Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #582 (C) - March 2018

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX12	Box Compression Strength, Corrugated Boxes
202	EC10	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC10	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42D3	Mullen Burst of Linerboard, 42 lb Linerboard
206	56A2	Mullen Burst of Linerboard, 56 lb Linerboard
215	42D3	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	56A2	Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard
223	42D3	STFI of Linerboard, 42 lb Linerboard
224	56A2	STFI of Linerboard, 56 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D3	Roughness - Sheffield Method, 42 lb Linerboard
231	42D	Internal Bond Strength, Linerboard, 42 lb Linerboard
234	56A	Coefficient of Static Friction - Inclined Plane, 56 lb Linerboard
237	42D	Air Resistance - Gurley Method, Linerboard, 42 lb Linerboard
240	CM92	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM92	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM92	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM92	STFI of Medium, 26 lb Corrugating Medium

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	CM92	January 2018-Current
	CM91	October 2016-December 2017
35 lb Linerboard	35E1	June 2017-Current
42 lb Linerboard	42D3	November 2017-Current
	42D2	August 2016-October 2017
56 lb Linerboard	56A2	January 2018-Current
	56A1	July 2016-November 2017

ABOUT CTS

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

For further information, contact:
Collaborative Testing Services, Inc
21331 Gentry Drive
Sterling, VA 20166 USA
Voice: 571-434-1925
Fax: 571-434-1937
containerboard@cts-interlab.com

<h1 style="text-align:center; color:green">EXPLANATION OF TABLES</h1>

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.

<h2 style="text-align:center; color:green">Definitions of Terms Used</h2>

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 Incld	- The number of laboratory Means included in the Wk Mean for that week.
Labs Excld	- 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'.

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:

Flag	Explanation

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

Containerboard Interlaboratory Testing Program
Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BX12
TAPPI Official Test Method T804

Report #582 (C)
March 2018

| WebCode | Monthly Results | | | Cumulative Results | | | | |
	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2UYTX2	556.7	-0.57	17.73	563.5	-0.42	6.25	3	TE
3WHB9X	592.9	0.39	23.20	598.1	0.67	12.33	3	ET
4GKERK	535.0	-1.14	18.80	539.5	-1.17	11.68	3	LL
4XAMQ4	611.5	0.88	43.27	592.0	0.48	27.58	2	EX
6BE8JV	563.9	-0.38	20.23	573.3	-0.11	34.64	3	LS
7J733C	586.6	0.22	38.57	576.8	0.00	8.48	3	ER
8VARBX	577.8	-0.01	16.02	574.4	-0.07	10.71	3	ET
9H4WRV	557.5	-0.55	24.10	542.2	-1.09	14.94	3	LL
9JPZZT	564.2	-0.37	32.09	568.3	-0.27	15.51	3	LL
AQB7GZ	622.4	1.17	23.21	637.4	1.91 *	20.22	3	ER
CKDDFG	539.0	-1.04	31.10	542.7	-1.07	11.47	3	EX
CX7TMQ	539.8	-1.02	15.88	539.8	-1.16	7.69	3	LS
ECCTAQ	491.6	-2.29 *	15.96	505.1	-2.25 *	13.03	3	TB
FPU3A2	612.2	0.90	15.58	593.3	0.52	17.33	3	EX
G4T8DR	581.6	0.09	18.88	566.2	-0.33	14.88	3	LM
GJPN3Q	584.3	0.16	24.39	629.4	1.66	39.42	3	LG
HPPCCG	587.2	0.24	11.65	587.2	0.33	0.00	1	XX
J6BCFL	620.7	1.12	23.85	618.2	1.30	6.03	3	LG
J8JMEB	560.4	-0.47	9.34	596.5	0.62	40.43	3	LG
M3D3XF	573.0	-0.14	34.33	570.2	-0.21	3.96	2	LS
MF6MMJ	668.5	2.38 *	32.91	624.7	1.51	43.61	3	LH
NPQDHB	603.2	0.66	14.70	589.6	0.40	14.02	3	ES
QPY9WE	654.3	2.01 *	28.87	613.3	1.15	55.15 H	3	LG
REX2W9	541.9	-0.96	8.59	546.6	-0.95	4.77	3	ER
UVU946	573.4	-0.13	22.53	580.7	0.12	15.08	3	ER
YTGWER	553.6	-0.65	14.88	553.5	-0.73	6.90	3	LG
ZP929T	560.6	-0.47	20.93	549.5	-0.86	11.48	3	LM

Consensus (All Labs) Results

Month Mean	578.28		Grand Mean	576.74
Avg SD	23.88		Avg SD Months	22.39
SD btwn Labs	37.86		SD btwn Labs	31.79
Labs Incld	27		Labs Incld	27

Containerboard Interlaboratory Testing Program
Analysis 201
Top to Bottom Box Compression Strength, Corrugated Boxes - BX12
TAPPI Official Test Method T804

Report #582 (C)
March 2018

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	547.43	28.78	30.85	7
Clip sealing	589.92	35.77	11.64	19

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
LS	Lansmont Squeezer	TB	TMI Monitor/Compression Tester, Model 17-70
TE	Testometric M500 - 25 KN	XX	Instrument make/model not specified by lab

Edgewise Compressive Strength, by T811, Corrugated Board - EC10

TAPPI Official Test Method T811

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6BE8JV	35.5	-0.95	1.98	36.2	-0.62	1.66	4	LD
CKDDFG	38.4	0.06	1.07	37.8	-0.07	1.31	3	LC
CX7TMQ	39.3	0.38	2.09	40.4	0.84	0.76	4	LC
FFRKZJ	31.7	-2.22 *	1.69	32.0	-2.07 *	1.25	4	WK
J8JMEB	41.0	0.95	0.82	41.1	1.07	0.39	4	LE
N3CKJH	39.8	0.56	2.28	39.3	0.47	1.28	4	LC
REX2W9	38.1	-0.03	2.52	35.8	-0.74	2.05	4	EN
UXGNDD	39.9	0.58	0.88	38.9	0.33	1.31	4	TD
YTGWER	40.2	0.67	1.06	40.2	0.77	0.07 L	3	TH

Consensus (All Labs) Results

Month Mean	38.21		Grand Mean	37.98
Avg SD	1.71		Avg SD Months	1.26
SD btwn Labs	2.91		SD btwn Labs	2.90
Labs Incld	9		Labs Incld	9

Key to Instrument Codes Reported by Participants

EN	Emerson 2200		LC	L&W Crush Tester 48
LD	L&W Crush Tester 248		LE	L&W Crush Tester 840
TD	TMI Digital Crush Tester, Model 17-09		TH	TMI Monitor/Compression Tester, Model 17-76
WK	Zwick Z005 Crush Tester			

Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC10
TAPPI Official Test Method T839

Report #582 (C)
March 2018

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months		Months	Inst
2CGR4Y	43.4	0.97	2.09		41.0	-0.13	3.56 H	4		CT
2UYTX2	41.7	0.12	0.90		42.5	0.49	0.59	4		LD
38YXGY	40.5	-0.48	1.13		40.7	-0.29	0.71	4		LD
3WHB9X	42.9	0.73	1.20		43.3	0.83	0.64	4		TD
4GKERK	41.6	0.07	1.46		41.3	-0.01	0.33	4		LC
4XAMQ4	43.9	1.20	0.55 L		43.8	1.06	0.18 L	4		TL
6BE8JV	40.9	-0.29	1.33		41.0	-0.16	0.44	4		LD
7KF8DE	41.3	-0.08	0.93		40.8	-0.24	0.88	4		LD
8VARBX	41.1	-0.19	1.42		43.5	0.91	2.64	4		EM
96W2G7	43.2	0.83	1.03		42.7	0.59	0.36	3		LC
97RPVV	37.8	-1.79	2.45		38.9	-1.06	0.98	4		LD
9E2BLA	39.3	-1.06	1.61		38.6	-1.17	0.77	4		LD
9H4WRV	40.4	-0.52	0.76		40.8	-0.21	0.72	4		BU
AD7YHU	36.0	-2.66 *	0.66 L		35.8	-2.37 *	0.58	4		KS
AQB7GZ	37.7	-1.84	1.01		38.6	-1.18	0.60	4		EM
BNJGPR	44.5	1.47	1.38		41.2	-0.06	2.73	4		LC
CKDDFG	34.7	-3.34 X	2.69 H		36.0	-2.31 *	1.62	3		LC
CX7TMQ	42.1	0.30	1.57		42.7	0.60	0.82	4		LC
ECCTAQ	49.3	3.85 X	0.73 L		47.4	2.59 *	2.60	4		LD
FFRKZJ	39.7	-0.84	0.88		38.2	-1.36	1.52	4		WK
FPU3A2	40.7	-0.39	1.19		40.5	-0.35	0.67	4		LD
G4T8DR	42.5	0.52	1.29		43.1	0.75	1.14	4		TG
GJPN3Q	41.6	0.07	1.73		41.4	0.03	0.86	4		EM
HRVWYG	42.3	0.42	1.12		41.9	0.24	0.41	4		EM
J6BCFL	42.6	0.55	1.34		42.7	0.59	0.96	4		TJ
J8JMEB	42.1	0.34	1.35		41.3	0.00	1.09	4		LY
JJYARH	36.3	-2.53 *	1.92		38.2	-1.34	1.68	3		EM
LQC3TR	43.9	1.20	1.58		40.2	-0.50	2.74	4		TD
M3D3XF	41.0	-0.22	1.49		41.9	0.23	3.26 H	4		TB
M97X7F	39.8	-0.84	1.56		40.4	-0.41	0.47	4		LD
MF6MMJ	43.5	0.99	0.64 L		44.9	1.51	1.58	4		EM
N3CKJH	41.8	0.16	1.21		44.5	1.35	3.24 H	4		LC
NPQDHB	42.6	0.57	1.34		40.9	-0.17	1.23	4		LD
Q783Q9	43.9	1.21	2.30		42.5	0.49	1.16	4		TD
QA9YHN	42.6	0.57	2.17		42.4	0.46	1.08	3		LC
QCEJ7N	41.5	0.03	6.24 H		43.0	0.69	1.63	4		TD
QPY9WE	40.2	-0.60	1.41		40.2	-0.49	0.65	4		MK
REX2W9	38.7	-1.37	0.89		38.2	-1.35	1.01	4		EN
RMT2DL	43.8	1.15	1.10		45.6	1.83	1.27	4		TG

Containerboard Interlaboratory Testing Program
Analysis 203
Edgewise Compressive Strength by T839, Corrugated Board - EC10
TAPPI Official Test Method T839

Report #582 (C)
March 2018

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
UVU946	41.2	-0.12	1.53		38.6	-1.17	2.66	4	LD
UXGNDD	42.6	0.56	0.70	L	41.9	0.22	0.61	4	TD
WHHEQJ	41.0	-0.21	1.34		41.3	-0.02	0.32	4	TK
YTGWER	42.7	0.59	1.28		41.8	0.18	1.23	3	TH
ZP929T	44.3	1.41	1.28		43.0	0.71	1.45	4	EM

Consensus (All Labs) Results

Month Mean	41.46		Grand Mean	41.35
Avg SD	1.68		Avg SD Months	1.54
SD btwn Labs	2.04		SD btwn Labs	2.33
Labs Incld	42		Labs Incld	44

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester		CT	Con-Ten
EM	Emerson 1200 Series		EN	Emerson 2200
KS	Kyungsung KSU-05M		LC	L&W Crush Tester 48
LD	L&W Crush Tester 248		LY	L&W 830
MK	Mark-10 ESM303		TB	TMI Monitor/Compression Tester, Model 17-70
TD	TMI Digital Crush Tester, Model 17-09		TG	TMI Digital Crush Tester, 17-76
TH	TMI Monitor/Compression Tester, Model 17-76		TJ	TLS Compression Tester, Model CDM-5
TK	TLS Compression Tester, Model 5184		TL	Tech-Lab Systems Compression
WK	Zwick Z005 Crush Tester			

Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42D3
TAPPI Official Test Method T807

