

Containerboard Interlaboratory Testing Program

Participant Summary Report #649 - October 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>42H3</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>42H3</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	CM12	July 2021 - Current
	CM11	April 2019 - June 2021
35# Corrugating Medium	35E3	June 2022 - Current
	35E2	June 2020 - April 2022
42# Corrugating Medium	42H2	December 2022 - Current
	42H1	April 2022 - November 2022
56# Corrugating Medium	56G3	July 2022 - 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 #649
October 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
24RZN6	896.0	0.89	54.57	879.3	1.04	26.78	4	ER
3RQYLK	868.9	0.35	61.77	873.5	0.89	11.22	4	LO
6ZENYQ	825.8	-0.50	32.46	845.0	0.11	36.88	4	LS
77YB6G	919.0	1.35	92.41	889.8	1.33	19.82	4	LM
79NDCP	904.4	1.06	69.86	843.6	0.07	94.39	4	EX
AR8NMD	935.4	1.68	68.65	872.5	0.86	49.04	4	LG
ATJH8K	767.0	-1.68	61.06	864.3	0.63	65.25	4	EX
B3GFTY	805.6	-0.91	58.73	812.5	-0.78	15.90	4	ER
B6ACGT	921.4	1.40	96.89	843.2	0.06	60.92	4	EX
BD3K3J	866.2	0.30	57.32	861.8	0.56	64.74	4	LH
EVA9GF	833.6	-0.35	27.48	815.8	-0.69	16.67	4	EX
H7UQLV	888.6	0.75	89.86	871.5	0.83	27.34	4	EX
JWMBEM	827.0	-0.48	70.01	851.0	0.27	86.76	4	ER
JZPAPF	797.6	-1.07	27.97	763.7	-2.11 *	23.59	4	ET
KAAZPC	819.3	-0.63	42.70	816.3	-0.67	42.94	4	TB
KUFF74	798.8	-1.04	59.71	788.1	-1.44	20.00	4	LG
N2N9RA	836.5	-0.29	102.43	849.1	0.22	39.54	4	LS
NCMNT9	836.6	-0.29	105.98	848.5	0.20	32.19	4	XX
NCQ4BF	929.9	1.57	49.05	843.9	0.08	58.64	4	LG
QJE2PD	867.0	0.32	51.70	893.5	1.43	78.42	4	ES
RK89B3	813.6	-0.75	118.20	830.6	-0.28	31.98	4	LG
RPZD3K	820.0	-0.62	109.48	877.7	1.00	52.63	4	ER
TTDFNG	910.1	1.18	39.78	857.9	0.46	46.10	4	LM
U4MEP3	775.7	-1.50	52.00	751.5	-2.44 *	39.47	4	LL
XXAQNW	815.7	-0.71	123.37	800.3	-1.11	22.32	4	EX
YD3H9X	799.7	-1.02	28.99	801.8	-1.07	62.79	4	LS
YU8AN8	900.7	0.99	56.83	861.8	0.57	30.77	4	LN

Consensus (All Labs) Results			
Month Mean	851.11	Grand Mean	841.05
Avg SD	72.54	Avg SD Months	48.20
SD btwn Labs	50.21	SD btwn Labs	36.70
Labs Incl	27	Labs Incl	27



Containerboard Interlaboratory Testing Program
Analysis 201

Report #649
October 2023

Top to Bottom Box Compression Strength, Corrugated Boxes - BX17

TAPPI Official Test Method T804

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	842.68	52.72	8.43	9
Clip sealing	855.33	49.91	4.21	18

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	LH	L.A.B. Compression Tester Model #10610
LL	Lansmont 76-5K	LM	Lansmont 122-15k
LN	Lansmont 152-50k	LO	Lansmont 152-30k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
XX	Instrument make/model not specified by lab		



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC15
 TAPPI Official Test Method T811

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October 2023

WebCode	Monthly Results				Cumulative Results				Inst	
	Mean	CPV	SD		Mean	CPV	SD Months	Months		
24RZN6	35.1	-2.16 *	3.23	H	40.4	-1.13	3.53	4	EN	
8YEBP4	160.2	28.96 X	6.31	H	160.9	38.94 X	3.90	H	4	LD
AR8NMD	42.9	-0.22	1.48		43.2	-0.17	1.22		4	EX
B6ACGT	44.2	0.10	2.73		44.7	0.33	0.48		4	LC
BPUBK3	47.9	1.03	0.74	L	47.1	1.13	1.37		4	XX
ECUYFE	44.2	0.11	0.88		40.6	-1.04	2.98		4	TS
N2N9RA	42.1	-0.41	1.18		41.4	-0.78	2.55		4	LD
NCMNT9	41.3	-0.62	2.85		41.4	-0.79	1.48		4	TS
QMWHYA	49.9	1.51	1.44		49.2	1.80	1.28		4	XX
RTFLQK	46.2	0.59	0.71	L	46.3	0.86	0.26		2	LD
XXAQNW	44.0	0.06	1.06		43.1	-0.20	1.45		3	LC

Consensus (All Labs) Results				
Month Mean		43.77	Grand Mean	43.75
Avg SD		1.86	Avg SD Months	1.93
SD btwn Labs		4.02	SD btwn Labs	3.01
Labs Incd		10	Labs Incd	10

Key to Instrument Codes Reported by Participants

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

Report #649
October 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
24RZN6	44.0	-0.88	1.41	44.8	-0.41	0.71	4	EN
3RQYLK	42.1	-1.55	2.38	43.0	-1.06	0.76	4	LD
3VPDAB	42.7	-1.35	1.15	42.7	-1.14	0.00	1	XX
6ZENYQ	52.2	1.95 *	1.48	51.3	1.93 *	1.48	4	EM
77YB6G	45.7	-0.30	1.60	45.4	-0.18	0.41	4	EM
79NDCP	45.3	-0.44	2.31	44.4	-0.53	0.84	4	CT
8E83A6	45.7	-0.31	1.39	44.2	-0.62	1.31	4	TD
8LTVNP	46.7	0.02	0.77	45.2	-0.25	1.04	4	BU
AR8NMD	46.3	-0.11	1.38	45.5	-0.14	1.60	4	LY
B3GFTY	45.7	-0.32	1.79	46.1	0.08	0.61	4	EM
B6ACGT	49.8	1.10	2.30	48.3	0.86	1.75	4	LC
BD3K3J	49.8	1.10	1.49	45.5	-0.14	5.96	2	EM
BMQMYL	44.3	-0.80	2.68	43.7	-0.78	1.12	4	BU
BPUBK3	47.7	0.39	1.14	47.1	0.42	1.19	4	XX
ECUYFE	43.5	-1.06	1.35	44.1	-0.63	1.76	4	TS
EVA9GF	44.7	-0.65	1.29	44.3	-0.58	3.64	4	TL
GTBTYE	45.0	-0.54	1.93	45.0	-0.34	1.42	4	TU
H7UQLV	46.1	-0.18	1.94	45.8	-0.03	1.29	4	LD
JL6UMF	48.2	0.55	2.13	47.5	0.58	2.99	4	EM
JWMBEM	46.5	-0.02	0.93	47.1	0.43	1.05	4	LD
JZPAPF	49.9	1.14	1.24	46.6	0.26	3.26	4	TD
KAAZPC	52.9	2.17 *	0.43 L	48.8	1.03	2.72	4	LD
KPJNZR	42.6	-1.39	1.76	39.0	-2.48 *	6.63 H	4	XX
LG9MER	55.4	3.05 X	1.22	50.8	1.74	3.38	4	TG
N2N9RA	45.4	-0.41	1.55	44.9	-0.35	0.60	4	LD
NCMNT9	46.5	-0.04	1.72	45.7	-0.06	1.75	4	TS
NCQ4BF	50.3	1.27	2.52	49.6	1.32	0.84	4	MK
QJE2PD	47.8	0.41	1.69	47.6	0.61	0.56	4	LD
RCTAV6	49.7	1.09	1.69	49.5	1.27	0.54	4	TH
RK89B3	44.3	-0.78	1.52	44.8	-0.39	1.36	4	EM
RPZD3K	46.1	-0.17	1.43	45.4	-0.20	2.54	4	LD
TTDFNG	49.1	0.87	1.74	46.6	0.23	2.28	4	TG
VLPCW6	44.2	-0.82	2.95 H	43.2	-0.96	1.61	4	TD
W2D8JF	41.9	-1.64	1.42	41.2	-1.67	1.41	3	IX
XXAQNW	48.2	0.56	1.22	48.0	0.74	0.73	3	LC
YD3H9X	44.4	-0.75	1.80	43.0	-1.05	1.19	4	EM
ZZC9YX	52.1	1.90	2.36	52.9	2.49 *	0.60	4	LC



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	46.59	Grand Mean	45.92
Avg SD	1.75	Avg SD Months	2.23
SD btwn Labs	2.88	SD btwn Labs	2.81
Labs Incl	36	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
TG	TMI Digital Crush Tester, 17-76	TH	TMI Monitor/Compression Tester, Model 17-76
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 #649
October 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	
27VV89	117.6	114.3	105.8	114.0	112.9	-0.65	7.2	5.0	112.9	-0.65	7.2	5.0	4	LA
2CL99W	135.1 X	131.7 X	129.4 *	125.4 *	130.4	3.60 X	8.1	4.1	130.4	3.60 X	8.1	4.1	4	AX
46A498_AL	115.1	No DATA	No DATA	112.6	113.9	-0.42	9.7	1.8	113.9	-0.42	9.7	1.8	2	AL
79NDCP	117.0	129.5 X	119.0	122.5	122.0	1.56	11.5	5.5	122.0	1.56	11.5	5.5	4	XX
8WMAL2	113.9	107.9	113.4	111.4	111.7	-0.96	8.0	2.7	111.7	-0.96	8.0	2.7	4	LC
8YEBP4	124.1	114.3	116.8	118.0	118.3	0.66	9.6	4.2	118.3	0.66	9.6	4.2	4	LA
9A7GXR	117.2 L	117.0 L	117.2 L	117.0	117.1	0.37	3.5	0.1 L	117.1	0.37	3.5	0.1 L	4	AH
9B6JMW_AL	122.6	124.4 *L	125.8	124.5 *	124.3	2.12 *	6.7	1.3	124.3	2.12 *	6.7	1.3	4	AL
AR8NMD	117.2	118.2	124.3	121.0	120.2	1.11	8.3	3.2	120.2	1.11	8.3	3.2	4	AX
BCMM9Y_AI	109.6	112.1	108.5	108.1	109.6	-1.47	7.4	1.8	109.6	-1.47	7.4	1.8	4	XX
BMU3GR_AL	109.5	105.3 *	109.5	113.1	109.4	-1.52	8.0	3.2	109.4	-1.52	8.0	3.2	4	AL
BPUBK3	115.2	118.1	113.0	118.4	116.2	0.14	7.7	2.5	116.2	0.14	7.7	2.5	4	LC
BVKLV2_AL	112.5	No DATA	No DATA	114.3	113.4	-0.53	6.1	1.3	113.4	-0.53	6.1	1.3	2	AL
CH8ZMR_AL	118.1	114.3 H	112.4	112.1	114.2	-0.34	12.1	2.8	114.2	-0.34	12.1	2.8	4	XX
E2EPDU_AL	130.2 *	121.0	123.0	124.3	124.6	2.20 *	7.6	4.0	124.6	2.20 *	7.6	4.0	4	AL
G8YQ9P	108.4	116.5	107.5	No DATA	110.8	-1.17	7.9	5.0	110.8	-1.17	7.9	5.0	3	LJ
G8YQ9P_AL	126.5	129.9 X	123.8	No DATA	126.7	2.71 *	8.7	3.1	126.7	2.71 *	8.7	3.1	3	AL
H7UQLV	107.2	110.4	108.0	109.2	108.7	-1.68	6.5	1.4	108.7	-1.68	6.5	1.4	4	AH
JWMBEM	114.4	116.8	115.4	116.0	115.7	0.01	7.9	1.0	115.7	0.01	7.9	1.0	4	AH
KAAZPC	117.0	108.3	111.6 L	117.6	113.6	-0.49	6.2	4.5	113.6	-0.49	6.2	4.5	4	XX
L8H4ZJ	123.2 L	116.2	119.8	117.8	119.3	0.89	4.7	3.0	119.3	0.89	4.7	3.0	4	AH
LK4GCT	118.9	118.2	125.8	118.0 H	120.2	1.12	11.6	3.7	120.2	1.12	11.6	3.7	4	LC
MMT6AE	115.5	114.3	115.5	116.0	115.3	-0.07	4.8	0.7	115.3	-0.07	4.8	0.7	4	LA
MPV3K8_AL	116.2	109.5	115.2	110.8	112.9	-0.65	11.0	3.3	112.9	-0.65	11.0	3.3	4	AL
MWVPBL	110.9	112.3	107.0	116.8	111.8	-0.94	8.6	4.0	111.8	-0.94	8.6	4.0	4	LA
N2N9RA	113.2	114.0	116.3	116.4	115.0	-0.16	7.1	1.6	115.0	-0.16	7.1	1.6	4	LA
NE9NVA	115.4	118.1	114.5	116.1	116.0	0.11	8.1	1.5	116.0	0.11	8.1	1.5	4	LC
NE9NVA_AL	116.9 H	116.4	110.7	117.0	115.3	-0.08	11.0	3.0	115.3	-0.08	11.0	3.0	4	AL
PDGR7F	87.9 X	97.9 X	86.3 X	88.0 X	90.0	-6.23 X	7.5	5.3	90.0	-6.23 X	7.5	5.3	4	TB
PGDDVX	111.4	120.8	122.4	118.0	118.1	0.62	10.9	4.9	118.1	0.62	10.9	4.9	4	LB
PJKVVE	112.6	112.6	113.2	113.1	112.9	-0.66	9.6	0.3 L	112.9	-0.66	9.6	0.3 L	4	LC
QJE2PD	112.8	114.7	111.1	113.7	113.1	-0.61	9.6	1.5	113.1	-0.61	9.6	1.5	4	LA
QL7Z4C	106.1	111.5	117.5	114.4	112.4	-0.78	9.2	4.9	112.4	-0.78	9.2	4.9	4	XX
QY7XR9	105.9	111.6	109.5	107.9	108.7	-1.68	7.9	2.4	108.7	-1.68	7.9	2.4	4	LA
RCVUQL_AL	119.5	120.0	120.4	114.4	118.6	0.72	8.2	2.8	118.6	0.72	8.2	2.8	4	AL



