

## Containerboard Interlaboratory Testing Program

Participant Summary Report #631 (D) - April 2022

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<a href="#"><u>215</u></a>	<a href="#"><u>42H1</u></a>	<a href="#"><u>Ring Crush, 42 lb Linerboard</u></a>
<a href="#"><u>217</u></a>	<a href="#"><u>35E2</u></a>	<a href="#"><u>Ring Crush, 35 lb Linerboard</u></a>
<a href="#"><u>223</u></a>	<a href="#"><u>42H1</u></a>	<a href="#"><u>STFI, 42 lb Linerboard</u></a>
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<a href="#"><u>228</u></a>	<a href="#"><u>42H</u></a>	<a href="#"><u>Roughness - Stylus Method, 42 lb Linerboard</u></a>
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<a href="#"><u>240</u></a>	<a href="#"><u>CM12</u></a>	<a href="#"><u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u></a>
<a href="#"><u>250</u></a>	<a href="#"><u>CM12</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>CM12</u></a>	<a href="#"><u>Ring Crush (RCT), 26 lb Corrugating Medium</u></a>
<a href="#"><u>261</u></a>	<a href="#"><u>CM12</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; 35 lb. and 56 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

Please refer to the section, "EXPLANATION OF TABLES", for definitions of terms and guidelines to interpreting the results.

### USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

The samples of linerboard and corrugating medium, which have been randomized and placed in sealed packages for distribution in this program, may be used as collaborative reference materials. The values most representative of each material are the Cumulative Grand Means in the latest reports, given at the bottom right of each table. Comparisons can only be made within one lot of material; therefore check your measurements against the Cumulative Grand Means with the same lot code as on the packages being tested.

<b>Material</b>	<b>Lot Code</b>	<b>Dates in Use</b>
26# Corrugating Medium	CM12	July 2021 - Current
	CM11	April 2019 - June 2021
35# Corrugating Medium	35E2	June 2020 - Current
	35E1	June 2017 - April 2020
42# Corrugating Medium	42F4	August 2021 - Current
	42F3	November 2020 - July 2021
56# Corrugating Medium	56G2	May 2021 - Current
	56G1	January 2020 - March 2021

### ABOUT CTS

Founded in 1971, Collaborative Testing Services, Inc. (CTS) is a privately-owned company that specializes in interlaboratory tests for a wide variety of industries, including rubber, plastics, fasteners and metals, containerboard, paper, color, and wine, as well as proficiency tests for forensic laboratories. All of the tests are designed to assist organizations in achieving and maintaining quality control objectives. Labs from the U.S., as well as more than 80 countries, currently participate in the CTS programs.

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## EXPLANATION OF TABLES

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

### Definitions of Terms Used

#### Weekly Results

##### Laboratory Data

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

##### Consensus Data

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

#### Monthly Results

##### Laboratory Data

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

##### Consensus Data

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

## Cumulative Results

### Laboratory Data

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

### Consensus Data

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

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

<u>Flag</u>	<u>Explanation</u>
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Data Flags "X" and "\*" indicate a laboratory's performance on an average value differed from the consensus.

Data Flags "H" and "L" indicate a laboratory's performance on a standard deviation differed from the consensus.

Flags assigned to Weekly Means, Monthly Mean and Cumulative Mean:

- X Excluded from the weekly means, monthly means and/or the cumulative mean. Immediate review of data and/or testing procedure is recommended.
- \* Included in the weekly means, monthly means and/or the cumulative mean; however, lab should review testing procedure and monitor future results.

Flags assigned to Weekly Means:

- H Indicates high within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory average SD and consensus average SD values are shown.
- L Indicates low within-laboratory standard deviation. The laboratory SD for each week is not shown, but laboratory monthly average SD and consensus average SD values are shown.

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

- H Indicates high variability between weekly means (high week-to-week variation).
- L Indicates low variability between weekly means (low week-to-week variation).



Containerboard Interlaboratory Testing Program  
Analysis 201

Report #631 (D)  
April 2022

Top to Bottom Box Compression Strength, Corrugated Boxes - BX16

TAPPI Official Test Method T804

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3WVVUY	667.7	-0.22	86.66	657.2	-0.43	28.22	4	EX
49KCYQ	652.8	-0.51	30.85	643.0	-0.69	51.81	4	EX
4UL9UZ	790.0	2.12 *	60.64	794.3	2.06 *	24.39	4	LS
7BJAHH	647.8	-0.61	38.38	636.9	-0.80	23.64	4	ES
8B63YL	693.6	0.27	70.79	690.2	0.17	43.11	4	LM
CRCXB3	698.1	0.36	13.53	730.0	0.89	95.86 H	4	LG
DUCMT3	669.2	-0.20	35.97	675.9	-0.09	40.35	4	EX
FBAK93	630.2	-0.94	35.34	633.6	-0.86	20.02	4	LG
FF4HYE	669.7	-0.19	24.27	672.7	-0.15	9.86	4	ER
FU9M78	792.5	2.16 *	13.41	720.8	0.72	60.94	4	LS
KNMC3D	770.2	1.74	54.76	771.0	1.63	48.76	4	EX
LGFCX2	645.2	-0.66	52.41	631.2	-0.90	26.61	4	LL
M3VAV4	642.6	-0.70	17.88	656.3	-0.45	18.63	4	LM
MZNPCA	633.2	-0.88	19.59	649.8	-0.57	57.14	4	ER
N3938X	880.0	3.84 X	17.49	804.7	2.25 *	96.55 H	4	EM
QLBRCQ	701.1	0.41	107.03 H	688.8	0.14	28.77	4	ET
RYEBRW	624.8	-1.05	45.38	621.8	-1.07	29.25	4	ER
TU7A9E	681.5	0.04	55.29	702.0	0.38	28.69	4	TE
UH497U	668.6	-0.21	10.95 L	664.0	-0.31	26.35	4	ER
ULKTVV	584.4	-1.82	31.25	563.7	-2.13 *	14.41	4	LL
VG8FLV	696.3	0.32	30.68	707.6	0.48	29.40	4	LO
VMWTP4	746.2	1.28	30.86	701.3	0.37	63.50	2	LG
XP9EC8	722.1	0.82	80.74	735.9	1.00	52.64	4	TB
YBBRJK	680.6	0.02	46.98	662.5	-0.33	13.28	4	LG
YGDWB6	647.3	-0.61	25.94	637.6	-0.79	13.28	4	LL
YXZGMH	630.4	-0.94	32.35	651.9	-0.53	23.78	4	LS

Consensus (All Labs) Results

Month Mean	679.44	Grand Mean	680.93
Avg SD	48.40	Avg SD Months	43.65
SD btwn Labs	52.26	SD btwn Labs	55.10
Labs Incl	25	Labs Incl	26

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	700.03	58.60	20.59	8
Clip sealing	669.75	47.77	9.69	17



Containerboard Interlaboratory Testing Program  
Analysis 201  
**Top to Bottom Box Compression Strength, Corrugated Boxes - BX16**  
TAPPI Official Test Method T804

**Report #631 (D)**  
**April 2022**

**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	TE	Testometric M500 - 25 KN



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

**Report #631 (D)**  
**April 2022**

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3WVVUY	40.3	1.05	1.45		41.1	1.71	0.66	4	LC
DUCMT3	40.5	1.13	1.64		39.3	0.52	1.37	4	LC
FFJ2JC	47.2	4.96 <b>X</b>	2.67		46.4	5.18 <b>X</b>	1.20	4	XX
G9ZYT2	36.1	-1.34	0.46	<b>L</b>	36.5	-1.30	0.39	4	TD
RYEBRW	36.2	-1.28	3.49	<b>H</b>	38.6	0.03	1.87	4	EN
VVRVUZ	150.9	63.57 <b>X</b>	6.42	<b>H</b>	150.9	73.71 <b>X</b>	0.00	1	LD
WEVZRU	39.1	0.38	1.71		38.8	0.18	0.40	4	LD
YBBRJK	38.8	0.17	1.14		38.4	-0.10	0.43	4	LE
YXZGMH	38.2	-0.12	1.50		36.9	-1.04	1.72	4	LD

Consensus (All Labs) Results			
Month Mean		38.44	
Avg SD		1.84	
SD btwn Labs		1.77	
Labs Incd		7	
Grand Mean			38.52
Avg SD Months			1.15
SD btwn Labs			1.52
Labs Incd			7

**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
TD	TMI Digital Crush Tester, Model 17-09	XX	Instrument make/model not specified by lab



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

**Report #631 (D)**  
**April 2022**

WebCode	Monthly Results				Cumulative Results					
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst	
3WVVUY	43.6	0.51	1.31		43.7	0.67	0.88	4	LC	
49KCYQ	37.9	-1.52	3.42	H	39.1	-0.84	1.37	4	LD	
4UL9UZ	48.8	2.38 *	1.81		48.6	2.25 *	0.46	4	EM	
7BJAHH	41.4	-0.27	1.03		41.6	-0.02	0.49	4	LD	
8B63YL	44.0	0.67	2.23		43.6	0.63	1.17	4	TG	
8G8C4T	42.8	0.23	2.36		43.7	0.64	1.01	4	TG	
AHCJJQ	43.4	0.44	0.57	L	42.3	0.19	0.82	4	LC	
BRX62U	42.9	0.28	1.67		43.1	0.47	1.03	4	LD	
CB7NDN	35.1	-2.52 *	1.42		34.0	-2.51 *	1.03	4	TK	
CRCXB3	48.1	2.11 *	1.25		46.6	1.60	1.14	4	MK	
DUCMT3	42.3	0.06	1.33		41.0	-0.22	1.07	4	LC	
FF4HYE	42.1	-0.01	2.56		40.0	-0.57	2.48	H	4	LD
FFJ2JC	46.2	1.45	2.27		45.6	1.27	0.89	4	XX	
G9ZYT2	39.7	-0.87	1.14		39.2	-0.82	0.58	4	BU	
HU29UH	38.4	-1.33	1.44		36.6	-1.67	2.56	2	XX	
K4ZK3H	43.4	0.44	1.86		43.1	0.45	0.44	4	LD	
K97JCL	40.1	-0.72	1.19		39.6	-0.68	0.47	4	EM	
KNMC3D	44.0	0.68	2.13		43.8	0.70	0.60	4	CT	
M3VAV4	39.3	-1.03	1.17		39.7	-0.64	0.60	4	EM	
MZNPCA	40.9	-0.45	1.36		41.6	-0.04	0.68	3	EM	
N3938X	40.0	-0.76	2.21		40.2	-0.48	1.05	4	TH	
NAAGRY	37.5	-1.67	2.07		37.1	-1.50	0.48	3	BU	
NWKB4B	43.7	0.54	2.13		42.3	0.19	1.18	3	TL	
PZYF8X	44.9	0.98	1.36		43.4	0.57	1.45	4	TS	
Q4TVWX	43.7	0.54	2.03		44.6	0.96	0.88	4	TU	
QLBRCQ	44.8	0.94	1.16		44.1	0.78	0.68	4	TD	
QUTYGA	31.5	-3.81 X	2.78	H	34.0	-2.52 *	3.43	H	4	TD
RYEBRW	40.8	-0.48	2.12		41.9	0.08	1.18	4	EN	
UH497U	40.5	-0.58	1.27		40.9	-0.28	0.65	4	LD	
ULKTVV	41.1	-0.38	1.50		40.7	-0.34	0.68	4	LC	
VG8FLV	40.3	-0.68	1.29		40.2	-0.49	0.85	4	LD	
VMWTP4	41.6	-0.19	1.98		41.2	-0.17	0.63	2	EM	
WEVZRU	42.0	-0.05	1.77		42.0	0.10	0.62	4	LD	
XP9EC8	45.2	1.07	0.66	L	46.1	1.46	2.18	4	LD	
YBBRJK	42.1	-0.02	2.21		41.9	0.07	1.14	4	LY	
YGDWB6	41.7	-0.16	1.06		41.9	0.07	0.33	4	BU	
YXZGMH	40.9	-0.45	0.81		41.4	-0.10	0.46	4	LD	
ZKRTG7	44.5	0.84	1.18		43.9	0.73	0.97	4	LC	





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

**Report #631 (D)**  
**April 2022**

Consensus (All Labs) Results			
Month Mean	42.15	Grand Mean	41.70
Avg SD	1.73	Avg SD Months	1.20
SD btwn Labs	2.80	SD btwn Labs	3.05
Labs Incl	37	Labs Incl	38

**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>MK</b>	Mark-10 ESM303
<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>TK</b>	TLS Compression Tester, Model 5184
<b>TL</b>	Tech-Lab Systems Compression	<b>TS</b>	TMI Digital Crush Tester, Model 17-56
<b>TU</b>	TMI Universal Crush Tester (TMI K440)	<b>XX</b>	Instrument make/model not specified by lab



**Containerboard Interlaboratory Testing Program**  
 Analysis 205  
**Bursting Strength (Mullen), 42 lb Linerboard - 42H1**  
 TAPPI Official Test Method T807

