU_AI	29.9 X	24.3	23.3	23.9	25.4	2.07 *	1.7	3.0 H	25.4	2.07 *	1.7	3.0 H	4	AL
RNW9J4	23.8	24.1	23.0	24.1	23.8	0.26	1.9	0.5	23.8	0.26	1.9	0.5	4	LU
U6XUZV	22.6 H	22.8	22.9	22.9	22.8	-0.83	2.1	0.1	22.8	-0.83	2.1	0.1	4	LY
VAMQ2Q	24.3	24.7	23.2	22.9 H	23.8	0.28	2.4	0.9	23.8	0.28	2.4	0.9	4	XX
WCAPTU_AI	22.6	23.0	25.7 *	25.8 *L	24.3	0.84	1.5	1.7 H	24.3	0.84	1.5	1.7 H	4	AL
WZVRNQ	24.4	24.4	24.8	24.9	24.6	1.24	1.6	0.3	24.6	1.24	1.6	0.3	4	LA
XC32NL	24.6	25.2	24.0	25.3 *	24.8	1.41	1.4	0.6	24.8	1.41	1.4	0.6	4	LA
XUKZW6	22.3	22.3	22.4	22.6	22.4	-1.28	1.3	0.1	22.4	-1.28	1.3	0.1	4	LH
Z3RETQ	24.0	23.8	23.8	23.9	23.9	0.40	1.7	0.1	23.9	0.40	1.7	0.1	4	LY
Z9E86P	22.8	23.6	22.1	22.4	22.7	-0.91	1.8	0.7	22.7	-0.91	1.8	0.7	4	LY
ZXH2BR	24.2	23.5	23.2	23.8	23.7	0.15	1.7	0.4	23.7	0.15	1.7	0.4	4	LW

Consensus (All Labs) Results														
Wk Mean	23.44	23.52	23.34	23.48	Month Mean	23.53			Grand Mean	23.53				
Avg SDr	1.61	1.60	1.65	1.75	Avg SD	1.67			Avg SD	1.67				
SD btwn Labs	0.79	0.90	1.01	0.94	SD btwn Labs	0.88			SD btwn Labs	0.88				
Labs Incl	54	54	55	56	SD btwn Wks	0.73			SD btwn Wks	0.73				
Labs Excl	5	5	4	3	Labs Incl	56			Labs Incl	56				
Labs not Rcvd	0	0	0	0										



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

**Report #614 (M)**  
**November 2020**

**Key to Instrument Codes Reported by Participants**

<b>AK</b>	L & W Autoline 300	<b>AL</b>	L & W Autoline 400
<b>BK</b>	Buchel Strip Compression Tester BK-155	<b>LA</b>	L&W Autoline (223 Enrollment)
<b>LH</b>	L&W 282	<b>LU</b>	L&W 52 without moisture correction(was 53)
<b>LW</b>	L&W 53 with moisture correction (was 53M)	<b>LY</b>	L&W 152 without moisture correction
<b>LZ</b>	L&W (model not specified)	<b>TT</b>	TMI Short Span Compression, 17-34 (MB K455)
<b>XX</b>	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

Analysis 224

Report #614 (M)

November 2020

STFI, 56 lb Linerboard - 56G1

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
22Q4BT	44.2 XL	46.7 XL	44.5 XL	44.7 XL	45.0	6.78 X	0.0	1.2	44.2	7.85 X	0.0	1.6	12	LZ
2K3TNQ	34.0	31.8 *	34.1	32.1	33.0	-1.35	2.1	1.2	32.5	-1.88	2.3	0.9	12	LY
3AZTNQ	47.2 XH	48.2 XH	47.6 XH	49.3 XH	48.1	8.84 X	22.9	0.9	45.7	9.12 X	22.2	2.4	12	LH
3C8BMM_AL	33.9	34.8	35.6	33.1	34.4	-0.44	2.2	1.1	33.1	-1.34	2.2	1.5	12	AK
3CRR3P	32.4	32.6	33.5	33.0	32.9	-1.45	2.7	0.5	32.5	-1.82	2.6	0.6	12	LU
3ZDUXL	35.1	34.9	35.3	35.4	35.2	0.11	1.7	0.2	35.0	0.19	1.6	0.3 L	12	TT
42ZTNP	34.3	33.1	34.9	34.5	34.2	-0.55	2.2	0.8	34.6	-0.12	2.2	0.8	12	LZ
4BQDUM	35.3	35.4	33.4	32.0	34.0	-0.68	2.6	1.6	34.0	-0.60	2.6	1.6	4	XX
4P8AAJ	34.9	34.7 H	34.8 H	34.7	34.7	-0.18	3.0	0.1 L	34.7	0.01	3.0	0.2 L	8	LA
4TVKAP	36.8	37.4	37.7	37.5	37.3	1.58	2.6	0.4	35.2	0.37	2.2	3.0 H	12	LZ
4ULRPF	34.1	33.8	33.8	34.3	34.0	-0.68	2.1	0.2	33.7	-0.82	2.1	0.6	12	LU
7WLU8F	33.0	34.0	34.7	33.6	33.8	-0.80	2.2	0.7	33.5	-1.03	2.2	0.6	12	LU
7ZL64F_AL	33.9	34.5	35.7	35.0	34.8	-0.16	2.2	0.8	35.2	0.35	1.9	0.7	12	XX
8PEM6H	No DATA	35.7	35.4	36.4	35.8	0.55	2.6	0.6	34.9	0.13	2.7	1.4	11	LW
8X8Z2B	32.9	34.3	34.2 L	33.5	33.7	-0.88	1.6	0.7	34.0	-0.56	1.7	0.8	12	BK
969EQJ	32.8	34.5	34.1	33.4	33.7	-0.89	1.9	0.8	33.2	-1.26	2.3	0.9	12	LW
A7DJER_AL	35.6	36.0	34.5	35.2	35.3	0.22	2.3	0.6	35.4	0.53	2.4	0.9	12	AK
AJNWWR	32.4	34.2	33.4	32.1	33.0	-1.34	2.1	1.0	32.8	-1.58	2.2	1.0	12	LA
APNBJE	35.5	35.4	35.1	36.1 L	35.5	0.35	1.5	0.4	35.2	0.38	1.4	0.4	12	TT
AVU6DB	34.8	35.5	34.5	35.1	35.0	-0.02	2.3	0.4	34.5	-0.16	2.2	0.7	12	LA
AVU6DB_AL	34.4	34.7	34.7	35.0	34.7	-0.20	2.4	0.2	34.5	-0.16	2.3	0.6	12	AL
AXHGDF	33.3 L	33.9 H	34.1	32.0	33.3	-1.14	2.2	0.9	33.4	-1.09	2.2	0.7	12	LW
B9J46D	34.4	34.7	33.8	33.7	34.1	-0.60	2.5	0.5	34.3	-0.34	2.4	0.6	12	LZ
CJWN2E	33.7	33.9	33.8	33.6	33.7	-0.88	2.1	0.1 L	33.6	-0.94	2.2	0.7	12	LW
CKQE68_AL	39.2 XH	39.3 *	38.7 *	38.9 *	39.0	2.72 *	3.1	0.3	37.6	2.41 *	2.9	1.2	12	AL
DQPFMD_AL	32.7	34.9	33.3	34.4	33.8	-0.80	1.8	1.0	35.3	0.44	2.1	1.5	12	XX
EVJWCC_AL	32.8	33.9	34.8	33.2	33.7	-0.92	2.2	0.9	33.9	-0.68	2.2	0.7	12	XX
F2ZRT7_AL	36.3	35.6 L	36.1	35.1	35.8	0.51	1.9	0.6	34.6	-0.08	2.5	1.6	7	AL
F6XDF3	34.3	34.8	34.4	34.2	34.4	-0.41	2.1	0.3	34.8	0.03	2.6	0.9	12	ID
FAUWL8	36.3	38.6	33.8	34.4	35.8	0.51	2.7	2.2 H	36.4	1.36	2.8	1.5	12	LH
FVXHLE	35.2	33.8	32.9	33.0	33.7	-0.87	2.4	1.0	33.5	-0.98	2.4	1.1	12	LH
FVXHLE_AL	36.5	36.9	39.0 *	36.9	37.3	1.56	2.1	1.1	38.3	2.97 X	2.5	1.3	12	AL
G488ZC	38.1 *	36.5 L	37.1 L	34.3	36.5	1.03	2.0	1.6	36.4	1.40	2.5	1.6	12	LA
GVTKQ9_AL	32.9	30.7 *L	32.6	31.7	31.9	-2.07 *	1.6	1.0	32.6	-1.74	1.9	1.3	12	XX
HDTU8K	37.6 *	39.2 *	38.0	37.6	38.1	2.09 *	2.5	0.7	35.3	0.51	2.3	2.3	12	TT



