Collaborative Testing Services, Inc.

Containerboard Interlaboratory Testing Program

Participant Summary Report #586 (H) - July 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	EC11	Edgewise Compressive Strength, Wax (T811), Corrugated Board
203	EC11	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.

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

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
3PDY2C	550.6	-0.78	8.73		552.8	-0.73	12.10	4	LG
8FU8PU	577.6	0.00	30.42		576.5	0.45	12.32	4	LG
9GHAK9	596.4	0.54	30.22		562.0	-0.27	39.39	4	EX
9YYBHW	547.8	-0.86	24.95		538.0	-1.46	24.19	4	LS
AKYU8N	572.4	-0.15	29.73		552.7	-0.73	21.61	3	LG
BKVN7K	555.8	-0.63	24.93		546.8	-1.02	13.97	4	EX
CYTZEP	578.7	0.03	13.01		575.9	0.42	3.90	2	EX
DLZXBM	587.8	0.29	30.15		580.9	0.66	5.76	4	LG
E76XYD	463.1	-3.30 X	15.55		558.1	-0.47	63.54 H	4	LS
H2FJ6N	592.0	0.41	13.29		591.9	1.21	10.62	4	ES
J8YC9Y	575.8	-0.05	11.44		577.3	0.49	11.96	4	LM
KYLLKM	533.6	-1.27	22.88		550.0	-0.87	50.30	4	LS
L6H39X	645.2	1.94 *	15.51		649.4	4.06 X	7.41	4	ER
NG7JDP	549.0	-0.83	3.67 L		545.7	-1.08	4.56	4	LL
QN474F	567.0	-0.31	22.41		565.8	-0.08	12.53	4	ER
QRJKPZ	638.8	1.76	28.87		634.3	3.31 X	17.87	4	TC
T3UU44	600.8	0.67	14.31		583.7	0.80	21.74	4	ET
TF4CZD	544.4	-0.96	9.50		551.4	-0.80	10.05	3	LL
UFXGTD	556.5	-0.61	20.96		564.5	-0.15	13.73	4	TE
VHX8DX	651.1	2.11 *	64.40 H		604.4	1.83	32.97	4	ET
VZHREB	536.3	-1.19	37.94		555.1	-0.61	13.27	4	ER
W4DPH9	536.8	-1.18	19.64		541.6	-1.28	6.32	4	LS
X72HV3	609.1	0.91	45.25		603.9	1.80	51.50 H	3	LH
Y24EP2	534.8	-1.23	16.95		553.0	-0.72	14.69	4	LM
Z7BAWH	593.2	0.45	29.64		586.8	0.96	4.57	4	ER
ZL2CE8	610.3	0.94	21.63		600.6	1.64	12.11	3	LS

Consensus (All Labs) Results

Month Mean	577.67	Grand Mean	567.47
Avg SD	26.78	Avg SD Months	25.21
SD btwn Labs	34.74	SD btwn Labs	20.19
Labs Incld	25	Labs Incld	24

Consensus By Method

Test Method	Group Mean	SD btwn Group	Difference from Grand Mean	Labs Included
Hot melt adhesive sealing	552.63	18.96	25.04	6
Clip sealing	585.58	35.14	7.91	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	TC	TMI Monitor/Compression Tester, Model 17-37
TE	Testometric M500 - 25 KN		

Containerboard Interlaboratory Testing Program

Analysis 202

Edgewise Compressive Strength, by T811, Corrugated Board - EC11

TAPPI Official Test Method T811

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
3PDY2C	43.1	0.56	1.75	43.5	0.75	0.69	2	TH
8FU8PU	43.9	1.01	1.91	43.4	0.71	0.71	2	LE
9U6GKV	43.8	0.95	1.20	43.8	0.83	0.00	1	EM
BKVN7K	40.1	-0.94	2.28	40.3	-0.27	0.20	2	LC
CBKRYT	44.5	1.32	1.98	44.5	1.05	0.00	1	XX
E76XYD	40.4	-0.81	2.71	39.9	-0.37	0.63	2	LD
MU2DCD	41.1	-0.43	2.58	38.6	-0.79	3.61	2	LC
UKT94V	40.0	-0.99	1.25	41.3	0.04	1.77	2	TD
VZHREB	39.3	-1.36	2.76	39.1	-0.61	0.21	2	EN
W4DPH9	43.3	0.70	1.27	44.1	0.91	1.08	2	LC
ZL2CE8	33.5	-4.32 X	1.41	33.8	-2.26 *	0.48	2	EM

Consensus (All Labs) Results

Month Mean	41.95	Grand Mean	41.12
Avg SD	2.05	Avg SD Months	1.45
SD btwn Labs	1.96	SD btwn Labs	3.24
Labs Incld	10	Labs Incld	11

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	XX	Instrument make/model not specified by lab

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
2RTUE6	44.8	0.32	1.69		44.3	0.25	0.76	2	LD
3PDY2C	44.5	0.15	0.91		45.0	0.66	0.79	2	TH
3U8XF8	46.9	1.44	1.23		40.7	-1.69	8.81	2	LD
76DCNA	44.8	0.31	1.52		45.2	0.76	0.59	2	LC
8FU8PU	45.6	0.74	1.59		44.6	0.43	1.42	2	LY
8UU93V	39.4	-2.49 *	1.42		40.4	-1.83	1.43	2	LD
8UWPE9	42.6	-0.83	1.94		42.2	-0.85	0.51	2	TD
9GHAK9	44.5	0.15	1.49		43.8	0.00	0.94	2	LD
9U6GKV	43.8	-0.19	1.20		42.8	-0.56	1.49	2	EM
9WVHPJ	45.1	0.46	1.33		45.0	0.64	0.10	2	EM
AKYU8N	44.0	-0.09	2.44		43.4	-0.22	0.89	2	TJ
BBL3F6	44.7	0.28	3.24	H	46.0	1.21	1.85	2	LC
BKVN7K	43.6	-0.30	1.27		43.3	-0.26	0.41	2	LC
CYTZEP	44.1	-0.06	0.82		44.1	0.15	0.00	1	TL
DLZXBM	43.6	-0.28	1.98		43.9	0.07	0.40	2	EM
DR6WLC	43.4	-0.43	2.46		41.4	-1.31	2.79	2	TD
E76XYD	45.9	0.87	2.40		46.4	1.39	0.71	2	LD
G3UXQC	46.0	0.94	0.81		46.1	1.22	0.10	2	LD
H2FJ6N	46.2	1.06	1.32		45.0	0.63	1.75	2	LD
J8YC9Y	46.5	1.23	1.19		46.5	1.45	0.11	2	TG
KYLLKM	42.9	-0.67	1.52		42.6	-0.68	0.49	2	TB
L6H39X	40.9	-1.73	2.70		40.7	-1.71	0.30	2	EM
LUKY7P	42.8	-0.72	2.43		41.6	-1.18	1.66	2	LC
MU2DCD	44.6	0.22	2.26		44.7	0.51	0.18	2	LC
NANBNR	46.1	0.98	1.64		45.0	0.67	1.45	2	TD
NG7JDP	44.0	-0.12	1.42		43.8	-0.01	0.23	2	LC
NHL6MQ	43.2	-0.49	2.51		43.4	-0.23	0.21	2	LD
QN474F	43.4	-0.41	2.27		42.8	-0.53	0.82	2	LD
T3UU44	45.2	0.52	1.13		43.5	-0.16	2.36	2	EM
TF4CZD	41.6	-1.37	0.83		41.6	-1.21	0.00	1	BU
UFXGTD	45.4	0.63	0.96		45.5	0.90	0.10	2	LD
UKT94V	42.9	-0.67	0.74	L	43.5	-0.16	0.85	2	TD
UQUMMB	44.6	0.19	3.07	H	44.6	0.41	0.00	1	LC
VE2CY6	44.2	0.01	2.22		44.0	0.12	0.23	2	LD
VHX8DX	41.9	-1.19	1.39		41.7	-1.13	0.27	2	TD
VW39B9	47.5	1.74	1.10		46.4	1.39	1.63	2	CT
VZHREB	39.9	-2.22 *	2.43		39.9	-2.14 *	0.10	2	EN
W4DPH9	44.7	0.29	1.96		43.7	-0.03	1.39	2	LC
X72HV3	43.7	-0.24	1.29		43.0	-0.43	1.00	2	EM

	Monthly Results			Cumulative Results				
WebCode	Mean	CPV	SD	Mean	CPV	SD Months	Months	Inst
Y24EP2	46.7	1.33	1.59	45.9	1.16	1.10	2	EM
Y3WCQG	48.8	2.43 *	2.31	48.0	2.29 *	1.14	2	TG
YQ27XH	42.9	-0.65	1.99	45.0	0.68	2.98	2	TK
ZL2CE8	42.0	-1.14	0.94	42.6	-0.67	0.80	2	EM

Consensus (All Labs) Results

Month Mean	44.18	Grand Mean	43.80
Avg SD	1.81	Avg SD Months	1.82
SD btwn Labs	1.91	SD btwn Labs	1.84
Labs Incld	43	Labs Incld	43