**Report #631 (D)**  
**April 2022**

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	
39Q86R	110.1 L	110.3	110.8	111.3	110.6	-1.24	5.1	0.5	110.6	-1.24	5.1	0.5	4	LJ
3WVVUY	111.5	107.4	111.4	110.0	110.1	-1.36	8.8	1.9	110.1	-1.36	8.8	1.9	4	AH
49KCYQ	120.0	121.2	119.6	116.8	119.4	0.54	7.6	1.9	119.4	0.54	7.6	1.9	4	AH
4QPPQF	109.0	111.1	107.6	113.5	110.3	-1.31	10.3	2.6	110.3	-1.31	10.3	2.6	4	ME
4TQWQK_AL	109.5	107.8	113.6	112.7	110.9	-1.19	8.5	2.7	110.9	-1.19	8.5	2.7	4	AL
6EPH6G	118.1	116.9	122.0	No DATA	119.0	0.46	6.4	2.7	119.0	0.46	6.4	2.7	3	AC
6FXKZR_AL	114.7	120.2	116.0	121.6	118.1	0.28	10.4	3.3	118.1	0.28	10.4	3.3	4	AL
6P8UMK	113.2	112.6 H	110.6	113.6	112.5	-0.87	11.8	1.3	112.5	-0.87	11.8	1.3	4	LC
7BJAHH	112.1	108.1	119.4	118.5	114.5	-0.45	6.5	5.4	114.5	-0.45	6.5	5.4	4	LA
7R9HH2	113.2	108.9	114.3	110.1	111.6	-1.04	7.9	2.5	111.6	-1.04	7.9	2.5	4	AH
8E4JAU_AL	122.5	120.2	124.5	115.1	120.6	0.78	8.4	4.1	120.6	0.78	8.4	4.1	4	AL
8M8V2H_AL	116.0	115.9	109.2	113.6	113.7	-0.62	7.0	3.2	113.7	-0.62	7.0	3.2	4	XX
94W29C	118.4	113.0	120.3 H	120.3	118.0	0.25	12.4	3.5	118.0	0.25	12.4	3.5	4	LB
98WC6C	117.6	114.0	115.5	120.4	116.9	0.03	6.7	2.8	116.9	0.03	6.7	2.8	4	LC
9WFQXW	116.5	113.4	121.3	112.8	116.0	-0.15	9.8	3.9	116.0	-0.15	9.8	3.9	4	LC
AM6NCV	113.9	114.6 L	114.2 L	113.8 L	114.1	-0.53	3.7	0.4 L	114.1	-0.53	3.7	0.4 L	4	LA
CVUDKV	111.2	111.9	108.3	109.7	110.3	-1.32	7.5	1.6	110.3	-1.32	7.5	1.6	4	TP
DXVF9B	122.6	115.0	120.0	120.0	119.4	0.54	6.2	3.2	119.4	0.54	6.2	3.2	4	AH
EDJDMB	118.1	119.4	118.1	116.0	117.9	0.24	11.0	1.4	117.9	0.24	11.0	1.4	4	TB
EPVHYD	125.0	120.6	111.3	115.6	118.1	0.28	8.7	5.9	118.1	0.28	8.7	5.9	4	LA
EPVHYD_AL	119.1 L	117.4	119.7	120.7	119.2	0.50	5.6	1.4	119.2	0.50	5.6	1.4	4	AL
EVZEHD_AL	122.1	119.4	118.7	115.6	119.0	0.45	7.0	2.7	119.0	0.45	7.0	2.7	4	AL
F8B4ZF	113.7	111.3	109.9	113.0	112.0	-0.97	8.5	1.7	112.0	-0.97	8.5	1.7	4	XX
F96THB_AL	115.4	115.1	111.1	121.2	115.7	-0.21	9.4	4.2	115.7	-0.21	9.4	4.2	4	AL
FF4HYE	117.1	111.7	107.3	116.1	113.1	-0.75	9.5	4.5	113.1	-0.75	9.5	4.5	4	LZ
FFJ2JC	116.6	116.9	No DATA	No DATA	116.7	0.00	7.2	0.2	116.7	0.00	7.2	0.2	2	LC
FPU36D	122.5	117.5	115.6	121.5	119.3	0.51	9.2	3.3	119.3	0.51	9.2	3.3	4	LA
G9ZYT2	111.7	110.0 H	111.6	109.7	110.8	-1.22	12.8	1.0	110.8	-1.22	12.8	1.0	4	XX
H8MMXH_AI	114.8	118.4	117.3 H	116.1	116.6	-0.02	12.9	1.5	116.6	-0.02	12.9	1.5	4	AL
H9EL8A	121.3	119.4	121.8	118.1	120.2	0.70	9.5	1.7	120.2	0.70	9.5	1.7	4	LA
JK7PTE	117.1	117.2	115.7	113.6	115.9	-0.17	6.1	1.7	115.9	-0.17	6.1	1.7	4	XX
JN9QTC	115.8	No DATA	118.4	119.4	117.9	0.23	5.4	1.9	117.9	0.23	5.4	1.9	3	AX
JN9QTC_AL	113.9	No DATA	125.5	114.5	118.0	0.25	7.8	6.5 H	118.0	0.25	7.8	6.5 H	3	AL
K4ZK3H_AL	123.6	120.5	119.4	125.0	122.1	1.09	6.7	2.6	122.1	1.09	6.7	2.6	4	AK
KNMC3D	122.0 L	116.0	117.5	111.5	116.8	0.00	7.8	4.3	116.8	0.00	7.8	4.3	4	XX



**Containerboard Interlaboratory Testing Program**  
 Analysis 205  
**Bursting Strength (Mullen), 42 lb Linerboard - 42H1**  
 TAPPI Official Test Method T807

**Report #631 (D)**  
**April 2022**

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	
KV7KM4	110.6	106.9	111.2	115.0	110.9	-1.18	6.5	3.3	110.9	-1.18	6.5	3.3	4	LC
LECGEY	99.0 X	108.2	112.0	109.4	107.2	-1.95 *	5.8	5.7	107.2	-1.95 *	5.8	5.7	4	XX
LU8UVF	121.6 L	121.6 L	121.4 L	122.6 L	121.8	1.03	2.1	0.5	121.8	1.03	2.1	0.5	4	LA
M47U3R_AL	126.6	131.0 *	127.2 *	120.2	126.2	1.93	9.4	4.5	126.2	1.93	9.4	4.5	4	AK
MTA337	121.7	126.5 H	121.8	123.8	123.4	1.36	12.0	2.2	123.4	1.36	12.0	2.2	4	LJ
NGV6VG	136.6 XL	136.1 XL	136.2 XL	136.7 XL	136.4	4.00 X	2.9	0.3 L	136.4	4.00 X	2.9	0.3 L	4	AH
PNMAVV	130.7 *	129.0 *	125.4	130.0 *	128.8	2.45 *	10.1	2.4	128.8	2.45 *	10.1	2.4	4	XX
PW3P8E	130.1 *	124.8	126.7	128.4 *	127.5	2.19 *	7.1	2.3	127.5	2.19 *	7.1	2.3	4	AX
R3KWJ4	120.8	126.3	118.7 H	127.0	123.2	1.31	10.6	4.1	123.2	1.31	10.6	4.1	4	RE
RZAUTX_AL	119.3	120.1	No DATA	No DATA	119.7	0.60	10.2	0.6	119.7	0.60	10.2	0.6	2	AL
T4LGMU	129.2 *	124.2	117.8	No DATA	123.7	1.42	8.9	5.7	123.7	1.42	8.9	5.7	3	AH
T4LGMU_AL	118.3	No DATA	No DATA	No DATA	118.3	0.32	12.8	0.0	118.3	0.32	12.8	0.0	1	AL
T8M88M	108.1	112.1	111.5	108.5	110.1	-1.36	9.2	2.1	110.1	-1.36	9.2	2.1	4	LC
TMJKN4_AL	119.0	115.5	119.1	116.9	117.6	0.18	7.2	1.7	117.6	0.18	7.2	1.7	4	AL
TQHVJ4_AL	116.5	115.7	119.9	No DATA	117.4	0.12	9.8	2.2	117.4	0.12	9.8	2.2	3	AL
TRCJ3Z_AL	120.5	114.2	121.9	121.5	119.5	0.56	8.5	3.6	119.5	0.56	8.5	3.6	4	AL
UH497U	119.7	116.0	121.2	123.0	120.0	0.66	10.1	3.0	120.0	0.66	10.1	3.0	4	AH
UVAQDM	113.4	110.6	106.2 *	112.1	110.6	-1.26	10.3	3.1	110.6	-1.26	10.3	3.1	4	LA
VQWY8V	117.4	112.1	118.7	116.5	116.1	-0.12	9.2	2.9	116.1	-0.12	9.2	2.9	4	LA
VVRVUZ	102.4 *	106.4	109.6	104.3 *	105.7	-2.26 *	8.9	3.1	105.7	-2.26 *	8.9	3.1	4	LA
W274QV	120.3	114.2	114.4	114.4	115.8	-0.18	10.6	3.0	115.8	-0.18	10.6	3.0	4	LZ
W98FMT_AL	113.5	115.3	115.4	116.3	115.1	-0.33	11.1	1.2	115.1	-0.33	11.1	1.2	4	AL
WEVZRU	112.5	112.6 L	112.1	109.6	111.7	-1.03	5.0	1.4	111.7	-1.03	5.0	1.4	4	LA
X7YHVW	127.9	120.9	124.6	128.6 *	125.5	1.78	11.0	3.5	125.5	1.78	11.0	3.5	4	LC
YBBRJK	113.9	116.2	115.4	117.6	115.8	-0.20	6.2	1.5	115.8	-0.20	6.2	1.5	4	AH
YXZGMH	122.2	117.1	113.6	119.8	118.2	0.30	9.6	3.7	118.2	0.30	9.6	3.7	4	LA

Consensus (All Labs) Results														
Wk Mean	117.56	115.98	116.55	116.79	Month Mean	116.75			Grand Mean	116.75				
Avg SDr	8.64	8.82	8.86	8.90	Avg SD	8.84			Avg SD	8.84				
SD btwn Labs	5.67	5.56	5.31	5.56	SD btwn Labs	4.91			SD btwn Labs	4.91				
Labs Incl	59	57	57	54	SD btwn Wks	3.08			SD btwn Wks	3.08				
Labs Excl	2	1	1	1	Labs Incl	60			Labs Incl	60				
Labs not Rcvd	0	3	3	6										



Containerboard Interlaboratory Testing Program  
Analysis 205  
**Bursting Strength (Mullen), 42 lb Linerboard - 42H1**  
TAPPI Official Test Method T807

**Report #631 (D)**  
**April 2022**

**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>ME</b>	Messmer Automatic Burst Tester ME-06	<b>RE</b>	Regmed/Mullen Tester
<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 207  
**Bursting Strength (Mullen), 35 lb Linerboard - 35E2**  
 TAPPI Official Test Method T807

**Report #631 (D)**  
**April 2022**

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	
39Q86R	91.0	91.3	91.2	91.1	91.1	-0.35	5.1	0.1 L	91.5	-0.52	5.7	0.3 L	12	LJ
3WVVUY	88.0	89.6	87.7	89.8	88.8	-0.99	8.8	1.1	91.8	-0.38	8.6	3.6	12	AH
49KCYQ	98.8	94.4	94.4	96.0	95.9	0.95	7.7	2.1	93.6	0.33	8.3	3.3	12	AH
4QPPQF	95.6	91.7	88.9	93.9	92.5	0.03	8.5	2.9	91.3	-0.57	7.0	3.1	12	ME
4TQWQK_AL	92.6	93.5	92.3	93.9 L	93.1	0.18	4.1	0.7	92.2	-0.23	5.0	1.3	12	AL
6EPH6G	113.9 X	114.9 X	120.3 X	117.9 X	116.8	6.63 X	7.9	2.9	112.6	7.78 X	9.6	4.7	12	AC
6FXKZR_AL	90.5 H	89.6	94.8	89.0	91.0	-0.39	9.2	2.6	90.2	-1.02	8.4	3.6	10	AL
6P8UMK	85.8	88.4	88.9	96.7	90.0	-0.67	7.4	4.7	90.4	-0.93	6.0	3.0	12	LA
7BJAHH	83.4	85.5	86.1	85.0	85.0	-2.02 *	8.1	1.2	88.3	-1.76	7.3	3.4	12	LA
7R9HH2	90.9	89.8	91.6	91.5	91.0	-0.40	6.8	0.8	91.1	-0.67	6.3	1.2	12	AH
8E4JAU_AL	103.1 *	100.9	95.7	96.5	99.1	1.81	7.3	3.5	96.5	1.47	8.4	3.4	12	AL
8M8V2H_AL	89.5	91.1	87.5	87.0	88.8	-0.99	4.3	1.9	91.1	-0.66	4.1	3.2	12	XX
94W29C	89.5	89.9	97.0	94.7	92.8	0.10	6.2	3.7	93.8	0.40	7.1	2.6	12	LB
98WC6C	95.1	97.7	94.3	96.3	95.9	0.94	5.2	1.5	96.1	1.28	5.2	2.0	12	LC
9WFQXW	88.8	91.3	91.2	87.1	89.6	-0.76	8.0	2.0	88.8	-1.57	8.5	2.9	12	LC
AM6NCV	93.4 L	93.9 L	93.9 L	94.0 L	93.8	0.38	2.8	0.3 L	93.2	0.17	2.6	0.5 L	12	LA
CVUDKV	90.5	90.3	88.2	92.9	90.5	-0.53	6.3	1.9	90.5	-0.89	5.9	1.6	12	TP
DXVF9B	90.4	95.4	95.8	94.8	94.1	0.46	5.2	2.5	94.7	0.76	5.9	2.1	12	AH
EDJDMB	90.5	96.1 H	91.9	93.8	93.1	0.18	9.2	2.4	91.3	-0.59	8.3	3.9	12	TB
EPVHYD	100.9	96.7	90.0	98.8	96.6	1.14	10.0	4.7	97.5	1.86	9.2	3.4	12	LA
EPVHYD_AL	95.5	94.7	93.6	94.4	94.5	0.58	5.3	0.8	93.2	0.17	5.1	1.5	12	AL
EVZEHD_AL	96.3	97.1	95.2	96.4	96.2	1.04	6.5	0.8	94.9	0.85	6.5	1.7	12	AL
F8B4ZF	89.1	83.4 *	86.4	90.5	87.4	-1.38	9.6	3.2	87.9	-1.92	9.1	3.3	12	XX
F96THB_AL	87.4	93.2	89.5	91.7	90.5	-0.53	7.1	2.5	91.2	-0.62	8.4	2.9	12	AL
FF4HYE	91.5	87.9	88.6	82.5 *	87.6	-1.30	7.9	3.8	87.8	-1.96 *	8.2	2.8	12	LA
FPU36D	92.9	95.2	94.2	85.2	91.9	-0.15	7.7	4.5	93.6	0.31	8.1	4.0	8	LA
G9ZYT2	89.2	89.8	91.1	87.8	89.5	-0.80	7.4	1.4	88.9	-1.53	7.5	1.5	12	XX
H8MMXH_AI	100.6	91.4	94.2	93.4	94.9	0.67	8.7	4.0	95.0	0.88	8.6	2.8	8	AL
H9EL8A	91.1	97.6	87.4	92.0	92.0	-0.11	5.7	4.2	93.5	0.30	6.7	3.7	12	LA
JK7PTE	91.9	92.5	89.5	96.0	92.5	0.02	6.3	2.7	92.1	-0.27	6.0	3.2	12	XX
JN9QTC	96.2	No DATA	96.6	98.0	96.9	1.23	5.2	0.9	95.3	1.00	5.4	2.0	10	AH
JN9QTC_AL	89.7	No DATA	95.5	93.3	92.8	0.12	6.6	2.9	91.9	-0.35	7.5	2.8	7	AL
K4ZK3H_AL	99.0	99.0	97.6	94.7	97.6	1.41	6.8	2.0	98.1	2.10 *	6.2	5.0	12	AK
KNMC3D	91.0	94.0	94.0	93.5	93.1	0.20	7.7	1.4	91.9	-0.33	8.1	2.8	8	XX
KV7KM4	86.9	87.2	90.3	93.7	89.5	-0.79	6.2	3.2	91.0	-0.69	5.9	3.0	12	LC