Containerboard Interlaboratory Testing Program  
Analysis 224

Report #614 (M)  
November 2020

STFI, 56 lb Linerboard - 56G1

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
JBV4EB	36.3	35.9	36.2	35.7	36.0	0.68	2.4	0.3	35.8	0.87	2.4	0.7	12	LA
JBV4EB_AL	33.5	38.2	37.7	34.7 L	36.0	0.68	1.8	2.3 H	35.5	0.62	1.8	1.3	12	AL
JM94B4	35.7	37.2	35.4	36.5	36.2	0.81	2.4	0.8	35.9	0.94	2.3	0.8	12	LH
LFNMWY	36.1	36.4	35.7	35.5	35.9	0.62	2.4	0.4	34.8	0.05	2.5	2.8 H	12	LA
LGVMQ9	34.6	35.7	33.7	35.5	34.9	-0.09	2.1	1.0	35.9	0.94	2.6	2.0	11	LU
MLPJT6	36.5 H	36.1 H	36.7	36.0	36.3	0.88	2.9	0.3	35.4	0.55	2.7	1.0	12	LA
MPJDQ7	35.8	34.6	36.1	34.3	35.2	0.12	2.3	0.9	35.0	0.21	2.3	0.6	12	XX
MRAJ7W	36.3	37.8	36.8	39.8 *	37.7	1.80	1.8	1.5	36.5	1.48	2.6	1.4	12	LA
MVBMZ4_AI	33.2	33.2	33.8	34.2	33.6	-0.96	2.3	0.5	33.1	-1.31	2.1	0.8	12	AL
MVV2Q3	34.4	36.3	36.4	33.3	35.1	0.05	2.3	1.5	35.2	0.36	2.4	0.9	12	LH
NE6FL3	37.1	36.9 H	37.3	38.1	37.3	1.57	2.6	0.5	36.8	1.76	2.7	0.8	12	LU
PBXKE4	33.8	34.4	33.7	34.0	34.0	-0.71	2.3	0.3	33.9	-0.72	2.3	0.6	12	LU
PEE4YY	35.0 L	34.7 L	34.6 L	35.2 L	34.9	-0.08	0.3	0.3	21.4	-11.07 X	0.3	10.0 H	12	XX
RM4CWU_AI	33.7	33.6	33.4 H	35.0	33.9	-0.72	2.7	0.7	34.3	-0.33	2.6	0.9	12	AL
RNW9J4	35.6 L	36.4	35.8	34.5	35.6	0.37	2.1	0.8	36.2	1.20	2.2	1.0	12	LU
U6XUZV	33.6	34.0	33.4	34.4	33.9	-0.78	2.2	0.4	34.0	-0.59	2.4	0.6	12	LY
VAMQ2Q	36.2	36.4	36.3	36.3	36.3	0.89	1.9	0.1 L	34.9	0.15	2.8	1.1	12	XX
WCAPTU_AI	33.5 L	37.3	38.3 *	37.0	36.5	1.02	1.9	2.1 H	35.3	0.48	1.9	1.7	12	AL
WZVRNQ	35.3	37.4	37.1	39.2 *	37.2	1.52	2.7	1.6	37.8	2.57 *	2.3	3.8 H	10	LA
XC32NL	37.8 *	35.3	35.6 L	35.7	36.1	0.74	1.8	1.1	35.2	0.42	1.8	1.8	12	LA
XUKZW6	34.0 L	33.9	33.0	32.5 L	33.4	-1.12	1.4	0.7	33.5	-0.98	1.6	3.0 H	12	LH
Z3RETQ	35.4	34.8	35.2	35.4	35.2	0.13	2.2	0.3	35.2	0.40	2.3	0.5	12	LU
Z9E86P	34.4	33.5	31.9 *	33.0	33.2	-1.23	2.0	1.0	34.2	-0.46	2.2	1.0	12	LY
ZXH2BR	35.3	35.9	33.7	34.5	34.8	-0.12	2.4	1.0	35.3	0.48	2.4	1.3	12	LW

