Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #584 (E) - May 2018

Introduction to the Containerboard Program

Explanation of Tables and Definitions of Terms

Analysis	Sample	Analysis Name
201	BX12	Box Compression Strength, Corrugated Boxes
202	EC10	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC10	Edgewise Compressive Strength by Clamp (T839), Corrugated Board
205	42D3	Mullen Burst of Linerboard, 42 lb Linerboard
206	56A2	Mullen Burst of Linerboard, 56 lb Linerboard
215	42D3	Ring Crush of Linerboard, Rigid Platen Type, 42 lb Linerboard
216	56A2	Ring Crush of Linerboard, Rigid Platen Type, 56 lb Linerboard
223	42D3	STFI of Linerboard, 42 lb Linerboard
224	56A2	STFI of Linerboard, 56 lb Linerboard
228	56A	Roughness - Stylus Method, 56 lb Linerboard
229	42D3	Roughness - Sheffield Method, 42 lb Linerboard
231	36Z	Internal Bond Strength, Linerboard, 36 lb Linerboard
234	56A	Coefficient of Static Friction - Inclined Plane, 56 lb Linerboard
237	36Z	Air Resistance - Gurley Method, Linerboard, 36 lb Linerboard
240	CM92	Flat Crush Strength (CMT) of Medium, 26 lb Corrugating Medium
250	CM92	Fluted Crush of Medium, 26 lb Corrugating Medium
255	CM92	Ring Crush of Medium, 26 lb Corrugating Medium
261	CM92	STFI of Medium, 26 lb Corrugating Medium

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
28JXV7	593.0	0.71	6.93		590.5	0.69	19.78	4	LS
28ZBXA	567.6	0.00	11.19		578.0	0.29	18.51	4	ET
3EECY6	562.9	-0.13	25.94		560.1	-0.29	7.00	4	LM
3EYXNN	508.2	-1.65	22.12		564.1	-0.16	43.51	4	EX
4V4P6J	587.0	0.55	21.73		567.3	-0.05	27.85	2	LS
64PAQ9	529.6	-1.06	35.40		587.2	0.59	50.10 H	3	LG
6WQKA4	592.3	0.69	26.26		593.6	0.79	4.51	4	ET
7ZMQ4Z	647.4	2.23 *	33.18		614.2	1.46	30.56	3	XX
9FWCLG	541.8	-0.72	26.09		553.0	-0.52	12.33	4	LG
CPM8AL	570.7	0.09	20.78		584.0	0.48	37.72	4	LG
DYAKLQ	569.0	0.04	26.48		572.9	0.12	4.21	4	ER
H2WW74	581.6	0.39	28.13		584.2	0.49	12.70	3	LS
HZNMFR	557.0	-0.29	73.77 H		544.6	-0.79	14.41	4	EX
JR97JC	511.6	-1.56	42.52		489.8	-2.55 *	30.83	2	EX
JYLGC4	575.4	0.22	12.50		569.5	0.01	9.19	4	TE
LETB2H	605.0	1.05	24.32		593.7	0.80	13.73	4	ES
LG26Y4	535.2	-0.90	31.13		510.9	-1.87	18.12	4	TB
LQPYBZ	503.6	-1.78	35.84		553.2	-0.51	34.92	4	LL
M87MXZ	562.9	-0.13	14.28		552.2	-0.54	9.79	4	LL
MG2H4B	550.2	-0.48	30.78		539.3	-0.96	8.43	4	LL
NYVM24	585.4	0.50	19.58		581.6	0.40	6.73	4	ER
PDPU94	644.8	2.16 *	35.05		643.7	2.41 *	15.77	4	ER
U8LGD2	536.0	-0.88	20.31		543.1	-0.84	6.22	4	LS
W72ELJ	573.7	0.17	26.19		596.4	0.88	33.72	4	LG
XUTRF8	567.5	0.00	31.77		553.5	-0.50	11.57	4	ER
YE9XVT	594.6	0.76	22.46		574.3	0.17	18.21	4	LM

Consensus (All Labs) Results

Month Mean	567.46	Grand Mean	569.03
Avg SD	29.80	Avg SD Months	23.00
SD btwn Labs	35.82	SD btwn Labs	31.02
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	543.10	27.37	24.36	8
Clip sealing	578.29	34.28	10.83	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	TE	Testometric M500 - 25 KN
XX	Instrument make/model not specified by lab		

Containerboard Interlaboratory Testing Program

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
28JXV7	34.8	-0.65	3.15	H	33.9	-0.97	1.90	4	LD
3VZ3TC	38.0	0.25	1.84		38.3	0.37	1.06	4	LC
4V4P6J	30.1	-1.92 *	2.21		32.9	-1.27	3.93	2	EM
9FWCLG	40.0	0.80	0.64	L	40.2	0.94	0.11 L	4	TH
BNEEX9	30.9	-1.71	0.88		30.6	-1.96 *	1.17	4	WK
CPM8AL	40.3	0.89	1.99		40.4	1.01	1.02	4	LE
GJ3KKX	37.4	0.08	0.70	L	37.9	0.25	1.34	4	TD
HZNMFR	38.9	0.49	1.91		38.5	0.45	0.31	4	LC
QTGNKU	38.0	0.24	2.27		35.8	-0.40	1.99	3	XX
U8LGD2	40.7	0.98	1.46		39.9	0.86	0.81	4	LC
XUTRF8	35.5	-0.43	2.42		35.7	-0.41	2.05	4	EN
YAD7NW	40.7	1.00	1.49		40.7	1.12	0.00	1	EM

Consensus (All Labs) Results

Month Mean	37.11	Grand Mean	37.07
Avg SD	1.89	Avg SD Months	1.74
SD btwn Labs	3.63	SD btwn Labs	3.28
Labs Incld	12	Labs Incld	12

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	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
28JXV7	44.7	1.56	2.19		41.6	0.02	2.25	4	LD
28ZBXA	41.3	-0.14	1.36		41.5	-0.06	0.66	4	EM
3EECY6	43.4	0.92	1.79		43.9	1.43	0.50	4	EM
3EYXNN	42.8	0.60	2.02		41.5	-0.04	1.51	4	LD
3HWE34	41.6	0.02	1.38		42.7	0.70	1.56	4	TD
3VZ3TC	43.0	0.73	1.16		42.2	0.40	0.61	4	LC
4V4P6J	39.8	-0.90	1.74		39.7	-1.14	0.08	2	EM
64PAQ9	39.3	-1.12	0.34	L	41.6	0.04	2.03	3	TJ
6B8TRM	44.3	1.36	1.96		41.0	-0.35	2.89	4	LD
6EQXFJ	43.9	1.15	1.04		41.2	-0.25	2.14	4	TK
6WQKA4	43.0	0.73	1.98		42.8	0.74	0.22	L 4	TD
7JHJNX	39.8	-0.90	1.47		41.1	-0.30	1.87	2	LD
93NDRN	40.5	-0.55	1.96		40.2	-0.82	0.54	4	LD
9FWCLG	42.5	0.46	0.84		41.8	0.16	1.05	4	TH
BNEEX9	39.8	-0.88	0.86		38.8	-1.69	1.61	4	WK
BRW27L	46.2	2.30 *	1.63		45.3	2.29 *	1.17	4	TG
CP7VMB	42.9	0.66	1.15		42.9	0.81	1.85	4	LC
CPM8AL	42.4	0.42	1.52		42.0	0.28	0.44	4	LY
DYAKLQ	41.2	-0.19	1.61		40.5	-0.67	0.93	4	LD
G7G86H	38.8	-1.35	2.25		41.5	-0.03	2.34	3	EX
GJ3KKX	40.8	-0.38	0.79		41.1	-0.31	1.20	4	TD
H2WW74	40.6	-0.48	1.26		42.5	0.58	2.83	4	TB
HZNMFR	38.8	-1.38	0.90		36.1	-3.29 X	2.54	4	LC
JR97JC	43.2	0.82	1.54		43.7	1.29	1.77	4	CT
JYLGC4	42.3	0.37	1.32		41.7	0.10	0.88	4	LD
JZ2E7N	42.0	0.21	0.80		41.8	0.14	0.43	4	EM
KM8K6E	39.7	-0.95	1.56		41.5	-0.05	1.79	4	LC
LETB2H	41.5	-0.05	1.39		41.1	-0.28	1.36	4	LD
LG26Y4	43.8	1.11	1.56		46.0	2.67 *	2.78	4	LD
M87MXZ	41.0	-0.28	0.73		40.8	-0.48	0.32	4	BU
MG2H4B	39.5	-1.05	1.67		40.6	-0.62	1.16	4	LC
PDPU94	38.0	-1.78	1.25		38.2	-2.05 *	0.53	4	EM
QL2ZRD	40.5	-0.54	0.76		40.8	-0.44	0.46	4	LD
R8UGL7	44.9	1.63	1.83		42.1	0.30	3.10	4	TD
TGJHN2	41.0	-0.28	2.17		42.0	0.23	1.48	3	LC
U8LGD2	43.3	0.88	1.90		42.8	0.74	0.63	4	LC
UMFYCC	39.8	-0.88	1.53		39.0	-1.54	1.10	4	LD
W72ELJ	38.6	-1.46	3.11	H	40.7	-0.55	1.61	4	EM
WNL893	45.2	1.78	1.74		43.1	0.95	1.56	4	TD

Containerboard Interlaboratory Testing Program

Analysis 203

Edgewise Compressive Strength by T839, Corrugated Board - EC10

TAPPI Official Test Method T839

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
X6LCEB	40.4	-0.59	1.07	40.5	-0.67	0.39	4	LD
XUTRF8	39.6	-0.98	2.19	37.7	-2.33 *	1.70	4	EN
YE9XVT	40.4	-0.56	2.01	42.9	0.83	1.90	4	TG

Consensus (All Labs) Results

Month Mean	41.57	Grand Mean	41.57
Avg SD	1.60	Avg SD Months	1.56
SD btwn Labs	2.01	SD btwn Labs	1.65
Labs Incld	42	Labs Incld	41

Key to Instrument Codes Reported by Participants

BU	Buchel Digital Crush Tester	CT	Con-Ten
EM	Emerson 1200 Series	EN	Emerson 2200
EX	Emerson (model not specified)	LC	L&W Crush Tester 48
LD	L&W Crush Tester 248	LY	L&W 830
TB	TMI Monitor/Compression Tester, Model 17-70	TD	TMI Digital Crush Tester, Model 17-09
TG	TMI Digital Crush Tester, 17-76	TH	TMI Monitor/Compression Tester, Model 17-76
TJ	TLS Compression Tester, Model CDM-5	TK	TLS Compression Tester, Model 5184
WK	Zwick Z005 Crush Tester		