Key to Instrument Codes Reported by Participants

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

	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
24ZZ6X	109.1	110.4	117.6	112.6	112.4	0.72	11.4	3.7	113.9	1.12	12.0	3.4	12	AX
27MNGX	105.9	105.7	104.3	101.2	104.3	-1.31	8.9	2.2	101.7	-1.94	* 9.8	7.4	16	XX
6RVT2A	105.9	104.0	103.5	101.8	103.8	-1.43	9.8	1.7	107.8	-0.41	10.7	2.8	16	LA
8FU8PU	114.3	110.4	113.3	115.2	113.3	0.94	13.0	2.1	112.7	0.82	12.5	1.8	16	LZ
8UU93V	103.3	111.6	105.6	104.6	106.3	-0.81	10.6	3.7	107.0	-0.59	11.3	3.7	16	LC
9GHAK9	107.8	104.8	107.6	107.6	107.0	-0.64	10.0	1.4	106.7	-0.68	11.1	6.7	16	AH
9JDLTV	105.1	103.5	102.0	106.9	104.4	-1.28	12.4	2.1	104.4	-1.26	13.1	3.1	16	LC
9RYWUA	111.0 L	113.2	109.9 L	111.6	111.4	0.47	5.3	1.4	111.7	0.58	7.7	2.6	16	LC
A7WFVX	113.4	119.9 *	115.7	118.1	116.8	1.80	11.6	2.8	116.2	1.70	13.1	3.8	16	LA
ABT6DQ	103.2	109.8	110.9	103.9	106.9	-0.65	12.0	4.0	107.6	-0.46	13.8	2.8	16	LC
CD94XY	109.2	114.9	112.5	109.6	111.5	0.49	13.7	2.7	111.8	0.59	12.4	4.9	16	LA
CJV2BT	114.8	113.6	119.0 *	118.6	116.5	1.73	12.9	2.7	116.5	1.78	12.4	3.1	8	AH
CT4ERW	105.4	106.6	109.1	106.6	106.9	-0.65	8.0	1.6	106.9	-0.62	8.9	1.9	16	LA
CXWMRW	117.3	115.3	118.5	110.1	115.3	1.43	12.3	3.7	112.6	0.80	11.7	5.5	13	LC
E76XYD	107.3	102.0	98.8 *	105.0	103.3	-1.56	10.0	3.7	107.9	-0.38	10.6	4.9	16	LA
ENLVMK	116.8	116.5	106.1	112.4	112.9	0.84	11.2	5.0	108.8	-0.15	9.3	4.8	16	LC
EWDFHK	120.6 *	121.3 *	112.2	122.0 *	119.0	2.35 *	13.5	4.6	117.4	2.00	*13.6	6.3	16	LC
F8X62P	105.7	105.8	111.1	98.9 *	105.4	-1.03	9.4	5.0	104.2	-1.31	10.2	3.3	16	LC
FEPNWP	104.2	104.2	106.2	106.4 L	105.3	-1.07	6.6	1.2	107.3	-0.53	5.7	2.0	16	RE
FFJCEL	108.5	117.7 H	114.3	109.1	112.4	0.71	13.9	4.4	111.0	0.39	12.0	3.6	16	LC
G3UXQC	110.8	111.8	113.0	110.9	111.6	0.51	8.8	1.0	111.8	0.61	9.0	0.7 L	16	LA
H2FJ6N	106.1	108.2	113.6	104.7	108.2	-0.35	10.6	3.9	107.6	-0.46	11.1	3.0	16	LA
HLYWBW	110.6	108.4	109.0	111.7	109.9	0.10	11.2	1.5	110.2	0.20	10.0	5.4	16	LC
KAKGGW	109.2	109.5	109.3	109.5	109.4	-0.04	6.8	0.1 L	109.5	0.02	7.6	0.3 L	16	LJ
LUKY7P	105.5	109.7	114.8	113.1	110.8	0.31	13.3	4.1	112.2	0.69	12.0	3.4	16	LA
LZC7PX	107.4	105.0 H	108.5	108.2	107.3	-0.56	13.3	1.6	106.3	-0.78	11.9	3.0	16	LA
MJKTQV	117.5	113.3	112.3	112.5	113.9	1.09	13.6	2.4	113.1	0.92	12.4	2.3	12	LA
MQGNNU	107.1 L	106.8	107.0	106.7 L	106.9	-0.66	4.5	0.2 L	104.6	-1.21	6.4	3.1	16	LA
MQMQLE	106.9	100.8	104.8	102.3	103.7	-1.45	9.2	2.7	106.2	-0.79	10.9	3.6	16	LC
N4YXPP	104.4	109.5	102.8	104.5	105.3	-1.05	11.0	2.9	105.6	-0.96	11.5	2.4	16	LA
NHL6MQ	108.4	104.7	108.4	110.9	108.1	-0.36	10.2	2.6	114.9	1.37	13.0	4.8	16	LC
NWLJ8U	113.7	106.1	110.4	117.4	111.9	0.58	9.7	4.8	111.4	0.49	12.0	3.6	16	LJ
PY773E	107.4	112.8	111.7	104.4	109.1	-0.12	9.2	3.9	108.9	-0.13	10.7	3.1	15	TB
Q6T3JP	112.2	107.7	110.2	102.3	108.1	-0.36	13.6	4.3	107.5	-0.47	13.3	2.9	16	LC
QFP9CM	114.3	115.5	118.0	110.2	114.5	1.23	9.1	3.3	110.2	0.19	10.2	4.1	16	AH

	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
QN474F	110.6	114.2	118.3	112.4	113.9	1.08	10.2	3.3	106.2	-0.80	11.0	6.0	16	AH
RMN4W8	112.5	117.9	114.2	113.8	114.6	1.26	11.9	2.3	114.0	1.14	11.9	3.0	14	LZ
T2JU8A	No Data	111.3 L	108.5 L	No Data	109.9	0.09	4.2	2.0	109.9	0.13	4.1	1.9	11	XX
UCG9Q8	102.0	109.3	108.3	107.0	106.6	-0.72	11.5	3.3	105.2	-1.04	10.5	2.2	16	LB
UGUVG6	115.0	110.9	112.7	109.6	112.0	0.62	8.4	2.4	116.3	1.74	69.1	23.1 H	16	AH
UXDTJH	99.2 *	105.5	111.6	107.9	106.1	-0.87	11.7	5.2	106.3	-0.78	12.7	3.9	8	LC
VD6YBC	109.7	106.6	109.9	108.9	108.8	-0.20	13.1	1.5	107.5	-0.47	11.1	2.3	16	LC
VE2CY6	109.5 L	105.2	104.7	108.6	107.0	-0.62	7.6	2.4	106.4	-0.75	9.0	2.9	16	LA
VW39B9	111.1	116.5	110.2	111.1	112.2	0.67	12.5	2.9	113.6	1.05	13.1	2.8	16	XX
W4DPH9	100.9	104.1	99.5 *	102.8	101.8	-1.92	10.0	2.0	102.3	-1.79	10.9	2.0	16	AH
WBDC8M	115.7	No Data	No Data	No Data	115.7	1.52	13.1	0.0	111.2	0.45	12.4	3.4	13	LZ
X6668A	109.9	107.4	108.2	109.8	108.8	-0.18	6.5	1.2	108.7	-0.17	6.0	0.8 L	16	AH
XN2N84	109.9	117.8	111.3	117.6	114.2	1.15	9.3	4.2	118.6	2.32 *	9.8	6.7	16	TB
Z47UBX	114.1	107.7	109.7	111.7	110.8	0.32	8.9	2.7	111.4	0.50	10.7	3.4	16	TB
Z7BAWH	110.7	107.3	104.6	100.6	105.8	-0.92	12.1	4.3	104.5	-1.23	12.0	3.7	16	LZ
ZR89X8	107.7	105.0	106.0	107.1	106.5	-0.77	7.5	1.2	108.1	-0.33	6.4	1.6	16	TP
ZRE963	115.1	105.3	105.3	105.2	107.7	-0.45	11.8	4.9	105.0	-1.11	11.1	6.5	16	LC

Consensus (All Labs) Results

Wk Mean	109.49	109.67	109.71	108.91	Month Mean	109.54	Grand Mean	109.40
Avg SDr	10.75	10.94	10.55	10.51	Avg SD	10.68	Avg SD	14.46
SD btwn Labs	4.61	4.94	4.74	5.02	SD btwn Labs	4.02	SD btwn Labs	3.99
Labs Incld	51	51	51	50	SD btwn Wks	3.11	SD btwn Wks	4.96
Labs Excld	0	0	0	0	Labs Incld	52	Labs Incld	52
Labs not Rcvd	1	1	1	2				

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 206
Bursting Strength (Mullen), 56 lb Linerboard - 56A2
TAPPI Official Test Method T807

Report #586 (H)
July 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
24ZZ6X	127.1 *	117.9	113.7	111.0	117.4	1.08	10.0	7.0	117.4	1.41	10.0	7.0	4	AX
27MNGX	107.4	109.4	107.7 H	106.1	107.7	-1.16	11.7	1.4	107.2	-1.52	10.6	3.0	12	XX
6RVT2A	108.7	109.6	109.7	104.1	108.0	-1.08	11.4	2.7	109.9	-0.76	10.7	3.2	12	LA
8FU8PU	108.9	119.3	113.8	118.2	115.0	0.54	11.2	4.8	117.2	1.34	10.1	4.0	12	LZ
8UU93V	115.8	112.1	111.7	114.0	113.4	0.16	7.9	1.9	108.9	-1.05	10.6	6.0	12	LC
9GHAK9	115.4	111.4	108.8	114.6	112.6	-0.04	9.9	3.0	113.9	0.39	10.0	2.8	10	AH
9JDLTV	106.6	113.6	110.4	108.2	109.7	-0.69	12.6	3.0	108.4	-1.17	12.9	2.8	8	LC
A7WFVX	115.1	119.4	123.3 *	108.0 H	116.5	0.86	14.4	6.6	118.0	1.60	11.9	4.1	11	LA
ABT6DQ	112.6	115.4	108.3 H	107.6	111.0	-0.40	12.6	3.7	108.3	-1.21	12.6	3.9	12	LA
CD94XY	122.7	116.1	115.2	115.2	117.3	1.06	11.3	3.6	118.6	1.77	11.6	3.3	8	LA
CJV2BT	116.8	115.5	116.4	113.5	115.6	0.65	10.3	1.5	115.6	0.88	10.3	1.5	4	AH
CT4ERW	116.0	117.1	114.6	121.2	117.2	1.04	6.5	2.8	116.9	1.27	9.5	3.7	12	LA
CXWMRW	116.7	105.3	113.3	115.1	112.6	-0.02	12.3	5.1	114.4	0.54	12.2	4.5	10	LC
E76XYD	110.7	108.0	107.1	115.3	110.3	-0.56	11.4	3.7	112.4	-0.03	11.6	3.1	12	LA
ENLVMK	110.0	121.2	111.2	120.2	115.6	0.68	9.9	5.9	113.6	0.33	10.2	4.3	12	LC
EWDFHK	117.4 H	112.2	115.9 H	120.1	116.4	0.85	15.7	3.3	112.3	-0.04	13.3	4.2	12	LC
F8X62P	105.7	104.3	108.0	100.4 *	104.6	-1.87	8.8	3.2	108.3	-1.20	9.4	5.6	12	LC
FEPNWP	117.0	115.2 L	114.4	113.8	115.1	0.55	6.3	1.4	115.2	0.77	6.7	1.9	12	RE
FFJCEL	105.8	115.0	119.7	107.8	112.1	-0.15	10.9	6.4	111.7	-0.22	12.3	4.9	8	LC
G3UXQC	114.6	116.0	115.3	114.5	115.1	0.54	8.0	0.7	114.9	0.70	8.2	0.6 L	12	LA
H2FJ6N	113.4	100.3 *	111.2	112.8	109.4	-0.76	8.7	6.2	112.1	-0.13	10.1	4.0	12	LA
HLYWBW	115.8	117.1	105.6	114.3	113.2	0.11	9.7	5.2	113.0	0.14	11.4	4.4	12	LC
KAKGGW	112.5	112.7	112.2 L	112.6	112.5	-0.05	5.2	0.2 L	110.6	-0.56	8.7	3.8	12	LJ
LUKY7P	112.3	115.3	119.7	114.0	115.4	0.61	10.4	3.2	117.0	1.31	10.6	3.1	8	LA
LZC7PX	101.8 *	101.8 *	113.1	98.4 *	103.8	-2.05 *	9.5	6.4	106.5	-1.73	10.0	5.2	12	LA
MJKTQV	122.5	109.8	107.5	116.1	114.0	0.29	11.1	6.7	114.1	0.47	10.2	4.9	8	LA
MQGNNU	117.5	116.6 L	117.6 L	116.6 L	117.1	1.00	3.7	0.6 L	114.2	0.50	5.1	2.8	12	LA
MQMQLE	107.8	102.5	116.9	100.5 *	106.9	-1.33	12.2	7.3	109.3	-0.91	12.5	5.3	12	LC
N4YXPP	106.8	106.1	111.5	106.5	107.7	-1.15	8.6	2.5	107.2	-1.54	10.4	2.3	12	LA
NHL6MQ	111.8	117.7	112.2	117.9	114.9	0.50	11.4	3.4	117.1	1.31	12.0	5.3	12	LC
NWLJ8U	111.9	111.2	117.8	107.7	112.2	-0.12	9.5	4.2	113.1	0.18	11.6	4.8	12	LJ
PY773E	115.7	109.2	112.2	116.5	113.4	0.16	12.9	3.4	112.9	0.13	12.1	2.9	12	TB
Q6T3JP	107.0	113.8	112.4	112.4	111.4	-0.30	10.9	3.0	108.9	-1.02	10.9	3.5	12	LC
QFP9CM	118.0	113.8	114.6	119.2	116.4	0.85	7.7	2.6	111.4	-0.32	9.6	4.4	11	AH
QN474F	117.6	117.8	104.8	117.0	114.3	0.37	11.8	6.3	112.1	-0.10	10.3	5.0	12	AH

