



Containerboard Interlaboratory Testing Program

Participant Summary Report #651 - December 2023

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX17</u>	<u>Top to Bottom Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC15</u>	<u>Edgewise Compressive Strength, by T811, Corrugated Board</u>
<u>203</u>	<u>EC15</u>	<u>Edgewise Compressive Strength by T839, Corrugated Board</u>
<u>205</u>	<u>42H2</u>	<u>Bursting Strength (Mullen), 42 lb Linerboard</u>
<u>207</u>	<u>35E3</u>	<u>Bursting Strength (Mullen), 35 lb Linerboard</u>
<u>215</u>	<u>42H3</u>	<u>Ring Crush, 42 lb Linerboard</u>
<u>217</u>	<u>35E3</u>	<u>Ring Crush, 35 lb Linerboard</u>
<u>223</u>	<u>42H3</u>	<u>STFI, 42 lb Linerboard</u>
<u>225</u>	<u>35E3</u>	<u>STFI, 35 lb Linerboard</u>
<u>228</u>	<u>42H</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42H3</u>	<u>Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42H</u>	<u>Internal Bond, 42 lb Linerboard</u>
<u>234</u>	<u>42H</u>	<u>COF Inclined Plane (Slide Angle), 42 lb Linerboard</u>
<u>237</u>	<u>42H</u>	<u>Air Resistance, 42 lb Linerboard</u>
<u>240</u>	<u>CM13</u>	<u>Flat Crush Strength (CMT), 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM13</u>	<u>Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM13</u>	<u>Ring Crush (RCT), 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM13</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; 35 lb. and 56 lb. - alternate months. The participants return their test results for analysis and receive a monthly report.

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

Material	Lot Code	Dates in Use
26# Corrugating Medium	CM13	September 2023 - Current
	CM12	June 2022 - August 2023
35# Corrugating Medium	35E3	June 2022 - Current
	35E2	June 2020 - April 2022
42# Corrugating Medium	42H3	October 2023 - Current
	42H1	April 2022 - November 2022
52# Corrugating Medium	52J1	November 2023 - Current
	56G2	May 2021 - May 2022

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, agriculture, hemp, 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 100 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
Top to Bottom Box Compression Strength, Corrugated Boxes - BX17
 TAPPI Official Test Method T804

Report #651
December 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2XNMVL	833.4	-0.40	121.54	767.2	-1.69	61.73	4	ET
3LTTYH	1,086.4	4.15 X	58.60	972.1	2.48 *	91.04	4	LG
4ENC33	795.8	-1.08	17.34 L	786.7	-1.29	20.05	4	LL
8V2UNY	820.9	-0.63	63.53	848.2	-0.04	56.42	4	LG
9Q6P8Z	874.0	0.33	97.37	848.3	-0.04	47.36	4	XX
9WPQND	839.1	-0.30	49.35	835.0	-0.31	8.17 L	4	EX
AADC7D	787.4	-1.23	74.25	829.4	-0.42	43.80	4	LS
AXLGF	776.8	-1.42	71.28	777.1	-1.49	0.42	2	LL
CYAUU2	909.2	0.96	68.56	905.1	1.12	22.61	4	LG
EBR8Z8	918.7	1.13	90.77	858.3	0.16	47.88	4	TB
ETCYY8	845.8	-0.18	82.25	837.9	-0.25	37.52	4	LG
EYJFG9	914.9	1.07	75.86	762.6	-1.79	144.34 H	3	EX
GABNE2	871.8	0.29	64.56	897.8	0.97	23.91	4	LM
GG8P9Z	822.7	-0.59	96.06	857.1	0.14	41.48	4	ER
J7ZU3Z	847.6	-0.15	141.76	839.7	-0.21	55.03	4	EX
JFR4V4	856.5	0.02	74.65	862.2	0.24	35.99	3	LN
JN62H2	970.8	2.07 *	45.69	880.3	0.61	63.65	4	LS
KHD6EW	890.6	0.63	101.45	880.1	0.61	69.76	4	ES
MY7V32	1,058.2	3.65 X	33.72	939.3	1.81	103.35	3	ER
MZL72U	845.2	-0.19	28.73	859.4	0.19	10.08	4	LO
NK97LV	903.4	0.86	128.35	833.9	-0.33	47.21	4	EX
PWCPWV	780.5	-1.35	144.97	814.8	-0.72	41.58	4	LS
R4QAWD	833.4	-0.40	89.28	871.3	0.43	37.37	4	EX
T3BADN	772.4	-1.50	110.66	790.3	-1.22	13.74	4	ER
T8N9TM	915.6	1.08	72.47	850.2	0.00	85.75	4	ER
WGHN7G	814.2	-0.75	102.95	796.0	-1.11	14.71	4	LG
WDRPK	793.2	-1.12	96.09	885.0	0.71	61.83	4	EX
Z6RBAG	943.2	1.58	77.31	881.0	0.63	47.59	4	EX
ZJCPDF	925.3	1.25	49.94	891.3	0.84	35.63	4	LM

Consensus (All Labs) Results			
Month Mean	855.64	Grand Mean	850.26
Avg SD	88.32	Avg SD Months	56.25
SD btwn Labs	55.57	SD btwn Labs	49.07
Labs Incl	27	Labs Incl	29



Containerboard Interlaboratory Testing Program
 Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BX17
 TAPPI Official Test Method T804

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Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	854.29	45.08	1.34	8
Clip sealing	856.20	60.58	0.56	19

Key to Instrument Codes Reported by Participants

ER Emerson 6200 Series ET Emerson 7200 LG TLS / L.A.B. Validator Series LM Lansmont 122-15k LO Lansmont 152-30k TB TMI Monitor/Compression Tester, Model 17-70	ES Emerson 8510 EX Emerson Apparatus (Model not specified) LL Lansmont 76-5K LN Lansmont 152-50k LS Lansmont Squeezer XX Instrument make/model not specified by lab
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Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC15
 TAPPI Official Test Method T811

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3TQL8C	44.8	-0.09	1.34	46.0	0.51	0.89	4	LD
6E7DUC	43.6	-0.38	3.13 H	39.3	-1.61	4.13 H	4	EN
7Z4GZC	41.5	-0.93	1.51	42.2	-0.69	1.34	4	TS
9Q6P8Z	40.8	-1.10	2.59	41.2	-1.02	1.55	4	TS
AADC7D	43.4	-0.44	1.13	43.4	-0.31	1.17	4	LD
AXLGFD	42.4	-0.71	1.44	42.4	-0.64	0.00	1	LC
B6X4HD	49.8	1.21	1.89	49.6	1.64	0.50	4	XX
CYAUU2	44.7	-0.10	1.58	44.6	0.06	1.23	4	EX
KJKJL3	153.3	27.74 X	3.76 H	157.9	35.61 X	3.44	4	LD
NK97LV	42.6	-0.64	2.11	42.9	-0.47	1.14	4	LC
PWCPWV	48.2	0.79	1.37	48.2	1.19	0.00	1	EM
R4QAWD	45.3	0.04	2.34	44.4	0.00	0.80	4	LC
TJF4JM	54.3	2.36 *	1.21	48.7	1.34	3.84	4	XX

Consensus (All Labs) Results			
Month Mean	45.12	Grand Mean	44.41
Avg SD	1.90	Avg SD Months	2.05
SD btwn Labs	3.90	SD btwn Labs	3.19
Labs Incd	12	Labs Incd	12

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	TS	TMI Digital Crush Tester, Model 17-56
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC15
 TAPPI Official Test Method T839

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WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2C93YL	49.8	0.50	1.74	49.8	0.88	0.00	1	TE
2XNMVL	49.6	0.44	1.09	48.9	0.57	1.11	4	TD
332NTD	40.7	-1.92 *	2.12	42.2	-1.59	1.50	4	IX
34TJG8	47.2	-0.20	1.79	45.4	-0.57	1.67	4	TU
3LTTYH	52.4	1.18	2.54	50.5	1.09	1.67	3	EM
6E7DUC	46.7	-0.34	1.77	45.2	-0.64	1.24	4	EN
7VM9CC	51.5	0.95	1.69	52.2	1.67	2.13	4	TG
7Z4GZC	44.7	-0.85	2.39	44.2	-0.96	0.49	4	TS
8V2UNY	52.3	1.15	2.08	50.0	0.94	1.68	4	MK
9Q6P8Z	45.8	-0.57	2.37	46.3	-0.28	2.54	4	TS
9WPQND	46.9	-0.28	0.85	46.1	-0.32	1.32	4	TL
AADC7D	45.7	-0.58	2.14	45.6	-0.51	0.53	4	LD
AXLGF8	43.8	-1.09	1.88	45.2	-0.64	1.94	2	LC
CYAUU2	45.9	-0.55	2.56	45.5	-0.54	2.15	4	LY
DF8FN8	46.5	-0.39	0.68 L	46.2	-0.30	0.75	4	BU
DX94F7	48.4	0.13	0.52 L	42.4	-1.53	7.07 H	4	XX
EBR8Z8	54.4	1.71	1.07	52.5	1.76	3.44	4	LD
ETCYY8	44.8	-0.84	1.80	44.5	-0.84	1.04	4	EM
GABNE2	44.5	-0.91	1.25	45.4	-0.56	0.92	4	EM
GAQ8YY	50.4	0.64	0.88	49.5	0.76	1.29	2	LD
GG8P9Z	44.0	-1.03	1.68	44.3	-0.91	1.66	4	LD
JN62H2	55.9	2.10 *	2.23	52.3	1.67	2.64	4	EM
K97C2V	44.5	-0.91	1.33	44.8	-0.76	0.91	4	TK
KHD6EW	46.2	-0.46	1.95	46.8	-0.11	0.73	4	LD
M42MBY	53.3	1.42	2.66	53.0	1.92	0.64	4	LC
MY7V32	54.6	1.75	1.47	51.0	1.28	3.90	3	LD
MZL72U	39.8	-2.15 *	1.96	40.4	-2.18 *	2.50	4	LD
NK97LV	49.2	0.35	1.47	48.3	0.38	0.91	4	LC
R4QAWD	48.9	0.25	1.39	46.3	-0.26	4.02	4	LC
RYB29D	49.7	0.47	1.70	49.3	0.71	1.21	4	EM
T3BADN	47.3	-0.17	1.57	46.3	-0.26	0.81	4	EM
T8N9TM	47.2	-0.20	1.52	45.9	-0.40	1.41	4	LD
TJF4JM	53.2	1.40	0.98	50.0	0.94	3.39	4	XX
WDRPK	44.1	-1.00	0.85	44.5	-0.85	0.87	4	CT
Z6RBAG	46.2	-0.46	1.96	45.6	-0.49	1.29	4	LD
ZJCPDF	47.8	-0.04	1.12	47.7	0.20	1.18	4	TG
ZR6XY8	49.8	0.50	1.56	49.4	0.74	0.52	4	TH



Containerboard Interlaboratory Testing Program
 Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC15
 TAPPI Official Test Method T839

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Consensus (All Labs) Results			
Month Mean	47.94	Grand Mean	47.13
Avg SD	1.73	Avg SD Months	2.18
SD btwn Labs	3.79	SD btwn Labs	3.07
Labs Incl	37	Labs Incl	37

Key to Instrument Codes Reported by Participants

BU Buchel Digital Crush Tester	CT Con-Ten
EM Emerson 1200 Series	EN Emerson 2200
IX Instron (model not specified)	LC L&W Crush Tester 48
LD L&W Crush Tester 248	LY L&W 830
MK Mark-10 ESM303	TD TMI Digital Crush Tester, Model 17-09
TE TMI Monitor/Compression Tester, Model 17-60	TG TMI Digital Crush Tester, 17-76
TH TMI Monitor/Compression Tester, Model 17-76	TK TLS Compression Tester, Model 5184
TL Tech-Lab Systems Compression	TS TMI Digital Crush Tester, Model 17-56
TU TMI Universal Crush Tester (TMI K440)	XX Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H3
 TAPPI Official Test Method T807

