Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #583 (D) - April 2018

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	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.

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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'.

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
3HHE4E	569.1	-0.25	26.40		566.9	-0.29	12.23	4	LM
3XAETT	570.0	-0.22	17.79		557.7	-0.60	9.98	4	LG
4YJP2G	510.6	-2.08 *	15.39		506.5	-2.29 *	10.99	4	TB
CT7RUM	558.2	-0.59	51.47	H	549.5	-0.87	6.98	4	ER
EV8FN3	647.2	2.21 *	24.97		639.9	2.11 *	17.22	4	ER
F3JNDP	592.0	0.47	13.14		608.0	1.06	46.26 H	4	LG
HAUW4B	564.6	-0.39	12.10		588.6	0.42	36.67	4	LG
HDRF6A	566.8	-0.32	10.52		553.8	-0.72	12.74	4	LM
HGUBQX	582.4	0.17	39.22		578.2	0.08	7.47	4	ER
HP3V42	598.0	0.66	44.08		579.5	0.12	16.29	3	LS
HTL3C2	541.2	-1.12	24.24		540.0	-1.18	9.57	4	LL
HZ4HVY	599.9	0.72	19.46		598.5	0.75	10.11	4	ET
JNQFAZ	576.8	0.00	16.50		566.8	-0.30	8.38	4	TE
JYRYV2	581.0	0.13	18.61		617.3	1.37	40.25	4	LG
KEVW9X	559.6	-0.54	55.21	H	566.1	-0.32	13.38	4	LL
L7GN42	549.1	-0.87	17.18		542.1	-1.11	7.81	4	LS
PRKMVW	652.5	2.38 *	24.16		631.6	1.84	38.23	4	LH
RR2BFN	557.6	-0.61	33.53		584.4	0.28	22.76	4	EX
RYZZU8	591.4	0.46	10.45		590.1	0.47	11.48	4	ES
TQMA7U	468.0	-3.42 X	46.25		468.0	-3.56 X	0.00	1	EX
TWNKZ7	578.6	0.05	12.99		580.2	0.14	12.35	4	ER
TXHDPX	593.6	0.53	23.51		578.4	0.08	30.06	4	LS
VBHVFM	546.9	-0.94	25.76		543.4	-1.07	12.42	4	LL
VWJCXJ	526.8	-1.57	24.49		538.8	-1.22	12.29	4	EX
VXEXPP	608.1	0.98	12.78		597.6	0.72	14.76	2	TC
YEPEBL	573.2	-0.12	29.14		585.7	0.33	22.32	3	EX
ZMK9X6	604.0	0.85	10.49		581.8	0.20	17.19	4	ET

Consensus (All Labs) Results

Month Mean	576.89	Grand Mean	575.81
Avg SD	26.52	Avg SD Months	20.84
SD btwn Labs	31.85	SD btwn Labs	30.33
Labs Incld	26	Labs Incld	26

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	557.90	23.66	18.99	7
Clip sealing	583.89	32.10	7.00	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
TC	TMI Monitor/Compression Tester, Model 17-37	TE	Testometric M500 - 25 KN

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Analysis 202

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
3XAETT	40.3	1.10	1.06		40.2	0.99	0.06 L	4	TH
7CG7Z2	37.1	0.22	0.99		38.2	0.33	1.32	4	TD
7WLCDF	29.0	-2.02 *	1.02		31.4	-1.92 *	1.99	4	WK
CT7RUM	36.1	-0.06	2.20		35.9	-0.44	2.06	4	EN
HAUW4B	39.0	0.74	2.10		40.7	1.14	1.16	4	LE
L7GN42	39.1	0.76	1.46		40.0	0.92	0.97	4	LC
TXHDPX	31.2	-1.42	1.27		34.6	-0.86	2.69	4	EM
VWJCXJ	38.2	0.52	1.75		37.9	0.22	1.09	4	LC
WA6NRK	35.2	-0.29	4.65 H		34.5	-0.90	0.66	3	XX
XEE4YN	37.9	0.45	2.12		38.8	0.52	1.32	4	LC

Consensus (All Labs) Results

Month Mean	36.29	Grand Mean	37.21
Avg SD	2.13	Avg SD Months	1.51
SD btwn Labs	3.63	SD btwn Labs	3.04
Labs Incld	10	Labs Incld	10

Key to Instrument Codes Reported by Participants

EM	Emerson 1200 Series	EN	Emerson 2200
LC	L&W Crush Tester 48	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	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3HHE4E	44.1	1.05	1.69		43.4	0.90	1.23	4	TG
3XAETT	41.8	0.17	1.14		41.8	0.21	1.01	4	TH
3YLZKE	41.0	-0.15	1.82		40.5	-0.35	0.39	4	LD
4YJP2G	47.2	2.25 *	0.64	L	47.1	2.55 *	2.55	4	LD
7CG7Z2	39.7	-0.64	0.95		41.3	0.01	1.24	4	TD
7WLCDF	36.4	-1.91	1.60		38.1	-1.40	1.64	4	WK
8MEUFH	38.7	-1.04	1.10		40.5	-0.33	1.28	4	TK
ALT3GG	38.4	-1.12	1.47		38.7	-1.12	0.99	4	LD
BVGFUL	42.4	0.40	2.01		39.7	-0.69	1.89	4	LD
CT7RUM	35.9	-2.09 *	3.16	H	37.6	-1.64	1.46	4	EN
EV8FN3	38.1	-1.25	0.74		38.4	-1.27	0.59	4	EM
F3JNDP	41.2	-0.07	1.15		40.7	-0.28	0.43	4	MK
F4VTZ8	35.7	-2.16 *	2.00		37.6	-1.61	1.85	4	EM
FWDRUP	39.0	-0.92	0.54	L	36.5	-2.09 *	1.71	4	KS
HAUW4B	41.4	0.02	1.48		41.7	0.19	0.47	4	LY
HDRF6A	44.4	1.17	1.62		43.9	1.12	0.61	4	EM
HP3V42	41.8	0.17	1.14		42.4	0.47	2.98	4	TB
HTL3C2	39.7	-0.66	1.47		41.0	-0.12	0.92	4	LC
HZ4HVY	42.6	0.49	1.26		43.0	0.76	0.64	4	TD
JNQFAZ	40.5	-0.33	1.09		41.9	0.27	1.10	4	LD
JYRYV2	40.2	-0.45	1.34		41.1	-0.11	1.03	4	EM
KRH47X	44.0	1.00	1.38		42.7	0.61	1.89	4	LC
L7GN42	42.4	0.42	1.60		42.9	0.68	0.71	4	LC
N6YD4Y	45.0	1.42	1.56		45.2	1.72	1.08	4	TG
NYTGKY	39.8	-0.59	1.45		40.2	-0.46	0.55	4	LD
PRKMVW	45.4	1.56	2.68	H	44.5	1.42	1.18	4	EM
QVM9FU	41.5	0.07	1.20		41.8	0.24	0.45	4	EM
RR2BFN	42.8	0.54	0.55	L	40.9	-0.19	1.30	4	LD
RYZZU8	39.4	-0.77	1.77		40.7	-0.26	1.46	4	LD
TQMA7U	46.2	1.86	2.43		41.8	0.24	4.39 H	4	CT
TWNKZ7	39.3	-0.81	2.24		39.0	-1.01	2.62	4	LD
TXHDPX	39.4	-0.77	1.68		40.5	-0.33	0.89	4	EM
VBHVFM	40.6	-0.29	0.86		41.0	-0.15	0.60	4	BU
VQWP4D	44.2	1.10	0.97		43.0	0.75	1.38	4	TD
VWJCXJ	33.4	-3.08 X	1.68		35.3	-2.61 *	1.84	4	LC
W6AQL3	40.4	-0.36	0.95		41.0	-0.12	0.40	4	LD
W8ED2R	40.3	-0.41	0.93		41.9	0.26	1.37	4	LC
WDMWZK	43.7	0.89	1.33		42.4	0.49	1.73	2	LC
WWXQRR	41.6	0.10	1.70		40.4	-0.37	2.84	4	TD

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Analysis 203

Edgewise Compressive Strength by T839, Corrugated Board - EC10

TAPPI Official Test Method T839

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	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
X73X8R	42.5	0.42	1.65		43.1	0.79	1.51	4	TD
XEE4YN	42.4	0.39	0.59	L	43.1	0.78	2.30	4	LC
YEPEBL	43.8	0.93	0.58	L	43.9	1.12	0.13	L 4	TL
ZEN4TN	42.6	0.47	1.92		42.7	0.63	0.35	3	LC
ZMK9X6	41.1	-0.11	0.88		41.9	0.28	1.05	4	EM

Consensus (All Labs) Results

Month Mean	41.35	Grand Mean	41.30
Avg SD	1.51	Avg SD Months	1.56
SD btwn Labs	2.59	SD btwn Labs	2.29
Labs Incld	43	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	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

Report #583 (D)
April 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
2XR74X	109.1	111.4	106.6	110.9	109.5	0.15	10.1	2.2	108.5	-0.21	10.8	3.6	16	LC
3YLZKE	111.4	112.1	112.2	111.5	111.8	0.67	8.6	0.4 L	112.0	0.75	8.8	0.8 L	16	LA
48EL9R	112.1	108.6	106.2	107.5	108.6	-0.05	11.8	2.5	108.5	-0.20	10.7	3.2	16	LC
4BV9JC	100.9	105.5	104.3	102.3	103.3	-1.25	11.8	2.1	103.5	-1.56	11.3	8.7 H	15	LA
6CL273	111.4	111.5	121.7 *	124.6 X	117.3	1.92	13.3	6.9	116.5	1.97	*14.0	7.3	16	LA
6U4VKB	110.6	112.8	113.7	112.2	112.4	0.80	10.5	1.3	113.7	1.21	12.1	4.2	16	LA
83R9XF	106.9 L	111.4 L	109.6 L	112.6 L	110.1	0.30	3.7	2.5	108.9	-0.08	3.9	2.1	16	XX
87NRYD	104.6	110.0	111.1	107.3	108.2	-0.13	10.4	2.9	108.2	-0.27	10.4	2.9	4	LC
ALT3GG	107.8	108.7	103.7	101.5	105.4	-0.76	9.2	3.4	105.3	-1.06	8.7	2.3	16	LA
BVGFUL	107.0	108.3	106.1	110.5	108.0	-0.18	11.5	1.9	106.6	-0.71	11.4	4.3	16	LC
BZVTYF	109.6	110.3	117.4	112.3	112.4	0.81	12.2	3.6	112.4	0.85	12.3	4.1	16	TB
D8FXKC	119.4 *	111.7	123.2 *	115.7	117.5	1.95 *	13.8	4.9	116.7	2.02	*13.2	3.5	14	LA
DG6P84	116.1	110.8	111.2	113.0	112.8	0.89	10.8	2.4	110.9	0.46	9.6	3.8	8	LA
EMTTDD	102.1	107.3	100.0	109.5	104.7	-0.92	11.1	4.4	105.8	-0.94	11.1	3.3	16	LC
EQCNF7	107.0	108.4	105.4	106.6	106.9	-0.44	11.4	1.2	111.1	0.50	11.8	6.6	15	AH
FU73EE	109.6	105.8	102.5	106.0	106.0	-0.63	12.2	2.9	106.5	-0.74	9.6	2.5	16	LA
G4NZJB	104.4	105.1	103.2	105.8	104.6	-0.94	9.1	1.1	108.0	-0.32	9.3	2.9	16	LB
H6JT93	108.1	108.6	109.5	108.0	108.6	-0.06	5.9	0.7	108.9	-0.09	5.2	0.8 L	16	AH
HAUW4B	114.3	112.2	111.9	111.9	112.6	0.86	12.9	1.2	113.4	1.12	12.1	3.0	16	LZ
HGUBQX	107.5	105.4	101.1	108.2	105.6	-0.73	13.6	3.2	104.3	-1.33	15.2	4.2	16	LZ
HP93EA	105.1	109.3	106.5	105.6	106.6	-0.50	14.4	1.9	106.7	-0.69	13.1	2.7	16	LA
HX3BXF	No Data	113.8	110.8	106.5	110.4	0.35	10.7	3.7	109.9	0.19	10.7	2.4	15	TB
L7GN42	104.1	101.4	103.3	99.5	102.1	-1.51	9.8	2.1	103.7	-1.49	11.1	3.5	16	AH
M3XT29	108.9	111.6	108.9	107.2	109.2	0.08	9.8	1.8	109.1	-0.03	9.6	2.0	16	LA
MJMX93	105.9	107.0	103.8	106.7	105.9	-0.66	9.5	1.4	108.1	-0.30	10.4	4.2	16	LA
NYTGKY	115.3	120.2 *	116.4	113.2 H	116.3	1.68	13.5	2.9	115.7	1.75	13.2	4.3	16	LC
P2TWMV	108.4	109.7	108.5	107.9	108.6	-0.04	5.8	0.8	108.7	-0.13	5.3	1.2	9	TP
R3HXPN	107.1	108.3	111.4	115.6	110.6	0.40	9.1	3.8	108.8	-0.13	9.1	3.5	16	LC
RPVZDT	110.9	108.4	107.4	105.6	108.1	-0.16	11.3	2.2	108.5	-0.21	12.1	4.1	16	LC
RR2BFN	93.0 X	95.0 X	95.0 *	111.2	98.6	-2.31 *	10.4	8.5 H	108.4	-0.22	13.4	8.5 H	14	AH
RTRJEQ	106.0	108.0	106.0	105.0	106.3	-0.57	5.8	1.3	107.6	-0.44	6.0	1.6	16	RE
RYZZU8	106.9	107.7	105.3	112.4	108.1	-0.16	9.7	3.1	107.6	-0.44	10.1	2.1	16	LA
T49JTY	118.4	116.4	111.7	120.7 *	116.8	1.80	11.1	3.8	114.0	1.28	9.6	3.9	16	TB
TNJDL7	105.3	98.3 *	105.9	100.9	102.6	-1.40	10.4	3.6	104.3	-1.33	9.5	4.1	16	LC
TQMA7U	115.5	112.1	111.6	114.8	113.5	1.06	12.0	1.9	114.1	1.31	12.1	3.1	16	XX

