Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #597 (F) - June 2019

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX13	Box Compression Strength, Corrugated Boxes
202	EC11	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC11	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42F1	Mullen Burst of Linerboard, 42 lb Linerboard
207	35E1	Mullen Burst of Linerboard, 35 lb Linerboard
215	42F1	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
217	35E1	Ring Crush of Linerboard, Rigid Platen Type, 35 lb Linerboard
223	42F1	STFI of Linerboard, 42 lb Linerboard
225	35E1	STFI of Linerboard, 35 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42F1	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	CM11	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM11	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM11	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM11	STFI of Medium, 26 lb Corrugating Medium

Collaborative Testing Services, Inc.
CONTAINERBOARD INTERLABORATORY TESTING PROGRAM

INTRODUCTION

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

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

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

USE OF AVERAGE MEAN AS A COLLABORATIVE REFERENCE VALUE

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

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

ABOUT CTS

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

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EXPLANATION OF TABLES

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

Definitions of Terms Used

Weekly Results

Laboratory Data

WebCode - A six character laboratory identifier used to maintain information on a confidential basis. The WebCode is unique for each cycle and will change for each report. Your WebCode can be found in your Individual Report (Current Month Performance Report) and your datasheet.

Weekly Means - The average of the test results obtained by the participant for each week that data were reported.

Consensus Data

Wk Mean - For each week, the average of the Means for all the participants, excluding those laboratories flagged with an 'X'.

Avg SD - For each week, the average of the within-laboratory standard deviations (SD's) for all the participants, excluding those laboratories flagged with an 'X'. The Avg SD is an indication of the variation of measurements within an average laboratory.

SD btwn Labs - For each week, the standard deviation of the laboratory Means about the Wk Mean, excluding those laboratories flagged with an 'X'. The SD LABS is an indication of the precision of measurement between the laboratories.

Labs 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'.
Labs Incld	-	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:

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).

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV		SD	Mean	CPV		SD Months	Months	Inst
2K6DMX	877.4	0.52		40.54	886.8	0.42		40.35	4	LS
3PFND7	861.0	0.29		72.55	883.6	0.36		25.18	4	EX
4HUAPR	783.5	-0.77		59.94	855.0	-0.18		63.32	4	ET
4VJ8WG	792.6	-0.65		27.32	864.0	-0.01		72.83	3	LL
6XNHLB	878.4	0.53		70.12	885.5	0.40		20.23	4	LG
7CZVGW	756.0	-1.15		53.03	821.3	-0.82		44.30	4	LL
AC7FEM	848.8	0.12		55.97	834.3	-0.58		29.83	4	LS
DCWV2U	871.4	0.43		65.15	846.9	-0.34		25.90	4	EX
DEHKL8	904.6	0.89		64.29	894.1	0.56		53.74	4	LS
F8W7XR	776.1	-0.87		26.06	826.4	-0.73		49.59	4	ER
FRGTB7	843.1	0.05		38.42	878.3	0.26		40.06	4	LS
GECRBA	838.8	-0.01		64.58	856.1	-0.16		28.84	4	ER
GTNPFP	674.0	-2.27	*	18.43	674.0	-3.63	X	0.00	1	TC
H62PP9	859.6	0.27		54.38	882.3	0.34		36.39	4	ER
HFHD4M	932.8	1.28		54.76	948.7	1.60		20.15	4	ER
K4FHEQ	868.2	0.39		28.83	876.7	0.23		8.17 L	4	ET
KDLDHV	809.0	-0.42		72.57	862.5	-0.04		91.17	4	TB
KNMXKN	776.8	-0.86		108.36 H	848.6	-0.30		62.63	4	LM
LNEFYU	1,021.0	2.49	*	47.02	993.1	2.45	*	22.53	4	LG
PKQ9KW	894.9	0.76		28.71	901.6	0.71		16.83	4	LM
TZTHKU	932.3	1.27		29.31	933.7	1.32		13.96	4	TE
UL4BU7	860.6	0.29		81.45	873.5	0.17		31.70	4	LG
VT7ZBV	756.4	-1.14		25.90	852.7	-0.22		73.47	4	ES
Y89BDE	749.8	-1.23		30.69	747.1	-2.24	*	19.23	4	LS
YQ43YC	560.2	-3.84	X	94.81	783.8	-1.54		154.33 H	4	EX
YZQ4EM	825.7	-0.19		82.31	775.5	-1.70		40.33	4	LS

Consensus (All Labs) Results

Month Mean	839.71	Grand Mean	864.47
Avg SD	56.52	Avg SD Months	53.11
SD btwn Labs	72.88	SD btwn Labs	52.45
Labs Incld	25	Labs Incld	25

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	867.33	88.08	27.62	7
Clip sealing	828.97	65.76	10.74	18

Key to Instrument Codes Reported by Participants

ER	Emerson 6200 Series	ES	Emerson 8510
ET	Emerson 7200	EX	Emerson Apparatus (Model not specified)
LG	TLS / L.A.B. Validator Series	LL	Lansmont 76-5K
LM	Lansmont 122-15k	LS	Lansmont Squeezer
TB	TMI Monitor/Compression Tester, Model 17-70	TC	TMI Monitor/Compression Tester, Model 17-37
TE	Testometric M500 - 25 KN		

Containerboard Interlaboratory Testing Program

Analysis 202

Edgewise Compressive Strength, by T811, Corrugated Board - EC11

TAPPI Official Test Method T811

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2V6YVH	34.4	-0.82	1.95		36.0	-1.71	1.25	4	TX
3CUB2W	42.6	0.71	4.79	H	40.2	-0.06	3.06	4	XX
3PFND7	41.1	0.44	1.94		41.1	0.30	0.43	4	LC
4VJ8WG	45.3	1.22	0.68	L	75.7	13.94 X	26.38 H	3	XX
6XNHLB	40.2	0.27	1.54		42.7	0.93	1.69	4	LE
98G3ED	36.5	-0.43	2.14		40.7	0.13	3.33	4	LD
AC7FEM	36.5	-0.43	1.43		39.4	-0.37	2.93	4	LD
GECRBA	36.6	-0.42	3.83	H	37.8	-1.03	1.04	4	EN
U39HA9	38.0	-0.15	0.67	L	38.5	-0.76	1.19	4	TF
WPEVZH	44.5	1.07	2.12		43.9	1.37	1.57	4	LC
Y89BDE	43.5	0.89	1.93		43.4	1.20	0.76	4	LC
YZQ4EM	26.2	-2.36 *	2.00		28.1	-4.84 X	1.55	4	EM

Consensus (All Labs) Results

Month Mean	38.79	Grand Mean	40.37
Avg SD	2.37	Avg SD Months	1.98
SD btwn Labs	5.33	SD btwn Labs	2.54
Labs Incld	12	Labs Incld	10

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
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
2V6YVH	28.1	-6.16 X	2.21	38.2	-3.50 X	6.72 H	4	TX
3PFND7	41.9	-0.89	1.78	42.3	-1.21	0.28 L	4	LC
4F7W89	47.8	1.36	1.85	46.5	1.13	1.53	3	LD
4HUAPR	42.2	-0.75	1.56	43.6	-0.47	1.67	4	TD
4TBRPB	44.4	0.08	1.22	45.9	0.78	1.65	4	TG
6XNHLB	47.2	1.16	1.89	46.2	0.98	0.76	4	LY
7CZVGW	43.0	-0.46	1.82	44.0	-0.26	0.92	4	LC
98G3ED	41.3	-1.10	1.88	42.4	-1.15	0.98	4	LD
9NKDJQ	44.3	0.02	0.89	44.3	-0.11	0.00	1	LC
AC7FEM	47.6	1.29	0.94	45.5	0.58	1.41	4	LD
BRWXP3	43.5	-0.26	2.57 H	45.6	0.64	1.80	3	XX
D8XGE6	46.3	0.81	0.50 L	46.4	1.09	0.15	2	TL
DEHKL8	49.6	2.07 *	2.17	50.5	3.36 X	1.54	4	TB
F8W7XR	43.6	-0.25	1.51	44.0	-0.27	2.16	4	LD
FRGTB7	40.5	-1.40	1.23	41.6	-1.59	0.91	3	LD
GECRBA	41.8	-0.93	2.03	42.6	-1.01	0.86	4	EN
H62PP9	44.3	0.04	1.48	44.7	0.14	0.75	4	LD
HFHD4M	43.9	-0.12	1.56	44.1	-0.17	0.40	4	EM
HR934T	40.7	-1.35	1.34	42.3	-1.21	1.27	4	EM
K4FHEQ	39.5	-1.80	1.64	43.1	-0.74	3.10	4	EM
KDLDHV	44.7	0.18	0.48 L	47.3	1.60	3.74 H	4	LD
KNMXKN	44.3	0.02	1.22	44.6	0.10	0.37	3	TG
LC9ZEK	48.8	1.75	1.48	46.8	1.30	1.78	3	TD
LNEFYU	42.2	-0.77	1.58	43.6	-0.45	1.38	3	EM
LRJQAC	45.4	0.45	2.40	47.2	1.55	2.38	4	LD
PKQ9KW	44.7	0.18	1.30	44.0	-0.24	0.60	4	EM
QR2NAQ	43.5	-0.29	1.25	46.3	1.06	2.78	4	EM
RTQAGM	42.1	-0.80	2.14	43.1	-0.76	4.64 H	4	TD
THR7ZC	44.1	-0.04	1.62	42.9	-0.84	1.09	3	LD
TZTHKU	44.4	0.07	0.87	44.6	0.07	1.14	4	LD
U39HA9	41.2	-1.15	1.03	40.8	-2.05 *	0.54	4	TD
UL4BU7	50.4	2.39 *	2.11	46.9	1.37	3.24	4	TJ
VT7ZBV	45.5	0.52	0.78	44.9	0.25	0.70	4	LD
WPEVZH	44.1	-0.03	1.38	45.0	0.32	1.15	4	LC
X9ANLG	46.8	1.01	0.94	42.9	-0.87	2.83	4	LD
XG4W78	40.4	-1.46	1.09	41.3	-1.75	0.71	4	TK
Y89BDE	45.4	0.45	0.80	45.6	0.64	0.57	4	LC
YPBYL6	43.1	-0.44	1.61	45.1	0.39	1.82	4	TD
YQ43YC	48.1	1.50	1.77	47.9	1.92	1.00	4	CT

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
YRUEP6	43.1	-0.41	0.99	44.6	0.10	1.05	4	EM
YZQ4EM	42.5	-0.64	0.88	42.9	-0.88	0.85	4	EM

Consensus (All Labs) Results

Month Mean	44.20	Grand Mean	44.45
Avg SD	1.52	Avg SD Months	1.76
SD btwn Labs	2.61	SD btwn Labs	1.80
Labs Incld	40	Labs Incld	39

Key to Instrument Codes Reported by Participants

CT	Con-Ten	EM	Emerson 1200 Series
EN	Emerson 2200	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	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	TJ	TLS Compression Tester, Model CDM-5
TK	TLS Compression Tester, Model 5184	TL	Tech-Lab Systems Compression
TX	TMI (model not specified)	XX	Instrument make/model not specified by lab