Report #651
December 2023

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	
2C93YL	112.6	118.9	109.4	115.6	114.1	-0.14	9.9	4.1	117.4	0.60	9.9	4.4	12	LC
3Q6HYE	120.0	126.5 *	122.5	117.7	121.7	1.27	8.9	3.8	120.9	1.36	10.6	4.1	12	LC
4TMCYC_AL	117.7	115.8	115.0	118.3	116.7	0.35	9.1	1.6	115.5	0.17	10.7	2.5	8	XX
4WMMUC	124.8	117.4	121.4	No DATA	121.2	1.19	6.4	3.7	120.4	1.26	5.4	3.6	10	AH
6T7F7D	114.3	105.5	110.1	106.0	109.0	-1.10	9.7	4.1	111.3	-0.75	10.3	4.2	8	LZ
9QP7M3_AL	111.7	117.3	114.6	111.0	113.6	-0.23	9.9	2.9	112.6	-0.46	9.3	4.3	12	AL
A7XKH7	115.0 L	113.5 L	115.0 L	113.6 L	114.3	-0.11	3.2	0.8	116.6	0.41	4.4	3.2	12	LA
AADC7D	118.7	114.1	117.2	114.7	116.2	0.24	8.7	2.1	116.7	0.44	8.5	2.5	12	LA
AJ22CE_AL	109.9	108.0	112.2	107.7	109.4	-1.01	6.1	2.1	102.6	-2.68 *	6.4	10.4 H	12	XX
ARUAW6	117.1	118.2	120.3	121.9	119.4	0.85	8.4	2.1	116.3	0.36	10.1	5.4	12	LB
B6XVX9	107.9	114.0	No DATA	No DATA	111.0	-0.73	8.2	4.3	112.7	-0.43	7.4	4.3	9	LA
B6XVX9_AL	121.7	112.6 H	No DATA	No DATA	117.2	0.43	24.2	6.4	112.8	-0.41	13.5	12.9 H	9	AL
CARBM9_AL	113.1	113.7	117.9	117.5	115.5	0.13	10.3	2.5	114.6	-0.01	10.7	3.1	12	AL
CYAUU2	120.7	119.8	122.2	120.6	120.8	1.12	9.8	1.0	122.6	1.75	9.5	3.7	12	LA
D3ZN68_AL	122.6	118.0	122.0	119.0	120.4	1.04	8.3	2.2	116.7	0.45	8.8	3.9	9	AL
DWR7M7	114.3	115.3	114.0	115.8	114.9	0.00	6.3	0.8	115.5	0.18	6.1	1.2 L	12	AH
E73LFZ	121.3	118.5	118.2	116.4	118.6	0.70	6.4	2.0	120.6	1.31	5.9	2.3	12	LA
EBR8Z8	105.9	105.7	107.8	102.0 *	105.4	-1.77	8.0	2.4	109.1	-1.23	7.3	4.6	12	XX
EFM3ZU	112.9	108.4	111.9	110.5	110.9	-0.74	9.9	2.0	113.0	-0.37	9.2	3.7	12	XX
EZQXF4_AL	118.5	111.6 H	116.5	114.4	115.3	0.07	10.2	3.0	115.6	0.20	10.7	3.4	12	AL
FCHQGY	105.9	107.1	103.5	104.3	105.2	-1.80	6.4	1.6	111.4	-0.73	6.4	4.7	12	LJ
GG8P9Z	113.2	108.3	107.4	110.7	109.9	-0.92	10.0	2.6	110.3	-0.97	9.5	2.5	12	LZ
GPMCH4	122.5	119.9	118.9	124.9	121.6	1.26	9.3	2.7	118.5	0.84	9.6	3.5	12	LC
GPMCH4_AL	121.8	119.2	116.5	117.9	118.9	0.75	8.5	2.3	117.4	0.59	9.6	3.0	12	AL
H3KZPN_AL	108.6	110.3	105.1	110.7	108.7	-1.16	8.2	2.6	108.5	-1.37	9.0	2.7	12	AL
HH4FZZ_AL	126.0	125.3 *	122.9	122.2	124.1	1.73	8.6	1.8	123.8	2.02 *	7.6	2.2	12	AL
HK8BJ3_AL	No DATA	119.0	118.2	No DATA	118.6	0.70	7.0	0.6	115.7	0.23	8.3	2.3	8	AL
HPWZVZ_AL	115.7	120.9	115.1	123.3	118.8	0.73	11.0	4.0	118.2	0.78	9.5	3.1	12	AL
JBF3QY_AL	110.4	115.0	112.9	111.8	112.5	-0.44	10.5	2.0	113.2	-0.33	10.1	2.9	12	AL
KHD6EW	115.3	114.8	117.3	118.5	116.5	0.30	8.9	1.7	114.3	-0.09	9.1	2.7	12	LA
KJKJL3	103.5 *	106.0	99.1 *	101.5 *	102.5	-2.30 *	8.8	2.9	108.5	-1.38	9.2	8.1	12	LA
KWTC63	115.2	116.2	116.5	115.3	115.8	0.18	5.6	0.6	115.6	0.20	5.3	0.7 L	12	LA
L2KU6Y	116.0	114.2	119.5	111.1	115.2	0.07	10.4	3.5	113.5	-0.27	10.0	3.9	12	LA
LL43XK	103.9 *	110.4	115.2	108.8	109.6	-0.99	8.5	4.7	109.0	-1.25	8.5	2.9	12	LA
MY7V32	118.7	119.2	117.9	114.0	117.5	0.49	8.7	2.4	114.5	-0.05	6.4	4.2	8	LA



Containerboard Interlaboratory Testing Program
 Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H3
 TAPPI Official Test Method T807

Report #651
December 2023

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	
N76VZU_AL	130.8 *	132.5 X	131.6 *	122.5	129.3	2.71 *	10.5	4.6	126.4	2.58 *	10.0	4.3	12	AL
NBYPXV	115.9	116.5	114.7	110.0	114.3	-0.11	9.1	3.0	107.3	-1.64	8.2	13.3 H	12	TB
NK97LV	109.8	114.3	109.1	111.7	111.2	-0.68	8.0	2.3	113.4	-0.29	7.9	2.7	12	AH
RAW28V	117.2	116.8	No DATA	116.6	116.9	0.38	4.9	0.3 L	117.2	0.55	5.4	2.4	9	AX
RAW28V_AL	115.3	No DATA	120.1	117.8	117.7	0.54	6.1	2.4	108.4	-1.39	6.5	11.9 H	9	AL
RZRY2D	102.5 *	100.6 *	101.7 *	100.6 *	101.4	-2.52 *	6.5	0.9	107.1	-1.68	8.2	6.2	8	LC
T8N9TM	120.5	119.9	118.7	115.3	118.6	0.70	9.2	2.3	116.6	0.41	8.7	2.2	12	AH
TJF4JM	117.2	116.5	113.3	114.1	115.3	0.08	7.9	1.9	115.7	0.22	7.9	2.0	12	LC
U99LLP	116.7	116.1 L	115.3	116.9	116.3	0.26	4.8	0.7	116.0	0.28	5.7	0.9 L	12	TP
VA6CDQ_AL	113.4	112.7	117.2	116.9	115.0	0.03	8.1	2.3	115.1	0.10	6.8	1.8	10	AL
VJ7MYU	113.3 L	112.7 L	113.0 L	113.0 L	113.0	-0.35	3.0	0.2 L	117.2	0.56	3.2	3.7	12	AH
WCLWXX	114.3	100.2 *L	105.1	108.2	106.9	-1.48	8.7	5.9 H	110.7	-0.88	8.7	5.0	12	LC
WJP3DM	108.1	113.1	110.4	108.6	110.1	-0.90	9.7	2.3	111.4	-0.73	9.2	2.4	12	LC
WNDRPK	120.5	120.5	120.0	121.0	120.5	1.06	9.2	0.4 L	120.3	1.23	10.1	4.0	12	XX
WQMVLG	116.6	113.6	113.3	109.7	113.3	-0.29	7.9	2.8	114.0	-0.15	9.1	3.6	12	ME
XUKHRQ	133.2 X	132.4 X	131.8 *	130.3 *	131.9	3.19 X	9.0	1.2	130.8	3.56 X	8.8	3.1	12	AX
Z6RBAG	112.8	113.2	108.8	108.8	110.9	-0.74	9.3	2.4	109.5	-1.15	8.5	2.7	12	AH
ZBYRRH	113.7 H	117.5	112.5	117.7	115.4	0.09	10.5	2.6	114.4	-0.07	9.8	2.2	8	LA
ZBYRRH_AL	116.3	112.4	114.3	117.5	115.1	0.05	6.5	2.2	117.2	0.55	6.9	3.4	8	AL
ZMC2AF	118.3	121.1	120.7	121.5	120.4	1.03	8.8	1.4	119.7	1.10	13.8	4.2	12	LJ

Consensus (All Labs) Results													
Wk Mean	115.29	114.54	115.11	114.44	Month Mean	114.85			Grand Mean	114.70			
Avg SDr	8.50	9.38	8.49	8.64	Avg SD	8.98			Avg SD	8.71			
SD btwn Labs	5.78	5.43	6.41	6.14	SD btwn Labs	5.35			SD btwn Labs	4.52			
Labs Incl	53	52	52	51	SD btwn Wks	2.75			SD btwn Wks	4.78			
Labs Excl	1	2	0	0	Labs Incl	54			Labs Incl	54			
Labs not Rcvd	1	1	3	4									



Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42H3
TAPPI Official Test Method T807

Report #651
December 2023

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	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)
ME	Messmer Automatic Burst Tester ME-06	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E3
 TAPPI Official Test Method T807

Report #651
December 2023

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	
2C93YL	88.2	92.4	89.8	86.8	89.3	-0.52	6.9	2.4	90.2	-0.40	6.4	1.8	12	LC
3Q6HYE	98.1	96.9	96.1	91.4	95.6	1.04	10.2	2.9	96.8	1.72	11.8	3.2	12	LC
4TMCYC_AL	90.4	93.7	93.8	91.5	92.4	0.24	6.9	1.7	90.3	-0.36	7.3	2.5	12	XX
4WMMUC	97.4	93.0	94.4	No DATA	94.9	0.87	5.7	2.2	94.6	1.02	6.0	2.1	10	AH
6T7F7D	95.9	100.8 *	96.5 L	96.4	97.4	1.48	6.0	2.3	97.4	1.90	6.0	2.3	4	LZ
9QP7M3_AL	90.8	86.9	84.9	86.2	87.2	-1.04	8.1	2.5	88.7	-0.87	7.5	2.8	12	AL
A7XKH7	87.7 L	86.5 L	88.3 L	88.4	87.7	-0.91	2.4	0.9	89.8	-0.50	4.8	3.0	12	LA
AADC7D	92.6 H	93.1	91.6	94.8	93.0	0.40	7.7	1.3	92.2	0.25	7.8	1.4	12	LA
AJ22CE_AL	88.0	86.6	86.7	88.3	87.4	-0.99	6.3	0.9	87.7	-1.18	5.9	1.9	12	XX
ARUAW6	85.6	87.0	86.3	89.1	87.0	-1.09	7.3	1.5	92.7	0.41	8.8	5.7	12	LB
B6VXV9	88.9	89.3	No DATA	No DATA	89.1	-0.57	9.7	0.3	87.0	-1.39	8.2	1.8	9	AH
B6VXV9_AL	91.5	89.4	No DATA	No DATA	90.5	-0.24	7.8	1.5	90.6	-0.25	7.3	1.8	8	AL
CARBM9_AL	89.8	86.7	92.1	93.0	90.4	-0.26	8.1	2.8	90.9	-0.16	7.9	1.7	12	AL
CYAUU2	97.1	96.7	93.7	94.2	95.4	0.99	7.4	1.7	95.9	1.43	8.0	2.3	12	AH
D3ZN68_AL	91.0	84.8	92.8	88.1	89.2	-0.55	7.9	3.5	88.4	-0.95	7.7	2.4	10	AL
DWR7M7	91.4	90.8	92.1	91.6	91.5	0.01	5.0	0.5	91.2	-0.06	5.3	0.6 L	12	AH
E73LFZ	92.6	93.6	93.5	95.5	93.8	0.59	6.1	1.2	95.1	1.18	6.9	3.0	12	LA
EBR8Z8	79.9 *	88.0	84.5	83.7	84.0	-1.83	5.7	3.3	87.6	-1.23	6.3	3.8	12	XX
EFM3ZU	87.6	86.5	90.2	90.4	88.7	-0.68	7.0	1.9	89.5	-0.61	7.3	2.1	12	XX
EZQXF4_AL	92.1 H	92.2	88.8	86.1	89.8	-0.40	9.7	2.9	91.0	-0.13	9.7	3.7	12	AL
FCHQGY	91.0	91.1	93.0	92.3	91.8	0.11	7.2	0.9	91.4	0.00	6.6	1.0	12	LJ
GG8P9Z	90.7	88.3	83.0	90.1	88.0	-0.84	7.2	3.5	87.3	-1.31	7.9	2.5	12	LA
GPMCH4	100.4 *	94.2	91.9	99.8	96.5	1.27	7.5	4.2	95.6	1.33	7.2	3.2	8	LC
GPMCH4_AL	89.7	97.8	98.3	96.1	95.5	1.00	8.7	4.0	94.3	0.91	8.5	6.2	8	XX
H3KZPN_AL	83.9	86.6	85.2	88.2	86.0	-1.35	7.0	1.9	85.5	-1.88	6.9	1.5	12	AL
HH4FZZ_AL	95.9	101.2 *	93.6	96.8	96.9	1.35	5.7	3.2	96.2	1.53	6.4	3.1	12	AL
HK8BJ3_AL	No DATA	89.0	92.7	No DATA	90.8	-0.15	8.8	2.6	91.2	-0.06	7.4	1.4	6	AL
HPWZVZ_AL	91.2	93.5	93.9	97.1	93.9	0.62	8.2	2.4	93.7	0.73	7.9	2.1	12	AL
JBF3QY_AL	91.4	90.5	92.3	92.4	91.6	0.06	5.3	0.9	90.8	-0.20	6.4	2.0	8	AL
KHD6EW	90.8	86.1	92.5	92.8	90.6	-0.21	7.3	3.1	88.8	-0.83	7.7	3.1	12	LA
KJKJL3	85.3	83.8	82.4 *	82.8 *	83.6	-1.94 *	7.2	1.3	83.6	-2.49 *	7.4	1.8	12	LA
KWTC63	90.6	91.7 L	90.8 L	92.3	91.4	-0.02	3.1	0.8	91.6	0.05	3.1	0.7 L	12	LA
L2KU6Y	88.5	92.3	95.0	94.9	92.7	0.31	6.6	3.0	91.0	-0.15	8.0	2.8	12	LA
LL43XK	88.4	83.6	86.1	84.0	85.5	-1.46	8.1	2.2	86.2	-1.66	8.7	2.7	12	LA
MY7V32	97.0	93.7	94.6	94.0	94.8	0.84	8.1	1.5	92.0	0.19	7.8	3.4	8	XX



Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E3
 TAPPI Official Test Method T807

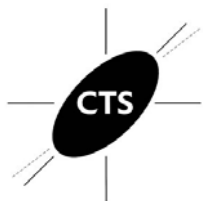
Report #651
December 2023

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	
N76VZU_AL	106.9 X	102.7 *	98.0	97.5 H	101.3	2.44 *	8.8	4.4	101.4	3.17 X	10.2	3.8	12	XX
NBYPXV	95.3	90.8	92.2	94.7	93.2	0.45	6.6	2.1	103.2	3.76 X	8.3	12.0 H	12	TB
NK97LV	86.0	92.8	85.6	95.8	90.0	-0.34	7.3	5.1 H	89.7	-0.53	7.3	3.0	12	AH
RAW28V	92.0	94.6	No DATA	93.4	93.3	0.47	5.0	1.3	93.9	0.80	5.1	0.9	10	AX
RAW28V_AL	95.4	No DATA	91.3	92.9	93.2	0.44	7.1	2.1	92.0	0.18	6.1	1.7	10	AL
RZRY2D	82.0 *	82.5	83.6	83.6	82.9	-2.10 *	6.3	0.8	94.4	0.93	7.6	12.2 H	8	LC
T8N9TM	95.5	92.0	96.4	88.7	93.2	0.43	7.8	3.5	93.8	0.77	7.9	2.7	12	AH
U99LLP	91.0	90.7	89.9	92.4	91.0	-0.10	5.4	1.0	91.3	-0.03	5.5	1.2	12	TP
VA6CDQ_AL	94.3	85.1	90.5	88.5	89.6	-0.46	5.5	3.8	89.7	-0.54	6.3	2.6	10	AL
VJ7MYU	93.0 L	93.0	93.3 L	93.2 L	93.1	0.42	3.0	0.1 L	96.5	1.63	3.1	3.6	12	AH
WCLWXX	85.7	92.7 L	91.4	90.2	90.0	-0.36	5.1	3.1	88.7	-0.87	6.5	2.8	12	LC
WJP3DM	86.6	83.3	86.4	90.1	86.6	-1.19	8.7	2.8	88.1	-1.06	7.9	2.5	12	LA
WNDRPK	95.0	91.0 H	97.5	97.0	95.1	0.92	8.8	3.0	94.8	1.06	9.9	4.0	12	XX
WQMVLG	95.3	90.5 H	88.9	92.9	91.9	0.12	10.7	2.8	92.4	0.32	8.8	2.6	12	ME
XUKHRQ	102.6 *	102.0 *	100.4 *	103.1 *	102.0	2.63 *	9.5	1.2	102.9	3.66 X	11.0	6.1	12	AX
Z6RBAG	86.8	84.4	85.2	84.8	85.3	-1.51	7.2	1.1	89.0	-0.77	7.9	3.4	12	AH
ZBYRRH	97.2	94.5	92.8	91.6	94.0	0.65	9.5	2.4	94.5	0.97	8.3	1.9	12	LA
ZBYRRH_AL	90.3	95.6	89.7	95.5	92.8	0.33	5.5	3.2	93.5	0.66	5.8	2.2	12	AL
ZMC2AF	93.3	94.8	91.6	96.3	94.0	0.64	8.7	2.0	93.0	0.50	8.5	2.3	12	LJ

Consensus (All Labs) Results									
Wk Mean	91.32	91.15	91.10	91.82	Month Mean	91.42	Grand Mean	91.42	
Avg SDr	6.75	7.72	7.36	7.30	Avg SD	7.33	Avg SD	7.35	
SD btwn Labs	4.54	4.86	4.24	4.43	SD btwn Labs	4.04	SD btwn Labs	3.14	
Labs Incl	52	53	51	50	SD btwn Wks	2.48	SD btwn Wks	3.19	
Labs Excl	1	0	0	0	Labs Incl	54	Labs Incl	51	
Labs not Rcvd	1	1	3	4					

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AL	L & W Autoline 400
AX	Perkins Mullen Tester (model not specified)	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline (207 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
ME	Messmer Automatic Burst Tester ME-06	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 215

Report #651

December 2023

Ring Crush, 42 lb Linerboard - 42H3

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	
2C93YL	99.4	101.9 L	102.5	101.3	101.3	2.01 *	3.3	1.3	99.2	1.41	3.4	2.3	12	MB
3Q6HYE	95.9	95.5	96.5 L	95.3	95.8	0.18	2.4	0.5	94.6	-0.08	2.5	1.4	12	LD
6AQ77C	101.3	98.0	105.2 *H	98.6	100.7	1.83	6.9	3.3	101.0	1.98 *	4.8	2.0	12	TU
6E7DUC	95.7 L	93.9	91.7	94.1	93.9	-0.46	2.6	1.6	94.8	-0.02	2.8	1.6	12	EN
6FWNHJ	96.6 L	96.7 L	97.2 L	97.1 L	96.9	0.55	0.6	0.3 L	96.3	0.47	0.5	1.8	12	MZ
6T7F7D	89.2	101.2	95.7	95.4	95.4	0.04	3.8	4.9 H	93.7	-0.36	3.3	4.4	8	LC
7VM9CC	95.7 L	94.5	96.2	96.5	95.7	0.15	3.2	0.8	96.0	0.36	2.9	1.6	12	TH
8XQG39	90.2	89.4	90.8	95.2	91.4	-1.28	3.9	2.6	95.3	0.15	3.6	4.5	8	LD
A7XKH7	95.2 L	95.6 L	95.7 L	95.3 L	95.4	0.06	0.8	0.2 L	96.7	0.60	1.4	2.7	12	TU
AADC7D	96.9	97.5	95.7	96.3	96.6	0.45	2.4	0.8	95.0	0.06	2.5	1.5	12	LD
AJ22CE	89.6 L	90.7 L	89.5	91.2	90.2	-1.67	2.0	0.9	91.7	-1.01	2.3	1.7	12	LD
ARUAW6	94.3	98.0	102.2	99.5	98.5	1.08	3.0	3.3	97.3	0.79	3.1	2.8	12	LD
CARBM9	92.1	96.3	96.3	94.7	94.8	-0.13	4.3	2.0	95.9	0.34	3.6	2.0	12	LD
CYAUU2	93.8	97.5	95.1 L	96.2	95.6	0.13	2.2	1.6	94.3	-0.18	2.5	1.7	12	LG
E73LFZ	97.5	89.5	95.0 L	91.3	93.3	-0.64	2.3	3.6	91.5	-1.07	3.1	3.6	12	LC
EZQXF4	102.1 *	100.5	98.8	100.7 L	100.5	1.76	2.7	1.4	100.2	1.71	2.6	1.5	12	LD
FCHQGY	94.3	93.8	95.4 L	94.5	94.5	-0.24	2.8	0.7	93.5	-0.44	2.8	1.3	12	LD
G83HTZ	99.7	99.0	99.6	102.4 *	100.2	1.64	3.4	1.5	99.8	1.57	3.1	1.4	12	LD
G8JYL8	96.6 L	97.0 L	97.3 L	97.3 L	97.1	0.61	0.6	0.3 L	96.4	0.50	0.5	1.8	12	MZ
GG8P9Z	95.7	97.5	94.1	96.2	95.9	0.21	3.2	1.4	96.1	0.40	2.8	1.5	12	LD
GPMCH4	90.4	88.6	89.7	89.1	89.5	-1.93 *	3.1	0.8	89.6	-1.69	3.4	3.6	12	LD
HK8BJ3	98.3	97.2	97.9	99.1	98.1	0.96	3.8	0.8	97.0	0.68	4.3	2.4	12	LC
JBF3QY	71.3 XH	71.6 XH	70.6 XH	70.5 X	71.0	-8.06 X	8.3	0.5	69.7	-8.08 X	8.2	1.7	12	LD
K97C2V	95.0 L	94.9 L	94.7 L	95.0 L	94.9	-0.12	1.7	0.1 L	94.8	-0.01	1.7	0.3 L	12	MB
KJKJL3	91.1 H	94.3 H	92.6 H	89.9 H	92.0	-1.09	20.0	1.9	88.9	-1.91	18.1	3.6	12	LB
M42MBY	96.0	94.0	94.5	96.0	95.1	-0.05	3.4	1.0	93.9	-0.30	3.2	2.5	12	LC
N76VZU	98.6	94.2	75.0 XH	75.7 XH	85.9	-3.12 X	7.2	12.3 H	89.4	-1.76	6.5	12.1 H	12	LZ
NBYPXV	93.1	95.2	92.8	93.1	93.5	-0.57	3.0	1.1	93.6	-0.42	3.4	2.0	12	LD
NK97LV	94.3	96.1 L	94.7	97.6	95.7	0.14	2.3	1.5	95.2	0.10	2.4	1.7	12	LC
RYB29D	99.6 L	99.6	101.6	99.8	100.1	1.62	3.1	1.0	97.5	0.86	3.2	2.1	12	EM
RZRY2D	89.2	93.6	89.3	89.8	90.5	-1.58	4.7	2.1	91.7	-1.02	3.7	2.2	8	LZ
T8N9TM	94.8	91.5	93.0 L	92.9	93.1	-0.73	2.8	1.4	93.8	-0.33	2.8	1.6	12	LD
TZKCYP	97.6	96.4	100.9	100.1	98.7	1.16	4.1	2.1	98.1	1.03	3.7	1.6	12	MB
U99LLP	97.4	91.0	97.6	95.8	95.4	0.06	4.0	3.0	95.8	0.30	3.3	2.3	12	XX
VJ7MYU	94.9	94.2 L	94.2	94.6 L	94.5	-0.26	2.2	0.3 L	93.6	-0.41	2.1	0.8 L	12	LD



Containerboard Interlaboratory Testing Program
 Analysis 215
Ring Crush, 42 lb Linerboard - 42H3
 TAPPI Official Test Method T822

Report #651
December 2023

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
WCLWXX	94.0	89.0	93.2	93.6	92.4	-0.93	3.9	2.3	94.4	-0.16	3.7	2.5	12	LD
WJP3DM	92.4	90.3	93.7	92.5	92.2	-1.01	2.5	1.4	92.7	-0.71	2.4	1.2	12	LD
WQMVLG	90.5 H	103.6 *	91.2 H	99.4	96.2	0.31	6.9	6.4 H	100.4	1.78	5.2	5.5	11	LX
XUKHRQ	92.1	94.1	90.9	90.3	91.8	-1.14	2.8	1.7	90.3	-1.45	3.3	2.4	12	LD
YARYEJ	95.2	93.0	89.8	90.6	92.2	-1.03	3.6	2.4	88.7	-1.98 *	4.2	3.4	12	EM
ZBYRRH	94.4	96.9	92.6	96.2	95.0	-0.08	3.1	1.9	95.5	0.22	3.0	1.6	8	LD

Consensus (All Labs) Results														
Wk Mean	95.01	95.30	95.26	95.50	Month Mean	95.25			Grand Mean	94.86				
Avg SDr	4.45	4.76	4.75	4.43	Avg SD	4.60			Avg SD	4.30				
SD btwn Labs	3.26	3.58	3.84	3.39	SD btwn Labs	3.01			SD btwn Labs	3.11				
Labs Incd	40	40	39	39	SD btwn Wks	2.13			SD btwn Wks	3.08				
Labs Excl	1	1	2	2	Labs Incd	39			Labs Incd	40				
Labs not Rcvd	0	0	0	0										

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LB	L&W Crush Tester 240	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)
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 217
Ring Crush, 35 lb Linerboard - 35E3
 TAPPI Official Test Method T822