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
RMN4W8	121.6	122.3	113.9	115.4	118.3	1.28	12.7	4.3	117.4	1.42	11.7	4.1	12	LZ
T2JU8A	No Data	123.4 *	123.2 *	No Data	123.3	2.44 *	5.1	0.1	118.8	1.81	5.4	4.2	8	XX
UCG9Q8	110.0	115.0	110.4	105.7	110.3	-0.56	7.4	3.8	111.7	-0.23	7.8	3.8	12	LB
UGUVG6	112.4	113.3	111.5	112.6	112.5	-0.06	8.5	0.8	111.8	-0.20	8.5	2.4	12	AH
UXDTJH	110.8	111.2	106.2	109.0	109.3	-0.78	9.3	2.3	109.3	-0.92	9.3	2.3	4	LC
VD6YBC	115.1	102.1 *	110.5	107.3	108.7	-0.91	10.5	5.5	111.3	-0.34	9.8	5.7	12	LC
VE2CY6	109.0	105.8	114.1	115.7	111.1	-0.36	9.2	4.6	112.1	-0.12	8.5	3.5	12	LA
VW39B9	118.3	115.8	119.1	120.8	118.5	1.33	10.4	2.1	116.0	1.02	11.5	3.0	12	XX
W4DPH9	106.8	107.5	106.0	106.8	106.8	-1.36	11.4	0.6 L	104.8	-2.22	*10.9	2.6	12	AH
WBDC8M	102.9	No Data	No Data	No Data	102.9	-2.26 *	12.4	0.0	110.7	-0.52	12.2	5.4	9	LZ
X6668A	112.0	112.2	112.2	111.3	111.9	-0.18	7.7	0.4 L	112.5	0.00	6.2	1.3	12	AH
XN2N84	124.3 *	119.2	122.3 *	128.6 X	123.6	2.50 *	9.6	3.9	123.9	3.28	X10.4	4.1	12	TB
Z47UBX	116.5	110.3	116.5 L	115.4 L	114.7	0.46	10.1	3.0	115.4	0.83	9.9	3.9	12	TB
Z7BAWH	111.6	107.9	109.8	106.5	109.0	-0.86	11.0	2.2	107.7	-1.39	11.9	3.4	12	LZ
ZR89X8	110.9	111.1	111.4	110.0	110.9	-0.43	8.2	0.6 L	112.0	-0.15	7.2	1.2	12	TP
ZRE963	110.4	113.3	110.3	109.6	110.9	-0.42	8.9	1.6	110.7	-0.52	8.8	1.9	12	LA

Consensus (All Labs) Results

Wk Mean	113.12	112.60	112.90	112.03	Month Mean	112.71	Grand Mean	112.50
Avg SDr	10.35	10.42	10.03	10.08	Avg SD	10.24	Avg SD	10.37
SD btwn Labs	5.43	5.44	4.47	5.47	SD btwn Labs	4.35	SD btwn Labs	3.47
Labs Incld	50	50	50	48	SD btwn Wks	3.91	SD btwn Wks	3.93
Labs Excld	0	0	0	1	Labs Incld	51	Labs Incld	50
Labs not Rcvd	1	1	1	2				

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
24ZZ6X	76.1 *	70.4 X	66.9 X	68.7 X	70.5	-3.85 X	4.6	4.0	75.3	-3.80 X	4.2	4.9	12	LC
6RVT2A	91.0	90.5	91.1	92.5	91.3	0.71	3.7	0.9	91.3	0.74	4.2	1.8	16	LD
8FU8PU	87.5	86.3	85.0	87.5	86.5	-0.33	3.3	1.2	87.2	-0.40	3.6	1.6	16	LG
8UU93V	86.0	86.1	84.3	86.7	85.8	-0.50	3.6	1.0	86.5	-0.62	4.1	1.5	16	LD
8UWPE9	95.8 L	91.0 L	90.5 L	90.6 L	91.9	0.85	1.5	2.6	91.8	0.91	1.4	1.6	16	TD
9JDLTV	94.7	94.4	92.7	92.1	93.5	1.19	3.8	1.3	89.9	0.35	3.6	4.2	16	LC
9WVHPJ	80.4	82.7	80.6	81.1	81.2	-1.51	4.3	1.0	82.3	-1.81	4.4	2.0	16	EM
9Y24DJ	95.2	91.0	101.6 *	98.6 *	96.6	1.88	4.7	4.5	95.1	1.83	3.9	3.0	12	LD
A7WFVX	95.8	93.2	95.1	88.2	93.1	1.10	4.5	3.4	89.6	0.27	5.1	10.0 H	16	LZ
ABT6DQ	82.0 H	87.8	91.2	93.3 H	88.6	0.11	7.3	4.9	90.9	0.65	7.0	4.5	15	LC
AHAFRR	77.1 H	77.9 *H	77.9 *	77.0 *	77.5	-2.33 *	7.3	0.5 L	84.4	-1.20	6.5	6.8	16	MB
CT4ERW	86.7	85.2	84.4	86.1	85.6	-0.54	3.3	1.0	88.2	-0.13	4.1	4.7	16	LD
CXWMRW	91.0	90.9	94.6	88.1	91.2	0.68	3.9	2.7	92.0	0.96	4.1	2.7	13	LD
DA4RGP	77.5 H	90.2	No Data	86.8	84.9	-0.71	6.4	6.6 H	86.3	-0.68	5.8	4.9	13	MB
DLZXBM	86.8	87.1	85.0	82.3	85.3	-0.61	4.3	2.2	85.7	-0.83	3.9	2.8	16	EM
E76XYD	88.1	85.3	86.7	85.2	86.3	-0.39	4.1	1.3	85.5	-0.90	3.8	2.4	16	LD
F8X62P	86.8	93.6	93.1	86.6	90.0	0.43	4.6	3.8	90.9	0.63	4.4	3.7	16	LD
FEPNWP	91.3	90.1	90.6	89.1	90.3	0.48	3.3	1.0	90.9	0.65	3.3	1.7	16	LZ
G3UXQC	91.3	91.8	90.7	90.7	91.1	0.67	3.2	0.5	91.5	0.80	3.2	0.5 L	16	LD
K7HFHK	96.9	97.6 *	96.0 H	95.4	96.5	1.86	4.8	1.0	95.2	1.87	4.5	2.2	12	TH
KAKGGW	88.5	88.4	88.7	88.4	88.5	0.10	2.6	0.2 L	89.3	0.18	4.4	0.5 L	16	LD
LUKY7P	69.7 XH	66.2 X	72.0 XH	96.4	76.1	-2.63 *	7.7	13.8 H	77.7	-3.10 X	7.9	8.1 H	16	LC
LZC7PX	92.1	93.3	92.0	90.9	92.1	0.88	4.5	1.0	89.6	0.28	5.9	10.5 H	16	LC
MJKTQV	97.6	96.2	98.9	96.7 *	97.3	2.04 *	4.2	1.2	95.5	1.96 *	5.7	3.1	12	LD
MQGNNU	82.8 L	82.9	82.9	82.8 L	82.8	-1.15	2.6	0.1 L	84.2	-1.27	2.3	0.9 L	16	TU
MQMQLE	86.2	83.0	82.0	83.6	83.7	-0.96	3.6	1.8	84.2	-1.27	4.0	3.0	16	LC
MU2DCD	83.9	88.9	85.4	86.1	86.1	-0.43	3.1	2.1	85.2	-0.97	3.2	1.9	16	LC
N4YXPP	90.7	88.3	85.9	80.2	86.3	-0.39	4.0	4.5	85.6	-0.88	5.2	4.3	16	LZ
NFXJ3F	92.4	90.1	91.0	91.7	91.3	0.71	3.4	1.0	91.1	0.70	3.6	1.4	16	LD
NHL6MQ	84.2	81.5	83.7	84.5	83.5	-1.00	3.7	1.3	85.9	-0.77	3.7	2.1	16	LD
NWLJ8U	88.2	91.1	89.1	87.9	89.1	0.22	4.7	1.5	88.0	-0.17	4.5	2.7	16	LD
PXB86F	No Data	91.1	No Data	86.5	88.8	0.16	3.6	3.2	86.0	-0.75	5.0	6.7	12	XX
PY773E	88.3	88.3	88.6	88.3	88.4	0.07	4.1	0.2 L	90.6	0.54	5.2	2.7	15	LC
Q67UC7	93.9	90.8	91.3	89.1	91.3	0.71	4.7	2.0	90.5	0.53	3.9	1.6	16	LD
Q6T3JP	90.1	90.1	89.4	90.8	90.1	0.45	4.8	0.6	90.8	0.60	4.5	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
QFP9CM	95.3 H	89.1 H	90.3	86.1 H	90.2	0.47	8.2	3.8	88.9	0.08	6.5	7.8 H	14	LC
QN474F	86.0	85.6	87.1	88.0	86.7	-0.30	3.6	1.1	86.2	-0.69	3.9	1.5	16	LD
RMN4W8	83.0	87.7	83.9	87.1	85.4	-0.58	3.9	2.3	87.2	-0.42	3.8	2.3	14	LC
T2JU8A	No Data	78.4 *	82.7	No Data	80.6	-1.65	3.3	3.0	80.6	-2.28 *	3.4	4.2	11	LD
UCG9Q8	90.5	90.1	90.0	89.6	90.1	0.44	3.3	0.4 L	92.3	1.03	4.1	1.9	16	LC
UFXGTD	90.7 L	90.6	91.6	90.9	90.9	0.63	1.8	0.5 L	91.8	0.89	2.3	0.9 L	16	LD
UGUVG6	94.6	94.1	94.1	93.1	94.0	1.30	4.5	0.6	96.6	2.24 *	4.5	4.1	16	LZ
VD6YBC	87.5	87.6	86.2	86.1	86.8	-0.27	2.8	0.8	86.8	-0.54	3.1	1.3	16	LD
VE2CY6	88.8 L	86.4	86.6	87.2	87.3	-0.18	3.4	1.1	86.3	-0.66	3.5	1.5	16	LD
VZHREB	79.8	83.4	82.7	81.0	81.7	-1.39	3.5	1.6	82.8	-1.66	3.9	1.6	16	EN
W4DPH9	91.6	88.8	94.2	91.9	91.6	0.78	4.8	2.2	90.5	0.53	4.6	2.5	16	LC
XN2N84	100.5 *	102.7 X	101.0 *	107.7 X	103.0	3.28 X	4.6	3.3	103.1	4.11 X	5.2	3.5	16	LX
Y3WCQG	86.1	87.3	90.2	90.3	88.5	0.09	3.4	2.1	89.5	0.24	3.0	1.7	16	TH
YQ27XH	71.9 *	65.4 X	65.6 X	64.6 X	66.9	-4.65 X	3.6	3.4	70.5	-5.16 X	3.8	5.4	16	MZ
Z7BAWH	80.9	82.6	82.9	85.7	83.0	-1.11	4.2	2.0	86.8	-0.52	4.2	2.8	16	LD
ZR89X8	87.3	89.7	90.0	89.0	89.0	0.20	4.4	1.2	89.5	0.25	3.7	1.2	16	TH
ZRE963	87.6	84.0	90.0	86.1	86.9	-0.25	3.3	2.6	87.5	-0.33	3.7	1.4	16	LD

Consensus (All Labs) Results

Wk Mean	88.14	88.37	89.01	88.20	Month Mean	88.06	Grand Mean	88.65
Avg SDr	4.41	4.20	3.85	4.41	Avg SD	4.32	Avg SD	4.31
SD btwn Labs	6.01	4.23	5.16	4.36	SD btwn Labs	4.55	SD btwn Labs	3.52
Labs Incld	49	48	47	48	SD btwn Wks	3.00	SD btwn Wks	3.69
Labs Excld	1	4	3	3	Labs Incld	49	Labs Incld	48
Labs not Rcvd	2	0	2	1				

Analysis Notes

CXWMRW - Data appears to be switched between Analysis 215 and Analysis 216 for Week 4. Data switched by CTS.