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
TWNKZ7	108.4	105.5	108.2	105.0	106.8	-0.46	12.2	1.8	106.1	-0.85	10.4	2.8	16	AH
TXHDPX	109.1	108.1	116.2	105.3	109.7	0.20	10.1	4.6	109.4	0.04	10.4	2.7	16	LA
U6Y6YV	109.8	109.5	109.8	110.0	109.8	0.22	8.5	0.2 L	109.1	-0.02	8.3	2.2	16	LJ
W9AW3U	105.5	107.1	108.4	102.2	105.8	-0.68	6.4	2.7	108.9	-0.08	11.4	3.9	16	LC
WDMWZK	113.2	112.9	117.4	108.6	113.0	0.95	12.6	3.6	112.9	0.98	13.2	3.0	8	LA
WMVB7T	99.2 *	98.1 *	103.7	104.2	101.3	-1.69	8.7	3.1	104.9	-1.16	8.6	3.8	16	LA
WTYAGH	118.3	109.6	109.7	110.3	112.0	0.72	12.8	4.2	112.3	0.82	12.2	5.7	16	LJ
WV4BRB	91.2 X	86.2 X	91.8 X	92.0 X	90.3	-4.16 X	8.4	2.8	100.9	-2.24 *	9.8	7.8	16	XX
X942WT	118.0	No Data	No Data	113.1	115.6	1.53	10.6	3.5	114.5	1.43	11.9	3.2	14	LZ
XF9Z8H	110.6	107.8	113.5	107.7	109.9	0.24	12.3	2.7	110.7	0.41	12.1	3.3	16	LZ
XTEWPY	84.7 X	104.5	106.3	102.9	99.6	-2.07 *	10.4	10.0 H	104.7	-1.24	9.9	6.0	16	LC
XWE8KY	110.8 H	106.1	104.9	105.2	106.8	-0.46	13.1	2.8	104.3	-1.32	12.7	5.4	13	LC
YAUM3P	107.9	116.6	111.8	96.5 *L	108.2	-0.14	10.5	8.6 H	112.2	0.80	10.4	5.3	16	LC
Z2GVDQ	115.8	114.9	115.9	118.4 *	116.3	1.68	11.4	1.5	116.3	1.91	11.4	1.5	4	AX
ZJ3GXG	109.1	109.2	109.2	109.6 L	109.3	0.11	6.0	0.2 L	109.4	0.06	5.6	0.3 L	16	LA
ZQYKGK	100.6 L	114.6	103.8	107.9	106.7	-0.47	6.3	6.0	109.0	-0.05	8.8	6.5	12	AH

Consensus (All Labs) Results

Wk Mean	109.23	109.22	108.82	108.43	Month Mean	108.80	Grand Mean	109.22
Avg SDr	10.71	10.63	10.47	10.73	Avg SD	10.66	Avg SD	10.72
SD btwn Labs	4.78	4.19	5.48	4.81	SD btwn Labs	4.44	SD btwn Labs	3.70
Labs Incld	47	48	49	49	SD btwn Wks	3.64	SD btwn Wks	4.14
Labs Excld	3	2	1	2	Labs Incld	50	Labs Incld	51
Labs not Rcvd	1	1	1	0				

Key to Instrument Codes Reported by Participants

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		

Containerboard Interlaboratory Testing Program
Analysis 207
Bursting Strength (Mullen), 35 lb Linerboard - 35E1
TAPPI Official Test Method T807

Report #583 (D)
April 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
2XR74X	93.6	93.1	90.8	91.6	92.3	0.12	8.0	1.3	93.5	0.51	7.0	2.6	12	LC
3YLZKE	92.3	93.2	93.4	93.9	93.2	0.37	6.3	0.7	93.3	0.44	6.0	0.8 L	12	LA
48EL9R	94.6	88.9	88.1	93.4	91.3	-0.16	9.1	3.2	91.6	-0.19	7.8	2.3	12	LC
4BV9JC	92.6	92.5	89.7	87.4	90.5	-0.36	7.1	2.5	90.9	-0.42	8.5	1.8	12	LA
6CL273	88.0	90.4	96.7	115.5 X	97.6	1.58	8.6	12.4 H	95.4	1.17	8.9	7.2 H	12	XX
6U4VKB	90.6	90.9	92.0	93.0	91.6	-0.06	10.0	1.1	94.4	0.82	10.2	3.2	12	LA
83R9XF	87.1	88.4	92.1	92.5	90.0	-0.49	5.0	2.7	91.0	-0.38	4.7	2.8	12	XX
87NRYD	90.9	93.0	93.7	92.1	92.4	0.17	10.2	1.2	92.4	0.13	10.2	1.2	4	LC
ALT3GG	90.1	89.4	83.7 X	88.8	88.0	-1.05	6.5	2.9	86.1	-2.13 *	6.6	2.7	12	LA
BVGFUL	87.6	86.2	89.0	95.9	89.7	-0.58	8.9	4.3	89.2	-1.01	9.0	3.0	12	LC
BZVTYF	96.9	96.4	91.8	95.5	95.2	0.91	9.2	2.3	95.0	1.02	8.7	1.7	12	TB
D8FXKC	96.2	98.2	97.3	96.6	97.1	1.43	8.7	0.9	97.9	2.05 *	9.6	3.1	11	LA
DG6P84	91.5	97.5	92.9	94.5	94.1	0.61	8.6	2.6	93.3	0.42	8.8	2.8	12	LA
EMTTDD	87.3	86.0	90.4	90.5	88.6	-0.90	9.1	2.3	90.3	-0.64	8.1	4.5	12	LA
EQCNF7	96.8	91.2	91.4	94.2	93.4	0.43	9.3	2.6	94.8	0.97	9.1	3.8	8	AH
FU73EE	90.7	88.7	94.8	88.0	90.5	-0.36	7.3	3.1	88.8	-1.17	7.8	3.0	12	LA
G4NZJB	88.8	90.4	88.3	90.9	89.6	-0.61	5.0	1.2	90.3	-0.62	6.3	1.7	12	LB
H6JT93	89.5	87.8	89.5	89.6	89.1	-0.75	4.4	0.9	89.7	-0.85	4.4	1.0	12	AH
HAUW4B	97.3	99.5	93.3	97.6	96.9	1.39	8.7	2.6	95.9	1.34	9.1	3.3	11	LZ
HGUBQX	86.8	89.4	89.6	81.9 *	86.9	-1.35	9.0	3.6	87.3	-1.71	8.0	2.2	12	LA
HP93EA	91.2	88.0	94.4	90.6	91.1	-0.21	8.5	2.7	89.7	-0.83	9.1	2.0	12	LA
HX3BXF	No Data	93.4	91.7	94.6	93.2	0.38	8.6	1.5	94.7	0.93	8.4	3.5	11	TB
L7GN42	89.9	88.4	89.2	85.6	88.3	-0.97	8.2	1.9	87.6	-1.60	8.3	2.9	12	AH
M3XT29	91.4	88.8	92.4	91.4	91.0	-0.23	8.2	1.5	92.1	0.01	7.3	1.9	12	LA
MJMX93	88.8	87.7	91.5	95.7	90.9	-0.26	7.2	3.6	89.8	-0.81	6.8	2.6	12	LA
NYTGKY	92.5	98.6	95.6	95.5	95.6	1.01	9.3	2.5	95.1	1.07	8.7	2.9	12	LC
P2TWMV	88.2	89.2	88.9	90.1	89.1	-0.75	4.3	0.8	89.7	-0.84	4.3	1.5	5	TP
RPVZDT	94.8	94.4	97.5	95.0	95.4	0.98	8.9	1.4	94.2	0.76	9.4	2.7	12	LC
RR2BFN	75.5 X	81.0 *	81.5 X	91.6	82.4	-2.58 *	9.5	6.7 H	90.1	-0.69	8.7	7.1 H	12	AH
RTRJEQ	93.6	93.0	93.0	93.4	93.3	0.39	6.9	0.3 L	95.3	1.14	5.4	1.8	12	RE
RYZZU8	90.2	89.3	93.8	93.0	91.6	-0.07	8.7	2.2	90.2	-0.67	7.9	2.5	12	LA
T49JTY	103.5 X	103.2 *	97.6	107.1 *	102.9	3.01 X	7.6	3.9	101.0	3.16 X	7.8	3.7	12	TB
TNJDL7	91.7	88.0	89.3	80.1 *	87.3	-1.25	8.5	5.0	90.5	-0.55	8.4	6.7	12	LC
TQMA7U	97.3	101.7 *	94.4	95.6	97.3	1.48	8.5	3.2	95.5	1.20	8.8	2.6	12	XX
TWNKZ7	89.0	89.9	89.4	87.2	88.9	-0.81	7.0	1.2	89.0	-1.10	7.5	2.5	12	AH

