



Containerboard Interlaboratory Testing Program

Participant Summary Report #598 (H) - July 2019

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX13</u>	<u>Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC12</u>	<u>Edgewise Compressive Strength, Wax (T811), Corrugated Board</u>
<u>203</u>	<u>EC12</u>	<u>Edgewise Compressive Strength by Clamp (T839), Corrugated Board</u>
<u>205</u>	<u>42F1</u>	<u>Mullen Burst of Linerboard, 42 lb Linerboard</u>
<u>206</u>	<u>56A2</u>	<u>Mullen Burst of Linerboard, 56 lb Linerboard</u>
<u>215</u>	<u>42F1</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard</u>
<u>216</u>	<u>56A2</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard</u>
<u>223</u>	<u>42F1</u>	<u>STFI of Linerboard, 42 lb Linerboard</u>
<u>224</u>	<u>56A2</u>	<u>STFI of Linerboard, 56 lb Linerboard</u>
<u>228</u>	<u>56A</u>	<u>Roughness - Stylus Method, 56 lb Linerboard</u>
<u>229</u>	<u>42F1</u>	<u>Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42D</u>	<u>Internal Bond Strength, Linerboard, 42 lb Linerboard</u>
<u>234</u>	<u>56A</u>	<u>Coefficient of Static Friction - Inclined Plane, 56 lb Linerboard</u>
<u>237</u>	<u>42D</u>	<u>Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard</u>
<u>240</u>	<u>CM11</u>	<u>Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM11</u>	<u>Fluted Crush of Medium, 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM11</u>	<u>Ring Crush of Medium, 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM11</u>	<u>STFI of Medium, 26 lb Corrugating Medium</u>

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

For these tests samples of linerboard and corrugating medium, that each have been separately randomized from narrow rolls, are distributed for testing weekly. One weight of medium (26 lb.) is used for Concora Flat Crush Strength, Corrugated Fluted Crush Strength, Ring Crush Strength, and STFI Compression. Two weights of linerboard are tested each month for Mullen Burst, Ring Crush, and STFI Compression: 42 lb. - every month; 36 lb. and 56 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
26 lb Corrugating Medium	CM11	April 2019-Current
	CM92	January 2018-March 2019
35 lb Linerboard	35E1	June 2017-Current
42 lb Linerboard	42F1	January 2019-Current
	42D3	November 2017-December 2018
56 lb Linerboard	56A2	January 2018-Current
	56A1	July 2016-November 2017

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 #598 (H)
July 2019

Top to Bottom Box Compression Strength, Corrugated Boxes - BX13

TAPPI Official Test Method T804

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2HC2E7	899.8	0.54	71.80	889.2	0.49	36.43	4	ER
3KLVCP	709.4	-1.92 *	61.60	767.9	-1.64	50.81	4	LS
49ZLL4	897.9	0.52	32.17	864.3	0.05	36.02	4	ER
6ALV43	900.8	0.56	60.32	890.2	0.51	37.05	4	LO
7C3GAV	880.8	0.30	62.09	880.8	0.35	0.00	1	EX
7D3FQH	977.0	1.54	31.42	949.3	1.55	21.19	4	ER
7YVHDH	857.0	-0.01	51.03	892.2	0.55	31.48	4	LS
9DLGWG	855.9	-0.03	30.78	847.4	-0.24	22.16	4	LS
9FX22K	902.0	0.57	38.93	907.9	0.82	43.69	4	LS
9KTYKA	795.2	-0.81	73.35	810.0	-0.90	43.60	4	LL
DAE999	921.0	0.82	52.20	868.3	0.12	42.95	4	EX
E7EK67	871.2	0.17	73.26	823.6	-0.66	45.52	4	ER
EQXQ9M	1,024.9	2.16 *	42.10	1,002.7	2.49 *	26.64	4	LG
EXHP6M	877.4	0.25	70.46	888.1	0.47	17.56	4	LG
H4B8KA	794.0	-0.83	73.30	844.7	-0.29	70.56	4	ET
HZG2G6	760.9	-1.25	61.43	808.0	-0.94	49.06	4	LM
KKNBFZ	678.3	-2.32 *	133.91 H	800.8	-1.07	114.99 H	4	TB
MXTB7A	891.5	0.43	55.39	879.4	0.32	32.49	4	LG
NECNX8	842.4	-0.20	20.86	865.4	0.07	15.83	4	ET
P7E4JH	891.8	0.44	22.56	892.9	0.56	2.34 L	4	LM
P9KQRG	891.4	0.43	37.38	778.3	-1.46	148.39 H	4	EX
PPN2Y9	734.4	-1.60	28.11	737.7	-2.18 *	9.99	4	LS
T6NJR3	819.8	-0.49	52.07	865.9	0.08	39.41	4	EX
VQZZ8X	885.3	0.35	20.00	921.2	1.06	27.67	4	TE
W44PWB	902.4	0.58	32.48	857.7	-0.06	76.75	4	ES
X6V4PT	842.4	-0.20	16.81	858.6	-0.05	60.44	4	LL

Consensus (All Labs) Results

Month Mean	857.88	Grand Mean	861.24
Avg SD	55.98	Avg SD Months	54.10
SD btwn Labs	77.28	SD btwn Labs	56.75
Labs Incl	26	Labs Incl	26

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	858.76	107.37	0.88	8
Clip sealing	857.49	63.53	0.39	18



Containerboard Interlaboratory Testing Program
Analysis 201

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Top to Bottom Box Compression Strength, Corrugated Boxes - BX13

TAPPI Official Test Method T804

Key to Instrument Codes Reported by Participants

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 - EC12
 TAPPI Official Test Method T811

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3KLVCP	30.0	-1.52	2.21	30.0	-1.52	0.00	1	EM
49ZLL4	33.7	-0.45	3.24	33.7	-0.45	0.00	1	EN
6VW8GH	30.0	-1.50	1.12	30.0	-1.50	0.00	1	XX
9DLGWG	36.5	0.34	1.14	36.5	0.34	0.00	1	LD
DELVRC	34.7	-0.18	3.37	34.7	-0.18	0.00	1	XX
EXHP6M	39.0	1.06	2.65	39.0	1.06	0.00	1	LE
HYHZ9T	40.5	1.46	1.84	40.5	1.46	0.00	1	LC
KHJXKK	30.5	-1.36	1.04	30.5	-1.36	0.00	1	TX
LFA8UF	37.1	0.50	1.60	37.1	0.50	0.00	1	EM
P9KQRC	34.6	-0.21	2.08	34.6	-0.21	0.00	1	CT
PPN2Y9	38.2	0.82	1.28	38.2	0.82	0.00	1	LC
T6NJR3	36.5	0.33	1.86	36.5	0.33	0.00	1	LC
X6V4PT	39.8	1.28	0.93	39.8	1.28	0.00	1	XX
XKADHA	33.3	-0.56	3.26	33.3	-0.56	0.00	1	LD

Consensus (All Labs) Results			
Month Mean	35.32	Grand Mean	35.32
Avg SD	2.14	Avg SD Months	0.00
SD btwn Labs	3.53	SD btwn Labs	3.53
Labs Incd	14	Labs Incd	14

Key to Instrument Codes Reported by Participants

CT	Con-Ten	EM	Emerson 1200 Series
EN	Emerson 2200	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LE	L&W Crush Tester 840
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab



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

Report #598 (H)
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WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2ACPBW	37.6	-0.70	3.38	H	37.6	-0.70	0.00	1	XX
2HC2E7	39.3	0.24	0.95		39.3	0.24	0.00	1	LD
3KLVCP	38.4	-0.26	1.88		38.4	-0.26	0.00	1	EM
49ZLL4	35.7	-1.72	1.71		35.7	-1.72	0.00	1	EN
6ALV43	37.1	-0.93	1.52		37.1	-0.93	0.00	1	LD
6Y7ZTA	37.4	-0.80	2.38		37.4	-0.80	0.00	1	LD
7C3GAV	45.5	3.61	0.63	L	45.5	3.61	0.00	1	TL
7D3FQH	38.5	-0.22	1.41		38.5	-0.22	0.00	1	EM
97RC4F	38.7	-0.09	0.86		38.7	-0.09	0.00	1	EM
9APQXW	37.4	-0.79	1.77		37.4	-0.79	0.00	1	EM
9DLGWG	41.6	1.48	1.98		41.6	1.48	0.00	1	LD
9FX22K	37.7	-0.63	0.82		37.7	-0.63	0.00	1	TB
9KTYKA	38.1	-0.43	1.56		38.1	-0.43	0.00	1	LC
BDZPYG	42.0	1.69	1.02		42.0	1.69	0.00	1	LD
D6F9JC	39.8	0.51	1.06		39.8	0.51	0.00	1	TD
DELVRC	38.1	-0.40	2.55		38.1	-0.40	0.00	1	IM
E7EK67	40.0	0.60	1.95		40.0	0.60	0.00	1	TB
EQXQ9M	39.2	0.17	1.95		39.2	0.17	0.00	1	EM
EXHP6M	41.1	1.23	2.65		41.1	1.23	0.00	1	LY
GVNMBJ	40.8	1.07	1.56		40.8	1.07	0.00	1	LD
H4B8KA	39.1	0.11	0.95		39.1	0.11	0.00	1	TD
HYHZ9T	40.5	0.87	1.63		40.5	0.87	0.00	1	LC
HZG2G6	38.6	-0.16	1.94		38.6	-0.16	0.00	1	TG
K9WYTE	38.8	-0.02	2.77		38.8	-0.02	0.00	1	TD
KHJXKK	37.3	-0.83	1.54		37.3	-0.83	0.00	1	TX
KKNBFZ	41.3	1.30	0.33	L	41.3	1.30	0.00	1	LD
MEVCF2	41.0	1.13	1.54		41.0	1.13	0.00	1	LC
MXTB7A	37.7	-0.61	1.57		37.7	-0.61	0.00	1	TJ
MYKJZC	35.3	-1.95	1.25	*	35.3	-1.95	0.00	1	TK
NECNX8	34.8	-2.18	1.95	*	34.8	-2.18	0.00	1	EM
P7E4JH	38.4	-0.24	1.12		38.4	-0.24	0.00	1	EM
PPN2Y9	41.3	1.33	1.94		41.3	1.33	0.00	1	LC
RQDBL7	39.0	0.09	2.10		39.0	0.09	0.00	1	TD
T29W8V	39.1	0.10	1.54		39.1	0.10	0.00	1	LC
T6NJR3	37.7	-0.66	1.29		37.7	-0.66	0.00	1	LC
TCQHB6	40.5	0.89	1.88		40.5	0.89	0.00	1	TG
VQZZ8X	38.4	-0.26	1.66		38.4	-0.26	0.00	1	LD
W44PWB	41.1	1.21	1.91		41.1	1.21	0.00	1	LD
WKA3Z	41.7	1.54	1.47		41.7	1.54	0.00	1	LD



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

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
XKADHA	35.8	-1.66	1.56	35.8	-1.66	0.00	1	LD

Consensus (All Labs) Results			
Month Mean	38.86	Grand Mean	38.86
Avg SD	1.76	Avg SD Months	0.00
SD btwn Labs	1.85	SD btwn Labs	1.85
Labs Incl	39	Labs Incl	39

Key to Instrument Codes Reported by Participants

EM Emerson 1200 Series IM Instron 5500 Series LD L&W Crush Tester 248 TB TMI Monitor/Compression Tester, Model 17-70 TG TMI Digital Crush Tester, 17-76 TK TLS Compression Tester, Model 5184 TX TMI (model not specified)	EN Emerson 2200 LC L&W Crush Tester 48 LY L&W 830 TD TMI Digital Crush Tester, Model 17-09 TJ TLS Compression Tester, Model CDM-5 TL Tech-Lab Systems Compression XX Instrument make/model not specified by lab
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Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 Ib Linerboard - 42F1
 TAPPI Official Test Method T807