Containerboard Interlaboratory Testing Program

Analysis 205

Bursting Strength (Mullen), 42 lb Linerboard - 42D3

TAPPI Official Test Method T807

Report #584 (E)
May 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
28JXV7	112.9	105.5	111.8	107.9	109.5	0.08	12.0	3.4	109.3	0.07	11.0	2.9	16	LA
2W293T	106.3	111.7	115.8	112.7	111.6	0.66	12.1	3.9	111.2	0.55	10.5	3.7	12	LA
3EYXNN	107.0	113.4	112.2	110.8	110.9	0.46	11.4	2.8	108.8	-0.07	10.8	8.3 H	14	AH
3KMKKF	108.9	117.2	114.4	113.0	113.4	1.15	10.3	3.4	110.8	0.45	10.4	4.0	8	LC
3QVY96	106.8	106.8	104.1	107.8 H	106.4	-0.78	16.4	1.6	106.6	-0.62	13.9	2.0	16	LA
4YGRRF	109.9 L	109.4 L	No Data	No Data	109.7	0.12	4.4	0.4	109.0	-0.02	3.8	1.9	14	XX
6B8TRM	112.2	106.9	100.7 *	99.7 *	104.9	-1.20	13.2	5.8 H	105.6	-0.88	12.0	4.2	16	LC
83CAQJ	108.3	107.8	110.2	103.8	107.5	-0.46	14.5	2.7	107.3	-0.44	11.5	2.3	16	LC
8KAU4X	107.6	108.8	109.2	106.4	108.0	-0.33	10.3	1.3	107.1	-0.51	10.3	3.3	16	LA
8VQGCY	104.0	113.0	110.1	110.2	109.3	0.03	9.0	3.8	108.4	-0.17	9.9	3.2	16	LC
93NDRN	112.5	120.1 *	117.7 *	121.6 X	118.0	2.43 *	13.3	4.0	117.5	2.19	*13.6	3.6	16	LC
9JTXDJ	104.2	106.0 H	102.4	107.6	105.0	-1.15	14.8	2.2	104.1	-1.27	13.6	5.4	13	LC
ABAYCD	110.6	109.6 L	110.2	108.4 L	109.7	0.14	5.6	1.0	108.4	-0.17	6.0	1.7	16	RE
C8MYA3	102.1	110.1	112.6	104.5	107.3	-0.52	11.7	4.9	100.8	-2.13	*10.2	7.8	16	XX
CJH9YW	101.7	104.0	102.9	105.2	103.5	-1.59	9.4	1.5	106.5	-0.66	9.3	3.2	16	LB
CPM8AL	115.9	110.9	114.0	111.8 H	113.1	1.08	13.2	2.2	112.8	0.98	12.3	2.7	16	LZ
CZ7NV2	110.3	115.3	115.1	121.6 X	115.6	1.76	13.7	4.7	117.7	2.23	*14.1	6.7	16	LA
DK9U6T	105.1	106.4	107.1	104.4	105.8	-0.95	10.7	1.2	107.6	-0.36	10.6	3.1	16	LC
DP6D8Q	102.2	106.3	102.3	102.9	103.4	-1.59	10.5	1.9	103.7	-1.38	10.0	4.0	16	LC
DYAKLQ	105.6	104.8	107.3	106.2	106.0	-0.89	10.3	1.1	105.7	-0.87	10.6	2.4	16	AH
E2NNPE	108.0	108.1	109.8	111.7	109.4	0.06	13.2	1.7	111.2	0.57	12.2	2.7	16	LZ
FLQUUY	106.1	117.7 L	110.8 L	115.2 *	112.5	0.90	7.6	5.1	110.1	0.28	8.1	6.8	12	AH
FV3TNA	101.6	104.0	102.7	102.3	102.7	-1.81	6.6	1.0	103.2	-1.50	8.4	2.5	16	LA
FYGN48	109.2	109.2	108.4	109.7	109.1	-0.02	5.9	0.5	108.9	-0.05	5.5	1.0 L	13	TP
GJP7YA	109.5	108.9	109.5	108.8	109.2	-0.01	11.6	0.4 L	108.9	-0.04	10.0	1.0 L	16	LA
HFDVB6	108.8	110.0 L	108.7 L	108.1 L	108.9	-0.08	4.8	0.8	109.0	-0.02	5.1	0.8 L	16	AH
HKAG38	111.7	108.6	109.2	109.7	109.8	0.16	13.0	1.3	111.0	0.51	12.9	4.5	16	LJ
HUZX3A	103.8	102.0	110.4	103.9	105.0	-1.15	11.6	3.7	104.1	-1.29	10.1	5.8	16	LC
JLJQV6	115.1	108.0	No Data	No Data	111.6	0.65	12.6	5.1	109.3	0.07	11.8	4.5	14	LC
JR97JC	115.0	117.2	110.1	110.8	113.3	1.13	14.5	3.4	113.7	1.22	12.2	2.4	16	XX
K27NA6	109.5	109.7	110.0	109.5	109.6	0.12	7.8	0.2 L	109.1	0.01	8.3	2.2	16	LJ
LETB2H	107.6	101.3	106.1	106.6	105.4	-1.05	12.4	2.8	107.4	-0.43	10.8	2.5	16	LA
LLCE9K	112.7	113.2	109.0	109.9	111.2	0.55	8.8	2.1	111.6	0.66	11.5	3.6	16	TB
MJ3Q9L	117.3 *	117.1	132.1 X	123.8 X	122.6	3.69 X	9.6	7.1 H	116.7	1.97	* 9.7	5.8	16	TB
NYVM24	108.1	108.4	103.6	105.9	106.5	-0.75	12.0	2.2	105.9	-0.81	11.9	2.5	16	LZ

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
RPX9CE	109.2	113.2	114.2	110.0	111.7	0.68	10.8	2.4	114.5	1.40	11.6	3.2	14	LZ
T4A3GW	106.7	103.5	103.9	104.5	104.7	-1.26	11.2	1.4	106.5	-0.66	10.1	2.6	16	LA
TGJHN2	115.9	113.1	111.3	113.1	113.3	1.15	10.9	1.9	113.0	1.03	12.5	2.6	12	LA
TKG2PZ	107.1	111.1	109.3	111.7	109.8	0.17	12.3	2.1	110.1	0.27	11.2	2.2	15	TB
U8LGD2	104.6	102.7	104.4	102.2	103.5	-1.58	10.4	1.2	104.1	-1.27	10.8	3.1	16	AH
UL6U3U	112.0	104.2	107.3	105.4 L	107.2	-0.55	9.3	3.4	109.0	-0.01	11.7	6.4	15	AH
UMFYCC	112.5	105.5	105.0	106.8	107.5	-0.48	10.2	3.4	106.2	-0.74	8.9	2.5	16	LA
VUCZ8W	110.0	108.1	112.2	112.6	110.7	0.42	7.6	2.1	110.0	0.24	7.7	2.3	16	LC
W3NGEW	109.1	111.6	110.1	106.8	109.4	0.06	12.2	2.0	104.2	-1.24	11.4	8.7 H	16	LA
X6LCEB	112.0	110.9	112.1	112.5	111.9	0.74	8.6	0.7	112.1	0.79	8.2	0.7 L	16	LA
Y94UE8	122.8XH	116.9	118.2 *	112.8	117.7	2.35 *	13.8	4.1	117.5	2.19 *	13.4	3.8	14	LA
ZFVWMW	111.8	118.6	112.3	110.8	113.4	1.15	9.3	3.5	111.4	0.62	10.5	4.8	16	LC
ZNFP89	107.2	112.0	107.3	110.4	109.2	0.01	11.8	2.4	106.6	-0.63	11.4	3.6	16	LC

Consensus (All Labs) Results

Wk Mean	108.86	109.76	109.24	108.25	Month Mean	109.20	Grand Mean	109.04
Avg SDr	11.43	10.90	11.38	10.47	Avg SD	11.12	Avg SD	10.70
SD btwn Labs	3.91	4.66	4.19	3.58	SD btwn Labs	3.62	SD btwn Labs	3.87
Labs Incld	47	48	45	43	SD btwn Wks	2.82	SD btwn Wks	4.03
Labs Excld	1	0	1	3	Labs Incld	47	Labs Incld	48
Labs not Rcvd	0	0	2	2				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 56 lb Linerboard - 56A2

TAPPI Official Test Method T807

Report #584 (E)
May 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
28JXV7	114.9	111.7	113.0	117.8	114.4	0.41	11.5	2.6	112.4	-0.06	11.4	3.1	12	LA
2W293T	121.3	116.4	122.9 *	119.4	120.0	1.61	12.0	2.8	120.0	2.17	*12.0	2.8	4	LA
3EYXNN	112.6	115.6	117.6	115.0	115.2	0.59	10.0	2.1	115.0	0.71	9.9	2.8	10	AH
3KMKKF	113.0	115.8	106.7 H	110.0	111.4	-0.22	13.6	3.9	111.4	-0.36	13.6	3.9	4	LC
3QVY96	107.7	101.8 *	104.8	102.8	104.3	-1.73	13.5	2.6	108.0	-1.37	12.2	3.4	12	LA
4YGRRF	123.5	118.7 L	No Data	No Data	121.1	1.85	4.5	3.4	119.0	1.89	5.4	4.0	10	XX
6B8TRM	100.2 *	113.3	108.5	100.3 *	105.6	-1.45	12.0	6.4	108.8	-1.13	11.6	7.1	12	LC
83CAQJ	108.6	103.9	106.3	105.4	106.1	-1.35	11.6	2.0	109.6	-0.90	10.5	4.2	12	LC
8KAU4X	117.5	116.7	112.8 L	112.1	114.8	0.50	11.5	2.7	115.4	0.81	11.2	4.6	12	LA
8VQGCY	112.3	111.6	112.2	109.6	111.4	-0.21	9.0	1.2	112.6	0.01	10.3	3.3	8	XX
93NDRN	118.8	111.8	121.6	113.9	116.5	0.88	13.4	4.5	116.5	1.14	11.7	5.5	12	LC
9JTXDJ	No Data	109.5	104.8	106.2	106.8	-1.18	12.3	2.5	125.0	3.65	X155.0	48.3 H	8	LC
ABAYCD	117.0	116.8	115.2	115.8	116.2	0.81	6.8	0.8	116.4	1.12	6.6	2.6	12	RE
C8MYA3	110.0	106.8	113.7	103.1	108.4	-0.85	11.0	4.5	108.1	-1.34	10.5	3.5	12	XX
CJH9YW	113.3	114.7	111.0	113.3	113.1	0.14	8.9	1.5	113.2	0.18	7.9	3.5	12	LB
CPM8AL	114.5	118.5	121.8	119.5	118.6	1.31	9.4	3.1	116.8	1.23	11.3	4.7	12	LZ
CZ7NV2	106.5	106.1	112.3	108.7	108.4	-0.85	12.9	2.8	109.8	-0.82	13.4	2.6	12	LA
DK9U6T	104.1	110.7	107.5	111.9	108.5	-0.83	10.0	3.5	112.0	-0.18	9.8	5.0	12	LC
DP6D8Q	114.3	105.3	114.1	107.1	110.2	-0.47	8.6	4.7	110.6	-0.61	10.4	4.7	12	LC
DYAKLQ	111.1	107.5	105.2	108.5	108.1	-0.92	10.6	2.4	111.0	-0.47	9.5	3.6	12	AH
E2NNPE	103.6	118.9	114.6	107.5	111.1	-0.27	11.3	6.9 H	112.2	-0.12	12.1	4.3	12	LZ
FLQUUY	116.6	113.2	111.7	112.0	113.4	0.21	7.8	2.2	112.0	-0.18	8.5	4.2	12	AH
FV3TNA	107.5	114.0	113.9 L	113.4 L	112.2	-0.04	5.5	3.1	114.1	0.43	6.6	3.4	12	LA
FYGN48	114.1	111.1 L	112.1	113.2	112.6	0.05	6.2	1.3	112.6	-0.02	6.6	1.0 L	8	TP
GJP7YA	107.9	113.5	111.8	109.2	110.6	-0.38	7.9	2.5	110.7	-0.58	9.5	3.0	12	LA
HFDVB6	116.3	113.2	112.7 L	112.4	113.7	0.26	5.5	1.8	112.8	0.04	5.3	1.2	12	AH
HKAG38	118.5	106.9	114.8	115.6	113.9	0.33	10.3	5.0	112.9	0.10	12.8	4.5	12	LJ
HUZX3A	113.6	111.6	113.2	108.5	111.7	-0.14	8.9	2.3	110.1	-0.74	9.2	3.0	12	LA
JLJQV6	115.3	113.5	No Data	No Data	114.4	0.43	10.8	1.3	113.4	0.22	11.5	5.2	10	LC
JR97JC	116.4 H	115.9	118.0	113.4	115.9	0.75	13.2	1.9	114.1	0.43	12.2	2.7	12	XX
K27NA6	106.7	104.4	104.9	105.9	105.4	-1.48	11.4	1.0	111.7	-0.27	8.8	4.7	12	LJ
LETB2H	113.4	115.2	111.3	114.1	113.5	0.23	10.8	1.6	112.6	0.00	10.8	2.4	12	LA
LLCE9K	121.7	119.5 L	118.5	113.3	118.2	1.24	7.9	3.6	114.4	0.53	10.1	4.4	12	TB
MJ3Q9L	125.8 *	125.5 *	116.7	128.2 X	124.0	2.47 *	11.9	5.1	123.1	3.08	X11.6	3.8	12	TB
NYVM24	106.7	108.3	110.2	109.3	108.6	-0.80	12.1	1.5	108.2	-1.30	11.5	3.9	12	LZ

