



Containerboard Interlaboratory Testing Program

Participant Summary Report #604 (A) - January 2020

[Introduction to the Containerboard Program](#)

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

Analysis	Sample	Analysis Name
<u>201</u>	<u>BX14</u>	<u>Box Compression Strength, Corrugated Boxes</u>
<u>202</u>	<u>EC12</u>	<u>Edgewise Compressive Strength, Wax (T811), Corrugated Board</u>
<u>203</u>	<u>EC12</u>	<u>Edgewise Compressive Strength by Clamp (T839), Corrugated Board</u>
<u>205</u>	<u>42F1</u>	<u>Mullen Burst of Linerboard, 42 lb Linerboard</u>
<u>206</u>	<u>56G1</u>	<u>Mullen Burst of Linerboard, 56 lb Linerboard</u>
<u>215</u>	<u>42F1</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard</u>
<u>216</u>	<u>56G1</u>	<u>Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard</u>
<u>223</u>	<u>42F1</u>	<u>STFI of Linerboard, 42 lb Linerboard</u>
<u>224</u>	<u>56G1</u>	<u>Autoline: STFI of Linerboard, 56 lb Linerboard</u>
<u>228</u>	<u>42F</u>	<u>Roughness - Stylus Method, 42 lb Linerboard</u>
<u>229</u>	<u>42F1</u>	<u>Autoline: Roughness - Sheffield Method, 42 lb Linerboard</u>
<u>231</u>	<u>42F</u>	<u>Internal Bond Strength, Linerboard, 42 lb Linerboard</u>
<u>234</u>	<u>42F</u>	<u>Coefficient of Static Friction - Inclined Plane, 42 lb Linerboard</u>
<u>237</u>	<u>42F1</u>	<u>Autoline: Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard</u>
<u>240</u>	<u>CM11</u>	<u>Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium</u>
<u>250</u>	<u>CM11</u>	<u>Fluted Crush of Medium, 26 lb Corrugating Medium</u>
<u>255</u>	<u>CM11</u>	<u>Ring Crush of Medium, 26 lb Corrugating Medium</u>
<u>261</u>	<u>CM11</u>	<u>STFI of Medium, 26 lb Corrugating Medium</u>

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

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

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

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

Consensus Data

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

Monthly Results

Laboratory Data

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

Consensus Data

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

Cumulative Results

Laboratory Data

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

Consensus Data

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

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

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

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

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

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

Flags assigned to Weekly Means:

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

Flags assigned to Monthly SD Wks and Cumulative SD Wks:

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



Containerboard Interlaboratory Testing Program
Analysis 201

Report #604 (A)
January 2020

Top to Bottom Box Compression Strength, Corrugated Boxes - BX14

TAPPI Official Test Method T804

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2MFA6U	621.0	0.79	53.85	621.0	0.79	0.00	1	LS
3HXAL8	564.6	-0.40	21.87	564.6	-0.40	0.00	1	ER
79GU9F	514.6	-1.45	36.23	514.6	-1.45	0.00	1	LS
96AB4J	572.2	-0.24	51.85	572.2	-0.24	0.00	1	LG
9JUX7P	582.3	-0.02	43.44	582.3	-0.02	0.00	1	TB
AMNY4X	572.4	-0.23	65.40	572.4	-0.23	0.00	1	LS
BAYE6M	599.2	0.33	21.96	599.2	0.33	0.00	1	TE
CFZB2R	546.0	-0.79	13.80	546.0	-0.79	0.00	1	LM
CXY9H2	556.2	-0.57	17.44	556.2	-0.57	0.00	1	LG
ETE3YW	565.9	-0.37	43.22	565.9	-0.37	0.00	1	LS
FHVZYG	555.6	-0.59	19.97	555.6	-0.59	0.00	1	LS
HKBA3Y	614.2	0.65	48.47	614.2	0.65	0.00	1	EX
J4ZQ3L	593.9	0.22	24.52	593.9	0.22	0.00	1	LO
JFBKWB	564.1	-0.41	59.06	564.1	-0.41	0.00	1	LL
KCTKDP	562.8	-0.44	36.42	562.8	-0.44	0.00	1	ES
M2MH6X	757.4	3.66 X	47.89	757.4	3.66 X	0.00	1	EX
PEMZT3	663.6	1.68	29.56	663.6	1.68	0.00	1	LG
RFP3H	640.6	1.20	13.69	640.6	1.20	0.00	1	ER
RVXF6U	584.2	0.01	101.01 H	584.2	0.01	0.00	1	EX
V3NM6J	697.0	2.39 *	47.72	697.0	2.39 *	0.00	1	EX
W98XNJ	555.1	-0.60	32.44	555.1	-0.60	0.00	1	ER
WPJEVL	599.4	0.33	40.63	599.4	0.33	0.00	1	LM
XLV6GE	464.2	-2.51 *	19.24	464.2	-2.51 *	0.00	1	LL
YLMJ3A	585.6	0.04	84.59	585.6	0.04	0.00	1	ET
ZHPD6J	629.2	0.96	22.31	629.2	0.96	0.00	1	ER

Consensus (All Labs) Results			
Month Mean	583.50	Grand Mean	583.50
Avg SD	45.10	Avg SD Months	0.00
SD btwn Labs	47.57	SD btwn Labs	47.57
Labs Incl	24	Labs Incl	24

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	594.32	48.75	10.82	7
Water based adhesive sealing	697.00	0.00	113.50	1
Clip sealing	571.67	38.16	11.83	16



Containerboard Interlaboratory Testing Program
Analysis 201

Report #604 (A)
January 2020

Top to Bottom Box Compression Strength, Corrugated Boxes - BX14

TAPPI Official Test Method T804

Key to Instrument Codes Reported by Participants

ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	EX	Emerson Apparatus (Model not specified)
LG	TLS / L.A.B. Validator Series	LL	Lansmont 76-5K
LM	Lansmont 122-15k	LO	Lansmont 152-30k
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
TE	Testometric M500 - 25 KN		



Containerboard Interlaboratory Testing Program
 Analysis 202
Edgewise Compressive Strength, by T811, Corrugated Board - EC12
 TAPPI Official Test Method T811

Report #604 (A)
January 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
79GU9F	39.0	0.67	1.81	38.8	0.75	1.40	4	LC
96AB4J	37.7	0.34	2.06	38.3	0.60	0.40	4	LE
AMNY4X	33.6	-0.69	2.10	34.0	-0.63	1.23	4	LD
FHVZYG	32.7	-0.91	1.56	31.1	-1.49	1.33	4	EM
JFBKWB	41.4	1.25	1.59	42.4	1.79	3.98	4	XX
L6KN3N	38.2	0.46	1.57	34.2	-0.59	2.68	4	XX
NDCHDR	32.1	-1.07	0.88	33.7	-0.73	1.62	4	TF
RFPH3H	35.3	-0.27	2.18	34.7	-0.43	1.98	4	EN
RVXF6U	35.7	-0.16	1.88	36.0	-0.05	0.90	4	LC
TAFKRG	36.9	0.14	0.66	37.3	0.31	1.08	4	XX
URDHBN	45.9	2.37 *	0.49	41.3	1.46	3.98	3	XX
XPAWAR	36.6	0.05	2.46	39.2	0.86	2.09	4	LC
YLRWQ7	32.9	-0.86	2.39	34.7	-0.44	1.88	4	LD
ZABQUU	31.1	-1.33	0.87	31.3	-1.42	2.00	4	WK

Consensus (All Labs) Results			
Month Mean	36.37	Grand Mean	36.21
Avg SD	1.72	Avg SD Months	2.15
SD btwn Labs	4.00	SD btwn Labs	3.45
Labs Incd	14	Labs Incd	14

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LE	L&W Crush Tester 840	TF	TMI Digital Crush Tester, Model 17-19
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab



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

Report #604 (A)
January 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2MFA6U	44.6	1.90	1.65	42.9	1.95 *	1.53	4	TB
3HXAL8	37.8	-0.90	1.45	39.2	-0.52	1.06	4	LD
79GU9F	40.6	0.28	2.19	40.9	0.60	0.42	4	LC
96AB4J	39.1	-0.34	2.28	38.8	-0.79	0.50	4	LY
9EJMFG	35.2	-1.95 *	1.93	34.8	-3.48 X	1.66	4	XX
9JUX7P	40.3	0.15	0.61 L	41.0	0.70	1.07	4	LD
AMNY4X	40.4	0.19	1.33	40.9	0.65	0.94	4	LD
AWT2BG	41.6	0.66	1.58	39.5	-0.32	1.37	4	EM
BAYE6M	40.2	0.09	1.84	40.5	0.32	0.34	4	LD
BNFETZ	43.3	1.35	0.92	41.6	1.11	1.52	3	LC
BTPVZ3	42.5	1.04	2.11	41.5	1.01	0.99	4	TD
CB3PCA	42.0	0.84	1.81	42.4	1.64	0.65	4	LD
CFZB2R	39.9	-0.02	2.05	39.8	-0.12	0.09 L	4	EM
CXY9H2	41.6	0.68	0.93	40.4	0.27	2.29	4	TJ
EHFK7A	38.9	-0.42	1.29	38.8	-0.78	1.29	4	LD
FHVZYG	38.1	-0.77	1.29	38.0	-1.32	0.24 L	4	EM
HKBA3Y	36.8	-1.28	1.67	36.8	-2.14 *	0.00	1	LD
J4ZQ3L	39.7	-0.11	2.26	40.6	0.45	0.73	4	LD
JFBKWB	41.4	0.58	1.59	41.4	0.94	0.00	1	BU
KCTKDP	41.0	0.45	1.65	40.6	0.43	1.59	4	LD
L6KN3N	40.5	0.22	1.27	40.3	0.21	0.80	4	IM
M2MH6X	42.2	0.91	1.56	41.4	0.93	2.37	3	CT
MTRE2Z	41.5	0.64	0.80	40.6	0.45	0.86	4	TG
NDCHDR	37.1	-1.16	0.74	38.0	-1.37	1.06	4	TD
NYR3AR	41.0	0.44	1.26	40.0	0.01	0.89	4	EM
PEMZT3	42.4	0.99	1.54	42.1	1.42	1.03	4	EM
PKNCPY	38.5	-0.60	1.76	39.1	-0.58	1.02	3	XX
RF7XVP	38.3	-0.69	2.15	38.8	-0.82	0.60	4	LC
RFPH3H	38.1	-0.76	2.84 H	37.9	-1.38	1.26	4	EN
RVXF6U	37.8	-0.88	1.62	38.5	-0.99	0.62	4	LC
U7RNHG	37.8	-0.88	1.84	39.2	-0.52	1.30	3	IM
URDHBN	46.1	2.52 *	1.18	40.8	0.58	4.64 H	3	XX
V3NM6J	38.2	-0.72	0.96	38.2	-1.21	0.00	1	TH
W98XNJ	35.8	-1.70	2.39	39.2	-0.55	2.92	3	LD
WPJEVL	40.8	0.33	0.67 L	40.7	0.52	0.45	4	TG
XLV6GE	36.1	-1.58	2.51	39.1	-0.61	2.93	4	LC
XPAWAR	41.8	0.75	1.17	41.0	0.73	0.61	4	LC
YLMJ3A	43.9	1.63	2.01	42.9	1.99 *	1.61	4	TD
YLRWQ7	39.6	-0.13	2.32	39.0	-0.64	2.16	4	LD



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

Report #604 (A)
January 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
ZABQUU	37.2	-1.14	0.79	37.7	-1.51	1.93	4	WK
ZHPD6J	38.5	-0.58	0.57 L	39.0	-0.69	0.34	4	EM

Consensus (All Labs) Results				
Month Mean	39.95		Grand Mean	39.98
Avg SD	1.67		Avg SD Months	1.53
SD btwn Labs	2.44		SD btwn Labs	1.47
Labs Incd	41		Labs Incd	40

Key to Instrument Codes Reported by Participants

BU Buchel Digital Crush Tester	CT Con-Ten
EM Emerson 1200 Series	EN Emerson 2200
IM Instron 5500 Series	LC L&W Crush Tester 48
LD L&W Crush Tester 248	LY L&W 830
TB TMI Monitor/Compression Tester, Model 17-70	TD TMI Digital Crush Tester, Model 17-09
TG TMI Digital Crush Tester, 17-76	TH TMI Monitor/Compression Tester, Model 17-76
TJ TLS Compression Tester, Model CDM-5	WK Zwick Z005 Crush Tester
XX Instrument make/model not specified by lab	