Report #598 (H)
July 2019

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	
2DEHBM	109.4 L	108.6 L	109.1 L	108.8 L	109.0	-0.39	3.2	0.3 L	106.0	-1.30	5.6	4.6	16	LA
2HC2E7	113.0	115.9	114.8	114.0	114.4	1.07	6.1	1.2	111.9	0.51	9.5	3.0	16	AH
2L9M4N	109.8	108.9	112.1	107.7	109.6	-0.21	10.1	1.9	108.9	-0.42	9.4	4.4	12	LA
2RYZ7C	108.6	112.5	108.3	109.4	109.7	-0.19	8.3	1.9	109.4	-0.25	8.8	2.2	16	LA
2TTQA6	106.7	118.7	120.4 *	112.9	114.7	1.14	7.9	6.2	112.3	0.62	9.8	4.5	16	AX
4CUKU8	111.3	109.8	107.7	107.8	109.2	-0.34	9.1	1.7	107.0	-1.00	8.6	2.3	10	LC
4HHEHR	111.6	107.1	103.3	109.9	108.0	-0.65	7.8	3.6	108.1	-0.68	8.4	3.0	16	XX
4JAFHN	109.7	109.5	108.3	110.3	109.5	-0.26	7.0	0.8	109.6	-0.20	6.3	0.8 L	16	AH
6DJ2V	110.7	110.9	110.2	110.8	110.6	0.05	5.4	0.3 L	110.6	0.10	5.6	0.3 L	16	LJ
6Y7ZTA	108.5	105.9	106.5	109.4	107.6	-0.76	8.7	1.6	107.2	-0.95	9.1	3.0	16	LC
7GZTD9	108.7	107.3	109.3	101.7	106.8	-0.98	9.5	3.5	107.3	-0.93	8.6	3.1	15	LC
8BMQBB	110.0	112.0	109.4	105.8	109.3	-0.30	10.1	2.6	112.3	0.63	8.6	3.4	16	LC
8DZ6A7	108.8	106.6	105.2	100.7 *H	105.3	-1.36	19.0	3.4	107.8	-0.76	12.9	3.3	16	LC
8X6RTP	118.4 *	115.7	109.5	117.8	115.4	1.31	8.4	4.1	116.4	1.88	10.2	3.1	16	LC
8YFMFG	114.1	113.0	113.5	112.9	113.4	0.79	8.3	0.5	112.8	0.77	10.3	2.8	16	LZ
8ZTE8X	113.8	108.4	114.7	119.3	114.1	0.97	9.8	4.5	115.2	1.51	9.7	4.7	12	AH
9DLGWG	108.8	103.7	105.5	105.5	105.9	-1.21	9.0	2.1	106.3	-1.23	7.8	2.2	16	LA
9JH28R	109.0 L	106.4	106.8 L	108.1 L	107.6	-0.76	3.5	1.2	107.4	-0.88	4.9	1.0	16	LA
B83LL6	115.0	117.5	107.6	112.0	113.0	0.69	7.5	4.3	111.9	0.50	10.0	3.7	15	TB
BDZPYG	112.1	112.4	112.1	112.7	112.3	0.51	7.0	0.3 L	112.4	0.67	6.9	0.4 L	16	LA
BWUCQY	111.4	103.7	106.1	108.0	107.3	-0.84	9.1	3.2	107.3	-0.93	9.5	3.2	16	LB
CRJFNB	105.7	107.5	104.5	104.4	105.6	-1.30	8.9	1.4	109.3	-0.29	9.5	3.6	16	LA
DAE999	103.6	107.2	109.8	107.0	106.9	-0.94	8.3	2.5	109.2	-0.34	9.4	3.0	16	AH
DJ4W7W	115.3	114.7	106.5	113.6	112.5	0.56	9.6	4.1	109.7	-0.17	9.8	3.6	16	TB
E7EK67	104.4	108.5	109.9	108.7	107.9	-0.68	9.0	2.4	109.0	-0.38	8.5	2.9	16	LZ
EXHP6M	117.6	114.4	113.3	114.8 L	115.0	1.23	7.4	1.8	116.4	1.90	8.8	3.0	16	AH
GK3J3J	109.7	115.0	107.7	113.1	111.4	0.25	11.7	3.3	110.9	0.19	10.1	3.0	16	LC
HHBXTT	103.6	106.3	106.6	104.3	105.2	-1.40	9.1	1.5	105.3	-1.53	8.6	2.2	16	LA
HPXRQQ	123.6 X	114.2	119.1 *	122.6 *	119.9	2.52 *	10.5	4.2	120.7	3.21 X	10.3	3.0	8	TB
KKUVX2	109.9	109.3 H	114.4	122.1 *	113.9	0.93	11.5	5.9	113.9	1.13	11.5	5.9	4	LA
KYV8TZ	110.7	118.8	115.7	117.2	115.6	1.38	9.5	3.5	113.3	0.94	9.5	3.0	16	AH
LMYFMM	114.5	110.5	112.6	109.1	111.7	0.33	9.8	2.4	110.2	-0.01	9.7	3.9	8	LC
M7LRMR	104.5	110.0	109.2	111.2	108.7	-0.46	11.4	2.9	108.7	-0.48	11.4	2.9	4	LC
MNJW9E	107.6	112.5	119.9 *L	113.2	113.3	0.76	8.0	5.1	111.1	0.25	8.4	3.1	16	LC
P9KQRG	116.2	110.2	115.5	119.6	115.4	1.32	9.7	3.9	112.2	0.59	10.1	3.9	16	XX



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 Ib Linerboard - 42F1
 TAPPI Official Test Method T807

Report #598 (H)
July 2019

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	
PM8UJL	103.8 H	106.7	109.1	111.3	107.7	-0.72	14.0	3.2	107.1	-0.99	10.1	2.0	16	LC
PPN2Y9	110.2	105.2	110.6	108.8	108.7	-0.46	8.0	2.5	108.8	-0.44	8.7	2.8	16	AH
QRQLYD	111.6	109.3	113.3	NO DATA	111.4	0.26	4.4	2.0	111.1	0.25	4.5	1.7	15	XX
QXVAQT	110.3	108.5	107.6	111.8	109.6	-0.23	6.7	1.9	109.8	-0.15	7.0	1.4	16	TP
QXX3GE	103.7	109.9	103.7	103.8	105.3	-1.38	8.3	3.1	104.5	-1.78	8.7	2.6	16	LC
QYFURK	112.0	109.0	108.8	111.4	110.3	-0.03	8.8	1.7	110.3	0.00	8.4	2.6	16	LA
T29W8V	115.3	115.6	114.6	106.8	113.1	0.71	7.9	4.2	112.7	0.76	9.1	3.3	12	LA
TBDZ4T	110.7	102.6	99.8 *	105.7	104.7	-1.53	8.2	4.7	103.5	-2.10 *	7.6	3.2	16	AH
TR8C8N	107.8	107.0	113.7	107.3	109.0	-0.39	8.9	3.2	107.1	-0.97	9.3	3.4	12	LC
TX8V7D	114.8	119.5 *	118.6 H	117.5	117.6	1.92	13.1	2.0	117.3	2.16 *	10.9	4.4	16	LZ
UHZW2F	111.2	120.2 *	107.2	107.3	111.5	0.28	9.8	6.1	118.1	2.41 *	10.4	5.5	16	LA
V9VTTV	112.6	111.0	113.2	110.8	111.9	0.39	6.5	1.2	111.9	0.51	6.1	1.3	16	RE
W44PWB	106.8	107.5	107.4	110.8	108.1	-0.61	8.7	1.8	110.6	0.11	9.2	3.2	16	LA
WCJ9DP	114.3	115.1 L	115.2	115.3	115.0	1.21	7.1	0.5 L	113.4	0.98	5.7	2.3	16	LC
WKAV3Z	119.9 *	119.0	114.4	120.5 *	118.5	2.14 *	7.4	2.8	115.2	1.51	8.0	4.6	16	LC
XKADHA	106.1	107.0	104.1	106.9	106.0	-1.17	8.2	1.3	107.2	-0.94	7.1	2.8	16	LA
XRUAMK	109.9	106.8	103.6	107.3	106.9	-0.94	8.6	2.6	110.0	-0.08	9.7	3.9	16	XX
YMTRLB	104.6	106.6	106.7	106.3	106.0	-1.17	8.3	1.0	110.3	0.00	10.0	3.5	16	LC
YXB64E	98.5 X	104.0	108.2	115.1	106.4	-1.06	11.9	7.0 H	108.1	-0.68	9.7	4.3	16	LC

Consensus (All Labs) Results													
Wk Mean	110.35	110.44	110.09	110.77	Month Mean	110.42			Grand Mean	110.26			
Avg SDr	8.93	8.85	8.86	9.73	Avg SD	9.12			Avg SD	8.95			
SD btwn Labs	3.95	4.48	4.54	5.00	SD btwn Labs	3.75			SD btwn Labs	3.24			
Labs Incl	52	54	54	53	SD btwn Wks	3.15			SD btwn Wks	3.26			
Labs Excl	2	0	0	0	Labs Incl	54			Labs Incl	53			
Labs not Rcvd	0	0	0	1									

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56A2
 TAPPI Official Test Method T807

Report #598 (H)
July 2019

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	
2DEHBM	113.0	112.2 L	112.5	111.0 L	112.2	-0.09	5.0	0.8	112.1	-0.25	4.9	1.2 L	12	LA
2HC2E7	120.3	118.9	123.7 *	118.0	120.2	2.04 *	9.8	2.5	116.0	0.76	10.2	4.3	12	AH
2L9M4N	116.8	111.6	111.2	114.9	113.6	0.29	9.1	2.7	110.9	-0.55	10.3	3.9	12	LA
2RYZ7C	115.0	115.3	110.4	109.8	112.6	0.03	11.9	2.9	112.1	-0.24	10.5	2.7	12	LA
2TTQA6	110.0	120.3	117.8	122.4 *	117.6	1.35	9.5	5.4	116.3	0.86	9.7	3.6	12	AX
4CUKU8	113.1	110.8	118.3	114.7	114.2	0.45	9.1	3.2	110.5	-0.66	11.0	4.3	10	LC
4HHEHR	107.7	110.1	106.8	112.3	109.2	-0.88	11.6	2.5	110.2	-0.75	10.4	2.8	8	XX
4JAFHN	112.0	112.0	112.9	113.4	112.6	0.01	6.4	0.7	112.5	-0.15	6.9	0.6 L	12	AH
6DJ2V	113.6	114.0	113.9	113.6	113.8	0.33	7.3	0.2 L	113.5	0.13	6.4	0.3 L	12	LJ
6Y7ZTA	106.3	103.7	106.8	107.9	106.2	-1.69	11.8	1.8	108.5	-1.20	10.7	3.7	12	LC
7GZTD9	109.6	113.7	109.7	111.9	111.2	-0.34	10.4	2.0	110.3	-0.72	10.1	3.8	12	LA
8BMQBB	106.4	113.0	110.2	113.8	110.9	-0.44	11.1	3.4	113.3	0.08	11.5	5.5	12	LC
8DZ6A7	109.9	104.0	108.7	101.7 *	106.1	-1.72	10.3	3.9	107.6	-1.43	11.9	5.0	8	LC
8X6RTP	113.6	122.6	119.3	112.5	117.0	1.19	13.1	4.8	119.3	1.63	12.3	4.1	12	LC
8YFMFG	115.9	115.3	109.5	108.4	112.3	-0.06	9.8	3.9	114.6	0.41	12.0	6.2	12	LZ
8ZTE8X	115.1	115.6	112.7	112.2	113.9	0.37	11.5	1.7	117.7	1.23	10.5	4.9	8	AH
9DLGWG	105.9	104.9	110.6	108.2	107.4	-1.36	9.3	2.5	107.3	-1.50	10.4	2.3	12	LA
9JH28R	119.8 L	117.3 L	118.6 L	120.3 L	119.0	1.72	3.1	1.3	120.3	1.91	3.1	1.4	12	LA
B83LL6	117.4	117.7	111.2	113.3	114.9	0.63	12.9	3.2	119.6	1.73	12.2	15.2 H	11	TB
BDZPYG	115.0	114.6	114.7	115.0	114.8	0.61	7.2	0.2 L	114.7	0.44	6.9	0.3 L	12	LA
BWUCQY	111.0	110.2	109.4	109.2	109.9	-0.69	8.4	0.8	109.9	-0.82	9.2	3.2	12	LB
CRJFNB	107.8	112.1	103.9	104.6	107.1	-1.43	12.5	3.7	110.1	-0.77	11.0	5.9	12	LA
DAE999	108.6	113.2	111.0	105.2	109.5	-0.80	8.8	3.4	110.1	-0.78	10.3	2.4	12	AH
DJ4W7W	112.2	113.8	108.2	111.7	111.5	-0.28	8.1	2.4	111.6	-0.37	10.2	3.4	12	TB
E7EK67	108.0	113.9	111.5	105.1	109.6	-0.76	8.3	3.8	110.1	-0.76	10.0	4.8	12	LZ
EXHP6M	116.7	113.0	113.6	116.8	115.0	0.66	8.6	2.0	117.4	1.15	9.4	2.6	12	AH
GK3J3J	123.2 *	109.2	110.9	116.5	115.0	0.64	8.3	6.3	113.3	0.06	9.9	4.4	12	LC
HHBXTT	102.9	102.7	102.5 *	113.8	105.5	-1.87	8.4	5.6	107.2	-1.55	10.1	4.4	12	LA
HPXRQQ	118.6	127.5 *L	125.6 X	118.3	122.5	2.65 *	11.5	4.7	122.5	2.48 *	11.5	4.7	4	TB
KKUVX2	118.0	117.1	120.0	109.0	116.0	0.93	11.1	4.8	116.0	0.79	11.1	4.8	4	LA
KYV8TZ	117.3	117.8	118.5	118.5	118.0	1.46	8.3	0.6 L	114.6	0.41	8.4	3.8	12	AH
LMYFMM	115.4	117.9	107.9	109.6	112.7	0.04	13.4	4.7	113.3	0.06	13.2	3.3	8	LC
MNJW9E	115.2	114.1	109.8	113.6	113.2	0.17	10.1	2.3	111.1	-0.50	10.8	3.6	12	LC
P9KQRG	119.6	114.5	111.4	110.6	114.0	0.40	10.4	4.1	111.7	-0.35	10.5	4.6	12	XX
PM8UJL	104.4	101.9 *	112.4	113.9 H	108.2	-1.16	13.0	5.9	110.4	-0.70	11.4	5.3	12	LC



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56A2
 TAPPI Official Test Method T807