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

Report #649
October 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	
RPZD3K	110.0	108.9	106.8	110.3	109.0	-1.60	8.7	1.6	109.0	-1.60	8.7	1.6	4	LZ
RWGUUV	122.2	115.2	108.1	111.4	114.2	-0.33	10.7	6.1	114.2	-0.33	10.7	6.1	4	ME
TMRKMD	112.6	115.2	113.3	112.7	113.5	-0.52	9.2	1.2	113.5	-0.52	9.2	1.2	4	LA
TMRKMD_AI	118.6	121.6	114.8	122.0	119.3	0.89	7.2	3.4	119.3	0.89	7.2	3.4	4	AL
TTEBA9	122.2	114.8	120.6	122.6	120.1	1.09	8.8	3.6	120.1	1.09	8.8	3.6	4	LC
U94MD3_AL	107.2	115.9	115.8	104.9 *	111.0	-1.13	8.7	5.7	111.0	-1.13	8.7	5.7	4	AL
UM77WE_AL	119.9	118.5	120.6	111.2	117.6	0.47	10.5	4.3	117.6	0.47	10.5	4.3	4	AL
UTUURK	120.9	122.9	117.6	111.1	118.1	0.61	6.7	5.2	118.1	0.61	6.7	5.2	4	LA
UW7WDF	118.4	119.0	113.6	NO DATA	117.0	0.34	6.5	3.0	117.0	0.34	6.5	3.0	3	AX
UW7WDF_AI	115.0	114.7	114.8	NO DATA	114.8	-0.19	7.2	0.2 L	114.8	-0.19	7.2	0.2 L	3	AL
VJY9YQ	125.5	121.5	121.3	121.1	122.4	1.64	5.8	2.1	122.4	1.64	5.8	2.1	4	LA
VVDD42	119.5 H	112.9	114.9	110.0	114.3	-0.32	12.0	4.0	114.3	-0.32	12.0	4.0	4	XX
WE2928	110.5	117.8	107.7	111.1	111.8	-0.94	8.9	4.3	111.8	-0.94	8.9	4.3	4	LC
WV94V3	115.0	113.4	116.3	117.2	115.5	-0.03	6.4	1.7	115.5	-0.03	6.4	1.7	4	AH
WXGH39_AL	113.3	115.6	118.5	117.1	116.1	0.12	9.1	2.2	116.1	0.12	9.1	2.2	4	AL
WY9ER2	114.5	115.6	116.0	117.4	115.9	0.07	6.0	1.2	115.9	0.07	6.0	1.2	4	TP
XXAQNW	116.9	117.2	112.7 H	114.2	115.3	-0.08	9.6	2.2	115.3	-0.08	9.6	2.2	4	AH
Y6QQGE	113.3	114.8	115.8	114.8	114.7	-0.22	6.8	1.0	114.7	-0.22	6.8	1.0	4	LJ
YVYBRB	126.2	108.6 H	121.7	121.6	119.5	0.96	19.4	7.6 H	119.5	0.96	19.4	7.6 H	4	LJ
ZHQP4B_AL	113.9	NO DATA	NO DATA	114.6	114.3	-0.33	5.3	0.5	114.3	-0.33	5.3	0.5	2	AL

Consensus (All Labs) Results														
Wk Mean	115.99	115.28	115.57	115.51	Month Mean	115.60			Grand Mean	115.60				
Avg SDr	8.97	9.41	8.35	8.37	Avg SD	8.77			Avg SD	8.77				
SD btwn Labs	5.44	4.11	5.58	4.60	SD btwn Labs	4.11			SD btwn Labs	4.11				
Labs Incl	53	48	51	50	SD btwn Wks	3.33			SD btwn Wks	3.33				
Labs Excl	2	4	1	1	Labs Incl	53			Labs Incl	53				
Labs not Rcvd	0	3	3	4										



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

Report #649
October 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 #649
October 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	
27VV89	92.2	85.9	84.8	88.8	87.9	-1.03	4.7	3.3	87.9	-1.11	4.7	3.3	4	LA
2CL99W	99.2 H	96.7	100.0 *	95.0	97.7	1.79	9.6	2.3	103.7	3.68 X	11.2	6.7 H	12	AX
46A498_AL	91.4	No DATA	No DATA	91.9	91.6	0.03	6.0	0.4	91.8	0.05	6.0	0.8	6	AL
79NDCP	98.5	101.5 *	92.0	91.0 H	95.8	1.22	10.1	5.1	94.8	0.96	10.7	3.9	12	XX
8WMAL2	88.0	91.1	89.4	89.4	89.5	-0.59	7.6	1.3	88.4	-0.97	7.8	2.2	12	LA
8YEBP4	81.6 *	85.6	85.9	85.0	84.5	-2.01 *	8.0	2.0	82.7	-2.68 *	7.4	2.9	12	LA
9A7GXR	95.5 L	95.3 L	95.2 L	95.0	95.3	1.08	3.1	0.2 L	99.5	2.40 *	2.9	3.2	12	AH
9B6JMW_AL	99.3	100.0 *	98.2	97.2	98.6	2.05 *	7.9	1.2	95.6	1.23	6.2	2.8	12	AL
AR8NMD	95.7	93.4	93.7	97.6 *	95.1	1.03	6.9	2.0	97.0	1.63	8.5	2.6	12	AH
BCMM9Y_AI	86.3	84.1	86.9	89.4	86.7	-1.39	5.9	2.2	88.0	-1.08	5.3	2.1	12	XX
BMU3GR_AL	85.9	87.0	85.0	84.8	85.7	-1.68	6.6	1.0	60.9	-9.30 X	5.6	36.0 H	12	AL
BVKLV2_AL	89.3	No DATA	No DATA	90.2	89.7	-0.52	9.1	0.6	90.4	-0.37	6.4	2.0	10	AL
CH8ZMR_AL	88.8	90.3	87.5	89.5	89.0	-0.72	7.1	1.2	90.2	-0.43	6.1	2.3	12	XX
E2EPDU_AL	103.3 *	97.8	94.3 H	103.9 X	99.9	2.40 *	11.5	4.6	98.8	2.19 *	9.1	5.0	12	XX
G8YQ9P	84.5	87.0	88.9	No DATA	86.8	-1.36	6.5	2.2	86.6	-1.52	7.7	1.5	8	LJ
G8YQ9P_AL	92.7	92.7	89.1	No DATA	91.5	0.00	7.2	2.1	90.6	-0.29	7.5	1.9	7	AL
H7UQLV	90.0	90.0	85.6	93.6	89.8	-0.49	7.4	3.3	90.4	-0.36	8.1	2.4	12	AH
JWMBEM	98.1	92.1	93.7	91.5	93.9	0.67	8.4	3.0	94.6	0.90	7.9	2.2	12	AH
KAAZPC	85.8	91.2	93.4	90.6	90.2	-0.37	6.1	3.2	88.6	-0.90	6.9	2.7	12	XX
L8H4ZJ	94.8	96.2	97.6	90.8	94.9	0.96	5.7	2.9	95.4	1.16	6.0	2.4	11	AH
LK4GCT	97.1	92.6 H	97.5 H	104.1 X	97.8	1.81	12.8	4.7	96.3	1.43	11.7	3.6	12	LC
MMT6AE	91.2	91.5	92.0 L	90.9	91.4	-0.03	3.5	0.5	91.4	-0.07	3.1	0.8	12	LA
MPV3K8_AL	92.6	91.3	87.0	89.0	90.0	-0.45	7.3	2.5	90.5	-0.34	7.0	2.0	8	AL
MWVPBL	91.7	90.0	90.9	86.1	89.7	-0.53	8.7	2.5	89.8	-0.54	8.8	2.1	12	LA
N2N9RA	90.1	91.7	91.5	91.3	91.2	-0.10	8.9	0.7	90.3	-0.38	7.6	2.5	12	LA
NE9NVA	92.2	94.5	94.9	96.9	94.7	0.91	6.9	1.9	94.1	0.76	7.1	2.8	8	LC
NE9NVA_AL	103.4 *	84.8	96.5	87.8	93.1	0.46	8.2	8.5 H	93.6	0.61	8.6	6.0 H	8	XX
PDGR7F	119.9 X	120.2 X	116.0 X	116.0 X	118.0	7.64 X	9.7	2.3	103.5	3.62 X	8.8	11.8 H	12	TB
PGDDVX	96.4	90.9	99.9 *	88.7	94.0	0.71	8.2	5.1	95.3	1.14	9.3	4.4	12	LB
PJKVVE	105.4 X	106.6 X	106.1 X	105.0 X	105.8	4.11 X	8.7	0.7	105.8	4.30 X	8.7	0.7 L	4	LC
QJE2PD	89.9	83.8	85.2	89.9	87.2	-1.24	8.6	3.2	88.2	-1.03	8.2	3.2	12	LA
QL7Z4C	88.0	89.0	89.9	89.0	89.0	-0.73	8.2	0.8	89.6	-0.61	8.1	2.7	12	XX
QY7XR9	91.6	85.7	87.1	85.8	87.5	-1.14	8.4	2.8	86.5	-1.55	8.6	3.5	12	LA
RCVUQL_AL	91.6	92.7	94.1	90.7	92.3	0.22	8.1	1.5	93.8	0.67	9.2	2.7	12	AL
RPZD3K	86.8	85.6	85.8	83.8 *	85.5	-1.73	8.0	1.2	86.5	-1.55	8.4	2.4	12	LA



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

Report #649
October 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	
RWGUVV	95.9	92.2	95.0	92.7	93.9	0.70	7.9	1.8	92.5	0.27	7.4	2.7	12	ME
TMRKMD	92.2	93.3	96.6	92.5	93.6	0.61	7.9	2.0	95.1	1.06	7.8	2.7	12	LA
TMRKMD_AI	93.4	94.0	94.4	96.6	94.6	0.89	5.8	1.4	93.9	0.69	5.5	1.7	12	AL
TTEBA9	92.1	92.1	89.1	91.0	91.1	-0.12	6.0	1.4	90.7	-0.28	6.3	1.3	12	LC
U94MD3_AL	88.7	90.0	90.9	89.5	89.8	-0.50	7.1	0.9	89.4	-0.65	7.3	2.7	8	XX
UM77WE_AL	92.7	88.7	88.3	86.4	89.0	-0.72	9.9	2.6	91.2	-0.13	9.3	3.4	12	AL
UTUURK	91.8	88.3	96.9	87.9	91.2	-0.08	6.0	4.2	91.3	-0.09	4.6	2.6	12	LA
UW7WDF	95.2	94.2	94.6	NO DATA	94.7	0.91	5.5	0.5	93.9	0.70	5.2	1.8	10	AX
UW7WDF_AI	92.1	90.4	90.5	NO DATA	91.0	-0.15	5.8	1.0	91.3	-0.10	6.0	1.5	10	AL
VJY9YQ	94.6	100.1 *	93.8	98.3 *	96.7	1.49	7.7	3.0	95.6	1.22	6.6	3.2	12	LA
VVDD42	89.8	91.3	93.0	93.9	92.0	0.15	6.8	1.8	91.1	-0.14	6.1	2.9	12	XX
WE2928	92.7	90.3	85.2	86.9	88.8	-0.79	7.9	3.4	89.7	-0.59	6.7	3.3	12	LC
WV94V3	91.4	91.3	91.0	91.0	91.2	-0.10	5.2	0.2 L	91.3	-0.09	5.8	0.8	12	AH
WXGH39_AL	91.5	91.5	90.5	89.5	90.7	-0.22	8.6	0.9	91.5	-0.03	7.9	1.9	12	AK
WY9ER2	91.5	89.4	91.0	93.4	91.3	-0.05	5.7	1.6	91.3	-0.09	5.6	1.1	12	TP
XXAQNW	91.8	92.1	88.9	89.6	90.6	-0.26	6.5	1.6	90.9	-0.21	7.7	2.8	12	AH
Y6QQGE	90.1	92.3	89.8	92.3	91.1	-0.11	7.0	1.3	91.4	-0.06	5.7	1.0	12	LJ
YVYBRB	95.4	89.8	91.4	93.3	92.5	0.27	8.2	2.4	91.8	0.08	9.2	3.0	12	LJ
ZHQP4B_AL	86.6	NO DATA	NO DATA	88.2	87.4	-1.18	5.4	1.1	88.5	-0.93	7.6	1.9	10	AL