Containerboard Interlaboratory Testing Program

Analysis 206

Bursting Strength (Mullen), 56 lb Linerboard - 56A2

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
RPX9CE	119.6	122.8 *	116.3	115.4	118.5	1.30	10.8	3.4	118.3	1.67	11.4	4.8	12	LZ
T4A3GW	110.1	108.0	109.1	105.1	108.0	-0.93	9.8	2.1	107.2	-1.61	11.2	2.6	12	LA
TGJHN2	121.6	118.9	118.4	116.0	118.7	1.34	10.9	2.3	118.7	1.79	10.9	2.3	4	LA
TKG2PZ	110.5	107.4	114.5	114.8	111.8	-0.13	12.1	3.5	111.3	-0.38	11.4	3.1	12	TB
U8LGD2	103.1	107.1	105.8	100.2 *	104.1	-1.78	10.6	3.1	104.5	-2.40	*10.9	3.5	12	AH
UL6U3U	108.6	108.0	110.0	110.8	109.4	-0.65	8.9	1.3	110.0	-0.78	10.6	2.5	11	AH
UMFYCC	114.4	106.2	113.4	111.1	111.3	-0.24	7.6	3.7	112.5	-0.03	7.6	2.8	12	LA
W3NGEW	110.3	113.4	99.0 *	104.6	106.8	-1.19	10.6	6.3	110.0	-0.77	9.9	5.0	12	LA
X6LCEB	115.8	114.7	114.5	114.2	114.8	0.51	9.8	0.7	115.7	0.89	9.3	1.3	12	LA
Y94UE8	118.0	117.6	120.6	118.0	118.5	1.30	9.5	1.4	118.5	1.73	10.0	2.0	11	LA
ZFVWMW	119.8	115.7	111.9	113.1	115.1	0.58	11.9	3.5	112.6	-0.01	14.8	5.6	12	LC
ZNFP89	107.8	105.6	105.5	111.6	107.6	-1.02	11.5	2.9	110.4	-0.65	12.5	3.7	12	LC

Consensus (All Labs) Results

Wk Mean	113.14	112.41	112.34	110.98	Month Mean	112.41	Grand Mean	112.62
Avg SDr	10.39	10.77	9.90	10.64	Avg SD	10.41	Avg SD	10.54
SD btwn Labs	5.78	5.27	5.18	4.80	SD btwn Labs	4.70	SD btwn Labs	3.40
Labs Incld	46	47	45	44	SD btwn Wks	3.22	SD btwn Wks	3.81
Labs Excld	0	0	0	1	Labs Incld	47	Labs Incld	45
Labs not Rcvd	1	0	2	2				

Key to Instrument Codes Reported by Participants

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

	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
28JXV7	88.4	84.4	88.5	84.6	86.5	-0.66	3.8	2.3	86.0	-0.68	4.0	3.6	16	LD
3QVY96	93.6	87.1	84.5 H	No Data	88.4	-0.04	5.9	4.7	87.7	-0.13	5.7	4.0	15	LC
3VZ3TC	86.2	86.7	85.3	88.6	86.7	-0.58	3.8	1.4	86.3	-0.60	3.4	1.4	16	LC
4NJJE6	79.3 *H	87.2	90.3	87.1	86.0	-0.82	6.6	4.7	91.2	0.94	5.3	4.7	12	MB
4YGRRF	79.3 *	87.6	No Data	No Data	83.5	-1.65	4.2	5.9	80.4	-2.41 *	3.7	4.6	14	LD
6B8TRM	88.2	87.1	86.0	88.0	87.3	-0.40	4.5	1.0	86.3	-0.57	4.2	1.7	16	LD
6E9L47	91.4	92.5	92.4	90.8	91.8	1.06	4.0	0.8	91.3	0.99	3.9	2.0	16	LD
6EQXFJ	81.2	78.4 XH	70.1 X	69.5 X	74.8	-4.47 X	4.5	5.9	72.4	-4.91 X	4.5	5.6	16	MZ
83CAQJ	93.7	91.9	91.0	91.9	92.1	1.17	4.5	1.1	90.9	0.83	3.8	1.7	16	LD
8KAU4X	105.1XH	88.3	87.3	87.3	92.0	1.14	5.4	8.8 H	89.2	0.32	4.2	4.9	16	LD
93NDRN	87.2	87.1	89.1	85.5	87.2	-0.41	4.7	1.5	86.8	-0.42	3.9	1.2	16	LD
9JTXDJ	91.1	92.1	78.0 *	91.1	88.1	-0.14	3.4	6.7	89.0	0.25	3.6	4.0	16	LC
ABAYCD	92.0	90.7	91.9	90.7	91.3	0.91	3.3	0.7	93.5	1.66	3.3	2.1	16	LZ
ABCR9Z	87.6	89.8	84.1	85.9	86.8	-0.54	4.8	2.4	85.5	-0.82	5.3	6.0	16	XX
BRW27L	89.8	89.3	88.1	89.0	89.0	0.17	3.0	0.7	89.4	0.39	3.0	0.8 L	16	TH
CJH9YW	93.2	93.3	94.7	92.1 L	93.3	1.56	4.5	1.1	90.5	0.73	4.0	3.1	16	LC
CPM8AL	86.1	84.4	88.8	88.6	87.0	-0.51	3.4	2.1	87.9	-0.08	3.7	2.2	16	LG
DK9U6T	88.8	88.8	87.0	84.7	87.3	-0.39	3.3	2.0	87.3	-0.26	3.6	2.0	16	LD
DP6D8Q	91.8	84.7 L	90.6	85.5	88.2	-0.12	3.1	3.6	90.4	0.70	4.2	2.7	16	LD
DYAKLQ	88.6	86.5	86.6	88.0	87.4	-0.35	3.1	1.0	85.9	-0.71	3.6	1.4	16	LD
FLQUUY	107.3XH	96.0	98.4 *	97.7 *	99.8	3.69 X	4.9	5.1	98.8	3.30 X	4.5	3.6	12	LZ
FV3TNA	83.1 L	84.9	84.5	85.6	84.5	-1.29	2.5	1.1	83.4	-1.48	2.7	1.8	16	TU
FVHAJ4	74.4 XH	76.1 X	77.8 *	78.8 *	76.8	-3.83 X	5.5	1.9	76.8	-3.54 X	5.5	1.9	4	LC
FYGN48	90.7	90.1	91.4	90.0	90.5	0.66	3.4	0.6	90.1	0.58	3.5	1.2	16	TH
GJP7YA	90.9	91.7 H	88.5	88.4	89.9	0.44	4.7	1.7	90.4	0.70	4.3	1.3	16	LD
HKAG38	84.8	90.9	88.6	90.8	88.8	0.08	4.4	2.9	90.1	0.59	4.6	2.6	16	LD
HUZX3A	88.3	88.4	88.4	87.9	88.2	-0.09	2.8	0.2 L	88.1	-0.02	3.4	0.8 L	16	LD
JLJQV6	90.4	91.3	No Data	No Data	90.9	0.76	2.7	0.6	93.7	1.71	4.0	3.5	14	LD
JYLGC4	91.6	91.7	91.9	92.3	91.9	1.09	2.8	0.3 L	91.8	1.14	2.5	0.9 L	16	LD
JZ2E7N	82.9	82.5 *	80.0	82.8	82.0	-2.11 *	4.0	1.4	81.9	-1.95 *	3.9	1.6	16	EM
K27NA6	89.5	89.6	89.4 H	89.6	89.5	0.33	5.7	0.1 L	89.2	0.32	5.9	0.3 L	16	LD
LLCE9K	84.5	88.0	87.2	87.1	86.7	-0.60	3.4	1.5	84.0	-1.29	4.0	4.9	16	LZ
MJ3Q9L	98.4 *	98.1 *	106.0 XH	99.9 *	100.6	3.93 X	5.3	3.7	100.1	3.71 X	5.3	5.4	16	LX
NYVM24	86.9	89.0	88.9	89.8	88.7	0.05	3.8	1.3	87.3	-0.26	4.0	1.5	16	LD
PG9K3E	90.1	91.5	90.2	90.6	90.6	0.67	3.7	0.7	90.1	0.60	3.6	1.2	16	LD

Containerboard Interlaboratory Testing Program

Analysis 215

Ring Crush, 42 lb Linerboard - 42D3

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
R8UGL7	91.3 L	90.8 L	94.1	91.3 L	91.9	1.09	1.5	1.5	92.6	1.38	2.0	1.9	16	TD
RPX9CE	89.3	89.8	86.1	88.0	88.3	-0.07	2.8	1.7	87.1	-0.34	3.2	2.0	14	LC
T4A3GW	79.4 *	86.7	85.2	86.0 H	84.3	-1.36	5.0	3.3	84.7	-1.09	6.1	4.6	16	LZ
TGJHN2	72.5 XH	72.2 XH	73.0 XH	82.7	75.1	-4.37 X	8.8	5.1	84.2	-1.24	7.3	11.7 H	12	LC
TKG2PZ	90.8	92.9 H	93.8	91.3	92.2	1.19	5.3	1.4	89.3	0.35	5.2	3.3	15	LD
U8LGD2	88.7	92.7	88.0	91.5	90.2	0.57	4.5	2.2	90.3	0.66	4.5	2.2	16	LC
UL6U3U	94.9	No Data	96.3	92.4	94.5	1.96 *	3.5	2.0	93.9	1.79	4.5	2.4	13	LC
UMFYCC	85.0	88.6	86.0	86.9	86.6	-0.61	3.8	1.5	86.8	-0.43	3.6	1.2	16	LD
W3NGEW	95.4	96.7 *	66.4 XH	97.3 *	89.0	0.14	6.4	15.0 H	92.0	1.19	5.9	11.7 H	16	LC
W72ELJ	87.2	84.7	81.2	85.2	84.6	-1.28	3.2	2.5	87.6	-0.18	4.1	2.9	16	EM
X6LCEB	91.9	90.8	91.7	91.2	91.4	0.94	2.5	0.5 L	92.0	1.18	3.1	0.7 L	16	LD
XUTRF8	83.2	81.8 *H	83.2	82.0	82.5	-1.94 *	4.9	0.8	82.7	-1.69	3.8	1.5	16	EN
Y94UE8	95.9	92.6	95.1	95.1	94.7	2.01 *	3.5	1.4	84.4	-1.17	6.3	14.1 H	14	LZ
Z83JPH	No Data	90.1	87.0	84.2 H	87.1	-0.45	4.6	3.0	86.4	-0.56	6.3	5.1	14	MB
ZNFP89	84.1	88.4	79.7	82.1	83.6	-1.61	4.0	3.7	86.2	-0.61	4.0	2.6	16	LC