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
TXHDPX	100.2 *	93.8	95.9	101.5	97.9	1.65	7.5	3.6	94.0	0.68	8.1	4.1	12	LA
U6Y6YV	92.5	92.2	92.5	92.4	92.4	0.15	8.0	0.1 L	92.3	0.07	6.7	0.2 L	12	LJ
W9AW3U	92.9	90.0	91.7	90.7	91.3	-0.14	9.7	1.3	92.4	0.12	8.4	2.3	12	LC
WDMWZK	99.5 *	93.3	98.9 *	96.6	97.1	1.43	8.1	2.8	93.6	0.55	8.8	4.5	12	LA
WMVB7T	87.2	80.9 *	82.8 X	84.0	83.7	-2.21 *	5.1	2.6	87.9	-1.47	6.3	4.4	12	LA
WV4BRB	105.7 X	106.5 X	107.5 X	105.8 *	106.4	3.97 X	9.8	0.8	96.6	1.60	8.3	7.8 H	12	XX
X942WT	101.4 *	No Data	No Data	93.4	97.4	1.52	8.9	5.7	97.6	1.96 *	9.1	3.3	10	LZ
XF9Z8H	90.9	92.0	94.1	91.9	92.2	0.11	9.8	1.3	92.1	0.03	8.7	2.3	12	LZ
XTEWPY	84.7	83.1	89.2	90.8	87.0	-1.33	8.4	3.6	88.2	-1.37	7.5	3.0	12	LA
XWE8KY	89.1	89.3	92.4	82.1	88.2	-0.98	7.9	4.3	90.2	-0.67	9.2	5.2	12	LC
YAUM3P	94.8	94.8	94.7	106.1 *	97.6	1.57	8.0	5.7	93.9	0.63	7.9	4.5	12	LC
Z2GVDQ	90.8	96.1	93.3	91.3	92.9	0.28	7.6	2.4	92.8	0.26	7.9	1.9	8	AX
ZJ3GXG	92.5 L	92.2	92.4 L	92.8 L	92.5	0.18	3.1	0.2 L	92.4	0.11	3.8	0.2 L	12	LA
ZQYKGK	93.8	94.7	91.8	91.3	92.9	0.29	6.3	1.6	91.2	-0.31	7.1	2.6	8	AH

Consensus (All Labs) Results

Wk Mean	91.96	91.45	92.51	92.60	Month Mean	91.83	Grand Mean	92.07
Avg SDr	8.11	8.20	7.80	7.85	Avg SD	8.03	Avg SD	7.96
SD btwn Labs	3.78	4.69	2.74	5.47	SD btwn Labs	3.66	SD btwn Labs	2.83
Labs Incld	45	47	44	48	SD btwn Wks	3.35	SD btwn Wks	3.43
Labs Excld	3	1	4	1	Labs Incld	47	Labs Incld	48
Labs not Rcvd	1	1	1	0				

Key to Instrument Codes Reported by Participants

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
2EZ44N	91.9	91.7	95.1	95.6 L	93.6	1.05	3.7	2.1	93.7	1.11	3.7	2.2	12	LD
2XR74X	86.0	86.6	85.2	84.7	85.6	-0.52	3.1	0.9	88.2	-0.28	3.8	2.5	16	LD
3YLZKE	91.4	91.8	92.0	92.0	91.8	0.69	3.0	0.3 L	92.2	0.73	3.2	0.6 L	16	LD
48EL9R	90.9	89.0	89.3	90.5	89.9	0.33	3.9	0.9	90.5	0.30	3.6	1.8	16	LD
4BV9JC	95.5	96.2	71.9 XH	68.3 XH	83.0	-1.05	7.4	15.0 H	92.4	0.78	6.1	12.0 H	16	LC
6U4VKB	94.5	98.6	99.0 *	97.3	97.3	1.79	4.2	2.0	96.9	1.90	4.1	1.3	16	LD
83R9XF	81.1 *	75.3 *	73.3 X	80.8	77.6	-2.10 *	3.5	3.9	82.4	-1.72	3.9	6.1	16	LD
8MEUFH	65.8 X	74.4 *	69.4 X	63.0 XL	68.1	-3.97 X	3.2	4.9	74.0	-3.83 X	4.9	6.4	16	MB
8N667B	96.8 *	97.4	95.3	97.4	96.7	1.67	4.2	1.0	95.5	1.55	4.2	2.0	16	TH
99QCZJ	94.9 H	94.2	92.7	93.7	93.9	1.11	5.0	0.9	93.8	1.13	4.5	1.3	8	MB
ALT3GG	88.8	86.0	85.2	85.8	86.4	-0.36	3.4	1.6	87.1	-0.54	3.5	1.2	16	LD
BVGFUL	86.0	86.3	86.5	83.6	85.6	-0.53	3.9	1.3	86.3	-0.74	3.8	1.7	16	LD
BZVTYF	80.2 *	86.9	85.7	69.0 X	80.5	-1.54	4.0	8.2	84.1	-1.30	4.1	5.2	16	LZ
CT7RUM	84.9	85.1	83.4	83.3	84.2	-0.81	3.4	1.0	83.3	-1.50	3.4	1.8	16	EN
D8FXKC	92.1	63.8 XH	66.1 XH	92.5	78.6	-1.90	7.2	15.8 H	83.7	-1.39	6.5	13.6 H	14	LZ
EMTTDD	87.3	87.6	87.6	88.5	87.8	-0.10	4.0	0.5 L	88.4	-0.21	4.2	3.0	16	LC
EQCNF7	95.0	97.5	95.8	No Data	96.1	1.54	5.3	1.2	92.6	0.83	4.8	3.0	14	LC
FU73EE	88.4	77.9 *H	92.6	81.9	85.2	-0.60	5.8	6.5	84.5	-1.19	6.3	4.5	16	LZ
G4NZJB	94.8	93.5	92.5	93.0	93.5	1.03	4.1	1.0	88.7	-0.15	3.6	3.2	16	LC
HAUW4B	89.8	88.7	86.3	89.8	88.6	0.07	3.3	1.6	88.5	-0.20	3.7	2.3	16	LG
HGUBQX	86.4	89.4	86.4	88.4	87.6	-0.13	4.3	1.5	87.0	-0.57	4.0	1.4	16	LD
HP93EA	89.8	91.4 H	89.6	92.7	90.9	0.51	5.4	1.5	88.4	-0.22	5.8	4.2	16	LC
HX3BXF	No Data	91.3	93.7 H	84.5	89.8	0.30	6.8	4.8	87.6	-0.42	4.9	3.0	15	LC
JNQFAZ	92.5	92.2	92.0 L	92.2 L	92.2	0.78	2.2	0.2 L	91.6	0.57	2.5	1.1	16	LD
JYRYV2	91.5	89.1	88.8	85.0	88.6	0.06	3.7	2.7	87.9	-0.35	4.1	2.5	16	EM
K3KEKZ	89.5	90.2	87.0	No Data	88.9	0.13	4.7	1.7	89.8	0.13	4.0	3.1	15	EM
L7GN42	85.1	92.2	94.9	90.0	90.6	0.45	5.2	4.1	90.1	0.22	4.3	2.0	16	LC
LD4DQW	86.7	87.1	No Data	No Data	86.9	-0.27	4.8	0.3	87.4	-0.46	5.1	1.2	6	EX
M3XT29	91.3	90.2	91.4	88.8	90.4	0.42	4.9	1.2	90.8	0.38	4.1	1.2	16	LD
MH7AYH	94.3	101.5 *	97.5	No Data	97.8	1.87	3.9	3.6	97.8	2.13 *	3.9	3.6	3	LD
MJGQXU	88.8	90.5	84.7	65.8 XH	82.5	-1.15	6.0	11.4 H	84.1	-1.28	5.3	6.9	16	XX
MJMX93	87.5	88.4	85.8	86.9	87.1	-0.23	3.2	1.1	88.7	-0.15	3.7	3.2	16	LD
N6YD4Y	89.2	89.3	89.0 L	91.5 L	89.7	0.29	2.1	1.2	88.9	-0.08	2.8	1.3	16	TH
NYTGKY	88.4	86.6	85.4 L	87.7	87.0	-0.25	3.5	1.3	86.6	-0.66	3.5	1.3	16	LD
P2TWMV	87.2	90.3	88.2	89.8	88.9	0.12	3.1	1.4	89.6	0.09	3.6	1.3	16	TH

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
PXDLAR	87.6 L	87.4	87.1	89.1	87.8	-0.09	2.9	0.9	89.0	-0.06	3.3	2.7	16	TH
QVM9FU	83.6	80.4	82.4	82.7	82.3	-1.18	4.3	1.4	81.6	-1.92	4.2	1.7	16	EM
RBC78U	No Data	89.7	87.0	81.4 H	86.0	-0.45	7.3	4.2	86.6	-0.68	6.6	6.0	15	MB
RPVZDT	94.8	92.9	97.6	90.3	93.9	1.11	4.8	3.1	94.5	1.32	4.0	3.4	16	LD
RTRJEQ	93.8	94.6	91.8	91.9	93.0	0.94	2.8	1.4	94.3	1.26	3.4	1.7	16	LZ
T49JTY	102.7 XH	107.1 XH	106.7 X	100.1 *	104.2	3.14 X	6.0	3.4	98.6	2.34 *	5.2	5.7	16	LX
TNJDL7	92.7	89.3	91.8	95.1	92.2	0.78	5.0	2.4	90.8	0.38	4.3	2.6	16	LD
TWNKZ7	87.1	85.3	85.6	85.8	86.0	-0.46	3.8	0.8	85.5	-0.95	3.6	1.3	16	LD
TXHDPX	83.2	80.7	85.1	80.8	82.4	-1.15	3.9	2.1	85.4	-0.97	3.8	3.8	16	LD
U2FAW4	89.7	88.7	92.1	89.8	90.0	0.35	3.4	1.4	90.1	0.21	3.7	1.5	16	LD
U6Y6YV	89.4	89.5	89.3	89.5	89.4	0.22	5.2	0.1 L	89.2	-0.02	5.5	0.4 L	16	LD
WDMWZK	76.2 XH	71.9 X	84.2 H	85.0 H	79.3	-1.77	7.8	6.3	88.7	-0.14	6.5	11.5 H	8	LC
WMVB7T	84.5	84.7	84.9 L	84.7 L	84.7	-0.71	1.8	0.2 L	82.4	-1.71	2.8	2.0	16	TU
WTYAGH	89.2	89.9	91.8	84.1	88.8	0.10	4.7	3.3	90.6	0.34	4.6	3.0	16	LD
WWXQRR	90.6 L	93.7 L	93.3	91.5 L	92.3	0.79	1.6	1.5	93.1	0.97	2.2	1.9	16	TD
X942WT	85.6	No Data	No Data	84.7	85.2	-0.62	3.0	0.7	86.6	-0.68	3.3	2.1	14	LC
XEE4YN	84.6	83.9	86.4	84.8	84.9	-0.66	3.1	1.0	86.7	-0.63	3.5	1.8	16	LC
XTEWPY	86.8	86.8	87.3	87.4	87.1	-0.24	3.6	0.3 L	88.1	-0.30	3.6	0.9 L	12	LD
XWE8KY	91.5	92.8	90.3	89.6	91.1	0.55	3.3	1.4	88.7	-0.14	3.7	2.9	16	LC
Z2GVDQ	77.4 X	74.0 *	72.3 X	75.5 *	74.8	-2.66 *	3.8	2.1	74.8	-3.62 X	3.8	2.1	4	LC
Z9X2Z6	89.2	89.6	88.9	87.3	88.7	0.09	3.3	1.0	91.5	0.57	4.0	2.1	16	LD
ZJ3GXG	90.8	89.2	89.5	90.3	90.0	0.33	3.2	0.7	89.8	0.14	3.4	1.3	16	LZ
ZQYKGK	104.2 X	97.0	97.3	96.5	98.8	2.07 *	4.0	3.7	98.2	2.22 *	4.3	2.5	12	LZ

Consensus (All Labs) Results

Wk Mean	89.27	88.97	89.64	88.51	Month Mean	88.27	Grand Mean	89.27
Avg SDr	4.00	4.10	3.90	4.35	Avg SD	4.37	Avg SD	4.26
SD btwn Labs	3.83	5.67	4.19	4.97	SD btwn Labs	5.07	SD btwn Labs	4.00
Labs Incld	51	54	50	50	SD btwn Wks	4.11	SD btwn Wks	4.01
Labs Excld	5	3	6	4	Labs Incld	56	Labs Incld	56
Labs not Rcvd	2	1	2	4				

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	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		