Consensus (All Labs) Results														
Wk Mean	34.78	35.25	35.07	34.83	Month Mean	35.01			Grand Mean	34.73				
Avg SDr	2.17	2.22	2.21	2.31	Avg SD	2.24			Avg SD	2.31				
SD btwn Labs	1.45	1.72	1.64	1.82	SD btwn Labs	1.48			SD btwn Labs	1.20				
Labs Incl	55	57	57	57	SD btwn Wks	0.94			SD btwn Wks	1.36				
Labs Excl	3	2	2	2	Labs Incl	57			Labs Incl	55				
Labs not Rcvd	1	0	0	0										





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

**Report #614 (M)**  
**November 2020**

**Key to Instrument Codes Reported by Participants**

<b>AK</b>	L & W Autoline 300	<b>AL</b>	L & W Autoline 400
<b>BK</b>	Buchel Strip Compression Tester BK-155	<b>ID</b>	IDM Compression Tester
<b>LA</b>	L&W Autoline (224 Enrollment)	<b>LH</b>	L&W 282
<b>LU</b>	L&W 52 without moisture correction (was 53)	<b>LW</b>	L&W 53 with moisture correction (was 53M)
<b>LY</b>	L&W 152 with moisture correction	<b>LZ</b>	L&W (model not specified)
<b>TT</b>	TMI Short Span Compression, 17-34 (MB K455)	<b>XX</b>	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 #614 (M)**  
**November 2020**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2K3TNQ	148.8	1.04	10.15	150.8	0.64	7.01	4	EV
3C8BMM	123.8	-1.04	14.49	122.8	-1.44	1.95	L 4	LS
3CRR3P	159.0	1.89	17.29	156.5	1.06	3.96	4	EV
42ZTNP	150.2	1.16	13.86	149.8	0.56	3.72	4	EV
4P8AAJ	141.1	0.40	19.35	145.3	0.23	4.91	3	LS
4TVKAP	176.9	3.37 X	21.35	161.2	1.40	10.83	4	LS
7ZL64F	131.5	-0.39	16.25	149.1	0.51	19.31	4	EV
8PEM6H	126.1	-0.84	10.76	125.1	-1.28	3.91	4	XX
969EQJ	134.4	-0.16	11.50	141.0	-0.09	6.26	4	EV
A7DJER_AL	131.0	-0.44	13.56	129.7	-0.93	11.35	4	AK
AVU6DB	263.5	10.56 X	37.72 H	174.7	2.40 *	59.24 H	4	LA
AVU6DB_AL	142.2	0.49	9.93	146.2	0.29	5.98	4	AL
AXHGDF	138.1	0.15	16.97	136.7	-0.42	1.76	L 4	LA
CKQE68_AL	142.9	0.55	20.73	154.9	0.93	13.88	4	AL
FAUWL8	125.4	-0.90	14.20	143.6	0.10	30.57	4	EV
FVXHLE_AL	126.1	-0.84	14.37	126.7	-1.16	2.61	L 4	AL
GVTQ9_AL	145.6	0.78	27.33	144.3	0.15	13.87	3	AL
JBV4EB_AL	126.4	-0.82	14.71	124.3	-1.33	2.54	L 3	AL
LFNMWY	139.9	0.30	20.90	134.4	-0.58	11.68	4	LA
LGVMQ9	144.6	0.69	14.03	149.4	0.53	4.83	4	EV
MLPJT6	122.7	-1.13	9.98	156.3	1.04	31.81	4	LA
MRAJ7W	157.4	1.75	44.30 H	160.7	1.37	14.44	4	LA
MVBMZ4_AL	137.3	0.09	20.49	141.0	-0.10	3.90	4	AL
RM4CWU_AI	133.8	-0.21	16.76	130.3	-0.89	4.38	4	AL
RNW9J4	137.9	0.14	15.56	147.9	0.42	9.63	4	EV
T8L7YZ	110.0	-2.18 *	40.46 H	128.0	-1.06	15.60	3	LS
WCAPTU_AL	132.2	-0.34	16.71	138.7	-0.26	6.33	4	XX
WZVRNQ	154.9	1.55	22.44	148.1	0.43	6.07	4	LA
XC32NL	115.1	-1.76	10.69	115.1	-2.02 *	0.00	1	EV
ZXH2BR	137.1	0.07	11.78	135.6	-0.49	4.41	4	LS

**Consensus (All Labs) Results**

Month Mean	136.27	Grand Mean	142.27
Avg SD	19.25	Avg SD Months	16.09
SD btwn Labs	12.04	SD btwn Labs	13.47
Labs Incl	28	Labs Incl	30



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

**Report #614 (M)**  
**November 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 - 42F3**  
 TAPPI Official Test Method T538

**Report #614 (M)**  
**November 2020**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
7WLU8F	364.7	0.28	10.45	364.7	0.28	0.00	1	XX
7ZL64F_AL	351.7	-0.80	8.92	351.7	-0.80	0.00	1	AK
A7DJER_AL	353.5	-0.65	7.04	353.5	-0.65	0.00	1	AK
AVU6DB_AL	351.8	-0.79	7.60	351.8	-0.79	0.00	1	AL
B9J46D	357.2	-0.35	7.89	357.2	-0.35	0.00	1	XX
DQPFMD_AL	362.8	0.12	7.21	362.8	0.12	0.00	1	AL
DYM8V8	416.8	4.61 X	4.61	416.8	4.61 X	0.00	1	TS
EVJWCC_AL	356.0	-0.44	13.54 H	356.0	-0.44	0.00	1	AL
F2ZRT7	376.4	1.25	9.63	376.4	1.25	0.00	1	PP
FVXHLE_AL	351.7	-0.80	5.62	351.7	-0.80	0.00	1	AL
G488ZC	370.8	0.79	3.05 L	370.8	0.79	0.00	1	XX
RM4CWU_AI	350.6	-0.89	9.82	350.6	-0.89	0.00	1	AL
ZV6RXK	388.9	2.29 *	5.17	388.9	2.29 *	0.00	1	TS

Consensus (All Labs) Results			
Month Mean	361.34	Grand Mean	361.34
Avg SD	8.42	Avg SD Months	0.00
SD btwn Labs	12.02	SD btwn Labs	12.02
Labs Incd	12	Labs Incd	12