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
24ZZ6X	121.1 *	121.2 *H	117.9 *	117.5 X	119.5	-3.05 X	5.8	2.0	119.5	-3.69 X	5.8	2.0	4	LC
6RVT2A	141.1	143.6	143.1	142.6	142.6	0.50	5.2	1.1	141.2	0.15	5.3	2.2	12	LD
8FU8PU	140.0	139.1	139.7	140.6	139.9	0.08	3.9	0.6 L	138.6	-0.31	3.6	3.1	12	LY
8UU93V	139.4	138.1	139.6	135.1	138.0	-0.20	4.3	2.1	136.2	-0.73	4.4	2.5	12	LD
8UWPE9	140.3 L	138.8 L	142.9 L	139.9 L	140.5	0.17	1.3	1.7	140.6	0.05	2.2	1.2	12	TD
9JDLTV	145.0	144.8	144.2	143.5	144.4	0.77	5.1	0.7 L	136.9	-0.61	4.8	8.6	11	LC
9WVHPJ	126.5	127.3	126.0	129.5	127.3	-1.85	5.1	1.6	127.0	-2.35 *	5.2	3.4	12	EM
9Y24DJ	151.7	149.0 H	159.3 *	154.3 *	153.6	2.18 *	6.4	4.4	149.4	1.60	5.6	5.5	8	LD
A7WFVX	145.7	139.1	144.2	140.6	142.4	0.47	4.5	3.1	142.8	0.44	4.4	2.2	11	LZ
ABT6DQ	135.0	143.4	142.0	146.6	141.8	0.37	6.6	4.9	143.4	0.53	7.1	10.0 H	12	LC
AHAFRR	134.1	130.3 H	127.0 H	130.0 H	130.4	-1.38	10.9	2.9	140.2	-0.03	7.8	7.8	12	MB
CT4ERW	138.5 L	135.8	135.3	138.0	136.9	-0.37	4.5	1.6	138.7	-0.29	4.0	3.0	12	LD
CXWMRW	141.0 L	140.8	149.3	144.7	144.0	0.71	3.9	4.0	145.5	0.91	4.2	3.6	10	LD
DA4RGP	121.8*H	143.7	No Data	141.5	135.7	-0.56	11.3	12.0 H	138.1	-0.39	8.5	6.9	10	MB
DLZXBM	137.1	137.1	139.4	136.5	137.5	-0.28	4.5	1.3	140.4	0.01	4.8	4.1	12	EM
E76XYD	129.4	135.3	137.8	132.6	133.8	-0.86	4.8	3.6	135.1	-0.93	5.1	3.2	12	LD
F8X62P	144.7	145.3	143.7	145.5	144.8	0.83	5.4	0.8	143.8	0.62	5.5	2.4	12	LD
FEPNWP	139.1	140.4	139.3	138.3	139.3	-0.01	4.6	0.9	142.6	0.41	4.0	4.1	12	LZ
G3UXQC	142.6	142.7	143.3	143.6	143.0	0.57	2.8	0.5 L	143.5	0.56	3.1	0.5 L	12	LD
K7HFHK	150.7	150.0	148.7	149.5	149.7	1.59	5.6	0.8	151.7	2.00 *	5.2	2.5	8	TH
KAKGGW	139.5	139.4	139.8	139.4	139.5	0.03	7.7	0.2 L	139.0	-0.24	6.1	1.8	12	LD
LUKY7P	142.3	105.6 X	130.7 H	150.9	132.4	-1.07	7.8	19.7 H	123.1	-3.04 X	13.6	17.3 H	8	LC
LZC7PX	149.4	146.3	145.6	148.2	147.4	1.23	4.4	1.7	146.8	1.14	7.1	14.5 H	12	LC
MJKTQV	152.8	152.2	151.4	149.6 L	151.5	1.87	5.0	1.4	153.0	2.24 *	5.3	2.4	8	LD
MQGNNU	129.2	126.9 L	128.5	129.7 L	128.6	-1.66	2.9	1.2	129.7	-1.88	3.8	2.0	12	TU
MQMQLE	134.4	133.6	129.8	135.1	133.2	-0.94	3.8	2.4	134.6	-1.02	3.7	4.1	12	LC
MU2DCD	137.8	137.6	136.0	138.0	137.3	-0.31	4.5	0.9	137.1	-0.57	4.1	1.3	12	LC
N4YXPP	139.5	136.2	137.8	116.9 XH	132.6	-1.03	7.2	10.5 H	136.1	-0.76	8.7	7.5	12	LZ
NFXJ3F	142.4	147.3	141.7	144.2	143.9	0.69	5.6	2.5	143.5	0.56	4.9	1.8	12	LD
NHL6MQ	126.7	128.7	132.0	131.7	129.8	-1.47	3.8	2.5	132.8	-1.33	4.0	2.8	12	LD
NWLJ8U	146.5	145.3	143.1	144.6	144.9	0.85	6.3	1.4	146.9	1.15	6.1	3.7	12	LD
PXB86F	No Data	140.3	No Data	139.1	139.7	0.06	4.9	0.8	140.6	0.04	6.3	4.2	10	XX
PY773E	147.2	149.4	147.7	142.4	146.7	1.12	5.9	3.0	144.9	0.80	5.4	4.1	12	LC
Q67UC7	144.5	145.1	141.0	144.4	143.8	0.68	5.4	1.9	142.3	0.34	5.3	1.9	12	LD
Q6T3JP	145.7	143.8	143.0	144.2	144.2	0.74	5.5	1.1	143.3	0.53	4.9	2.4	12	LD

Containerboard Interlaboratory Testing Program

Analysis 216

Ring Crush, 56 lb Linerboard - 56A2

TAPPI Official Test Method T822

WebCode	Weekly Means Week 1	Week 2	Week 3	Week 4	Monthly Results Mean	CPV	SD	SD Wks	Cumulative Results Mean	CPV	SD	SD Wks	Wks	Inst
QFP9CM	134.2 H	148.2	141.3	136.7 H	140.1	0.12	10.0	6.2	141.2	0.15	8.4	3.9	10	LC
QN474F	138.7	136.2	136.2	138.7	137.5	-0.29	3.7	1.4	136.4	-0.69	4.0	2.2	12	LD
RMN4W8	136.5	134.2	135.0	138.7	136.1	-0.50	5.1	2.0	137.5	-0.50	4.8	2.5	12	LC
T2JU8A	No Data	122.0 *	122.5 *	No Data	122.3	-2.62 *	5.8	0.4	129.7	-1.89	4.3	6.1	8	LD
UCG9Q8	143.9	142.7	143.4	141.3	142.8	0.53	3.5	1.1	144.4	0.72	4.4	3.9	12	LC
UFXGTD	143.5	144.0	143.3	143.1 L	143.5	0.63	2.8	0.4 L	143.0	0.48	2.8	1.2	12	LD
UGUVG6	150.5	141.7	148.8	No Data	147.0	1.17	5.5	4.7	150.1	1.73	5.3	4.1	11	LZ
VD6YBC	136.0	136.0	139.5	138.7	137.6	-0.27	3.9	1.8	138.4	-0.34	3.9	2.0	12	LD
VE2CY6	135.0	136.5	134.1	133.0 L	134.7	-0.72	2.7	1.5	135.5	-0.86	3.4	1.4	12	LD
VZHREB	128.1	128.5	128.7	125.1 *	127.6	-1.80	4.5	1.7	129.1	-1.98 *	4.4	2.0	12	EN
W4DPH9	144.7	146.4	147.3	146.8 L	146.3	1.07	4.0	1.1	146.4	1.08	4.0	1.4	12	LC
XN2N84	161.5 X	164.2 X	160.5 *	164.4 X	162.6	3.58 X	5.3	1.9	161.4	3.72 X	6.0	2.7	12	LY
Y3WCQG	143.4	141.8	136.0	138.5	139.9	0.09	4.7	3.3	141.7	0.23	4.0	2.5	12	TH
YQ27XH	111.2 X	102.0 X	101.8 X	103.4 X	104.6	-5.34 X	5.7	4.4	113.7	-4.72 X	5.8	7.9	12	MZ
Z7BAWH	133.9	136.7	136.2	133.3	135.0	-0.66	4.9	1.7	138.2	-0.37	4.9	3.1	12	LD
ZR89X8	138.8	141.6	138.5	136.3	138.8	-0.08	4.2	2.2	139.3	-0.18	4.1	1.4	12	TH
ZRE963	138.4	135.8	140.2	138.4	138.2	-0.17	4.4	1.8	139.0	-0.24	3.9	1.9	12	LD

Consensus (All Labs) Results

Wk Mean	139.34	139.39	139.63	140.06	Month Mean	139.35	Grand Mean	140.33
Avg SDr	5.76	5.17	5.15	5.45	Avg SD	5.47	Avg SD	5.14
SD btwn Labs	7.37	7.04	8.24	6.16	SD btwn Labs	6.51	SD btwn Labs	5.66
Labs Incld	48	49	49	46	SD btwn Wks	4.27	SD btwn Wks	4.39
Labs Excld	2	3	1	4	Labs Incld	49	Labs Incld	48
Labs not Rcvd	2	0	2	2				

Analysis Notes

CXWMRW - Data appears to be switched between Analysis 215 and Analysis 216 for Week 4. Data switched by CTS.