	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
4F7W89	109.9	121.6 *	117.2	112.1	115.2	1.43	9.4	5.2	112.9	0.89	8.4	5.9	16	LC
66GATX	101.0 *	105.1	103.1	103.3 L	103.1	-1.89	8.5	1.6	105.3	-1.48	8.5	5.8	16	AA
6XNHLB	123.9 X	110.9	118.8 *	114.9	117.1	1.96 *	7.6	5.5	116.2	1.92	12.0	3.8	16	LZ
762TCG	120.8 X	121.1 *	120.5 *	123.4 X	121.5	3.14 X	10.0	1.3	121.5	3.57 X	10.0	1.3	4	TB
7GWELF	112.4	111.2	110.0	111.2	111.2	0.33	5.7	1.0	111.5	0.45	5.9	1.7	16	RE
8JRPRY	107.2	110.9	107.8 L	109.9	108.9	-0.29	6.0	1.7	106.4	-1.16	5.9	4.8	16	LA
8XFFMG	104.9	105.6	104.6	100.2 *	103.8	-1.70	8.5	2.5	107.7	-0.72	9.5	3.0	16	LB
98G3ED	105.4	101.0 *	111.4	106.5	106.1	-1.08	5.1	4.2	107.7	-0.72	7.0	2.8	16	LA
9LV3TX	106.9 L	105.1	106.9	107.2	106.5	-0.96	7.6	1.0	107.5	-0.80	4.8	1.0	16	LA
AC7FEM	108.6	106.6	107.8	106.7	107.5	-0.70	7.3	0.9	106.2	-1.21	7.6	2.1	16	LA
B9GLXC	110.7	108.6	106.9	109.6	109.0	-0.29	6.0	1.6	109.7	-0.10	7.4	1.3	16	TP
DCWV2U	109.6	112.4	106.2	107.6	109.0	-0.29	9.0	2.7	110.3	0.09	9.7	2.6	16	AH
DXF92P	108.6	109.3	109.0	101.9	107.2	-0.78	7.4	3.5	108.6	-0.46	8.8	3.0	16	LC
EV3Q9Q	110.6	110.5	110.3	110.5	110.5	0.13	5.7	0.2 L	110.6	0.16	5.4	0.3 L	16	LJ
F8W7XR	110.0	109.5	111.1	107.6	109.6	-0.13	8.1	1.5	109.0	-0.32	8.5	2.9	16	LZ
FFQCQT	112.6	106.0	105.1	109.0	108.2	-0.50	10.6	3.4	111.0	0.29	9.7	3.4	16	LA
G3JBL9	102.6	101.3 *L	99.6 *	105.9	102.4	-2.10 *	8.5	2.6	104.3	-1.79	8.8	2.4	16	LC
GEN29V	117.9 *	113.2	117.0	114.8	115.7	1.57	10.2	2.1	117.2	2.24 *	10.5	3.4	16	LC
GHPAC7	109.9 L	116.5	115.7	110.7	113.2	0.88	7.6	3.4	113.2	0.99	8.6	3.0	16	LC
H62PP9	110.5	114.3	111.8	115.3	113.0	0.82	8.0	2.2	112.3	0.71	9.9	3.5	16	AH
H7BXR2	117.3 *H	116.2	114.6	121.5 *	117.4	2.04 *	12.1	2.9	116.9	2.13 *	10.4	4.4	16	LZ
HE8CHN	111.2	108.6	112.4	111.7	111.0	0.27	11.7	1.7	112.1	0.65	11.3	3.8	16	LZ
J8J4DN	112.8	115.4	114.9	110.9	113.5	0.95	8.3	2.1	111.1	0.32	9.7	2.8	16	LC
JRQDDL	108.5	107.6	107.5	105.2	107.2	-0.77	9.2	1.4	107.9	-0.66	8.8	2.5	16	LC
KBVD2C	110.2	108.2	112.5	108.7	109.9	-0.03	10.2	1.9	108.6	-0.45	10.1	3.0	12	LC
KP3MZZ	106.5	107.9	102.8	109.0	106.5	-0.96	8.9	2.7	109.1	-0.30	10.1	2.8	16	TB
L6KHVG	104.4	106.5	104.6	103.7	104.8	-1.42	8.6	1.2	105.4	-1.45	8.3	2.4	16	LA
LRJQAC	112.5	112.8	112.6	112.1	112.5	0.68	6.1	0.3 L	112.5	0.76	7.1	0.4 L	16	LA
MKJABW	112.4	112.9	109.9	108.9	111.0	0.28	10.2	1.9	111.8	0.56	10.3	4.1	16	AX
MU4JX6	109.2	115.6	105.4	105.1	108.8	-0.33	9.5	4.9	110.1	0.02	9.1	3.7	8	LC
MYCKKF	127.0 X	126.4 X	126.5 X	124.9 X	126.2	4.45 X	7.0	0.9	114.0	1.23	8.5	7.8 H	16	LC
N8L8CF	110.0	113.2	110.4	109.9	110.9	0.24	10.4	1.6	109.4	-0.19	8.6	2.2	16	LA
NAD6KM	104.2	108.4	110.6	107.1	107.6	-0.66	9.4	2.7	108.1	-0.61	8.6	2.9	12	LC
QCVMR4	108.1	111.5	110.2	106.3	109.0	-0.27	7.4	2.3	111.4	0.42	8.7	3.5	16	LA
QHY4AJ	114.3	114.3	114.0	113.6	114.0	1.11	5.3	0.3 L	112.6	0.79	5.2	2.4	15	LC

Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42F1

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
QV4MKJ	110.2	113.1	110.1	113.5 L	111.7	0.47	5.1	1.8	111.2	0.35	5.2	2.3	16	XX
RGHA8N	104.0	104.5	107.8	102.5	104.7	-1.46	7.9	2.2	102.8	-2.26 *	7.5	2.7	16	AH
RXL4C3	110.8	111.7	109.0	No Data	110.5	0.13	7.4	1.4	106.7	-1.06	8.5	3.2	15	LC
T9NNEV	108.9	109.6	108.9	110.8 L	109.6	-0.13	5.6	0.9	109.3	-0.23	6.2	1.1	16	AH
THR7ZC	103.6	103.6	106.8	111.5	106.4	-1.00	9.8	3.7	106.4	-1.13	9.5	3.2	16	LC
U39HA9	113.7	108.5 H	111.5	112.7	111.6	0.44	13.2	2.3	108.6	-0.46	11.0	4.8	16	XX
UJEWCN	114.2	109.3 H	110.0	109.5	110.7	0.20	10.3	2.3	109.8	-0.08	8.6	2.4	16	LC
VMFQ2X	122.2 X	116.7	120.3 *H	118.4 *	119.4	2.58 *	10.9	2.4	120.5	3.26 X	10.7	2.9	16	LA
VT7ZBV	109.3	111.2	109.7	112.0	110.6	0.15	8.9	1.3	111.6	0.50	9.3	2.9	16	LA
WBVAE4	106.6	100.4 *	108.1	106.5	105.4	-1.27	8.5	3.4	106.5	-1.10	9.2	2.7	12	LC
X8FMCP	112.2	108.9	113.1	111.6	111.4	0.39	9.4	1.8	111.2	0.37	10.6	2.6	16	LC
Y89BDE	112.9	112.5	108.4	107.9	110.4	0.11	8.9	2.6	108.7	-0.41	8.6	2.7	16	AH
YHPRU6	111.1	105.0	109.1	116.3	110.4	0.10	9.1	4.7	111.2	0.36	10.3	3.6	14	TB
YQ43YC	111.5	113.1	110.2	115.6	112.6	0.71	9.5	2.3	111.2	0.37	10.3	3.5	16	XX
YRFKDB	118.1 *	110.0	106.7	115.2	112.5	0.68	8.9	5.1	114.5	1.40	10.0	7.4 H	16	XX
YX3VMR	108.0	118.8	111.3	111.2	112.3	0.64	10.5	4.6	115.7	1.76	9.4	4.1	12	AH
YYE6KD	107.6	112.9	100.6 *	No Data	107.0	-0.82	9.1	6.2 H	106.0	-1.25	9.4	3.8	13	LJ
ZJEPV4	110.0	111.0	112.1	114.5	111.9	0.52	8.3	1.9	112.2	0.68	9.6	3.4	16	AH

Consensus (All Labs) Results

Wk Mean	109.67	110.39	109.94	109.97	Month Mean	110.01	Grand Mean	110.05
Avg SDr	8.55	9.01	8.85	8.57	Avg SD	8.73	Avg SD	8.88
SD btwn Labs	3.72	4.67	4.47	4.35	SD btwn Labs	3.64	SD btwn Labs	3.20
Labs Incld	49	52	52	49	SD btwn Wks	2.83	SD btwn Wks	3.48
Labs Excld	4	1	1	2	Labs Incld	51	Labs Incld	51
Labs not Rcvd	0	0	0	2				

Key to Instrument Codes Reported by Participants

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

	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
4F7W89	99.6 *	92.7	97.6	96.5	96.6	1.28	9.6	2.9	93.9	0.48	8.3	3.6	12	LC
66GATX	85.8	84.9	85.0	89.1	86.2	-1.66	8.6	2.0	93.5	0.34	9.4	8.4 H	12	AA
6XNHLB	99.4 *	90.7	99.9 *H	98.6 H	97.2	1.44	10.6	4.3	96.4	1.32	9.6	2.9	12	LZ
762TCG	100.2 *	100.7 *	98.4	106.0 X	101.3	2.62 *	7.6	3.3	101.7	3.07 X	8.6	3.6	8	TB
7GWELF	99.6 *	98.8	97.4	98.4	98.6	1.84	5.4	0.9	96.9	1.48	5.4	1.4	12	RE
8JRPRY	89.5 L	92.1	87.9 L	89.4	89.7	-0.66	4.4	1.8	90.4	-0.69	3.9	2.0	12	LA
8XFFMG	85.1	83.9	86.0	84.0 *	84.7	-2.08 *	7.2	1.0	86.6	-1.94 *	7.6	2.0	12	LB
98G3ED	89.3	86.5	90.0	89.3	88.8	-0.94	6.9	1.5	89.8	-0.90	7.1	2.7	12	LA
9LV3TX	94.7	89.0	88.5	87.6	90.0	-0.60	7.6	3.2	91.4	-0.35	5.0	2.0	12	LA
AC7FEM	86.7	88.9	91.3	91.7	89.6	-0.69	8.8	2.3	89.3	-1.06	8.6	1.7	12	LA
B9GLXC	90.0 L	89.8	89.5	92.9	90.6	-0.43	4.9	1.6	89.9	-0.88	5.8	1.3	12	TP
DCWV2U	97.4	91.6	88.6	90.8	92.1	0.01	8.9	3.8	93.0	0.16	8.4	2.5	12	AH
DXF92P	91.8	91.6	85.5	86.8	88.9	-0.88	6.3	3.2	89.0	-1.14	7.4	2.0	12	LC
EV3Q9Q	91.3	91.6	91.6	91.4	91.5	-0.17	5.3	0.2 L	91.4	-0.37	4.7	0.2 L	12	LJ
F8W7XR	85.9	91.1	91.3	91.5	90.0	-0.60	8.2	2.7	91.1	-0.45	8.0	2.7	12	LA
FFQCQT	87.9	94.7	88.1	89.2	90.0	-0.60	7.7	3.2	92.5	0.00	7.8	3.5	8	LA
G3JBL9	87.4	88.4	89.7	89.8	88.8	-0.92	9.2	1.1	90.3	-0.72	8.3	3.3	12	LC
GEN29V	89.8	98.3	91.4	94.8 H	93.6	0.43	9.5	3.8	95.1	0.87	9.0	3.4	12	LC
GHPAC7	90.0 L	94.0	92.4	96.8	93.3	0.35	6.2	2.9	94.8	0.77	8.6	3.4	12	LC
H62PP9	95.2	89.9	99.8 *	95.6	95.1	0.87	7.0	4.1	94.6	0.72	7.3	3.0	12	AH
H7BXR2	96.3	98.8	100.1 *	99.0	98.5	1.84	7.4	1.6	99.3	2.28 *	9.5	2.9	12	LZ
HE8CHN	87.6	93.2	98.0	97.1	94.0	0.54	8.6	4.7	93.2	0.25	10.5	3.2	12	LZ
J8J4DN	89.6	97.9	91.4	97.7	94.2	0.59	8.9	4.3	92.4	-0.03	8.8	3.2	12	LC
JRQDDL	86.5	83.9	91.2	88.2	87.5	-1.31	7.0	3.1	91.3	-0.38	8.3	4.7	12	LC
KBVD2C	89.2	88.0	85.9	91.4	88.6	-0.97	8.8	2.3	88.7	-1.26	8.4	1.9	12	LC
KP3MZZ	94.2	90.3	91.1	93.0	92.1	0.02	7.7	1.8	91.5	-0.34	7.7	3.3	12	TB
L6KHVG	87.4	92.3	87.2	90.8	89.4	-0.75	8.2	2.5	88.2	-1.43	6.5	2.0	12	LA
LRJQAC	93.8 L	92.7	93.1 L	92.4 L	93.0	0.26	3.4	0.6	92.9	0.15	5.5	0.5 L	12	LA
MKJABW	92.8	92.2	96.7	99.4	95.3	0.91	8.7	3.4	95.7	1.07	8.2	3.0	12	AX
MU4JX6	91.6	89.3	91.8	91.0	90.9	-0.32	6.5	1.2	91.8	-0.22	7.8	1.8	8	LC
MYCKKF	105.8XH	107.3 X	106.8 X	106.3 X	106.5	4.10 X	9.6	0.6	98.7	2.06 *	9.0	6.7	12	LC
N8L8CF	94.6	92.7	94.0	90.2 L	92.9	0.23	7.1	2.0	90.2	-0.74	7.2	3.2	12	LA
NAD6KM	92.8	88.7	86.6	88.7	89.2	-0.81	7.6	2.6	89.9	-0.87	7.2	2.4	8	XX
QCVMR4	90.0	90.2	87.1	88.1	88.8	-0.91	6.0	1.5	91.7	-0.27	6.7	5.2	12	LA
QV4MKJ	90.3	95.1	91.8 L	90.5 L	91.9	-0.04	4.8	2.2	90.5	-0.66	5.2	2.9	11	XX

