

Containerboard Interlaboratory Testing Program

Participant Summary Report #612 (K) - September 2020

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX14</u>	<u>Top to Bottom Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC13</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC13</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42F2</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>206</u>	<u>56G1</u>	<u>Bursting Strength (Mullen), 56 lb Linerboard</u>
<u>215</u>	<u>42F2</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>216</u>	<u>56G1</u>	<u>Ring Crush, 56 lb Linerboard</u>
<u>223</u>	<u>42F2</u>	<u>STFI, 42 lb Linerboard</u>
<u>224</u>	<u>56G1</u>	<u>STFI, 56 lb Linerboard</u>
<u>228</u>	<u>42F2</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42F2</u>	<u>Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42F</u>	<u>Internal Bond, 42 lb Linerboard</u>
<u>234</u>	<u>42F</u>	<u>COF Inclined Plane (Slide Angle), 42 lb Linerboard</u>
<u>237</u>	<u>42F</u>	<u>Air Resistance, 42 lb Linerboard</u>
<u>240</u>	<u>CM11</u>	<u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM11</u>	<u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM11</u>	<u>Ring Crush (RCT), 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM11</u>	<u>STFI, 26 lb Corrugating Medium</u>

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

The Interlaboratory Testing Program for Containerboard is operated and maintained by Collaborative Testing Services, Inc. (CTS), with technical guidance provided by the Containerboard Group of the American Forest & Paper Association. The tests are conducted on a monthly basis.

For these tests samples of linerboard and corrugating medium, that each have been separately randomized from narrow rolls, are distributed for testing weekly. One weight of medium (26 lb.) is used for Concora Flat Crush Strength, Corrugated Fluted Crush Strength, Ring Crush Strength, and STFI Compression. Two weights of linerboard are tested each month for Mullen Burst, Ring Crush, and STFI Compression: 42 lb. - every month; 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

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM11	April 2019-Current
	CM92	January 2019-March 2019
35 lb Linerboard	35E2	June 2020-Current
	35E1	February 2019-April 2020
42 lb Linerboard	42F2	February 2020-Current
	42F1	January 2019-January 2020
56 lb Linerboard	56G1	January 2020-Current
	56A2	January 2019-November 2019

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

Consensus Data

- Wk Mean - For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.
- Avg SD - For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.
- SD btwn Labs - For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.
- Labs Includ - The number of laboratory Means included in the Wk Mean for that week.
- Labs Exclud - 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 Incl - 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:

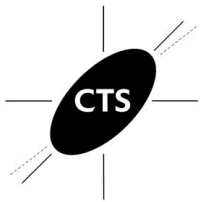
- X** Excluded from the weekly means, monthly means and/or the cumulative mean. Immediate review of data and/or testing procedure is recommended.
- *** Included in the weekly means, monthly means and/or the cumulative mean; however, lab should review testing procedure and monitor future results.

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).



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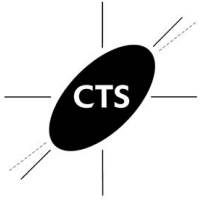
Top to Bottom Box Compression Strength, Corrugated Boxes - BX14

TAPPI Official Test Method T804

WebCode	Monthly Results				Cumulative Results				Inst	
	Mean	CPV	SD		Mean	CPV	SD Months	Months		
2L4H8D	494.0	-1.47	25.89		506.7	-1.69	16.84	4	LS	
2VTCE4	580.2	-0.10	58.80		574.8	-0.20	31.75	4	ER	
2ZPXBC	584.8	-0.03	32.35		582.4	-0.04	18.08	4	ER	
4M8XRN	526.1	-0.96	24.48		539.9	-0.97	28.58	4	LG	
7KVWK9	544.3	-0.67	27.40		560.6	-0.51	30.48	4	LM	
8GAF3M	558.9	-0.44	78.82	H	568.7	-0.34	11.76	4	LS	
92UWL8	657.1	1.12	59.32		578.0	-0.13	54.76	4	LL	
9JWGJV	560.0	-0.42	13.13		580.7	-0.07	16.60	4	LG	
AFUU8H	579.4	-0.11	22.39		564.0	-0.44	21.78	2	ET	
BQA4B3	517.4	-1.10	32.50		547.4	-0.80	24.06	4	LS	
CQ2MP9	482.0	-1.66	6.04	L	480.7	-2.26 *	2.44	L	4	LL
EL7CTF	521.5	-1.03	15.29		559.1	-0.54	71.26	4	ET	
EP24YR	589.0	0.04	26.52		589.9	0.13	65.74	4	ES	
ER7QF3	605.6	0.30	33.21		543.6	-0.88	44.74	4	EX	
FA72XD	683.8	1.54	70.77		589.3	0.11	70.82	4	EX	
FPZTHE	626.6	0.63	25.50		607.3	0.51	19.96	4	TC	
GAZ7TX	648.8	0.99	59.41		642.8	1.28	11.61	4	ER	
HCKH4M	547.7	-0.62	43.76		549.8	-0.75	21.39	4	ER	
L9UGDH	563.2	-0.37	66.06		569.9	-0.31	27.08	4	LG	
PDACKQ	628.1	0.66	52.31		642.1	1.27	78.95	4	LL	
QFTQNQ	631.5	0.71	51.78		589.0	0.11	52.70	3	LH	
R4YWQM	622.0	0.56	44.81		631.3	1.03	6.78	4	TE	
R7JK9E	584.9	-0.03	38.90		598.2	0.31	9.80	4	LM	
TDYJHK	568.0	-0.29	26.99		593.7	0.21	19.66	4	EX	
ULDRJL	708.4	1.93 *	24.49		640.6	1.23	47.41	4	TB	
WNQCGK	678.3	1.45	17.20		667.3	1.82	28.38	4	LG	
X6WVTH	464.6	-1.93 *	22.58		555.6	-0.62	75.47	4	LS	
Y4TRES	686.2	1.58	37.73		697.3	2.47 *	34.61	4	EM	
YP9AJ9	567.5	-0.30	23.25		586.9	0.06	16.41	4	LO	

Consensus (All Labs) Results

Month Mean	586.55	Grand Mean	584.04
Avg SD	40.92	Avg SD Months	39.71
SD btwn Labs	63.14	SD btwn Labs	45.78
Labs Incd	29	Labs Incd	29



Containerboard Interlaboratory Testing Program
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Top to Bottom Box Compression Strength, Corrugated Boxes - BX14

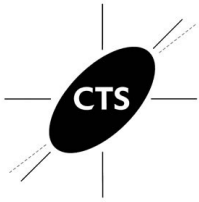
TAPPI Official Test Method T804

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	609.37	64.48	22.83	8
Water based adhesive sealing	686.20	0.00	99.65	1
Clip sealing	572.43	58.24	14.11	20

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



Containerboard Interlaboratory Testing Program
Analysis 202

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September 2020

Edgewise Compressive Strength, by T811, Corrugated Board - EC13

TAPPI Official Test Method T811

WebCode	Monthly Results			Cumulative Results					
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst	
2L4H8D	23.8	-5.76 X	1.67	23.8	-5.76 X	0.00	1	EM	
8GAF3M	39.4	-0.82	2.46	39.4	-0.82	0.00	1	LD	
9JWGJV	43.5	0.45	2.26	43.5	0.45	0.00	1	LE	
BQA4B3	47.3	1.66	1.09	47.3	1.66	0.00	1	LC	
D884B2	41.2	-0.26	1.64	41.2	-0.26	0.00	1	XX	
DJW334	47.1	1.59	1.08	47.1	1.59	0.00	1	LC	
FA72XD	43.4	0.44	3.07	43.4	0.44	0.00	1	LC	
FYKWPE	39.2	-0.89	1.01	39.2	-0.89	0.00	1	XX	
K7MYEL	40.8	-0.40	3.70 H	40.8	-0.40	0.00	1	LD	
X4FXZH	38.6	-1.09	2.74	38.6	-1.09	0.00	1	TX	
ZTPWVT	39.9	-0.68	0.88 L	39.9	-0.68	0.00	1	TF	

Consensus (All Labs) Results			
Month Mean	42.05	Grand Mean	42.05
Avg SD	2.20	Avg SD Months	0.00
SD btwn Labs	3.18	SD btwn Labs	3.18
Labs Incd	10	Labs Incd	10

Key to Instrument Codes Reported by Participants

- | | |
|--|-------------------------------------|
| EM Emerson 1200 Series | 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 | TX TMI (model not specified) |
| XX Instrument make/model not specified by lab | |



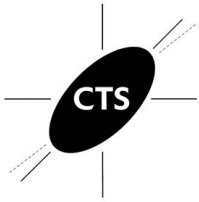
Containerboard Interlaboratory Testing Program
Analysis 203

Report #612 (K)
September 2020

Edgewise Compressive Strength by T839, Corrugated Board - EC13

TAPPI Official Test Method T839

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2L4H8D	39.7	-1.69	1.13	39.7	-1.69	0.00	1	EM
2VTCE4	44.9	0.19	1.80	44.9	0.19	0.00	1	LD
2ZPXBC	45.8	0.51	1.66	45.8	0.51	0.00	1	LD
4M8XRN	46.8	0.87	1.40	46.8	0.87	0.00	1	TJ
7KVWK9	39.7	-1.69	1.49	39.7	-1.69	0.00	1	TG
82K88B	47.3	1.06	2.00	47.3	1.06	0.00	1	TL
8GAF3M	44.3	-0.05	1.18	44.3	-0.05	0.00	1	LD
92UWL8	47.4	1.10	2.02	47.4	1.10	0.00	1	TS
9JWGJV	43.2	-0.43	2.83	43.2	-0.43	0.00	1	LY
AFUU8H	45.7	0.47	1.91	45.7	0.47	0.00	1	EM
AYK7W3	48.0	1.30	2.11	48.0	1.30	0.00	1	LD
BQA4B3	47.0	0.95	2.00	47.0	0.95	0.00	1	LC
CQ2MP9	41.5	-1.05	2.17	41.5	-1.05	0.00	1	LC
D4LLTF	46.0	0.58	1.28	46.0	0.58	0.00	1	EM
D884B2	42.1	-0.83	1.25	42.1	-0.83	0.00	1	XX
DJW334	46.9	0.92	1.35	46.9	0.92	0.00	1	LC
EGRUBY	47.1	0.97	2.16	47.1	0.97	0.00	1	TG
EL7CTF	42.9	-0.54	2.39	42.9	-0.54	0.00	1	TD
EP24YR	46.7	0.84	2.37	46.7	0.84	0.00	1	LD
ER7QF3	46.0	0.59	2.67	46.0	0.59	0.00	1	CT
EXCKAX	39.9	-1.61	1.66	39.9	-1.61	0.00	1	TD
FA72XD	45.1	0.26	1.67	45.1	0.26	0.00	1	LC
GAZ7TX	44.2	-0.06	1.71	44.2	-0.06	0.00	1	EM
HCKH4M	44.3	-0.03	2.30	44.3	-0.03	0.00	1	EN
HPQTCV	38.8	-2.01 *	1.86	38.8	-2.01 *	0.00	1	LC
K7MYEL	39.1	-1.92	1.85	39.1	-1.92	0.00	1	LD
KNPF6T	35.6	-3.16 X	1.02	35.6	-3.16 X	0.00	1	XX
MEBA68	44.0	-0.14	2.06	44.0	-0.14	0.00	1	TD
NB8U9P	41.5	-1.05	1.53	41.5	-1.05	0.00	1	LC
QFTQNQ	47.1	0.99	1.49	47.1	0.99	0.00	1	EM
R4YWQM	41.6	-1.00	2.30	41.6	-1.00	0.00	1	LD
R7JK9E	47.7	1.20	0.98	47.7	1.20	0.00	1	EM
TDYJHK	45.9	0.54	1.59	45.9	0.54	0.00	1	LD
ULDRJL	49.7	1.90	0.26 L	49.7	1.90	0.00	1	LD
VATZ9G	44.0	-0.14	1.55	44.0	-0.14	0.00	1	TK
W3BQKK	41.8	-0.95	1.60	41.8	-0.95	0.00	1	EM
WNQCGK	45.8	0.52	1.02	45.8	0.52	0.00	1	EM
X4FXZH	42.8	-0.58	1.67	42.8	-0.58	0.00	1	TX
X6WVTH	47.6	1.16	2.80	47.6	1.16	0.00	1	TB



Containerboard Interlaboratory Testing Program
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Edgewise Compressive Strength by T839, Corrugated Board - EC13

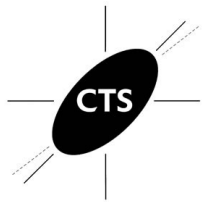
TAPPI Official Test Method T839

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
Y24LVL	41.0	-1.23	1.23	41.0	-1.23	0.00	1	IM
Y4TREX	45.3	0.34	2.04	45.3	0.34	0.00	1	TH
YP9AJ9	42.9	-0.52	2.32	42.9	-0.52	0.00	1	LD
ZTPWVT	45.0	0.22	0.67	45.0	0.22	0.00	1	TD

Consensus (All Labs) Results			
Month Mean	44.38	Grand Mean	44.38
Avg SD	1.83	Avg SD Months	0.00
SD btwn Labs	2.78	SD btwn Labs	2.78
Labs Incd	42	Labs Incd	42

Key to Instrument Codes Reported by Participants

CT Con-Ten	EM Emerson 1200 Series
EN Emerson 2200	IM Instron 5500 Series
LC L&W Crush Tester 48	LD L&W Crush Tester 248
LY L&W 830	TB TMI Monitor/Compression Tester, Model 17-70
TD TMI Digital Crush Tester, Model 17-09	TG TMI Digital Crush Tester, 17-76
TH TMI Monitor/Compression Tester, Model 17-76	TJ TLS Compression Tester, Model CDM-5
TK TLS Compression Tester, Model 5184	TL Tech-Lab Systems Compression
TS TMI Digital Crush Tester, Model 17-56	TX TMI (model not specified)
XX Instrument make/model not specified by lab	



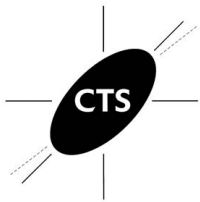
Containerboard Interlaboratory Testing Program
Analysis 205