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
28PPVT	108.7	107.3	103.3 *	101.0	105.1	-1.09	10.9	3.6	106.0	-0.99	11.2	3.0	16	LC
2CGR4Y	115.9	114.3	111.5	115.1	114.2	1.05	11.2	1.9	114.2	1.46	13.3	3.0	16	XX
38YXGY	111.4	112.1	111.6	112.7	112.0	0.52	7.7	0.6	112.1	0.86	9.4	0.8 L	16	LA
6BE8JV	110.2	106.8	107.0	109.3	108.3	-0.33	11.9	1.7	108.6	-0.19	10.8	2.6	16	LA
7J733C	101.6	106.7	110.4	106.3	106.2	-0.82	12.0	3.6	103.6	-1.70	14.8	4.0	16	LZ
7J76PV	103.2	108.4	110.4	113.4	108.8	-0.21	11.0	4.3	108.1	-0.34	10.9	3.8	16	LC
7YEWUL	107.3	108.8	103.8 *	106.1	106.5	-0.76	8.8	2.1	108.2	-0.33	11.4	3.5	16	LC
8HQ2V4	109.5	109.3	109.9 L	110.0 L	109.7	-0.02	6.3	0.3 L	109.4	0.05	5.1	0.4 L	16	LA
97RPVV	104.8	105.5	106.5	106.9	105.9	-0.90	8.6	0.9	105.9	-1.00	9.1	2.4	16	LA
9E2BLA	100.3	109.4	110.5	105.5	106.4	-0.78	11.6	4.6	106.4	-0.85	11.3	4.4	16	LC
ACC4ZR	112.9	110.0	105.7	109.2	109.4	-0.07	11.1	2.9	111.0	0.50	11.4	5.9	16	LC
AGHZJR	117.1	119.1 *	117.5 X	116.1	117.4	1.81	11.4	1.3	114.5	1.58	12.4	2.9	16	LZ
BVKND8	110.8	107.4 L	109.8	107.4	108.8	-0.22	6.1	1.7	108.2	-0.31	9.4	3.1	16	LC
BYGG3V	96.5 *	103.3	103.9 *	98.0 *	100.4	-2.19 *	11.5	3.7	105.5	-1.14	10.3	4.8	16	XX
CX7TMQ	110.3	110.0	106.1	104.7	107.8	-0.46	12.3	2.8	104.2	-1.51	11.1	3.4	16	AH
EZXXR7	104.8	104.7	97.3 X	109.5	104.1	-1.33	8.6	5.0	105.6	-1.10	9.1	3.9	16	LC
FNQAGN	108.0	108.9	109.0	109.2 L	108.8	-0.23	4.9	0.5 L	109.2	-0.02	5.2	1.0 L	16	AH
FPU3A2	119.0	111.0	No Data	No Data	115.0	1.23	11.1	5.7	112.5	0.97	13.3	4.1	14	AH
GX7L4K	117.5	120.4 *	No Data	119.6	119.2	2.21 *	12.1	1.5	117.5	2.47 *	12.5	3.5	14	LA
GXRUFA	111.7	108.7	107.7	103.9	108.0	-0.41	8.1	3.2	106.0	-0.97	8.6	2.6	16	LA
H2KGNN	112.3	98.1 *	119.1 X	115.1	111.2	0.33	9.9	9.1 H	109.3	0.01	8.9	5.7	12	AH
HBCWB8	100.8	104.4	101.2 X	No Data	102.1	-1.78	9.9	2.0	112.6	0.99	11.9	7.1	11	AH
J8JMEB	120.1	109.2	112.1	113.2	113.6	0.91	11.3	4.6	113.9	1.38	11.7	3.1	15	LZ
JP3F6Z	111.8	111.6	108.3	112.1	110.9	0.28	10.8	1.8	109.9	0.19	11.0	2.3	16	TB
KMFWYV	106.3	101.7	107.0	105.3	105.1	-1.09	8.1	2.4	107.3	-0.60	8.9	3.8	16	LA
KUCRYF	109.8 L	106.1 L	108.1 L	108.5 L	108.1	-0.38	3.7	1.5	109.2	-0.04	3.8	2.2	16	XX
KW3Z6A	108.7	109.2	106.4	106.5	107.7	-0.48	9.2	1.5	109.3	0.00	10.2	2.5	16	LB
M97X7F	117.8	120.8 *	123.8 X	121.1 *	120.9	2.61 *	13.6	2.5	114.3	1.51	12.8	5.1	16	LC
MAHYQT	109.4	109.4	109.4	109.3	109.4	-0.08	8.9	0.0 L	109.1	-0.04	8.1	2.2	16	LJ
MQNY2H	114.2	100.1	109.8	116.9	110.2	0.11	10.8	7.4 H	109.5	0.07	12.4	5.1	16	LC
NP896H	119.2	121.8 *	112.3	120.2	118.4	2.03 *	14.3	4.2	115.0	1.71	14.1	7.5	16	LA
NPQDHB	107.9	106.7	110.8	107.4	108.2	-0.36	10.7	1.8	106.7	-0.77	10.3	2.4	16	LA
P223XR	111.3	108.7	108.4	115.4	110.9	0.28	12.4	3.3	111.1	0.55	11.6	6.5	16	LJ
PE8VP4	105.5	110.1	110.0	105.2	107.7	-0.48	10.7	2.7	105.8	-1.03	9.7	2.8	16	LC
TAZYAJ	116.1	111.5	109.6	111.4	112.2	0.57	10.3	2.8	113.1	1.15	10.9	3.3	16	LC

Containerboard Interlaboratory Testing Program
Analysis 205
Bursting Strength (Mullen), 42 lb Linerboard - 42D3
TAPPI Official Test Method T807

Report #582 (C)
March 2018

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SD	SD Wks	Cumulative Results Mean	CPV	SD	SD Wks	Wks	Inst
TQLKTP	NO DATA	NO DATA	NO DATA	106.7	106.7	-0.71	12.1	0.0	103.5	-1.72	12.3	5.0	13	LC
U2JK39	109.2	106.6 H	112.1	110.1	109.5	-0.05	13.5	2.3	112.4	0.94	12.5	3.9	16	TB
U4CE3X	108.3	108.9	109.8	108.2	108.8	-0.22	9.7	0.7	109.7	0.11	10.0	2.2	16	LA
UNWD78	103.6	109.2	107.8	116.7	109.3	-0.10	12.9	5.4	108.0	-0.39	10.2	4.5	16	LA
UVU946	102.8	109.0	109.9	106.4	107.0	-0.64	9.8	3.2	105.8	-1.04	10.2	3.1	16	AH
WUFHVD	117.8	113.9	111.0	110.6	113.3	0.84	12.1	3.4	110.6	0.39	12.6	3.7	16	LZ
WXDY88	110.7	106.9	109.2	107.8 L	108.7	-0.26	4.9	1.7	108.8	-0.13	5.0	1.5	5	TP
X2RZJ6	109.4	107.0 L	108.0	109.0	108.4	-0.33	5.5	1.1	107.5	-0.53	5.5	1.7	16	RE
X6TY3A	109.7	116.5	113.1	120.3	114.9	1.21	13.4	4.5	113.1	1.14	12.2	4.5	16	LA
XGMFRB	77.8 X	105.2	97.4 X	99.7	95.0	-3.45 X	10.2	12.0 H	105.1	-1.25	10.6	9.1 H	15	LA
Y72E8V	107.8	105.8	106.1	109.8	107.4	-0.56	13.1	1.8	106.3	-0.88	13.1	3.0	16	LA
YC7BRV	117.4	115.5	109.4	119.6	115.5	1.35	9.4	4.4	112.1	0.84	8.9	3.8	16	TB

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4						
Wk Mean	109.99	109.26	108.83	110.14	Month Mean	109.74		Grand Mean	109.27	
Avg SDr	10.11	10.36	9.97	11.19	Avg SD	10.48		Avg SD	10.71	
SD btwn Labs	5.54	4.98	2.43	5.49	SD btwn Labs	4.26		SD btwn Labs	3.34	
Labs Incld	45	46	38	45	SD btwn Wks	3.38		SD btwn Wks	4.01	
Labs Excld	1	0	6	0	Labs Incld	46		Labs Incld	47	
Labs not Rcvd	1	1	3	2						

Key to Instrument Codes Reported by Participants

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

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

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
28PPVT	116.9	112.0	114.1	110.8	113.5	0.31	13.5	2.7	111.8	-0.28	13.0	3.3	8	LC
2CGR4Y	118.1	112.1	111.5	113.1	113.7	0.38	10.7	3.0	113.1	0.16	11.7	2.7	8	XX
38YXGY	114.1	115.2	115.0	115.2	114.9	0.70	6.5	0.6 L	116.1	1.14	9.0	1.4	8	LA
6BE8JV	110.8	114.8	110.7	114.0	112.5	0.06	11.9	2.1	111.4	-0.41	11.3	2.9	8	LA
7J733C	98.2 *	109.5	108.4	105.4	105.4	-1.89	12.6	5.1	108.0	-1.54	11.2	4.8	8	LZ
7J76PV	119.6	111.4	115.0 L	121.0	116.7	1.21	8.8	4.4	113.8	0.37	9.6	4.9	8	LC
7YEWUL	114.0	109.5	107.9	106.1	109.4	-0.80	10.1	3.4	111.3	-0.44	9.8	4.0	8	LC
8HQ2V4	112.8	112.9	112.7 L	112.2 L	112.6	0.09	3.9	0.3 L	113.4	0.25	3.9	0.9 L	8	LA
97RPVV	115.7	115.3	113.8	110.5	113.8	0.41	8.5	2.3	113.2	0.17	7.6	2.3	8	LA
9E2BLA	100.4 *	114.7	103.5	111.5	107.5	-1.30	11.6	6.7	110.4	-0.76	11.4	7.3	8	LC
ACC4ZR	117.9	117.3	108.8	111.5	113.9	0.42	11.5	4.5	113.9	0.40	11.5	4.5	4	LC
AGHZJR	115.4	122.1 *	113.9	110.4	115.4	0.85	11.6	4.9	118.2	1.82	11.8	5.6	8	LZ
BYGG3V	104.7	108.4	103.5	105.7	105.6	-1.83	8.8	2.1	107.9	-1.58	10.3	3.2	8	XX
CX7TMQ	104.4	101.7 X	101.3 *	106.9	103.6	-2.37 *	10.8	2.6	104.7	-2.65 *	11.0	3.8	8	AH
EZXXR7	102.4	105.5 *	116.8 L	116.1	110.2	-0.58	10.7	7.4 H	110.7	-0.64	11.2	5.1	8	LC
FNQAGN	111.9	112.0	112.4	111.4 L	111.9	-0.10	5.0	0.4 L	112.3	-0.11	5.1	0.6 L	8	AH
FPU3A2	111.0	116.5	No Data	No Data	113.8	0.39	10.1	3.9	114.9	0.75	9.9	3.4	6	AH
GX7L4K	117.5	118.1	No Data	122.9 *	119.5	1.95 *	11.0	2.9	118.5	1.92	10.2	2.4	7	LA
GXRUFA	104.2	105.5 *	104.8	108.5	105.7	-1.79	12.5	1.9	106.7	-1.97 *	11.8	2.8	8	LA
H2KGNN	112.6	110.2	108.6	107.1	109.6	-0.74	9.2	2.4	111.3	-0.43	8.8	4.9	8	AH
HBCWB8	107.2	108.8	106.2	No Data	107.4	-1.33	12.3	1.3	110.3	-0.77	11.5	3.0	7	AH
J8JMEB	120.0	112.9	116.4	122.1 *	117.9	1.51	9.5	4.1	115.9	1.08	12.1	5.3	8	LZ
JP3F6Z	116.3	114.6	111.1	112.6	113.7	0.37	11.2	2.3	111.1	-0.51	11.0	3.2	8	TB
KMFWYV	113.4	115.3	112.7 L	112.3	113.4	0.30	6.0	1.3	115.0	0.78	7.1	3.3	8	LA
KUCRYF	114.0	115.6	118.3	113.6 L	115.4	0.83	5.9	2.1	118.5	1.94 *	5.7	4.1	8	XX
KW3Z6A	115.8	114.4	113.3	103.5 *	111.7	-0.15	7.1	5.6	113.3	0.22	7.3	4.3	8	LB
M97X7F	114.5	130.8 X	117.6	116.1	119.8	2.02 *	11.2	7.5 H	116.5	1.27	10.8	6.2	8	LC
MAHYQT	113.8	113.7	113.6	113.8	113.7	0.38	8.4	0.1 L	114.8	0.71	7.2	1.2	8	LJ
MQNY2H	112.5	114.8	113.4	123.8 *	116.1	1.04	12.7	5.2	113.1	0.14	11.6	5.9	8	LC
NP896H	111.3	110.4	113.6	113.6	112.2	-0.02	10.8	1.6	110.5	-0.71	13.6	2.3	8	LA
NPQDHB	112.1	110.8	114.6	115.5	113.3	0.26	10.6	2.2	112.2	-0.15	10.8	2.7	8	LA
P223XR	103.7	117.5	114.8 H	117.0	113.2	0.25	14.4	6.5	112.4	-0.07	14.0	4.5	8	LJ
PE8VP4	108.3	111.1	109.4	109.2	109.5	-0.76	8.5	1.2	109.3	-1.11	9.4	3.1	8	LA
TAZYAJ	115.1	106.9	107.1	113.4	110.6	-0.46	12.5	4.3	111.3	-0.45	16.0	6.2	8	LC
TQLKTP	No Data	No Data	No Data	108.3	108.3	-1.10	15.5	0.0	135.9	7.71	X 95.8	60.7 H	5	LC