**Key to Instrument Codes Reported by Participants**

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



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

**Report #614 (M)**  
**November 2020**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3C8BMM	87.4	-0.56	5.94	102.5	0.28	10.18	4	TM
3CRR3P	87.2	-0.57	4.60	89.1	-0.70	2.64	4	TM
42ZTNP	86.5	-0.63	3.35	83.4	-1.12	3.09	4	XX
4AHYMG	103.0	0.75	2.99	112.9	1.04	13.86	4	TM
4BQDUM	77.8	-1.37	8.39	77.8	-1.53	0.00	1	SC
4TVKAP	169.2	6.31 X	11.95 H	127.8	2.13 *	36.53 H	4	TM
7WLU8F	107.9	1.16	3.33	106.6	0.58	1.97 L	4	HY
7ZL64F	84.6	-0.79	2.41	84.3	-1.06	1.17 L	4	TM
A7DJER	87.8	-0.53	2.47	88.4	-0.75	4.12	3	SC
AVU6DB	95.2	0.10	7.82	96.5	-0.16	9.06	4	TM
AXHGDF	114.8	1.74	3.27	109.4	0.79	4.98	4	HY
CKQE68	122.0	2.35 *	5.70	118.0	1.42	2.94	4	SC
DQPFMD	43.0	-4.29 X	0.78 L	42.3	-4.13 X	0.90 L	4	LZ
EVJWCC	94.4	0.03	2.26	96.5	-0.16	7.43	4	SC
F2ZRT7	106.0	1.00	5.61	109.6	0.80	3.97	4	HY
FAUWL8	101.0	0.58	4.18	109.7	0.81	14.23	4	SC
G488ZC	87.8	-0.52	1.92	86.7	-0.87	1.15 L	4	SC
GVTKQ9	179.6	7.19 X	8.56 H	124.0	1.86	48.18 H	3	SC
LGYMQ9	85.0	-0.76	4.30	87.9	-0.79	4.89	4	TM
PBXKE4	104.0	0.84	3.32	104.4	0.42	4.15	4	HZ
PVNV24	73.3	-1.74	4.66	84.3	-1.05	14.96	3	TM
RNW9J4	81.2	-1.08	0.84 L	81.8	-1.24	4.00	4	TM
T8L7YZ	93.4	-0.05	1.95	98.0	-0.05	3.25	4	HY
VEHKYR	91.1	-0.25	2.84	90.4	-0.61	0.62 L	3	TM
WCAPTU	101.8	0.65	6.38	102.4	0.27	4.83	4	TM
XC32NL	90.0	-0.34	4.90	94.2	-0.33	3.08	4	TM

Consensus (All Labs) Results			
Month Mean	94.05	Grand Mean	98.65
Avg SD	4.48	Avg SD Months	14.00
SD btwn Labs	11.91	SD btwn Labs	13.64
Labs Incl	23	Labs Incl	25

**Consensus By Method**

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	92.52	11.32	1.53	20
Modified Scott Bond Mechanics	111.34	4.89	17.29	2



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

**Report #614 (M)**  
**November 2020**

**Analysis Notes**

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

**Key to Instrument Codes Reported by Participants**

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



Containerboard Interlaboratory Testing Program

Analysis 234

Report #614 (M)

November 2020

COF Inclined Plane (Slide Angle), 42 Ib Linerboard - 42F

TAPPI Official Test Method T815

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
2K3TNQ	28.3	0.03	3.75	21.2	-1.95 *	13.83 H	4
3C8BMM	25.8	-0.85	5.72	28.8	0.38	2.00	4
3CRR3P	29.2	0.35	2.77	29.0	0.45	2.97	4
42ZTNP	18.4	-3.47 X	2.79	20.0	-2.35 *	3.06	4
4P8AAJ	26.2	-0.71	0.84	25.7	-0.58	0.92	3
4TVKAP	23.0	-1.84	0.71 L	24.4	-0.97	0.97	4
7WLU8F	24.8	-1.22	1.26	25.1	-0.75	1.87	4
7ZL64F	28.3	0.04	2.70	28.3	0.24	0.52 L	4
8PEM6H	28.8	0.21	4.44	28.7	0.36	4.37	4
969EQJ	25.4	-0.99	1.14	27.5	-0.03	1.46	4
A7DJER	29.2	0.37	4.34	29.9	0.73	0.76	4
AVU6DB	23.2	-1.77	2.17	23.9	-1.13	0.82	4
AXHGDF	29.8	0.57	2.28	30.6	0.93	2.88	4
B9J46D	28.8	0.21	6.46 H	29.3	0.54	2.97	4
CKQE68	25.8	-0.85	1.48	26.1	-0.46	0.91	4
DQPFMD	30.6	0.85	1.14	26.6	-0.30	4.50	4
F2ZRT7	31.2	1.06	3.96	28.6	0.34	1.88	4
FAUWL8	28.8	0.21	5.54	29.6	0.64	1.10	4
G488ZC	29.2	0.35	0.84	28.7	0.36	0.53 L	4
GVTQ9	34.0	2.05 *	1.41	32.3	1.47	2.34	3
LGYMQ9	28.6	0.14	1.95	29.7	0.67	2.82	4
MAUA6V	24.6	-1.28	0.89	24.5	-0.96	0.44 L	4
MVBMZ4	24.4	-1.35	1.82	24.6	-0.92	0.19 L	4
MVV2Q3	30.1	0.67	2.61	29.7	0.68	0.29 L	4
P4FEFC	31.8	1.27	4.55	31.4	1.18	0.64	4
RM4CWU	30.0	0.62	3.57	30.8	1.01	1.44	4
RNW9J4	26.0	-0.78	1.73	27.6	0.01	1.50	4
WCAPTU	32.5	1.51	2.26	29.7	0.66	1.94	4
WZVRNQ	26.8	-0.50	2.17	20.5	-2.19 *	4.35	4
Y6WMKV	32.2	1.42	0.45 L	30.5	0.92	3.28	4
ZXH2BR	28.8	0.21	5.38	30.8	1.02	1.87	4

Consensus (All Labs) Results

Month Mean	28.20	Grand Mean	27.53
Avg SD	3.16	Avg SD Months	3.31
SD btwn Labs	2.82	SD btwn Labs	3.23
Labs Incl	30	Labs Incl	31