Report #651
December 2023

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	
2C93YL	83.2	85.8	85.7	83.8	84.6	0.82	3.5	1.3	89.3	2.61	* 7.3	9.3	H 12	MB
3Q6HYE	81.9	82.8	82.0	82.8	82.4	0.11	2.9	0.5	82.0	-0.18	2.9	1.4	12	LD
6AQ77C	89.1 *	85.7 H	86.1	84.6 H	86.4	1.38	8.0	1.9	86.0	1.38	5.4	2.6	12	TU
6E7DUC	86.6	83.5	83.8	83.5	84.3	0.73	3.0	1.5	81.9	-0.19	3.6	2.2	12	EN
6FWNHJ	83.7 L	85.1 L	84.7 L	85.4 L	84.7	0.86	0.5	0.7	84.8	0.90	0.5	0.9	L 12	TH
6T7F7D	896.2XH	83.8	83.5	83.3	286.7	64.75 X	284.	406.4H	286.7	78.17X	284.	406.4H	4	LC
7VM9CC	84.6	82.0	85.4	85.4	84.3	0.73	2.8	1.6	81.7	-0.26	2.9	2.4	12	TH
8XQG39	78.2	77.5	75.2	82.3	78.3	-1.17	3.5	2.9	82.8	0.13	3.6	4.3	12	LD
A7XKH7	80.1 L	80.0 L	80.2 L	81.1 L	80.3	-0.53	1.3	0.5	82.3	-0.03	2.5	3.3	12	TU
AADC7D	81.8	80.3	82.2	81.4	81.4	-0.19	2.8	0.8	81.3	-0.43	3.1	1.7	12	LD
AJ22CE	79.1	80.5	79.3	78.4	79.4	-0.85	2.6	0.9	80.5	-0.75	3.0	1.5	12	LD
ARUAW6	84.3	86.7	90.2 *	85.4	86.6	1.46	4.4	2.6	85.5	1.17	3.9	4.3	12	LC
CARBM9	83.1	85.2	86.3	84.0	84.7	0.83	4.7	1.4	83.5	0.41	4.2	2.8	12	LD
CYAUU2	83.9	85.1	84.0	82.8	84.0	0.61	3.5	0.9	83.2	0.28	3.5	1.0	L 12	LG
E73LFZ	78.5	77.3	76.1	77.7 *	77.4	-1.46	4.3	1.0	77.4	-1.94 *	4.3	5.1	12	LC
EZQXF4	86.5	87.5	85.8 L	87.1	86.7	1.48	3.2	0.8	86.7	1.63	3.0	2.3	12	LD
FCHQGY	84.3	86.8	87.1	85.3 L	85.9	1.22	2.1	1.3	82.9	0.18	2.8	2.5	12	LD
G83HTZ	84.6	86.0 L	82.7 L	89.7 *	85.8	1.18	2.2	3.0	86.0	1.38	2.7	1.8	12	LD
G8JYL8	83.6 L	85.2 L	85.4 L	85.4 L	84.9	0.91	0.5	0.9	85.0	1.00	0.5	0.9	L 12	XX
GG8P9Z	83.4	81.3	80.8	82.8	82.1	0.02	3.5	1.2	83.6	0.43	3.6	1.6	12	LD
GPMCH4	80.0	76.4	78.5	80.4	78.8	-1.01	3.1	1.8	77.0	-2.08 *	3.5	2.8	8	LD
HK8BJ3	83.3	82.7	81.4	84.2	82.9	0.28	4.2	1.2	83.0	0.23	4.0	1.7	12	LC
JBF3QY	58.9 XH	59.0 XH	59.2 XH	60.1 XH	59.3	-7.19 X	7.3	0.6	59.6	-8.74 X	7.4	0.9	L 8	LD
K97C2V	80.3	80.9	80.6 L	80.8	80.7	-0.43	1.7	0.3 L	80.6	-0.69	1.7	0.3	L 12	MB
KJKJL3	57.4 XH	66.6 XH	70.5 *H	64.8 XH	64.8	-5.45 X	12.8	5.5 H	77.3	-1.96 *	11.0	14.4	H 12	LB
M42MBY	85.1	83.8	82.2	83.0	83.5	0.47	3.7	1.2	82.4	-0.01	3.7	1.6	12	LC
N76VZU	86.6	62.3 XH	80.1	87.3	79.1	-0.93	5.4	11.7 H	81.7	-0.26	5.2	9.1	H 12	LZ
NBYPXV	79.1	80.7	78.1	78.6	79.1	-0.93	5.0	1.1	78.6	-1.47	5.2	2.8	12	LC
NK97LV	86.6	83.0	84.0	83.9	84.4	0.74	3.3	1.5	83.9	0.56	3.3	1.0	L 12	LC
RYB29D	85.4	83.0	83.9	84.5	84.2	0.68	4.0	1.0	83.0	0.23	3.6	1.3	12	EM
RZRY2D	78.3	79.5 L	82.1 L	80.2	80.0	-0.63	3.5	1.6	81.0	-0.56	3.4	2.6	8	LZ
T8N9TM	83.8	81.3	82.6 L	82.7	82.6	0.18	2.3	1.0	82.1	-0.13	2.7	1.3	12	LD
TZKCYP	80.4	84.1	84.5	86.5	83.9	0.60	4.4	2.5	82.9	0.18	4.8	2.1	12	MB
U99LLP	79.3	79.7	79.7	82.2	80.2	-0.57	3.2	1.3	81.1	-0.52	3.5	2.5	12	TX
VJ7MYU	74.7 *	74.0 *	74.5 L	74.6 X	74.4	-2.40 *	2.3	0.3 L	74.5	-3.04 X	2.3	0.8	L 12	LD



Containerboard Interlaboratory Testing Program
 Analysis 217
Ring Crush, 35 lb Linerboard - 35E3
 TAPPI Official Test Method T822

Report #651
December 2023

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
WCLWXX	78.9	81.9	82.4	82.5	81.4	-0.20	3.4	1.7	81.8	-0.24	4.2	1.8	12	LD
WJP3DM	82.2	83.5	80.9	82.1	82.2	0.05	3.4	1.0	82.5	0.01	3.0	1.1	12	LD
WQMVLG	80.5 H	80.6	76.3 H	84.7	80.5	-0.47	7.4	3.4	83.4	0.38	6.2	3.7	12	LX
XUKHRQ	80.1	81.9	71.5 *	72.2 X	76.4	-1.77	3.6	5.3 H	78.5	-1.51	3.9	3.6	12	LD
YARYEJ	74.8 *	75.4 *	75.1	76.6 *	75.5	-2.08 *	4.3	0.8	73.0	-3.62 X	3.9	3.4	12	EM
ZBYRRH	81.6	83.2	82.0	85.1	82.9	0.29	3.1	1.6	82.7	0.10	3.1	2.1	12	LD

Consensus (All Labs) Results														
Wk Mean	82.15	82.20	81.43	83.17	Month Mean	82.03			Grand Mean	82.42				
Avg SDr	3.86	3.68	4.40	3.48	Avg SD	3.74			Avg SD	4.16				
SD btwn Labs	3.28	3.22	4.27	2.76	SD btwn Labs	3.16			SD btwn Labs	2.61				
Labs Inclcd	38	38	40	37	SD btwn Wks	2.57			SD btwn Wks	3.97				
Labs Exclcd	3	3	1	4	Labs Inclcd	38			Labs Inclcd	37				
Labs not Rcvd	0	0	0	0										

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LB	L&W Crush Tester 240	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	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 223

Report #651
December 2023

STFI, 42 lb Linerboard - 42H3

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	
2C93YL	24.4 L	23.8	25.1	26.3	24.9	0.89	1.9	1.1	24.4	0.64	1.7	0.9	12	LA
2LCBPJ	22.4 L	22.5 L	22.0	22.7	22.4	-1.20	1.5	0.3	22.7	-1.03	1.6	0.4	12	LW
3Q6HYE	22.6	24.6	23.1	23.5 L	23.4	-0.32	1.6	0.8	23.5	-0.30	1.6	0.5	12	LA
4TMCYC_AL	25.1 L	25.3 L	24.1	25.3	24.9	0.93	1.4	0.5	25.2	1.38	1.3	0.7	8	XX
4WMMUC	25.3	25.9	26.4	* No DATA	25.8	1.67	1.8	0.6	25.5	1.67	1.9	0.6	10	LU
6AQT7C	24.9	23.8	25.4	23.9	24.5	0.56	1.7	0.8	24.7	0.93	1.8	0.5	12	LA
6E7DUC	22.9	21.6	21.8	21.6	22.0	-1.56	1.6	0.6	22.3	-1.44	1.6	0.6	12	LY
6FWNHJ	26.4 *L	26.6 *L	26.8 *L	27.0 *L	26.7	2.37 *	0.3	0.2	25.9	2.06 *	0.4	1.1	12	LZ
6T7F7D	19.5 X	22.6	22.0	22.2	21.6	-1.89	1.6	1.4 H	21.4	-2.29 *	1.6	1.0	8	LY
7LG4N3	23.4	23.1 H	23.1 H	23.2 H	23.2	-0.54	2.9	0.1	22.2	-1.55	2.6	1.7 H	12	LH
9BPRZE	22.3	23.3	24.4	24.2	23.5	-0.25	1.5	1.0	23.3	-0.49	1.5	0.7	12	LH
9QP7M3_AL	30.5 X	29.8 X	29.1 X	30.6 X	30.0	5.14 X	2.3	0.7	29.0	5.07 X	2.2	1.6	12	AL
A7XKH7	21.5	21.8	21.3 *	22.1 L	21.7	-1.80	1.7	0.4	163.7	134.67 X	1.8	209.9 H	12	XX
AADC7D	23.2	23.5	23.3	23.1	23.3	-0.46	1.9	0.2	23.1	-0.64	1.8	0.3	12	LZ
AJ22CE_AL	23.0	23.9	24.7	25.0	24.2	0.27	2.1	0.9	23.6	-0.12	1.9	0.7	12	XX
ARUAW6	25.1 L	24.6	25.0	24.9	24.9	0.89	1.4	0.2	24.4	0.62	1.7	0.9	12	LU
B6XVX9	22.2 L	22.3	No DATA	No DATA	22.3	-1.32	1.3	0.1	22.9	-0.84	1.6	1.2	9	LH
B6XVX9_AL	22.4 L	22.1 L	No DATA	No DATA	22.3	-1.32	0.9	0.2	22.4	-1.31	1.2	1.5	9	AL
CARBM9_AL	23.8 L	24.0	24.0	23.5	23.8	-0.01	1.6	0.2	24.0	0.25	1.6	0.4	12	AL
CYAUU2	22.3	23.4	23.0	23.6	23.1	-0.62	1.6	0.6	23.7	-0.09	1.8	0.6	12	BK
DX94F7	25.3	24.8 L	25.7 L	25.2 L	25.2	1.18	1.3	0.4	24.0	0.21	1.6	1.2	12	XX
E73LFZ	24.2	24.1	24.2	24.0	24.1	0.24	1.9	0.1 L	24.1	0.35	1.7	0.4	12	LA
EFM3ZU	21.7	21.8 L	23.0	22.1	22.2	-1.41	1.7	0.6	22.2	-1.50	1.5	0.4	12	LH
EZQXF4_AL	23.3 L	25.6 L	23.3	23.5 L	23.9	0.05	1.2	1.1	23.5	-0.22	1.5	0.9	12	AL
G83HTZ	25.8 L	25.0	25.0	25.4	25.3	1.22	1.8	0.4	25.5	1.71	1.7	0.6	12	LH
G8JYL8	26.3 *L	27.1 *L	27.0 *L	26.9 *L	26.8	2.49 *	0.3	0.4	25.9	2.05 *	0.4	1.1	12	LZ
GG8P9Z	23.3	23.9	23.9	23.2	23.6	-0.22	1.9	0.4	23.8	0.02	1.8	0.5	12	LY
GPMCH4	21.9	21.9	22.3	23.1	22.3	-1.30	1.5	0.6	21.3	-2.40 *	1.7	1.4	12	LZ
GPMCH4_AL	46.5 XL	44.9 XL	44.8 XL	46.0 XL	45.5	18.11 X	0.0	0.8	44.7	20.15 X	0.0	5.0 H	12	AL
H3KZPN_AL	23.9	24.8	24.2	21.9	23.7	-0.11	1.8	1.3 H	23.8	0.00	1.8	0.8	12	AL
HH4FZZ_AL	23.8 L	23.7	23.7	24.1	23.8	-0.01	1.6	0.2	23.7	-0.03	1.8	0.8	12	AL
HK8BJ3	No DATA	22.2	22.8	No DATA	22.5	-1.14	1.9	0.4	23.7	-0.10	1.6	1.3	8	LU
HPWZVZ_AL	26.6 *	25.7	26.1	27.1 *	26.4	2.12 *	1.8	0.6	25.8	1.95 *	1.8	0.8	12	AL
JBF3QY	22.8	22.1	22.5	23.0	22.6	-1.02	2.0	0.4	22.5	-1.23	2.0	0.4	12	LY
JBF3QY_AL	23.1	22.5	24.0	23.1	23.2	-0.54	1.7	0.6	23.4	-0.31	1.6	0.6	12	AL



Containerboard Interlaboratory Testing Program
 Analysis 223
STFI, 42 lb Linerboard - 42H3
 TAPPI Official Test Method T826