	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
2EZ44N	81.4	83.5	83.2	84.7	83.2	0.98	4.2	1.4	82.0	0.81	3.3	2.0	12	LD
2XR74X	77.5 L	78.2	76.8	78.5	77.8	-0.20	2.4	0.7	78.1	-0.18	3.3	0.7 L	12	LD
3YLZKE	80.1	80.6	80.8	80.9	80.6	0.41	2.6	0.4 L	81.2	0.60	3.3	0.6 L	12	LD
48EL9R	81.1	80.5	82.3	80.7	81.1	0.53	2.9	0.8	80.6	0.44	2.8	1.2	12	LD
4BV9JC	92.1 *	87.5	62.1 *H	64.6 XH	76.6	-0.46	7.9	15.4 H	83.0	1.05	6.0	11.7 H	12	LC
6U4VKB	85.3	88.7	87.3	88.8 *	87.5	1.91	3.6	1.7	88.7	2.46 *	3.8	1.3	12	LD
83R9XF	67.3 *	70.9	63.5 *	73.3	68.8	-2.16 *	3.2	4.3	69.7	-2.28 *	3.6	6.2	12	LD
8MEUFH	52.6 XH	61.6 XH	59.7 *	51.0 X	56.2	-4.87 X	5.9	5.2	59.6	-4.81 X	5.3	5.8	12	MB
8N667B	80.5	80.7	83.0	81.8	81.5	0.60	3.4	1.1	80.8	0.49	3.6	1.7	8	TH
99QCZJ	82.2	85.7	83.7	76.3 H	82.0	0.71	5.2	4.0	81.9	0.77	5.9	2.7	8	MB
ALT3GG	76.0	74.6	75.3	76.3	75.5	-0.69	3.1	0.8	76.6	-0.56	3.3	1.2	12	LD
BVGFUL	74.0	75.6	76.8	76.3	75.7	-0.66	3.0	1.2	75.1	-0.93	3.2	1.4	12	LD
BZVTYF	75.4	75.0	73.4	59.7 X	70.9	-1.69	3.4	7.5 H	71.7	-1.79	3.8	4.4	12	LZ
CT7RUM	78.3	75.2 L	76.2	75.2	76.2	-0.54	2.7	1.5	75.7	-0.78	3.1	1.2	12	EN
D8FXKC	84.7	66.3 *H	60.1 *H	82.4	73.4	-1.15	7.3	12.1 H	76.2	-0.67	6.7	10.8 H	11	LZ
EMTTDD	78.2	80.8	79.0	80.0	79.5	0.17	3.6	1.1	77.5	-0.33	3.2	1.8	12	LC
EQCNF7	88.2	89.1	86.5	No Data	87.9	2.00 *	2.8	1.3	82.8	0.99	3.7	5.4	7	LC
FU73EE	78.7	79.7	68.6	62.4 XH	72.4	-1.38	5.5	8.3 H	76.5	-0.59	4.4	5.7	12	LZ
G4NZJB	82.7	83.1	81.8	82.0	82.4	0.80	4.1	0.6	79.7	0.21	3.7	2.4	12	LC
HAUW4B	79.3	78.9	77.9	78.9	78.7	0.01	2.7	0.6	78.6	-0.05	3.4	1.6	11	LG
HGUBQX	76.4	76.6	76.5	80.6	77.5	-0.26	4.5	2.1	77.4	-0.35	4.4	1.4	12	LD
HP93EA	78.4	79.2 H	76.1	82.4	79.0	0.07	5.2	2.6	79.9	0.26	5.0	5.6	12	LC
HX3BXF	No Data	79.4	86.4	75.5	80.4	0.37	4.9	5.5	78.6	-0.05	4.8	3.0	11	LC
JNQFAZ	81.1 L	81.9	81.8	81.4 L	81.6	0.62	2.1	0.4 L	81.6	0.70	1.9	0.4 L	12	LD
JYRYV2	81.9	78.5	81.2	78.3	80.0	0.28	3.1	1.9	79.6	0.20	3.1	1.4	12	EM
K3KEKZ	79.3	82.0	77.0	No Data	79.4	0.16	3.7	2.5	82.0	0.80	3.7	2.4	11	EM
L7GN42	81.9	81.1	82.8	82.2	82.0	0.72	4.1	0.7	82.0	0.79	3.6	1.2	12	LC
LD4DQW	77.2	78.0	No Data	No Data	77.6	-0.24	4.6	0.6	77.6	-0.31	4.6	0.6	2	EX
M3XT29	77.9	78.0	79.0	78.1	78.3	-0.10	3.2	0.5 L	78.6	-0.05	3.3	1.2	12	LD
MH7AYH	81.7	86.9	90.0	No Data	86.2	1.62	3.4	4.2	86.2	1.84	3.4	4.2	3	LD
MJGQXU	80.6	81.3	78.9	83.0	80.9	0.49	3.2	1.7	80.3	0.36	3.7	2.6	12	XX
MJMX93	78.9	78.2	78.1	78.0	78.3	-0.08	2.8	0.4 L	73.7	-1.29	3.2	16.4 H	12	LD
N6YD4Y	78.5	78.1	78.2	78.5	78.3	-0.09	2.9	0.2 L	77.2	-0.40	2.7	1.7	12	TH
NYTGKY	76.5	77.6	77.2	76.9	77.0	-0.36	2.6	0.5 L	76.9	-0.49	2.7	1.2	12	LD
P2TWMV	78.7	77.1	77.0	76.4	77.3	-0.31	3.6	1.0	77.1	-0.44	3.5	1.0 L	12	TH

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
PXDLAR	75.4	79.4	76.4	73.7	76.2	-0.53	3.1	2.4	76.1	-0.68	3.6	1.9	12	TH
QVM9FU	69.6	71.5	68.0	72.1	70.3	-1.82	3.5	1.9	70.6	-2.05 *	3.5	1.4	12	EM
RBC78U	No Data	76.5	77.3	77.2	77.0	-0.37	5.2	0.5 L	76.4	-0.61	6.3	4.2	11	MB
RPVZDT	79.7	81.0	84.3	79.2	81.0	0.51	3.3	2.3	81.3	0.61	3.4	3.0	12	LD
RTRJEQ	84.2	84.7	83.1	83.4	83.9	1.12	2.8	0.7	84.3	1.37	3.0	1.0 L	12	LZ
T49JTY	87.7	90.2 *	89.0	92.4 X	89.8	2.41 *	4.8	2.0	85.3	1.61	5.6	4.5	12	LX
TNJDL7	82.4	81.4	83.3	82.1	82.3	0.78	4.0	0.8	79.6	0.20	3.6	3.5	12	LD
TWNKZ7	74.9	74.3	75.4	75.2	75.0	-0.81	2.7	0.5 L	76.1	-0.67	2.9	1.6	12	LD
TXHDPX	70.8	68.1 *	74.4	74.7	72.0	-1.45	3.9	3.1	73.9	-1.22	3.7	3.4	12	LD
U2FAW4	81.1	82.4	78.6	80.7	80.7	0.43	2.7	1.6	80.5	0.42	2.8	1.3	12	LD
U6Y6YV	78.5 H	78.4 H	78.5	78.5 H	78.5	-0.05	6.0	0.1 L	78.4	-0.12	4.9	0.4 L	12	LD
WDMWZK	68.8 *H	70.0	64.3 H	73.7	69.2	-2.06 *	6.5	3.9	73.1	-1.44	6.4	5.3	12	LC
WMVB7T	74.8	74.9	74.7 L	74.5 L	74.7	-0.86	1.6	0.2 L	72.6	-1.57	2.2	1.9	12	TU
WTYAGH	83.7	83.1	82.7	74.9	81.1	0.52	3.5	4.1	82.3	0.86	3.6	2.6	12	LD
WWXQRR	71.8	70.2	72.6	70.3 *	71.2	-1.62	2.8	1.2	73.0	-1.46	3.0	2.5	12	TD
X942WT	75.9	No Data	No Data	71.4	73.6	-1.10	2.8	3.2	75.8	-0.75	2.7	2.2	10	LC
XEE4YN	77.0	76.5	77.8	76.8	77.0	-0.36	3.1	0.6 L	77.8	-0.25	3.2	1.2	12	LC
XTEWPY	80.3	81.3	81.1	80.1	80.7	0.43	3.3	0.6 L	80.2	0.35	2.8	1.0 L	12	LD
XWE8KY	84.1	82.4	83.0	81.3	82.7	0.87	3.2	1.2	81.6	0.69	3.4	3.7	12	LC
Z2GVDQ	68.1 *	60.3 X	59.9 *	59.1 X	61.9	-3.65 X	3.5	4.2	64.6	-3.54 X	3.9	4.7	8	LC
Z9X2Z6	79.4	77.6	76.3	77.3	77.7	-0.23	2.8	1.3	80.1	0.32	3.1	2.8	8	LD
ZJ3GXG	81.5	80.6	80.7 L	79.5 L	80.6	0.41	1.9	0.8	84.0	1.29	2.7	6.2	12	LZ
ZQYKGK	88.3	89.0	83.0	85.7	86.5	1.69	4.0	2.8	86.1	1.82	4.3	2.0	8	LZ

Consensus (All Labs) Results

Wk Mean	79.08	79.31	77.55	78.54	Month Mean	78.70	Grand Mean	78.83
Avg SDr	3.48	3.72	4.26	3.49	Avg SD	3.87	Avg SD	3.86
SD btwn Labs	5.01	5.19	7.10	3.85	SD btwn Labs	4.62	SD btwn Labs	4.00
Labs Incld	55	55	56	48	SD btwn Wks	3.59	SD btwn Wks	4.14
Labs Excld	1	2	0	6	Labs Incld	56	Labs Incld	56
Labs not Rcvd	2	1	2	4				

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	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		