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

**Report #631 (D)**  
**April 2022**

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	
LECGEY	88.2	91.9	90.7	87.4	89.6	-0.78	5.3	2.1	89.6	-1.27	5.3	2.1	4	XX
LU8UVF	93.0 L	92.5 L	93.2 L	93.4 L	93.0	0.17	1.9	0.4 L	94.5	0.67	1.6	2.0	12	LA
M47U3R_AL	97.4	98.7	98.8	95.2	97.5	1.40	10.6	1.7	96.2	1.36	10.2	3.9	12	AK
MTA337	95.3	100.6	97.9	95.8	97.4	1.36	8.7	2.4	94.6	0.70	9.7	3.7	12	LJ
NGV6VG	104.9 *	104.2 *	104.2 *L	103.2 *	104.1	3.19 X	4.2	0.7	104.8	4.72 X	4.2	1.8	12	AH
PNMAVV	95.0	103.0 *	100.6	98.0	99.2	1.84	9.7	3.4	99.2	2.50 *	9.7	3.4	4	XX
PW3P8E	94.4	96.1	90.7	94.2	93.9	0.39	7.5	2.3	95.6	1.09	9.1	3.0	12	AX
R3KWJ4	93.6	97.2	94.5	89.1	93.6	0.33	8.7	3.4	90.0	-1.11	9.4	5.2	8	RE
RZAUTX_AL	86.1	99.3 H	NO DATA	NO DATA	92.7	0.08	10.2	9.4	93.4	0.24	10.1	3.7	10	AL
T4LGMU	93.0	95.2	100.6	NO DATA	96.3	1.05	8.9	3.9	94.0	0.49	8.2	4.4	11	AH
T4LGMU_AL	84.1	NO DATA	NO DATA	NO DATA	84.1	-2.27 *	8.3	0.0	90.3	-0.96	8.0	3.4	9	AL
T8M88M	87.2	83.4 *	83.0 *	84.4 *	84.5	-2.16 *	8.5	1.9	84.1	-3.40 X	8.7	3.0	12	LA
TMJKN4_AL	89.7	93.5	92.4	89.8	91.4	-0.29	6.1	1.9	91.6	-0.48	5.2	1.6	12	AL
TQHVJ4_AL	80.2 *H	93.7	95.5	NO DATA	89.8	-0.71	9.8	8.4 H	93.9	0.43	7.8	6.0	11	AL
TRCJ3Z_AL	97.3	96.9	95.5	98.1	96.9	1.24	6.2	1.1	94.0	0.48	6.0	3.1	12	XX
UH497U	92.9	92.6	92.7	94.9	93.3	0.24	8.8	1.1	94.5	0.69	8.1	6.4 H	12	AH
UVAQDM	93.0	84.8	89.3	89.0	89.0	-0.92	7.5	3.4	90.6	-0.86	7.6	2.7	12	LA
VVRVUZ	83.4	80.9 *	81.7 *	84.3 *	82.6	-2.68 *	7.9	1.6	83.4	-3.67 X	7.2	1.8	12	LA
W274QV	95.3	93.4	94.5	90.5	93.4	0.28	7.9	2.1	92.9	0.05	8.1	3.0	8	LZ
W98FMT_AL	93.0	90.9	96.5	96.5	94.2	0.49	8.2	2.8	93.9	0.43	8.2	2.7	12	AL
WEVZRU	91.4	92.6	91.4	90.4	91.5	-0.26	5.6	0.9	91.6	-0.47	4.9	1.4	12	LA
X7YHVW	93.0	97.3	92.9	93.6 H	94.2	0.48	9.9	2.1	94.4	0.64	9.0	2.0	12	LC
YBBRJK	95.4	94.7	96.0	93.5	94.9	0.68	6.4	1.1	94.4	0.65	6.6	1.9	12	AH
YXZGMH	95.6	95.0	97.1	92.8	95.1	0.74	8.3	1.8	93.6	0.31	8.0	2.4	12	LA

Consensus (All Labs) Results												
Wk Mean	92.22	93.24	92.76	92.59	Month Mean	92.41		Grand Mean	92.78			
Avg SDr	7.37	7.47	7.67	7.20	Avg SD	7.52		Avg SD	7.41			
SD btwn Labs	4.82	4.80	4.28	4.18	SD btwn Labs	3.67		SD btwn Labs	2.55			
Labs Incl	58	55	56	54	SD btwn Wks	2.99		SD btwn Wks	3.13			
Labs Excl	1	1	1	1	Labs Incl	57		Labs Incl	55			
Labs not Rcvd	0	3	2	4								



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

**Report #631 (D)**  
**April 2022**

**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 (207 Enrollment)
<b>LJ</b>	L&W Bursting Strength Tester J-Type	<b>LZ</b>	L&W (model not specified)
<b>ME</b>	Messmer Automatic Burst Tester ME-06	<b>RE</b>	Regmed/Mullen Tester
<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 - 42H1

TAPPI Official Test Method T822

Report #631 (D)

April 2022

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	
39Q86R	92.9	93.7	93.6	93.3	93.3	-0.43	3.4	0.3 L	93.3	-0.43	3.4	0.3 L	4	LD
3HCDXP	93.2	90.6	88.1	90.0	90.5	-0.96	3.0	2.1	90.5	-0.96	3.0	2.1	4	LD
3TXG6N	103.5	102.3	104.9	104.2	103.7	1.47	3.9	1.1	103.7	1.47	3.9	1.1	4	TU
3WVVUY	97.4	96.4	97.3	95.9	96.7	0.19	2.4	0.7	96.7	0.19	2.4	0.7	4	LC
4QPPQF	104.3 *	98.9 H	101.8	105.4	102.6	1.27	4.4	2.9	102.6	1.27	4.4	2.9	4	LX
4ZE89V	100.7	100.5	100.9	103.8	101.5	1.06	2.8	1.6	101.5	1.06	2.8	1.6	4	MB
6P8UMK	94.5	96.2	93.4	93.6	94.4	-0.24	2.8	1.3	94.4	-0.24	2.8	1.3	4	LD
8G8C4T	99.0	97.9	99.6	99.4	99.0	0.60	3.1	0.8	99.0	0.60	3.1	0.8	4	TH
94W29C	101.9	104.1	105.8	NO DATA	103.9	1.51	2.2	1.9	103.9	1.51	2.2	1.9	3	LC
98WC6C	91.8	91.8	95.0	91.7	92.6	-0.58	2.8	1.6	92.6	-0.58	2.8	1.6	4	LC
9WFQXW	94.8	91.5	94.2	101.6	95.5	-0.03	3.2	4.3	95.5	-0.03	3.2	4.3	4	MB
AM6NCV	93.9	94.9	94.6	94.3	94.4	-0.24	2.4	0.4 L	94.4	-0.24	2.4	0.4 L	4	LD
CB7NDN	94.7 L	95.4	94.7	94.0	94.7	-0.18	1.7	0.6 L	94.7	-0.18	1.7	0.6 L	4	MB
CVUDKV	96.7	94.8	91.1	97.2	94.9	-0.14	3.7	2.8	94.9	-0.14	3.7	2.8	4	TJ
EDJDMB	96.3	78.0 XH	95.2	79.7 *	87.3	-1.55	3.8	9.8 H	87.3	-1.55	3.8	9.8 H	4	LD
EDKAUZ	92.3 L	93.5	91.7 L	90.8	92.1	-0.66	1.6	1.1	92.1	-0.66	1.6	1.1	4	RS
EPVHYD	91.8	94.9	93.2	92.0	93.0	-0.50	2.8	1.4	93.0	-0.50	2.8	1.4	4	LD
F96THB	94.1	93.9	92.9	93.5	93.6	-0.39	2.0	0.5 L	93.6	-0.39	2.0	0.5 L	4	LD
FBD8PG	99.4	101.1	100.6	100.4	100.4	0.86	3.1	0.7	100.4	0.86	3.1	0.7	4	LD
FF4HYE	93.9	95.2	95.5	95.4	95.0	-0.13	3.2	0.8	95.0	-0.13	3.2	0.8	4	LD
FPU36D	111.1 X	109.2 *	109.8 *	108.3 *	109.6	2.55 *	3.1	1.2	109.6	2.55 *	3.1	1.2	4	LD
FYVQVP	95.4	93.4	92.0	95.6	94.1	-0.29	3.6	1.7	94.1	-0.29	3.6	1.7	4	TH
H8MMXH	92.4	92.5	92.9	93.4	92.8	-0.54	3.3	0.4 L	92.8	-0.54	3.3	0.4 L	4	LD
H9EL8A	101.5	99.3	101.8	102.0	101.1	1.00	3.6	1.3	101.1	1.00	3.6	1.3	4	LZ
JK7PTE	101.1	92.9	94.6	100.2	97.2	0.28	4.3	4.1	97.2	0.28	4.3	4.1	4	LD
K4ZK3H	99.7	99.1	96.4	98.6	98.4	0.50	2.4	1.4	98.4	0.50	2.4	1.4	4	LD
KV7KM4	97.8	96.7 L	97.5	94.8	96.7	0.18	3.2	1.3	96.7	0.18	3.2	1.3	4	LD
LECGEY	103.8	106.1 *	101.3	104.2	103.9	1.50	3.3	2.0	103.9	1.50	3.3	2.0	4	TU
LU8UVF	101.5 L	101.2 L	101.7 L	101.9 L	101.6	1.08	0.9	0.3 L	101.6	1.08	0.9	0.3 L	4	TU
NGV6VG	94.1	94.1	93.7	94.8	94.2	-0.28	3.4	0.4 L	94.2	-0.28	3.4	0.4 L	4	LD
PW3P8E	91.1	93.6	94.5	92.9	93.0	-0.49	3.7	1.5	93.0	-0.49	3.7	1.5	4	LD
R3KWJ4	108.2 X	107.8 *	108.2 *	106.6	107.7	2.20 *	3.1	0.8	107.7	2.20 *	3.1	0.8	4	EX
RYEBRW	94.4	93.2	95.1	94.0	94.2	-0.28	2.5	0.8	94.2	-0.28	2.5	0.8	4	LC
RZAUTX	70.5 XH	95.8	NO DATA	NO DATA	83.2	-2.31 *	6.0	17.9	83.2	-2.31 *	6.0	17.9	2	LC
T8M88M	97.8	93.9	94.5	91.4	94.4	-0.24	2.9	2.6	94.4	-0.24	2.9	2.6	4	LZ





**Containerboard Interlaboratory Testing Program**  
 Analysis 215  
**Ring Crush, 42 lb Linerboard - 42H1**  
 TAPPI Official Test Method T822

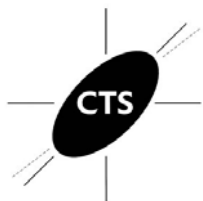
**Report #631 (D)**  
**April 2022**

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
TQHVJ4	99.2	103.8	105.9	103.5	103.1	1.36	4.0	2.8	103.1	1.36	4.0	2.8	4	LC
TRCJ3Z	89.0 H	97.0	93.7	92.5	93.1	-0.48	4.8	3.3	93.1	-0.48	4.8	3.3	4	LZ
UH497U	94.0	93.9	93.3	91.4	93.2	-0.47	2.8	1.2	93.2	-0.47	2.8	1.2	4	LD
VEEGC3	85.2 *	83.0 *	81.4 X	83.1 *	83.2	-2.31 *	3.6	1.5	83.2	-2.31 *	3.6	1.5	4	EM
VVRVUZ	90.9	94.0	92.1 H	79.3 *H	89.1	-1.22	6.7	6.6	89.1	-1.22	6.7	6.6	4	LB
W274QV	95.0	89.9	86.4 *	88.8	90.0	-1.04	3.1	3.6	90.0	-1.04	3.1	3.6	4	LC
W98FMT	92.4	88.2	94.1	94.5	92.3	-0.62	3.2	2.9	92.3	-0.62	3.2	2.9	4	LD
WEVZRU	92.4	91.6	94.7	92.0	92.7	-0.56	2.6	1.4	92.7	-0.56	2.6	1.4	4	LD
X7YHVW	96.0	94.2	94.7	95.9	95.2	-0.09	2.5	0.9	95.2	-0.09	2.5	0.9	4	LD
X8RDH7	96.7	93.7	95.0	94.3	94.9	-0.14	2.5	1.3	94.9	-0.14	2.5	1.3	4	TH
YBBRJK	96.0	96.5	97.9	98.3	97.2	0.27	2.4	1.1	97.2	0.27	2.4	1.1	4	LG
YXZGMH	91.8	92.6	93.5	90.1	92.0	-0.68	2.4	1.4	92.0	-0.68	2.4	1.4	4	LD
ZKRTG7	97.1	98.8	96.3	95.1	96.8	0.21	2.5	1.5	96.8	0.21	2.5	1.5	4	LC

Consensus (All Labs) Results									
Wk Mean	95.84	96.03	96.42	95.52	Month Mean	95.70	Grand Mean	95.70	
Avg SDr	3.44	2.98	3.13	3.21	Avg SD	3.29	Avg SD	3.29	
SD btwn Labs	4.13	5.00	4.97	6.28	SD btwn Labs	5.44	SD btwn Labs	5.44	
Labs Incl	45	47	46	46	SD btwn Wks	3.57	SD btwn Wks	3.57	
Labs Excl	3	1	1	0	Labs Incl	48	Labs Incl	48	
Labs not Rcvd	0	0	1	2					

**Key to Instrument Codes Reported by Participants**

<b>EM</b>	Emerson 1200	<b>EX</b>	Emerson (model not specified)
<b>LB</b>	L&W Crush Tester 240	<b>LC</b>	L&W Crush Tester 48
<b>LD</b>	L&W Crush Tester 248	<b>LG</b>	L&W 753
<b>LX</b>	L&W 506	<b>LZ</b>	L&W Crush Tester (model not specified)
<b>MB</b>	Messmer Buchel K440	<b>RS</b>	Regmed Digital Crush Tester CT-2000
<b>TH</b>	TMI Compression Tester, Model 17-76	<b>TJ</b>	TLS Compression Tester, Model CDM-5
<b>TU</b>	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program

Analysis 217

Report #631 (D)