Report #651
December 2023

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	
KJKJL3	23.6	26.7 *	24.5	23.5	24.6	0.62	1.8	1.5 H	24.0	0.24	2.1	1.3	12	LH
KWTC63	23.7	24.3	23.9	24.1	24.0	0.13	2.0	0.3	24.0	0.22	1.9	0.2 L	12	LZ
L2KU6Y	24.2	23.2	24.2 H	22.6	23.5	-0.25	2.3	0.8	23.3	-0.48	2.0	0.6	12	LY
LL43XK	24.9	24.0	24.3	24.5	24.4	0.50	2.1	0.4	24.5	0.72	2.1	0.5	12	LH
LWMHZM	22.9	22.3	22.9	22.4	22.6	-1.00	1.8	0.3	22.1	-1.60	2.0	1.5	12	LU
MY7V32	25.9	26.5 *	24.6	25.6	25.7	1.54	2.2	0.8	25.5	1.70	1.9	0.7	8	LA
MZL72U	24.3	23.5	22.7	24.7	23.8	-0.04	1.7	0.9	24.1	0.30	1.8	0.7	12	LH
N76VZU_AL	22.3	22.3	21.4 *	23.0 L	22.2	-1.33	1.7	0.7	22.9	-0.87	1.5	0.7	12	AL
NBYPXV	22.9	23.3	23.7	23.8	23.4	-0.33	2.1	0.4	23.9	0.10	2.2	0.8	12	LW
NK97LV	23.3	23.7 L	23.1	23.3	23.3	-0.41	1.7	0.2	23.1	-0.62	1.8	0.4	12	LU
RAW28V	23.9	24.1	No DATA	24.3	24.1	0.20	1.6	0.2	24.0	0.26	1.8	0.4	9	LU
RAW28V_AL	24.1	No DATA	24.0 L	24.0 L	24.1	0.18	1.3	0.0 L	23.5	-0.28	1.4	0.7	9	AL
RL8JXD	25.1	25.4	24.7	25.2	25.1	1.07	1.5	0.3	25.1	1.27	1.3	0.2 L	12	LH
RZRY2D	24.8 L	24.3 L	24.5 L	24.9 L	24.6	0.64	0.9	0.3	24.6	0.79	1.4	0.8	8	LA
T8KQLC	24.1	24.8	24.2	24.1	24.3	0.37	1.7	0.3	24.0	0.25	1.5	0.5	12	XX
T8N9TM	22.7	22.7	23.6	22.8	23.0	-0.73	1.6	0.4	23.1	-0.60	1.6	0.6	12	LU
TJF4JM	23.9	24.4 H	22.6 L	23.5	23.6	-0.20	2.2	0.8	24.0	0.24	1.8	0.9	12	LA
TZKCYP	23.3	23.1	23.8	24.3	23.6	-0.20	1.7	0.5	23.5	-0.30	1.7	0.9	12	LA
VA6CDQ	23.2	23.2 L	22.8	23.6 L	23.2	-0.55	1.4	0.3	24.3	0.49	1.7	1.2	9	LU
WCLWXK	23.3	24.3	25.2	26.0	24.7	0.71	1.7	1.2	23.7	-0.02	1.8	1.1	12	LA
WJP3DM	22.6 H	22.9 H	22.4 H	22.6 H	22.6	-1.01	9.7	0.2	23.1	-0.60	6.0	0.6	12	LA
WQMVLG	24.7	24.8	25.3	23.9	24.7	0.69	1.8	0.6	23.6	-0.12	1.9	1.6	11	LZ
WX2QFP	24.4	24.1	24.2	24.6	24.3	0.41	1.7	0.2	24.1	0.28	1.8	0.7	12	XX
XUKHRQ	24.2 L	24.1	24.6 L	24.4 L	24.3	0.41	1.2	0.2	24.1	0.33	1.6	0.6	12	LH
ZBYRRH_AL	24.2	23.9	24.1	23.7	24.0	0.11	1.5	0.2	23.6	-0.12	1.6	0.5	8	AL
ZMC2AF	24.2	25.5	24.3	24.4	24.6	0.64	2.0	0.6	24.3	0.52	2.2	0.7	12	LH

Consensus (All Labs) Results									
Wk Mean	23.78	23.88	23.90	23.97	Month Mean	23.83		Grand Mean	23.76
Avg SDr	2.27	2.20	1.92	2.12	Avg SD	2.11		Avg SD	1.88
SD btwn Labs	1.21	1.34	1.27	1.27	SD btwn Labs	1.20		SD btwn Labs	1.04
Labs Incl	57	58	56	55	SD btwn Wks	0.61		SD btwn Wks	0.84
Labs Excl	3	2	2	2	Labs Incl	59		Labs Incl	58
Labs not Rcvd	1	1	3	4					

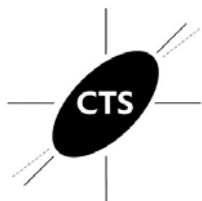


Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42H3
TAPPI Official Test Method T826

Report #651
December 2023

Key to Instrument Codes Reported by Participants

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)
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program

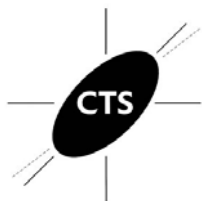
Analysis 225

Report #651
December 2023

STFI, 35 lb Linerboard - 35E3

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	
2C93YL	24.6	23.2	24.0	24.3	24.0	0.25	1.9	0.6	23.7	0.12	1.9	1.1	12	LA
2LCBPJ	22.7 H	22.3	22.5	21.8	22.3	-1.44	1.9	0.4	22.6	-0.98	1.7	0.6	12	LW
3Q6HYE	23.1	23.6	23.6	24.3	23.7	-0.11	1.9	0.5	23.4	-0.12	1.8	0.5	12	LA
4TMCYC_AL	25.9 L	25.5	24.4	26.0	25.5	1.71	1.5	0.7	25.1	1.60	1.7	0.8	12	XX
4WMMUC	26.3 *	25.6	27.1	* No DATA	26.4	2.62 *	2.0	0.8	25.3	1.82	2.0	0.9	11	LU
6AQ77C	22.2	24.4	25.4	24.3 L	24.1	0.31	1.6	1.3 H	23.4	-0.17	1.5	1.6	12	LA
6E7DUC	22.8	21.9	21.7	21.7	22.0	-1.76	1.7	0.5	21.3	-2.34 *	1.7	0.6	12	LY
6FWNHJ	24.7 L	24.3 L	24.7 L	25.6 L	24.8	1.04	0.3	0.5	24.6	1.08	0.3	0.4	12	LZ
6T7F7D	23.6 H	24.8 H	23.0	23.2 H	23.6	-0.12	2.5	0.8	23.6	0.11	2.5	0.8	4	LZ
7LG4N3	22.7 H	21.7	21.7 H	21.9	22.0	-1.77	2.8	0.5	21.0	-2.69 *	2.5	1.7	11	LH
9BPRZE	21.6	23.8	23.7	23.5	23.2	-0.62	1.6	1.0	23.0	-0.54	1.5	0.6	12	LH
9QP7M3_AL	29.5 X	28.8 X	30.0 XH	29.8 X	29.5	5.79 X	2.4	0.5	28.6	5.34 X	2.2	1.3	12	AL
A7XKH7	20.1 X	20.7 *	20.5 *	20.2 X	20.4	-3.43 X	1.8	0.3	150.7	134.13X	2.2	192.3H	12	XX
AADC7D	23.2	23.5	23.5	23.0	23.3	-0.45	1.8	0.3	23.1	-0.41	1.6	0.4	12	LZ
AJ22CE_AL	23.5	23.0	25.8 H	24.1	24.1	0.37	2.1	1.2	23.6	0.05	1.9	0.9	12	XX
ARUAW6	25.8	25.6	24.5	25.0	25.2	1.46	1.6	0.6	23.9	0.43	1.8	1.7	12	LW
B6XVX9	22.6	24.6	No DATA	No DATA	23.6	-0.20	1.6	1.4	22.8	-0.80	1.7	1.0	8	LH
B6XVX9_AL	23.2 L	22.9	No DATA	No DATA	23.1	-0.72	1.2	0.2	22.4	-1.20	1.6	0.7	8	AL
CARBM9_AL	23.9	23.6	24.3	24.7	24.1	0.36	1.9	0.5	23.9	0.37	1.7	0.5	12	AL
CYAUU2	21.9	23.9	23.2	23.1	23.0	-0.73	1.5	0.8	23.3	-0.21	1.6	0.6	12	LW
DX94F7	24.2 L	24.2	24.6	24.7	24.4	0.67	1.3	0.3	23.1	-0.51	1.3	1.1	12	XX
E73LFZ	25.6	24.1	25.7	23.7 L	24.8	1.02	1.3	1.0	24.1	0.54	1.5	1.1	12	LA
EFM3ZU	22.0	22.1	21.9	21.9	22.0	-1.81	1.4	0.1 L	22.2	-1.44	1.4	0.3	12	LH
EZQXF4_AL	24.2 L	24.1	23.4 L	23.3	23.7	-0.03	1.2	0.5	23.4	-0.11	1.4	0.5	12	AL
G83HTZ	25.3	24.2	24.4	25.2	24.8	1.03	1.7	0.6	24.8	1.34	1.8	0.5	12	LH
G8JYL8	24.9 L	24.4 L	24.6 L	25.2 L	24.8	1.01	0.3	0.3	24.8	1.32	0.3	0.4	12	LZ
GG8P9Z	23.0	23.3	23.0	23.6	23.2	-0.55	1.8	0.3	23.3	-0.29	1.9	0.4	12	LY
GPMCH4	23.4	22.2	22.7	22.6	22.7	-1.06	1.3	0.5	21.6	-2.04 *	1.3	1.4	8	LZ
GPMCH4_AL	35.0 XL	32.6 XL	34.1 XL	34.2 XL	34.0	10.31 X	0.0	1.0	33.0	10.03 X	0.0	1.6	8	AL
H3KZPN_AL	25.0	23.6	22.6	23.8	23.8	-0.02	2.0	1.0	23.8	0.23	1.8	0.6	12	AL
HH4FZZ_AL	23.7	23.6	24.0	22.6	23.5	-0.27	1.6	0.6	23.2	-0.31	1.5	0.7	12	XX
HK8BJ3	No DATA	22.7 L	24.3	No DATA	23.5	-0.25	1.6	1.1	24.3	0.78	2.0	1.3	6	LU
HPWZVZ_AL	26.2 *	26.1 *	26.7 *	26.2 *	26.3	2.55 *	2.2	0.3	25.7	2.24 *	1.9	0.6	12	AL
JBF3QY	22.0 H	22.3	22.0	21.8 H	22.0	-1.76	2.1	0.2	22.0	-1.63	2.1	0.2 L	8	LZ
JBF3QY_AL	23.7	22.5	23.1	22.9	23.0	-0.74	1.7	0.5	23.1	-0.50	1.8	0.4	8	AL



Containerboard Interlaboratory Testing Program

Analysis 225

Report #651

December 2023

STFI, 35 lb Linerboard - 35E3

TAPPI Official Test Method T826

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
KJKJL3	23.2	23.3	23.3	25.7	23.9	0.10	1.7	1.2	24.2	0.74	2.0	0.8	12	LH
KWTC63	24.0	23.4	23.9	23.7	23.8	0.00	1.8	0.3	23.4	-0.10	1.9	0.4	12	LA
L2KU6Y	23.3	23.1	22.4	22.2	22.8	-1.03	1.8	0.5	22.9	-0.65	1.7	0.7	12	LU
LL43XK	25.3	24.3	24.2 H	24.9	24.7	0.90	2.3	0.5	24.6	1.14	2.2	0.6	12	LH
LWMH2M	22.8	22.2	22.1	22.9	22.5	-1.29	1.9	0.4	22.4	-1.18	1.7	0.5	12	LU
MY7V32	26.2 *	26.1 *L	25.5 H	26.3 *	26.0	2.26 *	1.9	0.4	25.0	1.55	2.1	1.2	8	LA
MZL72U	24.3	24.5	25.1	23.2	24.3	0.51	1.7	0.8	24.3	0.85	1.9	0.8	12	LH
N76VZU_AL	22.9	22.9	23.0	23.6	23.1	-0.66	2.0	0.4	23.8	0.28	1.6	2.8 H	12	XX
NBYPXV	24.1	22.8 H	24.4	22.0	23.3	-0.43	2.2	1.2	23.4	-0.18	2.1	0.9	12	LW
NK97LV	23.1	23.5	23.5	24.0	23.6	-0.21	1.7	0.4	23.3	-0.30	1.7	0.4	12	LU
RAW28V	25.2	23.8	No DATA	24.0	24.3	0.58	1.9	0.7	24.0	0.44	1.9	0.6	10	LU
RAW28V_AL	23.5 L	No DATA	24.1	24.0	23.9	0.13	1.2	0.3	23.4	-0.13	1.4	0.5	10	AL
RL8JXD	25.1	24.4	24.8	24.4	24.7	0.91	1.4	0.3	25.0	1.52	1.4	0.4	12	LH
RZRY2D	24.4	24.6	24.6 L	24.4 L	24.5	0.75	1.2	0.1	24.4	0.94	1.8	0.4	8	LA
T8KQLC	23.9	23.4	24.0	23.4	23.7	-0.10	1.5	0.3	24.0	0.51	1.7	0.4	12	XX
T8N9TM	23.3	23.4	22.7	22.9	23.0	-0.73	1.8	0.3	23.1	-0.51	1.8	0.3	12	LU
TJF4JM	24.0	22.6	21.9	21.8	22.6	-1.20	1.8	1.0	22.7	-0.88	1.7	0.8	12	LA
TZKCYP	24.0 L	23.3	23.4	24.2 H	23.7	-0.04	1.9	0.4	23.4	-0.17	1.7	0.5	12	LA
VA6CDQ	23.6	23.7	23.3	23.5	23.5	-0.23	1.7	0.2	23.7	0.16	1.9	1.6	10	LU
WCLWXK	24.1	23.8	24.1	25.1	24.3	0.51	1.8	0.5	23.1	-0.43	1.8	1.3	12	LA
WJP3DM	22.3 L	22.4 L	23.3	22.7	22.7	-1.10	1.3	0.4	23.2	-0.38	1.5	0.5	12	LW
WQMVLG	23.8	23.9	23.9	23.5 H	23.8	0.01	2.3	0.2	23.0	-0.56	2.2	2.1 H	10	LZ
WX2QFP	23.4	24.5	24.4	24.3	24.1	0.38	1.6	0.5	24.6	1.08	1.6	0.9	8	XX
XUKHRQ	24.0	23.6	23.2	23.8	23.6	-0.14	1.5	0.4	23.8	0.27	1.4	0.7	12	LH
ZBYRRH_AL	23.5	23.5	23.9	23.7	23.6	-0.13	1.7	0.2	23.2	-0.37	1.6	0.8	12	AL
ZMC2AF	24.0	24.8	23.5	23.8	24.0	0.26	2.0	0.6	24.1	0.60	2.0	0.8	12	LH