	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
2EZ44N	23.0	23.3	23.3	23.4	23.2	0.58	1.4	0.2	23.1	0.61	1.4	0.3 L	12	LH
3YLZKE	22.4	22.5	22.5	22.6	22.5	-0.16	1.3	0.1 L	22.6	0.01	1.6	0.2 L	16	LA
48EL9R	22.6	22.9	23.1	23.0	22.9	0.24	2.0	0.2	22.9	0.43	2.1	0.3	16	LA
6CL273	22.2	21.7	21.9	22.7	22.1	-0.55	1.8	0.4	22.3	-0.28	1.7	0.8	16	XX
87NRYD	22.3	23.1	22.9	22.8	22.8	0.11	1.7	0.4	22.8	0.25	1.7	0.4	4	LA
8N667B	25.2 *	25.0	24.6	23.9	24.7	2.02 *	2.0	0.6	21.9	-0.72	1.7	1.8	16	LH
99QCZJ	23.8	22.8	23.6 H	23.5	23.4	0.77	2.2	0.4	22.9	0.38	2.0	0.9	8	BK
ALT3GG	22.2	20.5	21.7	21.4	21.4	-1.24	1.5	0.7	21.5	-1.20	1.5	0.6	16	BK
AMMV79	24.0	23.3 H	24.0	23.2	23.6	0.98	2.3	0.4	22.5	-0.09	2.0	1.6	16	XX
BVGFUL	22.6	21.2	22.0	21.2	21.7	-0.94	2.0	0.7	22.2	-0.36	1.8	0.6	16	LA
BZVTYF	21.7	21.9	21.5	20.8	21.5	-1.22	1.9	0.5	21.6	-1.05	1.8	0.7	16	LZ
C9J7BK	21.9	21.7	23.1	22.6	22.3	-0.37	2.0	0.6	22.3	-0.28	1.9	0.5	16	LW
CT7RUM	21.9	21.4	21.6	21.7	21.7	-1.01	1.9	0.2	21.4	-1.30	1.9	0.4	16	LY
D8FXKC	22.1	21.2	21.7	21.6	21.7	-1.03	1.9	0.4	21.1	-1.66	2.0	0.5	14	LW
DG6P84	25.3 *	24.9	25.2 *	24.6 *	25.0	2.33 *	2.3	0.3	23.6	1.16	2.2	1.7	8	LU
EMTTDD	22.4	22.1 L	22.4	22.3 H	22.3	-0.37	2.1	0.1	22.2	-0.46	1.8	0.7	16	LA
EQCNF7	23.1	24.1 H	22.1 H	No Data	23.1	0.46	3.2	1.0	23.9	1.59	3.5	1.2	15	LY
FU73EE	21.7 L	21.0	21.7 L	20.7 *	21.3	-1.43	1.4	0.5	21.6	-1.06	1.9	1.1	16	LA
G4NZJB	23.2	23.1	22.9	23.1	23.1	0.39	1.7	0.1 L	22.6	0.07	1.7	0.5	16	ID
H6JT93	22.7 L	22.7 L	22.9 L	22.5 L	22.7	0.02	0.9	0.1	22.6	0.00	0.9	0.2 L	16	TT
HAUW4B	21.9	22.1	21.7	21.3	21.8	-0.92	1.8	0.3	21.9	-0.72	2.0	0.4	16	LU
HGUBQX	21.4	22.8	21.9	23.1 H	22.3	-0.39	2.2	0.8	22.5	-0.07	1.9	0.6	16	LY
HP93EA	21.2 L	18.3 X	22.3	23.6	21.4	-1.33	1.7	2.3 H	21.8	-0.84	1.6	1.7	16	LW
HX3BXF	No Data	24.0	23.9	22.9	23.6	0.94	1.9	0.6	23.9	1.49	2.0	0.6	15	LW
JNQFAZ	20.4 *	21.4	20.6	21.4	20.9	-1.75	1.6	0.5	21.1	-1.67	1.7	0.4	16	LY
K3KEKZ	22.7	22.6 H	22.9	19.8 X	22.0	-0.68	2.1	1.5	22.2	-0.36	1.8	0.8	16	TT
L7GN42	22.8	22.9	22.2	22.0	22.5	-0.17	2.0	0.4	22.4	-0.22	1.9	0.3	16	LU
LD4DQW	24.0 L	24.8 L	No Data	No Data	24.4	1.78	0.0	0.6	23.5	1.07	0.0	1.1	6	TT
LXMFLV	24.4	25.7 *	25.1 *	24.0	24.8	2.16 *	2.2	0.8	24.3	2.05 *	2.1	0.8	8	XX
M3XT29	21.7	22.4	22.2	22.0	22.1	-0.59	2.0	0.3	22.2	-0.36	1.9	0.6	16	LY
MJGQXU	20.9	23.0	20.5 *	22.3	21.7	-1.00	1.8	1.2	23.2	0.79	2.4	4.2 H	16	XX
MJMX93	22.6	22.8	22.9	21.7	22.5	-0.17	1.4	0.5	22.6	0.00	1.9	0.9	16	LA
NYTGKY	21.7	23.4	22.1	21.7 L	22.2	-0.45	1.6	0.8	21.5	-1.26	1.6	1.2	16	LA
P2TWMV	22.6 L	22.7 L	22.0 L	22.5 L	22.4	-0.24	0.9	0.3	22.4	-0.24	1.0	0.3 L	16	TT
R3HXPN	25.2 *L	23.1 L	23.0	21.3	23.2	0.49	1.6	1.6 H	22.1	-0.50	1.8	1.3	16	LA

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D3

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
RBC78U	No Data	25.8 *L	21.9	23.9	23.8	1.20	1.5	2.0 H	23.1	0.65	1.8	1.0	15	LA
RPVZDT	24.0 H	23.1	23.6	22.1	23.2	0.53	2.2	0.8	23.4	0.91	2.0	0.9	16	LZ
TNJDL7	22.4 H	23.4	24.2	22.8	23.2	0.56	2.0	0.8	22.9	0.45	2.0	1.0	16	LA
TWNKZ7	22.1	21.9	21.5	21.9	21.8	-0.86	1.8	0.3	21.6	-1.09	1.9	0.4	16	LU
TXHDPX	22.7	22.8	22.3	22.9	22.7	0.01	1.9	0.3	23.2	0.72	2.1	0.7	16	LZ
U2FAW4	22.5	22.8	22.3	21.9	22.4	-0.30	1.8	0.4	22.8	0.28	1.9	0.5	16	LY
U7UM2W	22.0	23.7	23.6	22.5	23.0	0.29	2.1	0.8	23.3	0.88	2.0	0.7	12	LH
VAN4QW	21.2	21.1	21.5 H	22.7 H	21.6	-1.07	2.4	0.8	20.8	-2.07 *	1.9	1.3	16	LW
W9AW3U	23.0 L	22.5	22.2	21.5	22.3	-0.37	1.6	0.6	35.8	15.22 X	2.4	10.2 H	16	LA
WDMWZK	24.6	25.2	25.3 *	25.6 X	25.2	2.56 *	2.1	0.4	24.8	2.63 *	2.2	0.5	8	LU
WTYAGH	22.7	23.4	24.5	22.8	23.3	0.69	1.9	0.8	23.3	0.86	1.7	1.0	16	LU
WV4BRB	22.3	22.3	22.6	23.2	22.6	-0.08	1.6	0.4	22.4	-0.21	1.6	1.3	16	XX
X942WT	22.4	No Data	No Data	21.9 H	22.1	-0.56	2.4	0.3	22.5	-0.10	2.1	0.8	14	LW
XF9Z8H	24.4	24.4	24.4	23.6	24.2	1.55	2.0	0.4	24.7	2.43 *	2.0	0.6	16	LZ
XTEWPY	21.3	22.1	23.5	23.1	22.5	-0.21	1.7	1.0	22.3	-0.30	1.9	0.8	16	LA
XWE8KY	22.8 L	22.0 L	22.1	21.4 L	22.1	-0.59	1.2	0.6	21.9	-0.81	1.5	0.8	12	LA
YAUM3P	22.5	23.0	22.4	22.0	22.5	-0.20	1.6	0.4	22.5	-0.09	1.8	0.6	16	LA
Z2GVDQ	22.7	21.3	22.7	22.3	22.3	-0.42	1.6	0.7	22.3	-0.35	1.6	0.7	4	XX

Consensus (All Labs) Results

Wk Mean	22.65	22.84	22.71	22.44	Month Mean	22.67	Grand Mean	22.56
Avg SDr	1.90	1.78	1.91	1.89	Avg SD	1.88	Avg SD	1.89
SD btwn Labs	1.10	1.23	1.11	0.88	SD btwn Labs	0.99	SD btwn Labs	0.87
Labs Incld	51	51	51	49	SD btwn Wks	0.74	SD btwn Wks	1.04
Labs Excld	0	1	0	2	Labs Incld	53	Labs Incld	52
Labs not Rcvd	2	1	2	2				

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

	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
2EZ44N	22.8	22.4	22.3	23.0	22.6	0.37	1.4	0.3	22.7	0.63	1.4	0.3	12	LH
3YLZKE	22.0	21.9	21.9	22.0	22.0	-0.44	1.4	0.1 L	21.9	-0.45	1.5	0.3	12	LA
48EL9R	22.8	22.9	22.8	22.9	22.8	0.62	1.3	0.0 L	22.1	-0.16	1.4	0.6	12	LA
6CL273	22.2	22.4	21.8	21.9	22.1	-0.27	1.9	0.3	21.9	-0.37	1.8	0.7	12	XX
87NRYD	23.1	22.5	22.2	22.1	22.5	0.18	1.6	0.4	22.5	0.33	1.6	0.4	4	LA
8N667B	25.2 X	26.3 X	26.0 X	26.5 XH	26.0	4.46 X	1.7	0.6	23.6	1.71	1.8	2.7 H	8	LH
99QCZJ	22.8	21.7	23.4	23.5	22.9	0.64	1.7	0.8	28.2	7.58 X	1.3	5.8 H	8	BK
ALT3GG	21.3	21.4	21.2 L	20.1 *	21.0	-1.58	1.2	0.6	21.0	-1.57	1.3	0.5	12	BK
AMMV79	24.5 *	22.5	25.1 *	24.4 *H	24.1	2.16 *	2.0	1.1	22.7	0.67	1.8	1.3	12	LY
BVGFUL	22.3	21.9	22.8	22.5	22.4	0.05	1.7	0.4	22.0	-0.25	1.6	0.5	12	LA
BZVTYF	21.7	20.8	21.5	20.7	21.2	-1.40	1.5	0.5	21.1	-1.35	1.7	0.4	12	LZ
C9J7BK	22.1	21.1	22.2	22.6	22.0	-0.40	1.7	0.6	22.0	-0.29	1.6	0.6	12	LW
CT7RUM	21.6	21.4	21.4	20.8	21.3	-1.24	1.6	0.3	21.1	-1.38	1.7	0.6	12	LY
D8FXKC	22.0	21.6	21.5	21.7	21.7	-0.77	1.6	0.2	20.9	-1.68	1.6	0.7	11	LW
DG6P84	23.8	23.5	24.0	24.7 *	24.0	2.01 *	1.7	0.5	23.3	1.40	1.8	0.8	12	LU
EMTTDD	20.8 H	21.4	22.3	22.1	21.7	-0.81	2.0	0.7	21.4	-1.02	1.5	0.6	12	LA
EQCNF7	23.7 H	23.3 H	20.3 * No Data		22.4	0.11	3.1	1.8 H	23.3	1.40	3.5	1.7	7	LY
FU73EE	21.0	21.5	21.7	20.5	21.2	-1.41	1.3	0.5	21.1	-1.38	1.5	1.1	12	LA
G4NZJB	22.2 L	22.4	22.5	22.4	22.4	0.04	1.3	0.1	22.3	0.11	1.3	0.3	12	ID
H6JT93	21.8 L	22.1 L	21.8 L	21.6 L	21.8	-0.62	0.9	0.2	21.8	-0.50	0.8	0.2 L	12	TT
HAUW4B	21.4	21.9	22.0	21.1	21.6	-0.90	1.5	0.4	21.6	-0.75	1.5	0.4	11	LW
HGUBQX	22.6	21.6	22.0	21.9	22.0	-0.35	1.5	0.4	21.9	-0.38	1.5	0.8	12	LY
HP93EA	22.1	22.1	21.2	23.6	22.3	-0.09	1.4	1.0	21.9	-0.38	1.3	0.7	12	LW
HX3BXF	No Data	23.9 *	23.7	22.8	23.4	1.33	1.5	0.6	23.4	1.48	1.8	0.5	11	LW
JNQFAZ	20.6	20.9	20.8	21.1	20.8	-1.79	1.5	0.2	20.9	-1.73	1.4	0.5	12	LY
K3KEKZ	22.5	21.2	20.8 H	20.3	21.2	-1.35	1.8	0.9	21.6	-0.77	1.7	0.8	8	TT
L7GN42	22.5	22.8	22.8	22.1	22.5	0.27	1.7	0.3	22.3	0.12	1.7	0.4	12	LU
LD4DQW	22.2 L	22.1 L	No Data	No Data	22.2	-0.20	0.0	0.0	22.2	-0.07	0.0	0.0	2	LZ
LXMFLV	23.4	24.6 X	24.0	23.9	24.0	1.98 *	1.7	0.5	23.9	2.12 *	1.8	0.7	12	XX
M3XT29	22.3	22.1	22.2	22.1	22.2	-0.17	1.6	0.1 L	22.0	-0.25	1.5	0.4	12	LU
MJGQXU	21.5	23.8	22.4 H	23.4	22.8	0.53	1.8	1.0	22.7	0.59	1.5	2.3 H	12	XX
MJMX93	21.0 L	22.2	21.8	22.2	21.8	-0.63	1.4	0.6	22.2	-0.05	1.4	0.6	12	LA
NYTGKY	22.8	22.7	22.6	22.0	22.5	0.24	1.6	0.4	21.3	-1.13	1.5	1.1	12	LA
P2TWMV	21.3 L	21.7 L	21.4 L	21.4	21.5	-1.04	1.0	0.2	21.7	-0.68	0.9	0.2	12	TT
R3HXPN	24.9 *	21.7	22.9 H	22.9	23.1	0.92	2.2	1.4 H	22.2	0.05	1.7	1.3	12	LA