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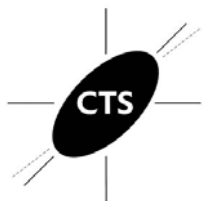TAPPI Official Test Method T807

Report #582 (C)
March 2018

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
		Weekly Means				Monthly Results				Cumulative Results				
U2JK39	113.3	117.3	114.6	107.6	113.2	0.24	11.4	4.1	112.5	-0.05	11.0	3.6	8	TB
U4CE3X	105.7	109.6	114.7	113.7 H	110.9	-0.38	12.3	4.1	110.7	-0.66	10.3	3.4	8	LA
UNWD78	116.1	115.0	125.8 X	117.9	118.7	1.74	9.8	4.9	115.7	1.00	11.1	5.4	8	LA
UVU946	109.1 L	114.3	117.1	115.6	114.0	0.47	8.3	3.5	112.5	-0.06	8.9	3.3	8	AH
WUFHVD	111.5	114.2	108.9	114.0	112.2	-0.04	13.0	2.5	112.7	0.03	12.5	2.9	8	LZ
WXDY88	112.3	113.0	113.1	111.5	112.5	0.05	7.0	0.7	112.5	-0.06	7.0	0.7 L	4	TP
X2RZJ6	115.4	117.4	112.4	111.6	114.2	0.51	7.0	2.7	116.6	1.29	6.5	3.2	8	RE
X6TY3A	111.2	115.5	118.1	112.2	114.3	0.53	9.2	3.1	116.5	1.29	11.7	5.5	8	LA
XGMFRB	109.1	108.1	108.9	109.4	108.9	-0.94	9.9	0.6 L	111.6	-0.35	9.5	3.7	8	LA
Y72E8V	108.5	108.9	110.3	111.0	109.7	-0.71	11.4	1.2	109.8	-0.95	11.5	2.1	8	LA
YC7BRV	124.9 *	118.9	122.4 *	129.6 X	123.9	3.17 X	9.5	4.5	122.6	3.30 X	11.5	3.3	8	TB

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4						
Wk Mean	111.94	113.07	112.02	112.55	Month Mean	112.31		Grand Mean		112.66
Avg SDr	10.03	9.73	10.80	10.56	Avg SD	10.41		Avg SD		10.46
SD btwn Labs	5.44	3.71	4.43	4.60	SD btwn Labs	3.68		SD btwn Labs		3.02
Labs Incld	45	43	42	43	SD btwn Wks	3.62		SD btwn Wks		3.94
Labs Excld	0	2	1	1	Labs Incld	45		Labs Incld		44
Labs not Rcvd	1	1	3	2						

Key to Instrument Codes Reported by Participants

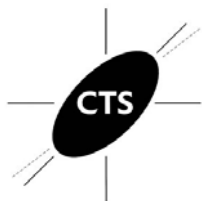| AH	Perkins Model AH	LA	L&W Bursting Strength Tester
LB	L&W Burst-O-Matic	LC	L&W Autoline
LJ	L&W Bursting Strength Tester J-Type	LZ	L&W (model not specified)
RE	Regmed/Mullen Tester	TB	TMI Monitor/Burst 1000
TP	Technidyne PROFILE/Plus	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42D3
TAPPI Official Test Method T822

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
		Weekly Means				Monthly Results				Cumulative Results				
28PPVT	85.4	84.6	88.1	88.3	86.6	-0.70	3.8	1.9	88.7	-0.16	4.0	3.0	16	LC
2UYTX2	90.4	90.2	90.8	90.9	90.6	0.32	2.5	0.3 L	91.4	0.55	2.6	1.2	16	LD
38YXGY	92.9	93.3	93.4	92.4	93.0	0.93	3.4	0.5	92.0	0.71	3.4	0.9 L	16	LD
44VMZP	89.3	93.2	92.3	92.3	91.8	0.62	3.9	1.7	92.5	0.85	4.2	1.3	12	LD
6BE8JV	86.0	87.3	83.2	83.1	84.9	-1.13	4.4	2.1	86.0	-0.89	3.8	3.8	16	LD
7J733C	86.7	88.4	86.5	86.8	87.1	-0.57	4.3	0.9	86.8	-0.68	3.9	1.3	16	LD
7J76PV	87.9	89.7	90.8	90.1	89.6	0.07	4.5	1.2	88.6	-0.19	4.0	2.2	16	LD
7YEWUL	91.6	89.2	94.3	92.7	91.9	0.66	3.4	2.2	90.8	0.41	3.6	1.8	16	LD
8HQ2V4	89.7	89.1	89.9 L	89.0	89.5	0.03	3.3	0.4	89.7	0.11	3.2	1.4	16	LZ
97RPVV	86.7	87.1	86.7	88.5	87.3	-0.53	3.3	0.9	87.6	-0.47	3.5	1.2	16	LD
9E2BLA	85.6	85.9	88.9	84.9	86.3	-0.77	4.1	1.8	86.2	-0.83	3.6	1.6	16	LD
AGHZJR	86.3	90.8	87.2	86.7	87.8	-0.40	2.9	2.1	86.9	-0.64	3.6	1.9	16	LC
CPECYL	87.2	90.3	88.2	89.0	88.7	-0.18	4.1	1.3	91.3	0.53	4.2	3.7	16	EM
CX7TMQ	90.6 L	89.3	89.8	92.1	90.5	0.28	4.3	1.2	90.4	0.30	3.9	1.3	16	LC
EZXXR7	90.6	91.5	93.2	88.5	90.9	0.41	4.4	2.0	89.9	0.16	4.2	2.4	16	LD
GJPN3Q	92.5	87.8	90.9	88.5	89.9	0.15	4.9	2.2	87.9	-0.38	4.2	2.3	16	EM
GX7L4K	92.2	91.5	No Data	90.4	91.4	0.51	3.7	0.9	88.2	-0.29	5.6	11.6 H	14	LZ
GXRUFA	79.6 *H	80.5 H	93.7	81.2	83.8	-1.42	8.0	6.7 H	84.6	-1.29	6.1	4.0	16	LZ
GYKVDK	90.4	78.6 *H	85.4	88.7	85.8	-0.90	5.8	5.2 H	85.6	-1.00	4.9	5.0	16	XX
H2KGNN	95.6	96.0	100.9 *	98.7 *	97.8	2.15 *	4.6	2.5	97.9	2.32 *	4.4	1.6	12	LZ
HBCWB8	93.2	93.6	96.0	No Data	94.3	1.25	5.3	1.5	91.6	0.63	4.7	2.6	11	LC
HRVWYG	80.1 *	82.1	85.9	81.6	82.4	-1.77	3.9	2.5	81.5	-2.12 *	4.0	1.6	16	EM
J86ZYG	93.5	89.8	90.9	87.9	90.5	0.30	3.5	2.4	89.1	-0.05	3.4	2.8	16	TH
J8JMEB	88.5	88.8	90.1	86.8	88.5	-0.21	3.4	1.4	88.0	-0.35	4.0	2.4	15	LG
JP3F6Z	86.9	89.2	84.7	90.4	87.8	-0.39	4.4	2.5	87.1	-0.61	4.3	2.1	16	LC
KMFWYV	84.1	83.7	78.5 *	81.8	82.0	-1.86	3.5	2.6	81.4	-2.13 *	3.1	1.7	16	TU
KUCRYF	85.4	86.9	80.2 *	79.6 *L	83.0	-1.61	3.7	3.7	84.4	-1.32	3.9	6.2	16	LD
KW3Z6A	87.1	87.0	86.7	88.8	87.4	-0.49	3.4	0.9	86.4	-0.80	3.7	1.8	16	LC
LQC3TR	92.4 L	93.3	92.6	94.6	93.2	0.99	2.6	1.0	92.8	0.93	2.7	2.1	16	TD
M97X7F	86.0	85.6	86.5	84.5	85.6	-0.94	2.9	0.8	86.4	-0.79	3.4	1.3	16	LD
MAHYQT	89.0	88.6	89.0 H	88.8 H	88.8	-0.13	7.3	0.2 L	89.1	-0.07	5.1	0.3 L	16	LD
MQNY2H	95.9	92.8	95.0	98.0	95.4	1.54	4.0	2.2	94.8	1.47	3.7	3.3	16	LD
N3CKJH	86.9	86.9	84.6	85.6	86.0	-0.86	3.7	1.1	86.9	-0.66	3.5	1.6	16	LC
P223XR	91.9	90.4	91.1	90.5	91.0	0.41	4.8	0.7	91.0	0.45	4.3	2.5	16	LD
PE8VP4	87.3	89.3	88.5	88.7	88.5	-0.23	3.5	0.8	88.1	-0.32	3.3	1.0	12	LD

Containerboard Interlaboratory Testing Program
Analysis 215
Ring Crush, 42 lb Linerboard - 42D3
TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
RCU4R8	76.1 XH	90.5	89.3	86.6	85.6	-0.95	6.4	6.6 H	86.5	-0.75	6.5	5.9	16	MB
REX2W9	83.9	82.2	84.0	80.6	82.7	-1.70	3.5	1.6	82.9	-1.75	3.8	1.9	16	EN
RMT2DL	90.1	88.9	89.1	88.7	89.2	-0.04	3.4	0.6	89.4	0.01	3.1	1.7	16	TH
TQLKTP	85.3	83.7	87.0	86.4	85.6	-0.95	4.7	1.4	89.0	-0.10	3.9	3.3	16	LC
U2JK39	84.3	86.6	83.7	89.5	86.0	-0.85	3.9	2.6	84.9	-1.19	3.8	3.3	16	LZ
U4CE3X	92.6	88.7	90.8	91.0	90.8	0.36	3.7	1.6	90.8	0.40	3.7	1.2	16	LD
UNWD78	93.1	86.8	89.8	93.6	90.8	0.37	4.2	3.2	88.6	-0.19	4.0	3.2	16	LD
UVU946	85.2	86.3	84.9	85.5	85.5	-0.98	3.7	0.6	85.9	-0.94	3.8	1.6	16	LD
WHHEQJ	75.4 X	77.3 *	73.0 X	73.5 XH	74.8	-3.70 X	5.0	1.9	75.8	-3.64 X	5.0	5.5	16	MZ
WP682X	96.3	92.0	93.3	93.3	93.7	1.11	3.8	1.8	93.7	1.17	5.8	1.6	8	MB
WXDY88	91.0	90.3	91.4	90.4	90.8	0.36	3.7	0.5	89.8	0.13	3.6	1.2	16	TH
X2RZJ6	94.2	97.1	96.4	97.5	96.3	1.77	3.7	1.5	94.1	1.29	3.5	1.8	16	LZ
X6TY3A	96.2	97.2	96.5	96.3	96.5	1.83	3.2	0.5	96.8	2.02 *	4.2	1.7	16	LD
XD6363	92.2	95.0	95.9	93.5	94.1	1.22	3.7	1.6	93.3	1.08	3.4	2.1	12	LD
XGMFRB	100.4 *	98.8 *	98.8 *	91.7	97.4	2.06 *	5.2	3.9	94.2	1.33	5.5	10.6 H	16	LC
Y72E8V	92.9 H	88.1	86.6	82.0	87.4	-0.49	5.7	4.5	90.8	0.41	5.7	7.1 H	16	LC
YC7BRV	99.5 *	103.3 X	103.6 X	101.9 *	102.1	3.24 X	5.1	1.9	96.3	1.87	5.0	4.5	16	LX
YEUQ23	91.9	93.2	95.8	91.6	93.1	0.96	3.9	1.9	95.1	1.55	4.2	2.1	12	TH
YHTXNL	91.4	91.1	90.3	90.4	90.8	0.37	3.2	0.5	90.3	0.27	3.8	1.6	16	LD