Containerboard Interlaboratory Testing Program

Analysis 207

Bursting Strength (Mullen), 35 lb Linerboard - 35E1

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
RGHA8N	88.7	90.4	89.6	93.3	90.5	-0.45	7.1	2.0	89.4	-1.03	7.5	3.1	12	AH
RXL4C3	93.7	89.9	90.1	92.3	91.5	-0.16	8.6	1.8	90.0	-0.82	8.1	3.0	12	LA
T9NNEV	91.9	92.7	91.8	90.4	91.7	-0.10	4.5	1.0	90.5	-0.65	5.0	1.7	12	AH
THR7ZC	86.7	87.7	91.6	91.6	89.4	-0.76	8.0	2.5	90.5	-0.65	8.2	2.1	12	LC
U39HA9	91.6	89.3	90.5	91.2 H	90.7	-0.40	10.9	1.0	96.7	1.42	11.3	8.7 H	12	XX
UJEWCN	94.3	92.4	92.5	95.9	93.8	0.48	6.5	1.7	93.2	0.24	7.8	2.6	12	LC
VMFQ2X	95.5	100.0	104.4 X	98.2	99.5	2.11 *	9.7	3.8	97.8	1.77	9.6	3.3	11	LA
VT7ZBV	89.9	91.3	96.5	95.6	93.3	0.36	7.8	3.2	93.1	0.19	8.4	4.1	12	LA
WBVAE4	92.6	86.7	88.0	88.0	88.8	-0.92	7.9	2.6	91.2	-0.44	8.2	3.3	12	LC
X8FMCP	93.9	94.1	94.0	93.9	94.0	0.54	5.6	0.1 L	91.5	-0.32	7.1	2.1	12	LC
Y89BDE	89.3	88.2	88.4	89.8	88.9	-0.89	7.8	0.8	88.8	-1.22	7.2	2.6	12	AH
YHPRU6	92.5	90.5	96.7	91.2	92.7	0.19	8.4	2.8	94.6	0.70	8.8	2.8	11	TB
YQ43YC	94.7	96.4	91.7	91.6	93.6	0.43	8.1	2.4	93.4	0.30	9.0	2.7	8	XX
YRFKDB	87.0	84.6	92.1	88.2	88.0	-1.16	8.5	3.1	93.5	0.33	9.8	7.3 H	12	XX
YX3VMR	98.8 H	103.7 *	91.1	95.0	97.2	1.44	8.6	5.4 H	100.2	2.56 *	7.7	4.8	12	AH
YYE6KD	91.2	91.9	92.8	No Data	92.0	-0.03	8.1	0.8	90.7	-0.60	7.9	1.7	10	LJ
ZJEPV4	91.8	99.2	99.9 *	97.4	97.1	1.42	8.0	3.7	95.4	0.96	7.3	3.6	12	AH

Consensus (All Labs) Results

Wk Mean	91.72	91.83	91.86	92.35
Avg SDr	7.79	7.71	7.79	7.47
SD btwn Labs	3.94	4.41	4.09	3.68
Labs Incld	51	51	50	49
Labs Excld	1	1	2	2
Labs not Rcvd	0	0	0	1

Month Mean	92.07
Avg SD	7.71
SD btwn Labs	3.53
SD btwn Wks	2.67
Labs Incld	51

Grand Mean	92.48
Avg SD	7.90
SD btwn Labs	3.00
SD btwn Wks	3.53
Labs Incld	51

Key to Instrument Codes Reported by Participants

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

	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
3LGCG7	90.0	88.7	97.8	89.5	91.5	0.60	3.1	4.2	91.5	0.39	3.1	4.2	4	LZ
4F7W89	96.2	96.5 L	94.5	95.3	95.6	1.74	2.3	0.9	91.8	0.45	2.6	3.5	15	LD
4TBRPB	93.5	92.3	93.4	95.5	93.7	1.19	2.9	1.3	92.4	0.57	2.4	1.7	16	TH
4VZ79T	91.7	No Data	79.4 *	83.2	84.8	-1.26	3.6	6.3 H	90.1	0.10	5.1	9.5 H	13	MB
6XNHLB	90.3 L	91.0	89.9	90.7	90.5	0.31	2.6	0.5	89.2	-0.10	2.9	2.1	16	LG
762TCG	106.6 X	99.4 *	102.8 *	98.2	101.8	3.42 X	3.7	3.8	101.8	2.56 *	3.7	3.8	4	LX
7GWELF	86.1	87.5	86.9	86.7	86.8	-0.70	3.6	0.6	87.0	-0.57	3.0	1.6	16	LZ
8JRPRY	90.6	89.4	89.8	89.2	89.7	0.10	2.7	0.6	89.7	0.00	2.3	0.9 L	16	LZ
8XFFMG	82.9	82.9	86.7	85.6	84.5	-1.33	3.5	1.9	89.0	-0.14	3.1	3.5	16	LC
98G3ED	85.9	89.8	87.1	84.7	86.9	-0.68	2.5	2.2	86.2	-0.74	2.5	3.4	16	LD
9LV3TX	73.9 XL	70.4 X	69.8 X	74.9 X	72.2	-4.72 X	3.3	2.5	79.5	-2.16 *	2.2	4.9	16	TU
A9BKX9	88.9 H	90.8 H	86.4	87.4 H	88.4	-0.27	5.8	1.9	90.1	0.08	4.7	2.3	16	TH
AC7FEM	91.6	91.9	90.0	94.1	91.9	0.71	3.0	1.7	91.6	0.40	2.9	2.0	16	LD
AEYTDD	99.1 *	96.6	98.6	97.4	97.9	2.36 *	3.9	1.2	97.2	1.60	3.4	1.3	16	TU
AF6PRA	81.7 *H	94.6	No Data	87.0 H	87.8	-0.44	7.4	6.5 H	88.3	-0.28	5.6	5.8	15	MB
B9GLXC	89.6	89.1	91.4	91.2	90.3	0.27	3.5	1.1	90.2	0.11	3.2	1.1	16	TJ
BTBN7E	92.9	94.4	93.6	96.5	94.4	1.38	3.2	1.6	91.5	0.38	2.9	2.1	16	LD
EV3Q9Q	90.2	90.8	90.1	90.3	90.3	0.27	2.7	0.3 L	90.0	0.08	2.3	0.4 L	16	LD
F8W7XR	88.3	82.4 H	86.9	88.5	86.5	-0.78	7.5	2.8	87.5	-0.46	4.7	3.3	16	LD
FFQCQT	103.0 X	102.0 *	101.3 *	100.9 *	101.8	3.43 X	3.4	0.9	102.2	2.65 *	3.2	1.2	16	LD
G3JBL9	90.2	91.5	93.3	92.3	91.8	0.69	3.2	1.3	91.3	0.34	3.4	2.2	16	LD
GECRBA	82.4	84.0 L	80.9	82.4	82.4	-1.90	2.2	1.3	83.0	-1.41	2.6	1.4	16	EN
GHPAC7	87.1 H	93.2	90.9	88.4	89.9	0.15	4.6	2.7	88.9	-0.16	3.7	3.9	16	LD
H62PP9	86.5	87.3	86.9	86.9	86.9	-0.68	2.2	0.3 L	88.0	-0.37	2.5	1.4	16	LD
H7BXR2	88.6	89.4	87.0	88.4	88.3	-0.28	2.8	1.0	89.4	-0.06	3.1	1.3	16	LC
H7TH8R	76.1 X	76.3 X	76.3 *	77.2 *	76.5	-3.54 X	3.4	0.5	80.2	-2.01 *	3.4	3.4	16	LC
J8J4DN	92.7	93.1	88.0	92.0	91.4	0.58	2.2	2.3	92.0	0.49	2.9	2.1	16	LD
JRQDDL	90.3	88.2	91.6	89.5	89.9	0.15	3.0	1.5	88.8	-0.19	3.2	1.7	16	LD
JZEABF	86.2	83.3	89.0	87.1	86.4	-0.81	4.0	2.4	86.3	-0.73	3.4	1.9	16	LD
KBVD2C	91.5 L	92.9	92.8	95.4	93.2	1.05	2.2	1.6	86.6	-0.65	3.8	10.8 H	12	LC
L6KHVG	84.4	87.2 H	91.6	93.4	89.2	-0.05	4.5	4.1	88.6	-0.22	3.2	3.8	16	LZ
LDYB7D	90.7	90.5	91.6	92.1	91.2	0.51	3.6	0.8	93.2	0.75	3.3	2.6	16	TH
LRJQAC	91.2	91.1	92.3	91.6	91.6	0.61	3.6	0.5	92.0	0.49	3.2	0.5 L	16	LD
MDDC6K	87.0	87.1	89.0	87.6	87.7	-0.46	3.9	0.9	87.2	-0.53	3.5	1.5	12	EX
MKJABW	77.2 X	81.8	89.7 H	81.9	82.7	-1.84	4.1	5.2 H	77.1	-2.66 *	4.0	4.7	16	LC

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42F1

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
MU4JX6	87.5	86.5	82.4	89.1	86.4	-0.82	2.4	2.9	90.5	0.17	2.8	5.0	8	LD
NAD6KM	92.1	91.7	90.8	89.1	90.9	0.43	3.1	1.3	91.6	0.40	3.0	2.4	12	LD
P4K4VY	89.8	91.2	87.3	89.2	89.4	0.01	2.7	1.6	86.2	-0.74	2.8	2.5	16	LC
QCVMR4	88.3	85.0	85.4	90.6	87.3	-0.56	3.3	2.6	89.8	0.02	3.0	2.6	16	LD
QV4MKJ	86.4	79.3 *	80.6	83.6	82.5	-1.89	2.1	3.2	82.0	-1.63	2.8	2.9	16	LD
RGHA8N	94.1	93.3	92.9	92.6 H	93.2	1.07	3.9	0.7	95.2	1.18	3.9	4.1	16	LZ
RTQAGM	85.7 L	86.5 L	87.2 L	88.9	87.0	-0.63	1.1	1.4	92.2	0.54	2.3	3.7	16	TD
RXL4C3	89.5	90.9	90.9	89.7	90.3	0.25	2.8	0.7	88.4	-0.27	2.7	1.8	16	LD
THR7ZC	87.1	87.1	87.0	86.4	86.9	-0.67	3.1	0.4 L	88.1	-0.34	3.0	1.4	16	LD
TZTHKU	94.3	93.7	93.9	93.2	93.7	1.21	1.8	0.5	93.5	0.81	1.9	1.1	16	LD
UJEWCN	90.6	90.8	86.9	90.1	89.6	0.07	3.2	1.9	88.8	-0.19	3.0	1.8	12	LD
VLJQME	80.5 *L	81.4 L	81.2 L	82.0	81.3	-2.22 *	1.3	0.6	81.3	-1.77	1.8	1.1	16	RS
VMFQ2X	96.9 *	96.1	97.3	97.3	96.9	2.08 *	3.0	0.6	97.7	1.70	2.8	1.9	16	LZ
WPEVZH	86.9	86.4	87.0	88.2	87.1	-0.61	2.0	0.8	86.5	-0.68	2.5	1.1	16	LC
X8FMCP	93.3 H	95.0	93.2 H	93.9	93.9	1.24	6.4	0.8	97.8	1.72	10.3	4.6	16	LC
XG4W78	88.7	87.8	87.3	87.1	87.7	-0.45	3.1	0.7	88.6	-0.23	3.0	1.6	16	MB
Y89BDE	89.7	90.7	90.4	92.1	90.7	0.38	3.1	1.0	90.6	0.19	3.0	1.9	16	LC
YHPRU6	85.3	86.9	86.6	85.2	86.0	-0.92	3.6	0.9	90.3	0.14	3.4	5.4	14	LD
YRUEP6	91.5	91.5	89.4	89.6	90.5	0.32	2.4	1.2	88.8	-0.19	2.6	3.2	16	EM
YYE6KD	92.2	92.9	92.9	No Data	92.7	0.91	2.6	0.4	92.7	0.65	3.1	1.8	13	LD
ZJEPV4	90.9	88.0	87.0	85.6	87.9	-0.41	3.4	2.2	92.0	0.49	4.0	4.0	16	LC