Report #598 (H)
July 2019

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
PPN2Y9	111.2	105.2	109.2	110.0	108.9	-0.96	9.9	2.6	109.5	-0.94	8.9	4.1	12	AH
QRQLYD	116.8	121.6	118.7	No DATA	119.0	1.73	8.6	2.4	117.0	1.05	8.0	3.6	11	XX
QXVAQT	112.8	113.1	110.4	113.9	112.6	0.01	8.9	1.5	112.5	-0.16	8.5	1.3	12	TP
QXX3GE	107.2	116.1	121.5 *L	103.5 *	112.1	-0.12	5.9	8.2 H	109.5	-0.94	8.4	5.6	12	LC
QYFURK	113.9	118.2	116.1	114.5	115.7	0.84	10.0	1.9	116.7	0.96	8.4	1.4	12	LA
T29W8V	118.8	114.5	108.7	108.4	112.6	0.02	10.8	5.0	112.1	-0.24	11.5	4.6	12	LA
TBDZ4T	113.2	103.7	109.9	108.4	108.8	-0.99	7.9	3.9	107.9	-1.35	9.4	4.1	12	AH
TR8C8N	113.6	106.2	110.6	110.9	110.3	-0.58	11.0	3.1	110.4	-0.69	10.6	2.3	8	LC
TX8V7D	128.3 X	121.2	128.6 X	121.6 *	124.9	3.29 X	13.0	4.1	122.4	2.45 *	12.6	3.9	12	LZ
UHZW2F	114.1	112.0	110.6	110.5	111.8	-0.19	10.0	1.7	117.3	1.11	10.0	5.3	12	LA
V9VTTV	110.0	112.2	114.0	116.2	113.1	0.15	7.5	2.6	111.3	-0.45	7.0	2.5	12	RE
W44PWB	112.0	113.6	113.4	111.4	112.6	0.02	11.4	1.1	113.1	0.01	11.5	2.7	12	LA
WKAV3Z	112.8	121.1	116.5	111.4	115.5	0.78	8.6	4.3	116.5	0.90	8.6	5.3	12	LC
XKADHA	106.6	115.1	113.7	110.8	111.6	-0.25	8.7	3.7	109.9	-0.83	8.8	3.1	12	LA
XRUAMK	107.9	110.4	107.7	117.9	111.0	-0.41	11.4	4.8	115.2	0.57	11.2	9.7 H	12	XX
YMTRLB	103.3	108.3	110.9	107.9	107.6	-1.30	10.9	3.2	110.7	-0.61	10.4	3.6	12	LC
YXB64E	99.9 *H	106.7	115.5	110.5	108.2	-1.16	14.7	6.6	109.4	-0.95	13.2	5.2	12	LC

Consensus (All Labs) Results										
Wk Mean	112.34	113.19	112.36	112.15	Month Mean	112.52		Grand Mean	113.05	
Avg SDr	9.74	9.98	9.95	10.38	Avg SD	9.97		Avg SD	10.12	
SD btwn Labs	5.02	5.49	4.41	4.45	SD btwn Labs	3.77		SD btwn Labs	3.81	
Labs Incl	51	52	50	51	SD btwn Wks	3.61		SD btwn Wks	4.57	
Labs Excl	1	0	2	0	Labs Incl	51		Labs Incl	52	
Labs not Rcvd	0	0	0	1						

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42F1
 TAPPI Official Test Method T822

Report #598 (H)
July 2019

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							
2DEHBM	91.6	90.4	91.1	91.2	L	91.1	0.15	2.0	0.5	L	90.3	0.13	2.4	0.8	L	16	LZ			
2HC2E7	88.0	87.0	87.4	89.3		87.9	-0.70	2.7	1.0		88.1	-0.35	2.6	1.3		16	LD			
2TTQA6	92.1	84.8	84.2	H	83.3	*	86.1	-1.19	4.4	4.1	79.2	-2.32	*	4.2	6.4	16	LC			
3AVU82	91.5	91.2	91.8	90.9		91.3	0.23	4.1	0.4	L	90.7	0.22	4.7	2.2	16	TH				
49ZLL4	82.3	L	82.0	86.4	84.9		83.9	-1.79	2.5	2.1	83.1	-1.47	2.5	1.5	16	EN				
4CUKU8	87.6	87.7	88.7	84.5		87.1	-0.91	3.1	1.8		86.6	-0.69	3.0	2.6	16	LC				
4HHEHR	91.3	91.4	91.6	91.2		91.4	0.23	3.7	0.2	L	91.5	0.41	3.2	2.0	16	LD				
6DJD2V	90.1	90.2	90.2	90.3		90.2	-0.07	2.8	0.1	L	90.1	0.10	2.5	0.4	L	16	LD			
6U3GDP	82.9	L	83.1	83.9	83.3	*	83.3	-1.95	*	2.0	0.4	L	81.7	-1.76	1.8	1.4	16	RS		
6Y7ZTA	86.7	87.1	89.3	90.4		88.4	-0.57	3.0	1.8		88.4	-0.28	3.0	1.4	16	LD				
7GZTD9	91.3	89.2	91.8	89.7		90.5	-0.01	2.7	1.3		89.2	-0.10	2.7	1.8	16	LD				
8BMQBB	87.1	90.4	87.7	88.7		88.5	-0.54	2.5	1.4		88.1	-0.35	3.4	2.7	16	LD				
8DZ6A7	94.2	93.9	92.9	91.6		93.2	0.72	2.9	1.2		88.3	-0.32	3.6	9.7	H	16	LC			
97RC4F	90.0	90.0	89.6	89.6		89.8	-0.19	3.2	0.2	L	90.3	0.14	2.7	1.0	16	EM				
9DLGWG	91.1	92.3	92.3	92.5		92.1	0.42	3.1	0.7		92.0	0.51	2.9	1.5	16	LD				
9DRRXU	82.2	H	93.9	94.1	94.9		91.3	0.21	6.0	6.1	89.5	-0.05	5.9	5.6	15	MB				
9JH28R	71.3	X	68.2	XL	67.8	XL	77.8	X	71.3	-5.19	X	1.8	4.6	76.2	-2.98	X	2.3	5.4	16	TU
9NA7ZW	76.4	*	75.8	X	75.4	X	73.5	X	75.3	-4.11	X	3.6	1.2	77.7	-2.66	*	3.4	2.2	16	LC
BCXFJ7	85.7	86.1	86.7	82.7	*	85.3	-1.41	2.8	1.8		86.7	-0.66	3.4	1.7	16	EX				
BDZPYG	91.4	91.5	93.1	91.4		91.9	0.36	2.8	0.8		92.0	0.51	3.1	0.6	L	16	LD			
BNZ7WX	93.2	L	93.7	94.0	94.0		93.7	0.87	3.0	0.3	L	96.5	1.51	3.3	2.0	16	TU			
BWUCQY	90.0	90.8	90.2	90.0		90.3	-0.06	3.0	0.4	L	88.4	-0.29	3.1	2.7	16	LC				
CEBRKE	89.1	117.2	X	83.9	92.0	H	95.5	1.36	4.4	14.8	H	90.4	0.17	5.1	11.4	H	14	MB		
CRJFNB	101.6	*	99.3	97.5	94.3		98.2	2.07	*	2.9	3.1	101.1	2.54	*	3.2	2.5	16	LD		
DELVRC	81.3	H	79.9	*H	79.3	XH	84.5	81.3	-2.50	*	6.2	2.3	81.3	-1.87	6.2	2.3	4	MB		
E7EK67	86.0	95.1	91.9	90.7		90.9	0.12	2.8	3.8		88.0	-0.38	4.7	3.9	16	LD				
EXHP6M	88.4	91.2	86.6	89.5		88.9	-0.42	2.4	1.9		89.1	-0.13	2.8	2.0	16	LG				
FFAA2X	91.2	94.6	93.6	92.1		92.9	0.64	2.9	1.5		92.4	0.60	3.1	1.8	16	LD				
GK3J3J	92.6	91.6	90.8	90.6		91.4	0.24	2.3	0.9		91.9	0.48	2.7	2.0	16	LD				
HHBXTT	85.4	84.9	H	92.6	89.9		88.2	-0.62	4.3	3.7	88.1	-0.34	3.6	3.4	16	LZ				
HPXRQQ	99.2	100.6	*	99.8	*	100.5	X	100.0	2.57	*	3.4	0.7	100.9	2.49	*	3.6	2.7	8	LX	
HYHZ9T	87.4	87.4	87.4	88.0		87.5	-0.80	2.5	0.3	L	87.0	-0.60	2.4	0.9	L	16	LC			
KKUVX2	73.9	XH	100.5	*	98.7	*	90.3	90.9	0.10	5.6	12.1	H	90.9	0.26	5.6	12.1	H	4	LD	
KYV8TZ	88.0	86.5	88.7	88.9		88.0	-0.67	4.3	1.1		90.4	0.17	4.1	3.8	16	LC				
LMYFMM	92.5	91.2	88.1	89.3		90.3	-0.07	2.5	1.9		88.3	-0.30	2.4	3.1	8	LD				



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42F1
 TAPPI Official Test Method T822

Report #598 (H)
July 2019

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
M7LRMR	97.1	No DATA	No DATA	No DATA	97.1	1.78	2.7	0.0	97.1	1.65	2.7	0.0	1	LC
MNJW9E	88.3	88.1	88.4	90.9	88.9	-0.43	3.2	1.4	88.8	-0.19	3.1	1.7	16	LD
MYKJZC	89.5	88.4	88.2	87.6 L	88.4	-0.56	2.1	0.8	88.4	-0.27	3.0	1.4	16	MZ
PM8UJL	87.4	90.5 L	86.3	89.6	88.4	-0.56	2.6	1.9	88.4	-0.29	3.2	1.7	16	LD
PPN2Y9	91.0	90.5	89.1	90.1	90.2	-0.09	3.1	0.8	90.7	0.23	2.8	1.8	16	LC
QRQLYD	83.2	82.9	92.0	No DATA	86.0	-1.21	3.1	5.2	82.7	-1.55	2.8	3.8	15	LD
QXVAQT	91.9	88.9	88.9	90.2	90.0	-0.14	2.8	1.4	90.2	0.13	3.0	1.1	16	TJ
QXX3GE	96.5	87.4	91.3	94.0	92.3	0.49	3.9	3.9	91.5	0.40	3.4	2.5	16	LD
QYFURK	92.1	88.9	89.8	89.9	90.2	-0.09	3.1	1.3	89.5	-0.03	3.1	2.6	16	LD
RPCPKY	83.9	83.4	85.9	88.6	85.5	-1.36	2.7	2.4	85.8	-0.86	3.5	1.8	16	LD
RQDBL7	90.4	93.8	92.5	90.5	91.8	0.35	3.2	1.7	91.8	0.48	2.8	3.6	16	TD
T29W8V	90.5	88.1	90.0	H 96.6 *H	91.3	0.22	5.6	3.7	89.6	-0.03	7.3	8.2 H	12	LC
TBDZ4T	95.3	88.1	96.0	87.5	91.7	0.32	3.5	4.6	93.3	0.79	3.9	3.8	16	LZ
TCQHB6	95.8	95.0	94.4	93.3	94.6	1.11	2.5	1.1	93.2	0.78	2.4	1.8	16	TH
TX8V7D	89.7	90.4	88.2	90.5	89.7	-0.22	2.8	1.0	89.4	-0.06	2.7	1.2	16	LC
UHZW2F	98.3	95.4	93.8	90.0	94.4	1.04	3.4	3.4	96.7	1.55	3.1	2.8	16	LZ
URTPUY	91.4	92.7	90.8	87.0	90.5	-0.01	3.2	2.4	91.0	0.29	3.2	3.3	8	LZ
V9VTTV	76.9 *	78.7 *	78.4 X	77.3 X	77.8	-3.43 X	2.6	0.8	84.7	-1.10	3.0	4.4	16	LZ
VQZZ8X	93.4	92.6	92.6	92.6	92.8	0.62	2.1	0.4 L	93.1	0.76	2.0	0.8 L	16	LD
WKAV3Z	94.8	95.0	97.7	91.5	94.7	1.14	3.0	2.5	93.3	0.80	2.8	3.1	16	LD
XKADHA	86.6	87.7	90.3	88.9	88.4	-0.57	2.7	1.6	88.0	-0.37	2.5	1.6	16	LD
YMTRLB	99.4 H	99.2 H	99.1 *H	99.0 XH	99.2	2.34 *	8.7	0.2 L	96.7	1.56	7.6	2.2	16	LC

Consensus (All Labs) Results														
Wk Mean	89.86	90.09	90.80	89.87	Month Mean	90.50			Grand Mean	89.68				
Avg SDr	3.76	3.37	3.21	3.13	Avg SD	3.52			Avg SD	3.60				
SD btwn Labs	5.17	4.78	3.77	2.95	SD btwn Labs	3.70			SD btwn Labs	4.51				
Labs Incl	55	53	52	50	SD btwn Wks	3.43			SD btwn Wks	3.77				
Labs Excl	2	3	4	5	Labs Incl	54			Labs Incl	56				
Labs not Rcvd	0	1	1	2										

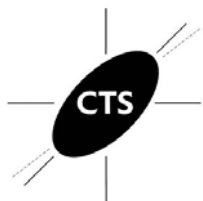


Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42F1
TAPPI Official Test Method T822