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
24ZZ6X	21.8	22.2	21.4	21.0	21.6	-0.90	1.6	0.5	22.5	-0.07	1.6	1.3	12	LZ
27MNGX	23.2	23.3	22.8	22.2	22.9	0.51	2.0	0.5	22.6	0.03	1.9	0.8	16	LH
3HT2B4	23.8	22.1 L	21.7	21.2	22.2	-0.24	1.8	1.2	22.8	0.31	2.2	0.9	16	XX
6RVT2A	23.0 L	22.9	22.4	22.4	22.6	0.23	1.7	0.3	22.4	-0.24	1.8	0.3	16	LY
8B4UQR	22.9	23.0	24.0	23.4	23.3	0.96	2.1	0.5	23.2	0.79	2.0	0.9	16	LH
8FU8PU	21.5	21.9	21.9	21.5	21.7	-0.78	1.5	0.2	21.7	-1.16	1.7	0.3	16	LU
8UU93V	22.8	22.1	22.5	21.9	22.3	-0.13	1.6	0.4	22.2	-0.57	1.8	0.6	16	LA
9JDLTV	21.6	22.8	21.1	22.8	22.1	-0.36	1.7	0.8	22.3	-0.41	1.9	0.7	16	LA
9RYWUA	23.6 L	23.1	23.4	21.5 L	22.9	0.49	1.7	0.9	23.2	0.88	1.7	1.1	16	LA
9Y24DJ	22.0	24.2	25.0 *	25.9 X	24.3	1.96 *	1.9	1.6 H	23.6	1.30	1.6	1.0	12	LH
A7WFVX	22.2	21.7	21.9	21.9	21.9	-0.55	2.0	0.2	21.8	-1.04	2.0	0.4	16	LW
A8TUHQ	23.0	22.5	21.8	19.4 *	21.7	-0.83	2.1	1.6 H	23.5	1.19	2.1	3.2 H	15	LW
ABT6DQ	22.6	22.6	23.6	23.3	23.0	0.64	2.0	0.5	22.5	-0.15	2.1	1.5	15	LA
AHAFRR	22.9	22.3	22.5	24.3 H	23.0	0.58	2.5	0.9	22.8	0.27	2.0	0.7	16	BK
BFKJRY	23.0	24.1	23.2	24.2	23.6	1.29	2.0	0.6	24.1	2.04 *	2.0	0.7	16	XX
CD94XY	22.5	25.0 *	23.8	23.1	23.6	1.26	1.7	1.1	23.9	1.74	2.0	1.1	16	LU
CJV2BT	24.3	24.4 H	21.6	24.3 *H	23.7	1.33	2.6	1.4	23.6	1.40	2.6	1.4	8	LU
CT4ERW	22.8	24.3	22.3	21.4	22.7	0.29	1.9	1.2	22.6	-0.02	1.8	0.7	16	LA
CXWMRW	20.2	19.8 *	21.0 H	22.6 H	20.9	-1.65	2.5	1.2	22.0	-0.81	2.1	1.3	13	LZ
DA4RGP	21.9	22.5	No Data	22.2	22.2	-0.28	1.6	0.3	23.0	0.58	1.6	1.1	13	LA
E76XYD	23.4 H	22.6 H	23.9	21.4	22.8	0.42	2.6	1.1	22.8	0.31	2.0	1.1	16	LZ
ENLVMK	22.3 H	24.0	23.1 L	22.6	23.0	0.61	2.5	0.7	22.2	-0.54	1.9	0.9	16	LA
EWDFHK	21.7	22.2	21.5	23.4 L	22.2	-0.25	1.8	0.8	22.7	0.16	1.9	1.3	16	LA
F8X62P	23.2	24.3	23.6	23.3	23.6	1.26	2.3	0.5	23.6	1.35	2.1	0.6	16	LA
FFJCEL	23.6	22.6	23.5	23.0	23.2	0.81	1.8	0.5	23.0	0.61	1.8	0.5	16	LU
G3UXQC	22.6 L	22.6	22.4	22.5 L	22.5	0.09	1.2	0.1 L	22.6	-0.02	1.3	0.2 L	16	LA
HLYWBW	21.9	21.5	22.3	22.6	22.1	-0.38	1.7	0.5	22.7	0.11	1.8	0.6	16	LA
K7HFHK	19.9 *	22.1 H	21.6	20.8	21.1	-1.42	2.5	0.9	22.8	0.25	2.1	1.7	12	LH
LUKY7P	22.5	23.5	23.5	22.7	23.0	0.65	2.0	0.5	23.9	1.74	2.1	1.0	16	LU
MQMQLE	21.6	22.2	22.5	21.1	21.9	-0.63	1.5	0.6	22.0	-0.74	1.8	0.6	16	LA
N4YXPP	20.1 *	20.7	20.3 *	21.1 H	20.5	-2.04 *	2.1	0.4	21.0	-2.12 *	1.8	0.9	16	LA
NFXJ3F	23.0	21.5	23.0	22.6	22.5	0.09	1.8	0.7	22.6	-0.03	1.8	0.8	16	LY
NHL6MQ	21.0	20.4 *	21.6 L	22.3	21.3	-1.19	1.6	0.8	22.1	-0.67	1.7	0.7	16	LA
NWLJ8U	22.4	23.5	23.1	23.3	23.1	0.68	2.2	0.4	23.3	0.96	2.0	1.4	16	LA
PXB86F	No Data	22.7	No Data	21.4 H	22.1	-0.39	3.0	0.9	21.9	-0.90	1.8	0.7	12	XX

Containerboard Interlaboratory Testing Program

Analysis 223

STFI, 42 lb Linerboard - 42D3

TAPPI Official Test Method T826

Report #586 (H)
July 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
PY773E	24.0	23.8	23.8	23.5	23.8	1.45	2.1	0.2	23.6	1.29	1.9	0.4	15	LW
Q6T3JP	24.3	23.8 L	22.9	23.4	23.6	1.24	1.7	0.6	23.2	0.88	1.9	0.4	16	LA
QFP9CM	21.0 L	23.3 L	23.1	23.3 L	22.7	0.26	0.9	1.1	22.4	-0.28	3.0	1.0	15	LH
QN474F	21.0	20.8	21.2	20.5	20.9	-1.68	2.2	0.3	21.4	-1.56	1.9	0.5	16	LU
RMN4W8	21.6	22.1	22.7	22.4	22.2	-0.26	1.7	0.4	22.5	-0.16	2.0	0.6	14	LW
UCG9Q8	22.5 L	23.1	22.5	22.6	22.7	0.24	1.7	0.3	22.9	0.39	1.6	0.4	16	ID
UFXGTD	20.3	21.0	20.8	20.4	20.6	-1.95 *	1.8	0.3	20.8	-2.31 *	1.5	0.4	16	LY
UXDTJH	25.0 *	23.3	24.8 *	25.7 XH	24.7	2.44 *	2.7	1.0	23.4	1.04	2.4	1.7	8	LA
VE2CY6	22.0	22.2	22.1	21.9 L	22.1	-0.40	1.5	0.1	21.9	-0.95	1.5	0.5	16	BK
VZHREB	21.0 H	21.3	21.3	20.7	21.1	-1.47	2.2	0.3	21.2	-1.84	1.9	0.5	16	LY
W4DPH9	22.1	22.8	22.4	22.4	22.4	-0.02	2.0	0.3	22.4	-0.24	2.0	0.3	16	LU
WBDC8M	40.3 XH	No Data	No Data	No Data	40.3	19.21 X	4.0	0.0	25.1	3.33 X	2.2	4.6 H	13	LZ
X6668A	22.4 L	22.6	22.7 L	22.7 L	22.6	0.16	1.1	0.2	22.6	-0.01	1.1	0.2 L	16	TT
Z47UBX	21.4	20.6	21.2	20.7	21.0	-1.58	1.8	0.4	21.3	-1.70	1.8	0.5	16	LZ
Z7BAWH	22.6	22.6	21.3	22.3	22.2	-0.27	1.7	0.6	22.1	-0.62	1.9	0.7	16	LY
ZR89X8	22.0 L	22.4	22.6 L	22.0	22.2	-0.24	1.2	0.3	22.3	-0.39	1.1	0.3	16	TT
ZRE963	23.6	22.3	21.7	22.0	22.4	-0.06	1.9	0.8	22.5	-0.09	1.8	0.8	16	LA

Consensus (All Labs) Results

Wk Mean	22.35	22.57	22.46	22.22	Month Mean	22.43	Grand Mean	22.58
Avg SDr	1.85	1.98	1.88	2.01	Avg SD	1.96	Avg SD	1.91
SD btwn Labs	1.12	1.11	1.04	1.07	SD btwn Labs	0.93	SD btwn Labs	0.76
Labs Incld	50	51	49	49	SD btwn Wks	0.75	SD btwn Wks	0.97
Labs Excld	1	0	0	2	Labs Incld	51	Labs Incld	51
Labs not Rcvd	1	1	3	1				

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
24ZZ6X	34.7	32.9	32.9 L	32.3	33.2	-0.88	2.2	1.0	33.2	-1.04	2.2	1.0	4	XX
27MNGX	33.8	36.7	34.8	34.1	34.8	0.38	3.3	1.3	36.2	1.39	3.4	5.1 H	12	LH
3HT2B4	37.2 *	35.0	34.4	33.6	35.1	0.53	2.8	1.6	35.9	1.16	3.2	1.6	12	XX
6RVT2A	34.4 L	35.1 L	34.3 L	35.4	34.8	0.34	1.9	0.5	34.7	0.23	2.5	0.4	12	LU
8B4UQR	35.1	34.9	33.9	36.1	35.0	0.50	2.7	0.9	35.3	0.70	2.8	1.5	8	LH
8FU8PU	33.1	32.3	34.3	32.6	33.0	-0.98	2.4	0.9	33.4	-0.86	3.0	0.9	12	LU
8UU93V	34.5	36.4	34.2	33.5	34.6	0.22	2.8	1.2	34.2	-0.17	2.6	0.8	12	LA
9JDLTV	33.8	32.8	34.4	36.3	34.3	-0.01	3.0	1.5	34.4	-0.08	2.8	1.0	8	LA
9RYWUA	36.8 L	36.3	34.9	35.2 H	35.8	1.10	3.3	0.9	36.1	1.33	3.4	1.5	12	LA
9Y24DJ	35.3	37.7 *	37.7 *	38.2 *	37.2	2.18 *	2.7	1.3	36.0	1.23	2.4	1.6	8	LH
A7WFVX	34.0	33.2	34.4	31.5	33.3	-0.81	2.8	1.3	33.2	-1.00	2.9	1.2	11	LW
A8TUHQ	36.8	34.4	34.0 H	37.1	35.6	0.92	5.5	1.6	34.1	-0.32	3.9	2.2	12	LW
ABT6DQ	36.4	34.5	36.2 L	36.4 H	35.9	1.15	3.2	0.9	35.0	0.46	3.3	1.7	12	LA
AHAFRR	37.8 *H	35.3	36.6	35.3	36.2	1.41	3.4	1.2	35.7	0.98	2.7	1.4	12	BK
BFKJRY	34.9	36.5	36.0	35.3	35.7	1.00	2.8	0.7	35.7	1.00	3.0	2.4	8	LU
CD94XY	33.8	37.6	35.7	35.4	35.6	0.97	2.8	1.5	36.4	1.57	2.8	1.3	8	LU
CJV2BT	34.8	37.4	38.1 *	35.8	36.5	1.65	3.0	1.5	36.5	1.71	3.0	1.5	4	LU
CT4ERW	33.5	32.6	34.3 L	33.9	33.6	-0.58	2.7	0.7	34.0	-0.37	3.0	0.7	12	LA
CXWMRW	33.2	31.3	32.3	32.6	32.3	-1.52	2.8	0.8	33.8	-0.53	2.9	2.2	10	LZ
DA4RGP	32.1	35.3	No Data	34.8	34.1	-0.18	2.5	1.7	34.2	-0.22	2.6	1.2	10	LA
E76XYD	35.4	34.8	36.2	35.8	35.6	0.91	2.8	0.6	35.3	0.67	3.0	1.3	12	LZ
ENLVMK	33.8	35.0	36.4	36.5	35.4	0.81	2.7	1.3	40.7	5.07 X	3.4	7.5 H	12	XX
EWDFHK	35.0	34.8	33.3	34.6	34.4	0.06	2.9	0.8	34.9	0.38	2.7	1.4	12	LA
F8X62P	36.8	35.0	32.6	35.7	35.0	0.50	2.7	1.8	35.2	0.58	2.7	1.4	12	LA
FFJCEL	34.7	34.8	36.4	35.5	35.3	0.72	3.0	0.8	35.4	0.76	2.8	0.7	8	LU
G3UXQC	34.5	34.3	34.4	34.7	34.5	0.10	2.4	0.2 L	34.4	-0.03	2.4	0.2 L	12	LA
HLYWBW	32.5	33.7	33.2	34.5	33.5	-0.66	2.5	0.8	34.0	-0.40	2.6	1.0	12	LA
K7HFHK	32.3	31.4	32.1	33.6	32.4	-1.50	2.6	0.9	32.3	-1.76	2.6	1.2	8	LU
LUKY7P	34.9	37.1	35.1	36.1	35.8	1.10	2.5	1.0	36.3	1.54	2.9	1.2	8	LU
MQMQLE	35.2	33.6	33.0 L	32.2	33.5	-0.64	2.8	1.3	33.2	-1.02	2.9	1.1	12	LA
N4YXPP	33.0	31.5	32.0	30.4 *	31.7	-1.98 *	2.4	1.1	32.7	-1.39	2.8	1.9	12	LA
NFXJ3F	33.6	35.3	34.9	34.4	34.5	0.14	2.4	0.7	34.5	0.05	2.7	0.5	12	LY
NHL6MQ	32.8 L	33.6	33.7	34.8	33.7	-0.47	1.9	0.8	33.7	-0.61	2.2	1.1	12	LA
NWLJ8U	33.7	34.2	34.4	39.1 *	35.3	0.74	2.9	2.5 H	35.1	0.51	2.9	1.5	12	LU
PXB86F	No Data	34.6	No Data	34.2	34.4	0.04	3.2	0.3	34.7	0.18	2.4	0.9	10	XX