Consensus (All Labs) Results

Wk Mean	89.39	89.87	89.54	89.66	Month Mean	89.34	Grand Mean	89.67
Avg SDr	3.51	3.94	3.27	3.14	Avg SD	3.51	Avg SD	3.48
SD btwn Labs	3.77	4.54	5.07	4.58	SD btwn Labs	3.63	SD btwn Labs	4.71
Labs Incld	51	53	54	54	SD btwn Wks	2.20	SD btwn Wks	3.41
Labs Excld	5	2	1	1	Labs Incld	52	Labs Incld	56
Labs not Rcvd	0	1	1	1				

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

	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
3LGCG7	82.6	77.3	86.2	83.4	82.4	0.82	3.2	3.7	82.4	0.96	3.2	3.7	4	LZ
4F7W89	83.2	83.7	86.3	83.6	84.2	1.28	2.9	1.4	79.8	0.36	2.9	3.4	12	LD
4TBRPB	80.3	80.1	79.2	81.4	80.2	0.27	3.0	0.9	79.6	0.29	2.7	1.6	12	TH
4VZ79T	81.4 H	99.9 X	No Data	79.5 H	86.9	1.99 *	8.0	11.3 H	84.8	1.56	5.7	7.9 H	10	MB
6XNHLB	80.5	78.1	81.4	81.8	80.4	0.32	3.0	1.7	78.9	0.14	3.0	2.9	12	LG
762TCG	92.2 *	93.0 *	89.9 *	92.8 X	92.0	3.28 X	4.5	1.4	92.8	3.46 X	4.2	2.7	8	LX
7GWELF	75.0	75.5	75.8	75.5	75.5	-0.95	2.9	0.4 L	76.3	-0.49	2.8	3.2	12	LZ
8JRPRY	83.0	81.2	82.5	82.1	82.2	0.78	2.1	0.7	80.3	0.46	2.4	1.9	12	LZ
8XFFMG	77.7	78.1	73.4	74.9	76.1	-0.80	4.3	2.3	79.7	0.32	3.8	4.5	12	LC
98G3ED	75.5 L	76.3	79.1	75.4	76.5	-0.67	2.5	1.7	77.0	-0.32	2.8	1.8	12	LD
9LV3TX	65.9 *	63.7 *	65.1 X	65.7 X	65.1	-3.61 X	2.6	1.0	70.2	-1.94 *	2.0	3.9	12	TU
A9BKX9	75.2	82.4	80.9	80.6	79.8	0.16	4.7	3.2	77.3	-0.24	4.4	4.5	12	TH
AC7FEM	81.3 L	81.0	80.0	81.1	80.9	0.43	2.3	0.6	80.2	0.44	2.9	1.0	12	LD
AEYTDD	87.1	87.9	84.8	89.6 *	87.4	2.10 *	3.9	2.0	84.4	1.46	8.2	3.6	12	TU
AF6PRA	71.3 H	84.9	No Data	79.4	78.6	-0.16	6.1	6.8 H	75.2	-0.74	5.3	6.1 H	11	MB
B9GLXC	77.0	79.2	78.9	75.8	77.7	-0.37	3.4	1.6	77.5	-0.19	4.1	1.5	12	TJ
BTBN7E	82.0	84.6	81.1	84.4	83.0	0.99	4.0	1.7	82.1	0.90	3.5	1.8	12	LD
EV3Q9Q	80.4	80.6	80.3	80.2	80.4	0.31	2.2	0.2 L	80.3	0.47	2.5	0.1 L	12	LD
F8W7XR	77.1	78.7	77.3	75.7	77.2	-0.51	4.0	1.2	78.3	0.00	3.6	2.3	12	LD
FFQCQT	90.6 *	90.2 *	87.0	87.7 *	88.9	2.49 *	3.8	1.8	89.6	2.69 *	3.5	1.5	8	LD
G3JBL9	80.1	81.6	81.2 H	81.2	81.0	0.48	4.4	0.7	81.5	0.75	4.4	1.1	12	LD
GECRBA	75.7	76.9	75.1	78.0	76.4	-0.70	3.2	1.3	76.6	-0.40	3.1	1.5	12	EN
GHPAC7	73.1	79.8	79.1	76.1	77.0	-0.55	5.1	3.1	76.6	-0.40	4.3	2.2	12	LD
H62PP9	76.3	78.8	77.3	77.9	77.6	-0.41	4.2	1.1	76.2	-0.51	3.9	1.6	12	LD
H7BXR2	78.5	80.2	75.9	75.8	77.6	-0.41	3.4	2.1	77.4	-0.23	3.4	1.7	12	LC
H7TH8R	66.4 *	63.5 *	63.4 X	64.1 X	64.3	-3.80 X	5.0	1.4	68.9	-2.24 *	4.0	3.7	12	LC
J8J4DN	81.7	78.5	80.3	83.8	81.1	0.49	2.6	2.3	80.7	0.56	2.6	1.5	12	LD
JRQDDL	77.1	79.9	79.8	77.1	78.4	-0.19	4.5	1.6	79.6	0.30	3.9	1.5	12	LD
JZEABF	74.8	74.3	81.0	78.1	77.1	-0.54	3.6	3.1	77.3	-0.26	3.8	1.9	12	LZ
KBVD2C	80.6 L	84.8	80.7	81.8	82.0	0.72	2.9	2.0	80.0	0.41	2.6	3.0	12	LC
L6KHVG	74.5	74.1 H	80.6	80.8	77.5	-0.43	5.6	3.7	78.4	0.02	4.8	3.1	12	LZ
LDYB7D	79.7	78.0	77.1	75.9	77.7	-0.38	2.9	1.6	76.9	-0.35	3.4	1.2	12	TH
LRJQAC	80.5	79.9	79.9	79.9	80.1	0.22	2.9	0.3 L	80.3	0.48	3.3	0.4 L	12	LD
MDDC6K	75.6	75.4	77.6	77.3	76.5	-0.69	3.6	1.1	76.0	-0.56	3.6	0.9	10	EX
MKJABW	70.8	66.1 *	77.5	72.3	71.7	-1.92	3.9	4.7	68.4	-2.36 *	4.3	4.0	12	LC

Containerboard Interlaboratory Testing Program

Analysis 217

Ring Crush, 35 lb Linerboard - 35E1

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
MU4JX6	73.6	75.2	74.6	79.0	75.6	-0.92	2.7	2.4	77.4	-0.21	2.5	2.5	8	LD
NAD6KM	83.4	83.3	84.3	80.5	82.9	0.95	3.7	1.6	81.6	0.79	3.5	1.8	8	LD
P4K4VY	79.2	79.1	75.1	77.1	77.6	-0.40	3.3	1.9	74.8	-0.85	2.8	3.2	12	LC
QCVMR4	73.6	72.5	77.9	79.7	75.9	-0.83	3.5	3.4	78.2	-0.03	3.6	2.9	12	LD
QV4MKJ	73.5	65.4 *	67.4 X	73.8	70.0	-2.35 *	4.0	4.3	70.4	-1.89	3.4	3.6	12	LD
RGHA8N	84.8 H	79.5	83.7	80.6	82.1	0.76	5.7	2.5	80.7	0.55	5.4	3.1	12	LZ
RTQAGM	68.1 *L	66.6 *L	65.9 XL	68.9 *L	67.4	-3.02 X	1.1	1.4	71.0	-1.75	1.2	3.3	12	TD
RXL4C3	80.9	80.2	80.6	81.2	80.7	0.39	2.8	0.4 L	79.5	0.29	2.9	1.0	12	LD
THR7ZC	78.0	76.7	77.8	74.9	76.8	-0.60	3.6	1.4	76.8	-0.37	3.5	1.8	12	LD
TZTHKU	82.0	82.6	83.0	81.8 L	82.3	0.81	2.5	0.6	81.8	0.83	2.4	1.0	12	LD
UJEWCN	79.5	75.2	79.0	79.4	78.3	-0.23	3.4	2.0	78.1	-0.06	3.3	1.9	8	LD
VLJQME	72.0 L	71.4 L	71.8 *L	72.6 L	71.9	-1.86	1.4	0.5	69.3	-2.15 *	1.9	2.0	12	RS
VMFQ2X	87.8	87.5	88.2 *	86.7	87.5	2.14 *	3.9	0.6	86.6	1.97 *	3.8	1.5	11	LZ
WPEVZH	78.8	78.7	78.3	78.2	78.5	-0.17	3.4	0.3 L	78.1	-0.05	3.2	1.0	12	LC
X8FMCP	80.1	80.0	79.9	80.1	80.0	0.22	4.9	0.1 L	80.6	0.55	5.8	3.0	12	LC
XG4W78	73.2	74.9	73.2	73.3	73.7	-1.41	3.0	0.9	73.5	-1.15	3.0	1.6	12	MB
Y89BDE	79.4	81.0	81.6	81.5	80.9	0.44	3.7	1.0	80.7	0.57	3.8	0.9	12	LC
YHPRU6	75.3 H	74.5	77.1	72.5	74.9	-1.11	4.8	1.9	79.2	0.22	5.5	5.5	11	LC
YRUEP6	79.5	79.3	80.9	79.4	79.8	0.16	2.7	0.7	76.6	-0.42	2.8	4.3	12	EM
YYE6KD	79.8	83.0	83.0	No Data	82.0	0.71	3.0	1.8	83.0	1.11	3.0	1.3	10	LD
ZJEPV4	80.2	76.3	72.6	74.5	75.9	-0.84	4.0	3.2	81.2	0.68	3.9	5.1	12	LC

Consensus (All Labs) Results

Wk Mean	78.34	78.39	79.79	78.92	Month Mean	79.17	Grand Mean	78.32
Avg SDr	3.94	3.66	3.52	3.85	Avg SD	3.81	Avg SD	3.74
SD btwn Labs	5.23	5.94	3.95	4.07	SD btwn Labs	3.90	SD btwn Labs	4.20
Labs Incld	56	55	50	52	SD btwn Wks	2.70	SD btwn Wks	2.94
Labs Excld	0	1	4	3	Labs Incld	52	Labs Incld	55
Labs not Rcvd	0	0	2	1				