Report #598 (H)
July 2019

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	MZ	Messmer Buchel (model not specified)
RS	Regmed Digital Crush Tester CT-2000	TD	TMI Digital Crush Tester, Model 17-09
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program

Analysis 216

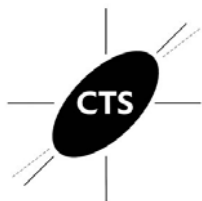
Ring Crush, 56 lb Linerboard - 56A2

TAPPI Official Test Method T822

Report #598 (H)

July 2019

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	
2DEHBM	142.0	145.7	141.0	143.3	143.0	0.40	3.6	2.0	141.5	0.20	3.5	2.0	12	LZ
2HC2E7	139.0	136.9	135.8	136.6	137.1	-0.56	3.5	1.4	136.6	-0.49	3.6	1.5	L 12	LD
2TTQA6	146.6	141.1	140.1	137.7	141.4	0.14	5.7	3.8	128.9	-1.55	5.8	9.8	12	LC
3AVU82	136.9	140.5	142.5	145.8	141.4	0.14	5.8	3.7	139.2	-0.12	6.5	5.0	12	TH
49ZLL4	128.6	126.1	133.2	130.2	129.5	-1.76	5.0	3.0	129.5	-1.47	4.3	2.5	12	EN
4CUKU8	142.2	137.2	135.8	133.4	137.2	-0.54	5.1	3.7	133.4	-0.94	4.4	3.5	12	LC
4HHEHR	140.2	143.9	145.4	143.3	143.2	0.43	4.3	2.2	143.7	0.50	4.3	1.7	L 8	LD
6DJD2V	140.3	140.3	140.6	140.3	140.4	-0.02	3.1	0.2	L 140.1	0.00	3.4	0.5	L 12	LD
6U3GDP	133.1	L 133.9	135.8	135.5	L 134.6	-0.95	2.3	1.3	134.2	-0.82	2.7	1.0	L 12	RS
6Y7ZTA	131.2	134.4	135.8	138.5	135.0	-0.89	4.2	3.1	136.4	-0.51	4.2	2.4	12	LD
7GZTD9	140.1	137.2	139.1	135.7	138.0	-0.40	4.6	1.9	137.7	-0.34	3.8	1.6	L 12	LD
8BMQBB	136.5	137.6	136.2	137.9	137.0	-0.56	5.1	0.8	L 138.9	-0.17	5.2	6.4	12	LD
8DZ6A7	140.7	143.4	146.5	141.4	143.0	0.40	3.9	2.6	124.2	-2.21	* 8.7	20.5	H 8	LC
97RC4F	135.0	136.2	135.4	139.3	136.5	-0.65	4.5	1.9	134.2	-0.82	4.7	3.5	12	EM
9DLGWG	140.2	144.4	141.5	139.3	141.4	0.13	6.0	2.3	139.6	-0.07	5.7	3.7	12	LD
9DRRXU	132.0	H 150.4	145.7	143.9	143.0	0.40	7.8	7.8	140.0	-0.01	8.6	8.6	12	MB
9JH28R	109.7	X 110.7	XL 110.6	X 120.6	X 112.9	-4.43	X 2.6	5.2	124.3	-2.19	* 2.7	9.1	12	TU
9NA7ZW	124.0	* 123.9	* 124.5	* 122.7	X 123.8	-2.69	* 4.7	0.8	L 127.6	-1.73	5.7	4.8	12	LC
BCXFJ7	144.4	142.9	139.3	143.7	142.6	0.33	6.6	2.3	140.8	0.10	5.8	3.6	8	EX
BDZPYG	142.9	143.0	142.2	142.9	142.8	0.36	3.5	0.4	L 142.4	0.32	3.3	0.6	L 12	LD
BNZ7WX	153.9	151.4	151.3	155.0	* 152.9	1.99	* 5.7	1.8	151.1	1.54	6.1	2.7	12	TU
BWUCQY	142.9	152.0	142.1	141.8	144.7	0.67	4.8	4.9	143.1	0.42	4.9	4.1	12	LC
CEBRKE	136.0	H 189.2	XH 143.2	150.9	154.8	2.30	* 10.4	23.7	H 153.7	1.89	9.0	18.7	H 11	MB
CRJFNB	157.4	* 159.6	* 156.0	* 156.3	* 157.3	2.70	* 5.9	1.6	158.2	2.52	* 6.3	2.9	12	LD
DELVRC	132.0	H 135.9	134.6	136.0	134.6	-0.95	7.0	1.8	134.6	-0.76	7.0	1.8	4	MB
E7EK67	139.4	141.5	H 140.8	136.3	139.5	-0.16	8.8	2.3	138.9	-0.17	6.3	5.5	12	LD
EXHP6M	137.3	139.8	137.2	140.7	138.8	-0.28	3.3	1.8	138.0	-0.28	3.7	2.3	12	LY
FFAA2X	146.5	148.3	148.8	143.5	146.8	1.01	4.6	2.4	144.6	0.63	4.6	3.1	12	LD
GK3J3J	144.1	143.8	145.7	142.7	144.1	0.57	4.2	1.2	145.1	0.70	4.2	2.2	12	LD
HHBXTT	139.4	147.0	143.3	140.3	142.5	0.32	4.8	3.4	143.3	0.45	5.9	3.9	12	LZ
HPXRQQ	161.0	* 162.8	* 163.3	X 165.2	X 163.1	3.63	X 4.9	1.7	163.1	3.20	X 4.9	1.7	L 4	LY
HYHZ9T	140.8	141.0	137.0	139.8	139.6	-0.14	3.5	1.8	138.0	-0.28	3.4	2.1	12	LC
KKUVX2	112.0	XH 155.8	H 154.8	H 142.9	141.4	0.14	11.4	20.5	H 141.4	0.18	11.4	20.5	H 4	LC
KYV8TZ	140.1	134.1	129.6	H 138.4	135.5	-0.80	8.5	4.7	139.3	-0.10	6.3	4.2	12	LC
LMYFMM	140.4	136.6	134.0	139.9	137.7	-0.45	4.4	3.0	141.3	0.18	5.1	4.6	8	LD



Containerboard Interlaboratory Testing Program
 Analysis 216
Ring Crush, 56 lb Linerboard - 56A2
 TAPPI Official Test Method T822

Report #598 (H)
July 2019

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
M7LRMR	147.9	151.2	155.0	152.9	151.8	1.81	5.4	3.0	151.8	1.62	5.4	3.0	4	LC
MNJW9E	136.1	135.1	139.7	141.3	138.1	-0.39	3.9	2.9	138.2	-0.26	4.3	2.7	8	LD
MYKJZC	135.5	133.9	137.3 L	135.8	135.6	-0.78	2.6	1.4	137.7	-0.33	4.1	3.0	12	MB
PM8UJL	142.7	142.2	138.7	139.5	140.8	0.04	3.9	2.0	140.7	0.09	3.9	1.8	12	LD
PPN2Y9	139.7	143.6	138.4	140.0	140.4	-0.02	4.5	2.2	141.2	0.15	4.1	2.6	12	LC
QRQLYD	132.6	128.2	131.1	No DATA	130.6	-1.59	5.4	2.2	127.7	-1.72	5.5	4.2	11	LD
QXVAQT	136.3	141.7	138.7	138.1	138.7	-0.29	4.8	2.3	139.5	-0.08	5.5	1.9	12	TJ
QXX3GE	155.1	137.1 H	153.5 H	150.3	149.0	1.36	8.4	8.2	149.1	1.25	7.6	6.1	12	LD
QYFURK	140.3	137.5	137.2	135.5	137.6	-0.47	5.8	2.0	138.1	-0.27	4.7	3.2	12	LD
RPCPKY	130.0	128.9	136.0	138.9	133.5	-1.14	5.7	4.8	134.2	-0.82	6.2	3.1	12	LD
RQDBL7	140.7	141.7	145.9	146.0	143.6	0.49	5.1	2.8	145.3	0.73	4.4	6.5	12	TD
T29W8V	142.4	141.8	143.4	150.1	144.4	0.63	6.7	3.8	141.6	0.20	10.3	10.9	12	LC
TBDZ4T	150.0	136.6	154.2	133.6	143.6	0.50	5.2	10.1	150.7	1.47	5.4	8.3	12	LZ
TCQHB6	144.8	144.9	143.0	144.6	144.3	0.61	4.5	0.9 L	145.3	0.72	4.2	5.3	12	TH
TX8V7D	137.5	133.5	142.1	139.4	138.1	-0.39	5.7	3.6	138.0	-0.28	5.0	2.0	12	LC
UHZW2F	147.7	148.6 L	143.3	139.7	144.8	0.70	4.1	4.1	146.6	0.91	4.2	3.5	12	LZ
URTPUY	148.5	147.2	136.6	138.4	142.7	0.35	4.0	6.0	142.7	0.36	4.0	6.0	4	LZ
V9VTTV	127.2	126.7	127.1 *	126.1 *	126.8	-2.21 *	3.8	0.5 L	132.0	-1.12	3.5	5.0	12	LZ
VQZZ8X	145.9 L	144.4	145.2 L	146.2	145.4	0.79	2.5	0.8 L	144.8	0.66	2.5	1.3 L	12	LD
WKAV3Z	135.9	143.6	145.7	140.7	141.5	0.15	4.2	4.2	141.2	0.16	4.0	5.0	11	LD
XKADHA	132.5	137.5	137.4 L	135.2	135.7	-0.78	2.7	2.4	136.9	-0.44	3.7	4.3	12	LD
YMTRLB	157.6 *H	159.5 *H	160.7 *H	158.0 *H	159.0	2.96 X	12.9	1.4	157.4	2.41 *10.4	5.3	12	LC	

Consensus (All Labs) Results														
Wk Mean	140.61	141.34	141.18	141.19	Month Mean	140.51	Grand Mean	140.08						
Avg SDr	5.26	5.88	5.73	4.95	Avg SD	5.42	Avg SD	5.60						
SD btwn Labs	7.61	8.15	7.25	6.19	SD btwn Labs	6.22	SD btwn Labs	7.19						
Labs Incl	55	55	55	53	SD btwn Wks	5.42	SD btwn Wks	6.37						
Labs Excl	2	2	2	3	Labs Incl	54	Labs Incl	56						
Labs not Rcvd	0	0	0	1										



Containerboard Interlaboratory Testing Program
Analysis 216
Ring Crush, 56 lb Linerboard - 56A2
TAPPI Official Test Method T822

Report #598 (H)
July 2019

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	TD	TMI Digital Crush Tester, Model 17-09
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

Report #598 (H)