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

Report #586 (H)
July 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
PY773E	35.3	36.2	34.8	35.0	35.3	0.74	2.3	0.6	35.2	0.58	2.6	0.6	12	LW
Q6T3JP	34.0	35.0	35.3	35.0 H	34.8	0.36	2.9	0.6	34.6	0.14	3.1	0.5	12	LA
QFP9CM	33.4 H	34.4 H	34.7 H	33.2 H	33.9	-0.33	5.0	0.7	34.2	-0.20	4.4	1.0	12	LH
QN474F	32.0 H	31.6	33.5	32.0	32.3	-1.56	3.4	0.8	32.5	-1.62	3.2	0.8	12	LU
RMN4W8	34.9	34.8	33.6	34.4	34.4	0.04	3.3	0.6	34.9	0.39	3.2	1.1	12	LW
UCG9Q8	35.2	34.3	35.2	35.2	35.0	0.48	2.8	0.4	34.8	0.26	2.4	0.3 L	12	ID
UFXGTD	31.0 *	32.0	31.4 *	31.4	31.4	-2.18 *	2.2	0.4	31.6	-2.36 *	2.2	0.7	12	LY
UXDTJH	34.9 L	36.0	36.1	35.6	35.7	0.99	3.1	0.5	35.7	0.99	3.1	0.5	4	LA
VE2CY6	31.2 *	31.0 *	33.3	34.7 L	32.5	-1.35	2.6	1.8	32.6	-1.55	2.4	1.2	12	BK
VZHREB	30.9 *	32.5	32.3	29.8 *	31.4	-2.22 *	2.3	1.3	31.9	-2.08 *	2.5	0.9	12	LY
W4DPH9	34.0	33.6	34.7	34.5	34.2	-0.12	2.4	0.5	34.2	-0.24	2.6	0.7	12	LU
WBDC8M	27.2 X	No Data	No Data	No Data	27.2	-5.37 X	2.8	0.0	36.2	1.46	3.5	3.8 H	9	LZ
X6668A	33.9 L	33.8 L	33.4 L	33.3	33.6	-0.54	1.6	0.3	33.7	-0.62	1.3	0.2 L	12	TT
Z47UBX	32.7	33.2	32.2	33.5	32.9	-1.10	2.2	0.6	33.0	-1.18	2.5	0.5	12	LZ
Z7BAWH	34.6	33.6	34.4 L	35.2	34.5	0.09	2.2	0.7	34.2	-0.21	2.6	0.7	12	LZ
ZR89X8	33.0	33.1 L	33.4 L	33.8 L	33.4	-0.74	1.7	0.4	33.6	-0.72	1.4	0.3 L	12	TT
ZRE963	34.2 L	34.1	35.4	34.5	34.6	0.15	2.1	0.6	34.8	0.31	2.5	0.9	12	LW

Consensus (All Labs) Results

Wk Mean	34.19	34.34	34.38	34.48	Month Mean	34.35	Grand Mean	34.45
Avg SDr	2.59	2.75	3.07	2.89	Avg SD	2.83	Avg SD	2.82
SD btwn Labs	1.54	1.68	1.48	1.78	SD btwn Labs	1.33	SD btwn Labs	1.22
Labs Incld	50	51	49	51	SD btwn Wks	1.06	SD btwn Wks	1.47
Labs Excld	1	0	0	0	Labs Incld	51	Labs Incld	51
Labs not Rcvd	1	1	3	1				

Key to Instrument Codes Reported by Participants

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

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
9JDLTV	185.8	1.11	32.27	H	183.8	0.67	2.61	3	LA
A7WFVX	176.1	0.62	15.85		175.5	0.34	5.31	4	EV
ABT6DQ	166.0	0.11	7.89	L	152.6	-0.56	28.64 H	4	EV
AHAFRR	198.1	1.74	16.96		218.5	2.03 *	21.43	4	EV
CD94XY	156.9	-0.36	16.94		156.0	-0.42	3.63	4	EV
CXWMRW	141.5	-1.14	19.52		151.3	-0.61	7.01	4	LA
DA4RGP	194.3	1.54	24.53		191.2	0.96	6.27	4	LA
F8X62P	164.5	0.03	19.43		157.4	-0.37	7.02	4	LA
G3UXQC	166.1	0.11	20.44		165.7	-0.04	0.54 L	4	XX
HLYWBW	162.2	-0.09	18.34		174.6	0.31	10.28	4	LA
LUKY7P	136.0	-1.42	24.97		131.7	-1.38	6.84	4	EV
MJKTQV	157.3	-0.34	21.61		143.9	-0.90	12.84	3	EV
N4YXPP	145.8	-0.93	13.95		150.7	-0.63	16.67	4	LA
PXB86F	262.2	5.00 X	24.90		232.3	2.57 *	22.35	4	EV
QFP9CM	113.3	-2.58 *	11.05		114.5	-2.05 *	8.61	4	EV
QN474F	178.6	0.75	15.14		177.7	0.43	1.88 L	4	EV
QTRZUL	149.0	-0.76	13.00		153.6	-0.52	5.06	3	EV
RMN4W8	176.2	0.62	10.95		172.1	0.21	4.01	4	XX
UXDTJH	159.3	-0.24	7.99		156.1	-0.42	4.60	2	LA
VZHREB	169.7	0.29	17.85		175.5	0.34	4.63	4	EV
Z47UBX	155.1	-0.45	5.07	L	151.5	-0.60	15.20	4	EV
Z7BAWH	180.2	0.83	9.34		178.3	0.45	3.66	3	EV
ZRE963	174.8	0.55	23.08		170.8	0.16	13.17	3	LA

Consensus (All Labs) Results

Month Mean	163.95	Grand Mean	166.74
Avg SD	17.83	Avg SD Months	11.68
SD btwn Labs	19.65	SD btwn Labs	25.48
Labs Incld	22	Labs Incld	23

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
8UU93V	357.6	-0.80	7.72		358.5	-0.87	2.72	4	LA
9RYWUA	365.5	-0.30	14.07	H	365.6	-0.26	0.57 L	4	XX
CT4ERW	373.6	0.21	6.43		362.8	-0.50	9.33	4	LA
CZ4XUR	350.8	-1.23	8.63		354.0	-1.25	3.40	4	LA
E76XYD	375.9	0.35	8.97		377.4	0.75	5.78	4	XX
Q6T3JP	375.6	0.33	5.36		374.7	0.52	2.54	4	LA
UGUVG6	355.8	-0.91	7.45		360.2	-0.72	5.84	4	TS
W4DPH9	373.6	0.21	6.74		372.7	0.36	3.47	4	XX
XRF97C	404.4	2.15 *	6.82		391.6	1.97 *	18.17	2	TS

Consensus (All Labs) Results

Month Mean	370.32	Grand Mean	368.59
Avg SD	8.37	Avg SD Months	7.62
SD btwn Labs	15.88	SD btwn Labs	11.65
Labs Incld	9	Labs Incld	9

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 231

Internal Bond, 36 lb Linerboard - 36Z

TAPPI Official Test Method T569

	Monthly Results				Cumulative Results				
WebCode	Mean	CPV	SD		Mean	CPV	SD Months	Months	Inst
24ZZ6X	118.4	-1.80	5.16		131.8	-1.30	19.65	3	SC
3TRW9Y	149.4	-0.45	10.21		159.1	-0.12	12.33	4	TM
9JDLTV	192.6	1.44	6.88		210.5	2.09 *	15.58	3	SC
9RYWUA	152.4	-0.31	4.34		118.8	-1.86	25.09	4	SC
ABT6DQ	110.0	-2.16 *	15.81	H	153.8	-0.35	41.58 H	4	SC
CD94XY	145.5	-0.61	7.13		124.4	-1.61	14.33	4	TM
CT4ERW	176.6	0.74	2.35		178.0	0.69	2.14 L	4	SC
FFJCEL	168.2	0.38	8.70		163.7	0.07	5.07	4	TM
LUKY7P	148.8	-0.47	3.54		148.1	-0.60	5.92	4	TM
MJKTQV	187.2	1.20	8.98		176.5	0.63	15.46	3	HY
MQMQLE	152.0	-0.33	2.92		153.4	-0.37	4.40	4	TM
N4YXPP	152.8	-0.30	17.80	H	146.6	-0.66	11.70	4	TM
NHL6MQ	166.8	0.31	11.71		174.8	0.55	9.39	4	TM
NWLJ8U	164.2	0.20	11.28		151.4	-0.45	29.33	4	HZ
Q6T3JP	59.7	-4.36 X	0.56	L	63.9	-4.22 X	4.82	4	LZ
QN474F	151.8	-0.34	2.39		154.7	-0.31	6.23	4	TM
VD6YBC	182.3	0.99	2.53		177.1	0.65	5.25	4	SC
W4DPH9	192.9	1.45	4.45		188.2	1.13	6.42	4	HY
Z7BAWH	179.5	0.87	5.80		181.1	0.83	11.85	4	XX
ZRE963	141.0	-0.81	4.00		185.0	0.99	29.91	4	HY

Consensus (All Labs) Results

Month Mean	159.60	Grand Mean	161.93
Avg SD	8.41	Avg SD Months	17.62
SD btwn Labs	22.91	SD btwn Labs	23.25
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	159.16	23.00	0.44	16
Modified Scott Bond Mechanics	166.96	36.71	7.35	2

Analysis Notes

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

Q6T3JP - 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
27MNGX	25.6	-0.26	2.79		27.8	0.26	1.62	4
9JDLTV	31.6	1.46	4.39		30.5	1.24	1.21	3
9RYWUA	23.2	-0.94	1.64		26.6	-0.17	2.67	4
A7WFVX	26.6	0.03	2.79		26.0	-0.39	0.91	4
ABT6DQ	21.2	-1.51	1.30		23.2	-1.40	2.79	4
BFKJRY	32.0	1.57	5.62		29.1	0.76	2.68	4
CD94XY	25.1	-0.40	1.19		26.7	-0.12	2.90	4
E76XYD	27.8	0.37	3.33		31.5	1.61	2.80	4
EWDFHK	27.6	0.31	4.56		30.2	1.12	1.75	4
F6LCZW	33.3	1.94 *	1.68		30.2	1.15	3.30	4
G3UXQC	26.6	0.03	0.55 L		26.3	-0.28	0.30 L	4
HLYWBW	26.3	-0.07	5.70		28.8	0.64	1.75	4
LUKY7P	27.4	0.26	6.35 H		27.5	0.18	1.48	4
LZC7PX	27.0	0.14	2.24		27.7	0.23	1.49	4
N4YXPP	33.6	2.02 *	1.52		29.8	0.98	2.92	4
NHL6MQ	21.4	-1.45	1.77		21.8	-1.88	1.30	4
PY773E	28.4	0.54	3.21		28.4	0.48	1.65	4
Q6T3JP	26.0	-0.14	1.41		28.6	0.57	3.77	4
QN474F	24.7	-0.51	2.14		28.3	0.47	3.69	4
RMN4W8	28.0	0.43	2.74		25.1	-0.71	2.25	4
VZHREB	25.9	-0.18	2.84		27.8	0.26	1.33	4
W4DPH9	25.7	-0.22	1.59		24.9	-0.75	0.62	4
Z47UBX	24.2	-0.66	1.48		24.9	-0.77	1.01	4
Z7BAWH	19.7	-1.94 *	2.11		20.4	-2.40 *	1.82	4
ZRE963	23.6	-0.83	3.21		24.1	-1.07	1.17	4