Consensus (All Labs) Results												
Wk Mean	92.17	91.29	91.51	90.74	Month Mean	91.51		Grand Mean	91.58			
Avg SDr	7.50	7.41	8.27	7.13	Avg SD	7.56		Avg SD	7.38			
SD btwn Labs	4.38	3.98	4.15	3.46	SD btwn Labs	3.47		SD btwn Labs	3.30			
Labs Incl	52	49	49	46	SD btwn Wks	2.65		SD btwn Wks	2.73			
Labs Excl	2	2	2	4	Labs Incl	52		Labs Incl	50			
Labs not Rcvd	0	3	3	4								

Key to Instrument Codes Reported by Participants

AH	Perkins Model AH	AK	L & W Autoline 300
AL	L & W Autoline 400	AX	Perkins Mullen Tester (model not specified)
LA	L&W Bursting Strength Tester	LB	L&W Burst-O-Matic
LC	L&W Autoline (207 Enrollment)	LJ	L&W Bursting Strength Tester J-Type
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 #649

October 2023

Ring Crush, 42 lb Linerboard - 42H3

TAPPI Official Test Method T822

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						
24RZN6	92.6	95.0	94.5	95.1	L	94.3	-0.08	3.4	1.2	94.3	-0.08	3.4	1.2	4	EN					
27VV89	92.4	L	95.7	L	95.2	95.7	L	94.8	0.04	1.6	1.6	94.8	0.04	1.6	1.6	4	LZ			
2CL99W	85.9	*	90.1	*	90.9	93.8		90.2	-1.13	3.4	3.3	90.2	-1.13	3.4	3.3	4	LD			
2UG2UU	89.6	87.3	XH	84.9	*H	89.6		87.9	-1.73	5.6	2.2	87.9	-1.73	5.6	2.2	4	LD			
46A498	93.8	95.4	H	93.5	93.3			94.0	-0.16	5.4	1.0	94.0	-0.16	5.4	1.0	4	LC			
68U8G6	98.1	99.0	99.6	98.6				98.8	1.08	2.8	0.7	98.8	1.08	2.8	0.7	4	LD			
8AXMZP	101.6	103.0	X	100.4	100.9			101.5	1.76	2.6	1.1	101.5	1.76	2.6	1.1	4	TU			
8E83A6	95.0	L	94.9	94.7	L	95.0		94.9	0.08	1.7	0.1	L	94.9	0.08	1.7	0.1	L	4	MB	
8WMAL2	92.1	95.0	93.8	L	92.9			93.4	-0.30	2.5	1.2	93.4	-0.30	2.5	1.2	4	LD			
8YEBP4	85.1	*H	82.1	XH	87.4	H	86.6	*H	85.3	-2.39	*	15.8	2.4	85.3	-2.39	*15.8	2.4	4	LB	
9A7GXR	93.0	93.3	93.9	93.2				93.4	-0.32	2.1	0.4	L	93.4	-0.32	2.1	0.4	L	4	LD	
9TLNAN	98.4	L	98.4	L	97.8	L	97.7	L	98.1	0.89	0.6	0.4	L	98.1	0.89	0.6	0.4	L	4	MZ
AR8NMD	93.8	93.5	95.9	92.0				93.8	-0.21	2.9	1.6	93.8	-0.21	2.9	1.6	4	LG			
BCMM9Y	95.2	94.2	92.4	90.3				93.0	-0.40	2.4	2.2	93.0	-0.40	2.4	2.2	4	LD			
E2EPDU	76.3	XH	97.1	97.3	102.4			93.3	-0.34	5.8	11.6	H	93.3	-0.34	5.8	11.6	H	4	LZ	
GX976D	96.8	95.9	98.1	98.4				97.3	0.69	4.0	1.2	97.3	0.69	4.0	1.2	4	MB			
JGY2TK	94.4	94.9	94.3	L	94.9	L		94.6	0.01	2.0	0.3	L	94.6	0.01	2.0	0.3	L	4	RS	
JL6UMF	96.4	96.8	96.0	97.1				96.6	0.51	3.5	0.5	96.6	0.51	3.5	0.5	4	EM			
JWMBEM	93.0	97.6	L	93.1	92.7			94.1	-0.13	2.2	2.3	94.1	-0.13	2.2	2.3	4	LD			
LG9MER	92.1	96.8	98.2	97.0				96.0	0.36	3.2	2.7	96.0	0.36	3.2	2.7	4	TH			
LK4GCT	93.9	92.2	93.8	92.6				93.1	-0.38	2.7	0.8	93.1	-0.38	2.7	0.8	4	LD			
MPV3K8	67.8	XH	66.1	XH	67.8	XH	68.3	XH	67.5	-6.95	X	8.0	1.0	67.5	-6.95	X	8.0	1.0	4	LD
N2N9RA	94.2	94.6	95.6	91.8				94.0	-0.15	2.3	1.6	94.0	-0.15	2.3	1.6	4	LD			
NE9NVA	87.8	83.0	X	84.9	*	87.9		85.9	-2.23	*	3.4	2.4	85.9	-2.23	*	3.4	2.4	4	LD	
NEUYUH	98.8	100.0	*	98.1	99.9			99.2	1.18	3.3	0.9	99.2	1.18	3.3	0.9	4	LD			
PDGR7F	94.8	96.8	94.5	94.3				95.1	0.13	4.2	1.2	95.1	0.13	4.2	1.2	4	LD			
PGDDVX	96.5	94.5	99.6	96.3				96.7	0.54	3.4	2.1	96.7	0.54	3.4	2.1	4	LD			
PJKVVE	92.6	94.6	93.6	90.7				92.9	-0.45	2.4	1.6	92.9	-0.45	2.4	1.6	4	LZ			
PT9MH7	86.3	*	83.4	XH	84.7	*	86.4	*	85.2	-2.42	*	5.2	1.4	85.2	-2.42	*	5.2	1.4	4	EM
PW8Z4B	98.4	L	98.1	L	97.7	L	97.9	L	98.0	0.88	0.5	0.3	L	98.0	0.88	0.5	0.3	L	4	MZ
RPZD3K	94.7	98.1	98.4	96.0				96.8	0.56	2.5	1.8	96.8	0.56	2.5	1.8	4	LD			
RWGUUV	102.0	107.4	XH	97.4	102.6	L		102.4	1.99	*	4.1	4.1	102.4	1.99	*	4.1	4.1	4	LX	
TMRKMD	96.0	95.3	95.2	97.9				96.1	0.38	2.9	1.3	96.1	0.38	2.9	1.3	4	LD			
TTEBA9	96.5	99.0	97.3	102.0				98.7	1.05	3.3	2.4	98.7	1.05	3.3	2.4	4	MB			
UM77WE	99.4	98.8	97.5	99.4	L			98.8	1.06	3.0	0.9	98.8	1.06	3.0	0.9	4	LD			



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

Report #649
October 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
UTUURK	102.7 *	94.5	102.1	95.5	98.7	1.05	2.2	4.3	98.7	1.05	2.2	4.3	4	TU
VJY9YQ	88.5	90.3 *	91.2	85.2 *	88.8	-1.49	3.2	2.6	88.8	-1.49	3.2	2.6	4	LC
VVDD42	90.5	93.1 H	92.6	89.6	91.5	-0.81	5.2	1.7	91.5	-0.81	5.2	1.7	4	TU
WE2928	96.5	95.5	96.3	97.0	96.3	0.44	2.7	0.6	96.3	0.44	2.7	0.6	4	LD
WXGH39	96.1	96.8	92.7	98.7	96.1	0.37	3.1	2.5	96.1	0.37	3.1	2.5	4	LD
WY9ER2	97.6	95.3	94.9	100.3	97.0	0.62	2.8	2.5	97.0	0.62	2.8	2.5	4	TX
XXAQNW	91.5	96.9	93.3	95.6	94.3	-0.08	2.8	2.4	94.3	-0.08	2.8	2.4	4	LC
Y6QQGE	91.3 L	92.5	92.5	91.6	92.0	-0.68	3.0	0.6	92.0	-0.68	3.0	0.6	4	LD
ZZC9YX	95.9	92.6	95.6	97.5	95.4	0.20	3.4	2.0	95.4	0.20	3.4	2.0	4	LC

Consensus (All Labs) Results														
Wk Mean	94.33	95.48	94.68	94.97	Month Mean	94.60			Grand Mean	94.60				
Avg SDr	4.03	2.99	4.09	4.05	Avg SD	4.04			Avg SD	4.04				
SD btwn Labs	4.11	2.36	3.91	4.35	SD btwn Labs	3.90			SD btwn Labs	3.90				
Labs Incl	42	37	43	43	SD btwn Wks	2.58			SD btwn Wks	2.58				
Labs Excl	2	7	1	1	Labs Incl	43			Labs Incl	43				
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)
RS	Regmed Digital Crush Tester CT-2000	TH	TMI Compression Tester, Model 17-76
TU	TMI Universal Crush Tester (TMI K440)	TX	TMI Digital Crush Tester (model not specified)