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

	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
3LGCG7	22.0	22.8	21.7	22.3	22.2	-1.07	1.9	0.4	22.8	-0.55	2.0	0.7	16	LA
4F7W89	22.4	24.2	22.9	23.6	23.3	-0.15	1.6	0.8	23.3	-0.03	1.7	0.5	16	LA
4VZ79T	No Data	41.8 XH	26.5 *	24.8	31.1	6.53 X	2.5	9.4 H	29.8	7.03 X	2.2	8.6 H	13	LA
66GATX	23.0	23.6	23.1	22.7	23.1	-0.30	1.8	0.4	24.5	1.22	1.9	1.3	16	LH
6XNHLB	23.3	22.3	22.9	23.0	22.9	-0.48	1.6	0.4	22.8	-0.56	1.5	0.4	16	LU
8XFFMG	24.4	23.5	24.4	24.3	24.2	0.62	1.7	0.5	24.3	0.99	1.8	0.5	16	LW
93MMNZ	25.3	25.8	25.3	26.4 *	25.7	1.92	1.7	0.5	25.3	2.12 *	1.6	0.6	12	LH
98G3ED	22.5 L	21.5	21.1	22.1 L	21.8	-1.41	1.4	0.6	22.2	-1.25	1.3	0.5	16	BK
AC7FEM	25.1	24.5	24.7	25.2	24.9	1.22	1.5	0.3	25.0	1.85	1.7	0.8	16	LZ
AEYTDD	24.4	24.7	24.7	23.9	24.4	0.82	1.8	0.4	24.5	1.29	1.8	0.6	16	LA
AF6PRA	20.4 *L	23.6	No Data	24.0	22.7	-0.67	1.5	2.0 H	23.6	0.24	1.7	0.9	15	LA
B9GLXC	23.5	23.7	23.4	23.3	23.4	-0.01	1.3	0.2	23.3	-0.10	1.2	0.4	16	TT
BTBN7E	22.7	24.1	22.5	25.4	23.7	0.19	1.6	1.3	23.0	-0.33	1.6	0.8	16	LY
CT2TZT	24.6	25.1	25.7	26.3 *	25.4	1.68	1.7	0.7	24.3	1.01	1.6	0.9	16	LH
F8W7XR	22.8	23.5	22.7	22.5	22.9	-0.49	1.8	0.5	23.0	-0.42	1.8	0.6	16	LY
G3JBL9	25.3	24.6 H	24.2	26.5 *	25.2	1.46	1.9	1.0	24.4	1.10	1.8	0.9	16	LA
GECRBA	21.5	21.9	20.9	22.7	21.8	-1.46	1.6	0.8	21.6	-1.94 *	1.5	0.5	16	LY
GEN29V	24.4	23.2	24.1	23.6	23.8	0.30	1.8	0.5	23.8	0.53	1.7	0.5	12	LA
GHPAC7	22.0	23.6	21.3	22.0	22.2	-1.05	1.4	1.0	22.7	-0.71	1.7	1.1	16	LZ
H62PP9	24.7 H	24.3	23.8	25.0	24.4	0.86	1.9	0.5	24.4	1.11	2.0	0.8	16	LU
H7BXR2	23.3	24.1	23.9	23.9	23.8	0.28	1.8	0.3	23.0	-0.33	1.7	0.6	16	LW
HE8CHN	24.4	27.6 X	26.6 *	25.4	26.0	2.16 *	2.1	1.4	28.6	5.78 X	2.2	6.0 H	16	LZ
J8J4DN	22.7	23.2	22.9	23.1	22.9	-0.43	1.7	0.2	22.9	-0.48	1.7	0.3	16	LA
JRQDDL	23.9	24.1	24.1	23.0	23.8	0.26	1.8	0.5	23.7	0.35	1.6	0.5	16	LA
JZEABF	21.0	20.9 *	22.4	22.5	21.7	-1.50	1.4	0.9	21.9	-1.59	1.5	0.6	16	LH
KBVD2C	23.2	22.7	24.1	22.7	23.2	-0.24	1.8	0.7	22.7	-0.67	1.8	1.0	12	LA
KP3MZZ	22.6	22.3	22.3	21.8	22.2	-1.04	1.8	0.3	22.4	-1.07	1.8	0.4	16	LZ
L6KHVG	22.4	24.6	23.8 H	23.5 L	23.6	0.13	2.0	0.9	22.6	-0.85	1.8	1.2	16	LA
LDYB7D	21.4	21.8	20.5 *L	20.9 *	21.2	-1.98 *	1.6	0.6	21.7	-1.79	1.4	0.9	16	LH
LNZV7K	24.7	25.2 H	24.3 H	25.8	25.0	1.30	2.3	0.6	23.4	0.08	2.2	1.4	12	XX
LRJQAC	23.5	23.2	23.6	23.4	23.4	-0.03	1.7	0.1	23.3	0.00	1.5	0.1 L	16	LA
LU7MG3	19.9 *	19.1 X	18.8 X	19.0 X	19.2	-3.66 X	1.3	0.5	20.4	-3.23 X	1.5	0.9	16	LH
MDDC6K	24.5 L	26.3 *L	27.4 XL	24.6 L	25.7	1.93	0.0	1.4	25.2	2.03 *	0.0	0.9	12	TT
MKJABW	22.1	22.8	20.9	20.4 *	21.6	-1.62	1.7	1.1	22.5	-0.92	2.3	1.1	16	LZ
MREQT9	22.6	22.7	23.1	23.0	22.9	-0.51	1.7	0.2	22.4	-0.99	1.5	0.5	12	LW

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42F1

TAPPI Official Test Method T826

	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
MYCKKF	23.2	22.9	23.4	24.0	23.4	-0.07	1.8	0.5	23.0	-0.37	1.6	0.8	16	LA
N8L8CF	22.9	23.4	22.5	22.9	22.9	-0.47	1.5	0.4	23.3	0.00	1.6	0.5	16	LY
P4K4VY	23.7	23.3	23.1	23.4	23.4	-0.07	1.4	0.3	22.1	-1.33	1.2	0.9	16	LA
QCVMR4	23.4	22.6	21.8	24.1	23.0	-0.42	1.7	1.0	23.4	0.02	1.6	0.9	16	LA
QHY4AJ	24.7	25.5	24.7 H	22.9	24.4	0.84	1.8	1.1	24.4	1.12	1.9	1.3	16	LA
RTQAGM	31.9 X	31.3 X	31.6 X	32.6 X	31.9	7.21 X	1.2	0.5	29.7	6.88 X	2.2	4.0 H	16	XX
RXL4C3	23.1	22.3	23.2	23.2	22.9	-0.46	1.6	0.4	22.8	-0.63	1.6	0.6	16	LA
T9NNEV	23.4	23.7	23.4	23.9	23.6	0.13	1.2	0.2	23.5	0.14	1.1	0.5	16	TT
THR7ZC	23.0	23.1	22.3	22.3	22.7	-0.66	1.5	0.4	23.1	-0.25	1.6	0.5	16	LA
TZTHKU	23.5	23.8	23.5	24.2	23.8	0.26	1.5	0.3	23.6	0.32	1.7	0.3	16	LY
UJEWCN	22.7	22.3	22.5	23.5	22.7	-0.61	1.6	0.5	22.8	-0.54	1.6	0.5	16	LA
VMFQ2X	23.3	23.3	23.6	22.8	23.2	-0.19	1.6	0.3	23.1	-0.26	1.8	0.4	16	LW
WBVAE4	25.3	25.9 *	24.4	24.6	25.1	1.38	1.9	0.7	24.6	1.34	1.7	1.3	12	LA
X8FMCP	27.5 X	27.8 X	28.0 X	28.1 X	27.9	3.78 X	2.0	0.3	26.4	3.33 X	1.9	1.3	16	LA
Y89BDE	23.5	23.5	23.3	23.8	23.5	0.05	1.7	0.2	23.3	-0.05	1.7	0.3	16	LU
YHPRU6	24.7	24.3	23.0	23.4	23.8	0.34	1.7	0.8	24.0	0.76	1.8	0.8	14	LW
YX3VMR	25.0	25.2	24.5	24.5	24.8	1.17	1.8	0.4	25.0	1.82	1.8	1.0	12	LU
YYE6KD	23.3	23.1	23.5	No Data	23.3	-0.12	1.4	0.2	22.9	-0.43	1.7	0.6	13	LY
ZJEPV4	21.0	21.2	21.8	21.4	21.4	-1.80	1.6	0.3	22.4	-1.01	2.3	0.8	15	LH

Consensus (All Labs) Results

Wk Mean	23.25	23.55	23.32	23.56	Month Mean	23.45	Grand Mean	23.35
Avg SDr	1.66	1.69	1.69	1.71	Avg SD	1.68	Avg SD	1.71
SD btwn Labs	1.28	1.21	1.34	1.33	SD btwn Labs	1.16	SD btwn Labs	0.92
Labs Incld	51	49	49	50	SD btwn Wks	0.71	SD btwn Wks	0.78
Labs Excld	2	5	4	3	Labs Incld	50	Labs Incld	49
Labs not Rcvd	1	0	1	1				

Key to Instrument Codes Reported by Participants

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

	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
3LGCG7	22.2	21.9 H	22.4	22.8	22.3	-0.34	1.8	0.4	22.0	-0.52	1.9	0.7	12	LA
4F7W89	22.3	22.9	22.6	22.4	22.6	-0.10	1.5	0.3	22.4	-0.15	1.6	0.4	12	LA
4VZ79T	22.6 H	34.1 XH	24.6	No Data	27.1	4.42 X	2.6	6.1 H	25.1	2.20 *	2.1	4.2 H	10	LA
66GATX	23.0	23.5	23.2	23.5	23.3	0.64	1.8	0.2	23.0	0.39	1.9	0.3 L	12	LH
6XNHLB	22.8	23.2	22.1	21.6	22.4	-0.22	1.6	0.7	22.1	-0.38	1.6	0.6	12	LW
7G9FY2	23.2	24.0	24.6	24.0	23.9	1.28	1.6	0.6	23.7	0.94	1.7	0.5	12	LA
8XFFMG	23.8	23.0	22.4	23.6	23.2	0.53	1.5	0.6	23.6	0.88	1.7	0.6	12	LW
93MMNZ	25.3 *	26.2 X	26.3 *	25.9 *	25.9	3.25 X	1.4	0.5	24.9	2.01 *	1.6	1.2	8	LH
98G3ED	20.7 L	20.9	20.9	20.7 L	20.8	-1.84	1.2	0.1	20.9	-1.44	1.1	0.4 L	12	BK
AC7FEM	24.4	23.2 L	22.8	23.5	23.5	0.82	1.6	0.7	23.5	0.76	1.6	0.7	12	LZ
AEYTDD	22.5	23.9 L	22.2 L	22.5	22.8	0.13	1.5	0.8	23.5	0.77	1.5	0.9	12	LA
AF6PRA	44.3 X	22.7	No Data	22.6	29.9	7.19 X	1.6	12.5 H	24.6	1.73	2.0	6.7 H	11	LA
B9GLXC	22.7	22.4	22.9	22.5	22.6	-0.05	1.2	0.2	22.1	-0.44	1.2	0.6	12	TT
BTBN7E	21.7	22.9	21.7	24.2	22.6	-0.05	1.7	1.2 H	22.0	-0.50	1.6	1.1	12	LY
CT2TZT	24.3	24.6	25.1	25.7 *	24.9	2.25 *	1.6	0.6	24.3	1.47	1.6	0.6	12	LH
F8W7XR	22.7 H	23.1	22.1	21.6	22.4	-0.29	1.8	0.7	22.2	-0.35	1.7	0.5	12	LY
G3JBL9	23.9	22.9	23.3	23.5	23.4	0.76	1.7	0.4	23.3	0.63	1.7	0.4	12	LA
GECRBA	21.5	21.4	20.7	21.7	21.3	-1.34	1.6	0.5	21.0	-1.40	1.4	0.5	12	LY
GEN29V	24.1	23.8	23.5	24.0	23.8	1.19	1.7	0.3	23.2	0.56	1.7	0.8	8	LA
GHPAC7	21.5	20.6 *L	21.3	22.2	21.4	-1.23	1.3	0.6	21.8	-0.67	1.6	0.6	12	LZ
H62PP9	23.5	23.8	23.3	23.2	23.5	0.80	1.8	0.3	22.9	0.31	1.7	1.0	12	LU
H7BXR2	23.9	23.1	22.7	23.0	23.2	0.51	1.6	0.5	22.4	-0.19	1.6	0.7	12	LW
HE8CHN	26.1 *	23.5 H	24.4	23.8 L	24.4	1.78	2.2	1.2 H	25.0	2.08 *	1.8	2.3	12	LZ
J8J4DN	23.2	22.8	22.7	23.2	23.0	0.32	1.7	0.3	22.9	0.26	1.7	0.3 L	12	LU
JRQDDL	23.5	22.1 L	23.7	22.7	23.0	0.32	1.3	0.8	22.8	0.21	1.5	0.6	12	LA
JZEABF	20.3 *	20.3 *	21.4	22.3	21.1	-1.56	1.6	1.0	21.2	-1.17	1.5	0.6	12	LH
KBVD2C	21.3 L	22.5	20.5	20.8	21.3	-1.38	1.3	0.9	21.1	-1.29	1.5	0.6	12	LA
KP3MZZ	21.9	21.7	20.9	22.8	21.8	-0.83	1.6	0.8	21.4	-1.00	1.5	0.6	12	LZ
L6KHVG	22.6	23.9	23.1	23.8	23.4	0.71	1.8	0.6	21.9	-0.59	1.5	1.4	12	LA
LDYB7D	21.7	22.1	21.0	21.2	21.5	-1.15	1.8	0.5	20.7	-1.67	1.8	1.3	12	LH
LNZV7K	24.0	23.8 H	23.8 H	23.4	23.7	1.08	2.2	0.2	22.3	-0.23	1.7	1.6	8	XX
LRJQAC	22.4	22.5	22.4	22.4	22.4	-0.23	1.5	0.1 L	22.4	-0.17	1.4	0.1 L	12	LA
LU7MG3	19.1 X	18.8 X	19.3 *	19.7 *	19.2	-3.42 X	1.2	0.4	19.8	-2.41 *	1.6	0.9	12	LH
MDDC6K	23.4 L	24.3 L	22.7 L	25.3 *L	23.9	1.27	0.0	1.1	23.5	0.82	0.0	0.8	10	LZ
MKJABW	21.1	21.9 H	21.0	19.2 X	20.8	-1.86	1.7	1.1	21.7	-0.79	2.1	1.1	12	XX