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

Report #604 (A)
January 2020

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	
29UU4F	114.9	111.6	113.9	114.5	113.7	0.67	9.6	1.5	112.3	0.40	10.3	2.8	16	LC
2FEVJT	107.1	113.1 L	111.3 L	110.9 L	110.6	-0.22	3.6	2.5	111.4	0.13	3.8	2.0	15	XX
2UBAH2	115.4	109.8	112.2	114.6	113.0	0.46	9.0	2.5	112.7	0.51	9.7	3.7	16	AX
3HXAL8	110.7	110.7	109.6	110.4	110.4	-0.29	9.1	0.5 L	112.5	0.44	8.2	2.9	16	AH
48W9L9_AL	111.0	112.2	113.3	106.5 L	110.7	-0.18	4.9	3.0	110.7	-0.06	4.9	3.0	4	AL
63DNXJ	92.9 X	109.6	112.5	117.8	108.2	-0.90	11.1	10.8 H	108.7	-0.64	9.2	5.1	16	LB
79GU9F	106.6	101.9 *	113.1	99.2 *	105.2	-1.74	8.4	6.1	107.4	-1.02	9.5	3.8	16	AH
7JD3PX	112.2	105.2	110.3	111.9	109.9	-0.41	7.6	3.3	110.5	-0.12	8.3	2.6	16	LC
8NMF8W_AL	105.0	108.3	110.6	108.5	108.1	-0.92	7.7	2.3	108.1	-0.82	7.7	2.3	4	AL
8RMQ4W	119.1 *	118.0	114.2	116.5	117.0	1.59	8.6	2.1	117.0	1.76	9.4	2.9	14	LZ
96AB4J	121.8 *	119.5	119.8 *	118.6	119.9	2.43 *	6.1	1.3	117.4	1.89	6.6	2.5	16	AH
9NMY94	110.7	107.3	112.7	111.6	110.6	-0.22	8.4	2.3	110.3	-0.18	8.3	2.0	16	LA
9RKFKX_AL	113.2	112.1	113.5	120.0	114.7	0.94	9.2	3.6	114.7	1.09	9.2	3.6	4	AL
AMNY4X	108.8	110.3	106.4	104.8	107.6	-1.07	8.3	2.5	108.1	-0.82	9.1	3.0	16	LA
APBTP6	109.7 L	109.6	109.8	109.2	109.6	-0.51	4.9	0.2 L	110.4	-0.15	5.8	0.6 L	16	LJ
AV3Z8D_AL	113.9	111.2	112.0	117.9	113.8	0.68	10.8	3.0	113.8	0.82	10.8	3.0	4	AL
BBAARE	114.7	115.1	108.9 H	110.8	112.4	0.29	11.9	3.0	112.5	0.45	10.5	2.4	8	LA
C2YJE2	110.1	113.0	116.7	120.9	115.2	1.07	11.8	4.7	111.4	0.14	10.1	4.2	16	LC
CB3PCA_AL	116.2	116.4	122.3 X	119.5	118.6	2.05 *	9.3	2.9	118.6	2.23 *	9.3	2.9	4	AL
E76RZN	106.0	116.3	107.4	113.5	110.8	-0.16	10.5	4.9	110.9	-0.02	8.2	3.1	16	LA
F3GUMH	98.5 X	93.0 X	96.9 X	102.9	97.8	-3.83 X	9.3	4.1	97.8	-3.81 X	9.3	4.1	4	LA
F6LFGA	114.2	114.3	111.1	116.8	114.1	0.78	9.6	2.3	115.6	1.34	9.4	2.8	16	TB
F9938C	108.3	117.2	110.9	115.7	113.0	0.48	9.8	4.1	111.0	0.02	9.6	3.3	16	LC
FLTGBB	107.8	107.8	103.7 *	101.4 *	105.2	-1.75	9.2	3.2	104.9	-1.77	7.9	3.1	16	AH
G9J267	103.7	No DATA	102.5 *	103.9	103.4	-2.26 *	9.9	0.7	103.2	-2.26 *	10.2	2.6	11	LJ
GWREWP	109.9	105.7	110.4	111.8	109.5	-0.54	9.8	2.6	107.8	-0.92	9.5	2.1	16	LC
HKBA3Y	114.4	110.4	111.2	111.6	111.9	0.15	10.5	1.7	106.9	-1.19	9.4	3.6	16	AH
HKBAZD	116.8	116.8	114.6	116.4 L	116.2	1.36	5.4	1.1	114.9	1.16	5.3	1.0	16	RE
JFGKBT	109.5	104.9	108.2	104.6	106.8	-1.30	10.5	2.4	106.2	-1.37	9.4	3.9	12	LA
KCTKDP	110.8	114.6	110.3	109.9 H	111.4	0.01	11.7	2.2	110.6	-0.10	10.1	3.0	16	LA
KMQJ4V	111.6 L	109.2 L	111.2 L	111.3 L	110.8	-0.15	3.5	1.1	110.0	-0.28	3.6	1.1	16	LA
KUAMCX	116.9	114.9	111.8	110.3	113.5	0.61	10.5	3.0	112.9	0.58	9.1	6.0	14	LA
LLU96L	110.5	120.8 *L	120.0 *	117.4	117.2	1.65	9.3	4.7	114.8	1.11	10.2	3.2	16	TB
LNHYUX	105.1	112.6	110.0	111.8	109.8	-0.43	10.5	3.4	112.6	0.49	9.2	3.4	16	LZ
LTCX4L	114.5	114.9	117.8	117.5 L	116.2	1.36	8.7	1.7	114.0	0.88	8.3	2.1	16	AH



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

Report #604 (A)
January 2020

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
M2MH6X	111.5	113.0	107.3	111.5	110.8	-0.15	8.9	2.5	113.9	0.87	9.9	3.6	12	XX
M89C2V	111.1	107.2	109.3	118.0 H	111.4	0.02	15.3	4.7	111.4	0.14	11.4	6.3	16	LA
MYE89U	107.6	110.4 L	110.6 L	109.8 L	109.6	-0.50	3.8	1.4	109.5	-0.41	4.0	1.2	16	LA
NDCHDR	109.4 H	107.8	110.5	111.4	109.8	-0.45	13.0	1.5	113.6	0.77	12.0	3.4	16	XX
RF7XVP	114.6	116.7	109.9	112.1	113.3	0.55	11.0	2.9	113.8	0.82	10.0	3.2	16	LA
RTBUER	105.8	108.3	110.9	109.0	108.5	-0.82	9.7	2.1	108.5	-0.72	9.7	2.1	4	XX
RXXKAMF	107.6	114.4	107.9	111.1	110.2	-0.32	7.4	3.2	105.9	-1.48	8.5	4.2	16	LC
RZEVG8_AL	110.3	102.6 *H	113.2	115.0	110.3	-0.31	13.1	5.5	110.3	-0.20	13.1	5.5	4	XX
TJKQN4	112.1	109.4	109.4	110.1	110.3	-0.31	7.6	1.3	110.2	-0.23	7.0	1.5	16	TP
TYZT8D_AL	115.7	113.1	117.4	114.9	115.3	1.11	7.2	1.8	115.3	1.26	7.2	1.8	4	XX
URDHBN	114.8	113.2 L	113.6 L	113.4 L	113.8	0.68	4.1	0.7	114.4	1.01	4.7	1.0	12	LC
VHK8Y8	124.7 X	115.5	114.5 H	114.1	117.2	1.65	13.0	5.0	113.4	0.71	10.8	4.5	16	LA
W3Q374	117.0	111.8	110.9	112.5	113.1	0.48	9.7	2.7	110.2	-0.22	9.5	3.0	16	LC
W98XNJ	107.4	105.2	105.5	113.4	107.9	-0.99	7.6	3.8	107.2	-1.09	8.6	3.2	16	LZ
WNGQ8F	112.0	104.6	99.9 X	99.2 *	103.9	-2.10 *	7.8	5.9	102.9	-2.35 *	8.7	3.7	16	LA
X2ACDB	112.5	113.2	112.8	112.6	112.8	0.40	7.0	0.3 L	113.8	0.82	6.5	0.8 L	16	LA
YLRWQ7	112.4	114.1	111.3	107.6	111.3	-0.01	6.3	2.7	110.0	-0.27	6.6	2.8	16	LA
YRWZDJ	107.7	106.2	106.0	115.2	108.8	-0.73	9.9	4.4	107.5	-1.01	9.5	3.2	16	LC
YRWZDJ_AL	88.5 X	91.9 X	90.0 X	91.3 X	90.4	-5.93 X	6.8	1.5	90.4	-5.96 X	6.8	1.5	4	AL
Z3WQW7	103.7	115.2	107.9	111.5	109.6	-0.51	7.6	4.9	107.6	-0.98	8.5	3.5	16	LC
ZAW8AW	110.1	110.4	110.2	110.1	110.2	-0.33	7.5	0.1 L	110.5	-0.14	6.8	0.8 L	16	AH
ZYWE27	108.0	107.5	111.1	106.2	108.2	-0.89	9.1	2.1	107.5	-1.01	8.0	3.9	16	LC

Consensus (All Labs) Results														
Wk Mean	111.18	111.38	111.17	111.79	Month Mean	111.36			Grand Mean	110.94				
Avg SDr	9.49	8.70	8.87	9.62	Avg SD	9.18			Avg SD	8.80				
SD btwn Labs	3.97	4.28	3.49	4.98	SD btwn Labs	3.53			SD btwn Labs	3.44				
Labs Incl	53	54	53	56	SD btwn Wks	3.37			SD btwn Wks	3.19				
Labs Excl	4	2	4	1	Labs Incl	55			Labs Incl	55				
Labs not Rcvd	0	1	0	0										



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

Report #604 (A)
January 2020

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)
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G1
 TAPPI Official Test Method T807

Report #604 (A)
January 2020

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	
29UU4F	115.1	118.9	115.4	114.7	116.0	0.57	8.8	1.9	116.0	0.57	8.8	1.9	4	LC
2FEVJT	122.7 *	120.2 L	124.0 *	122.8 *	122.4	2.40 *	4.7	1.6	122.4	2.40 *	4.7	1.6	4	XX
2UBAH2	111.9	123.1	113.9	111.7	115.2	0.33	12.6	5.4	115.2	0.33	12.6	5.4	4	AX
3HXAL8	114.0	111.1	104.6 *	109.2	109.7	-1.22	8.4	3.9	109.7	-1.22	8.4	3.9	4	AH
48W9L9_AL	114.9	112.7	110.7	111.9	112.6	-0.41	8.8	1.8	112.6	-0.41	8.8	1.8	4	AL
63DNXJ	98.4 X	114.5	117.0	117.0	111.7	-0.65	9.3	9.0 H	111.7	-0.65	9.3	9.0 H	4	LB
79GU9F	109.9	108.4	111.1	111.6	110.3	-1.07	9.3	1.4	110.3	-1.07	9.3	1.4	4	AH
7JD3PX	115.6	115.7	115.0	116.3	115.7	0.47	10.2	0.5 L	115.7	0.47	10.2	0.5 L	4	LC
8NMF8W_AL	110.6	113.8	116.8	111.8	113.2	-0.22	8.1	2.7	113.2	-0.22	8.1	2.7	4	AL
8RMQ4W	118.6	124.5 *	116.2	115.5	118.7	1.34	10.8	4.1	118.7	1.34	10.8	4.1	4	LZ
96AB4J	117.4	116.7	116.5	118.8	117.4	0.95	6.6	1.0	117.4	0.95	6.6	1.0	4	AH
9NMY94	112.0	116.9	113.3	114.8	114.3	0.07	8.0	2.1	114.3	0.07	8.0	2.1	4	LA
9RKFKX_AL	113.8	110.1	114.9	118.7	114.4	0.10	9.8	3.5	114.4	0.10	9.8	3.5	4	AL
AMNY4X	113.2	113.1	116.1	114.4	114.2	0.06	11.3	1.4	114.2	0.06	11.3	1.4	4	LA
APBTP6	112.6	113.0	112.4	112.7	112.7	-0.39	7.7	0.2 L	112.7	-0.39	7.7	0.2 L	4	LJ
AV3Z8D_AL	120.0	123.7	116.4	117.7	119.5	1.55	10.5	3.2	119.5	1.55	10.5	3.2	4	AL
BBAARE	117.5	116.4	117.1	115.3	116.6	0.73	11.0	1.0	116.6	0.73	11.0	1.0	4	LA
C2YJE2	112.6	107.2	110.3	114.6	111.2	-0.81	10.4	3.2	111.2	-0.81	10.4	3.2	4	LC
CB3PCA_AL	118.7	119.9	116.9	114.3	117.5	0.98	11.7	2.4	117.5	0.98	11.7	2.4	4	AL
E76RZN	118.2	117.0	103.0 *	117.9	114.0	0.01	11.3	7.4 H	114.0	0.01	11.3	7.4 H	4	LA
F3GUMH	111.4	109.5 H	108.8	107.6	109.3	-1.33	12.0	1.6	109.3	-1.33	12.0	1.6	4	LA
F6LFGA	115.4	124.0	116.5	117.4	118.3	1.23	8.8	3.9	118.3	1.23	8.8	3.9	4	TB
F9938C	112.4 H	117.0	119.0	121.4 *	117.5	0.99	12.0	3.8	117.5	0.99	12.0	3.8	4	LC
FLTGBB	108.8	113.6	112.3	106.7	110.3	-1.05	9.3	3.1	110.3	-1.05	9.3	3.1	4	AH
G9J267	112.1	No DATA	107.0	105.7 *	108.3	-1.64	9.5	3.4	108.3	-1.64	9.5	3.4	3	LJ
GWREWP	113.7	110.8	116.2	113.2	113.5	-0.15	8.5	2.2	113.5	-0.15	8.5	2.2	4	LA
HKBA3Y	115.6	116.8	107.2	111.6	112.8	-0.34	8.2	4.3	112.8	-0.34	8.2	4.3	4	AH
HKBAZD	117.2	117.0	118.2 L	118.0	117.6	1.02	7.3	0.6	117.6	1.02	7.3	0.6	4	RE
JFGKBT	110.4	106.5	108.3	109.1	108.6	-1.55	11.9	1.6	108.6	-1.55	11.9	1.6	4	XX
KCTKDP	119.4	114.2	116.0	112.4	115.5	0.43	10.5	3.0	115.5	0.43	10.5	3.0	4	LA
KMQJ4V	122.4 *L	122.0 L	121.4 L	123.6 *L	122.4	2.38 *	3.5	0.9	122.4	2.38 *	3.5	0.9	4	LA
KUAMCX	109.9	118.4	125.4 *	116.8	117.6	1.03	11.2	6.3	117.6	1.03	11.2	6.3	4	LA
LLU96L	112.3	116.4	114.4	112.6	113.9	-0.02	11.0	1.9	113.9	-0.02	11.0	1.9	4	TB
LNHYUX	116.6	111.1	112.2	110.9	112.7	-0.37	11.7	2.7	112.7	-0.37	11.7	2.7	4	LZ
LTCX4L	119.6	119.9	121.1	113.7	118.6	1.30	9.0	3.3	118.6	1.30	9.0	3.3	4	AH