April 2022

Ring Crush, 35 lb Linerboard - 35E2

TAPPI Official Test Method T822

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
39Q86R	81.7	82.5	82.1	81.4	81.9	-0.05	3.0	0.4 L	81.6	0.02	3.6	0.4 L	12	LD
3HCDXP	78.1	75.2	78.9	77.1	77.3	-1.38	2.6	1.6	77.3	-1.25	2.6	1.6	4	LD
3TXG6N	84.0	81.7	86.3	85.6	84.4	0.65	4.7	2.0	84.5	0.87	4.5	1.4	12	TU
3WVVUY	84.6	85.8	82.8	85.2	84.6	0.72	3.9	1.3	85.1	1.04	3.5	1.2	12	LC
4QPPQF	86.0	81.6	87.0	78.3 H	83.2	0.32	5.0	4.0	85.8	1.26	4.8	4.1	12	LX
4ZE89V	85.5	82.8	86.1	84.7	84.8	0.77	3.4	1.4	86.2	1.35	3.8	2.7	12	MB
6P8UMK	80.9	82.4 L	83.3	83.9	82.6	0.14	3.7	1.3	81.6	0.01	3.2	1.3	12	LD
8G8C4T	86.6	85.2	84.0	85.3	85.3	0.91	3.0	1.1	84.7	0.91	3.0	2.6	12	TH
94W29C	86.4	91.3 *	90.7 *	85.0	88.3	1.79	4.1	3.1	85.3	1.09	3.8	3.1	12	LC
98WC6C	79.8	76.9	81.3 H	77.9	79.0	-0.91	4.0	2.0	79.5	-0.60	3.8	3.2	12	LC
9WFQXW	84.7	84.9	82.4	84.7	84.2	0.59	4.1	1.2	86.0	1.30	3.7	3.2	12	MB
AM6NCV	83.2	83.4	83.8	83.8	83.6	0.41	2.6	0.3 L	83.1	0.44	2.6	0.5 L	12	LD
CB7NDN	80.8	80.8 L	80.8	80.5 L	80.7	-0.41	1.8	0.2 L	81.1	-0.15	1.7	0.5 L	12	MB
CVUDKV	84.1	82.7	81.8	83.1	82.9	0.23	4.5	0.9	82.6	0.30	4.6	1.4	12	TJ
EDJDMB	83.5	93.5 *	79.8	88.6	86.4	1.22	4.7	5.9 H	83.2	0.47	6.0	4.4	12	LC
EDKAUZ	78.6 L	79.2 L	78.9 L	78.8 L	78.9	-0.93	1.4	0.3 L	78.0	-1.05	1.6	1.1	12	RS
EPVHYD	82.7	78.2	78.3	78.4	79.4	-0.79	3.0	2.2	80.8	-0.22	2.8	1.9	12	LD
F96THB	81.5	80.9	83.1	82.2	81.9	-0.06	2.6	0.9	82.0	0.11	2.8	1.0	12	LD
FBD8PG	88.2	87.7	85.3	87.4	87.2	1.46	3.5	1.3	83.1	0.46	3.8	3.4	12	LD
FF4HYE	83.8	83.5	82.1	83.1	83.1	0.29	2.9	0.8	81.6	0.00	3.3	1.3	12	LD
FPU36D	92.2 *	93.6 *	93.4 X	93.4 *	93.2	3.19 X	4.4	0.6	93.2	3.43 X	4.4	0.6 L	4	LD
FYVQVP	83.3 L	83.5	82.4	84.4	83.4	0.37	2.3	0.8	79.8	-0.52	2.7	4.2	8	XX
H8MMXH	76.8	79.2	78.7	79.0	78.4	-1.06	2.8	1.1	78.5	-0.91	3.1	1.4	8	LD
H9EL8A	84.9	82.2	86.9	86.7	85.2	0.88	4.0	2.2	85.0	1.00	3.9	3.4	12	LZ
JK7PTE	75.2	74.7	77.9	78.0	76.5	-1.63	4.3	1.7	73.6	-2.35 *	4.9	4.1	12	LD
K4ZK3H	85.0	83.3	84.2	84.1	84.2	0.59	3.1	0.7	82.8	0.36	3.2	3.3	12	LD
KV7KM4	78.6	78.6 L	78.7	81.6	79.3	-0.80	2.7	1.5	80.7	-0.26	3.4	2.0	12	LD
LECGEY	85.3	86.8	82.4	85.7	85.1	0.85	4.5	1.9	85.1	1.03	4.5	1.9	4	TU
LU8UVF	79.9 L	80.4 L	80.1 L	80.9 L	80.3	-0.52	1.1	0.4 L	83.6	0.61	1.1	3.6	12	TU
NGV6VG	78.9 L	78.6	77.1	77.9	78.1	-1.15	2.3	0.8	78.2	-0.99	2.3	1.2	12	LD
PW3P8E	80.1	80.9	81.4 H	81.4	80.9	-0.34	5.1	0.6	81.7	0.05	4.2	1.6	12	LD
R3KWJ4	90.1	92.2 *	90.2 *	89.2	90.4	2.40 *	3.7	1.3	88.2	1.96 *	4.4	3.2	12	EX
RYEBRW	80.8	80.3 L	81.5	80.2	80.7	-0.42	3.0	0.6	81.1	-0.15	3.7	2.7	12	LC
RZAUTX	62.2 XH	83.4	No DATA	No DATA	72.8	-2.69 *	6.4	15.0	74.2	-2.18 *	5.2	10.5 H	10	LC
T8M88M	80.9	80.3	78.0	78.5	79.4	-0.78	3.1	1.4	82.2	0.20	3.8	3.3	12	LZ



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

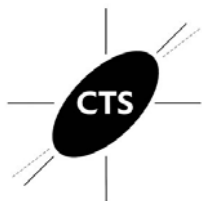
**Report #631 (D)**  
**April 2022**

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
TQHVJ4	84.3	84.4	85.6	85.6	85.0	0.82	4.1	0.7	82.2	0.19	3.7	2.9	12	LC
TRCJ3Z	78.4	85.5	84.2	83.2	82.8	0.20	4.8	3.1	83.1	0.44	4.5	1.8	12	LZ
UH497U	83.0	82.0	80.1	77.5	80.7	-0.42	2.9	2.4	79.6	-0.59	3.0	1.9	12	LD
VEEGC3	69.0 X	65.1 X	69.8 X	71.2 *	68.8	-3.85 X	4.1	2.6	67.8	-4.07 X	5.0	6.0	12	EM
VVRVUZ	73.9 *H	70.8 *H	70.6 XH	71.0 *H	71.6	-3.04 X	14.6	1.6	72.9	-2.57 *10.6	7.3 H	12	LB	
W274QV	80.7	77.1	77.4	77.2	78.1	-1.16	3.2	1.8	76.7	-1.45	4.0	2.0	8	LC
W98FMT	76.0	75.2	79.1	80.4	77.7	-1.28	4.1	2.5	79.6	-0.60	3.7	2.0	12	LD
WEVZRU	80.6	80.5	82.3	81.8	81.3	-0.24	2.6	0.9	79.2	-0.70	2.7	1.7	12	LD
X7YHVW	88.1	81.6	85.9	81.0	84.2	0.59	3.7	3.4	85.1	1.04	3.4	3.4	12	LD
X8RDH7	84.7	82.8 L	82.8	82.2	83.1	0.29	2.2	1.1	79.5	-0.62	2.9	4.9	12	TH
YBBRJK	84.5	85.0	85.6	85.4	85.1	0.86	3.4	0.5	84.9	0.99	2.9	1.6	12	LG
YXZGMH	77.6	78.7	78.5	75.7	77.6	-1.30	2.9	1.3	79.0	-0.75	3.3	1.7	12	LD
ZKRTG7	87.8	85.4	85.3	83.7	85.5	0.99	3.6	1.7	83.0	0.43	2.9	2.3	12	LC

Consensus (All Labs) Results									
Wk Mean	82.53	82.27	82.39	81.95	Month Mean	82.12	Grand Mean	81.57	
Avg SDr	3.85	3.99	3.57	4.22	Avg SD	3.58	Avg SD	3.90	
SD btwn Labs	3.92	4.65	3.32	4.32	SD btwn Labs	3.47	SD btwn Labs	3.38	
Labs Incl	46	47	44	47	SD btwn Wks	2.90	SD btwn Wks	3.16	
Labs Excl	2	1	3	0	Labs Incl	45	Labs Incl	46	
Labs not Rcvd	0	0	1	1					

**Key to Instrument Codes Reported by Participants**

<b>EM</b>	Emerson 1200	<b>EX</b>	Emerson (model not specified)
<b>LB</b>	L&W Crush Tester 240	<b>LC</b>	L&W Crush Tester 48
<b>LD</b>	L&W Crush Tester 248	<b>LG</b>	L&W 753
<b>LX</b>	L&W 506	<b>LZ</b>	L&W Crush Tester (model not specified)
<b>MB</b>	Messmer Buchel K440	<b>RS</b>	Regmed Digital Crush Tester CT-2000
<b>TH</b>	TMI Compression Tester, Model 17-76	<b>TJ</b>	TLS Compression Tester, Model CDM-5
<b>TU</b>	TMI Universal Crush Tester (TMI K440)	<b>XX</b>	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 223

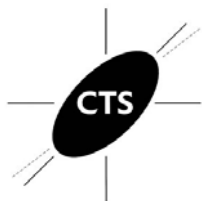
STFI, 42 lb Linerboard - 42H1

TAPPI Official Test Method T826

Report #631 (D)

April 2022

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	
3TXG6N	25.5	26.1	24.9	24.0	25.1	1.11	1.8	0.9	25.1	1.11	1.8	0.9	4	LA
3WVVUY	23.2	23.7	L 24.3	23.7	23.7	-0.08	1.4	0.4	23.7	-0.08	1.4	0.4	4	LU
4QPPQF	24.3	24.5	H 21.3	23.9	23.5	-0.24	2.4	1.5	23.5	-0.24	2.4	1.5	4	XX
4TQWQK_AL	25.3	23.9	H 24.5	24.2	24.5	0.57	2.1	0.6	24.5	0.57	2.1	0.6	4	AL
4ZE89V	26.3	H 23.9	24.3	25.6	25.0	1.02	2.2	1.1	25.0	1.02	2.2	1.1	4	LA
6EPH6G	23.2	22.2	22.2	22.1	22.4	-1.15	1.5	0.5	22.4	-1.15	1.5	0.5	4	LH
6P8UMK	22.5	23.6	22.8	24.5	L 23.3	-0.39	1.4	0.9	23.3	-0.39	1.4	0.9	4	LA
7R9HH2	24.6	24.5	24.2	24.4	24.4	0.50	1.5	0.2	24.4	0.50	1.5	0.2	4	TT
84LZRJ	22.8	23.1	23.5	22.6	23.0	-0.68	1.6	0.4	23.0	-0.68	1.6	0.4	4	LW
8E4JAU_AL	26.3	26.1	26.3	* 27.5	* 26.5	2.29	* 1.8	0.6	26.5	2.29	* 1.8	0.6	4	AL
8M8V2H	22.3	H 21.1	* 21.8	L 22.2	21.9	-1.62	1.8	0.5	21.9	-1.62	1.8	0.5	4	LY
8M8V2H_AL	22.6	23.2	L 23.1	24.1	L 23.3	-0.46	1.5	0.6	23.3	-0.46	1.5	0.6	4	XX
94W29C	23.8	24.3	25.6	25.5	24.8	0.83	1.5	0.9	24.8	0.83	1.5	0.9	4	LW
98WC6C	23.6	23.4	23.9	L 22.9	23.5	-0.30	1.2	0.4	23.5	-0.30	1.2	0.4	4	LA
9WFQXW	25.5	24.5	24.7	H 25.0	24.9	0.95	2.1	0.4	24.9	0.95	2.1	0.4	4	LA
AM6NCV	22.9	22.3	22.9	22.7	22.7	-0.95	1.7	0.3	22.7	-0.95	1.7	0.3	4	LA
CVUDKV	23.8	24.6	24.3	24.0	24.2	0.32	1.5	0.3	24.2	0.32	1.5	0.3	4	TT
DEXGH3	25.3	24.0	24.0	23.7	24.2	0.37	1.6	0.7	24.2	0.37	1.6	0.7	4	LH
DXVF9B	27.2	* 26.5	* 26.6	* 26.5	26.7	2.43	* 2.0	0.3	26.7	2.43	* 2.0	0.3	4	LU
EDJDMB	26.2	22.7	22.6	23.8	23.8	0.00	2.0	1.7	H 23.8	0.00	2.0	1.7	H 4	LW
EPVHYD_AL	23.7	23.3	23.0	23.8	23.4	-0.31	1.6	0.4	23.4	-0.31	1.6	0.4	4	AL
EVZEHD_AL	24.8	H 22.8	23.4	24.5	23.9	0.08	1.9	0.9	23.9	0.08	1.9	0.9	4	AL
F96THB_AL	23.8	23.1	22.8	23.0	L 23.2	-0.51	1.5	0.4	23.2	-0.51	1.5	0.4	4	AL
FBD8PG	26.4	24.8	25.4	25.1	25.4	1.36	1.8	0.7	25.4	1.36	1.8	0.7	4	LH
FF4HYE	21.7	23.6	22.6	22.4	22.6	-1.03	1.7	0.8	22.6	-1.03	1.7	0.8	4	LY
FFJ2JC	27.4	* 26.8	* 27.0	*H 27.0	*H 27.0	2.71	* 2.8	0.3	27.0	2.71	* 2.8	0.3	4	LA
FYVQVP	22.4	L 22.5	22.5	23.2	22.7	-0.95	1.5	0.4	22.7	-0.95	1.5	0.4	4	LZ
G4PN28	22.8	23.7	24.0	24.5	23.8	-0.03	1.6	0.7	23.8	-0.03	1.6	0.7	4	LA
H8MMXH	22.4	23.1	22.3	22.7	22.6	-0.97	1.9	0.3	22.6	-0.97	1.9	0.3	4	LY
H8MMXH_AI	23.7	24.1	24.1	23.8	23.9	0.10	1.8	0.2	23.9	0.10	1.8	0.2	4	AL
H9EL8A	23.2	22.2	22.5	22.2	22.5	-1.09	1.8	0.5	22.5	-1.09	1.8	0.5	4	LU
HU29UH	23.3	23.9	23.7	22.7	23.4	-0.35	2.0	0.5	23.4	-0.35	2.0	0.5	4	XX
JN9QTC	26.3	No DATA	24.1	26.1	25.5	1.41	2.0	1.2	25.5	1.41	2.0	1.2	3	LU
JN9QTC_AL	26.0	L No DATA	22.7	22.7	23.8	-0.01	1.4	1.9	H 23.8	-0.01	1.4	1.9	H 3	AL
K4ZK3H_AL	26.4	22.7	23.9	24.5	24.4	0.48	1.6	1.5	24.4	0.48	1.6	1.5	4	AK