Consensus (All Labs) Results

Month Mean	26.50	Grand Mean	27.03
Avg SD	3.11	Avg SD Months	2.18
SD btwn Labs	3.51	SD btwn Labs	2.77
Labs Incld	25	Labs Incld	25

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
3PDY2C	53.5	0.64	3.26		51.4	0.26	1.78	4	TL
9JDLTV	52.5	0.30	1.69		52.1	0.44	0.32 L	3	LA
A7WFVX	34.8	-5.84 X	4.40 H		35.5	-3.67 X	1.75	4	XX
ABT6DQ	44.8	-2.37 *	3.05		41.3	-2.23 *	6.36	4	LA
AHAFRR	51.0	-0.21	1.26		53.1	0.66	3.65	4	XX
AZQTW3	49.3	-0.81	4.38 H		50.2	-0.04	1.28	4	XX
BFKJRY	41.3	-3.58 X	1.22		41.7	-2.13 *	1.10	4	LA
CD94XY	46.1	-1.94 *	2.82		43.8	-1.63	1.72	4	LA
CT4ERW	55.4	1.30	1.04 L		55.5	1.27	0.59 L	4	LA
E76XYD	56.4	1.65	2.98		53.1	0.68	2.40	4	GA
F6LCZW	54.8	1.12	3.14		54.9	1.12	4.61	4	GA
F8X62P	51.9	0.09	2.69		51.4	0.25	1.16	4	LA
G3UXQC	52.8	0.42	2.39		53.2	0.69	1.54	4	LA
LUKY7P	53.7	0.71	2.83		53.7	0.81	0.01	2	LA
N4YXPP	51.7	0.01	1.33		51.7	0.33	0.66	4	LP
NHL6MQ	50.4	-0.42	1.37		51.5	0.27	0.98	4	LA
P3MHVN	48.4	-1.12	0.45 L		49.0	-0.33	0.44 L	4	LP
PXB86F	51.7	0.01	3.12		49.4	-0.24	1.67	4	LW
PY773E	48.5	-1.09	2.46		49.1	-0.32	0.69	4	LP
Q6T3JP	52.7	0.38	1.18		53.3	0.71	0.96	4	LA
T2JU8A	52.5	0.30	4.40 H		49.6	-0.20	3.42	4	GG
UFXGTD	48.8	-0.98	0.79 L		48.8	-0.38	0.29 L	4	LP
W4DPH9	53.3	0.60	2.65		52.2	0.46	0.79	4	TP
Z47UBX	50.9	-0.24	1.17		42.3	-1.98 *	15.58 H	4	LP
Z7BAWH	52.6	0.34	2.23		52.0	0.41	0.54 L	4	LP
ZRE963	55.4	1.31	2.91		54.8	1.09	0.57 L	4	LP

Consensus (All Labs) Results

Month Mean	51.63	Grand Mean	50.37
Avg SD	2.54	Avg SD Months	3.77
SD btwn Labs	2.88	SD btwn Labs	4.06
Labs Incld	24	Labs Incld	25

Key to Instrument Codes Reported by Participants

GA	Gurley Precision #4340 Automatic Densometer	GG	Gurley Precision #4320 Densometer
LA	L&W Autoline	LP	L&W Air Permeance Tester SE 166
LW	L&W Gurley Densometer, Oil Flotation	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
24ZZ6X	56.9	57.8	56.8	57.4	57.2	-1.35	3.7	0.5	57.3	-1.59	3.3	2.5	12	LC
6RVT2A	62.1	61.7	61.4	62.8	62.0	0.60	3.4	0.6	60.8	0.14	3.3	1.2	16	LD
8B4UQR	62.6	63.2	62.0	61.0	62.2	0.67	3.0	0.9	62.5	1.01	3.1	1.5	16	LD
8FU8PU	62.1	62.9	63.5	63.3	63.0	0.99	3.2	0.6	63.3	1.38	2.9	1.2	16	LZ
8UWPE9	65.2 L	66.0 L	64.5 L	62.0 L	64.4	1.59	0.8	1.7	63.1	1.32	0.9	2.1	16	TD
9LUXL6	60.8 L	60.6 L	60.8 L	60.8 L	60.8	0.09	1.3	0.1 L	60.5	0.02	1.4	0.2 L	16	LD
9Y24DJ	60.2	59.0	65.1	63.1	61.9	0.54	3.1	2.7	61.8	0.65	2.9	1.6	12	LD
AHAFRR	64.3	59.0	61.3	57.7	60.6	0.01	4.5	2.9	59.6	-0.45	4.4	4.1	16	MB
AZQTW3	60.0	58.8	59.4	60.5	59.7	-0.35	3.1	0.7	59.6	-0.42	3.0	1.0	16	LD
CD94XY	59.1	63.3	60.9	63.5	61.7	0.47	2.9	2.1	58.9	-0.78	3.2	2.2	16	XX
CN9QRG	60.6	60.7	61.0	61.1	60.9	0.13	2.6	0.2 L	60.4	-0.05	2.2	1.3	16	TH
CXWMRW	58.8	57.2	55.7	54.9 *	56.7	-1.59	4.2	1.7	56.3	-2.06 *	3.5	1.4	13	LD
DA4RGP	55.7	60.6	No Data	59.7	58.7	-0.76	3.8	2.6	59.6	-0.45	3.7	2.1	13	MB
E76XYD	58.7	58.2	58.5	61.3 L	59.1	-0.57	2.6	1.4	59.2	-0.65	2.8	1.3	16	LZ
ELEKKP	62.6	61.1	59.0	61.8	61.1	0.24	3.5	1.5	62.0	0.74	3.0	1.8	16	LC
ENLVMK	62.6 H	62.5 H	70.9 X	63.8 H	65.0	1.81	7.1	4.0 H	64.3	1.91	6.5	3.5	16	XX
EWDFHK	59.1	63.3	60.9	62.6	61.5	0.38	3.3	1.9	62.5	0.99	2.9	1.3	16	LD
FEPNWP	59.4	59.1	59.0	59.9	59.3	-0.49	2.4	0.4	59.7	-0.38	2.0	0.5 L	16	XX
FFJCEL	65.1	65.1	63.4	61.8	63.8	1.35	3.5	1.6	61.8	0.67	4.1	2.0	16	LC
G3UXQC	61.3	61.0	61.6	61.3	61.3	0.30	1.8	0.2 L	60.9	0.20	2.0	0.4 L	16	LD
HRMEQT	52.3 *	50.1 X	52.3 *	50.9 X	51.4	-3.73 X	3.2	1.1	48.8	-5.81 X	3.4	2.3	12	TC
K36TTM	60.9	60.0	59.5	61.0	60.4	-0.08	2.9	0.7	60.4	-0.04	3.3	0.6 L	16	LC
K7HFHK	56.5	56.0	55.4	57.1	56.3	-1.74	2.7	0.7	55.9	-2.28 *	2.4	1.5	12	TH
KAKGGW	60.5	60.4	60.6	60.5	60.5	-0.02	3.1	0.1 L	60.8	0.13	3.0	0.7 L	16	LD
KHB6CY	66.6 *	65.6	67.7 *	68.1 X	67.0	2.64 *	3.2	1.1	69.5	4.45 X	4.8	2.4	16	LC
LUKY7P	57.6	60.2	62.1	62.0	60.5	-0.03	3.4	2.1	59.2	-0.65	3.5	2.2	16	LC
MQGNNU	61.6	63.0 L	61.7	62.8	62.3	0.71	2.0	0.8	62.8	1.15	2.4	1.6	16	TU
MQMQLE	53.0 *	54.0 *	54.4	59.3 L	55.2	-2.19 *	2.5	2.8	56.8	-1.81	2.7	2.1	16	LC
NFXJ3F	60.1	60.9	60.6	62.5	61.0	0.20	2.6	1.0	62.5	1.00	2.9	1.8	16	LD
NWLJ8U	65.1 H	59.5	58.8 H	60.6 H	61.0	0.18	7.1	2.8	60.4	-0.03	6.7	3.2	16	LC
P3MHVN	59.9	63.6	60.9	63.4	61.9	0.57	3.0	1.8	61.4	0.46	2.9	1.2	16	LD
PXB86F	No Data	55.3	No Data	55.2 *	55.3	-2.15 *	3.6	0.1	52.9	-3.77 X	3.7	5.9 H	12	XX
PY773E	61.5	60.1	60.9	64.7	61.8	0.50	3.4	2.0	61.5	0.51	3.3	2.0	15	LC
Q6T3JP	51.7 *	52.5 *	54.1 *	52.4 X	52.7	-3.21 X	2.6	1.0	53.3	-3.58 X	2.7	1.9	16	LD
QN474F	58.5	59.6	59.5	58.7	59.1	-0.60	4.0	0.6	59.1	-0.68	3.5	1.8	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
TNXBXE	59.7	60.9	60.5	60.0	60.3	-0.11	2.9	0.5	60.3	-0.09	2.9	0.5 L	16	LD
UCG9Q8	63.4 L	61.5	64.5	63.0	63.1	1.05	3.2	1.2	62.1	0.82	2.8	1.7	16	LD
VZHREB	57.4	57.6	60.6	59.2	58.7	-0.76	2.7	1.5	58.2	-1.15	2.8	1.6	16	EN
W4DPH9	62.5	61.0	64.0	63.3	62.7	0.87	4.3	1.3	61.4	0.46	3.8	1.9	16	LC
X6668A	58.8	64.6	57.1	58.5	59.7	-0.33	4.6	3.3	60.1	-0.20	4.8	2.0	16	TG
XN2N84	56.7	54.8	61.7	59.8	58.2	-0.94	3.0	3.1	60.2	-0.15	3.2	2.5	16	LD
YL8FDT	59.9	60.5	62.1	60.9	60.8	0.12	2.5	0.9	59.9	-0.29	2.7	1.5	16	EM
YQ27XH	75.1 X	64.5 H	70.5 X	64.5	68.7	3.32 X	4.5	5.2 H	71.8	5.63 X	4.7	4.2	16	MB
Z47UBX	59.0	59.8	58.3	57.4	58.6	-0.78	3.1	1.0	58.3	-1.06	2.9	1.2	16	LZ
Z7BAWH	62.9	56.9	61.6	59.1	60.1	-0.17	3.2	2.6	59.5	-0.51	3.1	2.8	16	LZ
ZRE963	56.4	59.2	57.5	58.9	58.0	-1.03	2.9	1.3	64.9	2.20 *	2.9	9.9 H	12	LD

Consensus (All Labs) Results

Wk Mean	59.99	60.29	60.26	60.76	Month Mean	60.54	Grand Mean	60.48
Avg SDr	3.45	3.50	3.36	3.46	Avg SD	3.44	Avg SD	3.34
SD btwn Labs	3.30	3.03	3.10	2.35	SD btwn Labs	2.45	SD btwn Labs	2.02
Labs Incld	44	45	42	43	SD btwn Wks	1.75	SD btwn Wks	2.41
Labs Excld	1	1	2	3	Labs Incld	43	Labs Incld	41
Labs not Rcvd	1	0	2	0				