Report #612 (K)
September 2020

Bursting Strength (Mullen), 42 lb Linerboard - 42F2

TAPPI Official Test Method T807

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	
2VTCE4	111.2	112.6	118.0	116.9	114.7	1.12	8.2	3.3	113.2	0.89	8.4	2.8	16	AH
2ZPXBC	100.6 *	104.5	110.1	106.1	105.3	-1.59	8.6	3.9	106.5	-1.24	9.8	2.9	16	LZ
4CPD8R	105.1	100.2 *	104.6	101.1 *	102.8	-2.33 *	6.7	2.5	103.0	-2.39 *	6.5	2.3	14	AC
4HD4R2_AL	113.7	111.6	113.3	115.3	113.5	0.77	6.8	1.5	112.5	0.68	7.2	1.8	16	AL
4PXYWC	121.7 *	123.2 *	124.4 X	122.4 *	122.9	3.51 X	10.5	1.2	121.4	3.52 X	11.5	3.0	8	AX
699B38	117.8	118.7	118.5	114.8 H	117.4	1.92	10.0	1.8	113.9	1.13	9.4	3.6	16	LC
6J4L9U_AL	110.8	113.1	104.7	107.6	109.1	-0.51	9.0	3.7	109.0	-0.44	10.9	3.4	16	AL
8BLVZ8	117.7	113.0	115.4	113.4	114.9	1.18	8.4	2.2	110.2	-0.06	9.6	3.8	16	LA
8GAF3M	106.1	102.9	104.7	103.9	104.4	-1.86	9.0	1.4	105.1	-1.70	9.3	2.4	16	LA
8UD27C	111.0	104.6	107.0	108.0	107.7	-0.92	8.0	2.7	110.5	0.03	8.1	3.5	16	AH
8UD27C_AL	116.7	106.8	110.1	108.5 H	110.5	-0.08	10.7	4.3	110.6	0.06	9.8	3.2	16	AL
8VBDNY	108.5	121.7 *	120.9 *	114.1	116.3	1.59	9.1	6.2 H	115.7	1.69	9.7	7.0 H	14	TB
93MPGP	109.8	108.5	108.4	106.4 L	108.3	-0.73	5.8	1.4	109.0	-0.44	7.2	1.6	16	LA
9CZEJ6	111.7	107.8	109.9 L	109.1 L	109.6	-0.34	4.1	1.6	108.7	-0.55	4.2	1.6	16	LA
9JWGJV	114.9	116.8	113.4	116.6	115.4	1.34	7.6	1.6	115.1	1.51	7.4	1.6	16	AH
AHWTHB	110.8	110.2	107.2	113.0 L	110.3	-0.15	5.0	2.4	110.2	-0.08	7.6	2.1	16	AX
AHWTHB_AL	110.3	112.2	110.1	110.1	110.7	-0.04	6.4	1.0	109.2	-0.40	7.1	2.2	16	AL
AYK7W3_AL	113.9	117.2	118.5	121.6 *	117.8	2.03 *	5.1	3.2	117.6	2.29 *	6.9	2.4	16	AK
B24KZ4	116.1	105.6	108.1 H	108.0	109.5	-0.39	9.3	4.6	110.5	0.04	9.4	4.5	16	LJ
BQA4B3	103.0 *	110.3	107.0	109.1	107.4	-1.00	9.1	3.2	110.5	0.02	8.0	4.4	16	AH
CT93YZ	109.4	109.5	109.5	109.8	109.5	-0.37	6.1	0.2 L	108.9	-0.47	5.9	0.6 L	16	LJ
D884B2	114.9 L	113.4 L	113.4	114.9	114.1	0.96	3.7	0.9	113.5	0.99	4.9	1.8	16	LC
ECHGTZ_AL	112.5	111.3	110.4	113.7	112.0	0.34	8.3	1.5	110.9	0.16	8.1	2.2	16	AL
EP24YR	104.0	110.0	111.7	103.3	107.3	-1.03	10.5	4.2	106.5	-1.25	10.3	3.1	16	LA
ER7QF3	108.0	113.0	107.0	110.0	109.5	-0.38	8.5	2.6	110.8	0.14	9.5	3.0	16	XX
EXV9RT	112.4	111.6	110.3	118.6	113.2	0.70	10.0	3.7	107.7	-0.88	9.6	7.8 H	16	LB
FD7CTD	105.5	102.3	109.1	112.3	107.3	-1.02	8.1	4.3	110.3	-0.04	9.0	7.4 H	7	LA
FKHNL6	98.3 X	98.5 *	99.5 *	103.8	100.0	-3.13 X	6.9	2.6	100.9	-3.05 X	9.0	3.5	12	LA
H23ZBG	108.0	104.9	105.7	109.1	106.9	-1.12	9.6	2.0	107.2	-1.02	8.5	2.5	16	LC
H8VZRX	107.9	109.0	110.8	111.5	109.8	-0.29	6.1	1.6	109.3	-0.36	6.9	1.3	16	TP
HMK9MA	108.6	101.0	109.6	105.7	106.2	-1.33	8.9	3.8	106.1	-1.37	8.8	3.7	16	LA
HPQTCV_AL	111.7 H	116.2	110.3	115.9	113.5	0.79	11.5	3.0	112.6	0.69	9.9	2.7	14	AL
JDA72A_AL	105.9	107.4	104.1	108.2	106.4	-1.28	7.4	1.8	114.0	1.15	8.5	6.5	16	AK
JJDANM	116.8 L	118.2	117.2	117.4	117.4	1.91	4.0	0.6	116.9	2.09 *	7.3	3.1	16	AH
JMDKKM	106.8	109.4	106.2	103.4	106.5	-1.26	8.3	2.5	105.0	-1.73	7.1	3.0	16	LC



Containerboard Interlaboratory Testing Program
Analysis 205

Report #612 (K)
September 2020

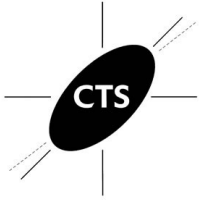
Bursting Strength (Mullen), 42 lb Linerboard - 42F2

TAPPI Official Test Method T807

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
K7MYEL	107.7	110.0	108.4	108.8	108.7	-0.61	5.4	1.0	106.6	-1.21	6.4	3.2	16	LA
KJWDWM	113.4 H	111.3	111.7	119.6	114.0	0.93	10.5	3.8	113.1	0.87	9.3	4.8	16	LA
KMXGQV	109.4	108.2	109.8	111.7	109.8	-0.30	7.4	1.5	109.9	-0.15	6.9	1.2	16	AH
KVRLJW_AL	110.1	111.8	108.1	No Data	110.0	-0.24	8.7	1.8	109.7	-0.22	7.4	1.3	6	AL
KXUMJT	109.0	111.5	110.9	110.5	110.5	-0.09	5.5	1.1	109.6	-0.24	4.5	1.5	16	LA
LTG4WK	111.5	113.3	113.8	110.8	112.3	0.45	7.9	1.4	114.5	1.32	8.3	2.6	15	TB
NAGVUQ_AL	110.2	112.8	107.4	117.5	112.0	0.34	8.8	4.3	112.9	0.81	9.1	3.5	16	AL
NQ2LUQ	115.7	108.0	115.8	115.9	113.8	0.87	9.0	3.9	111.6	0.39	9.0	2.9	16	LA
R6PV6L_AL	116.3	118.6	116.9	118.4	117.6	1.95 *	8.1	1.1	116.3	1.88	8.7	2.7	15	AL
RAJW6E_AL	116.0	112.1	109.6 H	116.3	113.5	0.78	10.6	3.2	109.3	-0.36	9.0	4.2	16	AL
RV4QXL_AL	108.9	116.4	118.0	113.1	114.1	0.95	8.4	4.0	110.3	-0.02	8.8	4.1	16	AL
TDYJHK	116.2	108.0	106.4	106.7	109.3	-0.43	8.9	4.6	108.3	-0.69	9.5	3.4	16	AH
TEDDUD	109.8	109.3	110.6	105.8	108.9	-0.56	7.3	2.1	109.6	-0.26	8.5	2.9	16	LZ
U7WUCZ	111.9	113.6	No Data	No Data	112.8	0.56	9.0	1.2	113.7	1.05	9.2	1.7	8	LC
WT2L69	110.2	105.1	105.8	113.1	108.6	-0.65	9.1	3.8	106.1	-1.39	9.0	3.6	16	LC
X9UDQA	110.5	111.0	111.7	108.5	110.4	-0.11	8.5	1.4	110.8	0.13	7.5	1.6	16	LA
X9UDQA_AL	110.3	111.9	113.5	110.0	111.4	0.18	7.4	1.6	110.0	-0.12	9.9	2.7	16	AL
YJNCVK_AL	109.9	112.1	108.4	107.8	109.5	-0.37	6.3	1.9	107.8	-0.83	6.2	2.6	16	AL
Z4NUG8_AL	108.5	110.7	110.2	109.4	109.7	-0.32	6.3	1.0	108.2	-0.70	5.7	2.2	16	AL
ZB9QLG	108.9	110.5	112.5	112.7	111.1	0.09	9.2	1.8	111.8	0.46	9.6	3.4	16	LC
ZB9QLG_AL	108.0	109.6	113.6	105.7	109.2	-0.46	8.7	3.3	108.8	-0.52	12.0	4.2	16	AL
ZTPWVT	111.7	113.5	112.7	111.3	112.3	0.43	9.1	1.0	112.4	0.64	10.8	2.6	16	XX

Consensus (All Labs) Results

Wk Mean	110.85	110.63	110.55	111.22	Month Mean	110.81	Grand Mean	110.40
Avg SDR	8.66	8.00	8.03	7.90	Avg SD	8.15	Avg SD	8.45
SD btwn	4.05	4.99	4.27	4.89	SD btwn Labs	3.45	SD btwn Labs	3.12
Labs Inclid	56	57	55	55	SD btwn Wks	2.80	SD btwn Wks	3.40
Labs Exclcd	1	0	1	0	Labs Inclid	55	Labs Inclid	55
Labs not	0	0	1	2				

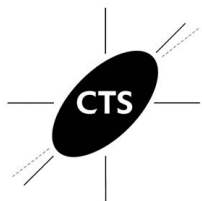


Bursting Strength (Mullen), 42 lb Linerboard - 42F2

TAPPI Official Test Method T807

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
Analysis 206

Report #612 (K)
September 2020

Bursting Strength (Mullen), 56 lb Linerboard - 56G1
TAPPI Official Test Method T807

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	
2VTCE4	111.8	116.8	118.6	118.8	116.5	0.21	10.8	3.3	116.6	0.47	10.6	3.3	12	AH
2ZPXBC	111.0	111.3	111.4	109.7	110.9	-1.23	9.9	0.8	112.1	-0.83	10.7	2.8	12	LZ
4CPD8R	103.2 *	103.8 *	112.0	109.7	107.2	-2.17 *	8.4	4.4	106.9	-2.38 *	8.7	3.0	8	AC
4HD4R2_AL	112.7	115.4	118.0	110.8	114.2	-0.37	8.0	3.2	117.0	0.59	7.4	3.7	12	XX
4PXYWC	116.9	132.3 X	125.3 *	129.7 X	126.1	2.65 *	12.0	6.7 H	126.1	3.26 X	12.0	6.7	4	AX
699B38	116.3	116.7	114.2	113.1	115.0	-0.16	8.1	1.7	116.6	0.50	9.8	3.1	12	LC
6J4L9U_AL	116.1	117.6	116.7	118.0	117.1	0.36	8.3	0.9	115.7	0.20	9.2	3.3	12	XX
8BLVZ8	116.7	111.1	113.1	112.9	113.4	-0.57	9.7	2.3	113.3	-0.47	10.3	3.3	12	LA
8GAF3M	115.4	112.8	106.2 *	114.5	112.2	-0.88	11.0	4.2	112.2	-0.80	9.6	2.7	12	LA
8UD27C	114.0	115.4	117.4	112.8	114.9	-0.20	10.5	2.0	114.5	-0.13	10.3	5.0	12	AH
8UD27C_AL	112.2	115.0	113.1	114.9	113.8	-0.48	9.1	1.4	114.5	-0.13	10.0	1.6	9	XX
8VBDNY	116.6	120.1	122.8	121.0	120.1	1.14	8.2	2.6	118.9	1.16	9.7	5.2	6	TB
93MPGP	117.2	110.0	109.6	114.6	112.9	-0.72	10.8	3.7	113.5	-0.43	10.4	2.5	12	LA
9CZEJ6	125.7 *L	124.2 *L	125.8 *L	120.0 L	123.9	2.10 *	3.0	2.7	122.9	2.34 *	3.5	1.8	12	LA
9JWGJV	121.2	118.8	120.3	120.4	120.2	1.15	5.8	1.0	120.0	1.49	6.5	0.9 L	8	AH
AHWTHB	112.4	116.2	119.0 L	114.6 L	115.6	-0.03	4.8	2.8	115.5	0.15	8.1	2.2	12	AX
AHWTHB_AL	112.9	113.1	117.3	114.3	114.4	-0.32	8.2	2.0	107.0	-2.33 *	7.0	10.9 H	12	AL
AYK7W3_AL	125.1 *	121.9	121.0	130.3 X	124.6	2.27 *	5.8	4.2	123.0	2.35 *	8.2	3.3	12	AL
B24KZ4	115.9	111.8	114.5	112.8	113.7	-0.49	9.4	1.8	113.9	-0.30	10.6	2.4	12	LZ
BQA4B3	107.7	103.5 *	109.3	110.3	107.7	-2.03 *	8.6	3.0	109.8	-1.51	8.7	4.2	12	AH
CT93YZ	113.2	113.4	113.1	113.1	113.2	-0.63	6.5	0.2 L	112.9	-0.61	7.1	0.3 L	12	LJ
ECHGTZ_AL	116.4	114.1	115.0 L	112.3	114.5	-0.31	7.6	1.7	114.3	-0.20	7.9	3.0	12	AL
EP24YR	109.3	115.9	112.7	112.0	112.5	-0.81	11.3	2.7	111.7	-0.94	10.4	3.3	12	LA
ER7QF3	118.5	108.5	115.0	117.0	114.8	-0.24	10.2	4.4	113.3	-0.48	10.8	4.3	8	XX
EXV9RT	119.7	115.0	114.2	125.3 X	118.5	0.73	7.4	5.1	114.1	-0.27	9.0	6.8	12	LB
FD7CTD	114.0	112.7	116.9 H	107.0 *	112.7	-0.77	11.7	4.2	112.7	-0.68	11.7	4.2	4	XX
FKHNL6	109.4	117.2	109.9	116.1	113.2	-0.64	7.9	4.1	109.8	-1.50	8.2	5.2	8	LA
H23ZBG	115.6	112.8	119.7	113.2	115.3	-0.09	11.0	3.2	111.9	-0.88	9.4	4.2	12	LA
H8VZRX	113.0	113.9	111.2	113.8	113.0	-0.69	8.2	1.2	113.4	-0.46	7.9	2.0	12	TP
HMK9MA	102.4 *	109.1	103.2 *	111.1	106.5	-2.35 *	12.6	4.3	109.1	-1.72	10.2	3.4	12	LA
HPQTCV_AL	112.9	116.1	119.1	126.9 X	118.8	0.79	9.7	6.0	116.6	0.47	14.2	5.1	12	AL
JDA72A_AL	110.3	116.2	113.6	116.7	114.2	-0.37	10.1	2.9	116.6	0.48	10.6	6.3	12	AK
JJDANM	116.6	118.8	118.2	117.8 L	117.9	0.56	4.9	0.9	119.5	1.33	8.5	2.1	12	AH
JMDKKM	105.4 *	108.7	108.6	115.6	109.6	-1.55	8.2	4.3	108.3	-1.94 *	8.8	5.2	12	LC
K7MYEL	116.7	112.9	115.6	113.4	114.7	-0.26	8.2	1.8	113.1	-0.53	7.3	4.3	12	LA