Consensus (All Labs) Results

Wk Mean	88.59	89.34	88.10	88.64	Month Mean	88.51	Grand Mean	88.17
Avg SDr	4.39	3.91	4.06	3.73	Avg SD	4.11	Avg SD	4.32
SD btwn Labs	4.48	3.47	4.64	4.22	SD btwn Labs	3.07	SD btwn Labs	3.22
Labs Incld	45	46	44	46	SD btwn Wks	3.49	SD btwn Wks	4.22
Labs Excld	4	3	4	1	Labs Incld	45	Labs Incld	46
Labs not Rcvd	1	1	2	3				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LG	L&W 753	LX	L&W 506
LZ	L&W Crush Tester (model not specified)	MB	Messmer Buchel K440
MZ	Messmer Buchel (model not specified)	TD	TMI Digital Crush Tester, Model 17-09
TH	TMI Compression Tester, Model 17-76	TU	TMI Universal Crush Tester (TMI K440)
XX	Instrument make/model not specified by lab		

	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
28JXV7	131.7	135.8	138.3	133.8	134.9	-0.93	5.2	2.8	135.2	-0.94	4.9	3.0	12	LD
3QVY96	145.3 H	145.7	133.5 H	119.3 *	136.0	-0.71	9.1	12.5 H	144.8	0.99	6.8	9.8 H	12	LC
3VZ3TC	135.3	137.4	136.0	137.3	136.5	-0.60	4.1	1.0	138.5	-0.27	4.0	2.8	12	LC
4NJJE6	143.2	142.1	144.2	141.5 H	142.8	0.69	7.1	1.2	145.1	1.04	5.7	3.0	8	MB
4YGRRF	134.5	135.7	No Data	No Data	135.1	-0.89	3.9	0.8	132.6	-1.46	4.4	4.6	10	LD
6B8TRM	135.5	139.5	135.4	136.5	136.7	-0.55	3.7	1.9	136.0	-0.79	4.7	2.4	12	LD
6E9L47	142.7 L	139.2	142.2	140.2	141.1	0.34	4.8	1.7	141.7	0.37	5.3	1.9	12	LD
6EQXFJ	123.9 *	114.3 XH	113.0 X	119.9 *	117.8	-4.43 X	6.0	5.1	118.9	-4.20 X	5.7	3.9	12	MZ
83CAQJ	146.5	145.8	142.5	145.5	145.1	1.16	4.6	1.7	143.0	0.61	4.6	2.3	12	LD
8KAU4X	140.0	145.4	137.7	136.6	139.9	0.10	3.5	3.9	140.6	0.14	4.0	3.6	12	LD
93NDRN	134.9	134.6	134.3	133.4	134.3	-1.05	3.8	0.7 L	134.4	-1.11	3.9	1.7	12	LD
9JTXDJ	134.2	121.7 X	121.5 *	142.6	130.0	-1.93 *	5.2	10.3	135.8	-0.82	4.6	7.8	11	LC
ABAYCD	139.9	139.7	141.3	141.9	140.7	0.26	3.6	1.1	145.0	1.03	3.8	3.5	12	LZ
ABCR9Z	138.1	144.9	141.9	138.3	140.8	0.28	5.2	3.2	139.1	-0.15	6.7	4.6	12	XX
BRW27L	140.9	140.8	142.6	141.5	141.4	0.41	3.2	0.8 L	142.4	0.50	3.8	1.3	12	TH
CJH9YW	149.1	147.8	149.6	150.9	149.3	2.04 *	5.2	1.3	142.4	0.49	4.5	5.6	12	LC
CPM8AL	137.1	135.5	131.8	136.1 L	135.1	-0.88	2.5	2.3	138.6	-0.26	3.8	3.7	12	LY
DK9U6T	139.9	142.3	137.7 L	135.3	138.8	-0.13	3.2	3.0	138.9	-0.20	4.2	1.9	12	LD
DP6D8Q	139.2	142.1	144.4	142.6	142.0	0.54	5.4	2.2	143.5	0.73	5.4	2.7	12	LD
DYAKLQ	138.2	133.6	138.1	137.2	136.8	-0.54	4.3	2.2	134.9	-1.00	4.4	2.4	12	LD
FLQUUY	150.6	146.7	150.4	150.2	149.5	2.07 *	4.6	1.8	152.9	2.61 *	5.1	3.9	12	LZ
FV3TNA	130.8	132.2	131.3	132.7	131.7	-1.58	4.3	0.8 L	129.5	-2.09 *	3.9	2.2	12	TU
FVHAJ4	125.0 *	124.8 X	123.8 *	123.5 *	124.3	-3.11 X	5.6	0.8 L	124.3	-3.13 X	5.6	0.8 L	4	LC
FYGN48	139.4	141.2	138.5	140.1	139.8	0.08	4.1	1.1	139.5	-0.09	3.9	1.0 L	12	TH
GJP7YA	143.9	141.2	142.3	141.5	142.2	0.58	5.0	1.2	140.4	0.09	5.3	1.9	12	LD
HKAG38	139.8 H	143.5	151.0	152.5	146.7	1.49	6.6	6.1	147.8	1.57	5.5	5.2	12	LD
HUZX3A	140.0	138.5	137.2	140.8	139.1	-0.06	3.6	1.6	139.4	-0.11	3.6	1.9	8	LD
JLJQV6	146.2	140.2	No Data	No Data	143.2	0.77	5.4	4.2	147.5	1.52	4.7	3.3	10	LD
JYLGC4	142.5	142.1	144.0	142.9	142.9	0.71	3.1	0.8 L	143.5	0.72	3.2	1.8	12	LD
JZ2E7N	127.1	133.6	125.9	123.1 *	127.4	-2.46 *	4.6	4.4	126.7	-2.64 *	4.9	3.6	12	EM
K27NA6	141.1	141.1	141.0	140.0	140.8	0.28	6.4	0.5 L	138.9	-0.21	4.4	1.8	12	LD
LLCE9K	131.9	140.5	139.6	135.3 H	136.8	-0.54	6.6	4.0	136.8	-0.63	4.8	3.7	12	LZ
MJ3Q9L	156.5 *	161.1 X	165.6 X	159.8 *	160.7	4.38 X	5.9	3.7	157.1	3.45 X	6.3	5.9	12	LY
NYVM24	137.4	141.2	140.0	144.1	140.7	0.26	4.1	2.8	138.5	-0.28	4.6	2.8	12	LD
PG9K3E	141.7	142.5	145.6	144.9	143.7	0.87	5.1	1.9	143.1	0.65	4.6	1.4	12	LD

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56A2

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
R8UGL7	141.1 L	139.2 L	141.7 L	140.6 L	140.6	0.25	1.6	1.1	141.0	0.22	2.9	1.4	12	TD
RPX9CE	139.3	141.2	140.6	139.5	140.1	0.15	5.6	0.9	137.0	-0.58	4.7	3.1	12	LC
T4A3GW	139.9	126.0 X	138.8	137.5	135.5	-0.79	6.0	6.5	135.0	-0.99	9.1	7.0	12	LZ
TGJHN2	112.2XH	111.8XH	126.9 H	104.7XH	113.9	-5.24 X	17.6	9.3	113.9	-5.20	X17.6	9.3	4	LC
TKG2PZ	139.4	143.0	143.5	142.0	142.0	0.52	5.1	1.8	142.6	0.53	5.2	4.3	12	LD
U8LGD2	147.8	147.9	147.8 L	147.1	147.6	1.68	3.3	0.4 L	146.3	1.28	4.2	1.5	12	LC
UL6U3U	143.5	No Data	139.9 H	141.6	141.6	0.45	7.1	1.8	140.8	0.18	6.7	2.8	10	LC
UMFYCC	135.5	134.2	136.3	134.8	135.2	-0.87	3.7	0.9	135.6	-0.85	3.8	1.2 L	12	LD
W3NGEW	156.3 *	151.0 *	102.1XH	152.2	140.4	0.20	10.3	25.6 H	144.7	0.96	8.4	20.5 H	12	LC
W72ELJ	139.4	135.6 H	137.7	140.1	138.2	-0.25	5.5	2.0	140.6	0.14	4.7	4.0	12	EM
X6LCEB	143.8	143.7	144.1	143.9	143.9	0.92	3.2	0.2 L	143.7	0.75	2.9	0.4 L	12	LD
XUTRF8	128.4	129.0 *	130.5	129.3	129.3	-2.08 *	4.1	0.9	131.1	-1.76	4.6	2.3	12	EN
Y94UE8	144.9	144.4	142.5	144.5	144.1	0.96	4.7	1.1	143.4	0.71	3.9	1.8	11	LZ
Z83JPH	No Data	140.9	138.2	134.1 H	137.7	-0.34	7.3	3.4	138.4	-0.29	7.6	6.1	11	MB
ZNFP89	140.6	141.7	127.9 L	130.1	135.1	-0.89	3.4	7.1	138.4	-0.29	4.1	6.3	12	LC

Consensus (All Labs) Results

Wk Mean	139.66	140.56	138.66	139.12	Month Mean	139.42	Grand Mean	139.91
Avg SDr	4.99	4.69	5.03	5.16	Avg SD	5.09	Avg SD	4.96
SD btwn Labs	6.80	4.63	6.69	8.07	SD btwn Labs	4.87	SD btwn Labs	5.00
Labs Incld	48	43	45	47	SD btwn Wks	5.16	SD btwn Wks	4.79
Labs Excld	1	6	3	1	Labs Incld	46	Labs Incld	46
Labs not Rcvd	1	1	2	2				

Key to Instrument Codes Reported by Participants

EM	Emerson 1200	EN	Emerson 2200
LC	L&W Crush Tester 48	LD	L&W Crush Tester 248
LY	L&W Crush Tester 958	LZ	L&W Crush Tester (model not specified)
MB	Messmer Buchel K440	MZ	Messmer Buchel (model not specified)
TD	TMI Digital Crush Tester, Model 17-09	TH	TMI Compression Tester, Model 17-76
TU	TMI Universal Crush Tester (TMI K440)	XX	Instrument make/model not specified by lab