July 2019

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	
27BPRQ	26.7 X	25.9 *	25.5	25.9	26.0	2.23 *	1.6	0.5	25.5	1.94 *	1.6	0.7	16	LH
2HC2E7	23.7	24.2	23.4 H	24.6 H	24.0	0.39	2.4	0.5	24.3	0.75	2.0	0.6	16	LU
2L9M4N	24.4	24.9	25.1	24.6	24.8	1.11	1.9	0.3	25.1	1.55	1.9	0.7	12	LU
2RYZ7C	23.3	22.5	22.5	23.3	22.9	-0.55	1.8	0.5	23.2	-0.31	1.7	0.6	16	LY
2TTQA6	22.6	21.1 *	20.7 *	22.4	21.7	-1.63	1.7	0.9	22.3	-1.15	2.4	1.2	16	LZ
49ZLL4	22.1	22.0	22.1	22.3	22.1	-1.26	1.5	0.1	21.7	-1.82	1.5	0.5	16	LY
4CUKU8	22.4	23.0 L	23.5 L	23.0	23.0	-0.49	1.1	0.4	22.5	-0.98	1.2	0.8	16	LA
4JAFHN	23.5	23.3	23.6	23.4	23.5	-0.05	1.3	0.1	23.6	0.15	1.2	0.3	16	TT
6Y7ZTA	23.4	22.6	23.6	23.2	23.2	-0.28	1.5	0.4	23.1	-0.40	1.6	0.5	16	LA
7GZTD9	22.1	23.1	23.0	23.2	22.8	-0.61	1.6	0.5	22.9	-0.62	1.7	0.6	16	LA
8BMQBB	23.2	22.2	22.7	22.3	22.6	-0.83	1.6	0.5	22.5	-0.99	1.6	0.6	16	LZ
8DZ6A7	21.6	23.1	21.7	21.1 *	21.9	-1.48	1.4	0.9	22.5	-0.97	1.7	1.0	16	LA
8X6RTP	24.5	24.3	24.5	24.4	24.4	0.80	1.5	0.1 L	24.0	0.52	1.6	0.4	12	LA
8YFMFG	25.4	25.3	24.7	25.4	25.2	1.47	1.7	0.3	26.9	3.35 X	2.1	3.6 H	16	LZ
8ZTE8X	23.8	24.7	25.6	24.7 H	24.7	1.07	1.8	0.7	24.6	1.08	1.8	0.6	12	LU
9DLGWG	23.8	25.0 L	24.3	25.1	24.6	0.92	1.7	0.6	25.1	1.58	1.6	0.7	16	LZ
9DRRXU	23.5	23.6	19.9 *	24.4	22.9	-0.58	1.7	2.0 H	23.3	-0.21	1.7	1.3	15	LA
B83LL6	24.5	24.0	23.7	23.5	23.9	0.33	1.9	0.4	23.8	0.33	1.8	0.6	15	LW
BCXFJ7	24.4 L	24.0 L	26.2 L	24.8 L	24.8	1.19	0.0	1.0	25.1	1.59	0.0	0.9	16	TT
BDZPYG	23.6	23.3	23.4	23.4	23.4	-0.09	1.5	0.1	23.4	-0.11	1.6	0.1 L	16	LA
BNZ7WX	23.1	24.0	24.3	24.6	24.0	0.44	1.5	0.7	24.3	0.82	1.7	0.7	16	LA
BWUCQY	23.1	23.5 L	23.4	23.4	23.3	-0.17	1.6	0.1	24.0	0.48	1.7	0.6	16	LW
CDM2P3	22.8	22.2	23.1	22.7 H	22.7	-0.76	1.9	0.4	22.5	-0.98	1.6	0.5	16	LW
CEBRKE	48.0 XH	41.9 XH	24.1 H	25.3	34.8	10.10 X	2.8	12.0 H	31.7	8.09 X	2.6	9.1 H	14	LA
DGRDQ8	19.8 X	19.6 X	18.7 X	19.2 X	19.3	-3.74 X	1.4	0.5	20.0	-3.49 X	1.4	0.9	16	LH
DJ4W7W	22.0	22.6	22.2	22.3	22.3	-1.13	1.5	0.2	22.3	-1.18	1.7	0.3	16	LZ
E7EK67	23.8	23.0	23.5	23.4	23.4	-0.08	1.7	0.4	22.9	-0.57	1.8	0.6	16	LY
EXHP6M	22.0	23.0	22.8	23.8	22.9	-0.56	1.5	0.8	22.9	-0.59	1.5	0.5	16	LU
EXXZVF	23.1	22.3	22.8 L	21.5	22.4	-0.98	1.6	0.7	23.2	-0.32	2.1	1.4	16	XX
FFAA2X	22.4	23.6	24.1	23.3	23.4	-0.15	1.6	0.7	23.2	-0.26	1.6	0.8	16	LY
GK3J3J	23.3	22.7	23.5	23.4	23.2	-0.26	1.8	0.3	22.9	-0.55	1.7	0.3	16	LA
HHBXTT	22.7	23.9	22.0	22.7	22.8	-0.63	1.5	0.8	22.8	-0.67	1.8	1.2	16	LA
JGV9F7	24.8	24.8	25.0	26.0	25.2	1.46	1.5	0.6	24.5	1.02	1.6	1.0	16	LH
KYV8TZ	21.7	20.3 *	23.6	20.6 *	21.5	-1.78	1.4	1.5 H	22.1	-1.35	1.7	1.0	16	LH
MNJW9E	23.2	23.5	23.2	24.7	23.6	0.10	1.5	0.7	23.1	-0.44	1.6	0.6	16	LA



Containerboard Interlaboratory Testing Program
 Analysis 223
STFI, 42 lb Linerboard - 42F1
 TAPPI Official Test Method T826

Report #598 (H)
July 2019

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	
PM8UJL	24.1	23.3	23.5	24.7 H	23.9	0.35	1.7	0.6	23.8	0.32	1.7	0.5	16	LA
PPN2Y9	23.7	23.5	22.9	24.3	23.6	0.08	1.7	0.6	23.4	-0.06	1.7	0.3	16	LU
QXVAQT	23.3	23.1	23.2	22.6 L	23.0	-0.43	1.2	0.3	23.3	-0.18	1.2	0.3	16	TT
QXX3GE	24.7	23.9	23.9	24.8	24.3	0.72	1.6	0.5	24.4	0.91	1.8	0.8	16	LA
QYFURK	24.4	22.1	22.6	23.6 L	23.2	-0.31	1.9	1.0	23.2	-0.28	1.6	0.9	16	LA
RPCPKY	20.9 *	21.5	20.4 *	21.7 L	21.1	-2.14 *	1.4	0.6	21.6	-1.89	1.4	0.7	16	LH
RQDBL7	30.4 X	30.5 X	30.7 XL	29.2 X	30.2	5.98 X	1.6	0.7	28.9	5.28 X	2.1	3.4 H	16	XX
T29W8V	24.3	25.0 H	25.8	25.2	25.1	1.39	2.0	0.6	25.4	1.84	2.0	0.5	12	LU
TR8C8N	24.1	24.7	24.2	24.6	24.4	0.78	1.7	0.3	25.0	1.45	1.7	0.7	12	LA
TX8V7D	23.6	24.3	23.9	24.5	24.1	0.48	1.7	0.4	23.4	-0.14	1.7	0.8	16	LW
UHZW2F	23.2	23.0	23.1	22.1	22.8	-0.62	1.8	0.5	23.0	-0.47	1.8	0.4	16	LW
URTPUY	25.0 H	23.3	23.0 L	23.1	23.6	0.07	1.8	0.9	23.1	-0.43	2.0	0.9	16	LA
VQZZ8X	24.2	24.3	24.0	23.3	24.0	0.39	1.8	0.4	23.8	0.27	1.8	0.4	16	LY
WCJ9DP	23.9	23.6	26.6 *H	23.7	24.4	0.80	2.5	1.4 H	24.7	1.16	2.1	1.2	16	LA
WKAV3Z	22.8	22.8	23.5	23.4	23.1	-0.35	1.8	0.4	23.3	-0.16	1.7	0.5	16	LA
XKADHA	20.9 *	22.0 L	21.7	21.4	21.5	-1.80	1.1	0.5	22.0	-1.50	1.2	0.6	16	BK
YMTRLB	25.5 *	25.8 *H	26.1	25.7	25.8	2.02 *	2.4	0.2	26.6	3.02 X	2.0	1.0	16	LA
YVK3XQ	24.3	25.0 H	25.8	25.2	25.1	1.39	2.0	0.6	25.4	1.84	2.0	0.5	12	XX

Consensus (All Labs) Results													
Wk Mean	23.40	23.45	23.55	23.65	Month Mean	23.52			Grand Mean	23.50			
Avg SDr	1.71	1.76	1.70	1.64	Avg SD	1.70			Avg SD	1.70			
SD btwn Labs	1.06	1.17	1.42	1.29	SD btwn Labs	1.12			SD btwn Labs	1.02			
Labs Incd	49	50	51	51	SD btwn Wks	0.68			SD btwn Wks	0.72			
Labs Excl	4	3	2	2	Labs Incd	50			Labs Incd	48			
Labs not Rcvd	0	0	0	0									

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	LA	L&W Autoline
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

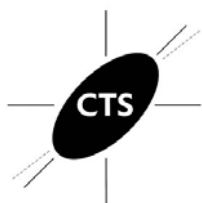
STFI, 56 lb Linerboard - 56A2

TAPPI Official Test Method T826

Report #598 (H)

July 2019

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	
27BPRQ	41.4 X	40.2 *	40.7 *H	40.0 *	40.6	3.23 X	3.0	0.6	39.4	2.25 *	3.0	1.5	8	LH
2HC2E7	34.7	33.7 H	34.6	35.8 H	34.7	-0.16	3.8	0.9	35.4	0.17	3.9	1.0	12	LU
2L9M4N	36.5	35.7	37.6	36.6	36.6	0.94	3.1	0.8	37.2	1.12	3.4	1.3	12	LU
2RYZ7C	35.0	35.6	35.1	33.8	34.9	-0.05	2.7	0.7	34.8	-0.13	2.7	0.7	12	LU
2TTQA6	32.3	32.0	32.5	34.1 H	32.7	-1.28	3.2	1.0	33.7	-0.67	3.8	1.5	12	XX
49ZLL4	32.5	33.3	32.4	32.4	32.7	-1.32	2.6	0.4	32.1	-1.52	2.6	0.8	12	LY
4CUKU8	34.8 L	33.0	35.7 L	34.4	34.5	-0.28	1.9	1.1	32.6	-1.24	1.7	1.7	12	LA
4JAFHN	34.1 L	34.2 L	34.5 L	34.4 L	34.3	-0.39	1.4	0.2 L	34.2	-0.44	1.4	0.5 L	12	TT
6Y7ZTA	34.7	33.3	35.9	33.6	34.4	-0.34	2.7	1.2	34.6	-0.23	2.7	1.0	12	LA
7GZTD9	34.2	34.0	34.9	33.2	34.1	-0.52	2.7	0.7	34.0	-0.54	2.4	0.9	12	LW
8BMQBB	31.8	34.7	32.5	31.7	32.7	-1.32	2.7	1.4	33.2	-0.94	2.9	1.4	12	LZ
8DZ6A7	32.7	31.4	32.8	33.4	32.5	-1.39	3.1	0.9	32.8	-1.16	3.0	0.8	8	LA
8X6RTP	34.7	35.1	36.6	35.7	35.5	0.31	3.3	0.8	36.0	0.50	3.2	0.7	12	LA
8YFMFG	37.4	37.4	37.3	39.6 *	37.9	1.68	3.0	1.1	41.6	3.41 X	3.2	7.6 H	12	LZ
8ZTE8X	36.1	38.9	38.4	37.5	37.7	1.59	3.2	1.2	37.2	1.14	3.2	1.2	8	LU
9DLGWG	35.3	39.0	36.4	38.6	37.3	1.35	2.8	1.8	37.7	1.38	3.3	1.5	12	LZ
9DRRXU	33.6	35.1	36.4	35.9	35.3	0.18	3.1	1.2	32.7	-1.20	2.7	5.4 H	12	LA
B83LL6	35.0	35.6	36.7	34.7	35.5	0.31	2.9	0.9	35.4	0.20	2.9	0.8	11	LW
BCXFJ7	37.8 L	36.9 L	36.2 L	37.7 L	37.2	1.25	0.0	0.7	37.3	1.19	0.0	1.6	8	LZ
BDZPYG	34.9	34.8	35.0	34.9	34.9	-0.04	2.8	0.1 L	34.7	-0.18	2.7	0.2 L	12	LA
BNZ7WX	37.2 H	37.7	38.3 H	35.2 H	37.1	1.21	4.2	1.3	36.6	0.83	4.2	1.0	12	LA
BWUCQY	34.7	35.6	35.2	35.1	35.1	0.10	3.1	0.4	35.8	0.39	2.8	0.5 L	12	ID
CDM2P3	33.3	33.5	31.7	31.1	32.4	-1.49	2.9	1.2	32.6	-1.25	2.7	1.1	8	LW
CEBRKE	34.9	55.2 X	35.9	37.6	40.9	3.40 X	3.2	9.6 H	40.2	2.64 *	3.3	8.3 H	11	LA
DGRDQ8	27.7 X	28.3 *	30.5 *	28.7 XL	28.8	-3.54 X	2.2	1.2	27.4	-3.90 X	2.2	8.0 H	12	LH
DJ4W7W	33.7	33.9	35.4	34.2	34.3	-0.39	2.5	0.8	33.5	-0.80	3.0	1.5	12	LZ
E7EK67	34.6	34.8	36.0	34.3	34.9	-0.01	2.6	0.8	34.7	-0.15	2.6	0.8	12	LZ
EXHP6M	33.6	34.6	34.1	34.1	34.1	-0.49	2.1	0.4	33.6	-0.72	2.2	0.7	12	LU
EXXZVF	29.7 *	36.3	31.9	34.6	33.1	-1.07	2.5	2.9 H	33.8	-0.62	3.1	2.3	8	XX
FFAA2X	33.2	33.6	36.5	34.8	34.5	-0.25	2.4	1.5	34.3	-0.39	2.5	0.9	12	LY
GK3J3J	33.3 L	34.9	35.1	34.1	34.3	-0.36	2.4	0.8	34.7	-0.15	2.4	0.7	12	LU
HHBXTT	35.0	35.4	34.0	35.4	35.0	-0.01	2.4	0.7	34.1	-0.46	2.5	1.4	12	LA
JGV9F7	36.4	37.6	36.9	38.8	37.4	1.41	2.4	1.0	37.2	1.15	2.5	0.8	12	LH
KYV8TZ	32.4	29.6 *	36.0	30.8 *	32.2	-1.58	3.0	2.8 H	33.5	-0.77	3.8	2.0	11	LH
MNJW9E	34.3	33.9	33.6	33.3	33.8	-0.69	2.7	0.5	34.3	-0.36	2.7	0.8	12	LA



Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A2

TAPPI Official Test Method T826

Report #598 (H)