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4		Monthly		Cumulative
Wk Mean	89.72	88.98	89.77	89.24	Month Mean	89.34	Grand Mean	89.32
Avg SDr	4.28	4.36	4.07	4.06	Avg SD	4.23	Avg SD	4.14
SD btwn Labs	4.39	4.41	4.58	4.72	SD btwn Labs	3.93	SD btwn Labs	3.70
Labs Incld	52	53	51	52	SD btwn Wks	2.34	SD btwn Wks	3.45
Labs Excld	2	1	2	1	Labs Incld	52	Labs Incld	53
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
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)	TD	TMI Digital Crush Tester, Model 17-09
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 216
Ring Crush, 56 lb Linerboard - 56A2
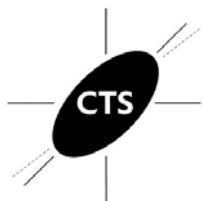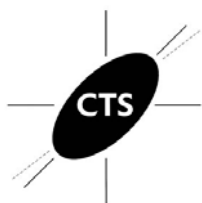TAPPI Official Test Method T822

Report #582 (C)
March 2018

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
	Weekly Means				Monthly Results				Cumulative Results					
28PPVT	135.1	134.4	134.7	137.3	135.4	-0.90	3.9	1.3	140.1	-0.16	4.5	5.5	8	LC
2UYTX2	141.5 L	144.1 L	144.9	140.6	142.8	0.27	2.3	2.1	143.8	0.46	3.3	2.1	8	LD
38YXGY	143.9	143.6	143.9	143.4	143.7	0.41	3.2	0.2 L	143.5	0.41	2.8	0.4 L	8	LD
44VMZP	143.5	140.7	142.5	141.1 H	142.0	0.14	5.8	1.3	142.1	0.17	5.5	2.0	8	LD
6BE8JV	139.1	138.3	137.4	131.4	136.6	-0.72	5.3	3.5	135.3	-0.96	4.8	3.2	8	LD
7J733C	139.1	139.2	137.4	140.3	139.0	-0.33	5.6	1.2	137.4	-0.62	4.8	2.1	8	LD
7J76PV	137.2	139.1	139.3	139.8	138.9	-0.35	4.4	1.2	139.0	-0.35	4.6	1.3	8	LD
7YEWUL	142.5	141.6	138.9	140.0	140.8	-0.05	4.6	1.6	141.9	0.14	4.5	1.7	8	LD
8HQ2V4	143.3	140.4	141.2	140.6	141.4	0.05	3.8	1.3	142.5	0.24	3.4	3.0	8	LZ
97RPVV	137.4	136.9	134.9	137.0	136.6	-0.72	3.7	1.1	135.9	-0.87	3.8	1.3	8	LD
9E2BLA	134.0	133.7 L	132.1	135.3	133.8	-1.16	5.1	1.3	135.6	-0.92	5.2	2.6	8	LD
AGHZJR	134.4	139.1	137.0	134.6 L	136.3	-0.76	3.4	2.2	135.4	-0.95	4.2	2.5	8	LC
CPECYL	145.9	145.0	139.7	143.3	143.5	0.39	3.6	2.7	146.6	0.92	4.2	4.9	8	EM
CX7TMQ	145.9	145.6	146.8	143.2	145.4	0.69	4.5	1.5	145.6	0.76	4.6	1.4	8	LC
EZXXR7	146.3	140.3	147.3	144.9 H	144.7	0.58	5.6	3.1	144.3	0.54	5.3	2.7	8	LD
GJPN3Q	147.8	144.0	145.4	145.0	145.5	0.71	4.3	1.6	141.8	0.12	4.2	4.4	8	EM
GX7L4K	143.4	141.6	No Data	140.0	141.7	0.10	3.7	1.7	143.1	0.33	3.4	2.0	7	LZ
GXRUFA	137.6 H	135.3 H	144.5	142.5	140.0	-0.17	11.8	4.3	134.7	-1.07	10.3	7.7	8	LZ
GYKVDK	141.2	131.9 H	142.5	147.5	140.8	-0.05	7.8	6.5 H	138.3	-0.46	7.4	5.2	8	XX
H2KGNN	158.5 *	148.8	153.7	151.6	153.2	1.92	5.7	4.1	154.7	2.28 *	5.3	3.5	8	LZ
HBCWB8	144.5	141.2 H	140.7	No Data	142.1	0.17	7.3	2.1	140.5	-0.10	6.5	3.2	7	LC
HRVWYG	120.8 *	128.4	125.5 *	130.8 H	126.4	-2.34 *	5.9	4.3	126.3	-2.47 *	5.0	3.4	8	EM
J86ZYG	138.9	136.1	138.4 L	134.0	136.8	-0.67	3.2	2.2	138.6	-0.42	3.5	3.5	8	TH
J8JMEB	141.5	140.7	142.7	137.9	140.7	-0.06	4.1	2.0	140.3	-0.12	4.3	2.9	8	LY
JP3F6Z	149.1	146.7	137.8	150.3	146.0	0.78	5.2	5.7 H	142.9	0.30	5.2	5.2	8	LC
KMFWYV	131.0	127.4 *	130.4	126.6 *	128.8	-1.95 *	3.9	2.2	128.3	-2.13 *	3.6	1.7	8	TU
KUCRYF	127.8	137.1	124.8 *	132.9	130.7	-1.66	3.6	5.4 H	132.0	-1.52	4.5	4.9	8	LD
KW3Z6A	141.0	139.0	141.7	142.4	141.0	-0.01	4.3	1.5	138.9	-0.37	4.1	2.5	8	LC
LQC3TR	140.3	141.0	139.5	141.9 L	140.7	-0.06	3.3	1.0	141.2	0.02	3.4	1.5	8	TD
M97X7F	136.2	132.7	135.5	133.0	134.4	-1.06	4.3	1.7	134.4	-1.11	4.0	2.0	8	LD
MAHYQT	136.8	136.5 L	136.4	136.9	136.6	-0.70	3.1	0.2 L	137.9	-0.53	2.9	1.3	8	LD
MQNY2H	148.7	148.7	148.4	146.8	148.1	1.13	3.6	0.9	148.6	1.26	4.4	2.1	8	LD
N3CKJH	135.9	136.0	139.5	138.7	137.5	-0.56	3.7	1.8	139.6	-0.25	4.0	2.9	8	LC
P223XR	148.5	148.6	149.5	149.3	149.0	1.26	5.2	0.5	148.3	1.21	4.8	5.1	8	LD
PE8VP4	138.4	137.6	143.0	139.4	139.6	-0.23	3.6	2.4	139.6	-0.25	3.6	2.4	4	LD

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

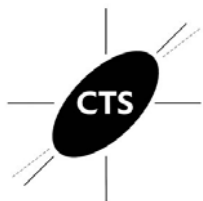| WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SD	SD Wks	Cumulative Results Mean	CPV	SD	SD Wks	Wks	Inst
RCU4R8	133.0 H	142.6	143.1	142.5	140.3	-0.12	6.7	4.9	138.7	-0.40	7.7	7.0	8	MB
REX2W9	127.0	131.2	132.4	131.3	130.5	-1.68	4.6	2.4	132.0	-1.51	4.8	2.3	8	EN
RMT2DL	145.2	143.0	142.0	144.3	143.6	0.41	4.0	1.4	142.9	0.31	4.0	1.3	8	TH
TQLKTP	135.4	138.1	134.7	No Data	136.1	-0.79	3.9	1.8	139.1	-0.32	4.1	3.7	7	LC
U2JK39	131.7	136.6	133.7	140.1	135.5	-0.88	3.8	3.7	136.7	-0.73	3.6	3.8	8	LZ
U4CE3X	138.2	140.9	139.0	136.9	138.8	-0.37	5.6	1.7	139.4	-0.28	5.4	1.4	8	LD
UNWD78	135.1	139.4	139.7	142.6	139.2	-0.30	4.0	3.1	141.0	-0.01	4.3	3.6	8	LD
UVU946	134.5	132.5	134.7	138.4	135.0	-0.96	4.1	2.5	134.0	-1.19	4.4	2.0	8	LD
WHHEQJ	121.6 *	122.8 *	113.1 X	116.9 X	118.6	-3.58 X	5.7	4.5	119.4	-3.62 X	5.6	3.5	8	MZ
WP682X	148.4	144.5 L	146.9	149.9	147.4	1.01	3.7	2.3	147.4	1.06	3.7	2.3	4	MB
WXDY88	138.5	138.6	140.2	140.2	139.4	-0.26	3.9	0.9	139.3	-0.29	3.8	0.9 L	8	TH
X2RZJ6	146.9	147.1	150.4	147.6	148.0	1.10	3.8	1.6	147.2	1.03	4.0	1.6	8	LZ
X6TY3A	156.4	156.5 *	152.5	152.8	154.5	2.15 *	5.7	2.2	152.7	1.94 *	5.5	3.0	8	LD
XD6363	143.9	148.0	143.2	145.6	145.2	0.65	4.7	2.1	145.2	0.69	4.7	2.1	4	LD
XGMFRB	156.7	151.0	150.5	152.1	152.6	1.83	5.1	2.9	146.9	0.97	7.3	19.1 H	8	LC
Y72E8V	149.6	153.0	153.5	153.3	152.4	1.80	5.1	1.8	149.3	1.37	5.3	4.2	8	LC
YC7BRV	159.6 *	164.2 XH	160.6 *	158.9 *	160.8	3.14 X	6.7	2.3	155.3	2.39 *	6.5	6.1	8	LY
YEUQ23	151.1	153.8 *	156.1 *	153.6	153.6	2.00 *	4.7	2.0	148.0	1.15	5.3	6.8	8	TH
YHTXNL	142.7	143.4	144.6	141.4	143.0	0.31	3.8	1.3	142.9	0.30	4.3	1.2	8	LD

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4		Monthly			Cumulative
Wk Mean	140.97	140.46	141.45	141.80	Month Mean	141.06		Grand Mean	141.07
Avg SDr	5.37	5.14	4.34	4.50	Avg SD	4.84		Avg SD	4.87
SD btwn Labs	8.19	6.67	7.23	6.72	SD btwn Labs	6.29		SD btwn Labs	5.98
Labs Incld	54	53	52	51	SD btwn Wks	2.61		SD btwn Wks	4.32
Labs Excld	0	1	1	1	Labs Incld	52		Labs Incld	53
Labs not Rcvd	0	0	1	2					

Key to Instrument Codes Reported by Participants

EM	Emerson 1200		EN	Emerson 2200
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		MZ	Messmer Buchel (model not specified)
TD	TMI Digital Crush Tester, Model 17-09		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 223
STFI, 42 lb Linerboard - 42D3
TAPPI Official Test Method T826