Consensus (All Labs) Results										
Wk Mean	23.83	23.63	23.73	23.74	Month Mean	23.76		Grand Mean	23.54	
Avg SDr	1.74	1.70	1.83	1.75	Avg SD	1.75		Avg SD	1.76	
SD btwn Labs	1.14	1.08	1.25	1.18	SD btwn Labs	0.99		SD btwn Labs	0.95	
Labs Incl	57	58	56	54	SD btwn Wks	0.65		SD btwn Wks	0.94	
Labs Excl	3	2	2	3	Labs Incl	58		Labs Incl	58	
Labs not Rcvd	1	1	3	4						



Containerboard Interlaboratory Testing Program
Analysis 225
STFI, 35 lb Linerboard - 35E3
TAPPI Official Test Method T826

Report #651
December 2023

Key to Instrument Codes Reported by Participants

AL	L & W Autoline 400	LA	L&W Autoline (223 Enrollment)
LH	L&W 282	LU	L&W 52 without moisture correction (was 53)
LW	L&W 53 with moisture correction (was 53M)	LY	L&W 152 (was 52M)
LZ	L&W (model not specified)	XX	Instrument make/model not specified by lab



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

Report #651
December 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2C93YL	151.3	0.43	20.24	155.7	0.70	7.85	4	LA
4TMCYC_AL	157.0	0.70	22.91	159.4	0.94	3.32	2	AL
6AQ77C	137.3	-0.22	11.70	157.5	0.82	14.19	4	LA
6E7DUC	153.9	0.56	17.66	147.9	0.18	4.66	4	EV
6T7F7D	192.8	2.38 *	14.82	171.4	1.74	18.60	3	LS
9QP7M3_AL	166.1	1.13	26.44	171.6	1.76	8.06	4	AL
AADC7D	132.8	-0.43	15.30	135.1	-0.67	4.77	4	LS
B6XVX9_AL	126.1	-0.75	6.67 L	142.8	-0.16	24.85	4	AL
CARBM9	136.0	-0.28	25.47	166.1	1.39	29.11	3	LS
EYJFG9	140.9	-0.05	9.31	132.5	-0.85	8.51	4	LS
GG8P9Z	141.5	-0.03	12.26	148.0	0.19	4.83	4	EV
GPMCH4	0.3	-6.65 X	0.02 L	43.0	-6.80 X	85.29 H	4	LA
GPMCH4_AL	187.2	2.12 *	19.18	152.1	0.47	24.76	4	AL
H3KZPN_AL	167.0	1.17	27.26 H	160.4	1.02	13.47	4	AL
HH4FZZ_AL	115.6	-1.24	21.31	115.7	-1.96 *	3.85	4	AL
HK8BJ3	124.2	-0.84	12.06	138.7	-0.43	10.32	4	EV
HPWZVZ_AL	116.2	-1.21	13.89	118.4	-1.78	2.30 L	4	AL
JBF3QY	137.9	-0.19	14.43	159.2	0.93	21.33	4	XX
KWTC63	143.9	0.09	16.79	141.3	-0.26	1.82 L	4	LS
LL43XK	138.1	-0.18	12.31	135.6	-0.64	4.24	4	EV
N76VZU_AL	120.0	-1.03	17.33	120.6	-1.64	3.43	4	AL
NBYPXV	120.2	-1.02	17.78	124.5	-1.37	4.64	4	XX
RAW28V_AL	119.3	-1.07	12.57	141.2	-0.26	33.75	3	AL
T8N9TM	145.4	0.16	12.25	149.0	0.25	6.01	4	EV
TZKCYP	149.9	0.37	17.99	147.7	0.17	15.59	4	LA
VA6CDQ	175.5	1.57	14.56	158.3	0.87	20.53	3	EV
WCLWXK	110.5	-1.48	11.13	131.8	-0.89	19.24	4	LA
WJP3DM	133.4	-0.41	12.35	134.4	-0.71	3.16	4	LA
WX2QFP	156.9	0.70	23.83	145.4	0.01	9.32	4	XX
ZMC2AF	122.6	-0.91	9.49	147.6	0.16	53.91 H	4	LS

Consensus (All Labs) Results			
Month Mean	142.05	Grand Mean	145.16
Avg SD	17.03	Avg SD Months	17.55
SD btwn Labs	21.32	SD btwn Labs	15.02
Labs Incl	29	Labs Incl	29



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

Report #651
December 2023

Key to Instrument Codes Reported by Participants

AL	L & W Autoline 400	EV	Emveco Microgag Model 210-R
LA	L&W Autoline (228 Enrollment)	LS	L&W 263
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 229
Roughness - Sheffield Method, 42 lb Linerboard - 42H3
 TAPPI Official Test Method T538

Report #651
December 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
4TMCYC_AL	377.4	0.66	4.62	376.3	0.60	1.56	2	XX
AADC7D	378.4	0.78	14.65 H	378.4	0.87	0.18 L	3	XX
AJ22CE_AL	387.4	1.84	3.79	388.9	2.23 *	5.49	3	XX
B6VX9_AL	359.5	-1.46	4.72	365.5	-0.79	10.92	3	AL
CARBM9_AL	380.8	1.07	4.75	369.5	-0.27	9.81	3	AL
EZQXF4_AL	377.0	0.61	10.26	377.0	0.69	2.90	3	AL
GPMCH4_AL	371.2	-0.07	7.02	366.3	-0.68	5.17	3	AL
H3KZPN_AL	362.7	-1.08	7.48	363.3	-1.07	1.59	3	AL
HPWZVZ_AL	356.7	-1.80	5.74	361.4	-1.31	4.16	3	AL
JBF3QY_AL	366.5	-0.63	7.93	363.1	-1.09	3.51	3	AL
KJKJL3	339.6	-3.83 X	4.76	237.2	-17.31 X	180.72 H	3	LA
MY7V32	413.4	4.94 X	1.17 L	413.7	5.41 X	0.35	2	LA
NK97LV	373.1	0.15	9.19	377.4	0.75	4.75	3	XX
TJF4JM	373.3	0.17	11.26	375.8	0.54	2.32	3	XX
YARYEJ	371.2	-0.08	6.44	366.9	-0.60	9.20	3	TS
ZBYRRH_AL	370.5	-0.16	11.48	372.7	0.14	3.11	2	AL

Consensus (All Labs) Results			
Month Mean	371.83	Grand Mean	371.61
Avg SD	8.39	Avg SD Months	5.59
SD btwn Labs	8.42	SD btwn Labs	7.76
Labs Incl	14	Labs Incl	14

Key to Instrument Codes Reported by Participants

- | | |
|--|---|
| AL L & W Autoline 400
TS TMI Monitor/Smoothness | LA L & W Autoline (229 Enrollment)
XX Instrument make/model not specified by lab |
|--|---|



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

Report #651
December 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3Q6HYE	138.4	0.69	7.30	132.7	0.21	3.87	4	HZ
AJ22CE	161.0	2.15 *	11.79	156.9	1.82	3.36	4	HY
B242Z8	114.0	-0.88	2.94	115.5	-0.94	2.71	4	SC
CARBM9	101.4	-1.70	5.89	112.9	-1.11	8.41	4	TM
E73LFZ	123.4	-0.28	2.07	122.6	-0.46	2.80	4	TM
EYJFG9	143.2	1.00	3.77	143.6	0.93	3.25	4	HY
EZQXF4	144.6	1.09	12.20	146.5	1.13	5.70	4	LZ
GG8P9Z	130.8	0.20	5.72	140.1	0.70	7.76	4	HZ
H3KZPN	121.6	-0.39	5.90	143.7	0.94	20.29 H	4	TM
HK8BJ3	112.4	-0.99	5.41	104.2	-1.69	13.60	4	TM
JBF3QY	119.6	-0.52	4.72	121.0	-0.57	1.84	4	TM
LL43XK	131.2	0.23	4.97	136.3	0.45	4.20	4	TM
MRMQ6V	140.6	0.83	5.08	143.7	0.94	6.05	4	TM
N76VZU	114.8	-0.83	5.81	115.0	-0.97	11.36	4	TM
NK97LV	147.5	1.27	6.49	148.7	1.27	0.84 L	4	HY
T8N9TM	131.4	0.24	4.83	130.5	0.06	1.40	4	TM
TJF4JM	115.6	-0.78	4.47	114.0	-1.04	4.25	4	SC
U2R4CN	115.4	-0.79	4.22	111.8	-1.19	9.28	4	XX
VA6CDQ	112.2	-1.00	1.64	118.7	-0.73	6.22	4	TM
VXBVNP	115.4	-0.79	11.59	119.4	-0.68	13.07	3	SC
WJP3DM	152.2	1.58	2.86	147.3	1.18	9.57	4	HY
ZBYRRH	122.8	-0.32	10.38	125.9	-0.25	4.64	3	TM

Consensus (All Labs) Results			
Month Mean	127.70	Grand Mean	129.57
Avg SD	6.61	Avg SD Months	8.06
SD btwn Labs	15.52	SD btwn Labs	15.00
Labs Incd	22	Labs Incd	22

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	125.08	14.78	2.62	17
Modified Scott Bond Mechanics	148.09	3.84	20.39	3



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

Report #651
December 2023

Key to Instrument Codes Reported by Participants

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



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

Report #651
December 2023

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
2C93YL	28.6	0.10	2.30	27.7	-0.10	1.59	4
4WMMUC	30.0	0.52	1.00	27.2	-0.26	5.56 H	3
6E7DUC	31.3	0.90	2.32	29.4	0.50	3.74	4
6T7F7D	29.8	0.46	1.92	29.7	0.60	0.81	3
7LG4N3	28.2	-0.01	1.48	27.3	-0.23	2.28	4
9CQFQ6	25.8	-0.73	1.10	26.4	-0.56	0.53	4
9QP7M3	24.6	-1.08	3.05	23.8	-1.47	3.65	4
AADC7D	34.2	1.77	1.82	31.5	1.26	2.43	4
AJ22CE	28.2	-0.01	3.19	29.2	0.42	1.24	4
CARBM9	25.4	-0.85	1.52	24.7	-1.16	0.66	4
D3ZN68	27.8	-0.13	1.30	27.3	-0.22	3.44	4
EA2XCZ	26.6	-0.49	1.52	26.9	-0.36	0.42	3
EYJFG9	28.0	-0.07	1.58	28.2	0.09	0.20 L	3
EZQXF4	25.8	-0.73	1.30	26.6	-0.48	1.83	4
GG8P9Z	38.6	3.08 X	0.55 L	32.4	1.56	5.53 H	4
H3KZPN	31.2	0.88	2.49	29.7	0.62	1.16	4
HH4FZZ	20.4	-2.33 *	1.34	24.2	-1.32	2.66	4
HK8BJ3	32.9	1.38	3.01	28.8	0.29	4.61	4
HPWZVZ	32.3	1.21	2.03	30.7	0.96	2.05	4
JBF3QY	26.6	-0.49	3.13	27.7	-0.09	1.36	4
KWTC63	27.0	-0.37	1.00	27.3	-0.23	0.60	4
LL43XK	29.6	0.40	2.70	29.3	0.47	1.80	4
N76VZU	32.0	1.12	3.24	31.4	1.21	2.19	4
NBYPXV	28.6	0.10	6.43 H	29.9	0.69	1.41	4
NK97LV	26.4	-0.56	0.85	26.4	-0.55	1.59	4
RAW28V	32.0	1.12	1.22	30.8	1.00	2.08	3
T8N9TM	28.4	0.05	1.67	25.0	-1.06	2.78	4
TJF4JM	21.8	-1.92 *	1.30	22.6	-1.88	0.65	4
U99LLP	27.8	-0.13	6.42 H	27.2	-0.28	2.10	4
VA6CDQ	34.0	1.71	1.87	33.1	1.79	1.61	4
VXBVNP	31.1	0.86	2.97	33.1	1.81	1.72	3
WJP3DM	25.2	-0.91	3.03	25.4	-0.90	1.41	4
XUKHRQ	28.4	0.05	2.41	28.4	0.16	1.70	4
ZMC2AF	22.2	-1.80	1.30	21.6	-2.25 *	1.04	4



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

Report #651
December 2023

Consensus (All Labs) Results

Month Mean	28.25	Grand Mean	27.95
Avg SD	2.58	Avg SD Months	2.41
SD btwn Labs	3.36	SD btwn Labs	2.84
Labs Incl	33	Labs Incl	34