Containerboard Interlaboratory Testing Program
Analysis 206

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September 2020

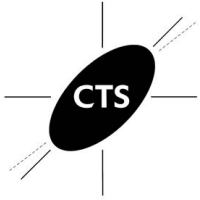
Bursting Strength (Mullen), 56 lb Linerboard - 56G1

TAPPI Official Test Method T807

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	
KJWDWM	114.4	119.4	122.7	115.4	118.0	0.59	9.8	3.8	118.3	0.98	10.9	3.5	12	LA
KMXGQV	116.9	111.9	114.9	112.6	114.1	-0.41	9.0	2.3	113.8	-0.33	8.5	1.7	12	AH
KVRLJW_AL	116.8	110.1	117.5	No Data	114.8	-0.23	11.0	4.1	114.8	-0.05	11.0	4.1	3	AL
KXUMJT	114.1	113.9	115.3	113.3	114.2	-0.39	6.1	0.8	114.4	-0.17	5.9	0.5	L 12	LA
LTG4WK	117.2	115.6	122.6	118.0	118.3	0.67	10.2	3.0	117.2	0.66	9.9	2.6	12	TB
NAGVUQ_AL	122.8	123.5 *	122.5	120.9 H	122.4	1.72	12.4	1.1	118.3	0.98	11.2	4.3	11	XX
NQ2LUQ	121.9	115.6	122.9	117.6 H	119.5	0.98	11.6	3.5	117.2	0.64	11.0	7.2	12	LA
R6PV6L_AL	121.5	114.2	113.9	128.1 X	119.4	0.96	11.6	6.8 H	117.2	0.65	13.4	6.1	12	AL
RAJW6E_AL	124.0	117.9	119.0	123.6 *	121.1	1.39	9.3	3.1	116.3	0.40	9.4	4.8	12	XX
RV4QXL_AL	117.4	126.1 *	114.8	116.9	118.8	0.79	10.1	5.0	118.5	1.04	10.2	3.5	12	AL
TDYJHK	110.8	116.4	109.8	109.6	111.7	-1.03	8.9	3.2	111.9	-0.91	10.0	3.1	12	AH
TEDDUD	117.2	113.5	112.0	114.5	114.3	-0.35	10.4	2.2	114.4	-0.17	11.7	3.0	12	LZ
U7WUCZ	112.8	118.8 H	No Data	No Data	115.8	0.03	12.6	4.2	118.8	1.12	11.8	3.7	6	XX
WT2L69	118.4	114.2	111.3	120.6	116.1	0.12	10.4	4.2	114.6	-0.11	10.5	3.1	12	LC
X9UDQA	115.9	118.5	112.8	115.6	115.7	0.00	5.7	2.3	116.2	0.36	7.7	2.6	12	LA
X9UDQA_AL	118.9	118.5	114.6	118.0	117.5	0.47	7.8	1.9	116.9	0.56	8.0	1.8	12	XX
YJNCVK_AL	116.5	117.3	113.7	114.3	115.4	-0.06	8.8	1.7	114.9	-0.01	8.0	1.8	12	AL
Z4NUG8_AL	115.1	115.1	115.2	116.2	115.4	-0.07	6.3	0.5 L	115.7	0.21	6.4	1.2	12	AL
ZB9QLG	120.3	114.9	119.9	115.4	117.6	0.50	11.6	2.9	117.2	0.67	10.7	2.4	12	LC
ZB9QLG_AL	122.4	117.6	122.1	110.1 H	118.0	0.60	12.6	5.7	116.9	0.58	12.5	3.5	12	AL
ZTPWVT	115.3	115.4	118.0	115.8	116.1	0.12	13.5	1.3	118.1	0.93	11.8	2.7	12	XX

Consensus (All Labs) Results

Wk Mean	115.44	115.08	115.76	114.91	Month Mean	115.67	Grand Mean	114.96
Avg SDr	8.96	9.49	9.17	10.11	Avg SD	9.48	Avg SD	9.68
SD btwn Labs Inclid	4.84	4.28	4.76	3.49	SD btwn Labs	3.92	SD btwn Labs	3.41
Labs Excl'd	56	55	55	49	SD btwn Wks	3.33	SD btwn Wks	3.92
Labs not	0	1	0	5	Labs Inclid	56	Labs Inclid	55
	0	0	1	2				



Containerboard Interlaboratory Testing Program
Analysis 206

Report #612 (K)
September 2020

Bursting Strength (Mullen), 56 lb Linerboard - 56G1

TAPPI Official Test Method T807

Key to Instrument Codes Reported by Participants

AC	Perkins Model C	AH	Perkins Model AH
AK	L & W Autoline 300	AL	L & W Autoline 400
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (206 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
TB	TMI Monitor/Burst 1000	TP	Technidyne PROFILE/Plus
XX	Instrument make/model not specified by lab		



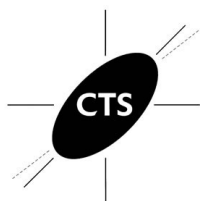
Containerboard Interlaboratory Testing Program
Analysis 215

Report #612 (K)
September 2020

Ring Crush, 42 lb Linerboard - 42F2

TAPPI Official Test Method T822

WebCode	Weekly Means				Monthly Results				Cumulative Results				Inst						
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks		Wks					
2VTCE4	89.5	86.9	89.4	87.8	88.4	-1.11	2.5	1.3	87.3	-1.09	2.6	1.3	16	LD					
2ZPXBC	94.5	92.5	91.0	93.1	92.8	0.53	3.8	1.5	92.2	0.51	3.8	1.2	16	LD					
4HD4R2	87.1	85.2	89.5	89.4	87.8	-1.33	3.4	2.1	89.1	-0.48	3.5	2.0	16	LC					
4PXYWC	91.6	89.9	90.6	90.1	90.6	-0.31	4.0	0.7	88.0	-0.86	3.7	2.4	16	LD					
699B38	92.1	94.1	H 93.1	93.9	93.3	0.71	4.0	0.9	93.3	0.88	3.0	1.2	16	LD					
6J4L9U	91.0	93.0	91.2	90.6	91.5	0.03	3.1	1.1	89.7	-0.32	3.0	1.8	16	LD					
8BLVZ8	104.5	X 105.9	X 104.6	X 105.4	X 105.1	5.08	X 3.4	0.7	102.8	3.95	X 2.8	1.6	16	LD					
8GAF3M	92.1	94.2	92.5	91.9	92.7	0.48	2.6	1.0	91.8	0.37	2.7	1.3	16	LD					
8JFZT9	92.6	93.3	94.8	96.2	94.2	1.06	3.7	1.6	92.7	0.68	3.5	2.3	8	XX					
8VBDNY	90.5	92.2	95.0	91.4	92.3	0.33	3.5	1.9	92.6	0.65	4.1	2.9	16	LX					
9CZEJ6	84.5	*	84.2	L 85.4	*	84.1	*L	84.5	-2.54	*	1.6	0.6	83.6	-2.27	*	1.6	1.0	16	TU
9JWGJV	85.1	85.6	88.3	87.7	86.7	-1.75	2.6	1.5	88.1	-0.82	2.9	1.4	16	LG					
AYK7W3	94.3	94.4	92.1	95.2	94.0	0.97	2.7	1.3	92.8	0.70	3.3	2.0	16	LD					
BBDUMW	87.5	91.4	89.9	88.9	89.4	-0.73	3.2	1.6	93.3	0.88	3.1	3.8	16	TU					
BQA4B3	92.0	92.5	93.5	93.5	92.9	0.55	3.3	0.7	94.0	1.10	2.9	1.6	16	LC					
BVYNEH	92.1	92.3	89.6	89.8	90.9	-0.16	2.4	1.5	88.7	-0.64	2.8	2.9	16	LZ					
CT93YZ	92.5	92.4	92.8	92.8	92.6	0.47	2.3	0.2	L 93.0	0.78	2.7	0.5	L 16	LD					
D4LLTF	92.2	93.7	90.2	92.0	92.0	0.24	2.7	1.4	91.2	0.17	2.6	1.6	16	EM					
DJW334	87.6	89.3	89.0	89.6	88.9	-0.93	2.6	0.9	87.4	-1.04	2.8	1.1	16	LC					
EGRUBY	91.9	92.8	90.8	96.0	92.9	0.55	3.1	2.2	92.5	0.59	2.7	2.7	16	TH					
EXV9RT	92.4	91.8	94.4	95.2	93.4	0.76	2.5	1.6	97.2	2.14	*	3.6	4.5	16	LC				
FD7CTD	90.1	87.4	89.9	89.0	89.1	-0.85	2.7	1.2	88.8	-0.58	3.0	2.0	8	LD					
H23ZBG	89.1	90.5	91.0	90.6	90.3	-0.41	3.0	0.8	90.2	-0.14	2.9	1.2	16	LD					
H8VZRX	91.5	92.5	93.0	91.0	92.0	0.23	3.7	0.9	91.5	0.28	3.4	0.8	16	TJ					
HCKH4M	82.8	*	83.1	*	83.7	*	83.2	*	83.2	-3.05	X 2.9	0.4	83.9	-2.20	*	2.8	2.0	16	EN
HPQTCV	81.6	X 81.9	*	83.5	*	82.8	*	82.5	-3.31	X 2.6	0.9	85.4	-1.69	4.5	3.7	16	LC		
HTP49V	96.7	95.8	89.4	H 95.4	94.3	1.09	5.5	3.3	H 88.9	-0.56	3.9	5.6	H 16	EX					
JMDKKM	88.5	94.4	94.3	96.5	93.4	0.75	3.9	3.4	H 93.3	0.87	3.8	2.4	16	LD					
K7MYEL	87.9	89.0	91.2	89.6	89.4	-0.73	2.1	1.4	88.9	-0.57	2.0	1.4	16	LD					
KJWDWM	96.9	L 95.5	94.3	94.4	95.3	1.45	2.2	1.2	96.5	1.90	4.0	4.3	16	LZ					
KVRLJW	91.6	90.2	92.7	91.3	91.4	0.02	3.7	1.0	92.1	0.47	3.1	1.6	15	LD					
KXUMJT	91.8	92.9	91.6	91.6	92.0	0.22	2.2	0.6	91.3	0.23	2.1	1.5	16	LZ					
LTG4WK	91.9	94.7	93.9	90.7	92.8	0.53	4.4	1.8	91.5	0.27	4.0	1.7	14	LD					
MXRGDJ	88.5	88.2	91.2	88.2	89.0	-0.87	3.2	1.5	88.2	-0.79	3.0	1.1	16	LD					
NAGVUQ	91.6	89.3	91.6	90.1	90.6	-0.27	2.9	1.1	90.4	-0.06	3.3	1.3	16	LD					



Containerboard Interlaboratory Testing Program

Analysis 215

Report #612 (K)

September 2020

Ring Crush, 42 lb Linerboard - 42F2

TAPPI Official Test Method T822

WebCode	Weekly Means				Monthly Results				Cumulative Results				Inst	
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks		Wks
NFKYH4	89.2 L	89.3 L	89.5	89.2 L	89.3	-0.77	1.2	0.2 L	89.5	-0.38	1.2	0.9	16	RS
NQ2LUQ	98.4 *	98.9 *	97.5 *	98.2 *	98.2	2.55 *	2.8	0.6	97.7	2.29 *	2.8	3.2	16	LD
P6EDTG	91.7	89.0	89.4	88.1	89.6	-0.68	2.8	1.5	88.8	-0.59	2.7	1.5	16	LC
QMU3JM	89.2	86.0	89.6	79.4 X	86.0	-1.98 *	2.5	4.7 H	87.0	-1.19	3.1	3.3	16	LD
QUZJF3	90.9	91.1	91.0	90.8	91.0	-0.16	3.7	0.1 L	90.5	-0.05	3.4	0.8	16	LD
R4YWQM	94.5	91.8	94.2	94.6	93.8	0.89	2.1	1.4	93.3	0.85	2.0	1.0	16	LD
RAJW6E	90.7 H	91.0 H	90.9 H	90.7 H	90.8	-0.21	9.5	0.1 L	93.6	0.97	7.2	3.6	16	LC
RPDGMN	92.8	95.3	93.1	92.9	93.5	0.79	3.0	1.2	89.5	-0.37	3.1	3.1	16	LZ
TEDDUD	88.4	88.4	85.5 *	89.7	88.0	-1.26	2.9	1.8	87.1	-1.16	2.7	1.9	16	LC
U7WUCZ	92.3	92.2	95.8	92.6	93.2	0.69	3.4	1.7	95.3	1.53	3.8	5.5 H	16	MB
UP8LGM	97.6 *	98.2 *	94.8	93.8 H	96.1	1.74	6.3	2.1	91.1	0.16	5.7	6.2 H	15	MB
UUHYYL	93.6	93.3	94.8	95.6	94.3	1.10	3.4	1.1	90.5	-0.04	3.3	3.6	12	TX
VATZ9G	86.8	87.5	87.4 L	87.2 L	87.2	-1.53	1.5	0.3	86.7	-1.27	1.5	0.4 L	16	MB
WT2L69	93.3	89.3	89.0	91.3	90.7	-0.25	1.9	2.0	88.3	-0.75	2.8	2.1	16	LD
X8FAWH	73.7 X	74.5 X	75.1 X	76.0 X	74.8	-6.15 X	2.8	1.0	75.3	-4.98 X	3.2	1.4	16	EM
X9UDQA	88.2	89.2	89.6	89.4	89.1	-0.86	3.2	0.6	88.5	-0.69	3.2	1.0	16	LD
YJNCVK	92.4	93.0	93.0	93.5	93.0	0.59	3.7	0.4	92.4	0.59	4.6	2.5	16	LZ
ZB9QLG	91.9	91.7	93.0	93.2	92.4	0.39	3.0	0.7	92.9	0.73	2.9	0.9	16	LD