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
28PPVT	22.4	22.2 L	22.2	20.6 *	21.9	-0.82	1.8	0.8	22.3	-0.11	1.4	0.7	16	LA
2UYTX2	21.1	21.3	21.3	21.4	21.3	-1.70	1.7	0.2	21.2	-1.50	1.7	0.3	16	LY
38YXGY	22.3	22.5	22.4	22.4	22.4	-0.03	1.6	0.1 L	22.6	0.31	1.8	0.2 L	16	LA
6BE8JV	23.2	23.5	22.9	21.8	22.9	0.67	2.3	0.7	23.3	1.20	2.1	1.0	16	LZ
7GAQYW	21.8 L	23.6	23.7	24.4 *	23.4	1.42	2.0	1.1	22.1	-0.32	1.9	1.5	16	XX
7J733C	21.7	22.9	22.9	22.2	22.4	0.01	1.7	0.6	22.5	0.22	1.7	0.5	16	LY
7YEWUL	22.2	23.3 H	22.8	22.5	22.7	0.44	2.2	0.5	22.8	0.61	2.2	0.5	16	LA
97RPVV	21.0	22.5 L	21.9	21.9	21.8	-0.87	1.8	0.6	21.6	-0.93	1.5	0.6	16	BK
9E2BLA	22.4	22.6	22.4	22.1	22.4	-0.04	1.8	0.2	22.4	0.06	1.7	0.6	16	LA
A7KWGJ	20.9 *	23.2	22.0	19.3 X	21.4	-1.55	1.8	1.7 H	20.8	-2.02 *	1.5	1.3	16	LW
ACC4ZR	42.7 X	44.7 X	46.5 XH	44.8 XH	44.7	33.15 X	3.0	1.6 H	42.0	25.01 X	2.4	6.9 H	16	LA
AGHZJR	22.9	23.4	23.3	21.5	22.8	0.54	2.1	0.9	22.7	0.40	2.1	0.8	16	LW
BVKND8	23.0	21.3	21.3	22.7	22.1	-0.50	2.2	0.9	22.1	-0.30	1.7	1.2	16	LA
BYGG3V	22.6	23.3	23.8	22.9	23.2	1.12	1.8	0.5	22.4	0.01	1.7	1.3	16	XX
CJ3L7Z	23.8 *	23.8	23.2	23.7	23.6	1.81	2.1	0.3	22.6	0.35	2.0	1.1	12	LU
CPECYL	21.9	22.8	22.7	22.4	22.4	0.07	2.2	0.4	22.3	-0.03	1.7	0.6	12	TT
CX7TMQ	22.4	22.2	22.5	22.2	22.3	-0.12	2.0	0.2	22.3	-0.04	1.8	0.3	16	LU
EZXXR7	22.3	23.7	21.5 L	22.5	22.5	0.13	2.1	0.9	22.9	0.72	2.0	1.0	16	LA
FNQAGN	22.6 L	22.1 L	22.4 L	22.6 L	22.4	0.01	1.0	0.2	22.5	0.17	0.9	0.2 L	16	TT
FRKARC	22.5	22.9	22.3	21.8	22.3	-0.09	1.6	0.5	22.3	-0.09	1.9	0.4	16	LW
GX7L4K	21.6	20.8	* NO DATA	20.9	21.1	-1.96 *	1.9	0.4	21.0	-1.74	2.0	0.4	14	LW
GXRUFA	23.0	23.2	23.0	21.2	22.6	0.23	2.2	0.9	21.8	-0.75	2.0	1.2	16	LA
GYKVDK	25.9 XH	22.8	22.0	23.7	23.6	1.75	3.4	1.7 H	23.8	1.83	2.2	4.1 H	16	XX
HBCWB8	22.6 H	24.3 H	22.5 H	22.8 H	23.0	0.94	4.1	0.8	24.2	2.29 *	3.6	1.2	12	LH
J8JMEB	21.3	22.2	21.9	22.2	21.9	-0.76	1.9	0.4	21.9	-0.53	2.0	0.4	15	LU
JP3F6Z	23.3	24.4	23.8	23.3	23.7	1.92	1.9	0.5	24.0	2.10 *	2.0	0.6	16	LW
KW3Z6A	22.4	22.3	23.0	23.1	22.7	0.42	1.6	0.4	22.6	0.26	1.6	0.5	16	ID
M97X7F	21.8 L	22.4	21.7 L	21.6 L	21.9	-0.79	1.2	0.4	21.0	-1.75	1.7	1.2	16	LA
MQNY2H	23.0	23.3	24.7 *	22.4	23.4	1.42	1.9	1.0	23.3	1.24	1.9	1.0	16	LZ
NP896H	22.1	23.4	22.1	22.4	22.5	0.13	2.2	0.6	22.1	-0.34	1.7	1.0	16	XX
P223XR	22.1	23.0	22.9	23.2	22.8	0.61	1.8	0.5	23.6	1.57	1.3	1.1	16	LU
PE8VP4	23.8 *	21.6	22.6	22.4	22.6	0.28	2.0	0.9	22.2	-0.16	1.9	0.7	16	LA
RCU4R8	22.4	22.8	23.0	23.6	23.0	0.84	2.0	0.5	22.7	0.47	1.8	0.7	16	LA
REX2W9	21.2	21.6	21.8	21.0	21.4	-1.50	2.1	0.4	21.3	-1.38	1.9	0.4	16	LY
TAZYAJ	22.8	22.9	21.4	22.2 L	22.3	-0.12	1.5	0.7	22.4	0.04	1.9	0.7	16	LA

With column group headers: Weekly Means (Week 1–4), Monthly Results (Mean, CPV, SD, SD Wks), Cumulative Results (Mean, CPV, SD, SD Wks, Wks), Inst.

Containerboard Interlaboratory Testing Program
Analysis 223
STFI, 42 lb Linerboard - 42D3
TAPPI Official Test Method T826

Report #582 (C)
March 2018

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
U2JK39	22.4	21.1	22.8	21.2	21.9	-0.82	1.7	0.9	21.6	-0.94	1.8	0.7	16	LZ
U4CE3X	22.6	22.3	21.8	22.2	22.2	-0.27	1.5	0.3	22.2	-0.16	1.9	0.6	16	LY
UNWD78	22.4	22.1	21.4	23.0	22.2	-0.26	2.3	0.7	22.6	0.26	1.9	0.9	16	LA
UVU946	22.0	21.1	20.9	21.6	21.4	-1.49	2.0	0.5	21.9	-0.62	1.9	0.7	16	LU
WP682X	21.6	21.6	23.4	22.8	22.4	-0.08	1.9	0.9	32.6	13.11 X 1.4		11.0 H	8	BK
WUFHVD	24.8 XL	24.9 *	25.2 X	26.1 X	25.2	4.21 X	1.8	0.6	24.8	3.16 X 2.1		0.7	16	LZ
WXDY88	22.6	22.6 L	22.7 L	22.3 L	22.5	0.17	1.0	0.2	22.3	-0.04	1.0	0.3 L	16	TT
XD6363	22.6	23.4	23.0	23.0	23.0	0.86	1.5	0.4	23.1	0.91	1.4	0.2 L	12	LH
Y72E8V	21.4	21.8	21.7	21.2	21.5	-1.31	2.0	0.3	22.2	-0.20	1.3	1.4	16	LW
YEUQ23	21.5	22.1	20.1 *	21.0	21.2	-1.84	2.3	0.8	21.0	-1.70	1.6	0.8	12	LZ
YHTXNL	22.8	22.7	23.5 H	23.7	23.2	1.12	2.3	0.5	22.8	0.61	2.0	0.5	16	LY

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4						
Wk Mean	22.28	22.65	22.45	22.30	Month Mean	22.40	Grand Mean	22.35		
Avg SDr	1.92	2.02	2.05	1.93	Avg SD	2.02	Avg SD	1.85		
SD btwn Labs	0.69	0.91	0.87	0.87	SD btwn Labs	0.67	SD btwn Labs	0.78		
Labs Incld	43	45	43	43	SD btwn Wks	0.69	SD btwn Wks	1.02		
Labs Excld	3	1	2	3	Labs Incld	44	Labs Incld	43		
Labs not Rcvd	0	0	1	0						

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program
Analysis 224
STFI, 56 lb Linerboard - 56A2
TAPPI Official Test Method T826

Report #582 (C)
March 2018

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
		Weekly Means				**Monthly Results**				**Cumulative Results**				
28PPVT	32.6	32.6	31.2	33.0	32.4	-1.55	3.4	0.8	32.8	-1.14	2.4	1.0	8	LA
2UYTX2	32.0	30.9 *	32.1	32.2	31.8	-2.00 *	2.3	0.6	32.0	-1.79	2.2	0.5	8	LY
38YXGY	34.1	34.2	34.2	34.3	34.2	-0.05	2.5	0.1 L	34.0	-0.18	2.5	0.3 L	8	LA
6BE8JV	33.9	34.7	37.5 *	35.1	35.3	0.82	3.3	1.5	36.0	1.42	3.1	1.3	8	LZ
7GAQYW	33.4	36.5	36.0	35.7	35.4	0.88	3.0	1.4	33.1	-0.90	2.9	2.7	8	XX
7J733C	34.5	34.0	34.0	34.6	34.3	0.00	2.9	0.3	34.4	0.13	2.8	0.4 L	8	LZ
7YEWUL	34.5	35.4	34.8	34.3	34.7	0.37	3.6	0.5	34.1	-0.07	3.0	0.9	8	LA
97RPVV	33.3	34.0	32.9	31.6	32.9	-1.08	2.3	1.0	32.6	-1.26	2.1	1.0	8	BK
9E2BLA	34.7 L	34.1	33.7	33.8	34.1	-0.16	2.4	0.4	34.2	-0.03	2.6	0.5	8	LA
A7KWGJ	33.0 L	37.8 *	33.8	31.9	34.1	-0.14	2.5	2.6 H	33.4	-0.64	1.8	2.3	8	LW
ACC4ZR	53.6 X	49.5 X	50.8 XH	48.5 X	50.6	13.16 X	4.2	2.2	50.8	13.30 X	4.1	1.6	8	XX
AGHZJR	34.7	35.2	35.5	32.6	34.5	0.20	3.2	1.3	34.9	0.58	3.2	1.1	8	LW
BVKND8	34.7	35.4	36.0	34.2	35.1	0.65	2.8	0.8	33.9	-0.25	2.6	1.9	8	LA
BYGG3V	51.6 XH	33.9	33.9	34.9	38.6	3.47 X	3.5	8.7 H	36.0	1.41	2.6	6.4 H	8	XX
CJ3L7Z	36.8	37.7 *	37.3 H	37.0 *	37.2	2.35 *	3.3	0.4	35.1	0.73	2.8	2.3	8	LU
CPECYL	31.2 *	34.5	32.6	34.0	33.1	-0.97	3.2	1.5	33.8	-0.31	2.2	1.5	8	TT
CX7TMQ	36.1	33.4	34.1	34.3	34.5	0.15	2.5	1.2	34.1	-0.08	2.6	1.0	8	LU
EZXXR7	34.5	36.3	33.1	35.3	34.8	0.43	2.6	1.4	34.9	0.56	2.5	1.5	8	LA
FNQAGN	33.9 L	33.5 L	33.5 L	34.0 L	33.7	-0.44	1.1	0.3	33.8	-0.32	1.1	0.2 L	8	TT
FRKARC	33.7	33.7	34.5	34.6	34.1	-0.12	2.5	0.5	33.6	-0.49	2.5	0.7	8	LW
GX7L4K	32.5	32.6	NO DATA	31.3	32.1	-1.72	3.0	0.7	32.3	-1.53	3.0	0.8	7	LW
GXRUFA	36.7	34.4	34.2	31.4	34.2	-0.07	3.3	2.2	33.2	-0.80	3.0	2.0	8	LA
GYKVDK	36.3	34.3	35.2	32.8	34.7	0.30	3.0	1.5	34.7	0.37	2.7	1.1	8	XX
HBCWB8	34.7 H	36.1 H	35.9 H	33.3	35.0	0.59	5.4	1.3	36.2	1.55	4.2	1.6	8	LH
J8JMEB	32.4 H	33.7	34.3	33.9	33.6	-0.58	4.0	0.8	33.7	-0.38	3.4	0.7	8	LU
JP3F6Z	35.0	35.8	35.4	35.8	35.5	0.98	2.7	0.4	35.9	1.34	3.1	0.6	8	LW
KW3Z6A	34.7 L	34.8	34.4	34.5	34.6	0.26	2.1	0.2 L	34.7	0.42	2.6	0.3 L	8	ID
M97X7F	35.5	33.1	32.0	32.4	33.3	-0.83	2.2	1.6	32.0	-1.78	2.6	1.8	8	LA
MQNY2H	36.7	38.4 *	33.1	34.9	35.8	1.21	2.9	2.3 H	35.6	1.09	3.3	1.8	8	LZ
NP896H	38.8 X	36.3	34.8	34.6	36.1	1.50	2.8	1.9	34.6	0.29	2.1	2.1	8	XX
P223XR	35.3	35.2	35.9	35.6	35.5	0.99	2.8	0.3	35.7	1.21	2.0	0.5	8	LU
PE8VP4	35.6	35.0	33.2	35.6 H	34.9	0.47	3.3	1.2	34.6	0.30	3.2	1.0	8	LW
RCU4R8	34.4 L	33.9	35.3	32.0	33.9	-0.31	2.4	1.4	34.2	-0.02	2.4	1.1	8	LA
REX2W9	32.7	32.6	32.9	32.1	32.6	-1.38	2.8	0.3	32.8	-1.10	2.7	0.8	8	LY
TAZYAJ	34.4	34.2	35.0	32.1	33.9	-0.28	2.7	1.3	33.9	-0.28	2.6	0.9	8	LA