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

**Report #614 (M)**  
**November 2020**

**Key to Instrument Codes Reported by Participants**

ZZ Instruments No Longer Tracked





Containerboard Interlaboratory Testing Program  
Analysis 237

Report #614 (M)  
November 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
3CRR3P	25.8	1.93 *	2.78	24.2	1.48	1.81	4	GA
42ZTNP	23.0	0.27	1.48	22.6	0.27	0.63	4	LP
4P8AAJ	21.8	-0.49	1.43	21.4	-0.58	0.29	3	LA
4TVKAP	26.0	2.05 *	3.37 H	23.8	1.13	1.80	4	TD
7WLU8F	22.0	-0.38	3.42 H	22.2	0.02	1.09	4	TP
7ZL64F_AL	22.1	-0.31	2.03	22.0	-0.17	0.32	4	AK
8PEM6H	20.6	-1.19	1.96	21.3	-0.67	0.75	4	LP
969EQJ	19.1	-2.09 *	0.57 L	19.2	-2.25 *	1.30	4	XX
A247WT	21.3	-0.78	1.39	21.1	-0.83	0.29	4	XX
A7DJER_AL	20.9	-0.99	1.20	19.3	-2.16 *	1.78	4	AK
AVU6DB	24.8	1.32	1.21	24.4	1.65	0.73	4	LA
AVU6DB_AL	24.8	1.31	1.85	25.2	2.19 *	0.62	4	AL
AXHGDF	22.0	-0.35	1.63	22.4	0.15	0.51	4	LP
B9J46D	23.5	0.53	2.72	22.8	0.43	1.29	4	GA
CKQE68_AL	18.6	-2.39 *	1.26	20.3	-1.43	1.53	4	AL
DQPFMD_AL	23.7	0.65	1.20	24.4	1.63	2.33	4	AL
EVJWCC_AL	23.3	0.45	1.50	22.1	-0.11	0.87	4	AL
F2ZRT7	20.9	-0.99	1.95	21.7	-0.41	0.64	4	TP
FAUWL8	22.6	-0.01	1.71	22.3	0.05	0.50	4	LP
FVXHLE_AL	24.3	1.02	1.63	23.9	1.22	0.32	4	AL
GFFCP6	25.4	1.69	2.63	22.9	0.46	3.61	2	GG
GVTKQ9_AL	21.6	-0.58	1.66	22.2	-0.04	0.58	3	AL
GYRYCD	22.5	-0.05	1.90	22.4	0.13	0.24	4	XX
JBV4EB_AL	22.1	-0.29	1.52	22.3	0.06	0.82	3	AL
MLPJT6	23.6	0.59	1.58	21.5	-0.50	2.19	4	LA
MRAJ7W	23.8	0.76	3.23 H	24.0	1.28	1.29	4	LA
MVBMZ4_AL	21.2	-0.86	1.06	21.7	-0.37	0.56	4	AL
P4FEFC	21.4	-0.74	2.26	21.1	-0.80	0.63	4	LA
RM4CWU_AI	21.7	-0.51	2.56	21.0	-0.91	0.80	4	AL
RNW9J4_AL	23.4	0.50	1.52	23.1	0.65	0.32	4	AL
T8L7YZ	23.1	0.32	2.12	21.8	-0.30	0.91	4	LP
U6XUZV	21.1	-0.89	1.10	20.9	-1.02	0.49	4	LP
VKKQEV	22.0	-0.37	0.64 L	21.1	-0.81	0.81	4	LP
WCAPTU_AL	23.0	0.26	1.45	22.8	0.42	0.45	4	XX
WZVRNQ	21.9	-0.44	1.55	21.4	-0.62	0.38	4	LA
Y6WMKV_AI	23.3	0.42	1.20	22.1	-0.07	0.99	3	AL
ZD7CXU	23.7	0.64	0.99	23.3	0.82	0.36	4	LP



Containerboard Interlaboratory Testing Program  
Analysis 237

Report #614 (M)  
November 2020

**Air Resistance, 42 lb Linerboard - 42F**

TAPPI Official Test Method T460

**Consensus (All Labs) Results**

Month Mean	22.58	Grand Mean	22.22
Avg SD	1.89	Avg SD Months	1.18
SD btwn Labs	1.66	SD btwn Labs	1.35
Labs Incl	37	Labs Incl	37