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
RBC78U	No Data	25.5 XL	22.6	22.0	23.3	1.22	1.7	1.9 H	22.5	0.31	1.7	1.2	11	LA
RPVZDT	22.5 H	22.4 H	22.8	21.1	22.2	-0.19	2.1	0.7	22.8	0.75	1.9	1.0	12	LZ
TNJDL7	22.2	22.0	22.7	22.3	22.3	-0.04	1.4	0.3	22.5	0.40	1.6	0.5	12	LA
TWNKZ7	20.7	21.3	21.8	21.6	21.4	-1.16	1.7	0.5	21.5	-0.94	1.5	0.3	12	LU
TXHDPX	21.4	22.0	23.1	22.4	22.2	-0.11	1.7	0.7	22.5	0.34	1.8	0.9	12	LZ
U2FAW4	22.0	22.0	22.1	22.4 H	22.1	-0.26	1.6	0.2	22.2	-0.04	1.6	0.4	12	LY
U7UM2W	22.1	22.4	24.2	23.0	22.9	0.71	1.5	0.9	23.5	1.63	1.5	1.1	12	LH
VAN4QW	21.6 L	22.4	22.4	24.0	22.6	0.36	1.7	1.0	22.0	-0.25	1.9	0.8	12	LW
W9AW3U	22.5	21.9	21.7	20.8	21.7	-0.72	1.7	0.7	25.9	4.71 X	1.2	6.6 H	12	LA
WDMWZK	23.8	24.2 *	24.2	22.9	23.8	1.73	1.7	0.6	24.1	2.45 *	1.7	0.6	12	LU
WTYAGH	23.2	23.5	23.1	23.3	23.3	1.14	1.8	0.2	23.0	1.05	1.3	0.9	12	LU
WV4BRB	22.4	23.0	23.4	23.5	23.1	0.90	1.8	0.5	23.0	0.94	1.9	0.7	12	XX
X942WT	21.3	No Data	No Data	22.1	21.7	-0.80	1.5	0.6	22.3	0.16	1.7	0.9	10	LW
XF9Z8H	24.8 *	24.2 *	24.9 *	23.4	24.3	2.43 *	1.6	0.7	24.6	3.00 X	3.8	0.6	12	LZ
XTEWPY	22.9	22.5	23.1	22.0	22.6	0.37	1.2	0.5	22.0	-0.20	1.5	0.8	12	LW
XWE8KY	21.7	22.0	21.6	22.1	21.8	-0.61	1.2	0.3	21.1	-1.39	1.1	1.0	12	LA
YAUM3P	22.4	21.8	21.6	22.5	22.1	-0.29	1.6	0.4	22.2	0.00	1.7	0.6	12	LA
Z2GVDQ	22.0	21.9	21.4	21.9	21.8	-0.65	1.5	0.3	22.8	0.75	1.6	1.1	8	XX

Consensus (All Labs) Results

Wk Mean	22.30	22.22	22.40	22.26	Month Mean	22.32	Grand Mean	22.21
Avg SDr	1.67	1.65	1.66	1.55	Avg SD	1.64	Avg SD	1.64
SD btwn Labs	0.98	0.80	1.04	1.04	SD btwn Labs	0.83	SD btwn Labs	0.78
Labs Incld	50	49	50	50	SD btwn Wks	0.67	SD btwn Wks	0.91
Labs Excld	1	3	1	1	Labs Incld	52	Labs Incld	50
Labs not Rcvd	2	1	2	2				

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 (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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3YLZKE	166.2	0.02	11.69		169.6	0.42	2.38	4	XX
6U4VKB	131.7	-1.35	12.18		138.9	-1.40	6.64	4	EV
99QCZJ	248.4	3.28 X	41.11	H	225.9	3.75 X	31.94	2	EV
BZVTYF	131.4	-1.36	14.93		141.3	-1.26	14.25	4	EV
CT7RUM	176.9	0.44	13.41		173.1	0.62	7.44	4	EV
D8FXKC	182.7	0.68	14.70		174.9	0.73	8.21	4	EV
DG6P84	157.0	-0.34	12.11		146.8	-0.94	14.51	2	EV
EQCNF7	109.5	-2.23 *	7.14	L	105.4	-3.39 X	5.80	2	EV
FU73EE	174.6	0.36	25.11		124.8	-2.24 *	33.66 H	4	LA
HGUBQX	180.6	0.59	11.79		173.9	0.67	6.59	4	EV
HP93EA	182.1	0.65	12.51		175.5	0.76	9.96	4	EV
MJGQXU	223.9	2.31 *	37.97	H	186.9	1.44	24.96	4	EV
RBC78U	190.2	0.97	38.50	H	210.0	2.81 X	40.24 H	4	LA
RPVZDT	154.8	-0.43	15.71		168.5	0.35	9.68	4	LA
TNJDL7	150.0	-0.62	20.68		152.7	-0.58	3.01	4	LA
TWNKZ7	175.0	0.37	15.64		176.4	0.82	2.58	4	EV
VJCUDN	159.0	-0.26	12.83		156.3	-0.37	4.39	3	EV
WDMWZK	137.3	-1.12	21.72		142.4	-1.20	7.25	2	EV
X942WT	174.2	0.34	5.71	L	166.4	0.23	6.26	4	XX
XF9Z8H	190.8	1.00	18.71		179.4	1.00	15.18	4	XX
XTEWPY	156.1	-0.38	18.95		166.9	0.26	11.32	4	LA
YAUM3P	174.5	0.35	21.82		174.6	0.71	9.39	4	LA

Consensus (All Labs) Results

Month Mean	165.65	Grand Mean	162.58
Avg SD	19.18	Avg SD Months	12.88
SD btwn Labs	25.21	SD btwn Labs	16.86
Labs Incld	21	Labs Incld	19

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
48EL9R	372.8	0.71	6.53		372.5	1.07	3.39	4	LA
BVGFUL	362.4	-0.50	9.55		357.9	-0.93	5.93	4	LA
EF9ZDU	457.9	10.54 X	1.07	L	457.9	12.72 X	0.00	1	PP
L7GN42	375.0	0.96	8.77		372.1	1.01	3.05	4	XX
LYDNKY	378.7	1.39	4.06		374.1	1.29	3.79	4	TS
MJMX93	351.0	-1.81 *	7.51		361.0	-0.50	7.01	4	LA
R3HXPN	365.2	-0.17	6.05		364.7	0.00	1.62	4	XX
TXHDPX	370.7	0.47	12.24	H	384.7	2.73 X	9.45 H	4	XX
X4VHXZ	358.7	-0.92	5.76		355.3	-1.29	3.14	4	LA
ZQYKGK	365.5	-0.13	6.29		360.0	-0.64	4.74	3	TS

Consensus (All Labs) Results

Month Mean	366.66	Grand Mean	364.71
Avg SD	7.77	Avg SD Months	4.39
SD btwn Labs	8.65	SD btwn Labs	7.32
Labs Incld	9	Labs Incld	8

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 36 lb Linerboard - 36Z

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2XR74X	171.3	0.53	5.21		171.3	0.53	0.00	1	SC
48EL9R	59.7	-3.85 X	1.05	L	59.7	-3.85 X	0.00	1	LZ
6U4VKB	183.6	1.01	6.11		183.6	1.01	0.00	1	HY
87NRYD	165.4	0.29	2.51	L	165.4	0.29	0.00	1	TM
DG6P84	113.8	-1.73	6.30		113.8	-1.73	0.00	1	TM
EMTTDD	148.0	-0.39	9.92		148.0	-0.39	0.00	1	TM
FU73EE	129.0	-1.13	41.37	H	129.0	-1.13	0.00	1	TM
FWCPT6	163.2	0.21	6.72		163.2	0.21	0.00	1	TM
HGUBQX	178.0	0.79	6.47		178.0	0.79	0.00	1	XX
HP93EA	127.0	-1.21	22.80		127.0	-1.21	0.00	1	SC
L7GN42	184.6	1.05	4.72		184.6	1.05	0.00	1	HY
MJMX93	178.0	0.79	9.37		178.0	0.79	0.00	1	SC
NYTGKY	166.6	0.34	5.22		166.6	0.34	0.00	1	TM
R3HXPN	100.2	-2.26 *	2.86	L	100.2	-2.26 *	0.00	1	SC
TWNKZ7	158.6	0.03	10.06		158.6	0.03	0.00	1	TM
WDMWZK	147.2	-0.42	5.45		147.2	-0.42	0.00	1	TM
WTYAGH	160.0	0.08	5.01		160.0	0.08	0.00	1	HZ
XF9Z8H	172.6	0.58	6.80		172.6	0.58	0.00	1	TM
XTEWPY	198.6	1.60	10.78		198.6	1.60	0.00	1	HY
Z2GVDQ	154.4	-0.14	39.77	H	154.4	-0.14	0.00	1	SC

Consensus (All Labs) Results

Month Mean	157.90	Grand Mean	157.90
Avg SD	15.52	Avg SD Months	0.00
SD btwn Labs	25.48	SD btwn Labs	25.48
Labs Incld	19	Labs Incld	19

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Scott Bond Type	154.31	24.52	3.59	16
Modified Scott Bond Mechanics	191.58	9.93	33.68	2

Analysis Notes

48EL9R - 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

	Monthly Results				Cumulative Results			
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months
3YLZKE	26.0	-0.39	0.71		26.1	-0.26	0.26 L	4
48EL9R	29.4	0.91	1.14		29.1	1.60	1.47	4
4BV9JC	26.8	-0.08	2.49		26.4	-0.07	2.12	4
6CL273	31.6	1.75	3.78		28.3	1.10	2.73	4
BZVTYF	25.2	-0.69	2.95		24.9	-1.03	3.19	4
CT7RUM	28.3	0.49	1.43		27.0	0.33	1.19	4
D8FXKC	26.2	-0.31	4.76		25.4	-0.69	1.74	4
DG6P84	26.3	-0.27	1.20		25.5	-0.66	1.20	2
FU73EE	28.4	0.53	2.19		28.3	1.07	2.14	4
HGUBQX	18.2	-3.36 X	1.64		24.6	-1.22	4.61	4
HP93EA	27.2	0.07	1.64		25.1	-0.88	1.72	4
HX3BXF	29.6	0.99	4.39		29.1	1.58	1.67	3
JV87JY	25.6	-0.54	2.01		24.7	-1.13	1.98	4
L7GN42	25.1	-0.74	0.48 L		25.4	-0.72	0.94	4
LXMFLV	30.7	1.41	1.64		27.0	0.27	5.30	2
NYTGKY	21.8	-1.98 *	2.63		21.1	-3.36 X	1.37	4
R3HXPN	25.6	-0.54	0.55 L		27.8	0.79	1.48	4
TWNKZ7	25.6	-0.54	3.51		25.4	-0.69	1.23	4
TXHDPX	31.9	1.87	1.60		28.8	1.41	4.41	4
WDMWZK	25.7	-0.50	1.72		27.2	0.42	2.12	2
WV4BRB	29.0	0.76	4.30		28.3	1.07	1.11	4
X942WT	23.2	-1.46	1.92		25.7	-0.51	2.09	4
XF9Z8H	24.1	-1.10	0.57 L		24.9	-0.98	2.33	4
XTEWPY	25.0	-0.77	2.55		23.8	-1.69	1.11	3
YAUM3P	29.9	1.12	5.52 H		28.0	0.89	1.88	4

Consensus (All Labs) Results

Month Mean	27.01	Grand Mean	26.52
Avg SD	2.70	Avg SD Months	2.40
SD btwn Labs	2.62	SD btwn Labs	1.61
Labs Incld	24	Labs Incld	24