	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
28JXV7	23.2	24.9 *	24.2	20.8	23.3	1.00	1.7	1.8 H	23.1	0.72	1.9	1.0	16	LZ
2JBLNK	23.1	23.6	22.0	22.7	22.8	0.49	2.2	0.7	23.1	0.73	2.1	0.9	16	XX
2W293T	23.3	24.1	24.2	24.7 *	24.1	1.92	2.0	0.6	23.7	1.48	2.1	1.4	12	LU
3KMKKF	23.3	23.0	22.2	22.9	22.9	0.52	1.7	0.4	22.8	0.33	1.7	0.4	8	XX
3QVY96	22.8 H	21.6	21.2	No Data	21.9	-0.63	2.5	0.8	21.5	-1.29	2.0	1.2	15	LW
4NJJE6	21.9 L	21.8 L	22.4 L	22.6 L	22.2	-0.28	0.5	0.4	22.6	0.12	1.7	0.8	12	BK
6B8TRM	22.2	23.2	22.4	22.5	22.6	0.18	1.8	0.4	22.2	-0.47	1.8	0.6	16	LA
6TB9B3	23.6	21.6 L	23.7	22.3	22.8	0.43	1.6	1.0	23.0	0.57	1.9	0.8	12	LH
7JHJNX	21.1 L	20.5	20.8	22.1	21.1	-1.49	1.6	0.7	22.7	0.23	1.9	1.9	8	LH
83CAQJ	23.9	23.4	23.5	23.0 L	23.4	1.18	1.6	0.4	23.0	0.52	1.9	0.4	16	LA
8KAU4X	21.7	22.2	23.1	22.1	22.3	-0.16	1.7	0.6	22.4	-0.24	1.9	0.6	16	LA
8VQGCY	23.0	20.3 *	20.5	21.7	21.4	-1.19	1.6	1.3	29.7	8.94 X	2.0	9.7 H	16	LA
93NDRN	22.9	22.1	22.3	21.9	22.3	-0.13	2.1	0.4	22.1	-0.55	1.7	0.6	16	LA
9JTXDJ	22.1	22.5	23.1	21.6	22.3	-0.12	1.9	0.7	22.2	-0.41	1.6	0.6	12	LA
ABCR9Z	22.3 L	21.8 L	21.8 L	21.7 L	21.9	-0.59	0.1	0.3	23.0	0.50	2.1	4.2 H	16	XX
C8MYA3	21.0	23.6	22.3	23.3	22.6	0.17	1.9	1.2	22.7	0.20	1.9	0.9	16	XX
CJH9YW	22.6	22.4	22.7	22.4	22.5	0.10	1.7	0.1	22.7	0.24	1.7	0.3	16	ID
CPM8AL	21.5	21.4	21.8	21.7	21.6	-0.93	1.7	0.2	21.8	-0.89	1.9	0.4	16	LU
CZ7NV2	23.6	23.2 H	21.7	23.7	23.0	0.74	2.1	0.9	22.7	0.22	2.0	0.7	16	XX
DP6D8Q	23.0	23.8	24.3	23.8	23.8	1.55	2.2	0.5	23.1	0.70	2.1	0.9	16	LA
DYAKLQ	20.7	21.7	21.3	21.5	21.3	-1.28	1.7	0.5	21.5	-1.26	1.9	0.4	16	LU
E2NNPE	24.1	25.2 *	23.8	22.9	24.0	1.87	1.8	0.9	24.5	2.43 *	1.9	0.8	16	LZ
FBBZKR	23.0	21.5	20.8	No Data	21.8	-0.71	2.1	1.1	21.2	-1.63	2.2	1.3	15	LW
FYGN48	22.4 L	22.3 L	22.3 L	22.3	22.3	-0.09	1.0	0.1 L	22.4	-0.25	1.0	0.2 L	16	TT
GJP7YA	22.1	22.6	22.8	22.5	22.5	0.08	1.7	0.3	22.2	-0.46	1.8	0.4	16	LY
HFDVB6	22.6	22.3 L	22.2 L	22.8 L	22.5	0.08	1.0	0.3	22.5	-0.01	0.9	0.2 L	16	TT
HKAG38	22.5	24.1	21.9	22.2	22.7	0.29	1.9	1.0	23.0	0.55	1.9	0.7	16	LU
HUZX3A	22.0	23.5	21.4	22.5	22.3	-0.08	1.8	0.9	22.3	-0.26	1.8	0.9	16	LA
JLJQV6	23.1	20.7	No Data	No Data	21.9	-0.60	1.9	1.7	23.1	0.71	2.0	1.2	14	LZ
JYLGC4	21.1	20.0 *	21.0	21.2	20.8	-1.86	1.3	0.6	21.1	-1.86	1.6	0.4	16	LY
LLCE9K	22.1	21.9	21.0	21.4	21.6	-0.93	1.7	0.5	21.5	-1.26	1.8	0.6	16	LZ
MVXW46	21.7	22.4	22.0	22.1	22.0	-0.42	1.8	0.3	22.3	-0.35	1.9	0.5	16	LW
NWMKY6	23.7	23.7 H	24.2	23.3	23.7	1.49	2.0	0.4	24.1	1.97 *	2.1	0.8	12	XX
NYVM24	22.0	21.9	21.0	23.4	22.1	-0.37	1.9	1.0	22.3	-0.26	1.9	0.7	16	LY
PG9K3E	21.0	23.2	23.5	22.3	22.5	0.14	1.5	1.1	22.7	0.24	1.9	0.7	16	LY

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
RPX9CE	22.3	22.5	22.9	22.4	22.5	0.14	2.1	0.3	22.4	-0.25	2.1	0.7	14	LW
T4A3GW	22.1	21.3	18.1 X	21.8	20.8	-1.84	1.7	1.8 H	21.5	-1.33	1.8	1.3	16	LA
TGJHN2	24.1	23.4	24.7 *	24.3 *	24.1	1.98 *	1.9	0.5	24.6	2.56 *	2.1	0.6	12	LU
TKG2PZ	23.9	23.2	23.4	23.0	23.4	1.13	1.9	0.4	23.6	1.30	1.9	0.4	15	LW
U8LGD2	22.2	22.3	22.1	22.1	22.2	-0.27	1.8	0.1 L	22.3	-0.28	1.9	0.3	16	LU
UL6U3U	23.1 H	21.9 H	21.6 H	22.5 H	22.3	-0.14	3.3	0.7	23.3	0.91	3.9	1.2	15	LH
UMFYCC	21.5	22.1	22.1	21.4	21.8	-0.74	1.5	0.4	21.6	-1.16	1.6	0.6	16	BK
VUCZ8W	24.6 *	23.4	24.9 *	23.7 H	24.1	1.98 *	2.1	0.7	22.9	0.41	1.9	1.2	16	LA
X6LCEB	22.3	22.4	22.5 L	22.4	22.4	-0.01	1.3	0.1 L	22.5	-0.05	1.5	0.2 L	16	LA
XUTRF8	21.0	20.8	20.3	20.7 *	20.7	-1.99 *	1.7	0.3	21.3	-1.61	1.9	0.5	16	LY
Y94UE8	21.9	21.8	21.6	21.3	21.7	-0.88	1.9	0.3	21.3	-1.50	1.9	0.5	14	LW
Z83JPH	No Data	22.8	22.8	22.5	22.7	0.37	1.7	0.2	23.1	0.65	1.8	1.0	14	LA
ZFVWMW	23.4	22.9	23.3	23.1	23.2	0.90	1.9	0.2	22.7	0.15	1.8	0.6	16	LA
ZNFP89	20.7	21.3	21.5	22.7	21.6	-0.99	1.4	0.8	21.9	-0.83	1.9	0.6	16	LA

Consensus (All Labs) Results

Wk Mean	22.48	22.45	22.41	22.43	Month Mean	22.41	Grand Mean	22.55
Avg SDr	1.79	1.74	1.87	1.78	Avg SD	1.80	Avg SD	1.93
SD btwn Labs	0.98	1.13	1.15	0.85	SD btwn Labs	0.86	SD btwn Labs	0.80
Labs Incld	48	49	47	46	SD btwn Wks	0.76	SD btwn Wks	1.00
Labs Excld	0	0	1	0	Labs Incld	49	Labs Incld	48
Labs not Rcvd	1	0	1	3				

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
28JXV7	35.1	35.2	36.9	32.6	35.0	0.35	2.9	1.8	35.6	1.13	3.0	1.5	12	LZ
2JBLNK	38.5 *	36.8 H	35.9	37.5	37.2	1.94 *	3.6	1.1	34.5	0.08	3.2	3.0	12	XX
2W293T	36.6	37.5	37.0	37.3	37.1	1.88	2.9	0.4	37.1	2.42 *	2.9	0.4 L	4	LU
3KMKKF	35.5	36.2	35.2	34.8	35.4	0.70	2.6	0.6	35.4	0.95	2.6	0.6	4	LU
3QVY96	36.3	37.3	34.1 H	30.9	34.7	0.14	3.4	2.8 H	34.2	-0.16	2.7	1.7	12	LW
4NJJE6	32.6 L	35.4 L	35.3 L	34.1 L	34.3	-0.09	0.7	1.3	35.4	0.88	2.4	1.5	8	BK
6B8TRM	34.1	34.9	33.7	33.5	34.0	-0.29	2.7	0.7	34.1	-0.20	2.6	0.5	12	LA
6TB9B3	37.0	35.5	37.2	32.8	35.6	0.81	2.9	2.0	35.4	0.88	3.2	1.4	8	LH
7JHJNX	32.8	32.9	32.8	33.0	32.9	-1.12	2.6	0.1 L	34.9	0.43	2.8	2.2	8	LH
83CAQJ	34.1	34.5	33.8	34.7	34.3	-0.12	2.7	0.4	34.2	-0.16	2.9	0.8	12	LA
8KAU4X	35.2	34.2	34.3	34.5	34.6	0.07	2.8	0.5	34.9	0.43	3.2	1.2	12	LA
8VQGCY	35.2	37.8	35.1	35.7	35.9	1.05	3.1	1.2	45.9	10.15 X	3.8	7.5 H	12	XX
93NDRN	33.1	34.1	33.8	35.6	34.2	-0.21	2.4	1.1	32.7	-1.46	2.5	1.9	12	LA
9JTXDJ	34.9	34.1	33.7	34.9	34.4	-0.06	2.7	0.6	33.9	-0.42	2.7	0.7	8	LA
ABCR9Z	35.0 L	35.4 L	34.8 L	34.0 L	34.8	0.26	0.2	0.6	34.7	0.32	2.2	0.9	12	XX
C8MYA3	32.1	36.6	33.6	37.8 *H	35.0	0.41	3.4	2.6 H	35.7	1.15	2.9	5.3 H	12	XX
CJH9YW	34.5 L	34.8	34.9	34.7	34.7	0.18	2.2	0.2 L	34.7	0.32	2.5	0.2 L	12	XX
CPM8AL	34.6	33.1	32.2	34.5	33.6	-0.61	2.1	1.2	33.7	-0.60	3.0	0.8	12	LU
CZ7NV2	34.9	34.4	33.7	33.8	34.2	-0.18	2.2	0.5	34.4	0.07	2.2	1.7	12	XX
DP6D8Q	36.4	33.9	35.9	36.3	35.6	0.84	2.7	1.2	35.2	0.70	2.6	1.4	12	LA
DYAKLQ	34.3	32.9	32.2	32.6	33.0	-1.03	3.0	0.9	32.5	-1.68	3.0	0.8	12	LU
E2NNPE	38.9 *	38.5 *	38.6 *H	36.6	38.1	2.61 *	3.4	1.0	37.8	3.01 X	3.4	1.8	12	LZ
FBBZKR	34.4	32.6	32.6	30.5 *	32.5	-1.36	3.1	1.6	33.1	-1.10	2.3	2.1	12	LW
FYGN48	33.7 L	33.7 L	33.8 L	33.6 L	33.7	-0.56	1.3	0.1 L	33.7	-0.62	1.2	0.2 L	12	TT
GJP7YA	35.1	35.1	35.0	34.3	34.9	0.30	2.8	0.4	34.6	0.18	2.6	0.6	12	LU
HFDVB6	33.9 L	33.5 L	33.7 L	34.0 L	33.7	-0.50	1.1	0.2	33.8	-0.51	1.1	0.2 L	12	TT
HKAG38	33.8	34.9	33.5	35.5	34.4	-0.03	3.0	1.0	35.3	0.81	2.4	0.9	12	LU
HUZX3A	35.9 L	35.4	33.9	35.3	35.1	0.45	2.0	0.9	34.8	0.35	2.8	1.0	12	LW
JLJQV6	32.8	32.8	No Data	No Data	32.8	-1.17	3.0	0.0	35.0	0.58	3.2	2.0	10	LZ
JYLGC4	30.4 *	30.7 *	32.3 L	32.5	31.5	-2.11 *	1.9	1.1	31.8	-2.25 *	2.1	0.7	12	LY
LLCE9K	33.2	32.8	34.2	32.9	33.3	-0.84	2.5	0.7	33.3	-0.90	2.7	0.6	12	LZ
MVXW46	34.0	34.7	33.6	33.4	33.9	-0.38	2.2	0.5	33.7	-0.58	2.4	0.7	12	LW
NWMKY6	37.1	37.9 H	37.3	30.3 *	35.7	0.87	3.2	3.6 H	35.7	1.16	3.2	3.6 H	4	LU
NYVM24	35.1	33.6	32.7	34.1	33.9	-0.42	2.7	1.0	34.2	-0.14	2.8	0.6	12	LZ
PG9K3E	33.8	34.4	34.3	34.1	34.2	-0.20	2.8	0.3	34.6	0.25	2.7	0.5	12	LY