Containerboard Interlaboratory Testing Program

Analysis 217

Report #649

October 2023

Ring Crush, 35 lb Linerboard - 35E3

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	
24RZN6	81.7	81.7	80.1	82.1	81.4	-0.24	3.6	0.9	80.3	-0.51	3.7	1.3	12	EN
27VV89	82.5	82.3	83.3	85.5	83.4	0.48	2.2	1.4	83.4	0.46	2.2	1.4	4	LZ
2CL99W	79.4	78.7	81.9	81.0	80.2	-0.64	4.5	1.5	80.2	-0.53	4.0	2.1	12	LD
2UG2UU	69.8 X	68.6 X	69.8 *	69.3 XH	69.4	-4.51 X	4.6	0.6	73.6	-2.59 *	5.3	3.9	12	LD
46A498	81.3	81.2	83.6	80.6	81.7	-0.13	4.0	1.3	83.1	0.38	4.5	1.6	12	LC
68U8G6	85.5	86.0	85.5	84.1	85.3	1.14	2.9	0.8	87.2	1.63	3.0	2.1	12	LD
8AXMZF	86.8	89.4 *	88.3 L	85.1 H	87.4	1.90	4.1	1.9	87.8	1.83	4.2	4.1	12	TU
8E83A6	80.3	80.9	80.6 L	80.8	80.7	-0.50	1.7	0.3 L	80.6	-0.43	1.7	0.3 L	12	MB
8WMAL2	82.9	81.7	83.3	82.9	82.7	0.23	2.8	0.7	82.5	0.16	2.8	1.2	12	LD
8YEBP4	95.3 X	94.2 X	96.8 X	97.9 XH	96.0	4.97 X	5.4	1.6	79.7	-0.69	12.0	12.2 H	12	LB
9A7GXR	76.4 *	75.3 *	73.9	73.6 X	74.8	-2.59 *	2.4	1.3	75.0	-2.15 *	2.3	1.2	12	LD
9TLNAN	82.6 L	84.5 L	84.5 L	85.1 L	84.2	0.75	0.5	1.1	84.4	0.77	0.5	1.1	12	TH
AR8NMD	82.3	82.7	83.5	81.3	82.4	0.13	3.6	0.9	82.4	0.13	3.4	1.3	12	LG
BCMM9Y	80.6	80.3	79.3	79.1	79.8	-0.80	3.2	0.7	81.6	-0.12	2.9	1.6	12	LD
E2EPDU	89.2 *	85.8	85.4	63.8 XH	81.1	-0.35	6.4	11.6 H	84.5	0.80	5.2	6.9	12	LZ
GX976D	81.8	79.4	82.0 H	84.4	81.9	-0.05	4.9	2.0	83.3	0.43	4.9	2.1	12	MB
JGY2TK	82.4	80.9	81.8	80.2 L	81.3	-0.25	2.2	1.0	80.4	-0.46	3.5	1.7	12	RS
JL6UMF	83.3	82.4	83.6	82.7	83.0	0.33	3.3	0.5	82.0	0.01	3.4	1.2	12	EM
JWMBEM	79.9 L	84.5	81.3	81.0	81.7	-0.14	2.7	2.0	81.8	-0.04	3.0	1.3	12	LD
LG9MER	79.6	81.9	81.3	82.8	81.4	-0.23	2.6	1.3	81.0	-0.30	3.2	1.6	12	TH
LK4GCT	78.9	79.7	82.5	81.5	80.7	-0.49	2.8	1.7	81.8	-0.04	3.2	2.1	12	LD
MPV3K8	59.0 XH	60.0 XH	59.1 XH	61.4 XH	59.9	-7.88 X	7.4	1.1	59.1	-7.11 X	7.6	1.2	8	LD
N2N9RA	80.2	80.4	79.2	78.8	79.7	-0.85	3.3	0.7	81.5	-0.13	3.6	1.7	12	LD
NE9NVA	77.6	72.6 X	73.3	77.2 *	75.2	-2.44 *	3.8	2.6	75.9	-1.88	4.0	2.6	8	LD
NEUYUH	83.1	84.1	88.2 H	88.2 *	85.9	1.37	4.2	2.7	84.2	0.70	3.6	3.4	12	LD
PDGR7F	79.7	79.8	79.0 H	80.0 H	79.6	-0.86	6.0	0.4 L	79.1	-0.88	5.3	3.1	12	LC
PGDDVX	85.7	81.8	88.4	87.8 *	85.9	1.38	4.0	3.0	83.1	0.36	3.5	5.5	12	LC
PJKVVE	85.6	82.8	81.6	77.8	81.9	-0.05	3.4	3.2	81.9	-0.01	3.4	3.2	4	LZ
PT9MH7	68.6 X	67.3 X	70.3 *	68.5 X	68.7	-4.76 X	4.2	1.2	71.9	-3.11 X	4.0	2.9	12	EM
PW8Z4B	83.1 L	85.4 L	84.5 L	85.6 L	84.7	0.93	0.5	1.1	84.7	0.87	0.5	0.9 L	12	XX
RPZD3K	84.5	83.3	82.8	85.5	84.0	0.71	3.2	1.2	82.9	0.31	3.7	2.2	12	LD
RWGUUV	83.0	82.9 H	90.1	86.5	85.6	1.27	5.5	3.4	85.5	1.11	5.3	4.2	12	LX
TMRKMD	78.8	86.1 L	81.4	84.1	82.6	0.19	2.6	3.2	82.0	0.03	3.5	2.7	12	LD
TTEBA9	73.1 XH	85.6	86.7	83.7	82.3	0.08	11.7	6.2 H	89.6	2.40 *	7.2	9.1 H	12	MB
UM77WE	85.4	84.8	83.2	84.9	84.6	0.90	2.9	0.9	85.9	1.22	2.6	2.7	12	LD



Containerboard Interlaboratory Testing Program

Analysis 217

Report #649

October 2023

Ring Crush, 35 lb Linerboard - 35E3

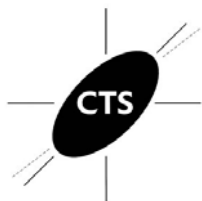
TAPPI Official Test Method T822

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
UTUURK	88.5 *	80.4	89.3	80.6	84.7	0.94	2.9	4.9	82.3	0.13	2.4	3.3	12	TU
VJY9YQ	71.7 X	74.2 *	69.7 *	71.0 X	71.7	-3.70 X	4.5	1.9	76.8	-1.59	4.2	5.2	12	LC
VVDD42	75.9 *H	75.7 *H	76.1	71.2 X	74.7	-2.61 *	5.2	2.4	76.4	-1.73	5.5	4.2	12	TU
WE2928	82.1 H	82.7	84.8	82.6	83.1	0.36	4.3	1.2	83.3	0.42	4.6	2.6	12	LD
WXGH39	82.2	81.0	77.5	82.2	80.7	-0.47	3.8	2.2	81.7	-0.09	3.9	3.2	12	LD
WY9ER2	85.1	80.6	80.1	85.2	82.8	0.25	3.3	2.8	81.4	-0.17	3.5	2.6	12	TX
XXAQNW	84.0	83.6	84.0	83.3	83.7	0.59	3.1	0.4 L	83.5	0.49	3.3	0.7 L	9	LC
Y6QQGE	83.3	82.1	80.3	80.8	81.6	-0.16	3.1	1.4	81.8	-0.05	2.8	1.1	12	LD
ZZC9YX	82.8	82.6	79.2	82.9	81.9	-0.07	3.6	1.8	81.1	-0.25	3.6	1.7	12	LC

Consensus (All Labs) Results														
Wk Mean	82.31	82.03	81.55	82.71	Month Mean	82.05			Grand Mean	81.93				
Avg SDr	3.34	3.86	3.57	3.37	Avg SD	4.03			Avg SD	4.18				
SD btwn Labs	3.00	3.01	4.92	2.66	SD btwn Labs	2.81			SD btwn Labs	3.21				
Labs Incd	38	39	42	36	SD btwn Wks	2.83			SD btwn Wks	3.60				
Labs Exclcd	6	5	2	8	Labs Incd	39			Labs Incd	42				
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	RS	Regmed Digital Crush Tester CT-2000
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 #649

October 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	
24RZN6	22.6	21.9	22.3	21.3 *	22.0	-1.79	1.6	0.6	22.0	-1.79	1.6	0.6	4	LY
2CL99W	22.8	24.5	24.9	24.5	24.2	0.34	2.0	0.9	24.2	0.34	2.0	0.9	4	LH
3KAJWV	24.2	23.5	22.9	22.9	23.4	-0.44	1.6	0.6	23.4	-0.44	1.6	0.6	4	LH
3RQYLK	24.8	24.7	24.4	23.9	24.5	0.62	1.9	0.4	24.5	0.62	1.9	0.4	4	LH
46A498	25.3	No DATA	No DATA	24.9	25.1	1.26	1.4	0.3	25.1	1.26	1.4	0.3	2	LU
68U8G6	25.5	25.4	25.4	24.7	25.2	1.39	1.7	0.3	25.2	1.39	1.7	0.3	4	LH
6MM3TV	22.9 H	24.8	23.5	23.1	23.6	-0.23	2.1	0.9	23.6	-0.23	2.1	0.9	4	XX
8AXMZF	24.7	24.7	25.0	25.1	24.9	1.04	1.8	0.2	24.9	1.04	1.8	0.2	4	LA
8WMAL2	23.4 H	24.6	22.9	23.9	23.7	-0.16	3.1	0.7	23.7	-0.16	3.1	0.7	4	LA
8YEBP4	24.1 H	24.0	24.5	25.6	24.6	0.74	2.4	0.7	24.6	0.74	2.4	0.7	4	LH
9B6JMW_AL	22.5	23.8	23.8 H	23.0	23.3	-0.56	2.0	0.6	23.3	-0.56	2.0	0.6	4	AL
9TLNAN	26.0 *L	26.9 *L	26.0 *L	27.1 XL	26.5	2.66 *	0.4	0.6	26.5	2.66 *	0.4	0.6	4	LZ
AMAZ9R	24.0	23.9	23.2	23.5	23.7	-0.17	1.7	0.4	23.7	-0.17	1.7	0.4	4	XX
AQAB6R	25.0	25.1	25.4	24.9	25.1	1.25	1.3	0.2	25.1	1.25	1.3	0.2	4	LH
AR8NMD	24.8	24.3	24.1	23.4	24.2	0.32	2.0	0.6	24.2	0.32	2.0	0.6	4	BK
BCMM9Y_AI	23.2	23.7	23.2	23.5	23.4	-0.42	1.9	0.3	23.4	-0.42	1.9	0.3	4	XX
BMU3GR_AL	24.0	23.0	23.3	24.4	23.7	-0.15	1.8	0.6	23.7	-0.15	1.8	0.6	4	AL
BPUBK3	23.8	23.6	25.0 L	25.0	24.3	0.50	1.8	0.7	24.3	0.50	1.8	0.7	4	LA
BV3RUQ	22.3	21.5	22.6	22.1 H	22.1	-1.67	2.1	0.4	22.1	-1.67	2.1	0.4	4	LU
BVKLV2	24.8	No DATA	No DATA	25.0	24.9	1.06	2.0	0.2	24.9	1.06	2.0	0.2	2	LU
CH8ZMR_AL	26.4 *L	26.0	24.5	24.9	25.4	1.61	1.2	0.9	25.4	1.61	1.2	0.9	4	XX
CWPTDJ	24.1 H	23.9 H	23.9 H	23.7	23.9	0.06	2.6	0.2	23.9	0.06	2.6	0.2	4	LY
E2EPDU_AL	23.6	23.1	23.6	23.4	23.4	-0.39	1.6	0.2	23.4	-0.39	1.6	0.2	4	AL
G8YQ9P	23.1	22.4	23.1	No DATA	22.9	-0.94	1.7	0.4	22.9	-0.94	1.7	0.4	3	LY
G8YQ9P_AL	22.3	21.1 *L	21.6	* No DATA	21.7	-2.15 *	1.3	0.6	21.7	-2.15 *	1.3	0.6	3	AL
GX976D	24.3 L	24.0	23.0	22.9	23.6	-0.27	1.9	0.7	23.6	-0.27	1.9	0.7	4	LA
GXQ2ME	21.1 *	21.6	17.4 X	21.7	20.5	-3.35 X	2.0	2.0 H	20.5	-3.35 X	2.0	2.0 H	4	LH
JWMBEM	24.1	23.9	23.2	23.3	23.6	-0.19	1.6	0.4	23.6	-0.19	1.6	0.4	4	LU
KPJNZR	22.1	22.7	22.6	23.1	22.6	-1.19	1.7	0.4	22.6	-1.19	1.7	0.4	4	XX
L8H4ZJ	24.1	25.1	25.8 *	25.3	25.1	1.24	1.8	0.7	25.1	1.24	1.8	0.7	4	LU
LK4GCT	23.5	22.8	23.5	23.8	23.4	-0.46	1.6	0.4	23.4	-0.46	1.6	0.4	4	LA
MMT6AE	24.1	23.8	24.2	23.9	24.0	0.18	1.9	0.2	24.0	0.18	1.9	0.2	4	LZ
MPV3K8	22.1	22.1	21.9	22.2	22.1	-1.73	2.0	0.1	22.1	-1.73	2.0	0.1	4	LY
MPV3K8_AL	23.9	24.5	23.5	23.5	23.8	0.00	1.7	0.5	23.8	0.00	1.7	0.5	4	AL
MWVPBL	23.2	22.8	23.2	23.0	23.1	-0.75	2.0	0.2	23.1	-0.75	2.0	0.2	4	LY