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #651
December 2023

Air Resistance, 42 lb Linerboard - 42H

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD	Months	Inst
2C93YL	31.9	-0.77	3.19	31.1	-1.17	1.04	4	LA
4TMCYC_AL	30.5	-1.83	2.01	31.7	-0.64	1.71	2	XX
4WMMUC	34.0	0.81	2.45	34.2	1.41	0.74	3	GG
6AQ77C	32.0	-0.73	2.26	33.5	0.81	1.07	4	LA
6T7F7D	25.2	-5.82 X	2.15	25.2	-5.96 X	1.30	3	XX
9CQFQ6	33.6	0.52	3.15	31.6	-0.70	1.42	4	TD
9QP7M3_AL	35.2	1.71	1.36	36.6	3.34 X	1.01	4	AL
AADC7D	31.6	-1.01	3.25	31.7	-0.62	1.38	4	GA
AJ22CE	33.6	0.49	2.41	32.4	-0.06	1.10	4	TP
AJ22CE_AL	31.9	-0.74	1.60	31.0	-1.24	1.70	4	XX
B6VX9_AL	33.8	0.64	2.33	33.4	0.76	1.68	4	AL
CARBM9_AL	31.7	-0.94	0.97 L	32.1	-0.31	0.47	4	AL
D3ZN68_AL	33.8	0.65	2.93	33.2	0.56	0.61	4	AL
DLZBW7	34.2	0.99	3.07	33.0	0.45	0.95	4	LP
EYJFG9	33.6	0.52	2.22	32.9	0.30	0.76	4	LP
EZQXF4_AL	34.5	1.16	1.60	33.8	1.05	1.31	4	AL
G83HTZ	34.4	1.11	2.46	34.2	1.41	0.88	4	XX
GG8P9Z	31.4	-1.13	0.50 L	32.4	-0.07	0.99	4	LP
GPMCH4_AL	31.0	-1.44	1.89	31.2	-1.05	0.94	4	XX
H3KZPN_AL	31.5	-1.07	2.05	31.7	-0.61	0.74	4	AL
HH4FZZ_AL	30.2	-2.04 *	1.97	30.1	-1.95 *	0.20 L	4	AL
HK8BJ3_AL	34.0	0.85	1.80	32.9	0.34	0.88	4	AL
HPWZVZ_AL	31.7	-0.92	2.21	30.5	-1.66	0.95	4	AL
JBF3QY	32.7	-0.15	1.68	32.2	-0.25	0.67	4	LP
JBF3QY_AL	34.2	0.98	2.86	34.8	1.92	1.08	4	AL
KJKJL3	33.4	0.33	3.07	27.0	-4.51 X	14.94 H	4	LA
KWTC63	32.0	-0.70	1.94	32.2	-0.23	0.29	4	LP
LL43XK	33.1	0.10	2.06	31.8	-0.55	0.84	4	LP
MY7V32	31.7	-0.92	1.27	31.6	-0.75	0.23	3	LP
N76VZU_AL	32.8	-0.09	2.10	31.5	-0.83	1.06	4	AL
NBYPXV	34.9	1.49	2.01	35.1	2.09 *	0.84	4	LP
NFFXLV	31.4	-1.13	2.04	31.2	-1.07	1.70	4	LP
NK97LV	34.7	1.31	2.60	33.8	1.03	1.24	4	TP
RAW28V	34.0	0.83	4.32 H	34.3	1.48	1.81	3	GG
RAW28V_AL	33.1	0.13	3.18	30.5	-1.60	3.09 H	3	AL
T8N9TM	33.7	0.55	3.50	33.2	0.54	1.29	4	GA
TZKCYP	31.6	-0.98	1.76	31.8	-0.57	0.62	4	LA
VA6CDQ_AL	32.0	-0.73	2.14	32.3	-0.17	1.01	4	AL
WCLWXK	35.2	1.70	3.28	33.4	0.73	1.71	4	LA



Containerboard Interlaboratory Testing Program
Analysis 237

Report #651
December 2023

Air Resistance, 42 lb Linerboard - 42H

TAPPI Official Test Method T460

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
WJP3DM	34.1	0.89	1.85	33.5	0.78	0.68	4	LP
WX2QFP	32.2	-0.55	1.66	32.8	0.26	1.40	4	XX
ZBYRRH_AL	33.1	0.11	2.13	32.8	0.21	0.33	3	AL
ZMC2AF	23.8	-6.84 X	2.23	27.7	-3.90 X	2.78 H	4	TD

Consensus (All Labs) Results				
Month Mean	32.92		Grand Mean	32.49
Avg SD	2.39		Avg SD Months	1.19
SD btwn Labs	1.33		SD btwn Labs	1.22
Labs Includ	41		Labs Includ	39

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program
 Analysis 240
Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T809

Report #651
December 2023

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	
2C93YL	58.8	57.0	59.6	58.4	58.4	0.30	4.1	1.1	55.3	-1.08	4.1	2.3	16	MB
2TFZK7	72.4 XH	71.5 X	70.5 X	65.8 *H	70.0	5.90 X	4.7	2.9	67.5	3.52 X	5.0	2.4	16	TX
3Q6HYE	56.7	No DATA	No DATA	No DATA	56.7	-0.56	2.3	0.0	55.4	-1.04	3.0	0.9	13	LD
4J3UKK	56.5	56.3	57.0	57.7	56.9	-0.47	2.2	0.6	56.1	-0.78	2.3	1.1	12	TH
6AQ77C	60.2	61.1	62.6	61.2	61.3	1.67	4.2	1.0	61.2	1.16	3.9	1.3	16	TU
6E7DUC	57.5	58.7	60.7	58.1	58.8	0.45	3.3	1.4	58.3	0.04	3.9	1.5	16	EN
8V4FJF	58.1	61.9	59.6	59.2	59.7	0.91	3.2	1.6	62.2	1.54	3.4	3.0	16	TB
9BPRZE	58.7	59.7	59.6	58.7	59.2	0.64	3.0	0.6	59.2	0.37	3.1	1.2	16	LD
9C6NVY	64.6 XH	66.3 X	67.3 X	69.2 X	66.8	4.34 X	5.0	1.9	65.0	2.59 *	4.3	1.9	16	LD
9CQFQ6	58.5 H	57.9	56.1	57.2	57.4	-0.21	4.9	1.1	56.4	-0.69	4.1	1.8	16	LZ
A4K8FU	64.8 X	61.6 H	60.5 H	63.0	62.5	2.25 *	5.3	1.9	61.1	1.09	5.1	2.1	16	LD
A7XKH7	56.3 L	55.9 L	56.3 L	56.4 L	56.2	-0.78	1.1	0.2 L	56.3	-0.71	2.1	2.6	16	TU
AJ22CE	56.6	53.9	55.2	55.7	55.4	-1.19	3.1	1.1	56.0	-0.81	3.3	1.9	16	LD
ARUAW6	51.7 X	51.6 *	58.1	61.8	55.8	-0.99	3.3	5.0 H	59.8	0.60	4.2	5.4 H	16	LD
B242Z8	58.7 H	57.0	57.0	55.9	57.2	-0.32	5.0	1.2	55.2	-1.13	4.5	2.0	16	LC
CYAUU2	56.1	56.8	59.9	58.7	57.9	0.01	3.2	1.7	57.9	-0.12	3.5	1.4	16	LZ
DLZBW7	57.8	58.6	58.5	56.9	57.9	0.05	3.6	0.8	58.1	-0.04	3.6	1.3	16	LD
DX94F7	60.2 L	60.9 L	60.2 L	59.7 L	60.3	1.18	1.0	0.5	59.5	0.50	1.0	1.6	16	XX
E73LFZ	60.1	59.0	59.4	54.0	58.1	0.14	2.7	2.8	58.5	0.12	2.4	1.6	16	LC
EEU7BZ	68.0 XH	58.3 L	59.7	56.4	60.6	1.33	3.9	5.1 H	62.4	1.59	4.7	3.1	15	LD
EF2NAW	57.4	54.9	56.4	59.5	57.0	-0.38	3.7	1.9	56.7	-0.56	3.9	1.6	8	XX
EFM3ZU	56.4	56.9	56.4	57.5	56.8	-0.50	2.8	0.5	57.2	-0.38	2.7	1.0	16	EM
EYJFG9	57.1	55.4	57.3	No DATA	56.6	-0.60	2.2	1.0	56.5	-0.62	2.2	0.8	9	LD
EZQXF4	53.5 *	54.9	56.3	55.5	55.1	-1.35	3.6	1.2	55.2	-1.14	3.5	1.6	16	LD
FCHQGY	61.1	60.1	57.9	59.8	59.7	0.92	3.1	1.3	58.5	0.10	3.1	1.4	16	LD
G83HTZ	56.6	57.5	54.5	58.1	56.7	-0.56	3.0	1.6	55.6	-0.98	3.2	1.7	16	LD
G9JP23	66.8 X	67.2 X	63.7 *	62.7	65.1	3.51 X	3.9	2.3	62.6	1.67	3.7	2.8	16	LD
GG8P9Z	55.1	55.7	56.1	55.3	55.6	-1.10	3.2	0.4	55.7	-0.93	3.1	1.2	16	LZ
GPMCH4	58.5	59.1	52.3 *	56.2	56.5	-0.64	3.7	3.1	56.5	-0.64	3.9	1.8	16	LD
H3KZPN	55.4	55.9	57.5	54.1	55.7	-1.02	3.7	1.4	57.2	-0.37	4.0	3.8	16	LD
H3MKK4	57.7	59.3	58.7	62.2	59.4	0.77	3.1	1.9	62.6	1.66	3.3	3.3	16	LC
HH4FZZ	55.5	57.0	57.4	54.1	56.0	-0.90	3.3	1.5	56.4	-0.67	3.6	2.1	16	LZ
HK8BJ3	56.6	57.0	59.4	57.5 H	57.6	-0.10	3.5	1.2	58.7	0.21	3.3	1.4	11	LC
JBF3QY	56.4	57.2	56.5	55.9	56.5	-0.66	4.2	0.5	53.9	-1.63	3.5	2.4	16	LD
K97C2V	58.0	58.4 L	58.8	58.9	58.5	0.33	1.7	0.4	59.6	0.55	1.7	0.8	16	MB



Containerboard Interlaboratory Testing Program
Analysis 240

Report #651
December 2023

Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM13

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
KJKJL3	49.9 X	54.1	55.5	53.0	53.1	-2.29 *	3.9	2.4	56.1	-0.78	4.5	2.8	16	LD
KWTC63	58.0	57.7	58.4	58.4	58.1	0.14	2.0	0.3	58.3	0.03	2.1	0.5 L	16	LD
L2KU6Y	58.9	53.5	53.1 *	53.5	54.8	-1.49	3.6	2.8	55.4	-1.05	4.1	2.4	16	LD
MZL72U	56.6	61.6	61.5	61.8	60.4	1.21	3.4	2.5	60.6	0.92	4.6	2.5	16	LD
NBYPXV	58.9	56.7	59.1	59.8	58.6	0.38	3.6	1.3	60.0	0.69	3.4	2.7	16	LD
NFFXLV	56.7	59.1	55.2	60.8	57.9	0.05	3.0	2.5	56.6	-0.59	3.4	2.3	16	LD
NK97LV	57.7 H	58.0	59.0	62.7	59.3	0.72	4.1	2.3	59.2	0.39	4.1	1.8	16	LC
RL8JXD	55.8	52.3 *	53.9	55.4	54.3	-1.69	3.0	1.6	53.8	-1.67	3.1	1.3	16	LD
T8KQLC	60.7	60.9	60.5	59.5	60.4	1.24	2.4	0.6	59.9	0.67	2.9	0.8	16	LD
T8N9TM	57.7	57.1	54.3	55.0	56.0	-0.88	3.7	1.7	54.5	-1.38	3.4	2.0	16	LD
WJP3DM	60.2	60.7	59.6	60.1	60.1	1.11	3.7	0.4	59.5	0.50	3.5	1.5	15	XX
WQMVLG	59.8	62.8	58.0	59.9	60.1	1.11	4.2	2.0	60.5	0.87	4.1	1.8	15	LD
XPL68L	58.3	57.8	55.2	56.2	56.9	-0.46	4.1	1.4	57.7	-0.17	3.7	1.8	12	LD
XUKHRQ	62.2 *	63.0 *	61.3	61.1	61.9	1.96 *	3.1	0.9	63.5	2.00 *	4.2	3.7	16	LD
YJGMB7	58.4 L	58.5 L	58.5 L	58.5 L	58.5	0.30	0.8	0.0 L	58.4	0.10	0.7	0.1 L	16	LD

Consensus (All Labs) Results									
Wk Mean	57.81	57.81	57.92	58.24	Month Mean	57.84	Grand Mean	58.18	
Avg SDr	3.11	3.64	3.50	3.28	Avg SD	3.38	Avg SD	3.52	
SD btwn Labs	1.78	2.64	2.46	2.86	SD btwn Labs	2.07	SD btwn Labs	2.64	
Labs Incl	43	46	47	47	SD btwn Wks	1.83	SD btwn Wks	2.13	
Labs Excl	7	3	2	1	Labs Incl	47	Labs Incl	49	
Labs not Rcvd	0	1	1	2					

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
TB	TMI Monitor/Compression Tester, 17-70	TH	TMI Compression Tester, Model 17-76
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 #651
December 2023