Containerboard Interlaboratory Testing Program

Analysis 224

STFI, 56 lb Linerboard - 56A2

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
RPX9CE	35.1	36.9	36.3	35.2	35.9	1.00	3.0	0.9	35.3	0.78	3.2	1.1	12	LW
T4A3GW	32.4	33.4	30.1 *	33.4	32.3	-1.50	2.7	1.5	32.9	-1.27	2.9	1.8	12	LA
TGJHN2	37.1	38.3 *	35.6	36.4	36.9	1.72	3.2	1.1	36.9	2.22 *	3.2	1.1	4	LU
TKG2PZ	34.3	35.3	34.7	34.4	34.7	0.15	2.7	0.4	35.5	0.98	3.0	0.8	12	LW
U8LGD2	33.9	33.5	33.6	34.4	33.8	-0.44	2.8	0.4	34.0	-0.31	2.6	0.8	12	LU
UL6U3U	33.9 L	34.0	32.6	34.3	33.7	-0.52	1.9	0.7	35.3	0.86	3.6	1.8	12	LY
UMFYCC	31.4	33.1 L	32.9	31.4	32.2	-1.59	2.4	0.9	32.5	-1.65	2.2	1.0	12	BK
VUCZ8W	39.2 *H	37.8	34.8	37.4 H	37.3	2.04 *	4.0	1.9	35.0	0.60	3.1	2.5	12	LA
X6LCEB	34.8	34.3	34.5	34.6	34.6	0.08	2.4	0.2	34.2	-0.17	2.5	0.4 L	12	LA
XUTRF8	32.5 L	31.9	31.5	31.2	31.8	-1.89	2.2	0.6	32.5	-1.66	2.5	0.8	12	LY
Y94UE8	34.5	33.3	35.0 H	33.2	34.0	-0.32	3.0	0.9	32.9	-1.28	3.0	1.2	11	LW
Z83JPH	No Data	35.3	34.7	33.9	34.7	0.15	2.8	0.7	34.3	-0.04	2.5	1.0	11	LA
ZFVWMW	33.8	35.4	34.1	34.7	34.5	0.02	2.8	0.7	34.1	-0.26	2.7	0.9	12	LA
ZNFP89	33.7	33.9	32.9	34.6	33.8	-0.48	2.4	0.7	33.1	-1.10	2.4	1.0	12	LA

Consensus (All Labs) Results

Wk Mean	34.61	34.78	34.27	34.20	Month Mean	34.45	Grand Mean	34.37
Avg SDr	2.85	2.62	2.68	2.55	Avg SD	2.68	Avg SD	2.72
SD btwn Labs	1.80	1.77	1.62	1.74	SD btwn Labs	1.41	SD btwn Labs	1.13
Labs Incld	48	49	48	48	SD btwn Wks	1.17	SD btwn Wks	1.55
Labs Excld	0	0	0	0	Labs Incld	49	Labs Incld	47
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 with moisture correction
LZ	L&W (model not specified)	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2W293T	150.8	-0.56	18.94		148.1	-1.01	10.51	3	EV
3QVY96	115.5	-1.97 *	18.77		161.5	-0.23	32.12 H	4	EV
4NJJE6	216.8	2.07 *	21.64		222.8	3.34 X	23.19	3	EV
9JTXDJ	180.8	0.64	35.28 H		191.3	1.51	12.83	3	LA
9PGL9P	152.8	-0.48	8.94 L		155.4	-0.59	4.00	4	EV
ABCR9Z	209.3	1.77	19.97		196.3	1.80	24.40	4	EV
DP6D8Q	153.0	-0.48	19.32		153.1	-0.72	2.91	4	LA
DYAKLQ	177.9	0.52	12.41		177.3	0.69	2.08 L	4	EV
E2NNPE	178.0	0.52	33.03		176.7	0.65	13.82	4	XX
JLJQV6	151.2	-0.55	25.25		161.9	-0.21	10.33	4	LA
LLCE9K	168.1	0.13	8.26 L		151.6	-0.81	15.17	4	EV
NYVM24	174.1	0.37	20.43		175.1	0.56	5.83	4	EV
RPX9CE	167.0	0.08	18.02		167.5	0.12	5.76	4	XX
T4A3GW	135.9	-1.16	45.64 H		130.3	-2.05 *	33.05 H	4	EV
TGJHN2	131.3	-1.34	12.65		138.7	-1.56	8.22	3	EV
UL6U3U	127.0	-1.51	9.07 L		112.6	-3.08 X	13.13	3	EV
X6LCEB	165.1	0.01	11.34		168.4	0.17	3.24	4	XX
XUTRF8	180.8	0.63	15.83		177.4	0.70	4.28	4	EV
Y94UE8	170.7	0.23	12.35		172.6	0.42	7.63	4	EV
Z83JPH	182.9	0.72	26.95		193.2	1.61	30.84 H	4	LA
ZFVWMW	174.1	0.37	20.39		175.3	0.57	9.18	4	LA

Consensus (All Labs) Results

Month Mean	164.91	Grand Mean	165.48
Avg SD	21.79	Avg SD Months	14.64
SD btwn Labs	25.06	SD btwn Labs	17.16
Labs Incld	21	Labs Incld	18

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 229

Roughness - Sheffield Method, 42 lb Linerboard - 42D3

TAPPI Official Test Method T538

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
28JXV7	384.7	1.44	7.32	383.8	2.52 X	9.20 H	4	XX
6B8TRM	357.9	-1.11	5.15	357.0	-0.92	5.48	4	LA
83CAQJ	377.8	0.78	11.38	375.0	1.39	2.43	4	XX
8KAU4X	364.8	-0.45	8.90	361.0	-0.40	7.01	4	LA
DKANJR	381.0	1.09	13.04	419.4	7.08 X	54.35	2	PP
FLQUUY	364.9	-0.45	7.95	362.7	-0.19	4.40	3	TS
RKMWW2	354.1	-1.47	8.80	354.6	-1.23	2.93	4	LA
U8LGD2	374.7	0.49	5.77	373.8	1.23	1.49	4	XX
VUCZ8W	366.4	-0.30	6.52	365.1	0.12	1.84	4	XX

Consensus (All Labs) Results

Month Mean	369.58	Grand Mean	364.15
Avg SD	8.66	Avg SD Months	4.12
SD btwn Labs	10.51	SD btwn Labs	7.81
Labs Incld	9	Labs Incld	7

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
2W293T	120.3	-1.40	11.05		117.1	-1.58	4.61	2	TM
3KMKKF	156.4	-0.25	4.72		160.9	-0.09	6.36	2	TM
3QVY96	183.0	0.59	20.19	H	155.0	-0.29	39.60	2	SC
83CAQJ	68.1	-3.06 X	1.02	L	63.9	-3.38 X	5.91	2	LZ
8KAU4X	176.3	0.38	11.57		177.2	0.46	1.20	2	SC
93NDRN	181.2	0.54	5.26		173.9	0.35	10.32	2	TM
9JTXDJ	221.2	1.81	12.19		221.2	1.96 *	0.00	1	SC
DK9U6T	174.0	0.31	1.91	L	172.7	0.31	1.88	2	XX
DYAKLQ	161.0	-0.11	7.87		159.8	-0.13	1.70	2	TM
E2NNPE	160.8	-0.11	6.18		166.7	0.11	8.34	2	TM
H3QKPZ	149.2	-0.48	1.62	L	156.2	-0.25	9.91	2	TM
HKAG38	108.2	-1.79	1.48	L	134.1	-1.00	36.66	2	HZ
HUZX3A	192.8	0.91	8.90		195.7	1.09	4.10	2	HY
NYVM24	169.4	0.16	11.59		173.7	0.34	6.08	2	XX
T4A3GW	152.4	-0.38	13.81		140.7	-0.78	16.55	2	TM
TGJHN2	155.4	-0.28	8.44		151.3	-0.42	5.80	2	TM
U8LGD2	194.2	0.95	5.56		189.4	0.88	6.84	2	HY
VUCZ8W	99.0	-2.08 *	4.30		99.6	-2.17 *	0.85	2	SC
ZB6FGX	209.0	1.42	10.77		209.0	1.54	0.00	1	XX
ZNFP89	158.2	-0.19	2.17		153.1	-0.35	7.21	2	TM

Consensus (All Labs) Results

Month Mean	164.32	Grand Mean	163.54
Avg SD	9.22	Avg SD Months	14.79
SD btwn Labs	31.41	SD btwn Labs	29.46
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	156.70	31.76	7.62	14
Modified Scott Bond Mechanics	193.52	1.02	29.20	2

Analysis Notes

3KMKKF - Data appears to be reported in the wrong unit. Data corrected by CTS.

83CAQJ - 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
28JXV7	34.6	2.25 *	0.89		29.6	1.40	5.23 H	4
2W293T	24.5	-0.69	1.87		25.1	-0.66	1.01	3
3QVY96	22.8	-1.18	1.79		24.9	-0.79	2.02	4
83CAQJ	25.4	-0.43	1.14		28.7	0.99	2.24	4
93NDRN	20.5	-1.86	1.36		21.2	-2.48 *	1.28	4
9JTXDJ	30.6	1.08	2.97		29.4	1.31	2.37	3
C8MYA3	29.0	0.62	2.24		28.7	0.99	0.89	4
CZ7NV2	30.8	1.14	3.77		28.7	0.97	2.99	4
DYAKLQ	31.2	1.26	1.64		27.3	0.34	2.62	4
E2NNPE	23.1	-1.10	1.14		24.0	-1.21	1.97	4
HUZX3A	22.6	-1.24	2.41		23.5	-1.42	1.09	4
LLCE9K	26.2	-0.20	1.30		26.2	-0.16	1.69	4
NWMKY6	27.6	0.21	2.07		27.2	0.28	3.77	3
NYVM24	21.2	-1.65	0.45 L		22.7	-1.79	3.87	4
RPX9CE	25.6	-0.37	3.65		25.9	-0.31	2.02	4
T4A3GW	26.8	-0.02	2.49		28.2	0.76	2.18	4
TGJHN2	27.7	0.24	1.79		27.4	0.37	1.53	3
TKG2PZ	29.4	0.73	4.16		29.2	1.20	1.37	4
U8LGD2	24.3	-0.74	1.32		25.0	-0.74	0.96	4
VUCZ8W	28.6	0.50	1.14		27.9	0.60	1.51	4
W3NGEW	27.0	0.04	3.08		27.3	0.34	0.74	4
X6LCEB	26.0	-0.25	0.71		26.1	-0.24	0.25 L	4
XUTRF8	27.9	0.30	2.29		27.1	0.24	1.22	4
Y94UE8	24.6	-0.66	1.14		25.0	-0.72	1.67	4
YPTXWW	31.6	1.37	3.42		26.7	0.06	3.75	4
ZFVWMW	29.1	0.65	5.57 H		28.0	0.65	1.89	4