**Key to Instrument Codes Reported by Participants**

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



Containerboard Interlaboratory Testing Program  
Analysis 240

Report #614 (M)  
November 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	
22Q4BT	58.4	58.9	57.3	58.4	58.2	0.04	2.9	0.7	58.3	0.34	3.3	1.3	16	EM
2K3TNQ	58.4	59.4	59.1	57.2	58.5	0.16	3.6	1.0	57.8	0.10	3.9	1.8	16	EN
38WX6N	57.7 L	57.8 L	57.9 L	57.8 L	57.8	-0.14	1.2	0.1 L	57.8	0.12	1.5	0.3 L	16	LD
3CRR3P	56.1	57.0	55.7	56.5	56.3	-0.75	3.5	0.6	57.1	-0.25	3.5	1.7	16	LD
3ERZ7Z	59.0 L	59.4	59.1 L	59.3	59.2	0.44	1.6	0.2 L	59.8	1.03	2.0	0.4 L	16	LD
3KLWVQ	62.1 L	62.1	60.4 L	59.3	61.0	1.17	1.5	1.4	58.7	0.54	1.5	1.9	16	MB
3ZDUXL	59.9	57.4	58.5 H	57.8	58.4	0.11	4.6	1.1	57.9	0.16	3.8	1.5	16	TJ
42ZTNP	59.1	54.3	56.6	56.8	56.7	-0.60	4.1	2.0	57.0	-0.27	3.8	2.3	16	LZ
4BQDUM	54.7	54.7	53.0 *	55.9	54.6	-1.48	3.7	1.2	54.6	-1.41	3.7	1.2	4	LC
4EPPQM	61.1	64.0 *	62.6	62.0 H	62.4	1.77	5.2	1.2	61.9	1.99 *	5.6	1.6	16	LD
4P8AAJ	58.1	58.2	57.8 L	58.2 L	58.1	-0.03	1.5	0.2 L	57.7	0.06	2.4	0.4 L	12	LD
4ULRPF	60.1	55.7	58.2	57.3	57.8	-0.13	2.6	1.8	57.7	0.05	4.0	1.7	16	LZ
73AG3L	57.0	57.8	58.0	58.1	57.7	-0.17	3.2	0.5	57.8	0.11	3.5	0.5 L	16	LC
7WLU8F	56.3	57.8	59.8	56.2	57.5	-0.25	4.1	1.7	57.8	0.09	3.9	1.6	16	LC
8DJEKU	67.5 X	63.1 *	63.0	62.8	64.1	2.46 *	4.1	2.3	62.2	2.16 *	4.1	3.2	8	TX
8PEM6H	59.8	59.8	57.6	56.1	58.3	0.08	2.8	1.8	58.0	0.21	3.1	1.3	14	LD
A7DJER	48.1 X	49.2 X	49.6 X	52.2 *	49.8	-3.46 X	4.0	1.7	52.3	-2.46 *	3.4	2.7	16	LD
APNBJE	58.4 H	58.9	57.2	56.7	57.8	-0.14	5.1	1.0	57.3	-0.14	5.3	1.4	16	TG
AVU6DB	57.8	58.8	60.8	60.0	59.3	0.49	3.9	1.3	57.9	0.16	3.8	1.8	16	LD
B9J46D	55.8	54.9	60.3	57.2	57.1	-0.44	2.8	2.4	57.2	-0.20	3.3	2.0	16	LZ
BQ4U4C	56.3 L	58.9	57.9	59.4	58.1	-0.01	2.4	1.4	57.8	0.11	2.2	1.1	16	LC
DQPFMD	53.2 *	52.5 *	51.7 *	51.8 *	52.3	-2.42 *	4.2	0.7	54.3	-1.52	3.7	2.1	16	LD
F2ZRT7	54.7	54.5 L	56.3	55.5	55.2	-1.20	3.2	0.8	55.3	-1.09	3.5	1.0	15	LD
F6XDF3	59.8	59.3	59.2	59.3	59.4	0.53	3.1	0.3	58.4	0.37	3.5	0.9	16	LD
FMJWDA	57.6	57.4	56.5	57.8	57.3	-0.34	4.1	0.6	57.5	-0.07	3.6	0.7	16	LD
GWMBU3	61.5	57.7	57.8	61.2	59.6	0.59	3.4	2.1	58.0	0.19	3.7	5.2 H	15	LD
JM94B4	59.5	60.1	60.3	61.1	60.3	0.88	3.8	0.7	60.1	1.17	3.6	1.7	16	LD
JR8HW9	57.6	58.2	58.4	57.3	57.9	-0.11	3.7	0.5	57.8	0.07	3.5	0.5 L	16	LD
LFNMWY	54.5	53.6	57.8	56.8	55.7	-1.01	3.6	1.9	53.2	-2.03 *	4.1	2.6	16	MB
MAUA6V	56.1	52.5 *	56.1	55.9	55.1	-1.24	3.4	1.8	55.0	-1.19	3.4	2.2	16	LZ
MRAJ7W	56.0	58.6	59.7	59.6	58.5	0.14	4.4	1.7	56.9	-0.32	4.9	2.9	16	TU
MVBMZ4	59.8	56.8	58.7	55.5	57.7	-0.19	4.3	1.9	57.3	-0.13	3.9	1.6	16	LZ
MVV2Q3	60.4	58.8	59.7	57.1	59.0	0.35	3.1	1.4	58.7	0.50	3.7	1.0	16	LD
N6FRQZ	56.7	58.3	55.7	56.5	56.8	-0.56	4.2	1.1	56.9	-0.32	4.0	2.1	12	TH
PBXKE4	54.3	54.9	54.4	52.1 *	53.9	-1.74	3.4	1.2	55.8	-0.84	3.2	2.2	16	LD



Containerboard Interlaboratory Testing Program  
Analysis 240

Report #614 (M)  
November 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	
PLJNM4	69.5 X	67.0 X	69.1 X	67.9 X	68.4	4.24 X	4.5	1.2	66.0	3.92 X	4.1	1.8	16	LC
PVNV24	60.7	59.4	59.2	59.4	59.7	0.64	2.2	0.7	53.7	-1.81	1.8	9.8 H	12	TU
RNW9J4	59.5	57.3	59.5	56.6	58.2	0.03	3.2	1.5	58.4	0.39	3.7	1.9	16	LC
V2922X	59.1	59.3	59.0	59.2	59.1	0.41	2.4	0.1 L	59.2	0.77	2.9	0.1 L	16	LD
VAMQ2Q	60.4 L	58.8 L	58.6 L	62.1	60.0	0.76	1.6	1.6	59.8	1.01	1.1	1.2	16	XX
VKKQEV	61.0	61.1	62.7	61.2	61.5	1.38	4.8	0.8	61.1	1.64	4.0	1.9	16	LD
WZVRNQ	No DATA	53.2	51.9 *H	52.9	52.7	-2.26 *	6.3	0.7	52.7	-2.28 *	5.3	4.4	12	MB
XC32NL	65.6 X	61.3	64.8 *	64.5 *	64.1	2.44 *	2.9	1.9	59.2	0.76	3.2	3.5	16	LC
XUKZW6	60.0	58.6	58.2	59.6 L	59.1	0.40	2.4	0.9	58.8	0.57	2.3	0.9	16	EN
Z3RETQ	58.8 H	57.1	57.0	57.8	57.7	-0.19	4.4	0.8	58.8	0.57	4.3	1.1	16	LD
Z9E86P	56.7	60.6	59.6	59.8	59.2	0.43	3.6	1.7	59.2	0.74	3.7	2.1	16	LD
ZD7CXU	58.0	58.5	55.5	58.2	57.5	-0.26	2.4	1.4	58.4	0.37	3.0	1.5	16	LD

Consensus (All Labs) Results												
Wk Mean	58.14	57.94	58.20	57.91	Month Mean	58.14		Grand Mean	57.60			
Avg SDr	3.61	3.47	3.43	3.66	Avg SD	3.56		Avg SD	3.59			
SD btwn Labs	2.18	2.59	2.63	2.70	SD btwn Labs	2.42		SD btwn Labs	2.15			
Labs Incl	42	45	45	46	SD btwn Wks	1.32		SD btwn Wks	2.44			
Labs Excl	4	2	2	1	Labs Incl	45		Labs Incl	46			
Labs not Rcvd	1	0	0	0								

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Crush Tester (model not specified)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program  
Analysis 250