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42H1

TAPPI Official Test Method T826

Report #631 (D)

April 2022

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	
KV7KM4	24.8	23.7 H	25.1	25.9 H	24.9	0.90	2.4	0.9	24.9	0.90	2.4	0.9	4	LA
LECGEY	25.5	25.0	25.2	26.2 H	25.5	1.39	2.2	0.5	25.5	1.39	2.2	0.5	4	TT
M47U3R_AL	24.9	24.4	24.7	24.4	24.6	0.67	2.0	0.2	24.6	0.67	2.0	0.2	4	AK
MTA337	26.9 *	30.2 X	26.7 *	26.8 *	27.7	3.22 X	2.2	1.7 H	27.7	3.22 X	2.2	1.7 H	4	LH
PW3P8E	24.8 L	24.0 L	24.5 L	25.5	24.7	0.76	1.0	0.6	24.7	0.76	1.0	0.6	4	LH
PZYF8X	23.2	23.5 L	23.6 L	25.5 L	23.9	0.12	1.2	1.1	23.9	0.12	1.2	1.1	4	LH
QHFWVC	23.1	24.0	23.2	24.5	23.7	-0.10	1.9	0.6	23.7	-0.10	1.9	0.6	4	ID
RYEBRW	22.0	22.4	22.4	21.2	22.0	-1.52	1.9	0.6	22.0	-1.52	1.9	0.6	4	LY
RZAUTX_AL	23.5	23.8	NO DATA	NO DATA	23.6	-0.15	1.3	0.2	23.6	-0.15	1.3	0.2	2	AL
T4LGMU	23.4	23.0	NO DATA	NO DATA	23.2	-0.48	1.7	0.3	23.2	-0.48	1.7	0.3	2	LH
T4LGMU_AL	23.1	NO DATA	NO DATA	NO DATA	23.1	-0.59	1.3	0.0	23.1	-0.59	1.3	0.0	1	AL
T8M88M	23.5	22.0 H	22.6 H	23.5	22.9	-0.75	2.3	0.7	22.9	-0.75	2.3	0.7	4	LA
TMJKN4	23.9 L	25.5	22.4 L	NO DATA	23.9	0.10	1.5	1.6	23.9	0.10	1.5	1.6	3	LU
TQHVJ4	23.9	25.4	24.7	NO DATA	24.7	0.74	1.6	0.7	24.7	0.74	1.6	0.7	3	LU
TRCJ3Z_AL	22.0	22.4	22.4	22.5	22.3	-1.23	1.8	0.2	22.3	-1.23	1.8	0.2	4	AL
UH497U	22.5	22.5	22.2	22.6	22.4	-1.15	1.8	0.2	22.4	-1.15	1.8	0.2	4	LU
UVAQDM	25.4	25.8	25.4	23.5	25.0	1.04	2.1	1.0	25.0	1.04	2.1	1.0	4	LH
VG8FLV	25.4	25.0	24.3	23.3	24.5	0.58	1.8	0.9	24.5	0.58	1.8	0.9	4	LH
VQWY8V	22.3	22.4	22.6	22.3	22.4	-1.18	1.6	0.2	22.4	-1.18	1.6	0.2	4	LY
VVRVUZ	22.7 L	24.6 L	28.3 XL	23.1 L	24.7	0.74	0.0	2.6 H	24.7	0.74	0.0	2.6 H	4	LH
W274QV	21.1 *H	20.7 *	20.4 *	21.1	20.8	-2.52 *	1.9	0.3	20.8	-2.52 *	1.9	0.3	4	LY
W98FMT_AL	23.9	24.5	23.7	23.3	23.8	0.03	1.7	0.5	23.8	0.03	1.7	0.5	4	AL
WEVZRU	23.0 L	23.9 L	23.7 L	23.2 L	23.4	-0.30	0.7	0.4	23.4	-0.30	0.7	0.4	4	LH
X7YHVW	23.8	23.3	24.1	23.4 H	23.6	-0.14	2.0	0.3	23.6	-0.14	2.0	0.3	4	LA
X8RDH7	23.4	22.6	22.5	22.7	22.8	-0.83	1.5	0.4	22.8	-0.83	1.5	0.4	4	LZ
YBBRJK	22.7	22.4	23.1	23.5	22.9	-0.75	1.7	0.5	22.9	-0.75	1.7	0.5	4	LU
YRTTAG	24.2	23.8	24.5	24.7	24.3	0.41	1.8	0.4	24.3	0.41	1.8	0.4	4	LH
YXZGMH	22.7	22.8	22.9	21.2	22.4	-1.19	1.5	0.8	22.4	-1.19	1.5	0.8	4	LZ

Consensus (All Labs) Results													
Wk Mean	24.02	23.70	23.70	23.87	Month Mean	23.80		Grand Mean	23.80				
Avg SDr	1.77	1.77	1.89	1.72	Avg SD	1.77		Avg SD	1.77				
SD btwn Labs	1.50	1.26	1.34	1.47	SD btwn Labs	1.19		SD btwn Labs	1.19				
Labs Incl	63	59	59	58	SD btwn Wks	0.82		SD btwn Wks	0.82				
Labs Excl	0	1	1	0	Labs Incl	62		Labs Incl	62				
Labs not Rcvd	0	3	3	5									



Containerboard Interlaboratory Testing Program  
Analysis 223  
**STFI, 42 lb Linerboard - 42H1**  
TAPPI Official Test Method T826

**Report #631 (D)**  
**April 2022**

**Key to Instrument Codes Reported by Participants**

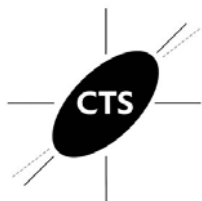
<b>AK</b>	L & W Autoline 300	<b>AL</b>	L & W Autoline 400
<b>ID</b>	IDM Compression Tester	<b>LA</b>	L&W Autoline (223 Enrollment)
<b>LH</b>	L&W 282	<b>LU</b>	L&W 52 without moisture correction(was 53)
<b>LW</b>	L&W 53 with moisture correction (was 53M)	<b>LY</b>	L&W 152 without moisture correction
<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 225  
**STFI, 35 lb Linerboard - 35E2**  
 TAPPI Official Test Method T826

**Report #631 (D)**  
**April 2022**

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	
3TXG6N	23.6 H	24.1	23.6	24.4	23.9	0.58	2.2	0.4	23.7	0.46	2.0	0.6	12	LA
3WVVUY	23.3	23.6	23.9	24.0	23.7	0.38	1.7	0.3	23.4	0.21	1.6	0.3	12	LU
4QPPQF	24.0 H	25.6	22.1	23.6	23.8	0.47	2.2	1.4 H	23.8	0.51	2.2	1.4	4	XX
4TQWQK_AL	25.1	25.2	24.9	24.0	24.8	1.35	1.8	0.5	24.6	1.15	1.8	0.4	12	AL
4ZE89V	23.2	23.7	23.3	24.1	23.6	0.26	1.7	0.4	23.8	0.51	2.0	0.4	12	LA
6EPH6G	22.5	21.6	22.0	22.0	22.0	-1.14	1.3	0.4	22.1	-0.93	1.5	0.4	12	LH
6P8UMK	23.8 L	24.0	22.9	23.8	23.6	0.29	1.6	0.5	22.5	-0.61	1.5	1.0	11	LW
7R9HH2	23.9	23.5	23.5	23.9	23.7	0.37	1.4	0.2	23.6	0.32	1.4	0.3	12	TT
84LZRJ	23.4 H	22.2	22.9	23.2	22.9	-0.32	1.8	0.5	22.8	-0.35	1.6	0.8	12	LW
8E4JAU_AL	25.9 *	26.2 *	25.7 *	25.6 *	25.9	2.34 *	2.0	0.3	25.7	2.10 *	1.8	0.3 L	12	AL
8M8V2H	21.1	21.7	21.2	21.6	21.4	-1.70	1.6	0.3	22.6	-0.48	1.9	1.1	12	LY
8M8V2H_AL	23.2	21.7	21.9	22.5	22.3	-0.88	1.1	0.7	23.5	0.29	1.8	1.3	12	XX
94W29C	23.6	22.8	23.6	24.2	23.6	0.24	1.5	0.5	22.8	-0.33	1.5	0.8	12	LW
98WC6C	23.9	23.5	22.7	23.6	23.4	0.13	1.7	0.5	23.1	-0.11	1.5	1.0	12	LA
9WFQXW	25.2 H	40.0 X	23.5	23.6	28.1	4.35 X	1.9	8.0 H	25.7	2.12 *	1.9	4.6 H	12	LA
AM6NCV	23.0	22.8	22.8	22.9	22.9	-0.38	1.7	0.1 L	23.0	-0.18	1.8	0.1 L	12	LA
CVUDKV	23.4	23.5	22.9	23.1	23.2	-0.07	1.6	0.3	23.3	0.07	1.5	0.2 L	12	TT
DEXGH3	23.5	23.0	22.8	23.3	23.2	-0.11	1.6	0.3	22.7	-0.39	1.6	0.9	12	LH
DXVF9B	26.1 *	No DATA	25.0	25.1	25.4	1.92	2.0	0.6	24.9	1.46	1.8	0.5	11	LU
EDJDMB	22.3 H	21.5	21.7	23.6	22.3	-0.94	2.1	0.9	22.1	-0.89	2.0	1.2	12	LW
EPVHYD_AL	21.7	22.9	22.9	22.9	22.6	-0.63	1.7	0.6	22.9	-0.21	1.6	0.5	12	AL
EVZEHD_AL	22.0	23.0	22.8	23.6	22.8	-0.40	1.5	0.6	23.0	-0.15	1.5	0.5	12	XX
F96THB_AL	17.6 XL	17.1 XL	16.3 X	17.1 XL	17.0	-5.68 X	0.8	0.5	21.1	-1.72	1.4	3.1 H	12	AL
FBD8PG	26.1 *	25.1	23.8	24.8	24.9	1.50	1.7	1.0	24.9	1.43	1.9	0.7	12	LH
FF4HYE	22.3	22.5	22.2	22.6	22.4	-0.81	1.5	0.2	22.5	-0.57	1.6	0.3	12	LY
FFJ2JC	26.1 *	26.1 *	25.7 *	24.8	25.6	2.13 *	1.4	0.6	23.8	0.50	1.3	1.6	12	LA
FYVQVP	21.4	22.0	21.5	21.9	21.7	-1.44	1.6	0.3	21.3	-1.60	1.6	0.8	8	LZ
G4PN28	21.7	21.8	22.5	22.3	22.1	-1.07	1.7	0.4	22.7	-0.44	1.6	0.5	12	LA
H8MMXH	22.1	22.4 H	22.0	21.1 *	21.9	-1.26	1.9	0.6	21.7	-1.22	1.7	0.6	8	LY
H8MMXH_AI	23.0	22.8	23.5	23.5	23.2	-0.09	1.6	0.3	23.0	-0.12	1.6	0.3	8	AL
H9EL8A	22.7	23.6	22.5	23.2	23.0	-0.26	1.8	0.5	22.6	-0.47	1.8	0.6	12	LU
HU29UH	22.9	22.7	23.1	22.2	22.7	-0.51	1.5	0.4	23.2	0.05	1.6	0.7	8	XX
JN9QTC	25.0	No DATA	24.2	24.4	24.5	1.12	1.9	0.5	24.0	0.69	1.8	0.6	8	LU
JN9QTC_AL	26.2 *	No DATA	22.5	23.2 L	23.9	0.60	1.7	2.0 H	23.1	-0.05	1.5	1.5	7	AL
K4ZK3H_AL	23.5	24.4	24.0	24.4	24.1	0.72	1.3	0.4	23.5	0.24	1.3	0.7	12	AK



Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E2

TAPPI Official Test Method T826

Report #631 (D)

April 2022

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
KV7KM4	23.4	22.8	23.7	23.2	23.3	0.00	1.7	0.4	23.0	-0.18	1.9	0.5	12	LA
LECGEY	25.2	24.7	25.0	24.9	24.9	1.49	2.1	0.2	24.9	1.44	2.1	0.2	L 4	TT
M47U3R_AL	24.0	25.4 H	23.9	24.4	24.4	1.03	2.1	0.7	24.4	0.97	1.9	0.7	12	AK
MTA337	28.1 X	27.8 X	27.4 XH	25.4	27.2	3.52 X	2.5	1.2	26.4	2.70 *	2.2	1.2	8	LH
PW3P8E	25.0 L	24.8 L	24.7	25.5 L	25.0	1.53	0.9	0.3	24.8	1.36	0.8	0.4	12	LH
PZYF8X	21.9	22.7	23.4 L	23.1	22.8	-0.44	1.3	0.7	20.9	-1.87	1.5	2.1	8	LH
QHFWVC	23.4	25.0	24.0	24.5	24.2	0.86	1.8	0.7	24.2	0.87	1.8	0.7	4	ID
RYEBRW	22.5	21.2	21.0	21.1 *	21.5	-1.66	1.7	0.7	21.6	-1.32	1.6	0.5	12	LY
RZAUTX_AL	23.7	23.6	NO DATA	NO DATA	23.7	0.36	1.7	0.1	23.3	0.06	1.7	0.8	9	AL
T4LGMU	22.6	24.1	NO DATA	NO DATA	23.4	0.09	1.7	1.1	23.1	-0.10	1.7	0.9	10	LH
T4LGMU_AL	24.0	NO DATA	NO DATA	NO DATA	24.0	0.65	1.5	0.0	21.7	-1.20	1.4	1.6	9	AL
T8M88M	21.9	23.0	22.8 L	22.9	22.7	-0.55	1.4	0.5	23.0	-0.14	1.6	0.9	12	LA
TMJKN4	23.2	24.6	22.0	NO DATA	23.2	-0.05	1.3	1.3 H	23.6	0.31	1.6	0.7	9	LU
TQHVJ4	22.6 H	23.9	24.2	NO DATA	23.6	0.25	1.9	0.9	24.3	0.88	1.8	1.0	9	LU
TRCJ3Z_AL	24.2	23.2	22.5	22.9	23.2	-0.11	1.4	0.7	22.7	-0.43	1.5	0.7	12	XX
UH497U	21.7	22.0	21.5	22.2	21.9	-1.30	1.8	0.3	21.9	-1.07	1.7	0.8	12	LU
UVAQDM	24.5	24.7	24.7 H	22.8	24.2	0.81	1.9	0.9	24.1	0.72	2.0	1.0	12	LH
VG8FLV	24.4	24.3	23.9	24.6	24.3	0.93	1.8	0.3	24.4	0.98	1.5	0.5	8	LH
VQWY8V	22.5	22.0	21.9	22.4	22.2	-0.97	1.6	0.3	21.6	-1.35	1.6	0.6	12	LU
VVRVUZ	32.2 XH	28.9 XH	29.6 XH	31.3 XH	30.5	6.55 X	3.5	1.5 H	34.4	9.29 X	3.1	3.6 H	12	LH
W274QV	20.9	20.7 *L	21.3	21.1	21.0	-2.08 *	1.4	0.2	21.0	-1.83	1.4	0.2	L 8	LZ
W98FMT_AL	22.3	22.9	23.8	23.5	23.1	-0.16	1.7	0.7	23.1	-0.10	1.7	0.5	12	AL
WEVZRU	22.2 L	22.6 L	22.7	22.2	22.4	-0.77	0.9	0.3	22.4	-0.68	0.9	0.3	L 12	LH
X7YHVW	24.4	23.6	23.1	24.3	23.9	0.53	1.7	0.6	23.9	0.62	1.7	0.5	12	LA
X8RDH7	22.2	21.2	21.7	22.5	21.9	-1.28	1.6	0.6	21.1	-1.77	1.7	0.9	12	LZ
YBBRJK	22.1	22.1	22.0	21.8	22.0	-1.17	1.7	0.2	22.4	-0.63	1.6	0.7	12	LW
YRTTAG	23.3	24.8	24.5	24.1	24.2	0.80	1.8	0.6	24.4	1.03	1.6	0.5	12	LH
YXZGMH	22.1	22.2	22.7	21.1	22.0	-1.14	1.7	0.7	22.5	-0.57	1.6	0.6	12	LZ