Consensus (All Labs) Results

Month Mean	26.87	Grand Mean	26.56
Avg SD	2.46	Avg SD Months	2.30
SD btwn Labs	3.44	SD btwn Labs	2.16
Labs Incld	26	Labs Incld	26

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
28JXV7	51.5	0.26	2.59		51.3	0.40	0.24	2	XX
2W293T	42.1	-1.85	2.24		43.1	-0.91	1.36	2	LA
3QVY96	44.7	-1.27	2.36		44.4	-0.71	0.49	2	HG
4NJJE6	52.0	0.38	1.29		55.3	1.03	4.55	2	XX
4YGRRF	44.8	-1.25	4.76	H	47.1	-0.27	3.25	2	GG
83CAQJ	53.5	0.70	1.40		52.9	0.65	0.80	2	LA
8KAU4X	55.0	1.05	1.67		55.7	1.10	0.97	2	LA
93NDRN	51.6	0.29	2.31		51.3	0.41	0.37	2	LA
9FWCLG	49.5	-0.19	2.19		50.0	0.18	0.64	2	TL
9JTXDJ	52.1	0.39	1.96		52.1	0.52	0.00	1	LA
ABCR9Z	47.7	-0.60	1.63		48.5	-0.04	1.22	2	LW
DP6D8Q	51.6	0.28	2.35		52.0	0.51	0.56	2	LA
E2NNPE	31.7	-4.20 X	2.98		35.1	-2.19 *	4.80	2	TD
FHU26B	49.4	-0.21	1.41		49.3	0.08	0.11	2	LP
HUZX3A	54.1	0.85	0.99	L	54.6	0.92	0.71	2	LP
JB4PJ6	51.4	0.25	1.46		51.3	0.40	0.20	2	XX
JYLGC4	48.5	-0.41	1.18		48.7	-0.02	0.21	2	LP
LLCE9K	19.0	-7.05 X	2.44		34.6	-2.26 *	22.10	2	LP
NWMKY6	40.6	-2.18 *	2.01		41.9	-1.10	1.84	2	LA
NYVM24	51.5	0.25	1.82		51.9	0.49	0.62	2	LP
T4A3GW	50.8	0.11	1.84		51.4	0.42	0.84	2	LP
TKG2PZ	48.6	-0.39	1.43		48.9	0.01	0.42	2	LP
U8LGD2	51.6	0.28	3.18		51.7	0.46	0.12	2	TP
X6LCEB	53.8	0.77	1.33		54.3	0.88	0.76	2	LA
Y94UE8	33.3	-3.82 X	3.35		34.9	-2.21 *	2.23	2	XX
YPTXWW	61.4	2.50 *	4.47	H	56.7	1.26	6.68	2	GA

Consensus (All Labs) Results

Month Mean	50.34	Grand Mean	48.81
Avg SD	2.28	Avg SD Months	4.92
SD btwn Labs	4.44	SD btwn Labs	6.27
Labs Incld	23	Labs Incld	26

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
28JXV7	58.3	59.0	57.8	57.8	58.2	-1.02	3.0	0.6	58.8	-0.94	3.1	1.7	16	LZ
2W293T	60.2	56.8	58.4	57.4 L	58.2	-1.02	3.3	1.5	58.4	-1.16	3.0	1.5	12	XX
3KMKKF	62.4	61.9	61.3 H	63.1	62.2	0.80	5.0	0.8	61.1	0.32	4.9	1.9	8	LC
4NJJE6	61.1	59.4 H	60.0	58.7	59.8	-0.28	4.4	1.0	59.5	-0.58	4.7	4.4	12	MB
6EQXFJ	77.8 XH	67.3 *	75.6 X	68.5 *H	72.3	5.47 X	5.3	5.2 H	76.4	8.99 X	4.8	5.1	16	MB
6TB9B3	61.0	60.6	62.7	61.0	61.3	0.42	3.3	0.9	62.5	1.13	3.1	1.8	12	LD
83CAQJ	54.4 X	53.0 *	53.3 *	51.5 *	53.1	-3.39 X	3.4	1.2	54.6	-3.32 X	2.8	1.5	16	LD
8EMRF2	58.9	59.7	58.6	57.5	58.7	-0.80	2.3	0.9	60.1	-0.24	2.3	1.4	16	TH
8VQGCY	70.6 XH	61.5 H	63.4	67.4	65.7	2.44 *	5.4	4.1 H	86.3	14.57 X	10.8	40.8 H	16	XX
ABAYCD	59.0	59.6	59.5	60.0	59.5	-0.40	2.0	0.4	60.1	-0.23	2.3	0.5 L	16	XX
ABCR9Z	38.8 XH	56.9	54.6 L	46.0 X	49.1	-5.23 X	4.0	8.3 H	53.2	-4.10 X	3.4	5.4	16	XX
AX7QEV	59.8	60.7	59.6	60.4	60.1	-0.14	3.0	0.5	60.5	-0.01	3.4	0.6 L	16	LC
CE3XLT	60.9	59.4	60.5	59.8	60.2	-0.13	3.0	0.7	60.4	-0.03	3.0	0.6 L	16	LD
CJH9YW	63.0	62.3	63.3	62.3	62.8	1.07	2.7	0.5	61.0	0.27	2.6	1.4	16	LD
CPM8AL	62.8	63.0	62.9	66.5	63.8	1.56	2.6	1.8	64.1	2.05 *	2.9	3.0	16	LZ
CZ7NV2	62.1	63.9	62.4	62.4	62.7	1.05	2.6	0.8	63.1	1.44	2.9	0.9	16	XX
DYAKLQ	60.4	63.6	61.0	61.2	61.5	0.52	3.2	1.4	59.1	-0.80	3.2	1.8	16	LD
FHU26B	60.4	60.7	61.3	60.6	60.7	0.15	2.7	0.4	60.5	0.00	2.9	1.1	16	LD
FV3TNA	63.8	64.7	66.0 *L	63.7 L	64.5	1.90	2.3	1.1	63.0	1.41	4.0	2.0	16	TU
GJP7YA	62.6	61.2	59.7	59.5	60.8	0.15	3.3	1.4	60.6	0.03	3.5	1.1	16	LD
HFDVB6	59.9	60.9	59.1	63.3 H	60.8	0.18	5.0	1.8	60.1	-0.23	4.4	1.2	16	TG
HKAG38	63.0 H	58.9	64.0 H	62.9	62.2	0.82	5.9	2.2	60.5	0.03	6.5	2.8	16	LC
HUZX3A	77.7 X	77.4 X	78.3 X	79.3 XL	78.2	8.18 X	2.9	0.8	63.9	1.92 *	3.2	8.6 H	16	LD
JB4PJ6	61.2	58.9	59.7	57.7	59.4	-0.48	3.2	1.5	59.4	-0.61	2.6	1.0	16	LD
JLJQV6	57.4	56.8	No Data	No Data	57.1	-1.53	2.8	0.4	56.6	-2.22 *	3.7	2.2	14	LD
K27NA6	60.9	60.7	60.5 L	60.3	60.6	0.07	2.4	0.3 L	60.4	-0.06	4.1	0.8 L	16	LD
LLCE9K	60.8	57.7	57.6	57.2	58.3	-0.96	2.5	1.7	58.2	-1.32	2.7	1.1	16	LZ
MJ3Q9L	60.9	59.6	60.3	60.1	60.2	-0.09	2.8	0.5	59.3	-0.66	3.0	1.4	16	LD
MTRE69	47.0 X	46.8 XL	48.6 X	49.1 *	47.9	-5.78 X	3.0	1.2	48.3	-6.91 X	3.3	1.0	8	TC
NYVM24	61.9	59.0	55.5	51.9 *	57.1	-1.54	3.1	4.3 H	59.1	-0.76	3.1	2.9	13	LZ
PG9K3E	63.1	60.1	62.7	66.2	63.0	1.20	3.0	2.5	62.4	1.06	3.2	1.7	16	LD
R8UGL7	62.0 L	64.8 L	64.6 L	61.7 L	63.3	1.32	0.9	1.7	63.2	1.55	1.1	1.8	16	TD
TGJHN2	60.5	55.7	57.2	62.1 H	58.9	-0.71	4.1	2.9	58.7	-1.02	3.5	2.1	12	LC
TKG2PZ	61.6	58.6	59.0	58.6	59.5	-0.44	3.6	1.4	61.4	0.49	3.4	1.8	15	LD
U8LGD2	62.7	61.8	60.7	61.3	61.6	0.55	3.6	0.8	61.6	0.60	3.6	1.6	16	LC

	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
UM36XX	57.4	58.2	58.4	57.3	57.8	-1.20	2.7	0.5	59.4	-0.60	2.7	1.4	12	EM
WEGX4X	73.2 XH	70.8 X	67.5 *	70.5 *	70.5	4.64 X	5.1	2.3	63.1	1.48	5.6	12.1 H	16	LC
X6LCEB	60.1	60.0	60.8	60.5	60.4	-0.03	2.1	0.4	60.9	0.21	2.1	0.5 L	16	LD
X8CG7W	63.1	60.4	60.6	58.4	60.6	0.09	3.1	1.9	61.8	0.71	3.1	1.9	16	LC
XUTRF8	55.8 *	57.5	60.8	58.8	58.2	-1.01	3.6	2.1	59.4	-0.63	3.0	1.7	16	EN
Z83JPH	No Data	60.6	59.3	58.0	59.3	-0.50	4.1	1.3	58.3	-1.26	4.2	2.6	14	MB
ZMXYXN	60.6 L	60.1 L	60.8	60.5 L	60.5	0.03	1.2	0.3 L	60.6	0.04	1.6	0.3 L	16	LD
ZNFP89	55.8 *	56.1	55.0	57.1 L	56.0	-2.04 *	2.7	0.9	58.1	-1.37	2.8	2.2	16	LC