Containerboard Interlaboratory Testing Program
Analysis 224
STFI, 56 lb Linerboard - 56A2
TAPPI Official Test Method T826

Report #582 (C)
March 2018

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SD	SD Wks	Cumulative Results Mean	CPV	SD	SD Wks	Wks	Inst
U2JK39	32.5	33.1	33.4	32.6	32.9	-1.12	2.7	0.4	33.4	-0.67	2.8	0.7	8	LZ
U4CE3X	34.4 L	34.3	34.9	34.5	34.5	0.20	2.6	0.3	34.4	0.17	2.5	0.6	8	LU
UNWD78	34.4	33.4 H	33.4	34.3	33.9	-0.32	3.5	0.6	35.0	0.63	3.4	1.5	8	LA
UVU946	32.5	32.4	31.1 *	32.6	32.2	-1.71	3.2	0.7	32.2	-1.62	3.1	0.7	8	LU
WP682X	35.6	37.5	36.4	36.1	36.4	1.71	3.3	0.8	36.4	1.75	3.3	0.8	4	BK
WUFHVD	35.9 L	34.0	38.5 *H	38.0 *	36.6	1.88	3.7	2.1	37.6	2.70 *	3.4	2.1	8	LZ
WXDY88	33.4 L	33.7 L	33.8 L	33.9 L	33.7	-0.46	1.2	0.2	33.7	-0.45	1.1	0.2 L	8	TT
XD6363	34.4	35.2	34.3	34.9	34.7	0.32	2.0	0.4	34.7	0.37	2.0	0.4	4	LH
Y72E8V	34.6	34.3 H	35.2	34.0	34.5	0.20	3.3	0.5	34.0	-0.21	2.4	0.9	8	LW
YEUQ23	31.5 *	31.8	31.2 *	34.7	32.3	-1.63	2.7	1.6	32.7	-1.22	1.9	1.2	8	TT
YHTXNL	34.3	35.4	34.9	34.7	34.8	0.44	2.8	0.5	34.9	0.54	2.6	0.5	8	LY

Consensus (All Labs) Results									
Wk Mean	34.23	34.52	34.30	34.00	Month Mean	34.28	Grand Mean	34.22	
Avg SDr	3.04	2.96	2.89	2.86	Avg SD	2.94	Avg SD	2.70	
SD btwn Labs	1.40	1.59	1.63	1.50	SD btwn Labs	1.24	SD btwn Labs	1.25	
Labs Incld	43	45	44	45	SD btwn Wks	1.14	SD btwn Wks	1.57	
Labs Excld	3	1	1	1	Labs Incld	44	Labs Incld	45	
Labs not Rcvd	0	0	1	0					

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program
Analysis 228
Roughness - Stylus Method, 56 lb Linerboard - 56A
TAPPI Official Test Method T575

Report #582 (C)
March 2018

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months		Months	Inst
38YXGY	171.7	0.25	20.16		170.8	-0.03	0.74 L	4	XX
7J733C	167.3	-0.05	14.07		173.1	0.13	5.64	4	EV
AGHZJR	160.2	-0.53	9.68		167.8	-0.22	8.68	4	XX
EZXXR7	152.4	-1.06	19.95		156.4	-0.96	5.97	4	LA
GX7L4K	164.3	-0.25	16.51		173.7	0.17	6.95	4	EV
GXRUFA	100.8	-4.56 X	12.31		110.9	-3.92 X	7.67	4	LA
GYKVDK	172.1	0.28	25.66		174.4	0.21	3.75	4	EV
JRDXN6	158.7	-0.63	15.50		156.9	-0.93	4.94	3	EV
MQNY2H	171.2	0.22	19.50		169.8	-0.09	7.27	4	LA
PE8VP4	162.5	-0.38	16.61		177.1	0.39	15.81	4	LA
RCU4R8	163.4	-0.31	44.56 H		216.6	2.95 X	46.56 H	3	LA
REX2W9	180.5	0.84	16.58		173.1	0.12	7.45	4	EV
TAZYAJ	187.4	1.32	22.46		173.3	0.14	9.75	4	LA
TQLKTP	187.6	1.33	22.91		190.7	1.27	14.76	4	LA
U2JK39	152.6	-1.05	4.20 L		144.6	-1.73	15.49	3	EV
UVU946	176.5	0.58	11.27		178.3	0.46	3.85	4	EV
WP682X	203.3	2.39 *	33.94 H		207.6	2.37 *	6.09	2	EV
WUFHVD	157.7	-0.70	17.78		176.1	0.32	13.18	4	XX
X6TY3A	139.5	-1.94 *	16.47		139.8	-2.04 *	5.54	4	EV
Y72E8V	163.5	-0.31	11.27		177.6	0.42	12.45	4	EV

Consensus (All Labs) Results

Month Mean	168.01	Grand Mean	171.16
Avg SD	20.80	Avg SD Months	9.29
SD btwn Labs	14.73	SD btwn Labs	15.38
Labs Incld	19	Labs Incld	18

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program
Analysis 229
Roughness - Sheffield Method, 42 lb Linerboard - 42D3
TAPPI Official Test Method T538

Report #582 (C)
March 2018

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
6BE8JV	388.3	1.79 *	8.50	388.4	3.30 X	2.49	4	XX
7YEWUL	376.2	0.80	8.16	374.0	1.32	4.54	4	XX
9E2BLA	349.3	-1.39	10.29	357.4	-0.95	5.52	4	LA
BVKND8	366.2	-0.01	5.51	365.0	0.09	1.82	4	XX
CX7TMQ	371.7	0.43	9.12	370.9	0.90	2.40	4	XX
GZVTQ3	353.6	-1.05	7.97	355.5	-1.20	3.51	4	LA
H2KGNN	357.6	-0.72	10.18	356.7	-1.04	1.03	3	TS
UNWD78	361.6	-0.39	5.19	363.5	-0.11	2.73	4	LA
XCDZK9	372.9	0.53	5.90	371.6	1.00	3.01	4	XX

Consensus (All Labs) Results

Month Mean	366.38		Grand Mean	364.33
Avg SD	8.08		Avg SD Months	3.35
SD btwn Labs	12.26		SD btwn Labs	7.30
Labs Incld	9		Labs Incld	8

Key to Instrument Codes Reported by Participants

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

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

Report #582 (C)
March 2018

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
28PPVT	108.0	0.04	6.63		103.6	-0.31	6.52	4	TM
7J733C	91.6	-1.15	5.53		90.2	-1.29	5.76	4	XX
7J76PV	99.3	-0.59	3.01		98.7	-0.67	0.93	2	SC
7YEWUL	64.8	-3.09 X	1.48 L	59.5	-3.55 X	5.34	4	LZ
BVKND8	99.2	-0.60	3.83		101.9	-0.43	4.32	4	SC
CX7TMQ	109.7	0.16	4.59		111.9	0.30	1.84	4	HY
GXRUFA	112.8	0.39	8.29		107.6	-0.02	4.86	4	TM
M27PGE	94.4	-0.95	6.30		93.8	-1.03	3.16	4	TM
M97X7F	119.6	0.88	4.45		116.1	0.61	2.73	4	TM
P223XR	106.8	-0.05	5.07		106.2	-0.12	2.96	4	HZ
PE8VP4	141.0	2.43 *	11.81		137.6	2.19 *	6.44	4	HY
TQLKTP	97.0	-0.76	11.51		113.4	0.41	11.08	4	HY
UNWD78	102.0	-0.40	8.54		102.3	-0.40	4.33	4	SC
UVU946	85.0	-1.63	7.97		83.3	-1.80	2.06	4	TM
WUFHVD	119.2	0.85	6.91		111.5	0.27	5.71	4	TM
X6TY3A	120.8	0.97	11.10		121.6	1.01	1.73	4	HY
Y72E8V	113.0	0.40	7.58		125.0	1.27	18.92 H	4	SC

Consensus (All Labs) Results

Month Mean	107.46		Grand Mean	107.77
Avg SD	7.54		Avg SD Months	6.75
SD btwn Labs	13.79		SD btwn Labs	13.61
Labs Incld	16		Labs Incld	16

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	104.67	11.63	2.79	13
Modified Scott Bond Mechanics	125.36	22.12	17.90	2

Analysis Notes

7YEWUL - Method used is not covered in this test. Data excluded from consensus calculation.

Key to Instrument Codes Reported by Participants

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

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

Report #582 (C)
March 2018

	Monthly Results				Cumulative Results			
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months
38YXGY	26.4	-0.19	0.55 L		26.0	-0.38	0.37 L	4
6BE8JV	29.4	1.25	3.49		29.0	1.42	4.55 H	4
7J733C	27.2	0.19	2.39		26.9	0.14	1.87	4
7YEWUL	29.6	1.35	0.55 L		29.0	1.45	1.45	4
AGHZJR	27.8	0.48	2.49		26.0	-0.41	1.72	4
BVKND8	28.8	0.96	1.79		27.9	0.75	1.38	4
BYGG3V	29.4	1.25	4.22		27.6	0.59	1.28	4
CX7TMQ	24.2	-1.27	1.70		25.6	-0.60	1.00	4
GX7L4K	26.4	-0.19	3.78		26.0	-0.41	2.32	4
GXRUFA	26.4	-0.19	7.92 H		26.8	0.11	3.52	4
JP3F6Z	27.2	0.19	4.92		28.3	1.04	1.79	3
M97X7F	19.9	-3.34 X	2.53		20.9	-3.50 X	1.29	4
NP896H	26.6	-0.09	2.41		27.5	0.50	1.68	4
PE8VP4	23.6	-1.54	4.16		23.7	-1.81	0.90	3
REX2W9	25.8	-0.49	2.28		26.8	0.09	0.90	4
RPJZRJ	27.0	0.10	3.66		23.0	-2.20 *	3.33	4
TAZYAJ	27.0	0.11	5.13		28.0	0.84	1.97	4
TQLKTP	30.9	1.98 *	4.86		29.1	1.49	2.12	4
U2JK39	24.9	-0.93	1.43		24.8	-1.14	3.19	4
UVU946	26.2	-0.29	2.22		26.4	-0.14	2.46	4
WUFHVD	22.0	-2.31 *	2.83		26.3	-0.23	3.09	4
XGMFRB	27.0	0.10	4.18		26.8	0.07	2.32	4
Y72E8V	25.8	-0.48	2.39		24.7	-1.18	1.16	4