Key to Instrument Codes Reported by Participants

ZZ Instruments No Longer Tracked

Containerboard Interlaboratory Testing Program

Analysis 237

Air Resistance, 36 lb Linerboard - 36Z

TAPPI Official Test Method T460

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
3N8Y8U	45.0	-0.91	2.01		45.0	-0.91	0.00	1	LA
3XAETT	50.4	0.17	2.36		50.4	0.17	0.00	1	TL
3YLZKE	54.8	1.05	1.06	L	54.8	1.05	0.00	1	LA
48EL9R	52.3	0.55	1.71		52.3	0.55	0.00	1	LA
83R9XF	49.4	-0.04	2.27		49.4	-0.04	0.00	1	GG
99QCZJ	58.5	1.78	1.90		58.5	1.78	0.00	1	XX
BZVTYF	50.3	0.14	2.36		50.3	0.14	0.00	1	LP
CNWCMJ	49.3	-0.07	2.17		49.3	-0.07	0.00	1	LP
D8FXKC	36.5	-2.62 *	1.78		36.5	-2.62 *	0.00	1	XX
DG6P84	44.1	-1.11	2.22		44.1	-1.11	0.00	1	LA
FU73EE	52.0	0.49	1.28		52.0	0.49	0.00	1	LP
HGUBQX	52.3	0.55	1.19		52.3	0.55	0.00	1	LP
HP93EA	44.0	-1.12	1.56		44.0	-1.12	0.00	1	HG
HX3BXF	49.2	-0.08	2.62		49.2	-0.08	0.00	1	LP
JNQFAZ	48.8	-0.16	1.23		48.8	-0.16	0.00	1	LP
JV87JY	52.0	0.48	3.15		52.0	0.48	0.00	1	GA
L7GN42	51.8	0.44	3.83		51.8	0.44	0.00	1	TP
LXMFLV	43.2	-1.27	2.93		43.2	-1.27	0.00	1	LA
MJGQXU	49.4	-0.04	2.34		49.4	-0.04	0.00	1	LW
MJMX93	56.4	1.36	3.30		56.4	1.36	0.00	1	LA
NYTGKY	51.1	0.30	1.60		51.1	0.30	0.00	1	LA
TNJDL7	52.4	0.56	2.79		52.4	0.56	0.00	1	LA
TXHDPX	51.2	0.32	3.21		51.2	0.32	0.00	1	XX
UZ68CP	51.2	0.31	2.96		51.2	0.31	0.00	1	XX
XF9Z8H	38.5	-2.22 *	4.47	H	38.5	-2.22 *	0.00	1	TD
XTEWPY	55.1	1.10	1.52		55.1	1.10	0.00	1	LP
ZJ3GXG	49.8	0.04	1.40		49.8	0.04	0.00	1	XX

Consensus (All Labs) Results

Month Mean	49.59	Grand Mean	49.59
Avg SD	2.42	Avg SD Months	0.00
SD btwn Labs	5.00	SD btwn Labs	5.00
Labs Incld	27	Labs Incld	27

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

	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
2DAV6L	61.5	62.5	63.0	63.1	62.5	1.00	2.6	0.7	62.0	0.86	2.9	1.4	8	LD
2EZ44N	61.2	60.4	61.6	62.2	61.4	0.53	2.5	0.8	61.3	0.51	2.9	0.9	12	LD
32TAVK	65.9 *	62.2	61.7	63.3	63.3	1.30	3.0	1.9	61.8	0.74	3.3	2.0	16	LC
3EUCPD	61.2	61.3	62.4	62.6 L	61.9	0.74	1.9	0.7	59.9	-0.15	2.5	1.8	16	TH
3N8Y8U	61.3	64.0	65.0	63.2	63.4	1.34	2.5	1.5	63.7	1.61	3.1	1.7	16	LC
3YLZKE	60.5	61.1	60.8	61.1	60.9	0.34	2.2	0.3 L	61.1	0.44	2.1	0.4 L	16	LD
48EL9R	57.8	55.6	55.0 *	55.0	55.9	-1.68	2.3	1.3	55.1	-2.35 *	2.6	1.4	16	LD
4KGEGF	60.5	60.7	60.4	60.3 L	60.5	0.17	1.5	0.2 L	60.7	0.26	1.6	0.3 L	16	LD
6CL273	63.2	62.1	63.5	63.1	63.0	1.18	2.5	0.6	63.5	1.55	3.1	1.1	16	XX
87NRYD	57.9	58.6	62.2	61.3 H	60.0	-0.02	4.7	2.1	60.0	-0.08	4.7	2.1	4	LC
8MEUFH	74.5 X	76.0 X	76.9 X	69.4 X	74.2	5.70 X	4.0	3.4	78.2	8.35 X	4.6	4.0	16	MB
8N667B	56.8	57.4	56.5	58.0	57.2	-1.15	2.6	0.7	52.7	-3.44 X	3.5	4.9	16	TH
99QCZJ	58.0 H	48.7 XH	55.0 *H	63.0	56.2	-1.55	5.0	6.0 H	59.3	-0.40	4.8	5.5	8	MB
AKG3KM	60.5	60.0	58.8	60.2	59.9	-0.07	2.5	0.7	60.2	0.03	2.6	0.8	8	EM
BZVTYF	58.9	58.3	57.0	57.6	57.9	-0.84	2.4	0.8	58.2	-0.89	2.7	1.1	16	LZ
CNWCMJ	62.7	60.8	60.6	60.1	61.0	0.40	3.0	1.1	60.4	0.11	3.0	1.3	16	LD
CT7RUM	59.8	58.6	59.5	59.0	59.2	-0.33	2.4	0.5	59.6	-0.27	2.9	1.3	16	EN
DG6P84	59.7	59.3 L	58.3	56.7	58.5	-0.62	2.7	1.3	58.6	-0.74	2.8	1.6	8	XX
EMTTDD	55.7	58.1	57.3	60.3	57.9	-0.88	2.6	1.9	58.5	-0.77	2.8	2.0	16	LC
G4NZJB	59.2	59.1	59.6	60.4	59.6	-0.18	2.9	0.6	60.7	0.26	2.6	1.2	16	LD
H6JT93	61.4	59.6	61.2	58.0	60.0	0.00	3.8	1.6	59.5	-0.29	4.3	1.0	16	TG
HAUW4B	64.0	64.8 *	62.1	62.5	63.3	1.33	2.6	1.3	63.8	1.68	3.0	3.0	16	LZ
HGUBQX	58.8	58.6	60.9	60.1	59.6	-0.18	3.2	1.1	60.5	0.15	3.2	1.6	13	LZ
HX3BXF	No Data	61.5	61.2	64.6	62.5	0.97	3.5	1.9	61.9	0.81	3.4	1.3	15	LC
L7GN42	65.0	60.4 H	58.0	59.9	60.8	0.32	3.9	3.0	61.6	0.65	3.6	1.8	16	LC
LD4DQW	56.1	57.4	No Data	No Data	56.7	-1.33	2.8	1.0	56.3	-1.77	3.7	1.7	6	LZ
M3XT29	61.4	60.4	60.2	59.7	60.4	0.16	3.8	0.7	60.4	0.12	3.6	1.0	16	LD
MJGQXU	46.7 X	56.6	58.0	57.0	54.6	-2.19 *	2.9	5.3 H	53.2	-3.22 X	3.4	3.9	16	XX
MM7TCU	69.7 XH	72.1 XH	72.2 XH	73.1 XH	71.8	4.71 X	6.8	1.4	56.0	-1.94 *	7.6	14.3 H	16	LC
MNW2BX	62.7	61.2	62.8	62.5	62.3	0.91	3.1	0.7	63.6	1.58	2.7	1.2	12	TM
PWKRTA	59.8	61.1	60.4	61.3	60.7	0.25	3.8	0.7	60.8	0.30	3.4	0.7 L	16	LC
PXDLAR	63.8	59.3 L	59.5 L	59.8	60.6	0.22	2.1	2.2	61.2	0.50	2.4	1.8	16	MB
RBC78U	No Data	59.8	59.6	59.4	59.6	-0.17	3.9	0.2 L	58.2	-0.91	4.0	2.9	15	MB
RDGYZ8	60.9	60.5	60.0	59.7	60.3	0.10	2.9	0.5	60.8	0.29	3.1	0.7 L	16	LD
RPVZDT	54.8 *	55.4	56.2	56.2	55.7	-1.76	3.2	0.7	57.0	-1.47	3.5	2.3	16	LD

	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
RTRJEQ	60.2	60.2	60.5	59.7	60.1	0.03	1.7	0.3	60.3	0.07	2.4	0.4 L	16	XX
T49JTY	58.5	60.6	60.5	60.5	60.0	-0.01	3.3	1.0	59.1	-0.50	2.9	1.5	16	LD
TWNKZ7	58.5	56.2	58.6	57.3	57.7	-0.96	3.5	1.1	58.6	-0.75	3.2	1.4	16	LD
TXHDPX	62.1	58.8	58.9	59.3	59.8	-0.11	3.2	1.6	59.3	-0.42	3.2	1.7	16	LZ
U2FAW4	62.1	62.6	65.5 *	61.9	63.0	1.20	3.0	1.7	62.4	1.01	3.2	1.4	16	LD
U6Y6YV	60.5	60.7	60.6	59.4	60.3	0.11	3.0	0.6	60.6	0.20	4.2	0.9	16	LD
U7UM2W	66.1 *	64.1	63.3	63.8	64.3	1.71	2.8	1.2	62.6	1.11	3.1	1.8	12	LD
UZ68CP	59.9	60.4	60.3	58.6 L	59.8	-0.10	2.4	0.8	59.5	-0.30	2.5	0.9	16	LD
W9AW3U	64.9	61.6 H	61.5 H	67.6 *H	63.9	1.55	5.0	2.9	85.7	11.84 X	11.1	41.1 H	16	XX
WDMWZK	60.2	59.2 L	58.1	55.4	58.2	-0.73	2.2	2.1	58.6	-0.73	3.1	1.8	8	LC
WMVB7T	60.8	64.5	63.9	63.5	63.2	1.26	2.9	1.6	62.5	1.09	4.1	1.8	16	TU
WTYAGH	58.8 H	56.6	61.0 H	53.4 *H	57.4	-1.04	6.5	3.3	61.1	0.44	6.7	3.5	16	LC
WWXQRR	65.4 L	61.7 L	65.9 *L	61.9 L	63.7	1.48	0.9	2.2	63.1	1.34	1.2	1.8	16	TD
XTEWPY	56.8	56.4	61.1	60.0	58.6	-0.58	2.8	2.3	59.2	-0.47	3.2	1.7	12	LD
Z2GVDQ	55.7	54.4 *	53.4 *	55.5	54.8	-2.12 *	2.7	1.0	54.8	-2.51 *	2.7	1.0	4	LC

Consensus (All Labs) Results

Wk Mean	60.48	59.89	60.24	60.19	Month Mean	60.04	Grand Mean	60.17
Avg SDr	3.07	2.92	3.24	3.23	Avg SD	3.13	Avg SD	3.44
SD btwn Labs	2.78	2.40	2.67	2.80	SD btwn Labs	2.49	SD btwn Labs	2.16
Labs Incld	45	47	47	47	SD btwn Wks	1.83	SD btwn Wks	2.75
Labs Excld	3	3	2	2	Labs Incld	48	Labs Incld	46
Labs not Rcvd	2	0	1	1				

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
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