Containerboard Interlaboratory Testing Program
 Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G1
 TAPPI Official Test Method T807

Report #604 (A)
January 2020

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	
M2MH6X	108.5	108.0	105.5 H	112.0	108.5	-1.57	12.7	2.7	108.5	-1.57	12.7	2.7	4	XX
M89C2V	109.4	114.0	112.4	112.2	112.0	-0.58	9.3	1.9	112.0	-0.58	9.3	1.9	4	LA
MYE89U	112.1 L	109.6 L	112.8 L	110.5 L	111.3	-0.78	3.5	1.5	111.3	-0.78	3.5	1.5	4	LA
NDCHDR	112.8	117.4	114.7	113.4	114.6	0.16	13.7	2.0	114.6	0.16	13.7	2.0	4	XX
RF7XVP	116.3	118.0	118.5	114.6	116.8	0.80	9.2	1.8	116.8	0.80	9.2	1.8	4	LA
RTBUER	117.6	112.1	122.9	111.5	116.0	0.58	11.7	5.3	116.0	0.58	11.7	5.3	4	XX
RXKAMF	116.1	112.2	111.8	115.5	113.9	-0.03	9.6	2.2	113.9	-0.03	9.6	2.2	4	LC
RZEVG8_AL	118.1	119.3	117.4	111.4	116.5	0.72	12.4	3.5	116.5	0.72	12.4	3.5	4	XX
TJKQN4	114.4	110.7	112.5	111.6	112.3	-0.49	7.2	1.6	112.3	-0.49	7.2	1.6	4	TP
TYZT8D_AL	120.2	116.5	122.8	115.8	118.8	1.37	9.4	3.3	118.8	1.37	9.4	3.3	4	XX
VHK8Y8	112.9	103.3 *H	121.5	112.3	112.5	-0.43	10.7	7.5 H	112.5	-0.43	10.7	7.5 H	4	LA
W3Q374	115.0	114.0	112.3	112.7	113.5	-0.15	7.3	1.2	113.5	-0.15	7.3	1.2	4	LC
W98XNJ	110.3	107.2	109.2	111.6	109.6	-1.26	12.4	1.8	109.6	-1.26	12.4	1.8	4	LZ
WNGQ8F	107.9	101.6 *	106.2	110.5	106.6	-2.12 *	9.2	3.7	106.6	-2.12 *	9.2	3.7	4	LA
X2ACDB	116.2	116.1	115.8	115.7	116.0	0.55	6.3	0.2 L	116.0	0.55	6.3	0.2 L	4	LA
YLRWQ7	110.8	111.5	113.5	108.2	111.0	-0.86	10.2	2.2	111.0	-0.86	10.2	2.2	4	LA
YRWZDJ	112.4	112.2	114.7	110.5	112.5	-0.44	10.5	1.7	112.5	-0.44	10.5	1.7	4	LC
YRWZDJ_AL	92.0 X	85.5 X	89.0 X	88.6 X	88.8	-7.20 X	9.9	2.7	88.8	-7.20 X	9.9	2.7	4	AL
Z3WQW7	110.2	116.3	107.8	107.7	110.5	-1.00	12.2	4.0	110.5	-1.00	12.2	4.0	4	LC
ZAW8AW	113.8	112.5	111.6	113.6 L	112.9	-0.32	6.4	1.0	112.9	-0.32	6.4	1.0	4	AH
ZYWE27	105.5 *	114.9	113.1	110.6	111.0	-0.85	11.0	4.1	111.0	-0.85	11.0	4.1	4	LC

Consensus (All Labs) Results														
Wk Mean	114.20	114.47	114.23	113.53	Month Mean	114.01			Grand Mean	114.01				
Avg SDr	10.02	9.71	9.86	9.89	Avg SD	9.87			Avg SD	9.87				
SD btwn Labs	3.78	5.01	4.94	3.75	SD btwn Labs	3.51			SD btwn Labs	3.51				
Labs Incl	54	54	55	55	SD btwn Wks	3.33			SD btwn Wks	3.33				
Labs Excl	2	1	1	1	Labs Incl	55			Labs Incl	55				
Labs not Rcvd	0	1	0	0										



Containerboard Interlaboratory Testing Program
Analysis 206
Bursting Strength (Mullen), 56 lb Linerboard - 56G1
TAPPI Official Test Method T807

Report #604 (A)
January 2020

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 (206 Enrollment)
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab



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

Report #604 (A)
January 2020

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
29UU4F	97.7	95.5	95.5	94.4	95.8	0.92	2.8	1.4	94.4	0.81	2.6	2.3	16	LD
2FEVJT	83.1	No DATA	82.7 *	83.3 *	83.0	-2.21 *	2.8	0.3 L	83.5	-1.63	3.2	3.8	14	LD
2UBAH2	81.2	78.3 *	81.9 *	77.0 X	79.6	-3.06 X	3.6	2.3	79.3	-2.58 *	4.7	2.5	16	LC
3HXAL8	88.2	90.5	87.6	89.0	88.8	-0.79	2.9	1.3	87.7	-0.69	2.7	1.2	16	LD
3Y6BF9	90.2	94.4	92.5	94.7	92.9	0.22	2.7	2.1	94.4	0.80	2.8	1.7	16	EN
48W9L9	91.8	90.6	90.0	90.5	90.7	-0.32	2.8	0.8	89.2	-0.35	4.4	1.7	16	LZ
63DNXJ	90.7	97.0	95.8	96.1	94.9	0.70	3.4	2.9	92.3	0.35	3.4	2.2	16	LC
6EN3WC	92.3	93.0	94.3	91.2	92.7	0.16	3.4	1.3	89.4	-0.31	3.4	2.6	16	EX
79GU9F	90.8	90.0 L	89.2	93.1	90.8	-0.31	2.8	1.6	90.7	-0.02	2.9	1.2	16	LC
7JD3PX	100.7 H	101.7 *H	100.7 *	98.8 H	100.5	2.08 *	6.6	1.2	94.3	0.80	7.2	6.1 H	16	LC
8RMQ4W	89.0	91.3	89.8	91.9	90.5	-0.38	3.6	1.3	89.8	-0.23	3.3	1.9	14	LC
96AB4J	88.8	89.6	88.9	90.0	89.3	-0.67	3.2	0.6	88.9	-0.43	2.9	1.5	16	LG
AMNY4X	92.6	95.4	92.1	91.9	93.0	0.24	2.8	1.6	91.2	0.09	2.8	2.4	16	LD
APBTP6	93.8	93.2	93.5	93.6	93.5	0.37	4.1	0.3 L	92.1	0.30	3.5	0.8	16	LD
BAYE6M	93.3 L	93.0	93.2 L	92.7	93.0	0.25	1.7	0.2 L	92.9	0.46	1.8	0.6 L	16	LD
BBAARE	96.4	90.1	90.9	89.6	91.8	-0.07	3.2	3.1	90.6	-0.05	3.0	3.3	16	LC
CB3PCA	93.6	94.2	94.0	95.1	94.2	0.54	2.6	0.7	93.1	0.52	2.5	1.7	16	LD
E76RZN	84.7	92.2	92.1	88.4	89.3	-0.66	3.7	3.5	88.1	-0.61	3.0	2.1	16	LD
EVPZCE	82.3 H	96.6	93.3	81.1 *H	88.3	-0.91	6.4	7.8 H	90.2	-0.14	6.0	6.3 H	15	MB
F6LFGA	103.1 *	97.6	100.5	97.3	99.6	1.86	3.3	2.7	99.9	2.04 *	3.2	2.4	16	LX
F9938C	94.0	95.2	94.6	96.9	95.2	0.78	2.9	1.3	94.1	0.74	3.2	1.8	16	LD
FLTGBB	100.9	97.1	100.9 *	97.4	99.1	1.73	4.1	2.1	98.7	1.78	3.7	2.0	16	LZ
FYE2MR	98.0	No DATA	96.5	94.8	96.4	1.08	3.0	1.6	96.8	1.34	3.4	3.0	8	MB
G9J267	85.9	No DATA	85.6	82.8 *	84.8	-1.79	4.1	1.7	87.4	-0.76	3.5	2.4	11	LD
GWREWP	89.0	86.0	89.6	89.6 L	88.5	-0.86	2.4	1.7	89.5	-0.29	2.9	1.5	16	LD
HKBAZD	96.7	95.5	94.7	96.2	95.8	0.92	3.4	0.8	93.3	0.56	2.7	2.6	16	LZ
JFGKBT	97.5	87.4	99.0	88.7	93.2	0.28	3.0	5.9 H	89.9	-0.20	3.2	4.2	12	LD
KMQJ4V	82.7	83.7	85.8	84.7	84.2	-1.92	2.2	1.3	83.2	-1.69	1.4	2.2	16	TU
KUAMCX	97.4	99.9	96.5	98.5	98.1	1.48	3.0	1.5	96.2	1.21	3.7	5.5	14	LD
L6KN3N	88.6	89.1	87.2	87.7	88.1	-0.96	2.1	0.9	88.1	-0.59	2.6	1.5	16	MB
LLU96L	No DATA	No DATA	94.8	92.9	93.9	0.45	4.5	1.3	93.6	0.63	3.8	2.0	11	LD
LMPTPZ	85.9	84.0 L	85.6	86.7	85.6	-1.59	1.8	1.1	85.1	-1.28	1.9	1.0	16	RS
MTRE2Z	95.3	95.2	95.8	95.0	95.3	0.81	3.0	0.3 L	94.0	0.71	2.5	2.7	16	TH
MYE89U	92.8	89.3	92.1	92.9	91.8	-0.07	2.3	1.7	90.7	-0.02	1.5	1.6	16	LZ
NFXHC8	85.6	87.9	88.4	86.5	87.1	-1.21	3.8	1.3	89.5	-0.29	3.4	2.7	16	LD



Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

TAPPI Official Test Method T822

Report #604 (A)

January 2020

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	
NYR3AR	90.0	88.6	90.7	92.9	90.6	-0.36	3.5	1.8	90.5	-0.06	2.9	1.3	16	EM
RF7XVP	79.3 *	77.8 *	76.0 X	72.4 X	76.4	-3.85 X	3.1	3.0	79.8	-2.46 *	7.6	3.1	16	LC
RFPH3H	83.8	84.5	87.1	89.0	86.1	-1.46	2.7	2.4	84.7	-1.36	2.8	1.8	16	EN
RXXKAMF	95.1	95.9	90.4	92.9 L	93.5	0.37	2.8	2.5	93.0	0.49	3.6	2.5	16	LD
RZEVG8	91.5	95.7	94.1	94.1	93.9	0.45	3.1	1.7	93.7	0.65	3.3	2.7	16	LD
TJKQN4	94.6	88.7	88.3	89.8	90.3	-0.41	3.9	2.9	90.1	-0.15	3.8	1.6	16	TJ
TYZT8D	93.0	89.8	91.2	92.9	91.7	-0.07	2.9	1.5	91.6	0.19	7.8	2.6	16	LC
UH6Q7Y	72.2 X	74.0 X	75.2 X	73.0 X	73.6	-4.53 X	3.8	1.3	82.5	-1.85	3.5	9.1 H	16	EM
VHK8Y8	99.1	99.0	98.3	98.1	98.6	1.62	3.1	0.5	97.4	1.48	3.1	1.7	16	LZ
W3Q374	88.6	92.7	90.9	89.9	90.5	-0.37	4.0	1.7	88.4	-0.54	3.3	3.0	16	LD
W98XNJ	90.8	88.2	92.4	93.9	91.3	-0.17	3.3	2.5	92.1	0.29	3.1	1.8	16	LD
X2ACDB	93.1	92.7	93.1	93.0	93.0	0.23	2.9	0.2 L	92.2	0.32	3.2	0.7 L	16	LD
XL9XQM	97.5	97.5	97.5	96.9	97.3	1.31	2.7	0.3 L	96.1	1.20	3.4	2.9	16	LZ
XPAWAR	90.9	89.7	87.3	90.2	89.5	-0.61	2.3	1.6	88.4	-0.54	2.7	1.2	16	LC
YLRWQ7	91.2	87.5	86.9	91.0	89.1	-0.71	2.4	2.3	89.9	-0.20	2.5	2.9	16	LD
YYGR9Q	100.6	98.2	93.4 H	88.8 H	95.2	0.79	5.4	5.2 H	98.7	1.79	4.4	3.7	16	TU
Z3WQW7	89.8	88.9	90.4	86.9	89.0	-0.75	2.5	1.6	89.7	-0.23	3.1	1.4	16	LD

Consensus (All Labs) Results									
Wk Mean	91.67	91.69	91.94	91.72	Month Mean	92.03	Grand Mean	90.78	
Avg SDr	3.37	3.17	3.35	3.49	Avg SD	3.36	Avg SD	3.63	
SD btwn Labs	5.52	5.18	4.44	4.18	SD btwn Labs	4.07	SD btwn Labs	4.45	
Labs Incd	50	47	50	49	SD btwn Wks	2.29	SD btwn Wks	2.91	
Labs Excl	1	1	2	3	Labs Incd	49	Labs Incd	52	
Labs not Rcvd	1	4	0	0					

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LG	L&W 753
LX	L&W 506	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	RS	Regmed Digital Crush Tester CT-2000
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)		



Containerboard Interlaboratory Testing Program
 Analysis 216
Ring Crush, 56 lb Linerboard - 56G1
 TAPPI Official Test Method T822