Consensus (All Labs) Results

Wk Mean	91.07	91.02	91.22	91.28	Month Mean	91.38	Grand Mean	90.63
Avg SDr	3.50	3.25	3.24	3.67	Avg SD	3.43	Avg SD	3.33
SD btwn	3.16	3.58	2.94	3.30	SD btwn Labs	2.70	SD btwn Labs	3.08
Labs Includ	50	51	51	50	SD btwn Wks	1.57	SD btwn Wks	2.56
Labs Exclud	3	2	2	3	Labs Includ	49	Labs Includ	51
Labs not	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	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)	TX TMI Digital Crush Tester (model not specified)
XX Instrument make/model not specified by lab	



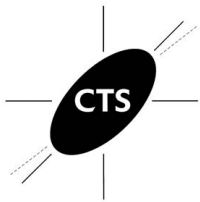
Containerboard Interlaboratory Testing Program
Analysis 216

Report #612 (K)
September 2020

Ring Crush, 56 lb Linerboard - 56G1

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	
2VTCE4	129.8	124.4 *	128.8	126.8	127.5	-1.58	3.2	2.4	127.4	-1.80	3.5	2.5	12	LD
2ZPXBC	138.5	134.4	133.5	137.9	136.1	-0.05	3.9	2.5	134.9	-0.08	4.5	2.2	12	LD
4HD4R2	150.3 *	133.0	144.4	134.0	140.4	0.72	3.5	8.4 H	136.4	0.25	3.5	7.0	8	LC
4PXYWC	138.4	136.9	136.4	137.9	137.4	0.18	5.1	0.9	132.4	-0.65	5.1	3.9	12	LD
699B38	139.2	139.6	139.5	138.8	139.3	0.51	3.9	0.4 L	137.0	0.40	3.9	2.1	12	LD
6J4L9U	137.3	135.9 L	135.8	136.4	136.3	0.00	3.4	0.7	134.5	-0.16	4.1	1.5	12	LD
8BLVZ8	151.0 *	146.9 *	149.5 *	148.4 *	149.0	2.23 *	5.1	1.7	149.1	3.16 X	4.8	1.5	12	LD
8GAF3M	136.5	136.3	139.5	138.4	137.7	0.24	4.1	1.6	135.3	0.02	3.9	2.2	12	LD
8JFZT9	143.9	142.4	141.1	144.3	142.9	1.17	4.2	1.5	142.9	1.76	4.2	1.5	4	TX
8VBDNY	141.1	135.5	142.9	139.7 H	139.8	0.61	5.6	3.2	139.3	0.93	5.1	2.5	8	LY
9CZEJ6	124.5 *	124.1 *	124.9	125.0	124.6	-2.08 *	2.5	0.4 L	122.1	-3.00 X	2.2	2.8	12	TU
9JWGJV	131.3	134.4	135.0	133.4	133.5	-0.50	3.4	1.6	132.3	-0.68	3.7	1.9	8	LY
AYK7W3	138.0	136.7	133.0	136.9	136.1	-0.04	3.9	2.2	136.8	0.35	3.4	1.6	12	LD
BBDUMW	132.7 H	130.0	127.7	126.7	129.3	-1.25	5.9	2.7	135.1	-0.03	4.8	5.2	12	TU
BQA4B3	140.0	135.6	140.1	136.4	138.0	0.30	2.8	2.4	136.5	0.29	3.4	2.5	12	LC
BVYNEH	142.3	135.8	138.9	137.8	138.7	0.42	3.8	2.7	132.8	-0.56	3.5	5.2	12	LZ
CT93YZ	140.1	140.0	140.1	140.6	140.2	0.68	2.3	0.2 L	140.9	1.30	3.7	0.6 L	12	LD
D4LLTF	131.0	134.1	135.0	134.5	133.6	-0.48	4.2	1.8	131.8	-0.77	3.6	2.7	8	EM
DJW334	132.5	133.5	133.1	133.4	133.1	-0.57	3.8	0.4 L	132.5	-0.63	3.6	1.8	12	LC
EGRUBY	130.8	133.2	129.4 H	138.2	132.9	-0.61	4.4	3.9	134.9	-0.09	4.2	3.8	12	TH
EXV9RT	133.1	135.8	140.1	133.5	135.6	-0.13	3.5	3.2	140.8	1.28	4.5	5.2	12	LC
FD7CTD	132.1	130.9	133.4	134.8	132.8	-0.63	3.4	1.7	132.8	-0.56	3.4	1.7	4	LD
H23ZBG	135.1	134.8	135.5	134.6	135.0	-0.24	2.6	0.4 L	133.2	-0.47	3.3	1.8	12	LD
H8VZRX	139.0	136.9	136.0	136.6	137.1	0.14	4.3	1.3	135.8	0.12	4.5	1.8	12	TJ
HCKH4M	127.0	121.5 *	122.9 *	121.5 *	123.2	-2.33 *	4.0	2.6	123.7	-2.63 *	3.5	2.2	12	EN
HPQTCV	131.8	128.9	131.6	130.1	130.6	-1.02	4.6	1.4	128.7	-1.50	6.6	4.3	12	LC
HTP49V	142.0	144.8	144.3	142.4 H	143.4	1.25	5.6	1.4	134.7	-0.13	5.2	6.9	12	EX
JMDKKM	139.6	140.9 H	142.2	145.1	142.0	1.00	7.2	2.4	140.8	1.28	6.1	3.6	12	LD
K7MYEL	130.7	134.3	136.7	135.9	134.4	-0.35	3.1	2.7	134.2	-0.23	2.9	2.2	12	LD
KJWDWM	134.5	128.8 H	135.3	138.6	134.3	-0.37	9.6	4.1	137.1	0.42	6.7	3.4	12	LZ
KVRLJW	136.0	137.5	137.2	136.6	136.8	0.08	3.1	0.7	136.3	0.24	4.0	1.3	8	LD
KXUMJT	140.5	138.6	137.0	137.0	138.2	0.34	2.7	1.7	137.7	0.56	2.9	2.1	12	LZ
LTG4WK	140.7	141.1	145.1	142.9	142.5	1.08	5.0	2.0	140.6	1.23	4.7	3.4	11	LD
MXRGDJ	128.8	132.8	130.2	126.7	129.6	-1.19	3.5	2.6	130.7	-1.04	3.5	3.4	12	LD
NAGVUQ	136.6	141.3	132.6	130.7	135.3	-0.19	4.6	4.7	134.8	-0.11	4.2	3.1	12	LD



Containerboard Interlaboratory Testing Program
Analysis 216

Report #612 (K)
September 2020

Ring Crush, 56 lb Linerboard - 56G1
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
NFKYH4	133.7 L	134.5 L	133.9 L	134.1 L	134.1	-0.41	1.1	0.3 L	137.4	0.49	1.6	2.5	12	RS
NQ2LUQ	147.3	147.1 *	147.4	150.4 *	148.1	2.08 *	4.7	1.6	144.1	2.03 *	3.9	3.8	12	LD
P6EDTG	141.1	136.0	133.3	129.6	135.0	-0.24	4.2	4.8	132.3	-0.67	4.5	4.4	12	LC
QMU3JM	131.7	126.6	129.3	122.3 *	127.5	-1.58	4.3	4.0	128.2	-1.60	4.9	4.4	8	LD
QUZJF3	140.4	141.2	141.0	138.1	140.2	0.68	5.6	1.4	140.0	1.08	4.8	2.2	12	LD
R4YWQM	136.4	135.9	138.7	136.5	136.9	0.09	2.6	1.3	136.4	0.26	2.4	0.9 L	12	LD
RAJW6E	148.0	146.8	147.5	148.6 *	147.7	2.02 *	5.8	0.8	144.9	2.20 *	7.1	3.4	12	LC
RPDGMN	142.7	140.4	141.7	141.2	141.5	0.92	4.2	1.0	134.9	-0.08	4.3	5.0	12	LZ
TEDDUD	130.5	130.2	128.2	128.5	129.3	-1.24	3.8	1.2	129.3	-1.36	4.4	3.4	12	LC
U7WUCZ	138.5	137.7	146.9	132.1	138.8	0.43	4.3	6.1 H	139.2	0.91	4.4	4.7	12	MB
UP8LGM	145.0	141.4	145.5	145.8	144.4	1.44	3.1	2.1	136.8	0.36	7.8	8.7 H	10	MB
UUHYYL	143.9	142.4	141.3	144.3	143.0	1.18	4.2	1.4	136.1	0.20	3.7	6.2	12	TX
VATZ9G	132.5 L	132.0 L	132.8 L	132.4	132.4	-0.70	1.5	0.3 L	133.6	-0.38	1.5	1.6	12	MB
WT2L69	134.6	130.7	130.0	130.3	131.4	-0.88	3.4	2.2	129.2	-1.38	3.5	2.4	12	LD
X8FAWH	111.2 X	114.0 X	114.8 X	115.1 X	113.8	-4.00 X	3.8	1.8	113.1	-5.06 X	4.7	2.1	12	EM
X9UDQA	128.9 H	127.5	130.5	129.5	129.1	-1.28	5.5	1.3	129.8	-1.25	4.7	1.7	12	LD
YJNCVK	135.2	137.2	135.9	134.7	135.8	-0.10	3.9	1.1	137.8	0.59	5.3	3.0	12	LZ
ZB9QLG	136.6	140.8	136.9	137.7	138.0	0.29	3.6	1.9	136.2	0.21	3.5	2.4	12	LD

Consensus (All Labs) Results

Wk Mean	137.00	135.77	136.72	135.94	Month Mean	136.36	Grand Mean	135.24
Avg SDr	4.04	4.97	3.98	4.07	Avg SD	4.28	Avg SD	4.38
SD btwn	5.89	5.73	6.10	6.43	SD btwn Labs	5.64	SD btwn Labs	4.38
Labs Includ	52	52	52	52	SD btwn Wks	2.56	SD btwn Wks	3.57
Labs Exclud	1	1	1	1	Labs Includ	52	Labs Includ	49
Labs not	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)
TX	TMI Digital Crush Tester (model not specified)		

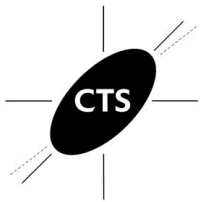


Containerboard Interlaboratory Testing Program
Analysis 223

Report #612 (K)
September 2020

STFI, 42 Ib Linerboard - 42F2
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	
2VTCE4	22.0	22.0	22.0	22.3	22.1	-1.46	1.6	0.1	22.4	-1.08	1.6	0.6	16	LU
2ZPXBC	23.3	23.6	H 22.9	24.3	23.5	0.14	1.9	0.6	23.5	0.06	1.8	0.5	16	LY
4CPD8R	22.5	22.8	L 23.2	23.2	22.9	-0.53	1.3	0.3	23.3	-0.15	1.4	0.6	16	LH
4HD4R2_AL	23.4	22.6	20.9	* 22.3	22.3	-1.23	2.1	1.1	21.8	-1.69	2.1	1.0	16	AL
4PXYWC	23.0	23.7	24.0	24.1	23.7	0.30	1.7	0.5	23.6	0.15	1.6	0.5	16	LH
699B38	22.8	22.3	23.7	22.9	22.9	-0.54	1.7	0.6	22.9	-0.48	1.6	0.5	16	LA
6J4L9U_AL	23.9	23.6	24.7	23.6	23.9	0.56	1.7	0.5	24.0	0.56	1.6	0.6	16	AL
8GAF3M	23.2	23.1	23.0	23.3	23.2	-0.27	1.8	0.1	23.1	-0.34	1.7	0.3	L 16	LZ
8UD27C	21.7	21.4	22.3	22.3	21.9	-1.61	1.6	0.5	22.6	-0.85	1.8	0.7	16	LH
8UD27C_AL	25.8	* 26.5	* 24.7	25.2	25.5	2.30	* 2.1	0.8	25.9	2.50	* 1.9	0.9	16	AL
93MPGP	22.6	23.3	23.8	23.3	23.3	-0.15	1.8	0.5	23.7	0.28	1.8	0.4	16	LY
9JWGJV	21.9	21.4	23.2	22.5	22.2	-1.27	1.6	0.8	22.6	-0.86	1.5	0.6	16	LU
AHWTHB	23.7	24.3	23.8	24.9	24.2	0.81	1.9	0.6	24.3	0.86	1.6	0.6	16	LU
AHWTHB_AI	23.4	24.8	23.8	24.4	24.1	0.73	1.5	0.6	23.9	0.46	1.4	0.5	16	AL
AYK7W3_AL	23.1	23.9	24.1	23.9	23.8	0.37	1.6	0.4	23.8	0.43	1.5	0.6	16	AK
B24KZ4	25.2	25.3	24.6	24.2	24.8	1.54	1.8	0.5	23.5	0.07	1.3	1.4	16	LH
BBDUMW	23.8	25.0	24.7	24.3	24.4	1.10	1.7	0.5	24.0	0.57	2.0	0.6	16	LA
BQA4B3	22.9	22.7	23.0	21.9	22.6	-0.85	1.6	0.5	22.8	-0.60	1.6	0.4	16	LU
BVYNEH	23.4	L 22.0	L 23.2	23.5	23.0	-0.43	1.5	0.7	22.5	-0.93	1.3	0.7	16	LA
CT6EGL	22.1	21.9	22.3	22.4	22.2	-1.35	1.7	0.2	22.5	-0.98	1.6	0.4	16	LW
D884B2	25.3	25.9	* 24.5	24.3	H 25.0	1.71	2.0	0.7	24.8	1.39	2.0	0.9	16	LA
E76X7Q	23.6	23.8	23.5	L 23.5	23.6	0.17	1.5	0.1	23.2	-0.24	1.6	0.6	16	LY
ECHGTZ	23.4	23.2	23.4	40.3	XH 27.6	4.51	X 2.5	8.5	H 25.2	1.82	2.2	4.4	H 14	LU
EXV9RT	22.7	22.5	22.4	22.4	L 22.5	-0.98	1.3	0.2	23.2	-0.21	1.6	0.8	16	LW
FKHNL6	45.6	XH 46.5	XH 43.6	XH 45.1	XH 45.2	23.60	X 20.2	1.2	H 43.1	20.14	X 19.0	1.8	12	LZ
H23ZBG	21.7	22.6	22.7	22.4	22.3	-1.16	1.7	0.5	22.7	-0.68	1.7	0.5	16	LA
H8VZRX	23.3	22.9	23.2	22.8	23.1	-0.37	1.5	0.2	23.2	-0.21	1.4	0.4	16	TT
HCKH4M	21.2	21.5	22.5	21.7	21.7	-1.84	1.4	0.6	21.8	-1.67	1.6	0.4	16	LY
HMK9MA	23.7	23.6	23.8	25.7	* 24.2	0.84	1.8	1.0	24.8	1.37	1.8	0.8	16	LH
HPQTCV	24.4	24.8	24.5	L 24.6	L 24.6	1.24	1.5	0.2	24.0	0.57	1.6	0.6	14	LU
HTP49V	29.4	XL 29.9	XL 29.8	XL 33.3	XL 30.6	7.78	X 0.0	1.8	H 28.7	5.45	X 2.1	4.1	H 16	TT
J4N2TA	25.8	* 25.4	26.2	* 25.1	25.6	2.38	* 1.6	0.5	25.6	2.21	* 1.7	1.1	16	LH
JDA72A_AL	24.7	23.2	22.8	24.1	23.7	0.34	1.6	0.9	24.0	0.63	1.9	0.8	16	AK
JJDANM	25.5	* 24.4	24.0	24.2	24.5	1.21	2.0	0.7	24.7	1.34	1.9	0.5	16	LU
JMDKKM	23.1	22.5	L 24.0	24.1	H 23.4	0.02	1.8	0.8	23.9	0.47	1.9	0.7	16	LA