Containerboard Interlaboratory Testing Program

Analysis 225

STFI, 35 lb Linerboard - 35E1

TAPPI Official Test Method T826

	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
MREQT9	22.3	22.2	22.4	22.3	22.3	-0.35	1.5	0.1 L	22.3	-0.26	1.5	0.2 L	12	LW
MYCKKF	22.9	22.0	22.5	22.7	22.5	-0.17	1.7	0.4	22.3	-0.26	1.6	0.3 L	12	LA
N8L8CF	22.8	22.4	22.0	22.2	22.4	-0.30	1.4	0.3	22.7	0.13	1.6	0.6	12	LU
P4K4VY	21.3	21.6	21.0	22.0	21.5	-1.18	1.4	0.4	20.5	-1.82	1.2	0.8	12	LA
QCVMR4	22.2	22.0	22.3	23.4	22.5	-0.18	1.5	0.6	22.4	-0.14	1.5	0.4	12	LA
QHY4AJ	23.8	24.8 L	23.6	22.5	23.7	1.01	1.4	0.9	22.3	-0.27	1.3	1.9	12	LA
RTQAGM	17.9 X	30.6 X	30.2 X	30.9 XH	27.4	4.74 X	1.8	6.3 H	27.9	4.64 X	2.5	4.2 H	8	XX
RXL4C3	22.6	22.0	22.1	21.9	22.2	-0.48	1.5	0.3	22.1	-0.39	1.7	0.3 L	12	LW
T9NNEV	22.7 L	23.1	22.6	22.4	22.7	0.04	1.2	0.3	22.3	-0.26	1.1	0.5	12	TT
THR7ZC	22.0	22.5	21.7	22.0	22.0	-0.62	1.5	0.4	22.1	-0.39	1.6	0.4	12	LA
TZTHKU	22.5	22.6	22.1	22.1	22.3	-0.31	1.6	0.3	22.7	0.07	1.7	0.5	12	LY
UJEWCN	22.2	21.4	22.2	21.9	21.9	-0.71	1.4	0.4	21.9	-0.62	1.5	0.5	12	LA
VMFQ2X	22.0	22.8	22.0 L	22.3	22.3	-0.36	1.6	0.4	22.2	-0.31	1.7	0.5	11	LW
WBVAE4	23.5	24.1 L	23.5	23.8	23.7	1.04	1.5	0.3	23.3	0.59	1.7	0.8	12	LA
X8FMCP	26.0 *	25.8 *	26.3 *	26.7 X	26.2	3.54 X	2.1	0.4	24.6	1.77	2.0	1.3	12	LA
Y89BDE	23.3	22.9	22.9	22.9	23.0	0.33	1.7	0.2	22.5	-0.07	1.6	0.4	12	LU
YHPRU6	24.0	23.4	23.5	23.6	23.6	0.95	1.8	0.3	23.6	0.94	1.9	0.6	11	LW
YX3VMR	23.5	24.4	24.2	23.9	24.0	1.36	1.5	0.4	24.1	1.34	1.8	0.9	12	LU
YYE6KD	22.9	23.3	22.8	No Data	23.0	0.37	1.5	0.2	22.2	-0.37	1.5	0.8	10	LY
ZJEPV4	19.7 *	20.7	20.0	20.8	20.3	-2.33 *	1.5	0.5	22.2	-0.36	2.4	1.7	12	LH

Consensus (All Labs) Results

Wk Mean	22.81	22.80	22.59	22.77	Month Mean	22.65	Grand Mean	22.58
Avg SDr	1.61	1.66	1.56	1.59	Avg SD	1.60	Avg SD	1.65
SD btwn Labs	1.26	1.12	1.40	1.20	SD btwn Labs	1.00	SD btwn Labs	1.15
Labs Incld	52	51	53	50	SD btwn Wks	0.59	SD btwn Wks	1.38
Labs Excld	3	4	1	3	Labs Incld	49	Labs Incld	54
Labs not Rcvd	0	0	1	2				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 228

Roughness - Stylus Method, 56 lb Linerboard - 56A

TAPPI Official Test Method T575

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
4ER84W	137.9	-1.80	16.01		146.3	-1.17	5.99	4	EV
4VZ79T	202.6	1.95 *	38.56	H	195.3	1.70	6.60	3	LA
66GATX	161.2	-0.45	4.85	L	135.1	-1.82	22.56	3	XX
AEYTDD	173.0	0.23	23.10		181.7	0.91	26.61 H	4	LA
AF6PRA	195.5	1.54	32.38	H	176.4	0.60	13.01	4	LA
C7TCLQ	151.7	-1.00	14.33		168.6	0.13	11.84	4	XX
F8W7XR	187.0	1.04	12.92		181.3	0.88	5.97	4	EV
FFQCQT	147.1	-1.27	12.41		137.4	-1.69	8.62	4	EV
G3JBL9	166.9	-0.12	18.94		160.5	-0.34	5.32	4	LA
GECRBA	164.8	-0.24	14.30		173.4	0.42	8.31	4	EV
GEN29V	152.4	-0.96	17.32		151.7	-0.85	9.68	4	LA
GHPAC7	0.3	-9.78 X	0.03	L	0.3	-9.73 X	0.01 L	3	LA
H62PP9	179.0	0.58	13.83		186.3	1.17	4.93	4	EV
H7BXR2	167.5	-0.09	14.83		167.0	0.04	3.70	4	XX
HE8CHN	211.2	2.45 *	23.65		188.0	1.27	23.40	4	XX
KBVD2C	180.7	0.68	37.01	H	194.4	1.65	19.59	3	LA
KP3MZZ	155.0	-0.81	13.20		161.3	-0.29	4.30	4	LA
L6KHVG	167.4	-0.09	17.16		176.1	0.58	9.52	4	EV
LRJQAC	162.7	-0.37	17.73		162.6	-0.22	0.31 L	4	XX
MYCKKF	158.7	-0.60	5.67	L	147.8	-1.09	21.34	3	XX
RXL4C3	171.3	0.14	13.70		172.4	0.36	1.47 L	4	LA
THR7ZC	153.8	-0.88	10.65		148.1	-1.07	8.06	2	LS
UJEWCN	173.0	0.23	10.67		172.1	0.34	5.54	3	XX
VMFQ2X	179.5	0.61	18.93		170.2	0.23	7.26	4	EV
WBVAE4	157.0	-0.70	20.65		157.4	-0.52	1.19 L	3	LA
X8FMCP	168.1	-0.05	12.86		145.6	-1.21	15.62	4	EV
ZJEPV4	105.5	-3.68 X	10.52		111.6	-3.21 X	11.06	4	EV

Consensus (All Labs) Results

Month Mean	169.00	Grand Mean	166.28
Avg SD	19.25	Avg SD Months	12.39
SD btwn Labs	17.26	SD btwn Labs	17.06
Labs Incld	25	Labs Incld	25

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42F1

TAPPI Official Test Method T538

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
4F7W89	359.4	0.61	8.36	364.0	1.31	6.43	2	XX
66GATX	360.2	0.79	9.92	355.1	-0.34	7.21	2	LA
A9BKX9	274.0	-18.08 X	6.18	274.8	-15.26 X	1.06	2	XX
AC7FEM	359.0	0.53	11.73	360.3	0.63	1.84	2	XX
C7TCLQ	355.3	-0.29	9.02	355.4	-0.28	0.14	2	LA
DXF92P	348.8	-1.70	6.27	351.5	-1.01	3.76	2	LA
JRQDDL	361.3	1.03	3.95	363.2	1.17	2.69	2	LA
MYCKKF	351.9	-1.03	6.56	351.9	-0.94	0.07	2	LA
QCVMR4	355.6	-0.22	7.11	357.4	0.09	2.55	2	LA
QHY4AJ	362.9	1.38	6.74	364.5	1.41	2.26	2	XX
RGHA8N	354.6	-0.44	5.87	351.2	-1.06	4.81	2	XX
THR7ZC	350.2	-1.40	9.53	349.1	-1.45	1.54	2	LA
Y89BDE	360.0	0.74	9.70	359.5	0.48	0.71	2	XX

Consensus (All Labs) Results

Month Mean	356.61	Grand Mean	356.92
Avg SD	8.17	Avg SD Months	3.60
SD btwn Labs	4.57	SD btwn Labs	5.38
Labs Incld	12	Labs Incld	12

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 42 lb Linerboard - 42D

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
4F7W89	98.8	-0.45	8.04		96.4	-0.81	2.72	4	TM
4ZYXFC	109.4	0.37	1.95		103.8	-0.13	4.66	4	SC
8QG6KD	98.8	-0.45	3.11		96.2	-0.83	16.02	4	TM
C7TCLQ	104.2	-0.03	8.79		108.4	0.29	4.70	4	XX
F8W7XR	102.0	-0.20	6.47		102.4	-0.26	6.62	4	XX
FFQCQT	127.4	1.74	7.20		123.7	1.70	3.29	4	HY
H62PP9	93.6	-0.84	5.08		94.0	-1.03	2.82	4	TM
HE8CHN	125.6	1.60	6.15		109.4	0.39	10.97	4	TM
J8J4DN	102.8	-0.14	8.11		103.6	-0.15	4.25	4	HZ
JRQDDL	48.9	-4.26 X	0.75	L	47.5	-5.31 X	2.62	4	LZ
KBVD2C	124.4	1.51	9.91		122.0	1.55	8.07	3	SC
L6KHVG	102.4	-0.17	3.91		106.0	0.08	6.80	4	TM
MKJABW	78.9	-1.97 *	9.00		83.0	-2.04 *	28.27 H	4	SC
MU4JX6	97.6	-0.54	4.62		97.0	-0.75	0.88	2	SC
P4K4VY	101.8	-0.22	6.14		99.4	-0.53	1.82 L	4	TM
QCVMR4	99.4	-0.40	8.14		95.4	-0.90	3.22	4	SC
QHY4AJ	89.7	-1.14	5.65		95.8	-0.86	7.70	4	SC
RXL4C3	114.8	0.78	6.46		121.0	1.45	7.33	4	HY
THR7ZC	84.9	-1.51	3.77		110.4	0.48	36.07	2	TM
UJEWCN	106.6	0.15	4.83		105.4	0.02	3.71	4	TM
X8FMCP	123.0	1.40	9.08		122.3	1.57	14.73	4	SC
Y89BDE	111.0	0.49	6.53		113.6	0.77	3.23	4	HY

Consensus (All Labs) Results

Month Mean	104.62	Grand Mean	105.18
Avg SD	6.67	Avg SD Months	12.13
SD btwn Labs	13.08	SD btwn Labs	10.88
Labs Incld	21	Labs Incld	21

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	105.02	13.85	0.40	16
Modified Scott Bond Mechanics	112.91	2.67	8.29	2

Analysis Notes

JRQDDL - 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

	Monthly Results				Cumulative Results			
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months
4F7W89	23.4	-1.13	2.50		26.7	0.09	2.35	4
4ZYXFC	23.2	-1.18	2.49		22.9	-1.70	0.47	4
66GATX	26.2	-0.25	1.48		28.0	0.70	1.97	4
AC7FEM	26.4	-0.18	1.92		28.2	0.78	2.27	4
E2CCC9	26.0	-0.31	2.55		25.5	-0.47	0.71	2
F8W7XR	25.8	-0.37	1.30		25.8	-0.35	1.39	4
GECRBA	27.8	0.25	1.87		29.0	1.17	2.16	4
GEN29V	29.2	0.69	5.98	H	28.0	0.68	1.60	3
H62PP9	33.4	1.99 *	4.39		28.5	0.94	4.98	4
H7BXR2	26.8	-0.06	2.28		25.9	-0.30	1.64	4
HE8CHN	25.3	-0.51	1.18		23.4	-1.47	1.50	4
JRQDDL	22.4	-1.42	1.08		25.3	-0.58	4.44	4
JZEABF	28.7	0.53	5.44		29.6	1.44	1.82	4
KBVD2C	33.0	1.86	4.53		28.5	0.91	5.39 H	3
KP3MZZ	24.8	-0.68	0.84		24.6	-0.89	0.67	4
L6KHVG	29.6	0.81	4.51		28.0	0.67	1.65	4
LRJQAC	25.8	-0.37	0.84		26.2	-0.14	0.43	4
MYCKKF	26.8	-0.06	0.84		28.4	0.86	1.95	4
NAD6KM	33.0	1.86	2.83		28.8	1.07	4.10	3
QHY4AJ	29.0	0.62	1.00		28.8	1.07	0.49	4
RXL4C3	30.8	1.18	2.28		27.6	0.49	3.99	4
THR7ZC	22.3	-1.46	2.17		22.9	-1.70	0.78	2
UJEWCN	24.4	-0.80	2.97		26.9	0.20	2.50	3
VMFQ2X	25.0	-0.62	2.55		25.9	-0.30	2.20	4
X8FMCP	24.4	-0.80	1.67		21.6	-2.29 *	2.34	4
Y89BDE	24.4	-0.82	1.37		24.8	-0.80	0.52	4
YHPRU6	31.0	1.24	5.57		26.4	-0.07	3.14	4

Consensus (All Labs) Results

Month Mean	27.00	Grand Mean	26.50
Avg SD	2.95	Avg SD Months	2.54
SD btwn Labs	3.23	SD btwn Labs	2.15
Labs Incld	27	Labs Incld	27