July 2019

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	
PM8UJL	35.5	32.4 L	35.5	37.1	35.1	0.10	2.5	1.9	34.8	-0.12	2.7	1.3	12	LA
PPN2Y9	35.1	32.9	34.9	35.4	34.6	-0.21	2.6	1.1	34.9	-0.06	2.7	0.7	12	LU
QXVAQT	34.4 L	35.1 L	34.8 L	34.6 L	34.7	-0.13	1.4	0.3	34.3	-0.37	1.3	0.5 L	12	TT
QXX3GE	36.9	35.5	35.0	33.2	35.1	0.09	2.9	1.5	35.8	0.41	3.1	1.7	12	LA
QYFURK	34.4	33.9	34.4	34.1	34.2	-0.44	2.5	0.2	34.4	-0.31	2.5	0.8	12	LA
RPCPKY	32.1	32.0	31.7	33.7	32.4	-1.49	2.3	0.9	32.5	-1.30	2.3	0.8	12	LH
RQDBL7	41.1 X	42.7 X	42.1 XL	43.5 X	42.4	4.24 X	2.6	1.0	37.3	1.16	2.0	4.8 H	12	XX
T29W8V	38.3	39.3	40.3 *	38.5 L	39.1	2.36 *	3.1	0.9	38.2	1.65	3.4	1.4	12	LU
TR8C8N	34.9	38.4	37.9	35.9	36.8	1.04	2.9	1.6	31.7	-1.70	2.4	7.1 H	8	LA
TX8V7D	35.9	36.2	37.7	35.8	36.4	0.82	2.5	0.9	34.5	-0.25	2.7	1.8	12	LW
UHZW2F	32.6	35.5	34.1	33.5	33.9	-0.60	2.5	1.2	34.5	-0.29	2.8	1.3	12	LW
URTPUY	38.2 L	32.6	36.9	34.4	35.5	0.33	2.6	2.5 H	35.2	0.08	2.3	1.6	12	LA
VQZZ8X	35.3	34.7	34.1	34.8	34.7	-0.13	2.6	0.5	35.1	0.03	2.4	0.8	12	LY
WCJ9DP	35.9 H	33.7	36.7	38.5	36.2	0.71	3.0	2.0	36.4	0.72	2.8	2.2	12	LA
WKAV3Z	32.1	33.0	33.4	32.6 H	32.8	-1.26	3.1	0.6	33.9	-0.60	2.8	1.1	12	LA
XKADHA	32.1	32.6	33.7	33.1	32.9	-1.21	2.0	0.7	32.6	-1.26	1.9	1.0	12	BK
YMTRLB	37.5	35.1	36.5	36.1	36.3	0.77	2.3	1.0	38.0	1.53	2.8	2.3	12	LA
YVK3XQ	38.3	39.3	40.3 *	38.5 L	39.1	2.36 *	3.1	0.9	38.2	1.65	3.4	1.4	12	LU

Consensus (All Labs) Results													
Wk Mean	34.68	34.81	35.40	35.12	Month Mean	34.96			Grand Mean	35.02			
Avg SDr	2.68	2.69	2.87	2.82	Avg SD	2.75			Avg SD	2.82			
SD btwn Labs	1.90	2.40	2.20	2.13	SD btwn Labs	1.74			SD btwn Labs	1.94			
Labs Incd	50	51	52	51	SD btwn Wks	1.20			SD btwn Wks	2.20			
Labs Excl	3	2	1	2	Labs Incd	49			Labs Incd	51			
Labs not Rcvd	0	0	0	0									

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	ID	IDM Compression Tester
LA	L&W Autoline	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
Roughness - Stylus Method, 56 lb Linerboard - 56A
 TAPPI Official Test Method T575

Report #598 (H)
July 2019

WebCode	Monthly Results				Cumulative Results				Inst	
	Mean	CPV	SD		Mean	CPV	SD Months	Months		
2HC2E7	189.5	1.22	14.04		186.8	1.27	5.21	4	EV	
2L9M4N	146.5	-0.87	15.48		165.8	-0.07	18.81	3	EV	
49ZLL4	181.1	0.81	15.25		176.2	0.59	8.58	4	EV	
6Y7ZTA	139.5	-1.20	8.70	L	145.2	-1.39	7.56	3	LS	
7GZTD9	161.4	-0.14	18.54		169.7	0.18	5.74	4	LA	
8BMQBB	0.3	-7.95	0.02	L	0.3	-10.66	0.01	L	4	LA
8DZ6A7	190.6	1.27	20.66		193.5	1.70	16.11	4	LA	
8X6RTP	149.2	-0.73	17.81		150.1	-1.08	9.33	4	LA	
8YFMFG	237.4	3.54	29.27	X	205.9	2.49	27.79	H	4	XX
9DRRXU	191.4	1.31	37.00	H	180.8	0.89	14.69	4	LA	
BDZPYG	164.3	0.00	19.02		163.1	-0.25	0.80	L	4	XX
BNZ7WX	201.2	1.78	32.74	H	190.3	1.49	25.69	H	4	LA
CEBRKE	191.1	1.30	32.11	H	194.3	1.75	5.79	4	LA	
CRJFNB	170.7	0.31	22.65		148.4	-1.19	15.56	4	EV	
DJ4W7W	157.7	-0.32	15.18		160.2	-0.44	4.57	4	LA	
E7EK67	186.2	1.06	12.57		183.9	1.09	4.82	4	EV	
HHBXTT	175.7	0.55	27.11		176.5	0.61	9.45	4	EV	
KYV8TZ	95.3	-3.35	10.22	X	110.1	-3.64	13.10	X	4	EV
MNJW9E	145.6	-0.91	15.11		165.5	-0.09	14.02	4	XX	
QDD9QT	150.3	-0.68	16.03		145.9	-1.35	5.45	4	EV	
QXX3GE	149.2	-0.73	27.29		159.1	-0.50	7.53	4	LA	
T29W8V	162.4	-0.09	11.48		159.4	-0.49	2.79	3	EV	
TR8C8N	153.4	-0.53	17.83		156.4	-0.68	2.71	3	LA	
TX8V7D	163.6	-0.04	10.56		165.6	-0.09	3.67	4	XX	
UHZW2F	161.9	-0.12	13.63		167.9	0.06	8.26	4	EV	
WLAUJM	144.6	-0.96	12.67		162.3	-0.30	16.70	4	XX	
YMTRLB	117.2	-2.29	15.78	*	140.5	-1.70	21.38	4	LA	

Consensus (All Labs) Results			
Month Mean	164.34	Grand Mean	166.97
Avg SD	20.09	Avg SD Months	11.71
SD btwn Labs	20.63	SD btwn Labs	15.63
Labs Incl	24	Labs Incl	24

Key to Instrument Codes Reported by Participants

- | | | | |
|----|-------------------------------|----|--|
| EV | Emveco Microgauge Model 210-R | LA | L&W Autoline |
| LS | L&W 263 | XX | Instrument make/model not specified by lab |



Containerboard Interlaboratory Testing Program
 Analysis 229
Roughness - Sheffield Method, 42 lb Linerboard - 42F1
 TAPPI Official Test Method T538

Report #598 (H)
July 2019

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6Y7ZTA	347.9	-1.20	7.06	348.7	-1.49	1.30	3	LA
9DLGWG	360.0	0.96	10.97	360.2	0.68	1.32	3	XX
PM8UJL	357.1	0.45	7.08	361.2	0.86	4.00	3	LA
PPN2Y9	363.3	1.56	5.96	360.8	0.79	2.25	3	XX
QYFURK	358.0	0.61	10.77	357.6	0.19	1.83	3	LA
TBDZ4T	346.5	-1.45	6.19	349.6	-1.32	4.35	3	XX
WCJ9DP	356.5	0.34	10.55	361.8	0.99	4.89	3	XX
WKAV3Z	355.0	0.07	9.27	361.0	0.82	6.89	3	XX
WLAUJM	353.7	-0.16	5.46	354.8	-0.34	0.99	3	XX
YXB64E	348.1	-1.17	6.73	350.3	-1.18	3.32	3	LA

Consensus (All Labs) Results			
Month Mean	354.60	Grand Mean	356.61
Avg SD	8.26	Avg SD Months	3.61
SD btwn Labs	5.58	SD btwn Labs	5.28
Labs Incl	10	Labs Incl	10

Key to Instrument Codes Reported by Participants

LA L & W Roughness Sheffield - Autoline
 XX Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
Analysis 231

Report #598 (H)
July 2019

Internal Bond, 42 Ib Linerboard - 42D

TAPPI Official Test Method T569

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2HC2E7	91.8	-0.40	10.66	94.4	-0.85	2.14	4	TM
2L9M4N	61.3	-2.41 *	8.74	62.4	-4.00 X	2.85	3	TM
2TTQA6	77.1	-1.37	6.31	89.5	-1.34	20.40 H	4	SC
3QYJ4Y	115.6	1.16	3.04	107.4	0.43	6.97	4	SC
4CUKU8	98.4	0.03	4.56	99.7	-0.34	1.49 L	4	TM
6Y7ZTA	104.3	0.41	5.34	108.4	0.52	25.75 H	3	TM
7GZTD9	124.6	1.75	1.52 L	119.9	1.65	6.02	4	HY
8DZ6A7	114.0	1.05	15.17 H	120.0	1.66	7.71	4	SC
8YFMFG	106.6	0.57	14.12	110.7	0.75	9.97	4	TM
CRJFNB	119.4	1.41	8.44	123.2	1.98 *	3.82	4	HY
E7EK67	91.2	-0.44	6.82	101.8	-0.13	7.63	4	XX
GK3J3J	101.4	0.23	5.98	102.7	-0.04	4.26	4	HZ
HHBXTT	102.6	0.30	5.13	102.8	-0.03	2.31	4	TM
LMYFMM	97.9	0.00	9.52	97.8	-0.52	0.22	2	SC
MNJW9E	97.6	-0.02	4.10	104.6	0.14	5.10	4	TM
PM8UJL	49.2	-3.20 X	0.65 L	48.9	-5.32 X	0.29 L	4	LZ
PPN2Y9	111.5	0.89	6.75	112.3	0.91	2.65	4	HY
QYFURK	85.9	-0.79	3.92	93.7	-0.92	5.82	4	SC
T29W8V	86.8	-0.73	6.14	92.5	-1.04	5.70	3	TM
WCJ9DP	89.2	-0.58	4.32	92.4	-1.05	6.46	4	SC
WKAV3Z	95.8	-0.14	2.49	96.3	-0.67	2.73	4	TM
WLAUJM	106.8	0.58	8.87	106.8	0.37	3.54	4	XX
YVL6G4	75.4	-1.48	9.24	87.9	-1.49	16.12	4	TM

Consensus (All Labs) Results

Month Mean	97.96	Grand Mean	103.08
Avg SD	7.67	Avg SD Months	9.38
SD btwn Labs	15.23	SD btwn Labs	10.18
Labs Incd	22	Labs Incd	21

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	95.21	14.88	2.75	18
Modified Scott Bond Mechanics	118.03	9.30	20.07	2

Analysis Notes

PM8UJL - Method used is not covered in this test. Data excluded from consensus calculation.



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

Report #598 (H)
July 2019

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 234
COF Inclined Plane (Slide Angle), 56 lb Linerboard - 56A
 TAPPI Official Test Method T815

Report #598 (H)
July 2019

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
2HC2E7	25.5	-0.46	4.81	27.9	0.60	5.22	H 4
2L9M4N	28.8	0.71	3.11	27.8	0.57	1.11	3
3QYJ4Y	25.6	-0.42	3.36	23.6	-1.33	1.45	4
49ZLL4	29.7	1.04	2.69	29.6	1.38	1.86	4
4HHEHR	24.0	-0.98	4.30	27.6	0.48	4.12	4
6Y7ZTA	25.2	-0.56	7.05	H 23.6	-1.30	1.46	3
7GZTD9	29.8	1.06	4.92	29.0	1.08	3.35	4
8DZ6A7	33.5	2.35 *	0.91	29.7	1.42	5.06	H 4
8X6RTP	28.6	0.63	3.45	28.0	0.65	1.61	3
8YFMFG	25.6	-0.42	0.99	24.0	-1.15	1.85	4
9DLGWG	30.8	1.41	3.70	29.1	1.14	2.46	4
B83LL6	25.4	-0.49	1.14	26.7	0.05	2.91	4
BDZPYG	26.2	-0.21	0.45	L 26.1	-0.21	0.19	L 4
DJ4W7W	25.4	-0.49	0.55	L 25.0	-0.68	0.49	4
E7EK67	23.2	-1.27	3.11	24.7	-0.82	1.31	4
HHBXTT	27.4	0.21	4.62	27.6	0.46	1.50	4
KKUVX2	30.2	1.20	6.69	H 30.2	1.64	0.00	1
MNJW9E	28.2	0.50	3.35	27.3	0.32	2.14	4
PM8UJL	25.8	-0.35	3.82	24.9	-0.75	4.25	4
PPN2Y9	26.2	-0.22	2.19	24.9	-0.71	0.84	4
RPCPKY	28.9	0.74	4.08	28.8	1.03	0.86	4
T29W8V	24.2	-0.91	1.48	27.1	0.25	2.52	3
TX8V7D	27.0	0.07	4.95	25.7	-0.37	1.45	4
U4B3KF	24.6	-0.77	1.52	25.2	-0.59	0.72	3
UHZW2F	26.0	-0.28	2.74	25.2	-0.62	1.14	4
WCJ9DP	29.4	0.92	1.14	29.1	1.13	0.47	4
WKAV3Z	28.8	0.71	2.21	26.7	0.07	2.35	4
YMTRLB	23.6	-1.13	1.52	22.3	-1.91 *	2.47	4
YVK3XQ	19.4	-2.61 *	0.55	L 22.5	-1.82	3.86	3

Consensus (All Labs) Results			
Month Mean	26.79	Grand Mean	26.53
Avg SD	3.43	Avg SD Months	2.51
SD btwn Labs	2.84	SD btwn Labs	2.24
Labs Incl	29	Labs Incl	29



Containerboard Interlaboratory Testing Program
Analysis 234
COF Inclined Plane (Slide Angle), 56 lb Linerboard - 56A
TAPPI Official Test Method T815