Containerboard Interlaboratory Testing Program
Analysis 223

Report #612 (K)
September 2020

STFI, 42 lb Linerboard - 42F2
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
K7MYEL	22.1 L	23.0 L	23.1 L	22.8 L	22.7	-0.72	0.7	0.4	22.9	-0.51	1.0	0.5	16	BK
KJWDWM	22.5	22.4	22.2	22.5	22.4	-1.12	1.7	0.1	22.2	-1.29	1.6	0.6	16	LW
KMXGQV	23.2	23.7 L	23.3	23.2	23.4	-0.06	1.2	0.3	23.4	-0.04	1.2	0.3	L 16	TT
KNPF6T	23.5	24.1	23.7	24.6	24.0	0.61	1.5	0.5	21.5	-1.92	1.4	3.1	H 16	XX
KVRLJW_AL	21.4	22.2	24.0	No Data	22.5	-0.96	1.8	1.3	H 27.8	4.53 X	2.4	7.9	H 5	XX
LTG4WK	24.3	23.6	24.5	23.7	24.0	0.67	1.9	0.4	23.7	0.33	1.8	0.5	15	LW
NAGVUQ_AL	42.2 XL	41.0 XL	33.9 XL	39.1 XL	39.1	16.95 X	0.0	3.6	H 37.4	14.28 X	1.6	6.8	H 16	AL
P6EDTG	23.1	24.4	25.2	24.3 L	24.3	0.91	1.4	0.9	23.6	0.22	1.3	1.1	16	LA
R4YWQM	23.2	23.6 H	23.7	22.6	23.3	-0.17	2.0	0.5	23.3	-0.13	1.9	0.4	L 16	LY
R6PV6L_AL	24.4	23.6	23.9	24.1	24.0	0.65	1.7	0.3	23.8	0.38	1.7	0.4	15	AL
RAJW6E_AL	25.2	23.3	25.1	24.6	24.6	1.23	1.9	0.9	23.7	0.25	1.7	0.8	16	AL
RPDGMN	13.2 XL	13.1 XL	13.6 XL	14.2 XL	13.5	-10.72 X	0.0	0.5	27.7	4.37 X	0.0	29.1	H 16	XX
TDYJHK	22.7	23.0 L	23.1	23.1	23.0	-0.48	1.7	0.2	23.3	-0.09	1.7	0.9	16	XX
TEDDUD	24.4	24.8	24.1	24.4	24.4	1.10	1.7	0.3	23.9	0.49	1.7	0.7	16	LU
U7WUCZ	22.6	40.0 X	21.7	38.3 X	30.6	7.81 X	1.9	9.8	H 25.9	2.57 *	2.1	5.8	H 14	LA
UF32RY	23.9	22.8	24.0	23.4	23.5	0.12	1.6	0.5	24.1	0.69	1.6	0.6	16	LH
UP8LGM	23.6	23.6	23.7 H	22.9	23.5	0.05	2.3	0.4	22.6	-0.81	1.9	2.7	H 15	LA
UUHYYL	20.6 *	20.5 *	20.8 *	20.4 X	20.6	-3.08 X	1.8	0.2	20.4	-3.03 X	1.6	1.0	12	LH
WT2L69_AL	22.0	23.4	22.9	22.6	22.7	-0.74	1.5	0.6	21.9	-1.53	1.5	0.7	16	AK
X9UDQA_AL	23.0	23.5	23.0	23.0 L	23.1	-0.31	1.7	0.2	23.1	-0.35	1.6	0.5	16	AL
Y4TRES	22.0	23.5	22.4	22.2	22.5	-0.98	1.4	0.6	22.7	-0.74	1.7	0.8	16	TT
YJNCVK_AL	23.7	23.8	24.6	23.8	24.0	0.59	1.8	0.4	22.9	-0.57	1.8	1.0	16	AL
Z4NUG8_AL	22.5	22.1	21.9	22.5	22.2	-1.29	1.4	0.3	22.3	-1.09	1.4	0.8	16	AL
ZB9QLG	23.3	23.2	23.7	22.9	23.3	-0.16	1.7	0.4	23.2	-0.19	1.6	0.4	16	LA
ZB9QLG_AL	22.4	22.8	22.8	23.2	22.8	-0.67	2.0	0.3	23.0	-0.43	1.8	0.3	L 16	AL

Consensus (All Labs) Results

Wk Mean	23.24	23.33	23.44	23.46	Month Mean	23.41	Grand Mean	23.41
Avg SDr	1.67	1.67	1.68	1.74	Avg SD	1.68	Avg SD	1.67
SD btwn	1.15	1.16	1.03	0.95	SD btwn Labs	0.92	SD btwn Labs	0.98
Labs Includ	56	55	56	52	SD btwn Wks	0.56	SD btwn Wks	1.31
Labs Exclud	4	5	4	7	Labs Includ	53	Labs Includ	54
Labs not	0	0	0	1				



Containerboard Interlaboratory Testing Program
Analysis 223

Report #612 (K)
September 2020

STFI, 42 lb Linerboard - 42F2
TAPPI Official Test Method T826

Key to Instrument Codes Reported by Participants

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

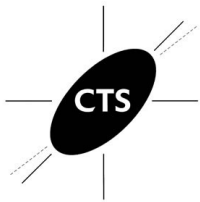


Containerboard Interlaboratory Testing Program
Analysis 224

Report #612 (K)
September 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			
2VTCE4	33.0	32.4	33.4	32.2	32.7	-1.57	2.5	0.5	32.7	-1.48	2.6	0.7	12	LU		
2ZPXBC	35.1	33.4	34.8	35.8	34.8	0.00	2.2	1.0	34.5	-0.07	2.3	0.8	12	LZ		
4CPD8R	34.5	35.4	33.9	34.6	34.6	-0.14	1.8	0.6	33.7	-0.68	1.8	3.0	H 12	LH		
4HD4R2_AL	33.7	34.2	32.2	* 31.4 *	32.9	-1.46	2.0	1.3	32.6	-1.57	2.3	1.3	12	XX		
4PXYWC	35.5	35.4	34.4	35.3	35.1	0.26	2.7	0.5	34.6	-0.02	2.4	1.1	12	LH		
699B38	33.4	33.2	35.0	33.5	33.8	-0.77	2.4	0.8	33.6	-0.78	2.3	0.7	12	LU		
6J4L9U_AL	35.0	34.3	36.4	35.6	35.3	0.40	2.2	0.9	35.9	0.96	3.1	1.1	12	XX		
8GAF3M	34.4	34.5	33.5	35.1	34.4	-0.31	2.1	0.7	34.4	-0.21	2.3	0.5	12	LZ		
8UD27C	33.0	31.6	* 33.9	32.9	32.9	-1.48	2.2	0.9	33.6	-0.79	2.3	1.3	12	LH		
8UD27C_AL	40.4 X	39.5 X	37.1	37.7	38.7	2.99 X	2.4	1.6	38.9	3.19 X	2.6	1.1	9	AL		
93MPGP	35.4	35.2	35.1	34.0	34.9	0.08	2.4	0.6	35.2	0.41	2.5	0.5	12	LU		
9JWGJV	33.4	33.8	34.0	33.2	33.6	-0.91	2.5	0.4	33.6	-0.78	2.2	0.7	8	LU		
AHWTHB	34.7	34.9	35.8	35.2	35.2	0.29	2.1	0.5	35.4	0.61	2.4	0.9	12	LU		
AHWTHB_AI	35.7	35.4	35.1	36.1	35.6	0.60	1.9	0.4	34.9	0.22	1.9	0.8	12	AL		
AYK7W3_AL	36.4	35.2	35.7	34.2	L	35.4	0.45	1.7	0.9	35.1	0.31	2.0	0.7	12	XX	
B24KZ4	37.2	36.4	37.0	37.1	36.9	1.65	2.8	0.4	33.5	-0.85	1.8	2.7	H 12	LZ		
BBDUMW	36.4	37.5	37.1	H 35.8	36.7	1.47	2.7	0.8	35.7	0.83	2.4	0.9	12	LA		
BQA4B3	33.8	33.1	32.6	33.1	33.1	-1.28	2.2	0.5	33.7	-0.71	2.3	0.7	12	LU		
BVYNEH	34.1	31.6	*L 33.3	31.9	32.7	-1.59	2.2	1.2	33.1	-1.14	2.1	1.1	12	LA		
CT6EGL	34.0	33.9	34.2	33.9	34.0	-0.60	2.0	0.1	L	33.3	-0.98	2.0	0.8	12	LW	
D884B2	38.4 *L	38.1 *L	35.3	33.1	36.2	1.11	1.9	2.5	H	37.1	1.84	2.8	1.8	12	LA	
E76X7Q	35.0	34.7	35.4	35.6	35.1	0.28	2.2	0.4	34.1	-0.44	2.7	1.1	12	LY		
ECHGTZ	36.5	33.9	35.7	H 41.1	XH	36.8	1.55	3.2	3.1	H	36.4	1.32	2.8	2.7	H 11	LU
EXV9RT	34.6	33.5	H 34.0	34.0	34.0	-0.57	2.9	0.4	35.1	0.35	2.7	1.0	12	ID		
FKHNL6	43.8 XH	47.7 XH	46.3 XH	46.3 XH	46.0	8.62 X	21.5	1.6	44.5	7.47 X	21.5	2.0	8	LZ		
H23ZBG	33.5	34.2	34.6	L 33.4	33.9	-0.67	1.9	0.6	33.3	-0.99	2.2	0.6	12	LW		
H8VZRX	34.8	34.9	35.1	35.2	35.0	0.16	1.7	0.2	34.9	0.21	1.4	0.3	L 12	TT		
HCKH4M	32.5 H	32.4	32.7	32.4	32.5	-1.77	2.5	0.1	L	32.2	-1.83	2.3	0.6	12	LY	
HMK9MA	35.0	36.0	35.5	37.7	H	36.1	0.98	2.8	1.2	36.6	1.46	2.7	0.9	12	LH	
HPQTCV	37.2	35.7	37.1	35.8	36.4	1.27	2.1	0.8	36.3	1.23	2.5	0.9	12	LU		
HTP49V	42.8 XL	44.4 XL	45.4 XL	45.6 XL	44.5	7.49 X	0.0	1.3	40.7	4.59 X	3.4	4.8	H 12	LZ		
J4N2TA	37.5	38.0	* 37.9	* 37.9 *	37.8	2.34 *	1.6	0.3	38.2	2.67 *	2.2	0.8	12	LH		
JDA72A_AL	36.9	34.9	35.2	34.7	L	35.4	0.49	2.4	1.0	35.3	0.51	2.4	1.0	12	AK	
JJDANM	37.1	36.6	36.0	35.2	36.2	1.09	2.8	0.8	36.5	1.42	2.7	0.7	12	LU		
JMDKKM	34.2	34.2	34.4	34.3	34.3	-0.41	2.1	0.1	L	35.3	0.49	2.7	1.0	12	LA	



Containerboard Interlaboratory Testing Program
Analysis 224

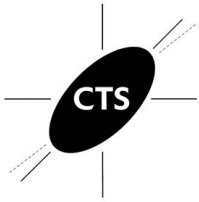
Report #612 (K)
September 2020

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	
K7MYEL	33.4 L	33.0	34.4	34.2	33.7	-0.82	1.9	0.7	34.1	-0.37	1.7	0.8	12	BK
KJWDWM	33.0	34.6 H	32.8	33.9	33.6	-0.94	2.7	0.8	33.1	-1.13	2.7	0.8	12	LW
KMXGQV	34.7 L	34.6 L	35.5	35.0	35.0	0.13	1.4	0.4	35.0	0.24	1.4	0.3 L	12	TT
KNPF6T	34.2	34.4 H	34.2 H	33.7	34.1	-0.52	3.4	0.3	34.0	-0.49	2.9	0.7	12	XX
KVRLJW_AL	33.0	32.0 H	34.4	No Data	33.1	-1.28	3.2	1.2	33.1	-1.15	3.2	1.2	3	XX
LTG4WK	35.5	35.2	35.4	36.7	35.7	0.69	2.7	0.7	34.8	0.10	2.5	1.3	12	LW
NAGVUQ_AL	39.6 *L	43.4 XL	49.3 XL	44.7 XL	44.2	7.25 X	0.0	4.0 H	40.3	4.31 X	2.9	5.3 H	11	XX
P6EDTG	38.1	35.5	35.1	36.5	36.3	1.16	1.9	1.3	34.6	-0.02	2.0	2.2	12	LA
R4YWQM	34.5	33.9	33.6	32.7	33.7	-0.85	2.5	0.7	34.3	-0.29	2.3	0.6	12	LY
R6PV6L_AL	35.6	34.5	33.3	34.0	34.4	-0.32	2.4	1.0	34.8	0.13	2.6	1.0	12	AL
RAJW6E_AL	37.1	37.5	37.5 *	37.2	37.3	1.95 *	3.0	0.2	36.5	1.43	2.6	1.0	12	AL
RPDGMN	14.2 XL	14.2 XL	14.9 XL	14.2 XL	14.4	-15.68 X	0.0	0.3	19.5	-11.44 X	3.2	7.2 H	12	XX
TDYJHK	35.5	34.9	34.5	34.6	34.9	0.06	2.3	0.5	35.9	0.93	2.4	1.6	12	XX
TEDDUD	37.5	36.5	35.0	35.9	36.2	1.12	2.4	1.1	36.0	1.02	2.5	1.3	12	LU
U7WUCZ	35.7	44.9 XL	34.1	44.2 XL	39.7	3.80 X	1.5	5.6 H	37.5	2.19 *	2.4	4.0 H	9	LA
UF32RY	34.8	35.4	36.7	36.5	35.9	0.82	2.3	0.9	35.7	0.79	2.3	0.8	8	LH
UP8LGM	36.3	36.0	35.4 H	34.9	35.6	0.66	2.5	0.6	34.2	-0.29	2.4	2.9 H	10	LA
UUHYYL	28.6 X	29.8 X	29.4 X	30.4 *	29.6	-4.02 X	2.5	0.8	29.5	-3.89 X	2.1	1.3	12	LU
WT2L69_AL	31.2 *	34.2	33.9	34.3	33.4	-1.07	2.3	1.5	32.6	-1.51	2.2	1.1	12	AK
X9UDQA_AL	33.7	34.1	35.5	34.2	34.4	-0.30	2.0	0.8	33.9	-0.58	2.2	0.6	12	XX
Y4TREX	34.8	35.0	34.0	35.5	34.8	0.03	2.0	0.6	33.8	-0.61	2.2	1.1	12	TT
YJNCVK_AL	34.7	35.5	34.9	36.0	35.3	0.37	1.8	0.5	34.5	-0.07	1.8	1.8	12	AL
Z4NUG8_AL	31.6 *	32.9	34.1	32.5	32.8	-1.54	1.9	1.0	33.1	-1.15	2.1	0.8	12	AL
ZB9QLG	34.2	35.4	34.6	35.0	34.8	0.01	2.0	0.5	34.1	-0.41	2.1	0.7	12	LA
ZB9QLG_AL	34.0 H	34.9	33.9	34.7	34.4	-0.31	2.5	0.5	34.3	-0.26	2.1	0.7	12	AL