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

Report #649
October 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
N2N9RA	22.7	23.0	23.3	22.9	22.9	-0.87	1.8	0.2	22.9	-0.87	1.8	0.2	4	LZ
NE9NVA	21.5 *	20.7 *	19.9 X	21.1 *	20.8	-3.02 X	1.6	0.7	20.8	-3.02 X	1.6	0.7	4	LZ
NE9NVA_AI	46.7 XL	44.6 XL	43.8 XL	43.4 XL	44.6	20.69 X	0.0	1.5 H	44.6	20.69 X	0.0	1.5 H	4	AL
PDGR7F	24.8	23.8	23.7	23.7	24.0	0.16	2.1	0.5	24.0	0.16	2.1	0.5	4	LW
PGDDVX	25.2	24.2	23.6	24.0	24.3	0.44	2.0	0.7	24.3	0.44	2.0	0.7	4	LU
PJKVVE	25.2	25.8	24.3	23.0 L	24.6	0.72	1.7	1.2	24.6	0.72	1.7	1.2	4	LA
PW8Z4B	26.1 *L	26.7 *L	26.1 *L	26.8 *L	26.4	2.58 *	0.4	0.3	26.4	2.58 *	0.4	0.3	4	LZ
QL7Z4C	22.6 L	21.7	22.0	22.7	22.3	-1.57	1.4	0.5	22.3	-1.57	1.4	0.5	4	LH
QY7XR9	24.9	24.7	25.0	23.4	24.5	0.67	2.1	0.7	24.5	0.67	2.1	0.7	4	LH
RCVUQL_AI	24.2	25.8	24.9	26.1 *	25.3	1.42	1.9	0.8	25.3	1.42	1.9	0.8	4	AL
RPZD3K	24.3	24.5	24.0	24.3	24.3	0.45	1.7	0.2	24.3	0.45	1.7	0.2	4	LY
RWGUUV	24.0	No DATA	19.7 XH	24.6	22.8	-1.03	1.9	2.7 H	22.8	-1.03	1.9	2.7 H	3	LZ
TMRKMD_AI	23.9 L	23.4	23.3	22.7	23.3	-0.51	1.7	0.5	23.3	-0.51	1.7	0.5	4	AL
TTEBA9	23.4 L	24.0	23.4	24.0	23.7	-0.14	1.3	0.4	23.7	-0.14	1.3	0.4	4	LA
U94MD3_AI	24.6	30.0 X	28.3 X	29.1 X	28.0	4.15 X	2.1	2.4 H	28.0	4.15 X	2.1	2.4 H	4	AL
UM77WE_AI	24.2	24.2	22.9	23.8 H	23.8	-0.07	2.1	0.6	23.8	-0.07	2.1	0.6	4	AL
UTUURK	461.5 X	444.7 X	431.3 X	453.6 X	447.8	421.65 X	1.9	13.0 H	447.8	421.65 X	1.9	13.0 H	4	XX
UW7WDF	23.9	23.9	23.5	No DATA	23.8	-0.06	1.7	0.3	23.8	-0.06	1.7	0.3	3	LU
UW7WDF_AI	23.5 L	23.0	23.5	No DATA	23.3	-0.49	1.2	0.3	23.3	-0.49	1.2	0.3	3	AL
VJY9YQ	24.0	23.9	23.5	23.4	23.7	-0.13	1.7	0.3	23.7	-0.13	1.7	0.3	4	LA
VVDD42	23.7	23.0	22.8	22.5	23.0	-0.82	1.7	0.5	23.0	-0.82	1.7	0.5	4	TT
VVVFAD	23.0	23.0	22.7	22.4	22.7	-1.07	1.9	0.3	22.7	-1.07	1.9	0.3	4	LW
WE2928	23.7	23.6	23.2	24.1 L	23.6	-0.21	1.6	0.4	23.6	-0.21	1.6	0.4	4	LA
WXGH39_AI	24.0	24.1 L	24.3	24.8	24.3	0.47	1.4	0.4	24.3	0.47	1.4	0.4	4	AL
XXAQNW	23.2	23.4	23.4	23.0	23.3	-0.56	1.7	0.2	23.3	-0.56	1.7	0.2	4	LU
YVYBRB	23.3	23.0	24.6	24.5 H	23.8	0.02	2.3	0.8	23.8	0.02	2.3	0.8	4	LH

Consensus (All Labs) Results														
Wk Mean	23.83	23.76	23.73	23.72	Month Mean	23.83				Grand Mean	23.83			
Avg SDr	1.90	1.72	1.74	1.86	Avg SD	1.80				Avg SD	1.80			
SD btwn Labs	1.09	1.29	1.02	1.14	SD btwn Labs	1.01				SD btwn Labs	1.01			
Labs Incl	59	55	53	53	SD btwn Wks	0.64				SD btwn Wks	0.64			
Labs Excl	2	3	6	4	Labs Incl	56				Labs Incl	56			
Labs not Rcvd	0	3	2	4										



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

Report #649
October 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)
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E3

TAPPI Official Test Method T826

Report #649

October 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	
24RZN6	21.7	20.6 *	21.2 L	21.0 *	21.1	-2.07 *	1.4	0.4	21.0	-3.14 X	1.7	0.3	12	LY
2CL99W	23.2	24.7	23.6	24.5	24.0	0.37	1.3	0.7	24.1	0.71	1.1	0.8	12	LH
3KAJWV	22.8	23.3	22.7	22.8	22.9	-0.56	1.5	0.3	23.2	-0.42	1.6	0.6	12	LH
3RQYLK	24.3	23.3	24.8	23.6	24.0	0.35	1.8	0.7	24.4	1.14	1.9	0.8	12	LH
46A498	26.0 *	No DATA	No DATA	25.5	25.8	1.82	1.7	0.4	24.6	1.35	2.4	1.1	6	LU
68U8G6	25.0	24.4	24.8	24.0	24.5	0.79	1.9	0.4	24.7	1.53	1.7	0.5	12	LH
6MM3TV	24.0	26.4 *	24.8	24.8	25.0	1.18	1.7	1.0	25.0	1.84	1.7	1.0	4	XX
8AXMZF	22.1	25.4	25.5	24.2	24.3	0.60	1.8	1.6	23.4	-0.10	1.7	1.8	12	LA
8WMAL2	23.8	23.1	23.1 L	23.2	23.3	-0.23	1.5	0.4	23.5	0.04	1.6	0.4	12	LW
8YEBP4	24.6	24.4	25.2	24.9	24.8	1.00	2.0	0.4	24.0	0.59	2.0	0.9	12	LH
9B6JMW_AL	22.0	24.0	23.9	23.4	23.3	-0.22	1.5	0.9	23.0	-0.66	1.4	0.8	12	XX
9TLNAN	23.9 L	24.4 L	24.1 L	24.3 L	24.2	0.49	0.3	0.2	24.1	0.69	0.4	0.7	12	LZ
AMAZ9R	24.4	24.3	24.7	24.2	24.4	0.69	1.6	0.2	23.9	0.52	1.6	0.5	12	XX
AQAB6R	25.2	24.6	25.4	25.7	25.2	1.38	1.3	0.5	25.1	1.94 *	1.4	0.3	12	LH
AR8NMD	23.5	23.3	23.3	23.0	23.3	-0.27	1.6	0.2	23.6	0.07	1.7	0.5	12	LW
BCMM9Y_AI	22.5	23.2 H	22.7	23.6	23.0	-0.51	2.0	0.5	23.3	-0.23	1.8	0.4	12	XX
BMU3GR_AL	23.5	24.3	24.3	23.4	23.9	0.25	1.7	0.5	23.9	0.45	1.8	0.8	12	AL
BPUBK3	22.3	24.1	22.2	23.2	22.9	-0.56	1.8	0.9	22.9	-0.72	1.7	0.7	12	LA
BV3RUQ	22.4	21.8	22.1	23.0	22.3	-1.06	1.6	0.5	22.3	-1.47	1.6	0.4	12	LU
BVKLV2	26.6 *	No DATA	No DATA	25.9	26.3	2.24 *	2.1	0.5	23.3	-0.32	1.8	1.9	9	LU
CH8ZMR_AL	25.6	25.9 H	25.3	25.2	25.5	1.61	1.9	0.3	24.6	1.42	2.0	0.7	12	XX
CWPTDJ	22.2 H	22.5	22.8	22.2 H	22.4	-0.97	2.4	0.3	22.4	-1.32	2.4	0.6	12	LY
E2EPDU_AL	32.7 X	23.5	23.9	22.9 L	25.7	1.81	1.6	4.6 H	23.4	-0.12	1.4	3.0 H	12	XX
G8YQ9P	23.3	21.9	21.7	No DATA	22.3	-1.08	1.6	0.9	22.8	-0.91	1.9	1.0	7	LU
G8YQ9P_AL	23.2	21.7	21.5	No DATA	22.1	-1.21	1.3	0.9	22.2	-1.61	1.7	0.6	7	AL
GX976D	22.6	23.9	23.4	22.8	23.2	-0.36	1.6	0.6	23.2	-0.38	1.7	0.4	8	LA
GXQ2ME	20.6 *	19.8 *	16.5 X	21.7 H	19.7	-3.28 X	2.1	2.2 H	20.4	-3.88 X	2.1	1.8	7	LH
JWMBEM	23.1	23.5	23.1	22.6	23.1	-0.44	1.6	0.3	23.1	-0.57	1.8	0.5	12	LU
KPJNZR	22.8	22.0	21.9	22.5	22.3	-1.07	1.5	0.4	22.4	-1.38	1.5	0.6	12	XX
L8H4ZJ	24.9	25.2	25.2	25.3	25.2	1.32	2.3	0.2 L	25.0	1.81	1.9	0.4	12	LU
LK4GCT	22.6	22.7	24.0	23.2	23.2	-0.35	1.7	0.6	23.4	-0.09	1.8	0.6	12	LA
MMT6AE	23.2	22.9	23.1	22.8	23.0	-0.48	2.0	0.2	23.5	-0.06	1.9	0.4	12	LA
MPV3K8	22.0	21.9	21.8 H	22.1	22.0	-1.36	2.1	0.1 L	22.0	-1.84	2.0	0.2 L	8	LY
MPV3K8_AL	22.9	23.1	23.0	23.4	23.1	-0.41	1.9	0.2	23.1	-0.50	1.8	0.2 L	8	AL
MWVPBL	23.5	23.7	24.2	22.8	23.5	-0.04	1.9	0.6	22.5	-1.31	1.7	1.0	12	LU



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

Report #649
October 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	
N2N9RA	22.9	22.4	23.6	23.2	23.0	-0.47	1.4	0.5	22.9	-0.80	1.7	0.5	12	LZ
NE9NVA	22.0	20.0 *	19.6 X	20.4 *	20.5	-2.59 *	1.3	1.0	20.8	-3.33 X	1.5	0.9	8	LZ
NE9NVA_AI	34.3 XL	31.5 XL	30.2 XL	32.5 XL	32.1	7.16 X	0.0	1.7	32.3	11.04 X	0.0	1.4	8	AL
PDGR7F	23.3	21.8	23.3 H	24.5	23.2	-0.30	2.3	1.1	23.5	-0.06	2.1	0.7	12	LW
PGDDVX	25.6	24.1	24.4	24.3	24.6	0.84	1.9	0.7	23.1	-0.50	1.9	1.5	12	LW
PJKVVE	23.9 H	23.9	25.2 H	24.5	24.4	0.65	2.2	0.6	24.4	1.06	2.2	0.6	4	LA
PW8Z4B	24.1 L	24.5 L	24.6 L	24.3 L	24.4	0.67	0.3	0.2	24.4	1.08	0.4	0.9	12	LZ
QL7Z4C	22.3	22.1	21.6	22.8	22.2	-1.16	1.4	0.5	22.5	-1.32	1.5	0.5	12	LH
QY7XR9	25.0	25.6 H	25.0	23.7	24.8	1.04	2.1	0.8	24.4	1.17	2.0	0.7	12	LH
RCVUQL_AI	25.3	25.7	25.6	25.7	25.6	1.70	1.9	0.2	25.2	2.12 *	2.0	0.6	12	AL
RPZD3K	22.6	23.9	23.9	23.3	23.4	-0.15	2.0	0.6	23.0	-0.68	1.8	0.7	12	LY
RWGUUV	25.5 H	No DATA	19.2 X	23.8	22.8	-0.63	2.2	3.3 H	24.5	1.28	2.3	5.3 H	10	LZ
TMRKMD_AI	22.4	24.1	24.0 L	23.0	23.4	-0.16	1.5	0.8	23.2	-0.43	1.6	1.0	12	AL
TTEBA9	24.3	23.1	25.1	23.5	24.0	0.34	1.4	0.9	24.0	0.58	1.9	1.3	12	LA
U94MD3_AI	25.4	29.7 X	29.1 X	29.0 X	28.3	3.96 X	2.3	2.0	28.2	5.80 X	2.1	1.3	8	XX
UM77WE_AI	22.8 L	23.0	22.9	24.2	23.2	-0.30	1.5	0.7	23.4	-0.10	1.5	0.6	12	AL
UTUURK	427.5XL	409.9XH	414.7 X	391.1 XH	410.8	324.6 X	2.7	15.1 H	150.6	158.67X	2.2	192.3H	12	XX
UW7WDF	24.5	23.2	24.6	No DATA	24.1	0.44	1.9	0.8	23.7	0.27	1.9	0.5	10	LU
UW7WDF_AI	22.9 L	23.4	23.8	No DATA	23.4	-0.17	1.5	0.4	22.9	-0.71	1.4	0.7	10	AL
VJY9YQ	24.2 L	24.5	25.3	23.8	24.5	0.73	1.5	0.6	23.3	-0.28	1.5	1.0	12	LA
VVDD42	22.6	22.9 H	22.1	22.2	22.5	-0.94	2.1	0.4	22.6	-1.12	2.0	0.6	12	TT
VVFFVAD	22.4	21.8	22.4 L	23.1	22.4	-1.00	1.7	0.5	22.8	-0.91	1.8	0.6	12	LW
WE2928	23.5	21.6	21.1 *	20.8 *	21.8	-1.53	1.8	1.2	22.7	-0.96	2.0	1.2	12	LA
WXGH39_AI	22.9	23.8	23.9	24.8	23.9	0.24	1.6	0.8	23.6	0.12	1.7	0.5	12	AK
XXAQNW	23.3	22.6	23.4	23.7	23.2	-0.30	1.6	0.5	23.0	-0.60	1.7	0.4	9	LU
YVYBRB	23.7 H	24.0	23.3	25.2	24.0	0.38	2.0	0.8	24.0	0.66	2.7	1.3	12	LH