Consensus (All Labs) Results

Month Mean	26.80		Grand Mean	26.63
Avg SD	3.57		Avg SD Months	2.25
SD btwn Labs	2.08		SD btwn Labs	1.64
Labs Incld	22		Labs Incld	22

Key to Instrument Codes Reported by Participants

ZZ   Instruments No Longer Tracked

Containerboard Interlaboratory Testing Program
Analysis 237
Air Resistance, 42 lb Linerboard - 42D
TAPPI Official Test Method T460

Report #582 (C)
March 2018

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2UYTX2	18.3	-0.18	1.64		18.3	-0.01	0.74	4	LP
38YXGY	18.7	0.01	1.23		18.4	0.01	0.29	4	LA
6BE8JV	19.0	0.19	3.56	H	18.7	0.30	0.41	4	GA
7J733C	18.1	-0.32	1.24		18.1	-0.23	0.56	4	LP
7YEWUL	20.2	0.89	1.55		20.5	1.82	0.53	4	LA
8HQ2V4	18.0	-0.35	1.41		17.5	-0.69	1.03	4	XX
CX7TMQ	18.2	-0.24	1.54		18.1	-0.19	1.06	4	TP
EZXXR7	18.8	0.09	1.20		19.0	0.53	1.35	4	LA
GX7L4K	15.0	-2.04 *	2.24		16.7	-1.41	1.67	4	XX
GXRUFA	19.4	0.42	1.16		19.1	0.68	0.48	4	LP
GYKVDK	17.4	-0.67	1.07		17.1	-1.07	0.65	4	LW
JP3F6Z	18.8	0.09	1.99		18.0	-0.28	0.72	3	LP
JXJU86	17.7	-0.51	1.87		18.3	0.01	0.86	4	XX
KUCRYF	21.3	1.46	2.85		19.6	1.06	1.84	4	GG
M97X7F	18.7	0.03	1.47		18.3	0.01	1.04	4	LA
MC8796	16.9	-0.96	1.36		16.7	-1.39	1.11	4	LA
PE8VP4	21.7	1.70	1.34		20.7	1.98 *	1.10	4	LP
QE6QNZ	17.9	-0.38	0.77	L	17.8	-0.42	1.60	4	LP
RPJZRJ	22.3	2.02 *	2.50		19.7	1.15	2.05	4	GA
TQLKTP	18.1	-0.31	1.21		17.9	-0.41	0.43	4	LA
U2JK39	17.6	-0.57	1.61		17.8	-0.43	0.68	4	LP
UNWD78	22.3	2.00 *	0.94		20.2	1.59	1.38	4	LA
WP682X	6.6	-6.65 X	0.62	L	13.6	-4.02 X	9.82	2	XX
WUFHVD	18.2	-0.24	3.77	H	17.6	-0.60	0.90	4	TD
Y72E8V	15.5	-1.74	1.58		15.9	-2.08 *	1.18	4	HG
YTGWER	17.9	-0.41	0.86		18.4	0.07	1.13	3	TL

Consensus (All Labs) Results

Month Mean	18.63		Grand Mean	18.34
Avg SD	1.84		Avg SD Months	1.09
SD btwn Labs	1.81		SD btwn Labs	1.18
Labs Incld	25		Labs Incld	25

Containerboard Interlaboratory Testing Program
Analysis 237
Air Resistance, 42 lb Linerboard - 42D
TAPPI Official Test Method T460

Report #582 (C)
March 2018

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
HG	Technidyne - Hagerty Model #1 and Profile System	LA	L&W Autoline
LP	L&W Air Permeance Tester SE 166	LW	L&W Gurley Densometer, Oil Flotation
TD	TMI Gurley Densometer	TL	Teledyne Gurley Densometer #4110, Oil Flotation
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 - CM92
TAPPI Official Test Method T809

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
		Weekly Means				Monthly Results				Cumulative Results				
26ZFPY	61.1	64.2	59.0	62.0	61.6	0.40	3.0	2.2	61.3	0.26	3.4	1.8	12	LC
28PPVT	57.6	56.8	57.8	57.1	57.3	-1.23	3.3	0.5	58.7	-1.20	2.9	2.1	12	LC
38YXGY	61.0 L	61.0 L	61.2	62.0	61.3	0.30	1.9	0.5	61.2	0.23	2.1	0.4 L	12	LD
6BE8JV	57.3	58.2	60.3	60.4	59.1	-0.56	2.9	1.6	59.1	-0.97	3.1	1.7	12	LZ
78NHFU	61.1	60.3	60.9	59.8	60.5	0.00	3.5	0.6	60.9	0.04	3.2	0.7	12	LC
7J3FP4	66.9 *	67.4 *	65.3	68.4 X	67.0	2.49 *	4.4	1.3	50.7	-5.79 X	7.9	12.5 H	12	LC
7J733C	NO DATA	NO DATA	NO DATA	63.2	63.2	1.01	3.3	0.0	60.9	0.04	3.2	1.7	9	LZ
7YEWUL	56.1	56.3	54.7 *	54.3 X	55.4	-1.98 *	2.3	1.0	54.8	-3.42 X	2.7	1.4	12	LD
8XFBAT	60.5	59.7	58.8	59.6	59.6	-0.34	2.3	0.7	59.2	-0.93	2.7	1.5	12	TH
ACC4ZR	156.2 XH	151.3 XH	154.2 XH	156.2 XH	154.5	36.01 X	19.5	2.3	93.0	18.48 X	12.5	45.5 H	12	LZ
CDWXRD	60.5	60.6 L	60.4	60.8	60.6	0.02	1.7	0.2 L	60.8	0.00	1.6	0.3 L	12	LD
CX7TMQ	60.9	61.4	60.7	63.1	61.5	0.38	3.4	1.1	61.8	0.58	3.5	1.3	12	LC
FNQAGN	60.4	58.6	59.8	60.3	59.8	-0.29	4.3	0.8	59.4	-0.82	4.4	0.8	12	TG
GYKVDK	51.3 X	57.3	54.8 *	59.3	55.7	-1.87	3.2	3.5	52.8	-4.61 X	3.5	3.5 H	12	XX
J86ZYG	61.1	65.6	61.4	61.2	62.3	0.68	2.6	2.2	61.5	0.38	2.5	1.8	12	MB
J8JMEB	61.1	65.9	64.2	73.8 X	66.3	2.19 *	3.2	5.4 H	63.9	1.79	3.1	3.5 H	12	LZ
JP3F6Z	60.3	62.2	63.0	61.3	61.7	0.45	3.5	1.1	61.8	0.56	3.3	1.2	12	LC
JXJU86	57.9	60.1	60.3	58.5	59.2	-0.51	2.1	1.2	59.4	-0.79	2.5	1.0	12	LD
KMFWYV	61.7	63.1	66.2 *	63.7	63.7	1.20	3.5	1.9	62.3	0.85	4.4	1.9	12	TU
KW3Z6A	62.4	59.6 L	61.0	59.5	60.6	0.04	2.2	1.3	61.1	0.17	2.5	1.1	12	LD
LQC3TR	64.9 L	62.8 L	66.4 *L	62.1 L	64.0	1.34	1.4	2.0	62.9	1.18	1.3	1.8	12	TD
MAHYQT	59.4 H	59.3	59.6		59.4	-0.44	5.9	0.1 L	60.7	-0.06	4.5	1.0	12	LD
MC8796	61.7	64.1	63.4	60.4	62.4	0.70	3.2	1.7	63.7	1.69	3.3	1.8	12	LC
MQNY2H	56.4	59.9	57.7	57.7	57.9	-1.01	4.1	1.4	57.4	-1.92 *	3.6	2.5	12	LD
NP896H	62.3	62.3	63.7	64.5 *	63.2	1.02	3.6	1.1	63.7	1.66	3.2	1.2	12	XX
P223XR	61.1 H	57.7 H	63.3	62.2 H	61.1	0.21	7.3	2.4	62.3	0.88	6.8	2.8	12	LC
PE8VP4	60.3	59.7	62.0	60.3	60.5	0.00	3.2	1.0	59.4	-0.78	3.4	1.4	8	LD
QE6QNZ	59.9	59.7	60.8	58.6	59.7	-0.31	3.0	0.9	60.2	-0.34	3.0	1.4	12	LD
R34KCD	64.0	62.9	63.7	63.6 L	63.6	1.16	2.3	0.5	64.2	1.96 *	2.4	0.9	8	TM
RCU4R8	52.6 X	55.5 H	61.2	53.7 X	55.8	-1.82	5.1	3.8 H	57.9	-1.69	4.1	3.2	12	MB
REX2W9	60.1	58.9	57.6	59.7	59.0	-0.57	2.8	1.1	59.7	-0.63	3.0	1.5	12	EN
U2JK39	58.7	56.6	57.9	58.9	58.0	-0.96	2.8	1.0	58.3	-1.41	2.8	1.2	12	LZ
U2Y4M6	61.3	60.5	59.9	60.8	60.6	0.04	2.8	0.6	61.0	0.09	3.1	0.7	12	LD
U4CE3X	60.4	62.7	60.0	59.5	60.7	0.04	3.8	1.4	60.4	-0.22	3.6	1.0	12	LD
UVU946	58.7	59.3	58.2	58.4	58.6	-0.74	2.5	0.5	58.9	-1.12	3.1	1.4	12	LD

Containerboard Interlaboratory Testing Program
Analysis 240
Flat Crush Strength (CMT), 26 lb Corrugating Medium - CM92
TAPPI Official Test Method T809

Report #582 (C)
March 2018

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
WHHEQJ	82.5 X	83.5 XH	82.2 XH	77.0 X	81.3	7.96 X	4.8	2.9	79.5	10.75 X	4.7	3.4 H	12	MB
WP682X	64.8	63.7 H	58.4	62.9	62.4	0.73	4.6	2.8	62.4	0.94	4.6	2.8	4	MB
X2RZJ6	59.7 L	60.7 L	59.7	60.5	60.1	-0.15	1.9	0.5	60.4	-0.24	2.6	0.5	12	XX
XD6363	62.6	61.5 H	61.5	61.2	61.7	0.45	3.8	0.6	61.2	0.23	3.1	1.0	8	LD
YC7BRV	59.7	58.7	57.9	58.5	58.7	-0.71	2.8	0.7	58.8	-1.16	2.8	1.5	12	LD
YEUQ23	54.7 *	53.6 *	58.1	59.8	56.5	-1.53	3.3	2.9	51.2	-5.48 X	3.8	4.7 H	12	TH
YHTXNL	61.4	61.3	61.8	59.2	60.9	0.15	3.3	1.2	62.1	0.76	3.3	1.3	12	LD

Consensus (All Labs) Results								
Wk Mean	60.53	60.50	60.57	60.56	Month Mean	60.53	Grand Mean	60.80
Avg SDr	3.57	3.67	3.09	3.44	Avg SD	3.44	Avg SD	3.35
SD btwn Labs	2.44	2.94	2.72	1.81	SD btwn Labs	2.61	SD btwn Labs	1.74
Labs Incld	37	39	39	36	SD btwn Wks	1.78	SD btwn Wks	1.66
Labs Excld	4	2	2	6	Labs Incld	40	Labs Incld	36
Labs not Rcvd	1	1	1	0				

Key to Instrument Codes Reported by Participants

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	TD	TMI Digital Crush Tester, Model 17-09
TG	TMI Compression Tester, Model 17-10	TH	TMI Compression Tester, Model 17-76
TM	TMI/Hinde & Dauch	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program
Analysis 250
Fluted Edge Crush Strength (CFC), 26 lb Corrugating Medium - CM92
TAPPI Official Test Method T843