Consensus (All Labs) Results

Wk Mean	34.99	34.68	34.84	34.65	Month Mean	34.79	Grand Mean	34.64
Avg SDr	2.33	2.43	2.22	2.32	Avg SD	2.34	Avg SD	2.36
SD btwn	1.70	1.47	1.28	1.64	SD btwn Labs	1.30	SD btwn Labs	1.32
Labs Inclid	55	53	55	53	SD btwn Wks	0.92	SD btwn Wks	1.35
Labs Exclid	5	7	5	6	Labs Inclid	53	Labs Inclid	54
Labs not	0	0	0	1				



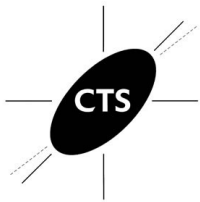
Containerboard Interlaboratory Testing Program
Analysis 224

Report #612 (K)
September 2020

STFI, 56 lb Linerboard - 56G1
TAPPI Official Test Method T826

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
Analysis 228

Report #612 (K)
September 2020

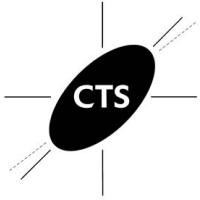
Roughness - Stylus Method, 42 lb Linerboard - 42F

TAPPI Official Test Method T575

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2VTCE4	151.4	0.59	15.54	156.1	0.67	4.33	4	EV
2ZPXBC	149.8	0.49	16.22	150.0	0.31	3.35	L 4	EV
4HD4R2_AL	129.8	-0.77	20.48	118.1	-1.56	65.07	H 4	AL
8BLVZ8	133.4	-0.54	13.01	127.4	-1.01	7.30	4	EV
8UD27C_AL	126.6	-0.97	12.97	130.1	-0.85	7.04	4	AL
AHWTHB_AL	121.5	-1.29	16.57	121.8	-1.34	4.51	3	AL
AYK7W3	144.3	0.14	16.65	158.8	0.83	13.44	4	EV
B24KZ4	154.6	0.79	11.82	155.6	0.64	3.50	L 4	LS
BBDUMW	163.8	1.36	24.74	168.4	1.39	7.61	4	LA
ECHGTZ	150.0	0.50	11.82	173.5	1.69	48.98	H 4	EV
H23ZBG	136.7	-0.34	12.82	143.1	-0.09	13.33	3	LA
HCKH4M	160.9	1.18	19.50	153.4	0.51	6.76	4	EV
HMK9MA	127.3	-0.93	12.61	127.4	-1.01	4.25	4	EV
HPQTCV	157.9	0.99	14.93	149.1	0.26	8.65	4	EV
JDA72A_AL	113.3	-1.80	40.73	H 113.3	-1.80	40.73	4	AK
JMDKKM	180.5	2.41 *	77.02	H 180.5	2.41 *	77.02	4	LA
KJWDWM	137.1	-0.31	10.77	140.9	-0.22	3.88	4	EV
LTG4WK	120.7	-1.34	13.18	122.2	-1.32	5.95	4	XX
NAGVUQ_AL	276.7	8.44 X	35.82	H 276.7	8.44 X	35.82	H 4	AL
R6PV6L_AL	132.1	-0.62	6.97	L 132.1	-0.62	6.97	4	AL
RAJW6E_AL	173.1	1.94 *	19.77	155.0	0.61	12.34	4	AL
TEDDUD	130.1	-0.75	13.14	133.2	-0.67	2.79	L 4	LS
U7WUCZ	142.2	0.01	19.40	174.3	1.73	56.00	H 4	LA
UKVXGQ	136.3	-0.36	9.44	L 136.3	-0.36	9.44	4	LS
UP8LGM	146.9	0.31	17.80	137.3	-0.43	6.85	4	LA
WT2L69	120.3	-1.36	13.09	124.5	-1.18	4.10	3	LS
YJNCVK_AL	143.9	0.11	14.48	144.0	-0.04	5.60	4	XX
Z4NUG8_AL	146.0	0.25	8.08	L 146.0	0.25	8.08	4	AL
ZB9QLG	144.3	0.14	9.72	140.3	-0.26	5.88	4	LA
ZB9QLG_AL	144.7	0.17	18.04	141.9	-0.16	10.15	4	AL

Consensus (All Labs) Results

Month Mean	142.05	Grand Mean	144.66
Avg SD	21.79	Avg SD Months	22.80
SD btwn Labs	15.97	SD btwn Labs	17.07
Labs Incd	29	Labs Incd	30

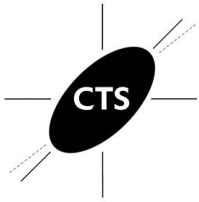


Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 42 lb Linerboard - 42F2
TAPPI Official Test Method T575

Report #612 (K)
September 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

Report #612 (K)
September 2020

Roughness - Sheffield Method, 42 lb Linerboard - 42F2

TAPPI Official Test Method T538

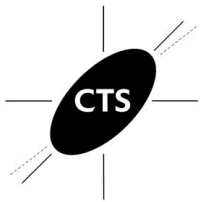
WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6J4L9U_AL	366.6	1.28	8.17	368.0	1.48	3.06	4	AL
8GAF3M	371.4	1.95 *	10.17	369.9	1.77	9.79	H 4	XX
8UD27C_AL	350.9	-0.92	5.36	354.2	-0.70	5.02	4	AL
AYK7W3_AL	353.3	-0.58	5.03	353.2	-0.86	4.43	4	AK
BQA4B3	361.1	0.51	10.88	361.7	0.48	0.88	4	XX
D884B2	359.9	0.34	6.24	360.9	0.35	4.30	4	XX
JDA72A_AL	351.9	-0.78	7.34	351.9	-1.07	1.27	4	AK
KVRLJW	353.3	-0.58	5.91	355.9	-0.43	1.79	4	PP
LYL39V	362.2	0.67	6.73	362.2	0.56	0.00	1	TS
R6PV6L_AL	347.0	-1.46	7.06	350.0	-1.36	4.43	4	AL
X8FAWH	395.4	5.32 X	3.94	399.8	6.49 X	2.94	4	TS
X9UDQA_AL	358.8	0.19	6.60	361.5	0.45	1.80	4	AL
ZB9QLG_AL	352.9	-0.64	6.98	354.6	-0.65	3.04	4	AL

Consensus (All Labs) Results

Month Mean	357.44	Grand Mean	358.66
Avg SD	7.40	Avg SD Months	4.33
SD btwn Labs	7.13	SD btwn Labs	6.34
Labs Incd	12	Labs Incd	12

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
Analysis 231

Report #612 (K)
September 2020

Internal Bond, 42 lb Linerboard - 42F
TAPPI Official Test Method T569

WebCode	Monthly Results			Cumulative Results							
	Mean	CPV	SD	Mean	CPV	SD	Months	Months	Inst		
2VTCE4	87.2	-1.03	5.40	87.8	-1.01	1.22	L	3	TM		
2ZPXBC	81.0	-1.62	4.54	86.0	-1.17	4.26		4	XX		
4HD4R2	94.4	-0.34	5.41	144.8	3.97	X	56.14	H	4	SC	
699B38	106.0	0.77	8.09	101.5	0.19	3.60		4	HZ		
6J4L9U	43.2	-5.25	X	1.54	42.4	-4.98	X	0.64	L	4	LZ
8BLVZ8	116.6	1.79	3.44	113.2	1.21	3.54		4	HY		
9CZEJ6	101.4	0.33	4.06	94.0	-0.47	15.87		4	TM		
AMPZZJ	89.9	-0.77	2.71	89.9	-0.82	0.00		1	TM		
AYK7W3	84.0	-1.34	7.07	84.7	-1.28	2.70		4	TM		
B24KZ4	105.8	0.75	11.17	100.3	0.08	12.98		4	TM		
BQA4B3	103.7	0.55	5.16	105.3	0.52	1.51		4	HY		
D884B2	86.6	-1.09	1.88	87.4	-1.04	2.11		4	SC		
ECHGTZ	83.2	-1.41	1.48	84.8	-1.27	7.19		4	TM		
GNZ87Y	108.6	1.02	1.34	L	115.7	1.44	12.18		4	TM	
H23ZBG	107.2	0.89	7.16	115.2	1.38	11.40		4	HY		
HMK9MA	97.0	-0.09	8.37	114.1	1.29	13.07		4	XX		
HPQTCV	85.6	-1.18	4.45	82.7	-1.46	3.26		4	TM		
JDA72A	92.8	-0.49	8.11	89.8	-0.83	2.74		3	SC		
KVRLJW	108.0	0.96	4.36	108.1	0.77	5.17		4	HY		
P6EDTG	96.6	-0.13	7.27	94.9	-0.39	2.64		4	TM		
RAJW6E	115.0	1.64	15.81	H	117.5	1.59	4.51		4	SC	
UKVXGQ	98.0	0.01	2.35	97.9	-0.12	2.27		4	HY		
WT2L69	108.9	1.06	4.27	113.9	1.28	12.99		4	TM		
X9UDQA	91.9	-0.58	0.48	L	103.1	0.33	7.62		4	SC	
YJNCVK	107.8	0.95	6.50	100.6	0.11	5.01		4	TM		
ZB9QLG	91.2	-0.65	5.12	95.6	-0.33	11.96		4	TM		

Consensus (All Labs) Results

Month Mean	97.94	Grand Mean	99.33
Avg SD	6.36	Avg SD Months	7.95
SD btwn Labs	10.43	SD btwn Labs	11.44
Labs Incd	25	Labs Incd	24

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	97.33	11.14	0.61	21
Modified Scott Bond Mechanics	105.44	2.49	7.50	2



Internal Bond, 42 lb Linerboard - 42F

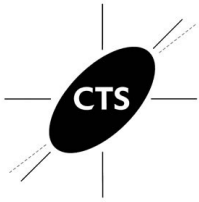
TAPPI Official Test Method T569

Analysis Notes

6J4L9U - Method used not covered in this test. Data excluded from consensus calculation.

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program

Analysis 234

Report #612 (K)

September 2020

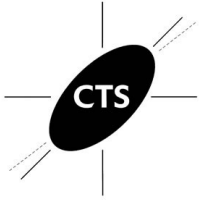
COF Inclined Plane (Slide Angle), 42 lb Linerboard - 42F

TAPPI Official Test Method T815

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
2VTCE4	30.4	1.04	0.89	28.7	0.52	3.34	4
2ZPXBC	24.4	-1.34	1.67	23.4	-1.42	2.76	4
43NT6Z	23.8	-1.57	1.30	24.7	-0.94	0.75	4
4HD4R2	29.6	0.73	1.14	31.8	1.68	1.55	4
4PXYWC	29.7	0.77	1.96	29.4	0.78	0.74	4
6J4L9U	25.6	-0.86	1.14	28.6	0.48	2.07	4
6TDQJY	25.2	-1.02	1.64	23.8	-1.27	1.24	4
8GAF3M	33.2	2.15 *	0.76	31.2	1.43	3.44	4
AYK7W3	28.2	0.19	2.87	28.3	0.39	0.50 L	4
B24KZ4	25.2	-1.02	0.84	23.9	-1.22	1.21	4
BQA4B3	26.8	-0.40	1.00	25.9	-0.47	1.46	4
D884B2	28.6	0.33	0.89	28.3	0.37	0.41 L	4
ECHGTZ	27.4	-0.15	2.70	28.3	0.39	1.05	4
FD7CTD	30.8	1.20	0.84	30.8	1.31	0.00	2
H23ZBG	27.0	-0.30	2.83	26.7	-0.21	5.11	3
HCKH4M	0.5	-10.80 X	0.04 L	21.9	-1.93 *	14.29 H	4
HMK9MA	28.6	0.32	4.94 H	29.8	0.95	0.99	4
HPQTCV	28.4	0.25	1.14	27.0	-0.08	2.10	4
JDA72A	29.6	0.73	3.35	30.3	1.13	0.56	4
KJWDWM	28.6	0.33	1.67	26.7	-0.21	3.25	4
KVRLJW	26.7	-0.42	3.15	27.5	0.10	1.06	4
LTG4WK	23.8	-1.57	5.89 H	25.8	-0.54	1.65	4
NQ2LUQ	27.8	0.01	2.17	26.9	-0.14	1.75	4
R6PV6L	32.9	2.05 *	2.15	30.7	1.27	1.54	4
RAJW6E	27.4	-0.15	0.89	25.9	-0.49	1.01	4
RV4QXL	25.6	-0.86	3.13	28.6	0.48	3.02	4
TEDDUD	29.7	0.77	3.84	30.0	1.01	1.36	4
U7WUCZ	18.8	-3.56 X	5.45 H	21.6	-2.07 *	2.88	4
WT2L69	30.2	0.96	2.77	28.1	0.32	2.00	4
YJNCVK	28.6	0.33	2.97	28.9	0.59	0.68	4
Z4NUG8	24.4	-1.34	0.55 L	24.4	-1.05	0.84	4
ZB9QLG	24.8	-1.18	1.64	24.1	-1.15	0.60	4