Consensus (All Labs) Results									
Wk Mean	23.51	23.37	23.63	23.56	Month Mean	23.58	Grand Mean	23.50	
Avg SDr	1.75	1.75	1.71	1.77	Avg SD	1.74	Avg SD	1.79	
SD btwn Labs	1.24	1.39	1.25	1.21	SD btwn Labs	1.19	SD btwn Labs	0.80	
Labs Incl	58	55	53	54	SD btwn Wks	0.98	SD btwn Wks	1.15	
Labs Excl	3	3	6	3	Labs Incl	57	Labs Incl	55	
Labs not Rcvd	0	3	2	4					



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

Report #649
October 2023

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	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)
TT	TMI Short Span Compression, 17-34 (MB K455)	XX	Instrument make/model not specified by lab



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

Report #649
October 2023

WebCode	Monthly Results				Cumulative Results				Inst
	Mean	CPV	SD		Mean	CPV	SD Months	Months	
24RZN6	145.1	0.21	9.58		147.6	0.28	6.29	4	EV
46A498	145.1	0.21	27.00		136.1	-0.52	11.48	4	EV
6LV742	121.6	-1.15	16.59		129.3	-1.00	5.88	4	LS
6MM3TV	148.7	0.42	13.05		144.1	0.04	6.51	2	XX
8AXMZP	166.7	1.46	15.74		160.4	1.18	8.10	4	LA
8WMAL2	139.0	-0.14	19.61		136.8	-0.48	2.26	4	LA
9B6JMW_AL	112.6	-1.67	13.51		125.3	-1.28	12.32	4	AL
BMU3GR_AL	171.1	1.71	27.77		150.6	0.49	16.11	4	AL
BVKLV2	163.7	1.28	17.41		154.9	0.79	14.36	4	EV
CH8ZMR_AL	161.7	1.17	18.99		157.9	1.00	3.27	3	AL
E2EPDU_AL	125.0	-0.95	37.05	H	127.1	-1.15	23.01	4	AL
G8YQ9P_AL	130.7	-0.62	12.69		127.3	-1.14	7.15	4	AL
GX976D	130.9	-0.61	23.29		152.7	0.64	17.17	4	LA
JWMBEM	144.6	0.18	9.15		152.9	0.65	5.75	4	EV
MMT6AE	139.8	-0.10	22.60		140.2	-0.24	1.17	L 4	LS
MPV3K8	144.1	0.15	10.31		155.6	0.84	22.06	3	XX
MPV3K8_AL	141.8	0.02	19.11		141.8	-0.13	0.00	1	AL
N2N9RA	142.2	0.04	13.19		137.4	-0.43	6.79	2	LS
NE9NVA	0.3	-8.15	X 0.02	L	59.5	-5.89	X 102.55	H 3	LA
NE9NVA_AL	136.6	-0.28	17.62		150.0	0.45	26.37	H 3	AL
PDGR7F	131.1	-0.60	11.08		128.9	-1.03	3.57	4	XX
QY7XR9	129.9	-0.67	10.85		134.2	-0.66	2.92	4	EV
RCVUQL_AL	119.0	-1.30	12.64		122.5	-1.48	9.21	4	AL
RPZD3K	151.9	0.60	12.34		150.2	0.46	2.88	4	EV
TTEBA9	161.0	1.13	15.08		168.7	1.76	15.84	4	LA
U94MD3_AL	167.4	1.50	23.65		164.9	1.49	14.38	4	AL
UW7WDF_AL	124.3	-0.99	16.27		121.2	-1.57	5.08	3	AL
VJY9YQ	149.8	0.48	15.55		153.2	0.67	13.72	3	EV
WE2928	120.9	-1.19	13.22		124.5	-1.34	14.17	4	LA
WXGH39	168.2	1.54	13.36		168.2	1.72	0.00	1	LS
YVYBRB	109.7	-1.83	12.58		191.0	3.32	X 54.98	H 4	LS

Consensus (All Labs) Results			
Month Mean	141.48	Grand Mean	143.60
Avg SD	17.80	Avg SD Months	12.28
SD btwn Labs	17.32	SD btwn Labs	14.28
Labs Incl	30	Labs Incl	29



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

Report #649
October 2023

Key to Instrument Codes Reported by Participants

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



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

Report #649
October 2023

WebCode	Monthly Results				Cumulative Results				
	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
8YEBP4	28.5	-36.42 X	0.21	L	28.5	-36.42 X	0.00	1	LA
BCMM9Y_AL	384.4	1.47	4.96	L	384.4	1.47	0.00	1	XX
BMU3GR_AL	365.1	-0.58	6.38		365.1	-0.58	0.00	1	AL
BPUBK3	377.9	0.79	9.39		377.9	0.79	0.00	1	XX
CH8ZMR_AL	375.2	0.50	4.57	L	375.2	0.50	0.00	1	XX
G8YQ9P_AL	358.9	-1.24	6.56		358.9	-1.24	0.00	1	AL
MPV3K8_AL	363.4	-0.76	9.17		363.4	-0.76	0.00	1	AL
N2N9RA	378.2	0.82	9.48		378.2	0.82	0.00	1	XX
NE9NVA_AL	360.9	-1.02	6.98		360.9	-1.02	0.00	1	AL
PT9MH7	356.4	-1.51	33.20	H	356.4	-1.51	0.00	1	TS
RCVUQL_AL	363.1	-0.79	7.37		363.1	-0.79	0.00	1	AL
TMRKMD_AL	374.9	0.47	10.65		374.9	0.47	0.00	1	AL
UM77WE_AL	374.1	0.38	10.30		374.1	0.38	0.00	1	AL
WGT6Q2	385.5	1.60	4.28	L	385.5	1.60	0.00	1	TS
WXGH39_AL	363.3	-0.77	6.16		363.3	-0.77	0.00	1	AL
XXAQNW	376.6	0.65	8.80		376.6	0.65	0.00	1	XX

Consensus (All Labs) Results			
Month Mean	370.52	Grand Mean	370.52
Avg SD	11.40	Avg SD Months	0.00
SD btwn Labs	9.39	SD btwn Labs	9.39
Labs Incl	15	Labs Incl	15

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 #649
October 2023

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
46A498	112.2	-1.05	1.64	96.3	-2.20 *	11.94	4	TM
6LV742	145.0	0.99	8.75	147.4	1.13	6.59	4	HY
8WMAL2	158.0	1.80	9.14	150.6	1.34	9.68	4	HY
BCMM9Y	154.8	1.60	4.97	148.6	1.21	7.50	4	HY
BMU3GR	135.6	0.40	7.92	140.0	0.65	6.67	4	TM
BPUBK3	116.2	-0.80	4.66	108.9	-1.38	5.01	4	SC
BVKLV2	120.6	-0.53	8.53	126.6	-0.23	5.26	4	TM
E2EPDU	122.8	-0.39	6.61	120.0	-0.65	3.66	4	TM
FCCAQ8	117.3	-0.73	4.69	116.5	-0.88	2.88	4	SC
GXQ2ME	123.4	-0.35	9.34	137.7	0.50	12.90	4	HY
JWMBEM	128.8	-0.02	7.26	129.9	-0.01	2.79	4	TM
LK4GCT	130.2	0.07	6.30	126.2	-0.25	5.02	4	HZ
MPV3K8	121.0	-0.50	2.65	121.5	-0.56	1.94	3	TM
NNJMQ7	143.0	0.87	5.61	146.7	1.09	4.18	4	TM
QY7XR9	138.4	0.58	4.45	142.3	0.80	3.90	4	TM
RPZD3K	140.9	0.73	8.47	139.8	0.64	3.05	4	HZ
TMRKMD	131.2	0.13	5.76	125.8	-0.28	4.10	4	TM
UM77WE	144.8	0.98	2.49	148.2	1.19	7.39	4	LZ
VJY9YQ	121.6	-0.47	5.59	123.7	-0.41	1.98	4	TM
VVDD42	95.0	-2.12 *	5.11	121.0	-0.59	19.67 H	4	TM
WXGH39	115.2	-0.86	4.38	115.5	-0.95	1.43	4	TM
XLEH39	104.2	-1.55	4.44	109.2	-1.36	9.37	4	XX
XXAQNW	148.8	1.23	7.42	148.4	1.20	2.40	4	HY

Consensus (All Labs) Results			
Month Mean	129.09	Grand Mean	130.02
Avg SD	6.29	Avg SD Months	7.39
SD btwn Labs	16.07	SD btwn Labs	15.33
Labs Incl	23	Labs Incl	23

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	127.31	14.31	1.78	18
Modified Scott Bond Mechanics	150.55	6.76	21.46	3



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

Report #649
October 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 #649
October 2023

WebCode	Monthly Results			Cumulative Results			
	Mean	CPV	SD	Mean	CPV	SD Months	Months
24RZN6	32.5	1.33	3.97	30.2	0.96	1.62	4
2CL99W	29.8	0.53	3.11	28.1	-0.03	2.41	4
3MBQXL	26.0	-0.61	1.00	26.1	-0.99	0.53	4
46A498	31.6	1.07	1.85	30.0	0.86	3.07	4
4EZPCK	26.8	-0.37	1.64	26.7	-0.66	1.30	3
6LV742	28.4	0.11	1.52	28.1	0.00	0.31	L 3
8WMAL2	25.8	-0.67	3.27	27.9	-0.13	2.69	4
9B6JMW	26.4	-0.49	1.14	26.5	-0.77	1.72	4
BCMM9Y	28.2	0.05	1.48	29.0	0.39	1.40	4
BMU3GR	30.0	0.59	2.92	29.7	0.72	1.48	4
BPUBK3	22.6	-1.63	1.34	24.9	-1.55	2.16	4
BVKLV2	33.0	1.50	2.85	30.3	1.00	2.11	4
E2EPDU	28.4	0.10	1.10	31.4	1.56	2.36	4
GXQ2ME	24.0	-1.21	1.00	80.0	24.56	X 106.68	H 4
JWMBEM	22.0	-1.81	4.06	26.8	-0.65	4.39	4
L8H4ZJ	30.8	0.83	0.84	29.3	0.54	4.12	3
MMT6AE	26.6	-0.43	0.55	L 27.3	-0.42	0.50	4
MPV3K8	29.4	0.41	1.34	25.9	-1.04	3.84	3
N2N9RA	28.3	0.08	5.56	H 30.7	1.23	1.66	4
PDGR7F	30.8	0.83	4.82	29.0	0.41	1.92	4
QY7XR9	26.9	-0.35	1.15	29.6	0.68	2.07	4
RCVUQL	30.8	0.83	5.70	H 31.1	1.41	2.65	4
RPZD3K	34.5	1.95	* 3.52	27.0	-0.55	5.11	H 4
TTEBA9	28.2	0.05	1.64	28.7	0.26	0.71	4
U94MD3	26.0	-0.61	3.61	26.6	-0.71	0.68	4
UM77WE	28.9	0.26	0.89	28.4	0.11	1.60	4
UW7WDF	32.0	1.19	1.87	33.1	2.37	* 1.03	3
WXGH39	25.0	-0.91	1.87	25.1	-1.46	0.62	4
WY9ER2	28.9	0.26	6.05	H 26.3	-0.87	2.42	3
XXAQNW	24.2	-1.15	4.77	24.2	-1.86	2.35	4
YVYBRB	20.0	-2.41	* 1.58	21.3	-3.26	X 0.96	4
ZHQP4B	31.6	1.07	1.78	28.4	0.13	3.88	4
ZVFL4N	26.4	-0.49	1.82	26.2	-0.92	0.35	L 3



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

Report #649
October 2023

Consensus (All Labs) Results			
Month Mean	28.02	Grand Mean	28.13
Avg SD	2.92	Avg SD Months	2.38
SD btwn Labs	3.33	SD btwn Labs	2.11
Labs Incl	33	Labs Incl	31