Consensus (All Labs) Results														
Wk Mean	23.34	23.30	23.10	23.34	Month Mean	23.29	Grand Mean	23.19						
Avg SDr	1.72	1.72	1.62	1.66	Avg SD	1.67	Avg SD	1.67						
SD btwn Labs	1.32	1.31	1.13	1.16	SD btwn Labs	1.10	SD btwn Labs	1.20						
Labs Incl	60	55	57	56	SD btwn Wks	0.64	SD btwn Wks	1.07						
Labs Excl	3	4	3	2	Labs Incl	59	Labs Incl	62						
Labs not Rcvd	0	4	3	5										





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

**Report #631 (D)**  
**April 2022**

**Key to Instrument Codes Reported by Participants**

AK	L & W Autoline 300	AL	L & W Autoline 400
ID	IDM Compression Tester	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 - 42H**  
 TAPPI Official Test Method T575

**Report #631 (D)**  
**April 2022**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3TXG6N	140.6	-0.11	22.03	140.6	-0.11	0.00	1	LA
4TQWQK_AL	144.5	0.08	25.50	144.5	0.08	0.00	1	AL
4ZE89V	161.2	0.91	25.29	161.2	0.91	0.00	1	LA
6P8UMK	185.4	2.12 *	15.33	185.4	2.12 *	0.00	1	LA
8E4JAU_AL	115.3	-1.37	12.18	115.3	-1.37	0.00	1	AL
8M8V2H_AL	144.8	0.10	30.44 H	144.8	0.10	0.00	1	XX
98WC6C	111.7	-1.55	8.21	111.7	-1.55	0.00	1	EV
9WFQXW	170.9	1.40	21.39	170.9	1.40	0.00	1	LA
AM6NCV	153.8	0.55	13.89	153.8	0.55	0.00	1	LS
EDJDMB	116.7	-1.30	16.06	116.7	-1.30	0.00	1	XX
EVZEHD_AL	121.5	-1.06	16.76	121.5	-1.06	0.00	1	AL
FF4HYE	155.2	0.61	12.51	155.2	0.61	0.00	1	EV
H8MMXH	170.1	1.36	22.01	170.1	1.36	0.00	1	LA
H8MMXH_AL	141.8	-0.05	30.34 H	141.8	-0.05	0.00	1	AL
H9EL8A	141.4	-0.07	8.07 L	141.4	-0.07	0.00	1	EV
JN9QTC_AL	110.5	-1.61	21.70	110.5	-1.61	0.00	1	AL
K4ZK3H	145.1	0.11	21.61	145.1	0.11	0.00	1	EV
KV7KM4	117.5	-1.26	14.43	117.5	-1.26	0.00	1	LA
M47U3R_AL	136.5	-0.31	22.81	136.5	-0.31	0.00	1	AK
MTA337	193.1	2.50 *	15.72	193.1	2.50 *	0.00	1	LS
RYEBRW	155.8	0.64	16.37	155.8	0.64	0.00	1	EV
RZAUTX_AL	146.6	0.19	20.31	146.6	0.19	0.00	1	AL
RZCGCX	144.4	0.08	20.48	144.4	0.08	0.00	1	LS
T4LGMU_AL	146.6	0.19	8.78	146.6	0.19	0.00	1	AL
TMJKN4	141.0	-0.09	11.91	141.0	-0.09	0.00	1	EV
TQHJV4	159.9	0.85	15.83	159.9	0.85	0.00	1	EV
TRCJ3Z_AL	118.6	-1.20	14.13	118.6	-1.20	0.00	1	XX
UH497U	143.1	0.02	11.75	143.1	0.02	0.00	1	EV
UVAQDM	136.6	-0.31	12.84	136.6	-0.31	0.00	1	EV
W274QV	148.4	0.28	21.77	148.4	0.28	0.00	1	LS
W98FMT	117.1	-1.28	14.07	117.1	-1.28	0.00	1	LS
W98FMT_AL	139.1	-0.19	20.70	139.1	-0.19	0.00	1	AL
YXZGMH	138.6	-0.21	11.37	138.6	-0.21	0.00	1	LS



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

**Report #631 (D)**  
**April 2022**

Consensus (All Labs) Results			
Month Mean	142.83	Grand Mean	142.83
Avg SD	18.41	Avg SD Months	0.00
SD btwn Labs	20.11	SD btwn Labs	20.11
Labs Incd	33	Labs Incd	33

**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 - 42H1**  
 TAPPI Official Test Method T538

**Report #631 (D)**  
**April 2022**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3WVVUY	378.8	0.27	11.20	378.8	0.27	0.00	1	XX
8E4JAU_AL	377.0	0.05	11.44	377.0	0.05	0.00	1	AL
8M8V2H_AL	368.5	-1.01	8.42	368.5	-1.01	0.00	1	XX
DAPUBT	386.0	1.16	3.62 L	386.0	1.16	0.00	1	TS
EPVHYD_AL	377.0	0.05	9.14	377.0	0.05	0.00	1	AL
F96THB_AL	384.4	0.97	9.49	384.4	0.97	0.00	1	AL
FFJ2JC	387.1	1.30	7.91	387.1	1.30	0.00	1	XX
H8MMXH_AL	372.5	-0.51	12.43	372.5	-0.51	0.00	1	AL
K4ZK3H	377.4	0.10	12.50	377.4	0.10	0.00	1	LA
K4ZK3H_AL	376.3	-0.04	6.72	376.3	-0.04	0.00	1	AK
KZU4NY	387.3	1.33	6.39	387.3	1.33	0.00	1	PP
M47U3R_AL	366.7	-1.23	6.83	366.7	-1.23	0.00	1	AK
T4LGMU_AL	369.6	-0.87	8.69	369.6	-0.87	0.00	1	AL
VEEGC3	419.9	5.37 X	7.44	419.9	5.37 X	0.00	1	TS
VVRVUZ	88.9	-35.74 X	10.16	88.9	-35.74 X	0.00	1	LA
W98FMT_AL	359.9	-2.08 *	10.36	359.9	-2.08 *	0.00	1	AL
YXZGMH	380.9	0.53	12.32	380.9	0.53	0.00	1	XX

Consensus (All Labs) Results			
Month Mean	376.63	Grand Mean	376.63
Avg SD	9.50	Avg SD Months	0.00
SD btwn Labs	8.05	SD btwn Labs	8.05
Labs Incd	15	Labs Incd	15

**Key to Instrument Codes Reported by Participants**

<b>AK</b>	L & W Autoline 300	<b>AL</b>	L & W Autoline 400
<b>LA</b>	L & W Autoline (229 Enrollment)	<b>PP</b>	Technidyne Profile/Plus
<b>TS</b>	TMI Monitor/Smoothness	<b>XX</b>	Instrument make/model not specified by lab



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

**Report #631 (D)**  
**April 2022**

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3WVVUY	150.3	1.54	10.60	150.3	1.54	0.00	1	HY
6P8UMK	178.0	3.25 X	11.55	178.0	3.25 X	0.00	1	HY
929PCR	143.2	1.11	3.66	143.2	1.11	0.00	1	TM
98WC6C	122.4	-0.18	6.27	122.4	-0.18	0.00	1	TM
EPVHYD	132.6	0.45	6.14	132.6	0.45	0.00	1	TM
F96THB	56.5	-4.24 X	1.07 L	56.5	-4.24 X	0.00	1	LZ
FF4HYE	142.9	1.09	5.52	142.9	1.09	0.00	1	HZ
FFJ2JC	97.8	-1.69	4.32	97.8	-1.69	0.00	1	SC
FPU36D	137.0	0.72	3.87	137.0	0.72	0.00	1	HY
H8MMXH	130.8	0.34	9.09	130.8	0.34	0.00	1	TM
J8FZP3	137.1	0.73	1.97	137.1	0.73	0.00	1	TM
JD93W9	123.7	-0.10	5.81	123.7	-0.10	0.00	1	SC
K4ZK3H	106.4	-1.16	4.10	106.4	-1.16	0.00	1	TM
LECGEY	122.0	-0.20	2.81	122.0	-0.20	0.00	1	TM
M47U3R	121.2	-0.25	7.79	121.2	-0.25	0.00	1	TM
RZAUTX	87.4	-2.33 *	3.21	87.4	-2.33 *	0.00	1	SC
RZCGCX	142.6	1.07	6.47	142.6	1.07	0.00	1	HY
TMJKN4	118.8	-0.40	4.71	118.8	-0.40	0.00	1	TM
TQHVJ4	106.8	-1.14	6.34	106.8	-1.14	0.00	1	TM
TRCJ3Z	111.0	-0.88	9.43	111.0	-0.88	0.00	1	TM
UH497U	131.4	0.38	9.96	131.4	0.38	0.00	1	TM
UVAQDM	116.8	-0.52	4.02	116.8	-0.52	0.00	1	SC
W98FMT	131.2	0.37	5.78	131.2	0.37	0.00	1	TM
X7YHVW	142.6	1.07	7.02	142.6	1.07	0.00	1	HZ

Consensus (All Labs) Results			
Month Mean	125.28	Grand Mean	125.28
Avg SD	6.30	Avg SD Months	0.00
SD btwn Labs	16.24	SD btwn Labs	16.24
Labs Incl	22	Labs Incl	22

**Consensus By Method**

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	124.17	16.02	1.11	20
Modified Scott Bond Mechanics	150.32	0.00	25.04	1



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

**Report #631 (D)**  
**April 2022**

**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		



**Containerboard Interlaboratory Testing Program**  
 Analysis 234  
**COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H1**  
 TAPPI Official Test Method T815

**Report #631 (D)**  
**April 2022**

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
3WVVUY	23.7	-1.14	1.77	23.7	-1.14	0.00	1
6FXKZR	34.2	1.56	0.84	34.2	1.56	0.00	1
6P8UMK	22.2	-1.53	2.28	22.2	-1.53	0.00	1
8E4JAU	28.8	0.17	1.56	28.8	0.17	0.00	1
A9NP6A	26.0	-0.55	2.24	26.0	-0.55	0.00	1
AM6NCV	26.4	-0.45	1.14	26.4	-0.45	0.00	1
DXVF9B	30.6	0.64	4.88	30.6	0.64	0.00	1
EDJDMB	29.2	0.28	9.04 <b>H</b>	29.2	0.28	0.00	1
EVZEHD	29.2	0.28	1.92	29.2	0.28	0.00	1
F96THB	25.1	-0.78	1.67	25.1	-0.78	0.00	1
FF4HYE	19.2	-2.30 *	3.03	19.2	-2.30 *	0.00	1
FFJ2JC	28.2	0.02	0.84	28.2	0.02	0.00	1
H8MMXH	28.2	0.02	2.86	28.2	0.02	0.00	1
H9EL8A	24.2	-1.01	2.28	24.2	-1.01	0.00	1
K4ZK3H	28.0	-0.03	2.79	28.0	-0.03	0.00	1
L3XGNW	26.8	-0.34	2.77	26.8	-0.34	0.00	1
M47U3R	29.7	0.41	4.89	29.7	0.41	0.00	1
MTA337	20.8	-1.89	0.45 <b>L</b>	20.8	-1.89	0.00	1
PW3P8E	28.7	0.15	0.57 <b>L</b>	28.7	0.15	0.00	1
RYEBRW	29.2	0.27	1.42	29.2	0.27	0.00	1
RZAUTX	31.5	0.87	2.12	31.5	0.87	0.00	1
RZCGCX	35.0	1.77	3.67	35.0	1.77	0.00	1
TMJKN4	32.0	1.00	3.08	32.0	1.00	0.00	1
TQHVJ4	31.8	0.94	3.55	31.8	0.94	0.00	1
TRCJ3Z	24.2	-1.00	3.10	24.2	-1.00	0.00	1
UH497U	32.8	1.20	2.39	32.8	1.20	0.00	1
UVAQDM	29.9	0.46	1.63	29.9	0.46	0.00	1
W274QV	31.0	0.74	2.92	31.0	0.74	0.00	1
W98FMT	24.8	-0.86	3.77	24.8	-0.86	0.00	1
YXZGMH	32.5	1.13	6.67 <b>H</b>	32.5	1.13	0.00	1

Consensus (All Labs) Results			
Month Mean	28.13	Grand Mean	28.13
Avg SD	3.27	Avg SD Months	0.00
SD btwn Labs	3.88	SD btwn Labs	3.88
Labs Incl	30	Labs Incl	30



Containerboard Interlaboratory Testing Program  
Analysis 234  
**COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42H1**  
TAPPI Official Test Method T815