Consensus (All Labs) Results

Month Mean	27.77	Grand Mean	27.23
Avg SD	2.45	Avg SD Months	3.20
SD btwn Labs	2.52	SD btwn Labs	2.73
Labs Incd	30	Labs Incd	32



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

Report #612 (K)
September 2020

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #612 (K)
September 2020

Air Resistance, 42 lb Linerboard - 42F
TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results					
	Mean	CPV	SD	Mean	CPV	SD	Months	Months	Inst
2VTCE4	21.9	-0.13	1.76	22.8	0.46	0.92	4		GA
2ZPXBC	21.7	-0.30	1.18	22.6	0.28	0.71	4		LP
4HD4R2_AL	22.1	0.05	1.39	22.5	0.25	0.36	3		AL
6AZ8PG	23.1	0.84	2.80	22.9	0.54	0.28	4		LP
6J4L9U_AL	25.1	2.47 *	1.85	25.4	2.18 *	1.33	4		AL
8GAF3M	21.6	-0.38	2.03	22.8	0.44	1.54	4		GA
8UD27C_AL	23.5	1.20	1.23	23.7	1.05	0.33	4		AL
9CXR3Q	19.6	-2.02 *	1.55	19.7	-1.65	0.38	4		GA
AHWTHB_AL	21.6	-0.36	1.71	22.2	0.06	0.57	3		AL
AYK7W3_AL	22.4	0.30	1.31	22.5	0.26	0.86	4		AK
B24KZ4	21.6	-0.36	2.21	22.9	0.53	3.38 H	4		TD
BBDUMW	22.6	0.47	1.54	24.7	1.73	1.80	3		LA
BQA4B3	23.9	1.48	4.44 H	23.2	0.69	1.27	4		TP
ECHGTZ_AL	22.7	0.50	2.68	22.2	0.07	0.33	4		AL
FD7CTD	22.0	-0.08	2.27	21.3	-0.56	0.90	2		LA
H23ZBG	22.0	-0.04	1.41	22.4	0.19	0.51	3		LP
HMK9MA	21.7	-0.31	2.17	22.0	-0.09	0.65	4		LP
HPQTCV_AL	22.9	0.68	2.67	23.0	0.55	0.30	4		AL
JDA72A_AL	18.1	-3.24 X	2.36	19.3	-1.94 *	1.09	4		AK
JMDKKM	21.5	-0.44	0.81 L	21.1	-0.69	1.87	4		LA
KJWDWM	20.9	-0.93	1.66	19.2	-1.98 *	1.65	4		XX
KVRLJW	21.5	-0.48	3.76 H	23.2	0.68	2.09	4		TP
KXUMJT	22.7	0.53	1.34	22.5	0.26	0.33	4		XX
LTG4WK	20.8	-1.02	2.78	21.8	-0.23	0.93	4		LP
QUZJF3	21.3	-0.59	1.59	20.7	-0.99	0.99	4		XX
R4YWQM	20.3	-1.42	0.95	20.4	-1.20	0.15 L	4		LP
R6PV6L_AL	20.4	-1.32	0.99	19.9	-1.51	0.66	4		AL
RAJW6E_AL	22.3	0.21	1.77	20.9	-0.87	1.07	4		AL
RV4QXL_AL	21.6	-0.39	2.13	22.0	-0.07	0.60	4		AL
U7WUCZ	21.3	-0.62	1.44	20.9	-0.83	1.19	4		LA
UCKG86	20.0	-1.64	1.25	20.9	-0.86	0.59	4		LP
UKVXGQ	21.7	-0.31	2.71	22.0	-0.13	0.45	4		LP
X9UDQA_AL	22.0	-0.04	1.54	21.7	-0.28	0.53	4		AL
YJNCVK_AL	22.7	0.56	1.20	23.0	0.61	0.24	4		XX
Z4NUG8_AL	21.8	-0.18	0.96	21.6	-0.36	0.22	4		AL
ZB9QLG	24.4	1.95 *	1.57	24.5	1.58	0.77	4		LA
ZB9QLG_AL	24.7	2.13 *	1.37	24.9	1.85	0.78	4		AL



Containerboard Interlaboratory Testing Program
Analysis 237

Report #612 (K)
September 2020

Air Resistance, 42 lb Linerboard - 42F2

TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	22.04	Grand Mean	22.14
Avg SD	1.99	Avg SD Months	1.09
SD btwn Labs	1.23	SD btwn Labs	1.48
Labs Incd	36	Labs Incd	37

Key to Instrument Codes Reported by Participants

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



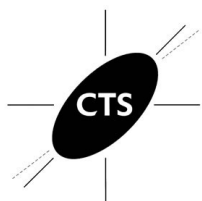
Containerboard Interlaboratory Testing Program
Analysis 240

Report #612 (K)
September 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
262JJJ	57.6 L	57.7	57.6	57.6	57.6	-0.12	1.6	0.1 L	58.0	0.22	1.6	0.4 L	16	LD
2VTCE4	58.8	57.0	57.2	60.8	58.4	0.29	3.9	1.8	57.4	-0.07	3.6	1.6	16	LD
2ZPXBC	56.6	58.3	57.0	55.0	56.7	-0.55	3.3	1.4	57.3	-0.11	3.5	1.9	16	LZ
43NT6Z	52.1 *	53.1 *	52.8	52.2 *	52.5	-2.64 *	3.7	0.5	53.6	-1.81	3.5	2.9	16	LZ
4CPD8R	58.1	59.0	59.5	58.7	58.8	0.47	2.6	0.6	59.3	0.79	2.6	0.8	16	EN
4PXYWC	58.7	57.5	59.6	57.4	58.3	0.21	3.8	1.1	57.8	0.09	3.6	1.2	16	LD
699B38	58.9	59.7	55.4	57.3	57.8	-0.01	3.1	1.9	56.5	-0.50	3.0	1.7	16	LD
6AZ8PG	57.7	58.3	60.8	59.6	59.1	0.62	2.9	1.4	59.0	0.66	2.9	1.9	16	LD
6J4L9U	56.1	58.3	56.6	58.3	57.3	-0.26	4.1	1.2	55.4	-1.00	3.6	1.6	16	LD
8GAF3M	59.7	57.2	56.3	58.7	58.0	0.06	2.5	1.5	57.4	-0.09	3.6	2.1	16	LZ
8VBDNY	58.0	57.6	No Data	58.6	58.1	0.11	4.5	0.5	59.0	0.64	3.9	2.0	15	LD
93MPGP	58.8	60.7	58.5	57.8	59.0	0.54	4.3	1.2	59.0	0.67	4.0	1.1	16	LD
9CXR3Q	63.1 *	56.8	62.6 *	63.0	61.4	1.74	4.5	3.1 H	61.1	1.60	4.6	2.2	16	LD
9CZEJ6	40.2 XL	40.2 XL	41.1 X	40.5 X	40.5	-8.57 X	1.5	0.4	55.5	-0.95	1.8	9.0 H	16	TU
9JWGJV	56.5	58.5	56.8	57.5	57.3	-0.26	4.5	0.9	58.3	0.34	3.4	1.0	16	LZ
BBDUMW	56.1	58.6 H	58.6	56.9 H	57.5	-0.15	4.9	1.2	57.9	0.17	4.9	3.1	16	TU
BQA4B3	58.9	59.3	59.6	58.2	59.0	0.56	4.2	0.6	58.3	0.35	3.9	2.3	16	LC
CT93YZ	59.3	59.2	59.0	59.1	59.2	0.65	2.6	0.1 L	59.2	0.77	3.2	0.4 L	16	LD
DH72WF	60.9	55.1	58.3	54.9	57.3	-0.27	4.3	2.8	56.8	-0.33	3.6	2.8	8	TH
E76X7Q	60.5	60.7	60.5	57.2	59.7	0.93	3.4	1.7	57.8	0.13	3.4	3.4	16	LD
EXV9RT	58.9	59.1	57.1	57.1	58.0	0.09	1.9	1.1	58.3	0.33	3.3	1.7	16	LD
GHAU6B	60.3	59.9 L	60.1 L	59.8	60.0	1.08	2.5	0.2	60.4	1.30	1.9	0.3 L	16	LD
H23ZBG	56.1	54.6	53.4	56.7	55.2	-1.31	3.6	1.5	56.3	-0.57	3.3	1.6	16	LD
H8VZRX	54.1	56.0	57.4 H	58.7	56.6	-0.64	4.4	2.0	58.0	0.21	3.7	1.6	16	TJ
HCKH4M	58.0	57.0	59.0	58.8	58.2	0.17	3.5	0.9	58.1	0.23	3.4	2.5	16	EN
HPQTCV	57.0	58.0	55.8	60.9	57.9	0.04	3.7	2.2	58.5	0.43	3.6	1.8	16	LC
HTP49V	59.0	58.4 L	56.2	56.2	57.4	-0.21	3.0	1.4	56.0	-0.72	3.1	2.5	16	EM
J4N2TA	55.2	54.2	51.9 *L	53.3	53.7	-2.06 *	2.8	1.4	53.2	-2.01 *	3.1	1.6	16	LD
JDA72A	52.7 *	50.8 XL	53.3	55.4	53.1	-2.37 *	2.7	1.9	54.2	-1.56	3.7	1.9	16	LD
KMXGQV	57.4	59.6	57.7	54.7	57.3	-0.26	4.8	2.0	56.9	-0.31	5.1	1.2	16	TG
KNPF6T	59.4 L	60.2 L	59.2 L	60.0 L	59.7	0.91	0.5	0.4	60.2	1.23	0.9	1.8	16	XX
KVRLJW	55.5	56.9	54.5	56.8	55.9	-0.97	3.4	1.2	55.0	-1.17	3.5	1.4	15	LD
LTG4WK	57.1	57.7	57.8	55.7	57.1	-0.38	2.7	1.0	58.6	0.50	3.6	1.7	14	LD
MJ8U9R	65.6 X	66.6 X	66.5 X	64.7 *	65.9	3.96 X	3.4	0.9	65.0	3.39 X	4.2	1.1	16	LC
MNGERH	57.0	58.0	58.2	57.6	57.7	-0.07	3.7	0.5	57.7	0.07	3.4	0.5 L	16	LC



Containerboard Interlaboratory Testing Program
Analysis 240

Report #612 (K)
September 2020

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM11
TAPPI Official Test Method T809

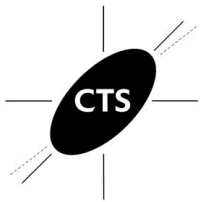
WebCode	Weekly Means				Monthly Results				Cumulative Results				Inst					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks		Wks				
NAGVUQ	55.9	55.7	57.3	56.9	56.5	-0.69	3.6	0.8	56.5	-0.47	3.5	1.9	16	LD				
P6EDTG	57.3	55.6	55.7	57.1	56.4	-0.70	3.8	0.9	57.3	-0.11	3.4	1.4	16	LC				
PH3FB9	57.3	56.7	58.6	57.8	57.6	-0.12	3.7	0.8	57.3	-0.11	3.4	0.7	16	LD				
QMFJZQ	58.3	58.3	58.5	56.9	58.0	0.07	2.0	0.7	58.4	0.41	2.2	1.8	15	LC				
TJ4M4C	57.2	57.9	58.3	57.6	57.8	-0.05	3.0	0.5	57.6	0.03	3.2	0.5	L 16	LD				
U7WUCZ	53.9	No Data	56.7	40.4	X	50.3	-3.71	X	4.5	8.7	H	53.6	-1.83	4.9	4.9	H 11	MB	
UCKG86	61.2	62.0	57.9	57.6	59.7	0.90	2.8	2.2	59.8	1.02	3.6	1.7	16	LD				
UF32RY	61.1	60.1	58.1	59.7	59.7	0.94	3.4	1.3	61.0	1.59	4.3	2.0	16	LD				
UKVXGQ	No Data	60.7	No Data	60.4	60.6	1.34	1.7	0.2	58.8	0.55	1.8	1.6	8	LD				
UP8LGM	55.7	H	52.5	*	53.4	53.4	53.7	-2.03	*	5.3	1.3	51.7	-2.66	*	4.4	3.8	15	MB
UUHYYL	49.6	X	49.7	X	52.7	46.5	X	49.6	-4.06	X	3.0	2.5	53.5	-1.84	2.8	3.6	12	TX
VATZ9G	58.3	L	57.0	L	58.2	58.6	58.0	0.09	1.6	0.7	57.3	-0.14	1.5	0.8	16	MB		
YP9AJ9	61.5	60.1	63.4	*	64.1	*	62.3	2.19	*	4.3	1.8	61.4	1.78	3.9	1.5	16	LD	
Z3EKRF	63.3	*	59.8	61.4	63.3	*	62.0	2.04	*	4.0	1.7	62.0	2.02	*	4.0	1.7	4	LZ
Z4NUG8	57.9	56.1	57.1	59.5	57.7	-0.08	4.3	1.4	57.7	0.08	3.9	1.6	16	LZ				
ZB9QLG	59.2	61.8	56.3	55.7	58.2	0.19	4.1	2.8	57.9	0.17	3.9	1.5	16	LD				

Consensus (All Labs) Results

Wk Mean	57.92	57.97	57.49	57.99	Month Mean	57.85	Grand Mean	57.56
Avg SDr	3.79	3.49	3.63	3.32	Avg SD	3.53	Avg SD	3.48
SD btwn	2.37	2.12	2.49	2.59	SD btwn Labs	2.03	SD btwn Labs	2.18
Labs Includ	47	46	47	48	SD btwn Wks	1.43	SD btwn Wks	2.35
Labs Exclcd	3	4	2	3	Labs Includ	47	Labs Includ	50
Labs not	1	1	2	0				