Report #614 (M)  
November 2020

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

TAPPI Official Test Method T843

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
2K3TNQ	71.9	69.1	71.9	69.7	70.6	1.05	3.0	1.4	68.5	-0.34	3.6	2.9	16	XX
38WX6N	69.6	69.5 L	69.5	69.5 L	69.5	0.43	1.5	0.0 L	68.9	0.00	1.6	0.4 L	16	LD
3AZTNQ	57.8 X	57.5 X	58.2 X	56.5 X	57.5	-6.11 X	3.7	0.8	56.9	-9.28 X	4.6	1.3	16	LD
3KLWVQ	63.7 *	65.4 L	64.6	65.8	64.9	-2.08 *	1.6	0.9	65.9	-2.33 *	1.6	0.9	16	MB
4P8AAJ	68.5	69.0	68.9	69.0 L	68.9	0.07	1.6	0.2 L	68.6	-0.25	2.4	0.4 L	12	LD
4ULRPF	65.7	65.0	67.5	69.5	66.9	-0.99	3.4	2.0	68.7	-0.20	3.7	1.9	16	LZ
73AG3L	68.7	69.7	68.3	68.5	68.8	0.05	3.7	0.6	68.4	-0.40	3.9	0.6	16	LD
7WLU8F	69.4	74.7 X	70.3	71.9	71.6	1.57	2.5	2.3	71.1	1.70	2.8	2.2	16	LC
8PEM6H	72.6	68.9	74.5 *	70.1 H	71.5	1.53	4.4	2.5	71.2	1.77	3.8	1.6	14	LD
8X8Z2B	68.9	68.7	69.7	67.5	68.7	-0.01	2.6	0.9	68.5	-0.30	3.0	0.9	16	LD
A7DJER	68.1	68.7 H	64.2	67.3	67.1	-0.89	4.6	2.0	70.2	1.01	3.7	3.1	16	LD
AVU6DB	69.0	65.2	67.8	70.5	68.1	-0.33	3.9	2.2	68.1	-0.62	4.0	1.8	16	LD
DQPFMD	67.6	67.2	68.6	68.7	68.0	-0.39	3.5	0.7	68.6	-0.23	3.3	1.2	16	LD
F2ZRT7	71.6	69.9	67.9	68.0	69.3	0.34	4.0	1.8	70.2	1.02	3.6	1.5	15	LD
F6XDF3	68.4	66.8	73.1	72.0	70.1	0.74	2.6	3.0	70.1	0.93	2.5	1.9	12	LD
GYRYCD	64.6	69.1	69.0	68.8	67.9	-0.45	2.1	2.2	67.6	-1.00	2.2	1.3	16	LZ
MVBMZ4	68.2	68.6	67.0 H	65.5	67.3	-0.76	4.1	1.4	68.3	-0.50	3.8	1.9	16	LZ
RNW9J4	72.3 H	72.7 *	71.9	71.8	72.2	1.88	3.8	0.4	70.4	1.17	4.0	2.1	15	LC
VAMQ2Q	66.9 L	65.3 L	70.2 L	63.8 *L	66.5	-1.18	1.2	2.7	68.9	-0.03	0.8	2.3	16	XX
VKKQEV	70.6	67.9	67.5	67.2	68.3	-0.24	3.0	1.6	68.4	-0.43	3.7	1.3	16	LD
ZD7CXU	66.5	67.4	67.3	71.2	68.1	-0.35	3.2	2.1	67.7	-0.97	3.5	1.9	16	LD

Consensus (All Labs) Results													
Wk Mean	68.63	68.10	68.98	68.82	Month Mean	68.72	Grand Mean	68.92					
Avg SDr	3.06	3.38	2.84	3.43	Avg SD	3.18	Avg SD	3.22					
SD btwn Labs	2.43	1.97	2.56	2.22	SD btwn Labs	1.84	SD btwn Labs	1.29					
Labs Incd	20	19	20	20	SD btwn Wks	1.77	SD btwn Wks	1.76					
Labs Exclcd	1	2	1	1	Labs Incd	20	Labs Incd	20					
Labs not Rcvd	0	0	0	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 #614 (M)**  
**November 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	
22Q4BT	46.7	45.5 H	48.5	47.9	47.1	1.29	4.4	1.3	45.4	0.68	3.5	1.7	16	EM
3ERZ7Z	44.2 L	44.1 L	44.2	44.2 L	44.2	0.37	1.4	0.0 L	43.8	0.15	1.9	0.6 L	16	LD
3KLWVQ	40.2	40.4	40.8 L	40.5 L	40.5	-0.80	1.6	0.2 L	41.4	-0.63	1.6	1.1	8	MB
4EPPQM	46.0	44.4	44.8	42.3	44.4	0.43	3.5	1.5	43.7	0.13	3.7	3.9	16	LD
4P8AAJ	44.8	43.5	44.0	43.9	44.1	0.33	3.3	0.5	44.1	0.24	3.0	0.5 L	12	LD
6UW92K	42.1	41.7	39.1	43.1	41.5	-0.47	3.8	1.7	40.4	-0.97	2.8	4.8	16	LZ
7WLU8F	45.1	43.1	45.2	47.3	45.2	0.68	2.7	1.7	45.1	0.58	2.9	2.0	16	LC
8DJEKU	42.1	40.4	44.2	41.3	42.0	-0.32	3.6	1.6	40.1	-1.07	3.5	2.5	16	LD
AJNWWR	44.5	42.5	37.6	42.3	41.7	-0.40	4.2	2.9	43.2	-0.06	3.8	2.5	16	LZ
AXHGDF	43.3	43.7	43.4	44.2	43.7	0.21	3.6	0.4	44.2	0.28	3.5	1.4	16	XX
B9J46D	41.0	41.9	42.5	43.2	42.2	-0.26	2.7	1.0	43.0	-0.10	3.0	1.2	16	LD
BQ4U4C	48.3 *L	47.6	51.7 *H	47.6	48.8	1.81	5.2	2.0	47.6	1.41	4.2	2.1	16	LC
DQPFMD	42.4	42.2	41.3	41.4	41.8	-0.37	3.7	0.6	41.7	-0.53	3.4	0.9	16	LD
F2ZRT7	43.6	44.8	46.6	47.5	45.6	0.81	2.8	1.8	45.7	0.78	3.3	1.0	15	LD
FMJWDA	43.0	43.5	43.1	43.2	43.2	0.05	2.5	0.2 L	43.8	0.17	2.2	0.7 L	16	LC
GWMBU3	45.9	45.3	46.7	46.1	46.0	0.94	3.2	0.6	46.3	0.97	3.2	3.1	16	LZ
N6FRQZ	33.7 X	35.1 *	37.3	33.8 *	35.0	-2.51 *	2.6	1.7	35.6	-2.54 *	2.9	1.6	12	TH
P82VXW	44.1	42.2	43.1	44.5	43.5	0.15	3.3	1.0	43.2	-0.05	2.8	1.9	16	TH
PBXKE4	44.7	44.0	44.6	45.5	44.7	0.53	4.0	0.6	45.5	0.71	3.5	1.4	16	LD
PLJNM4	34.9 X	36.6 *H	36.2 *H	35.5 *H	35.8	-2.25 *	6.5	0.7	36.3	-2.31 *	5.7	1.5	16	XX
PQEHK6	40.2	34.5 *H	39.8	38.3	38.2	-1.50	5.6	2.6	40.3	-1.01	5.6	2.0	16	TX
PVNV24	40.1	41.2	39.7 L	40.9	40.5	-0.79	2.1	0.7	47.7	1.44	1.7	10.2 H	12	TU
V2922X	43.8	43.9	44.0	44.0	43.9	0.29	2.2	0.1 L	43.6	0.09	2.1	0.3 L	16	LD
VKKQEV	42.0	42.3	44.2	47.0	43.9	0.27	2.7	2.3	44.5	0.38	3.1	1.3	16	LD
WZVRNQ	No DATA	43.7	47.7	49.2	46.8	1.20	4.4	2.9	47.7	1.43	3.6	6.3 H	15	MB
ZD7CXU	45.0	43.2	45.6	41.9	43.9	0.29	3.5	1.7	42.8	-0.19	3.3	1.6	16	LD