	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
2DAV6L	74.3	74.6	74.3	74.4	74.4	0.15	2.2	0.1 L	73.9	-0.09	2.2	1.0	8	LD
3YLZKE	73.7	74.0	73.4	73.5	73.6	-0.23	2.5	0.3	73.7	-0.22	2.4	0.4	16	LD
48EL9R	77.4	76.9	77.7	76.5	77.1	1.44	2.5	0.5	77.4	1.63	2.2	1.3	16	LD
4KGEGF	74.1	73.8	73.8	73.9	73.9	-0.11	1.5	0.1 L	73.6	-0.26	1.4	0.4	16	LD
8MEUFH	57.7 X	56.3 X	53.7 X	55.6 X	55.8	-8.82 X	2.1	1.6	59.4	-7.28 X	2.5	3.1 H	16	MB
ALT3GG	74.5	69.9	73.9	70.9	72.3	-0.86	2.0	2.2	71.8	-1.15	2.0	1.4	16	XX
BZVTYF	75.1	72.4	77.0 H	73.9	74.6	0.24	2.6	1.9	74.7	0.28	2.6	1.2	16	LZ
CNWCMJ	75.7	73.0	75.7 H	74.4	74.7	0.29	2.7	1.3	74.8	0.32	2.4	1.1	16	LD
G4NZJB	69.1 *	69.3	69.8 *	69.6	69.5	-2.25 *	2.1	0.3	70.3	-1.89 *	1.8	1.6	16	LD
HAUW4B	74.9	70.5	74.8	73.7	73.5	-0.31	2.7	2.1	73.4	-0.34	2.7	2.7	16	LZ
HX3BXF	No Data	75.6	75.1	71.9	74.2	0.04	2.7	2.0	73.8	-0.14	2.6	1.5	15	XX
L7GN42	78.5	77.4	76.6	77.6	77.5	1.64	2.3	0.8	78.0	1.92 *	2.4	1.1	16	LC
PWKRTA	73.9 L	73.4 L	74.3 L	74.1 L	73.9	-0.10	0.4	0.4	74.8	0.36	3.6	1.3	16	LD
UZ68CP	72.7	70.5	72.1	70.9	71.5	-1.24	2.0	1.0	72.6	-0.73	2.6	1.1	16	XX
WDMWZK	64.6 XH	62.9 XH	65.6 XH	66.8 *H	65.0	-4.41 X	6.1	1.7	66.0	-4.00 X	6.6	6.2 H	12	XX
WWXQRR	72.0	75.9 L	75.5	73.0	74.1	-0.01	1.3	1.9	72.5	-0.79	1.3	1.8	16	TD
XTEWPY	76.7 H	76.2	78.4	78.3	77.4	1.58	2.6	1.1	77.0	1.40	2.7	1.0	12	LD
ZJ3GXG	73.6	74.1	73.9	72.6 L	73.5	-0.27	1.6	0.6	73.5	-0.31	1.5	0.8	16	LZ

Consensus (All Labs) Results

Wk Mean	74.40	73.59	74.77	73.30	Month Mean	74.11	Grand Mean	74.12
Avg SDr	1.97	2.45	2.09	2.73	Avg SD	2.19	Avg SD	2.36
SD btwn Labs	2.27	2.52	2.12	2.82	SD btwn Labs	2.07	SD btwn Labs	2.02
Labs Incld	15	16	16	17	SD btwn Wks	1.28	SD btwn Wks	1.34
Labs Excld	2	2	2	1	Labs Incld	16	Labs Incld	16
Labs not Rcvd	1	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

Report #583 (D)
April 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
2DAV6L	48.1	46.6	48.3	No Data	47.7	0.99	2.1	0.9	47.2	0.88	2.4	0.8	7	LD
2EZ44N	45.7	44.4	46.3	45.9	45.6	0.23	2.1	0.8	45.6	0.27	1.9	1.3	12	LD
32TAVK	49.6	49.7	46.6	45.5	47.9	1.06	2.9	2.1	47.7	1.06	2.9	1.7	16	LC
3EUCPD	41.2	42.3	42.4	41.0	41.7	-1.16	2.0	0.7	40.4	-1.70	2.0	2.0	16	TH
3N8Y8U	50.4	51.7 *	52.3 *	50.9	51.3	2.31 *	1.7	0.8	51.0	2.31 *	1.7	0.8	16	LD
3YLZKE	43.7	44.1	43.4	43.1	43.6	-0.49	2.4	0.4	43.7	-0.47	2.4	0.3 L	16	LD
48EL9R	46.3	47.3	45.5	45.5	46.2	0.45	2.8	0.8	46.9	0.76	2.5	1.6	16	LD
7WLCDF	46.2	46.3	46.6	46.6	46.4	0.54	1.4	0.2 L	45.3	0.15	1.6	1.7	16	WK
8MEUFH	28.4 X	29.2 X	28.4 X	31.2 *	29.3	-5.65 X	3.0	1.3	31.5	-5.12 X	2.9	2.5	16	MB
AKG3KM	45.6 L	45.9	45.7	46.1	45.8	0.33	1.7	0.2 L	45.1	0.07	1.3	0.8	8	LC
CNWCMJ	46.4	45.0	45.9	47.6	46.2	0.47	2.6	1.0	45.6	0.28	2.3	1.1	16	LD
EFBQGR	39.3 *	39.1	43.3	40.1	40.5	-1.62	1.7	2.0	40.9	-1.51	2.1	2.3	15	LZ
L7GN42	44.6	43.6	43.4	45.4	44.3	-0.24	3.0	0.9	44.8	-0.03	3.1	0.9	16	LC
LD4DQW	41.8	42.8	No Data	No Data	42.3	-0.95	3.0	0.7	41.9	-1.13	2.7	0.9	6	EM
MH7AYH	45.3	50.6	47.3	No Data	47.7	1.02	3.1	2.7	47.7	1.08	3.1	2.7	3	LD
MJGQXU	47.8 L	45.1	45.3	35.8 H	43.5	-0.51	3.1	5.3 H	44.5	-0.14	2.7	3.3	16	XX
MM7TCU	27.8 X	29.4 X	31.5 X	30.3 *	29.7	-5.50 X	2.1	1.6	31.7	-5.03 X	2.8	1.7	16	XX
MMG2UU	45.0	45.0	44.7	47.9	45.6	0.26	3.0	1.5	46.6	0.65	2.6	2.9	16	LZ
MNW2BX	44.3	44.8	45.3	44.3	44.7	-0.08	2.5	0.5	45.4	0.19	2.6	2.8	12	LD
N6YD4Y	44.3	44.4	42.7	43.1 L	43.6	-0.47	2.0	0.9	44.3	-0.24	2.2	0.8	16	TH
RPVZDT	45.3 H	45.5 H	46.0	43.0	44.9	0.00	4.3	1.3	45.8	0.36	3.2	1.4	16	LD
T49JTY	50.6	48.7	52.3 *	48.0	49.9	1.80	3.4	1.9	47.6	1.02	3.0	1.7	16	LZ
TXHDPX	40.5	39.4	44.9	44.3	42.3	-0.96	2.4	2.7	42.0	-1.11	2.4	1.9	16	LD
U6Y6YV	44.9	44.9	45.0	45.0	45.0	0.01	2.3	0.1 L	45.0	0.04	3.1	0.3 L	16	LD
U7UM2W	45.9	45.3	44.6	48.2	46.0	0.39	3.1	1.5	45.8	0.35	2.8	1.2	12	LD
UZ68CP	41.8	39.9	41.1 H	40.6	40.8	-1.48	3.6	0.8	42.0	-1.09	3.4	1.1	16	LD
WMVB7T	40.5	39.5	39.4 *	39.8	39.8	-1.84	2.1	0.5	39.1	-2.21 *	2.2	0.6	16	TU
WTYAGH	46.6	45.9	46.4	39.8	44.7	-0.09	2.8	3.3	45.3	0.16	2.9	1.7	16	LD

Consensus (All Labs) Results

Wk Mean	45.06	44.91	45.39	43.15	Month Mean	44.92	Grand Mean	44.90
Avg SDr	2.76	2.51	2.56	2.71	Avg SD	2.65	Avg SD	2.55
SD btwn Labs	2.95	3.23	2.86	5.03	SD btwn Labs	2.76	SD btwn Labs	2.63
Labs Incld	26	26	25	25	SD btwn Wks	1.75	SD btwn Wks	1.67
Labs Excld	2	2	2	0	Labs Incld	26	Labs Incld	26
Labs not Rcvd	0	0	1	3				

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	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		

	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
2DAV6L	15.2	15.2	15.5	14.1	15.0	0.67	0.8	0.6	15.1	1.31	0.9	0.5	8	LB
2EZ44N	15.0	15.1	15.1	15.4	15.1	0.92	0.9	0.2	15.0	1.16	0.9	0.2 L	12	LH
3N8Y8U	15.6	16.6 *	15.7 *	15.6	15.9	2.38 *	0.9	0.5	16.0	4.11 X	0.9	0.4	16	LA
3YLZKE	14.5	14.6	14.5	14.6	14.5	-0.26	0.9	0.1 L	14.6	-0.30	0.9	0.2 L	16	LB
48EL9R	15.0	15.0	15.0	14.9	14.9	0.55	1.0	0.1 L	14.9	0.80	0.9	0.3	16	LA
4KGEGF	14.5	14.4 L	14.7	14.4	14.5	-0.38	0.7	0.1	14.6	-0.20	0.6	0.1 L	16	LA
6CL273	14.6	14.9	14.1	14.9	14.6	-0.08	0.8	0.4	14.6	-0.07	0.8	0.5	16	XX
87NRYD	14.8	15.3	14.9	14.9	15.0	0.63	1.0	0.2	15.0	1.01	1.0	0.2	4	LA
8N667B	17.0 X	15.6	17.0 X	15.8	16.3	3.32 X	1.2	0.8 H	14.5	-0.44	1.0	1.2	16	LH
99QCZJ	14.1	14.2	14.6 H	14.8 L	14.4	-0.50	1.1	0.3	14.5	-0.48	1.0	0.5	8	BK
AKG3KM	14.0	13.7	14.0	13.1 *	13.7	-1.97 *	0.9	0.4	14.0	-2.04 *	1.0	0.5	8	LB
BVGFUL	14.7	15.0	14.8	14.6	14.8	0.19	1.0	0.2	14.7	0.22	0.9	0.3	16	LA
CNWCMJ	13.7	14.2	14.2 L	14.6	14.2	-0.96	1.0	0.4	14.2	-1.46	0.9	0.3	16	LZ
HGUBQX	14.5	14.0	14.7	14.5	14.4	-0.47	0.9	0.3	14.6	-0.11	0.9	0.3	16	LB
L7GN42	14.1	14.8	14.7	14.7	14.6	-0.23	1.0	0.3	14.6	-0.32	1.0	0.3	16	LU
MJGQXU	13.9	13.4 *	13.4 *	14.3 H	13.7	-1.89	1.1	0.5	15.0	1.06	1.7	2.4 H	16	XX
MMG2UU	14.8	14.3 H	14.3 H	14.4	14.5	-0.44	1.4	0.2	15.0	0.96	1.1	0.8	16	LA
MNW2BX	15.9 *	15.7	15.7 *	16.2 *	15.9	2.38 *	1.1	0.2	15.8	3.60 X	1.1	0.3	12	LA
P2TWMV	14.2 L	14.5	14.3 L	14.5	14.4	-0.65	0.6	0.1	14.5	-0.55	0.6	0.2	16	TT
PWKRTA	14.8	15.0	14.2	15.1	14.8	0.21	0.9	0.4	14.6	-0.05	0.9	0.4	16	LB
RBC78U	No Data	15.9	13.9	14.6	14.8	0.27	0.9	1.0 H	14.4	-0.90	1.0	0.8	14	LA
RDGYZ8	14.8	15.2	14.7	14.3	14.7	0.12	0.9	0.4	14.6	-0.12	1.0	0.4	16	LB
RPVZDT	14.8	14.8	14.8	14.3	14.7	-0.04	0.8	0.3	15.2	1.78	1.2	0.7	16	LZ
TWNKZ7	14.2	14.2	14.6	14.1	14.3	-0.82	1.1	0.2	14.1	-1.89	1.1	0.4	16	LU
TXHDPX	14.7	14.7	14.6	15.3	14.8	0.33	1.1	0.3	14.9	0.62	1.0	0.4	16	LZ
W9AW3U	14.8	14.8	15.1	14.2	14.7	0.06	1.1	0.4	17.6	9.04 X	1.2	4.4 H	16	LA

Consensus (All Labs) Results

Wk Mean	14.63	14.81	14.64	14.69	Month Mean	14.67	Grand Mean	14.66
Avg SDr	0.96	0.93	1.06	0.91	Avg SD	0.96	Avg SD	1.00
SD btwn Labs	0.50	0.70	0.54	0.62	SD btwn Labs	0.50	SD btwn Labs	0.32
Labs Incld	24	26	25	26	SD btwn Wks	0.37	SD btwn Wks	0.70
Labs Excld	1	0	1	0	Labs Incld	25	Labs Incld	23
Labs not Rcvd	1	0	0	0				

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