Fluted Edge Crush Strength (FCF), 26 lb Corrugating Medium - CM13

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	
AJ22CE	69.1	70.3	67.8	71.6	69.7	0.74	4.3	1.6	69.2	0.68	3.8	1.6	16	LD
ARUAW6	65.4 L	63.9	63.5	68.9	65.4	-0.25	3.4	2.5	66.4	0.01	3.4	1.7	16	LD
CYAUU2	65.5	64.4	65.0	63.4	64.6	-0.45	3.6	0.9	64.5	-0.45	3.8	0.9	16	LZ
DLZBW7	65.0	66.1	65.4	65.4	65.5	-0.24	2.7	0.4	65.7	-0.16	3.6	1.4	16	LD
DX94F7	70.6 L	71.8 L	69.8 L	70.9 L	70.8	1.00	0.9	0.9	70.4	0.97	1.0	1.0	16	XX
EZQXF4	70.0	71.2 L	67.6	71.0	69.9	0.80	3.2	1.7	70.0	0.87	3.5	1.8	16	LD
G9JP23	70.4 L	70.2 L	71.1	67.6	69.8	0.78	1.7	1.5	70.3	0.93	2.9	2.0	16	LD
GPMCH4	63.4	66.5	65.0	62.1	64.3	-0.52	3.1	1.9	63.3	-0.74	3.9	1.8	16	XX
H3KZPN	66.7	66.7	63.5	67.1	66.0	-0.12	3.3	1.7	65.2	-0.28	3.6	4.2 H	16	LD
HH4FZZ	63.5	65.4	58.7 H	62.4	62.5	-0.93	4.3	2.8	62.1	-1.02	4.5	2.0	16	LZ
HK8BJ3	69.3	74.7	73.0	72.1	72.3	1.35	4.4	2.3	70.1	0.88	4.5	4.1	11	LC
JBF3QY	56.5 *H	55.8 *H	55.4 *	55.5 *	55.8	-2.50 *	5.9	0.5	56.9	-2.29 *	5.9	1.2	16	LD
K97C2V	67.4 L	67.1 L	67.2	67.4	67.3	0.18	1.7	0.1 L	66.7	0.09	1.7	1.3	16	MB
KJKJL3	56.3 *H	56.9 *H	56.0 *H	56.9 *H	56.5	-2.33 *	8.4	0.5	56.0	-2.49 *	7.9	1.1	16	LD
KWTC63	66.7	67.2	66.7	67.2 L	67.0	0.11	1.9	0.3	67.4	0.24	2.3	0.9	16	LD
NBYPXV	66.5	69.4	67.8	68.4 H	68.0	0.35	4.4	1.2	67.2	0.20	3.7	3.1	16	LD
NFFXLV	67.6	70.7	71.8	66.2	69.1	0.61	4.6	2.6	70.1	0.88	3.8	2.1	16	LD
NK97LV	70.7	68.1	67.6	69.9	69.1	0.60	3.4	1.5	68.4	0.49	3.5	2.3	16	LC
WJP3DM	68.0	67.5	69.1	69.1 L	68.4	0.45	2.5	0.8	69.3	0.70	3.2	1.6	15	XX
XPL68L	70.3	67.5	67.0 L	67.6	68.1	0.38	3.0	1.5	68.3	0.47	4.0	1.4	12	LD

Consensus (All Labs) Results									
Wk Mean	66.44	67.07	65.94	66.53	Month Mean	66.50	Grand Mean	66.39	
Avg SDr	3.92	4.13	3.57	3.92	Avg SD	3.89	Avg SD	3.96	
SD btwn Labs	4.13	4.54	4.74	4.51	SD btwn Labs	4.28	SD btwn Labs	4.16	
Labs Incl	20	20	20	20	SD btwn Wks	1.56	SD btwn Wks	2.09	
Labs Excl	0	0	0	0	Labs Incl	20	Labs Incl	20	
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
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T822

Report #651
December 2023

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	
2C93YL	43.2	43.3	H 43.9	44.7	43.8	0.66	3.5	0.7	43.9	0.75	3.3	1.5	16	MB
2TFZK7	43.9	44.0	43.5	47.1	44.6	1.08	3.3	1.7	42.1	-0.24	3.2	4.3	16	LZ
3Q6HYE	43.6	45.9	44.7	43.6	44.5	0.99	3.2	1.1	43.3	0.44	2.8	1.5	16	LD
4J3UKK	37.7 *	36.4 *	36.9 *	37.5	37.1	-2.55 *	2.6	0.6	36.6	-3.33 X	2.3	1.0	12	TH
6FWNHJ	45.3 L	44.9 L	45.2 L	44.9 L	45.1	1.28	0.6	0.2	44.6	1.13	0.6	0.5 L	16	TX
7VM9CC	40.4	38.5	40.4	39.6	39.7	-1.28	2.2	0.9	41.4	-0.66	2.8	2.0	16	TH
8V4FJF	39.3	39.2	38.4	38.4	38.8	-1.72	1.8	0.5	40.4	-1.18	2.5	2.5	16	XX
9C6NVY	39.9	40.4	41.1	41.8	40.8	-0.78	2.7	0.8	39.6	-1.65	2.8	1.5	16	LD
A4K8FU	43.4 H	41.2 H	45.9 H	NO DATA	43.5	0.53	5.4	2.4	40.6	-1.07	4.3	2.4	15	LD
A7XKH7	42.3 L	40.7	41.5 L	42.0 L	41.6	-0.38	1.1	0.7	45.3	1.53	1.4	5.6 H	16	TU
AADC7D	40.8	39.9	41.2	40.5	40.6	-0.88	3.3	0.6	40.7	-1.03	3.5	1.0	16	LD
AJ22CE	43.8	46.5	44.7	45.2	45.1	1.28	3.2	1.1	44.1	0.89	3.2	1.7	16	LD
DLZBW7	41.3	39.0	40.4	40.0 H	40.2	-1.08	3.6	1.0	40.5	-1.13	3.5	1.7	16	LD
EEU7BZ	45.0	45.4	38.0	42.2	42.7	0.12	3.6	3.4 H	44.9	1.31	3.6	2.4	15	EM
EF2NAW	44.7	46.0	43.2	48.8 *	45.7	1.58	3.8	2.4	45.4	1.60	4.5	1.7	8	XX
EZQXF4	43.9	43.4	45.0	43.8	44.0	0.77	3.2	0.7	44.0	0.83	3.2	1.6	16	LD
FCHQGY	42.3	44.1	43.0	41.0	42.6	0.10	2.6	1.3	42.1	-0.24	3.4	1.2	16	LD
G83HTZ	46.2	43.5	42.4	44.1	44.1	0.80	2.4	1.6	44.7	1.23	3.0	1.3	12	LD
GPMCH4	40.8	37.9	42.5	40.2 H	40.4	-0.99	3.4	1.9	39.3	-1.82	3.4	2.0	16	LD
H3MKK4	38.9	40.7	39.8 L	39.1	39.6	-1.34	2.5	0.8	40.7	-1.03	2.5	2.7	16	XX
K97C2V	42.2	42.0	42.7	42.2	42.3	-0.07	1.7	0.3	41.6	-0.54	1.6	0.9	16	MB
MY7V32	44.1	44.9	42.8	40.6	43.1	0.33	2.6	1.9	41.4	-0.65	3.0	2.3	12	LD
MZL72U	45.1	42.2	42.7	44.7	43.7	0.61	2.6	1.4	41.8	-0.43	3.3	2.4	16	LD
NFFXLV	42.9	41.1	41.4	42.9	42.1	-0.16	2.8	1.0	41.2	-0.75	2.8	1.6	16	LD
NK97LV	41.2	42.0	42.4	39.8	41.3	-0.52	2.2	1.1	42.7	0.07	2.7	2.3	16	LC
QAHFXU	45.6	43.3	43.0	43.3	43.8	0.68	3.4	1.2	44.3	1.00	3.0	1.2	16	LC
WJP3DM	42.5	41.0	39.8 H	41.7	41.2	-0.57	4.1	1.1	42.1	-0.23	3.6	1.6	15	XX
WQMVLG	42.7	43.8	46.4	40.0	43.2	0.40	3.8	2.7	43.2	0.38	3.9	1.9	15	LZ
XPL68L	41.7	43.1	43.4	43.3	42.9	0.23	2.8	0.8	43.5	0.53	3.7	0.8	12	LD
YJGMB7	44.3 L	44.2 L	44.1 L	44.2 L	44.2	0.88	0.9	0.1 L	44.3	0.97	0.7	0.2 L	16	LD



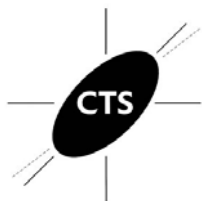
Containerboard Interlaboratory Testing Program
 Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM13
 TAPPI Official Test Method T822

Report #651
December 2023

Consensus (All Labs) Results									
Wk Mean	42.64	42.28	42.34	42.31	Month Mean	42.40	Grand Mean	42.54	
Avg SDr	3.10	2.85	2.92	3.01	Avg SD	3.00	Avg SD	3.09	
SD btwn Labs	2.12	2.58	2.30	2.61	SD btwn Labs	2.07	SD btwn Labs	1.79	
Labs Incd	30	30	30	29	SD btwn Wks	1.41	SD btwn Wks	2.14	
Labs Excld	0	0	0	0	Labs Incd	30	Labs Incd	29	
Labs not Rcvd	0	0	0	1					

Key to Instrument Codes Reported by Participants

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

Analysis 261

Report #651
December 2023

STFI, 26 lb Corrugating Medium - CM13

TAPPI Official Test Method T826

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
2C93YL	14.3 H	13.9	14.1	14.3	14.2	0.84	1.4	0.2	14.0	0.74	1.3	0.3	16	LA
6AQ77C	14.4 L	13.8	14.8 *	15.0 H	14.5	1.45	1.1	0.5	14.9	2.15 *	1.0	0.9	16	LA
6FWNHJ	14.4 L	14.1 L	14.2 L	14.3 L	14.2	0.97	0.2	0.1	14.4	1.34	0.2	0.4	16	LZ
6TMLKH	13.8	14.1 H	13.8	14.8	14.1	0.78	1.2	0.5	13.6	-0.06	1.2	0.5	16	TX
AADC7D	13.3	13.5	13.2	13.1	13.3	-0.75	1.1	0.2	13.3	-0.49	1.1	0.3	16	LZ
CARBM9	13.4	13.4	14.2 H	14.1	13.8	0.17	1.3	0.4	14.0	0.76	1.2	0.3	16	LA
DX94F7	14.1	14.6	13.9	14.5	14.3	1.04	1.0	0.3	13.7	0.15	1.1	0.6	16	XX
EFM3ZU	12.6	12.7	12.6 *	13.4	12.8	-1.55	1.0	0.4	13.0	-0.99	1.0	0.4	16	LH
EYJFG9	13.3	13.0	13.0	NO DATA	13.1	-1.08	0.9	0.2	13.1	-0.86	0.9	0.1 L	9	LH
EZQXF4	13.4	13.7 L	13.6 L	13.9	13.7	-0.07	0.6	0.2	13.5	-0.19	0.8	0.6	16	LA
G9JP23	15.0 *L	13.7	14.5	15.4 *L	14.7	1.73	0.8	0.7	14.3	1.28	0.9	0.6	16	LA
GPMCH4	13.0	12.6	13.1	13.4	13.0	-1.26	1.0	0.3	12.7	-1.53	1.1	1.4 H	16	LZ
H3KZPN	14.0 H	13.6	13.4	14.1	13.8	0.15	1.2	0.3	13.8	0.38	1.1	0.4	16	LA
JBF3QY	13.0	13.1 H	12.9	12.9	13.0	-1.27	1.4	0.1	12.6	-1.62	1.4	0.5	16	LB
KWTC63	13.6	14.1	13.9	13.5	13.8	0.15	1.1	0.3	13.7	0.22	1.1	0.3	12	LA
LWMHZM	13.2	13.6	13.4	13.4	13.4	-0.54	1.1	0.1	13.3	-0.46	1.0	0.2	12	LU
MY7V32	14.8	14.9 *	15.7 X	14.6	15.0	2.36 *	1.1	0.5	14.8	2.01 *	1.3	0.6	12	LH
MZL72U	13.8	13.5	13.4 L	13.2	13.5	-0.39	0.9	0.3	13.7	0.21	1.0	0.4	16	XX
NK97LV	13.3	13.6	13.5	13.8	13.6	-0.23	1.1	0.2	13.6	0.05	1.1	0.3	16	LU
QAHFXU	13.3	13.3	13.4	14.3	13.6	-0.21	1.2	0.5	13.7	0.17	1.2	0.8	16	LH
RZRY2D	14.4	14.1	13.9	14.4	14.2	0.89	0.8	0.2	13.7	0.26	0.7	0.5	8	LA
T8N9TM	13.6	13.3	13.5	13.1	13.4	-0.56	1.0	0.2	13.1	-0.80	1.1	0.4	16	LU
TZKCYP	12.8	12.8	13.6	13.0 H	13.1	-1.13	1.1	0.4	13.1	-0.85	1.2	0.4	16	LA
U99LLP	13.5	13.4	13.2	13.6	13.4	-0.49	1.1	0.1	13.4	-0.31	1.1	0.3	16	TT
WQMVLG	12.1 *L	14.3	13.4 L	13.7	13.4	-0.59	1.0	0.9 H	12.4	-2.06 *	1.2	0.9	15	XX
WX2QFP	14.3 H	13.9	14.2	14.4	14.2	0.89	1.2	0.2	14.0	0.63	1.1	0.4	16	XX
XPL68L	13.5	12.9	13.0	12.9	13.1	-1.13	1.0	0.3	13.4	-0.34	1.2	0.4	12	LB
XUKHRQ	13.5	13.6	13.2	14.1	13.6	-0.16	1.0	0.4	13.7	0.20	1.0	0.5	16	LH

Consensus (All Labs) Results														
Wk Mean	13.63	13.61	13.59	13.89	Month Mean	13.69	Grand Mean	13.59						
Avg SDr	1.03	1.04	1.06	1.10	Avg SD	1.05	Avg SD	1.08						
SD btwn Labs	0.66	0.56	0.52	0.67	SD btwn Labs	0.56	SD btwn Labs	0.59						
Labs Incl	28	28	27	27	SD btwn Wks	0.37	SD btwn Wks	0.55						
Labs Excl	0	0	1	0	Labs Incl	28	Labs Incl	28						
Labs not Rcvd	0	0	0	1										



Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM13
TAPPI Official Test Method T826

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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

End of Report