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
8FU8PU	70.9	72.6 L	73.2	74.9	72.9	0.04	2.3	1.7	73.6	-0.01	2.3	1.4	16	LZ
8UWPE9	73.2 L	71.2 L	68.6 L	69.3	70.6	-0.58	1.1	2.1	72.6	-0.51	1.2	2.3	16	TD
9LUXL6	73.5 L	73.6 L	73.6 L	73.4 L	73.5	0.21	1.2	0.1 L	73.9	0.16	1.2	0.4 L	16	LD
AZQTW3	72.7	73.1	72.7	71.7	72.6	-0.04	3.8	0.6	72.1	-0.79	2.6	0.9	16	XX
G3UXQC	73.8	73.3	73.3	73.8	73.6	0.22	2.2	0.3	73.7	0.05	2.3	0.3 L	16	LD
K36TTM	72.4	73.1	73.8	73.5	73.2	0.13	3.2	0.6	73.6	0.01	2.7	0.5 L	16	LD
LUKY7P	66.8 H	66.8 H	65.2 *H	62.4 *H	65.3	-1.98 *	7.7	2.1	65.3	-4.29 X	7.1	1.6	16	XX
P3MHVN	76.1	73.9	77.0	74.0	75.2	0.67	2.3	1.6	74.8	0.61	2.6	1.2	16	LD
PY773E	74.5	74.8	75.2	77.4	75.5	0.73	3.4	1.3	74.6	0.54	4.3	1.3	15	XX
Q6T3JP	76.5	76.1	76.3	75.6	76.1	0.90	2.9	0.4	76.3	1.40	2.5	1.0	16	LD
UCG9Q8	70.4	71.0	71.5	70.6	70.9	-0.50	2.3	0.5	70.7	-1.51	2.0	1.1	16	LD
VE2CY6	71.0	71.8	72.3	70.0	71.3	-0.39	2.4	1.0	71.9	-0.89	2.4	1.4	16	XX
W4DPH9	76.2	77.9	76.6	78.4	77.3	1.21	2.4	1.0	77.7	2.13 *	2.5	0.9	16	LC
YQ27XH	64.9 *	64.2 *	65.3 *	64.1	64.6	-2.17 *	2.6	0.6	63.2	-5.41 X	2.5	5.2	16	MB
Z47UBX	72.5	73.1	73.3	73.0	72.9	0.06	2.7	0.3	73.9	0.17	2.6	1.7	16	LZ
ZRE963	78.8	77.4	78.7	78.5	78.4	1.50	1.9	0.6	71.0	-1.35	2.6	10.2 H	12	LD

Consensus (All Labs) Results

Wk Mean	72.76	72.75	72.89	72.52	Month Mean	72.73	Grand Mean	73.61
Avg SDr	3.07	3.53	2.90	2.95	Avg SD	3.12	Avg SD	2.52
SD btwn Labs	3.54	3.49	3.84	4.54	SD btwn Labs	3.75	SD btwn Labs	1.93
Labs Incld	16	16	16	16	SD btwn Wks	1.11	SD btwn Wks	2.97
Labs Excld	0	0	0	0	Labs Incld	16	Labs Incld	14
Labs not Rcvd	0	0	0	0				

Key to Instrument Codes Reported by Participants

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

Containerboard Interlaboratory Testing Program

Analysis 255

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

TAPPI Official Test Method T822

	Weekly Means				Monthly Results				Cumulative Results					
WebCode	Week 1	Week 2	Week 3	Week 4	Mean	CPV	SD	SD Wks	Mean	CPV	SD	SD Wks	Wks	Inst
4NZRD9	40.7 H	41.9	42.7 H	42.4	41.9	-0.84	4.4	0.9	43.1	-0.40	5.1	1.4	12	TX
8B4UQR	46.3	47.5	47.7	47.0	47.1	1.32	2.7	0.6	46.4	0.83	2.8	1.2	16	LD
9Y24DJ	48.2	46.9	47.7	48.4 *	47.8	1.59	2.0	0.7	46.8	0.99	1.8	1.2	12	LD
ACHHUN	38.6	39.7	39.0 *	40.0	39.3	-1.93 *	2.9	0.6	39.1	-1.94 *	2.5	1.6	16	LZ
AZQTW3	39.5	41.3	41.2	40.5	40.6	-1.38	3.5	0.8	40.9	-1.24	3.4	1.0	16	LD
CN9QRG	41.0	41.4	42.1 L	41.2	41.4	-1.06	1.8	0.5	40.9	-1.26	1.8	1.1	16	TH
CXWMRW	46.6	43.4	43.2	46.0	44.8	0.35	2.5	1.7	44.9	0.28	3.1	1.3	13	LD
E76XYD	41.5	39.9	43.0	41.8	41.5	-1.01	2.1	1.3	41.7	-0.94	2.5	1.6	16	LD
ELEKKP	44.8	49.1 *	47.7	41.2	45.7	0.72	2.1	3.5 H	46.8	0.99	2.5	2.3	16	LC
G3UXQC	44.0	43.6	44.1	43.4	43.8	-0.07	2.5	0.3	43.8	-0.14	2.5	0.3 L	16	LD
HRMEQT	41.0 H	41.1 H	41.6 H	43.9 H	41.9	-0.86	6.3	1.4	40.6	-1.36	5.9	1.6	12	TC
KAKGGW	43.8	43.2	43.8	43.3	43.5	-0.18	3.1	0.3	44.7	0.19	2.9	1.2	16	LD
KHB6CY	34.7 *	32.3 X	32.9 X	32.4 X	33.1	-4.54 X	2.2	1.1	31.8	-4.71 X	2.4	1.9	16	XX
MQGNNU	41.4	41.3	40.3	41.6	41.1	-1.17	1.8	0.6	40.7	-1.32	2.2	0.7	16	TU
NWLJ8U	45.5	44.7	44.8	46.6	45.4	0.60	2.6	0.9	44.8	0.22	2.9	2.2	16	LD
P3MHVN	46.2 L	45.6	44.9	45.1	45.4	0.62	1.6	0.6	45.5	0.50	2.3	0.9	16	LD
PXB86F	No Data	42.9	No Data	41.3	42.1	-0.77	3.2	1.2	44.0	-0.05	3.0	5.3 H	12	XX
Q6T3JP	46.1	45.8	45.7	45.6	45.8	0.76	2.9	0.2	47.2	1.14	2.8	1.5	16	LD
RVDYMA	45.7	45.8 L	45.5 L	45.7 L	45.7	0.72	1.2	0.2 L	46.0	0.69	1.3	0.4 L	16	WK
W4DPH9	46.6	46.1	46.8	45.9	46.4	1.01	3.2	0.4	45.5	0.49	3.1	1.1	16	LC
XN2N84	48.5	47.2	47.4	44.6	46.9	1.24	3.1	1.7	49.5	2.03 *	3.1	2.3	16	LZ
Y3WCQG	44.1	42.6	42.6	43.7	43.2	-0.30	2.3	0.8	43.7	-0.17	2.1	1.1	16	TH
YL8FDT	45.2	45.6 L	45.9 L	45.1	45.4	0.62	1.1	0.4	45.4	0.46	1.5	0.5	16	LC
YQ27XH	35.5 *	30.0 X	27.6 X	32.3 X	31.3	-5.25 X	2.8	3.4 H	32.0	-4.63 X	2.8	3.3	16	MB

Consensus (All Labs) Results

Wk Mean	43.28	43.94	44.17	43.82	Month Mean	43.95	Grand Mean	44.18
Avg SDr	2.68	2.70	3.08	3.00	Avg SD	2.89	Avg SD	2.95
SD btwn Labs	3.76	2.65	2.55	2.35	SD btwn Labs	2.40	SD btwn Labs	2.63
Labs Incld	23	22	21	22	SD btwn Wks	1.14	SD btwn Wks	1.75
Labs Excld	0	2	2	2	Labs Incld	22	Labs Incld	22
Labs not Rcvd	1	0	1	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
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 #586 (H)
July 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
4NZRD9	13.2 X	13.8 L	13.5 *	13.6 *	13.5	-2.47 *	0.8	0.3	13.7	-2.11 *	1.0	0.3	12	TT
8UU93V	15.0	14.8	14.9	14.3	14.7	0.27	0.8	0.3	14.7	0.19	0.9	0.3	16	LA
9LUXL6	14.4 L	14.5 L	14.6	14.6 L	14.5	-0.24	0.5	0.1	14.5	-0.13	1.7	0.1 L	16	LA
9Y24DJ	15.2	15.8	16.7 X	17.1 X	16.2	3.67 X	1.0	0.9 H	15.5	2.30 *	0.9	0.7	12	LH
AHAFRR	14.8	14.5 H	14.9	15.2	14.9	0.61	1.1	0.3	14.2	-0.96	1.0	0.6	16	BK
CXWMRW	14.0 *	13.0 X	14.3	14.7	14.0	-1.41	1.0	0.7 H	14.2	-0.87	1.0	0.6	13	LZ
DA4RGP	14.8	14.3	No Data	14.1	14.4	-0.45	1.0	0.4	14.3	-0.71	0.9	0.8	13	LA
E76XYD	14.8	15.4	14.6	15.2	15.0	0.90	0.9	0.4	14.8	0.57	1.0	0.4	16	LZ
ENLVMK	14.6	15.4	15.0	15.4 H	15.1	1.11	1.2	0.4	14.8	0.63	1.1	0.4	16	LA
EWDFHK	14.4	14.8	15.1	15.3	14.9	0.63	1.0	0.4	14.8	0.44	0.9	0.3	16	LA
FFJCEL	15.2	15.1	15.1	15.3	15.2	1.26	1.1	0.1	15.1	1.19	1.1	0.3	16	LU
G3UXQC	14.6	14.5	14.8	14.6	14.6	0.05	0.7	0.1	14.7	0.26	0.8	0.1	16	LB
HRMEQT	14.9	14.9	14.8	15.1	14.9	0.74	1.0	0.1	14.6	0.11	1.1	0.4	12	TS
K36TTM	14.6	14.4	13.9	15.0	14.5	-0.33	0.9	0.4	14.6	0.03	0.9	0.4	16	LB
K7HFHK	14.9	15.0	14.7 H	15.1	14.9	0.75	1.2	0.2	15.3	1.75	1.2	0.9	12	LH
P3MHVN	14.6	14.5	14.3	14.3	14.4	-0.42	0.9	0.1	14.3	-0.60	0.9	0.3	16	LZ
PXB86F	No Data	15.0	No Data	14.8	14.9	0.68	1.2	0.2	14.3	-0.66	1.0	0.6	12	XX
Q6T3JP	14.7	15.5	15.0	14.4	14.9	0.72	0.8	0.5	15.0	1.16	1.0	0.4	16	LA
QN474F	13.5 X	13.7 *	13.9	13.6 *	13.7	-2.13 *	1.1	0.2	14.1	-1.28	1.1	0.3	16	LU
TNXBXE	14.7	15.1	14.1	14.4	14.6	-0.07	1.0	0.4	14.7	0.18	0.9	0.4	16	LB
W4DPH9	15.2	14.7	14.2	14.9	14.7	0.30	1.0	0.4	14.6	0.15	1.0	0.3	16	LU
YL8FDT	14.3	14.9	14.4	14.7	14.6	-0.06	1.0	0.3	14.2	-0.98	1.0	0.4	16	LB
Z7BAWH	14.1	13.7 *	14.3	14.2	14.1	-1.24	0.9	0.3	14.2	-0.86	0.9	0.3	16	LB
ZR89X8	15.1	14.7	15.3	14.8	15.0	0.81	0.8	0.3	14.7	0.19	0.7	0.3	16	TT

Consensus (All Labs) Results

Wk Mean	14.72	14.73	14.55	14.67	Month Mean	14.61	Grand Mean	14.58
Avg SDr	0.91	0.96	0.92	1.01	Avg SD	0.96	Avg SD	1.01
SD btwn Labs	0.34	0.55	0.47	0.51	SD btwn Labs	0.44	SD btwn Labs	0.41
Labs Incld	21	23	21	23	SD btwn Wks	0.33	SD btwn Wks	0.45
Labs Excld	2	1	1	1	Labs Incld	23	Labs Incld	24
Labs not Rcvd	1	0	2	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)
TS	TMI Monitor/STFI Compression Tester, 17-33	TT	TMI Short Span Compression, 17-34 (MB K455)
XX	Instrument make/model not specified by lab		

End of Report