Consensus (All Labs) Results													
Wk Mean	43.61	42.35	43.30	43.32	Month Mean	43.00			Grand Mean	43.33			
Avg SDr	3.31	3.51	4.03	3.49	Avg SD	3.62			Avg SD	3.35			
SD btwn Labs	2.15	3.03	3.63	3.69	SD btwn Labs	3.20			SD btwn Labs	3.04			
Labs Incl	23	26	26	26	SD btwn Wks	1.50			SD btwn Wks	3.04			
Labs Excl	2	0	0	0	Labs Incl	26			Labs Incl	26			
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 #614 (M)**  
**November 2020**

**Key to Instrument Codes Reported by Participants**

<b>EM</b>	Emerson 1200 Series	<b>LC</b>	L&W Crush Tester 48
<b>LD</b>	L&W Crush Tester 248	<b>LZ</b>	L&W Crush Tester (model not specified)
<b>MB</b>	Messmer Buchel K440	<b>TH</b>	TMI Compression Tester, Model 17-76
<b>TU</b>	TMI Universal Crush Tester (TMI K440)	<b>TX</b>	TMI Digital Crush Tester (model not specified)
<b>XX</b>	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

Analysis 261

Report #614 (M)

November 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	
38WX6N	13.7 L	13.8 L	13.7 L	13.6 L	13.7	-0.43	0.4	0.1	13.7	-0.23	0.4	0.1 L	16	LA
3C8BMM	13.6	13.9	13.9	14.6	14.0	0.20	0.9	0.4	13.7	-0.26	1.1	0.4	16	LA
3CRR3P	13.1	13.5	13.5	13.7	13.5	-0.96	1.1	0.3	13.5	-0.72	1.1	0.4	16	LU
3ZDUXL	14.1	14.2	14.2	13.9	14.1	0.48	1.0	0.1	13.6	-0.33	1.0	0.4	16	TT
4P8AAJ	13.7	13.9	13.9	13.8	13.8	-0.16	1.1	0.1	13.7	-0.21	1.2	0.2	12	LB
6UW92K	13.6	13.8	13.1	13.0 *	13.4	-1.17	1.2	0.4	13.3	-1.25	1.3	0.7	16	LA
73AG3L	13.7 L	13.6	13.1	14.1	13.6	-0.56	0.9	0.4	13.6	-0.43	0.8	0.4	16	LB
7WLU8F	13.5	13.9	13.7	13.6	13.7	-0.49	1.1	0.2	13.5	-0.71	1.0	0.3	16	LU
A7DJER	13.9	13.9	14.9	14.2	14.2	0.76	1.2	0.5	14.3	1.81	1.1	0.5	16	LA
AJNWWR	14.0	13.8	13.2 L	13.4	13.6	-0.61	0.9	0.3	13.8	0.19	1.1	0.5	16	LA
AVU6DB	13.6 H	14.2	14.2	14.4	14.1	0.46	2.0	0.4	14.0	0.78	1.3	0.5	16	LA
B9J46D	13.5	13.6	13.6	13.6	13.6	-0.68	1.0	0.0 L	13.6	-0.41	1.0	0.4	16	LZ
DQPFMD	13.3	14.2	13.9	13.9	13.8	-0.15	1.2	0.4	14.1	1.22	1.2	0.6	16	LA
F2ZRT7	12.9	14.1 H	13.7	13.6	13.6	-0.70	1.3	0.5	13.5	-0.87	1.0	0.7	15	LB
FMJWDA	13.9	14.1	14.0	14.2	14.1	0.44	1.1	0.1	14.1	1.08	1.0	0.4	16	LH
JR8HW9	14.4	13.3	13.8	13.5	13.7	-0.34	0.8	0.5	13.7	-0.15	0.9	0.4	16	LB
LFNMWY	13.1	13.8	13.5	13.3	13.4	-1.04	1.2	0.3	13.5	-0.88	1.2	0.5	16	LA
MRAJ7W	13.9	13.2	13.9 L	13.8 H	13.7	-0.43	1.3	0.3	14.0	0.89	1.2	0.7	16	LA
MVV2Q3	14.6 *	15.1 *	15.0	13.9	14.7	1.72	1.1	0.5	14.4	1.87	1.1	0.5	16	LH
PQEHK6	12.5 *	12.0 X	12.4 *	12.3 X	12.3	-3.54 X	0.9	0.2	12.2	-4.53 X	1.0	0.2	16	TT
VAMQ2Q	14.4	14.6	14.9	15.2 XL	14.8	1.98 *	1.2	0.4	13.1	-2.00 *	1.1	1.9 H	16	XX
WZVRNQ	15.5 X	14.8	15.2 *	14.5	15.0	2.52 *	1.2	0.5	15.2	4.29 X	1.2	3.0 H	14	LA
XUKZW6	13.8	13.6	12.9	13.7	13.5	-0.86	0.9	0.4	13.9	0.59	0.9	0.5	16	LH

Consensus (All Labs) Results														
Wk Mean	13.67	13.95	13.83	13.82	Month Mean	13.88			Grand Mean	13.74				
Avg SDr	1.30	1.06	1.07	1.07	Avg SD	1.13			Avg SD	1.07				
SD btwn Labs	0.50	0.46	0.70	0.40	SD btwn Labs	0.45			SD btwn Labs	0.33				
Labs Incl	22	22	23	21	SD btwn Wks	0.35			SD btwn Wks	0.62				
Labs Excl	1	1	0	2	Labs Incl	22			Labs Incl	21				
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 #614 (M)**  
**November 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)
XX	Instrument make/model not specified by lab		