Report #604 (A)
January 2020

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
29UU4F	135.3	136.4	136.6	137.6	136.5	0.26	4.2	0.9	136.5	0.26	4.2	0.9	4	LD
2FEVJT	126.8	No DATA	122.9 *	122.2	124.0	-1.92	4.5	2.5	124.0	-1.92	4.5	2.5	3	LD
2UBAH2	116.6 *	114.0 *	121.8 *	116.8 *	117.3	-3.07 X	5.3	3.3	117.3	-3.07 X	5.3	3.3	4	LC
3HXAL8	128.7	131.1	129.6	131.4	130.2	-0.83	4.6	1.3	130.2	-0.83	4.6	1.3	4	LD
3Y6BF9	134.5	134.8	136.3	135.6	135.3	0.06	4.0	0.8	135.3	0.06	4.0	0.8	4	EN
48W9L9	138.8	139.3	137.2	138.8	138.5	0.62	3.3	0.9	138.5	0.62	3.3	0.9	4	LZ
63DNXJ	138.9	145.3	144.6	141.2	142.5	1.31	3.8	3.0	142.5	1.31	3.8	3.0	4	LC
6EN3WC	135.2	135.7	138.1 H	139.6	137.2	0.38	6.2	2.0	137.2	0.38	6.2	2.0	4	EX
79GU9F	132.3	130.4	132.6 L	135.0	132.6	-0.42	3.2	1.9	132.6	-0.42	3.2	1.9	4	LC
7JD3PX	137.9 H	136.1 H	137.3 H	136.3 H	136.9	0.33	11.6	0.8	136.9	0.33	11.6	0.8	4	LC
8RMQ4W	127.5	126.8	130.1	128.3	128.2	-1.18	3.9	1.4	128.2	-1.18	3.9	1.4	4	LC
96AB4J	131.9	130.0	133.9	132.8	132.1	-0.50	3.5	1.6	132.1	-0.50	3.5	1.6	4	LY
AMNY4X	134.5	133.7	133.3	131.4	133.2	-0.30	3.4	1.3	133.2	-0.30	3.4	1.3	4	LD
APBTP6	141.6 L	141.3	141.0	141.8	141.4	1.12	2.9	0.4 L	141.4	1.12	2.9	0.4 L	4	LD
BAYE6M	137.4 L	137.4	136.8	136.2	137.0	0.34	2.7	0.6	137.0	0.34	2.7	0.6	4	LD
BBAARE	134.9	135.0	131.8	129.4	132.8	-0.38	4.0	2.7	132.8	-0.38	4.0	2.7	4	LC
CB3PCA	133.8	133.3	133.3	132.0	133.1	-0.33	3.9	0.8	133.1	-0.33	3.9	0.8	4	LD
E76RZN	129.8	136.3	135.4	131.3	133.2	-0.31	4.0	3.1	133.2	-0.31	4.0	3.1	4	LD
EVPZCE	123.7	136.8	143.5	119.9 *H	131.0	-0.70	5.3	11.1 H	131.0	-0.70	5.3	11.1 H	4	MB
F6LFGA	147.7	No DATA	149.1 *	147.2 *	148.0	2.26 *	4.4	1.0	148.0	2.26 *	4.4	1.0	3	LY
F9938C	137.2	135.6	140.3	142.5	138.9	0.69	4.9	3.1	138.9	0.69	4.9	3.1	4	LD
FLTGBB	144.2	141.0	146.5	139.3	142.8	1.35	5.1	3.2	142.8	1.35	5.1	3.2	4	LZ
FYE2MR	142.9	147.1 H	144.4	139.1	143.4	1.47	6.2	3.3	143.4	1.47	6.2	3.3	4	MB
G9J267	124.5	No DATA	123.7	127.2	125.1	-1.72	4.0	1.8	125.1	-1.72	4.0	1.8	3	LD
GWREWP	132.8	131.5	131.6	130.5	131.6	-0.59	3.5	1.0	131.6	-0.59	3.5	1.0	4	LD
HKBAZD	139.5	139.3	138.0	138.6	138.8	0.67	2.7	0.7	138.8	0.67	2.7	0.7	4	LZ
JFGKBT	144.1	126.9	145.4	130.5	136.7	0.30	4.4	9.4 H	136.7	0.30	4.4	9.4 H	4	LD
KMQJ4V	123.9 L	130.1	130.6	130.0	128.7	-1.10	3.3	3.2	128.7	-1.10	3.3	3.2	4	TU
KUAMCX	139.7	147.3	142.0	140.7	142.4	1.30	4.8	3.4	142.4	1.30	4.8	3.4	4	LD
L6KN3N	121.8	123.2	122.8 *	122.0	122.4	-2.18 *	3.2	0.6	122.4	-2.18 *	3.2	0.6	4	MB
LLU96L	No DATA	No DATA	139.7	138.1	138.9	0.68	4.2	1.1	138.9	0.68	4.2	1.1	2	LD
LMPTPZ	131.1 L	132.1 L	132.6	132.6 L	132.1	-0.50	1.6	0.7	132.1	-0.50	1.6	0.7	4	RS
MTRE2Z	133.4	133.5	133.4	134.7	133.7	-0.22	4.0	0.6	133.7	-0.22	4.0	0.6	4	TH
MYE89U	139.1 L	132.0	139.7	140.2	137.7	0.48	3.6	3.8	137.7	0.48	3.6	3.8	4	LZ
NFXHC8	129.4	130.1	128.2	126.7	128.6	-1.11	5.9	1.5	128.6	-1.11	5.9	1.5	4	LD



Containerboard Interlaboratory Testing Program
 Analysis 216
Ring Crush, 56 lb Linerboard - 56G1
 TAPPI Official Test Method T822

Report #604 (A)
January 2020

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	
NYR3AR	127.6	125.3	130.4	132.0	128.8	-1.07	4.0	3.0	128.8	-1.07	4.0	3.0	4	EM
RF7XVP	113.8 *H	120.6	106.4 XH	116.5 *	114.3	-3.59 X	7.1	6.0 H	114.3	-3.59 X	7.1	6.0 H	4	LC
RFPH3H	121.4	117.0 *	125.2	125.0	122.1	-2.23 *	4.1	3.9	122.1	-2.23 *	4.1	3.9	4	EN
RXXKAMF	139.2	134.1 H	135.7	137.6	136.7	0.29	7.2	2.3	136.7	0.29	7.2	2.3	4	LD
RZEVG8	135.1	134.5	138.0	134.3	135.5	0.09	4.6	1.7	135.5	0.09	4.6	1.7	4	LD
TJKQN4	142.0	143.8	140.7	139.7	141.6	1.15	5.0	1.7	141.6	1.15	5.0	1.7	4	TJ
TYZT8D	132.6	135.7	135.7	135.6	134.9	-0.01	4.0	1.5	134.9	-0.01	4.0	1.5	4	LC
UH6Q7Y	114.2 *	113.6 *	112.2 X	113.7 X	113.4	-3.76 X	4.6	0.9	113.4	-3.76 X	4.6	0.9	4	EM
VHK8Y8	136.2	138.2	135.9	136.1	136.6	0.28	5.1	1.1	136.6	0.28	5.1	1.1	4	LZ
W3Q374	131.4	135.9	137.2	132.7	134.3	-0.12	5.5	2.7	134.3	-0.12	5.5	2.7	4	LD
W98XNJ	135.1	130.3	138.3	137.3	135.2	0.05	4.6	3.6	135.2	0.05	4.6	3.6	4	LD
X2ACDB	143.2	143.2	144.0	143.0	143.4	1.46	3.5	0.4 L	143.4	1.46	3.5	0.4 L	4	LD
XL9XQM	141.7	141.2	139.9	139.8	140.6	0.98	5.2	0.9	140.6	0.98	5.2	0.9	4	LZ
XPAWAR	131.1	131.6	130.4	132.2	131.3	-0.63	3.5	0.8	131.3	-0.63	3.5	0.8	4	LC
YLRWQ7	134.8	136.5 L	132.7	132.2	134.1	-0.16	3.3	2.0	134.1	-0.16	3.3	2.0	4	LD
YYGR9Q	145.2	141.8	144.3	140.8	143.0	1.40	5.0	2.0	143.0	1.40	5.0	2.0	4	TU
Z3WQW7	132.0	127.6	132.1	129.6	130.3	-0.81	3.9	2.1	130.3	-0.81	3.9	2.1	4	LD

Consensus (All Labs) Results										
Wk Mean	133.49	133.63	135.69	133.77	Month Mean	134.98		Grand Mean	134.98	
Avg SDr	4.58	4.89	4.41	4.68	Avg SD	4.59		Avg SD	4.59	
SD btwn Labs	7.77	7.61	6.42	6.72	SD btwn Labs	5.75		SD btwn Labs	5.75	
Labs Includ	51	48	50	51	SD btwn Wks	2.91		SD btwn Wks	2.91	
Labs Exclcd	0	0	2	1	Labs Includ	49		Labs Includ	49	
Labs not Rcvd	1	4	0	0						

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LY	L&W Crush Tester 958
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
RS	Regmed Digital Crush Tester CT-2000	TH	TMI Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TU	TMI Universal Crush Tester (TMI K440)



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

Report #604 (A)

January 2020

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	
29UU4F	24.1	24.4	23.4	23.3	23.8	-0.05	1.8	0.5	23.3	-0.44	1.7	0.6	16	LA
2UBAH2	19.7 XL	19.5 X	20.6 *	19.9 *	19.9	-3.61 X	1.3	0.5	21.6	-2.27 *	1.8	1.6	16	LZ
3HXAL8	24.2	25.3	23.9	23.9	24.3	0.41	2.0	0.7	24.8	1.15	1.8	0.6	16	LU
3Y6BF9	20.7 XH	21.9 H	21.9	21.3	21.4	-2.23 *	2.3	0.6	21.5	-2.42 *	1.8	0.5	16	LH
48W9L9_AL	39.1 XH	38.7 X	38.0 XH	38.1 X	38.5	13.48 X	2.6	0.5	38.5	15.96 X	2.6	0.5	4	AL
63DNXJ	25.2	25.5	25.2	24.7	25.2	1.21	1.8	0.3	24.2	0.48	1.5	0.8	16	LW
6EN3WC	25.2 L	26.4 *L	25.8 L	27.6 *L	26.2	2.17 *	0.0	1.0	24.9	1.27	0.0	1.2	16	TT
79GU9F	24.3	23.4	23.6	23.1	23.6	-0.25	1.6	0.5	23.4	-0.39	1.6	0.5	16	LU
7FEN39	22.9	22.4	22.1	22.5	22.5	-1.30	1.2	0.4	22.5	-1.32	1.6	0.6	16	LW
7JD3PX	25.2	25.2	25.8	24.9	25.3	1.31	2.0	0.4	25.4	1.78	2.2	0.9	16	LA
8NMF8W_AL	22.5	24.7	23.3	22.5	23.2	-0.57	1.4	1.0	23.2	-0.52	1.4	1.0	4	AL
8R96R9	24.5	24.5	25.2	25.4	24.9	0.96	1.8	0.5	24.9	1.30	2.0	0.7	16	XX
8RMQ4W	24.1	23.6	25.3	25.7	24.7	0.75	1.5	1.0	24.4	0.69	1.5	0.6	14	LW
96AB4J	23.0	23.3	22.8	23.1	23.0	-0.75	1.8	0.2	23.0	-0.80	1.7	0.5	16	LU
9EJMFG	24.1	23.1	23.1	22.6	23.2	-0.58	1.7	0.6	24.1	0.38	1.7	0.7	16	XX
9NMY94	22.6	23.4	23.0	22.9	23.0	-0.83	1.5	0.3	23.1	-0.70	1.8	0.3	16	LY
9RKFKX_AL	47.8 XL	41.3 XL	41.6 XL	37.4 XL	42.0	16.76 X	0.0	4.3 H	42.0	19.81 X	0.0	4.3 H	4	AL
AMNY4X	23.1	23.0	23.0	23.1	23.1	-0.74	1.3	0.1 L	23.1	-0.72	1.6	0.4	16	LZ
AV3Z8D_AL	24.7	23.9	24.8	23.9	24.3	0.43	1.9	0.5	24.3	0.66	1.9	0.5	4	AL
BAU3F6	23.4	24.0	24.6	24.6	24.1	0.25	1.5	0.5	24.6	0.95	1.6	0.5	16	LH
BAYE6M	23.6	23.6	23.5	23.2	23.5	-0.35	1.8	0.2	23.4	-0.38	1.7	0.2 L	16	LY
BBAARE	25.0	22.9	22.2	23.1 L	23.3	-0.52	1.4	1.2	23.1	-0.69	1.4	1.1	16	LA
C2YJE2	22.6	23.0	24.7	24.1	23.6	-0.21	2.0	1.0	23.6	-0.18	1.7	0.6	16	LA
CB3PCA_AL	39.2 X	40.3 X	41.1 X	40.8 X	40.4	15.21 X	1.7	0.8	40.4	18.00 X	1.7	0.8	4	AL
E76RZN	23.0	23.5	24.7	22.6 L	23.5	-0.38	1.5	0.9	23.6	-0.12	1.5	0.6	16	LA
EVPZCE	23.4	23.4	23.2	24.2	23.6	-0.28	1.7	0.4	23.7	-0.03	1.8	0.8	15	LA
F3GUMH	22.4	22.9	21.9	20.3 *	21.9	-1.83	1.8	1.2	20.7	-3.31 X	1.6	1.6	8	LH
F7Y236	23.2	22.4	22.2	22.5	22.6	-1.19	1.7	0.4	22.6	-1.25	1.7	0.5	16	XX
F9938C	24.9	25.3	24.8	24.5	24.9	0.92	1.5	0.3	24.2	0.50	1.9	0.5	16	LA
FYE2MR	24.2	23.4	23.4 L	22.8	23.4	-0.40	1.3	0.5	23.7	0.00	1.5	2.2 H	11	LA
G9J267	23.0	21.1 * No DATA	23.5	23.5	22.5	-1.21	1.6	1.3	22.6	-1.20	1.6	0.7	11	LY
GGVKYP	23.0	23.1	24.3	23.2	23.4	-0.43	1.6	0.6	23.9	0.20	1.7	0.7	13	LY
GWREWP	22.9	23.3	23.3 L	23.4	23.2	-0.59	1.5	0.2	23.0	-0.81	1.4	0.4	16	LA
HKBA3Y	23.4 L	22.8 L	28.0 X	22.5 L	24.2	0.27	0.7	2.6 H	24.2	0.47	0.7	2.6 H	4	XX
LLU96L	23.7	24.5	24.0	24.7	24.2	0.35	1.9	0.4	24.5	0.89	1.8	0.7	16	LW



Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

Report #604 (A)

January 2020

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	
LNHYUX	25.5 L	25.2 L	25.1 L	25.2 L	25.2	1.27	0.5	0.2	24.9	1.26	1.4	0.7	16	LZ
LTCX4L	24.3	25.7	24.4	No DATA	24.8	0.87	2.2	0.8	24.3	0.68	2.1	0.8	15	LU
M89C2V	24.7	24.7	24.9	24.6	24.7	0.78	1.6	0.1 L	24.1	0.41	1.7	0.9	16	LU
MTQQDV	23.5	22.8	23.7	24.4	23.6	-0.24	1.6	0.7	23.6	-0.13	1.6	0.7	4	LH
NFXHC8	22.1	22.8	22.7	21.9	22.4	-1.36	1.8	0.4	22.6	-1.23	1.7	0.7	16	LH
RF7XVP	24.5	24.5	25.2	25.4	24.9	0.96	1.8	0.5	24.9	1.30	2.0	0.7	16	LU
RFPH3H	21.6 *	22.1	22.2	22.0	22.0	-1.72	1.7	0.3	22.1	-1.80	1.6	0.5	16	LY
RXKAMF	24.6	24.7	25.4	26.1	25.2	1.24	1.6	0.7	24.2	0.57	1.6	1.2	16	LA
RZEVG8_AL	42.2 XL	40.4 XL	42.0 XL	34.0 XL	39.6	14.54 X	0.0	3.8 H	39.6	17.21 X	0.0	3.8 H	4	XX
TJKQN4	23.6	23.8 L	23.5 L	23.2	23.5	-0.32	1.0	0.2	23.5	-0.27	1.1	0.3	16	TT
TYZT8D_AL	37.5 X	39.2 X	39.8 X	37.2 X	38.4	13.43 X	2.4	1.3	38.4	15.91 X	2.4	1.3	4	XX
URDHBN	24.8	23.8 L	26.5 *	24.5	24.9	0.97	1.8	1.2	24.6	1.00	1.7	1.6	12	LA
V3NM6J	26.0 *	25.0	28.7 X	27.0 *	26.7	2.59 *	1.7	1.6 H	26.7	3.19 X	1.7	1.6	4	TT
VHK8Y8	23.3	21.8	21.0 *	24.0	22.5	-1.27	2.0	1.4	22.3	-1.59	1.8	0.8	16	LW
W98XNJ	23.5	22.6	23.6	22.7	23.1	-0.72	1.8	0.5	23.6	-0.16	1.3	0.6	16	LY
WNGQ8F	24.1	26.1 *	24.1	24.2	24.6	0.72	2.0	1.0	25.1	1.53	2.2	0.8	16	LH
X2ACDB	23.4	23.6	23.6	23.5	23.5	-0.30	1.7	0.1 L	23.3	-0.49	1.6	0.2 L	16	LA
XL9XQM	23.7	24.4	24.1 L	23.2	23.9	-0.01	1.5	0.5	23.2	-0.56	1.6	0.9	16	LA
YLRWQ7	24.8	23.8 L	24.1	22.8	23.9	0.03	1.5	0.8	23.4	-0.31	1.4	1.1	16	BK
YRWZDJ	24.0	24.4	24.7	23.4	24.1	0.24	2.0	0.6	24.7	1.11	1.8	1.0	12	LA
YRWZDJ_AL	40.9 XH	33.2 XH	41.3 XH	34.6 X	37.5	12.58 X	6.1	4.2 H	37.5	14.91 X	6.1	4.2 H	4	AL
YYGR9Q	23.6 H	23.2 H	25.4 H	25.4 H	24.4	0.50	5.9	1.2	24.3	0.58	3.0	1.4	16	LA
Z3WQW7_AL	23.9	23.5	23.4	23.9	23.7	-0.17	1.6	0.3	23.7	-0.05	1.6	0.3	4	AK
ZAW8AW	23.5	23.5 L	23.9 L	23.6	23.6	-0.21	1.1	0.2	23.6	-0.09	1.1	0.3	16	TT
ZYTYLJ	25.9 *	25.4	26.5 *	25.5	25.8	1.81	1.9	0.5	25.4	1.78	1.7	0.7	16	LH

Consensus (All Labs) Results									
Wk Mean	23.85	23.78	23.87	23.70	Month Mean	23.86	Grand Mean	23.72	
Avg SDr	1.84	1.80	1.88	1.81	Avg SD	1.84	Avg SD	1.71	
SD btwn Labs	0.97	1.14	1.31	1.45	SD btwn Labs	1.08	SD btwn Labs	0.92	
Labs Incl	52	53	51	53	SD btwn Wks	0.78	SD btwn Wks	0.90	
Labs Excl	8	7	8	6	Labs Incl	53	Labs Incl	52	
Labs not Rcvd	0	0	1	1					



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

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program

Analysis 224

Report #604 (A)

January 2020

STFI, 56 lb Linerboard - 56G1

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
29UU4F	33.7	32.8	34.2	35.0	33.9	-0.47	2.2	0.9	33.9	-0.47	2.2	0.9	4	LU
2UBAH2	27.9 X	28.4 *L	29.0 X	30.2 *	28.9	-2.52 *	2.6	1.0	28.9	-2.52 *	2.6	1.0	4	XX
3HXAL8	35.8	36.9	35.7	36.5	36.2	0.47	2.9	0.6	36.2	0.47	2.9	0.6	4	LU
3Y6BF9	30.3 X	31.0	32.0	21.3 XL	28.6	-2.61 *	1.9	5.0 H	28.6	-2.61 *	1.9	5.0 H	4	LU
48W9L9_AL	44.2 X	40.1 L	40.6 X	39.5	41.1	2.46 *	2.5	2.1	41.1	2.46 *	2.5	2.1	4	AL
63DNXJ	36.7	36.4	36.4	35.9	36.3	0.52	2.4	0.3	36.3	0.52	2.4	0.3	4	ID
6EN3WC	36.5 L	34.9 L	35.1 L	35.9 L	35.6	0.22	0.0	0.7	35.6	0.22	0.0	0.7	4	LZ
79GU9F	34.5	33.8	34.1	34.1	34.1	-0.38	2.5	0.3	34.1	-0.38	2.5	0.3	4	LU
7FEN39	34.3	33.9 L	33.2	31.9	33.3	-0.71	2.1	1.1	33.3	-0.71	2.1	1.1	4	LW
7JD3PX	36.1	35.8	36.3	35.2	35.9	0.32	3.1	0.5	35.9	0.32	3.1	0.5	4	LA
8NMF8W_AL	33.6	35.0	35.4	35.2	34.8	-0.11	2.1	0.8	34.8	-0.11	2.1	0.8	4	AL
8R96R9	35.7	36.0	37.2 L	37.8	36.6	0.64	2.1	1.0	36.6	0.64	2.1	1.0	4	LU
8RMQ4W	35.2	36.8	36.6	36.4	36.3	0.49	2.3	0.7	36.3	0.49	2.3	0.7	4	LW
96AB4J	34.4	34.5	33.7	33.6	34.0	-0.42	2.3	0.5	34.0	-0.42	2.3	0.5	4	LU
9EJMFG	35.9	35.7 L	35.2	33.8	35.1	0.04	2.5	1.0	35.1	0.04	2.5	1.0	4	XX
9NMY94	34.4	33.5	34.4	34.8	34.3	-0.32	2.2	0.5	34.3	-0.32	2.2	0.5	4	LU
9RKFKX_AL	40.9 XL	40.1 L	47.0 XL	49.1 XL	44.3	3.74 X	0.0	4.5 H	44.3	3.74 X	0.0	4.5 H	4	XX
AMNY4X	34.4	34.0	32.2	34.9	33.9	-0.48	2.6	1.2	33.9	-0.48	2.6	1.2	4	LZ
AV3Z8D_AL	35.5	33.6	34.0	35.7	34.7	-0.15	2.3	1.0	34.7	-0.15	2.3	1.0	4	AL
BAU3F6	34.8	36.0	37.1	36.5	36.1	0.43	2.3	1.0	36.1	0.43	2.3	1.0	4	LH
BAYE6M	34.9	34.9	35.0	34.8	34.9	-0.07	2.3	0.1 L	34.9	-0.07	2.3	0.1 L	4	LY
BBAARE	36.9 L	33.7 L	32.5	31.4 L	33.6	-0.58	1.5	2.4	33.6	-0.58	1.5	2.4	4	LA
C2YJE2	35.0	33.7	36.1	35.1	35.0	-0.04	2.4	1.0	35.0	-0.04	2.4	1.0	4	LA
CB3PCA_AL	41.9 X	40.5	42.9 X	41.4 *	41.7	2.69 *	2.7	1.0	41.7	2.69 *	2.7	1.0	4	XX
E76RZN	35.2	33.2 L	34.4	34.2 L	34.3	-0.33	1.9	0.8	34.3	-0.33	1.9	0.8	4	LA
EVPZCE	32.8	34.0	33.4	33.1 L	33.3	-0.70	2.0	0.5	33.3	-0.70	2.0	0.5	4	LA
F3GUMH	32.7	32.8	33.0	32.2	32.7	-0.97	2.5	0.3	32.7	-0.97	2.5	0.3	4	LH
F7Y236	32.5	32.2	32.2 L	31.4	32.1	-1.20	2.4	0.5	32.1	-1.20	2.4	0.5	4	XX
F9938C	34.7	34.4	34.7	34.7	34.6	-0.17	2.3	0.1 L	34.6	-0.17	2.3	0.1 L	4	LA
FYE2MR	34.6	34.7	35.2	35.3 L	34.9	-0.04	2.0	0.3	34.9	-0.04	2.0	0.3	4	LA
G9J267	32.0 *	No DATA	31.6	32.8 L	32.1	-1.18	2.6	0.6	32.1	-1.18	2.6	0.6	3	XX
GGVKYP	33.6	35.0 L	34.8	35.1	34.6	-0.18	2.2	0.7	34.6	-0.18	2.2	0.7	4	LY
GWREWP	33.5	32.8	33.4	31.9	32.9	-0.87	2.7	0.8	32.9	-0.87	2.7	0.8	4	LW
HKBA3Y	34.2 L	36.2 L	39.5 *	34.1 L	36.0	0.38	1.2	2.5 H	36.0	0.38	1.2	2.5 H	4	XX
LLU96L	36.3	35.7	34.5	35.9	35.6	0.23	2.6	0.8	35.6	0.23	2.6	0.8	4	LW



Containerboard Interlaboratory Testing Program

Analysis 224

Report #604 (A)

January 2020

STFI, 56 lb Linerboard - 56G1

TAPPI Official Test Method T826

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
LNHYUX	35.4 L	35.8 L	34.4 L	35.1 L	35.2	0.04	0.8	0.6	35.2	0.04	0.8	0.6	4	LZ
LTCX4L	35.7 H	33.4 H	35.7	34.4	34.8	-0.10	4.0	1.1	34.8	-0.10	4.0	1.1	4	LU
M89C2V	34.7	36.3	34.3	35.9	35.3	0.10	2.2	0.9	35.3	0.10	2.2	0.9	4	LU
MTQQDV	34.2	34.5	34.7	33.9	34.3	-0.30	2.4	0.3	34.3	-0.30	2.4	0.3	4	LH
NFXHC8	32.8	33.1	33.9	31.9	32.9	-0.87	2.8	0.8	32.9	-0.87	2.8	0.8	4	LH
RF7XVP	35.7	36.0	37.2	37.8	36.6	0.64	2.4	1.0	36.6	0.64	2.4	1.0	4	LU
RFPH3H	32.5	33.1	33.3	33.5	33.1	-0.80	2.7	0.4	33.1	-0.80	2.7	0.4	4	LY
RXKAMF	36.4 H	38.7 L	37.2	38.2	37.6	1.03	2.4	1.0	37.6	1.03	2.4	1.0	4	LA
RZEVG8_AL	42.8 XL	42.6 *L	43.6 XL	40.9 *L	42.4	3.00 X	0.0	1.1	42.4	3.00 X	0.0	1.1	4	XX
TJKQN4	34.5 L	34.7 L	34.7 L	34.2 L	34.5	-0.21	1.3	0.2	34.5	-0.21	1.3	0.2	4	TT
TYZT8D_AL	41.8 X	39.7	44.4 X	40.2 *	41.5	2.62 *	2.8	2.1	41.5	2.62 *	2.8	2.1	4	XX
URDHBN	37.3	37.4	37.8	34.1	36.6	0.64	2.7	1.7	36.6	0.64	2.7	1.7	4	LA
V3NM6J	41.1 X	41.2 *	42.1 X	41.0 *	41.3	2.56 *	2.3	0.5	41.3	2.56 *	2.3	0.5	4	TT
VHK8Y8	32.5	31.3	31.8	33.7 L	32.3	-1.12	2.2	1.0	32.3	-1.12	2.2	1.0	4	LW
W98XNJ	35.1	33.4	34.3	34.7	34.4	-0.28	2.5	0.7	34.4	-0.28	2.5	0.7	4	LZ
WNGQ8F	37.2	36.3	34.3	36.3	36.0	0.39	3.0	1.2	36.0	0.39	3.0	1.2	4	LH
X2ACDB	34.5	34.7	34.4	34.6	34.6	-0.20	2.8	0.1 L	34.6	-0.20	2.8	0.1 L	4	LA
XL9XQM	33.5	34.8	34.0	34.2	34.1	-0.38	2.5	0.5	34.1	-0.38	2.5	0.5	4	LA
YLRWQ7	33.6	33.4 L	35.6 L	34.0 L	34.2	-0.36	1.5	1.0	34.2	-0.36	1.5	1.0	4	BK
YRWZDJ	35.7 H	36.3	38.4 *	36.1	36.6	0.64	3.8	1.2	36.6	0.64	3.8	1.2	4	LA
YRWZDJ_AL	45.3 X	40.4	47.5 X	40.2 *	43.4	3.38 X	3.1	3.7 H	43.4	3.38 X	3.1	3.7 H	4	AL
YYGR9Q	39.2 XH	39.9 H	37.2 H	32.9 H	37.3	0.91	14.3	3.1 H	37.3	0.91	14.3	3.1 H	4	LA
Z3WQW7_AL	32.7	34.8 L	34.3	35.5 L	34.3	-0.29	1.9	1.2	34.3	-0.29	1.9	1.2	4	AK
ZAW8AW	35.3 L	34.8 L	34.9 L	34.9 L	35.0	-0.03	1.4	0.2	35.0	-0.03	1.4	0.2	4	TT
ZYTYLJ	37.3	37.0	37.6	37.8	37.4	0.96	2.5	0.3	37.4	0.96	2.5	0.3	4	LH