Report #598 (H)
July 2019

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #598 (H)
July 2019

Air Resistance, 42 lb Linerboard - 42D

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2DEHBM	18.1	-0.25	2.13	18.5	-0.28	0.29	4	XX
2L9M4N	18.9	0.41	1.35	18.6	-0.17	0.28	3	LA
4HHEHR	16.1	-1.85	1.42	17.9	-0.91	1.30	4	XX
6Y7ZTA	18.9	0.38	2.31	19.4	0.71	0.72	4	LA
7GZTD9	21.5	2.48 *	1.27	21.1	2.45 *	1.01	4	LP
8DZ6A7	19.5	0.85	1.26	19.0	0.19	0.57	4	LA
8YFMFG	16.1	-1.84	2.88 H	18.0	-0.80	1.44	4	TD
9DLGWG	18.0	-0.29	1.63	19.4	0.62	1.10	4	GA
B83LL6	17.2	-0.97	2.15	18.4	-0.41	0.85	4	LP
BDZPYG	18.7	0.26	0.64 L	18.8	0.06	0.78	4	LA
BNZ7WX	22.3	3.14 X	1.15	22.5	3.92 X	1.02	4	LA
CEBRKE	17.2	-0.98	0.88	18.0	-0.81	1.02	4	LA
DHDXRX	17.2	-0.99	1.04	18.2	-0.60	0.78	4	LP
DJ4W7W	18.0	-0.37	1.37	18.1	-0.72	0.26	4	LP
E7EK67	40.8	17.93 X	1.60	24.0	5.43 X	11.29 H	4	LP
HHBXTT	18.6	0.16	1.49	18.8	0.03	0.24	4	LP
MNJW9E	20.4	1.57	1.47	20.6	1.96 *	0.70	4	LA
PM8UJL	19.8	1.10	1.01	20.3	1.56	0.46	4	LA
PPN2Y9	18.3	-0.10	2.54	18.1	-0.74	0.72	4	TP
QRQLYD	18.7	0.24	2.83 H	18.4	-0.38	0.94	4	GG
QXX3GE	18.2	-0.13	1.20	18.6	-0.19	0.44	4	LA
QYFURK	18.3	-0.08	1.49	19.3	0.56	0.74	4	LA
T29W8V	18.7	0.24	1.18	19.3	0.55	0.62	3	LA
TFDVHM	20.5	1.71	2.28	20.4	1.69	0.88	4	GA
UHZW2F	19.2	0.64	0.92	18.7	-0.04	0.96	4	XX
VQZZ8X	19.7	1.04	1.16	19.3	0.59	0.45	4	LP
VYEQ3P	18.1	-0.25	1.21	19.2	0.49	1.10	4	LP
WKAV3Z	17.7	-0.57	2.25	18.5	-0.32	0.70	4	LA
WLAUJM	17.6	-0.65	1.20	18.1	-0.70	0.37	4	XX
XCWK8E	18.8	0.32	1.36	17.1	-1.77	2.44	2	LA
YMTRLB	16.5	-1.53	2.22	17.0	-1.82	0.39	4	LA
YVK3XQ	17.7	-0.54	0.92	18.0	-0.84	0.59	3	LA

Consensus (All Labs) Results

Month Mean	18.41	Grand Mean	18.76
Avg SD	1.68	Avg SD Months	0.88
SD btwn Labs	1.25	SD btwn Labs	0.96
Labs Incl	30	Labs Incl	30



Containerboard Interlaboratory Testing Program
Analysis 237

Report #598 (H)
July 2019

Air Resistance, 42 lb Linerboard - 42D

TAPPI Official Test Method T460

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline	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 #598 (H)
July 2019

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

TAPPI Official Test Method T809

WebCode	Weekly Means				Monthly Results				Cumulative Results					
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
27BPRQ	56.3	54.9	54.8	54.3	55.1	-1.06	2.7	0.8	52.6	-1.96 *	3.2	2.6	16	LD
2HC2E7	58.2	57.0	57.3	57.0	57.4	-0.07	3.9	0.6	56.2	-0.53	3.4	1.3	13	LD
2L9M4N	52.4	57.2	57.9	NO DATA	55.8	-0.73	3.7	3.0	55.9	-0.65	3.4	2.2	11	XX
2RYZ7C	61.1	58.9	56.4	57.5	58.5	0.41	4.4	2.0	58.0	0.20	4.0	1.5	16	LD
2TTQA6	59.7	55.6	58.3	59.1	58.2	0.27	3.9	1.8	55.2	-0.93	3.4	2.5	16	LC
3QYJ4Y	53.5	54.5	53.8	54.3	54.0	-1.52	4.2	0.5	56.0	-0.62	3.7	1.9	16	LZ
3XZW3G	58.1 L	58.0 L	58.2 L	58.2 L	58.1	0.25	0.9	0.1 L	58.8	0.50	1.3	1.0	16	LD
49ZLL4	58.0	56.3	58.6	57.5	57.6	0.04	3.7	1.0	56.8	-0.30	3.4	1.3	16	EN
4CUKU8	61.4	60.2	60.7	59.1	60.4	1.22	4.5	1.0	60.0	1.01	3.5	1.6	16	LC
4JAFHN	57.8 H	58.7	58.2	58.6	58.3	0.34	5.0	0.4	57.8	0.14	4.6	1.0	16	TG
6DJD2V	60.9	60.3	60.7	60.8	60.6	1.35	3.5	0.3 L	60.6	1.23	2.8	0.2 L	16	LD
7GZTD9	55.4	55.5	57.5	55.7	56.0	-0.66	3.5	1.0	55.7	-0.72	3.4	1.5	16	LD
827NK6	58.5	58.9	58.4	58.7	58.6	0.47	2.9	0.2 L	59.0	0.62	3.4	1.5	16	EM
8BMQBB	52.6	58.4	55.3	57.4	55.9	-0.69	3.4	2.6	55.4	-0.84	3.8	2.1	16	LD
9DLGWG	54.6	55.9	57.0	56.5	56.0	-0.66	3.3	1.0	57.3	-0.07	3.1	1.7	16	LZ
9DRRXU	50.6 *	56.6	44.8 X	57.2	52.3	-2.26 *	3.6	5.8 H	54.5	-1.21	3.9	3.4	15	MB
9JH28R	37.2 XL	30.9 XL	30.4 X	34.4 X	33.2	-10.50 X	1.8	3.2	53.1	-1.76	2.1	12.2 H	16	TU
B83LL6	60.5	62.0	61.4	60.8	61.2	1.58	3.5	0.7	61.5	1.62	3.5	1.7	15	LD
BCXFJ7	54.6	53.1 *	56.4	52.0 *	54.0	-1.52	3.7	1.9	54.9	-1.05	3.9	1.3	16	EM
BDZPYG	57.8	57.8 L	58.3	58.0	58.0	0.19	1.9	0.2 L	58.3	0.33	2.1	0.4 L	16	LD
BNZ7WX	55.3	60.9	55.6 H	52.2 H	56.0	-0.66	5.9	3.6 H	54.9	-1.04	5.7	3.2	16	TU
BWUCQY	60.0	60.3	61.5	60.9	60.7	1.36	2.7	0.6	58.8	0.51	3.1	1.3	16	LD
CEBRKE	35.8 X	41.7 X	56.2	33.9 XH	41.9	-6.76 X	7.5	10.1 H	46.6	-4.41 X	6.4	8.9 H	14	MB
CXPCAV	58.1	57.8	57.1	57.5	57.6	0.04	3.0	0.4	58.1	0.22	3.2	1.2	16	LC
DHDXXR	54.7	60.2	57.6	58.8	57.8	0.12	3.1	2.3	58.0	0.19	3.7	1.7	16	LD
DJ4W7W	60.1	56.4	55.6	54.1	56.6	-0.42	4.1	2.6	58.0	0.19	4.1	2.5	16	LZ
E7EK67	59.7	58.8	60.9	57.4	59.2	0.72	3.4	1.5	58.3	0.33	4.1	1.2	16	LZ
ELJ3QB	58.4	56.2	57.6	56.3	57.1	-0.18	3.2	1.0	56.5	-0.39	3.2	1.1	12	TH
EXHP6M	56.5	56.4	57.6	55.4	56.4	-0.47	3.3	0.9	57.2	-0.13	3.3	1.5	16	LZ
EXXZVF	62.8	62.8 *	62.3 *	62.9	62.7	2.25 *	4.7	0.3 L	62.0	1.83	4.1	2.4	16	LD
FFAA2X	57.1	57.0	56.2	57.2	56.9	-0.28	3.8	0.4	58.1	0.24	3.7	1.8	16	LD
GK3J3J	54.4	55.9	57.1	54.4	55.5	-0.90	3.4	1.3	55.1	-0.97	3.4	1.2	16	LC
HPXRQQ	55.4	56.2	56.4 L	56.8	56.2	-0.58	3.1	0.6	56.2	-0.53	3.1	0.6 L	4	LD
HVZQA3	53.7	54.2	57.5	57.3	55.7	-0.80	3.9	2.0	59.0	0.62	3.7	3.8	8	LD
JGV9F7	61.8	62.3 H	60.1	59.1	60.9	1.44	4.7	1.5	59.8	0.92	4.1	2.0	16	LD



Containerboard Interlaboratory Testing Program
Analysis 240

Report #598 (H)
July 2019

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	
MNJW9E	60.0	59.8	56.0	58.2	58.5	0.41	3.3	1.9	57.6	0.03	3.8	1.5	16	LC
MYKJZC	59.5	56.1 H	57.8	58.4	57.9	0.17	5.1	1.4	62.0	1.80	4.4	3.8	16	MB
NC84ZY	66.1 *	67.3 X	67.7 X	65.9 *	66.8	3.99 X	4.5	0.9	65.8	3.35 X	4.0	1.6	16	LC
NNWR67	61.5	60.6	60.2	60.3 L	60.7	1.35	2.7	0.6	60.5	1.22	2.6	0.6 L	16	LD
PM8UJL	52.4	50.2 X	53.0 *	53.5	52.3	-2.28 *	3.5	1.5	51.8	-2.30 *	3.6	1.4	16	LD
PPN2Y9	61.0	61.2	61.4	58.5	60.5	1.29	3.9	1.3	59.4	0.78	4.2	2.0	16	LC
QXVAQT	56.3	57.2	60.8	61.1	58.9	0.58	3.8	2.5	59.0	0.60	3.8	1.3	16	TJ
RPCPKY	53.5	54.3	55.0	57.4	55.1	-1.07	2.3	1.7	55.1	-0.95	3.4	1.5	16	LD
RQDBL7	65.5 *	66.3 X	65.4 X	65.9 *	65.8	3.56 X	3.5	0.4	62.4	1.98 *	2.6	3.0	16	TD
RV82BQ	44.2 XH	46.6 X	26.7 X	45.9 XH	40.9	-7.20 X	4.9	9.5 H	45.6	-4.79 X	4.2	5.2	16	TC
T29W8V	52.4	57.2	57.9	54.7	55.6	-0.86	4.2	2.5	55.8	-0.69	3.6	2.1	12	LC
V48Y4B	57.8	59.8	60.0	59.8	59.4	0.79	4.6	1.0	58.6	0.43	4.2	2.0	16	LC
VNZVPB	58.0	57.7	58.4	57.3	57.9	0.14	3.3	0.5	58.2	0.30	3.1	0.9	16	LD
VYEQ3P	57.2	58.3	57.0	55.4	57.0	-0.23	3.7	1.2	58.0	0.20	3.5	1.7	16	LD
WLAUJM	No DATA	No DATA	No DATA	55.7	55.7	-0.80	3.3	0.0	53.1	-1.76	5.6	3.6	2	XX
WN9AN4	57.5	59.9	61.1	64.1 *H	60.6	1.34	5.1	2.7	61.0	1.40	5.1	2.1	8	LC
XCWK8E	60.5	61.6	54.3	59.1	58.9	0.58	4.5	3.2	57.5	-0.01	4.1	2.6	8	LD

Consensus (All Labs) Results												
Wk Mean	57.69	57.98	57.85	57.88	Month Mean	57.53		Grand Mean	57.51			
Avg SDr	3.68	3.80	3.73	3.82	Avg SD	3.75		Avg SD	3.67			
SD btwn Labs	3.44	2.38	2.24	3.02	SD btwn Labs	2.31		SD btwn Labs	2.48			
Labs Includ	48	45	46	48	SD btwn Wks	1.81		SD btwn Wks	2.62			
Labs Exclcd	3	6	5	3	Labs Includ	47		Labs Includ	49			
Labs not Rcvd	1	1	1	1								

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TC	TMI Monitor/Compression Tester, 17-37	TD	TMI Digital Crush Tester, Model 17-09
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
Analysis 250