Key to Instrument Codes Reported by Participants

EM Emerson 1200 Series	EN Emerson 2200 Series
LC L&W Crush Tester 48	LD L&W Crush Tester 248
LZ L&W Crush Tester (model not specified)	MB Messmer Buchel K440
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 #612 (K)
September 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
262JJJ	68.6	68.7	68.5	L 68.6	68.6	-0.33	1.5	0.1	68.6	-0.18	1.8	0.1	L 16	LD
6AZ8PG	71.1	68.8	69.6	67.2	69.2	0.00	3.6	1.6	67.3	-0.95	3.6	1.9	16	LD
6J4L9U	67.4	69.1	67.6	70.2	68.6	-0.33	3.5	1.3	69.1	0.06	3.2	1.4	16	LD
9JWGJV	68.4	70.6	70.0	71.5	70.1	0.53	3.7	1.3	69.0	0.01	3.7	1.4	16	LZ
BQA4B3	70.0	71.2	71.7	66.7	69.9	0.41	2.9	2.2	71.1	1.20	2.8	2.3	16	LC
EXV9RT	68.4	68.5	71.2	72.8	70.2	0.58	2.2	2.1	69.5	0.28	2.9	1.9	12	LD
FKHNL6	58.5	X 59.6	X 58.3	X 56.5	58.2	-6.18	X 3.5	1.3	56.2	-7.08	X 3.9	1.8	12	LX
H23ZBG	71.7	73.5	X 75.1	* 70.2	72.6	1.94	* 3.6	2.1	73.1	2.31	* 3.2	2.2	16	LD
HCKH4M	63.5	* 70.7	H 64.7	* 65.2	66.0	-1.76	5.1	3.2	66.8	-1.19	3.9	2.9	16	XX
HPQTCV	73.3	69.8	66.5	H 70.0	69.9	0.41	4.5	2.8	68.3	-0.35	4.9	4.6	H 15	XX
JDA72A	72.0	70.7	76.9	X 70.0	72.4	1.81	3.7	3.1	71.3	1.28	4.0	2.6	16	LD
K7MYEL	68.9	68.2	69.3	67.5	68.5	-0.39	2.8	0.8	68.4	-0.32	3.3	1.5	16	LD
KNPF6T	68.2	L 69.0	L 70.0	L 70.4	69.4	0.13	0.5	1.0	69.9	0.53	0.8	2.0	16	XX
KVRLJW	71.7	70.1	72.1	72.0	71.5	1.30	3.4	0.9	70.7	0.93	3.9	1.5	15	LD
KXUMJT	66.1	67.8	68.2	L 67.7	67.4	-0.97	2.6	0.9	66.8	-1.19	2.5	1.5	16	LZ
LTG4WK	70.3	69.8	68.8	72.6	70.4	0.68	4.0	1.6	70.6	0.91	3.6	1.6	14	LD
MNGERH	68.3	68.5	67.1	67.4	67.8	-0.76	4.0	0.7	67.9	-0.60	3.6	0.6	16	LD
UCKG86	66.7	67.6	H 69.4	67.7	67.8	-0.75	4.7	1.1	69.4	0.22	4.0	2.2	16	LD
UKVXGQ	No Data	63.4	X No Data	63.1	63.2	-3.34	X 2.8	0.2	63.0	-3.30	X 3.0	1.2	8	LD
UUHYYL	57.8	X 53.8	X 56.1	X 58.7	56.6	-7.07	X 3.4	2.1	56.6	-6.87	X 3.4	2.1	4	TX
VATZ9G	66.3	L 66.2	* 66.7	L 66.7	66.5	-1.51	1.5	0.3	65.6	-1.88	1.5	1.2	16	MB
Z4NUG8	68.4	68.0	68.0	65.2	67.4	-1.00	4.3	1.5	68.2	-0.45	3.5	1.5	16	LZ
ZB9QLG	67.3	H 69.5	69.9	70.1	69.2	0.00	4.7	1.3	67.9	-0.61	3.9	1.6	16	LD

Consensus (All Labs) Results

Wk Mean	68.83	69.09	69.18	68.70	Month Mean	69.17	Grand Mean	68.98
Avg SDr	3.18	3.25	4.00	3.57	Avg SD	3.53	Avg SD	3.37
SD btwn	2.38	1.27	2.34	2.59	SD btwn Labs	1.78	SD btwn Labs	1.80
Labs Inclid	20	19	19	21	SD btwn Wks	1.72	SD btwn Wks	2.03
Labs Exclcd	2	4	3	2	Labs Inclid	20	Labs Inclid	20
Labs not	1	0	1	0				



Containerboard Interlaboratory Testing Program
Analysis 250

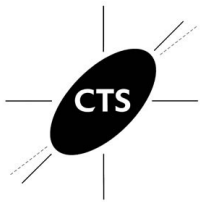
Report #612 (K)
September 2020

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

TAPPI Official Test Method T843

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TX	TMI Digital Crush Tester (model not specified)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
Analysis 255

Report #612 (K)
September 2020

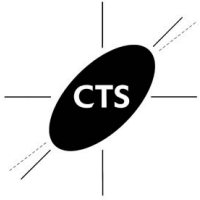
Ring Crush (RCT), 26 lb Corrugating Medium - CM11

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
699B38	44.8	48.9 *	46.0	47.1	46.7	1.70	3.8	1.7	45.9	1.11	3.4	1.2	16	LD
6AZ8PG	41.6	41.8	43.4	42.7	42.4	-1.15	2.9	0.9	41.7	-1.01	3.4	0.9	16	LD
6J4L9U	40.8	41.5	41.6	42.6	41.6	-1.65	3.0	0.7	41.8	-0.98	3.0	1.7	16	LD
8GAF3M	42.6	42.7	43.9	45.5	43.7	-0.29	3.8	1.3	43.2	-0.23	3.3	1.1	16	LD
8VBDNY	45.7	45.7	44.6	43.8	45.0	0.55	3.1	0.9	45.6	0.94	3.5	1.3	16	LZ
9CXR3Q	42.2	44.3	40.9	46.4	43.5	-0.44	3.0	2.4	42.2	-0.77	4.3	3.9	16	LD
9CZEJ6	61.2 XL	61.0 X	61.8 X	61.9 X	61.5	11.50 X	1.9	0.4	46.2	1.28	1.5	9.1 H	16	TU
BQA4B3	49.1	44.3	43.3	44.5	45.3	0.76	2.2	2.6	45.6	0.98	2.7	1.9	16	LC
BVYNEH	42.1	45.6	42.2	45.5	43.9	-0.18	3.4	2.0	42.8	-0.44	3.4	1.6	16	LZ
CT93YZ	43.3	43.1	43.3	43.3	43.2	-0.59	2.2	0.1 L	44.0	0.17	2.8	0.7 L	16	LD
DH72WF	35.3 *	34.5 X	37.8 *	35.5 *	35.8	-5.51 X	2.9	1.4	35.3	-4.23 X	2.5	1.3	8	TH
EGRUBY	46.9	45.7	45.2	44.8	45.7	1.02	2.8	0.9	43.9	0.11	2.5	1.6	16	TH
GHAU6B	43.2	43.1	43.1 L	43.2	43.1	-0.64	2.1	0.1 L	43.4	-0.17	2.1	0.2 L	16	LD
H23ZBG	46.9	43.0	43.9	47.2	45.2	0.73	3.3	2.1	44.6	0.46	3.5	1.3	16	XX
HTP49V	46.4	46.5	46.3	44.5	45.9	1.19	3.3	0.9	41.7	-1.02	3.2	3.5	16	EM
KVRLJW	45.1	46.4	45.8	46.5	45.9	1.21	3.0	0.6	45.2	0.74	4.5	1.1	15	LD
LV8629	46.6	46.6	46.2	44.2	45.9	1.18	3.0	1.1	41.5	-1.10	2.6	5.1	16	LZ
MJ8U9R	37.0	35.3 X	37.2 *	36.6 *	36.5	-5.04 X	3.5	0.9	35.6	-4.08 X	3.1	0.9	16	XX
NAGVUQ	47.1	43.4	40.5	40.5	42.9	-0.83	3.5	3.1	43.5	-0.10	3.3	1.9	16	LD
PH3FB9	42.6	43.8	43.3 L	44.3	43.5	-0.40	1.9	0.8	43.2	-0.22	1.7	0.8	16	LC
QMFJZQ	48.1	48.2	41.0 H	46.6 L	46.0	1.24	6.1	3.4	47.3	1.83	3.7	2.1	15	LC
RR2TMT	41.8 H	40.5 H	41.2	40.7 H	41.1	-2.03 *	6.4	0.6	40.6	-1.57	5.0	1.2	16	TX
U7WUCZ	39.4	45.7	45.1	40.1	42.6	-1.00	3.0	3.3	45.6	0.97	3.6	4.5	16	MB
UCKG86	44.1	44.7	44.8	44.1	44.4	0.20	2.9	0.4	45.0	0.66	3.2	1.1	16	LD
UUHYYL	43.8	43.5	46.5	45.4	44.8	0.45	3.7	1.4	44.8	0.55	3.7	1.4	4	TX
XKL3NU	35.6 *	40.2	42.4	38.9	39.3	-3.21 X	3.1	2.8	38.6	-2.55 *	3.3	2.0	12	LZ
YP9AJ9	45.3	44.5	40.6	43.1	43.4	-0.49	4.0	2.1	44.8	0.54	3.6	1.9	16	LD
Z3EKRF	43.0	41.2	43.1	46.1 H	43.3	-0.53	4.1	2.0	43.3	-0.19	4.1	2.0	4	LZ

Consensus (All Labs) Results

Wk Mean	43.35	44.19	43.08	43.47	Month Mean	44.12	Grand Mean	43.69
Avg SDr	3.23	3.27	3.96	3.41	Avg SD	3.52	Avg SD	3.36
SD btwn	3.54	2.25	2.43	3.03	SD btwn Labs	1.51	SD btwn Labs	1.99
Labs Inclid	27	25	27	27	SD btwn Wks	1.76	SD btwn Wks	2.79
Labs Excl'd	1	3	1	1	Labs Inclid	24	Labs Inclid	26
Labs not	0	0	0	0				



Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
Analysis 261

Report #612 (K)
September 2020

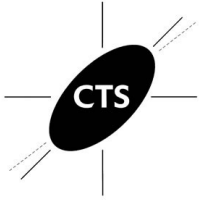
STFI, 26 lb Corrugating Medium - CM11

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
262JJJ	13.6 L	13.6 L	13.7 L	13.7 L	13.6	-0.06	0.4	0.1 L	13.8	0.13	0.5	0.7	16	LA
2VTCE4	13.5	13.1	13.6	13.2	13.3	-0.64	1.1	0.2	13.4	-0.26	1.2	0.4 L	16	LU
4CPD8R	14.0	14.3	13.5	13.9	13.9	0.45	0.9	0.3	14.2	0.61	0.9	0.5 L	16	LH
4PXYWC	14.2	14.1	13.7	14.1	14.0	0.65	1.1	0.2	14.2	0.58	1.0	0.3 L	16	LH
6J4L9U	14.6	13.6	12.6 H	14.2	13.7	0.08	1.3	0.9	14.5	0.95	1.2	0.7	16	LA
8GAF3M	13.8	14.1	13.4	13.3	13.6	-0.06	1.0	0.4	13.8	0.16	1.1	0.3 L	16	LZ
9CXR3Q	14.2 H	14.5	13.2	13.9	14.0	0.50	1.2	0.6	14.1	0.53	1.2	0.7	16	LA
BBDUMW	15.3 *	14.6 H	14.3	15.3 *	14.9	2.17 *	1.4	0.5	14.0	0.41	1.2	0.7	16	LA
BQA4B3	13.9	13.2	13.6	13.3	13.5	-0.32	0.9	0.3	13.6	-0.07	1.0	0.3 L	16	LU
BVYNEH	13.6	14.0	13.6	14.9	14.0	0.63	0.8	0.6	13.6	-0.08	0.9	0.6	16	LA
H8VZRX	14.1	13.8	13.5	13.1	13.6	-0.07	1.0	0.4	13.5	-0.16	0.9	0.3 L	16	TT
JDA72A	14.2	13.9	14.9 *	13.6	14.2	0.89	1.0	0.6	14.4	0.81	1.0	0.4 L	16	LA
KNPF6T	13.8	13.6 H	14.0	13.7 H	13.8	0.18	1.4	0.2	12.6	-1.18	1.2	1.6	16	XX
KVRLJW	12.6 L	12.2 *	13.0	12.7	12.6	-1.91 *	0.8	0.3	13.0	-0.73	1.0	0.4 L	15	LB
LV8629	13.5	14.2	13.9	14.8	14.1	0.75	1.3	0.6	13.0	-0.72	1.3	0.7	16	LA
MNGERH	13.8	14.3	13.4	13.2	13.7	-0.05	0.8	0.5	13.6	-0.11	0.8	0.5 L	16	LB
NAGVUQ	9.6 X	8.6 X	8.2 X	8.9 XH	8.8	-8.82 X	1.2	0.6	11.7	-2.32 *	1.1	2.2	16	LZ
PH3FB9	14.0	14.1	14.3	13.4	14.0	0.49	0.9	0.4	13.8	0.18	1.1	0.3 L	16	LH
RR2TMT	12.1 *	12.4 *	12.3 *	12.6	12.3	-2.43 *	0.9	0.2	12.1	-1.81	0.9	0.3 L	16	TT
TJ4M4C	13.2	14.0	13.5	14.4	13.7	0.10	0.9	0.5	13.7	-0.02	0.8	0.4 L	12	LB
U7WUCZ	14.7	21.8 XH	11.6 X	21.9 XH	17.5	6.94 X	1.4	5.2 H	15.1	1.66	1.1	3.5	11	LA
UP8LGM	12.2 *	14.4	13.9 H	13.8 H	13.6	-0.16	1.5	1.0 H	15.8	2.48 *	1.2	9.4 H	14	LA
UUHYYL	13.1	12.5 H	12.3 *	12.5 L	12.6	-1.99 *	1.2	0.4	12.8	-0.95	1.1	0.4 L	12	LH
WT2L69	13.6	14.3	13.7	13.8	13.9	0.31	0.9	0.3	13.4	-0.37	1.0	0.4 L	16	LA
XPVJWJ	23.0 XH	22.5 X	21.6 X	22.7 XH	22.4	15.91 X	1.7	0.6	21.6	9.06 X	1.7	1.2	16	TX
ZB9QLG	14.0	13.8	13.6	14.5 H	14.0	0.50	1.1	0.4	13.9	0.29	1.1	0.4 L	16	LA

Consensus (All Labs) Results

Wk Mean	13.73	13.76	13.55	13.73	Month Mean	13.68	Grand Mean	13.67
Avg SDr	0.99	1.13	1.09	1.02	Avg SD	1.06	Avg SD	1.05
SD btwn	0.73	0.68	0.61	0.73	SD btwn Labs	0.55	SD btwn Labs	0.87
Labs Includ	24	23	23	23	SD btwn Wks	0.47	SD btwn Wks	2.12
Labs Exclcd	2	3	3	3	Labs Includ	23	Labs Includ	25
Labs not	0	0	0	0				



STFI, 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T826

Key to Instrument Codes Reported by Participants

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