Consensus (All Labs) Results

Wk Mean	60.73	60.05	60.26	60.32	Month Mean	60.42	Grand Mean	60.50
Avg SDr	3.07	3.28	3.28	3.64	Avg SD	3.32	Avg SD	3.44
SD btwn Labs	2.00	2.73	2.96	4.22	SD btwn Labs	2.17	SD btwn Labs	1.77
Labs Incld	35	40	39	40	SD btwn Wks	1.62	SD btwn Wks	2.99
Labs Excld	7	3	3	2	Labs Incld	37	Labs Incld	38
Labs not Rcvd	1	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
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
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
6EQXFJ	62.0 X	63.1 *	72.6	68.7	66.6	-1.92 *	2.4	4.9 H	60.4	-5.24 X	2.2	4.9	16	MB
83CAQJ	75.2	74.3	74.4	75.9	75.0	0.68	2.4	0.7	77.0	1.48	2.4	1.4	16	LD
AX7QEV	73.5	74.1	73.8	74.4	74.0	0.36	2.8	0.4	74.1	0.31	2.6	0.5 L	16	LD
CJH9YW	72.5	69.9 L	71.0 *	69.8	70.8	-0.61	1.4	1.2	70.0	-1.35	1.8	1.4	16	LD
CPM8AL	74.7	73.4	73.6	73.9	73.9	0.34	2.3	0.6	73.5	0.07	2.6	2.6	16	LZ
FHU26B	73.0	75.1	73.8	75.7	74.4	0.50	3.0	1.2	74.8	0.59	2.6	1.1	16	LD
HUZX3A	57.6 X	57.3 X	56.0 XH	58.1 X	57.2	-4.83 X	3.2	0.9	72.0	-0.53	2.9	8.9 H	16	LD
JB4PJ6	72.4	71.1	72.4	70.8	71.7	-0.35	2.1	0.8	72.4	-0.39	2.5	1.2	16	XX
LLCE9K	75.9 L	73.3	75.8	73.0	74.5	0.53	2.3	1.6	74.7	0.53	2.6	1.4	16	LZ
R8UGL7	73.5	69.9 L	73.3	72.9 L	72.4	-0.12	1.3	1.7	72.5	-0.34	1.4	1.9	16	TD
TGJHN2	67.2 *H	63.7 *H	67.0 XH	66.3 *H	66.1	-2.10 *	7.2	1.6	68.0	-2.15 *	6.8	4.1	12	XX
TKG2PZ	74.6 H	73.6 H	74.9	72.2	73.8	0.32	4.9	1.2	74.1	0.31	3.4	1.3	15	LD
U8LGD2	78.7 *	78.3	79.0 X	79.0 *	78.8	1.85	2.6	0.3	78.0	1.86 *	2.4	1.0	16	LC
UMFYCC	70.4	71.1	73.0	71.3	71.4	-0.42	2.4	1.1	71.6	-0.70	2.1	1.4	16	XX
X6LCEB	74.3	74.4	73.8	74.1	74.1	0.41	2.1	0.3 L	73.7	0.16	2.3	0.4 L	16	LD
ZMXYXN	74.2 L	74.7 L	74.7	74.5 L	74.5	0.53	1.2	0.2 L	73.8	0.16	1.4	0.6 L	16	LD

Consensus (All Labs) Results

Wk Mean	73.58	72.00	73.62	72.82	Month Mean	72.79	Grand Mean	73.35
Avg SDr	3.40	3.10	1.94	2.97	Avg SD	3.08	Avg SD	2.92
SD btwn Labs	2.65	4.11	1.23	3.14	SD btwn Labs	3.22	SD btwn Labs	2.47
Labs Incld	14	15	13	15	SD btwn Wks	1.63	SD btwn Wks	2.83
Labs Excld	2	1	3	1	Labs Incld	15	Labs Incld	15
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 255

Ring Crush (RCT), 26 lb Corrugating Medium - CM92

TAPPI Official Test Method T822

Report #584 (E)
May 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
28JXV7	41.0	39.7	42.7	40.8	41.0	-0.55	2.8	1.2	42.1	-0.74	2.4	1.8	16	LD
6EQXFJ	39.3	32.2 X	31.6 *	30.2 *	33.3	-2.32 *	2.4	4.1	31.6	-4.65 X	2.8	2.9	16	MB
6TB9B3	44.9	46.2	44.6	46.3	45.5	0.48	2.9	0.9	45.6	0.56	2.9	1.2	12	LD
83CAQJ	46.5	49.4 L	47.3	49.4	48.2	1.09	2.7	1.5	47.4	1.24	2.6	1.7	16	LD
8EMRF2	40.9	39.6	41.0	37.9	39.9	-0.82	1.8	1.5	41.0	-1.15	1.9	1.1	16	TH
ABCR9Z	38.3	45.2	56.9 *	44.9	46.3	0.67	2.9	7.7 H	45.6	0.57	2.7	4.5 H	16	XX
BNEEX9	46.3	46.0 L	46.5 L	46.0 L	46.2	0.65	1.0	0.2 L	46.1	0.76	1.4	0.7	16	WK
BRW27L	45.1	44.3	45.3	44.5	44.8	0.33	1.9	0.5	44.5	0.14	2.2	0.8	16	TH
FHU26B	44.4	44.8	46.0	45.9	45.3	0.43	2.3	0.8	45.7	0.58	2.2	1.1	16	LD
FV3TNA	39.7	40.6	41.2	41.2	40.7	-0.63	2.3	0.7	39.6	-1.68	2.2	0.9	16	TU
G7U2L4	46.4	46.4	46.3	45.0	46.0	0.60	2.7	0.7	45.4	0.48	2.7	1.4	16	LZ
HKAG38	44.6	46.5	46.8	45.3	45.8	0.55	3.3	1.0	45.4	0.47	3.0	1.7	16	LD
HW6LFE	41.3	44.2 H	43.3 H	45.4 H	43.6	0.04	5.3	1.7	40.7	-1.25	6.1	3.3	8	TX
JB4PJ6	40.3	41.7	39.9	40.5	40.6	-0.65	2.6	0.8	41.6	-0.93	3.3	1.2	16	LD
JJTKCT	35.9	39.2	37.5	39.0	37.9	-1.27	2.5	1.5	39.6	-1.68	2.3	1.7	15	LZ
JLJQV6	46.9	44.1	No Data	No Data	45.5	0.49	2.1	2.0	45.5	0.51	3.1	1.3	14	LD
K27NA6	44.8	44.7	44.6	44.9	44.7	0.31	3.5	0.1 L	44.9	0.30	3.0	0.3 L	16	LD
MJ3Q9L	48.8	51.0 *	53.7	51.2	51.2	1.79	2.5	2.0	48.7	1.72	2.8	2.3	16	LZ
MTRE69	40.2 H	40.9 H	39.8 H	39.2 H	40.0	-0.78	5.2	0.7	39.8	-1.60	5.5	1.3	8	TC
U8LGD2	44.9	47.0	44.8	46.2	45.7	0.53	3.0	1.1	44.9	0.31	3.1	1.0	16	LC
UM36XX	44.6 L	44.7	45.0	45.7	45.0	0.37	1.7	0.5	45.1	0.36	1.4	0.7	12	LC
WEGX4X	33.4 *	35.3 *	32.6 *	31.5 *	33.2	-2.35 *	3.2	1.6	31.6	-4.63 X	3.0	1.7	16	XX
X6LCEB	43.9	44.1	44.2	43.4	43.9	0.11	2.5	0.4 L	43.7	-0.16	2.4	0.4 L	16	LD
X8CG7W	49.9	47.3	47.5	45.1	47.4	0.93	2.8	2.0	47.3	1.18	3.0	1.6	16	LC

Consensus (All Labs) Results

Wk Mean	43.01	44.04	43.88	43.02	Month Mean	43.41	Grand Mean	44.09
Avg SDr	2.66	3.14	2.72	3.16	Avg SD	2.90	Avg SD	3.02
SD btwn Labs	4.01	3.60	5.60	5.00	SD btwn Labs	4.34	SD btwn Labs	2.69
Labs Incld	24	23	23	23	SD btwn Wks	2.13	SD btwn Wks	1.72
Labs Excld	0	1	0	0	Labs Incld	24	Labs Incld	22
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
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)
WK	Zwick Z005 Crush Tester	XX	Instrument make/model not specified by lab

Containerboard Interlaboratory Testing Program

Analysis 261

STFI, 26 lb Corrugating Medium - CM92

TAPPI Official Test Method T826

Report #584 (E)
May 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
28JXV7	15.2	14.7	14.6	14.1	14.7	0.42	1.0	0.5	14.8	0.57	1.0	0.4	16	LZ
3KMKKF	14.9	14.8	15.1	14.5	14.8	0.92	1.0	0.3	14.9	1.01	1.0	0.2	8	LA
4NJJE6	13.7 L	14.1 L	13.5 *L	14.1 L	13.9	-1.78	0.1	0.3	14.3	-0.97	0.8	0.5	12	BK
6B8TRM	14.2	14.8	15.0	14.5	14.6	0.27	1.0	0.3	14.7	0.45	0.9	0.3	16	LA
83CAQJ	15.4 H	15.2	15.7 *	15.3	15.4	2.50 *	1.1	0.2	15.0	1.25	1.0	0.4	16	LA
8VQGCY	14.9	15.1	14.8	14.3	14.8	0.81	1.0	0.3	15.1	1.58	0.9	0.9	16	LA
ABCR9Z	14.5 L	14.6 L	14.0 L	14.8 L	14.4	-0.15	0.0	0.4	14.9	1.15	1.6	2.4 H	16	XX
AX7QEV	14.6	15.1	14.8	14.1	14.6	0.35	0.9	0.4	14.7	0.23	0.9	0.4	16	LB
CE3XLT	14.5	14.3	15.0	15.2	14.7	0.67	1.0	0.4	14.6	0.11	0.9	0.4	16	LB
CZ7NV2	14.6	15.2	14.7	14.9	14.9	0.99	0.9	0.3	14.9	0.84	0.9	0.3	16	XX
DYAKLQ	14.2	14.0	13.6	14.4	14.1	-1.28	1.1	0.3	14.0	-1.95 *	1.1	0.4	16	LU
FHU26B	14.7	14.7	14.0	13.9	14.3	-0.48	0.8	0.4	14.2	-1.21	0.9	0.3	16	LZ
FYGN48	14.8	14.5	14.6	14.8	14.7	0.47	0.6	0.1	14.5	-0.17	0.6	0.2	16	TT
G7U2L4	13.6	14.4	14.9 H	14.9	14.5	-0.13	1.2	0.6	14.5	-0.25	1.1	0.4	16	LA
HW6LFE	14.0	13.7 *	14.1	13.4 *	13.8	-1.92 *	1.0	0.3	14.0	-1.90 *	1.0	0.3	8	TX
JLJQV6	14.9	13.8	No Data	No Data	14.4	-0.37	0.7	0.8	15.0	1.18	1.0	0.7	14	LZ
MTRE69	14.6	14.1 H	14.7	13.9	14.3	-0.52	1.2	0.4	14.6	-0.03	1.2	0.4	8	TS
NYVM24	13.7	14.7	14.0	14.5	14.2	-0.78	0.9	0.5	14.6	-0.09	0.9	0.4	16	LB
U8LGD2	14.7	14.8 H	14.5	14.7	14.7	0.50	1.1	0.1	14.6	-0.10	1.0	0.3	16	LU
UM36XX	13.8	14.5	14.1	14.6	14.2	-0.77	1.0	0.4	14.1	-1.68	1.0	0.4	12	LB
X6LCEB	14.9	14.9 L	14.8	14.7	14.8	0.91	0.6	0.1	14.7	0.27	0.8	0.1 L	16	LB
Z83JPH	No Data	15.0 L	14.2	13.5 *	14.2	-0.86	0.9	0.7	14.5	-0.32	1.0	0.7	13	LA
ZMXYXN	14.6 L	14.4	14.5	14.7	14.6	0.20	0.7	0.1	14.6	0.03	0.7	0.1 L	16	LA

Consensus (All Labs) Results

Wk Mean	14.49	14.57	14.51	14.45	Month Mean	14.50	Grand Mean	14.60
Avg SDr	0.88	0.92	0.92	0.94	Avg SD	0.91	Avg SD	1.00
SD btwn Labs	0.49	0.42	0.52	0.49	SD btwn Labs	0.35	SD btwn Labs	0.31
Labs Incld	22	23	22	22	SD btwn Wks	0.40	SD btwn Wks	0.66
Labs Excld	0	0	0	0	Labs Incld	23	Labs Incld	23
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
LB	L&W Model 152	LU	L&W 52 without moisture correction (was 53)
LZ	L&W (model not specified)	TS	TMI Monitor/STFI Compression Tester, 17-33
TT	TMI Short Span Compression, 17-34 (MB K455)	TX	TMI (model not specified)
XX	Instrument make/model not specified by lab		

End of Report