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
4F7W89	18.1	-0.46	1.32		18.4	-0.38	0.79	4	LA
4VZ79T	17.2	-1.33	1.25		18.3	-0.52	1.06	3	LA
66GATX	18.4	-0.14	0.85		18.1	-0.64	0.31	4	LP
8JRPRY	18.6	0.05	1.26		17.9	-0.87	1.47	4	XX
AC7FEM	19.1	0.53	2.66	H	19.4	0.57	1.06	4	GA
AEYTDD	23.4	4.64 X	1.46		22.2	3.29 X	1.31	4	LA
C7TCLQ	18.5	-0.08	1.27		18.3	-0.53	0.16 L	4	LP
F8W7XR	17.7	-0.79	0.80		18.3	-0.53	1.26	4	LP
G3JBL9	18.2	-0.32	1.82		18.3	-0.52	0.96	4	LA
HE8CHN	17.7	-0.84	2.97	H	18.2	-0.61	1.15	4	TD
JNR3HL	18.6	0.06	0.95		18.4	-0.43	0.53	4	LP
JRQDDL	20.0	1.37	1.12		20.4	1.54	0.34	4	LA
KBVD2C	18.5	-0.08	1.45		18.8	-0.01	0.56	3	LA
KP3MZZ	18.0	-0.50	1.30		21.3	2.48 *	6.42 H	4	LP
L6KHVG	19.1	0.49	0.41	L	18.6	-0.22	0.61	4	LP
LRJQAC	18.3	-0.25	0.42	L	18.8	-0.02	0.79	4	LA
MKWFDM	21.0	2.37 *	1.22		20.1	1.24	1.03	4	GA
MYCKKF	18.0	-0.55	0.59	L	17.4	-1.38	0.69	4	LA
NAD6KM	18.9	0.36	2.34		18.5	-0.29	0.63	3	LA
QCVMR4	19.2	0.59	2.27		19.3	0.52	0.71	4	LA
QV4MKJ	17.0	-1.47	2.58		17.7	-1.04	1.47	4	GG
RXL4C3	20.5	1.85	1.35		20.6	1.76	1.25	4	LP
THR7ZC	19.8	1.17	1.84		19.2	0.43	1.01	4	LA
TZTHKU	19.6	1.00	0.84		19.0	0.16	0.62	4	LP
UJEWCN	19.9	1.30	1.07		20.7	1.89	0.82	3	LA
VMFQ2X	17.3	-1.19	2.41		18.6	-0.21	0.91	4	XX
X8FMCP	17.0	-1.47	0.67	L	16.9	-1.83	0.57	4	LP
Y89BDE	17.0	-1.48	2.47		18.0	-0.82	0.71	4	TP
YHPRU6	18.4	-0.14	1.78		18.5	-0.24	0.56	4	LP
YLNDV3	18.5	-0.05	0.94		19.3	0.49	1.03	4	LP

Consensus (All Labs) Results

Month Mean	18.55	Grand Mean	18.79
Avg SD	1.62	Avg SD Months	1.48
SD btwn Labs	1.05	SD btwn Labs	1.02
Labs Incld	29	Labs Incld	29

Key to Instrument Codes Reported by Participants

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

	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
24LZ8Q	57.7	58.1	57.1	57.5	57.6	-0.04	3.2	0.4	58.4	0.17	3.0	0.9	12	LD
4VZ79T	43.4 XH	34.7 X	54.1	No Data	44.1	-5.61 X	8.5	9.7 H	48.4	-3.75 X	5.9	8.2 H	10	MB
4ZYXFC	58.8	59.5	55.9	53.1	56.9	-0.34	3.7	2.9	56.6	-0.52	3.5	1.7	12	LZ
6XNHLB	57.3	57.7	57.3	56.2 L	57.1	-0.23	3.7	0.6	57.4	-0.19	3.3	1.6	12	LZ
8XFFMG	58.8	58.7	57.4	57.9	58.2	0.21	3.4	0.7	58.1	0.07	3.3	0.6	12	LD
93MMNZ	53.5	56.1	52.8 L	54.0	54.1	-1.47	2.9	1.4	51.8	-2.41 *	3.3	2.5	12	LD
9LV3TX	60.3	57.9	53.5	56.5	57.0	-0.27	2.8	2.8	59.8	0.73	2.2	2.6	12	TU
AC7FEM	59.6	56.8	59.6	55.7	57.9	0.09	2.6	2.0	57.8	-0.06	3.0	1.7	12	LZ
AEYTDD	55.1	52.4 *	52.7	51.6 *H	53.0	-1.94 *	5.3	1.5	54.6	-1.33	5.7	3.1	12	TU
AF6PRA	53.9	56.8	No Data	54.6	55.1	-1.07	3.9	1.5	55.3	-1.04	4.1	1.7	11	MB
AF7RBM	56.4	54.8	55.1	55.9	55.5	-0.90	3.1	0.7	56.2	-0.67	3.1	1.0	8	TH
B9GLXC	58.7	59.9	58.8	58.7	59.0	0.55	3.7	0.6	59.0	0.43	3.7	0.8	12	TJ
BKVLRK	58.3	58.5	59.2	59.3	58.9	0.48	3.1	0.5	59.2	0.49	3.6	1.7	12	EM
BTBN7E	58.4	57.4	58.4	56.9	57.8	0.02	3.3	0.7	58.5	0.23	3.6	1.9	12	LD
CGT37X	59.7	59.8	62.0 H	60.4	60.5	1.15	3.9	1.1	58.3	0.15	4.0	2.2	12	LC
CT2TZT	60.9	61.4	59.7	62.6	61.2	1.43	4.6	1.2	59.4	0.59	4.0	2.1	12	LD
ECU9HV	46.8 X	47.2 X	47.4 X	46.7 X	47.0	-4.39 X	3.9	0.3	47.2	-4.24 X	4.0	0.8	12	TC
EV3Q9Q	60.4	60.2	60.6	60.8	60.5	1.15	2.1	0.3 L	60.5	1.02	2.5	0.2 L	12	LD
F8W7XR	56.2 H	57.7	57.0	57.7	57.1	-0.23	5.2	0.7	58.0	0.04	4.3	1.1	12	LZ
GECRBA	54.6	55.0	56.1	56.0	55.4	-0.94	3.2	0.7	56.5	-0.58	3.3	1.3	12	EN
GHPAC7	55.6	58.1	54.0	54.4	55.5	-0.89	4.1	1.8	55.3	-1.06	3.9	2.0	12	LD
GM7X4B	58.1	57.4	57.0	57.1	57.4	-0.12	3.6	0.5	58.2	0.10	3.3	1.4	12	LC
GVV6UM	57.8 L	58.1 L	58.8	58.2	58.2	0.22	1.6	0.4	59.0	0.41	1.4	1.1	12	LD
H62PP9	54.7	55.8	55.9	55.3	55.4	-0.93	3.2	0.6	55.7	-0.90	3.2	1.1	9	LD
J8J4DN	55.4	54.7	54.8	52.9	54.4	-1.35	3.2	1.1	55.0	-1.17	3.4	1.2	12	LD
JNR3HL	56.5	56.6	61.1	58.5	58.2	0.20	3.5	2.1	58.0	0.04	3.9	1.6	12	LD
JRQDDL	53.6	51.1 *	51.5 *	50.1 *	51.6	-2.52 *	3.7	1.5	51.6	-2.49 *	3.7	1.4	12	LD
JZEABF	54.0	55.5	56.4	55.0	55.2	-1.02	3.7	1.0	55.2	-1.09	3.7	1.5	12	LD
KP3MZZ	63.2 *	57.9	56.0	55.3	58.1	0.17	3.6	3.6 H	58.5	0.21	4.1	2.4	12	LZ
LDYB7D	57.4 L	57.0	57.6	57.3 L	57.3	-0.16	1.9	0.3	56.7	-0.50	2.9	1.3	12	TH
LNZV7K	60.2	56.8	58.1	58.9	58.5	0.34	4.2	1.4	61.8	1.53	3.8	2.7	12	LD
LRJQAC	58.3	58.8	58.8	58.6	58.6	0.38	2.1	0.2 L	58.4	0.20	2.1	0.4 L	12	LD
MDDC6K	55.4 H	53.7	55.1	56.1	55.1	-1.07	4.7	1.0	55.2	-1.09	4.0	0.9	12	EM
MKJABW	55.6	53.0	52.0 *	55.3	54.0	-1.53	3.1	1.7	54.2	-1.48	3.2	1.9	12	LC
MYCKKF	56.6	62.8	61.1	58.7	59.8	0.87	5.0	2.7	60.1	0.85	4.2	2.0	12	LD

Containerboard Interlaboratory Testing Program

Analysis 240

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

TAPPI Official Test Method T809

	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
N8L8CF	60.7	58.8	58.4	57.6	58.9	0.49	4.0	1.3	57.9	-0.03	3.8	1.3	12	LD
P4K4VY	62.4	63.7 *	58.6	58.5	60.8	1.28	3.4	2.7	59.9	0.78	3.1	1.8	12	LC
PEE49H	60.1	60.2	60.2	60.4	60.2	1.03	2.4	0.1 L	60.5	1.02	2.5	0.6	12	LD
RTQAGM	59.4 L	61.3 L	56.9 L	58.4 L	59.0	0.55	1.0	1.8	61.3	1.33	2.2	2.6	12	TD
RXL4C3	53.7	55.6	57.5	53.0	55.0	-1.13	3.7	2.0	55.6	-0.91	3.4	1.7	12	LD
RZEY2W	63.0	62.2	62.2	62.2	62.4	1.94 *	3.4	0.4	62.4	1.76	3.4	0.4 L	4	TM
T9NNEV	58.1	58.8	58.3	57.8	58.2	0.22	4.6	0.4	57.7	-0.10	4.5	1.1	12	TG
TVW27E	66.6 X	67.6 X	66.5 X	63.7 *	66.1	3.47 X	2.7	1.7	65.5	2.99 X	3.9	1.6	12	LC
UJEWCN	56.8	54.6	57.2	57.8	56.6	-0.44	3.9	1.4	57.3	-0.25	4.0	1.3	12	LC
WRLBAA	63.4 *	59.6	61.5 H	60.9	61.3	1.50	5.0	1.6	61.3	1.34	5.0	1.6	4	EM
XG4W78	61.2	61.9	61.0	63.0 *	61.8	1.68	3.2	0.9	63.3	2.13 *	4.1	3.3	12	MB
Y89BDE	59.6	62.3	61.6	57.4	60.2	1.04	4.0	2.2	59.1	0.45	4.3	2.1	12	LC
YHPRU6	60.5	61.3	60.6	59.4	60.4	1.13	3.5	0.8	61.7	1.47	3.4	2.0	11	LD
YLNDV3	59.4	57.0	60.4	57.5	58.6	0.36	3.9	1.6	58.3	0.15	3.4	1.8	12	LD
YYE6KD	57.9	58.6	57.5	No Data	58.0	0.14	4.0	0.6	58.4	0.18	4.1	1.4	9	LD

Consensus (All Labs) Results

Wk Mean	58.03	57.91	57.60	57.33	Month Mean	57.69	Grand Mean	57.94
Avg SDr	3.73	3.66	3.42	3.66	Avg SD	3.62	Avg SD	3.60
SD btwn Labs	2.67	2.79	2.76	2.89	SD btwn Labs	2.43	SD btwn Labs	2.53
Labs Incld	47	47	47	47	SD btwn Wks	1.48	SD btwn Wks	1.72
Labs Excld	3	3	2	1	Labs Incld	47	Labs Incld	47
Labs not Rcvd	0	0	1	2				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 250