**Report #631 (D)**  
**April 2022**

**Key to Instrument Codes Reported by Participants**

ZZ Instruments No Longer Tracked





Containerboard Interlaboratory Testing Program  
Analysis 237

Report #631 (D)  
April 2022

Air Resistance, 42 lb Linerboard - 42H

TAPPI Official Test Method T460

WebCode	Monthly Results				Cumulative Results					
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst	
3TXG6N	33.0	0.34	2.55		33.0	0.34	0.00	1	LA	
3WVVUY	30.2	-1.30	2.94		30.2	-1.30	0.00	1	TP	
4NZDTV	35.6	1.85	3.78		35.6	1.85	0.00	1	TD	
4TQWQK_AL	33.7	0.72	1.83		33.7	0.72	0.00	1	AL	
4ZE89V	31.6	-0.52	1.32		31.6	-0.52	0.00	1	LA	
647YVH	34.3	1.08	0.68	L	34.3	1.08	0.00	1	LP	
6FXKZR_AL	33.3	0.48	2.22		33.3	0.48	0.00	1	AL	
6P8UMK	33.0	0.31	2.16		33.0	0.31	0.00	1	LP	
8E4JAU_AL	29.9	-1.50	4.09	H	29.9	-1.50	0.00	1	AL	
8M8V2H_AL	32.4	-0.04	2.15		32.4	-0.04	0.00	1	XX	
9WFQXW	31.8	-0.37	1.49		31.8	-0.37	0.00	1	LA	
AM6NCV	30.7	-1.03	1.34		30.7	-1.03	0.00	1	LA	
DXVF9B	31.9	-0.35	1.77		31.9	-0.35	0.00	1	GG	
EDJDMB	22.0	-6.10	1.34	X	22.0	-6.10	X	0.00	1	LP
EPVHYD_AL	33.8	0.79	1.32		33.8	0.79	0.00	1	AL	
EVZEHD_AL	32.3	-0.07	1.86		32.3	-0.07	0.00	1	AL	
F96THB_AL	33.0	0.31	1.36		33.0	0.31	0.00	1	AL	
FBD8PG	28.1	-2.55	2.56	*	28.1	-2.55	*	0.00	1	XX
FF4HYE	33.8	0.78	1.57		33.8	0.78	0.00	1	LP	
H8MMXH	52.2	11.49	1.79	X	52.2	11.49	X	0.00	1	LP
H8MMXH_AL	34.6	1.25	2.72		34.6	1.25	0.00	1	AL	
H9EL8A	31.8	-0.38	1.76		31.8	-0.38	0.00	1	LP	
JK7PTE	31.9	-0.33	2.73		31.9	-0.33	0.00	1	GG	
JN9QTC	31.6	-0.51	1.84		31.6	-0.51	0.00	1	GG	
JN9QTC_AL	33.2	0.43	1.69		33.2	0.43	0.00	1	AL	
K4ZK3H_AL	32.2	-0.14	2.44		32.2	-0.14	0.00	1	AK	
K8CT78	29.5	-1.71	1.91		29.5	-1.71	0.00	1	LP	
KV7KM4	32.5	-0.01	1.07	L	32.5	-0.01	0.00	1	LA	
M47U3R_AL	31.3	-0.68	4.88	H	31.3	-0.68	0.00	1	AK	
MTA337	33.2	0.45	3.80		33.2	0.45	0.00	1	TD	
RZAUTX_AL	33.8	0.76	2.42		33.8	0.76	0.00	1	AL	
RZCGCX	32.3	-0.10	2.27		32.3	-0.10	0.00	1	LP	
T4LGMU_AL	33.5	0.62	1.89		33.5	0.62	0.00	1	AL	
TMJKN4_AL	35.1	1.55	2.64		35.1	1.55	0.00	1	AL	
TQHVJ4_AL	33.5	0.57	3.14		33.5	0.57	0.00	1	AL	
TRCJ3Z_AL	34.2	0.98	1.36		34.2	0.98	0.00	1	XX	
TU7A9E	28.6	-2.26	2.17	*	28.6	-2.26	*	0.00	1	LP
UH497U	33.8	0.78	5.25	H	33.8	0.78	0.00	1	GA	
UVAQDM	32.4	-0.06	2.03		32.4	-0.06	0.00	1	LP	



**Containerboard Interlaboratory Testing Program**  
Analysis 237

**Report #631 (D)**  
**April 2022**

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

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
VVRVUZ	25.2	-4.26 X	1.49	25.2	-4.26 X	0.00	1	LA
W274QV	30.3	-1.26	1.42	30.3	-1.26	0.00	1	XX
W98FMT_AL	31.9	-0.33	1.18	31.9	-0.33	0.00	1	AL
YXZGMH	35.0	1.46	3.86	35.0	1.46	0.00	1	GA

Consensus (All Labs) Results				
Month Mean		32.47	Grand Mean	32.47
Avg SD		2.50	Avg SD Months	0.00
SD btwn Labs		1.71	SD btwn Labs	1.71
Labs Includ		40	Labs Includ	40

**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  
**Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM12**  
 TAPPI Official Test Method T809

**Report #631 (D)**  
**April 2022**

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			
39Q86R	58.9	58.6	58.9	58.3	58.7	0.21	3.4	0.3	L	58.8	0.21	3.3	0.5	L	16	LD
3TXG6N	56.3	52.2	55.0	56.5	55.0	-1.07	4.3	2.0		55.6	-0.91	4.3	2.6		16	TU
3WVVUY	58.4	60.3	58.8	59.0	59.1	0.37	4.3	0.8		59.7	0.50	4.0	1.3		16	LC
4NZDTV	49.5 *	50.0 *	50.2 *	47.1 X	49.2	-3.09 X	3.2	1.4		49.8	-2.97 X	3.7	1.6		16	TH
4QPPQF	59.1	57.5	61.0	63.0	60.2	0.73	4.1	2.4		60.1	0.64	3.8	2.4		16	LD
4ZE89V	52.1	50.8 *	48.3 *	54.7	51.5	-2.30 *	3.7	2.7		50.7	-2.64 *	3.2	2.1		16	MB
647YVH	56.5	56.3	59.3	58.1	57.6	-0.18	3.0	1.4		57.5	-0.25	3.2	1.4		16	LD
6EPH6G	57.3	56.5 L	56.8	56.9	56.8	-0.42	2.1	0.3		57.1	-0.41	2.3	0.8		16	EN
6P8UMK	57.0	57.6	52.8	56.3	55.9	-0.74	4.8	2.1		56.5	-0.60	3.9	1.8		16	LD
7R9HH2	58.1	58.4	57.3 H	57.9	57.9	-0.06	5.4	0.5		58.2	-0.02	5.7	0.8		16	TG
8K7TCG	58.4	59.3	59.1	57.9	58.7	0.21	3.4	0.6		58.5	0.09	3.4	0.5	L	16	LC
8M8V2H	63.3	61.3	63.8	63.2	62.9	1.69	3.2	1.1		62.3	1.43	4.0	2.6		16	LD
94W29C	59.8	60.4	59.1	59.1	59.6	0.53	3.2	0.7		58.0	-0.09	3.2	1.8		12	LD
974LT6	61.4	61.2	62.5	66.5 *	62.9	1.68	3.3	2.5		64.3	2.14 *	3.9	2.1		16	TX
98WC6C	55.4	57.3	60.7	61.2	58.7	0.20	3.3	2.8		59.8	0.54	3.1	2.2		16	LC
9G482P	60.9	65.9 *H	59.5	58.9	61.3	1.13	4.8	3.2		59.4	0.40	3.2	2.3		16	LC
9UBX7H	54.4	54.4	54.3	54.6	54.4	-1.27	2.6	0.1	L	56.0	-0.79	2.6	1.1		16	LD
9UDMAF	58.3	58.4	58.3	58.6	58.4	0.12	1.8	0.1	L	58.5	0.09	1.5	0.2	L	16	LD
9WFQXW	54.8	54.7	53.5	52.8	54.0	-1.43	4.9	1.0		54.1	-1.44	5.2	1.6		14	MB
A9NP6A	59.7	62.0	63.3	57.5	60.6	0.88	4.1	2.6		60.7	0.88	4.4	1.6		16	LZ
AM6NCV	58.7 L	58.5 L	58.8 L	59.1 L	58.8	0.25	1.4	0.3	L	58.7	0.16	1.6	0.3	L	16	LD
AZ99BE	58.8	59.2	59.5	58.2	58.9	0.30	3.5	0.6		58.8	0.20	3.2	0.5	L	16	LD
CB7NDN	56.5	56.4	56.8	56.8 L	56.6	-0.50	1.7	0.2	L	59.5	0.44	1.7	1.7		16	MB
CVUDKV	61.8 H	58.3	59.0	59.9	59.8	0.59	5.0	1.5		58.6	0.12	4.9	1.3		16	TJ
DEXGH3	62.1	61.4	62.3	63.1	62.2	1.44	3.1	0.7		61.8	1.25	3.5	1.1		16	LD
EDJDMB	61.6	61.0	62.2	62.1	61.7	1.27	4.2	0.6		60.8	0.90	3.9	1.6		16	LD
EPYZ2H	64.9 *	65.5 *H	66.6 *	63.7	65.1	2.46 *	5.0	1.2		65.1	2.41 *	4.2	2.6		16	LC
EVZEHD	61.7	62.5	58.4	62.2	61.2	1.09	4.2	1.9		61.2	1.03	4.2	2.2		16	LZ
F96THB	54.4	54.1	54.6	55.6	54.7	-1.18	2.0	0.7		54.1	-1.45	2.6	1.4		16	LD
FBD8PG	55.3	57.0	56.2	53.3	55.4	-0.91	2.8	1.6		56.4	-0.65	3.5	2.6		16	LD
FETMB3	53.2	55.0	56.9 H	55.2	55.1	-1.05	4.0	1.5		56.3	-0.67	3.4	2.1		16	TH
FF4HYE	56.5	55.8	58.1	58.6	57.2	-0.29	3.0	1.3		58.8	0.20	4.0	2.1		16	LZ
H8MMXH	58.1	55.4	53.1	55.5	55.5	-0.88	3.3	2.1		54.3	-1.38	3.6	2.3		16	LD
HU29UH	61.1 L	60.4 L	62.5 L	58.6 L	60.6	0.89	1.1	1.6		60.7	0.86	1.0	1.7	8	XX	
JD93W9	56.7	54.8	54.9	55.3	55.4	-0.92	3.5	0.9		55.1	-1.08	3.7	1.2		16	LC



Containerboard Interlaboratory Testing Program  
Analysis 240

Report #631 (D)  
April 2022

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

TAPPI Official Test Method T809

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
JN9QTC	63.5	No DATA	61.3 L	62.2	62.4	1.49	3.4	1.1	62.6	1.53	2.8	1.2	10	LZ
K8CT78	55.5	59.9	54.3	60.4	57.5	-0.19	2.9	3.0	58.5	0.09	3.9	2.0	16	LD
K8WALA	62.2	53.3	55.6	56.9	57.0	-0.37	5.1	3.7 H	60.3	0.72	4.6	3.5	16	LD
LU8UVF	55.5 L	55.9 L	55.2 L	56.0	55.7	-0.84	1.3	0.4	56.8	-0.51	1.2	3.0	16	TU
M47U3R	55.5	58.8	58.2	56.7	57.3	-0.27	3.8	1.5	57.5	-0.26	4.1	2.0	16	LD
PW3P8E	63.3	60.5	61.9	62.7	62.1	1.41	3.1	1.2	61.6	1.17	3.8	1.3	16	LD
Q8T2DN	59.2 L	59.2 L	59.2 L	59.3 L	59.2	0.39	0.8	0.1 L	59.5	0.46	1.0	0.2 L	16	LD
QHFVVC	53.0	55.1	53.6	53.0	53.7	-1.53	3.5	1.0	53.7	-1.59	3.5	1.0	4	RS
R3KWJ4	56.9	55.9	58.9	55.7	56.9	-0.42	2.6	1.5	57.4	-0.27	3.2	1.9	16	EM
RYEBRW	58.3	58.6	58.9	60.1	59.0	0.31	3.2	0.8	59.0	0.26	5.5	1.9	16	EN
RZCGCX	No DATA	No DATA	No DATA	61.5	61.5	1.18	4.0	0.0	60.4	0.75	2.5	0.7	4	LD
TQHVJ4	56.4	59.4	57.5	61.3	58.7	0.20	3.5	2.2	60.4	0.76	3.5	4.7 H	15	LC
UH497U	54.8	58.1	55.8	54.7	55.8	-0.78	3.4	1.6	57.0	-0.43	3.9	1.8	16	LD
VG8FLV	58.4 H	60.9	63.9 H	61.5	61.2	1.08	6.3	2.2	60.5	0.79	4.4	2.5	16	LD
VQWY8V	59.9	53.8 H	53.6	52.9	55.1	-1.05	5.3	3.3	55.8	-0.86	4.3	2.6	16	LD
VVRVUZ	55.4	51.2 *	52.9	52.1	52.9	-1.80	2.8	1.8	52.1	-2.13 *	2.9	1.9	8	LD
WCPGPR	56.0	56.4 L	55.3	58.0	56.4	-0.57	1.9	1.1	54.4	-1.32	9.2	5.1 H	16	XX
X7YHVW	59.8	57.7	58.3	56.8	58.2	0.04	3.2	1.2	59.1	0.31	3.3	1.6	16	LD
X8RDH7	58.8	57.8	58.9	58.1 L	58.4	0.12	3.6	0.5	58.7	0.17	3.7	2.1	16	TH
YBBRJK	57.7	59.6	57.1	56.7	57.8	-0.10	2.6	1.3	57.4	-0.28	3.1	1.2	16	LZ
YRTTAG	53.7	55.4	54.0	53.1	54.0	-1.40	2.6	1.0	54.9	-1.16	3.4	1.3	16	LD
YXZGMH	59.9	59.8	59.2	56.1	58.7	0.23	3.2	1.8	58.0	-0.09	3.3	1.3	16	LZ

Consensus (All Labs) Results														
Wk Mean	57.93	57.74	57.78	58.11	Month Mean	58.07			Grand Mean	58.23				
Avg SDr	3.34	3.81	3.57	3.52	Avg SD	3.58			Avg SD	3.75				
SD btwn Labs	3.14	3.29	3.57	3.22	SD btwn Labs	2.87			SD btwn Labs	2.86				
Labs Incl	56	55	56	56	SD btwn Wks	1.64			SD btwn Wks	2.00				
Labs Excl	0	0	0	1	Labs Incl	56			Labs Incl	55				
Labs not Rcvd	1	2	1	0										