Consensus (All Labs) Results									
Wk Mean	34.74	35.36	34.87	35.20	Month Mean	35.06	Grand Mean	35.06	
Avg SDr	2.55	3.22	2.90	2.84	Avg SD	3.05	Avg SD	3.05	
SD btwn Labs	1.38	2.68	1.75	2.46	SD btwn Labs	2.46	SD btwn Labs	2.46	
Labs Incl	50	59	52	58	SD btwn Wks	1.25	SD btwn Wks	1.25	
Labs Excl	10	0	8	2	Labs Incl	57	Labs Incl	57	
Labs not Rcvd	0	1	0	0					



Containerboard Interlaboratory Testing Program
Analysis 224
STFI, 56 lb Linerboard - 56G1
TAPPI Official Test Method T826

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

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



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

Report #604 (A)
January 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3HXAL8	150.3	0.26	17.27	147.2	0.21	3.16	4	EV
48W9L9_AL	151.6	0.32	10.37 L	151.6	0.46	0.00	1	XX
7JD3PX	159.9	0.69	15.53	160.2	0.95	9.75	4	EV
8NMF8W_AL	148.4	0.17	15.95	148.4	0.28	0.00	1	AL
8RMQ4W	144.4	-0.01	14.21	144.8	0.07	1.41 L	4	LS
ABAYCB	118.6	-1.18	9.69 L	118.4	-1.43	2.60	4	EV
AV3Z8D_AL	132.9	-0.53	21.28	132.9	-0.61	0.00	1	AL
BBAARE	0.1	-6.54 X	0.01 L	0.1	-8.19 X	0.00	1	EV
C2YJE2	193.1	2.20 *	72.02 H	183.3	2.27 *	19.94	4	LA
CB3PCA	304.0	7.22 X	15.03	304.0	9.16 X	0.00	1	EV
EVPZCE	144.6	0.00	22.58	141.3	-0.13	10.28	4	LA
F9938C	121.5	-1.05	18.00	153.2	0.56	43.57 H	4	LA
FYE2MR	137.9	-0.30	13.82	142.1	-0.08	3.66	3	LA
GWREWP	143.5	-0.05	18.14	142.4	-0.06	0.91 L	4	LA
LF4V3X	142.1	-0.11	15.89	134.8	-0.50	8.86	4	LS
LLU96L	118.6	-1.18	9.69 L	118.6	-1.42	0.00	1	XX
LNHYUX	122.7	-0.99	20.97	144.0	0.03	24.61	4	XX
RF7XVP	195.2	2.29 *	55.41 H	205.2	3.52 X	29.27 H	4	EV
RFPH3H	153.4	0.40	16.67	151.0	0.43	3.76	4	EV
RXKAMF	132.6	-0.54	15.43	127.9	-0.89	5.20	4	LA
RZEVG8_AL	229.6	3.85 X	13.92	229.6	4.91 X	0.00	1	XX
TYZT8D_AL	172.6	1.27	25.62	172.6	1.66	0.00	1	XX
VHK8Y8	135.7	-0.40	19.08	136.8	-0.38	1.96 L	4	EV
W98XNJ	158.9	0.65	13.70	152.8	0.53	6.49	4	EV
WNGQ8F	107.6	-1.68	7.23 L	107.6	-2.05 *	4.31	4	EV
X2ACDB	152.9	0.38	13.40	152.3	0.50	0.57 L	4	XX
YRWZDJ_AL	127.5	-0.77	16.88	127.5	-0.91	0.00	1	AL
YYGR9Q	172.4	1.26	24.81	169.4	1.48	9.37	4	LA
Z3WQW7	120.1	-1.11	15.91	126.4	-0.98	4.36	4	LS

Consensus (All Labs) Results			
Month Mean	144.58	Grand Mean	143.51
Avg SD	24.14	Avg SD Months	13.43
SD btwn Labs	22.09	SD btwn Labs	17.52
Labs Incl	26	Labs Incl	25



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

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

AL	L & W Autoline 400	EV	Emveco Microgauge 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 - 42F2
 TAPPI Official Test Method T538

Report #604 (A)
January 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
79GU9F	363.6	0.95	7.52	363.6	0.95	0.00	1	XX
AMNY4X	365.3	1.23	7.32	365.3	1.23	0.00	1	XX
AV3Z8D_AL	353.9	-0.64	24.96 H	353.9	-0.64	0.00	1	AL
C2YJE2	359.5	0.28	9.47	359.5	0.28	0.00	1	LA
CB3PCA_AL	356.4	-0.23	5.08	356.4	-0.23	0.00	1	AL
E76RZN	361.4	0.59	11.06	361.4	0.59	0.00	1	LA
FLTGBB	346.5	-1.86 *	10.66	346.5	-1.86 *	0.00	1	XX
G9J267	350.5	-1.21	6.39	350.5	-1.21	0.00	1	PP
UH6Q7Y	397.8	6.56 X	5.49	397.8	6.56 X	0.00	1	TS
URDHBN	367.4	1.57	7.12	367.4	1.57	0.00	1	XX
WNGQ8F	356.6	-0.20	7.49	356.6	-0.20	0.00	1	LA
Z3WQW7	358.2	0.06	2.50 L	358.2	0.06	0.00	1	LA
ZYWE27	354.6	-0.53	6.81	354.6	-0.53	0.00	1	LA

Consensus (All Labs) Results			
Month Mean	357.82	Grand Mean	357.82
Avg SD	10.35	Avg SD Months	0.00
SD btwn Labs	6.10	SD btwn Labs	6.10
Labs Incd	12	Labs Incd	12

Key to Instrument Codes Reported by Participants

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



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

Report #604 (A)
January 2020

WebCode	Monthly Results			Cumulative Results				
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
28Z8PQ	110.7	1.03	4.80	104.0	0.65	6.28	3	SC
29UU4F	97.0	-0.03	2.55	97.8	0.17	1.56	3	HZ
2UBAH2	71.3	-2.01 *	4.06	68.8	-2.07 *	3.50	2	SC
3HXAL8	81.0	-1.26	3.08	82.5	-1.02	1.33	3	TM
48W9L9	94.8	-0.20	4.09	90.7	-0.38	3.53	3	TM
4HU4LP	107.0	0.74	3.67	107.3	0.91	2.52	3	TM
79GU9F	108.1	0.83	11.33 H	108.0	0.96	0.99	3	HY
7JD3PX	115.0	1.36	6.12	106.7	0.86	7.23	3	SC
BBAARE	97.0	-0.03	7.84	91.9	-0.29	4.45	3	TM
CB3PCA	81.2	-1.24	2.86	85.9	-0.75	4.16	3	TM
E76RZN	96.9	-0.03	3.77	94.9	-0.05	1.91	3	SC
F3GUMH	101.3	0.31	9.59	101.3	0.44	0.00	1	XX
F9938C	90.4	-0.53	3.65	88.7	-0.54	9.12 H	3	TM
G9J267	106.0	0.67	6.36	106.3	0.83	0.42	2	HY
GWREWP	116.2	1.45	8.07	115.3	1.52	3.89	3	HY
KMQJ4V	102.5	0.40	3.48	102.5	0.53	0.00	1	XX
LF4V3X	101.2	0.30	4.27	97.4	0.14	3.33	3	HY
M89C2V	70.2	-2.09 *	2.86	64.7	-2.39 *	10.35 H	3	TM
RF7XVP	86.6	-0.83	2.41	82.4	-1.02	3.67	3	TM
TYZT8D	118.0	1.59	7.58	116.7	1.63	6.11	3	SC
URDHBN	92.8	-0.35	2.39	91.4	-0.32	1.98	2	SC
W3Q374	94.1	-0.25	4.67	94.3	-0.10	1.31	3	SC
W98XNJ	90.9	-0.50	0.89 L	90.6	-0.38	1.32	3	XX
Z3WQW7	105.9	0.66	2.48	104.2	0.67	1.80	3	TM

Consensus (All Labs) Results			
Month Mean	97.34	Grand Mean	95.59
Avg SD	5.33	Avg SD Months	4.51
SD btwn Labs	12.98	SD btwn Labs	12.91
Labs Incl	24	Labs Incl	24

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	95.61	13.21	1.72	20
Modified Scott Bond Mechanics	112.16	5.71	14.82	2



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

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

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



Containerboard Interlaboratory Testing Program

Analysis 234

Report #604 (A)

January 2020

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

TAPPI Official Test Method T815

WebCode	Monthly Results				Cumulative Results			
	Mean	CPV	SD		Mean	CPV	SD Months	Months
28Z8PQ	23.2	-1.20	1.64		24.4	-0.95	1.07	4
3HXAL8	29.8	1.00	1.79		29.2	0.89	1.07	4
48W9L9	28.2	0.47	3.03		29.6	1.05	1.94	4
79GU9F	23.8	-1.00	2.65		24.6	-0.87	0.70	4
7JD3PX	20.2	-2.21 *	1.48		21.4	-2.10 *	1.88	4
8NMF8W	24.4	-0.80	0.55	L	25.0	-0.74	0.51	4
8R96R9	24.8	-0.67	1.52		25.0	-0.72	2.27	4
8RMQ4W	29.8	1.00	5.50	H	28.2	0.51	1.21	4
AMNY4X	30.3	1.17	3.35		26.5	-0.14	7.36	H 4
APF7BF	26.0	-0.27	1.41		25.8	-0.41	0.92	3
AV3Z8D	29.2	0.79	3.78		29.5	1.00	0.87	4
C2YJE2	31.6	1.60	2.61		29.8	1.12	3.13	4
CB3PCA	28.4	0.55	2.86		27.3	0.15	1.44	3
ER3ELC	25.0	-0.60	2.24		24.5	-0.91	0.71	2
F9938C	25.6	-0.40	1.52		28.6	0.66	2.01	4
G9J267	28.4	0.53	3.51		26.6	-0.12	1.65	3
GWREWP	26.0	-0.27	3.08		28.8	0.74	3.08	4
JFGKBT	26.5	-0.10	1.29		27.2	0.14	1.54	3
KUAMCX	25.8	-0.33	2.59		28.1	0.46	1.54	4
LLU96L	31.0	1.40	5.34		28.8	0.72	3.52	4
LNHYUX	24.4	-0.80	1.14		24.3	-0.99	0.53	4
M89C2V	23.9	-0.97	2.77		26.5	-0.16	3.43	4
NFXHC8	32.4	1.87	1.47		31.3	1.68	0.79	4
RF7XVP	27.0	0.07	4.69		26.2	-0.26	0.86	4
RFPH3H	23.1	-1.25	2.89		26.5	-0.16	2.73	4
TYZT8D	32.2	1.80	1.48		33.2	2.44 *	2.92	4
URDHBN	28.6	0.60	1.14		28.6	0.66	0.20	L 3
VHK8Y8	26.2	-0.20	4.82		24.1	-1.09	2.99	4
W98XNJ	22.9	-1.30	2.79		21.3	-2.14 *	1.50	4
WNGQ8F	27.8	0.33	1.48		28.0	0.43	2.08	4
X2ACDB	25.6	-0.40	0.55	L	25.7	-0.45	0.35	L 4
Z3WQW7	25.5	-0.43	3.32		25.8	-0.42	0.31	L 4

Consensus (All Labs) Results

Month Mean	26.80	Grand Mean	26.88
Avg SD	2.82	Avg SD Months	2.26
SD btwn Labs	2.99	SD btwn Labs	2.60
Labs Incl	32	Labs Incl	32