Report #598 (H)
July 2019

Fluted Edge Crush Strength (FCF), 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	
2DEHBM	68.0	67.8 L	67.8	68.3	68.0	-0.37	1.9	0.2	67.4	-0.47	2.1	1.0	16	LZ
3AVU82	65.6	67.5	68.8 H	64.0	66.5	-0.94	3.7	2.1	66.3	-0.97	3.3	2.5	16	TH
3XZW3G	67.9	68.2	68.1 L	68.2	68.1	-0.33	1.7	0.2 L	69.8	0.67	1.4	2.3	16	LD
7GZTD9	74.4 *	73.7	73.9	75.3 *	74.3	2.08 *	2.4	0.7	73.1	2.20 *	3.5	1.7	16	LD
B83LL6	68.6	67.9 H	69.7	69.1	68.8	-0.04	4.4	0.8	69.4	0.50	3.6	1.5	15	LD
BDZPYG	68.9	69.1	68.8	69.3	69.0	0.03	1.9	0.2	69.5	0.53	2.4	0.7	16	LD
BWUCQY	68.3	68.1	68.5	68.2	68.3	-0.25	2.1	0.1 L	66.3	-0.96	2.3	1.3	16	LD
CXPCAV	67.9	67.2	68.0	67.5	67.7	-0.50	3.8	0.4	69.2	0.39	3.9	2.4	16	LD
DHDXRX	72.6	70.7	69.2	73.0	71.4	0.94	3.9	1.8	70.2	0.87	3.9	2.1	16	LD
DJ4W7W	68.9	67.3	71.3	67.5	68.7	-0.08	4.2	1.8	68.2	-0.06	4.4	1.6	16	LZ
EXHP6M	70.9	68.6	70.0	68.8	69.6	0.25	3.1	1.1	68.7	0.15	3.2	1.5	16	LZ
MNJW9E	62.4 *	62.0 *	63.3 *	63.7	62.8	-2.35 *	3.3	0.7	63.8	-2.13 *	3.8	1.7	16	LD
MYKJZC	66.9	65.3	68.2	67.7 L	67.0	-0.74	2.4	1.3	65.2	-1.48	2.6	1.8	16	MB
PM8UJL	69.7	72.4	70.7	70.2	70.8	0.70	3.5	1.2	69.3	0.43	3.9	2.1	16	LD
PPN2Y9	69.7	70.6	71.9 L	71.2	70.8	0.74	2.8	0.9	70.0	0.79	3.2	1.5	16	LC
RQDBL7	69.8 L	73.0	71.9 L	71.8	71.6	1.04	1.5	1.3	69.4	0.48	2.1	2.3	16	TD
T29W8V	71.2	71.9	73.8	73.0 H	72.5	1.37	5.1	1.2	69.4	0.50	5.8	7.2 H	12	XX
VYEQ3P	68.1	67.4	67.6	65.8	67.2	-0.67	3.5	1.0	67.2	-0.53	3.2	1.6	16	XX
XKADHA	64.9	69.5	65.6	66.7 H	66.7	-0.88	4.6	2.0	66.4	-0.92	3.9	1.6	16	LD

Consensus (All Labs) Results									
Wk Mean	68.67	68.85	69.31	68.91	Month Mean	68.94	Grand Mean	68.36	
Avg SDr	3.10	3.26	3.29	3.56	Avg SD	3.30	Avg SD	3.44	
SD btwn Labs	2.70	2.80	2.60	3.01	SD btwn Labs	2.59	SD btwn Labs	2.13	
Labs Incl	19	19	19	19	SD btwn Wks	1.17	SD btwn Wks	2.42	
Labs Excl	0	0	0	0	Labs Incl	19	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
TD	TMI Digital Crush Tester, Model 17-09	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 - CM11
 TAPPI Official Test Method T822

Report #598 (H)
July 2019

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	
6ALV43	42.5	46.2	44.3	41.5	43.6	0.55	2.7	2.1	43.5	0.67	2.7	1.7	16	LD
6DJD2V	45.7	45.3	45.5	45.4	45.5	1.06	2.9	0.2 L	45.5	1.39	2.9	0.2 L	16	LD
827NK6	41.3 L	41.5	42.3 L	41.6 L	41.7	0.02	1.4	0.4	43.2	0.56	1.9	1.4	16	LC
8BMQBB	41.0	39.8	42.6	39.9	40.8	-0.21	3.4	1.3	40.4	-0.46	3.4	1.6	16	LD
9DLGWW	43.2	45.7	45.5	43.7	44.5	0.80	3.7	1.3	43.0	0.48	2.9	1.8	16	LD
9JH28R	37.2 L	30.9 XL	30.4 X	34.4 *	33.2	-2.27 *	1.8	3.2	36.2	-1.95 *	2.0	3.5	16	TU
BCXFJ7	40.2	42.1	39.7	40.4	40.6	-0.27	3.1	1.1	39.9	-0.64	3.1	1.2	16	EM
BDZPYG	42.1	42.5	41.9	42.0	42.1	0.15	3.0	0.3 L	42.3	0.23	2.6	0.5 L	16	LD
BXC2F7	33.9 *H	34.4 *H	33.6 *H	35.3 H	34.3	-1.98 *	7.4	0.7	37.1	-1.64	6.3	3.1	16	TX
CEBRKE	38.2	58.7 X	39.9	43.1	45.0	0.92	3.2	9.4 H	40.9	-0.26	4.1	6.4 H	14	MB
DHDXXR	39.5	45.6	43.6	41.4	42.5	0.26	3.6	2.6	42.6	0.36	2.7	1.7	16	LD
ELJ3QB	35.2	35.5	37.4	35.1 L	35.8	-1.57	2.6	1.1	36.8	-1.74	2.3	2.5	12	TH
GK3J3J	43.2	42.2	42.7	44.1	43.0	0.40	3.7	0.8	42.4	0.26	3.2	1.3	16	LD
HPXRQQ	46.1	47.9	45.1	43.6	45.7	1.11	3.7	1.8	45.7	1.46	3.7	1.8	4	LZ
MYKJZC	37.0	37.9	39.3	37.2	37.9	-1.01	2.1	1.0	37.8	-1.39	2.6	2.1	16	MB
NC84ZY	33.5 *	33.4 *	33.7 *	33.5 *	33.5	-2.19 *	2.9	0.2 L	32.8	-3.17 X	3.0	1.0	16	XX
NNWR67	43.8	43.8	43.3	43.5	43.6	0.55	2.2	0.2 L	42.7	0.40	2.6	0.6	16	LD
PM8UJL	43.3	43.1	44.5	44.4	43.8	0.61	3.1	0.8	42.2	0.19	3.0	1.6	16	LD
PPN2Y9	43.3	42.7	42.9	42.7	42.9	0.35	3.3	0.3 L	43.3	0.60	2.9	1.5	16	LC
QY7BDR	42.0	45.0	42.6	42.9	43.1	0.42	4.8	1.3	44.1	0.90	4.9	1.2	12	XX
RV82BQ	34.9 H	38.7	37.1 H	36.5	36.8	-1.30	5.5	1.6	35.3	-2.28 *	5.7	1.4	16	TC
TCQHB6	44.3 L	45.0	43.8	43.5	44.1	0.69	1.9	0.6	43.3	0.59	2.1	1.0	16	TH
URTPUY	44.5	43.0	42.1	43.5	43.3	0.46	3.6	1.0	43.4	0.65	3.2	1.4	8	LZ
V48Y4B	41.0	44.8	43.5	41.6	42.7	0.31	3.9	1.7	42.8	0.41	3.9	2.1	16	LC
VYEQ3P	42.5	42.7	41.5	41.4	42.0	0.12	3.5	0.7	41.3	-0.11	3.4	1.2	16	LD
WN9AN4	41.1	42.3	43.7	46.8	43.5	0.51	4.3	2.5	42.0	0.12	4.0	3.0	8	LC
XCWK8E	49.4 *	45.2	47.6	46.6 H	47.2	1.52	4.6	1.8	45.5	1.41	3.9	2.3	8	LD
XUPCZY	40.8	42.4	40.1	39.3	40.7	-0.25	2.3	1.3	41.1	-0.20	3.0	2.4	16	LZ
YVYLNP	41.6	41.2	46.0	41.1	42.5	0.24	2.4	2.4	41.6	-0.02	3.2	1.7	16	LZ

Consensus (All Labs) Results														
Wk Mean	41.11	42.20	41.98	41.24	Month Mean	41.58			Grand Mean	41.63				
Avg SDr	3.40	3.65	3.46	3.79	Avg SD	3.55			Avg SD	3.45				
SD btwn Labs	3.75	3.62	3.41	3.58	SD btwn Labs	3.69			SD btwn Labs	2.77				
Labs Incl	29	27	28	29	SD btwn Wks	2.25			SD btwn Wks	2.19				
Labs Excl	0	2	1	0	Labs Incl	29			Labs Incl	28				
Labs not Rcvd	0	0	0	0										

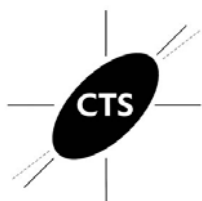


Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM11
TAPPI Official Test Method T822

Report #598 (H)
July 2019

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	TC	TMI Monitor/Compression Tester, 17-37
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
TX	TMI Digital Crush Tester (model not specified)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 261

Report #598 (H)

July 2019

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	
2HC2E7	14.2	13.5	13.0	14.0	13.7	0.75	1.3	0.5	14.0	1.65	1.2	0.4	16	LU
3XZW3G	13.2 L	13.4 L	13.3 L	13.3 L	13.3	-0.09	0.5	0.1	13.6	0.71	1.7	0.5	16	LA
6Y7ZTA	13.6	13.6	14.0	13.4	13.6	0.58	1.2	0.3	13.5	0.53	1.0	0.3	16	LA
827NK6	13.0	12.9	12.6	12.7	12.8	-1.11	1.1	0.2	12.7	-1.48	1.0	0.6	16	LB
8BMQBB	12.7	13.0	13.0	12.9	12.9	-0.93	1.0	0.1	12.9	-0.98	1.0	0.4	16	LZ
9DLGWG	13.5	14.1	13.3	14.0	13.7	0.78	1.0	0.4	13.7	0.84	1.0	0.5	16	LZ
9DRRXU	12.5	12.6	12.6	12.8	12.6	-1.50	0.9	0.2	15.5	4.96 X	1.3	10.0 H	15	LA
BDZPYG	13.5	13.2 L	13.3	13.2	13.3	-0.09	0.8	0.2	13.2	-0.17	0.8	0.1 L	16	LB
BNZ7WX	13.7	13.0	14.0	13.7	13.6	0.53	0.9	0.4	13.3	-0.15	0.9	0.4	16	LA
BXC2F7	12.2 *	12.4	12.2 *	12.6	12.3	-2.09 *	1.0	0.2	12.3	-2.32 *	1.0	0.2	16	TT
CEBRKE	14.2	22.8 XH	13.4 H	15.0 *	16.4	6.21 X	1.4	4.4 H	16.2	6.59 X	1.2	3.3 H	13	LA
CXPCAV	13.4	14.0	13.0	13.1	13.4	0.12	0.8	0.4	13.6	0.67	0.8	0.6	16	LB
E7EK67	13.8	13.9	14.2	13.6	13.9	1.06	0.9	0.2	13.5	0.43	2.0	0.5	16	LB
MNJW9E	13.7	13.1	13.3	13.5	13.4	0.08	1.1	0.2	13.1	-0.43	1.0	0.4	16	LA
PM8UJL	13.8	13.1	13.5	14.1	13.6	0.55	0.9	0.4	13.5	0.43	1.0	0.5	16	LA
PPN2Y9	14.4	13.6	13.9	14.2	14.0	1.37	0.9	0.4	13.6	0.75	1.0	0.4	16	LU
QXVAQT	13.0	13.5	13.4	13.2	13.3	-0.17	0.9	0.2	13.7	0.94	0.9	0.5	16	TT
RPCPKY	12.5	12.5	12.8	12.5	12.6	-1.56	1.1	0.1	12.8	-1.19	1.0	0.4	16	LH
RQDBL7	17.2 XH	17.9 X	18.3 X	17.3 X	17.7	8.99 X	1.4	0.5	17.9	10.66 X	1.6	3.1 H	16	XX
RV82BQ	12.8	13.2	12.9	13.0	13.0	-0.79	1.1	0.2	12.9	-1.05	1.0	0.3	16	TS
URTPUY	14.1	13.9 H	13.7	13.9 L	13.9	1.10	1.1	0.2	13.3	-0.02	1.1	0.6	16	LA
VNZVPB	13.6	13.1	12.8 L	13.9	13.3	-0.03	0.8	0.5	13.7	0.97	0.9	0.6	16	LB
XCWK8E	14.6	14.7 *	13.8	13.5	14.2	1.68	1.2	0.6	13.6	0.75	1.1	0.7	8	LA
YVYLNP	13.1 H	13.2	13.7	12.9 H	13.2	-0.24	1.6	0.3	12.9	-0.87	1.1	0.4	16	LA

Consensus (All Labs) Results													
Wk Mean	13.44	13.34	13.28	13.43	Month Mean	13.35			Grand Mean	13.32			
Avg SDr	0.99	1.02	1.02	1.11	Avg SD	1.02			Avg SD	1.11			
SD btwn Labs	0.64	0.56	0.52	0.60	SD btwn Labs	0.48			SD btwn Labs	0.43			
Labs Incl	23	22	23	23	SD btwn Wks	0.32			SD btwn Wks	0.46			
Labs Excl	1	2	1	1	Labs Incl	22			Labs Incl	21			
Labs not Rcvd	0	0	0	0									



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

Report #598 (H)
July 2019

Key to Instrument Codes Reported by Participants

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

End of Report