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

**Report #631 (D)**  
**April 2022**

**Key to Instrument Codes Reported by Participants**

<b>EM</b>	Emerson 1200 Series	<b>EN</b>	Emerson 2200 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>RS</b>	Regmed Digital Crush Tester CT-2000	<b>TG</b>	TMI Compression Tester, Model 17-10
<b>TH</b>	TMI Compression Tester, Model 17-76	<b>TJ</b>	TLS Compression Tester, Model CDM-5
<b>TU</b>	TMI Universal Crush Tester (TMI K440)	<b>TX</b>	TMI Crush Tester (model not specified)
<b>XX</b>	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program  
Analysis 250

Report #631 (D)  
April 2022

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

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	
3WVVUY	69.2	70.6	70.9	71.1	70.4	0.82	3.4	0.9	70.7	0.92	3.1	1.6	16	LC
647YVH	70.5	72.3	72.7	71.9	71.8	1.72	3.0	1.0	70.3	0.73	3.3	2.0	16	LD
6P8UMK	72.1	70.3	70.8	73.2 *	71.6	1.56	3.5	1.3	72.6	1.80	3.7	1.6	16	LD
8K7TCG	68.5	69.2	68.3	68.0	68.5	-0.40	2.8	0.5	69.1	0.16	3.2	0.6 L	16	LD
94W29C	66.5	67.7	71.5	71.2	69.2	0.06	2.6	2.5	68.3	-0.20	3.0	2.0	12	LD
9UDMAF	68.7 L	68.9	68.9 L	68.9 L	68.9	-0.18	1.4	0.1 L	69.4	0.30	1.6	0.4 L	16	LD
AM6NCV	69.2	68.6	68.9 L	68.5 L	68.8	-0.21	1.4	0.3	68.9	0.08	1.6	0.3 L	16	LD
CB7NDN	69.4	69.8	69.0	69.9	69.6	0.27	1.7	0.4	69.0	0.13	1.7	1.2	16	MB
EDJDMB	64.9	69.0 H	66.0	67.0	66.7	-1.53	4.3	1.7	68.2	-0.24	4.1	1.5	16	LD
EVZEHD	66.0	67.5	66.1	67.8	66.9	-1.44	4.3	0.9	66.7	-0.92	3.7	1.5	16	LZ
F96THB	69.9	70.6	69.0	68.5	69.5	0.23	3.6	0.9	70.4	0.80	3.3	1.7	16	LD
H8MMXH	60.6 XH	58.5 XH	60.7 *H	58.8 XH	59.6	-5.99 X	7.7	1.2	63.9	-2.23 *	6.2	5.2	16	LD
HU29UH	67.9 L	66.8 L	68.8 L	71.5 L	68.7	-0.25	1.2	2.0	69.9	0.53	1.1	1.9	8	XX
K8CT78	72.7	71.3	70.8	71.7	71.6	1.57	3.0	0.8	70.2	0.70	3.6	1.8	16	LD
M47U3R	68.2	68.8	68.3	69.9	68.8	-0.21	3.8	0.8	68.4	-0.17	3.7	1.8	16	LD
TQHVJ4	70.2	71.9	72.7	66.6	70.4	0.77	3.0	2.7 H	70.0	0.57	3.8	4.0	15	LC
VVRVUZ	66.2	66.3	66.9	68.1	66.9	-1.43	3.4	0.9	63.8	-2.29 *	3.3	7.1 H	16	LD
WEVZRU	68.5	67.8	67.3	67.4	67.7	-0.88	2.9	0.6	67.8	-0.45	2.4	0.6 L	16	LD
X8RDH7	63.2 *	61.9 X	62.3 *	66.2 H	63.4	-3.61 X	5.3	1.9	62.9	-2.73 X	3.5	1.4	16	TH
YBBRJK	66.7	71.0	68.2	67.6	68.4	-0.49	4.0	1.8	68.2	-0.25	3.4	1.4	16	LZ

Consensus (All Labs) Results									
Wk Mean	68.34	69.34	68.40	69.21	Month Mean	69.13	Grand Mean	68.72	
Avg SDr	3.34	2.72	3.52	3.77	Avg SD	3.10	Avg SD	3.35	
SD btwn Labs	2.36	1.74	3.05	2.05	SD btwn Labs	1.59	SD btwn Labs	2.14	
Labs Incl	19	18	20	19	SD btwn Wks	1.33	SD btwn Wks	2.60	
Labs Excl	1	2	0	1	Labs Incl	18	Labs Incl	19	
Labs not Rcvd	0	0	0	0					

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TH	TMI Compression Tester, Model 17-76	XX	Instrument make/model not specified by lab



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

**Report #631 (D)**  
**April 2022**

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
39Q86R	43.7	44.1	43.7	43.8	43.8	-0.35	2.4	0.2 L	43.9	-0.47	3.2	0.4 L	16	LD
3WVVUY	42.1	43.5	47.6	44.6	44.5	0.02	3.4	2.4	45.0	0.35	3.4	2.1	16	LC
4QPPQF	42.8	46.1	43.0	43.4	43.8	-0.35	3.7	1.5	45.0	0.37	3.7	1.5	16	LZ
647YVH	42.1	44.0	42.6	42.1 H	42.7	-1.01	4.0	0.9	42.6	-1.42	3.6	1.1	16	LD
6P8UMK	43.9	43.1	42.7	44.3	43.5	-0.56	3.2	0.7	44.2	-0.23	3.3	1.2	16	XX
8G8C4T	43.3	46.1	44.8	45.8	45.0	0.36	2.9	1.3	44.4	-0.08	3.0	1.3	16	TH
974LT6	49.6 *	41.6	42.1	42.6 H	44.0	-0.27	3.8	3.8 H	44.8	0.17	3.9	2.8	16	LZ
9G482P	45.7	48.1	47.8	48.0	47.4	1.76	2.6	1.1	48.0	2.56 *	2.2	0.8	16	LC
9UBX7H	46.2	46.3	44.7	45.8	45.7	0.76	2.5	0.7	45.1	0.43	2.5	1.0	16	LC
9WFQXW	46.8	44.0	43.4	42.3	44.1	-0.17	3.6	1.9	45.2	0.50	4.2	3.1	14	MB
AM6NCV	44.7	44.3	44.0	44.1	44.3	-0.09	2.9	0.3	44.3	-0.19	2.9	0.3 L	16	LD
BRX62U	46.7	47.7	46.0	48.0	47.1	1.57	2.2	0.9	45.1	0.42	3.1	2.0	12	LD
CB7NDN	42.9	42.8	42.6	42.4	42.7	-1.01	1.6	0.2 L	43.4	-0.85	1.7	1.0	16	MB
EPYZ2H	37.6 X	36.6 X	37.1 *	36.5 *	36.9	-4.41 X	3.3	0.5	35.4	-6.69 X	3.7	1.7	16	XX
F96THB	44.9	43.7	45.1	44.8	44.6	0.11	1.9	0.6	43.6	-0.69	2.7	1.5	16	LD
FBD8PG	45.3	44.8 L	45.5	50.0	46.4	1.15	3.1	2.4	44.5	-0.02	3.8	2.7	16	LD
FETMB3	34.3 X	32.6 X	36.8 *	36.1 *	34.9	-5.59 X	2.5	1.9	36.4	-5.91 X	2.5	1.9	16	TH
K8CT78	43.6	41.3	44.3 H	44.5	43.4	-0.59	3.8	1.5	43.6	-0.70	3.4	1.8	16	LD
K8WALA	46.5	44.2	42.2	45.4	44.6	0.09	3.5	1.9	43.8	-0.55	3.8	3.4	16	EM
LU8UVF	41.2 L	41.3 L	42.0 L	42.2 L	41.7	-1.61	0.9	0.5	43.0	-1.10	1.0	1.6	16	TU
Q8T2DN	45.7 L	45.8 L	45.8 L	45.8 L	45.8	0.80	0.7	0.0 L	45.7	0.87	0.7	0.1 L	16	LD
R3KWJ4	47.2	48.2	48.3	49.9	48.4	2.34 *	2.8	1.1	47.2	1.98 *	3.2	1.4	16	EM
VG8FLV	43.8	45.0	43.4	43.2	43.9	-0.34	3.1	0.8	45.4	0.66	3.3	1.3	16	LD
X7YHVW	46.6	42.4	45.3	43.7	44.5	0.04	3.2	1.8	44.5	-0.05	3.1	1.4	16	LD
X8RDH7	41.6	41.3	41.1	44.7	42.2	-1.33	2.5	1.7	41.6	-2.15 *	2.8	1.9	16	TH
YXZGMH	41.9	42.4	44.0	40.5	42.2	-1.32	2.6	1.5	41.8	-1.98 *	2.9	1.6	16	LD

Consensus (All Labs) Results														
Wk Mean	44.53	44.25	43.68	44.02	Month Mean	44.42				Grand Mean	44.53			
Avg SDr	2.85	3.11	2.86	2.88	Avg SD	2.92				Avg SD	3.10			
SD btwn Labs	2.14	2.10	2.72	3.23	SD btwn Labs	1.70				SD btwn Labs	1.37			
Labs Incl	24	24	26	26	SD btwn Wks	1.50				SD btwn Wks	1.75			
Labs Excl	2	2	0	0	Labs Incl	24				Labs Incl	23			
Labs not Rcvd	0	0	0	0										



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

**Report #631 (D)**  
**April 2022**

**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>XX</b>	Instrument make/model not specified by lab





Containerboard Interlaboratory Testing Program

Analysis 261

Report #631 (D)

April 2022

STFI, 26 lb Corrugating Medium - CM12

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
3TXG6N	14.2	13.4	14.2	13.5	13.8	0.03	0.9	0.4	13.7	-0.24	1.1	0.6	16	LA
3WVVUY	13.7	14.1	14.2	14.6	14.1	0.61	1.1	0.4	14.0	0.26	1.0	0.3	16	LU
4NZDTV	13.6	13.5	13.1	14.3	13.6	-0.35	1.0	0.5	13.5	-0.86	1.2	0.5	14	TS
4ZE89V	14.0	14.2 H	12.0 *H	13.7	13.5	-0.69	2.4	1.0	14.3	0.96	1.6	0.9	16	LA
6EPH6G	13.2	13.4	13.2	13.0	13.2	-1.21	1.1	0.2	13.1	-1.57	1.0	0.3	16	LH
8K7TCG	13.6	13.3	13.0 L	14.1	13.5	-0.64	0.9	0.5	13.6	-0.57	0.9	0.5	16	LB
9UBX7H	14.2	14.6 *	14.0	14.3	14.3	0.92	1.2	0.2	13.9	0.01	1.1	0.5	16	LH
9UDMAF	13.7 L	13.6 L	13.7 L	13.6 L	13.7	-0.29	0.4	0.1 L	13.8	-0.12	0.4	0.1 L	16	LA
9WFQXW	14.5	13.2	14.7	14.8 H	14.3	1.00	1.3	0.8	15.0	2.42 *	1.2	0.9	14	LA
AM6NCV	14.0	13.9	13.9	13.9	13.9	0.21	1.0	0.0 L	13.9	0.10	1.1	0.1 L	16	LB
AZ99BE	13.2	13.1	14.2	12.9	13.3	-0.98	0.8	0.6	13.6	-0.50	0.9	0.5	12	LB
BRX62U	14.3	13.9 H	12.8	12.8	13.4	-0.72	1.5	0.8	13.4	-0.92	1.3	0.8	16	LA
CVUDKV	14.3	14.1	13.5	13.7	13.9	0.16	1.2	0.4	14.0	0.29	1.1	0.3	16	TT
F96THB	12.5 *	13.4	13.7	14.5	13.5	-0.64	0.8	0.8	13.8	-0.06	0.9	0.6	16	LA
G4PN28	13.8	13.6	14.2	13.9	13.9	0.19	1.1	0.2	13.9	0.02	1.0	0.6	16	LA
H8MMXH	13.3 H	14.0	14.6	14.6	14.1	0.60	1.9	0.6	13.8	-0.08	1.3	0.4	16	LA
HU29UH	12.9	13.2	13.1	12.4 *L	12.9	-1.83	1.2	0.4	13.9	0.08	1.3	1.2 H	8	XX
M47U3R	14.3	15.5 X	13.5	15.2	14.6	1.65	1.3	0.9	14.7	1.95 *	1.3	0.6	16	LA
MB84EC	13.1	13.7	13.4	12.9	13.3	-1.03	1.1	0.3	13.3	-1.22	1.1	0.3	4	LB
PW3P8E	14.6 L	14.4 L	14.9 L	14.9	14.7	1.77	0.5	0.3	14.5	1.47	0.7	0.4	16	LH
QHFVVC	13.6	14.3	15.0	14.5 L	14.3	1.01	1.1	0.6	14.3	1.02	1.1	0.6	4	XX
T8M88M	13.6	13.5	14.3	13.7	13.8	-0.07	0.8	0.4	13.6	-0.51	1.0	0.6	16	LA
UH497U	14.2	13.3	13.1	13.9	13.6	-0.38	1.1	0.5	13.1	-1.56	1.1	0.6	16	LU
VG8FLV	14.9 *	14.3	14.8	14.5	14.6	1.64	1.0	0.3	10.5	-7.29 X	0.9	5.9 H	12	XX
W98FMT	14.6	15.3 X	14.1	14.1 H	14.5	1.39	1.2	0.5	14.1	0.54	1.1	0.4	16	LA
X8RDH7	13.6	13.2	12.8 L	13.6	13.3	-1.03	0.8	0.4	12.5	-2.92 X	0.8	0.7	16	LZ
YXZGMH	13.4	13.6	13.0 L	12.6	13.2	-1.31	1.0	0.4	13.4	-0.92	1.0	0.4	16	LZ

Consensus (All Labs) Results														
Wk Mean	13.80	13.70	13.74	13.87	Month Mean	13.81			Grand Mean	13.85				
Avg SDr	1.17	1.07	1.36	1.05	Avg SD	1.17			Avg SD	1.10				
SD btwn Labs	0.57	0.44	0.76	0.75	SD btwn Labs	0.50			SD btwn Labs	0.46				
Labs Incl	27	25	27	27	SD btwn Wks	0.52			SD btwn Wks	0.57				
Labs Excl	0	2	0	0	Labs Incl	27			Labs Incl	25				
Labs not Rcvd	0	0	0	0										



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

**Report #631 (D)**  
**April 2022**

**Key to Instrument Codes Reported by Participants**

<b>LA</b>	L&W Autoline	<b>LB</b>	L&W Model 152
<b>LH</b>	L&W 282	<b>LU</b>	L&W 52 without moisture correction (was 53)
<b>LZ</b>	L&W (model not specified)	<b>TS</b>	TMI Monitor/STFI Compression Tester, 17-33
<b>TT</b>	TMI Short Span Compression, 17-34 (MB K455)	<b>XX</b>	Instrument make/model not specified by lab

End of Report