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

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked



Containerboard Interlaboratory Testing Program
Analysis 237

Report #604 (A)
January 2020

Air Resistance, 42 lb Linerboard - 42F

TAPPI Official Test Method T460

WebCode	Monthly Results				Cumulative Results				Inst		
	Mean	CPV	SD		Mean	CPV	SD	Months			
2FEVJT	22.6	0.50	3.31		23.2	0.98	1.78	3	GG		
3HXAL8	23.7	1.40	1.59		23.7	1.32	0.00	1	GA		
48W9L9_AL	23.0	0.83	1.64		23.0	0.84	0.00	1	XX		
4V3RW8	23.5	1.27	2.04		22.8	0.73	0.73	3	LP		
79GU9F	21.4	-0.45	3.35	H	22.3	0.37	0.79	3	TP		
7JD3PX	16.2	-4.78	X	1.75	18.4	-2.33	*	1.91	3	LA	
8NMF8W_AL	21.5	-0.43	0.81	L	21.5	-0.21	0.00	1	AL		
8R96R9	21.3	-0.60	1.11		20.9	-0.57	1.96	3	LA		
9RKFKX_AL	24.9	2.39	*	1.47	24.9	2.15	*	0.00	1	AL	
AMNY4X	23.0	0.83	2.01		23.5	1.21	1.14	3	GA		
AV3Z8D_AL	407.4	318.24	X	42.28	H	407.4	266.00	X	0.00	1	AL
BAYE6M	23.2	1.00	0.63	L	22.8	0.71	0.36	L	3	LP	
C2YJE2	19.9	-1.69	1.39		19.1	-1.82	0.91	3	LA		
CB3PCA_AL	22.0	0.01	2.39		22.0	0.16	0.00	1	AL		
D6F433	19.1	-2.36	*	2.48	18.5	-2.27	*	1.35	3	GA	
E76RZN	21.2	-0.66	1.12		21.4	-0.24	0.49	3	LA		
F3GUMH	21.8	-0.16	2.69		21.8	0.01	0.00	1	XX		
F9938C	24.6	2.14	*	1.14	24.2	1.65	0.39	L	3	LA	
FYE2MR	20.5	-1.27	1.84		20.4	-0.94	0.06	2	LA		
G9J267	22.2	0.16	4.35	H	23.4	1.14	1.76	2	TP		
GWREWP	21.0	-0.82	1.83		22.2	0.29	1.15	3	LP		
JFGKBT	21.9	-0.09	2.45		21.7	-0.05	0.26	2	LP		
LF4V3X	22.5	0.38	1.01		22.6	0.56	0.31	L	3	LP	
LLU96L	21.7	-0.24	1.89		21.5	-0.22	0.51	3	LP		
LNHYUX	22.8	0.67	3.29		21.7	-0.08	1.63	2	TD		
M89C2V	21.5	-0.44	3.74	H	22.1	0.22	0.83	3	LA		
MYE89U	21.5	-0.40	0.53	L	20.6	-0.81	1.82	3	XX		
NW6GJP	20.8	-0.97	1.45		20.8	-0.65	0.57	3	LP		
RF7XVP	22.3	0.24	1.70		22.6	0.60	0.37	L	3	LA	
RXKAMF	22.5	0.39	1.45		22.0	0.18	0.37	L	3	LA	
TYZT8D_AL	21.6	-0.31	1.19		21.6	-0.11	0.00	1	XX		
VHK8Y8	20.3	-1.43	0.86	L	19.9	-1.26	2.15	3	XX		
W98XNJ	21.1	-0.77	1.56		22.0	0.17	0.98	3	LP		
WNGQ8F	22.8	0.69	1.94		21.8	0.05	1.22	3	LP		
X2ACDB	22.4	0.31	1.51		21.0	-0.54	1.19	3	LA		
YRWZDJ_AL	22.1	0.11	2.23		22.1	0.24	0.00	1	AL		
YYGR9Q	5.7	-13.44	X	0.21	L	19.6	-1.48	12.09	H	3	LA
Z3WQW7_AL	21.7	-0.20	1.37		21.7	-0.02	0.00	1	AK		



Containerboard Interlaboratory Testing Program
Analysis 237

Report #604 (A)
January 2020

Air Resistance, 42 lb Linerboard - 42F1

TAPPI Official Test Method T460

Consensus (All Labs) Results

Month Mean	21.99	Grand Mean	21.77
Avg SD	2.07	Avg SD Months	2.56
SD btwn Labs	1.21	SD btwn Labs	1.45
Labs Incl	35	Labs Incl	37

Key to Instrument Codes Reported by Participants

AK	L & W Autoline 300	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 - CM11
 TAPPI Official Test Method T809

Report #604 (A)
January 2020

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	
28Z8PQ	56.2	56.1	56.5	55.1	56.0	-0.81	3.8	0.6	56.6	-0.61	4.2	1.2	16	LZ
29UU4F	54.8	54.4	55.6	53.0	54.4	-1.51	2.9	1.1	56.3	-0.75	2.9	2.2	16	LD
2UBAH2	53.4	52.4 *	54.4	55.5	53.9	-1.74	3.3	1.3	55.6	-1.12	3.4	2.1	16	LC
3BWXPB	58.3 L	57.4 L	57.9 L	57.9 L	57.8	0.05	1.4	0.4	58.1	0.15	1.6	0.4 L	16	LD
3HXAL8	56.4	57.6	57.1	55.9	56.8	-0.43	3.8	0.7	54.3	-1.81	3.3	2.1	16	LD
3R3JRW	58.3	57.2	57.4	57.7	57.7	-0.04	2.8	0.5	57.7	-0.01	3.1	0.6	16	LC
3Y6BF9	56.0	55.8	56.5	53.1	55.3	-1.10	2.9	1.5	55.5	-1.19	3.1	1.6	16	EN
4V3RW8	58.2	58.0	58.5	60.0	58.7	0.42	3.6	0.9	56.7	-0.55	3.4	1.8	16	LD
63DNXJ	57.4	59.0	58.6	57.9	58.2	0.23	4.7	0.7	59.7	0.99	3.4	1.1	16	LD
6EN3WC	56.6	61.3	59.2	57.8	58.7	0.45	4.1	2.0	56.9	-0.46	3.8	1.8	16	EM
79GU9F	54.1	57.5	61.5	58.8 H	58.0	0.11	4.7	3.1	58.7	0.51	4.0	1.8	16	LC
7E4MGA	56.9	57.3	58.0	57.3	57.3	-0.18	3.4	0.5	59.4	0.87	2.8	1.3	16	LD
8NMF8W	61.4	63.1 *	58.7	58.2	60.4	1.20	3.6	2.3	58.3	0.26	3.6	2.8	16	LZ
96AB4J	55.9	57.9	58.7	60.1	58.1	0.18	3.3	1.7	57.9	0.05	3.3	1.5	16	LZ
9EJMF8	59.1 L	60.3	58.3 L	60.0 L	59.4	0.77	1.5	0.9	62.3	2.37 *	1.3	4.4 H	16	XX
9NMY94	57.0	60.4 H	56.6	56.8	57.7	-0.02	4.7	1.8	58.6	0.42	4.8	1.7	16	LD
AMNY4X	55.8 L	59.9	61.9	59.9	59.4	0.76	2.5	2.6	57.7	-0.03	3.1	1.9	16	LZ
APBTP6	59.6	60.0	59.7	59.9	59.8	0.94	3.4	0.2 L	60.7	1.52	3.5	0.6	16	LD
BAU3F6	61.1	59.4	60.8	63.3	61.1	1.56	2.9	1.6	60.3	1.32	3.6	1.3	16	LD
BBAARE	59.6	53.8	59.1	55.9	57.1	-0.29	3.0	2.7	58.4	0.34	3.2	2.7	16	LC
C2YJE2	51.1 *	53.6	57.9	53.6	54.1	-1.69	4.2	2.8	55.8	-1.02	4.2	3.2	16	LD
C82TKU	54.6	55.7	56.3	56.3	55.7	-0.91	3.4	0.8	55.7	-1.05	3.1	1.2	16	TH
D6F433	56.8	56.3	62.2	No DATA	58.4	0.32	4.1	3.2 H	57.4	-0.17	4.7	2.8	12	LD
EVPZCE	55.0	55.9	52.8 *	56.8	55.1	-1.20	4.0	1.7	55.5	-1.18	4.3	3.0	15	MB
F6LFGA	61.1	57.2	64.1 *	63.2	61.4	1.67	4.6	3.1	59.9	1.09	4.0	3.6	16	LD
F7Y236	58.9	58.6	59.0	61.9	59.6	0.85	3.5	1.5	59.8	1.04	3.6	2.6	16	LD
F9938C	59.3	55.4	59.9	61.5	59.0	0.59	3.4	2.6	57.8	0.02	4.0	1.8	16	LD
FET8W7	60.7	60.2	60.7	60.4	60.5	1.26	2.3	0.3 L	59.9	1.13	2.4	0.6	16	LD
FYE2MR	55.7	No DATA	54.0	54.5	54.8	-1.36	3.9	0.9	54.9	-1.51	4.4	2.2	9	MB
G9J267	55.5	No DATA	55.1	57.2	55.9	-0.83	3.6	1.2	55.7	-1.10	3.6	2.1	11	LD
GGVKYP	53.9	No DATA	No DATA	No DATA	53.9	-1.76	2.2	0.0	55.7	-1.10	3.6	1.7	10	LD
GWREWP	58.3	59.8	57.4	57.6	58.3	0.25	3.1	1.1	58.0	0.15	3.3	1.6	16	LD
HFFKFZ	47.1 X	45.2 X	41.5 X	45.1 X	44.7	-5.95 X	3.6	2.3	44.7	-6.78 X	4.2	1.4	16	TC
J4ZQ3L	58.9	59.0	59.1	60.5	59.4	0.75	5.0	0.8	59.4	0.83	5.0	0.8	4	LD
KMQJ4V	61.8	61.5	60.5	64.2 *H	62.0	1.95 *	5.9	1.6	60.6	1.50	3.6	1.6	16	TU



Containerboard Interlaboratory Testing Program
Analysis 240

Report #604 (A)
January 2020

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

WebCode	Weekly Means				Monthly Results				Cumulative Results					Inst
	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	
LF4V3X	No DATA	No DATA	No DATA	55.8	55.8	-0.88	3.4	0.0	56.7	-0.55	3.4	2.3	4	LD
LLE4AU	63.9 *	66.6 X	72.1 XH	65.7 *	67.1	4.28 X	4.5	3.5 H	66.3	4.46 X	4.3	2.1	16	EM
LLU96L	60.5	61.9	61.6	60.2	61.0	1.51	3.7	0.8	60.7	1.50	3.3	1.3	16	LD
M89C2V	59.4 H	58.6	56.3	56.6	57.7	0.00	4.3	1.5	57.7	-0.04	4.4	2.0	16	XX
MTQQDV	56.1	57.1 H	55.8	59.1	57.1	-0.31	4.6	1.5	57.1	-0.37	4.6	1.5	4	EM
NFXHC8	56.6	54.6	55.5	56.1	55.7	-0.93	3.2	0.9	56.4	-0.70	3.3	2.0	16	LD
NP46MT	65.8 X	66.1 X	63.8 *	64.2 *	65.0	3.31 X	3.8	1.2	66.0	4.28 X	4.2	2.1	16	LC
NT8XKX	58.9	58.2	60.3	61.0	59.6	0.85	2.5	1.3	59.9	1.10	5.6	1.9	16	LC
NW6GJP	61.4	62.5	63.8 *	60.1	61.9	1.92	4.5	1.5	59.4	0.84	4.0	2.2	16	LD
QTJEQB	58.4	57.6	57.8	57.3	57.8	0.02	3.5	0.5	57.8	0.00	3.4	0.5 L	16	LD
RF7XVP	59.4 H	58.6	56.3	56.6	57.7	0.00	4.3	1.5	57.7	-0.04	4.3	2.0	16	LC
RFPH3H	56.8	59.0	60.2	59.6	58.9	0.53	2.9	1.5	58.9	0.61	3.5	1.2	16	EN
RZEVG8	58.4	56.2	53.2	53.4	55.3	-1.11	3.3	2.5	54.9	-1.48	3.6	2.5	16	LD
TJKQN4	60.4	58.7	58.0	60.0	59.3	0.70	3.0	1.1	59.4	0.87	3.5	1.1	16	TJ
W98XNJ	58.6	57.4	58.0	59.4	58.3	0.27	4.1	0.8	58.1	0.19	3.5	1.1	16	LZ
X2ACDB	57.9	57.9	57.5	57.0 L	57.6	-0.07	1.9	0.4	58.1	0.19	1.8	0.5 L	16	LD
YYGR9Q	53.8	56.1	56.8	53.9 H	55.1	-1.19	4.8	1.5	55.2	-1.36	5.0	3.4	16	TU
ZAW8AW	57.0	56.8	60.1	57.8	57.9	0.09	4.2	1.5	58.9	0.61	4.2	1.1	16	TG
ZYTYLJ	52.6	53.2	53.5	55.6	53.7	-1.84	3.0	1.3	53.4	-2.26 *	3.3	1.4	16	LD

Consensus (All Labs) Results									
Wk Mean	57.60	57.79	58.25	58.26	Month Mean	57.73	Grand Mean	57.77	
Avg SDr	3.78	3.58	3.52	3.84	Avg SD	3.66	Avg SD	3.69	
SD btwn Labs	2.61	2.43	2.67	2.98	SD btwn Labs	2.18	SD btwn Labs	1.92	
Labs Incl	51	47	50	51	SD btwn Wks	1.61	SD btwn Wks	1.98	
Labs Excl	2	3	2	1	Labs Incl	51	Labs Incl	51	
Labs not Rcvd	1	4	2	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
TC	TMI Monitor/Compression Tester, 17-37	TG	TMI Compression Tester, Model 17-10
TH	TMI Compression Tester, Model 17-76	TJ	TLS Compression Tester, Model CDM-5
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab



Containerboard Interlaboratory Testing Program
Analysis 250

Report #604 (A)
January 2020

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

TAPPI Official Test Method T843

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
3BWXPB	68.6	68.7 L	68.8	68.8	68.7	-0.18	2.0	0.1 L	68.4	-0.12	1.9	0.3 L	16	LD
3R3JRW	67.5	68.0	68.7	68.2	68.1	-0.48	4.6	0.5	68.0	-0.37	4.5	0.5	16	LD
4V3RW8	69.1	67.6	68.9	70.7	69.1	0.00	3.3	1.3	67.9	-0.48	3.4	1.5	16	LD
63DNXJ	65.8	67.1	65.6	68.0	66.6	-1.22	3.5	1.1	67.9	-0.48	2.5	1.0	16	LD
79GU9F	69.3	70.9	69.2	66.4	68.9	-0.08	3.7	1.9	70.2	1.04	3.0	2.2	16	LC
8NMF8W	71.2	71.7	67.8	70.2	70.2	0.56	3.2	1.7	68.9	0.19	3.6	1.4	16	LZ
96AB4J	70.1	71.2	68.2	71.1	70.1	0.52	3.4	1.4	69.5	0.61	3.4	1.8	16	LZ
9EJMFJ	68.0 L	69.9 L	70.8 L	70.3 L	69.7	0.32	1.2	1.2	69.2	0.37	1.0	1.9	16	XX
F9938C	68.6	68.9	67.6	69.3	68.6	-0.24	4.4	0.7	66.5	-1.36	4.1	1.8	16	LD
G9J267	73.3 *	69.0	No DATA	67.3	69.9	0.39	3.5	3.1	69.1	0.30	3.8	1.6	11	LD
GWREWP	69.9 H	76.1 *	73.8 *	74.4 *	73.5	2.16 *	4.4	2.6	73.9	3.43 X	4.0	2.0	16	LD
LF4V3X	No DATA	No DATA	No DATA	61.2 *	61.2	-3.87 X	2.6	0.0	61.2	-4.86 X	2.6	0.0	1	LD
LLU96L	70.9	72.7	70.6	72.6	71.7	1.27	3.5	1.1	70.4	1.17	4.2	1.3	16	LD
MYE89U	67.2	68.6	65.1	66.6	66.9	-1.08	2.1	1.4	67.9	-0.43	1.6	1.0	16	LZ
NW6GJP	72.5	73.3	73.5 *	69.7	72.2	1.54	3.3	1.7	70.8	1.41	3.6	2.0	16	LD
RF7XVP	71.1	68.8	67.4 H	66.1	68.4	-0.36	5.0	2.1	70.8	1.46	4.4	2.7	16	XX
RFPH3H	67.9	65.1	65.9	62.2 *	65.3	-1.86	2.7	2.4	65.3	-2.18 *	2.7	2.4	4	XX
X2ACDB	68.5 L	68.7	68.2	68.2	68.4	-0.33	2.1	0.2 L	68.7	0.05	1.9	0.3 L	16	LD
YLRWQ7	67.1	67.6	67.6	66.5	67.2	-0.91	3.7	0.5	66.8	-1.19	4.6	1.4	16	LD

Consensus (All Labs) Results														
Wk Mean	69.25	69.64	68.68	68.30	Month Mean	69.08			Grand Mean	68.60				
Avg SDr	3.63	3.19	3.13	3.76	Avg SD	3.46			Avg SD	3.36				
SD btwn Labs	1.99	2.60	2.40	3.20	SD btwn Labs	2.05			SD btwn Labs	1.53				
Labs Incl	18	18	17	19	SD btwn Wks	1.62			SD btwn Wks	1.62				
Labs Excl	0	0	0	0	Labs Incl	18			Labs Incl	17				
Labs not Rcvd	1	1	2	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)
- XX Instrument make/model not specified by lab



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

Report #604 (A)
January 2020

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	
29UU4F	44.2	47.2	46.3	47.1	46.2	0.99	3.6	1.4	45.4	0.79	3.2	1.6	16	LD
4V3RW8	42.7	42.5	40.9	42.9	42.2	-0.30	2.9	0.9	41.7	-1.17	3.2	1.1	16	LD
6EN3WC	40.8	41.4	41.0	38.4	40.4	-0.91	3.2	1.4	40.7	-1.67	3.1	1.1	16	EM
79GU9F	41.3	42.4	43.9	40.3	42.0	-0.38	3.7	1.6	43.1	-0.40	3.6	1.3	16	LC
7E4MGA	41.8	43.6	43.5	43.3 L	43.1	-0.03	1.9	0.9	42.4	-0.79	1.8	0.6 L	16	LC
AMNY4X	41.4	43.6	43.4	44.4	43.2	0.01	2.7	1.3	43.3	-0.31	3.3	1.1	16	LD
APBTP6	45.7	45.0	45.2	45.6	45.4	0.73	3.1	0.4	45.3	0.77	2.8	0.2 L	16	LD
BNYFHN	44.0	45.1 H	44.1	42.6	43.9	0.26	5.3	1.0	42.9	-0.52	4.9	1.1	16	XX
C82TKU	35.3 *	33.2 XL	34.8 *	38.4	35.4	-2.53 *	2.2	2.2	35.9	-4.22 X	2.6	2.0	16	TH
D6F433	49.5	46.3	44.9	40.5	45.3	0.70	4.0	3.7 H	46.7	1.49	3.6	2.5	16	LD
EC8XD7	40.0	37.5 *	40.6 H	39.6	39.4	-1.23	4.6	1.4	40.3	-1.91 *	4.9	1.5	16	TX
EFTMVX	39.7	40.3	42.8	38.2	40.2	-0.96	3.6	1.9	41.2	-1.44	3.5	3.0	16	LZ
F6LFGA	46.6	46.2	41.9	45.1	45.0	0.59	4.5	2.1	46.1	1.18	4.0	3.2	16	LZ
FET8W7	44.7	44.8	44.6	44.6	44.7	0.50	2.3	0.1 L	43.5	-0.21	2.3	1.2	16	LD
FYE2MR	47.1	No DATA	47.6 H	45.6	46.8	1.18	5.2	1.1	47.0	1.65	4.4	5.2 H	9	MB
G9J267	41.8	No DATA	42.0	41.0	41.6	-0.51	3.4	0.5	42.9	-0.53	3.7	1.4	11	LD
GWREWP	44.7	47.2	43.8	44.2 L	45.0	0.59	2.7	1.6	45.0	0.57	2.7	1.6	4	XX
HFFKFZ	36.2 *	35.5 XH	35.6 *	37.2 *H	36.1	-2.30 *	5.2	0.8	37.4	-3.46 X	5.5	1.1	16	TC
J4ZQ3L	46.9	44.5	44.1	43.0	44.6	0.48	2.4	1.6	45.0	0.58	3.0	1.7	16	LD
KMQJ4V	39.1 L	40.7	40.5	40.9	40.3	-0.93	1.9	0.8	43.0	-0.48	1.7	7.1 H	16	TU
LLE4AU	42.1	43.8	39.4	44.3	42.4	-0.26	3.5	2.2	43.5	-0.19	3.7	2.1	16	EM
MTRE2Z	46.3	43.3	46.5	45.8 L	45.5	0.77	3.0	1.5	44.4	0.27	2.9	2.4	16	TH
NP46MT	28.6 X	30.2 X	28.4 X	28.6 X	29.0	-4.66 X	2.9	0.8	28.9	-7.95 X	3.0	1.5	16	XX
NT8XKX	49.1	48.7 *	51.2 *	48.6 H	49.4	2.05 *	5.5	1.2	47.3	1.84	4.4	2.1	16	LC
NW6GJP	42.1	43.6	45.6	44.5	43.9	0.26	4.1	1.5	43.3	-0.32	3.1	1.3	16	LD
RZEVG8	44.0	43.4	44.4	43.9	43.9	0.25	3.8	0.4	43.6	-0.17	3.1	1.8	16	LD
T7GAVG	39.0 H	41.2	43.2	47.3 L	42.7	-0.16	7.0	3.5 H	44.4	0.27	4.8	2.2	16	LZ
X2ACDB	43.6	43.9	42.9	44.3	43.7	0.17	2.8	0.6	43.0	-0.45	2.7	0.9	16	LD
XL9XQM	46.1	46.0	46.2	46.4	46.2	0.99	3.3	0.2 L	46.0	1.13	3.3	2.0	16	LZ

Consensus (All Labs) Results														
Wk Mean	43.05	43.84	43.24	43.13	Month Mean	43.15			Grand Mean	43.88				
Avg SDr	4.15	3.25	3.68	3.95	Avg SD	3.81			Avg SD	3.47				
SD btwn Labs	3.51	2.53	3.34	3.03	SD btwn Labs	3.05			SD btwn Labs	1.89				
Labs Incl	28	24	28	28	SD btwn Wks	1.59			SD btwn Wks	2.42				
Labs Excl	1	3	1	1	Labs Incl	28			Labs Incl	26				
Labs not Rcvd	0	2	0	0										



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

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

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



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

Report #604 (A)
January 2020

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	
3BWXPB	13.7 L	13.8 L	13.6 L	13.7 L	13.7	0.17	0.5	0.1	13.6	-0.36	0.5	0.2	16	LA
3HXAL8	14.4	14.3 H	14.3	14.4	14.4	1.23	1.3	0.1 L	14.4	1.08	1.2	0.3	16	LU
3R3JRW	13.8	13.1	14.1	13.6	13.6	0.07	0.9	0.4	13.5	-0.38	0.9	0.4	16	LB
3Y6BF9	12.9	13.4	13.6	13.0 L	13.2	-0.58	1.0	0.4	13.1	-1.16	1.0	0.4	16	LH
79GU9F	13.1	14.0	13.5	13.0	13.4	-0.32	1.0	0.5	13.6	-0.27	1.0	0.4	16	LU
7E4MGA	13.1	12.6	12.7	12.5	12.7	-1.43	1.0	0.3	13.2	-0.95	1.0	0.4	16	LB
9EJMFG	13.6	14.1 L	14.7 *H	14.4 H	14.2	0.98	1.6	0.4	14.5	1.36	1.3	0.8	16	XX
AMNY4X	13.5	13.2	13.5	13.9	13.5	-0.16	1.0	0.3	13.6	-0.35	1.0	0.2	16	LZ
C2YJE2	13.2	13.5	14.0	14.4	13.8	0.30	0.9	0.5	13.6	-0.30	1.0	0.3	16	LA
D6F433	14.9 *	16.3 *H	14.0	13.6	14.7	1.79	1.4	1.2 H	14.7	1.74	1.2	0.7	16	LA
EC8XD7	12.4	12.2	12.4 *	12.6	12.4	-1.89	1.0	0.2	12.3	-2.52 *	0.9	0.2	16	TT
EVPZCE	12.6	13.4	13.4	13.2	13.1	-0.73	1.1	0.4	13.4	-0.60	1.1	0.5	15	LA
F9938C	14.2	14.2	14.1	13.7	14.1	0.77	1.1	0.2	14.2	0.86	1.1	0.4	16	LA
FYE2MR	14.0	14.2	13.8	14.1	14.0	0.72	1.2	0.2	14.2	0.77	1.1	0.8	10	LA
G9J267	12.7	No DATA	13.3	12.8	13.0	-1.02	1.1	0.3	13.3	-0.91	1.1	0.4	11	LB
HFFKFZ	15.6 X	16.1 *	15.3 X	15.7 *	15.7	3.38 X	1.3	0.3	14.9	2.01 *	1.2	1.1 H	16	TS
MTQQDV	14.0	14.4	13.7	15.0	14.3	1.11	1.0	0.6	14.3	0.91	1.0	0.6	4	LH
NFXHC8	12.8	13.9	13.0	12.8	13.1	-0.71	1.0	0.5	13.6	-0.33	1.0	0.6	16	LH
PVR884	24.3 XH	22.8 X	24.5 X	22.1 XH	23.4	15.84 X	1.8	1.2 H	23.4	17.15 X	1.8	1.2 H	4	TX
QTJEQB	14.0	14.1	13.1	13.7	13.7	0.20	0.9	0.5	13.7	-0.16	0.9	0.4	16	LB
RZEVG8	11.2 X	11.5 *L	13.6	12.3	12.1	-2.32 *	1.0	1.1	14.1	0.57	1.2	3.6 H	16	LZ
T7GAVG	14.4	13.0	13.4	14.1	13.7	0.20	1.3	0.6	14.2	0.74	1.2	0.8	16	LA
TJKQN4	13.6	13.7	13.6	13.7	13.6	0.08	0.8	0.0 L	13.5	-0.54	0.7	0.3	16	TT
X2ACDB	13.7	13.6	13.4	13.6	13.6	-0.02	1.0	0.1	13.5	-0.55	0.9	0.1 L	16	LB
XL9XQM	13.3	13.3 H	14.6 L	13.0	13.5	-0.09	1.3	0.7	13.6	-0.35	1.1	0.7	16	LA
YYGR9Q	13.2 H	16.3 *H	13.3 H	15.2 H	14.5	1.47	2.2	1.5 H	13.8	0.11	1.1	1.0	16	LA
Z3WQW7	14.5	13.5	13.7	13.2	13.7	0.17	1.1	0.6	13.9	0.16	1.1	0.4	16	LA

Consensus (All Labs) Results														
Wk Mean	13.56	13.82	13.61	13.65	Month Mean	13.59			Grand Mean	13.76				
Avg SDr	1.04	1.21	1.09	1.23	Avg SD	1.14			Avg SD	1.03				
SD btwn Labs	0.65	1.14	0.52	0.85	SD btwn Labs	0.62			SD btwn Labs	0.56				
Labs Incl	24	25	25	26	SD btwn Wks	0.58			SD btwn Wks	0.56				
Labs Excl	3	1	2	1	Labs Incl	25			Labs Incl	25				
Labs not Rcvd	0	1	0	0										



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

Report #604 (A)
January 2020

Key to Instrument Codes Reported by Participants

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

End of Report