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #649
October 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
27VV89	33.0	0.18	2.21	32.9	0.39	0.14	2	XX
2UG2UU	29.0	-2.12 *	3.20	27.3	-4.46 X	2.04 H	4	GG
3MBQXL	30.6	-1.19	3.64	31.5	-0.83	1.08	4	TD
46A498_AL	32.3	-0.23	1.89	32.8	0.34	0.90	4	AL
68U8G6	35.4	1.56	1.96	33.4	0.84	1.72	4	XX
6LV742	32.6	-0.04	1.21	32.1	-0.31	0.58	4	LP
6MM3TV	34.0	0.73	2.31	32.5	0.08	2.01	2	XX
8AXMZP	34.4	0.96	2.24	33.7	1.10	1.00	4	LA
8WMAL2	32.5	-0.11	2.17	33.3	0.71	0.54	4	LP
8YEBP4	4.6	-16.11 X	0.42 L	25.2	-6.24 X	13.82 H	4	LA
9B6JMW_AL	29.8	-1.65	2.37	30.5	-1.71	0.64	4	AL
BCMM9Y	31.5	-0.67	2.77	31.7	-0.63	1.01	4	TP
BCMM9Y_AL	32.1	-0.32	1.27	32.1	-0.32	0.53	4	XX
BMU3GR_AL	32.8	0.09	2.61	31.9	-0.47	0.90	4	AL
BVKLV2_AL	31.0	-0.96	1.93	32.2	-0.21	0.82	4	AL
CH8ZMR_AL	32.9	0.13	2.64	32.7	0.23	0.72	3	XX
DNFNZT	33.3	0.37	2.21	32.8	0.31	0.57	4	LP
E2EPDU_AL	31.5	-0.71	1.88	32.0	-0.39	0.97	3	AL
G8YQ9P_AL	35.0	1.32	1.57	33.8	1.21	0.83	4	AL
GX976D	32.5	-0.10	2.79	32.3	-0.16	0.86	4	LA
JACB7P	32.0	-0.42	1.51	31.4	-0.91	1.08	4	LP
JWMBEM	34.6	1.11	4.54 H	33.6	1.00	0.78	4	GA
L8H4ZJ	35.0	1.35	3.48	34.4	1.70	0.73	3	GG
MMT6AE	32.6	-0.03	1.54	32.2	-0.18	0.36	4	LP
MPV3K8	31.6	-0.60	1.59	32.7	0.18	0.94	3	LP
MPV3K8_AL	34.6	1.10	2.19	34.3	1.56	0.30	3	AL
N2N9RA	33.1	0.24	3.61	32.3	-0.10	1.70	4	GA
NE9NVA_AL	32.5	-0.11	2.45	31.0	-1.24	1.30	3	XX
PDGR7F	33.9	0.72	2.21	35.2	2.34 *	1.06	3	LP
QY7XR9	31.3	-0.82	2.17	31.6	-0.74	0.29	4	LP
RCVUQL_AL	29.7	-1.71	1.83	30.3	-1.82	0.92	4	AL
RPZD3K	32.7	-0.01	2.40	32.9	0.42	1.01	4	LP
TMRKMD_AL	32.4	-0.16	1.39	32.4	-0.01	0.24	4	AL
TTEBA9	29.9	-1.60	1.52	30.1	-2.02 *	1.66	4	LA
U94MD3_AL	37.3	2.67 *	2.99	36.3	3.29 X	0.86	4	AL
UM77WE_AL	34.7	1.17	1.31	34.0	1.36	0.71	4	AL
UW7WDF	32.7	-0.01	2.14	33.4	0.82	0.65	3	GG
UW7WDF_AL	31.4	-0.74	1.43	31.6	-0.75	0.29	3	AL
VVDD42	32.9	0.09	3.99 H	32.7	0.18	1.12	4	GA



Containerboard Interlaboratory Testing Program
Analysis 237

Report #649
October 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
WE2928	34.5	1.04	1.74	32.6	0.12	1.63	4	LA
WXGH39_AL	31.8	-0.50	1.67	31.4	-0.86	0.80	4	AL
XXAQNW	34.9	1.29	3.46	33.3	0.70	1.65	4	TP
YVYBRB	30.3	-1.37	2.77	30.0	-2.08 *	0.74	4	TD
ZHQP4B_AL	32.7	0.03	3.30	32.6	0.13	1.00	4	AL

Consensus (All Labs) Results				
Month Mean	32.68		Grand Mean	32.44
Avg SD	2.46		Avg SD Months	1.00
SD btwn Labs	1.74		SD btwn Labs	1.17
Labs Incd	43		Labs Incd	41

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 #649
October 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	
24RZN6	56.4	57.0	57.1	56.9	56.9	-0.36	4.7	0.3	57.9	-0.10	4.0	1.4	8	EN
27AK9Z	58.5 L	58.5 L	58.4 L	58.4 L	58.5	0.09	0.6	0.0 L	58.5	0.09	0.6	0.1 L	8	LD
2CL99W	71.0 X	69.1 *	69.2 *H	68.1 *	69.4	3.17 X	4.0	1.2	65.5	2.23 *	3.9	4.3 H	8	LD
3KAJVV	60.0	59.1	62.0	60.5	60.4	0.64	2.6	1.2	59.5	0.42	2.8	1.3	8	LD
3MBQXL	54.5	53.0	55.2	54.1	54.2	-1.11	3.3	0.9	55.9	-0.70	3.5	2.2	8	LZ
3RQYLK	61.4	62.7	58.1 H	56.8	59.8	0.46	5.4	2.8	61.1	0.91	5.2	2.5	8	LD
46A498	57.2	No DATA	No DATA	58.6	57.9	-0.07	2.6	1.0	58.8	0.19	3.3	1.2	4	LC
68U8G6	54.4	56.8	55.9	55.7	55.7	-0.69	2.7	1.0	55.4	-0.85	3.3	0.8	8	LD
6AM47Y	61.1	59.6	64.1	60.9 H	61.4	0.94	6.0	1.9	60.4	0.68	5.4	2.0	8	LD
6LV742	No DATA	No DATA	No DATA	56.4	56.4	-0.50	3.0	0.0	56.7	-0.47	2.5	0.4	2	LD
76LF2W	67.7 X	66.3 H	68.8 *	66.9 *	67.4	2.62 *	5.8	1.1	66.9	2.68 *	5.5	1.3	8	TX
8AXMZF	60.3	61.7	60.1	61.4	60.9	0.78	4.0	0.8	61.3	0.97	3.7	1.5	8	TU
8E83A6	60.7 L	60.8	60.3	60.2	60.5	0.67	1.7	0.3	60.1	0.58	1.7	0.6	8	MB
8WMAL2	58.0	59.7	59.4	60.9	59.5	0.39	3.0	1.2	59.0	0.24	3.5	1.1	7	XX
8YEBP4	60.3	60.2	56.6	59.3	59.1	0.28	5.0	1.7	57.6	-0.19	5.0	2.2	8	LD
9B6JMW	55.9	56.8	58.4	57.9	57.3	-0.25	3.7	1.1	56.6	-0.50	3.8	2.7	8	LZ
AMAZ9R	60.3	60.3	58.9	60.8	60.1	0.55	3.0	0.8	60.0	0.56	3.2	0.6	8	LD
AQAB6R	52.8	53.1	51.6	53.5	52.8	-1.52	3.8	0.8	53.1	-1.57	3.2	1.1	8	LD
AR8NMD	56.9	60.0	54.9	59.7	57.9	-0.07	3.8	2.4	57.9	-0.08	3.9	1.7	8	LZ
BCMM9Y	55.3	55.0	54.3	52.7	54.3	-1.07	3.3	1.1	56.2	-0.60	3.2	2.5	8	LD
BMU3GR	58.0	57.3	54.9	56.1	56.6	-0.44	3.2	1.4	58.6	0.14	3.7	5.0 H	8	LD
DNFNZT	58.7	55.8	57.2	57.7	57.3	-0.22	3.6	1.2	58.1	-0.01	3.5	1.3	8	LD
EJYFCU	55.5	54.7	55.1	55.9	55.3	-0.80	3.4	0.5	55.3	-0.89	2.9	0.5 L	8	LD
FCCAQ8	53.6	57.0	53.9	53.8 H	54.6	-1.00	5.1	1.6	54.2	-1.24	4.7	1.3	8	LC
FFATUQ	58.9	67.0	64.0	63.0	63.2	1.43	3.5	3.4 H	61.9	1.13	3.9	2.9	8	LD
GX976D	57.2	49.5 *	51.8	54.1	53.2	-1.40	4.3	3.3 H	53.2	-1.52	4.1	2.6	8	MB
HDJ94D	56.2	59.2	58.0	58.9	58.1	-0.02	3.6	1.3	58.1	-0.03	3.6	1.3	4	LD
HTABHV	60.4	61.8	64.2	66.1 *	63.1	1.41	4.8	2.5	62.7	1.39	5.0	1.8	8	LD
JACB7P	54.6	55.8	54.5	55.7	55.1	-0.85	3.8	0.7	55.0	-0.97	3.8	1.0	8	LD
JWMBEM	52.5	55.8	53.1	53.5	53.7	-1.24	3.9	1.5	53.2	-1.54	3.7	1.3	8	LD
KPJNZR	58.5 L	61.1 L	59.6 L	60.4 L	59.9	0.50	1.0	1.1	58.8	0.19	1.2	1.6	8	XX
LK4GCT	55.0	54.9	55.4	54.8	55.0	-0.88	2.9	0.3	55.0	-0.98	3.0	0.4 L	8	LD
MMT6AE	59.0	58.1 L	58.6	58.4	58.5	0.11	2.1	0.4	58.2	0.01	2.3	0.4 L	8	LD
MPV3K8	51.4 *	51.7	52.8	49.9 *	51.4	-1.89	2.7	1.2	51.7	-2.00 *	2.8	0.9	8	LD
MWVPBL	52.4	55.3	54.2	53.4	53.8	-1.22	4.4	1.2	55.5	-0.81	4.3	2.6	8	LD



Containerboard Interlaboratory Testing Program
Analysis 240

Report #649
October 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
MZCWQ9	66.0 *H	65.1	63.2	62.8	64.3	1.73	5.2	1.5	63.9	1.75	4.4	1.4	8	LD
NAY8LL	61.3	65.5	61.9	61.3	62.5	1.23	3.9	2.0	61.9	1.14	3.2	1.9	8	LC
NE9NVA	56.2	56.1	59.4	57.2	57.2	-0.25	3.6	1.5	56.4	-0.55	3.7	1.4	8	LD
PDGR7F	57.2	61.4	59.0	60.2	59.5	0.37	3.5	1.8	60.6	0.75	3.6	3.6	8	LD
PGDDVX	66.0 *	69.0 *	69.1 *L	66.8 *	67.7	2.70 *	3.4	1.5	62.4	1.31	4.8	5.8 H	8	LD
QL7Z4C	58.1	58.7	55.9	56.3	57.2	-0.25	2.8	1.4	56.9	-0.38	2.6	1.1	8	EM
RPZD3K	57.6	53.4	56.8	56.8	56.2	-0.56	2.7	1.9	55.8	-0.72	2.8	1.4	8	LZ
RWGUUV	58.9	61.7	58.2	62.6	60.4	0.63	4.9	2.1	60.5	0.71	4.3	1.5	7	LD
TTEBA9	54.6	53.0	53.4	53.9	53.7	-1.25	3.8	0.7	54.3	-1.18	3.9	1.2	8	MB
UM77WE	54.7	52.0	56.1	55.6	54.6	-1.00	3.7	1.8	54.6	-1.11	3.5	1.7	8	LD
UTUURK	61.7	57.7	61.7	55.9	59.2	0.31	3.9	2.9	56.1	-0.63	2.8	3.9	8	TU
VJY9YQ	58.3 L	56.5	58.0	57.1	57.5	-0.19	2.4	0.8	58.7	0.15	2.5	1.4	8	LC
WNN8RD	59.8	60.0	60.5	62.7	60.8	0.74	4.1	1.3	61.4	0.98	3.3	1.3	8	TB
XXAQNW	59.4	60.8	57.9	58.8	59.2	0.31	4.1	1.2	59.6	0.42	3.9	1.6	8	LC
Y6QQGE	60.5	58.5	57.8	58.8	58.9	0.22	2.8	1.1	58.2	0.02	3.0	1.2	8	LD

Consensus (All Labs) Results														
Wk Mean	57.79	58.63	58.32	58.36	Month Mean	58.13			Grand Mean	58.18				
Avg SDr	3.94	3.90	3.62	3.60	Avg SD	3.74			Avg SD	3.65				
SD btwn Labs	3.20	4.41	4.22	3.92	SD btwn Labs	3.54			SD btwn Labs	3.26				
Labs Incd	47	48	48	50	SD btwn Wks	1.56			SD btwn Wks	2.08				
Labs Exclcd	2	0	0	0	Labs Incd	49			Labs Incd	50				
Labs not Rcvd	1	2	2	0										

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200 Series
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TB	TMI Monitor/Compression Tester, 17-70	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 #649
October 2023