Report #582 (C)
March 2018

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
	Weekly Means				**Monthly Results**				**Cumulative Results**					
38YXGY	73.1	73.7	73.8	73.1	73.4	-0.23	2.6	0.4	73.7	-0.22	2.4	0.5	12	LD
78NHFU	73.8	74.1	73.3	74.8	74.0	0.01	2.7	0.6	75.2	0.48	4.2	1.4	12	LD
7YEWUL	77.1	77.8	78.3	77.6	77.7	1.50	2.5	0.5	77.5	1.60	2.1	1.4	12	LD
8HQ2V4	74.0 L	72.3 L	72.2	73.2	72.9	-0.43	1.4	0.9	73.5	-0.31	1.4	0.9	12	LZ
97RPVV	72.5	72.1	70.6	71.7	71.7	-0.92	2.1	0.8	71.6	-1.19	2.0	1.1	12	XX
CDWXRD	73.6	73.5 L	73.2	73.5	73.4	-0.22	1.1	0.2 L	73.5	-0.30	1.4	0.4 L	12	LD
CX7TMQ	78.7	77.6	77.1	79.1 *	78.1	1.69	2.5	0.9	78.2	1.90 *	2.5	1.2	12	LC
J8JMEB	73.3	75.2	74.3	65.0 X	72.0	-0.82	2.5	4.7 H	73.4	-0.34	2.7	2.9 H	12	LZ
JP3F6Z	74.0	74.3	76.1	74.1 H	74.6	0.26	2.8	1.0	73.8	-0.18	2.6	1.4	12	XX
JXJU86	73.9	74.1	73.2	74.5 H	73.9	-0.02	3.3	0.6	73.0	-0.54	2.7	0.8	12	XX
KW3Z6A	68.3 *	67.6 X	68.7 *	68.9 *	68.4	-2.28 *	2.0	0.6	70.6	-1.68	1.7	1.7	12	LD
LQC3TR	70.9	74.0	70.8 L	74.8 L	72.6	-0.55	1.1	2.1	72.0	-1.02	1.3	1.6	12	TD
PE8VP4	77.6	77.1	76.4	74.5	76.4	0.97	3.1	1.3	76.7	1.23	2.8	1.0	8	LD
QE6QNZ	74.5	76.4	75.0	75.7	75.4	0.58	2.5	0.8	74.8	0.31	2.3	1.1	12	LD
U2JK39	76.6	73.5	73.8	76.6	75.1	0.47	2.3	1.7	74.7	0.27	2.6	1.0	12	LZ
WHHEQJ	61.1 X	59.3 X	56.8 X	56.3 X	58.4	-6.35 X	2.6	2.3	60.6	-6.41 X	2.6	2.6	12	MB

					Consensus (All Labs) Results									
Wk Mean	74.12	74.68	73.79	74.43	Month Mean		73.98		Grand Mean		74.14			
Avg SDr	2.34	2.45	2.40	2.38	Avg SD		2.38		Avg SD		2.43			
SD btwn Labs	2.63	1.84	2.58	2.50	SD btwn Labs		2.46		SD btwn Labs		2.12			
Labs Incld	15	14	15	14	SD btwn Wks		1.56		SD btwn Wks		1.36			
Labs Excld	1	2	1	2	Labs Incld		15		Labs Incld		15			
Labs not Rcvd	0	0	0	0										

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TD	TMI Digital Crush Tester, Model 17-09	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM92
TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
26ZFPY	45.7	44.6	47.2	48.0	46.4	0.48	3.3	1.5	47.6	0.89	2.9	1.7	12	LC
38YXGY	43.6	43.5	43.5	43.4	43.5	-0.51	2.6	0.1 L	43.7	0.00	2.4	0.3 L	12	LD
6BE8JV	42.1	42.3	40.3	42.1	41.7	-1.13	2.5	1.0	41.9	-0.40	2.4	1.6	12	LD
7J3FP4	30.8 X	31.8 XH	31.9 *	33.2 *H	31.9	-4.54 X	3.5	1.0	32.3	-2.55 *	3.1	1.2	12	XX
7YEWUL	49.4	49.6	50.2	48.3	49.4	1.54	2.1	0.8	47.1	0.78	2.4	1.7	12	LD
8XFBAT	40.7	40.5	41.6	41.5	41.1	-1.35	1.8	0.6	40.0	-0.82	2.0	2.1	12	TH
CAUYAT	40.7	39.3 *	38.6	40.9	39.9	-1.77	2.2	1.1	41.1	-0.58	2.2	2.4	11	LZ
CX7TMQ	45.1	45.2	46.0	43.9	45.0	0.03	3.1	0.8	45.0	0.30	3.1	0.8	12	LC
FFRKZJ	47.2	46.2	46.6	47.4	46.8	0.66	1.8	0.6	44.9	0.27	1.7	1.8	12	WK
GYKVDK	46.6	47.2	47.2	45.8	46.7	0.59	2.7	0.7	44.9	0.27	2.5	2.5	12	XX
JXJU86	43.1	43.6	43.6	41.7	43.0	-0.68	3.4	0.9	42.4	-0.28	3.3	0.8	12	LD
KMFWYV	38.3 *	39.1 *	38.9	39.4	38.9	-2.10 *	2.1	0.4	38.8	-1.08	2.3	0.5	12	TU
MAHYQT	45.4	45.1	45.4	45.3	45.3	0.12	2.2	0.1 L	45.0	0.30	3.3	0.4 L	12	LD
MC8796	51.2 *	50.4 *	49.8	50.8	50.5	1.94 *	2.0	0.6	50.8	1.61	1.8	0.8	12	LD
MQNY2H	46.4	46.4	46.5	46.0	46.3	0.48	2.6	0.2	46.2	0.56	2.7	1.3	12	LD
NUHJWD	44.3	44.7	46.6	42.2	44.5	-0.17	3.2	1.8	46.9	0.73	2.5	3.3	12	LZ
P223XR	46.7	45.5	44.8	45.3	45.6	0.21	3.5	0.8	45.5	0.42	2.9	0.9	12	LD
QE6QNZ	44.1 L	44.4	44.6	46.3	44.8	-0.04	2.0	1.0	45.4	0.40	2.2	1.0	12	LD
R34KCD	42.1	44.6	50.8	51.2	47.1	0.76	2.5	4.5 H	45.8	0.47	2.7	3.4	8	LD
RMT2DL	45.1 L	43.9	45.4	44.2	44.6	-0.11	1.5	0.7	44.5	0.18	2.3	0.6	12	TH
WHHEQJ	31.9 X	34.5 X	32.2 *	33.1 *	32.9	-4.20 X	2.7	1.2	32.2	-2.58 *	2.8	2.5	12	MB
XD6363	45.6	47.1 L	46.0	46.1	46.2	0.43	1.4	0.7	45.6	0.44	1.7	1.5	8	LD
YC7BRV	46.7	46.2	47.4	46.9	46.8	0.64	3.1	0.5	46.8	0.70	2.9	0.6	12	LZ

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4		Monthly		Grand	
Wk Mean	44.76	44.73	44.13	44.04	Month Mean	44.96	Grand Mean	43.68
Avg SDr	2.69	2.44	2.30	2.78	Avg SD	2.53	Avg SD	2.56
SD btwn Labs	2.98	2.86	4.97	4.55	SD btwn Labs	2.87	SD btwn Labs	4.45
Labs Incld	21	21	23	23	SD btwn Wks	1.29	SD btwn Wks	1.71
Labs Excld	2	2	0	0	Labs Incld	21	Labs Incld	23
Labs not Rcvd	0	0	0	0				

Containerboard Interlaboratory Testing Program
Analysis 255
Ring Crush (RCT), 26 lb Corrugating Medium - CM92
TAPPI Official Test Method T822

Report #582 (C)
March 2018

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)
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM92
TAPPI Official Test Method T826

Report #582 (C)
March 2018

WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
38YXGY	14.9	14.6	14.7	14.6 L	14.7	0.07	1.0	0.1	14.6	-0.39	0.9	0.2 L	12	LB
6BE8JV	14.5	15.3	14.1	14.6 L	14.6	-0.04	1.1	0.5	14.9	0.17	1.0	0.5	12	LZ
78NHFU	14.6	15.2	14.0	14.8	14.7	0.00	0.9	0.5	14.6	-0.32	0.9	0.4	12	LB
7J733C	14.8	14.9	14.7	14.7 L	14.8	0.23	1.0	0.1	14.7	-0.17	0.9	0.2	12	LB
7YEWUL	14.5	14.6	14.4	14.6	14.5	-0.22	0.8	0.1	14.9	0.26	0.9	0.3	12	LA
9E2BLA	15.5	14.6	14.5	14.9	14.9	0.40	0.8	0.4	14.7	-0.10	0.9	0.3	12	LA
ACC4ZR	14.7	14.2	14.6	14.3	14.4	-0.38	1.0	0.3	18.5	7.05 X	1.2	4.7 H	12	LA
CDWXRD	14.7	14.6	14.8	14.7	14.7	0.07	0.9	0.1	14.6	-0.26	0.6	0.1 L	12	LA
CX7TMQ	14.4	14.8	15.1	14.2	14.6	-0.09	1.0	0.4	14.6	-0.41	1.0	0.3	12	LU
GYKVDK	13.8	14.5	15.0	13.9 H	14.3	-0.57	2.5	0.6	15.4	1.22	1.8	2.7 H	12	XX
MC8796	15.6 L	16.1	15.8	16.0 *L	15.9	2.11 *	0.8	0.2	16.0	2.35 *	0.8	0.4	12	LA
MQNY2H	15.2 H	15.9 H	15.2	14.8	15.3	1.05	1.4	0.4	15.4	1.23	1.3	0.6	12	LZ
NP896H	14.8	15.0	14.6	15.3	14.9	0.45	1.0	0.3	14.6	-0.26	0.8	0.6	12	XX
NUHJWD	14.8	15.2	14.9	14.7	14.9	0.43	1.0	0.2	15.1	0.69	1.0	0.9	12	LA
QE6QNZ	14.0	14.4	14.2	14.4	14.2	-0.70	1.0	0.2	14.2	-1.10	0.9	0.3	12	LZ
R34KCD	16.1 *	15.2	15.9 *	16.0 *	15.8	2.01 *	1.1	0.4	15.8	1.93 *	1.2	0.3	8	LA
RCU4R8	13.6	14.0	14.3	14.6	14.1	-0.89	1.0	0.4	14.3	-0.98	1.0	0.7	11	LA
U2Y4M6	14.1	14.3	15.1	14.9	14.6	-0.14	1.0	0.5	14.6	-0.35	1.0	0.4	12	LB
UVU946	13.6	12.9 *	13.6 *	13.9	13.5	-2.05 *	1.2	0.4	14.0	-1.49	1.1	0.5	12	LU
WP682X	13.8	14.3	15.5	14.8	14.6	-0.10	0.9	0.7	14.6	-0.35	0.9	0.7	4	BK
WXDY88	14.5 L	14.5 L	14.8	14.6	14.6	-0.04	0.7	0.1	14.5	-0.47	0.6	0.2	12	TT
XD6363	14.9	15.1	15.0	15.2	15.1	0.71	0.9	0.1	15.0	0.40	0.9	0.2 L	8	LH
YEUQ23	13.5	13.1 *H	13.5 *	13.2 *	13.3	-2.30 *	1.3	0.2	13.9	-1.61	0.9	0.6	12	LZ

Consensus (All Labs) Results

	Week 1	Week 2	Week 3	Week 4				
Wk Mean	14.56	14.66	14.70	14.67	Month Mean	14.65	Grand Mean	14.78
Avg SDr	0.99	1.06	1.00	1.37	Avg SD	1.12	Avg SD	1.01
SD btwn Labs	0.67	0.73	0.61	0.62	SD btwn Labs	0.58	SD btwn Labs	0.53
Labs Incld	23	23	23	23	SD btwn Wks	0.36	SD btwn Wks	0.73
Labs Excld	0	0	0	0	Labs Incld	23	Labs Incld	22
Labs not Rcvd	0	0	0	0				

Containerboard Interlaboratory Testing Program
Analysis 261
STFI, 26 lb Corrugating Medium - CM92
TAPPI Official Test Method T826

Report #582 (C)
March 2018

Key to Instrument Codes Reported by Participants

BK	Buchel Strip Compression Tester BK-155	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)	XX	Instrument make/model not specified by lab