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

TAPPI Official Test Method T843

Report #597 (F)
June 2019

	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
6XNHLB	68.2	67.6	70.2	71.3	69.3	0.63	3.0	1.7	68.4	0.09	3.2	1.6	12	LZ
8JRPRY	66.7	67.3	68.3	67.7 L	67.5	-0.13	1.8	0.7	67.1	-0.49	2.2	1.1	12	LZ
8XFFMG	65.6	66.5	66.4	66.1	66.2	-0.70	2.5	0.4	65.7	-1.19	2.4	0.7	12	LD
98G3ED	67.4	66.5	63.9	67.0	66.2	-0.67	3.3	1.6	66.3	-0.88	3.7	1.5	12	LD
A9BKX9	71.0	65.7	63.1	61.4 *	65.3	-1.06	3.2	4.2 H	66.2	-0.93	3.2	2.8	12	TH
GM7X4B	68.1 H	67.5	67.9	68.5	68.0	0.07	4.4	0.4	69.7	0.70	3.9	2.6	12	LD
GVV6UM	68.4	68.1 L	68.1 L	68.4 L	68.2	0.18	1.3	0.2 L	70.4	1.01	1.2	2.4	12	LD
JNR3HL	70.5	66.7	67.8	71.3	69.1	0.52	3.8	2.2	69.8	0.76	3.9	2.2	12	LD
JRQDDL	70.3	66.5	70.7	67.5 H	68.7	0.38	4.2	2.1	68.8	0.27	4.1	2.1	12	LD
KP3MZZ	68.8	70.5	67.0	65.8 H	68.0	0.09	4.7	2.1	68.1	-0.07	4.5	1.6	12	LZ
LRJQAC	69.4	69.4	69.6	68.4	69.2	0.58	2.5	0.5	69.7	0.68	2.5	0.7	12	LD
RTQAGM	67.6 L	66.2 L	66.2 L	68.2 L	67.1	-0.32	1.1	1.0	68.6	0.20	2.3	2.1	12	TD
RXL4C3	70.0	71.9	73.0	75.5 *	72.6	2.00 *	3.5	2.3	72.6	2.07 *	3.7	1.7	12	LD
UJEWCN	61.0 XH	60.9 *H	62.8	64.7	62.3	-2.30 *	4.9	1.8	64.1	-1.89 *	3.9	1.9	12	LD
XG4W78	64.8 *	65.1	63.7	63.4	64.2	-1.51	2.0	0.8	64.6	-1.68	2.7	1.5	12	MB
Y89BDE	70.4	68.3	72.6	70.2	70.3	1.06	3.7	1.8	69.8	0.74	3.4	1.6	12	LC
YHPRU6	71.7	72.8 *	68.8	68.8	70.5	1.14	3.4	2.1	69.6	0.67	3.3	1.7	11	LD
YLNDV3	66.4	66.0	66.5 L	67.4	66.6	-0.53	3.5	0.6	67.2	-0.46	3.2	1.8	12	LD
YYE6KD	69.6	68.8	No Data	No Data	69.2	0.57	3.9	0.6	69.1	0.41	3.5	1.2	8	LD

Consensus (All Labs) Results

Wk Mean	68.61	67.49	67.58	67.87	Month Mean	67.82	Grand Mean	68.20
Avg SDr	2.97	3.59	3.05	3.59	Avg SD	3.37	Avg SD	3.29
SD btwn Labs	1.92	2.62	3.01	3.15	SD btwn Labs	2.38	SD btwn Labs	2.15
Labs Incld	18	19	18	18	SD btwn Wks	1.72	SD btwn Wks	1.81
Labs Excld	1	0	0	0	Labs Incld	19	Labs Incld	19
Labs not Rcvd	0	0	1	1				

Key to Instrument Codes Reported by Participants

LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76

Containerboard Interlaboratory Testing Program

Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM11

TAPPI Official Test Method T822

Report #597 (F)
June 2019

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
3LGCG7	45.9	41.4	43.6	43.6	43.6	0.80	2.7	1.8	43.6	0.87	2.7	1.8	4	LZ
4TBRPB	43.8	44.1	43.8 L	43.5	43.8	0.85	2.1	0.2 L	43.0	0.64	2.1	0.9	12	TH
4VZ79T	41.8	No Data	33.0	40.6	38.5	-0.65	3.9	4.7 H	39.3	-0.79	4.4	4.5 H	10	MB
9LV3TX	32.9 *	35.7	32.7	34.6	34.0	-1.91 *	2.9	1.5	37.2	-1.59	2.1	3.2	12	TU
AC7FEM	43.4	40.0	42.9	46.6	43.2	0.69	2.3	2.7	42.4	0.42	2.6	1.6	12	LD
AF7RBM	33.7	35.8	35.9	33.6	34.8	-1.69	2.4	1.3	37.3	-1.55	2.2	2.9	8	TH
BF4E9C	43.8	44.6	46.0	44.5	44.7	1.11	4.4	0.9	44.6	1.27	5.0	0.8	8	XX
BKVLRK	42.2	42.3	42.8	41.9	42.3	0.44	2.1	0.4	43.7	0.91	2.1	1.3	12	LC
CGT37X	40.3	40.0	42.8 H	48.0	42.8	0.56	4.6	3.7 H	42.8	0.56	3.9	2.3	12	LC
E3JB9H	43.4	40.3	39.9	43.1	41.7	0.25	3.6	1.8	41.3	-0.03	3.4	1.4	12	LZ
ECU9HV	36.8 H	35.6	35.6	34.5	35.6	-1.44	5.6	1.0	34.8	-2.52 *	5.8	1.1	12	TC
EG2YML	33.6 *H	33.9 *H	33.9 H	34.8 H	34.1	-1.89	6.9	0.5	38.0	-1.28	5.9	3.0	12	TX
EV3Q9Q	45.2	45.1	45.7	45.6	45.4	1.30	2.2	0.3 L	45.5	1.60	2.8	0.2 L	12	LD
FRGTB7	44.5	41.2	46.0	45.1	44.2	0.96	2.9	2.1	43.4	0.81	2.8	1.6	12	LD
GHPAC7	38.3	43.7	38.8	38.0	39.7	-0.30	3.7	2.7	40.2	-0.43	3.3	1.7	12	LD
J8J4DN	42.9	41.9	43.0	44.5	43.1	0.65	3.0	1.1	42.1	0.31	3.0	1.4	12	LD
JNR3HL	44.3	43.4	44.0	42.1	43.4	0.75	2.4	1.0	42.7	0.52	2.3	1.4	12	LD
JRQDDL	42.8	39.0	42.8 L	39.8	41.1	0.09	2.3	2.0	41.6	0.10	2.9	1.4	12	LD
LRJQAC	41.4	42.2	42.1	42.0	41.9	0.32	2.9	0.4	42.3	0.37	2.5	0.6	12	LD
MDDC6K	38.4	39.8	41.1	39.4	39.7	-0.31	3.0	1.1	39.6	-0.66	3.1	1.2	12	EM
NFVXBD	42.2	40.6	36.4	36.4	38.9	-0.52	2.5	2.9	41.2	-0.04	3.2	2.7	12	LZ
PEE49H	42.2	43.0	42.9	42.5	42.7	0.53	2.5	0.4	42.4	0.43	2.7	0.4 L	12	LD
TVW27E	33.6 *	33.2 *	32.7	32.8	33.1	-2.17 *	2.9	0.4	32.6	-3.37 X	3.0	1.0	12	XX
WRLBAA	39.4	41.8	43.7	37.0	40.5	-0.08	3.6	2.9	40.5	-0.34	3.6	2.9	4	LC
XG4W78	38.6	41.1	39.1	40.5	39.8	-0.27	2.7	1.2	37.8	-1.38	2.7	2.3	12	MB
Y89BDE	41.6	43.1	44.6	42.8	43.0	0.63	3.3	1.2	43.4	0.81	2.8	1.7	12	LC
YLNDV3	42.5	40.5	42.3	41.4	41.7	0.25	2.9	0.9	41.1	-0.09	3.4	1.3	12	LD
YYE6KD	44.3	44.7	No Data	No Data	44.5	1.05	3.0	0.3	44.1	1.08	3.6	1.1	8	LD

Consensus (All Labs) Results

Wk Mean	40.84	40.68	40.67	40.71	Month Mean	40.77	Grand Mean	41.34
Avg SDr	3.50	3.31	3.46	3.17	Avg SD	3.36	Avg SD	3.38
SD btwn Labs	3.77	3.28	4.27	4.21	SD btwn Labs	3.56	SD btwn Labs	2.59
Labs Incld	28	27	27	27	SD btwn Wks	1.85	SD btwn Wks	1.98
Labs Excld	0	0	0	0	Labs Incld	28	Labs Incld	27
Labs not Rcvd	0	1	1	1				

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

	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
24LZ8Q	13.6	14.0	13.1	13.1	13.5	0.44	1.0	0.5	13.9	1.35	0.9	0.6	12	LB
3LGCG7	13.3 H	13.5	12.0 *	12.9 L	12.9	-0.73	1.1	0.7	13.1	-0.35	1.1	0.5	12	LA
4VZ79T	No Data	20.4 X	No Data	14.9 XH	17.6	9.90 X	1.4	3.9	16.1	6.33 X	1.1	3.0 H	9	LA
AC7FEM	13.6	14.4 L	13.8	14.2 *	14.0	1.68	0.8	0.4	13.7	0.88	1.0	0.5	12	LZ
AEYTDD	13.7 L	13.5	13.6	13.1	13.5	0.48	0.9	0.3	13.1	-0.30	0.9	0.4	12	LA
AF6PRA	51.7 X	12.8	No Data	12.6 H	25.7	28.19 X	1.0	22.6 H	16.5	7.27 X	1.4	11.7 H	11	LA
B9GLXC	14.0	13.9	14.2	12.7	13.7	0.97	0.8	0.7	13.9	1.36	0.8	0.5	12	TT
BKVLRK	13.3	13.4	13.2	13.4	13.3	0.17	1.0	0.1	12.6	-1.44	0.9	0.7	12	LB
E3JB9H	13.2	13.0	13.3	12.2	12.9	-0.77	1.0	0.5	12.9	-0.96	1.0	0.4	12	LA
ECU9HV	12.1 *	12.9	12.8	12.9 H	12.7	-1.25	1.2	0.4	12.8	-1.00	1.0	0.3	12	TS
EG2YML	12.1 *	12.2 L	12.5	12.2	12.3	-2.28 *	0.9	0.2	12.3	-2.17 *	1.0	0.2	12	TT
F8W7XR	13.7	13.6	13.1	12.8	13.3	0.14	1.0	0.4	13.4	0.25	2.3	0.5	12	LB
GHPAC7	12.7	12.3	12.7	13.0 L	12.6	-1.39	0.8	0.3	12.9	-0.85	1.0	0.5	12	LZ
GM7X4B	12.6	13.2	13.6	13.0	13.1	-0.42	0.8	0.4	13.7	0.91	0.8	0.7	12	LB
GVV6UM	13.3 L	13.4 L	13.2 L	13.2	13.3	0.00	0.5	0.1	13.7	1.03	1.9	0.6	12	LA
H62PP9	14.1	14.1	14.2	13.9	14.0	1.79	1.1	0.1	14.1	1.95 *	1.1	0.2	12	LU
JRQDDL	13.1	14.8 *	13.8	13.6	13.8	1.30	1.0	0.7	13.5	0.44	1.1	0.5	12	LA
JZEABF	12.6	12.6 H	13.3	13.6	13.0	-0.52	1.1	0.5	12.9	-0.90	1.0	0.4	12	LH
LDYB7D	13.0	12.8 L	12.8	13.1	12.9	-0.75	0.8	0.2	13.1	-0.40	0.8	0.3	12	LH
LRJQAC	13.2	13.1	13.1	13.2	13.2	-0.24	0.8	0.1 L	13.2	-0.11	0.9	0.1 L	12	LB
MYCKKF	13.1	13.0 H	13.2	13.2	13.1	-0.31	1.1	0.1	13.1	-0.36	1.1	0.4	12	LA
RTQAGM	19.5 X	20.0 X	20.0 XH	20.2 X	19.9	15.05 X	1.2	0.3	18.0	10.65 X	1.7	3.6 H	12	XX
THR7ZC	13.3	13.6	13.3	13.4	13.4	0.27	1.0	0.1	13.5	0.56	1.0	0.3	12	LA
UJEWCN	13.6	12.9 L	13.3	12.6	13.1	-0.34	0.9	0.4	13.1	-0.51	1.0	0.4	12	LA
Y89BDE	14.0	13.9	13.7	13.6	13.8	1.13	1.0	0.2	13.5	0.56	1.0	0.3	12	LU
YYE6KD	13.6	13.8	13.3	No Data	13.5	0.62	1.1	0.3	13.3	0.05	1.2	0.3	9	LB

Consensus (All Labs) Results

Wk Mean	13.25	13.35	13.26	13.11	Month Mean	13.26	Grand Mean	13.28
Avg SDr	0.98	0.96	0.99	0.92	Avg SD	0.96	Avg SD	1.13
SD btwn Labs	0.54	0.65	0.51	0.49	SD btwn Labs	0.44	SD btwn Labs	0.44
Labs Incld	23	24	23	23	SD btwn Wks	0.38	SD btwn Wks	0.44
Labs Excld	2	2	1	2	Labs Incld	23	Labs Incld	23
Labs not Rcvd	1	0	2	1				

Key to Instrument Codes Reported by Participants

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

End of Report