Fluted Edge Crush Strength (CFC), 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
27VV89	67.0	66.5 L	66.6 L	66.9 L	66.8	0.18	1.4	0.2 L	67.7	0.17	1.8	1.5	8	LZ
46A498	65.3	No DATA	No DATA	61.8	63.5	-0.63	4.9	2.5	68.1	0.33	5.2	5.7 H	4	LC
8E83A6	67.9	67.8 L	67.9	66.9	67.6	0.40	1.7	0.5	67.6	0.13	1.7	0.4 L	8	MB
8WMAL2	70.0	69.8	67.7	70.5	69.5	0.87	2.8	1.2	69.6	0.91	3.7	1.8	7	XX
8YEBP4	56.8 *H	56.4 *H	57.4 *H	57.0 *	56.9	-2.31 *	8.4	0.4	55.9	-4.47 X	8.1	1.3	8	LD
9B6JMW	62.5	62.5	63.4	59.2	61.9	-1.04	4.6	1.9	61.8	-2.15 *	4.6	2.2	8	LZ
AR8NMD	65.1	64.2	63.7	64.0	64.2	-0.46	3.0	0.6	64.4	-1.12	3.9	1.1	8	LZ
BCMM9Y	70.6	70.8	68.5	68.3	69.5	0.87	4.1	1.3	68.7	0.60	3.9	1.8	8	LD
BMU3GR	68.5	67.1	63.2	63.6	65.6	-0.11	4.0	2.6	63.8	-1.34	3.8	5.5 H	8	LD
DNFNZT	65.1	66.1	66.2	64.1	65.4	-0.18	3.9	1.0	66.2	-0.40	4.0	1.2	8	LD
FFATUQ	71.2	71.9	71.7	69.0	70.9	1.23	3.0	1.3	70.1	1.15	3.4	2.0	8	LD
HDJ94D	67.9	68.7	70.8 H	67.1	68.6	0.65	4.9	1.6	68.6	0.55	4.9	1.6	4	LD
JACB7P	66.4	69.6	68.3	70.0	68.6	0.64	3.5	1.6	69.8	1.01	3.5	2.2	8	LD
KPJNZR	69.9 L	71.7 L	69.8 L	70.5 L	70.5	1.12	0.8	0.9	69.9	1.03	0.9	0.9	8	XX
MMT6AE	67.7	66.9	66.1	66.4	66.8	0.18	2.4	0.7	67.7	0.18	2.5	1.1	8	LD
MPV3K8	57.4 *	55.6 *	56.7 *	56.1 *	56.5	-2.42 *	3.9	0.8	57.3	-3.90 X	5.8	1.3	8	LD
NE9NVA	64.4	60.7	62.0	63.9	62.8	-0.83	4.3	1.7	62.5	-1.85	4.4	1.7	8	XX
PDGR7F	67.0	63.8	67.0	69.3	66.8	0.18	3.8	2.3	65.9	-0.51	3.8	4.0	8	LD
PGDDVX	66.0	69.0	69.1 L	66.8	67.7	0.42	3.4	1.5	67.1	-0.04	3.4	1.2	8	LD
UM77WE	69.9	68.7	71.4	67.5	69.4	0.84	3.8	1.7	70.2	1.16	3.5	2.3	8	LD
XXAQNW	68.9	66.8	67.5	67.4	67.7	0.40	3.7	0.9	67.7	0.20	3.8	2.8	8	LC

Consensus (All Labs) Results												
Wk Mean	66.45	66.23	66.25	65.53	Month Mean	66.05	Grand Mean	67.23				
Avg SDr	3.63	4.37	3.69	3.91	Avg SD	3.93	Avg SD	3.67				
SD btwn Labs	3.83	4.55	4.15	4.16	SD btwn Labs	3.97	SD btwn Labs	2.54				
Labs Incl	21	20	20	21	SD btwn Wks	1.45	SD btwn Wks	2.58				
Labs Excl	0	0	0	0	Labs Incl	21	Labs Incl	19				
Labs not Rcvd	0	1	1	0								

Key to Instrument Codes Reported by Participants

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



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

Report #649
October 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	
27AK9Z	44.4 L	44.4 L	44.5 L	44.4 L	44.4	1.11	0.6	0.1 L	44.4	1.20	0.5	0.1 L	8	LD
3RQYLK	43.4	40.8	41.7	39.8	41.4	-0.15	3.3	1.5	40.1	-0.91	4.1	2.1	8	LD
6AM47Y	37.8	39.2	38.8	39.0 H	38.7	-1.28	4.1	0.6	39.0	-1.47	3.8	1.5	8	LD
76LF2W	38.4	38.9	38.0	42.4	39.4	-0.99	2.5	2.0	38.5	-1.68	2.9	2.3	8	LZ
8E83A6	41.6	40.3	41.8	41.1	41.2	-0.24	1.7	0.7	41.8	-0.09	1.6	0.8	8	MB
8WMAL2	41.4	42.8	39.6	42.4	41.5	-0.10	3.5	1.4	41.9	-0.02	3.4	1.8	7	XX
9TLNAN	44.4 L	44.1 L	44.6 L	44.8 L	44.5	1.14	0.6	0.3 L	44.7	1.33	0.6	0.3 L	8	XX
BCMM9Y	44.8	43.5	42.8	42.0	43.2	0.62	2.4	1.2	42.9	0.45	3.1	1.2	8	LD
DNFNZT	38.8	40.9	43.0	36.9 *	39.9	-0.79	3.8	2.6	40.9	-0.53	3.5	2.3	8	LD
EJYFCU	44.8	45.7	44.1	44.5	44.8	1.25	3.6	0.7	45.0	1.47	3.0	0.8	8	LC
HDJ94D	44.1	42.7	44.3 H	43.4	43.6	0.78	3.9	0.7	43.6	0.82	3.9	0.7	4	LD
HTABHV	43.1	44.2	45.9	48.3 X	45.4	1.51	3.5	2.3	45.8	1.88	3.5	1.6	8	LD
JACB7P	39.6	42.1	37.7	42.4	40.5	-0.55	2.6	2.2	41.2	-0.40	2.8	1.9	8	LD
LG9MER	42.4	45.7	43.7	44.0	44.0	0.92	2.6	1.4	42.4	0.21	3.1	2.2	8	TH
LK4GCT	43.7	46.0	41.7	41.2	43.2	0.58	2.3	2.2	42.8	0.42	2.4	1.5	8	LD
MZCWO9	39.8	38.2	39.6	39.3	39.2	-1.08	2.4	0.7	39.6	-1.17	2.9	1.3	8	LD
N2N9RA	42.9	39.2	38.6	40.8	40.4	-0.58	3.5	1.9	40.7	-0.63	3.7	1.4	8	LD
NAY8LL	39.3	37.9	36.4	38.5	38.0	-1.57	2.8	1.2	39.2	-1.35	2.3	1.5	8	XX
NE9NVA	38.7	37.6	34.8 *	39.3	37.6	-1.75	2.8	2.0	38.7	-1.61	3.3	2.2	8	LD
RWGUUV	46.4	43.8	42.6	42.0	43.7	0.81	3.9	1.9	43.5	0.74	3.9	1.9	7	LZ
TTEBA9	46.1	43.2	44.5	40.4	43.5	0.74	2.6	2.4	43.5	0.77	3.2	1.8	8	MB
UM77WE	42.5	45.0	40.7	44.2	43.1	0.56	3.4	1.9	43.3	0.67	3.6	1.5	8	LD
UTUURK	49.0 *	38.4	48.3 *	42.0 L	44.4	1.11	2.2	5.1 H	42.9	0.48	1.6	3.7 H	8	TU
WNN8RD	39.4	36.3	37.1	37.9	37.7	-1.72	2.9	1.3	40.3	-0.81	2.7	3.0	8	XX
XXAQNW	41.4	40.5	43.7	40.3	41.5	-0.12	2.8	1.5	42.2	0.12	2.9	1.7	8	LC
Y6QQGE	40.8	41.6	42.4	40.2	41.3	-0.22	4.1	1.0	42.2	0.12	3.8	1.3	8	LD

Consensus (All Labs) Results										
Wk Mean	42.27	41.65	41.56	41.33	Month Mean	41.77			Grand Mean	41.97
Avg SDr	3.17	2.81	3.15	2.84	Avg SD	3.00			Avg SD	3.07
SD btwn Labs	2.84	2.83	3.25	2.20	SD btwn Labs	2.39			SD btwn Labs	2.04
Labs Incl	26	26	26	25	SD btwn Wks	1.85			SD btwn Wks	1.80
Labs Excl	0	0	0	1	Labs Incl	26			Labs Incl	26
Labs not Rcvd	0	0	0	0						

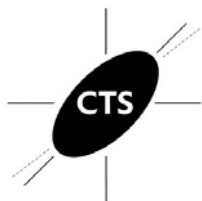


Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM13
TAPPI Official Test Method T822

Report #649
October 2023

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program

Analysis 261

Report #649

October 2023

STFI, 26 lb Corrugating Medium - CM13

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	
2CL99W	13.6	14.1	14.0	14.5	14.0	0.99	1.2	0.3	13.6	0.28	1.2	0.6	8	LH
3RQYLK	14.0	14.1	13.8	14.4	14.1	1.07	1.0	0.3	13.8	0.58	1.1	0.4	8	XX
6LV742	No DATA	No DATA	No DATA	13.1	13.1	-0.53	1.0	0.0	13.1	-0.49	1.1	0.1	2	LH
6MM3TV	13.7	14.2	14.0	14.6	14.1	1.11	1.2	0.4	13.8	0.57	1.1	0.5	8	XX
8AXMZP	14.2	14.2	14.1	13.8	14.1	1.05	1.1	0.2	15.1	2.42	* 0.9	1.1	H 8	LA
9TLNAN	14.2 L	14.3 L	14.4 L	14.4 L	14.3	1.42	0.2	0.1	14.6	1.69	0.2	0.4	8	LZ
BMU3GR	13.2	13.9	14.4	13.9 L	13.9	0.70	0.9	0.5	13.9	0.63	1.0	0.4	8	LA
BV3RUQ	13.6	13.4	13.1	13.1	13.3	-0.14	1.1	0.2	13.3	-0.21	1.1	0.2	4	LU
E7N6LJ	12.8	13.1	13.2	13.0	13.0	-0.57	1.1	0.2	13.3	-0.27	1.1	0.4	8	TX
EJYFCU	12.8	13.3	13.1	13.0	13.1	-0.52	1.3	0.2	13.2	-0.32	1.2	0.4	8	LH
FFATUQ	14.8 *	14.1	14.5 L	13.4	14.2	1.25	0.8	0.6	14.1	1.02	0.9	0.5	8	LA
GX976D	13.1	13.7	12.7	12.6	13.0	-0.58	1.2	0.5	13.2	-0.39	1.2	0.5	8	LA
HDJ94D	13.9	13.1 H	13.4	13.5	13.5	0.13	1.3	0.3	13.5	0.05	1.3	0.3	4	LB
JWMBEM	13.1	12.3	13.2	13.3	13.0	-0.68	0.9	0.5	13.1	-0.45	1.0	0.4	8	LU
KPJNZR	13.2	13.7	12.8	12.7	13.1	-0.48	1.2	0.5	13.3	-0.26	1.1	0.4	8	XX
MMT6AE	13.9	14.0	13.5	13.8	13.8	0.61	1.1	0.2	13.8	0.50	1.1	0.2	4	LA
MPV3K8	12.5	11.9 *	12.3 H	12.2 H	12.2	-1.78	1.7	0.3	12.2	-1.76	1.6	0.3	8	LB
N2N9RA	13.7	13.5	13.4	13.1	13.4	0.01	1.1	0.3	13.3	-0.18	1.2	0.4	8	LZ
NE9NVA	12.6	12.2	11.3 X	12.2	12.1	-2.02 *	1.1	0.5	12.1	-2.04 *	1.0	0.9 H	8	LZ
PJKVVE	13.3	13.3 L	13.6 L	13.1	13.3	-0.16	0.7	0.2	13.3	-0.22	0.7	0.2	4	LA
QL7Z4C	13.0	13.3	12.6	13.3	13.1	-0.53	0.9	0.3	13.1	-0.47	1.0	0.3	8	LH
RWGUUV	11.2 X	11.4 *	12.6	12.5 H	11.9	-2.29 *	1.2	0.7	12.0	-2.10 *	1.3	0.6	7	XX
TTEBA9	13.8	14.0 H	13.6 H	14.0	13.9	0.72	1.4	0.2	13.9	0.68	1.3	0.2	8	LA
UM77WE	12.5	13.3	13.5	13.9 L	13.3	-0.11	1.0	0.6	13.1	-0.50	1.0	0.6	8	LA
WXGH39	14.1	14.2	14.3	14.3	14.2	1.26	1.3	0.1	14.2	1.09	1.2	0.2	8	LA
WY9ER2	13.0	12.9	13.5	13.5	13.2	-0.28	1.0	0.3	13.3	-0.17	1.2	0.3	8	TT
XXAQNW	14.1	13.2	14.0	13.3	13.6	0.35	1.1	0.4	13.7	0.34	1.1	0.3	8	LU

Consensus (All Labs) Results														
Wk Mean	13.46	13.41	13.50	13.42	Month Mean	13.39			Grand Mean	13.45				
Avg SDr	1.08	1.17	1.08	1.12	Avg SD	1.11			Avg SD	1.10				
SD btwn Labs	0.61	0.77	0.61	0.69	SD btwn Labs	0.65			SD btwn Labs	0.68				
Labs Incl	25	26	25	27	SD btwn Wks	0.38			SD btwn Wks	0.46				
Labs Excl	1	0	1	0	Labs Incl	27			Labs Incl	27				
Labs not Rcvd	1	1	1	0										



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

Report #649
October 2023

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